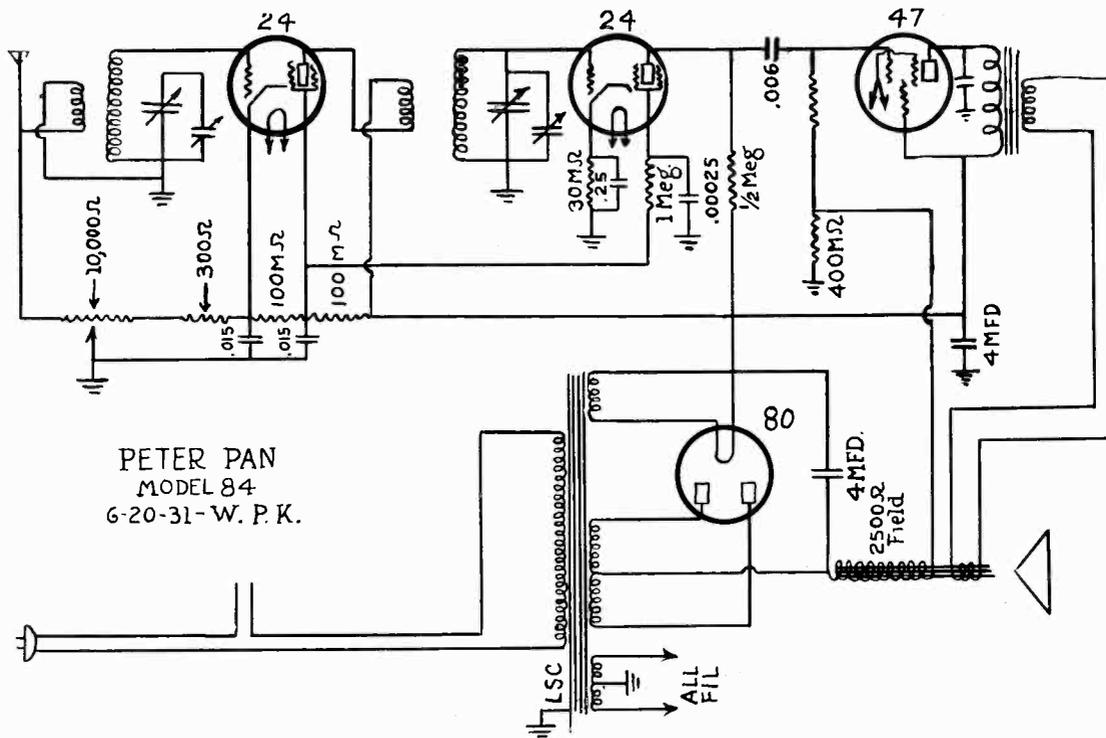






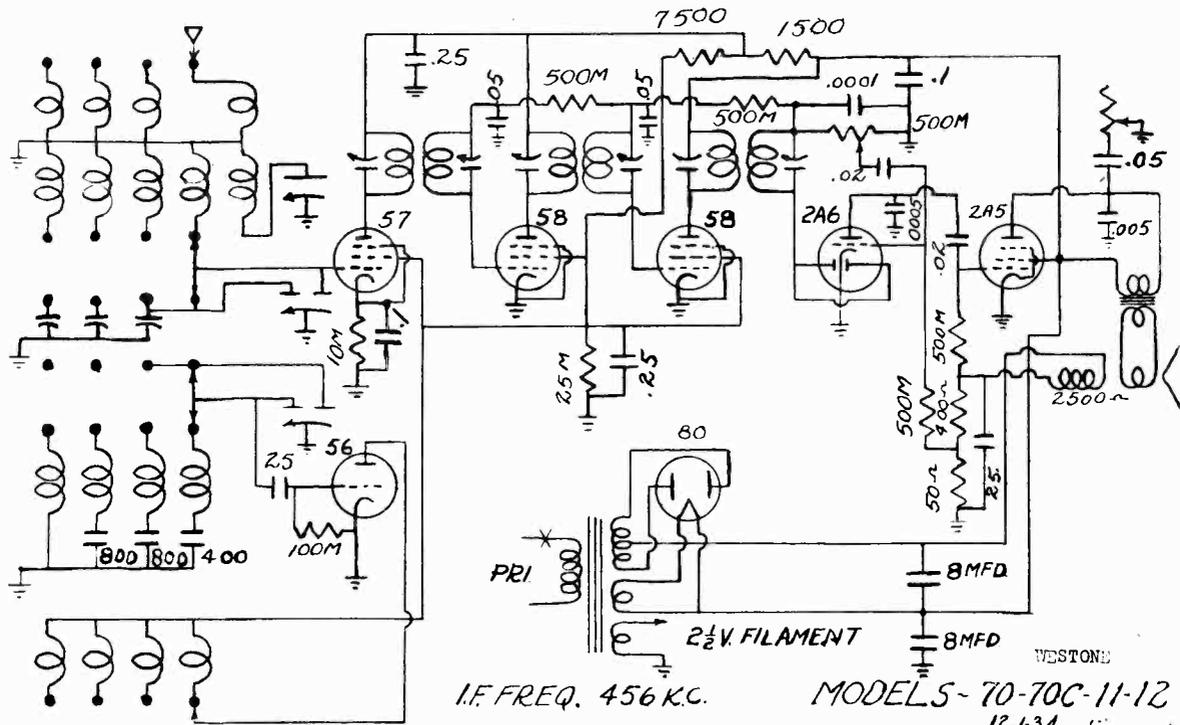
JACKSON-BELL CO., INC.  
WESTONE RADIO CORP.

MODEL 84  
MODELS 70, 70C, 11, 12  
Schematics



PETER PAN  
MODEL 84  
6-20-31-W. P. K.

FREQUENCY RANGE - 550 to 1500 KC  
CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION

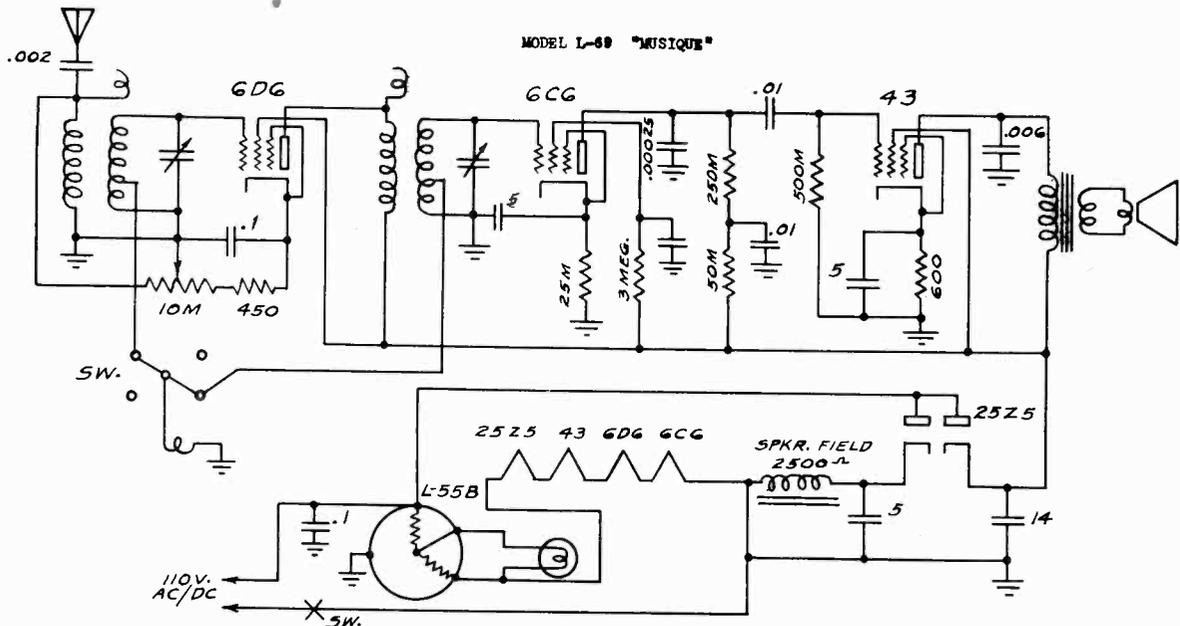


I.F. FREQ. 456 K.C. MODELS-70-70C-11-12  
CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION  
WESTONE  
12-134



