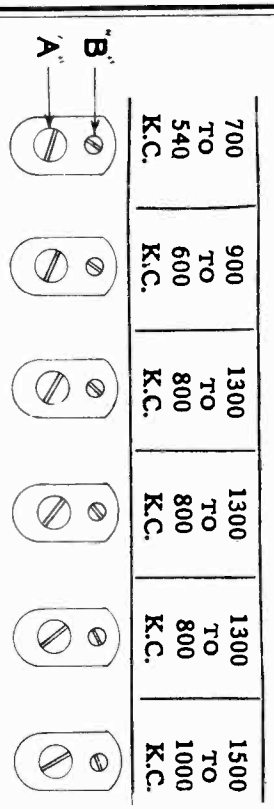
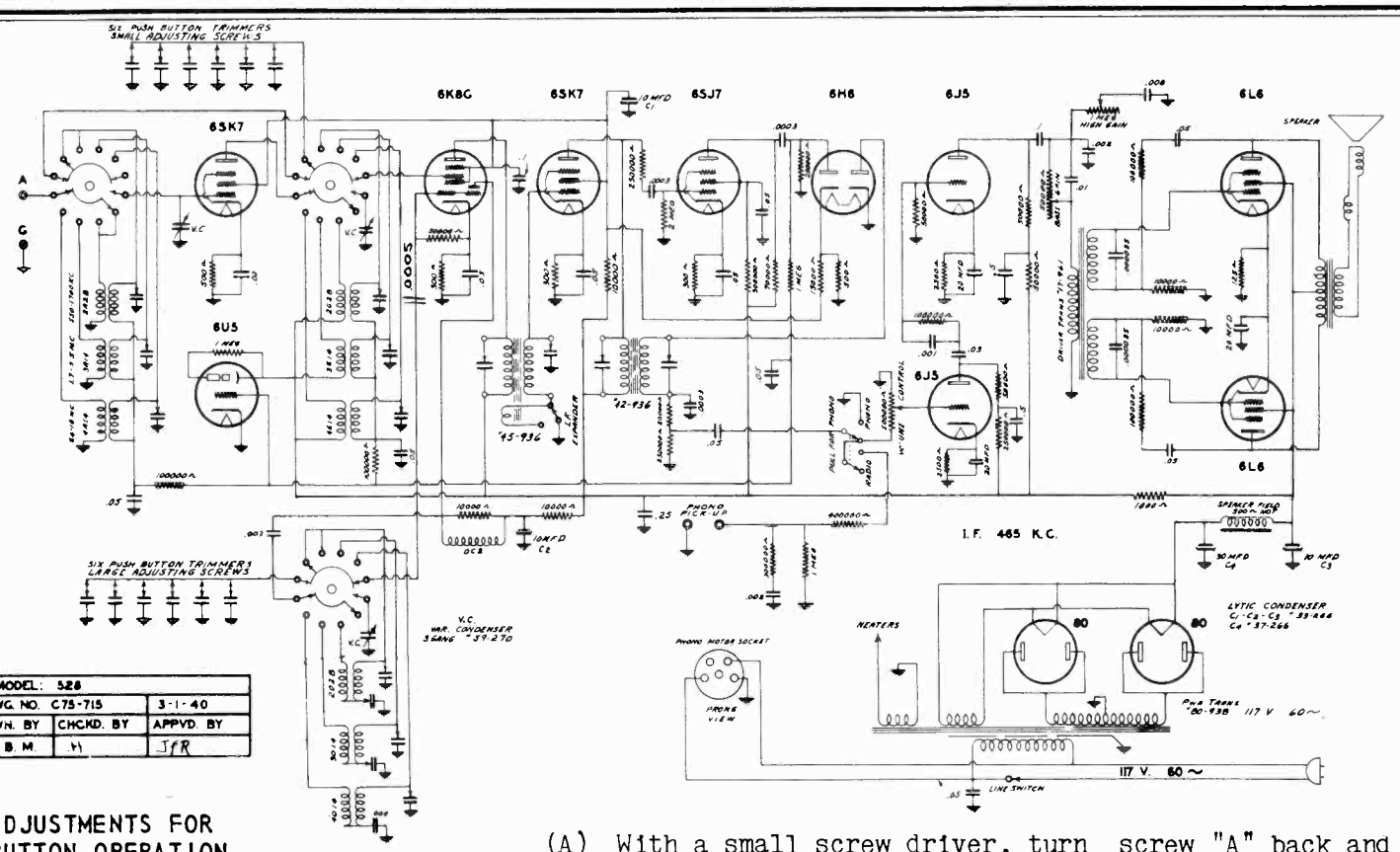
BARKER BROS.

MODEL Tempo Tone
Schematic, Tuner





PRE-ADJUSTMENTS FOR PUSH BUTTON OPERATION

(1) Leave set turned on at least twenty minutes allowing receiver circuits to reach their normal operating condition before starting push button adjustment.

(2) Remove screws holding escutcheon plate for push buttons.

(3) Note the ranges shown on label above adjusting screws. For example: 700 to 540 KC means you should adjust this set of screws for any station having a frequency between 700 and 540 KC. This rule applies for the other five ranges. There is, of course, some overlapping of range coverage.

(4) Select a station by manual tuning in the regular way. Assuming it is within the 700 to 540 KC range, turn Band Switch to "Push Button" position and push in on button covering the range.

As will be noted, the adjustments consist of two screws, one with a large head (A) and one with a small head (B).

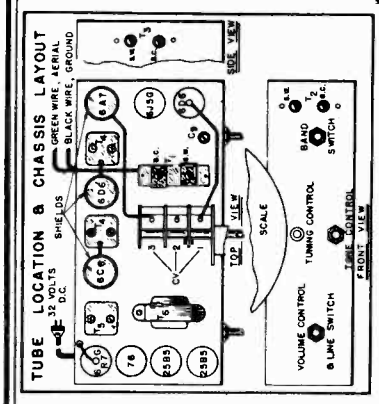
(A) With a small screw driver, turn screw "A" back and forth until you locate the station. It is suggested that you switch back to manual tuning if necessary to recognize the particular type program to help you find it when you again turn the adjusting screw.

(B) After the "A" Screw has been set to exact resonance by watching the tuning eye deflection, turn the small screw "B" for the maximum deflection of the tuning eye. Now recheck screw "B". When all six buttons have been set, repeat the "trimming" process for accuracy.

IT WILL BE OF IMPORTANCE TO NOTE THAT IF THE STATION CANNOT AT FIRST BE LOCATED BY MOVING SCREW "A" IN AND OUT, PERHAPS YOU WILL FIND ADJUSTMENT "B" TOO FAR IN OR TOO FAR OUT. In such a case, check its position by turning it in all the way (to the right) then reverse it about a turn or two and try screw "B" again.

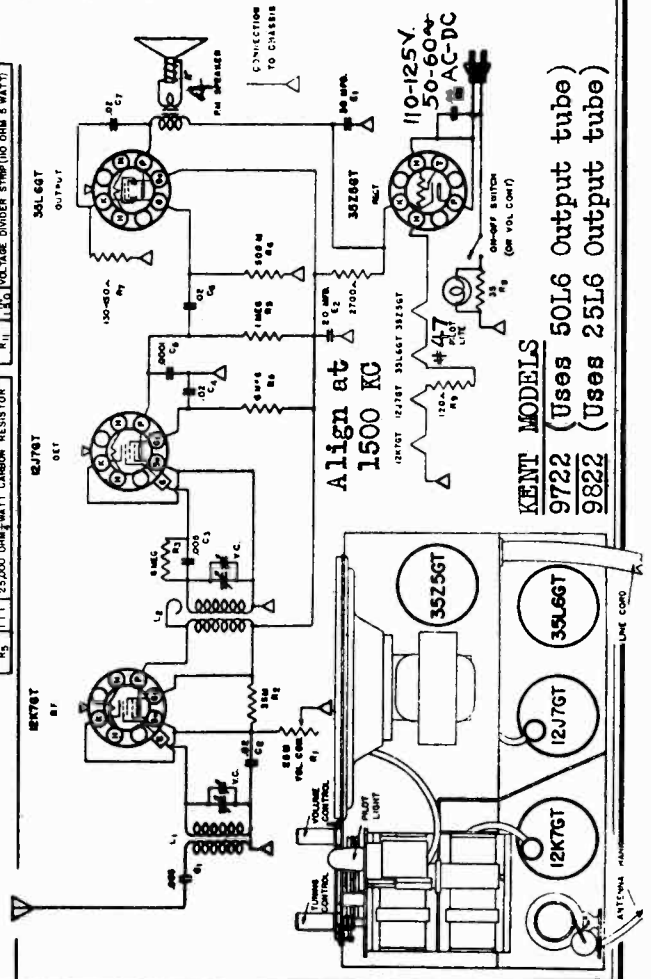
MODEL BC
MODEL 289
MODELS 9722,9822
Schematics,Socket
Alignment,Trimmers

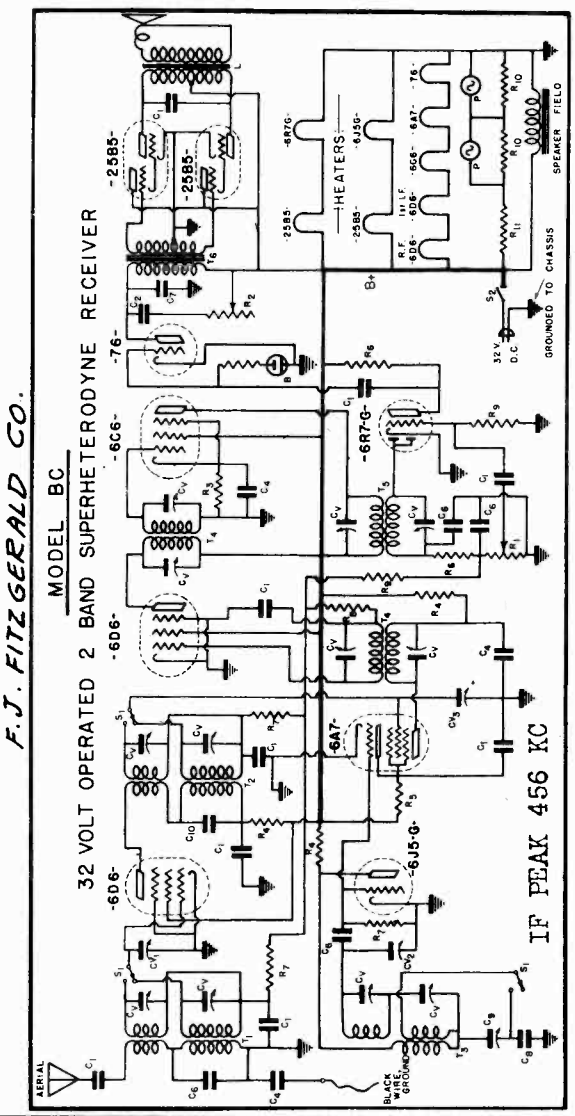
F. J. FITZGERALD CO.
HAMILTON RADIO CO.
KENT

