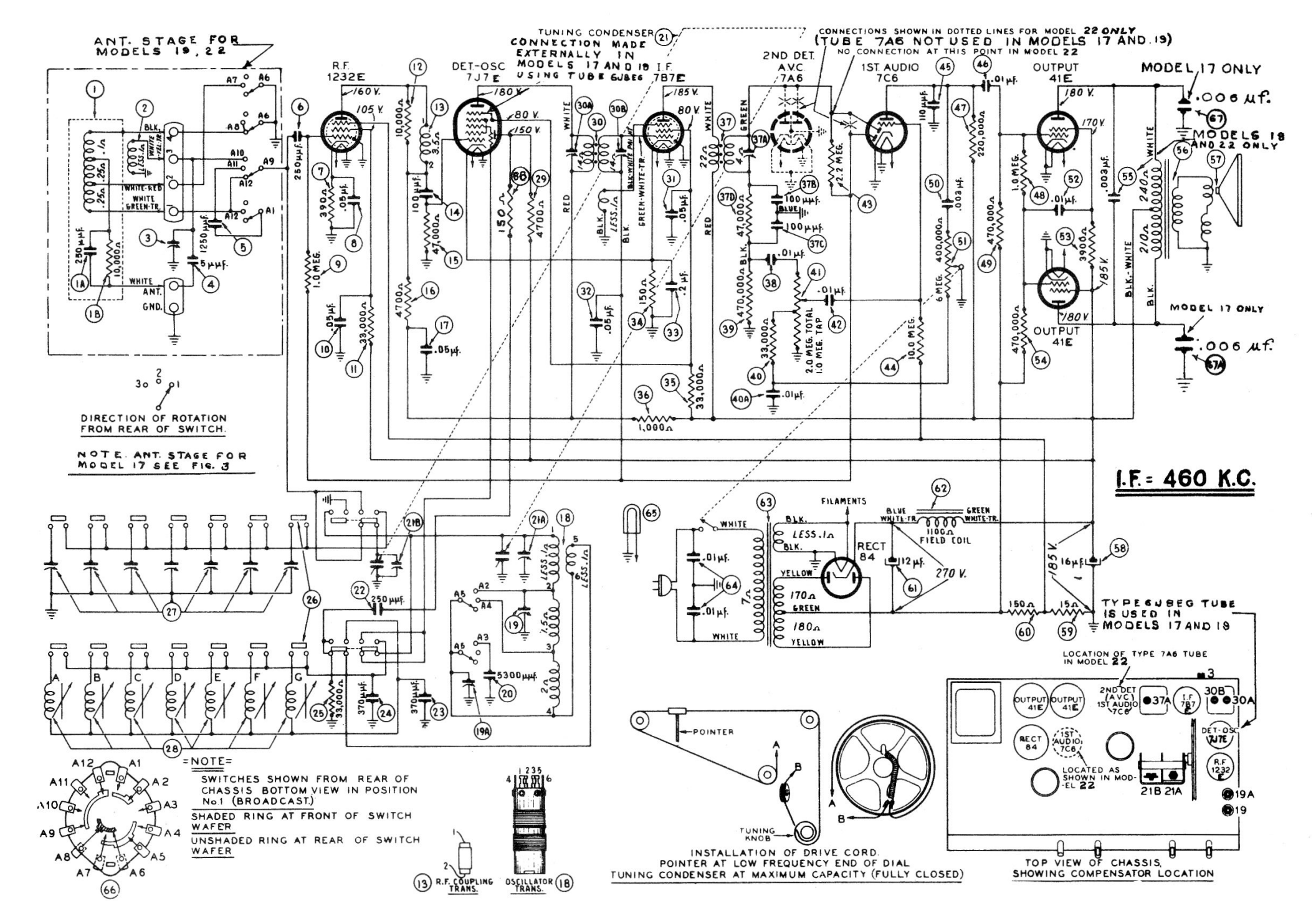

Philco Models 17, 19 & 22

Push Button Adjustment 17, 19, 21 & 22

In order to adjust the electric push buttons accurately for reception of broadcast stations, a vacuum tube voltmeter such as Philco Model 028 should be used. In addition, an insulated padding screw driver, Part No. 45-2610, and Loktal aligning adapter, Part No. 45-2767, are required. With this equipment at hand proceed as follows:

Select seven of the most popular stations received in the locality. Insert the station call letters into the windows above the buttons. The station with the lowest frequency is placed in the first button on the left and the highest frequency is placed in the seventh (7) push-button. Each push button is adjusted by two set screws located on the rear of the push button unit. Each set of screws is numbered and covers a frequency range as follows:

Push-Button	Freq. Range Model 21	Freq. Range Models 17,19,22
1, 2, 3	540-1030 Kc.	540-1060 Kc.
4, 5	670-1160 Kc.	650-1110 Kc.
6, 7, (also 8 on Model 21)	900-1600 Kc.	920-1600 Kc.

