
MASTERGROUP CONNECTOR J68882AW (MMX-1 AND MMX-2)
IN-SERVICE TESTS
COMMON EQUIPMENT
ANALOG MULTIPLEX TERMINAL EQUIPMENT

Mastergroup connector J68882AW (Fig. 1) contains two separate transmission paths for interconnecting basic mastergroup signals (564 to 3084 kHz) between MMX-1 and MMX-2 terminals. One transmission path connects the basic mastergroup signal from a receiving MMX-2 terminal to a transmitting MMX-1 terminal. The other transmission path connects the basic mastergroup signal from a receiving MMX-1 terminal to a transmitting MMX-2 terminal.

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

Regular and spare mastergroup connectors are provided. Regular connectors are connected via basic mastergroup trunks or a mastergroup distribution frame (MGDF) to the MMX terminals. Spare connectors are arranged with trunk access to the message service restoration patch bay for restoration service if required. For a more detailed description of the connector, see Section 356-028-100.

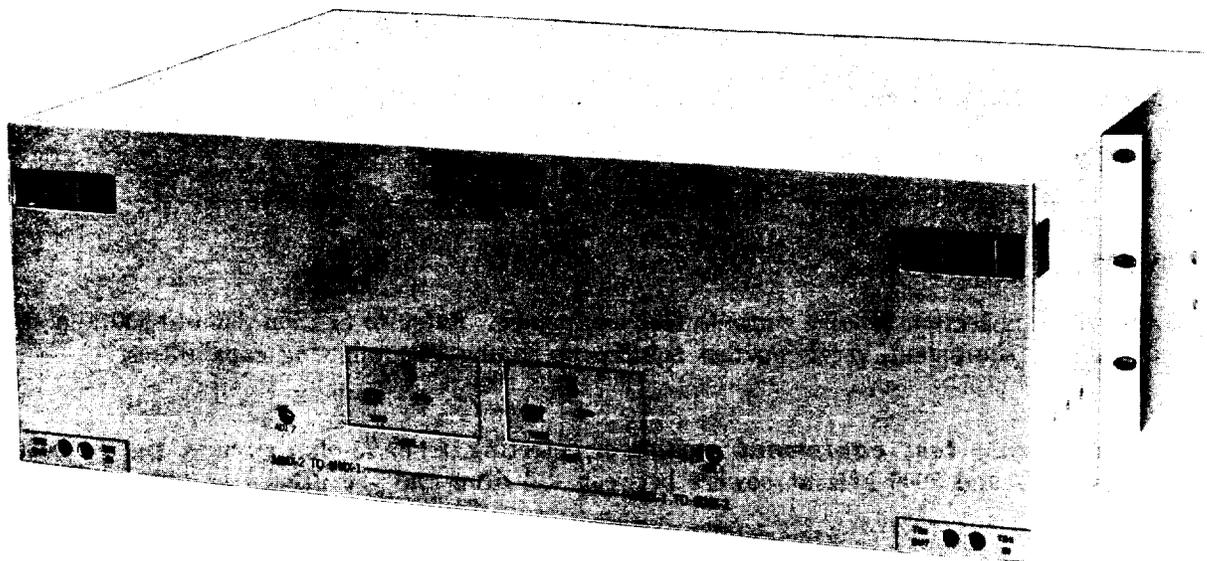


Fig. 1—Mastergroup Connector J68882AW

NOTICE

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

In-service loss adjustments are performed only on regular mastergroup connectors. Spare mastergroup connectors are tested on an out-of-service basis as prescribed in Section 356-028-502.

The procedure for in-service loss tests of a regular mastergroup connector is as follows:

- (1) The power of supergroup pilots representing the low, mid, and high portions of the basic mastergroup spectrum are measured at the receiving multiplex terminal.
- (2) The power of these same signals is measured at the transmitting multiplex terminal.
- (3) The loss of each transmission path through the mastergroup connector is adjusted via an ADJ control on the connector.

If any requirement of these tests cannot be met, remove the mastergroup connector from service and test as prescribed in Section 356-028-502.