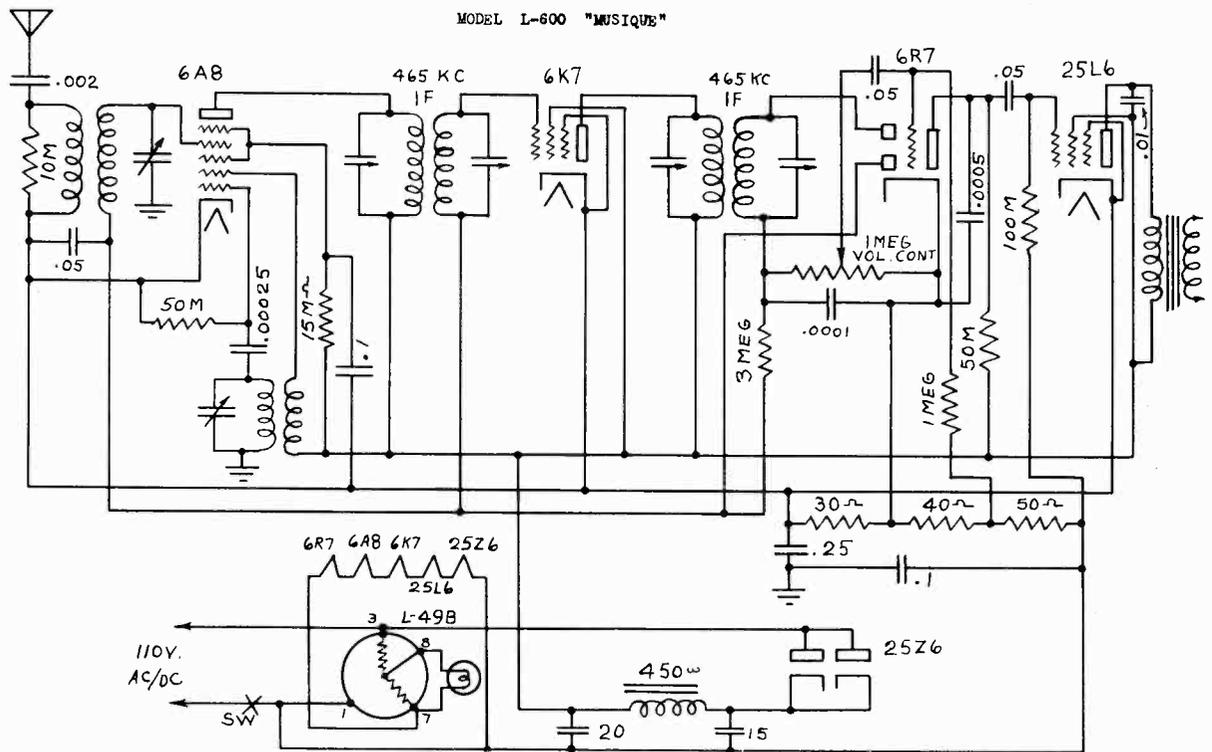
LAUREHK RADIO MFG. CO.

MODEL L-69 Musique  
 MODEL L-600 Musique  
 Schematics, Alignment



CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION  
 FREQUENCY RANGE - 550 to 1600 KC

LAUREHK RADIO MFG CO

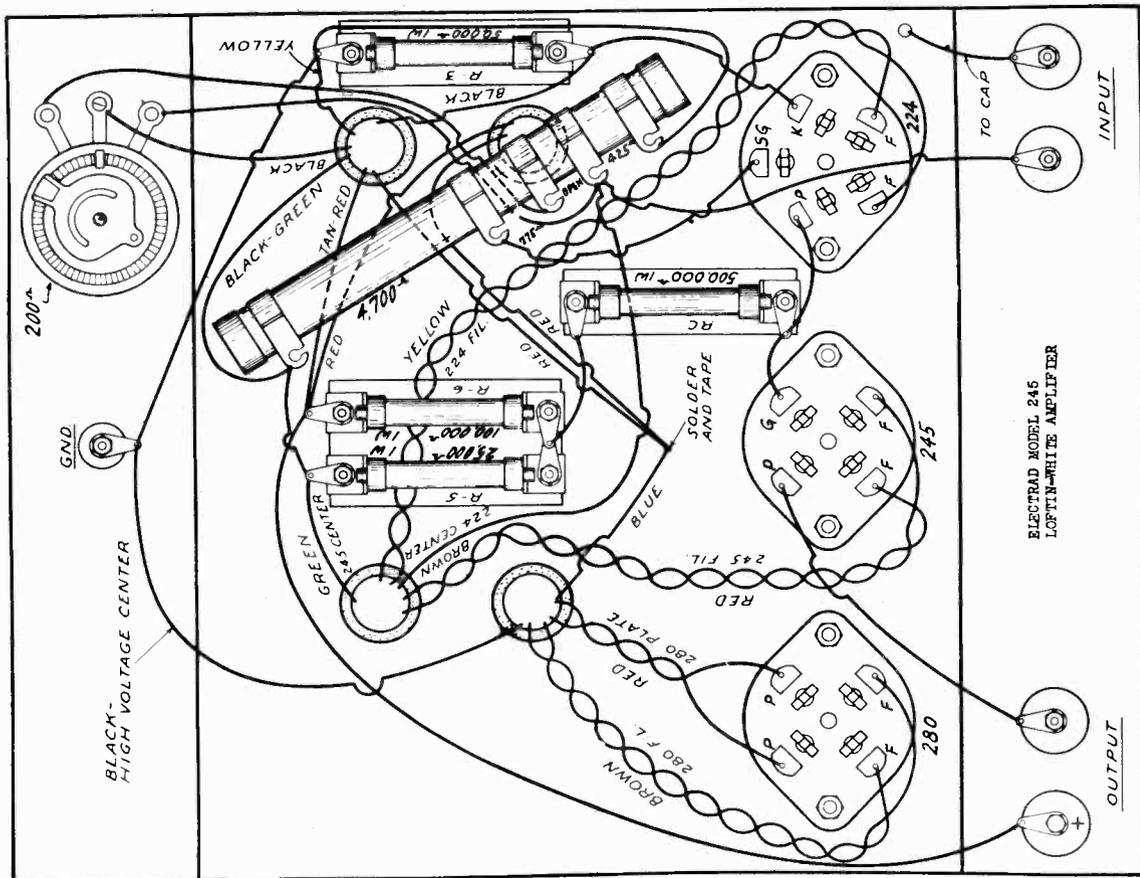
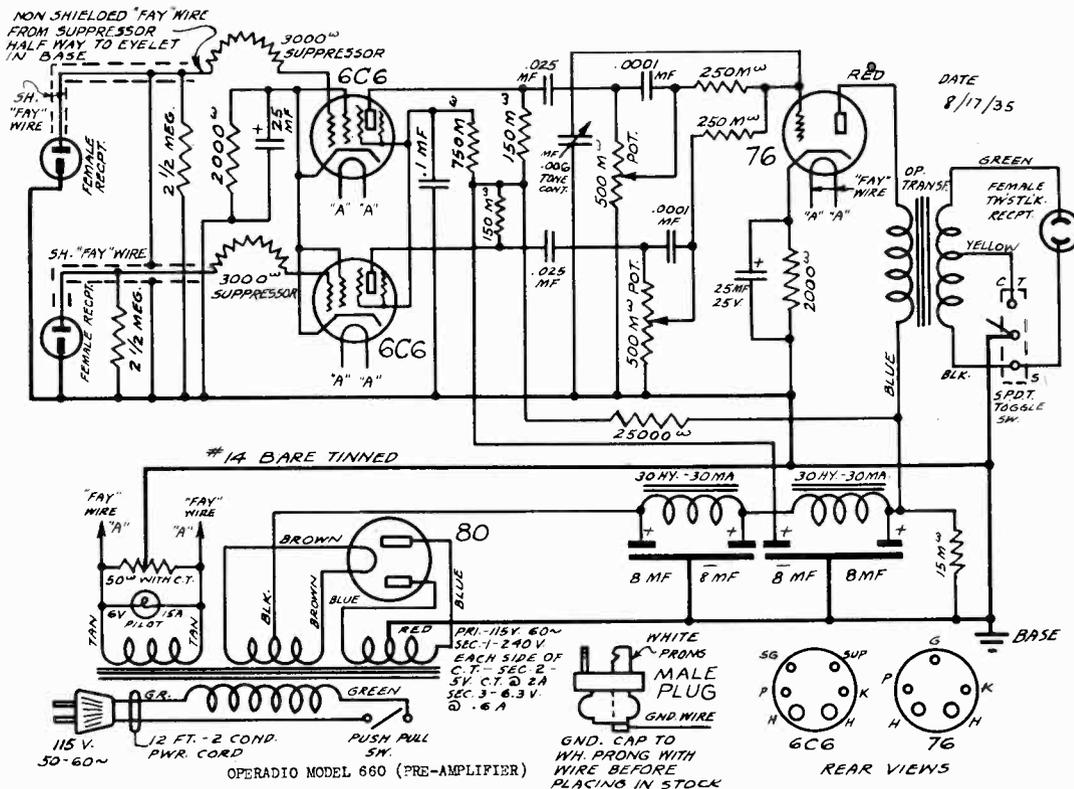


CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION  
 FREQUENCY RANGE - 550 to 1600 KC

