

L MULTIPLEX TERMINALS
LMX-1
RECEIVING CIRCUITS
GROUP DEMODULATOR
TURNOVER TEST

PURPOSE OF TEST

To determine that no wiring turnover exists in either the regular or spare receiving group bank.

REASON FOR REISSUE

The information in this section was previously in Section 356-126-502 which is now cancelled. It is renumbered and updated during the process of reorganizing the 356 division. *Equipment Test Lists are affected.*

NEED FOR TEST

Spare group equipment is provided in the LMX-1 terminal for replacing failed regular equipment (Fig. 1). In order for proper operation to prevail when the spare equipment is patched in place of the regular equipment, there *must be* no turnover in either the spare or regular equipment or the carrier supply circuit.

METHOD OF TESTING

The pilot frequencies from a spare or out-of-service transmitting group bank are connected through an attenuator, a spare flat-gain amplifier, and a spare hybrid circuit to the regular and spare receiving group banks to be tested. The output power of the regular group circuit and the corresponding spare group circuit is measured separately. These values are then compared with the output power measured when the regular and spare circuits are paralleled. When no wiring turnover is present, the power will change only a small amount when the outputs of the regular and spare circuits are paralleled.

APPARATUS

Receiving Test Equipment (Section 356-010-500)

Input:

- (a) Frequency range: 104 to 508 kHz
- (b) Power: -25 dBm and -48 dBm
- (c) Impedance: 75 ohms and 135 ohms

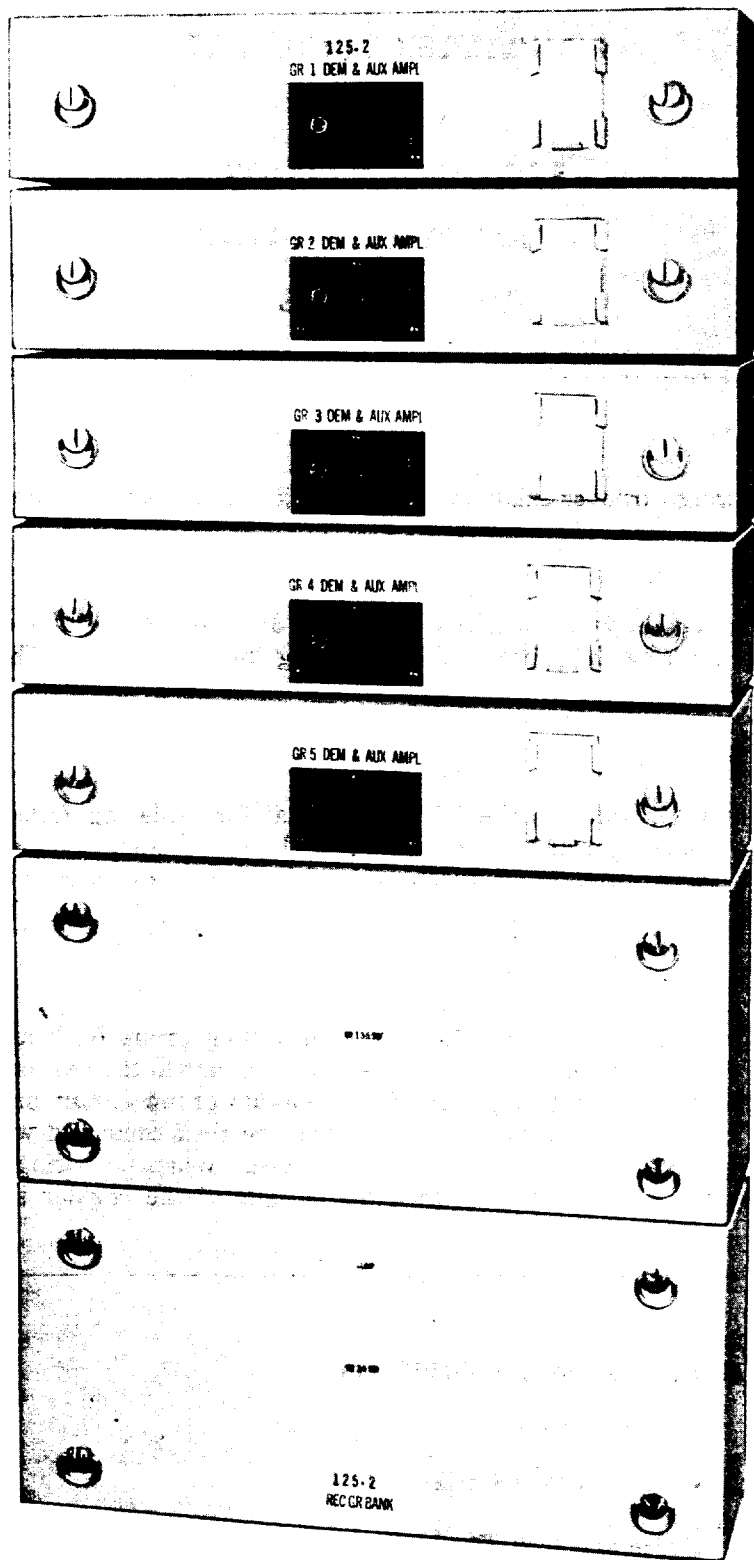


Fig. 1—LMX-1 Receiving Group Bank

Flat-Gain Amplifier [Transistor type per ED-51318-() or tube-type such as J68808F]

