VOLUME IX

PERPETUAL

TROUBLESHOOTER'S
MANUAL

REG U.S. PAT. OFF.

JOHN F. RIDER
This is a conventional universal receiver of the simple fixed-frequency type. The three tuned circuits are aligned by means of set screws. The tubes are fixed in the sockets and are not adjustable. All fuses are provided for the protection of the receiver from excessive current. The volume control should be set somewhere below its maximum position when the receiver is first turned on. The output of the receiver is designed to operate on 110 to 120 volts A.C. or D.C.
MODEL KB CHASSIS
(Battery Operated)

S1 - 132 Tube
S3-S4 - '34 Tube
S2-S5-S6-S7-S8 - '30 Tube

C1-C2 - 2 gang variable cond. 365 mmfd. Max. -5 mmfd.
C3 - Oscillator Trimmer Assem.
C4 - .1 mfd. Cond. Sprague - 200 V.
C5 - .1 mfd. Cond. Sprague - 200 V.
C6 - .25 mfd. Cond.
C7-C8 - Dual .1 mfd. Cond. - 150 V.
C9 - .1 mfd. Cond. Sprague - 200 V.
C10 - .001 mfd. Cond. Mica
C11 - .025 mfd. Cond. Sprague
C12 - .001 mfd. Cond. Mica
C13 - .025 mfd. Cond. Mica
C14 - .006 mfd. Cond. Mica
C15 - .001 mfd. Cond. Mica
C16 - .25 mfd. Cond. - 300 V.

T1 - 1st I.F. Transformer Q-5
T2 - 2nd I.F. Transformer Q-2
T3 - 3rd I.F. Transformer Q-3
T4 - 10189 Transformer
T5 - 10183 Transformer

L1-L2 - 206 Antenna & Oscillator Coil
L3 - 281 R.F. Choke
L4 - 281 R. f. Choke
L5 - 284 Choke
L6 - 284 Choke
L7 - 284 Choke

P1 - 1/2 Megohm Pot. (Volume Control)
P2 - 100,000 ohm Pot. (Volume Control)

R1 - 1/2 Megohm Resistor - 1 watt
R2 - 150,000 ohm Resistor - 1 watt
R3 - 15,000 ohm Resistor - 1 watt
R4 - 18,000 ohm Resistor - 1 watt
R5 - 15,000 ohm Resistor - 1 watt
R6 - .693 ohm Resistor - wire wound
R7 - 30,000 ohm Resistor - 1 watt
R8 - 60,000 ohm Resistor - 1 watt

S2 - S5 - S6 - S7 - S8 - '30 Tube
S1 - '32 Tube
S3 - S4 - '34 Tube

SW1-SW2 - On-Off Switch (Double pole single throw)

April 1st, 1932

John F. Rider, Publisher

Silver-Marshall, Inc.
Belmont 589 Series "A"

The Issue "B" of this chassis has a 0.05-mf, 400-volt condenser in parallel with the 5-mf condenser, C-10. See schematic on page 8-5 of Rider's Volume VIII. This new condenser has a Part No. 100-13 and is identified as C-20.

The unidentified trimmer condenser connected between the lower end of the secondary of T-1 and ground has been given a schematic number, C-21. The unidentified trimmer between the lower end of the oscillator primary (T-2) and ground is C-22. C-21 has a range from 1 to 10 mmf and C-22 from 2 to 20 mmf. Both these condensers are in the same unit, the part number of which is 124-30C.

These two trimmers being in the same unit change the bottom layout of the chassis shown on page 8-5. The adjustment nearer the trimmer marked "ANT-17 MC-TRIMMER" in the layout is the 1400-kc antenna trimmer, C-21, and the one nearer the broadcast series paddler is the 1720-kc oscillator trimmer, C-22.

These changes apply to receivers having a serial number above BE-189200.

Continental 78,780

Models 77 and 770, page 8-20 of Rider's Volume VIII, employ an electrodynamic loud speaker. Models 78 and 780 use exactly the same chassis as the Model 77, but in this case the speaker is an 8-inch permanent-magnet type. Please add this information to your index under Continental Radio & Television Corp.

