



SLC[®] Series 5 Carrier System

End-To-End Tests

Task Oriented Practice (TOP)

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Figure 1 shows a block diagram of the SLC Series 5 carrier system feature packages.

CAUTION

In dusty areas (for example, near constructions sites), AT&T recommends tenting the RT cabinet to protect electronic equipment whenever the cabinet doors are opened for extended periods.

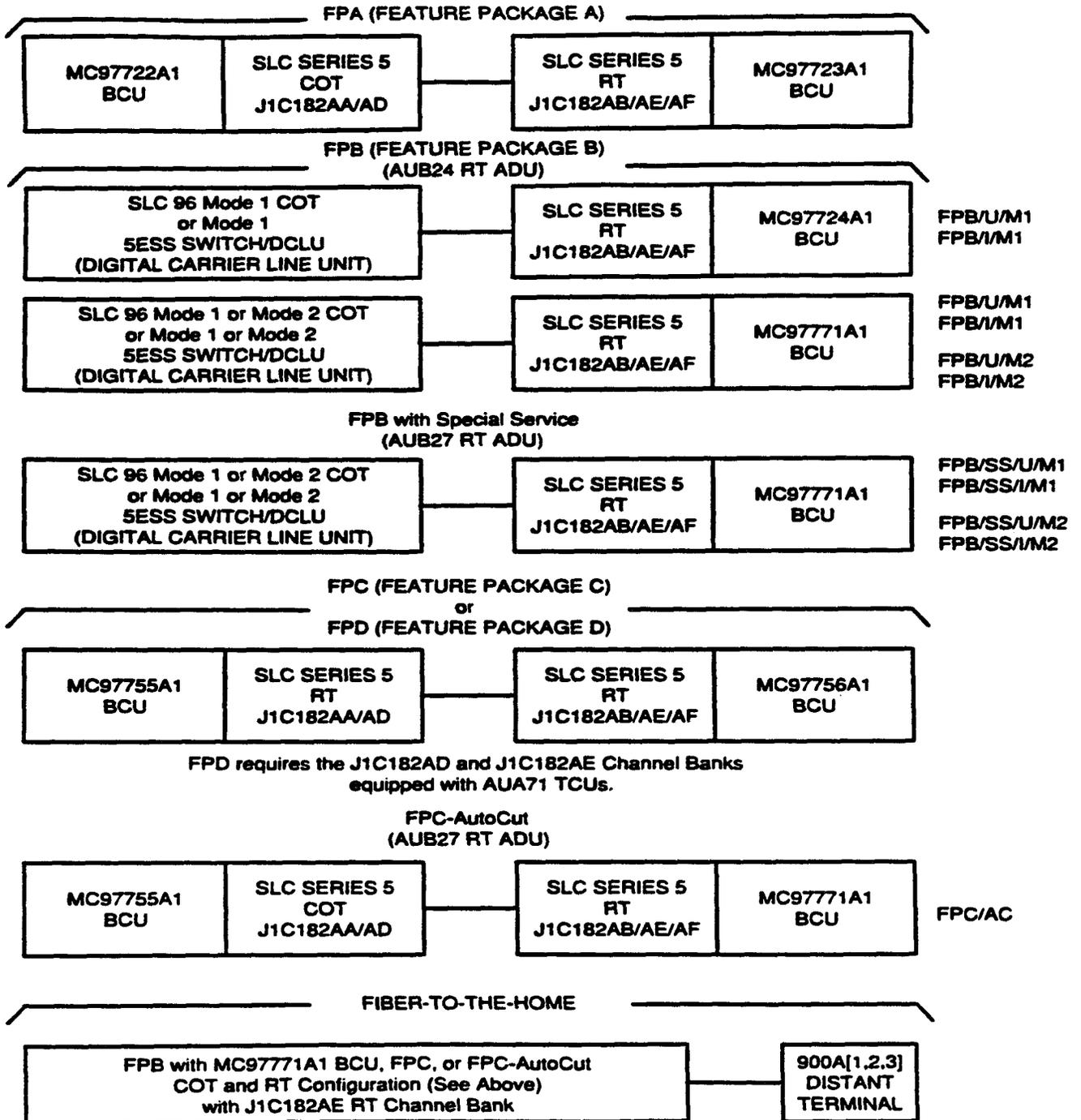


Figure 1—Feature Package Arrangements

ACCEPTANCE

GENERAL

Acceptance tasks for the SLC Series 5 COT (central office terminal) and RT (remote terminal) are provided in TOP Volumes AT&T 363-205-400 and AT&T 363-205-401, respectively. Acceptance tasks for the T1 digital facility and support pairs are provided in TOP Volume AT&T 363-200-001.

Acceptance tasks for FTTH (Fiber-To-The-Home) RT equipment and DT (Distant Terminal) equipment are provided in TOP Volume AT&T 363-205-401.

PERFORM FPA, FPC, FPC-AUTOCUT, AND FPD UNIVERSAL SERIES 5 END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 1 **OVERVIEW:** This procedure assumes that the COT and RT have been installed and acceptance tested and are connected end to end. This procedure covers testing at both the COT and RT ends of the loop transmission facility. This procedure tests COT and RT banks equipped for either Feature Package A (FPA), C (FPC), C-AutoCut (FPC-AutoCut), or D (FPD) capability, and assumes that the COT and RT on the same system are identically equipped. The tests require cooperation between personnel at the COT and RT. To verify proper connections, operation, and powering of the transmission line, refer to the TOP volume for the facility being used.

 - 2 Obtain Support Apparatus for COT and RT as Listed:
 - VOM (Volt-Ohm-Milliammeter)
 - 500-Type Telephone Set
 - SLC[®] SERIES 5 CRAFT INTERFACE UNIT (J99404TA). (Required for FPC and FPD).

 - 3 **Note:** TOP Volume 363-205-400 contains procedures for installing and testing the COT.

Verify That the COT Has Been Properly Installed and Tested.

 - 4 **Note:** TOP Volume 363-205-401 contains procedures for installing and testing the RT.

Verify That the RT Has Been Properly Installed and Tested.

 - 5 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible personal injury while using the wrist strap at an RT location, do not connect it to the power shelf or adjacent portions of the RT frame.*

 - 6 **Caution:** *The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of B8ZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. AT&T recommends that ZCS line coding (LIU option Z) should be used on SLC carrier system digital facilities.*
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DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

If Using T1 Digital Facility, Go to Item 8; Otherwise, Continue With Item 7.

7 **Note:** Refer to TOP Volume for transmission facility.

Verify That COT and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.

8 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at COT.*

From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at COT (Central Office Terminal).

9 At COT Location MDF (Main Distributing Frame), Verify That Heat Coils and Carbon Blocks Are Installed Into T1 Line Connectors Associated With Line Being Placed Into Service.

10 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at RT.*

Verify That Proper Digital Line Connections Have Been Made at RT (Remote Terminal).

11 **Note:** AT&T 363-200-001 (TOP) contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.

Consult Office Records to Verify That All Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.

12 If System Is Equipped With Line Powering LIUs AUA62() at One or Both Ends, Continue With Item 13; Otherwise Go to Item 14.

13 Perform Power Loop Tests on Installed Line Powering LIUs AUA62() at COT and/or RT. DLP-500

14 Set up Communication Between COT and RT. Procedures Start With COT Tests and Proceed to RT Tests. RT Should Wait for COT to Finish; COT Will Direct RT When to Begin Testing.

15 Set ADU Option to In-Service at Both COT and RT. DLP-502

16 If System Under Test Is Equipped With FPC or FPD Capability; Perform System Turnup Procedure (optional for FPC-AutoCut). Otherwise (FPA or FPC-AutoCut System), Continue With Item 17. DLP-513

17 If System Under Test Is Equipped for Protection Switching, Continue With Item 18; Otherwise, Go to Item 21.

18 **Note:** When protection is available (LSU and LIU-P equipped), each shelf group is tested separately end to end until all shelves have been tested. For system under test, procedures are arranged to test shelf group AB first, then shelf group CD second. All tests are directed from the COT but require someone at the RT to perform necessary activities when requested.

Test Manual Protection Line Switching Operation. DLP-503

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

19	Test Operation That Denies Protection Line Access to a Digroup.	DLP-504
20	Test Automatic Protection Line Switching.	DLP-505
21	Note: This procedure requires coordination between alarm center and central office (in addition to COT-RT coordination). Test CO and Remote (if Provided) Alarm System.	DLP-506
22	Note: It is recommended that the following test be performed if a single-party POTS channel unit (AUA51 or AUA59) is available. This test checks one particular channel unit slot in each digroup to verify that the banks at both ends of the system and the connecting facility are operating properly. Perform Terminal-to-Terminal (COT-to-RT) Channel Test on Channels 24, 48, 72, and 96 Using a Single-Party POTS Channel Unit (AUA51 or AUA59) in Channel Unit Slots 23/24, 47/48, 71/72, and 95/96, Respectively.	DLP-507
23	Note: Channel unit installation procedures are covered in AT&T 363-205-402 (TOP). When Required, Install Channel Units.	
24	Caution: <i>Fan operation is essential in the SLC Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each system and that fans operate properly.</i> At RT, Press FAN TEST Pushbutton on FCU and Verify that Fans Operate.	
25	Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.	

PERFORM END-TO-END SYSTEM TESTS FOR UNIVERSAL FPB MODE 1 OR MODE 2 SYSTEM

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

1 **OVERVIEW:** This procedure covers testing at both the SLC 96 COT and SLC Series 5 RT ends of the loop transmission facility. This procedure assumes that the COT and RT have been installed, acceptance tested, and are connected end to end. It further assumes that all four (AB and CD) digroups in the bank are equipped and are in the pre-service state. These tests require coordination between personnel at the SLC 96 COT using procedures contained in AT&T 363-202-400 (TOP) and personnel at the SLC Series 5 RT using procedures contained in this practice. To verify proper connections, operation, and powering of the transmission line; refer to the TOP volume for the facility being used.

2 Obtain Support Apparatus for RT as Listed:

- VOM (Volt-Ohm-Milliammeter)
- 500-Type Telephone Set.

3 **Note:** AT&T 363-202-400 (TOP) contains procedures for installing and testing COT.

Verify That COT Has Been Properly Installed and Tested.

4 **Note:** AT&T 363-205-401 (TOP) contains procedures for installing and testing RT.

Verify That RT Has Been Properly Installed and Tested.

5 **Warning:** *An electrostatic discharge wrist strap with a minimum resistance of 250K Ohms should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks, it should not be used. To avoid possible personal injury while using the wrist strap, do not connect it to the power shelf or adjacent portions of the RT frame.*

6 **Caution:** *The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of B8ZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. AT&T recommends that ZCS line coding (LIU option Z) should be used on SLC carrier system digital facilities.*

If Using T1 Digital Facility, Proceed to Item 8; Otherwise, Continue With Item 7.

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 7 **Note:** Refer to AT&T documentation for transmission facility.
Verify That COT and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.
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- 8 **DANGER:** *DC voltage to +130 and -130 Volts may be present on connections to outside cable pairs if a line powering LIU is installed at COT.*
From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at COT (Central Office Terminal).
-
- 9 Verify That Heat Coils and Carbon Blocks Are Installed in Connectors at Main Distributing Frame at COT Location.
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- 10 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if a line powering LIU is installed at RT.*
Verify That Proper Digital Line Connections Have Been Made at RT.
-
- 11 **Note:** AT&T 363-200-001 (TOP) contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.
Consult Office Records to Verify That all Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.
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- 12 If System Is Equipped With Line Powering AUA62() LIUs at RT, Continue With Item 13; Otherwise, Go to Item 14.
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- 13 At RT, Perform Power Loop Tests on Installed Line Powering AUA62() LIUs. DLP-500
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- 14 Verify That Terminal Looping Cards Are Inserted Into TST Jacks of All COT LIUs in System Under Test, Including Protection LIU, if Provided.
-
- 15 Set up Communication Between COT And RT. COT Will Direct RT When to Begin Testing.
-
- 16 At RT, if Protection Line Is Provided, Set LSU Deny (d) Switch for Digroup A to ON Position.
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- 17 At RT, Set ADU Option Switches to In-Service. DLP-509
-
- 18 Perform Terminal (COT)-to-Terminal (RT) Tests.
- A. For FPB Mode 1. DLP-510
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- B. For FPB Mode 2. DLP-520
-
- 19 **Note:** This procedure requires coordination between alarm center and central office (in addition to COT-RT coordination).
Test CO and Remote (if Provided) Alarm System.

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 20 **Note:** It is recommended that the following test be performed if a single-party POTS channel unit (AUA51 or AUA59) is available. This test checks one particular channel unit slot in each digroup to verify that the banks at both ends of the system and the connecting facility are operating properly.
- Perform Terminal-to-Terminal (COT-to-RT) Channel Test on Channels 24, 48, 72, and 96 Using a Single-Party POTS Channel Unit (AUA51 or AUA59) in Channel Unit Slots 23/24, 47/48, 71/72, and 95/96, Respectively. DLP-507
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- 21 **Note:** Channel unit installation procedures are covered in AT&T 363-205-402 (TOP).
- When Required, Install Channel Units.
-
- 22 **Caution:** *Fan operation is essential in the Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each system and that fans operate properly.*
- At RT, Press FAN TEST Pushbutton on FCU and Verify That Fans Operate.
-
- 23 Update Office Records for job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM END-TO-END SYSTEM TESTS FOR INTEGRATED FPB MODE 1 OR MODE 2 SYSTEM

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

1 **OVERVIEW:** This procedure covers testing at both the 5ESS[®] switch, DCLU (digital carrier line unit), and SLC Series 5 carrier system RT (remote terminal) ends of the loop transmission facility. This procedure assumes that the DCLU and the RT have been installed, acceptance tested, and are connected end to end. It further assumes that all four (AB and CD) digroups in the system are equipped and are in the pre-service state. These tests require coordination between personnel at the DCLU location using procedures contained in AT&T 363-200-005 (TOP) and personnel at the SLC Series 5 RT location using procedures contained in this practice. To verify proper connections, operation, and powering of the transmission line, refer to the TOP volume for the facility being used.

2 At RT, Obtain Support Apparatus as Listed:

- VOM (Volt-Ohm-Milliammeter)
 - 500-Type Telephone Set.
-

3 **Note:** AT&T 235-105-330 (TOP) contains procedures for installing and testing 5ESS switch DCLU.

Verify That 5ESS switch DCLU Has Been Properly Installed and Tested.

4 **Note:** AT&T 363-205-401 (TOP) contains procedures for installing and testing RT.

Verify That RT Has Been Properly Installed and Tested.

5 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks, it should not be used. To avoid possible personal injury while using the wrist strap, do not connect it to the power shelf or adjacent portions of the RT frame.*

6 **Caution:** *The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of B8ZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. AT&T recommends that ZCS line coding (LIU option Z) should be used on SLC carrier system digital facilities.*

If Using T1 Digital Facility, Proceed to Item 8; Otherwise, Continue With Item 7.

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 7 **Note:** Refer to AT&T documentation for transmission facility.
Verify That the DCLU and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.
-
- 8 **DANGER:** *DC voltage to +130 and -130 Volts may be present on connections to outside cable pairs if line is powered from an ORB (office repeater bay) at the 5ESS switch DCLU location.*
From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at 5ESS switch DCLU.
-
- 9 Verify That Heat Coils and Carbon Blocks Are Installed in Connectors at Main Distributing Frame at 5ESS switch DCLU Location.
-
- 10 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if a line powering LIU is installed at RT.*
Verify That Proper Digital Line Connections Have Been Made at RT.
-
- 11 **Note:** AT&T 363-200-001 (TOP) contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.
Consult Office Records to Verify That All Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.
-
- 12 If System Is Equipped With Line Powering AUA62() LIUs at RT, Continue With Item 13; Otherwise, Go to Item 14.
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- 13 At RT, Perform Power Loop Tests on Installed Line Powering AUA62() LIUs. DLP-500
-
- 14 Set up Communication Between 5ESS switch DCLU and RT. Personnel at 5ESS switch DCLU Will Direct RT When to Begin Testing.
-
- 15 At RT, Remove 3-Type Protectors for T1 Lines Connected to System Under Test, Including Protection Line, if Provided.
-
- 16 At RT, Set ADU Option Switches to In-Service. DLP-509
-
- 17 Perform Terminal (DCLU)-to-Terminal (RT) Tests.
- A. For FPB Mode 1. DLP-511
 - B. For FPB Mode 2. DLP-521
-
- 18 Test RT to 5ESS switch alarms. DLP-524
-
- 19 **Note:** It is recommended that the following test be performed if a single-party POTS channel unit (AUA51 or AUA59) is available. This test checks one particular channel in each digroup to verify that equipment at both ends of the system and the connecting facility are operating properly.
Perform Terminal-to-Terminal (DCLU-to-RT) Channel Test on Channels 24, 48, 72, and 96 Using a Single-Party POTS Channel Unit (AUA51 or AUA59) in Channel Unit Slots 23/24, 47/48, 71/72, and 95/96, Respectively. DLP-512

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

20 **Note:** Channel unit installation procedures are covered in AT&T 363-205-402 (TOP).

When Required, Install Channel Units.

21 **Caution:** *Fan operation is essential in the Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each system and that fans operate properly.*

At RT, Press FAN TEST Pushbutton on FCU and Verify That Fans Operate.

22 Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM ABBREVIATED END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 1 **Note:** This procedure assumes that: (1) System test personnel are familiar with AT&T 363-205-406 (TOP) End-To-End System Tests, and (2) The CO equipment and the RT have been installed and tested.

 - 2 **Test Apparatus Required:**
 - VOM (Volt-Ohm-Milliammeter)
 - CIU (J99404TA)
 - Telephone Set.

 - 3 **Verify the Following:** (1) That Proper Connections Have Been Made to Outside Cable Pairs at COT, (2) That Heat Coils and Carbon Blocks Have Been Installed in Connectors at the COT MDF, (3) That Digital Line Connections Have Been Made at RT, (4) and That the digital line coding (ZCS or B8ZS) for the digital facility is set the same.

 - 4 **Ensure That Digital Line Repeaters Have Been Installed and That Line Installation Is Complete.**

 - 5 **Ensure That ADU Options Are Set Identically and to In-Service, Then Wait 10 Minutes Before Continuing.**

 - 6 **If System Is a FPB Universal Series 5 Mode 96, Verify That Looping Cards Are Inserted Into TST Jacks of All COT LIUs for System Under Test.**

 - 7 ***DANGER: If line powering LIUs are installed at RT, 130V may be present on connection to outside cable pairs.***

At RT, Perform Power Loop Test (V to I = 0.6 Vdc; V to V = Less Than 138 Vdc) on Line Powering LIUs AUA62(). If System Is an Integrated Series 5 Mode 96 System, Set Up Communications Between 5ESS switch DCLU and RT. Personnel at 5ESS switch DCLU Will Direct When to Begin Testing.

 - 8 **If System Is Equipped With FPC (Feature Package C) or FPD, Perform System Turnup Procedure Using CIU (optional for FPC-Autocut).**

 - 9 **If System Is Equipped for Protection Switching, Test Manual Protection Line Switching Operation.**

 - 10 **Test Operation That Denies Protection Line Switching Access to a Digroup.**

 - 11 **Test Automatic Protection Line Switching.**

 - 12 **Test CO and RT Alarms (if Provided).**

 - 13 **Using a Telephone Set, Perform COT-to-RT Channel Tests on Channels 24, 48, 72, and 96 if Equipped (Install POTS Channel Units as Necessary).**
-

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 14 At RT, Depress FAN TEST Pushbutton on FCU to Verify That Fans Operate.
- 15 Update Office Records for job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM FPC FIBER-TO-THE-HOME — COT TO RT END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 1 **OVERVIEW:** This procedure assumes that the COT and RT have been installed and acceptance tested and are connected end to end. This procedure covers testing at both the COT and RT ends of the loop transmission facility. This procedure tests COT and RT banks equipped for FPC (Feature Package C) capability, and assumes that the COT and RT on the same system are identically equipped. The tests require cooperation between personnel at the COT and RT. To verify proper connections, operation, and powering of the transmission line, refer to the TOP volume for the facility being used.

- 2 Obtain Support Apparatus for COT and RT as Listed:
 - VOM (Volt-Ohm-Milliammeter)
 - 500-Type Telephone Set or 1015B Dial Hand Set (Butt Set)
 - SLC[®] SERIES 5 CRAFT INTERFACE UNIT (J99404TA)
 - AUA38 COT Channel Unit
 - AYB1B RT Optical Unit
 - AUA400 or AUA404 RT Channel Unit
 - AUA401 or AUA405 RT Channel Unit
 - J99407TA DT Analyzer with AUA403 RT Channel Unit, WP91067-L6 Test Cable, ST[®] lightguide cable coupler, and Modular Jack Butt Set Adaptor Cord.

- 3 **Note:** TOP Volume AT&T 363-205-400 contains procedures for accepting and Turning Up the FPC SLC Series 5 COT.

Verify That the COT Has Been Properly Accepted and Turned-Up.

- 4 **Note:** TOP Volume AT&T 363-205-401 contains procedures for installing and testing the RT.

Verify That the RT Has Been Properly Installed and Tested.

- 5 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible personal injury while using the wrist strap at an RT location, do not connect it to the power shelf or adjacent portions of the RT frame.*

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

6 *Caution: The digital line coding, ZCS (zero code suppression also called AMI) or BZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of BZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. AT&T recommends that ZCS line coding (LIU option Z) should be used on SLC carrier system digital facilities.*

If Using T1 Digital Facility, Go to Item 8; Otherwise, Continue With Item 7.

7 *Note:* Refer to TOP Volume for transmission facility.

Verify That COT and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.

8 *DANGER: DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at COT.*

From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at COT (Central Office Terminal).

9 At COT Location Main Distributing Frame, Verify That Heat Coils and Carbon Blocks Are Installed Into T1 Line Connectors Associated With Line Being Placed Into Service.

10 *DANGER: DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at RT.*

Verify That Proper Digital Line Connections Have Been Made at RT (Remote Terminal).

11 *Note:* TOP Volume AT&T 363-200-001 contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.

Consult Office Records to Verify That All Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.

12 If System Is Equipped With Line Powering AUA62() LIUs at One or Both Ends, Continue With Item 13; Otherwise Go to Item 14.

13 Perform Power Loop Tests on Installed Line Powering AUA62() LIUs at COT and/or RT. DLP-500

14 Set up Communication Between COT and RT. Procedures Start With COT Tests and Proceed to RT Tests. RT Should Wait for COT to Finish; COT Will Direct RT When to Begin Testing.

15 Set ADU Option to In-Service at Both COT and RT. DLP-502

16 Perform System Turnup Procedure for FPC Capability. DLP-513

17 If System Under Test Is Equipped for Protection Switching, Continue With Item 18; Otherwise, Go to Item 21.

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

18 **Note:** When protection is available (LSU and LIU-P equipped), each shelf group is tested separately end to end until all shelves have been tested. For system under test, procedures are arranged to test shelf group AB first, then shelf group CD second. All tests are directed from the COT but require someone at the RT to perform necessary activities when requested.

For FPC, Test Manual Protection Line Switching Operation. DLP-503

19 For FPC, Test Operation That Denies Protection Line Access to a Digroup. DLP-504

20 For FPC, Test Automatic Protection Line Switching. DLP-505

21 **Note:** This procedure requires coordination between alarm center and central office (in addition to COT-RT coordination).

For FPC, Test CO and Remote (if Provided) Alarm System. DLP-515

22 **Warning:** *For Fiber-To-The-Home, the use of any Channel Unit besides the AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the AYB1B on the Optical Shelf Assembly.*

Note: It is recommended that the following test be performed if an RT single-party POTS channel unit AUA403 AUA400, AUA401, AUA404, AUA405, and AUA38 COT POTS channel unit are available. This test checks one particular channel unit slot in each digroup to verify that the banks at both ends of the system and the connecting facility are operating properly. The next to the last channel unit slot in the digroup is used so that the AUA401 or AUA404 channel unit can be tested without moving test equipment. An AYB1B optical unit and the J99407TA DT Analyzer are required to test the AUA400, AUA401, AUA404, and AUA405 RT channel units.

Perform Single-Party POTS (COT-to-RT) Channel Test on Channels 21, 45, 69, and 93 Using an AUA38 COT Single Party POTS channel unit and an RT Single-Party POTS Channel Unit (AUA403, AUA400, AUA401, AUA404 or AUA405) in Channel Unit Slots 21/22, 45/46, 69/70, and 93/94. DLP-516

23 **Caution:** *Fan operation is essential in the SLC Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each channel banks assembly and AUA402 A/FCU in the optics power shelf.*

At RT channel bank, Press FAN TEST Pushbutton on FCU and Verify that Fans Operate.

At optics power shelf, Press FAN TEST Pushbutton on A/FCU and Verify that Fans Operate.

24 **Note:** DT Channel Unit Installation and Acceptance Testing Procedures are Covered in AT&T 363-205-401 (TOP).

When Required, Install Channel Units and Supporting Optical Equipment, and Perform COT to DT Channel Tests. NTP-008

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 25 Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM FIBER-TO-THE-HOME — CO TO DT END-TO-END CHANNEL TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

1 **OVERVIEW:** This procedure assumes that the 5ESS switch or COT and RT have performed End-to-End System Tests (NTP-007 FPC, NTP-010 FPB universal, or NTP-011 FPB integrated). This procedure covers testing at the DT (Distant Terminal) End of the Loop Transmission Facility and can only be done if a Customer Location DT has been installed, accepted, and tested. These tests require cooperation between personnel at the 5ESS switch or COT, RT, and DT. These tests should be performed every time customer service is added to Fiber-To-The-Home Carrier System DTs. To verify proper connections, operation, and powering of the transmission line, refer to the TOP Volume for the Facility Being Used.

2 Obtain Support Apparatus for COT and RT as Listed:

- VOM (Volt-Ohm-Milliammeter)
- 500-Type Telephone Set or 1015B Dial Hand Set (Butt Set)
- AUA38 SLC Series 5 COT Channel Unit or WP10() SLC 96 COT Channel Unit
- AYB1B RT Optical Unit
- AUA400, AUA401 AUA404, or AUA405 RT Channel Unit
- J99407TA DT Analyzer with AUA403 Test Channel Unit, WP91067-L6 Test Cable, and Modular Jack Butt Set Adaptor Cord.

3 **Note:** TOP Volume AT&T 363-205-400 contains procedures for accepting and Turning Up the FPC Series 5 COT. TOP Volume AT&T 363-202-400 contains procedures for accepting and Turning Up the universal SLC 96 COT. TOP Volume AT&T 363-200-005 contains Growth procedures for Turning Up an integrated Mode 1 or Mode 2 system. TOP Volume AT&T 363-205-401 contains procedures for accepting and Turning Up the RT and Fiber-To-The-Home equipment. NTP-007 (FPC), NTP-010 (FPB universal), or NTP-011 (FPB integrated) (in this Practice) contains End-To-End tests for Fiber-To-The-Home.

Verify that the Central office End-to-RT System Tests Have Been Completed, the Fiber Drop has Been Installed, and the DT (Distant Terminal) has Been Installed and Tested.

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 4 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible personal injury while using the wrist strap at an RT location, do not connect it to the power shelf or adjacent portions of the RT frame.*

For universal systems (FPC or FPB), Install AUA38 (Series 5) or WP10() (SLC 96 carrier) POTS Channel Unit(s) in Appropriate COT Channel Unit Slot(s) per Work Order and Make Telephone Line Connections at the MDF.

For integrated systems, have 5ESS switch personnel grow POTS channel unit for the appropriate channel unit slot and assign a telephone number.

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- 5 **Warning:** *For Fiber-To-The-Home, The use of any Channel Unit besides the AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the AYB1B on the Optical Shelf Assembly.*

At RT, Obtain AYB1B Optical Unit and AUA403, AUA400, AUA401, AUA404, or AUA405 Channel Unit for Channel Unit Slot(s) to be Tested. DLP-517

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- 6 **Note:** The AUA403 channel unit is used for single-party channel test to test RT equipment excluding the optical equipment. The AYB1B, AUA400, AUA401, AUA404 or AUA405, and J99407TA DT Analyzer are used to test the optical equipment.

Perform CO-to-RT Single-Party Channel Tests.

A. For FPC or universal FPB. DLP-516

B. For integrated FPB. DLP-522

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- 7 **Note:** The RT Channel Unit (AUA400, AUA401, AUA404, or AUA405) OOS Indicator will be Lighted if; 1.) The Fiber Cross Connection is not Correct; 2.) The AYB1B is not Installed or is in an Incorrect Slot; 3.) The Fiber from the AYB1B to the Fiber Interconnect is Faulty; 4.) The Digroup is Out of Service; 5.) The DT Equipment is not Ready; 6.) The Fiber Distribution cable to the DT is bad.

At RT Fiber Interconnect, Make Fiber Cross Connections from RT Optical Equipment to DT Distribution Cable. If OOS Indicator Lights, Verify Circuit Packs are Installed in the Correct Positions and use the J99407TA DT Analyzer to Verify Optical Signal up to the Fiber Interconnect Bay. DLP-517

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- 8 At DT, Open Cabinet and Verify AC Power Switch is on and Batteries are Installed.

Perform CO-to-DT Channel Tests.

A. For FPC or universal FPB. DLP-518

B. For integrated FPB. DLP-523

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

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- | | | |
|---|--|---------|
| 9 | If MLT testing is available, Perform channel test for DT service just turned up. | DLP-525 |
|---|--|---------|
-
- 10 Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM FIBER-TO-THE-HOME ABBREVIATED END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 1 **Note:** This procedure assumes that: (1) System test personnel are familiar with AT&T Practice 363-205-406 End-To-End System Tests, and (2) The CO equipment and the RT have been installed and tested.

- 2 Test Apparatus Required:
 - VOM (Volt-Ohm-Milliammeter)
 - CIU (J99404TA)
 - AUA38 COT Channel Unit
 - Telephone Set
 - AUA400, AUA401, AUA404, or AUA405 RT Channel Unit
 - AYB1B Optical Unit
 - J99407TA DT Analyzer.

- 3 Verify the Following: (1) That Proper Connections Have Been Made to Outside Cable Pairs at COT, (2) That Heat Coils and Carbon Blocks Have Been Installed in Connectors at the COT MDF, (3) That Digital Line Connections Have Been Made at RT, and (4) That the digital line coding (ZCS or B8ZS) for the digital facility is set the same.

- 4 Ensure That Digital Line Repeaters Have Been Installed and That Line Installation Is Complete.

- 5 Ensure That ADU Options Are Set Identically and to In-Service, Then Wait 10 Minutes Before Continuing.

- 6 **DANGER: If line powering LIUs are installed at RT, 130V may be present on connection to outside cable pairs.**

At RT, Perform Power Loop Test (V to I = 0.6 Vdc; V to V = Less Than 138 Vdc) on Line Powering LIUs AUA62().

- 7 For FPC, Perform System Turnup Procedure Using CIU.

- 8 If System Is Equipped for Protection Switching, Test Manual Protection Line Switching Operation.

- 9 Test Operation That Denies Protection Line Switching Access to a Digroup.

- 10 Test Automatic Protection Line Switching.

- 11 Test CO and RT Alarms (if Provided).

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 12 Using a Telephone Set, Perform COT-to-RT Channel Tests on one Channel in each equipped Digroup (Channels 21, 45, 69, and 93) as directed in the next three Steps.

- 13 At COT, install AUA38 POTS channel unit.

- 14 At RT, install AUA400, AUA401, AUA404, or AUA405 in channel bank, AYB1B in Optical shelf, and connect DT Analyzer to jumper fiber from the Optical shelf at Optical Interface Frame.

- 15 Connect Telephone Set to Jack 1 of DT Analyzer and Perform Channel Tests. Repeat Channel Tests for Next Digroup.

- 16 At RT, Depress FAN TEST Pushbutton on FCU to Verify That Fans Operate.

- 17 If Customer location DT is to be tested, Perform the next three Steps. If not, Update Office Records for job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

- 18 At COT, install AUA38 POTS channel unit(s).

- 19 At RT, install AUA400, AUA401, AUA404, or AUA405 in channel bank, AYB1B in Optical shelf, and connect jumper fiber from the Optical shelf to DT distribution fiber at Optical Interface Frame.

- 20 At DT, Connect Telephone Set to Jack 1 of NIU (Network Interface Unit) and Perform Channel tests. Repeat Channel Tests for Next Channel as required.

- 21 Update Office Records for job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM INTEGRATED FPB FIBER-TO-THE-HOME DCLU TO RT END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 1 **OVERVIEW:** This procedure assumes that the DCLU and RT have been installed and acceptance tested and are connected end to end. This procedure covers testing at the RT end of the loop transmission facility. This procedure tests RT banks equipped for FPB (Feature Package B) Mode 1 or Mode 2 capability, and assumes that the DCLU and RT on the same system are identically equipped. AT&T TOP 363-200-005 (Integrated Mode 1 or Mode 2) is used at the central office 5ESS[®] switch for FPB. The tests require cooperation between personnel at the CO and RT. To verify proper connections, operation, and powering of the transmission line, refer to the TOP volume for the facility being used.

- 2 Obtain Support Apparatus for RT as Listed:
 - VOM (Volt-Ohm-Milliammeter)
 - 500-Type Telephone Set or 1015B Dial Hand Set (Butt Set)
 - AYB1B RT Optical Unit
 - AUA400 or AUA404 RT Channel Unit
 - AUA401 or AUA405 RT Channel Unit
 - J99407TA DT Analyzer with AUA403 RT Channel Unit, WP91067-L6 Test Cable, ST[®] lightguide cable coupler, and Modular Jack Butt Set Adaptor Cord.

- 3 **Note:** TOP Volume AT&T 363-200-005 contains growth procedures for Turning Up an integrated SLC 96 system.

Verify That the 5ESS switch DCLU has been properly installed and tested.

- 4 **Note:** TOP Volume AT&T 363-205-401 contains procedures for installing and testing the RT.

Verify That the RT Has Been Properly Installed and Tested.

- 5 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible personal injury while using the wrist strap at an RT location, do not connect it to the power shelf or adjacent portions of the RT frame.*

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

6 **Caution:** *The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of B8ZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. The ZCS line coding (LIU option Z) must be used on Integrated SLC carrier system digital facilities.*

If Using T1 Digital Facility, Go to Item 8; Otherwise, Continue With Item 7.

7 **Note:** Refer to TOP Volume for transmission facility.

Verify That DCLU and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.

8 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at COT.*

From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at DCLU (Central Office Terminal).

9 At DCLU Location Main Distributing Frame, Verify That Heat Coils and Carbon Blocks Are Installed Into T1 Line Connectors Associated With Line Being Placed Into Service.

10 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at RT.*

Verify That Proper Digital Line Connections Have Been Made at RT (Remote Terminal).

11 **Note:** TOP Volume AT&T 363-200-001 contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.

Consult Office Records to Verify That All Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.

12 If System Is Equipped With Line Powering AUA62() LIUs at One or Both Ends, Continue With Item 13; Otherwise Go to Item 14.

13 Perform Power Loop Tests on Installed Line Powering AUA62() LIUs at the RT. DLP-500

14 Set up Communication Between 5ESS switch DCLU and RT. Procedures Start With COT Tests and Proceed to RT Tests. Personnel at the 5ESS DCLU Will Direct RT When to Begin Testing.

15 Set ADU Option to In-Service at RT. DLP-509

16 Perform End-To-End system test for FPB Mode 1 or Mode 2 system.

A. Perform integrated FPB Mode 1 End-To-End tests. DLP-511

B. Perform integrated FPB Mode 2 End-To-End tests. DLP-521

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 17 **Note:** This procedure requires coordination between alarm center and central office (in addition to COT-RT coordination).
For Integrated FTTH FPB, Test CO and Remote (if Provided) Alarm System. DLP-524
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- 18 **Warning:** *For Fiber-To-The-Home, the use of any Channel Unit besides the AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the AYB1B on the Optical Shelf Assembly.*
Note: It is recommended that the following test be performed if an RT single-party POTS channel unit AUA403 AUA400, AUA401, AUA404, AUA405, and WP10() COT POTS channel unit are available. This test checks one particular channel unit slot in each digroup to verify that the banks at both ends of the system and the connecting facility are operating properly. The next to the last channel unit slot in the digroup is used so that the AUA401 or AUA404 channel unit can be tested without moving test equipment. An AYB1B optical unit and the J99407TA DT Analyzer are required to test the AUA400, AUA401, AUA404, and AUA405 RT channel units.
Perform Single-Party POTS (DCLU-to-RT) Channel Test on Channels 21, 45, 69, and 93 Using a Single Party POTS channel unit 5ESS switch assignment and an RT Single-Party POTS Channel Unit (AUA403, AUA400, AUA401, AUA404 or AUA405) in Channel Unit Slots 21/22, 45/46, 69/70, and 93/94. DLP-522
-
- 19 **Caution:** *Fan operation is essential in the SLC Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each channel banks assembly and AUA402 A/FCU in the optics power shelf.*
At RT channel bank, Press FAN TEST Pushbutton on FCU and Verify that Fans Operate.
At optics power shelf, Press FAN TEST Pushbutton on A/FCU and Verify that Fans Operate.
-
- 20 **Note:** DT Channel Unit Installation and Acceptance Testing Procedures are Covered in AT&T 363-205-401 (TOP).
When Required, Install Channel Units and Supporting Optical Equipment, and Perform COT to DT Channel Tests. NTP-008
-
- 21 Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

PERFORM UNIVERSAL FPB FIBER-TO-THE-HOME — COT TO RT END-TO-END SYSTEM TESTS

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

1 **OVERVIEW:** This procedure assumes that the COT and RT have been installed and acceptance tested and are connected end to end. This procedure covers testing at both the COT and RT ends of the loop transmission facility. This procedure tests RT banks equipped for FPB Mode 1 or Mode 2 (Feature Package B) capability, and assumes that the SLC 96 COT and Series 5 RT on the same system are equipped for the same Mode. AT&T TOP 363-202-400 (universal Mode 1 or Mode 2) is used at the central office for FPB. The tests require cooperation between personnel at the COT and RT. To verify proper connections, operation, and powering of the transmission line, refer to the TOP volume for the facility being used.

2 Obtain Support Apparatus for COT and RT as Listed:

- VOM (Volt-Ohm-Milliammeter)
- 500-Type Telephone Set or 1015B Dial Hand Set (Butt Set)
- WP10() COT Channel Unit
- AYB1B RT Optical Unit
- AUA400 or AUA404 RT Channel Unit
- AUA401 or AUA405 RT Channel Unit
- J99407TA DT Analyzer with AUA403 RT Channel Unit, WP91067-L6 Test Cable, ST[®] lightguide cable coupler, and Modular Jack Butt Set Adaptor Cord.

