

## Atwater Kent

**Model:** 325

**Chassis:**

**Year:** Pre October 1936

**Power:**

**Circuit:**

**IF:**

**Tubes:**

**Bands:**

### Resources

[Riders Volume 5 - A-K 5-7](#)

[Riders Volume 5 - A-K 5-8](#)

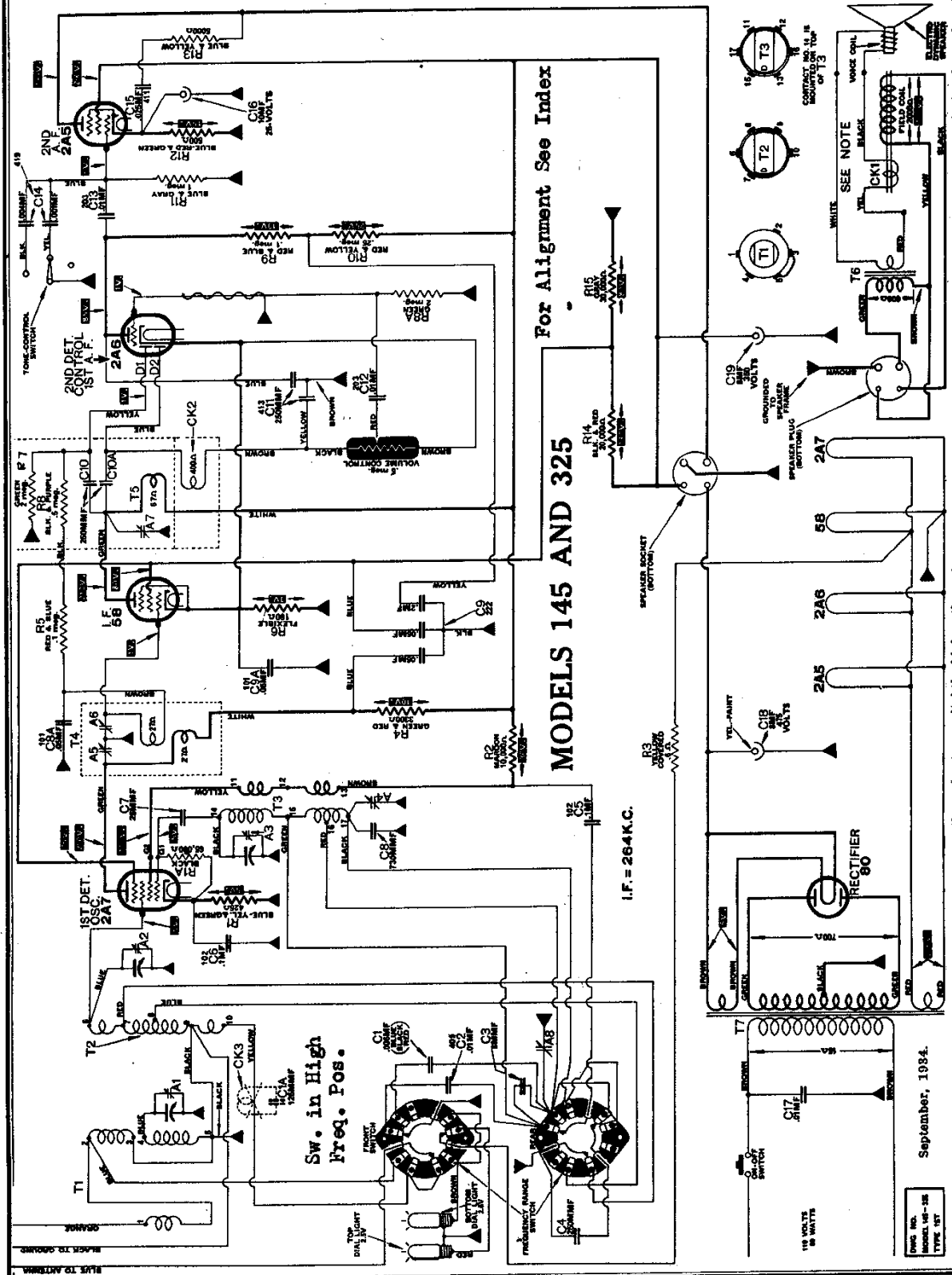
[Riders Volume 7 - CHANGES 7-13](#)

[Riders Volume 5 - A-K 5-28](#)

[Riders Volume 5 - A-K 5-30](#)

ATWATER-KENT MFG. CO.

