Lucent Technologies
Bell Labs Innovations

Service Circuit System (SCS) Maintenance

4ESS™ Switch

234-151-077AC
Issue 7
June 1999

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Preface

How to Use This Document

Detailed instructions on how to use this document are provided on procedure TNG-893 located in the back of this document.

Application

This document provides step-by-step instructions for clearing troubles that may occur in the Service Circuit System (SCS). This document also covers some of the routine tasks and preventive maintenance procedures that must be performed for proper SCS operation.

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FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
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CDSU-II - Replace BYC51 Card	DLP-553
CDSU-II - Replace AYC52 Card	DLP-554
CDSU-II - Replace AYC53 Card	DLP-555
CDSU-II - Replace Fan Filter	DLP-564
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Clear Announcement Compare Audit Failure	TAP-111
Clear Diagnostic Failure at Service Circuit Controller (SCC) by Analyzing Raw Data and Replacing Any Suspect Packs	TAP-105
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Clear Diagnostic Failure of Service Circuit Controller (SCC), Service Circuit Unit (SCU), or Interface to Peripheral Unit Bus (IPUB) by Replacing Packs on Trouble-Locating Procedure (TLP) Suspected Equipment List	TAP-106
Clear Fan System Trouble - Fan LED Lighted on SCCC or SCUC Cabinet	TAP-145
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Replace Alarm Board in Fuse and Filter Panel in Service Circuit Controller (SCC) or Service Circuit Unit (SCU) Cabinets	DLP-576
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Replace Fan Filter in the CDSU-I	DLP-547
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FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
REPT:BASE LEVEL MAINT (CDSU-I Related) - Analyze	TAP-142
REPT:BASE LEVEL MAINT (CDSU-II Related) - Analyze	TAP-143
REPT:F-LEVEL INTERRUPT - Analyze	TAP-109
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Verify Number of Equipped CDSUs in the SCS Unit Type Translator	DLP-540
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Verify a System File on a Hard Disk	DLP-531
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Write Backup 1B Processor ODA Tape	DLP-567

Acceptance

When a Service Circuit System (SCS) is installed at a site, the installation group does adequate testing to assure that the system is operating properly. Since acceptance tests would only be a duplication of the installation procedures, and serve no beneficial purpose, they have been excluded from this document.

Routine Preventive Maintenance

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1.	Every 180 days — Test power control circuit pack lamps	DLP-527
2.	Every 180 days — Change fan unit filters in SCC cabinet and SCU Cabinet	DLP-521
3.	Every 180 days — Change fan filters in CDSU-I	DLP-547
4.	Every 180 days — Change fan filters in CDSU-II	DLP-564

Maintenance Philosophy

General

The maintenance philosophy contained in this manual is based on the design of the equipment (hardware), diagnostic software, and test equipment employed. Procedures are intended to aid personnel in performing trouble-clearing tasks. The degree to which these procedures accomplish this depends on input and feedback from the user. Additions, corrections, and improvements to the data are encouraged. Manufacturer, engineering, and software documentation, such as Input/Output (I/O) manuals, Schematic Drawings (SDs), and so forth, are referenced where applicable rather than duplicating that information in the Task Oriented Practice (TOP). Some portions of those documents may be used in procedures but only as examples for the purpose of explanation. Test equipment (oscilloscopes, voltmeters, and so forth) and parameters involved in circuits being tested, adjusted, or checked are usually prescribed. However, the setup and method of operation are not described unless they are unusual or unique in some manner.

Service Circuit System (SCS) Maintenance Procedure

In this document, certain assumptions are made. It is assumed that the system was installed correctly and that the system was operational when a trouble occurred. It is assumed that one trouble is being cleared at a time. When directing the user to perform an action, it is assumed that the user performs that action correctly. Similarly, when directed to make replacements, the replacement part is always assumed to be good. Equipment used for testing, both built-in (hardware and software) and commercial, are assumed to be good.

Simple, traditional troubleshooting methods still have a valid place in maintaining a system as advanced as the SCS. These methods are sometimes sufficient to locate and clear troubles. The traditional methods include visual inspections, continuity checks, and clarification of system operation.

This document provides step-by-step procedures on clearing troubles that may occur in the SCS. It is assumed that the system has alerted the technician to a possible failure by generating an alarm and a printed error report.

Power problems in the SCS are sensed by scan points which generate alarms. It is assumed that the technician can locate the frame with power trouble which was automatically powered down by locating the **PA** Light Emitting Diode (LED) that is lighted or by reading the Power Alarm printout which would identify the frame or unit with a power trouble.

Equipment failures are detected by the maintenance software that performs routine diagnostic checks on all units in the SCS which also generates an alarm.

The SCS allows diagnostic maintenance procedures to be performed on the failing unit. This consists of executing a `DGN` command and selecting the Trouble-Locating Procedure (TLP) option.

When a trouble cannot be solved by normal circuit pack or equipment replacement, then the technician will have to resort to more difficult types of trouble clearing, such as signal tracing. These types of maintenance activities are not covered in this document and must be performed with the help of a higher level of technical assistance.

Routine Tasks

This document also covers some of the routine tasks and preventive maintenance procedures that the technician needs to perform for proper SCS operation.

SCS Illustrations

The following illustrations are provided to show a general overview of the SCS and to serve as aids for the maintenance procedures in this document:

- SCS Interface (Figure 1)
- SCC Cabinet (J4A024A-1) — Equipment Identification (Figure 2)
- SCC Unit — Circuit Pack Locations (Figure 3)
- Fuse and Filter Panel for the SCC (Figure 4)
- Optical Cable Connectors at Rear of Optical Cross-Connect Panel (Figure 5)
- SCU Cabinet (J4A024A-1) — Equipment Identification (Figure 6)
- SCU Circuit Pack Locations (Figure 7)
- Fuse and Filter Panel for the SCU (Figure 8)
- Power Circuit Pack Buttons and Lamps (Figure 9)
- Custom Data Services Cabinet (CDSC-I) (J4A024C-1) (Figure 10)
- Fuse and Filter Panel for the CDSC-I (Figure 11)

- Custom Data Service Unit (CDSU-I) (Front View) (Figure 12)
- CDSU-I (Rear View) (Figure 13)
- CDSU-I (Top View) (Figure 14)
- CDSU-I Control Panel (Figure 15)
- SCU/CDSU-I/AAP Connections (Figure 16)
- Custom Data Services Cabinet (CDSC-II) (J4A024C-1) (Figure 17)
- Fuse and Filter Panel for the CDSC-II (Figure 18)
- Custom Data Service Unit (CDSU-II) (Front View) (Figure 19)
- CDSU-II (Rear View) (Figure 20)
- CDSU-II (Top View) (Figure 21)
- CDSU-II Control Panel (Figure 22)
- SCU/CDSU-II/AAP Connections (Figure 23)

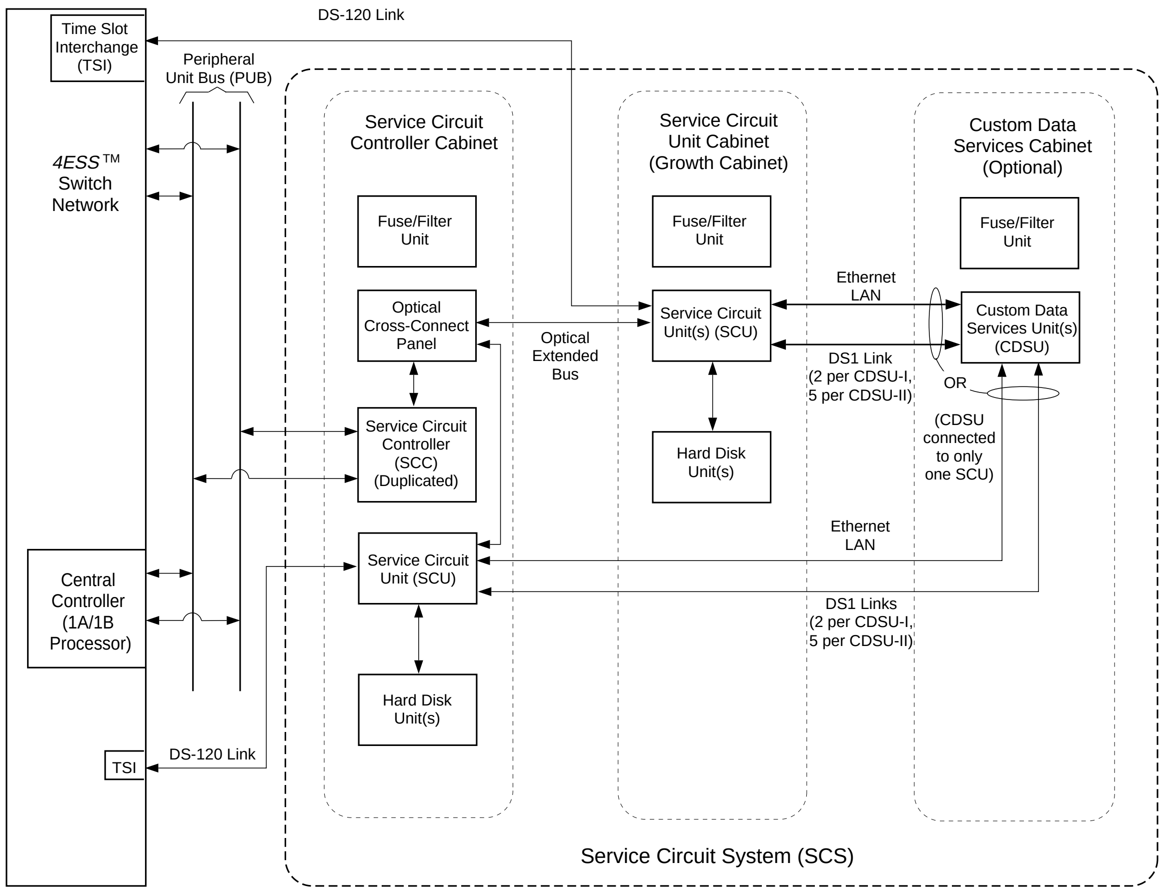


Figure 1. SCS Interface

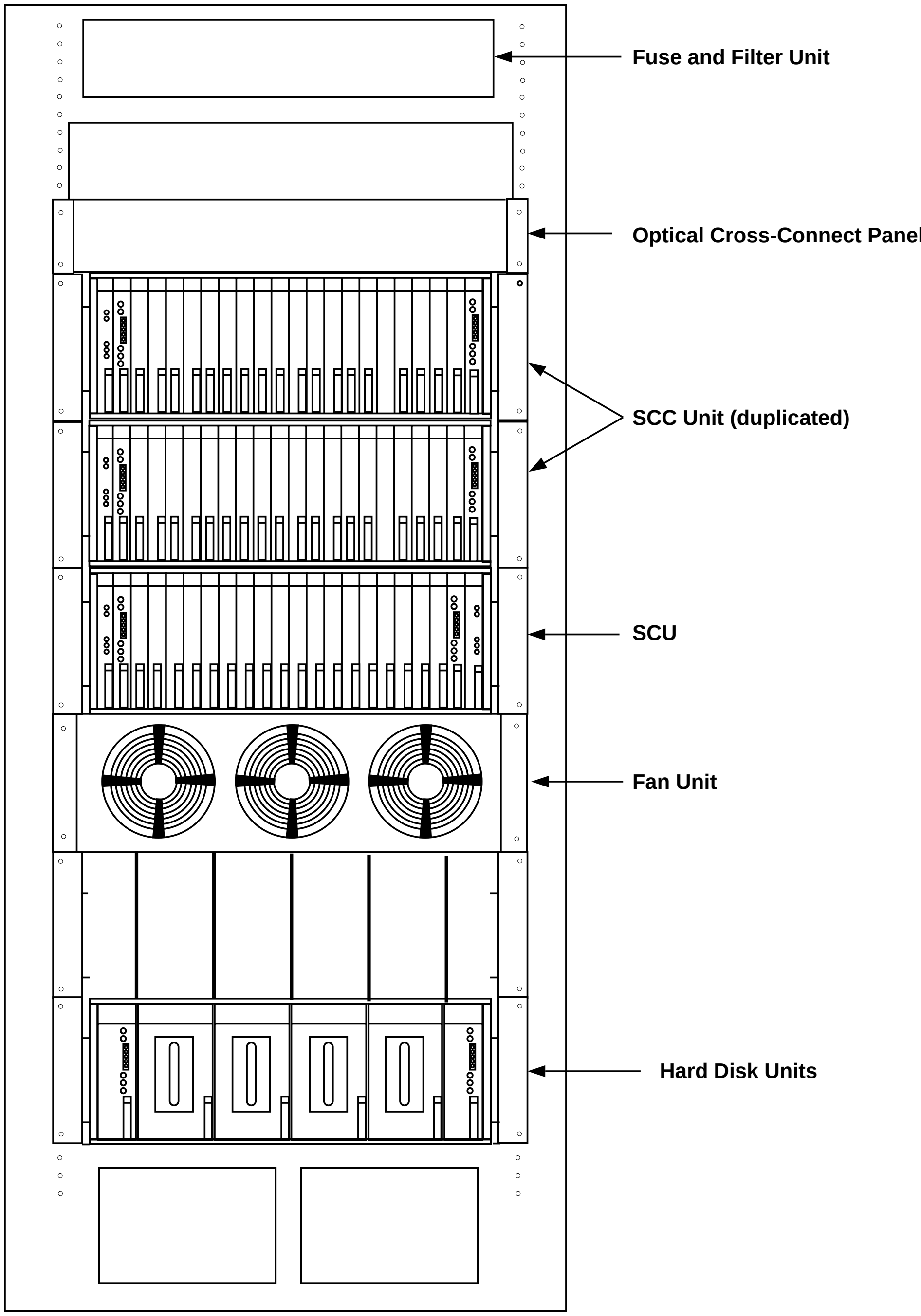


Figure 2. SCC Cabinet (J4A024A-1) — Equipment Identification

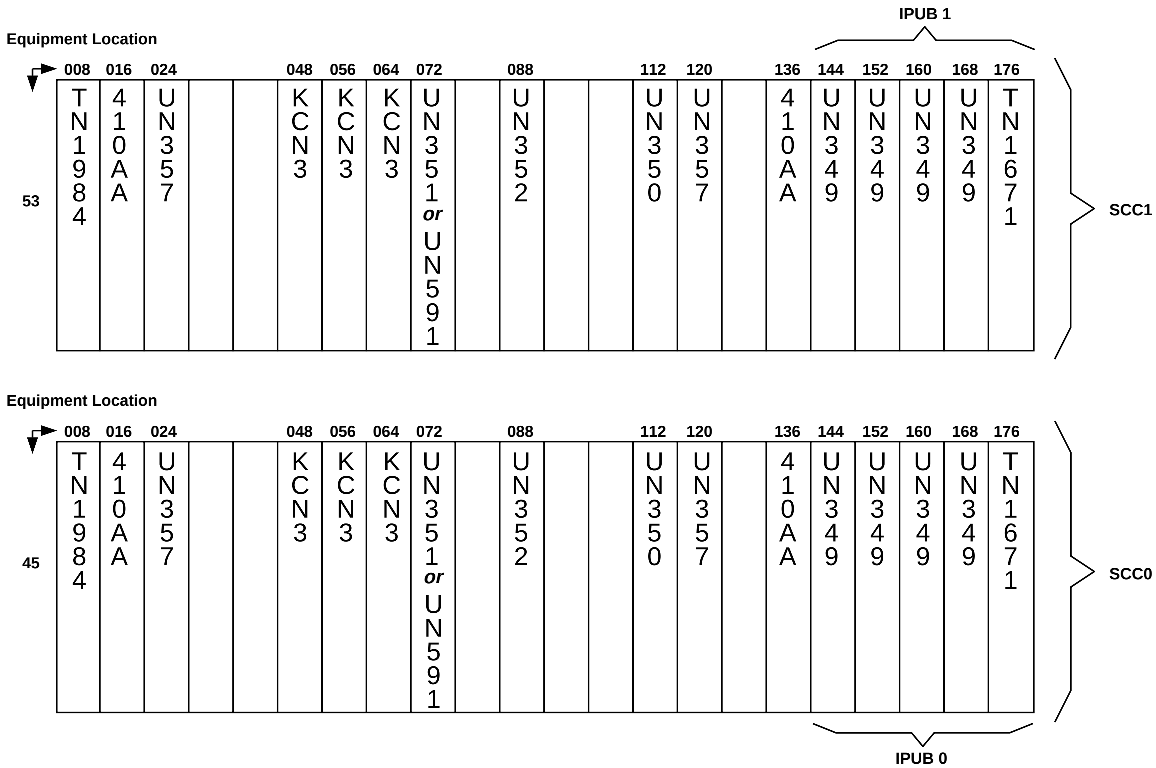


Figure 3. SCC Unit - Circuit Pack Locations

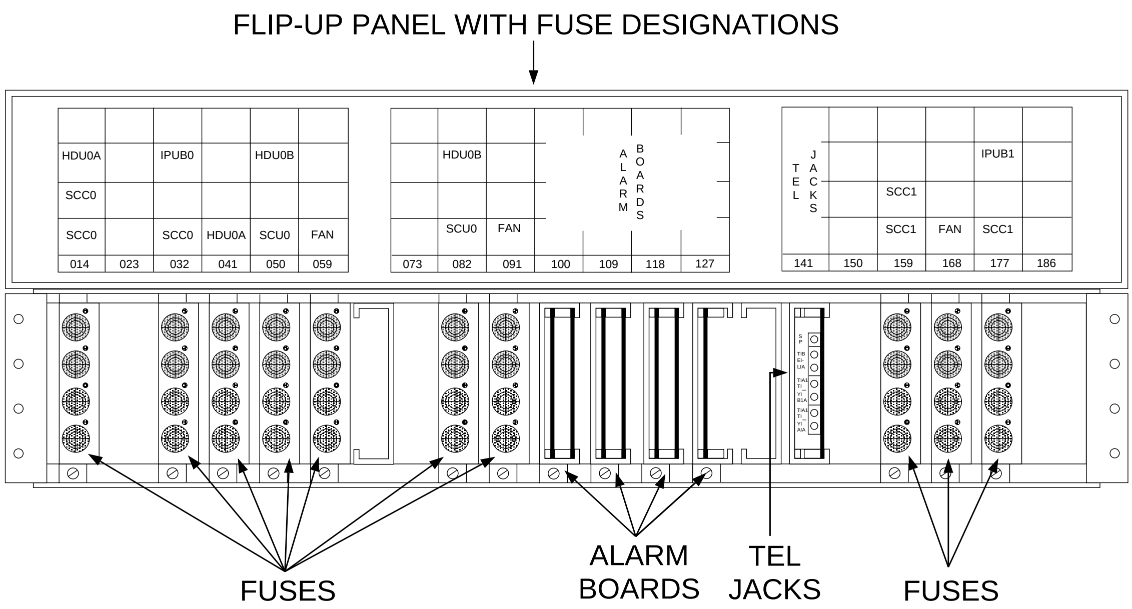


Figure 4. Fuse and Filter Panel for the SCC

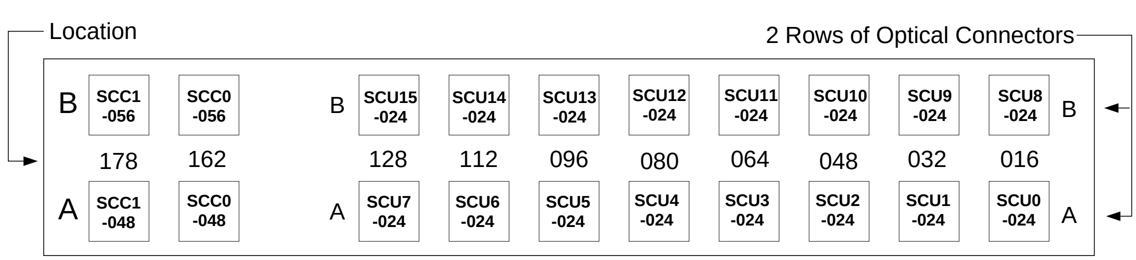


Figure 5. Optical Cable Connectors at Rear of Optical Cross-Connect Panel

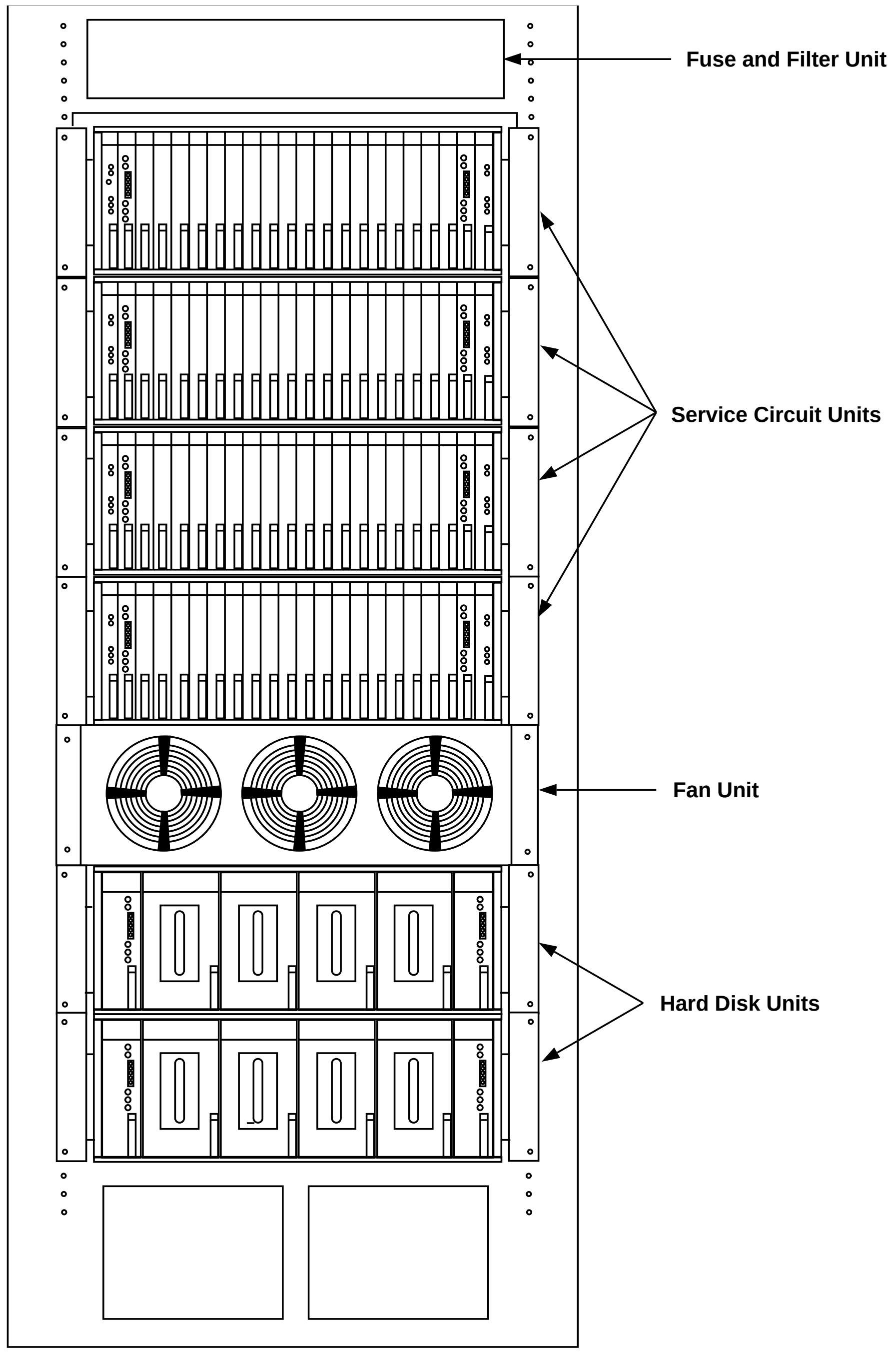


Figure 6. SCU Cabinet (J4A024A-1) — Equipment Identification

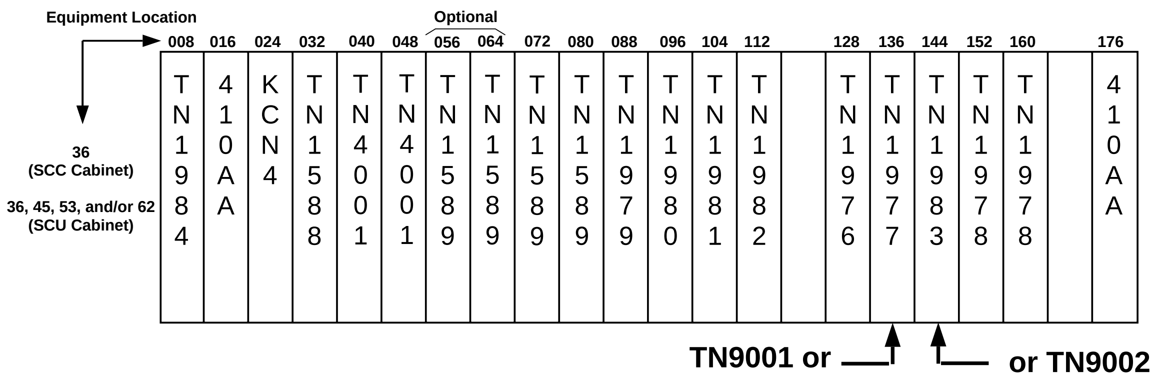


Figure 7. SCU Circuit Pack Locations

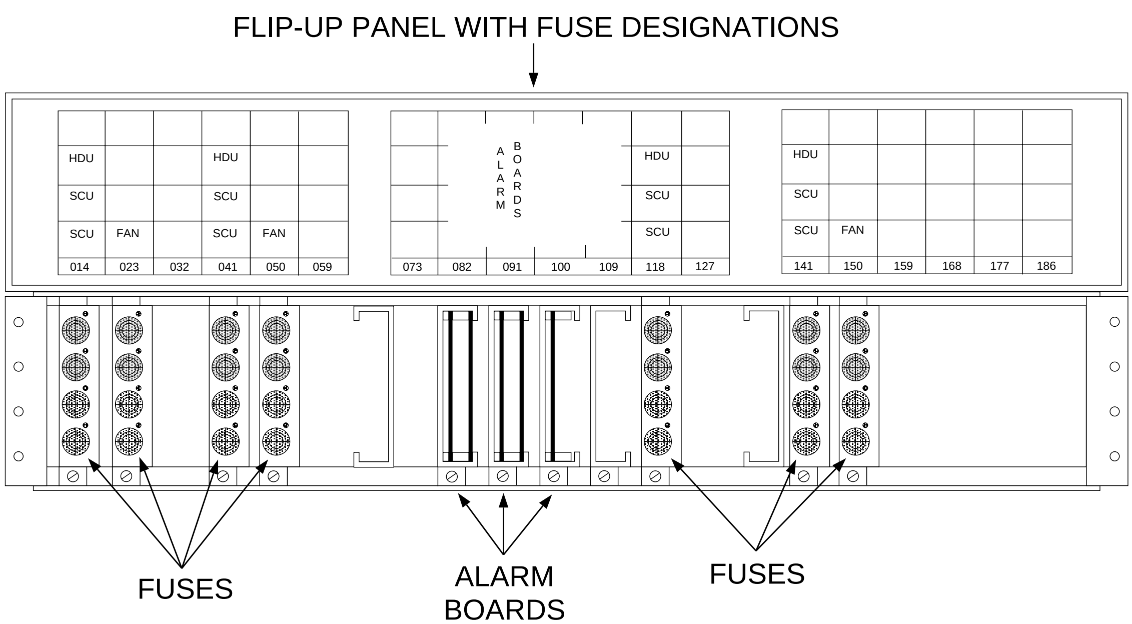
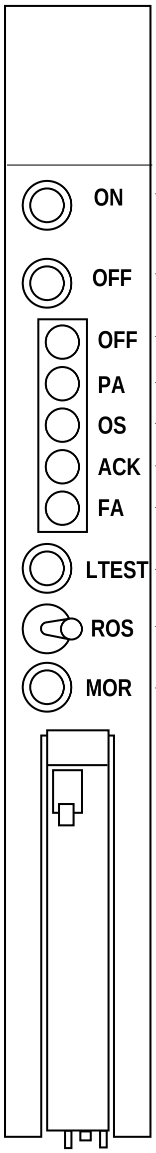


Figure 8. Fuse and Filter Panel for the SCU



Power On (Green Pushbutton) - Powers up unit from power-off state. No software intervention required

Power Off (Black Pushbutton) - Powers down out-of-service unit. Powers down in-service unit when pressed simultaneously with the **MOR** button. Clears any alarm state. No software intervention required

Power Off (Red LED) - Indicates that power is off

Power Alarm (Red LED) - Indicates a fault in the power system

Out Of Service (Yellow LED) - Indicates that the unit is out of service

Acknowledge (Green LED) - Acknowledges an operator request

Fuse Alarm (Red LED) - Indicates an incoming -48 V power loss due to a blown fuse

Lamp Test (Black Pushbutton) - Tests power switch LED indicators

Request Out of Service (Toggle Switch) - Requests that unit be removed from service. **ACK** LED will flash and **OS** LED will light. Software intervention required

Manual Override (Black Pushbutton) - Powers down in-service unit when pressed simultaneously with the **OFF** button. No software intervention required

Figure 9. Power Circuit Pack Buttons and Lamps

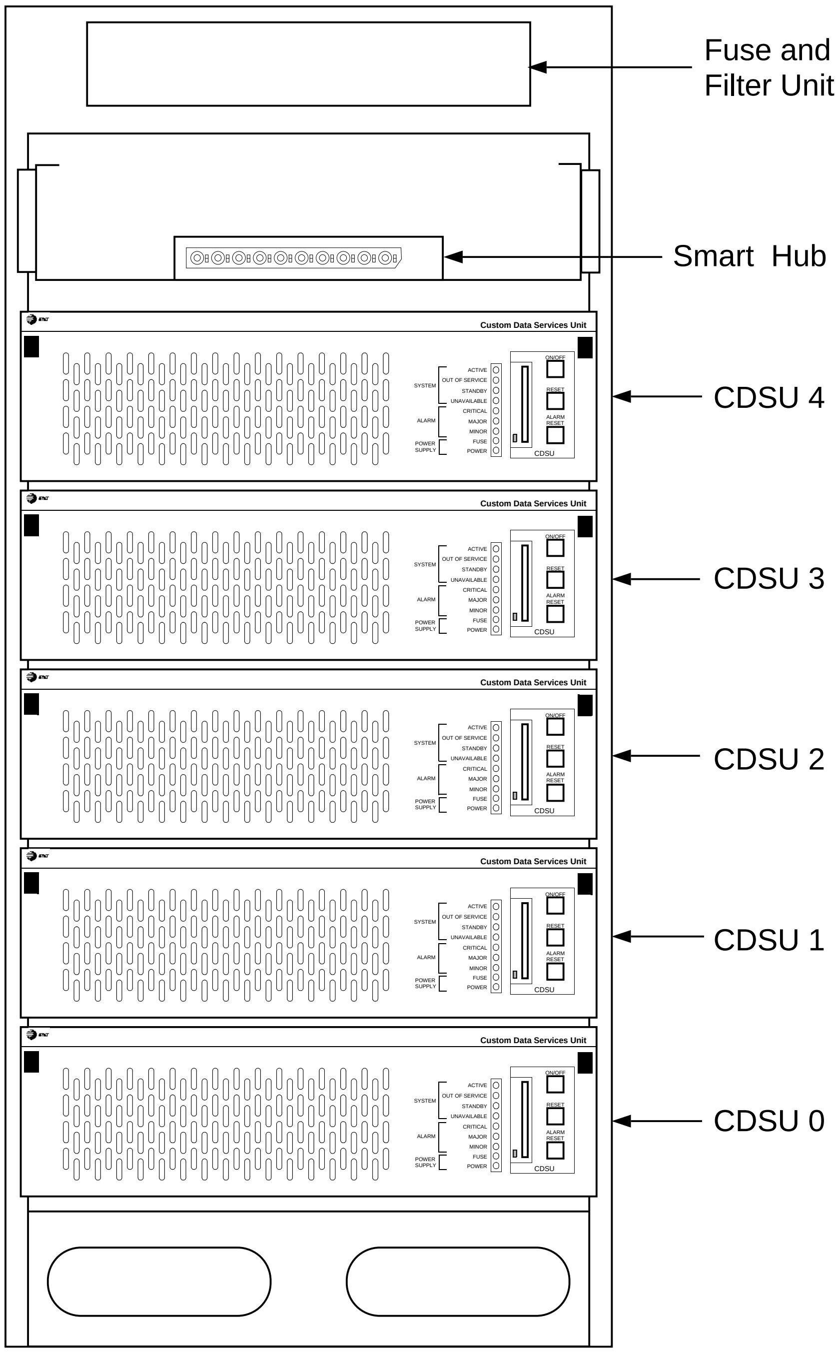


Figure 10. CDSC-I (J4A024C-1)

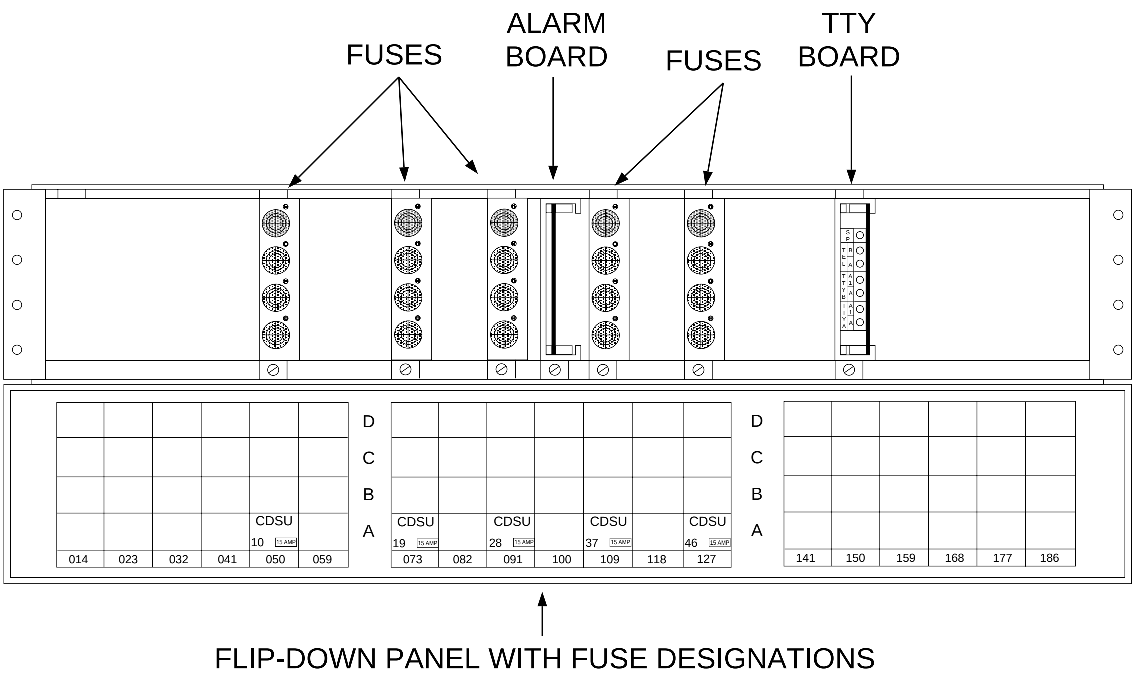


Figure 11. Fuse and Filter Panel for the CDSC-I

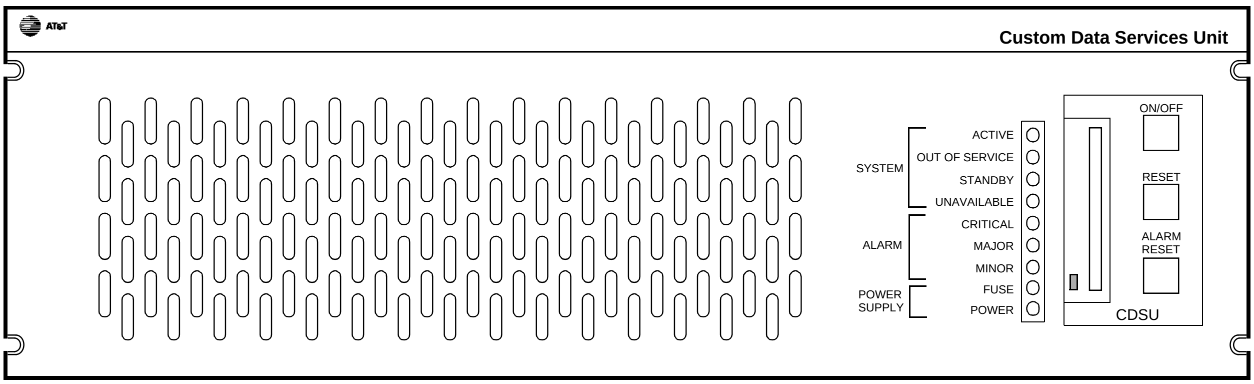


Figure 12. CDSU-I (Front View)

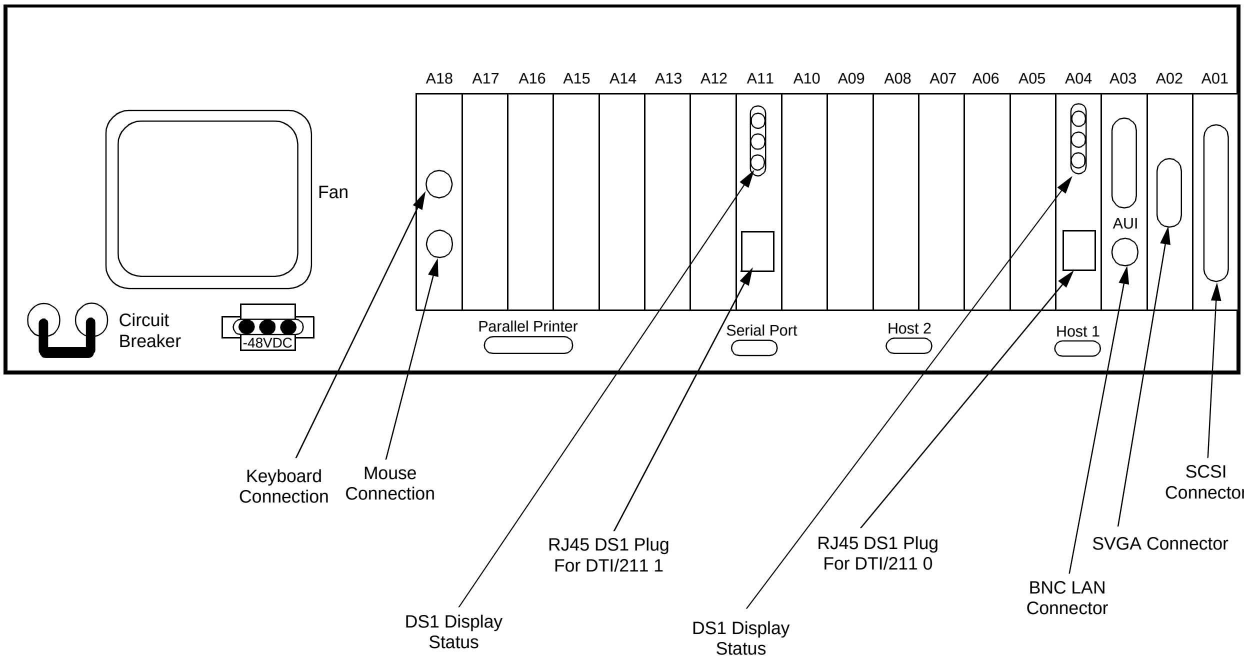


Figure 13. CDSU-I (Rear View)

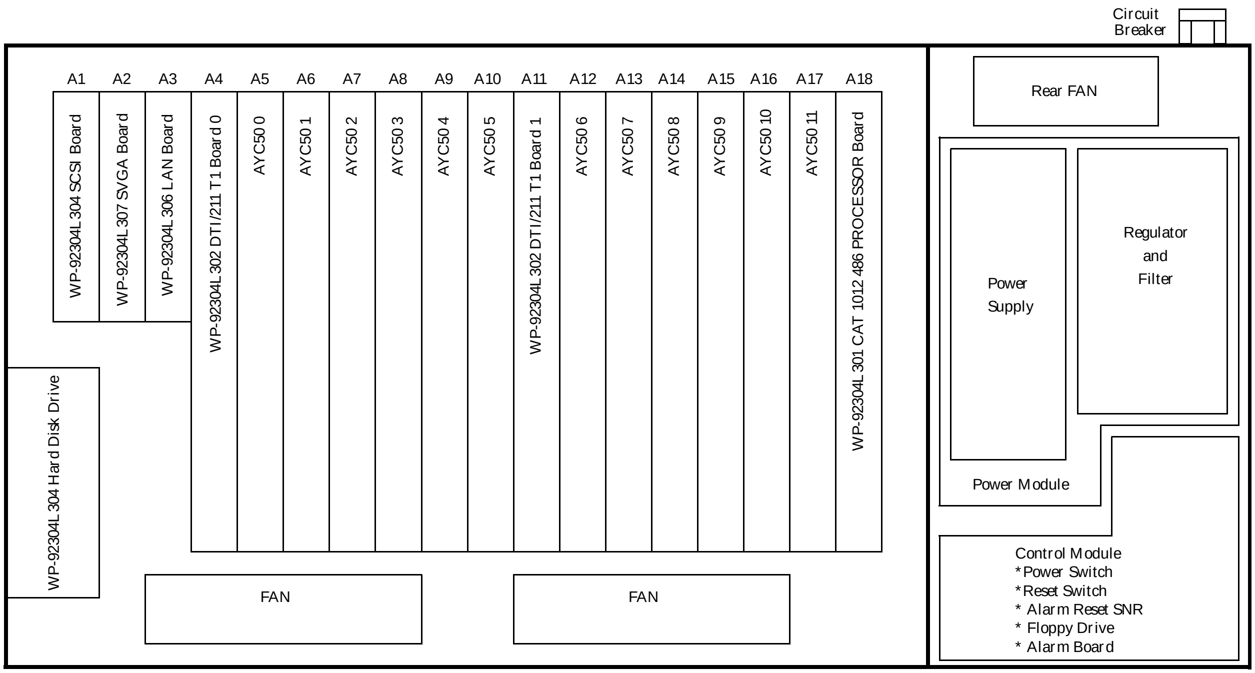


Figure 14. CDSU-I (Top View)

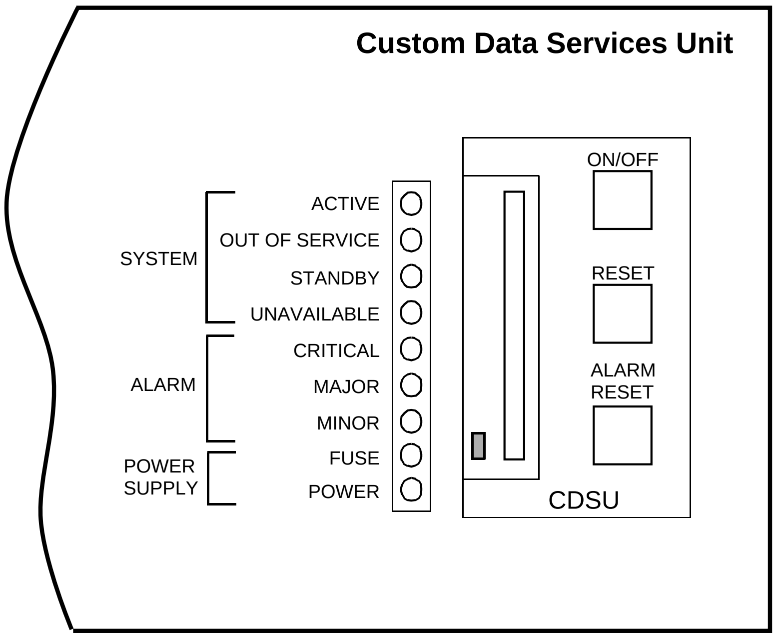


Figure 15. CDSU-I Control Panel

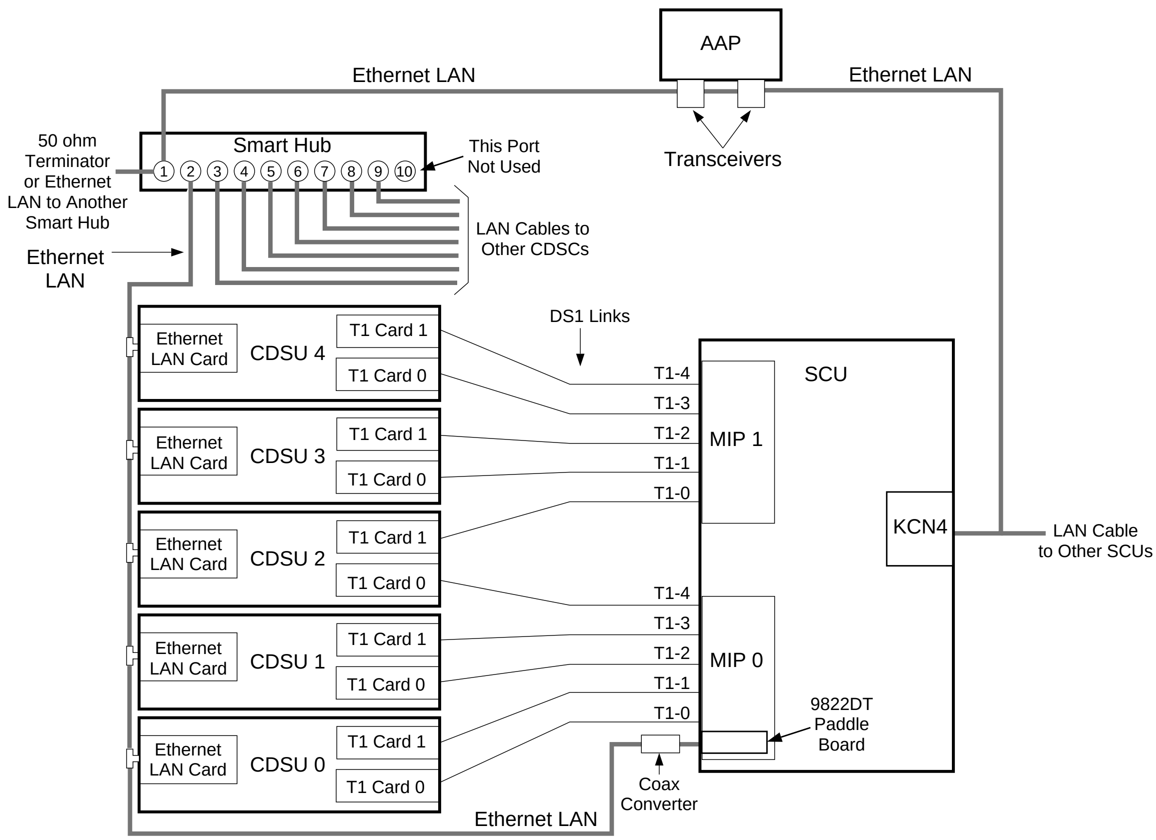


Figure 16. SCU/CDSU-I/AAP Connections

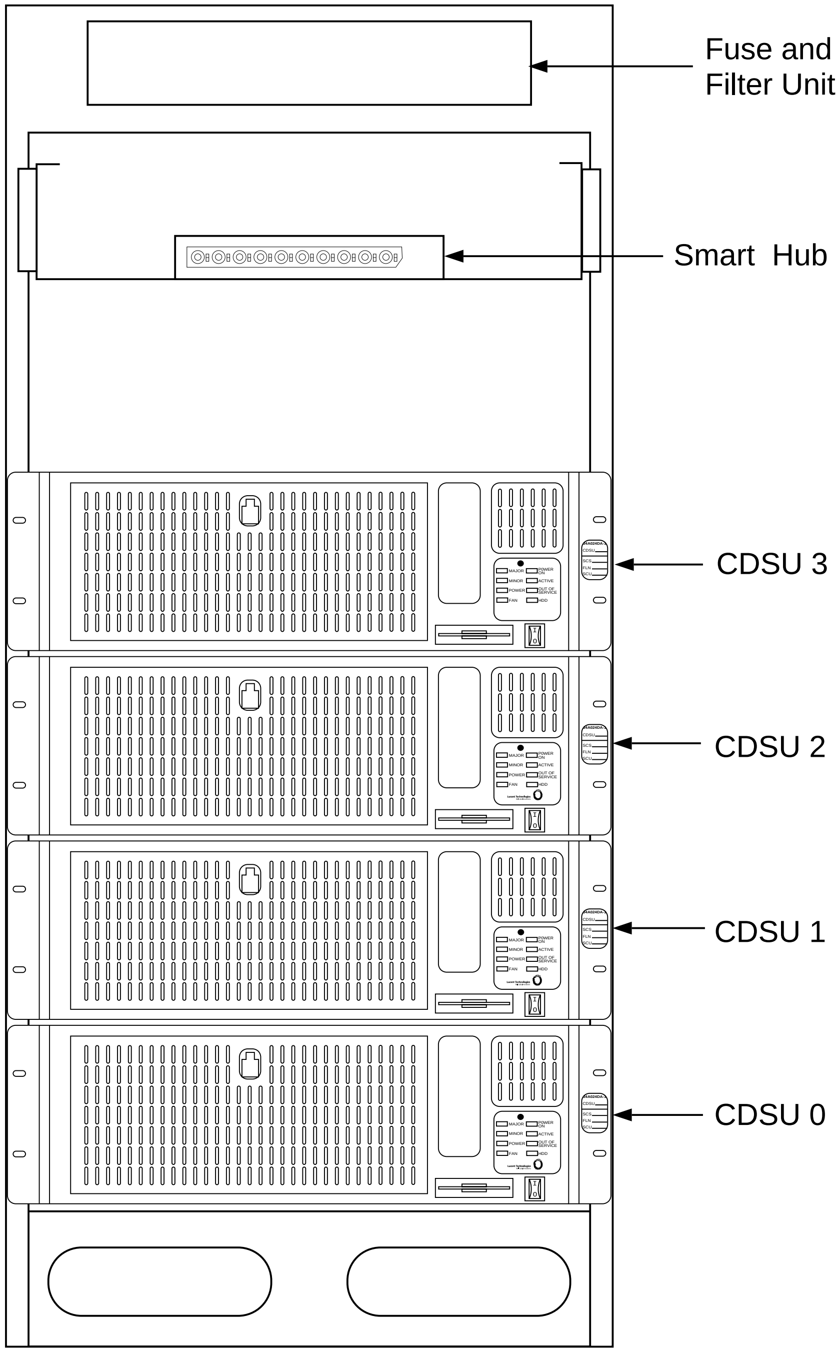


Figure 17. CDSC-II (J4A024D-1)

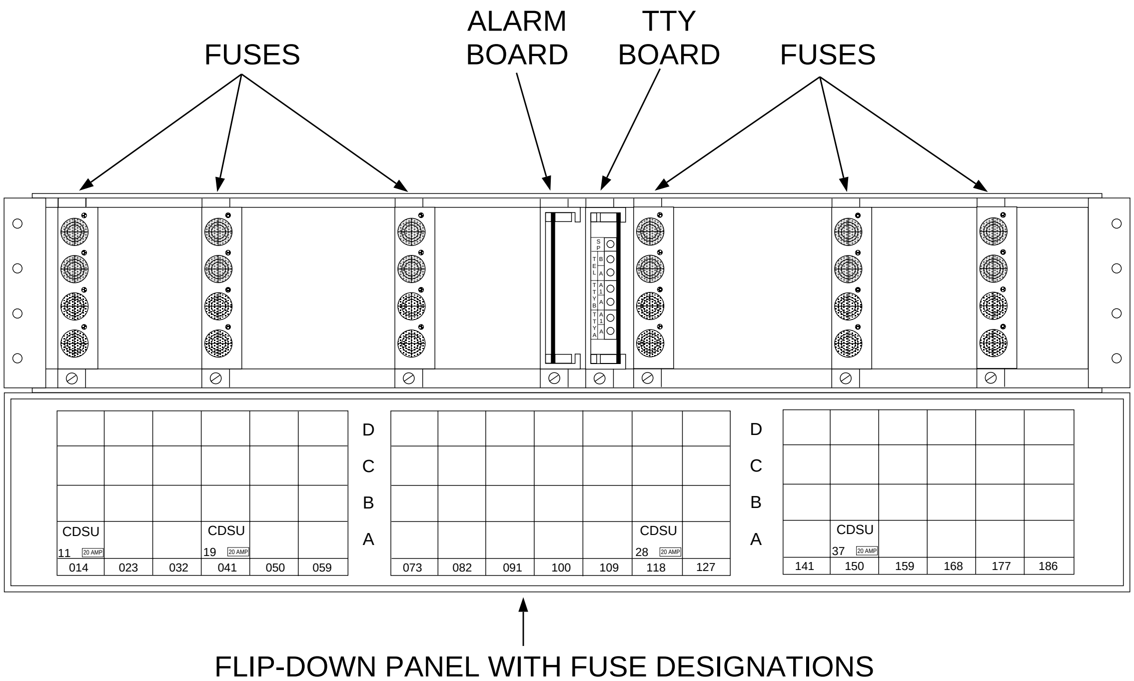


Figure 18. Fuse and Filter Panel for the CDSC-II

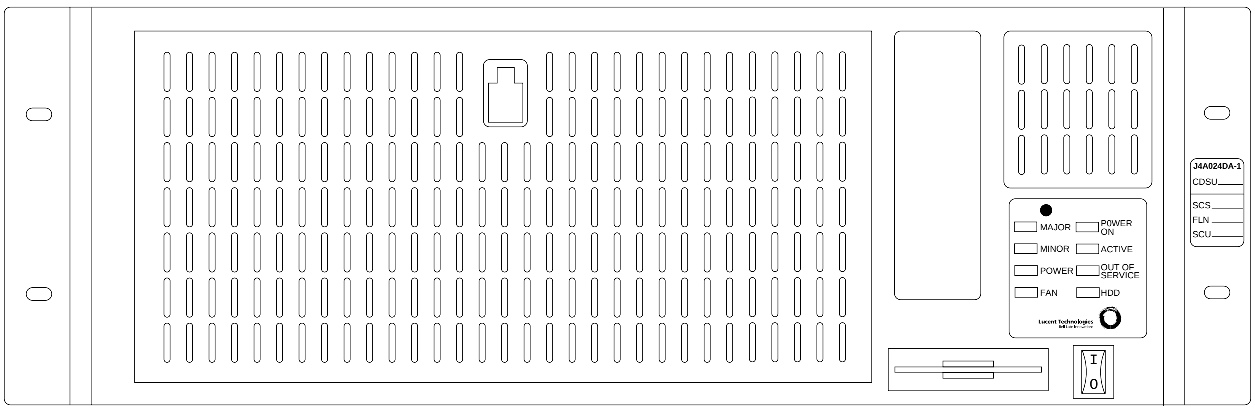


Figure 19. CDSU-II (Front View)

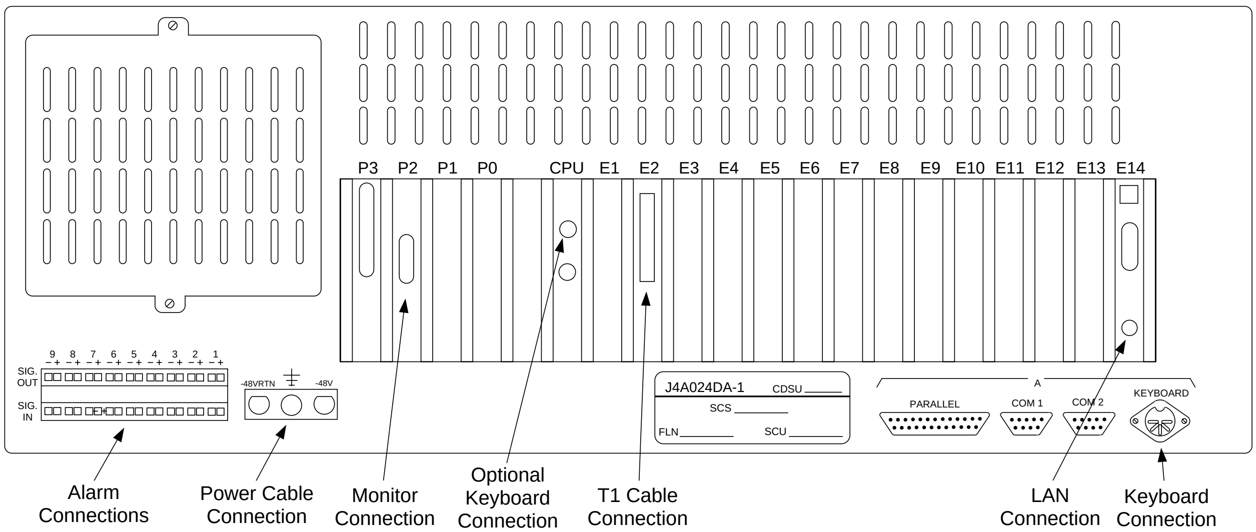


Figure 20. CDSU-II (Rear View)

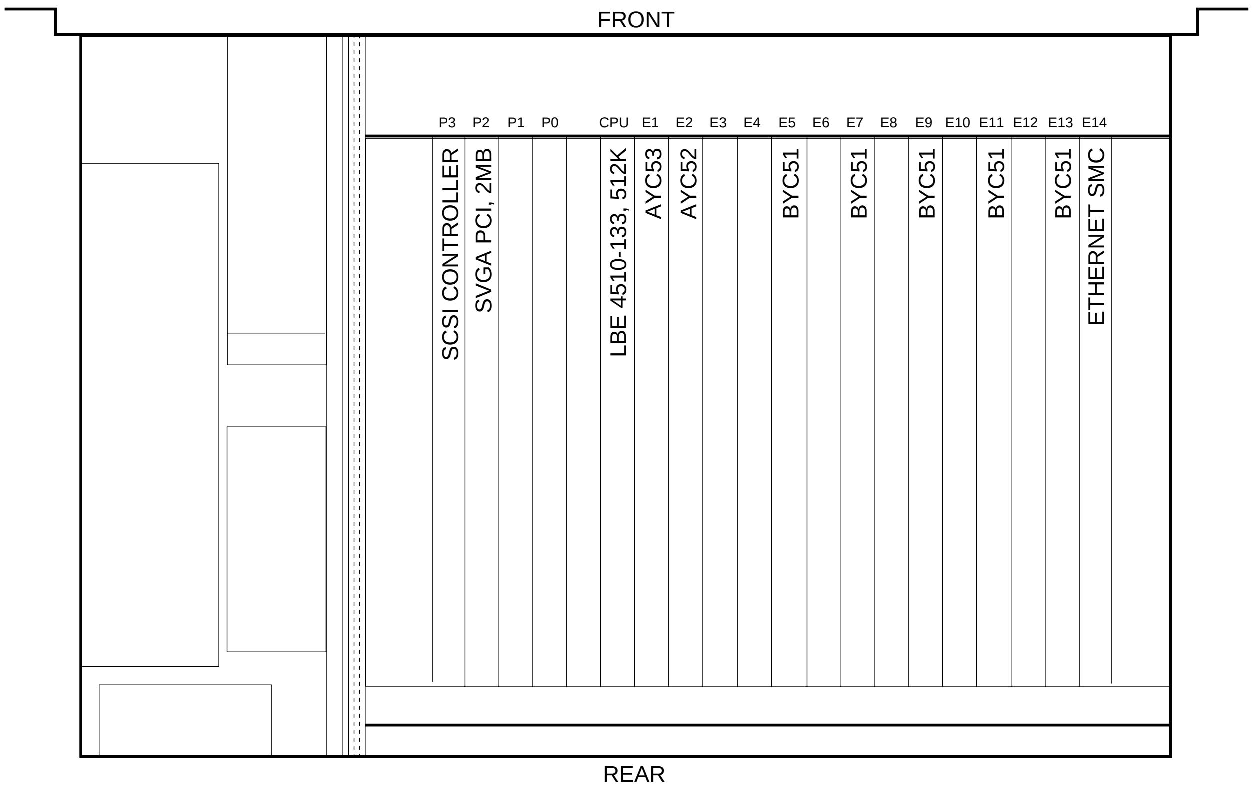


Figure 21. CDSU-II (Top View)

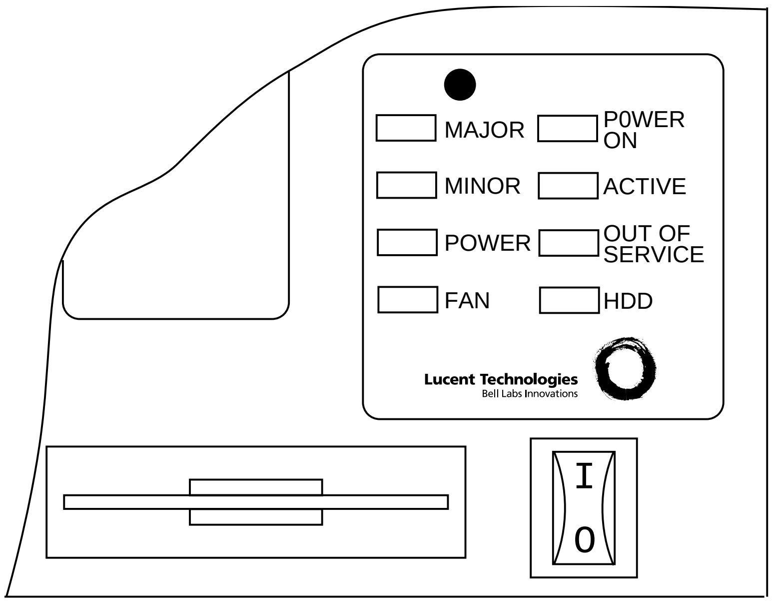


Figure 22. CDSU-II Control Panel

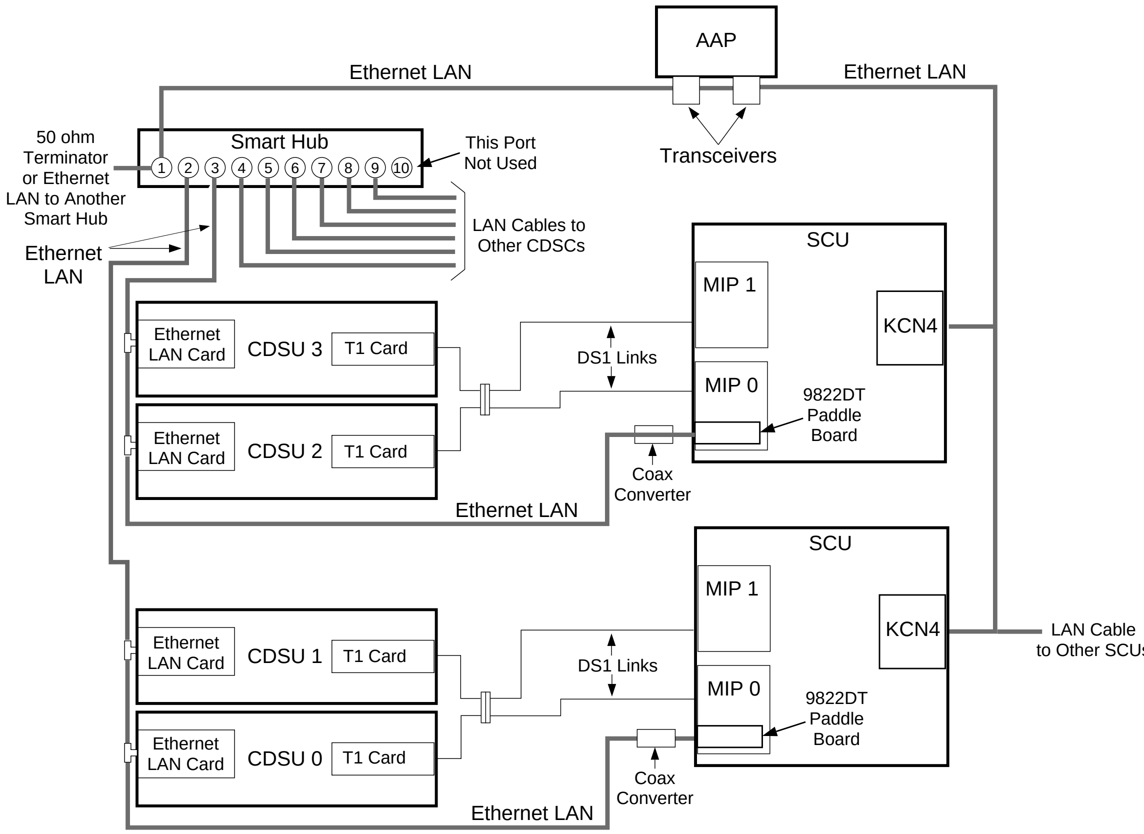


Figure 23. SCU/CDSU-II/AAP Connections

Analyze Power Failures

1. Is an entire frame without power?

   If **YES**, then use local office procedures to clear power trouble.

