Installation Engineering Handbook 269
Western Electric
Northern Illinois Works

Section
4-3-81
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dated 2-3-81

NO. 3 ESS
SYSTEM VERIFICATION TESTS
TRUNK CIRCUITS

CONTENTS

1. GENERAL INFORMATION

1.1 Description

1.11 This section provides instructions for performing system verification tests on trunks, groups 128 through 255. These tests will consist of running software diagnostics to verify the operation of the hardware. No translation tests, per se, will be made.

1.2 Testing Prerequisites

1.21 The tests of Handbook 269, Section 534, System Verification of Service Circuits, must be successfully completed prior to the performance of this section.

1.3 References

1.31 The following documents may prove useful during the execution of the tests herein and for trouble-shooting.

Document	Description
TLM-3H110	Trouble Locating Manual, Trunks
→ PA-3H302	Office Data Tables Layout for 4A
→ PA-3H303	Office Data Tables Layout for 3E3
SD,CD-3H220	Universal Trunk Circuit
CPS FB370	Incoming Reverse Battery Trunk Circuit
CPS FB371	Incoming Reverse Battery Trunk Circuit
CPS FB399	Outgoing Reverse Battery Trunk Circuit
CPS FB382	Two-Way E&M Lead Trunk Circuit
CPS FB391	Two-Way E&M Lead Trunk Circuit
PR-3H291*	Program Listing - Outgoing Reverse Battery Trunk Tests (ORBT)

* The comments in the listings may be helpful.

2. RECORDS AND REQUIREMENTS

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

3. TEST PREPARATION

3.1 It will be necessary to consult Input Form ESS 3202-3, Trunk Group Table, to determine which trunk groups are provided in the office. Input Form ESS 3202-3 also contains the "Highest Member Number" and, hence, the number of members in each equipped group.

3.2 Table 1 is included as a guide as to which types of trunks may be tested by this section. Input Form ESS 3202-3 contains the "circuit code" (in decimal) of each equipped trunk group. Only those types of trunks whose "circuit codes" appear in Table 1 can be tested by this section.

4. TEST EQUIPMENT

4.1 The only test equipment required for the performance of this section is the ITE-5726 Trunk Terminating Capacitors which are provided in the Test Accessory Set, ITE-5653.

5. TEST PROCEDURE

5.1 General

5.11 The Diagnostic Control Program (DCON) controls the testing of trunks. The individual trunk test programs (e.g., EMTWT, Twp-Way E&M Trunk Tests) are in the form of data tables which DCON uses to sequence through testing.

5.12 Table 1 includes terminating information for the ITE-5726 Trunk Terminating Capacitors. For trunk types listed with terminal numbers in the "Terminate Pins:" column, each member of that type must be terminated with one ITE-5726 capacitor prior to testing. The capacitor must be connected on the circuit pack connector between the two pin numbers listed to insure passing the "AC Continuity" portion of the diagnostic.

5.13 A trunk must be removed from service prior to testing using a message of the form:

RMV:TRK(a,b),DSA!

where: a = trunk group number (decimal)
b = member number (decimal)

5.14 Testing will be initiated by a teletype request message of the form:

RST:TRK(a,b)!

5.2 Test Operation

5.21 Testing may be done in any order desired. An All-Tests-Pass message of the form "M tt DGN TRK ATP" shall be received for each circuit before it may be considered successfully tested. For all other printouts, refer to paragraph 6, Analysis of Error Printouts.

5.22 Using the above information and criteria, test all members of all "testable" (see paragraph 3.2) trunk groups.

TABLE 1

GUIDE TO TRUNK TESTING

CKT CODE (DECIMAL)	SD NO.	CPS NO.	DESCRIPTION OF CIRCUIT BEING TESTED	CIRCUITS USED IN TESTING	TERMINATE PINS
01	3H220	FB382	Two-Way E&M Lead Trunk	TPD, CPT	T1 R1
01	3H220	FB391	Two-Way E&M Lead Trunk	TPD, CPT	T1 R1
01	3C304		D4 Direct Interface	CPT	T1 R1
03*	3H220	FB371	Incoming Reverse Battery Trunk	CPT	
04*	3H220	FB370	Incoming Reverse Battery Trunk	CPT	
05	3H220	FB399	Outgoing Reverse Battery Trunk	CPT	Connect to Incoming RB Trunk

* Simple Continuity Check in Idle State during Precut Mode with a VOM across the T&R should read ± 1.5K ohms.

6. ANALYSIS OF ERROR PRINTOUTS

6.1 Error printouts will be of the general form:

M tt DGN TRK a b STF
pp-tttt-oo s ffff ffff ffff ffff

where: a = trunk group number (decimal)
b = member number (decimal)
p = phase number that failed
t = test number that failed
o = operation number that failed
s = Start Code Mismatch bit (a '1' indicates a Start Code Mismatch)
f = Failure code (binary). This code is the result of an "exclusive OR" of the expected results of the failing operation with the actual results. A '1' in a bit location indicates a mismatch.

6.2 Translation data must always be considered a possible cause of failures. Using the "Functional Listing" of the translation tables in conjunction with the Office Data Tables Layout, it is possible to check for inconsistencies. The Master Table Index (MTI) entry GRPTBL points to the status block index, largest member number, circuit code, and the member list index for the circuit group. The member list index is used to index into the member list (MTI entry MEMLST) which contains the Scan Point Number (SPN) and the Distributor Triplet Address (DTA). The SPN can be used to index the Scan Point Table (MTI entry SPTBL) where the group, member, and TEN is stored. All this information must be consistent to insure a successful diagnostic.

6.3 If translations appear to be correct, the trouble number (pp-tttt-oo) and failure code should be used in conjunction with the TLM to locate probable faulty hardware areas.

6.4 The installer may elect to run the failing test or entire phase repetitively or in the step mode to aid in troubleshooting. To run the failing test repetitively, use a message of the form:

DGN:TRK(a,b),PH p,TST t;RPT!

where: p = phase number
t = test number

To run a test in the step mode use:

DGN:TRK(a,b),PH p;RPT/STEP!

To clear a repetitive or step from the system, use:

CLR:RPT;STEP!

NOTE: The current Input and Output Manuals should always be checked to verify message formats. Also the FB382 trunk circuit replaces the Manufacture Discontinued FB361 trunk circuit.

→ Arrows indicate new or changed information.

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