

TYPE O AND ON CARRIER TELEPHONE SYSTEMS — TERMINALS AND JUNCTIONS
GROUP UNIT LINE-UP — TRANSMITTING AND RECEIVING — JUNCTIONS
ADJUSTMENT OF TRANSMITTING AND RECEIVING CARRIER

This section is reissued to change some of the requirements and to make other minor changes.

For groups connecting to OB, OC, or OD carrier, the group receiving and group transmitting circuits are standard O units for both the cable and open wire directions. However, slightly different plug-in auxiliary filters are used, and in the case of group receiving cable, the directional filter is replaced with a connecting plug. For groups connecting to OA carrier, the open-wire side of the junction consists of an OA group transmitting and an OA group receiving circuit. Each group receiving and group transmitting circuit has an OUT control for the adjustment of proper level at the circuit OUT jack.

The purpose of this test is to measure and to adjust the output levels of the group receiving and group transmitting circuits.

APPARATUS:

- 1 — Hewlett-Packard 400-type Vacuum Tube Voltmeter (VTVM)
- 1 — W2DW Cord (used to connect VTVM to test points)
- 4 — P1M Cords
- 1 — KS-14510 Volt-Ohm-Milliammeter (VOM)

STEP	PROCEDURE
	(A) Line-up Tests
1	To make this test the group must be out of service. All groups connected to the same open-wire pair must be out of service.
2	Use both "X" and "Y" wiring in all group transmitting circuits. When it is necessary to have additional range to drop levels for coordination reasons, the "X" wiring is removed. See Section 362-105-502.
3	At both terminals ground all channel T jacks on the group under test using P1M cords.
4	For groups connected to OA carrier: OA-LGT — Turn the REG potentiometer on the group receiving unit — open wire — to extreme counterclockwise position. OA-HGT — On the group receiving unit — open wire — connect the VOM between the REG jack and +130 V jack. <i>Starting on the 300V scale</i> , adjust the REG potentiometer to obtain a reading of 1.0 V (dc). Allow 3 minutes for amplifier to stabilize, then proceed with test.