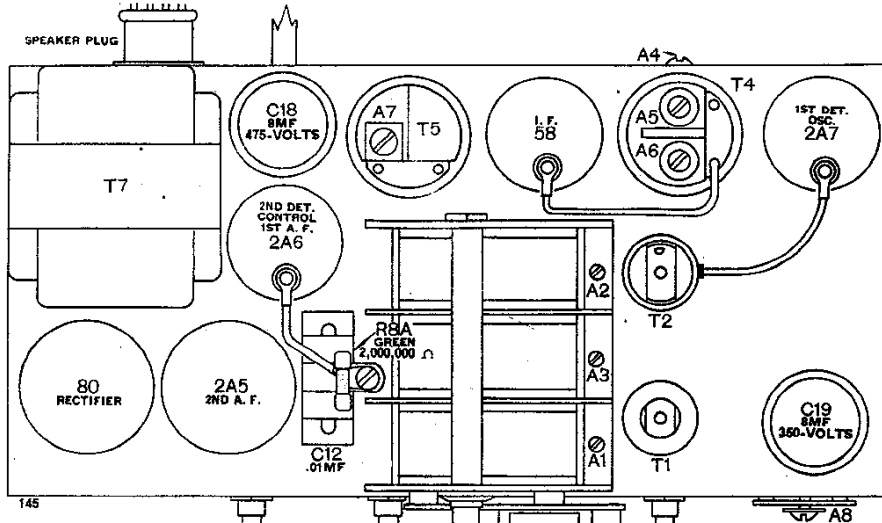
MODEL 145,325 Schematic



In Model 325 the field coil is 1200 Ω and the voltages throughout are slightly higher than shown in diagram. In later sets C4 is not used, the diode circuit is changed and there are some minor changes in the frequency-switch circuit.

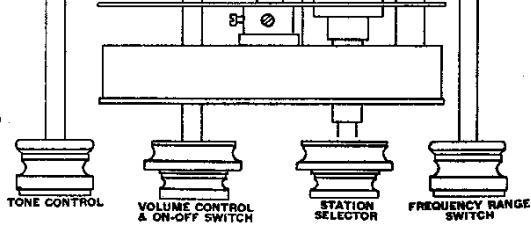
MODEL 145,325

Socket, Trimmer, Chassis ATWATER-KENT MFG. CO.



September, 1984.

