Installation Engineering Handbook 269
Western Electric
Northern Illinois Works

Section
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NO. 3 ESS
SYSTEM VERIFICATION TESTS
JUNCTORS
(To Be Used for Troubleshooting Purposes Only)

CONTENTS

1. GENERAL INFORMATION

1.1 Description

1.11 This section provides instructions for the performance of system verification tests on junctor circuits, SD-3H200. These tests will consist of running software diagnostics to verify the operation of the circuit.

1.12 The junctor tests are divided into two basic parts:

a) DC Testing - which uses the Continuity Polarity Test circuit (group 88, member 2) and the Restore Verify Circuit.

b) AC Testing - which uses the Tone Presence Detector (group 88, member 0) and Milliwatt (group 88, member 1).

1.2 Testing Prerequisites

1.21 The tests of Handbook 269, Section 521, Network Fabric Tests, must be successfully completed prior to the performance of this section.

NOTE: Network Fabric Testing only uses junctors in the bypass state.

1.22 The tests of Handbook 269, Section 525, Ringing and Tone Plant Tests must be successfully completed prior to the performance of this section.

1.3 The following documents may prove useful during the execution of the tests herein and for troubleshooting:

Document	Description
SD,CD-3H200	Junctor and Junctor Control Circuit
PR-3H286	Junctor Test Program (JCTRT) (The comments in the listing may be helpful)
CPS-FC181	Peripheral Decoder Circuit
CPS-FC182	Junctor Circuit Ferrods
CPS-FC185	Splitting Resistors
CPS-FB372	Junctor Circuit
TLM-3H110	Trouble Locating Manual
SD-3H912	Scanner, Peripheral Pulse Distributor, and Peripheral Decoder Assignments

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, HB 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 Consult Input Form ESS 3500, form code 00, General Information, to obtain the office's "Highest Network Number." This is a two-digit number 01-15 listed in item 14.

4. TEST PROCEDURE

4.1 General

4.11 In No. 3 ESS, a "network" is equivalent to a "concentrator group". Each equipped "concentrator group" will have 32 junctor circuits (numbered 0-31) assigned to it. These circuits appear on only even numbered stage II output levels and are wired to the "circuit" side of the stage III switch. See Table 1 for details.

4.12 The test circuits used to test junctors (see paragraph 1.12) will be accessed via the test vertical. See Figure 1 for a general diagram of the No. 3 ESS Test Vertical.

4.13 The Diagnostic Control Program (DCON) controls the testing of junctors. The Junctor Test program (JCTRT) is in the form of a data table which DCON uses to sequence through testing.

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TABLE 1

JUNCTOR APPEARANCE SCHEME

JUNCTOR		STAGE II APPEARANCE		STAGE III APPEARANCE		
JCTR NO.	CP LOC (NW FR)	STAGE II OUTPUT SW	STAGE II OUTPUT LVL	SWITCH GROUP	GROUP HALF	STAGE III SWITCH (JSW)
0	32-03	0	0	0 or 2	L	0
1	32-07		2			1
2	32-10		4			2
3	32-14		6			3
4	32-33	1	0			4
5	32-37		2			5
6	32-40		4			6
7	32-44		6			7
8	36-03	2	0		H	8
9	36-07		2			9
10	36-10		4			10
11	36-14		6			11
12	36-33	3	0			12
13	36-37		2			13
14	36-40		4			14
15	36-44		6			15
16	40-03	4	0	1 or 3	L	16
17	40-07		2			17
18	40-10		4			18
19	40-14		6			19
20	40-33	5	0			20
21	40-37		2			21
22	40-40		4			22
23	40-44		6			23
24	44-03	6	0		H	24
25	44-07		2			25
26	44-10		4			26
27	44-14		6			27
28	44-33	7	0			28
29	44-37		2			29
30	44-40		4			30
31	44-44		6			31

NOTE: For STAGE III switch groups 0 and 1 (provided with one FIOC) the concentrator group number equals the STAGE III input level (both wire side and circuit side). For switch groups 2 and 3 (provided with the second FIOC) concentrator groups 8-15 correspond to STAGE III input levels 0-7, respectively.