Emerson Chassis AS

In sets having serial numbers above 1,294,500, the 150,000-ohm resistor, R8, was changed to 50,000 ohms and the 240-ohm resistor, R10, was changed to 310 ohms.

In sets with serial numbers above 1,294,700, C31 was changed from 0.002-mf to 0.006-mf. The speaker was changed from Part No. 4PS-274 to 4SS-278.

See schematic diagram on page 8-49 of Rider's Volume VIII.

Emerson Chassis F

The accompanying schematic shows the changes that were made in the circuit of receivers carrying serial numbers above 862,650. The schematic of those sets having serial numbers under 862,650 will be found on page 7-25 in Rider's Volume VIII. Note that a 6Q7G has been substituted for the 75 second detector and that the 43 output tube has been replaced by a 25B5 in this later chassis.

Below will be found the voltage readings for those chassis having serial numbers above 862,650:

<table>
<thead>
<tr>
<th>Tube</th>
<th>Plate</th>
<th>Screen</th>
<th>Cathode</th>
<th>Grid</th>
<th>Fil</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A7</td>
<td>117</td>
<td>98</td>
<td>2.4</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>6H6</td>
<td>116</td>
<td>97</td>
<td>2.4</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>6GQ7</td>
<td>51</td>
<td>12</td>
<td>1.5</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>2535</td>
<td>102</td>
<td>112</td>
<td>0</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

Voltage across speaker field, 126.
Voltage across filter choke, 10.
Voltage drop across ballast resistor (R-18) is 49 volts between pins 3 and 8.

The alignment data on the early chassis also applies to this receiver. See page 7-20 in Rider's Volume VII for these and other instructions.

Emerson Chassis H

In the portable model (H-137), after approximately 135 hours of service the initial fresh battery performance may be restored by shifting the 67½-volt lead, which is brown, to the 90-volt terminal of the "B" batteries. This will increase the screen voltage to about its normal value.

The alignment of this chassis is conventional; using the i-f peak of 456-kc for the four i-f trimmers, the locations for which will be found on page 7-30 of Rider's Volume VIII, and 1500-kc for the aligning of the oscillator, r-f, and antenna trimmers with a 0.0002-mf condenser as a dummy antenna.

Emerson AC Chassis

Please make a note on page 8-9 of Rider's Volume VIII of the following change which was received too late for inclusion.

In receivers with serial numbers above 1,335,494 a new antenna coil (Part No. 3RT-384) was substituted for the one having the Part No. 3RT-318. These two coils are interchangeable and the lug arrangements of both coils are shown in the accompanying illustration.

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Emerson Chassis C

The revisions of this chassis as noted on page 6 of the February 1937 issue of SUCCESSFUL SERVICING and subsequently published on Changes page 8-1 of Rider's Volume VIII, have another change. The 0.01-mf condenser, No. 55, which was connected across the primary of the output transformer, is now connected from the plate of the 6L6 output tube to ground.

Also on receivers having serial numbers above 880,050 the short-wave antenna and detector coil trimmers, C6 and C9 (see schematic on page 7-36 of Rider's Volume VIII) are mounted on their respective coils. C6 is connected directly across the secondary of the short-wave antenna coil, T3, and is not returned to ground, as shown on the schematic.

Emerson U-154

In receivers having serial numbers above 1,173,551, the pre-selector coil was changed from Part No. 3UT-331 to 3UT-365; the oscillator coil was changed from Part No. 3UT-325 to 3UT-366; and the three-gang variable condenser from Part No. 3VC-319A to 3VC-359. This substitution of the variable condenser necessitates a change in the alignment. On page 8-34 of Rider's Volume VIII the signal generator frequency for the r-f and oscillator alignment is designated as 1530 kc. This is used on those sets having a variable condenser with the part number of 3VC-319 or 3VC-319A. When this number is 3VC-359, the frequency signal is 1570 kc.

