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

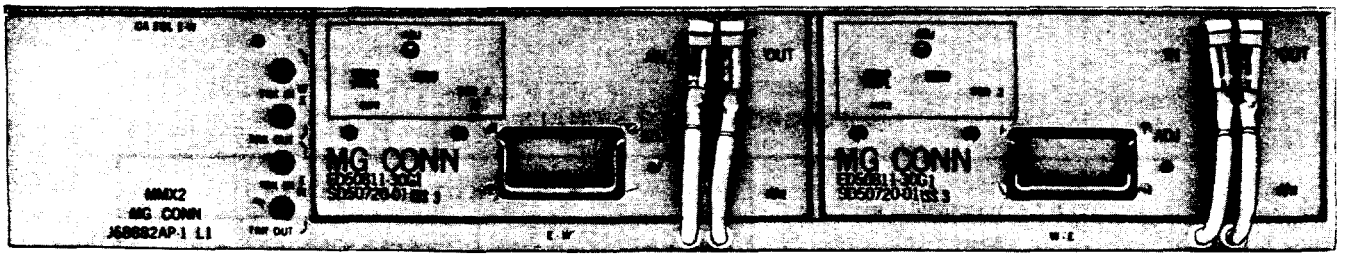


Fig. 1—▶Mastergroup Connector J68882AP◀

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

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

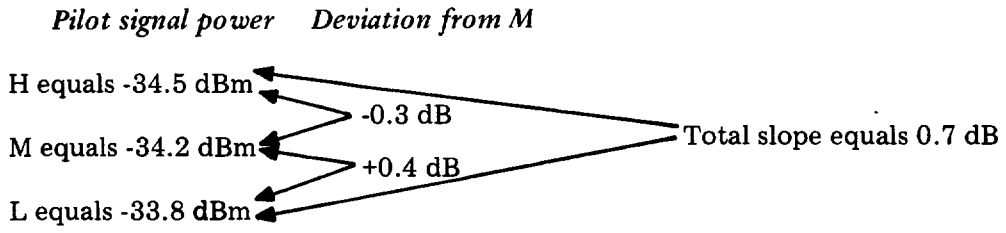
PILOT FREQUENCIES (kHz)			NOMINAL PILOT SIGNAL POWER	
			MMX-2 Receiving Bay MG OUT B Jack	MMX-2 Transmitting Bay TST Jack
Low:	SG13	800.08	-34 dBm	-55 dBm
Midband:	SG17	1792.08		
High:	SG28	3080.08		

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

At mastergroup connector under test,

10 ◗Set the ADJ control on the 231D amplifier in the transmission path under test for ***minimum*** 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.

Note: 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.

Note: ◗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.

At MMX-2 transmitting bay,

17 Measure and record the power of the low end and high end pilot signals at the TST jack.

Requirement: The power of each pilot shall be within ±0.2 dB of the midband pilot signal power recorded in Step 8.

Example 3: ◗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

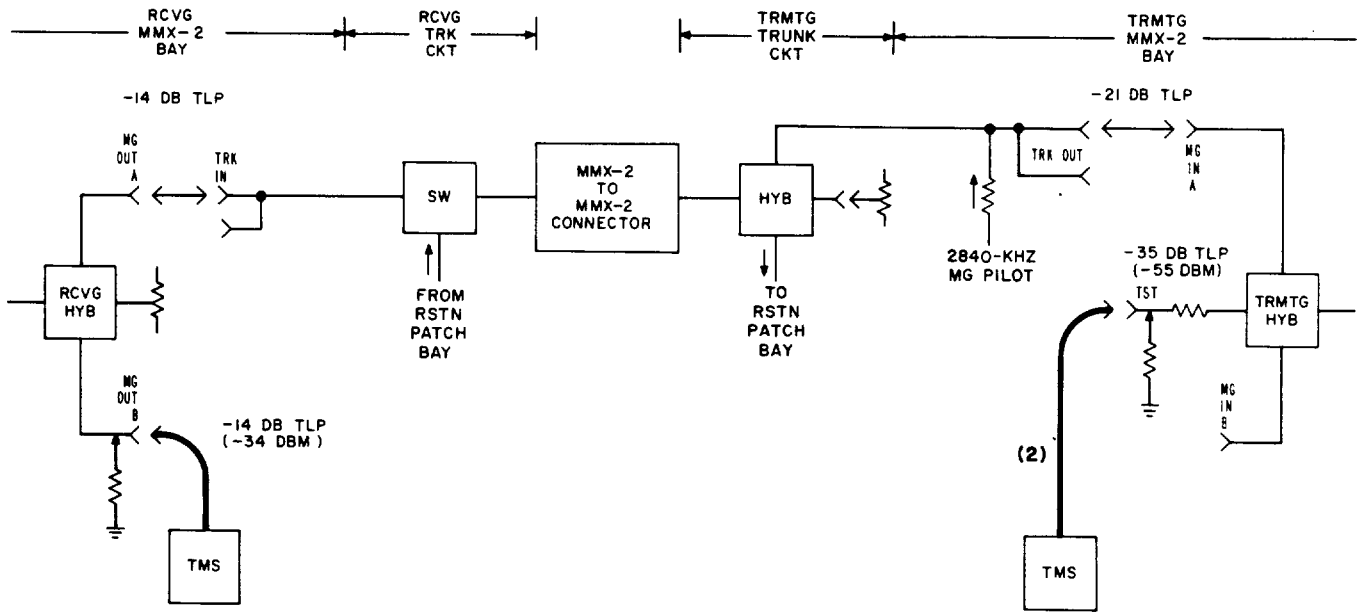


Fig. 2—Mastergroup Connector Test Connections