Attenuator such as the 14A

Spare Hybrid Circuit (SD-59251-01)

135-Ohm Multiple Jacks

P2BJ Cords

3P20B Cords

STEP	PROCEDURE																	
	<p>Note: The carrier frequencies for both the regular and spare group banks being tested should be supplied by the same 4-kHz harmonic generator.</p> <p>Caution: <i>Avoid patch cord turnover when making the patches used in this test.</i></p> <p>1 Verify that the equipment to be tested is out-of-service.</p> <p>2 Prepare the receiving test equipment (RTE) for a 75-ohm terminated measurement of the input pilot frequency (for the group circuit being tested) at -48 dBm.</p> <p>Note: The pilot frequencies are listed in Table A.</p> <p style="text-align: center;">TABLE A</p> <p style="text-align: center;">FREQUENCY TRANSLATION (GROUP DEMODULATORS)</p> <table border="1" data-bbox="381 1213 1529 1367"> <thead> <tr> <th colspan="5" data-bbox="381 1213 1334 1255">INPUT PILOT FREQUENCY (KHZ) FOR GROUPS 1 THROUGH 5</th> <th data-bbox="1334 1213 1529 1297" rowspan="2">OUTPUT PILOT FREQUENCY (KHZ)</th> </tr> <tr> <th data-bbox="381 1255 581 1297">1</th> <th data-bbox="581 1255 797 1297">2</th> <th data-bbox="797 1255 976 1297">3</th> <th data-bbox="976 1255 1149 1297">4</th> <th data-bbox="1149 1255 1334 1297">5</th> </tr> </thead> <tbody> <tr> <td data-bbox="381 1297 581 1367">315.92</td> <td data-bbox="581 1297 797 1367">363.92</td> <td data-bbox="797 1297 976 1367">411.92</td> <td data-bbox="976 1297 1149 1367">459.92</td> <td data-bbox="1149 1297 1334 1367">507.92</td> <td data-bbox="1334 1297 1529 1367">104.08</td> </tr> </tbody> </table> <p>3 Select a spare or out-of-service transmitting group bank to be used for testing.</p> <p>4 Connect the GR BK OUT A jack of the selected transmitting group bank through an attenuator and flat-gain amplifier to the SP HYB LINE A jack of the spare hybrid circuit [patches (1), (2), and (3), Fig. 2].</p> <p>5 Connect the GR BK IN A jack of the regular group bank being tested to the SP A HYB jack of the spare hybrid circuit [patch (4), Fig. 2].</p> <p>6 Connect the RTE to the SP B HYB jack of the spare hybrid [patch (5), Fig. 2].</p> <p>7 Measure the level of the input pilot frequency for each group (Table A).</p> <p>Requirement: -48 dBm</p> <p>Note: Adjust the attenuator until the requirement is met for each group.</p>	INPUT PILOT FREQUENCY (KHZ) FOR GROUPS 1 THROUGH 5					OUTPUT PILOT FREQUENCY (KHZ)	1	2	3	4	5	315.92	363.92	411.92	459.92	507.92	104.08
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SECTION 356-120-504

STEP	PROCEDURE
8	If the requirement of Step 7 is met for each group, proceed to Step 9. If the requirement cannot be met for any group, check the individual transmitting group gains using Section 356-105-502 and repeat this test.
9	Record the attenuator setting used to meet the requirement of Step 7 for each group.
10	Disconnect the RTE [patch (5), Fig. 2].
11	Connect the SP B HYB jack to the GR BK IN A jack of the spare group bank being tested [patch (6), Fig. 2].
12	Prepare the RTE for a direct measurement of 104.08 kHz at -25 dBm.
13	Connect the RTE, through a multiple jack, to the GR DEM OUT jacks of the regular group circuit being tested [patches (7) and (8), Fig. 2].
14	Set the attenuator to the setting recorded in Step 9 for the group being tested.
15	Measure and record the level of the 104.08-kHz signal. Requirement: -25 dBm
16	If the requirement of Step 15 is met, proceed to Step 18. If it is not met, adjust the GAIN control on the associated auxiliary amplifier to meet the requirement.
17	If the requirement of Step 15 cannot be met, make tests as prescribed in Section 356-120-502 and repeat this test.
18	Disconnect the GR DEM OUT jacks of the regular group circuit from the multiple jack [patch (7), Fig. 2].
19	Connect the GR DEM OUT jacks of the corresponding circuit in the spare group bank to the multiple jack [patch (9), Fig. 2]. Note: Same numbered circuit as measured in Step 15
20	Repeat Steps 15, 16, and 17 as required for the spare group circuit.
21	Connect the GR DEM OUT jacks of the regular group circuit to the multiple jack [patch (7), Fig. 2].
22	Measure the combined level of the 104.08-kHz signal at the paralleled GR DEM OUT jacks of the regular and spare circuits. Requirement: At least 1.5 dB greater than the value recorded in Step 15 Note: -23.5 dBm is 1.5 dB greater than -25 dBm.

