AT&T

DEFINITY® Communications System Generic 2

X-Ray and System Tests

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DEFINITY® Communications System Generic 2 X-Ray and System Tests
555-104-109, Issue 1, June 1989

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INTRODUCTION

PURPOSE

This document contains instructions for running acceptance tests on the DEFINITY™ Communications System Generic 2. Acceptance tests check the operational integrity of the system and ensure the system runs trouble free before cut-over to the customer. These tests are run primarily at installation but may also be used to test additions and upgrades.

DESCRIPTION

Acceptance tests are divided into the following four areas:

Microdiagnostic Tests are contained in the read only memory (ROM) of the central processor and are used to test the common control hardware.

X-RAY Tests are an intensive set of maintenance tests designed to test the DEFINITY Generic 2 system in a much shorter time period than normal maintenance routines. X-RAY tests run unattended, sequentially test all the DEFINITY Generic 2 hardware, and recycle until canceled by the technician.

Demand Tests further test the DEFINITY Generic 2 hardware. These tests are called in by the technician to test specific circuits, system components, and system adjuncts.

Feature Tests, which are software based, check the operation of the different features and services of the DEFINITY Generic 2 system.

ORGANIZATION

The manual is divided into four test sections that correspond to the four acceptance test areas. These sections are listed below in the sequence they should follow:

Microdiagnostic Tests

X-RAY Tests

Demand Tests

Feature Tests

In addition, an Appendixes section contains the following:

Appendix A contains instructions on running additional X-RAY tests.

Appendix B contains minimum configurations needed to run X-RAY.

Appendix C contains field definitions and ranges for the 900 series X-RAY procedures.

Index.

HOW TO USE THIS MANUAL

This manual provides a start to finish sequence for running acceptance tests for DEFINITY Generic 2 switch installation. Each test section requires that a particular software load be used for testing. Table A lists the different software loads needed for each test section.

TABLE A. Software Loads Required for Testing

SECTION	SOFTWARE LOAD
Microdiagnostic Tests	X-RAY tape
X-RAY Tests	
Demand Tests	CHAPS* tape
Feature Tests	Customized tape

* Customized Hardware and Pseudo Software

DEFINITY MANAGER II

The DEFINITY Generic 2 introduces a new personal computer (PC) based maintenance and administration tool, the DEFINITY Manager II. The Manager II replaces the Maintenance and Administration Panel (MAAP) used with System 85. The Manager II is co-located with the system and operates in three modes: the basic mode, the enhanced mode, and the task mode. For the test sections in this manual, the Manager II is used in the enhanced mode.

Each test section uses the Manager II, so the Manager II should be installed and operational before you begin testing. Refer to the *DEFINITY™ Communications System Generic 2 and System 85 Installation* (555-104-104) or the *DEFINITY™ Generic 2 and System 85 Upgrades* (555-104-111) for instructions on installing the Manager II.

DISK/TAPE SYSTEM

Also new for DEFINITY Generic 2 is the Disk/Tape System (DTS), which replaces the High Capacity Mini Recorder (HCMR). The DTS consists of a 140 Mbyte hard disk, a 125 Mbyte streaming tape drive, and a Small Computer Systems Interface (SCSI) host adapter processor (TN563).

The streaming tape drive uses a 1/4 inch cartridge tape. When inserting the tape cartridge into the DTS, make sure the tape access latch (i.e., plastic latch on cartridge that flips up and down) is on top of the cartridge and the metal baseplate is on the left. Insert the tape cartridge into the DTS and push the cartridge all the way in until the retaining clip on the DTS engages and holds the tape cartridge in place.

SYSTEM 85 X-RAY AND SYSTEM TESTS DOCUMENTATION

This manual contains instructions for running X-RAY and System Tests on Definity Generic 2. For instructions on running X-RAY and System Tests on System 85 Release 2 Version 1 (R2V1) through Release 2 Version 4 (R2V4), refer to the following documentation:

- System 85 (R2V2) X-Ray Tests Service Manual 555-101-114, Issue 2
- System 85 (R2V3) X-Ray Tests Service Manual 555-102-105, Issue 1
- System 85 (R2V4) X-Ray Tests 555-103-105, Issue 2
- System 85 (R2V1 - R2V4) System Tests 555-103-109, Issue 1

Notes

MICRODIAGNOSTIC TESTS

OVERVIEW

Microdiagnostics consist of sixteen tests (0-15) used to test the processor before loading the X-RAY tape. These tests are contained in the read only memory (ROM) of the central processor and are individually selected by using the alarm panel **TEST SELECT** switch. With the exception of Test 0, each test uses circuits tested by the previous test. All tests except Test 15 run continuously until another test begins.

Tests 0 through 6 require power from DC/DC converters in the common control power carrier (slots 1 and 2 for CC0 and slots 4 and 5 for CC1). Tests 7 through 15 require power from all three DC/DC converters for each common control (slots 0, 1, and 2 for CC0 and slots 3, 4, and 5 for CC1).

Microdiagnostics start with Test 0 and progress in numerical order to Test 15. If a failure is indicated, corrective action is performed and the test is repeated. If the test passes after corrective action, all tests are repeated starting with Test 0 and progressing through Test 15.

Microdiagnostic Tests 3 through 6 and 13 are spare tests that are reserved for future use. Each spare test is executed in microdiagnostic test sequence.

Test 10 tests the Disk/Tape System (DTS). For this test, a tape is placed in the DTS and the Manager II is viewed to identify any failures.

Test 15 provides an abbreviated subset of tests 7, 8, and 9 and a memory load of the data on the tape. For this test, the X-RAY tape is placed in the DTS and the Manager II is viewed to observe the progress of the memory load.

If the switch is equipped with dual processors, Tests 0 through 15 must be run for each processor (CC0 and CC1).

The **GO/HALT** switch associated with the common control being tested must be set to the **GO** position.

To run a specific test:

1. At the common control alarm panel, set **MICRODIAGNOSTIC TEST SELECT** switch to desired test.

2. Press the **RESET** button.

3. Press the **ENABLE** switch.

Test execution starts by clearing most of the alarm panel light emitting diodes (LEDs) and lighting the LEDs related to the test.

The **PASS** and **FAIL** LEDs do not light until the test result is determined. If a test passes, the **PASS** LED on the alarm panel is lighted. If a test fails, the **FAIL** LED on the alarm panel lights and the circuit pack most likely to have caused the fault lights its red LED at faceplate position 18.

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Other circuit packs that could be causing the test to fail are listed in Table B, in the order they are most likely to cause a problem.

- The most likely failing circuit pack is the circuit pack with the red LED lighted and is indicated as CKT 1.

- The second most likely failing circuit pack is indicated as CKT 2 in Table B.

- When a circuit pack listed in Table B as a replacement has already been replaced, replace the lowest circuit pack not replaced. For example, if CKT 4 has already been replaced, replace CKT 2, CKT 3, then CKT 5, etc.

TABLE B. Microdiagnostics Circuit Pack Replacement Sequence

TEST	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8
0	[1]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
1	[2]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
2	[1]	TN490 Slot 22	TN491B Slot 31	TN492C Slot 32				
3	[1]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
4	[1]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
5	[1]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
6	[1]	TN491B Slot 31	TN492C Slot 32	TN490 Slot 22				
7	[1]	UN152B Slot 02	UN151 Slot 01	TN491B Slot 31	TN370C Slot 00	UN153B Slot 03		
8	[1]	TN404 Slot 21	UN153B Slot 03	TN491B Slot 31	TN368 Slot 06			
9	[1]	UN152B Slot 02	UN153B Slot 03	TN370C Slot 00	UN151 Slot 01	TN394 Slot 07	TN404 Slot 21	TN368 Slot 06
10	[1]	TN563 Slot 20	UN153B Slot 03	TN394 Slot 07	TN368 Slot 06	TN491B Slot 31		
11	[1]	TN368 Slot 06	TN404 Slot 21	UN153B Slot 03	TN370C Slot 00			
12	[1]	TN368 Slot 06	TN404 Slot 21	UN153B Slot 03	TN370C Slot 00			
13	[1]	TN370C Slot 00	TN491B Slot 31	TN492C Slot 32				
14	[1]	TN369 or TN379 Slot 04 [3]	UN152B Slot 03	TN490 Slot 22	UN153B Slot 03	TN370C Slot 00		

[1] = Circuit pack with red LED lighted.

[2] = Replace All circuit packs with red LED lighted plus all circuit packs with no LEDs lighted.

[3] = Replace TN369 or TN379 (Slot 04) if installed.

If a test fails and the circuit pack replacements listed in Table B do not correct the problem, proceed as follows:

1. Check Table C to determine which circuit packs are required to perform the test.

2. Unseat any circuit packs not required to perform the test, and repeat the test.

3. If the test passes, reseat the circuit packs one-at-a-time, repeating the failing test until the failing circuit pack is located.

TABLE C. Circuit Packs Required to Perform Microdiagnostic Tests

TEST	CIRCUIT PACKS REQUIRED FOR TEST TO EXECUTE
0	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
1	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
2	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
3	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
4	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
5	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
6	TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
7	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
8	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN404 (Slot 21), TN490 (SLOT 22), TN491B (Slot 31), and TN492C (Slot 32)
9	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN394 (Slot 07), TN404 (Slot 21), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
10	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN394 (Slot 07), TN563 (Slot 20), TN404 (Slot 21), TN490 (Slot 22), TN403 (Slot 23), TN491B (Slot 31), and TN492C (Slot 32)
11 [1]	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN394 (Slot 07), TN404 (Slot 21), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
12 [1]	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN394 (Slot 07), TN404 (Slot 21), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32)
13	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN404 (Slot 21), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32).
14 [2]	TN370C (Slot 00), UN151 (Slot 01), UN152B (Slot 02), UN153B (Slot 03), TN368 (Slot 06), TN394 (Slot 07), TN404 (Slot 21), TN490 (Slot 22), TN491B (Slot 31), and TN492C (Slot 32).

[1] = TN390 or TN394 in slots 8 through 14 are tested (if installed).
[2] = TN369 or TN379 in slot 04 is tested (if installed).

Use of GO/HALT Switch

When it is necessary to replace a circuit pack in the common control carrier, proceed as follows:

1. At alarm panel, set **GO/HALT** to **HALT**.

2. Replace circuit pack.

3. At alarm panel, press **RESET**. Set **GO/HALT** to **GO**.

   NOTE: If the replacement component does not solve the problem, remove the replacement; and install the original.

Test 0

Test 0 checks the diagnostic processor circuit pack and parts of the remote interface.

To run Test 0:

1. Set **TEST SELECT** switch to **0**.

2. Press **RESET, ENABLE**.

   NOTE: While Test 0 is running, the **MAJOR** and **DIAG PROC** LEDs are lighted. When the test passes, the **PROC** LED lights.

3. If Test 0 fails to affect alarm panel LEDs, power and cabling should be checked.

4. If the **PASS** LED turns on, go to Test 1.

5. If the test fails (the **FAIL** LED on the alarm panel lights, and a red LED lights on the failing common control carrier circuit pack), replace the circuit pack with the red LED lighted.

6. Press **RESET, ENABLE**.

7. If the **PASS** LED turns on, go to Test 1.

8. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

9. Repeat Steps 6 through 8 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 0 have been replaced.

10. If Test 0 continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 0.

11. Unseat all circuit packs in the common control carrier not required to run Test 0.

12. Press **RESET, ENABLE**.

13. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

14. If the **PASS** LED turns on, reseat one circuit pack.

15. Press **RESET, ENABLE**.

16. If the **FAIL** LED now turns on, replace the reseated circuit pack. Press **RESET, ENABLE.**

17. Repeat Steps 14 through 16 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

18. If the **PASS** LED turns on, go to Test 1.

19. If the **FAIL** LED turns on, check the backplane wiring.

Test 1

Test 1 checks the maintenance bus.

To run Test 1:

1. Set **TEST SELECT** switch to **1.**

2. Press **RESET, ENABLE.**

> **NOTE:** After **ENABLE** is pressed, the red LEDs on the common control carrier circuit packs light for about 5 seconds. The green LEDs light and remain on until another test is selected. The **MAJOR** LED is lighted while the test is running.

3. If the **PASS** LED turns on, go to Test 2.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE.**

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on or until all circuit packs listed in Table B for Test 1 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 1.

10. Unseat all circuit packs in the common control carrier not required to run Test 1.

11. Press **RESET, ENABLE.**

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE.**

15. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE.**

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 2

Test 2 checks the alarm interface circuit pack and the alarm panel.

To run Test 2:

1. Set **TEST SELECT** switch to **2**.

2. Press **RESET, ENABLE**.

   NOTE: The **MAJOR** LED lights while the test is running.

3. If the **PASS** LED turns on, go to Test 3.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE**.

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 2 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 2.

10. Unseat all circuit packs in the common control carrier not required to run Test 2.

11. Press **RESET, ENABLE**.

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE**.

15. If the **FAIL** LED now turns on, replace the reseated circuit pack. Press **RESET, ENABLE**.

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 3

Test 3 is a spare test reserved for future use. However, it can be selected and run. When it is run, the **PASS** LED lights immediately.

To run Test 3:

1. Set **TEST SELECT** switch to **3.**

2. Press **RESET, ENABLE.**

> **NOTE:** While Test 3 is running, the **MAJOR** LED is lighted. The **PASS** LED is always turned on.

Test 4

Test 4 is a spare test reserved for future use. However, it can be selected and run. When it is run, the **PASS** LED lights immediately.

To run Test 4:

1. Set **TEST SELECT** switch to **4.**

2. Press **RESET, ENABLE.**

> **NOTE:** While Test 4 is running, the **MAJOR** LED is lighted. The **PASS** LED is always turned on.

Test 5

Test 5 is a spare test reserved for future use. However, it can be selected and run. When it is run, the **PASS** LED lights immediately.

To run Test 5:

1. Set **TEST SELECT** switch to **5.**

2. Press **RESET, ENABLE.**

> **NOTE:** While Test 5 is running, the **MAJOR** LED is lighted. The **PASS** LED is always turned on.

Test 6

Test 6 is a spare test reserved for future use. However, it can be selected and run. When it is run, the **PASS** LED lights immediately.

To run Test 6:

1. Set **TEST SELECT** switch to **6.**

2. Press **RESET, ENABLE.**

> **NOTE:** While Test 6 is running, the **MAJOR** LED is lighted. The **PASS** LED is always turned on.

Test 7

Test 7 checks the 501CC processor circuit packs.

To run Test 7:

1. Set **TEST SELECT** switch to **7.**
2. Press **RESET, ENABLE.**

> **NOTE:** The **MAJOR** and **PROC** LEDs light while the test is running.

3. If the **PASS** LED turns on, go to Test 8.
4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.
5. Press **RESET, ENABLE.**
6. If the **PASS** LED turns on, repeat tests starting with Test 0.
7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.
8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 7 have been replaced.
9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 7.
10. Unseat all circuit packs in the common control carrier not required to run Test 7.
11. Press **RESET, ENABLE.**
12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.
13. If the **PASS** LED turns on, reseat one circuit pack.
14. Press **RESET, ENABLE.**
15. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE.**
16. Repeat Steps 13 through 15 the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.
17. Repeat tests starting with Test 0.
18. If the **FAIL** LED turns on, check the backplane wiring.

Test 8

Test 8 checks the ability of the 501CC circuit packs to communicate over the system and buffered bus.

To run Test 8:

1. Set **TEST SELECT** switch to **8**.

2. Press **RESET, ENABLE**.

> NOTE: The **MAJOR** and **I/O CHANNEL** LEDs light while the test is running. The **I/O CHANNEL** LED also lights when Test 8 passes.

3. If the **PASS** LED turns on, go to Test 9.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE**.

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 8 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 8.

10. Unseat all circuit packs in the common control carrier not required to run Test 8.

11. Press **RESET, ENABLE**.

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE**.

15. If the **FAIL** LED now turns on, replace the reseated circuit pack. Press **RESET, ENABLE**.

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 9

Test 9 checks the 501CC instruction set.

To run Test 9:

1. Set **TEST SELECT** switch to **9**.

2. Press **RESET, ENABLE**.

    NOTE: The **MAJOR** and **PROC** LEDs light while the test is running. The **PROC** LED also lights when Test 9 passes.

3. If the **PASS** LED turns on, go to Test 10.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE**.

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 9 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 9.

10. Unseat all circuit packs in the common control carrier not required to run Test 9.

11. Press **RESET, ENABLE**.

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE**.

15. If the **FAIL** LED now turns on, replace the reseated circuit pack. Press **RESET, ENABLE**.

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 10

Test 10 checks the DTS.

To run Test 10:

1. Install the X-RAY tape into the DTS.

2. Set **TEST SELECT** switch to **10**.

3. Press **RESET, ENABLE**.

    NOTE: The **MAJOR** and **TAPE** LEDs light while the test is running, and the

Manager II displays the the TN563 Bootware and Pumpware issues. The **TAPE** LED also lights when Test 10 passes.

4. If the **PASS** LED turns on, go to Test 11.

5. If Test 10 fails the **FAIL** LED lights. The Manager II displays a switch broadcast message that identifies the DTS functional area that is suspected of failing.

6. Read the broadcast message to determine the type of corrective action to take.

    - If the broadcast message reads interface, replace the TN563. Then go to step 7.

    - If the broadcast message reads tape, replace the tape cartridge. Then go to step 7.

    - If the broadcast message reads disk drive, replace the DTS. Then go to step 7.

    - If the broadcast message reads tape drive, replace the DTS. Then go to step 7.

    - If the broadcast message reads DTS cabling, replace the SCSI cabling between the TN563 and the DTS. Then go to step 7.

    - If the broadcast message reads power, check the power to the DTS by turning the circuit breaker labeled DTS/HCMR on the side of the carrier off, then on, and observing the tape and the disk LED.

        — If the tape whirs and the disk LED lights, the power is good. Replace the SCSI cable. Then go to step 7.

        — If the tape does not whir and the disk LED does not light, check the DTS/HCMR breaker and the −48 volts to the circuit breaker. Repair or replace as necessary. Then go to step 7.

    - If there is no broadcast message on the Manager II, the PPG port is bad. Check the PPG cabling from the TN563 to the DTS.

        — If the cabling is bad, replace it. Then go to step 7.

        — If the cabling is good, replace the TN563. Then go to step 7.

7. Press **RESET, ENABLE.**

8. If the **PASS** LED turns on, repeat tests starting with Test 0.

9. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

10. Repeat Steps 7 through 9 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 10 have been replaced.

11. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 10.

12. Unseat all circuit packs in the common control carrier not required to run Test 10.

13. Press **RESET, ENABLE.**

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14. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

15. If the **PASS** LED turns on, reseat one circuit pack.

16. Press **RESET, ENABLE**.

17. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE**.

18. Repeat Steps 15 through 17 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

19. If the **PASS** LED turns on, repeat tests starting with Test 0.

20. If the **FAIL** LED turns on, check backplane wiring.

Test 11

Test 11 checks the main memory system.

To run Test 11:

1. Set **TEST SELECT** switch to **11**.

2. Press **RESET, ENABLE**.

   NOTE: The **MAJOR** and **MEM** LEDs light while the test is running. The **MEM** LED also lights when Test 11 passes.

3. If the **PASS** LED turns on, go to Test 12.

4. If the test fails (the **FAIL** LED lights and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE**.

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 11 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 11.

10. Unseat all circuit packs in the common control carrier not required to run Test 11.

11. Press **RESET, ENABLE**.

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE**.

15. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE.**

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 12

Test 12 checks the memory protect circuit pack.

To run Test 12:

1. Set **TEST SELECT** switch to **12.**

2. Press **RESET, ENABLE.**

> NOTE: The **MAJOR** and **MEM** LEDs light while the test is running. The **MEM** LED also lights when Test 12 passes.

3. If the **PASS** LED turns on, go to Test 13.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE.**

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 12 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 12.

10. Unseat all circuit packs in the common control carrier not required to run Test 12.

11. Press **RESET, ENABLE.**

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE.**

15. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE.**

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

19

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 13

Test 13 is a spare test reserved for future use. However, it can be selected and run. When it is run, the **PASS** LED lights immediately.

To run Test 13:

1. Set **TEST SELECT** switch to **13**.

2. Press **RESET, ENABLE**.

> **NOTE:** While Test 13 is running, the **MAJOR** LED is lighted, and the **PASS** LED is always turned on.

Test 14

Test 14 checks the cache memory and bus interface circuit packs.

To run Test 14:

1. Set **TEST SELECT** switch to **14**.

2. Press **RESET, ENABLE**.

> **NOTE:** The **MAJOR** and **CACHE MEMORY** LEDs light while the test is running. The **CACHE MEMORY** LED also lights when Test 14 passes.

3. If the **PASS** LED turns on, go to Test 15.

4. If the test fails (the **FAIL** LED lights, and a red LED lights on the failing circuit pack), replace the circuit pack.

5. Press **RESET, ENABLE**.

6. If the **PASS** LED turns on, repeat tests starting with Test 0.

7. If the **FAIL** LED turns on, replace the next circuit pack listed in Table B.

8. Repeat Steps 5 through 7 until the **PASS** LED turns on, or until all circuit packs listed in Table B for Test 14 have been replaced.

9. If the test continues to fail and the circuit pack replacements listed in Table B do not correct the problem, refer to Table C for the circuit packs required to run Test 14.

10. Unseat all circuit packs in the common control carrier not required to run Test 14.

11. Press **RESET, ENABLE**.

12. If the **FAIL** LED turns on, reseat all circuit packs. Check the backplane wiring.

13. If the **PASS** LED turns on, reseat one circuit pack.

14. Press **RESET, ENABLE**.

15. If the **FAIL** LED now turns on, replace the circuit pack just reseated. Press **RESET, ENABLE**.

16. Repeat Steps 13 through 15 for the next circuit pack. Continue to reseat and test circuit packs until all have been reseated.

17. If the **PASS** LED turns on, repeat tests starting with Test 0.

18. If the **FAIL** LED turns on, check the backplane wiring.

Test 15

Test 15 provides an abbreviated subset of microdiagnostic tests 7, 8, and 9. When tests 7, 8, and 9 pass, the memory is loaded with the data from the tape.

To run Test 15:

1. Insert X-RAY tape into the DTS.

2. Set **TEST SELECT** switch to **15**.

3. Press **RESET, ENABLE**.

   > **NOTE:** While Test 15 is running, the **MAJOR, PROC** and **TAPE** LEDs are lighted, and the Manager II displays the following switch broadcast messages:
   >
   > • Reading System Directory Block.
   >
   > • Restoring Disk from Tape.
   >
   > • Performing System Load from Disk.

   If the tape loads successfully, the **PASS** LED has a 1 second on/1 second off heartbeat and the green LED on the TN563 will blink.

   If the tape load is not successful, the **MAJOR, PROC, TAPE** and **FAIL** LEDs are lighted, and the **PASS** LED does not flash.

4. If the **PASS** LED does not flash or if any of the failure broadcast messages are displayed on the Manager II, execute microdiagnostics tests 0 through 14 to find the cause of the failure.

Notes

X-RAY TESTS

OVERVIEW

X-RAY is a software package contained on a tape used to test DEFINITY Generic 2 hardware. X-RAY is used primarily at the factory and during switch installation but may also be used to test switch upgrades and additions. Since X-RAY disrupts customer service, it should be used for maintenance/troubleshooting only when the switch is off-line.

X-RAY is based on the same set of maintenance routines found on the customer tape; that is, periodic tests, time available tests, and most demand tests. However, X-RAY gives maintenance nearly 100 percent of processor real time and accelerates the rate at which the various maintenance routines occur. The complete set of administration and maintenance procedures that support X-RAY are listed in Table D.

TABLE D. Administration and Maintenance Procedures Used to Support X-RAY

PROC	DESCRIPTION
210	Console Equipment Location
253	System Configuration Data Channel Assignments
290	Installed Circuit Pack Identification
490	Patch
497	Customer Identification
600	Alarm Causes/Error Log
601	Environmental Tests
610	Tape Tests
611	Common Control Tests
612	Initialization Causes
613	Duplicate Processor Control and Test
614	Memory Read/Memory Match Tests
616	Alarm Panel Test
618	Diagnostic Processor/Remote Interface/Alarm Interface Test
620	Network Procedure
621	Network Duplication Channel
623	ANI Failures
624	Contact Interface Test
625	DS-1 Synchronization Reference Monitor

TABLE D. Administration and Maintenance Procedures Used to Support X-RAY (Contd)

PROC	DESCRIPTION
627	D-Channel Backup
628	TDM Bus Tests
635	Cause of Busyout
640	Trunk Failures
644	Terminal-to-Auxiliary Tone Test Call
646	Modem Pooling and Facility Testing
648	ISDN Facilities Testing
650	DCIU Tests
651	PCC Tests
652	Time-of-Day Clock Synchronizer
653	Attendant Console Tests
654	Display Terminals Test
655	SMDR Test
656	Network Control Operations Support System Port Test
999	Memory Word Display
1001	Run Tape

X-RAY TEST SEQUENCE

This section contains the five procedures necessary to run the X-RAY test. These procedures are listed below in the sequence they must follow.

Procedure 901, *X-RAY Translation Generator.* Procedure 901 generates the system configuration in the X-RAY environment.

Procedure 652, *Time-of-Day Clock Synchronizer.* Test 3 sets the hardware and software clocks and Test 2 tests the real time clock continuously.

Procedure 612, *Initialization Causes.* Procedure 612 is used to clear all maintenance data.

Procedure 900 Test 1, *X-RAY Control.* Procedure 900 Test 1 contains the periodic maintenance tests and round robin tests that test the Generic 2 switch.

Procedure 600, *Alarm Causes/Error Log.* Procedure 600 displays the switch alarms identified by Procedure 900.

ADDITIONAL X-RAY TESTS

Though not required for the basic X-RAY test the following procedures give X-RAY additional capabilities. These tests are contained in Appendix A.

Attendant Console Test. X-RAY can test attendant consoles. The consoles must be assigned with Procedure 210 Word 1 and wired to the cross connect field.

Procedure 900 Test 2, *Circuit Pack Test Times*. Procedure 900 Test 2 displays test times for Universal Module port circuit packs.

Procedure 900 Test 3, *Test Controller Status*. Procedure 900 Test 3 displays test controller status.

Procedure 900 Test 4, *Circuit Failure Cycle*. Procedure 900 Test 4 displays the cycle number when a failure first occurred.

Procedure 902 Test 1, *System Configuration Display Common Control Equipment*. Procedure 902 Test 1 displays the common control equipment and a total system count of modules, cabinets, and carriers.

Procedure 903 Test 1, *Universal Module Circuit Pack Information*. Procedure 903 Test 1 displays ID information for Universal Module circuit packs.

Procedure 904 Tests 1-2, *RS-232C Administration*. Procedure 904 Tests 1-2 are used to administer an RS-232C interface. This procedure was developed for factory use and is not applicable for field use.

REQUIREMENTS

The following materials are required to run X-RAY:

- The DEFINITY Generic 2 X-RAY tape (J58889TS-L5). Two tapes are required if the common control is duplicated.

- Four DCIU loopback cables labeled (ED-1E422-10) Group 9 and three PCC loopback plugs labeled (ED-1E422-10) Group 10, (ED-1E422-10) Group 11, and (ED-1E422-10) Group 12. See Figure 1.

- The two service manuals *Definity™ Communications System Generic 2 Maintenance Procedures* (555-104-117) and *Definity™ Communications System Generic 2 Maintenance Repair Strategies* (555-104-118). Maintenance functions for X-RAY, such as fault detection, failure isolation, and repair procedures are identical with those in the Maintenance Manuals.
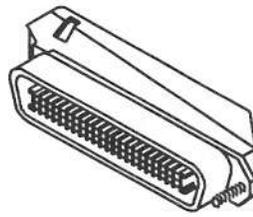
ED-1E422-10, GR 10
(POS 24)
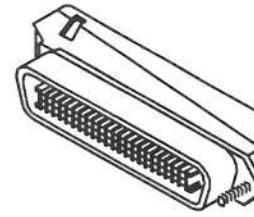
ED-1E422-10, GR 11
(POS 25)
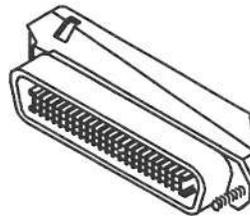
ED-1E422-10, GR 12
(POS 26)
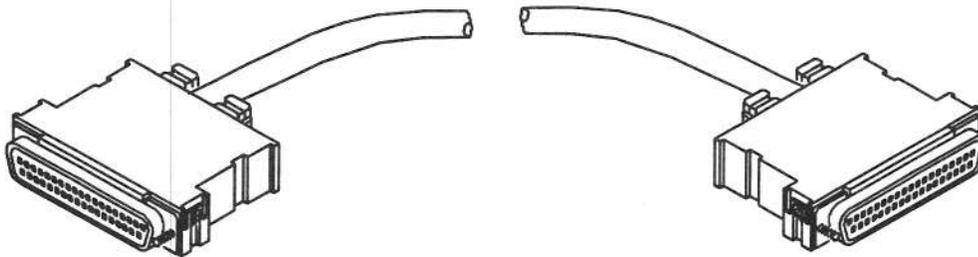
ED-1E422-10, GR 9

Figure 1. Loopback Fixtures Required to Run X-RAY

BRINGING UP THE SWITCH

Follow these steps before running the X-RAY procedures.

1. Install the four DCIU loopback cables (ED-1E422-10) Group 9. Attach these cables to connect link 1 to link 2, link 3 to link 4, link 5 to link 6, and link 7 to link 8.

2. Install the three PCC loopback plugs (ED-1E422-10) Group 10, Group 11, and Group 12. Attach the Group 10 plug to position 24, the Group 11 plug to position 25, and the Group 12 plug to position 26.

3. Insert the X-RAY tape into the Disk/Tape Subsystem (DTS) and execute microdiagnostic 15. Do this for both common controls if the common control is duplicated.

   The X-RAY tape takes 8 to 10 minutes to load.

   After the tape has loaded, a regular heartbeat of 1 second should appear at the alarm panel.

4. Establish a connection between the Manager II and the switch by using the **con** (connect) command.

   After you make a connection to the switch, the Procedure Mode screen appears.

```
        ENHANCED MODE - PROCEDURE: MODE
       SYSTEM MANAGEMENT ACCESS PORT STATUS

 CURRENT PORT                    MODE CONTROLLER
    1.    Administration: [-]      11.    Administration: [-]
    2.       Maintenance: [-]      12.       Maintenance: [-]
    3. Disk/Tape System: [-]       13. Disk Tape System: [-]
                                   14.             RAMP: [-]
 AGENTS                           15.             SMAP: [-]
    4.   TN492 Port 0: [--]
    5.   TN492 Port 1: [--]
    6.   TN563 Port 0: [--]
    7.   TN563 Port 1: [--]
    8. Pseudo Port 0: [--]
    9. Pseudo Port 1: [--]
   10.      DCIU Port: [--]




 Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ]

 enter command: ▬
 [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]
```

5. At the Manager II, type **123** [ENTER]

   A 1 appears in Fields 1 through 3 to show that the current ports for Administration, Maintenance, and Disk Tape System have been activated. You are now ready to proceed with Procedure 901.

PROCEDURE 901, TRANSLATION GENERATOR

Purpose

Use Procedure 901 to generate the switch configuration (translations) needed to run X-RAY.

Tests

Procedure 901 has three tests as follows:

a. Test 1 enters carrier information into the configuration.

b. Test 2 verifies the carriers entered in Test 1 by lighting the red and green LEDs on a carrier's circuit packs.

c. Test 3 generates translations by determining what type of boards are present and detects faults.

Procedure 901 Test 1—Operation

1. Type **p901** (ENTER)

    The Test 1 screen appears.

    Field 2 is highlighted.

```
┌─────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 901, TEST: 1                │
│               XRAY TRANSLATION GENERATOR PROCEDURE               │
│                                                                   │
│  2. Table Type: [·]                  LOCAL RMI LOCATION           │
│  3. Highest Network Module Equipped: [··]  12.   Module: [··]     │
│  4.        External Loop Back Enable: [·]  13.  Cabinet: [·]      │
│  5.             CC/TMS Configuration: [·]  14.  Carrier: [·]      │
│                                            15.     Slot: [··]     │
│  PHYSICAL EQUIPMENT LOCATION                                      │
│     6.   Module: [··]                                             │
│     7.  Cabinet: [·]                                              │
│     8.  Carrier: [·]                                              │
│                                                                   │
│  ELEC EQUIP LOCATION                                              │
│     9. IOBI Index: [·]                                            │
│    10.    Carrier: [·]                                            │
│                                                                   │
│  11. Carrier Type: [··]                                           │
│                                                                   │
│                                                                   │
│  Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                   │
│  enter command: ▬                                                 │
│  │        ││      │F3 DATA│  ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │
└─────────────────────────────────────────────────────────────────┘
```

2. Type **7** [ENTER]

> The automatic configuration table type is entered in Field 2. The automatic table type is recommended for field use; however, other table types, which are shown in Table AC in Appendix C, can be entered.
>
> Field 3 is highlighted.

3. Enter the highest network module equipped (0-30) in Field 3.

> Modules are numbered starting with zero, so enter **0** for one module, **1** for two modules, etc.
>
> After the highest network module equipped is entered, Field 4 is highlighted.

4. Type **0** [ENTER]

> Field 4 controls external loopbacks for Universal Modules (0 = loopbacks not present, 1 = loopbacks present).
>
> **NOTE:** Field 4 applies to loopback testing performed on Universal Modules by the factory. It has no effect on the required DCIU and PCC loopback fixtures.
>
> Field 5 is highlighted.

5. If the switch is equipped with the CC/TMS cabinet J58886S (see Figure 2, page 30), enter **1** in Field 5; otherwise, continue with step 6.

6. Type **x** [ENTER]

> WAIT appears on the screen.
>
> After WAIT goes out, a configuration is established and the following appears on the screen:
>
> > Fields 6 through 8 show the physical equipment location of the first carrier in module 0.
> >
> > Fields 9 and 10 show dashes. These fields only contain data when traditional port and DS1 carriers are displayed.
> >
> > Field 11 shows the carrier type.

J58886S		SERIAL NO.
DTS (0)	Power Carrier	DTS (1)
Alarm Panel		
Common Control Carrier (1)		
Common Control Carrier (0)		
DC Fan and Filter Unit		
TMS Basic/Growth Carrier (1)		
TMS Basic Carrier (0)		

OLS (0)	Batt. Res. (0)	OLS (1)	Batt. Res. (1)	AC Dist. Unit

Equipment Locations

99 - 0 - 1

99 - 0 - 0

99 - 1 - 1

99 - 1 - 0
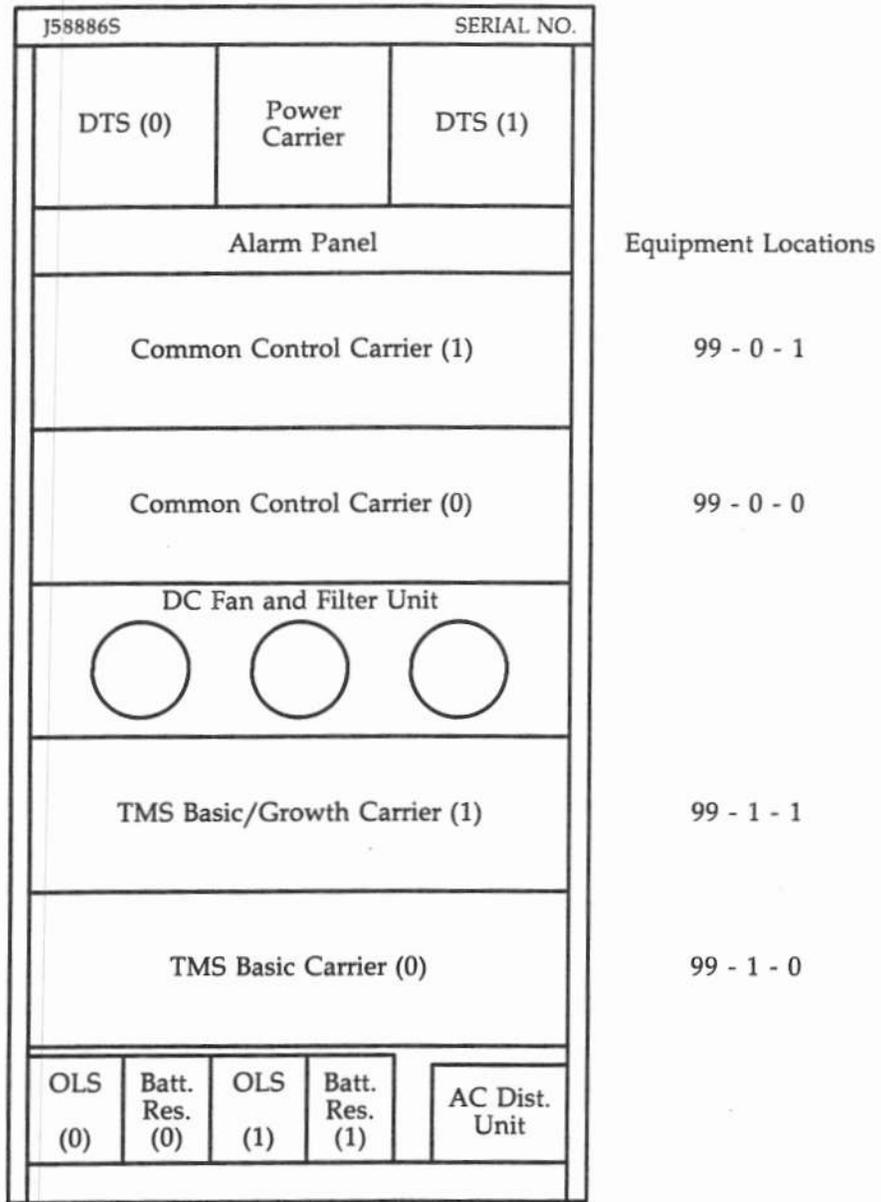
Figure 2. CC/TMS Cabinet (J58886S)

NOTE: When you use the automatic table type and enter a **1** in Field 5 for the CC/TMS cabinet, X-RAY gives the Common Control and TMS carriers the equipment locations shown above.

7. Type **nc** (ENTER) to step to the next carrier position, making sure of the following:

Fields 6 through 8 show the carrier's correct physical equipment location.

Fields 9 and 10 show the correct IOBI index and carrier encodes if the carrier is a traditional port or DS1 carrier (see Table E).

Field 11 shows the correct carrier type (see Table F).

If the carrier's configuration data in Fields 6 through 11 is not correct, use the **cf** (change field) command and enter the correct data. Note that the table type in Field 4 changes to 4 (modified) when the configuration data is changed.

If an equipped module is shown as unequipped, check the following: 1) 4-MHz cable, 2) Module Processor (TN380 or TN580), 3) Module Control Channel (TN401 or TN588), or 4) Data Channel (TN402).

TABLE E. Carrier Conversion for Word 1

TRADITIONAL PORT, DS1 ELECTRICAL CARRIER	IOBI INDEX FIELD 9	CARRIER FIELD 10
0	0	0
1	0	1
2	0	2
3	0	3
4	1	0
5	1	1
6	1	2
7	1	3
8	2	0
9	2	1
10	2	2
11	2	3

TABLE F. Carrier Types

CARRIER TYPE FIELD 11	EQUIPPED CARRIER
0	Unequipped
1	Common Control
2	Universal Module Control 0
3	Universal Module Control 1
4	TMS 0 Control
5	TMS 0 Growth
6	Traditional Module Control 0
7	Traditional Module Control 1
8	TMS 1 Control
9	TMS 1 Growth
10	Universal Port
11	DS1 Port
12	Traditional Port
13	Reserved
14	Reserved
15	RMI

8. Repeat step 7 until all the carriers in the switch are stepped through. Figure 3, on page 32, illustrates how carriers are stepped through.

NOTES

- Unequipped cabinets can be stepped through by typing **nu** (ENTER)

- You can step to a selected physical equipment location by using the **cf** (change field) command and a physical equipment location field as its argument. Enter a valid physical equipment location. The configuration data for that location is displayed.

- If the switch is equipped with remote modules, see *Configuring Remote Modules.*

- If you want to remove modules, see *Removing Modules.*

- If the switch is equipped with an RMI carrier, see *Configuring an RMI Carrier.*

TRADITIONAL MODULE

UNIVERSAL MODULE
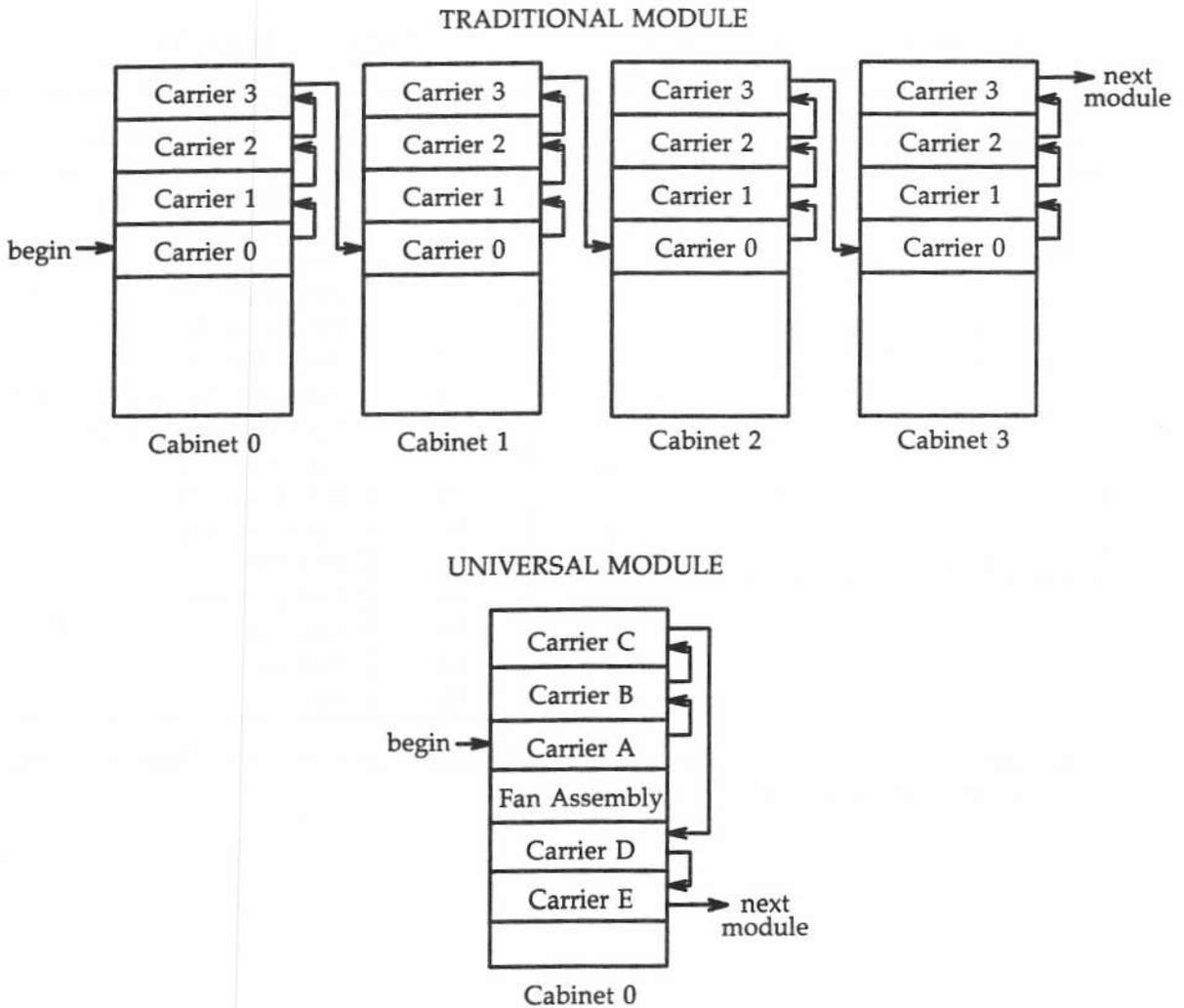
Figure 3. Stepping Through Carriers

Configuring Remote Modules

When configuring a remote module, you must enter the physical equipment location of the associated central Remote Module Interface (RMI) board in Fields 12 through 15.

1. As you step through the carriers using the **nc** command, stop when Fields 6 through 8 show the physical equipment location of remote module control carrier 0.

2. Type ; (ENTER) until Field 12 is highlighted.

3. Enter the module number of the central RMI board in Field 12.

   After entering data in a field, the next field becomes highlighted.

4. Enter the cabinet number of the central RMI board in Field 13.

5. Enter the carrier number of the central RMI board in Field 14.

6. Enter the slot number of the central RMI board in Field 15.

7. If the remote module is duplicated, enter **nc** to advance to remote module control carrier 1.

8. Repeat steps 2 through 6 for remote module control carrier 1.

9. Configure any remaining remote modules using these steps.

   NOTE: An RMI reference can be removed by typing **rmv** (ENTER)

Removing Modules

If you want to test only an addition/upgrade instead of the entire switch, you can remove modules from the configuration.

1. Enter **nu** or **nc** until Fields 6 through 8 show the physical equipment location of module control carrier 0 of the module to be removed.

2. Type **cdx** (ENTER)

   module unequipped appears on the screen.

   All carriers in the module are shown as unequipped (0 in Field 10).

Configuring an RMI Carrier

If an RMI carrier is present, it is located in module 99. Though the RMI carrier is located in module 99, it takes an electrical carrier position from a central module.

1. As you step through the carriers using the **nc** command, stop when Fields 6 through 8 show the physical equipment location of the RMI carrier.

2. Enter the IOBI index in Field 9 (see Table G).

3. Enter the carrier encode in Field 10 (see Table G).

4. Enter carrier type 15 in Field 11.

5. In Field 12, enter the central module number that furnishes the RMI carrier with the electrical carrier position.

    No data is entered in Fields 13 through 15.

TABLE G. Carrier Conversion for Word 1

RMI ELECTRICAL CARRIER	IOBI INDEX FIELD 9	CARRIER FIELD 10
0	0	0
1	0	1
2	0	2
3	0	3
4	1	0
5	1	1
6	1	2
7	1	3
8	2	0
9	2	1
10	2	2
11	2	3

Concluding Word 1

The configuration should now be complete. You can enter **nu** or **nc** repeatedly to check that the configuration matches the physical equipment of the switch. These commands wrap around; that is, repeatedly entering them causes module 0 to reappear after module 99 has been stepped through.

Procedure 901 Test 2—Operation

1. Type **nt** [ENTER]

    This advances to Test 2.

    The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 901, TEST: 2                      │
│              XRAY TRANSLATION GENERATOR PROCEDURE                     │
│                                                                       │
│   2. Test Mode: [-]              LOCAL RMI LOCATION                    │
│                                   9.  Module: [--]                    │
│   PHYSICAL EQUIP LOC             10. Cabinet: [-]                      │
│     3.  Module: [--]             11. Carrier: [-]                      │
│     4. Cabinet: [-]              12.    Slot: [--]                     │
│     5. Carrier: [-]                                                    │
│                                                                       │
│   ELEC EQUIP LOCATION                                                 │
│     6. IOBI Index: [-]                                                 │
│     7.    Carrier: [-]                                                 │
│                                                                       │
│   8. Carrier Type: [--]                                               │
│                                                                       │
│                                                                       │
│ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT]│
│ enter command: ▬                                                      │
│ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]      │
└─────────────────────────────────────────────────────────────────────┘
```

    Field 2 shows a 0 to indicate the automatic mode.

    Fields 3 through 8 show the physical equipment location and carrier type of the first network carrier.

2. If all the module processor and TMS processor boards have flashing green LEDs, go to step 10.

3. If any red LEDs are lit on the module processor or TMS processor boards, reseat the offending boards and power down and then up their carriers.

4. Type **rs** [ENTER]

    The Test 1 screen reappears.

5. Type **x** [ENTER]

6. Type **;** [ENTER]

7. Type **nt** [ENTER] to advance to Test 2 and reinitialize the modules.

8. If any red LEDs are still lit, refer to *Generic 2 Maintenance Repair Strategies* (555-104-118) for repair steps.

9. Reenter Procedure 901 after repairs.

10. To use the automatic test mode, which is the default value in Field 2, continue with step 11.

    To use the manual mode, enter **1** in Field 2.

11. Type **x** (ENTER)

    In the automatic mode, the switch automatically steps through the carriers entered in Test 1.

    In the manual mode, carriers are stepped through by typing **nc** (ENTER) repeatedly.

12. Verify that all the system carriers are configured by observing the red and green LEDs on the carriers' circuit packs light.

    The red LEDs on the module processor and TMS processor boards do not light.

    If the LEDs do not light for a module, cabinet, carrier, or circuit pack, check Table H for troubleshooting strategies.

TABLE H. Troubleshooting for Procedure 901 Test 2

LEDs DO NOT LIGHT FOR:	CHECK
Universal Module Control Carrier	1. 4-MHz Cable 2. Module Processor (TN580) 3. Module Control Channel (TN588) 4. 4-MHz Data Channel (TN402)
Universal Port Carrier	1. Universal Bus Interface (UN154) 2. Flat cable
Traditional Module Control Carrier	1. 4-MHz Cable 2. Module Processor (TN380) 3. Module Control Channel (TN401) 4. 4-MHz Data Channel (TN402)
Traditional Port Carriers (4 successive)	1. IOBI (TN400)
Single Traditional Port Carrier	1. UPCI (TN452) 2. IOBI (TN400) 3. Flat cable
Circuit Pack	1. Replace circuit pack

Procedure 901 Test 3—Operation

1. Type **nt** (ENTER)

    The Test 3 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────────────────────┐ │
│ │        ENHANCED MODE - PROCEDURE: 901, TEST: 3                     │ │
│ │              XRAY TRANSLATION GENERATOR PROCEDURE                  │ │
│ │                                                                    │ │
│ │  PHYSICAL EQUIPMENT LOCATION                                       │ │
│ │      2.      Module: │--│                                          │ │
│ │      3.     Cabinet: │-│                                           │ │
│ │      4.     Carrier: │-│                                           │ │
│ │      5. Fault Slot: │--│                                           │ │
│ │                                                                    │ │
│ │  FAULT CODE                                                        │ │
│ │      6. Board Type: │--│                                           │ │
│ │      7. Fault Type: │--│                                           │ │
│ │                                                                    │ │
│ │   8. Fault Count: │--│                                             │ │
│ │   9. Fault Index: │--│                                             │ │
│ │                                                                    │ │
│ │                                                                    │ │
│ │                                                                    │ │
│ │ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│
│ └──────────────────────────────────────────────────────────────────┘ │
│  enter command: ▬                                                      │
│ ┌─────┐┌─────┐┌F3 DATA┐┌──────┐┌F5 HELP┐┌F6 FIELD┐┌F7 INPUT┐┌F8 CMDS┐ │
└──────────────────────────────────────────────────────────────────────┘
```

2. Type **x** (ENTER)

    WAIT appears on the screen.