   If **NO**, then continue with Step 2.

2. What unit is identified as having power problems?

   If a Service Circuit Controller (**SCC**) is identified as failing, then go to TAP-102.
   If a Service Circuit Unit (**SCU**) is identified as failing, then go to TAP-103.
   If a Hard Disk Unit (**HDU**) is identified as failing, then go to TAP-104.
   If an Interface to Peripheral Unit Bus (**IPUB**) is identified as failing, then go to TAP-110.
   If a Custom Data Services Unit-I (**CDSU-I**) is identified as failing, then go to TAP-138.
   If a Custom Data Services Unit-II (**CDSU-II**) is identified as failing, then go to TAP-144.

Clear Service Circuit Controller (SCC) Power Trouble

1. Does the SCC have a **blown fuse** [**FA** Light-Emitting Diode (LED) lighted on the TN1984 circuit pack] or a **power alarm** (**PA**, **OFF**, and **OS** LEDs lighted on the TN1984 circuit pack)? (See Figure 1.)

   If **blown fuse**, continue with Step 2.

   If **power alarm**, then go to Step 13.

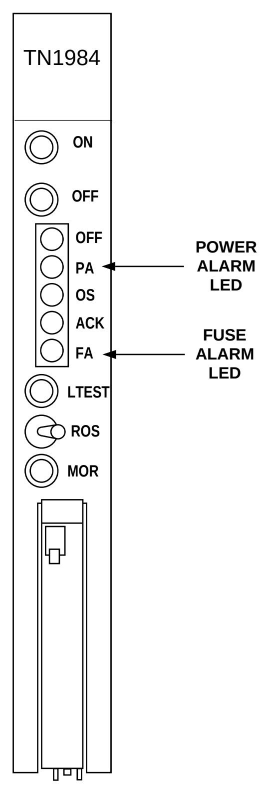


Figure 1. The TN1984 Circuit Pack

2. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel and record the location of the blown fuse.

3. Remove the following circuit packs in the order shown, and record the location from which each circuit pack is removed:

   - 410 AA power converter at location 45-136 (SCC 0) or 53-136 (SCC 1)
   - 410 AA power converter at location 45-016 (SCC 0) or 53-016 (SCC 1)
   - TN1984 power controller at location 45-008 (SCC 0) or 53-008 (SCC 1).

4. At the fuse and filter unit, replace the blown fuse. (See Table A.)

   Note: There are three fuses associated with the SCC0. Replace the fuse with the lighted LED. Pay attention to the fuse size and type labeled on the fuse panel cover.

TABLE A Fuse Information

Frame	Fuse Panel	Fuse Designation	Fuse Type
J4A024A-1	J5D003FJ-1	SCC0	-48 Volt

5. Insert the 410AA circuit pack at horizontal location 136.

   If the **fuse blows**, replace the 410AA circuit pack (DLP-502) and the blown fuse, and go to Step 8.

   If the **fuse does not blow**, continue to Step 6.

6. Insert the 410AA circuit pack at horizontal location 016.

   If the **fuse blows**, replace the 410AA circuit pack (DLP-502) and the blown fuse, and go to Step 8.

   If the **fuse does not blow**, continue to Step 7.

7. Insert the TN1984 circuit pack at horizontal location 008.

   If the **fuse blows**, replace the TN1984 circuit pack (DLP-502) and the blown fuse.

   If the **fuse does not blow**, continue to Step 8.

8. Press the **ON** button located on the TN1984 at horizontal location 008.

9. Does the same fuse blow?

   If **YES**, continue to Step 10.

   If **NO**, go to Step 11.

10. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

11. If the unit is not automatically restored to service after diagnostics run, restore the unit to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

12. Go to Step 38.

13. Looking at the rear of the SCC unit, record the Current Monitor or Voltage Monitor LED that is lighted. (See Figure 2.)

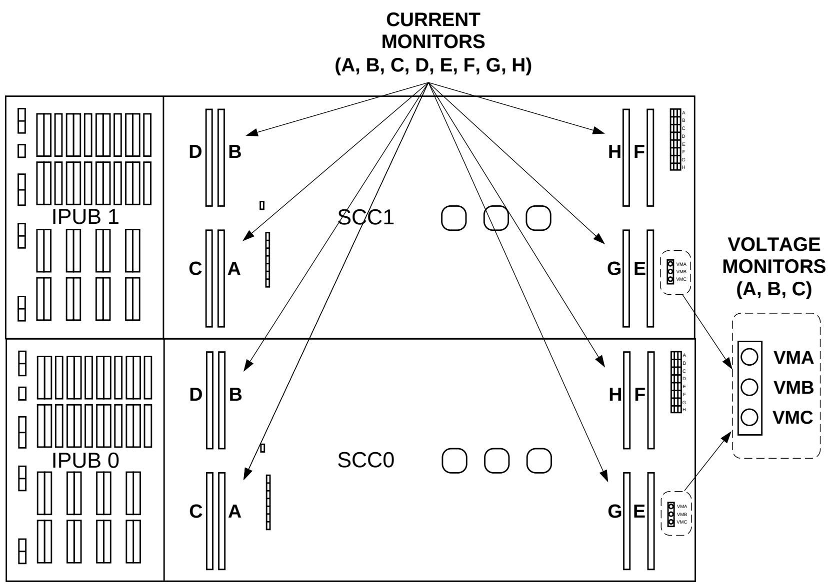


Figure 2. SCC Backplane

14. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

15. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

16. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **YES**, continue to Step 17.

    If **NO**, go to Step 38.

17. Using the information recorded in Step 13, determine which circuit pack(s) needs to be checked by looking at Table B. Record this information.

TABLE B Current and Voltage Monitor Determination

If This LED is Lighted...	Check These Circuit Packs: Pack Type	Check These Circuit Packs: Horizontal Location
Current Monitor A	KCN3	048
Current Monitor B	UN351 or UN591	072
Current Monitor C	UN352 Spare Slot	088 096
Current Monitor D	UN350 Spare Slot	112 104
Current Monitor E	Spare Slot Spare Slot	032 040
Current Monitor F	KCN3	056
Current Monitor G	KCN3	064
Current Monitor H	Spare Slot	080
Voltage Monitor A	410AA	136
Voltage Monitor B	410AA	016
Voltage Monitor C	TN1984 UN357 UN357	008 024 120

18. Replace the TN1984 circuit pack that had the power alarm (DLP-502) and return power to the unit by pressing the **ON** button on the new TN1984 circuit pack.

19. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **YES**, replace the new circuit pack with the original TN1984 circuit pack and continue to Step 20.

    If **NO**, go to Step 38.

20. Was the LED recorded in Step 13 a **Current Monitor** LED or a **Voltage Monitor** LED?

    If **Current Monitor**, continue to Step 21.

    If **Voltage Monitor**, go to Step 34.

21. Unlatch the circuit packs recorded in Step 17.

22. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

23. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

24. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **YES**, continue to Step 25.

    If **NO**, go to Step 29.

25. Replace the TN1984 circuit pack (DLP-502).

26. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

27. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

28. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **YES**, replace the new circuit pack with the original TN1984 circuit pack, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

    If **NO**, go to Step 38.

29. Press the **OFF** button on the TN1984 circuit pack.

30. Insert and latch one of the circuit packs that was unlatched in Step 21.

31. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

32. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **YES**, replace the circuit pack that was just inserted (DLP-502), insert and latch any other unlatched circuit packs, restore the unit to service, and go to Step 38. The unit is restored to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

    If **NO**, continue to Step 33.

33. Have all circuit packs that were unlatched in Step 21 been reinserted and latched?

    If **YES**, go to Step 38.

    If **NO**, return to Step 29.

34. Which voltage monitor is lighted?

    If **A** or **B**, replace the circuit pack (DLP-502) recorded in Step 17, restore the unit to service, and go to Step 38. If the unit is not automatically restored to service after diagnostics, the unit can be restored to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

    If **C**, continue to Step 35.

35. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **NO**, restore the unit to service, and go to Step 38. The unit is restored to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

    If **YES**, replace the UN357 circuit pack (DLP-502) at horizontal location 024, and continue to Step 36.

36. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **NO**, restore the unit to service, and go to Step 38. The unit is restored to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

    If **YES**, replace the UN357 circuit pack (DLP-502) at horizontal location 120, and continue to Step 37.

37. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **NO**, restore the unit to service, and go to Step 38. The unit is restored to service by entering: **RST:SCS** *x***,CONTR** *y***!**

    where *x* = Member number (0-7)
    y = Controller number (0 or 1)

    If **YES**, **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

38. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Service Circuit Unit (SCU) Power Trouble

1. Does the SCU have a **blown fuse** (**FA** Light Emitting Diode [LED] lighted on the TN1984 circuit pack) or a **power alarm** (**PA**, **OFF**, and **OS** LEDs lighted on the TN1984 circuit pack)? (See Figure 1.)

   If **blown fuse**, continue with Step 2.

   If **power alarm**, then go to Step 13.

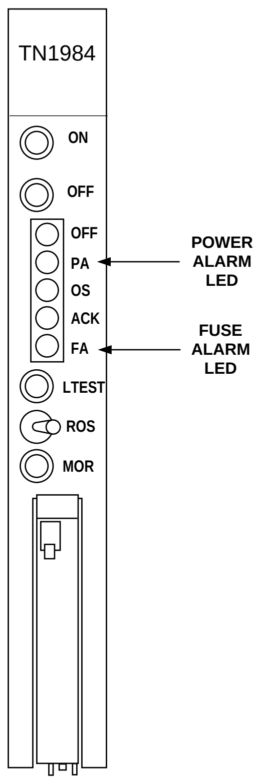


Figure 1. The TN1984 Circuit Pack

2. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel, and record the location of the blown fuse.

3. Remove the following circuit packs in the order shown, and record the location from which each circuit pack is removed:

   - 410 AA Power Converter at horizontal location 176
   - 410 AA Power Converter at horizontal location 016
   - TN1984 Power Controller at horizontal location 008.

4. At the fuse and filter unit, replace the blown fuse. (See Table A.)

   Note: There are three fuses associated with the SCU. Replace the fuse with the lighted LED. Pay attention to the fuse size and type labeled on the fuse panel cover.

TABLE A Fuse Information

Frame	Fuse Panel	Fuse Designation	Fuse Type
J4A024B-1	J5D003FJ-1	SCU0-SCU15	-48 Volt

5. Insert the 410AA circuit pack at horizontal location 176.

   If the **fuse blows**, replace the 410AA circuit pack (DLP-502) and the blown fuse, and go to Step 8.

   If the **fuse does not blow**, continue to Step 6.

6. Insert the 410AA circuit pack at horizontal location 016.

   If the **fuse blows**, replace the 410AA circuit pack (DLP-502) and the blown fuse, and go to Step 8.

   If the **fuse does not blow**, continue to Step 7.

7. Insert the TN1984 circuit pack at horizontal location 008.

   If the **fuse blows**, replace the 410AA circuit pack (DLP-502) and the blown fuse.

   If the **fuse does not blow**, continue to Step 8.

8. Press the **ON** button located on the TN1984.

9. Does the same fuse blow?

   If **YES**, continue to Step 10.
   If **NO**, go to Step 11.

10. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

11. If the unit is not automatically restored to service after diagnostics run, restore the unit to service by entering: **RST:SCS** *x***,SCU** *y***!**

    where *x* = Member number (0-7)
    y = SCU member number (0-15)

12. Go to Step 36.

13. Looking at the rear of the SCU, record the Current Monitor or Voltage Monitor LED that is lighted. (See Figure 2.)

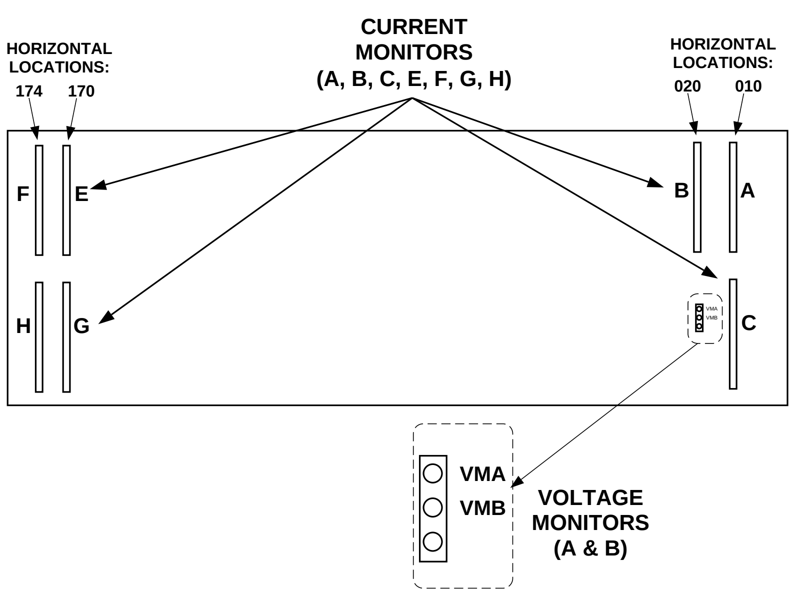


Figure 2. SCU Backplane

14. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

15. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

16. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **NO**, go to Step 36.
    If **YES**, continue to Step 17.

17. Using the information recorded in Step 13, determine which circuit pack(s) needs to be checked by looking at Table B. Record this information.

TABLE B Current and Voltage Monitor Determination

If This LED is Lighted...	Check These Circuit Packs:	
	Pack Type	Horizontal Location
Current Monitor A	KCN4 TN1588	024 032
Current Monitor B	TN4001 TN4001	040 048
Current Monitor C	Spare Slot Spare Slot	056 064
Current Monitor E	Spare Slot TN1589	072 080
Current Monitor F	TN1979 TN1980 TN1981 TN1982	088 096 104 112
Current Monitor G	Spare Slot TN1976 TN1977 or TN9001	120 128 136
Current Monitor H	TN1983 or TN9002 TN1978 TN1978	144 152 160
Voltage Monitor A	410AA	016
Voltage Monitor B	410AA	176

18. Replace the TN1984 circuit pack that had the power alarm (DLP-502), and return power to the unit by pressing the **ON** button on the new TN1984 circuit pack.

19. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **NO**, go to Step 36.

    If **YES**, replace the original TN1984 circuit pack and continue to Step 20.

20. Was the LED recorded in Step 13 a **Current Monitor** LED or a **Voltage Monitor** LED?

    If **Current Monitor**, continue to Step 21.

    If **Voltage Monitor**, go to Step 34.

21. Unlatch the circuit packs recorded in Step 17.

22. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

23. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

24. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **YES**, continue to Step 25.
    If **NO**, go to Step 29.

25. Replace the TN1984 circuit pack (DLP-502).

26. Clear the alarm by pressing the **OFF** button on the TN1984 circuit pack.

27. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

28. Are the **PA** and **OFF** LEDs lighted on TN1984 circuit pack?

    If **NO**, go to Step 36.

    If **YES**, replace the original TN1984 circuit pack, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

29. Press the **OFF** button on the TN1984 circuit pack.

30. Insert and latch one of the circuit packs that was unlatched in Step 21.

31. Return power to the unit by pressing the **ON** button on the TN1984 circuit pack.

32. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **YES**, replace the circuit pack that was just inserted (DLP-502), insert and latch any other unlatched circuit packs, restore the unit to service, and go to Step 36. The unit is restored to service by entering: **RST:SCS** *x***,SCU** *y***!**

    where *x* = Member number (0-7)
    y = SCU member number (0-15)

    If **NO**, continue to Step 33.

33. Have all circuit packs that were unlatched in Step 21 been reinserted and latched?

    If **YES**, go to Step 36.
    If **NO**, return to Step 29.

34. Replace the circuit pack (DLP-502) associated with the lighted voltage monitor (recorded in Step 17).

35. If the unit is not automatically restored to service after diagnostics run, restore the unit to service by entering: **RST:SCS** *x***,SCU** *y***!**

    where *x* = Member number (0-7)
    y = SCU member number (0-15)

36. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Hard Disk Unit (HDU) Power Trouble

1. Does the HDU have a **blown fuse** (**FA** Light Emitting Diode [LED] lighted on one of the UN356 circuit packs) or a **power alarm** (**PA** and **OFF** LEDs lighted on one of the UN356 circuit packs)? (See Figure 1.)

   If **blown fuse**, continue with Step 2.

   If **power alarm**, then go to Step 17.

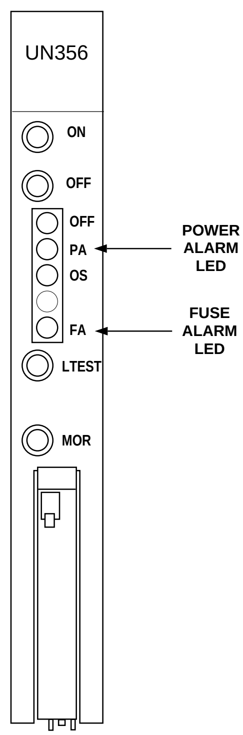


Figure 1. The UN356 Circuit Pack

2. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel, and record the location of the blown fuse.

3. Remove the UN356 circuit pack that has the fuse alarm and both of the hard disk circuit packs associated with that UN356 circuit pack. (See Figure 2 and DLP-503.) Record the location from which each circuit pack is removed. Hard disk pairs, their associated Service Circuit Units (SCUs), and Small Computer System Interface (SCSI) bus connections are shown in Figures 3 (Service Circuit Controller [SCC] frame) and 4 (SCU frame).

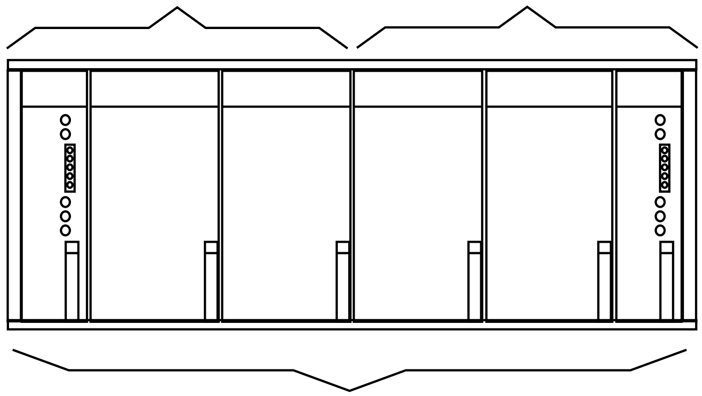


Figure 2. Hard Disk Pairs and Associated UN356 Circuit Packs

4. At the fuse and filter unit, replace the blown fuse. (See Table A.)

   Note: There are two fuses associated with the HDU. Replace the fuse with the lighted LED. Pay attention to the fuse size and type labeled on the fuse panel cover.

TABLE A Fuse Information

Frame	Fuse Panel	Fuse Designation	Fuse Type
J4A024AC-1	J5D003FJ-1	HDU	-48 Volt

5. Replace the UN356 circuit pack (DLP-503), and return power to the unit by pressing the **ON** button on the new UN356 circuit pack.

6. Does the fuse blow?

   If **YES**, go to Step 14.

   If **NO**, replace the original UN356 circuit pack and continue to Step 7.

   Note: Do not press the **ON** button on the UN356 circuit pack at this time.

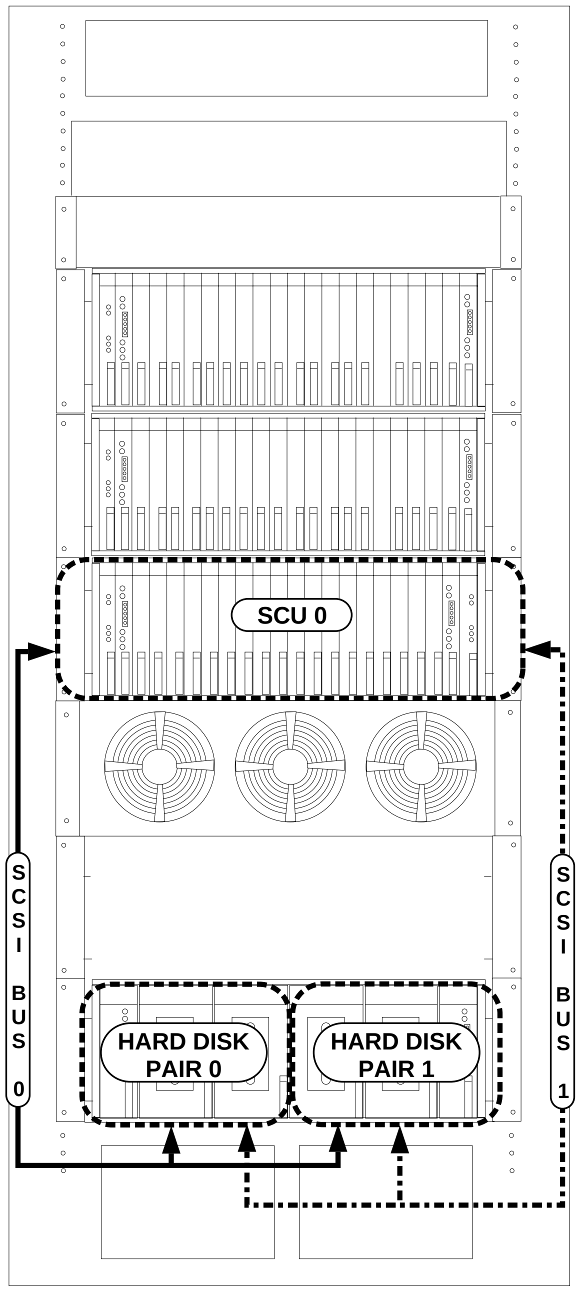


Figure 3. Hard Disk to SCU Connections in the SCC Cabinet

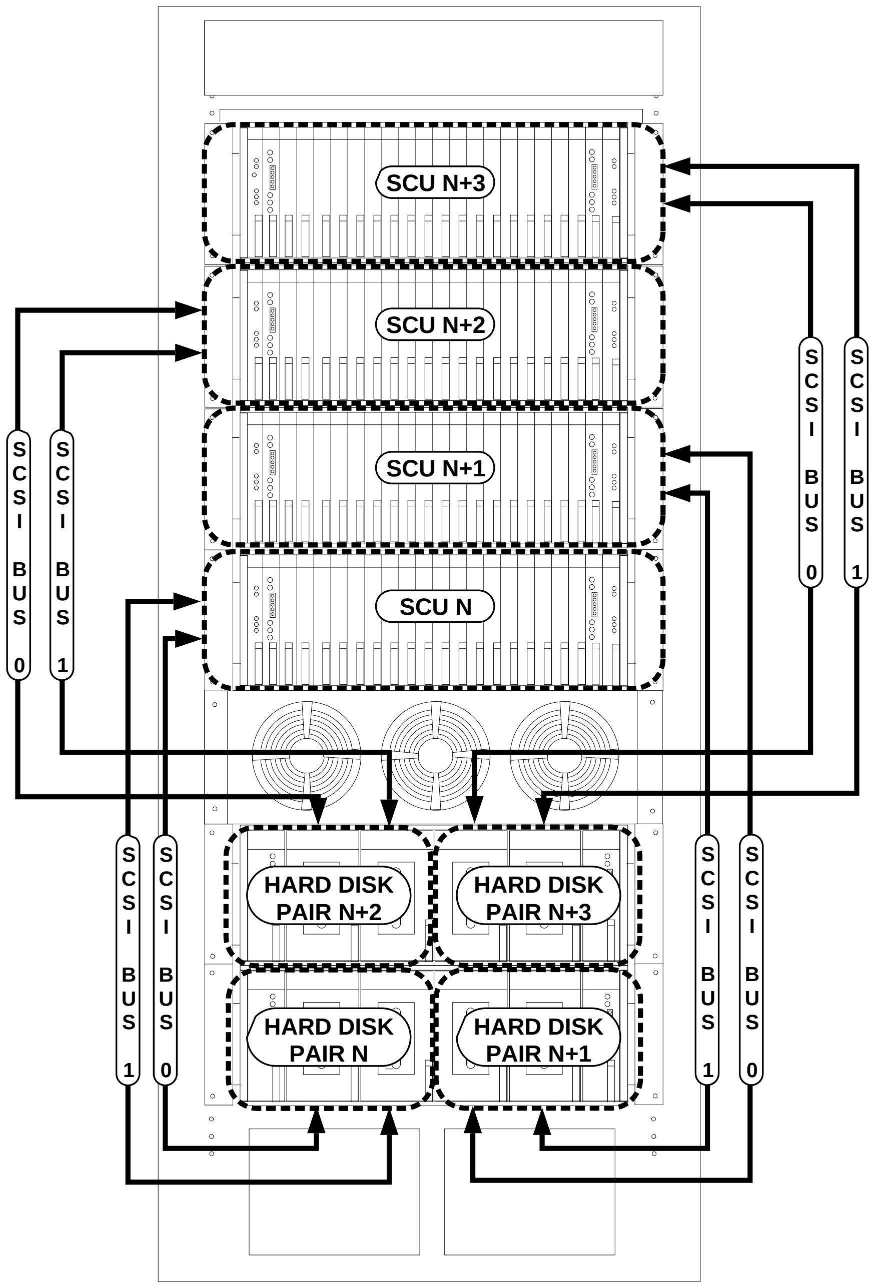


Figure 4. Hard Disk to SCU Connections in the SCU Cabinet

7. Insert and latch one of the hard disk circuit packs.

8. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

   If the **fuse blows**, replace this circuit pack (DLP-503), insert the other hard disk circuit pack, and go to Step 13.

   If the **fuse does not blow**, continue to Step 9.

9. Press the **OFF** button on the UN356 circuit pack.

10. Insert and latch the other hard disk circuit pack.

11. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

    If the **fuse blows**, replace this circuit pack (DLP-503), and continue to Step 12.

    If the **fuse does not blow**, continue to Step 12.

12. Press the **ON** button located on the UN356.

13. Does the same fuse blow?

    If **YES**, continue to Step 14.

    If **NO**, go to Step 15.

14. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

15. At the 1B Maintenance (MTC) terminal, restore unit to active service by entering: **RST:SCS** ***a*****,SCU** ***b*****!**

    where *a* = Member number (0-7)
    b = SCU number (0-15)

    Response: `RST:SCS` *a*`,SCU` *b* `COMPLETED`

    On the hard disk pair's UN356 circuit pack, the **OS** LED extinguishes, indicating that the hard disk pair is in active service.

16. Go to Step 35.

17. Clear the alarm by pressing the **OFF** button on the UN356 circuit pack with the power alarm.

18. Return power to the unit by pressing the **ON** button on the UN356 circuit pack with the power alarm.

19. Are the **PA** and **OFF** LEDs lighted on UN356 circuit pack?

    If **NO**, go to Step 35.

    If **YES**, continue to Step 20.

20. Remove both of the hard disk circuit packs associated with the UN356 circuit pack that has the power alarm (see Figure 2), and record the location from which each circuit pack is removed.

21. Clear the alarm by pressing the **OFF** button on the UN356 circuit pack.

22. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

23. Are the **PA** and **OFF** LEDs lighted on the UN356 circuit pack?

    If **YES**, continue to Step 24.

    If **NO**, go to Step 27.

24. Insert and latch the hard disk circuit packs, replace the UN356 circuit pack, and continue to Step 25.

25. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

26. Are the **PA** and **OFF** LEDs lighted on the UN356 circuit pack?

    If **YES**, **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

    If **NO**, continue to Step 27.

27. Press the **OFF** button on the UN356 circuit pack.

28. Insert and latch one of the hard disk circuit packs that was removed in Step 20.

29. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

30. Are the **PA** and **OFF** LEDs lighted on the UN356 circuit pack?

    If **YES**, replace the hard disk circuit pack (DLP-503) that was inserted in Step 28, insert the other unlatched hard disk circuit pack, and go to Step 35.

    If **NO**, continue to Step 31.

31. Press the **OFF** button on the UN356 circuit pack.

32. Insert and latch the other hard disk circuit pack that was removed in Step 20.

33. Return power to the unit by pressing the **ON** button on the UN356 circuit pack.

34. Are the **PA** and **OFF** LEDs lighted on the UN356 circuit pack?

    If **YES**, replace the hard disk circuit pack that was just inserted (DLP-503), return power to the unit by pressing the **ON** button on the UN356 circuit pack, and continue to Step 35.

    If **NO**, continue to Step 35.

35. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Diagnostic Failure at Service Circuit Controller (SCC) by Analyzing Raw Data and Replacing Any Suspect Packs

Summary: Read the first failing phase prologue. Determine if subroutines were used and identify their location and function. Locate the first failing test and determine the test function. Determine if doloops were used and identify their location and function. Use knowledge of the first failing test function to identify and replace any suspect packs other than those on the Trouble Locating Procedure (TLP) list previously replaced. If the trouble is not cleared, use the procedure to clear diagnostic failure by looping over the first failing test and use signal tracing to locate the fault.

1. Read the prologue of the diagnostic PIDENT for the first failing phase.

   Note: PIDENT is PUDG SSXX for the SCC and PUDG SVXX for the SCU (xx = phase number). Subroutines are in PUDGSSGR for the SCC and PUDGSVGR for the SCU.

2. On the raw-data printout (see Figure 1), locate the raw data of the first failing test.

3. Locate and record the sixth digit in the fifth data word following the mismatch data.

4. Is the digit recorded in Step 3 zero (no subroutines)?

   If **NO**, continue to Step 5.

   If **YES**, go to Step 6.

5. Locate and determine function of subroutines (DLP-518).

6. Locate fourth raw-data word following mismatch data. (See Figure 1.)

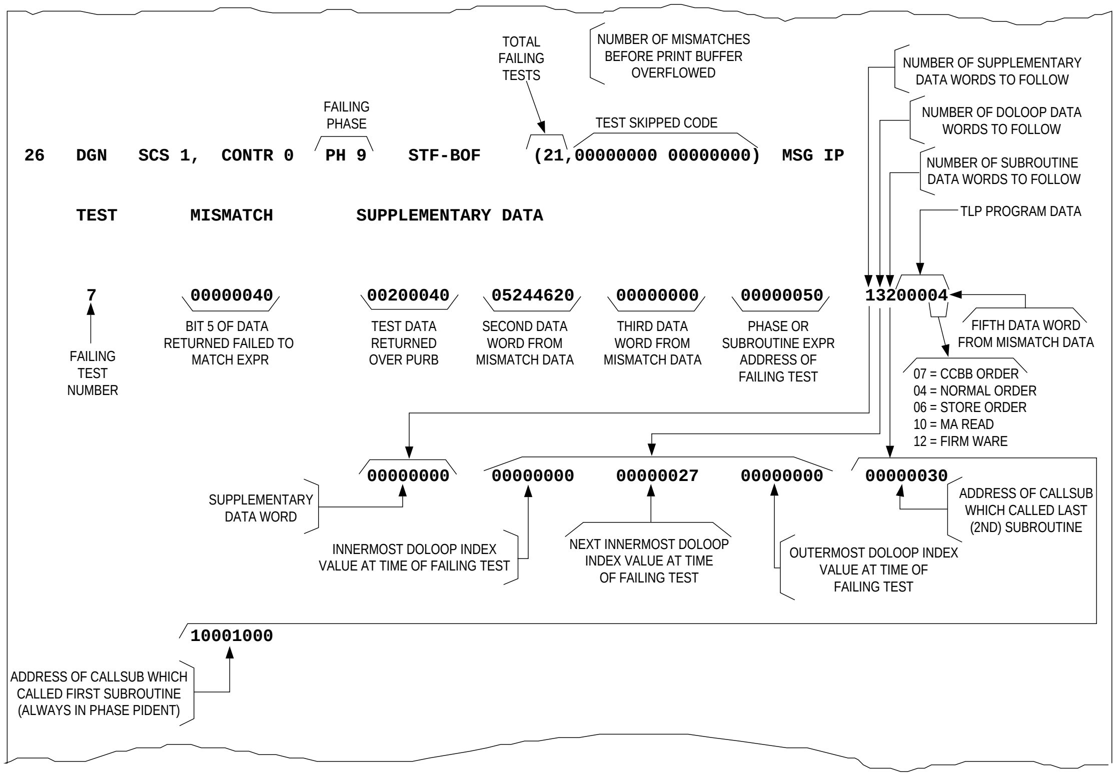


Figure 1. Example of SCS Controller Raw-Data Printout

7. Use the address as indicated in Figure 2 to locate the first failing test Expected Results (EXPR) in the last subroutine called or in PHASE PIDENT if no subroutines are called.

   Note: Phase PIDENT may consist of more than one strip with this address appearing in more than one strip. In this case, match the strip designation with the proper place in the PIDENT listing. EXPR data for your test is required from the address.

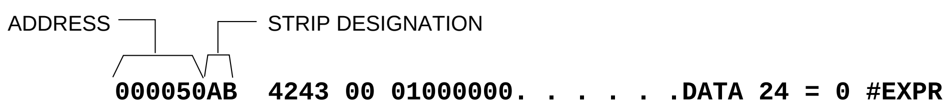


Figure 2. Example of EXPR Data in Listing

8. Read prologue of program unit containing the first failing test.

   Note: The program unit name is indicated at the upper left of each existing page.

9. Analyze failing test data to determine the failing test function (DLP-517).

10. Is this DIAL statement a PUMACRO statement?

    If **YES**, continue to Step 11.

    If **NO**, go to Step 12.

11. Can possible circuit pack failures be determined by reading the prologue of the program unit with the failing test?

    If **YES**, continue to Step 15.

    If **NO**, diagnose failure by obtaining assistance per local office practice, and go to Step 23.

12. On raw-data printout (see Figure 1), locate the fifth word from the mismatch data.

13. Locate the seventh digit in the fifth data word. Is this digit zero (no doloops)?

    If **NO**, continue to Step 14.

    If **YES**, go to Step 15.

14. Were subroutines used?

    If **NO**, use doloop data words to determine the location and function of doloops (DLP-515) and continue to Step 15.

    If **YES**, use doloop data words to determine the location and function of doloops when subroutines are called (DLP-516), and continue to Step 15.

15. Identify circuit packs related to the test failure using information obtained from the previous steps of this procedure.

16. Replace one of the circuit packs identified in Step 15 with a duplicate circuit pack (DLP-502).

17. At the 1B Maintenance (MTC) terminal, enter: **DGN:SCS** *a***,CONTR** *b***:PH 1-20!**

    where *a* = Member number (0-7)
    b = Controller number (0 or 1)

18. What is the diagnostic result from Step 17?

    If `STF`, continue to Step 19.

    If `ATP/CATP`, go to Step 21.

19. Are any more suspect packs to be replaced?

    If **NO**, go to Step 20.

    If **YES**, repeat from Step 16.

20. Loop over first failing test and signal trace using TAP-108.

21. At the 1B Maintenance (MTC) terminal, enter: **RST:SCS** *a***,{CONTR** *b***|IPUB** *c***|SCU** *d***}!**

    where *a* = Member number
    b = Controller number
    c = IPUB number
    d = SCU member number

22. Ensure that the system responds ''`completed`'' for frames restored to service.

23. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Diagnostic Failure of SCC, SCU, or IPUB by Replacing Packs on TLP Suspected Equipment List

Summary: Replace all listed packs located in failed Service Circuit System (SCS) frame, beginning with the first pack listed. After each pack replacement, check diagnostic results to determine if trouble was cleared. Additional information for interpreting Trouble-Locating Procedure (TLP) data for Service Circuit Units (SCUs) with the Automatic Speech Recognition (ASR) feature is provided following this procedure.

1. At the 1B Maintenance (MTC) terminal, enter: **RMV:SCS** *a***,{CONTR** *b* **| IPUB** *c* **| SCU** *d* **}!**

   where: *a*, *b*, *c*, and *d* are failing member numbers

2. Identify the first circuit pack on the list located if failed SCS frame.

3. Replace the circuit pack with a duplicate circuit pack (DLP-502).

4. Is the diagnostic result `STF` or `ATP/CATP`?

   If `STF`, replace the original circuit pack, and continue to Step 5.

   If `ATP/CATP`, go to Step 6.

5. Have all listed packs in failed SCS frame been replaced?

   If **YES**, **STOP! TROUBLE CANNOT BE CLEARED USING TLP SUSPECTED EQUIPMENT LIST. CONTACT NEXT LEVEL OF SUPPORT.**

   > ***Note:*** If the TLP suggests a possible LAN problem, between the AAP and the SCU or between the AAP and Smart HUB, use TAP-135.
   >
   > If a problem is suspected in the LAN that connects the Smart HUB, the Custom Data Services Units (CDSUs), and the SCU, see TAP-141.
   >
   > If the SCS has ASR Phase 1 functionality, see the section entitled "Additional TLP Information for ASR Phase 1 SCUs" beginning on page 2 of this procedure.
   >
   > If the SCS has ASR Phase 2 functionality, see the section entitled "Additional TLP Information for ASR Phase 2 SCUs" beginning on page 3 of this procedure.

   If **NO**, identify next pack on list in failed SCS frame, and repeat from Step 3.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Additional TLP Information for ASR Phase 1 SCUs

An SCU with the ASR Phase 1 feature is connected to a Custom Data Services Cabinet-I (CDSC-I), containing up to 5 Custom Data Services Units (CDSU-I). These CDSU-Is are numbered from 0 to 4. A CDSC-I is dedicated to one specific SCU. The CDSC-I may be located up to 440 feet away from the SCU. In this situation frame location information provided on the TLP Suspected Faulty Equipment List can be useful in finding the exact location of the faulty equipment. Also the SCUs and CDSC-Is are cross-labeled with the Frame Location Number (FLN) of the connected equipment.

When SCU diagnostic test failures cause items in the CDSC-I to be implicated in the TLP Suspected Faulty Equipment List, the entries for those items have the text **, CDSC n, CDSU m** printed in the **Helper Data** fields. In this case, the FLN for the CDSC-I is printed directly below the FLN for the Service Circuit Controller Cabinet (SCCC), at the end of the TLP output message. If no CDSC-I/CDSU-I hardware is implicated, then only the FLN for the SCCC will be printed.

Each ASR SCU has a label on it that contains the CDSC-I number and FLN of the connected CDSC-I. Each CDSC-I has a label on it which contains the CDSC-I number. Each CDSU-I has a label on it that contains the SCS number, SCU number, and the FLN of the SCCC associated with the connected SCU.

The 4ESS Frame Location Number (FLN) is an 8-character encoded number that uniquely describes the location of equipment in the 4ESS switch. It consists of the following elements:

Floor	(character positions 1 and 2)
Lineup	(character positions 3 - 5)
Period	(character position 6)
Bay Number	(character positions 7 and 8)

For example, **FLN 03011.06** in a TLP output message gives a location of 3rd floor, lineup 11, and frame number 6.

The CDSU-I is a commercial, rack mounted 486 microprocessor system. Circuit packs are installed in slots labeled A1 through A18. In the TLP list, the last 3 characters of the EQL code for CDSU-I resident hardware items indicate the CDSU-I slot. The first 3 characters of the EQL are a 1-character bay number, followed by a 2-character measurement which indicates (in inches) the distance from the floor to the center of the unit. For example, a TLP list showing an EQL for a CDSU-I circuit pack as **011-A12** could indicate a problem in slot A12 of the bottom CDSU-I.

A circuit pack code of **CXCBL** refers to the coaxial LAN cable connected to the T-connector of the CDSU-I's LAN circuit pack, and coming from either the SCU, or a lower-numbered CDSU-I within the CDSC-I. A circuit pack code of **LANTRM** refers to a coaxial LAN cable connected to the T-connection of the CDSU-I's LAN circuit pack, and running to a higher-numbered CDSU-I in the CDSC-I. If the CDSU-I is the last equipped CDSU-I in the CDSC-I, then the **LANTRM** code indicates either a coaxial LAN cable connected to the CDSU-I's LAN circuit pack T-connector, and running to the Smart HUB or a physical LAN termination device attached to the T-connector. A circuit pack code of **LANPBD** refers to the SCU backplane LAN paddle board. A circuit pack code of **THNCBL** refers to the thinnet coaxial LAN cable connecting the LAN paddle board to the coaxial cable converter.

There are some special circuit pack codes in the ASR TLP that implicate more than one piece of hardware:

- The circuit pack code **SYSTEM** indicates a problem with the CDSU-I microprocessor system hardware and/or the CDSU-I resident UNIX operating system.
- The circuit pack code **ALLDSP** indicates a problem in one of the AYC50 circuit packs in the indicated CDSU-I. The TLP Suspected Faulty Equipment List must be used to identify the specific faulty circuit pack.

Within the CDSU-I, the only components that can be replaced are the AYC50 circuit packs and the DTI/211 T1 circuit packs. If other components within the CDSU-I are found to be faulty, the CDSU-I must be replaced.

Additional TLP Information for ASR Phase 2 SCUs

An SCU with the ASR Phase 2 feature is connected to a Custom Data Services Cabinet-I (CDSC-II), containing up to 4 Custom Data Services Units (CDSU-II). These CDSU-IIs are numbered from 0 to 3. Within a CDSC-II, CDSU-IIs 0 and 1 are connected to one SCU, and CDSU-IIs 2 and 3 are connected to another SCU. In summary, a CDSC-II supports up to 2 different SCUs (with 2 CDSU-IIs per SCU).

The CDSC-II may be located up to 440 feet away from the SCU. In this situation frame location information provided on the TLP Suspected Faulty Equipment List can be useful in finding the exact location of the faulty equipment. The TLP Suspected Faulty Equipment List will specify the correct CDSU-II numbers for the SCU being diagnosed. Also the SCUs and CDSC-IIs are cross-labeled with the Frame Location Number (FLN) of the connected equipment.

When SCU diagnostic test failures cause items in the CDSC-II to be implicated in the TLP Suspected Faulty Equipment List, the entries for those items have the text **, CDSC n, CDSU m** printed in the **Helper Data** fields. In this case, the FLN for the CDSC-II is printed directly below the FLN for the Service Circuit Controller Cabinet (SCCC), at the end of the TLP output message. If no CDSC-II/CDSU-II hardware is implicated, then only the FLN for the SCCC will be printed.

Each ASR SCU has a label on it that contains the CDSC-II number and FLN of the connected CDSC-II. Each CDSC-II has a label on it which contains the CDSC-II number. Each CDSU-II has a label on it that contains the SCS number, SCU number, and the FLN of the SCCC associated with the connected SCU.

The 4ESS Frame Location Number (FLN) is an 8-character encoded number that uniquely describes the location of equipment in the 4ESS switch. It consists of the following elements:

Floor	(character positions 1 and 2)
Lineup	(character positions 3 - 5)
Period	(character position 6)
Bay Number	(character positions 7 and 8)

For example, **FLN 03011.06** in a TLP output message gives a location of 3rd floor, lineup 11, and frame number 6.

The CDSU-II is a commercial, rack mounted *Pentium** microprocessor system. System-related circuit packs are installed in PCI bus slots labeled P0 through P3. The microprocessor circuit pack is installed in a slot labeled CPU. The telephony circuit packs that provide ASR functionality are installed in EISA Bus slots labeled E1 through E14. In the TLP list, the last 3 characters of the EQL code for CDSU-II resident hardware items indicate the CDSU-II slot. The first 3 characters of the EQL are a 1-character bay number, followed by a 2-character measurement which indicates (in inches) the distance from the floor to the center of the unit. Some TLP list examples are given below:

- A TLP list showing an EQL for a CDSU-II circuit pack as **011-P01** would indicate a problem with the LAN circuit pack located in slot P01 of the bottom CDSU-II.
- A TLP list showing an EQL for a CDSU-II circuit pack as **011-C-P** would indicate a problem with the *Pentium* microprocessor circuit pack in the bottom CDSU-II.
- A TLP list showing an EQL for a CDSU-II circuit pack as **011-E03** would indicate a problem with the AYC53 circuit pack located in slot E3 of the bottom CDSU-II.

A circuit pack code of **CXCBL** refers to the coaxial LAN cable connected to the T-connector of the CDSU-II's LAN circuit pack, and coming from either the SCU, or a lower-numbered CDSU-II within the CDSC-II. A circuit pack code of **LANTRM** refers to a coaxial LAN cable connected to the T-connection of the CDSU-II's LAN circuit pack, and running to a higher-numbered CDSU-II in the CDSC-II. If the CDSU-II is the last equipped CDSU-II in the CDSC-II, then the **LANTRM** code indicates either a coaxial LAN cable connected to the CDSU-II's LAN circuit pack T-connector, and running to the Smart HUB or a physical LAN termination device attached to the T-connector. A circuit pack code of **LANPBD** refers to the SCU backplane LAN paddle board. A circuit pack code of **THNCBL** refers to the thinnet coaxial LAN cable connecting the LAN paddle board to the coaxial cable converter.

There are some special circuit pack codes in the ASR TLP that implicate more than one piece of hardware:

- The circuit pack code **SYSTEM** indicates a problem with the CDSU-II microprocessor system hardware and/or the CDSU-II resident UNIX operating system.

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* Registered trademark of Intel Corporation

- The circuit pack code **ALLDSP** indicates a problem in one of the BYC51 circuit packs in the indicated CDSU-II. The TLP Suspected Faulty Equipment List must be used to identify the specific faulty circuit pack.

Within the CDSU-II, the only components that can be replaced are the BYC51, AYC52, and AYC53 circuit packs. If other components within the CDSU-II are found to be faulty, the CDSU-II must be replaced.

Clear Diagnostic Failure at Service Circuit Unit (SCU) by Analyzing Prologue and Replacing Any Suspect Packs

Summary: Use information from the first failing phase prologue to derive a weighted list of suspected circuit packs. Replace the packs one at a time until the trouble is cleared.

1. Read the prologue of the unit with the failing test.

2. Can possible circuit pack failures be determined by reading the prologue of the program unit with the failing test?

   If **YES**, continue to Step 3.

   If **NO**, diagnose failure by obtaining assistance per local office practice, and go to Step 9.

3. Identify circuit packs related to the test failure.

4. Replace one of the circuit packs identified in Step 3 with a duplicate circuit pack (DLP-502).

5. At the 1B Maintenance (MTC) terminal, enter: **DGN:SCS** *a***,SCU** *b***:PH 1-17!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

   > ***Note:*** Phase 16 and 17 should only be used for SCUs with Automatic Speech Recognition (ASR). If the SCU does not have ASR, only use phases 1-15.

6. What is the diagnostic result from Step 5?

   If `STF`, continue to Step 7.

   If `ATP/CATP`, go to Step 9.

7. Are any more suspect packs to be replaced?

   If **NO**, continue to Step 8.

   If **YES**, repeat from Step 4.

8. Diagnose failure by obtaining assistance per local office practice, and continue to Step 9.

9. At the 1B Maintenance (MTC) terminal, enter: **RST:SCS** *a***,SCU** *b***}!**

   where *a* = Member number
   b = SCU member number

10. Ensure that the system responds “`completed`” for units restored to service.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Diagnostic Failure by Looping Over First Failing Test and Signal Trace to Locate Fault in Central Controller (CC) Resident Diagnostic

Summary: Type in Table A messages. Verify that the raw data of the first failing test is printed twice. Resend last Table A message with the **RPT** option deleted for an infinite loop. Set up the scope. If the **SYNC** option is used, attach the external sweep trigger to the appropriate terminal. Using the raw data analysis information, Schematic Drawings (SDs), and circuit pack SDs, signal trace the path of the failing bits to isolate and clear the fault.

1. Set up the loop over the first failing test and repeat the test twice using Table A messages.

TABLE A Messages to Establish Loop

INPUT MESSAGE	RESPONSE
1. **EX:SCS** *a*,**{CONTR** *b*|**IPUB** *c*|**SCU** *h*} **;START!**	SUSPENDED
2. **EX:SCS** *a*:**SYNC** *e*,**ENABLE** *g***!** (**SYNC** optional)	SUSPENDED
3. **EX:SCS** *a*;**RPT 2:PH** *d*, **ADR** *e-f*	(Raw Data)
a = Failing SCS member number *b* = Failing controller member number *c* = Failing IPUB member number *d* = First failing phase number *e* = Address of first failing test statement index word *f* = Address of next index word following first failing test index word *g* = First failing test number *h* = Failing SCU member number	

2. Is the first failing test raw data printed twice?

   If **YES**, go to Step 8.

   If **NO**, continue to Step 3.

3. Verify the loop start and end addresses are on the index words, **e** and **f** in Table A. These index words and addresses can be found in the diagnostic listing.

4. Is the first failing test in an automatic segment (DLP-519)?

   If **YES**, continue to Step 5.

   If **NO**, go to Step 7.

5. Set up the loop over the first failing test; test in a force segment (DLP-520).

6. Is the first failing test raw data printed twice?

   If **YES**, go to Step 8.

   If **NO**, continue to Step 7.

7. Seek assistance in setting up the loop.

8. Set up an infinite loop by entering: **EX:SCS** *a***:PH** *d***, ADR** *e***-***f*

   See Table A for *a*, *d*, *e*, and *f* values.

9. Was the **SYNC** option used?

   If **YES**, continue to Step 10.

   If **NO**, set up the scope and go to Step 13.

10. Set up the scope for signal tracing using the external sweep trigger.

11. Connect the external sweep trigger to terminal 053-152-036 for controller 1 or 045-152-036 for controller 0.

12. Display sweep trigger and adjust for SYNC pulse and SYNC pulse display. (See Figure 1.)

    Note: The SYNC pulse is transmitted by PUWB bit 36 which is not tested by SCS diagnostics.

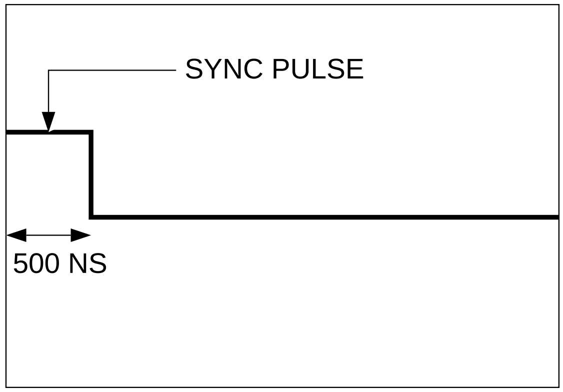


Figure 1. SYNC Pulse Display

13. Using analysis of F-level interrupts per TAP-109, raw-data analysis information, SDs, and circuit pack SDs, signal trace the path of the failing bits to isolate and clear the fault.

    Note: The SYNC pulse is transmitted by PUWB bit 36 which is not tested by SCS diagnostics.

14. Have you located and cleared the fault?

    If **YES**, go to Step 18.

    If **NO**, continue to Step 15.

15. Are any mate circuit packs on the TLP list?

    If **YES**, continue to Step 16.

    If **NO**, return to Step 13.

16. Do diagnostics indicate that mate packs are to be replaced?

    If **YES**, continue to Step 17.

    Caution: Service degrading condition can be caused by mate pack replacement.

    If **NO**, return to Step 13.

17. Obtain assistance per local office practice, then go to Step 24.

18. Enter: **OP:MACLI,CLASS MTCE!**

19. Enter: **STOP:MACLI,CLASS MTCE, SUBCLASS *a*!**

    where *a* = subclass assigned faulty SCS (see previous message response)

20. Enter: **DGN:SCS *a*,{CONTR *b*|IPUB *c*|SCU *h*}!**
    See Table A for *a*, *b*, *c*, and *h* values.

21. What is the diagnostic result?

    If `STF`, continue to Step 22.

    If `ATP/CATP`, go to Step 23.

22. Set up the loop again using Table A messages (delete RPT) or DLP-520 if required, and repeat from Step 13.

23. Enter: **RST:SCS *a*,{CONTR *b*|IPUB *c*|SCU *h*}!**
    See Table A for *a*, *b*, *c*, and *h* values.

    Response: `RST:SCS` *a*`,{CONTR` *b*`|IPUB` *c*`|SCU` *d*`} COMPLETED`

24. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Analyze Service Circuit System (SCS) F-Level Interrupt

1. Using Figure 1, identify the suspect SCS controller and type of F-level interrupt, such as PUF or APUF.

```
A 39 REPT:F-LEVEL 15004417 MFNUM=00000345 MICON=00000022 MSG STARTED
LV=0040 D0=00000000 D1=00000000 D2=00000057 D3=00000000
APUFS INTERRUPT SCS 0
SCSF RESOLVED ERROR SCS 0 CONTR 0
SCSF RECOMMENDED REMOVAL LOM SCS 0 CONTR 0
SCSF RECOMMENDED DIAGNOSTICS SCS 0 CONTR 0
FERA REQUESTED REMOVAL LOM SCS 0 CONTR 0
FERA REQUESTED DIAGNOSTICS SCS 0 CONTR 0
```

Figure 1. Text Header Portion of SCS Printout

2. Using Figure 2, obtain the Point of Maximum Definition (PMD) number from `FAULT RECOGNITION ISOLATION DATA` field.

3. Access the PMD dictionary (DLP-501) to obtain a description of the error analysis results.

4. Is the PMD number listed in the PMD dictionary?

   If **NO**, then the PMD is erroneous or new. Obtain assistance per local office procedure and go to Step 19.

   If **YES**, continue to Step 5.

5. Does the PMD number obtained in Step 2 equal **373**?

   If **YES**, the problem is access failure of an in-service controller. Check power units and associated circuitry using SD-4A166-01. Go to Step 19.

   If **NO**, continue to Step 6.

Point of Maximum Definition (PMD)

```
DATA:  PERIPHERAL SYSTEM DATA
72024675 00000004 60010004 00000000 00000000 00000004
00000000 00000004 00000000 01600001 01600041 60070041
01600041
DATA:  INTERRUPT SOURCE DATA
00004401 77777766 00754000 02000000 00000001
DATA:  FAULT RECOGNITION ISOLATION DATA
00000001 00000000 00000051 00000000 00000003 00000000
DATA:  ERROR ANALYSIS STRATEGY DATA
00112000 00037200 00200100 00000022 00012000 01000101
00000000 00040000 00003051 01000000 62000000 01000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 12330204
12326240 14401152 00433106 00000034 00000000 00000001
00000000 00001604
04/21/92  10:00:52
#469
```

Figure 2. Part of the SCS F-Level Interrupt Printout - PMD

6. Does the PMD number obtained in Step 2 equal **374**, **375**, or **377**?

   If **YES**, the interrupt is from growth, unequipped, or duplex failed frame. Notify personnel performing maintenance or growth activities in or around the interrupting frame. If no activity is apparent, obtain assistance per local office procedure. Go to Step 19.

   If **NO**, continue to Step 7.

7. Using Table A, plus the PMD and the F-level interrupt type from Step 1, record the Error Source Register (ESR) name (GRESR, EXESR, CESR, etc.), the controller (if provided), and the Associated Error Source Register Table to be used in this analysis.

8. Is the ESR (first acronym listed in the Associated Error Source Register Table columns in Table A) that was recorded in Step 7 a CESR type of register?

   If **YES**, use Figure 3, to locate the CESR in the interrupt printout. If any bits in the 18 through 20 bit positions are set to 1, use Table A to record the secondary ESR name and the ESR Table to be used in this analysis. Continue to Step 9.

   If **NO**, continue to Step 9.

TABLE A SCS Reference

TYPE OF ERROR	CONTROLLER *	PMD †	ASSOCIATED ERROR SOURCE REGISTER TABLE ‡
RAM Error	Both		GRESR (E), bits 0,1,2,3,4,5,6,7 EXESR (F), bits 3,5,6,7,8,9,10,11,12
	Active	331,340,350,360	
	Standby	330,341	
Sanity/Stack Error	Both	57	EXESR (F), bits 0,1
	Active	56,75,155,173	
	Standby	55,76	
Fatal Firmware	Both	332	CESR (B), bit 8
	Active	333,343,353,363	
	Standby	334,344	
Firmware (No PPE)	Both	47	CESR (B), bits 7,9,10,11
	Active	50,117,153,176	
	Standby	51,125	
Firmware (With PPE)	Both	52	CESR (B), bits 7,9,10,11,13
	Active	53,126,154,174	
	Standby	54,127	
Mismatch	Both	46,62,124,115, 113,114,116	CESR (B), bits 22,23
	Active	44,60,122,105,103, 104,106,152,175	
	Standby	45,61,123,111, 107,110,112	
IAS	Both	262,272	EBLKSTATL (C), bits 0,1,2,4,7 EBLKSTATH (D), bits 0,1,4
	Active	261,271	
	Standby	260,270	
Hardware	Both	40,41,42,43	CESR (B), bits 6,12,13,14,15,16, 17,18,19,20,21
	Active	30,31,32,33,71, 72,120,150,151, 171,172,177	
	Standby	34,35,36,37, 73,74,121	
No Error Source	Both	1,4,5,70	CESR (B), bits 0,1
	Active	2,130,131,132,170	
	Standby	3	

* Controller is active when CSTATUS bit 7 = 1 (bit 7 = 0 for standby).

