18B TESTBOARD LOWER UNIT TESTING METHODS FOR MESSAGE TRUNKS IN DECENTRALIZED DSA SWITCHBOARDS OR CROSSBAR TANDEM OFFICES

CONTENTS

1. GENERAL

1.01 This section supplements Section 664-600-500 and Section 664-600-501 to cover operating and testing procedures for the No. 18B toll testboard lower unit and directly associated equipment as adapted for making operational and transmission tests on the following types of trunk circuits:

(a) MF key pulsing intertoll trunks outgoing from decentralized No. 13 or No. 15-type DSA switchboards.

(b) Intertoll trunks outgoing from decentralized toll switchboards.

(c) Dial pulsing intertoll trunks outgoing from crossbar tandem.

(d) Dial pulsing intertoll trunks incoming to crossbar tandem.

(e) MF key pulsing intertoll trunks incoming to crossbar tandem.

1.02 The operating procedures for testing intertoll trunks in toll switchboards and combined local and toll switchboards located in the same building with the No. 18B toll testboard are covered in Sections 664-600-500 and 664-600-501.

1.03 The standard testboard arrangement of out-of-service jacks and test jack multiples of either the switch or switchboard appearances of the intertoll trunks, as provided when the switchboard and toll testboard are located in the same building, would be impracticable in the case of the decentralized switchboards. Test trunks are provided between the toll testboard and these decentralized offices to permit access to intertoll trunks for over-all tests using No. 18B toll testboard secondary test cords. Test jacks are also provided in the toll testboard jack field on the drop side of the toll terminal equipment between the local and toll sections of the intertoll trunk for making sectionalized signaling, talking and transmission tests. Sectionalizing tests are made by using jack-ended or plug-ended test circuits in conjunction with a toll testboard secondary test cord. Transmission tests utilizing the test trunks or the test circuits may involve making corrections for test trunk losses or test circuit losses and for impedance mismatch. Consequently, care must be taken to interpret properly the results of transmission tests made over the test trunks and test circuits described herein.

1.04 The block diagrams and references to standard drawings given herein are for illustrative purposes only in connection with the operating and testing procedures. It is recommended that reference be made to the wiring list applying locally to verify the circuit and testing features provided.

1.05 It is assumed that, prior to making any of the tests on the intertoll trunks discussed herein, suitable tests for busy will be made and that the trunks under test will be made busy or taken out of service.

2. TYPICAL TRUNK ARRANGEMENTS

2.01 For the purpose of illustrating the various testing procedures discussed in this subsection, typical testing jack arrangements for intertoll trunks originating in decentralized toll or DSA switchboards or crossbar tandem offices are depicted by block diagrams in Figs. 1 to 7, inclusive.

3. SECONDARY TEST CORD FUNCTIONS

3.01 The operating procedures for the secondary test cords of No. 18B toll testboards as covered in the basic section of this practice E30.065 are, where pertinent, applicable to the testing of the intertoll trunks discussed in this subsection. It should be borne in mind, however, that the usual procedure for making busy tests by touching the tip of a secondary test cord to the sleeve of the TST jack of an intertoll trunk can not be used if the sleeve conductor is not extended to the toll testboard as discussed in Part 5 of this subsection.

4. PRIMARY TEST CORD FUNCTIONS

4.01 The operating procedures for the primary test cords of No. 18B toll testboards as covered in Section 664-600-500 are, where pertinent, applicable to the maintenance of the outside plant facilities associated with the intertoll trunks discussed in this subsection. However, the primary test cords will be equipped with single plugs in test positions used exclusively for tandem testing where access for testing is through MON DROP and LINE jacks. This facilitates the use of the various primary testing features of the No. 18B toll testboard in making tests on tandem connections.

5. BUSY TESTS

5.01 The usual method of testing for busy (momentarily touching the plug tip of a secondary test cord, with the TALK key operated, to the sleeve of the TST jack, which, if the trunk is busy, produces a "click" in the telephone set receiver) can not be used when testing dial intertoll trunks originating in decentralized toll or DSA switchboards or crossbar tandem offices where only the tip and ring conductors of the talking pair are accessible for testing via the MON DROP and LINE jacks in the toll testboard. Under these circumstances the tests for busy should be made by measuring the potential on the tip and ring conductors of the talking pair by using the 100,000-ohm voltmeter associated with toll testboard primary test cords. The equipment arrangements and procedures for making such busy tests are covered in CHART A of this subsection.

6. WITHHOLDING TRUNKS FROM SERVICE FOR TEST

6.01 It is important when testing intertoll trunks at toll testboards, that a busy indication be maintained at the switchboard appearance of a trunk or a seizure signal maintained toward any outward automatic switching equipment associated with a trunk.

6.02 The considerations involved in the withholding from service during tests of the intertoll trunks discussed in this subsection are:

(a) Intertoll trunks outgoing from DSA switchboards not provided with OS jacks in the testboard must be made busy at the switchboard by the usual traffic procedure.

(b) Intertoll trunks outgoing from toll switchboards located in a building separate from the toll testboard are not provided with OS jacks in the testboard as it would be impracticable to extend a third conductor from the toll testboard to the remote office for an OS lead. If the trunks are tested on an over-all basis using a test trunk between the toll testboard and the decentralized switchboard, the intertoll trunk connected to the test trunk at the switchboard will be held busy until the connection at the switchboard is taken down. When sectionalizing tests are made on intertoll trunks, as discussed in Part 9, and the trunk can not be held busy through a test trunk to the decentralized switchboard the trunk should be turned down to traffic in accordance with local operating practices.

(c) Intertoll trunks outgoing from crossbar tandem located in the same building as the toll testboard may be made busy by inserting a 322A plug into the OS jack at the toll testboard. Where the S1 lead from the crossbar equipment is connected to the MON DROP and LINE jacks, the trunk will be made busy when using the secondary cords and/or test circuits for talking or testing. The trunk is made busy by placing a ground on the S1 lead.

7. INTERTOLL TRUNK TESTING ARRANGEMENTS

(A) Direct Intertoll Trunks Outgoing from Decentralized Toll or DSA Switchboards - Toll Testboard Located in a Separate Building

7.01 These are direct trunks from No. 1 or No. 3 toll switchboards or Nos. 13 or 15-type DSA switchboards. Loop signaling is used between the decentralized and toll terminal offices with a Loop to CX trunk circuit added for connecting to the CX or SF signaling equipment of the intertoll trunk. Fig. 1 shows a typical arrangement with the trunk connected through the No. 18B toll testboard LINE and MON DROP jack. TST SIG, LINE and DROP jacks may also be provided when it is desired to make signaling tests from testboard positions not having access to the SIG LINE and DROP jacks.

(B) Direct Intertoll Trunks Outgoing from Decentralized DSA Switchboards Located in the Same Building with the Toll Testboard

7.02 Direct intertoll trunks arranged for dial or MF pulsing originating in No. 13 or No. 15-type DSA switchboards located in the same

