ANALOG MULTIPLEX TERMINAL EQUIPMENT

COMMON EQUIPMENT

GROUP CONNECTORS

B3 GROUP CONNECTOR IN-SERVICE TESTS

The B3 group connector (SD-51596) is used to connect the basic group signal from the output of an L multiplex (LMX) group demodulator to the input of an LMX group modulator. B3 group connectors can be used also to interconnect a type A or type C N3/L junction and an LMX terminal. The group connector (Fig. 1) is passive and includes a test jack which permits in-service measurements. Out-of-service tests for B3 group connectors are explained in Section 356-020-506.

Equipment Test Lists are affected.

CHART PAGE

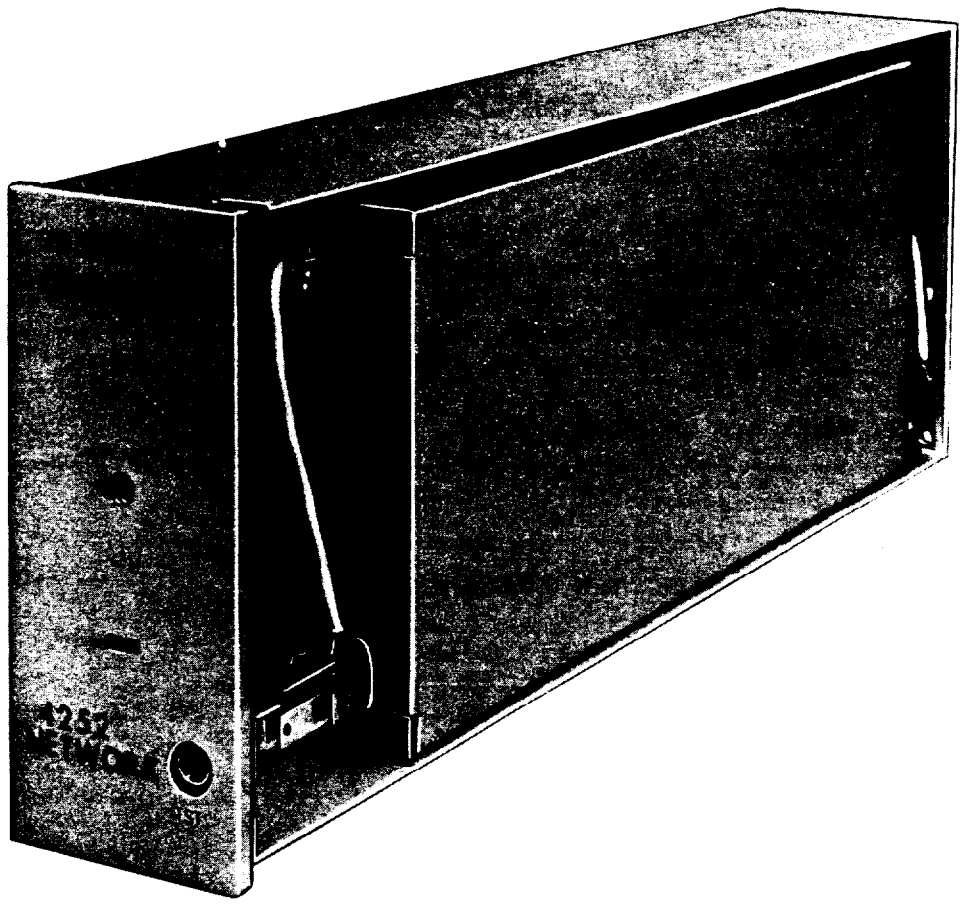

Fig. 1—B3 Group Connector

APPARATUS:

Transmission test equipment and test cords provided at the station are required.

Pilot filter set J68858AT-1A (58AT) is required for tests in Chart 2.

CHART 1

GROUP CONNECTOR USED BETWEEN L MULTIPLEX TERMINALS

Note: Three arrangements of the B3 group connector are available: the 4252A, 4252B, and 4252C networks. The 4252A network is the primary group connector and includes a bandpass filter; the

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4252B network includes a bandpass filter and a 104.08-kHz band elimination filter; the 4252C network includes a bandpass filter and a delay equalizer.

STEP	PROCEDURE

At B3 group connector bay,

Caution: Check that the locking bar is in place across the front of the group connector shelf. This bar prevents accidental removal of the group connector when the test cord is removed.