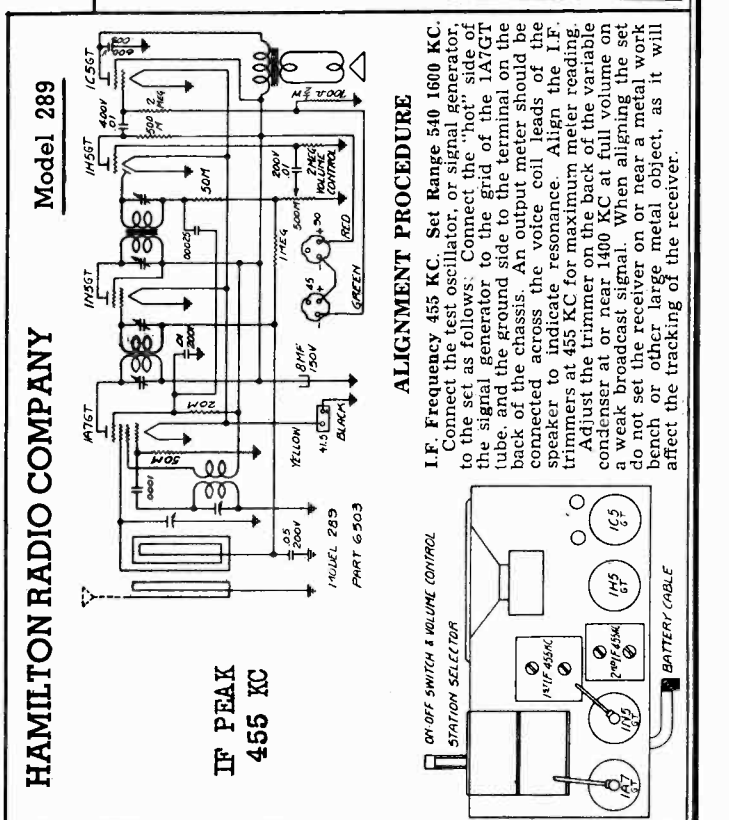


LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD. 400 V. TUBULAR CONDENSER
C_2	216	.02 MFD. 400 V. TUBULAR CONDENSER
C_3	212	.05 MFD. 200 V. TUBULAR CONDENSER
C_4	203	.1 MFD. 200 V. TUBULAR CONDENSER
C_5	204	.25 MFD. 200 V. TUBULAR CONDENSER
C_6	400	100 MMFD. MICA CONDENSER
C_7	401	230 MMFD. MICA CONDENSER
C_8	408	4600 MMFD. MICA CONDENSER
C_9	507	5 PLATE PADDING CONDENSER
C_{10}	402	50 MMFD. MICA CONDENSER
$CV_{1,2,3}$	636	3 GANG VARIABLE CONDENSER
C_V	500	5-30 MMFD. TRIMMER CONDENSER
R_1	2025	500,000 OHM VOLUME CONTROL
R_2	2024	TONE CONTROL (7500 OHMS)
R_3	103	250 OHM ½ WATT CARBON RESISTOR
R_4	134	2000 OHM ½ WATT CARBON RESISTOR
R_5	111	25,000 OHM ½ WATT CARBON RESISTOR

LEGEND	OUR PART NO.	DESCRIPTION
T_1	1226	ANTENNA COIL
T_2	1322	INTERSTAGE COIL
T_3	1417	OSCILLATOR COIL
T_4	1515	1st I.F. TRANSFORMER
T_5	1507	2nd I.F. TRANSFORMER
T_6	1021	PUSH PULL A.F. TRANSFORMER
S_1	1924	BAND SELECTOR SWITCH
S_2	2028	ON-OFF SWITCH ON VOLUME CONTROL
P	2901	MAZDA #40 PILOT LIGHT
B	3000	BIAS BUTTON
L	1N 856	SPEAKER TRANSFORMER
R_6	113	50,000 OHM ½ WATT CARBON RESISTOR
R_7	116	100,000 OHM ½ WATT CARBON RESISTOR
R_8	117	1 MEGOHM ½ WATT CARBON RESISTOR
R_9	118	1 MEGOHM ½ WATT CARBON RESISTOR
R_{10}	1N 1354	VOLTAGE DIVIDER STRIP (110 OHM 2 WATT)
R_{11}	1N 1351	VOLTAGE DIVIDER STRIP (110 OHM 5 WATT)

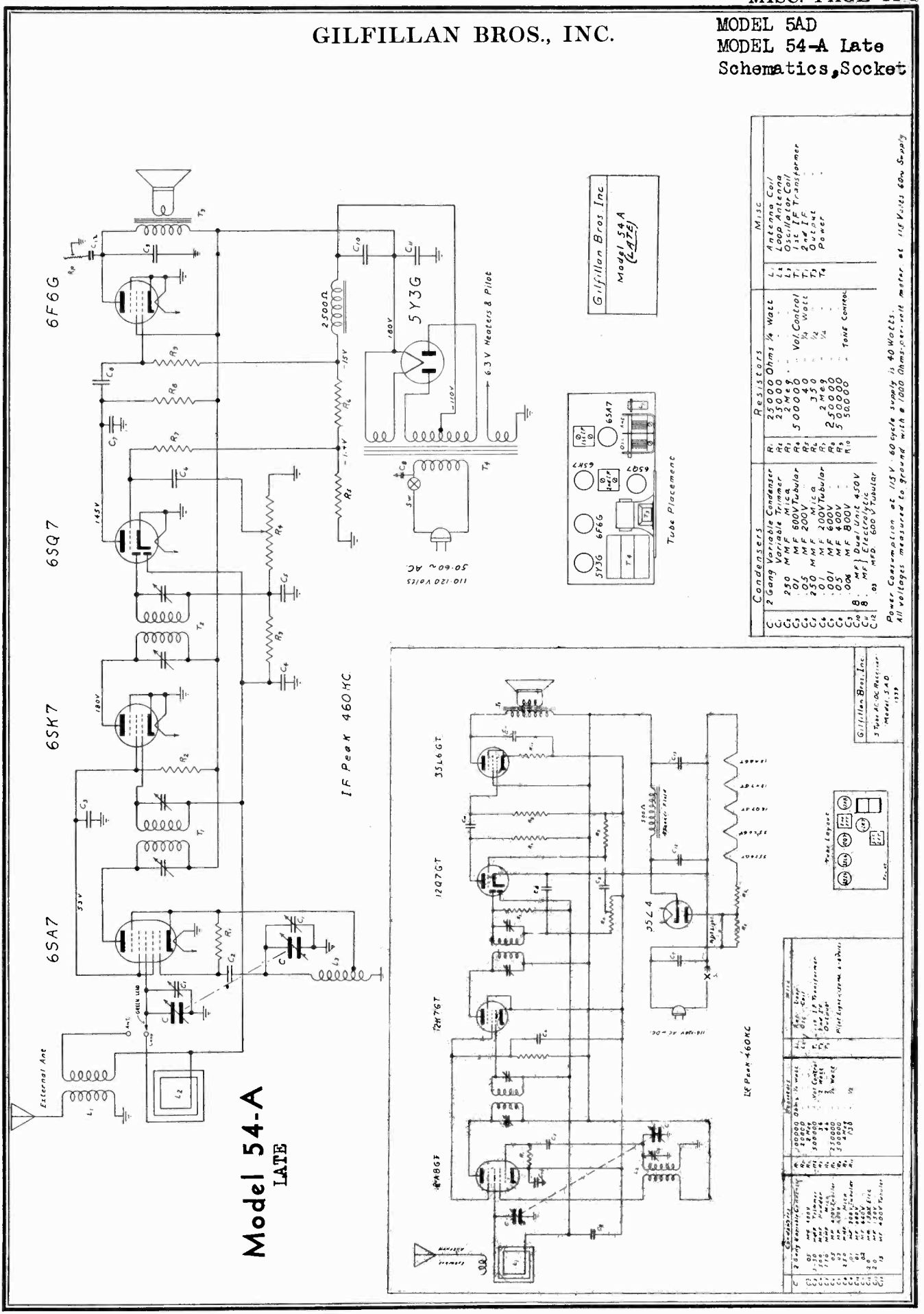






GILFILLAN BROS., INC.

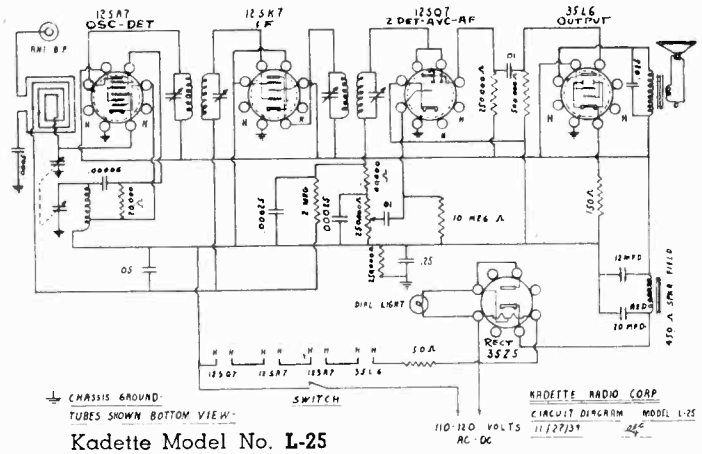
MODEL 5AD
MODEL 54-A Late
Schematics, Socket



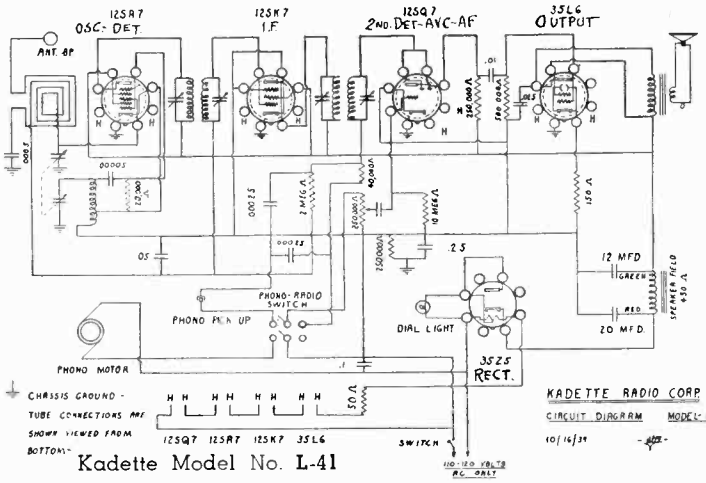
MODEL L25
MODEL L40
MODEL L41

KADETTE RADIO CORP.

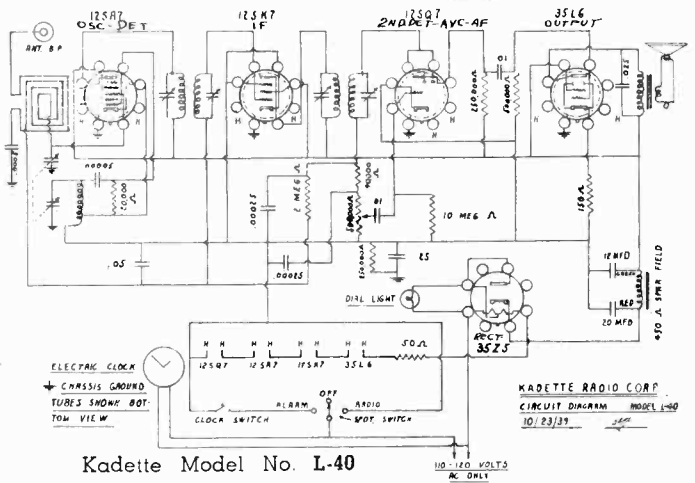
Schematics, Socket Trimmers, Notes, Voltage



Kadette Model No. **L-25**



Kadette Model No. **L-41**



Kadette Model No. **L-40**

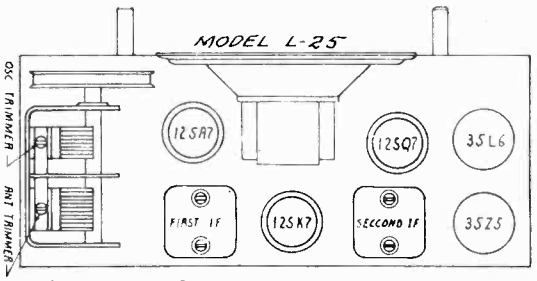
Start clock by turning starting knob (at rear) in direction of arrow. Set clock by turning "Set" knob (at rear) in direction of arrow. Clock remains running regardless of any power switch position, including "OFF", and will continue to run as long as cord is plugged into a power supply outlet. Power current interuptions will stop the clock and it must be re-started.

