

**ANALOG MULTIPLEX TERMINAL EQUIPMENT**  
**COMMON EQUIPMENT**  
**J68953AF MASTERGROUP CONNECTOR (PASSIVE)**  
**OUT-OF-SERVICE TESTS**

**1. GENERAL**

**1.01** This section provides the procedures for out-of-service measurement and, if necessary, adjustment of the overall loss of the J68953AF passive mastergroup connector (MGC).

**1.02** This section is reissued to provide for a change from the 1122A to the 1122B bandpass filter. The use of the 1122B filter expands the use of the MGC to include AR 6A applications. Since this is a general revision, arrows are not used to indicate changes. Equipment Test Lists are not affected.

**1.03** The passive MGC is used to interconnect a basic mastergroup (BMG) output signal from a receiving MGT to a transmitting MGT. The interconnections are made either directly or through mastergroup distributing frames (MGDF). A separate MGC is required for each direction of transmission. Two MGCs are mounted in each

mounting shelf. The MGC provides equalization to compensate for different total lengths of both the transmitting and receiving trunks, a filter to suppress the 2.840-MHz mastergroup (MG) pilot and signals outside the BMG band, an adjustable attenuator to maintain proper flat transmission level, and a splitting hybrid for test access to the output side of the circuitry.

**1.04** If the MGDF *is not* provided, this test is conducted from the trunk input at the receiving MGT to the trunk output at the transmitting MGT. If the MGDF *is* provided, this test is conducted from the MGC trunk input to the MGC trunk output at the appropriate jacks on the MGDF for the circuit under test.

**1.05** Each direction of transmission must be tested. These tests may be conducted either to assure that a connector circuit is operating properly prior to placing in service or to check a suspected circuit that has been removed from service.

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**APPARATUS:**

The tests in this section require suitable transmission measuring 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 to 75-ohm circuits, signals between 0.5 and 3.2 MHz at -14 dBm

***Receiving test equipment*** capable of detecting, from 75-ohm circuits, signals between 0.5 and 3.2 MHz at -75 to -20 dBm

***Frequency counter*** capable of measuring 2.840 MHz.

**NOTICE**

Not for use or disclosure outside the  
Bell System except under written agreement

## STEP

## PROCEDURE

Before starting this test, perform the following:

- (a) Check that the transmission path to be tested is out of service.
- (b) Locate the TRK IN jack on the BMG side of the receiving jack field located on the faceplate of the MG TRANSLATOR associated with the combiner under test. Then locate the TRK OUT jack on the BMG side of the transmitting jack field. Remove the hairpin plugs between the TRK IN and MG OUT jacks and the TRK OUT and MG IN jacks. Conduct Part B of this chart.

**or**

When the MGC is connected through an MGDF, locate the 4254A RCVG NET and the 4255A TRMTG NET associated with the transmission path to be tested. Conduct Part A of this chart.

- (c) Set the LEVEL ADJ and EQL ADJ controls on the passive MGC to their minimum position (0 and 50 feet respectively).

**A. Loss Adjustment and Slope Measurements—RCVG MGDF to TRMTG MGDF**

- 1 Remove the patch plug from the HYB IN jack of the 4254A RCVG NET in the MGDF (as applicable) and apply a 0.6-MHz test signal at a level of -17.0 dBm to the HYB IN or MULT jack [patch (A) Fig. 1].
- 2 Remove the patch plug from the OUT A jack on the 4255A TRMTG NET in the MGDF (as applicable) and measure the 0.6-MHz signal level at the OUT A or OUT B jack [patch (C) of Fig. 1].

**Requirement:** Adjust the LEVEL ADJ control on the passive MGC under test for a measured level of -35.0 dBm at the OUT A or OUT B jack.

- 3 Terminate the OUT A and OUT B jacks with 75 ohms. Remove the 442A termination from the TST jack on the faceplate of the MGC and measure the 0.6-MHz signal level at that jack [patch (E) Fig. 1].