LAUREHK RADIO MFG CO

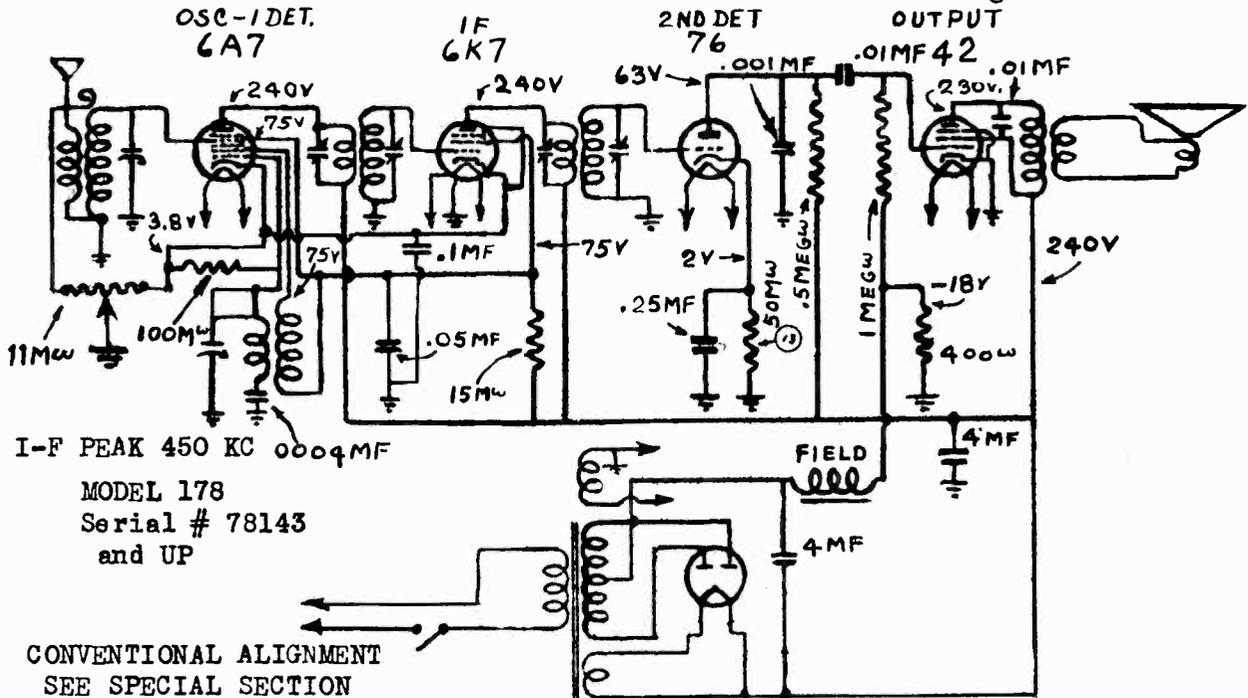
MODEL 245 Amplifier  
MODEL 660 Amplifier  
Schematics

OPERADIO MFG. CO.  
ELECTRAD, INC.

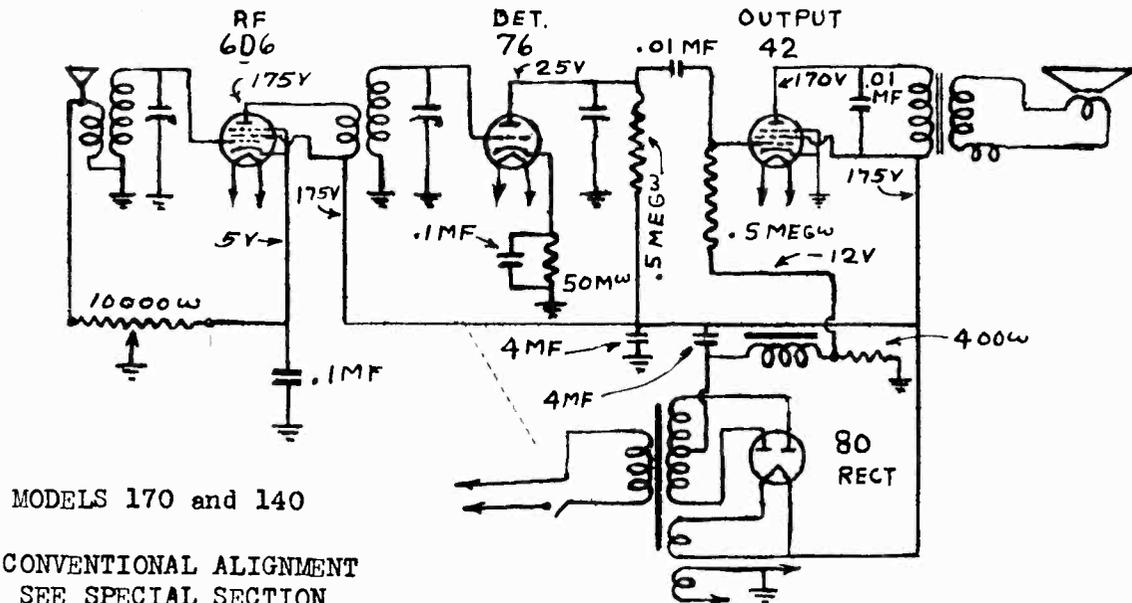


RADIO PRODUCTS SALES CO.

MODELS 140,170 Clipper  
MODEL 178 Clipper  
Schematics, Voltage  
Alignment



Align the I-F transformer trimmers at 450 KC.  
Generator set to 1400 KC, align the rear trimmer of the variable condenser to a maximum peak. (Oscillator section)  
Generator at the same frequency, align the front trimmer of the variable condenser to maximum peak. (Antenna trimmer)  
No padding is required for the Oscillator circuit.



The generator is connected to the antenna of the receiver and set to 1400 KC. The trimmer of the front section of the variable condenser is then adjusted to maximum peak. The rear trimmer of the variable condenser (ANT) is next peaked to maximum.

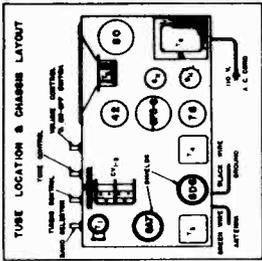




MODEL AX  
 MODEL S HMS, HMT Teletalk  
 MODEL ICS-1241  
 MODEL MS  
 Schematics

