L MULTIPLEX TERMINALS

MMX-1

OVERALL SYSTEM TESTS

MULTIPURPOSE TRUNK ARRANGEMENTS

PURPOSE OF TESTS

To measure and, if necessary, adjust the transmission level and equalization of the mastergroup multipurpose trunks connecting the MMX-1 high-frequency patch bay to the MMX-1 equipment bay.

REASON FOR ISSUE

The information in this section was formerly part of Section 356-040-500. Tests for the mastergroup connecting trunks (SD-50790-01) which connect the MMX-1 high-frequency patch bay to the 3A wire-line entrance link are retained in Section 356-040-500. ***Equipment Test Lists are affected.***

SYNOPSIS

The mastergroup multipurpose trunk circuit provides transmitting and receiving trunks between the mastergroup high-frequency patch bay and the mastergroup equipment bay. The multipurpose trunks are used in low-level (Fig. 1A) and high-level (Fig. 1B) configurations and provide essentially flat transmission between 60 kHz and 8.5 MHz.

METHOD OF TESTING

This test is performed on an out-of-service basis; therefore, service must be routed over alternate or spare trunks. Test signals at the appropriate level are applied to the input of the trunk under test and the output is checked. Transmission is measured at the passband test frequencies and the equalizer is adjusted to meet the passband test requirement.

APPARATUS:

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 100 kHz and 8 MHz at levels between −24 dBm and −33 dBm

Receiving test equipment capable of detecting, from 75-ohm circuits, signals between 100 kHz and 8 MHz at levels between −24 dBm and −33 dBm.

In addition, the following are required:

P2BJ Cords

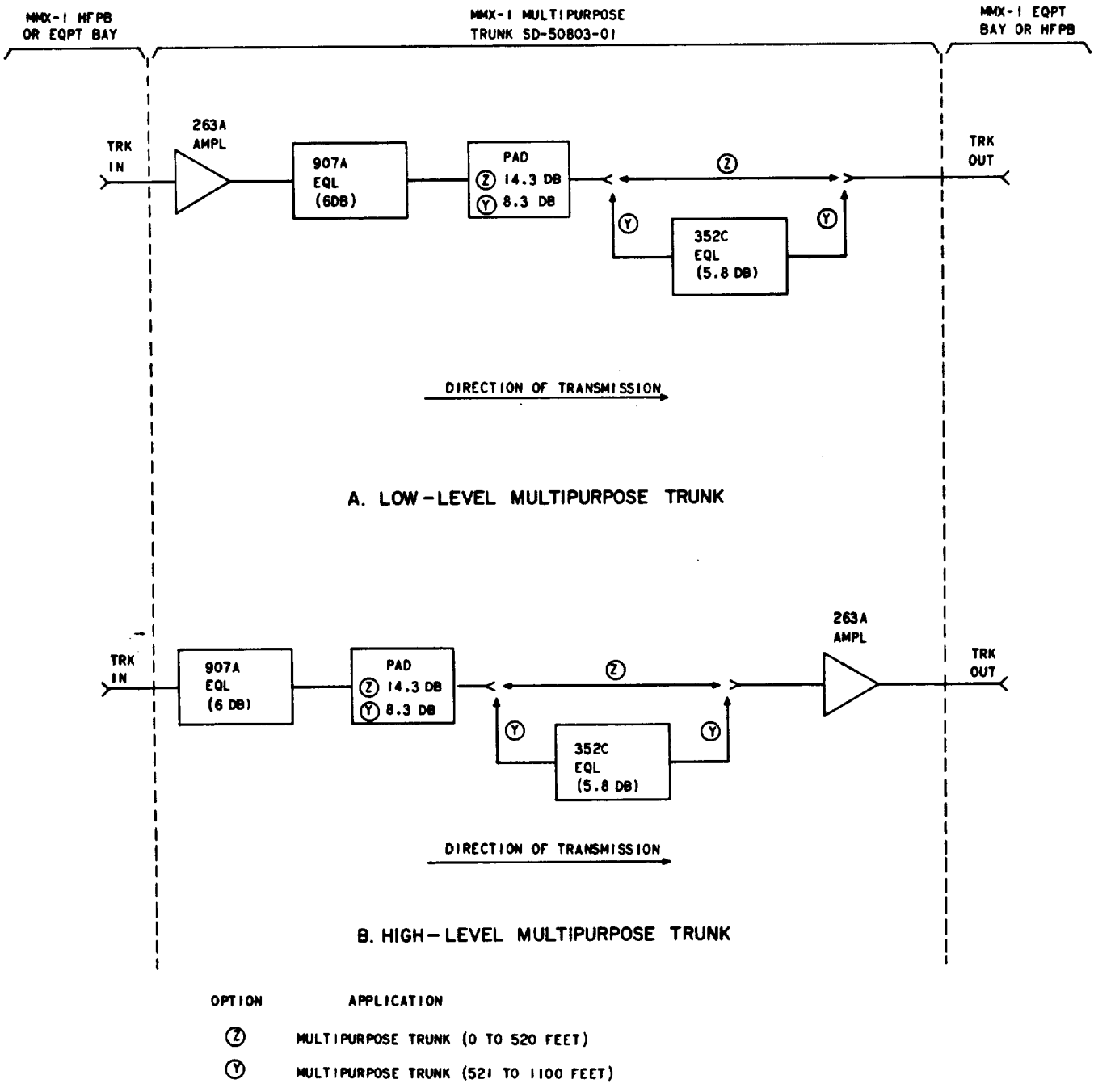

Fig. 1—Mastergroup Multipurpose Trunks

STEP	PROCEDURE
1	From Table A, select the multipurpose trunk application for the circuit to be tested.

TABLE A

MULTIPURPOSE TRUNK TESTS

TRUNK APPLICATION	FIG.	SEND		RECEIVE	
		FREQ	LEVEL (DBM)	FREQ	REQUIREMENT (DBM)
Low Level	1A	100 kHz	−32.5	100 kHz	−32.5 ±0.2 dB
		1, 3, 6, 8 MHz		1, 3, 6, 8 MHz	Within ±0.2 dB of the value recorded at 100 kHz
High Level	1B	100 kHz	−24.5	100 kHz	−24.5 ±0.2 dB
		1, 3, 6, 8 MHz		1, 3, 6, 8 MHz	Within ±0.2 dB of the value recorded at 100 kHz

2	Verify that the trunk to be tested is out of service. ***Note:*** When transferring service to a spare trunk, select a trunk with the same configuration as the trunk to be tested.
3	Prepare the STE (sending test equipment) to produce a 100-kHz signal at the send level indicated in Table A for the circuit to be tested. ***Caution: Two trunk configurations, low level and high level, are tested in this procedure. The trunk must be tested at the proper transmission level.***
4	Prepare the RTE (receiving test equipment) for a 75-ohm terminated measurement of 100 kHz at the receive level indicated in Table A for the circuit under test.
5	Make patches (1) and (2) in Fig. 2. ***Notes:*** (a) Refer to Fig. 1 for location of jacks used in this test. (b) Remove connecting plugs as required to make the patches.
6	Set the 907A equalizer switch to the position indicated in Table B for the total length of 724-type cabling in the trunk circuit under test. ***Note:*** The total cable length includes the cable runs from the trunk circuit to the jacks at each end of the trunk circuit.
7	Measure and record the power of the 100-kHz signal at the TRK OUT jack. ***Requirement:*** See Table A.