3 **Note:** TOP Volume AT&T 363-202-400 contains procedures for accepting and Turning Up a universal SLC 96 COT.

Verify That the COT Has Been Properly Accepted and Turned-Up.

4 **Note:** TOP Volume AT&T 363-205-401 contains procedures for installing and testing the RT.

Verify That the RT Has Been Properly Installed and Tested.

5 **Warning:** *An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible personal injury while using the wrist strap at an RT location, do not connect it to the power shelf or adjacent portions of the RT frame.*

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 6 **Caution:** *The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR THE SAME CODING. A mixture of B8ZS and ZCS on the same facility WILL CAUSE DIGITAL LINE FAILURES that are unpredictable. AT&T recommends that ZCS line coding (LIU option Z) should be used on SLC carrier system digital facilities.*

If Using T1 Digital Facility, Go to Item 8; Otherwise, Continue With Item 7.

-
- 7 **Note:** Refer to TOP Volume for transmission facility.

Verify That COT and RT Are Connected to Transmission Facility and That Transmission Facility Is Operating Properly, Then Go to Item 14.

-
- 8 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at COT.*

From Work Order, Verify That Proper Connections Have Been Made to Outside Cable Pairs at COT (Central Office Terminal).

-
- 9 At COT Location Main Distributing Frame, Verify That Heat Coils and Carbon Blocks Are Installed Into T1 Line Connectors Associated With Line Being Placed Into Service.

-
- 10 **DANGER:** *DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at RT.*

Verify That Proper Digital Line Connections Have Been Made at RT (Remote Terminal).

-
- 11 **Note:** TOP Volume AT&T 363-200-001 contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.

Consult Office Records to Verify That All Digital Line Repeaters Have Been Installed and That Digital Line Installation Is Complete.

-
- 12 If System Is Equipped With Line Powering AUA62() LIUs at the RT End, Continue With Item 13; Otherwise Go to Item 14.

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- 13 Perform Power Loop Tests on Installed Line Powering AUA62() LIUs at COT and/or RT. DLP-500

-
- 14 Set up Communication Between COT and RT. Procedures Start With COT Tests and Proceed to RT Tests. RT Should Wait for COT to Finish; COT Will Direct RT When to Begin Testing.

-
- 15 Set ADU Option to In-Service at the RT. DLP-509

-
- 16 Perform COT-to-RT system tests for universal FPB Mode 1 or Mode 2.

A. Perform universal FPB Mode 1 End-To-End tests. DLP-510

B. Perform universal FPB Mode 2 End-To-End tests. DLP-520

DO ITEMS BELOW IN ORDER LISTED . . . FOR DETAILS, GO TO

- 17 **Note:** This procedure requires coordination between alarm center and central office (in addition to COT-RT coordination).
Test CO and Remote (if Provided) Alarm System. DLP-514
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- 18 **Warning:** *For Fiber-To-The-Home, the use of any Channel Unit besides the AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the AYB1B on the Optical Shelf Assembly.*
Note: It is recommended that the following test be performed if an RT single-party POTS channel unit AUA403 AUA400, AUA401, AUA404, AUA405, and WP10() COT POTS channel unit are available. This test checks one particular channel unit slot in each digroup to verify that the banks at both ends of the system and the connecting facility are operating properly. The next to the last channel unit slot in the digroup is used so that the AUA401 or AUA404 channel unit can be tested without moving test equipment. An AYB1B optical unit and the J99407TA DT Analyzer are required to test the AUA400, AUA401, AUA404, and AUA405 RT channel units.
Perform Single-Party POTS (COT-to-RT) Channel Test on Channels 21, 45, 69, and 93 Using an WP10() COT Single Party POTS channel unit and an RT Single-Party POTS Channel Unit (AUA403, AUA400, AUA401, AUA404 or AUA405) in Channel Unit Slots 21/22, 45/46, 69/70, and 93/94. DLP-516
-
- 19 **Caution:** *Fan operation is essential in the SLC Series 5 system to prevent system failures. Make sure AUA24 FCU is installed in each channel banks assembly and AUA402 A/FCU in the optics power shelf.*
At RT channel bank, Press FAN TEST Pushbutton on FCU and Verify that Fans Operate.
At optics power shelf, Press FAN TEST Pushbutton on A/FCU and Verify that Fans Operate.
-
- 20 **Note:** DT Channel Unit Installation and Acceptance Testing Procedures are Covered in AT&T 363-205-401 (TOP).
When Required, Install Channel Units and Supporting Optical Equipment, and Perform COT to DT Channel Tests. NTP-008
-
- 21 Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures.

CLEAR POWER LOOP TROUBLE

1. **Caution:** Options on replacement LIU must be set per facility records. Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.

Replace LIU associated with line being tested.

2. Did trouble clear?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.
If NO, then continue with Step 3.

- 3.

DANGER: Voltage to 130 Vdc may be present on digital line pairs.

At MDF, remove heat coils or protector units to open digital line cable pairs.

4. On office side of cable pairs, use VOM to measure voltage on each conductor (tip and ring) of cable pairs (transmit and receive) to ground.

Reference: DLP-501

5. Does voltage measure less than 138V for each cable pair?

If YES, then continue with Step 6.
If NO, then use SD-7C116-01 or SD-7C116-02 to check bay wiring. Check CO wiring to MDF and check protector units or heat coils at MDF.

6. Where is power looped (FIG. 1)(FIG. 2)(FIG. 3)?

If DIGITAL LINE, then continue with Step 7.
If RPFT, then proceed to Step 8.
If RT, then proceed to Step 9.

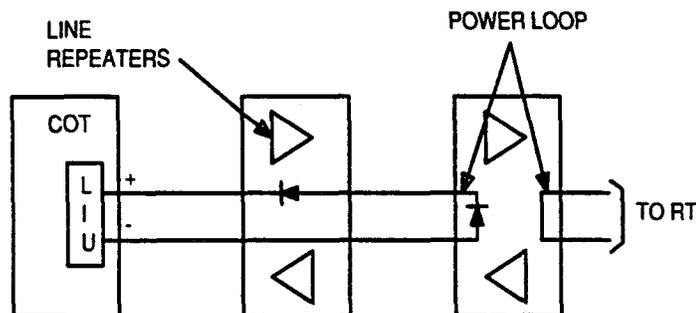


Figure 1—Power Looped in Digital Line

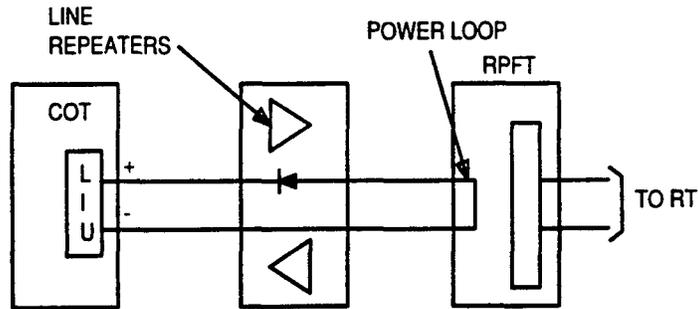


Figure 2—Power Looped in RPFT

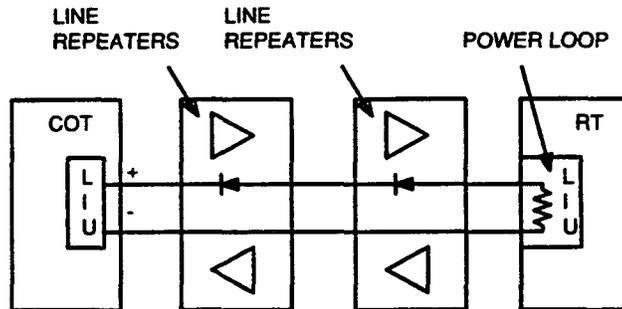


Figure 3—Power Looped in RT

7. Cable trouble is between CO and power loop. Refer to appropriate repair forces.
8. Cable trouble is between CO and RPFT (remote power feed terminal) or in RPFT (AT&T 363-202-525). Refer trouble to appropriate repair forces.
9. Close cable pairs and request RT personnel to replace LIU. Repeat COT power loop test.
10. Did trouble clear?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.
If NO, then cable trouble is between CO and RT or in RT wiring. Refer to appropriate repair forces.

CLEAR DISTANT TERMINAL (DT) CHANNEL TROUBLE FIBER-TO-THE-HOME RT-TO-DT

PHILOSOPHY: DT (Distant Terminal) channel failures can be caused by many different trouble conditions. Failed COT or RT channel units, failed digroups, failed RT optical equipment, bad distribution fiber cable, and loss of customer power can cause channel troubles at the DT. These procedures assume that there is only one trouble associated with customer channel(s) and not a system trouble. System troubles are easily identified by observing COT ADU and BCU LED indicators. To isolate trouble to the fiber distribution-to-DT equipment, perform channel tests from the COT to the RT using DLP-516 for channels to be tested at the DT. At the DT, verify ASH1 faceplate voltages and use the J99407TA DT Analyzer to detect failed distribution cable.

1. Verify that trouble is associated with DT equipment by performing COT-to-RT channel tests (if not already done). This verifies equipment up to the Optical Interconnect at the RT.

Reference: DLP-516

2. **Note:** The ASH1 PCU has two GND jacks. One is used with BAT and 20HZ on one side of the board, and +5, -5, and -37 Vdc on the other side of the board.

At DT, measure ASH1 PCU faceplate test jack voltages.

Requirements: BAT and GND -10 to -15 Vdc
20HZ and GND -18.4 to -21.6 Vdc
20HZ and GND 69 to 81 Vac
+5 and GND +4.6 to +5.4 Vdc
-5 and GND -4.6 to -5.4 Vdc
-37 and GND -34 to -40 Vdc.

3. **Note:** The DT power will shut down if AC or DC power is lost and the battery voltage drops below 10 volts DC. AC or DC power must be restored before the DT will be powered.

If ASH1 PCU voltage requirements were not present, replace ASH1 PCU. If voltage requirements are still not present, proceed to Step 12.

Reference: DLP-519

4. At DT observe any LED indicators on ASJ1 or ASJ2 channel unit.

- **FAIL:** Power down (turn off ac power and disconnect battery power cable J104-P104) and restore DT power. If FAIL is still on, replace ASJ1 or ASJ2 and repeat this procedure if necessary.

Reference: DLP-519

- **OOF:** Likely cause is a bad fiber cable to DT, proceed to Step 15.
- **BUSY:** Likely cause is a short in NIU wiring, proceed to Step 5.

- **ON BAT:** Likely cause is a loss of ac power. Verify ac power is present at ac outlet and circuit breaker is on. If ON BAT is still on proceed to Step 12.
5. For **BUSY** indicator, verify no channels are in use. At 108 connect block (Fig. 1) remove Tip-Ring pairs to NIU and observe **BUSY** indicator.
 6. Did **BUSY** indicator go off?

If **YES**, then continue with Step 7.
If **NO**, then proceed to Step 8.
 7. Trouble is in voice-frequency pairs. Use SD drawing to correct wiring trouble.
 8. Replace **ASJ1** or **ASJ2** channel unit.

Reference: DLP-519

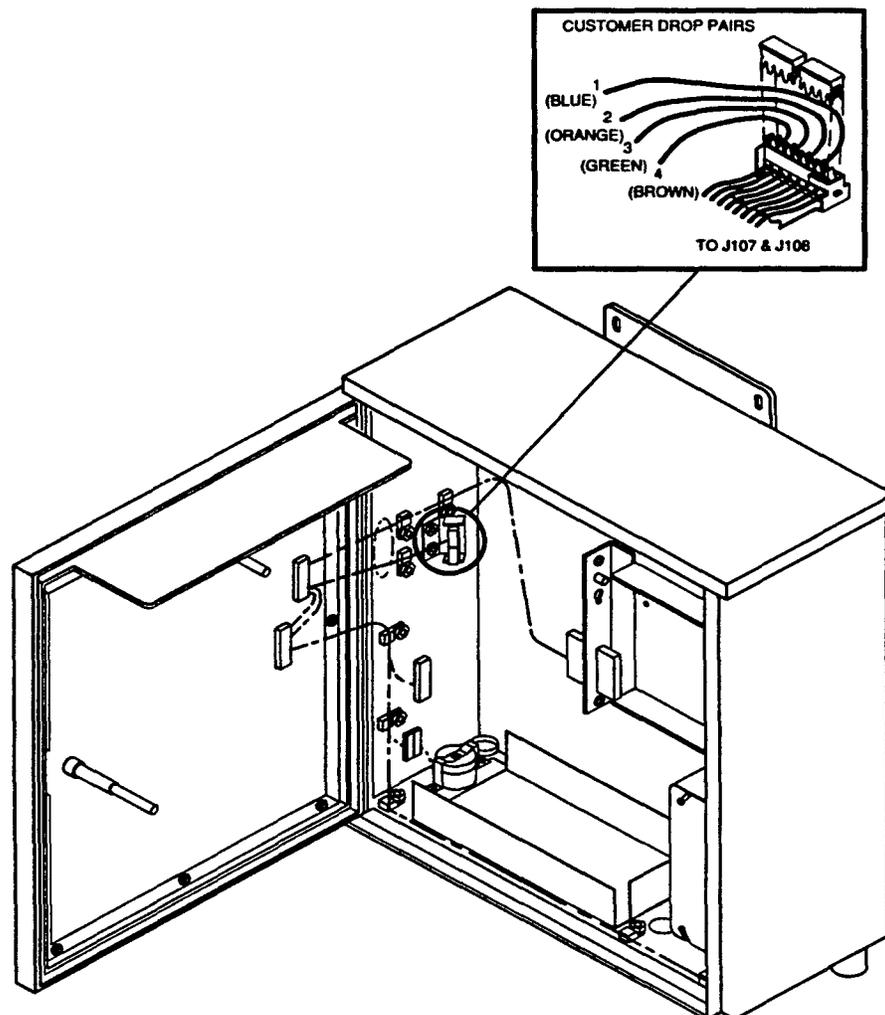


Figure 1—Customer Drop Pairs Access in DT Cabinet

9. On replacement ASJ1 or ASJ2, is BUSY indicator off?

If NO, then continue with Step 10.

If YES, then proceed to Step 11.

10. Trouble is in DT wiring. Use SD drawing to correct wiring trouble.
11. Connect Tip-Ring pairs on 108 connector block. Perform normal transmission tests and proceed to Step 13.
12. **Note:** If ON BAT indicator is lighted, verify ac power is present before continuing.

For power trouble, replace ASH1 PCU and perform normal transmission tests.

Reference: DLP-519

13. Is normal transmission quality good in both directions?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then proceed to Step 14.

14. Trouble is in DT circuitry. Use SD drawing to correct wiring trouble.
15. For OOF, unplug AYB1B optical unit and connect J99407TA test card into AYB1B slot. You must remove ST[®] lightguide cable connector cover and clean the ST connector before inserting the test card. Perform normal transmission tests from J99407TA Analyzer channel jacks.

Reference: DLP-517

16. Is normal transmission quality good in both directions?

If YES, then proceed to Step 18.

If OOF is lighted on Analyzer, then continue with Step 17.

17. Dispatch craftsperson responsible for locating and repairing optical distribution cable troubles.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

18. Replace AYB1B optical unit in DT and remove Analyzer connections.

19. Perform normal transmission tests from NIU.

20. Is normal transmission quality good in both directions?

If YES, THEN STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then continue with Step 21.

21. Trouble is in wiring between AYB1B and ASJ1 or ASJ2. Use SD drawing to correct wiring trouble.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

FIBER FACILITY/TI HUB TURN UP CONSIDERATIONS

Introduction A SLC Series 5 RT channel bank can use a DDM-1000, DDM-2000, or other lightguide digital multiplexer facility (MUX) between the central office equipment and the remote terminal location. The central office equipment can be a Series 5 COT channel bank, a SLC 96 COT channel bank, or integrated into a 5ESS switch or other TR-08 compatible switch. The basic communication rate between the central office equipment and the RT channel bank is a DS1 (1.544 Mb/s) digital signal. The MUX accepts many DS1 signals, multiplexes them into a higher rate signal and transmits this information as light pulses over a fiber optic cable.

DS1 Signals The basic DS1 signal carries 24 voice frequency channels, framing information and end-to-end equipment (Data Link) information. There are 2 types of line framing used by the Series 5 carrier system. FE (extended super frame) is required for a Feature Package A (FPA), FPC, or FPD system. FS (super frame) is required for a FPB system. The framing information is used to synchronize the system timing and provide system data links. The two types of framing are incompatible and *MUST NOT BE MIXED* in a SLC carrier system. Line framing passes through a multiplexer facility unchanged.

The DS1 signal can have two Line Coding formats (to handle excessive all zero information on the DS1 signal), Zero Code Suppression (ZCS also called "AMI") or Bipolar 8 Zero Substitution (B8ZS). These line coding schemes handle excessive zeros differently and *WILL CAUSE DIGITAL LINE FAILURES IF MIXED ON THE DS1 FACILITY*. AT&T recommends using ZCS Line coding for all DS1 interface circuits on a fiber facility to reduce the chance of a mismatch. A line coding mismatch will cause unpredictable digital line failures when the voice channels are active and clear when idle. Line coding is passed through a multiplexer facility if both ends match, but will change the bit patterns if there is a mismatch.

Signal Flow Figure 1 shows a typical signal flow for a lightguide facility. The DS1 signals originating at the central office equipment:

- must be cross-connected to the multiplexer,
- are transported over the optical cable to the far end multiplexer,
- are cross-connected at the far end (often through protectors) using a 800 or 900 Series DSX or Tie Block/307 DSX to either an RT channel bank or a T1 extension shelf.

If a T1 extension shelf is used, the signals are passed through protector blocks before exiting the enclosure.

Before Establishing an End-to-End System Before attempting to establish an End-to-End carrier system you must verify the following steps have been completed:

- (1) The multiplexer facility must be turned up and tested End-to-End using the documentation for the type of multiplexer used.
 - This includes making powering, cabling, and alarm connections as required
 - Optioning and installing the circuit packs
 - Perform loopback tests
 - Performing end-to-end tests on the fiber facility.
- (2) The central office equipment must be cross-connected to the multiplexer low speed interface packs.
- (3) *The central office end low speed interface cards must be optioned for the Line Coding (ZCS or B8ZS) used by the carrier system.*
- (4) The remote end equipment must be cross-connected to the multiplexer.
- (5) *The remote end low speed interface cards must be optioned for the Line Coding (ZCS or B8ZS) used by the carrier system.*
- (6) The DS1 protectors must be installed if required.
- (7) The T1 extension shelf (if used) must be turned up.
 - This includes making powering, cabling, and alarm connections as required
 - Installing repeaters and protectors
 - Performing pre-service tests on the digital lines.
- (8) Just before performing End-to-End Carrier system tests, the multiplexer equipment loopbacks should be removed and the low speed interface packs put in service.
- (9) When the Series 5 channel bank is in pre-service, the LIUs put out good DS1 signals toward the multiplexer. You can verify the digital signal path between the channel bank and the multiplexer by removing *pre-service* LIUs, one at a time, and verifying the multiplexer low speed interface loss of signal alarm indication is present (flashing ALM for DDM-1000 or flashing FAULT for DDM-2000) and clears when the LIU is reinstalled.

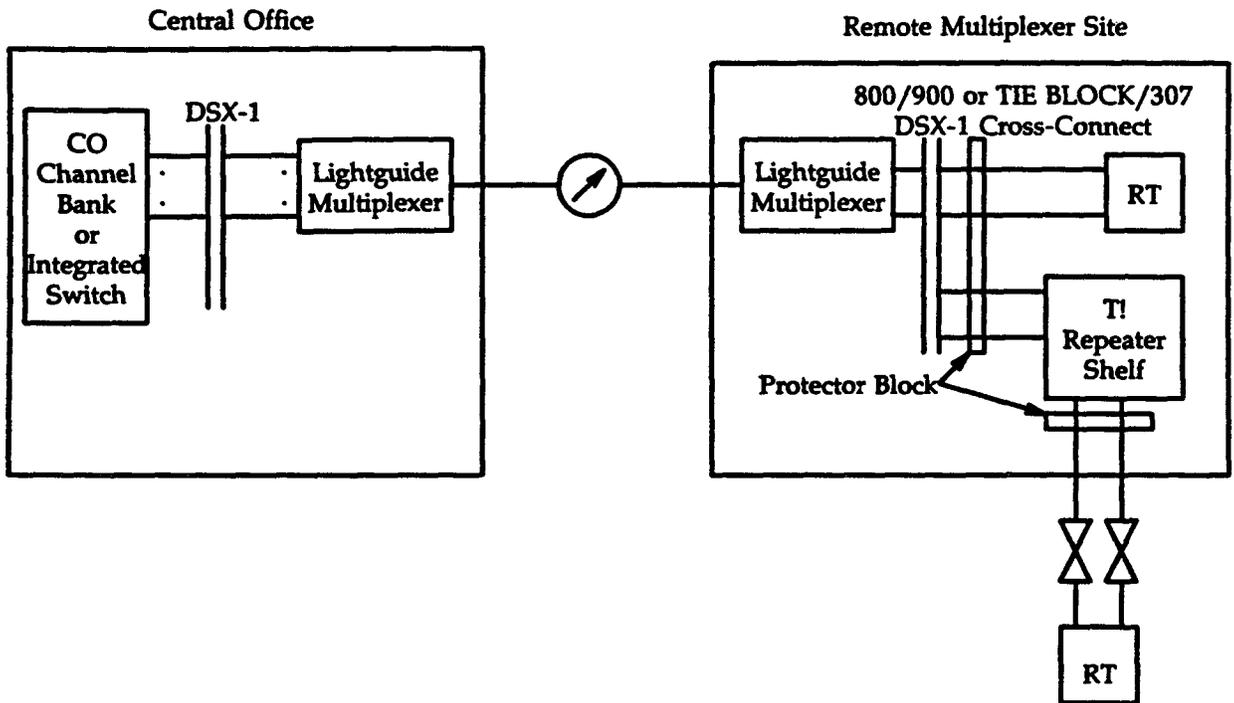


Figure 1—Block Diagram of a Typical SLC Carrier System Fiber Facility

PERFORM POWER LOOP TESTS ON INSTALLED LINE POWERING AUA62() LIUS

SUMMARY: With VOM, measure Side 1 line current between +V and -I jacks on installed LIU (FIG. 1). Meter should indicate between 0.57 and 0.63 volts. Measure Side 2 line current between the +I and -V jacks; meter should indicate between 0.57 and 0.63 volts. Measure line voltage between +V and -V jacks and record measurement. Meter should read less than 138 volts. Repeat each measurement on all line-powering LIUs installed in system under test at RT (Universal SLC Series 5 Mode 96, Integrated SLC Series 5 Mode 96, or FPC Integrated) or COT and RT (Universal SLC Series 5).

1. Condition VOM to measure dc volts.
2. On LIU being tested, connect negative (-) black lead to -I and positive (+) red lead of VOM to +V (FIG 1.).
3. Does VOM indicate between 0.57 and 0.63 volts dc?

 If YES, then continue with Step 4.
 If NO, then do TAP-100.
4. Repeat Step 2 and Step 3 on each line-powering LIU in system under test, and proceed to Step 5.
5. Change connections: red lead to +I, black lead to -V.
6. Does VOM indicate between 0.57 and 0.63 volts dc?

 If YES, then continue with Step 7.
 If NO, then do TAP-100.
7. Repeat Step 5 and Step 6 on each line-powering LIU in system under test, and proceed to Step 8.
8. Change VOM connections: positive (+) red lead to +V jack and negative (-) lead to -V jack.
9. **Note:** Line voltage measurement will vary with length of power loop. On short power loops, meter indication may be much less than 138 volts.

 Is voltage less than 138 volts?

 If YES, then record measurement and continue with Step 10.
 If NO, then do TAP-100.
10. Repeat Step 8 and Step 9 on each line-powering LIU in system under test, and proceed to Step 11.
11. Disconnect VOM.
12. On office records for system, does engineering provide acceptable voltage range?

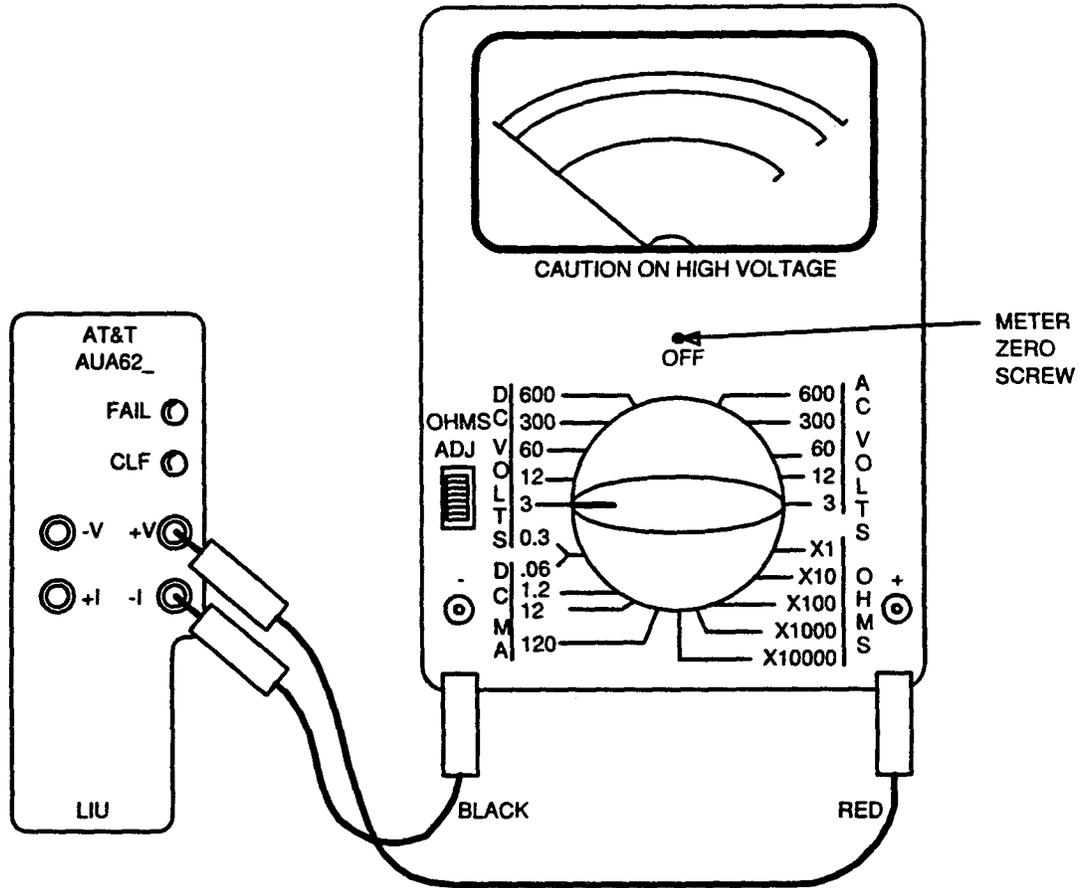


Figure 1—Test Connections for Side 1 Line Current Measurement (AUA62 or AUA62B)

If YES, then continue with Step 13.

If NO, then proceed to Step 14.

- Note:** First line measured cannot be evaluated for correct voltage requirements unless engineering provides acceptable range. All lines within system terminating at same location must measure within 10 percent of each other.

Are recorded voltage measurements within acceptable range?

If YES, then continue with Step 14.

If NO, then do TAP-100.

- Are recorded values within 10 percent of each other for all lines in this system terminating at the same location?

If YES, then continue with Step 15.

If NO, then do TAP-100.

15. Have all lines (installed line-powering LIUs) in this system been tested at RT (Universal SLC Series 5 Mode 96, Integrated SLC Series 5 Mode 96, or FPC Integrated) or COT and RT (Universal SLC Series 5)?

If YES, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If NO, then proceed to Step 1.

MEASURE DIGITAL LINE VOLTAGE AT MAIN DISTRIBUTING FRAME

1. Condition VOM to measure dc volts.
- 2.

DANGER: Voltage to -130 Vdc may be present on digital line pairs.

Note: System Facility Record form or Office Cables and Pairs Record provides cable and pair designations.

At digital line appearance on MDF (FIG. 1), connect negative (-) black lead of VOM to tip side of receive pair and positive (+) red lead to ground.

3. **Note:** Voltage at receive pair to ground will vary with the length of the power loop. On short power loops, measured voltage may be much less than 138 volts. The voltage at the transmit pair to ground is 0 Vdc.

Note value of measured voltage.

4. Connect negative (-) black lead of VOM to ring side of receive pair and positive (+) red lead to ground.
5. Note value of measured voltage.
6. **Note:** System Facility Record form or Office Cables and Pairs Record provides cable and pair designations.

Remove test leads and connect positive (+) red lead of VOM to tip side of transmit pair and negative (-) black lead to ground.

7. **Note:** Voltage at receive pair to ground will vary with the length of the power loop. On short power loops, measured voltage may be much less than 138 volts. The voltage at the transmit pair to ground is 0 Vdc.

Note value of measured voltage.

8. Connect positive (+) red lead of VOM to ring side of transmit pair and negative (-) black lead to ground.
9. Note value of measured voltage.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

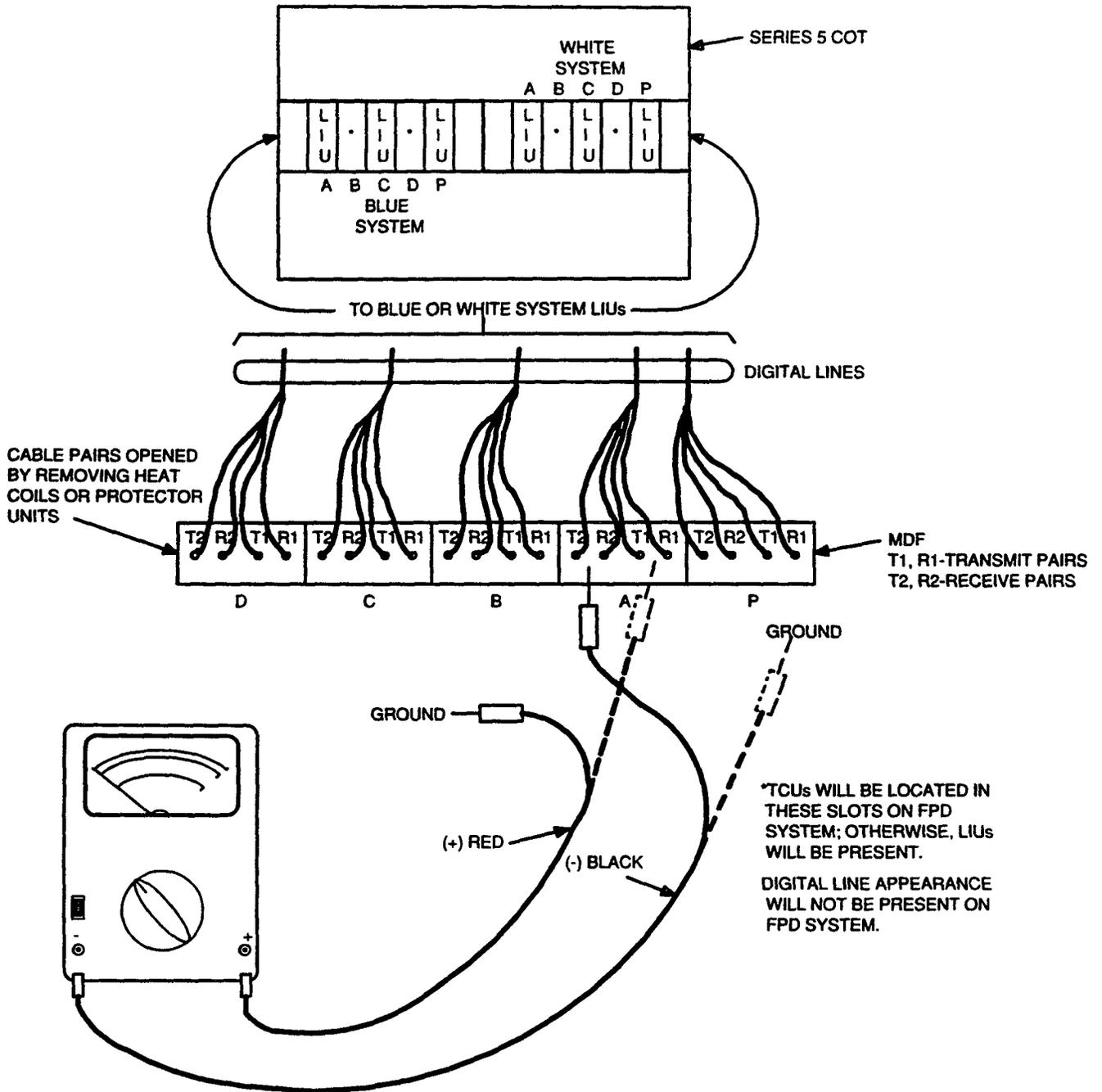


Figure 1—Digital Line Appearance at MDF

SET ADU OPTION TO IN-SERVICE (COT AND/OR RT)

1. **Note:** This procedure assumes that the system to be tested is equipped in the pre-service state.

Are ADU option switches to be set at RT location only?

If YES, then proceed to Step 14.
If NO, then continue with Step 2.
2. At COT on system under test, remove ADU circuit pack.

Response: Office minor and bay minor alarms are activated. (Ignore any bank indicators.)
3. On AIU circuit pack, depress ACO pushbutton.

Response: Office and bay minor alarms are cleared.
4. Are both AB and CD shelf groups being put into service?

If YES, then continue with Step 5.
If NO, then proceed to Step 8.
5. Is ADU an AUB1?

If YES, then continue with Step 6.
If NO, then proceed to Step 7.
6. On AUB1 ADU circuit pack, set switches on S2 (FIG. 1) as follows: position 3 (for shelf group AB in-service) depressed toward number (closed), and position 4 (for shelf group CD in-service) depressed toward number (closed). Proceed to Step 12.
7. On AUB6 circuit pack, set switches on S1 (FIG. 2) as follows: position 3 toward ABI (for shelf group AB in-service), and position 4 toward CDI (for shelf group CD in-service) and proceed to Step 11.
8. Is ADU an AUB1?

If YES, then continue with Step 9.
If NO, then proceed to Step 10.
9. On AUB1 ADU circuit pack, set switch S2 (FIG. 1) position 3 (for shelf group AB in-service) depressed toward number (closed). Proceed to Step 12.
10. On AUB6 ADU circuit pack, set switch S1 (FIG. 2) position 3 toward ABI (for shelf group AD in-service).
11. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU circuit pack back into its slot.