Note: Test equipment impedance is 135 ohms for measurements at group connectors.

1 Proceed to Part A for a 4252A or 4252C network. Otherwise, proceed to Part B for a 4252B network.

A. Test at 4252A or 4252C Network

2 Measure the 104.08-kHz pilot signal power at the TST jack on the front of the group connector under test.

Requirement: Pilot signal power is within ±0.5 dB of 20 dB below the adjusted test signal power value posted at the group connector.

Note: Nominal transmission level at the TST jack is -37.0 dBm. The ***adjusted*** test signal power at the TST jack should be recorded on the front of the group connector during initial tests per Section 356-020-506.

Example 1: If the ***adjusted*** test signal power value recorded on the group connector is -36.8 dBm, pilot signal power should be -56.8 dBm ±0.5 dB.

3 Proceed to Part D if the requirement is met. Otherwise, proceed to Part C.

B. Test at 4252B Network

Note: The 4252B network includes a band elimination filter that blocks the 104.08-kHz group pilot signal. A test signal can be applied, at the transmitting channel bank, to one of the channels in the group served by the group connector.

4 Request the attendant at the transmitting channel bank to apply a 1-kHz test signal to one of the channels.

Note: Apply the test signal at 10 dB below transmission level to any out-of-service channel. Use channel 6, if out of service; ***or*** remove channel 6 from service if all channels in the group are in service.

CHART 1 (Cont)

STEP	PROCEDURE
5	Measure the translated test signal power at the TST jack on the front of the group connector under test. ***Note:*** The test signal frequency is 87 kHz for a 1-kHz test signal on channel 6. ***Requirement:*** Test signal power is within ±0.5 dB of 10 dB below the adjusted test signal power value posted at the group connector. ***Note:*** Nominal transmission level at the TST jack is -37.0 dBm, and nominal test signal power is -47.0 dBm. The ***adjusted*** test signal power at the TST jack should be recorded on the front of the group connector during initial tests per Section 356-020-506.
6	Proceed to Part D if the requirement is met. Otherwise, proceed to Part C.
	C. Test at Receiving LMX Terminal
7	Proceed to Step 8 for a 4252A or 4252C network. Otherwise, proceed to Step 12 for a 4252B network.
	4252A or 4252C Network
8	Measure the 104.08-kHz pilot signal power for the group served by the group connector under test. ***Note:*** For LMX-2, use the multiplex measuring set or measure at the GR DEM OUT B jack. Nominal power of the 104.08-kHz pilot signal at the GR DEM OUT B jack is -25.0 dBm. For LMX-3, measure the translated group pilot signal power at the SGDF OUT ALT jack on the receiving patch unit in the group bank shelf. Nominal power of the pilot signal at the SGDF OUT ALT jack is -54.9 dBm. Translated group pilot signal frequencies are 315.92, 363.92, 411.92, 459.92, and 507.92 kHz for groups 1 through 5, respectively.
9	Perform the test procedure in Section 356-220-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.
10	Repeat Step 2.
11	Proceed to Part D if the requirement in Step 2 is met. Otherwise, proceed to Part E.
	4252B Network
12	Measure the translated test signal power for the group served by the group connector under test. ***Note:*** For LMX-2, measure at the GR DEM OUT B jack. Nominal transmission level at the GR DEM OUT B jack is -5 dB, and nominal test signal power is -15 dBm. For LMX-3, measure the translated test signal power at the SGDF OUT ALT jack on the

CHART 1 (Cont)

STEP	PROCEDURE

receiving patch unit in the group bank shelf. Nominal transmission level at the SGDF OUT ALT jack is -34.9 dB, and nominal test signal power is -44.9 dBm. Translated test signal frequencies for a 1-kHz test signal on channel 6 are 333, 381, 429, 477, and 525 kHz for groups 1 through 5, respectively.

13 Perform the test procedure in Section 356-220-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.

14 Repeat Step 5.

15 Proceed to Part D if the requirement in Step 5 is met. Otherwise, proceed to Part E.

D. Test at Transmitting LMX Terminal

16 Proceed to Step 17 for a 4252A or 4252C network. Otherwise, proceed to Step 20 for a 4252B network.

4252A or 4252C Network

17 Measure the translated 104.08-kHz pilot signal power for the group served by the group connector under test.

Note: Translated group pilot signal frequencies are 315.92, 363.92, 411.92, 459.92, and 507.92 kHz for groups 1 through 5, respectively. For LMX-2, measure at the SG CONN OUT B jack. Nominal power of the pilot signal at this jack is -45 dBm. For LMX-3, measure at the GR BK OUT ALT jack on the combining and splitting unit in the group bank shelf. Nominal power of the pilot signal at this jack is -38.1 dBm.

