ALIGNMENT PROCEDURE
for
TELESET MODEL
RA-109A

Winslow      Hanover
Sherbrooke

ALLEN B. DU MONT LABORATORIES, INC.
TELESET SERVICE CONTROL DEPT.
MARKET STREET, EAST PATerson, NEW JERSEY

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ALIGNMENT SET-UP

1. Keep all coax cables as short and as well shielded as possible.

2. Ground metal bench to a good earth ground.

3. To test set-up feed signal into grid of mixer thru a 100 muf condenser. If placing hand on any chassis or adding additional grounds at any point affects waveform or if Teleset has a tendency to oscillate, grounding must be added until these effects disappear.

NOTES:

1. Unmodulated and amplitude modulated RF should cover 20 to 30 mc range. Also 4.5 mc. Not necessary if marker is built into sweep frequency generator.

2. Should have center frequency range from 20 to 30 mc. Sweep should be adjustable up to 6 mc at least.

3. We recommend use of internal saw-tooth sweep. Waveforms shown were taken using this sweep. External sweep from sweep frequency generator may be used if preferred.
ALIGNMENT NOTES

1. 6V6 GT (V207) may be left in position only if speaker is connected, however, it is advisable to remove this too.

2. Insert 6AU6 adapter at V218. This is a 6AU6 with pins 3 and 4 clipped off and an extension attached to pin 1. (Pin 1 is not clipped.)

3. Use 100K potentiometer for bias as shown below:

4. If the sweep generator has no internal marker, a signal generator may be connected to the output cable of the sweep generator through a 100 mmf condenser to act as a marker generator.

5. Du Mont Telesets are designed to receive television and high fidelity FM and must, therefore, be aligned with full FM bandwidth requirements.

6. The use of two (2) aligning tools simultaneously will decrease the difficulties to be encountered.

7. The bottom slug of the transformer is available through the hole in the shield on the bottom of the chassis.

8. Insert 6AK5 adapter at V102. This adapter is a 6AK5 with pin 1 clipped off and an extension attached to the remainder of pin 1 as shown.

9. The bandwidth of the 1st stage of video IF is controlled by a coupling loop in the mixer transformer, T202. This is adjusted and sealed in position in the factory and should not be touched. However, in case of replacement of the tuner, it should be adjusted for the curve shown in step No. 12 of the Alignment Table. Steps No. 11 and 12 of the Alignment Table MAY have to be performed in order to obtain the proper curve. After adjustment, fasten the coupling loop in T202 with Miracle Adhesive C2M55, which is obtainable from Du Mont Spare Parts Sales Department.

10. Maximum possible output of sweep generator should be used, checking for overload.

11. Connect sweep generator to set through 270 mmf condenser.

12. Reference is made in the Alignment Table to the use of a crystal probe. This device is merely a crystal rectifier with the necessary filter.
### Alignment Table

