



SLC[®] Series 5 Carrier System Automated Office-to-Office Cutover Procedure

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Overview

This document provides procedures for converting a Universal *SLC*[®] Series 5 Carrier System, configured as either a Feature Package A (FPA), Feature Package C (FPC), or a Feature Package C with AutoCut option (FPC/AC) to a Feature Package B Integrated Mode 1 (FPB/I/M1) or to an enhanced Feature Package B with Special Service Option Integrated Mode 1 (FPB/SS/I/M1). Also covered in this document is the turn-up and use of the Series 5 Conversion Cabinet which is used to accomplish this conversion. A discussion of the equipment that is in the cabinet can be found later in the document.

Whenever this practice is reissued, the reason(s) for reissue will be listed in this paragraph.

This practice does not contain admonishments.

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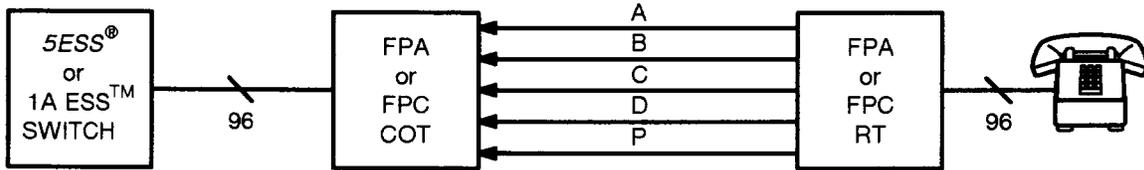
Call 1-800-432-6600.

In-hours or emergency out-of-hours technical assistance for the *SLC* Series 5 Carrier System can be obtained by calling the Regional Technical Assistance Center at 1-800-225-RTAC (7822)

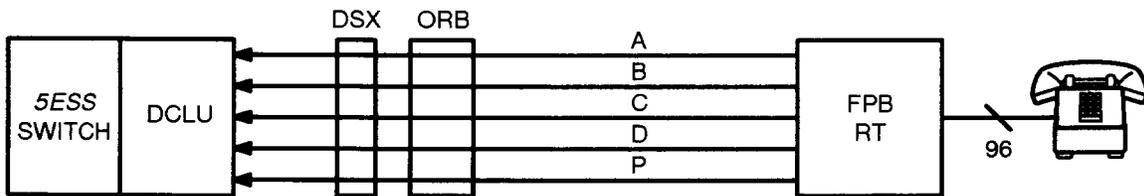
Directory Number Verification

In order to verify that the directory numbers of a universal system that is being integrated are correctly installed into the switch data base, the *5ESS*[®] digital switch performs a procedure known as Office-to-Office (OTO) testing. Practice AT&T 363-200-010 presents a thorough explanation of this test, and practice AT&T 235-105-200 is the *5ESS* switch practice that provides the step-by-step procedures to accomplish this testing. This procedure is valid when a system is being integrated from an analog switch, such as a 1A *ESS*[™], or from the analog side of a *5ESS* digital switch. Figure 1 shows the before (FROM) and after (TO) configuration of a conversion. Figure 2 shows the standard way to configure a universal *SLC* 96 carrier system for OTO testing prior to cutover. Use of the Series 5 Conversion Cabinet is shown in figure 3.

FROM:



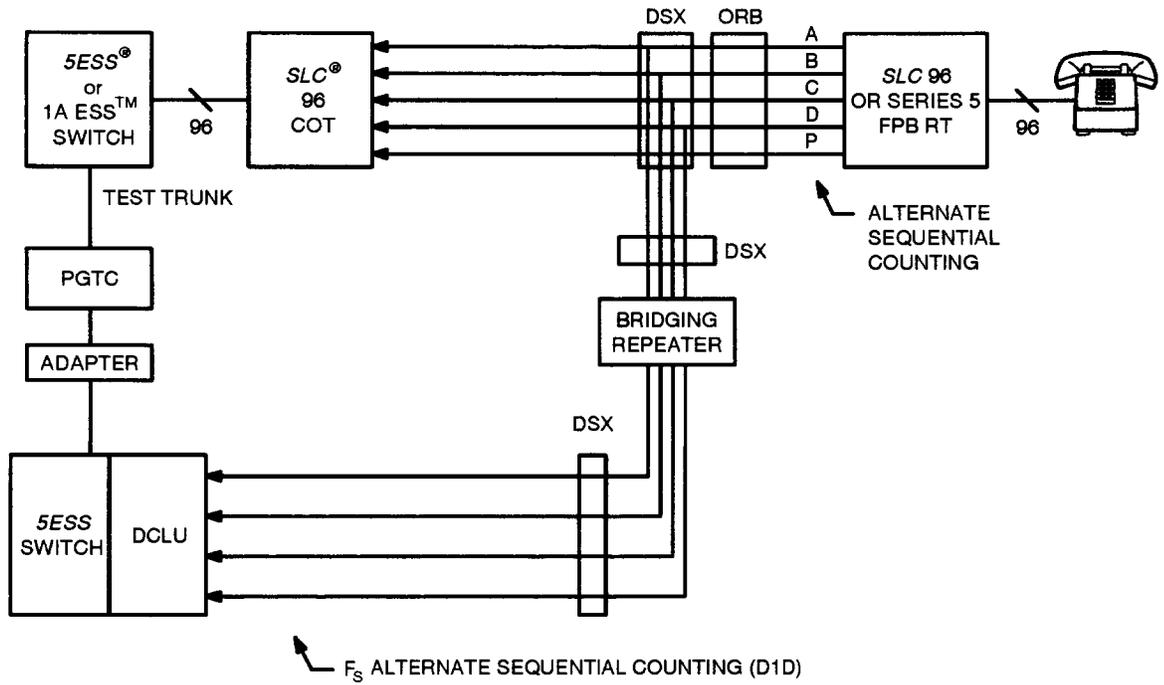
TO:



MUST CHANGE RT: -BCU
-ADU
-TRU
-CTU (if AUB25 used)
-LIU switch settings (if earlier than "C" LIU)

tpa 789460/01

Figure 1. Conversion to Integrated Feature Package B



tpa 789461/01

Figure 2. Existing Procedures for Office-To-Office Testing

Equipment Description and Usage

The cabinet has eight bridging repeaters, an 800-type cross-connect panel, a Series 5 COT dual channel bank, two Subscriber Loop Interface Modules (SLIMs), and one Series 5 power shelf. Figure 4 shows how the DS1 signal is connected to the cabinet as well as the connections within the cabinet. The signals from the monitor jacks, which are reduced level DS1 signals from the RT of the system being checked, are connected to the bridging repeaters and increased to normal levels. At this point the signals are routed, via an 800-type cross connect, to the LIU inputs of a Series 5 COT configured for FPC equipped with Digital Connectivity Units (DCUs). These DCUs make use of an AUA117, which is an AUA17 modified to output Fs framed signals with a D1D channel counting rather than the normal sequential counting. The resulting signal from the modified DCUs is then connected to the DS1 side of a SLIM shelf and the T1 side is connected to the DCLU designated for this system. This application of the SLIM applies a SLIM generated data link to the DCLU to prevent a datalink related alarm in the DCLU being used. Now the OTO testing may be accomplished.