3. When **WAIT** goes out observe Field 8 for the fault count.

    A 0 in Field 8 indicates no faults and translation is complete. Go to Procedure 652 to continue the X-RAY test sequence.

    A number in Field 8 indicates the fault count. Continue with step 4.

4. Type **nf** (ENTER) to step through the faults.

    Fields 2 through 5 show the physical location of the fault.

    Field 6 shows the board type.

    Field 7 shows the fault type.

    Field 9 is incremented each time **nf** is entered.

    After all faults are displayed, all fields become dashed except the fault count in Field 8.

    Entering **nf** again shows the first fault.

5. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118) to resolve each fault.

6. Some general suggestions:

   If all the boards in a module control are shown as faulty, reseat the module processor or the module control channel or both. Power down and then up the carrier.

   Fault types 0 and 52 suggest a board is missing from the minimum configuration needed to run X-RAY. If the board is present, then these fault types mean the ID chip is missing.

   Fault types 1 and 53 indicate the wrong ID chip is in place.

   > **NOTE:** Universal Module circuit packs do not have ID chips. The ID information is contained in the circuit pack's firmware.

   Fault type 60 indicates problems with the duplication channel for duplicated common controls. Reseat or replace the UN158 circuit packs. If the fault persists after replacing the UN158 packs, investigate the off-line common control processor.

7. After repairs are made reenter Procedure 901.

8. Translations can be saved onto the tape by typing **rtx** [ENTER]

PROCEDURE 652, TIME-OF-DAY CLOCK SYNCHRONIZER

Purpose

Use Procedure 652 to set the time-of-day clock.

Tests

Procedure 652 has two tests used for X-RAY:

a. Test 3 sets the time-of-day clock.

b. Test 2 verifies the clock.

Test 3—Operation

1. Type **p652** [ENTER]

2. Type **t3** [ENTER]

   The Test 3 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE  -  PROCEDURE: 652, TEST: 3                 │
│          SET THE HARDWARE AND SOFTWARE TIME-OF-DAY CLOCKS          │
│                                                                    │
│ EQUIPMENT LOCATION                                                 │
│     2. Carrier: [·]                                                │
│     3.    Slot: [··]                                               │
│                                                                    │
│     4. Maintenance Busy Status: [·]                                │
│     5.             Failure Code: [··]                              │
│     6.              Clock Type: [·]                                │
│                                                                    │
│ TIME STAMP                                                         │
│     7.    Month: [··]                                              │
│     8.      Day: [··]                                              │
│     9.     Year: [··]                                              │
│    10.    Hours: [··]                                              │
│    11.  Minutes: [··]                                              │
│    12.  Seconds: [··]                                              │
│                                                                    │
│                                                                    │
│ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│
│                                                                    │
│ enter command: ▄                                                   │
│ │        ││        ││F3 DATA││       ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│
└──────────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

   Fields 2 and 3 show the equipment location of the hardware time-of-day clock.

   Field 4 shows the busy/alarm status.

   Field 6 shows a 0 to indicate the software clock.

   NOTE: If a hardware time-of-day clock is not provided with the switch, Fields 2 through 5 are dashed.

4. Type **cf7** (ENTER)

   Field 7 is highlighted.

5. Enter the date in Fields 7 through 9. Enter the month in Field 7, the day in Field 8, and the year (software only) in Field 9.

6. Enter the time in Fields 10 through 12. Enter the hour in Field 10, the minutes in Field 11, and the seconds in Field 12.

   NOTE: When entering the time, use a 24-hour clock (e.g., 1:00:00 P.M. = 13:00:00).

7. Type **cdx** (ENTER)

   Clock starts running.

Test 2—Operation

1. Type **t2** (ENTER)

   The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────────────────────┐ │
│  │          ENHANCED MODE - PROCEDURE: 652, TEST: 2         │ │
│  │        CONTINUOUSLY TEST THE HARDWARE TIME-OF-DAY CLOCK   │ │
│  │                                                          │ │
│  │  EQUIPMENT LOCATION                                      │ │
│  │     2. Carrier: [-]                                      │ │
│  │     3.    Slot: [--]                                     │ │
│  │                                                          │ │
│  │     4. Maintenance Busy Status: [-]                     │ │
│  │     5.            Failure Code: [--]                    │ │
│  │     6.           Hardware Clock: [-]                    │ │
│  │                                                          │ │
│  │  TIME STAMP                                              │ │
│  │      7.   Month: [--]                                    │ │
│  │      8.     Day: [--]                                    │ │
│  │     10.   Hours: [--]                                    │ │
│  │     11. Minutes: [--]                                    │ │
│  │     12. Seconds: [--]                                    │ │
│  │                                                          │ │
│  │                                                          │ │
│  │                                                          │ │
│  │                                                          │ │
│  │  Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│  └─────────────────────────────────────────────────────────┘ │
│  enter command: ▬                                            │
│  [        ][        ][F3 DATA][        ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────┘
```

2. Type **x** (ENTER)

   A 0 in Field 5 indicates no failures.

   Failures are identified by their respective failure codes.

3. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118) to resolve each failure.

PROCEDURE 612 TEST 1, INITIALIZATION CAUSES

Purpose

Use Procedure 612 to clear all maintenance data from the Periodic Maintenance Information Data Structure (PMIDS) error log.

> **NOTE:** When initially loading the switch you can skip Procedure 612, because the PMIDS error log should not contain any maintenance data. However, if you stop X-RAY testing (Procedure 900) and make repairs, you must use this procedure to clear the errors before you begin testing again.

Test 1—Operation

1. Type **p612** (ENTER)

   The Test 1 screen appears.

   Field 1 shows a 0.

```
┌──────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 612, TEST: 1              │
│               EXAMINE INITIALIZATION CAUSES                   │
│                                                              │
│   1. Initialization Cause Index: [--]                        │
│   2.                  Unit Type: [--]                        │
│   3.         Initialization Cause: [--]                      │
│                                                              │
│  MEMORY ADDRESS                                              │
│     4. Memory Block Location: [--]                          │
│     5.        Octal Address: [------]                       │
│                                                              │
│  TIME STAMP                                                  │
│     6.    Day: [--]                                         │
│     7.   Hour: [--]                                         │
│     8. Minute: [--]                                         │
│                                                              │
│     9.  Count to Reload: [-]                               │
│    10. Processor Health: [-]                               │
│                                                              │
│                                                              │
│  Connected to CC0 ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT │
│                                                              │
│  enter command: ▄                                           │
│  [      ][     ][F3 DATA][     ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└──────────────────────────────────────────────────────────────┘
```

2. Type **cf1** ENTER

3. Type **99** ENTER

4. Type **cdx** ENTER

   All maintenance data is cleared from memory, and all lighted alarm indicators are turned off.

5. If the common control is duplicated, connect to the off-line common control and repeat steps 1 through 4 to clear errors on the off-line common control. Then, connect back to the on-line common control.

PROCEDURE 900 TEST 1, X-RAY CONTROL

Overview

Procedure 900 contains all the maintenance tests (periodic and time available) found on the customer tape plus an extended set of maintenance tests that test Universal Modules. Procedure 900 reschedules the time available tests to occur sequentially and at a rate much faster than normal. These rescheduled tests are known as *round robin* tests and are shown on the Manager II screen while Procedure 900 is running. Procedure 900 also reschedules some periodic tests controlling processor soft switches to test a duplicated switch in minimal time. (See Table I.)

TABLE I. Processor Soft Switches for X-RAY

PROCESSOR	FREQUENCY OF SOFT SWITCH
Common Control	1 hour
Time Multiplex Switch	32 minutes
Module Control	32 minutes

Test execution for the various periodic and round robin tests are performed by test controllers. Test controllers are software that identify what circuits to test and execute the tests. The complete list of periodic and round robin test controllers are found in Tables W and X in Appendix C.

In a multi-module switch, Procedure 900 uses a control structure known as parallel module testing, where each module has its own set of test controllers that run tests just for that module. As a result, modules are tested independently and simultaneously.

Because of parallel module testing, more than one location is under test at the same time. The subsystem and location fields of R2V4 and earlier versions of Procedure 900 are meaningless and have been replaced with three new fields: the cycle control field, the test type field, and the controller field.

Field 3, the cycle control field, is used to enable or disable cycle leveling of test controllers. Depending on a module's hardware mix, some test controllers complete more test cycles than others. To keep test controller cycle counts fairly equal and provide more efficient test coverage, cycle leveling should be enabled.

Field 4, the test type field, shows whether a periodic or round robin test is being run (0 = periodic, 1 = round robin). Field 5, the controller field, shows what controller is running. Field 5 constantly changes and serves as a progress indicator.

NOTE: If the common control is duplicated, make sure the **LOCK ON LINE** switch is set to off.

1. Type **p900** [ENTER]

    The Test 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│                ENHANCED MODE - PROCEDURE: 900, TEST: 1               │
│                            XRAY CONTROL                              │
│                                                                     │
│     2.      Test Mode: [-]                                          │
│     3.   Cycle Control: [-]                                         │
│     4.      Test Type: [-]                                          │
│     5.     Controller: [---]                                       │
│                                                                     │
│  CLOCK                                                               │
│     6.     Hours: [--]                                              │
│     7.   Minutes: [--]                                              │
│     8.   Seconds: [--]                                              │
│                                                                     │
│     9.          Status: [-]                                         │
│    10.           Alarm: [-]                                         │
│    11.      Fault Flag: [-]                                         │
│    12. Test Cycle Count: [-----]                                   │
│                                                                     │
│                                                                     │
│  Connected to CCO ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │
│                                                                     │
│  enter command: ━                                                   │
│  [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]  │
└─────────────────────────────────────────────────────────────────────┘
```

2. Type **nu** [ENTER]

    Field 2 shows a 0 to indicate the continuous test mode is selected.

3. Type **nd** [ENTER]

    Field 3 shows a 1 to indicate cycle leveling is enabled.

4. Type **x** [ENTER]

    Field 4 changes between 0 (periodic test) and 1 (round robin test).

    Field 5 shows the test controllers cycling.

    Fields 6 through 8 show the time since testing began.

    Field 9 shows X-RAY status (0 = XRAY not running, 1 = XRAY running).

    Field 10 shows alarms present (0 = no alarms present, 1 = alarms present).

    Field 11 shows faults present (0 = no faults present, 1 = faults present).

Field 12 displays the test cycle count. When a test cycle is complete, Field 12 is incremented by one.

5. Upon the completion of 1 test cycle, 95 percent of the switch has been covered. If total coverage is desired, the following three areas require X-RAY be run overnight: TMS time slot path test, TSI Pstore test, and the memory match test.

6. Type **s** ⌈ENTER⌉ to stop X-RAY testing.

7. If no alarm indicators are lit on the alarm panel then the switch passed, and X-RAY testing is complete. Remove the X-RAY tape from the DTS and go to the section *Demand Tests*.

8. If alarm indicators are lit, go to Procedure 600 Test 1 to investigate and resolve each alarm.

9. When all the alarms are resolved, return to Procedure 612 and clear all maintenance data.

10. Repeat steps 1 through 4 of Procedure 900 until one test cycle is completed without any valid alarms.

NOTES

- Unit types 52 and 68 are shown as alarms in Procedure 600 test 1 if the system clock synchronizer (SCS) board and the DS1 boards are translated but the T1 links are not present. Disregard these alarms if the T1 links are not present.

- The OTHER FAILS alarm indicator lights and unit type 60 is listed as an alarm if the RMATS 212 data sets have not been installed. Disregard these alarms if the data sets are not installed.

- If the controllers stop cycling in Field 5, a problem probably exists in the common control. Run microdiagnostic tests 0 through 15. If the microdiagnostic tests pass, restart X-RAY testing.

- While Procedure 900 is running, other procedures can be run (except Procedure 901). Enter the desired procedure. When finished, return to X-RAY testing by typing **p900** ⌈ENTER⌉. Procedure 900 should return with the accumulated test time.

PROCEDURE 600, ALARM CAUSES/ERROR LOG

Purpose

Procedure 600 displays and/or clears the alarms identified by Procedure 900. These alarms are contained in the Periodic Maintenance Information Data Structure (PMIDS) error log.

Tests

Procedure 600 has three tests:

   a. Test 1 displays alarms by priority and resolves alarms.

   b. Test 2 displays entries with recorded errors and resolves entries.

   c. Test 3 displays resolved alarms and clears resolved alarms.

Procedure 600 Test 1—Operation

1. Type **p600** (ENTER)

     The Test 1 screen appears.

```
         ENHANCED MODE - PROCEDURE: 600, TEST: 1
                 EXAMINE ALARMS BY PRIORITY

  2. Unit Type: [..]
                                    TIME STAMP
 EQUIPMENT LOCATION                11. Stamp Index: [.]
    3.   Module: [..]              12.        Day: [..]
    4.  Cabinet: [.]               13.       Hour: [..]
    5.  Carrier: [.]               14.     Minute: [..]
    6.     Slot: [..]
    7.  Circuit: [..]              15. Procedure Reference: [..]

  8.        Alarm Status: [.]
  9. Number of Failures: [...]
 10.       Failure Index: [..]




 Connected to CC0 ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT]

 enter command: ▄
 [        ] [   ][F3 DATA] [   ][F5 HELP] [F6 FIELD] [F7 INPUT][F8 CMDS]
```

2. Type **x** (ENTER)

     WAIT appears on the screen.

The alarms are sorted by priority.

Major alarms appear first. Minor alarms appear second. Warnings appear last.

Field 10 shows the total number of alarms.

3. Type **nc** (ENTER) to see an alarm.

Field 2 shows the unit type.

Fields 3 through 7 show the equipment location of the circuit that raised the alarm.

Unit types 60, 61, 63, 64, 67, and 73 show other data in Fields 3 through 7. For these unit types, refer to *Generic 2 Maintenance Procedures* (555-104-117), Tables 3-1 through 3-9 for an explanation of the data in Fields 3 through 7.

Field 8 shows the alarm status of the entry (1 = major, 2 = minor, 3 = warning).

Field 9 shows the number of times the alarmed entry failed.

Field 10 shows the number of alarms remaining in the PMIDS error log, including the alarm on your screen.

Field 11 shows a 3 to indicate that Fields 12 through 14 show when the error became an alarm.

Field 15 shows the last two digits of the 600 series maintenance procedure to use to repair the alarm. (For example, a 20 in Field 15 refers to Procedure 620.)

4. Type **nd** (ENTER) to step through the alarm's time stamp. See Table J for an explanation of the time stamp.

TABLE J. Time Stamp, Procedure 600 Test 1

STAMP INDEX FIELD 11	EXPLANATION OF FIELDS 12-14
1	Latest time failed
2	Time when error begins
3	Time when error was alarmed

5. Go to the maintenance procedure shown in Field 15 and resolve the alarm.

The equipment location of the alarmed circuit is carried over to Procedures 601, 611, 620, 622, 628, 646, 648, and 651.

Instructions for using the 600 series maintenance procedures are found in *Generic 2 Maintenance Procedures* (555-104-117).

If Field 15 is empty, refer to *Generic 2 Maintenance Repair Strategies* (555-104-118) for a repair strategy.

6. If there are more alarms in the PMIDS error log, repeat steps 1 through 5 until all the alarms are resolved.

7. If an alarm is invalid and is to be cleared instead of repaired, make sure the alarmed entry is shown on the screen.

8. Type **cdx** [ENTER]

    Field 8 displays a 5 to show the alarm is resolved.

    Field 10 is decreased by one.

    Cleared alarms are not deleted from the PMIDS error log but are listed in Test 3.

Procedure 600 Test 2—Operation

Test 2 displays entries with recorded errors. Depending on the error count these entries may also be alarms. The entries are displayed by unit type in numerical order.

1. Type **p600** [ENTER]

2. Type **t2** [ENTER]

    The Test 2 screen appears.

```
  ┌──────────────────────────────────────────────────────────────────────┐
  │                                                                        │
  │ ┌────────────────────────────────────────────────────────────────────┐│
  │ │          ENHANCED MODE - PROCEDURE: 600, TEST: 2                     ││
  │ │          EXAMINE ALARMS AND ERRORS BY UNIT TYPE                      ││
  │ │                                                                      ││
  │ │   2. Unit Type: [..]                                                 ││
  │ │                                   TIME STAMP                         ││
  │ │ EQUIPMENT LOCATION                 11. Stamp Index: [.]              ││
  │ │    3.  Module: [..]                12.        Day: [..]             ││
  │ │    4.  Cabinet: [.]                13.        Hour: [..]            ││
  │ │    5.  Carrier: [.]                14.        Minute: [..]          ││
  │ │    6.    Slot: [..]                                                  ││
  │ │    7.  Circuit: [..]               15. Procedure Reference: [..]    ││
  │ │                                                                      ││
  │ │    8.      Alarm Status: [.]                                         ││
  │ │    9. Number of Failures: [...]                                      ││
  │ │   10.    Failure Index: [..]                                         ││
  │ │                                                                      ││
  │ │                                                                      ││
  │ │                                                                      ││
  │ │ Connected to CC0 ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT │
  │ └────────────────────────────────────────────────────────────────────┘│
  │ enter command: ▬                                                       │
  │ [      ][     ][F3 DATA][     ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]  │
  └──────────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

    WAIT appears on the screen.

    The entries are sorted by unit type in numerical order. Within a unit type alarms appear first and then errors.

Field 10 shows the total number of entries with recorded errors.

Field 2 is highlighted to indicate an entry field. (A selected unit type can be entered and displayed.)

4. Type **nc** ENTER to see the first entry with recorded errors.

Field 2 shows the unit type.

Fields 3 through 7 show the equipment location of the circuit with recorded errors.

Unit types 60, 61, 63, 64, 67, and 73 show other data in Fields 3 through 7. For these unit types, refer to *Generic 2 Maintenance Procedures* (555-104-117), Tables 3-1 through 3-9 for an explanation of the data in Fields 3 through 7.

Field 8 shows the alarm status of the entry (1 = major, 2 = minor, 3 = warning, 4 = errors recorded).

Field 9 shows the total number of times the entry failed.

Field 10 shows the total number of entries remaining in the PMIDS error log, including the entry on your screen.

Fields 11 through 14 show the entry's time stamp.

Field 15 shows the last two digits of the 600 series maintenance procedure to use to repair the alarm. (For example, a 20 in Field 15 refers to Procedure 620.)

5. Type **nd** ENTER to step through the entry's time stamp. See Table K for an explanation of the time stamp.

TABLE K. Time Stamp, Procedure 600 Test 2

STAMP INDEX FIELD 11	EXPLANATION OF IN FIELDS 12-14
1	Latest time failed
2	Time when error begins
3	Time when error was alarmed

6. Go to the maintenance procedure shown in Field 15 to resolve the entry.

7. The equipment location of the entry is carried over to Procedures 601, 611, 620, 622, 628, 646, 648, and 651.

Refer to *Generic 2 Maintenance Procedures* (555-104-117) for instructions on using the 600 series maintenance procedures.

If Field 15 is empty, refer to *Generic 2 Maintenance Repair Strategies* (555-104-118) for a repair strategy.

8. If there are more entries in the PMIDS error log, repeat steps 1 through 5 until all entries are resolved.

9. If an entry is invalid and is to be cleared instead of repaired, make sure the entry is shown on the screen.

10. Type **cdx** [ENTER]

Field 8 displays a 5 to show the entry is resolved.

Field 10 is decreased by one.

When an entry with recorded errors is cleared, it is deleted from the PMIDS error log. When an alarm is cleared, it is listed in Test 3.

Procedure 600 Test 3—Operation

Test 3 displays resolved alarms and clears resolved alarms from the PMIDS error log. Resolved alarms are displayed by unit type in numerical order.

1. Type **p600** [ENTER]

2. Type **t3** [ENTER]

The Test 3 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│         ENHANCED MODE - PROCEDURE: 600, TEST: 3                       │
│                   EXAMINE RESOLVED ALARMS                             │
│                                                                       │
│  2. Unit Type: [··]                                                   │
│                                          TIME STAMP                   │
│  EQUIPMENT LOCATION                      11. Stamp Index: [·]         │
│   3.  Module: [··]                       12.       Day: [··]         │
│   4.  Cabinet: [·]                       13.      Hour: [··]         │
│   5.  Carrier: [·]                       14.    Minute: [··]         │
│   6.    Slot: [··]                                                    │
│   7. Circuit: [··]                                                    │
│                                                                       │
│   8. Alarm Status: [·]                                                │
│   9.        Number of Failures: [···]                                │
│  10. Number of Resolved Alarms: [··]                                 │
│                                                                       │
│                                                                       │
│                                                                       │
│  Connected to CCO ON-LINE ♥ │ MAJOR ││ MINOR ││ RUN TAPE ││ BUSY OUT ││ IN USE ││ WAIT │
│  ─────────────────────────────────────────────────────────────────── │
│  enter command: ▄                                                     │
│  └──────┘└──────┘│F3 DATA│└──────┘│F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │
└─────────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

WAIT appears on the screen.

The resolved alarms are sorted by unit type in numerical order.

Field 10 shows the total number of resolved alarms.

Field 2 is highlighted to indicate an entry field. (A selected unit type can be entered and displayed.)

4. Type **nc** (ENTER) to see the first resolved alarm.

   Field 2 displays the unit type.

   Fields 3 through 7 show the equipment location of the circuit that was resolved.

   Field 8 shows a 0.

   Field 9 shows the total number of times the entry failed.

   Field 10 shows the number of resolved alarms remaining in the PMIDS error log, including the one on your screen.

   Fields 11 through 14 show the entry's time stamp.

5. Type **nd** (ENTER) to step through the entry's time stamp. See Table L for an explanation of the time stamp.

TABLE L. Time Stamp, Procedure 600 Test 3

STAMP INDEX FIELD 11	EXPLANATION OF FIELDS 12-14
1	Time resolved
2	Time when error begins
3	Time when error was alarmed

6. If the resolved alarm is to be cleared, make sure the entry is shown on the screen.

7. Type **cdx** (ENTER)

   Field 8 shows a 0.

   Field 10 is decreased by one.

8. If all the resolved alarms are to be cleared, make sure the total number of resolved alarms is shown in Field 10.

9. Type **cdx** (ENTER)

   Field 10 shows a 0 to indicate no resolved alarms exist.

Notes

SYSTEM DEMAND TESTS

OVERVIEW

Demand tests are system diagnostics that test the DEFINITY Generic 2 switch hardware. Demand tests are accessed through the Manager II and can be run when desired; that is, upon demand. Because certain demand tests should be run when the processor is on-line, follow the testing sequence presented in this section.

REQUIREMENTS

The following materials are required to run the demand tests:

- Eight DCIU loopback plugs labeled (ED-1E422-10) Group 13 and one DS-1 loopback plug labeled (ED-1E422-10).

- The service manual *Definity™ Communications System Generic 2 Maintenance Repair Strategies* (555-104-118). When failures are detected, record the failures, and refer to the chapter in *Generic 2 Maintenance Repair Strategies* (555-104-118) noted at the end of each demand test.

PROCEDURE 601, ENVIRONMENTAL TESTS

Purpose

Test 2 of Procedure 601 tests the switch cabinets for environmental alarms.

Procedure 601 Test 2—Operation

1. At the Manager II, type **p601** $\boxed{\text{ENTER}}$
2. Type **nt** $\boxed{\text{ENTER}}$

    The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 601, TEST: 2                     │
│                   TEST FOR ENVIRONMENTAL ALARMS                        │
│                                                                        │
│  EQUIPMENT LOCATION                 16. Number of Cabinets: [---]      │
│      2.  Module: [--]               17. Number of Failures: [---]      │
│      3.  Cabinet: [-]               18.      Failure Index: [---]      │
│   4. Module Control Carrier Status: [-]                                │
│                                                                        │
│  CABINET COMPONENT ALARMS IN TRADITIONAL | UNIVERSAL MODULE            │
│      5.           AC Power | High Battery Charge Rate: [-]             │
│      6.                   48 Volt DC | Not Used: [-]                   │
│      7.       Fuse or Breaker | Battery Reserve Unit: [-]              │
│      8.          DC Converter | Power Unit Shutdown: [-]               │
│      9.         Frequency Generator | Ring Voltage: [-]                │
│     10.             Air Flow Alarm | Air Flow Alarm: [-]               │
│     11.      Temperature Alarm | Temperature Alarm: [-]                │
│     12.                Holdover | Battery Reserve: [-]                 │
│     13.  Module Control Carrier Power on Left | Not Used: [-]          │
│     14. Module Control Carrier Power on Right | Not Used: [-]          │
│  15. Alarm Status: [-]                                                 │
│                                                                        │
│  Connected to CCO ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ] │
│                                                                        │
│  ─────────────────────────────────────────────────────────────────    │
│  enter command: ▬                                                      │
│  [        ][        ][F3 DATA ][        ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

   WAIT appears on the screen.

4. When WAIT goes out, observe Field 16 and make sure the number of cabinets tested equals the number of cabinets equipped with the switch. Observe Field 17 for the number of failures.

   A 0 in Field 17 indicates no failures and the test for Environmental Alarms passed.

   A number other than 0 in Field 17 indicates the number of failures. Continue with step 5.

5. Type **nc** (ENTER)

6. Record the following:

   • The equipment location in Fields 2 and 3.

   • The cabinet component alarm in Fields 5 through 14.

   • The alarm status in Field 15.

   • The number of failures in Field 17.

   • The failure index in Field 18.

7. If Field 17 is greater than 1, repeat steps 5 and 6 for each failure.

   As you display each failure, Field 18 is incremented by 1.

   After all the failures are displayed, Fields 2 through 12 become dashed.

   Entering **nc** again causes the number of failures to appear.

8. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.1 to resolve each failure.

PROCEDURE 610, DISK/TAPE SYSTEM TEST

Purpose

Test 2 of Procedure 610 instructs the TN563 to:

- test its on-board resources

- test the readiness of each peripheral on the interface bus

- perform a non-destructive read and write on the disk drive

- perform a non-destructive read on the tape drive

- perform an on-board test of any idle serial port.

Procedure 610 Test 2—Operation

1. At the Manger II, type **p610** [ENTER]

2. Type **nt** [ENTER]

   The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│   ┌──────────────────────────────────────────────────────────┐    │
│   │       ENHANCED MODE - PROCEDURE: 610, TEST: 2             │    │
│   │              TEST THE DISK TAPE SYSTEM                    │    │
│   │  .                                                       │    │
│   │ DISK TAPE SYSTEM EQUIPMENT                               │    │
│   │    2.   Circuit Pack TN563: [-]                          │    │
│   │    3.            Serial Port: [-]                        │    │
│   │    4.             Disk Drive: [-]                        │    │
│   │    5. Fan Overtemperature: [-]                           │    │
│   │    6.            Tape Drive: [-]                         │    │
│   │    7.        Cable or Power: [-]                         │    │
│   │    8.        Tape Cartridge: [-]                         │    │
│   │                                                          │    │
│   │ 10.   Number of Failures: [-]                           │    │
│   │ 11.        Failure Index: [-]                            │    │
│   │ 12. Specific Fault Code: [---]                          │    │
│   │                                                          │    │
│   │                                                          │    │
│   │                                                          │    │
│   │ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │    │
│   ├──────────────────────────────────────────────────────────┤    │
│   │ enter command: ▄                                         │    │
│   │ [      ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │    │
│   └──────────────────────────────────────────────────────────┘    │
└──────────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

   WAIT appears on the screen.

4. When WAIT goes out, observe Field 10 for the number of failures.

   A 0 in Field 10 indicates no failures and the Disk/Tape Test passed.

   A number other than 0 in Field 10 indicates the number of failures. Continue with step 5.

5. Type **nc** (ENTER)

6. Record the following:

   - The Disk/Tape System component in Fields 2 through 8.

   - The number of failures in Field 10.

   - The failure index in Field 11.

   - The specific fault code in Field 12.

7. If Field 10 is greater than 1, repeat steps 5 and 6 for each failure.

   As you display each failure, Field 11 is incremented by 1.

   After all the failures are displayed, Fields 2 through 12 become dashed.

   Entering **nc** again causes the number of failures to appear.

8. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.2 to resolve each failure.

PROCEDURE 611, COMMON CONTROL TESTS

Purpose

Test 2 of Procedure 611 tests all 4-MHz channels, dual-speed data channels, and the input/output (I/O) buffer circuit.

Procedure 611 Test 2—Operation

1. At the Manger II, type **p611** (ENTER)

2. Type **nt** (ENTER)

    The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────┐
│  ┌────────────────────────────────────────────────────────┐   │
│  │       ENHANCED MODE - PROCEDURE: 611, TEST: 2           │   │
│  │          TEST ALL COMMON CONTROL I/O CHANNELS           │   │
│  │                                                         │   │
│  │  EQUIPMENT LOCATION                                      │   │
│  │     2.   Module: [--]                                    │   │
│  │     3.  Cabinet: [-]                                     │   │
│  │     4.  Carrier: [-]                                     │   │
│  │     5.     Slot: [--]                                    │   │
│  │     6.  Channel: [--]                                    │   │
│  │                                                         │   │
│  │     7.        Alarm Status: [-]                          │   │
│  │     8.        Circuit Type: [-]                          │   │
│  │     9.     Location Status: [-]                          │   │
│  │    10. DMIDS Failure Index: [--]                         │   │
│  │    11. Specific Fault Code: [----]                       │   │
│  │                                                         │   │
│  │                                                         │   │
│  │                                                         │   │
│  │ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │
│  │                                                         │   │
│  │ enter command: ▬                                        │   │
│  │ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
│  └────────────────────────────────────────────────────────┘   │
└──────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

    WAIT appears on the screen.

4. When WAIT goes out, observe Field 10 for the failure index (i.e. the number of failing channels).

   A 0 in Field 10 indicates no failing channels and the Common Control Tests passed.

   A number other than 0 in Field 10 indicates the number of failing channels. Continue with step 5.

5. Type **nc** (ENTER)

6. Record the following:

   • The equipment location in Fields 2 through 6.

   • The circuit type in Field 8.

   • The location status in Field 9.

   • The DMIDS failure index in Field 10.

   • The specific fault code in Field 11.

7. If Field 10 is greater than 1, repeat steps 5 and 6 for each failure.

   As you display each failure, Field 10 is decremented by 1.

   After all the failures are displayed, Fields 2 through 11 become dashed.

   Entering **nc** again causes the failure index to appear.

8. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.3 to resolve each failure.

PROCEDURE 616, ALARM PANEL TEST

Purpose

Test 1 of Procedure 616 simultaneously tests the ALARMS, PROCESSOR/MEMORY, ATTENDANT CONSOLE, ENVIRONMENT, COMMON CONTROL, NETWORK, APPLICATIONS PROCESSOR, and OTHER fault indicators.

Procedure 616 Test 1—Operation

1. At the Manager II, type **p616** [ENTER]

   The Test 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│         ENHANCED MODE - PROCEDURE: 616, TEST: 1                   │
│                  TEST ALL ALARM INDICATORS                        │
│                                                                   │
│ ALARM INDICATORS                      19.         PORT: [-]       │
│    2.              MAJOR: [-]          20.   PERIPH EQPT: [-]      │
│    3.              MINOR: [-]          21.      AP INTER: [-]      │
│    4.            WARNING: [-]          22.      EXT PROC: [-]      │
│    5.     MAJOR AND PROC: [-]          23.   OTHER FAILS: [-]      │
│    6.               PROC: [-]          24.      EXT EQPT: [-]      │
│    7.                MEM: [-]          25. RMATS DIAG IN USE: [-]  │
│    8.          DIAG PROC: [-]                                     │
│    9.               PASS: [-]                                     │
│   10.               FAIL: [-]                                     │
│   11.                ALM: [-]                                     │
│   12.                ACK: [-]                                     │
│   13.   PWR/TMP AIR FLOW: [-]                                     │
│   14.               TAPE: [-]                                     │
│   15.       CACHE/MEMORY: [-]                                     │
│   16.        I/O CHANNEL: [-]                                     │
│   18.             SWITCH: [-]                                     │
│                                                                   │
│ Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│
│                                                                   │
│ enter command: ▄                                                 │
│ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────┘
```

2. Type **x** [ENTER]

   A 1 is displayed in Fields 2 through 16 and 18 through 25, and the alarm panel indicators are turned on.

3. Type **nd** [ENTER]

   Zeros are displayed in Fields 2 through 16 and 18 through 25, and the alarm panel indicators are turned off.

4. Refer to *Generic II Maintenance Repair Strategies* (555-104-118), Chapter 8 if an alarm panel indicator does not light or stays lit.

PROCEDURE 618, DIAGNOSTIC PROCESSOR/REMOTE INTERFACE/ALARM INTERFACE TEST

Purpose

Test 2 of Procedure 618 tests the diagnostic processor complex.

Procedure 618 Test 2—Operation

1. At the Manager II, type **p618** ENTER

2. Type **nt** ENTER

   The Test 2 screen appears.

```
          ENHANCED MODE - PROCEDURE: 618, TEST: 2
                TEST THE DIAGNOSTIC PROCESSOR ONCE

  2. Unit Type: [--]

EQUIPMENT LOCATION
  3.   Module: [--]
  4.  Cabinet: [-]
  5.  Carrier: [-]
  6.     Slot: [--]

  7.        Alarm Status: [-]
  8.       Failure Index: [--]
  9. Specific Fault Code: [----]




Connected to CC0 ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT |

enter command: ▬
[        ][        ][F3 DATA ][        ][F5 HELP ][F6 FIELD][F7 INPUT][F8 CMDS]
```

NOTE: Special error code 80 (there is reduced testing functionality) is displayed when these tests cannot be performed because of modem activity.

3. Type **x** [ENTER]

   WAIT appears on the screen.

   NOTE: If special error code 82 (modem 0 busy), special error code 83 (modem 1 busy), or special error code 84 (modem 0 and 1 busy) is displayed alternately on and off, or steadily while Test 2 is executing, the special error code indicates that all tests are not being performed because Remote Maintenance, Administration and Traffic System (RMATS) is using modem 0, modem 1, or both modems.

4. When **WAIT** goes out, observe Field 8 for the failure index (i.e., the number of failures).

   A 0 in Field 8 indicates no failures and the Diagnostic Processor/Remote Interface/Alarm Interface Test passed.

   A number other than 0 in Field 8 indicates the number of failures. Continue with step 5.

5. Type **nc** [ENTER]

6. Record the following:

   - The unit in Field 2.

   - The equipment location in Fields 3 through 6.

   - The alarm status in Field 7.

   - The failure index in Field 8.

   - The specific fault code in Field 9.

7. If Field 8 is greater than 1, repeat steps 5 and 6 for each failure.

   As you display each failure, Field 8 decremented by 1.

   After all the failures are displayed, Fields 2 through 9 become dashed.

   Entering **nc** again causes the failure index to appear.

8. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.7 resolve each failure.

PROCEDURE 650, DATA COMMUNICATIONS INTERFACE UNIT (DCIU) TEST

Purpose

Test 2 of Procedure 650 tests all DCIU circuits. Test 3 performs an external loop-around test.

Procedure 650 Test 2—Operation

1. At the Manager II, type **p650** [ENTER]

2. Type **nt** [ENTER]

> The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│           ENHANCED MODE - PROCEDURE: 650, TEST: 2                       │
│              DO A VERIFICATION TEST ON DCIU CIRCUITS                    │
│                                                                        │
│  EQUIPMENT LOCATION                                                    │
│     2.     Module: [--]                                                │
│     3.    Cabinet: [-]                                                 │
│     4.    Carrier: [-]                                                 │
│     5.       Slot: [--]                                                │
│     6. Data Link:  [-]                                                 │
│                                                                        │
│  FAILURE STATUS                                                        │
│     8.        Alarm Status: [-]                                        │
│     9.         DCIU Status: [-]                                        │
│    10.    Data Link Status: [-]                                        │
│    11. DMIDS Failure Index: [--]                                       │
│    12.         Fault Code:  [--]                                       │
│                                                                        │
│                                                                        │
│                                                                        │
│  Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                        │
│  enter command: ▬                                                     │
│  ┌───┐┌───┐│F3 DATA│┌───┐  │F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│      │
└──────────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

> **WAIT** appears on the screen.

4. After **WAIT** goes out, observe Field 11 for the DMIDS failure index (i.e., the number of DCIU failing circuits).

   A 0 in Field 11 indicates no failing DCIU circuits and the DCIU test passed. The green LEDs on the TN406, TN405, and UN156 should be lit.

   If any failures are detected, the first failure is displayed.

5. Record the following information:

   - The equipment location of the failing circuit in Fields 2 through 6

     NOTE: Fields 5 and/or 6 are dashed if a specific DCIU circuit pack or data link cannot be identified for the fault code displayed in Field 12.

   - The DCIU status in Field 9

   - The data link status in Field 10

     NOTE: Field 10 is dashed if Field 6 is dashed.

   - The total number of failures in Field 11

   - The fault code in Field 12.

6. When Field 11 is greater than 1, type **nf** (ENTER) to display the next failure and record the information as indicated in step 5.

   When all failures are displayed, typing **nf** (ENTER) again dashes all fields except Field 9.

7. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.16 to resolve each fault.

Procedure 650 Test 3—Operation

   NOTE: You must install the eight loopback plugs (ED-1E422-10) Group 13 on DCIU links 1 through 8 to run Test 3.

1. Type **t3** (ENTER)

   The Test 3 screen appears.

   Field 6 is highlighted.

```
┌─────────────────────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────────────────────┐ │
│ │          ENHANCED MODE - PROCEDURE: 650, TEST: 3            │ │
│ │        CONTINUOUSLY TEST THE DCIU WITH A LOOP-BACK TEST     │ │
│ │                                                             │ │
│ │ EQUIPMENT LOCATION                                          │ │
│ │     2.     Module: [--]                                     │ │
│ │     3.    Cabinet: [-]                                      │ │
│ │     4.    Carrier: [-]                                      │ │
│ │     5.       Slot: [--]                                     │ │
│ │     6. Data Link: [-]                                       │ │
│ │                                                             │ │
│ │     7. Loop-back Type: [-]                                  │ │
│ │                                                             │ │
│ │ STATUS                                                      │ │
│ │     8.      Alarm Status: [-]                               │ │
│ │     9.       DCIU Status: [-]                               │ │
│ │    10. Data Link Status: [-]                                │ │
│ │                                                             │ │
│ │ LOOP-BACK TEST RESULTS                                      │ │
│ │    13. Failures Per 1000 Bits: [--]                         │ │
│ │    14. Thousands of Bits Sent: [----]                       │ │
│ │                                                             │ │
│ │ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│
│ │                                                             │ │
│ │ enter command: ▄                                           │ │
│ │ │      ││      ││F3 DATA││      ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│
│ └─────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────┘
```

2. Enter the link to be tested in Field 6.

    Field 7 is highlighted.

3. Type **1** (ENTER)

    External manual loop-around testing is entered in Field 7.

4. Type **bo** (ENTER)

5. Type **bo** (ENTER) again to be busy out the DCIU link.

    To test a data link, the data link status in Field 10 should show a 1 to indicate the data link is translated and busied out.

6. Type **x** (ENTER)

    Field 14 increments by 10 (X100) to show the thousands of bits sent.

7. When Field 14 reaches 100, type **s** (ENTER)

    A 0 in Field 13 indicates the data link passed. Type **rb** to release the data link from busy.

    Enter **cf6** and enter the next data link to be tested. Repeat steps 4 through 7 until all eight data links are tested.

    A number greater than 0 indicates the data link failed. Refer the *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.17 for repair steps.

PROCEDURE 651, PROCESSOR COMMUNICATION CIRCUIT (PCC) TEST

Purpose

Test 2 is used to perform a PCC self-test. It tests the individual components of the board for the circuit specified.

Test 3 is used to perform an external end-to-end loop-around test to the peripheral 3B2 Local Storage Unit.

Procedure 651 Test 2—Operation

1. At the Manager II, type **p651** [ENTER]

2. Type **nt** [ENTER]

    The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│         ENHANCED MODE - PROCEDURE: 651, TEST: 2                    │
│            TEST THE PCC WITH AN INTERNAL LOOPBACK TEST             │
│                                                                    │
│ EQUIPMENT LOCATION                                                 │
│    2. Carrier: [-]                                                 │
│    3.    Slot: [--]                                                │
│    4. Circuit: [--]                                                │
│                                                                    │
│    6.            Alarm Status: [-]                                 │
│    7.          Circuit Status: [-]                                 │
│    8. Specific Fault Code Index: [-]                               │
│    9.       Specific Fault Code: [----]                            │
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
│ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                    │
│ enter command: ▬                                                  │
│ [      ][      ][F3 DATA][      ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└──────────────────────────────────────────────────────────────────┘
```

3. Type **cf2** [ENTER]

4. Enter the PCC to be tested. Enter the carrier number in Field 2, the slot number in Field 3, and the circuit number in Field 4.

5. Check the circuit status displayed in Field 7.

   Test 2 cannot be performed if the circuit status = 0, 3, or 4.

   If the circuit status = 1, go to Step 8.

   If the circuit status = 2, go to Step 6.

6. Type **bo** [ENTER]

   Wait until error code 80 is shown on the screen.

7. Type **bo** [ENTER] again to busy out the PCC.

   Field 7 changes to 1.

8. Type **x** [ENTER]

   WAIT appears on the screen.

   Field 7 status will change from 1 to 3 while Test 2 is running.

9. When WAIT goes out, observe Field 8 for the fault count.

   A 0 in Field 8 indicates no faults and the circuit passed. The green LED is lighted on the PCC (TN474) under test. Go to Procedure 651 Test 3—Operation.

   A number other than 0 in Field 8 indicates the fault count. The red LED is lighted on the TN474 that failed. Continue with step 11.

10. Record the following:

    The equipment location in Fields 2 through 4.

    The alarm status in Field 5.

    The specific fault code index in Field 8.

    The specific fault code in Field 9.

11. If Field 8 is greater than 1, type **nf** [ENTER] and record all specific fault codes for the failure.

    After the last specific fault code is displayed, entering **nf** dashes Field 9.

    Entering **nf** again causes the first specific fault code to appear.

12. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.17 for repair steps.

Procedure 651 Test 3—Operation

1. Type **t3** (ENTER)

    The Test 3 screen appears.

```
┌─────────────────────────────────────────────────────────────┐
│        ENHANCED MODE - PROCEDURE: 651, TEST: 3                │
│        TEST THE PCC WITH AN END-TO-END LOOPBACK TEST          │
│                                                               │
│  EQUIPMENT LOCATION                                           │
│     2. Carrier: [·]                                           │
│     3.    Slot: [··]                                          │
│     4. Circuit: [··]                                          │
│                                                               │
│     5.              Test Length: [·]                          │
│     6.             Alarm Status: [·]                          │
│     7.           Circuit Status: [·]                          │
│     8.            Failure Index: [·]                          │
│     9.       Specific Fault Code: [····]                      │
│    10.   Number of Failed Messages: [···]                     │
│    11. Number of Attempted Messages: [···]                    │
│                                                               │
│                                                               │
│                                                               │
│ Connected to CCO ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] │
│                                                               │
│ enter command: ▬                                             │
│ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└─────────────────────────────────────────────────────────────┘
```

2. Type **cf2** (ENTER)

3. Enter the PCC to be tested. Enter the carrier number in Field 2, the slot number in Field 3, and the circuit number in Field 4.

4. Check the circuit status displayed in Field 7.

    Test 3 cannot be performed if the circuit status = 0, 3, or 4.

    If the circuit status = 1, go to Step 7.

    If the circuit status = 2, go to Step 5.

5. Type **bo** (ENTER)

    Wait until error code 80 is displayed on the screen.

6. Type **bo** (ENTER) again to busy out the PCC.

    Field 7 changes to 1.

7. Type **cf5** [ENTER]

8. Type **1** [ENTER]

9. Type **x** [ENTER]

    Test 3 is started.

10. Wait 30 seconds, then type **s** [ENTER]

    Test 3 is stopped.

11. Observe Field 8 to determine if the PCC passed Test 3.

    A 0 in Fields 8 and 10 indicate PCC passed. Type **rb** [ENTER] to release the PCC from busy.

    A number other than 0 in Field 8 indicates the specific fault code index. Continue with step 12.

12. Record the following:

    - The equipment location in Fields 2 through 4.

    - The alarm status in Field 6.

    - The specific fault code index in Field 8.

    - The specific fault code in Field 9.

    - The number of failed messages in Field 10.

    - The number of attempted messages in Field 11.

13. If Field 8 is greater than 1, type **nf** [ENTER] and record all specific fault codes for the failure.

    After the last specific fault code is displayed, entering **nf** dashes Field 9.

    Entering **nf** again causes the first specific fault code to appear.

14. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.17 for repair steps.

PROCEDURE 652, TIME-OF-DAY CLOCK SYNCHRONIZER & TEST

Purpose

Test 2 of Procedure 652 continuously tests a combination of the hardware time-of-day clock and the software buffer.

Test 3 of Procedure 652 allows you to display and set the hardware and/or software time-of-day clock.

Procedure 652 Test 2—Operation

1. At the Manager II, type **p652** [ENTER]

2. Type **nt** [ENTER]

> The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│              ENHANCED MODE  -  PROCEDURE: 652, TEST: 2                 │
│              CONTINUOUSLY TEST THE HARDWARE TIME-OF-DAY CLOCK          │
│                                                                       │
│ EQUIPMENT LOCATION                                                    │
│     2.  Carrier: [-]                                                   │
│     3.     Slot: [--]                                                  │
│                                                                       │
│     4. Maintenance Busy Status: [-]                                   │
│     5.             Failure Code: [--]                                 │
│     6.            Hardware Clock: [-]                                  │
│                                                                       │
│ TIME STAMP                                                            │
│     7.    Month: [--]                                                  │
│     8.      Day: [--]                                                  │
│    10.    Hours: [--]                                                  │
│    11.  Minutes: [--]                                                  │
│    12.  Seconds: [--]                                                  │
│                                                                       │
│                                                                       │
│ Connected to CC0 ON-LINE ♥  MAJOR   MINOR   RUN TAPE  BUSY OUT  IN USE  WAIT │
│                                                                       │
│ enter command: ▄                                                      │
│         F3 DATA          F5 HELP  F6 FIELD  F7 INPUT  F8 CMDS          │
└─────────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

4. After 1 minute, type **s** [ENTER]

5. Observe Field 5 for a failure code.

> A 0 in Field 5 indicates no failures and the time-of-day clock synchronizer test passed. Go to Procedure 652 Test 3—Operation.

> A number other than 0 in Field 5 indicates the failure code.

6. Record the failure code.

7. Type **nd** (ENTER) to see other failure codes.

8. Record each failure code displayed in Field 5.

   When all failure codes are displayed, Field 5 is dashed.

9. Refer to *Generic 2, Maintenance Repair Strategies* (555-104-118), Chapter 6.18 to resolve each failure.

Procedure 652 Test 3—Operation

1. Type **nt** (ENTER)

   The Test 3 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 652, TEST: 3                 │
│          SET THE HARDWARE AND SOFTWARE TIME-OF-DAY CLOCKS          │
│                                                                    │
│ EQUIPMENT LOCATION                                                 │
│    2. Carrier: [·]                                                 │
│    3.    Slot: [··]                                                │
│                                                                    │
│    4. Maintenance Busy Status: [·]                                 │
│    5.            Failure Code: [··]                                │
│    6.              Clock Type: [·]                                 │
│                                                                    │
│ TIME STAMP                                                         │
│    7.    Month: [··]                                               │
│    8.      Day: [··]                                               │
│    9.     Year: [··]                                               │
│   10.    Hours: [··]                                               │
│   11.  Minutes: [··]                                               │
│   12.  Seconds: [··]                                               │
│                                                                    │
│                                                                    │
│ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │
│                                                                    │
│ enter command: ▬                                                  │
│ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]  │
└──────────────────────────────────────────────────────────────────┘
```

2. Type **x** (ENTER)

   Field 2 and 3 show the equipment location of the hardware time-of-day clock.

   Field 4 shows the busy/alarm status.

   Field 6 shows a '0' to indicate the software clock.

   Field 7 through 12 show the date and time.

3. Type **nu** [ENTER] to check the time and date of the hardware clock.

   A 1 (indicating hardware clock) is displayed in Field 6.

   The time and date (transitional) is displayed in Fields 7, 8, and 10 through 12.

   Field 9 is dashed and does not apply to the hardware clock.

4. To set the correct time and date:

   a. Determine if either the hardware clock or the software clock is correct.

      If one or the other clock is correct, display the correct clock and go to Step c.

   b. If neither clock is correct, use the **cf** (change field) command and enter the correct date and/or time.

   c. Type **cdx** [ENTER]

      The **cdx** command sets both clocks equal to each other and starts both clocks running from the displayed time and date.

PROCEDURE 613, DUPLICATE PROCESSOR CONTROL & TEST

Purpose

Test 3 of Procedure 613 performs a soft switch of the duplication channel for common control carriers and updates the off-line memory.

NOTE: The switch must be equipped with duplicated common control carriers to run this test.

Procedure 613 Test 3—Operation

1. At the Manger II, type **p613** [ENTER]

2. Type **t3** [ENTER]

   The Test 3 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│              ENHANCED MODE - PROCEDURE: 613, TEST: 3             │
│                   DUPLICATE PROCESSOR CONTROL                    │
│                                                                 │
│   2. Processor Status: [·]                                      │
│                                                                 │
│  ON-LINE PROCESSOR HEALTH CODE                                  │
│     3. Hardware: [·]                                            │
│     4.   Soft B: [·]                                            │
│     5.   Soft A: [·]                                            │
│                                                                 │
│  OFF-LINE PROCESSOR HEALTH CODE                                 │
│     6. Hardware: [·]                                            │
│     7.   Soft B: [·]                                            │
│     8.   Soft A: [·]                                            │
│                                                                 │
│  10. Switch Status: [·]                                        │
│  12.  Failure Code: [----]                                     │
│                                                                 │
│                                                                 │
│                                                                 │
│  Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │
│                                                                 │
│  enter command: ■                                              │
│  [     ][     ][F3 DATA][     ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

   Field 2 shows the processor status.

