Installation Engineering Handbook 269
Western Electric Company, Incorporated
Northern Illinois Works

Section 10-27-78
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NO. 3 ESS
SYSTEM VERIFICATION
TRUNK AND LINE TEST PANEL
(LINES)

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1. GENERAL INFORMATION

1.1 Description

1.11 The purpose of this section is to verify the operation of the Trunk and Line Test Panel (TLDP) on a system verification basis. It verifies the capabilitiy of the TLTP to perform line testing as designed. The TLTP has two fixed network appearances (Access Trunks 1 and 2) enabling the system to connect up to two lines to the panel at any given time.

1.2 Sequence

1.21 These tests may be performed after the TLTP has been tested manually and Section 528.01 of this handbook has been completed successfully. Refer to Section 1 of this handbook for further preferred test sequence information.

1.3 References

1.31 The following documents will be useful as references for the execution of the tests of this section:

Document	Title
SD/CD-3H904-01	No. 3 ESS Test Frame
HB 269, Sec. 500	Planning Information for System Verification
→ HB 269, Sec. 503	Operational Testing - General Information
HB 269, Sec. 528	System Verification, Trunk and Line Test Panel, General Information and Operating Procedures

2. RECORDS AND REQUIREMENTS

2.1 Records: The results of the tests of this section shall be recorded on forms SD-97-1313 and SD-97-1315. For detailed information on filling out test records, see Section 6B, Handbook 3.

2.2 Requirements: The tests in this section are based on the No. 3 ESS Performance Requirements BSP 820-650-180.

3. TEST EQUIPMENT

Amt.	Code	Type
1	1C1 or	Dial Pulse Coin Telephon
1	1C2	TOUCH-TONE Coin Telephon
1	1500D or	TOUCH-TONE Telephone
1	500C/D	Dial Pulse Telephone
1	W4CJ with KS-21386 adapter. (Dual plug, 464A) or	Test Cord with Standard
1	W4CT	Test Cord with Miniature Plugs

Printed in U.S.A.

Amt.	Code	Type
1	ITE-4631	Test Headset

See ED-3H159 for more specific details on cords and plugs.

This equipment is TELCo supplied.

4. PRELIMINARY INFORMATION

4.1 These tests will utilize two test lines (one coin and one noncoin) within the No. 3 ESS office. The installer shall have the option as to which test lines to use and he may rfer to office records form 3100 for the Directory Number and Terminal Equipment Number (TEN) of the test lines to which he must connect the test telephones.

4.2 The telephone ses should be placed on the writing desk of the TLTP and the leads run over to the CDF terminal points as a matter of convenience; however, it is not mandatory.

4.3 The installer will designate the 1500D or 500C/D (noncoin) telephone as test phone "A" and the 1C1 or 1C2 (coin) telephone as test phone "B".

5. TEST PROCEDURE

5.1 System Connection

5.11 Perform the steps of Table 1 for connecting a line to the TLTP. Note that once the ON key is depressed and the TLTP program is loaded, it should not be depressed again until <u>after</u> the completion of this section.

5.12 If the connection is made correctly, it verifies the interfacing of the TLTP program and translations for lines.

5.2 Line Testing

5.21 Perform the steps of Table 2 to verify the capability of the TLTP to perform all line testing features for which it was designed.

5.3 Monitor Function

5.31 The following test checks the "No Test Access". There are four No Test Access points which are connected via permanent cross-connects to four separate OEs. The input records (ESS form 3500-2) show which OE is connected to which No Test Access.

A. Select two test phones which have an OE in an even network (concentrator group). Designate one phone "A" and the other phone "B".

B. Using test phone "A" call test phone "B" and verify a talking path.

C. Turn on the Trunk Line Test Panel (TLTP).

D. Using Access Trunk 1 dial the Directory number of test phone "A" (i.e., dial 2-NNX-XXXX-#).

E. The equipment status 1 lamp should be flashing at a 60 IPM rate indicating the selected circuit is traffic busy.

F. Depress the Monitor 1 key. The PROGRESS or ERROR lamp on the TLTP should be on steady.

G. Verify the monitor function by speaking into test phone "A" or "B" and listening on the TLTP headset.

H. Depress to release the Monitor 1 key.

I. Depress the Release 1 key.

J. Using Access Trunk 1 dial the directory number of test phone "B".

K. Repeat paragraphs 5.31E - 5.31I.

L. Select two new test phones which have an OE in an odd network. Designate one phone "A" and the other phone "B".

M. Repeat paragraphs 5.31B - 5.31J.

N. Turn off the TLTP.

5.4 Junctor Loss Test

5.41 Perform the following test on the TLTP. Note that this test cannot be performed if the test frame is not equipped with a transmission measuring set.

