

MASTERGROUP CONNECTOR J68882AP (MMX-2 TO MMX-2)

IN-SERVICE LOSS TESTS

COMMON EQUIPMENT

ANALOG MULTIPLEX TERMINAL EQUIPMENT

This section provides the procedures for in-service tests of the MMX-2 to MMX-2 mastergroup connector.

This section is reissued to clarify the test requirements, to correct errors, and to expand the test procedure. Arrows are used to indicate significant changes. **Equipment Test Lists are not affected.**

Mastergroup connector J68882AP (Fig. 1) is used to connect a basic mastergroup output signal from an MMX-2 receiving bay to the input of an MMX-2 transmitting bay. The connector is 2-way with like circuits in each direction of transmission. Each circuit provides equalization to compensate for different total lengths of both transmitting and receiving trunks, a filter to suppress unwanted signals outside the basic mastergroup band, a filter to eliminate the 2.840-MHz mastergroup pilot signal, and an adjustable gain to maintain proper transmission level.

The procedure for in-service loss tests of the connector circuit is as follows: first, the powers of supergroup pilots representing the low, mid, and high portions of the basic mastergroup spectrum are measured at the MG OUT B jack at the MMX-2 receiving bay. Then, the powers of these same signals are measured at the TST jack at the input to the MMX-2 transmitting bay. The powers of the signals at the TST jack should be 21 dB below the powers at the receiving MG OUT B jack. The loss at midband is adjusted via the ADJ control on the mastergroup connector module ED-50811 and the ADJ control on the associated plug-in 231D amplifier.

APPARATUS:

The tests in this section require suitable transmission test equipment. Refer to Section 356-010-500

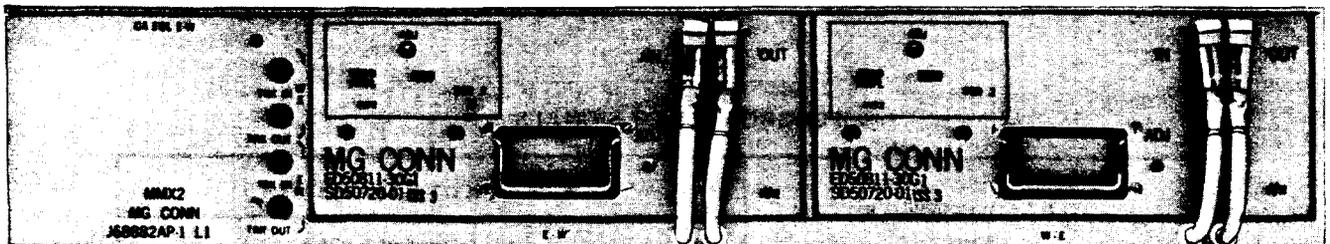


Fig. 1—Mastergroup Connector J68882AP

NOTICE

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and select from available equipment receiving units capable of detecting, from 75-ohm circuits, signals between 560 and 3090 kHz at powers between -55 and -34 dBm.

Patch Cords, as required.

STEP	PROCEDURE
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Note: This test is for one direction of transmission and is repeated for the other direction. Either the W-E or the E-W direction may be checked first.

- 1 ♦ Locate the MG OUT B jack (MMX-2 receiving bay) and the TST jack (MMX-2 transmitting bay) associated with the transmission path to be tested (Fig. 2).

Note: The MMX-2 receiving bay and the MMX-2 transmitting bay may be connected to the mastergroup connector via a mastergroup distribution frame.♦

At MMX-2 receiving bay,

- 2 Prepare the receiving test equipment for a 75-ohm terminated measurement of a midband pilot signal at a power of approximately -34 dBm.

Note: ♦ Measure, for the mastergroup under test, the supergroup 17 pilot signal at 1792.08 kHz (Table A), if present. Otherwise, measure a group or supergroup pilot signal present near the middle of the basic mastergroup spectrum. Group and supergroup pilot frequencies are listed in Section 356-010-520.♦

- 3 Patch the receiving test equipment to the MG OUT B jack for the mastergroup under test [patch (1) in Fig. 2].
- 4 Measure and record the power of the midband pilot signal at the MG OUT B jack.