   Fields 3 through 5 show the on-line processor health code.

   Fields 6 through 8 show the off-line processor health code.

   Field 10 shows the switch status. Field 10 must display 0 to perform a soft switch.

   If Field 10 displays 1, refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.5 for repair steps.

4. Type **nu** [ENTER]

   WAIT appears on the screen.

5. When **WAIT** goes out, observe that the common control carriers switched.

6. If the common control carriers do not switch refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.5 for repair steps.

7. After you switch processors, **repeat the demand tests from Procedure 610 through Procedure 613 for the processor now on-line**.

PROCEDURE 620, DIGITAL NETWORK CIRCUITS TEST

Purpose

Test 2 of Procedure 620 tests each unit type of the digital network. All digital network circuits within a unit type are tested for the entire switch.

Test for all unit types listed in Table M.

Procedure 620 Test 2—Operation

1. At the Manager II, type **p620** [ENTER]

2. Type **nt** [ENTER]

   > The Test 2 screen appears.
   >
   > Field 2 is highlighted.

```
┌────────────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE  -  PROCEDURE: 620,  TEST: 2                     │
│                      TEST A NETWORK CIRCUIT                               │
│                                                                          │
│    2. Unit Type: [--]                                                    │
│                                                                          │
│  EQUIPMENT LOCATION                    FAILURE SUMMARY                    │
│     3.   Module: [--]                    13. Number of Circuits Tested: [----] │
│     4.  Cabinet: [-]                     14.       Number of Failures: [--]     │
│     5.  Carrier: [-]                                                      │
│     6.     Slot: [--]                                                     │
│     7.  Circuit: [--]                                                     │
│                                                                          │
│  STATUS                                                                   │
│     8. Location Status: [-]                                               │
│     9.    Alarm Status: [-]                                               │
│    10.  Circuit Status: [-]                                              │
│                                                                          │
│  FAULT                                                                    │
│    11.             Index: [--]                                           │
│    12. Specific Fault Code: [----]                                       │
│                                                                          │
│  Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                          │
│  enter command: ▬                                                        │
│  │      ││F3 DATA││      ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│          │
└────────────────────────────────────────────────────────────────────────┘
```

3. Type **6** [ENTER]

   > Unit type 6 (TMS/Module control channel) is entered in Field 2.

4. Type **x** [ENTER]

   > **WAIT** appears on the screen.
   >
   > All the digital network circuits of the entered unit type (starting with the first network module, cabinet, and carrier) are tested.

5. When WAIT goes out observe Field 14 for the number of failures.

    A 0 in Field 14 indicates no failures for the entered unit type. Go to step 10 to continue the demand test for the digital network.

    A number other than 0 in Field 14 indicates the number of failures. Continue with step 6.

6. Type **nc** (ENTER)

7. Record the following:

    - The unit type shown in Field 2.

    - The equipment location shown in Fields 3 through 7.

    - The location status shown Field 8.

    - The alarm status shown Field 9.

    - The circuit status shown Field 10.

    - The index shown Field 11.

    - The specific fault code shown Field 12.

8. When Field 14 is greater than 1, repeat Steps 6 and 7 for each failure.

    As you display each failure, Field 11 is incremented by 1.

    After all the failures are displayed, Fields 2 through 14 become dashed.

    Entering **nc** again causes the number of failures to appear.

9. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.8 to resolve each failure.

10. To select another unit type, type **cf2** (ENTER)

    Field 2 is highlighted.

11. Enter the next unit type in Table M.

12. Repeat the test from step 4.

13. The demand test for the digital network is complete when all the unit types in Table M are tested.

TABLE M. Digital Network Unit Types

UNIT TYPE	DESCRIPTION
6	TMS/Module control channel
7	TMS/Module processor
8	Maintenance interface
9	Module clock
10	Time slot interchanger (TSI) ALU
11	Time slot interchanger (TSI) PSTORE
12	I/O bus interface (IOBI)
13	Port data store (PDS)
14	Port control interface (PCI)
15	Port data interface (PDI)
16	Tone plant
23	TMS/Network duplication channel
24	Touch-tone dialing sender
25	Touch-tone dialing receiver
27	General purpose port (GPP)
28	72 series (MFET) port
29	Line circuit
31	Auxiliary tone plant
32	CO trunk (hardware)
33	DID trunk (hardware)
34	Tie trunk/data port (hardware)
44	Attendant console interface
45	Auxiliary trunk
46	Attendant conference
50	TMS clock oscillator (TCO)
51	Local clock termination (LCT)
52	System clock synchronizer (SCS)
53	Multiplexor (MPX)
54	Fan out (FO)
55	Module interface (MI)
56	Interface data store (IDS)
57	Lightguide interface (LGI)
58	Fans in (FI)
59	TMS maintenance interface (TMIF)
62	Analog/digital facility test circuit (ADFTC)
66	Tone detector 2
68	DS-1/DMI trunk interface

continued

TABLE M. Digital Network Unit Types (Contd)

UNIT TYPE	DESCRIPTION
69	Multifunction analog terminal (MFAT)
71	Remote module interface (RMI)
72	EIA interface
74	Remote carrier Group (RCG)
75	Primary Rate Interface (PRI)
78	Basic Rate Interface (BRI)
80	Universal Bus Interface (HBI)
83	Network Processing Element (NPE)
98	Time multiplex switch fabric (TMSF)
99	Time slot interchanger (TSI)

NOTES

- When unit type 44 (attendant console interface) is selected for testing, the associated headset(s) or handset(s) must be unplugged or the test fails.

- When unit type 45 (auxiliary trunk) is selected for testing, option settings on 1-way incoming or 1-way outgoing auxiliary trunk circuits must be set for 2-way transmission or the circuit fails the test.

- When unit type 68 (DS1) or 74 (RCG) is selected for testing, the DS1 or RCG circuits should be maintenance busied or the circuits are not tested. If the circuit pack location is not maintenance busied, and a special fault code 13 is displayed, the circuit pack has not been tested.

- When testing DS-1 circuit packs (i.e., unit type 68), additional test coverage is obtained by using ED-1E422-10 Group 15 loopback plug. Install the looparound plug to the connector on the back of the cabinet that corresponds to the DS-1 circuit pack being tested.

PROCEDURE 621, NETWORK DUPLICATION CHANNEL

Purpose

Procedure 621 Test 2 performs a soft switch of the duplication channel for TMS and module control carriers and updates the off-line memory.

> **NOTE:** The switch must be equipped with duplicated TMS and module control carriers to run this test.

Procedure 621 Test 2—Operation

1. At the Manger II, type **p621** [ENTER]

2. Type **nt** [ENTER]

   The Test 2 screen appears.

   Field 2 is highlighted and shows a 1 to indicate a network module.

```
┌──────────────────────────────────────────────────────────────────┐
│              ENHANCED MODE - PROCEDURE: 621, TEST: 2               │
│        SOFT SWITCH BETWEEN DUPLICATED TMS OR MODULE CONTROL CARRIERS│
│                                                                    │
│  2. Equipment Type: [·]                                            │
│                                                                    │
│  EQUIPMENT LOCATION                    HEALTH STATUS               │
│      3.   Module: [··]                     9.        CC: [·]       │
│      4.  Cabinet: [·]                      10. Shut Down: [·]      │
│      5.  Carrier: [·]                      11.    Soft B: [·]      │
│                                            12.   Soft A1: [·]      │
│                                            13.   Soft A2: [·]      │
│                                            14.   Soft A3: [·]      │
│                                                                    │
│  SWITCH STATUS                                                     │
│      6.     On-line Status: [·]                                    │
│      7. Permission Status: [·]                                     │
│      8.     Switch Status: [·]                                     │
│                                                                    │
│                                                                    │
│  Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                    │
│  enter command: ▬                                                  │
│  │       ││       ││F3 DATA││      ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │
└──────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

   Fields 3 through 5 show the equipment location of the on-line control carrier.

   Field 6 shows the on-line status.

   Field 7 shows the switch status. Field 7 must contain either a 0 or 1 to perform a soft switch.

   Field 8 shows a 0 to indicate switch/initialization disabled.

4. Type **cf8** [ENTER]

5. Type **1** [ENTER]

6. Type **x** [ENTER]

7. Type **x** [ENTER] again to execute a soft switch.

   WAIT appears on the screen.

8. When WAIT goes out, observe that the control carriers switched.

9. Type **cf5** [ENTER]

10. Enter the on-line control carrier (0, 1, A, or B).

11. Repeat steps 3 through 8.

12. Enter **nc** to step to the next on-line network module control carrier.

13. Repeat steps 3 through 12 until all network modules have been switched.

14. If the switch is equipped with a TMS, type **nu** [ENTER]

    Field 2 shows a 2 to indicate a TMS.

15. Repeat steps 3 through 11.

PROCEDURE 653, ATTENDANT CONSOLE TEST

Purpose

Test 2 of Procedure 653 tests all attendant consoles including remote consoles.

4.14.2 Procedure 653 Test 2—Operation

Notes

- If a continuous audible tone is heard at the attendant console, operate the test switch on the left side of the attendant console to remove the tone. The switch is located on the front panel of the storage area containing the card for attendant use.

- Each attendant console handset or headset must be plugged into the console while running this test or the test fails.

1. At the Manager II, type **p653** [ENTER]

2. Type **nt** [ENTER]

    The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 653, TEST: 2                │
│                  TEST ALL ATTENDANT CONSOLES                      │
│                                                                   │
│  EQUIPMENT LOCATION                                               │
│     2. Carrier: [-]                                               │
│     3.    Slot: [--]                                              │
│     4. Channel: [--]                                              │
│                                                                   │
│     5.      Console Number: [--]                                  │
│     6.     Location Status: [-]                                   │
│     7.       Failure Code: [-]                                    │
│     8. Number of Consoles: [--]                                   │
│     9. Number of Failures: [--]                                   │
│    10.      Failure Index: [--]                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│  Connected to CC0 ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT │
│                                                                   │
│  enter command: ▄                                                 │
│  [        ][        ][F3 DATA ][        ][F5 HELP ][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

   WAIT appears on the screen.

4. When WAIT goes out, observe Field 9 for the failed console index (i.e., the number of failures).

   A 0 in Field 9 indicates no failures and the Attendant Console test passed.

   A number in Field 9 indicates the number of failures. Continue with step 5.

5. Type **nc** (ENTER)

6. Record the following:

   - The equipment location in Fields 2 through 4

   - The location status in Field 6

   - The failure code in Field 7

   - The number of consoles in Field 8.

   - The number of failures in Field 9.

   - The failure index in Field 10.

7. If Field 9 is greater than 1, repeat step 5 and record each failure.

   As you display each failure, Field 10 is incremented by 1.

   After all the failures are displayed, all fields become dashed except Field 8.

   Entering **nc** again causes the number of failures to appear.

8. Refer to *Generic II Maintenance Repair Strategies* (555-104-118), Chapter 6.19 to resolve each failure.

PROCEDURE 654, DISPLAY TERMINALS TEST

Purpose

Test 2 of Procedure 654 tests all display terminals.

Test 3 is used to verify that all digits are displayed correctly at each display terminal location.

Procedure 654 Test 2—Operation

1. Type **p654** [ENTER]

2. Type **nt** [ENTER]

   The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│           ENHANCED MODE - PROCEDURE: 654, TEST: 2                  │
│                  TEST ALL DISPLAY TERMINALS                        │
│                                                                    │
│    2.              Terminal Type: [--]                             │
│    3. Extension or Unit Number: [-----]                            │
│                                                                    │
│  DATA CHANNEL EQUIPMENT LOCATION                                   │
│    4. Carrier: [-]                                                 │
│    5.    Slot: [--]                                                │
│    6. Channel: [--]                                                │
│                                                                    │
│  FAILURE CODES                                                     │
│    8. First Failure Code: [-]                                      │
│    9.  Last Failure Code: [-]                                      │
│                                                                    │
│  10. Number of Failures: [--]                                     │
│                                                                    │
│                                                                    │
│                                                                    │
│  Connected to CCO ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] │
│  ┌──────────────────────────────────────────────────────────────┐ │
│  │ enter command: ▄                                             │ │
│  ├──────┬──────┬──────────┬──────┬──────────┬─────────┬──────────┤ │
│  │      │      │F3 DATA    │      │F5 HELP    │F6 FIELD │F7 INPUT F8 CMDS│ │
│  └──────┴──────┴──────────┴──────┴──────────┴─────────┴──────────┘ │
└──────────────────────────────────────────────────────────────────┘
```

3. Type **x** [ENTER]

   WAIT appears on the screen.

4. The display terminals test is completed without any failures when the WAIT indicator turns off and Field 10 displays a 0.

5. If a failure is detected, Test 2 stops and the WAIT indicator turns off. Record the following:

   - The terminal type displayed in Field 2 (type code 1 is the calling number display, type code 13 is the centralized attendant service/force administration data system)

   - The extension number or unit number displayed in Field 3

   - The equipment location of the dual-speed data channel circuit associated with the failing display terminal displayed in Fields 4 through 6

   - The once and last failure code associated with the failing display terminal displayed in Fields 8 and 9.

6. Type **nc** (ENTER) to continue testing the remaining display terminals.

   If other display terminals fail, record the information as indicated in Step 5.

   If dashes appear in all fields except Field 10 after entering **nc** , testing is complete.

   Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.20 to resolve any failures.

Procedure 654 Test 3—Operation

1. Type **t3** (ENTER)

   The Test 3 screen appears.

```
┌──────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 654, TEST: 3              │
│             CONTINUOUSLY TEST DISPLAY TERMINALS              │
│                                                              │
│   2.            Terminal Type: [--]                          │
│   3. Extension or Unit Number: [-----]                       │
│                                                              │
│ DATA CHANNEL EQUIPMENT LOCATION                              │
│    4. Carrier: [-]                                           │
│    5.    Slot: [--]                                          │
│    6. Channel: [--]                                          │
│                                                              │
│    7. Digit Sent: [-]                                        │
│                                                              │
│ FAILURE CODES                                               │
│    8. First Failure Code: [-]                                │
│    9.  Last Failure Code: [-]                                │
│                                                              │
│                                                              │
│ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                              │
│ enter command: ■                                            │
│ │       │F3 DATA│      │ │F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │
└──────────────────────────────────────────────────────────────┘
```

2. Type **nc** [ENTER]

   The first display terminal in terminal type 1 (or the lowest terminal type administered) is selected for testing.

3. Type **x** [ENTER]

   Test 3 runs continuously.

4. At the display terminal being tested, check that the digits being displayed on the terminal correspond with the digits displayed in Field 7.

   If the terminal missed any digits, there are intermittent problems. If no digits appear, there are cabling problems.

5. Type **s** [ENTER]

6. Record the failure codes in Fields 8 and 9.

7. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.20 for repair steps.

8. To test each of the remaining display terminals in the terminal type, type **nc** [ENTER] and repeat Steps 3 through 6.

   NOTE: When a new terminal type is displayed in Field 2, all of the circuits of the previous terminal type are tested.

9. To test the display terminals in each of the other terminal types, type **nu** [ENTER] and repeat Steps 3 through 6.

   NOTE: When dashes appear in Fields 2 through 13, all of the terminals in all of the terminal types are tested.

PROCEDURE 655, STATION MESSAGE DETAIL RECORDING (SMDR) TEST

Purpose

Test 2 of Procedure 655 runs an echo test with the SMDR equipment.

Procedure 655 Test 2—Operation

1. At the Manager II, type **p655** (ENTER)

2. Type **nt** (ENTER)

    The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────┐
│         ENHANCED MODE - PROCEDURE: 655, TEST: 2                │
│            TEST SMDR EQUIPMENT WITH AN ECHO TEST               │
│                                                                │
│ DATA CHANNEL EQUIPMENT LOCATION                                │
│    4. Carrier: [-]                                             │
│    5.    Slot: [--]                                            │
│    6. Channel: [--]                                            │
│                                                                │
│ FAILURE CODE                                                   │
│    7. First Failure Code: [-]                                  │
│    8.  Last Failure Code: [-]                                  │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                │
│ enter command: ▄                                               │
│ ┌────┐ ┌────┐F3 DATA┌────┐ ┌────┐F5 HELP│F6 FIELD│F7 INPUT│F8 CMDS│ │
└──────────────────────────────────────────────────────────────┘
```

3. Type **x** (ENTER)

4. The SMDR test is completed without any failures when Fields 7 and 8 display 0s.

5. If failures are detected, record the following information:

    • The data channel equipment location associated with the SMDR equipment in Fields 4 through 6

    • The failure code(s) (1 through 8) in Fields 7 and 8.

6. Refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.21 to resolve each failure.

PROCEDURE 656, NETWORK CONTROL OPERATIONS SUPPORT SYSTEM PORT (NCOSS) OR CENTRALIZED MESSAGE DETAIL RECORDING (CMDR) TEST

Purpose

Test 2 of Procedure 656 sends an alternating one-zero pattern to the NCOSS or CMDR equipment continuously.

Procedure 656 Test 2—Operation

1. At the Manager II, type **p656** (ENTER)

2. Type **nt** (ENTER)

   The Test 2 screen appears.

```
╔══════════════════════════════════════════════════════════════════╗
║             ENHANCED MODE - PROCEDURE: 656, TEST: 2                ║
║          CONTINOUSLY SEND A TEST PATTERN TO CDRU/NCOSS EQUIPMENT   ║
║                                                                    ║
║ TEST WORD                                                          ║
║     2. Operation Code: [--]                                        ║
║     3.      Data Word: [----]                                      ║
║                                                                    ║
║ DATA CHANNEL EQUIPMENT LOCATION                                    ║
║     4. Carrier: [-]                                                ║
║     5.    Slot: [--]                                               ║
║     6. Channel: [--]                                               ║
║                                                                    ║
║ FAILURE CODE                                                       ║
║     7. First Failure Code: [-]                                     ║
║     8. Last Failures Code: [-]                                     ║
║                                                                    ║
║                                                                    ║
║ Connected to CCO ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT]   ║
║                                                    [IN USE] [WAIT] ║
║                                                                    ║
║ enter command: ▄                                                  ║
║ [      ] [      ] [F3 DATA] [      ] [F5 HELP] [F6 FIELD] [F7 INPUT] [F8 CMDS] ║
╚══════════════════════════════════════════════════════════════════╝
```

3. Type **x** (ENTER)

4. The NCOSS test is completed without any failures when Fields 7 and 8 display 0s.

5. If failures are detected, record the following information:

   • The data channel equipment location associated with the NCOSS or CMDR equipment in Fields 4 through 6

   • The failure code(s) (1 through 8) in Fields 7 and 8.

6. Refer to *Generic II Maintenance Repair Strategies* (555-104-118), Chapter 8 to resolve each failure.

Notes

FEATURE TESTS

OVERVIEW

The feature tests are call through type tests that exercise the various features and services of the Definity Generic 2 switch. These tests are used primarily after switch installation for acceptance testing but may also be used for maintenance testing during the lifetime of the switch.

Most of these tests are run in a shortened format, such as testing a single trunk in a trunk group or testing a feature on one terminal. If you want to test all circuits having a particular feature, repeat the feature test procedure for each circuit. Indented items listed beneath step numbers are indications of normal responses received after the appropriate steps are performed.

If a test should fail or if there is an indication of alarms, you should stop testing and refer to the two service manuals *Definity™ Communications System Generic 2 Maintenance Procedures* (555-104-117) and *Definity™ Communications System Generic 2 Maintenance Repair Strategies* (555-104-118).

TEST EQUIPMENT

Apparatus and equipment required for feature testing includes station terminal equipment (such as hand test sets and telephone sets) and the Definity Manager II. Also, the ANI-Data Link Test Set (J59204AJ) is required to test the Automatic Identification of Outward Dialing feature.

Test apparatus may be connected to circuit packs in the cabinets, terminals on the cross-connect fields, or cable connectors on the carriers. When directed to connect apparatus for individual tests (for example, connect the telephone set and designate it as terminal A), connect the apparatus at the point most convenient for performing the test.

Connecting Hand Test Set for Testing

Figure 4 illustrates the use of the adapters when connecting a hand test set for use as an extension.

The 249-type adapter connects test equipment to the test points on the circuit packs. First, connect the alligator clips of the hand test set to the pins of the adapters. Next, plug the adapter into the test points on the circuit pack. The adapter can be moved from one set of test points to another (and from circuit pack to circuit pack) without removing the test cord.

A C-test cord (AT8662) can be used to connect the hand test set to selected pairs of terminals on the 110-type cross-connect field. The C-test cord comes in both 4-foot and 8-foot lengths and is normally ordered with the cross-connect field components.

A 101B wire terminal is normally mounted to the cross-connect field backboard and the C-test cord is secured to it. This allows the connector end of the test cord to reach the 110-block terminals while providing a rigid point for connecting the hand test set.

The hand test set can also be connected directly to the test cord ring terminals. In this case, the alligator clips of the hand test set must be insulated from one another.

Connect the alligator clips of the hand test set cord to the two threaded studs of the 101B wire terminal (or two ring terminals of the C-test cord). Plug the connector end of the test cord into the 110-type connecting block on the terminals to be tested.

Alligator clips on the hand test set cord can be used to connect directly to any 66-type connection block terminal of the cross-connect field.
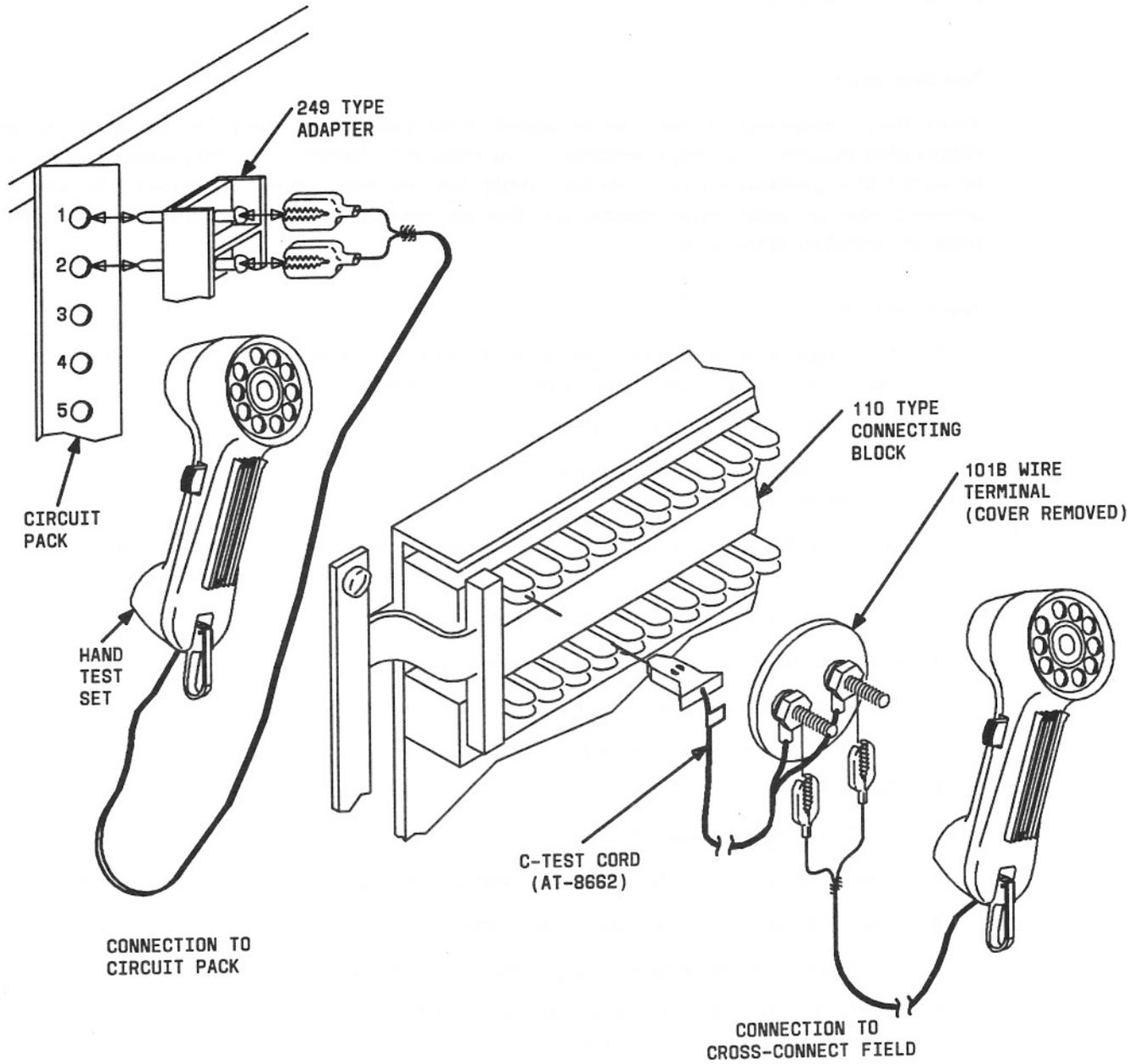
Figure 4. Connecting Hand Test Set for Testing

ABBREVIATED DIALING

Test Description

Verify that a telephone number can be stored in the personal or group list and dialed in an abbreviated manner for a single terminal on an extension. Verify that a telephone number can be stored in a personal list or group list. Verify that the numbers on the personal list can be accessed from the appropriate terminal and that the numbers on the group list can be accessed from any terminal in the group.

Test Procedure

1. At a single extension voice terminal with access to abbreviated dialing, go off-hook and dial the access code for storing numbers in a personal or group list.

    Confirmation tone is returned.

2. Dial the access code for the personal voice terminal list (or the shared list if this is the controlling voice terminal).

3. Dial a valid 1- or 2-digit member index number you want assigned to the number to be stored.

    Dial tone is heard after the digits are dialed.

4. Enter the complete telephone number to be stored.

5. Dial # or wait 4 seconds to signify the end of dialing.

    Confirmation tone is heard.

6. Go on-hook.

    The telephone number is stored.

7. Now go off-hook and dial the access code for the appropriate abbreviated dialing list.

8. Dial the index number for the stored number you want to call.

    Ringing at the called extension verifies that the feature works.

9. Repeat this procedure on each extension of a set with multiple extension lines to show access to a personal or group list.

ATTENDANT AUTO-MANUAL SPLITTING

Test Description

Verify that splitting occurs automatically when the attendant presses the START button to extend a call. Also, verify that the calling party is bridged with the attendant and the called party when the SPLIT button is pressed. Verify that the attendant is dropped from the connection when the RELEASE button is pressed.

Test Procedure

1. Select two working lines and designate as terminals A and B.

2. At terminal A, go off-hook and dial 0.

    At the console, ATND lamp flashes.

3. At the console, press the ANSWER button.

    ATND lamp lighted steadily.

    Terminal A and the attendant are connected.

4. Press the START button.

    Terminal A is split away from the attendant.

    SPLIT lamp is lighted steadily.

    Dial tone is heard by the attendant.

5. Dial the digits for terminal B.

    Ringback tone is heard by the attendant.

    RING lamp lights.

6. At terminal B, go off-hook.

    At the console, RING lamp off.

    At the console, ANS lamp lighted steadily.

7. At the console, press the SPLIT button.

    Terminals A, B, and attendant are connected.

    SPLIT lamp off.

8. Press the RELEASE button.

    Attendant dropped from the connection.

ATTENDANT CALL WAITING

Test Description

Extend an incoming central office (CO) call to a busy terminal and verify that the busy terminal and the attendant hear the proper tones. At a busy terminal, momentarily go on-hook and verify that a connection to the CO party is established.

Test Procedure

1. Select two nonrestricted terminal lines on different terminals not assigned call waiting services, and designate as terminals A and B.

2. Establish a call between terminals A and B.

3. Arrange for and answer an incoming CO call to the attendant console.

   ATND lamp lighted.

4. At the console, press the START button.

   Dial tone heard.

5. Dial terminal A.

   BUSY lamp lighted.

   Confirmation tone heard.

6. Press the RELEASE button.

   At terminal A, two bursts of 440-Hz tone heard.

   At the console, ATND lamp off.

7. At terminals A and B, go on-hook.

   At terminal A, two bursts of ringing heard.

8. At terminal A, go off-hook.

   Terminal A to CO connection established.

9. Inform CO to disconnect from the test call.

10. At terminal A, go on-hook.

ATTENDANT CONTROL OF TRUNK GROUP ACCESS

Test Description

Restrict a trunk group. Verify the restriction by attempting to gain access to a trunk from a terminal. Remove the trunk group restriction. Verify that the restriction is canceled.

Test Procedure

1. At the console, press an idle loop button.

    ATND lamp lighted.

2. Press the START button.

    Dial tone heard.

3. Dial the activation code for attendant control of trunk group access.

4. Dial the access code of the trunk group to be restricted.

    Confirmation tone heard.

    CONT lamp of the restricted trunk group lighted.

5. Press the RELEASE button.

    ATND lamp off.

6. At the test terminal, go off-hook.

7. Dial the restricted trunk group access code.

    At the console, ICI message displayed.

    At the console, ATND lamp flashes.

8. At the console, press the loop button associated with the flashing ATND lamp.

    Connection established.

9. At the test terminal, go on-hook.

10. At the console, press the START button.

    Dial tone heard.

11. Dial the cancellation code.

12. Dial the access code of the restricted trunk group.

    Confirmation tone heard.

    CONT lamp off.

13. Press the RELEASE button.

14. At the test terminal, go off-hook.

15. Dial the access code of the previously restricted trunk group.

   Connection to a trunk in the trunk group is established.

ATTENDANT CONTROL OF VOICE TERMINALS

Outward Restriction

Test Description

Activate the controlled outward restriction for a line or a group of lines. Verify that direct-dialed central office (CO) calls cannot be originated from the restricted line(s). Verify that no additional controlled restriction feature can be placed on the line(s) while Outward Restriction is active. Cancel restriction and verify that the previously restricted line(s) can now originate CO calls.

Test Procedure

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the START button.

   Dial tone heard.

3. Dial the controlled restriction access code in Procedure 350, Word 2 (27 for single line, 28 for a group of lines).

   Dial tone silenced.

4. Dial 1 (Outward Restriction code).

   Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines to be restricted.

   NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

   Confirmation tone heard (three short bursts of dial tone).

   Outward Restriction is activated.

6. Press the RELEASE button.

   ATND lamp off.

7. From a terminal line with Outward Restriction, dial the access code of an outgoing CO trunk.

Direct-dialed CO call denied to the restricted line.

Intercept tone verifies operation of restriction for outgoing CO calls.

8. At the terminal line used in Step 7, go on-hook.

9. At the console, press an idle loop button.

   ATND lamp lighted.

10. Press the START button.

    Dial tone heard.

11. Dial the restriction access code.

    Dial tone silenced.

12. Dial 2 (Terminal-to-Terminal Restriction).

    Dial tone heard.

13. Dial the same number dialed in Step 5.

    Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

14. Press the RELEASE button.

    ATND lamp off.

15. Press an idle loop button.

    ATND lamp lighted.

16. Press the START button.

    Dial tone heard.

17. Dial the restriction access code.

    Dial tone silenced.

18. Dial 0 to deactivate Outward Restriction.

    Dial tone heard.

19. Dial the same number dialed in Step 5.

    Confirmation tone heard.

    Restriction canceled.

20. Press the RELEASE button.

    ATND lamp off.

21. At a terminal line previously restricted, dial the access code of an outgoing CO trunk.

    CO dial tone verifies that no restriction applies to the line.

22. At the terminal line used in Step 21, go on-hook.

Terminal-to-Terminal Restriction

Test Description

Activate Terminal-to-Terminal Restriction for a line or a group of lines. Verify that the restricted line(s) cannot receive terminal-to-terminal calls. Verify that no additional restrictions can be placed on the same line(s) while another restriction applies. Cancel the restriction and verify that the line(s) previously restricted can now receive terminal-to-terminal calls.

Test Procedure

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the START button.

   Dial tone heard.

3. Dial the controlled restriction access code (27 for single line, 28 for a group of lines).

   Dial tone silenced.

4. Dial 2 (Terminal-to-Terminal Restriction code).

   Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines being restricted.

   NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

   Confirmation tone heard (three short bursts of dial tone).

   Terminal-to-Terminal Restriction activated.

6. Press the RELEASE button.

   ATND lamp off.

7. From a line that is not terminal-to-terminal restricted, designate it as terminal A and dial a line number that is assigned Terminal-to-Terminal Restriction.

   Intercept tone heard.

8. At terminal A, go on-hook.

9. At the console, press an idle loop button.

   ATND lamp lighted.

10. Press the START button.

     Dial tone heard.

11. Dial the restriction access code.

     Dial tone silenced.

12. Dial 1 (Outward Restriction).

     Dial tone heard.

13. Dial the same number dialed in Step 5.

     Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

14. Press the RELEASE button.

     ATND lamp off.

15. Press an idle loop button.

     ATND lamp lighted.

16. Press the START button.

     Dial tone heard.

17. Dial the controlled restriction access code.

     Dial tone silenced.

18. Dial 0 to deactivate Terminal-to-Terminal Restriction.

     Dial tone heard.

19. Dial the same number dialed in Step 5.

     Confirmation tone heard.

     Restriction canceled.

20. Press the RELEASE button.

     ATND lamp off.

21. At terminal A, dial the number of a line previously restricted (terminal B).

     At terminal B, ringing heard.

22. At terminal A, go on-hook.

Termination Restriction

Test Description

Activate Termination Restriction for a single line or a group of lines. Verify that the restricted line(s) cannot receive any calls. Verify that no additional restrictions can be placed on the line(s) while termination restriction applies. Cancel Termination Restriction and verify that the line(s) can now receive calls.

Test Procedure

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the START button.

   Dial tone heard.

3. Dial the controlled restriction access code (27 for single line, 28 for a group of lines).

   Dial tone silenced.

4. Dial 5 (Termination Restriction code).

   Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines being restricted.

   NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

   Confirmation tone heard (three short bursts of dial tone).

   Termination Restriction is activated.

6. Press the RELEASE button.

   ATND lamp off.

7. At a line not assigned Termination Restriction, designate it as terminal A and dial a line number assigned Termination Restriction in Step 5.

   Intercept tone verifies that Termination Restriction is active.

8. At terminal A, go on-hook.

9. At the console, press an idle loop button.

   ATND lamp lighted.

10. Press the START button.

    Dial tone heard.

11. Dial the restriction access code.

    Dial tone silenced.

12. Dial 1 (Outward Restriction).

    Dial tone heard.

13. Dial the same number dialed in Step 5.

    Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

14. Press the RELEASE button.

    ATND lamp off.

15. Press an idle loop button.

    ATND lamp lighted.

16. Press the START button.

    Dial tone heard.

17. Dial the restriction access code.

    Dial tone silenced.

18. Dial 0 to deactivate Termination Restriction.

    Dial tone heard.

19. Dial the same number dialed in Step 5.

    Confirmation tone heard.

    Termination Restriction canceled.

20. Press the RELEASE button.

    ATND lamp off.

21. At terminal A, dial the number of the line restricted in Step 5.

    At the previously restricted terminal, ringing heard.

22. At terminal A, go on-hook.

Total Restriction

Test Description

Activate Total Restriction for a single line or a group of lines. Verify that the restricted line(s) cannot originate or receive any calls. Verify that no additional restrictions can be placed on the line(s) while Total Restriction applies. Cancel Total Restriction and verify that the previously restricted lines can now originate and receive calls.

Test Procedure

1. At the console, press an idle loop button.

    ATND lamp lighted.

2. Press the START button.

    Dial tone heard.

3. Dial the controlled restriction access code (27 for single line, 28 for a group of lines).

    Dial tone silenced.

4. Dial 4 (Total Restriction code).

    Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines being restricted.

    NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

    Confirmation tone heard (three short bursts of dial tone).

    Total Restriction activated.

6. Press the RELEASE button.

    ATND lamp off.

7. At the line assigned controlled Total Restriction in Step 5, designate it as terminal B and go off-hook.

    Intercept tone verifies that no calls can be originated from terminal B.

8. At terminal B, go on-hook.

9. From a line not assigned Total Restriction, designate it as terminal A and dial the number of the line restricted in Step 5.

    Intercept tone at terminal A verifies that no calls can be made to a line assigned Total Restriction.

10. At terminal A, go on-hook.

11. At the console, press an idle loop button.

    ATND lamp lighted.

12. Press the START button.

    Dial tone heard.

13. Dial the restriction access code.

    Dial tone silenced.

14. Dial 2 (Terminal-to-Terminal Restriction).

    Dial tone heard.

15. Dial the same number dialed in Step 5.

    Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

16. Press the RELEASE button.

    ATND lamp off.

17. Press an idle loop button.

    ATND lamp lighted.

18. Press the START button.

    Dial tone heard.

19. Dial the controlled restriction access code.

    Dial tone silenced.

20. Dial 0 to deactivate Total Restriction.

    Dial tone heard.

21. Dial the same number dialed in Step 5.

    Confirmation tone heard.

    Total Restriction canceled.

22. Press the RELEASE button.

    ATND lamp off.

23. At terminal A, go off-hook.

    Dial tone heard.

24. Dial the number of the line previously restricted.

    At terminal B, ringing heard.

25. At terminal A, go on-hook.

26. From a line previously restricted, call any extension.

    Ringback verifies cancellation of Total Restriction.

27. At the line used in Step 26, go on-hook.

___

Outward and Terminal-to-Terminal Restriction

Test Description

Activate Outward and Terminal-to-Terminal Restriction for a single line or group of lines. Verify that the restricted line(s) cannot originate direct-dialed central office (CO) calls nor receive terminal-to-terminal calls. Verify that no additional restrictions can be placed on the restricted line(s) while Outward and Terminal-to-Terminal Restriction applies. Cancel Outward and Terminal-to-Terminal Restriction and verify that the previously restricted line(s) can now originate outgoing CO calls and receive terminal-to-terminal calls.

Test Procedure

1. At the console, press an idle loop button.

    ATND lamp lighted.

2. Press the START button.

    Dial tone heard.

3. Dial the controlled restriction access code (27 for single line, 28 for a group of lines).

    Dial tone silenced.

4. Dial 3 (Outward and Terminal-to-Terminal Restriction code).

    Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines being restricted.

    NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

    Confirmation tone heard (three short bursts of dial tone).

    Outward and Terminal-to-Terminal Restriction activated.

6. Press the RELEASE button.

    ATND lamp off.

7. At the line assigned Outward and Terminal-to-Terminal Restriction in Step 5, designate as terminal B and dial the access code of the CO trunk.

    Intercept tone heard.

8. At terminal B, go on-hook.

9. At the terminal test line (terminal A), dial the restricted line number of terminal B.

    Intercept tone at terminal A verifies that no terminal-to-terminal calls can be made to a restricted line.

10. At terminal A, go on-hook.

11. At the console, press an idle loop button.

    ATND lamp lighted.

12. Press the START button.

    Dial tone heard.

13. Dial the restriction access code.

    Dial tone silenced.

14. Dial 4 (Total Restriction).

    Dial tone heard.

15. Dial the same number dialed in Step 5.

    Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

16. Press the RELEASE button.

    ATND lamp off.

17. Press an idle loop button.

    ATND lamp lighted.

18. Press the START button.

    Dial tone heard.

19. Dial the restriction access code.

    Dial tone silenced.

20. Dial 0 to deactivate Outward and Terminal-to-Terminal Restriction.

    Dial tone heard.

21. Dial the same number dialed in Step 5.

    Confirmation tone heard.

    Outward and Terminal-to-Terminal Restriction canceled.

22. Press the RELEASE button.

    ATND lamp off.

23. From the previously restricted line at terminal B, dial the access code of the CO trunk.

    CO dial tone verifies that Outward Restriction is canceled.

24. At terminal B, go on-hook.

25. At terminal A, dial the previously restricted line number of terminal B.

Ringing at terminal B verifies that Terminal-to-Terminal Restriction is canceled.

26. At terminal A, go on-hook.

Outward and Termination Restriction

Test Description

Activate Outward and Termination Restriction for a single line or a group of lines. Verify that the restricted line(s) cannot originate direct-dialed central office (CO) lines nor receive any calls. Verify that no additional restrictions can be placed on the restricted line(s) while Outward and Termination Restriction applies. Cancel restriction and verify that the previously restricted line(s) can originate direct-dialed CO calls and receive calls.

Test Procedure

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the START button.

   Dial tone heard.

3. Dial the controlled restriction access code (27 for single line, 28 for a group of lines).

   Dial tone silenced.

4. Dial 6 (Outward and Termination Restriction code).

   Dial tone heard.

5. Dial the line number to be restricted or the 2-digit group code for the group of lines being restricted.

   NOTE: If the group of lines to be restricted has a single-digit code, the digit should be preceded with a **0**.

   Confirmation tone heard (three short bursts of dial tone).

   Outward and Termination Restriction activated.

6. Press the RELEASE button.

   ATND lamp off.

7. At a line number assigned Outward and Termination Restriction in Step 5, designate it as terminal A and dial the access code of the CO trunk.

   Intercept tone verifies that outgoing CO calls cannot be originated from a restricted line.

8. At terminal A, go on-hook.

9. At the console, press an idle loop button.

    ATND lamp lighted.

10. Press the START button.

    Dial tone heard.

11. Dial the number of terminal A.

    Intercept tone verifies that no calls can be made to a termination restricted line.

12. Press the RELEASE button.

    ATND lamp off.

13. Press an idle loop button.

    ATND lamp lighted.

14. Press the START button.

    Dial tone heard.

15. Dial the restriction access code.

    Dial tone silenced.

16. Dial 4 (Total Restriction).

    Dial tone heard.

17. Dial the same number dialed in Step 5.

    Intercept tone verifies that additional restrictions cannot be activated on a line where one already exists.

18. Press the RELEASE button.

    ATND lamp off.

19. Press an idle loop button.

    ATND lamp lighted.

20. Press the START button.

    Dial tone heard.

21. Dial the restriction access code.

    Dial tone silenced.

22. Dial 0 to deactivate Outward and Termination Restriction.

    Dial tone heard.

23. Dial the same number dialed in Step 5.

    Confirmation tone heard.

Restriction canceled.

24. Press the CANC and START buttons.

Dial tone heard.

25. Dial the number of terminal A.

Ringing at terminal A verifies that Termination Restriction is canceled.

26. At the console, press the RELEASE button.

At terminal A, ringing silenced.

27. At terminal A, go off-hook.

Dial tone heard.

28. Dial the access code of the outgoing CO trunk.

CO dial tone verifies that Outward Restriction is canceled.

29. At terminal A, go on-hook.

ATTENDANT DIRECT EXTENSION SELECTION (DXS) WITH BUSY LAMP FIELD (BLF)

Test Description

Verify that the attendant can use the DXS to call a terminal and the BLF lamp associated with the terminal lights. If extended DXS is provided, verify that the attendant can use the DXS to call a terminal by pressing the DXS GRP button followed by two presses of the required DXS buttons.

NOTE: This feature is only available with 4-digit numbering plan. The 5-digit numbering plan is not allowed in administration for this feature.

Test Procedure for Consoles Without DXS GRP and DXS DISPL Control Buttons

1. At the console, press an idle loop button.

2. Press the group select button required.

Group select lamp lighted.

3. Press the DXS button for the terminal being called.

DXS busy lamp lighted.

Ringing tone heard.

4. Press the RELEASE button.

Test of Attendant DXS Without BLF completed.

Test Procedure for Consoles With DXS GRP and DXS DISPL Control Buttons

1. At the console, press an idle loop button.

   DXS GRP lamp lighted.

   ATND lamp lighted.

2. Press the DXS button for the hundreds group.

   Hundreds digits displayed in alphanumeric display followed by two asterisks.

   DXS GRP lamp off.

3. Press the DXS button for the tens and units digits.

   Alphanumeric display does not change.

   Audible ringback tone is heard.

   BLF lamp lighted.

   RING lamp lighted.

4. Press the RELEASE button.

5. Press the DXS DISPL button.

   Last hundreds group used is displayed in the alphanumeric display (followed by two asterisks).

   Test of extended Attendant DXS With BLF completed.

ATTENDANT DIRECT TRUNK GROUP SELECTION

Test Description

Access an idle outgoing trunk in a selected trunk group by pressing a Direct Trunk Group Selection button and verify the connection to the distant end.

Test Procedure for Automatic Tie Trunks

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the Direct Trunk Group Selection button of the trunk group to be tested.

   RING lamp lighted.

3. At the distant end, attendant answers.

   At the console, RING lamp off.

   At the console, ANS lamp lighted.

4. At the console, press the RELEASE button.

   ANS lamp off.

   ATND lamp off.

   Automatic tie trunk group tested.

Test Procedure for Dial Repeating Tie Trunks

1. At the console, press an idle loop button.

   ATND lamp lighted.

2. Press the Direct Trunk Group Selection button of the trunk group to be tested.

   ANS lamp lighted.

   Dial tone heard.

3. Dial the number of a trunk party.

   Dial tone silenced.

   Ringback heard.

4. Press the RELEASE button.

   ANS lamp off.

   ATND lamp off.

ATTENDANT DISPLAY

Calling Number Display to Attendant

Test Description

Determine that on an incoming call to the attendant the calling terminal number is displayed on the alphanumeric display field.

Test Procedure

1. At the terminal test line, go off-hook.

   Dial tone heard.

2. Dial attendant access code.

   At the console, ATND lamp flashes.

   The calling number is displayed on the alphanumeric display.

3. At the console, press the ANSWER button.

ATND lamp lighted steadily.

Console and test line connection established.

4. Press the RELEASE button.

ATND lamp off.

5. At the terminal test line, go on-hook.

Class-of-Service Display to Attendant

Test Description

Verify that when an incoming call to the attendant is answered and the CLASS button is pressed the terminal class-of-service is displayed in the alphanumeric display field.

Test Procedure

1. At the test terminal, go off-hook.

2. Dial attendant access code.

   At the console, ATND lamp flashes.

   At the console, calling terminal number displayed.

3. At the console, press the ANSWER button.

   ATND lamp lighted.

   Connection established.

4. Press the CLASS button.

   Class of service of calling terminal displayed.

5. Press the CLASS button.

   Calling terminal number displayed.

6. Press the RELEASE button.

   ATND lamp off.

7. At the test terminal, go on-hook.

Incoming Call Identification

Test Description

Arrange for Listed Directory Number (LDN), Attendant Recall, and Attendant Access incoming calls to attendant console. Verify that ICI indicator lamp or ICI alphanumeric displays indicate the type of incoming call received. Arrange other types of incoming calls to attendant console (as required) to verify each different ICI alphanumeric display is provided in system for incoming calls.

Test Procedure

1. Arrange for an LDN call to the attendant console.

2. At the console, wait for an incoming signal.

    INC or some other display message displayed in the alphanumeric field.

3. Press the ANSWER button.

    ATND lamp lighted.

4. Press the START button.

    Dial tone heard.

5. Dial the number of a terminal (designated as terminal A).

    At terminal A, ringing heard.

6. At terminal A, go off-hook.

    Attendant and terminal A connected.

7. At the console, press the RELEASE button.

    Alphanumeric field blank.

    Calling and called parties connected.

8. At terminal A, flash the switchhook.

    Recall dial tone heard.

9. Dial attendant access code.

    At the console, RCL or some other display message displayed in the alphanumeric field.

10. At the console, press the ANSWER button.

    ATND lamp lighted.

11. Press the RELEASE button.

    Alphanumeric field blank.

Calling and called parties connected.

12. At terminal A, instruct calling party to disconnect and go on-hook.

13. At terminal A, go off-hook.

    Dial tone heard.

14. Dial attendant access code.

    At the console, ATND ICI lamp lighted or calling terminal number displayed in the alphanumeric field.

15. At the console, press the ANSWER button.

    Attendant and terminal A connected.

16. Press the RELEASE button.

Trunk Identification by Attendant

Test Description

Verify that the attendant can identify, using the alphanumeric display, a specific trunk being used on any incoming or outgoing call.

Test Procedure

1. At the console, establish an incoming or outgoing trunk call.

    Connection established between the console and trunk party.

2. Press the TRK ID button.

    At the alphanumeric display, the attendant identification (ID) or the trunk group dial-access code displayed.

3. Press the TRK ID button.

    The trunk number for the trunk in use is displayed at the alphanumeric display.

4. Press the TRK ID button.

    Original call identification displayed.

5. Press the RELEASE button.

ATTENDANT INTERPOSITION CALLING AND TRANSFER

Test Description

Make a terminal to attendant call and verify that the first console can transfer the call to a second console. If the terminal to a selected attendant option is provided, verify that the terminal can dial-access a specific console.

Test Procedure

1. At a terminal, go off-hook and dial the attendant.

   Ringback tone heard.

   At the console, ATND lamp flashes.

2. At the first console, press the ANSWER button.

   ATND lamp lighted.

   At the terminal, ringback tone silenced.

   Connection established between the first console and the terminal.

3. Press the START button.

   Dial tone heard.

   Calling party split.

4. Dial the interposition calling access code.

   Second dial tone heard.

5. Dial the console number of the second console.

   Ringing tone heard.

   At the second console, ATND lamp flashes.

6. At the second console, press the ANSWER button.

   Connection established between the consoles.

7. At the first console, press the RELEASE button.

   Connection established between the terminal and the second console.

8. At the second console, press the RELEASE button.

   ATND lamp off.

   ANS lamp off.

9. At the terminal, go on-hook.

   Attendant Interposition Calling and Transfer tested.

10. If the terminal to selected attendant dial access option is provided, go off-hook and dial the terminal to selected attendant access code.

    Second dial tone heard.

11. Dial the console number.

    Ringback tone heard.

    At the dialed console, ATND lamp flashes.

12. At the dialed console, press the ANSWER button.

    ATND lamp lighted.

    At the terminal, ringback silenced.

    Connection established between the terminal and the dialed console.

13. At the dialed console, press the RELEASE button.

    ATND lamp off.

ATTENDANT RECALL

Test Description

Verify that a voice terminal user, when in an established connection with another voice terminal, can recall the attendant.

Test Procedure

1. At the test terminal, establish a 2-party connection with another voice terminal.

2. Press the RECALL button (use the CONFERENCE or TRANSFER button for H/D series terminals).

    Recall dial tone is heard for A series, dial tone is heard for H/D series.

    Called party is placed on hold.

3. Dial the attendant access code.

    Ringback is heard.

    At the attendant console, RCL or some other display message is displayed in the alphanumeric field. The calling extension is displayed for H/D series set.

4. At the console, press the ANSWER button or the loop button associated with the call.

    ATND lamp lights steadily.

    The attendant is connected with both parties of the call.

5. At both voice terminals, go on-hook.

ATTENDANT RELEASE LOOP OPERATION

Test Description

Verify that when an incoming trunk call is extended to a terminal the attendant can be released and recalled if the called terminal does not answer within a preset time interval.

Test Procedure

1. Establish an incoming trunk call to the console.

2. At the console, press the START button.

    Dial tone heard.

3. Dial any idle terminal number.

    Dial tone silenced.

    Ringback tone heard.

    RING lamp lighted.

4. Press the RELEASE button.

    Ringback tone silenced.

    RING lamp off.

    Incoming trunk call extended to a terminal.

    Attendant released.

5. Wait for designated recall time to pass.

    RING lamp flashes.

    Timed reminder tone heard.

6. Press the ANSWER button.

    RING lamp lighted.

    ICI message displayed.

    Incoming trunk connection established.

7. Disconnect from the call.

AUDIX

Call Transfer Into AUDIX

Test Description

Transfer a call into AUDIX to leave a message for the party called.

Test Procedure

    NOTE: This test requires two people or two telephone sets in the same room.

1. From terminal A, place a call to terminal B.

   When terminal B answers, a 2-party call is completed.

2. At terminal B, flash the switchhook or press the TRANSFER button.

   Recall dial tone is heard.

3. At terminal B, dial the AUDIX dial access code.

   You hear ringback tone.

   The call is queued for the AUDIX split.

4. At terminal B, hang up (go on-hook).

   The call is transferred to AUDIX.

   The calling party at terminal A should be tied into AUDIX.

Call Transfer Out of AUDIX

Test Description

Transfer a call out of AUDIX once you have accessed AUDIX.

Test Procedure

1. Place a terminal to terminal call that will redirect you to AUDIX. Be sure that you have accessed AUDIX.

   The "Welcome to AUDIX" message and a 3-second silence period have not ended.

2. Do either a or b.

   a. Press *0.

   The call is transferred out of AUDIX and is redirected to the called party's default destination as administered on AUDIX.

You hear ringback tone.

NOTE: A default destination must have been previously assigned to use this option.

b. Press *T. To leave a message before leaving AUDIX, *T must not be entered until after the 2-second silence period and message is complete. Message recording stops when *T is entered, and the message will be delivered to the called party.

    After pressing *T, the following AUDIX message is heard: "To reach the user's default alternate destination, press * followed by the # sign. To reach a different party, dial the extension number followed by #."

To access the called party's default alternate destination, press #.

You hear ringback.

NOTE: An alternate destination must have been previously assigned to use this option.

To call another party, dial a valid extension number, followed by #.

You hear ringback, busy, or invalid message according to the extension status.

AUTHORIZATION CODES

Test Description

Verify that unauthorized calls are prevented on facilities restriction levels (FRLs), then dial the proper authorization code and verify that the call is allowed.

Test Procedure

1. Determine the FRL of the test terminal.

2. At the test terminal, attempt a call not allowed by the FRL.

    Recall dial tone is heard.

3. Dial the authorization code.

    Dial tone heard.

AUTOMATIC ALTERNATE ROUTING (AAR)

Test Description

Select a pattern with multiple preferences. Make a test call from the test line and verify that the first preference trunk group is selected. Disconnect from the call. Busy out all the trunks in the first preference trunk group. Make a test call to the same location and verify that the second preference trunk group is selected.

Test Procedure

> **CAUTION:** *When possible, this test should be performed during periods of low or no traffic.*

1. Select an AAR pattern with multiple preferences assigned.

2. Connect a hand test set to a test line and have another hand test set available to connect to the cross-connect field.

3. At the Manager II, type **p631** [ENTER]

   The Test 1 screen appears.

