

# Philco Radio & Television Corp.

Model: 655	Chassis:	Year: Pre October 1937
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Power:	Circuit:	IF:
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Tubes:

Bands:

## Resources

[Riders Volume 8 - CHANGES 8-2](#)

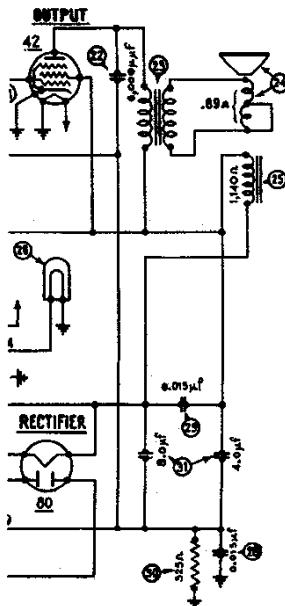
[Riders Volume 7 - PHILCO 7-114](#)

[Riders Volume 7 - PHILCO 7-115](#)

[Riders Volume 7 - PHILCO 7-116](#)

## Philco 59

The schematic, furnished by the manufacturer and shown on page 5-30 of *Rider's Volume V*, has an error in the field coil circuit, Part No. 25. Compare



Partial schematic of Philco 59, showing correct wiring of the field coil, Part No. 25.

the partial schematic shown here with the one mentioned above and you will see the difference in the connections to the field coil.

## Philco 37-33

Starting with Run No. 3, the filament wiring of the 1D5G i-f. tube was reversed, thus improving operation of the set. In Fig. 1 on page 7-16 of *Rider's Volume VII*, the left-hand filament terminal of this tube is marked "2 volts." This terminal is now grounded to the chassis.

Referring to Fig. 3 on the same page, resistor No. 8 has been removed from the r-f. terminal panel and connected directly from the oscillator grid contact on the 1D7G socket to ground. This change improved the sensitivity in the center of the broadcast band.

## Philco 630

The schematic of this receiver shown on page 6-31 of *Rider's Volume VI* indicates a ld-coil resistance of 1140 ohms. This is incorrect and should be 640 ohms. Please make this change in your Volume VI.

## Philco 65

The schematic of this receiver was published on the following pages of *Rider's Volume I*: page 1-16 of the revised edition and page \*459 of the early edition; and on page 1638 of the *Rider-Combination Manual*. At the time of publication the values of the parts were unobtainable and these are now given in the list below. The first column is the identifying number used on the schematic; the second column is the part number; and the third column is the value.

## Schematic Part

Number	Part Number	Value
1	3524	10,000 ohms
5	3292A	.1 mf.—250 ohms
6	3584A	.05 mf.—250 ohms
13	3583	.5 mf.
14	3525	32,000 ohms
21	3422	200 "
22	3526	5,000 "
23	3518	4,000 "
24	3512	2700 ohms (700,2000)
25	3528	2,000 ohms
26	3628	6 "
27	3292B	.05 mf. 00-250 ohms
29	2850	3200 "

## Philco 645

The schematic of this set will be found on page 7-109 of *Rider's Volume VII*. Several changes have been made, as follows:

Starting with Run No. 3, the 51,000-ohm resistor, No. 16, has been removed. A 32,000-ohm resistor,  $\frac{1}{2}$  watt, Part No. 33-332334, has been connected from the oscillator grid of the 6A7 to the suppressor grid of the 78 r-f. tube. The 0.05-mf. condenser, No. 61, has been removed. The 25,000-ohm resistor, No. 60, has been replaced with one having a value of 240,000 ohms,  $\frac{1}{4}$  watt, Part No. 33-424143.

A 0.06-mf. condenser, Part No. 30-4114, has been connected from the —C end of the B.C. resistor, No. 64, to the junction of the 1-megohm and 490,000-ohm resistors, Nos. 66 and 67.

The filament voltage of the 80 rectifier is shown as 6.3 volts in Fig. 3 on page 7-108 of *Rider's Volume VII*. This should be 5.0 volts.

Beginning with Run No. 4, the green and yellow leads of the a-f. input transformer, No. 52, were reversed to reduce hum.

## Philco 651

The leads of the i-f. transformer should be separated as widely as possible from each other, in order to reduce the possibilities of i-f. oscillation.

This means, too, that the leads from one of these transformers should be as far as possible from the leads of the other.