**MODELS  
145 AND 325**

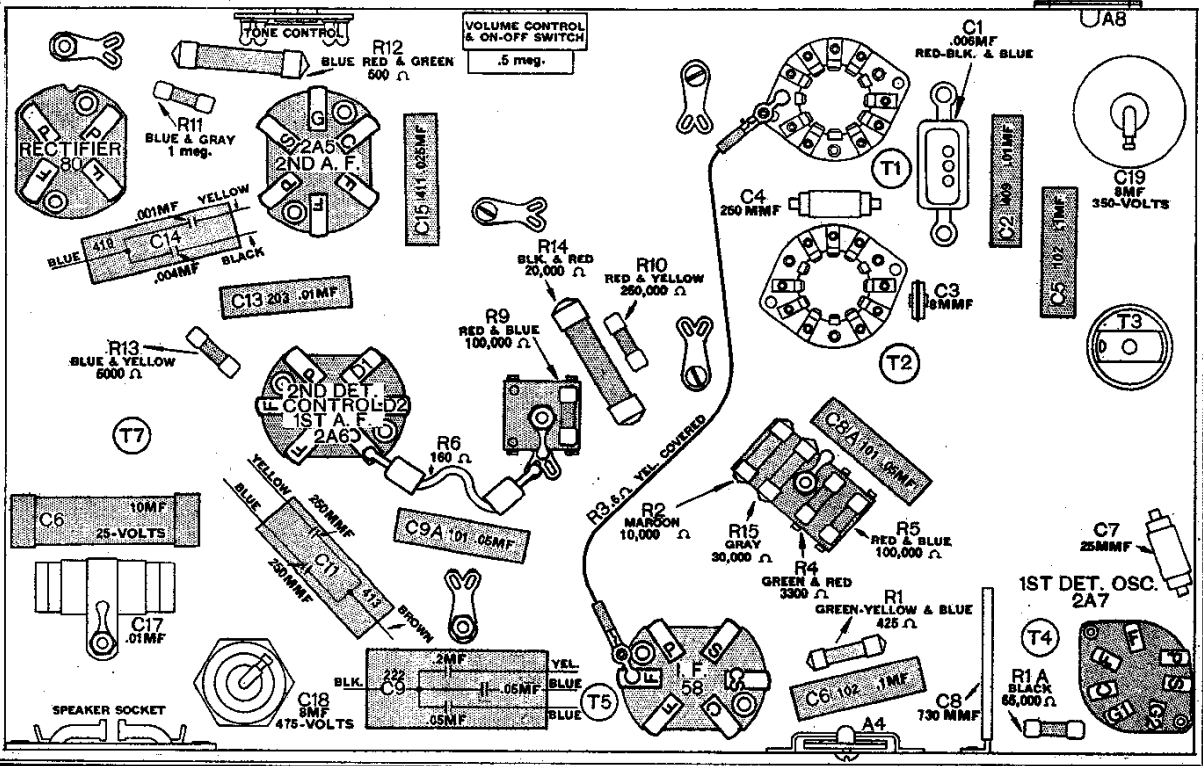


**R. F. TRIMMERS ON  
MODELS 145 AND 325**

	Short-Wave Range	Police Range	Broadcast Range
Antenna	None	None	A1
Detector	None	None	A2
Oscillator	A3	None	A8
Tracking	None	None	A4

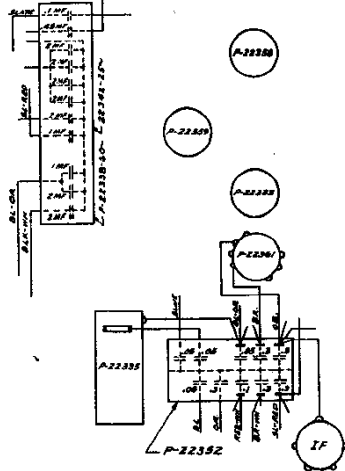
The I. F. trimmers are A5, A6 and A7.

(I. F. = 264 KC.) For Alignment Data and Parts List, see Index



**Stromberg-Carlson 29**

The chassis wiring diagram of this model, which appears on page 2-15 of *Rider's revised Volume II*; page 614-R of the early edition; and page 2401 of the *Rider-Combination Manual*, is not clear in one or two places. So that no doubt will be in your mind when checking over two of the condenser banks,



Condenser banks of Stromberg Model 29

we are showing herewith enlarged drawings of the bank having eleven condensers, in the upper right-hand side of the diagram, and the nine-condenser bank that is shown in about the middle of the page. You can identify their positions on the wiring diagram by the apparatus in the vicinity and by the color and position of the leads. Notice that the top of the sketch shown here goes to the right-hand side of the diagram in your Manual.

**Philco Model 144**

Effective April 15, 1935 the center tap is removed from the filament winding on the power transformer. If a hum is experienced in reception, connect a 20-ohm, wire-wound resistor across the filament winding, with center tap of resistor grounded. This set is shown on page 5-41 in *Rider's Manual Volume V*.

**"X" Models In The Sparton Line**

Some of the Sparton model numbers conclude with the letter "X". The following data will no doubt be of value when seeking equivalent circuits in *Rider's Manuals*. In some instances, the "X" denotes a receiver intended for export sale and containing a special power transformer. In other cases, the letter "X" denotes some addition to the basic circuit.