```
┌────────────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 631, TEST: 1                       │
│                    BUSY OUT A TRUNK GROUP                                │
│                                                                          │
│   2.                 Trunk Group Number: [---]                           │
│   6. Number of Trunks In Trunk Group: [---]                              │
│   7.      Number of Busied-Out Trunks: [---]                             │
│                                                                          │
│  EQUIPMENT LOCATION                                                      │
│     8.   Module: [--]                                                    │
│     9.  Cabinet: [-]                                                     │
│    10.  Carrier: [-]                                                     │
│    11.     Slot: [--]                                                    │
│    12.  Circuit: [--]                                                    │
│                                                                          │
│   13. Maintenance Status: [-]                                            │
│   14.      Trunk Number: [---]                                           │
│                                                                          │
│                                                                          │
│                                                                          │
│  Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT]│
│                                                                          │
│  enter command: ▄                                                        │
│  [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]       │
└────────────────────────────────────────────────────────────────────────┘
```

4. Enter the first preference trunk group number in Field 2.

5. Type **x** [ENTER]

CAUTION: *Entering the* **bo** *(busy out) command can drop the user's calls in the entire trunk group.*

6. Type **bo** [ENTER]

   This busies out the entire trunk group.

7. Select Test 2 by typing **nt** [ENTER]

   The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 631, TEST: 2                       │
│                      BUSY OUT A TRUNK                                   │
│                                                                        │
│    2.              Trunk Group Number: [- - -]                         │
│    6. Number of Trunks in Trunk Group: [- - -]                         │
│    7.      Number of Busied-Out Trunks: [- - -]                        │
│                                                                        │
│  EQUIPMENT LOCATION                                                     │
│      8.  Module: [- -]                                                  │
│      9. Cabinet: [-]                                                    │
│     10. Carrier: [-]                                                    │
│     11.    Slot: [- -]                                                  │
│     12. Circuit: [- -]                                                  │
│                                                                        │
│  13. Maintenance Status: [-]                                           │
│  14.       Trunk Number: [- - -]                                       │
│                                                                        │
│                                                                        │
│                                                                        │
│  Connected to CCO ON-LINE ♥ │ MAJOR ││ MINOR ││ RUN TAPE ││ BUSY OUT ││ IN USE ││ WAIT │ │
│                                                                        │
│  enter command: ▄                                                      │
│  │      ││      ││F3 DATA ││     ││F5 HELP ││F6 FIELD ││F7 INPUT ││F8 CMDS │ │
└──────────────────────────────────────────────────────────────────────┘
```

8. Type **x** [ENTER]

9. Type **rb** [ENTER]

   This releases the first trunk in the selected trunk group busied out in Step 6.

10. At the test line, go off-hook.

11. Listen for dial tone and dial the AAR selection access code.

    Second dial tone heard.

12. At the cross-connect field, connect another hand test set to the central office (CO) side of the selected trunk and listen for dial tone.

    Dial tone acknowledges that the trunk selected for testing is being tested.

13. Remove the hand test set from the cross-connect field and go on-hook with the test set at the test line.

14. At the Manager II, type **bo** (ENTER)

    This busies out the idle trunk.

15. Type **nt** (ENTER)

    The Test 1 screen appears.

16. Enter the next preference AAR trunk group by choosing a or b:

    a. Type **cf2** (ENTER) and enter the trunk group number in Field 2.

    b. Type **nu** (ENTER) repeatedly until the trunk group you want appears in Field 2.

17. Repeat Steps 5 through 16 until all trunk groups associated with this AAR pattern are tested.

18. At the Manager II, type **t1** (ENTER)

    The Test 1 screen appears.

19. Repeat the following sequence until all the trunk groups that were tested are released from busy:

    a. Enter trunk group number in Field 2.

    b. Type **rb** (ENTER)

20. Disconnect the hand test set from the test line.

AUTOMATIC CALL DISTRIBUTION (ACD)

ACD by System Supervisor

Test Description

At the ACD system supervisor position, activate and deactivate Call Forwarding—Follow Me or Call Forwarding—Busy and Don't Answer for any split. In addition, turn off the system reload warning lamp (after a tape reload).

Test Procedure for Call Forwarding

1. At the ACD system supervisor console, press an idle loop button.

    ATND lamp lighted.

2. Press the START button.

    Dial tone heard.

3. Dial the activation code for the desired feature (Call Forwarding—Follow Me or Call Forwarding—Busy and Don't Answer).

NOTE: If overload balancing is already activated, the dial access code for the Call Forwarding pair-associate must be dialed.

Second dial tone heard.

4. Dial the split number for the forwarding split.

5. Dial the split number for the destination split.

   Confirmation tone heard.

   Call Forwarding feature activated.

6. Press the RELEASE button.

   ATND lamp off.

7. Press an idle loop button.

   ATND lamp lighted.

8. Press the START button.

   Dial tone heard.

9. Dial the Call Forwarding cancellation code for the desired feature.

   Second dial tone heard.

10. Dial the split number for the forwarding split.

    Confirmation tone heard.

    Cancellation of Call Forwarding tested.

11. Press the RELEASE button.

    ATND lamp off.

Test Procedure for Turning Off System Reload Warning Lamp

CAUTION: *Performance of this procedure will be service affecting. Perform this procedure in periods of low or no traffic.*

1. At the alarm panel, set the TEST SELECT switch to 15.

2. Press ENABLE.

   At the DTS, tape moves.

3. Wait for tape to stop moving.

   At the alarm panel, PASS lamp lighted.

4. At the system supervisor console, press the NIGHT button.

   System reload indicator lamp lighted on circuit 0, board 0, SN241 circuit pack.

5. Press an idle loop button.

   ATND lamp lighted.

6. Press the START button.

   Dial tone heard.

7. Dial the access code to extinguish the reload warning lamp.

   Confirmation tone heard.

   System reload warning lamp off.

8. Press the RELEASE button.

   ATND lamp off.

9. At all split terminals except split supervisor (member 0) and automatic answer terminals with plugged in headsets, press the STAFF button.

   Terminals returned to staffed mode.

ACD by Split Supervisor

Test Description

At the ACD split supervisor position, test the Agent Override feature; add and remove split members to a split group; verify first delay recorded announcement; activate and test Call Forwarding—Follow Me or Call Forwarding—Busy and Don't Answer for any split; activate and test priority queuing; activate and test overload balancing for a split; test queue-of-origin announcement; test Service Observation; and test ACD circular and direct hunting.

Test Procedure for Agent Override

NOTE: An optional warning tone is available to alert the agent that agent override is in effect. If the system being tested is equipped with the optional warning tone, it should be tested both with and without the warning tone.

1. At all voice terminals, except one (designate as terminal A), in split group A, press the AUX WORK button.

   All voice terminals (except terminal A) in split group A busy to ACD calls.

2. At the split supervisor position used for test, go off-hook.

   Dial tone heard.

3. Dial the Agent Override access code or press AGENT OVERRIDE button.

   Second dial tone heard.

4. Dial the extension number of split group A.

Intercept tone heard.

NOTE: Terminal A (in split group A) is idle and Agent Override is not allowed on idle terminals.

5. At the split supervisor position, go on-hook.

6. At a terminal (designate as terminal B) outside of split group A, dial the extension number of split group A.

   At terminal A, zip tone heard.

7. At terminal A, go off-hook.

   Connection established between terminals A and B.

8. At another voice terminal in split group A (designate as terminal C), press the MANUAL IN button.

   Terminal C available for one ACD call.

9. At terminal A, flash the switchhook and dial the extension number of terminal C.

   At terminal C, ringing heard.

10. At terminal C, go off-hook.

    Connection established between terminals A and C.

11. At terminal A, flash the switchhook.

    Terminals A, B, and C in 3-way conference.

12. At the split supervisor position, go off-hook.

    Dial tone heard.

13. Dial the Agent Override access code.

    Second dial tone heard.

14. Dial the extension number of split group A.

    Intercept tone heard.

    NOTE: Terminals A and C (in split group A) are in a 3-way conference and Agent Override is not allowed.

15. At terminal A, go on-hook.

16. At terminal C, go on-hook and press the AUX WORK button.

    Terminals A and B remain connected.

17. At the split supervisor position, go off-hook.

    Dial tone heard.

18. Dial the Agent Override access code.

    Second dial tone heard.

19. Dial the extension number of split group A.

    At terminals A and B, warning tone heard (if provided).

    Three-way connection is established between terminals A, B, and split supervisor.

    Agent Override feature tested.

20. Return all terminals in split group A to the desired mode.

Test Procedure for Adding and Removing Split Members

1. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

2. Dial the ACD member addition access code or press the ADD AGENT button.

    Second dial tone heard.

3. Dial the extension number of the member to be added to split group A. (Designate as terminal A.)

    Confirmation tone heard.

    Member (terminal A) added to split group A.

4. At the split supervisor position, go on-hook.

5. At the split supervisor position and all voice terminals (except terminal A) in split group A, press the AUX WORK button.

    Split supervisor position and all voice terminals (except terminal A) in split group A busy to ACD calls.

6. At terminal A, press the AUTO IN button.

7. At the test line, connect a telephone set and designate as terminal B.

8. At terminal B, go off-hook and dial the extension number of split group A.

    At terminal A, ringing heard.

9. At terminal A, go off-hook.

    Connection established between terminals A and B.

    Added member to split group A tested.

10. At terminals A and B, go on-hook.

11. Return all terminals and the split supervisor in split group A to the desired mode.

12. At the split supervisor position, go off-hook.

Dial tone heard.

13. Dial the ACD member deletion access code or press the DELETE AGENT button.

    Second dial tone heard.

14. Dial the extension number of the member (terminal A) to be removed from split group A.

    Confirmation tone heard.

    Member (terminal A) removed from split group A.

15. At the split supervisor position, go on-hook.

Test Procedure for First Delay Announcement

1. At the split supervisor position, go off-hook.

    Dial tone heard.

2. Dial the announcement access code or press the VERIFY ANNCT button.

3. Listen to the recorded announcement.

    First Delay Announcement verified.

4. At the split supervisor position, go on-hook.

Test Procedure for Call Forwarding

1. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

2. Dial the activation code for Call Forwarding—Follow Me, or press the INTERFLO ALL or INTRAFLO ALL button.

    NOTE: If overload balancing is already activated, the dial access code for the Call Forwarding pair-associate must be dialed.

    Second dial tone heard.

3. Dial the forwarded-to-destination number of the first destination in split group A to which calls are to be forwarded.

    Confirmation tone heard.

    Call Forwarding—Follow Me feature activated for one destination.

4. Determine if more than one forwarded-to-destination is to be activated.

    NOTE: Up to three forwarded-to-destinations can be activated in a priority scheme. The priority is determined by the order of activation.

5. If more than one forwarded-to-destination is to be activated, repeat Steps 2 through 5; then proceed to Step 6.

    If all forwarded-to-destinations are activated, proceed to Step 6.

6. At the split supervisor position, go on-hook.

7. At any working terminal (outside split group A), go off-hook.

    Dial tone heard.

8. Dial the extension number of split group A.

    Call forwarded to assigned destination of split group A.

    Call Forwarding—Follow Me tested.

9. At terminal B and assigned destination of split group A, go on-hook.

10. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

11. Dial the Call Forwarding—Follow Me cancellation code or press the CANCEL CALL FWD button.

    Confirmation tone heard.

    Call Forwarding—Follow Me feature canceled for lowest (last) destination activated.

12. Determine if more than one forwarded-to-destination is to be canceled.

    NOTE: Each cancellation removes the last forwarded-to-destination activated.

13. If more than one forwarded-to-destination is to be canceled, repeat Steps 11 through 13; then proceed to Step 14.

    If all forwarded-to-destinations are canceled, proceed to Step 14.

14. At the split supervisor position, go on-hook.

15. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

16. Dial the activation code for Call Forwarding—Busy/Don't Answer, or press the INTRAFLO THRESHOLD button.

    NOTE: If overload balancing is already activated, the dial access code for the Call Forwarding pair-associate must be dialed.

    Second dial tone heard.

17. Select another split (designate as split group B) that is available for overflow calls and dial the extension number of split group B.

Confirmation tone heard.

Call Forwarding—Busy/Don't Answer feature activated for one destination.

18. At the split supervisor position, go on-hook.

19. At the Manager II, set the outflow level to 1 by performing the following:

    a. Type **p026** [ENTER]

       The Word 1 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│           ENHANCED MODE - PROCEDURE: 026, WORD: 1                      │
│                   ACD - SPLIT CHARACTERISTICS                          │
│                                                                        │
│    1.            ACD Split: [--]                                       │
│    2.           Split Size: [----]                                     │
│    3.   ICI Message Number: [--]                                       │
│    4. Queuing Trunk Group:  [---]                                      │
│    5. Outflow/Queue Level:  [--]                                       │
│                                                                        │
│ LAMP CONTROL CIRCUIT                                                    │
│    6.     Board Index: [-]                                             │
│    7.   Circuit Index: [-]                                             │
│                                                                        │
│    8.    Inflow Level: [--]                                            │
│    9.      Hunt Type:  [-]                                             │
│   10.     Split Type:  [-]                                             │
│   11. Machine Number:  [-]                                             │
│                                                                        │
│ DISPLAY ONLY                                                            │
│   12. Unassigned Members: [----]                                       │
│                                                                        │
│ Connected to CCO ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT │
│                                                                        │
│ enter command: ▬                                                       │
│ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]       │
└──────────────────────────────────────────────────────────────────────┘
```

    b. Type **dx** [ENTER]

    c. Record the number displayed in Field 5.

    d. Type **cf5** [ENTER]

    e. Type **1** [ENTER]

    f. Type **cx** [ENTER]

20. At all voice terminals in split group A, press the AUX WORK button.

All voice terminals in split group A busy to ACD calls.

21. At a terminal (designate as terminal B) outside of split groups A and B, dial the extension number of split group A.

Call from terminal B placed in queue of split group A.

22. At another terminal (designate as terminal C) outside of split groups A and B, dial the extension number of split group A.

    Call from terminal C forwarded to split group B.

    Call Forwarding—Busy/Don't Answer tested.

23. At terminals B and C, go on-hook.

24. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

25. Dial the Call Forwarding—Busy/Don't Answer cancellation code or press the CANCEL CALL FWD button.

    Confirmation tone heard.

    Call Forwarding—Busy/Don't Answer feature canceled for destination activated.

26. At the split supervisor position, go on-hook.

27. At the Manager II, set the queue overflow level to the original level (recorded in Step 19 above) by performing the following:

    a. Type **p026** [ENTER]

       The Word 1 screen appears.

    b. Type **dx** [ENTER]

    c. Type **cf5** [ENTER]

    d. Enter original level in Field 5.

    e. Type **cx** [ENTER]

28. Return all terminals in split group A to the desired mode.

Test Procedure for Priority Queuing

1. At all voice terminals in split group A, press the AUX WORK button.

   All voice terminals in split group A busy to ACD calls.

2. At a terminal (designate as terminal B) outside of split group A, dial the extension number of split group A.

   No ACD terminals in split group A available, terminal B call placed in split group A queue.

3. At a terminal (designate as terminal C) outside of split group A, dial the priority extension number of split group A.

   No ACD terminals in split group A available, terminal C call placed in split group A queue.

4. At a voice terminal in split group A (designate as terminal D), press the MANUAL IN button.

   Terminal D available for one ACD call.

   Zip tone heard.

5. At terminal D, go off-hook.

   Connection established between terminals C and D.

   Priority queuing tested for the priority extension number of split group A.

   Terminal B still in split group A queue.

6. At terminals C and D, go on-hook.

7. At a terminal (designate as terminal E) outside of split group A with access to a priority trunk group, place a call over the priority trunk group to split group A.

   No ACD terminals in split group A available; terminal E call placed in split group A queue.

8. At a voice terminal in split group A (designate as terminal D), press the MANUAL IN button.

   Terminal D available for one ACD call.

   Zip tone heard.

   Origin tone heard (if provided).

9. At terminal D, go off-hook.

   Connection established between terminals D and E.

   Terminal B still in split group A queue.

   Priority queuing tested for priority trunk group access to split group A.

10. At terminals B, D, and E, go on-hook.

11. Return all terminals in split group A to the desired mode.

Test Procedure for Overload Balancing

1. At the Manager II, set the queue overflow level for split group A by performing the following:

   a. Type **p026** [ENTER]

      The Word 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│  ╭──────────────────────────────────────────────────────────╮   │
│  │       ENHANCED MODE - PROCEDURE: 026, WORD: 1            │   │
│  │              ACD - SPLIT CHARACTERISTICS                 │   │
│  │                                                          │   │
│  │    1.          ACD Split: [--]                           │   │
│  │    2.         Split Size: [----]                         │   │
│  │    3.  ICI Message Number: [--]                          │   │
│  │    4. Queuing Trunk Group: [---]                         │   │
│  │    5. Outflow/Queue Level: [--]                          │   │
│  │                                                          │   │
│  │  LAMP CONTROL CIRCUIT                                     │   │
│  │     6.    Board Index: [-]                                │   │
│  │     7. Circuit Index: [-]                                 │   │
│  │                                                          │   │
│  │     8.    Inflow Level: [--]                             │   │
│  │     9.      Hunt Type: [-]                               │   │
│  │    10.     Split Type: [-]                               │   │
│  │    11. Machine Number: [-]                               │   │
│  │                                                          │   │
│  │  DISPLAY ONLY                                            │   │
│  │     12. Unassigned Members: [----]                       │   │
│  │                                                          │   │
│  │  Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT]│
│  ├──────────────────────────────────────────────────────────┤   │
│  │  enter command: ▬                                        │   │
│  │  [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
│  ╰──────────────────────────────────────────────────────────╯   │
└─────────────────────────────────────────────────────────────────┘
```

    b. Type **dx** (ENTER)

    c. Record the number in Field 5.

    d. Type **cf5** (ENTER)

    e. Enter the desired level in Field 5.

    f. Type **cx** (ENTER)

2. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

3. Dial the access code and destination code of a distant PBX.

    Dial tone silenced.

    Ringing tone heard.

    Attendant at distant PBX answers.

4. Obtain an extension number available for overload calls from the distant PBX, and designate as terminal B.

5. At the split supervisor position, go on-hook.

6. At the split supervisor position, go off-hook.

    Dial tone heard.

7. Dial the overload balancing default access code.

   NOTE: If local Call Forwarding is also activated, the dial access code for the overload balancing pair-associate must be dialed.

   Second dial tone heard.

8. Dial the access code (may be Automatic Alternate Routing or Automatic Route Selection access code) for the distant PBX.

   Third dial tone heard.

9. Dial terminal B at the distant PBX.

   Confirmation tone heard.

   Default destination for overload balancing established for Overload balancing activated at split group A.

10. At the split supervisor position, go on-hook.

11. To activate overload balancing to the default location, perform the following operations at the split supervisor's position:

    a. Go off-hook.

    b. Dial the overload balancing—activate access code or press INTERFLO ALL (if administered as overload balancing) or INTERFLO THRESHLD button.

    c. Press the # button.

        Confirmation tone heard.

    d. Press RELEASE or go on-hook.

12. At all voice terminals in split group A, press the AUX WORK button.

    All voice terminals in split group A busy to ACD calls.

13. At any working terminal, go off-hook.

    Dial tone heard.

14. Dial the extension number of split group A.

    Call placed in queue of split group A.

    First delay recorded announcement heard.

    Music (if provided) or silence heard.

15. Determine if the number of calls in queue of split group A exceed the queue outflow threshold set in Step 1 above.

    If the number of calls in queue does not exceed the queue outflow threshold, repeat Steps 13 through 15 using a different terminal each time.

If the number of calls in queue exceeds the queue outflow threshold, proceed to Step 16.

16. At terminal B in distant PBX, answer the call.

    Terminal B hears triple zip tone.

    First call in queue and terminal B connected.

17. At terminal B, go on-hook.

    Overload balancing tested.

18. At the split supervisor position in split group A, go off-hook.

    Dial tone heard.

19. Dial the overload balancing cancellation code.

    Confirmation tone heard.

    Overload balancing canceled at split group A.

20. To activate overload balancing to a special destination, perform the following operations at the split supervisor's position:

    a. Go off-hook.

        Dial tone heard.

    b. Dial the Overload Balancing—Activate access code or press the INTERFLO ALL (if administered as overload balancing) or INTERFLO THRESHLD button.

        Dial tone heard.

    c. Dial the AAR/ARS access code.

        Dial tone heard.

    d. Dial the 7- to 10-digit number of the special distant destination.

        Confirmation tone heard.

    e. Press the Release button or go on-hook.

    f. Repeat Steps 11 through 19.

    g. At any working terminal, go off-hook.

        Dial tone heard.

    h. Dial the extension number of split group A.

        Call placed in queue of split group A.

        First delay recorded announcement heard.

        Music (if provided) or silence heard.

    i. Determine if the number of calls in queue of split group A exceeds the queue outflow threshold set in Step 1 above.

If the number of calls in queue does not exceed the queue outflow threshold, repeat Steps 21 through 23 using a different terminal each time.

If the number of calls in queue exceeds the queue outflow threshold, proceed to Step 24.

21. At any working terminal, go off-hook.

    Dial tone heard.

22. Dial the extension number of split group A.

    Busy tone heard.

    Overflow balancing cancellation tested.

23. At all working terminals, go on-hook.

24. At the Manager II, set the queue overflow level to the original level (recorded in Step 1 above) by performing the following:

    a. Type **p026** (ENTER)

        The Word 1 screen appears.

    b. Type **dx** (ENTER)

    c. Type **cf5** (ENTER)

    d. Enter the original level in Field 5.

    e. Type **cx** (ENTER)

25. Return all terminals in split group A to the desired mode.

Test Procedure for Queue-of-Origin Announcement

1. At all voice terminals in split group A, press the AUX WORK button.

    All voice terminals in split group A busy to ACD calls.

2. Determine if split group A has overflow activated.

    If split group A has overflow activated, proceed to Step 3.

    If split group A does not have overflow activated, proceed to Step 4.

3. Activate Call Forwarding—Busy/Don't Answer and change split assignment of split group A overflow designation to split group B (if required).

    Proceed to Step 5.

4. Activate Call Forwarding—Busy/Don't Answer and assign split group B as overflow destination from split group A.

    Proceed to Step 5.

5. At split group B (overflow destination), place all terminals (except one—designate as terminal C) in unstaffed mode by pressing the AUX WORK button at each terminal.

All members of split group B (except terminal C) are busy to ACD calls.

6. At terminal C of split group B, press the AUTO IN button.

   Terminal C of split group B receives ACD calls automatically.

7. At the Manager II, set the queue of origin outflow level to 1 by performing the following:

   a. Type **p026** (ENTER)

      The Word 1 screen appears.

```
 _____
/                                                              \
|        ENHANCED MODE - PROCEDURE: 026, WORD: 1               |
|                ACD - SPLIT CHARACTERISTICS                   |
|                                                              |
|   1.          ACD Split: [--]                                |
|   2.         Split Size: [----]                              |
|   3.  ICI Message Number: [--]                               |
|   4. Queuing Trunk Group: [---]                              |
|   5. Outflow/Queue Level: [--]                               |
|                                                              |
| LAMP CONTROL CIRCUIT                                         |
|     6.    Board Index: [-]                                   |
|     7.  Circuit Index: [-]                                   |
|                                                              |
|   8.     Inflow Level: [--]                                  |
|   9.       Hunt Type: [-]                                    |
|  10.      Split Type: [-]                                    |
|  11. Machine Number: [-]                                     |
|                                                              |
| DISPLAY ONLY                                                 |
|   12. Unassigned Members: [----]                             |
|                                                              |
| Connected to CCO ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT |
|                                                              |
| enter command: ▄                                            |
| [____][____][F3 DATA][____][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] |
_____/
```

   b. Type **dx** (ENTER)

   c. Record the number displayed in Field 5.

   d. Type **cf5** (ENTER)

   e. Type **1** (ENTER)

   f. Type **cx** (ENTER)

8. At a terminal (designate as terminal B) outside of split groups A and B, dial the extension number of split group A.

   Call from terminal B placed in queue of split group A.

9. At another terminal (designate as terminal D) outside of split groups A and B, dial the extension number of split group A.

10. At terminal D, go off-hook and dial the extension number of split group A.

     At terminal C in split group B, zip tone heard.

11. At terminal C in split group B, go off-hook.

     Queue-of-origin announcement heard.

     Connection established between terminals C and D.

     Queue-of-origin announcement tested.

12. At terminals B, C, and D, go on-hook.

13. Return all terminals in split groups A and B to the desired mode.

14. At the Manager II, set the queue of origin outflow to the original level (recorded in Step 7 above) by performing the following:

    a. Type **p026** [ENTER]

       The Word 1 screen appears.

    b. Type **dx** [ENTER]

    c. Type **cf5** [ENTER]

    d. Enter the original outflow level in Field 5.

    e. Type **cx** [ENTER]

15. Deactivate Call Forwarding—Busy/Don't Answer for split group A or return split group A queue overflow to its original designation as required.

Test Procedure for Service Observing

1. Establish a call between terminals designated as A and B.

2. At the observer's position, terminal C, press an idle appearance button.

   Dial tone heard.

3. Press the SERVICE OBSERVE button.

   Dial tone heard.

4. Dial the extension number of terminal A.

   Terminal C can listen to the connection between terminals A and B. Terminal C is muted.

5. Press the SERVICE OBSERVE button.

   Terminal C can now be heard by terminals B and C.

6. Press the SERVICE OBSERVE button.

   Terminal C is muted.

7. Press RELEASE or go on-hook.

   Terminal C is disconnected.

8. At terminals A and B, go on-hook.

Test Procedure for ACD Circular and Direct Hunting

1. At the test line, connect a telephone set and designate as terminal A.

2. At all voice terminals in split group A, press the STAFF button or plug in headsets as required.

3. At all voice terminals in split group A, press the AUTO IN button.

   All members of split group A receive ACD calls automatically.

4. To test ACD circular hunting, proceed to Step 5. To test ACD direct hunting, proceed to Step 14.

5. At terminal A, go off-hook.

   Dial tone heard.

6. Dial the extension number of split group A.

   At split supervisor position, ringing heard.

7. At split supervisor position, go off-hook.

   Connection established between split supervisor position and terminal A.

8. At split supervisor position and terminal A, go on-hook.

   Split supervisor position and terminal A disconnected.

9. At terminal A, go off-hook.

   Dial tone heard.

10. Dial the extension number of split group A.

    At next voice terminal (designate as terminal B) in split group A, ringing heard.

11. At terminal B, go off-hook.

    Connection established between terminals A and B.

    ACD circular hunting tested.

12. At terminals A and B, go on-hook.

13. Return all terminals in split group A to the desired mode.

14. At terminal A, go off-hook.

    Dial tone heard.

15. Dial the extension number of split group A.

At split supervisor position, ringing heard.

16. At split supervisor position, go off-hook.

    Connection established between split supervisor position and terminal A.

17. At split supervisor position and terminal A, go on-hook.

    Split supervisor position and terminal A disconnected.

18. At terminal A, go off-hook.

    Dial tone heard.

19. Dial the extension number of split group A.

    At split supervisor position, ringing heard.

20. At split supervisor position, go off-hook.

    Connection established between split supervisor position and terminal A.

    ACD direct hunting tested.

21. At split supervisor position and terminal A, go on-hook.

    Split supervisor position and terminal A disconnected.

22. Return all terminals in split group A to the desired mode.

ACD by Voice Terminal (Agent)

Test Description

Make a terminal-to-terminal and a central office (CO) call to an ACD voice terminal and verify that first and second delay announcements and music-on-delay (if provided) are heard. In addition, verify that these calls can be put on hold using Agent Hold and that the city-of-origin announcement and audible recall are heard. Verify Agent Override from a voice terminal can be performed.

Test Procedure

1. At all voice terminals in split group A, press the AUX WORK button.

    All voice terminals in split group A busy to ACD calls.

2. At a voice terminal having access to split group A (designate as terminal A), go off-hook.

    Dial tone heard.

3. At terminal A, dial the extension number of split group A.

    Ringback tone heard.

Call placed in queue of split group A.

4. Wait approximately 2 to 30 seconds for first announcement timer to time out.

   Ringback tone removed.

   First delay recorded announcement heard.

   Music (if provided) or silence heard.

5. Wait approximately 2 to 30 seconds for second announcement timer to time out.

   Music (if provided) removed.

   Second delay recorded announcement heard.

   Music (if provided) or silence heard.

6. At one of the voice terminals in split group A (designate as terminal B), press the AUTO IN or MANUAL IN button.

   Music (if provided) is removed.

   At terminal A, ringback tone heard.

   At terminal B, ringing heard.

   NOTE: No ringing is heard if terminal B is equipped with automatic connect and disconnect.

7. At terminal B, go off-hook.

   Ringback removed.

   Ringing (if provided) removed.

   Connection established between terminals A and B.

   Terminal call to split group A tested.

8. At terminal B, place call on hold.

   At terminal A, music (if provided) heard.

9. At terminal C, go off-hook.

   Dial tone heard.

10. At terminal C, dial the extension number of split group A.

    Ringback tone heard.

    Call placed in queue of split group A.

11. At terminal B, press AUTO-IN or MANUAL-IN to access another call.

    At terminal C, ringback removed.

    Connection established between terminals B and C.

12. At terminal C, go on-hook.

13. At terminal B, return to the held call by pressing the appropriate appearance button of the caller on hold.

    Connection reestablished between terminals A and B.

14. At terminal A, go on-hook.

15. At terminal B, go on-hook and press the AUX WORK button.

    All voice terminals in split group A busy to ACD calls.

16. At CO, go off-hook.

    Dial tone heard.

17. At CO, dial the listed directory number (LDN) of split group A.

    CO ringback tone or answer supervision heard.

    Ringback tone heard.

    Call placed in queue of split group A.

18. Wait approximately 2 to 30 seconds for first announcement timer to time out.

    Answer supervision to the CO returned (if not returned previously).

    Ringback tone removed.

    First delay recorded announcement heard.

    Music (if provided) or silence heard.

19. Wait approximately 2 to 30 seconds for second announcement timer to time out.

    Music (if provided) removed.

    Second delay recorded announcement heard.

    Music (if provided) or silence heard.

20. At one of the voice terminals in split group A (designate as terminal B), press the AUTO IN button.

    Music (if provided) is removed.

    At CO, ringback tone heard.

    At terminal B, ringing heard.

    NOTE: No ringing is heard if terminal B is equipped with automatic connect and disconnect.

21. At terminal B, go off-hook.

    Ringback removed.

Ringing (if provided) removed.

Connection established between CO and terminal B.

CO call to split group A tested.

22. At CO and terminal B, go on-hook.

23. At a distant location with access to trunk group associated with announcement to be tested, designate a terminal as terminal D.

24. Arrange a call from terminal D on the designated trunk group to the LDN of split group A.

Terminal B (split group A) hears single burst of zip tone.

Terminal B hears city-of-origin announcement.

City-of-origin announcement tested.

25. At terminal B, press the REPEAT button.

City-of-origin message repeated.

Connection established with terminal D.

Audible recall tested.

26. At terminal D, go on-hook.

Connection between terminals B and D terminated.

27. At terminal B, go on-hook and press the AUTO IN button.

All voice terminals in split group A busy to ACD calls, except terminal B.

28. At a terminal (designate as terminal A) outside of split group A with Agent Override class of service, go off-hook.

Dial tone heard.

29. Dial the Agent Override access code.

Second dial tone heard.

30. Dial the extension number of split group A.

Intercept tone heard.

NOTE: Terminal B (in split group A) is idle and Agent Override is not allowed on idle terminals.

31. At terminal A, go on-hook.

32. At a terminal (designate as terminal D) outside of split group A, dial the extension number of split group A.

At terminal B, zip tone heard.

33. At terminal B, go off-hook.

    Connection established between terminals A and B.

34. At another voice terminal in split group A (designate as terminal E), press the MANUAL IN button.

    Terminal E available for one ACD call.

35. At terminal B, flash the switchhook and dial the extension number of terminal E.

    At terminal E, ringing heard.

36. At terminal E, go off-hook.

    Connection established between terminals B and E.

37. At terminal B, flash the switchhook.

    Terminals B, D, and E in 3-way conference.

38. At terminal A, go off-hook.

    Dial tone heard.

39. Dial the Agent Override access code.

    Second dial tone heard.

40. Dial the extension number of split group A.

    Intercept tone heard.

    NOTE: Terminals B and E (in split group A) are in a 3-way conference and Agent Override is not allowed.

41. At terminal A, go on-hook.

42. At terminal E, go on-hook and press the AUX WORK button.

    Terminals B and D remain connected.

43. At terminal A, go off-hook.

    Dial tone heard.

44. Dial the Agent Override access code.

    Second dial tone heard.

45. Dial the extension number of split group A.

    At terminals B and D, warning tone heard (if provided).

    Three-way connection is established between terminals A, B, and D.

    Agent Override feature tested.

46. Establish a call between terminals A and B.

47. At the observer's position, go off-hook.

    Dial tone heard.

48. Press the SERVICE OBSERVE button.

    Dial tone heard.

49. Dial the extension number of terminal A.

    Terminal C can listen to the connection between terminals A and B. Terminal C is muted.

50. Press the SERVICE OBSERVE button.

    Terminal C can now be heard by terminals A and B.

51. Press the SERVICE OBSERVE button.

    Terminal C is muted.

52. Press RELEASE or go on-hook.

    Terminal C is disconnected.

53. At Terminals A and B, go on-hook

54. Return all terminals in split group A to the desired mode.

AUTOMATIC CALLBACK

Test Description

Establish a terminal-to-terminal call. At a terminal assigned Automatic Callback-Calling, dial the activation code followed by the number of one of the terminals. Verify confirmation tone. Verify that when the called terminal returns to idle, the terminal that dialed the Automatic Callback-Calling code rings, followed by ringing at the dialed terminal. Verify that confirmation tone is heard after dialing the Automatic Callback-Calling cancellation code followed by the terminal number. When the terminal becomes idle, verify that neither terminal rings.

Test Procedure Without an AUTO CALLBACK Button

1. Select a line assigned Automatic Callback-Calling and designate as terminal A.

2. Select two terminal lines and designate as terminals B and C.

3. At terminal B, establish a terminal-to-terminal call with terminal C.

    NOTE: Terminal B must not have Call Coverage or Call Forwarding activated.

4. At terminal B, busy all appearances of the same line used in Step 3 (if more than one) by making calls as necessary to other terminals.

> **NOTE:** Automatic Callback is not activated if any line appearance of the same line on terminal B (used in Step 3) is not busy or if terminal B has Call Coverage or Call Forwarding activated.

5. At terminal A, dial the Automatic Callback-Calling activation code.

   Second dial tone heard.

6. Dial terminal B.

   Dial tone silenced.

   Confirmation tone (three short bursts of dial tone) heard.

7. At terminal A, go on-hook.

   Automatic Callback-Calling activated.

8. At terminals B (only on line appearance connected to C) and C, go on-hook.

   At terminal A, ringing heard.

9. At terminal A, go off-hook.

   Ringing silenced.

   At terminal B, ringing heard.

10. At terminal B, go off-hook on same line appearance used in Step 3.

    Ringing silenced.

    Connection established between terminals A and B.

11. At terminals A and B, go on-hook.

12. If canceling of Automatic Callback-Calling is to be tested, at terminal B (same line appearance used in Step 3), establish a terminal-to-terminal call with terminal C.

13. At terminal A, dial the Automatic Callback-Calling activation code.

    Second dial tone heard.

14. Dial terminal B.

    Dial tone silenced.

    Confirmation tone heard.

15. At terminal A, go on-hook.

    Automatic Callback-Calling activated.

16. At terminal A, go off-hook.

Dial tone heard.

17. Dial the Automatic Callback-Calling cancel code.

   Dial tone silenced.

   Confirmation tone heard.

18. At terminal A, go on-hook.

   Automatic Callback-Calling canceled.

19. At terminals B (all appearances of same line used in Step 3) and C, go on-hook.

   At terminal A, ringer does not ring.

Test Procedure With AUTO CALLBACK Button

1. Select a voice terminal assigned Automatic Callback-Calling and equipped with an AUTO CALLBACK button. Designate as terminal A.

2. Select two terminal lines and designate as terminals B and C.

3. At terminal B, establish a terminal-to terminal call with terminal C.

4. At terminal B, busy all appearances of the same line used in Step 3 (if more than one) by making calls as necessary to other terminals.

   NOTE: Automatic Callback is not activated if a line appearance of the same line on terminal B used in Step 3 is not busy or if terminal B has Call Coverage or Call Forwarding Activated.

5. At terminal A go off-hook and dial terminal B.

   Busy tone heard.

6. Press AUTO CALLBACK.

   Confirmation tone heard and AUTO CALLBACK lamp lights.

7. At terminals B (only on-line appearance connected to C) and C, go on hook.

   At terminal A, ringing heard.

8. At terminal A, go off-hook.

   Ringing silenced.

   At terminal B, ringing heard.

9. At terminal B, go off-hook on the same line appearance used in Step 3.

   Ringing silenced.

   Connection established between terminals A and B.

10. At terminals A and B, go on-hook.

AUTOMATIC CIRCUIT ASSURANCE (ACA)

Test Description

Verify that Automatic Circuit Assurance (ACA) can be activated and deactivated from a console by dialing the start and stop codes. Verify that ACA referral calls can be sent to a local attendant, CAS attendant, or a remote system such as Centralized System Management (CSM), depending on your application. Make the number of test calls required to meet the referral threshold (2 through 30 calls) to verify that an ACA referral alphanumeric message is displayed at the local console, CAS console, or CSM. The ACA referral can only be routed to one console.

> NOTE: When an ACA referral is sent to a remote system such as CSM, specific trunk failure data is not included in the referral message. The referral call indicates only that a possible trunk failure has occurred. To receive trunk failure data, CSM polls the switch and accesses the ACA Audit Trail Record. This record contains trunk data for the 32 most recent suspected failures. The Audit Trail Record is always stored at the switch where the possible failure was detected.

Test Procedure

1. The ACA referral should be administered to the location receiving the ACA referral messages for the type of console being tested. If not administered, use Procedure 286 as follows:

   Field 1:

       0 = ACA not active

       1 = ACA active.

   Field 2:

       0 = ACA failures not referred to attendant

       1 = ACA failures referred to a local or CAS attendant

       2 = ACA failures referred to a remote system (e.g., CSM).

   Field 3:

       dash = No attendant console, or referred to a remote system (e.g., CSM)

       0 = ACA referrals are directed to CAS main switch

       1-40 = ACA referrals are directed to a local switch attendant.

2. At a console, press an idle loop button.

    ATND lamp lighted.

3. Press the START button.

    Dial tone heard.

4. Dial the ACA start code.

    Confirmation tone heard (three short bursts of dial tone).

5. Press the RELEASE button.

    ATND lamp off.

    ACA start code tested.

6. Press an idle loop button.

    ATND lamp lighted.

7. Press the START button.

    Dial tone heard.

8. Dial the ACA stop code.

    Confirmation tone heard (three short bursts of dial tone).

9. Press the RELEASE button.

    ATND lamp off.

    ACA stop code tested.

10. Dial the ACA start code.

11. At the Manager II, type **p120** (ENTER)

    The Word 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ┌───────────────────────────────────────────────────────────────────┐│
│ │        ENHANCED MODE - PROCEDURE: 120, WORD: 1                     ││
│ │              AUTOMATIC CIRCUIT ASSURANCE                           ││
│ │                                                                   ││
│ │  1.                      Trunk Group:  ┌───┐                       ││
│ │  2.  Short Call Limit (even seconds):  │---│                       ││
│ │  3.          Long Call Limit (hours):  └───┘                       ││
│ │  4.    Short Call Referral Threshold:  ┌──┐                        ││
│ │                                        │--│                        ││
│ │                                        └──┘                        ││
│ │                                        ┌──┐                        ││
│ │                                        │--│                        ││
│ │                                        └──┘                        ││
│ │                                                                   ││
│ │                                                                   ││
│ │                                                                   ││
│ │                                                                   ││
│ │                                                                   ││
│ │                                                                   ││
│ │                                                                   ││
│ │ Connected to CC0 ON-LINE ♥ ┌─MAJOR─┐┌─MINOR─┐┌RUN TAPE┐┌BUSY OUT┐┌IN USE┐┌WAIT┐││
│ ├───────────────────────────────────────────────────────────────────┤│
│ │ enter command: ▪                                                  ││
│ │┌────────┐┌────────┐┌F3 DATA─┐┌────────┐┌F5 HELP┐┌F6 FIELD┐┌F7 INPUT┐┌F8 CMDS┐││
│ └───────────────────────────────────────────────────────────────────┘│
└─────────────────────────────────────────────────────────────────────┘
```

Field 1 is highlighted.

12. Enter the trunk group number in Field 1.

13. Type **dx** [ENTER]

14. Record the trunk group number displayed in Field 1 and the numbers displayed in Fields 2, 3, and 4.

     Field 2 is the short call limit (seconds).

     Field 3 is the long call limit (hours).

     Field 4 is the short call referral threshold.

15. Connect a telephone or hand test set to a test line.

16. At the Manager II, type **p642** [ENTER]

17. Select Test 2 by typing **nt** [ENTER]

     The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────────────────────────┐ │
│ │       ENHANCED MODE - PROCEDURE: 642, TEST: 2                   │ │
│ │              TEST A SPECIFIC TRUNK                               │ │
│ │                                                                 │ │
│ │ TEST LINE EQUIPMENT LOCATION      TRUNK DIAL ACCESS CODE         │ │
│ │     2.  Module: [--]                 12.  First Digit: [--]      │ │
│ │     3. Cabinet: [-]                   13. Second Digit: [-]      │ │
│ │     4. Carrier: [-]                   14.  Third Digit: [-]      │ │
│ │     5.    Slot: [--]                  15. Fourth Digit: [-]      │ │
│ │     6. Circuit: [--]                                             │ │
│ │                                      16. Trunk Group: [---]      │ │
│ │ TRUNK EQUIPMENT LOCATION             17.  Test State: [-]        │ │
│ │     7.  Module: [--]                                             │ │
│ │     8. Cabinet: [-]                                              │ │
│ │     9. Carrier: [-]                                              │ │
│ │    10.    Slot: [--]                                             │ │
│ │    11. Circuit: [--]                                             │ │
│ │                                                                 │ │
│ │                                                                 │ │
│ │                                                                 │ │
│ │ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │ │
│ │                                                                 │ │
│ │ enter command: ■                                                │ │
│ │ [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│ │
│ └─────────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```

NOTE: If a default test line is assigned, Field 7 is highlighted. If a default test line is not assigned, enter the test line equipment location in Fields 2 through 6.

18. Enter the equipment location of the trunk (in the trunk group recorded in Step 14) to be tested in Fields 7 through 11.

19. Type **x** [ENTER]

    This seizes the outgoing trunk.

    NOTE: Field 17 displays a 0 if the selected trunk is busy. Attempt to seize the trunk by entering **x** again or select another trunk for testing.

20. At the test line, dial the access code of the trunk.

    Dial tone heard.

21. Immediately go on-hook.

    NOTE: Test calls must go on-hook before the short call limit time (recorded in Step 12 above) is exceeded.

22. Repeat Steps 18 through 20 until the short call referral threshold, recorded in Step 13 above, is met.

At the console, ATND lamp flashes.

At the console, short call limit alphanumeric message (ACAS or as administered in Procedure 204) is displayed.

23. At the console, press the ANSWER button.

   ATND lamp lighted.

24. Only for CAS consoles, press loop key.

   At the alphanumeric display, ICI (Incoming Call Identification) message is displayed.

25. Press the TRK ID button.

   At the alphanumeric display, the trunk access code is displayed.

26. Press the TRK ID button.

   At the alphanumeric display, the trunk number is displayed.

27. Press the RELEASE button.

   ATND lamp off.

   Short call limit tested.

28. At the Manager II, type **x** [ENTER]

29. Using the selected trunk, establish a call from the test line to a distant party and wait the number of hours administered to the long call limit (recorded in Step 13) plus 1 hour.

   At the console, ATND lamp flashes.

   At the console, long call limit alphanumeric message (ACAL or as administered in Procedure 204) is displayed.

30. At the console, press the ANSWER button.

   ATND lamp lighted.

31. Press the TRK ID button.

   At the alphanumeric display, the trunk access code is displayed.

32. Press the TRK ID button.

   At the alphanumeric display, the trunk number is displayed.

33. Press the RELEASE button.

   ATND lamp off.

   Long call threshold tested.

AUTOMATIC IDENTIFICATION OF OUTWARD DIALING (AIOD)

Test Description

Originate test calls to verify the calling terminal number and the AIOD equipment number of the central office (CO). Also, originate test calls to verify the foreign or distant exchange (FX), the advanced private line termination (APLT), and the AIOD billing number of tie trunk groups.

Test Procedure

> **CAUTION:** *Testing this feature may cause interruption of AIOD service.*

1. Connect the J59204AJ, L4 connector cable to the J59204AJ ANI-Data Link Test Set. Refer to Figure 5.

2. Plug the connector cable into test points 1 through 10 of the SN244 circuit pack. Refer to Figure 5.

3. Plug the test set power cord into a 117-volt ac source.

4. At the connector cable, set the ANI TEST switch to ON.

5. At the test set, set the POWER switch to ON.

6. Set the ERROR MODE/VERIFY MODE switch to VERIFY MODE.

7. Set the NORMAL/HOLD switch to NORMAL.

8. Set the MODE switch to ANI or SLF-CH.

9. At the connector cable, set the CHANNEL switch as indicated in Table N.

10. At the test set, set the TRUNK/STATION switch as indicated in Table N.

11. Set the TRUNK/STATION MATCH thumbwheels as indicated in Table N.

12. At the terminal test line, go off-hook and dial the CO trunk access code.

    At the test set, DISPL and MATCH numbers agree.

13. Go on-hook.

14. At the ANI-DATA link test set, press the CLEAR button.

15. Repeat Steps 9 through 14 for each circuit of each facility in Table N to be tested.

16. Set the POWER switch to OFF.

17. Disconnect the test equipment.
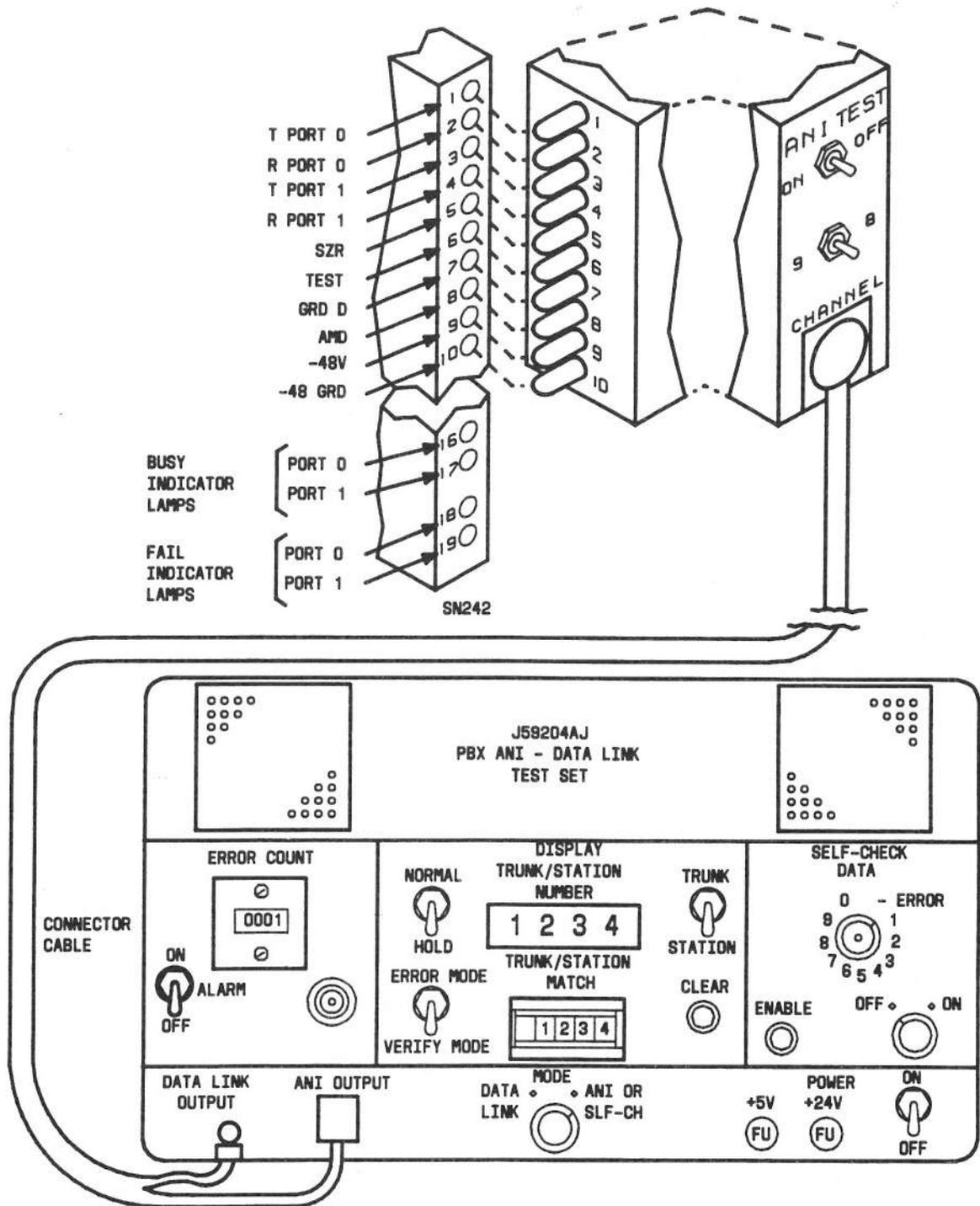
Figure 5. ANI-Data.Link Test Set

TABLE N. Channel Switch Settings

FACILITY BEING TESTED	CHANNEL SWITCH	TRUNK/ STATION	TRUNK/STATION MATCH THUMBWHEELS
Terminal	9	Station	Terminal number assigned to the test line
APLT	8	Trunk	Trunk group number
CO, FX	9	Trunk	AIOD equipment number

AUTOMATIC ROUTE SELECTION (ARS)

Test Description

Determine the ARS plan having the pattern to be tested and change the system clock to activate that plan. Make test calls from the test line to verify that each trunk group in the pattern is selected in the correct preference order. Busy out the trunk group to select the next preference trunk group. Using the PLAN button, verify that the attendant can control the ARS plan in effect and return the feature to automatic control.

Test Procedure

CAUTION: *When possible, this test should be performed during periods of low or no traffic. Changing the user's ARS pattern for a time of day may cause the user to use more expensive routes.*

1. Determine the ARS plan containing the pattern(s) to be tested.

2. Connect a hand test set to a test line and have another hand test set available to connect to the cross-connect field.

3. At the Manager II, type **p284** (ENTER)

    The Word 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│       ENHANCED MODE - PROCEDURE: 284, WORD: 1                     │
│                       SYSTEM CLOCK                                │
│                                                                   │
│   1.    Hour: ┌──┐                                                │
│              └──┘                                                 │
│   2.  Minute: ┌──┐                                                │
│              └──┘                                                 │
│   3.   Month: ┌──┐                                                │
│              └──┘                                                 │
│   4.     Day: ┌──┐                                                │
│              └──┘                                                 │
│   5.    Year: ┌────┐                                              │
│              └────┘                                               │
│                                                                   │
│ DISPLAY ONLY                                                      │
│    6.     Day of Week: ┌─┐                                        │
│                        └─┘                                        │
│    7. Hardware Clock: ┌─┐                                         │
│                       └─┘                                         │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│ Connected to CC0 ON-LINE ♥ ┌──────┐┌──────┐┌──────────┐┌─────────┐┌────────┐┌──────┐ │
│                            │ MAJOR ││ MINOR ││ RUN TAPE ││ BUSY OUT ││ IN USE ││ WAIT │ │
│                            └──────┘└──────┘└──────────┘└─────────┘└────────┘└──────┘ │
│ enter command: ▬                                                  │
│ ┌────┐┌────┐┌──────────┐┌────┐┌──────────┐┌──────────┐┌──────────┐┌─────────┐ │
│ │    ││    ││ F3 DATA  ││    ││ F5 HELP  ││ F6 FIELD ││ F7 INPUT ││ F8 CMDS │ │
│ └────┘└────┘└──────────┘└────┘└──────────┘└──────────┘└──────────┘└─────────┘ │
└─────────────────────────────────────────────────────────────────┘
```

4. Type **dx** [ENTER]

   This procedure allows you to change the system clock. The system clock has to be changed to the time when the selected pattern is in effect.