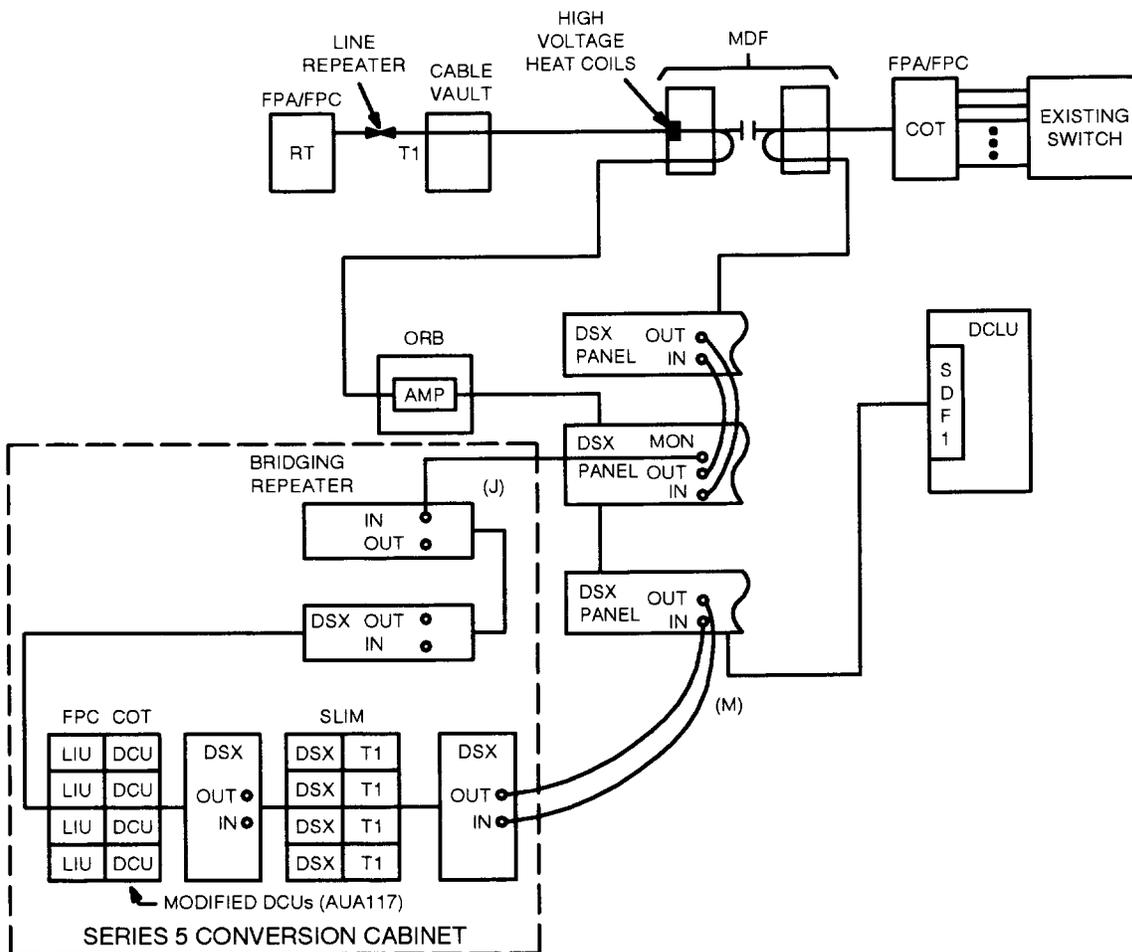


Figure 4. DSX Configuration During Office-To-Office Testing

Office-to-Office Testing

Two procedures must be performed before OTO testing can take place. They include the turnup of the conversion cabinet and the installation of the cabinet and office wiring between the universal system and the designated DCLU.

Conversion Cabinet Turnup

FPC COT Turnup and DCU Installation

Perform the procedure provided in Appendix 1 to turn-up the COT and install the DCUs.

SLIM Turn Up

The SLIM turn up can be verified by using practice AT&T 363-203-101 Subscriber Loop Interface Module (SLIM), Installation and Maintenance, Loop Transmission Systems. Procedure J. "SLIM OPTIONS" should be set as follows:

- 1 = **closed**
- 2 = **closed**
- 3 = **open**
- 4 = **open**
- 5 = **open**

Expected Alarms

The cabinet should now be operational with the following options set:

- a. LIUs: **Z, DIS, S400-2 = off, -1 = off, -0 = on, S200 = 64**
- b. AUA16: **D, Z, Trans-2 = off, -1 = off, -0 = on**
- c. AUB6: **NPL, 64, ABI, CDI, ABE, and CDE**
- d. SLIM switches: **1,2 closed; 3,4,5 open**

With no connections to the bridging repeaters or from the SLIM TI side, a number of alarms will be expected in the cabinet.

COT Alarms

The COT bank will have the following alarms active:

- a. LIUs: **CLF**
- b. AUA16: **INC**
- c. AUB6: **MJ, NE**
- d. BCU: **DIGROUP A,B,C,D**

SLIM Alarms

On the SLIM the active alarms should be:

- a. AU: **MJ**
- b. DAPU: **DL FAIL**
- c. T1-LIU: **REC LINE FAIL**

If these alarms are not present please use the practices mentioned previously to correct any problems. The documents in the reference section may also be used.

Cabinet and Office Wiring

Once the conversion cabinet is turned up, connection to the office wiring is accomplished by following practice AT&T 235-105-200, Precutover and Cutover Procedures, procedure 7.25, Install Interoffice T1 Digital Carrier Wiring (Metallic Interface) Using Digital Subscriber Cross-Connect. Figure 4 is a representation of the office wiring after 7.25 is completed. At this point the only alarm expected in the cabinet is MN FE on the ADU. The system is now ready to have OTO testing performed, as described in AT&T 235-105-200.

Cutover Procedure after OTO Testing

After the OTO testing is complete the cutover to the DCLU is performed. Depending on the configuration of the universal system a craftperson may be needed at the RT to change some of the common plugs.

Feature Package A or Feature Package C

The conversion of a FPA or FPC to FPB necessitates changing the BCU, ADU, and the TRUs. Remove these common cards and replace them with those shown in the table below depending on the FPB operation level being equipped.

FEATURE PACKAGE OPERATION LEVEL	BCU	ADU	TRU
FPB/I/M1 FPB/SS/I/M1	MC97724A1* MC97771A1 or MC97776A1	AUB24 AUB27	AUA22 AUA109
* FPB/I/M1 configuration can also use MC97771A1 or MC97776A1 BCU			

FPC/AC

This configuration of FPC does not require the presence of a craftperson at the RT. The AutoCut option for FPC automatically reconfigures the RT so that it will receive and transmit D1D, Fs framed T1 signals. At a later date a craftperson can visit the RT and option the AUB27 for permanent FPB operation.

Office Connections

The office equipment should be connected to reflect Figure 5. This should result in a fully operational integrated system.

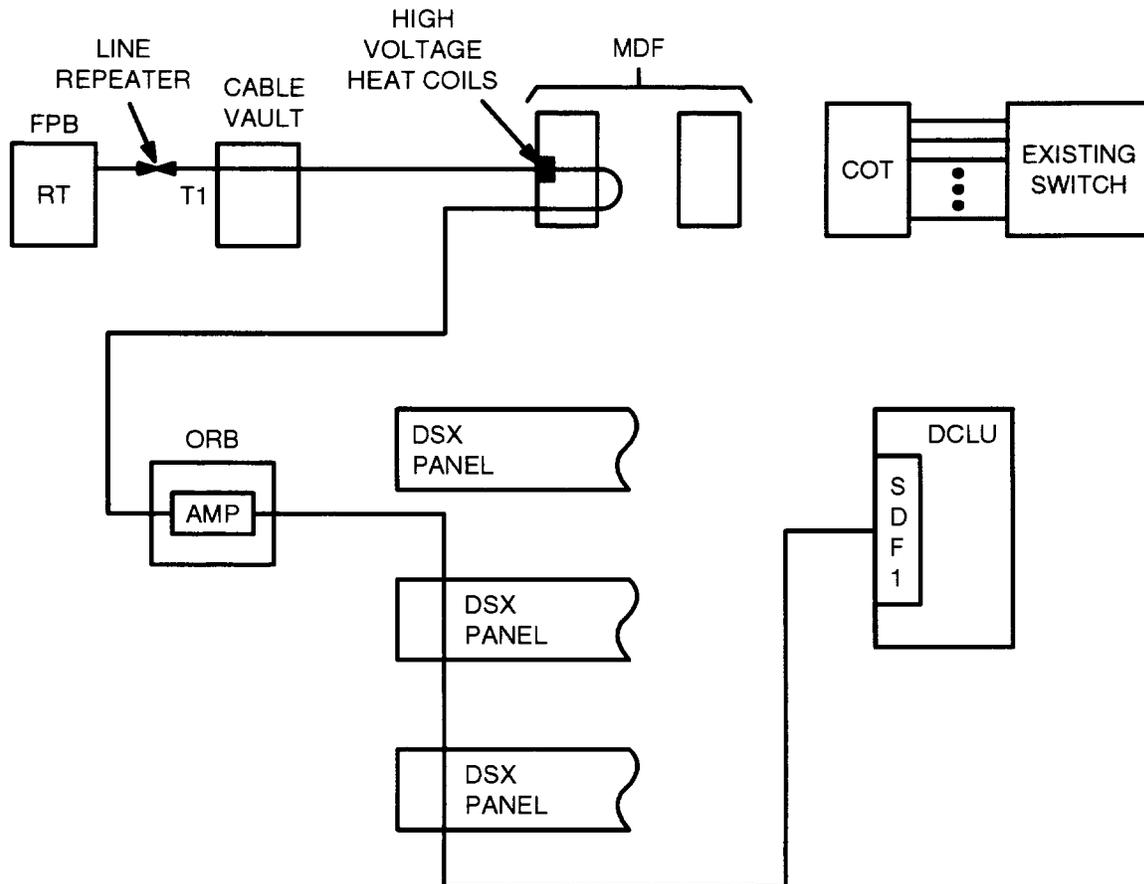


Figure 5. DSX Final Configuration

References

AT&T 235-105-200	Line Precutover and Cutover Procedures
AT&T 363-099-111TD	Enhancement to <i>SLC</i> Series 5 Carrier System FPB (Feature Package B) and FPC (Feature Package C)
AT&T 363-200-010	DCLU Integrated <i>SLC</i> Carrier System General Information Manual
AT&T 363-203-101	SLIM Installation and Maintenance
AT&T 363-205-400	<i>SLC</i> Series 5 Carrier System COT Acceptance and Turnup
AT&T 363-205-401	<i>SLC</i> Series 5 Carrier System RT Acceptance and Turnup
AT&T 363-205-402	<i>SLC</i> Series 5 Carrier System Channel Unit Installation