A. Turn on the TLTP.

B. Access any junctor in the office using Access Trunk 1 on the TLTP (i.e., dial 3-01-00-#).

C. Depress XMT1, XMT2 and ODBM keys.

D. The transmission measuring set should read approximately -.2 dBm.

E. Operate the "A & B" relays of the junctor under test.

F. The transmission measuring set (on the TLTP) should now change by approximately .6 dBm to -.8 dBm.

G. Release the junctor and turn off the TLTP.

5.5 Status Control Test

5.51 Select a trunk circuit from those available in the office.

A. Turn on the TLTP.

B. Using Access Trunk 1 dial the selected trunk up on the TLTP (i.e., dial 1-130-000-#).

C. Depress the Out-Of-Service key; the associated lamp should lite.

D. Depress the Release 1 key.

E. The above circuit should be removed from service and the TTY will output a message indicating that the circuit was removed. If the circuit is not removed, check to see if the Out-Of-Service key is causing scan point 00-26-06 to saturate.

F. Depress the Out-Of-Service key; the lamp should go out.

G. Dial up the above circuit again on Access Trunk 1.

H. Depress the ACTIVE IDLE key; the lamp should lite.

I. Depress the Release 1 key.

J. The above circuit should be restored to service and the TTY will output a message indicating the restoral. If the circuit is not restored, check to see that the ACTIVE IDLE key is saturating scan point 00-26-05.

K. Depress the ACTIVE IDLE key; the lamp should go out.

L. Dial up the above circuit again on the TLTP Access Trunk 1.

M. Depress the PD GROUP key; the lamp should lite.

N. Depress the Release 1 key.

O. All circuits sharing the same PD pack as the above circuit should be removed from service. If the circuits are not removed check to see that the PD GROUP key is saturating scan point 00-26-07.

P. Restore all of the above circuits to service using the TTY.

5.6 PD Triplett Test

5.61 Type in on the system TTY the following message:

MON:SCAN 0 27!

A. Turn the PD Triplett switch on the TLTP to the "ABC" position. Bits 3 and 4 on the display buffer (DB) should show a saturated condition (lights lit).

B. Turn the PD Triplett switch to the "DEF" position. Bit 3 should unsaturate and bit 4 should remain saturated.

C. Turn the PD Triplett switch to the "GHJ" position. Bit 3 should saturate and bit 4 should unsaturate.

D. Turn the PD Triplett switch to the "KLM" position. Type the following message on the system TTY:

STOP:UTIL!

TABLE 1

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
1	ON (key)	Depress	TLTP	TLTP program is loaded. The ON lamp will light in one of the following states: 60 IPM - Program being loaded. 120 IPM - Loading denied due to system too busy or a higher priority program in progress. STEADY - program is loaded.	If the ON button is depressed again, the TLTP program will be unloaded. CAUTION: WAIT FOR STEADY LAMP!
2	Access Trunk 1 (key)	Depress	Access trunk control	Lamp within key lights steady.	
3	Handset	Lift off-hook	Panel mounted telephone	Hear dial tone	Origination is entered into system.
4	2 (TOUCH-TONE key)	Depress	Panel mounted telephone	CID entered into system	Digit 2 is reserved for lines.
5	Seven digits (directory number)	Depress	Panel mounted telephone	Directory number is entered into system.	Dial directory number of test phone "A".
6	# (TOUCH-TONE key)	Depress	Panel mounted telephone	The # sign sends an execute signal to the system and the number is outpulsed.	
7	Progress or Error (lamp)	Observe	Status	Lights as follows: Steady - request successfully completed. Momentarily off - request has been recognized. 60 IPM - error in attempting to perform valid request. 120 IPM - error in input information.	LAMP SHOULD BE STEADY BEFORE CONTINUING.
8	Equipment Status 1 (lamp)	Observe	Status	Lights as follows: Steady - selected circuit was in idle state and connection was successful.	Lamp MUST be steady or 120 IPM before continuing.

TABLE 1 (Cont.)