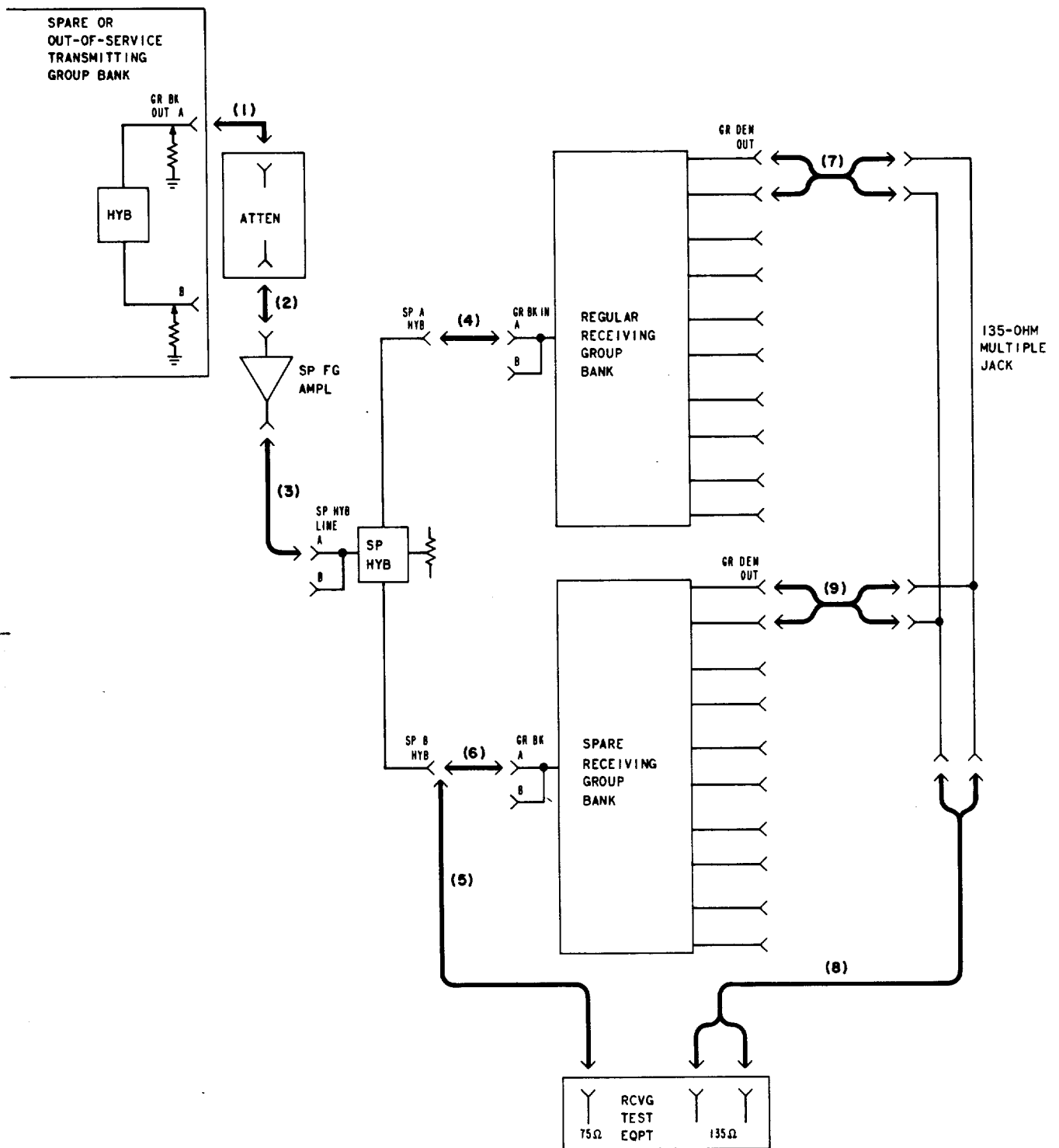


Fig. 2—Test Connections—Turnover Test

SECTION 356-120-504

STEP	PROCEDURE
23	<p>If the requirement of Step 22 is met, proceed to Step 24. If it is not met, turnover exists in either the regular or spare group circuit or in the carrier supply circuit. Perform the following:</p> <ul style="list-style-type: none">(a) Disconnect patches (7) and (9), Fig. 2.(b) Locate and correct the wiring turnover.(c) Repeat Steps 13 through 22 to verify correction of the trouble.
24	Repeat Steps 14 through 23 for each line-numbered regular and spare group circuit to be tested.
25	Disconnect all test equipment [patches (1), (2), (3), (4), (6), (7), (8) and (9), Fig. 2].
26	Restore service to normal.