Requirement: Pilot signal power is approximately -34 dBm.

TABLE A
SUPERGROUP PILOT SIGNALS

PILOT FREQUENCIES (kHz)	NOMINAL PILOT SIGNAL POWER	
	MMX-2 Receiving Bay MG OUT B Jack	MMX-2 Transmitting Bay TST Jack
Low: SG13 800.08	-34 dBm	-55 dBm
Midband: SG17 1792.08		
High: SG28 3080.08		

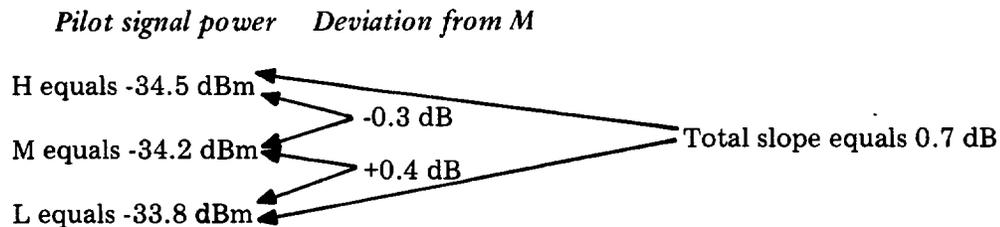
STEP

PROCEDURE

- 5 Repeat Steps 2 through 4 for a pilot signal near the low end and for a pilot signal near the high end of the basic mastergroup spectrum.

Note: Measure the SG13 and SG28 pilot signals (Table A), if present. Otherwise, measure a group or supergroup pilot signal present near the low end and near the high end of the mastergroup band. Pilot frequencies are listed in Section 356-010-520.

Example 1: ♦ Assume test results as shown below where H, M, and L represent the high, midband, and low frequency pilot signal powers at the MG OUT B jack.



These values reveal that the midband pilot signal is received 0.2 dB low and there is excessive slope across the basic mastergroup band at the MMX-2 receiving bay.

Both of these conditions can be corrected at upstream station(s) where the basic mastergroup band appears.♦

At MMX-2 transmitting bay,

- 6 Prepare the receiving test equipment for a 75-ohm terminated measurement of the midband pilot signal at approximately -55 dBm.
- 7 Patch the receiving test equipment to the TST jack for the mastergroup under test [patch (2) in Fig. 2].
- 8 Measure and record the power of the midband pilot signal at the TST jack.

Note: Nominal pilot signal power at the TST jack is -55 dBm.

Requirement: Pilot signal power is 21.0 ±0.1 dB below the midband pilot signal power at the MG OUT B jack, recorded in Step 4.

Example 2: ♦ Assume the midband pilot signal power at the MG OUT B jack is -34.2 dBm. The midband pilot signal power required at the TST jack equals -34.2 dBm minus 21.0 dB ±0.1 dB equals -55.2 dBm ±0.1 dB.♦

- 9 Proceed to Step 17 if the requirement is met. Otherwise, proceed to Step 10.