18 Perform the test procedure in Section 356-205-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.

19 Proceed to Part E in case of trouble. Otherwise, proceed to Step 28.

4252B Network

20 Measure the translated test signal power for the group served by the group connector under test.

Note: Translated test signal frequencies for a 1-kHz test signal on channel 6 are 333, 381, 429, 477, and 525 kHz for groups 1 through 5, respectively. For LMX-2, measure at the SG CONN OUT B jack. Nominal transmission level at this jack is -25 dB, and nominal test signal power is -35 dBm. For LMX-3, measure at the GR BK OUT ALT jack on the combining and splitting unit in the group bank shelf. Nominal transmission level at this jack is -18.1 dB, and nominal test signal power is -28.1 dBm.

CHART 1 (Cont)

STEP	PROCEDURE
21	Perform the test procedure in Section 356-205-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.
	Note: In case of trouble, proceed to Part E.
22	Request the attendant at the transmitting channel bank to remove the test signal and restore the channel to normal.
23	Proceed to Step 28.
	E. Test Transmission Path
24	Remove the group connector from service.
25	Perform the test procedure in Section 356-020-506.
26	Replace the group connector.
27	Repeat the test procedure in this section.
28	Remove all test equipment.

CHART 2

GROUP CONNECTOR USED WITH N3/L JUNCTION

Two groups, designated channel group 1 and channel group 2, are connected between N3 carrier and LMX terminal equipment via group connectors. A group connector is provided for each channel group.

STEP	PROCEDURE
1	Refer to office records for the group connector under test.
2	Proceed to Part A for a group connector in the L-to-N3 transmission path, ***or*** proceed to Part C for a group connector in the N3-to-L transmission path.

CHART 2 (Cont)

STEP	PROCEDURE

A. Test at Group Connector in L-to-N3 Transmission Path

Note: A group connector is provided in the transmission path from an LMX receiving terminal to an L-to-N3 modulator, as shown in the lower part of Fig. 2.

At B3 group connector bay,

Caution: Check that the locking bar is in place across the front of the group connector shelf. This bar prevents accidental removal of the group connector when the test cord is removed.

Note: Test equipment impedance is 135 ohms for measurements at group connectors.

3 Measure the 64-kHz carrier signal power for channel group 1 or 104-kHz carrier signal power for channel group 2 at the TST jack on the front of the group connector under test.

Note: The 64-kHz (channel group 1) and 104-kHz (channel group 2) carrier signals are applied at the N3 type B junction at the transmitting LMX terminal. The 104.08-kHz pilot signal from the receiving LMX terminal is blocked by the band elimination filter in the 4252B network.

Requirement: Carrier signal power is within ±0.5 dB of 11.5 dB below the adjusted test signal power value posted at the group connector.