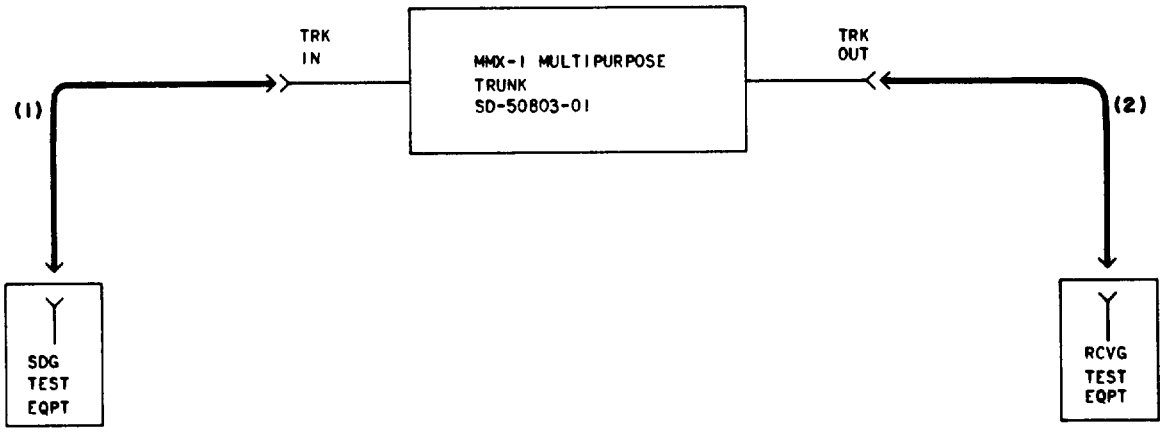

Fig. 2—Multipurpose Trunk Test Arrangement

TABLE B

907A EQUALIZER SETTING			
724-TYPE CABLE LENGTH (FEET)	SET EQL TO POS	724-TYPE CABLE LENGTH (FEET)	SET EQL TO POS
0	0	261 to 286	11
0 to 26	1	287 to 312	12
27 to 52	2	313 to 338	13
53 to 78	3	339 to 364	14
79 to 104	4	365 to 390	15
105 to 130	5	391 to 416	16
131 to 156	6	417 to 442	17
157 to 182	7	443 to 468	18
183 to 208	8	469 to 494	19
209 to 234	9	495 to 520	20
235 to 260	10	521 to 1100	*20
		* 907A EQUALIZER IN SERIES WITH 352C EQUALIZER	

STEP	PROCEDURE
8	If the requirement of Step 7 is met, proceed to Step 10. If it is not met, check the individual components in the trunk circuit under test and replace them if necessary. ***Note:*** Replace the 263A fixed-gain amplifier with a spare unit before proceeding with trouble-locating tests.
9	Verify that the trouble has been corrected and the trunk circuit meets the 100-kHz level requirement by repeating Step 7.
10	Repeat Steps 3 and 4 at a frequency of 8 MHz.
11	Measure the power of the 8-MHz signal at the TRK OUT jack. ***Requirement:*** Within $\pm$0.2 dB of the value recorded in Step 7.
12	If the requirement of Step 11 is met, proceed to Step 16. If it is not met, proceed as follows. (a) If the measured 8-MHz power is ***greater*** than the 100-kHz power measured in Step 7, the trunk is overequalized. Lower the 907A equalizer setting, in 25-foot increments (Table B), until the requirement of Step 11 is met. (b) If the 8-MHz power is ***less*** than the 100-kHz power measured in Step 7, the trunk is underequalized. Raise the 907A equalizer setting in 25-foot increments until the requirement of Step 11 is met.
13	If the requirement of Step 11 cannot be met by changing the equalizer setting, replace the 263A amplifier in the trunk circuit under test with a spare unit and repeat Steps 3, 4, and 9 through 12, as required.
14	If, after replacing the 263A amplifier, the trunk will not meet the requirement, the trouble may be in either the passive circuit elements or the circuit wiring. The defective element(s) must be replaced and the wire path must be corrected before the requirement can be met.
15	Verify that the trunk circuit meets the requirements at 100 kHz and 8 MHz. Repeat Steps 3, 4, and 9 through 12, as required.
16	Repeat Steps 3, 4, and 11, in the order given, at 1, 3, and 6 MHz. ***Requirement:*** See Table A.
17	Remove patches (1) and (2) in Fig. 2 from the trunk circuit under test.
18	Replace all connecting plugs and restore the trunk to regular service.