5. To change the system clock to activate the selected ARS plan, perform the following:

   a. Type **cf1** [ENTER]

   b. Enter new hour in Field 1.

   c. Enter new minutes in Field 2.

   d. Type **cx** [ENTER]

6. At the Manager II, type **p631** [ENTER]

   The Test 1 screen appears.

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```
┌──────────────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────────────────────────────────────────────┐ │
│  │        ENHANCED MODE  -  PROCEDURE:  631,  TEST:  1               │ │
│  │                   BUSY  OUT  A  TRUNK  GROUP                      │ │
│  │                                                                  │ │
│  │   2.            Trunk Group Number: [---]                        │ │
│  │   6. Number of Trunks In Trunk Group: [---]                      │ │
│  │   7.      Number of Busied-Out Trunks: [---]                     │ │
│  │                                                                  │ │
│  │   EQUIPMENT LOCATION                                             │ │
│  │      8.   Module: [--]                                           │ │
│  │      9.  Cabinet: [-]                                            │ │
│  │     10.  Carrier: [-]                                            │ │
│  │     11.     Slot: [--]                                           │ │
│  │     12.  Circuit: [--]                                           │ │
│  │                                                                  │ │
│  │   13. Maintenance Status: [-]                                    │ │
│  │   14.       Trunk Number: [---]                                  │ │
│  │                                                                  │ │
│  │                                                                  │ │
│  │                                                                  │ │
│  │ Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│  │                                                                  │ │
│  │ enter command: ▬                                                 │ │
│  │ │    ││    ││F3 DATA ││    ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │ │
│  └──────────────────────────────────────────────────────────────────┘ │
└──────────────────────────────────────────────────────────────────────┘
```

Field 2 is highlighted.

7. Enter the ARS first preference trunk group number in Field 2.

8. Type **x** ENTER

> **CAUTION:** *Entering the* **bo** *(busy out) command can drop the user's calls in the entire trunk group.*

9. Type **bo** ENTER

   This busies out the entire trunk group.

10. Select Test 2 by typing **nt** ENTER

   The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────────────┐   │
│  │       ENHANCED MODE - PROCEDURE: 631, TEST: 2                  │   │
│  │                   BUSY OUT A TRUNK                             │   │
│  │                                                               │   │
│  │   2.              Trunk Group Number: [---]                   │   │
│  │   6. Number of Trunks in Trunk Group: [---]                  │   │
│  │   7.     Number of Busied-Out Trunks: [---]                  │   │
│  │                                                               │   │
│  │  EQUIPMENT LOCATION                                            │   │
│  │      8.   Module: [--]                                        │   │
│  │      9.  Cabinet: [-]                                         │   │
│  │     10.  Carrier: [-]                                         │   │
│  │     11.    Slot: [--]                                         │   │
│  │     12. Circuit: [--]                                         │   │
│  │                                                               │   │
│  │  13. Maintenance Status: [-]                                  │   │
│  │  14.        Trunk Number: [---]                              │   │
│  │                                                               │   │
│  │                                                               │   │
│  │  Connected to CCO ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT] │
│  │                                                               │   │
│  │  enter command: ▪                                             │   │
│  │  [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
│  └───────────────────────────────────────────────────────────────┘   │
└─────────────────────────────────────────────────────────────────────┘
```

11. Type **rb** (ENTER)

    This releases the first trunk in the selected trunk group busied out in Step 9.

12. At the test line, go off-hook.

13. Listen for dial tone and dial the ARS access code.

    Second dial tone heard.

14. At the cross-connect field, connect another hand test set to the central office (CO) side of the trunk and listen for dial tone.

    Dial tone acknowledges that the trunk selected for testing is being tested.

15. Remove the hand test set from the cross-connect field and go on-hook with the test set at the test line.

16. At the Manager II, type **bo** (ENTER)

    This busies out the idle trunk.

17. Type **nt** (ENTER)

    The Test 1 screen appears.

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18. Enter the next preference ARS trunk group by choosing a or b:

    a. Type **cf2** [ENTER] and enter the trunk group number in Field 2.

    b. Type **nu** [ENTER] repeatedly until the trunk group you want appears in Field 2.

19. Repeat Steps 8 through 18 until all trunk groups associated with this ARS pattern are tested.

20. At the Manager II, type **t1** [ENTER]

    The Test 1 screen appears.

21. Repeat the following sequence until all the trunk groups that were tested are released from busy:

    a. Enter trunk group number in Field 2.

    b. Type **rb** [ENTER]

22. Disconnect the hand test set from the test line.

23. Use Steps 3 through 5 to reset the system clock to the correct time.

24. If the attendant control of ARS is to be tested, press an idle loop button.

    ATND lamp lighted.

25. Press the PLAN button.

    Dial tone heard.

    PLAN lamp lighted.

26. Dial 1.

    Alphanumeric field displays a 1.

    Confirmation tone heard.

27. Press the RELEASE button.

    ATND lamp off.

    ARS under control of the attendant.

28. Press an idle loop button.

    ATND lamp lighted.

29. Press the PLAN button.

    Dial tone heard.

30. Dial 0.

    Alphanumeric field displays 1, 2, or 3.

    Confirmation tone heard.

PLAN lamp lighted.

31. Press the RELEASE button.

   ATND lamp off.

   ARS returned to automatic control.

AUTOMATIC TRANSMISSION MEASUREMENT SYSTEM (ATMS)

Test Description

Procedure 647, Test 2 is used to automatically test the transmission of a trunk circuit.

Test Procedure

1. At the Manager II, type **p647** [ENTER]

2. Type **nt** [ENTER]

   The Test 2 screen appears.

```
ENHANCED MODE - PROCEDURE: 647, TEST: 2
          MEASURE TRUNK TRANSMISSION CHARACTERISTICS

 2.  Trunk Group: [---]
 3.  Trunk Number: [---]
11.      TTL Type: [-]

EQUIPMENT LOCATION                TEST OR MEASUREMENT RESULTS
    4.  Module: [--]              13.    No. Tested ¦ Index ¦ Result: [--]
    5.  Cabinet: [-]              14. No. Failed ¦ Circuits ¦ Result: [--]
    6.  Carrier: [-]              15.    Trunk Type ¦ None ¦ Result: [--]
    7.    Slot: [--]
    8.  Circuit: [--]

STATUS
    9. Circuit Status: [-]
   10.    Test State: [-]

FAILURE INFORMATION
   12.    Fault Code: [--]

Connected to CC0 ON-LINE ♥ | MAJOR || MINOR || RUN TAPE || BUSY OUT || IN USE || WAIT |

enter command: ▬
[        ][        ][F3 DATA][        ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]
```

3. Enter the trunk group and trunk number of the trunk to be tested by performing the following:

   a. Type **cf2** [ENTER]

b. Enter the trunk group number in Field 2.

c. Enter the trunk number in Field 3.

4. Type **x** ENTER

WAIT appears on the screen while the test is executing.

Field 10 (test state) is incremented to indicate the progress of Test 2.

5. When Test 2 completes testing the trunk, WAIT goes out and the following is displayed:

Fields 2 through 8—Trunk selected for testing.

Field 10—Test state of 9 indicating test terminated.

Field 13—1 (indicating 1 trunk was tested).

Field 14—0 (indicating the trunk passed Test 2) or 1 (indicating the trunk failed Test 2).

6. Measurement results for the trunk tested are displayed by typing **nd** ENTER

Six sets of measurements (total of 18 measurements) are displayed by typing **nd** ENTER repeatedly.

Measurement results are displayed in sets of three and are displayed in Fields 13 through 15.

Field 12 (measurement index) indicates which set is being displayed.

7. If a 1 is displayed in Field 14 (indicating the trunk failed), refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.14 to resolve each failure.

BRIDGED CALL

Test Description

Verify that an H/D series voice terminal is bridged onto an existing H/D series voice terminal call when going off-hook on a busy line appearance.

Test Procedure

1. Designate terminal test line as terminal A.

2. Select two H/D series voice terminals assigned the same line appearance and designate as terminals B and C.

3. At terminal A, place a terminal-to-terminal call to terminal B.

4. At terminal B, go off-hook.

5. At terminal C, press the line appearance that is in the busy state and go off-hook.

I-use lamp lighted.

Terminals A, B, and C connected.

6. At terminal C, go on-hook.

Terminal C removed from the connection.

7. At terminals A and B, go on-hook.

BUSY VERIFICATION OF LINES

Test Description

At the console, verify that a terminal in an established 2-party connection is busy. Confirm that busy verification tone is heard and a 3-way connection is established. Verify that a terminal in an idle state is not busy and is alerted. Verify that a terminal being alerted is in a nonstable state and that reorder tone is heard.

Test Procedure

1. Designate test terminal as terminal A.

2. Select another terminal, and designate it as terminal B.

3. Establish a call between terminals A and B.

4. At the console, press an idle loop button.

ATND lamp lighted.

5. Press the VERFY button.

VERFY lamp lighted.

6. Press the START button and dial terminal A.

Busy verification tone heard by all parties.

Attendant bridged onto the call.

7. Press the RELEASE button.

VERFY lamp off.

ATND lamp off.

8. At terminals A and B, go on-hook.

Busy verification of 2-party call complete.

9. At the console, press an idle loop button.

ATND lamp lighted.

10. Press the VERFY button.

    VERFY lamp lighted.

11. Press the START button and dial terminal A.

    VERFY lamp off.

    At terminal A, ringing heard.

12. Press the RELEASE button.

    ATND lamp off.

    Busy verification of idle terminal complete.

13. At terminal A, dial terminal B.

    At terminal B, ringing heard.

14. At terminal B, do not answer the call.

15. At the console, press an idle loop button.

    ATND lamp lighted.

16. Press the VERFY button.

    VERFY lamp lighted.

17. Press the START button and dial terminal B.

    VERFY lamp off.

    Reorder tone heard.

18. Press the RELEASE button.

    ATND lamp off.

CALL COVERAGE

Test Description

Verify that calls can be intercepted by the principal by using the Temporary Bridged Appearance (TBA) function. Verify that the Send All Calls feature can automatically redirect one extension or a group of extensions to a covering voice terminal. Verify that ring-ping is provided to the called party for calls that are immediately redirected to coverage. Also, verify that the covering user can consult with the principal and transfer or conference the call.

> **NOTE:** TBA is only present when the covering voice terminal is not a coverage group (e.g., AUDIX or Message Center).

Test Procedure

1. Select a voice terminal assigned the Send All Calls feature and designate as terminal A.

2. At terminal A, go off-hook and dial the feature access code for Send All Calls activate or press SEND ALL CALLS EXTENSION button.

    Confirmation tone is heard.

    Send All Calls status lamp lights steadily.

3. At terminal A, go on-hook.

4. At the test terminal, go off-hook and dial terminal A.

    Coverage tone is heard for a short time and then silenced (Caller Response Interval).

    At the covering user's voice terminal, ringing is heard.

    At terminal A, TBA status lamp flashes and ring-ping is heard.

5. At terminal A, press the appearance button associated with the lighted status lamp and go off-hook.

    Status lamp lighted steadily.

    Ringing at the covering user's voice terminal stops.

    At the covering user's voice terminal, the status lamp associated with the call goes off.

    The principal and the calling party are connected.

6. At the test terminal and terminal A, go on-hook.

7. At the test terminal, go off-hook and dial terminal A.

    Coverage tone is heard for a short time and then silenced (Caller Response Interval).

    At the covering user's voice terminal, ringing is heard.

    At terminal A, TBA status lamp flashes and ring-ping is heard.

8. At the covering user's voice terminal, answer the call.

    TBA status lamp on principal voice terminal lighted steadily.

9. Press the CONFERENCE or TRANSFER button.

    The calling party is placed on hold for conference or transfer.

    TBA status lamp on principal voice terminal goes off.

    The status lamp associated with the held appearance flutters.

    An idle line appearance is automatically selected for the covering user.

Dial tone is heard.

10. Press the CONSULT button.

   A priority call is automatically placed for the covering user to terminal A.

   At terminal A, 3-burst ringing is heard.

   At terminal A, the status lamp flashes.

11. At terminal A, go off-hook.

   Covering user and terminal A connected.

12. At the covering user's voice terminal, press the CONFERENCE or TRANSFER button.

   NOTE: Pressing the CONFERENCE button establishes a 3-way conference between terminal A, coverage user, and the test terminal. When the TRANSFER button is pressed, the test terminal and terminal A are connected. The covering user is dropped from the conversation.

13. At all terminals, go on-hook.

14. At terminal A, dial the Send All Calls cancel code or press SEND ALL CALLS button.

   Status lamp off.

   Confirmation tone is heard (Send All Calls canceled).

15. Repeat procedure activating the Send All Calls Group of Extensions feature instead of the Send All Calls Extension feature. Test for each extension in the group.

CALL FORWARDING

Call Forwarding—Follow Me

Test Description

At a terminal, activate Call Forwarding—Follow Me with call forwarded to another terminal and verify that Call Forwarding—Follow Me operates properly. Verify that Override feature returns call to original terminal. Deactivate feature and verify that the feature is canceled.

Test Procedure

1. Select a terminal line assigned Call Forwarding—Follow Me and designate as terminal A.

2. Select another two terminal lines and designate as terminals B and C.

3. At terminal A, dial Call Forwarding—Follow Me activation code or press the feature button.

Dial tone silenced.

Second dial tone heard.

4. Dial terminal B.

   Dial tone silenced.

   Confirmation tone heard.

5. At terminal A, go on-hook.

   Call Forwarding—Follow Me activated from a terminal.

6. At terminal C, dial terminal A.

   At terminal A, burst of ringing heard.

   At terminal B, ringing heard.

7. At terminal B, answer.

   Terminals B and C connected.

8. At terminals B and C, go on-hook.

   Call Forwarding—Follow Me tested.

9. If Call Forwarding—Follow Me override is provided, dial terminal A from terminal B.

   At terminal A, ringing heard.

10. At terminal A, answer.

    Terminals A and B connected.

11. At all terminals, go on-hook.

    Call Forwarding—Follow Me override tested.

12. At terminal A, go off-hook and press the feature button.

    Confirmation tone heard.

13. At terminal A, go on-hook.

14. At terminal C, dial terminal A.

    At terminal A, ringing heard.

15. At terminal A, answer.

    Terminals A and C connected.

16. At terminals A and C, go on-hook.

    Call Forwarding—Follow Me cancellation verified.

Call Forwarding—Busy and Don't Answer

Test Description

At a terminal, activate Call Forwarding—Busy/Don't Answer or Don't Answer and dial another terminal. Verify that Call Forwarding—Don't Answer operates properly. Verify that Call Forwarding—Busy operates properly. Deactivate the feature and verify that feature is canceled.

Test Procedure

1. Select a terminal assigned Call Forwarding—Busy/Don't Answer and designate as terminal A.

2. Select two nonrestricted terminals and designate as terminals B and C.

3. At terminal A, dial Call Forwarding—Busy/Don't Answer activation code or press the feature button.

    Dial tone silenced.

    Second dial tone heard.

4. Dial terminal B.

    Dial tone silenced.

    Confirmation tone (three short bursts of dial tone) heard.

5. At terminal A, go on-hook.

    Call Forwarding—Busy/Don't Answer activated from terminal A.

6. At terminal C, dial terminal A.

    At terminal A, ringing heard.

7. At terminal A, do not answer.

    Ringing stops at terminal A after several rings, and then starts at terminal B.

8. At terminal B, answer the call.

    Terminals B and C connected.

9. At terminals B and C, go on-hook.

    Call Forwarding—Don't Answer tested.

10. Select a fourth terminal (terminal D) and dial terminal A.

    Ringing heard at terminal A.

11. At terminal A, go off-hook.

    Connection established between terminals A and D.

12. At terminal C, dial terminal A.

Ringback tone heard at terminal C.

Ringing heard at terminal B.

13. At terminal B, go off-hook.

Connection established between terminals B and C.

14. At all terminals, go on-hook.

Call Forwarding—Busy tested.

15. At terminal A, go off-hook and dial Call Forwarding—Busy/Don't Answer cancellation code or press the feature button.

Dial tone silenced.

Confirmation tone heard.

16. At terminal A, go on-hook.

Call Forwarding—Busy/Don't Answer deactivated from a terminal.

17. At terminal C, dial terminal A.

At terminal A, ringing heard.

18. At terminal A, answer call after more than eight ring cycles.

Terminals A and C connected.

19. At terminals A and C, go on-hook.

Deactivation verified.

CALL HOLD

Test Description

Establish a terminal-to-terminal call with terminal assigned Call Hold. Flash the switchhook and dial Call Hold code. Verify terminal is placed on hold. Establish a terminal-to-terminal call with another terminal. Flash the switchhook and dial Call Hold code. Verify original connection is established and second terminal is placed on hold.

Test Procedure

1. Select a terminal assigned Call Hold and designate as terminal A.

2. Select another two terminals and designate as terminals B and C.

3. At terminal B, establish call to terminal A.

Connection established between terminals B and A.

4. At terminal A, flash switchhook.

Recall dial tone heard.

Terminal B on hold.

5. Dial Call Hold access code.

6. Dial terminal C.

At terminal C, ringing heard.

7. At terminal C, go off-hook.

Connection established between terminals A and C.

8. At terminal A, flash switchhook and dial Call Hold code.

Terminal C on hold.

Terminals A and B reconnected.

9. At terminals A and B, go on-hook.

At terminal A, ringing heard.

10. At terminal A, go off-hook.

Connection established between terminals A and C.

11. At terminals A and C, go on-hook.

CALL PARK—ANALOG TERMINALS

Test Description

Originate test calls to verify Call Park access code, zone number, and channel number.

Test Procedure

1. Select an analog terminal assigned Call Park (Loudspeaker Paging, Deluxe) and designate as terminal A.

2. Select another two terminals and designate as terminals B and C.

3. At terminal A, establish call to terminal B.

4. Flash switchhook.

5. Dial Call Park (paging) access code.

6. Dial Call Park zone number and channel number.

Confirmation tone heard.

7. At terminal A, go on-hook.

At terminal B, ringback tone heard (terminal B in Call Park).

8. At terminal C, go off-hook.

9. Dial answer-back code.

10. Dial channel number dialed in Step 6.

     At terminals B and C, confirmation tone heard.

     Terminals B and C connected.

11. At terminals B and C, go on-hook.

CALL PARK—HYBRID/DIGITAL TERMINALS

Test Description

Originate test calls to verify Call Park access code, zone number, and channel number.

Test Procedure

1. Select a digital terminal assigned Call Park (Loudspeaker Paging Deluxe) and designate as terminal A.

2. Select another two terminals and designate as terminals B and C.

3. At terminal A, establish call to terminal B.

4. Press TRANSFER.

5. Dial Call Park (paging) access code.

6. Dial Call Park zone number and channel number.

     Confirmation tone heard.

7. Press RECALL.

     Ringback heard.

8. Press TRANSFER.

     At terminal B, ringback heard.

9. At terminal C, go off-hook.

10. Dial answer-back code.

11. Dial channel number dialed in Step 6.

     At terminals B and C, confirmation tone heard.

     Terminals B and C connected.

12. At terminals A, B, and C, go on-hook.

CALL PICKUP

Test Description

Verify terminal can dial Call Pickup code and answer incoming call to any other terminal in the same group.

Test Procedure

1. Designate terminal test line as terminal A.

2. Select two terminal lines in the same Call Pickup group and designate as terminals B and C.

3. At terminal A, place terminal-to-terminal call to terminal B.

    At terminal B, ringing heard.

4. At terminal C, go off-hook and dial Call Pickup code or press the CPU button.

    Connection established with terminal A.

    At terminal B, ringing silenced.

5. At terminals A and C, go on-hook.

    First terminal in pickup group tested.

6. At terminal A, go off-hook and dial terminal C.

    Alerting heard at terminal C.

7. At terminal B, go off-hook and dial Call Pickup code or press the CPU button.

    Ringing silenced at terminal C.

    Connection established between terminals A and B.

8. At terminals A and B, go on-hook.

    Next terminal in pickup group tested.

CALL VECTORING

Test Description

Originate a terminal-to-terminal call for a line that call vectoring parameters have been established for to see if the parameters are performed correctly.

Test Procedure

1. Refer to the Customer System Document (CSD) to find a line with call vectoring parameters assigned. Call this terminal A.

2. Place a call from any terminal to terminal A. Use the following list of nine vector operations ensuring that all parameters assigned to that line are performed correctly.

- Queue to main split

  Queue the call to the specified main split at the specified priority.

- Check backup split

  Check for queuing the call to the specified backup split at the specified priority.

- Route to

  Route the call to:

  — A local extension number

  — A specific attendant (if development time allows)

  — The attendant queue

  — The CAS attendant queue

  — A Host Computer Access trunk group (if development time allows)

  — Another Vector Directory Number (VDN)

  — A remote location (using the AAR, ARS, DCS, or Main/Satellite feature).

- Announcement

  Connect the call to a specified recorded announcement.

- Delay

  Delay vector processing for a specified number of seconds (while the calling party hears silence, ringback, or music). The allowed values for delay intervals are even numbers between 2 and 998 (in seconds).

- Go to step

  Go to another step in the vector. After branching, vector processing continues at the designated step.

- Forced disconnect

  Disconnect the calling party from the switch. (An optional disconnect announcement is available.)

- Forced busy

  Return busy tone to the calling party.

- Stop

  Stop vector processing for this call.

CALL WAITING

Test Description

Originate a call to a busy terminal having Terminating Call Waiting. Verify special ringback tone and Call Waiting tone. When called terminal goes on-hook, verify ringing. Answer call and verify connection. If Call Waiting—Answer Hold is to be tested, establish call. Verify terminal can be placed on hold and incoming call answered by flashing and dialing proper code. Go on-hook and verify called terminal is rung from terminal on hold. Answer and verify connection.

Test Procedure

1. Select two nonrestricted lines and designate as terminals A and B.

2. Select a line assigned Terminating Call Waiting and designate as terminal C.

3. Establish a call between terminals B and C.

4. At terminal A, place a call to terminal C.

   Special ringback tone heard.

   At terminal C, Call Waiting tone heard.

5. At terminals B and C, go on-hook.

   At terminal C, ringing heard.

6. At terminal C, answer the call.

   Terminals A and C are connected.

7. At terminals A and C, go on-hook.

   Terminating Call Waiting test complete.

8. If Call Waiting—Answer Hold is to be tested, establish a call between terminals B and C.

9. At terminal A, go off-hook and dial terminal C.

   Special ringback tone heard.

   At terminal C, Call Waiting tone heard.

10. At terminal C, flash the switchhook or press the RECALL button.

    Recall dial tone heard.

11. At terminal C, dial Call Waiting—Answer Hold code.

    Recall dial tone silenced.

    Terminal B on hold.

Connection established between terminals A and C.

12. At terminals A and C, go on-hook.

At terminal C, ringing heard.

13. At terminal C, go off-hook.

Connection established between terminals B and C.

14. At terminals B and C, go on-hook.

Call Waiting—Answer Hold test complete.

CALLING NUMBER DISPLAY TO STATION

Test Description

Make a test call from an extension and verify that the calling extension or name is displayed on the Digital Display Module.

Test Procedure

1. Make a call from an extension to a 7405D voice terminal equipped with a Digital Display Module.

   The calling extension number or name is displayed on the Digital Display Module.

CENTRALIZED ATTENDANT SERVICE (CAS)

Test Description

Verify that the main system CAS can receive an incoming call from a satellite over a release link trunk and extend the call to a terminal. Verify that the CAS backup control terminal at the satellite can change the system from CAS attendant mode to CAS backup mode or CAS trunk answer any terminal mode. Transfer or put calls on hold when in the backup mode. Verify that the CAS system status indicator lamps function properly.

Test Procedure

1. If a satellite is being tested, proceed to Step 13.

2. At the main location, request an incoming central office (CO) call to a listed directory number (LDN) assigned to a satellite terminal.

   At the CAS console, alphanumeric display indicates a call for the satellite.

3. At the CAS console, press the loop button to answer the call.

   If a system status indicator (SSI) is provided, RLT lamp is lighted for the trunk seized.

4. At the CAS console, press the START button.

   Dial tone heard.

5. Dial the desired extension number at the satellite.

6. Press the RELEASE button.

   CO party extended to desired terminal.

   RLT lamp off.

7. At the console, press an idle loop button.

   ATND lamp lighted.

8. Press the START button.

   Dial tone heard.

9. Dial the release link trunk (RLT) lamp test code.

   Confirmation tone heard.

   At the SSI, all RLT status lamps lighted.

10. Press the CANC and START button.

11. Dial the RLT lamp test code.

    Confirmation tone heard.

    At the SSI, all lamps return to normal state.

12. Press the RELEASE button.

    ATND lamp off.

    RLT lamp test complete.

13. At the satellite location CAS backup control terminal, plug in an auxiliary head/hand set.

14. Move the turnkey to full, counterclockwise position.

15. At the CAS backup control terminal, go off-hook.

16. Dial the CAS mode access code.

    Confirmation tone heard.

    CONTROL lamp on system status indicator lamp panel lights steadily.

17. At the CAS backup control terminal, go on-hook.

18. Determine CAS queue overload level.

19. At an idle working terminal, go off-hook and dial the CAS attendant dial code.

20. If CAS queue overload level is not reached, return to Step 19 using another idle working terminal.

OVERLOAD lamp on CAS system status indicator lighted.

21. At all calling terminals, go on-hook.

22. Select an incoming CO trunk which has a CAS termination (associated with a release link trunk).

23. Request an incoming call on selected CO trunk.

    Ringing heard at CAS backup terminal.

24. At the CAS backup terminal, answer the incoming call by moving turnkey to clockwise position.

    Information tone heard, if provided (100 ms 480-Hz, 100 ms 440-Hz, 100 ms 480-Hz).

25. Momentarily press the turnkey.

    Trunk party on hold.

    Dial tone heard.

26. Dial the CAS attendant remote hold dial code.

    Remote hold tone heard (4 to 6 bursts of 440-Hz, 50 ms on, 50 ms off).

27. Move the turnkey to the counterclockwise position.

28. Wait for the length of timed reminder time.

    Ringing heard.

29. Move the turnkey clockwise.

    Remote hold tone heard.

    Backup terminal and trunk party reconnected.

30. Momentarily press the turnkey.

31. Dial a working terminal.

    Ringing heard at the terminal.

32. Move the turnkey counterclockwise.

33. Allow the terminal to ring for length of the timed reminder time.

    Ringback tone heard.

34. Move the turnkey clockwise.

    "Don't answer" recall information tone heard (short audible ring followed by normal ringback).

    Connection made between backup terminal, CO party, and ringing terminal.

35. Request the CO party to disconnect.

36. Move the turnkey counterclockwise.

37. At the backup terminal, go off-hook.

38. Dial Call Answer Any Voice Terminal (CAAVT) mode access code.

    Confirmation tone heard.

    CONTROL lamp on SSI lamp panel flashed at 30 ipm.

39. At the backup terminal, go on-hook.

40. Request an incoming call on the selected CO trunk.

    CAAVT sounding device sounds.

41. At the backup terminal, go off-hook.

42. Dial CAAVT answer code.

    Connection established between backup terminal and CO party.

43. Request CO party to disconnect.

44. Flash the switchhook.

45. Dial the maintenance busy code.

46. Dial the ATND ID number and trunk number of the first release link trunk.

    Confirmation tone heard.

    RLT1 lamp winks on CAS SSI.

47. At the backup terminal, go on-hook.

48. At the CAS backup terminal, go off-hook.

49. Dial maintenance busy code.

50. Dial ATND ID number and trunk number dialed in Step 46.

    Confirmation tone heard.

    At the SSI, RLT1 lamp off.

51. At the CAS backup terminal, go on-hook.

52. At the CAS backup terminal, go off-hook.

53. Dial CAS lamp test dial code.

    Confirmation tone heard.

    All lamps light on the CAS SSI except MAJOR and MINOR.

54. Dial the CAS lamp test code.

    Confirmation tone heard.

    Lamps on CAS SSI return to normal state.

55. At the CAS backup terminal, go on-hook.

56. At the CAS backup terminal, go off-hook.

57. Dial the CAS control activate code.

   Confirmation tone heard.

   CONTROL lamp on CAS SSI lights.

58. At the CAS backup terminal, go on-hook.

59. At the CAS backup terminal, go off-hook.

60. Dial the CAS attendant code.

   One RLT busy lamp on SSI lights.

   Connection with CAS attendant established.

61. At the CAS backup terminal, go on-hook.

CODE CALLING ACCESS—UNIVERSAL

Test Description

Make a test call using Code Calling Access code and paging zone code to an extension number with a Called Party Code assigned and stay off-hook. From a second terminal, dial Code Calling answer-back access code and the extension number with the Called Party Code assigned. Verify a connection is established. Make a test call using Code Calling Access code and paging zone code to an extension with a Called Party Code assigned and go on-hook. From a second terminal, dial the predesignated answer-back extension number. Verify a connection is established.

Test Procedure

1. Select an extension number with a Called Party Code assigned.

2. Select two terminals and designate as terminals A and B.

3. At terminal A, go off-hook.

   Dial tone heard.

4. Dial Code Calling Access code.

   Second dial tone heard.

5. Dial extension number with Called Party Code assigned followed by the paging zone code.

   Ringback tone or music heard, whichever is administered.

   At the user-provided equipment, chimes heard.

6. At terminal B, go off-hook.

   Dial tone heard.

7. Dial the Code Calling answer-back access code.

   Second dial tone heard.

8. Dial extension number with Called Party Code assigned.

   Connection established between terminals A and B.

9. At terminals A and B, go on hook.

10. At terminal A, go off hook.

    Dial tone heard.

11. Dial the Code Calling Access code.

    Second dial tone heard.

12. Dial extension number with Called Party Code assigned followed by the paging zone code.

    Ringback tone or music heard, whichever is administered.

    At user-provided equipment, chimes heard.

13. At terminal A, go on-hook and wait for call back.

14. At terminal B, go off hook.

    Dial tone heard.

15. Dial the predesignated answer-back extension number.

    Ringback tone heard.

    At terminal A, ringing heard.

16. At terminal A, answer call.

    Connection established between terminals A and B.

17. At terminals A and B, go on hook.

CODE CALLING ACCESS—TRADITIONAL

Test Description

Make a test call using Code Calling Access code and selected called party identification code. At the test line, use answer-back code and called party identification to answer chimes. Verify that the connection is established. At the terminal, make a Code Calling test call and go on-hook before the chime cycle is completed. Verify that the chime cycle is not interrupted and intercept tone is returned when the answer-back code is dialed. Busy-out the chime circuit from the user equipment and make a test call to verify that the Code Calling circuit is busy.

Test Procedure

1. Select a terminal having Chime Paging access and designate as terminal A.

2. Designate terminal test line as terminal B.

3. At terminal A, go off-hook.

    Dial tone heard.

4. Dial Chime Paging access code.

    Second dial tone heard.

5. Dial called party identification code.

    NOTE: Party identification code may consist of any combination of digits 1 through 5.

    Confirmation tone heard.

    Chime-back tone heard.

    Ringback tone or music heard.

    At the user-provided equipment, chimes heard.

6. At terminal B, go off-hook.

    Dial tone heard.

7. Dial Chime Paging answer-back code.

    Second dial tone heard.

8. Dial called party identification code.

    Confirmation tone heard.

    Connection established between terminals A and B.

9. At terminals A and B, go on-hook.

10. At terminal A, go off-hook.

Dial tone heard.

11. Dial Chime Paging access code.

Second dial tone heard.

12. Dial called party identification code and go on-hook immediately following confirmation tone.

At the user-provided equipment, chimes heard.

13. At terminal B, go off-hook.

Dial tone heard.

14. Dial Chime Paging answer-back code.

Second dial tone heard.

15. Dial called party identification code.

Intercept tone heard.

16. At terminal B, go on-hook.

17. At the user-provided equipment, request the user to set busy/idle switch to BUSY.

18. At terminal A, go off-hook.

Dial tone heard.

19. Dial Chime Paging access code.

Busy tone heard.

20. At the user-provided equipment, request the user to set busy/idle switch to IDLE.

CODE RESTRICTION

Test Description

For each Code Restriction level to be tested, verify that intercept tone is received when the restricted office or area code is dialed from a terminal with the same or higher level of restriction. Verify that a 1000-Hz test signal is received for calls to each allowed office code in each allowed area code that can be accessed from the restriction level being tested.

Test Procedure

1. Select the Code Restriction level to be tested and determine the numbering plan area (NPA) code(s), area code(s) and associated office code(s) allowed for the trunk group(s) in the Code Restriction level to be tested.

2. Select a terminal with a class of service containing the Code Restriction level to be tested.

NOTE: There are three possible Code Restriction levels available: 1, 2, or 3. Classes of service with the same Code Restriction level are allowed to dial the same area or office codes. Code Restriction level 1 allows access to allowed area and office codes of level 1 only. Level 2 includes access to allowed area and office codes of level 1 and 2. Level 3 includes access to allowed area and office codes of levels 1, 2, and 3.

3. At the test terminal, go off-hook.

   Dial tone heard.

4. Make a test call to the nonallowed code using the trunk group being tested.

   Intercept tone heard.

5. At the test terminal, go on-hook.

   Restricted test call completed.

6. At the test terminal, go off-hook.

   Dial tone heard.

7. Make a test call to the 1000-Hz test signal for an allowed office code in an area code that can be accessed using the trunk group being tested.

   1000-Hz test signal heard.

8. At the test terminal, go on-hook.

9. Repeat from Step 6 for each office code and area code allowed by the trunk group being tested.

   Allowed test calls completed for the trunk group being tested.

CONFERENCE

Attendant Five Party

Test Description

Set up a 5-party conference call from the console. Place the conference call on hold. Pick up the held conference call. Release from the conference call. Recall the console and reenter the conference call. Add a CO trunk party to the conference call.

Test Procedure

1. Select five nonrestricted terminals.

2. At the console, place a call to one of the five terminals by using the DXS feature, or press the START key and dial the extension number.

3. At the called terminal, answer the call and verify the talk path.

4. At the console, press the CONF button.

    CONF-CONT lamp lighted.

    CONF-BUSY lamp lighted.

5. Repeat steps 2 through 4 for each of the four remaining terminals. As you add a terminal to the conference, verify it has talk paths with the other terminals on the conference.

    CONF-WARN lamp lighted after fifth terminal added to conference.

6. At the console, press the HOLD button.

    CONF-CONT lamp off.

    WARN lamp off.

7. Verify the console is removed from the conference and the five terminals remain on the conference.

8. Press the loop button associated with the held conference call.

    CONF-CONT lamp lighted.

    WARN lamp lighted.

9. Verify the console reenters the conference.

10. At the console, press the RELEASE button.

    CONF-CONT lamp off.

    WARN lamp off.

11. Verify console released from conference.

12. At a terminal on the conference, flash the switchhook or press the RECALL button if provided.

    At the console, ringing heard.

13. At the console, press the ANSWER button.

    CONF-CONT lamp lighted.

    WARN lamp lighted.

14. Verify the console reenters the conference.

15. At one conference terminal, go on hook.

    At the console, CONF-WARN lamp off.

16. At the console, press the START button and place a call to a CO trunk party.

    Connection established.

17. Press the CONF button.

    CONF-WARN lamp lighted.

18. Verify CO trunk party added to the conference.

19. At each of the terminals on the conference, go on hook. As you go on hook at a terminal, verify the terminals remaining on the conference do not drop off.

    At the console, CONF-CONT lamp off.

    At the console, BUSY lamp off.

    At the console, WARN lamp off.

20. At the console, press the RELEASE button.

Attendant Six Party

Test Description

For each Attendant Conference circuit to be tested, set up a 6-party conference from the console. Hold a conference call on the console. Pick up a held conference call. Disconnect one conference party from the conference. Add a central office (CO) party to the conference. Release the console from the conference. Recall the console to the conference from a conference terminal and attempt to add a trunk to the conference that is restricted from the CO trunk group already in the conference.

Test Procedure

NOTE: In order not to violate FCC requirements, the sum of the number of CO and Direct Inward Dialing (DID) trunks connected in an Attendant Conference should not be more than two. There are no restrictions on the number of tie trunks that may be added in an Attendant Conference.