ATTENTION: The pilot signals specified in these procedures should be used, if present. If necessary, use other group or supergroup pilot signals that are present near the low, mid, and high portions of the basic mastergroup spectrum. The level requirements specified are applicable for all group and supergroup pilots. Group and supergroup pilot signals are listed in Section 356-010-520.

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APPARATUS:

The tests in this section require suitable test equipment. Refer to Section 356-010-500 and select, from available equipment, receiving test equipment having the following capabilities:

Receiving test equipment capable of detecting, from 75-ohm circuits, signals between 500 kHz and 3000 kHz at powers between -15 dBm and -80 dBm.

In addition to the above, the following are required:

11B Attenuator

P2BJ Cords.

CHART 1

MMX-1 TO MMX-2 CIRCUIT

STEP	PROCEDURE
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Note: See Fig. 2 for test arrangements.

At high frequency patch bay for receiving MMX-1 terminal,

- 1 Prepare the receiving test equipment for a 75-ohm terminated measurement of the midband SG17 pilot signal (1792.08 kHz) at a power of approximately -34 dBm.

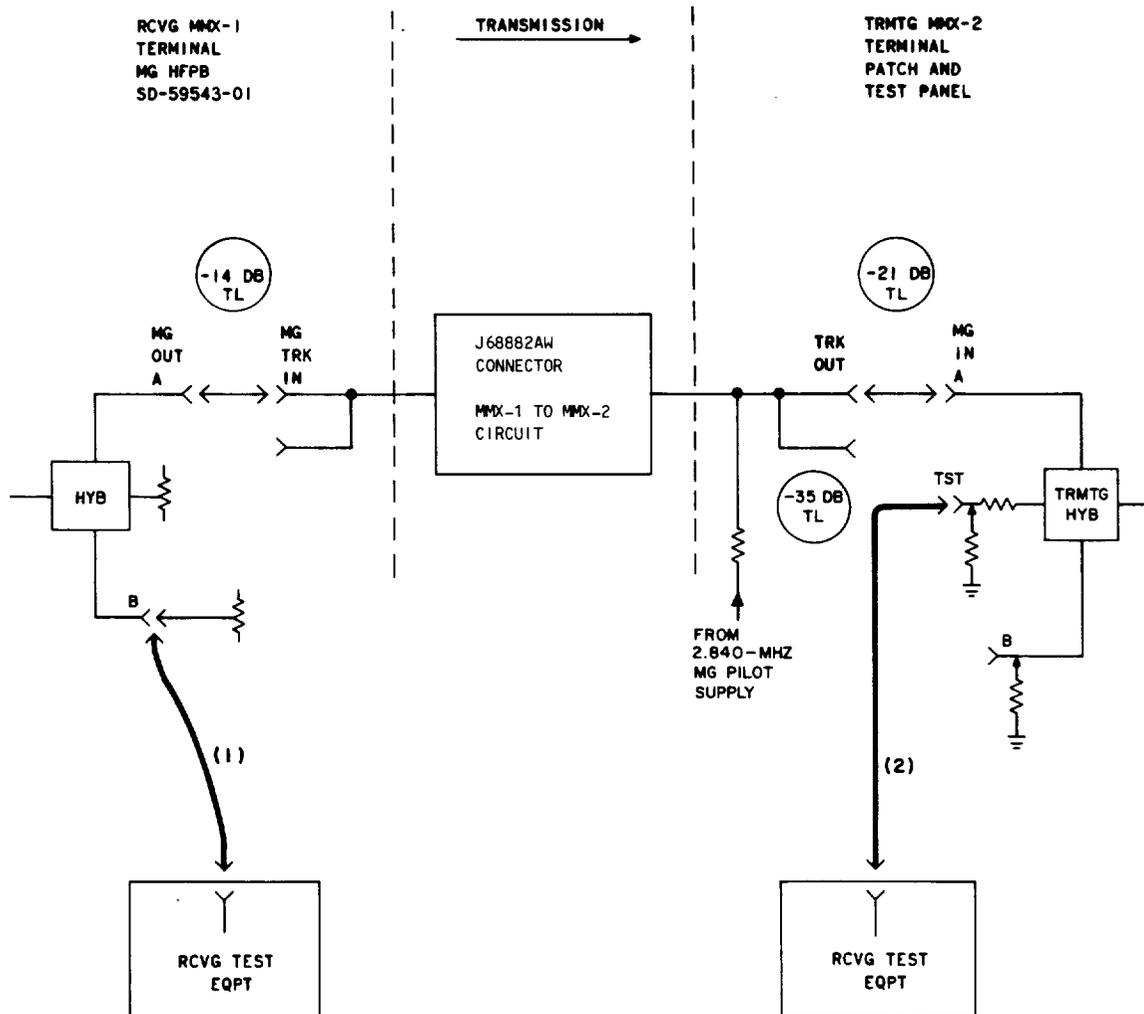


Fig. 2—Mastergroup Connector—MMX-1 to MMX-2 Test Arrangement

CHART 1 (Contd)

STEP	PROCEDURE
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◆**Note:** For the transmission path from an L3 carrier line or a wire line entrance link to an MMX-2 transmitting terminal, measure at the multiple WKG LINE OUT jack using an 11B attenuator. Nominal measured pilot power at the WKG LINE OUT jack is -10 dB TL minus 20-dB pilot level minus 30-dB loss in the 11B attenuator equals -60 dBm.◆

- 2 Remove the 75-ohm terminating plug from the MG OUT B jack for the mastergroup under test.
 - 3 Connect 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 SG17 pilot signal (1792.08 kHz).
- Requirement:** Approximately -34 dBm.