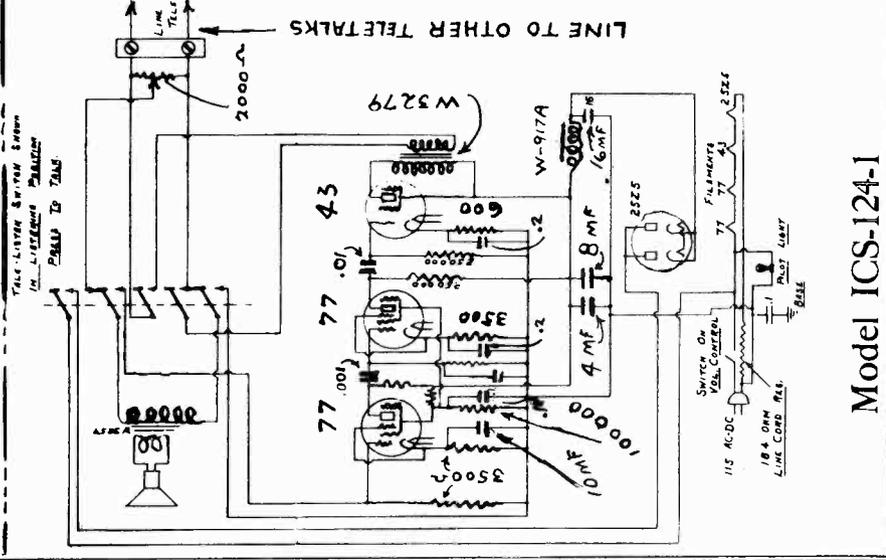
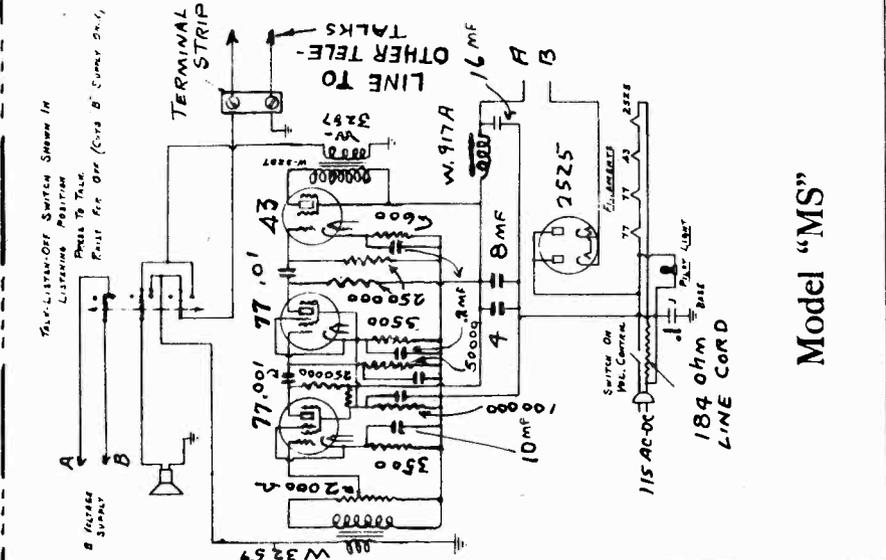
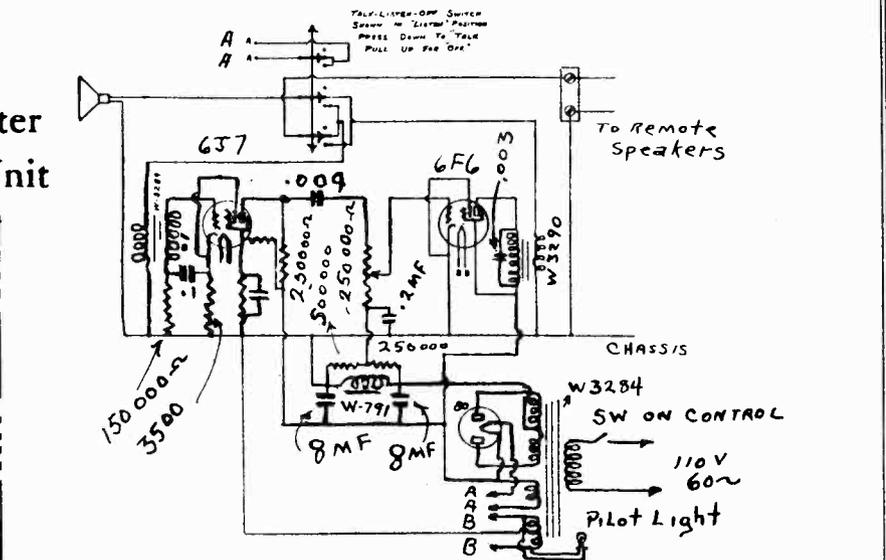
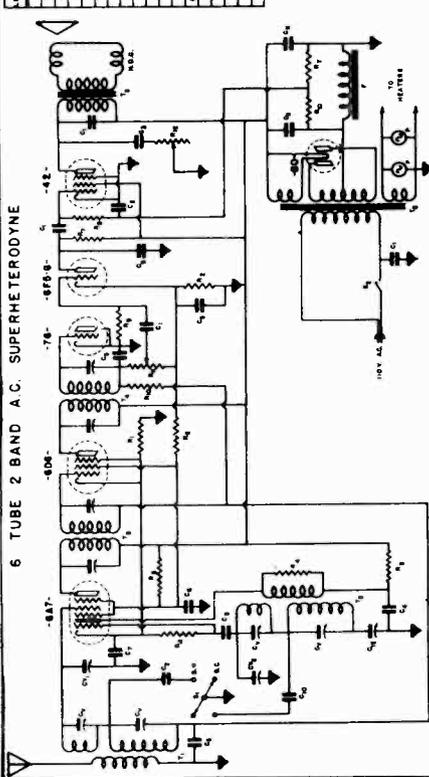
WEBSTER ELECTRIC CO.  
 RADIO VISION CORP.

HMS and HMT Webster  
 Electric "Teletalk" Unit



TYPE	DESCRIPTION	EXPLANATION
1	5Y4 RECTIFIER	5Y4 RECTIFIER
2	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
3	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
4	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
5	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
6	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
7	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
8	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
9	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
10	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
11	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
12	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
13	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
14	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
15	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
16	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
17	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
18	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
19	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
20	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
21	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
22	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
23	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
24	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
25	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
26	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
27	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
28	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
29	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
30	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
31	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
32	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
33	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
34	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
35	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
36	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
37	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
38	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
39	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
40	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
41	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
42	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
43	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
44	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
45	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
46	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
47	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
48	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
49	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER
50	6X4 FULL WAVE RECTIFIER	6X4 FULL WAVE RECTIFIER

IF PEAK 456 KC  
 CONVENTIONAL ALIGNMENT-- SEE SPECIAL  
 SECTION.  
 RADIO VISION CORP.



Model "MS"

Model ICS-124-1

**Emerson L117, L122, L133, L135, L141**

The schematic on page 7-27 of *Rider's Volume VII* applies only to sets bearing serial numbers under 895,962. Since the publication of Volume VII we have been advised by the manufacturer that changes have been made in this chassis, Model L, and in order that you may have the latest data, we are showing herewith the schematic of the chassis that is used in those sets with serial numbers above 895,962. Also please note that a sixth model number has been added to the above list: L150.

In this late chassis a 75 second detector has been substituted for the 85 tube. The voltage table, given with the rest of the servicing data on page 7-28 of *Rider's Volume VII*, is the same as that of the new chassis, except

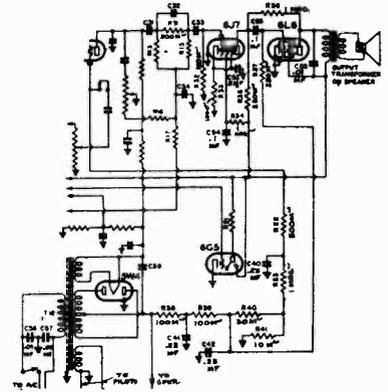
for the readings of the 75 tube, which are:  
 Plate ..... 120  
 Screen ..... —  
 Cathode ..... 1.8  
 Filament ..... 6.3

Note that in Model L150 the electrolytic condensers, C28 and C29, have values of 12 mf. and 8 mf. respectively, and have a voltage rating of 450. Also note that in sets having serial numbers below 961,900 the two primaries of the antenna coil, T1, were in parallel from antenna to ground, and a 0.00005-mf. mica condenser was in series with the antenna lead and the short-wave primary. Also, C17 was an 0.00135-mf. mica condenser.

The General Notes and Adjustments on *Emerson* page 7-28 apply to this new chassis, as well as the early.

**Emerson Chassis C and CLW**

The 6C5 and the 6F6 tubes of these chassis have been replaced by a 6J7 and 6L6 respectively. There have also been other changes in the audio



Changes in Emerson Chassis C and CLW amplifier, which can be seen by comparing the partial schematic shown herewith and the original which will be found on page 7-36 of *Rider's Volume VII*. The values of parts on the accompanying schematic are the new values. These changes apply to sets carrying serial numbers above 880,050 of Chassis C and above 848,410 for Chassis CLW.

Also please make a note that Chassis CLW is the same as Chassis C, except that a long-wave coil has been substituted for that one covering the police range.

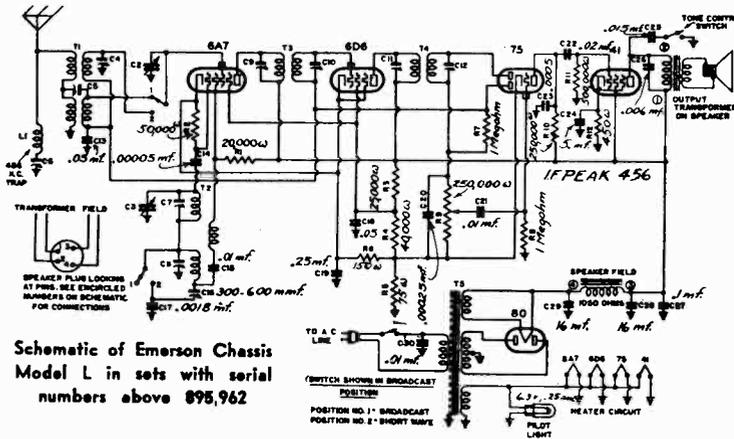
The voltage data that appears on page 7-35 applies to sets having the above changes incorporated with the exception of the readings for the 6J7 tube; these are: Plate—115; Screen—45, and Cathode—1.2. This means that the readings for the 6L6 are the same as those for the 6F6.

**Emerson 35**

The voltage readings for Chassis T6, used with the model 35, will be found below. The schematic of this receiver will be found on page 4-3 of *Rider's Volume IV*.

Tube	Plate	Screen	Cath-ode	Sup-pressor
78 1st R.F. ....	98	98	1-3.5	0
78 Det-Osc. ....	98	98	13	13
78 I.F. ....	98	98	1-3.5	0
75 2nd Det. AVC ..	50	..	1.0	..
43 O.P. ....	90	98	0	..

The bias for the 43 tube is measured across the filter choke and should be between 15 and 18 volts. The voltage across the speaker field should be approximately 115.