† Use Table G to expand "E" and "P" registers for PUFs only.

‡ The B, C, D, E, and F characters in this column, that are in parentheses, indicate the letter of the Associated Error Source Register Table to be used for the particular Type of Error in the first column.

CSTATUS	HWSTATR	MADATA	FSTATUS	SCU0S	**CESR**	CONTR 0
PEST	CONTROL	**EBLKSTATL**	**EBLKSTATH**	EBLKADR	**GRESR**	
GRCNTRM	GADRMO	GADRM1	**EXESR**	EXCSTATML	EXCSTATMH	
EXFPR	EXPC	EXSANTIM	EXSTKBL	EXSTKBH	EXSTRPTR	
EXINTR	RLPBPTR	WLPBPTR	RDBPTR	WDBPTR	MBPTRS	
SDOWMBPTR	MBSTAT	SCU0ESR	SCU1ESR	SCU2ESR	SCU3ESR	
SCU4ESR	SCU5ESR	SCU6ESR	SCU7ESR	SCU8ESR	SCU9ESR	
SCU10ESR	SCU11ESR	SCU12ESR	SCU13ESR	SCU14ESR	SCU15ESR	
FWERRBUF0	FWERRBUF1	FWERRBUF2	FWERRBUF3	FWERRBUF4	FWERRBUF5	
FWERRBUF6	FWERRBUF7	FWERRBUF8	FWERRBUF9	EBERRORM	EBLKADRM	
EBLKSTATML	EBLKSTATMH	0....0	0....0	0....0	0....0	
MEMN	XLATE	5....5	5....5	5....5	5....5	
CSTATUS	HWSTATR	MADATA	FSTATUS	SCU0S	**CESR**	CONTR 1
PEST	CONTROL	**EBLKSTATL**	**EBLKSTATH**	EBLKADR	**GRESR**	
GRCNTRM	GADRMO	GADRM1	**EXESR**	EXCSTATML	EXCSTATMH	
EXFPR	EXPC	EXSANTIM	EXSTKBL	EXSTKBH	EXSTRPTR	
EXINTR	RLPBPTR	WLPBPTR	RDBPTR	WDBPTR	MBPTRS	
SDOWMBPTR	MBSTAT	SCU0ESR	SCU1ESR	SCU2ESR	SCU3ESR	
SCU4ESR	SCU5ESR	SCU6ESR	SCU7ESR	SCU8ESR	SCU9ESR	
SCU10ESR	SCU11ESR	SCU12ESR	SCU13ESR	SCU14ESR	SCU15ESR	
FWERRBUF0	FWERRBUF1	FWERRBUF2	FWERRBUF3	FWERRBUF4	FWERRBUF5	
FWERRBUF6	FWERRBUF7	FWERRBUF8	FWERRBUF9	EBERRORM	EBLKADRM	
EBLKSTATML	EBLKSTATMH	0....0	0....0	0....0	0....0	

Figure 3. The SCS Critical Register (CREG) Layout

9. Use Figure 3 to locate the ESR name recorded in Steps 7 and 8 (if applicable) in the interrupt printout.

10. For each ESR located in Step 9, record any bit position set to a **1**.

11. Refer to the specific Associated Error Source Register Table, recorded in Step 7, and the secondary ESR name table recorded in Step 8 (if applicable). List all circuit packs associated with each bit position recorded in Step 10.

12. Was only one controller recorded in Step 7?

    If **YES**, use Steps 13 and those that follow to perform pack changes in the recorded controller.

    If **NO**, the trouble can be either controller. Begin pack changes in the controller specified in Step 1 by using Step 13 and those that follow.

13. Remove power from the controller.

14. Replace the first suspect pack.

15. Apply power to the controller and restore the controller to service.

16. Is the fault corrected?

    If **YES**, go to Step 19.

    If **NO**, continue to Step 17.

17. Has the pack list for this controller been exhausted?

    If **NO**, repeat from Step 13 for the next circuit pack on the list.

    If **YES**, continue to Step 18.

18. Is this the last controller on which pack changes are to be done?

    If **YES**, check for circuitry problems using SD-4A166-01. Also, for PUF-type interrupts only, see Figure 4 and the last footnote in Table G. Continue to Step 19.

    If **NO**, repeat from Step 13 for each pack on the list in the other controller, if applicable.

19. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

```
A 00 REPT: F-LEVEL @15742476 MFNUM=00000034 MICON=00000020   MSG STARTED
     LV=0040 D0=00000000 D1=00000000 D2=00000217 D3=00000000
 ──► APUFS INTERRUPT SCS 0
     SCSF RESOLVED ERROR SCS 0 CONTR 0
     SCSF RECOMMENDED NORMAL REMOVAL SCS 0 CONTR 0
     SCSF RECOMMENDED DIAGNOSTICS SCS 0 C0NTR 0
     FERA REMOVED SCS 0 CONTR 0
     FERA SCHED DGN SCS 0 CONTR 0
     DATA:  F-LEVEL
     07210003 07210003 15757050 20000000 00000000 77777601
     77777766 00000101 14020200 15742476 00000040 14527530
     14007345 14527532 72024675 00000020 07210003 00000001
     15003455 04001000 00004000 00400006 40100000 00000000
     00754000 00004401 77777766 00001774 00017417 00000000
     60600000 00000000 02402000 00000540 00000000 02402163
     52004675 17210003 00000000 00310005 00010215 00000004
     00000200 40004301 00000000 00000000 00000000
```

F-LEVEL REGISTER 24
"E REGISTER"

F-LEVEL REGISTER 25
"P REGISTER UPPER - RAM"

F-LEVEL REGISTER 26
"P REGISTER LOWER - PRL"

```
A 56 REPT: F-LEVEL @15500547 MFNUM=00000305 MICON=00000022 MSG STARTED
     LV=0040 D0=00000000 D1=00000000 D2=00000217 D3=00000000
 ──► PUFS INTERRUPT SCS 0
     SCSF RESOLVED ERROR SCS 0 CONTR 1
     SCSF RECOMMENDED NORMAL REMOVAL SCS 0 CONTR 1
     SCSF RECOMMENDED DIAGNOSTICS SCS 0 CONTR 1
     FERA RST NO UPDATE SCS 0 CONTR 1
     DATA: F-LEVEL
     00000000 00000001 15500512 00000000 00000000 00537520
     00000000 00000000 15003457 35500547 00000040 15500545
     55500600 15500552 33030614 00000063 07210003 00000002
     55500600 04000000 00012300 00000006 40100000 00000000
     05400000 00000300 00000000 00000001 00016017 00000000
     40700000 00000000 02402000 00000540 00000000 00400003
     12030614 17210003 00000000 00000000 02104233 00000000
     00000332 00000000 00000401 00000000 00000000
```

Figure 4. Part of F-level Interrupt Printout - E and P Registers

TABLE B Controller Error Source Register (CESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
0	ASWF	0DPUR260, B11/G7	1DPUR260, B24/H7	All-Seems-Well-Failure (ASWF). An ASWF asserts the Peripheral Unit Failure (PUF) flag.	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
1	AINT	0DPUR260, B11/G7	1DPUR260, B24/H7	Autonomous Interrupt. An AINT asserts the Autonomous Peripheral Unit Failure (APUF) flag.	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
2	PUPFE	0DPUW390, B11/B8	1DPUW390, B24/B8	Peripheral unit bus even parity failure. This error asserts an ASWF.	UN350(045,053-112) UN349(045,053-152) UN349(045,053-160) UN349(045,053-168)
3	PUPFO	0DPUW380, B11/B8	1DPUW380, B24/B8	Peripheral unit bus odd parity failure. This error asserts an ASWF.	UN350(045,053-112) UN349(045,053-152) UN349(045,053-160) UN349(045,053-168)
4	APUT	0DPUR270, B11/G7	1DPUR270, B24/H7	Autonomous Peripheral Unit Trouble (interject level). Indicates a Service Circuit Unit (SCU) detected error or a digit buffer overflow.	SCU x * UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
5	APUB	0DPUR280, B11/G7	1DPUR280, B24/H7	Autonomous Peripheral Unit Base level (NOT CURRENTLY USED BY THE SCS).	UN350(045,053-112) UN351 or UN591 (045,053-072)
6	UNASOP	None	None	Invalid/unassigned opcode. This error asserts an ASWF.	UN350(045,053-112) UN349(045,053-152) UN349(045,053-160) UN351 or UN591 (045,053-072)
7	SWERR0	None	None	Firmware error bit 0. This error asserts an AINT/ASWF †.	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)

* SCU x is the SCU in which the fault was detected, where x is the value of the contents of the extended bus address register. A Time Slot Interchanger fault can also trigger this error. The KCN3 in position 48 interfaces with SCUs 0-7, whereas the KCN3 in position 56 interfaces with SCUs 8-15.

† AINT/ASWF - AINT (Autonomous Interrupt) is generated by the error if no peripheral unit order is being processed, whereas ASWF (All-Seems-Well-Failure) occurs if the error is triggered during order processing.

TABLE B (Contd) Controller Error Source Register (CESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
8	SWERR1	None	None	Firmware error bit 1. This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
9	SWERR2	None	None	Firmware error bit 2. This error asserts an AINT/ASWF *	UN350(045,053-072) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
10	SWERR3	None	None	Firmware error bit 3. This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
11	SWERR4	None	None	Firmware error bit 4. This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
12	MODFL	None	None	Peripheral Unit Bus Interface (PUBI) (UN350) Mode Failure. This error asserts an ASWF *	UN350(045,053-112) UN349(045,053-144) UN349(045,053-152)
13	PPE	None	None	PUBI (UN350) Parity Error. This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)
14	SPARE14	None	None	Spare bit (NOT USED). This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072)

* AINT/ASWF - AINT (Autonomous Interrupt) is generated by the error if no peripheral unit order is being processed, whereas ASWF (All-Seems-Well-Failure) occurs if the error is triggered during order processing.

TABLE B (Contd) Controller Error Source Register (CESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
15	LCLKF	None	None	PUBI (UN350) local clock failure. This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072)
16	HWSPARE0	None	None	Hardware spare 0 (NOT USED). This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072)
17	HWSPARE1	None	None	Hardware spare 1 (NOT USED). This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072)
18	EBSUM	0EEBSUM0, B11/B3	1EEBSUM0, B24/B3	Extended Bus interface (KCN3) error summary. This error asserts an AINT/ASWF *	KCN3(045,053-048) UN350(045,053-112)
19	GRAMSUM	0EGRSUM0, B10/F8	1EGRSUM0, B23/F8	Global RAM (UN352) memory data parity error summary. This error asserts an AINT/ASWF *	UN352(045,053-088) UN350(045,053-112)
20	EXECSUM	0EEXSUM0, B10/C5	1EEXSUM0, B10/C5	EXEC (UN351) error source summary for bits 0-16 in the EXEC error source register. This error asserts an AINT/ASWF *	UN351 or UN591 (045,053-072) UN350(045,053-112)
21	BPSUM	0EBPSUM0, B10/F8	1EBPSUM0, B23/F8	Backplane error summary (Detected on the GRAM [UN352] circuit pack). This error asserts an AINT/ASWF *	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056) UN357(045,053-024) UN357(045,053-120)
22	CPMM	0ECPMM0, B10/C5	1ECPMM0, B23/C5	EXEC (UN352) clock phase error. This error asserts an AINT/ASWF *	UN351 or UN591 (045,053-072) UN350(045,053-112)
23	CCMM	0ECCMM0, B10/F8	1ECCMM0, B23/F8	Cross-controller mismatch (Detected on the GRAM [UN352] circuit pack). This error asserts an AINT/ASWF; * a fault on the mate controller can also trigger this error.	UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088) KCN3(045,053-048) KCN3(045,053-056)

* AINT/ASWF - AINT (Autonomous Interrupt) is generated by the error if no peripheral unit order is being processed, whereas ASWF (All-Seems-Well-Failure) occurs if the error is triggered during order processing.

TABLE C Extended Bus Link Status Register Low (EBLKSTATL) (32 bit register - upper 8 bits are listed in EBLKSTATH)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
0	ICRSCU	None	None	Illegal command received by the SCU	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
1	RPESCU	None	None	SCU receive link parity error	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
2	RFESCU	None	None	SCU receive link frame error	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
3	SPARE3	None	None	Spare bit (NOT USED)	
4	RFFSCU	None	None	SCU receive fifo full (NO ERROR)	
5	RFHFSCU	None	None	SCU receive fifo half full (NO ERROR)	
6	TFNESCU	None	None	SCU transmit fifo not empty (NO ERROR)	
7	ERRSUM	None	None	SCU error summary bit	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
8	TSA	None	None	Transmit sequencer active (NO ERROR)	
9-14	TSEQS	None	None	Transmit sequencer state (NO ERROR)	
15	STATLSSRB	None	None	This bit reflects the state of the Set Status Register Bit (bit 17) of the EBI control register (NO ERROR)	
16	RSA	None	None	Receive sequencer active (NO ERROR)	
17-21	RSEQS	None	None	Receive sequencer state (NO ERROR)	
22	NOC	None	None	Near operation complete (NO ERROR)	
23	EBIOC	None	None	Operation complete sync (NO ERROR)	

* SCU n is the SCU in which the KCN4 is located, where n is the value of the contents of the extended bus address register. The KCN3 in position 48 interfaces with SCUs 0-7, whereas the KCN3 in position 56 interfaces with SCUs 8-15.

TABLE D Extended Bus Link Status Register High (EBLKSTATH) (32 bit register - lower 24 bits are listed in EBLKSTATL)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
0	ICRSCC	None	None	Illegal command received by the controller.	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
1	RLVSCC	None	None	Receive link violation by the controller.	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
2	STATHSSRB	None	None	This bit reflects the state of the Set Status Register Bit (bit 17) of the EBI control register (NO ERROR).	
3	DDATPE	None	None	Controller destination data parity error. This error asserts an EBSUM flag in the UN350 CESR register.	KCN3(045,053-048) KCN3(045,053-056) UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088)
4	RPE	None	None	Receive parity error from an EB link.	KCN4(SCU n*,024) KCN3(045,053-048) KCN3(045,053-056)
5	SPE	None	None	Controller source address parity error. This error asserts an EBSUM flag in the UN350 CESR register.	KCN3(045,053-048) KCN3(045,053-056) UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088)
6	DPE	None	None	Controller destination address parity error. This error asserts an EBSUM flag in the UN350 CESR register.	KCN3(045,053-048) KCN3(045,053-056) UN350(045,053-112) UN351 or UN591 (045,053-072) UN352(045,053-088)
7	TPE	None	None	Transmit parity error to an EB link. This error asserts an EBSUM flag in the UN350 CESR register.	KCN3(045,053-048) KCN3(045,053-056)

* SCU n is the SCU in which the KCN4 is located, where n is the value of the contents of the extended bus address register. The KCN3 in position 48 interfaces with SCUs 0-7, whereas the KCN3 in position 56 interfaces with SCUs 8-15.

TABLE E Global RAM Error Source Register (GRESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
0-3	ERAP	None	None	RAM bank A data parity error bits. These errors assert a GRAMSUM flag in the UN350 CESR register.	UN352(045,053-088)
4-7	ERBP	None	None	RAM bank B data parity error bits. These errors assert a GRAMSUM flag in the UN350 CESR register.	UN352(045,053-088)
8-11	EDDP	None	None	Destination bus data parity error bits. These errors assert a BPSUM flag in the UN350 CESR register.	UN352(045,053-088) UN351 or UN591 (045,053-072) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
12	EDAP	None	None	Destination bus address parity error. These errors assert a BPSUM flag in the UN350 CESR register.	UN352(045,053-088) UN351 or UN591 (045,053-072) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
13	ESAAP	None	None	Source bus A address parity error. These errors assert a BPSUM flag in the UN350 CESR register.	UN352(045,053-088) UN351 or UN591 (045,053-072) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
14	ESBAP	None	None	Source bus B address parity error. These errors assert a BPSUM flag in the UN350 CESR register.	UN351 or UN591 (045,053-072) UN352(045,053-088)
15	EXUMM	None	None	Cross-connect update bus mismatch. This error asserts a CCMM flag in the UN350 CESR register; it may be generated due to a mate controller fault.	UN352(045,053-088) UN351 or UN591 (045,053-072) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)

TABLE E (Contd) Global RAM Error Source Register (GRESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
16	EXSMM	None	None	Cross-connect syndrome bus mismatch. This error asserts a CCMM flag in the UN350 CESR register; it may be generated due to a mate controller fault.	UN352(045,053-088) UN351 or UN591 (045,053-072) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
17	SPARE17	None	None	(NOT USED)	
19	SPARE18	None	None	(NOT USED)	
19	SPARE19	None	None	(NOT USED)	
20	SPARE20	None	None	(NOT USED)	
21	SPARE21	None	None	(NOT USED)	
22	SPARE22	None	None	(NOT USED)	
23	SPARE23	None	None	(NOT USED)	

TABLE F EXEC Error Source Register (EXESR)

BIT NO.	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
0	STKBNDERR	None	None	EXEC stack bounds error. This error asserts an EXECSUM flag in the UN350 CESR register. A firmware bug may cause this error.	UN351 or UN591 (045,053-072)
1	SANITYTMR	None	None	Sanity timer elapsed. This error asserts an EXECSUM flag in the UN350 CESR register. A firmware bug may cause this error.	UN351 or UN591 (045,053-072)
2	ALUMM	None	None	ALU mismatch. This error asserts an EXECSUM flag in the UN350 CESR register.	UN351 or UN591 (045,053-072)
3	MALUPERR	None	None	Source A or B data parity error. This error asserts an EXECSUM flag in the UN350 CESR register.	UN351 or UN591 (045,053-072) UN352(045,053-088) UN350(045,053-112) KCN3(045,053-048) KCN3(045,053-056)
4	SPARE4	None	None	(NOT USED)	
5	MPERR0	None	None	Microword parity error (byte 0)	UN351 or UN591 (045,053-072)
6	MPERR1	None	None	Microword parity error (byte 1)	
7	MPERR2	None	None	Microword parity error (byte 2)	
8	MPERR3	None	None	Microword parity error (byte 3)	
9	MPERR4	None	None	Microword parity error (byte 4)	
10	MPERR5	None	None	Microword parity error (byte 5)	
11	MPERR6	None	None	Microword parity error (byte 6)	
12	MPERR7	None	None	Microword parity error (byte 7) These errors (5-12) assert an EXECSUM flag in the UN350 CESR register.	
13	SPARE13	None	None	(NOT USED)	
14	SPARE14	None	None	(NOT USED)	
15	SOFTERR	None	None	Software defined error. This error is normally set by software and asserts an EXECSUM flag in the UN350 CESR register.	UN351 or UN591 (045,053-072)

TABLE F (Contd) EXEC Error Source Register (EXESR)

BIT NO.*	REGISTER LDESIG	FS LDESIG, SHTLOC CONTR 0	FS LDESIG, SHTLOC CONTR 1	BIT MEANING	SUSPECT PACK - CONTR 0, CONTR 1
16	CFPEMW0	None	None	Force microword parity error (byte 0)	
17	CFPEMW1	None	None	Force microword parity error (byte 1)	
18	CFPEMW2	None	None	Force microword parity error (byte 2)	
19	CFPEMW3	None	None	Force microword parity error (byte 3)	
20	CFPEMW4	None	None	Force microword parity error (byte 4)	
21	CFPEMW5	None	None	Force microword parity error (byte 5)	
22	CFPEMW6	None	None	Force microword parity error (byte 6)	
23	CFPEMW7	None	None	Force microword parity error (byte 7)	

* These control bits (16-23) are not error indicators.

TABLE G E and P Register Expansion

(E REGISTER, F-LEVEL REGISTER 24)		
E REGISTER BITS 21-17 (DECIMAL)		BITS 16-12 (DECIMAL)
VALUE	UNIT TYPE	MEMN
0	Undefined	-
1	MCC/PPI	0
2	SP/DIF	Bits 16-12
3	SCLK	0
4	TME	Bits 11, 10
5	TSI	Bits 16-11
6	TGR	Bits 16-10
7	IOUS	Bits 16-14
8	Undefined	-
9	EST	Bits 16-12
11	SCS	Bits 16-14
10, 12-31	Undefined	-

Note: See Figure 4. For all PUF type F-Level interrupts from the SCS, a log should be maintained of the contents of the E, P (upper), and P (lower) registers from the interrupt printout. These registers contain the K-code and instruction sent by the 1B Processor CC over the PUB. This table can then be used to break down the contents of these registers and log the results.

Obtain assistance per local office procedures if bits 21 through 17 of the E register indicate some frame other than the SCS or if there is a repeating pattern of OPCODE and extended OPCODE in recurring interrupts.

Clear Interface to Peripheral Unit Bus (IPUB) Power Trouble

1. Does the IPUB have a **blown fuse** (**FA** and **OFF** LEDs lighted on the TN1671 circuit pack) or a **power alarm** (**PA** and **OFF** LEDs lighted on the TN1671 circuit pack)? (See Figure 1.)

   If **blown fuse**, continue with Step 2.

   If **power alarm**, then go to Step 20.

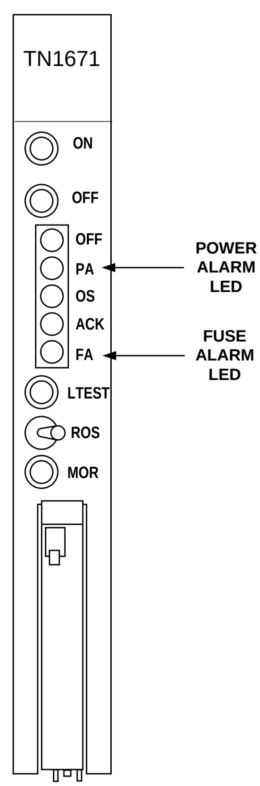


Figure 1. The TN1671 Circuit Pack

2. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel, and record the location of the blown fuse.

3. Unlatch each of the four UN349 circuit packs in the IPUB.

4. Unlatch the TN1671 circuit pack.

5. At the fuse and filter unit, replace the blown fuse. (See Table A.)

   Note: There is one fuse associated with the IPUB. Replace the fuse with the lighted LED. Pay attention to the fuse size and type labeled on the fuse panel cover.

TABLE A Fuse Information

Frame	Fuse Panel	Fuse Designation	Fuse Type
J4A024AC-1	J5D003FJ-1	IPUB0-IPUB1	-48 Volt

6. Latch the TN1671 circuit pack.

7. Does the fuse blow?

   If **YES**, replace the TN1671 circuit pack with a new TN1671 circuit pack, replace the blown fuse, and continue to Step 12.

   If **NO**, return power to the unit by pressing the **ON** button on the TN1671 circuit pack.

8. Does the fuse blow?

   If **YES**, replace the TN1671 circuit pack with a new TN1671 circuit pack, replace the blown fuse, and go to Step 14.

   If **NO**, continue to Step 9.

9. Press the **OFF** button on the TN1671 circuit pack.

10. Latch one of the unlatched UN349 circuit packs.

11. Press the **ON** button on the TN1671 circuit pack.

12. Does the fuse blow?

    If **YES**, replace the UN349 circuit pack with a new UN349 circuit pack, replace the blown fuse, and go to Step 13.

    If **NO**, continue to Step 13.

13. Have all unlatched UN349 circuit packs been latched?

    If **YES**, continue to Step 14.

    If **NO**, return to Step 9.

14. Latch any unlatched UN349 circuit packs.

15. Press the **ON** button located on the UN356.

16. Does the same fuse blow?

    If **YES**, continue to Step 17.

    If **NO**, go to Step 18.

17. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

18. If the unit is not automatically restored to service after diagnostics run, restore the unit to service by entering: **RST:SCS** *x*,**IPUB** *y***!**

    where *x* = Member number (0-7)
    y = IPUB number (0 or 1)

19. Go to Step 34.

20. Clear the alarm by pressing the **OFF** button on the TN1671 circuit pack with the power alarm.

21. Return power to the unit by pressing the **ON** button on the TN1671 circuit pack with the power alarm.

22. Are the **PA** and **OFF** LEDs lighted on the TN1671 circuit pack?

    If **NO**, go to Step 33.

    If **YES**, continue to Step 23.

23. Unlatch each of the four UN349 circuit packs in the IPUB.

24. Clear the alarm by pressing the **OFF** button on the TN1671 circuit pack with the power alarm.

25. Return power to the unit by pressing the **ON** button on the TN1671 circuit pack with the power alarm.

26. Are the **PA** and **OFF** LEDs lighted on the TN1671 circuit pack?

    If **YES**, replace the TN1671 circuit pack with a new TN1671 circuit pack, latch the unlatched UN349 circuit packs, and go to Step 32.

    If **NO**, continue to Step 27.

27. Press the **OFF** button on the TN1671 circuit pack.

28. Latch one of the unlatched UN349 circuit packs.

29. Return power to the unit by pressing the **ON** button on the TN1671 circuit pack.

30. Are the **PA** and **OFF** LEDs lighted on the TN1671 circuit pack?

    If **YES**, replace the circuit pack that was just inserted (DLP-504), latch any other unlatched circuit packs, and go to Step 33.

    If **NO**, continue to Step 31.

31. Have all unlatched UN349 circuit packs been latched?

    If **YES**, continue to Step 32.

    If **NO**, return to Step 27.

32. Are the **PA** and **OFF** LEDs lighted on the TN1984 circuit pack?

    If **NO**, continue to Step 33.

    If **YES**, **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

33. If the unit is not automatically restored to service after diagnostics run, restore the unit to service by entering: **RST:SCS** *x***,IPUB** *y***!**

    where *x* = Member number (0-7)
    y = IPUB number (0 or 1)

34. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Announcement Compare Audit Failure

Summary: Use information from Base Level Maintenance (BLM) printout generated during routine audit to determine the failing disk pair. Replace one of the disks in the disk pair and copy data from the new disk to the other disk in the disk pair to clear the trouble. If the AAP is present and active, the Advanced Features Service Center (AFSC) can complete this procedure by deleting the bad announcement (both disks) and re-recording it to the affected SCU.

1. Using information from the BLM printout, identify the failing disk pair and its associated Service Circuit System (SCS) member number and Service Circuit Unit (SCU) number. 234-010-107, *Maintenance Reference Handbook*, describes how to interpret the BLM data.

   Looking at the BLM Auxiliary Data in the BLM printout, bits 0-3 of Word 3 (DATA0) indicate the SCU number and bits 0-23 of Word 8 (DATA5) indicate the announcement number. These values should be analyzed to determine if some/all announcements are bad in a particular SCU or if they are bad in all SCUs.

2. Is the AAP present and active?

   If **YES**, then go to Step 17.

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

3. Locate a spare disk that is known to have announcements, making sure it has the same announcement set and storage capacity as the disks in the failing disk pair. **Do not use a disk which has just been formatted.**

   > ***Note:*** If a spare disk with identical announcement set and capacity is not available, it may be necessary to borrow a disk from another disk pair on another SCU or even from another office if there are no appropriate disks on site. In this case, the donor SCU should be removed from service before removing the disk, and should be diagnosed after the disk is returned.

4. Take the SCU associated with the failing disk pair out of service (DLP-510).

   > ***Note:*** If this request is denied due to service circuit thresholds, identify any already out-of-service SCUs and restore them to active service. Then repeat this step.

5. Remove power from the failing disk pair by pressing the **OFF** button on the associated UN356 circuit pack.

   Response: On the UN356 circuit pack, the **OFF** LED lights, indicating that power has been removed from the disk pair.

6. Identify the hard disk circuit pack to be replaced. (Choose either one of the disks in the failing disk pair. If the BLM reoccurs after this procedure, then this procedure will be repeated, replacing the other disk.)

7. Carefully flip up the designation strip that runs horizontally across the top of the unit to allow the circuit pack to be removed.

8. See WARNING. Release locking mechanism and remove the circuit pack that was identified in Step 6.

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.

9. Insert the new circuit pack that was located in Step 3 into the position of the pack that was just removed.

10. Ensure that the circuit pack is fully seated and locked into position.

11. Restore power to the disk pair by pressing the **ON** button on the UN356 circuit pack.

    Response: On the UN356 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the disk pair.

12. See WARNING. At the 1B MTC terminal, copy the disk that was just inserted to the other disk in the disk pair by entering: **COPY:SCS** *a***,SCU** *b***,SDP** *c***,BUS** *d***!**

    where *a* = Member number (0-7)
    b = Source SCU number (0-15)
    c = Source disk pair number (0-1)
    d = Source disk bus number (0 or 1)

    WARNING: It is extremely important that the correct SCU number, disk pair number, and disk bus number be entered in the above input message. An error in this input message could corrupt data on other disks. Hard disk pairs, their associated SCUs, and SCSI bus connections are shown in Figures 3 (SCC frame) and 4 (SCU frame) of TAP-104.

    Note: When both the source and destination of a copy is a TN4000 hard disk circuit pack, care must be taken in specifying the pair to copy, since the TN4000 circuit pack contains two disk drives (when combined with another TN4000 circuit pack, two disk pair are implemented). An alternative is to repeat the copy for each pair.

13. At the 1B MTC terminal, write the correct and up-to-date SCS system files from the APS to the HDUs by entering:

COPY:SCS *x*, **MSP1,SVN 0,DVN** *y*; **UCL!** (AP13 and later only)

COPY:SCS *a*,**SCU** *b*,**TONES,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**SCCSFT,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**SCUOPR,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**SCUDGN,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**MSPROV,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**MSPFIX,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**MSP1,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**MIP0FIL,SVN** *c*,**DVN** *d*; **UCL!**

COPY:SCS *a*,**SCU** *b*,**MIP1FIL,SVN** *c*,**DVN** *d*; **UCL!**

where *a* = Member number (0-7)
b = SCU number (0-15)
c = Source file version number (0-1) (Use the correct and up-to-date number.) (4E22R4 and later)
d = Destination file version number (0-1) (4E22R4 and later)

Response: `COPY:SCS` *a* `SCU` *b* `COMPLETE` (for each of the above commands.)

14. Diagnose the SCU associated with the disk pair (DLP-514).

15. Return the disk that was removed to the factory for inspection.

16. Does the BLM reoccur?

If **YES**, repeat this procedure, replacing the other disk in the disk pair. If the BLM reoccurs after replacing the second disk, go to Step 43.

If **NO**, continue to Step 44.

17. Take the SCU associated with the failing disk pair out of service (DLP-510).

> ***Note:*** If this request is denied due to service circuit thresholds, identify any already out-of-service SCUs and restore them to active service. Then repeat this step.

18. Is the LAN inhibited?

    If **YES**, go to Step 20.

    If **NO**, continue with Step 19.

19. Inhibit the LAN by entering the following input messages:

    1. At the AAP console, enter: **STOP:AAP "LANCMD"!**

       Response: `STOP:AAP "LANCMD" completed`

    2. At the 1B MTC terminal, enter: **INH:SCS 0,LAN!**

       Response: `INH:SCS 0, LAN COMPL`

20. At the 1B MTC terminal, do a disk copy from Bus 0 to Bus 1 by entering:
    COPY:SCS *x*,SCU *b*,SDP *c*,BUS 0!

    where *a* = Member number (0-7)
    b = SCU number (0-15)
    c = Source SCU disk pair (0-1 for SCU 0, or 0 for SCUs 1-15)

    Response: `COPY:SCS` *a* `COMPLETED`

    Note: At this point, it is not known which disk has the problem, but this temporarily fixes the problem until the Advanced Features Service Center (AFSC) can perform the fix.

21. Was the answer to Step 18 **YES** or **NO**?

    If **YES**, continue with Step 22.

    If **NO**, go to Step 24.

22. Determine whether the LAN can be allowed at this time (TAP-137).

    If the LAN **can** be allowed, go to Step 24.

    If the LAN **cannot** be allowed, then continue with Step 23.

23. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Retry this procedure at a time whenever the LAN can be allowed.

24. Allow the LAN by entering the following messages:

    1. At the AAP console, enter: **INIT:AAP "LANCMD"!**

       Response: `INIT:AAP "LANCMD" completed`

    2. At the 1B MTC terminal, enter: **ALW:SCS 0,LAN!**

       Response: `ALW:SCS 0,LAN COMPL`

25. Contact the Advanced Features Service Center (AFSC) at 314-658-1304 (tech beeper 314-424-8661) and request an announcement audit of the complete disk pair on the failing SCU.

26. Restore the SCU to service (DLP-524).

27. Wait for confirmation that the AFSC has completed the audit (this could take several hours). If confirmation is not received within a reasonable amount of time, contact the AFSC to check the progress of the audit.

28. Does the mismatch reoccur after the AFSC has completed the audit?

    If **YES**, then continue with Step 29.

    If **NO**, then go to Step 44.

29. Take the SCU associated with the failing disk pair out of service (DLP-510).

30. Replace Disk 0 in the failing disk pair with a spare disk (DLP-503).

31. Copy Disk 1 to Disk 0 (DLP-500).

32. Contact the Advanced Features Service Center (AFSC) at 314-658-1304 (tech beeper 314-424-8661) and request an announcement audit of the complete disk pair on the failing SCU.

33. Restore the SCU to service (DLP-524).

34. Wait for confirmation that the AFSC has completed the audit (this could take several hours). If confirmation is not received within a reasonable amount of time, contact the AFSC to check the progress of the audit.

35. Does the mismatch reoccur after the AFSC has completed the audit?

    If **YES**, then continue with Step 36.

    If **NO**, then go to Step 44.

36. Take the SCU associated with the failing disk pair out of service (DLP-510).

37. Replace Disk 1 in the failing disk pair with a spare disk (DLP-503).

38. Copy Disk 0 to Disk 1 (DLP-500).

39. Contact the Advanced Features Service Center (AFSC) at 314-658-1304 (tech beeper 314-424-8661) and request an announcement audit of the complete disk pair on the failing SCU.

40. Restore the SCU to service (DLP-524).

41. Wait for confirmation that the AFSC has completed the audit (this could take several hours). If confirmation is not received within a reasonable amount of time, contact the AFSC to check the progress of the audit.

42. Does the mismatch reoccur after the AFSC has completed the audit?

    If **YES**, then continue with Step 43.

    If **NO**, then go to Step 44.

43. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

44. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure

1. Was the failure a result of a Service Circuit Controller (SCC) restore or a Service Circuit Unit (SCU) restore?

   If **SCU**, use Table A to find the correct trouble-clearing procedure, based on the output message received. Use the suggested procedure to clear the trouble.

   If **SCC**, use Table B to find the correct trouble-clearing procedure, based on the output message received. Use the suggested procedure to clear the trouble.

2. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A SCU Restore Failure Output Messages and Associated Trouble-Clearing Procedures

IF THIS OUTPUT MESSAGE IS RECEIVED:	THEN GO TO:
`ABORTED ANN UPD FAILED`	TAP-113
`ABORTED ANN UPD REQUEST FAILED`	TAP-114
`ABORTED PUMP FAILED FAILDATA=22000000, 23000000, 24000000, 22000004, 23000004, or 24000004`	(See Note)
`ABORTED PUMP FAILED FAILDATA=22000001, 23000001, 24000001, 25000001, or 26000001`	TAP-119
`ABORTED PUMP FAILED FAILDATA=22000002, 23000002, 24000002, 22000003, 23000003, 24000003, 25000002, 26000002, 25000003, or 26000003`	TAP-120
`ABORTED PUMP FAILED FAILDATA=22400000`	TAP-121
`ABORTED PUMP FAILED — FAILDATA=23400000`	TAP-123
`ABORTED PUMP FAILED — FAILDATA=24400000`	TAP-124
`STOPPED SCU DISK IN USE`	TAP-133
`ABORTED PUMP FAILED — FAILDATA=25400000`	TAP-139
`ABORTED SCU PUMP FAILED — FAILDATA=26400000`	TAP-140

Note: This message indicates an internal program error. Consult Bell Laboratories for assistance.

TABLE B SCC Restore Failure Output Messages and Associated Trouble-Clearing Procedures

IF THIS OUTPUT MESSAGE IS RECEIVED:	THEN GO TO:
ABORTED CONTROLLER UPDATE FAILED FAILDATA=01000001, 02000001, 03000001, or 05000001	TAP-115
ABORTED CONTROLLER UPDATE FAILED FAILDATA=01000002, 01000003, 02000002, 02000003, 03000002, 03000003, 05000002, or 05000003	TAP-116
ABORTED CONTROLLER UPDATE FAILED FAILDATA=03400000	TAP-117
ABORTED CONTROLLER UPDATE FAILED FAILDATA=04gggggg	TAP-118
ABORTED PUMP FAILED — DISK CHECKSUM ERROR	TAP-122
ABORTED PUMP FAILED — INVALID MACRO RESPONSE	TAP-125
ABORTED PUMP FAILED — MACRO CHECKS FAILED	TAP-126
ABORTED PUMP FAILED — MACRO REJECTED	TAP-127
ABORTED PUMP FAILED — MACRO TIMEOUT	TAP-128
ABORTED PUMP FAILED — MICRORAM CHECKSUM ERROR	TAP-129
ABORTED PUMP FAILED — SCU ERROR	TAP-130
ABORTED PUMP FAILED — SCU UNAVAIL	TAP-131
STOPPED FW VER MISMATCH	TAP-132

Clear Restore Failure - Aborted Ann Upd Failed

Summary: The `ABORTED ANN UPD FAILED` output message which was generated by the **RST** (restore) input message indicates that the SCU deferred announcement update failed. Some possible causes of this failure could be:

- The Announcement Administrative Processor (AAP) is unable to provide updates at this time (for example, a LAN failure or unavailability of the AAP due to maintenance or growth).
- The updates cannot be performed because of the current disk contents.
- The SCU is disabled (for updates) at the AAP.

The steps below should be performed in the order shown until the trouble is cleared.

1. Is the Announcement Administrative Processor (AAP) present and active?

   If **NO**, go to Step 2.

   If **YES**, continue to Step 5.

2. Inhibit the LAN by entering: **INH:SCS *a*,LAN!**

   where *a* = Member number (0-7)

   Response: The screen will return `CODE 091` followed by an echo of the input message.

3. Retry the **RST** (restore) input message which generated the failure.

4. Is the trouble cleared?

   If **YES**, go to Step 10.

   If **NO**, continue to Step 5.

5. Contact the Advanced Features Service Center (AFSC) at 314-658-1304 (tech beeper 314-424-8661) to determine if the deferred announcement update failure is correctable by the AFSC. The AFSC will need to know the identification of the affected office, the SCS member number, and the SCU member number.

   Note: When a restore attempt is aborted and the `ANN UPD FAILED` message is output, the SCU is automatically placed in an announcement maintenance mode that allows announcement maintenance to be performed via the LAN. In this state, problems with current disk contents which prevent application of deferred updates may be corrected.

6. Does the AFSC believe the cause of the failure has been corrected?

   If **YES**, continue to Step 7.

   If **NO**, go to Step 9.

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 10.

   If **NO**, continue to Step 9.

9. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

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

Clear Restore Failure - Aborted Ann Upd Request Failed

Summary: The `ABORTED ANN UPD REQUEST FAILED` output message which was generated by the `RST` (restore) input message indicates that the SCU deferred announcement update request macro was rejected by the Service Circuit Controller (SCC). The steps below should be performed in the order shown until the trouble is cleared.

1. If an AAP is present and active, go to Step 3. Otherwise, continue with Step 2.

2. Inhibit the LAN by entering: **INH:SCS** *a***,LAN!**

   where *a* = Member number (0-7)

   Response: The screen will return `CODE 091` followed by an echo of the input message.

3. Retry the **RST** (restore) input message which generated the failure.

4. Is the trouble cleared?

   If **YES**, go to Step 6.

   If **NO**, continue to Step 5.

5. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Controller Update Failed Faildata = 01000001, 02000001, 03000001, or 05000001

Summary: The `ABORTED CONTROLLER UPDATE FAILED FAILDATA=01000001, 02000001, 03000001, or 05000001` output message which was generated by the **RST** (restore) input message indicates an invalid All-Seems-Well (ASW) response to a Peripheral Unit Bus (PUB) macro. The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, run Interface to Peripheral Unit Bus (IPUB) diagnostics (phase 99) by entering: **DGN:SCS** *a***,IPUB** *b***:PH 99!**

   where *a* = Member number (0-7)
   b = IPUB number (0 or 1)

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 4.

4. Is either PUB out-of-service?

   If **YES**, continue to Step 5.

   If **NO**, go to Step 6.

5. At the 1B Maintenance (MTC) terminal, restore the out-of-service PUB by entering: **RST: PUB** *a***!**

   where *a* = PUB number (1 or 0)

6. At the 1B MTC terminal, switch the PUB by entering: **SW: PUB** *a***!**

   where *a* = PUB number (1 or 0) (Since the PUBs are duplicated, it does not matter which PUB number is used.)

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 9.

9. Replace the UN350 circuit pack in the active Service Circuit Controller (SCC) (DLP-502).

10. Retry the **RST** (restore) input message which generated the failure.

11. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 12.

12. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

    Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

13. Retry the **RST** (restore) input message which generated the failure.

14. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 15.

15. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

16. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Controller Update Failed Faildata = 01000002, 01000003, 02000002, 02000003, 03000002, 03000003, 05000002, or 05000003

Summary: The `ABORTED CONTROLLER UPDATE FAILED FAILDATA=01000002, 01000003, 02000002, 02000003, 03000002, 03000003, 05000002, or 05000003` output message which was generated by the **RST** (restore) input message indicates that there was no maintenance buffer response to an internal update macro. The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, run Interface to Peripheral Unit Bus (IPUB) diagnostics (phase 99) by entering: **DGN:SCS *a*,IPUB *b*:PH 99!**

   where *a* = Member number (0-7)
   b = IPUB number (0 or 1)

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 19.

   If **NO**, continue to Step 4.

4. Is either Peripheral Unit Bus (PUB) out of service?

   If **YES**, continue to Step 5.

   If **NO**, go to Step 6.

5. At the 1B MTC terminal, restore the out-of-service PUB by entering: **RST: PUB *a*!**

   where *a* = PUB number (1 or 0)

6. At the 1B MTC terminal, switch the PUB by entering: **SW: PUB** ***a*****!**

   where *a* = PUB number (1 or 0) (Since the PUBs are duplicated, it does not matter which PUB number is used.)

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 19.

   If **NO**, continue to Step 9.

9. Replace the UN350 circuit pack in the active Service Circuit Controller (SCC) (DLP-502).

10. Retry the **RST** (restore) input message which generated the failure.

11. Is the trouble cleared?

    If **YES**, go to Step 19.

    If **NO**, continue to Step 12.

12. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

    Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

13. Retry the **RST** (restore) input message which generated the failure.

14. Is the trouble cleared?

    If **YES**, go to Step 19.

    If **NO**, continue to Step 15.

15. Replace the UN352 circuit pack in the active SCC (DLP-502).

16. Retry the **RST** (restore) input message which generated the failure.

17. Is the trouble cleared?

    If **YES**, go to Step 19.

    If **NO**, continue to Step 18.

18. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

19. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Controller Update Failed Faildata = 03400000

Summary: The `ABORTED CONTROLLER UPDATE FAILED FAILDATA=03400000` output message which was generated by the **RST** (restore) input message indicates the "checksum" over the program read back from the out-of-service Service Circuit Controller (SCC) Micro-Ram does not match the "checksum" stored in memory (originally read from disk). The steps below should be performed in the order shown until the trouble is cleared.

1. Retry the **RST** (restore) input message which generated the failure, in case the failure was caused by a transient error.

2. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 3.

3. At the 1B Maintenance (MTC) terminal, run full SCC diagnostics on the SCC that is failing to restore(DLP-513).

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 6.

6. Replace the circuit pack at horizontal location 072 in the SCC that is failing to restore(DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 9.

9. Replace the UN352 circuit pack in the SCC that is failing to restore(DLP-502).

10. Retry the **RST** (restore) input message which generated the failure.

11. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 12.

12. Replace the UN350 circuit pack in the SCC that is failing to restore (DLP-502).

13. Retry the **RST** (restore) input message which generated the failure.

14. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 15.

15. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

16. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Controller Update Failed Faildata = 04xxxxxx

Summary: The `ABORTED CONTROLLER UPDATE FAILED FAILDATA=04xxxxxx` output message (where "x" is any value) which was generated by the **RST** (restore) input message indicates that a hardware error occured while copying "LRAM/GRAM" over the update bus. The steps below should be performed in the order shown until the trouble is cleared.

1. Retry the **RST** (restore) input message which generated the failure, in case the failure was caused by a transient error.

2. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 3.

3. At the 1B Maintenance (MTC) terminal, run full Service Circuit Controller (SCC) diagnostics on the SCC that is failing to restore (DLP-513).

   > ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 6.

6. Replace the UN352 circuit pack in the SCC that is failing to restore (DLP-502).

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 9.

9. Replace the circuit pack at horizontal location 072 in the SCC that is failing to restore (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

10. Retry the **RST** (restore) input message which generated the failure.

11. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 12.

12. Replace the UN350 circuit pack in the SCC that is failing to restore (DLP-502).

13. Retry the **RST** (restore) input message which generated the failure.

14. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 15.

15. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

16. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Faildata = 22000001, 23000001, 24000001, 25000001, or 26000001

Summary: The `ABORTED PUMP FAILED FAILDATA=22000001, 23000001, 24000001, 25000001, or 26000001` output message which was generated by the **RST** (restore) input message indicates that there was no maintenance buffer response to an internal update macro. The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, switch the Service Circuit Controllers (SCCs) by entering: **SW: SCC** *a***!**

   where *a* = SCC number (1 or 0)

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 4.

4. At the 1B MTC terminal, run SCC diagnostics on the active SCC (DLP-513).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 7.

7. Take one of the SCCs out of service (DLP-509).

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 10.

10. Power down the out-of-service SCC (DLP-505).

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 17.

    If **NO**, continue to Step 13.

13. Replace the circuit packs at horizontal locations 072 (UN351 or UN591) and 112 (UN350) in the active SCC (DLP-502).

    Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

14. Retry the **RST** (restore) input message which generated the failure.

15. Is the trouble cleared?

    If **YES**, go to Step 17.

    If **NO**, continue to Step 16.

16. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

17. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Faildata = 22000002, 23000002, 24000002, 22000003, 23000003, 24000003, 25000002, 26000002, 25000003, or 26000003

Summary: The `ABORTED PUMP FAILED FAILDATA=22000002, 23000002, 24000002, 22000003, 23000003, 24000003, 25000002, 26000002, 25000003, or 26000003` output message which was generated by the **RST** (restore) input message indicates that the Central Controller (CC) timed out while waiting for a response from the Service Circuit Controller (SCC). The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, switch the SCCs by entering: **SW: SCC** ***a*****!**

   where *a* = SCC number (1 or 0)

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 4.

4. At the 1B MTC terminal, run SCC diagnostics on the active SCC (DLP-513).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 7.

7. Take one of the SCCs out of service (DLP-509).

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 10.

10. Power down the out-of-service SCC (DLP-505).

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 13.

13. Replace the circuit packs at horizontal locations 072 (UN351 or UN591) and 112 (UN350) in the active SCC (DLP-502).

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace both UN351s with UN591s per NTP-017 in TOP 234-153-060AC.

14. Retry the **RST** (restore) input message which generated the failure.

15. Is the trouble cleared?

   If **YES**, go to Step 17.

   If **NO**, continue to Step 16.

16. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

17. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Faildata = 22400000

Summary: The `ABORTED PUMP FAILED FAILDATA=22400000` output message which was generated by the **RST** (restore) input message indicates an internal Service Circuit Unit (SCU) problem (the SCU pump of the operational file failed). The steps below should be performed in the order shown until the trouble is cleared.

1. Copy the operational file (oprver0, oprver1, oprver2, or oprver3) from the 3B20 computer to the SCU (DLP-500).

   Note: DLP-535 can be used to determine the Destination Version Number (DVN) to be used in the copy message. The latest SCU software version on the 3B20 is always 0.

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 24.

   If **NO**, continue to Step 4.

4. At the 1B Maintenance (MTC) terminal, run SCU diagnostics (DLP-514) on the failed SCU.

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 24.

   If **NO**, continue to Step 7.

7. At the 1B Maintenance (MTC) terminal, switch the Service Circuit Controllers (SCCs) by entering: **SW: SCC** *a***!**

   where *a* = SCC number (1 or 0)

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 24.

   If **NO**, continue to Step 10.

10. At the 1B Maintenance (MTC) terminal, run SCC diagnostics (phase 20) **on each SCC** by entering: **DGN:SCS** *a***,CONTR** *b***:PH 20!**

    where *a* = Member number (0-7)
    b = Controller number (0 or 1)

    Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). The SCCs should be left simplex.

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 24.

    If **NO**, continue to Step 13.

13. At the 1B Maintenance (MTC) terminal, switch the SCCs by entering: **SW: SCC** *a***!**

    where *a* = SCC number (1 or 0)

14. Power down the SCC that is out of service (DLP-505).

15. Retry the **RST** (restore) input message which generated the failure.

16. Is the trouble cleared?

    If **YES**, go to Step 24.

    If **NO**, continue to Step 17.

17. Replace the KCN3 circuit pack in the active SCC (DLP-502).

18. Retry the **RST** (restore) input message which generated the failure.

19. Is the trouble cleared?

    If **YES**, go to Step 24.

    If **NO**, continue to Step 20.

20. Replace the KCN4 circuit pack in the failed SCU (DLP-502).

21. Retry the **RST** (restore) input message which generated the failure.

22. Is the trouble cleared?

    If **YES**, go to Step 24.

    If **NO**, continue to Step 23.

23. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

24. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure
Aborted Pump Failed - Disk Checksum Error

Summary: The `ABORTED PUMP FAILED — DISK CHECKSUM ERROR` output message which was generated by the **RST** (restore) input message indicates that the "checksum" information in the file header does not match the locally calculated "checksum" information in the Service Circuit Controller (SCC). The steps below should be performed in the order shown until the trouble is cleared.

1. Using DLP-530, verify that word 10 (octal) in the Unit Type (UT) translator shows the expected firmware version for the SCC.

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 4.

4. Using DLP-531, verify the SCC operational file **for each equipped Service Circuit Unit (SCU)**. The SCU file number used in Step 1 of DLP-531 depends on the firmware version that was determined in Step 1 of this procedure as follows:

Firmware Version From Step 1:	SCU File Number For DLP-531, Step 1:
0	11
1	12
2	13
3	14

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 7.

7. Using DLP-514, run diagnostic phases 1-17, 90, and 91 **on each equipped SCU**. Use DLP-506 to power down any SCU(s) that fail diagnostics and cannot be fixed.

   Note: When diagnostics are run on an SCU while the SCCs are duplex failed, the Central Controller (CC) alternates between SCCs for each diagnostics command. For example, if the craft typed **DGN:SCS 0,SCU 0!**, the CC might try to send the diagnostic command through SCC 0 the first time. If the craft repeated the command, the CC would use the alternate SCC (SCC 1, in this example). This means that if an SCC is inoperable or powered down, the SCU diagnostic will fail completely every other time, regardless of the status of the SCU itself. This will show up as a failure of test zero in every phase.

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 10.

10. Is more than one SCU in the Service Circuit System (SCS) still powered up?

    If **YES**, power down the lowest numbered SCU of this group, and continue to Step 11.

    If **NO**, go to Step 13.

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 14.

    If **NO**, continue to Step 13.

13. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Faildata = 23400000

Summary: The `ABORTED PUMP FAILED FAILDATA=23400000` output message which was generated by the **RST** (restore) input message indicates an internal Service Circuit Unit (SCU) problem (SCU equipment configuration parameters failed). The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, get raw error data by entering:
   DUMP:MEMORY;SCS ***a*****,SCU** ***b*****,TRAM FFC3,L 32!**

   where *a* = SCS member number (0-7)
   b = SCU number (0-15)

   Response: Raw error data is displayed on the screen and is sent to the Read Only Printer (ROP). An example of the printout is shown in Figure 1.

Addresses **Third Word**

```
0 FFC3 1455 0001 9500 0000 0000 0000 0408 A8BE
0 FFCB A7BB 0000 4003 0030 6296 000F C52C 0000
0 FFD3 02C5 EBB0 000A F5D8 000E 0030 0016 0A24
0 FFDB 1194 000B 0000 0000 0000 0000 0000 0000
```

Figure 1. Sample Printout of Memory Dump

2. Using the raw data printed in Step 1, determine the error code that was generated. The error code is in bits 8 through 14 of the third word (hexadecimal address ffc5). (See Figure 1.)

3. Looking at Table A, follow the trouble-clearing procedure for the error code that was determined in Step 2. After following the suggested procedure in Table A, continue with Step 4.

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 7.

   If **NO**, continue to Step 6.

6. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
01	Something is wrong in the Unit Type (UT) translator. The disk size is probably illegal. 1. Verify that the disk information in the UT translator matches the SCS hardware configuration (DLP-530). See Table B to determine which word needs to be verified. If they do not match, use DLP-515 in TOP 234-153-060 to change the UT translator to match the hardware. ***Note:*** Disk sizes **00** (TN1672), **01** (TN1972), **10** (TN4000), and **11** (TN9000) are legal. 2. Make sure the hardware configuration has at least two identical disks as pair 0.
14	Disk pair 0 is not equipped in the UT translator. 1. Verify that disk pair 0 is equipped in the UT translator (DLP-530). See Table B to determine which word needs to be verified. If disk pair 0 is not equipped, use DLP-515 in TOP 234-153-060 to perform a functional word change in the UT translator that will equip pair 0 and set the disk size to match the hardware.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
15, 16, 17, 18, or 1A	The announcement table initialization failed. 1. Run SCU diagnostics phase 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 3. Copy a known good disk (or disks, if there are multiple pairs) (DLP-500). ***Note:*** This note applies to SCU 0, where an SCU can have more than one disk pair. You cannot use identical copies of a disk in two different disk pairs in the same SCU unless there are no announcements in that copy. Different disk pairs in the same SCU cannot both have the same announcement (that is, the same announcement number cannot be used in two different pairs). Also, you cannot have four pairs of TN1972 disks in the same SCU. The largest legal configuration is three pairs of TN1972 disks and one pair of TN1672 disks. Only one pair of TN4000 circuit pack is allowed per SCU. Only one pair of TN9000 circuit packs is allowed per SCU also.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
19, 20, 21, 22, or 23	The Local Area Network (LAN) did not initialize properly. 1. Run SCU diagnostics phase 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 3. Replace the KCN4 circuit pack in the SCU (DLP-502).
24	A read parity error occurred with the KCN4 circuit pack in the SCU. 1. Run SCU diagnostics phase 10 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 10!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 3. Replace the KCN4 circuit pack in the SCU (DLP-502).

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
27	The formatted disk size does not match size in the unit translator. 1. Verify that the disk information in the UT translator matches the SCS hardware configuration (DLP-530). The disk size in the UT translator should be **00** for TN1672 disks, **01** for TN1972 disks, **10** for TN4000 disks, and **11** for TN9000 disks. See Table B to determine which word needs to be verified. ***Note:*** It is possible that a TN1972 disk could have been formatted as a TN1672 disk by mistake or a TN9000 could have been formatted as a TN1972 or TN1672 by mistake. If this is the case, the problem can be cleared by copying a good TN1972/TN9000 disk to the improperly formatted TN1972/TN9000 disk (DLP-500). 2. Do the UT translator and hardware information match? If **YES**, copy a known good disk of the correct size to the suspected faulty disk(s) (DLP-500). If **NO**, use DLP-515 in TOP 234-153-060 to change the UT translator to match the hardware. See Table B to determine which word in the UT translator needs to be changed.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

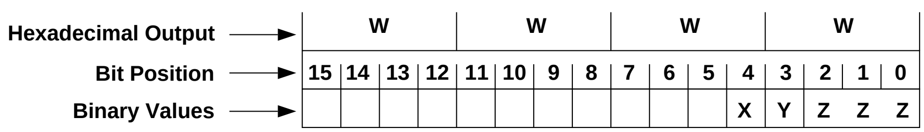
ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
28	The tone file is bad. 1. Copy the tone file (tonver0, tonver1, tonver2, or tonver3) from the 3B20 computer to the SCU (DLP-500). 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 3. Copy a known good disk (with the same announcements) to the suspected faulty disk(s) (DLP-500). 4. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 5. Replace the suspected faulty disk (DLP-503).

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
80	A disk error occurred. 1. Using Figures 1 and 2, examine the sixth word in the printout from Step 1 to determine the disk drive number and the Small Computer System Interface (SCSI) bus. Record this information. 2. Using Figure 1, examine the word at address FFCD and FFCE. If word FFCD has a value of **0** and word FFCE has a value of **FFFF**, the SCU cannot access this disk drive. 3. Ensure that there is a disk drive in the cabinet with number recorded in Step 1 above. If not, verify the correct word in the UT translator per Table B and DLP-530. If the drive is there, make sure the disk is powered up (DLP-507). 4. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 5. Replace the disk drive identified in Step 1 above. 6. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to the next step. 7. Replace the TN1978 circuit pack.
Other	Error codes, other than those previously listed, indicate a disk problem. This could be a disk that is equipped in the UT translator, but is not physically present, a powered-down disk, a faulty disk, bad disk cables, bad terminators, bad disk ID straps, or a faulty power supply. In order of preference, replace the disk drive or the SCSI Host Adaptor circuit pack (TN1978). Other items listed (terminators and disk ID straps) are not replaceable by craft. If a power problem is determined, see TAP-104 for the Hard Disk Unit or TAP-103 for the SCU.

TABLE B Octal Words and Associated SCUs for Disk Capacity and Disk Pair Equipage Verification

SCU	Word	SCU	Word	SCU	Word	SCU	Word
0	26	4	52	8	76	12	122
1	33	5	57	9	103	13	127
2	40	6	64	10	110	14	134
3	45	7	71	11	115	15	141



W = Variable hexadecimal numbers
X = Small Computer System Interface (SCSI) bus 1 error (if this bit is set to 1)
Y = SCSI bus 0 error (if this bit is set to 1)
ZZZ = SCSI bus device with error, where:
- 000 = Hard disk drive 0
- 001 = Hard disk drive 1
- 010 = Hard disk drive 2
- 011 = Hard disk drive 3
- 110 = Floppy disk drive
- 111 = Host Adaptor Circuit Pack (TN1978)

Figure 2. Layout of Sixth Word in Memory Dump

Clear Restore Failure - Aborted Pump Failed Faildata = 24400000

Summary: The `ABORTED PUMP FAILED FAILDATA=24400000` output message which was generated by the **RST** (restore) input message indicates that the "initialize MSP" command (TN1589 circuit pack) failed. The steps below should be performed in the order shown until the trouble is cleared.

1. Retry the **RST** (restore) input message which generated the failure.

2. Is the trouble cleared?

   If **YES**, go to Step 5.

   If **NO**, continue to Step 3.

3. At the 1B Maintenance (MTC) terminal, get raw-error data by entering:
   DUMP:MEMORY;SCS *a***,SCU** *b***,TRAM FFC3,L 32!**

   where *a* = SCS member number (0-7)
   b = SCU number (0-15)

   Response: Raw-error data is displayed on the screen and is sent to the Read Only Printer (ROP). This data will be needed by the next level of support.

   Continue to Step 4.

4. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Invalid Macro Response

Summary: The `ABORTED PUMP FAILED - INVALID MACRO RESPONSE` output message which was generated by the **RST** (restore) input message indicates bad data in an internal response from the Service Circuit Controller (SCC). The steps below should be performed in the order shown until the trouble is cleared.

1. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace both UN351s with UN591s per NTP-017 in TOP 234-153-060AC.

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 4.

4. Replace the UN350 circuit pack in the active SCC (DLP-502).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 7.

7. Replace the UN352 circuit pack in the active SCC (DLP-502).

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 10.

10. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Macro Checks Failed

Summary: The `ABORTED PUMP FAILED - MACRO CHECKS FAILED` output message which was generated by the **RST** (restore) input message indicates either a program bug or no maintenance buffer response to pump macro (may be stuck in error loop at base level). The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, run full SCC diagnostics (DLP-513).

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 4.

4. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace both UN351s with UN591s per NTP-017 in TOP 234-153-060AC.

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 7.

7. Replace the UN350 circuit pack in the active SCC (DLP-502).

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 10.