Model 27-X is the model 18 chassis used in a model 27 cabinet. (Rider

*Manuals Sparton* page 3-10, 3-11, 4-2, 4-3.)

Model 67-X is the same as the model 67 with a special power transformer and is intended for export. (*Rider Manual Sparton* 5-10, 5-11, 5-12.)

Model 73-BX is an export model.

Model 80-X is the same as the model 80, with a special power transformer and is intended for export. (*Rider Manual Sparton* 5-15, 5-16, 5-17, 5-18.)

Model 81-X is the same as the model 81, with the addition of a wave trap. (*Rider Manual Sparton* 4-16.)

Model 82-X is the same as model 82, with the addition of a wave trap. (*Rider Manual Sparton* page 4-17.)

**Stromberg-Carlson 55, 56**

The i-f. peak of these models, the schematic of which appears on page 4-10 of *Rider's Volume IV*, is 175 kc. Please make a notation of this on the above-mentioned schematic.

**Bosch 239**

Please make a note that Model 239 is similar electrically to the Bosch models 236 and 237, the servicing data on which are found on page 3-11 in *Rider's Volume III* and on page 2531 in the *Rider-Combination Manual*. This Model 239 was used in a table installation and the only difference between it and the other models mentioned is that the antenna and ground leads were braided together with the power supply cord in Model 239.

**Howard Grand**

Please make a notation that the power unit shown on *Howard* page 6-16 of *Rider's Volume VI* is for Series 2 of this model, as well as Series 1.

**Peckard Bell 34**

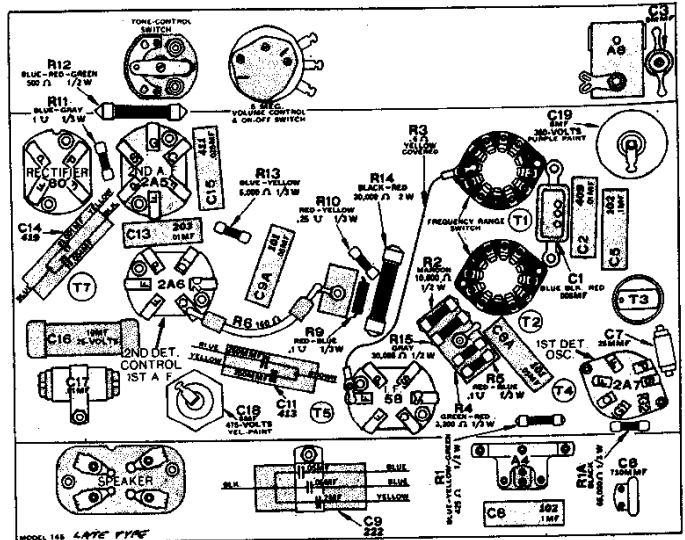
If this set should need to be readjusted, the procedure is as follows: Set dial to about 1700 kc. and connect the output of a signal generator, set at the same frequency, to the antenna. Adjust the trimmer condensers of the r-f. and detector stages for maximum output. All adjustments at 1000 kc. and 600 kc. are made by bending the outside rotor plates of the variable condenser tuning the r-f. stage. The schematic diagram of this receiver will be found on page 6-4 of *Rider's Volume VI*.

**Crosley 815**

We have received word from the manufacturer that no servicing data has ever been issued for the 815, but if you get one in the shop look up Model 8B3, on page 6-10 in *Volume VI of Rider's Manuals*. We are advised that the 8B3 is practically the same as the 815.

**Atwater Kent 145, 325**

The schematic diagram shown on page 5-7 of *Rider's Volume V* is for the early model but the note at the bottom of the diagram covers the changes that were made in the late model. The elimination of the condenser, C4, in the frequency-changing switch in the late models necessitated a rearrangement of the parts. The chassis layout for the late model is shown in the accompanying illustration.



The bottom view of the chassis used in A-K, Models 145 and 325 of the late type

**MODEL 112, 559**

Alignment

**MODEL 145, 325**

Alignment

General Alignment

**ATWATER-KENT MFG. CO.****ADJUSTING TRIMMER CONDENSERS (Contd.)****GENERAL NOTES.**

1. Do not make any trimmer adjustments and do not disturb the dial gear or the dial indicator adjustments unless absolutely necessary.