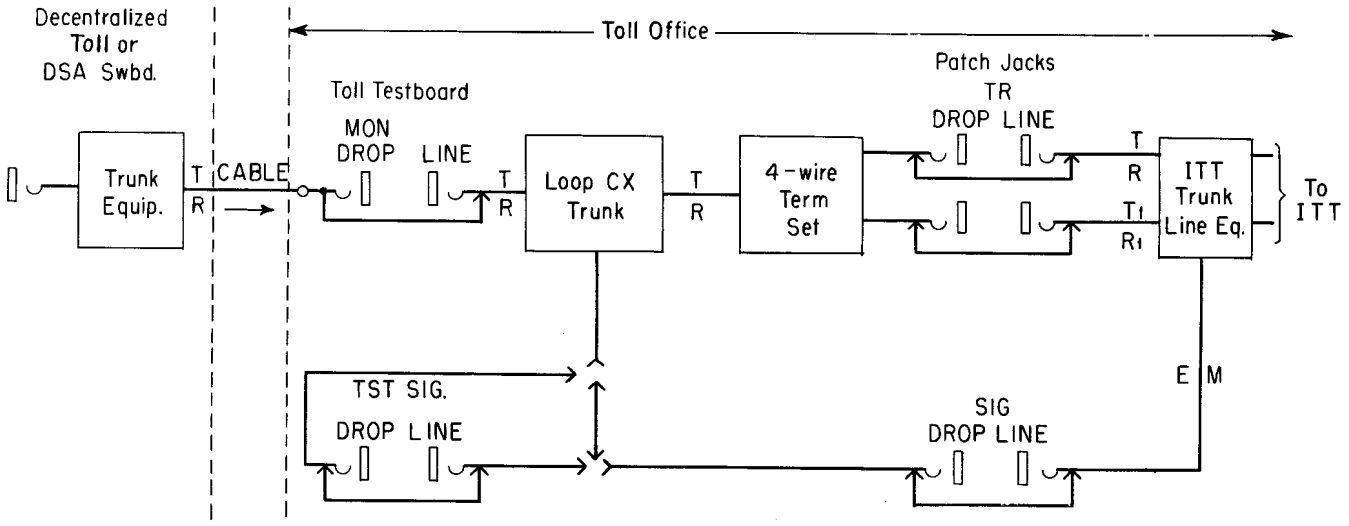


Fig. 1 – Interoll Trunk Outgoing from Decentralized Toll or DSA Switchboards

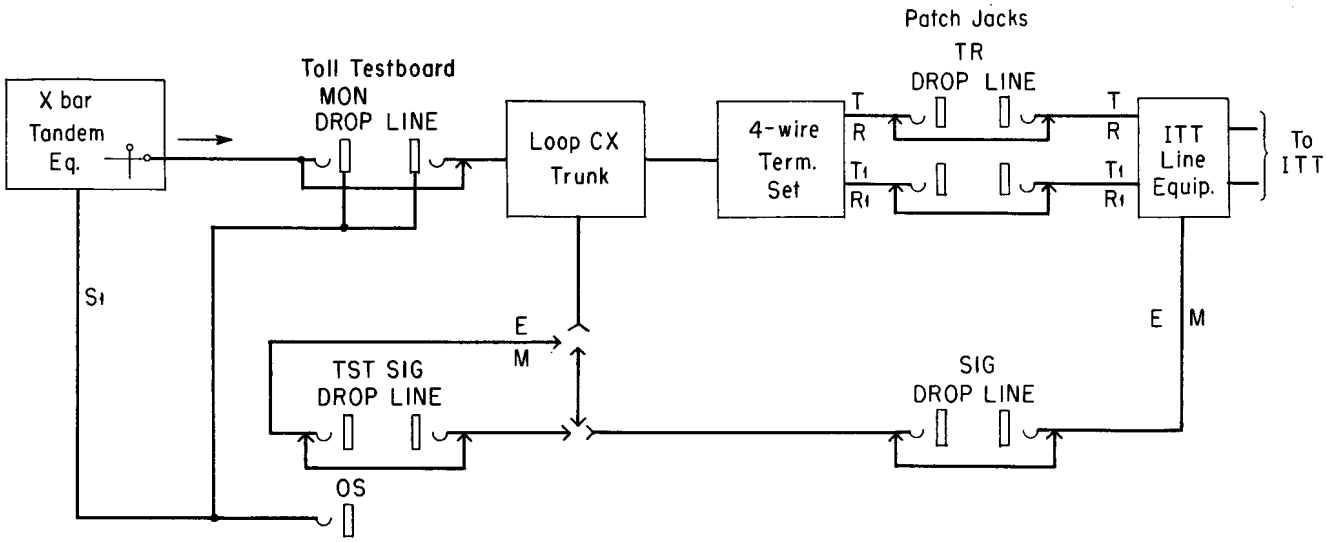


Fig. 2. – Intertoll Trunk Outgoing from Crossbar Tandem

building as the toll testboard are tested by means of jack-ended test circuits.

(C) Intertoll Trunks Outgoing from Crossbar Tandem Equipment Located in the Same Building with the Toll Testboard

7.03 Trunks may originate in crossbar tandem and connect through a toll testboard in the same building in the same manner as the direct trunks from toll switchboards. These trunks also employ loop signaling between the tandem and toll terminal equipment. Fig. 2 shows a typical arrangement with the trunk connected through LINE and MON DROP jacks in the No. 18B toll testboard. An OS jack is also provided in the toll testboard to make the trunk busy during tests. TST SIG, LINE and DROP jacks may also be provided when signaling tests are to be made from testboard positions not having access to the SIG, LINE and DROP jacks.

(D) Intertoll Trunks Incoming to Crossbar Tandem Equipment Located in the Same Building with the Toll Testboard

7.04 When the crossbar tandem and toll offices are in the same building the arrangement shown in Fig. 3 is typical for incoming dial and MF pulsing intertoll trunks to crossbar tandem, employing loop supervision. The toll testboard appearance consists of LINE and MON DROP jacks for making sectionalizing tests. The arrangement shown in Fig. 4 is typical for incoming dial

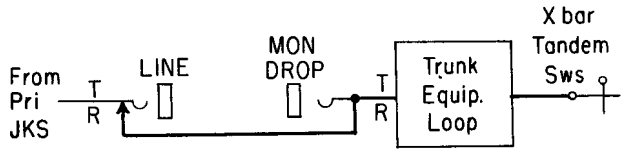


Fig. 3 – Dial or MF Intertoll Trunk Incoming to Crossbar Tandem – Loop Signaling

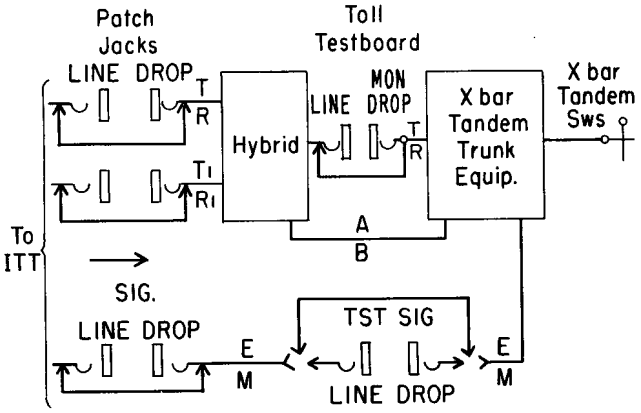


Fig. 4 – Dial or MF Intertoll Trunk Incoming to Crossbar Tandem – Signaling over E and M Leads

and MF pulsing intertoll trunks to crossbar tandem, employing signaling over E and M leads to the crossbar tandem equipment. The toll testboard appearance in this case consists of LINE and MON DROP jacks for making sectionalized tests, with the addition of TST SIG, LINE and DROP jacks where the testboard does not have access to the SIG, LINE and DROP jacks. The A and B leads are not normally connected through test jacks.

(E) Intertoll Trunks Incoming to Crossbar Tandem Using Signal Lead Extension Circuits - Tandem and Toll Offices in Separate Buildings

7.05 When the toll office is located at some distance away from the tandem office and the intertoll trunks employ crossbar tandem trunk equipment arranged for signaling over E and M leads, signal extension equipment is provided in the intertoll trunk to pass supervisory signals to the local equipment.

7.06 The test jack arrangement consists of LINE and MON DROP jacks in the toll testboard. TST SIG or SIG, LINE and DROP jacks are also furnished to provide easy access for sectionalizing tests. (Refer to Fig. 5)

8. OVER-ALL TESTS

(A) Outgoing Test Trunks to Decentralized DSA Switchboards Arranged for MF Pulsing

8.01 Outgoing test trunks are provided between toll testboards and No. 13 or 15-type DSA switchboards arranged for MF pulsing to permit over-all signaling, talking and transmission measuring tests on outgoing MF pulsing intertoll trunks from the DSA switchboards. The operating procedures for the use of these trunks in making tests are covered in CHART B.

(B) Combined Outgoing and Test Trunk Circuit to Decentralized Toll Switchboard No. 1, 3, 3C, or 3CL

8.02 This circuit terminates in a combined incoming and test trunk circuit at a decentralized toll switchboard and provides means whereby an attendant at the toll testboard in conjunction with an operator at the switchboard may make operational and transmission tests of the various intertoll trunks outgoing from the switchboard. The operating procedures for the use of these trunks in making tests are covered in CHART C.

(C) Incoming Test Trunk from Crossbar Tandem Equipment

8.03 Incoming test trunks are provided between crossbar tandem offices and toll testboards to permit over-all signaling, talking and transmission measuring tests on dial or MF pulsing intertoll trunks incoming to crossbar tandem equipment. The operating procedures for the use of these trunks in making tests are covered in CHART D.

9. SECTIONALIZING TESTS

(A) Incoming Test Circuit for Dial or MF Pulsing Intertoll Trunks Arranged for Loop Supervision

9.01 The jack- or plug-ended test circuit per SD-64724-01, Fig. 23, is provided for use with the secondary test cords of the No. 18B

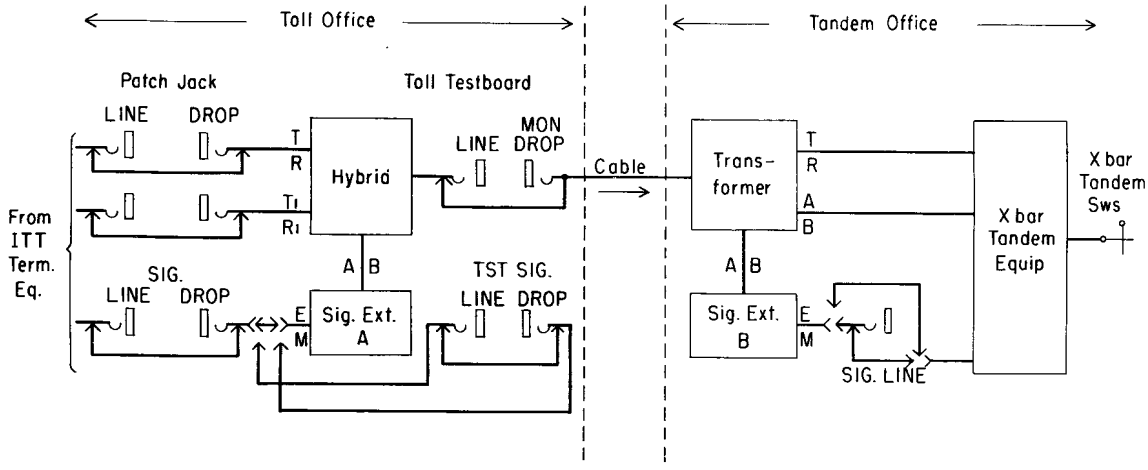


Fig. 5 - Dial or MF Intertoll Trunk Using Signal Lead Extension Circuit

toll testboard in making sectionalized signaling, talking and transmission tests on the following types of dial or MF pulsing intertoll trunks arranged for loop supervision:

(a) Tests toward the originating point on trunks outgoing from DSA switchboards or crossbar tandem offices.

(b) Tests toward the originating point on trunks incoming to crossbar tandem equipment.

9.02 The operating procedures for using this test circuit are covered in CHART E of this section.

(B) Outgoing Test Circuit for Dial Intertoll Trunks Arranged for Loop Supervision

9.03 The jack- or plug-ended test circuit per SD-64724-01, Figs. 31 and 32, is provided for use in making sectionalized signaling, talking and transmission tests on the following types of dial intertoll trunks arranged for loop supervision.

(a) Outgoing tests on trunks outgoing from DSA switchboards or crossbar tandem equipment in the same building with the toll testboard.

(b) Outgoing tests on trunks outgoing from decentralized DSA or toll switchboards.

(c) Tests toward the crossbar tandem equipment on trunks incoming to crossbar tandem.

9.04 The operating procedures for using this test circuit are covered in CHART F of this subsection.

(C) Outgoing Test Circuit for MF Key Pulsing Intertoll Trunks Arranged for Loop Supervision

9.05 The jack- or plug-ended test circuit per SD-64724-01, Figs. 22 and 32, is provided for use in making sectionalized signaling, talking and transmission tests on the following types of MF pulsing intertoll trunks arranged for loop supervision:

(a) Outgoing tests on trunks outgoing from DSA switchboards or crossbar tandem equipment in the same building with the toll testboard.