10. Replace the UN352 circuit pack in the active SCC (DLP-502).

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 14.

    If **NO**, continue to Step 13.

13. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Macro Rejected

Summary: The `ABORTED PUMP FAILED - MACRO REJECTED` output message which was generated by the **RST** (restore) input message indicates an invalid All-Seems-Well (ASW) response to the Peripheral Unit Bus (PUB) macro. The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, run full Service Circuit Controller (SCC) diagnostics (DLP-513).

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 4.

4. Replace the UN350 circuit pack in the active SCC (DLP-502).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 7.

7. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace both UN351s with UN591s per NTP-017 in TOP 234-153-060AC.

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 10.

10. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Macro Timeout

Summary: The `ABORTED PUMP FAILED - MACRO TIMEOUT` output message which was generated by the **RST** (restore) input message indicates there was no maintenance buffer response to pump macro (may be stuck in error loop at base level). The steps below should be performed in the order shown until the trouble is cleared.

1. At the 1B Maintenance (MTC) terminal, run full Service Circuit Controller (SCC) diagnostics (DLP-513).

   Note: This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105).

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 4.

4. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace both UN351s with UN591s per NTP-017 in TOP 234-153-060AC.

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 7.

7. Replace the UN350 circuit pack in the active SCC (DLP-502).

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 14.

   If **NO**, continue to Step 10.

10. Replace the UN352 circuit pack in the active SCC (DLP-502).

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 14.

    If **NO**, continue to Step 13.

13. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed Micro-Ram Checksum Error

Summary: The `ABORTED PUMP FAILED - MICRORAM CHECKSUM ERROR` output message which was generated by the **RST** (restore) input message indicates the Service Circuit Controller (SCC) program failed "checksum" tests when read back from micro-store after writing. The steps below should be performed in the order shown until the trouble is cleared.

1. Assure that the circuit pack at SCC horizontal location 072 (either UN351 or UN591) is the version required by the latest Broadcast Warning Message (BWM). This is done by comparing the the BWM description with the series number on the front of the circuit pack.

2. Is the circuit pack the correct version?

   If **YES**, go to Step 6.

   If **NO**, continue to Step 3.

3. Is the circuit pack version older or newer than the version listed in the BWM?

   If **older**, replace the circuit pack with the correct version (DLP-502). Then continue to Step 4.

   If **newer**, consult the next level of support to determine whether or not the circuit pack is compatible and replace it if necessary (DLP-502). Then continue to Step 4.

   > ***Note:*** If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 6.

6. At the 1B Maintenance (MTC) terminal, run SCC diagnostics (phase 12) 50 times by entering: **DGN:SCS** *a***,CONTR** *b***;RPT 50:PH 12!**

   where *a* = Member number (0-7)
   b = Controller number (0 or 1)

7. Retry the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 16.

   If **NO**, continue to Step 9.

9. Replace the circuit pack at horizontal location 072 in the active SCC (DLP-502). This will be either a UN351 or a UN591 circuit pack.

   Note: If you are replacing a UN351, and a spare UN351 is not available, replace the UN351 with a UN591 per NTP-017 in TOP 234-153-060AC.

10. Retry the **RST** (restore) input message which generated the failure.

11. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 12.

12. Replace the UN352 circuit pack in the active SCC (DLP-502).

13. Retry the **RST** (restore) input message which generated the failure.

14. Is the trouble cleared?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 15.

15. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

16. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed SCU Error

Summary: The `ABORTED PUMP FAILED - SCU ERROR` output message which was generated by the **RST** (restore) input message indicates that the lowest numbered Service Circuit Unit (SCU) is experiencing an error during Service Circuit Controller (SCC) pump. The steps below should be performed in the order shown until the trouble is cleared.

1. Using DLP-514, run full diagnostics **on each equipped SCU**. Use DLP-506 to power down any SCU(s) that fail diagnostics and cannot be fixed.

   Note: When diagnostics are run on an SCU while the SCCs are duplex failed, the Central Controller (CC) alternates between SCCs for each diagnostics command. For example, if the craft typed **DGN:SCS 0,SCU 0!**, the CC might try to send the diagnostic command through SCC 0 the first time. If the craft repeated the command, the CC would use the alternate SCC (SCC 1, in this example). This means that if an SCC is inoperable or powered down, the SCU diagnostic will fail completely every other time, regardless of the status of the SCU itself. This will show up as a failure of test zero in every phase.

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 4.

4. Power down the lowest numbered SCU that is still powered up (DLP-506).

5. Retry the **RST** (restore) input message which generated the failure.

6. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 7.

7. At the SCC, replace the KCN3 circuit pack associated with the lowest numbered SCU that is still powered up (DLP-502). SCUs 0-7 use the leftmost KCN3 circuit pack.

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 11.

   If **NO**, continue to Step 10.

10. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure - Aborted Pump Failed SCU Unavail

Summary: The `ABORTED PUMP FAILED - SCU UNAVAIL` output message which was generated by the **RST** (restore) input message indicates the Service Circuit Controller (SCC) could not communicate with any Service Circuit Units (SCUs) for pumping its program. The steps below should be performed in the order shown until the trouble is cleared.

1. Take one of the SCCs out of service (DLP-509).

2. At the 1B Maintenance (MTC) terminal, switch the SCCs by entering: **SW: SCC** *a*!

   where *a* = SCC number (1 or 0)

3. Power down the other SCC (DLP-505).

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 20.

   If **NO**, continue to Step 6.

6. At the 1B Maintenance (MTC) terminal, run SCC diagnostics (phase 20) by entering: **DGN:SCS** *a***,CONTR** *b***:PH 20!**

   where *a* = Member number (0-7)
   b = Controller number (0 or 1)

   Note: Any SCU that fails the loop tests should be fixed or powered down.

7. At the 1B Maintenance (MTC) terminal, switch the SCCs by entering: **SW: SCC** *a*!

   where *a* = SCC number (1 or 0)

8. Retry the **RST** (restore) input message which generated the failure.

9. Is the trouble cleared?

   If **YES**, go to Step 20.

   If **NO**, continue to Step 10.

10. At the 1B Maintenance (MTC) terminal, run SCU diagnostics on the remaining SCUs (DLP-514).

    Note: When diagnostics are run on an SCU while the SCCs are duplex failed, the Central Controller (CC) alternates between SCCs for each diagnostics command. For example, if the craft typed **DGN:SCS 0,SCU 0!**, the CC might try to send the diagnostic command through SCC 0 the first time. If the craft repeated the command, the CC would use the alternate SCC (SCC 1, in this example). This means that if an SCC is inoperable or powered down, the SCU diagnostic will fail completely every other time, regardless of the status of the SCU itself. This will show up as a failure of test zero in every phase.

11. Retry the **RST** (restore) input message which generated the failure.

12. Is the trouble cleared?

    If **YES**, go to Step 20.

    If **NO**, continue to Step 13.

13. Replace the KCN3 circuit pack(s) (DLP-502).

14. Retry the **RST** (restore) input message which generated the failure.

15. Is the trouble cleared?

    If **YES**, go to Step 20.

    If **NO**, continue to Step 16.

16. Replace the UN350 circuit pack (DLP-502).

17. Retry the **RST** (restore) input message which generated the failure.

18. Is the trouble cleared?

    If **YES**, go to Step 20.

    If **NO**, continue to Step 19.

19. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

20. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure
Stopped FW Ver Mismatch

Summary: The `STOPPED FW VER MISMATCH` output message which was generated by the **RST** (restore) input message indicates that the firmware versions in the Unit Type (UT) translator for the two Service Circuit Controllers (SCCs) do not match. The steps below should be performed in the order shown until the trouble is cleared.

1. Using DLP-530, verify that word 10 (octal) in the UT translator shows the same firmware version for both SCCs. If the firmware version is not the same for both SCCs, use DLP-515 in TOP 234-153-060 to perform a functional word change so that the firmware versions match.

2. Retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 5.

   If **NO**, continue to Step 4.

4. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Restore Failure
Stopped SCU Disk in Use

Summary: The `STOPPED SCU DISK IN USE` output message which was generated by the **RST** (restore) input message indicates that the Service Circuit Unit (SCU) is involved in either an **INIT** (disk format) or a disk **COPY** (raw file). A restore should not be attempted under these conditions. The steps below should be performed in the order shown until the trouble is cleared.

1. Was the SCU the source or destination for an inter-SCU file copy or the subject SCU of an **SCU INIT** request?

   If **NO**, continue to Step 2.

   If **YES**, go to Step 4.

2. Wait 15 minutes for periodic audits to clear unit software status, then retry the **RST** (restore) input message which generated the failure.

3. Is the trouble cleared?

   If **YES**, go to Step 10.

   If **NO**, go to Step 9.

4. Was the **INIT** or **COPY** aborted by an error?

   If **YES**, continue to Step 5.

   If **NO**, go to Step 7.

5. At the 1B Maintenance (MTC) terminal, enter:

   STOP:INIT;SCS *a***!** or **STOP:COPY;SCS** *a***!**

   where *a* = Member number (0-7)

6. Restart the **INIT** or **COPY**.

7. After the **INIT** or **COPY** has been successfully completed, repeat the **RST** (restore) input message which generated the failure.

8. Is the trouble cleared?

   If **YES**, go to Step 10.

   If **NO**, continue to Step 9.

9. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

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

Clear LAN Inhibited Alarm

Summary: This alarm is initially raised on the switch side and it is not raised on the AAP side. Specifically, the "Interrupts Inhibited" indicator, which is located on the Master Control Console (MCC), will be lit. Initially, the reason for this alarm condition should be investigated and determined. Secondly, any actions that are required of the respective remote maintenance centers should be identified and completed in order to reestablish a fully functioning system.

Step	Responsible Side	Responsible Side
	AAP	**Switch**
1		Determine whether or not someone on the switch side is doing LAN maintenance but failed to coordinate that issue properly. If **YES**, then go to Step 10. If **NO**, then continue.
2		Contact the AAP side and inquire whether a reboot is taking place? If **YES**, then go to Step 7. If **NO**, then continue.
3	Are any of the AAP's databases currently being altered? If **YES**, then go to Step 10. If **NO**, continue.	
4	Is any part of the AAP software currently being restarted? If **YES**, then go to Step 10. If **NO**, continue.	
5	Is the AAP currently in the process of completing a BWM operation? If **YES**, then go to Step 10. If **NO**, then continue.	

<table>
<tr><th rowspan="2">Step</th><th>Responsible Side</th><th>Responsible Side</th></tr>
<tr><th>AAP</th><th>Switch</th></tr>
<tr><td>6</td><td></td><td>Are there one or more in-service (on the switch) SCUs that are disabled in the AAP's SCUEQP database?

If YES, then, (as appropriate) remove the subject SCU(s) from service, or enable those SCU(s) in the AAP's SCUEQP database. Then, go to Step 11.

If NO, go to Step 8.</td></tr>
<tr><td>7</td><td>After a wait of approximately 15 to 20 minutes the AAP should have completed the reboot and the AAP applications software should be functioning normally. Continue with Step 11.</td><td></td></tr>
<tr><td>8</td><td></td><td>Analyze the 1B maintenance reports and determine whether two or more SCUs have interjected (or if only one SCU is in service, and that SCU has interjected).

Note: A single SCU interject (and removal) will be indicated with a <code>PMD 241</code>. Multiple SCU interjects (and automatic LAN inhibit) will be indicated with a <code>PMD 251</code>.

If YES, then go to TAP-135 to diagnose and resolve the hardware faults.
If NO, then continue.</td></tr>
</table>

Step	Responsible Side	Responsible Side
	AAP	**Switch**
9		Enable the LAN by entering the following message at the 1B console: **ALW:SCS 0,LAN!** If the LAN **stays up**, go to Step 13. If the LAN **does not stay up**, see TAP-135.
10	**STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Retry this procedure at a time whenever the LAN can be allowed.	**STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Retry this procedure at a time whenever the LAN can be allowed.
11	Access the Craft Shell from the AAP Main Menu and enter the following: **INIT:AAP:LANCMD**	
12		Enter the following input message: **ALW:LAN!**
13	**STOP! YOU HAVE COMPLETED THIS PROCEDURE.**	**STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

LAN Hardware Faults (AAP to SCU and AAP to Smart HUB) — Diagnose and Resolve

This procedure addresses isolation of hardware faults which result in LAN-related Service Circuit Unit (SCU) interjects. This procedure assumes that the cause of the interjects is a result of LAN hardware faults. This procedure should not be undertaken unless this determination has been made.

> ***Note:*** This procedure is used to diagnose and resolve hardware faults on the LAN between the AAP and the SCU and the LAN between the AAP and Smart HUB. If a problem is suspected in the LAN that connects the Smart HUB, the Custom Data Services Units (CDSUs), and the SCU, see TAP-141.

Summary: LAN-related interjects will be handled by fault recovery based on the number of equipped and in-service SCUs in the Service Circuit System (SCS) complex(es).

Typical recovery actions are:

- Remove the SCU, if a single SCU reports LAN problems in a multiple SCU complex.
- Inhibit the LAN if multiple SCUs report LAN problems.
- Test the SCU if the SCU complains of LAN problems and fault recovery identifies this SCU in its ‘‘last SCU’’ check.

The philosophy for diagnosing LAN problems involves the following resources:

- The responsible maintenance personnel must be familiar with the configuration of the LAN.
- The receive-only printer (ROP) at the 1B console should be reviewed for messages that might indicate the cause of the LAN problem.
- The 1B software LAN test should be run on successive segments of the LAN in an attempt to localize the failure.

The 1B diagnostic will fail in the presence of any of the following LAN related faults:

- LAN cable problems
- SCS hardware problems
- AAP LAN transceiver problems.

Test results are indicated by PASS or FAIL.

1. Inhibit Local Area Network (LAN).

   a. At the AAP Console, enter:
   INH:SCUEQP;KEY ALL

   Response:
   `INH:SCUEQP KEY ALL completed`

   b. At the 1B MTC terminal, enter:
   INH:SCS 0,LAN!

   Response:
   `INH:SCS 0,LAN COMPL`

2. Diagnose the SCS complex(es). At the 1B MTC terminal, enter:
   DGN:SCS 0,SCU ***x*****:PH 10!**

   where *x* = the lowest numbered in-service SCU in the SCS complex.

3. Did the SCU diagnostic test in Step 2 pass?

   If **YES**, restore the SCU and repeat Step 2 for the next higher numbered SCU within the complex. Ensure that all SCUs that were in-service prior to being diagnosed are restored after the diagnostic is completed. If all SCUs passed, stop this TAP and perform tests on the ENET board(s) described in TAP-110 (one OOS) or TAP-123 (both OOS) in the 201-525-016AC, *AAP Maintenance, Diagnostics, and Trouble-Clearing* document.

   > ***Note:*** If a diagnostic failure occurs on one or more SCUs, record the SCU number(s) for later reference and go to Step 4.

   If **NO**, continue to Step 4.

4. Is the Automatic Speech Recognition (ASR) feature assigned and associated hardware provided for the failing SCU?

   If **YES** continue to Step 5.

   If **NO**, continue to Step 12.

5. Remove the LAN coaxial cable connecting the Smart HUB to the AAP at the AAP transciever. Install a 50-ohm terminator at the AAP in place of cable that was just removed.

6. Diagnose the SCS complex(es). At the 1B MTC terminal, enter:
   DGN:SCS 0,SCU *x*:PH 10!

   where *x* = the lowest numbered in-service SCU in the SCS complex.

7. Did the SCU diagnostic test in Step 6 pass?

   If **NO**, the Smart HUB and associated coaxial cable connection is not suspect. Reconnect the coaxial cable from the Smart HUB to the AAP transciever and continue to Step 12.

   If **YES**, measure the DC resistance of the coaxial between the AAP and the HUB at the AAP end. Measure the resistance between the center conductor and the outer shield. (Resistance should be between 40 and 70 ohms.) Then continue to Step 8.

8. Was the DC resistance measured in the previous step correct?

   If **YES**, ensure that the cable is not somehow grounded to frame ground somewhere along its route, especially at the connector ends. (The LAN is electrically isolated from ground.) If no problems are found, the Smart HUB is suspect. Replace the Smart HUB (DLP-542), reconnect the coaxial cable from the Smart HUB to the AAP transciever and continue to Step 38.

   If **NO**, continue to Step 9.

9. At the Smart HUB, remove the T-connector (that connects the AAP to the Smart HUB) from the Smart HUB (leaving both the LAN cable from the AAP and the 50-ohm terminator connected to the T-connector). Carefully place the T-connector that was just removed so that is does not come in contact with any metallic surface.

10. Again, measure the DC resistance of the coaxial between the AAP and the HUB at the AAP end. Measure the resistance between the center conductor and the outer shield. (Resistance should be between 40 and 70 ohms.)

11. Was the DC resistance measured in the previous step correct?

    If **YES**, the Smart HUB is suspect. Replace the Smart HUB (DLP-542), reconnect the coaxial cable from the Smart HUB to the AAP transciever and continue to Step 38.

    If **NO**, verify that the proper 50-ohm terminator is present. If the 50-ohm terminator is correct, then there is a cable fault. Visually inspect the cable and the BNC connector at each end of the cable looking for any problems. If no problems can be found, then replace the LAN coaxial cable between the AAP and the HUB and continue to Step 38.

12. Isolate SCS Complex(es). Remove the AAP coax cable at the rear of the Service Circuit Controller Cabinet (SCCC) (Vertical EQL 65) and install the 50-ohm terminator.

13. Diagnose the SCS Complex(es). At the 1B MTC terminal, enter:
    DGN:SCS 0,SCU ***x*****:PH 10!**

    where *x* = all SCUs that failed in Step 3.

14. Did the SCU(s) diagnostic test in Step 13 pass?

    If **YES**, the coax and hardware within SCS complex is not suspect, therefore, continue.

    If **NO**, go to Step 25.

15. Measure DC resistance of coax cable between the SCS and AAP. Measure the resistance between the center conductor and the outer shield on the BNC connector of the coax cable (that was removed in Step 12) from the SCS frame to the AAP.

    Expected Results:
    Resistance between 40 and 70 ohms.

    Note: Remove the 50-ohm terminator at the SCCC (Vertical EQL 65) and reconnect the coax cable.

16. Was the DC resistance in Step 15 between 40 and 70 ohms?

    If **YES**, the AAP transceivers are suspect. Stop this TAP and perform tests on the ENET board(s) described in TAP-110 (one OOS) or TAP-123 (both OOS) in the 201-525-016AC, *AAP Maintenance, Diagnostics, and Trouble-Clearing* document.

    If **NO**, continue.

17. Measure DC resistance of coax cable between the AAP and SCS. Disconnect the coax cable between the SCS frame and the AAP at the AAP transceivers. Measure the resistance between the center conductor and the outer shield on the BNC connector of the coax cable from the AAP transceivers to the SCS frame.

    Expected Results:
    Resistance between 40 and 70 ohms.

18. Was the DC resistance in Step 17 between 40 and 70 ohms?

    If **YES**, the coax cable between the SCS and AAP is not suspect, therefore, continue.

    If **NO**, replace the coax cable between the SCS frame and the AAP and go to Step 38.

    > ***Note:*** Reconnect the coax cable between the SCS frame and the AAP at the AAP transceivers.

19. Measure DC resistance between AAP transceivers. Remove the 6-inch coax cable at the transceiver which is electrically closest to the SCS frame.

    Measure the resistance between the center conductor and the outer shield on the BNC Connector of the 6-inch coax cable.

    Expected results:
    Resistance reading between 40 and 70 ohms.

    > ***Note:*** Reconnect the 6-inch coax cable to the transceiver that is electrically closest to the SCS frame.

20. Was the DC resistance in Step 19 between 40 and 70 ohms?

    If **YES**, replace the transceiver that is electrically closest to the SCS frame and go to Step 38.

    If **NO**, continue.

21. Measure DC resistance into the second AAP transceiver. Remove the 6-inch coax cable at the second transceiver.

    Measure the resistance between the center conductor and the outer shield on the BNC Connector of the second transceiver.

    Expected results:
    Resistance reading between 40 and 70 ohms.

    > ***Note:*** Reconnect the 6-inch coax cable to the second transceiver.

22. Was the DC resistance in Step 21 between 40 and 70 ohms?

    If **YES**, replace the 6-inch coax cable between the two AAP transceivers and go to Step 38.

    If **NO**, continue.

23. Measure DC resistance at the 50-ohm terminator. Remove the 50-ohm terminator at the second transceiver.

    Measure the resistance between the center conductor and the outer shield on the 50-ohm terminator.

    Expected results:
    Resistance reading between 40 and 70 ohms.

    > ***Note:*** Reconnect the 50-ohm terminator to the second transceiver.

24. Was the DC resistance in Step 23 between 40 and 70 ohms?

    If **YES**, replace the second transceiver and go to Step 38.

    If **NO**, replace the 50-ohm terminator and go to Step 38.

25. Make visual inspection. Visually inspect the daisy-chained LAN coax cables connecting all SCUs within the SCS frame(s). Ensure that the appropriate 50-ohm terminators are present on either end of the daisy-chained cables.

26. Remove LAN cables from paddle board. At the appropriate SCU, remove both cables at the paddle board (Horizontal EQL 024).

    > ***Note:*** SCU 0 will always be the starting point for this step. Additionally, all SCUs, including the ones that are not populated with circuit packs will be included in this step.

27. Measure DC resistance of LAN cables. Measure the resistance of both cables between the center connector and the outer shield.

    > ***Note:*** One of the coax cables will be connected to the 50-ohm terminator resident in the SCCC. The second 50-ohm terminator will reside in the last Service Circuit Unit Cabinet (SCUC). The object is ensure proper continuity between the coax cable and the 50-ohm terminator.
    >
    > Expected results:
    > Resistance reading between 40 and 70 ohms.

28. Was the DC resistance in Step 27 between 40 and 70 ohms?

    If **YES**, continue.

    If **NO**, replace the cable or 50-ohm terminator and go to Step 37.

29. Measure DC resistance between center conductors at the paddle board. Measure the resistance between the center conductors of the two connectors on the SCU paddle board (Horizontal EQL 024).

    Expected results:
    Resistance reading should be near zero ohms.

30. Was the DC resistance in Step 29 near zero ohms?

    If **YES**, continue.

    If **NO**, replace the paddle board and go to Step 37.

31. Measure DC resistance between outer shields at the paddle board. Measure the resistance between the outer shield conductors of the two connectors on the SCU paddle board (Horizontal EQL 024).

    Expected results:
    Resistance reading should be near zero ohms.

32. Was the DC resistance in Step 31 near zero ohms?

    If **YES**, continue.

    If **NO**, replace the paddle board and go to Step 37.

33. Measure DC resistance between center conductors and the outer shields at the paddle board. Measure the resistance between the center conductor and the outer shield of the two connectors on the SCU paddle board (Horizontal EQL 024).

    Expected results:
    Resistance reading should be an ‘‘open circuit.’’

34. Was the DC resistance in Step 33 an ‘‘open circuit’’?

    If **YES**, continue.

    If **NO**, replace the paddle board. Go to Step 37.

35. Ensure that both coax cables are properly reconnected at the paddle board before proceeding.

36. Perform Steps 26 through 35 for all SCUs present. If all SCU are successfully tested, go to Step 37.

37. Reconnect the AAP coax cable at the rear of the SCCC. Remove the 50-ohm terminator at the rear of the SCCC (Vertical EQL 024) and reconnect the AAP coax cable. Ensure that all cables have been properly reconnected to each paddle board.

38. Diagnose the SCS complex(es). At the 1B MTC terminal, enter:
    DGN:SCS 0,SCU *x*:PH 10!

    where *x* = all SCU(s) that failed.

39. Did the SCU(s) diagnosed in Step 38 pass?

    If **YES**, ensure that all SCU(s) that were in service prior to diagnostics are restored and continue.

    If **NO**, go to Step 43.

40. Allow the SCU equipment database. At the AAP console, enter:
    ALW:SCUEQP;KEY ALL

    Response:
    `ALW:SCUEQP KEY ALL completed`

41. Go to TAP-137 to determine the appropriate time to allow the LAN.

42. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

43. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Contact the next level of support.

Clear Fan System Blown Fuse on SCCC or SCUC Cabinet

1. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel at the top of the Service Circuit Controller Cabinet (SCCC) or the Service Circuit Unit Cabinet (SCUC) (see Figures 1 and 2).

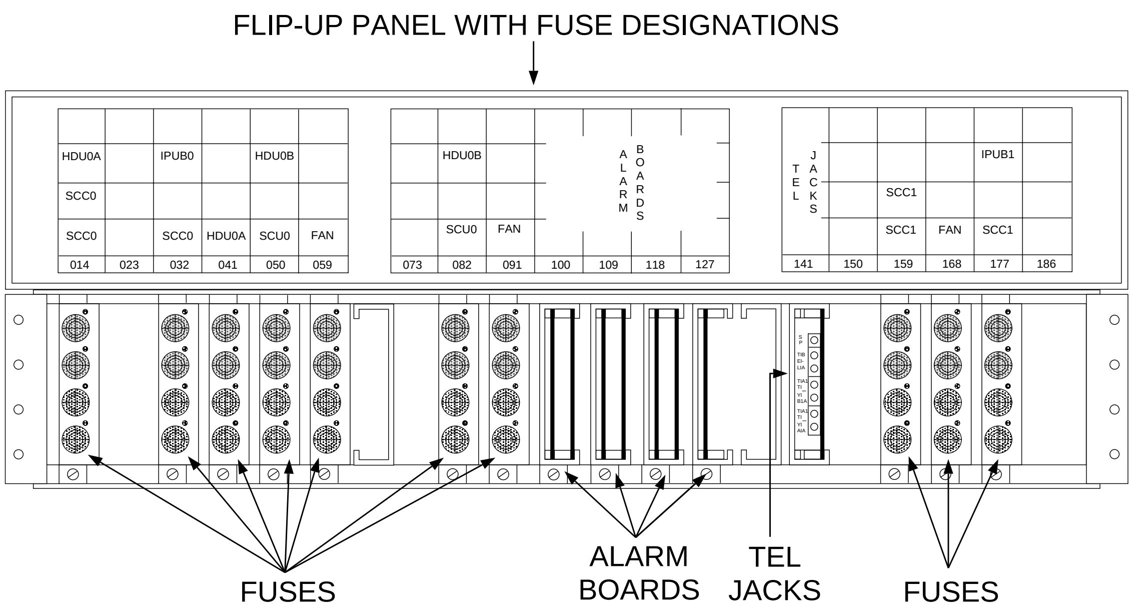


Figure 1. Fuse and Filter Panel for the SCCC

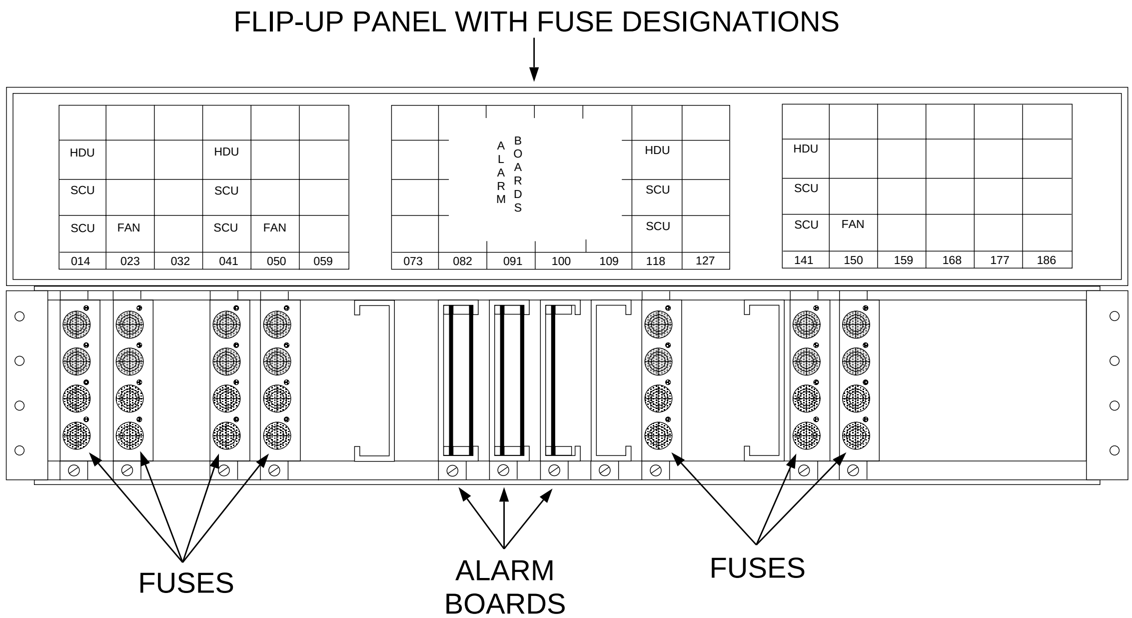


Figure 2. Fuse and Filter Panel for the SCUC

2. Is a fuse blown at locations indicated in Table A for SCCC or Table B for SCUC at the fuse and filter panel?

   If **YES**, continue to Step 4.

   If **NO**, go to Step 3.

3. Contact next higher technical support group and inform personnel of actions performed and results obtained.

4. Is blown fuse type and amperage rating correct?

   If **YES**, continue to Step 6.

   If **NO**, go to Step 5.

5. Obtain replacement fuse of correct type and amperage rating.

6. Remove blown fuse (Table A for SCCC and Table B for SCUC).

   WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

7. Replace fuse previously removed.

   WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse module.

8. Does fuse blow again?

   If **YES**, go to Step 9.
   If **NO**, go to Step 11.

9. Clear fan system trouble (TAP-145).

TABLE A SCCC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-059 Controller	44-032R 44-004R
B	Fan B	69-168	44-098R
C	Fan C	69-091	44-164R
E	Fan E	69-059	44-032F
F	Fan F	69-168	44-098F
G	Fan G	69-091	44-164F

Notes:

1. Rear fans are identified A, B, and C, right to left across rear of fan unit.

   Front fans are identified E, F, and G, left to right across front of fan unit.

2. F indicates front and R indicates rear.

TABLE B SCUC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-023 Controller	44-032R 44-004R
B	Fan B	69-150	44-098R
C	Fan C	69-050	44-164R
E	Fan E	69-023	44-032F
F	Fan F	69-150	44-098F
G	Fan G	69-050	44-164F

Notes:

1. Rear fans are identified A, B, and C, right to left across rear of fan unit.

   Front fans are identified E, F, and G, left to right across front of fan unit.

2. F indicates front and R indicates rear.

10. Contact next higher technical support group and inform personnel of actions performed and results obtained.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Local Area Network (LAN) Maintenance

Summary: The LAN should be considered as a shared communications medium connecting the AAP to the SCUs. If the Automatic Speech Recognition (ASR) feature is provided, the LAN also connects the AAP to the Custom Data Services Units (CDSUs) via a Smart HUB and connects the CDSUs to the SCUs. All LAN maintenance tasks must be closely coordinated by the two (AAP and switch) maintenance organizations. This procedure (TAP-137) and all referenced DLPs are included in both the AAP maintenance document and the SCS maintenance document. Therefore, it should be easy for one organization to always know exactly what the other organization is doing and to know when it is their turn to execute a step and when it is their turn to stand by.

The list of possible LAN problems includes the following:

- LAN inhibited (because of multiple SCU interjects)
- Poll timeouts
- Repeater malfunctions
- SCU paddle board babbles
- Unterminated coaxial cable
- Broken coaxial cable
- Short in the coaxial cable
- All SCUs out of service
- One ENET board out of service.
- Smart HUB fault (if ASR is provided).

The basic LAN troubleshooting philosophy is as follows:

1. Stop the LANCMD software that is currently running on the AAP.

2. Inhibit the LAN on the switch side.

3. Run software diagnostics from the 1B maintenance console.

4. If, after performing all necessary and appropriate software diagnostics the problem still remains unresolved, then look for hardware faults (TAP-135).

THE DON'Ts OF LAN MAINTENANCE

Times When the 1B Side SHOULD NOT Allow the LAN

1. When there is no AAP present.
2. When the AAP exists but it is not yet up and in a stable functioning environment.
3. While restarting any part of the AAP software.
4. While changing the AAP databases.
5. When the AAP is in the process of a Broadcast Warning Message (BWM) operation (either BWM update or BWM apply).
6. When any in-service (on the switch) SCUs are disabled in the AAP database. Remove subject SCUs from service for corrective action before allowing the LAN.
7. When an SCU is being grown into the switch.
8. When ASR hardware (Smart HUB, CDSUs, etc.) are being grown into the switch.

Times When the 1B Side SHOULD NOT Inhibit the LAN

1. When receiving interjects at a rate of more than one-per-minute.

THE DO's OF LAN MAINTENANCE

The 1B Side SHOULD Manually Allow the LAN

1. When there exists an AAP and it is up and functioning normally and no significant changes are currently being made to the AAP software.

2. Unless directed not to do so per a condition listed in the preceeding "Don'ts" section above.

The 1B Side SHOULD Manually Inhibit the LAN

1. When the 1B is experiencing an excessive number of BLMs which will not be automatically resolved with fault recovery procedures.

   Note: Fault recovery will not automatically diagnose a BLM if the rate-of-occurrence is fewer than 30 within a 5-minute interval.

2. When there is a need to disconnect, move, or rearrange the LAN cable or any terminator plug.

   Note: When the LAN is inhibited the ''interrupts inhibited LED'' on the Master Control Console (MCC) will light. Also, the 1B's Read Only Printer (ROP) will usually identify the reason that the LAN was inhibited.

3. Whenever the AAP software (which includes the AAP application software, TNM Interface software, or *UNIX** operating system) is being updated.

4. Before rebooting the *UNIX* operating system on the AAP.

5. Immediately following an AAP *UNIX* operating system panic--should such an event ever occur.

6. Whenever an AAP is not present, or is present but not active.

   Note: The OD40FCPARAM bit 7 is used to control LAN inhibit reporting. This bit will normally be zero if there is no AAP available so it is a good check as to whether or not the LAN should remain inhibited.

---

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REASONS THE LAN COULD HAVE BEEN INHIBITED AUTOMATICALLY

1. Because of any one of a series of global type problems (for example, multiple SCU interjects, etc.).

   Note: The LAN will not be automatically inhibited because of a single failing SCU, for such cases, only the failing SCU will be taken out of service.

2. Because of LAN timeouts (for example, the AAP was rebooted without properly notifying the switch side to manually inhibit the LAN).

3. Because the LAN was allowed while the AAP SCUEQP database showed, as disabled, two or more SCUs on the same SCS member which were in service (on the switch).

LAN DIAGNOSTIC PROCEDURES

1. Is LAN inhibited?

   If **NO**, go to Step 5.

   If **YES**, then continue.

2. Was the LAN inhibited automatically?

   If **YES**, then you need to determine why and correct problem--go to the procedure "Clear LAN Inhibited Alarm" (TAP-134).

   If **NO**, then continue.

3. Was the LAN inhibited manually?

   If **YES**, and the reason was so that someone on the switch side could do maintenance--then if they had properly coordinated that fact to the AAP side there would not be a problem.

4. **STOP! PROCEDURE cannot be completed at this time.** Retry this procedure at a later time whenever the LAN can be allowed.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-I — Clear Power Trouble

1. Verify that the power is turned OFF at the CDSU-I Control Panel (See Figure 1).

2. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel at the top of the CDSC-I (see Figure 2).

3. Is a fuse blown at the fuse and filter panel?

   If **YES**, go to Step 4.

   If **NO**, go to Step 8.

4. Replace the fuse in the fuse and filter panel.

   Note: Pay attention to the fuse size and type labeled on the fuse panel cover.

5. Turn the power ON at the CDSU-I control panel (**ON/OFF** switch).

6. Do the **POWER** and **FUSE** LEDs light on the CDSU-I control panel?

   If **YES**, go to Step 15.

   If **NO**, go to Step 7.

7. Does the same fuse blow again?

   If **YES**, continue to Step 14.

   If **NO**, turn the power OFF at the CDSU-I control panel and go to Step 8.

8. Verify that the circuit breaker on the rear of the CDSU-I (lower left corner) is in the UP position. If not, move it to the UP position.

9. Turn the power ON at the CDSU-I control panel (**ON/OFF** switch).

10. Do the **POWER** and **FUSE** LEDs light on the CDSU-I control panel?

    If **YES**, go to Step 15.

    If **NO**, turn the power OFF at the CDSU-I control panel and go to Step 11.

11. Check for loose power cable connections between the CDSU-I and the CDSC-I fuse panel (check the **Power In** connection at the rear of the CDSU-I and the conection at the CDSC-I fuse panel). After checking all connections, continue to Step 12.

12. Turn the power ON at the CDSU-I control panel (**ON/OFF** switch).

13. Do the **POWER** and **FUSE** LEDs light on the CDSU-I control panel?

    If **YES**, go to Step 15.

    If **NO**, go to Step 14.

14. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

15. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

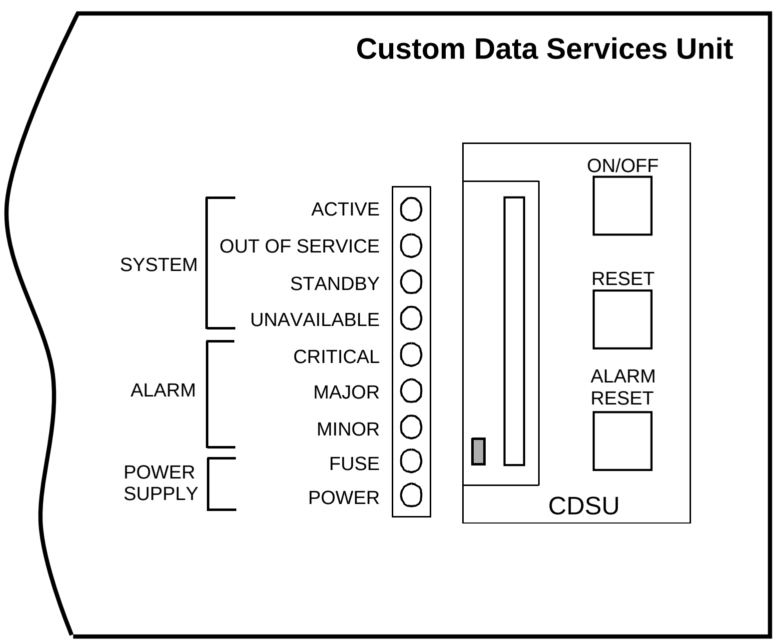


Figure 1. The CDSU-I Control Panel

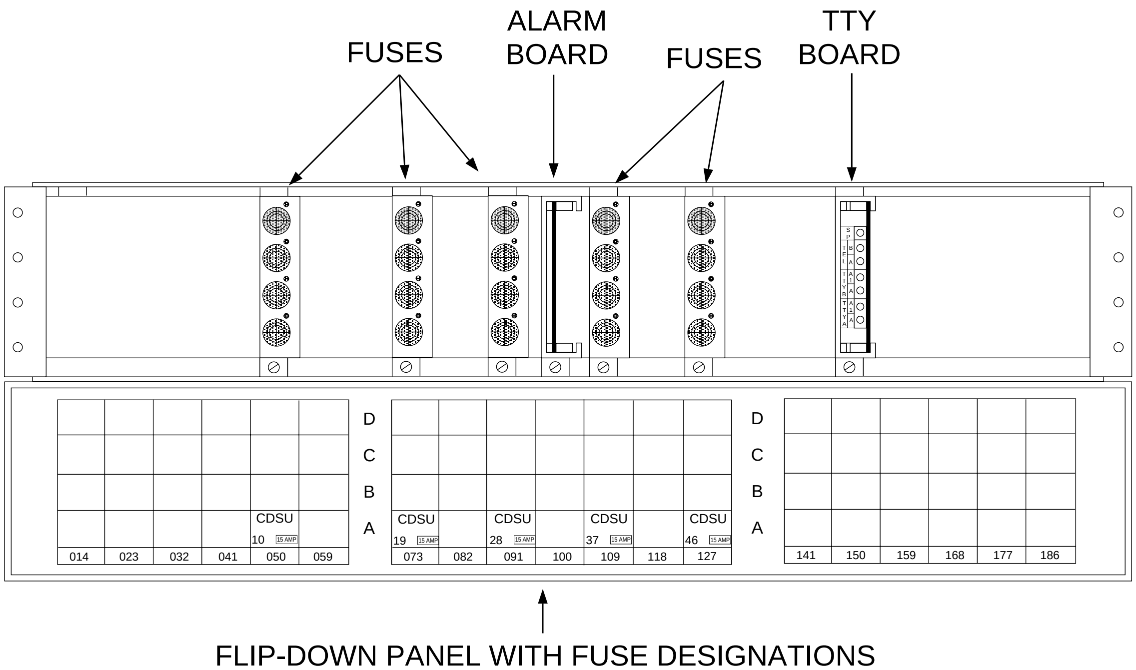


Figure 2. Fuse and Filter Panel for the CDSC-I

Clear Restore Failure - Aborted MIP Pump Failed Faildata = 25400000

The `Aborted MIP Pump Failed Faildata=25400000` output message which was generated by the **RST** input message indicates that the Multifunctional Interface Processor (MIP) Load command for one of two MIP (TN4001) circuit packs failed. The steps below should be performed in the order shown until the trouble is cleared. The error codes listed for this failure can be both hardware and software related. The error codes will help direct the appropriate action to clear the failure.

1. At the 1B Maintenance (MTC) terminal, get raw-error data by entering:

   DUMP:MEMORY;SCS *a*, **SCU** *b*, **TRAM FFC3, L 32!**

   where *a* = Service Circuit System (SCS) member number (0-7)
   b = Service Circuit Unit (SCU) number (0-15)

   Response: Raw error data is displayed on the screen and is sent to the Read Only Printer (ROP). An example of the printout is shown in Figure 1.

Addresses **Third Word**

```
0 FFC3 1455 0001 6300 0000 0000 0000 0408 A8BE
0 FFCB A7BB 0000 4003 0030 6296 000F C52C 0000
0 FFD3 02C5 EBB0 000A F5D8 000E 0030 0016 0A24
0 FFDB 1194 000B 0000 0000 0000 0000 0000 0000
```

Figure 1. Sample Printout of Memory Dump

2. Using the raw data printed in Step 1, determine the error code that was generated. The error code is in bits 8 through 14 of the third word (hexadecimal address ffc5). (See Figure 1.)

3. Looking at Table A, follow the trouble-clearing procedure for the error code that was determined in Step 2. After following the suggested procedure in Table A, continue with Step 4.

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 7.

   If **NO**, continue to Step 6.

6. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
60	Indicates a general MIP (TN4001) circuit pack error. This error will be generated during the MIP software load if any MIP hardware errors are present on the MIP circuit packs, or if they are not physically present in the SCU. 1. Check if proper number of MIPs are located in their respective EQLs: • MIP0 is located at EQL 048. • MIP1 is located at EQL 040. 2. Check for proper T1 and Local Area Network (LAN) cables at the rear of each MIP (TN4001) circuit pack. ***Note:*** Improper placement of T1 cables on MIP0/1 and LAN cable on MIP0 could cause failures of this type. 3. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a***,SCU** *b***:PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 4. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 5. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
61	Indicates a MIP transmit First-In First-Out (FIFO) error. The MIP circuit packs or their associated resident software is not functioning correctly. This error is generated when the MIP status register is found to contain an error by the Enhanced Peripheral Interface Controller (EPIC) SCU processor prior to sending data to the MIP transmit FIFO. In addition to hardware errors, the FIFO can be full and that would also generate an error. 1. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange. 4. If failure is not cleared, verify proper MIP software load is present on SCU hard disk (DLP-531). Correct MIP software file versions must be verified as being present on SCU hard disk drive. ***Note:*** Each MIP circuit pack has an associated MIP software file. 5. Check for proper T1 and LAN cables at the rear of each MIP (TN4001) circuit pack. Verify that cables are positioned correctly with the proper orientation and terminations. ***Note:*** Improper placement of T1 cables on MIP0/1 and LAN cable on MIP0 could cause failures of this type.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
62	Indicates a MIP receive FIFO error. The MIP circuit packs or their associated resident software is not functioning correctly. This error is generated when the MIP status register is found to contain an error by the EPIC SCU processor during the reading of MIP receive FIFO. In addition to errors, the FIFO can be full and that would also generate an error. 1. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange. 4. If failure is not cleared, verify proper MIP software load is present on SCU hard disk (DLP-531). Correct MIP software file versions must be verified as being present on SCU hard disk drive. ***Note:*** Each MIP circuit pack has an associated MIP software file.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
63	Indicates a MIP equipage configuration error. 1. Verify office equipage data for the MIP circuit packs. A mismatch with office data and data sent by the 1B MIP software load order can induce this error. ***Note:*** Errors of this type are usually software related at the 1B level. 2. If error was found in configuration data for the MIP hardware, go to next step. If configuration data was found to be correct, go to Step 4. 3. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 4. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 5. If an error was found in the diagnostic and action was taken to correct the error, retry the restore. 6. If the trouble is not cleared, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
66	Indicates an SCU disk data job error during MIP software load. This error is usually related to access failures of the SCU hard disk drive during the MIP software load routine. This error may be unrelated to MIP hardware and software. 1. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 2. If an error was found in the diagnostic and action was taken to correct the error, retry the restore.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
67	MIP miscellaneous data error. This error is a software generated error. An error code of this type can be generated when data to be used to complete the MIP software load routine has been found to be corrupted and the routine must abort its execution. 1. Verify correct MIP software is present on SCU hard disk drives. If software on disk is in question, reload MIP software files from the 3B to the SCU. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a***,SCU** *b***:PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 4. If an error was found in the diagnostic and action was taken to correct the error, retry the restore. 5. If the trouble is not cleared, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
68	Indicates a MIP software load check sum error. This error will occur when either a corrupted MIP0/1 file has been attempted to be downloaded to the MIP circuit packs or the data was corrupted during the file transfer from the SCU hard disk drive to the MIP program memory RAM. 1. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange. 4. If failure is not cleared, verify proper MIP software load is present on SCU hard disk (DLP-531). Correct MIP software file versions must be verified as being present on SCU hard disk drive. ***Note:*** Each MIP circuit pack has an associated MIP software file. 5. If Phase 16 failure points to possible disk file problem, continue to Step 6. 6. Reload MIP software files from 3B to SCU hard disk drive.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
69	MIP pump reply failure message from MIPs to SCU EPIC processor. This error can be received for three separate software actions during the MIP software load or a MIP circuit pack hardware failure: • MIP Load Start (MIP ACK Load Start order) • MIP Load Data (MIP ACK Program Data sent) • MIP Load End. (MIP ACK Check Sum sent) 1. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange. 4. If failure is not cleared, verify proper MIP software load is present on SCU hard disk (DLP-531). Correct MIP software file versions must be verified as being present on SCU hard disk drive. ***Note:*** Each MIP circuit pack has an associated MIP software file. 5. Check for proper T1 and LAN cables at the rear of each MIP (TN4001) circuit pack. Verify that cables are positioned correctly with the proper orientation and terminations. ***Note:*** Improper placement of T1 cables on MIP0/1 and LAN cable on MIP0 could cause failures of this type.

Clear Restore Failure - Aborted SCU Pump Failed Faildata = 26400000

Note: In this procedure, the term "CDSU" refers to both the Custom Data Services Unit-I (CDSU-I) and the Custom Data Services Unit-II (CDSU-II).

The `Aborted SCU Pump Failed Faildata=26400000` output message which was generated by the **RST** input message indicates that the Custom Data Services Unit (CDSU) Init command for one of the equipped CDSUs failed. The steps below should be performed in the order shown until the trouble is cleared. The error codes listed for this failure can be both hardware and software related. The error codes will help direct the appropriate action to clear the failure.

1. At the 1B Maintenance (MTC) terminal, get raw-error data by entering:

   DUMP:MEMORY;SCS *a***, SCU** *b***, TRAM FFC3, L 32!**

   where *a* = Service Circuit System (SCS) member number (0-7)
   b = Service Circuit Unit (SCU) number (0-15)

   Response: Raw error data is displayed on the screen and is sent to the Read Only Printer (ROP). An example of the printout is shown in Figure 1.

Addresses **Third Word**

```
0 FFC3 1455 0001 6300 0000 0000 0000 0408 A8BE
0 FFCB A7BB 0000 4003 0030 6296 000F C52C 0000
0 FFD3 02C5 EBB0 000A F5D8 000E 0030 0016 0A24
0 FFDB 1194 000B 0000 0000 0000 0000 0000 0000
```

Figure 1. Sample Printout of Memory Dump

2. Using the raw data printed in Step 1, determine the error code that was generated. The error code is in bits **8 through 14** of the third word (hexadecimal address ffc5). (See Figure 1.)

3. Looking at Table A, follow the trouble-clearing procedure for the error code that was determined in Step 2. After following the suggested procedure in Table A, continue with Step 4.

4. Retry the **RST** (restore) input message which generated the failure.

5. Is the trouble cleared?

   If **YES**, go to Step 7.

   If **NO**, continue to Step 6.

6. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
61	Indicates a MIP transmit FIFO error. The MIP circuit packs or their associated resident software is not functioning correctly. This error is generated when the MIP status register is found to contain an error by the EPIC SCU processor prior to sending data to the MIP transmit FIFO. In addition to hardware errors, the FIFO can be full and that would also generate an error. 1. Run SCU diagnostics phase 16 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 16!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared. 2. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 3. As long as the **RST** request is failing, replace the TN4001 circuit packs in the SCU (DLP-502) one at at time. Initiate the **RST** input message between each circuit pack exchange. 4. If failure is not cleared, verify proper MIP software load is present on SCU hard disk (DLP-531). Correct MIP software file versions must be verified as being present on SCU hard disk drive. ***Note:*** Each MIP circuit pack has an associated MIP software file. 5. Check for proper T1 and LAN cables at the rear of each MIP (TN4001) circuit pack. Verify that cables are positioned correctly with the proper orientation and terminations. ***Note:*** Improper placement of T1 cables on MIP0/1 and LAN cable on MIP0 could cause failures of this type. 6. If error is still present, consult next level of support for help.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
63	Indicates a MIP equipage configuration error. 1. Verify office equipage data for the MIP circuit packs. A mismatch with office data and data sent by the 1B MIP load order can induce this error. ***Note:*** Errors of this type are usually software related at the 1B level. 2. If error was found in configuration data for the MIP hardware, go to next step. If configuration data was found to be correct, go to Step 4. 3. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 4. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 5. If an error was found in the diagnostic and action was taken to correct the error, retry the restore. 6. If the trouble is not cleared, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
64	Indicates a CDSU equipage configuration error. 1. Verify office equipage data for the CDSUs. A mismatch with office data configured in the 1B office ODA can induce this error. ***Note:*** Errors of this type are usually software related at the 1B level. 2. If error was found in configuration data for the CDSU hardware, go to next step. If configuration data was found to be correct, go to Step 4. 3. Retry the **RST** (restore) input message which generated the failure. If the trouble is not cleared, continue to next step. 4. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a***,SCU** *b***:PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 5. If an error was found in the diagnostic and action was taken to correct the error, retry the restore. 6. If the trouble is not cleared, then **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Consult next level of support for assistance.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

ERROR CODE (HEX.)	TROUBLE-CLEARING PROCEDURE
69	CDSU and MIP initialization reply failure message from MIPs and CDSU to SCU EPIC processor. This error can be generated due to a number of hardware and software errors detected during the initialization of MIP0, MIP1 and each equipped CDSU. The most likely errors will be listed below with a breakdown of the raw error data returned for each of these error types. However, before the raw data is examined, perform Steps 1 and 2. 1. Run SCU diagnostics phases 1-17 by entering: **DGN:SCS** *a*,**SCU** *b*:**PH 1-17!** where *a* = Member number (0-7) *b* = SCU number (0-15) ***Note:*** This step should be repeated several times to check for transient errors. Any consistent diagnostic failures should be cleared (TAP-105). 2. Retry the **RST** (restore) input message which generated the failure. 3. If failure still exists, perform steps to read raw error data again. If error code is the same, additional interrogation of error data will be required at this point. However, perform Step 4 prior to proceeding to Step 5. If problems are noticed at the equipment, correct error and try restore again. If no problems are seen, go to Step 5 or consult the next level of support to assist in the error data interpretation. 4. Check for proper T1 and LAN cables at the rear of each MIP (TN4001). Verify that cables are positioned correctly with the proper orientation and terminations. ***Note:*** Improper placement of T1 cables on MIP0/1 and LAN cable on MIP0 could cause failures of this type.

TABLE A (Contd) Error Codes and Associated Trouble-Clearing Procedures

<table>
<tr><th>ERROR CODE (HEX.)</th><th>TROUBLE-CLEARING PROCEDURE</th></tr>
<tr><td>69
(Contd.)</td><td>
5. Resolve CDSU and MIP related initialization errors.

The following procedure is only required if this 26400000 type error cannot be resolved by diagnostics. These steps are used to isolate the error or errors seen during the CDSU Init process.

Note: If additional information cannot be obtained or if error in raw data is of a type not described, call next level of support for assistance.

Raw error data as shown in Figure 1 is displayed on the screen and is sent to the Read Only Printer (ROP). An example of how to decode a CDSU Init and a MIP Init failure is presented below:

Remember only attempt to analyze data locally if the bits 8 through 14 of word 3 = 69.

A. CDSU Init Error Decoding from raw data:

If word 12 is 0004 and word 13 is 8000-8004 (for CDSU-I) or 8000-8001 (for CDSU-II), the failure points to a CDSU error. Word 13 lower byte will contain the CDSU number, and word 19 will be the CDSU error code. See TAP-142 for CDSU-I error code analysis or TAP-143 for CDSU-II error code analysis.

Words 20-24 contain supporting raw data from the CDSU.

B. MIP Init Error Decoding from raw data:

If word 12 is not followed by a value in the range of 8000-8004 (for CDSU-I) or 8000-8001 (for CDSU-II), the error was generated by one of the MIP circuit packs (MIP0 or MIP1) as indicated by word 12.

If word 12 has a value of 0004, the error is in MIP0.

If word 12 has a value of 0005, the error is in MIP1.

Words 14-15 and words 19-24 contain CDSU/MIP error related data.

MIP error code (word 13) analysis is shown in Table B.
</td></tr>
</table>

TABLE B MIP Error Codes and Associated Trouble-Clearing Procedures

Error Code	Reason	Recommended Action
0010	T1 Initialization error. MIP 0/1 T1 circuits can not be configured properly for operation or T1 alarms are present.	Check T1 cables and verify that no alarms are present on T1 card(s) (EQL A04 & A11 in CDSU-I or EQL E2 in CDSU-II) . Run phase 16 and phase 17 and take action based on diagnostic failure.
0011	MIP 68360 Init. failure.	Run phase 16 and take action based on diagnostic failure.
0012	Not used.	
0013	TNX LAN communication software configuration error.	Run phase 16 and take action based on diagnostic failure.
0014	VRTX operating system software configuration error.	Run phase 16 and take action based on diagnostic failure.
0015	Failed to execute VRTX O/S.	Run phase 16 and take action based on diagnostic failure.
0016	Not used.	
0017	Failed to start O/S timer.	Run phase 16 and take action based on diagnostic failure.
0018	Failed to create scheduler process.	Run phase 16 and take action based on diagnostic failure.
0019	Invalid initialization data.	Verify Office ODA for proper CDSU equipage.
0020	CDSU failed to respond to initialization order from MIP.	Run phase 17 and take action based on diagnostic failure.
0021	CDSU software version string mismatched among equipped CDSUs.	Verify that each CDSU equipped is running on same software version. If version is not identical, reload CDSU software.
0022	Failed to create LAN communication process.	Verify that each CDSU equipped is running on same software version. If version is not identical, reload CDSU software.
0100	MIP receive FIFO time out.	Run phase 16 and take action based on diagnostic failure.

TABLE B (Contd) MIP Error Codes and Associated Trouble-Clearing Procedures

Error Code	Reason	Recommended Action
0101	Receive message EOM missing.	Run phase 16 and take action based on diagnostic failure.
0102	Receive message data length count exceeds maximum length.	Run phase 16 and take action based on diagnostic failure.
0103	Transmit message data exceeds maximum length.	Run phase 16 and take action based on diagnostic failure.
0104	Zero length message received.	Run phase 16 and take action based on diagnostic failure.
0105	Received data exceeds buffer.	Run phase 16 and take action based on diagnostic failure.
0106	Received unknown order.	Run phase 16 and take action based on diagnostic failure.
0107	Invalid destination field in received message.	Run phase 16 and take action based on diagnostic failure.
0108	MIP software checksum failure on program pump.	Run phase 16, refer to TAP-139, error code 68 for procedure.
0109	Operational order received before the initialization order.	Run phase 16 and take action based on diagnostic failure.
0800	Ethernet driver error.	Run phase 16.
0801	Ethernet busy, no more buffers	Run phase 17.
0802	Message queue for TNX (IP/UDP) process receive is full.	Run phase 17.
0900	TNX process is in trouble.	Run phase 17.
7000	CDSU is not active.	Check SCU Unit Type Translator for the correct number of equipped CDSUs. Run phase 17.
7200	CDSU 0 failed handshake (LAN problem).	Run phases 16 and 17. Check LAN cables.
7300	CDSU 1 failed handshake (LAN problem).	Run phases 16 and 17. Check LAN cables.
7400	CDSU 2 failed handshake (LAN problem). (ASR Phase 1 only)	Run phases 16 and 17. Check LAN cables.

TABLE B (Contd) MIP Error Codes and Associated Trouble-Clearing Procedures

Error Code	Reason	Recommended Action
7500	CDSU 3 failed handshake (LAN problem). (ASR Phase 1 only)	Run phases 16 and 17. Check LAN cables.
7600	CDSU 4 failed handshake (LAN problem). (ASR Phase 1 only)	Run phases 16 and 17. Check LAN cables.
7800	MIP 0 T1 device initialization audit failure.	Run phase 16 and take action based on diagnostic failure.
7900	MIP 1 T1 device initialization audit failure.	Run phase 16 and take action based on diagnostic failure.

LAN Hardware Faults (Smart HUB to CDSU and CDSU to SCU) — Diagnose and Resolve

This procedure addresses isolation of hardware faults which result in LAN-related Service Circuit Unit (SCU) interjects associated with the Custom Data Services Cabinet (CDSC). This procedure assumes that the cause of the interjects is a result of LAN hardware faults. This procedure should not be undertaken unless this determination has been made.

> ***Note:*** This procedure is used to diagnose and resolve hardware faults in the LAN that connects the Smart HUB, the Custom Data Services Units (CDSUs), and the SCU. If a problem is suspected in the LAN between the AAP and the SCU or the LAN between the AAP and Smart HUB, see TAP-135.

Summary: CDSC LAN-related interjects will be handled by fault recovery.

Typical recovery actions are:

- Remove the associated SCU from service.
- Diagnose the SCU.

The philosophy for diagnosing LAN problems involves the following resources:

- The responsible maintenance personnel must be familiar with the configuration of the CDSC LAN and how it is connected into the SCU LAN network (see Figure 16 in TAD-100).
- The receive-only printer (ROP) at the 1B console should be reviewed for messages that might indicate the cause of the LAN problem.
- The 1B software SCU Diagnostics (phase 17) should be run.

  The phase 17 diagnostic will fail in the presence of any of the following LAN related faults:

  - LAN cable problems from the SCU to the CDSU.
  - LAN cable problems between CDSUs.
  - LAN cable problems between CDSU and Smart HUB.
  - Hardware problems with MIP-0 (TN4001 circuit pack) located at EQL 048 in the SCU or MIP-0's associated Transceiver Paddle Board.
  - CDSU hardware problems.

  The results are indicated by ATP or STF. When a failure results, the associated TLP list printed will be used to help isolate the fault.

1. At the 1B MTC terminal, diagnose the problem SCU by entering:

   DGN:SCS *a***,SCU** *b***:PH 17!**

   where *a* = SCS member number (0-7)
   b = Associated SCU number (0-15)

   Note: All CDSUs assigned to the same SCU will be diagnosed. Phase 17 diagnostics will take approximately 2 minutes per CDSU.

2. Did the SCU diagnostic in Step 2 show ATP or STF?

   If **ATP**, restore the SCU to service and continue to Step 14. The problem may have been transient in nature. If the SCU will not restore, quit this procedure and go to TAP-135. which deals with the LAN on the AAP side of the Smart HUB.

   If **STF**, examine the ROP printout and determine which CDSU fails first (the CDSU at the top of TLP list). Continue to Step 3.

