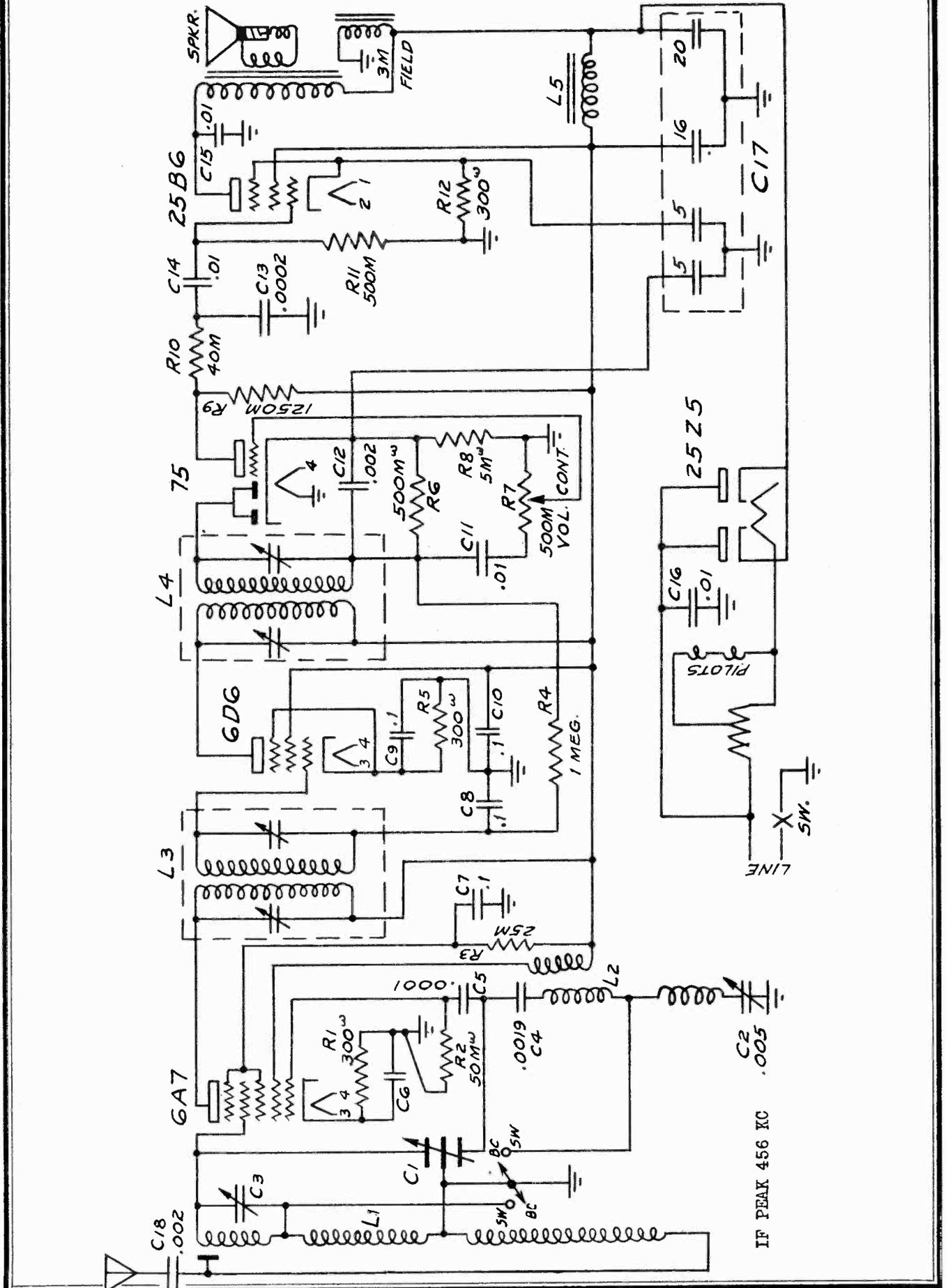
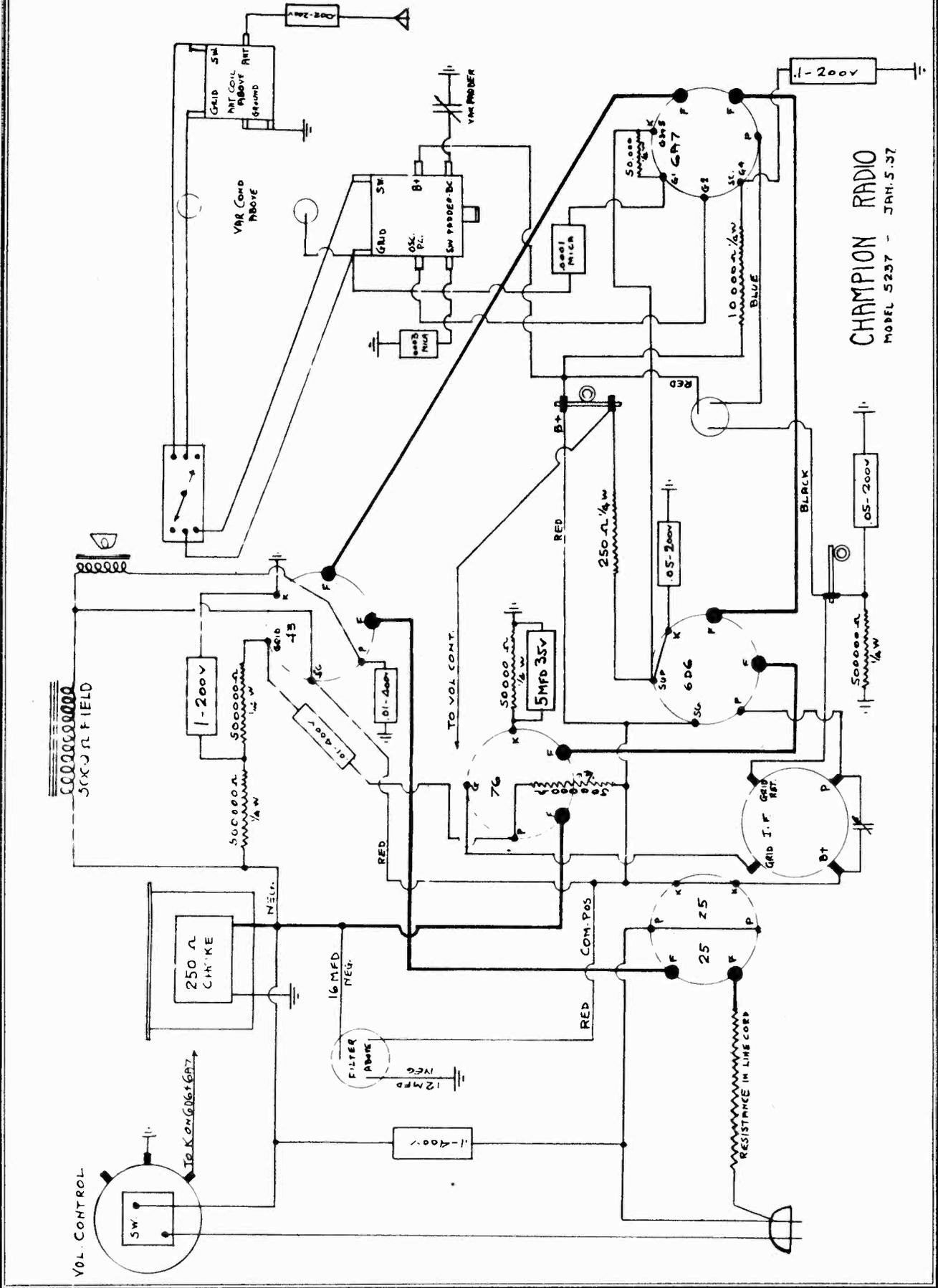


AUTOMATIC RADIO MFG. CO., INC.