(b) Outgoing tests on trunks outgoing from decentralized DSA or toll switchboards.

(c) Tests toward the crossbar tandem equipment on trunks incoming to crossbar tandem.

9.06 The operating procedures for using this test circuit are covered in CHART G of this subsection.

(D) Combined Outgoing Test Circuit for MF Key Pulsing or Dial Intertoll Trunks Arranged for Loop Supervision

9.07 The jack- or plug-ended test circuit per SD-64724-01, Fig. 175, is provided for use in making sectionalized signaling, talking and transmission tests on the following types of dial or MF pulsing intertoll trunks arranged for loop supervision:

(a) Outgoing tests on trunks outgoing from DSA switchboards or crossbar tandem equipment in the same building with the toll testboard.

(b) Outgoing tests on trunks outgoing from decentralized DSA or toll switchboards.

(c) Tests toward the crossbar tandem equipment on trunks incoming to crossbar tandem.

9.08 The operating procedures for using this test circuit are covered in CHART H of this subsection.

(E) Incoming and Outgoing Test Circuits for MF Key Pulsing or Dial Intertoll Trunks Incoming to a Crossbar Tandem Office and Which Are Arranged for Signaling over E and M Leads

9.09 The jack- or plug-ended test circuit per SD-64724-01, Fig. 28, is provided for use in making sectionalized signaling, talking and transmission tests either toward the originating end or toward the crossbar tandem equipment on MF key pulsing or dial intertoll trunks incoming to a crossbar tandem office located in the same building with the toll testboard and which are arranged for signaling over E and M leads.

9.10 The operating procedures for using this test circuit are covered in CHART I of this subsection.

(F) Incoming and Outgoing Test Circuit for Intertoll Trunks Using Signal Lead Extension Circuits

9.11 A jack-ended test circuit is provided for checking the operation of the signal lead extension circuits in the toll office or the crossbar tandem office.

9.12 When the intertoll trunk is equipped with signal lead extension circuits, sectionalizing tests should be made to determine whether the trouble is in the toll equipment or the equipment in the local office.

9.13 The operating procedures for using this test circuit are covered in CHART J of this subsection.

10. TRANSMISSION TESTS

10.01 Typical over-all and sectionalizing transmission test arrangements for dial and MF key pulsing intertoll trunks originating in decentralized toll switchboards or originating or terminating in crossbar tandem offices are shown in Figs. 6 and 7.

10.02 Transmission measurements made using the arrangements shown in Figs. 6 and 7 should be corrected for losses introduced by test trunks, jack-ended or plug-ended test circuits or impedance mismatches.

10.03 An over-all transmission test may be made with the testing arrangement shown in Fig. 6. The test and patch cord arrangements are designated A. This test will require the use of a test trunk between toll terminal room A and the switchboard, and the code 101 trunk from toll terminal room B and the crossbar tandem equipment.

10.04 A sectionalized transmission test of the near-end local section may be made with the testing arrangement shown in Fig. 6 using the test and patch cords designated B. This test will require the use of the test trunk between toll terminal room A and the switchboard and an incoming test circuit at toll terminal room A.

10.05 A sectionalized transmission test of the toll section may be made with the testing arrangements shown in Fig. 6 and using the test and patch cords designated C. This test uses the outgoing test circuit at toll terminal A and the incoming or outgoing test circuit at toll terminal room B.

10.06 A sectionalized transmission test of the far-end local section may be made with the testing arrangement shown in Fig. 6. The test and patch cords used are designated D. This test uses the incoming or outgoing test circuit at toll terminal room B and the code 101 trunk from toll terminal room B to the crossbar tandem equipment.

10.07 Fig. 7 shows the method of making an over-all transmission test. When the intertoll trunk terminates in step-by-step selectors the test may be made using the outgoing test circuit at the near end and the code 101 trunk at the far end.

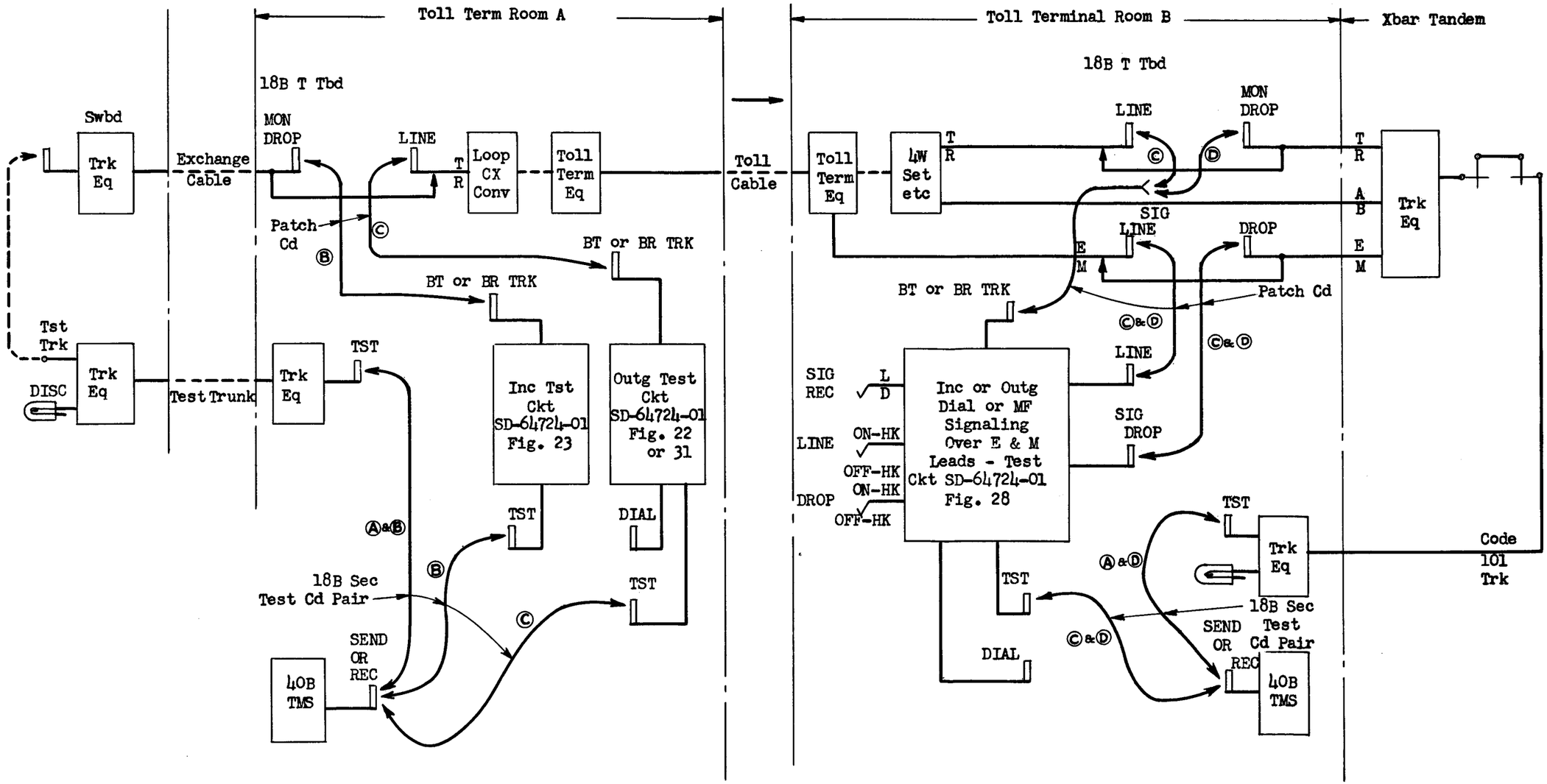


FIG. 6 - TRANSMISSION MEASURING - INTERTOLL TRUNK ORIGINATING IN DECENTRALIZED TOLL SWITCHBOARDS - TESTBOARD LOCATED IN A SEPARATE BUILDING FROM SWITCHBOARD