**Schematic of Emerson Chassis Model L in sets with serial numbers above 895,962**

**Emerson H-5**

The schematic of this chassis appears on page 3-6 of *Rider's Volume III* and page 884 of the *Rider-Combination Manual*. The voltage data and socket layout appears on page 4-5 of *Rider's Volume IV*. Also on this latter page is the schematic diagram for the chassis No. H-5-L, which receiver has the same voltage and socket layout with the following exceptions:

A 6A7 tube is used as a 1st detector-oscillator and the "screen" voltage reading in the table should be 50 instead of 98. This tube in the socket layout is the top one on the right-hand side nearest the gang condenser and should be so marked on the above-mentioned page, bearing in mind, of course, that this layout also applies to the H-5 chassis, which uses a 78 tube as a 1st detector-oscillator.

Also please note that the model numbers of this chassis, H-5, are 30, 250, and 300.

**Emerson 117**

We are advised by the manufacturer that receivers having serial numbers above 761,440 of this model (Chassis C-5) have the following changes incorporated in the circuit:

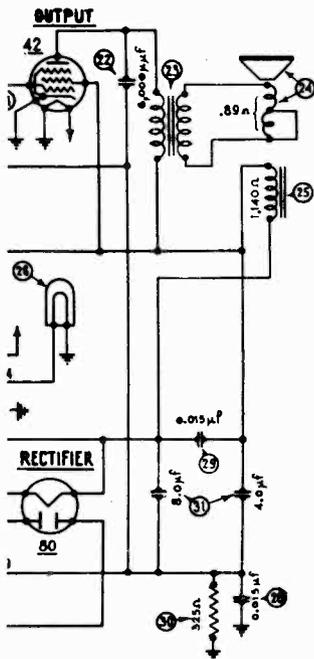
The compensator on the oscillator coil trimmer strip, which formerly went from the grid condenser to ground, now goes directly across the broadcast oscillator secondary. This change facilitates alignment.

The compensator on the antenna coil trimmer strip, which formerly went from the grid end of the broadcast antenna secondary to ground, now goes from the grid end of the broadcast antenna secondary directly to the antenna lead. This change introduces capacity coupling and increases the sensitivity at the high-frequency end of the broadcast band.

The schematic of this receiver will be found on page 7-21 of *Rider's Volume VII*.

**Philco 59**

The schematic, furnished by the manufacturer and shown on page 5-30 of *Rider's Volume V*, has an error in the field coil circuit, Part No. 25. Compare



Partial schematic of Philco 59, showing correct wiring of the field coil, Part No. 25.

the partial schematic shown here with the one mentioned above and you will see the difference in the connections to the field coil.

**Philco 37-33**

Starting with Run No. 3, the filament wiring of the 1D5G i-f. tube was reversed, thus improving operation of the set. In Fig. 1 on page 7-16 of *Rider's Volume VII*, the left-hand filament terminal of this tube is marked "2 volts." This terminal is now grounded to the chassis.

Referring to Fig. 3 on the same page, resistor No. 8 has been removed from the r-f. terminal panel and connected directly from the oscillator grid contact on the 1D7G socket to ground. This change improved the sensitivity in the center of the broadcast band.

**Philco 630**

The schematic of this receiver shown on page 6-31 of *Rider's Volume VI* indicates a 1d-coil resistance of 1140 ohms. This is incorrect and should be 640 ohms. Please make this change in your Volume VI.

**Philco 65**

The schematic of this receiver was published on the following pages of *Rider's Volume I*: page 1-16 of the revised edition and page \*459 of the early edition; and on page 1638 of the *Rider-Combination Manual*. At the time of publication the values of the parts were unobtainable and these are now given in the list below. The first column is the identifying number used on the schematic; the second column is the part number; and the third column is the value.

Schematic Number	Part Number	Value
1	3524	10,000 ohms
5	3292A	.1 mf. — 250 ohms
6	3584A	.05 mf. — 250 ohms
13	3583	.5 mf.
14	3525	32,000 ohms
21	3422	200 "
22	3526	5,000 "
23	3518	4,000 "
24	3512	2700 ohms (700,2000)
25	3528	2,000 ohms
26	3628	6 "
27	3292B	.05 mf. 00 250 ohms
29	2850	3200 "

**Philco 645**

The schematic of this set will be found on page 7-109 of *Rider's Volume VII*. Several changes have been made, as follows:

Starting with Run No. 3, the 51,000-ohm resistor, No. 16, has been removed. A 32,000-ohm resistor, 1/2 watt, Part No. 33-332334, has been connected from the oscillator grid of the 6A7 to the suppressor grid of the 78 r-f. tube. The 0.05-mf. condenser, No. 61, has been removed. The 25,000-ohm resistor, No. 60, has been replaced with one having a value of 240,000 ohms, 1/4 watt, Part No. 33-424143.

A 0.06-mf. condenser, Part No. 30-4114, has been connected from the —C end of the B.C. resistor, No. 64, to the junction of the 1-megohm and 490,000-ohm resistors, Nos. 66 and 67.

The filament voltage of the 80 rectifier is shown as 6.3 volts in Fig. 3 on page 7-108 of *Rider's Volume VII*. This should be 5.0 volts.

Beginning with Run No. 4, the green and yellow leads of the a-f input transformer, No. 52, were reversed to reduce hum.

**Philco 651**

The leads of the i-f. transformer should be separated as widely as possible from each other, in order to reduce the possibilities of i-f. oscillation.

This means, too, that the leads from one of these transformers should be as far as possible from the leads of the other.

The -B lead from the suppressor plate terminal of the 78 r-f. tube to the wiring panel mounted on the 0.05-mf. condenser, No. 72, should be run close to the baseboard and away from the wave trap coil. This should eliminate motor-boating at 540 kc.

For schematic, see page 7-111, *Rider's Volume VII*.

**Philco 655**

In the paragraph titled "Police" of the alignment instructions on page 7-116 of *Rider's Volume VII*, it reads that the detector trimmer No. 11 should be adjusted for maximum output. This should be trimmer No. 12 to conform with the layout of Fig. 4 at the top of the page.

In Fig. 1, the designations of the r-f. transformers on page 7-114 should be changed as follows: 15-A, oscillator, to 16; 9, antenna, to 3; and 14, detector, to 10. To correct the lead designations of the oscillator transformer, No. 16 on the schematic, change No. 3 to 7; 7 to 5; 5 to 4; and 4 to 3.

Another error in the manufacturer's data was in the tube layout shown on the top of page 7-115 of *Rider's Volume VII*. The second detector is a 75, not an 85. The designation on the schematic on this same page is correct. Please make these changes in your Volume VII.

Beginning with Run No. 4, the 51,000-ohm resistor, No. 14, was removed and a 32,000-ohm resistor, Part No. 33-332334, 1/2 watt, was connected from the oscillator grid of the 6A7 to the suppressor of the 78 r-f. tube.

**Philco I-F. Peaks**

In certain localities it has been found advisable to align certain two- and three-gang Philco sets at some other i-f. peak than the one for which they were designed, i.e., 470 kc. This change has been found necessary because of some interference that is peculiar to these localities: Portland, Maine; Miami, Fla.; New Haven, Conn.; San Diego, Cal.; about one third of northern Long Island; Newark and southern New Jersey.

Therefore, if you are operating in any of these places and are bothered by code interference, align either of the two type sets mentioned above at 456 kc., 465 kc., or 480 kc. The i-f. peaks just mentioned are to be used depending on the location and type of interference.

**Philco 37-600**

To prevent reduction in sensitivity at the low-frequency end of the band, the 200-ohm resistor, No. 7, has been changed to 300 ohms, starting with Run No. 3. This change has been noted in the Parts List on page 7-37 of *Rider's Volume VII*, but it still shows as 200 ohms on the schematic, which will be found on the same page.

The lead connecting the suppressor grid to the cathode of the 6J7G i-f tube has been changed. It now runs from the suppressor grid to the junction of the sensitivity control, No. 23, and the secondary of the i-f transformer, No. 19.

**Philco 37-116**

Up to Run No. 4, a condenser was connected between the heater contact and ground of the 6K7G r-f tube. This condenser was removed starting with Run No. 4 to prevent hum modulation on Range 5. It is not shown on the schematic appearing on page 7-31, 7-32 of *Rider's Volume VII*.

Electrolytic condensers, Nos. 126 and 127, 8 mf., have been changed to 4 mf. Part No. 30-2174, starting with Run No. 5.

Starting with Run No. 6, the two 25,000-ohm resistors, Nos. 110 and 111, have been removed from the audio unit and relocated in the power unit near the 6B4G sockets.

To obtain the proper selectivity curve in the expanded position of the i-f expanding unit and to avoid regeneration, dress the plate lead (white) of the 6L7G tube as follows: The plate lead should lay across the 6L7G socket, then pass into the oscillator section close to the base; from here the wire must pass through the second aperture from the front of the r-f unit into the i-f unit.

To prevent clicks when tuning the bass compensation control on a very strong carrier, a 2-megohm resistor, Part No. 33-520339, was connected from the lug on which the 70,000-ohm resistor, No. 103, and the .008-mf. condenser, No. 104, are connected in the audio unit, to ground.

