

NO. 3 ESS  
SYSTEM VERIFICATION TESTS  
SERVICE CIRCUITS

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1. GENERAL INFORMATION

1.1 Description

1.11 This section provides instructions for the performance of system verification tests on service circuits, groups 64 thru 104 and 111. 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 HB 269, Section 533, System Verification of Junctors, or the equivalent XRA test (see Section 300) 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 troubleshooting.

<u>Document</u>	<u>Description</u>
TLM-3H110 thru -3H117	Trouble Locating Manuals
PA-3H300	Office Data Tables Layout
SDs, CDs	Individual Service Circuits
PRs	Individual Service Circuit Maintenance Programs  (The comments in the listings may be helpful.)
CPS-FBs	Circuit Pack Schematics

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 Although groups 64 through 90 are dedicated, it will be necessary to consult Input Form ESS 3202-1, Trunk Group Table, to determine which groups are provided in the office. Table 1 is only a guide to the order of testing. It does not insure that all the groups listed are equipped.

3.2 It will also be necessary to consult Input Form ESS 3202-1 to determine the "Highest Member Number" and, hence, the number of members in each equipped group to test.

3.3 Insure that all equipped Recorded Announcement Channels have announcements recorded on them for testing groups 77 through 85.

4. TEST PROCEDURE

4.1 General

4.11 The Diagnostic Control Program (DCON) controls the testing of service circuits. The individual service circuit programs (e.g., MFTT, Multifrequency Transmitter Tests) are in the form of data tables which DCON uses to sequence through testing.

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

RMV:SVC(a,b)!

where: a = service circuit group number  
(decimal)  
b = member number (decimal)

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

RST:SVC(a,b)!

4.14 When diagnosing circuits which require the use of an MF Receiver (MF RCVR) for testing, it will be necessary to remove all members of group 66 from service except one. Similarly, when diagnosing circuits which require the use of an MF Transmitter (MF XMTR) for testing, it will be necessary to remove all members of group 67 from service except one. This will eliminate the possibility of test

results changing due to the random selection of these circuits. Use a teletype request of the form:

RMV:SVC(a,b),LKO;UCL!

#### 4.2 Test Operation

4.21 Testing should be done in the order given in Table 1. All members of a group should pass before proceeding to the next group. An All-Tests-Pass message of the form "M tt DGN SVC 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 members of all equipped service circuit groups in the order listed in Table 1.

TABLE 1  
ORDER OF TESTING SERVICE CIRCUITS

GRP NO.	MBR NO.	SD NO.	CPS NO.	DESCRIPTION OF CIRCUIT BEING TESTED	CKTS USED IN TESTING
→ 111 111	0	3H520	FB516 FB517	Tone Presence Detector (TPD)	CPT MF XMTR MW CONF CKT
	2	3H520	FB500	Continuity and Polarity Test (CPT)	MW Junctor
	1 and 4	3H520	FB505 FB506 FB507 FB508 FB509	Milliwatt and Transmission Environment Test (MW)	TPD CPD MF XMTR MF RCVR
64	ALL	3H401	A118 A120-124 A946 A1025	TOUCH-TONE Receivers	TPD DP RCVR Test TT RCVR Test
65	ALL	3H410	FB367	Customer Dial Pulse Receivers	TPD DP RCVR Test
66	ALL	3H402	A152 A260-266 A1024	MF Receivers	CPT MW MF XMTR
67	ALL	3H404	FB362 FB363 FB364	MF Transmitters	CPT MW MF RCVR
68	ALL	3H403	FB403	Trunk Dial Pulse Transmitters	CPT
69	ALL	3H410	FB358	Regular Ringers	LET
70	ALL	3H406	FB375 FB376	Special Ringers	LET
71	ALL	3H411	FB423	Coin Control Circuits	LET
→ 77 thru 8505	ALL	3H411	FB383	Announcement Circuits	TPD
→ 91 thru 9707	ALL	3H411	FB383	Tone Circuits	TPD
→ 104 104	ALL	3H230	FB427	Conference Circuits	TPD MW

## 5. ANALYSIS OF ERROR PRINTOUTS

5.1 Error printouts will be of the general form:

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

where:

a = service circuit 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.

5.2 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, PA-3H300, it is possible to check for inconsistencies. The Master Table Index (MTI) entry GRPTBL points to the status block index, largest member number, and the member list index for the circuit group. The member list index is used to index into the member list (MTI entry MEMLIST) which contains the Scan Point Number (SPN) and the Distributor Triplet Address (DTA).  
 (NOTE: For tone and announcement circuits a different table is indexed and only the Terminal Equipment Number (TEN) is stored).

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.

5.3 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.

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:SVC(a,b),PH p,TST t;RPT!
```

where: p = phase number  
 t = test number

To run a test in the step mode use:

```
DGN:SVC (a,b), PH p, TST t;STEP!
```

To run the entire phase use:

```
DGN:SVC (a,b),
```

```
DGN:SVC(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.

→ Arrows indicate new or changed information.

Manager, ESS Installation & Field Engineering

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