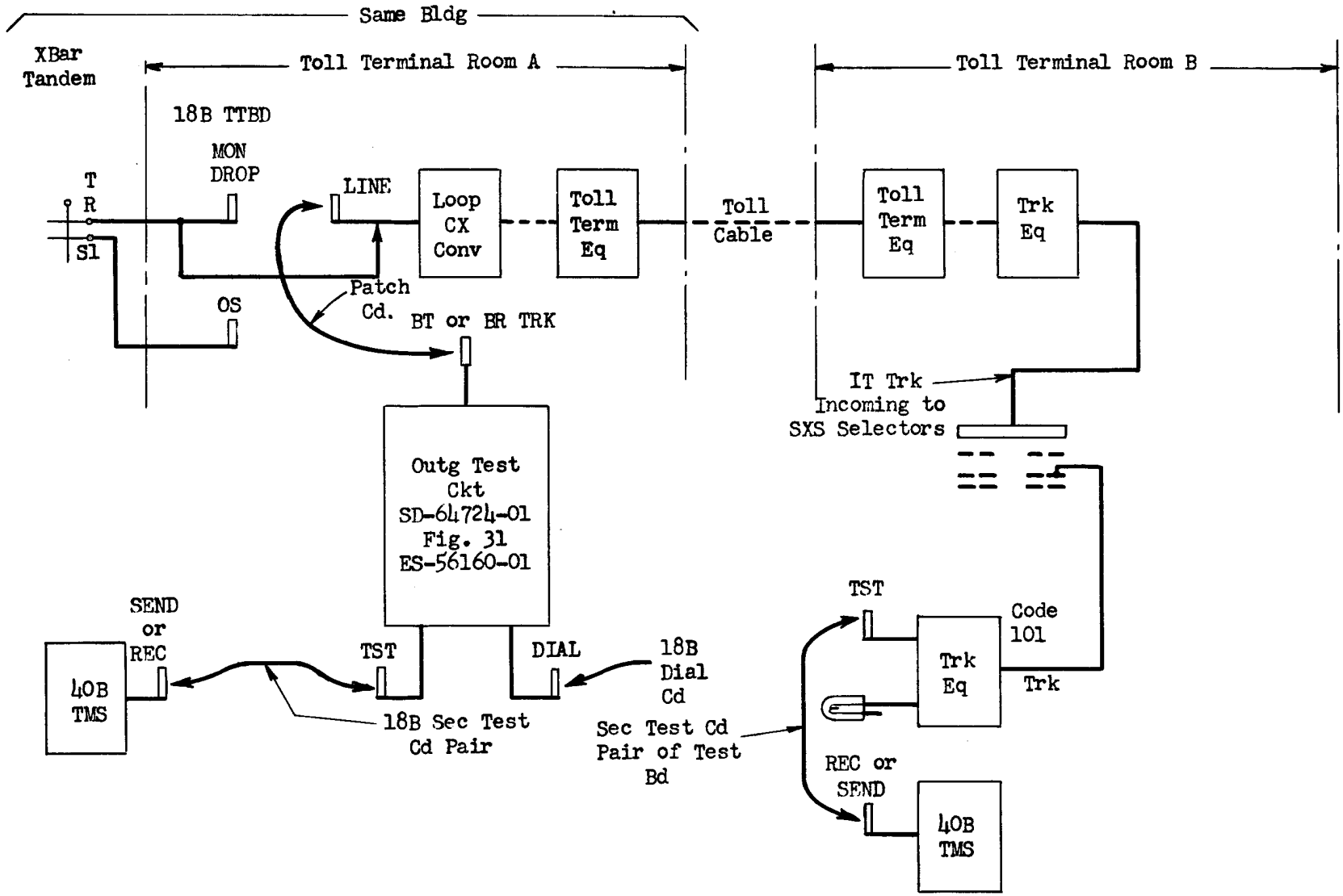
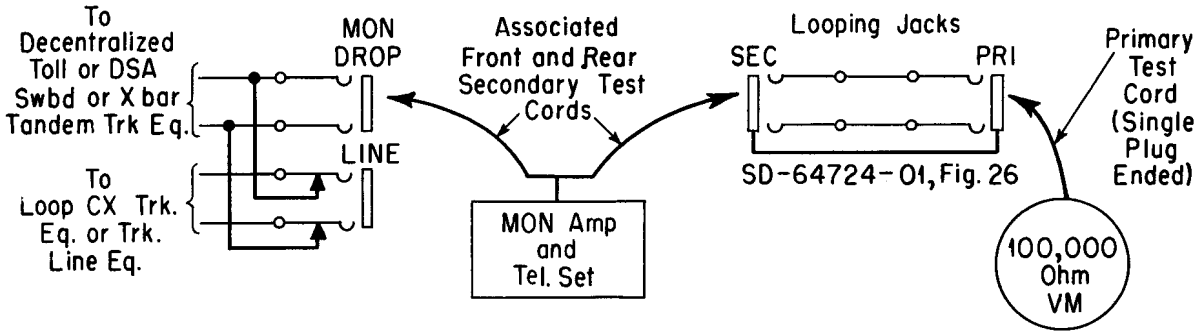


FIG. 7 - TRANSMISSION MEASURING - INTERTOLL TRUNK ORIGINATING IN XBAR TANDEM - XBAR TANDEM IN TOLL OFFICE BUILDING

TESTBOARD NO. 18B - TESTING PROCEDURES - MESSAGE TRUNKS ORIGINATING IN DECENTRALIZED DSA SWITCHBOARDS OR CROSSBAR TANDEM OFFICES

CHART A: BUSY TESTS ON TRUNKS AT MON DROP JACKS

Busy tests on intertoll trunks originating in decentralized toll or DSA switchboards, crossbar tandem offices and incoming trunks to crossbar tandem may be made by measuring the potential on the tip and ring talking pairs at the MON DROP jacks using the 100,000-ohm voltmeter associated with the primary test cords at testboard positions provided with single plug ended primary test cords for tandem testing. In order to permit monitoring at the same time, a looping circuit is provided for connecting both the primary and secondary test cords to the trunk under test.



STEP	PROCEDURE	REMARKS
1	Connect a primary test cord A, B, or C to the PRI jack of the looping jack circuit.	
2	Connect from the SEC jack of the looping jack circuit to the MON DROP jack of the desired trunk using a pair of associated front and rear secondary test cords.	(1) MONITORING: If it is desired to monitor on the trunk, operate the MON key associated with the secondary cord circuit used. (2) CHECKING POTENTIAL ON TIP AND RING CONDUCTORS: To check the potential on the tip and ring conductors of the connected trunk operate the VM key of the primary test cord used. The testboard position meter which will be arranged as a 100,000-ohm voltmeter will be connected across the tip and ring conductors of the trunk under test. Battery on the tip will cause a meter deflection to the left. Battery on the ring will cause a deflection of the meter to the right. (3) INTERPRETATION OF MEASUREMENTS: The condition of the intertoll trunk may be determined by observing which conductor has battery on it as well as the voltage. Some trunks may be so arranged that an idle condition or an "off-hook" condition on an established connection is evidenced by battery on the tip while other trunks may be so arranged that the reverse is true. Therefore, to facilitate busy tests by this method, the characteristics of the trunks used at a particular location should be checked and suitable notations made at the toll testboard positions. It should be noted also, that the various supervisory conditions of trunks using loop supervision may be checked with this arrangement. An example of the readings expected on a typical trunk for various conditions are shown on the following page.

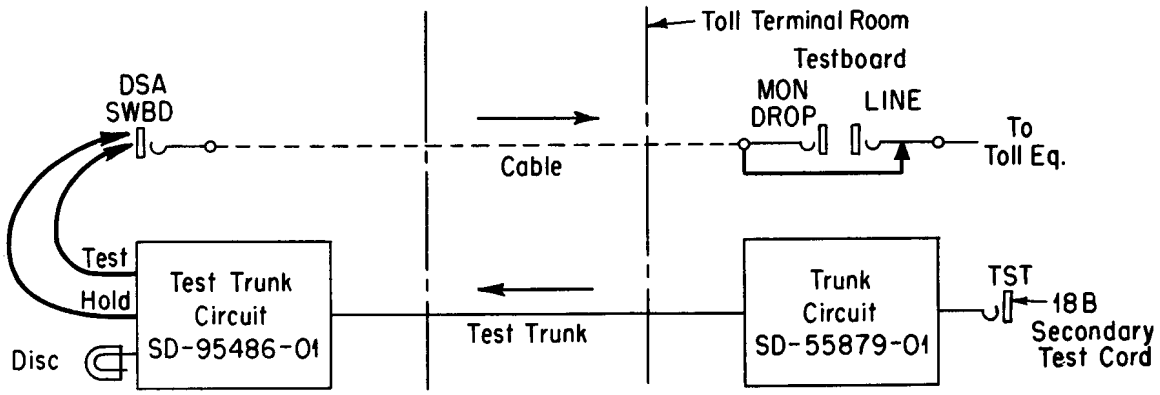
CHART A (Contd.): BUSY TESTS ON TRUNKS AT MON DROP JACKS

Example of Voltmeter Readings on a Typical Incoming Intertoll Trunk to Crossbar Tandem Employing Loop Signaling:

Condition of Intertoll Trunk	Polarity on Tip or Ring	Connected Equipment across Tip and Ring	Approximate Voltmeter Reading in Volts
Idle	Bat. on Tip	Open	48 to Left
Seizure	Bat. on Tip	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Left
Sender Attached Signals Stop	Bat. on Tip	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Left
Go	Bat. on Ring	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Right
Pulsing	Bat. on Ring	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Right
Called Party Answers (Off-Hook)	Bat. on Tip	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Left
Called Party Disconnects (On-Hook)	Bat. on Ring	Converter Closed Bridged Polar Relay and 600 Ohms	25 to Right
Originating End Disconnects	Bat. on Tip	Open	48 to Left

CHART B: OVER-ALL TESTS OF OUTGOING MF KEY PULSING INTERTOLL TRUNKS IN DECENTRALIZED DSA SWITCHBOARDS USING OUTGOING TEST TRUNK BETWEEN THE TOLL TESTBOARD AND THE SWITCHBOARD

Jack ended outgoing test trunks are provided between the toll testboard and decentralized No. 13 or No. 15-type DSA switchboards for the purpose of making over-all operational or transmission tests of MF key pulsing trunks outgoing from DSA switchboards.



(1) PICKING UP INTERTOLL TRUNK AT SWITCHBOARD FOR TESTS - TRUNK IDLE

STEP	PROCEDURE	REMARKS
1	When it is necessary to make over-all tests on a trunk, request the DSA operator, over a talking circuit, to plug the TEST cord of a test trunk into the desired outgoing trunk.	(a) The DSA operator will test the trunk and, if idle, will insert the TEST cord into the trunk jack. (The operator will advise if the desired trunk is busy and, if the testboardman desires, he may request the operator to plug into the busy trunk as discussed below under (2) PICKING UP INTERTOLL TRUNK AT THE SWITCHBOARD FOR TESTS - TRUNK BUSY WITH REGULAR CALL.) (b) The insertion of the TEST cord at the switchboard will cause the intertoll trunk to be held busy and waiting for the testboardman to pick it up.

(2) PICKING UP INTERTOLL TRUNK AT THE SWITCHBOARD FOR TESTS - TRUNK BUSY WITH REGULAR CALL

STEP	PROCEDURE	REMARKS
1	The DSA operator, after being requested to plug the test cord of a test trunk into an outgoing intertoll trunk, may advise that the desired trunk is busy with a regular call. If the testboardman desires that the outgoing intertoll trunk be made available for testing when next idle, he may request the operator to plug into the trunk, ignoring the busy condition.	(a) The DSA operator will insert the TEST cord in the busy intertoll trunk. (b) When the connected intertoll trunk becomes idle, the test trunk circuit will cause it to be held busy for the testboardman.