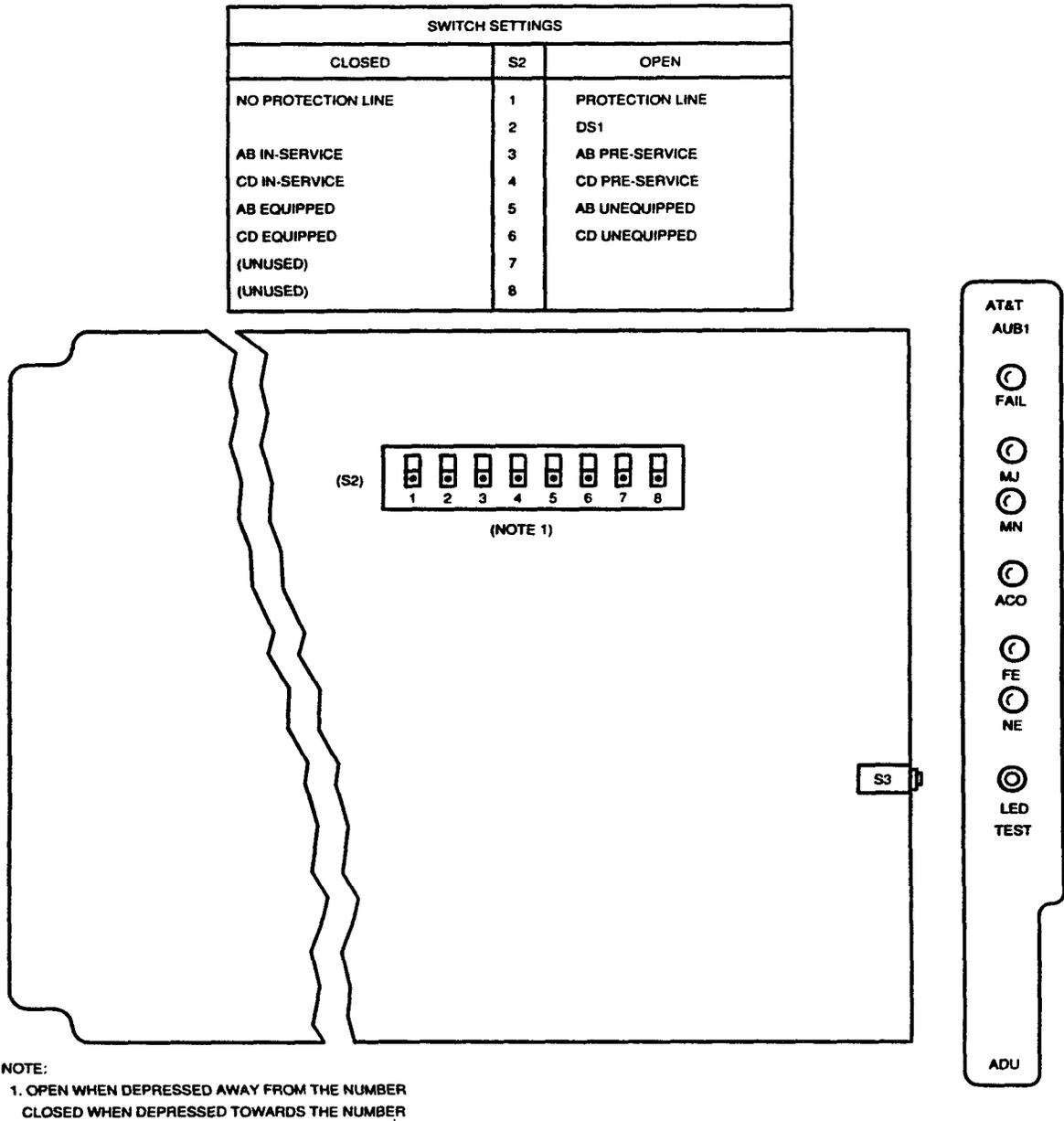
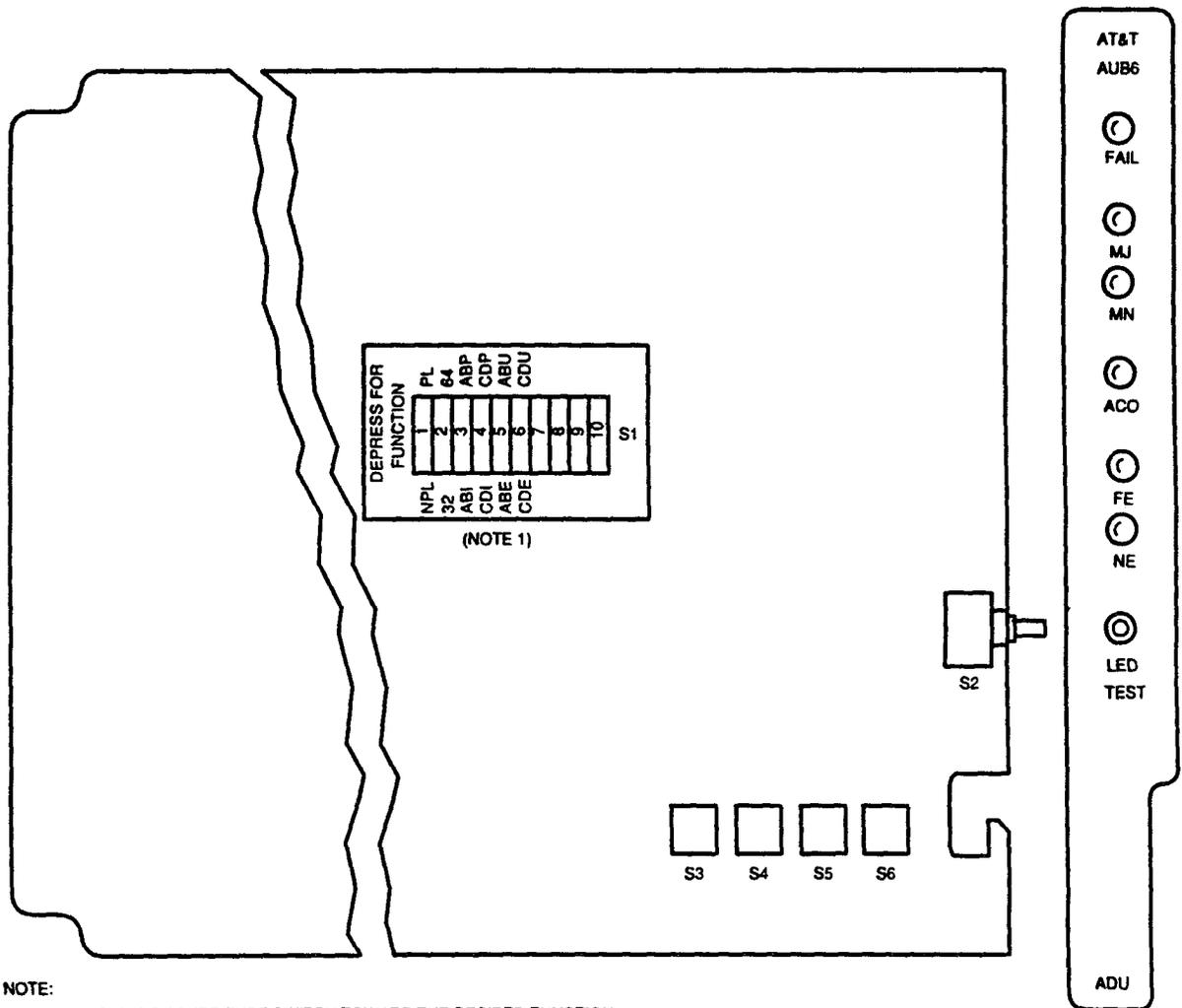


Figure 1—COT AUB1 ADU Options

Response: ADU FAIL, MN, and NE indicators and BCU FAIL indicator are lighted.
 Within 30 seconds, the ADU FAIL, MN, NE, and BCU FAIL indicators go out.
 Then ADU FAIL, MN, and NE indicators are lighted. Office minor and bay minor alarms are activated.

SWITCH SETTINGS		
FUNCTION	SWITCH POSITION	FUNCTION
NO PROTECTION LINE	1	PROTECTION LINE
32 KB/S (LBRV)	2	64 KB/S
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
NOT USED	7	not used
NOT USED	8	not used
NOT USED	9	not used
NOT USED	10	not used



NOTE:
1. DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 2—COT AUB6 ADU Option Switches

Proceed to Step 13.

12. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU circuit pack back into its slot.

Response: ADU FAIL, MN, and NE indicators and BCU FAIL indicator are lighted.
Within 30 seconds, the ADU FAIL, MN, NE, and BCU FAIL indicators go out.
Then ADU MN and FE indicators are lighted. Office minor and bay minor alarms are activated.

13. **Note:** Alarm indicators ADU MN and FE (and CMP on the AUB27 ADU) will be lighted at the RT bank assembly at this point.

On AIU circuit pack depress ACO pushbutton.

Response: ADU indicator ACO lights and FAIL, MN, and NE indicators remain lighted. Office minor and bay minor alarms are cleared.

14. At RT on system being tested, remove ADU circuit pack.
15. Are both AB and CD shelf groups being put into service?

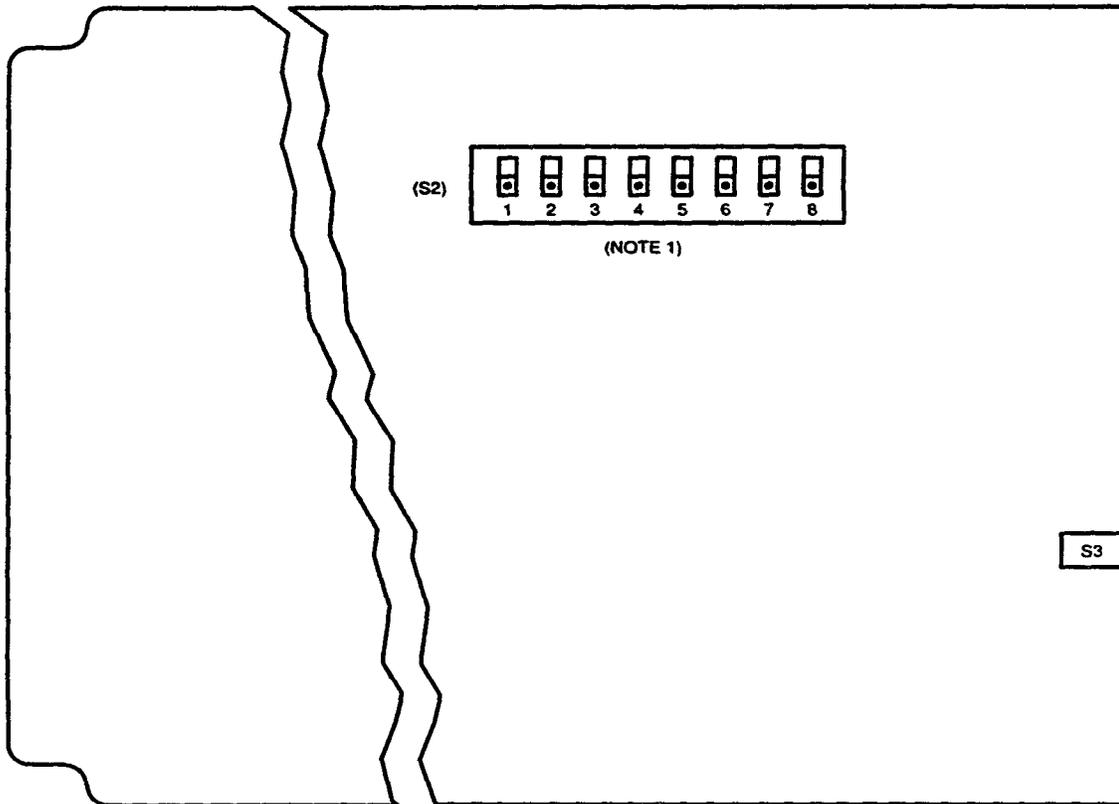
If YES, then continue with Step 16.
If NO, then proceed to Step 19.

16. Is ADU an AUB21?

If YES, then continue with Step 17.
If NO, then proceed to Step 18.

17. At RT on AUB21 ADU circuit pack, set switches on option switch S2 (FIG. 3) as follows: position 3 (for shelf group AB in-service) depressed toward number (closed), and switches 4 (for shelf group CD in-service) depressed toward number (closed). Proceed to Step 24.
18. At RT on AUB26 (FIG. 4) or AUB27 (FIG. 5 and TABLE A) ADU circuit pack, set switches on option switch S1 as follows: Press position 3 toward ABI (for shelf group AB in-service), and position 4 toward CDI (for shelf group CD in-service). On AUB27 set option switch S2 position 3 toward CUT. Proceed to Step 23.
19. Is ADU an AUB21?
- If YES, then continue with Step 20.
If NO, then proceed to Step 22.
20. At RT on AUB21 ADU circuit pack, set option switch S2 (FIG. 3) position 3 (for shelf group AB in-service) depressed toward number (closed).

SWITCH SETTINGS		
CLOSED	S2	OPEN
NO PROTECTION LINE	1	PROTECTION LINE
	2	DS1
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALM FOR RT MISC1	7	MN ALM FOR RT MISC1
MJ ALM FOR RT MISC2	8	MN ALM FOR RT MISC2

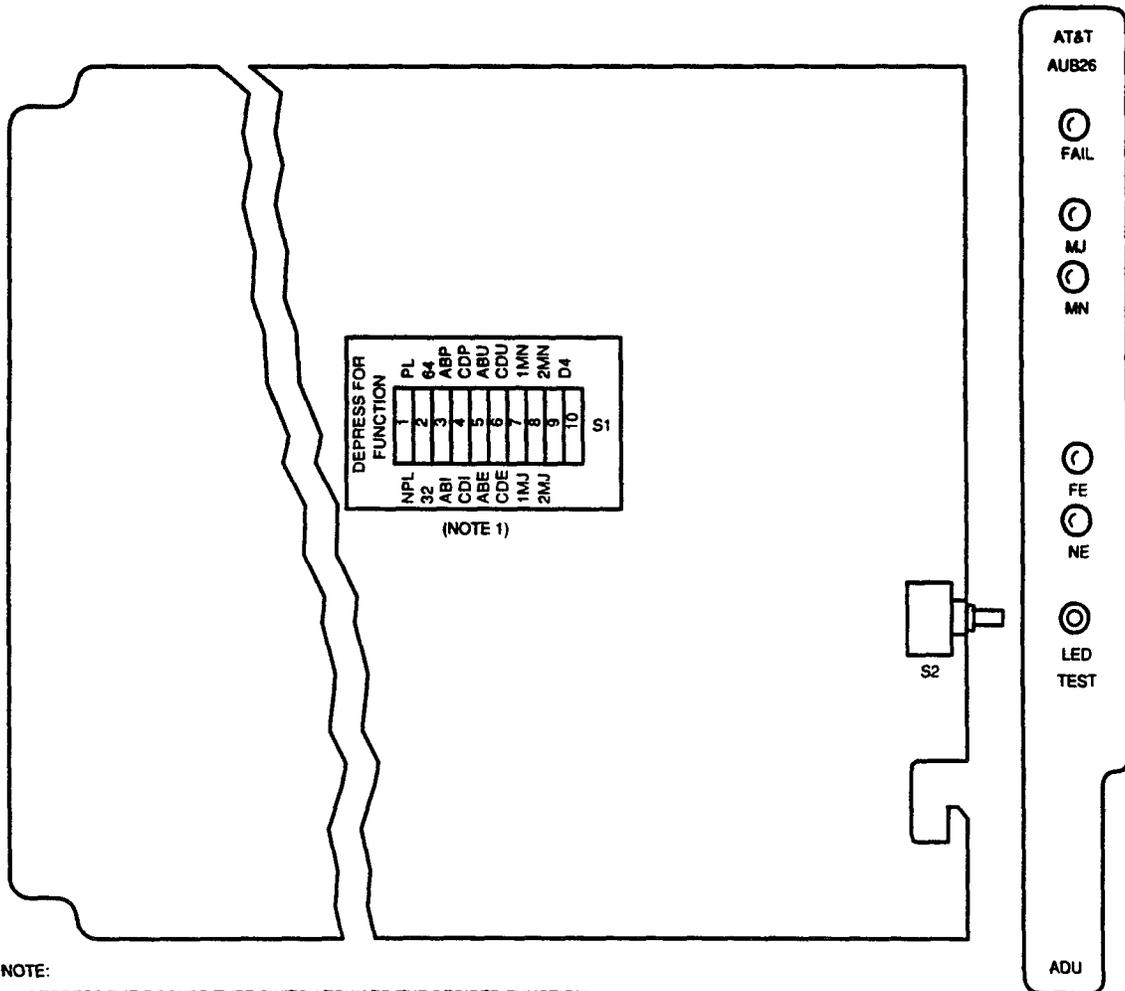


NOTE:
1. OPEN WHEN DEPRESSED AWAY FROM THE NUMBER
CLOSED WHEN DEPRESSED TOWARDS THE NUMBER

Figure 3—AUB21 RT ADU Option Switch Settings

SWITCH SETTINGS		
FUNCTION	SWITCH POSITION	FUNCTION
NO PROTECTION LINE	1	PROTECTION LINE
32 KB/S (LBRV)	2	64 KB/S
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALARM FOR RTMISC1 (1MJ)	7	MN ALARM FOR RTMISC1 (1MN)
MJ ALARM FOR RTMISC2 (2MJ)	8	MN ALARM FOR RTMISC2 (2MN)
-	9*	D4
NOT USED	10	not used

* ALWAYS SET SWITCH POSITION 9 TO D4



NOTE:
1 DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 4—AUB26 RT ADU Option Switch Settings

TABLE A
AUB27 SWITCH SETTING

FUNCTION	S1 SWITCH POSITION	FUNCTION
NO PROTECTION LINE (NPL)	1	PROTECTION LINE (PL)
MODE 2 OPERATION (2)	2	MODE 1 OR FPC OPERATION (4) (ALWAYS USE 4 UNLESS EQUIPPING FPB MODE 2)
AB IN-SERVICE (ABI)	3	AB PRE-SERVICE (ABP)
CD IN-SERVICE (CDI)	4	CD PRE-SERVICE (CDP)
AB EQUIPPED (ABE)	5	AB UNEQUIPPED (ABU)
CD EQUIPPED (CDE)	6	CD UNEQUIPPED (CDU)
MAJOR ALARM FOR MISC1 (1MJ)	7	MINOR ALARM FOR MISC1 (1MN)
MAJOR ALARM FOR MISC2 (2MJ)	8	MINOR ALARM FOR MISC1 (2MN)
FUNCTION	S2 SWITCH POSITION	FUNCTION
16 BIT ALARM FIELD (16)	1	13 BIT ALARM FIELD (13) (ALWAYS USE 13)
FS FRAMING (FS) * (USE FS FOR FPB MODE 1 OR 2)	2	ESF FRAMING (FE) † (USE FE FOR FPC-AUTOCUT)
NO CUTOVER HUNTING (NC) (USE NC FOR MODE 1 AND 2 OR WHEN FPC-AUTOCUT IS NOT USED)	3	CUTOVER ENABLED (CUT) (USE CUT FOR FPC-AUTOCUT)
(SGL)	4	(ALWAYS USE DBL)
(PA)	5	(ALWAYS USE NPA)
(MJP)	6	(ALWAYS USE MNP)
FUNCTION	S3 SWITCH POSITION	FUNCTION
DATA LINK (DL) (ALWAYS USE DL)		NO DATA LINK (NDL)
FUNCTION	CLEAR NORM POSITION	FUNCTION
CLEAR PROVISIONING (USE CLEAR WHEN ADU IS FIRST INSTALLED IN NEW SYSTEM)		DO NOT CLEAR PROVISIONING (USE NORM FOR IN-SERVICE SYSTEM)
S4, S5, S6, S7	ROTARY SWITCHES	S8, S9, S10, S11
SYSTEM ID NUMBER		(ALWAYS SET TO 0)
* Use FS option for FPB Mode 1, Mode 2, and for integrated applications † Use FE option for FPC-Autocut and FPC applications		

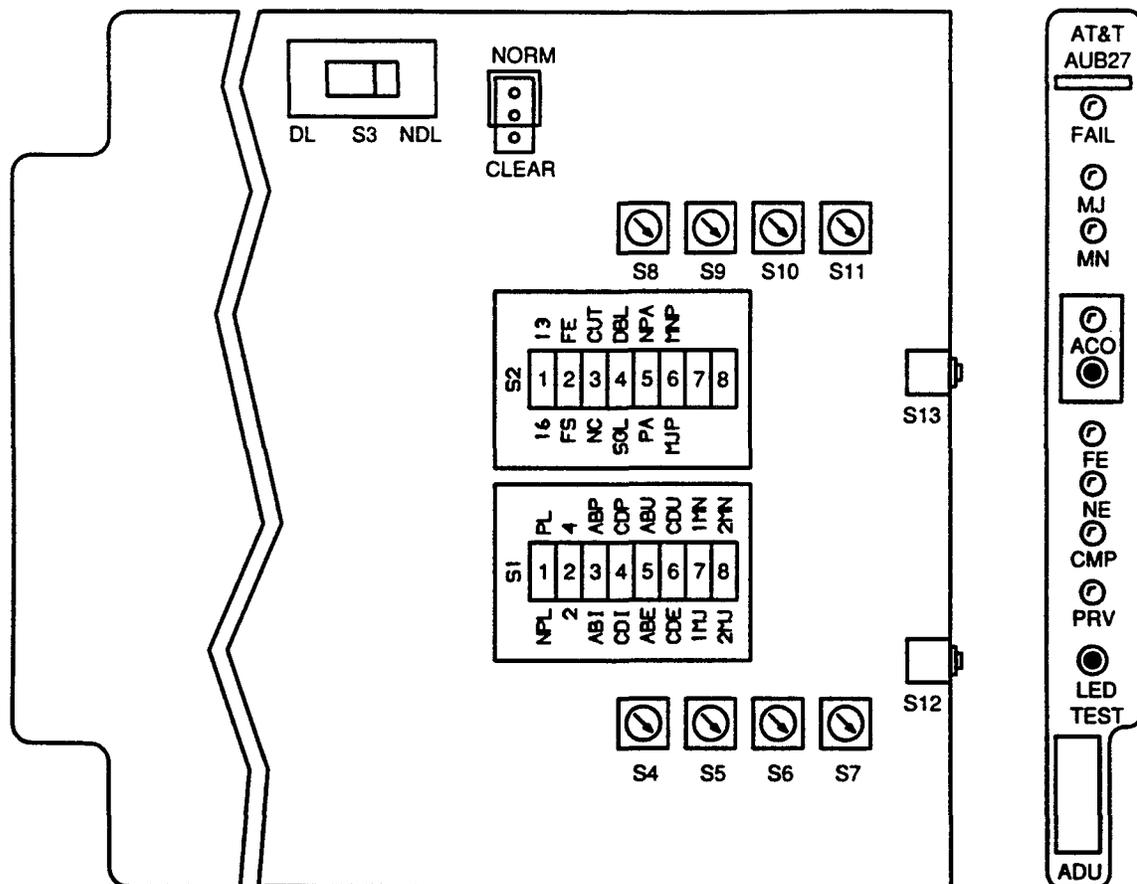


Figure 5—AUB27 RT ADU Option Switch Settings

21. Plug ADU circuit pack into ADU slot.

Response: ADU FAIL indicator lights momentarily. All indicators should go out within 15 seconds.

Proceed to Step 25.

22. At RT on AUB26 (FIG. 4) or AUB27 (FIG. 5 and TABLE A) ADU circuit pack, set option switch S1 as follows: Press position 3 toward ABI (for shelf group AB in-service). On AUB27 set option switch S2 position 3 toward CUT.

23. Is system being tested for FPC-AutoCut application?

If YES, then proceed to Step 28.

If NO, then continue with Step 24.

24. **Caution:** Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.

Plug ADU circuit pack back into its slot.

Response: ADU FAIL, MN, and NE indicators and BCU FAIL indicator lighted.
All indicators should go out within 30 seconds.

25. Are all indicators cleared?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then continue with Step 26.

26. **Caution: Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Recheck ADU option settings at both ends; make sure each end is set for in-service operation. If indicators still do not clear after 30 seconds and the system is equipped with FPA capability, replace ADU at other end (e.g., if COT indicators will not clear, replace ADU at RT). If the system is equipped with FPC, FPC-Autocut, or FPD capability; use the CIU to clear option settings.

Reference: DLP-513

27. Are all indicators cleared?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then to clear trouble, refer to AT&T 363-205-500 (TOP) for T1 line or to TOP volume for transmission facility.

28. At RT, on AUB27 ADU (FIG. 5 and TABLE A), set NORM/CLEAR option plug to CLEAR position (bottom and middle pins).

29. **Caution: Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Install ADU circuit pack back into its slot and wait 10 to 15 minutes before proceeding to the next Step.

Comment: By setting the NORM/CLEAR option plug to CLEAR the system will automatically perform a system turn-up (previously done with a CIU) and erase any existing provisioning information from the COT BCU and ADU as well as the RT BCU.

Response: ADU FAIL, MN, and NE indicators and BCU FAIL indicator lighted.
All indicators should go out within 60 seconds.

30. After 10 to 15 minutes, are all indicators cleared?

If YES, then continue with Step 31.

If NO, then proceed to Step 34.

31. At RT, remove AUB27 ADU (FIG. 5 and TABLE A) and set NORM/CLEAR option plug to NORM (top and middle pins).

32. **Caution: Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Install ADU circuit pack back into its slot.

Response: **ADU FAIL, MN, and NE indicators and BCU FAIL indicator lighted.**
All indicators should clear.

33. Are all indicators cleared?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, then continue with Step 34.

34. Are any LIU CLF indicators lighted?

If **YES**, then to clear trouble, refer to AT&T 363-205-500 (TOP) for T1 line or to TOP volume for transmission facility. Repeat from Step 28 after clearing digital line trouble.

If **NO**, then continue with Step 35.

35. Check ADU options at both ends, make sure each end is set for in-service operation.

36. Are option switches set correctly?

If **YES**, then replace ADU with correctly set optioned ADU and repeat from Step 28.

If **NO**, then correct option switch settings and repeat from Step 28.

At RT, same indicators are lighted except ADU indicates FE instead of NE.

Proceed to Step 5.

4. On LSU, set the f switch to ON position (left) for digroup (A, B, C, or D) to be tested (FIG. 2).

Response: Office minor and bay minor alarms are activated.
On system under test, ADU indicators MN and NE are lighted and shelf group (AB or CD) TRU indicator ON PROT is lighted for digroup under test.
At RT, same indicators are lighted except ADU indicates FE instead of NE.

5. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights and office minor and bay minor alarms are cleared.

6. Set same f switch back to normal position (right).

Response: At COT and RT, all indicators go out within 20 seconds.

7. Did indicators light and go out as specified in Steps 2 thru 6?

If YES, then proceed to Step 15.
If NO, then continue with Step 8.

8. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

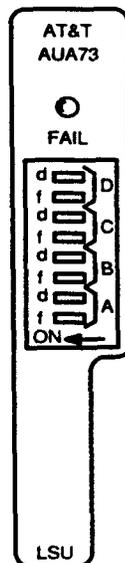


Figure 2—Line Switch Unit Faceplate Switches

First, do lamp test (depress LED TEST on ADU) at COT. If lamp test succeeds, remove ADU circuit pack at COT and make sure options are set correctly (for protection switching). If needed, correct option setting on ADU. If all indicators on ADU do not light, replace ADU. Repeat test (Steps 2 thru 6) and proceed to Step 9.

9. Did indicators light and go out as specified in Steps 2 thru 6?

If YES, then proceed to Step 15.
If NO, then continue with Step 10.

10. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

First, do lamp test (depress LED TEST on ADU) at RT. If lamp test succeeds, remove ADU circuit pack at RT and make sure options are set correctly (for protection switching). If needed, correct option setting on ADU. If all indicators on ADU do not light, replace ADU. Repeat test (Steps 2 thru 6) and proceed to Step 11.

11. Did indicators light and go out as specified in Steps 2 thru 6?

If YES, then proceed to Step 15.
If NO, then continue with Step 12.

12. **Caution:** *When replacing ADU, LIU, or LSU; make sure options are set per facility records. Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace circuit packs listed below one at a time; first at the COT, then at the RT. After each replacement, repeat test (Steps 2 thru 6) to see if it works:

- LSU
- ADU
- BCU
- TRU
- LIU.

13. Did indicators light and go out as specified in Steps 2 thru 6?

If YES, then proceed to Step 15.
If NO, then continue with Step 14.

14. Refer to SD-7C116-01 or SD-7C116-02 (for COT) and SD-7C118-01 (for RT) to correct wiring problem.

15. Repeat test (from Step 2) for each digroup (FPA or FPC) or shelf group CD (FPD) to be tested in this system.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST DIGROUP FOR PROTECTION LINE ACCESS DENIED

SUMMARY: On LSU of system under test, use faceplate switches (FIG. 1) to deny protection line access for digroup(s). [Set switch labeled d (deny) to ON position (left) to deny access. Then unseat LIU for that digroup or shelf digroup and make sure it does not switch to protection.] Repeat for each digroup (FPA or FPC) or shelf group CD (FPD) to be tested in system under test.

1. **Caution:** *Performing this test on a working digroup or shelf group will cause service interruptions.*

At COT, locate LSU for system under test.

2. Is system under test equipped for FPD capability?

If YES, then continue with Step 3.

If NO, then proceed to Step 6.

3. **Note:** The AB shelf group which carries the data link is not tested for protection line access denied.

On LSU, to test shelf group CD, set d switch to ON position (left) for digroup C or D (FIG. 1).

Response: Office MN, NE, and ID and bay MN alarms are activated.
On system under test, ADU indicators MN and NE are lighted.
At RT, ADU indicators MN and FE are lighted.

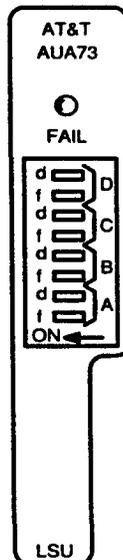


Figure 1—Line Switch Unit Faceplate Switches

4. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights and office MN and NE and bay MN alarms are cleared. Office ID remains on.

5. Unseat LIU for same shelf group.

Response: Office MJ and NE and bay MJ alarms are activated.
On system under test, ADU indicators MJ and NE are lighted, and BCU indicator (A and B or C and D) DIGROUP is lighted.
At RT, same indicators are lighted except ADU indicates FE instead of NE.

Proceed to Step 9.

6. **Note:** The A digroup, which carries the data link, is not tested for protection line access denied.

On LSU, set d switch to ON position (left) for digroup (B, C, or D) to be tested (FIG. 1).

Response: Office MN, NE, and ID and bay MN alarms are activated.
On system under test, ADU indicators MN and NE are lighted.
At RT, ADU indicators MN and FE are lighted.

7. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights and office MN and NE and bay MN alarms are cleared. Office ID remains on.

8. Unseat LIU for same digroup.

Response: Office MJ and NE and bay MJ alarms are activated.
On system under test, ADU indicators MJ and NE are lighted, and BCU indicator (B, C, or D) DIGROUP is lighted.
At RT, same indicators are lighted except ADU indicates FE instead of NE.

9. On AIU, depress ACO.

Response: ADU indicator ACO lights. Office MJ, NE, and () DIGROUP and bay MJ alarms are cleared. Office ID remains on.

10. Reinsert LIU for digroup.

11. On LSU, set same d switch back to normal position (right).

Response: At COT and RT, all indicators go out within 20 seconds.

12. Did indicators light and go out as specified in Steps 3 thru 11?

If YES, then proceed to Step 16.
If NO, then continue with Step 13.

13. **Caution:** *Incorrectly set ADU or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LSU, ADU, then BCU circuit packs one at a time; first at the COT, then at the RT. After each replacement, repeat test (Steps 2 thru 11) to see if it works. When replacing ADU or LSU, make sure options are set per facility records and proceed to Step 14.

14. Did indicators light and go out as specified?

If YES, then proceed to Step 16.

If NO, then continue with Step 15.

15. Refer to SD-7C116-01 or SD-7C116-02 (for COT) and SD-7C118-01 (for RT) to correct wiring problem.

16. Repeat test (Steps 2 thru 11) for each digroup to be tested in this system.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST AUTOMATIC PROTECTION LINE SWITCHING

SUMMARY: On system under test, unseat the LIU for each digroup (FPA or FPC) (FIG. 1) or shelf group AB (FPD) (FIG. 2) and make sure digroup or shelf group is switched to protection. Repeat for each digroup (FPA or FPC) or shelf group CD (FPD) to be tested in system under test.

1. **Caution:** *Performing this test on a working digroup or shelf group may cause service interruption.*

Is system under test equipped for FPD capability?

If YES, then proceed to Step 3.
If NO, then continue with Step 2.

2. At COT on facility shelf, locate LIU in system under test for digroup (A, B, C, or D) to be tested (FIG. 1) and proceed to Step 4.
3. At COT on facility shelf, locate LIU in system under test for shelf group (AB or CD) to be tested (FIG. 2).
4. Unseat LIU for that digroup or shelf group.

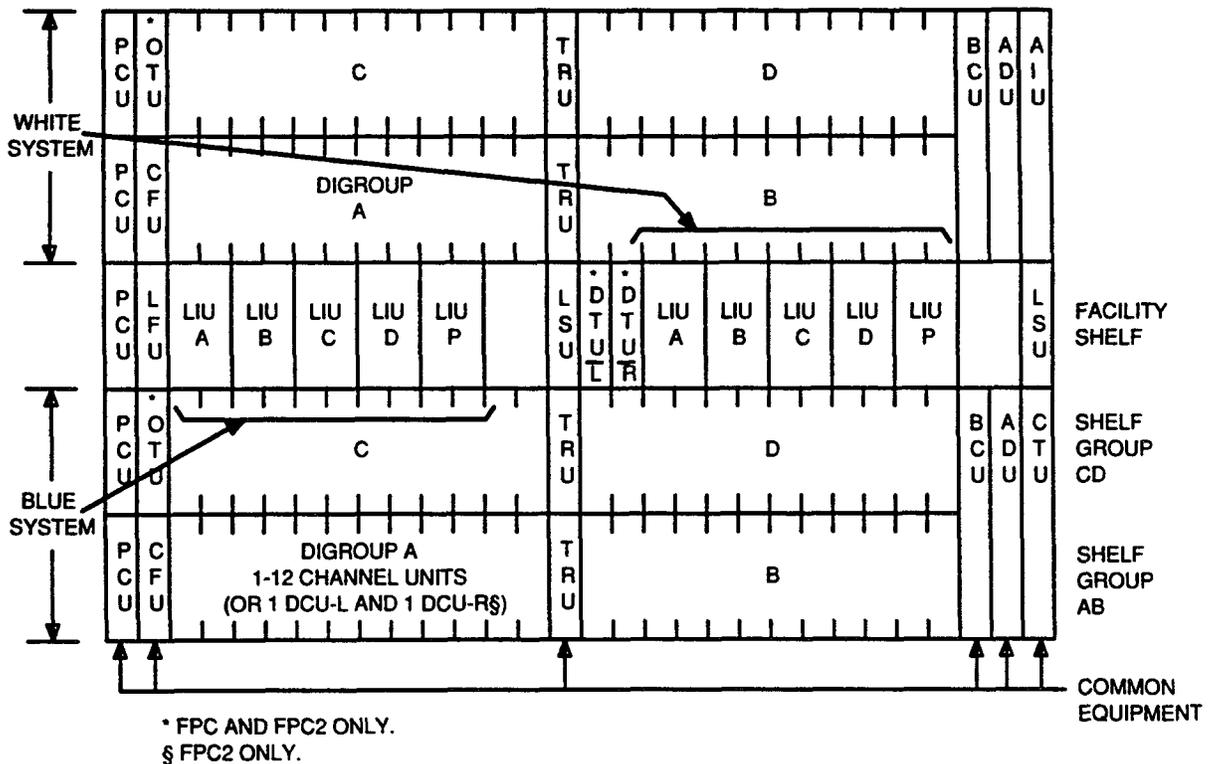


Figure 1—Location of LIUs (FPA, FPC, & FPB Mode 1)

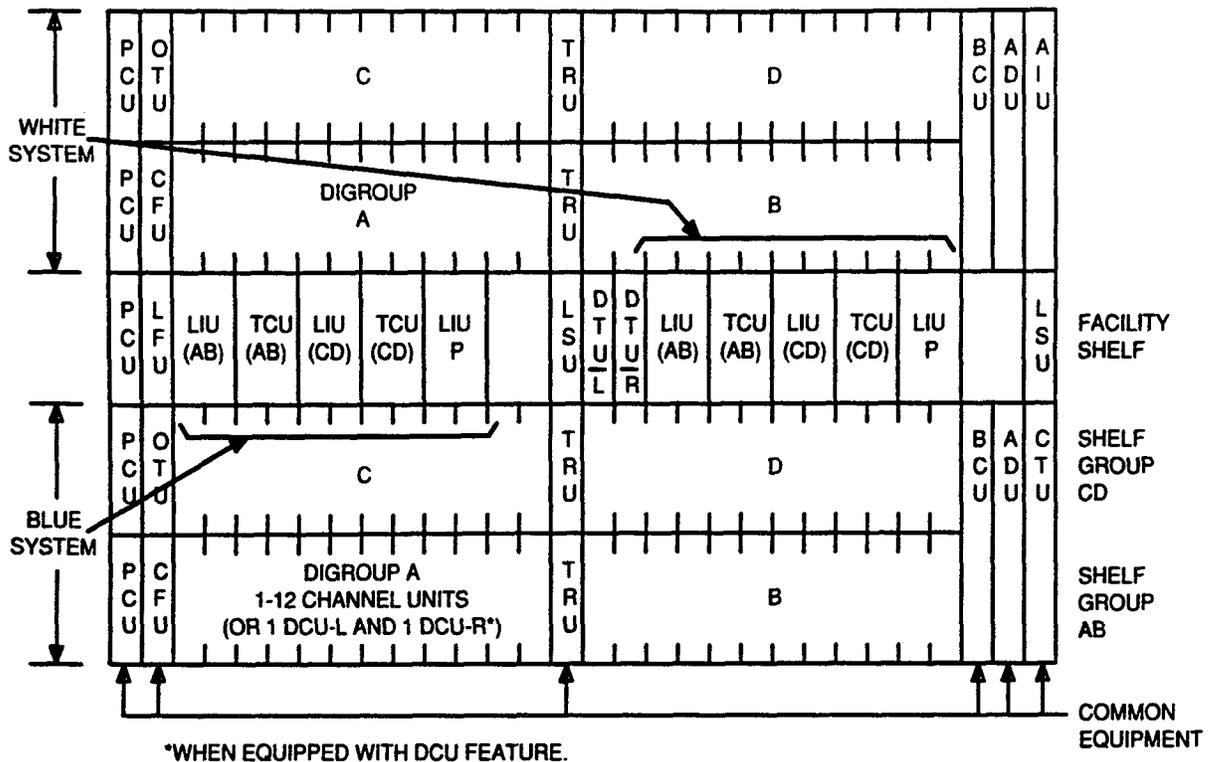


Figure 2—Location of LIUs (FPD and FPB Mode 2)

Response: Office MN, NE, and ID and bay MN alarms are activated. On system under test, ADU indicators MN and NE are lighted, and shelf group (AB or CD) TRU indicator ON PROT is lighted for digroup or shelf group under test. At RT, same indicators are lighted except ADU indicates FE instead of NE.

- On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights. Office MN, NE, and bay MN alarms are cleared. Office ID remains on.

- Reinsert LIU.

Response: LIU indicator FAIL lights momentarily. At COT and RT, all indicators go out within 30 seconds.

- Did indicators light and go out as specified?

If YES, then proceed to Step 11.
If NO, then continue with Step 8.

- Caution:** Options on replacement LSU must agree with facility records.

First, do lamp test (depress LED TEST on ADU) at COT. If lamp test succeeds, replace LSU circuit pack, first at the COT, then at the RT. If lamp test fails, replace circuit pack(s) that

contains indicator(s) that did not light as required. Repeat test (Steps 1 thru 6) after each replacement and proceed to Step 9.

9. Did indicators light and go out as specified?

If YES, then proceed to Step 11.

If NO, then continue with Step 10.

10. Refer to SD-7C116-01 or SD-7C116-02 (for COT) and SD-7C118-01 (for RT) to correct wiring problem.
11. Repeat test (Steps 1 thru 7) for each digroup (FPA or FPC) or shelf group CD (FPD) to be tested in this system.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST CENTRAL OFFICE AND REMOTE (IF PROVIDED) ALARM SYSTEM AT COT AND RT

OVERVIEW: This procedure requires coordination between alarm center, central office, and remote terminal. This procedure tests connections to central office and remote alarms. The steps below include tests for both types of alarms.

1. **Caution:** *System must be out of service to perform test; otherwise, service will be interrupted. If dual channel bank is already providing service, RT batteries must be fully charged before test is started; otherwise, service may be interrupted on the working bank while alarms are being tested.*

Check office records for system under test. If it is connected to provide remote alarms, follow central office and remote alarm tests; otherwise, do central office tests.

2. Consult office records and verify that needed jumpers for central office and remote alarm points have been made at main distributing frame.
3. What type of RT powering do you have?

Distributed Powering: If RT frame or cabinet uses the J1C182BA power shelf and 181A apparatus mounting (battery shelf), continue with Step 4.

Bulk Powering: If RT frame uses the J1C182BB bulk power shelf and -48 Vdc power plant, continue with Step 9.

4. At RT, verify battery power to dual channel bank (BATTERY CHARGER indicator HIGH RATE CHG/ON not lighted).
5. Unplug ac power cord plug from outlet or turn breaker off (to test PMN and FE closures).

Response: At COT, ADU indicator FE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).

At RT, RECTIFIER indicator ALARM and BATTERY CHARGER indicator BAT DISCHG are lighted. ADU indicator NE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).