For continuous operation on radio, throw toggle switch (at rear) to RADIO. Note this switch has three positions, "RADIO", "OFF" and "ALARM"

To pre-set a desired station: (1) Throw toggle switch to "RADIO" (2) Tune in station desired with selector knob. (3) Turn volume well up (volume control knob). (4) Turn "ALARM" setting knob, at rear, in direction of arrow until the desired time for radio to turn appears at the calibration mark in the alarm set window on the clock dial (top-center of clock face). (5) Throw the toggle switch to "ALARM". (6) Radio will turn "ON" at the time thus set, and will continue to operate for about 1½ hours—then turn off. (7) Do not pre-set more than ten hours prior to the time of desired program.

To pre-set radio to TURN OFF at a predetermined time: (1) With radio playing, place toggle switch at rear, at "ALARM" position. (2) Turn "ALARM" set-knob, at rear, in direction of arrow until the desired time to shut off is indicated by the small **Roman numerals** in the upper portion of the alarm set window on the clock face.

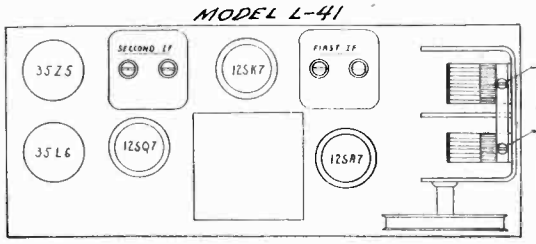
NOTE: Do not pre-set to turn off for longer than 1½ hours.



MODEL L-25 Voltage Readings

The following are the approximate readings when using a 1000 ohms per volt voltmeter. Line voltage should be 117 volts.

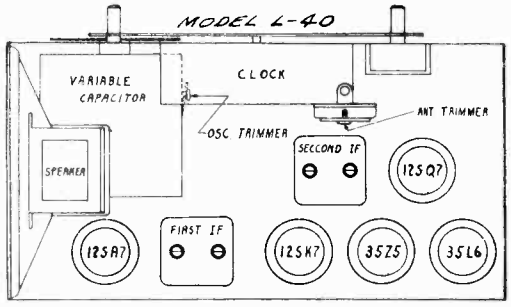
Voltmeter Scale	300 Volt Plate To B—	300 Volt Screen To B—	30 Volt Cathode To B—
12SA7	93	93	
12SK7	93	93	
12SQ7	45	93	5.3



MODEL L-40 L-41 Voltage Readings

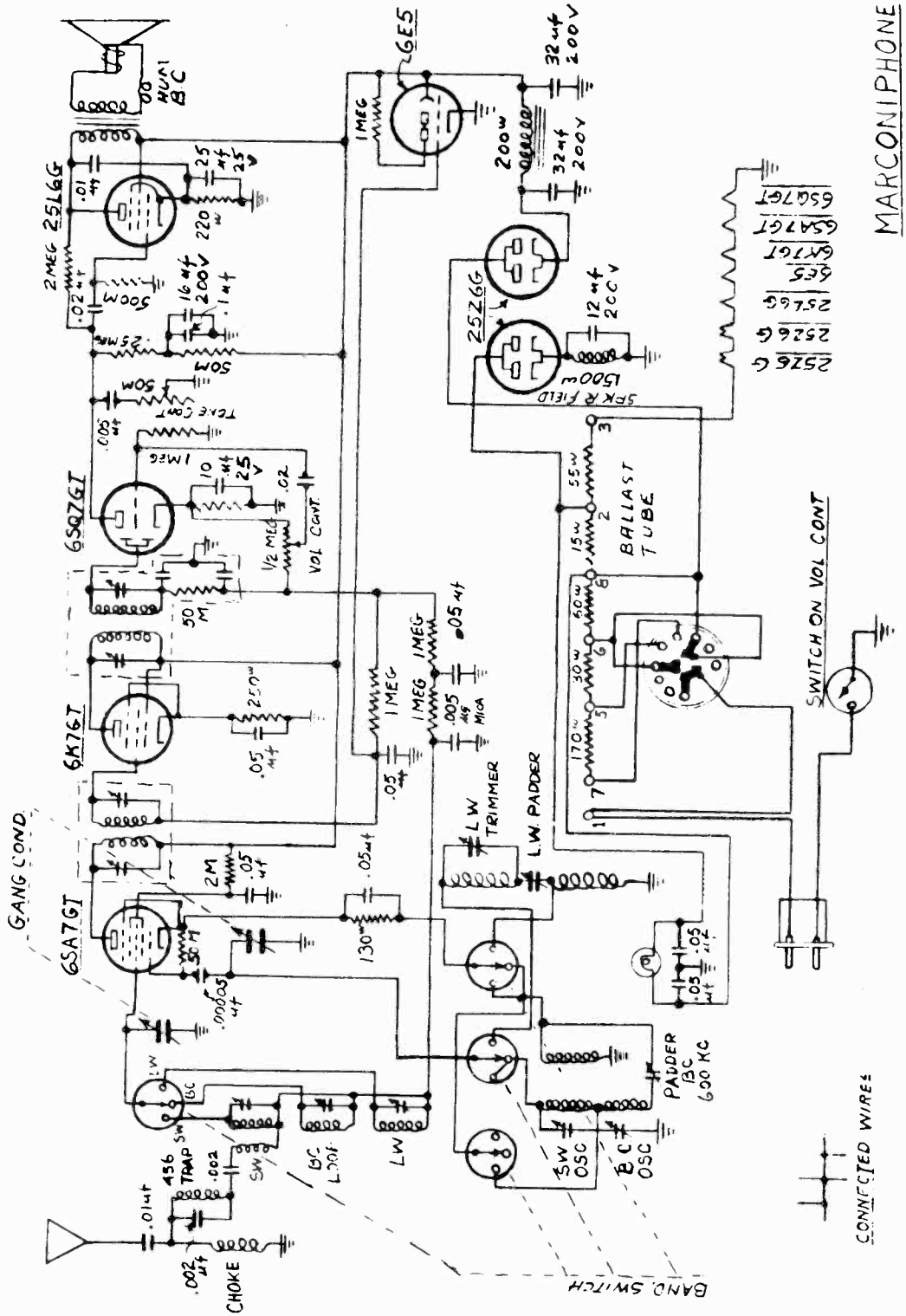
The following are the approximate readings when using a 1000 ohms per voltmeter. Voltage across speaker field is approximately 30 volts. Line voltage 117 volts.

Voltmeter	300 Volt Plate To B—	300 Volt Screen To B—	30 Volt Cathode To B—
12SA7	105	105	
12SK7	105	105	
12SQ7	49		
35L6	97	105	6



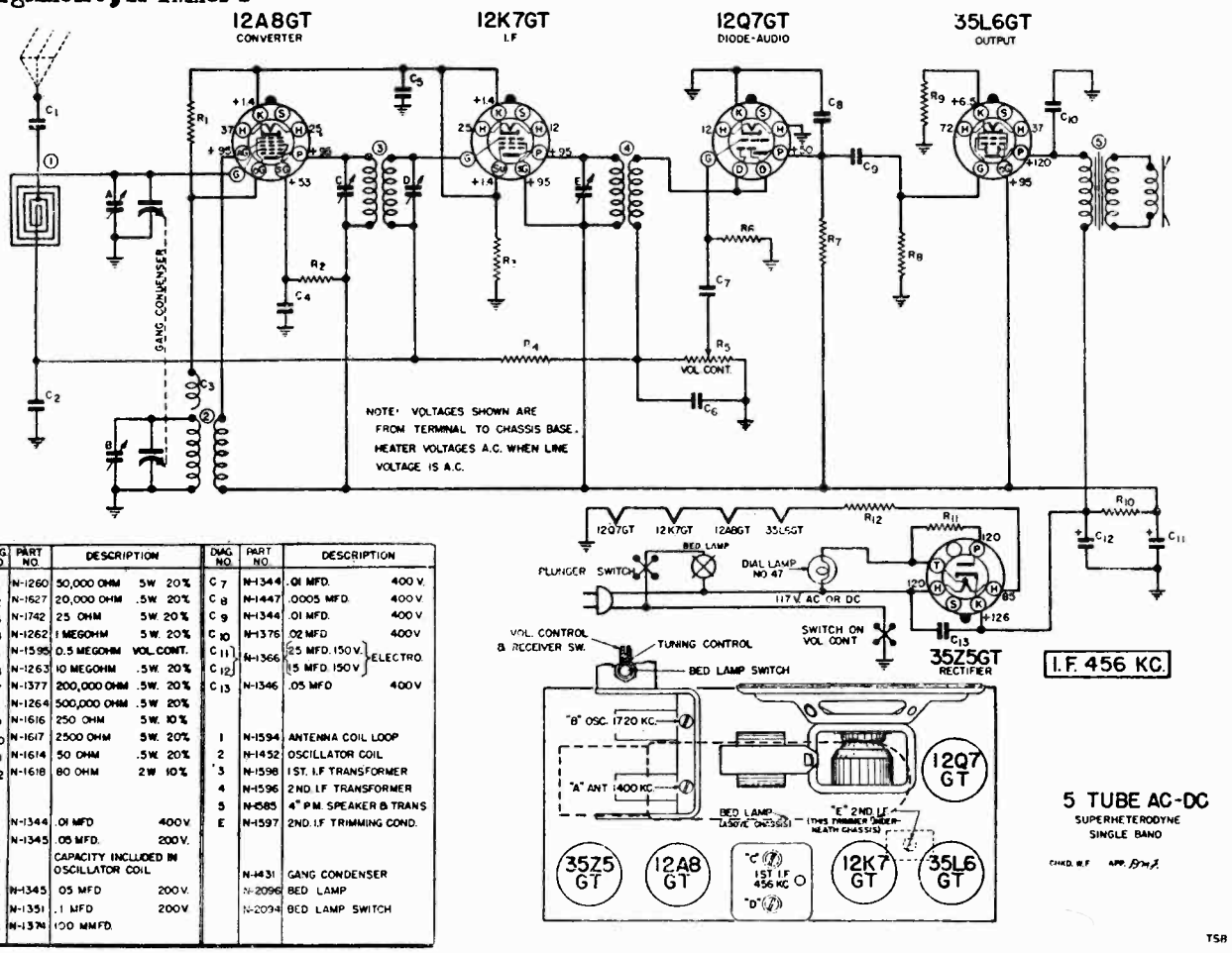
MARCONIPHONE INC.

MODEL D-11
Schematic



MODEL Lullaby Combination and Bed Lamp
Schematic, Voltage, Socket Alignment, Trimmers

MITCHELL MFG. CO.



DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1260	50,000 OHM 5W 20%	C7	N-1344	.01 MFD. 400 V.
R2	N-1527	20,000 OHM .5W 20%	C8	N-1447	.0005 MFD. 400 V.
R3	N-1742	25 OHM 5W 20%	C9	N-1344	.01 MFD. 400 V.
R4	N-1262	1 MEGOHM 5W 20%	C10	N-1376	.02 MFD 400 V.
R5	N-1595	0.5 MEGOHM VOL. CONT.	C11	N-1366	25 MFD. 150 V. ELECTRO.
R6	N-1263	10 MEGOHM .5W 20%	C12		15 MFD. 150 V.
R7	N-1377	200,000 OHM .5W 20%	C13	N-1346	.05 MFD 400 V.
R8	N-1264	500,000 OHM .5W 20%			
R9	N-1616	250 OHM 5W 10%			
R10	N-1617	2500 OHM 5W 20%	1	N-1594	ANTENNA COIL LOOP
R11	N-1614	50 OHM .5W 20%	2	N-1452	OSCILLATOR COIL
R12	N-1618	80 OHM 2W 10%	3	N-1598	1ST. I.F TRANSFORMER
			4	N-1596	2ND. I.F TRANSFORMER
			5	N-1585	4" P.M. SPEAKER & TRANS
C1	N-1344	.01 MFD 400 V.	E	N-1597	2ND. I.F TRIMMING COND.
C2	N-1345	.05 MFD. 200 V.			
C3		CAPACITY INCLUDED IN OSCILLATOR COIL		N-1431	GANG CONDENSER
C4	N-1345	.05 MFD 200 V.		N-2096	BED LAMP
C5	N-1351	.1 MFD 200 V.		N-2094	BED LAMP SWITCH
C6	N-1374	100 MMFD.			

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

POWER SUPPLY. This receiver is designed to operate on any alternating current supply (AC) ranging from 110 to 120 volts, 50 to 60 cycles; or on any direct current supply (DC) ranging from 110 to 120 volts.

LAMP USED. Show case reflector lamp 120 volt, 25 watts with medium screw base with spring contact. (Never use a lamp larger than 25 watts.)

ALIGNMENT PROCEDURE

GENERAL DATA. The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400 and 1720 KC and an output meter to be connected across the primary or secondary of the output transformer. If possible, all alignments should be made with the volume control on maximum and the test oscillator output as low as possible to prevent the AVC from operating and giving false readings.

CORRECT ALIGNMENT PROCEDURE. The intermediate frequency (I.F.) stages should be aligned properly as the first step. After the I.F. transformers have been properly adjusted and peaked, the broadcast band should be adjusted.

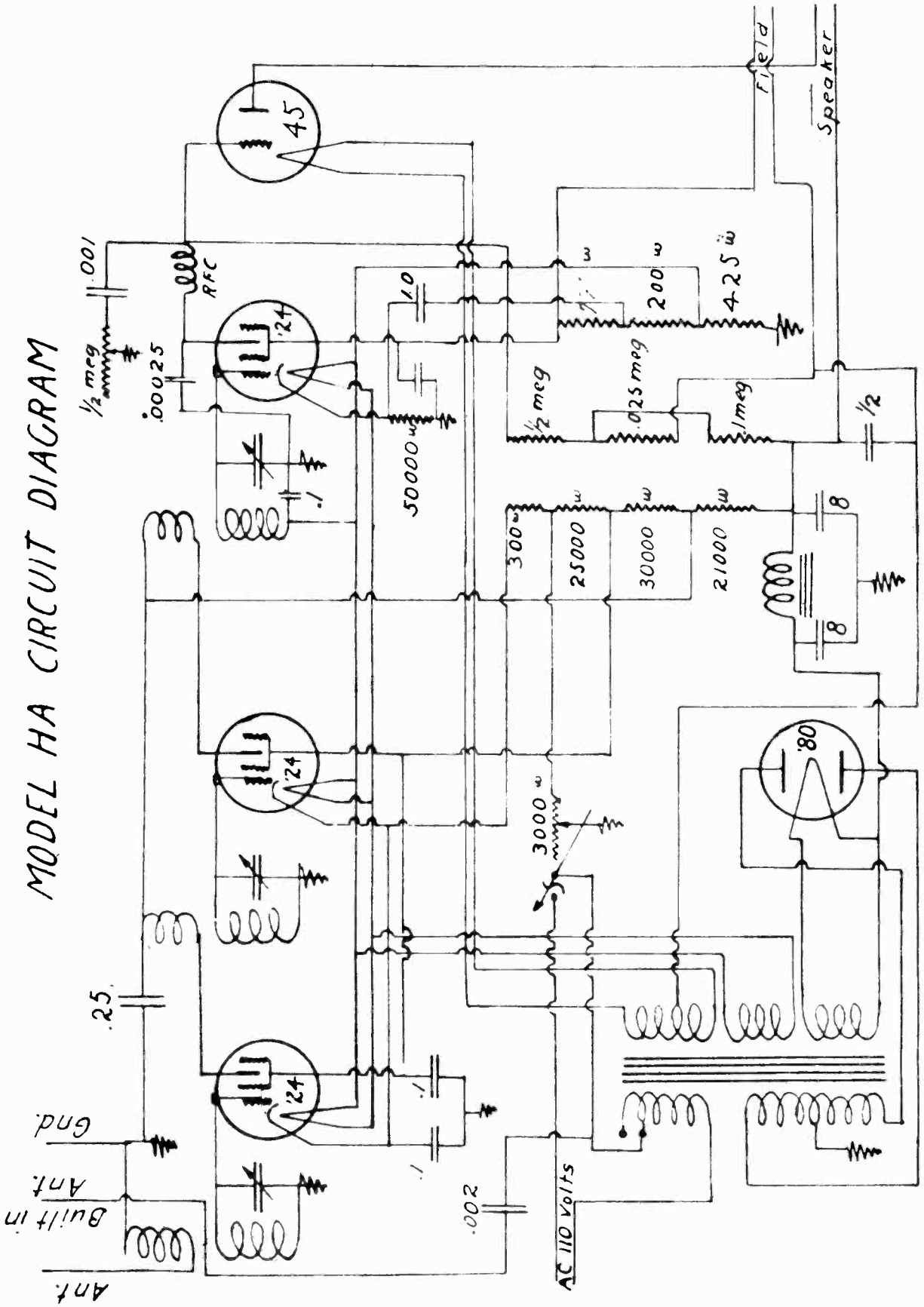
I. F. ALIGNMENT. With the gang condenser set at minimum, adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (12A8GT) through a .05 or .1 mfd. condenser. The ground on the test oscillator should be connected to the chassis ground. Align all three I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT. Remove chassis from cabinet and set it up on the bench. Care should be taken to have no iron or other metal near the loop. Do not make this set-up on a metal bench.

Connect the test oscillator to the antenna of the set through a 200 mmfd. (.0002) condenser. With the gang condenser set at minimum capacity, set the test oscillator at 1720 KC, and adjust the oscillator (or 1720 KC trimmer) on gang condenser. Next—set the test oscillator at 1400 KC, and tune in the signal on the gang condenser. Adjust the antenna trimmer (or 1400 KC trimmer) for maximum signal. Next set the test oscillator at 600 KC, and tune in signal on condenser to check alignment of coils.

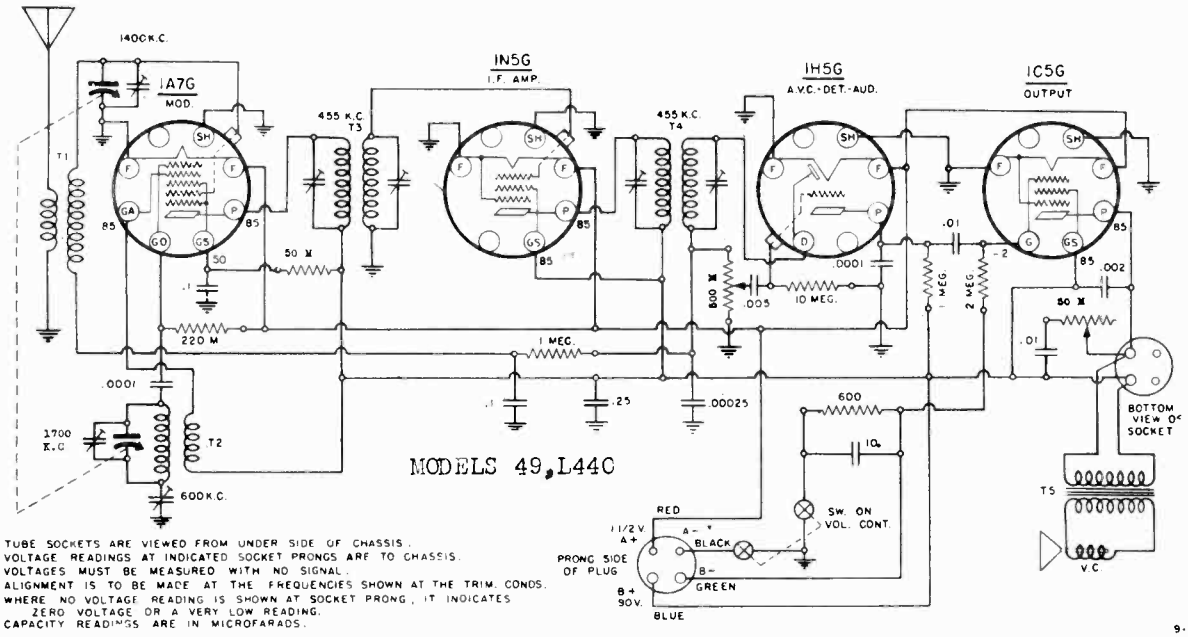
SIMPLEX RADIO CO.