MODEL 5237  
Schematic

# CHAMPION RADIO



CHAMPION RADIO  
MODEL 5237 - JAN. 5.37

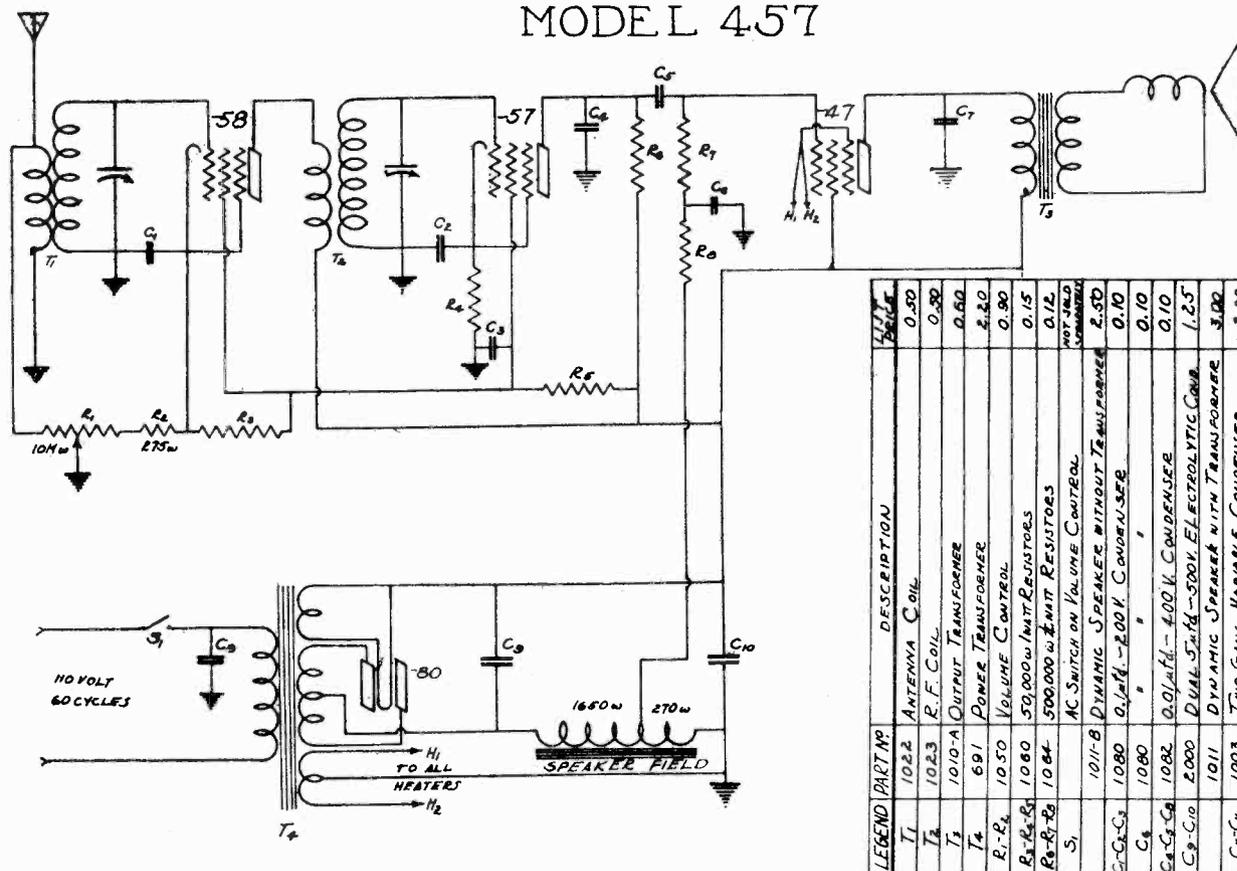




GENERAL TELEVISION, INC.

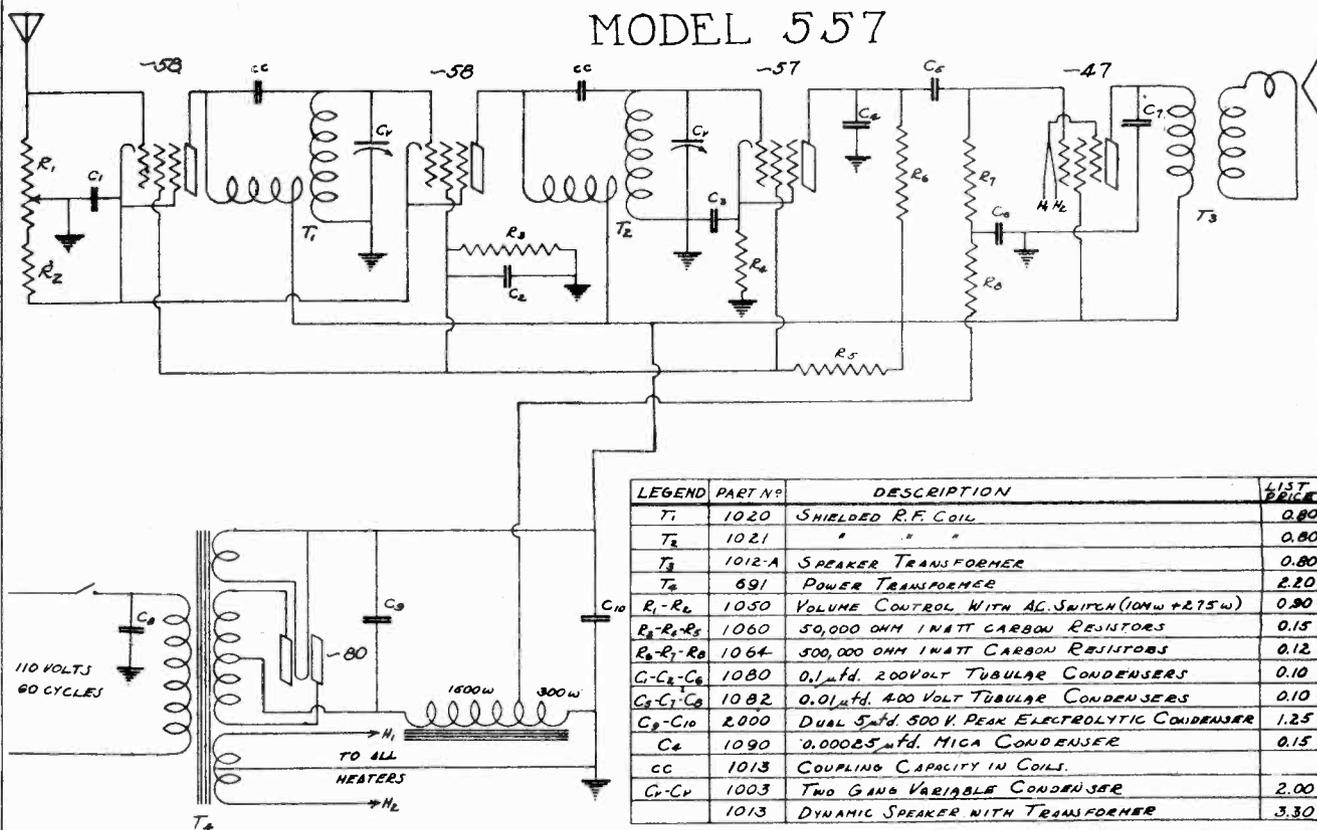
MODEL 457  
MODEL 557  
Schematics

MODEL 457



LEGEND PART NO.	DESCRIPTION	LIST PRICE
T1	1022 ANTENNA COIL	0.50
T2	1023 R.F. COIL	0.50
T3	1010-A OUTPUT TRANSFORMER	0.50
T4	691 POWER TRANSFORMER	2.20
R1-R6	1050 VOLUME CONTROL	0.90
R1-R2-R3	1060 50,000Ω 1WATT RESISTORS	0.15
R4-R5-R6	1064 500,000Ω 1WATT RESISTORS	0.12
S1	AC SWITCH ON VOLUME CONTROL	NOT SOLD SEPARATELY
C1-C2-C3	1080 0.1μfd. 200V. CONDENSER	2.50
C4	1080 0.1μfd. 200V. CONDENSER	0.10
C5-C6-C7	1082 0.01μfd. 400V. CONDENSER	0.10
C8-C9-C10	2000 DUAL 5μfd. 500V. ELECTROLYTIC COND.	1.25
C1-C2	1011 DYNAMIC SPEAKER WITH TRANSFORMER	3.00
C1-C2	1003 TWO GANG VARIABLE CONDENSER	2.00