6. At COT, verify with alarm center that ID, FE, and PMN alarms have been properly received and displayed.

Response: If central office has a power minor alarm system, then PMN office alarm is activated. Otherwise, central office minor (MN) alarm is on.

7. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights on both banks, office alarm is cleared, and system IDs (both IDs) remain lighted.

8. At RT, reinsert ac power cord plug into ac outlet or turn circuit breaker on. Then continue with Step 13.

Response: At COT, all indicators go out after approximately 4 minutes.
At RT, RECTIFIER indicator ALARM and BATTERY CHARGER indicator BAT DISCHG go out. All other indicators go out after approximately 4 minutes.

9. At RT with bulk powering arrangement go to the main circuit breaker box, remove ac power cord plug for the -48 Vdc power plant by turning circuit breaker(s) off (to test PMN and FE closures).

Response: At COT, ADU indicator FE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).
At RT, ADU indicator NE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).

10. At COT, verify with alarm center that ID, FE, and PMN alarms have been properly received and displayed.

Response: If central office has a power minor alarm system, then PMN office alarm is activated. Otherwise, central office minor (MN) alarm is on.

11. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights on both banks, office alarm is cleared, and system IDs (both IDs) remain lighted.

12. At RT, restore ac power by turning circuit breaker(s) on.

Response: At COT, all indicators go out after approximately 4 minutes.

13. **Note:** If fans are running, it will be necessary to remove power to the fans by unplugging J114 to fan assembly before obstructing fan blade. The power should be restored before testing the fan alarm.

When fans are not running at the RT, insert an obstruction (screwdriver, pencil, etc, not your finger) into the fan blade. Start fans by depressing and holding the FAN TEST button on the FCU (A/FCU at the optical power shelf assembly).

Response: At COT, ADU indicators MN and FE light after 30 seconds.

Response: At RT, ADU indicators MN and NE light after 30 seconds.

14. Remove fan blade obstruction. Then disconnect and reconnect J114 fan power plug to reset the alarm in the 2A Fan.

Response: Both COT and RT alarm indicators go off after 30 seconds.

15. Is shelf group AB already providing service?

If YES, then proceed to Step 20.
If NO, then continue with Step 16.

16. **Caution:** *Performing this test on working shelf group will cause service interruption.*

Note: When MJ result is expected, request alarm center to stand by to verify closures as quickly as possible so MJ can be cleared. (ACO clears both closures and alarms at the same time.)

At RT for system under test, unseat AB shelf group TRU (to test MJ, CLF, ID, and A and B digroup closures).

Response: Office and bay major alarms are activated.
At COT for system under test, LIU indicator CLF is lighted for digroups A and B, or shelf group AB, and protection line. BCU indicators A and B DIGROUP and ADU indicator MJ is lighted.
At RT, ADU indicators MJ and NE are lighted and BCU indicators A and B DIGROUP are lighted.

17. At COT, verify that alarm center received and displayed MJ, CLF, A and B digroup, and ID indications.

18. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights, office alarms are cleared, and system ID remains lighted.

19. At RT, reinsert AB shelf group TRU.

Response: TRU FAIL indicator lights momentarily.
At COT and RT, all indicators go out within 20 seconds.

20. Is shelf group CD to be tested (to test C and D digroup closures)?

If YES, then continue with Step 21.
If NO, then proceed to Step 25.

21. **Note:** This test brings up MJ alarm. Request alarm center to stand by.

At RT for system under test, unseat CD shelf group TRU.

Response: Office and bay major alarms are activated.
At COT for system under test, BCU indicators C and D DIGROUP are lighted, and ADU indicators MJ and FE are lighted.
At RT, ADU indicators MJ and NE are lighted and BCU indicators C and D DIGROUP are lighted.

22. At COT, verify that alarm center received and displayed MJ, FE, C and D digroup, and ID indications.

23. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights, office alarms are cleared, and system ID remains lighted.

24. At RT, reinsert CD shelf group TRU.

Response: TRU indicator FAIL lights momentarily.
At COT and RT, all indicators go out within 20 seconds.

25. At COT, unseat BCU (FIG. 1) (to test MN and NE closures).

Response: Office and bay minor alarms are activated.
At RT, ADU indicators MN and FE are lighted after approximately 60 seconds.
At COT, ignore any indicators that are lighted.

26. Verify that alarm center received and displayed ID, MN, and NE indications.

27. On AIU, depress ACO pushbutton.

Response: Office alarms are cleared and system ID and ADU indicator ACO are also lighted and remain lighted.

28. Reinsert BCU.

Response: At COT and RT, all indicators go out within 20 seconds.

29. Are MISC1 and MISC2 alarms assigned at RT?

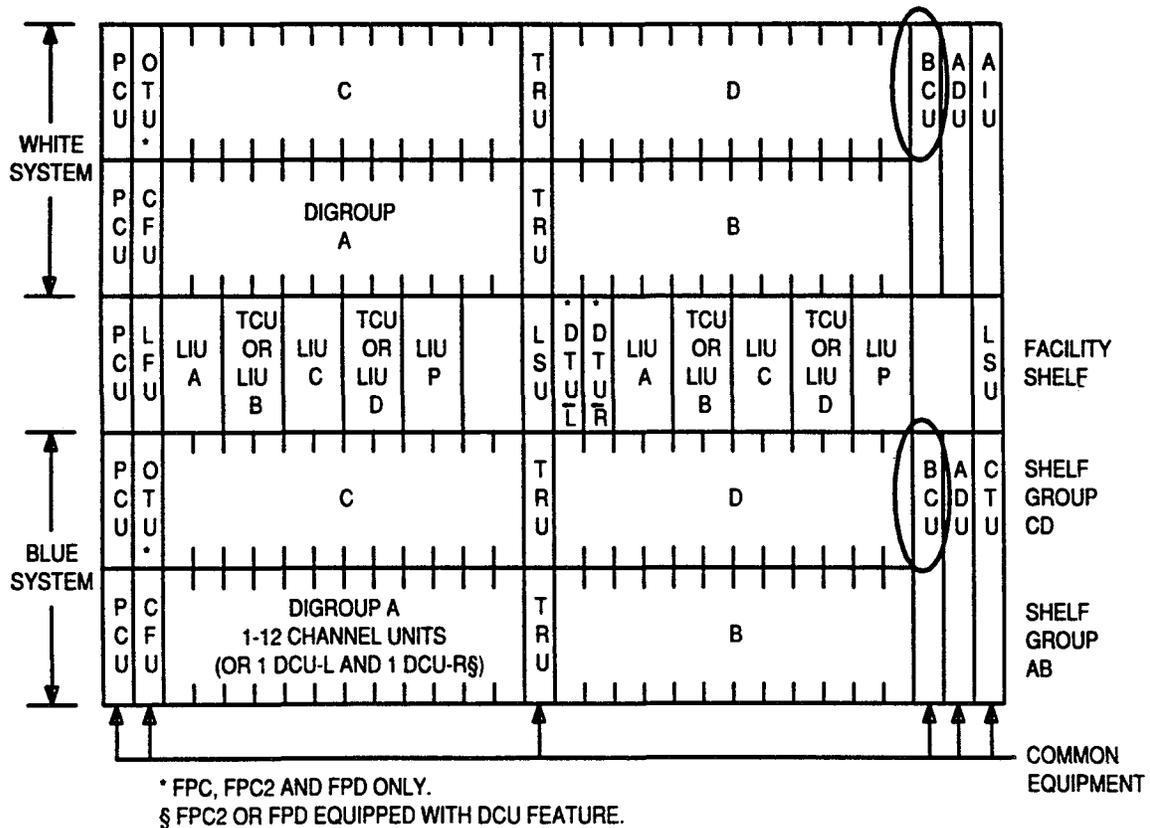


Figure 1—Location of BCUs

If YES, then continue with Step 30.
If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

30. **Note:** At RT on ADU, position of switches on S2 determines whether MISC1 and MISC2 are major or minor alarms. When White system minor alarm switch is closed, alarms will be minor. When White system major alarm switch is closed, alarms will be major. The same is true for Blue bank alarms.

The following steps verify that COT and RT report MISC alarms according to option switch setting on RT ADU [AUB21 (FIG. 2) or AUB26 (FIG. 3)].

31. At COT, consult office records to determine assignment of MISC alarm closures at RT for system being tested.

32. **Note:** If MJ alarm is expected, request alarm center to stand by.

At RT, operate MISC1 or MISC2 alarm.

Response: Office major or minor alarm is activated.

After approximately 30 seconds:

At COT, BCU indicator MISC1 or MISC2 is lighted, and ADU indicators MN or MJ and FE are lighted.

At RT, same indicators are lighted except ADU indicates NE instead of FE.

33. At COT, verify proper central office alarm (major or minor). Verify that alarm center receives ID, MJ or MN, FE, and MISC1 or MISC2 indications.

34. On AIU, depress ACO.

Response: ADU indicator ACO is lighted, office alarm is cleared, and system ID remains lighted.

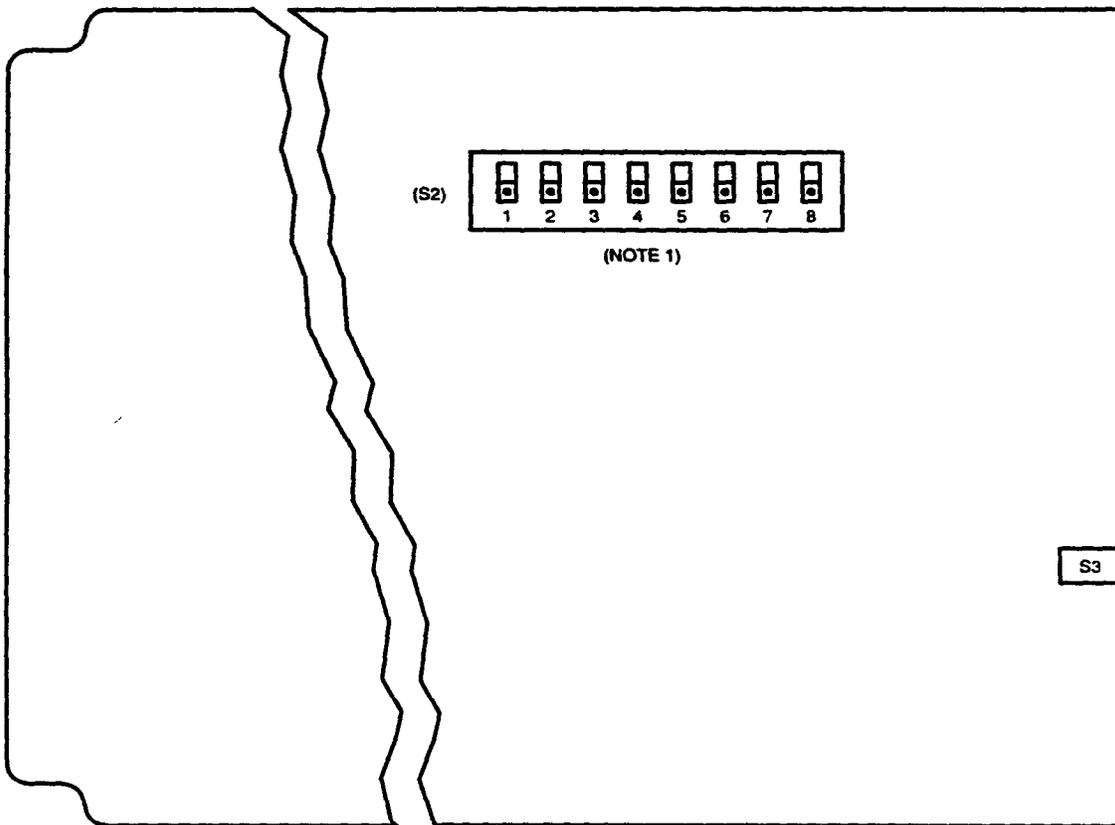
35. At RT, cancel MISC1 or MISC2 alarm.

Response: All indicators at COT and RT go out within 30 seconds.

36. Repeat test (Steps 32 thru 35) for remaining miscellaneous (MISC1 or MISC2) alarm.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

SWITCH SETTINGS		
CLOSED	S2	OPEN
NO PROTECTION LINE	1	PROTECTION LINE
	2	DS1
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALM FOR RT MISC1	7	MN ALM FOR RT MISC1
MJ ALM FOR RT MISC2	8	MN ALM FOR RT MISC2



NOTE:
1. OPEN WHEN DEPRESSED AWAY FROM THE NUMBER
CLOSED WHEN DEPRESSED TOWARDS THE NUMBER

Figure 2—AUB21 RT ADU Option Switch Settings

SWITCH SETTINGS		
FUNCTION	SWITCH POSITION	FUNCTION
NO PROTECTION LINE	1	PROTECTION LINE
32 KB/S (LBRV)	2	64 KB/S
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALARM FOR RTMISC1 (1MJ)	7	MN ALARM FOR RTMISC1 (1MN)
MJ ALARM FOR RTMISC2 (2MJ)	8	MN ALARM FOR RTMISC2 (2MN)
	9*	D4
NOT USED	10	not used

* ALWAYS SET SWITCH POSITION 9 TO D4

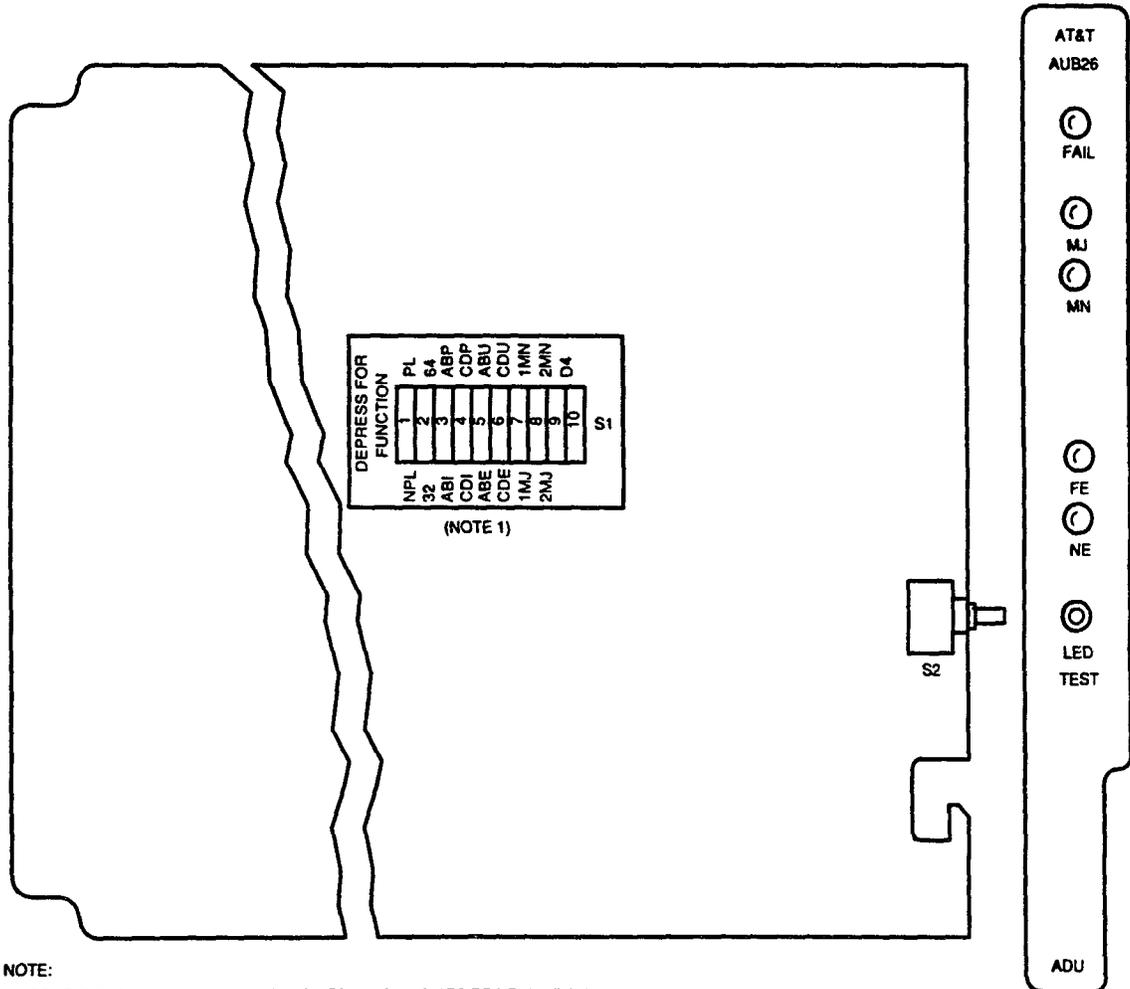


Figure 3—AUB26 RT ADU Option Switch Settings

TEST SINGLE-PARTY POTS CHANNEL END-TO-END

SUMMARY: At COT, use test line to connect unassigned subscriber line and call number to channel being tested. At RT, determine corresponding channel. At RT, connect a test telephone set with ringer connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on channels 24, 48, 72, and 96 (one slot in each digroup).

1. Establish communication between RT and COT.
2. **Note:** These test procedures are to be performed on channels 24, 48, 72, and 96 (one slot in each digroup).

At COT, select channel slot for testing, install single-party channel unit, and inform RT of channel selected.

3. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line.
4. **Note:** Test telephone set should be connected for bridged ringing. Test telephone may be connected at cross-connect. Test calls should be made from cross-connect field to verify correct wiring from RT to cross-connect field.

At RT, install a single-party channel unit into the channel unit slot (23/24, 47/48, 71/72, or 95/96) that coincides with the channel being tested and temporarily connect a test telephone set to the channel.

Response: Central office test line and RT telephone are connected.

5. At RT, lift handset and check for dial tone.
6. Is dial tone present at RT?

If YES, then proceed to Step 10.
If NO, then continue with Step 7.
7. Check test connections and correct if needed. Replace RT channel unit and check for dial tone. If still not present, replace COT channel unit and check for dial tone.
8. Is dial tone present at RT?

If YES, then proceed to Step 10.
If NO, then continue with Step 9.
9. Use COT schematic drawings to check channel bank wiring. Use office drawings to check central office wiring. Look for tip and ring reversal between COT channel appearance and office equipment; also between RT and cross-connect terminal. Correct wiring until dial tone is present at RT and proceed to Step 10.
10. At RT, dial local MDF or CO number and make normal talk tests.

11. Was call completed with normal transmission quality in both directions?
If YES, then proceed to Step 17.
If NO, then continue with Step 12.
12. Replace RT channel unit and repeat normal talk tests.
13. Was call completed with normal transmission quality in both directions?
If YES, then proceed to Step 17.
If NO, then continue with Step 14.
14. Replace COT channel unit and repeat normal talk tests.
15. Was call completed with normal transmission quality in both directions?
If YES, then proceed to Step 17.
If NO, then continue with Step 16.
16. Use COT and RT schematic drawings to check wiring. Check for tip and ring reversal between COT channel appearance and office equipment and between RT and cross-connect terminal. Correct wiring and repeat Step 11 until talk quality is good in both directions.
17. At COT, dial test line number to ring telephone at RT.
18. At RT does test telephone ring normally?
If YES, then proceed to Step 22.
If NO, then continue with Step 19.
19. Has tip and ring reversal been checked?
If YES, then continue with Step 20.
If NO, then proceed to Step 21.
20. Replace, one at a time; RT channel unit first and then COT channel unit. Repeat this procedure from Step 4 after each replacement.
21. Look for tip and ring reversal at COT and RT and repeat from Step 17.
22. At RT, lift telephone handset during ringing.
23. At RT, does ringing trip normally?
If YES, then proceed to Step 25.
If NO, then continue with Step 24.
24. Replace, one at a time; RT channel unit first and then COT channel unit. Repeat this procedure from Step 4 after each replacement.
25. At RT, get VOM and condition to measure dc volts.
26. Make sure test call is established and held between COT and RT.

27. At RT, connect (+) red lead of VOM to tip terminal and (-) black lead to ring terminal of RT test telephone.
28. At RT, does meter indicate between 4V and 15V dc?

If YES, then proceed to Step 34.
If NO, then continue with Step 29.
29. Check RT test connections and correct if needed.
30. At RT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 34.
If NO, then continue with Step 31.
31. Replace RT channel unit for channel being tested. If meter still does not indicate between 4V and 15V, replace COT channel unit.
32. At RT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 34.
If NO, then continue with Step 33.
33. Use COT and RT schematic drawings to check wiring. Check central office wiring.
34. At RT, observe VOM meter.
35. **Note:** A VOM should be used to observe results at RT because results may be difficult to see if a digital voltmeter is used.

At COT, momentarily (1-2 seconds) break tip or ring connection for channel being tested.
36. At RT, does meter indicate 0 volts for approximately 1 second, then return to previous level (4 to 15 volts)?

If YES, then proceed to Step 40.
If NO, then continue with Step 37.
37. Replace, one at a time, RT channel unit and then COT channel unit for channel being tested. Repeat this procedure from Step 4, after each replacement, and proceed to Step 38.
38. At RT, does meter indicate 0 volts for approximately 1 second, then return to previous level (4 to 15 volts)?

If YES, then proceed to Step 40.
If NO, then continue with Step 39.
39. Use COT and RT schematic drawings to check wiring. Check central office wiring.
40. Is this the last designated channel unit slot to be tested?

If YES, then continue with Step 41.
If NO, then proceed to Step 2.

41. Is PGTC (pair gain test controller) or XTC (extended test controller) available for use in testing channels?

If NO, then proceed to Step 50.
If YES, then continue with Step 42.
42. **Note:** The PGTC and XTC can only verify operation to the RT channel unit. To verify operation to cross-connect field, a test telephone must be used at each channel location on the cross-connect field.

Request that Repair Service Bureau or Local Test Desk perform necessary PGTC or XTC channel tests.
43. Did tests pass?

If YES, then proceed to Step 49.
If NO, then continue with Step 44.
44. Check test connections and correct if needed. Replace RT channel unit and repeat Step 42. If tests still do not pass, replace COT channel unit and repeat Step 42 and proceed to Step 45.
45. Did tests pass?

If YES, then proceed to Step 49.
If NO, then continue with Step 46.
46. Make sure PGTC or XTC is working properly and that you are using proper procedures. Repeat Step 42 and proceed to Step 47.
47. Did tests pass?

If YES, then proceed to Step 49.
If NO, then continue with Step 48.
48. Use office drawings and COT schematic drawings to check wiring. Check for tip and ring reversal between COT channel appearance and office equipment; also between RT and cross-connect terminal. Correct wiring problem and repeat Step 42 until tests pass and proceed to Step 49.
49. Is this the last designated channel unit slot to be tested with PGTC or XTC?

If YES, then continue with Step 50.
If NO, then proceed to Step 42.
50. At RT, remove test telephone. At COT, remove test line connection.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

SET ADU OPTION TO IN-SERVICE FOR (MODE 96) FPB MODE 1 OR FPB MODE 2 RT

1. **Note:** This procedure assumes that the system to be tested is equipped in the pre-service state.

Remove ADU circuit pack from bank being tested.

2. Set ADU option switch for equipped and in-service as follows:

On AUB24 ADU option switch S2 set switch positions 3 and 4 to closed position (depress rockers toward numbers) (FIG. 1). If switch positions 5 and 6 are not in the closed position, set them to the closed position (depress rockers toward numbers) also.

On AUB27 ADU option switch S1 (FIG. 2 and TABLE A), set switch positions as follows: Press switch 3 toward ABI, switch 4 toward CDI, switch 5 toward ABE, and switch 6 toward CDE.

3. Plug ADU circuit pack back into its slot.

Response: ADU indicator FAIL lights momentarily.

4. At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, CLF on all LIUs, and, if protection line is provided, and either ADU NE (universal Mode 96) or TRU ON PROT for digroup A (integrated Mode 96) lighted after 30 seconds?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then continue with Step 5.

5. Remove ADU and check settings of option switches. Correct any option switch settings that are incorrect.

6. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Reinsert ADU circuit pack back into its slot.

Response: ADU FAIL indicator lights momentarily.

7. At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, CLF on all LIUs, and, if protection line is provided, and either ADU NE (universal Mode 96) or TRU ON PROT for digroup A (integrated Mode 96) lighted after 30 seconds?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then continue with Step 8.

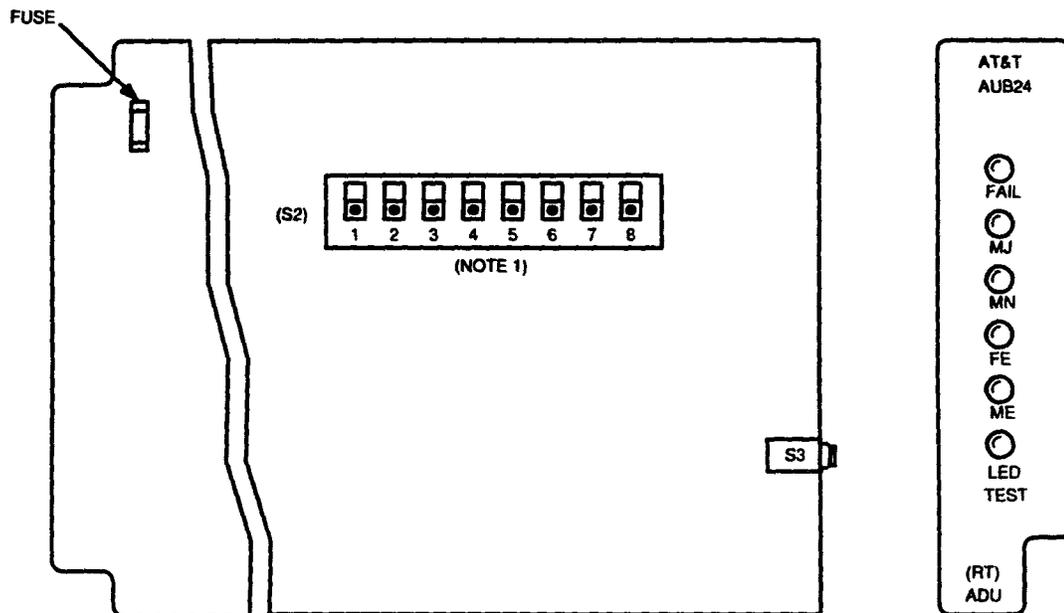
8. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace ADU with another correctly optioned ADU.

SWITCH SETTINGS		
CLOSED	S2	OPEN
NO PROTECTION LINE	1	PROTECTION LINE
-	2	DS1
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
16 BIT ALARM FIELD*	7	13 BIT ALARM FIELD§
UNUSED	8	-

* Reserved for future use

§ Always set switch 7 to OPEN.



NOTE:

1. OPEN WHEN DEPRESSED AWAY FROM THE NUMBER
CLOSED WHEN DEPRESSED TOWARDS THE NUMBER

Figure 1—AUB24 RT ADU Option Switch Settings

9. At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, CLF on all LIUs, and, if protection line is provided, and either ADU NE (universal Mode 96) or TRU ON PROT for digroup A (integrated Mode 96) lighted after 30 seconds?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

If NO, then continue with Step 10.

TABLE A
AUB27 SWITCH SETTING

FUNCTION	S1 SWITCH POSITION	FUNCTION
NO PROTECTION LINE (NPL)	1	PROTECTION LINE (PL)
MODE 2 OPERATION (2)	2	MODE 1 OR FPC OPERATION (4) (ALWAYS USE 4 UNLESS EQUIPPING FPB MODE 2)
AB IN-SERVICE (ABI)	3	AB PRE-SERVICE (ABP)
CD IN-SERVICE (ABI)	4	CD PRE-SERVICE (ABP)
AB EQUIPPED (ABE)	5	AB UNEQUIPPED (ABU)
CD EQUIPPED (ABE)	6	CD UNEQUIPPED (ABU)
MAJOR ALARM FOR MISC1 (1MJ)	7	MINOR ALARM FOR MISC1 (1MN)
MAJOR ALARM FOR MISC2 (2MJ)	8	MINOR ALARM FOR MISC1 (2MN)
FUNCTION	S2 SWITCH POSITION	FUNCTION
16 BIT ALARM FIELD (16)	1	13 BIT ALARM FIELD (13) (ALWAYS USE 13)
FS FRAMING (FS) * (USE FS FOR FPB MODE 1 OR 2)	2	ESF FRAMING (FE) † (USE FE FOR FPC-AUTOCUT)
NO CUTOVER HUNTING (NC) (USE NC FOR MODE 1 AND 2 OR WHEN FPC-AUTOCUT IS NOT USED)	3	CUTOVER ENABLED (CUT) (USE CUT FOR FPC-AUTOCUT)
(SGL)	4	(ALWAYS USE DBL)
(PA)	5	(ALWAYS USE NPA)
(MJP)	6	(ALWAYS USE MNP)
FUNCTION	S3 SWITCH POSITION	FUNCTION
DATA LINK (DL) (ALWAYS USE DL)		NO DATA LINK (NDL)
FUNCTION	CLEAR NORM POSITION	FUNCTION
CLEAR PROVISIONING (USE CLEAR WHEN ADU IS FIRST INSTALLED IN NEW SYSTEM)		DO NOT CLEAR PROVISIONING (USE NORM FOR IN-SERVICE SYSTEM)
S4, S5, S6, S7	ROTARY SWITCHES	S8, S9, S10, S11
SYSTEM ID NUMBER		(ALWAYS SET TO 0)
* Use FS option for FPB Mode 1, Mode 2, and for integrated applications † Use FE option for FPC-AutoCut and FPC applications.		

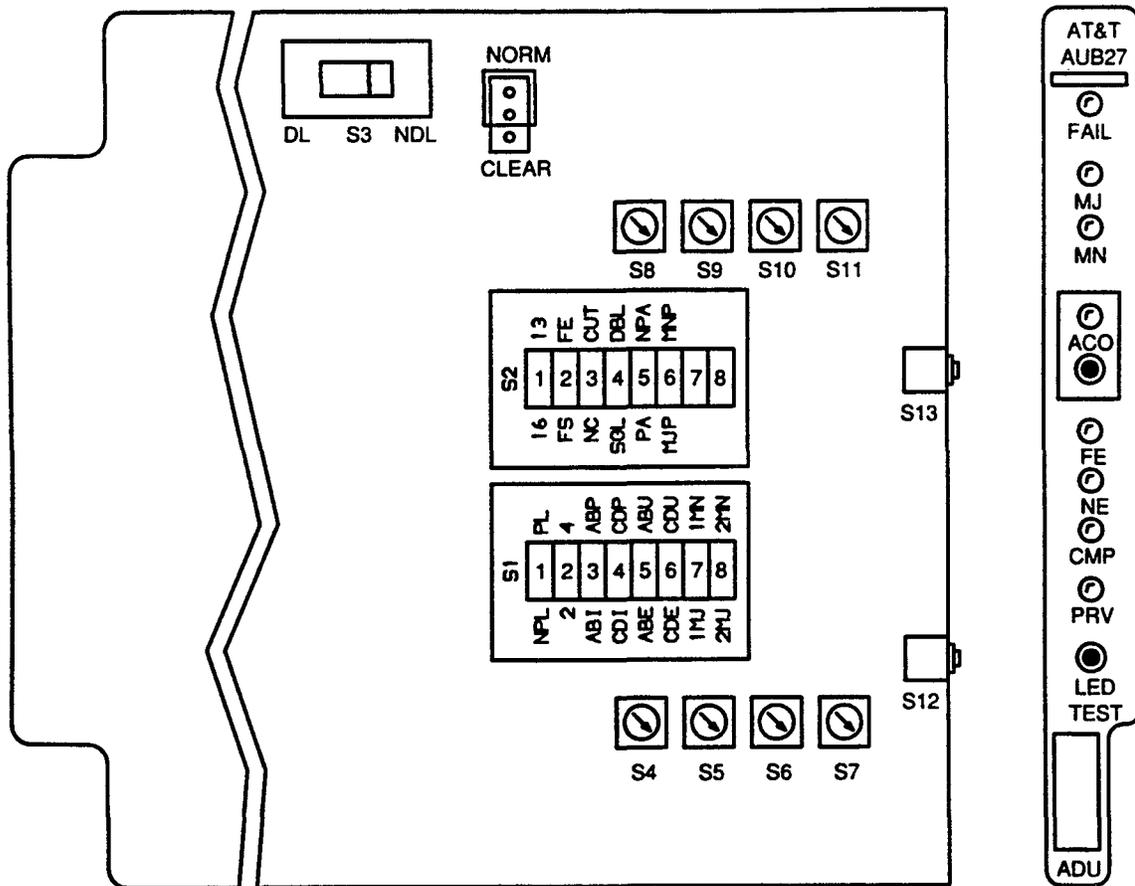


Figure 2—AUB27 RT ADU Option Switch Settings

- To clear trouble, refer to AT&T 363-202-500 (TOP) (SLC 96 COT), AT&T 363-200-005 (TOP) (DCLU), or AT&T 363-205-500 (TOP) (SLC Series 5 RT) for T1 line or to TOP volume for transmission facility.

PERFORM TERMINAL-TO-TERMINAL TESTS FOR UNIVERSAL SERIES 5 (MODE 96) FPB MODE 1 SYSTEM

1. **Note:** These procedures must be performed in coordination with procedures performed by SLC 96 COT personnel using AT&T 363-202-400 (TOP). These procedures should be performed when requested by SLC 96 COT personnel.

Establish communication between SLC Series 5 RT and SLC 96 COT.

2. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and ADU NE lighted?

If YES, then proceed to Step 9.
If NO, then continue with Step 3.

3. At RT, remove ADU and check settings of option switches. Correct any option switch settings that are incorrect.

Reference: DLP-509

4. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU back into its slot.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

5. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and ADU NE lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.

6. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace ADU with another correctly optioned ADU.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

7. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and ADU NE lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 2 after locating and correcting trouble.
9. At COT, remove Terminal Looping Card from TST jack of shelf A LIU.
10. At RT, are BCU DIGROUP A and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 11.
11. At RT, remove LIU-A and check settings of option switches. Correct any option switch settings that are incorrect.
12. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-A back into its slot.
13. At RT, are BCU DIGROUP A and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 14.
14. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-A with another correctly optioned LIU.
15. At RT, are BCU DIGROUP A and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 16.
16. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup A. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).
17. At COT, remove Terminal Looping Card from TST jack of shelf B LIU.
18. At RT, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.
If NO, then continue with Step 19.
19. At RT, remove LIU-B and check settings of option switches. Correct any option switch settings that are incorrect.

20. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-B back into its slot.

21. At RT, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 22.

22. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-B with another correctly optioned LIU.

23. At RT, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 24.

24. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup B. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

25. At COT, remove Terminal Looping Card from TST jack of shelf C LIU.

26. At RT, are BCU DIGROUP C and LIU-C CLF indicators off?

If YES, then proceed to Step 33.

If NO, then continue with Step 27.

27. At RT, remove LIU-C and check settings of option switches. Correct any option switch settings that are incorrect.

28. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-C back into its slot.

29. At RT, are BCU DIGROUP C and LIU-C CLF indicators off?

If YES, then proceed to Step 33.

If NO, then continue with Step 30.

30. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-C with another correctly optioned LIU.

31. At RT, are BCU DIGROUP C and LIU-C CLF indicators off?

If YES, then proceed to Step 33.

If NO, then continue with Step 32.

32. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup C. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

33. At COT, remove Terminal Looping Card from TST jack of shelf D LIU.

34. At RT, are BCU DIGROUP D, LIU-D CLF, and ADU MJ indicators off and, if protection line is provided, are ADU MN and NE indicators lighted?

If YES, then proceed to Step 41.

If NO, then continue with Step 35.

35. At RT, remove LIU-D and check settings of option switches. Correct any option switch settings that are incorrect.

36. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-D back into its slot.

37. At RT, are BCU DIGROUP D, LIU-D CLF, and ADU MJ indicators off and, if protection line is provided, are ADU MN and NE indicators lighted?

If YES, then proceed to Step 41.

If NO, then continue with Step 38.

38. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-D with another correctly optioned LIU.

39. At RT, are BCU DIGROUP D, LIU-D CLF, and ADU MJ indicators off and, if protection line is provided, are ADU MN and NE indicators lighted?

If YES, then proceed to Step 41.

If NO, then continue with Step 40.

40. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup D. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

41. Is protection line provided?

If YES, then continue with Step 42.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

42. At RT, set LSU deny (d) switch for digroup A to OFF.

Response: ADU NE indicator goes off.

43. At COT, remove Terminal Looping Card from TST jack of protection line LIU.

44. At RT, are all indicators off?

If YES, then proceed to Step 51.
If NO, then continue with Step 45.

45. At RT, remove LIU-P and check settings of option switches. Correct any option switch settings that are incorrect.
46. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-P back into its slot.

47. At RT, are all indicators off?

If YES, then proceed to Step 51.
If NO, then continue with Step 48.

48. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-P with another correctly optioned LIU.

49. At RT, are all indicators off?

If YES, then proceed to Step 51.
If NO, then continue with Step 50.

50. If trouble remains after COT replaces required circuit packs, trouble is on protection line. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

51. At RT, perform Steps 52 through 62.

52. Verify that all LSU deny (d) and force (f) faceplate switches are set to OFF position.

53. Set LSU (d) switch for digroup A to ON position.

Response: MN and NE indicators on ADU are lighted.

54. Set LSU (f) switch for digroup A to ON position.

55. Return LSU (d) switch for digroup A to OFF position.

56. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 60.
If NO, then continue with Step 57.

57. **Caution:** *Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace circuit packs listed below one at a time, first at the RT, then at the COT. After each replacement, repeat test from Step 52 to see if it works. When replacing ADU, LSU, or LIU,

make sure options are set per facility records:

- LSU
- ADU (RT only)
- BCU (RT only)
- TRU
- LIU.

58. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 60.
If NO, then continue with Step 59.

59. Check wiring using SD-7C118-01. Repeat procedure from Step 52 after locating and correcting trouble.

60. Return LSU (f) switch for digroup A to OFF position.

61. Are all indicators off?

If YES, then continue with Step 62.
If NO, then proceed to Step 59.

62. Repeat procedure from Step 52, using appropriate (d) and (f) switches, for each of the remaining digroups B, C, and D.

63. At COT, insert pin plug into LIU SW TO PROT jack on shelf A (or shelf being tested).

64. At RT, are indicators ADU MN and FE and TRU ON PROT for digroup A lighted?

If YES, then proceed to Step 68.
If NO, then continue with Step 65.