The -B lead from the suppressor plate terminal of the 78 r-f. tube to the wiring panel mounted on the 0.05-mf. condenser, No. 72, should be run close to the baseboard and away from the wave trap coil. This should eliminate motor-boating at 540 kc.

For schematic, see page 7-111, *Rider's Volume VII*.

## Philco 655

In the paragraph titled "Police" of the alignment instructions on page 7-116 of *Rider's Volume VII*, it reads that the detector trimmer No. 11 should be adjusted for maximum output. This should be trimmer No. 12 to conform with the layout of Fig. 4 at the top of the page.

In Fig. 1, the designations of the r-f. transformers on page 7-114 should be changed as follows: 15-A, oscillator, to 16; 9, antenna, to 3; and 14, detector, to 10. To correct the lead designations of the oscillator transformer, No. 16 on the schematic, change No. 3 to 7; 7 to 5; 5 to 4; and 4 to 3.

Another error in the manufacturer's data was in the tube layout shown on the top of page 7-115 of *Rider's Volume VII*. The second detector is a 75, not an 85. The designation on the schematic on this same page is correct. Please make these changes in your Volume VII.

Beginning with Run No. 2, the 51,000-ohm resistor, No. 14, was removed and a 32,000-ohm resistor, Part No. 33-332334,  $\frac{1}{2}$  watt, was connected from the oscillator grid of the 6A7 to the suppressor of the 78 r-f. tube.

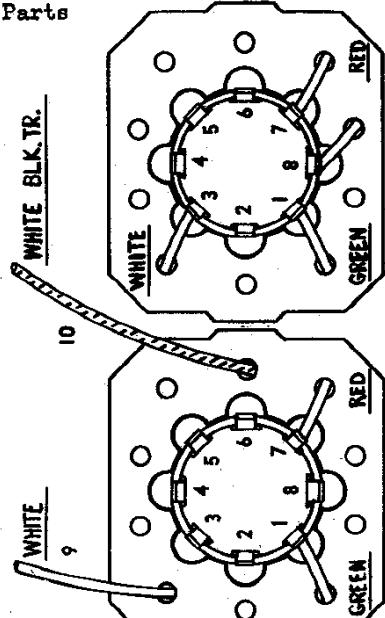
## Philco I-F. Peaks

In certain localities it has been found advisable to align certain two- and three-gang Philco sets at some other i-f. peak than the one for which they were designed, i.e., 470 kc. This change has been found necessary because of some interference that is peculiar to these localities: Portland, Maine; Miami, Fla.; New Haven, Conn.; San Diego, Cal.; about one third of northern Long Island; Newark and southern New Jersey.

Therefore, if you are operating in any of these places and are bothered by code interference, align either of the two type sets mentioned above at 456 kc., 465 kc., or 480 kc. The i-f. peaks just mentioned are to be used depending on the location and type of interference.