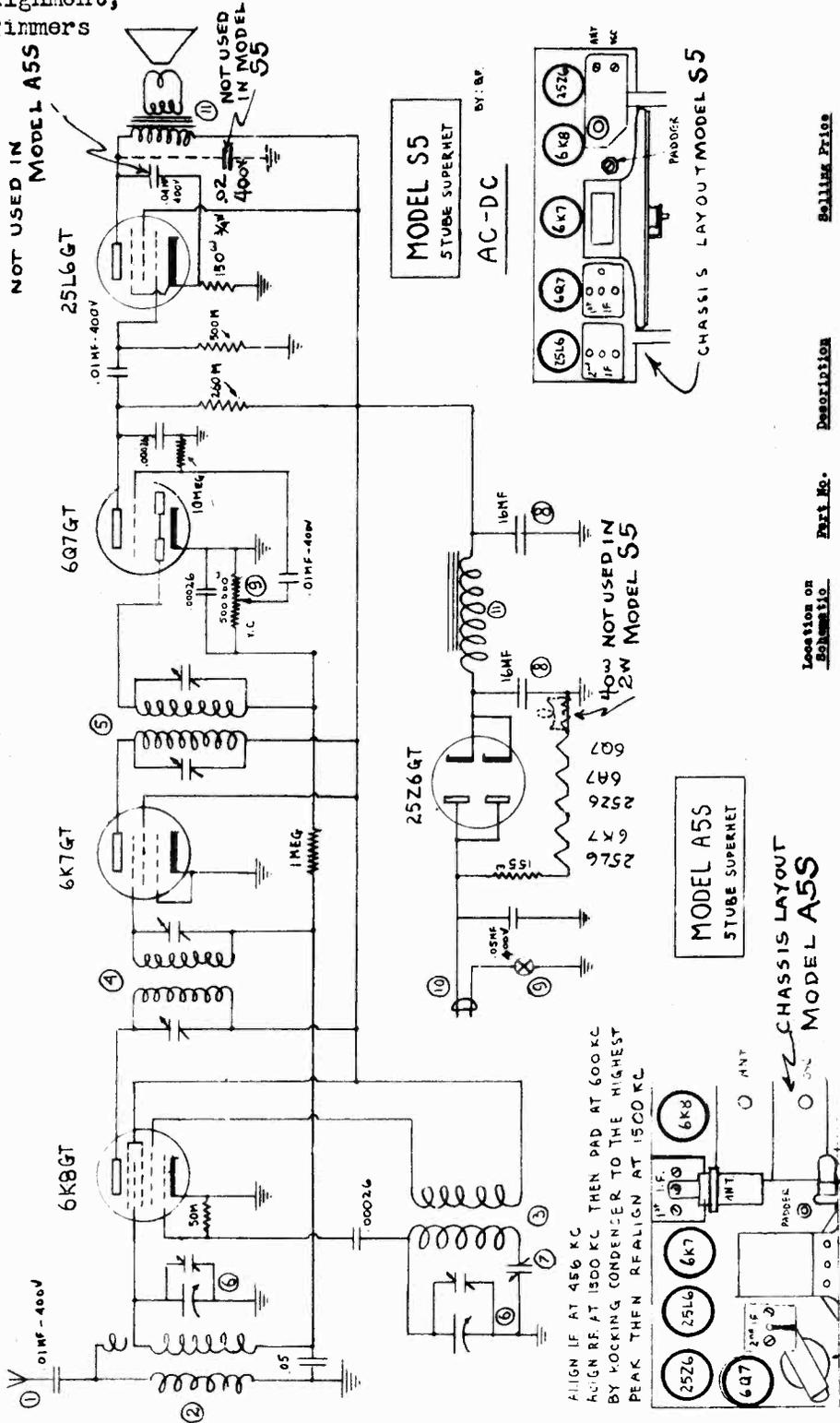
MODEL 557



LEGEND PART NO.	DESCRIPTION	LIST PRICE
T1	1020 SHIELDED R.F. COIL	0.80
T2	1021 " " "	0.80
T3	1012-A SPEAKER TRANSFORMER	0.80
T4	691 POWER TRANSFORMER	2.20
R1-R6	1050 VOLUME CONTROL WITH AC SWITCH (10MΩ + 275Ω)	0.90
R1-R2-R3	1060 50,000Ω 1WATT CARBON RESISTORS	0.15
R4-R5-R6	1064 500,000Ω 1WATT CARBON RESISTORS	0.12
C1-C2-C3	1080 0.1μfd. 200VOLT TUBULAR CONDENSERS	0.10
C4-C5-C6	1082 0.01μfd. 400 VOLT TUBULAR CONDENSERS	0.10
C7-C8-C9	2000 DUAL 5μfd. 500V. PEAK ELECTROLYTIC CONDENSER	1.25
C10	1090 0.00025μfd. MICA CONDENSER	0.15
CC	1013 COUPLING CAPACITY IN COILS.	
C1-C2	1003 TWO GANG VARIABLE CONDENSER	2.00
	1013 DYNAMIC SPEAKER WITH TRANSFORMER	3.30

MODELS A5S, S5  
Schematic, Socket  
Alignment,  
Trimmers

HALSON RADIO & TELEVISION, INC.



Part No.	Description	Ballistic Price
2405	Antenna Bank	.15
2406	Cabinet	2.40
2407	Antenna Coil	.40
2408	Coil for Coil	.31
2409	1st I.F. Coil	.80
2410	2nd I.F. Coil	.80
2411	Variable Condenser	1.40
2412	Resistor 500 KΩ	.87
1621-1	Electrolytic 16-16 MP-180V	.64
1645-S	Volume Control & Switch	.75
2507	Dial Scale	.85
2420	Pilot Bulb - 6.3V	.18
2421	Linecord & Plug 105"	.44
2422	Pointer (dial)	.18
2506-A	Speaker 3" dynamic	2.90
2508	Output Transformer	.87
2509	Dial Assembly	.87

Location or Component	Part No.
1	2405
2	2406
3	2407
4	2408
5	2409
6	2410
7	2411
8	2412
9	1645-S
10	2420
11	2421
12	2422
13	2506-A
14	2508
15	2509

ALIGN IF AT 450 KC  
ALIGN RE. AT 1500 KC THEN PAD AT 600 KC  
BY KICKING CONDENSER TO THE HIGHEST  
PEAK THEN REALIGN AT 1500 KC

**ANTENNA**

The antenna built into this set will perform with best results in most localities. However, in localities more than 100 miles from a broadcasting station an outdoor antenna of 50 to 75 feet attached to the end of the built-in antenna will be sufficient to give the best performance. THIS RECEIVER WAS DESIGNED TO OPERATE WITHOUT A GROUND. UNDER NO CIRCUMSTANCES SHOULD A GROUND WIRE BE PERMITTED TO COME IN CONTACT WITH ANY METAL PART OF THIS RECEIVER.

**LINE VOLTAGE**

110 to 120 Volts, AC or DC, Alternating or Direct Current.

**TUNING RANGES**

Broadcast Band - 545 Kilocycles (540 Meters) to 1550 Kilocycles (195 Meters).  
Police Band - State and Municipal Police - 1600 Kilocycles (190 Meters) to 1750 Kilocycles (170 Meters)

**TUBES**

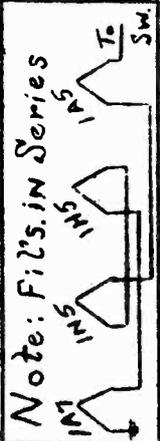
Five tubes as follows:  
6K8GT, 6Q7GT, 25L6GT, 25Z6GT.