MODEL HA
Schematic



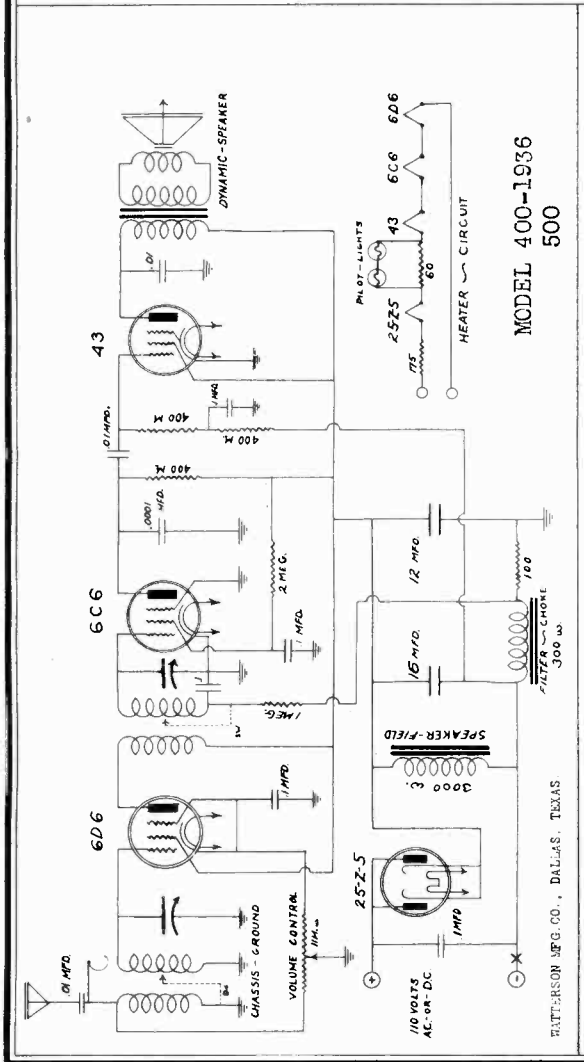
MODELS 49,L440
MODELS 68,69,95
MODELS 400-1936,500
Schematics

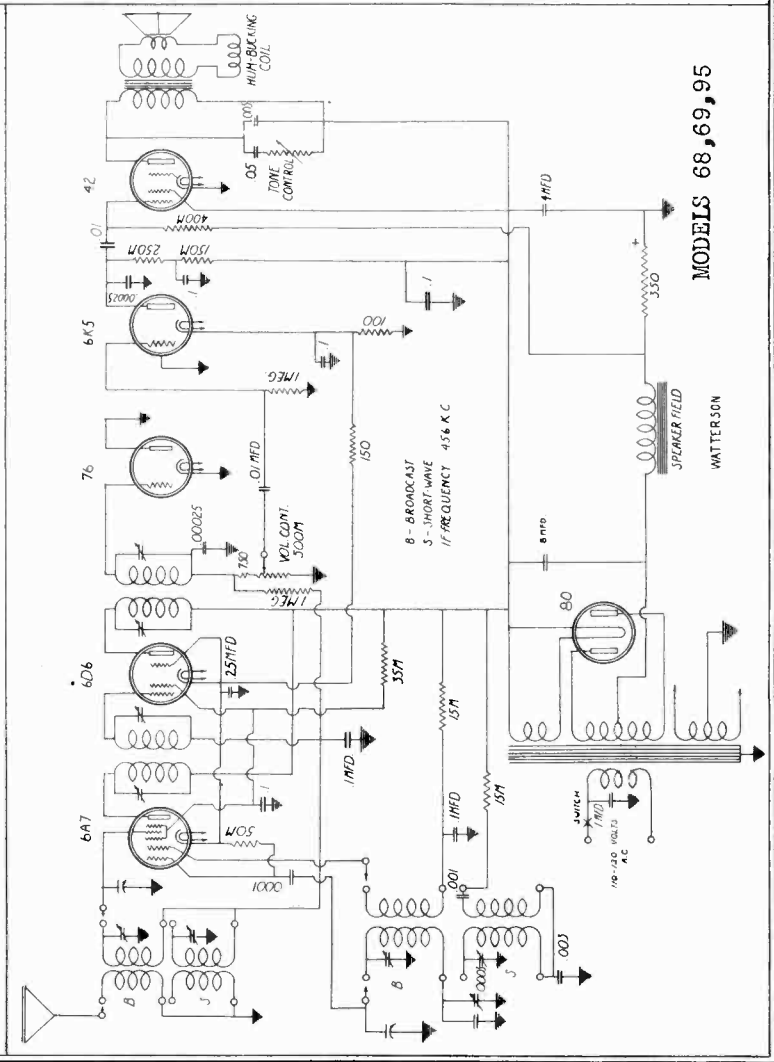
WATTERSON RADIO MFG. CO.



TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS.
VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS.
VOLTAGES MUST BE MEASURED WITH NO SIGNAL.
ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIM. CONDS.
WHERE NO VOLTAGE READING IS SHOWN AT SOCKET PRONG, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING.
CAPACITY READINGS ARE IN MICROFARADS.

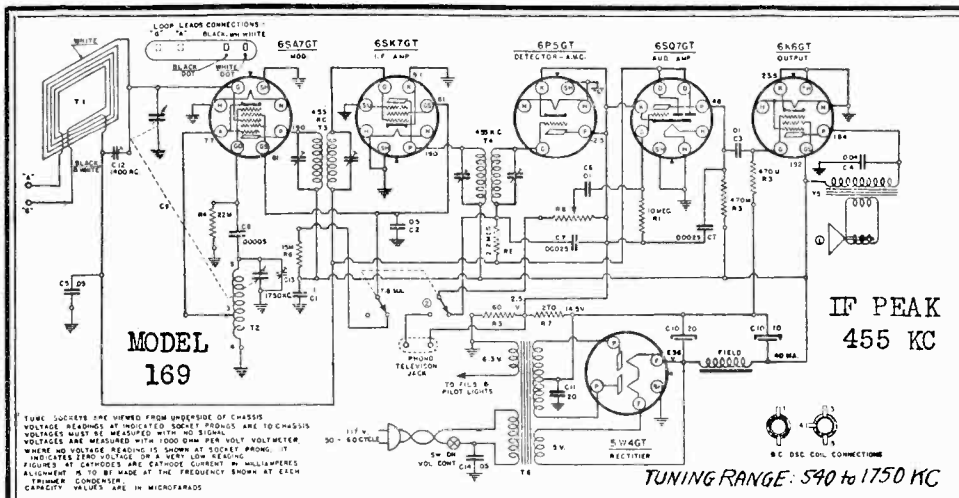
9-47





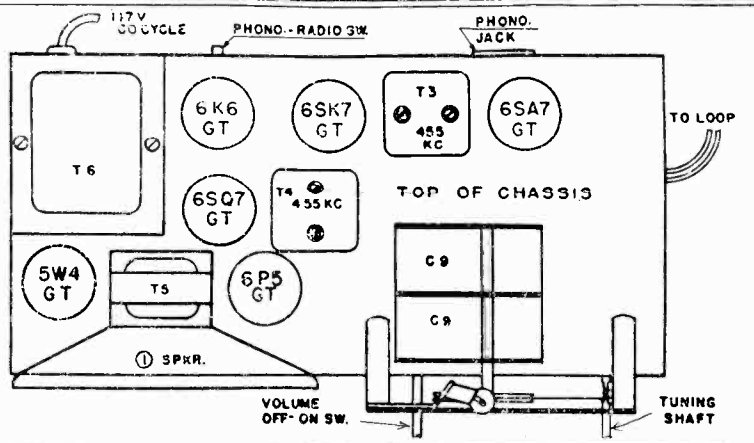
WESTERN AUTO SUPPLY OF CALIF. MODEL 169 MODEL 279 Schematics, Voltage Socket, Trimmers Alignment, Tuner

MODEL 169



IF PEAK 455 KC

TUNING RANGE: 540 to 1750 KC



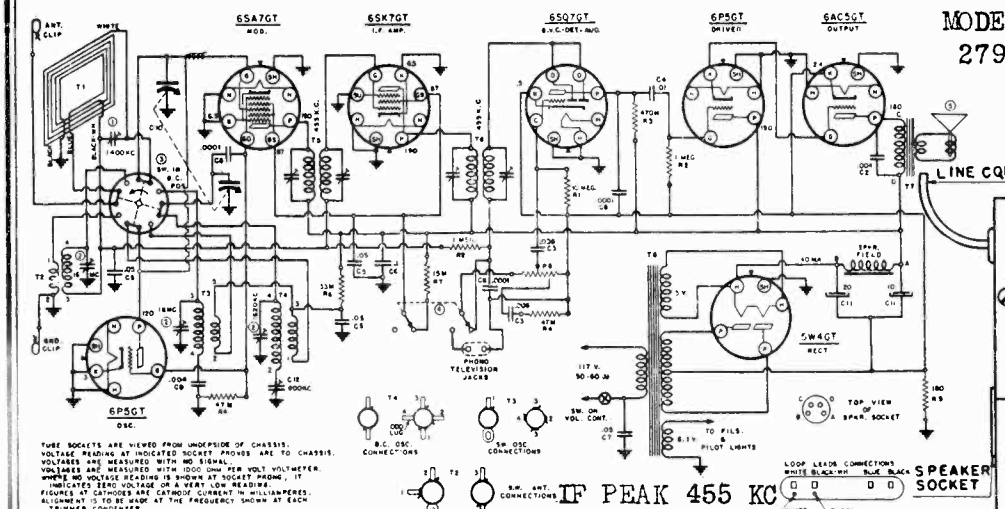
CODE	PART NO	DESCRIPTION
C1	16-118	.1 MFD. 400 V. TUBULAR CONDENSER
C2	16UT	.05 - - - -
C3	16-119	.01 - - - -
C4	16-51	.004 - 600V - -
C5	1672	.05 - 200V - -
C6	16-121	.01 - - - -
C7	1504	.00025- MICA CONDENSER
C8	1503	.00005- - - -
C9	19-164	2 GANG VARIABLE CONDENSER(13)
C10	18-256	20&10 MFD. 350 W.V. ELECTROLYTIC
C11	18-243	20 MFD. 25V ELECTROLYTIC
C12	20-129	TRIMMER (ON LOOP)
C13	17-100	.05 MFD. 600 V. ROLLED CONDENSER

CODE	PART NO	DESCRIPTION
R1	60-193	10 MEGOHM 1/4 W RESISTOR
R2	60-178	2.2 - - -
R3	60-176	470 M OHM - - -
R4	60-165	22 M - - -
R5	60-182	60 - 1/2 W -
R6	60-236	1.5 M - 1 W -
R7	60-245	270 - - -
R8	24-145	500 M - VOLUME CONTROL (WITH SW.)

CODE	PART NO	DESCRIPTION
T1	82-10	LOOP ANTENNA
T2	10-311	O.C. OSCILLATOR COIL
T3	10-317	1ST I.F. TRANSFORMER
T4	10-312	2ND I.F. TRANSFORMER
T5		OUTPUT TRANSFORMER (ON SPKR)
T6	80-193	POWER TRANSFORMER
1	79-294	5" DYNAMIC SPEAKER
2	69-140	PHONO SWITCH

—FOR CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII—

MODEL 279



IF PEAK 455 KC

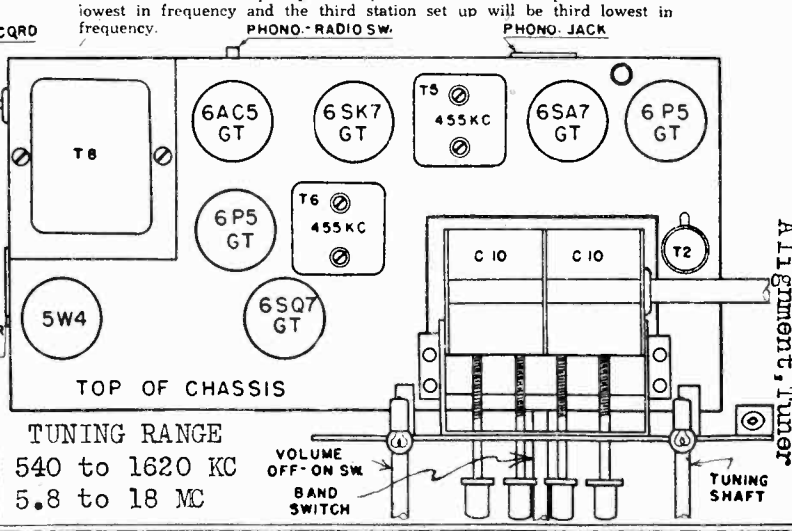
SPEAKER SOCKET

CODE	PART NO	DESCRIPTION
C1	1822	.05 MFD. 200 V. TUBULAR CONDENSER
C2	16-125	.004 - 400 V. - -
C3	16-128	.005 - - - -
C4	16-119	.01 - - - -
C5	1607	.05 - - - -
C6	16-118	.05 - - - -
C7	17-100	.05 - 600 V. MOLDED
C8	15-121	.0001 - MICA CONDENSER
C9	15-145	.000 - - -
C10	95-13	3 GANG TUNING CONDENSER
C11	18-234	20 & 10 MFD. 350 W.V. ELECTROLYTIC
C12	20-130	PADDING CONDENSER

CODE	PART NO	DESCRIPTION
R1	60-193	10 MEGOHM 1/4 W RESISTOR
R2	60-195	1 - - -
R3	60-178	470 M OHM - -
R4	60-177	47 M - -
R5	60-230	180 - - 10%
R6	60-231	33 M - 1/2 W -
R7	80-236	1.5 M - 1 W -
R8	24-187	500 M - VOLUME CONTROL (WITH SW.)