Abbreviations and Acronyms

TERM	MEANING
ADU	Alarm Display Unit
BCU	Bank Control Unit
BOC	Bell Operating Companies
COT	Central Office Terminal
CTU	Channel Test Unit
DCU	Digital Connectivity Unit
DCLU	Digital Carrier Line Unit
DSX	Digital Service Cross-Connect
FPA	Feature Package A
FPB	Feature Package B
FPB/I/M1	Feature Package B Integrated Mode 1
FPB/SS/I/M1	Feature Package B With Special Services Option - Integrated Mode 1
FPC	Feature Package C
FPC/AC	Feature Package C With AutoCut Option
FPD	Feature Package D
LIU	Line Interface Unit
LTD	Local Test Desk
MLT	Mechanized Loop Testing
OTO	Office-To-Office Testing
PGTC	Pair Gain Test Controller
RT	Remote Terminal
SLIM	Subscriber Loop Interface Module
TRU	Transmit/Receive Unit

SLC[®] SERIES 5 CARRIER SYSTEM NE 00279-15 G2 CONVERSION CABINET COT TURNUP

DO ITEMS BELOW IN ORDER LISTED

FOR DETAILS, GO TO

1. This procedure contains instructions concerning the installation of the various units into the COT assembly shelves and for verifying that the units are operating properly.

2.



NOTE:

This procedure allows equipping and testing a dual bank assembly during initial installation. During initial installation, the entire dual bank assembly or only a portion of it can be equipped and tested as long as the blue (lower) bank is equipped first.

Get support apparatus listed:

- DMM (digital multimeter) with an accuracy of 1.0% and an AC/DC input impedance of 1 megohm or more.

3.



CAUTION:

An electrostatic discharge wrist strap, with a minimum resistance of 250K Ohms, should be worn when handling SLC Series 5 Carrier System 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.

DO ITEMS BELOW IN ORDER LISTED

FOR DETAILS, GO TO



NOTE:

The term "facility shelf" is used throughout this procedure to refer to the middle shelf of the Series 5 COT. The remaining shelves will be referenced according to digroup name (for example, AB shelf contains digroups A and B). White system (bank) refers to the two upper shelves of the Series 5 COT plus the right half of the facility shelf and blue system (bank) refers to the two lower shelves of the Series 5 COT plus the left half of the facility shelf.

4.



NOTE:

Two **CFUs** (channel fuse units) are required for successful system operation.

Install (if not previously installed) and check fuses in two **39E** DLP-501
or **AUA114 CFUs**.

5.



NOTE:

One **ADU** (alarm display unit) is required for each channel bank.

Install **ADU**.

DLP-502

6.



NOTE:

One **BCU** (bank control unit) is required for each channel bank.

Install **BCU**.

DLP-503

7. Install equipped option in **ADU** (for shelf groups A, B, C, and D). DLP-504

8. Install and test **PCUs** (power converter units) in blue and white AB shelves. DLP-505

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

- | | | |
|-------|---|---------|
| 9. | Install TRU (transmit/receive unit) in AB shelf. | DLP-506 |
| <hr/> | | |
| 10. |  NOTE:
All LIUs (line interface units) in the same bank should have identical option switch settings. | |
| | Install AUA61D DS1 LIU in LIU-A slot in facility shelf after making option, equalizer, and transmit pad settings. | DLP-507 |
| <hr/> | | |
| 11. |  NOTE:
All LIUs in the same bank should have identical option switch settings. | |
| | Install AUA61D DS1 LIU in LIU-B slot in facility shelf after making option, equalizer, and transmit pad settings. | DLP-507 |
| <hr/> | | |
| 12. | Install and test PCU in CD shelf. | DLP-508 |
| <hr/> | | |
| 13. | Install TRU in CD shelf. | DLP-509 |
| <hr/> | | |
| 14. |  NOTE:
All LIUs in the same bank should have identical option switch settings. | |
| | Install AUA61D DS1 LIU in LIU-C slot in facility shelf after making option, equalizer, and transmit pad settings. | DLP-507 |
| <hr/> | | |
| 15. |  NOTE:
All LIUs in the same bank should have identical option switch settings. | |
| | Install AUA61D DS1 LIU in LIU-D slot in facility shelf after making option, equalizer, and transmit pad settings. | DLP-507 |
| <hr/> | | |
| 16. | Perform COT indicator test. | DLP-510 |

DO ITEMS BELOW IN ORDER LISTED

FOR DETAILS, GO TO

17.



NOTE:

This step can be performed only if COT digital lines are connected to a DSX cross-connect.

If COT is connected to DSX cross-connect, perform DSX cross-connect loopback test.

DLP-511

18. Set Switches on **AUA16 (DCU-L)**.

DLP-512

19. Install **AUA16 (DCU-L)** in the Sixth Channel Unit Position and **AUA117 (DCU-R)** in the Twelfth Channel Unit Position of Digroups A, B, C, and D.

20. Update office records.

INSTALL CHANNEL FUSE UNIT (CFU)

1. Get **AUA114** or **39E CFU** (FIG. 1) and inspect for possible damage.
2. Remove all fuses from faceplate.

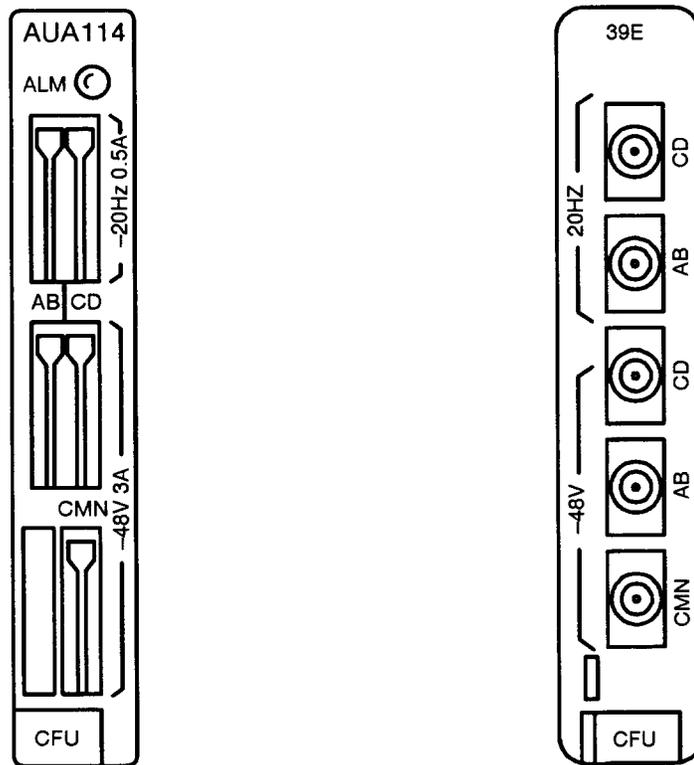


Figure 1 — AUA114 and 39E Channel Fuse Unit

3. Install **CFU** into vacant **CFU** slot in upper or lower bank.
4. Refer to Table A or B for correct fuse size and install fuses in faceplate of CFU.