2. With all-wave sets, it is very desirable to use a test oscillator that extends to 18 MC (18,000 KC). If you attempt to use harmonics of a broadcast oscillator, you are likely to use the wrong harmonic and set the trimmers incorrectly.

3. When using a test oscillator, you will experience "double-spot" or image reception, particularly on the highest frequency range of the set. The double-spot point is twice the I. F. frequency below the correct point. For instance, if a set has an I. F. frequency of  $472\frac{1}{2}$  kilocycles, and you are tuning in an 18 MC signal, the double-spot or image will be twice  $472\frac{1}{2}$  or 945 KC (.94 MC) below 18. In such a case you will hear the signal at 18 MC and also at 17.06 MC. In properly aligned sets of six tubes or more, the image should be weaker than the desired signal.

4. Because of the facts mentioned in paragraphs 2 and 3 above, it is very desirable, wherever possible, first to check the short-wave dial calibration and determine how far, and in what direction, the readings are "off." This should be done on actual reception of short-wave stations of known frequency. This pre-checking will assist you in selecting the correct harmonic (in case you are using a broadcast oscillator), and it will also minimize possibility of confusing the correct signal and the image signal.

5. On oscillator trimmers there may be two different settings at which the signal is received. Always use the *first* of these two positions as you screw the trimmer in from a loose or minimum-capacity position. **THIS IS IMPORTANT.**

6. On sets with a combined oscillator and 1st-detector tube, tune the set to a quiet point near 1,000 KC while adjusting the I. F. trimmers.

**OSCILLATOR GOVERNS DIAL ACCURACY.**

It is essential to understand definitely that in a super-heterodyne the dial calibration depends on the oscillator circuit of the set, providing that the I. F. trimmers are correctly aligned. The pre-selector (R. F. and 1st-detector) trimmers do not affect the dial calibration but simply affect sensitivity.

If the dial calibration of one or more of the frequency ranges of the set is "off", check the oscillator trimmer, the oscillator tracking condenser and tracking trimmer, and the oscillator transformer for the particular range or ranges in question.

The oscillator trimmer is used to adjust the **high-frequency** end of the particular range.

The oscillator tracking condenser adjusts the **low-frequency** end of the particular range.

In Atwater Kent sets the fixed tracking condenser on the broadcast range (and in some models also on the police range) is shunted with an adjustable tracking trimmer condenser. The adjustable tracking trimmer condenser is not used on the high-frequency ranges.

The adjustment of the trimmers for the high-frequency and low-frequency end of a particular range is slightly interlocking. For example, assume that the broadcast range of a set is off calibration. First turn the tuning knob so the dial pointer is at 1500 KC and, using a 1500 KC signal, peak the broadcast oscillator trimmer. Then turn the set to 560 KC and, using a 560 KC signal, peak the oscillator broadcast tracking trimmer for maximum output. This adjustment will have slightly affected the previous adjustment at 1500 KC so it will be necessary to repeat the adjustment at 1500 KC and also possibly at 560 KC.

If adjustment of the oscillator trimmer and the oscillator tracking trimmer does not correct the dial readings, it may be necessary to replace the fixed oscillator tracking condenser or the oscillator transformer for that particular range.

Naturally, the I. F. trimmers should be checked, and adjusted if necessary, before any attempt is made to align the R. F. or oscillator trimmers.

**GENERAL PROCEDURE.**

First check the I. F. trimmers. If reception is satisfactory and the dial calibration is correct on the broadcast range, it is safe to assume that the I. F. trimmers are correctly adjusted.

If the dial calibration is "off" (or the set is weak) on only one range, adjust the trimmers for that range only. If this does not correct the trouble, inspect the resistors, condensers, transformers, and switch contacts associated with that particular range.

In checking a set, do not disturb the position of the wiring any more than necessary.