MODEL 655  
Coil Data  
Parts

## **PHILCO RADIO & TELEV. CORP.**

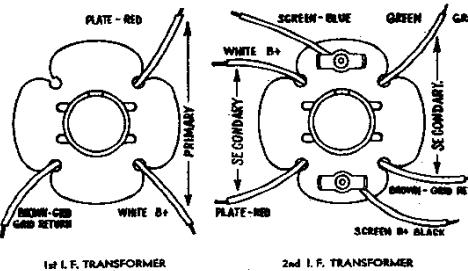


Schematic Number		Part and Description	List Price	Part No.
Line ②	Resistor (5,000 ohm)	\$1.00	.20	31-25015
Line ③	Resistor (15,000 ohm)	\$1.00	.20	31-31113
Pickup Head ④	Pickup Head	\$10.00	7.25	31-2014
Pickup Arm ⑤	Pickup arm	\$1.10	2.30	31-2010
Phonomotor ⑥	Phonomotor (115 V., 50 cycle)	\$1.00	3.00	31-1007
Phonomotor ⑦	Phonomotor (115 V., 40 cycle)	\$1.00	3.00	31-1003
Phonomotor ⑧	Phonomotor (115 V., 25 cycle)	\$1.00	3.00	35-0008
Phonomotor ⑨	Phonomotor (230 V., 60 cycle)	\$1.00	3.00	31-1004
Phonomotor ⑩	Phonomotor (230 V., 50 cycle)	\$1.00	3.00	35-0009
Phone-motor ⑪	Phone-motor (230 V., 40 cycle)	\$1.00	3.00	35-0005
Phone-motor ⑫	Phone-motor (230 V., 25 cycle)	\$1.00	3.00	31-1046
Hum Bucking coil ⑬	Hum Bucking coil	\$1.00	1.10	32-1046
Radio phone switch plate ⑭	Radio phone switch plate	\$1.00	.30	28-2250
Switch Pointer ⑮	Switch Pointer	\$1.00	.02	42-77
Needle Cup ⑯	Needle Cup	\$1.00	.22	28-2222
Needle Cup Cover ⑰	Needle Cup Cover	\$1.00	.15	28-2223
Speed Change lever ⑱	Speed Change lever	\$1.00	.25	28-1648
Speed Change lever spring ⑲	Speed Change lever spring	\$1.00	.15	28-1649
Speed Change lever spacer ⑳	Speed Change lever spacer	\$1.00	.10	28-5103
Turntable ㉑	Turntable	\$1.00	.10	31-1001
Motor Board ㉒	Motor Board	\$1.00	.00	38-5001
Motor Board wiring ㉓	Motor Board wiring	\$1.00	.00	38-5002
Motor Board shield ㉔	Motor Board shield	\$1.00	.00	28-10089
Motor Board shield ㉕	Motor Board shield	\$1.00	.00	28-10090
Motor Board shield ㉖	Motor Board shield	\$1.00	.00	28-10091
Motor Board shield ㉗	Motor Board shield	\$1.00	.00	28-10092
Motor Board shield ㉘	Motor Board shield	\$1.00	.00	28-10093
Motor Board shield ㉙	Motor Board shield	\$1.00	.00	28-10094
Motor Board shield ㉚	Motor Board shield	\$1.00	.00	28-10095
Motor Board shield ㉛	Motor Board shield	\$1.00	.00	28-10096
Motor Board shield ㉜	Motor Board shield	\$1.00	.00	28-10097
Motor Board shield ㉝	Motor Board shield	\$1.00	.00	28-10098
Motor Board shield ㉞	Motor Board shield	\$1.00	.00	28-10099
Motor Board shield ㉟	Motor Board shield	\$1.00	.00	28-10100
REF	GREEN			

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Part and Description	Part Number
Wave Band Switch.....	②
Wave Transistor.....	③
Ant. Transformer (Standard) (Ant.)	④
Compensator (Shunt Wave) (Ant.)	⑤
Compensator (0.05 mfd. Balanced)	⑥
Compensator (0.05 mfd. Misaligned)	⑦
Det. Transformer.....	⑧
Compensator (Standard) (Det.)	⑨
Compensator (Police) (Det.)	⑩
Compensator (Short-Wave) (Det.)	⑪
Resistor (\$1,000 ohm, ½ watt)	⑫
Condenser (0.0025 mfd. ½ mfd.)	⑬
Tuning Condenser (Short-Wave Series) (Osc.)	⑭
Osc. Transformer.....	⑮
Compensator (1st F. I. Pri.)	⑯
Compensator (1st F. I. Sec.)	⑰
Resistor (1.0 megohm, ½ watt)	⑱
Resistor (\$1,000 ohm, ½ watt)	⑲
Compensator (Short Wave) (Osc.)	⑳
Compensator (Std. Series) (Osc.)	㉑
Condenser (.0025 Mfd.)	㉒
Condenser (Police Series) (Osc.)	㉓
Compensator (1st F. I. Pri.)	㉔
Compensator (2nd F. I. Pri.)	㉕
Condenser (0.001 mfd. ½ mfd.)	㉖
Resistor (330,000 ohm, ¼ watt)	㉗
Resistor (99,000 ohm, ¼ watt)	㉘
Condenser (.0001 mfd. ½ mfd.)	㉙
Condenser (0.05 mfd. Tubular)	㉚
Condenser (50 micro, ½ watt)	㉛
Resistor (1.0 megohm, ½ watt)	㉜
Resistor (\$1,000 ohm, ½ watt)	㉝
Output Transformer.....	㉞
Program Control.....	㉟
Volume Control.....	㉟
Voice Coil & Cone Assy. (B.G. K-17)	㉟
Field Coil Assy. (B.G. K-17)	㉟
Electrolytic Condenser (3.0-1.0-2.0 mfd.)	㉟
Condenser (.015 Twin Baffle)	㉟
Phone-motor switch assy.	㉟
Phone-motor 115 V., 60 cycle	㉟
C. Resistor (7750 ohm, 1 watt)	㉟
C. Resistor (10-10-10-10 ohm)	㉟
Electrolytic Condenser (3.0-1.0 mfd.)	㉟
Condenser (1 mfd. Baffleless)	㉟
Resistor (15,000 ohm, ½ watt)	㉟
Electrolytic Condenser (8.0 mfd.)	㉟
Electrolytic Condenser (10 mfd.)	㉟
Filt'r Choke.....	㉟
Power Transformer (115 V., 60 cycle)	㉟
Condenser (.015 Twin Baffle)	㉟
Phone-motor switch assy.	㉟
Phone-motor 115 V., 60 cycle	㉟
C. Resistor (39,000 ohm, 1 watt)	㉟
Electrolytic Condenser (1.0 mfd.)	㉟
Condenser (15,000 ohm, ½ watt)	㉟
Electrolytic Condenser (2.0 mfd.)	㉟
Shadow Lamp (Shadow meter)	㉟
Shadow Lamp (Tuning Meter)	㉟
Conformer (Oval, Tubular)	㉟
Filt'r Jumper.....	㉟
Radio-Phone receiver (10.5 m. Ant.)	㉟

