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

This section provides procedures for out-of-service tests of mastergroup connector J68882AW (Fig. 1) and associated trunks. Included are transmission measurements, overall loss adjustments, cable equalizer adjustments, and pilot elimination tests for each direction of transmission for both regular and spare mastergroup connectors. Tests of the lamp circuits associated with the spare mastergroup connector are also included.

This section is reissued to clarify the test procedures. Arrows are used to indicate significant changes. ***Equipment Test Lists are not affected.***

In earlier mastergroup connectors, cable plugs at the rear of the drawer may separate from the jacks as the drawer is ***opened.*** The left rear corner of the drawer may pull on the cable and battery leads as the drawer is ***closed.***

Caution: Use care, both when opening and when closing the drawer, to avoid trouble.

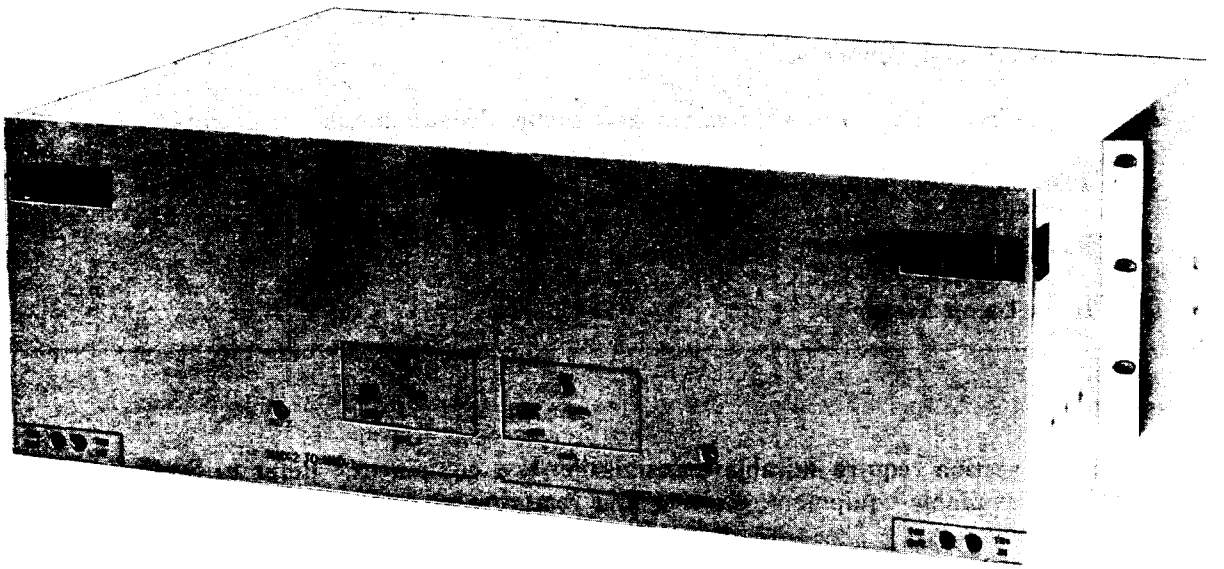

Fig. 1—Mastergroup Connector J68882AW

Mastergroup connector J68882AW (Fig. 1) provides two transmission paths for interconnecting basic mastergroup signals (564 to 3084 kHz) between MMX-1 and MMX-2 terminals. One path connects the basic mastergroup signal from an MMX-1 receiving bay to an MMX-2 transmitting bay; the other path connects the basic mastergroup signal from an MMX-2 receiving bay to an MMX-1 transmitting bay.

Regular and spare mastergroup connectors are provided. A ***regular*** mastergroup connector is connected via basic mastergroup trunks ▶or a mastergroup distribution frame (MGDF)◀ to the MMX terminals. A ***spare*** mastergroup connector may be connected via trunks to the restoration patch bay. Lamps are provided in the spare mastergroup connector and in the restoration patch bay to indicate the status of the ***spare*** mastergroup connector.

These tests may be conducted either to assure that a mastergroup connector is operating properly prior to placing in service or to check a suspected mastergroup connector that has been removed from service.

CHART **PAGE**

APPARATUS:

The tests in this section require suitable transmission test 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, into 75-ohm circuits, signals between 0.5 MHz and 3.2 MHz at powers between -5 dBm and -35 dBm

Receiving test equipment capable of detecting, from 75-ohm circuits, signals between 0.5 MHz and 3.2 MHz at powers between -10 dBm and -95 dBm.

Note: A frequency counter is required for the ***alternate*** method of performing the pilot elimination tests in this section.

CHART 1

REGULAR MASTERGROUP CONNECTOR

STEP	PROCEDURE

A. Center-Frequency Loss Adjustment and Slope Measurements

Note: The procedures for the MMX-1 to MMX-2 and the MMX-2 to MMX-1 transmission paths are similar. For the MMX-2 to MMX-1 path, read only the ***italicized*** information in parentheses. For the MMX-1 to MMX-2 path, disregard the italicized information in parentheses. ▶Either transmission path can be checked first and the test repeated, if required, for the other transmission path. Before starting this test, perform the following:

(a) Check that the transmission path to be tested is out of service.