TABLE A		
AUA114 CFU FUSES		
FUSE DESIGNATION	SIZE	CODE
20 HZ - AB	½ A	WP90247 L103
20 HZ - CD	½ A	WP90247 L103
-48V - AB	3A	WP90247 L110
-48V - CD	3A	WP90247 L110
-48V - CMN	3A	WP90247 L110

TABLE B			
39E CFU FUSES			
FUSE DESIGNATION	BEAD COLOR	SIZE	CODE
20 HZ - A/B	RED	½ A	80G
20 HZ - C/D	RED	½ A	80G
-48V - A/B	BLUE	3A	80C
-48V - C/D	BLUE	3A	80C
-48V - CMN	BLUE	3A	80C

5. Did any fuse(s) in **CFU** blow?

If **YES**, then proceed to Step 6.

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

6. Check wiring on dual bank assembly using SD-7C115-01 or SD-7C115-02.

7. Is wiring correct?

If **YES**, then get another **CFU** and proceed to Step 2.

If **NO**, then continue with Step 8.

8. Repair wiring and use **WP0247 L201** Insertion/Extraction tool for **AUA114 CFU**; or **WECO 553A** Extractor Tool (Techni-Tool No. 594TE170) or **WECO 319B** (KS-6305) Extractor Tool (Techni-Tool No. 490PL020) for **39E CFU**, to replace blown fuse(s).

9. Repeat procedure from Step 2.

INSTALL ADU (ALARM DISPLAY UNIT)

1. Get one **AUB6 ADU** and inspect for possible damage.
2. On **ADU** option switch **S1** (FIG. 1), use an orange stick (KS-6320, L1) or equivalent and set switches as follows:
 - **1** - Toward **PL** (away from number) for protection switching or toward **NPL** (toward number) for no protection switching.
 - **2** - Toward **64**.
 - **3** - Toward **ABP** (away from number) if shelf group AB is being equipped.
 - **4** - Toward **CDP** (away from number).
 - **5** - Toward **ABU** (away from number).
 - **6** - Toward **CDU** (away from number).
3. Set ID (system identification) switches **S3**, **S4**, **S5**, and **S6** on **ADU** per work order (for example, for system number 0123 or 123, set **S3** to **0**, **S4** to **1**, **S5** to **2**, and **S6** to **3**).
4. Is White bank being equipped at this time?
 - If **YES**, then continue with Step 5.
 - If **NO**, then proceed to Step 6.
5.  **NOTE:**
Before removing alarm suppressor unit (**ASU**) (if equipped), notify personnel in alarm monitoring areas that alarms associated with bank being equipped will be activated.

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	-

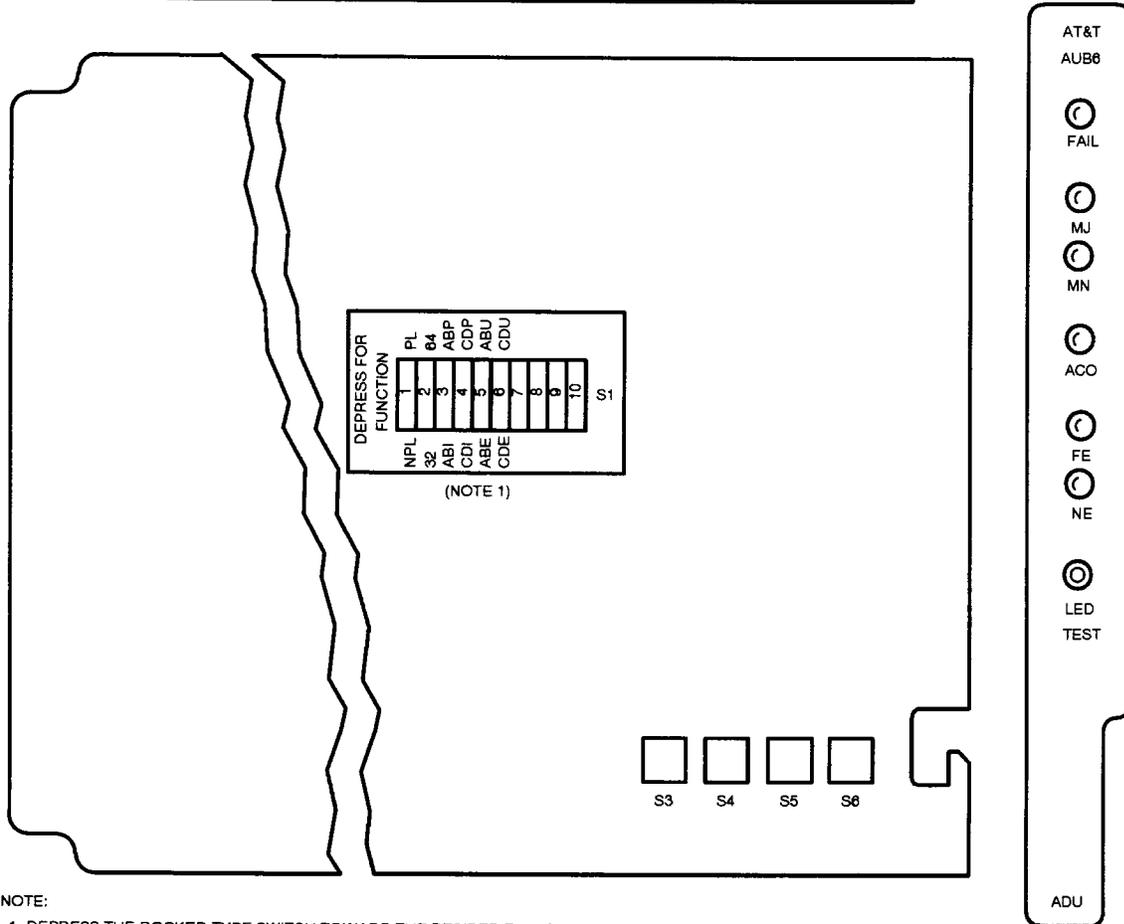


Figure 1 — COT AUB6 ADU Option Switches

Remove **ASU** (if present) from **ADU** slot.

6.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Insert **ADU** into lower **ADU** slot if equipping blue bank or upper **ADU** slot if equipping white bank.

Response: Disregard all indicators that may be lighted.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

INSTALL BCU (BANK CONTROL UNIT)

1. Get one **MC97755A1 BCU** (FIG. 1) and inspect for possible damage.
2. Insert **BCU** into lower **BCU** slot if equipping Blue bank or upper **BCU** slot if equipping White bank.
3. Did **FAIL** indicators on **BCU** and **ADU** go off after approximately 20 seconds?

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

If **NO**, then continue with Step 4.

4. Is **BCU FAIL** indicator off?

If **YES**, then continue with Step 5.

If **NO**, then proceed to Step 9.

- 5.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU**.

Reference: **DLP-506**

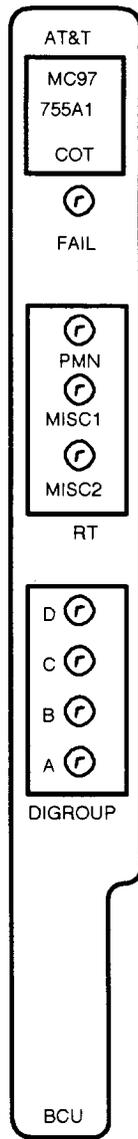


Figure 1 — Typical COT Bank Controller

6. Did **FAIL** indicators on **BCU** and **ADU** go off after approximately 20 seconds?

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

If **NO**, then continue with Step 7.

7.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously.

8. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 3 after locating and correcting problem.
9. Replace **BCU**.
10. Did **FAIL** indicators on **BCU** and **ADU** go off after approximately 20 seconds?

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

If **NO**, then continue with Step 11.

11. Replace **BCU** with **BCU** removed previously.

12. Has **ADU** been replaced?

If **YES**, then continue with Step 13.

If **NO**, then proceed to Step 14.

13. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 3 after locating and correcting problem.

14.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU**.

Reference: **DLP-506**

15. Did **FAIL** indicators on **BCU** and **ADU** go off after approximately 20 seconds?

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

If **NO**, then continue with Step 16.

16.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously.

17. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 3 after locating and correcting problem.

INSTALL EQUIPPED OPTION IN ADU (ALARM DISPLAY UNIT)

1. Remove **AUB6 ADU**.

2.  **NOTE:**
Switch positions **1** and **2** on **ADU** option switch should not be moved during this procedure.

On **ADU (AUB6)** option switch **S1** (FIG. 1) depress switch position **5** toward **ABE** and switch position **6** toward **CDE**.