MODEL 55 Portable  
Schematic, Socket  
Trimmers

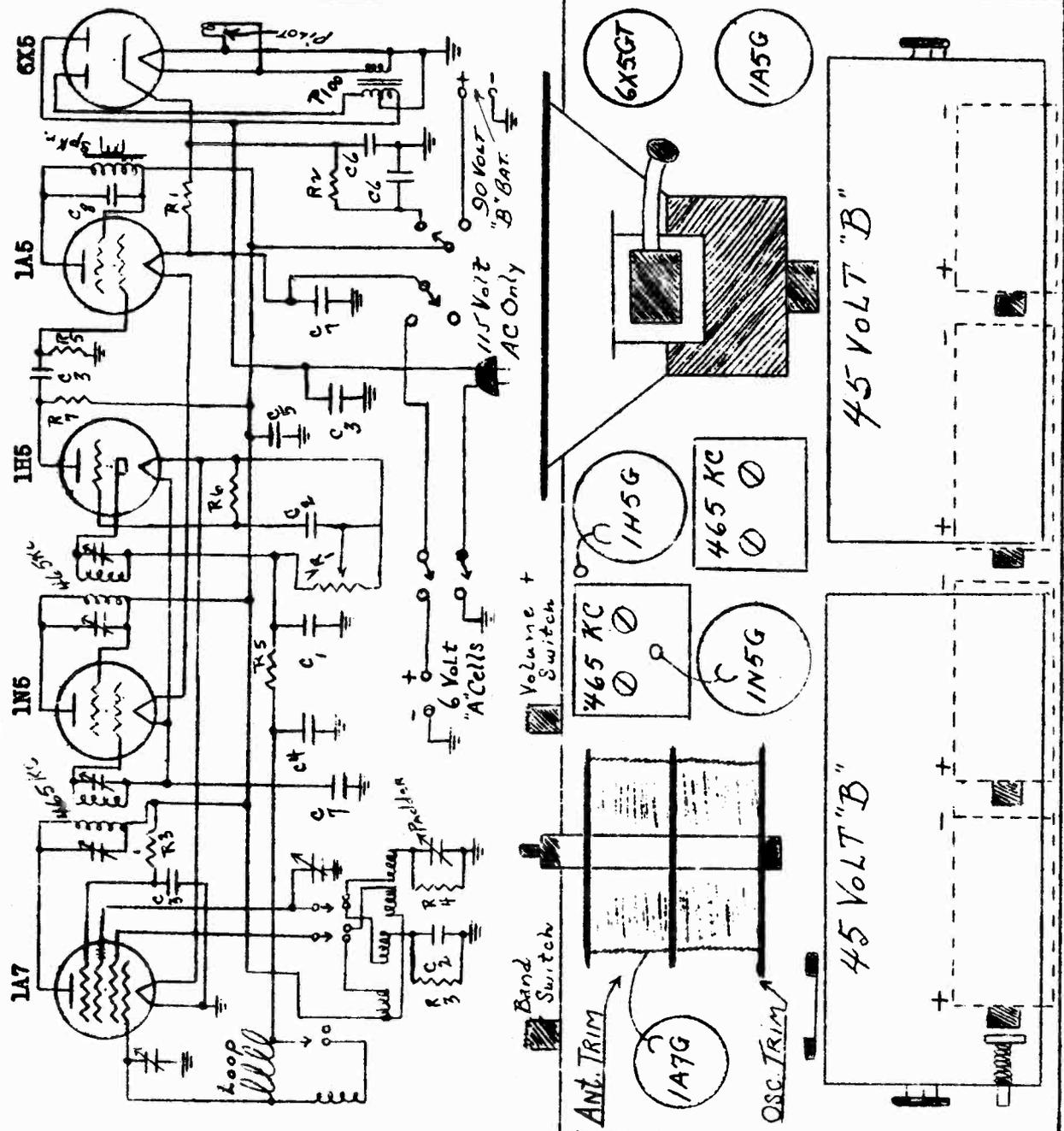
SETCHELL CARLSON, INC.

Setchell-Carlson - - - PORTABLE "55"

Note: Fil's. in Series  

  
**BATTERIES**  
 2-45 V. "B"'s (Portable Size)  
 AVG. LIFE - 6 MONTHS  
 4-REGULAR FLASH LIGHT  
 CELLS - AV'G LIFE-100Hrs  
 115 Volts - AC only  
 60 cycles - 12 Watts

- Resistors**  
 R<sub>1</sub> - 2500 ohms 10watt  
 R<sub>2</sub> - 3000 ohms 1/2 watt  
 R<sub>3</sub> - 50M ohms ..  
 R<sub>4</sub> - 100M ohms ..  
 R<sub>5</sub> - 1 megohm ..  
 R<sub>6</sub> - 15 megohms ..  
 R<sub>7</sub> - 200M ohms ..  
 VR<sub>1</sub> - 500M ohms V.C.-Sw.
- Condensers**  
 C<sub>1</sub> - .0001 600Volt.  
 C<sub>2</sub> - .002 600 ..  
 C<sub>3</sub> - .01 400 ..  
 C<sub>4</sub> - .1 200 ..  
 C<sub>5</sub> - .25 400 ..  
 C<sub>6</sub> - 20 200 ..  
 C<sub>7</sub> - 75 20 ..  
 C<sub>8</sub> - .001 600 ;;

**CAUTION**  
 DO NOT CHANGE TUBES  
 WHEN SET IS TURNED ON.



**Arvin 618, 618A, etc.**

In order to eliminate the hum in the chassis used in these and other six-tube models, follow this procedure:

Remove the chassis from the cabinet. Locate the ground lug on the 6Q7G tube socket (see chassis layout on page 8-16 of *Rider's Volume VIII*). This lug is fastened to the chassis by a rivet which attaches the 6Q7G socket to the chassis. Bend this lug over and solder it to the chassis and then recheck for hum. If this is soldered correctly, the hum level should be brought to a minimum.

**Pilot X114, X115**

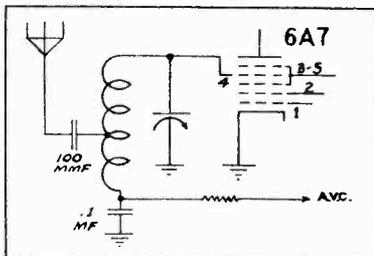
Changes have been made in the chassis used in these models, which have a similar schematic to the one shown on page 6-15 in *Rider's Volume VI*. The condensers C32 and C33 in the plate circuit of the second detector have been removed from the circuit, so that now the switch S3 is used to short out only the one condenser, C34, which now has a value of 250 mmf.

The value of the 10,000-ohm resistor No. 26 has been changed to 6,000 ohms. This is in the primary circuit of the pushpull input transformer.

A line condenser (1000-volt, paper) has been added across the primary of the power transformer. This is a dual condenser, grounded between the 0.01-0.01 mf sections.

**Automatic 960A**

The accompanying partial schematic shows a change which was incorporated in the 960 series, the schematic of which is shown on page 9-2 in *Rider's Volume IX*. Note also that the receivers in which this change has been made have an i-f peak of 480 kc, instead of 456 kc and that they are identified by the letter "A" after the model number.



New antenna circuit of the Automatic 960 A Series.

**Arvin 818, 828, etc.**

In order to reduce the hum level of the models in which the 8-tube chassis is used, follow this procedure:

Remove the chassis from the cabinet. Unsolder the 250,000-ohm plate resistor of the 6F5G tube from the B+ terminal, which is the lug on the 16-mf—300 volt electrolytic condenser. See chassis layout on page 8-20 of *Rider's Volume VIII*. Connect this resistor to the first tap down from B+ on the voltage divider resistor R87. This voltage tap supplies the potential for the 6A8G anode grid. Recheck for hum, which now should be reduced to a satisfactory level.

**Oldsmobile 982043**

In some of the early receivers (under serial A-20,000) of this model, several differences exist which should be noted on page 9-1 in *Rider's Volume IX*.

Resistor No. 46 is 100,000-ohms instead of 20,000.

Resistor No. 54 is 125,000 instead of 100,000-ohms and No. 55 is 75,000 instead of 100,000-ohms.

Resistor No. 44 and condenser No. 26 have been transposed, i.e. the resistor is connected to the grounded end of resistor No. 53 instead of the condenser.

The value of condenser No. 82 is indicated as 0.000063-mf and its connections are as follows: one terminal is connected to the junction of condenser No. 26 and the tap from resistor No. 58 and the other terminal is connected to the junction of condenser No. 18 and the left end of resistor No. 58.

**Emerson Chassis AF**

Receivers using this chassis and bearing serial numbers above 1,244,716 differ from the schematic shown on page 8-45 in *Rider's Volume VIII*. The condenser C-17 is omitted and the negative side of the filament circuit is grounded to the chassis.