3. Was either the LAN cable or CDSU-0 listed first on the TLP list?

   If **YES**, this indicates that the MIP (TN4001 circuit pack) cannot communicate with any CDSU. (CDSU-0 is the first CDSU the LAN cable connects to coming from the SCU.) Go to Step 5.

   If **NO**, go to Step 4.

4. If the first CDSU on the TLP is **CDSU-1 or higher**, then isolate the CDSUs that cannot communicate with the SCU from the CDSUs that can. This is accomplished by removing the coaxial cable at the rear of the last CDSU that can communicate, that connects to the next higher CDSU. For example, if the CDSU that appears first on the TLP list is CDSU-1, this indicates that CDSU-1 cannot communicate with the SCU and that CDSU-0 can communicate with the SCU. Therefore, remove the coax cable that connects CDSU-0 to CDSU-1, at the back of CDSU-0. Go to Step 10.

5. Isolate the SCU from all CDSUs by removing the coaxial cable at the rear of CDSU-0 that connects to the SCU. (This is the coaxial cable that spans the distance from the CDSC to the SCU.)

6. Measure the DC resistance of the coax cable connecting to the SCU at the CDSC end. Measure the resistance between the center conductor and the outer shield on the BNC connector of the coax cable (Figure 1). The resistance should be between 40 and 70 Ohms.

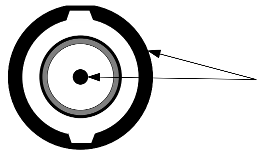


Figure 1. How to Measure DC Resistance of Coaxial Cable

7. Was the resistance measured in Step 6 correct?

   If **NO**, go to Step 12.

   If **YES**, then coaxial cabling within the CDSC may be suspect, or the LAN transceiver board plugged into the backplane of SCU TN4001 circuit pack (MIP-0) at EQL 048 may be suspect. The CDSC coax cabling will be investigated first. Continue to Step 8.

8. Check the coaxial cabling in the CDSC. Measure the DC resistance between the center conductor and the outer shield on the T-connector where the coaxial cable coming from the SCU was removed in Step 5 (Figure 1). The resistance should be between 40 and 70 Ohms.

9. Was the resistance measured in Step 8 correct?

   If **NO**, make a visual inspection:

   - Visually inspect the daisy-chained LAN coaxial cables connecting all the CDSUs together. Ensure that these cables are properly attached to the T-connectors and also that the T-connectors are properly attached to the LAN circuit pack in the CDSUs. All LAN connectors and T-connectors must not contact frame ground. (The LAN is electrically isolated from frame ground.)
   - Make sure that the coaxial cable connecting the last CDSU to the Smart HUB is properly in place. If the problem appears to be no termination by the Smart HUB (open circuit in cable to the HUB), make sure that the position on the Smart HUB to which the coaxial cable is attached is selected for internal termination (slide switch next to connector). If the slide switch is properly set, then temporarily move the coax cable to a vacant position on the HUB and repeat the resistance measurement.
   - Go to Step 13.

   If **YES**, and the top of the TLP list does NOT indicate the LAN or CDSU-0, the LAN circuit pack in the suspect CDSU or the suspect CDSU itself may be defective. Replace the CDSU (DLP-538). Then go to Step 13.

   If **YES**, and the top of TLP list DOES indicate the LAN cable or CDSU-0, then in addition to the LAN circuit pack in the CDSU being suspect, the LAN transceiver paddle board plugged on the backplane of SCU circuit pack TN4001 (MIP-0) at EQL 048 may also be suspect. Replace the paddle board. Then go to Step 13.

10. Measure the DC resistance of the coaxial cable connecting to the CDSU that cannot communicate with the SCU, (this is the coaxial cable connecting to the CDSU that appears first on the TLP list). Measure the resistance between the center conductor and the outer shield on the BNC connector of the coaxial cable (Figure 1). The resistance should be between 40 and 70 Ohms.

11. Was the resistance measured in Step 10 correct?

    If **NO**, make a visual inspection:

    - Visually inspect the daisy-chained LAN coaxial cables connecting all the CDSUs together. Ensure that these cables are properly attached to the T-connectors and also that the T-connectors are properly attached to the LAN circuit pack in the CDSUs. All LAN connectors and T-connectors must not contact frame ground. (The LAN is electrically isolated from frame ground.)
    - Make sure that the coaxial cable connecting the last CDSU to the Smart HUB is properly in place. If the problem appears to be no termination by the Smart HUB (open circuit in cable to the HUB), make sure that the position on the Smart HUB to which the coaxial cable is attached is selected for internal termination (slide switch next to connector). If the slide switch is properly set, then temporarily move the coax cable to a vacant position on the HUB and repeat the resistance measurement.
    - Go to Step 13.

    If **YES**, the LAN circuit pack in the CDSU or the CDSU itself is suspect. Replace the CDSU (DLP-538). Then go to Step 13.

12. Visually inspect the coaxial cable connecting the CDSC to the SCU. Ensure that it is properly attached to the cable converter as the coaxial cable enters into the SCU frame. Also, examine the coaxial cable converter for possible shorts to frame ground. (The LAN is electrically isolated from frame ground.)

    Visually inspect the thin type coaxial cable that connects from the coaxial converter to the MIP LAN transceiver paddle board.

    Make sure the 50-Ohm terminator is in place on the MIP LAN paddle board.

    If no problems are found, then the LAN transceiver paddle board is suspect. Replace the paddle board. Then go to Step 13.

13. At the 1B MTC terminal, diagnose the problem SCU by entering:

    DGN:SCS *a***,SCU** *b***:PH 17,TLP!**

    where *a* = SCS member number (0-7)
    b = Associated SCU number (0-15)

    > ***Note:*** All CDSUs assigned to the same SCU will be diagnosed. Phase 17 diagnostics will take approximately 2 minutes per CDSU.

    If phase 17 diagnostics do not pass, continue to Step 15. Otherwise, continue to Step 14.

14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

15. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Contact the next level of support.

CDSU-I - Analyze CDSU-I Related SCU BLM and Interject Error Codes to Clear Trouble in CDSU-I

Summary: Use information from a Service Circuit Unit (SCU) Base Level Maintenance (BLM) printout or SCU interject printout that indicates a CDSU-I problem to diagnose and resolve the CDSU-I problem. Use the recommended procedures to clear the trouble.

Caution: This procedure is only to be used after one of the SCU interject or BLM error codes listed below has already been identified in an SCU interject or BLM. The interjects and BLMs listed below indicate that the trouble is in a CDSU-I. This procedure is used to further isolate and resolve troubles within a CDSU-I. For information on identifying the error codes listed below, see 234-310-107, 4ESS Switch With 1B Processor—Maintenance Reference Handbook.

SCU Interject Error Code (hexadecimal):

65 - General interject type message received from a CDSU-I

SCU BLM Error Code (hexadecimal):

602 - General BLM type message received from a CDSU-I

1. Use Figures 1 and 2 to determine the CDSU-I error code and CDSU-I number.

   Figure 1 shows a sample BLM printout with the location of the error code, CDSU-I number, and SCU number. Figure 2 shows a sample SCU interject printout with the location of the error code and CDSU-I number.

   Figures 1 and 2 also show the location of the Point of Maximum Definition (PMD). The following PMDs indicate possible CDSU-I problems:

   - **273 -** LAN error or CDSU-I power problem
   - **274 -** T1 error or CDSU-I power problem
   - **275 -** Miscellaneous error.

2. Use Table A and the BLM or interject printout to define the error code that was determined in Step 1. Then follow the action recommended in Table A to clear the trouble.

   Note: If BLMs have been inhibited as a result of the fault, allow (ALW) BLMs after the fault has been cleared.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

```
DATA:  FAULT RECOGNITION ISOLATION DATA
00000036 00000000 00000301 00000000 00000001 00000000
DATA: ERROR ANALYSIS STRATEGY DATA
00112000 00011201 00300103 01224153 00012000 36003601
00000000 00040000 00001301 01000000 62000000 01000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000012
00000023 00000010 00606454 00000056 00000000 00000000
00000000 00001604
DATA: AUXILIARY DATA
00000062 00000000 10067400 00000140 00003002 00116521
00115464 00000000 00100001 00000006 00000000 00000275
00000402 00000002 00000062 00001134 00000721 00000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000
4/22/95  14:51:56
#521
```

CDSU Error Code

CDSU Number

SCU Number (Bits 0-3 only) (In this example, the SCU is SCU 0)

Point of Maximum Definition (PMD)

Figure 1. Part of the BLM Printout

```
DATA:  FAULT RECOGNITION ISOLATION DATA
00001000 00000000 00000275 00000000 00000003 00000000
DATA:  ERROR ANALYSIS STRATEGY DATA
00112000 00273200 00300102 01267520 00012000 31003101
00000000 00040000 00003275 01000000 62000000 01000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 32427334
00000003 00000003 00000003 00000060 00000000 00000001
00000000 00001604
DATA:  AUXILIARY DATA
00000001 00054321 00000001 00162400 00000000 00000000
00000000 00003401 00116566 00115446 00000000 00100001
00000006 00000001 00000002 00000274 00000502 00000001
00000000 00001441 00000625 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00073740 00177774
09/22/95 14:54:58
#887
```

Point of Maximum Definition (PMD)

CDSU Error Code

CDSU Number
This digit only indicates the CDSU number if bit 15 of the same word has a value of "1" (as shown).

Figure 2. Part of the SCU Interject Printout

TABLE A CDSU-I Error Codes

Error Code	Reason	Source	Recommended Action
0	Internal error detected, e.g., value out of range.	BLM	None.
1	Device poll failed. A soft init is initiated by the CDSU-I.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds.
2	UNIX system call failed.	BLM	None.
3	Bad IPC message type received.	BLM	None.
4	Unexpected EINTR on system call.	BLM	None.
0101	Channel failed ASR self-test.	BLM	Replace failing AYC-50 card.
0102	DTI/211 failed board diagnostic.	BLM	Replace failing DTI/211 card.
0103	DTI/211 red alarm condition exists.	BLM	Check that the CDSU-I T1 cables are properly connected.
0104	DTI/211 yellow alarm condition exists.	BLM	Check that the CDSU-I T1 cables are properly connected, and that the CDSU-I and SCU are properly configured for the given T1 cable length.
0105	DTI/211 blue alarm condition exists.	BLM	None.
0107	DTI/211 has the remote loopback test switch set to ON. One or both boards could be set to ON.	BLM	Ensure that the remote loopback test switch is set to OFF on both DTI/211 boards. See DLP-549 for information on how to set the DTI/211 switches.
0201	ASR channel failed device open call.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-I if the problem persists. Generally this error indicates a bad AYC-50 card, an incorrect jumper setting on an AYC-50 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-I.
0202	ASR channel failed to pump.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad AYC-50 card.

TABLE A (Contd) CDSU-I Error Codes

Error Code	Reason	Source	Recommended Action
0203	ASR channel is in panic state.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally, this error indicates a software error occurred in AYC-50 pumpware.
0204	ASR channel not getting clock from PCM Expansion Bus (PEB).	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error occurs when the AYC50 PEB cable is bad, or as a side effect of the T1 link being in a red alarm condition.
0205	ASR channel not responding.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error occurs when the PEB cable is bad or not installed correctly. It may also indicate a general loss of sanity for the particular ASR channel (software problem).
0206	ASR channel failed to initialize.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally, this error indicates a bad PEB cable or presence of a T1 alarm.
0207	ASR daughter card failed read/write.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-I if the problem persists. Generally this error indicates a bad AYC50 card or daughter board, an incorrect jumper setting on an AYC50 card or a UNIX system error that requires a reboot of the CDSU-I.
0210	ASR Channel not responding. The CDSU has detected an AYC50 pack which is not responding. The CDSU will automatically repump the AYC50 pack and try to reinitialize it. If this can't be done, an interject error (code 203) is generated.	BLM	If repeated BLMs are being seen in an office for the same AYC50 board, it's an indication that the AYC50 card is bad and needs to be replaced. See DLP-536 for information on how to replace an AYC50 card.

TABLE A (Contd) CDSU-I Error Codes

Error Code	Reason	Source	Recommended Action
0303	Bad/corrupted LAN message received.	BLM	None. The software will discard the message.
0304	Rejected a LAN order because a software update is in progress.	Interject	Wait for software update via AAP to complete.
0401	Alarm card device open failed.	BLM	None. Unit will operate without use of the alarm card.
0402	Alarm card reported fan failure, major alarm LED lit.	BLM	A CDSU-I contains multiple fan units for cooling; one of them may need to be replaced.
0403	Alarm card reported fan restored, major alarm LED cleared.	BLM	None.
0404	Alarm card reported unit over temperature (greater than 50° C), major alarm LED lit.	BLM	Check ambient temperature, and open CDSC cabinet doors to allow ventilation for cooling. Check CDSU-I to determine the cause of overheating (fans not operating properly, fan filters clogged, etc.) The CDSU-I continues operating, but if powered down, will not initialize properly until temperature inside CDSU-I is less than 50° C.
0405	Alarm card reported unit over temperature, condition cleared, major alarm LED cleared.	BLM	None.
0501	DTI/211 Red Alarm, loss of T1 carrier.	Interject	Check that CDSU-I T1 cables are properly connected, and that the CDSU-I and SCU are properly configured for the given T1 cable length. Generally indicates loss of T1 cabling, or SCU reset of T1’s.

TABLE A (Contd) CDSU-I Error Codes

Error Code	Reason	Source	Recommended Action
0502	DTI/211 Yellow Alarm, loss of T1 synch.	Interject	Check that the CDSU-I T1 cables are properly connected, and that the CDSU-I and SCU are properly configured for the given T1 cable length. Generally indicates a problem with T1 cabling, or that the SCU reset the T1's.
0503	DTI/211 Blue Alarm.	BLM	None.
0507	Cable length parameter file is bad, the default cable length is being used.	BLM	Reconfigure the CDSU-I by executing the UNIX system **/cdsconfig/bin/cdsu_setup** command.
0510	DTI/211 device failed open call.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-I if the problem persists. Generally this error indicates a bad DTI/211 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-I.
0511	DTI/211 device failed initialization.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Otherwise reset the CDSU-I and repeat the diagnostic. Generally this error indicates a bad DTI/211 card.
0512	DTI/211 device failed board diagnostics.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Otherwise reset the CDSU-I and repeat the diagnostic. Generally this error indicates a bad DTI/211 card.

CDSU-II - Analyze CDSU-II Related SCU BLM and Interject Error Codes to Clear Trouble in CDSU-II

Summary: Use information from a Service Circuit Unit (SCU) Base Level Maintenance (BLM) printout or SCU interject printout that indicates a CDSU-II problem to diagnose and resolve the CDSU-II problem. Use the recommended procedures to clear the trouble.

Caution: This procedure is only to be used after one of the SCU interject or BLM error codes listed below has already been identified in an SCU interject or BLM. The interjects and BLMs listed below indicate that the trouble is in a CDSU-II. This procedure is used to further isolate and resolve troubles within a CDSU-II. For information on identifying the error codes listed below, see 234-310-107, 4ESS Switch With 1B Processor—Maintenance Reference Handbook.

SCU Interject Error Code (hexadecimal):

65 - General interject type message received from a CDSU-II

SCU BLM Error Code (hexadecimal):

602 - General BLM type message received from a CDSU-II

1. Use Figures 1 and 2 to determine the CDSU-II error code and CDSU-II number.

   Figure 1 shows a sample BLM printout with the location of the error code and CDSU-II number. Figure 2 shows a sample SCU interject printout with the location of the error code, CDSU-II number, and SCU number.

   Figures 1 and 2 also show the location of the Point of Maximum Definition (PMD). The following PMDs indicate possible CDSU-II problems:

   - **273 -** LAN error or CDSU-II power problem
   - **274 -** T1 error or CDSU-II power problem
   - **275 -** Miscellaneous error.

2. Use Table A and the BLM or interject printout to define the error code that was determined in Step 1. Then follow the action recommended in Table A to clear the trouble.

   Note: If BLMs have been inhibited as a result of the fault, add BLMs after the fault has been cleared.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

```
DATA:  FAULT RECOGNITION ISOLATION DATA
00000036 00000000 00000301 00000000 00000001 00000000
DATA: ERROR ANALYSIS STRATEGY DATA
00112000 00011201 00300103 01224153 00012000 36003601
00000000 00040000 00001301 01000000 62000000 01000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000012
00000023 00000010 00606454 00000056 00000000 00000000
00000000 00001604
DATA: AUXILIARY DATA
00000062 00000000 10067400 00000140 00003002 00116521
00115464 00000000 00100001 00000006 00000000 00000275
00000402 00000002 00000062 00001134 00000721 00000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000
4/22/95  14:51:56
#521
```

CDSU Error Code

CDSU Number

SCU Number
(Bits 0-3 only)
(In this example,
the SCU is SCU 0)

Point of Maximum Definition (PMD)

Figure 1. Part of the BLM Printout

```
DATA:  FAULT RECOGNITION ISOLATION DATA
00001000 00000000 00000275 00000000 00000003 00000000
DATA:  ERROR ANALYSIS STRATEGY DATA
00112000 00273200 00300102 01267520 00012000 31003101
00000000 00040000 00003275 01000000 62000000 01000000
00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 32427334
00000003 00000003 00000003 00000060 00000000 00000001
00000000 00001604
DATA:  AUXILIARY DATA
00000001 00054321 00000001 00162400 00000000 00000000
00000000 00003401 00116566 00115446 00000000 00100001
00000006 00000001 00000002 00000274 00000502 00000001
00000000 00001441 00000625 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00073740 00177774
09/22/95 14:54:58
#887
```

Point of Maximum Definition (PMD)

CDSU Error Code

CDSU Number
This digit only indicates the CDSU number if bit 15 of the same word has a value of "1" (as shown).

Figure 2. Part of the SCU Interject Printout

TABLE A CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0	Internal error detected, e.g., value out of range.	BLM	None.
1	Device poll failed. A soft init is initiated by the CDSU-II.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds.
2	UNIX system call failed.	BLM	None.
3	Bad IPC message type received.	BLM	None.
4	Unexpected EINTR on system call.	BLM	None.
0101	Channel failed ASR self-test (incorrect response returned from the channel).	BLM	If an ASR channel is failing diagnostics, replace the BYC51 card which is failing.
0102	Alarm card reported failure of the current sensors on the unit backplane.	BLM	If the problem is recurring, the only option is to replace the CDSU-II (the backplane needs replacement).
0103	Alarm card reported no response for the test of the current sensors on the unit backplane.	BLM	If the problem is recurring, the only option is to replace the CDSU-II (the backplane needs replacement).
0105	Channel failed echo canceller self-test (incorrect response returned from the channel).	BLM	If an echo canceller channel is failing diagnostics, replace the AYC53 card which is failing.
0106	Channel failed ASR self-test (no response returned from the channel).	BLM	If an ASR channel is failing diagnostics, replace the BYC51 card which is failing.
0107	Failed LAN receive message test. In this case, the LAN connection is stable enough to establish MIP/CDSU-II communication, but there is some loss.	BLM	Check the cables and terminator connections. It’s possible there is also a problem with either the MIP of CDSU-II LAN interface.
0110	Failed AYC52 diagnostic test.	BLM	Replace the AYC52 card.
0111	Software currently loaded is the minimal BWM load, and is intended only to allow installation of a BWM. It is not functional for diagnostics.	Interject	Load the latest CDSU-2 BWM via the AAP.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0201	ASR channel failed device open call.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-II if the problem persists. Generally this error indicates a bad BYC51 card, an incorrect jumper setting on a BYC51 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-II.
0202	BYC51 card failed to pump.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card.
0203	BYC51 card control channel open failure	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card or the absence of a BYC51 card.
0204	BYC51 card fault	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card.
0205	BYC51 channel fault	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card.
0206	ASR channel failed to initialize.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad PEB cable or the presence of a T1 alarm.
0207	BYC51 card reached "warm" threshold.	BLM	Verify that the office threshold temperature is normal and that the CDSU fans are operating. This error only serves as a warning. Eventually the unit may interject out of service if the unit temperature continues to rise.
0210	BYC51 card over temperature.	Interject	Remove unit from service. Cool unit. Verify fans and office temperature. Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0211	BYC51 card not receiving clock signal from SCSA bus.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates that there is a bad SCSA cable, that the SCSA cable is disconnected from the BYC51, or there is a bad BYC51 board.
0212	**All** BYC51 cards not receiving clock signal from SCSA bus.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates that there is a bad SCSA cable, that the SCSA cable is disconnected from the AYC52, that the SCSA cable is disconnected from all BYC51's, or there is a bad AYC52 board.
0213	BYC51 command failure.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates either a bad BYC51 board or a software fault.
0215	BYC51 record command failure.	BLM	Contact the support person(s) involved in collecting field speech recordings. If no speech recordings are being made, this error may indicate a bad BYC51. If a bad BYC51 is suspected, run SCU diagnostic phase 17, and restore the SCU if the diagnostic succeeds.
0216	BYC51 board failed repump.	Interject	This error indicates that, as a recovery action, the CDSU attempted to repump a failed BYC51 board, and the repump was unsuccessful. Run SCU diagnostic phase 17, and restore the SCU if the diagnostic succeeds. Generally this error indicates a bad SCSA cable or a bad BYC51 board.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0217	BYC51 took too many "soft" failures.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates either a bad BYC51, or a software fault. In some cases the BYC51 software may hit an error condition where it will return a rejection result and perform a failure recovery. If we get too many of these errors within a certain window of time, it indicates a more severe error that the software in not able to recover from without repumping the BYC51(s), so an interject is taken.
0220	BYC51 Board Memory Test fault.	Interject	Run SCU disgnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card. This is usually an intermittent interject that cannot be reliably caught by the diagnostics. If the interject continues to occur, replace the BYC51 pack.
0221	BYC51 Board Memory Integrity fault.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card. This is usually an intermittent interject that cannot be reliably caught by the diagnostics. If the interject continues to occur, replace the BYC51 pack.
0222	BYC51 Board daughterboard IO/DB error.	Interject	Run diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad SCSA cable or bad BYC51 daughterboard. This is usually an intermittent interject that cannot be reliably caught by the diagnostics. If the interject continues to occur, replace the BYC51 pack.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0223	BYC51 Board CPU failure.	Interject	Run diagnostic phase 17, and restore SCU if diagnostic succeeds. Generally this error indicates a bad BYC51 card. This is usually an intermittent interject that cannot be reliably caught by the diagnostics. If the interject continues to occur, replace the BYC51 pack.
0300	Unable to establish LAN link. This is neither an interject nor a BLM. Because communication has been lost, this error is only seen in the CDSU logfiles.	—	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Check CDSU-II/MIP LAN connections and Smart HUB connections.
0301	LAN link to MIP not responding. This is neither an interject nor a BLM. Because communication has been lost, this error is only seen in the CDSU logfiles. This error could indicate a loss of physical LAN connection (cabling) or that the SCU MIP was reset.	—	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Check CDSU-II/MIP LAN connections.
0303	Bad/corrupted LAN message received.	BLM	None. The software will discard the message.
0304	Rejected a LAN order because a software update is in progress.	Interject	Wait for software update via AAP to complete.
0305	Software currently loaded is the minimal BWM load, and is intended only to allow installation of a BWM. It is not functional for restoral of service.	Interject	Load the latest CDSU-2 BWM via the AAP.
0401	Alarm card device open failed.	BLM	None. Unit will operate without use of the alarm card.
0402	Alarm card reported fan failure, fan alarm LED lit.	BLM	A CDSU-II contains multiple fan units for cooling; one of them may need to be replaced.
0403	Alarm card report fan restored, fan alarm LED cleared.	BLM	None.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0404	Alarm card reported unit over temperature (greater than 50˚ C), major alarm LED lit.	BLM	Check ambient temperature, and open CDSC cabinet doors to allow ventilation for cooling. Check CDSU-II to determine the cause of overheating (fans not operating properly, fan filters clogged, etc.)
0405	Alarm card reported unit over temperature, condition cleared, minor alarm LED cleared.	BLM	None.
0406	Alarm card reported power out of specification, minor alarm LED lit.	BLM	Use a voltmeter to verify that the incoming power to the CDSU is within specifications.
0407	Alarm card reported power has returned within specifications, minor alarm LEC cleared.	BLM	None.
0501	T1 red alarm, loss of T1 carrier.	Interject	Check that CDSU-II T1 cables are properly connected, and that the CDSU-II and SCU are properly configured for the given T1 cable length. Generally indicates loss of T1 cabling, or SCU reset of T1’s.
0502	T1 yellow alarm, loss of T1 synch.	Interject	Check that the CDSU-II T1 cables are properly connected, and that the CDSU-II and SCU are properly configured for the given T1 cable length. Generally indicates a problem with T1 cabling, or that the SCU reset the T1’s.
0503	T1 blue alarm.	BLM	None.
0504	T1 red alarm cleared.	BLM	None.
0505	T1 yellow alarm cleared.	BLM	None.
0506	T1 blue alarm cleared.	BLM	None.
0507	Cable length parameter file is bad, the default cable length is being used.	BLM	Reconfigure the CDSU-II by executing the UNIX system **/cdsconfig/bin/cdsu_setup** command.

TABLE A (Contd) CDSU-II Error Codes

Error Code	Reason	Source	Recommended Action
0510	T1 device failed open/init call.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-II if the problem persists. Generally this error indicates a bad AYC52 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-II.
0511	T1 device failed configuration.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Otherwise, reset the CDSU-II and repeat the diagnostic. Generally this error indicates a bad AYC52 card.
0512	T1 device failed board diagnostics.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. Otherwise, reset the CDSU-II and repeat the diagnostic. Generally this error indicates a bad AYC52 card.
0601	Echo canceller open/init failed.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-II if the problem persists. Generally this error indicates a bad AYC53 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-II.
0602	Echo canceller configure failed.	Interject	Run SCU diagnostic phase 17, and restore SCU if diagnostic succeeds. It may be necessary to manually reset the CDSU-II if the problem persists. Generally this error indicates a bad AYC53 card, or that a UNIX system error has occurred which requires a reboot of the CDSU-II.

CDSU-II — Clear Power Trouble

1. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel at the top of the CDSC-II (see Figure 1).

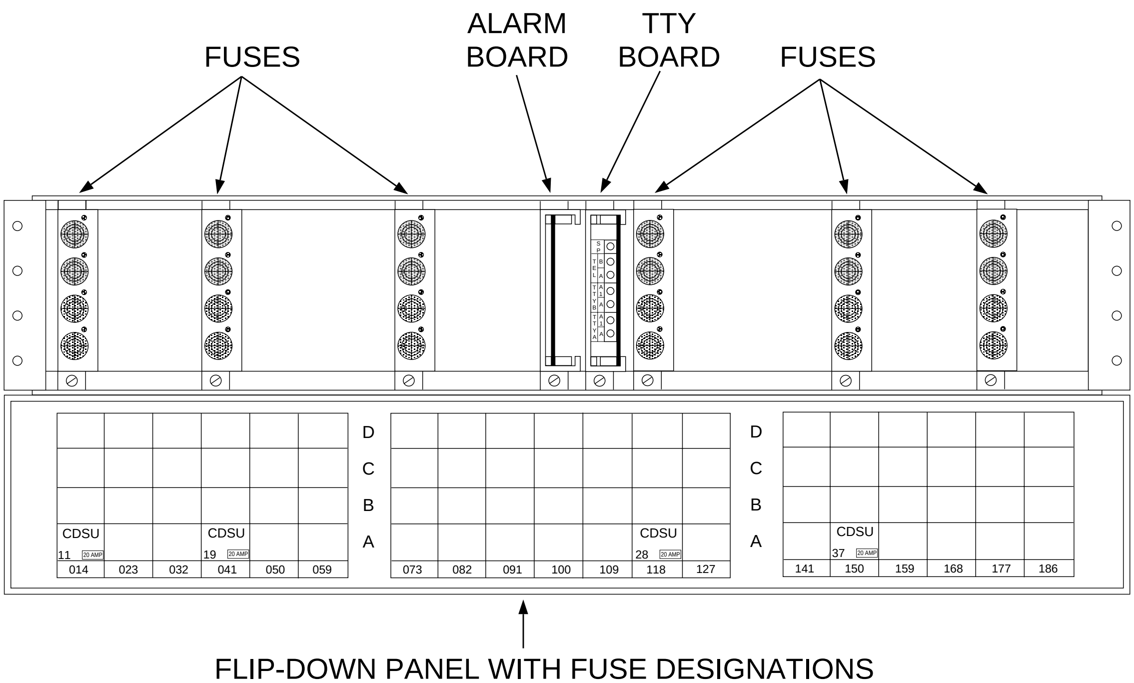


Figure 1. Fuse and Filter Panel for the CDSC-II

2. Is a fuse blown at the fuse and filter panel?

   If **YES**, continue to Step 3.

   If **NO**, go to Step 8.

3. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

4. Replace the fuse in the fuse and filter panel.

   Note: Pay attention to the fuse size and type labeled on the fuse panel cover.

5. Turn the power ON at the CDSU-II control panel (**ON/OFF** switch).

6. Does the **POWER ON** LED light on the CDSU-II control panel?

   If **YES**, go to Step 32.
   If **NO**, continue to Step 7.

7. Does the same fuse blow again?

   If **YES**, go to Step 31.
   If **NO**, Remove power from the CDSU-II (DLP-558), and continue to Step 28.

8. Is the power switch at the CDSU-II control panel in the ON position? (See Figure 2.)

   If **YES**, continue to Step 9.
   If **NO**, go to Step 28.

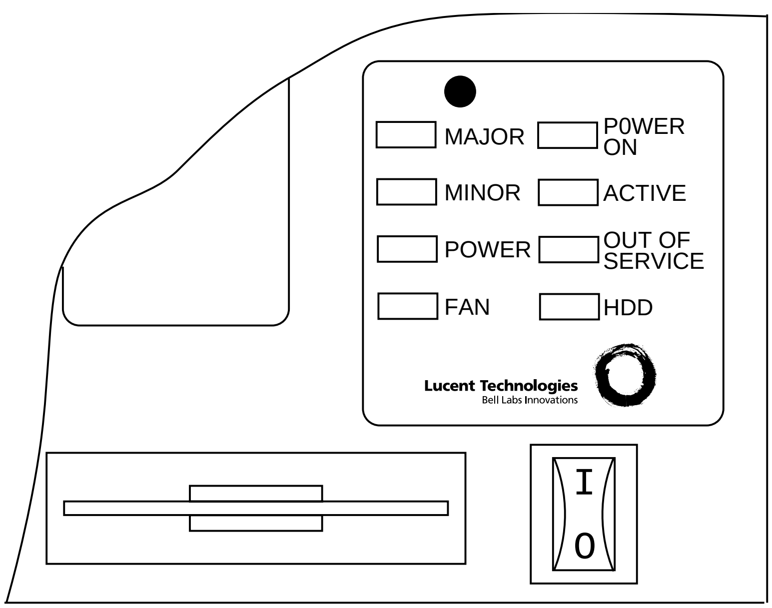


Figure 2. The CDSU-II Control Panel

9. Is the **POWER ON** LED lighted on the CDSU-II control panel?

   If **YES**, go to Step 27.

   If **NO**, continue to Step 10.

10. Remove the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

11. Carefully slide the unit out far enough to access the large top cover.

12. Remove the large top cover from the CDSU-II.

13. From above the CDSU-II look into the CDSU-II for any lighted red current sensor LEDs on the backplane. See Figure 3 for current sensor LED positions.

    If **no LEDs are lighted**, go to Step 14

    If **one or more LEDs are lighted**, go to Step 17

14. Replace the large top cover of the CDSU-II.

15. Slide the CDSU-II back into the frame.

16. Attach the CDSU-II to the frame with the 4 screws that were removed earlier. Then go to Step 27

17. Record the slot number of any slot(s) with a lighted current sensor LED (from Step 13). (The LEDs will no longer be lighted when the CDSU-II is powered down in the following step.)

18. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

19. For each slot recorded in Step 17, use DLP-572 to verify that the current sensor daughter boards are set correctly.

    If **the current sensor daughter board(s) are set correctly, continue to Step 20.**

    If the current sensor daughter board(s) had to be reset to the correct values, go to Step 21.

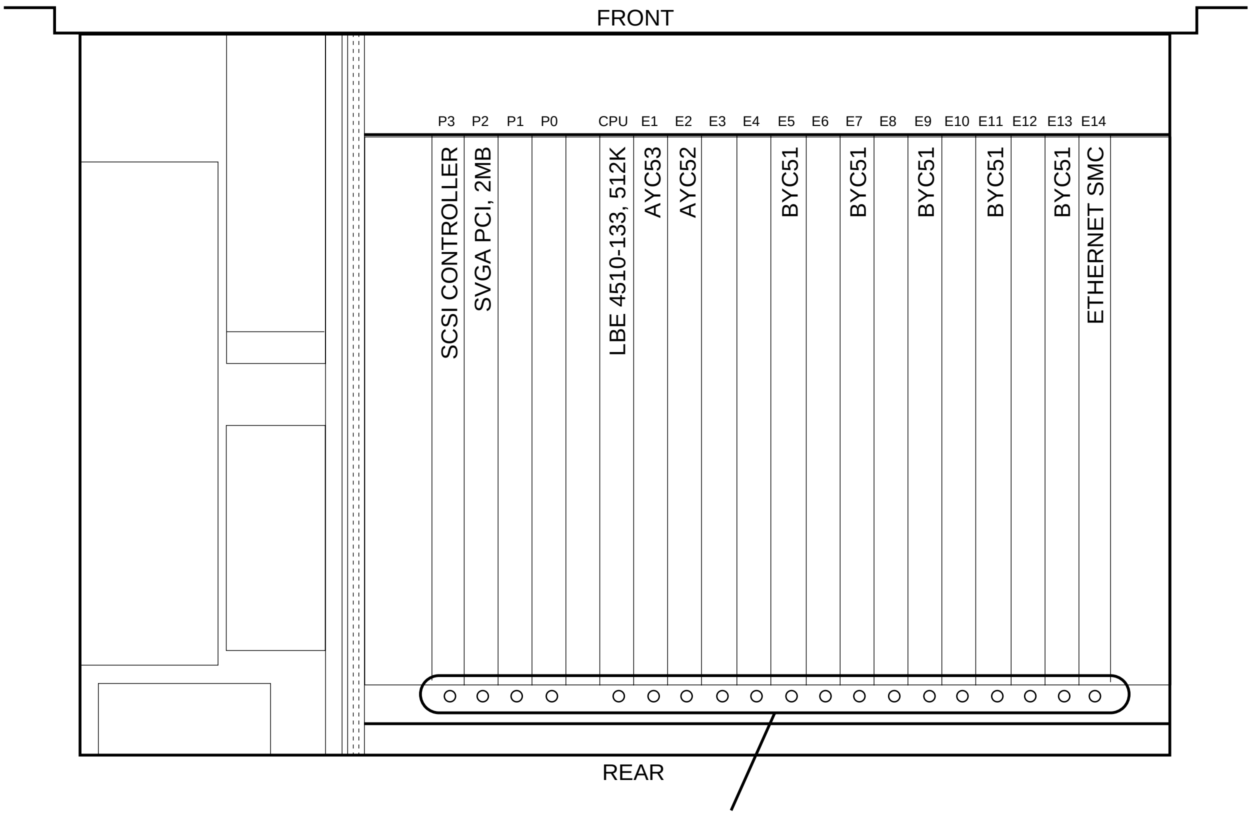


Figure 3. CDSU-II (Top View) Showing Current Sensor LEDs

20. Replace the circuit pack(s) in the slot(s) recorded in Step 17, then continue to Step 21.

Note: Only those circuits packs in slots E1 through E13 can be replaced on site. If circuit packs in other slots are bad, the entire CDSU-II will have to be replaced with a new CDSU-II (DLP-557). The procedures for replacing CDSU-II circuit packs are located in this document as follows:

- To replace a BYC51 (slot E5, E7, E9, E11, or E13), see DLP-553.
- To replace the AYC52 (slot E2), see DLP-554.
- To replace the AYC53 (slot E1), see DLP-555.

21. Ensure that all holding screws, cables, and the hold-down bar that might have been removed in Step 19 or Step 20 are back in place.

22. Replace the large top cover of the CDSU-II.

23. Slide the CDSU-II back into the frame.

24. Attach the CDSU-II to the frame with the 4 screws that were removed earlier.

25. Restore power to the CDSU-II (DLP-558).

26. Continue to Step 32.

27. Remove power from the CDSU-II (DLP-558).

28. Check for loose power cable connections between the CDSU-II and the CDSC-II fuse panel (check the power connection at the rear of the CDSU-II and the conection at the CDSC-II fuse panel). After checking all connections, continue to Step 29.

29. Turn the power ON at the CDSU-II control panel (**ON/OFF** switch).

30. Does the **POWER ON** LED light on the CDSU-II control panel?

    If **YES**, go to Step 32.

    If **NO**, continue to Step 31.

31. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME**. Consult next level of support for assistance.

32. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Clear Fan System Trouble - Fan LED Lighted on SCCC or SCUC Cabinet

1. Look for a lighted fuse LED (indicates a blown fuse) on the fuse and filter panel at the top of the Service Circuit Controller Cabinet (SCCC) or the Service Circuit Unit Cabinet (SCUC) (see Figures 1 and 2).

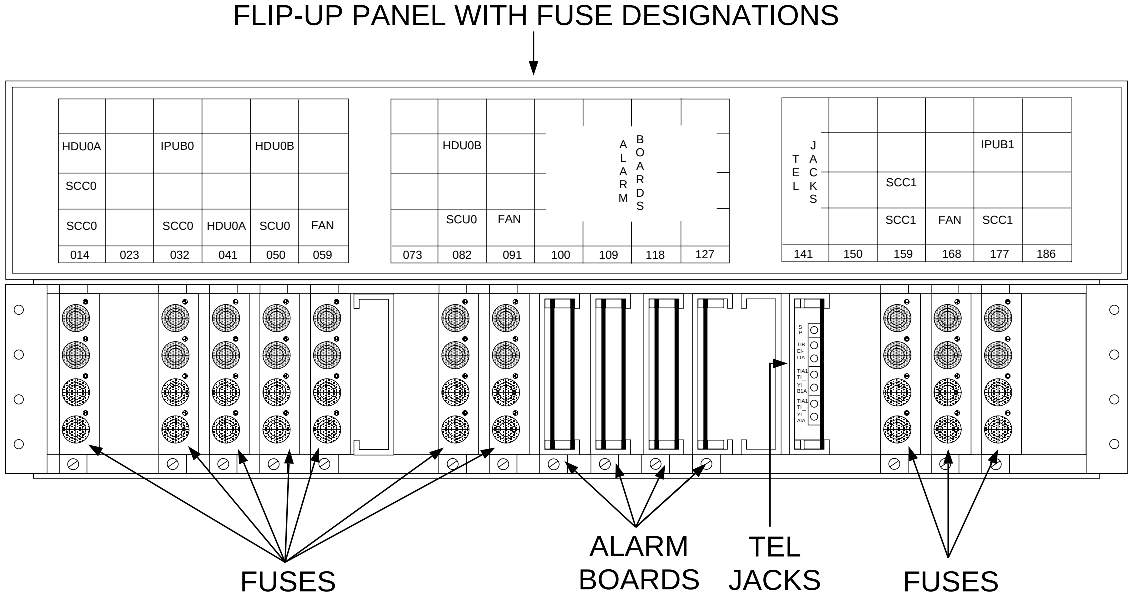


Figure 1. Fuse and Filter Panel for the SCCC

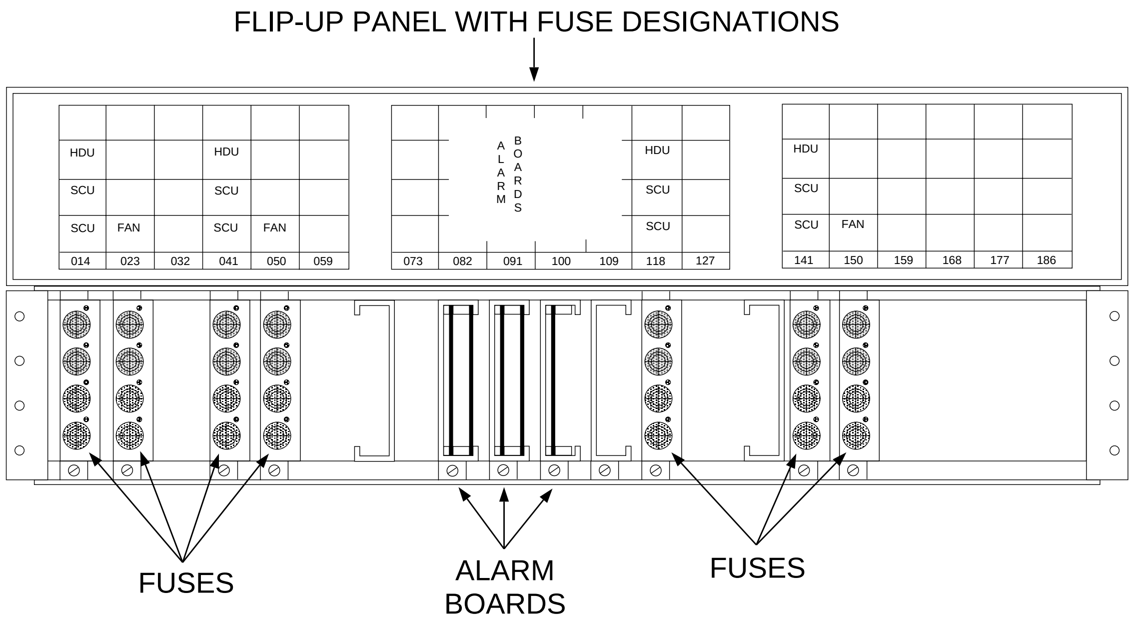


Figure 2. Fuse and Filter Panel for the SCUC

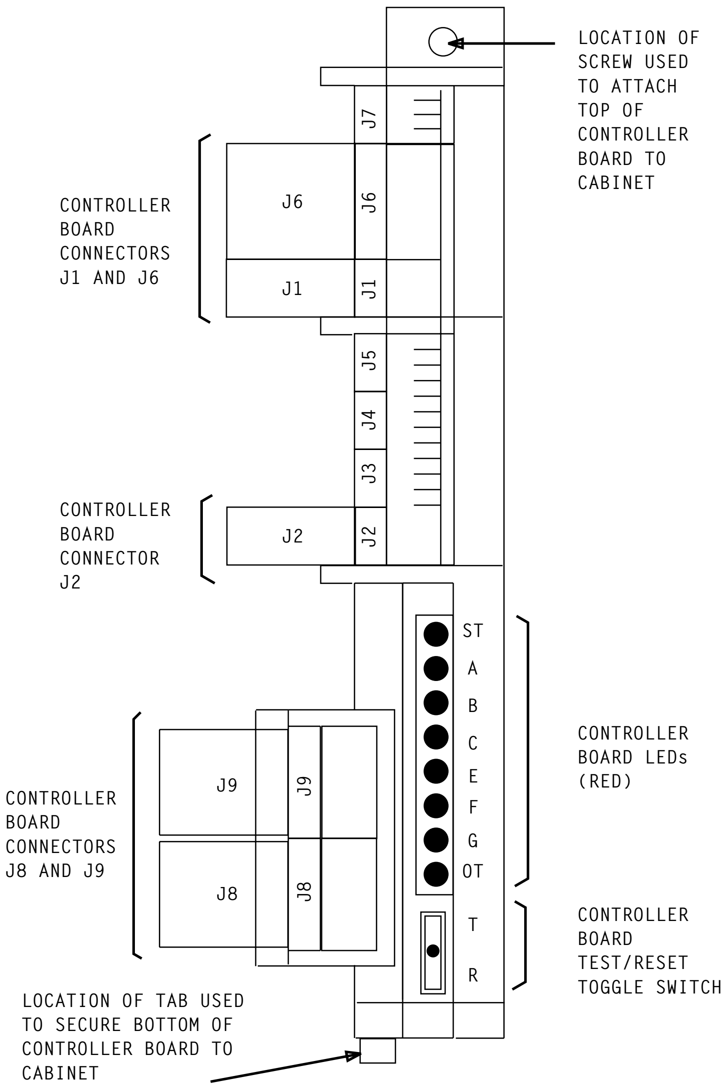
2. Is a fuse blown at the fuse and filter panel?

   If **YES**, continue to Step 3.

   If **NO**, go to Step 4.

3. Clear fan system blown fuse (TAP-136).

4. At the rear of the fan unit, locate the fan system controller board KS23884, L2 at (28-004R) (Figure 3) or ED-5D195-10, G7 at (28-011R) (Figure 4), and visually observe controller board for lighted LEDs.



Fan System Controller Board (28-004R)

Figure 3. KS23884, L2 Fan System Controller Board

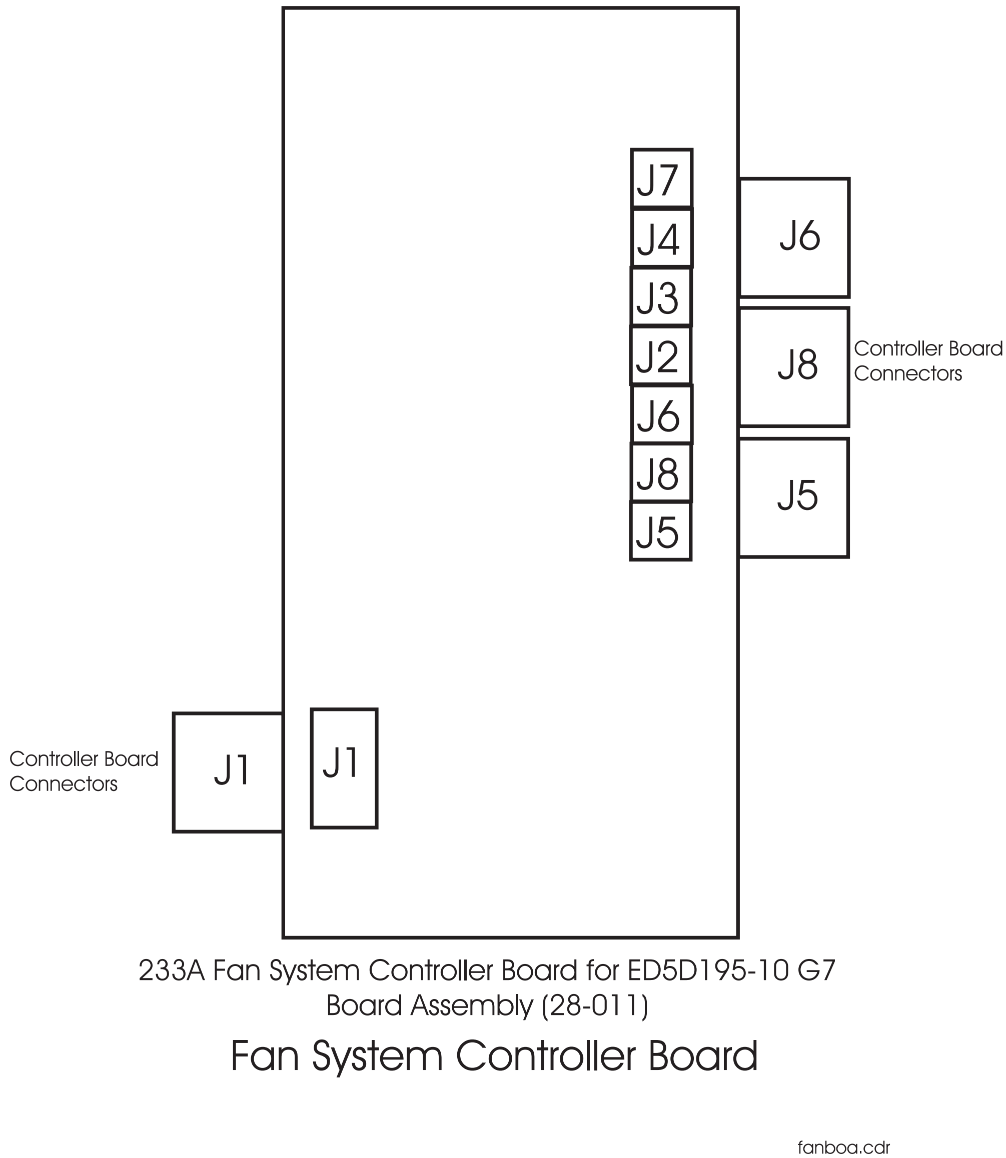


Figure 4. ED-5D195-10, G7 Fan System Controller Board Assembly

5. Is controller board KS23884, L2?

   If **YES**, continue to Step 6.

   If **NO**, go to Step 35.

6. Is controller board **A, B, C, E, F,** or **G** LED lighted?

   If **YES**, continue to Step 8.

   If **NO**, go to Step 7.

7. Is controller board **OT** LED lighted?

   If **YES**, go to Step 25.

   If **NO**, go to Step 17.

8. Identify fan associated with lighted LED (Table A).

9. Remove fuse associated with lighted LED (Table B for SCCC and Table C for SCUC).

   WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

10. Replace fan associated with lighted LED (DLP-533).

    WARNING: When replacing FAN A, care must be taken to avoid shorting fan to -48V terminal strip lugs located directly above FAN A.

11. Replace fuse previously removed.

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse module.

12. Does fuse blow?

    If **YES**, go to Step 13.

    If **NO**, go to Step 14.

13. Clear fan system blown fuse (TAP-136).

14. At rear of fan unit, locate fan system controller board (28-004R)(Figure 3), momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

TABLE A Fan System Controller Board

FAN SYSTEM CONTROLLER BOARD LEGEND	
Controller Board Indicator	**Indicator Identification**
ST LED	STATUS LED
A LED	FAN A FAIL LED
B LED	FAN B FAIL LED
C LED	FAN C FAIL LED
E LED	FAN E FAIL LED
F LED	FAN F FAIL LED
G LED	FAN G FAIL LED
OT LED	OVER TEMPERATURE LED
T	TEST (two function toggle switch)
R	RESET (two function toggle switch)

TABLE B SCCC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-059 Controller	44-032R 44-004R
B	Fan B	69-168	44-098R
C	Fan C	69-091	44-164R
E	Fan E	69-059	44-032F
F	Fan F	69-168	44-098F
G	Fan G	69-091	44-164F

Notes:

1. Rear fans are identified A, B, and C, right to left across rear of fan unit.

   Front fans are identified E, F, and G, left to right across front of fan unit.

2. F indicates front and R indicates rear.

TABLE C SCUC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-023 Controller	44-032R 44-004R
B	Fan B	69-150	44-098R
C	Fan C	69-050	44-164R
E	Fan E	69-023	44-032F
F	Fan F	69-150	44-098F
G	Fan G	69-050	44-164F

Notes:

1. Rear fans are identified A, B, and C, right to left across rear of fan unit.

   Front fans are identified E, F, and G, left to right across front of fan unit.

2. F indicates front and R indicates rear.

15. At top of SCCC or SCUC, does **FAN** LED go off and remain off for 30 seconds or more?

    If **YES**, go to Step 16.

    If **NO**, go to Step 17.

16. Record corrective action for local records.

17. Remove fan system controller board fuse (for SCCC=69-059, for SCUC=69-023).

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

18. Replace fan system controller board (DLP-574).

    WARNING: When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A.

19. Replace fan system controller board fuse (69-023).

20. Does fuse blow?

    If **YES**, go to Step 21.

    If **NO**, go to Step 22.

21. Contact next higher technical support group and inform personnel of actions performed and results obtained.

22. At rear of fan unit, locate fan system controller board (28-004R) (Figure 3), momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10 to 15 seconds to return to normal.

23. At top of SCCC or SCUC, does **FAN** LED go off for 30 seconds or more?

    If **YES**, go to Step 24.

    If **NO**, go to Step 25.

24. Record corrective action for local records.

25. Is either air filter dirty?

    If **YES**, go to Step 27.

    If **NO**, go to Step 30.

26. Replace dirty air filters (DLP-521).

27. At rear of fan unit, locate fan system controller board (28-004R) (Figure 3), momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

28. At top of SCCC or SCUC, does **FAN** LED go off for 30 seconds or more?

    If **YES**, go to Step 29.

    If **NO**, go to Step 30.

29. Record corrective action for local records.

30. Is office aisle temperature greater than 50° C(82° F)?

    If **YES**, go to Step 31.

    If **NO**, go to Step 63.

31. Identify and correct office cooling system problems.

32. At rear of fan unit, locate fan system controller board (28-004R) (Figure 3), momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

33. At top of SCCC or SCUC, does **FAN** LED go off and remain off for 30 seconds or more?

    If **YES**, go to Step 34.

    If **NO**, go to Step 62.

34. Record corrective action for local records.

35. Is controller board ED-5D195-10, G7?

    If **YES**, continue to Step 36.

    If **NO**, go to Step 5.

36. If Fan Unit Circuit Board Assembly LED is lighted, identify fuse associated with lighted LED (Table D).

37. Replace fuse associated with lighted LED (Table B for SCCC and Table C for SCUC).

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

38. Does fuse blow?

    If **YES**, go to Step 45.

    If **NO**, go to Step 46.

39. Clear fan system blown fuse (TAP-136).

40. At rear of fan unit, locate fan system controller board (28-011R)(Figure 4), momentarily depress controller board switch to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

TABLE D Fan System Controller Board (28-011R)

FAN SYSTEM CONTROLLER BOARD LEGEND	
Controller Board Indicator	**Indicator Identification**
A LED	FAN A FAIL LED
B LED	FAN B FAIL LED
C LED	FAN C FAIL LED
E LED	FAN E FAIL LED
F LED	FAN F FAIL LED
G LED	FAN G FAIL LED
-	TEST SWITCH

41. At top of SCCC or SCUC, does **FAN** LED go off and remain off for 30 seconds or more?

    If **YES**, go to Step 42.

    If **NO**, go to Step 43.

42. Record corrective action for local records.

43. Remove fan system controller board fuse (for SCCC=69-059, for SCUC=69-023).

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

44. Replace fan system controller board (DLP-575).

    WARNING: When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A.

45. Replace fan system controller board fuse (69-023).

46. Does fuse blow?

    If **YES**, go to Step 47.

    If **NO**, go to Step 48.

47. Contact next higher technical support group and inform personnel of actions performed and results obtained.

48. At rear of fan unit, locate fan system controller board (28-011R) (Figure 4), momentarily depress controller board switch to reset fan system and allow 10 to 15 seconds to return to normal.

49. At top of SCCC or SCUC, does **FAN** LED go off for 30 seconds or more?

    If **YES**, go to Step 50

    If **NO**, go to Step 51.

50. Record corrective action for local records.

51. Contact next higher technical support group and inform personnel of actions performed and results obtained.

52. Is either air filter dirty?

    If **YES**, go to Step 53.

    If **NO**, go to Step 57.

53. Replace dirty air filters (DLP-521).

54. At rear of fan unit, locate fan system controller board (28-011R) (Figure 4), momentarily depress controller board switch to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

55. At top of SCCC or SCUC, does **FAN** LED go off for 30 seconds or more?

    If **YES**, go to Step 56.

    If **NO**, go to Step 57.

56. Record corrective action for local records.

57. Is office aisle temperature greater than 50˚ C(82˚ F)?

    If **YES**, go to Step 58.

    If **NO**, go to Step 63.

58. Identify and correct office cooling system problems.

59. At rear of fan unit, locate fan system controller board (28-011R) (Figure 4), momentarily depress controller board switch to reset fan system and allow 10 to 15 seconds for fan system to return to normal.

60. At top of SCCC or SCUC, does **FAN** LED go off and remain off for 30 seconds or more?

    If **YES**, go to Step 61.

    If **NO**, go to Step 62.

61. Record corrective action for local records.

62. Contact next higher technical support group and inform personnel of actions performed and results obtained.

63. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace Fuse Block in Fuse and Filter Panel on Service Circuit Unit Cabinet (SCUC)

1. Locate defective fuse block on the fuse and filter panel at the top of the Service Circuit Unit Cabinet (SCUC) (see Figure 1).

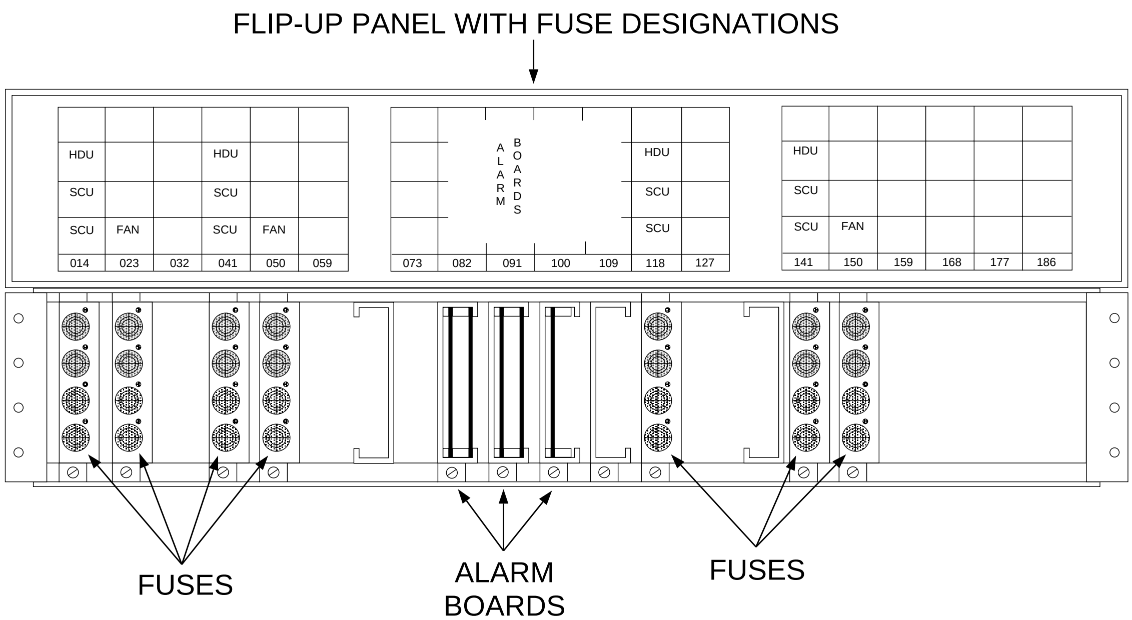


Figure 1. Fuse and Filter Panel for the SCUC

2. Using Figure 2, Table A, and Table B, determine the Service Circuit Unit (SCU), Hard Disk Pair (HDU), and fans associated with the defective fuse block.

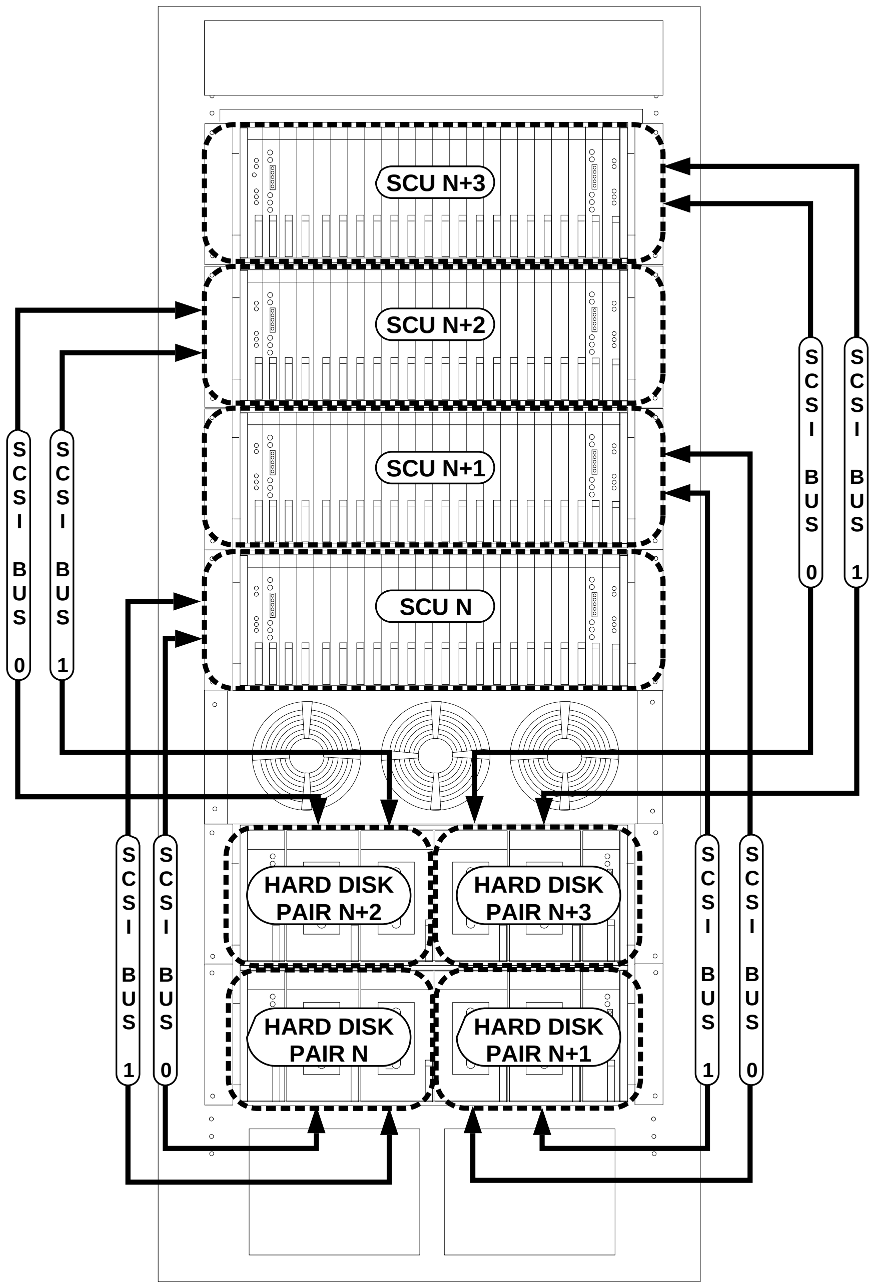


Figure 2. HDU to SCU Associations in the SCU Cabinet

TABLE A SCUC Fuse Block, SCU, HDU, Fan Associations

Fuse Block Location	Associated SCU	Associated HDU	Associated Fans
069-014	SCU N+1	HDP N+1	A and E
069-041	SCU N+3	HDP N+3	C and G
069-118	SCU N	HDP N	None
069-141	SCU N+2	HDP N+2	B and F

Note:

- When replacing fuse block at location 069-014, the fan fuse at 069-023 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.
- When replacing fuse block at location 069-041, the fan fuse at 069-050 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.
- When replacing fuse block at location 069-141, the fan fuse at 069-150 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.