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

Reinstall **ADU** into **ADU** slot.

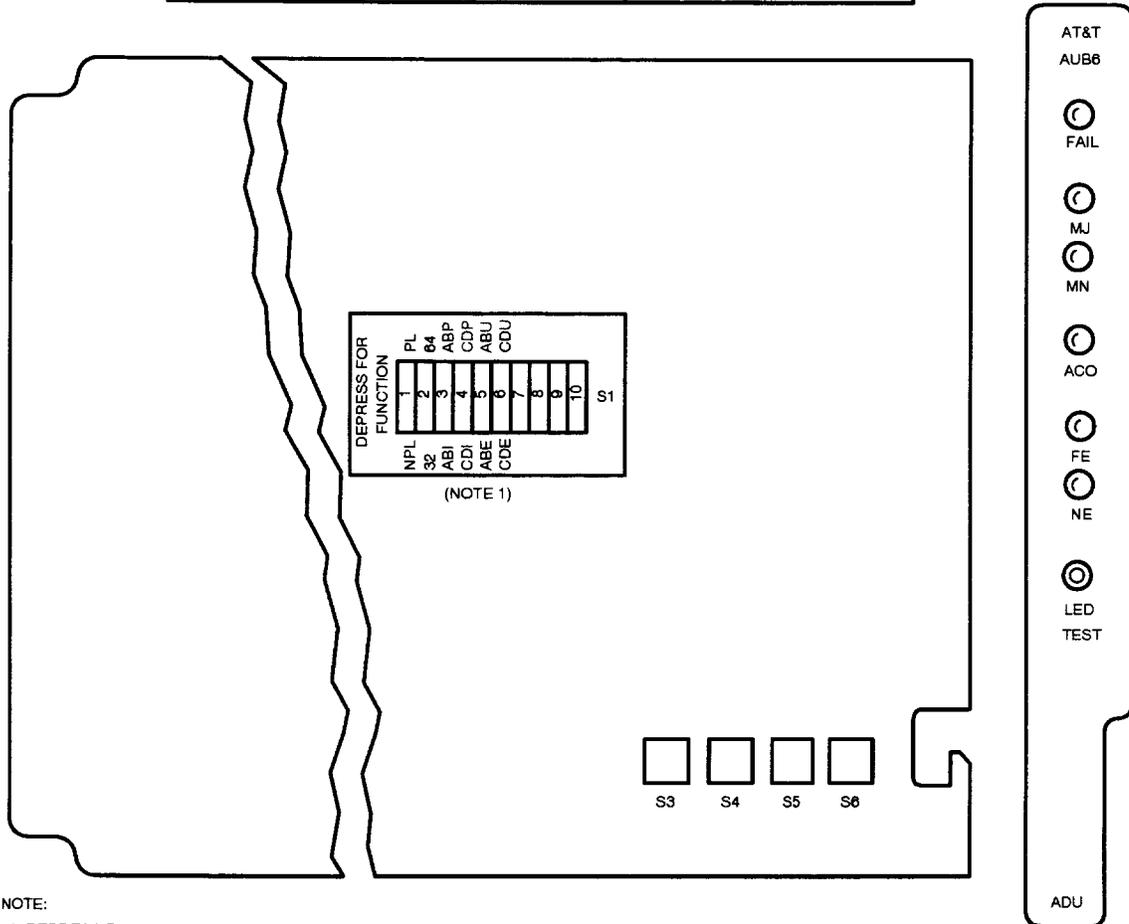
4. After approximately 15 seconds, are **FAIL**, **MN**, and **NE** indicators on **ADU** lighted and MN (minor) alarm activated?

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

If **NO**, then continue with Step 5.

5. Replace **BCU**.

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. DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 1 — COT AUB6 ADU Options

6. After approximately 15 seconds, are **FAIL**, **MN**, and **NE** indicators on **ADU** lighted and MN alarm activated?

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

If **NO**, then continue with Step 7.

7. Replace **BCU** with **BCU** removed previously.
8. Remove **ADU** and check settings of switches (FIG. 1) per work order.
9. Are switch settings correct?

If **YES**, then continue with Step 10.

If **NO**, then proceed to Step 12.

10. Get another **ADU** and set option switches to agree with option switch settings on **ADU** being removed.

11.



CAUTION:

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

Insert **ADU** into **ADU** slot in bank being equipped.

Response: After approximately 15 seconds, **FAIL**, **MN**, and **NE** indicators on **ADU** are lighted and MN alarm is activated.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

12. Set switches on option switch to correct position and repeat from Step 11.

INSTALL AND TEST POWER CONVERTER UNITS IN BLUE AND/OR WHITE AB SHELVES

SUMMARY:

Install **PCU** (power converter unit) in both Blue and White AB shelves and verify that **FAIL** indicators go off and remain off. Measure -42 to -56 V DC at each **PCU** faceplate.

1. Get one **PCU** (**AUA11**, **AUA11B**, or **AUA11C**) and inspect for possible damage.
2. Insert **PCU** into AB (lower) shelf **PCU** slot of Blue or White channel bank.

Response: **MN**, **NE**, and **FAIL** indicators on respective **ADU** are lighted. **PCU FAIL** indicator is off.

3. Is **PCU FAIL** indicator off?

If **YES**, then proceed to Step **10**.
If **NO**, then continue with Step **4**.

4. Remove **PCU**.
5. Obtain a replacement **PCU**.
6. Insert replacement **PCU** into lower shelf **PCU** slot.

7. Does **FAIL** indicator on **PCU** go off and remain off?

If **YES**, then proceed to Step **10**.
If **NO**, then continue with Step **8**.
8. Replace **PCU** with **PCU** removed previously.
9. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step **3** after locating and correcting problem.
10. Condition DMM to measure volts DC.
11. On **PCU** faceplate, connect DMM test leads to **GND** jack and **-48** jack.
12. Does DMM indicate between **-42** and **-56** volts?

If **YES**, then proceed to Step **22**.
If **NO**, then continue with Step **13**.
13. Verify that wiring from power shelf to **PCU** in AB shelf is present and connected properly.
14. Is wiring present and connected properly?

If **YES**, then proceed to Step **16**.
If **NO**, then continue with Step **15**.
15. Resolve problems through local procedures. Repeat procedure from Step **6** after locating and correcting trouble.
16. Replace **PCU**.

17. Does **FAIL** indicator on **PCU** go off and remain off?

If **YES**, then continue with Step **18**.

If **NO**, then return to Step **4**.

18. On **PCU** faceplate, connect DMM test leads to **GND** jack and **-48** jack.

19. Does DMM indicate between **-42** and **-56** volts?

If **YES**, then proceed to Step **22**.

If **NO**, then continue with Step **20**.

20. Replace **PCU** with **PCU** removed previously.

21. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step **3** after locating and correcting problem.

22. Disconnect DMM test leads.

23. Is **PCU** to be installed in remaining White or Blue AB (lower) shelf of channel bank?

If **YES**, then return to Step **1**.

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

INSTALL TRU (TRANSMIT/RECEIVE UNIT) IN AB SHELF

1. Get one **TRU (AUA1)** and inspect for possible damage.
2. While observing indicators on **TRU** faceplate, insert **TRU** into **TRU** slot located in AB (lower) shelf of channel bank.

Response: **TRU FAIL** indicator lights momentarily, **ADU MJ** and **NE** indicators lighted and **DIGROUP A, B** indicators on **BCU** lighted. **DIGROUP C, D** indicators on **BCU** will also be lighted if CD digroups are in pre-service/equipped state.

3. Press **ACO** button on **AIU**.

Response: MJ alarm is cleared. **ACO, MJ,** and **NE** indicators on **ADU** and **DIGROUP A, B** indicators on **BCU** are lighted (**DIGROUP C, D** indicators on **BCU** will also be lighted if CD digroups are in pre-service/equipped state).

4. Did **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then proceed to Step 17.
If **NO**, then continue with Step 5.

5. Replace **TRU** in AB shelf.
6. While observing indicators on **TRU** faceplate, insert **TRU** into **TRU** slot located in AB (lower) shelf of channel bank.

Response: **TRU FAIL** indicator lights momentarily, **ADU MJ** and **NE** indicators are lighted and **DIGROUP A, B** indicators on **BCU** lighted. **DIGROUP C, D** indicators

on **BCU** will also be lighted if CD digroups are in pre-service/equipped state.