**MODELS 112 AND 559****I. F. TRIMMERS.**

Connect an I. F. test oscillator to the 1st-detector tube by means of the I. F. coupling unit shown in Fig. 1. Adjust the I. F. oscillator to  $472\frac{1}{2}$  KC. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter with the radio volume control on full. Put tone control in 2nd-position from right.

Put balancing unit A (shown in Fig. 2) across trimmer A21 and peak A22.

Put unit A across A22 and peak A21.

Put unit A across A19 and peak A20.

Put unit A across A20 and peak A19.

Put one unit A across A17 and another unit A across A15; peak A18 and A16.

Put one unit A across A18 and another unit A across A16; peak A17 and A15.

In case of instability while adjusting A21 and A22, place an extra balancing unit A across A18.

Remove the I. F. coupling unit and the balancing units and seal the trimmer screws.

**R. F. TRIMMERS.**

Connect an R. F. oscillator to the antenna and ground terminals of the set. Use the weakest possible signal to give a reading on the output meter. Loosen the trimmer screws for the frequency range or ranges that are to be re-adjusted.

**10 to 18 MC range.** Tune oscillator exactly to 18 MC and turn tuning knob of set so indicator is at 18 MC mark. Adjust trimmers A14, A4 and A12 for peak output.

**4 to 10 MC range.** Tune oscillator exactly to 10 MC and turn set to 10 MC mark on the 4 to 10 MC range. Peak trimmers A13, A3 and A11.

**1.5 to 4 MC range.** Tune oscillator to 4 MC and turn set to the 4 MC mark on the 1.5 to 4 MC scale. Peak trimmers A7, A2 and A8. Tune oscillator to 1.5 MC and, with set at 1.5, peak A10. Repeat adjustments on A7 and A10 if necessary.

**Broadcast range.** Tune oscillator and set to 1500 KC. Peak trimmers A6, A1 and A9. Tune oscillator to 560 KC and turn set to the 560 KC mark. Peak A5. Repeat adjustments on A6 at 1500 and A5 at 560 if necessary.

**MODELS 145 AND 325****I. F. TRIMMERS.**

Connect an I. F. test oscillator to the 1st-detector tube by means of the I. F. coupling unit shown in Fig. 1. Adjust the I. F. oscillator to 264 KC. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter with the radio volume control on full. Turn the set to a quiet point near 1000 KC.

Peak trimmer A7, A6 and A5. Remove the I. F. coupling unit and seal the trimmer screws.

MODEL 944  
 Alignment  
 MODEL 145, 325  
 Parts List

ATWATER-KENT MFG. CO.

ADJUSTING TRIMMER CONDENSERS (Contd.)

1.6 to 4.6 MC range. Oscillator at 4 MC and dial pointer at 4 MC, peak trimmers A12, A3 and A7. Tune oscillator to 1.7 MC, and with dial pointer at 1.7, peak A10. Repeat adjustments on A12 at 4 MC and A10 at 1.7 MC if necessary.

Broadcast range. Oscillator at 1500 KC and dial pointer at 1500 KC mark, peak trimmers A11, A1 and A5. Tune oscillator to 560 KC, turn dial pointer to 560 KC mark, and peak A9. Repeat adjustments on A11 at 1500 KC and A9 at 560 KC if necessary.

MODEL 944

I. F. TRIMMERS.

Connect an I. F. test oscillator to the 1st-detector by means of the I. F. coupling unit shown in Fig. 1. Adjust the I. F. oscillator to 450 KC. Connect a sensitive output meter to the set. Use the weakest possible oscillator signal that will give a reading on the output meter, with the condenser A5 turned well out in counter-clockwise direction (when facing rear of chassis). Peak the I. F. trimmers A3 and A4 for maximum output. Now turn the regenerative control condenser "in" (clockwise from rear of chassis) until a "squeal" or audio howl indicating oscillation of the I. F. stage, then back off about one-quarter turn, or until the audio howl stops. The adjustments of the I. F. trimmers should again be checked for peak—i. e.,

the peaking procedure and adjustment of the regenerative condenser should be repeated until maximum output is obtained.