The following changes were made to receivers having serial numbers above 1,171,661: The first i-f transformer was changed from Part No. 3UT-332 to 3UT-369. A small capacity coupler was added between the oscillator (central) and i-f (front) sections of the variable condenser. These sections are C3 and C2 respectively on the schematic diagram shown on page 8-33 of Rider's Volume VIII. The 0.003-mf condenser, C22, is now connected between the plate of the 41 output tube and B+ instead of ground, as it is shown in the schematic.

On sets having serial numbers above 949,553, the cathode of the 6D6 a-f amplifier tube is connected to the cathodes of the 6DJ-4 f-amplifier and the 76 second detector tubes through a 1000-ohm series resistor and not connected directly as shown in the schematic.

Emerson Chassis D

In receivers having serial numbers above 850,000, a 15,000-ohm resistor has been connected from the tap on the volume control to ground. This is a 1/4-watt carbon resistor, Part No. KR-63.

In receivers having serial numbers above 864,755, the resistor, R-20 that is connected from the cathode of the 6C5 phase inverter tube to ground, has been changed from 5000 ohms to 10,000 ohms.

Please make these changes on the schematic of this chassis on page 7-37 of Rider's Volume VIII.

Emerson AR Combination Chassis

We received too late for publication in Volume VIII of Rider's Manuals data on Models AR-165, AR-166, and AR-177 in which are incorporated the Chassis AR with a phonograph. The service notes on the AR chassis which may be found on Emerson pages 8-41 to 8-44 in Rider's Volume VIII, apply to the early production of these combination models, less, of course, the phonograph connections. The later models (those after serial No. 1,326, 200) have two 41 tubes in push-pull, instead of the single 41 in the output; also a 6Q7G is substituted for the 76 second detector and avc. This new tube is also used as an audio amplifier.

Emerson Chassis AF

The 0.25-mf condenser, C-17, that was connected between the negative side of the filament and ground, has been eliminated and now this side of the filament is grounded to the chassis. This applies to those receivers having serial numbers above 1,244,716. The schematic of this set will be found on page 8-45 of Rider's Volume VIII.

Grigsby-Grunow 310-B Chassis

Please change the value of C-16 of the early model from 11 mf to 0.11 mf. The parts list in which this error appears is on Majestic page 3-22 of Rider's Volume III and page 12-24 of the Rider Combination Manual.

Emerson C134LW, C136LW, C138LW, C139LW, C140LW and C142LW

The schematic is the same as is given in Rider's Vol. VII, page 7-36, with the exception that C11 is a 0.00005-mf. fixed condenser shunted by a trimmer, C50, which is part of the long-wave coil assembly. The r-f primary of T5, position 2, is shunted by a fixed condenser of 0.0001 mf. (C45), and a 2000-ohm resistor (R30).

The Long-Wave band has been substituted for the Police band in position 2. T2 is a long-wave antenna coil, T5 is the long-wave detector coil, and T8 is the long-wave oscillator coil.

C6 and C9 trimmers were supplied separately and later incorporated as part of SW Antenna and Detector coil assemblies.

The alignment of the long-wave band is as follows:

Set the wave-band switch at the long-wave (central) position and the pointer to 150. Feed 150 kc through a standard dummy antenna to the antenna terminal and adjust the long-wave series padder for maximum response. Move the pointer to 345, feed 345 kc and adjust the long-wave oscillator trimmer. Then adjust the r-f trimmer, and next the antenna trimmer for maximum response. Return to 150 kc and re-adjust the long-wave series padder for maximum response. Return to 345 kc and re-adjust all three trimmers. Return again to 150 and check the alignment. Repeat the entire procedure until no appreciable re-adjustment is required.

The layout of the tuner unit is shown below for this long-wave chassis.

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G.E. 8-40

The schematic of this receiver, which is the same as RCA M-34, is shown in RCA page 8-14 of Rider's Volume VIII, and page 1857 of the Rider Combination Manual. The change explained below will increase the audio gain on medium and strong signals and also improve the A.V.C. action. The usual schematic shown herewith are the original and revised circuits.