STEP	PROCEDURE									
5	<p>Connect the VTVM to the OUT jack of the group receiving unit under test, GRP REC OW or GRP REC CA, and measure the carrier.</p> <p>Requirements:</p> <table data-bbox="568 378 1380 493"> <thead> <tr> <th></th> <th>TEST</th> <th>READJUST</th> </tr> </thead> <tbody> <tr> <td>GRP. REC. UNIT OW</td> <td>+1.8 to +5.5 db</td> <td>+3.5 db</td> </tr> <tr> <td>GRP. REC. UNIT CA</td> <td>-4.5 to -0.5 db</td> <td>-2.5 db</td> </tr> </tbody> </table> <p>Note: Adjust the OUT pot. located on the group receiving unit under test until the READJUST requirement is met.</p>		TEST	READJUST	GRP. REC. UNIT OW	+1.8 to +5.5 db	+3.5 db	GRP. REC. UNIT CA	-4.5 to -0.5 db	-2.5 db
	TEST	READJUST								
GRP. REC. UNIT OW	+1.8 to +5.5 db	+3.5 db								
GRP. REC. UNIT CA	-4.5 to -0.5 db	-2.5 db								
6	<p>Connect the VTVM to the OUT jack of the group transmitting unit — cable — and measure the carrier. Record the reading for maintenance tests.</p> <p>Requirements:</p> <table data-bbox="568 693 1380 808"> <thead> <tr> <th></th> <th>TEST</th> <th>READJUST</th> </tr> </thead> <tbody> <tr> <td>2 Twin Ch Units</td> <td>+3.0 to +4.5 db</td> <td>+4.0 db</td> </tr> <tr> <td>1 Twin Ch Unit</td> <td>+1.5 to +2.5 db</td> <td>+2.0 db</td> </tr> </tbody> </table> <p>Note: Adjust the OUT pot. located on the group transmitting unit under test until the READJUST requirement is met.</p> <p>Group Transmitting Unit — Open Wire — Connected to OB, OC, OD Systems</p>		TEST	READJUST	2 Twin Ch Units	+3.0 to +4.5 db	+4.0 db	1 Twin Ch Unit	+1.5 to +2.5 db	+2.0 db
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2 Twin Ch Units	+3.0 to +4.5 db	+4.0 db								
1 Twin Ch Unit	+1.5 to +2.5 db	+2.0 db								
7	<p>Terminate the EQ jacks in 135 ohms.</p>									
8	<p>Connect the VTVM to the EQ BRDG jacks and measure the carrier.</p> <p>Requirements:</p> <table data-bbox="568 1081 1380 1197"> <thead> <tr> <th></th> <th>TEST</th> <th>READJUST</th> </tr> </thead> <tbody> <tr> <td>2 Twin Ch Units</td> <td>+3.5 to +4.5 db</td> <td>+4.0 db</td> </tr> <tr> <td>1 Twin Ch Unit</td> <td>-2.0 to +2.0 db</td> <td>0 db</td> </tr> </tbody> </table> <p>Note: Adjust the OUT pot. located on the group transmitting unit under test until the READJUST requirement is met.</p>		TEST	READJUST	2 Twin Ch Units	+3.5 to +4.5 db	+4.0 db	1 Twin Ch Unit	-2.0 to +2.0 db	0 db
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9	<p>Remove the termination from the EQ jacks and remove the grounds from the T jacks.</p>									
10	<p>Connect the VTVM to the OUT jack of the group transmitting unit and measure the carrier power. Record the reading for maintenance tests.</p> <p>Requirement: +4.5 to +9.0 db</p> <p>Note: The limit may be exceeded slightly due to the line impedance variations.</p> <p>Group Transmitting Unit — Open Wire — Connected to OA System</p>									
11	<p>Terminate the EQ jack in 600 ohms.</p>									
12	<p>Connect the VTVM to the EQ BRDG jacks and measure the carrier.</p> <p>Requirements:</p> <table data-bbox="568 1690 1380 1806"> <thead> <tr> <th></th> <th>TEST</th> <th>READJUST</th> </tr> </thead> <tbody> <tr> <td>2 Twin Ch Units</td> <td>+6.0 to +10.0 db</td> <td>+8.0 db</td> </tr> <tr> <td>1 Twin Ch Unit</td> <td>+4.0 to +8.0 db</td> <td>+6.0 db</td> </tr> </tbody> </table> <p>Note: Adjust the OUT pot. located on the group transmitting unit under test until the READJUST requirement is met.</p>		TEST	READJUST	2 Twin Ch Units	+6.0 to +10.0 db	+8.0 db	1 Twin Ch Unit	+4.0 to +8.0 db	+6.0 db
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STEP	PROCEDURE																		
13	Remove the termination from the EQ jacks and remove the grounds from the T jacks.																		
14	<p>Connect the VTVM to the OUT jack of the group transmitting unit and measure the carrier power. Record the reading for maintenance tests.</p> <p>Requirement: +8.5 to +13.0 db</p> <p>Note: The limit may be exceeded slightly due to the line impedance variations.</p> <p>(B) Maintenance Tests</p>																		
1	<p>Connect the VTVM to the OUT jack of the group transmitting unit and measure the carrier.</p> <p>Requirement: Recorded value ± 2.0 db</p> <p>Note: If this requirement is not met, the system must be removed from service and readjusted according to part (A) of this section.</p> <p>(C) Trouble Location Tests</p>																		
1	Test tubes in accordance with Section 362-110-503.																		
2	<p>Measure individual carriers at the OUT jack of the group transmitting unit — cable — with a selective detector arranged for 135-ohm bridging.</p> <p>Requirements:</p> <p style="padding-left: 40px;">+7.0 to +10.0 db (if X, Y wiring)</p> <p style="padding-left: 40px;">+5.0 to +8.0 db (other)</p>																		
3	<p>Measure individual carriers at the OUT jack of the group receiving unit — open wire — with a selective detector arranged for 135-ohm bridging.</p> <p>Requirement: +7.0 dbm minimum</p>																		
4	<p>Measure individual carriers at the OUT jack of the group transmitting unit — open wire — with a selective detector arranged for 600-ohm bridging for OA and 135-ohm bridging for OB, OC, and OD systems.</p> <p>Requirement: +6.0 dbm minimum</p>																		
5	<p>Measure individual carriers at the OUT jack of the group receiving unit — cable — with a selective detector arranged for 135-ohm bridging.</p> <p>Requirement: +1.0 dbm minimum</p>																		
6	<p>Measure carrier leak from modulation in the group receiving unit — cable — at the OUT jack of the group receiving unit — cable — with a selective detector.</p> <p>Requirements:</p> <table border="1" data-bbox="565 1583 1393 1814"> <thead> <tr> <th data-bbox="565 1604 634 1625">GROUP</th> <th data-bbox="862 1604 1003 1625">CARR. FREQ. KC</th> <th data-bbox="1279 1583 1377 1625">MAXIMUM READING</th> </tr> </thead> <tbody> <tr> <td data-bbox="594 1640 607 1661">1</td> <td data-bbox="906 1640 954 1661">316</td> <td data-bbox="1263 1640 1386 1661">-27 dbm</td> </tr> <tr> <td data-bbox="594 1675 607 1696">2</td> <td data-bbox="906 1675 954 1696">296</td> <td data-bbox="1263 1675 1386 1696">-26 dbm</td> </tr> <tr> <td data-bbox="594 1711 607 1732">3</td> <td data-bbox="906 1711 954 1732">276</td> <td data-bbox="1263 1711 1386 1732">-23 dbm</td> </tr> <tr> <td data-bbox="594 1747 607 1768">4</td> <td data-bbox="906 1747 954 1768">256</td> <td data-bbox="1263 1747 1386 1768">-26 dbm</td> </tr> <tr> <td data-bbox="594 1782 607 1803">5</td> <td data-bbox="906 1782 954 1803">236</td> <td data-bbox="1263 1782 1386 1803">-26 dbm</td> </tr> </tbody> </table>	GROUP	CARR. FREQ. KC	MAXIMUM READING	1	316	-27 dbm	2	296	-26 dbm	3	276	-23 dbm	4	256	-26 dbm	5	236	-26 dbm
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