L MULTIPLEX TERMINALS
LMX-1
TRANSMITTING CIRCUITS
GROUP MODULATOR
TURNOVER TESTS

Note: This test is applicable only when options have been added for in-service testing and adjusting.

PURPOSE OF TESTS

To determine that no wiring turnover exists in the group bank hybrid or in the individual group modulator circuit.

REASON FOR ISSUE

Reorganization of the 356- division. The information in this section supersedes similar information in Section 356-123-504. ***Equipment Test Lists are affected.***

NEED FOR TESTS

Spare group equipment is provided in the LMX-1 terminal for replacing failed regular equipment. In order that proper operation will prevail when the spare equipment is patched in place of the regular equipment, there shall be no turnover in either the spare or regular equipment.

APPARATUS

Transmission Test Equipment. Refer to Section 356-010-500 and select, from available equipment, sending and receiving units having the following capabilities:

Sending test equipment capable of delivering, into 135-ohm circuits, 104.08 kHz at −42 dBm

Receiving test equipment capable of detecting, from 75-ohm circuits, signals between 312 kHz and 552 kHz at −25 dBm.

135-Ohm Multiple Jack

75-Ohm Multiple Jack

3P20B Cords

P2BJ Cords

STEP	PROCEDURE
	Note: See Fig. 3 for the location of adjustments and controls used in this test.
	Hybrid Turnover
1	Verify that the group equipment to be tested has been removed from service.
2	Prepare the RTE (receiving test equipment) for a 75-ohm terminated measurement of the translated 104.08-kHz signal for group 1 at −25 dBm.
	Note: The translated 104.08-kHz signals are listed in Table A.

TABLE A

FREQUENCY TRANSLATION (GROUP MODULATORS)

INPUT FREQUENCY (KHZ)	OUTPUT FREQUENCY (KHZ) FOR GROUPS 1 THROUGH 5				
	1	2	3	4	5
104.08	315.92	363.92	411.92	459.92	507.92

3	Prepare the STE (sending test equipment) to deliver 104.08 kHz at −42 dBm.
4	Connect the STE (through a multiple jack) to the REG GR MOD IN jack of the group 1 modulator circuit [patches (1) and (2), Fig. 1].
5	Connect the RTE (through a multiple jack) to the REG GR BK OUT A jack of the group bank [patches (3) and (4), Fig. 1].
6	Measure and record the level of the translated 104.08-kHz signal. ***Requirement:*** −25 dBm is nominal.
7	Make patch (5) in Fig. 1.
8	Measure the combined level of the translated 104.08-kHz signal at the paralleled REG GR BK OUT A and B jacks. ***Requirement:*** Within 1.5-dB to 3.5-dB ***increase*** from the value recorded in Step 6.
9	If the requirement of Step 8 is met, proceed to Step 10. If it is not met, turnover exists in the group output hybrid. Perform the following steps: (a) Remove patch (5) in Fig. 1. (b) Locate and correct the wiring turnover in the group output hybrid. (c) Repeat Steps 6 through 9 to verify correction of the trouble.