- 5 Repeat Steps 1 and 4 at the low and high supergroup pilot signals (Table A).
 - 6 Remove the test equipment from the MG OUT B jack.
 - 7 Reinstall the 75-ohm terminating plug in the MG OUT B jack.

At transmitting MMX-2 terminal,

- 8 Prepare the receiving test equipment for a 75-ohm terminated measurement of the midband SG17 pilot signal (1792.08 kHz) at a power of approximately -55 dBm.
- 9 Patch the receiving test equipment to the TST jack for the mastergroup under test in the transmitting MMX-2 terminal [patch (2) in Fig. 2].
- 10 Measure and record the power of the midband SG17 pilot signal (1792.08 kHz).

◆ TABLE A ◆

MMX-1 to MMX-2 TRANSMISSION PATH — TEST FREQUENCIES AND POWERS		
SUPERGROUP PILOT SIGNALS	NOMINAL POWER	
	RCVg MMX-1 TERMINAL (MG OUT B JACK)	TRMTG MMX-2 TERMINAL (TST JACK)
LOW [SG13 (800.08 kHz)]	↑	↑
MID [SG17 (1792.08 kHz)]	-34 dBm	-55 dBm
HIGH [SG28 (3080.08 kHz)]	↓	↓

CHART 1 (Contd)

STEP	PROCEDURE
	Requirement: 21.0 \pm 0.1 dB below the value recorded in Step 4 (-55 dBm is nominal).
11	Proceed to Step 15 if the requirement is met. Otherwise, proceed to Step 12.
12	Adjust the ADJ 1 control on the mastergroup connector to meet the requirement.
13	Adjust the ADJ control of the 231D amplifier (AMPL 1), if necessary, to meet the requirement.
	Note: If the requirement of Step 10 cannot be met, the transmission path through the mastergroup connector is assumed to be faulty. 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.
14	Remove the circuit from service and test as prescribed in Section 356-028-502.
15	Repeat Steps 8 through 10 at the low [SG13 (800.08 kHz)] and the high [SG28 (3080.08 kHz)] pilot signals.
	Requirement: The power of each pilot signal is within \pm 0.2 dB of the midband pilot signal power recorded in Step 10.
16	Proceed to Step 18 if the requirement is met. Otherwise, proceed to Step 17.
17	Remove the circuit from service and test as prescribed in Section 356-028-502.
18	Remove the test equipment patch.