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
10	Ring (key)	Depress	State control	Ring lamp flashes. Ringing is applied to test phone.	
11	Test phone handset	Lift off-hook	Test phone "A"	Talking path established.	Verify talking path.
12	ROH (key)	Depress	Line test	Receiver off-hook is applied to test phone.	Verify ROH tone.
13	Test phone handset	Place on-hook	Test phone "A"		
14	Release 1 (key)	Depress	Access trunk control	All lamps except "ON" extinguish.	
15	Panel mounted handset	Place on-hook	TLTP		

TABLE 2

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
1	Access Trunk 2 (key)	Depress	Access Trunk control	Lamp within key lights steady.	
2	Handset	Lift off-hook	Panel mounted telephone	Hear dial tone.	Origination is entered into system
3	2 (TOUCH-TONE key)	Depress	Panel mounted telephone	CID entered into system.	Digit 2 is reserved for lines.
4	Seven digits (directory)	Depress	Panel mounted telephone	Directory number is entered into system.	Dial directory number of test phone "B".
5	# (TOUCH-TONE key)	Depress	Panel mounted telephone	The # sign sends an execute signal to the system and the number is outpulsed.	
6	Progress or Error (lamp)	Observe	Status	Lights as follows: Steady - request successfully completed. Momentarily off - request has been recognized. 60 IPM - error in attempting to perform valid request. 120 IPM - error in input information.	LAMP SHOULD BE STEADY BEFORE CONTINUING.

TABLE 2 (Cont.)

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
7	Equipment Status 2 (lamp)	Observe	Status	Lights as follows: Steady - selected circuit was in idle state and connection was successful. 60 IPM - selected circuit was traffic busy. No connection was made. 120 IPM - selected circuit was maintenance busy. Connection was successful.	Lamp MUST be steady or 120 IPM before continuing.
8	Access Trunk (switch)	Set to "2" position.	State control		
9	Ring (key)	Depress	Line test	Ringing applied to test phone.	Ring lamp flashes.
10	Test phone handset	Lift off-hook	Test phone "B"	Verify talking path established.	
11	Test phone handset	Replace on-hook			
12	Associated Junctor (switch)	Set to "YES" position	State control		
13	ABC (switches)	Set to A B C state	State control		
14	Execute (key)	Depress	PD TRIPLET	The junctor associated with test call on Access Trunk 2 is set to the BYPASS state.	
15	Coin test phone	Deposit coin in slot	Test phone "B"		
16	Coin Return (key)	Depress	Line Test	The COIN lamp lights as long as COIN RETURN key is depressed. Coin is returned at test phone "B".	
17		Put coin back into test phone "B"	Test phone "B"		

TABLE 2 (Cont.)

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
18	Coin Collect (key)	Depress	Line test	The COIN lamp lights for as long as COIN COLLECT key is depressed. Coin is collected at test phone "B".	
19	VM2 (key)	Depress	Test select	VM2 lamp lights. 100K lamp lights.	Control is passed to voltmeter.
20	BT (key)	Depress	Voltmeter	Voltmeter reads 0. (Momentary meter deflection normal)	Begin Insulation Breakdown test.
21	1K (key)	Depress	Voltmeter	Voltmeter reads 0.	
22	TRR (key)	Depress	Voltmeter	Voltmeter reads 0.	
23	1K (key)	Depress to release	Voltmeter	1K lamp goes out. 100K lamp lights. Voltmeter reads 0.	
24	TRR (key)	Depress to release	Voltmeter	Lamp within key goes out. Voltmeter reads 0.	
25	BT (key)	Depress to release	Voltmeter	Lamp within key goes out. Voltmeter reads 0.	End Insulation Breakdown test.
26	VM2 (key)	Depress to release	Test select	Lamp within key goes out. 100K lamp goes out.	
27	A B C (switches)	Set to A B $\overline{C}$	State control	Sets up for TALK state.	
28	Execute (key)	Depress	PD TRIPLET	The junctor associated with the test call on Access Trunk 2 is set to the TALK state.	
29	Test phone	Lift off-hook	Test phone "B"	Verify talking path.	
30	Test phone handset	Place on-hook	Test phone "B"	No talking path	
31	Panel mounted handset	Place on-hook	TLTP		
32	In-Out (jacks) and Protector Blocks	Remove test cord inserted in steps 31 & 32.	Test talk facility mounted on the CDF.		

TABLE 2 (Cont.)

STEP	KEY OR FEATURE	OPERATION	LOCATION	RESULT	COMMENTS
33	Release 1 (key) and release 2 (key)	Depress	Access Trunk control	All lamps except the "ON" lamp go out.	
34	Test phone handset	Lift off-hook	Test phone "A"	Hear dial tone.	
35	Test phone "A"	Dial directory number of "COMM LINE" of TLTP	Test phone "A"	Bell rings on TLTP.	
36	Panel mounted handset	Take off-hook	TLTP		
37	COMM LINE (key)	Depress	Access trunk control	Lamp within key lights. Talking path exists between TLTP and test phone "A".	Verify talking path.
38	Test phone handset	Replace on-hook	Test phone "A"	No talking path	
39	RELEASE COMM LINE (key)	Depress	Access trunk control	Lamp within COMM LINE key goes out. Path is torn down.	
40	Panel mounted handset	Replace	TLTP	TLTP is idled.	

Arrows indicate new or changed information.

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