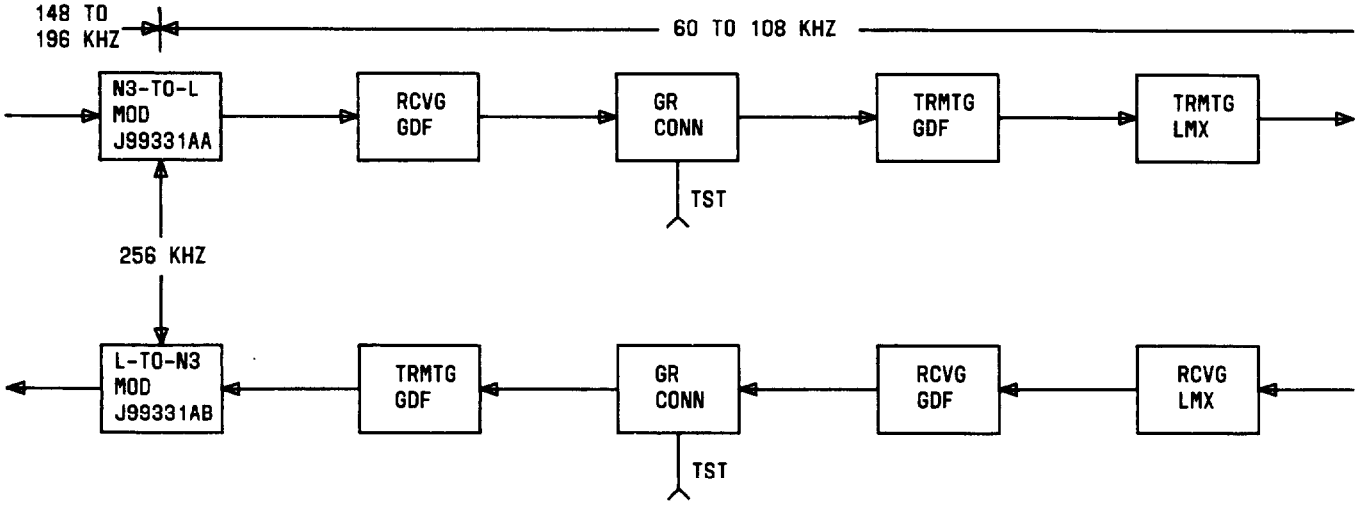

Fig. 2—Group Connectors Used With N3/L Junctions

CHART 2 (Cont)

STEP	PROCEDURE

Note: Nominal transmission level at the TST jack is -37.0 dBm, and nominal carrier signal power is -57.0 dBm. The ***adjusted*** test signal power at the TST jack should be recorded on the front of the group connector during initial tests per Section 356-020-506.

Example 2: If the adjusted test signal power value recorded on the group connector is -45.3 dBm, carrier signal power should be -56.8 dBm ±0.5 dB.

4 Proceed to Step 34 if the requirement is met. Otherwise, proceed to Part B.

B. Test at Receiving LMX Terminal

5 Measure the 64-kHz (channel group 1) or 104-kHz (channel group 2) carrier signal power at the GR DEM OUT B jack (LMX-2) or at the SGDF OUT ALT jack (LMX-3).

Note: Nominal power of the carrier signal is -25.0 dBm at the GR DEM OUT B jack and -54.9 dBm at the SGDF OUT ALT jack.

6 Perform the test procedure in Section 356-220-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.

7 Repeat Step 3.

8 Proceed to Step 34 if the requirement in Step 3 is met. Otherwise, proceed to Part F.

C. Test at Group Connector in N3-to-L Transmission Path

Note: A group connector is provided in the transmission path from an N3-to-L modulator to an LMX transmitting terminal, as shown in the upper part of Fig. 2.

At B3 group connector bay,

Caution: Check that the locking bar is in place across the front of the group connector shelf. This bar prevents accidental removal of the group connector when the test cord is removed.

Note: Test equipment impedance is 135 ohms for measurements at group connectors.

9 Proceed to Step 10 for a group connector serving channel group 1, ***or*** proceed to Step 12 for a group connector serving channel group 2.

Check 64-kHz Carrier Signal Power for Channel Group 1

10 Measure the 64-kHz carrier signal power at the TST jack on the front of the group connector serving channel group 1.

CHART 2 (Cont)

STEP	PROCEDURE

Requirement: Carrier signal power is within ±0.5 dB of 11.5 dB below the adjusted test signal power value posted at the group connector.

Note: Nominal transmission level at the TST jack is -37.0 dBm, and nominal carrier signal power is -57.0 dBm. The ***adjusted*** test signal power at the TST jack should be recorded on the front of the group connector during initial tests per Section 356-020-506.

Example 3: If the ***adjusted*** test signal power value recorded on the group connector is -45.3 dBm, carrier signal power should be -56.8 dBm ±0.5 dB.

11 Proceed to Part E if the requirement is met. Otherwise, proceed to Part D.

Check 104-kHz Carrier Signal Power for Channel Group 2

12 Measure the 104-kHz carrier signal power at the TST jack on the front of the group connector serving channel group 2.

Requirement: Carrier signal power is within ±0.5 dB of 11.5 dB below the adjusted test signal power value posted at the group connector.

Note: Nominal transmission level at the TST jack is -37.0 dBm, and nominal carrier signal power is -57.0 dBm. The ***adjusted*** test signal power at the TST jack should be recorded on the front of the group connector during initial tests per Section 356-020-506. See ***Example 3*** in Step 10.