7. Does **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then proceed to Step **16**.

If **NO**, then continue with Step **8**.

8. Remove **ADU** and check option switch **S2** for correct settings.

Reference: **DLP-504**

9. Are option switch settings on **ADU** correct?

If **YES**, then proceed to Step **12**.

If **NO**, then continue with Step **10**.

10. Change **ADU** option switch(es) to correct position and reinsert **ADU** into **ADU** slot.

11. Replace **TRU** with **TRU** removed previously while observing indicators on **TRU** faceplate and repeat from Step **2**.

- 12.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with a correctly optioned **ADU**.

Reference: **DLP-504**

13. Replace **TRU** with **TRU** removed previously while observing indicators on **TRU** faceplate.

14. Does **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then proceed to Step **16**.
If **NO**, then continue with Step **15**.

- 15.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously and check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step **2** after locating and correcting trouble.

16. Did **FAIL** indicator on **TRU** light momentarily?

If **YES**, then proceed to Step **22**.
If **NO**, then continue with Step **17**.

17. Replace **TRU** while observing indicators on **TRU** faceplate.

18. Does **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then continue with Step **19**.
If **NO**, then return to Step **6**.

19. Did **FAIL** indicator on **TRU** light momentarily?

If **YES**, then proceed to Step **22**.
If **NO**, then continue with Step **20**.

20. Replace **TRU** with **TRU** removed previously while observing indicators on **TRU** faceplate.

21. Check wiring between **PCU** and **TRU** using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step **2** after locating and correcting trouble.

22. Is **FAIL** indicator on **BCU** off?

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

If **NO**, then continue with Step **23**.

23. Replace **BCU**.

24. After approximately 14 seconds, is **FAIL** indicator on **BCU** off?

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

If **NO**, then continue with Step **25**.

25. Replace **BCU** with **BCU** removed previously.

26. Replace **TRU** in AB shelf while observing indicators on **TRU** faceplate and repeat from Step **2**.

INSTALL AUA61D LIU (LINE INTERFACE UNIT)

SUMMARY:

Set option switches located on side of **LIU** circuit board. Insert **LIU** into facility shelf in appropriate **LIU** slot. Verify that **FAIL** indicator on **LIU** lights momentarily and then goes off and remains off.

1.



CAUTION:

Incorrectly set LIU option switches may introduce errors into the digital bitstream. All LIUs in the same bank should have identical option switch settings.

Get one **AUA61D LIU** (FIG. 1) and inspect for possible damage.

2. Using orange stick (KS-6320, L1) or equivalent, set equalizer switches on **LIU AUA61D** per work order (Table A).

TABLE A AUA61() LIU EQUALIZER SETTINGS			
DISTANCE TO DSX-1 (FEET)	EQUALIZER SWITCH (S400/S2) SETTING		
	2	1	0
0-132	OFF	OFF	ON
133-265	OFF	ON	OFF
266-398	OFF	ON	ON
399-532	ON	OFF	OFF
533-655	ON	OFF	ON

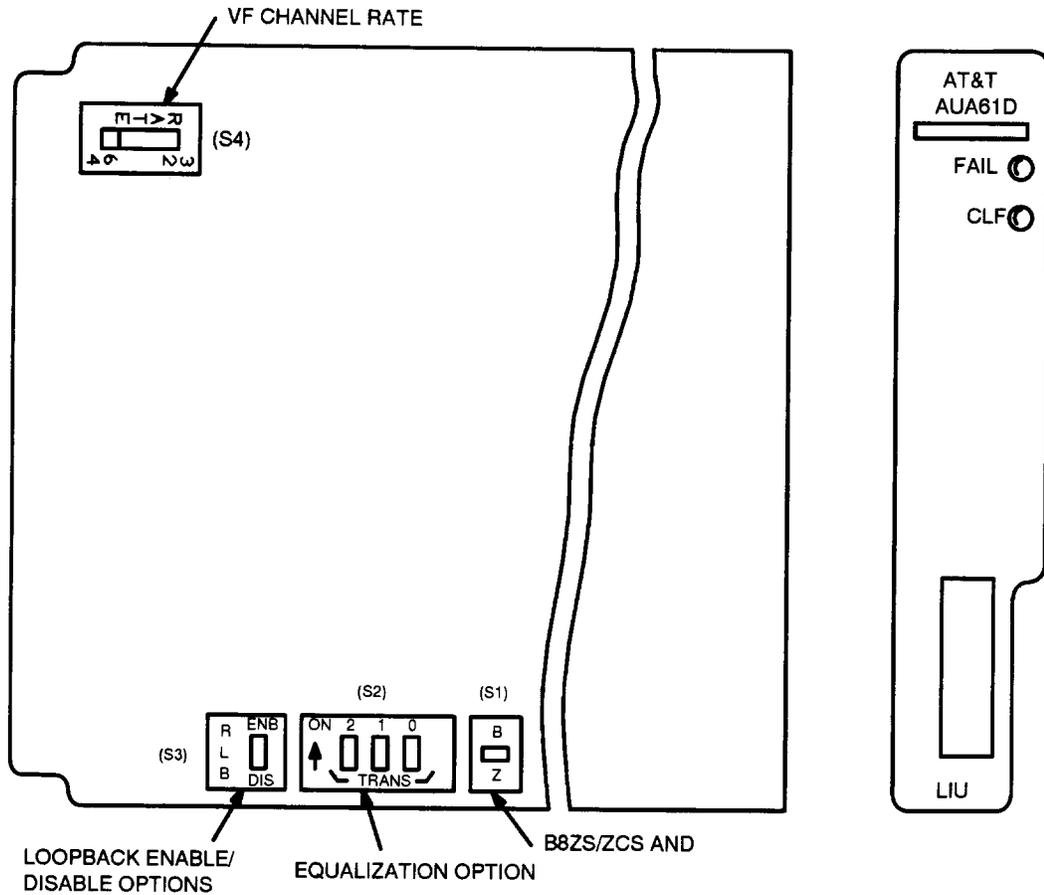


Figure 1 — AUA61D LIU Option Switches

3. Set loopback enable/disable switch (S3) to **DIS** and **B8ZS/ZCS** switch (S1) to **Z**.

4. Set channel PCM-rate switch (**S4**) to **64**.

5.



NOTE 1:

Read this Step completely before inserting LIU. TABLE B lists alarm indicators that are present after the LIU has been installed. These alarm indicators are listed on the same row as the LIU to be installed.

TABLE B STATUS INDICATORS FOR DIGROUPS A,B,C, AND D						
LIU TO BE INSTALLED	ADU INDICATORS		BCU INDICATORS			
	MJ	NE	A	B	C	D
LIU-A	on	on	off	on	on	on
LIU-B	on	on	off	off	on	on
LIU-C	on	on	off	off	off	on
LIU-D	off	off	off	off	off	off



NOTE 2:

After installing **LIU** if the associated **DIGROUP(s)** indicator(s) on **BCU** does not go out, verify that option switch settings on **ADU** and **LIU** are correct.

Insert **LIU** into appropriate slot in facility shelf (left side for blue bank or right side for white bank) while observing indicators on **LIU** faceplate. See TABLE B for alarm indicators that change when the LIU is installed.

Response: **LIU FAIL** indicator lights momentarily then goes off, and the associated **DIGROUP(s)** indicator(s) on **BCU** go off.

Comment: If the **LIU FAIL** indicator does not go off, press and hold the **ADU LED TEST** button. If the **LIU FAIL** indicator goes off while the button is pressed, the circuit pack is not compatible with the channel bank application. Get the correct code circuit pack and verify **ADU** option switches are correct.

6. Did **FAIL** indicator on **LIU** light momentarily?

If **YES**, then proceed to Step **19**.

If **NO**, then continue with Step **7**.

7. Replace **LIU** with correctly optioned **LIU** while observing **FAIL** indicator on **LIU** faceplate.

8. Did **FAIL** indicator on **LIU** light momentarily?

If **YES**, then proceed to Step **19**.

If **NO**, then continue with Step **9**.

9. Replace **TRU** associated with LIU. (TRU in AB shelf for LIUs A or B. TRU in CD shelf for LIU C or D.)

10. Replace **LIU** with **LIU** removed previously while observing **FAIL** indicator on **LIU** faceplate.

11. Did **FAIL** indicator on **LIU** light momentarily?

If **YES**, then proceed to Step 19.
If **NO**, then continue with Step 12.