Interchange the connections at the terminal board of the red and green wires from the volume control. This places the grid coupling condenser in the circuit of the movable arm of the volume control. This decreases the green A.V.C. lead from the terminal board. (This lead is connected to the second terminal from the end on the bottom side of the terminal strip.)

The second i-f transformer has a tertiary winding which is connected in series with the screen grid circuit of the 12SD4 i-f tube.

To prevent distortion at minimum volume, the green-white wire connecting the central lug of the volume control, No. 67, to the automatic tuning dial switch, No. 93, must be kept clear of the compensator, No. 54, and the diode circuit of the 6QQG.

Run No. 9. Condensers No. 70 and 70A have been replaced by 8- and 10-megohm condensers respectively, Part No. 30-1097.

The schematic of this receiver will be found on page 8-12 of Rider's Volume VIII. Note that the dial calibration notes of Model 37-10; see page 8-19, can be used for calibrating the dial of Model 37-9.

Philco 38-19

In order to reduce maximum volume buzz, the following parts were changed:

- The 11.7-ohm resistor, No. 22, was changed to 12.3 ohms; the 2-megohm resistor, No. 30, was changed to 4 megohms; and the 160,000-ohm resistor, No. 27, was changed to 240,000 ohms. See schematic on page B-55 of Rider's Volume VIII.

Philco 38-4, 38-5

When either of these models are operated on 25 cycles, a power transformer, Part No. 32-7958 must be employed. Also a 0.01-ohm condenser must be connected across the speaker field coil, No. 65.

In order to reduce station rumble in the Model 38-4, the following parts were changed:

- The 0.01-ohm condenser, No. 61, was changed from Part No. 4649 to Part No. 31-0104.
- A change has been made in the design of the volume control, No. 66 on the schematic, the old part number was 33-5022 and has been replaced with Part No. 33-5155.
- The Model K-17 speaker, Part No. 36-1025, is used on the new Model 116 B. The time assembly marked 02969, the field coil and pot assembly is 36-1049.
- The resistance of the field coil, No. 95, has been shown on pages 8-13 of Rider's Volume VII, is shown as 1125 ohms. Change notes from the manufacturer state that this value is 1500 ohms.
- The volume control No. 68 has been changed from Part No. 33-5110 to 33-5155.

Philco 1-F Transistors

The i-f transformers of several models have been changed to transistors. In the case of the 6AG7, the change explained below will increase the audio gain on medium and strong signals and also improve the A.V.C. action. The usual schematic shown herewith are the original and revised circuits.

The second i-f transformer has a tertiary winding which is connected in series with the screen grid circuit of the 12SD4 i-f tube.

To prevent distortion at minimum volume, the green-white wire connecting the central lug of the volume control, No. 67, to the automatic tuning dial switch, No. 93, must be kept clear of the compensator, No. 54, and the diode circuit of the 6QQG.

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Run No. 9. Condensers No. 70 and 70A have been replaced by 8- and 10-megohm condensers respectively, Part No. 30-1097.

The schematic of this receiver will be found on page 8-12 of Rider's Volume VIII. Note that the dial calibration notes of Model 37-10; see page 8-19, can be used for calibrating the dial of Model 37-9.

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In order to reduce maximum volume buzz, the following parts were changed:

- The 11.7-ohm resistor, No. 22, was changed to 12.3 ohms; the 2-megohm resistor, No. 30, was changed to 4 megohms; and the 160,000-ohm resistor, No. 27, was changed to 240,000 ohms. See schematic on page B-55 of Rider's Volume VIII.

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When either of these models are operated on 25 cycles, a power transformer, Part No. 32-7958 must be employed. Also a 0.01-ohm condenser must be connected across the speaker field coil, No. 65.