TABLE B SCUC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-023 Controller	44-032R 44-004R
B	Fan B	69-150	44-098R
C	Fan C	69-050	44-164R
E	Fan E	69-023	44-032F
F	Fan F	69-150	44-098F
G	Fan G	69-050	44-164F

Note:

- Rear fans are identified A, B, and C, right to left across rear of fan unit.
- Front fans are identified E, F, and G, left to right across front of fan unit.
- F indicates front and R indicates rear.

3. Remove Hard Disk Pair from service (DLP-511).

4. Remove power from the Hard Disk Pair (DLP-507).

5. Remove power from the Service Circuit Unit (DLP-506).

6. At power distribution frame (PDF), identify fuse position associated with SCU cabinet and SCU with defective fuse block.

7. Remove -48V power bus fuse.

8. At SCU and HDU, verify that the OFF LEDs on the SCU TN1984 and 410AA circuit packs and the HDU UN356 circuit pack are extinguished.

   WARNING: Do not proceed to next step until LEDs are extinguished. If LEDs do not extinguish, verify that the correct -48V feeder fuse was removed at the PDF.

9. Remove fuses in defective fuse block and associated fan fuse block (Tables A and B).

   WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive force on the fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

10. At rear of SCU cabinet, identify location of defective fuse block to be replaced.

11. At the applicable fuse block, identify, tag, and remove wiring to the defective fuse block.

12. At front of SCU cabinet, remove screw securing fuse block to cabinet.

    Caution: Place a sheet of paper over the top unit in this cabinet and beneath the fuse block screw to be removed to prevent possible service interruption and/or equipment damage.

13. Grasp fuse block and pull outward to remove from cabinet.

14. Obtain known good replacement fuse block and visually inspect fuse block for any obvious defects.

15. Insert and properly seat replacement fuse block.

16. Secure fuse block to cabinet using screw previously removed.

17. At rear of cabinet, identify and re-install previously removed wiring to fuse block.

18. At PDF, install -48V feeder fuse previously removed.

19. At front of SCU cabinet, install fuses previously removed from fuse block.

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive force on the fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

20. Restore power to Service Circuit Unit (DLP-506).

21. Restore power to Hard Disk Pair (DLP-507).

22. Run Demand Service Circuit Unit Diagnostic Phases (DLP-514).

23. Restore Hard Disk Pair to active service (DLP-525).

24. Contact next higher technical support group and inform personnel of actions performed and results obtained.

25. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace Fuse Block in Fuse and Filter Panel on Service Circuit Controller Cabinet (SCCC)

1. Locate defective fuse block on the fuse and filter panel at the top of the Service Circuit Controller Cabinet (SCCC) (see Figure 1).

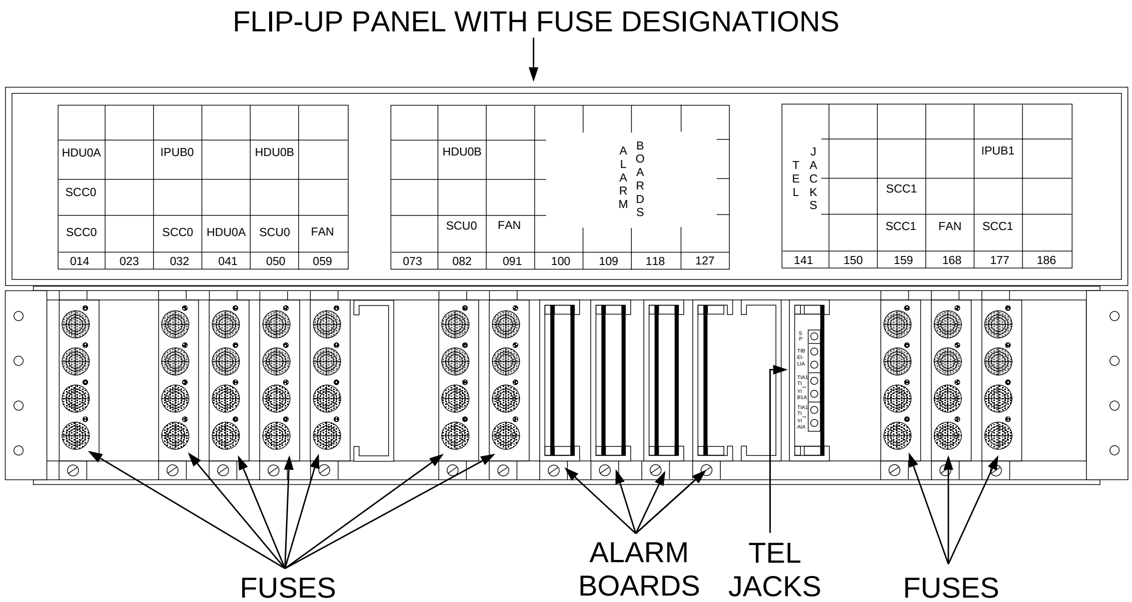


Figure 1. Fuse and Filter Panel for the SCCC

2. Using Figure 2, Table A and Table B, determine the fuse block equipage, and fans associated with the defective fuse block.

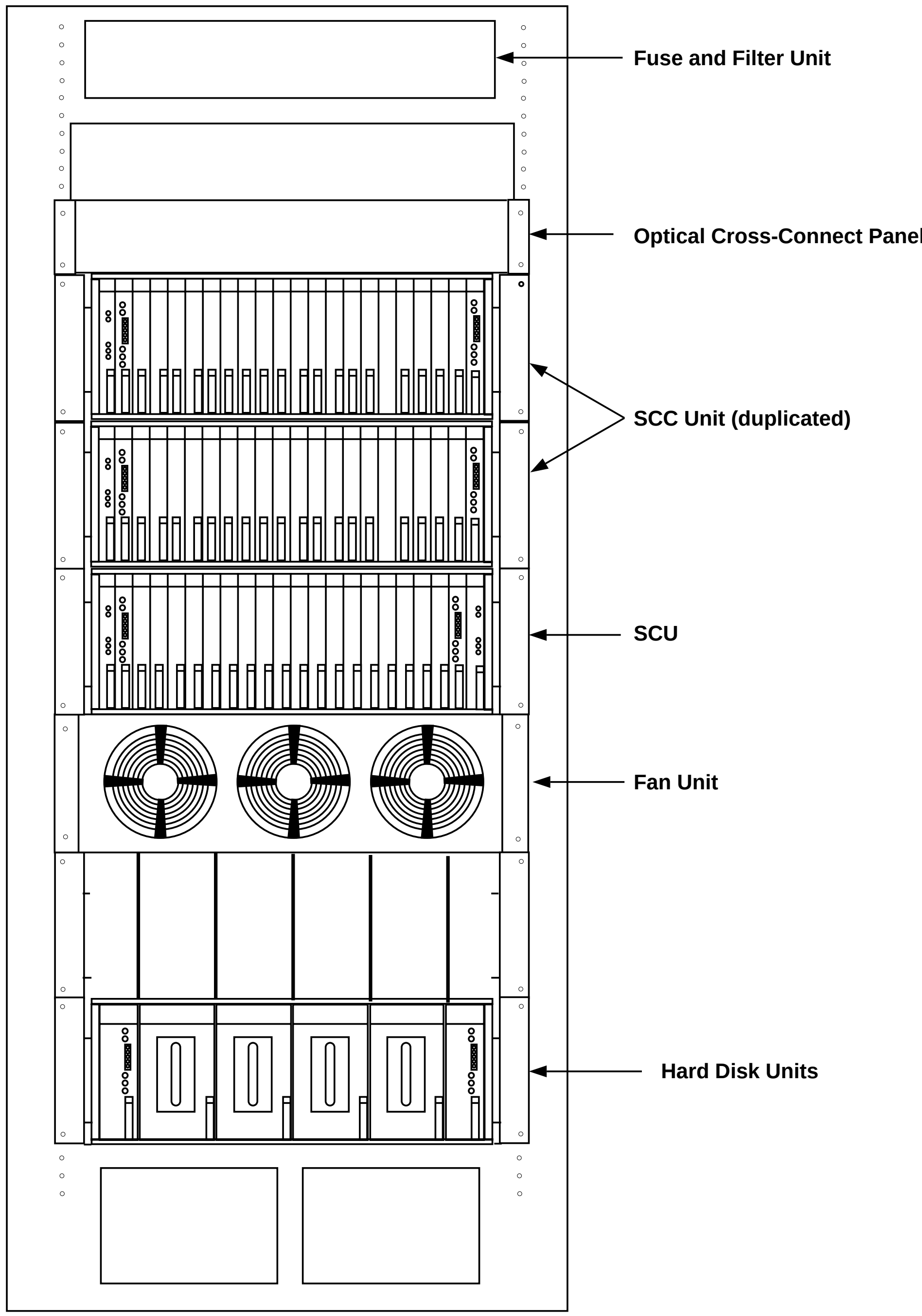


Figure 2. SCCC Cabinet - Equipment Identification

TABLE A SCCC Fuse Block Equipment Associations

Fuse Block Location	Equipage	Associated HDU	Associated Fans
069-014	SCC0 HDU0A	None -	None -
069-032	SCC0 IPUB0	None -	None -
069-041	HDU0A	None	None
069-050	SCU0 HDU0B	HDU0 -	A and E -
069-082	SCU0 HDU0B	HDU0 -	C and G -
069-159	SCC1	None	B and F
069-177	SCC1 IPUB1	None -	None -

Note:

1. When replacing fuse block at location 069-050, the fan fuse at 069-059 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.

2. When replacing fuse block at location 069-082, the fan fuse at 069-091 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.

3. When replacing fuse block at location 069-159, the fan fuse at 069-168 must be removed. See Table B for Fan System Controller Board Fan LEDs and associated Fuses/Loads. The reverse is applicable when replacing the fan fuse block.

TABLE B SCCC Fan System Controller Board Fan LEDs & Associated Fuses/Loads

Controller Board Fan LED	Fuse Identifier	Fuse Location	Load Location
A	Fan A Fan System	69-059 Controller	44-032R 44-004R
B	Fan B	69-168	44-098R
C	Fan C	69-091	44-164R
E	Fan E	69-059	44-032F
F	Fan F	69-168	44-098F
G	Fan G	69-091	44-164F

Note:

- Rear fans are identified A, B, and C, right to left across rear of fan unit.
- Front fans are identified E, F, and G, left to right across front of fan unit.
- F indicates front and R indicates rear.

3. Is defective fuse block located at 069-014?

   If **YES**, go to Step 4.

   If **NO**, go to Step 9.

4. Remove Service Circuit Controller 0 (SCC0) from service (DLP-509).

5. Remove Hard Disk Pair (HDP) from service (DLP-511).

   Note: Removal of the HDP also removes the Service Circuit Unit (SCU) from service.

6. Remove power from the HDP0 (DLP-507).

7. Remove power from SCC0 (DLP-505).

8. Is power removed from the fuse block units?

   If **YES**, go to Step 53.

   If **NO**, go to Step 6.

9. Is defective fuse block located at 069-032?

   If **YES**, go to Step 10.

   If **NO**, go to Step 15.

10. Remove SCC0 from service (DLP-509).

11. Remove Interface to Peripheral Unit Bus (IPUB) 0 from service (DLP-512).

12. Remove power form SCC0 (DLP-505).

13. Remove power from IPUB0 (DLP-508).

14. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 12.

15. Is defective fuse block located at 069-041?

    If **YES**, go to Step 16.

    If **NO**, go to Step 19.

16. Remove Hard Disk Pair from service (DLP-511).

    Note: Removal of HDU also removes the SCU from service.

17. Remove power from the Hard Disk Pair (DLP-507).

18. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 17.

19. Is defective fuse block located at 069-050?

    If **YES**, go to Step 20.

    If **NO**, go to Step 24.

20. Remove HDP0 from service (DLP-511).

    Note:

    - Removal of HDP also removes the SCU from service.
    - See Table A, Note 1.

21. Remove power from HDP0 (DLP-507).

22. Remove power from SCU0 (DLP-506).

23. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 21.

24. Is defective fuse block located at 069-059?

    If **YES**, go to Step 25.

    If **NO**, go to Step 29.

25. Remove HDP0 from service (DLP-511).

    Note:

    - Removal of HDU also removes the SCU from service.
    - See Table A, Note 1.

26. Remove power from HDP0 (DLP-507).

27. Remove power from SCU0 (DLP-506).

28. Is power removed from fuse block units?

    If **YES**, go to Step 53.
    If **NO**, go to Step 26.

29. Is defective fuse block located at 069-082?

    If **YES**, go to Step 30.
    If **NO**, go to Step 34.

30. Remove HDP0 from service (DLP-511).

    Note:

    - Removal of HDP also removes the SCU from service.
    - See Table A, Note 2.

31. Remove power from HDP0 (DLP-507).

32. Remove power from SCU0 (DLP-506).

33. Is power removed from fuse block units?

    If **YES**, go to Step 53.
    If **NO**, go to Step 31.

34. Is defective fuse block located at 069-091?

    If **YES**, go to Step 35.

    If **NO**, go to Step 39.

35. Remove HDP from service (DLP-511).

    Note:

    - Removal of HDP also removes the SCU from service.
    - See Table A, Note 2.

36. Remove power from HDP (DLP-507).

37. Remove power from SCU0 (DLP-506).

38. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 36.

39. Is defective fuse block located at 069-159?

    If **YES**, go to Step 40.

    If **NO**, go to Step 43.

40. Remove SCC1 from service (DLP-509).

41. Remove power from SCC1 (DLP-505).

    Note: See Table A, Note 3.

42. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 41.

43. Is defective fuse block located at 069-168?

    If **YES**, go to Step 44.

    If **NO**, go to Step 47.

44. Remove SCC1 from service (DLP-509).

    Note: See Table A, Note 3.

45. Remove power from SCC1 (DLP-505).

46. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 45.

47. Is defective fuse block located at 069-177?

    If **YES**, go to Step 48.

    If **NO**, go to Step 3.

48. Remove SCC1 from service (DLP-509).

49. Remove IPUB1 from service (DLP-512).

50. Remove power from SCC1 (DLP-505).

51. Remove power from IPUB1 (DLP-508).

52. Is power removed from fuse block units?

    If **YES**, go to Step 53.

    If **NO**, go to Step 50.

53. At power distribution frame (PDF), identify fuse position associated with SCC cabinet and SCU or controller with the defective fuse block.

54. Remove -48V power bus fuse.

55. At units that were powered down, verify that the OFF LEDs on the TN1984, 410AA, UN356 circuit packs are extinguished.

    WARNING: Do not proceed to next step until LEDs are extinguished. If LEDs do not extinguish, verify that the correct -48V feeder fuse was removed at the PDF.

56. Remove fuses in defective fuse block and associated fan fuse block (Tables A and B).

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive force on the fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

57. At rear of SCC cabinet, identify location of defective fuse block to be replaced.

58. At the applicable fuse block, identify, tag, and remove wiring to the defective fuse block.

59. At front of SCC cabinet, remove screw securing fuse block to cabinet.

    Caution: Place a sheet of paper over the top unit in this cabinet and beneath the fuse block screw to be removed to prevent possible service interruption and/or equipment damage.

60. Grasp fuse block and pull outward to remove from cabinet.

61. Obtain known good replacement fuse block and visually inspect fuse block for any obvious defects.

62. Insert and properly seat replacement fuse block.

63. Secure fuse block to cabinet using screw previously removed.

64. At rear of cabinet, identify and re-install previously removed wiring to fuse block.

65. At PDF, install -48V feeder fuse previously removed.

66. At front of SCC cabinet, install fuses previously removed from fuse block.

    WARNING: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive force on the fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

67. Was fuse block replaced at location 069-014?

    If **YES**, go to Step 68.

    If **NO**, go to Step 73.

68. Restore power to SCC0 (DLP-505).

69. Restore power to HDP0 (DLP-507).

70. Restore HDU0 to service (DLP-525).

    Note: Restoral of HDP also restores the SCU to service.

71. Restore SCC0 to service (DLP-523).

72. Go to Step 116.

73. Was fuse block replaced at location 069-032?

    If **YES**, go to Step 74.

    If **NO**, go to Step 79.

74. Restore power to SCC0 (DLP-505).

75. Restore power to IPUB0 (DLP-508).

76. Restore IPUB0 to service (DLP-526).

77. Restore SCC0 to service (DLP-523).

78. Go to Step 116.

79. Was fuse block replaced at located at 069-041?

    If **YES**, go to Step 80.

    If **NO**, go to Step 83.

80. Restore power to HDP (DLP-507).

81. Restore HDP to service (DLP-525).

    Note: Restoral of HDP also restores the SCU to service.

82. Go to Step 116.

83. Was fuse block replaced at location 069-050?

    If **YES**, go to Step 84.

    If **NO**, go to Step 88.

84. Restore power to SCU0 (DLP-506).

85. Restore power to HDP0 (DLP-507).

86. Restore HDP0 to service (DLP-525).

Note:

- Restoral of HDP also restores the SCU to service.
- See Table A, Note 1.

87. Go to Step 116.

88. Was fuse block replaced at location 069-059?

If **YES**, go to Step 89.
If **NO**, go to Step 93.

89. Restore power to HDP0 (DLP-507).

90. Restore power to SCU0 (DLP-506).

91. Restore HDP0 to service (DLP-525).

Note:

- Restoral of HDP also restores the SCU to service.
- See Table A, Note 1.

92. Go to Step 116.

93. Was fuse block replaced at location 069-082?

If **YES**, go to Step 94.
If **NO**, go to Step 98.

94. Restore power to HDP0 (DLP-507).

95. Restore power to SCU0 (DLP-506).

96. Restore HDP0 to service (DLP-525).

Note:

- Restoral of HDP also restores the SCU to service.
- See Table A, Note 2.

97. Go to Step 116.

98. Was fuse block replaced at location 069-091?

If **YES**, go to Step 99.
If **NO**, go to Step 103.

99. Restore power to HDP (DLP-507).

100. Restore power to SCU (DLP-506).

101. Restore HDP to service (DLP-525).

Note:

- Restoral of HDP also restore to SCU to service.
- See Table A, Note 2.

102. Go to Step 116.

103. Was fuse block replaced at location 069-159?

If **YES**, go to Step 104.
If **NO**, go to Step 107.

104. Restore power to SCC1 (DLP-505).

Note: See Table A, Note 3.

105. Restore SCC1 to service (DLP-523).

106. Go to Step 116.

107. Was fuse block replaced at location 069-168?

    If **YES**, go to Step 108.

    If **NO**, go to Step 111.

108. Restore power to SCC1 (DLP-505).

    Note: See Table A, Note 3.

109. Restore SCC1 to service (DLP-523).

110. Go to Step 116.

111. Was fuse block replaced at location 069-177?

    If **YES**, go to Step 112.

    If **NO**, go to Step 67.

112. Restore power to SCC1 (DLP-505).

113. Restore power to IPBU1 (DLP-508).

114. Restore IPUB1 to service (DLP-526).

115. Restore SCC1 to service (DLP-523).

116. Contact next higher technical support group and inform personnel of actions performed and results obtained.

117. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Copy Service Circuit Unit (SCU) Files

1. Is the Announcement Administrative Processor (AAP) present and active?

   If **YES**, then continue to Step 2.
   If **NO**, then go to Step 3.

2. Contact the Advanced Features Service Center (AFSC) and request that they inhibit both the source and destination SCUs in the AAP's SCUEQP database.

3. Perform copy using the input messages in Table A.

   WARNING: It is extremely important that the correct SCU number, disk pair number, and disk bus number be entered in the messages shown in Table A. An error in these input messages could corrupt data on other disks. Hard disk pairs, their associated SCUs, and Small Computer System Interface (SCSI) bus connections are shown in Figures 3 (Service Circuit Controller [SCC] frame) and 4 (SCU frame) of TAP-104.

   Note: The TN4000 hard disk circuit pack contains two disks. When replacing a TN4000 circuit pack, a copy must be performed for both disk pairs implemented by the TN4000 circuit pack.

4. If Step 2 was performed, then contact the AFSC and request that they allow both the source and destination SCUs in the AAP's SCUEQP database.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Copy Messages

TO DO THE FOLLOWING:	ENTER THIS MESSAGE:
Copy a specific file from one SCU to a different file number in another SCU	**COPY:SCS** *a*, **SCU** *b*, **SFN** *c*, **BUS** *d*, **DSCU** *e*, **DFN** *f***!**
Copy a specific file from one SCU to the same file number in another SCU	**COPY:SCS** *a*, **SCU** *b*, **SFN** *c*, **BUS** *d*, **DSCU** *e***!**
Copy a specific file to a different file number on the mirrored disk of a disk pair	**COPY:SCS** *a*, **SCU** *b*, **SFN** *c*, **BUS** *d*, **DFN** *f***!**
Copy a specific file to the same file number on the mirrored disk of a disk pair	**COPY:SCS** *a*, **SCU** *b*, **SFN** *c*, **BUS** *d***!**
Copy a disk from one SCU to another disk pair in another SCU	**COPY:SCS** *a*, **SCU** *b*, **SDP** *g*, **BUS** *d*, **DSCU** *e*, **DDP** *h***!**
Copy a disk from one SCU to the same disk pair in another SCU	**COPY:SCS** *a*, **SCU** *b*, **SDP** *g*, **BUS** *d*, **DSCU** *e***!**
Copy a disk to the mirrored disk of another disk pair in the same SCU	**COPY:SCS** *a*, **SCU** *b*, **SDP** *g*, **BUS** *d*, **DDP** *h***!**
Copy a disk to the mirrored disk of the same disk pair in the same SCU	**COPY:SCS** *a*, **SCU** *b*, **SDP** *g*, **BUS** *d***!**
a = SCS member number (0-7) *b* = Source SCU member number (0-15) **(inter-SCU or intra-SCU file copy or raw-disk copy)** *b* = Destination SCU number **(APS to SCU file copy when copying to a single SCU)** *c* = Source file number (1-127) *d* = Source SCU disk bus number (0-1) *e* = Destination SCU member number (0-7) *f* = Destination file number (1-127) *g* = Source SCU disk pair number (0-1) *h* = Destination SCU disk pair number (0-1)	

TABLE A (Contd) Copy Messages

TO DO THE FOLLOWING:	ENTER THIS MESSAGE:
Copy a specific file from the Attached Processor System (APS) to all in-service SCUs in one SCS	**COPY:SCS** *a*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j***!**
Copy a specific file from the APS to all in-service SCUs in all SCSs	**COPY:SCS** *a*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j*,**ALL!**
Copy a specific file from the APS to all SCUs in one SCS, or to the SCUs in a growth SCS	**COPY:SCS** *a*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j*;**UCL!**
Copy a specific file from the APS to all in-service and out-of-service SCUs in all SCSs	**COPY:SCS** *a*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j*,**ALL; UCL!**
Copy a specific file from the APS to a single in-service SCU	**COPY:SCS** *a*, **SCU** *b*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j***!**
Copy a specific file from the APS to a single out-of-service SCU	**COPY:SCS** *a*, **SCU** *b*, **{TONES | SCCSFT | SCUOPR | SCUDGN | MSPROV | MSPFIX | MSP1 | MIP0FIL | MIP1FIL}, SVN** *i*, **DVN** *j*; **UCL!**

a = SCS member number (0-7)
b = Source SCU member number (0-15) **(inter-SCU or intra-SCU file copy or raw-disk copy)**
b = Destination SCU number **(APS to SCU file copy when copying to a single SCU)**
i = Source file version number of the APS file (0-1)(4E22R4 and later)
j = Destination file version number on the SCU disks
(0-1)(4E22R4 and later)

Define Point of Maximum Definition (PMD) Dictionary Nodes

1. Define error using PMDs. (See Table A.)

TABLE A PMD Dictionary

PMD	DESCRIPTION
001	APUF (duplex) no error found
002	PUF (duplex) no error found; ASWF set in active only
003	PUF (duplex) no error found; ASWF set in standby only
004	PUF (duplex) no error found
005	Duplex-no CC PUF or APUF error source found
030	Unique error in active only, after hit-timing, then error in active only
031	Unique error in active only, after hit-timing, then error in standby only
032	Unique error in active only, after hit-timing, then error in both controllers
033	Unique error in active only, after hit-timing, then error is gone
034	Unique error in standby only, after hit-timing, then error in active only
035	Unique error in standby only, after hit-timing, then error in standby only
036	Unique error in standby only, after hit-timing, then error in both controllers
037	Unique error in standby only, after hit-timing, then error is gone
040	Unique error in both controllers, after hit-timing, then error in active only
041	Unique error in both controllers, after hit-timing, then error in standby only
042	Unique error in both controllers, after hit-timing, then error in both controllers
043	Unique error in both controllers, after hit-timing, then error is gone
044	Clock phase mismatch found in active only
045	Clock phase mismatch found in standby only
046	Clock phase mismatch found in both controllers
047	Firmware detected errors found in both controllers, no PPE (no RAM errors)
050	Firmware detected errors found in active controller only, no PPE (no RAM errors)
051	Firmware detected errors found in standby controller only, no PPE (no RAM errors)
052	Firmware detected errors found in both controllers with PPE (no RAM errors)
053	Firmware detected errors found in active controller only with PPE (no RAM errors)
054	Firmware detected errors found in standby controller only with PPE (no RAM errors)
055	Stack boundary or sanity timer error found in both or standby controller(s) EXEC pack

TABLE A (Contd) PMD Dictionary

PMD	DESCRIPTION
056	Stack boundary or sanity timer error found in active controller EXEC pack only
057	Stack boundary or sanity timer error found in both controller EXEC packs
060	Cross controller mismatch in active controller only, no EB INTERJECT source found
061	Cross controller mismatch in standby controller only, no EB INTERJECT source found
062	Cross controller mismatch in both controllers, no EB INTERJECT source found
070	The peripheral order is no good
071	Unique error in active controller, retry the order and active still has unique error
072	Unique error in active controller, retry the order and active has no error
073	Unique error in standby controller, retry the order and standby still has unique error
074	Unique error in standby controller, retry the order and standby has no error
075	PUF - stack boundary or sanity timer error found in active controller EXEC pack
076	PUF - stack boundary or sanity timer error found in standby controller EXEC pack
100	Invalid ATP Order received (SCS Controllers duplex)
103	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in active only, retry order, fails in active only
104	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in active only, retry order, fails in standby only
105	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in active only, retry order, fails in both controllers
106	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in active only, retry order, passes in both controllers
107	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in standby only, retry order, fails in active only
110	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in standby only, retry order, fails in standby only
111	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in standby only, retry order, fails in both controllers
112	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in standby only, retry order, passes in both controllers
113	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in both controllers, retry order, fails in active only
114	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in both controllers, retry order, fails in standby only
115	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in both controllers, retry order, fails in both controllers

TABLE A (Contd) PMD Dictionary

PMD	DESCRIPTION
116	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in both controllers, retry order, passes in both controllers
117	Firmware detected errors in active controller, no PPE (no RAM errors)
120	Unique errors in active controller during a "no retry allowed" order
121	Unique errors in standby controller during a "no retry allowed" order
122	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in active controller during a "no retry allowed" order
123	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in standby controller during a "no retry allowed" order
124	CPMM/CCMM (IAS_ACT = 0, IAS_STB = 0) in both controllers during a "no retry allowed" order
125	Firmware detected errors in standby controller, no PPE (no RAM errors)
126	Firmware detected errors in active controller with PPE (no RAM errors)
127	Firmware detected errors in standby controller with PPE (no RAM errors)
130	APUF (simplex)-no error found
131	PUF (simplex)-no error found
132	Simplex-no CC PUF or APUF error source found
150	Unique error found, after hit-timing, error still present
151	Unique error found, after hit-timing, error is gone
152	Mismatch found (cpmm,ccmm)
153	Firmware detected errors found, no PPE (no RAM errors)
154	Firmware detected errors found with PPE (no RAM errors)
155	Stack boundary or sanity timer error found in controller EXEC pack
160	Invalid ATP Order received (SCS Controllers simplex)
170	Peripheral order is no good
171	Unique error found; retry the order; unique error is still present
172	Unique error found; retry the order; error is gone
173	Stack boundary or sanity timer error found in controller EXEC pack
174	Firmware detected errors found with PPE (no RAM errors)
175	CPMM or CCMM found
176	Firmware detected errors found, no PPE (no RAM errors)
177	Unique error found during a "no retry allowed" order
200	CONSISTENCY CHECK - INAPUT set in active and standby, IAS zero in standby (duplex)

TABLE A (Contd) PMD Dictionary

PMD	DESCRIPTION
201	CONSISTENCY CHECK - INAPUT set in active, reset in standby, IAS zero in standby (duplex)
202	CONSISTENCY CHECK - INAPUT set in active, reset in standby, IAS nonzero in standby (duplex)
203	CONSISTENCY CHECK - INAPUT reset in active and standby (duplex)
204	CONSISTENCY CHECK - INAPUT reset in active, set in standby, IAS zero in standby (duplex)
205	CONSISTENCY CHECK - INAPUT reset in active, set in standby, IAS nonzero in standby (duplex)
206	CONSISTENCY CHECK - INAPUT reset in active, INTERJECT from o/s controller (simplex)
207	INTERJECT FILTER - consistency check passes, digit buffer overflow
217	INTERJECT FILTER - consistency check passes, but no sources found (duplex)
220	INTERJECT FILTER - consistency check passes, but no sources found (simplex)
221	INTERJECT CONT - APUT set in both controllers, no error source found in either (duplex)
240	INTERJECT FILTER - single DS-120 error
241	INTERJECT FILTER - single LAN error
242	INTERJECT FILTER - single invalid state error (active-active or standby-standby)
243	INTERJECT FILTER - illegal command or data received by SCU
244	INTERJECT FILTER - illegal command or data received by controller
245	INTERJECT FILTER - receive FIFO full
246	INTERJECT FILTER - SCU hard error, bad SCU
247	INTERJECT FILTER - multiple DS-120 errors on the same TSI
250	INTERJECT FILTER - multiple DS-120 errors on different TSIs
251	INTERJECT FILTER - multiple LAN errors
252	INTERJECT FILTER - multiple invalid link state, HW status says SW active controller is active
253	INTERJECT FILTER - multiple invalid link state, HW status says SW active controller is not active
260	CCMM found during APUF, IAS_ACT = 0, IAS_STB = 1
261	CCMM found during APUF, IAS_ACT = 1, IAS_STB = 0
262	CCMM found during APUF, IAS_ACT = 1, IAS_STB = 1
263	ATP Table Mismatch between controller and SCU
270	CCMM found during PUF, IAS_ACT = 0, IAS_STB = 1

TABLE A (Contd) PMD Dictionary

PMD	DESCRIPTION
271	CCMM found during PUF, IAS_ACT = 1, IAS_STB = 0
272	CCMM found during PUF, IAS_ACT = 1, IAS_STB = 1
273	ASR LAN error or CDSU power problem (MIP0-MIP1 or CDSU)
274	ASR T1 error or CDSU power problem (MIP0-MIP1 or CDSU)
275	ASR miscellaneous error
301	BASE FILTER - autonomous report
311	BASE FILTER - illegitimate report
330	RAM errors found in standby only or both controllers
331	RAM errors found in active controller (standby may have f/w detected error)
332	Fatal firmware detected errors found in both controllers (no RAM errors)
333	Fatal firmware detected errors found in active controller (no RAM errors)
334	Fatal firmware detected errors found in standby controller (no RAM errors)
340	RAM errors in active controller
341	RAM error in standby controller
343	Fatal firmware detected errors found in active controller (no RAM errors)
344	Fatal firmware detected errors found in standby controller (no RAM errors)
350	RAM errors
351	ATP firmware audit failure
353	Fatal firmware detected errors found (no RAM errors)
360	RAM errors
363	Fatal firmware detected errors found (no RAM errors)
373	Hardware access test failure
374	Interrupt from a growth frame
375	Interrupt from an unequipped frame
377	Interrupt from a duplex failed frame

Replace Circuit Pack in Service Circuit Controller (SCC), Service Circuit Unit (SCU), or Interface to Peripheral Unit Bus (IPUB)

1. If the unit is not out of service, take the unit out of service. (DLP-509 for the SCC, DLP-510 for the SCU, or DLP-512 for the IPUB.)

2. At unit TN1984 circuit pack (SCC or SCU) or TN1671 circuit pack (IPUB), press **OFF**.

   Response: **OFF** LED lights.

3. Identify circuit pack to be replaced.

4. Carefully flip up the designation strip that runs horizontally across the top of the unit to allow the circuit pack to be removed.

5. See WARNING. Release locking mechanism and remove circuit pack.

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.

6. Insert new circuit pack into position of defective pack.

7. Ensure circuit pack is fully seated and locked into position.

8. At unit TN1984 circuit pack (SCC or SCU) or TN1671 circuit pack (IPUB), press **ON**.

9. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace Circuit Pack in Hard Disk Unit (HDU)

1. If the SCU is not out of service, take the SCU out of service (DLP-510).

2. Which circuit pack type is being replaced?

   If **UN356 Disk Power Controller**, continue to Step 3.
   If **TN1672, TN1972, TN4000, or TN9000 Hard Disk**, continue to Step 10.

3. At the UN356 circuit pack to be replaced, press **OFF**.

   Response: **OFF** LED lights.

4. Carefully flip up the designation strip that runs horizontally across the top of the unit to allow the circuit pack to be removed.

5. See WARNING. Release locking mechanism and remove circuit pack.

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.

6. Insert new circuit pack into position of defective pack.

7. Ensure circuit pack is fully seated and locked into position.

8. At the new UN356 circuit pack, press **ON**.

9. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

10. At the UN356 circuit pack associated with the hard disk circuit pack to be replaced, press **OFF**. (See Figure 1 for location of hard disks and associated UN356 circuit packs.)

    Response: **OFF** LED lights.

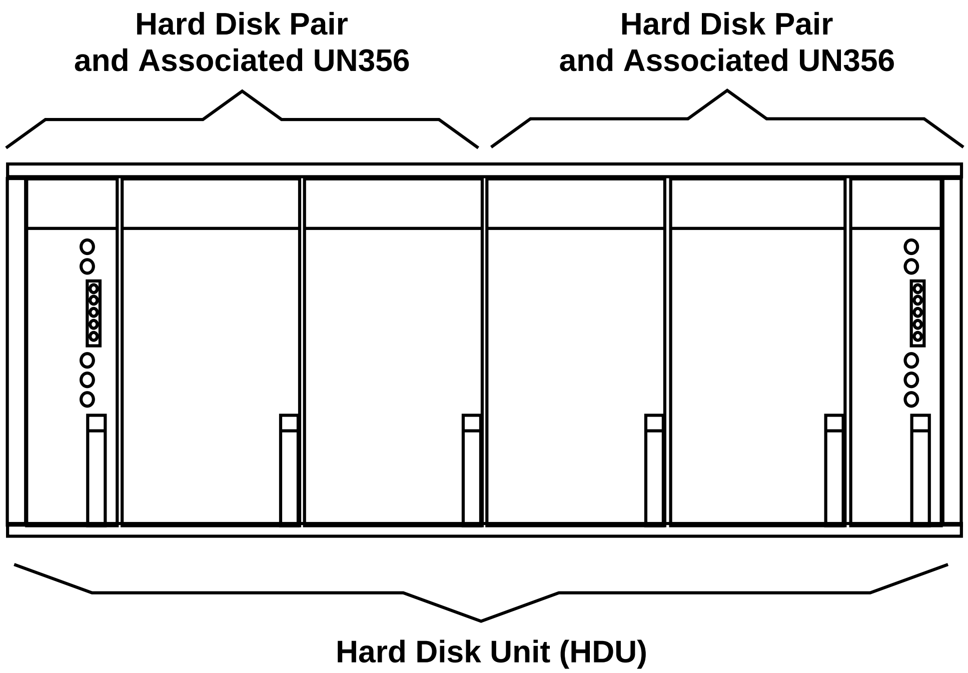


Figure 1. Hard Disk Pairs and Associated UN356 Circuit Packs

11. Identify the hard disk circuit pack to be replaced. Using Figures 2 and 3, identify the bus number of the disk that is **NOT** being replaced. Record this information for use in Step 17.

12. Carefully flip up the designation strip that runs horizontally across the top of the unit to allow the circuit pack to be removed.

13. See WARNING. Release locking mechanism and remove circuit pack.

    WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.

14. Insert new circuit pack into position of defective pack.

15. Ensure circuit pack is fully seated and locked into position.

16. At the new UN356 circuit pack, press **ON**.

Response: On the UN356 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the disk pair.

17. See WARNING. At the 1B MTC terminal, copy the other disk in the disk pair (the one that was **NOT** replaced) to the new disk by entering: **COPY:SCS** *a***,SCU** *b***,SDP** *c***,BUS** *d***!**

where *a* = Member number (0-7)
b = Source SCU number (0-15)
c = Source disk pair number (0-1)
d = Source disk bus number (0 or 1)

WARNING: It is extremely important that the correct SCU number, disk pair number, and disk bus number be entered in the above input message. An error in this input message could corrupt data on other disks. Hard disk pairs, their associated Service Circuit Units (SCUs), and Small Computer System Interface (SCSI) bus connections are shown in Figures 2 (SCC frame) and 3 (SCU frame).

When both the source and destination of a copy is a TN4000 hard disk circuit pack, care must be taken in specifying the pair to copy, since the TN4000 circuit pack contains two disk drives (when combined with another TN4000 circuit pack, two disk pairs are implemented). An alternative is to repeat the copy for each pair.

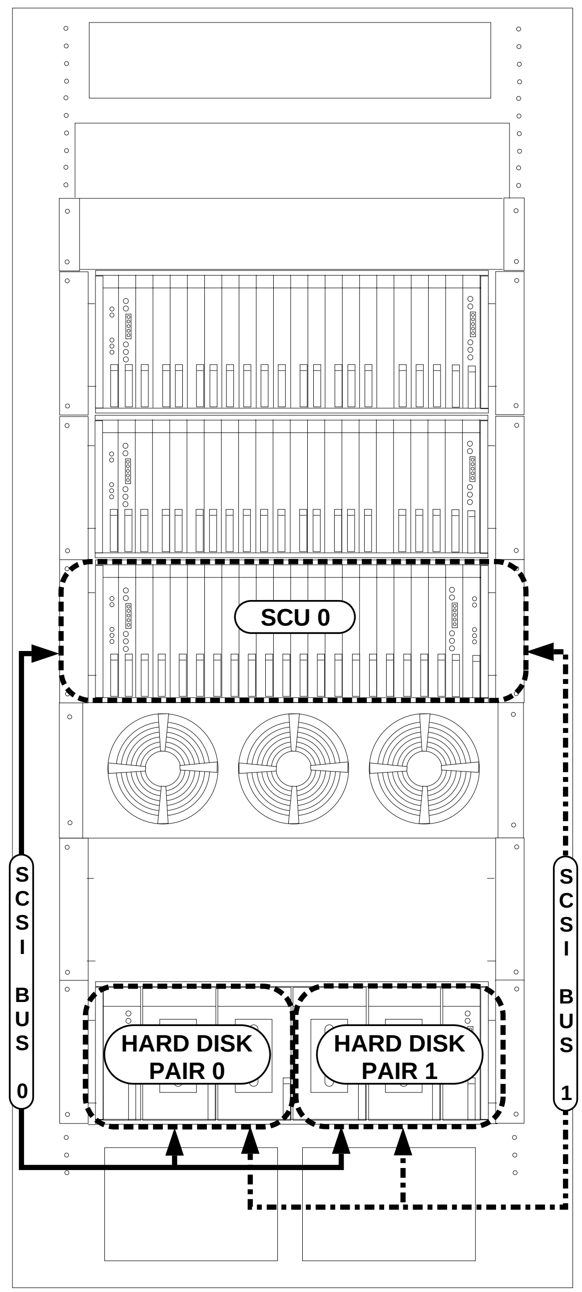


Figure 2. Hard Disk to SCU Connections in the SCC Cabinet

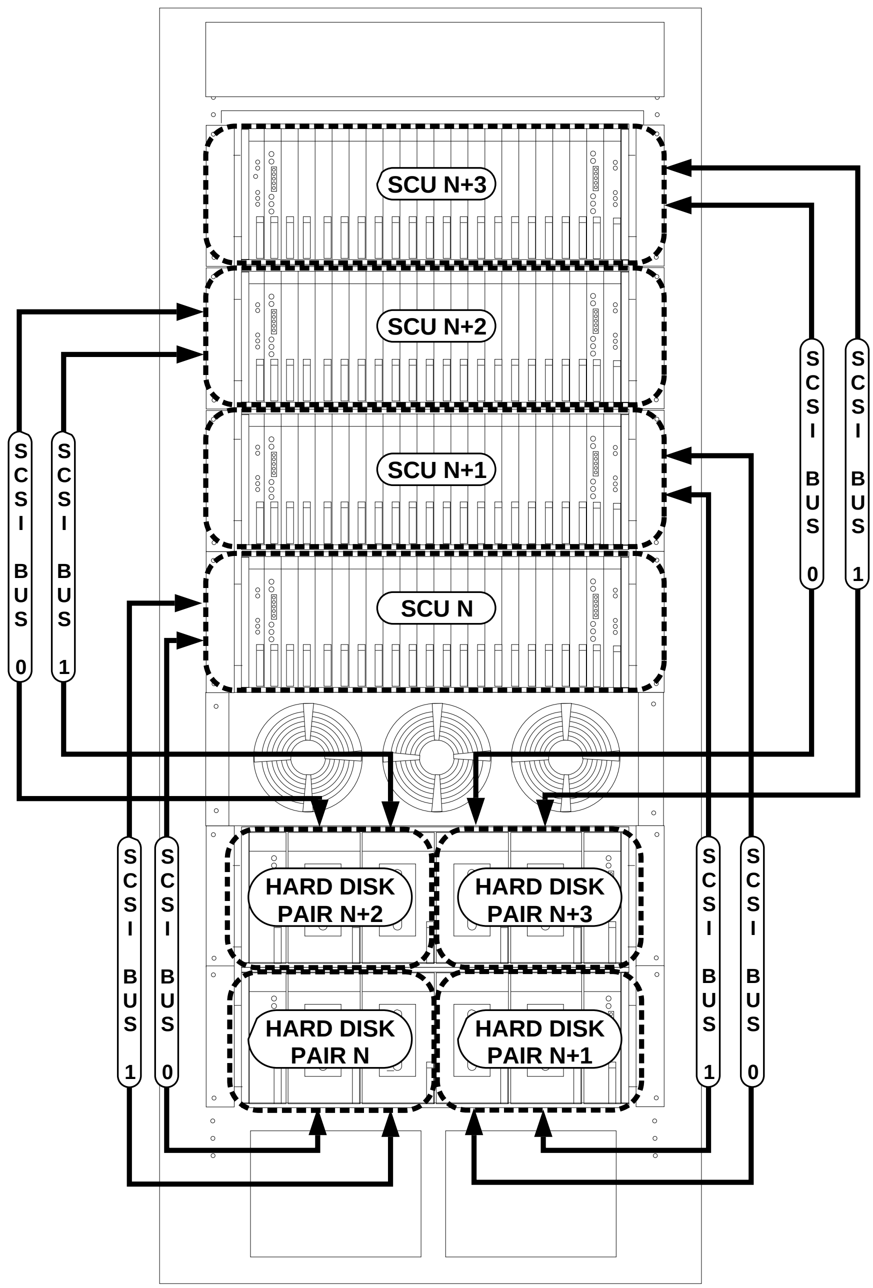


Figure 3. Hard Disk to SCU Connections in the SCU Cabinet

18. Diagnose the SCU associated with the disk pair containing the replaced disk (DLP-514).

19. Return the disk that was removed to the factory for reinitialization.

20. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace Circuit Pack in Interface to Peripheral Unit Bus (IPUB)

1. If the IPUB is not out of service, take the IPUB out of service (DLP-512).

2. At unit TN1671 circuit pack, press **OFF**.

   Response: **OFF** LED lights.

3. Identify circuit pack to be replaced.

4. Carefully flip up the designation strip that runs horizontally across the top of the unit to allow the circuit pack to be removed.

5. See WARNING. Release locking mechanism and remove circuit pack.

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.

6. If the circuit pack being replaced has option settings, set the options on the replacement circuit pack to agree with the settings on the circuit pack being replaced.

7. Insert new circuit pack into position of defective pack.

8. Ensure circuit pack is fully seated and locked into position.

9. At unit TN1671 circuit pack, press **ON**.

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

Removing and Restoring Power From a Service Circuit Controller (SCC)

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. Take the SCC out of service (DLP-509).

3. Remove power from the SCC by pressing the **OFF** button on the TN1984 circuit pack. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **OFF** LED lights, indicating that power has been removed from the SCC.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

5. Restore power to the SCC by pressing the **ON** button on the TN1984 circuit pack.

   Response: On the TN1984 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the SCC.

6. Restore the SCC to active service (DLP-523).

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

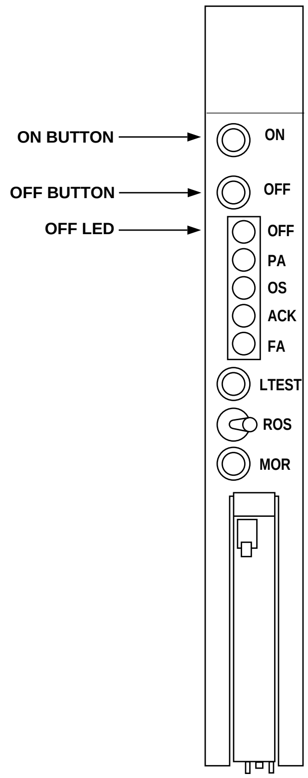


Figure 1. The TN1984 Circuit Pack

Removing and Restoring Power From a Service Circuit Unit (SCU)

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. Take the SCU out of service (DLP-510).

3. Remove power from the SCU by pressing the **OFF** button on the TN1984 circuit pack. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **OFF** LED lights, indicating that power has been removed from the SCU.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

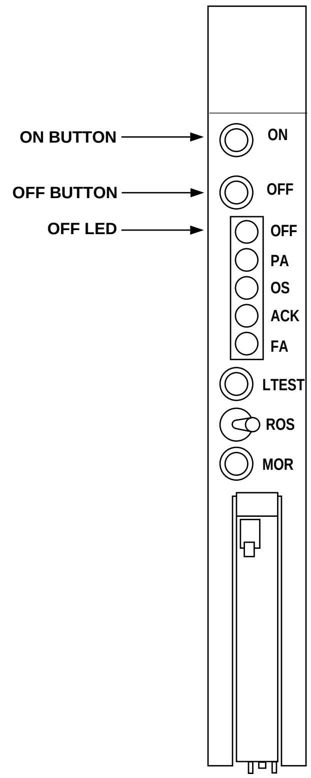


Figure 1. The TN1984 Circuit Pack

5. Restore power to the SCU by pressing the **ON** button on the TN1984 circuit pack.

   Response: On the TN1984 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the SCU.

6. Restore the SCU to active service (DLP-524).

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Removing and Restoring Power From a Hard Disk Pair

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. Take the hard disk pair out of service (DLP-511).

3. Remove power from the hard disk pair by pressing the **OFF** button on the UN356 circuit pack. (See Figure 2.)

   Response: On the UN356 circuit pack, the **OFF** LED lights, indicating that power has been removed from the hard disk pair.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

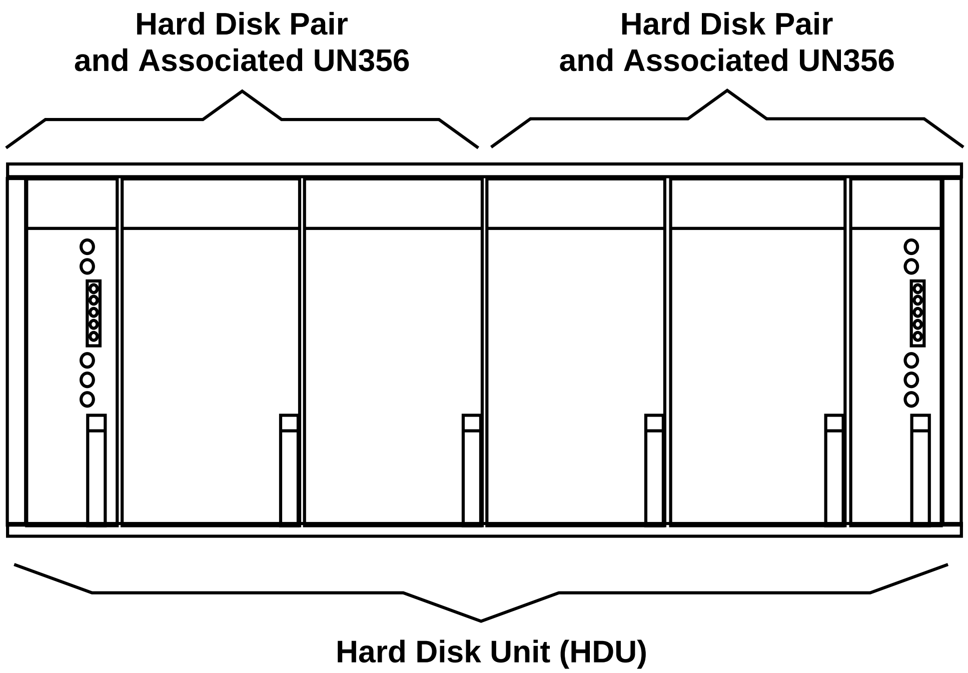


Figure 1. Hard Disk Pairs and Associated UN356 Circuit Packs

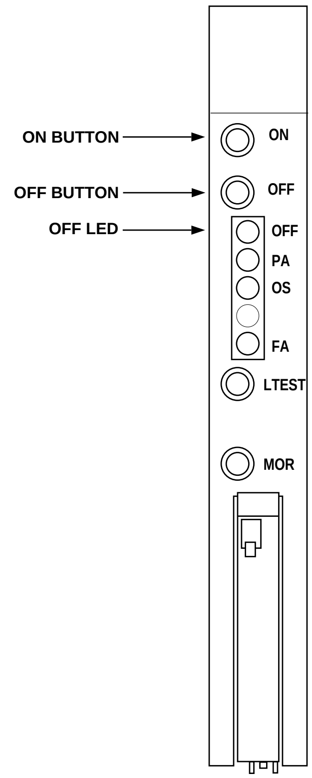


Figure 2. The UN356 Circuit Pack

5. Restore power to the hard disk pair by pressing the **ON** button on the UN356 circuit pack.

   Response: On the UN356 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the hard disk pair.

6. Restore the hard disk pair to active service (DLP-525).

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Removing and Restoring Power From an Interface to Peripheral Unit Bus (IPUB)

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. Take the IPUB out of service (DLP-512).

3. Remove power from the IPUB by pressing the **OFF** button on the TN1671 circuit pack. (See Figure 1.)

   Response: On the TN1671 circuit pack, the **OFF** LED lights, indicating that power has been removed from the IPUB.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

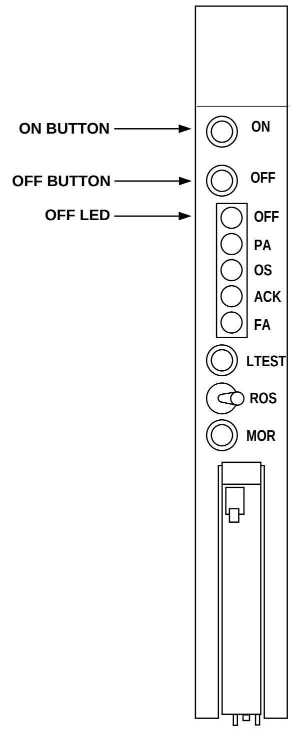


Figure 1. The TN1671 Circuit Pack

5. Restore power to the IPUB by pressing the **ON** button on the TN1671 circuit pack.

   Response: On the TN1671 circuit pack, the **OFF** LED extinguishes, indicating that power has been restored to the IPUB.

6. Restore the IPUB to active service (DLP-526).

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Remove Service Circuit Controller (SCC) From Service

1. Is the SCC unit to be taken out of service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the unit to be taken out of service, move the **ROS** switch on the TN1984 circuit pack to the ROS position. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED lights, indicating that the unit is out of service.

   Note: The **OS** lamp will not light and the controller will not be removed from service if the mate controller is out of service with power off.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

4. At the 1B MTC terminal, take the unit out of service by entering **RMV:SCS** *a***,CONTR** *b***!**

   where *a* = Member number (0-7)
   b = Controller number (0-1)

   Response: `RMV:SCS` *a*`,CONTR` *b* `COMPLETED`

   Note: The remove will not be allowed if the mate controller is already out of service with power off.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

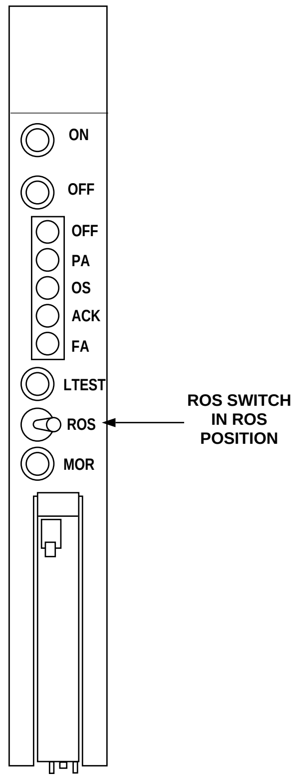


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the ROS Position

Remove Service Circuit Unit (SCU) From Service

1. Is the SCU to be taken out of service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the unit to be taken out of service, move the **ROS** switch on the TN1984 circuit pack to the ROS position. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED lights, indicating that the unit is out of service.

   Note: The **OS** lamp will not light and the SCU will not be removed from service if service circuit thresholds are already exceeded for the announcement set provided by the SCU.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

4. At the 1B MTC terminal, take the unit out of service by entering: **RMV:SCS** *a***,SCU** *b***!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

   Response: `RMV:SCS` *a*`,SCU` *b* `COMPLETED`

   Note: The SCU remove will not be allowed if service circuit thresholds are already exceeded for the announcement set provided by the subject SCU.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

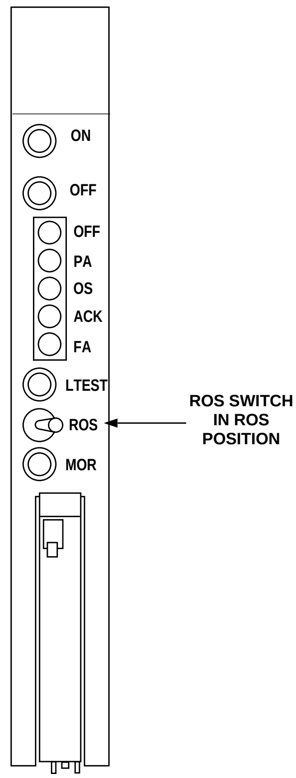


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the ROS Position

Remove Hard Disk Pair From Service

Note: This procedure takes the Service Circuit Unit (SCU) out of service which, in effect, takes all disk pairs that are associated with the SCU out of service.

1. Is the hard disk pair to be taken out of service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the SCU associated with the hard disk pair to be taken out of service, move the **ROS** switch on the TN1984 circuit pack to the ROS position. (See Figure 1.)

   Response: On the SCU's TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED lights, indicating that the SCU is out of service. On the hard disk pair's UN356 circuit pack, the **OS** LED lights, indicating that the hard disk pair is out of service.

   Note: The **OS** lamp will not light and the SCU will not be removed from service if service circuit thresholds are already exceeded for the announcement set provided by the SCU.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

4. At the 1B MTC terminal, take the unit out of service by entering: **RMV:SCS** *a***,SCU** *b***!**

   where *a* = Member number (0-7)
   b = SCU number (0-15) associated with the hard disk pair

   Response: `RMV:SCS` *a*`,SCU` *b* `COMPLETED`

   On the hard disk pair's UN356 circuit pack, the **OS** LED lights, indicating that the hard disk pair is out of service.

   Note: The SCU remove will not be allowed if service circuit thresholds are already exceeded for the announcement set provided by the subject SCU.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

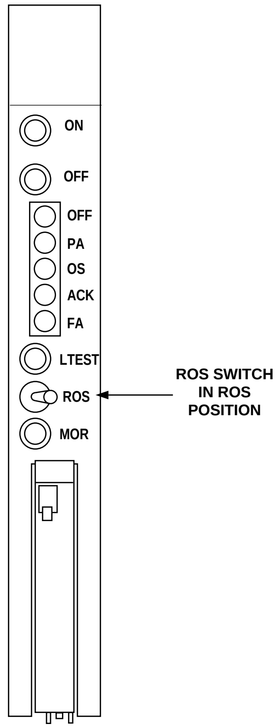


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the ROS Position

Remove Interface to Peripheral Unit Bus (IPUB) From Service

1. Is the IPUB to be taken out of service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the IPUB to be taken out of service, move the **ROS** switch on the TN1671 circuit pack to the ROS position. (See Figure 1.)

   Response: On the TN1671 circuit pack, the **ACK** LED blinks once and the **OS** LED lights, indicating that the IPUB is out of service.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

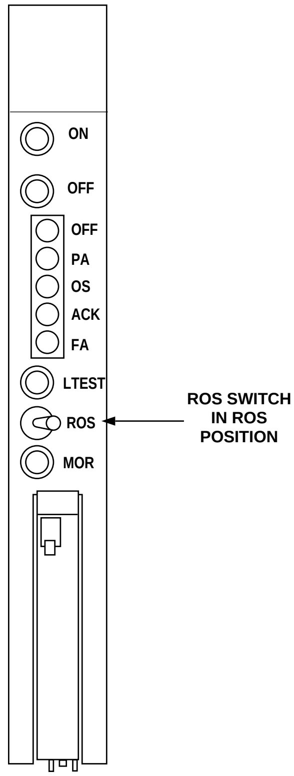


Figure 1. The TN1671 Circuit Pack with the ROS Switch in the ROS Position

4. At the 1B MTC terminal, take the IPUB out of service by entering: **RMV:SCS** *a***,IPUB** *b***!**

   where *a* = Member number (0-7)
   b = IPUB number (0-1)

   Response: `RMV:SCS` *a*`,IPUB` *b* `COMPLETED`

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Demand Service Circuit Controller (SCC) Diagnostic Phases

Note: A list of SCC diagnostic phases are provided in Table A, at the end of this procedure.

1. At the 1B Maintenance (MTC) terminal, enter: **DGN:SCS *a*,CONTR *b*:PH 1-16!**

   where *a* = Member number (0-7)
   b = Controller number (0 or 1)

2. Did diagnostics run?

   If **NO**, continue to Step 3.

   If **YES**, go to Step 4.