(b) Locate the test jacks (Fig. 2) for the transmission path to be tested.

(c) Locate the mastergroup connector and the controls in the transmission path to be tested.◀

Loss Adjustments

At MMX receiving bay,

1 Apply a 1.8-MHz test signal at -14 dBm to the MG TRK IN (***TRK IN***) jack in the MMX-1 ***(MMX-2)*** receiving bay [patch 1 ***(3)***, Fig. 2].

Note: Remove the patch plug between this jack and the adjacent MG OUT A jack for the tests in this chart.

At MMX transmitting bay,

2 Measure the 1.8-MHz power at the TRK OUT ***(MG CONN OUT)*** jack in the MMX-2 ***(MMX-1)*** transmitting bay [patch 2 ***(4)***, Fig. 2].

Note: Remove the patch plug between this jack and the adjacent MG IN A jack. For an MMX-2 terminal, this action removes the 2.840-MHz mastergroup pilot and a loss-of-pilot alarm results. Depress the alarm cutoff pushbutton lamp, between the carrier and pilot test panels, to silence the alarm.

Requirement: -21.0 dBm ±0.1 dB

CHART 1 (Contd)

STEP	PROCEDURE
3	Proceed to Step 8 if the requirement is met. Otherwise, proceed to Step 4.
	At mastergroup connector,
4	Adjust the ADJ 1 ***(ADJ 2)*** control on the front panel of the mastergroup connector to meet the requirement.
5	Adjust the ADJ control on the adjacent 231D amplifier, if necessary, to meet the requirement.
6	Proceed to Step 8 if the requirement is met. Otherwise, replace the 231D amplifier and proceed to Step 7.
7	Repeat Steps 2 through 6, as required.

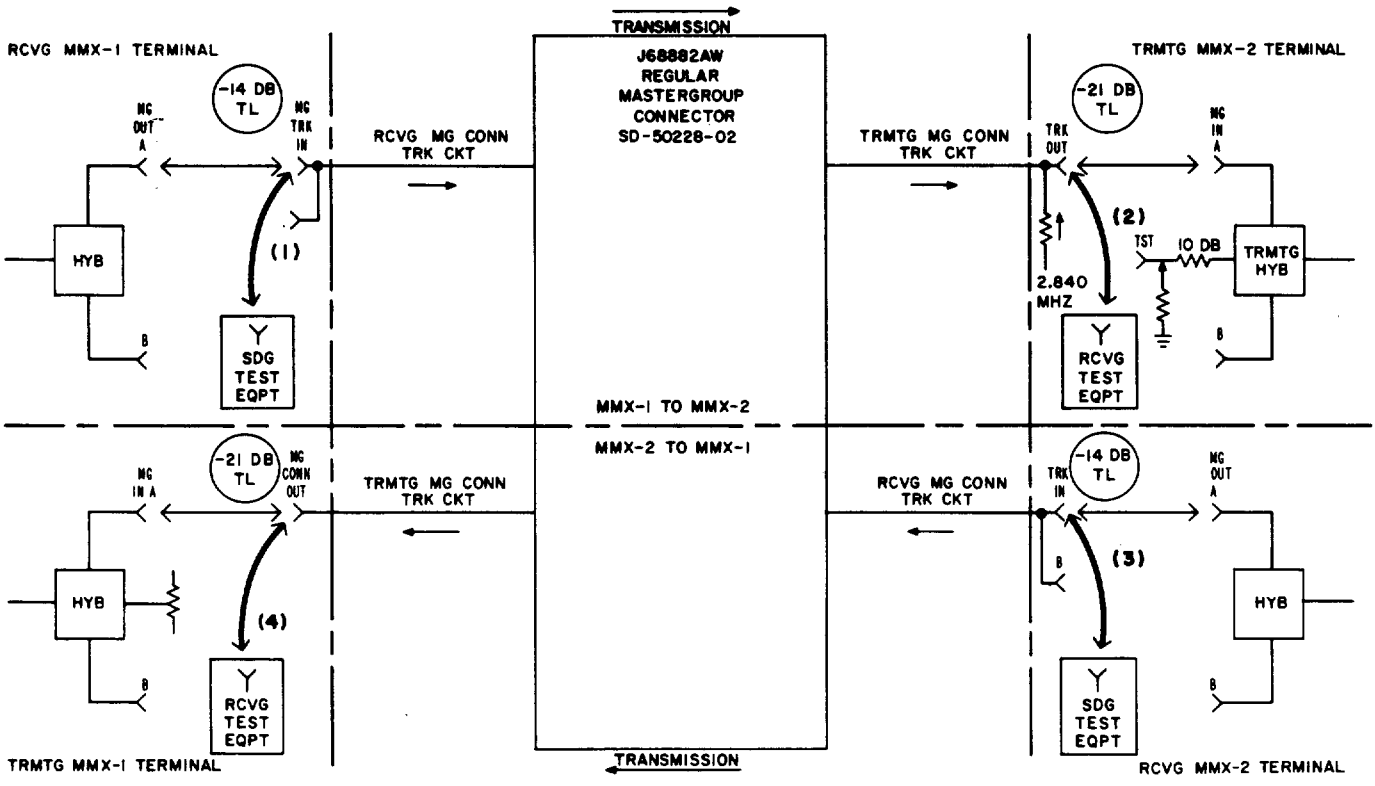

Fig. 2—Regular Mastergroup Connector Test Connections

CHART 1 (Contd)