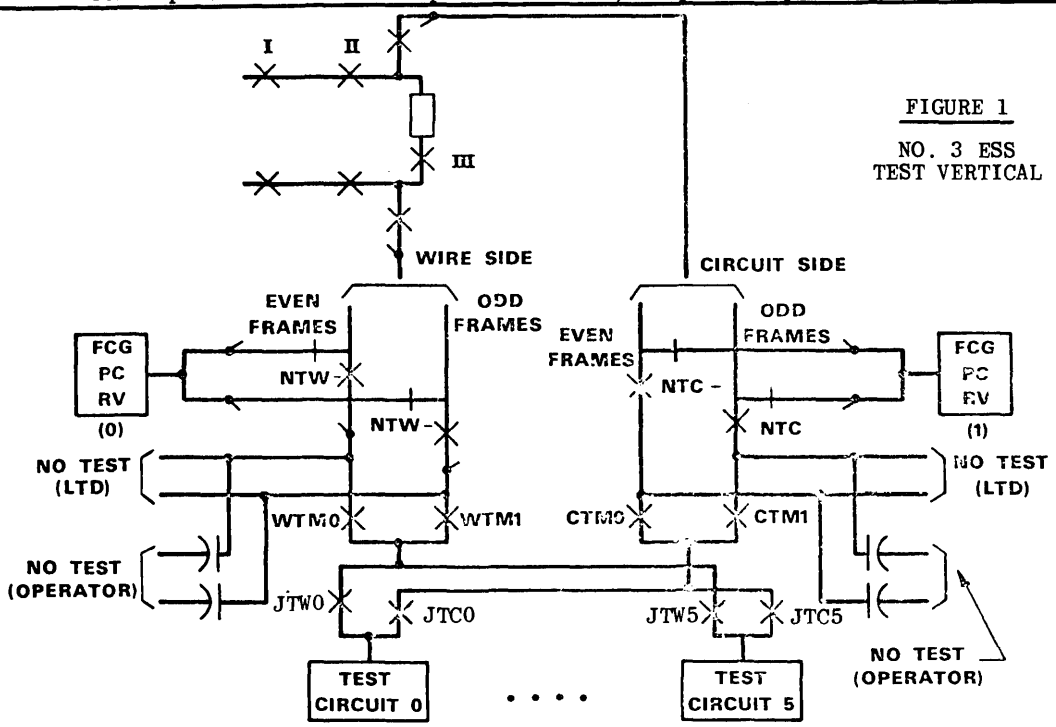

FIGURE 1

NO. 3 ESS
TEST VERTICAL

4.14 A junctor circuit must be removed from service prior to diagnosing. Use a message of the form:

→ RMV:JC(a,b)!

where: a = concentrator group or Network Number (1-15, decimal)
b = junctor number (0-31, decimal)

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

→ RST:JC(a,b)!

4.2 Test Operation

4.21 An All-Tests-Pass message of the form "M tt DGN JC a b ATP" shall be received for each circuit before it may be considered successfully tested. For all other printouts refer to paragraph 5, Analysis of Error Printouts.

4.22 Using the above information and criteria, test all junctors on all equipped concentrator groups.

5. ANALYSIS OF ERROR PRINTOUTS

5.1 Error printouts will be of the general form:

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

where: a = concentrator group number (decimal)

b = junctor 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.

5.2 It should be noted that there are no translations stored for junctors. Each junctor has two dedicated Scan Point Numbers (SPNs) and a dedicated Distributor Triplet Address (DTA). The DTA controls the 3 relays associated with each circuit through a Peripheral Decoder. These assignments can be found in SD-3H912 and SD-3H200, FS3 and FS4.

5.3 The trouble number and failure code should be used in conjunction with the TLM to locate probable faulty circuit areas.

5.4 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:JC(a,b),PH ,TST t:RPT!

where: p = phase number
t = test number

To run a test in the step mode use:

→ DGN:JC(a,b),PH ,TST t:STEP!

To run the entire phase use:

DGN:JC (a,b), PH p

→ DGN:JC(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 Manual should always be checked to verify
→ message formats (IM/OM-3H300).

→ Arrows indicate new or changed information.

Manager, ESS Installation & Field Engineering

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