STEP	PROCEDURE
	<i>At mastergroup connector under test,</i>
10	◆Set the ADJ control on the 231D amplifier in the transmission path under test for <i>minimum</i> gain.
11	Adjust the ADJ control at the lower right on the associated mastergroup connector module ED-50811 to meet the requirement in Step 8, if possible.
12	Adjust the ADJ control on the 231D amplifier, if required, to meet the requirement in Step 8.
	<i>Note:</i> If the mastergroup connector is connected to the MMX-2 transmitting bay via a mastergroup distribution frame (MGDF), the trunk from the MGDF to the MMX-2 transmitting bay includes a 263A amplifier with a fixed gain of 20 dB. Test procedures for the MGDF are explained in Section 356-005-501.◆
13	Proceed to Step 17 if the requirement of Step 8 can be met. Otherwise, proceed to Step 14.
14	◆Remove the mastergroup connector circuit from service.
15	Perform tests as prescribed in Section 356-027-502.
	<i>Note:</i> ◆Section 356-027-502 explains procedures for loss adjustment, slope measurement, and cable equalizer adjustment on an out-of-service basis. A cable equalizer should not be adjusted on an in-service basis because of the possibility of a service interruption.◆
16	Repeat Steps 1 through 13, as required.
	<i>At MMX-2 transmitting bay,</i>
17	Measure and record the power of the low end and high end pilot signals at the TST jack.
	<i>Requirement:</i> The power of each pilot shall be within ± 0.2 dB of the midband pilot signal power recorded in Step 8.
	<i>Example 3:</i> ◆Assume the midband pilot signal power at the TST jack is -55.2 dBm. The midband pilot signal power required for the low end and high end pilot signals is -55.2 dBm ± 0.2 dB.◆
18	Proceed to Step 19 if the requirement is met for both the low end and high end pilot signals. Otherwise, repeat Steps 1 through 17, as required.
19	Repeat the procedure in this chart for the other direction of transmission through the mastergroup connector under test.
20	Remove all test equipment.

STEP	PROCEDURE
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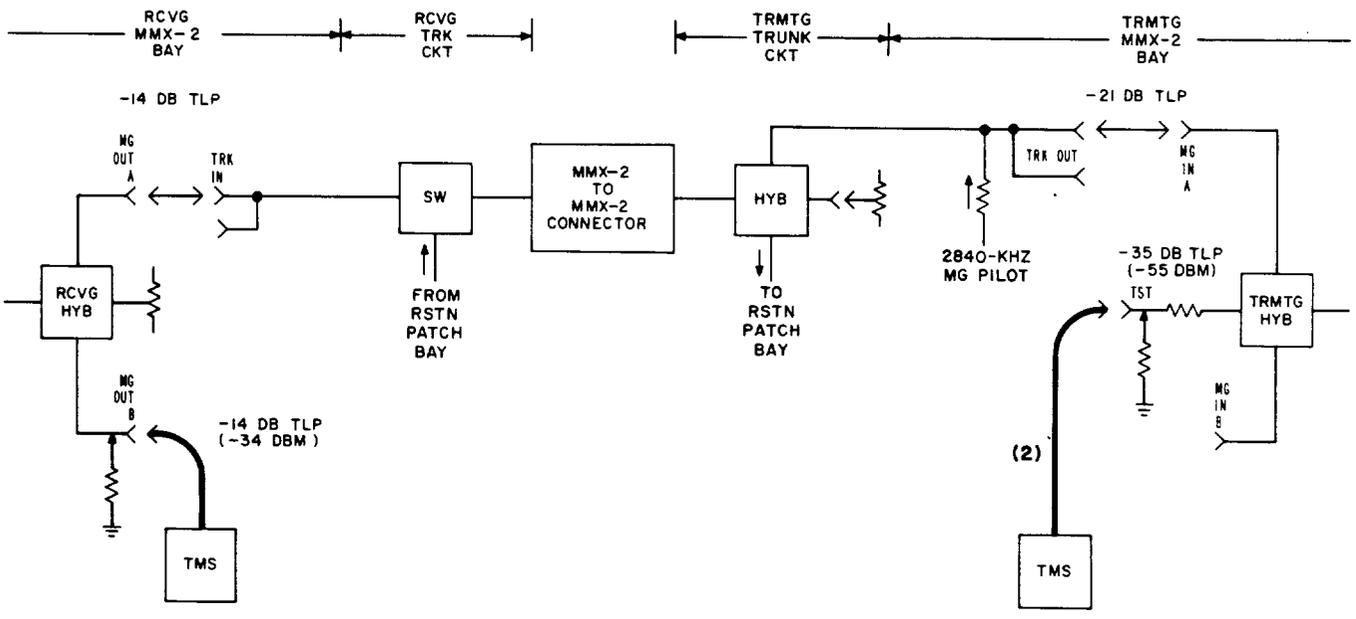


Fig. 2—Mastergroup Connector Test Connections