

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:

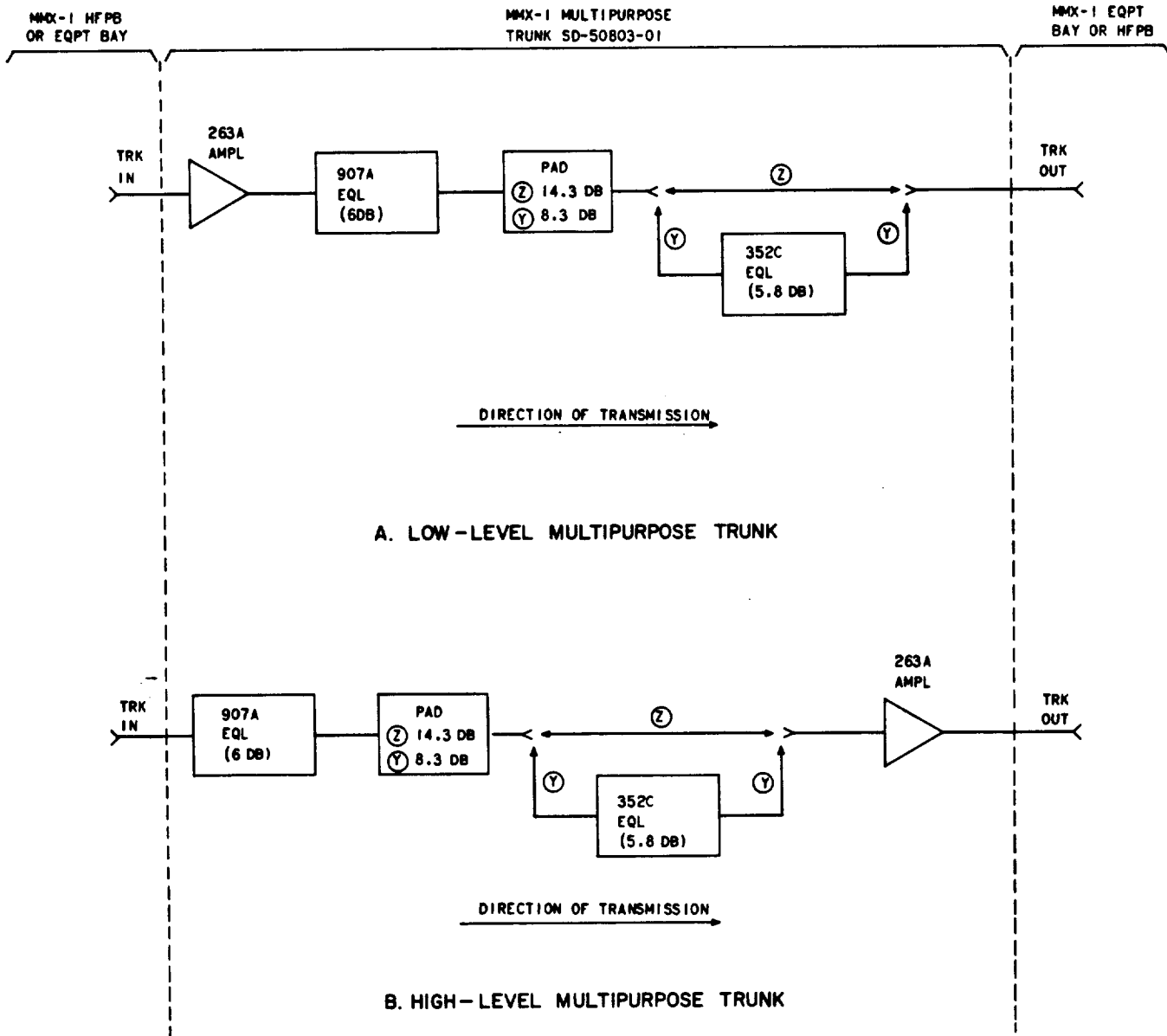
Transmission test equipment. Refer to Section 356-010-500 and select, from available equipment, sending and receiving units having the following capabilities:

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



| OPTION | APPLICATION |
|--------|---------------------------------------|
| Ⓣ | MULTIPURPOSE TRUNK (0 TO 520 FEET) |
| Ⓨ | MULTIPURPOSE TRUNK (521 TO 1100 FEET) |

Fig. 1—Mastergroup Multipurpose Trunks

| STEP | PROCEDURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|--|---------------------------------|-------------|----------------|---|--|--|-------------------|------|------|--|---------|--|------|-------------|------|-------------------|-----------|----|---------|-------|---------|---------------|----------------|----------------|---|------------|----|---------|-------|---------|---------------|----------------|----------------|---|
| 1 | <p data-bbox="386 357 1416 391">From Table A, select the multipurpose trunk application for the circuit to be tested.</p> <p data-bbox="894 434 1003 463" style="text-align: center;">TABLE A</p> <table border="1" data-bbox="378 497 1523 923" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="6" data-bbox="378 497 1523 566" style="text-align: center;">MULTIPURPOSE TRUNK TESTS</th> </tr> <tr> <th data-bbox="378 566 573 661" rowspan="2" style="text-align: center;">TRUNK APPLICATION</th> <th data-bbox="573 566 695 661" rowspan="2" style="text-align: center;">FIG.</th> <th colspan="2" data-bbox="695 566 980 612" style="text-align: center;">SEND</th> <th colspan="2" data-bbox="980 566 1523 612" style="text-align: center;">RECEIVE</th> </tr> <tr> <th data-bbox="695 612 849 661" style="text-align: center;">FREQ</th> <th data-bbox="849 612 980 661" style="text-align: center;">LEVEL (DBM)</th> <th data-bbox="980 612 1138 661" style="text-align: center;">FREQ</th> <th data-bbox="1138 612 1523 661" style="text-align: center;">REQUIREMENT (DBM)</th> </tr> </thead> <tbody> <tr> <td data-bbox="378 661 573 795" rowspan="2" style="text-align: center;">Low Level</td> <td data-bbox="573 661 695 795" rowspan="2" style="text-align: center;">1A</td> <td data-bbox="695 661 849 719" style="text-align: center;">100 kHz</td> <td data-bbox="849 661 980 795" rowspan="2" style="text-align: center;">-32.5</td> <td data-bbox="980 661 1138 719" style="text-align: center;">100 kHz</td> <td data-bbox="1138 661 1523 719" style="text-align: center;">-32.5 ±0.2 dB</td> </tr> <tr> <td data-bbox="695 719 849 795" style="text-align: center;">1, 3, 6, 8 MHz</td> <td data-bbox="980 719 1138 795" style="text-align: center;">1, 3, 6, 8 MHz</td> <td data-bbox="1138 719 1523 795" style="text-align: center;">Within ±0.2 dB of the value recorded at 100 kHz</td> </tr> <tr> <td data-bbox="378 795 573 923" rowspan="2" style="text-align: center;">High Level</td> <td data-bbox="573 795 695 923" rowspan="2" style="text-align: center;">1B</td> <td data-bbox="695 795 849 853" style="text-align: center;">100 kHz</td> <td data-bbox="849 795 980 923" rowspan="2" style="text-align: center;">-24.5</td> <td data-bbox="980 795 1138 853" style="text-align: center;">100 kHz</td> <td data-bbox="1138 795 1523 853" style="text-align: center;">-24.5 ±0.2 dB</td> </tr> <tr> <td data-bbox="695 853 849 923" style="text-align: center;">1, 3, 6, 8 MHz</td> <td data-bbox="980 853 1138 923" style="text-align: center;">1, 3, 6, 8 MHz</td> <td data-bbox="1138 853 1523 923" style="text-align: center;">Within ±0.2 dB of the value recorded at 100 kHz</td> </tr> </tbody> </table> <p data-bbox="277 995 1010 1029">2 Verify that the trunk to be tested is out of service.</p> <p data-bbox="386 1059 1528 1123">Note: When transferring service to a spare trunk, select a trunk with the same configuration as the trunk to be tested.</p> <p data-bbox="277 1153 1539 1217">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.</p> <p data-bbox="386 1251 1528 1315">Caution: <i>Two trunk configurations, low level and high level, are tested in this procedure. The trunk must be tested at the proper transmission level.</i></p> <p data-bbox="277 1344 1528 1408">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.</p> <p data-bbox="277 1442 808 1476">5 Make patches (1) and (2) in Fig. 2.</p> <p data-bbox="386 1506 1252 1570">Notes: (a) Refer to Fig. 1 for location of jacks used in this test. (b) Remove connecting plugs as required to make the patches.</p> <p data-bbox="277 1600 1528 1664">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.</p> <p data-bbox="386 1698 1528 1761">Note: The total cable length includes the cable runs from the trunk circuit to the jacks at each end of the trunk circuit.</p> <p data-bbox="277 1791 1317 1825">7 Measure and record the power of the 100-kHz signal at the TRK OUT jack.</p> <p data-bbox="386 1855 748 1889">Requirement: See Table A.</p> | 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 |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