CODE	PART NO	DESCRIPTION 10-71
T1	82-16	LOOP ANTENNA (B.C.)
T2	10-347	ANTENNA COIL (S.W.)
T3	10-348	OSCILLATOR COIL (S.W.)
T4	10-345	OSCILLATOR COIL (B.C.)
T5	10-317	1ST I.F. TRANSFORMER
T6	10-318	2ND - - -
T7	80-193	OUTPUT TRANSFORMER (ON SPKR.)
T8		POWER TRANSFORMER
1	20-129	TRIMMER (ON LOOP)
2	20-127	TRIMMER BLOCK
3	69-148	BAND SWITCH
4	69-140	PHONO -
5	75-295	DYNAMIC SPEAKER 6 1/2"

TUNING RANGE
540 to 1620 KC
5.8 to 18 MC



Follow the procedure outlined below, in order to adjust the push-buttons properly:

1. By means of the Station Selector Knob tune in WITH THE RIGHT HAND AS ACCURATELY AS POSSIBLE the station having the lowest frequency

2. After the station has been tuned in accurately with the right hand, continue to hold it in its exact position firmly, and with the left hand loosen the Push-Button to be set up for that station by unscrewing the Push-Button about one turn to the left (counter-clockwise).

3. Continuing to hold the Station Selector Knob in its exact position, PUSH THE PUSH-BUTTON IN ALL THE WAY with the left hand.

4. After the Push-Button has been depressed all the way, tighten it gently toward the right (clockwise). Release Push-Button slowly and when in normal position grip button and tighten firmly.

The Push-Button tuning system is now correctly set up for your first selected station of lowest frequency and the Call Letter Tab for this station should be at the extreme right of the Call Letter Holders.

Follow through with this same procedure, setting up the other 3 stations in the order of their frequency—that is, the second station set up will be second lowest in frequency and the third station set up will be third lowest in frequency.

Andrea Television Model 1-F-5

Before carrying out any type of service work, remove the 2Y2 or 879 high-voltage rectifier tube from the socket. Be certain that the high-voltage cover plate on bottom of chassis is in place, and remove both sides of high-voltage transformer primary leads from the terminal strip connecting them to power line input before adjustments of any nature are attempted. In this way, no danger from shock from the high-voltage supply is possible.

Bear in mind that the high-voltage supply plays no part in your service work. Therefore, no need exists for this section of the receiver functioning during any work you may undertake. Should repairs be necessary on the high voltage section, all tests may be conducted accurately by resistive or continuity measurements to localize the difficulty without resorting to any voltage measurements.

Remember, first thoroughly investigate the nature of the complaint to determine if the effect is in the receiver before attempting adjustments.

Sound I-F System

See notes on high voltage.

The 6J5 oscillator must be stopped by connecting 70 or 120 ohms from the junction of HC-143 and HC-147 to ground. Do not short the oscillator or remove tube. The schematic will be found on *Andrea page* 10-1, 2, *in Rider's Volume X.*

Connect the high side of signal generator through a .1-mf, 600 V. condenser to prong 4 of 1852 modulator tube See *page* 10-4 *of Rider's Volume X* for socket layout. Set signal generator frequency very accurately to 8.25 mc. (8250 kc). Connect rectifier type a-c voltmeter across voice coil of sound speaker. Allow receiver to warm up 15 minutes before making any realignment settings.

After carefully carrying out the above, adjust television sound trimmer condensers D, C and B, located as shown in socket layout, for maximum deflection on the rectifier output meter across the speaker voice coil.

Be certain your generator frequency and trimmer adjustments are accurate or poor sound performance will result.

This completes the television sound i-f alignment.

Video I-F System and 14.25-MC Adjacent Sound-Trap Adjustment

See notes on high voltage.

The video intermediate frequency is 12.75 megacycles (12,750 kc) for the position of the video carrier and extends substantially flat to 10 mc and requires no alignment adjustment, as all tuning is of a fixed type which will not develop misalignment. In order to signal-trace this circuit to locate any defective tubes or component parts, the following procedure may be used:

Remove the picture-tube socket cable from the 1805P4 tube. Connect a .5-mf600 V. condenser in series with one side of a rectifier type output meter (0-1 or 0-1.5 volts). Connect the side of rectifier meter containing the condenser to pin No. 10 of the picture-tube cable socket; the other connection from meter to ground.

The 6J5 oscillator must be stopped by connecting 70 or 100 ohms from the junction of HC-143 and HC-147 to ground. Do not short the oscillator or remove tube.

Turn contrast control to maximum contrast. Connect the signal generator high lead in series with .1-mf600 V. condenser to pin No. 4 of modulator tube; ground side of generator to chassis and note the output reading on picture-tube output meter. If no signal results, replace generator connection to pin No. 4 of first video i-f tube. If a signal is obtained, trouble exists between modulator and 1st video i-f tube. Should no signal result, replace generator lead to pin No. 4 of 2nd video i-f tube. Use same reasoning as above. In this manner the video i-f continuity can be checked.

In the event that no signal is obtained, a check of the video system itself can be made as follows:

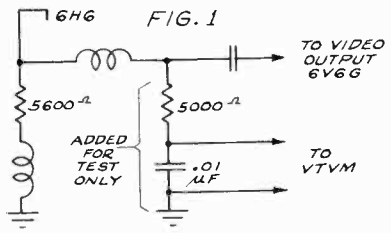


FIG. 1

Leave generator connected to pin No. 4 of 2nd video i-f tube and connect the circuit shown in Fig. 1. A reading on the VTVM will prove continuity of video detector system. Be sure in this test signal-generator output is on maximum. Also that the VTVM will read a minimum of .25 volt. If not, this method cannot be used.

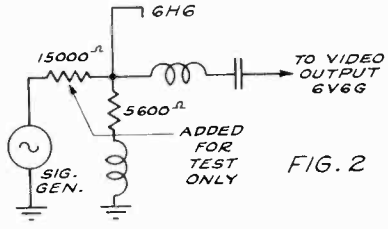


FIG. 2

To test the video system from video detector output to output of video output tube, connect a 15,000-ohm resistor in series with lug 8 of the 6H6 tube. Remove this tube from circuit—between one side of 15,000-ohm resistor and ground, connect standard signal generator (Fig. 2)—set for 300 or 500 kc and increase output attenuator until a signal is obtained on the output meter. Obviously, no signal indicates trouble in the associated parts proceeding or following the video output tube or the picture-tube connecting cable. Hence, test continuity of parts in input and output of 6V6G video output tube along with checking output tube and voltages.

When the above test indicates an actual signal up to picture-tube pin No. 10 (grid), and trouble still exists, the difficulty is then in picture tube.

14.25-MC Adjacent Sound Traps

With rectifier meter connected from pin No. 10 of picture-tube cable to ground, connect signal generator from pin No. 4 of the 1852 modulator tube and ground through a .1-mf, 600V. condenser. Set generator accurately to 14.25-mc (14,250 kc).

Use highest output of the signal generator and adjust 14.25-mc trimmers "A" and "E" (see tube layout) for minimum output. This test must be carried out accurately, or picture quality will be materialyl impaired.

Radio-Frequency Alignment

Since the r-f unit of this receiver is aligned with great precision at the factory, and because the designs of the parts have been found exceedingly staple under all operating conditions, it is most unlikely that realignment will be necessary. However, in case the adjustments are changed for any reason, realignment should be carried out in the following manner:

Note: These instructions apply to television channels 1 and 2. If your set is equipped for receiving other channels, follow the special data supplied by the Andrea factory. Accurate realignment will result only when the bottom plate is fastened to the chassis during adjustment.

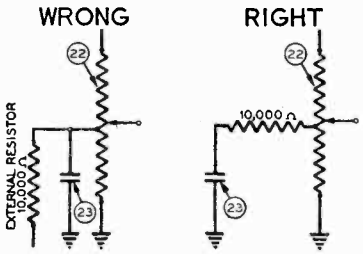
1. Because of the design of the r-f unit, band 2 must be aligned first, and band 1 last. Incorrect settings will be obtained if band 1 is aligned first.
2. Be sure that the sound i-f system has been adjusted accurately to 8.25 mc. Otherwise, the r-f alignment will not be correct.
3. Set sound sensitivity trimmer so that rotor plate is half maximum capacity (half-open)
4. A signal generator capable of generating accurately frequencies from 40 to 60 mc. (40,000 to 60,000 kc), 400 cycles modulated, is required for the r-f alignment. Bear in mind that accurate frequency setting is essential and any attempt to use harmonics will invariably produce bad misalignment and poor or no results.
5. Connect ground side of signal generator in series with 70-ohm carbon resistor to terminal "A" of antenna post. Connect high side of generator directly to other terminal "A" on antenna strip. Do not connect a ground to the receiver. Set generator accurately to 55.75 mc. (55,750 kc).
6. Turn channel switch to channel 2.
7. Connect a rectifier-type meter 0-1 volt across the voice coil of the loudspeaker.
8. Loosen the brass top cup locknut on oscillator condenser 2, tube layout, so that the plunger moves easily but is not loose. A tool with a side pin to hook into hole in the plunger will provide more accurate adjustment.
9. Adjust the oscillator condenser 2 (tube layout) plunger for maximum output deflection on the meter across speaker voice coil. Tighten the brass top cup locknut part way. When the brass top cup locknut is nearly tight, readjust the plunger. Then tighten the brass top cup locknut firmly and watch output deflection on meter to see that tuning is not changed. If so, readjust.
10. Connect a rectifier type meter 0-1.0 volt from pin No. 10 on the picture-tube socket to the ground through a .5-mf, 600V. paper condenser.
11. Adjust the signal generator frequency to 52.5 mc (52,500 kc).
12. Turn the chassis on its side for ease of alignment. Set antenna trimmer so plunger is all in (max. cap.) and slip a metal Spintite wrench through the hole in the under shield cover of chassis so that end of metal spintite fits over the tubular bottom end of antenna condenser 2, thereby detuning the circut. Be certain that metal spintite does not ground to chassis.

Note: If this is not carried out, no realignment can be made.

13. Leave metal spintite as above and loosen the brass top cup locknut on grid condenser 2 (socket layout), and adjust this plunger for maximum output as indicated on the meter in the picture cable circuit. Then tighten the brass top cup locknut part way, readjust plunger again, and tighten the brass top cup locknut firmly, noting that peak tuning point is not reduced by tightening If so, readjust.
14. Remove the metal spintite from antenna condenser 2, and put it on grid condenser 2.
15. Loosen the brass top cup locknut on antenna condenser 2, and adjust the plunger for maximum picture output, as indicated by the meter. Then tighten the brass top cup locknut part way, readjust the plunger, and tighten the brass top cup locknut firmly, noting that peak tuning is not reduced by tightening.
16. To align Band 1, carry out the same steps to 15 using 49.75 mc for the signal generator (step 5), put the band switch on channel 1 (step 6), and adjust oscillator condenser 1 (step 9).
17. Use 46.5 mc for the signal generator (step 11) and use antenna condenser 1 for step 12, and adjust grid 1 for step 13. For step 14 use grid condenser 1, and antenna 1 for step 15.