**Fairbanks-Morse 9A**

Refer to the schematic shown on page 8-9 of *Rider's Volume VIII*. During production, the 47,000-ohm resistor (8) and the filter condenser (7) were removed and the r-f secondary was grounded directly, thus removing AVC from the 6L7G mixer tube. The bottom of the antenna coil secondary was then connected directly to the 1-meg-ohm resistor (9). A 1000-ohm variable resistor was added in the cathode circuit of the 6J7G AFC control tube (at 37) to make possible compensation for variation in calibration due to variation in tube characteristics. This control was found unnecessary and was removed in later runs.

**Fairbanks-Morse 8A**

Refer to schematic shown on page 8-7 of *Rider's Volume VIII*. During production, the 47,000-ohm resistor (16) and the 0.05-mf condenser (7) were removed and the r-f secondary was grounded directly, thus removing AVC from the 6L7G mixer tube. The bottom of the antenna coil secondary was then connected directly to the 470,000-ohm resistor (17).

**G.E. G-57**

This model is identical to model G-55, except for the cabinet and the loud speaker, which has a part number RS-095. The 12-inch cone of this unit has a part number RC-943.

The servicing data for model G-55, found on pages 9-3, 9-4, and 9-5 of *Rider's Volume IX*, apply to the G-57. This additional model number should be added to the listing in your Index.

**Stromberg-Carlson Push-Button Tuners**

The push buttons on all the new receivers, such as those whose servicing data are found in *Rider's Volume IX*, which employ padding condensers for tuning purposes are set up from the front of the chassis. It is unnecessary to get into the back of the receiver to set up the desired stations, except to adjust the electric tuning switch on the rear of the chassis.

To set up the stations, it is only necessary to remove the escutcheon over the push buttons and the adjusting screws become readily accessible. These escutcheons are held in place by several Phillips type screws, which can be removed with any small pointed instrument, such as a small nailfile or an old knife blade. However, the use of a special tool is recommended, as this will not mar the surface of the screw head.

**DeWald 1106**

This model is identical with the Models 1104 and 1105, shown on pages 9-1 and 9-10 of *Rider's Volume IX*, except that the new model has an additional short-wave band for the 14-40 mc range, giving it a total of five bands.

**RCA 8M3, 8M4**

On 8M3 and 8M4 receivers, it is often advantageous to connect the 22-mmf condenser (C1, on page 9-37 of *Rider's Volume IX*) from the output end of coil L1 to ground, instead of from the antenna end. Later runs of sets include this change. Note also that good electrical contact is required between vibrator-transformer and chassis to minimize internal noise.

**Majestic 11356**

This model is found on pages 9-8, 9-11 and 9-12 of *Rider's Volume IX*. A new electric tuning system has been incorporated in later runs of this receiver and is illustrated in Fig. 1. The procedure for indexing this 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 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.

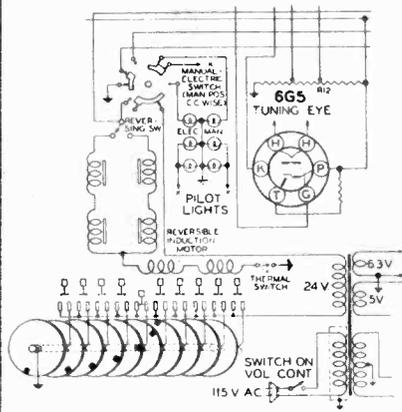


Fig. 1. How the new electric tuning unit is connected in the Majestic Model 11356.  
**Philco 38-10 (121, 124)**

**Run No. 5.** Resistor No. 11, 70,000-ohms changed to 40,000-ohms, Part No. 33-340339 in order to improve the oscillator circuit performance. See page 8-67 in *Rider's Volume VIII*

**Spiegel Chassis X1**

This chassis is used in the following models: 1900, 1920, 1931, 1970, 4502, 9922, and 9925. It is quite similar to the chassis used in the Spiegel Model 100 found on page 9-1 of *Rider's Volume IX*, the difference being as follows:

The 250,000-ohm resistor in the plate circuit of the 75 second detector is connected directly to +B. This means that the 100,000-ohm resistor and the 0.1-mf by-pass condenser are not used in this chassis. An 0.05-mf condenser is used across the 110-volt a-c leads to the power transformer primary instead of one with a value of 0.02 mf.

No wave trap is used in the X1 chassis, such as is shown in the broadcast-band antenna coil. Also no condenser is shunted across the short-wave oscillator coil. The value of the fixed condenser connected between the Police-band oscillator coil and ground is 0.005 mf instead of 0.012 mf.

**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.

**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. Alignment instructions for these three models are given in the table below.

Signal Generator Connection	Signal Generator Frequency	Band Switch Position	Dial Position	Trimmer Designation	Output Signal
6A8G Mixer Control Grid	455 kc (1)	BC	(2)	Trim 455 kc	Max.
Antenna (3)	18 mc	SW	18 mc	Osc— 18 mc R-F— 18 mc Ant— 18 mc	(4) Max. Max.
	11 mc	SW	To Gen.		(5)
	6 mc	SW	To Gen.		(5)
Antenna (3)	19 mc	SW	18 mc		(6)
	6 mc	POL	6 mc	Osc— 6 mc R-F— 6 mc Ant— 6 mc	(4) Max. Max.
Antenna (7)	7 mc	POL	6 mc		(6)
Antenna (7)	1500 kc	BC	1500 kc	Osc—1500 kc R-F—1500 kc Ant—1500 kc	(4) Max. Max.
Antenna (7)	600 kc	BC	600 kc	Pad— 600 kc	Max. (8)
Antenna (7)	1500 kc	BC	1500 kc	Osc—1500 kc R-F—1500 kc Ant—1500 kc	(4) Max. Max.
Antenna (7)	600 kc	BC	600 kc	Pad— 600 kc	Max. (8)

- Note (1)—Apply through 0.1-mf condenser; use smallest possible signal from generator to prevent AVC action from affecting output readings.  
 Note (2)—Gang condenser about 50% engaged; if a squeal is heard, rotate gang until squeal is removed.  
 Note (3)—Apply through 400-ohm dummy antenna.  
 Note (4)—Unscrew trimmer to minimum, then slowly turn screw to increase capacity until the signal is heard.  
 Note (5)—Check sensitivity.  
 Note (6)—Image check: If alignment is correct, about 10 times as much signal-generator input will be required to give image same output reading as did the desired signal.  
 Note (7)—Apply through 200-mmf mica condenser as dummy antenna.  
 Note (8)—While rocking gang condenser.

**DeWald 1004**

This model is identical with the Models 1002 and 1003, shown on page 9-6 of *Rider's Volume IX*, except that the new model has an additional short-wave band for the 14-40 mc range, giving it a total of five bands.

**Fairbanks-Morse 5A**

During production runs, a 10-mf, 25-volt condenser was added across the cathode resistor of the type-41 output tube to increase sensitivity. In the schematic shown on page 9-5 of *Rider's Volume IX*, the cathode resistor mentioned bears the number, 21.

**Fairbanks-Morse 6C**

Referring to the schematic shown on page 8-5 of *Rider's Volume VIII*, the 10,000-ohm resistor (15), in the screen circuit of the 6D8G and 15 tubes, was changed during production to 22,000 ohms. Both resistors are of 2-watts rating.

**Silvertone 4600, 4601**

A receiver is occasionally encountered in which the volume goes to a low value as the volume control is turned down, but then increases again as the control is turned still lower. This can usually be corrected as follows: Remove the chassis from its case and remove the connections to the two outside terminals of the volume control. Then connect a 22.5-volt "B" battery between the center terminal and the case of the control. Rotate the control a couple of times throughout its range. This should repair the control and the connections should be soldered back on to the outside terminals.

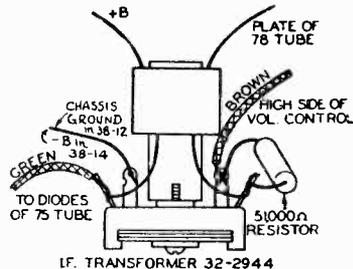
**Philco 38-12**

Run No. 3. It is important that the following leads be dressed in order to eliminate hum:

Dress the green wire connecting the diodes of the 75 tube to the 2nd i-f transformer as far as possible from the filament prongs of the 75.