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- The resistance of the field coil, No. 95, has been shown on pages 8-13 of Rider's Volume VII, is shown as 1125 ohms. Change notes from the manufacturer state that this value is 1500 ohms.
- The volume control No. 68 has been changed from Part No. 33-5110 to 33-5155.
Philco 38-38

Beginning with Run No. 3, the 8000-ohm resistor, No. 21, was removed from the 90-volt tap and re-connected to the 135-volt tap of the battery cable. At the same time the value of this resistor was changed from 8000 to 25,000 ohms, Part No. 33-325339. The battery cable assembly was changed also to Part No. 41-3394.

In Run No. 4, the 900-ohm resistor No. 38 was changed to 2000 ohms, Part No. 33-220339. This change was made to decrease current drain on the "BC" battery. For schematic see page 8-73 of Rider's Volume VIII.

Philco 511, 521

The model 521 is for operation on 25-40 cycles and is similar to the model 511 (60-cycle operation) except as noted below. Please add 521 to the designation on page 8-107 in Rider's Volume VIII.

A change in the wiring has been made. The primary of the third r-f transformer instead of going to the left side of the resistor No. 17 now is connected to the other end. Plate voltage for the r-f tubes obtained from the point marked "D" in the voltage divider, No. 37, now is fed into the resistors Nos. 7, 12, and 17 through the left end of this combination immediately below the first r-f tube. The primary of this r-f transformer now is connected to the right side of No. 7 in the schematic. In other words, the lead marked "D" at the right end of the three series resistors now is at the left end.

The accompanying partial schematic

Fig. 1 of the power pack and filter carries various numberings, which correspond to those of Figs. 2 and 3 and show the capacity values of the filter condenser packs No. 35 used for model 511 and 521 respectively. Note that the connections of the 1-mf condenser, 4-5, have been changed from the way they are shown in the schematic on page 8-107. Instead of terminal 4 of No. 35 being connected to terminal 3 of No. 37 it is connected to terminal 1 of No. 35.

The values of the sections of Part No. 3088W are the same with the exceptions that section 4-5 is omitted as explained above, and the value of 7-8 is 1,590 ohms. The resistance of the volume control, No. 1, is 10,000 ohms and the value of the three resistors, Nos. 7, 12, and 17, is 100 ohms each.

Sentinel 65B

The "B" battery drain of the early production of Model 65B sets can be reduced by about 20% and a corresponding increase in battery life obtained by adding the 2000-ohm and 4000-ohm resistors as shown in the accompanying partial schematic. It is also necessary to change the connection of the black wire, which is shown going to ground from the tap on the secondary of the output transformer on page 8-27 in Rider's Volume VIII.

This ground connection is changed to the junction of the two resistors mentioned above. This change puts a 3-volt bias on the 19 tube and reduces the "B" battery drain to 18-20 ma.

This change is incorporated in late production receivers and these will be stamped with the letter "A" on the chassis.

Silvertone 4428A, 4448A, etc.

Due to variations in the 6D8G first detector-oscillator tube, whistles and oscillations may occur at the high-frequency end of the Foreign band. To correct such oscillations, change the value of the oscillator grid leak, R-4, from 50,000 ohms to 25,000 ohms. See schematic on page 7-61 of Rider's Volume VIII.

Chassis in which this change has already been made in production are rubber-stamped with the letter "D" or some following letter on the chassis identification sticker.
Philo 38-2

For 25-cycle operation, the following parts must be changed in addition to the power transformer: the 0.25-mf condenser, No. 98 on the schematic on page 8-55 of Rider's Volume VIII, is removed and replaced with a 1-mf-0.5-mf, part No. 30-549. The white wires of this condenser are connected across the choke, No. 99, and the red wire to the junctions of Nos. 59, 60, and 66 (in the plate circuit of the L.a-te tube). Also remove the 8-mf electrolytic condenser, No. 96, and replace it with a 16-mf electrolytic condenser, Part No. 30-2200.

Beginning with Run No. 2, the r-f circuit has been changed to use permeability-tuned i-f transformers. These changes and the locations of the compensators are shown on the accompanying partial schematic and layout. Note that the schematic numbers of parts differ from those in the schematic on page 8-55. The wires from each circuit, however, have been marked indicating the connecting points on the schematic in Rider's Volume VIII.