Philco 39-25

A few of the early production Model 39-25 Philco receivers had the bass-compensating condenser in the volume-control circuit improperly con-



If a Philco 39-25 lacks high notes at low settings of the volume control, check to see how the bass-compensating condenser is connected. These partial schematics tell the story.

nected. The indication of such incorrect connection is a lack of high notes at low settings of the volume control. Above is shown the incorrect and the correct connections. The schematic of this receiver shown on *page 10-9 of Rider's Volume X* shows the correct connections.

●

Majestic 11056, 11057, 11058

Models 11056 and 11058 are found on *pages 9-8 to 9-10 of Rider's Volume IX*. The data given there also apply to Model 11057. A new electric tuning system has been incorporated in later runs of all these receivers, and is illustrated in Fig. 1. The procedure for indexing the tuning system for desired stations is as follows:

(1) Set receiver to Standard Broadcast band.
(2) Place "Manual-Electric" lever in "Manual" position, which is extreme counter-clockwise. Be sure the tone control is in the "Normal" position as shown by the indicator.
(3) Pull out Indexing Rod located at the center bottom half of the escutcheon. This rod has numbers on it which correspond to the push buttons (counting from left to right).
(4) Set Indexing Rod so that the number on the rod corresponding to the push button you wish to index is in line with the escutcheon plate.
(5) Turn tuning knob until the pointer has covered the entire dial. This is essential to engage the tuning disc.
(6) Tune in the desired station accurately, using the tuning eye.
(7) Push Indexing Rod all the way in, and that particular station will always be tuned in automatically when that particular button is depressed while the "Manual-Electric" lever is in the "Electric" position.
To index more than one station, go through steps (3) to (6) for each station desired and when finished, push the Indexing Rod back as far as it will go.

Caution: When using electric tuning, do not depress more than one button at a time. Depressing two buttons will cause the motor to run continuously or until the automatic thermal switch operates to prevent the motor from burning out. If this happens it may take fifteen minutes for the motor to become cool enough for the electric tuning to become operative again.

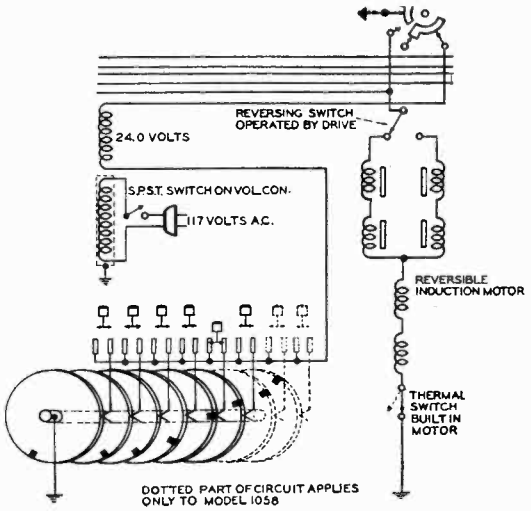
●

Philco 620

Certain oscillator trimmers are incorrectly numbered on *pages 6-26 and 6-27 of Rider's Volume VI* (early Model 620 Philco). In the parts list on *page 6-26*, the reference numbers should be changed as follows: Change 13 to 16; change 14 to 17; change 16 to 13; change 17 to 14. The same changes should be made on *page 6-27* in Fig. 2 and in the alignment instructions located below this figure. These changes must be made so that the reference numbers will agree with those shown on the schematic which appears on *page 6-25*. Do NOT alter the numbers on the schematic.

These errors in numbering also appear in the parts list for the late Model 620 Philco. Therefore the reference numbers on *page 7-90 of Rider's Volume VII* must be changed as follows: Change 13 to 16; change 14 to 17; change 16 to 13; change 17 to 14.

●

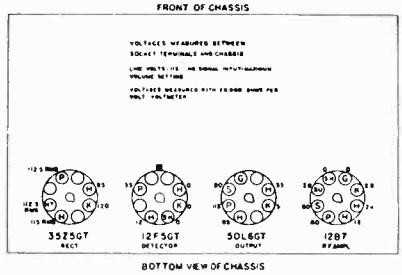


A new electric tuning system has been incorporated in later runs of Majestic models 11056, 11057, and 11058, the schematic being shown at the left. Note that the dotted portion of the drawing applies only to the last named model number.

●

G.E. H-400

The final service bulletin on this receiver was not available at the time *Rider's Volume X* went to press and the preliminary schematic, chassis layout, and alignment notes were run on *page 10-45*. The final service notes show no changes in any of these data. Herewith will be found the socket layout showing the voltages. Make a



Socket layout and voltages for the General Electric model H-400.

note on the schematic that the power consumption of this receiver is 25 watts and that the impedance at 400 cycles of the voice coil is 3.5 ohms.

●

Emerson CF-255

Two different type speakers have been used during production of this receiver. In the specifications listed on *page 10-23 of Rider's Volume X*, mention is made of a 4-inch magnetic speaker, but in some chassis a permanent magnet dynamic speaker has been used. In those chassis which employ the latter, the condenser, C-10, in the output circuit, has been changed to 0.024 mf. When the magnetic speaker is used, C-10 is 0.005 mf.

On receivers having serial numbers above 2,637,480, the detector coil, T2, has been changed. The part number is now 6FT-462A.

●

Remler 49, 171

The Remler Model 171 is identical with Model 49, shown on *page 9-3 of Rider's Volume IX*. The following additional information, not included on *page 9-3*, is now available.

The antenna-RF coil is located near the back of the chassis and is trimmed by the trimmer on the rear section of variable condenser. The detector coil is located under the chassis and is trimmed by the trimmer on the front section of the variable condenser.

The following table shows the d-c voltages to ground with no signal and the volume control at full volume.

Tube	Plate	Screen	Cathode
6D6	180	180	4.5
6C6	70	180	9.0
41	170	180	0

The d-c voltage of the bias supply for the 41 grid is a 15-volt drop across resistor (9) in the negative side of the power supply.

•

Airline 62-362 Issue B

Several changes are included in Issue B of the Model 62-362 Airline receiver (above serial number 8J285-200) as compared with the Model 62-362 shown on *Montgomery-Ward pages 9-45 to 9-47 of Rider's Volume IX*. Fig. 1 shows that condensers C1, C4, C5, C6, and C9 are mounted in the same unit in Model 62-362, Issue B. Fig. 1 of course corresponds to the layout shown in the upper left-hand corner of *page 9-45*.

Fig. 2 shows the output end of the schematic for Issue B of Model 62-362. By comparing Fig. 2 with the corresponding portion of the schematic shown on *page 9-45*, you will notice the new position of the tone control consisting of R14 and C20, and also the two resistors R16 and R17 added across the winding of the phonograph pickup coil.

The accompanying table lists the part numbers and descriptions for Model 62-362 Issue B which are different from those listed on *page 9-45*.

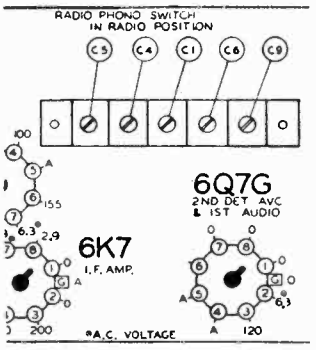
Schematic Reference	Part Number	Description
R5	BE130144	15,000 ohms, 1 w.
R16	BE130238	400,000 ohms, ½ w.
R17	BE13020	100,000 ohms, ½ w.
C1	BE12456	3-35 mmf adjustable trimmer
C4	BE12456	2-15 mmf " "
C5	BE12456	2-15 mmf " "
C6	BE12456	2-15 mmf " "
C9	BE12456	450 mmf working capacity, series pad
C20	BE1292	.0005 mf, mica
C22	BE10092	.001 mf, 600 v

•

Philco 630, 630PF

Certain oscillator trimmers are incorrectly numbered on *pages 6-32 and 6-33 of Rider's Volume VI* (early model 630 Philco). In Fig. 2 and in the alignment instructions, both on *page 6-32*, the reference numbers should be changed as follows: Change 13 to 16; change 14 to 17; change 16 to 13; change 17 to 14. The same changes should be made in the parts list on *page 6-33*. These changes must be made so that the reference numbers will agree with those shown on the schematic which appears on *page 6-31*. Do NOT alter the numbers on the schematic.

These errors in numbering also appear in the parts list for the late Model 630 and the Model 630PF Philco. Therefore the reference numbers on *page 7-98 of Rider's Volume VII* must be changed as follows: Change 13 to 16; change 14 to 17; change 16 to 13; change 17 to 14.



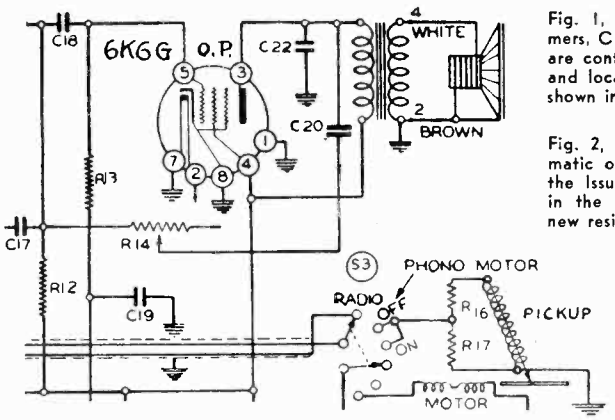


Fig. 1, above. The five trimmers, C1, C4, C5, C6, and C9 are contained in a single unit and located on the chassis as shown in Issue B of the Airline model 62-362.

Fig. 2, left. The partial schematic of the output circuit of the Issue B shows the change in the tone control and two new resistors across the pickup coil.

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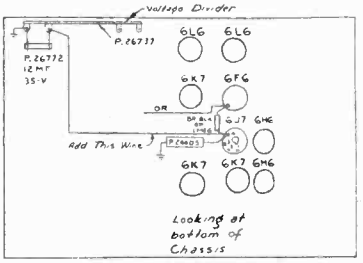
Stromberg 160-L

Variations in new 6J7 tubes have occasionally caused distortion in the automatic tone-control circuit of the Stromberg Model 160-L receiver as first released. These tubes function correctly after "aging" a few hours.



By adding the wire indicated, distortion can be eliminated from the automatic tone control circuit of the Stromberg Model 160-L

This possibility of distortion can also be eliminated by adding a wire as shown in the accompanying layout. This change stabilizes the screen voltage; it was put in effect at the factory in all 160-P and 180-L receivers, and in all 160-L receivers produced after October 23, 1936.

•

Philco 37-62

In order to eliminate oscillation, the screen resistor, No. 11, has been changed from 25,000 ohms to 32,000 ohms. See schematic on *page 8-19 in Rider's Volume VIII*.

•

Fairbanks-Morse 12A

Refer to the schematic shown on *page 8-11 of Rider's Volume VIII*. During production, the 47,000-ohm resistor in the AVC line which was connected to the bottom of the antenna coil secondary, and the condenser (4) were removed. The r-f secondary was then grounded directly, thus removing AVC from the 6L7G mixer tube, and the bottom of the antenna coil secondary was connected directly to the resistor (16). The condenser (33) in the grid circuit of the 6C5G oscillator was changed from 50 mmf to 100 mmf to increase sensitivity on the u-h-f band.

