VOLUME XVII

PERPETUAL

TROUBLESHOOTER'S MANUAL

REG. U.S. PAT. OFF.

JOHN F. RIDEK

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NOTE: TUNING CAPACITOR IN MAXIMUM CAPACITY POSITION

IF ALIGNMENT

CONNECT AN OUTPUT METER ACROSS THE VOICE COIL OF THE RECEIVER. CONNECT A SIGNAL GENERATOR TO THE STANDARD HAZELTINE LOOP MODEL 1150 AND COUPLE IT LOOSELY TO THE RECEIVER LOOP.

SET THE SIGNAL GENERATOR TO 465 KC AND FULLY MESH THE RECEIVER TUNING CAPACITOR.

KEEP THE RECEIVER VOLUME CONTROL AT MAXIMUM, AND THE OUTPUT OF THE SIGNAL GENERATOR SUFFICIENT TO GIVE A READABLE DEFLECTION ON THE OUTPUT METER. ADJUST FOR MAXIMUM I.F. TRIMMERS C8, C7, C6 AND C5.

RF OSC. ADJUSTMENT

KEEPING THE SAME SETUP AS USED FOR I.F. ALIGNMENT, SET THE SIGNAL GENERATOR AND RECEIVER TO 1600 KC AND ADJUST OSCILLATOR TRIMMER C2 FOR MAXIMUM OUTPUT.

NEXT, SET THE SIGNAL GENERATOR AND RECEIVER TO 1400 KC AND ADJUST ANTENNA TRIMMER C4 FOR MAXIMUM OUTPUT.
### TUBE | PIN | VTVM | 20,000 OHM P.V. | 1,000 OHM P.V. | RESISTANCE
--- | --- | --- | --- | --- | ---
1R5 | 1 | 0 | 0 | 0 | 0
 | 2 | +66 | +66 | +66 | 5.5 K
 | 3 | +66 | +66 | +66 | 5.5 K

#### OSC. VOLTAGE

<table>
<thead>
<tr>
<th>Pin</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>550 KC</td>
</tr>
<tr>
<td>5</td>
<td>1600 KC</td>
</tr>
<tr>
<td>6</td>
<td>+0.4</td>
</tr>
<tr>
<td>7</td>
<td>+1.2</td>
</tr>
</tbody>
</table>

#### OSC. COIL

- C11, C12, and C14

- R1, R2, and R3

- C9

- C13

- C20A, B, C

- C16

- C17

- C19

- C18

### Diagram

- Bottom Front View

- Dial Drive Shaft

- Speaker

- On-Off Switch

- Vol. Cont. Shaft

### Note

- All voltage and resistance measurements made with respect to chassis ground and with a line voltage of 116 V.A.C. AC-DC battery switch is in AC-DC position.

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BAND-SWITCH SHOWN
AT 1ST POSITION
BROADCAST BAND
535-1730 KC.

BAND-SWITCH SHOWN
AT 2ND POSITION CLOCKWISE.
SHORT WAVE 1-BAND
1.68-5.65 MC.

BAND-SWITCH SHOWN
AT 3RD POSITION CLOCKWISE.
SHORT WAVE 2-BAND
5.45-18.3 MC.

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MODELS 6610, 6611, 6612, 6610PC, 6611PC, 6612PC

Late production

BAND-SWITCH SHOWN AT 1st POSITION
BROADCAST BAND
535-1730KC.

BAND-SWITCH SHOWN AT 2nd POSITION CLOCKWISE
SHORT WAVE 1-BAND
1.68-5.65MC.

BAND-SWITCH SHOWN AT 3rd POSITION CLOCKWISE
SHORT WAVE 2-BAND
5.45-18.3MC.
### ALIGNMENT CHART

<table>
<thead>
<tr>
<th>Operation</th>
<th>Generator Connected To</th>
<th>SWAY ANTENNA</th>
<th>Generator Frequency</th>
<th>Band Switch Setting</th>
<th>Dial and Coupler Setting</th>
<th>Thinner</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Set dial pointer to last mark at low frequency end of dial with gang condenser closed.</td>
</tr>
<tr>
<td>2</td>
<td>2nd, I.F. or Web</td>
<td>6801 Grid</td>
<td>455 KC</td>
<td>BC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1st, I.F. or Web</td>
<td>Web</td>
<td>1500 KC</td>
<td>BC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>BC</td>
<td>Lead &amp; Ground</td>
<td>1500 KC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>BC</td>
<td>Lead &amp; Ground</td>
<td>1500 KC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BC</td>
<td>Lead &amp; Ground</td>
<td>1500 KC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>BC</td>
<td>Lead &amp; Ground</td>
<td>1500 KC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>BC</td>
<td>Lead &amp; Ground</td>
<td>1500 KC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SM1</td>
<td>600 ohm</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>SM1</td>
<td>600 ohm</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>SM2</td>
<td>600 ohm</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>SM2</td>
<td>600 ohm</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Repeat operations 1 and 2 until alignment frequencies fall on correct calibration points.**

**Check sensitivity and dial calibration C7 and C11 are located on Loop Antenna.**

### VOLTAGE CHART

- **Line Voltage:** 117 volts, 60 cycles AC
- **Position of Band Switch:** Broadcast Band
- **Position of Volume Control:** Full (with no signal)
- **Position of Tone Switch:** Radio = "Normal"

<table>
<thead>
<tr>
<th>Tube</th>
<th>Function</th>
<th>Voltage at each meter proud to Ground (Chassis)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. 1</td>
</tr>
<tr>
<td>6A97</td>
<td>R-F Amplifier</td>
<td>0</td>
</tr>
<tr>
<td>6S47</td>
<td>Oscillator-Converter</td>
<td>0</td>
</tr>
<tr>
<td>6A9T</td>
<td>1-F Amp. + Detector-AFC</td>
<td>0</td>
</tr>
<tr>
<td>6S7</td>
<td>1st Audio Amplifier</td>
<td>0</td>
</tr>
<tr>
<td>6V56T</td>
<td>Beam Power Amplifier</td>
<td>0</td>
</tr>
<tr>
<td>6Z55T</td>
<td>Rectifier</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
- * AC Volts
- **B-500 Volt Scale**
- **B-25 Volt Scale**
- **D-5 Volt Scale**

**Voltage readings are for schematic diagram in this bulletin. Allow 10% on all measurements.**

**All DC voltages made with 1000 ohms per volt voltmeter.**

**Voltages are DC unless otherwise specified.**
LOOP WIRING DIAGRAM

DIAL DRIVE DIAGRAM

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