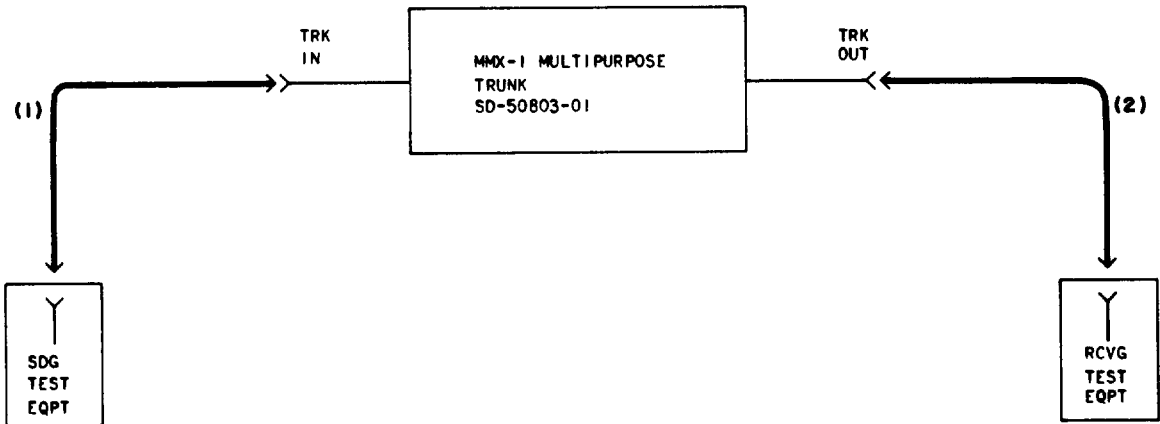


Fig. 2—Multipurpose Trunk Test Arrangement

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 | <p>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.</p> <p>Note: Replace the 263A fixed-gain amplifier with a spare unit before proceeding with trouble-locating tests.</p> |
| 9 | <p>Verify that the trouble has been corrected and the trunk circuit meets the 100-kHz level requirement by repeating Step 7.</p> |
| 10 | <p>Repeat Steps 3 and 4 at a frequency of 8 MHz.</p> |
| 11 | <p>Measure the power of the 8-MHz signal at the TRK OUT jack.</p> <p>Requirement: Within ± 0.2 dB of the value recorded in Step 7.</p> |
| 12 | <p>If the requirement of Step 11 is met, proceed to Step 16. If it is not met, proceed as follows.</p> <p>(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.</p> <p>(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.</p> |
| 13 | <p>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.</p> |
| 14 | <p>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.</p> |
| 15 | <p>Verify that the trunk circuit meets the requirements at 100 kHz and 8 MHz. Repeat Steps 3, 4, and 9 through 12, as required.</p> |
| 16 | <p>Repeat Steps 3, 4, and 11, in the order given, at 1, 3, and 6 MHz.</p> <p>Requirement: See Table A.</p> |
| 17 | <p>Remove patches (1) and (2) in Fig. 2 from the trunk circuit under test.</p> |
| 18 | <p>Replace all connecting plugs and restore the trunk to regular service.</p> |