Wells Gardner Tuning Indicators

It may happen in some 1938 and 1939 receivers in which is incorporated either a 6U5 or 6AB5 tuning indicator tube that distortion or overloading will result when strong signals are tuned in. Such troubles may be caused by grid current in the tuning indicator tube. An example of such receivers are those whose schematics appear on *page 10-13 and 10-27 of Rider's Volume X.*

It will be noted that the control grid of the triode section of the 6U5 and 6AB5 tubes is connected to the avc circuit and consequently any grid current that flows will affect the avc voltage. It is suggested by the manufacturer that if such troubles occur, that one or more new tubes be tried and the results checked.

•

RCA 9TX-31, -32, -33

In cases where repeated failure of the 24-ohm, dial lamp resistor, and the lamp itself have occurred, the following revisions are suggested:

Remove all the connections from terminals Nos. 2 and 4 of the terminal board—see Fig. 1—and from terminals Nos. 2, 5 and 6 of the 35Z4GT tube socket.

Resolder the pilot lamp lead, which was removed from the No. 4 terminal of the terminal board, and the power lead that was removed from No. 6 terminal of the tube socket, to the No. 2 terminal of the rectifier socket. See Fig. 2.

Resolder the pilot lamp lead that was removed from the No. 6 terminal of the socket, to the No. 3 terminal. Add a jumper between the Nos. 3 and 5 terminals of this same socket.

Resolder the 0.05-mf condenser lead that was removed from the No. 6 terminal to the No. 5 terminal of the same socket. The other side of this condenser remains connected to the No. 1 terminal of the terminal board.

Insert an 86-ohm resistor in the lead between the No. 7 terminal of the rectifier tube socket and the No. 2 terminal of the 35L6GT output tube socket.

Replace the 35Z4GT rectifier tube with a 35Z5GT and the No. 47 pilot lamp with a No. 51.

The schematic of this receiver will be found on *page 10-43 of Rider's Volume X.*

•

Silvertone 6109, 6110, 6111

A later production run of these models, which is identified by the chassis No. 101.508-1, has had a new model number assigned, 6109. Please add that to your index and on *page 10-78 of Rider's Volume X.*

The condenser, C9, in the cathode circuit of the detector, has been changed in this new chassis from 0.25 mf to 10 mf. This is a 10-volt electrolytic condenser, the part number being 101209144.

If trouble should be experienced from hum in the original chassis, 101.508, it can be corrected by connecting a 10-mf condenser across the 0.25-mf condenser, C9, mentioned above. The positive lead of the condenser should be connected to the cathode of the 6J7 detector tube and the negative lead to the chassis.

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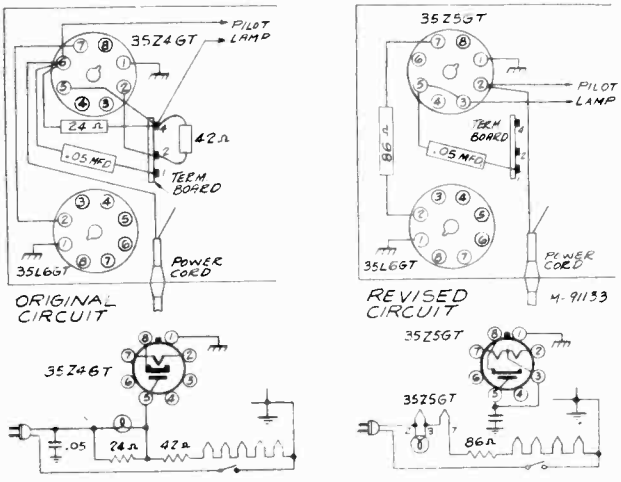


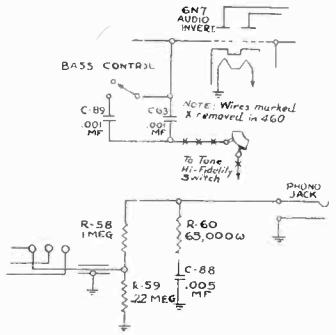
Fig. 1, left, shows the rectifier circuit of the RCA 9TX-31 series before changes were made and Fig. 2, right, the revised rectifier circuit.

•

Stromberg-Carlson 460-PF

The servicing data for the model 360 which appeared on *pages 10-35 to 10-39 inclusive in Rider's Volume X,* apply to this new model with the following exceptions:

A volume-control motor is installed in these receivers and a remote control unit that is identified as P-31860 may be easily connected if so desired. This unit permits the operation of the receiver from a remote point.



Additional phonograph compensation is incorporated in the Stromberg-Carlson Model 460-PF as shown in the above partial schematics.

An automatic record changer is used in this receiver, which will automatically play up to eight records, 10 or 12 inch, in any order. Additional phonograph compensation has been added, as shown in the accompanying diagrams.

•

Halson 40A1X

The same schematic applies to this model as applied to models 104, 106 which was published on *Halson page 8-4 in Rider's Volume VIII,* with the exception that a 6K8G replaces the 6A7 first detector-oscillator tube.

The socket layout, which appears on the same page as the schematic, can be also applied to this new model if the following exceptions are taken into consideration: The positions of the 80 and 41 tubes are interchanged, i.e., the 80 is now immediately beside the power transformer. The 76 and 6F5 tubes are interchanged, i.e., the 76 is now at the rear of the chassis. The wave-trap trimmer is now reached from the back of the chassis—between the 6D6 tube socket and the first i-f transformer—instead of the right side and the broadcast oscillator series trimmer is now located just to the left of the gang condenser on the top of the chassis in-tead of the front.

•

G.E. H-500, 501, 510, 511, 520, 521

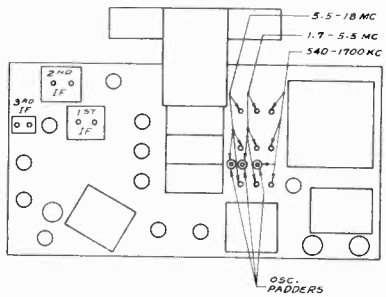
The preliminary data on these receivers that were published in *Rider's Volume X, page 10-47,* are the same as the final with the exception of the condenser, C-12, in the volume control circuit. This has been changed from 0.002 mf to 0.03 mf for the improvement of performance.

At the time *Volume X* went to press, the voltage data and the chassis wiring diagram were not available. These are reproduced in the accompanying illustrations. The special servicing information that is the subject of the article on page 1 of this issue applies to these receivers and should be used when checking over the circuits.

The following notations apply to the chassis wiring diagram. The parts shown in solid lines are those of Model 520. The same parts apply to Model 521 with the addition of R-11 and C-19, which are shown in dotted lines. For Models 500 and 510, the parts are the same as for Model 520, except that the Beamascope parts and C-20 are omitted but C-1, shown in dotted lines, is included. Models 501 and 511 have the same parts as Model 521 with the exception of the Beamascope and C-20, which are omitted, and the inclusion of C-1.

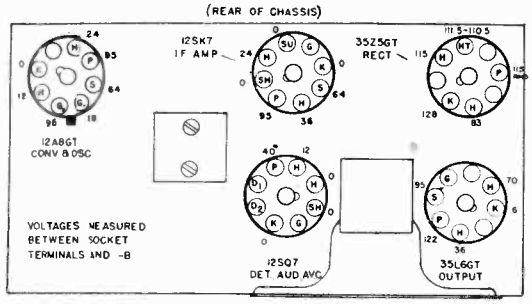
Capehart 200-F

The alignment procedure for Model 200-F is the same as that for Model 110-G, shown on *page 10-4 of Rider's volume X,* the only exception being that Model 200-F uses a 6L7 first detector instead of a 6A8. The accompanying simplified chassis layout shows where the trimmers are located in Model 200-F.

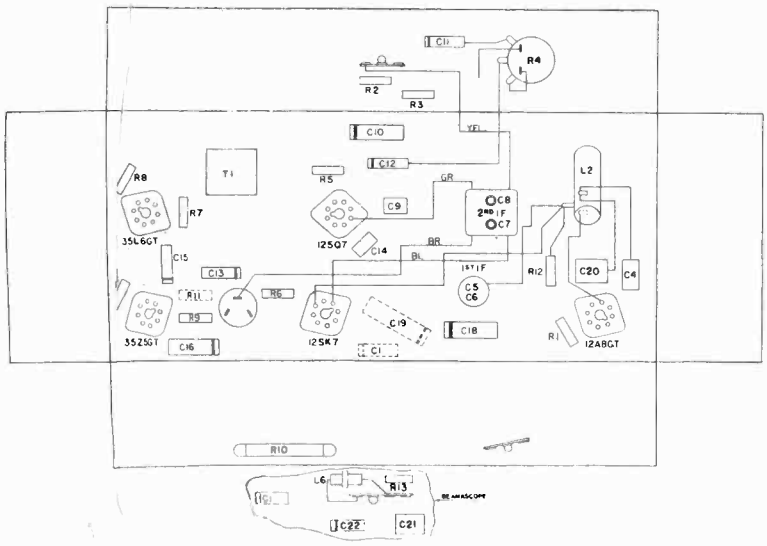


Location of trimmers on Capehart Model 200-F

On the right is the socket layout for the G.E. Models H-500, H-501, H-510, H-511, H-520, and H-521 with the voltages indicated at the prongs. Below is the chassis wiring diagram for the same models. See accompanying text for exceptios.



BOTTOM VIEW OF CHASSIS



G.E. GM-125

A second method for aligning the frequency-modulated General Electric receiver Model GM-125, the service data for which appear *on pages 10-34 to 10-36 inclusive in Rider's Volume X,* will be found below. This method of alignment does not require the special signal generator mentioned in the first published instructions.

To align the i-f amplifier, connect an electronic voltmeter (or any other d-c voltmeter which has a high input resistance) across R15. Feed a 3-mc signal to the grid of the third i-f tube. Temporarily shunt the secondary winding of T7 with a 10,000 or 15,000-ohm resistor and adjust C48 until the voltmeter reading is a maximum. Then remove the secondary shunting resistor and adjust C49 for maximum reading on the voltmeter. Then connect the shunting resistor across T6 secondary, feed the 3-mc signal to the second i-f grid and peak the trimmers of T6 in the same manner. Repeat this process for each of the i-f transformers in turn until all are aligned.

The frequency demodulator circuit may also be aligned with the voltmeter and signal generator. Feed a 3-mc signal to the input of the i-f amplifier and connect the voltmeter from the cathode connection of R18 to ground. A small voltage reading usually will be indicated if the circuit is slightly out of adjustment. If not, adjust C51 until a reading is secured. Then adjust C50 until the voltage reading is a maximum. After this is done, adjust C51 until the voltmeter reads zero. The discriminator alignment is then complete.

The r-f and oscillator stages are aligned by feeding a 42.8 mc signal to the antenna terminals and, with the receiver tuned to this point on the dial scale, adjusting the oscillator trimmer C4 for maximum reading on the voltmeter, which should be connected across R15. Then peak the antenna and r-f trimmers (C2 and C3) in the same manner.

RCA R-98

If a complaint is received of excessive hum in this model, the schematic of which will be found on *page 10-95 of Rider's Volume X,* the dress of the lead to the pilot light should be checked. This lead should be placed towards the rear of the chassis base, well away from the audio circuits.