13 Proceed to Part E if the requirement is met. Otherwise, proceed to Part D.

D. Test at N3-to-L Junction

At N3-to-L junction,

14 Locate the N3-to-L modulator served by the group connector under test.

Note: An N3-to-L modulator J99331AA and an associated group connector serve channel group 1. Another N3-to-L modulator and an associated group connector serve channel group 2.

15 Verify that the carrier power at the MOD OUT jack on the N3-to-L modulator is -24.0 dBm ±2.0 dB.

Note: Check the 64-kHz carrier power for channel group 1, ***or*** check the 104-kHz carrier power for channel group 2. The test procedure is explained in Section 362-922-501.

CHART 2 (Cont)

STEP	PROCEDURE

E. Test at Transmitting LMX Terminal

16 Proceed to Step 17 for a group connector serving channel group 1, ***or*** proceed to Step 20 for group connector serving channel group 2.

Check 64-kHz Carrier Signal Power for Channel Group 1

At transmitting group bank,

17 Connect the GR CONN OUT ALT jack (LMX-2) or GDF OUT ALT jack (LMX-3), for the transmitting group serving channel group 1, to the receiving test equipment, as shown by patch 1 in Fig. 3.

18 Measure the 64-kHz carrier signal power for channel group 1 at the test jack.

Requirement: -62.0 dBm ±1.0 dB.

19 Proceed to Step 23 if the requirement is met. Otherwise, proceed to Part F.

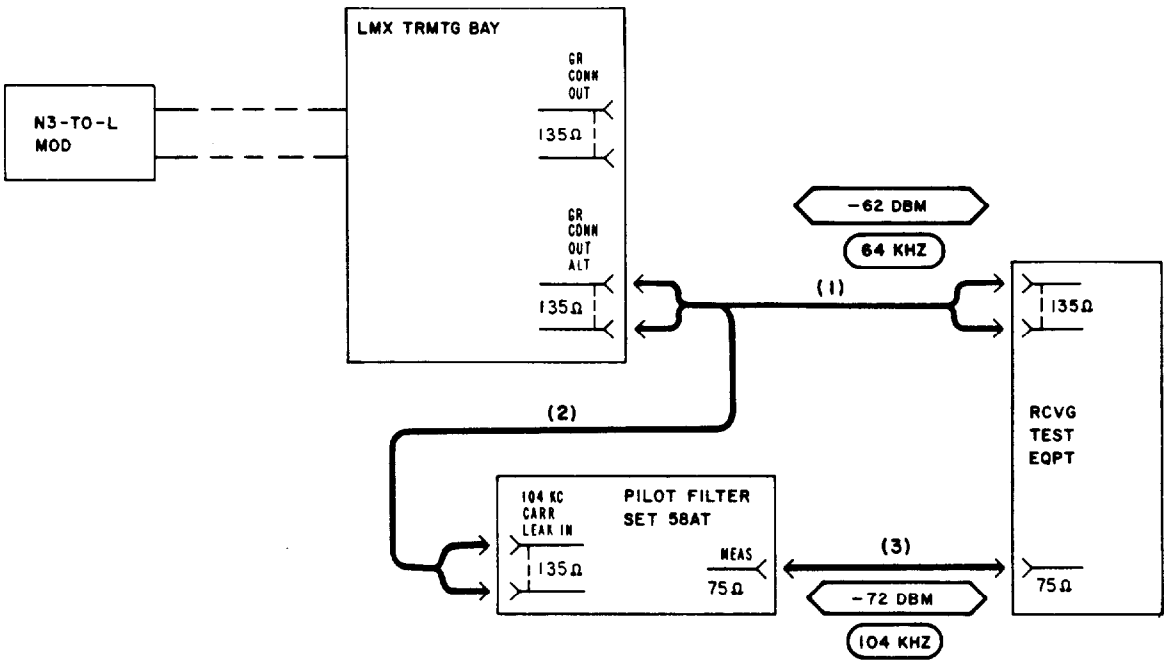

Fig. 3—Measurement of 64-kHz and 104-kHz Carrier Signal Power

CHART 2 (Cont)

STEP	PROCEDURE

Check 104-kHz Carrier Signal Power for Channel Group 2

At transmitting group bank,

20 Connect the GR CONN OUT ALT jack (LMX-2) or GDF OUT ALT jack (LMX-3), for the transmitting group serving channel group 2, to the receiving test equipment via the 104 KC CARR LEAK IN jack on the pilot filter set, as shown by patches 2 and 3 in Fig. 3.