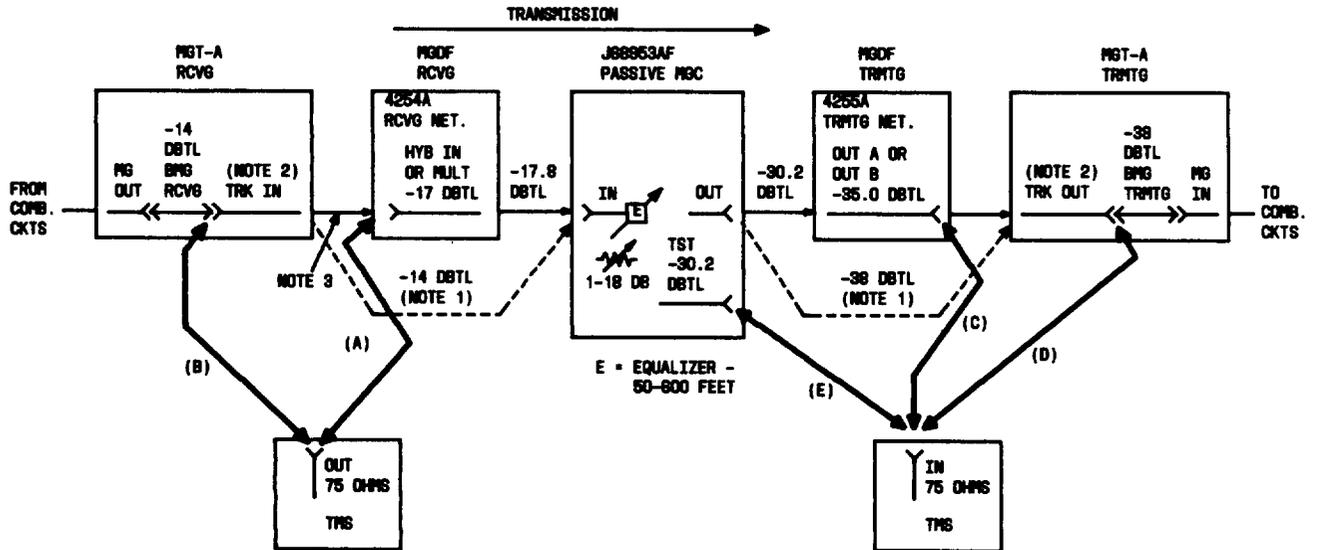
**Requirement:** -29.9 dBm  $\pm$ 0.5 dB.

**Note:** Replace the 442A termination in the TST jack after this measurement and remove the 75-ohm termination from OUT A and OUT B.

- 4 Change the input test signal frequency to 3.0 MHz at -17.0 dBm.
- 5 Measure the 3.0-MHz test signal level at the OUT A or OUT B jack.

**Requirement:** -35.0 dBm  $\pm$ 0.2 dB.

If the requirement *is not met*, adjust the EQL ADJ control on the MGC to meet the requirement.



- NOTES:
1. DASHED LINES INDICATE DIRECT CONNECTION WHERE NO MGDf IS PROVIDED (SECTION B)
  2. TRK IN AND TRK OUT JACKS LOCATED AT FRONT OF MGT SHELF
  3. CABLING BETWEEN UNITS IS NORMALLY INSTALLER-WIRED, NOT PATCH CONNECTIONS

Fig. 1—Test Connections for Out-of-Service Tests

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STEP	PROCEDURE
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6 Change the input test signal frequency to 1.8 MHz at -17.0 dBm.

7 Measure the 1.8-MHz test signal level at the OUT A or OUT B jack.

**Requirement:** -35.0 dBm  $\pm$ 0.2 dB.

**Note:** It may be necessary to reconduct Steps 1 through 7 to meet the requirements of Steps 5 and 7. Adjustment of the cable equalizer (EQL ADJ) to compensate for trunk loss may also affect the adjustment made in Step 2 or 5 or both.

If the requirement *is met*, proceed to Step 8.

8 Reconduct the adjustment of Steps 1 and 2 and, when the level is correctly set, remove all test connections and restore the trunks to normal. Proceed to Part C of this chart.

**B. Loss Adjustment and Slope Measurements—RCVG MGT to TRMTG MGT**

9 Remove the patch plug between the MG OUT and TRK IN jacks located on the RCVG BMG portion of the jack field on the MG TRANSLATOR in the circuit under test.