STEP	PROCEDURE

Note: In case of trouble, continue signal tracing in the mastergroup connector and the trunk circuits. ⧫Test procedures for the mastergroup distribution frame are explained in Section 356-005-501.⧫

Slope Measurements

At MMX receiving bay,

8 Apply a 0.6-MHz test signal at -14 dBm to the MG TRK IN ***(TRK IN)*** jack [patch 1 ***(3)***, Fig. 2].

At MMX transmitting bay,

9 Measure and record the 0.6-MHz power at the TRK OUT ***(MG CONN OUT)*** jack [patch 2 ***(4)***, Fig. 2].

10 Repeat Steps 8 and 9 for a 3.0-MHz test signal.

Requirement: The 3.0-MHz signal power shall be within ±0.4 dB of the 0.6-MHz signal power.

11 Proceed to Part C of this chart to check the pilot elimination filter if the requirement is met. Otherwise, proceed to Part B of this chart to adjust the appropriate 210B cable equalizer in the mastergroup connector.

B. Cable Equalizer Adjustments

At mastergroup connector,

Caution: Use care, both when opening and when closing the drawer, to avoid trouble.

12 Set the cable equalizer screw switches, as indicated on the top line in Table A, to provide 0.0-dB slope correction.

At MMX receiving bay,

13 Apply a 3.0-MHz test signal at -14 dBm to the MG TRK IN ***(TRK IN)*** jack in the MMX-1 ***(MMX-2)*** receiving bay.

At MMX transmitting bay,

14 Measure and record the 3.0-MHz power at the TRK OUT ***(MG CONN OUT)*** jack in the MMX-2 ***(MMX-1)*** transmitting bay.

15 Repeat Steps 13 and 14 for a 0.6-MHz test signal.

TABLE A

210B EQUALIZER SETTING

SLOPE IN DB (0.5 TO 3.0 MHZ)	● INDICATES SCREWS TIGHTENED DOWN (ALL OTHERS WELL UP)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0.0	●	●	●	●	●	●	●									●		●		●		●		
0.125		●	●	●	●	●	●		●							●		●		●		●		
0.250			●	●	●	●	●		●	●						●		●		●		●		
0.375				●	●	●	●		●	●	●					●		●		●		●		
0.50					●	●	●		●	●	●	●				●		●		●		●		
0.625						●	●		●	●	●	●	●			●		●		●		●		
0.75	●	●	●	●	●	●		●							●	●			●			●		
0.875		●	●	●	●	●		●	●						●	●			●			●		
1.0			●	●	●	●		●	●	●					●	●			●			●		
1.125				●	●	●		●	●	●	●				●	●			●			●		
1.25					●	●		●	●	●	●	●			●	●			●			●		
1.375						●		●	●	●	●	●	●		●	●			●			●		
1.50	●	●	●	●	●	●	●									●			●		●		●	
1.625		●	●	●	●	●	●		●							●			●		●		●	
1.75			●	●	●	●	●		●	●						●			●		●		●	
1.875				●	●	●	●		●	●	●					●			●		●		●	
2.0					●	●	●		●	●	●	●				●			●		●		●	
2.125						●	●		●	●	●	●	●			●			●		●		●	
2.25	●	●	●	●	●	●	●										●		●			●		●
2.375		●	●	●	●	●	●		●								●		●			●		●
2.50			●	●	●	●	●		●	●							●		●			●		●
2.625				●	●	●	●		●	●	●						●		●			●		●
2.75					●	●	●		●	●	●	●					●		●			●		●
2.875						●	●		●	●	●	●	●				●		●			●		●
3.0							●		●	●	●	●	●	●			●		●			●		●

Caution: Use a torque screwdriver for closing screw switches to ensure a good electrical contact. Tighten 5 to 7 inch-pounds for original 4-40 screws and 7 to 9 inch-pounds for replacement 5-40 screws.

CHART 1 (Contd)

STEP	PROCEDURE

16 Determine the amount of slope correction required.

Note: Slope correction required equals the difference between the 0.6-MHz power and the 3.0-MHz power.

Example 1:

Power of 3.0-MHz signal equals -22.3 dBm

Power of 0.6-MHz signal equals -20.7 dBm

Difference equals 1.6 dB.

At mastergroup connector,

17 ♦Set the 210B cable equalizer screw switches according to Table A to provide the slope correction required, and then repeat Steps 13 through 15 to check the equalization.

Example 2:

Slope correction required is 1.6 dB.

Screws to be tightened down are 2 through 7, 9, 16, 19, 21, and 23.

