

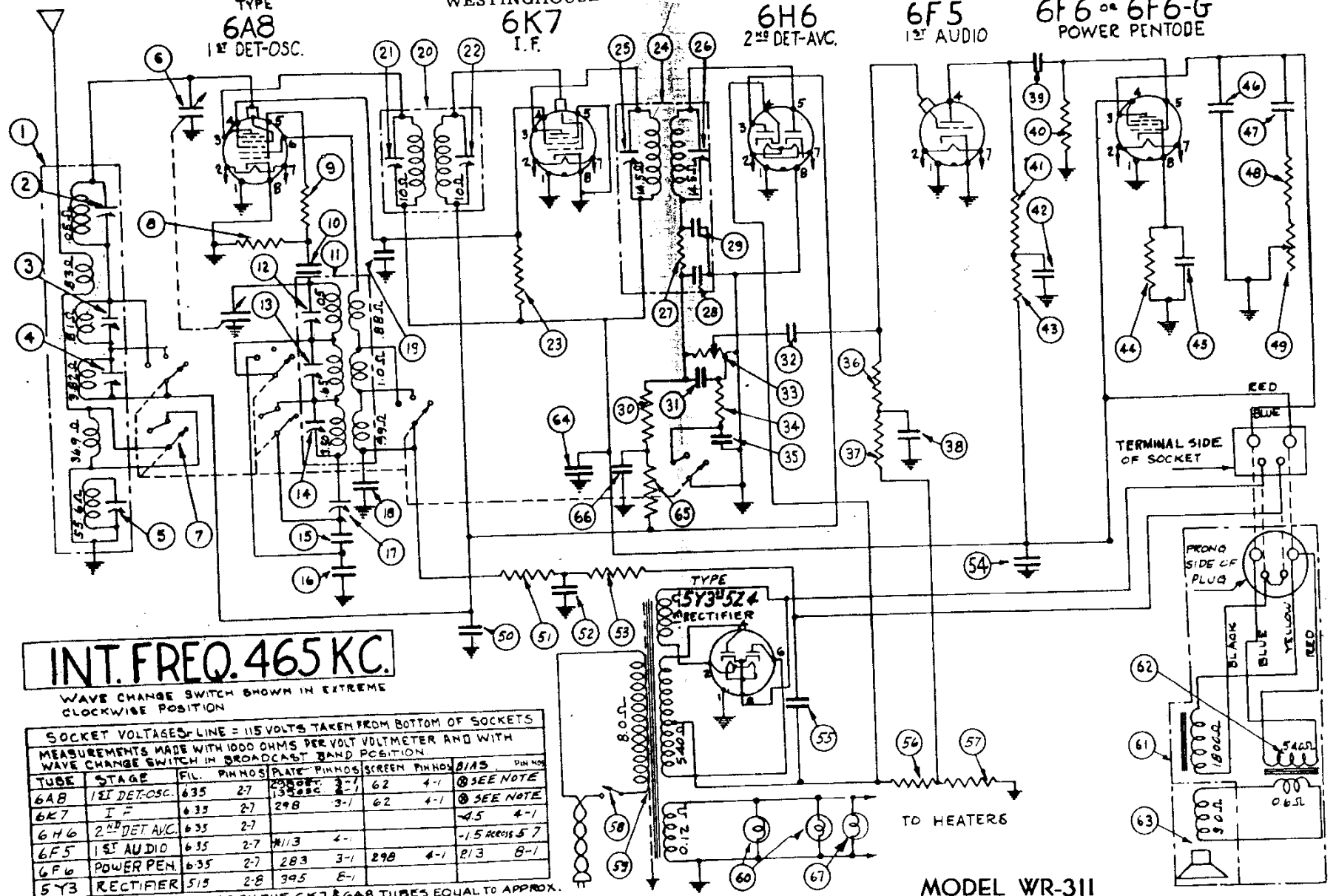
TYPE
6A8
1st DET-OSC.

6K7
I.F.

6H6
2nd DET-AVC.