The compensators are adjusted as follows: The range switch of the receiver is set in the broadcast position; the volume control at maximum; the magnetic tuning switch to "off"; and the tone control in the first position. The signal generator is set at 470 kc.

Using a 0.1-mf condenser as a dummy antenna, connect the signal generator to the grid of the 6A8G detector-oscillator tube and connect the cable ground to the set chassis. Set the attenuator of the signal generator for maximum output and adjust the i-f compensators as follows:

1. Turn compensator 1XB in until the output meter reading decreases almost to zero.
2. Now adjust the compensator 1XA and 1XC for maximum output; then readjust 1XB for maximum output.
3. Turn compensator 2XC in about three turns; then adjust 2XA and 2XB for maximum output. The adjustment procedure for 2XC is the same as that given at the bottom of page 8-56 in Rider's Volume VIII headed "Magnetic Tuning Circuit Adjustments."

In Run No. 3, a 250-mmf condenser, Part No. 30-1032, was connected from the screen of the 6U7G to ground to prevent parasitic oscillations.

Beginning with Run No. 4, the 6U7G r-f tube was replaced with a 6K7G to eliminate parasitic oscillations. In addition to the tube change, the green wire connecting the screen contact of the 6U7G and condenser 6 (0.05-mf) was increased in length. This wire should circle around the 6U7G socket towards the front of the r-f unit and then back to condenser No. 6. Place the wire as close to the base as possible.

The 250-mmf condenser that was added in Run No. 3 (see above) was removed in this run.

Philo 38-9, Code 121

In Run No. 2, a 20-ohm resistor was connected in series with the cathode of the 6A8G detector-oscillator tube to provide uniform performance of the oscillator circuit. The next run, this resistor was removed. See schematic on page 8-65 of Rider's Volume VIII.

Stromberg 150L

Complaints have been received now and then about there being too little bass response in this receiver. If more bass is desired, the following changes in the bass control circuit can be made: Remove the 10,000-ohm resistor, No. 189 in the schematic on page 8-7, 8 in Rider's Volume VIII, and replace it with a 47,000-ohm unit, Part No. 26353. Also replace the 0.04-mf condenser, Part No. 110 in the volume control circuit, with one having a capacity of 0.01-mf, Part No. 25149.

Note that these changes are not essential except when more bass response in this model is requested.

Zenith 5F233, 5F251

Complaints of short B-battery life or poor tone quality in 4- and 5-tube 2-volt receivers can be corrected by eliminating the C battery and converting the circuit to automatic bias and by-passing the plate voltage in the set with an electrolytic condenser. The partial schematic diagram shown herewith shows where the changes are made in the chassis No. 5522 (used in the models mentioned above) as an example. See page 8-5 in Rider's Volume VIII.

Disconnect the negative B-battery yellow lead where it connects to the chassis inside the chassis base. Connect a 300-ohm resistor (1/4-watt) in series with this lead to ground. See "A" in schematic. Run the bias lead from the grid of the 1H4G and the grid of the 1J6G to the yellow B lead under the chassis. Disregard the green lead as the C-battery is omitted. See "B" in schematic.

The circuit of the Philco model 38-2 was changed when permeability tuned i-f transformers were substituted for those previously used. Note that the parts numbers in the revised partial schematic on page 8-55 of Rider's Volume VIII, that the leads going to the parts not shown, employ the original numbering.

Partial schematic of Zenith 5F233, 5F251

Connect an 8-mf, 150-volt electrolytic condenser from +B to ground after the B circuit switch so that it is not connected across the B batteries when the receiver is turned off. See "C" in schematic.