Requirement: Signal power at 3 MHz is within ±0.2 dB of the 0.6 MHz signal power at the TRK OUT (***MG CONN OUT***) jack.

18 Repeat the center-frequency loss adjustment procedure in Part A of this chart and then proceed to Part C of this chart to check the pilot elimination filter.♦

C. Pilot Elimination Tests

Pilot elimination filter options are provided in the MMX-1 to MMX-2 transmission path in the mastergroup connectors. A pilot elimination filter to block the 2.840-MHz mastergroup pilot is provided in the MMX-2 to MMX-1 transmission path. Due to the narrow bandwidth of the pilot elimination filters, the test signals used must be at the correct frequencies to obtain valid results. Two methods are explained for these tests: the ***preferred*** method uses pilot signals obtained from a multiplex receiving terminal; the ***alternate*** method uses test signals from sending test equipment set to the exact frequency by means of a frequency counter.

MMX-1 to MMX-2 Transmission Path

19 Determine which pilot frequencies are blocked in the regular mastergroup connector by comparing the list numbers with the information in Table B.

CHART 1 (Contd)

STEP	PROCEDURE
20	Proceed with the ***preferred*** method in Steps 21 through 24, if possible. Otherwise, proceed with the ***alternate*** method in Steps 25 through 27. ***Preferred Method*** ***At MMX receiving bay,***
21	Measure and record the power of each of the appropriate L3 carrier pilot signals at an SP MG OUT B jack. ***Note:*** ◗The L3 carrier pilot frequencies are listed in Table B. The nominal power of these pilot signals at the MG OUT jacks is -29 dBm, except for -19 dBm for the 2.066-MHz pilot (translated from 7.266-MHz pilot at -5 dBm0).◖
22	Connect the signals from this MG OUT B jack to the ◗MG TRK IN jack◖ of the mastergroup connector under test.
23	Measure and record the power of these pilot signals at the TRK OUT jack [patch (2), Fig. 2].

◗TABLE B◖

PILOTS BLOCKED IN MASTERGROUP CONNECTORS

MMX-1 to MMX-2 Transmission Path:					
List numbers of mastergroup connectors		Filter Included	Pilots Blocked (MHz)	Minimum Loss of Filter at Pilot (dB)	Minimum Loss Between SP MG CONN IN and SP MG CONN OUT jacks at Pilot (dB)
Regular	Spare				
L1, (2)	L5, (2)	629B	0.556 2.064 3.096	37 50 48	29.1 42.1 42.6
L1, (4)	L5, (4)	629C	2.066 3.120	50 48	42.1 42.6
L1, (3)	L5, (3)	None	None	None	None
MMX-2 to MMX-1 Transmission Path:					
In all mastergroup connectors, the 2.840-MHz mastergroup pilot is blocked by a 761A filter with a minimum discrimination of 38 dB at the pilot.					

CHART 1 (Contd)

STEP	PROCEDURE

Requirement: ◗A minimum loss at each pilot frequency, as follows: 41.5 dB at 0.556 MHz, 54.5 dB at 2.064 or 2.066 MHz, and 52.5 dB at 3.096 or 3.120 MHz.◖

24 Proceed to Step 28 to check the MMX-2 to MMX-1 transmission path.

Alternate Method

25 Apply a test signal at each of the appropriate pilot frequencies at -10 dBm to the MG TRK IN jack [patch (1), Fig. 2].

Note: The pilot frequencies are listed in Table B. Use a frequency counter to set a test signal to the exact frequency.

26 Measure and record the power at the TRK OUT jack [patch (2), Fig. 2].

Requirement: ◗The power at each pilot frequency shall not be greater than -51.5 dBm at 0.556 MHz, -64.5 dBm at 2.064 or 2.066 MHz, and -62.5 dBm at 3.096 or 3.120 MHz.◖

27 Proceed to Step 28 to check the MMX-2 to MMX-1 transmission path.

MMX-2 to MMX-1 Transmission Path

28 Proceed with the ***preferred*** method in Steps 29 through 32, if possible. Otherwise, proceed with the ***alternate*** method in Steps 33 through 35.

Preferred Method

29 Connect the 2.840-MHz mastergroup pilot from an MMX-2 terminal to the mastergroup connector under test.

Note: At the MMX-2 receiving bay, patch a spare MG OUT A jack to the TRK IN jack of the mastergroup connector under test.

30 Measure and record the power of the 2.840-MHz pilot at the MG OUT B jack of the spare mastergroup in the MMX-2 receiving bay.

Note: The nominal power of the mastergroup pilot at the MG OUT jacks is -34 dBm.

31 Measure and record the power of the 2.840-MHz pilot at the MG CONN OUT jack [patch (4), Fig. 2].

Requirement: ◗The power shall be at least 45 dB less than the power recorded in Step 30.◖

32 Proceed to Step 35.

CHART 1 (Contd)

STEP	PROCEDURE
	Alternate Method
33	Apply a 2.840-MHz test signal at -10 dBm to the TRK IN jack of the mastergroup connector under test [patch (3), Fig. 2].
	Note: Use a frequency counter to set the test signal to the exact frequency.
34	Measure the power of the 2.840-MHz signal at the MG CONN OUT jack [patch (4), Fig. 2].
	Requirement: ♦The power shall not be greater than -55 dBm.♦
35	Remove all test connections, replace all patch plugs removed, and restore the mastergroup connector to normal.