It will be noticed in the schematic on page 7-31, 7-32 of *Rider's Volume VII*, that two parts carry the same number: No. 135. One is the pilot light and this is the correct number for this part; the second is a switch, located on the schematic just below and to the left of the 6J5G AVC tube. The number of this switch should be 137. This number does not appear in

the list of parts on page 7-36, but the switch is used on the automatic dial mechanism and appears in the parts list under "Code 122" as "Plunger Stop and Switch Assembly, Part No. 45-2330."

Another switch located between Nos. 100 and 103 on the schematic with the wording "used in code 122 only," is used to short the audio system when using the automatic dial. This switch is located on the vernier drive assembly. The part numbers of the removable sections which contain the riveted contacts, are 45-2350 and 28-4110.

The magnetic tuning transformer has been changed. Its old part number was 32-2217 and its new number is 32-2361.

**Philco 37-38**

Starting with Run No. 4, the filament wiring of the 1D5G i-f. tube was reversed to improve the operation of the set. In Fig. 1 on page 7-18 of *Rider's Volume VII*, the "F+" of the 1D5G socket becomes "F—" and is grounded to the lug near the socket.

The 32,000-ohm resistor, No. 8 (see schematic on page 7-17 of *Rider's Volume VII*) has been replaced with one having a value of 51,000 ohms, Part No. 33-351339. The resistor is removed from the range switch assembly and is connected directly to the oscillator grid of the 1C7G tube and ground. This change was made to improve the sensitivity in the center of the broadcast band.

**Philco 37-60**

Run No. 2. The 1000-mf. condenser, No. 11, was changed to 250 mmf., Part No. 30-1032, and resistor No. 12 was changed from Part No. 33-351339 to No. 33-332339. This change was made to prevent relaxation oscillation.

Run No. 5. Refer to the Base View of the chassis on page 7-22 of *Rider's Volume VII*. The condenser No. 46 has been moved from the location shown—near the front—to the rear of the power unit. The tubular condenser No. 40 has been replaced with Part No. 8318-SU Bakelite condenser and mounted in the location from which No. 46 was removed.

Run No. 6. The suppressor grid of the 6K7G, i-f tube, is removed from ground and connected to the —2.5 negative tap of the bias resistor, No. 43. See schematic on page 7-19 of *Rider's Volume VII*.

Beginning with Run No. 9, the i-f transformers were changed. The first i-f transformer No. 15 now is Part No. 32-2274 and the second, No. 27, is Part No. 32-2276. The first i-f transformer has a stabilizing winding which is placed in series with the suppressor grid of the 6K7G i-f tube. The short or yellow lead is connected to the ground lug and the long lead to the suppressor grid.

**Philco 37-61**

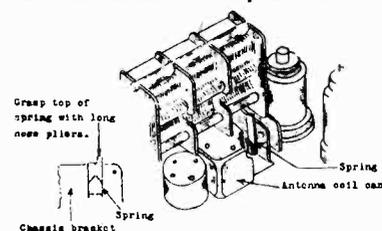
The changes applying to Philco Model 37-60 also apply to Model 37-61 with the exception of the first paragraph. The schematic diagram appears on page 7-23 in *Rider's Volume VII*.

**Philco 90, 90A**

Please make a note on page 84 of *Aligning Philco Receivers* that the i-f. peak of both chassis used in these models (with two 45s and one 47) is 175 kc. Note 1 on this page should read "175 kc. for both chassis." The correct i-f. peak is indicated on the schematics in *Rider's Manuals*.

**Wells-Gardner 6K Series**

If noise (not motor or vibrator) is encountered in this model, it may be due to the fact that the antenna transformer shield can is not grounding satisfactorily. The noise brought about by this condition is a popping or scratching, and will be heard only when the chassis is bumped or shaken.



By inserting a spring as shown above in the Wells-Gardner 6K series chassis, a good ground is assured for the antenna transformer shield.

This condition can easily be remedied without removing the chassis from the case by inserting a phosphor-bronze spring between the antenna coil can and the chassis bracket. This spring is inserted with a pair of long-nose pliers and the position after insertion is shown in the illustration.

For other data, see pages 7-20 and 7-21 in *Rider's Volume VII*.

**RCA Automatic Record Changer**

Data and notes on the automatic record changer will be found incorporated in the service data of model RE-73. These notes will be found on the following pages in *Rider's Volume II: revised edition, pages 2-79 to 2-83 inclusive; early edition, pages 504-Q to 504-U inclusive; and in the Rider Combination Manual, pages 1897 to 1901 inclusive.*

Please make a note in your Index where these data may be found.

**RCA 690**

We have been advised by the manufacturer that no service data on this model were issued, but that it contained a Radiola Model 82 chassis and a Capehart Model 1012-C automatic record changer.

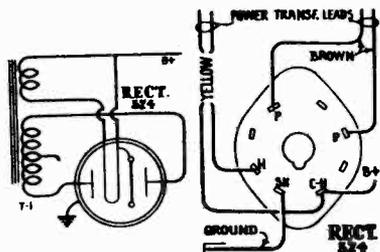
The schematic diagram of the 82 chassis will be found on page 1-45 of the revised *Volume I*; page \*502 of the early edition; and on page 1929 of the *Rider-Combination Manual*. Other data will be found on the following pages: 2-92, 2-93, and 2-94 of the revised *Volume II*; 502-C, 502-D, and front of the early edition; and on pages 1930, 1931, and 1932 of the *Rider-Combination Manual*.

**RCA T11-8**

A 5Z4 metal rectifier has been substituted for the 5Z3 in this chassis, the schematic for which will be found on page 7-144 of *Rider's Volume VII*.

**RCA T6-1 and C6-2**

A metal rectifier tube, 5Z4, has been substituted in the chassis used in these models in place of the type 80 shown in the schematic on page 6-83 of *Rider's Volume VI*. The partial schematic and wiring diagrams in the accompanying illustration, show how the 5Z4 is connected.



These diagrams show the connections for the 5Z4 rectifier in the RCA models T6-1 and C6-2.

The resistor, R3, in the cathode circuit of the 6A8 tube has been changed from 56,000 ohms to 100,000, the new Part No. 3118. The resistor, R4, in the screen grid circuit of the same tube, has been changed from 12,000 ohms to 33,000, the new Part No. 8072. New power transformers have also been substituted, depending on the voltage and frequency of the line; they are: 105-125 volts, 50-60 cycles, Part No. 11848; same voltage for 25-50 cycles, Part No. 11849; for 100 up to 250 volts, 40-60 cycles, Part No. 11850. The following parts are not used in the revised chassis: the .1-mf. condenser, C23; and the resistors, R8, 1200 ohms, and R9, 220,000 ohms.

**RCA D11-2**

Several changes have been incorporated in this model, the schematic of which may be found on page 7-137 of *Rider's Volume VII*.

A 5Z4 metal rectifier tube has been substituted for the 5Z3 formerly used. The phonograph motor has been changed and is now of the capacitor type. The motor is wired in this instrument as follows: One power supply lead connects to one terminal of switch S14, the main toggle switch. The other terminal of S14 connects to one terminal of the brake switch S15. The other terminal of S15 connects to the yellow motor lead. The green motor lead connects to one lead of the motor capacitor, Part No. 12051. The red motor lead connects to the other capacitor lead and also to the remaining power-supply lead. A new suspension spring is also used, Part No. 12050.

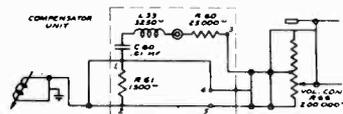
The 0.01-mf. condenser, C24, is no longer used. The following parts are added to the revised model D11-2: the motor, 105-125 volts, for 60 and 50 cycles. Part Nos. 9650 and 9651 respectively for the motor formerly employed; filter pack for phonograph that is used in some models, Part No. 12037; and a new reproducer, complete, Part No. 6952.

**RCA R-14**

For servicing information on this model, please refer to the data covering Radiola Model 42, which will be found on page 3-19 of *Rider's Volume III* and on page 1866 in the *Rider-Combination Manual*.

**RCA 342**

This combination radio-phonograph set is similar to the Model 341 with the exception of the pick-up coupling transformer. Instead of this unit, the



Change in the pick-up circuit of the RCA 342. Compare with Model 341.

apparatus shown in the schematic herewith, has been substituted in the 342. The schematic for Model 341 will be found on page 5-157 in *Rider's Volume V*.

**RCA AR-4229**

Certain changes were made in this police auto radio receiver, necessitating new components. Below will be found corrections for the parts list, which was run on page 5-206 in *Rider's Volume V*.

New Stock No.	Old Stock No.	Description
4049	3745	C-12, 1310 mmf.*
7701	7601	3-gang variable condenser
7702	6540	R-f coil assembly
7703	6731	Antenna coil
7704	6471	Oscillator coil
6570	6784	Dial scale
7698	G-7850	Control box cover
7705	G-7851	Control box complete
6161	G-5021	Station selector knob

\*Was 745 mmf.