CHART B (Contd.): OVER-ALL TESTS OF OUTGOING MF KEY PULSING INTERTOLL TRUNKS IN DECENTRALIZED DSA SWITCHBOARDS USING OUTGOING TEST TRUNK BETWEEN THE TOLL TESTBOARD AND THE SWITCHBOARD

(3) PICKING UP INTERTOLL TRUNKS AT THE TESTBOARD FOR TESTS VIA TEST TRUNK

STEP	PROCEDURE	REMARKS
1	When an idle intertoll trunk has been picked up via a test trunk to a DSA switchboard as discussed in subtitles (1) and (2) of Chart B, a secondary test cord may be connected to the TST jack of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures.	The following supervisory indications will be observed: (a) When the plug is first inserted into the TST jack and during the time a sender in the distant office is being sought, an "off-hook" signal will be received over the test trunk and the cord supervisory lamp will be dark. (b) When a sender has been connected at the distant end and the intertoll trunk under test is ready to receive MF pulses, an "on-hook" signal will be received over the test trunk causing the cord supervisory lamp to light. The S lamp associated with the position keyset circuit will also light. (c) When the KP key is operated, the KF or KR lamp will light to indicate that the keyset has been connected to the front or rear cord circuit. On positions equipped with the combined DC-MF keyset the MF lamp will light to indicate that MF key pulsing is being used.

(4) PICKING UP AN INTERTOLL TRUNK IN TROUBLE AND HELD BY THE DSA OPERATOR

When trouble is experienced due to an out-of-order condition and it is desired to hold a trunk at the point of trouble for tests, the HOLD cord of the test trunk at the switchboard should be used. It is assumed that the condition has been reported to the testboard by an operator holding the trunk busy with a regular DSA cord.

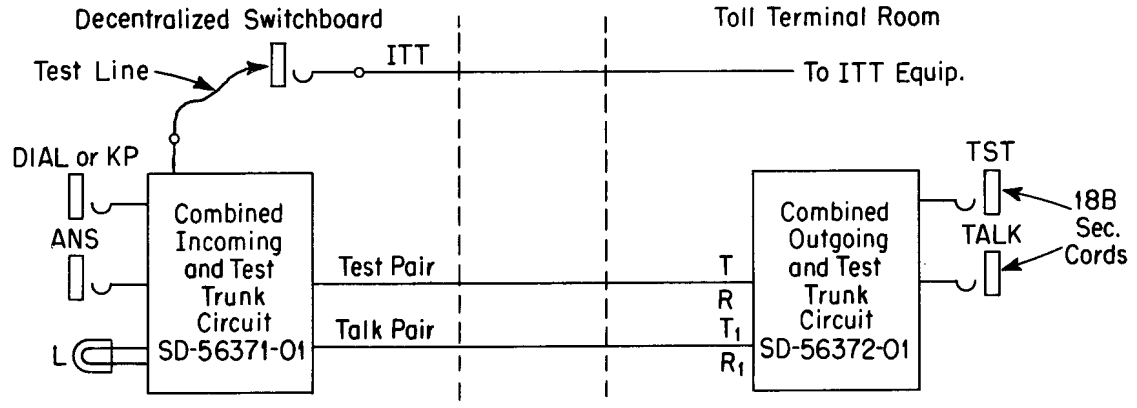
STEP	PROCEDURE	REMARKS
1	Request the DSA operator to plug the HOLD cord of a test trunk into another appearance of the outgoing intertoll trunk but not to take down the regular DSA cord connected to the trunk until told to do so.	
2	Connect a front or rear secondary test cord with its associated TALK key operated to the TST jack used.	(a) The test trunk should be picked up at the testboard before the DSA operator withdraws the regular cord in order to hold the connection at the point of trouble. (b) The test trunk will be cut through to the outgoing intertoll trunk and an "off-hook" or "on-hook" signal will be received from the intertoll trunk via the test trunk evidenced by dark or light secondary cord lamp supervision at the testboard. (c) Tests can then be made from the testboard to locate the point of trouble.
3	Request the operator to remove the regular DSA cord from the intertoll trunk involved.	

(5) DISCONNECT

STEP	PROCEDURE	REMARKS
1	Upon completion of tests, the secondary test cord is removed from the TST jack of test trunk used.	The DSA operator will receive a disconnect lamp signal and will take down the connection.

CHART C: OVER-ALL TESTS OF DIAL PULSING OR MF KEY PULSING TRUNKS USING THE COMBINED OUTGOING AND TEST TRUNK CIRCUIT TERMINATED ON A NO. 1, 3, 3C, OR 3CL TOLL SWITCHBOARD

This circuit provides a jack ended combined outgoing and test trunk circuit between the toll testboard and a decentralized toll switchboard. This test trunk requires two pairs of conductors between the toll testboard and the switchboard. Dialing or d-c key pulsing must be done by the toll operator. When the toll testboard is not arranged for MF pulsing, the toll operator will be required to perform this operation also.



(1) CALL CIRCUIT OPERATION

STEP	PROCEDURE	REMARKS
1	Connect a secondary test cord to the TALK jack of the test trunk. The TALK key should be operated.	Trunk lamp at the toll switchboard will light. A transmission path will be established when the toll operator answers by plugging into the jack associated with the trunk lamp.

(2) TEST TRUNK TO INTERTOLL TRUNK CONNECTION

STEP	PROCEDURE	REMARKS
1	Connect a secondary test cord to the TST jack of the test trunk. The TALK key should be operated.	
2	Request the operator to connect the intertoll trunk, to be tested to the test trunk by using the test line cord.	The toll operator may make a busy test on the intertoll trunk by connecting a regular cord circuit to the DIAL or KP jack and making the busy test with the tip of the test line cord. "On-hook" or "Off-hook" supervision is returned over the test pair and causes the test cord supervisory lamp to respond accordingly.

CHART C (Contd.): OVER-ALL TESTS OF DIAL PULSING OR MF KEY PULSING TRUNKS USING THE COMBINED OUTGOING AND TEST TRUNK CIRCUIT TERMINATED ON A NO. 1, 3, 3C, OR 3CL TOLL SWITCHBOARD

In accordance with the instructions from the toll testboard attendant, the toll operator will establish connection to the intertoll trunk and will also do the dialing or d-c key pulsing necessary for establishing the test connection. In case the toll testboard is not arranged for MF pulsing, this operation will also be carried on by the toll operator. "On-hook" supervision is returned over the test pair as long as a cord is connected to the DIAL or KP jack.

(3) MONITORING ON THE CONNECTED INTERTOLL TRUNK

STEP	PROCEDURE	REMARKS
1	To monitor on the intertoll trunk connection, operate the monitor key of the secondary test cord connected to the TST jack.	This will introduce a slight loss to the transmission on the established connection.

(4) TALKING ON THE CONNECTED INTERTOLL TRUNK

STEP	PROCEDURE	REMARKS
1	To talk on the intertoll trunk connection, operate the talk key associated with the secondary test cord connected to the TST jack.	

(5) RINGING ON THE CONNECTED INTERTOLL TRUNK

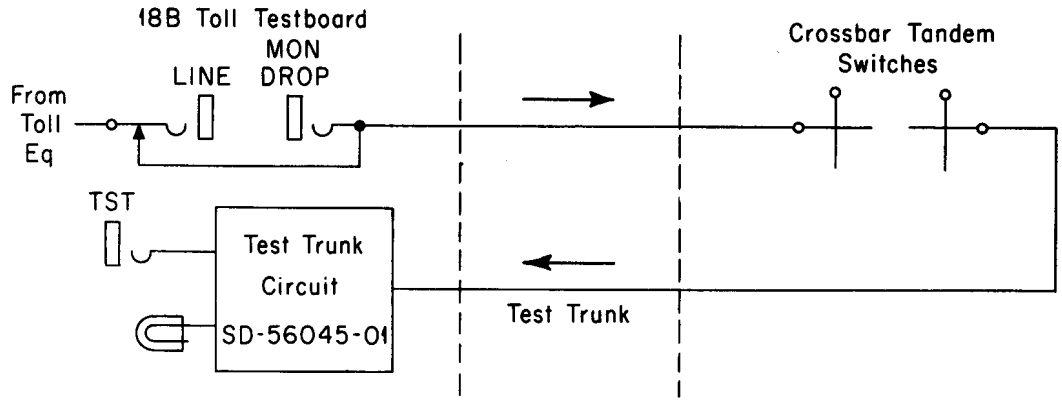
STEP	PROCEDURE	REMARKS
1	To ring on the intertoll trunk connection, operate the ring key associated with the secondary test cord connected to the test pair.	

(6) DISCONNECT - CALL CIRCUIT OR TEST TRUNK

STEP	PROCEDURE	REMARKS
1	Remove the plug of the secondary test cord from the TST and/or TALK jack.	(a) When the secondary test cord is removed from the TALK jack, the toll operator's cord supervisory lamp will light as a disconnect signal. (b) When the secondary test cord is removed from the TST jack, the lamp associated with the plug-ended test line will light as a disconnect signal.

CHART D: OVER-ALL TESTS OF DIAL PULSING OR MF KEY PULSING TRUNKS INCOMING TO CROSSBAR TANDEM USING INCOMING TEST TRUNK TO THE TOLL TESTBOARD FROM THE CROSSBAR TANDEM OFFICE

Incoming jack ended test trunks are provided between crossbar tandem offices and toll testboards for making over-all tests on dial pulsing or MF pulsing intertoll trunks incoming to crossbar tandem offices. The trunk will appear on the crossbar switches and will be assigned a test number in the crossbar tandem office. The procedures in this chart cover the establishing of a test connection at the toll testboard from the MON DROP jack of a loop supervision intertoll trunk through the crossbar tandem office and back to the toll testboard via the test trunk. In cases where the incoming call to the test trunk originates at a distant point, the procedures under STEPS 1A and 1B should be ignored.