12. Unseat **LIU**.

13. Replace **TRU** with **TRU** removed previously.

14.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with a correctly optioned **ADU**.

References: **DLP-502, DLP-504**

15. Reseat **LIU** while observing **FAIL** indicator on **LIU** faceplate.

16. After approximately 20 seconds, did **FAIL** indicator on **LIU** light momentarily?

If **YES**, then proceed to Step 19.
If **NO**, then continue with Step 17.

17.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously.

18. Check wiring between **PCU** in AB shelf and **LIU** using SD-7C117-01 or SD-7C117-02. Repeat procedure from Step 14 after locating and correcting trouble.

19. Did **FAIL** indicator on **LIU** go off and remain off?

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

If **NO**, then continue with Step 20.

20. Remove and reinsert **ADU**.

21. Did **FAIL** indicator on **LIU** go off and remain off?

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

If **NO**, then continue with Step 22.

22. Replace **LIU** with correctly optioned **LIU** while observing **FAIL** indicator on **LIU** faceplate.

23. Did **FAIL** indicator on **LIU** go off and remain off?

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

If **NO**, then continue with Step 24.

24. Replace **LIU** with **LIU** removed previously.

25. Check wiring using SD-7C117-01 or SD-7C117-02. Repeat procedure from Step 7 after locating and correcting trouble.

INSTALL AND TEST PCU (POWER CONVERTER UNIT) IN CD SHELF

SUMMARY:

Install **PCU** in CD shelf and verify that **FAIL** indicator goes off and remains off.
Measure -42 to -56 V DC at **PCU** faceplate.

1. Get one **PCU** (**AUA11**, **AUA11B**, or **AUA11C**) and inspect for possible damage.

2. Are digroups A and B presently in service?

If **YES**, then continue with Step 3.

If **NO**, then proceed to Step 4.

3. Insert **PCU** into **PCU** slot in CD (upper) shelf of channel bank.

Response: **FAIL**, **ACO**, **MJ**, and **NE** indicators on **ADU** and **DIGROUP C** and **D** indicators on **BCU** are lighted. **FAIL** indicator on **PCU** should be off.

Proceed to Step 5.

4. Insert **PCU** into **PCU** slot in CD (upper) shelf of channel bank.

Response: **ACO**, **MJ**, and **NE** indicators on **ADU** and **DIGROUP C**, **D** indicators on **BCU** are lighted. **FAIL** indicator on **PCU** should be off.

5. Does **FAIL** indicator on **PCU** go off and remain off?

If **YES**, then proceed to Step 10.

If **NO**, then continue with Step 6.

6. Replace **PCU**.
7. Does **FAIL** indicator on **PCU** go off and remain off?

If **YES**, then proceed to Step **10**.
If **NO**, then continue with Step **8**.
8. Replace **PCU** with **PCU** removed previously.
9. Use SD-7C115-01 or SD-7C115-02 to check wiring. Repeat procedure from Step **2** after locating and correcting trouble.
10. Condition DMM to measure volts DC.
11. On **PCU** faceplate, connect DMM test leads to **GND** jack and **48** jack.
12. Does DMM indicate between -42 and -56 volts?

If **YES**, then proceed to Step **22**.
If **NO**, then continue with Step **13**.
13. Verify that wiring from power shelf to **PCU** in facility shelf is present and connected properly.
14. Is wiring present and properly connected?

If **YES**, then proceed to Step **16**.
If **NO**, then continue with Step **15**.
15. Resolve problem through local procedures. Repeat procedure from Step **2** after trouble is located and corrected.
16. Replace **PCU**.

17. Does **FAIL** indicator on **PCU** go off and remain off?

If **YES**, then continue with Step **18**.

If **NO**, then proceed to Step **4**.

18. On **PCU** faceplate, connect DMM test leads to **GND** jack and **48** jack.

19. Does DMM indicate between -42 and -56 volts?

If **YES**, then proceed to Step **22**.

If **NO**, then continue with Step **20**.

20. Replace **PCU** with **PCU** removed previously.

21. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step **2** after locating and correcting trouble.

22. Disconnect DMM test leads.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

INSTALL TRU (TRANSMIT/RECEIVE UNIT) IN CD SHELF

1. Get one **TRU (AUA1)** and inspect for possible damage.
2. While observing indicators on **TRU** faceplate, insert **TRU** into **TRU** slot located in CD (upper) shelf of channel bank.

Response: **TRU FAIL** indicator lights momentarily; **ACO, MJ,** and **NE** indicators on **ADU** and **DIGROUP C, D** indicators on **BCU** are lighted.
3. Does **FAIL** indicator on **TRU** go off?

If **YES**, then proceed to Step 17.
If **NO**, then continue with Step 4.
4. Remove and then reinsert **ADU**.
5. Does the **FAIL** indicator on **TRU** go off after approximately 15 seconds?

If **YES**, then proceed to Step 17.
If **NO**, then continue with Step 6.
6. Replace **TRU** in CD shelf while observing indicators on **TRU** faceplate.
7. Does **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then proceed to Step 17.
If **NO**, then continue with Step 8.
8. Remove **ADU** and verify that option switches are set correctly.

Reference: **DLP-508**

9. Are option switches on **ADU** set correctly?

If **YES**, then proceed to Step **12**.
If **NO**, then continue with Step **10**.

10. Change option switches on **ADU** to correct settings.

11. Wait 20 seconds then replace **TRU** with **TRU** removed previously and repeat from Step **2**.

12. Replace **TRU** with **TRU** removed previously while observing indicators on **TRU** faceplate.

- 13.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with a correctly optioned **ADU**.

14. Does **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then proceed to Step **17**.
If **NO**, then continue with Step **15**.

- 15.



CAUTION:

Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously.

16. Check wiring using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 2 after locating and correcting trouble.
17. Did **FAIL** indicator on **TRU** light momentarily?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
If **NO**, then continue with Step 18.
18. Replace **TRU** in CD shelf while observing indicators on **TRU** faceplate.
19. Did **FAIL** indicator on **TRU** go off and remain off?

If **YES**, then continue with Step 20.
If **NO**, then proceed to Step 4.
20. Did **FAIL** indicator on **TRU** light momentarily?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
If **NO**, then continue with Step 21.
21. Replace **TRU** with **TRU** removed previously while observing indicators on **TRU** faceplate.
22. Check wiring between **PCU** and **TRU** on CD shelf using SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 2 after locating and correcting trouble.

PERFORM COT INDICATOR TEST

1. Press and hold **LED TEST** pushbutton on **ADU**.
2. Are all indicators listed in TABLE A lighted?

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

If **NO**, then continue with Step 3.

TABLE A	
UNIT	INDICATOR LIGHTED
LIU	ALL INDICATORS
TRU	ALL INDICATORS
BCU	ALL INDICATORS
ADU	ALL INDICATORS

3. Are any indicators lighted?

If **YES**, then continue with Step 4.

If **NO**, then proceed to Step 5.

- 4.



CAUTION:

When replacing circuit packs in COT assembly that contain option switches, verify that option switch settings on replacement unit agree with facility or engineering records. Incorrectly set ADU or LIU option switches may introduce errors into the digital bitstream.

Replace unit(s) that contain indicators that do not light and repeat from Step 1.

5. Replace **BCU**.
6. Press and hold **LED TEST** pushbutton on **ADU**.
7. Are all indicators listed in TABLE A lighted?

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

If **NO**, then continue with Step 8.

8. Are any indicators lighted?

If **YES**, then return to Step 4.

If **NO**, then continue with Step 9.

9. Replace **BCU** with **BCU** removed previously.

10.



CAUTION:

When replacing circuit packs in COT assembly that contain option switches, verify that option switch settings on replacement unit agree with facility or engineering records. Incorrectly set ADU or LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.

Replace **ADU**.

11. Press and hold **LED TEST** pushbutton on **ADU**.

12. Are all indicators listed in TABLE A lighted?

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

If **NO**, then continue with Step 13.

13. Are any indicators lighted?

If **YES**, then return to Step 4.

If **NO**, then continue with Step 14.

- 14.



CAUTION:

When replacing circuit packs in COT assembly that contain option switches, verify that option switch settings on replacement unit agree with facility or engineering records. Incorrectly set ADU or LIU option switches may result in immediate or future loss of service or may introduce errors into the digital bitstream.

Replace **ADU** with **ADU** removed previously.