Looking at the front of the cabinet, the first button on the left is adjusted by set screw No. 1. The next push button by set screw No. 2 and the remaining push buttons in order.

1. Remove the 7C6 A. F. tube from its socket and insert the aligning adaptor, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the wire which protrudes from the side of the adaptor. Attach the positive terminal of the voltmeter to the chassis.

2. Turn the receiver on and set the tuning range disc to "Broadcast" (Manual Tuning).

3. Set up the Model 177 Signal Generator about 3 feet from the receiver and connect a loop constructed out of about 6 feet of wire to the high and ground output jacks of the signal generator. Turn the output controls to maximum and set the modulation control to "MOD. ON". Manually tune in the first station to be set up on push button No. 1. After doing this set the indicator of the 177 Signal Generator to the frequency of the station being received. As the indicator approaches the frequency of the station a whistle will be heard; leave the indicator at this point. Turn the receiver tuning range disc to "Push Button" and press in No. 1 button. Using the insulated screw driver turn the No. 1 "Osc." screw until the broadcast station identified by the signal generator is heard; at this point, turn the indicator of the signal generator away from the frequency of the station. Readjust No. 1 "Osc." and "Ant." screws for maximum deflection of the vacuum tube voltmeter pointer. Station No. 1 is now adjusted properly. After setting up the first station the same procedure as outlined above is used for the remaining stations.

Alignment

Operations	SIGNAL GENERATOR		RECEIVER			Remarks
	Output Connections	*Dial Frequency*	*Dial Frequency*	*Control Settings*	*Adjust Compensators for Max. Signal*	
1	High Side to No. 1 Ter. Loop Panel	I. F. 460 K. C.	580 K. C. No Signal	Range Sw. "Brdcst." Volume "Max." Push-Button "Dial"	37A, 30A, 30B	See Note A
2	Use Loop on Generator	18 M. C.	18 M. C.	Range Sw. "SW." Volume "Max." Push-Button "Dial."	21A	Note B. Note D.
3	Use Loop on Generator	1400 K. C.	1400 K. C.	Range Sw. "Brdcst." Volume "Max."	19A, 21B	See Note E. for Model 17
4	Use Loop on Generator	600 K. C.	600 K. C.	Range Sw. "Brdcst." Volume "Max."	19	Roll Cond. Note C.
5	Use Loop on Generator	1400 K. C.	1400 K. C.	Range Sw. "Brdcst." Volume "Max."	19A, 21B	Roll Cond. Note C.
6	Use Loop on Generator	18 M. C.	18 M. C.	Range Sw. "SW"	3	Roll Cond. Note C.

NOTE A—A "Dummy Antenna" consisting of a .1 mfd. condenser is connected in series with the signal generator output lead (high side).

NOTE B—DIAL CALIBRATION: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable in this position is shown in the schematic diagram.

NOTE C—When adjusting the low frequency compensator of Range One (Broadcast) or the antenna and R. F. compensators of the high frequency tuning ranges; the receiver Tuning Condenser must be adjusted (rolled) as follows: First tune the compensator for maximum output, then vary the tuning condenser of the receiver for maximum output. Now turn the compensator slightly to the right or left and again vary the receiver tuning condenser for maximum output. This procedure of first setting the compensator and then varying the tuning condenser is continued until there is no further gain in output reading.

NOTE D—To accurately adjust the high frequency oscillator compensator to the fundamental instead of the image signal, turn the oscillator compensator to the maximum capacity position (clockwise). From this position slowly turn the compensator counter-clockwise until a second peak is obtained on the output meter. Adjust the compensator for maximum output at this second peak.

If the above procedure is correctly performed, the image signal will be found (much weaker) by turning the receiver dial 920 K. C. below the frequency being used on any high frequency range.

NOTE E—In the Model 17, the 1400 K. C. ant. compensator, (21B in Models 19 and 22) is located in the Broadcast Loop Assembly and is compensator 1C of Fig. 3.

Models 17, 19 & 22

When aligning R.F. padders make a loop of a few turns of wire, connect to generator output, place 2 or 3 ft. from loop in cabinet. Do not remove loop or set from cabinet.

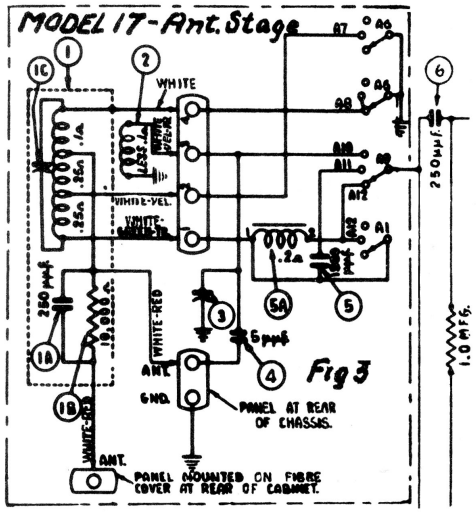

Fig 3