65. **Caution:** *Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace circuit packs listed below one at a time, first at the COT, then at the RT. After each replacement, repeat test from Step 63 to see if it works. When replacing ADU, LSU, or LIU, make sure options are set per facility records:

- LSU
- TRU
- LIU
- ADU (RT only)
- BCU (RT only).

66. At RT, are indicators ADU MN and FE and TRU ON PROT for digroup A lighted?
- If YES, then proceed to Step 68.
If NO, then continue with Step 67.
67. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 63 after locating and correcting trouble.
68. At COT, remove pin plug from LIU SW TO PROT jack.
69. At RT, did all indicators go off within 30 seconds?
- If YES, then proceed to Step 72.
If NO, then continue with Step 70.
70. **Caution:** *Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace circuit packs listed below one at a time, first at the COT, then at the RT. After each replacement, repeat test from Step 63 to see if it works. When replacing ADU, LSU, or LIU, make sure options are set per facility records:

- LSU
 - TRU
 - LIU
 - ADU (RT only)
 - BCU (RT only).
71. Did all indicators go off within 30 seconds?
- If YES, then continue with Step 72.
If NO, then proceed to Step 67.
72. Repeat procedure from Step 63 for each of the remaining digroups B, C, and D. The TRU ON PROT indicator associated with the digroup under test should light at the specified time.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

PERFORM TERMINAL-TO-TERMINAL TESTS FOR INTEGRATED SERIES 5 (MODE 96) FPB MODE 1 SYSTEM

1. **Note:** These procedures must be performed in coordination with procedures performed by 5ESS switch DCLU personnel using AT&T 363-200-005 (TOP). These procedures should be performed when requested by 5ESS switch DCLU personnel.

Establish communication between SLC Series 5 Remote Terminal (RT) and 5ESS switch DCLU.

2. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and TRU ON PROT for digroup A lighted?

If YES, then proceed to Step 9.
If NO, then continue with Step 3.

3. At RT, remove ADU and check settings of option switches. Correct any option switch settings that are incorrect.

Reference: DLP-509

4. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU back into its slot.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

5. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and TRU ON PROT for digroup A lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.

6. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace ADU with another correctly optioned ADU.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

7. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-B CLF, LIU-C CLF, LIU-D CLF, and, if protection line is provided, LIU-P CLF and TRU ON PROT for digroup A lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 2 after locating and correcting trouble.
9. At RT, install protector for T1 line associated with digroup A.

Response: Ignore LIU-A CLF indicator.

10. After the SDFI (subscriber digital facility interface) associated with digroup A is activated at the DCLU location, are BCU DIGROUP A, LIU-A CLF, and, if protection line is provided, TRU ON PROT for digroup A indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 11.

11. At RT, remove LIU-A and check settings on option switches. Correct any option switch settings that are incorrect.
12. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-A back into its slot.

13. At RT, are BCU DIGROUP A, LIU-A CLF, and, if protection line is provided, TRU ON PROT for digroup A indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 14.

14. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-A with another correctly optioned LIU.

15. At RT, are BCU DIGROUP A, LIU-A CLF, and, if protection line is provided, TRU ON PROT for digroup A indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 16.

16. Trouble is on digital line associated with digroup A. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

17. At RT, install protector for T1 line associated with digroup B.

Response: Ignore LIU-B CLF indicator.

18. After the SDFI associated with digroup B is activated at the DCLU location, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 19.

19. At RT, remove LIU-B and check settings on option switches. Correct any option switch settings that are incorrect.

20. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-B back into its slot.

21. At RT, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 22.

22. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-B with another correctly optioned LIU.

23. At RT, are BCU DIGROUP B and LIU-B CLF indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 24.

24. Trouble is on digital line associated with digroup B. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

25. At RT, install protector for T1 line associated with digroup C.

Response: Ignore LIU-C CLF indicator.

26. After the SDFI associated with digroup C is activated at the DCLU location, are BCU DIGROUP C and LIU-C CLF indicators off?

If YES, then proceed to Step 33.

If NO, then continue with Step 27.

27. At RT, remove LIU-C and check settings on option switches. Correct any option switch settings that are incorrect.

28. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-C back into its slot.

29. At RT, are BCU DIGROUP C and LIU-C CLF indicators off?
- If YES, then proceed to Step 33.
If NO, then continue with Step 30.
30. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**
- Replace LIU-C with another correctly optioned LIU.
31. At RT, are BCU DIGROUP C and LIU-C CLF indicators off?
- If YES, then proceed to Step 33.
If NO, then continue with Step 32.
32. Trouble is on digital line associated with digroup C. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).
33. At RT, install protector for T1 line associated with digroup D.
- Response: Ignore LIU-D CLF indicator.
34. After the SDFI associated with digroup D is activated at the DCLU location, are BCU DIGROUP D, LIU-D CLF, and ADU MJ indicators off and, if protection line is provided, are ADU MN and FE indicators lighted?
- If YES, then proceed to Step 41.
If NO, then continue with Step 35.
- 35.^B At RT, remove LIU-D and check settings on option switches. Correct any option switch settings that are incorrect.
36. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**
- Plug LIU-D back into its slot.
37. At RT, are BCU DIGROUP D and LIU-D CLF indicators off?
- If YES, then proceed to Step 41.
If NO, then continue with Step 38.
38. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**
- Replace LIU-D with another correctly optioned LIU.
39. At RT, are BCU DIGROUP D, LIU-D CLF, and ADU MJ indicators off and, if protection line is provided, are ADU MN and FE indicators lighted?
- If YES, then proceed to Step 41.
If NO, then continue with Step 40.

40. Trouble is on digital line associated with digroup D. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

41. Is protection line provided?

If YES, then continue with Step 42.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

42. At RT, install protector for protection T1 line.

Response: Ignore LIU-P CLF indicator.

43. After the SDFI associated with protection line is activated at the DCLU location, are all indicators at RT bank off?

If YES, then proceed to Step 50.

If NO, then continue with Step 44.

44. At RT, remove LIU-P and check settings on option switches. Correct any option switch settings that are incorrect.

45. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-P back into its slot.

46. At RT, are all indicators off?

If YES, then proceed to Step 50.

If NO, then continue with Step 47.

47. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-P with another correctly optioned LIU.

48. At RT, are all indicators off?

If YES, then proceed to Step 50.

If NO, then continue with Step 49.

49. Trouble is on protection line. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

50. At RT, perform Steps 51 through 60.

51. Verify that all LSU deny (d) and force (f) faceplate switches are set to off position.

52. Set LSU (d) switch for digroup A to ON position.

Response: MN and NE indicators on ADU are lighted.

53. Set LSU (f) switch for digroup A to ON position.
54. Return LSU (d) switch for digroup A to off position.
55. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 59.
If NO, then continue with Step 56.

56. **Caution:** *Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LSU, ADU, BCU, TRU, and LIU one at a time, repeating the procedure from Step 50 after each replacement. Replace these circuit packs until correct results are obtained or all circuit packs have been replaced. When replacing ADU, LSU, or LIU, make sure options are set per facility records.

57. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 59.
If NO, then continue with Step 58.

58. Check wiring using SD-7C118-01. Repeat procedure from Step 50 after locating and correcting trouble.
59. Return LSU (f) switch for digroup A to OFF position.
60. Are all indicators off?

If YES, then continue with Step 61.
If NO, then proceed to Step 58.

61. Repeat procedure from Step 50, using appropriate (d) and (f) switches, for each of the remaining digroups B, C, and D.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST SINGLE-PARTY POTS CHANNEL END TO END (DCLU TO SERIES 5 RT)

SUMMARY: At 5ESS switch DCLU determine channel and directory number of channel being tested. At RT, determine corresponding channel and install single-party channel unit. At RT, connect a test telephone set with ringer connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on channels 24, 48, 72, and 96.

1. Establish communication between RT and DCLU.

2. **Note:** These test procedures are to be performed on channels 24, 48, 72, and 96.

At DCLU, select channel to be tested and determine directory number of channel. Inform RT of channel selected.

3. **Note:** Test telephone set should be connected for bridged ringing. Test telephone may be connected at cross-connect. Test calls should be made from cross-connect field to verify correct wiring from RT to cross-connect field.

At RT, install single-party channel unit into channel unit slot (23/24, 47/48, 71/72, or 95/96) associated with channel selected for testing and temporarily connect a test telephone set to the channel.

4. At RT, lift handset and check for dial tone.

5. Is dial tone present at RT?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.

6. Request CO (DCLU) personnel review line assignment to ensure correct test number. If line assignment is correct, check test connections at RT and correct if needed. If dial tone is still not present, replace RT channel unit and check for dial tone.

7. Is dial tone present at RT?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. At RT, use SD-7C118-01 to check channel bank wiring. Look for tip and ring reversal between RT and cross-connect terminal. Correct wiring until dial tone is present at RT and proceed to Step 9.

9. At RT, dial local MDF or CO number and make normal talk tests.

10. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 14.
If NO, then continue with Step 11.

11. Replace RT channel unit and repeat normal talk tests.
12. Was call completed with normal transmission quality in both directions?

 If YES, then proceed to Step 14.
 If NO, then continue with Step 13.
13. At RT, use SD-7C118-01 to check wiring. Check for tip and ring reversal between RT and cross-connect terminal. Correct wiring and repeat Step 10 until talk quality is good in both directions.
14. At CO, dial test line number to ring telephone at RT.
15. At RT does test telephone ring normally?

 If YES, then proceed to Step 19.
 If NO, then continue with Step 16.
16. Has tip and ring reversal been checked?

 If YES, then continue with Step 17.
 If NO, then proceed to Step 18.
17. Replace RT channel unit and repeat this procedure from Step 4.
18. At RT, look for tip and ring reversal and repeat from Step 14.
19. At RT, lift telephone handset during ringing.
20. At RT, does ringing trip normally?

 If YES, then proceed to Step 22.
 If NO, then continue with Step 21.
21. Replace RT channel unit and repeat this procedure from Step 4.
22. At RT, get VOM and condition to measure dc volts.
23. Make sure test call is established and held between CO and RT.
24. At RT, connect (+) red lead of VOM to tip terminal and (-) black lead to ring terminal of RT test telephone.
25. At RT, does meter indicate between 4V and 15V dc?

 If YES, then proceed to Step 31.
 If NO, then continue with Step 26.
26. Check RT test connections and correct if needed.
27. At RT, does meter now indicate between 4V and 15V dc?

 If YES, then proceed to Step 31.
 If NO, then continue with Step 28.

28. Replace RT channel unit for channel being tested and repeat Steps 4 through 24 and proceed to Step 29.
29. At RT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 31.
If NO, then continue with Step 30.
30. Use RT schematic drawing SD-7C118-01 to check wiring. Repeat the procedure from Step 24 after locating and correcting the trouble.
31. Is this the last designated channel unit slot to be tested?

If YES, then continue with Step 32.
If NO, then proceed to Step 2.
32. Is TBCU (test bus control unit) available for use in testing channels?

If NO, then proceed to Step 41.
If YES, then continue with Step 33.
33. Request that Repair Service Bureau or Local Test Desk perform necessary channel tests using TBCU.
34. Did tests pass?

If YES, then proceed to Step 40.
If NO, then continue with Step 35.
35. Check test connections and correct if needed. If connections are correct, replace RT channel unit. Repeat Step 33 and proceed to Step 36.
36. Did tests pass?

If YES, then proceed to Step 40.
If NO, then continue with Step 37.
37. Make sure TBCU is working properly and that you are using proper procedures. Repeat Step 33 and proceed to Step 38.
38. Did tests pass?

If YES, then proceed to Step 40.
If NO, then continue with Step 39.
39. Use RT schematic drawing SD-7C118-01 to check wiring. Check for tip and ring reversal between RT and cross-connect terminal. Correct wiring problem and repeat Step 33 until tests pass and proceed to Step 40.
40. Is this the last designated channel unit slot to be tested with TBCU?

If YES, then continue with Step 41.
If NO, then proceed to Step 33.

41. At RT, remove test telephone.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

PERFORM SYSTEM TURNUP FOR SYSTEM EQUIPPED FOR FPC, FPC-AUTOCUT, OR FPD CAPABILITY

1. **Note 1:** Before this procedure can be performed, 10 minutes or more must have elapsed since the completion of the previous procedure.

Note 2: This procedure turns up only one system. If both systems in a dual bank assembly are being placed in service then this procedure must be performed twice, once for each system.

Note 3: If AUB27 CLEAR option plug was used, it is not necessary to perform system turnup.

Establish communication between COT and RT personnel.

2. Are option switch settings on COT ADU (FIG. 1) and RT AUB26 ADU (FIG. 2) or AUB27 ADU (FIG. 3 and TABLE A) identical?

If YES, then proceed to Step 4.

If NO, then continue with Step 3.

3. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Change option switch settings on COT ADU and/or RT ADU until switch settings are identical.

4. **Note:** If COT ADU and/or RT ADU was removed to check or change option switch settings, wait 10 minutes after installing the ADU(s) before continuing.

Is FAIL indicator on COT ADU, COT BCU, or RT BCU lighted?

If YES, then continue with Step 5.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

5. Are FAIL indicators on all three units lighted?

If YES, then proceed to Step 10.

If NO, then continue with Step 6.

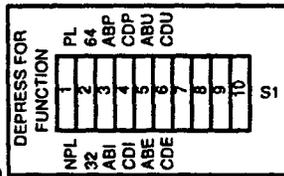
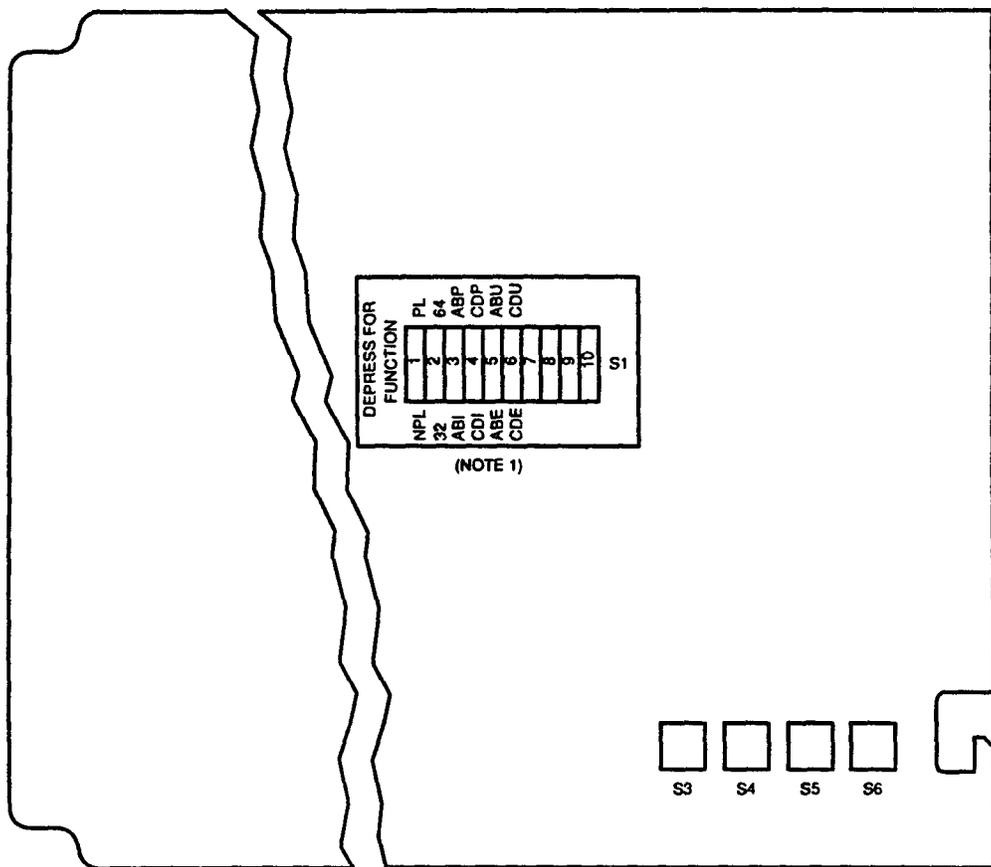
6. **Caution:** *When replacing ADU, verify that option switch settings on replacement unit are set per facility records. Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace all units with FAIL indicator lighted. Wait 10 minutes before continuing.

7. Are FAIL indicators on COT ADU, COT BCU, and RT BCU off?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

DEPRESS FOR FUNCTION	S1 POSITION	DEPRESS FOR FUNCTION
No Protection Line	1	Protection Line
32 Kb/s (LBRV)	2	64 Kb/s
AB In-Service	3	AB Pre-Service
CD In-Service	4	CD Pre-Service
AB Equipped	5	AB Unequipped
CD Equipped	6	CD Unequipped
(Unused)	7	-
(Unused)	8	-
(Unused)	9	-
(Unused)	10	-



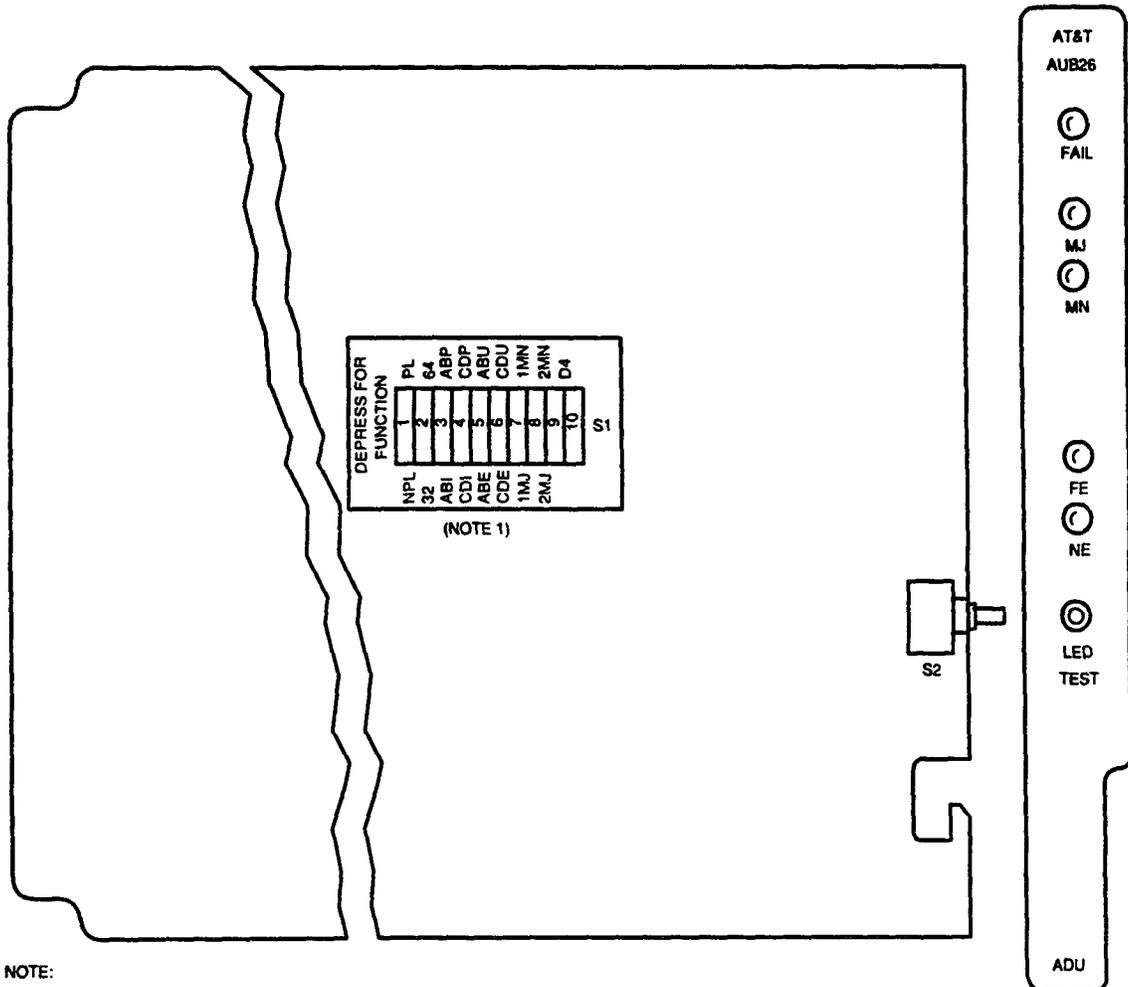
(NOTE 1)

NOTE:
1 DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 1—COT AUB6 ADU Option Switches

SWITCH SETTINGS		
FUNCTION	SWITCH POSITION	FUNCTION
NO PROTECTION LINE	1	PROTECTION LINE
32 KB/S (LBRV)	2	64 KB/S
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALARM FOR RTMISC1 (1MJ)	7	MN ALARM FOR RTMISC1 (1MN)
MJ ALARM FOR RTMISC2 (2MJ)	8	MN ALARM FOR RTMISC2 (2MN)
-	9*	D4
NOT USED	10	not used

* ALWAYS SET SWITCH POSITION 9 TO D4.



NOTE:
1. DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 2—AUB26 RT ADU Option Switch Settings

TABLE A AUB27 SWITCH SETTING		
FUNCTION	S1 SWITCH POSITION	FUNCTION
NO PROTECTION LINE (NPL)	1	PROTECTION LINE (PL)
MODE 2 OPERATION (2)	2	MODE 1 OR FPC OPERATION (4) (ALWAYS USE 4 UNLESS EQUIPPING FPB MODE 2)
AB IN-SERVICE (ABI)	3	AB PRE-SERVICE (ABP)
CD IN-SERVICE (ABI)	4	CD PRE-SERVICE (ABP)
AB EQUIPPED (ABE)	5	AB UNEQUIPPED (ABU)
CD EQUIPPED (ABE)	6	CD UNEQUIPPED (ABU)
MAJOR ALARM FOR MISC1 (1M)	7	MINOR ALARM FOR MISC1 (1MN)
MAJOR ALARM FOR MISC2 (2M)	8	MINOR ALARM FOR MISC1 (2MN)
FUNCTION	S2 SWITCH POSITION	FUNCTION
16 BIT ALARM FIELD (16)	1	13 BIT ALARM FIELD (13) (ALWAYS USE 13)
FS FRAMING (FS) * (USE FS FOR FPB MODE 1 OR 2)	2	ESF FRAMING (FE) † (USE FE FOR FPC-AUTOCUT)
NO CUTOVER HUNTING (NC) (USE NC FOR MODE 1 AND 2 OR WHEN FPC-AUTOCUT IS NOT USED)	3	CUTOVER ENABLED (CUT) (USE CUT FOR FPC-AUTOCUT)
(SGL)	4	(ALWAYS USE DBL)
(PA)	5	(ALWAYS USE NPA)
(MIP)	6	(ALWAYS USE MNP)
FUNCTION	S3 SWITCH POSITION	FUNCTION
DATA LINK (DL) (ALWAYS USE DL)		NO DATA LINK (NDL)
FUNCTION	CLEAR NORM POSITION	FUNCTION
CLEAR PROVISIONING (USE CLEAR WHEN ADU IS FIRST INSTALLED IN NEW SYSTEM)		DO NOT CLEAR PROVISIONING (USE NORM FOR IN-SERVICE SYSTEM)
S4, S5, S6, S7	ROTARY SWITCHES	S8, S9, S10, S11
SYSTEM ID NUMBER		(ALWAYS SET TO 0)
* Use FS option for FPB Mode 1, Mode 2, and for integrated applications		
† Use FE option for FPC-Autocut and FPC applications		

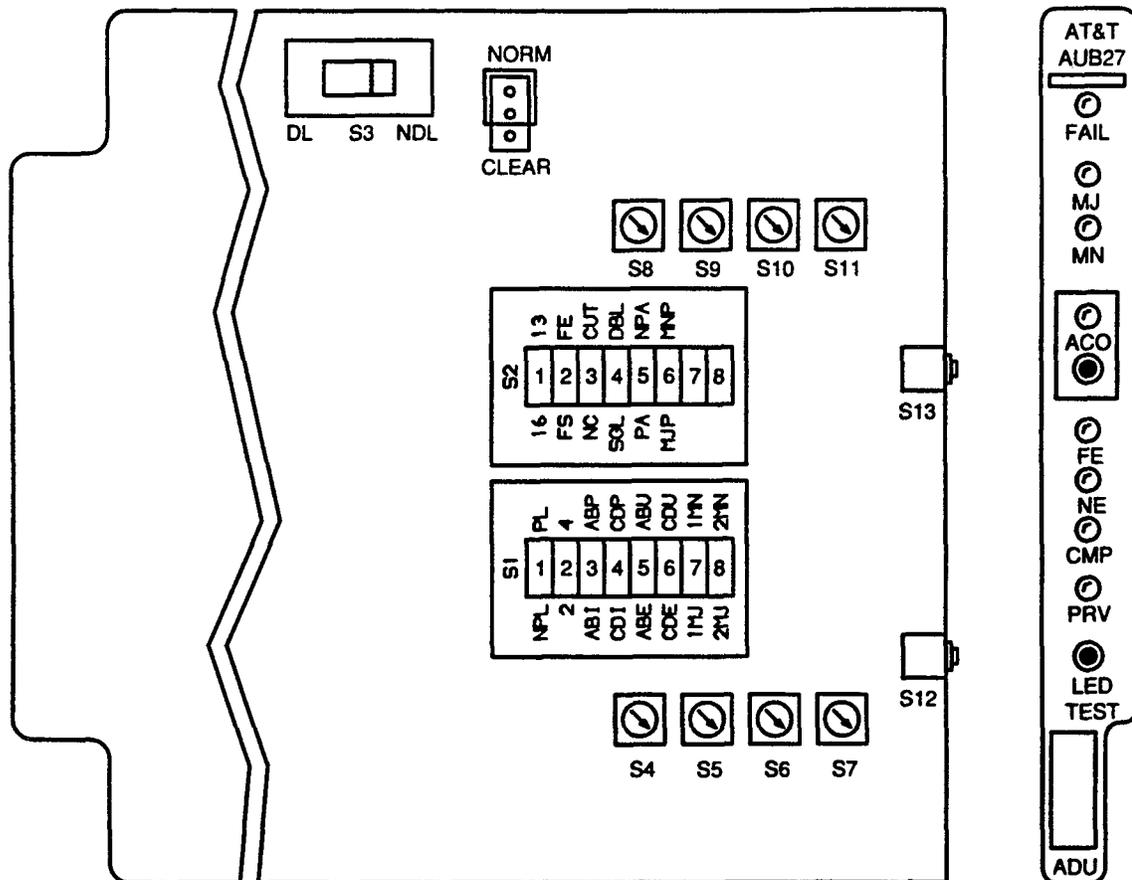


Figure 3—RT AUB27 ADU Option Switches

If NO, then continue with Step 8.

8. Are FAIL indicators on all three units lighted?

If YES, then proceed to Step 10.

If NO, then continue with Step 9.

9. Use appropriate schematic drawings (either SD-7C115-01/SD-7C115-02 for COT or SD-7C117-01/SD-7C117-02 for RT) to check wiring.
10. At RT or COT, obtain a SLC SERIES 5 CRAFT INTERFACE UNIT (CIU).
11. Condition CIU for testing. Refer to CIU User's Guide if necessary.
12. Insert connector on end of CIU cable into TEST ACCESS jack on channel test unit CTU.
13. The CIU will perform a 15-second self-test when first powered up and then will display the following OPERATIONS MENU: 1. CKT ACTIVITIES 2. SYSTEM TURN-UP 3. TEST BUS ACCESS COMMAND [CKT ACTIVITIES] =
14. At the CIU keyboard, enter 2 or 5.

15. The CIU display will show: /* THIS OPERATION SHOULD ONLY BE USED WHEN TURNING UP A NEW SYSTEM. HIT BREAK KEY TO STOP SYSTEM TURN-UP */
SYSTEM ID =
16. Enter system identification (SYSTEM ID) number for system being turned up.
17. Does CIU display show: /* EXECUTION ON AN OPERATING SYSTEM WILL INTERRUPT SERVICE ON ANY CU WITH SETTINGS AND DESTROY ALL SETTINGS. TYPE 'CLEAR SETTINGS' FOR SYSTEM TURN-UP, OR 'QUIT' TO STOP */
CLEAR SETTINGS OR QUIT =

If YES, then proceed to Step 30.
If NO, then continue with Step 18.
18. Wait 10 minutes and then re-enter SYSTEM ID number.
19. Does CIU display show: /* EXECUTION ON AN OPERATING SYSTEM WILL INTERRUPT SERVICE ON ANY CU WITH SETTINGS AND DESTROY ALL SETTINGS. TYPE 'CLEAR SETTINGS' FOR SYSTEM TURN-UP, OR 'QUIT' TO STOP */
CLEAR SETTINGS OR QUIT =

If YES, then proceed to Step 30.
If NO, then continue with Step 20.
20. Wait 10 minutes and then re-enter SYSTEM ID number again.
21. Does CIU display show: /* EXECUTION ON AN OPERATING SYSTEM WILL INTERRUPT SERVICE ON ANY CU WITH SETTINGS AND DESTROY ALL SETTINGS. TYPE 'CLEAR SETTINGS' FOR SYSTEM TURN-UP, OR 'QUIT' TO STOP */
CLEAR SETTINGS OR QUIT =

If YES, then proceed to Step 30.
If NO, then continue with Step 22.
22. Press CIU BREAK key and the CIU display will show the OPERATIONS MENU.
23. Verify that CIU cable to CTU is properly seated. Wait 10 minutes and then repeat procedure from Step 14. If CIU display is still not as indicated, then proceed to Step 24.
24. Remove and then reinsert both COT and RT ADUs. Wait 10 minutes and repeat procedure from Step 14. If necessary, repeat this step once. If CIU display is still not as indicated, proceed to Step 25.
25. Which BCU (RT or COT) has FAIL indicator lighted?

If BOTH OR NEITHER, then proceed to Step 28.
If RT OR COT, then continue with Step 26.
26. Replace BCU with lighted FAIL indicator. Wait 10 minutes and repeat procedure from Step 14. If CIU display is still not as indicated, proceed to Step 27.
27. System turnup has failed. Report system trouble condition to appropriate group and proceed to Step 38.

28. Replace COT BCU for system under test. Wait 10 minutes and then repeat procedure from Step 14. If CIU display is still not as indicated, proceed to Step 29.
29. Replace RT BCU for system under test. Wait 10 minutes and then repeat procedure from Step 14. If CIU display is still not as indicated, proceed to Step 27.
30. Do you wish to continue system turnup?

 If YES, then proceed to Step 32.
 If NO, then continue with Step 31.
31. Enter QUIT and the CIU display will show: /* SYSTEM TURN UP NOT PERFORMED */ [HIT SPACE BAR TO CONTINUE]. If space bar is pressed, CIU will display the OPERATIONS MENU. If system turn up is to be restarted, return to Step 14.
32. Enter CLEAR SETTINGS and CIU display will show: /* COMMAND IS EXECUTING AND COULD TAKE SEVERAL MINUTES TO COMPLETE, PLEASE STAND BY...*/
33. When system turnup is completed, CIU display will show: /* SYSTEM TURN-UP PROCESS IS COMPLETED */ [HIT SPACE BAR TO CONTINUE]
34. Press space bar and CIU display will show the OPERATIONS MENU.
35. Are FAIL indicators on COT ADU, COT BCU, and RT BCU off?

 If YES, then proceed to Step 38.
 If NO, then continue with Step 36.
36. **Caution:** *When replacing ADU, verify that option switch settings on replacement unit are set according to engineering or facility records. Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Note: If any unit must be replaced more than two times, report system trouble condition to appropriate group and proceed to Step 38.

Replace all units with FAIL indicator lighted. Wait 10 minutes before continuing.
37. Was more than one unit replaced?

 If YES, then proceed to Step 14.
 If NO, then proceed to Step 35.
38. Power down CIU and remove connector from CTU.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST CENTRAL OFFICE AND REMOTE (IF PROVIDED) ALARM SYSTEM AT COT AND RT FOR UNIVERSAL FPB

OVERVIEW: This procedure requires coordination between alarm center, central office, and remote terminal. This procedure tests connections to central office and remote alarms. The steps below include tests for both types of alarms.

1. **Caution:** *System must be out of service to perform test; otherwise, service will be interrupted. If dual channel bank is already providing service, RT batteries must be fully charged before test is started; otherwise, service may be interrupted on the working bank while alarms are being tested.*

Check office records for system under test. If it is connected to provide remote alarms, follow central office and remote alarm tests; otherwise, do central office tests.

2. Consult office records and verify that needed jumpers for central office and remote alarm points have been made at Main Distributing Frame.
3. At RT, verify battery power to dual channel bank (BATTERY CHARGER indicator HIGH RATE CHG/ON not lighted).
4. Unplug ac power cord plug from outlet or turn breaker off (to test PWR/MISC and FAR END closures).

Response: At COT SLC 96 system 1, ACU indicators TROUBLE LOCATE/FAR END and PWR/MISC are lighted after approximately 4 minutes.
At RT, ALARM indicator(s) on RECTIFIER(s) and BAT DISCHG indicator(s) on BATTERY CHARGER(s) are lighted. ADU indicator NE and BCU indicator P/M are lighted after approximately 4 minutes (both banks).

5. At COT, verify with alarm center that ID, FAR END, and PWR/MISC alarms have been properly received and displayed.

Response: If central office has a power minor alarm system, then PWR/MISC office alarm is activated. Otherwise, central office minor (MN) alarm is on.

6. On ACU, depress ACO pushbutton.

Response: ACU indicator ACO lights, office alarm is cleared, and system ID remains lighted.

7. At RT, reinsert ac power cord plug into ac outlet or turn circuit breaker on.

Response: At COT, all indicators go out after approximately 4 minutes.
At RT, RECTIFIER indicator ALARM and BATTERY CHARGER indicator BAT DISCHG go out. BATTERY CHARGER indicator

HIGH RATE CHG/ON will go off after a period of time determined by charge state of batteries. All other indicators go out after approximately 4 minutes.

8. Is shelf group AB already providing service?

If YES, then proceed to Step 13.
If NO, then continue with Step 9.

9. **Caution:** *Performing this test on working shelf group will cause service interruption.*

Note: When MJ result is expected, request alarm center to stand by to verify closures as quickly as possible so MJ can be cleared. (ACO clears both closures and alarms at the same time.)

At RT for system under test, unseat AB shelf group TRU (to test MJ, ID, and A and B digroup closures).

Response: Office and bay major alarms are activated.
At COT for system under test, shelf A and shelf B TRU indicators RCV are lighted. ACU indicators SHELF A and B and MAJOR are lighted and DLU indicator FAIL is lighted.
A Mode 2 COT will have B Shelf TAU COT indicator lighted.
At RT, ADU indicators MJ and NE are lighted and BCU indicators A and B DIGROUP are lighted.

10. At COT, verify that alarm center received and displayed MJ and ID indications.

11. On ACU, depress ACO pushbutton.

Response: ACU indicator ACO lights, office alarms are cleared, and system ID remains lighted.

12. At RT, reinsert AB shelf group TRU.

Response: TRU FAIL indicator lights momentarily.
At COT and RT, all indicators go out within 20 seconds.

13. Is shelf group CD to be tested (to test C and D digroup closures)?

If YES, then continue with Step 14.
If NO, then proceed to Step 18.

14. **Note:** This test brings up MJ alarm. Request alarm center to stand by.

At RT for system under test, unseat CD shelf group TRU.

Response: Office and bay major alarms are activated.
At COT for system under test, shelf C and shelf D TRU indicators RCV are lighted. ACU indicators SHELF C and D and MAJOR are lighted.
A Mode 2 COT will have DLU FAIL and D Shelf TAU COT indicators lighted.

At RT, ADU indicators MJ and NE are lighted and BCU indicators C and D DIGROUP are lighted.

15. At COT, verify that alarm center received and displayed MJ, FAR END, and ID indications.

16. On ACU, depress ACO pushbutton.

Response: ACU indicator ACO lights, office alarms are cleared, and system ID remains lighted.

17. At RT, reinsert CD shelf group TRU.

Response: TRU indicator FAIL lights momentarily.
At COT and RT, all indicators go out within 20 seconds.

18. At COT, insert pin plug into LSU A jack (to test MN and NE closures).

Response: Office and bay minor alarms are activated.
At RT, ADU indicators MN and FE are lighted after approximately 60 seconds.
At COT, ACU indicators MINOR and TROUBLE LOCATE/NEAR END are lighted.

19. Verify that alarm center received and displayed ID, MN, and NE indications.

20. On ACU, depress ACO pushbutton.

Response: Office alarms are cleared and system ID and ACU indicator ACO are also lighted and remain lighted.

21. Remove pin plug from LSU A jack.

Response: At COT and RT, all indicators go out within 20 seconds.

22. Is AUB27 ADU installed at the RT?

If NO, then continue with Step 23.
If YES, then proceed to Step 26.

23. Is MISC1 alarm assigned at RT white bank?

If YES, then continue with Step 24.
If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

24. At RT, operate MISC1 alarm.

Response: Office minor alarm is activated.
After approximately 30 seconds:
At COT SLC 96 system 2, ACU indicators PWR/MISC, MINOR, and TROUBLE LOCATE/FAR END are lighted.
At RT, BCU indicator P/M is lighted and ADU indicators MN and NE are lighted.

25. At COT, verify proper central office alarm. Verify that alarm center receives ID, MINOR, FAR END, and PWR/MISC indications. Then proceed to Step 29 and system ID remains lighted.
26. **Note:** The AUB27 ADU allows MISC1 and MISC2 alarms to be reported as MAJOR or MINOR alarm conditions.

Are MISC1 and/or MISC2 alarms assigned at the RT?

If YES, then continue with Step 27.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

27. At RT, operate MISC1 alarm.

Response: Office major/minor alarm is activated.

After approximately 30 seconds:

At COT, ACU indicators MJ/MN and TROUBLE LOCATE/FAR END are lighted.

At RT, BCU indicator MISC1 is lighted and ADU indicators MJ/MN and NE are lighted.

28. On ACU, depress ACO.

Response: ACU indicator ACO is lighted, office alarm is cleared,

29. At RT, cancel MISC1 alarm.

Response: All indicators at COT and RT go out within 30 seconds.

30. If AUB27 ADU is used at the RT and MISC2 is assigned for an alarm, repeat from Step 26 for MISC2 alarm.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST CENTRAL OFFICE AND REMOTE (IF PROVIDED) ALARM SYSTEM FOR FIBER-TO-THE-HOME

OVERVIEW: This procedure requires coordination between alarm center, central office, and remote terminal. This procedure tests connections to central office and remote alarms. The steps below include tests for both types of alarms.