CHART 2

SPARE MASTERGROUP CONNECTOR

A ***spare*** mastergroup connector can be patched in service in place of a corresponding regular mastergroup connector. A spare mastergroup connector may be used for restoration service when connected to restoration patch bays, as shown in Fig. 3. Spare mastergroup connector J68882AW can serve both directions of transmission provided by a regular mastergroup connector J68882AW. The MMX-2 to MMX-1 direction of transmission through a spare mastergroup connector J68882AW can serve for either direction of transmission through a regular mastergroup connector J68882AP (MMX-2 to MMX-2).

In some installations, the spare mastergroup connectors will not be connected to restoration patch bays and will be placed in service only by patching at the mastergroup connector location. The procedures in this chart provide for both arrangements.

STEP	PROCEDURE
	A. Center-Frequency Gain Adjustment and Slope Measurements
	Note: The procedures for the MMX-1 to MMX-2 and the MMX-2 to MMX-1 transmission paths are similar. For the MMX-2 to MMX-1 path, read only the ***italicized*** information in parentheses. For the MMX-1 to MMX-2 path, disregard the italicized information in parentheses.

CHART 2 (Contd)

STEP	PROCEDURE
1	Proceed to Step 2 for a spare mastergroup connector ***with*** restoration patch bay jack appearances. For a spare mastergroup connector ***without*** restoration patch bay jack appearances, proceed to Step 23. ***With*** restoration patch bay jack appearances,
2	Locate the mastergroup trunk jacks, in the restoration patch bay, associated with the mastergroup connector under test. Also, locate the receiving and transmitting trunk circuits (Fig. 3) associated with the spare mastergroup connector under test.