CHART 2

MMX-2 TO MMX-1 CIRCUIT

STEP	PROCEDURE
	Note: See Fig. 3 for test arrangements. At the transmitting MMX-1 terminal, an 11B attenuator is used to bridge the test equipment onto the line.
	At receiving MMX-2 terminal,
1	Prepare the receiving test equipment for a 75-ohm terminated measurement of the midband SG17 pilot signal (1792.08 kHz) at a power of approximately -34 dBm.

CHART 2 (Contd)

STEP	PROCEDURE
	<p>◆Note: For the transmission path from an MMX-2 receiving terminal to an L3 carrier line or a wire line entrance link, measure at the multiple LINE HYB OUT A jack using an 11B attenuator. Nominal measured pilot power at the LINE HYB OUT A jack is -53.3 dB TL minus 20-dB pilot level minus 30-dB loss in the 11B attenuator equals -103.3 dBm.◆</p>
2	Patch the receiving test equipment into the MG OUT B jack for the mastergroup under test [patch (1) in Fig. 3].
3	Measure and record the power of the midband SG17 pilot signal (1792.08 kHz).
	<p>Requirement: Approximately -34 dBm.</p>
4	Repeat Steps 1 through 3 at the low and high supergroup pilot signals (Table B).
5	Remove the test equipment patch from the MG OUT B jack.
	<p>At high frequency patch bay for transmitting MMX-1 terminal,</p>
6	Prepare the receiving test equipment for a bridged measurement of the midband SG17 pilot signal (1792.08 kHz) at a power of approximately -71 dBm.
7	Bridge the receiving test equipment through an 11B attenuator onto the line at the MG CONN OUT B jack [patch (2) in Fig. 3].
8	Measure and record the detected power of the midband SG17 pilot signal (1792.08 kHz).
	<p>Note: The detected power includes the 30-dB loss of the 11B attenuator; the required nominal pilot power is -41 dBm.</p>
	<p>Requirement: 37.0 ±0.1 dB below the value recorded in Step 3 (-71 dBm is nominal).</p>
9	Proceed to Step 13 if the requirement is met. Otherwise, proceed to Step 10.
10	Adjust the ADJ 2 control on the mastergroup connector to meet the requirement.
11	Adjust the ADJ control of the 231D amplifier (AMPL 2), if necessary, to meet the requirement.
	<p>Note: If the requirement of Step 8 cannot be met, the transmission path through the mastergroup connector is assumed to be faulty. ◆If the mastergroup connector is connected to the MMX-1 transmitting bay via a mastergroup distribution frame (MGDF), the trunk from the MGDF to the MMX-1 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.◆</p>
12	Remove the circuit from service and test as prescribed in Section 356-028-502.

CHART 2 (Contd)