These changes allow the bias voltage to drop automatically as the B voltage decreases and thereby preserves the tone quality. Originally the bias voltage remained constant when the B voltage dropped. The batteries should be useable down to about 50 volts or a 135-volt drop.
RCA 65K

This is a cousin model employing a characteristic Model 857T, the service data for which will be found on pages 8-9 in Rider's Volume III. These service data apply to Model 65K with the following exceptions:

The lead speaker used is No. 480911 and it is connected to the chassis as follows: Bowler lead (L13) to positive (center) terminal of C24; Brown-black lead (L13) to "GC" terminal of the 42 output tube; Black lead (T2) to "F" terminal of the same tube. The resistance values listed for this speaker are: coil L13, 130 ohms; voice coil (L13), 24.6 ohms; hum neutralizing coil (L12), 0.16 ohm; output transformer (T2) primary, 500 ohms; and the secondary, 0.37 ohms. The voice coil impedance is 2.6 ohms at 400 cycles.

The following corrections should be made in the service data and they apply to all Model 857T's:

The resistance of the antenna coil, L2, should be changed to 0.07 ohm to 1.3 ohms in the schematic at the top of page 8-133 and in the small flexible metal (Neutral Wire) "Coil Connections" on the same page.

In the small schematic marked "Rec. PI Connections" a shield extension should be shown on the cable and the shield should be grounded.

In the voltage diagram on page 8-114 the voltage from the negative terminal of C26 to chassis should be designated as -17 volts. The voltage from the negative terminal of C26 to chassis should be 17 volts or 17 volts instead. The value of C8 has been changed from 4500-uf to 6800-uf. Make this change on both diagrams on page 8-113.

Different power transistors (T1) and (T2) are used in the output transformer. T2, 14615.

RCA 65K, 67T, 817, 9810

These receivers are similar to Model 68 and 857T except, respectively, for cabinet design.

The data sheets for the parts on the following pages in Rider's Volume III, apply to these new model numbers. The chassis of this Model 65K is the same as Model 65T except page 9-52 in Rider's Volume III except for cabinet design.

RCA 5AM, 6AM, 6AM2

On the first production of these receivers (serial number 200-300), two types of variable condensers are used. These differ only in the method of mounting, the drive gear, Stock No. 12221 and 12222 gears are used only with the tuning condenser not having a tapped shaft. The parts list has the following show the following lists: 31145, 3116, and 31147.

The following parts are in addition to those listed for the above models, which will be found on pages 7-13 and 7-28 in Rider's Volume III:

31147-Pinning gear and slotted shaft assembly in Model 65T, and 31512-on-off operating switch. These are for the control box assemblies.

1303-Tuning and volume control flexible shaft sleeve.

11948-3-point male connector for reproducer cable, No. 12525.

The second production run of these models (serial number 200,000) used a tuning drive mechanism with a tuning drive ratio of 16 to 1. The following parts are applicable to these receivers:

31337-5-gang variable tuning transformer.

31332-Tuning condenser shaft drive gear assembly.

31333-Tuning condenser, warm gear and mounting bracket for above.

1341-Control box complete, less flexible shafts.

Wall-Gardener 5 Tube ABC/DC Models

Due to variations in 6/17 tube characteristic, distortion may be encountered at medium or low volume levels. This can be remedied by changing the 5 megohm 2nd detector screen series resistor (R5) to 8 megohms. This resistor, however, can be obtained by placing an additional 2 megohm resistor in series with the 5 megohm resistor. Later production models have the 7 megohm resistor.

RCA D-221

The 800-8500-ohm resistors, No. 64595, in the filter circuit of the S23 rectifier, Tube No. 14, has been changed from its original location at the rear of the chassis to the front apex of the chassis near the power transformer. See page 8-12 of Rider's Volume III. The electrical connections remain the same.

Chevrolet 6157F

The schematic for receivers having serial numbers below 0274000 on Unionized Motor page 6-33 in Rider's Volume III. Receivers having serial numbers above 027400 have the following changes incorporated in the chassis:

Resistor No. 44 in the screen circuit of the 687 tube has been changed from 30,000 to 25,000 ohms.

Condensers No. 29 has been changed from 450-uf to 900-uf. Condensers No. 18C (0.05 mf) and No. 28 (750 mf) have been eliminated.