STEP	PROCEDURE

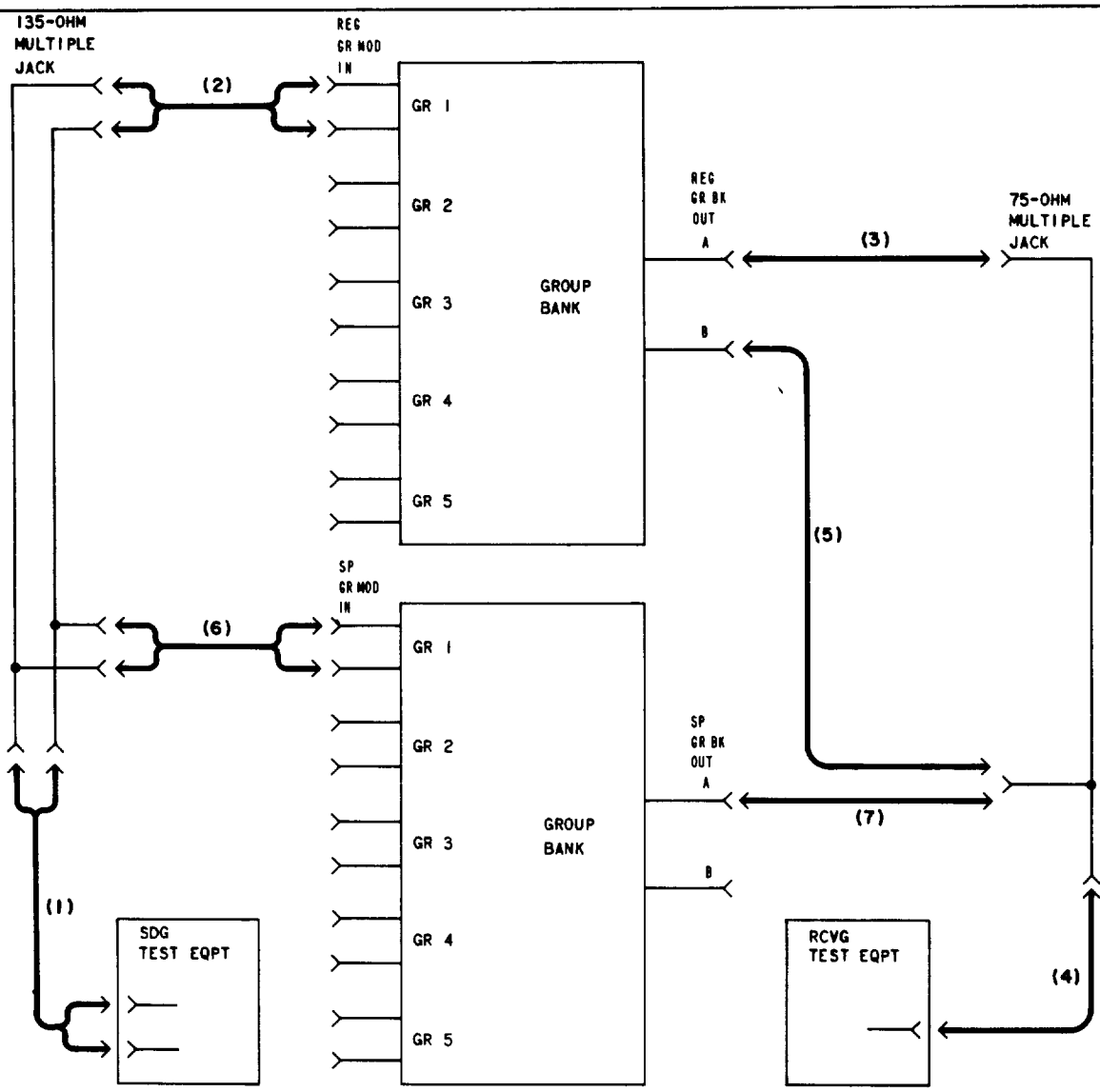


Fig. 1—Turnover Tests—Test Connections

10 Remove patch (5) in Fig. 1.

11 Repeat Steps 2 through 10 for each regular and spare group bank to be tested.

Group Turnover

12 Measure and record the level of the translated 104.08-kHz signal of the regular group modulator circuit being tested.

Requirement: −25 dBm is nominal.

13 Remove patches (2) and (3) in Fig. 1.

STEP	PROCEDURE
14	Make patches (6) and (7) in Fig. 1 to an identically numbered group modulator circuit in the spare group bank.
15	Measure the level of the translated 104.08-kHz signal at the SP GR BK OUT A jack. ***Requirement:*** The same value as recorded in Step 12.
16	If the requirement of Step 15 is met, proceed to Step 17. If it is not met, adjust the associated GR ADJ control (Fig. 2) at the HFPB to meet the requirement.
17	Make patches (2) and (3) in Fig. 1.
18	Measure the combined level of the translated 104.08-kHz signal at the paralleled REG and SP GR BK OUT A jacks. ***Requirement:*** Not more than a 2-dB ***decrease*** from the value recorded in Step 12.
19	If the requirement of Step 18 is met, proceed to Step 20. If it is not met, turnover exists in the regular or spare group modulator circuit or carrier supply circuit. Perform the following steps: (a) Remove patches (6) and (7) in Fig. 1. (b) Locate and correct the wiring turnover in the regular or spare group modulator circuit or carrier supply circuit. (c) Repeat Steps 12 through 19 to verify correction of the trouble.
20	Repeat Steps 12 through 19 for each of the identically numbered group modulator circuits in the regular and spare group banks.
21	Remove patches (1), (2), (3), (4), (6), and (7) in Fig. 1.
22	Restore service to normal.