The brown wire connecting the 51,000-ohm resistor to the high side of the volume control should be dressed under the coil of the 2nd i-f transformer.

The grid lead of the 75 tube should be dressed toward the back of the receiver and between the tube and shield.



New i-f transformer for Philco models 38-12 and 38-14.

The second i-f transformer, No. 12 in the schematic on page 8-69 of *Rider's Volume VIII*, has been changed from Part No. 32-2674 to No. 32-2944. Note that condenser 12B and 12C are part of the padder in these transformers. The wiring of this new transformer is shown in the accompanying illustration.

**Philco 38-14**

In the list of parts on page 8-72 in *Rider's Volume VIII*, the parts numbers of the following are incorrect:

Schematic No.	Incorrect No.	Correct No.
12—Compensator	31-6209	31-6100
20—Volume Control	33-5236	33-5230

A condenser, 5 mmf, was connected across the secondary of the short-wave transformer, No. 2. This condenser is connected to lugs Nos. 3 and 4 of the transformer shown on the schematic. See page 8-71 of *Rider's Volume VIII*.

Run No. 2. The second i-f transformer, No. 17, was changed from Part No. 32-2674 to No. 32-2944. The wiring lugs on the new transformer are slightly changed. The drawing of this transformer is shown in the preceding change notice covering Philco 38-12. Note that in the case of Model 38-12, the middle left-hand lead in the sketch goes to chassis ground, but in the Model 38-14, this same lead goes to -B.

**Philco 38-4**

Run No. 5. The two condensers, Part No. 30-1097, which were connected in parallel with the new air padder, No. 16 in Run No. 3 receivers (see *SUCCESSFUL SERVICING*, July 1938, page 2) have been removed, starting with Run No. 5. For schematic see page 8-61 in *Rider's Volume VIII*. In place of these condensers, a thermal compensator, Part No. 31-6227 is connected in parallel with the air padder. The air padder, No. 16, Part No. 31-6206, has also been relocated and is now mounted between the 6U7G r-f tube and the 6F6G output tube. (See page 8-63 for chassis layout). The thermal compensator, Part No. 31-6227, is also mounted in the same position with the thermostatic plate facing the power transformer.

The oscillator transformer, No. 15, was changed from Part No. 32-2631 to 32-2894. Connection No. 1 of the new transformer has been increased in length for soldering to the air padder in the new location.

**Philco 38-14 (121, 124)**

Run No. 4, Code 121. In order to eliminate hum modulation, the electrolytic condenser, No. 32, was changed from 16-mf to 40-mf, Part No. 30-2237. The electrolytic condenser in Code 124 receivers was also changed from 16- to 40-mf, Part No. 30-2256. The oscillator blocking condenser No. 8, 250-mmf was changed to 50-mmf, Part No. 30-1029.

See page 8-71 in *Rider's Volume VIII* for schematic of both codes.

**Philco 38-33 (121)**

Run No. 3. Resistor No. 20, 8000-ohms, was changed to 20,000-ohms, Part No. 33-320339. It was removed from the 90-volt wire (see schematic on page 9-3 of *Rider's Volume IX*) and reconnected to the 135-volt wire of the battery cable. The battery cable assembly was also changed to Part No. 41-3402.

Signal Generator Connection	Signal Generator Frequency	Dial Position
Det.-Osc. Control Grid	456 kc <sup>1</sup>	—
Antenna	456 kc	—
Antenna	6 mc	6 mc
Antenna	1400 kc	1400 kc
Antenna	18 mc	18 mc
Antenna	600 kc	600 kc
Antenna	1400 kc	1400 kc

Note 1—Use smallest possible signal from generator to prevent AVC action from affecting output readings.  
 Note 2—Adjust for correct dial reading.  
 Note 3—While rocking.

**Belmont 665,765**

It will be noticed that another model number, 765, has been added to 665, which appears in the Index to *Rider's Volume IX*. This new series starts with serial 9A532400 for which the model numbers are 665 Series A, Issue B and 765 Series A. The servicing data on both these models are the same as the information published in *Rider's Volume IX* with the following changes:

A 6U5 tuning indicator tube has been added in the model 765. The grid of the 6U5 is connected to the junction of No. 5 terminal of the 6Q7G and R8; the target to +B; and the cathode to the junction of R10 and R12. See schematic on page 9-21 in *Rider's Volume IX*.

The short pieces of wire on the antenna coil, which are designated as CA and CB in the schematic, have been removed.

A resistor, R17, 2000 ohms, has been shunted across the P and H terminals of the oscillator coil.

A 0.008-mf, 800-volt condenser, C21, has been added between the plate of the output tube, 6AC5G, and ground.

The short-wave oscillator padder, C12, was not shown on the bottom view of the chassis. This is located on the layout just above and between the trimmers C8 and C11. Note that this padder C12 is adjusted at the factory and needs no other adjustment.

**Zenith Chassis 5516, 5634, 5707**

The alignment instructions for the three chassis mentioned above are identical and will be found below. The model numbers of the receivers in which these chassis are used will be found on the pages of *Rider's Volume VII*. The schematics and trimmer locations for the respective chassis will be found on these pages: Chassis 5516, schematic page 7-7, trimmers page 7-2; Chassis 5634, schematic page 7-17, trimmers page 7-9; Chassis 5707, schematic page 7-18, trimmers page 7-11.

Wave-Band Switch Position	Trimmer Number	Output Signal
—	4 I-F Trimmers	Max.
—	Wave-Trap Trim. (Rear of chassis)	Min.
Band B	Osc. Trim. <sup>2</sup>	—
Band A	Broadcast Trim. <sup>2</sup>	—
—	Antenna Trim.	Max. <sup>3</sup>
Band C	Short-Wave Trim.	Max. <sup>3</sup>
Band A	Broadcast Pad.	Max. <sup>3</sup>
Band A	Broadcast Trim. <sup>2</sup>	—
—	Antenna Trim.	Max.

**RCA U-112, Late U-111 and U-112**

The U-112 is a 5-tube superheterodyne-Victrola combination similar to U-111 except that the cabinet has been enlarged to permit the playing of 12-inch records. The service data for the U-111 found on pages 9-169 and 9-170 of *Rider's Volume IX* apply to these later models, with the following exceptions:

In the U-112, the rectifier has been changed to a 5W4.

A 12,000-ohm resistor, R18, has been added in series with the 0.005-mf condenser across the pickup in U-112.

Model U-112 is made in three power supply ratings, all 105-125 volts with 80 watts consumption:

Rating	Frequency
A-6	60 cycles
A-5	50 "
B-2	25 "

The 25-cycle power transformer for U-112 has a d-c resistance of 13.7 ohms in its primary and 1190 ohms in the secondary. The speaker in this model, 84265-4, has the following d-c resistances: Field coil—1300 ohms; Primary of output transformer—420 ohms; Voice coil—2 ohms.

Later production of both the U-111 and U-112 models have the following changes:

The antenna coil has been changed from stock number 30894 (1-ohm primary) to 32338 (35-ohm primary). This last coil may be used to replace the former.

A 270-mmf condenser, C23, is connected from the triode plate of the 6Q7G to the chassis.

The following additional alignment data apply to both models: On r-f alignment, turn the gang condenser all the way out of mesh and with the test oscillator tuned to 1720 kc, align the oscillator trimmer C18. Set the test oscillator to 1500 kc, tune the receiver to the 1500-kc signal and align the antenna trimmer C3 for maximum output.

Note that the connections for the motor coil assembly, shown on page 9-170, has been revised. The connections shown in the left-hand view of the stator are used for both 25-cycle and 60-cycle operation on 110 volts and are unchanged. For 110-volt, 50-cycle operation, the red and yellow designations in the right-hand sketch should be reversed; in other words, the yellow of the left-hand coil is connected to the red of the right coil, making the leads at the bottom red from the left coil and yellow from the right.

Note also that the d-c resistance of each coil for 25-cycles in 250 ohms, those for 50- and 60-cycles remaining 82 ohms. These notes apply to both U-111 and U-112.