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Connect Tube (Note 4 &amp; 10)</th>
<th>Marker Freq.</th>
<th>Sweep Gain (Freq. mV)</th>
<th>Sweep Gen. Center Freq.</th>
<th>Connect Oscillograph Tr.</th>
<th>Adjust</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pin 1 V211</td>
<td>21.0, 22.4</td>
<td>29.9, 28.65</td>
<td>26.4</td>
<td>Junction of L201, L182, R187 direct</td>
<td>Z209</td>
<td>Adjust for curve shown</td>
</tr>
<tr>
<td>2</td>
<td>As Above</td>
<td>25.65, 26.4</td>
<td>24 mc, 2 mc, dev, min.</td>
<td>Pin 1 V218 direct</td>
<td>Note 2</td>
<td>Z210</td>
<td>Adjust for curve shown</td>
</tr>
<tr>
<td>3</td>
<td>Pin 1 V210</td>
<td>21.9</td>
<td>AM mod. Not used</td>
<td>Pin 5 V211 thru crystal probe</td>
<td>Note 3</td>
<td>L207</td>
<td>Adjust for mix. scope indication</td>
</tr>
<tr>
<td>4</td>
<td>As Above</td>
<td>22.4, 22.9</td>
<td>26.65, 26.4</td>
<td>24 mc, 3 mc, dev, min.</td>
<td>As above</td>
<td>Z208</td>
<td>Adjust for curve shown</td>
</tr>
<tr>
<td>5</td>
<td>Pin 1 V209</td>
<td>21.9, 22.4</td>
<td>26.65, 26.4</td>
<td>Pin 5 V210 thru crystal probe</td>
<td>Note 4</td>
<td>Z207</td>
<td>Adjust for curve shown</td>
</tr>
<tr>
<td>6</td>
<td>Pin 1 V202</td>
<td>21.9, 22.4</td>
<td>21.9, 21.9</td>
<td>Pin 5 V203 thru crystal probe</td>
<td>Note 5</td>
<td>Z203</td>
<td>Adjust for curve shown. Selector switch must be in FM position</td>
</tr>
<tr>
<td>7</td>
<td>Pin 1 V201 Note 11</td>
<td>21.9, 21.9</td>
<td>21.9, 21.9</td>
<td>As above</td>
<td>Pin 5 V201 thru crystal probe</td>
<td>Z202</td>
<td>Connect bias (note 3) to point X on schematic. Adjust bias to prevent overloaded. Adjust for curve shown.</td>
</tr>
<tr>
<td>8</td>
<td>Pin 1 V210 Note 11</td>
<td>21.9</td>
<td>21.9, 21.9</td>
<td>As above</td>
<td>Pin 5 V201 thru crystal probe</td>
<td>Z201</td>
<td>Adjust for curve shown. Adjust bias to prevent overloaded.</td>
</tr>
<tr>
<td>9</td>
<td>As Above</td>
<td>21.9</td>
<td>21.9, 21.9</td>
<td>As above</td>
<td>Junction of R214, R217, C218, Direct</td>
<td>Z204</td>
<td>Adjust for curve shown. Adjust bias to give reasonable deflection on scope.</td>
</tr>
<tr>
<td>10</td>
<td>As Above</td>
<td>21.9, 22.4</td>
<td>22.9, 23.55</td>
<td>24 mc, 3 mc, dev, min.</td>
<td>Pin 5 V209 thru crystal probe</td>
<td>Z206</td>
<td>Disconnect bias. Turn selector switch to tele. position. Adjust for curve shown.</td>
</tr>
<tr>
<td>11</td>
<td>Pin 1 V102 Note 8</td>
<td>27.9</td>
<td>AM mod. Not used</td>
<td>Pin 5 V208 thru crystal probe</td>
<td>Note 6</td>
<td>Z205</td>
<td>Adjust for mix. scope indication</td>
</tr>
<tr>
<td>12</td>
<td>As Above</td>
<td>21.9, 22.4</td>
<td>23.0, 23.65</td>
<td>24 mc, 3 mc, dev, min.</td>
<td>As above</td>
<td>Bottom of T205 Top of T202</td>
<td>Z204</td>
</tr>
<tr>
<td>13</td>
<td>Pin 7 V212</td>
<td>4.5 mc, AM mod. Not used</td>
<td>0.149 gold crystal probe</td>
<td>0.099 gold crystal probe</td>
<td>0.109 gold crystal probe</td>
<td>L204</td>
<td>Adjust for mix. scope indication</td>
</tr>
</tbody>
</table>

**NOTE:**
- CP indicates that oscillograph is connected through crystal probe.
- DIN indicates that oscillograph is connected directly.
- Refer to top and bottom planes onReverse side of this sheet for reference points.

14. Remove V217 and adjust AGC potentiometer, R273, so that TVVM on pin 2 of V217 reads 10 volts with no signal.

15. Replace original tubes.