1. At the Manager II, type **p631** [ENTER]

2. Type **nt** [ENTER]

    The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│╭───────────────────────────────────────────────────────────────────╮│
││         ENHANCED MODE - PROCEDURE: 631, TEST: 2                     ││
││                      BUSY OUT A TRUNK                               ││
││                                                                     ││
││    2.              Trunk Group Number: [---]                        ││
││    6. Number of Trunks in Trunk Group: [---]                        ││
││    7.      Number of Busied-Out Trunks: [---]                       ││
││                                                                     ││
││  EQUIPMENT LOCATION                                                 ││
││      8.   Module: [--]                                              ││
││      9.  Cabinet: [-]                                               ││
││     10.  Carrier: [-]                                               ││
││     11.     Slot: [--]                                              ││
││     12.  Circuit: [--]                                              ││
││                                                                     ││
││   13. Maintenance Status: [-]                                       ││
││   14.      Trunk Number: [---]                                      ││
││                                                                     ││
││                                                                     ││
││ Connected to CC0 ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] ││
│╰───────────────────────────────────────────────────────────────────╯│
│                                                                       │
│ enter command: ▄                                                      │
│ ┌──────┐┌──────┐[F3 DATA]┌──────┐ [F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└─────────────────────────────────────────────────────────────────────┘
```

3. Repeat the following sequence to busy-out all Attendant Conference circuits except the circuit to be tested:

   a. Type **cf8** [ENTER] and enter the Attendant Conference circuit location in Fields 8 through 12.

   b. Type **x** [ENTER]

   c. Type **bo** [ENTER]

4. Select six working nonrestricted terminals.

5. At the console, place a call to one of the six terminals.

6. At the called terminal, answer the call.

   Console call to the terminal established.

7. At the console, press the CONF button.

   CONF-CONT lamp lighted.

   CONF-BUSY lamp lighted.

8. Repeat the same procedure for each of the five remaining terminals.

   CONF-WARN lamp lighted.

   Attendant-controlled conference is established.

9. At the console, press the HOLD button.

   CONF-CONT lamp off.

   WARN lamp off.

10. Press the loop button associated with the held conference call.

    CONF-CONT lamp lighted.

    WARN lamp lighted.

11. At one conference terminal, go on-hook.

    At the console, CONF-WARN lamp off.

12. At the console, press the START button and place a call to a CO trunk party.

    Connection established.

13. Press the CONF button.

    CONF-WARN lamp lighted.

    CO trunk party connected to the conference.

14. At another conference terminal, go on-hook.

15. At a terminal on the conference, flash the switchhook (RECALL button if provided).

    Ringing heard at the console.

16. At the console, press the ANSWER button.

    CONF-CONT lamp off.

    Attendant connected to the conference.

17. At the console, press the START button (or DTG select key) and attempt to place a call over a trunk which is restricted from the CO trunk currently on the connection.

    Intercept tone returned immediately along with ICI (if administered).

18. Press the RELEASE button.

    Console released from connection.

    CONF-CONT lamp off.

    WARN lamp off.

19. At the terminal on conference, flash the switchhook (RECALL button if provided).

    At the console, ringing heard.

20. At the console, press the ANSWER button.

    CONF-CONT lamp lighted.

    WARN lamp lighted.

Attendant connected to conference.

21. At all conference terminals, go on-hook.

   At the console, CONF-CONT lamp off.

   At the console, BUSY lamp off.

   At the console, WARN lamp off.

22. At the console, press the RELEASE button.

23. At the Manager II, type **p631** ENTER

24. Type nt ENTER

   The Test 2 screen appears.

25. Repeat the following sequence to release from busy all the conference circuits busied out in Step 3:

   a. Type **cf8** ENTER and enter the Attendant Conference circuit location in Fields 8 through 12.

   b. Type **x** ENTER

   c. Type **rb** ENTER

Conference Button

Test Description

Verify that an H/D voice terminal with the CONFERENCE button can add a third party to a 2-party connection. Verify that trunk transfer works as administered.

Test Procedure

1. Select an H/D voice terminal with a CONFERENCE button and designate it as terminal A.

2. Select two other voice terminals and designate them as terminals B and C.

3. Establish a terminal-to-terminal call between terminals A and B.

4. At terminal A, press the CONFERENCE button.

   I-use lamp goes out, and the status lamp flutters at terminal A.

   Terminal B is placed on hold.

   An idle appearance is automatically selected and dial tone is heard.

   Status and I-use lamps light steadily at terminal A's second appearance.

5. At terminal A, dial terminal C.

Ringback tone is heard.

Ringing heard at terminal C.

6. At terminal C, answer the call.

   Connection established between terminals A and C.

7. At terminal A, press the CONFERENCE button.

   Status and I-use lamps at the second appearance of terminal A off.

   I-use and status lamps at first call appearance light steadily.

   Display module displays **CONFERENCE**.

   Connection established between terminals A, B, and C.

8. At terminal A, press the DROP button.

   Terminal C is removed from the call.

9. At terminals A, B, and C, go on-hook.

   Line status lamps off.

10. Using the CSD or Procedure 275, Word 4, Field 3, determine if trunk transfer is activated for Terminal A.

11. At terminal A, go off-hook and place a call over a trunk (either a tie or CO).

12. At terminal A, press the CONFERENCE button and place another call over a trunk which is restricted from the trunk selected in Step 11.

13. At terminal A, attempt to conference the two trunks together using the CONFERENCE button.

    Green status lamp wink-flutters.

    Three parties are connected.

14. Verify that each trunk can be placed on hold and that terminal A can talk with either trunk **separately**.

15. At terminal A, press DROP.

    If terminal A doesn't have trunk transfer, the two trunks are disconnected.

    If terminal A does have trunk transfer, the two trunks remain connected.

16. At all stations, go on-hook.

Three-Party and Transfer (for Telephones Without CONFERENCE or TRANSFER Button)

Establish a terminal-to-terminal call. Flash the switchhook and establish a call to a third party for private consultation. Flash the switchhook a second time and verify that a 3-party connection is established. Flash the switchhook a third time and verify that the third party is disconnected. Reestablish the 3-party conference and go on-hook at the controlling terminal to verify the transfer of the call to the third party. Verify that trunk transfer works as administered.

Test Procedure

1. Select a terminal assigned 3-party conference transfer and designate it as terminal A.

2. Select two other terminals and designate them as terminals B and C.

3. At terminal A, establish a terminal-to-terminal call with terminal B.

4. At terminal A, flash the switchhook or press the RECALL button.

    Recall dial tone heard.

    Terminal B on hold.

5. Dial terminal C.

    Ringing heard.

6. At terminal C, answer the call.

    Connection established between terminals A and C.

7. At terminal A, flash the switchhook or press the RECALL button.

8. Verify that the 3-party conference is established.

9. At terminal A, flash the switchhook or press the RECALL button.

10. Verify that terminal C was dropped from the conference.

11. At terminals A, B, and C, go on-hook.

12. At terminal A, establish a terminal-to-terminal call with terminal B.

13. At terminal A, flash the switchhook or press the RECALL button.

    Recall dial tone heard.

    Terminal B on hold.

14. Dial terminal C.

    Ringing heard.

15. At terminal C, answer the call.

    Connection established between terminals A and C.

16. At terminal A, flash the switchhook or press the RECALL button.

17. Verify that the 3-party conference is established.

18. At terminal A, go on-hook.

19. Verify that terminals B and C remain connected.

20. At terminals B and C, go on-hook.

21. Using the CSD or Procedure 275, Word 4, Field 3, determine if trunk transfer is activated for terminal A.

22. At terminal A, place a call using a trunk (tie or CO).

23. At terminal A, flash the switchhook or press the RECALL button.

24. At terminal A, place a call over a trunk which is restricted from the trunk on hold (selected in Step 18 above).

25. At terminal A, flash the switchhook attempting to complete the conference.

    One-half second burst of tone heard.

    Conference is completed.

26. At terminal A, go on-hook.

    If terminal A doesn't have trunk transfer, the two trunks are disconnected.

    If terminal A does have trunk transfer, the two trunks remain connected.

27. At all stations, go on-hook.

DATA CALL SETUP

Test Description

Verify that a data call can be set up using an H/D Series voice terminal assigned the Data Call Setup feature. Use the One Button Data Call Transfer method to make the test.

Test Procedure

1. Select a voice terminal assigned the Data Call Setup feature and designate as terminal A.

2. At terminal A, go off-hook.

    Dial tone is returned.

3. Dial the digits for the desired terminal.

    The called terminal may be a data terminal or other Data Terminal Equipment (DTE), or another voice terminal with data call transfer capability.

    Call progress tone is returned.

4. Press the DATA button for the desired/associated DTE.

    Call is transferred to the DTE.

    Associated green status lamp flashes at the controlling/activated voice terminal while ringing tone is being applied and lights steadily when the connection is made. Other terminals with a DATA button for the same DTE show a steady status lamp initially.

    If the associated terminals are data terminals optioned for terminal dialing, the system message—PLEASE ANS—is displayed at the originating end and—INCOMING CALL—is displayed at the called end.

5. At terminal A, go on-hook.

DATA COMMUNICATIONS ACCESS (DCA)

Test Description

Make test call over Data Communications Access (DCA) ports to access user's computer equipment. Dial data privacy access code (if required).

Test Procedure

1. At the test terminal, go off-hook.

    Dial tone heard.

2. Dial the Data Protection access code (if required).

    Dial tone heard.

3. Dial the DCA port group access code.

    If a port is available, ringback tone is heard followed by a "computer ready" response.

    If all ports are busy and ringback queuing occurs, confirmation tone is heard.

    If off-hook queuing occurs, recorded announcement or music is heard.

    If all ports are busy and trunk queuing is not available, reorder tone is heard.

    If an invalid access code is dialed, intercept tone is heard.

    If an authorization code is required, recall tone is heard.

4. At the test terminal, go on-hook.

DATA PROTECTION

Test Description

Dial the Data Communication Protection access code, listen for the second dial tone, and then complete a call to a trunk party. Attempt a connection to a busy line using either Call Waiting or Busy Verification features. Verify that the party attempting a connection to a busy line is routed to either busy or reorder tone.

Test Procedure

1. Designate the terminal test line as terminal A.

2. At terminal A, go off-hook.

   Dial tone heard.

3. Dial the Data Communication Protection access code.

   Second dial tone heard.

4. Dial the trunk access code followed by the number of the test center.

   Dial tone silenced.

   Ringback heard.

5. At the test center, answer.

   Ringing silenced.

   Connection established.

6. If Call Waiting Originating feature is used to test Data Communication Protection, proceed to Step 7; if Busy Verification of terminal lines is used, proceed to Step 10; if Attendant Call Waiting is used, proceed to Step 15.

7. Select a line assigned Call Waiting Originating and designate as terminal B.

8. At terminal B, dial Call Waiting Originating activation code followed by number of terminal A.

   Busy tone heard.

9. At terminal B, go on-hook.

   Test completed.

10. At the console, press an idle loop button.

    ATND lamp lighted.

11. Press the VERFY button.

    VERFY lamp lighted.

12. Press the START button.

    Dial tone heard.

13. Dial terminal A.

    Reorder tone heard.

14. Press the RELEASE button.

    ATND lamp off.

    VERFY lamp off.

    Test completed.

15. At the console, arrange for an incoming central office (CO) call to the console.

    ATND lamp flashes.

16. Press the ANSWER button.

    ATND lamp lighted.

    Connection established.

17. Press the START button.

    Dial tone heard.

18. Dial terminal A.

    Busy tone heard.

19. Press the CANC button.

    Busy tone silenced.

20. Press the RELEASE button.

    Connection between CO party and console released.

DEDICATED SWITCH CONNECTIONS (DSC)

Test Description

Set up a connection between two voice terminals assigned to a DSC. Verify that the attendant cannot verify the connection.

Test Procedure

1. Select two voice terminals assigned to a DSC link and designate as terminals A and B.

2. At terminal A, go off-hook.

3. At terminal B, go off-hook.

Connection established between terminals A and B.

4. At the console, press an idle loop button.

ATND lamp lights.

5. Press the VERFY button.

VERFY lamp lights.

6. Press START button and dial terminal A.

Intercept tone is heard.

7. Press RELEASE

VERFY lamp off.

ATND lamp off.

8. At terminals A and B, go on-hook.

DIAL ACCESS TO ATTENDANT

Test Description

Verify that a voice terminal user within the switching system can reach an attendant by dialing the assigned attendant access code.

Test Procedure

1. At the test terminal, go off-hook and dial the attendant access code.

At the console, ATND lamp flashes.

At the console, calling terminal number displayed.

2. At the console, press the ANSWER button.

ATND lamp lighted steadily.

Connection established.

3. Press the RELEASE button.

Connection released.

4. At the test terminal, go on-hook.

DIRECT INWARD DIALING (DID)

Test Description

Verify that an incoming call can be completed over a DID trunk to a test line.

Test Procedure

1. Arrange an incoming call to the test line on the DID trunk to be tested.

   Ringing heard.

2. At the test line, answer the call.

   Ringing silenced.

   Connection established.

3. At the test line, instruct the distant party to disconnect and go on-hook.

DIRECT OUTWARD DIALING (DOD)

Test Description

Originate a call from the test line over a central office (CO) trunk verifying the connection.

Test Procedure

1. At the terminal test line, go off-hook.

   Dial tone heard.

2. Dial the CO trunk access code.

   Dial tone silenced.

   CO dial tone heard.

3. Dial the number of the CO party.

   Dial tone silenced.

   CO ringing heard.

4. At the terminal test line, go on-hook.

DISPLAY—VOICE TERMINAL

Test Description

Verify that on an outgoing call each digit dialed is displayed on the display module. Also, verify that if the called extension is assigned a name when dialing is completed and the called extension is ringing, the display changes to show the assigned name; for example, **DOE, J. L.** Verify that the correct response is received for each feature on the display module.

Test Procedure

1. At a voice terminal equipped with a 40-character digital display module, go off-hook.

    Dial tone is heard.

    The first two character positions of the digital display indicate the active line appearance (e.g., **a=** shows that the first line appearance is active).

2. Dial a test terminal extension number.

    Each digit appears on the digital display as it is dialed; for example, **a=1297**.

    When dialing is complete and the called extension is ringing, the display changes to show the called extension identification if the called extension is assigned a name.

3. Go off-hook on any line appearance and dial the terminal-test dial access code.

    MESSAGE WAITING lamp turns on.

4. Starting with the leftmost button on the display module, press each button (except the ON/OFF button) and observe the display after each button is pressed:

    ABCDEFGHIJKLMNOPQRSTUVWXYZ #$%0123456789

    #$%0123456789

    (blank)

    abcdefghijklmnopqrstuvwxyz!?.,;:<>^=+-*/

    abcdefghijklmnopqrstuvwxyz!?.,;::00:00:00 (last 8 characters are replaced by elapsed timer which counts seconds)

    abcdefghijklmnopqrstuvwxyz!?.,;:<>^_____/

    @''()[]{}¦&_¨ Display Test Complete***

5. Go on-hook.

DISTRIBUTED COMMUNICATION SYSTEM (DCS)

Use Procedure 650 to test the DCIU between your switch and the distant switch in the DCS network. Refer to the section *System Demand Tests*, for the steps in performing Procedure 650.

HOLD

Test Description

Place a terminal-to-terminal call. Activate Hold by pressing the HOLD button or dialing the Hold access code and going on-hook. All appearances of the line receive a wink signal on the status lamp. Release Hold by pressing the appearance button associated with the winking status lamp or flashing the switchhook and going off-hook. Verify that use of the HOLD button is allowed when call is bridged onto but only removes the party pressing the HOLD button.

Test Procedure for Terminals Equipped With a HOLD Button.

1. Place a terminal-to-terminal call to the terminal under test.

   Status lamp associated with line called flashes.

   I-use lamps lighted.

2. At the terminal under test, go off-hook.

   Status lamp lighted steadily at all appearances of the line.

3. Press the HOLD button.

4. At the terminal under test, go on-hook.

   Status lamp flutters at the controlling terminal and winks at all other appearances of the line on hold.

   Calling terminal on hold.

5. At the terminal under test, press the appearance button associated with the winking status lamp.

6. At the terminal under test, go off-hook.

   Status lamp lighted steadily at all appearances of the line.

7. At the terminal under test and the calling terminal, go on-hook.

   Status lamp off at all appearances of the line.

8. Place a terminal-to-terminal call, with one of the terminal's call appearances appearing on another terminal (designated as terminal A).

9. At terminal A, bridge onto the call by pressing the call appearance.

10. At terminal A, attempt to activate the HOLD button.

Terminal A is removed from the connection.

Terminal A I-use lamp off.

Test Procedure for Terminals Without HOLD Button.

1. Place a terminal call to the terminal under test.

   At terminal under test, ringing is heard.

2. At the terminal under test, go off-hook.

   Terminal-to-terminal connection established.

3. At the terminal under test, press RECALL or R button or flash the switchhook.

   Recall dial tone heard.

4. Dial Call Hold access code.

   Dial tone heard

5. Go on-hook.

   At terminal under test, ringing heard.

6. Go off-hook.

   Terminal-to-terminal connection reestablished.

7. At the terminal under test, press RECALL or R button or flash the switchhook.

   Recall dial tone heard.

8. Dial Call Hold Access Code.

   Dial tone heard.

9. Dial another terminal.

   At dialed terminal, ringing heard.

10. At dialed terminal, go off-hook.

    Terminal to terminal connection established.

11. At dialed terminal, go on-hook.

12. At the terminal under test, press RECALL or R button or flash the switchhook.

    Dial tone heard.

13. Dial Call Hold Access Code.

    Terminal under test and terminal on hold reconnected.

14. At both terminals, go on-hook.

HOTLINE

Test Description

Verify that a connection can be established from an analog voice terminal, analog data terminal, or a digital data terminal assigned Hotline service.

Test Procedure for Analog Voice Terminal

1. At terminal under test, go off-hook.

    Ringback tone heard.

    At the terminal on the receiving end of the hotline, ringing heard.

2. Go off-hook at the ringing terminal.

    Connection between the terminals established.

3. At both terminals, go on-hook.

Test Procedure for Analog Data Terminal

1. At modem voice terminal under test, go off-hook.

    Call progress tones heard.

    Ready tone is heard when the destination modem answers.

2. Press the data button on the modem.

    Connection established.

    Call control is passed to the modem.

    Ready tone is silenced.

3. At both modems, disconnect.

Test Procedure for Digital Data Terminal

1. Press the originate/disconnect button on the data module, or press the BREAK key on the data terminal keyboard.

    If keyboard dialing is assigned, the following call-progress messages are displayed on the data terminal screen:

    DIAL: HOT LINE

    RINGING

    ANSWERED

2. When the call setup is complete, the appropriate login sequence or other initiation process is used.

NOTE: Key designations may vary depending on terminal model being used.

3.   At digital data terminal, disconnect.

HUNTING

Test Description

Originate a test call to a busy terminal in the hunt group to verify that Hunting to the next terminal in the group takes place. Make the next terminal in the hunt group busy and originate a test call to the busy terminal for verification of Hunting. Repeat for all terminals in the hunt group. Where Terminal Hunting is used, verify busy tone is received when the last terminal in the group is called and is busy. Busy all the terminals in the Circular Hunt groups to verify busy tone.

Test Procedure

1.   Designate test line as terminal A.

2.   Select the hunt group to be tested and determine the type of hunt group.

3.   Designate the first terminal in the hunt group selected for testing as terminal B.

4.   Designate the second terminal in the hunt group selected for testing as terminal C.

5.   At terminal B, go off-hook.

   Dial tone heard.

6.   At terminal A, go off-hook.

   Dial tone heard.

7.   At terminal A, dial terminal B.

   Ringback tone heard.

   At terminal C, ringing heard.

8.   At terminals A and B, go on-hook.

9.   If terminal C is not the last line in the hunt group, designate terminal C as terminal B and designate the next line in the hunt group as terminal C.

10.   Repeat the procedure from Step 5.

11.   Repeat step 9 until all terminals in the hunt group are tested.

12.   If Terminal Hunting is being tested, go off-hook at the last terminal in the hunt group.

   Dial tone heard.

13.   At terminal A, go off-hook.

Dial tone heard.

14. At terminal A, dial the last terminal in the hunt group.

Busy tone heard.

15. At all telephone sets, go on-hook.

16. If Terminal to Circular Hunting is being tested, determine which portion of the hunt group is circular.

17. If either Circular or Terminal to Circular Hunting is being tested, repeat the following procedure until all terminals in the circular hunt group are busied out:

    a. At the Manager II, type **p635** [ENTER]

    b. Type **t3** [ENTER]

        The Test 3 screen appears.

        Field 10 is highlighted.

```
           ENHANCED MODE - PROCEDURE: 635, TEST: 3
           FIND THE CAUSE OF MAINTENANCE BUSY OUT BY EXTENSION

  2. Port Type: [--]

EQUIPMENT LOCATION
  3.   Module: [--]
  4.  Cabinet: [-]
  5.  Carrier: [-]
  6.     Slot: [--]
  7.  Circuit: [--]

  8.        Location Status: [-]
  9.         Circuit Status: [-]
 10.              Extension: [-----]
 11. Maintenance Busy Status: [---]
 12.     Trunk Group Number: [---]
 13.     Procedure Reference: [--]



Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ]

enter command: ▬
[       ][       ][F3 DATA ][       ][F5 HELP ][F6 FIELD ][F7 INPUT ][F8 CMDS ]
```

    c. Enter the extension number to be busied out in Field 10.

    d. Type bo [ENTER]

18. At terminal A, go off-hook.

Dial tone heard.

19. At terminal A, dial any terminal in the circular hunt group being tested.

Busy tone heard.

20. At terminal A, go on-hook.

21. At the Manager II, release each of the terminals busied out in the circular hunt group (Step 21 above) by the following sequence:

    a. Enter extension number in Field 10.

    b. Type rb (ENTER)

INFORMATION SYSTEM NETWORK (ISN)

Test Description

Verify that a System 85 voice terminal and/or EIA terminal can interface with the ISN.

Test Procedure for Voice Terminal Dialing

1. At the test terminal, go off-hook.

   Dial tone heard.

2. Dial the desired ISN interface trunk group access group code or extension number.

   Dial tone heard.

3. Press the appropriate DATA button

   Control of the call is transferred to the assigned EIA data terminal.

4. At the EIA data terminal, dial the ISN destination.

   EIA data terminal and ISN connected.

Test Procedure for EIA Keyboard Terminal

1. Press the BREAK key on the keyboard or press the ORIGINATE/DISCONNECT button on the associated data module.

   Dial Prompt received.

2. Dial the appropriate ISN interface trunk group access code or extension number.

   Dial Prompt received.

3. Dial the ISN destination number.

   EIA data terminal and ISN connected.

INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

Test Description

Procedure 648, Test 3 has been developed for ISDN facility testing to provide end to end verification of the transmission paths.

Test Procedure

1. At the Manager II, type **p648** [ENTER]

2. Type **t3** [ENTER]

    The Test 3 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 648, TEST: 3                  │
│                 TEST THE ISDN B CHANNEL                           │
│                                                                   │
│   2. Trunk Group Number: [---]                                    │
│   3.        Trunk Number: [---]                                   │
│                                                                   │
│  EQUIPMENT LOCATION                                               │
│     4.   Module: [--]                                             │
│     5.  Cabinet: [-]                                              │
│     6.  Carrier: [-]                                              │
│     7.     Slot: [--]                                             │
│     8.  Circuit: [--]                                             │
│                                                                   │
│     9.     Circuit Status: [-]                                    │
│    10.        Test State: [-]                                     │
│    11. DMIDS Failure Index ¦ DS1 Channel Number: [--]             │
│    12. Number of Failures: [--]                                   │
│    13.        Data Index: [-]                                     │
│    14.             Data: [----]                                   │
│                                                                   │
│ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                   │
│ enter command: ▬                                                  │
│ │  ││  ││F3 DATA││  ││F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│        │
└─────────────────────────────────────────────────────────────────┘
```

3. Enter the trunk group in Field 2.

4. Enter the trunk number in Field 3.

5. Type **x** [ENTER]

    Wait appears on the screen.

    Field 10 (test state) is incremented to indicate the progress of Test 3.

6. When Test 3 completes testing the trunk, **WAIT** goes out and the following is displayed:

Fields 2 through 8—Trunk selected for testing.

Field 10—Test state of 9 indicating test terminated.

Field 11—1 (indicating 1 trunk was tested).

Field 12—0 (indicating the trunk passed Test 3) or 1 (indicating the trunk failed Test 3).

7. Results for the trunk tested are displayed in Field 14 by typing **nd** (ENTER)

   Five sets of data are displayed by typing **nd** (ENTER) repeatedly.

   Field 13 (data type) indicates which set is being displayed.

8. If a 1 is displayed in Field 12 (indicating the trunk failed), refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.15 to resolve the failure.

INTERCEPT TREATMENT

Test Description

Verify that certain calls that cannot be automatically completed are routed to either intercept tone, to the attendant for call handling, or to a recorded announcement.

Test Procedure

1. Arrange for a call to a restricted or unassigned terminal.

   Calling party hears intercept tone, recorded announcement, or is routed to an attendant console.

INTERCOM

Test Description

Verify that an Automatic, Manual, or Dial Intercom call can be completed by pressing the appropriate ICOM button and/or the manual signaling button and dialing the Intercom code, if required.

Test Procedure

1. If Automatic Intercom is to be tested, proceed to Step 2; if Manual Intercom is to be tested, proceed to Step 6; if Dial Intercom is to be tested; proceed to Step 11.

2. At a terminal assigned Automatic Intercom calling, press the AUTO ICOM button.

   I-use lamp lighted steadily.

3. Go off-hook.

Status lamp lighted steadily.

Status lamp on other Intercom appearances in the Intercom group lighted steadily.

Ringback tone is heard.

At the called terminal, the AUTO ICOM status lamp flashes and a distinctive ringing tone is heard.

4. At the called terminal, press the AUTO ICOM button and go off-hook.

Status lamp lights.

Connection is established between the Intercom terminals.

5. Go on-hook at both terminals.

Automatic Intercom call is tested.

6. At a terminal assigned Manual Intercom calling, press the MAN ICOM button.

I-use lamp lights steadily.

7. Go off-hook.

Status lamp lights steadily.

Status lamp on other appearances in the Intercom group light steadily.

8. Press and release the manual signaling button associated with the called terminal.

Distinctive ringing is heard at the called terminal.

9. At the called terminal, press the MAN ICOM button and go off-hook.

Status lamp lights.

Connection is established between Intercom terminals.

10. At the calling and called terminals, go on-hook.

Manual Intercom calling is tested.

11. At a terminal assigned Dial Intercom calling, press the DIAL ICOM button.

DIAL ICOM I-use lamp lights steadily.

12. Go off-hook.

Dial tone is heard.

DIAL ICOM status lamp of all terminals in the Intercom group lights steadily.

13. Dial the Intercom code for the desired terminal.

At the called terminal, the DIAL ICOM status lamp flashes.

At the called terminal, distinctive ringing is heard.

14. At the called terminal, press the DIAL ICOM button and go off-hook.

ICOM status lamp lighted.

Audible signal silenced.

15. At both terminals, go on-hook.

Dial Intercom calling test is completed.

LAST NUMBER DIALED

Test Description

Verify that the terminal user can recall the last number that was dialed by pressing the LAST NUM DIALED button.

Test Procedure

1. Select a terminal to be tested and designate as terminal A.

2. Place a call using a trunk.

3. At both terminals, go on-hook.

4. At terminal A, go off-hook and press the LAST NUM DIALED button.

   At distant location, incoming call signal received.

5. At terminal B, go off-hook.

   Connection established between terminals A and B.

6. At both terminals, go on-hook.

LEAVE WORD CALLING (LWC)

Test Description

Verify that a LWC message is recorded after the LWC feature access code and called party are dialed.

Test Procedure

1. Select a 7405D voice terminal with a 40-character alphanumeric display and designate it as terminal A.

2. At the test terminal, go off-hook and dial the LWC access code.

   Second dial tone is heard.

3. Dial the extension number of terminal A.

Confirmation tone is heard (three short bursts of tone followed by silence).

4. At the test terminal, go on-hook.

   At terminal A, Message Waiting lamp lights.

5. Determine what type of storage device is associated with terminal A.

   If the switch or an AP is used, proceed to Step 6.

   If AUDIX is used, proceed to Step 14.

6. At terminal A, press the message retrieval (MSG RETR) button.

   The status lamp associated with the MSG RETR button lights.

   MESSAGE RETRIEVAL IN PROGRESS is displayed in the alphanumeric field.

   The MESSAGE RETRIEVAL IN PROGRESS display is automatically cleared and replaced with a message that identifies the extension number and name of the terminal user whose messages are to be retrieved.

7. Press the NEXT MESSAGE button.

   The previous message is cleared and replaced with the most recent displayable principal message. If a ">" is displayed in the last field, the message is continued; proceed to Step 8. If a ">" is not displayed, proceed to Step 9.

   NOTE: Subsequent presses of the NEXT MESSAGE button clears and replaces the previous message with the next message in the file.

8. Press SCROLL.

   Additional segments of displayed message is displayed. If no other segments exist, the next message is displayed.

9. Repeat Step 8 until the next message is displayed.

10. At terminal A, go off-hook on an idle call appearance and press the RETURN CALL button.

    The lamp associated with the RETURN CALL button lights momentarily.

    Call progress tone is heard.

    System automatically originates a call to the displayed line number (test terminal).

    Ringing is heard at the test terminal.

11. At terminal A, go on-hook.

12. Press the DELETE MESSAGE button.

    DELETED is displayed.

13. Press the NORMAL MODE button. Test is complete.

14. At terminal A, go on-hook.

15. Call and login to the AUDIX.

16. Dial 2.

    Verify Correct message is heard.

    Verify Message Waiting lamp goes out.

17. At terminal A, go on-hook.

18. Press the Normal Mode.

LINE/FEATURE STATUS INDICATION

Test Description

Verify that when an H/D series voice terminal user goes off-hook, the user is automatically connected to the line appearance having a lighted I-use lamp. Also, verify that the status lamp lights steadily when the user goes off-hook, flashes on an incoming call, and flutters when the HOLD button is pressed.

Test Procedure

1. At an H/D series voice terminal, press a button associated with an idle line and go off-hook.

    User automatically connected to lighted I-use lamp.

    Status lamp lighted.

2. Place a terminal-to-terminal call to the terminal under test.

    Status lamp associated with line called flashes.

3. At the terminal under test, go off-hook.

    Status lamp steadily lighted at all appearances of the line.

4. Press the HOLD button.

5. At the terminal under test, go on-hook.

    Status lamp flutters at the controlling terminal and winks at all other appearances of the line on hold.

    Calling terminal on hold.

6. At the terminal under test, press the appearance button associated with the winking status lamp.

7. At the terminal under test, go off-hook.

Status lamp lighted steadily at all appearances of the line.

8. At the terminal under test and the calling terminal, go on-hook.

Status lamp off at all appearances of the line.

LINE LOCKOUT

Test Description

Verify that a voice terminal user while connected to dial tone or in the process of dialing and remains off-hook for 10 seconds without dialing; the terminal user receives intercept tone for 10 seconds and then is removed from service.

Test Procedure

1. At the test terminal, go off-hook for 20 seconds.

   Dial tone heard.

   After 10 seconds, intercept tone is heard.

   In another 10 seconds, the test line is automatically removed from service.

LOUDSPEAKER PAGING ACCESS

Test Description

Dial the appropriate codes to verify paging. If Deluxe Paging is being tested, page from the priority terminal and verify that existing paging is overridden. Verify that the paged party can dial appropriate code and answer-back.

Test Procedure

1. At a terminal having access to Loudspeaker Paging, designate as terminal A, and go off-hook.

   Dial tone is heard.

2. Dial the paging access code.

   Dial tone is heard.

3. Dial the paging zone number or dial 0 for all zones when multizone paging is provided.

4. Dial paging channel number 0.

   Confirmation tone is heard.

   If all zones are being paged simultaneously, the PAGE ALL lamp is lighted at the attendant position.

If zones are being paged individually, the PAGE zone lamp associated with the zone being paged is lighted at the attendant position.

5. Make an announcement over the loudspeaker system.

   Announcement is heard from the loudspeaker(s).

6. If Deluxe Paging is provided and Priority Paging is to be tested, select a terminal having access to Priority Loudspeaker Paging and designate as terminal B.

7. At terminal B, go off-hook.

   Dial tone is heard.

8. Dial the paging access code.

9. Dial the paging zone number or dial 0 for all zones when multizone paging is provided.

10. Dial 1 for priority paging (answer-back channel 1).

    Confirmation tone heard.

    The appropriate paging lamps on the console light.

    At the loudspeaker(s), announcement silenced from terminal A.

11. Make an announcement over the loudspeaker system.

    At the loudspeaker(s), announcement heard from terminal B.

12. At terminal A, go on-hook.

13. If answer-back is desired, verbally request a reply over answer-back channel 1.

14. Press the RECALL button or flash the switchhook to release paging equipment while waiting for an answer-back.

    Ringback tone or music is heard.

15. At terminal A, dial the answer-back code.

16. Dial answer-back channel 1.

    Paging and paged parties hear confirmation tone.

    Paging and paged parties are connected in a 2-party connection.

17. At both voice terminal lines, go on-hook.

MAIN/SATELLITE

Test Description

Make test calls to verify the following connections: Main to Satellite (test from both directions); In-dialing through Main (using Direct Inward Dialing); and terminal to central office (CO) calls.

Test Procedure

1. Select a nonrestricted terminal on the Main system and designate as terminal A.

2. Select a nonrestricted terminal at the Satellite and designate as terminal B.

3. At terminal A, go off-hook and dial terminal B.

   Ringback tone heard.

4. At terminal B, go off-hook.

   Ringing silenced.

   Connection established.

5. At both terminals, go on-hook.

   Main to Satellite call is completed.

6. Arrange for an incoming call to terminal B.

   Ringing heard at terminal B.

7. At terminal B, go off-hook.

   Connection established between the calling party and terminal B.

8. At terminal B, go on-hook.

   In-dialing through the Main system tested.

9. At terminal A, go off-hook and dial CO access code.

   CO dial tone heard.

10. Dial CO party.

    Dial tone silenced.

    Ringing tone heard.

11. At terminal A, go on-hook.

    Terminal to CO trunk call completed.

MALICIOUS CALL TRACING

Test Description

Establish a terminal-to-terminal connection and designate the calling party as a malicious caller. Activate malicious call tracing from the called party or from another idle terminal. Verify that the console is alerted and can display information about the malicious call by pressing MCT CONT button repeatedly. Verify that the attendant can release from malicious call tracing by dialing the deactivate code.

Test Procedure

1. Select three telephone sets and designate as terminals A, B, and C. Designate terminal A as malicious caller.

2. At terminal A, go off-hook and dial terminal B.

   Ringback tone heard.

3. At terminal B, go off-hook.

   Ringing silenced.

   Connection established.

4. Determine which of the following conditions will be used to test Malicious Call Tracing (MCT).

   a. Single appearance terminal—called party activating MCT (see Step 5).

   b. Single appearance terminal—idle terminal activating MCT (see Step 9).

   c. Multiple appearance terminal—called party using EMERG button (see Step 13).

   d. Multiple appearance terminal—called party using MCT dial access code (see Step 15).

   e. Multiple appearance terminal—idle terminal using MCT dial access code (see Step 19).

5. At terminal B, flash the switchhook.

   Recall dial tone heard.

6. Dial MCT dial access code.

   At all attendant consoles, audible signal heard and MCT COM lamp flashes.

7. At terminal B, flash switchhook.

   Connection reestablished with malicious caller.

8. Proceed to Step 22.

9. At terminal C, go off-hook.

Dial tone heard.

10. Dial MCT dial access tone, then terminal B's extension number.

    At all consoles, audible signal heard and MCT CONT lamp flashes.

11. Go on-hook.

12. Proceed to Step 22.

13. At terminal B, press MCT button.

    At all consoles, audible signal heard and MCT CONT lamp flashes.

14. Proceed to Step 22.

15. At terminal B, press the RECALL button.

    Dial tone heard.

16. Dial MCT dial access code.

    At all consoles, audible signal heard and MCT CONT lamp flashes.

17. Press the button associated with the line appearance of the malicious call.

    Connector reestablished with the malicious caller.

18. Proceed to Step 22.

19. At terminal C, press an idle line appearance button.

    Dial tone is heard.

20. Dial the MCT dial access code, then terminal B's extension number.

    At all consoles, audible signal heard and MCT CONT lamp flashes.

21. Go on-hook.

22. At the console, press MCT CONT button.

    Audible signal silenced, alphanumeric displays contain first element of queue. See Table O.

23. Press MCT CONT button repeatedly to display all elements of queue.

    All elements of queue displayed in Table O.

24. Press idle loop button.

    ANTD lamp lighted.

TABLE O. Malicious Call Data

QUEUE	ELEMENT
1	Called party extension number (Station B)
2	Line
3	Malicious caller (Station A)
4	Active
5	Activating extension number (Station B or C)
6	End (end of queue)

25. Press start button.

    Dial tone heard.

26. Dial malicious call tracing deactivate code.

    MCT CONT lamp off.

27. Press RELEASE button.

    PA lamp lighted.

28. At terminals A and B, go on-hook.

MANUAL MESSAGE WAITING

Test Description

Verify that pressing the MSG WAIT button at the controlling terminal lights the status lamp at the controlling and signaled terminals.

Test Procedure

1. At the controlling terminal, press the MSG WAIT button.

    MSG WAIT lamp lights at the controlling and signaled terminals.

2. At the signaled terminal, press the MSG WAIT button.

    MSG WAIT lamp off at signaled and controlling terminals.

3. At the controlling terminal, turn the MSG WAIT lamp on and off by pressing the MSG WAIT button twice.

    MSG WAIT lamp off at the signaled and controlling terminals.

MANUAL SIGNALING

Test Description

Verify that when the MAN SIGNL button is pressed, the status lamp lights and a Manual Signaling tone is heard at the signaled terminal(s).

Test Procedure

1. At a terminal equipped for Manual Signaling, press and hold the MAN SIGNL button.

   MAN SIGNL status lamp lights.

   At the signaled terminal(s), Manual Signaling tone is heard.

MISCELLANEOUS TRUNK RESTRICTIONS

Test Description

Verify that preselected lines are denied access to certain trunk groups.

Test Procedure

1. At a terminal assigned trunk access restriction, go off-hook.

   Dial tone heard.

2. Dial the access code of a trunk assigned to the trunk access restriction group.

   Dial tone silenced.

   Intercept tone heard.

3. Go on-hook.

MODEM POOLING

Test Description

Procedure 646, Test 2 is used to automatically test modem pool members (MPMs) and digital facilities.

Test Procedure

1. At the Manager II, type **p646** (ENTER)
2. Type **nt** (ENTER)

The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────────────────────────┐ │
│ │              ENHANCED MODE - PROCEDURE: 646, TEST: 2             │ │
│ │         DO A DETECTION TEST ON MODEM POOL MEMBERS AND DIGITAL FACILITIES │ │
│ │                                                                   │ │
│ │    2. Test Type: □                                               │ │
│ │  CIRCUIT LOCATION                                                 │ │
│ │       3. Trunk Group Number: □□□                                 │ │
│ │       4.            Member A: □□                                 │ │
│ │       5.            Member B: □□                                 │ │
│ │  EQUIPMENT LOCATION                                               │ │
│ │       6. Equipment Type: □                                       │ │
│ │       7.          Module: □□                                     │ │
│ │       8.         Cabinet: □                                      │ │
│ │       9.         Carrier: □                                      │ │
│ │      10.            Slot: □□                                     │ │
│ │      11.         Circuit: □□                                     │ │
│ │                                                                   │ │
│ │  12. Test Length or Number of Failures: □□                       │ │
│ │  TEST DATA                                                        │ │
│ │      13. Data Type: □□                                           │ │
│ │      14.      Data: □□□□                                         │ │
│ │                                                                   │ │
│ │ Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│ └─────────────────────────────────────────────────────────────────┘ │
│  enter command: ■                                                    │
│  [      ][       ][F3 DATA ][      ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────────┘
```

3. Enter test type 0 (all tests) in Field 2.

4. Enter the trunk group number, Member A, and Member B of the MPM to be tested or the trunk group number and Member A of the digital facility to be tested.

5. Type **x** (ENTER)

    WAIT appears on the screen.

6. When Test 2 completes testing the MPM or digital facility, WAIT goes out and the following is displayed:

    Field 2—0 (test type originally selected for testing the MPM or digital facility)

    Fields 3 through 5—Circuit location

    NOTE: Field 5 is dashed if a digital facility is being tested.

    Field 6—Type of equipment location (1 through 4)

    Fields 7 through 11—Port equipment location of MPM or digital facility tested

    Field 12—0 (indicating the MPM or digital facility passed the test) or 1 (indicating the MPM or digital facility failed the test)

    Field 13—Data type of 4 (indicating that Field 14 indicates the number of circuits tested)

Field 14—1 (indicating one MPM pair, or digital facility tested).

7. Typing **nc** (ENTER) changes the display in the data type and data fields (Fields 13 and 14).

   Field 13 displays a 1 indicating that the data in Field 14 is a specific fault code.

   The specific fault code displayed in Field 14 is 0 if the MPM or digital facility passed the test or a number other than 0 if the MPM or digital facility failed the test.

8. Typing **nf** (ENTER) displays a 2 in Field 13 and the bit error rate/bits sent in Field 14.

9. Typing **nf** (ENTER) once more displays a 3 in Field 13 and the block error rate/blocks sent in Field 14.

10. Typing **nf** (ENTER) repeatedly advances through each test type selected (test type 0 may have more than one type of test performed) and displays the following for each test type:

    The type and equipment location of the failure (if any).

    Specific fault code.

    Bit error rate/bits sent.

    Block error rate/blocks sent.

11. After the block error rate/blocks sent of the last type is displayed for the MPM or digital facility tested, typing **nf** (ENTER) once more dashes all fields.

12. If a 1 was displayed in Field 12 (indicating the MPM or digital facility failed), refer to *Generic 2 Maintenance Repair Strategies* (555-104-118), Chapter 6.13 to correct the problem.

MULTI-APPEARANCE PRESELECTION AND PREFERENCE

Preselection

Test Description

Verify that a custom voice terminal user can manually preselect a line appearance to place a call and override any automatic line preference feature.

Test Procedure

1. At a terminal assigned the Preselection feature, press the line pickup button associated with any idle line and go off-hook.

   I-use and status (busy/idle) lamps associated with selected line pickup lighted.

2. Go on-hook.

> Status lamp off.

Ringing Appearance Preference

Test Description

Verify that the line appearance that is ringing is automatically selected when the terminal goes off-hook.

Test Procedure

1. Place a terminal-to-terminal call to any line on the terminal to be tested.

> At the terminal being tested, status lamp flashes.

> At the terminal being tested, I-use lamp lighted.

2. At the terminal being tested, go off-hook.

> Status lamp associated with called line lighted.

3. Place a terminal-to-terminal call to another line on the terminal being tested.

> At the terminal being tested, status lamp of the called line flashes.

4. At the terminal being tested, go on-hook.

> Status and I-use lamps associated with first call off.

> I-use lamp associated with second called line lighted.

5. At the terminal being tested, go off-hook.

> Status lamp associated with second call lighted.

6. At the terminal being tested, go on-hook.

Idle Appearance Preference

Test Description

At the terminal to be tested, verify that the I-use and status lamps of an idle appearance are lighted when going off-hook.

Test Procedure

1. At the terminal to be tested, go off-hook.

> I-use lamp of idle appearance lighted.

Status lamp of idle appearance lighted.

2. Go on-hook.

    I-use lamp off.

    Status lamp off.

Incoming Call Preference

Test Description

Verify that the terminal user, upon going off-hook, is automatically connected to an appearance button which has an incoming call.

Test Procedure

1. Place a terminal-to-terminal call from a terminal (terminal A) to any line appearance on terminal to be tested (terminal B).

    At terminal B, status lamp flashes.

    At terminal B, I-use lamp lighted.

2. At terminal B, go off-hook.

    Status lamp associated with incoming call lighted.

3. Place a terminal-to-terminal call from another terminal (terminal C) to another line appearance on terminal B.

    At terminal B, status lamp associated with second call flashes.

4. At terminals A and B, go on-hook.

    At terminal B, first call status and I-use lamps off.

    At terminal B, second call I-use lamp lighted.

5. At terminal B, go off-hook.

    Status lamp associated with second incoming call lighted.

6. At terminals B and C, go on-hook.

Last Appearance Preference

Test Description

Verify that the terminal user, upon going off-hook, is automatically connected to the line appearance last used.

Test Procedure

1. At a terminal to be tested, press any assigned appearance button with I-use lamp off.

   I-use lamp associated with button lighted.

2. Go off-hook.

   Status lamp associated with lighted I-use lamp lights.

   Dial tone heard.

3. Go on-hook.

   Status lamp off.

   I-use lamp remains lighted.

4. Go off-hook.

   Status lamp associated with lighted I-use lamp lights.

   Dial tone heard.

5. Go on-hook.

No Appearance Preference

Test Description

Verify that any assigned line can be selected by going off-hook and pressing a line appearance button.

Test Procedure

1. At a terminal to be tested, observe all I-use lamps of all appearance buttons.

   I-use lamps of all appearances off.

2. Go off-hook.

   All status and I-use lamps remain off.

3. Press any appearance button on terminal.

   Status lamp associated with selected appearance lights.

   Dial tone heard.

4. Go on-hook.

   Status lamp associated with selected line off.

   I-use lamp associated with selected line off.

Prime Appearance Preference

Test Description

Verify that a terminal under test on going off-hook is automatically connected to a Prime Appearance. Verify that if another appearance is manually selected for a call that the Prime Appearance Preference is returned when the terminal goes back on-hook. (Prime Appearance I-use lamp remains lighted even when on-hook unless another appearance is selected. Status lamp lights on going off-hook.)

Test Procedure

1. At a terminal having Prime Appearance Preference, go off-hook.

   Prime Appearance status lamp lighted.

   Dial tone heard.

2. Go on-hook.

   Prime Appearance status lamp off.

   I-use lamp remains lighted.

3. Press any assigned appearance button other than Prime Appearance.

   Prime Appearance I-use lamp off.

   Selected appearance I-use lamp lighted.

4. Go off-hook.

   Status lamp associated with selected appearance lighted.

   Dial tone heard.

5. Go on-hook.

   Selected appearance status and I-use lamps off.

   Prime Appearance I-use lamp lighted.

MULTIDIGIT STEERING

Test Description

Verify that a special preassigned extension number when dialed accesses a particular trunk group or feature access code.

Test Procedure

1. At the test terminal, go off-hook.

   Dial tone heard.

2. Dial the extension code of the desired trunk group or feature.

   Dial tone silenced.

   Connection established.

MULTIFUNCTION H/D SERIES VOICE TERMINALS

Test Description

Verify that the correct response is received when pressing each line/feature button on a voice terminal.

Test Procedure

1. At the voice terminal to be tested, go off-hook on any assigned line appearance and dial terminal test dial access code.

   MESSAGE WAITING lamp turns on.

2. Press each line/feature button to be tested.

   Audible alerting sounds and/or lamp lights.

   NOTE: The first six line buttons each have a different and distinct ring rate that is sent to the terminal ringer. These buttons also cause each of five different lamp rates to be sent to the status lamp associated with the button. The sixth button's status lamp is sent the STEADY rate. The associated I-use lamps are illuminated at a steady rate. All other buttons cause associated lamp(s) to be illuminated at the STEADY rate. Fixed buttons (RECALL, DROP, CONFERENCE, TRANSFER, HOLD, but not DISCONNECT) return confirmation tone when pressed.

MULTIPLE LISTED DIRECTORY NUMBER

Test Description

Verify that a Listed Directory Number (LDN) call can be answered at the attendant console.

Test Procedure

1. Arrange for an incoming call on the LDN to be tested.

   At the console, ATND lamp flashes.

2. At the console, press the ANSWER button.

   ATND lamp lighted.

3. At the console, press the RELEASE button.

   Connection released.

   ATND lamp off.

MUSIC-ON-HOLD ACCESS

Test Description

Verify that music is provided to the held party during any hold interval.

Test Procedure

1. At a terminal, go off-hook.

   Dial tone heard.

2. Dial 0.

3. At the console, press the ANSWER button.

   ATND lamp lighted.

4. Press the HOLD button.

   HOLD lamp lighted.

   Music heard at the terminal.

OFF-PREMISES TERMINAL

Test Description

Verify that calls can be directed to trunk port off-premises terminals by dialing the trunk dial access code assigned to the off-premises terminal trunk group.

Test Procedure

1. At the test terminal, go off-hook.

   Dial tone is heard.

2. Dial the trunk dial access code assigned to the off-premises terminal trunk group.

   Call progress tone is heard (ringback tone or busy tone, etc.).

3. At the trunk port off-premises terminal, answer the call.

   Talking path is established between the off-premises terminal and the test terminal.

4. At the off-premises terminal and the test terminal, go on-hook.

OVERRIDE

Test Description

Establish a terminal-to-terminal call. At the terminal assigned Override, dial the Override code followed by the number of the terminal to be overridden. Verify that the terminals hear warning tone and a 3-way connection is established.

Test Procedure

1. Select a terminal line assigned Override and designate as terminal A.

2. Select another two terminal lines and designate as terminals B and C.

3. At terminal B, establish a terminal-to-terminal call with terminal C.

4. At terminal B, busy all appearances of the same line used in Step 3 (if more than one) by making calls as necessary to other terminals.

   NOTE: Override (barge-in) is not activated if any line appearance of the same line on terminal B (used in Step 3) is not busy, including originate-only.

5. At terminal A, dial the Override code.

   Second dial tone heard.

6. Dial terminal B.

At terminals A, B, and C, 2-second burst of tone heard.

Three-way connection established.

Terminal-to-terminal connection overridden by Override.

7. At terminals A, B (all appearances of the same line used in Step 3), and C, disconnect from the call.

PERSONAL CENTRAL OFFICE (CO) LINE

Test Description

On assigned Personal Central Office (CO) Line, make an outgoing CO call; then arrange to have an incoming call made to the line from the CO.

Test Procedure

1. At the test terminal, go off-hook and press the Personal CO Line access button.

    I-use lamp lighted.

    Status lamp lighted.

    CO dial tone heard.

2. Dial CO party.

3. At CO party, answer the call.

    Connection established.

4. At CO, disconnect from call.

5. At the test terminal, go on-hook.

    I-use lamp off.

    Status lamp off.

6. Arrange for an incoming CO call on the assigned Personal CO Line to the test terminal.

    At the test terminal, status lamp associated with Personal CO Line flashes.

7. At the test terminal, go off-hook and press the Personal CO Line access button.

    I-use lamp lighted.

    Status lamp lighted.

    Connection established.

8. At CO, disconnect from call.

9. At the test terminal, go on-hook.

I-use lamp off.

Status lamp off.

PRIORITY CALLING

Test Description

Verify that when Priority Calling is activated and the called terminal is busy, special ringback tone is heard by the calling party and 3-burst call waiting tone is heard by the called party. Also verify that when Priority Calling is activated and the called terminal is idle, regular ringback tone is heard by the calling party and 3-burst ringing is directed to the called terminal.

Test Procedure

1. Select two terminals assigned Priority Calling and designate as terminals A and B.

2. At terminal B, go off-hook.

3. At terminal A, go off-hook and dial the Priority Calling access code.

   Second dial tone heard.

4. Dial terminal B.

   Terminal B hears a distinctive 3-burst ringing tone.

   Special ringback tone heard at terminal A.

5. At terminal B, go on-hook.

   Terminal A hears normal ringback tone.

   Terminal B is alerted with distinctive 3-burst ringing.

PRIVACY

Attendant Lockout

Test Description

Extend a terminal-to-attendant call to another terminal and place the call on hold at the console. Attempt attendant bridge onto the held call to verify lockout. Recall attendant from the called terminal.

Test Procedure

1. Select two working lines and designate as terminals A and B.

2. At terminal A, go off-hook.

3. Dial 0.

   At the console, ATND lamp flashes.

4. At the console, press the ANSWER button.

   ATND lamp lighted.

   Terminal A and attendant connected.

5. Press the START button.

   Dial tone heard.

6. Dial terminal B.

   RING lamp lighted.

   Ringback tone heard.

   At terminal B, ringing heard.

7. Press the HOLD button.

   HOLD lamp lighted.

   ATND lamp off.

   At terminal A, ringing tone heard.

8. At terminal B, go off-hook.

   Connection established between terminals A and B.

9. At the console, press the loop button associated with the held call.

   Attendant denied reentry to held call.

10. At terminal B, flash the switchhook.

    At the console, ANS lamp flashing.

11. At the console, press the loop button associated with the flashing ANS lamp.

    HOLD lamp off.

    ATND lamp lighted.

    ANS lamp lighted.

    If Privacy is provided, attendant and terminal B are connected and terminal A is locked out.

    If Privacy is not provided, attendant and terminals A and B are connected.

12. Press the RELEASE button.

    ANS lamp off.

ATND lamp off.

13. At terminals A and B, go on-hook.

Manual Exclusion

Test Description

Make a test call to verify that all terminals having appearance of a line associated with Manual Exclusion are prevented from bridging onto the line when the feature is activated.

Test Procedure

1. Select a terminal equipped with Manual Exclusion and designate it as terminal A.

2. Make a terminal-to-terminal call to a working terminal (terminal B).

3. At terminal B, go off-hook.

4. At terminal A, press the MAN EXCL button.

   MAN EXCL status lamp lights.

5. Select a terminal having an appearance of the line associated with Manual Exclusion and designate as terminal C.

6. At terminal C, go off-hook on line under test.

   Reorder tone heard.

7. At terminal C, go on hook.

8. At terminal A, press the MAN EXCL button.

   MAN EXCL status lamp off.

9. At terminal C, go off-hook on line under test.

   Terminal C is bridged onto the call between terminals A and B.

10. At all terminals, go on-hook.

PRIVATE NETWORK ACCESS

Test Description

Make a test call over the Advanced Private Line Termination (APLT) trunk with access to Enhanced Private Switched Communication Service (EPSCS) from a terminal line at the main switch or satellite location using network access and destination codes. Dial a network authorization code, if required.

Test Procedure

1. At the Manager II, type **p642** ENTER

2. Type **nt** ENTER

   The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│        ENHANCED MODE  -  PROCEDURE: 642,  TEST: 2                      │
│                     TEST A SPECIFIC TRUNK                              │
│                                                                       │
│  TEST LINE EQUIPMENT LOCATION        TRUNK DIAL ACCESS CODE            │
│      2.  Module: [--]                   12.  First Digit: [--]         │
│      3.  Cabinet: [-]                    13.  Second Digit: [-]        │
│      4.  Carrier: [-]                    14.  Third Digit: [-]         │
│      5.    Slot: [--]                    15.  Fourth Digit: [-]        │
│      6. Circuit: [--]                                                  │
│                                          16.  Trunk Group: [---]       │
│  TRUNK EQUIPMENT LOCATION                17.  Test State: [-]          │
│      7.  Module: [--]                                                  │
│      8.  Cabinet: [-]                                                  │
│      9.  Carrier: [-]                                                  │
│     10.    Slot: [--]                                                  │
│     11. Circuit: [--]                                                  │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│  Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ]│
│                                                                       │
│  enter command: ▄                                                     │
│  [        ][        ][F3 DATA][        ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└─────────────────────────────────────────────────────────────────────┘
```

NOTE: If a default test line is assigned, Field 7 is highlighted. If a default test line is not assigned, enter the test line equipment location in Fields 2 through 6.

3. Enter the equipment location of the trunk to be tested in Fields 7 through 11.

4. Type **x** (ENTER)

NOTE: Steps 3 and 4 must be followed before going off-hook with the test set. Use steps 3 and 4 before every test call.

5. Connect a hand test set to the test line equipment location as displayed in Fields 2 through 6.

6. At the test line, go off-hook and dial the main switch access code, if required.

   System dial tone heard.

7. Dial the network access code.

   Network dial tone heard.

8. Dial the network destination code.

   Ringback or recall dial tone heard.

9. Dial the 3- to 6-digit network authorization code, if required.

   Ringback tone heard.

10. At the distant end, answer the call.

11. At the distant end, disconnect from the call.

12. At the test line, go on-hook.

13. Remove the test set from the test line.

PUBLIC NETWORK ACCESS

Foreign Exchange (FX) Access

Test Description

Originate a call from the test line over an FX trunk and verify the connection.

Test Procedure

1. At the test terminal, go off-hook.

   Dial tone heard.

2. Dial the FX trunk access code or press the FX button.

   Dial tone silenced.

   Central Office (CO) dial tone is heard.

3. Dial the destination code.

   Dial tone silenced.

   CO ringing heard.

4. Go on-hook.

Local Central Office (CO)

Test Description

Originate a call from the test line over a CO trunk and verify the connection.

Test Procedure

1. At the terminal test line, go off-hook.

   Dial tone heard.

2. Dial the CO trunk access code.

   Dial tone silenced.

   CO dial tone heard.

3. Dial the code of the CO party.

   Dial tone silenced.

   CO ringing heard.

4. Go on-hook.

Wide Area Telecommunications (WATS) Access

Test Description

Verify that a WATS call can be originated from a nonrestricted terminal.

Test Procedure

1. At the terminal test line, go off-hook.

   Dial tone is heard.

2. Dial the WATS access code.

A second dial tone is heard.

3. Dial the destination code.

Dial tone silenced.

Call progress tone is heard.

4. Go on-hook.

800 Service

Test Description

Verify that an 800 Service call can be received at the attendant console.

Test Procedure

1. Arrange for an incoming 800 Service call to the attendant.

Console ringing is heard.

PA lamp extinguishes.

ATND lamp flashes.

Alphanumeric display indicates an 800 Service call.