STEP	PROCEDURE
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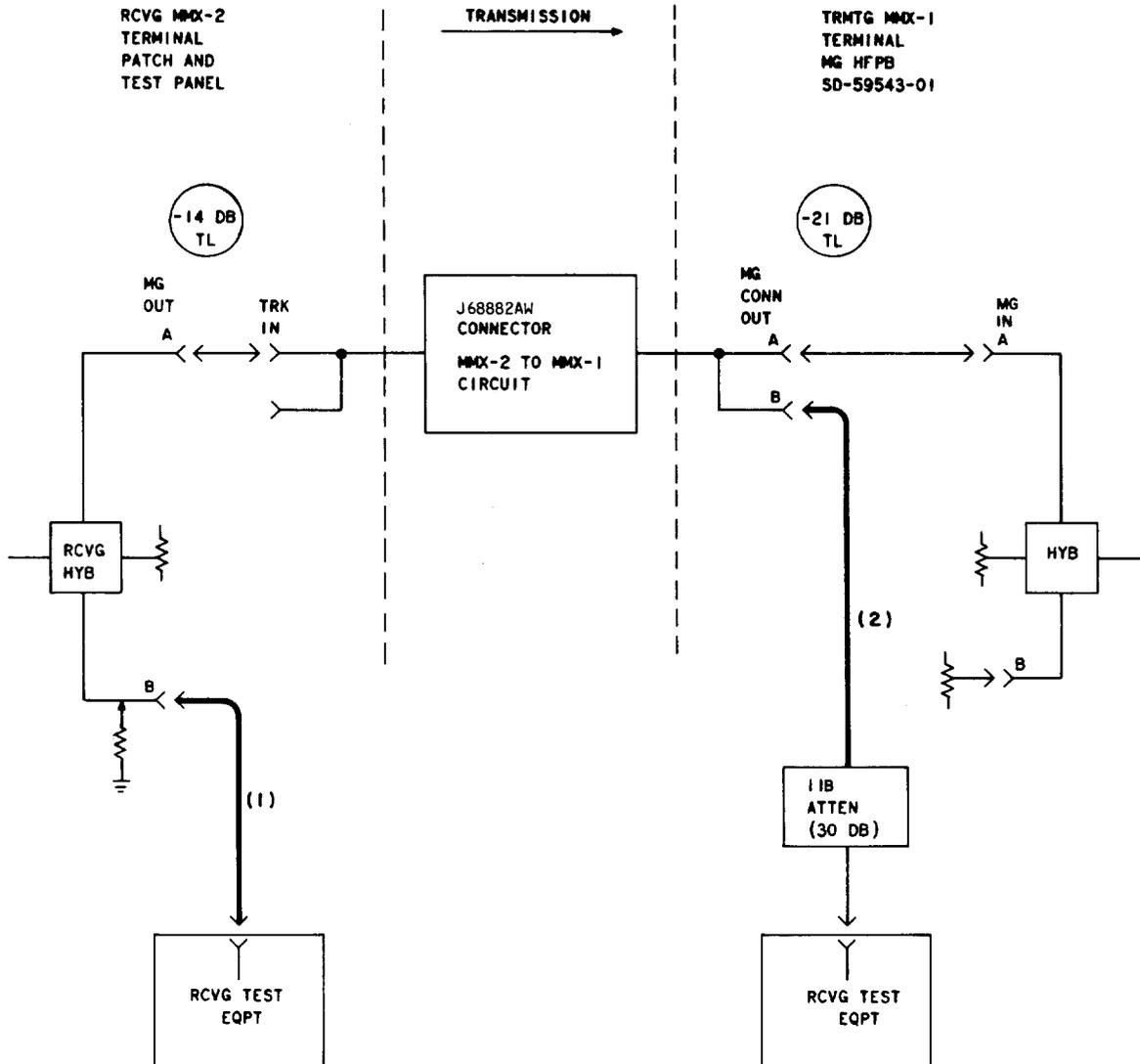


Fig. 3—Mastergroup Connector—MMX-2 to MMX-1 Test Arrangement

CHART 2 (Contd)

STEP	PROCEDURE
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TABLE B

MMX-2 to MMX-1 TRANSMISSION PATH — TEST FREQUENCIES AND POWERS		
SUPERGROUP PILOT SIGNALS	NOMINAL POWER	
	RCVG MMX-2 TERMINAL (MG OUT B JACK)	TRMTG MMX-1 TERMINAL (MG CONN OUT B JACK)
LOW [SG13 (800.08 kHz)]	↑	↑
MID [SG17 (1792.08 kHz)]	-34 dBm	-41 dBm
HIGH [SG28 (3080.08 kHz)]	↓	↓

13 Repeat Steps 6 through 8 at the low [SG13 (800.08 kHz)] and the high [SG28 (3080.08 kHz)] pilot signals.

- **Requirement:** The power of each pilot signal is within ± 0.2 dB of the midband pilot signal power recorded in Step 8.

14 Proceed to Step 16 if the requirement is met. Otherwise, proceed to Step 15.

15 Remove the circuit from service and test as prescribed in Section 356-028-502.

16 Remove the test equipment patch.