TYPE
6F5
1st AUDIO

TYPE
6F6 or 6F6-G
POWER PENTODE



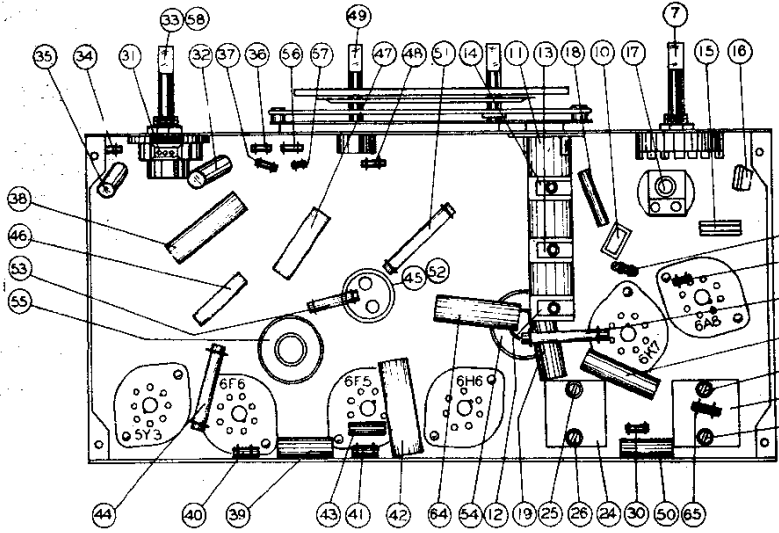
INT. FREQ. 465 KC.
WAVE CHANGE SWITCH SHOWN IN EXTREME
CLOCKWISE POSITION

SOCKET VOLTAGES—LINE = 115 VOLTS TAKEN FROM BOTTOM OF SOCKETS
MEASUREMENTS MADE WITH 1000 OHMS PER VOLT VOLTMETER AND WITH
WAVE CHANGE SWITCH IN BROADCAST BAND POSITION.

| TUBE | STAGE | FIL. PIN NOS | PLATE PIN NOS | SCREEN PIN NOS | BIAS PIN NOS | DIN NOS |
|------|--------------------------|--------------|---------------|----------------|-----------------|---------|
| 6A8 | 1 st DET-OSC. | 6 35 | 27 | 28 29 | 3-1 | 62 4-1 |
| 6K7 | I.F. | 6 35 | 27 | 29 8 | 3-1 | 62 4-1 |
| 6H6 | 2 nd DET-AVC. | 6 35 | 2-7 | 4- | -1.5 across 5 7 | 4-1 |
| 6F5 | 1 st AUDIO | 6 35 | 2-7 | 28 3 | 29 8 | 4-1 |
| 6F6 | POWER PEN. | 6 35 | 2-7 | 28 3 | 29 8 | 4-1 |
| 5Y3 | RECTIFIER | 5 15 | 2-8 | 3 9 5 | 8- | |

⊙ THE CONTROL GRID BIAS ON THE 6K7 & 6A8 TUBES EQUAL TO APPROX.
SIX-TENTHS THE VOLTAGE FROM PINS 5-1 ON THE 6H6 TUBE SOCKET
* 600 VOLT SCALE.

MODEL WR-311



GENERAL DESCRIPTION

This model is a six-tube, three-band, superheterodyne receiver whose circuits employ all-metal tubes. The circuit employs a type 6A8 tube as a combined first detector-oscillator, a type 6K7 tube as an intermediate frequency amplifier, a type 6H6 tube as a second detector and automatic volume control, a type 6F5 tube as a first audio frequency amplifier, a type 6F6 as an output amplifier, and a type 5Y3 tube as a rectifier.

LINE-UP CAPACITOR ADJUSTMENTS

To align the circuits of this receiver it is essential to use a high grade modulated test oscillator, the output of which can be continuously varied with absence from overload, when the individual circuits of the receiver are brought into alignment. A conventional output meter should be connected across the terminals of the speaker voice coil to indicate when the circuits are aligned. The sensitivity of the output meter must be sufficient to give satisfactory reading with a low input signal.

Before attempting to align the receiver, the service man should familiarize himself with the general layout of the chassis, the location of the tubes and various alignment condensers. Top and bottom views of the chassis are shown in Figures #1 and #2 and should be carefully studied before the actual work is started.

ADJUSTMENT OF I.F. (465 KC.)

1. Set volume control to maximum position, tone control to treble, wave change switch on Broadcast (White) and indicator at approximately 500 KC.
2. Connect output meter across voice coil of speaker.
3. Set test oscillator to 465 KC., and apply signal to grid of 6K7 I.F. tube through a 0.5 mfd. blocking condenser.
4. Adjust trimmer #25 to maximum output, reducing output of test oscillator as required.
5. Apply test signal to grid of 6A8 first detector-oscillator tube and adjust trimmer #21 and #22 to maximum output.
6. Apply test signal to antenna of receiver.
7. Adjust trap coil trimmer #6 to minimum output.

ADJUSTMENT OF BROADCAST BAND (540 to 1550 KC.)