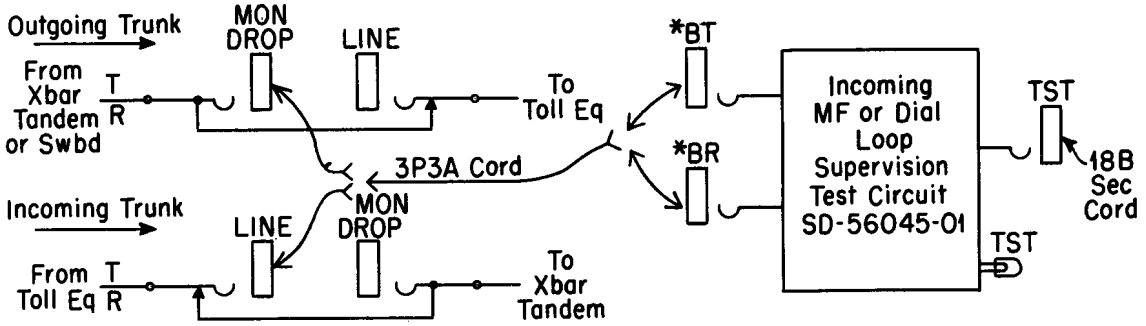


STEP	PROCEDURE	REMARKS
1A	DIAL PULSING INTERTOLL TRUNKS: Refer to Part (5) of CHART F and connect an outgoing loop supervision test circuit for dial pulsing intertoll trunks to the MON DROP jacks of the desired intertoll trunk and dial the test number assigned to the test trunk.	When the test number is reached and the test trunk is seized at the crossbar tandem office the TST lamp of the test trunk will light.
1B	MF PULSING INTERTOLL TRUNKS: Refer to Part (5) of CHART G and connect an outgoing loop supervision test circuit for MF key pulsing intertoll trunks to the MON DROP jacks of the desired intertoll trunk and pulse the test number assigned to the test trunk.	
2	When the TST lamp of the incoming test trunk lights to indicate an incoming call insert a front or rear secondary test cord with associated TALK key operated into the TST jack of the trunk.	The TST lamp will be extinguished, the connection will be established and an answer (off-hook) signal will be given toward the originating end. (When the call originates at the MON DROP jacks of the toll testboard as discussed in STEP 1, a loop connection will be established.)

CHART D (Contd.): OVER-ALL TESTS OF DIAL PULSING OR MF KEY PULSING TRUNKS INCOMING TO CROSSBAR TANDEM USING AN INCOMING TEST TRUNK TO THE TOLL TESTBOARD FROM THE CROSSBAR TANDEM OFFICE

STEP	PROCEDURE	REMARKS
3	After the connection has been established, the desired tests may be made.	(1) INCOMING RECALL: When the originating end recalls: (a) If the TALK key of the secondary cord connected to the test trunk is normal, 120 IPM flashing cord circuit supervision will be received. When the TALK key is operated the flashing signal observed will be extinguished. (b) If the secondary test cord has been prematurely removed from the test trunk the TST lamp associated with the test trunk will light. When a secondary test cord is again plugged into the TST jack of the test trunk the lamp will be extinguished. (2) OUTGOING RECALL: A recall signal may be initiated over the test trunk towards the originating end by alternately operating and restoring the RING key of the secondary test cord connected to the test trunk. This will result in successive "on-hook" and "off-hook" signals on the trunk, causing flashing cord lamp supervision at the distant end. (3) DISCONNECT AT INCOMING END FIRST: When the secondary test cord is removed from the TST jack of the incoming test trunk for a disconnect, an "on-hook" signal will be sent toward the originating end of the circuit resulting in a disconnect signal (lighted cord supervisory lamp) at the originating end. Since the circuit is under control of the originating end, it will not be released and returned to normal until that point disconnects. (4) DISCONNECT AT ORIGINATING END FIRST: When the originating end disconnects first, the circuit will be released and an "on-hook" signal will be received over the incoming test trunk resulting in a disconnect signal (lighted cord supervisory lamp) on the secondary test cord connected to the TST jack of the incoming test trunk. In the event that the test trunk is seized in the crossbar tandem office before the incoming end has disconnected, flashing supervision will be received on the secondary test cord connected to the TST jack of the incoming test trunk. To extinguish the flashing lamp, restore the talk key.

CHART E: INCOMING TEST CIRCUIT PER SD-64724-01, FIG. 23 FOR TESTING TOWARD THE ORIGINATING END ON MF OR DIAL PULSING LOOP SUPERVISION INTERTOLL TRUNKS - OUTGOING FROM DSA SWITCHBOARDS OR CROSSBAR TANDEM OFFICES - INCOMING TO CROSSBAR TANDEM OFFICES



*BT and BR Jacks or Plug-ended Cords May Be Provided.

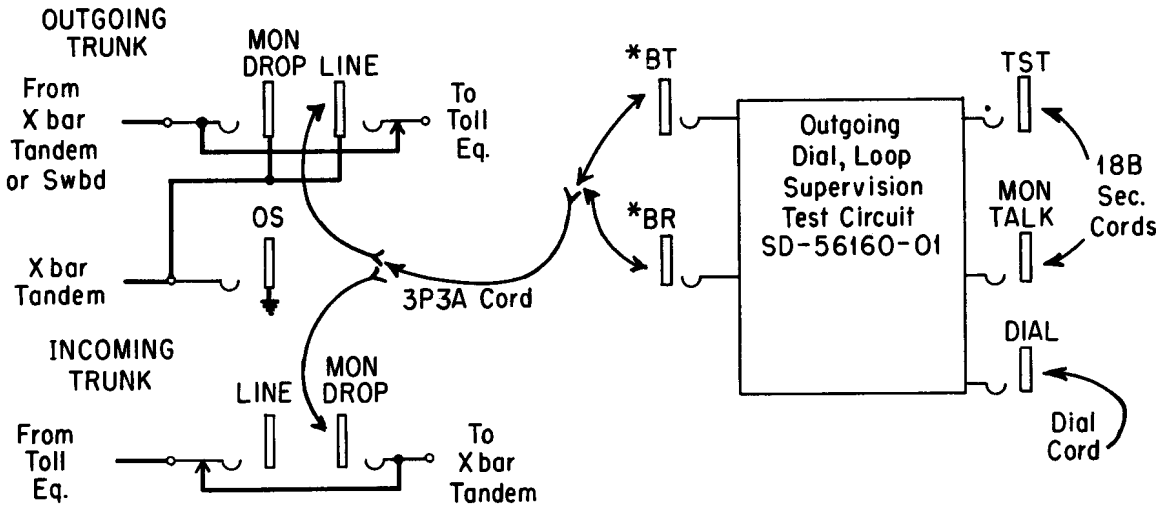
(1) INTERTOLL TRUNKS OUTGOING FROM DSA SWITCHBOARDS OR CROSSBAR TANDEM OFFICES

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the outgoing trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	The TST lamp associated with the test circuit should light on an incoming call.
2	To answer a call, connect a secondary test cord with TALK key operated to the TST jack of the test circuit.	

(2) INTERTOLL TRUNKS INCOMING TO CROSSBAR TANDEM

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the LINE jack of the desired incoming trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	The TST lamp associated with the test circuit will light on an incoming call.
2	To answer a call, connect a secondary test cord with TALK key operated to the TST jack of the test circuit.	

CHART F: OUTGOING TEST CIRCUIT PER SD-64724-01, FIGS. 31 AND 32 FOR TESTING ON LOOP SUPERVISION DIAL PULSING INTERTOLL TRUNKS



*BT and BR Jacks or Plug-ended Cords May be Provided.

(1) MONITORING ONLY

When it is desired to only MONITOR on a trunk, the test circuit need not be used. A secondary test cord with the MON key operated may be connected to the MON DROP jacks of the desired trunk.

(2) MONITORING OR TALKING ON AN ESTABLISHED CONNECTION

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or the TRK BT jack or cord to the MON DROP jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	Connect a secondary test cord with the MON or TALK key operated as desired, to the MON TALK jack of the test circuit.	

(3) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM A DSA OR DECENTRALIZED TOLL SWITCHBOARD

STEP	PROCEDURE	REMARKS
1	DSA OR DECENTRALIZED TOLL SWITCHBOARD: Connect the TRK BR or TRK BT jack or cord of the test circuit to the LINE jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the position dial cord connected to the DIAL jack of the test circuit to dial the desired number in accordance with the usual procedures.	

CHART F (Cont'd): OUTGOING TEST CIRCUIT PER SD-64724-01, FIGS. 31 AND 32 FOR TESTING ON LOOP SUPERVISION DIAL PULSING TRUNKS

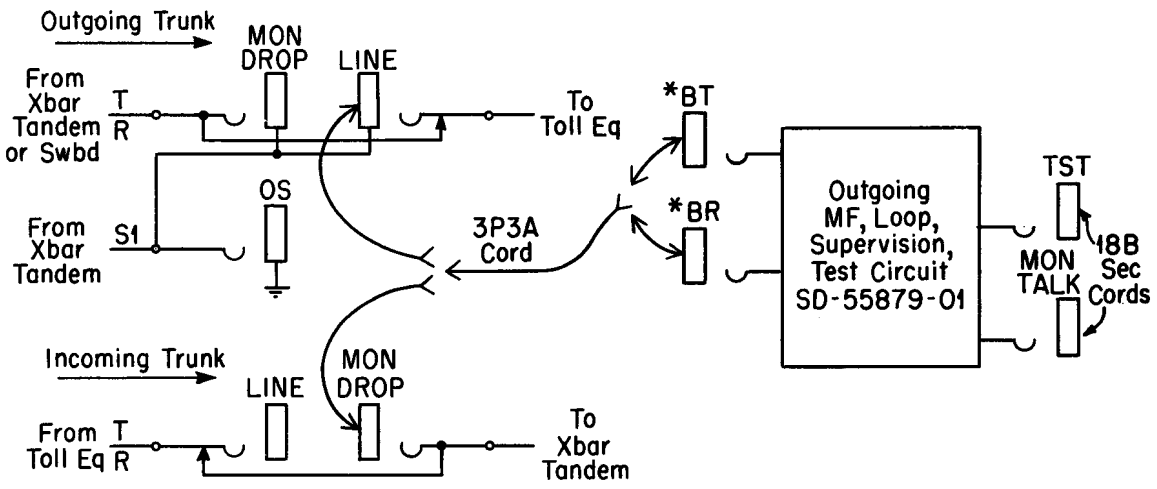
(4) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM CROSSBAR TANDEM EQUIPMENT IN THE SAME BUILDING WITH THE TOLL TESTBOARD

STEP	PROCEDURE	REMARKS
1	Make the trunk busy toward the crossbar tandem equipment by inserting a 322A plug in the OS jacks of the trunk.	
2	Connect the TRK BR or TRK BT jack or cord of the test circuit to the LINE jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
3	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the position dial cord connected to the DIAL jack of the test set to dial the desired number in accordance with the usual procedures.	