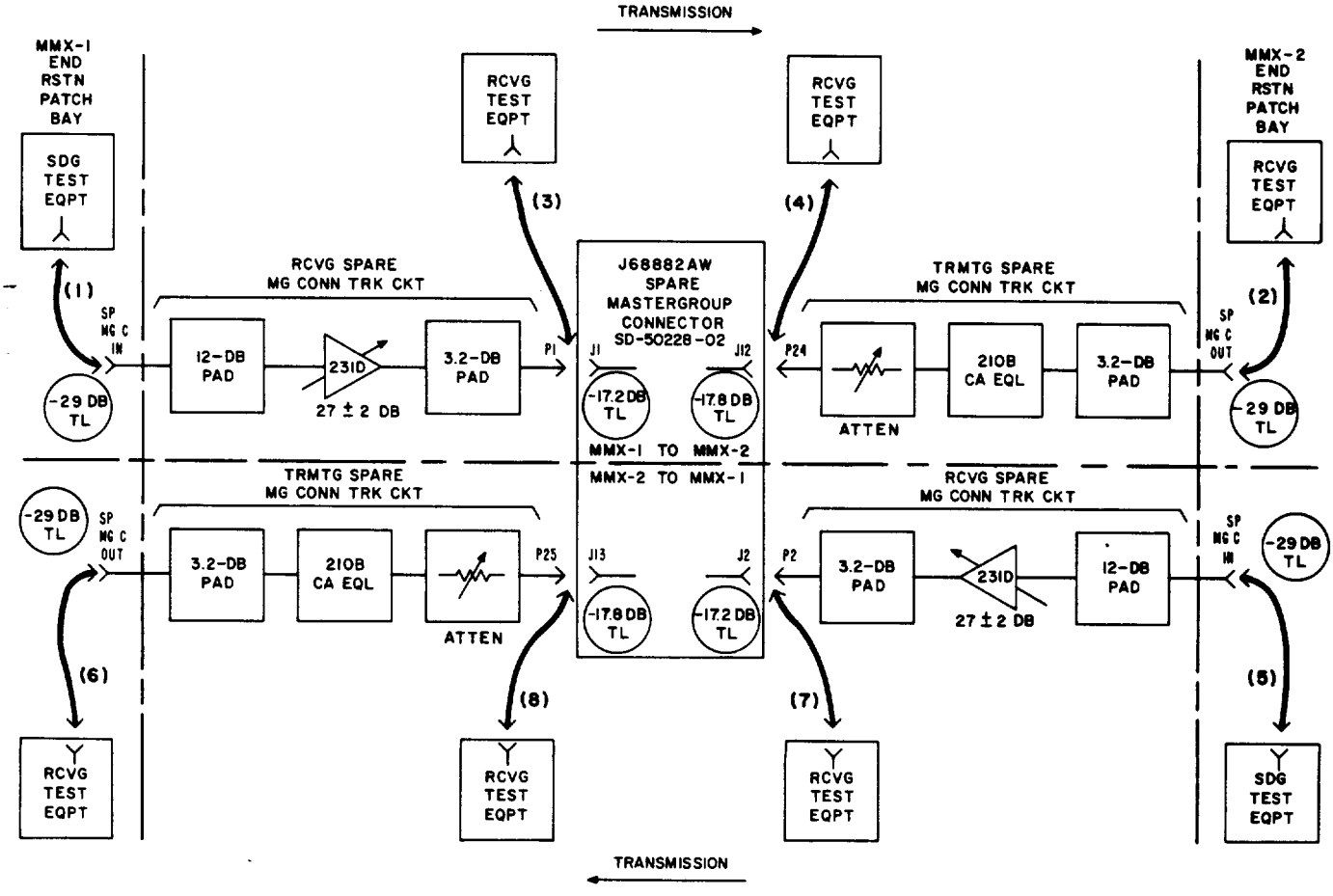

Fig. 3—Spare Mastergroup Connector Test Connections

CHART 2 (Contd)

STEP	PROCEDURE
	Gain Adjustment
	At MMX receiving bay,
3	Apply a 1.8-MHz test signal at -29 dBm to the SP MG C IN jack [patch 1 ***(5),*** Fig. 3].
	At MMX transmitting bay,
4	Measure the 1.8-MHz power at the SP MG C OUT jack [patch 2 ***(6),*** Fig. 3].
	Requirement: -29.0 dBm ±0.1 dB
5	Proceed to Step 10 if the requirement is met. Otherwise, proceed to Step 6.
	At mastergroup connector,
6	Measure the 1.8-MHz power at plug P1 ***(P2)*** [patch 3 ***(7),*** Fig. 3].
	Note: Jacks J1, J2, J12, and J13 are on the rear of the mastergroup connector. Be sure to reconnect each plug when measurements are completed.
	Requirement: -17.2 dBm ±0.1 dB
7	Adjust the ADJ control on the 231D amplifier, in the receiving trunk circuit, to meet the requirement.
8	Proceed to Step 10 if the requirement is met. Otherwise, replace the 231D amplifier and proceed to Step 9.
9	Repeat Steps 3 through 7, as required.
	Note: In case of trouble, continue signal tracing in the receiving trunk circuit.
10	Measure the 1.8-MHz power at jack J12 ***(J13)*** on the rear of the mastergroup connector [patch 4 ***(8),*** Fig. 3].
	Requirement: -17.8 dBm ±0.1 dB
11	Proceed to Step 16 if the requirement is met. Otherwise, proceed to Step 12.
12	Adjust the ADJ 1 (***ADJ 2***) control on the front panel of the mastergroup connector to meet the requirement.
13	Adjust the ADJ control on the adjacent 231D amplifier, if necessary, to meet the requirement.

CHART 2 (Contd)

STEP	PROCEDURE
14	Proceed to Step 16 if the requirement is met. Otherwise, replace the 231D amplifier and proceed to Step 15.
15	Repeat Steps 10 through 14, as required.
	Note: In case of trouble, continue signal tracing in the mastergroup connector.
	At MMX transmitting bay,
16	Measure the 1.8-MHz power at the SP MG C OUT jack [patch 2 ***(6),*** (Fig. 3].
	Requirement: -29.0 dBm ±0.1 dB
17	Proceed to Step 19 if the requirement is met. Otherwise, proceed to Step 18.
18	Adjust the attenuator in the transmitting trunk circuit to meet the requirement.
	Note: In case of trouble, continue signal tracing in the transmitting trunk circuit.
	Slope Measurements
	At MMX receiving bay,
19	Apply a 0.6-MHz test signal at -29 dBm to the SP MG C IN jack [patch 1 ***(5),*** (Fig. 3].
	At MMX transmitting bay,
20	Measure and record the 0.6-MHz power at the SP MG C OUT jack [patch 2 ***(6),*** Fig. 3].
21	Repeat Steps 19 and 20 for a 3.0-MHz test signal.
	Requirement: The 3.0-MHz signal power shall be within ±0.4 dB of the 0.6-MHz signal power.
22	Proceed to Part C of this chart to check the pilot elimination filter if the requirement is met. Otherwise, proceed to Part B of this chart to adjust the 210B cable equalizers in the mastergroup connector and the transmitting trunk circuit.
	Without restoration patch bay appearances,
	Gain Adjustment
	At mastergroup connector,
23	Apply a 1.8-MHz test signal at -23.2 dBm to the SP MG CONN IN jack at the lower right (***ieft***) on the front panel of the mastergroup connector.