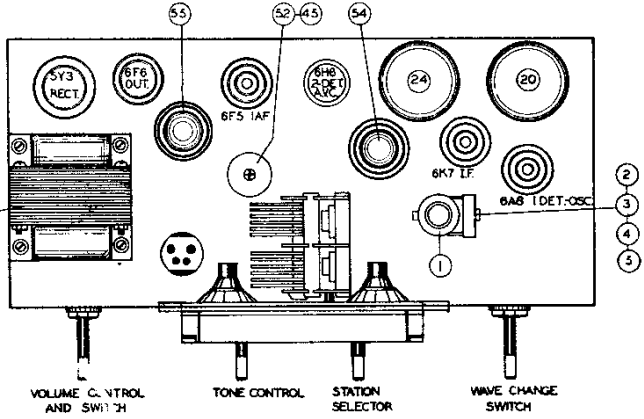
1. Set wave change switch to standard broadcast band position.
2. Set test oscillator and dial indicator to 1400 KC.
3. Apply the test signal to the antenna of the receiver through a .0002 mfd. condenser and adjust the oscillator trimmer condenser #14 until the signal is received.
4. Adjust the preselector trimmer #4 to maximum output.
5. Set the test oscillator and dial indicator to 500 KC. and adjust the oscillator series condenser #17 until the signal is received. Tune the variable condenser to a slightly lower frequency and readjust trimmer #17 to maximum output. If the sensitivity increases, continue this trial and error method in the same direction until no further improvement in sensitivity can be made. If the sensitivity decreases, try this adjustment at slightly higher frequencies.

ADJUSTMENT OF GREEN BAND

1. Set the wave change switch to the green band position.
2. Set the test oscillator and dial indicator to 4000 KC. and adjust the oscillator trimmer condenser #13 until the signal is tuned in.
3. Adjust the preselector trimmer condenser #3 to maximum output.
4. Check the sensitivity and calibration over scale.

ADJUSTMENT OF RED BAND

1. Set the wave change switch to the red band position.
2. Set the test oscillator and dial indicator to 15000 KC. and adjust the oscillator trimmer condenser #12 until the signal is received. Two positions may be found at which the signal may be tuned in. Use the position with the lower capacity trimmer setting or with the alignment screw turned farther out.
3. Adjust the preselector trimmer #2 to maximum output.
4. Check the receiver over scale for calibration and sensitivity.



Type and Number of Tubes ... 1 #6A8, 1 #6K7, 1 #6H6, 1 #6F5, 1 #6F6, 1 #5Y3 - Total 6

| | |
|-----------------------------------|---|
| Power Supply Characteristics..... | 105-125 volts, 50-60 cycle A.C. |
| Power Consumption..... | 52 Watts |
| Maximum Output..... | 3.5 Watts |
| Maximum Undistorted Output..... | 2.6 Watts |
| Tuning Ranges..... | (White Band - 540 to 1550 KC. Green Band - 1500 to 4500 KC. Red Band - 5500 to 16500 KC.) |
| Line-Up Frequencies..... | I.F. 465 KC., 1400 KC., 500 KC., 4000 KC. |

MODEL WR311

WESTINGHOUSE ELEC. SUPPLY CO., INC.