DET.  
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**1st I. F. TRANSFORMER**      **2nd I. F. TRANSFORMER**

⑨ ANT

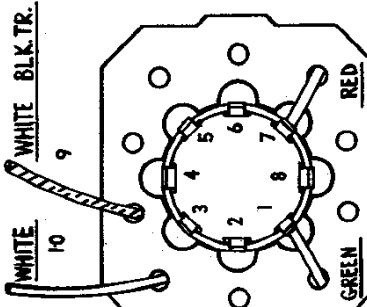


Fig. 1. R.F. Transformer

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Fig. 2 IE Transformer

Code 122—30-2014      Code 122—30-4379

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

MODEL 655  
Schematic  
Voltage

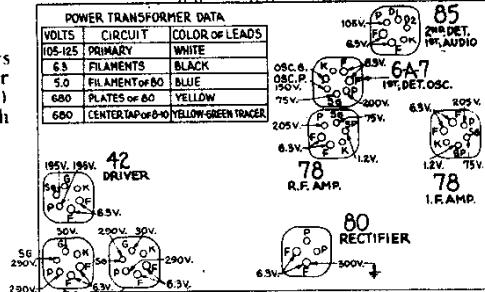
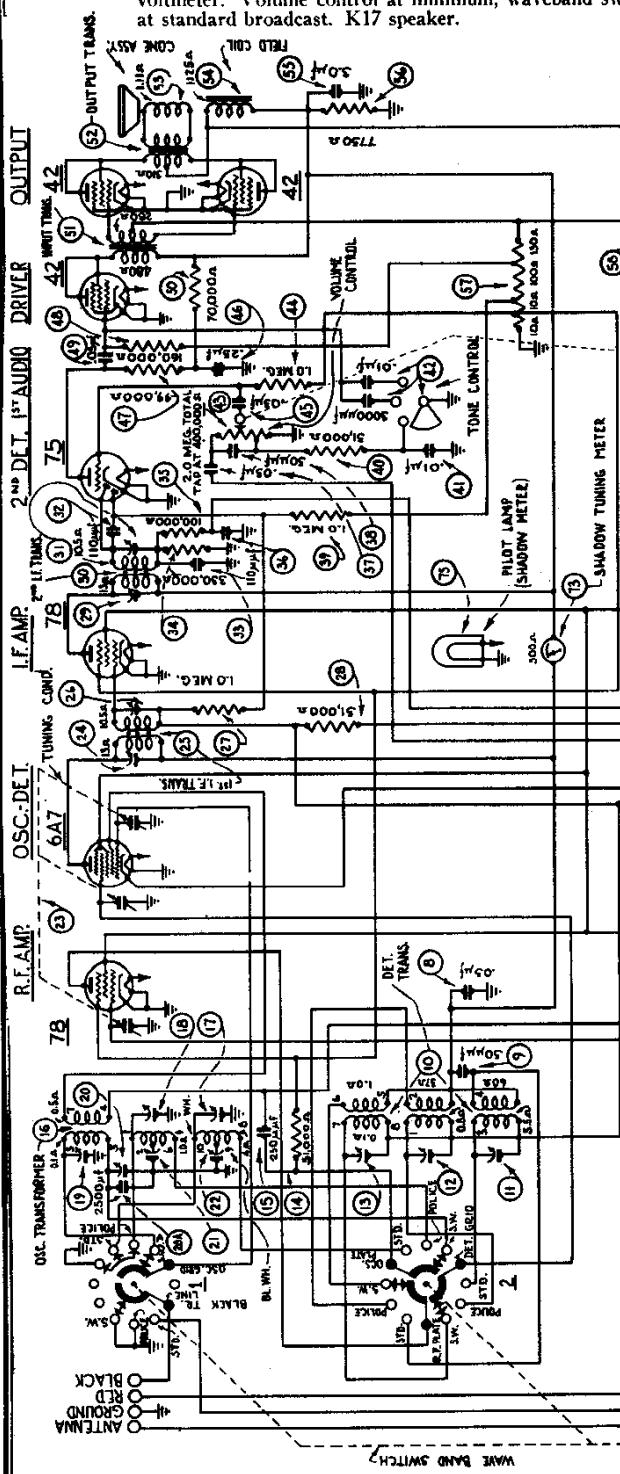
# • PHILCO RADIO & TELEV. CORP.