1. **Caution:** *System must be out of service to perform test; otherwise, service will be interrupted. If dual channel bank is already providing service, RT batteries must be fully charged before test is started; otherwise, service may be interrupted on the working bank while alarms are being tested.*

Check office records for system under test. If it is connected to provide remote alarms, follow central office and remote alarm tests; otherwise, do central office tests.

2. Consult office records and verify that needed jumpers for central office and remote alarm points have been made at main distributing frame.
3. **Note:** There are up to four optical power shelf assemblies in the 7-foot frame that correspond, top to bottom, to the RT systems in the bay.

For Fiber-to-the-Home RT applications, at RT strap between terminal screws BPC and PMN of TB1 on the front of the optical power shelf assembly (FIG. 1) to simulate loss of ac power to the charger in the bulk battery supply (to test PMN and FE closures). The optical power shelf assembly has a faceplate cover protecting TB1 (on the right hand side). Two screws hold the cover in place. The top screw can be removed and the bottom screw loosened to tilt the faceplate cover and gain access to TB1.

Response: At COT, ADU indicator FE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).
At RT, ADU indicator NE and BCU indicator PMN are lighted after approximately 4 minutes (both banks).

4. At COT, verify with alarm center that ID, FE, and PMN alarms have been properly received and displayed.

Response: If central office has a power minor alarm system, then PMN office alarm is activated. Otherwise, central office minor (MN) alarm is on.

5. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights on both banks, office alarm is cleared, and system IDs (both IDs) remain lighted.

6. At RT, remove strap previously installed and replace protection cover over TB2.

Response: At COT, all indicators go out after approximately 4 minutes.
At RT, all indicators go out after approximately 4 minutes.

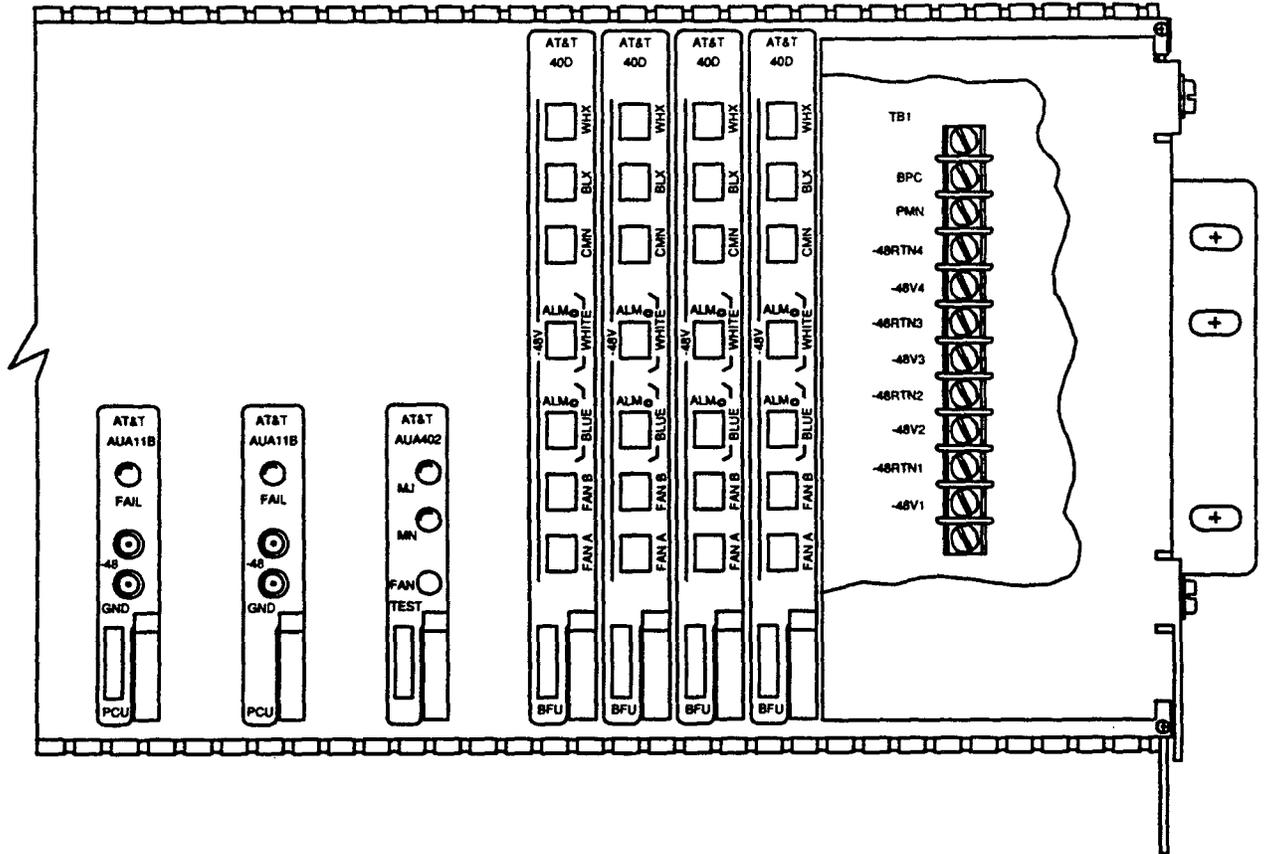


Figure 1—Location of TB1 on Optical Power Shelf

- At RT OPSA (optical power shelf assembly), install a blown 80D fuse in FAN H or FAN L fuse slot of 40D BFU associated with RT 2A fan (slot 1 "lower 2A fan assembly" or slot 2 "upper 2A fan assembly").

Reference: DLP-517

Response: At COT, ADU indicators MN and FE light after 30 seconds.
At RT, ADU indicators MN and NE light after 30 seconds.

- Replace blown fuse with good 80D fuse.

Response: Both COT and RT alarm indicators go off after 30 seconds.

- Warning:** Removing the PCU for in-service optical power shelf will interrupt service. There are 8 PCUs and each PCU powers optical shelf circuit packs for 2 digroups (AB or CD).

At RT OPSA (optical power shelf assembly), remove PCU supplying power to the optical shelf associated with the digroup pair being tested.

Reference: DLP-517

Response: At COT, ADU indicators MJ and FE light. BCU indicators A B C and

D are lighted.

At RT, ADU indicators MJ and NE light after 30 seconds. BCU indicators A B C and D are lighted after 30 seconds.
On any AUA400 or AUA401 installed in digroup pairs, OOF light.
At power shelf assembly, A/FCU indicator MJ light.

10. Replace PCU. Repeat previous Step for digroups CD if required.

Response: At COT, RT, and power shelf assembly all alarms go off.

11. **Note:** If fans are running, it will be necessary to remove power to the fans by unplugging J114 (J114-1 lower fan or J114-2 upper fan in Fiber-to-the-Home OSPA frame) to fan assembly before obstructing fan blade. The power should be restored before testing the fan alarm.

When fans are not running at the RT, insert an obstruction (screwdriver, pencil, etc, not your finger) into the fan blade. Start fans by depressing and holding the FAN TEST button on the FCU (A/FCU at the optical power shelf assembly).

Response: At COT, ADU indicators MN and FE light after 30 seconds.

Response: At RT, ADU indicators MN and NE light after 30 seconds.

12. Remove fan blade obstruction. Then disconnect and reconnect J114 (J114-1 lower fan or J114-2 upper fan in Fiber-to-the-Home OPSA frame) fan power plug to reset the alarm in the 2A Fan. For Fiber-to-the-Home applications, repeat fan test for optical power shelf fan assembly.

Response: Both COT and RT alarm indicators go off after 30 seconds.

13. Is shelf group AB already providing service?

If YES, then proceed to Step 18.

If NO, then continue with Step 14.

14. **Caution:** *Performing this test on working shelf group will cause service interruption.*

Note: When MJ result is expected, request alarm center to stand by to verify closures as quickly as possible so MJ can be cleared. (ACO clears both closures and alarms at the same time.)

At RT for system under test, unseat AB shelf group TRU (to test MJ, CLF, ID, and A and B digroup closures).

Response: Office and bay major alarms are activated.

At COT for system under test, LIU indicator CLF is lighted for digroups A and B, or shelf group AB, and protection line. BCU indicators A and B DIGROUP and ADU indicator MJ is lighted.

At RT, ADU indicators MJ and NE are lighted and BCU indicators A and B DIGROUP are lighted.

15. At COT, verify that alarm center received and displayed MJ, CLF, A and B digroup, and ID indications.

16. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights, office alarms are cleared, and system ID remains lighted.
17. At RT, reinsert AB shelf group TRU.

Response: TRU FAIL indicator lights momentarily.
At COT and RT, all indicators go out within 20 seconds.
18. Is shelf group CD to be tested (to test C and D digroup closures)?

If YES, then continue with Step 19.
If NO, then proceed to Step 23.
19. **Note:** This test brings up MJ alarm. Request alarm center to stand by.

At RT for system under test, unseat CD shelf group TRU.

Response: Office and bay major alarms are activated.
At COT for system under test, BCU indicators C and D DIGROUP are lighted, and ADU indicators MJ and FE are lighted.
At RT, ADU indicators MJ and NE are lighted and BCU indicators C and D DIGROUP are lighted.
20. At COT, verify that alarm center received and displayed MJ, FE, C and D digroup, and ID indications.
21. On AIU, depress ACO pushbutton.

Response: ADU indicator ACO lights, office alarms are cleared, and system ID remains lighted.
22. At RT, reinsert CD shelf group TRU.

Response: TRU indicator FAIL lights momentarily.
At COT and RT, all indicators go out within 20 seconds.
23. At COT, unseat BCU (FIG. 2) (to test MN and NE closures).

Response: Office and bay minor alarms are activated.
At RT, ADU indicators MN and FE are lighted after approximately 60 seconds.
At COT, ignore any indicators that are lighted.
24. Verify that alarm center received and displayed ID, MN, and NE indications.
25. On AIU, depress ACO pushbutton.

Response: Office alarms are cleared and system ID and ADU indicator ACO are also lighted and remain lighted.
26. Reinsert BCU.

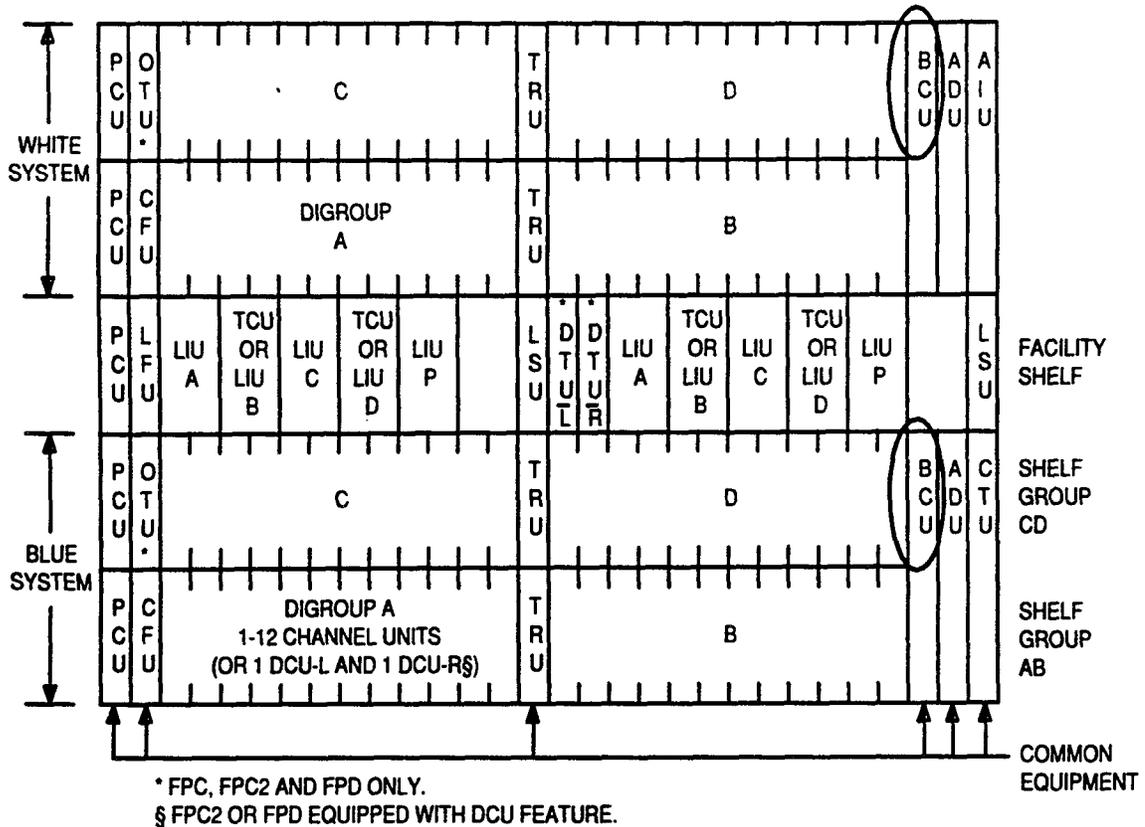


Figure 2—Location of BCUs

Response: At COT and RT, all indicators go out within 20 seconds.

27. Are MISC1 and MISC2 alarms assigned at RT?

If YES, then continue with Step 28.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

28. **Note:** At RT on ADU, position of switches on S2 determines whether MISC1 and MISC2 are major or minor alarms. When White system minor alarm switch is closed, alarms will be minor. When White system major alarm switch is closed, alarms will be major. The same is true for Blue bank alarms.

The following steps verify that COT and RT report MISC alarms according to option switch setting on RT AUB26 ADU (FIG. 3).

29. At COT, consult office records to determine assignment of MISC alarm closures at RT for system being tested.

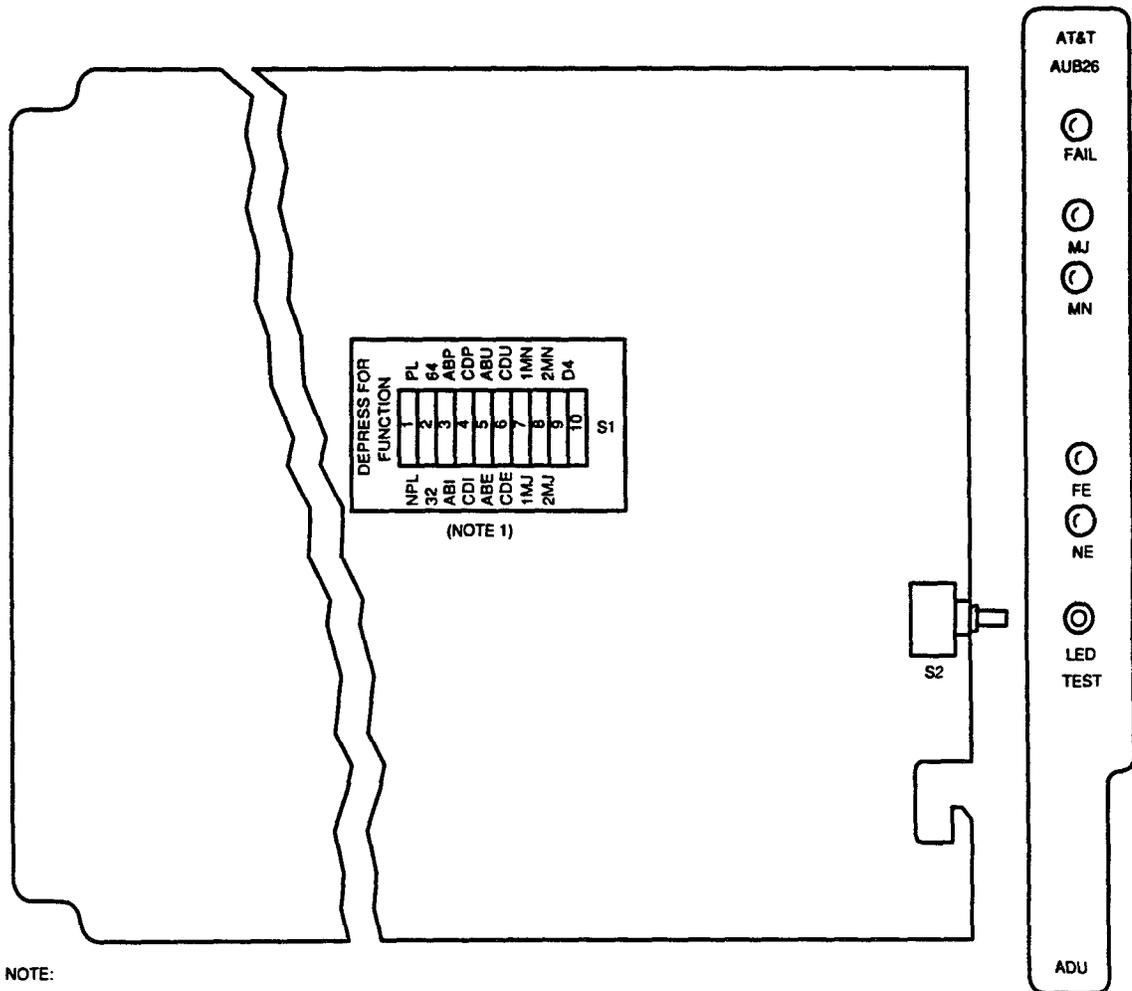
30. **Note:** If MJ alarm is expected, request alarm center to stand by.

At RT, operate MISC1 or MISC2 alarm.

Response: Office major or minor alarm is activated.

SWITCH SETTINGS		
FUNCTION	SWITCH POSITION	FUNCTION
NO PROTECTION LINE	1	PROTECTION LINE
32 KB/S (LBRV)	2	64 KB/S
AB IN-SERVICE	3	AB PRE-SERVICE
CD IN-SERVICE	4	CD PRE-SERVICE
AB EQUIPPED	5	AB UNEQUIPPED
CD EQUIPPED	6	CD UNEQUIPPED
MJ ALARM FOR RTMISC1 (1MJ)	7	MN ALARM FOR RTMISC1 (1MN)
MJ ALARM FOR RTMISC2 (2MJ)	8	MN ALARM FOR RTMISC2 (2MN)
.	9*	D4
NOT USED	10	not used

* ALWAYS SET SWITCH POSITION 9 TO D4



NOTE:
1. DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 3—AUB26 RT ADU Option Switch Settings

After approximately 30 seconds:

At COT, BCU indicator MISC1 or MISC2 is lighted, and ADU indicators MN or MJ and FE are lighted.

At RT, same indicators are lighted except ADU indicates NE instead of FE.

31. At COT, verify proper central office alarm (major or minor). Verify that alarm center receives ID, MJ or MN, FE, and MISC1 or MISC2 indications.

32. On AIU, depress ACO.

Response: ADU indicator ACO is lighted, office alarm is cleared, and system ID remains lighted.

33. At RT, cancel MISC1 or MISC2 alarm.

Response: All indicators at COT and RT go out within 30 seconds.

34. Repeat test (Steps 30 thru 33) for remaining miscellaneous (MISC1 or MISC2) alarm.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST SINGLE-PARTY POTS CHANNEL FIBER-TO-THE-HOME COT-TO-RT FPC OR UNIVERSAL FPB

SUMMARY: At COT, use test line to connect unassigned subscriber line and call number to channel being tested. At RT, determine corresponding channel. At RT, connect a test telephone set (or 1015B Butt Set and observe LEDs to evaluate ringing) with ringer connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on channels 21, 45, 69, and 93 (next to the last slot in each digroup for testing AUA401 or AUA405 channel units), and channels 23, 47, 71, and 95 (last slot in each digroups for testing AUA400 or AUA404 channel units). At the RT an audible ringing test is not possible unless the J99407TA DT Analyzer is connected.

1. Establish communication between RT and COT.
2. **Note:** These test procedures are to be performed on channels 21, 45, 69, and 93 (next to the last slot in each digroup for testing AUA401 or AUA405 channel units), and channels 23, 47, 71, and 95 (last slot in each digroup for testing AUA400 or AUA404 channel units).

At COT, select channel slot for testing, install single-party channel unit (SLC 96 WP10() or Series 5AUA38), and inform RT of channel selected.

3. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line.
4. **Warning:** *Installing any channel unit besides the tests channel unit AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the optical shelf AYB1B optical unit.*

Note: Test telephone set should be connected for bridged ringing. Test telephone is connected to the faceplate jack of the AUA403 test channel unit using the WP91067-L6 test cable provided in the J99407TA DT Analyzer.

At RT, install a single-party test AUA403 channel unit into the channel unit slot (21/22, 23/24, 45/46, 47/48, 69/70, 71/72, 93/94, or 95/96) that coincides with the channel being tested and temporarily connect a test telephone set to the channel via the faceplate jack.

Response: Central office test line and RT telephone are connected.

5. At RT, lift handset and check for dial tone.
6. Is dial tone present at RT?

If YES, then proceed to Step 10.
If NO, then continue with Step 7.

7. Check test connections and correct if needed. Replace COT channel unit and check for dial tone. If still not present, replace RT channel unit (AUA403) and check for dial tone.

8. Is dial tone present at RT?

If YES, then proceed to Step 10.
If NO, then continue with Step 9.
9. Use COT schematic drawings to check channel bank wiring. Use office drawings to check central office wiring. Look for tip and ring reversal between COT channel appearance and office equipment. Correct wiring until dial tone is present at RT and proceed to Step 10.
10. At RT, dial local MDF or CO number and make normal talk tests.
11. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 17.
If NO, then continue with Step 12.
12. Replace COT channel unit and repeat normal talk tests.
13. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 17.
If NO, then continue with Step 14.
14. Replace RT channel unit and repeat normal talk tests.
15. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 17.
If NO, then continue with Step 16.
16. Use COT and RT schematic drawings to check wiring. Check for tip and ring reversal between COT channel appearance and office equipment. Correct wiring and repeat from Step 11 until talk quality is good in both directions.
17. **Note:** The RT test channel unit AUA403 does not supply ringing to the test telephone. COT personnel must verify audible ringing tones after the test line has been dialed and request RT personnel to lift handset after ringing tones are present.

At COT, dial test line number to ring telephone at RT.
18. At COT do you hear audible ringing tones after dialing?

If YES, then proceed to Step 22.
If NO, then continue with Step 19.
19. At COT, has tip and ring reversal been checked?

If YES, then continue with Step 20.
If NO, then proceed to Step 21.
20. Replace, one at a time; COT channel unit first and then RT channel unit. Repeat this procedure from Step 4 after each replacement.
21. Look for tip and ring reversal at COT and repeat from Step 17.

22. At RT, lift telephone handset during ringing.
23. At RT, does ringing trip normally and is normal transmission established?
- If YES, then proceed to Step 25.
If NO, then continue with Step 24.
24. Replace, one at a time; COT channel unit first and then RT channel unit. Repeat this procedure from Step 4 after each replacement.
25. Is this the last designated channel unit slot to be tested?
- If YES, then continue with Step 26.
If NO, then proceed to Step 2.
26. At RT, remove AUA403 test channel unit.
27. **Note:** These tests are done one digroup at a time. After the test is completed, move circuit packs and test equipment connections to the next digroup. These tests will be done two times, first using AUA400 or AUA404 channel units (one channel unit slot), and then with the AUA401 or AUA405 channel units (two channel unit slots). The AYB1B optical unit and J99407TA test connections are the same for each digroup test for either channel unit type. When testing the AUA401 or AUA405 channel units the channel tests (dial tone, transmission test, ringing and ring tripping) are to be done twice (using jacks 1 and 3 on the J99407TA) for each channel unit.
- At RT, insert AUA400 or AUA404 into channel unit slot 21/22, 45/46, 69/70, or 93/94. Insert AYB1B optical unit into appropriate optical shelf slot, and connect J99407TA Analyzer to jumper fiber from the optical shelf at optical interconnect frame.
- Reference: DLP-517
- Response: When channel unit is installed, OOS indicator lights.
When J99407TA Analyzer is connected, channel unit OOS indicator and the Analyzer OOF indicators goes off.
28. Were the above responses noted and OOS and OOF indicators off?
- If YES, then continue with Step 32.
If NO, then proceed to Step 29.
29. Verify the proper test connections have been made (check that channel unit has an associated AYB1B circuit pack in the optical shelf) and J99407TA Analyzer has power (the batteries must be charged).
- Reference: DLP-517
30. Did correcting test connections clear trouble?
- If YES, then continue with Step 32.
If NO, then proceed to Step 31.
31. Replace, one at a time, AUA400 (or AUA401, AUA404, or AUA405) channel unit and AYB1B optical unit. If trouble is still present check optical shelf power and cabling between

RT and optical shelf. Then clean and check fiber optical cable between the optical shelf, the optical interconnect frame, and the J99407TA. If trouble is still present use office drawings and RT schematic drawing to clear wiring trouble. Check for tip-ring reversal between RT and optical shelf.

Reference: DLP-517

32. Connect the test telephone into #1 RJ11 modular jack of the J99407TA Analyzer (Use the modular jack adaptor, provided with the DT Analyzer, to connect a butt set).
33. At J99407TA, lift handset and check for dial tone.
34. Is dial tone present at J99407TA test telephone?

If YES, then proceed to Step 36.
If NO, then continue with Step 35.
35. Replace, one at a time, AUA400 (or AUA401, AUA404, or AUA405) and AYB1B as needed and check for dial tone. If dial tone is not present after the AYB1B was replaced, repeat from Step 29.
36. At J99407TA, dial the local MDF or CO number and make normal talk tests and monitor the call progress.
37. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 38.
If NO, then continue with Step 35.
38. At COT dial the test line to ring the telephone at jack 1 of J99407TA. At the RT, if a test telephone is used the phone will ring normally. If the 1015B Butt Set is employed, use the TEST mode switch position and monitor the polarity indicators and/or earpiece to evaluate ringing.
39. At J99407TA, does the test phone ring normally?

If YES, then continue with Step 40.
If NO, then proceed to Step 41.
40. At J99407TA, does the test phone trip ringing when hand set is lifted?

If YES, then proceed to Step 42.
If NO, then continue with Step 41.
41. Change RT channel unit and repeat this procedure from Step 27.
42. Is this the last channel unit slot (digroup) to be tested?

If YES, then continue with Step 43.
If NO, then repeat this procedure from Step 37 for next channel unit slot.
43. Remove the AUA400 or AUA404 from the RT. Repeat this procedure from Step 27 using AUA401 or AUA405 channel unit in slots 21/22 and 23/24, 45/46 and 47/48, 69/70 and 71/72, and 93/94 and 95/96. The test lines for channel 23, 47, 71, and 95 will appear on the

third jack of the J99407TA Analyzer. Channel test must be done on both jack 1 and jack 3 (of the J99407TA) when AUA401 or AUA405 channel tests are performed. Then continue with Step 44.

44. **Note:** The XTC or PGTC can return a DC resistive signature used to test if the AUA400, AUA401, AUA404, or AUA405 channel unit is OOS (out of service). This DC signature will be returned to the MLT-2 test desk by either the XTC or PGTC.

Request that Repair Service Bureau or Local Test Desk make a test access on the channel location being tested. With the channel unit OOS indicator off, a 91K ohm tip-ground, ring-ground, and tip-ring dc resistance should be noted by the test personnel.

Reference: DLP-525

45. Did tests pass?

If YES, then continue with Step 46.

If NO, then proceed to Step 48.

46. Disconnect the J99407TA Analyzer to cause an OOS on the channel unit and request Repair Service Bureau or Local Test Desk to repeat the channel tests. With the channel unit OOS indicator lighted, a 91K ohm Tip-ground, Ring-ground, and an open (3500K ohm) Tip-Ring dc resistance should be noted by the test personnel.

47. Did tests pass?

If YES, then proceed to Step 49.

If NO, reconnect J99407TA Analyzer and then continue with Step 48.

48. Check test connections and correct if needed. Replace RT channel unit and repeat from Step 27. If replacement channel unit still fails dc resistance tests use office and RT drawings to correct wiring problems.

49. Is this the last designated channel unit slot to be tested?

If YES, then proceed to Step 51.

If NO, then continue with Step 50.

50. **Note:** These tests are done using AUA401 or AUA405 channel unit in slots 21/22 and 23/24, 45/46 and 47/48, 69/70 and 71/72, and 93/94 and 95/96.

Move channel unit, AYB1B and J99407TA test connection to next channel slot and repeat these procedures from Step 44.

51. Remove channel test equipment.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

REVIEW FIBER-TO-THE-HOME CIRCUIT ARRANGEMENT

SUMMARY: These Steps can be used to find the relationships between RT digroup channel positions and the associated Fiber-to-the-Home equipment. Powering arrangements and circuit pack locations are also covered. All this information should be available in the word order, but is included here for convenience. Use TABLE A to find the RT circuit of interest, then see the figures to find the location of these circuit packs in the shelf assemblies. If the FTTH equipment is mounted in an 80E cabinet the shelf interconnection cabling is the same. But the 7-foot frame is divided into two bays. One bay houses the dual channel banks and the other bay houses the optical equipment (See AT&T 363-205-401 RT TOP acceptance procedures for more 80E FTTH cabling details).

1. Use TABLE A to find RT and digroups of interest, then see FIG. 1 through 5 for more details about the individual equipment shelves.
2. See TABLE B for bay fusing arrangements.
3. See TABLE C and FIG. 2 for bay connections from the Power Shelf Assembly.
4. See Table D and FIG. 2 for intershelf cabling arrangements.
5. Figure 1 shows the Fiber-to-the-Home 7-foot frame equipment bay arrangement. Note that the connections between the dual channel bank 1 and optical shelves 1 and 2 are not shown, but are connected in a similar arrangement as the connections for the dual channel bank 2. Figure 2 shows all the required connections for the 7-foot Fiber-to-the-Home equipment frame. Each optical shelf serves one of the RT systems in the dual RT channel bank assembly.
6. The optical shelf provides slots for 48 AYB1B optical units, one for each channel unit slot in the RT. Each RT digroup has 12 channel unit slots and each channel unit slot is labeled with the channel count served by the slot (e.g., 43/44). To find the AYB1B slot associated with a channel unit slot, simply find the AYB1B slot with the same channel count number. The AUA401 or AUA405 channel unit occupies two channel unit slots in the RT, but requires only one AYB1B optical unit to be installed in the optical shelf. The AYB1B position corresponds with the RT channel unit slot of the first two channels. To find the AYB1B slot associated with an AUA401 or AUA405 channel unit, use the same method as above with the lower channel count slot (e.g., an AUA401 occupying RT slots 43/44 and 45/46 is AYB1B slot 43/44; AYB1B slot 45/46 is not used).
7. When a trouble condition is present, use TABLES B and C to trace fusing and power cable connections troubles. Use TABLE D to trace intershelf cabling trouble.
8. The appearance of an optical fiber associated with a channel unit slot should be supplied with the work order. The fiber cables are connected from the optical shelf to the optical interconnect frame in bundles of 12 fibers. These bundles are identified by the RT SID (system identification number) and the odd numbered channels (P number) of the digroup. For example, an AUA400 or AUA404 in channel slot 21/22 of RT system 1234 would have a optical interconnect frame appearance 1234 P21. An AUA401 or AUA405 in channel slots 33/34 and 35/36 of the same RT system would have a fiber interconnect appearance 1234 P33.

9. When the J99407TA Analyzer is connected to the optical cable (FIG. 6), the ST-type connectors should be cleaned using reagent grade isopropyl alcohol and blown dry with canned air. The same should be done when connections to the distribution cables are made. See "Instruction Manual" "1032A TOOL KIT With D-181610 KIT" "ST CONNECTORS" "SINGLE MODE LIGHTGUIDE CABLE" for procedures to make cable splice and clean ST connectors.

10. The DT Analyzer has an optical cable attached to a blank card that is used to replace the AYB1B in the DT cabinet. This connection can only be used at the DT cabinet. When the DT Analyzer is used at the RT location, an ST coupler is connected to the DT Analyzer cable end ST connector. Then the optical cable from the RT optical shelf AYB1B circuit pack can be coupled at the fiber interconnect to the DT Analyzer.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TABLE A
FIBER TO THE HOME EQUIPMENT OVERVIEW

RT	Digroup	RT Power	Optical Shelf	OS Power	AYB1B OUs	Optical Interconnect (Note)
Lower Blue	A	BFU #3	1	BFU #1,PCU-1	1/2—23/24	SID#, Fibers 1-12
	B	BFU #3	1	BFU #1,PCU-1	25/26—47/48	SID#, Fibers 13-24
	C	BFU #3	1	BFU #1,PCU-2	49/50—71/72	SID#, Fibers 25-36
	D	BFU #3	1	BFU #1,PCU-2	73/74—95/96	SID#, Fibers 37-48
Lower White	A	BFU #3	2	BFU #1,PCU-3	1/2—23/24	SID#, Fibers 1-12
	B	BFU #3	2	BFU #1,PCU-3	25/26—47/48	SID#, Fibers 13-24
	C	BFU #3	2	BFU #1,PCU-4	49/50—71/72	SID#, Fibers 25-36
	D	BFU #3	2	BFU #1,PCU-4	73/74—95/96	SID#, Fibers 37-48
Upper Blue	A	BFU #4	3	BFU #2,PCU-5	1/2—23/24	SID#, Fibers 1-12
	B	BFU #4	3	BFU #2,PCU-5	25/26—47/48	SID#, Fibers 13-24
	C	BFU #4	3	BFU #2,PCU-6	49/50—71/72	SID#, Fibers 25-36
	D	BFU #4	3	BFU #2,PCU-6	73/74—95/96	SID#, Fibers 37-48
Upper White	A	BFU #4	4	BFU #2,PCU-7	1/2—23/24	SID#, Fibers 1-12
	B	BFU #4	4	BFU #2,PCU-7	25/26—47/48	SID#, Fibers 13-24
	C	BFU #4	4	BFU #2,PCU-8	49/50—71/72	SID#, Fibers 25-36
	D	BFU #4	4	BFU #2,PCU-8	73/74—95/96	SID#, Fibers 37-48

Note: The fibers at the optical interconnect are labeled with the system identification number (SID) and the letter P followed by the odd channel number of the RT channel unit slot. For example, the fiber for RT 1234, channel unit slot 23/24, should be labeled 1234, P23.