**RCA 5T**

Two different speakers are used on Model 5T, and are identified by the numbers stamped on them as follows: (1) RL-63C1 and (2) 72203-5. Replacement parts for No. RL-63C1 are listed in the service data for Model 5T, shown on page 7-14 of *Rider's Volume VII*, and the replacement parts for No. 72203-5 are listed below:

Stock No.	Description
9579	Coil—Field coil
9533	Cone—Reproducer cone mounted and centered in housing
5118	Connector—3-contact male connector for reproducer
9578	Reproducer complete
4818	Transformer—Output transformer

**RCA 5X**

Late-production Model 5X receivers include the following minor changes from the original Model 5X which is found on pages 7-18 to 7-20 of *Rider's Volume VII*: (1) a fixed-tuned wave-trap is used in place of the adjustable wave-trap and (2) a few changes in component parts which are listed below. For late-production Model 5X, under "Alignment Procedure," omit the wave-trap adjustment. Early- and late-production receivers can be distinguished readily by inspection of the wave-trap. Component part changes for late-production models are as follows:

Stock No.	Description
11414	Capacitor—0.1 mf (C19)
13837	Capacitor pack—Comprising one 10-mf and two 16-mf sections (C23, C24, C26)
12695	Resistor—15,000 ohms, insulated, ¼ watt (R2)
12679	Resistor—2.2 megohms, insulated, ¼ watt (R3, R7)
13836	Switch—Range switch (S2, S3, S4, S5)
13838	Trap—Wave trap (L1, C1)
13149	Coil—Reproducer field coil (L13, L15)

Stock Nos. 12537, 4835, 12398, 12410, 12411, 12399, 3404, 12402, 12395, 12497, 12499, 12731, 12498, 9684, 12500, 13150, 13071, 12936 and 12937 are not used in Model 5X with fixed wave-trap.

**RCA 8T2**

Four different speakers are used with Model 8T2 receiver, and are identified by the numbers stamped on them as follows: (1) RL-63-4, (2) 76365-1, (3) 76365-3 and (4) RL-63E2. Replacement parts for Nos. RL-63-4 and 76365-1 are listed on page 8-40 of *Rider's Volume VIII*, and No. 76365-3 is listed on the schematic on page 8-41. The replacement parts for No. RL-63E2 are listed below:

Stock No.	Description
12641	Board—Reproducer terminal board
12640	Bracket—Output transformer mounting bracket
11254	Coil—Field coil
11233	Coil—Hum neutralizing coil

12642	Cone—Reproducer cone and dust cap
5118	Connector—3-contact male connector for reproducer
9773	Reproducer complete
11253	Transformer—Output transformer

**RCA 8U**

Two different phonograph turntable motors are used on Model 8U, and are distinguished by the numbers stamped on the motor name plate as follows: (1) 72444-1 and (2) 56992-1. No. 72444-1 is an induction motor with a governor-type speed regulator; No. 56992-1 is a synchronous motor. Replacement parts for No. 72444-1 are listed on page 8-51 of *Rider's Volume VIII*; replacement parts for No. 56992-1 are listed below:

Stock No.	Description
8989	Motor complete, 105-125 volts, 60 cycles
8993	Rotor and shaft for Stock No. 8989
3398	Spring—Motor mounting spring assembly
3817	Stud—Motor mounting stud

**RCA 87K1, 87K2, 87T2**

The service data and replacement parts for the Model 87K1 are shown on pages 9-83 to 9-86 of *Rider's Volume IX*. Three replacement parts have been added as follows:

Stock No.	Description
30846	Core—Inductance adjustment for instantaneous tuning coils
12007	Spring—Retaining spring for core Stock No. 30846
30695	Card—Station call-letter card for push buttons

All service data and replacement parts for Model 87K1 apply directly to Model 87K2, including the three additional replacement parts listed above for Model 87K1.

All service data and replacement parts for Model 87K2 apply directly to Model 87T2, except that the Reproducer Replacement Parts listed below should be used instead of those listed for Model 87K1.

Stock No.	Description
14614	Cone—Reproducer cone and dust cap (L17) (for speaker marked 84091-1 or 84001-3)
14934	Cone—Reproducer cone and dust cap (L17) (for speaker marked 84091-2 or 84001-6)
5118	Plug—3-contact male plug for reproducer
14613	Reproducer complete (marked 84001-3 or 84001-6 but interchangeable with speaker marked 84091-1 or 84091-2 respectively)
14615	Transformer — Output transformer (T2) (for speaker marked 84091-1 or 84001-3)
14935	Transformer — Output transformer (T2) (for speaker marked 84091-2 or 84001-6)

Stock Nos. 13866, 14354, 11469, 12667, 14395, 14358, 14355 and 14357 for Model 87K1 Reproducer Assemblies are not used in Model 87T2.

**Silvertone 7127, 7133**

The schematic for the chassis used in these models will be found on *Sears page 7-63 in Rider's Volume VII*. The alignment has just been obtained and will be found below.

Apply a 456-kc signal at the control grid of the 2A7 and adjust the i-f trimmers.

Apply a 1712-kc signal at the antenna. Turn condenser all the way open. First adjust oscillator trimmer on the oscillator coil, then the r-f trimmer on the condenser.

Adjust the low-frequency padder at 600 kc while rocking the condenser.

Check at 1400 kc for alignment.

**Short-wave Adjustment:** adjust the small trimmer found under the chassis on short-wave antenna coil for maximum output. If short wave does not track with dial, adjust trimmer on oscillator section of variable condenser until correct. Make all adjustments for short wave with the variable condenser turned to center of 25-meter location on scale.

**Silvertone 4600**

A .1-mf condenser should be added to eliminate bad chassis pickup as shown in Fig. 1, the partial schematic. This type of pickup is heard as noise when the car engine is running and the antenna is disconnected from the receiver.

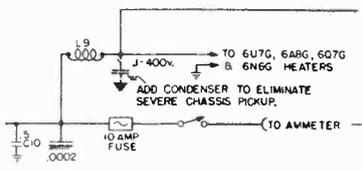


Fig. 1. Partial schematic of Silvertone model 4600 in which is shown where the .1-mf condenser is connected to eliminate chassis pickup.

This instruction applies to sets having identification number 101.458 on the label inside the receiver case cover; the condenser has been added at the factory when the number reads 101.458B or a subsequent letter. See location in Fig. 2. Note that the schematic is shown on *Sears page 9-35 of Rider's Volume IX*.

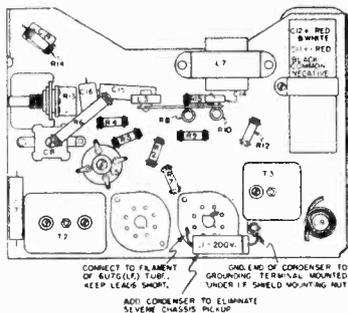


Fig. 2. Bottom of chassis showing location of the added condenser.

**Silvertone 4601**

A .1-mf condenser should be added to eliminate bad chassis pickup, as shown in the partial schematic of Fig. 1. This type of pickup is heard as

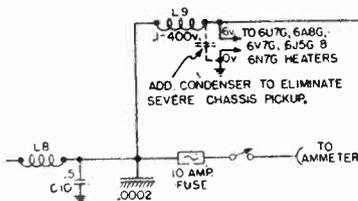


Fig. 1. Where the 0.1-mf condenser is added in Silvertone 4601 to eliminate chassis pickup.

noise when the car engine is running and the antenna is disconnected from the receiver. This instruction applies to sets having identification number 101.463 on the label inside the receiver case cover; the condenser has been added at the factory when the number reads 101.463B or a subsequent letter.

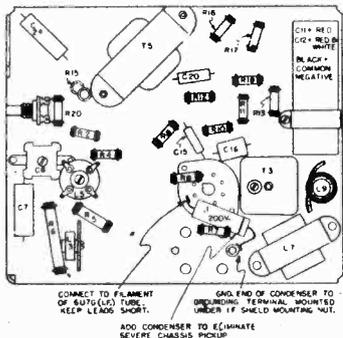


Fig. 2. Location of added condenser.

The location of this condenser is shown in Fig. 2, the bottom view of the chassis. Note that the Silvertone 4601, shown on *Sears page 8-75 of Rider's Volume VIII*, does not show this condenser; it may be assumed, therefore, that this is Chassis 101.463.