2. Press the associated loop or ANSWER button.

ATND lamp lights steadily.

Attendant and calling party connected.

3. Press the RELEASE button.

ATND lamp extinguishes.

PA lamp lights.

QUEUING

Test Description

If equipped with Outgoing Call Queuing, verify that a terminal accessing a busy trunk group receives music or recorded announcement. Verify that if the terminal remains in queue for the length of waiting time, intercept tone is heard and the terminal is dropped from queue. Verify that the terminal in queue can be connected to a trunk when one becomes idle. If equipped with Ringback Queuing, verify that the terminal in queue can be canceled. With either Queuing, verify that the terminal that has accessed a trunk in queue can seize the same trunk (retry) if the correct access code is dialed.

Test Procedure

1. At the Manager II, type **p631** [ENTER]

    The Test 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│           ENHANCED MODE - PROCEDURE: 631, TEST: 1                     │
│                    BUSY OUT A TRUNK GROUP                             │
│                                                                       │
│   2.               Trunk Group Number: [---]                          │
│   6. Number of Trunks In Trunk Group: [---]                           │
│   7.      Number of Busied-Out Trunks: [---]                          │
│                                                                       │
│  EQUIPMENT LOCATION                                                   │
│      8.  Module: [--]                                                 │
│      9. Cabinet: [-]                                                  │
│     10. Carrier: [-]                                                  │
│     11.    Slot: [--]                                                 │
│     12. Circuit: [--]                                                 │
│                                                                       │
│  13. Maintenance Status: [-]                                         │
│  14.       Trunk Number: [---]                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│ Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│ enter command: ■                                                      │
│ [     ][     ][F3 DATA][     ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]  │
└─────────────────────────────────────────────────────────────────────┘
```

2. Determine the trunk group number of the trunk group with Outgoing Call Queuing and type **nu** [ENTER] until that number is displayed in Field 2.

3. Type **x** [ENTER]

    CAUTION: *Entering the* **bo** *(busy out) command can drop the user's calls in the entire trunk group.*

4. Type **bo** (ENTER)

   This busies out the entire trunk group.

5. If Route Advance is provided for the trunk group selected for test, use Steps 2 through 4 to busy-out all trunks in Route Advance trunk groups.

6. Select a terminal with access to a trunk with Outgoing Call Queuing and designate as terminal A.

7. If Ringback Queuing is provided, proceed to Step 13.

8. At terminal A, go off-hook and dial the trunk access code.

   Music, recorded message, or silence heard.

9. Remain off-hook for the length of waiting time.

   Intercept tone heard at end of waiting time.

10. Place another call to the trunk group being tested and remain off-hook.

11. At the Manager II, type **cf2** (ENTER)

12. Enter Outgoing Call Queuing trunk group number busied out in Steps 2 through 4.

13. Type **x** (ENTER)

14. Type **rb** (ENTER)

    This releases the entire trunk group.

    At terminal A, central office (CO) dial tone or attendant heard.

15. Proceed to Step 25.

16. At terminal A, place a call to the trunk group being tested.

    Confirmation tone heard.

17. Dial terminal A extension number (if required).

18. Go on-hook within 4 seconds after hearing confirmation tone or after dialing the extension number.

    Terminal A is in queue.

19. Select a terminal with access to a trunk with Outgoing Call Queuing and designate as terminal B.

20. At terminal B, place a call to the trunk group being tested.

    Confirmation tone heard.

21. Dial terminal B extension number (if required).

22. Go on-hook within 4 seconds after hearing confirmation tone or after dialing the extension number.

Terminal B is in queue.

23. At terminal B, go off-hook.

    Dial tone heard.

24. Dial the queue cancel code. Subtending location users must also dial the originating extension number.

    Confirmation tone heard, indicating the queue call is canceled.

25. At terminal B, go on-hook.

    Terminal B queue is canceled.

26. At the Manager II, type **cf2** [ENTER]

27. Enter Outgoing Call Queuing trunk group number busied out in Steps 2 through 4.

28. Type **x** [ENTER]

29. Type **rb** [ENTER]

    This releases the entire trunk group.

    At terminal A, ringing heard.

30. At terminal A, go off-hook.

    CO dial tone or attendant heard.

31. At terminal A, dial or request the attendant to dial the first two digits of a terminal.

    Dial tone silenced.

32. Flash the switchhook or press the RECALL button.

    Dial tone heard.

33. Dial retry outgoing trunk queuing access code.

    CO dial tone or attendant heard.

34. Dial or request attendant to dial a selected party.

    Ringing tone heard.

    Called party answers.

35. Go on-hook.

36. If a Route Advance trunk group(s) was busied out in Step 5, use the following sequence at the Manager II to release the Route Advance trunk group(s):

    a. Type **cf2** [ENTER]

    b. Enter Route Advance trunk group number busied out in Steps 2 through 4.

    c. Type **x** [ENTER]

d. Type **rb** (ENTER)

RADIO PAGING ACCESS

Test Description

Dial the access code and digits assigned for Radio Paging. Receiving ringback indicates successful activation of the radio paging unit. If the system is equipped with answer-back, dial the answer-back code and verify calling and called parties are connected.

Test Procedure

1. Select a terminal having access to Radio Paging and designate as terminal A.

2. At terminal A, go off-hook.

   Dial tone heard.

3. Dial the Radio Paging Access code.

   Second dial tone heard.

4. Dial the digits assigned to operate the radio paging unit.

   Ringback heard, then silenced.

   Radio paging unit activated.

5. If system is equipped for answer-back, designate test line as terminal B.

6. At terminal B, go off-hook.

   Dial tone heard.

7. Dial answer-back code.

   Terminals A and B connected.

8. At terminals A and B, go on-hook.

RECALL SIGNALING

Test Description

Recall Signaling from H/D series terminals is tested by use of the RECALL BUTTON as part of the following tests:

ATTENDANT RECALL from HOLD or ATTENDANT 6-PARTY CONFERENCE

LOUDSPEAKER PAGING ACCESS

CALL PARK.

RECORDED TELEPHONE DICTATION ACCESS

Test Description

Complete a call to the dictation machine. Verify the recording, playback, correction, and extended playback by dialing the proper digits and verifying each function. If a playback button is provided, operate the button and verify the playback of the recorded message. Verify that the end of dictation digit returns ready to dictate tone.

Test Procedure

1. Select a terminal with a class of service that allows access to Recorded Telephone Dictation and designate as terminal A.

2. At terminal A, go off-hook.

   Dial tone heard.

3. Dial the access code for Recorded Telephone Dictation.

   A second dial tone or ready-to-dictate tone is heard.

4. If the dictation machine is dial-controlled, at terminal A dial the start digit 1.

5. Count into transmitter from 1 to 35 at rate of one number each second.

6. Dial the stop digit 1.

7. Dial the playback digit 3.

   Last few recorded numbers heard.

8. Dial the start digit 1.

9. If extended playback option is provided, at terminal A count into transmitter from 1 to 35 at rate of one number each second.

10. Dial the stop digit 1.

11. Dial the playback digit 3, three times (3, 3, 3).

    Playback extended to greater area of recorded message.

12. Dial the start digit 1.

13. At terminal A, dial the correction digit 2.

    Burst of dial tone heard.

14. Enter correction.

15. Dial the end of dictation digit 4.

    Low-level dial tone is heard.

16. At terminal A, dial 0.

Audible ringback tone is heard.

Dictation attendant hears ringing.

17. At the dictation attendant position, go off-hook.

Ringing silenced.

18. Operate the PB button.

At terminal A and dictation attendant position, approximately last 30 seconds of recording heard.

19. At terminal A and attendant position, go on-hook.

REMOTE ACCESS

Test Description

Verify that a user, outside the system, can access the system by the public network for use of system services.

Test Procedure

1. At the distant location, dial the predetermined number for the Remote Access trunk (7-digit or 10-digit number assigned to the Remote Access trunk).

Calling party hears spurt of ringback followed by system dial tone.

2. Dial the 4-digit barrier code or an authorization code, if required.

Second dial tone heard.

3. Dial the access code of a system service.

Call progress tone is heard.

4. Release from the call.

5. Arrange for an incoming call to the preestablished Listed Directory Number (LDN) used for Remote Access.

Calling party hears spurt of ringback followed by dial tone.

6. Wait until dial tone times-out.

Call is routed to intercept tone, regular attendant, or the Centralized Attendant Service (CAS) attendant.

7. Release from the call.

RINGING (ALERTING)

Abbreviated and Delayed Ringing

Test Description

Verify that the principal's voice terminal rings an assigned number of cycles before ringing is transferred to another terminal with the same line appearance. Verify that the ABRV RING button overrides the automatic transfer by transferring ringing before the assigned cycles.

Test Procedure

1. Select a terminal with a line assigned automatic abbreviated ringing and designate it as terminal A.

2. Select the terminal assigned delayed ringing for the same line chosen in Step 1.

3. Determine the number of cycles that the principal terminal will alert before ringing is transferred.

4. From a test line, place a call to terminal A.

    Ringing heard at terminal A.

5. Allow terminal A to continue ringing.

    Terminal A rings the assigned number of cycles and then stops.

    Ringing is heard at terminal B after ringing stops at terminal A.

6. At the test line, go on-hook.

7. At the test line, place a call to terminal A.

    Ringing heard at terminal A.

8. At terminal A, press the ABRV RING button as soon as Ringing is heard.

    Ringing stops at terminal A as soon as the ABRV RING button is pressed.

    Ringing starts at terminal B after the ABRV RING button is pressed.

9. At the test line, go on-hook.

Ringing Transfer

Test Description

Place a call from an extension to a terminal with a RING TRFR button. Press the RING TRFR button while the terminal is being rung and verify that the ringing is transferred to another terminal with the same line appearance.

Test Procedure

1. Select a terminal (terminal A) with a RING TRFR (ringing transfer) button associated with the extension number to be tested.

   NOTE: Local records are used to determine which extensions are assigned to ringing transfer, the associated ringing transfer patterns, and terminals in the pattern which ring or do not ring when the feature is activated.

2. Determine the ringing transfer pattern of the extension number being tested and identify all the terminals with this extension number as an appearance.

3. At another extension, place a call to the extension being tested.

   Ringing heard at terminal A.

4. At terminal A, press the RING TRFR button.

   At terminal A, RING TRFR status lamp lighted.

   Ringing is transferred to other voice terminals as assigned.

   Ringing stops at terminal A.

5. At the calling terminal, go on-hook.

6. At terminal A, press the RING TRFR button.

   RING TRFR status lamp off.

Ringing Cutoff

Test Description

Verify that ringing can be temporarily disabled by pressing the RING CUTOFF button.

Test Procedure

1. Place a terminal-to-terminal call to the terminal to be tested.

2. At the terminal being tested, press the RING CUTOFF button.

   RING CUTOFF status lamp lighted.

   Ringing silenced.

3. Press the RING CUTOFF button.

   RING CUTOFF status lamp off.

   Ringing heard.

4. At the calling terminal, go on-hook.

Ringing cutoff tested.

ROUTE ADVANCE

Test Description

Busy-out all the trunks in the trunk group and verify that the next call advances to the first available trunk in the Route Advance sequence.

Test Procedure

1. At the Manager II, type **p631** [ENTER]

    The Test 1 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────────────────────┐ │
│ │         ENHANCED MODE · PROCEDURE: 631, TEST: 1                   │ │
│ │                  BUSY OUT A TRUNK GROUP                           │ │
│ │                                                                  │ │
│ │  2.              Trunk Group Number: [---]                        │ │
│ │  6. Number of Trunks In Trunk Group: [---]                       │ │
│ │  7.       Number of Busied-Out Trunks: [---]                     │ │
│ │                                                                  │ │
│ │ EQUIPMENT LOCATION                                               │ │
│ │  8.   Module: [--]                                               │ │
│ │  9.  Cabinet: [-]                                                │ │
│ │ 10.  Carrier: [-]                                                │ │
│ │ 11.     Slot: [--]                                               │ │
│ │ 12.  Circuit: [--]                                               │ │
│ │                                                                  │ │
│ │ 13. Maintenance Status: [-]                                      │ │
│ │ 14.       Trunk Number: [---]                                    │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │ Connected to CC0 ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] │ │
│ └──────────────────────────────────────────────────────────────────┘ │
│ enter command: ■                                                      │
│ [      ] [      ] [F3 DATA] [      ] [F5 HELP] [F6 FIELD] [F7 INPUT] [F8 CMDS] │
└──────────────────────────────────────────────────────────────────────┘
```

2. Select a trunk group with the Route Advance feature, determine the trunk group number, and then type **nu** [ENTER] repeatedly until that number appears in Field 2.

3. Type **x** [ENTER]

    CAUTION: *Entering the* **bo** *(busy out) command can drop the user's calls in the entire trunk group.*

4. Type **bo** [ENTER]

This busies out the entire trunk group.

5. At a terminal, go off-hook.

   Dial tone heard.

6. Dial the access code of the selected trunk group and listen for a second dial tone.

   Second dial tone verifies that Route Advance occurred.

7. Go on-hook.

8. At the Manager II, use the following sequence to busy out the next trunk group in the Route Advance sequence:

   a. Type **cf2** (ENTER)

   b. Enter next trunk group number in the Route Advance feature.

   c. Type **x** (ENTER)

   d. Type **bo** (ENTER)

9. Repeat this test from Step 5 until the entire Route Advance sequence is tested.

10. At the Manager II, repeat the following sequence until all the trunk groups busied out are released from busy:

    a. Type **cf2** (ENTER)

    b. Enter trunk group number in Field 2.

    c. Type **x** (ENTER)

    d. Type **rb** (ENTER)

SERIAL CALLS

Test Description

Establish an incoming trunk call to the attendant. Extend the call to an idle terminal and place the loop on hold. Verify that when the terminal disconnects, the attendant is alerted and can be reconnected to the calling party. Extend the call again to an idle terminal to verify the serial call.

Test Procedure

1. Arrange for an incoming trunk to attendant call.

2. At the console, answer incoming call.

   ATND lamp lighted.

3. Press the START button.

Dial tone heard.

4. Dial the number assigned to the terminal (terminal A) connected for test.

    Dial tone silenced.

    RING lamp lighted.

5. At terminal A, answer.

    At the console, RING lamp off.

    Attendant and terminal A connected.

6. At the console, press the HOLD button.

    HOLD lamp lighted.

    Two parties connected and held on the console.

7. At terminal A, go on-hook, or press RECALL button on multifunction sets, or flash switchhook on analog single-line sets.

    At the console, after approximately 30 seconds, HOLD lamp flashes after going on-hook, or flashes almost immediately if RECALL pushed or switchhook flashed at station.

8. At the console, press the loop button associated with the flashing HOLD lamp.

    HOLD lamp off.

    Incoming trunk reconnected to the attendant.

9. Press the START button.

    Dial tone heard.

10. Dial terminal A.

    Dial tone silenced.

    RING lamp lighted.

11. At terminal A, answer.

    At the console, ANS lamp lighted.

    At the console, RING lamp off.

12. At the console, press the RELEASE button.

    ANS lamp off.

    Trunk party connected to terminal A.

13. Instruct trunk party to disconnect.

14. At terminal A, go on-hook.

STATION MESSAGE DETAIL RECORDER (SMDR) FOR 9-TRACK MAGNETIC TAPE

Test Description

Verify that the attendant can activate and deactivate the SMDR feature on a trunk group. Verify that an SMDR record is made when a voice terminal user accesses the trunk group.

Test Procedure

1. At the attendant console, lift the handset and press an idle switched loop key and the START key.

   Dial tone is heard.

2. Dial the SMDR control activation access code.

   Dial tone is heard.

3. Dial the access code of the trunk group on which the SMDR feature is to be activated.

   Confirmation tone (three short bursts of tone) followed by dial tone, is heard.

4. Press the RELEASE button.

5. At the test terminal, go off-hook and dial the assigned SMDR account access code.

   Dial tone is heard.

6. At the SMDR cabinet, set the CALLING EXTENSION thumbwheel switch to the extension the test call will be made from. (If a 3-digit extension is used, it must be left-justified; for example, 646 would be 646<blank>.)

7. Insert the SMDR control panel key into the KEY SWITCH and turn it clockwise.

8. Set the PANEL ON/OFF switch to ON.

9. Press the CLEAR DISPLAY button.

10. Set the EXTENSION NUMBER/AUTO switch to EXTENSION NUMBER.

11. Dial the appropriate account code.

    Dial tone is removed after the first digit of the account code is dialed.

    Dial tone is returned after the last digit of the account code is dialed.

12. Dial the desired trunk group access code.

    Trunk dial tone is heard.

13. Dial the desired destination number.

    Ringback is heard.

14. At the distant end, answer the call.

15. Go on-hook.

16. At the SMDR cabinet, press DUMP MEMORY.

    SMDR call record is displayed at the SMDR control panel.

17. Verify that it is the call you just made.

18. When finished, turn the PANEL ON/OFF switch to OFF to turn off the display and turn the KEY SWITCH counterclockwise to turn off the panel. Remove the key.

19. At the test terminal, go on-hook.

20. At the console, go off-hook and press an idle loop button and the START button.

    Dial tone is heard.

21. Dial the SMDR control deactivation code.

    Dial tone is heard.

22. Dial the access code of the trunk group on which the SMDR feature is to be deactivated.

    Confirmation tone, followed by dial tone, is heard.

23. Press the RELEASE button.

STATION MESSAGE DETAIL RECORDER (SMDR) FOR DIRECT OUTPUT

Test Description

Verify that the attendant can activate and deactivate the SMDR feature on a trunk group. Verify that an SMDR record is made when a voice terminal user accesses the trunk group.

Test Procedure

1. Select a test terminal without 0s in the extension number.

2. At the attendant console, lift the handset and press an idle switched loop key and the START key.

    Dial tone is heard.

3. Dial the SMDR control activation access code.

    Dial tone is heard.

4. Dial the access code of the trunk group on which the SMDR feature is to be activated.

    Confirmation tone (three short bursts of tone) followed by dial tone is heard.

5. Press the RELEASE button.

6. At the test terminal, go off-hook and dial the assigned SMDR account access code.

    Dial tone is heard.

7. Dial the appropriate account code.

   Dial tone is removed after the first digit of the account code is dialed.

   Dial tone is returned after the last digit of the account code is dialed.

8. Dial the desired trunk group access code.

   Trunk dial tone is heard.

9. Dial the desired destination number.

   Ringback is heard.

10. At the distant end, answer the call.

11. At the test terminal and distant end, go on-hook.

12. Verify that the call you just made was properly recorded by the SMDR.

13. At the console, go off-hook and press an idle loop button and the START button.

    Dial tone is heard.

14. Dial the SMDR control deactivation code.

    Dial tone is heard.

15. Dial the access code of the trunk group on which the SMDR feature is to be deactivated.

    Confirmation tone, followed by dial tone, is heard.

16. Press the RELEASE button.

STRAIGHTFORWARD OUTWARD COMPLETION

Test Description

Verify that the attendant can complete outgoing calls requested by the terminal user.

Test Procedure

1. At the test terminal, go off-hook and dial 0.

   ATND lamp flashes at the console.

2. At the console, press the ANSWER button.

   ATND lamp lights steadily.

   Test terminal and attendant connected.

3. At the test terminal, request Straightforward Outward Completion.

4. At the console, press the START button.

The test terminal is split from the call.

SPLIT lamp lighted.

Dial tone is heard.

5. Dial the trunk group access code.

    ANS lamp lighted.

    Second dial tone is heard.

6. Dial the remaining digits to complete the call.

    Call progress tone is heard.

7. Press the RELEASE button.

    Associated loop lamp off.

    Terminal user receives audible ringback tone.

TANDEM TIE TRUNK NETWORK ACCESS

Test Description

Verify that a Tandem Tie Trunk call can be completed through the switch.

Test Procedure

1. Request distant incoming tie trunk party to establish a call with outgoing tie trunk distant party.

    Connection established.

TENANT SERVICE

Extension Partition

Test Description

Originate a terminal-to-terminal and an attendant-to-terminal call within an extension partition to ensure that it succeeds. Originate a second set of calls from a terminal and an attendant console within one extension partition to a terminal in another extension partition (neither partition being extension partition 0) to ensure that this call cannot be completed. Originate a terminal and attendant trunk call to ensure they can be completed.

Test Procedure

> NOTE: Ensure that none of the terminals or consoles chosen to use in this test are in partition 0.

1. Using the CSD, find two terminals and a console within the same partition and designate the terminals as terminal A and B and the console as console 1. Find a terminal in another partition and designate as terminal C.

2. At terminal A dial the extension number of terminal B.

    Ringback tone heard at terminal A.

    Ringing tone heard at terminal B.

3. At terminal B, go off-hook.

    Connection established between terminals.

4. At both terminals, go on-hook.

5. At console 1, press idle loop button.

6. Dial the extension number of terminal A.

    Terminal A rings.

7. At terminal A, go off-hook.

    Terminal A and console 1 are connected.

8. At terminal A, go on-hook; at console 1, press RELEASE.

9. At terminal A, go off-hook and dial the extension number of terminal C.

    Intercept tone heard.

10. At terminal A, go on-hook.

11. At console 1, press an idle loop number.

248

12. Dial the extension number of terminal C.

    Intercept tone is heard.

13. At terminal A, go off-hook and dial the 7-digit number of terminal C.

    At terminal A ringback is heard.

    At terminal C ringing is heard.

14. At terminal C, go off-hook.

    Terminals A and C are connected.

15. At terminals A and C, go on-hook.

16. At console 1, press an idle loop button.

17. Dial the 7-digit number of terminal C.

    At console 1, ringback heard.

    At terminal C, ringing heard.

18. At terminal C, go off-hook.

    Terminal C and console 1 are connected.

19. At terminal C, go on-hook.

20. At console 1, press RELEASE.

TERMINAL BUSY INDICATION

Test Description

Verify that a visual indication of the switchhook status of a particular voice terminal is provided to another terminal.

Test Procedure

1. At the signaling terminal, go off-hook.

    At the signaled terminal(s), terminal busy indication lamp lighted (status lamp).

2. At the signaling terminal, go on-hook.

    At signaled terminal(s), terminal busy indication lamp off.

THROUGH DIALING

Test Description

Verify that after the attendant selects the trunk facility on attendant-handled outgoing calls, the call can be completed by the terminal user.

Test Procedure

1. At the test terminal, go off-hook and dial attendant access code.

   At the console, ATND lamp flashes.

2. At the console, press the ANSWER button.

   Attendant and calling party connected.

   ATND lamp lighted.

3. Press the START button.

   Dial tone heard.

   Calling party split away.

   SPLIT lamp lighted.

4. Dial the trunk group access code.

   Trunk dial tone heard at the end of dialing.

   ANS lamp lighted.

5. Press the RELEASE button.

   Attendant is removed from the connection.

   Test terminal receives dial tone.

   ANS lamp off.

   SPLIT lamp off.

6. At the test terminal, dial the desired called number.

   Call progress tone is heard.

7. At the test terminal, go on-hook.

TIMED RECALL ON OUTGOING CALLS

Test Description

Make a terminal-to-trunk call. Wait until time out and recall warning tone is heard. Wait for transfer to attendant.

Test Procedure

1. At the Manager II, type **p101** (ENTER)

    The Word 1 screen appears.

    Field 1 is highlighted.

```
┌─────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 101, WORD: 1                  │
│                  TRUNK GROUP CHARACTERISTICS                      │
│                                                                   │
│   1.            Trunk Group: [---]                                │
│   2.                Balance: [-]                                  │
│   3.       Battery Reversal: [-]                                  │
│   4. Incoming Prefix Digit:  [-]                                  │
│   5.                    DCS: [-]                                  │
│   6.          Touch-Tone In: [-]                                  │
│   7.         Touch-Tone Out: [-]                                  │
│   8.             CDR Active: [-]                                  │
│   9.    AIOD Billing Number: [----]                               │
│  TIMED RECALL                                                     │
│  10.   Time: [--]                                                 │
│  11. Level: [-]                                                   │
│  12.    CDR Variable Timer: [--]                                  │
│  13.             Pad Group: [-]                                   │
│  14.              Tie Toll: [-]                                   │
│  15.  APLT Features Allowed: [-]                                  │
│  16. Disconnect Supervision: [-]                                  │
│                                                                   │
│ Connected to CC0 ON-LINE ♥ [MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT]│
│                                                                   │
│ enter command: ▄                                                  │
│ [      ][    ][F3 DATA][     ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└─────────────────────────────────────────────────────────────────┘
```

2. Enter the trunk group number in Field 1 and type **dx** (ENTER)

3. Record the recall time and level displayed in Fields 10 and 11.

    NOTE: Recall level is the number of idle trunks left in the trunk group before the timed recall takes place.

4. At the Manager II, type **p631** (ENTER)

    The Test 1 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE  -  PROCEDURE: 631,  TEST: 1                     │
│                    BUSY  OUT  A  TRUNK  GROUP                           │
│                                                                         │
│    2.              Trunk Group Number: [---]                            │
│    6. Number of Trunks In Trunk Group: [---]                            │
│    7.       Number of Busied-Out Trunks: [---]                          │
│                                                                         │
│  EQUIPMENT LOCATION                                                      │
│     8.   Module: [--]                                                   │
│     9.  Cabinet: [-]                                                    │
│    10.  Carrier: [-]                                                    │
│    11.     Slot: [--]                                                   │
│    12.  Circuit: [--]                                                   │
│                                                                         │
│  13. Maintenance Status: [-]                                            │
│  14.       Trunk Number: [---]                                          │
│                                                                         │
│                                                                         │
│                                                                         │
│  Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│                                                                         │
│  ┌─────────────────────────────────────────────────────────────────┐  │
│  enter command: ▬                                                      │
│  [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]     │
└──────────────────────────────────────────────────────────────────────┘
```

5. Type **nu** (ENTER) repeatedly until the trunk group number of the trunk group to be tested is displayed in Field 2.

6. Type **x** (ENTER)

> **CAUTION:** *Entering the* **bo** *(busy out) command can drop the user's calls in the entire trunk group.*

7. Type **bo** (ENTER)

This busies out the entire trunk group.

8. Type **nt** (ENTER)

The Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────────┐   │
│  │      ENHANCED MODE - PROCEDURE: 631, TEST: 2              │   │
│  │              BUSY OUT A TRUNK                              │   │
│  │                                                            │   │
│  │    2.            Trunk Group Number: ┌───┐                 │   │
│  │                                      │- - -│               │   │
│  │    6. Number of Trunks in Trunk Group: ┌───┐              │   │
│  │                                        │- - -│             │   │
│  │    7.      Number of Busied-Out Trunks: ┌───┐             │   │
│  │                                         │- - -│            │   │
│  │                                                            │   │
│  │  EQUIPMENT LOCATION                                        │   │
│  │      8.   Module: ┌──┐                                     │   │
│  │                   │- -│                                    │   │
│  │      9.  Cabinet: ┌─┐                                      │   │
│  │                   │-│                                      │   │
│  │     10.  Carrier: ┌─┐                                      │   │
│  │                   │-│                                      │   │
│  │     11.     Slot: ┌──┐                                     │   │
│  │                   │- -│                                    │   │
│  │     12.  Circuit: ┌──┐                                     │   │
│  │                   │- -│                                    │   │
│  │                                                            │   │
│  │  13. Maintenance Status: ┌─┐                               │   │
│  │                          │-│                               │   │
│  │  14.        Trunk Number: ┌───┐                            │   │
│  │                           │- - -│                          │   │
│  │                                                            │   │
│  │                                                            │   │
│  │  Connected to CC0 ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│  │                                                            │   │
│  │  enter command: ▄                                          │   │
│  │  ┌─────┐┌─────┐┌─────────┐┌─────┐┌────────┐┌─────────┐┌──────────┐┌─────────┐ │
│  │            │F3 DATA│        │F5 HELP││F6 FIELD││F7 INPUT││F8 CMDS│ │
│  └───────────────────────────────────────────────────────────┘   │
└─────────────────────────────────────────────────────────────────┘
```

9. Type **x** (ENTER)

10. Repeat the following sequence to release from busy the number of trunks recorded as the recall level:

   a. Type **nc** (ENTER)

   b. Type **rb** (ENTER)

11. At a terminal assigned timed recall, establish a connection with the distant trunk party.

12. Wait the approximate recall time recorded in Step 3.

   At the terminal and distant trunk party, recall warning tone (single 1-second burst of 440-Hz) is heard.

13. Wait approximately 30 seconds.

   Ringback tone heard by both parties.

   At the console, ATND lamp flashes.

14. At the console, press the ANSWER button.

   If privacy is provided, ATND lamp is lighted and the connection is established with the terminal.

   If privacy is not provided, ATND lamp is lighted and a 3-way connection is established.

15. At the console, press the RELEASE button.

    ATND lamp off.

16. At the terminal, go on-hook.

17. At the Manager II, type **nt** (ENTER)

    The Test 1 screen appears.

18. Enter the trunk group selected for testing in Step 5 in Field 2.

19. Type **x** (ENTER)

20. Type **rb** (ENTER)

    This releases the entire trunk group from busy. Be aware that this action will drop all current calls (user and maintenance) to the idle state.

TIMED REMINDER

Test Description

Verify that the attendant is alerted when a call is held on the console longer than the timed interval (about 30 seconds).

Test Procedure

1. Establish an incoming call to the console.

    At the console, ATND lamp flashes.

2. Press the ANSWER button.

    Attendant and calling party are connected.

3. Press the START button.

    Dial tone heard.

4. Dial an idle terminal.

    Ringback tone heard.

5. Press the RELEASE button.

    Ringing continues at the called terminal.

    At the console, RING lamp lighted steadily during 30-second timed interval.

    At the end of the timed interval, the RING lamp starts to flash and the audible signal is heard at the console.

6. Press the ANSWER button and instruct calling party to disconnect from the call.

7. Press the RELEASE button.

    Attendant and calling party disconnected.

TOLL RESTRICTION

Test Description

Verify that terminals assigned this feature cannot complete toll calls or calls to the toll operator without the assistance of the attendant.

Test Procedure

1. At a terminal assigned toll restriction class of service, go off-hook.

    Dial tone heard.

2. Dial trunk access code.

    Dial tone silenced.

    Central office (CO) dial tone heard.

3. Dial restricted toll call number.

    CO dial tone silenced.

    Intercept tone heard.

4. Go on-hook.

TRANSFER

Test Description With a Transfer button

Verify that a voice terminal with a TRANSFER button can transfer a 1- or 2-party call to a third party.

Test Procedure

1. Select a voice terminal with a TRANSFER button and designate it as terminal A.

2. Select two other terminals and designate them as terminals B and C.

3. Establish a terminal-to-terminal call between terminals A and B.

4. At terminal A, press the TRANSFER button.

    Terminal B is placed on hold.

    Dial tone is heard.

5. Dial terminal C.

    Ringing is heard.

6. At terminal C, answer call.

    Connection established between terminals A and C.

7. Press the TRANSFER button.

    Transfer is complete.

8. At terminal A, go on-hook.

    Verify that terminals B and C are connected.

9. At terminals B and C, go on-hook.

Test Procedure Without a TRANSFER Button

1. Select a voice terminal with the transfer feature assigned to it and designate as terminal A.

2. Select two other terminals and designate them as terminals B and C.

3. Establish a terminal-to-terminal call between terminals A and B.

4. At terminal A, flash the switchhook or press RECALL.

    Terminal B put on hold.

    Dial tone heard.

5. Dial terminal C.

    Ringing is heard.

6. At terminal A, go on-hook.

    Verify that terminal B and C are connected.

7. At terminals B and C, go on-hook.

TRUNK GROUP BUSY—WARNING INDICATORS TO ATTENDANT

Test Description

Verify that the WARN lamp (if provided) lights when a predetermined number of idle trunks are reached. Verify that the BUSY lamp lights when all trunks in a trunk group are busy.

Test Procedure

1. At the Manager II, type **p631** [ENTER]

   The Test 1 screen appears.

```
┌──────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 631, TEST: 1                 │
│                   BUSY OUT A TRUNK GROUP                           │
│                                                                    │
│   2.              Trunk Group Number: [---]                        │
│   6.  Number of Trunks In Trunk Group: [---]                       │
│   7.      Number of Busied-Out Trunks: [---]                       │
│                                                                    │
│  EQUIPMENT LOCATION                                                │
│     8.   Module: [--]                                              │
│     9.  Cabinet: [-]                                               │
│    10.  Carrier: [-]                                               │
│    11.     Slot: [--]                                              │
│    12.  Circuit: [--]                                              │
│                                                                    │
│  13. Maintenance Status: [-]                                       │
│  14.      Trunk Number: [---]                                      │
│                                                                    │
│                                                                    │
│ Connected to CC0 ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] │
│                                                                    │
│ enter command: ▄                                                   │
│     [F3 DATA]      [F5 HELP] [F6 FIELD] [F7 INPUT] [F8 CMDS]        │
└──────────────────────────────────────────────────────────────────┘
```

2. Type **nu** [ENTER] until the trunk group number of the trunk to be tested is displayed in Field 2.

3. Type **x** [ENTER]

4. If only the trunk group BUSY indication is to be tested, proceed to Step 11. Proceed to Step 5 if the trunk group BUSY indication and WARN indication are to be tested.

5. For the trunk group being tested, determine the maximum number of trunks that can be busy without causing the trunk group WARN lamp to light.

6. Type **nt** [ENTER]

   Test 2 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│        ENHANCED MODE  -  PROCEDURE: 631,  TEST: 2                     │
│                     BUSY OUT A TRUNK                                  │
│                                                                       │
│    2.              Trunk Group Number: ┌───┐                          │
│                                        │---│                          │
│                                        └───┘                          │
│    6. Number of Trunks in Trunk Group: ┌───┐                          │
│                                        │---│                          │
│                                        └───┘                          │
│    7.      Number of Busied-Out Trunks: ┌───┐                         │
│                                         │---│                         │
│                                         └───┘                         │
│                                                                       │
│  EQUIPMENT LOCATION                                                   │
│      8.   Module: ┌──┐                                                │
│                   │--│                                                │
│                   └──┘                                                │
│      9.  Cabinet: ┌─┐                                                 │
│                   │-│                                                 │
│                   └─┘                                                 │
│     10.  Carrier: ┌─┐                                                 │
│                   │-│                                                 │
│                   └─┘                                                 │
│     11.     Slot: ┌──┐                                                │
│                   │--│                                                │
│                   └──┘                                                │
│     12.  Circuit: ┌──┐                                                │
│                   │--│                                                │
│                   └──┘                                                │
│                                                                       │
│  13. Maintenance Status: ┌─┐                                         │
│                          │-│                                         │
│                          └─┘                                         │
│  14.        Trunk Number: ┌───┐                                      │
│                           │---│                                      │
│                           └───┘                                      │
│                                                                       │
│  Connected to CCO ON-LINE ♥ │MAJOR││MINOR││RUN TAPE││BUSY OUT││IN USE││WAIT│ │
│  ─────────────────────────────────────────────────────────────────── │
│  enter command: ▄                                                     │
│  ┌────┐┌────┐┌F3 DATA┐┌────┐┌F5 HELP┐┌F6 FIELD┐┌F7 INPUT┐┌F8 CMDS┐   │
└─────────────────────────────────────────────────────────────────────┘
```

7. Type **x** (ENTER)

8. Type **bo** (ENTER)

   The trunk equipment location displayed in Fields 8 through 12 is busied out.

9. Repeat the following sequence until the number of trunks determined in Step 5 is busied out:

   a. Type **nc** (ENTER)

   b. Type **x** (ENTER)

   c. Type **bo** (ENTER)

      At the console, the WARN lamp is off.

      At the console, the BUSY lamp is off.

10. Using the sequence in Step 9, busy-out one more trunk in the trunk group being tested.

    At the console, the WARN lamp is on.

11. At the Manager II, type **nt** (ENTER)

    The Test 1 screen appears.

    NOTE: If the trunk group to be tested is in a Route Advance group, all of the trunk groups in the Route Advance group must be busied out.

12. Enter the trunk group being tested and type **x** [ENTER]

13. Type **bo** [ENTER]

> At the console, the BUSY lamp is on.

14. At the Manager II, type **rb** [ENTER]

> At the console, the BUSY lamp is off.
>
> At the console, the WARN lamp is off.

TRUNK-TO-TRUNK CONNECTIONS

Test Description

Verify that an incoming trunk call can be extended by the attendant to an outgoing trunk or an outgoing trunk call can be extended by the attendant to another outgoing trunk. Verify feature is denied if the two trunks are trunk-restricted.

Test Procedure

1. Arrange for an incoming trunk call to the attendant.

> At the console, ATND lamp flashes.

2. At the console, press the ANSWER button.

> ATND lamp lighted.
>
> Connection established.

3. Press the START button.

> Incoming call placed on hold.
>
> Dial tone heard.

4. Dial the outgoing trunk access code.

> Distant dial tone heard or attendant answers if automatic tie trunk is being tested.
>
> Intercept tone heard if trunks are restricted.

5. Dial or request attendant to dial the selected party.

> Connection established.

6. Instruct test parties to disconnect when test is complete.

7. Press the RELEASE button.

> ATND lamp off.

TRUNK VERIFICATION

Trunk Verification by Attendant

Test Description

Using the Manager II, seize a central office (CO) trunk and make a call from the test line to a local test center. At the console, verify that the trunk is in a ringing state. When the call is answered, verify that the trunk is in a busy state.

Test Procedure

1. From local records, determine which outgoing CO trunk is to be used in the test.

2. Inform the test center to delay in answering the call on the selected trunk.

3. At the Manager II, type **p642** (ENTER)

4. Type **nt** (ENTER)

   The Test 2 screen appears.

```
ENHANCED MODE - PROCEDURE: 642, TEST: 2
                 TEST A SPECIFIC TRUNK

TEST LINE EQUIPMENT LOCATION        TRUNK DIAL ACCESS CODE
    2.  Module: [--]                    12.  First Digit: [--]
    3.  Cabinet: [-]                     13.  Second Digit: [-]
    4.  Carrier: [-]                     14.   Third Digit: [-]
    5.    Slot: [--]                     15.  Fourth Digit: [-]
    6.  Circuit: [--]
                                         16.  Trunk Group: [---]
TRUNK EQUIPMENT LOCATION              17.   Test State: [-]
    7.  Module: [--]
    8.  Cabinet: [-]
    9.  Carrier: [-]
   10.    Slot: [--]
   11.  Circuit: [--]




Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ]

enter command: ▬
[        ][        ][F3 DATA ][        ][F5 HELP ][F6 FIELD][F7 INPUT][F8 CMDS]
```

NOTE: If a default test line is assigned, Field 7 is highlighted. If a default test line is not assigned, enter the test line equipment location in Fields 2 through 6.

5. Enter the trunk equipment location to be tested in Fields 7 through 11.

6. Connect the test set to the test line equipment location displayed in Fields 2 through 6.

7. At the Manager II, type **x** (ENTER)

    If the test line is on-hook and available and if the selected trunk is available, a 1 is displayed in Field 17. If either the test line or the trunk is busy, a 0 is displayed in Field 17; enter **x**   again or select another trunk for the test.

8. At the test line, dial the trunk access code.

    Dial tone silenced.

    CO dial tone heard.

9. At the test line, dial the local test center.

    CO dial tone silenced.

    Ringback heard.

10. At the console, press an idle loop button.

    ATND lamp lighted.

11. Press the VERFY button.

    VERFY lamp lighted.

12. Press the START button.

    Dial tone heard.

13. Dial the trunk group access code.

    Dial tone silenced.

14. Dial the 2-digit trunk number.

    Miscellaneous tone heard followed by ringback tone.

15. Press the RELEASE button.

    ATND lamp off.

    VERFY lamp off.

    Verification of the trunk in ringing state completed.

16. At the test center, answer the call.

    Ringing tone silenced.

17. At the console, press an idle loop button.

    ATND lamp lighted.

18. Press the VERFY button.

VERFY lamp lighted.

19. Press the START button.

     Dial tone heard.

20. Dial the trunk group access code.

     Dial tone silenced.

21. Dial the 2-digit trunk number.

     Miscellaneous tone heard by all parties.

     Three-party connection established.

22. Press the RELEASE button.

     ATND lamp off.

     VERFY lamp off.

     Verification of the trunk in busy state completed.

23. At the test line, go on-hook.

Trunk Verification by Voice Terminal

Test Description

Establish a terminal-to-terminal or trunk-to-terminal call on a trunk. At a designated terminal for trunk verification, dial trunk verification dial code for busy trunk and verify 3-way connection established. Perform the test from an incoming dial-repeating tie trunk (if provided) and verify busy tone. At a designated terminal, dial maintenance busy/unbusy dial code for a particular trunk to verify that the trunk is on or off maintenance busy.

Test Procedure

1. At line assigned Trunk Verification by Voice Terminal, designate as terminal A.

     NOTE: Terminal A must be a remote maintenance terminal for trunk verification.

2. At a nonrestricted terminal line, designate as terminal B.

3. At the Manager II, type **p642** [ENTER]

4. Type **nt** [ENTER]

     The Test 2 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│          ENHANCED MODE - PROCEDURE: 642, TEST: 2                       │
│                    TEST A SPECIFIC TRUNK                               │
│                                                                        │
│  TEST LINE EQUIPMENT LOCATION        TRUNK DIAL ACCESS CODE            │
│      2.  Module: [--]                   12.  First Digit: [--]         │
│      3.  Cabinet: [-]                    13.  Second Digit: [-]        │
│      4.  Carrier: [-]                    14.  Third Digit: [-]         │
│      5.   Slot: [--]                     15.  Fourth Digit: [-]        │
│      6.  Circuit: [--]                                                 │
│                                          16.  Trunk Group: [---]       │
│  TRUNK EQUIPMENT LOCATION                17.  Test State: [-]          │
│      7.  Module: [--]                                                  │
│      8.  Cabinet: [-]                                                  │
│      9.  Carrier: [-]                                                  │
│     10.   Slot: [--]                                                   │
│     11.  Circuit: [--]                                                 │
│                                                                        │
│                                                                        │
│                                                                        │
│  Connected to CCO ON-LINE ♥ │ MAJOR ││ MINOR ││ RUN TAPE ││ BUSY OUT ││ IN USE ││ WAIT │
│ ┌────────────────────────────────────────────────────────────────┐   │
│ │ enter command: ▄                                                 │   │
│ └────────────────────────────────────────────────────────────────┘   │
│ │    ││    ││ F3 DATA ││    ││ F5 HELP ││ F6 FIELD ││ F7 INPUT ││ F8 CMDS │ │
└──────────────────────────────────────────────────────────────────────┘
```

NOTE: If a default test line is assigned, Field 7 is highlighted. If a default test line is not assigned, enter the test line equipment location in Fields 2 through 6.

5. Enter the trunk equipment location to be tested in Fields 7 through 11.

6. Connect the test set to the test line equipment location displayed in Fields 2 through 6.

7. At the Manager II, type **x** [ENTER]

    If the test line and the selected trunk are on-line and available, a 1 is displayed in Field 17. If either the test line or the trunk is busy, a 0 is displayed in Field 17; enter **x** again or select another trunk for the test.

8. At terminal B, establish a test call to a distant party on the trunk selected for test.

9. At terminal A, go off-hook.

    Dial tone heard.

10. Dial the trunk verification access code.

    Dial tone heard.

11. Dial the trunk group access code or attendant ID number and trunk number of trunk selected for test.

    Busy override tone (medium pitched tone) heard for approximately 4 seconds.

Three-way connection established.

12. At terminal A, go on-hook.

Trunk verification of busy trunk by designated terminal test complete.

13. At terminal A, go off-hook.

Dial tone heard.

14. Dial the maintenance busy code.

Dial tone heard.

15. Dial the trunk group access code or attendant ID number selected for test.

Confirmation tone (three short bursts of dial tone) heard.

16. At terminal A, go on-hook.

Trunk maintenance busy test complete.

17. At terminal A, go off-hook.

Dial tone heard.

18. Dial the maintenance unbusy code.

Dial tone heard.

19. Dial the trunk group access code or attendant ID number and trunk number selected for test.

Confirmation tone heard.

20. At terminal A, go on-hook.

Trunk maintenance unbusy test complete.

UNATTENDED CONSOLE SERVICE

Alternate Console Position

Test Description

Verify that an alternate console position can be used instead of the regular attendant console position(s).

Test Procedure

1. At the main console, unplug the headset or handset.

Main console out of service.

2. Set externally mounted transfer key to the alternate console position.

3. At an alternate console position, plug in the headset or handset.

   Alternate console in service.

4. At the console(s) not being tested, press the POS BUSY button.

5. At the test terminal, go off-hook and dial 0.

   At the alternate console position, ATND lamp flashes.

6. At the alternate console position, press the ANSWER button.

   ATND lamp lighted.

7. Press the RELEASE button.

   ATND lamp off.

8. At the test terminal, go on-hook.

9. At the console(s) not being tested, press the POS BUSY button.

10. At the alternate console position, unplug the headset or handset.

11. At the regular console position, set the externally mounted console transfer key to the regular position.

    Alternate console out of service.

12. At the regular console position, plug in the headset or handset.

    Regular console in service.

Call Answer From Any Voice Terminal (CAAVT)

Test Description

Establish type of night service provided to activate CAAVT. Verify that gong can be silenced and incoming call answered by terminal.

Test Procedure

1. At the console, press the NIGHT button.

2. Busy-out the default night terminal.

3. At the Manager II, type **p635** ENTER

4. Type **t3** ENTER

   The Test 3 screen appears.

   Field 10 is highlighted.

```
┌────────────────────────────────────────────────────────────────┐
│           ENHANCED MODE - PROCEDURE: 635, TEST: 3                │
│          FIND THE CAUSE OF MAINTENANCE BUSY OUT BY EXTENSION     │
│                                                                  │
│    2. Port Type: [--]                                            │
│                                                                  │
│  EQUIPMENT LOCATION                                              │
│      3.   Module: [--]                                           │
│      4.  Cabinet: [-]                                            │
│      5.  Carrier: [-]                                            │
│      6.     Slot: [--]                                           │
│      7.  Circuit: [--]                                           │
│                                                                  │
│      8.         Location Status: [-]                             │
│      9.          Circuit Status: [-]                             │
│     10.               Extension: [-----]                         │
│     11. Maintenance Busy Status: [---]                           │
│     12.      Trunk Group Number: [---]                           │
│     13.      Procedure Reference: [--]                           │
│                                                                  │
│                                                                  │
│                                                                  │
│  Connected to CC0 ON-LINE ♥ [MAJOR] [MINOR] [RUN TAPE] [BUSY OUT] [IN USE] [WAIT] │
│                                                                  │
│  ════════════════════════════════════════════════════════════  │
│  enter command: ▄                                                │
│  [       ][      ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS] │
└────────────────────────────────────────────────────────────────┘
```

5. Enter the extension number of the default night terminal in Field 10.

6. Type **bo** [ENTER]

7. If the default night terminal is assigned to a hunt group, busy out each terminal in the hunt group using steps 5 and 6.

8. If all nondirect inward dialing (non-DID) incoming trunks are assigned to night terminals:

    a. Select a non-DID trunk to use in test.

    b. At the Manager II, repeat steps 5 and 6 to busy-out the night terminal assigned to answer the trunk selected for test.

    c. If the night terminal is assigned to a hunt group, repeat steps 5 and 6 to busy out each terminal in the hunt group.

9. Designate two nonrestricted terminal lines as terminals A and B.

10. At terminal A, go off-hook and dial the attendant access code.

    CAAVT gong sounds.

11. Arrange for an incoming call on trunk to be used for test.

12. At terminal B, go off-hook and dial the CAAVT access code.

    Terminals A and B connected.

13. At terminals A and B, go on-hook.

14. At terminal B, go off-hook and dial the CAAVT access code.

> Gong silenced.

> Terminal B connected to central office (CO) trunk.

15. At terminal B and CO, disconnect from test call.

16. At the Manager II, repeat the following sequence to release from busy each of the line circuits busied out:

   a. Enter the extension number in Field 10.

   b. Type **rb** (ENTER)

17. At the console, press the NIGHT button.

Preselected Call Routing—Common Terminal

Test Description

Arrange for an incoming call on a trunk assigned to a night terminal and verify that the call is routed to the correct terminal. Arrange for an incoming call on a trunk not assigned to a night terminal and verify that the call is routed to a common night terminal.

Test Procedure

1. At the console, press the NIGHT button.

> NIGHT lamp lighted.

> **NOTE:** If a common terminal is not assigned, the NIGHT lamp flashes instead of lighting steadily. If the handset is unplugged from the jack, all functions and lamps at the attendant console are disabled.

2. Arrange for an incoming call on a trunk assigned to a night terminal or arrange for an incoming call to a trunk not assigned a night terminal.

> At the night terminal, ringing heard.

3. At the night terminal, go off-hook.

> Connection established.

4. Go on-hook.

5. At the console, press the NIGHT button.

Preselected Call Routing—Trunk-to-Terminal

Test Description

Make a night assignment. Arrange for a Listed Directory Number (LDN) call to a night terminal. Cancel the night terminal assignment and verify.

Test Procedure

1. At the console, press an idle loop button.

    ATND lamp lighted.

2. Press the START button.

    Dial tone heard.

3. Dial the trunk-to-terminal assignment access code.

    Dial tone heard.

4. Dial the night terminal number to be assigned.

    Dial tone heard.

5. Dial the trunk identification (ID) code of the trunk to be assigned.

6. Dial the 3-digit trunk number (add leading 0, if required).

    Confirmation tone (three short bursts of dial tone) heard.

7. Press the RELEASE button.

    Night terminal assignment completed.

8. At the appearance assigned as night terminal, designate as terminal A.

9. At the console, press the NIGHT button.

    NIGHT lamp is lighted when a common night terminal is assigned; otherwise, the NIGHT lamp is flashing.

    Console is in night mode.

10. Arrange an incoming LDN call on the trunk assigned to the night terminal.

11. At terminal A, wait for an incoming signal.

    Ringing heard.

12. At terminal A, go off-hook.

    Connection established.

13. At terminal A, instruct calling party to go on-hook; then go on-hook.

14. At the console, press an idle loop button.

ATND lamp lighted.

15. Press the START button.

Dial tone heard.

16. Dial the code to clear night terminal assignments.

Confirmation tone heard.

17. Press the RELEASE button.

ATND lamp off.

Night terminal assignments canceled.