10 Apply a 0.6-MHz test signal at a level of -14.0 dBm to the TRK IN jack [patch (B) of Fig. 1].

11 Remove the patch plug between the TRK OUT and MG IN jacks on the TRMTG side of the MGT and measure the 0.6-MHz signal level at the TRK OUT jack [patch (D) of Fig. 1].

**Requirement:** Adjust the LEVEL ADJ control on the passive MGC under test for a measured level of -38.0 dBm at the TRK OUT jack.

12 Terminate the TRK OUT jack in the transmitting side of the MGT with 75 ohms. Remove the 442A termination from the TST jack on the faceplate of the MGC and measure the 0.6-MHz signal level at that jack [patch (E) Fig. 1].

**Requirement:** -37.7 dBm  $\pm$ 0.5 dB.

**Note:** Replace the 442A termination in the TST jack after this measurement and remove the 75-ohm termination from the TRK OUT jack.

13 Change the input test signal frequency to 3.0 MHz at -14.0 dBm.

14 Measure the 3.0-MHz test signal level at the TRK OUT jack.

**Requirement:** -38.0 dBm  $\pm$ 0.2 dB.

If the requirement *is not met*, adjust the EQL ADJ control on the MGC to meet the requirement.

15 Change the input test signal frequency to 1.8 MHz at -14.0 dBm.

## STEP

## PROCEDURE

16 Measure the 1.8-MHz test signal level at the TRK OUT jack.

**Requirement:** -38.0 dBm  $\pm$ 0.2 dB.

**Note:** It may be necessary to reconduct Steps 10 through 16 to meet the requirements of Steps 11, 12, and 14. Adjustment of the cable equalizer (to compensate for trunk loss) may also affect the adjustment made in Step 11 or 14 or both.

If the requirement *is met*, proceed to Step 17.

17 Reconduct the adjustment of Steps 10 and 11 and, when the level is correctly set, remove all test connections and restore the trunks to normal. Proceed to Part C of this chart.

**C. Pilot and Out-of-Band Suppression Tests**

18 Remove the patch plug between the MG OUT and TRK IN jacks located on the RCVG BMG portion of the jack field on the MG translator in the circuit under test.

19 Apply a 2840-kHz test signal at a level of -14.0 dBm to the TRK IN jack [patch (B) of Fig. 1] using a frequency counter to determine the exact frequency.

20 Remove the patch plug between the TRK OUT and MG IN jacks on the TRMTG side of the MGT and measure the 2840-kHz signal level at the TRK OUT jack [patch (D) of Fig. 1].

**Requirement:** -78 dBm or less (within 45 Hz of center frequency).

**Note:** -79 dBm is less.

21 Change the input test signal frequency to 3156 kHz at -14.0 dBm.

22 Measure the 3156-kHz test signal level at the TRK OUT jack.

**Requirement:** -48 dBm or less.

23 Change the input test signal frequency to 3162 kHz at -14.0 dBm.

24 Measure the 3162-kHz test signal level at the TRK OUT jack.

**Requirement:** -58 dBm or less.

25 Change the input test signal frequency to 3250 kHz at -14.0 dBm.

26 Measure the 3250-kHz test signal level at the TRK OUT jack.

**Requirement:** -78 dBm or less.

27 Change the input test signal frequency to 510 kHz at -14.0 dBm.

28 Measure the 510-kHz test signal level at the TRK OUT jack.

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STEP	PROCEDURE
	<b>Requirement:</b> -48 dBm or less.
29	Change the input test signal frequency to 500 kHz at -14.0 dBm.
30	Measure the 500-kHz test signal level at the TRK OUT jack.
	<b>Requirement:</b> -78 dBm or less.
31	Change the input test signal frequency to 396 kHz at -14.0 dBm.
32	Measure the 396-kHz test signal level at the TRK OUT jack.
	<b>Requirement:</b> -93 dBm or less.
	If the requirements of Steps 20, 22, 24, 26, 28, 30, and 32 are not met, the 1122B filter should be replaced and these tests reconducted.
	Remove all test connections and restore the trunks to normal.

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