## TUBE SOCKET VOLTAGES

(Measured from Tube Contact to Gnd.)

Fig. 3. Tubes as Viewed from Bottom

The voltages at the points indicated by the arrows above were obtained with a Philco type 025 Circuit Tester which contains a high resistance (1000 ohms per volt) voltmeter. Volume control at minimum, waveband switch at standard broadcast. K17 speaker.



**PROGRAM CONTROL:** 4-position, with bass compensation effective in first position (counter-clockwise).

**PICTURE DIAGRAM OF MODEL 655**

**SPEAKER:** 655 Baby Grand Model—K17; Furniture Model—H13.  
**WAVE BANDS:** Three: (1) Short-wave; (2) Police, aircraft and amateur; (3) Standard.

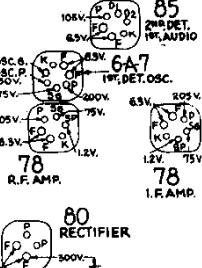
## General Specifications

INTERMEDIATE FREQUENCY: 460 K.C.  
POWER CONSUMPTION: 100 watts.

**TYPE CIRCUIT:** Superheterodyne, with preselector R.F. amplifier, and push-pull triode output (100 watts); built in connections for Philco All-wave aerial; aerial selector built into and operated by wave-band switch.

**POWER SUPPLY:** 115v., 60 cycle A.C.

NUMBERS  
INDICATE RELATIVE POSITIONS OF SWITCH-SECTIONS  
FROM FRONT OF CHASSIS.



**MODEL 655**  
**Socket Trimmers**

## **PHILCO RADIO & TELEV. CORP.**

## Chassis Alignment

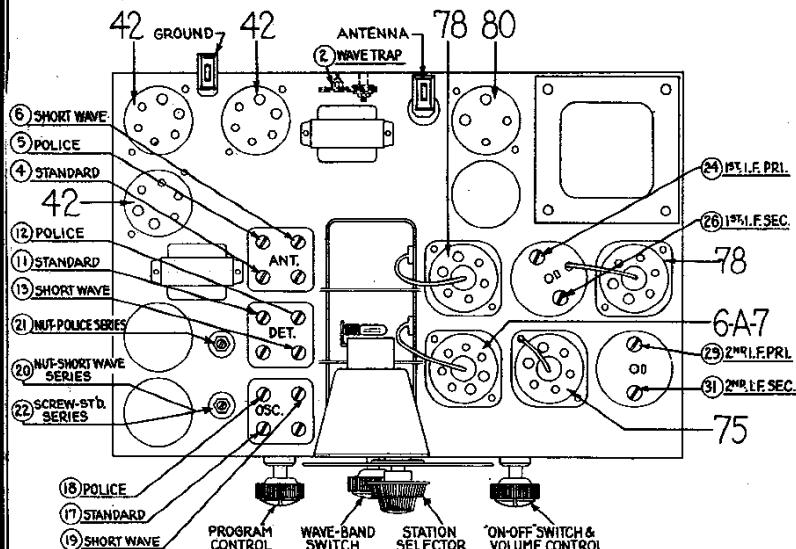
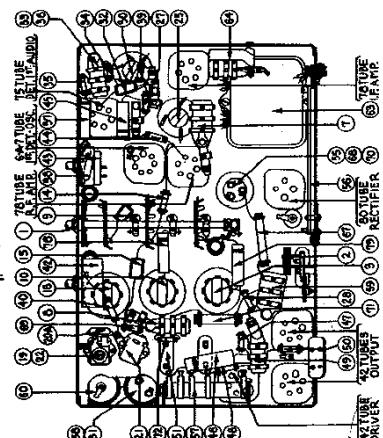


Fig. 4. Location of Compensating Condensers



**Fig. 6.** Base View

## **Adjusting Compensating Condensers**

Adjustment of compensating condensers in Model 655 requires an accurate signal generator covering I.F., standard-wave, police and short-wave frequencies. The **PHILCO Model 088 All-Wave Signal Generator**, having a continuous range of from 100 to 20,000 K.C., is ideal for this purpose.

