

**TOLL SWITCHING TRUNKS**  
**MISCELLANEOUS TESTS AND FEATURES**  
**USING MANUAL TEST FRAME SD-68587-01**  
**NO. 4A AND 4M TOLL SWITCHING SYSTEMS**

**1. GENERAL**

**1.01** This section describes a method of testing toll switching trunks using the miscellaneous features of the manual test frame (MTF) SD-68587-01.

**1.02** This issue does not affect the Equipment Test List.

**1.03** The tests covered are:

**A. *E and M Lead Signaling:*** This test checks the ability of the trunk to receive and transmit signaling pulses via the E and M leads.

**B. *Use of Dial Pulse Direct (DPD) Feature (4A Office Only):*** This feature provides the means to pulse a circuit directly over the cable pair, using the 4A signaling test set.

**C. *Use of Maintenance and Service Busy Override Feature:*** This feature is used to force a connection to a trunk which has been made busy by a make-busy plug or service conditions.

**D. *Use of COMM TRK and TRK HOLD***

**Keys:** This feature provides the means to originate and answer calls from the MTF. A means is also provided to hold these calls.

**1.04 *Lettered Steps:*** A letter, a, b, c, etc, added to a step number in Part 3 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same conditions are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

**2. APPARATUS**

**2.01** Tests A and B require a 4A signaling test set, J94743 (Section 100-267-101).

**2.02** Test A requires a patch cord, P6S, 6 feet long, equipped with two 371C plugs.

**2.03** Test B requires a patch cord, P3D cord, 6 feet long, equipped with two 309 plugs (3P3A cord).

**3. METHOD**

STEP	ACTION	VERIFICATION
<b>A. E and M Lead Signaling</b>		
1	At the trunk test and make-busy bay— Using P6S cord, connect the line and drop jacks associated with the E and M leads of the trunk under test to the L- and D- jacks associated with the manual test frame (MTF) to be used.	At the MTF— LINE and DROP lamps extinguished regardless of the condition of the trunk under test.
2	At the MTF— Operate MON key.	LINE and DROP lamps indicate the condition of the trunk under test.

**SECTION 212-567-503**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
		Lighted lamp indicates an on-hook. Extinguished lamp indicates an off-hook.
<b>Off-Hook Toward the Line</b>		
3	To send off-hook toward the line— Operate TEST key.	LINE and DROP lamps indicate condition of the trunk under test.
4	Operate OFF HK-L key.	Off-hook is sent toward line.
5	Restore OFF HK-L key.	Off-hook condition removed and on-hook is sent toward line.
6	Restore TEST key.	
<b>Off-Hook Toward the Drop</b>		
7	To send off-hook toward the drop— Operate TEST key.	LINE and DROP lamps indicate condition of the trunk under test.
8	Operate OFF HK-D key.	Off-hook is sent toward the drop.
9	Restore OFF HK-D key.	Off-hook condition is removed and on-hook is sent toward drop.
10	Restore TEST key.	
<b>Dial Toward the Line</b>		
11	Restore all keys.	All lamps extinguished.
12	Operate TEST key.	LINE and DROP lamps indicate condition of trunk under test.
13	Operate OFF HK-L key.	Off-hook is sent toward line. Supervision observed on LINE lamp.
14	Operate DIAL LINE key.	Dial on MTF connected for use.
15	Dial digits required to reach station desired.	
16	Upon completion of dialing— Restore DIAL LINE key.	
17	Upon completion of test— Restore all keys.	All lamps extinguished.
<b>Dial Toward the Drop</b>		
18	Operate TEST key.	LINE and DROP lamps indicate condition of trunk under test.

STEP	ACTION	VERIFICATION
19	Operate OFF HK-D key.	Off-hook is sent toward drop. Supervision observed on DROP lamp.
20	Operate DIAL DROP key.	Dial on MTF connected for use.
21	Dial digits required to reach station desired.	
22	Upon completion of dialing— Restore DIAL DROP key.	
<b>E and M Lead Access</b>		
23	To gain access to line E and M leads and drop E and M leads for test— Operate E & M ACC key.	Line E and M leads brought out to LINE jack at MTF. Drop E and M leads brought out to DROP jack at MTF.
24	Refer to Section 100-267-101 for description and method of operation of 4A signaling test set, for particular testing procedures required.	
<b>E and M Lead Splitting</b>		
25	To split line E and M leads from drop E and M leads— Operate SPLIT key.	E and M lead continuity between line and drop equipment is broken.
26	Upon completion of test— Restore all keys.	All lamps extinguished.
<b>B. Use of Dial Pulse Direct (DPD) Feature (4A Office Only)</b>		
<i>Note:</i> Trunk under test is patched to the MTF, and trunk selector switch is not required.		
1	At trunk test and make-busy bay (TMB)— Using 3P3A cord, connect trunk to be tested to the DPD jack (located at the miscellaneous circuit for TMB).	
2	At MTF— Operate DPD key.	ONH lamp lighted.
3	Dial digits required to reach desired far-end termination.	
4	Momentarily depress ED key.	Test call completes to dialed termination, indicating cable pair passing pulses satisfactorily. ONH lamp extinguished.