(5) ORIGINATING A CALL TO CROSSBAR TANDEM EQUIPMENT ON AN INTERTOLL TRUNK INCOMING TO CROSSBAR TANDEM

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	Patch the proper termination to the LINE jack of the trunk involved.	
3	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the position dial cord connected to the DIAL jack of the test circuit to dial the desired number in accordance with the usual procedures.	

CHART G: OUTGOING TEST CIRCUIT PER SD-64724-01, FIGS. 22 AND 32 FOR TESTING ON LOOP SUPERVISION MF KEY PULSING TRUNKS



*BT and BR Jacks or Plug-ended Cords May Be Provided.

(1) MONITORING ONLY

When it is desired to only MONITOR on a trunk, the test circuit need not be used. A secondary test cord with the MON key operated may be connected to the MON DROP jacks of the desired circuit.

(2) MONITORING OR TALKING ON AN ESTABLISHED CONNECTION

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord to the MON DROP jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	Connect a secondary test cord with associated MON or TALK key operated to the MON TALK jack of the test circuit.	

(3) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM A DSA OR DECENTRALIZED TOLL SWITCHBOARD

STEP	PROCEDURE	REMARKS
1	DSA OR DECENTRALIZED TOLL SWITCHBOARD: Connect the TRK BR or TRK BT cord or jack of the test circuit to the LINE jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures.	

CHART G (Cont'd): OUTGOING TEST CIRCUIT PER SD-64724-01, FIGS. 22 AND 32 FOR TESTING ON LOOP SUPERVISION MF KEY PULSING TRUNKS

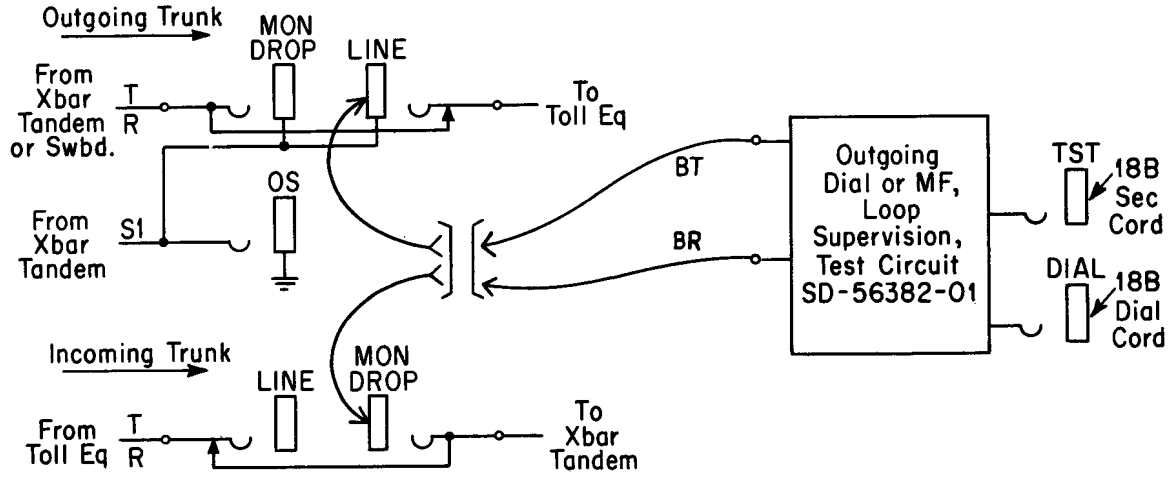
(4) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM CROSSBAR TANDEM - EQUIPMENT IN THE SAME BUILDING WITH THE TOLL TESTBOARD

STEP	PROCEDURE	REMARKS
1	Make the trunk busy toward the crossbar tandem equipment by inserting a 322A plug in the OS jack of the trunk.	
2	Connect the TRK BR or TRK BT jack or cord to the LINE jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
3	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures.	

(5) ORIGINATING A CALL TO CROSSBAR TANDEM EQUIPMENT ON AN INTERTOLL TRUNK INCOMING TO CROSSBAR TANDEM

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	Patch the proper termination into the LINE jacks of the trunk involved.	
3	A secondary test cord (TALK key operated) may be connected to the TST jacks of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures.	

CHART H: OUTGOING TEST CIRCUIT PER SD-64724-01, FIG. 175 FOR TESTING ON LOOP SUPERVISION DIAL OR MF KEY PULSING INTERTOLL TRUNKS



(1) MONITORING ONLY

When it is desired to only MONITOR on a trunk, the test circuit need not be used. A secondary test cord with the MON key operated may be connected to the MON DROP jacks of the desired trunk.

(2) MONITORING OR TALKING ON AN ESTABLISHED CONNECTION

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT cord to the MON DROP jack of the desired trunk. (Use the TRK BR cord when battery on the ring is used as an "off-hook" signal and the TRK BT cord when battery on the tip is used on an "off-hook" signal.)	
2	Connect a secondary test cord, with associated MON or TALK key operated, to the TST jack of the test circuit.	

(3) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM A DSA OR DECENTRALIZED TOLL SWITCHBOARD

STEP	PROCEDURE	REMARKS
1	DSA OR DECENTRALIZED TOLL SWITCHBOARD: Connect the TRK BR or TRK BT cord of the test circuit to the LINE jack of the desired trunk. (Use the TRK BR cord when battery on the ring is used as an "off-hook" signal and the TRK BT cord when battery on the tip is used as an "off-hook" signal.)	
2	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures. To dial on the trunk it will be necessary to connect the dial cord to the DIAL jack and dial in accordance with the usual procedures.	

CHART H (Cont'd): OUTGOING TEST CIRCUIT PER SD-64724-01, FIG. 175 FOR TESTING ON LOOP SUPERVISION DIAL OR MF KEY PULSING INTERTOLL TRUNKS

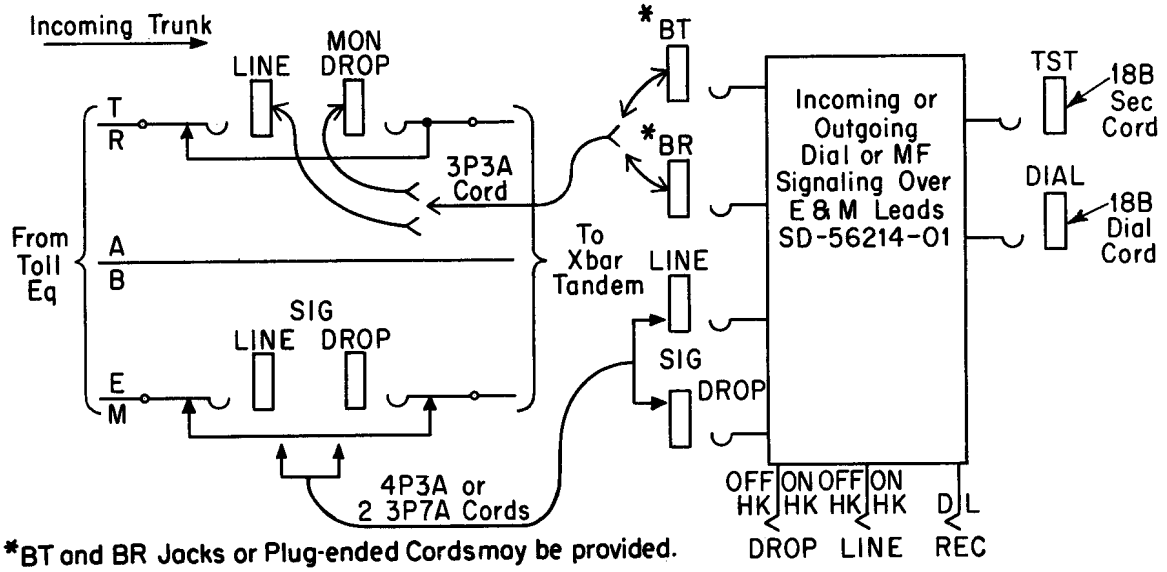
(4) ORIGINATING A CALL TOWARDS THE LINE ON AN INTERTOLL TRUNK OUTGOING FROM CROSSBAR TANDEM - EQUIPMENT IN THE SAME BUILDING WITH THE TOLL TESTBOARD

STEP	PROCEDURE	REMARKS
1	Make the trunk busy toward the crossbar tandem equipment by inserting a 322A plug in the OS jack of the trunk.	
2	Connect the TRK BR or TRK BT cord to the LINE jack of the desired trunk. (Use the TRK BR cord when battery on the ring is used as an "off-hook" signal and the TRK BT cord when battery on the tip is used as an "off-hook" signal.)	
3	A secondary test cord (TALK key operated) may then be connected to the TST jack of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures. To dial on the trunk it will be necessary to connect the dial cord to the DIAL jack and dial in accordance with the usual procedures.	

(5) ORIGINATING A CALL TO CROSSBAR TANDEM EQUIPMENT ON AN INTERTOLL TRUNK INCOMING TO CROSSBAR TANDEM

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT cord of the test circuit to the MON DROP jack of the desired trunk. (Use the TRK BR cord when battery on the ring is used as an "off-hook" signal and the TRK BT cord when battery on the tip is used as an "off-hook" signal.)	
2	Patch the proper termination to the LINE jack.	
3	A secondary test cord (TALK key operated) may be connected to the TST jacks of the test circuit and the desired number pulsed using the position MF keyset in accordance with the usual procedures. To dial on the trunk, it will be necessary to connect the dial cord to the DIAL jack and dial in accordance with the usual procedure.	