VARIABLE FORMATTED CALL DETAIL RECORDING

Test Description

Because of the nature of this feature, it is not feasible to give the complete test instructions. There are many different storage devices, some of which are customer provided. The System 85 port circuits used with this feature are tested in the System Demand Test section of this book. To test the feature, make a trunk call on a station. Record all of the call information required to verify proper operation of the feature. Use local information to obtain the call records from the storage device. Compare the call information you recorded with the call records obtained from the storage device. They should be the same.

VISUALLY IMPAIRED ATTENDANT SERVICE

Test Description

Verify that a visually impaired person can operate the attendant console with special devices and/or audible signals. Arrange for an incoming call and answer with a light pen.

Test Procedure

1. Arrange for an incoming call to the visually impaired attendant console.

Attendant receives a timed reminder audible ringing signal.

Timed reminder tone heard through the console speaker.

Loop indicator lamp flashes indicating which loop the reminder is occurring on and the state of the call.

2. Move the light sensor/pen across the HOLD, BUSY, or RING lamps to find the active loop and identify in which state the reminder occurred.

On-off tone heard through headset when the light probe is held over the flashing indicator lamp.

3. Press the loop key associated with the flashing lamp to establish a connection with the calling party.

> Timed reminder tone is silenced.

VOICE TERMINAL RESTRICTIONS

Inward Restriction

Test Description

Make a call from an attendant extended central office (CO) trunk and a Direct Inward Dialing (DID) trunk to an Inward Restricted terminal.

Test Procedure

1. Arrange an incoming CO trunk call to the attendant.

   > At the console, ATND lamp flashes.

2. At the console, press the ANSWER button.

   > ATND lamp lighted.

3. Press the START button.

   > Dial tone heard.

   > Calling party split away.

4. Dial the Inward Restricted terminal to be tested.

   > Intercept tone heard.

5. Press the CANC button.

   > Intercept tone removed.

   > Calling party reconnected.

6. Press the RELEASE button.

7. If Inward Restriction is to be tested using a DID trunk, arrange an incoming DID call to the terminal having an Inward Restriction class-of-service.

8. Repeat the test from Step 1 using a DID trunk instead of a CO trunk.

Manual Termination Line

Test Description

Attempt to dial a terminal assigned the Manual Termination Line feature and verify that intercept tone is received. Dial the attendant and advance the call to the restricted terminal.

Test Procedure

1. Select a line assigned Manual Termination Line service and designate it as terminal A.

2. Select a nonrestricted line and designate it as terminal B.

3. At terminal B, dial terminal A.

   Intercept tone heard.

4. At terminal B, go on-hook.

5. At terminal B, place a call to the console.

   Connection established with the console.

6. At the console, press the START button and dial the number assigned to terminal A.

   Terminal B on hold.

7. At terminal A, go off-hook.

   Connection established with the console.

8. At the console, press the RELEASE button.

   Terminal call extended to terminal having Manual Termination Line service.

9. At terminals A and B, go on-hook.

Origination Restriction

Test Description

Verify that line assigned Origination Restriction cannot originate calls.

Test Procedure

1. At line assigned Origination Restriction, go off-hook.

   Intercept tone heard.

2. Go on-hook.

Outward Restriction

Test Description

Verify that a terminal assigned this feature is restricted from placing outgoing central office (CO) trunk calls.

Test Procedure

1. At a terminal assigned Outward Restriction, go off-hook and dial the outgoing trunk access code.

    Intercept tone heard.

2. At the terminal, go on-hook.

Terminal-to-Terminal Only Calling

Test Description

Verify that a terminal can only call another terminal within the switch. Attempt to dial outgoing access code to assure denial.

Test Procedure

1. Designate terminal line assigned Terminal-to-Terminal Only Calling as terminal A.

2. Designate another terminal line as terminal B.

3. At terminal A, go off-hook.

    Dial tone heard.

4. Dial terminal B.

    Dial tone silenced.

    Ringback heard.

    At terminal B, ringing heard.

5. At terminal B, go off-hook.

    Connection established.

6. At terminals A and B, go on-hook.

    Terminal-to-terminal call tested.

7. At terminal A, go off-hook and dial outgoing trunk access code.

    Intercept tone heard.

8. At terminal A, go on-hook.

   Outgoing trunk call attempt denied.

Termination Restriction

Test Description

Verify that terminals assigned this feature are denied incoming calls.

Test Procedure

1. At terminal test line, go off-hook and dial the terminal assigned Termination Restriction class of service.

   Intercept tone verifies the restriction is active on this terminal.

2. At terminal test line, go on-hook.

Notes

APPENDIX A—ADDITIONAL X-RAY TESTS

This appendix contains additional X-RAY tests. The tests and their use are as follows:

- **Attendant Console Tests**. X-RAY can test attendant consoles, but first they must be assigned with Procedure 210 Word 1.

- **Procedure 900 Test 2**, *Circuit Pack Test Times*. Procedure 900 Test 2 displays test times for Universal Module port circuit packs.

- **Procedure 900 Test 3**, *Test Controller Status*. Procedure 900 Test 3 displays test controller status.

- **Procedure 900 Test 4**, *Circuit Failure Cycle*. Procedure 900 Test 4 displays the cycle number when a failure first occurred for network port circuit packs.

- **Procedure 902 Test 1**, *System Configuration Display Common Control Equipment*. Procedure 902 Test 1 displays the common control equipment and a total system count of modules, cabinets, and carriers.

- **Procedure 903 Test 1**, *Universal Module Circuit Pack Information*. Procedure 903 Test 1 displays ID information for Universal Module circuit packs.

- **Procedure 904 Test 1-2**, *RS-232C Administration*. Procedure 904 Tests 1-2 administers a RS-232C interface. This procedure is used by system developers and is not applicable for field use.

ATTENDANT CONSOLE TESTING

Purpose

X-RAY can test attendant consoles but first they must be assigned using Procedure 210 Word 1. An attendant console must be wired to the cross-connect field before it can be tested.

   NOTE: Run Procedure 901 Tests 1, 2, and 3 before using this procedure.

Word 1—Operation

1.   Type **p210** [ENTER]

   The Word 1 screen appears.

```
┌─────────────────────────────────────────────────────────────────────┐
│              ENHANCED MODE - PROCEDURE: 210, WORD: 1                   │
│                   CONSOLE ASSIGNMENTS - HARDWARE                       │
│                                                                       │
│   1. Console Number: [--]                                             │
│                                                                       │
│   ATTENDANT INTERFACE EQUIPMENT LOCATION                              │
│      2.   Module: [--]                                                │
│      3. Cabinet: [-]                                                  │
│      4. Carrier: [-]                                                  │
│      5.    Slot: [--]                                                 │
│      6. Circuit: [--]                                                 │
│                                                                       │
│   DATA CHANNEL EQUIPMENT LOCATION                                     │
│      7. Carrier: [-]                                                  │
│      8.    Slot: [--]                                                 │
│      9. Circuit: [--]                                                 │
│                                                                       │
│                                                                       │
│                                                                       │
│ Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ] │
│                                                                       │
│ enter command: ▬                                                      │
│ [        ][      ][F3 DATA ][      ][F5 HELP ][F6 FIELD ][F7 INPUT ][F8 CMDS ] │
└─────────────────────────────────────────────────────────────────────┘
```

2.   Enter the console number in Field 1.

Attendant Interface Equipment Location

3. Enter the attendant interface equipment location in Fields 2 through 6. Enter the module number in Field 2, the cabinet number in Field 3, the carrier number or letter in Field 4, the slot number in Field 5, and the circuit number in Field 6.

Data Channel Equipment Location

4. Enter the data channel equipment location in Fields 7 through 9. Enter **0** for the common control number in Field 7. Enter the slot number in Field 8 and the circuit number in Field 9.

Console Lamp and Button Test

This test checks the console LEDs, buttons, and audible signals, and is run as follows:

1. Use Procedure 210, Word 1 to administer each console to be tested.

2. Plug handset/headset into a console. A 440 Hz tone should be heard for 10 seconds. Then the LEDs should start to cycle in the following sequence:

   Left-hand set of columns cycles from left to right and top to bottom.

   Center set of columns cycles from left to right and top to bottom.

   Right-hand set of columns cycles from left to right and top to bottom.

   DSS field cycles from left to right and top to bottom.

   Alphanumeric display cycles through all letters, numbers, and characters.

3. Press a touch-tone telephone pad button. The cycling should stop, and the number pressed should appear in all eight alphanumeric displays. After 30 seconds, the cycling will start again.

4. Repeat Step 3 for each pad button.

5. Press any console button. The LEDs cycling should stop, and the LEDs associated with the button pressed should light. After 30 seconds, the LEDs should start to cycle again.

6. Open front panel on console and press **LTEST** switch. All LEDs should light, and ringer should sound.

7. Repeat Steps 2 through 6 for each console to be tested.

If a console does not pass the lamp and button test, check the console cabling. If the cabling is correct, but the console still will not pass, replace console and run the test again.

PROCEDURE 900 TEST 2, CIRCUIT PACK TEST TIMES

Use Procedure 900, Test 2 to display test times for universal module *port* circuit packs. Procedure 900, Test 2 was developed for factory applications.

Test 2—Operation

NOTE: Procedure 900, Test 1 must be running to use Test 2.

1. Type **t2** (ENTER)

   The Test 2 screen appears.

   Field 2 is highlighted.

```
┌─────────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 900, TEST: 2                     │
│                    CIRCUIT PACK TEST TIMES                             │
│                                                                       │
│ EQUIPMENT LOCATION                      END TEST TIME                  │
│    2.  Module: [--]                     11.  Month: [--]               │
│    3. Cabinet: [-]                      12.    Day: [--]               │
│    4. Carrier: [-]                      13.   Hour: [--]               │
│    5.    Slot: [--]                     14. Minute: [--]               │
│                                                                       │
│  6. Pack Status: [-]                                                   │
│                                                                       │
│ START TEST TIME                                                        │
│    7.  Month: [--]                                                     │
│    8.    Day: [--]                                                     │
│    9.   Hour: [--]                                                     │
│   10. Minute: [--]                                                     │
│                                                                       │
│                                                                       │
│ Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ] │
│                                                                       │
│ enter command: ■                                                      │
│ [      ][      ][F3 DATA][      ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└─────────────────────────────────────────────────────────────────────┘
```

   Fields 2 through 5 show the equipment location of the first translated universal module port slot (usually cabinet 0, carrier C, slot 0).

   Field 6 shows the pack status (0 = circuit pack is not translated, 1 = circuit pack is not present, 2 = circuit pack is present).

   Fields 7 through 10 show start test time in month, day, hour, and minute.

   Fields 11 through 14 show end test time in month, day, hour, and minute.

2. To display another circuit pack test times, do either a or b:

    a. Enter the **cf** (change field) command with one of the equipment location fields as its argument (Fields 2-5). Enter a valid universal module port location.

    b. Type **nc** (ENTER)

        Fields 2 through 5 show the next universal module port location.

        Entering **nc** repeatedly steps through all the slot locations from carrier C through carrier E of the universal module.

        When the last slot of carrier E is displayed, entering **nc** steps to the first port slot (carrier C slot 0) of the next universal module if one is translated. If no other universal modules are translated, Fields 2 through 14 become dashed. Entering **nc** again causes Fields 2 through 14 to show the equipment location and test times of the first port slot of the first translated universal module.

        You can enter **nu** to step to the next universal module.

PROCEDURE 900 TEST 3, TEST CONTROLLER STATUS

Use Procedure 900, Test 3 to display the status of *round robin* test controllers or to manually turn on or off test controllers. Procedure 900, Test 3 was developed for factory applications.

Test 3—Operation

> **NOTE:** Procedure 900, Test 1 must be running to use Test 3.

1. Type **t3** (ENTER)

    The Test 3 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│            ENHANCED MODE - PROCEDURE: 900, TEST: 3                      │
│                     TEST CONTROLLER STATUS                             │
│                                                                        │
│   2. Controller Number: [---]                                          │
│   3. Controller status: [-]                                            │
│   4. Controlling Agent: [-]                                            │
│   5.       Cycle count: [----]                                         │
│                                                                        │
│  TESTING LOCATION                                                      │
│      6.  Module: [--]                                                   │
│      7. Cabinet: [-]                                                    │
│      8. Carrier: [-]                                                    │
│      9.    Slot: [--]                                                   │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│ Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ] │
│                                                                        │
│ enter command: ▬                                                       │
│ [        ][      ][F3 DATA ][     ][F5 HELP ][F6 FIELD ][F7 INPUT][F8 CMDS] │
└──────────────────────────────────────────────────────────────────────┘
```

Field 2 shows the controller number. (When you invoke Test 2 initially, Field 2 displays controller number 0.)

Field 3 shows the controller status (0 = controller not running, 1 = controller running, 2 = controller not running, diagnostic encode, 3 = controller running, diagnostic encode).

Field 4 shows the controlling agent (0 = XRAY, 1 = User).

Field 5 shows the cycle count of the controller.

Fields 6 through 9 shows the testing location of the controller.

2. To display the status of another test controller , do either a or b:

    a. Type **cf2** (ENTER) and enter a valid controller number in Field 2. (See Table X in Appendix C.)

    b. Type **nc** (ENTER)

        Field 2 shows the next controller number.

        Entering **nc** repeatedly steps through all the controllers.

        After the last controller number is displayed, entering **nc** causes controller number 0 to appear. (There are 255 controllers, but only the first 167 are valid.)

3. To turn on or off a controller, type **nu** (ENTER)

    Field 4 changes to 1 indicating the User has control.

4. Type **s** (ENTER) to turn off the controller.

    Field 3 changes to 0 to indicate the controller is not running.

    When the controller shown in Field 2 is turned off it stops cycling and the specific tests performed by that controller no longer execute.

5. Type **x** (ENTER) to turn on the controller.

    Field 3 changes to 1 to indicate the controller is running.

6. Type **nu** (ENTER) to return the controller to X-RAY control.

    Field 4 changes to 0 indicating X-RAY has control.

    NOTE: Turning off test controllers reduces test coverage for the switch and should be avoided.

PROCEDURE 900, TEST 4, CIRCUIT FAILURE CYCLE

Use Procedure 900, Test 4 to display the cycle count when a failure first occurred for network port circuit packs (modules 0-30).

   NOTE: Procedure 900, Test 1 must be running to use Test 4.

Test 4—Operation

   1. Type **t4** (ENTER)

      The Test 4 screen appears.

      Field 2 is highlighted.

```
+---------------------------------------------------------------+
|        ENHANCED MODE - PROCEDURE: 900, TEST: 4                 |
|                  CIRCUIT FAILURE CYCLE                         |
|                                                               |
| EQUIPMENT LOCATION                                            |
|    2.  Module: [--]                                            |
|    3. Cabinet: [-]                                             |
|    4. Carrier: [-]                                             |
|    5.    Slot: [--]                                            |
|    6.    Port: [-]                                             |
|                                                               |
|    7.     Status: [-]                                          |
|    8. Fault Cycle: [----]                                      |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
| Connected to CC0 ON-LINE ♥[MAJOR][MINOR][RUN TAPE][BUSY OUT][IN USE][WAIT]|
|                                                               |
| enter command: ■                                              |
| [    ][    ][F3 DATA][    ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]|
+---------------------------------------------------------------+
```

2. To display the cycle when a failure first occurred, do either a or b:

    a. Enter the equipment location in Fields 2 through 6. Enter the module number in Field 2, the cabinet number in Field 3, the carrier number or letter in Field 4, the slot number in Field 5, and the port number in Field 6.

        Field 7 displays the status (0 = pack is not translated, 1 = pack is translated, 2 = port has failed).

        If the port has failed (2 in Field 7), then Field 8 shows the cycle when the failure first occurred.

        To enter another equipment location, enter the **cf** (change field) command with one of the equipment location fields as its argument (Fields 2-6). Enter a valid network port location.

    b. Type **nf** [ENTER]

        Fields 2 through 6 show the equipment location of the first failure.

        Field 7 shows 2 to indicate the port has failed.

        Field 8 shows the cycle when the failure first occurred.

        Typing **nf** [ENTER] repeatedly steps through all the faults.

        After the last fault is displayed, Fields 2 through 8 become dashed.

        Typing **nf** [ENTER] again displays the first fault.

PROCEDURE 902, TEST 1, SYSTEM CONFIGURATION DISPLAY COMMON CONTROL EQUIPMENT

Purpose

Use Procedure 902 Test 1 to display the common control equipment and a total system count of modules, cabinets, and carriers.

NOTE: Run Procedure 901 Tests 1, 2, and 3 before using this procedure.

Test 1—Operation

1. Type **p902** (ENTER)

   WAIT appears on the screen.

   The Test 1 screen appears.

```
┌──────────────────────────────────────────────────────────────────────┐
│              ENHANCED MODE - PROCEDURE: 902, TEST: 1                    │
│          SYSTEM CONFIGURATION DISPLAY COMMON CONTROL EQUIPMENT          │
│                                                                        │
│   2. 501CC: [·]                    TOTAL SYSTEM COUNTS                  │
│   3. Cache: [·]                      14. 4-MHZ Channels: [·]            │
│   4. Memory Circuit Pack Count: [·]  15. Network Module: [··]           │
│   5.          Real Time Clock: [·]   16.        Cabinet: [···]          │
│   6. DCIU: [·]                       17.        Carrier: [···]          │
│                                                                        │
│  DATA CHANNEL PORT COUNT                                               │
│     7. High Speed: [·]                                                  │
│     8.  Low Speed: [··]                                                 │
│                                                                        │
│     9. RMATS: [··]                                                      │
│    10. TMS: [·]                                                         │
│    11. RMI: [·]                                                         │
│    12. Attendant Console Count: [··]                                    │
│    13. PCC Count: [·]                                                   │
│                                                                        │
│  Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ]│
│                                                                        │
│  enter command: ▄                                                      │
│  [        ][   ][F3 DATA][        ][F5 HELP][F6 FIELD][F7 INPUT][F8 CMDS]│
└──────────────────────────────────────────────────────────────────────┘
```

2. Type **x** (ENTER)

   Common control equipment and the total system count is displayed in Fields 2 through 17.

   To determine data channel board count add the numbers shown in Fields 7 and 8 and divide by 16.

PROCEDURE 903 TEST 1, UNIVERSAL MODULE CIRCUIT PACK INFORMATION

Purpose

Use Procedure 903, Test 1 to display identification (ID) information for universal module circuit packs. Procedure 903, Test 1 displays the ID information two slots at a time. This procedure was developed for factory applications.

   NOTE: Run Procedure 901 Tests 1, 2, and 3 before using Procedure 903.

Test 1—Operation

1. Type **p903** (ENTER)

         The Test 1 screen appears.

         Field 2 is highlighted.

```
┌─────────────────────────────────────────────────────────────────────┐
│                 ENHANCED MODE - PROCEDURE: 903, TEST: 1               │
│          XRAY - UNIVERSAL MODULE CIRCUIT INFORMATION - PROCEDURE 903  │
│                                                                       │
│    2. Module Number: [--]         Circuit Pack Information for next slot │
│                                      10. Prefix: [·]                   │
│  EQUIPMENT LOCATION                  11. Circuit Pack Number: [---]    │
│    3. Cabinet: [·]                   12. Suffix: [·]                   │
│    4. Carrier: [·]                   13.              Vintage: [--]    │
│    5.    Slot: [--]                                                    │
│                                                                       │
│  Circuit Pack Information for displayed equipment location            │
│    6. Prefix: [·]                                                      │
│    7. Circuit Pack Number: [---]                                      │
│    8. Suffix: [·]                                                      │
│    9.        Vintage: [--]                                            │
│                                                                       │
│                                                                       │
│                                                                       │
│  Connected to CC0 ON-LINE ♥ [ MAJOR ][ MINOR ][ RUN TAPE ][ BUSY OUT ][ IN USE ][ WAIT ] │
│                                                                       │
│  enter command: ▬                                                     │
│  [      ][      ][F3 DATA ][      ][F5 HELP ][F6 FIELD][F7 INPUT][F8 CMDS] │
└─────────────────────────────────────────────────────────────────────┘
```

2. To display ID information, do either a, b, or c:

   a. Type **nc** (ENTER)

            Fields 2 through 5 display the first slot (cabinet 0, carrier A, slot 0) of the first translated universal module.

b. Enter a valid universal module number in Field 2 and type **nc** ENTER

Fields 3 through 5 display the first slot (cabinet 0, carrier A, slot 0) of the entered universal module.

c. Enter a valid universal module equipment location in Fields 2 through 5. Enter the module number in Field 2, cabinet number 0 in Field 3, the carrier letter in Field 4, and the slot number in Field 5.

NOTE: Only even slot numbers can be entered or displayed in Field 5. If you enter an odd slot number, the next lowest even slot number is entered and error code 84 is displayed.

The following is displayed:

Fields 6 through 9 show the circuit pack ID information for the location shown in Fields 2 through 5 (even numbered slot).

Fields 10 through 13 show the circuit pack ID information for the next higher slot (odd numbered slot).

Fields 6 through 13 display dashes if a slot does not contain a circuit pack, or the ID information cannot be obtained (e.g., circuit pack missing ID chip).

3. Type **nc** ENTER

Fields 3 through 5 display the next even numbered slot.

Fields 6 through 9 display ID information for the displayed location.

Fields 10 through 13 display ID information for the next higher slot.

4. Entering **nc** repeatedly displays all the module circuit packs two at a time. After the last two slots of Carrier E are displayed, the next universal module is started if one is translated.

After all universal module slot locations have been displayed, Fields 2 through 13 become dashed.

Entering **nc** again, causes the first two slots of the first translated universal to appear.

5. If you have ID information already displayed, you can enter the **cf** (change field) command for Fields 2 through 5 and enter another valid universal module number and/or equipment location to be displayed.

PROCEDURE 904, RS-232C INTERFACE ADMINISTRATION

Purpose

Procedure 904, Tests 1 and 2 was developed for the factory to administer a special RS-232C interface board, the TN489. This procedure is used by system developers and is not applicable for field use.

Notes

APPENDIX B—MINIMUM CONFIGURATIONS TO RUN X-RAY

Word 3 of PROC 901 checks the minimum configuration of each common control, module control, and TMS carrier needed to support X-RAY testing. These carriers are configured as follows:

- Minimum common control carrier configuration (Table P).

- Minimum universal module control carrier configuration (Table Q).

- Minimum traditional module control carrier configuration (Table R).

- Minimum TMS control carrier configuration, modules 0 to 6 (Table S).

- Minimum TMS (1st) growth carrier configuration, modules 7 to 14 (Table T).

- Minimum TMS (2nd) growth carrier configuration, modules 15 to 22 (Table U).

- Minimum TMS (3rd) growth carrier configuration, modules 23 to 30 (Table V).

TABLE P. Common Control Carrier

SLOT	BOARD	DESCRIPTION	X-RAY MIN. CONFIG.
00	TN370C	Sequencer	Always required
01	UN151	Arithmetic-Logic Unit	
02	UN152B	Instruction Decoder	
03	UN153	Bus Interface	
06	TN368	Memory Protect	
07-09	TN394	4 Meg Ram	
19	UN158	Duplication Control	Required for Duplicated CC
20	TN430B	Tape Interface	Always required
21	TN404	I/O Buffer	
22	TN490	Alarm Interface	
23	TN403	Dual Speed Data Channel	
27	TN402	4-MHz Channel	Required if Modules 0-6 are equipped
28	TN402		Required if Modules 7-14 are equipped
29	TN402		Required if Modules 15-22 are equipped
30	TN402		Required if Modules 23-30 are equipped
31	TN491B	Diagnostic Processor	Always required
32	TN492	Remote Interface	

TABLE Q. Universal Module Control Carrier

SLOT	BOARD	DESCRIPTION	X-RAY MIN. CONFIG.
00	631DA1	AC Power	Always required in AC powered systems
	644A1	DC Power	Always required in DC powered systems
01	TN588	MC Channel	Always required
04	TN541	Duplication Channel	Required if MC carrier is duplicated
05	TN580	Universal Module Processor	Always required
06	TN444B	Maintenance Interface	Always required
07	UN154	Universal Bus Interface	Always required
11	TN445	TSI PSTORE	Always required
12	TN446	TSI ALU	Always required
13	TN460C	Module Clock	Required if TMS is not equipped
	TN441	Intermodule Data Store	Required if TMS is equipped
14	TN463	SCS	Required if DS-1 boards are present and TMS is not equipped
	TN481	Light Guide Interface	Required if TMS is equipped
15-21	TN456	Remote Module Interface	Required if remote modules are present. Remote modules require a TN456 in slot 15 of the module control carrier. Modules at the central location can house TN456s in slots 15-21 of the module control carrier.
22	631DB1	AC Power	Always required in AC powered systems
	645B1	DC Power	Always required in DC powered systems

TABLE R. Traditional Module Control Carrier

SLOT	BOARD	DESCRIPTION	X-RAY MIN. CONFIG.
00A	495FA	DC Power	Always required
00B	494GA		Required if TMS is equipped and MC carrier is duplicated.
01	TN481	Light Guide Interface (LGI)	Required if TMS is equipped and MC carrier is duplicated.
02	TN463	System Clock Sync (SCS)	Required if DS-1 ports are present and TMS is not equipped, only one SCS per system
02	TN481	LGI	Required if TMS is equipped and MC is not duplicated
03	TN460	Module clock	Required if TMS is not equipped
03	TN441	Intermodule Data Store (IDS)	Required if TMS is equipped
06	TN440	Port Data Store 0 (PDS 0)	Required if Port Carriers 0/1 are equipped
07	TN440	PDS 1	Required if Port Carriers 2/3 are equipped
08	TN440	PDS 2	Required if Port Carriers 4/5 are equipped
09	TN440	PDS 3	Required if Port Carriers 6/7 are equipped
10	TN440	PDS 4	Required if Port Carriers 8/9 are equipped
11	TN440	PDS 5	Required if Port Carriers 10/11 are equipped
12	TN446	Time-slot Interchanger Arithmetic Logic Unit (TSI ALU)	Always required
13	TN445	TSI PSTORE	
14	TN444	Maintenance Interface	
15	TN530	Duplication Controller	Required if MC carrier is duplicated
17	TN380D	Module Processor	Always required
19	TN400	I/O Bus Interface 0 (IOBI 0)	Required if Port Carriers 0/1/2/3 are equipped
20	TN400	IOBI 1	Required if Port Carriers 4/5/6/7 are equipped
21	TN400	IOBI 2	Required if Port Carriers 8/9/10/11 are equipped
22	TN401	MC Channel	Always required
23	495FA	DC Power	
25	TN456	Remote Module Interface	Required if remote modules are present

TABLE S. TMS Control Carrier, Modules 0 to 6

SLOT	BOARD	DESCRIPTION	X-RAY MIN. CONFIG.
00	494GA	DC Power	Always required
01	494GA		
02	TN480	Module Interface 4 (MI 4)	Required if Module 3 is equipped
03	TN480	MI 5	Required if Module 4 is equipped
04	TN480	MI 6	Required if Module 5 is equipped
05	TN480	MI 7	Required if Module 6 is equipped
06	TN473	Fanout 1 (FO 1)	Always required
07	UN150	Fanin 1 (FI 1)	
08	TN470	Multiplexer 4/5 (MPX 4/5)	Required if Module 3/4 is equipped
09	TN470	MPX 6/7	Required if Module 5/6 is equipped
10	TN452	Universal Port Control Interface 0 (UPCI 0)	Always required
11	TN462	Local Clock Terminal 0 (LCT 0)	
12	TN470	MPX 2/3	Required if Module 1/2 is equipped
13	TN470	MPX 0/1	Always required
14	UN150	FI 0	
15	TN473	FO 0	
16	TN480	MI 3	Required if Module 2 is equipped
17	TN480	MI 2	Required if Module 1 is equipped
18	TN480	MI 1	Required if Module 0 is equipped
20	TN463	SCS	Required if DS-1 Boards are present
21	TN461	TMS Clock Oscillator (TCO)	Always required
22	TN482	TMS Maintenance Interface (TMIF)	
23	TN530	Duplication Controller	Required if TMS is duplicated
25	TN381	TMS Processor	Always required
26	TN400	IOBI	
27	TN401	MC Channel	
28	495FA	DC Power	

TABLE T. First TMS Growth Carrier, Modules 7 to 14

SLOT	BOARD	DESCRIPTION	X-RAY MIN CONFIG.
00	494GA	DC Power	Always required
01	494GA		
02	TN480	Module Interface (MI 12)	Required if Module 11 is equipped
03	TN480	MI 13	Required if Module 12 is equipped
04	TN480	MI 14	Required if Module 13 is equipped
05	TN480	MI 15	Required if Module 14 is equipped
06	TN473	Fanout (FO 3)	Always required
07	UN150	Fanin (FI 3)	
08	TN470	Multiplexer (MPX 12/13)	Required if Module 11/12 is equipped
09	TN470	MPX 14/15	Required if Module 23/14 is equipped
10	TN452	Universal Port Control Interface 1 (UPCI 1)	Always required
11	TN462	Local Clock Terminal 1 (LCT 1)	
12	TN470	MPX 10/11	Required if Module 9/10 is equipped
13	TN470	MPX 8/9	Required if Module 7/8 is equipped
14	UN150	FI 2	Always required
15	TN473	FO 2	
16	TN480	MI 11	Required if Module 10 is equipped
17	TN480	MI 10	Required if Module 9 is equipped
18	TN480	MI 9	Required if Module 8 is equipped
19	TN480	MI 8	Required if Module 7 is equipped
28	495FA	DC Power	Always required

TABLE U. Second TMS Growth Carrier, Modules 15 to 22

SLOT	BOARD	DESCRIPTION	X-RAY MINIMUM CONFIGURATION
00	494GA	DC Power	Always required
01	494GA		
02	TN480	Module Interface (MI 20)	Required if Module 19 is equipped
03	TN480	MI 21	Required if Module 20 is equipped
04	TN480	MI 22	Required if Module 21 is equipped
05	TN480	MI 23	Required if Module 22 is equipped
06	TN473	Fanout (FO 5)	Always required
07	UN150	Fanin (FI 5)	
08	TN470	Multiplexer (MPX 20/21)	Required if Module 19/20 is equipped
09	TN470	MPX 22/23	Required if Module 21/22 is equipped
10	TN452	Universal Port Control Interface (UPCI 2)	Always required
11	TN462	Local Clock Terminal 2 (LCT 2)	
12	TN470	MPX 18/19	Required if Module 17/18 is equipped
13	TN470	MPX 16/17	Required if Module 15/16 is equipped
14	UN150	FI 4	Always required
15	TN473	FO 4	
16	TN480	MI 19	Required if Module 18 is equipped
17	TN480	MI 18	Required if Module 17 is equipped
18	TN480	MI 17	Required if Module 16 is present
19	TN480	MI 16	Required if Module 15 is present
28	495FA	DC Power	Always required

TABLE V. Third TMS Growth Carrier, Modules 23 to 30

SLOT	BOARD	DESCRIPTION	X-RAY MIN. CONFIG.
00	494GA	DC Power	Always required
01	494GA		
02	TN480	Module Interface (MI 28)	Required if Module 27 is equipped
03	TN480	MI 29	Required if Module 28 is equipped
04	TN480	MI 30	Required if Module 29 is equipped
05	TN480	MI 31	Required if Module 30 is equipped
06	TN473	Fanout (FO 7)	Always required
07	UN150	Fanin (FI 7)	
08	TN470	Multiplexer (MPX 28/29)	Required if Module 27/28 is equipped
09	TN470	MPX30/31	Required if Module 29/30 is equipped
10	TN452	Universal Port Control Interface (UPCI 3)	Always required
11	TN462	Local Clock Terminal 3 (LCT 3)	
12	TN470	MPX 26/27	Required if Module 25/26 is equipped
13	TN470	MPX 24/25	Required if Module 23/24 is equipped
14	UN150	FI 6	Always required
15	TN473	FO 6	
16	TN480	MI 27	Required if Module 26 is equipped
17	TN480	MI 26	Required if Module 25 is equipped
18	TN480	MI 25	Required if Module 24 is equipped
19	TN480	MI 24	Required if Module 23 is equipped
28	495FA	DC Power	Always required

Notes

APPENDIX C—X-RAY SUPPORT DATA

This appendix contains technical support data for the 900 series X-RAY Procedures. Table W lists the periodic controllers used in Procedure 900, and Table X lists the round robin controllers used in Procedure 900. Tables Y through AG list field definitions and codes for the various tests in the 900 series X-RAY Procedures. Following each field definition table are applicable Manager II commands for that test.

TABLE W. Periodic Controllers Used in Procedure 900

CONTROLLER NUMBER	FUNCTION
0	Network operational error checker
1	System functions monitor
2	Offline module processor handling
3	Error count handling, leaky bucket routine
4	Network duplication state of health
5	Module switching periodic 1
6	Common control operational error checker
7	Error count handling, peg count incrementer
8	Network operational error checker (more extensive testing)
9	Update certain status tables
10	Common control processors switching
11	Update certain status tables
12	Run tape function needed for procedure 610
13	Run tape
14	Cache memory test
15	Synchronization task for DS1
16	Environmental periodic
17	Universal port board operational error processing
18	UBI scan restart
19	Universal board insertion, removal detection periodic
20	ISDN operational error checker
21	SAKI test time

TABLE X. Round Robin Controllers Used in Procedure 900

CONTROLLER NUMBER	FUNCTION
0	Environmental tests, micro diagnostics
1	TMS IO bus test
2	TMS multiplexor test
3	MCC test
4	Scanner test
5	IO bus test
6	Port control bus test
7	Time slot path test
8	TSI test
9	TMS path test
10	Processor channel test
11	TMS maintenance circuits tests
12	CC memory test
13	Memory error
14	Memory scrub
15	Network duplication write test
16	Network duplication error flag control
17	Memory match audit
18	DCC refresh audit
19	TSI pstore memory test
20	PCM path parity test
21	Network duplication double write control test
22	Network duplication loop test
23	DS1 alarm check
24	CC I/O, 4mhz channel test
25	CC I/O, dual speed channel test
26	Remote module interface test
27	System clock synchronizer test
28	Primary reference restore
29	RMATS, analog loopback test
30	Traditional module touch tone sender receiver test
31	Traditional module tone plant test
32	Traditional module auxiliary tone plant test
33	traditional module line port test
34	Universal module TDM and LAN bus test - NOT RUNNING
35	No test
36	Universal module tone generator test
37	Universal module tone detector test - NOT RUNNING
38	Trunk port tests - NOT RUNNING

TABLE X. Round Robin Controllers Used in Procedure 900 (Contd)

CONTROLLER NUMBER	FUNCTION
39	Universal module line port tests - NOT RUNNING
40	Suspicious circuit work queue
41	Universal module 0 bus tests
42	Universal module 1 bus tests
43	Universal module 2 bus tests
44	Universal module 3 bus tests
45	Universal module 4 bus tests
46	Universal module 5 bus tests
47	Universal module 6 bus tests
48	Universal module 7 bus tests
49	Universal module 8 bus tests
50	Universal module 9 bus tests
51	Universal module 10 bus tests
52	Universal module 11 bus tests
53	Universal module 12 bus tests
54	Universal module 13 bus tests
55	Universal module 14 bus tests
56	Universal module 15 bus tests
57	Universal module 16 bus tests
58	Universal module 17 bus tests
59	Universal module 18 bus tests
60	Universal module 19 bus tests
61	Universal module 20 bus tests
62	Universal module 21 bus tests
63	Universal module 22 bus tests
64	Universal module 23 bus tests
65	Universal module 24 bus tests
66	Universal module 25 bus tests
67	Universal module 26 bus tests
68	Universal module 27 bus tests
69	Universal module 28 bus tests
70	Universal module 29 bus tests
71	Universal module 30 bus tests
72	Universal module 0 tone detector test
73	Universal module 1 tone detector test
74	Universal module 2 tone detector test
75	Universal module 3 tone detector test
76	Universal module 4 tone detector test
77	Universal module 5 tone detector test

TABLE X. Round Robin Controllers Used in Procedure 900 (Contd)

CONTROLLER NUMBER	FUNCTION
78	Universal module 6 tone detector test
79	Universal module 7 tone detector test
80	Universal module 8 tone detector test
81	Universal module 9 tone detector test
82	Universal module 10 tone detector test
83	Universal module 11 tone detector test
84	Universal module 12 tone detector test
85	Universal module 13 tone detector test
86	Universal module 14 tone detector test
87	Universal module 15 tone detector test
88	Universal module 16 tone detector test
89	Universal module 17 tone detector test
90	Universal module 18 tone detector test
91	Universal module 19 tone detector test
92	Universal module 20 tone detector test
93	Universal module 21 tone detector test
94	Universal module 22 tone detector test
95	Universal module 23 tone detector test
96	Universal module 24 tone detector test
97	Universal module 25 tone detector test
98	Universal module 26 tone detector test
99	Universal module 27 tone detector test
100	Universal module 28 tone detector test
101	Universal module 29 tone detector test
102	Universal module 30 tone detector test
103	Module 0 trunk test
104	Module 1 trunk test
105	Module 2 trunk test
106	Module 3 trunk test
107	Module 4 trunk test
108	Module 5 trunk test
109	Module 6 trunk test
110	Module 7 trunk test
111	Module 8 trunk test
112	Module 9 trunk test
113	Module 10 trunk test
114	Module 11 trunk test
115	Module 12 trunk test
116	Module 13 trunk test

TABLE X. Round Robin Controllers Used in Procedure 900 (Contd)

CONTROLLER NUMBER	FUNCTION
117	Module 14 trunk test
118	Module 15 trunk test
119	Module 16 trunk test
120	Module 17 trunk test
121	Module 18 trunk test
122	Module 19 trunk test
123	Module 20 trunk test
124	Module 21 trunk test
125	Module 22 trunk test
126	Module 23 trunk test
127	Module 24 trunk test
128	Module 25 trunk test
129	Module 26 trunk test
130	Module 27 trunk test
131	Module 28 trunk test
132	Module 29 trunk test
133	Module 30 trunk test
134	Universal module 0 line port test
135	Universal module 1 line port test
136	Universal module 2 line port test
137	Universal module 3 line port test
138	Universal module 4 line port test
139	Universal module 5 line port test
140	Universal module 6 line port test
141	Universal module 7 line port test
142	Universal module 8 line port test
143	Universal module 9 line port test
144	Universal module 10 line port test
145	Universal module 11 line port test
146	Universal module 12 line port test
147	Universal module 13 line port test
148	Universal module 14 line port test
149	Universal module 15 line port test
150	Universal module 16 line port test
151	Universal module 17 line port test
152	Universal module 18 line port test
153	Universal module 19 line port test
154	Universal module 20 line port test
155	Universal module 21 line port test

TABLE X. Round Robin Controllers Used in Procedure 900 (Contd)

CONTROLLER NUMBER	FUNCTION
156	Universal module 22 line port test
157	Universal module 23 line port test
158	Universal module 24 line port test
159	Universal module 25 line port test
160	Universal module 26 line port test
161	Universal module 27 line port test
162	Universal module 28 line port test
163	Universal module 29 line port test
164	Universal module 30 line port test
165	NTCTRL buffer audit
166	Message buffer link audit
167	CCMS trap audit

TABLE Y. Procedure 900 Test 1—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	0-4	Test Mode	0—Continuous
			1—Stop on error
			2—Burn-in
			3—Stop after one pass
			4—No mode set
3	0-1	Cycle Control	0—Cycle Leveling Disabled
			1—Cycle Leveling Enabled
4	0-1	Test Type	0—Round Robin
			1—Periodic
5	0-255	Controller	
6	0-99	Clock	Hours elapsed since test was started
7	0-59		Minutes elapsed since test was started
8	0-59		Seconds elapsed since test was started
9	0-1	Status	0—XRAY not running
			1—XRAY running
10	0-1	Alarm	0—No alarm
			1—Alarm
11	0-1	Fault Flag	0—No faults
			1—Fault (s)
12	0-99999	Test Cycle Count—number of times Test 1 has run successfully	

Procedure 900 Test 1—Manager II Commands

    ce - To clear data in a field

    cf - To input or change data in a selected field

    m   - To select the Mode Procedure

    nd - To enable/disable cycle leveling

    nt - To select the next test

    nu - To cycle through the test modes

    p   - To select a procedure

    rs - To reset Procedure to Test 1

    t   - To select a test

    s   - To stop the test

    x   - To start or restart test

TABLE Z. Procedure 900 Test 2—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	0-30	Equipment Location	Module
3	0-3		Cabinet
4	0-3; c-e		Carrier
5	0-99		Slot
6	0-2	Pack Status	0—Circuit pack is not translated
			1—Circuit pack is not present
			2—Circuit pack is present
7	1-12	Start Test Time	Month
8	1-31		Day
9	0-23		Hour
10	0-59		Minute
11	1-12	End Test Time	Month
12	1-31		Day
13	0-23		Hour
14	0-59		Minute

Procedure 900 Test 2—Manager II Commands

ce - To clear data in a field

cf - To input or change data in a selected field

m - To select Mode Procedure

nc - To step to the next universal port slot

nt - To select the next test

nu - To step to the first port slot of the next universal module

p - To select a procedure

rs - To reset Procedure to Test 1

t - To select a test.

TABLE AA. Procedure 900 Test 3—Field Definitions and Codes

FIELD	RANGE	DESCRIPTION		
2	0-255	Controller Number		
3	0-3	Controller status	0—Controller not running	
			1—Controller running	
			2—Controller not running, diagnostic encode	
			3—Controller running, diagnostic encode	
4	0-1	Controlling Agent	0—XRAY	
			1—User	
5	0-9999	Cycle count		
6	0-99	Testing Location	Module	
7	0-3		Cabinet	
8	0-3; a-e		Carrier	
9	0-23		Slot	

Procedure 900 Test 3—Manager II Commands

ce - To clear data in a field

cf - To input or change data in a selected field

m - To select the Mode Procedure

nc - To step to the next controller number

nt - To select the next test

nu - To select the controlling agent

p - To select a procedure

rs - To reset Procedure to Test 1

s - To turn off a controller when the User is the controlling agent.

t - To select a test.

x - To turn on a controller when the User is the controlling agent.

TABLE AB. Procedure 900 Test 4—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	0-30	Equipment Location	Module
3	0-3		Cabinet
4	0-3; c-e		Carrier
5	0-99		Slot
6	0-20		Port
7	0-2	Status	0—Pack is not translated
			1—Pack is not translated
			2—Port has failed
8	1-9999	Fault Cycle	

Procedure 900 Test 4—Manager II Commands

ce - To clear data in a field

cf - To input or change data in a selected field

m - To select the Mode Procedure

nf - To display next fault found by X-RAY

nt - To select the next test

p - To select a procedure

rs - To reset Procedure to Test 1

t - To select a test.

TABLE AC. Procedure 901 Test 1—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	0-7	Table Type	0—Traditional unduplicated MC
			1—Traditional duplicated MC (2 port)
			3—Traditional duplicated MC (3 port)
			4—Modified
			5—Universal unduplicated MC
			6—Universal duplicated MC
			7—Auto configuration
3	0-30	Highest Network Module Equipped	
4	0-1	External Loop Back Enable	0—Loopbacks not present
			1—Loopbacks present
5	0-1	CC/TMS Configuration	0—CC/TMS cabinet present
			1—CC/TMS cabinet not present
6	0-99	Physical Equipment Location	Module
7	0-7		Cabinet
8	0-3; a-e		Carrier
9	0-2	Electrical Equipment Location	IOBI index
10	0-3		Carrier
11	0-15	Carrier type	0—Unequipped
			1—Common Control
			2—Universal module control 0
			3—Universal module control 1
			4—TMS 0 control
			5—TMS 0 growth
			6—Traditional module control 0
			7—Traditional module control 1
			8—TMS 1 control

continued

TABLE AC. Procedure 901 Test 1—Field Definition and Codes (Contd)

FIELD	RANGE		DESCRIPTION
11	0-15	Carrier Type	9—TMS 1 growth
			10—Universal port
			11—DS1 port
			12—Traditional Port
			13—Reserved
			14—Reserved
			15—RMI
12	0-99	Local RMI Location	Module
13	0-3		Cabinet
14	0-3 a-b		Carrier
15	0-25		Slot

Procedure 901 Test 1—Manager II Commands

The following Manager II commands are valid for use with Test 1:

cd - To configure current module as unequipped starting at displayed location

ce - To clear data in a field

cf - To input or change data in a selected field

m - To select the Mode Procedure

nc - To step through each carrier in the switch

nd - To duplicate preceding module as the current module starting at the displayed location

nt - To advance to next test.

nu - To step to the first carrier of the next cabinet in the switch

p - To select a procedure

rmv - To remove the RMI local information from the currently displayed carrier

rs - To reset Procedure to Test 1

t - To select a test

x - To establish translation tables.

TABLE AD. Procedure 901 Test 2—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	0-1	Test Mode	0—Automatic
			1—Manual
3	0-99	Physical Equipment Location	Module
4	0-3		Cabinet
5	0-3; a-e		Carrier
6	0-2	Electrical Equipment Location	IOBI index
7	0-3		Carrier
8	0-15	Carrier Type	0—Unequipped
			1—Common Control
			2—Universal MC 0
			3—Universal MC 1
			4—TMS 0 control
			5—TMS 0 growth
			6—Traditional MC 0
			7—Traditional MC 1
			8—TMS 1 control
			9—TMS 1 growth
			10—Universal port
			11—DS-1 port
			12—Traditional Port
			13—Reserved
			14—Reserved
			15—RMI
9	0-99	Local RMI Location	Module
10	0-3		Cabinet
11	0-3 a-b		Carrier
12	0-25		Slot

Procedure 901 Test 2—Manager II Commands

ce - To clear data in a field

cf - To input or change data in a selected field

m   - To select the Mode Procedure

nc - To step through the carriers when in the manual test mode

nt - To advance to the next test

nu - To step to the first carrier of the next cabinet when in the manual mode.

p   - To select a procedure

rs - To reset Procedure to Test 1

s   - To stop test. This is valid only in the automatic test mode.

t   - To select a test

x   - To start cycling through the carriers (manual or automatic).

TABLE AE. Procedure 901 Test 3—Field Definitions and Codes

FIELD	RANGE	DEFINITION		
2	0-99	Physical Equipment Location	Module	
3	0-3		Cabinet	
4	0-3; a-e		Carrier	
5	0-32		Fault slot	
6	0-15; 99	Fault Code	Board Type	0—MC
				1—Scanner
				2—MIF
				3—Mod clk/TMS data store
				4—TSI PSTORE
				5—TSI ALU
				6—Dup/Update
				7—IOBI
				8—PDS
				9—PCI/UPCI
				10—PDI/UPDI/BPDI
				11—Port
				12—General MC
				13—General TMS
				14—General CC
				15—UBI
				99—Unrecognized board type
7	0-12 50-61; 99		Fault Type	0—Missing/faultly
				1—Inconsistent code
				2—Extraneous tone board
				3—Extraneous auxiliary tone board
				4—Cannot bring module processor on line
				5—Board in electrical address 0

TABLE AE. Procedure 901 Test 3—Field Definition and Codes (Contd)

FIELD	RANGE	DEFINITION		
7	0-12 50-63 99	Fault Code	Fault Type	6—Cannot bring TMS processor on line
				7—Invalid slot for tone generator
				8—4-MHz channel missing
				9—I/O error in dual speed channel
				10—DS-1 error
				11—RCG error
				12—PRI error
				50—Both module processors are dead
				51—Both TMS processors are dead
				52—Missing board
				53—Inconsistent chip encode
				54—TMS out of sequence
				55—TMS misduplicated
				56—SCS placement error
				57—Error in physical to electrical
				58—RMI placement error
				59—Off-line CC does not match on-line CC
				60—Cannot communicate with off-line CC
				61—Time out in downloading port translations
				62—Incorrect module type entered
				63—Time out in downloading ISDN translations
				99—ATTISL use
8	0-99	Fault count—indicates number of faults that have occurred		
9	0-99	Fault index—index of associated faults		

Procedure 901 Test 3—Manager II Commands

The following Manager II commands are valid for use with Test 3:

   m   - To select the Mode Procedure

   nf   - To display next fault message if errors occur during translations

   p   - To select a procedure

   rs   - To reset Procedure to Test 1

   rtx - To store translations onto tape

   x   - To generate translations.

TABLE AF. Procedure 902 Test 1—Field Definitions and Codes

FIELD	RANGE	DEFINITION	
2	1,2,9	501CC	1—Single processor
			2—Two processors
			9—Discrepancy
3	0,1,8,	Cache	0—Not equipped
			1—Equipped
			8—Discrepancy
4	0-8	Memory Circuit Pack Count	
5	0,1	Real Time Clock	0—Not present
			1—Present
6	0-2; 8,9	DCIU	0—Not present
			1—Present
			2—Duplicated
			8—Present, not healthy
			9—Discrepancy
7	0-8	Data Channel Port Count	High speed
8	0-48		Low speed
9	0-2; 8,9	RMATS	0—Not present
			1—Present
10		TMS	2—Duplicated
11		RMI	8—Present, not healthy
			9—Discrepancy
12	0-40	Attendant Console Count	
13	0-6	PCC Count	
14	0-4	Total System Count	4-MHz Channels
15	0-30		Modules
16	0-180		Cabinets
17	0-720		Carriers

Procedure 902 Test 1—Manager II Commands

ce - To clear data in a field

cf - To input or change data in a selected field

m   - To select the Mode Procedure

p   - To select a procedure

rs - To reset Procedure to initial condition

t   - To select a test

x   - To start a test

TABLE AG. Procedure 903 Test 1—Field Definitions and Codes

FIELD	RANGE	DESCRIPTION	
2	0-30	Module number	
3	0-7	Equipment Location	Cabinet
4	0-3 a-e		Carrier
5	0-25		Slot
6	0-3	Circuit pack information for displayed equipment location	Prefix
7	0-999		Circuit pack number
8	0-3		Suffix
9	0-99		Vintage
10	0-3	Circuit pack information for next slot	Prefix
11	0-999		Circuit pack number
12	0-9		Suffix
13	0-99		Vintage

Procedure 903 Test 1—Manager II Commands

ce - To clear data in a field

cf - To change or input data in a selected field

m - To select the Mode Procedure

nc - To step to the next even numbered slot

rs - to reset Procedure to initial condition

p - To select a procedure.

Notes

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