| Dia. # | Part # | Description of Parts | List Price |
|--------|-----------|--|------------|
| 1 | RC 95202 | Antenna coil assembly | \$ 2.25 |
| 2 | | 4-25 mmf. trimmer condenser - part of RC 95202 | |
| 3 | | 1.5-10 mmf. trimmer condenser - part of RC 95202 | |
| 4 | | 1.5-10 mmf. trimmer condenser - part of RC 95202 | |
| 5 | | 30-60 mmf. trimmer condenser - part of RC 95202 | |
| 6 | CG 9549 | Variable condenser (2 gang) | 2.50 |
| 7 | SW 9548 | Wave change switch | 1.00 |
| 8 | RE 9575 | 50,000 ohm, 1/4 W. resistor | .15 |
| 9 | RE 9582 | 200 ohm, 1/4 W. resistor | .15 |
| 10 | CM 9511 | .000065 mfd. mica condenser | .15 |
| 11 | RC 95203 | Oscillator coil assembly | 1.75 |
| 12 | | 4-25 mmf. trimmer condenser - part of RC 95203 | |
| 13 | | 1.5-10 mmf. trimmer condenser - part of RC 95203 | |
| 14 | | 1.5-10 mmf. trimmer condenser - part of RC 95203 | |
| 15 | CW 9525 | .0027 mfd. mica condenser | .30 |
| 16 | CM 9524 | .0034 mfd. mica condenser | .35 |
| 17 | CS 9545 | 300-600 mmf. osc. series condenser | .40 |
| 18 | CW 4005 | .005 mfd., 400 V. condenser | .15 |
| 19 | CW 2-10 | .1 mfd., 200 V. condenser | .15 |
| 20 | IC 9572 | I.F. coil assembly (first) 465 KC. | 1.35 |
| 21 | | 45-135 mmf. trimmer condenser - part of IC 9572 | |
| 22 | | 45-135 mmf. trimmer condenser - part of IC 9572 | |
| 23 | SA 99957 | 40,000 ohm, 1 W. resistor | .25 |
| 24 | IC 9574 | I.F. coil assembly (second) 465 KC. | 1.75 |
| 25 | | 30-100 mmf. trimmer condenser - part of IC 9574 | |
| 26 | | 30-100 mmf. trimmer condenser - part of IC 9574 | |
| 27 | | 50,000 ohm, 1/8 W. resistor - part of IC 9574 | |
| 28 | | .0001 mfd. mica condenser - part of IC 9574 | |
| 29 | | .0001 mfd. mica condenser - part of IC 9574 | |
| 30 | RE 9574 | 1 meg., 1/4 W. resistor | .15 |
| 31 | CM 9519 | .0005 mfd. mica condenser | .20 |
| 32 | CW 4-02 | .02 mfd., 400 V. condenser | .15 |
| 33 | VR 9535 | .5 meg. volume control | 1.10 |
| 34 | RE 9527 | 5,000 ohm, 1/4 W. resistor | .10 |
| 35 | CW 2-05 | .05 mfd., 200 V. condenser | .15 |
| 36 | RE 9574 | 1 meg., 1/4 W. resistor | .15 |
| 37 | RE 9575 | 50,000 ohm, 1/4 W. resistor | .15 |
| 38 | CW 2-25 | .25 mfd., 200 V. condenser | .20 |
| 39 | CW 4-02 | .02 mfd., 400 V. condenser | .15 |
| 40 | RE 9572 | .5 meg., 1/4 W. resistor | .15 |
| 41 | RE 9531 | .25 meg., 1/8 W. resistor | .10 |
| 42 | CW 2-10 | .1 mfd., 200 V. condenser | .15 |
| 43 | RE 9581 | 50,000 ohm, 1/4 W. resistor | .15 |
| 44 | SA 107391 | 500 ohm, 1 W. resistor | .20 |
| 45 | CE 9537 | 10 mfd., 25 V. electrolytic cond. | 1.25 |
| 46 | CW 4-005 | .005 mfd., 400 V. condenser | .15 |
| 47 | CW 4-05 | .05 mfd., 400 V. condenser | .15 |
| 48 | RE 9550 | 2000 ohm, 1/4 W. resistor | .15 |
| 49 | VR 9534 | 20,000 ohm, tone control | .55 |
| 50 | CW 2-05 | .05 mfd., 200 V. condenser | .15 |
| 51 | RE 95116 | 50,000 ohm, 1 W. resistor | .20 |
| 52 | | 4 mfd., 450 V. electrolytic cond. - part of CE 9537. | .20 |
| 53 | SA 100825 | 10,000 ohm, 1/2 W. resistor | .15 |
| 54 | CE 9535 | 16 mfd., 300 V. electrolytic condenser | .75 |
| 55 | CE 9536 | 12 mfd., 450 V. electrolytic condenser | .80 |
| 56 | RE 9537 | 50 ohm, 1/4 W. resistor | .10 |
| 57 | RE 9556 | 25 ohm, 1/4 W. resistor | .15 |
| 58 | | On & Off switch - part of VR 9535 | |
| 59 | TR 9557 | Power transformer 105-125 V., 50-60 cycle | \$ 4.00 |
| 60 | LP 951 | Dial light (6-8 V., .20 amp.) | .20 |
| 61 | SK 9512 | Speaker assembly | 10.75 |
| 62 | TR 9515 | Output transformer | 1.85 |
| 63 | DM 956 | Diaphragm and voice coil assembly | 1.25 |
| 64 | CW 4-10 | .1 mfd., 400 V. condenser | .15 |
| 65 | RE 9574 | 1 meg., 1/4 W. resistor | .15 |
| 66 | CW 2-10 | .1 mfd., 200 V. condenser | .15 |
| 67 | LP 9510 | Dial light (6.3 V., .25 amp.) | .15 |
| 68 | CB 9512 | Line cable assembly | .50 |