CHART I: INCOMING AND OUTGOING TEST CIRCUIT PER SD-64724-01, FIG. 28 FOR TESTING MF OR DIAL PULSING INTERTOLL TRUNKS INCOMING TO CROSSBAR TANDEM - TANDEM AND TOLL OFFICES IN THE SAME BUILDING - SIGNALING OVER E AND M LEADS



(1) MONITORING ONLY

When it is desired to only monitor on a trunk, the test circuit need not be used. A secondary test cord with the MON key operated may be connected to the MON DROP jacks of the desired trunk.

(2) MONITORING OR TALKING

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the desired trunk. (Use the TRK BR jack or cord when battery on the ring is used as an "off-hook" signal and the TRK BT jack or cord when battery on the tip is used as an "off-hook" signal.)	
2	Connect a secondary test cord with associated MON or TALK key operated, as desired, to the TST jack of the test circuit.	

(3) TESTING TOWARD CROSSBAR TANDEM EQUIPMENT ON AN INTERTOLL TRUNK INCOMING TO CROSSBAR TANDEM - MF PULSING

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the desired trunk. Connect the SIG, LINE and DROP, jacks of the test circuit to the SIG, LINE and DROP, jacks, respectively of the intertoll trunk.	The LINE and DROP keys are used to send "on-hook" or "off-hook" signals as required on established test connections.
2	Connect the proper termination to the LINE jack of the intertoll trunk. Operate the SIG REC key to D.	
3	Connect a secondary test cord, TALK key operated, to the TST jacks of the test circuit and pulse the number, using the position MF keyset, when the "start pulsing" signal is received on the test cord lamp.	Rering signals are sent by operating the ringing key.

CHART I (Cont'd): INCOMING AND OUTGOING TEST CIRCUIT PER SD-64724-01, FIG. 28 FOR TESTING MF OR DIAL PULSING INTERTOLL TRUNKS INCOMING TO CROSSBAR TANDEM - TANDEM AND TOLL OFFICES IN THE SAME BUILDING - SIGNALING OVER E AND M LEADS

(4) TESTING TOWARD CROSSBAR TANDEM EQUIPMENT ON AN INTERTOLL TRUNK INCOMING TO CROSSBAR TANDEM - DIAL PULSING

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the MON DROP jack of the intertoll trunk. Connect the SIG, LINE and DROP, jacks of the test circuit to the SIG, LINE and DROP, jacks, respectively, of the intertoll trunk.	
2	Patch the proper termination into the LINE jack.	
3	Operate the SIG REC key to D.	
4	Connect a secondary test cord, TALK key operated, to the TST jack of the test circuit.	To rering, operate the ringing key.
5	Connect the dial cord to the DIAL jack of the test circuit and dial the number when the "start pulsing" signal is received on the test cord lamp.	

(5) TESTING TOWARDS THE ORIGINATING END

STEP	PROCEDURE	REMARKS
1	Connect the TRK BR or TRK BT jack or cord of the test circuit to the LINE jack of the intertoll trunk. Connect the SIG, LINE and DROP, jacks of the test circuit to the SIG, LINE and DROP, jacks, respectively, of the intertoll trunk.	
2	Operate the SIG REC key to L. Connect a secondary test cord, TALK key operated, to the TST jack of the test circuit.	If MF pulses are being sent, the frequencies may be heard on the telephone set. If dial pulses are being sent, the cord supervisory lamp may flicker.
3	To give answer supervision to the originating point, operate the LINE key to OFF HK.	

(6) MONITORING OR TALKING ON AN ESTABLISHED CONNECTION

STEP	PROCEDURE	REMARKS
1	All keys should be normal at the start of test. Patch the SIG, LINE and DROP, jacks of the test circuit to the SIG, LINE and DROP, jacks of the intertoll trunk and the TRK BT or BR jack or cord to the MON DROP jack of the intertoll trunk.	
2	(a) Connect a secondary test cord, with its MON key operated, to the TST jack of the test circuit. (b) To talk on the intertoll trunk, operate the TALK key.	The intertoll trunk may be monitored under the condition in (a).

CHART I (Cont'd): INCOMING AND OUTGOING TEST CIRCUIT PER SD-64724-01, FIG. 28, FOR TESTING MF OR DIAL PULSING INTERTOLL TRUNKS INCOMING TO CROSSBAR TANDEM - TANDEM AND TOLL OFFICES IN THE SAME BUILDING - SIGNALING OVER E AND M LEADS

(6A) TESTING TOWARD ORIGINATING END - SPLITTING AND HOLDING - ESTABLISHED CONNECTION

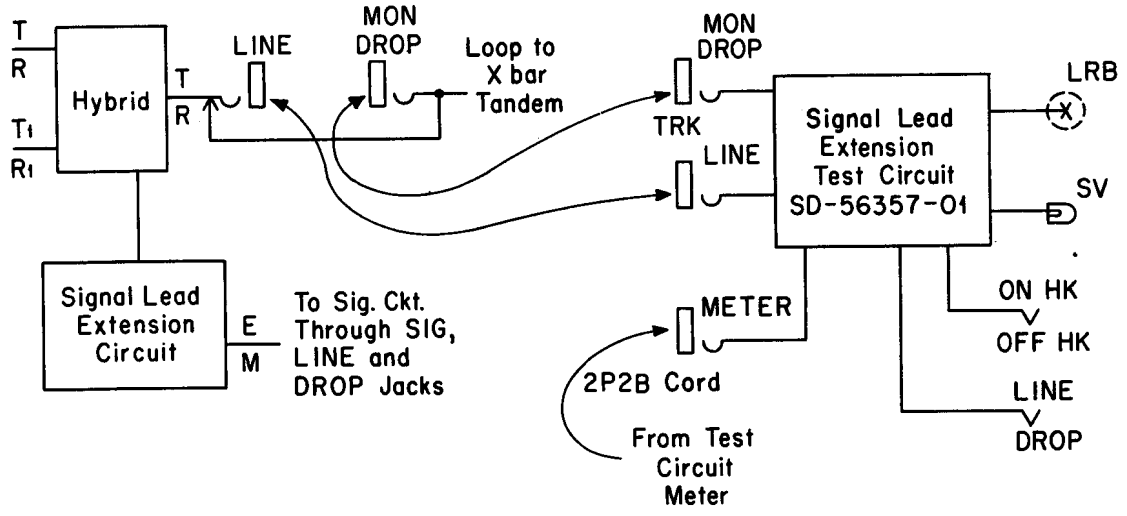
STEP	PROCEDURE	REMARKS
1	To split the connection for testing toward the originating end and holding toward the crossbar tandem, operate the DROP key to OFF HK, the SIG REC key to L and the LINE key to OFF HK in the order stated. Connect the TRK BT or BR jack or cord to the LINE jack of the intertoll trunk.	A dark secondary cord lamp indicates an incoming "off hook" signal is being received by the test circuit.
2	To send "on-hook" signals to the originating end, restore the LINE key. To send "off-hook" signals to the originating end, operate the LINE key to OFF HK.	Rering signals may be received when the LINE key is operated to OFF HK. The secondary cord lamp will light.
3	To disconnect, operate the LINE key to ON HK. Remove the patch cords from the LINE and SIG, LINE and DROP, jacks of the intertoll trunk.	A disconnect at the originating end will light the secondary cord lamp.

(6B) TESTING TOWARD CROSSBAR TANDEM END - ESTABLISHED CONNECTION

STEP	PROCEDURE	REMARKS
1	To split the connection for testing toward the crossbar tandem, operate the LINE key to OFF HK and the SIG REC key to D. Connect the TRK BT or BR jack or cord to the MON DROP jack of the intertoll trunk. Terminate the LINE jack.	Operation of the SIG REC key to D, with the test cord TALK operated, sends a seizure signal to the crossbar tandem.
2A	MF PULSES are sent over the TST and TRK jacks of the test circuit by using the position MF keyset in the usual manner.	(a) The secondary cord lamp will light as a "start pulsing" signal. (b) Answering supervision will extinguish the secondary cord lamp. (c) Rering signals may be sent by operating the ringing key associated with the secondary test cord.
2B	DIAL PULSING: To send dial pulses, connect the dial cord to the DIAL jack and dial the number in the usual manner.	
3	To disconnect, operate the DROP key to ON HK and remove the termination and all patch cords.	A disconnect signal from the crossbar tandem will cause the secondary cord lamp to light.

CHART J: SIGNAL LEAD EXTENSION TEST CIRCUIT

This circuit simulates a signal lead extension circuit so that it can be used to send or receive signals toward the toll or local equipment. When the intertoll trunk is equipped with signal lead extension circuits, sectionalizing tests may be made by using this test circuit to determine whether the trouble is in the toll or local equipment. The signal lead extension circuits may be checked by using the test circuit described in CHART I or a 1A signaling test circuit and this signal lead extension test circuit.



(1) TESTING TOWARD THE LINE

STEP	PROCEDURE	REMARKS
1	Patch the TRK, LINE and MON DROP, jacks of the test circuit to the LINE and MON DROP loop test jacks of the intertoll trunk. Operate the LINE-DROP key to LINE.	(a) The CXL meter of the 1A signaling test set or equivalent panel test circuit can be patched to the METER jack to observe the current in the signaling circuit.
2	Prior to testing towards the line, the LRB (Loop Resistance Balancing) switch should be set to a value equal to one-quarter (plus or minus 15 ohms) of the conductor resistance of the loop to the crossbar tandem office.	
3	Operate the ON HK-OFF HK key as required. Signals received in the test circuit will be registered on the lamp, SV.	

(2) TESTING TOWARD THE DROP

The procedures for testing toward the line shall be followed with the following exceptions:

(a) Operate the LINE-DROP key to DROP.

(b) Set the LRB switch to a value equal to 375 ohms minus one-quarter of the loop conductor resistance (plus or minus 15 ohms).