15. Refer to SD-7C115-01 or SD-7C115-02. Repeat procedure from Step 1 after locating and correcting trouble.

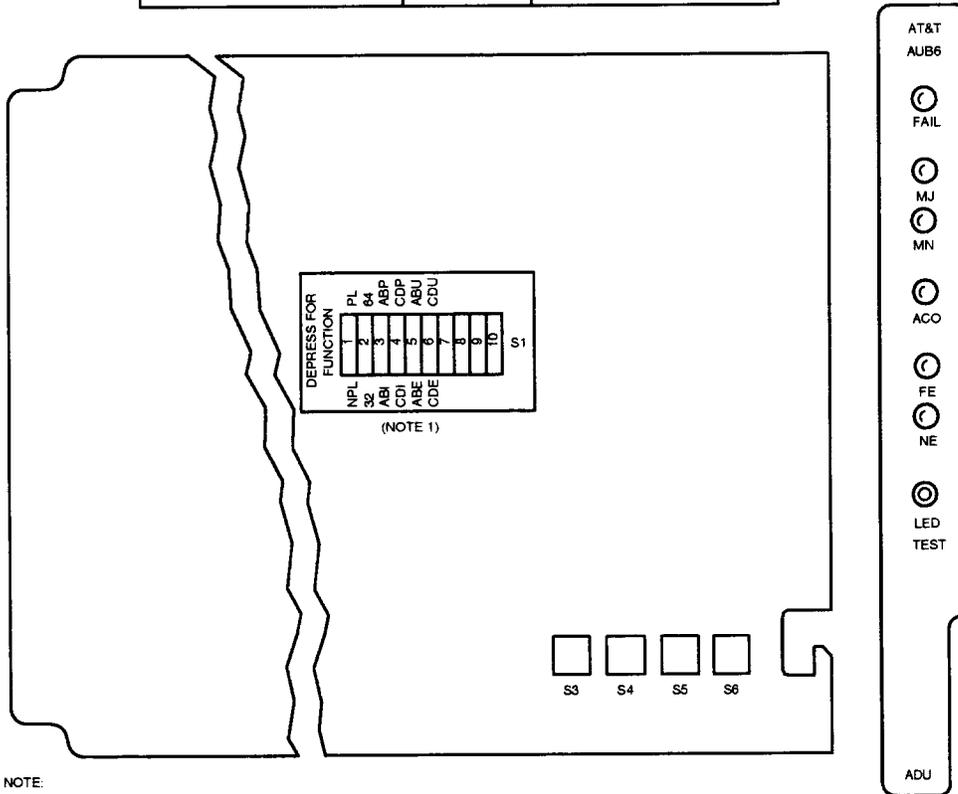
DSX CROSS-CONNECT LOOP-BACK TEST

1.  **NOTE:**
This loop-back test is performed on all four digital lines and associated digroups A, B, C, and D.

At DSX cross-connect, locate **IN** and **OUT** jacks associated with digital lines from COT digroups.
2. Insert jumper plugs between **IN** and **OUT** jacks on four digital lines being tested.
3. Remove **ADU**(s) from bank(s) being equipped.
4. On **AUB6 ADU** option switch **S1**, depress switch position **3** toward **ABI**, switch position **4** toward **CDI**, switch position **5** toward **ABE**, and switch position **6** toward **CDE** (FIG. 1).
5.  **CAUTION:**
Incorrectly set ADU option switches may introduce errors into the digital bitstream.

Reinsert **ADU**(s) into **ADU** slot(s).

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. DEPRESS THE ROCKER-TYPE SWITCH TOWARD THE DESIRED FUNCTION

Figure 1 — COT AUB6 ADU Options

6. Is **FAIL**, **MN**, and **NE** indicators on **ADU**(s) and **FAIL** indicator on **BCU**(s) lighted and, after approximately 25 seconds, are **MN** and **FE** indicators on **ADU**(s) lighted.

If **YES**, then continue with Step 7.
If **NO**, proceed to Step 9.

7. Is **CLF** indicator(s) on any **LIU**(s) lighted?

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

8. Check wiring between **LIU**(s) with lighted **CLF** indicator and DSX cross-connect. After locating and correcting trouble (**CLFs** OFF) proceed to Step 10.

9. Remove all patch cords at DSX cross-connect.

Response: **MJ**, **NE** indicators light on **ADU**; **A**, **B**, **C**, **D**, indicators light on **BCU**.

10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

SET OPTION SWITCHES ON DCU (DIGITAL CONNECTIVITY UNIT)

1. Get one digital connectivity unit - left (**DCU-L**) (**AUA16**) and inspect for possible damage.
2. On **DCU-L** option switch **S100** (FIG. 1), set option switch **D/F** to the **D** position and option switch **B/Z** to the **Z** position.
3. On **DCU-L** option switch **S400** (FIG. 1), set switches **0**, **1**, and **2** to agree with distance to DSX (most likely **OFF, OFF, ON**).
4. Repeat this procedure for units in each di-group.

STOP. YOU HAVE COMPLETED THIS PROCEDURE

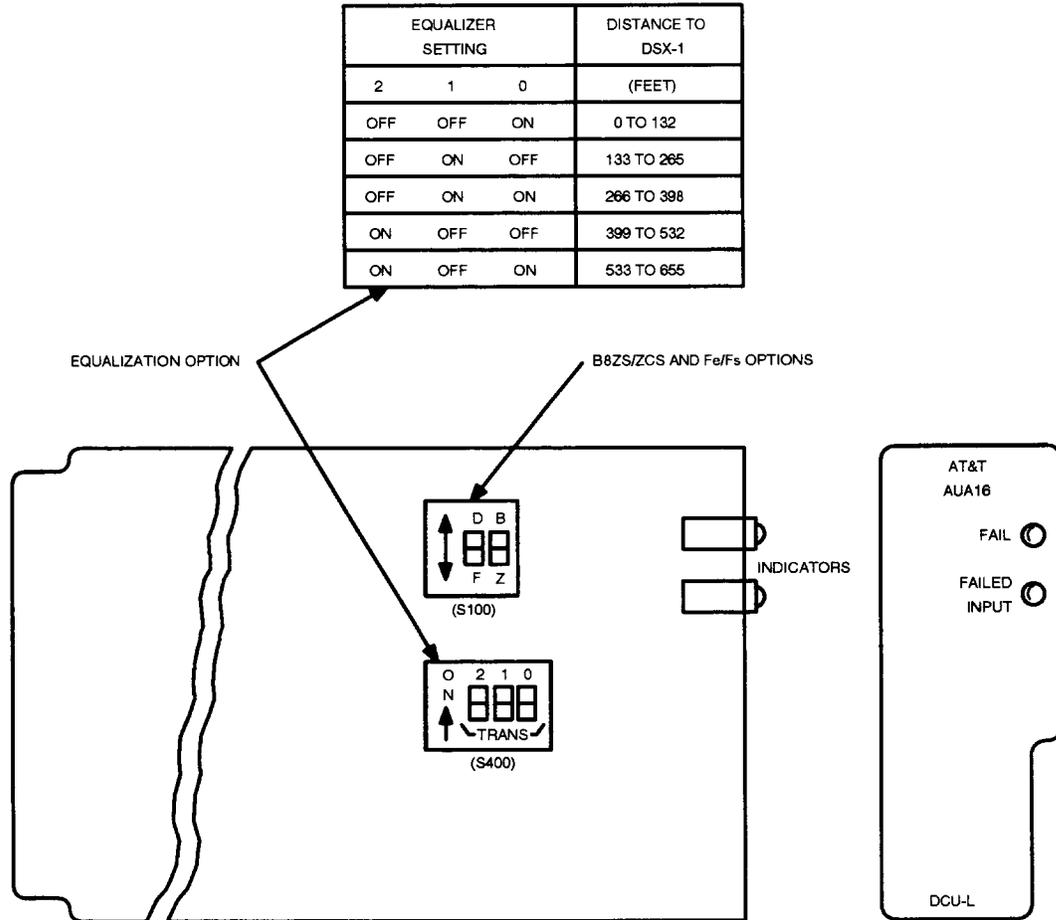


Figure 1 — AUA16 DCU-L Option Switches

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Document Number: 363-205-108 Issue Number: 1 Publication Date: June 1991

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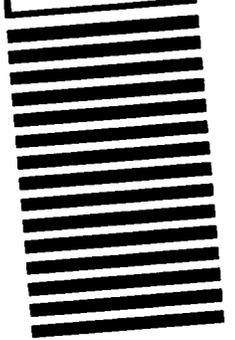
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