CHART 2 (Contd)

STEP	PROCEDURE
24	Measure the 1.8-MHz power at the adjacent SP MG CONN OUT jack. ***Requirement:*** -17.8 dBm ±0.1 dB
25	Adjust the ADJ 1 ***(ADJ 2)*** control on the front panel of the mastergroup connector to meet the requirement.
26	Adjust the ADJ control on the adjacent 231D amplifier, if necessary, to meet the requirement.
	Slope Measurements
27	Apply a 0.6-MHz test signal at -23.2 dBm to the SP MG CONN IN jack on the mastergroup connector.
28	Measure and record the 0.6-MHz power at the adjacent SP MG CONN OUT jack.
29	Repeat Steps 27 and 28 for a 3.0-MHz test signal. ***Requirement:*** The 3.0-MHz signal power shall be within ±0.4 dB of the 0.6-MHz signal power.
30	Proceed to Part C of this chart to check the pilot elimination filter if the requirement is met. Otherwise, proceed to Part B of this chart to adjust the 210B cable equalizer in the mastergroup connector.
	B. Cable Equalizer Adjustments
31	Proceed to Step 32 for a spare mastergroup connector ***with*** restoration patch bay jack appearances. For a spare mastergroup connector ***without*** restoration patch bay jack appearances, proceed to Step 45. ***With*** restoration patch bay jack appearances, ***At mastergroup connector,*** ***Caution: Use care, both when opening and when closing the drawer, to avoid trouble.***
32	Set the cable equalizer screw switches in the mastergroup connector, as indicated on the top line in Table A, to provide 0.0-dB slope correction. ***At MMX receiving bay,***
33	Apply a 3.0-MHz test signal at -29 dBm to the SP MG C IN jack [patch 1 ***(5),*** Fig. 3].

CHART 2 (Contd)

STEP	PROCEDURE
	At mastergroup connector,
34	Measure and record the 3.0-MHz power at jack J12 ***(J13)*** on the rear of the mastergroup connector.
35	Repeat Steps 33 and 34 for a 0.6-MHz test signal.
36	Determine the amount of slope correction required.
	Note: Slope correction required equals the difference between the 0.6-MHz power and the 3.0-MHz power.
	Example 3:
	Power of 3.0-MHz signals equals -22.3 dBm Power of 0.6-MHz signal equals -20.7 dBm Difference equals 1.6 dB.
37	▶Set the 210B cable equalizer screw switches, according to Table A, to provide the slope correction required, and then repeat Steps 33 through 35 to check the equalization.
	Example 4:
	Slope correction required is 1.6 dB. Screws to be tightened down are 2 through 7, 9, 16, 19, 21, and 23.
	Requirement: Signal power at 3 MHz is within ±0.2 dB of the 0.6 MHz signal power at jack J12 (***J13***).
	Transmitting Trunk Circuit
38	Set the cable equalizer screw switches in the transmitting trunk circuit, as indicated on the top line in Table A, to provide 0.0-dB slope correction.
	At MMX receiving bay,
39	Apply a 3.0-MHz test signal at -29 dBm to the SP MG C IN jack [patch 1 ***(5),*** Fig. 3].
	At MMX transmitting bay,
40	Measure and record the 3.0-MHz power at the SP MG C OUT jack [patch 2 ***(6),*** Fig. 3].
41	Repeat Steps 39 and 40 for a 0.6-MHz test signal.

CHART 2 (Contd)

STEP	PROCEDURE
42	Determine the amount of slope correction required. ***Note:*** See the ***Note*** and ***Example*** in Step 36.
	At mastergroup connector,
43	▶Set the cable equalizer screw switches, according to Table A, to provide the slope correction required, and then repeat Steps 39 through 41 to check the equalization. ***Requirement:*** Signal power at 3 MHz is within ±0.2 dB of the 0.6-MHz signal power at the SP MG C OUT jack.◀
44	Proceed to Step 51.
	Without restoration patch bay jack appearances, ***At mastergroup connector,***
	Caution: Use care, both when opening and when closing the drawer, to avoid trouble.
45	Set the cable equalizer screw switches, in the mastergroup connector, as indicated on the top line in Table A, to provide 0.0-dB slope correction.
46	Apply a 3.0-MHz test signal at -23.2 dBm to the SP MG CONN IN jack at the lower right ***(left)*** on the front panel of the mastergroup connector.
47	Measure and record the 3.0-MHz power at the adjacent SP MG CONN OUT jack.
48	Repeat Steps 46 and 47 for a 0.6-MHz test signal.
49	Determine the amount of slope correction required. ***Note:*** See the ***Note*** and ***Example*** in Step 36.
50	▶Set the cable equalizer screw switches, according to Table A to provide the slope correction required, and then repeat Steps 46 through 48 to check the equalization. ***Requirement:*** Signal power at 3 MHz is within ±0.2 dB of the 0.6-MHz signal power at the SP MG CONN OUT jack.◀
51	Repeat the center-frequency gain adjustment procedure in Part A of this chart and then proceed to Part C of this chart to check the pilot elimination filter.

CHART 2 (Contd)

STEP	PROCEDURE

C. Pilot Elimination Tests

Pilot elimination filter options are provided in the MMX-1 to MMX-2 transmission path in the mastergroup connectors. A pilot elimination filter to block the 2.840-MHz mastergroup pilot is provided in the MMX-2 to MMX-1 transmission path. Due to the narrow bandwidth of the pilot elimination filters, the test signals used must be at the correct frequencies to obtain valid results. Two methods are explained for these tests: the ***preferred*** method uses pilot signals obtained from a regular mastergroup connector; the ***alternate*** method uses test signals from sending test equipment set to the exact frequency by means of a frequency counter.