An output meter is also needed. **PHILCO Model 025 Circuit Tester** includes a high grade output meter.

Philco No. 3164 fibre wrench and No. 27-7059 fibre-handled screwdriver complete the equipment needed for making these adjustments. The locations of the various compensating condensers are shown in Fig. 4. Connect the output meter to the plate contacts of the type 42 output tubes (using the adapters provided with the "025") and set it at the 0-30 volt range.

**INTERMEDIATE FREQUENCY:** Set the signal generator at 460 K.C. with attenuator set at minimum, connect a .001 mf. condenser in series with its antenna lead and attach it to the grid cap of the 78 I.F. amplifier tube. Connect ground lead to ground terminal on set. Set the dial at 55 and turn the waveband switch to position 3 (extreme left). Adjust the volume control of set to almost maximum, and the 088 attenuator so that about one-fourth ( $\frac{1}{4}$ ) scale reading is had on the output meter. With a fibre screw-driver adjust condensers ⑨ and ⑩ (2nd I.F.) for maximum reading on output meter. Turn attenuator of signal generator to minimum and remove its antenna lead from the grid of the 78 I.F. tube; place it on the grid of the 6A7. Adjust 088 attenuator as before, then proceed to adjust condensers ⑨ and ⑩ (1st I.F.) for maximum output meter reading. Then remove the 088 oscillator lead. Care should be taken to keep the output meter reading during adjustments at about one-fourth scale reading. This should be done by using the 088 attenuator control.

**WAVE TRAP:** Connect the Signal Generator antenna and ground leads to the antenna and ground posts of the set. With the signal generator operating at 460 K.C. and the set controls adjusted as before for I.F. alignment, adjust wave trap ④ until a minimum reading is obtained in the output meter.

**SHORT WAVE:** In adjusting the short wave or high frequency band, the det. compensator will have a tendency to "pull" or change the frequency of the oscillator. By shunting a padding or variable condenser (about .00025 Mf.) across the oscillator section of the gang (front section) and tuning it so that the second harmonic, instead of the fundamental, beats with the incoming signal, this "pull" can be minimized. The procedure for tuning this band is as follows:

Set the dial of the receiver at 18 megacycles (top scale) and the 088 dial at the same frequency. Turn wave band switch to position 1 (extreme right). Connect the shunt condenser to the oscillator section of the gang and tune it so that the second harmonic of the oscillator beats with the 18 M.C. signal from the 088. Next tune condensers ⑩ and ⑪ (antenna and det.) for maximum reading of the output meter. Disconnect shunt condenser and tune condenser ⑫ (osc.) for correct dial calibration. The set, oscillator frequency, when correctly adjusted, will be higher than that of the incoming signal. In order to check this it should be possible to pick up the 18 M.C. 088 oscillator signal as an image signal by increasing the 088 output and tuning the set to approximately 17.1 M.C.

For the low frequency adjustment of this band, turn the dial to 6.0 M.C., set the signal generator at 6.0 M.C. and adjust condenser ⑩ (nut) for maximum output meter reading. Readjust condenser ⑩ at 18.0 M.C.

**POLICE:** Turn wave band switch to position 2 (center), set signal generator at 5500 and dial of set at 5.5. Adjust condensers ⑬, ⑮ and ⑯ (osc., ant., and det.) for maximum output. Turn the set dial to 1.8 and the signal generator to 1800. Adjust condenser ⑭ (nut) (osc. series) for maximum output meter reading.

**STANDARD WAVE:** Turn waveband switch to position 3 (extreme left), set signal generator at 1500 and dial of set at 150. Now adjust the oscillator, antenna and det. "Standard" condensers. These are ②, ④ and ⑥ respectively.

Standard condensers. These are ⑩, ⑪ and ⑫ respectively. Turn the dial to 60, set signal generator at 600 and adjust condenser ⑬ (oscillator standard series), (screw) for maximum output meter reading.