21 Measure the 104-kHz carrier power for channel group 2 at the test jack.

Requirement: -72.0 dBm ±1.0 dB.

Note: Nominal carrier signal power at this jack is -62 dBm, and there is a 10-dB loss in the pilot filter set.

22 Proceed to Step 23 if the requirement is met. Otherwise, proceed to Part F.

Check 104.08-kHz Pilot Signal Power

Note: This pilot signal is inserted via the pilot insertion unit for the group under test at the transmitting LMX terminal.

At transmitting group bank,

23 Connect the GR CONN OUT ALT jack (LMX-2) or GDF OUT ALT jack (LMX-3), for the group under test, to the receiving test equipment via the 104.08 KC PIL IN jack on the pilot filter set, as shown by patches 1 and 2 in Fig. 4.

24 Measure the 104.08-kHz group pilot signal power at the test jack.

Requirement: -72.0 dBm ±1.0 dB.

Note: Nominal group pilot signal power at this jack is -62 dBm, and there is a 10-dB loss in the pilot filter set.

25 Proceed to Step 34 if the requirement is met. Otherwise, proceed to Step 26.

26 Adjust the ADJ control on the associated pilot insertion unit to meet the requirement in Step 24.

27 Perform pilot supply tests per Section 356-011-503 if the requirement can not be met.

28 Perform the test procedure in Section 356-205-501 (LMX-2) or Section 356-350-000 (LMX-3), if required.

29 Proceed to Step 34.

CHART 2 (Cont)

STEP	PROCEDURE

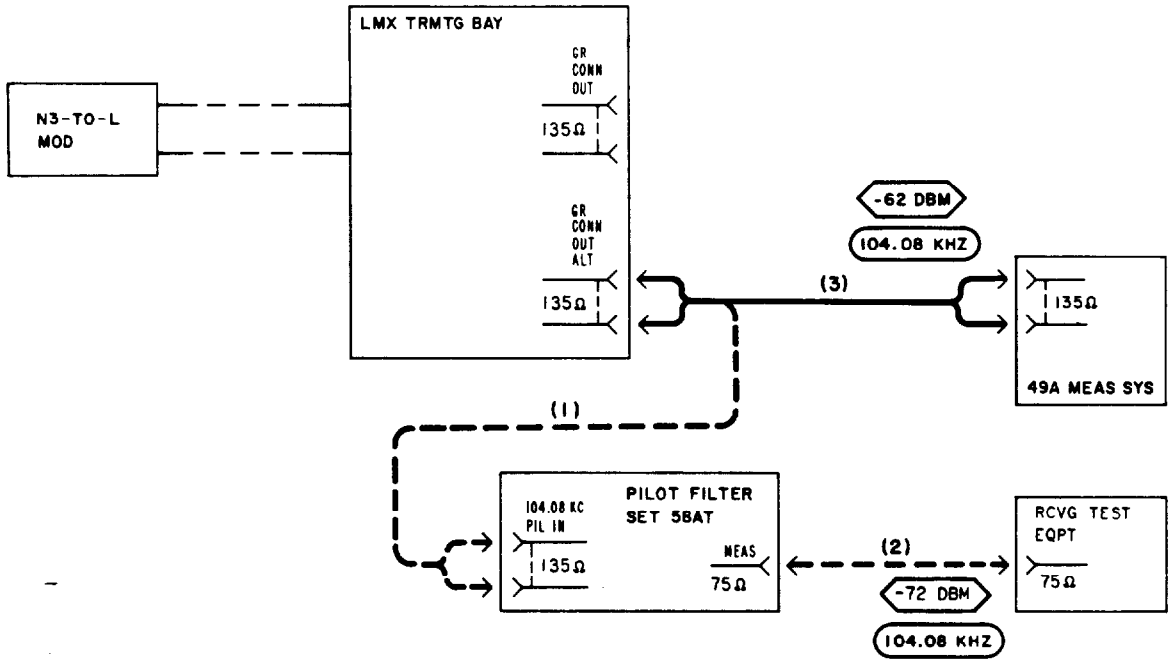

Fig. 4—Measurement of 104.08-kHz Pilot Signal Power

F. Test Transmission Path

30 Remove the group connector from service.

31 Perform the test procedure in Section 356-020-506.

32 Replace the group connector.

33 Repeat the test procedure in this section.

34 Remove all test equipment.