**RCA 6K10, 6T10, 8T10, 9K10**

These receivers are similar to models 6K2, 6T2, 8T, and 9K2 respectively, except for cabinet design. The servicing data, as published on the following pages in *Rider's Volume VII*, applies to these new model numbers: 6T10 and 6K10, page 7-41; 8T10, page 7-56; and 9K10, page 7-99.

**RCA 10K11, 10T11**

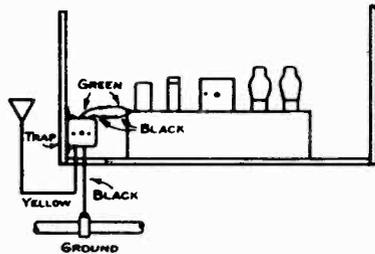
The chassis and speakers of these two models are identical to models 10K and 10T, which will be found in *Rider's Volume VII* on page 7-132. The service data starting on that page applies to these new model numbers with the exception of some minor replacement parts for the new cabinets in which these chassis are housed.

**Silvertone Wave-Trap**

A wave-trap has been designed for use with the following receivers when they are used near ship transmitters, airports, or air beacon stations, which cause code interference: 1989, 4408, 4420, 4520, 4409, 4413, 4442, 4443, 4522, 4523, 4542, 4543. The part number of this wave-trap is 101311-4256.

**Installation:**

The trap should be mounted, by means of two wood screws, at any convenient place on the chassis shelf or cabinet, where it will be near the an-



Installation of wave-trap in various Silvertone chassis

tenna terminal of the set. Connect the yellow lead of the wave-trap to the antenna downlead and splice the green wire of the wave-trap to the green antenna lead of the receiver. Cut off any excess wire from the trap and from the chassis antenna lead, so that the green lead from the wave-trap to the chassis is as short as possible. The yellow lead from the wave-trap should be run so that it is as far as possible from the green lead. Splice one of the black leads from the wave-trap to the black ground lead of the receiver. Connect the other black lead to the ground that is used for the installation. See accompanying illustration.

**Adjustment:**

The trap is pre-tuned to the intermediate frequency of the set, so that normally no further adjustment should be needed. However, if interference still be experienced, tune the receiver to approximately between 550 and 600

kc. Then adjust the wave-trap until the interference is eliminated, by means of the trimmer screw at the bottom of the container. The addition of the trap will reduce the sensitivity of the receiver around 600 kc. by about 50%. It would be wise to advise the set owner of this fact before installing this trap.

**Silvertone 2- and 3-Volt Chassis**

The model numbers in which these chassis are used are as follows: 4404, 4406, 4424, 4444, 4524, and 4544 for the 3-volt models; 4410, 4411, 4425, and 4445 for the 2-volt models. The schematic for both chassis will be found on page 7-55 of *Rider's Volume VII*.

In some localities where a 930-kc. station is operating, it may be desirable to shift the i-f. peak — 465 kc. — of these chassis to eliminate a whistle due to a beat between the second harmonic of the i-f. peak and the signal of 930 kc.

First determine at what point between 900 and 960 kc. the whistle will be least objectionable. Dividing this frequency in half will give the new i-f. peak at which the receiver should be aligned. For example: assume that the whistle at 915 kc. would be unobjectionable, then the new i-f. peak would be  $915 \div 2$ , or 457.5 kc. Align the i-f. transformers at this new frequency and then realign the rest of the receiver, as described on page 7-56 of *Rider's Volume VII*.

**Silvertone 1802A, 1803A, 1807**

Refer to the schematic page 5-31 of *Rider's Volume V*. The 0.001-mf. condenser in the plate circuit of the 2A6, second detector, is no longer grounded. One side is still connected to the plate, as it was in the schematic mentioned above, but the other side now is connected to the cathode of the 2A6.

**Silvertone 1825, 1828**

A change has been made in the antenna circuit of this chassis, the schematic of which appears on page 5-39 of *Rider's Volume V*. The switch, connected across the 100,000-ohm resistor in the antenna primary circuit, has been eliminated.

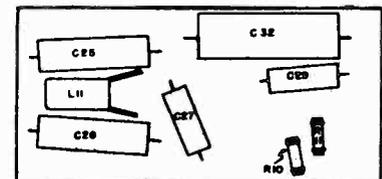
**Silvertone 1945**

The original production of this model was supplied with 1.5-ampere fuses. Sometimes trouble was experienced with these fuses blowing out, due to the initial charging current of the electrolytic condensers. This occurred only when the receiver had not been used for a considerable time, so that the electrolytic condensers momentarily drew large forming current when the set was first turned on.

Later production of this model was supplied with a 2-ampere fuse and if you come across any of these models with the smaller fuse, substitute the 2-ampere type.

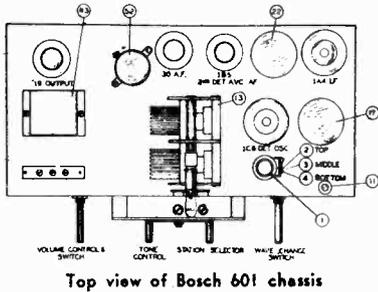
**Silvertone 4428A, 4448A, 4528A, 4548A**

We have been advised by the manufacturer that the tube layout and the two chassis views that were supplied with the servicing instructions of the chassis used in the above models, were incorrect. We are reproducing here the three correct layouts that should appear on pages 7-61 and 7-62 of *Rider's Volume VII*. Please make proper notation on these pages in your Manual.



**Bosch 601**

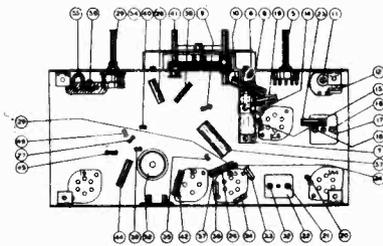
Several omissions of parts values were in the preliminary schematic diagram of this set which was published on page 7-20 of *Rider's Volume VII* and these missing values will be found below opposite the diagram number by which the various components are designated. The connections are the



same in the final schematic as they are shown on the above-mentioned page with the one exception: A 0.5-mf. condenser has been inserted between the high side of the filament supply and ground. Draw this in on your schematic just to the left of the dial lamp (No. 53) where the lead to the filament of the 1A4 tube is connected. The part number of this new condenser is CW 2-50 and its diagram number is 57.

Diagram No.	Part No.	Description
10, 28, 37	CW 4-02	0.02 mf., 400 v.
19, 23	CW 2-05	0.05 mf., 200 v.
29	VR 9538	0.5 megohm, vol. con.
38	CW 4-005	0.005 mf., 400 v.
42	CW 6-005	0.005 mf., 600 v.
44	CW 4-01	0.01 mf., 400 v.

Also check the values of diagram numbers 55 and 56; they should be 0.94 and 0.42 ohm respectively.



Below will be found the alignment data for this receiver together with the layouts of the apparatus on both the top and bottom of the chassis. The numbers of the parts correspond with the diagram numbers on the schematic already published in *Rider's Volume VII*.

Wave Switch	Dial Position	Dummy Antenna	Sig. Gen. Frequency	Sig. Gen. Connection	Trim-mers	Output Signal
Brdcut <sup>1</sup>	600 kc.	.5 mf.	465 kc.	1A4 grid 21, 22	10 <sup>2</sup> grid 16, 18	4 Max.
.	1800 kc.	.0002 mf.	1600 kc.	Antenna	.	8 Min.
.	600 kc.	.	600 kc.	.	.	11 <sup>1</sup> 3
.	1600 kc.	.	1600 kc.	.	.	8, 3 7
Sht. Wave	6000 kc.	.	6000 kc.	.	.	2 7

<sup>1</sup> Volume control to maximum and tone control to treble  
<sup>2</sup> While rocking condenser.

39. The new value is .005 mf., Part No. CW4-005.

Below will be found the resistance of the windings of the power transformer:

Winding	Primary	Sec. Total	6.3 Fil.	Rect. Fil.
TR 9555	15.5 ohms	600 ohms	.24 ohm	.17 ohm
TR 9564	16.5 ohms	570 ohms	.23 ohm	.14 ohm
TR 9565	61 ohms	580 ohms	.23 ohm	.15 ohm

Please add these data to the schematic.

**Bosch 650**

The final schematic of this model is the same as the preliminary, which will be found on page 7-33 of *Rider's Volume VII*, with the following exceptions:

Diagram No.	Old Value	New Value	Part No.
10	.0001 mf.	.00065 mf.	CM9511
18	.005 mf.	.005 mf.	CW4005
23	40,000 ohms	40,000 ohms	SA99957
38	.05 mf.	.25 mf.	CW2-25
51	30,000 ohms	50,000 ohms	RE95116
56	65 ohms	50 ohms	RE9537

Note that the part numbers only of items 18 and 23 are changed; the values remain the same.

Please make a correction on the schematic. The lower plate of condenser No. 10 should be connected to the junction of the tuning condenser and condenser No. 12. This was omitted from the drawing.