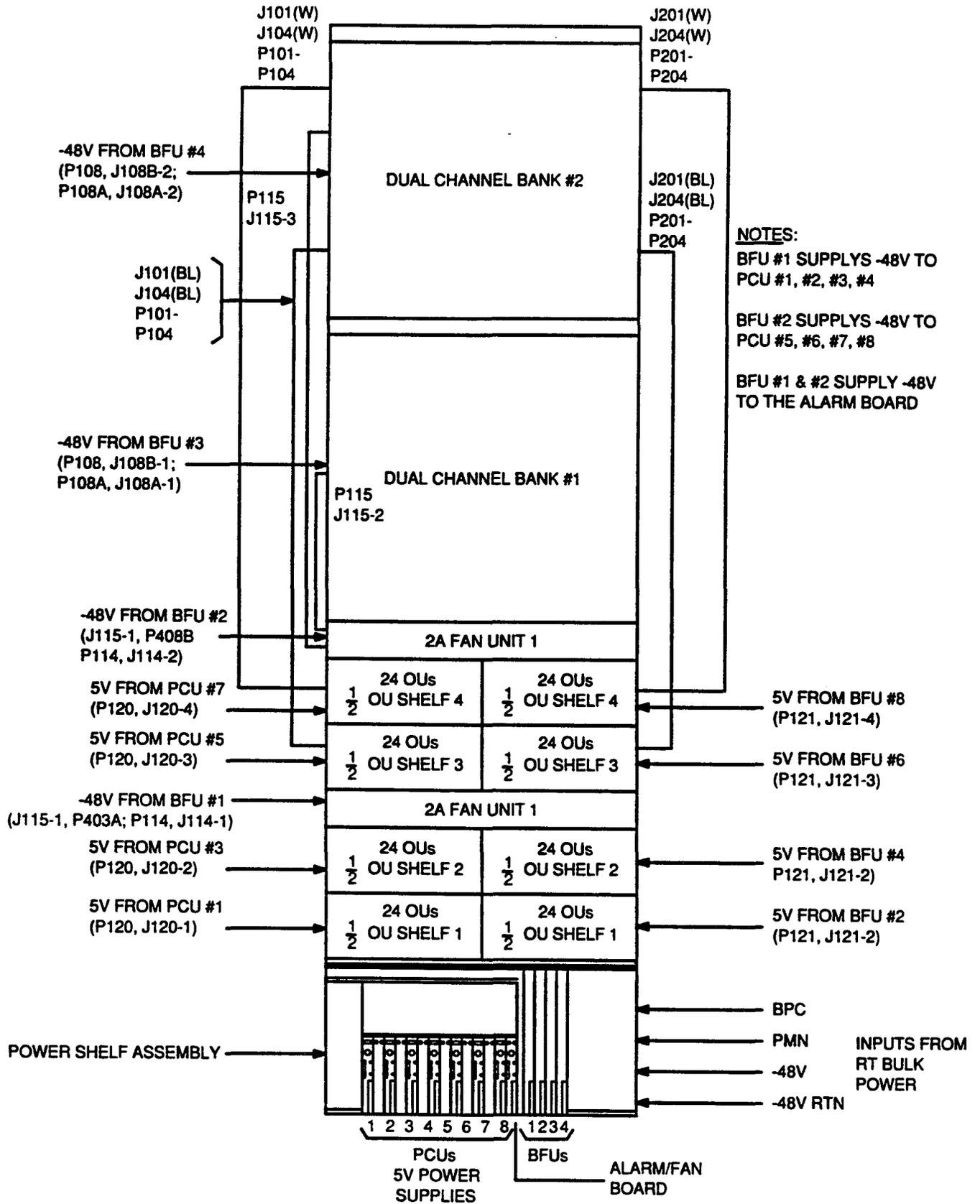


Figure 1—Fiber-To-The-Home 7-Foot Bay Arrangement

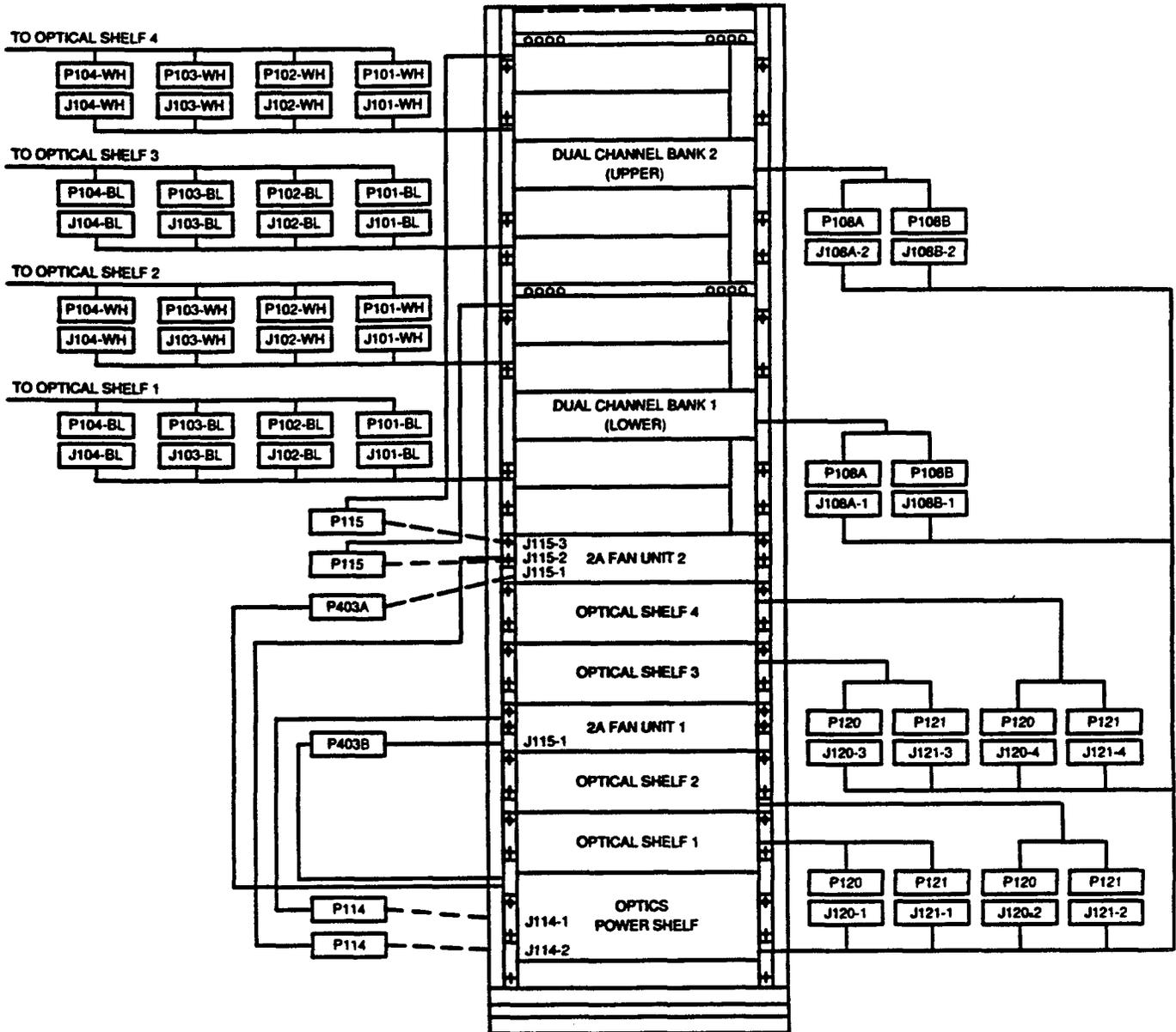


Figure 2—Fiber-To-The-Home 7-Foot Bay Cabling Connections

TABLE D					
INTER SHELF CABLING					
	2A Fan Unit 1 J115-2	Optical Shelf 1 P201-P204 P101-P104		Optical Shelf 2 P201-P204 P101-P104	
Lower RT Channel Bank	P115	J201(W)-J204(W)	J101(W)-J104(W)	J201(BL)-J204(BL)	J101(BL)-J104(BL)
INTER SHELF CABLING					
	2A Fan Unit 2 J115-3	Optical Shelf 3 P201-P204 P101-P104		Optical Shelf 4 P201-P204 P101-P104	
Upper RT channel Bank	P115 *	J201(W)-J204(W)	J101(W)-J104(W)	J201(BL)-J204(BL)	J101(BL)-J104(BL)
* Requires a patch cord with J115 and P115 ends					

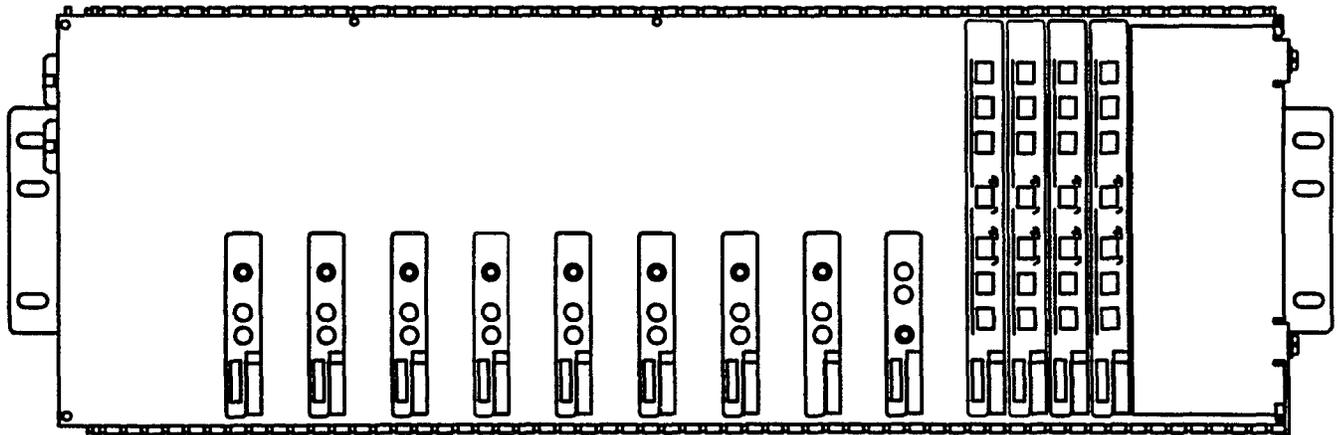


Figure 3—J1C182PB-1 Optical Power Shelf

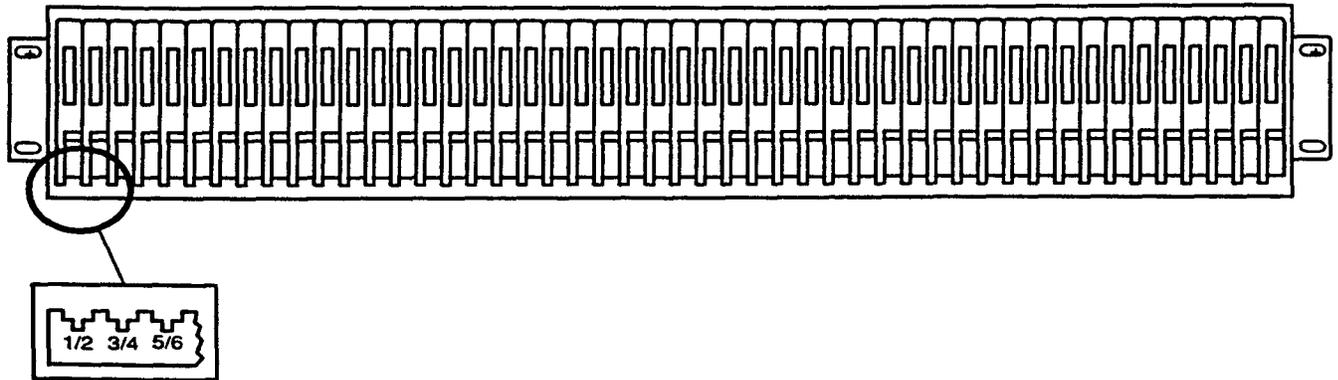


Figure 4—J1C182PA-1 SLC Series 5 Optical Shelf

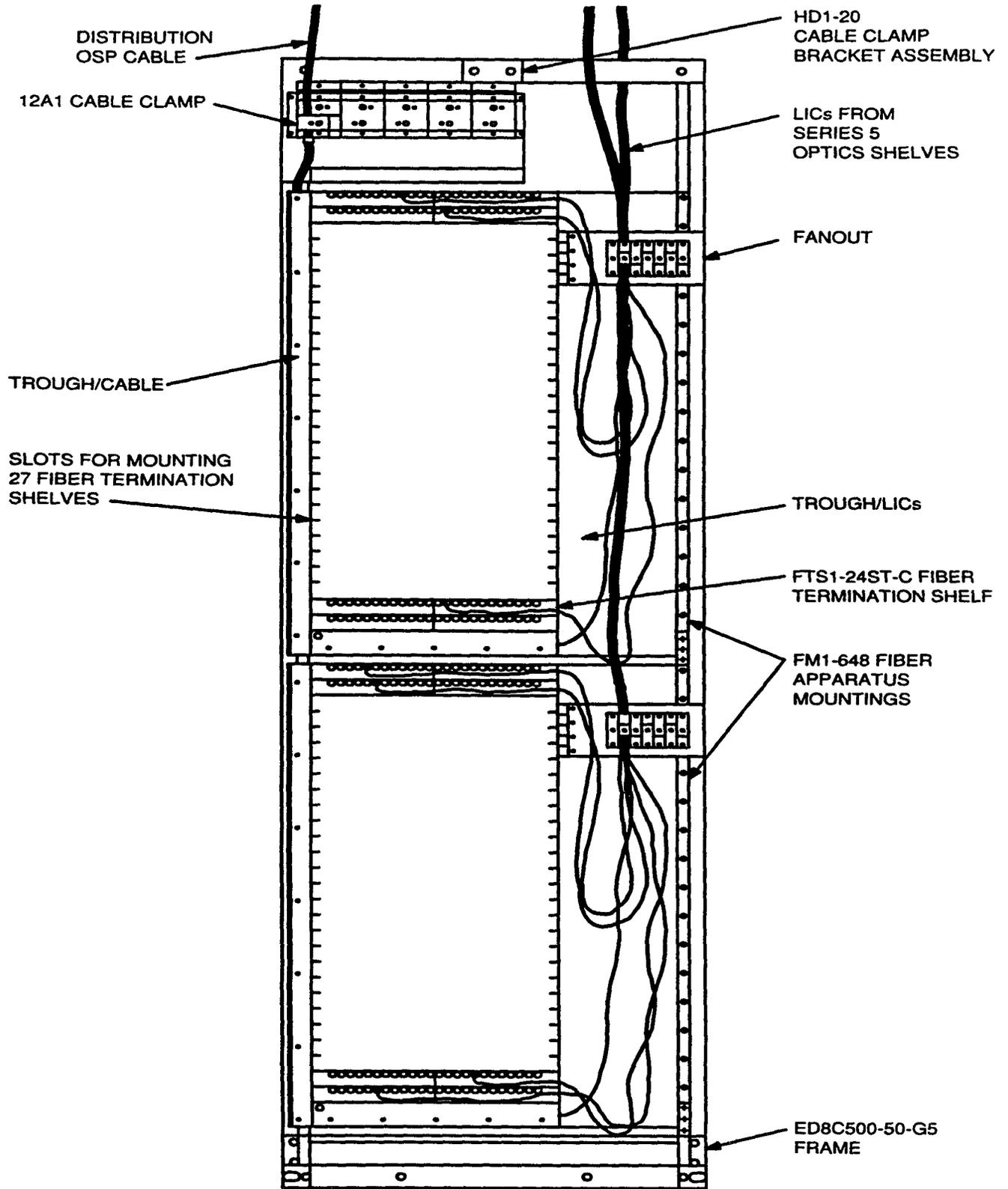


Figure 5—High Density Interconnect (HDIC) With FM1-600 Fiber Apparatus Mounting

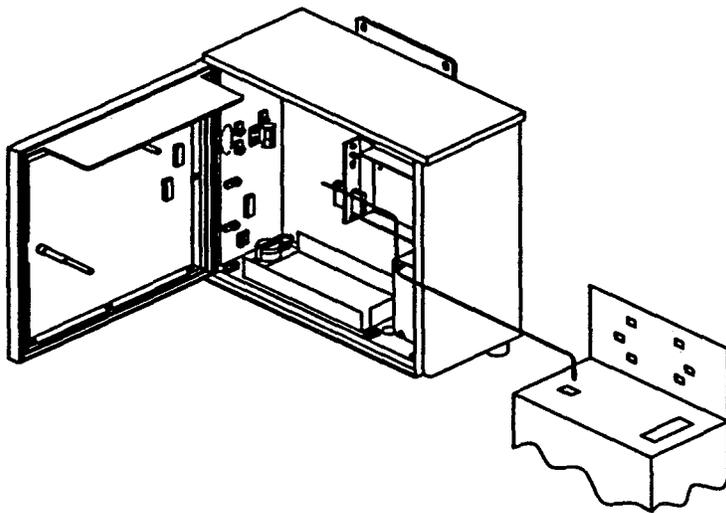
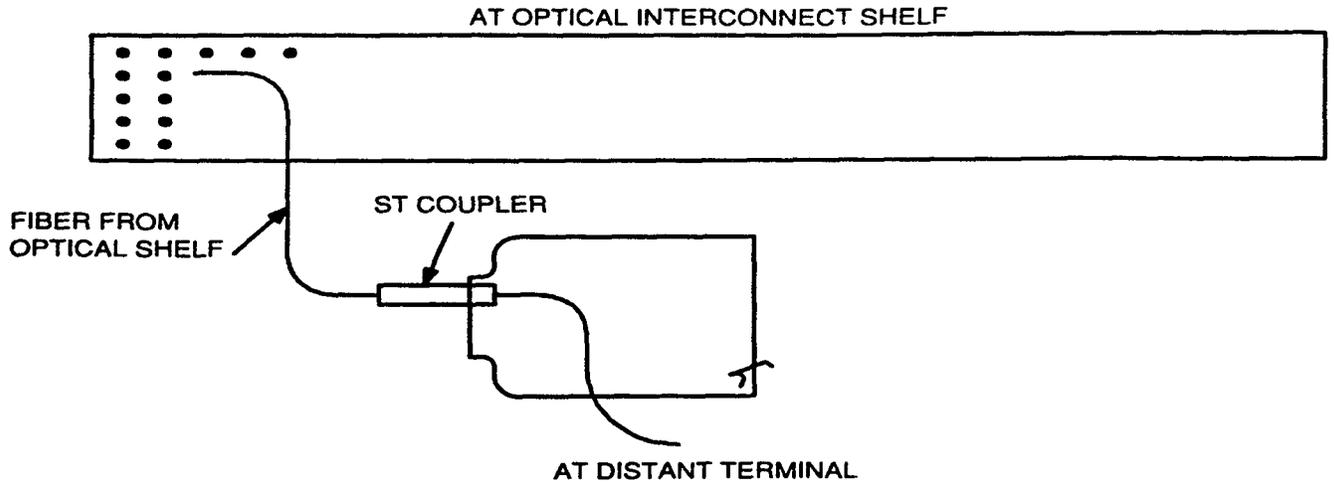


Figure 6—Fiber Connections With J99407TA Analyzer

TEST SINGLE-PARTY POTS CHANNEL FIBER-TO-THE-HOME COT-TO-DT

SUMMARY: Verify the channel tests have been done from the COT to the RT using DLP-516 for channels to be tested at the DT. At DT NIU (Network Interface Unit), connect a test telephone to the appropriate RJ11 modular jack (use the WP91067-L6 test cable to connect a butt set) for channel being tested. Set test telephone with ringer connected for bridged ringing. Make talking, dialing, transmission, ringing, and ring-trip tests on channels 1, 2, 3, and 4 per the customer work order.

1. At DT, open DT cabinet and observe any LED indicators on ASJ1 or ASJ2 channel unit. If any indicators are on, perform the following items, else continue with Step 2.

- **FAIL:** Cycle power for the ASJ1 or ASJ2 by disconnecting, then reconnect the ASJ1 or ASJ2 channel unit. If FAIL is still on, replace the ASJ1 or ASJ2. If FAIL is still on proceed to TAP-101.

Reference: DLP-519

- **BUSY:** Likely cause is a short in NIU wiring. If wiring trouble is not found, replace the ASJ1 or ASJ2. If BUSY is still on proceed to TAP-101.

Reference: DLP-519

- **OOF:** Likely cause is a bad cross-connection at RT optical interconnect. If cross-connection is correct proceed to TAP-101.
- **ON BAT:** Likely cause is a loss of ac power. Verify ac power is present at ac outlet and circuit breaker is on. Replace the ASH1 PCU. If ON BAT is still lighted proceed to TAP-101.

Reference: DLP-519

2. **Note:** The ASH1 PCU has two GND jacks. One is used with BAT and 20HZ on one side of the board, and +5, -5, and -37 Vdc on the other side of the board.

On ASH1 PCU measure faceplate test jack voltages.

Requirements: BAT and GND -10 to -15 Vdc
20HZ and GND -18.4 to -21.6 Vdc
20HZ and GND 69 to 81 Vac
+5 and GND +4.6 to +5.4 Vdc
-5 and GND -4.6 to -5.4 Vdc
-37 and GND -34 to -40 Vdc.

3. **Note:** The DT power will shut down if AC or DC power is lost and the battery voltage drops below 10 volts DC. AC or DC power must be restored before the DT will be powered.

If ASH1 PCU voltage requirements were not present, replace ASH1 PCU. If voltage requirements are still not present, proceed to TAP-101.

Reference: DLP-519

4. Establish communication between personnel at DT and COT if possible.
5. **Note:** Test telephone set should be connected for bridged ringing. The test connections can be made at the 108 connector block on the inside left wall of the DT cabinet.

At DT connect test telephone to appropriate NIU (Network Interface Unit) RJ11 modular jack. Use the WP91067-L6 test cable to connect a butt set.

6. At test telephone, lift handset and check for dial tone.
7. Is dial tone present at DT?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check test connections and correct if needed. Replace ASJ1 or ASJ2 channel unit and check for dial tone. If still not present, proceed to TAP-101.

Reference: DLP-519

9. At DT, dial local MDF or CO number and make normal talk tests.
10. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 12.
If NO, then continue with Step 11.

11. Replace ASJ1 or ASJ2 channel unit and repeat normal talk tests. If normal transmission quality was not good in both directions, proceed to TAP-101.

Reference: DLP-519

12. At COT, dial test line number to ring telephone at DT.
13. At DT does test telephone ring normally?

If YES, then proceed to Step 15.
If NO, then continue with Step 14.

14. Replace ASJ1 or ASJ2 DT channel unit. Repeat this procedure from Step 6 after replacement.

Reference: DLP-519

15. At DT, lift telephone handset during ringing.
16. At DT, does ringing trip normally?

If YES, then proceed to Step 18.
If NO, then continue with Step 17.

17. Replace ASJ1 or ASJ2 DT channel unit. Repeat this procedure from Step 6 after replacement.

Reference: DLP-519

18. At DT, get VOM and condition to measure dc volts.
19. Make sure test call is established and held between COT and DT.
20. At DT, connect (+) red lead of VOM to tip terminal and (-) black lead to ring terminal of DT test telephone.

Comment: The test telephone can be connected to the WP91067-L1 modular jack interface test cable to gain tip-ring access. Tip ring access is also provided at the color coded TB2 terminal strip on the inside left side of the DT cabinet.

21. At DT, does meter indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 22.
22. Check DT test connections and correct if needed.
23. At DT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 24.
24. Replace ASJ1 or ASJ2 DT channel unit for channel being tested and repeat from Step 6. If meter still does not indicate between 4V and 15V, replace COT channel unit.

Reference: DLP-519

25. At DT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 26.
26. Use COT and DT schematic drawings to check and correct wiring. Check central office wiring.
27. At DT, observe VOM meter.
28. **Note:** A VOM should be used to observe results at DT because results may be difficult to see if a digital voltmeter is used.

At COT MDF, momentarily (1-2 seconds) break tip or ring connection for channel being tested.
29. At DT, does meter indicate less than 1.5 volts for approximately 1 second, then return to previous level (4 to 15 volts)?

If YES, then proceed to Step 33.
If NO, then continue with Step 30.

Comment: The ASJ1 or ASJ2 channel unit is designed to momentarily pulse the

line every 3 seconds. If the voltage drops below 1.5 volts and momentarily indicates a higher voltage, the ASJ1 or ASJ2 is functioning properly.

30. Replace, one at a time, ASJ1 or ASJ2 DT channel unit and then COT channel unit for channel being tested. Repeat this procedure from Step 6, after each replacement, and proceed to Step 31.

Reference: DLP-519

31. At DT, does meter indicate less than 1.5 volts for approximately 1 second, then return to previous level (4 to 15 volts)?

If YES, then proceed to Step 33.
If NO, then continue with Step 32.

32. Use COT and DT schematic drawings to check wiring. Check central office wiring.
33. Is this the last designated channel to be tested?

If YES, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE**
If NO, then proceed to Step 5.

REPLACE DISTANT TERMINAL CIRCUIT PACK

SUMMARY: To replace DT circuit packs, turn off the AC or DC power circuit breaker. Then remove battery power by disconnecting P104-J104 power lead. To replace the ASJ1 or ASJ2 channel unit or ASH1 power converter unit, remove the two cotter pins on the side of the channel unit and power unit. Slide the channel unit and PCU out. The ASJ2 may have an EAF1 drop test module inserted on the side of the circuit pack. The EAF1 mounts in tabs and a plug on the side of the ASJ2 channel unit. There is a retaining nut that must be removed before the EAF1 can be unplugged (may require a screwdriver to pry out the plug). At the back of circuit pack being replaced, disconnect backplane cable (ASJ1 or ASJ2 channel unit, J107 and J103 assembly; ASH1 PCU, J101 and J102 assembly). Slide the PCU and channel unit back in place and replace the two cotter pins on the side of the channel unit. Make backplane cable connections on replacement circuit pack. The AYB1B optical circuit pack can be replaced without removing the cotter pins simply by unlatching the circuit back and carefully removing the board. Turn AC or DC power circuit breaker on and reconnect battery lead P104 to J104.

1. See FIG 1. Turn off AC or DC power circuit breaker and unplug J104-P104 battery power cable connection.
2. Is AYB1B circuit pack being replaced?

 If YES, then continue with Step 3.
 If NO, then proceed to Step 6.
3. Unlatch and remove AYB1B optical unit.
4. On replacement AYB1B remove ST connector cover and clean ST connector with reagent grade isopropyl alcohol and blow dry with canned air.
5. Install and latch replacement AYB1B and place ST cover over old AYB1B ST connector. Then proceed to Step 11.
6. **Note 1:** If only the EAF1 drop test module needs to be replaced, remove the retaining nut and unplug the EAF1 from the side of the ASJ2 (use a screwdriver to pry the end where the nut is if the EAF1 is tight). Insert the replacement and replace the retaining nut. Then proceed to Step 11.

 Note 2: If an ASJ2 is being replaced and an EAF1 is mounted on the ASJ2, move the EAF1 to the replacement ASJ2.

 At back of circuit pack being replaced (ASH1, ASJ1, or ASJ2), unplug cable jack assembly.
7. Remove cotter pins on circuit board standoff at side of ASJ1 or ASJ2 channel unit and slide both circuit packs out.
8. Slide ASH1 (first) and ASJ1 or ASJ2 circuit packs onto circuit board standoff.
9. Replace cotter pins on circuit board standoff at side of ASJ1 or ASJ2 channel unit.
10. Connect cable just unplugged to replacement circuit pack.

11. Turn AC or DC power circuit breaker on. Then reconnect J104-P104 battery power cable.
STOP. YOU HAVE COMPLETED THIS PROCEDURE.

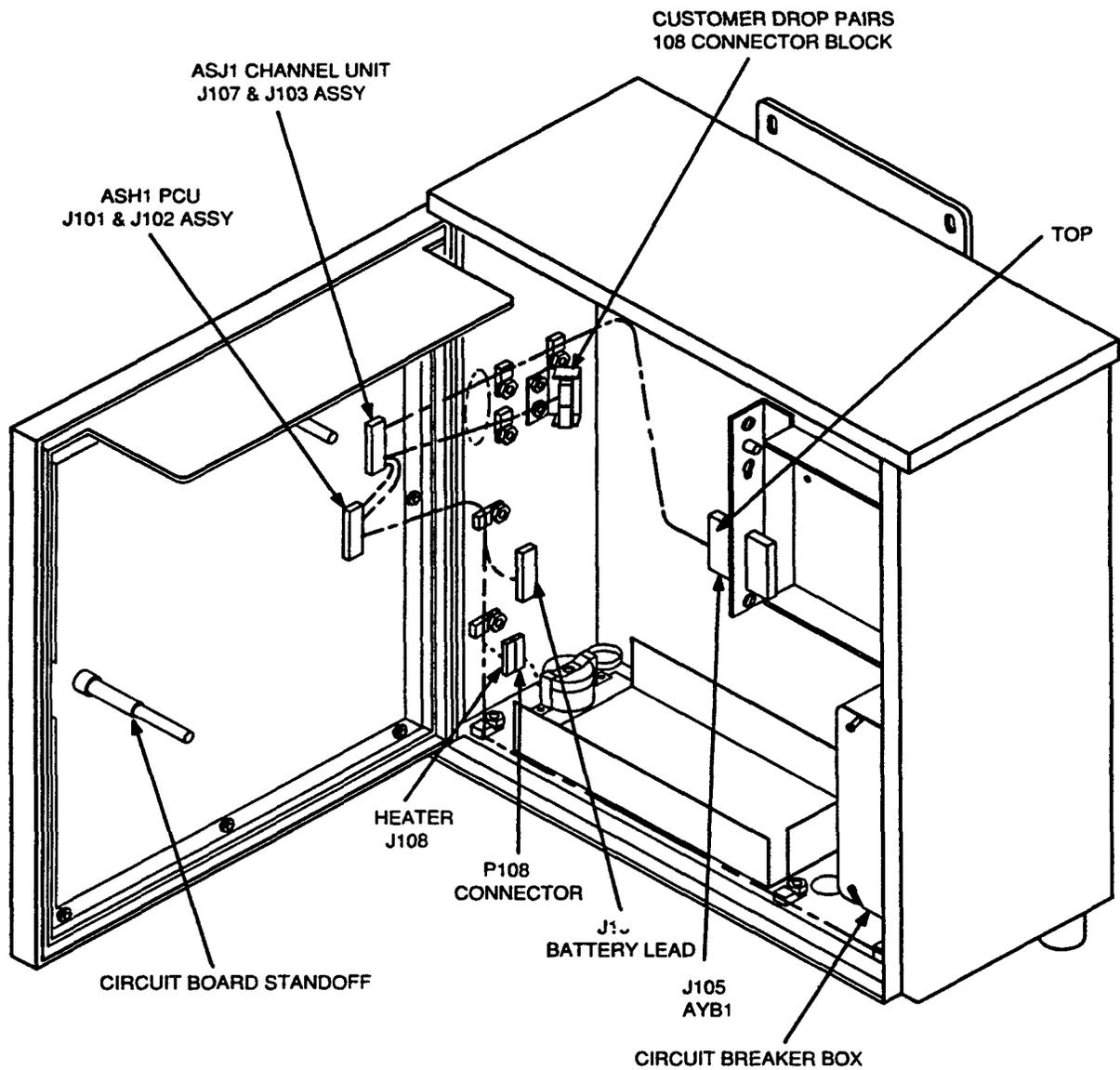


Figure 1—DT Circuit Pack Wiring Diagram

PERFORM TERMINAL-TO-TERMINAL TESTS FOR UNIVERSAL FPB MODE 2 SYSTEM

1. **Note:** These procedures must be performed in coordination with procedures performed by SLC 96 COT personnel using AT&T 363-202-400 (TOP). These procedures should be performed when requested by SLC 96 COT personnel.

Establish communication between SLC Series 5 RT and SLC 96 COT.

2. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF and ADU NE, FE lighted?

If YES, then proceed to Step 9.
If NO, then continue with Step 3.

3. At RT, remove ADU and check settings of option switches. Correct any option switch settings that are incorrect.

Reference: DLP-509

4. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU back into its slot.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

5. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF and ADU NE, FE lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.

6. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace ADU with another correctly optioned ADU.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

7. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF and ADU NE, FE lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 2 after locating and correcting trouble.
9. At COT, equip digroups A and B for Mode 2 and remove Terminal Looping Card from TST jack of shelf A LIU.
10. At RT, are BCU DIGROUP A, B, and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 11.
11. At RT, remove LIU-A and check settings of option switches. Correct any option switch settings that are incorrect.
12. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-A back into its slot.
13. At RT, are BCU DIGROUP A, B, and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 14.
14. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-A with another correctly optioned LIU.
15. At RT, are BCU DIGROUP A, B, and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 16.
16. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup A. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).
17. At COT, equip Digroups C and D for Mode 2 and remove Terminal Looping Card from TST jack of shelf C LIU.
18. At RT, are BCU DIGROUP C, D and LIU-C CLF and ADU FE indicators off?

If YES, then proceed to Step 25.
If NO, then continue with Step 18.
19. At RT, remove LIU-C and check settings of option switches. Correct any option switch settings that are incorrect.

20. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-C back into its slot.

21. At RT, are BCU DIGROUP C, D and LIU-C CLF and ADU FE indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 22.

22. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-C with another correctly optioned LIU.

23. At RT, are BCU DIGROUP C, D and LIU-C CLF and ADU FE indicators off?

If YES, then proceed to Step 25.

If NO, then continue with Step 24.

24. If trouble remains after COT replaces required circuit packs, trouble is on digital line associated with digroup C. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

25. Is protection line provided?

If YES, then continue with Step 26.

If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.

26. At RT, set LSU deny (d) switch for digroup A to OFF.

Response: ADU NE indicator goes off.

27. At COT, remove Terminal Looping Card from TST jack of protection line LIU.

28. At RT, are all indicators off?

If YES, then proceed to Step 35.

If NO, then continue with Step 29.

29. At RT, remove LIU-P and check settings of option switches. Correct any option switch settings that are incorrect.

30. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-P back into its slot.

31. At RT, are all indicators off?

If YES, then proceed to Step 35.

If NO, then continue with Step 32.

32. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-P with another correctly optioned LIU.

33. At RT, are all indicators off?

If YES, then proceed to Step 35.
If NO, then continue with Step 34.

34. If trouble remains after COT replaces required circuit packs, trouble is on protection line. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at COT location to fault locate digital line using AT&T 363-202-500 (TOP).

35. At RT, perform Steps 36 through 46.

36. Verify that all LSU deny (d) and force (f) faceplate switches are set to OFF position.

37. Set LSU (d) switch for digroup A to ON position.

Response: MN and NE indicators on ADU are lighted.

38. Set LSU (f) switch for digroup A to ON position.

39. Return LSU (d) switch for digroup A to OFF position.

40. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 44.
If NO, then continue with Step 41.

41. **Caution:** *Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace circuit packs listed below one at a time, first at the RT, then at the COT. After each replacement, repeat test from Step 36 to see if it works. When replacing ADU, LSU, or LIU, make sure options are set per facility records:

- LSU
- ADU (RT only)
- BCU (RT only)
- TRU
- LIU.

42. Are ADU MN and NE and TRU ON PROT for A digroup indicators lighted?

If YES, then proceed to Step 44.
If NO, then continue with Step 43.

43. Check wiring using SD-7C118-01. Repeat procedure from Step 36 after locating and correcting trouble.
44. Return LSU (f) switch for digroup A to OFF position.
45. Are all indicators off?

If YES, then continue with Step 46.
If NO, then proceed to Step 43.
46. Repeat procedure from Step 36, using appropriate (d) and (f) switches, for digroup C.
47. At COT, insert pin plug into LIU SW TO PROT jack on shelf A (or shelf being tested).
48. At RT, are indicators ADU MN and FE and TRU ON PROT for digroup A lighted?

If YES, then proceed to Step 52.
If NO, then continue with Step 49.
49. **Caution: Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace circuit packs listed below one at a time, first at the COT, then at the RT. After each replacement, repeat test from Step 47 to see if it works. When replacing ADU, LSU, or LIU, make sure options are set per facility records:

- LSU
 - TRU
 - LIU
 - ADU (RT only)
 - BCU (RT only).
50. At RT, are indicators ADU MN and FE and TRU ON PROT for digroup A lighted?

If YES, then proceed to Step 52.
If NO, then continue with Step 51.
 51. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 47 after locating and correcting trouble.
 52. At COT, remove pin plug from LIU SW TO PROT jack.
 53. At RT, did all indicators go off within 30 seconds?

If YES, then proceed to Step 56.
If NO, then continue with Step 54.
 54. **Caution: Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace circuit packs listed below one at a time, first at the COT, then at the RT. After each replacement, repeat test from Step 47 to see if it works. When replacing ADU, LSU, or LIU, make sure options are set per facility records:

- LSU
- TRU
- LIU
- ADU (RT only)
- BCU (RT only).

55. Did all indicators go off within 30 seconds?

If YES, then continue with Step 57.

If NO, then proceed to Step 51.

56. Repeat procedure from Step 47 for digroups C and D. The TRU ON PROT indicator associated with the digroup under test should light at the specified time.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

PERFORM TERMINAL-TO-TERMINAL TESTS FOR INTEGRATED FPB MODE 2 SYSTEM

1. **Note:** These procedures must be performed in coordination with procedures performed by 5ESS switch DCLU personnel using AT&T 363-200-005 (TOP). These procedures should be performed when requested by 5ESS switch DCLU personnel. This procedure assumes the T1 line protectors have not been installed.

Establish communication between SLC Series 5 Remote Terminal (RT) and 5ESS switch DCLU.

2. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF lighted?

If YES, then proceed to Step 9.
If NO, then continue with Step 3.

3. At RT, remove ADU and check settings of option switches. Correct any option switch settings that are incorrect.

Reference: DLP-509

4. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug ADU back into its slot.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

5. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.

6. **Caution:** *Incorrectly set ADU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace ADU with another correctly optioned ADU.

Response: ADU FAIL indicator lights momentarily. Ignore all other indicators that are lighted.

7. **Note:** Each indicator listed below will remain lighted throughout this procedure unless stated otherwise.

At RT, are indicators ADU MJ, BCU DIGROUP A, B, C, D, LIU-A CLF, LIU-C CLF, and if protection line is provided, LIU-P CLF lighted after 30 seconds?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check wiring at RT using SD-7C118-01. Repeat procedure from Step 2 after locating and correcting trouble.
9. At RT, install protector for T1 line associated with digroup A.

Response: Ignore LIU-A CLF indicator.

10. After the SDFI (subscriber digital facility interface) associated with digroup AB is restored at the DCLU location, are BCU DIGROUP A, B, LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 11.

11. At RT, remove LIU-A and check settings on option switches. Correct any option switch settings that are incorrect.

12. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Plug LIU-A back into its slot.

13. At RT, are BCU DIGROUP A, B, and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 14.

14. **Caution:** *Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.*

Replace LIU-A with another correctly optioned LIU.

15. At RT, are BCU DIGROUP A, B, and LIU-A CLF indicators off?

If YES, then proceed to Step 17.
If NO, then continue with Step 16.

16. Trouble is on digital line associated with digroup A. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

17. At RT, install protector for T1 line associated with digroup C.

Response: Ignore LIU-C CLF indicator.

18. After the SDFI associated with digroup CD is activated at the DCLU location, are BCU DIGROUP C, D, and LIU-C CLF indicators off?

If YES, then proceed to Step 25.
If NO, then continue with Step 19.
19. At RT, remove LIU-C and check settings on option switches. Correct any option switch settings that are incorrect.
20. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-C back into its slot.
21. At RT, are BCU DIGROUP C, D, and LIU-C CLF indicators off?

If YES, then proceed to Step 25.
If NO, then continue with Step 22.
22. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-C with another correctly optioned LIU.
23. At RT, are BCU DIGROUP C, D, and LIU-C CLF indicators off?

If YES, then proceed to Step 25.
If NO, then continue with Step 24.
24. Trouble is on digital line associated with digroup C. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).
25. Is protection line provided?

If YES, then continue with Step 26.
If NO, then STOP. YOU HAVE COMPLETED THIS PROCEDURE.
26. At RT, install protector for protection T1 line.

Response: Ignore LIU-P CLF indicator.
27. After the SDFI associated with protection line is activated at the DCLU location, are all indicators at RT bank off?

If YES, then proceed to Step 34.
If NO, then continue with Step 28.
28. At RT, remove LIU-P and check settings on option switches. Correct any option switch settings that are incorrect.
29. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Plug LIU-P back into its slot.

30. At RT, are all indicators off?

If YES, then proceed to Step 34.
If NO, then continue with Step 31.

31. **Caution: Incorrectly set LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LIU-P with another correctly optioned LIU.

32. At RT, are all indicators off?

If YES, then proceed to Step 34.
If NO, then continue with Step 33.

33. Trouble is on protection line. Verify that digital line pairs have been connected to proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 (TOP) or request personnel at DCLU location to fault locate digital line using AT&T 363-200-005 (TOP).

34. At RT, perform Steps 35 through 44.

35. Verify that all LSU deny (d) and force (f) faceplate switches are set to off position.

36. Set LSU (d) switch for digroup A to ON position.

Response: MN and NE indicators on ADU are lighted.

37. Set LSU (f) switch for digroup A to ON position.

38. Return LSU (d) switch for digroup A to off position.

39. Are ADU MN and NE and TRU ON PROT for A and B digroup indicators lighted?

If YES, then proceed to Step 43.
If NO, then continue with Step 40.

40. **Caution: Incorrectly set ADU, LIU, or LSU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.**

Replace LSU, ADU, BCU, TRU, and LIU one at a time, repeating the procedure from Step 34 after each replacement. Replace these circuit packs until correct results are obtained or all circuit packs have been replaced. When replacing ADU, LSU, or LIU, make sure options are set per facility records.

41. Are ADU MN and NE and TRU ON PROT for A and B digroup indicators lighted?

If YES, then proceed to Step 43.
If NO, then continue with Step 42.

42. Check wiring using SD-7C118-01. Repeat procedure from Step 34 after locating and correcting trouble.

43. Return LSU (f) switch for digroup A to OFF position.

44. Are all indicators off?

If YES, then continue with Step 45.

If NO, then proceed to Step 42.

45. Repeat procedure from Step 34, using appropriate (d) and (f) switches, for digroup C and D.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST SINGLE-PARTY POTS CHANNEL END TO END (DCLU TO SERIES 5 RT)

SUMMARY: At 5ESS switch DCLU determine channel and directory number of channel being tested. At RT, determine corresponding channel and install single-party channel unit. At RT, connect a test telephone set with ringer connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on channels 21, 45, 69, and 93 (next to the last slot in each digroup for testing AUA401 or AUA405 channel units), and channels 23, 47, 71, and 95 (last slot in each digroups for testing AUA400 or AUA404 channel units). At the RT an audible ringing test is not possible unless the J99407TA DT Analyzer is connected.