## SECTION 212-567-503

STEP	ACTION	VERIFICATION
5a	If test call is not completed to far-end termination dialed— Operate RN key.	Trunk under test disconnected from MTF.
6a	Patch from DPD jack on MTF to 4A signaling test set.	
7a	Refer to Section 100-267-101 for description and method of operation of 4A signaling test set, for particular testing procedures required.	
8	At conclusion of testing— Restore all keys.	All lamps extinguished.
<b>C. Use of Maintenance and Service Busy Override Feature</b>		
1	At the MTF— Perform all steps required by the test to be performed to connect the outgoing trunk under test to the MTF (up to, but not including, operation of the ST key).	
2	Operate M&SB-OVRD key.	
3	Momentarily depress ST key.	If trunk under test is service busy— Test frame proceeds to the point of SL check. Lamp indications are in accordance with the class of the trunk being tested, and the condition of the terminating connection as noted in Table A. If trunk under test is maintenance busy— Test frame proceeds to point of outpulsing. KP lamp lighted. If trunk under test is falsely busy— Test frame progress is determined by actual condition of the trunk.
4a	If trunk under test is service busy— To verify service busy condition by monitoring trunk— Momentarily operate SB CONT key.	<b>Note:</b> The maintenance and service busy override (M&SB-OVRD) feature will not override a maintenance busy on outgoing trunk circuit SD-68514-01.
5a	Operate MON key.	Trunk under test cut through to handset on MTF.

## STEP

## ACTION

## VERIFICATION

**TABLE A  
SERVICE BUSY, CLASS, AND  
LAMP INDICATIONS**

TRUNK CLASS UNDER TEST	LAMP DISPLAY WITH TERMINATING END	
	ON-HOOK	OFF-HOOK
CX	LPO	LPO and PSL
DC	FSL	PSL
LP	LPO	LPO and PSL
MISC-MAN	FSL	PSL
MF	FSL	PSL
SXS-ACR or SXR	LPO	LPO and PSL
TX	FSL	PSL

Service condition can be monitored on handset on MTF.

6a Restore MON key.

**Caution:** *At this point the talk path of the trunk under test will be cut through to the handset on MTF if TEL key is operated.*

7a Operate RN key.

Trunk under test disconnected from MTF.

8a Restore all keys and switches.

All lamps extinguished.

9b If trunk under test is maintenance busy—  
Proceed with performance of test.

**D. Use of COMM TRK and TRK HOLD Keys**

**Originating an Outgoing Call**

1 Operate TEL key.

2 Operate COMM TRK- key associated with the outgoing line to be used.

COMM TRK- lamps light at all other MTFs as a busy indication.  
If COMM TRK- key is associated with an automatic trunk—  
Signal is sent to far end until call is answered.  
If COMM TRK- key is associated with a local

**SECTION 212-567-503**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
		station line (dial trunk)— COMM TRK- lamp lighted as a "start dial" signal after sender is attached at far end.
3a	If COMM TRK- key is associated with a local station line— Dial digits required to reach station desired.	Call completes to station dialed.
4b	If COMM TRK- key is associated with an outgoing ringdown trunk— Momentarily depress $\pm 105$ key.	Signal is sent to far end until call is answered.
5	To hold the connection— Operate TRK HOLD key associated with the COMM TRK- line being used.	TRK HOLD lamp flashes.
6	To disconnect— Release TEL and COMM TRK- keys.	All lamps extinguished.

**Answering an Incoming Call**

7	Far end seizes trunk.	COMM TRK- lamp will flash at all MTFs.
8	At any MTF— Operate COMM TRK- key.	COMM TRK- lamp stops flashing and remains lighted at all MTFs.
9	Operate TEL key.	
	<i>Note:</i> This feature is also known as the "Third Connect for Conversation" and can be used even though the MTF is preoccupied with testing one or two outgoing trunks.	
10	To hold the connection— Operate the TRK HOLD key associated with the COMM TRK- line being used.	TRK HOLD lamp flashes.
11	To disconnect— Release TEL and COMM TRK- keys.	All lamps extinguished.