**Bosch 605, 605C**

The final schematic is the same as the preliminary, which will be found on page 7-25 of *Rider's Volume VII*, with the following change in the value of the .01-mf. condenser, Diagram No.

**Bosch 640**

The final schematic is the same as the preliminary, which will be found on page 7-31 of *Rider's Volume VII*, with the following exceptions:

Diagram No.	Old Value	New Value	Part No.
10	.0001 mf.	.00065 mf.	C59511
23	40,000 ohms	25,000 ohms	SA99777
38	.05 mf.	.25 mf.	CW2-25
90	.05 mf.	.1 mf.	CW2-10
56	65 ohms	50 ohms	RE9537

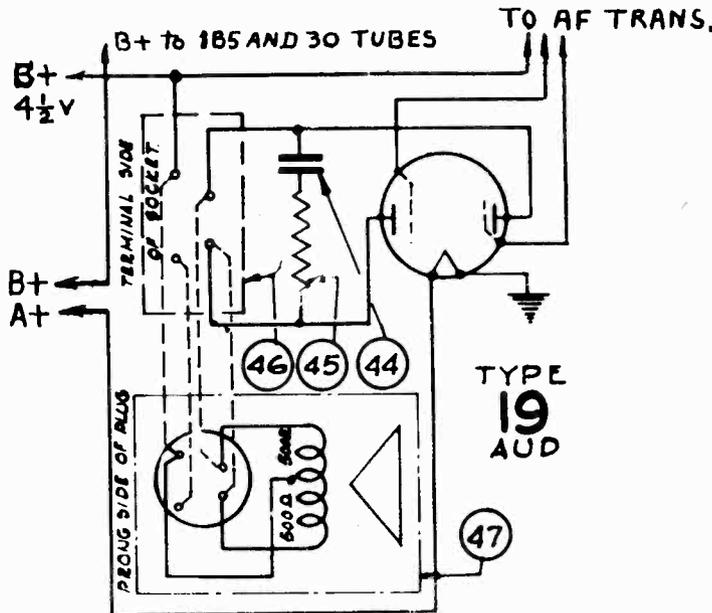
Please make these changes in the list of parts on Bosch page 7-32 in *Rider's Volume VII*.

**Silvertone Wave-trap Change**

Wave-trap, Part No. 1013114477, used for eliminating code interference in models 1986, 1987, 4403, 4463, 4464, 4484, 4563, and 4584 (see page 7-45 of *Rider's Volume VII*), is described as having three leads.

In later production of this trap only two leads were used, having the colors black and green. The green lead is to be connected to the green lead of the set's antenna lead or connected to the antenna terminal, if the receiver has a terminal board. The black lead of the trap is to be connected to ground.

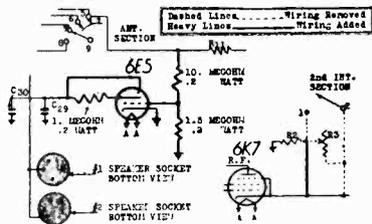
This trap acts as a series resonant circuit connected across the antenna and ground terminals of the set.



**CORRECTION OF SPEAKER CABLE CONNECTIONS TO THE SPEAKER PLUG OF MODEL 601.**

**Wells-Gardner 2CM-3A Series**

When the 6E5 cathode-ray tube is used in conjunction with the 2CM Series receiver, the set becomes a 3A series by the addition of the extra tube, which is a resonance indicator and is connected in the circuit as shown in



Wiring changes in Wells-Gardner 2CM for addition of 6E5 tube

the accompanying illustration. Refer also to the schematic shown on page 7-4 of *Rider's Volume VII*.

The 6E5 tube may be removed as follows: Pull off the cable assembly socket and swing the upper part of the tube bracket away from the console panel. Then loosen the thumb screw until the tube can be removed. To reinsert the tube, reverse the above instructions.

**Wells-Gardner 6L Series**

If r-f. noise or vibrator hash is encountered in this model, the following procedure may be followed to eliminate the trouble. See schematic on page 7-22 of *Rider's Volume VII*. Models in which these changes have already been incorporated may be identified by the paint mark on the "A" cable near the bayonet connector.

The lead from the antenna section of the gang condenser (section nearest 6D6 r-f. tube) should be unsoldered from the antenna coil terminal and cut to the exact length necessary to reach the terminal. It should then be resoldered to the terminal in the position shown in Fig. 1.

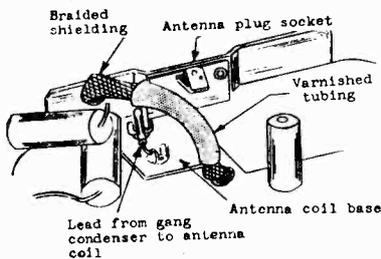


Fig. 1—New position of the antenna lead with shielding and tubing in place.

One end of a 4 inch piece of heavy braided shielding should be soldered to the ground lug on which the gang condenser braided cable is grounded—See Fig. 1. This piece of shielding must

be very heavy and should be composed of 4 pieces of ordinary braided shielding, each of which is made up of at least 64 strands of No. 34 wire. Slip a piece of varnished tubing 2 inches long over the free end of the cable. Then solder this end to the chassis base between the antenna and interstage coil bases at the point shown in Fig. 1.

On the side of the chassis case opposite the control cables, a hole should be drilled through the case and chassis base at the point shown in Fig. 2, using a No. 32 drill. Enlarge the hole in the case by using a slightly larger drill. Clean off the paint around the hole in

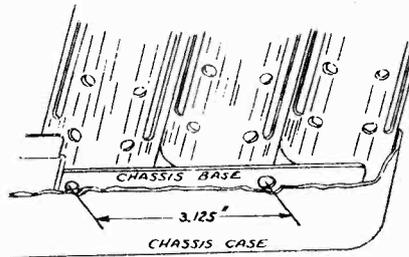


Fig. 2—Location of the hole through the chassis case and chassis base.

the chassis case so that the screw head will be well grounded. Then use a No. 6 self-tapping screw to ground the case to the chassis.

**Wells-Gardner 2DL Series**

We have been advised by the manufacturer that if an a-c. hum develops in this model the following should be checked:

Be sure that the volume control lugs are not grounded on the flat portion of the metal chassis wall which supports the rubber mounting foot.

The bottom plate under the chassis must be under the r-f. end of the chassis and away from the filter choke. If it is in the center or left side (from back of the set), move it towards the right side about one-half inch from the mounting bolt holes.

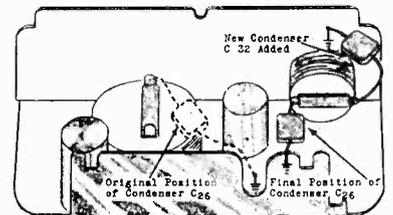
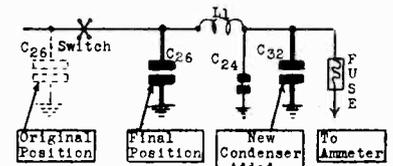
If you will consult the schematic diagram on page 7-7 of *Rider's Volume VII*, it will be seen that a 5Z4MG rectifier tube is employed. This is a metal-glass tube and that type only should be used. Do not substitute a 5Z4 (metal tube), as this will not operate satisfactorily at the voltages used in this model.

**Wells-Gardner 6R**

A change and an addition in the "A" line filter circuit has been made in this receiver, the schematic of which will be found on page 7-27 in *Rider's Volume VII*. Referring to Fig. 1, condenser C26 (.002 mf.) is moved to the

opposite side of the switch as indicated. A new condenser C32—.002 mf. is added as shown. The actual points at which these condensers are connected are shown in Fig. 2.

Receivers of this series having this change incorporated can be identified by a green paint mark on the battery lead. There will also be a letter "C" stamped on the chassis.



Schematic, Fig. 1, shows changes in Wells-Gardner 6R to eliminate motor noise. Fig. 2, below, shows new parts positions

The above mentioned changes are not required for most car installations and are made only to take care of extreme cases of motor noise.

It will be necessary in many Ford V8 installations to take the steps described above. If motor noise persists after the regular procedure has been followed, make this change in the "A" line circuit in Ford V8s or any other cars.

If motor noise still persists, it may be radiated through the openings in the chassis case on the tuning condenser side. Remove the chassis from the case and solder a piece of tin plate on the inside of the case over the openings on the tuning condenser side to completely cover these openings.

**Wells-Gardner 1936 Receivers**

In all 1936 receivers using 5Z4MG rectifier tubes it will be advisable to use 5Y3G rectifier tubes for replacement purposes. The latter is a common tube, easy to obtain and is not subject to the breakdown that was encountered in some of the 5Z4MG tubes.

**Howard HA-6**

In some cases of the early production of this model the wax holding the iron core of the i-f. transformers melted, causing the iron to collect at the bottom of the coil. A loss of sensitivity resulted. This trouble has been corrected in the later production.

Note that the same chassis is used in the Silvertone 4400.