MMX-1 to MMX-2 Transmission Path

52 Determine which pilot frequencies are blocked in the spare mastergroup connector by comparing the list numbers with the information in Table B.

53 Proceed with the ***preferred*** method in Steps 54 through 58, if possible. Otherwise, proceed with the ***alternate*** method in Steps 59 through 62.

Note: The nominal gain from the SP MG CONN IN jack to the SP MG CONN OUT jack of the mastergroup connector is 5.4 dB.

Preferred Method

54 Select a working ***regular*** mastergroup connector which blocks the same pilot frequencies as the spare mastergroup connector under test.

Note: The corresponding list numbers of regular and spare mastergroup connectors are listed in Table B.

55 Measure and record the power of each pilot signal at the TRK OUT jack located on the lower right of the ***regular*** mastergroup connector.

Note: Nominal pilot power at the TRK OUT jack is -43.2 dBm.

56 Connect one end of a patch cord to the SP MG CONN IN jack at the lower right of the ***spare*** mastergroup connector and the other end to the TRK OUT jack at the lower right of the ***regular*** mastergroup connector.

Note: This patching sequence will minimize any effect on the transmission carried by the regular mastergroup connector.

57 Measure and record the power of each pilot signal at the SP MG CONN OUT jack at the lower right on the ***spare*** mastergroup connector.

CHART 2 (Contd)

STEP	PROCEDURE

Requirement: A minimum loss at each pilot frequency as listed in the last column of Table B.

58 Proceed to Step 63 to check the MMX-2 to MMX-1 transmission path.

Alternate Method

59 Apply a test signal at each of the appropriate pilot frequencies at -10 dBm to the SP MG CONN IN jack on the lower right of the spare mastergroup connector.

Note: The pilot frequencies are listed in Table B. Use a frequency counter to obtain a test signal at the exact frequency.

60 Measure and record the power of each test signal at the adjacent SP MG CONN OUT jack.

Requirement: A minimum loss at each pilot frequency as listed in the last column of Table B.

61 Remove the patch cord from the TRK OUT jack of the ***regular*** mastergroup connector first and then from the SP MG CONN IN jack of the ***spare*** mastergroup connector.

62 Proceed to Step 63 to check the MMX-2 to MMX-1 transmission path.

MMX-2 to MMX-1 Transmission Path

63 Proceed with the ***preferred*** method in Steps 64 through 69, if possible. Otherwise, proceed with the ***alternate*** method in Steps 70 through 72.

Note: The filter in the mastergroup connector offers a minimum ♦discrimination of 38 dB♦ at 2.840 MHz. The nominal gain from the SP MG CONN IN jack to the SP MG CONN OUT jack is 5.4 dB.

Preferred Method

64 Select a working ***regular*** mastergroup connector J68882AP or J68882AW.

65 Measure and record the power of the 2.840-MHz pilot signal at the TRK OUT jack on the ***regular*** mastergroup connector.

Note: Use the TRK OUT jack on the lower right of mastergroup connector J68882AW. Either TRK OUT jack may be used on mastergroup connector J68882AP.

66 Connect one end of a patch cord to the SP MG CONN IN jack at the lower right of the spare mastergroup connector and the other end to the TRK OUT jack on the ***regular*** mastergroup connector.

CHART 2 (Contd)

STEP	PROCEDURE

Note: This patching sequence will minimize any effect on the transmission carried by the regular mastergroup connector.

67 Measure and record the power of the 2.840-MHz pilot at the adjacent SP MG CONN OUT jack on the spare mastergroup connector.

Requirement: The pilot power shall be at least 38 dB less than the power recorded in Step 65.

68 Remove the patch cord from the TRK OUT jack of the regular mastergroup connector first and then from the SP MG CONN IN jack of the spare mastergroup connector.

69 Proceed with Part D of this chart to check the status lamps.

Alternate Method

70 Apply a 2.840-MHz test signal at -10 dBm to the SP MG CONN IN jack on the lower right of the spare mastergroup connector.

Note: Use a frequency counter to obtain a test signal of the exact frequency.

71 Measure and record the power of the 2.840-MHz signal at the adjacent SP MG CONN OUT jack.

Requirement: The power shall not be greater than -48 dBm.

72 Proceed with Part D of this chart to check the status lamps.

D. Status Lamp Tests

At restoration patch bay,

73 Insert and remove a plug at the SP MG C IN and SP MG C OUT jacks for the spare mastergroup connector under test and observe the RSTN lamps on the mastergroup connector.

Requirement: The RSTN lamps are lighted when a plug is inserted and are extinguished when the plug is removed.

At spare mastergroup connector,

74 Insert and remove a plug at the SP MG CONN OUT jack and observe the SPARE READY lamps associated with the SP MG C IN and SP MG C OUT jacks in the restoration patch bay.

CHART 2 (Contd)

STEP	PROCEDURE
	Requirement: The SPARE READY lamps associated with the SP MG C IN and SP MG C OUT jacks for the spare mastergroup connector are extinguished when the plug is inserted and are lighted when the plug is removed.
75	Remove all test connections and restore the mastergroup connector to normal.