1. Establish communication between RT and DCLU.
2. **Note:** These test procedures are to be performed on channels 21, 45, 69, and 93 (next to the last slot in each digroup for testing AUA401 or AUA405 channel units), and channels 23, 47, 71, and 95 (last slot in each digroups for testing AUA400 or AUA404 channel units).

At COT, select channel slot for testing, install single-party channel unit (SLC 96 WP10() or Series 5AUA38), and inform RT of channel selected.

3. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line.
4. **Warning:** *Installing any channel unit besides the tests channel unit AUA403, AUA400, AUA401, AUA404, or AUA405 will result in permanent damage to the optical shelf AYB1B optical unit.*

Note: Test telephone set should be connected for bridged ringing. Test telephone is connected to the faceplate jack of the AUA403 test channel unit using the WP91067-L6 test cable provided in the J99407TA DT Analyzer.

At RT, install a single-party test AUA403 channel unit into the channel unit slot (21/22, 23/24, 45/46, 47/48, 69/70, 71/72, 93/94, or 95/96) that coincides with the channel being tested and temporarily connect a test telephone set to the channel via the faceplate jack.

5. At RT, lift handset and check for dial tone.
6. Is dial tone present at RT?

If YES, then proceed to Step 9.
If NO, then continue with Step 6.
7. Request CO (DCLU) personnel review line assignment to ensure correct test number. If line assignment is correct, check test connections at RT and correct if needed. If dial tone is still not present, replace RT channel unit and check for dial tone.
8. Is dial tone present at RT?

If YES, then proceed to Step 9.

If NO, then continue with Step 8.

9. At RT, use SD-7C118-01 to check channel bank wiring. Look for tip and ring reversal between RT and cross-connect terminal. Correct wiring until dial tone is present at RT and proceed to Step 9.
10. At RT, dial local MDF or CO number and make normal talk tests.
11. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 14.

If NO, then continue with Step 11.

12. Replace RT channel unit and repeat normal talk tests.
13. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 14.

If NO, then continue with Step 13.

14. At RT, use SD-7C118-01 to check wiring. Check for tip and ring reversal between RT and cross-connect terminal. Correct wiring and repeat Step 10 until talk quality is good in both directions.
15. **Note:** The RT test channel unit AUA403 does not supply ringing to the test telephone. COT personnel must verify audible ringing tones after the test line has been dialed and request RT personnel to lift handset after ringing tones are present.

At COT, dial test line number to ring telephone at RT.

16. At COT do you hear audible ringing tones after dialing?

If YES, then proceed to Step 22.

If NO, then continue with Step 19.

17. At COT, has tip and ring reversal been checked?

If YES, then continue with Step 20.

If NO, then proceed to Step 21.

18. Replace RT channel unit. Repeat this procedure from Step 4 after replacement.
19. Have CO personnel check telephone assignment information and repeat from Step 17.
20. At RT, lift telephone handset during ringing.
21. At RT, does ringing trip normally and is normal transmission established?

If YES, then proceed to Step 25.

If NO, then continue with Step 24.

22. Replace, one at a time; COT channel unit first and then RT channel unit. Repeat this procedure from Step 4 after each replacement.

23. Is this the last designated channel unit slot to be tested?

If YES, then continue with Step 26.
If NO, then proceed to Step 2.

24. At RT, remove AUA403 test channel unit.

25. **Note:** These tests are done one digroup at a time. After the test is completed, move circuit packs and test equipment connections to the next digroup. These tests will be done two times, first using AUA400 or AUA404 channel units (one channel unit slot), and then with the AUA401 or AUA405 channel units (two channel unit slots). The AYB1B optical unit and J99407TA test connections are the same for each digroup test for either channel unit type. When testing the AUA401 or AUA405 channel units the channel tests (dial tone, transmission test, ringing and ring tripping) are to be done twice (using jacks 1 and 3 on the J99407TA) for each channel unit.

At RT, insert AUA400 or AUA404 into channel unit slot 21/22, 45/46, 69/70, or 93/94. Insert AYB1B optical unit into appropriate optical shelf slot, and connect J99407TA Analyzer to jumper fiber from the optical shelf at optical interconnect frame.

Reference: DLP-517

Response: When channel unit is installed, OOS indicator lights.
When J99407TA Analyzer is connected, channel unit OOS indicator and the Analyzer OOF indicators goes off.

26. Were the above responses noted and OOS and OOF indicators off?

If YES, then continue with Step 32.
If NO, then proceed to Step 29.

27. Verify the proper test connections have been made (check that channel unit has an associated AYB1B circuit pack in the optical shelf) and J99407TA Analyzer has power (the batteries must be charged).

Reference: DLP-517

28. Did correcting test connections clear trouble?

If YES, then continue with Step 32.
If NO, then proceed to Step 31.

29. Replace, one at a time, AUA400 (or AUA401, AUA404, or AUA405) channel unit and AYB1B optical unit. If trouble is still present check optical shelf power and cabling between RT and optical shelf. Then clean and check fiber optical cable between the optical shelf, the optical interconnect frame, and the J99407TA. If trouble is still present use office drawings and RT schematic drawing to clear wiring trouble. Check for tip-ring reversal between RT and optical shelf.

Reference: DLP-517

30. Connect the test telephone into #1 RJ11 modular jack of the J99407TA Analyzer (Use the modular jack adaptor, provided with the DT Analyzer, to connect a butt set).

31. At J99407TA, lift handset and check for dial tone.
32. Is dial tone present at J99407TA test telephone?
If YES, then proceed to Step 36.
If NO, then continue with Step 35.
33. Replace, one at a time, AUA400 (or AUA401, AUA404, or AUA405) and AYB1B as needed and check for dial tone. If dial tone is not present after the AYB1B was replaced, repeat from Step 29.
34. At J99407TA, dial the local MDF or CO number and make normal talk tests and monitor the call progress.
35. Was call completed with normal transmission quality in both directions?
If YES, then proceed to Step 38.
If NO, then continue with Step 35.
36. At COT dial the test line to ring the telephone at jack 1 of J99407TA. At the RT, if a test telephone is used the phone will ring normally. If the 1015B Butt Set is employed, use the TEST mode switch position and monitor the polarity indicators and/or earpiece to evaluate ringing.
37. At J99407TA, does the test phone ring normally?
If YES, then continue with Step 40.
If NO, then proceed to Step 41.
38. At J99407TA, does the test phone trip ringing when hand set is lifted?
If YES, then proceed to Step 42.
If NO, then continue with Step 41.
39. Change RT channel unit and repeat this procedure from Step 27.
40. Is this the last channel unit slot (digroup) to be tested?
If YES, then continue with Step 43.
If NO, then repeat this procedure from Step 37 for next channel unit slot.
41. Remove the AUA400 or AUA404 from the RT. Repeat this procedure from Step 27 using AUA401 or AUA405 channel unit in slots 21/22 and 23/24, 45/46 and 47/48, 69/70 and 71/72, and 93/94 and 95/96. The test lines for channel 23, 47, 71, and 95 will appear on the third jack of the J99407TA Analyzer. Channel test must be done on both jack 1 and jack 3 (of the J99407TA) when AUA401 or AUA405 channel tests are performed. Then continue with Step 44.
42. **Note:** The XTC or PGTC can return a DC resistive signature used to test if the AUA400, AUA401, AUA404, or AUA405 channel unit is OOS (out of service). This DC signature will be returned to the MLT-2 test desk by either the XTC or PGTC.

Request that Repair Service Bureau or Local Test Desk make a test access on the channel location being tested. With the channel unit OOS indicator off, a 91K ohm tip-ground, ring-ground, and tip-ring dc resistance should be noted by the test personnel.

Reference: DLP-525

43. Did tests pass?

If YES, then continue with Step 46.

If NO, then proceed to Step 48.

44. Disconnect the J99407TA Analyzer to cause an OOS on the channel unit and request Repair Service Bureau or Local Test Desk to repeat the channel tests. With the channel unit OOS indicator lighted, a 91K ohm Tip-ground, Ring-ground, and an open (3500K ohm) Tip-Ring dc resistance should be noted by the test personnel.

45. Did tests pass?

If YES, then proceed to Step 49.

If NO, reconnect J99407TA Analyzer and then continue with Step 48.

46. Check test connections and correct if needed. Replace RT channel unit and repeat from Step 27. If replacement channel unit still fails dc resistance tests use office and RT drawings to correct wiring problems.

47. Is this the last designated channel unit slot to be tested?

If YES, then proceed to Step 51.

If NO, then continue with Step 50.

48. **Note:** These tests are done using AUA401 or AUA405 channel unit in slots 21/22 and 23/24, 45/46 and 47/48, 69/70 and 71/72, and 93/94 and 95/96.

Move channel unit, AYB1B and J99407TA test connection to next channel slot and repeat these procedures from Step 44.

49. Remove channel test equipment.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

TEST INTEGRATED SINGLE-PARTY POTS CHANNEL FIBER-TO-THE-HOME DCLU-TO-DT

SUMMARY: Verify the channel tests have been done from the DCLU to the RT using DLP-522 for channels to be tested at the DT. At DT NIU (Network Interface Unit), connect a test telephone to the appropriate RJ11 modular jack (use the WP91067-L6 test cable to connect a butt set) for channel being tested. Set test telephone with ringer connected for bridged ringing. Make talking, dialing, transmission, ringing, and ring-trip tests on channels 1, 2, 3, and 4 per the customer work order.

1. At DT, open DT cabinet and observe any LED indicators on ASJ1 or ASJ2 channel unit. If any indicators are on, perform the following items, else continue with Step 2.

- **FAIL:** Cycle power for the ASJ1 or ASJ2 by disconnecting, then reconnect the ASJ1 or ASJ2 channel unit. If FAIL is still on, replace the ASJ1 or ASJ2. If FAIL is still on proceed to TAP-101.

Reference: DLP-519

- **BUSY:** Likely cause is a short in NIU wiring. If wiring trouble is not found, replace the ASJ1 or ASJ2. If BUSY is still on proceed to TAP-101.

Reference: DLP-519

- **OOB:** Likely cause is a bad cross-connection at RT optical interconnect. If cross-connection is correct proceed to TAP-101.
- **ON BAT:** Likely cause is a loss of ac power. Verify ac power is present at ac outlet and circuit breaker is on. Replace the ASH1 PCU. If ON BAT is still lighted proceed to TAP-101.

Reference: DLP-519

2. **Note:** The ASH1 PCU has two GND jacks. One is used with BAT and 20HZ on one side of the board, and +5, -5, and -37 Vdc on the other side of the board.

On ASH1 PCU measure faceplate test jack voltages.

Requirements: BAT and GND -10 to -15 Vdc
20HZ and GND -18.4 to -21.6 Vdc
20HZ and GND 69 to 81 Vac
+5 and GND +4.6 to +5.4 Vdc
-5 and GND -4.6 to -5.4 Vdc
-37 and GND -34 to -40 Vdc.

3. **Note:** The DT power will shut down if AC or DC power is lost and the battery voltage drops below 10 volts DC. AC or DC power must be restored before the DT will be powered.

If ASH1 PCU voltage requirements were not present, replace ASH1 PCU. If voltage requirements are still not present, proceed to TAP-101.

Reference: DLP-519

4. Establish communication between personnel at DT and 5ESS switch if possible.
5. **Note:** Test telephone set should be connected for bridged ringing. The test connections can be made at the 108 connector block on the inside left wall of the DT cabinet.

At DT connect test telephone to appropriate NIU (Network Interface Unit) RJ11 modular jack. Use the WP91067-L6 test cable to connect a butt set.

6. At test telephone, lift handset and check for dial tone.
7. Is dial tone present at DT?

If YES, then proceed to Step 9.
If NO, then continue with Step 8.

8. Check test connections and correct if needed. Replace ASJ1 or ASJ2 channel unit and check for dial tone. If still not present, proceed to TAP-101.

Reference: DLP-519

9. At DT, dial local MDF or CO number and make normal talk tests.
10. Was call completed with normal transmission quality in both directions?

If YES, then proceed to Step 12.
If NO, then continue with Step 11.

11. Replace ASJ1 or ASJ2 channel unit and repeat normal talk tests. If normal transmission quality was not good in both directions, proceed to TAP-101.

Reference: DLP-519

12. Have central office personnel dial test line number to ring telephone at DT.
13. At DT does test telephone ring normally?

If YES, then proceed to Step 15.
If NO, then continue with Step 14.
14. Replace ASJ1 or ASJ2 DT channel unit. Repeat this procedure from Step 6 after replacement.

Reference: DLP-519

15. At DT, lift telephone handset during ringing.
16. At DT, does ringing trip normally?

If YES, then proceed to Step 18.
If NO, then continue with Step 17.
17. Replace ASJ1 or ASJ2 DT channel unit. Repeat this procedure from Step 6 after replacement.

Reference: DLP-519

18. At DT, get VOM and condition to measure dc volts.
19. Make sure test call is established and held between CO and DT.
20. At DT, connect (+) red lead of VOM to tip terminal and (-) black lead to ring terminal of DT test telephone.

Comment: The test telephone can be connected to the WP91067-L1 modular jack interface test cable to gain tip-ring access. Tip ring access is also provided at the color coded TB2 terminal strip on the inside left side of the DT cabinet.

21. At DT, does meter indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 22.

22. Check DT test connections and correct if needed.

23. At DT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 24.

24. Replace ASJ1 or ASJ2 DT channel unit for channel being tested and repeat from Step 6.

Reference: DLP-519

25. At DT, does meter now indicate between 4V and 15V dc?

If YES, then proceed to Step 27.
If NO, then continue with Step 26.

26. Use DT schematic drawings to check and correct wiring.

27. Is this the last designated channel to be tested?

If YES, then STOP. YOU HAVE COMPLETED THIS PROCEDURE
If NO, then proceed to Step 5.

TEST CENTRAL OFFICE AND REMOTE (IF PROVIDED) ALARM SYSTEM AT 5ESS SWITCH AND RT (FPB-INTEGRATED)

OVERVIEW:

1. Which system is being tested?

If **BLUE**, then continue with Step 2.

If **WHITE**, then proceed to Step 6.

2. **Caution:** *If dual channel bank is already providing service, RT batteries must be fully charged before test is started; otherwise, service may be interrupted on the working bank while alarms are being tested.*

At RT, verify battery power to dual channel bank (BATTERY CHARGER indicator **HIGH RATE CHG/ON** not lighted).

3. Have 5ESS switch personnel access the Blue system MCC RT Page 13ZY,X (12ZY,X for 5E1(2) or 5E2(1) generic where Z is the RT_EX number for the Blue system, Y is the DCLU number, and X is the SM number).

4. Unplug ac power cord plug from outlet or turn breaker off (to test PWR/MISC and FAR END closures).

Response: Switching personnel will note **TROUBLE LOCATE/FAR END** and **PWR/MISC** messages after approximately 4 minutes.

At RT, **ALARM** indicator(s) on **RECTIFIER(s)** and **BAT DISCHG** indicator(s) on **BATTERY CHARGER(s)** are lighted. **ADU** indicator **NE** and **BCU** indicator **P/M** are lighted after approximately 4 minutes (Blue bank).

5. At RT, reinsert ac power cord plug into ac outlet or turn circuit breaker on.

Response: Switching personnel will receive messages that the RT alarms have cleared after approximately 4 minutes.

At RT, **RECTIFIER** indicator **ALARM** and **BATTERY CHARGER** indicator **BAT DISCHG** go out. **BATTERY CHARGER** indicator **HIGH RATE CHG/ON** will go off after a period of time determined by charge state of batteries. All other indicators go out after approximately 4 minutes.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

6. Have 5ESS switch personnel access the White system MCC RT Page 13ZY,X (12ZY,X for 5E1(2) or 5E2(1) generic where Z is the RT_EX number for the White system, Y is the DCLU number, and X is the SM number).

7. Activate alarm associated with the WHITE system MISC 1.

Response: Switching personnel will note **TROUBLE LOCATE/FAR END** and **PWR/MISC** for the WHITE system.

The RT MISC1 indicator on BCU lights.

8. Did MISC1 indicator on BCU light?

If **NO**, then continue with Step 8.

If **YES**, then proceed to Step 9.

9. Check wiring using SD-7C118-01 or SD-7C118-02. Repeat procedure from Step 7 after locating and correcting trouble (check J305 wiring).
10. Deactivate MISC1 alarm.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

PERFORM FIBER-TO-THE-HOME MLT CHANNEL TEST

SUMMARY: Channel testing for FTTH circuits is supported by MLT via PGTC or XTC interface to the SLC Series 5 Carrier System. The XTC must use MLT-2 LTS generic 5 issue 6 or later to support channel unit isolation tests.

When a channel test is performed, the MLT identifies the circuit as being served by a SLC Carrier System. Then two tests are initiated. The first test performs channel unit functional tests and the second test bypasses the carrier system (via a DC test pair or RMU) and performs drop tests for the pairs extending from the RT. For FTTH circuits, the RT channel unit will always fail the channel unit functional test because these channel units do not contain the proper VF interface required to pass the test. If MLT-2 LTS (with generic 5 issue 6 or later) is used, further tests can determine if the COT channel unit is functioning properly. This additional test is not available with the PGTC.

Then the second *loop test* is performed. But since a copper loop does not exist, the RT channel unit returns a *DC signatures* (TABLE A) to the MLT via the DC test pair. DC signatures (85 to 95 kilohms or less Tip-to-Ring) indicates a good fiber. DC signature with 2500 kilohms Tip-to-Ring indicates a failure condition associated with the fiber loop. A failed DC signature indicates the RT unit has failed or the signal between the RT and DT is bad.

If the RT is equipped with AUA400 or AUA401 channel units, only the first two DC signatures in TABLE A are returned during MLT tests. If the RT uses AUA404 or AUA405 channel units and the DT has the ASJ2 with the EMF1 drop test module, additional test results are available to test the drop pair from the DT to the customer. Regardless of the type of channel units used, a DC signature of 2500 kilohms Tip-to-Ring requires trouble clearing to begin at the RT site. A DC signature less than 95 kilohms indicates a trouble condition at the DT or customer equipment/wiring.

1. **Note:** *After a full or loop test a channel test from STV should be performed.*

Perform MLT test on FTTH circuit reported to have trouble *but do not perform the tone test.*

Comment: The channel unit test will indicate different results depending on the MLT generic version and whether the XTC or PGTC is used. The RT channel unit will always fail and both COT and RT channel unit will fail if the PGTC is used.

Comment: You should note the results of the *DC tests* during the loop test phase of the channel test.

Comment: If you perform the tone test the results will be intermittent return tones.

2. What was the result of the DC signature (See TABLE A)?

Comment: A good RT to DT fiber link DC signature will have less than 95 kilohms between tip-ring, tip-ground, and ring-ground.
A bad RT to DT fiber link DC signature will have more than 2500

kilohms between tip and ring.

Comment: MLT test may give a SAM or TV mask with a VER code for a passed or failed DC test and indicate where to dispatch craft personnel (RT or DT) if the COT channel unit functional test passed.

If **GOOD FIBER LINK DC SIGNATURE**, then proceed to **Step 7**.
If **BAD FIBER LINK DC SIGNATURE**, then continue with **Step 3**.

3. Do you have MLT generic 5 issue 6 or later and XTC?

If **YES**, then continue with **Step 4**.
If **NO**, then proceed to **Step 5**.

4. Did COT channel unit pass channel test?

If **YES**, then proceed to **Step 6**.
If **NO**, then continue with **Step 5**.

5. Dispatch craft to COT.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

6. Dispatch craft to RT.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

7. Dispatch craft to DT.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

TABLE A					
FTTH TEST CAPABILITY DC SIGNATURES					
DC SIGNATURE (OHMS T-R)	INDICATION	DISPATCH TO	ACTION	SAM REQ:DVER / INPUT VER:	MLT-2 TV MASK VER
86K-98K	Fiber link good, basic FTTH RT, no enhanced test capability	DT	Perform Talk Test From NIU If OK, premise wiring else Clear trouble at DT	N -1 / —	1X
>2500K	Fiber link bad	RT	Perform DT Analyzer Test at RT If OK, proceed to DT else Clear RT or COT CU trouble	N -2 / —	2X
15K-24K	Fiber link good, basic FTTH DT, no enhanced test capability	DT	Perform Talk Test From NIU If OK, premise wiring else Clear trouble at DT	N -8 / —	8X
24K-34K	Bad or missing EAF1 DTM no drop test results	To DT if customer reports trouble	Perform Talk Test From NIU If OK, premise wiring else Clear trouble at DT	N -3 or N -10 / VER 95 or VER 99	3X or 3C
34K-44K	Drop test OK	To DT if customer reports trouble	Perform Talk Test From NIU If OK, premise wiring else Clear trouble at DT	N -4 or N -11 / VER 95 or VER 99	4X or 4C
44K-54K	No ringer on drop	DT	Perform Talk Test From NIU If OK, premise wiring/phone else Clear trouble at DT	N -5 or N -12 / VER 95 or VER 99	5X or 5C
54K-64K	FEMF/Leakage on drop DANGER: Possible hazardous voltage on drop.	DT	Clear AC power on drop per local procedures	N -6 or N -13 / VER 95 or VER 99	6X or 6C
64K-74K	Receiver off hook	DT	Perform Talk Test From NIU If OK, premise wiring else Clear trouble at DT	N -7 or N -14 / VER 95 or VER 99	7X or 7C
15K-96K	Fiber link good to DT no line record	Retest with T1 override	—	N -9 / VER 25	9X
74K-86K	[Not used]				

CHECKLIST

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
<ul style="list-style-type: none"> • IXL-001 NTP-002 • NTP-003 • NTP-004 		<ul style="list-style-type: none"> • DLP-525 • CKL-891 TNG-893 DPL-895 					
<ul style="list-style-type: none"> • NTP-005 • NTP-006 • NTP-007 • NTP-008 • NTP-009 							
<ul style="list-style-type: none"> • NTP-010 • NTP-011 • TAP-100 • TAP-101 • TAD-102 							
<ul style="list-style-type: none"> • DLP-500 • DLP-501 • DLP-502 • DLP-503 • DLP-504 							
<ul style="list-style-type: none"> • DLP-505 • DLP-506 DLP-507 <input type="checkbox"/> DLP-508 • DLP-509 							
<ul style="list-style-type: none"> • DLP-510 • DLP-511 • DLP-512 • DLP-513 • DLP-514 							
<ul style="list-style-type: none"> • DLP-515 • DLP-516 • DLP-517 • DLP-518 • DLP-519 							
<ul style="list-style-type: none"> • DLP-520 • DLP-521 • DLP-522 • DLP-523 • DLP-524 							

- Revised or added item
- Canceled item

HOW TO USE TOP

This book is a Task Oriented Practice which is called a "TOP". It gives you all the step-by-step instructions you need to do your job (task). These instructions are given in the order that they *must* be done. Failure to follow the instructions in the order given may cause service interruptions.

Regardless of your work experience, TOP can be a useful tool in doing your job. If you have done a particular job many times, or if you do it frequently, TOP gives you "memory joggers" for those instructions you cannot recall. If you have never done a particular job, or if you do it infrequently, TOP gives you the detailed step-by-step instructions you need to do the job.

The work that you do can be divided into two broad job functions – work to clear troubles and work other than to clear troubles.

Work to Clear Troubles: This is the work you do to fix troubles in the equipment. You may be doing this work in response to a customer's complaint, an office alarm, a trouble report, an abnormal printout, or any other equipment fault indication.

Work Other Than to Clear Troubles: This is the work you do to install equipment, to test equipment after it is installed, to place equipment in service, to operate and maintain equipment, or anything else required to establish, to change, or to discontinue service to the customer.

Now, look at the front cover of this book. In the upper right corner is the 9-digit volume number. Near the center is the title, which tells you something about the contents such as the name of the equipment and maybe what types of jobs are included. Below the title is a flow diagram which uses logic symbols to direct you either to 893 or to 001 depending on your understanding of how to use TOP. Do you wonder what those numbers mean? Okay, a TOP is divided into parts called procedures. Each procedure is given a 3-digit number. These numbers range from 001 through 899. Procedures are arranged in this book in numerical order beginning with 001.

TASK INDEX LIST

FIND YOUR JOB IN THE LIST BELOW THEN GO TO

Alert; External - Horn, Ringer, Etc. - Remove	NTP-028
Amplifiers; Channel - Recorded Announcement Frame - Test	NTP-009
BRDG LED - Does Not Light - Correct	TAP-117
Bridging Controller; Trunk - J1C015MB - Replace	DLP-572
Channel Amplifiers - Recorded Announcement Frame - Test	NTP-009
Drum Wiper - Common Systems Recorded Announcement Frame - Inspect	NTP-010
Extended Station Capability - Nonkey Set Only - Reported Failure	TAP-123
External Alert - Horn, Ringer, Etc. - Remove	NTP-028
Interchange Two Working Station Numbers	NTP-081
LED: BRDG - Does Not Light - Correct	TAP-117
Loudspeaker Paging - Add	NTP-059
New International Trunk, R1 Signaling - Incoming - Establish	NTP-010
New Tandem Trunk - T-Carrier and Digroup Terminal - Establish	NTP-008
Station Capability; Extended - Nonkey Set Only - Reported Failure	TAP-123
System Test - Perform	NTP-016
Trunk Bridging Controller - J1C015MB - Replace	DLP-572

Fig. 1 - Typical List of Jobs You May Have to Do

Now, look at Fig. 1. It is a typical 001 procedure and is always called a "Task Index List." It is an alphabetical listing of the jobs that you may have to do. To use a 001, just find the job you need to do in the "FIND YOUR JOB IN THE LIST BELOW" column. Next, follow the dotted line to the procedure number for that job in the "THEN GO TO" column. Then turn to that procedure number and begin the task.

For example, suppose you are given the job of doing a system test. On the 001 as shown in Fig. 1, find your job. Note that it is listed in the "FIND YOUR JOB IN THE LIST BELOW " column as "System Test-Perform." Now find the procedure number for that job. Note that it is listed in the "THEN GO TO" column as "NTP-016." It could have been any other 3-digit number. Now what does this procedure give you? Turn to next page.

AT&T 123-456-789
Issue 2

NTP-016
Page 1 of 2

PERFORM SYSTEM TEST

DO ITEMS BELOW IN ORDER LISTED . . FOR DETAILS, GO TO

1	Test Local Maintenance Terminal	DLP-531
2	Place SEC/SEB in Off-Line Mode	
	A. If in On-Line Mode, Change System From On-Line to Off-Line	DLP-509
	B. If Powered Down, Condition System for Off-Line Operation as Follows	
	1. Power up Minicomputer	DLP-503
	2. Power up Line Printer	DLP-528
	3. Power up Maintenance Terminal	DLP-510

7	Run Computer Display Terminal Test For All Positions	DLP-513
8	Mount Tape	DLP-500
9	Test Computer Display	DLP-522

Fig. 2 - Typical List of Specific Instructions for Doing a Job

Look at Fig. 2. It consists of numbered items (or steps) listed in the order that you must do them to complete your job. To use this procedure, you must start with item 1 in the "DO ITEMS BELOW IN THE ORDER LISTED" column and continue until all items have been done. When you get to an item that you do not know how to do, look for the procedure number for that item under the "FOR DETAILS, GO TO" column. This is the number of the procedure that will give you detailed step-by-step instructions to do that item. Note that item 2 in Fig. 2 uses lettered (A, B) entries. This means that there are alternate ways of doing item 2 depending on equipment options or equipment conditions. You do only the one that fits your equipment options or equipment conditions.

For example; suppose you are doing a system test. The 001 as shown in Fig. 1 has directed you to 016 as shown in Fig. 2 and you are on item 8 "Mount Tape" in the "DO ITEMS BELOW IN ORDER LISTED" column. If you know how to mount the tape, do it. If you do not know how to mount the tape, go to the procedure number listed in the "FOR DETAILS, GO TO" column for the detailed step-by-step instructions. In this case, it happens to be 500. In either case, you must continue with the next item listed in 016 until you complete the job.

AT&T 123-456-789
Issue 2

DLP-500
Page 1 of 2

MOUNT TAPE

SUMMARY: Install tape with or without write enable ring, as required. Thread tape and position tape at beginning of tape (BOT) marker.

1. Get file reel and empty take-up reel.
2. Set *START/STOP* switch to *STOP*.
3. Set *ON LINE/OFF LINE* switch to *OFF LINE*.
4. Set *LOAD/BR REL* switch to center position.
5. Is data to be written on tape?
 If **YES**, then install write enable ring on file reel and go to Step 7.
 If **NO**, then do Step 6.
6. Ensure that write enable ring is not installed on file reel
 Reference: DLP-563
7. Open tape transport door.

Fig. 3 - Typical List of Detailed Instructions for Doing a Job

Now, lets look at 500 as shown in Fig. 3. It is a typical page of a procedure that gives numbered step-by-step instructions. To use this procedure, you must start with Step 1 and proceed as directed by the instructions until you complete this procedure. Note that Step 1 of this procedure is preceded by a statement called a "SUMMARY." A summary is used as a "memory jogger," and briefly tells you how to do the procedure and what measurements or results you can observe. If you can do the procedure after reading the "SUMMARY", go ahead and do it without reading any further. Not all procedures have a "SUMMARY" statement.

Now, look at Step 6 of the 500 as shown in Fig. 3. Note that following the action statement there is the word "Reference" followed by "DLP-563" (Detailed Level Procedure). When you see a reference like this, it means that additional step-by-step instructions for doing just that step are given in the referenced procedure. In this case, 563 gives you the details on how to "Ensure that the write-enable ring is not installed on the file reel." If you, in this case, can do Step 6 without going to 563, go ahead and do it. If you do not know how to do Step 6, then go to 563. In either case, you must continue with Step 7 until you have completed the procedure. In some cases, you may be directed to a procedure where the procedure number is preceded by the letters "TAP" (Trouble Analysis Procedure), for example, TAP-109. This means that you have trouble in the equipment and in this case TAP-109 will give you step-by-step instructions to fix the trouble. After you have fixed the trouble, you must return to Step 1 of the procedure that sent you to TAP-109.

AT&T 123-456-789 Issue 2	IXL-001 Page 1 of 2
TASK INDEX LIST	
FIND YOUR JOB IN THE LIST BELOW THEN GO TO
Alert; External - Horn, Ringer, Etc. - Remove NTP-028
Alarm - Major - Clear TAP-109

AT&T 123-456-789
Issue 2

TAP-109
Page 1 of 2

CLEAR MAJOR ALARM AT TERMINAL

1. The following ISD is available for support
Reference: **ISD-108**

2. Is PWR ALM alarm lamp lighted on power regulator in terminal?
If YES, then do Step 3
If NO, then do Step 4

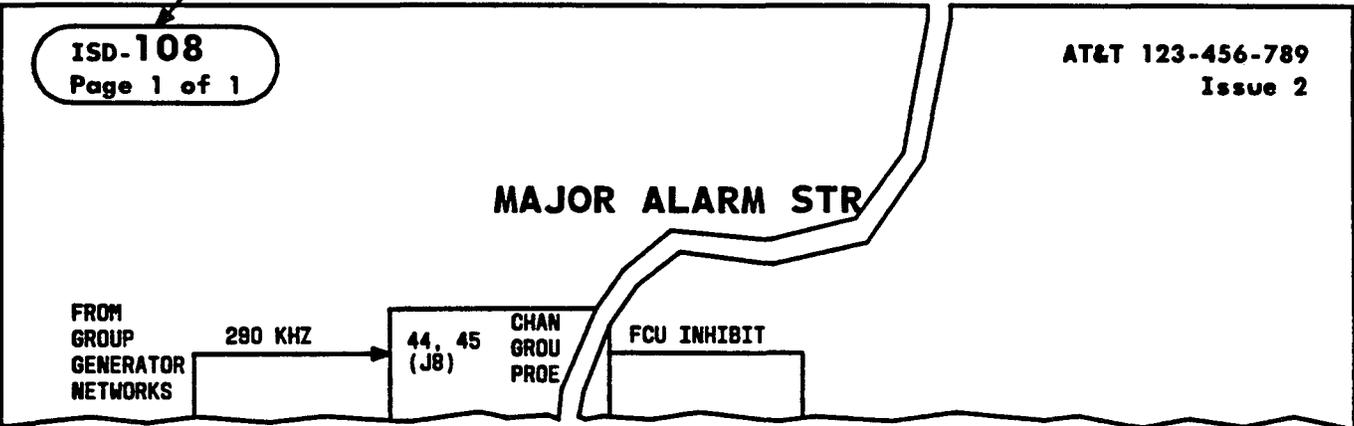


Fig. 4 - Typical Data Accessing for Trouble-Clearing Work

However, if you came directly from 001 to 109 as shown in Fig. 4, then your job is completed when you have fixed the trouble.

Note that Step 1 in TAP-109 as shown in Fig. 4 gives you a reference to "ISD-108." This is a block diagram of the trouble area and gives you support information for the 109 procedure.

Safety: Always do your job safely. Three safety notices are used in TOP as follows:

DANGER: This means there is a possibility of personal injury.

Caution: This means there is a possibility of service interruption.

Warning: This means there is a possibility of equipment damage.

Important Items: Look at Table A. It lists the more important items used in TOP.

Reporting TOP Errors: If, while using TOP you find errors, call the "TOP HOTLINE" number located on the front cover in the lower right corner. You can also report errors by using comment form E-3973. Details on how to fill out this form are in AT&T 000-010-015. Your comments are needed to provide useful and accurate TOP coverage.

TABLE A IMPORTANT TOP ITEMS AND DEFINITIONS	
ITEM	DEFINITION
Acceptance (NTP-002)	Provides information and identifies jobs to be done to accept equipment after it is installed.
Maintenance Philosophy (TAD-100)	The maintenance philosophy, when provided, gives an overview of the considerations designed into the trouble-clearing procedures.
Checklist (CKL-891)	The checklist reflects the content (inventory) at any given time.
Documentation Plan (DPL-895)	The documentation plan gives a bird's-eye view of all the TOP books covering a system. This plan can help you to quickly determine the correct books to use.
DLP (Detailed Level Procedure)	Detailed step-by-step instructions.
ISD (Isolation Diagram)	A functional block diagram defining the trouble universe
TAD (Trouble Analysis Data)	A trouble-clearing aid other than instructions. It may be a functional schematic, text, trouble-locating chart, etc.
TAP (Trouble Analysis Procedure)	Step-by-step trouble-clearing instructions to locate and/or fix troubles.
NTP (Non Trouble-Clearing Procedure)	A list of items to perform normal work other than trouble-clearing.

DOCUMENTATION PLAN

GENERAL

The Documentation plan for Series 5 systems is shown in FIG. 1.

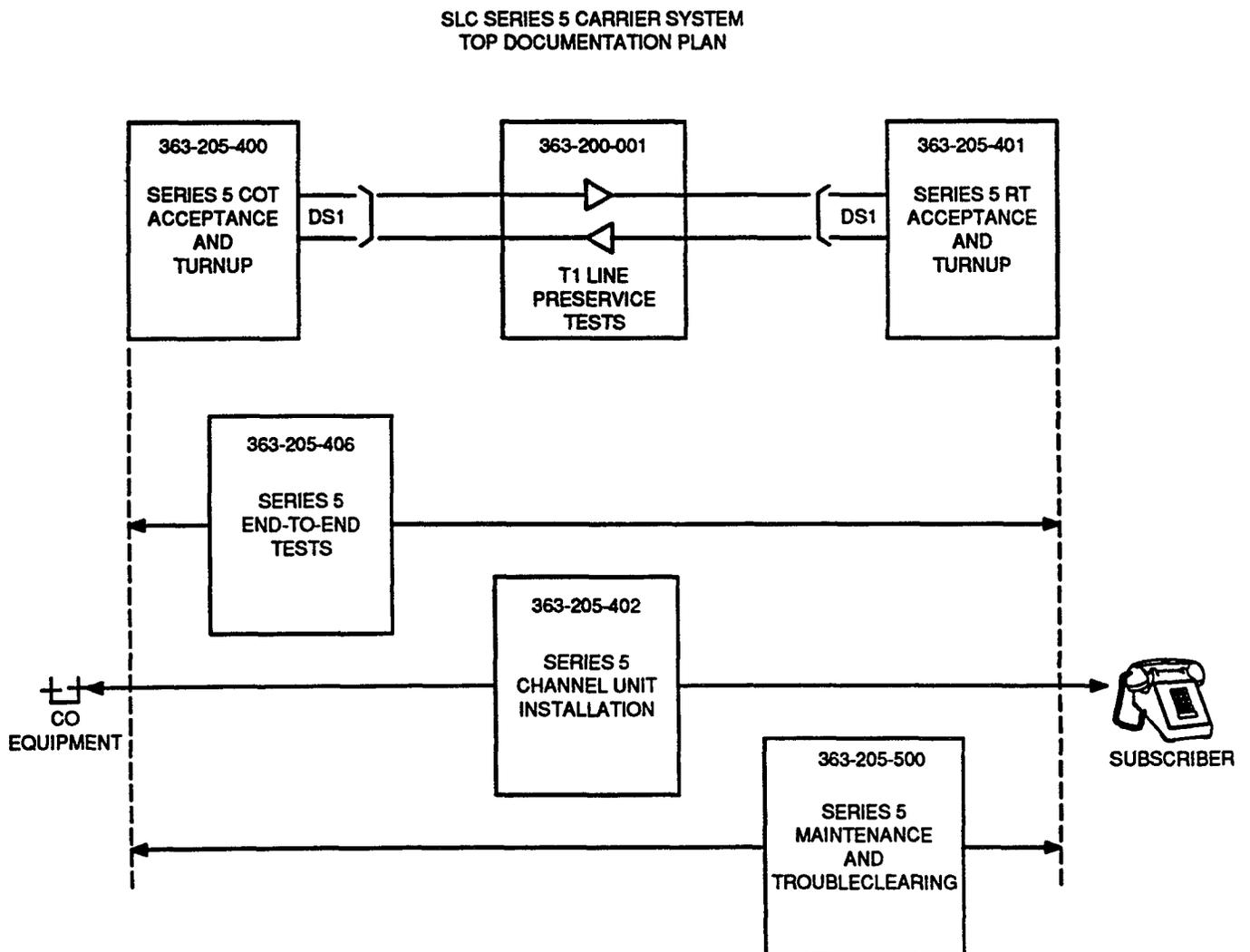


FIG. 1

