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## Models 233G and 233AG

Models 233G and 233AG are battery operated radio receivers covering a frequency range of 535 to 1510 kilocycles (standard wave) and 145 to 310 kilocycles (long wave). A two-position switch changes from one range to the other. The upper scale on the dial covers standard frequencies; the lower scale, low frequencies or long waves. radiomuseum.org

Model 233G is to be operated from a 2-volt storage (wet) cell for the filament voltage; model 233AG uses a dry battery for the filament supply. The 233AG requires the use of a ballast tube (in the socket provided on the chassis); in model 233G the ballast tube is not needed, and the jumper clip should be left across the two contacts of the ballast tube socket.

These sets use two type 32-E tubes,—one as radio frequency amplifier and one as detector—and one pentode output tube, type 2101.

Models 233G and 233AG utilize the regeneration or "reaction" circuit. This feature is controlled by the reaction control knob (see Fig. 1).

The filament current drain is 0.42 Ampere and the "B" or plate battery drain varies from 12 M. A. to 14 M. A.

## Adjusting Compensating Condensers

There are three compensating condensers in these sets. Two are located on the top of the sections of the tuning condenser gang; and one underneath chassis and reached from the rear (thru hole in sub-base).

Connect the set up to the batteries and the antenna lead from signal generator to antenna post of set. Set signal generator at 1500 K.C. Turn wave-band switch to right and set dial at 150. (If set is removed from cabinet, obtain a

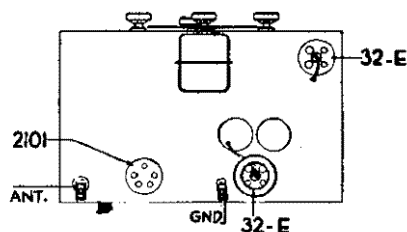


Fig. 1—Tube Locations

piece of flat steel, 006" thick, about 1/2" wide and four or five inches long; open condenser gang and bring heel of detector section down on this steel strip; then remove the strip without disturbing setting of condenser gang). radiomuseum.org

Turn volume control full on and reaction control about 3/4 of the way to full on; then with a suitable hex wrench (such as Philco No. 3164) adjust condensers ① and ② (located on tuning condenser gang) to obtain maximum reading in the output meter, which should be connected to primary terminals of the output transformer.

While making the adjustment, advance the reaction control as far as possible without causing oscillation, working for maximum output on both condensers.

Now throw wave-band switch to left and turn dial to 300 K.C. (30 on lower scale of dial). In this position the condenser gang is approximately open. Now adjust condenser ③ (reached from rear) for maximum output, keeping the reaction control advanced as explained above, to just below point of oscillation.

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## Models 264 and 265

Philco Models 264 and 265 are five-tube superheterodyne radio receivers designed for operation on alternating current. The voltage and frequency for which each type of these models is intended is indicated on the chassis nameplate.

These receivers cover two bands or ranges of receivable frequencies: (1) Long waves or low frequency from 140 to 320 kilocycles (2140 to 935 meters), and (2) medium wave or standard (American) frequencies, from 540 to 1500 kilocycles (555 to 200 meters). A switch on the panel permits quick change from one to the other range. radiomuseum.org

The tubes used are: 1 type 6A7 detector-oscillator; 1 type 78-E intermediate frequency; 1 type 75 2d detector-1st A. F.; 1 type 42-E output, and 1 type 80 rectifier. The intermediate frequency is 125 kilocycles (K. C.) and the power consumption is 65 watts. The chief difference between Models 264 and 265 is that the latter is equipped with a shadow tuning meter and a phonograph jack.

### Tube Socket Voltages\*

	6A7 Det.-Osc.	78-E I. F.	75 2d Det. A. F.	42-E Output
F to Grid.....	250	255	100	250
80, to Grid.....	45	100	...	257
X to Grid.....	2.2	3.4	0	-25

\*6A7, G2 to Grid; 265. 80, F1 to chassis; 264.  
\*Tests made with high resistance voltmeter. Refer to Fig. 1.

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## Adjusting Compensating Condensers

Adjustment of compensating condensers in Models 264 and 265 requires the use of an accurate signal generator (such as the Philco Model 024), an output meter (Philco Model 012 or 025 is recommended) and a special adjusting wrench (Philco No. 3164). The I. F. or intermediate frequency of the set is 125 K. C. Adjustments are made in the following order:

I. F.—Set signal generator at 125 K. C. Remove grid clip from cap of 6A7 tube and connect antenna lead from signal generator to cap of tube, connect ground lead to ground post of set. Set dial of receiver at 55 (upper scale) and wave-band switch at right. See that set is connected to proper current and volume control full "On." Connect output meter to plate and cathode of output tube (42-E). Adjust the three I. F. compensating condensers ①, ② and ③ to give maximum response in the output meter. These adjustments are all made from the rear of the chassis (see Fig. 3), through holes in sub-base.

ANT.—DET. and OSC.—H. F. (standard wave)—These are condensers ④, ⑤ and ⑥ located on top of the tuning condenser assembly and adjusted from above. ④ is the one nearest the front of chassis.

Set signal generator at 1500. Replace grid clip on cap of 6A7 tube and connect antenna and ground leads from signal generator direct to antenna and ground posts of set. Turn dial of set to 160 and adjust condensers ①, ② and ③ for maximum reading in output meter.

OSC.—L. F. (standard wave)—Set signal generator at 600 and turn dial of set to 60. Adjust condenser ⑦, reached from rear of chassis, to give maximum reading in output meter.

### Power Transformer Data (250 VOLT TYPE RECEIVER)

Terminals	A. C. Volts	Circuit	Color
1-2	250	Primary	White
3-5	6.3	Filaments	Black
6-7	5.0	Fil. of Rect.	Blue
8-10	650	Sec. High Volt.	Yellow
4	...	Center Tap of 3-5	Black—Yellow Tr.
9	...	cen. Tap of 8-10	Yel.—Green Tr.

H. F. and L. F. (long-wave band)—Turn wave-band switch to the left. Set signal generator at 300 and dial at 30 (lower scale). Adjust condenser ⑧ to give maximum response in output meter. This condenser is reached from underneath chassis.

Now turn dial to 15 and set signal generator at 150. Adjust condenser ⑨ for maximum response. Condenser ⑨ is reached from the rear.

Note—If reading on output meter is too great during adjustments, turn down "attentator" on signal generator.

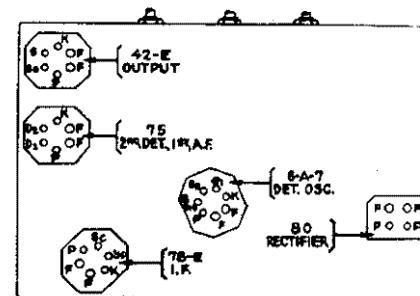


Fig. 1.—Tube Sockets as Seen From Bottom of Chassis.