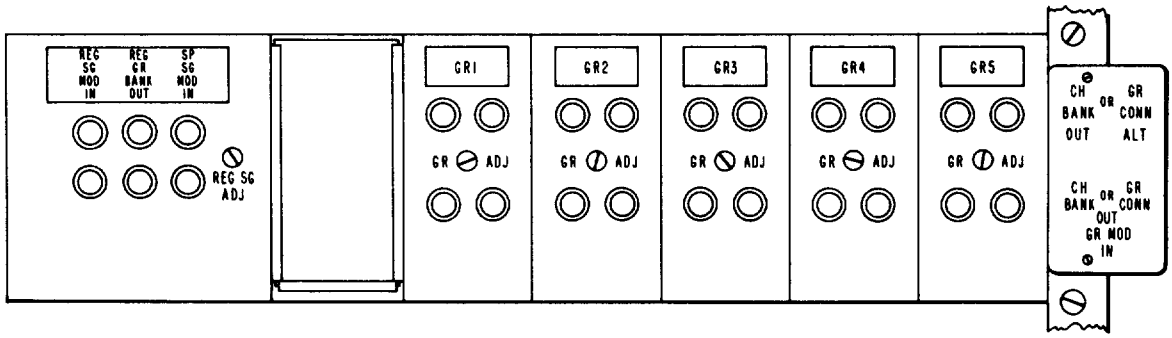
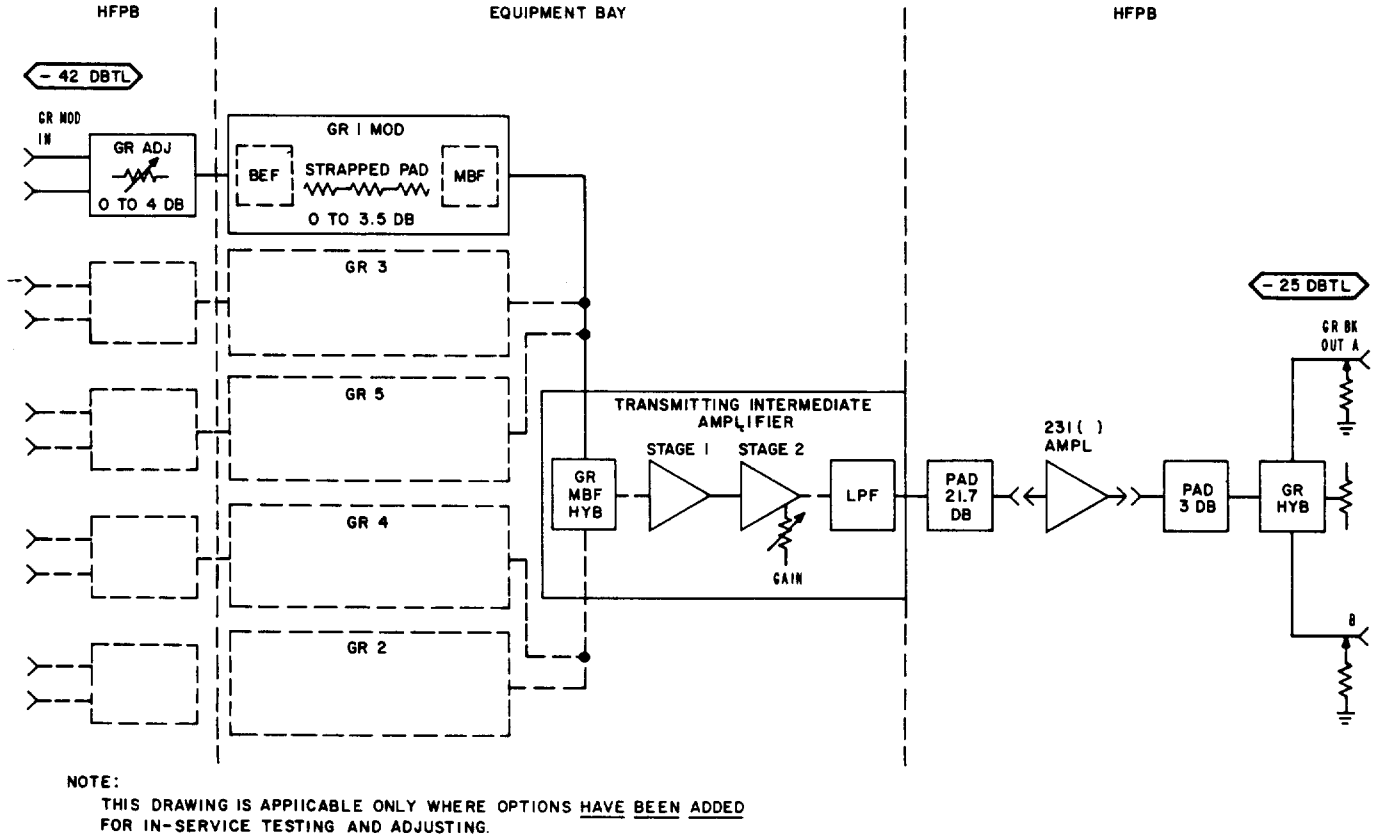


Fig. 2—Jack Strip at HFPB Showing Adjustment Controls



NOTE:
THIS DRAWING IS APPLICABLE ONLY WHERE OPTIONS HAVE BEEN ADDED FOR IN-SERVICE TESTING AND ADJUSTING.

Fig. 3—LMX-1 Transmitting Group Bank—Block Diagram