Resistor No. 42 in the diode circuit of the 687 has been changed from 150,000 to 250,000 ohms.

The volume control, No. 54, has been changed from 0.5 megohm to 1.5 megohm.

The lower end of the primary winding of the second i-f transformer, No. 9, has been changed from 10,000-ohm to 8,000-ohm resistor, No. 9.

See the top view of the parts layout on page 8-127 in Rider's Volume III. The output tube has been changed from a 41 type to a 42.

Walls-Gardener 6C1

The "B" issue of this series of auto radio receivers has several changes incorporated in it and its data differ from those shown on pages 8-117 to 8-119 in Rider's Volume III. The circuit is identified by the octal base which is stamped on the top of the chassis base and on the tube layout label on the chassis case cover. Specify the letter if parts ordered.

The gang condenser used in the second if transformer does not have the cut plate oscillator section. The new part number for the gang condenser is 14A7. A padding condenser (600 uf) was added in series with the oscillator section of this gang condenser and the oscillator coil. The padding is a part of the 2nd i-f tuner unit and is mounted in the coil can. In other words, the 30-100-uf condenser, C14, and the new 900-1300-uf condenser are mounted in the same can and have a part number 14A7.

The cut-out C15 shown within a dotted circle on the schematic in the 2nd i-f coil assembly, has been changed to an actual part and has a part number 47E7 X5.

The following parts have been changed in the late issue and will be found the new parts numbers:

T1 Antenna Transformer and Can Assembly No. 89679

T2 R.F. Transformer and Can Assembly No. 89670

T3 Oscillator Coil and Can Assembly No. 89680

T5 2nd i-f Transformer and Can Assembly No. 89682

The 200-000-ohm resistor in the plate circuit of the 41 output tube has been changed to a 1,000-002-ohm, 1,000 volt tubular resistor, Part No. 46E, T23-19. A 15-atom fuse is now used instead of one rated at 20 amperes. The 25-ohm volume or tuning control flexible drive shaft has been changed, the Part No. now being 1849A4. The changes in the last paragraph apply to all chassis of the 6C1 receivers, not just the "B" issue like these above.

United Motors 980393 B.O.P.

Please add this note to the data on pages 8-31 to Rider's Volume III. If the receiver does not oscillate at all or oscillates at an end of the dial only, try a new 36 as an oscillator. If this does not cure the trouble, switch resistor R-1A (the 4200-ohm resistor in the cathode circuit of the 36 detector-oscillator) and condenser L13 (715 mf) and C10 (0.002 mf). As the capacities of these condensers are rather critical, they should be replaced if they are not correct. If these tests do not locate the trouble, it will be necessary to replace the oscillator end cap.

Zenith 412

Although several minor changes in the circuit of this automobile receiver were made during production, the schematic on page 8-33 of Rider's Volume III will coincide with most of them that were made to this market.

During a portion of the production, the suppressor grid were removed from the cathodes and tied to the grid returns thereby placing the A.V.C. voltage on the suppressor grids. Also a change was made in the first i-f stage, a 9CS being used instead of a 6DS. This may eliminate the tendency towards howling.

Zenith 668

Please make a note on Wiring page 6-35 of Rider's Volume III that the chassis of this set and that of Model 668 are the same except for some mechanical parts changes. An 8-inch dynamic speaker (Part No. 49014) is used instead of the 6-inch speaker, in the Model 668. The output transformer is not included in the 6-inch speaker section, and it will be necessary to purchase No. 90715. A speaker cable (Part No. 52469) is used with the Model 668 that is not used in the Model 666. The part number of the complete speaker assembly is S-606.

Zenith 15-Tube Receivers

In some of these receivers distortion has developed when using the set at low volume. This has been found due to some r.f. getting through to the a-f stages.

The correction is an r-f filter in the a-f grid circuit as shown in the accompanying schematic. The photoresistor is an 110,000-ohm resistor and a 0.0005-mf condenser connected as shown.