R. F. TRIMMERS.

Check the dial setting by turning the gang condenser to maximum position and observing, by means of steel scale held vertically over the condenser shaft axis, whether the 540 KC mark on the dial is perpendicular to a line along the top of the condenser frame in back of the dial. Connect an R. F. oscillator to the antenna and ground terminals of the set. Use the weakest possible signal to give a reading on the output meter. Loosen the trimmer screws. Tune the oscillator to 1500 KC and turn the tuning knob of the set to a dial mark half way between 140 and 150 and perpendicular to a line along the top of the condenser frame. (Determined as explained in setting dial at 540 KC.) Peak the trimmers A1 and A2 for maximum output. Retune oscillator and set to 1100 KC and check regenerative condenser A5 adjustment for maximum sensitivity—i. e., one-quarter turn below audio howl. If oscillation occurs at any other point on the dial after the above adjustments, it will be necessary to again turn back a fraction of a turn on the condenser A5.

Note.—1st-detector grid clip must be inside of shield can when adjusting the R. F. trimmers.

PARTS LIST

MODEL 145

- 28839 Cabinet less screen
- 27906 Screen
- 27945 Escutcheon and crystal assem.
- 27388 Crystal
- 27431 Var. cond. assem.
- 27692 Tuning gear
- 27574 Dial plate holder
- 27947 Dial pointer holder
- 27522 Dial pointer
- 27535 Pointer screw
- 27523 Dial plate
- 24323 Power trans. cover
- 25056 I. F. T. shield
- 27485 Range switch
- 19566 110 V. cable
- 40090 Pilot light assem.
- 28827 Dial lamp socket
- 26526 Ferrule and bushing
- 26524 Spring
- 22683 Tube shield
- 28281 Front and back plate assem.
- 28594 Tuning shaft assem.
- 22657 Dial rubber and bushing
- 25058 I. F. T. shield cover
- 25059 I. F. T. shield cover (hole)
- 27676 Pilot lamp, 2.5 V. (frosted)
- 27425 Vol. control, 5 U
- 39620 Tone control switch assem.
- 28192 Shaft and blade for above
- 27562 Inst. sheet, F-1149
- 27867 Shipping container

TRANSFORMERS

- T1 39820 No. 1 R. F. T.
- T2 39830 No. 2 R. F. T.

MODEL 145 (Contd.)

- T3 39840 Oscillator T.
- T4 27789 No. 1 I. F. T.
- T5 27791 No. 2 I. F. T.
- T6 28621 Output T.
- T7 25191 Power T.

RESISTORS

(For tubular resistors see page 19.)

- R6 28950 Flexible, 160 Ω

CONDENSERS

(For tubular condensers see page 18.)

- C1 25035 .006 MF, blue, blk. and red
- C3 27650 8 MMF
- C4 33670 250 MMF, 500-V., mica
- C7 33930 25 MMF
- C8 39660 730 MMF
- C10 33670 250 MMF, 500-V., mica
- C10A 33670 250 MMF, 500-V., mica
- C18 22538 8 MF, 475 V.
- C19 27585 8 MF, 350 V.

TRIMMERS

- A4 39630 Rear
- A5,6 32880 T4
- A7 36570 T5
- A8 38890 Front

CHOKES

- CK1 28623 On speaker
- CK2 40140 R. F. choke

MODEL 145 (Contd.)

SOCKETS

- 24494 6 prong
- 24492 4 prong
- 21336 Speaker
- 26111 7 prong

MODEL 145 SPEAKER

- 42100 Complete speaker
- 28619 Diaphragm assem.
- 28621 Output trans. (T6)
- 28622 Field coil
- 28623 Choke coil (CK1)

MODEL 325

(For parts not listed below refer to Model 145.)

- 27985 Bottom plate
- 27946 Escutcheon and crystal assem.
- 28535 Dial plate
- 40140 R. F. choke (CK2)
- 27865 Shipping container

MODEL 325 SPEAKER 41800

- 27661 Cone housing
- 25525 Choke (CK1)
- 21260 Field coil
- 20737 Diaphragm
- 20657 Cable and plug assem.
- 18582 Plug only
- 19469 Segment

Ω = ohms. U = megohms.