**Silvertone 4414, 4415, etc.**

The original production of this chassis (No. 101,393) used part number 1012814032, r-f coil and detector coil (iron core). Later production, which can be identified by the letter "C" or a subsequent letter rubber-stamped on the chassis, used part number 1012818509 detector coil and number 1012818510, r-f coil (air core). When the new air-core type coils are used, the 350-ohm resistor, R2, in series with the volume control, is changed to 150 ohms.

Later production used part number 1012418344 as volume control, instead of the one used originally. The new control incorporates the 150-ohm resistor, R2, mentioned above, as a tap on the resistance element, eliminating R2 as an external resistor. The new control can be used to replace the old

one in those sets using a 350-ohm R2 by substituting a 200-ohm resistor, as the 150 ohms are incorporated in the control itself. It can be used to replace the original control in those sets that use a 150-ohm external resistor for R2 by removing R2 and connecting to the tap on the volume control.

Please notice that three more model numbers have been added to this chassis and these should be added to the listing in the Index, which should now read: 4414,4415,4500,4505,4506, 4509,4510,4511, Chassis 101.393. The schematic for this chassis will be found on *page 8-15 in Rider's Volume VIII*.

**Silvertone 4502, 4504, etc.**

The same changes relating to Chassis 101.393 also apply to these models, with the exception that the later production is identified by the letter "A" or a subsequent letter rubber-stamped on the chassis.

New model numbers have also been added to this chassis and they should be incorporated in your Index, which should read: 4502, 4502A, 4504, 4508, 4512, 4513, 4514, Chassis 101.427. The schematic of this chassis will be found on *page 8-58 in Rider's Volume VIII*.

**Silvertone 4487, 4587, 4587A**

If one of these models has been out of service for several months, the 25-mf electrolytic condenser may lose its formation, causing the 5Y3G rectifier tube plates to become redhot or the tube to burn out. While this condition seldom occurs, the electrolytic can be reformed and the condition remedied as follows:

Using a 5Y3 plug and a 5X4 socket, make an adapter by connecting together the prongs indicated below. Then put a 5X4G rectifier tube in the adapter socket and push the adapter plug into the rectifier socket of the receiver. (It is advisable to remove the output tubes from their sockets during the reforming period.) The receiver should be turned on for about five minutes, the 5X4G tube being used to reform the electrolytic. After this period, the 5Y3G tube can be replaced in its socket and the receiver will perform normally.

This same remedy can be applied to other chassis, although it is very unlikely that this condition will be often encountered.

5X4G Plug	connects to	5Y3G Socket
3	connects to	2
5	" "	4
7	" "	6
8	" "	8

**Stewart-Warner-Firestone R-1332**

The filter system and rectifier tube are protected against breakdown during the warming up period by the Globar resistor (No. 15 in the schematic on page 6-16 in *Rider's Volume VI*), which functions as follows: The resistance of this unit drops rapidly as the voltage across it rises, so that it acts as a load on the power transformer during the warm-up period and keeps the voltage under the danger point until the tubes are heated and take their normal current. Because of its unique voltage characteristics, this resistor can not be checked with an ordinary ohmmeter as it will show a resistance of several megohms.

**I-F Alignment:**

This is conventional, the i-f peak being 456-kc. The trimmers are located on the top of the i-f transformers and may be reached by removing the top cover. The signal generator is connected between the control grid of the 6A7 and ground.

**Dial Calibration:**

Tune in a station of known frequency between 800 and 1000-kc. Insert a screwdriver in the slotted end of the dial shaft projecting through the back of the control head. Hold the tuning control knob so that the station remains tuned in properly and adjust the dial pointer with the screwdriver so that the exact station frequency is indicated.

If the set is badly out of calibration, such that it calibrates correctly at one part of the dial but not at another, it is necessary to adjust the oscillator shunt trimmer. In order to reach this trimmer the chassis must be removed from the case as follows:

Remove the flexible shafts and dismount the receiver.

Remove the four terminals of the speaker cable from the speaker.

Remove the black antenna lead from the coil and unsolder the coil shield grounding braid.

Remove the blue dial-light lead from the socket terminal.

Remove the yellow tone-control lead from the tone control switch.

Remove the six slotted chassis fastening screws and slide the chassis from the case.

Reconnect the red and yellow leads of the speaker cable to the speaker.

Insert the tuning shaft in the gang condenser fitting and reconnect the battery lead.

Set the chassis on a flat metal plate and adjust as follows:

Connect a 0.00025-mf condenser in series with the output of the signal gen-

erator and the antenna lead plug on the antenna coil and the ground lead of the signal generator to the chassis of the set. Set signal generator to 600-kc and tune the receiver to maximum volume and set the dial to read exactly 6.0 (600-kc). Set the signal generator to 1400-kc and turn the tuning knob until the dial pointer reaches 14.0 (1400-kc). Adjust the oscillator shunt trimmer (on the gang condenser second from the control end) until the meter indicates maximum output. Then adjust the other gang trimmer as directed below.

**R-F Alignment:**

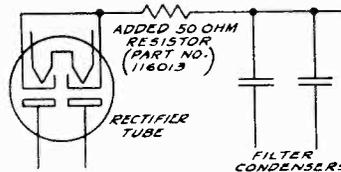
With the signal generator tuned to 1400 kc, tune the receiver carefully for maximum output. Adjust the output of the signal generator to minimum value which will give sufficient output meter deflection. Adjust the trimmer nearest to the shaft end of the gang condenser for maximum output.

**Stewart-Warner AC-DC Receivers**

There is a tendency for filter condensers and rectifier tubes in AC-DC receivers to fail prematurely. The Stewart-Warner Engineering Department has developed a simple remedy which will be incorporated in all future production of Stewart-Warner AC-DC receivers, and which can be applied easily by the serviceman to existing receivers.

With certain power-line impedances, extremely high surge voltages are developed across the filter condenser. These voltages may be as high as 300 volts, and occur only if the set is turned off on a particular part of the a-c cycle of the power-line current. Such a surge often punctures the filter condenser, and this causes the rectifier tube to fail. Since this difficulty is caused by a power-line condition, if it happens once in a certain customer's home, it is very likely to happen again.

The remedy for this trouble is to connect an inexpensive 50-ohm 1-watt resistor in series with the connection from the rectifier-tube cathodes to the electrolytic filter condensers. The proper connection of the resistor is shown in the accompanying diagram. The Stewart-Warner part number for this resistor is 116013.



The 50-ohm resistor added in the rectifier circuit for line surge protection.

**Firestone-Stewart-Warner R-1322**

The alignment instructions for this receiver are practically the same as those which will be found on page 8-16 in *Rider's Volume VIII*. As this set is used with a steering column control head, the portion of the instructions pertaining to the dash control head can be disregarded. Also the trimmers on the gang condenser are reached by removing the back cover instead of the bottom cover.

A note is contained in the circuit description which should be observed. The correct position of the vibrator in its socket depends upon which car battery terminal is grounded. If the negative terminal is grounded, the vibrator should be inserted so that the arrow points away from the adjacent transformer cover. If the positive side of the battery is grounded, this arrow should point towards the transformer cover. The schematic for this receiver will be found on *Stewart-Warner page 6-15 in Rider's Volume VI*.

**Stewart Warner R-160 Chassis**

The circuit description and alignment notes found on page 8-16 in *Rider's Volume VIII*, are practically the same as those which apply to models 1601 to 1609 inclusive, the major difference occurring in the section devoted to dial calibration. In the instructions for calibrating a dial for receivers having a dash control head, only the 1400-kc adjustment is used, the 600-kc setting being neglected. The schematic for the R-160 chassis will be found on page 7-8 in *Rider's Volume VII*.

**RCA 262,263**

The a-f driver transformer, T3 has a revised coil design, the d-c resistance of the primary now being 1350 ohms and that of the secondary being 2000 ohms. An extra connection has also been provided on this unit for equalizing the primary and core potentials so that electrolysis between these parts will be reduced. This additional lead is colored red-green and it should be connected to plug "B" of the primary circuit. See schematic diagrams of the early models on pages 5-102 and 5-103 of *Rider's Volume V* and the late models on pages 6-51 and 6-53 of *Rider's Volume VI*.

**Bosch 376BT, 376F, 376S**

Please make a note in the table of socket voltages on page 6-2 in *Rider's Volume VI* that the filament voltages should be 2.0 instead of 6.2 volts.