3. Analyze the output message and return to Step 1 using the corrected data.

4. Does the output message indicate All Tests Passed (ATP)?

   If **NO**, continue to Step 5.

   If **YES**, go to Step 9.

5. Was a Trouble-Locating Procedure (TLP) generated by the message entered in Step 1?

   If **NO**, continue to Step 6.

   If **YES**, go to Step 7.

6. At the 1B Maintenance (MTC) terminal, generate a TLP by entering:
   DGN:SCS *a*,CONTR *b*:PH 1-16,TLP!

   where *a* = Member number (0-7)
   b = Controller number (0 or 1)

7. Clear the diagnostic failure by replacing circuit packs on TLP suspected equipment list (TAP-106).

8. Has the diagnostic failure been cleared using the TLP?

   If **YES**, continue to Step 9.

   If **NO**, clear equipment troubles per TAP-105.

9. Restore the unit by entering: **RST:SCS** *a***,CONTR** *b***!**

   where *a* = Member number (0-7)
   b = Controller number (0 or 1)

10. Have diagnostic phases been requested for both controllers in the SCS?

    If **NO**, repeat from Step 1 for the other controller in the SCS.

    If **YES**, continue to Step 11.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A SCC Diagnostic Phases

FOR THIS PHASE	DIAGNOSTICS ARE PERFORMED ON THE FOLLOWING:
01	SCC Front-End Tests Program Units: Controller Power Bus Power MA Pulse Source Check RO, MA, M F/F Front End (Enable Code Matcher, Bus Input Circuitry, Bus Input Register, Even and Odd Parity)
02	Program Units: Emergency Cutoff Access Send On (S0, S1) Logic Reply Bus Clamping Reply Bus Register and Parity Generator
04	Program Units: All Seems Well Recording APUF, APUT, APUB, MI, and GI
05	Program Units: PU Bus Mode Configuration 17X Opcodes
06	Program Units: Status Register Tests MA F/F and MA Pulse Read
07	Program Units: CC Opcodes Verification
09	Controller Error Detection Logic Program Units: ASWF Error Recording AINT/ASWF Mutual Blocking Test
12	Program Unit: EXEC Internal Tests
13	Program Unit: Global RAM Tests
14	Program Unit: PUBI Exhaustive Tests
15	EXEC EBI 0 Tests
16	EXEC EBI 1 Tests
20	Miscellaneous Inter-Board Tests
99*	Bus Front-End Basic Access Circuitry Program Unit: Front-End Tests
* This phase only applies to the IPUB.	

Demand Service Circuit Unit (SCU) Diagnostic Phases

Note: A list of SCU diagnostic phases are provided in Table A, at the end of this procedure.

1. At the 1B Maintenance (MTC) terminal, enter: **DGN:SCS** ***a*****,SCU** ***b*****:PH 1-17!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

   Note: An in-service SCU cannot be removed for diagnostics if service circuit thresholds for the announcement set associated with the SCU are exceeded. In this case it is necessary to correct the threshold-exceeded condition.

2. Did diagnostics run?

   If **NO**, continue to Step 3.

   If **YES**, go to Step 4.

3. Analyze the output message and return to Step 1 using the corrected data.

4. Does the output message indicate All Tests Passed (ATP)?

   If **NO**, continue to Step 5.

   If **YES**, go to Step 9.

5. Was a Trouble-Locating Procedure (TLP) generated by the message entered in Step 1?

   If **NO**, continue to Step 6.

   If **YES**, go to Step 7.

6. At the 1B Maintenance (MTC) terminal, generate a TLP by entering:
   DGN:SCS ***a*****,SCU** ***b*****:PH 1-17,TLP!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

7. Clear the diagnostic failure by replacing circuit packs on the TLP suspected equipment list (TAP-106).

8. Has the diagnostic failure been cleared using the TLP?

   If **YES**, continue to Step 9.

   If **NO**, clear equipment troubles per TAP-107.

9. Restore the unit by entering **RST:SCS** *a***,SCU** *b***!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

10. Would you like to request diagnostic phases for other SCUs in the SCS?

    If **YES**, repeat from Step 1 for the other SCUs in the SCS.

    If **NO**, continue to Step 11.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A SCU Diagnostic Phases

FOR THIS PHASE	DIAGNOSTICS ARE PERFORMED ON THE FOLLOWING:
01	SCU Front-End Tests Program Unit: Controller Power
03	Program Unit: Common Bus Test
04	Program Unit: EPIC Tests
05	Program Unit: Microstore Tests
06	Program Unit: Table RAM Tests
07	Program Unit: Host Adapter Tests
08	Program Unit: Buffer Control and Buffer Fabric Tests
09	Program Unit: Voice Processor and Voice Control Tests
10	Program Unit: EBI Tests
11	Program Unit: DS-120 Test
12	Program Unit: MSP 0 Test
13	Program Unit: MSP 1 Test
14	Program Unit: MSP 2 Test
15	Program Unit: MSP 3 Test
16	Program Unit: MIP0-MIP1 Tests (Applies only to ASR SCUs)
17	Program Unit: CDSU Tests (Applies only to ASR SCUs)
90	Program Unit: Disk Pair 0, SCSI Bus 0
91	Program Unit: Disk Pair 0, SCSI Bus 1
92	Program Unit: Disk Pair 1, SCSI Bus 0
93	Program Unit: Disk Pair 1, SCSI Bus 1

Determine Function and Location of Doloops - No Subroutines Called

1. In first failing phase PIDENT, locate the first failing test using the EXPR address on the raw data printout. (See Figure 1.)

2. Note the page and line number of the EXPR data.

3. Locate the endloop MACRO in the PIDENT reference section.

4. Note the endloop reference that is closest to, but beyond, EXPR data.

5. Locate the endloop statement noted in Step 4.

6. Locate the doloop statement using the label (in parentheses) at the endloop statement.

7. Does the doloop statement precede the location of the EXPR data noted in Step 2?

   If **YES**, continue to Step 8.

   If **NO**, go to Step 11.

8. Read any comment at doloop statement.

9. Obtain doloop index value from raw-data printout and note its meaning for this doloop. (See Figure 1.)

   > ***Note:*** The first doloop located is the innermost, and the next doloop located is the next innermost, and so forth. Unit under test, memory, and so forth, are often indicated by doloop values.

10. Have the number of doloops indicated on the raw-data printout been located?

    If **YES**, go to Step 12.

    If **NO**, continue to Step 11.

11. Locate the endloop statement next closest to the failing test and repeat from Step 6.

12. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

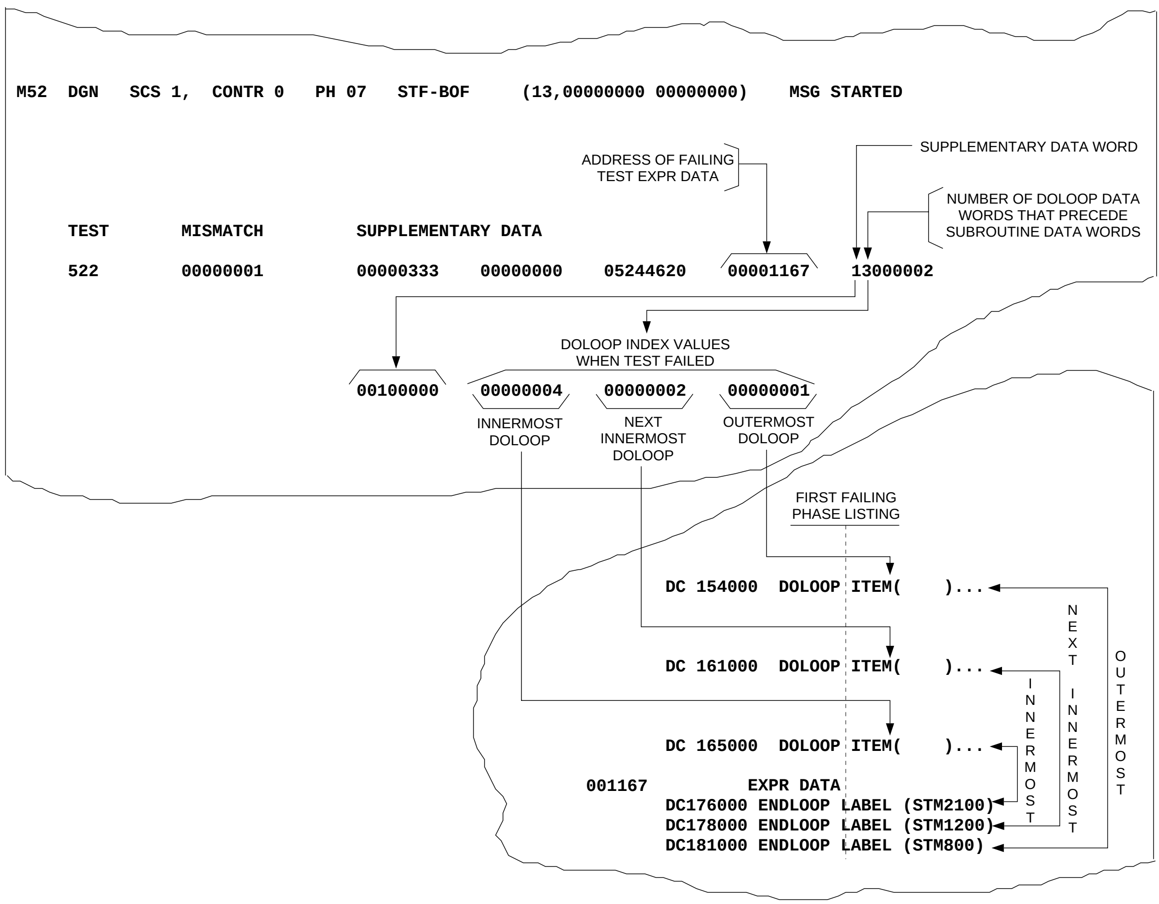


Figure 1. Relationship of Subroutine Data Words to Phase and Subroutine Listings

Determine Function and Location of Doloops - Subroutines Called

Summary: Locate the failing test in the last subroutine called. Look past the failing test for endloop statements. For each endloop statement located in the subroutine, use the endloop label variable to identify the location of the associated doloop statements. Locate each doloop statement. Obtain doloop index values from the raw-data printout and determine their meaning for each doloop. If an endloop statement was not found in the subroutine, go to where the subroutine was called and look for the endloop statements after the CALLSUB statement. Continue to look for endloop statements after the CALLSUB statements until all doloops indicated on the raw-data printout for the first failing test are located. Read any comments at the doloop statements.

1. Refer to Figure 1 (Page 6) and DIAL statement definitions in 234-180-020, *Diagnostic Language - DIAL*, as necessary.

2. Locate the failing test in the last subroutine called and note the page and line number of the expected results (EXPR).

3. Locate the last address in this subroutine and note the page and line number.

4. Locate the subroutine PIDENT reference section.

5. Is the endloop MACRO referenced?

   If **YES**, continue to Step 6.

   If **NO**, go to Step 7.

6. Are endloop references between failing test and end of subroutine?

   If **YES**, continue to Step 8.

   If **NO**, go to Step 35.

7. Was this subroutine called from a **Phase** or **Subroutine**?

   If **Subroutine**, go to Step 17.

   If **Phase**, go to Step 35.

8. Locate the referenced endloop statement closest to, but beyond the EXPR data noted in Step 2.

9. Locate the doloop statement using the label (in parentheses) at the endloop statement.

10. Does the doloop statement precede the location of the EXPR data?

    If **YES**, continue to Step 11.

    If **NO**, go to Step 14.

11. Read any comments at the doloop statement.

12. Obtain doloop index value from the raw-data printout and note its meaning for this doloop. (See Figure 1, Page 6.)

    Note: The first doloop located is the innermost, the next doloop located is the next innermost, and so forth. Unit under test, memory, and so forth, are often indicated by doloop values.

13. Has the number of doloops indicated on the raw-data printout been located?

    If **YES**, go to Step 46.

    If **NO**, continue to Step 14.

14. Are any other endloop references in this subroutine and beyond the failing test (EXPR data)?

    If **YES**, continue to Step 15.

    If **NO**, go to Step 16.

15. Locate the endloop statement next closest to the EXPR data and repeat from Step 9.

16. Was this subroutine called from a **Phase** or from another **Subroutine**?

    If **Subroutine**, continue to Step 17.

    If **Phase**, go to Step 35.

17. If the subroutine that called the last subroutine checked for doloops, locate the CALLSUB statement that called the subroutine.

18. Note the page and line number of the CALLSUB statement.

19. Locate the last address in this subroutine and note the page and line number.

20. Locate the subroutine PIDENT reference section.

21. Is the endloop MACRO referenced?

    If **YES**, continue to Step 22.

    If **NO**, go to Step 23.

22. Are any endloop references between CALLSUB statement and end of subroutine?

    If **YES**, go to Step 25.

    If **NO**, continue to Step 23.

23. Was this subroutine called from a **Phase** or from another **Subroutine**?

    If **Subroutine**, continue to Step 24.

    If **Phase**, go to Step 35.

24. Locate the subroutine that called this subroutine and repeat from Step 15.

25. Locate the referenced endloop statement closest to, but beyond, the CALLSUB statement noted in Step 18.

26. Locate the doloop statement using the label (in parentheses) at the endloop statement.

27. Does the doloop statement precede the location of the CALLSUB statement?

    If **YES**, continue to Step 28.

    If **NO**, go to Step 31.

28. Read any comments at the doloop statement.

29. Obtain doloop index value from the raw-data printout and note its meaning for this doloop. (See Figure 1, Page 6.)

    Note: The first doloop located is the innermost, the next doloop located is the next innermost, and so forth. Unit under test, memory, and so forth, are often indicated by doloop values.

30. Has the number of doloops indicated on the raw-data printout been located?

    If **YES**, go to Step 45.

    If **NO**, continue to Step 31.

31. Are any other endloop references in this subroutine and beyond the CALLSUB statement?

    If **YES**, continue to Step 32.

    If **NO**, go to Step 33.

32. Locate the endloop statement next closest to the CALLSUB statement and repeat from Step 26.

33. Was this subroutine called from a **Phase** or from another **Subroutine**?

    If **Subroutine**, continue to Step 34.

    If **Phase**, go to Step 35.

34. Locate the subroutine that called this subroutine and repeat from Step 17.

35. In the first failing phase PIDENT, locate the CALLSUB statement that called for the last subroutine checked for doloops. (See Figure 1, Page 6.)

36. Note the page and line number of the CALLSUB statement.

37. Locate the endloop MACRO in the PIDENT reference section.

38. Note the endloop reference that is closest to, but beyond, the CALLSUB statement.

39. Locate the endloop statement noted in Step 38.

40. Locate the doloop statement using the label (in parentheses) at the endloop statement.

41. Does the doloop statement precede the location of the CALLSUB statement noted in Step 36?

    If **YES**, continue to Step 42.

    If **NO**, go to Step 45.

42. Read any comments at the doloop statement.

43. Obtain the doloop index value from the raw-data printout and note its meaning for this doloop. (See Figure 1, Page 6.)

    > ***Note:*** The first doloop located is the innermost, the next doloop located is the next innermost, and so forth. Unit under test, memory, and so forth, are often indicated by doloop values.

44. Has the number of doloops indicated on the raw-data printout been located (see Figure 1, Page 6)?

    If **YES**, go to Step 46.

    If **NO**, continue to Step 45.

45. Locate the endloop statement next closest to the CALLSUB statement and repeat from Step 41.

46. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

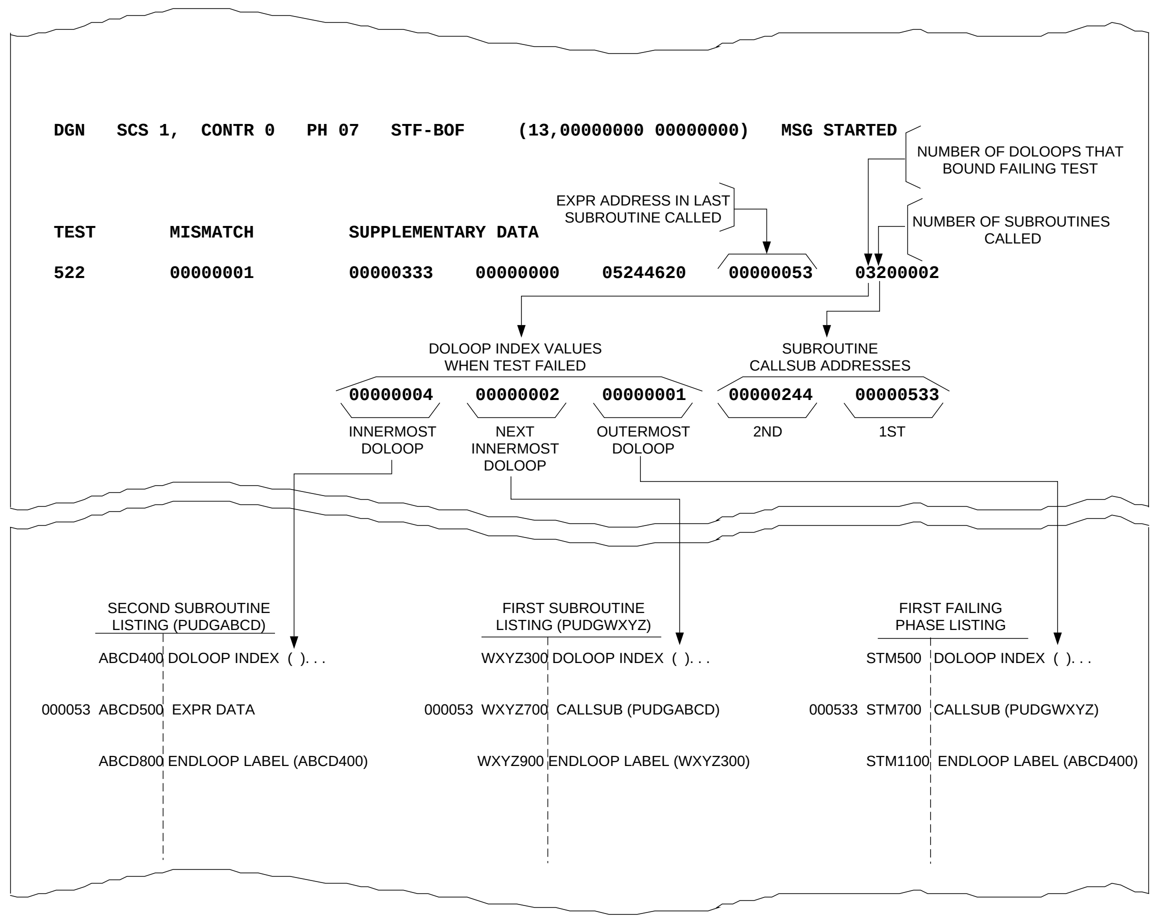


Figure 1. Example of Doloop Raw-Data Relationship to Listings When Subroutines Called

Analyze Failing Test Data to Determine Test Function

1. Read several **DIAL** statements just before failing test to determine what was occurring prior to the test. (See 234-180-020, *Diagnostic Language - DIAL*, for a description of DIAL statements.)

2. Read the failing test **DIAL** statement and any comments.

3. Record the "asterisk data" that follows the failing test number in the listing.

4. Note the relationship of the asterisk line data to the first five raw-data printout words that follow the mismatch data. (See Figure 1).

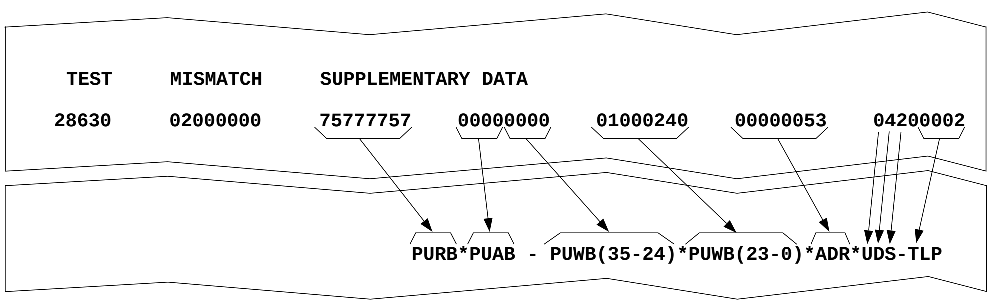


Figure 1. Example of Raw-Data Printout Relationship to Asterisk Line at Failing Test

5. In Table A, locate the failing **DIAL** statement and use the Description column to determine the meaning of the data contained in the second and third raw-data words following the mismatch data.

6. Use Table B to obtain additional information on the second and third data words. For scan point, SD point and SP point addresses, the third data word breaks down as follows:

23-17	Don’t Care	09-04	Row
16-12	SP number	03-00	Column
11-10	Matrix		

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Description of Data Contained in Second and Third Data Word for Each Type Dial Test Statement

DIAL TEST STATEMENT	DESCRIPTION*
CCBB	A = B = 0, C = buffer bus address
CITOP, CITOPI	Standard PUB format†
CLKOP	A = fault chain, B = reply bus, C = CC pulse point address
MEMOPI	Standard PUB format† PUWB bits 16-10 = address of memory accessed PUWB bits 9-7 = memory level For time slot memories and busy-idle map Memories bit 0 = switching and permuting CKT
MTXMOP	Standard PUB format† PUWB bits 8-0 = matrix under test
PLOP	"MA" pulse point accessed by an SP: A (bits 11-2) = SP K-code B = SP OPCODE to bit pulse point 0 (1640) C = address of point "MA" pulse point accessed by CC pulse point: A = B = 0, C = CC pulse point address
PUDROP,PUDROPI	Standard PUB format†
PULSE	A = B = 0, C = CC pulse point address
PULSI	Same as PLOP statement
PUOP, PUOPI	Standard PUB format†
PUOPBBR PUOPIBBR	PUOP part: Standard PUB format† BBR part: A = B = 0, C = CC buffer bus address
SCANI	A (bits 11-2) = SP K-code B = SP OPCODE to read scan points 0 (1540) C = address of point
SDI	A (bits 11-2) = SP K-code B = SP OPCODE to read SD points 0 (1440) C = address of point
SESOP	Standard PUB format†
STORE	A = B = 0, C = specified expected result for VIC diagnostic B = VIC failing test

* The following format relates A, B, and C to the second and third data words following mismatch data:
Second Word = AAAABBBB
Third Word = CCCCCCCC

†The standard Pub format is:
A = PUEA/PUAB
B = PUWB (bits 35-24) = OPAD, (bits 35-29) = OPCODE
C = PUWB (bits 23-0) = Address

TABLE B Additional Information for Second and Third Data Words

SECOND AND/OR THIRD DATA WORD	LOCATION OF INFORMATION
SD point address	`VER:SPMTXPK:SDP, MDN 0’`*a*`!` where *a* = SD point address
Scan point address	`VER:SPMTXPK:SCP, MDN 0’`*a*`!` where *a* = scan point address

Determine Location and Function of Subroutines Called

1. On the raw-data printout (see Figure 1) for the first failing test, locate the last data word printed and record the address.

2. In the first failing phase PIDENT, use the last data word address to locate where the first subroutine was called.

3. Read any comments at the CALLSUB statement which was located in Step 2.

4. Record the name of the subroutine called in the CALLSUB statement label item.

5. Locate and read the prologue of the program unit containing the CALLSUB statement.

6. In the loader map symbols section, locate the name of the subroutine called in the symbol column (recorded in Step 4).

7. In the PIDENT column, note the PIDENT that contains this subroutine and obtain this PIDENT.

8. In the PIDENT containing the subroutine, locate the subroutine using the PIDENT reference section.

9. Read the subroutine prologue.

   Note: On the raw-data printout, the sixth digit in the fifth data word following the mismatch data indicates the number of subroutines called.

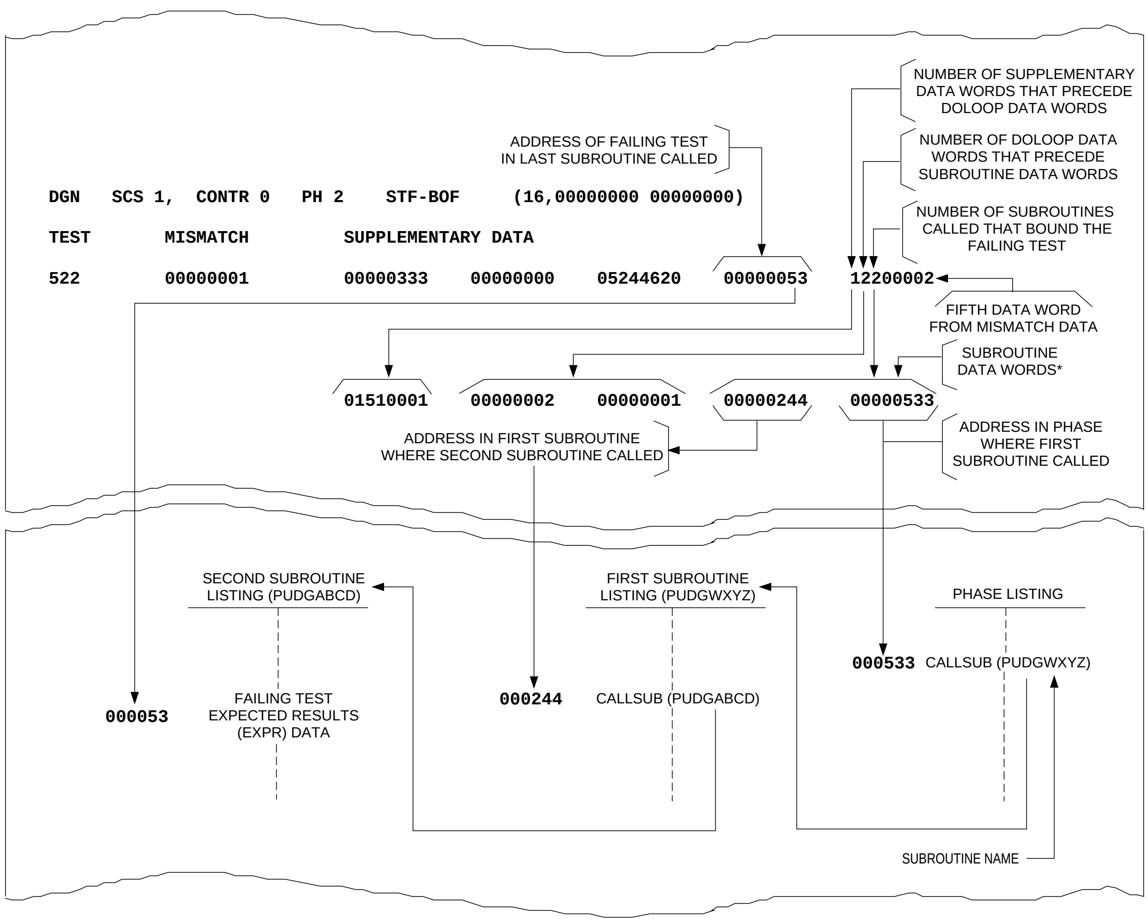
10. Obtain the failing test in the last subroutine after all subroutines have been located. Otherwise, proceed to Step 11.

11. On the raw-data printout, locate the next preceding subroutine data word. (See Figure 1.)

12. In the subroutine located in Step 8, use the subroutine data word address to locate where the next subroutine was called.

13. Repeat from Step 3.

14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**



* SUBROUTINE DATA WORDS THAT PRECEDE THE LAST ONE PRINTED ARE FOR THE 2ND, 3RD, ETC. SUBROUTINES CALLED (RIGHT TO LEFT)

Figure 1. Relationship of Subroutine Data Words to Phase and Subroutine Listings

Determine If Failing Test Is In an Automatic Segment

Summary: Locate the first segment statement before the first failing test. If the segment statement has AUTO (ON) indicated, the failing test is in an automatic segment. If AUTO (ON) is not indicated, the failing test is not in an automatic segment. If no segment statement is found before the first failing test, the failing test is in an automatic segment.

1. Is the first failing test in a subroutine?

   If **YES**, go to Step 10.

   If **NO**, continue to Step 2.

2. In the first failing phase PIDENT, locate and note the page and line number of the EXPR data address at the first failing test.

3. In the first failing phase PIDENT, locate the reference section.

4. Is the segment MACRO referenced?

   If **YES**, continue to Step 5.

   If **NO**, go to Step 8.

5. Are there any segment references before the EXPR data at the failing test?

   If **YES**, continue to Step 6.

   If **NO**, go to Step 8.

6. Locate the segment statement closest to (but before) the EXPR data.

7. Is segment AUTO (ON) indicated?

   If **YES**, continue to Step 8.

   If **NO**, go to Step 9.

8. Record that the failing test is in an automatic segment, and go to Step 39.

9. Record that the failing test is not in an automatic segment, and go to Step 39.

10. In the subroutine where the first failing test is located, locate and record the page and line number of the first address in the subroutine (000000).

11. In the subroutine where the first failing test is located, locate and record the page and line number of the first failing test EXPR data.

12. In the subroutine where the first failing test is located, locate the PIDENT reference section.

13. Is the segment MACRO referenced?

    If **YES**, continue to Step 14.

    If **NO**, go to Step 15.

14. Are there any segment references before the EXPR data at the failing test?

    If **YES**, go to Step 16.

    If **NO**, continue to Step 15.

15. Was this subroutine called from a phase or from another subroutine?

    If **phase**, go to Step 31.

    If **subroutine**, go to Step 20.

16. Locate the segment statement closest to (but before) the EXPR data.

17. Is the segment AUTO (ON) indicated?

    If **YES**, continue to Step 18.

    If **NO**, go to Step 19.

18. Record that the failing test is in an automatic segment, and go to Step 39.

19. Record that the failing test is not in an automatic segment, and go to Step 39.

20. In the subroutine that called the last subroutine that was checked for the segment statement, locate and record the page and line number of the first address in the subroutine (000000).

21. In the subroutine that called the last subroutine that was checked for the segment statement, locate and record the page and line number of the CALLSUB statement that called the last subroutine.

22. In the subroutine that called the last subroutine that was checked for the segment statement, locate the PIDENT reference section.

23. Is the segment MACRO referenced?

    If **YES**, continue to Step 24.

    If **NO**, go to Step 25.

24. Are there any segment references before the CALLSUB statement?

    If **YES**, go to Step 27.

    If **NO**, continue to Step 25.

25. Was this subroutine called from a phase or from another subroutine?

    If **phase**, go to Step 31.

    If **subroutine**, continue to Step 26.

26. Locate the subroutine that called the last subroutine and repeat from Step 20.

27. Locate the segment statement closest to (but before) the CALLSUB statement.

28. Is the segment AUTO (ON) indicated?

    If **YES**, continue to Step 29.

    If **NO**, go to Step 30.

29. Record that the failing test is in an automatic segment, and go to Step 39.

30. Record that the failing test is not in an automatic segment, and go to Step 39.

31. In the first failing phase PIDENT, locate and record the line number of the CALLSUB statement that called the last subroutine that was checked for the segment statement.

32. In the first failing phase PIDENT, locate the reference section.

33. Is the segment MACRO referenced?

    If **YES**, continue to Step 34.

    If **NO**, go to Step 37.

34. Are there any segment references before the CALLSUB statement?

    If **YES**, continue to Step 35.

    If **NO**, go to Step 37.

35. Locate the segment statement closest to (but before) the CALLSUB statement.

36. Is segment AUTO (ON) indicated?

    If **YES**, continue to Step 37.

    If **NO**, go to Step 38.

37. Record that the failing test is in an automatic segment, and go to Step 39.

38. Record that the failing test is not in an automatic segment, and continue to Step 39.

39. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Set Up Loop Over First Failing Test When the Test Is In a Force Segment

1. Locate the segment statement that determined the failing test was not in an automatic segment.

2. Note the segment statement index word address for later use (loop-start address).

3. Locate the first segment statement after the first failing test.

4. Note the index word address of the DIAL statement that follows the segment statement located in Step 3 (loop-end address).

5. Enter: **EX:SCS** *a***;RPT2:PH** *b***,ADR** *c*-*d***!**

   where *a* = Failing SCS member number
   b = First failing phase
   c = Loop-start address (Step 2)
   d = Loop-end address (Step 4)

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Change Fan Unit Filters in SCC and SCU Cabinets

1. Remove the three fuses associated with the fan unit. See Figure 1 if the filter is being changed in the SCC frame, or Figure 2 if the filter is being changed in the SCU frame. Also see the labeling on the flip-up panel on the fuse and filter unit.

   Caution: Once the fuses are removed the fans will stop running. Therefore the rest of this procedure must be completed immediately after the fuses are removed to prevent equipment from overheating. Do not leave the cabinet for any length of time with the fuses removed.

   Note: A major alarm will be generated upon fan power loss.

2. Slide the fan filter, located at the top of the fan unit, out of the filter slot. (See Figure 3.)

3. Replace the filter material in the filter.

4. Slide the fan filter back into the filter slot, making sure the filter grid is away from the direction of air flow.

5. Slide the fan filter, located at the bottom of the fan unit, out of the filter slot. (See Figure 3.)

6. Replace the filter material in the filter.

7. Slide the fan filter back into the filter slot, making sure the filter grid is away from the direction of air flow.

8. Replace the three fuses associated with the fan unit. (See the labeling on the fuse and filter panel.)

   Note: A "spurt" minor alarm will be generated when fan power is restored.

9. At the rear of the fan unit, press the red reset button (at the right side of the fan unit, as you face the back of the frame), to clear the alarm.

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

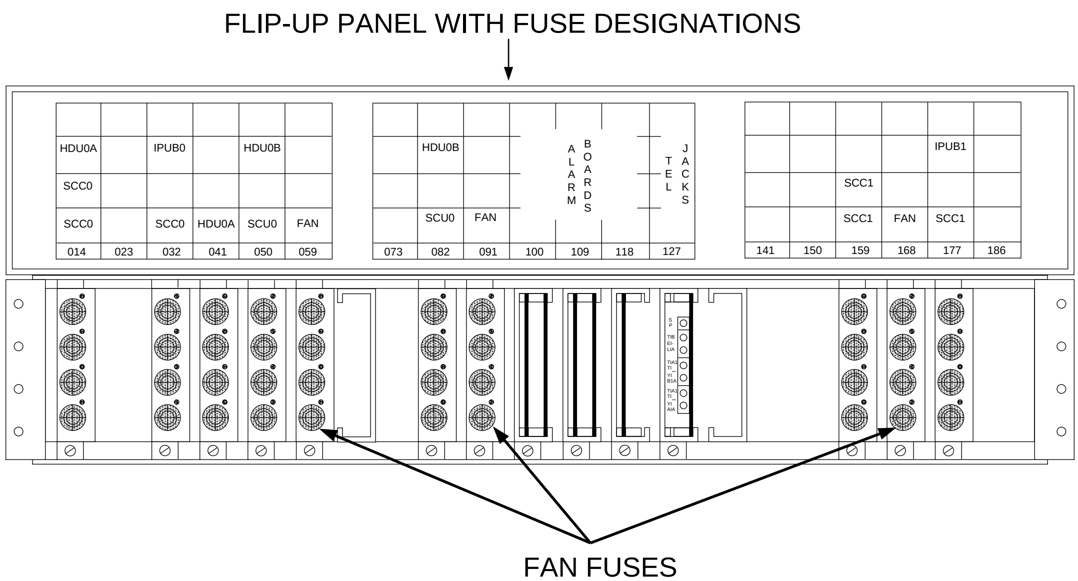


Figure 1. Location of Fan Fuses in the SCC Frame

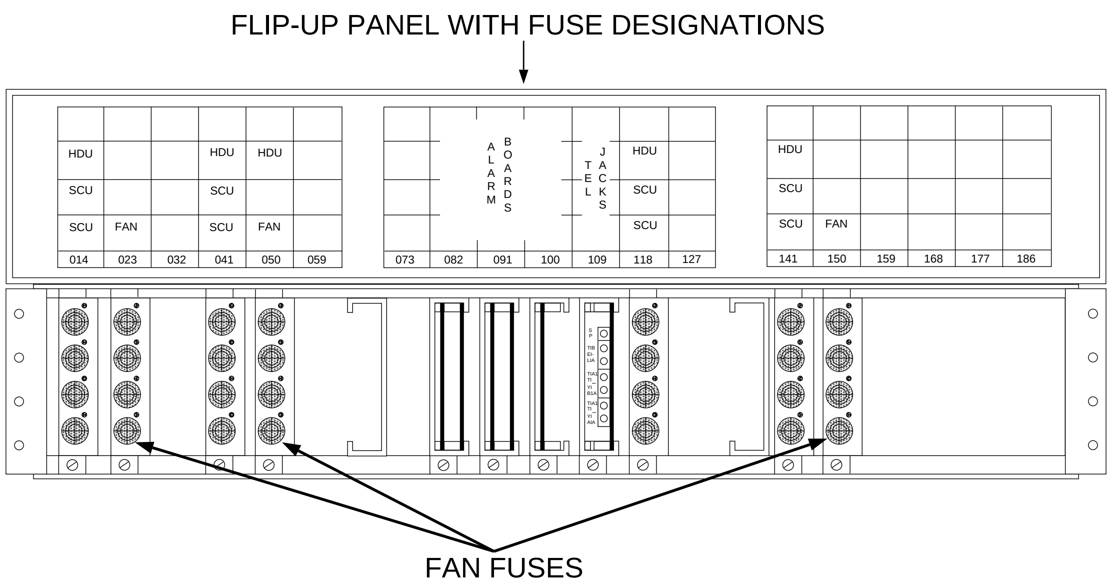


Figure 2. Location of Fan Fuses in the SCU Frame

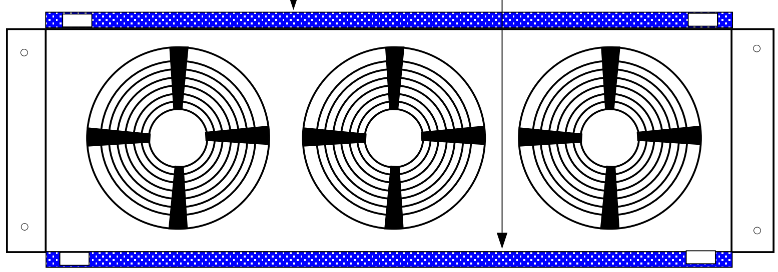


Figure 3. Location of Filters in Fan Unit

Replace the Controller Units in the Service Circuit System (SCS)

1. Perform SCS degrowth for controller replacement, per NTP-004 in TOP 234-153-060, *SCS Growth*.

2. Remove all circuit packs from both controllers and IPUBs, being sure to record the location of each pack.

3. Remove all associated fuses for the degrown SCS controllers and IPUBs from the SCS fuse and filter panel (see the labeling on the fuse and filter panel).

4. Ensure that all -48 V power has been removed from both controllers and IPUBs. This is done by using a voltmeter to check each set of power lugs on the unit's backplane.

5. Disconnect the power cables from the backplane, being sure to record their location.

6. Disconnect all other cables from the backplane, being sure to record their location.

7. Remove the mounting screws that fasten the unit to the frame.

8. Carefully pull the unit out from the frame.

9. Remove all K-code strapping from the faulty backplane and install the straps at the same locations on the new unit. See Table A for the proper K-code strap locations.

10. Remove all current straps from the faulty backplane and install the straps at the same locations on the new unit. Table B shows current strap locations; however, the strapping on your controllers may be different. If there is a conflict between the strapping on the faulty backplane and Table B, you should install the current straps as they were removed from the faulty backplane.

11. Remove all current shunts from the faulty backplane and install the shunts at the same locations on the new unit. See Table B for the proper current shunt locations.

12. Remove all IPUB shunts and any IPUB terminators that may exist from the faulty backplane and install them at the same locations on the new unit. See Table B for the proper locations.

    Note: IPUB terminators are only used if the SCS is located at the end of the Peripheral Unit Bus (PUB).

13. Remove any additional paddle boards from the faulty backplane and install them at the same locations on the new unit.

14. Carefully slide the new unit into the frame.

15. Fasten the unit to the frame with the mounting screws.

16. Reconnect all cables, except the power cables, to the backplane on the new unit.

17. Reconnect the power cables to the backplane.

18. Replace all associated fuses for the degrown SCS controllers and IPUBs into the SCS fuse and filter panel by inserting them in the same locations from which they were removed (see the labeling on the fuse and filter panel).

19. Perform SCS growth for controller replacement, per NTP-005 in TOP 234-153-060.

20. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A Service Circuit System (SCS) K-Code Straps

SCC	BIT	FROM	TO	VALUE*							
				SCS 0	SCS 1	SCS 2	SCS 3	SCS 4	SCS 5	SCS 6	SCS 7
1	11	053-112-532	053-112-533	0	0	0	0	0	0	0	0
1	10	053-112-323	053-112-324	1	1	1	1	1	1	1	1
1	9	053-112-321	053-112-322	0	0	0	0	0	0	0	0
1	8	053-112-319	053-112-320	1	1	1	1	1	1	1	1
1	7	053-112-317	053-112-318	1	1	1	1	1	1	1	1
1	6	053-112-315	053-112-316	0	0	0	0	1	1	1	1
1	5	053-112-313	053-112-314	0	0	1	1	0	0	1	1
1	4	053-112-311	053-112-312	0	1	0	1	0	1	0	1
0	11	045-112-532	045-112-533	0	0	0	0	0	0	0	0
0	10	045-112-323	045-112-324	1	1	1	1	1	1	1	1
0	9	045-112-321	045-112-322	0	0	0	0	0	0	0	0
0	8	045-112-319	045-112-320	1	1	1	1	1	1	1	1
0	7	045-112-317	045-112-318	1	1	1	1	1	1	1	1
0	6	045-112-315	045-112-316	0	0	0	0	1	1	1	1
0	5	045-112-313	045-112-314	0	0	1	1	0	0	1	1
0	4	045-112-311	045-112-312	0	1	0	1	0	1	0	1

* In this column, a **0** indicates a **strap is used**, and a **1** indicates **NO strap**.

TABLE B Service Circuit Controller (SCC) Backplane Straps, Shunts, and Terminators

ITEM	CODE	LEVEL		LOCATION
		SCC0	SCC1	
Current Straps	963E-2	04	13	008-151
	963E-2	04	13	008-155
	963E-2	04	13	008-245
	963E-2	04	13	008-249
	963E-2	04	13	008-251
	963E-2	04	13	008-255
	963E-2	04	13	008-353
Current Shunts	982YU (L5)	04	13	013-100
	982YU (L5)	04	13	013-132
	982YU (L5)	04	13	021-100
	982YU (L5)	04	13	021-132
	982YU (L2)	04	13	128-100
	982YU (L2)	04	13	128-132
	982YU (L2)	04	13	132-100
	982YU (L2)	04	13	132-132
IPUB Shunts	9822AN	04	13	150-100
	9822AN	04	13	150-113
	9822AN	04	13	150-132
	9822AN	04	13	150-145
	9822AN	04	13	158-100
	9822AN	04	13	158-113
	9822AN	04	13	158-132
	9822AN	04	13	158-145
	9822AN	04	13	166-100
	9822AN	04	13	166-113
	9822AN	04	13	166-132
	9822AN	04	13	166-145
	9822AN	04	13	174-100
	9822AN	04	13	174-113
	9822AN	04	13	174-132
	9822AN	04	13	174-145
IPUB Terminators	9822AP	04	13	144-232
	9822AP	04	13	144-500
	9822AP	04	13	144-532
	9822AP	04	13	152-232
	9822AP	04	13	152-500
	9822AP	04	13	152-532
	9822AP	04	13	160-232
	9822AP	04	13	160-500
	9822AP	04	13	160-532
	9822AP	04	13	168-232
	9822AP	04	13	168-500
	9822AP	04	13	168-532

Restore Service Circuit Controller (SCC) to Active Service

1. Is the SCC unit to be restored to active service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.
   If **at the 1B MTC terminal**, go to Step 4.

2. At the unit to be restored to active service, move the **ROS** switch on the TN1984 circuit pack to the normal position. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED extinguishes, indicating that the unit is in active service. (Because of the time required to run automatic diagnostics, there will be a delay between activation of the **ROS** switch and the return to service of the SCC.)

   Note: The **OS** lamp will not extinguish and the SCC will not be restored to service if the controller fails diagnostics that are automatically run when a controller restore is attempted.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

4. At the 1B MTC terminal, restore unit to active service by entering: **RST:SCS** *a***,CONTR** *b***!**

   where *a* = Member number (0-7)
   b = Controller number (0-1)

   Response: `RST:SCS` *a*`,CONTR` *b* `COMPLETED`

   Note: The **OS** lamp will not extinguish and the unit will not be restored to service if the controller fails diagnostics that are automatically run when a controller restore is attempted. Also, if **ROS** switch on the TN1984 circuit pack is in the ROS position, the SCC will not be restored following diagnostics.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

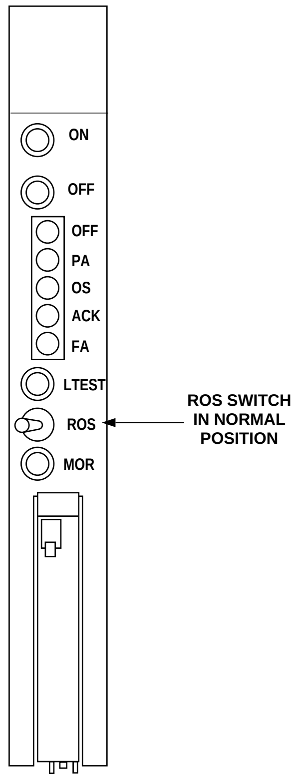


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the Normal Position

Restore Service Circuit Unit (SCU) to Active Service

1. Is the SCU to be restored to active service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the unit to be restored to active service, move the **ROS** switch on the TN1984 circuit pack to the normal position. (See Figure 1.)

   Response: On the TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED extinguishes, indicating that the unit is in active service.

   Because of the time required to run automatic diagnostics and complete deferred announcement updates (if the SCU is served by an AAP and the SCS LAN is not inhibited), there will be a delay between activation of the **ROS** switch and the return to service of the SCU.)

   Note: The **OS** lamp will not extinguish and the SCU will not be restored to service if the SCU fails diagnostics that are automatically run when an SCU restore is attempted.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

4. At the 1B MTC terminal, restore unit to active service by entering **RST:SCS** *a*,**SCU** *b***!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

   Response: `RST:SCS` *a*`,SCU` *b* `COMPLETED`

   Note: The **OS** lamp will not extinguish and the SCU will not be restored to service if the SCU fails diagnostics that are automatically run when an SCU restore is attempted. Also, if **ROS** switch on the TN1984 circuit pack is in the ROS position, the SCU will not be restored following diagnostics.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

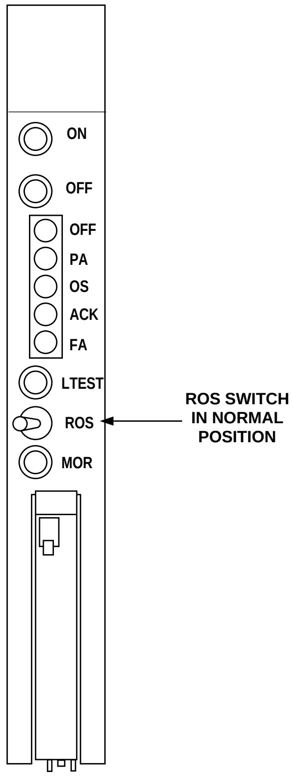


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the Normal Position

Restore Hard Disk Pair to Active Service

1. Is the hard disk pair to be restored to active service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.
   If **at the 1B MTC terminal**, go to Step 4.

2. At the Service Circuit Unit (SCU) associated with the hard disk pair to be restored to active service, move the **ROS** switch on the TN1984 circuit pack to the normal position. (See Figure 1.)

   Response: On the SCU's TN1984 circuit pack, the **ACK** LED blinks once and the **OS** LED extinguishes, indicating that the SCU is in active service. On the hard disk pair's UN356 circuit pack, the **OS** LED extinguishes, indicating that the hard disk pair is in active service.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

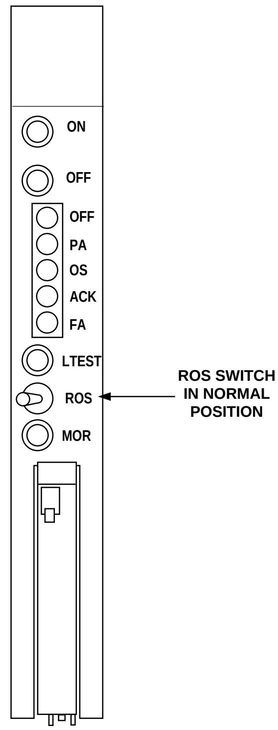


Figure 1. The TN1984 Circuit Pack with the ROS Switch in the Normal Position

4. At the 1B MTC terminal, restore unit to active service by entering **RST:SCS** *a***,SCU** *b***!**

   where *a* = Member number (0-7)
   b = SCU number (0-15)

   Response: `RST:SCS` *a*`,SCU` *b* `COMPLETED`

   On the hard disk pair's UN356 circuit pack, the **OS** LED extinguishes, indicating that the hard disk pair is in active service.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Restore Interface to Peripheral Unit Bus (IPUB) to Active Service

1. Is the IPUB to be restored to active service manually at the frame, or by entering a message at the 1B Maintenance (MTC) terminal?

   If manually **at the frame**, continue to Step 2.

   If **at the 1B MTC terminal**, go to Step 4.

2. At the IPUB to be restored to active service, move the **ROS** switch on the TN1671 circuit pack to the normal position. (See Figure 1.)

   Response: On the TN1671 circuit pack, the **ACK** LED blinks once and the **OS** LED extinguishes, indicating that the IPUB is in active service.

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

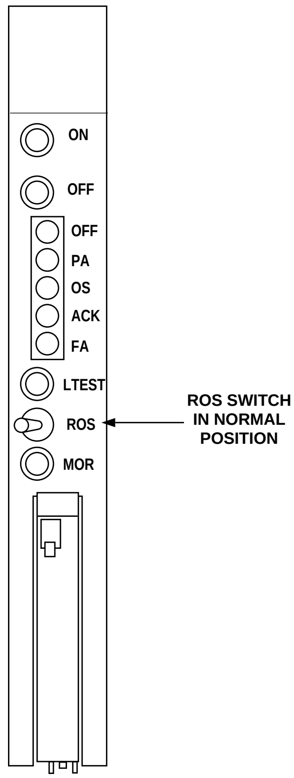


Figure 1. The TN1671 Circuit Pack with the ROS Switch in the Normal Position

4. At the 1B MTC terminal, restore the IPUB to active service by entering:

   RST:SCS *a*,**IPUB** *b***!**

   where *a* = Member number (0-7)
   b = IPUB number (0-1)

   Response: `RST:SCS` *a*`,IPUB` *b* `COMPLETED`

   Note: If the **ROS** switch on the TN1671 circuit pack is in the ROS position, the IPUB will not be restored following diagnostics.

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Test Power Control Circuit Pack Lamps

1. At each power control circuit pack (TN1984, TN1671, and UN356), press and hold the **LTEST** button while observing the Light-Emitting Diodes (LEDs) on the circuit pack.

2. Do all of the LEDs light?

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

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

3. Replace the circuit pack that contains the defective LED, then repeat from Step 1. For help in replacing the circuit pack, see DLP-502 (SCC or SCU), DLP-503 (HDU), or DLP-504 (IPUB).

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace a Service Circuit Unit (SCU)

1. Take the SCU out of service. (See DLP-510.)
2. Press the **OFF** button on the SCU's TN1984 circuit pack.
3. Remove all circuit packs from the SCU, being sure to record the location of each pack.
4. Remove all associated fuses for the SCU. (See the labeling on the fuse and filter panel.)
5. Ensure that all -48 V power has been removed from the SCU. This is done by using a voltmeter to check each set of power lugs on the unit's backplane.
6. Disconnect the power cables from the backplane, being sure to record their location.
7. Disconnect all other cables from the backplane, being sure to record their location.
8. Remove the mounting screws that fasten the unit to the frame.
9. Carefully pull the unit out from the frame.
10. Remove all current straps from the faulty backplane and install the straps at the same locations on the new unit. Table A shows current strap locations, however, the strapping on your SCUs may be different. If there is a conflict between the strapping on the faulty backplane and Table A, you should install the current straps as they were removed from the faulty backplane.

TABLE A SCU Backplane Straps and Shunts

ITEM	CODE	LOCATION	ITEM	CODE	LOCATION
Current Shunts	982YU	014-100	Current Straps	963E-2	008-155
	982YU	014-132		963E-2	008-241
	982YU	020-132		963E-2	008-243
	982YU	170-100		963E-2	008-245
	982YU	170-132		963E-2	008-247
	982YU	174-100		963E-2	008-255
	982YU	174-132		963E-2	008-347
				963E-2	008-353
				963E-2	008-253

11. Remove all current shunts from the faulty backplane and install the shunts at the same locations on the new unit. See Table A for the proper current shunt locations.

12. Remove any additional paddle boards from the faulty backplane and install them at the same locations on the new unit.

13. Carefully slide the new unit into the frame.

14. Fasten the unit to the frame with the mounting screws.

15. Reconnect all cables, except the power cables, to the backplane on the new unit.

16. Reconnect the power cables to the backplane.

17. Install all associated fuses to the same locations from which they were removed. (See the labeling on the fuse and filter panel.)

18. Verify that the backplane has -48 V.

    Caution: Make sure the voltage has the correct polarity.

19. Insert all circuit packs into the unit, in the same locations from which they were removed.

20. Return power to the unit by pressing the **ON** button on the SCU’s TN1984 circuit pack.

21. Diagnose the unit. See DLP-514.

22. At the 1B Maintenance (MTC) terminal, restore the unit to active service.
(See DLP-524).

23. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace a Hard Disk Unit (HDU)

1. Is the Announcement Administrative Processor (AAP) present and active?

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

   If **YES**, then continue with Step 2.

2. Contact the Advanced Features Service Center (AFSC) and request that the SCU(s) associated with the HDU be inhibited (for new announcement updates) in the AAP's SCUEQP database.

3. If the SCU(s) associated with the HDU are not already out of service, remove the associated SCU(s) from service (DLP-510).

4. Take both hard disk pairs in the HDU out of service. (See DLP-511.)

5. Remove power from the HDU by pressing the **OFF** button on both of the UN356 circuit packs in the HDU.

6. Remove all circuit packs from the HDU, being sure to record the location of each pack.

7. Remove all associated fuses for the HDU. (See the labeling on the fuse and filter panel.)

8. Ensure that all -48 V power has been removed from the HDU. This is done by using a voltmeter to check each set of power lugs on the unit's backplane.

9. Disconnect the power cables from the backplane, being sure to record their location.

10. Disconnect all other cables from the backplane, being sure to record their location.

11. Remove the mounting screws that fasten the unit to the frame.

12. Carefully pull the unit out from the frame.

13. Remove all terminator paddle boards from the faulty backplane and install them at the same locations on the new unit.

14. Carefully slide the new unit into the frame.

15. Fasten the unit to the frame with the mounting screws.

16. Reconnect all cables, except the power cables, to the backplane on the new unit.

17. Reconnect the power cables to the backplane.

18. Install all associated fuses to the same locations from which they were removed. (See the labeling on the fuse and filter panel.)

19. Verify that the backplane has -48 V.

    Caution: Make sure the voltage has the correct polarity.

20. Insert all circuit packs into the unit, in the same locations from which they were removed.

21. Return power to the unit by pressing the **ON** button on both of the UN356 circuit packs in the HDU.

22. Diagnose the SCUs associated with the HDU. See DLP-514.

23. If Step 2 was performed, contact the AFSC and request that they allow the affected SCU(s) in the AAP's SCUEQP database.

24. At the 1B Maintenance (MTC) terminal, restore the SCUs associated with the HDUs to active service. (See DLP-524.)

25. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Verify a Word in the Service Circuit System (SCS) Unit Type Translator

1. At the 1B Maintenance (MTC) terminal, enter: **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed and printed.

   Note: The words shown in Figure 1 are in **octal** format.

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR
WORD 0 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 10 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 20 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 30 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 40 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 50 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 60 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 70 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 100 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 110 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 120 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 130 ____ ____ ____ ____ / ____ ____ ____ ____
WORD 140 ____ ____ ____ ____

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. The SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

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

   If **NO**, determine and resolve the cause, and repeat from Step 1.

3. Looking at the Unit Type (UT) translator printout, record the value of the word in the UT translator that you wish to verify.

4. Compare the value of the word recorded in the previous step with the value indicated in Figure 2 for that word.

5. Is the value in the TTY output correct?

   If **YES**, go to Step 7.

   If **NO**, continue to Step 6.

6. Using DLP-515 in TOP 234-153-060AC, perform a functional word change.

   Note: Depending on local procedures, supervisory or Telephone Company (TELCO) engineering approval must be obtained prior to performing any data change.

7. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

WORD 0

Entry Data Octal Output	1			0			0			0			0			0			0			0		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEMBER TYPE			MEMBER TYPE HARDWARE GENERATION			MEMBER EQUIP-AGE		SCU 7		SCU 6		SCU 5		SCU 4		SCU 3		SCU 2		SCU 1		SCU 0	
									SUBMEMBER EQUIPAGE (SCU 0-7)															

WORD 1

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	Z	Z	Z	Z	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	ASSIGNED ALARM GRID AREA				FRAME LINEUP NUMBER										FRAME NUMBER									

Y = Variable octal numbers

X . . . X = Converts to decimal frame information as reflected in office floor plan drawing

ZZZZ = Converts to decimal alarm grid number as reflected in office record drawings

WORD 2

Entry Data Octal Output	0			0			0			0			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	X	X	X	X	X	X	X	X	X
	GCPI	FGCPI						SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								BASE SP PULSE POINT																

GCPI = Generate Control Pulse Point Indicator

FGCPI = Generate Control Pulse Point Index

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 3

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	1	Z	Z	Z	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
	MCCI	FOI	PUB BRANCH NUMBER ASSIGNMENT					SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								MEMBER BASE MISCELLANEOUS SCAN NUMBER																

MCCI = MCC Indicator

FOI = Fan Out Indicator

Y = Variable octal numbers

ZZZ = 3-digit code corresponding to lettered PUB branch as reflected in office record drawings

X . . . X = Converts to decimal SP information as reflected in office record drawings

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 1 of 7)

WORD 4

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
	BMCCI	RPI	REPEATN		REPCKT		RCKTHLF	SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								BUS BASE MISCELLANEOUS SCAN NUMBER (BBMSN)																

BMCCI = MCC Indicator for BBMSN
RPI = Repeater Indicator
REPEATN = PUBB Extension Frame
REPCKT = PUBB Extension Frame Circuit Number
RCKTHLF = PUBB Extension Frame Circuit Half

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 5

Entry Data Octal Output	0			0			0			1			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	1	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								DUPLICATE BASE SP PULSE POINT																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 6

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								MEMBER BASE MISCELLANEOUS SD NUMBER																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 7

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								BUS BASE MISCELLANEOUS SD NUMBER																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 2 of 7)

WORD 10

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			0			0			0			0			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	Z	Z	0	Z	Z	0	X	X	0	X	X
													CONTROLLER 1			CONTROLLER 0			CONTROLLER 1			CONTROLLER 0		
													CONTROLLER HARDWARE VERSION NUMBER						SCS CONTROLLER VERSION NUMBER					

ZZ = Hardware version numbers of SCS controllers

Y = Variable octal numbers

XX =Version numbers of SCS controllers as reflected in appropriate office record and shipping information

WORD 11

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			0			0			0			0			0			0		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEMBER CLASS AC/B VERSION RECORD																							

WORD 12

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	Y			0			0			0			0			0			0			0		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NLAN								SCU 15		SCU 14		SCU 13		SCU 12		SCU 11		SCU 10		SCU 9		SCU 8	
									SUBMEMBER EQUIPAGE (SCU 8-15)															

NLAN = Number of Local Area Networks (LANs)

Y = Variable octal numbers

X = Number of Local Area Networks
0 = One LAN
1 = Two LANs

WORD 13

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SCAN NUMBER (SCU 0 - 4)																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 3 of 7)

WORD 14

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SCAN NUMBER (SCU 5 - 8)																

X . . . X = Converts to decimal SP information as reflected in office record drawings
Y = Variable octal numbers

WORD 15

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SCAN NUMBER (SCU 9 - 12)																

X . . . X = Converts to decimal SP information as reflected in office record drawings
Y = Variable octal numbers

WORD 16

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SCAN NUMBER (SCU 13 - 15)																

X . . . X = Converts to decimal SP information as reflected in office record drawings
Y = Variable octal numbers

WORD 17

Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SD NUMBER (SCU 0 - 4)																

X . . . X = Converts to decimal SP information as reflected in office record drawings
Y = Variable octal numbers

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 4 of 7)

WORD 20

Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SD NUMBER (SCU 5 - 8)																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 21

Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SD NUMBER (SCU 9 - 12)																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 22

Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								SUBUNIT BASE MISCELLANEOUS SD NUMBER (SCU 13 - 15)																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

WORD 23

Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			Y			Y			Y			Y			Y			Y		
Binary Values	0	0	0	0	0	0	0	X	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X	X
								SP MEMBER NUMBER					L OR R MATRIX		SP ROW NUMBER						SP COLUMN NUMBER			
								FAN BASE MISCELLANEOUS SCAN NUMBER																

X . . . X = Converts to decimal SP information as reflected in office record drawings

Y = Variable octal numbers

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 5 of 7)

WORD:	24	31	36	43	50	55	62	67	74	101	106	113	120	125	132	137
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	Z	Z	Z	W	W	M	A	A	A	B	B	B	0	C	X	X	X	X	X	X	X	X	X	X
	TYPE OF SERVICE CIRCUIT			SCU VERSION NUMBER		MON	ASR APPLICATION			NUMBER OF CDSUs				CDSC U/L	TSI MEMBER NUMBER						SPC	TSI PORT NO.		
															TSI-MEMBER-SPC PORT CONNECTION FOR THE SCU									

Y = Variable octal numbers
M = Monitor bit (0 = No, 1 = Yes)
AAA = ASR Application (0-7)
BBB = Number of CDSUs (0-5 for CDSU-I, 0-2 for CDSU-II)
X . . . X = Converts to decimal port information as reflected in appropriate office records and shipping information

ZZZ = Service Circuit Type
000 = SCU with MAS/final handling announcement set
001 = SCU with NSCX announcement set S
100 = SCU with announcement set B (music on hold)
101 = SCU with announcement set D

WW = SCU version numbers as reflected in appropriate office record and shipping information
C = Location of CDSU-II(s) in the CDSC-II
(0 = 2 Lower Locations, 1 = 2 Upper locations)

WORD:	25	32	37	44	51	56	63	70	75	102	107	114	121	126	133	140
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	X	X	X	X	X	X	X	X	X	X	X	X	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
	MIP 1		MIP 0		MSP 3		MSP 2		MSP 1		MSP 0		MIP 1		MIP 0		MSP 3		MSP 2		MSP 1		MSP 0	
	MIP EQUIPAGE				MULTIFACETED SIGNAL PROCESSOR EQUIPAGE								MIP VERSION NUMBER				MULTIFACETED SIGNAL PROCESSOR VERSION NUMBER							

XX = 00 if unequipped
01 if growth
10 if special growth
11 if operational

Y = Variable octal numbers

ZZ = Version Number (0-3)

WORD:	26	33	40	45	52	57	64	71	76	103	110	115	122	127	134	141
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	Z	Z	Z	Z	Z	Z	Z	0	0	0	0	X	X	X	X	0	0	0	0	W	W	W	W
		SCS NUMBER			SCU NUMBER								DISK PAIR 1		DISK PAIR 0						DISK PAIR 1		DISK PAIR 0	
		LOCAL AREA NETWORK (LAN) ADDRESS											DISK PAIR EQUIPAGE								DISK CAPACITY INDICATOR			

WW = 00 if 422 Mb
01 if 2 Gb
10 if 4 Gb
11 if 9 Gb

XX = 00 if unequipped
01 if growth
10 if special growth
11 if operational

Z . . . Z = LAN address as reflected in appropriate office record and shipping information

Y = Variable octal numbers

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 6 of 7)

WORD:	27	34	41	46	53	60	65	72	77	104	111	116	123	130	135	142
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	W	W	W	W	X	X	X	X	X	X	X	X	X	X	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
	ASR CDSC GRIDALARM GRID AREA				ASR CDSC LINE NUMBER OF FRAME LOCATION NUMBER										FRAME LOCATION NUMBER: ASR CDSC FRAME NUMBER OF FRAME LOCATION NUMBER									

W . . W = CDSC Grid Alarm Grid Area as reflected in appropriate office records

X . . . X = CDSC Line Number of Frame Location Number as reflected in appropriate office records

Z . . . Z = CDSC Frame Number of Frame Location Number as reflected in appropriate office records

WORD:	30	35	42	47	54	61	66	73	100	105	112	117	124	131	136	143
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	0			0			0			0			0			0			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	B	A	X	X	X	Z	Z	Z	Z	Z	Z
														TN9002	TN9001	ASR CDSU HARDWARE VERSION			ASR CDSC NUMBER					

A = TN9001 Installed (0 = No, 1 = Yes)
B = TN9002 Installed (0 = No, 1 = Yes)

X . . . X = ASR CDSU Hardware Version Number (0-7)
Z . . . Z = ASR CDSC Number (0-63)

Figure 2. Unit Type Entry Data and Word Configuration (Word Numbers are in Octal) (Sheet 7 of 7)

Verify a System File on a Hard Disk

1. At the 1B Maintenance (MTC) terminal, dump the header of one of the system files from a hard disk by entering:
DUMP:DISK;SCS *a*,SCU *b*,DSK 0,FILE *c*,BUS *d*,HADR(0,0),L 20!

where *a* = Service Circuit System (SCS) member number (0-7)
b = Service Circuit Unit (SCU) number (0-15)
c = SCU system file number (see Table A)
d = Small Computer System Interface (SCSI) bus number (0 or 1)

Response: The first 20 16-bit words (40 bytes) of file *c* on SCU *b* in SCS *a*, is displayed on the screen and is sent to the Read Only Printer (ROP). These bytes contain file header information needed to determine if the file is correct.

Note: Question marks (????) in the printout indicate failure of the disk dump (no response from the SCU). If this happens, try to determine and clear the SCU trouble. If this cannot be done, power down the SCU (DLP-506).

2. Compare the printout from Step 1 to the sample in Figure 1 to determine whether a 1-digit or 2-digit generic number is used.

If a **1-digit** generic number is used, examine the printout for correctness based on the printout information provided in Figure 2.

If a **2-digit** generic number is used, examine the printout for correctness based on the printout information provided in Figure 3.

3. Is the information in the printout correct?

If **YES**, go to Step 6.

If **NO**, continue to Step 4.

4. Copy the correct file from the 3B20 computer to the disk (DLP-500).

5. Return to Step 1 to dump the header of the new file and verify that file.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TABLE A The SCS System Files

FILE NUMBER	SCS SYSTEM FILE TYPE
1	SCU Operational
2	
3	
4	
5	SCU Diagnostic
6	
7	
8	
9	SCU Tone
11	SCC Operational
12	
13	
14	
15	Fixed Multifaceted Signal Processor (MSP)
16	
17	
18	
19	Rover MSP
20	
21	
22	
23	MSP1
24	
25	
26	
35	MIP0
36	
37	
38	
39	MIP1
40	
41	
42	

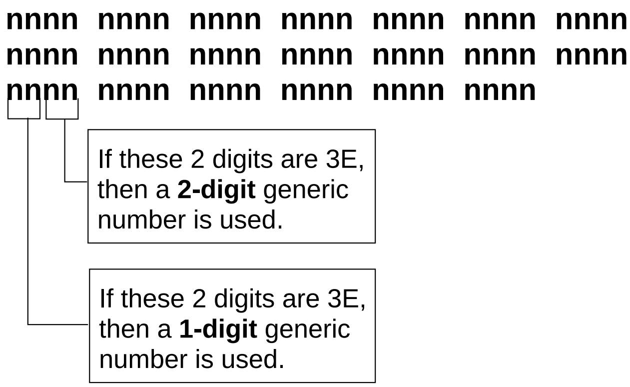


Figure 1. Sample Printout Used to Determine Generic Number Type

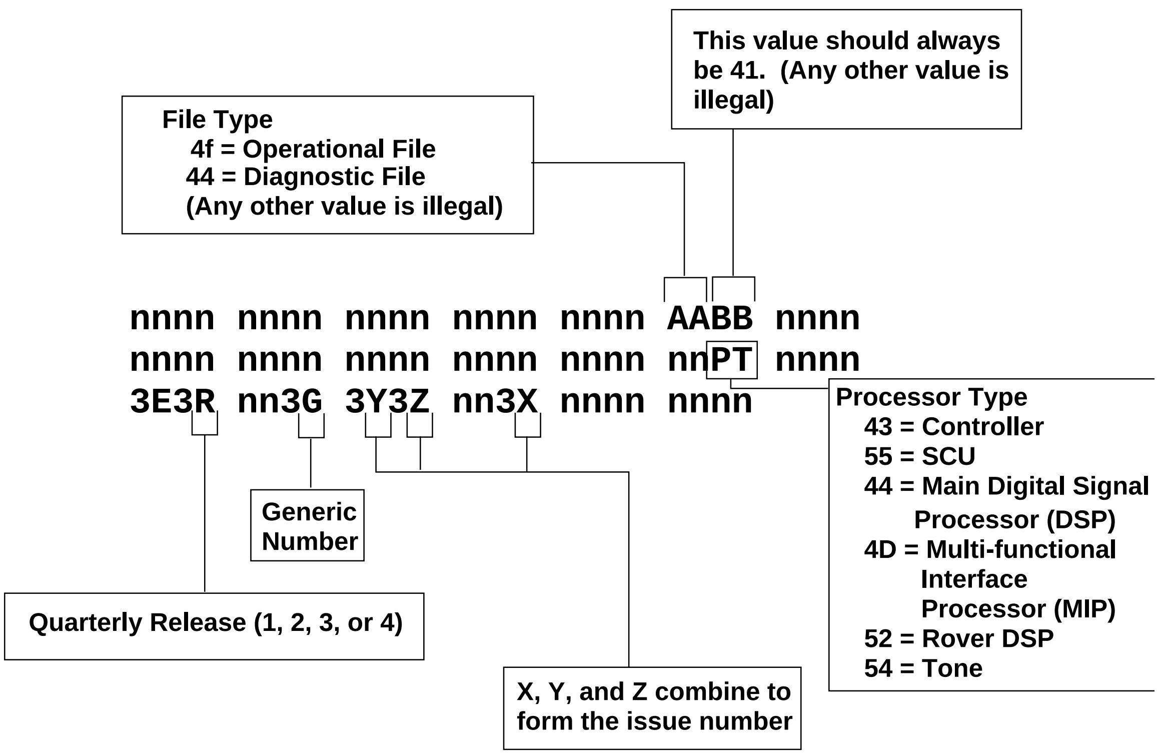


Figure 2. Sample Printout Used to Verify SCS System Files Using a 1-Digit Generic Number

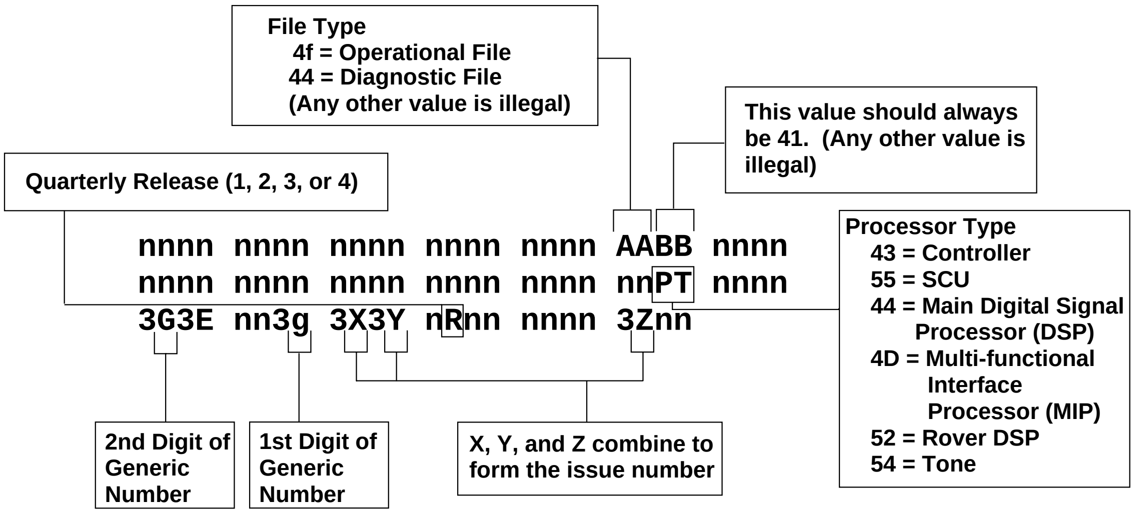


Figure 3. Sample Printout Used to Verify SCS System Files Using a 2-Digit Generic Number

Verify Service Circuit Unit (SCU) Local Area Network (LAN) Address In Unit Type Translator

Summary: In the event of an SCU addressing problem, obtain a printout of the Unit Type Translator and verify that each LAN address is correct for the respective SCS/SCU. This problem (multiple SCUs having the same LAN address) causes repeated messages in the AAP log file. The following log file entries are possible:

- Duplicate message received from SCU [0x%02x] on LAN stream.
- #1120 Multiple responses from SCU (in response to a manual UI command).
- #1181 ASN invalid to this type SCU (in response to an AAP assign message).

1. At the 1B Maintenance (MTC) terminal, enter **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed.

   Note: The words shown in Figure 1 are in **octal** format.

2. Is the message format and member identification correct as shown in Figure 1?

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

   If **NO**, determine and resolve the cause and repeat from Step 1.

3. Using the TTY output and Figure 2, verify the LAN address for the desired SCU, and note any discrepancies. The LAN address should be the SCS member number multiplied by 16, plus the SCU number.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

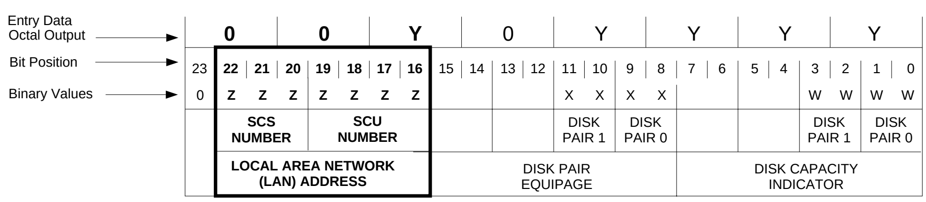
MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR
WORD 0 ____ ____ ____ ____
WORD 10 ____ ____ ____ ____
WORD 20 ____ ____ ____ ____
WORD 30 ____ ____ ____ ____
WORD 40 ____ ____ ____ ____
WORD 50 ____ ____ ____ ____
WORD 60 ____ ____ ____ ____
WORD 70 ____ ____ ____ ____
WORD 100 ____ ____ ____ ____
WORD 110 ____ ____ ____ ____
WORD 120 ____ ____ ____ ____
WORD 130 ____ ____ ____ ____
WORD 140 ____ ____ ____ ____

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. SCS Unit Type Translator

WORD:	26	33	40	45	52	57	64	71	76	103	110	115	122	127	134	141
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15



WW = 00 if 422 Mb (TN1672)
01 if 2 Gb (TN1972)
10 if 4 Gb (TN4000)
11 if 9 Gb (TN9000)

XX = 00 if unequipped
01 if growth
10 if special growth
11 if operational

Z . . . Z = LAN address as reflected in appropriate office record and shipping information

Y = Variable octal numbers

Figure 2. Unit Type Translator Word Used to Verify LAN Address

Replace Fan in SCS J5D003FH-1 Fan Unit

WARNING: Manually unplugging a fan unit will not result in an alarm condition. Fan alarm circuits require a connection to the alarm module to provide alarms. Therefore, when replacing a fan, if the connector is not seated properly, the fan may not operate and no alarm indication will be given.

1. Determine the location of the unit with the bad fan.

2. At the fuse/filter panel, remove the fuse associated with the bad fan unit.

3. Remove the defective fan by removing the mounting screws and disconnecting the connector to the wiring harness.

4. Install a new fan (comcode 846968691) by connecting the connector of the new fan to the wiring harness, placing the fan in the proper location, and inserting the mounting screws.

5. Ensure that the connector to the wiring harness is properly seated and there is no evidence of breaks in the wires.

6. At the fuse/filter panel, reinstall the associated fuse.

7. At the rear of the fan unit, press the red reset button (at the right side of the fan unit, as you face the back of the frame), to clear the alarm.

8. Ensure that the fans are running by physically looking at them.

9. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Update Announcements by Performing an Intra-SCU Disk Copy

1. Ensure that all the latest software update Broadcast Warning Messages (BWMs) for Service Circuit System (SCS) system files have been applied and copied to each Service Circuit Unit (SCU).

INSTALL THE HARD DISK CIRCUIT PACK WITH THE NEW/UPDATED ANNOUNCEMENTS

2. Using Figure 1 (SCC Cabinet) or Figure 2 (SCU Cabinet), determine the location of the appropriate SCU and associated disk pair(s).

3. At the appropriate SCU, remove that SCU from service by toggling the **ROS** switch on the TN1984 circuit pack from **NORMAL** to **ROS**. When the **OS** lamp goes **ON**, continue to the next step.

   Note: Initialize the Disk Packs on each SCU Bus which are to receive the updated announcements.

   INIT:SCS *x***, SCU** *y***, SDP** *z***, BUS 0, TYP1!**

   where *x* = Member Number (0-7)
   y = SCU Number (0-15)
   z = Source SCU disk pair (0-1 for SCU 0, or 0 for SCUs 1-15)

   INIT:SCS *x***, SCU** *y***, SDP** *z***, BUS 1, TYP 1!**

   where *x* = Member Number (0-7)
   y = SCU Number (0-15)
   z = Source SCU disk pair (0-1 for SCU 0, or 0 for SCUs 01-15)

4. Power down the disk pair(s) associated with the appropriate SCU by pressing the **OFF** button on the Disk Power Controller (DPC) UN356 circuit pack(s) associated with the disk pair(s).

5. Power down the SCU by pressing the **OFF** button on the SCU's Master Power Controller (MPC) TN1984 circuit pack.

6. Following all existing electrostatic discharge practices, remove the hard disk circuit pack from Bus 1. (See Figure 1 or 2 to determine the Bus 1 hard disk circuit pack location.)

7. Following all existing electrostatic discharge practices, install the hard disk circuit pack with the announcements at the Bus 1 location. (The hard disk circuit pack with the announcements replaces the circuit pack that was removed in the previous step).

8. Power up the SCU and associated disk pair(s).

   A. At the associated disk pair(s), press the **ON** button to power the Disk Power Controller (DPC) UN356 circuit pack.

      Note: Wait at least 60 seconds before proceeding with Step B. This allows the disk drives to spin up to operational speed.

   B. At the SCU, press the **ON** button to power the Master Power Controller (MPC) TN1984 circuit pack.

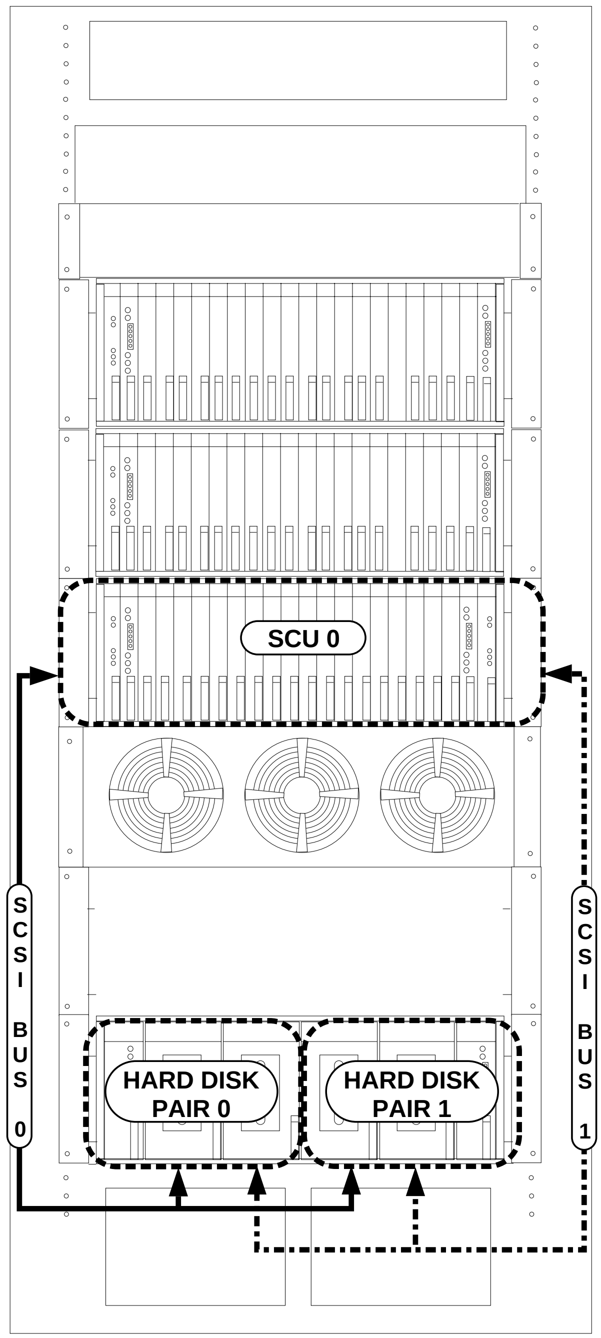


Figure 1. SCU, Associated Disk Pairs, and Bus Connections in the SCC Cabinet

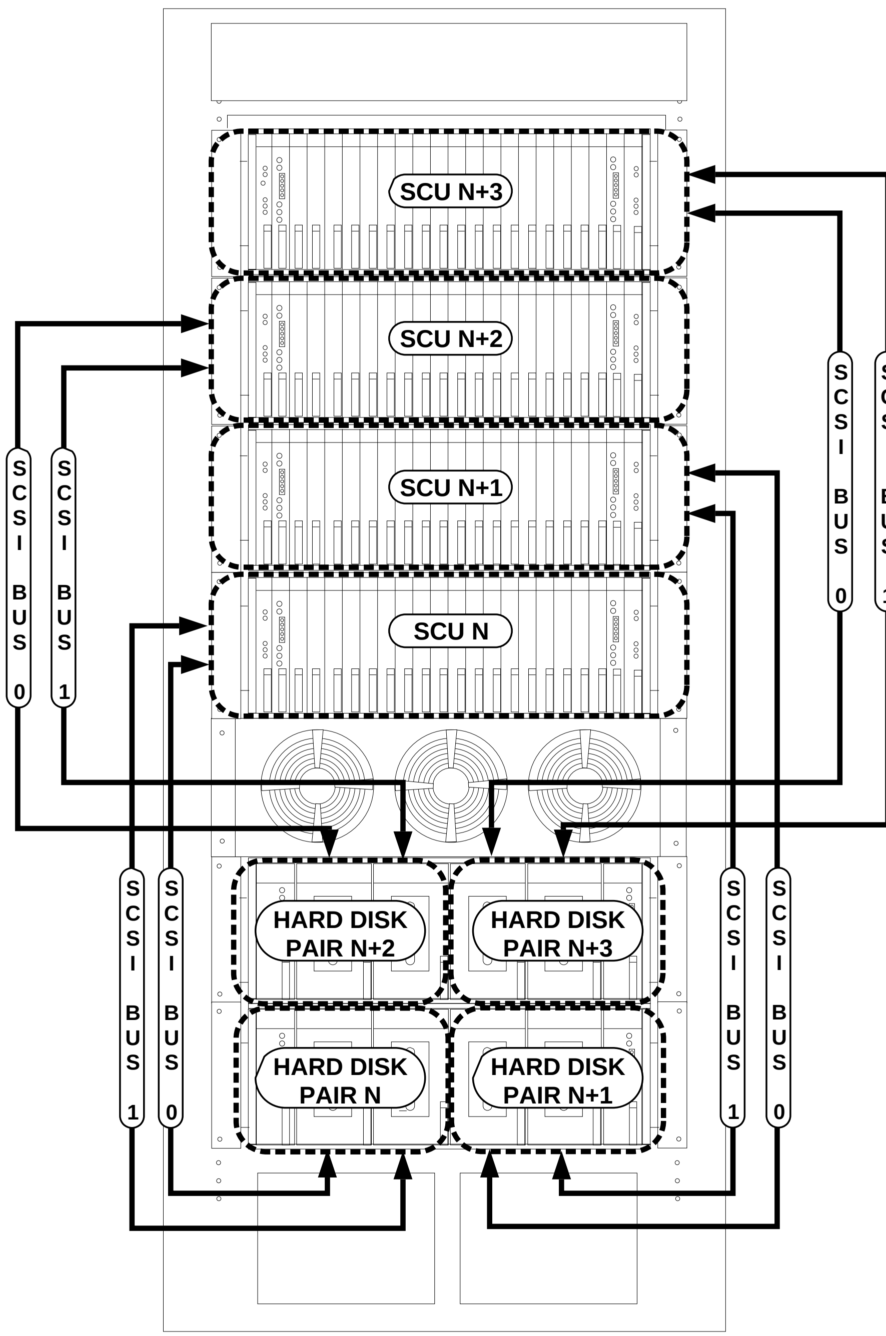


Figure 2. SCUs, Associated Disk Pairs, and Bus Connections in the SCU Cabinet

DOWNLOAD SCS SYSTEM FILES FROM THE ATTACHED PROCESSOR SYSTEM (APS)

Note: The downloading of the SCS system files is accomplished via the **copy** command. This command is used once for each of the nine SCS System File Types: TONES, SCCSFT, SCUOPR, SCUDGN, MSPROV, MSPFIX, MSP1, MIP0FIL, and MIP1FIL . These files reside in the root file directory of the 3B20D computer and may have up to four vintages of files labeled 0-3. Both a Source Version Number (SVN) (the correct and up-to-date file location on the 3B20D computer disk) and a Destination Version Number (DVN) (the next location on each disk pair 0) are needed for each **copy** command. These numbers ensure that a particular SCS file type is read from and written to the proper disk location of each disk pair 0.

9. Determine and record the latest SCS system file version numbers from an in-service disk pair (DLP-535).

10. At the 1B MTC terminal, copy the correct and up-to-date SCS system files from the APS to disk pair 0 by entering the following input messages, one at a time, **being sure to wait for the successful completion of each message before continuing to the next**:

    COPY:SCS *x*,**SCU** *y*, **SCCSFT,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **SCUOPR,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **SCUDGN,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **MSPFIX,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **MSPROV,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **TONES,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **MSP1,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **MIP0FIL,SVN 0,DVN** *z*; **UCL!**
    COPY:SCS *x*,**SCU** *y*, **MIP1FIL,SVN 0,DVN** *z*; **UCL!**

where *x* = Member number (0-7)
y = SCU number (0-15)
z = Destination file version number (0-1) (use the correct and up-to-date version number determined in Step 9 [Table A of DLP-535])

Note: Each of the above **copy** commands could take a considerable amount of time to run. If any input message should fail, enter the message a second time before escalating the problem.

Response: `COPY:SCS` *x* `TASK COMPLETED` (for each of the above input messages)

PERFORM INTRA-SCU DISK COPY

Caution: An intra-SCU disk copy can only be performed when larger/equal capacity disks are replacing smaller/equal capacity disks. The Announcement Administrator Processor (AAP) will be necessary to load announcements when replacing larger disks with smaller disks.

11. At the 1B MTC terminal, do a disk copy from Bus 1 to Bus 0 by entering:

    COPY:SCS *a***,SCU** *b***,SDP** *c***,BUS 1!**

    where *a* = Member number (0-7)
    b = SCU number (0-15)
    c = Source SCU disk pair (0-1 for SCU 0, or 0 for SCUs 1-15)

    Caution: For SCU 0 only, if a smaller disk pair was replaced with a Type 2 (4 Gb) disk pair, only disk pair location 0 (see Figure 1) will be a valid entry. If a smaller disk pair was replaced with a Type 3 (9GB) disk pair, only disk pair location 0 will be a valid entry.

    Response: `COPY:SCS` *a* `COMPLETED`

    Note: This intra-SCU disk copy will take a considerable amount of time. The time varies depending on the size of the disk being copied. An `IN PROGRESS` message will be displayed every 5 minutes during the copy. A TN1972 (Type 1) 2 Gb disk copy will take approximately 20 minutes.

12. Power down the disk pair(s) associated with the SCU by pressing the **OFF** button on the Disk Power Controller (DPC) UN356 circuit pack(s) associated with the disk pair(s).

13. Power down the SCU by pressing the **OFF** button on the SCU's TN1984 circuit pack.

14. Following all existing electrostatic discharge practices, remove the hard disk circuit pack (the one that was installed in Step 7) from Bus 1.

15. Following all existing electrostatic discharge practices, install the hard disk circuit pack that was removed in Step 6 back onto Bus 1.

16. Power-up the SCU and associated disk pair(s).

    A. At the associated disk pair(s), press the **ON** button to power the Disk Power Controller (DPC) UN356 circuit pack.

        Note: Wait at least 60 seconds before proceeding with Step B. This allows the disk drives to spin up to operational speed.

    B. At the SCU, press the **ON** button to power the TN1984 circuit pack.

17. At the 1B MTC terminal, do a disk copy from Bus 0 to Bus 1 by entering:

    COPY:SCS *x***,SCU** *b***,SDP** *c***,BUS 0!**

    where *a* = Member number (0-7)
    b = SCU number (0-15)
    c = Source SCU disk pair (0-1 for SCU 0, or 0 for SCUs 1-15)

    Caution: For SCU 0 only, if a smaller disk pair was replaced with a Type 2 (4 Gb) disk pair, only disk pair location 0 (see Figure 1) will be a valid entry. If a smaller disk pair was replaced with a Type 3 (9GB) disk pair, only disk pair location 0 will be a valid entry.

    Response: `COPY:SCS` *a* `COMPLETED`

    Note: This intra-SCU disk copy will take a considerable amount of time. The time varies depending on the size of the disk being copied. An `IN PROGRESS` message will be displayed every 5 minutes during the copy. A TN1972 (Type 1) 2 Gb disk copy will take approximately 20 minutes.

18. At the appropriate SCU, restore the SCU to service by toggling the **ROS** switch on the TN1984 circuit pack from **ROS** to **NORMAL**.

    Response: The appropriate SCU will be diagnosed and returned to service.

19. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Determine the Latest SCS System File Version Numbers from Translations for In-Service Disk Pairs

1. At the 1B Maintenance (MTC) terminal, enter **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7) of in-service SCS

   Response: The information shown in Figure 1 is displayed and printed.

   Note: The words shown in Figure 1 are in **octal** format.

```
VER:UTMN;OPT(),CUR:      FLN a          UTYN b

MEMN c              ME d
ENTRY ADDRESS e                  ENTRY SIZE f

CUR
WORD 0      ____ ____ ____ ____
            ____ ____ ____ ____
WORD 10     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 20     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 30     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 40     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 50     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 60     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 70     ____ ____ ____ ____
            ____ ____ ____ ____
WORD 100    ____ ____ ____ ____
            ____ ____ ____ ____
WORD 110    ____ ____ ____ ____
            ____ ____ ____ ____
WORD 120    ____ ____ ____ ____
            ____ ____ ____ ____
WORD 130    ____ ____ ____ ____
            ____ ____ ____ ____
WORD 140    ____ ____ ____ ____
```

a = Floor location number
b = Unit type name
c = Member number of growth associated complex
d = Member equipage
e = 8-digit entry address
f = 2-digit entry size

Figure 1. SCS Unit Type Translator

2. Using the printout from Step 1 and Figure 2, determine the version number for controllers 0 and 1 by looking at bits 0 through 5 in octal word 10. The version number should be the same for both controllers and can range from 0 to 3. Record this version number in Table A as the version number for SCS system file type **SCCSFT**.

TABLE A SCS System File Types and Associated Version Numbers for Existing Hardware

SCS System File Type	Version Number
SCCSFT	
SCUOPR	
SCUDGN	
MSPFIX	
MSPROV	
MSP1	
TONES	0
MIP0FIL	
MIP0FIL	

Note: The version number for the **TONES** file type **is always 0** and is already entered in Table A.

3. Using the printout from Step 1 and the middle section of Figure 2 (Page 4), determine the version number for **existing** SCUs by looking at bits 19 and 20 of the applicable words.

   Record this version number in Table A as the version number for SCS system file types **SCUOPR and SCUDGN**. (The version number should be the same for all existing SCUs and can range from 0 to 3.)

4. Using the printout from Step 1 and the bottom section of Figure 2 (Page 4), determine the version number for **existing** Multifaceted Signal Processors (MSPs) per bits 0 through 7 of the applicable words. (Each consecutive pair of bits in bits 0-7 indicates the version number for one of the four possible MSPs).

   Record this version number in Table A as the version number for SCS system file types **MSPFIX, MSPROV, and MSP1**. (The MSP version number should be the same for all existing SCUs and can range from 0 to 3.)

5. Using the printout from Step 1 and the bottom section of Figure 2 (Page 4), determine the version number for the Multifunctional Interface Processors (MIPs) per bits 8 through 11 of the applicable words. (Each consecutive pair of bits in bits 8-11 indicates the version number for one of the two possible MIPs).

   Record this version number in Table A as the version number for SCS system file types **MIP0FIL** and **MIP1FIL**. (The MIP version number can range from 0 to 3.)

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

WORD 10

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	0			0			0			0			0			0			Y			Y		
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	Z	Z	0	Z	Z	**0**	**X**	**X**	**0**	**X**	**X**
													CONTROLLER 1			CONTROLLER 0			**CONTROLLER 1**			**CONTROLLER 0**		
													CONTROLLER HARDWARE VERSION NUMBER						**SCS CONTROLLER VERSION NUMBER**					

XX = Version numbers of SCS controllers

Y = Variable octal numbers

ZZ = Hardware Version numbers of SCS controllers

WORD:	24	31	36	43	50	55	62	67	74	101	106	113	120	125	132	137
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

	23	22	21	**20**	**19**	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Entry Data Octal Output	Y			**Y**			Y			Y			Y			Y			Y			Y		
Binary Values	Z	Z	Z	**W**	**W**	M	A	A	A	B	B	B	0	C	X	X	X	X	X	X	X	X	X	X
	TYPE OF SERVICE CIRCUIT			**SCU VERSION NUMBER**		MON	ASR APPLICATION			NUMBER OF CDSUs				CDSC	TSI MEMBER NUMBER						SPC	TSI PORT NO.		
														U/L	TSI-MEMBER-SPC PORT CONNECTION FOR THE SCU									

Y = Variable octal numbers
M = Monitor bit (0 = No, 1 = Yes)
AAA = ASR Application (0-7)
BBB = Number of CDSUs (0-5 for CDSU-I, 0-2 for CDSU-II)
X . . . X = Converts to decimal port information as reflected in appropriate office records and shipping information

ZZZ = Service Circuit Type
000 = SCU with MAS/final handling announcement set
001 = SCU with NSCX announcement set S
100 = SCU with announcement set B (music on hold)
101 = SCU with announcement set D

WW = SCU version numbers as reflected in appropriate office record and shipping information

C = Location of CDSU-II(s) in the CDSC-II
(0 = 2 Lower Locations, 1 = 2 Upper locations)

WORD:	25	32	37	44	51	56	63	70	75	102	107	114	121	126	133	140
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

	23	22	21	20	19	18	17	16	15	14	13	12	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Binary Values	X	X	X	X	X	X	X	X	X	X	X	X	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**
	MIP 1		MIP 0		MSP 3		MSP 2		MSP 1		MSP 0		**MIP 1**		**MIP 0**		**MSP 3**		**MSP 2**		**MSP 1**		**MSP 0**	
	MIP EQUIPAGE				MULTIFACETED SIGNAL PROCESSOR EQUIPAGE								**MIP VERSION NUMBER**		**MULTIFACETED SIGNAL PROCESSOR VERSION NUMBER**									

Y = Variable octal numbers

XX = 00 if unequipped
01 if growth
10 if special growth
11 if operational

ZZ = Version Number (0-3)

Figure 2. Words in SCS Unit Type Translator Used to Determine Version Numbers

Replace an AYC50 Card in the CDSU-I

1. If the Custom Data Services Unit-I (CDSU-I) is not powered down, shut down the CDSU-I (DLP-537).

2. Turn the power off at the CDSU-I by moving the **ON/OFF** switch at the control panel on the front of the CDSU-I to the OFF position.

3. Remove the 4 screws at the front of the CDSU-I that secure the CDSU-I to the frame.

4. Carefully slide the unit out far enough to access the top cover.

5. Remove the top cover from the CDSU-I (several screws will have to be removed).

6. See WARNING. Remove the ribbon cable that is connected to the AYC50 card to be removed. (It may also be necessary to remove the ribbon cable from other cards in order to remove the desired AYC50 card.)

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-I.

7. Remove the holding screw from the back of the AYC50 card to be removed.

8. Lift up and remove the AYC50 card.

9. Configure the new AYC50 card and its CM440A daughter board (DLP-546).

10. Insert the new AYC50 card into the position of the defective card.

11. Ensure that the new card is fully seated into position.

12. Replace the holding screw at the back of the AYC50 card.

13. Reconnect the ribbon cable that was removed from the defective pack. (Be sure to also connect the ribbon cable to any other card from which it was disconnected.)

14. Replace the top cover of the SCU (replace the screws that were removed in Step 5).

15. Slide the CDSU-I back into the frame.

16. Attach the CDSU-I to the frame with the 4 screws that were removed earlier.

17. Restore power to the CDSU-I (DLP-539).

18. Restore the associated SCU to service (DLP-524).

19. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-I - Shutdown

1. Verify that the SCU associated with the CDSU-I is out of service. If it is not out of service, remove the SCU from service (DLP-510).

2. If the CDSU-I monitor and keyboard are not connected to the CDSU-I, connect them (DLP-544).

   Note: If the CDSU-I monitor and keyboard are already connected to another CDSU-I within the same Custom Data Services Cabinet-I (CDSC-I), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-I within the same CDSC-I by entering the following at the CDSU-I keyboard:
   rlogin cds*xyyzz*

   where *x* = SCS member number (0-7)
   yy = SCU Submember number (00-15)
   zz = CDSU-I number (00-04 for Phase 1 ASR)

3. At the `console login:` prompt, enter: **root**

4. At the CDSU-I keyboard, connected to the CDSU-I, enter:

   /etc/init 0

   followed by (optional):

   exit

   Response: The `system is down` message is displayed on the monitor after a slight delay.

5. Power can now be removed from the CDSU-I, if desired (DLP-539).

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace a Custom Data Services Unit-I (CDSU-I)

1. Shut down the CDSU-I (DLP-537).

2. Remove power from the CDSU-I by moving the **ON/OFF** switch on the CDSU-I control panel (Figure 1) to the OFF position.

   Response: All CDSU-I control panel LEDs extinguish, indicating that power has been removed from the CDSU-I.

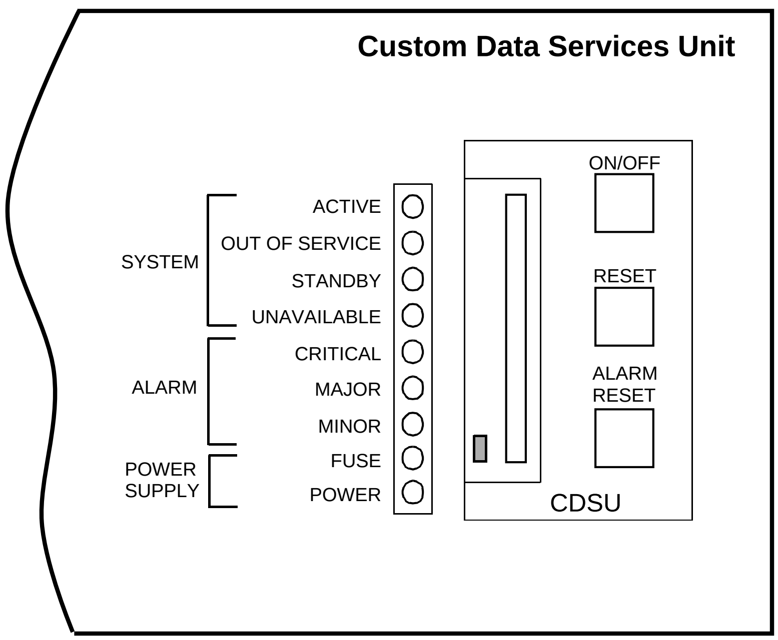


Figure 1. The CDSU-I Control Panel

3. Disconnect the following cables from the rear of the CDSU-I (Figure 2):
   - Power cable
   - 2 T1 cables (locations A4 and A11)
   - LAN connector (location A3)
   - Keyboard cable, if connected (location A18)
   - CDSU-I Terminal cable, if connected (location A2)

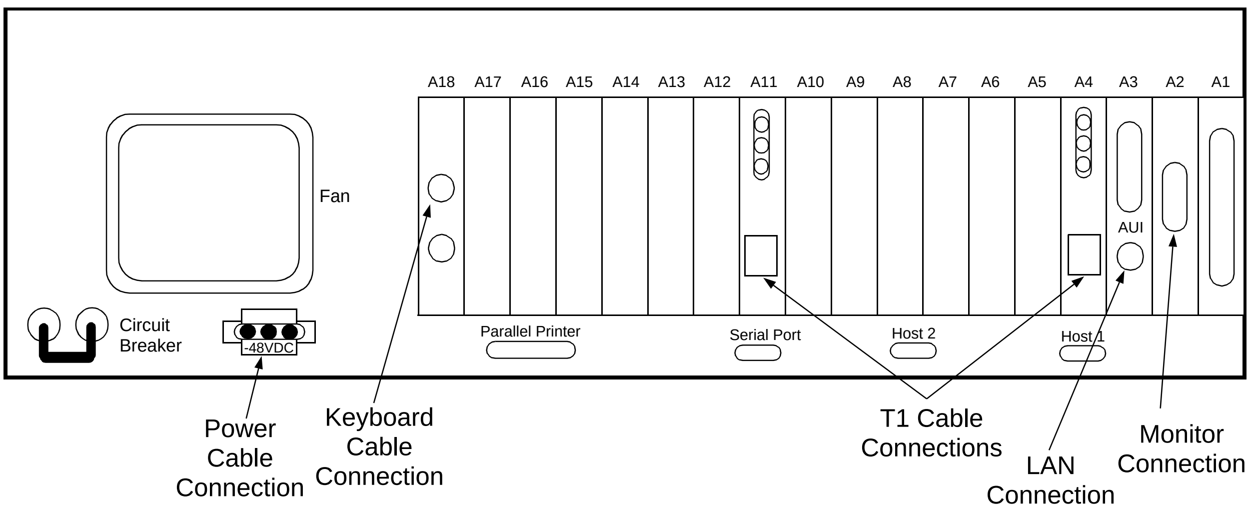


Figure 2. CDSU-I Cable Connections

4. Remove and save the 4 screws at the front of the CDSU-I that secure the CDSU-I to the frame.

5. Carefully slide the unit out until it is stopped by the slide mechanism.

6. Disconnect the cable arm at the rear of the CDSU-I by pulling up and removing the cable arm release pin. Save this pin for re-installation.

7. Facing the front of the cabinet, with one hand on either side of the CDSU-I, press down on the slide release mechanisms (one on each side of the CDSU-I) and slide the unit out to remove it from the cabinet. Place the CDSU-I on a work table.

8. Remove the top cover from the replacement CDSU-I.

9. Is the replacement CDSU-I equipped with AYC50 circuit packs (Figure 3)?

   If **YES**, replace the top cover of the replacement CDSU-I and go to Step 13.

   If **NO**, go to Step 10.

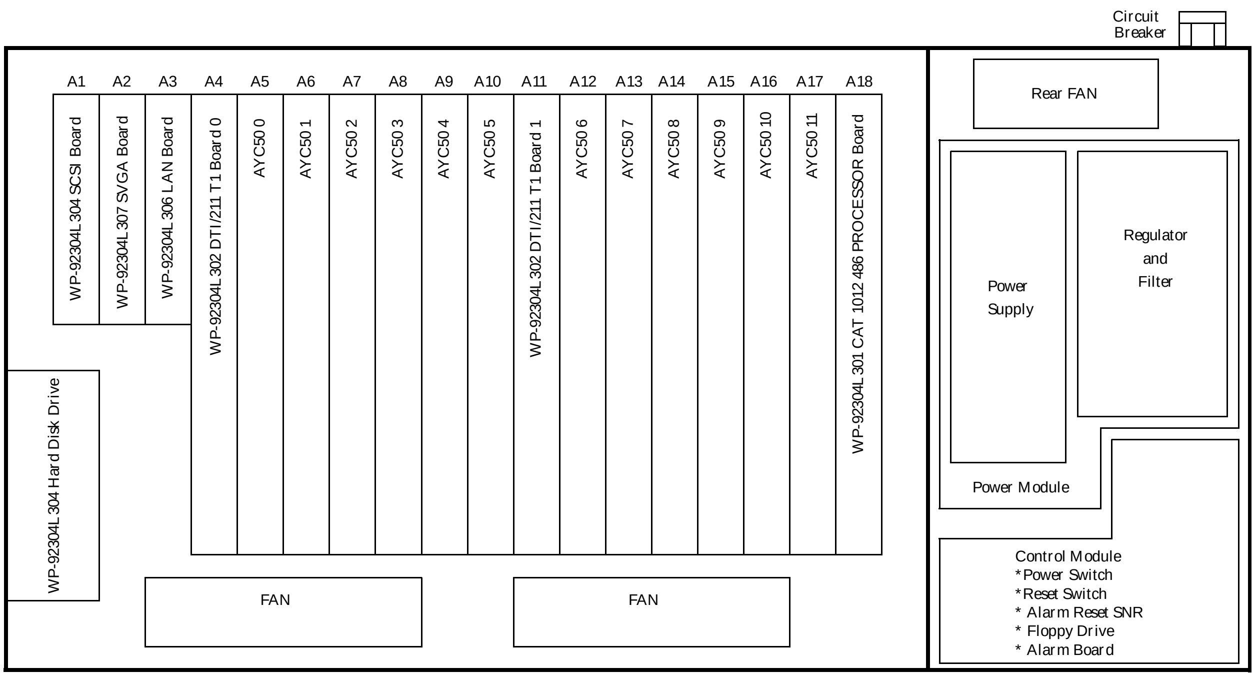


Figure 3. CDSU-I Circuit Pack Locations (Top View)

10. Remove the top cover from the CDSU-I that was removed from the cabinet.

11. Complete the following steps to move the AYC50 cards from the old CDSU-I to the new CDSU-I.

    A. At the old CDSU-I, disconnect the ribbon cables connected to the AYC50 cards to be removed.

    B. See WARNING and Note. One at a time (beginning with AYC50-0 and continuing in order up through AYC50-11), remove the holding screw from each AYC50 card, lift up and remove each AYC50 card, and install the AYC50 card in the same location in the new CDSU-I.

    Ensure that each new card is fully seated into position, and replace the holding screw at the back of each AYC50 card.

    WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards from the CDSU-I.

    Note: When removing the AYC50 card at locations A5 and A12, the ribbon cable connected to the adjacent DTI/211 board must be removed after removing the AYC50 board. Connect the ribbon cable to the same DTI/211 card in the new CDSU-I before the adjacent AYC50 card is inserted.

    C. At the new CDSU-I, connect the ribbon cables to the AYC50 in the same positions they were removed from in the old CDSU-I.

12. Attach the top cover to the new CDSU-I.

13. Slide the new CDSU-I into the cabinet until it locks into position. (It is recommended that 2 people perform this function.)

14. Reconnect the cable arm at the rear of the CDSU-I by re-inserting the pin that was removed in Step 6.

15. Slide the CDSU-I the rest of the way into the cabinet.

16. Reconnect the cables (with the exception of the LAN cable) that were removed in Step 3. The LAN cable will be reconnected later.

17. Insert the 4 screws at the front of the CDSU-I to secure the CDSU-I to the frame.

18. Restore power to the CDSU-I by moving the **ON/OFF** switch on the CDSU-I control panel (Figure 1) to the ON position.

    Response: The **POWER** and **FUSE** LEDs light, indicating that power has been restored to the CDSU-I. Also, the **OUT OF SERVICE** LED will light. Then the **UNAVAILABLE** LED will light and the **OUT OF SERVICE** LED will extinguish. When the SCU associated with the CDSU-I is restored to service and the LAN connection to the SCU is complete, the **UNAVAILABLE** LED will extinguish and the **ACTIVE** LED will light.

    Also, if the CDSU-I terminal is connected, status information is provided during the reboot (power-up). Upon completion of the reboot, the `Console Login:` prompt is displayed.

19. Configure the CDSU-I (DLP-543).

20. Reconnect the LAN cable that was removed in Step 3.

21. Determine the latest CDSU BWM by getting a BWM status report (DLP-570). Then apply that BWM (DLP-571).

    Note: Reapplying the last BWM loads software.

22. At the 1B MTC terminal, diagnose the CDSU-I by entering:

    DGN:SCS *a***,SCU** *b***:PH 17!**

    where *a* = SCS member number (0-7)
    b = Associated SCU number (0-15)

    Note: Any other CDSU-I assigned to the same SCU will also be diagnosed. Phase 17 diagnostics will take approximately 2 minutes per CDSU-I.

    Response: The screen returns output messages with `ATP`.

23. Restore the associated SCU to service (DLP-524).

24. Stamp the new CDSU-I label with the appropriate information (same as the old CDSU-I).

25. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Removing and Restoring Power From a Custom Data Services Unit-I (CDSU-I)

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. If the CDSU-I has not already been shut down, shut down the CDSU-I (DLP-537). Otherwise, continue to Step 3.

3. Remove power from the CDSU-I by moving the **ON/OFF** switch on the CDSU-I control panel (see Figure 1) to the OFF position.

   Response: All CDSU-I control panel LEDs extinguish, indicating that power has been removed from the CDSU-I.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

5. Restore power to the CDSU-I by moving the **ON/OFF** switch on the CDSU-I control panel to the ON position.

   Response: The **POWER** and **FUSE** LEDs light, indicating that power has been restored to the CDSU-I. Also, the **OUT OF SERVICE** LED will light. Then the **UNAVAILABLE** LED will light and the **OUT OF SERVICE** LED will extinguish. When the SCU associated with the CDSU-I is restored to service and the LAN connection to the SCU is complete, the **UNAVAILABLE** LED will extinguish and the **ACTIVE** LED will light.

   Also, if the CDSU-I terminal is connected, status information is provided during the reboot (power-up). Upon completion of the reboot, the `Console Login:` prompt is displayed.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

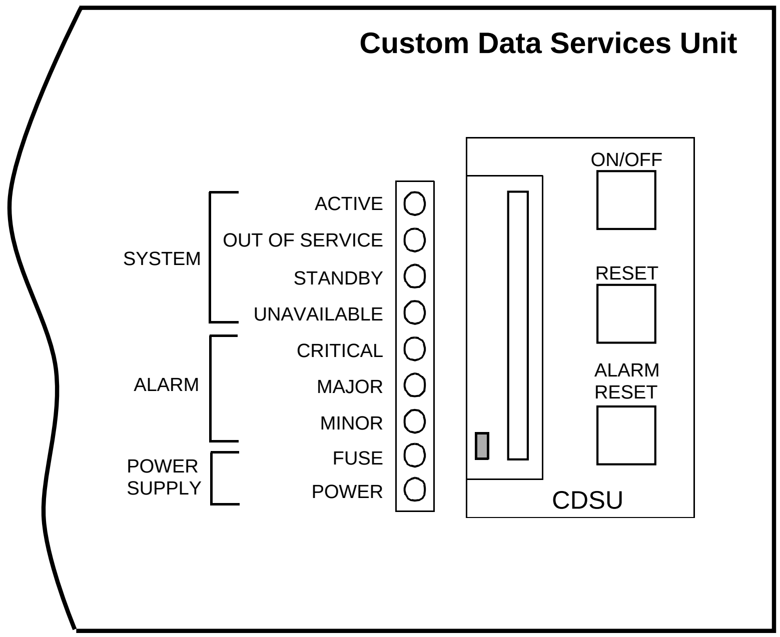


Figure 1. The CDSU-I Control Panel

Verify Number of Equipped CDSUs in the SCS Unit Type Translator

1. At the 1B Maintenance (MTC) terminal, enter: **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed and printed.

   Note: The words shown in Figure 1 are in **octal** format.

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR				
WORD 0	____	____	____	____
	____	____	____	____
WORD 10	____	____	____	____
	____	____	____	____
WORD 20	____	____	____	____
	____	____	____	____
WORD 30	____	____	____	____
	____	____	____	____
WORD 40	____	____	____	____
	____	____	____	____
WORD 50	____	____	____	____
	____	____	____	____
WORD 60	____	____	____	____
	____	____	____	____
WORD 70	____	____	____	____
	____	____	____	____
WORD 100	____	____	____	____
	____	____	____	____
WORD 110	____	____	____	____
	____	____	____	____
WORD 120	____	____	____	____
	____	____	____	____
WORD 130	____	____	____	____
	____	____	____	____
WORD 140	____	____	____	____

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. The SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

   If **YES**, continue with Step 3.
   If **NO**, determine and resolve the cause, and repeat from Step 1.

3. Looking at the Unit Type (UT) translator printout, use Figure 2 to determine the number of Custom Data Services Units (CDSUs) assigned to the desired Service Circuit Unit (SCU). The CDSU count is determined by bits 12 through 14 of the appropriate word.

   Note: The number of CDSUs given in the UT translator is only valid if the ASR application type (found in the same word) is non-zero.

4. Is the value in the UT translator output correct?

   If **YES**, go to Step 6.

   If **NO**, continue to Step 5.

5. Using DLP-515 in TOP 234-153-060AC, perform a functional word change.

   Note: Depending on local procedures, supervisory or Telephone Company (TELCO) engineering approval must be obtained prior to performing any data change.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

WORD:	24	31	36	43	50	55	62	67	74	101	106	113	120	125	132	137
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output →	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position →	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values →	Z	Z	Z	W	W	M	A	A	A	B	B	B	0	0	X	X	X	X	X	X	X	X	X	X
	TYPE OF SERVICE CIRCUIT			SCU VERSION NUMBER		MON	ASR APPLICATION			NUMBER OF CDSUs					TSI MEMBER NUMBER						SPC	TSI PORT NO.		
															TSI-MEMBER-SPC PORT CONNECTION FOR THE SCU									

Y = Variable octal numbers
M = Monitor bit (0 = No, 1 = Yes)
AAA = ASR Application (0-7)
BBB = Number of CDSUs (0-5)
X . . . X = Converts to decimal port information as reflected in appropriate office records and shipping information

ZZZ = Service Circuit Type
000 = SCU with MAS/final handling announcement set
001 = SCU with NSCX announcement set S

WW = SCU version numbers as reflected in appropriate office record and shipping information

Figure 2. Unit Type Translator Words Used to Verify CDSU Count

Verify ASR Application Type in the SCS Unit Type Translator

1. At the 1B Maintenance (MTC) terminal, enter: **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed and printed.

   Note: The words shown in Figure 1 are in **octal** format.

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR
WORD 0 ____ ____ ____ ____ ____ ____ ____ ____
WORD 10 ____ ____ ____ ____ ____ ____ ____ ____
WORD 20 ____ ____ ____ ____ ____ ____ ____ ____
WORD 30 ____ ____ ____ ____ ____ ____ ____ ____
WORD 40 ____ ____ ____ ____ ____ ____ ____ ____
WORD 50 ____ ____ ____ ____ ____ ____ ____ ____
WORD 60 ____ ____ ____ ____ ____ ____ ____ ____
WORD 70 ____ ____ ____ ____ ____ ____ ____ ____
WORD 100 ____ ____ ____ ____ ____ ____ ____ ____
WORD 110 ____ ____ ____ ____ ____ ____ ____ ____
WORD 120 ____ ____ ____ ____ ____ ____ ____ ____
WORD 130 ____ ____ ____ ____ ____ ____ ____ ____
WORD 140 ____ ____ ____ ____

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. The SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

   If **YES**, continue with Step 3.
   If **NO**, determine and resolve the cause, and repeat from Step 1.

3. Looking at the Unit Type (UT) translator printout, use Figure 2 to determine the Automatic Speech Recognition (ASR) Application Type (Table A) assigned to the desired Service Circuit Unit (SCU). The ASR Application Type is determined by bits 15 through 17 of the appropriate word.

TABLE A ASR Application

Bits 17,16, and 15	ASR Application
000	0 (ASR not equipped)
001	1 (NSCX Replacement and ATP)
010	2 (For future use)
011	3 (For future use)
100	4 (For future use)
101	5 (For future use)
110	6 (For future use)
111	7 (For future use)

4. Is the value in the UT translator output correct?

   If **YES**, go to Step 6.

   If **NO**, continue to Step 5.

5. Using DLP-515 in TOP 234-153-060AC, perform a functional word change.

   Note: Depending on local procedures, supervisory or Telephone Company (TELCO) engineering approval must be obtained prior to performing any data change.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

WORD:	24	31	36	43	50	55	62	67	74	101	106	113	120	125	132	137
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	Y			Y			Y			Y			Y			Y			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	Z	Z	Z	W	W	M	A	A	A	B	B	B	0	0	X	X	X	X	X	X	X	X	X	X
	TYPE OF SERVICE CIRCUIT			SCU VERSION NUMBER		MON	ASR APPLICATION			NUMBER OF CDSUs					TSI MEMBER NUMBER						SPC	TSI PORT NO.		
															TSI-MEMBER-SPC PORT CONNECTION FOR THE SCU									

Y = Variable octal numbers
M = Monitor bit (0 = No, 1 = Yes)
AAA = ASR Application (0-7)
BBB = Number of CDSUs (0-5)
X . . . X = Converts to decimal port information as reflected in appropriate office records and shipping information

ZZZ = Service Circuit Type
000 = SCU with MAS/final handling announcement set
001 = SCU with NSCX announcement set S

WW = SCU version numbers as reflected in appropriate office record and shipping information

Figure 2. Unit Type Translator Words Used to Verify ASR Application

Replace Smart HUB

Note: This procedure assumes that the SCS complex is working properly (passes diagnostics) with the exception of the Local Area Network (LAN) Smart HUB.

1. Temporarily place a new Smart HUB on top of the defective Smart HUB in the Custom Data Services Cabinet (CDSC).

2. Connect 110 V AC power to the new Smart HUB.

3. Set all terminator switches on the new Smart HUB to the same position as those on the defective Smart HUB.

4. Inhibit the AAP LAN as follows:

   A. At the AAP console (after logging in and selecting option 4), enter:
   STOP:AAP "LANCMD"

   Response:
   `INH:SCUEQP KEY ALL completed`

   B. At the 1B MTC Terminal, enter:
   INH:SCS 0,LAN!

   Response:
   `INH:SCS 0,LAN COMPL`

5. Remove the LAN coaxial cable (T-connector) connecting the AAP to the defective Smart HUB, and connect it to the same connector position on the new Smart HUB.

6. At the 1B MTC terminal, remove the lowest-numbered ASR-equipped SCU from service by entering:
   RMV:SCS *a*,SCU *b*!

   where *a* = SCS member number (0-7)
   b = SCU number (0-15)

   Response: `RMV:SCS` *a*`,SCU` *b* `COMPLETED`

7. At the defective Smart HUB, disconnect the LAN coaxial cable connecting the CDSUs of the SCU that was just removed from service. Connect this cable to the same connector position on the new Smart HUB.

8. At the 1B MTC terminal, diagnose the SCU that was just reconnected by entering:

   DGN:SCS *a***,SCU** *b***:PH 17!**

   where *a* = SCS member number (0-7)
   b = SCU number (0-15)

   Response: The screen returns an output message with `ATP`.

9. Did the diagnostic in Step 8 pass?

   If **YES**, continue to Step 10.

   If **NO**, then check the coaxial cable connections and return to Step 8.

10. Restore the SCU by entering the following input message at the 1B MTC terminal:

    RST:SCS *a***,SCU** *b***!**

    where *a* = Member number (0-7)
    b = Submember number (0-15)

    Response: `RST:SCS` *a*`, SCU` *b* `COMPL`

11. Repeat Steps 6 through 10 for each ASR-equipped SCU, beginning with the next lowest-numbered SCU.

12. When the defective Smart HUB has **no** coaxial cables connected to it, remove 110 volt power from the defective Smart HUB.

13. Physically remove the defective Smart HUB from the CDSC, being careful not to disturb the coaxial connections at the new Smart HUB.

14. Position the new replacement Smart HUB properly in the CDSC, being careful not to disturb the coaxial connections.

    Note: The coaxial connectors and T-connector must not contact one another and must not contact frame ground. (Each LAN is electrically isolated.)

15. Allow the LAN by entering the following messages:

    1. At the AAP console, enter: **INIT:AAP "LANCMD"!**

       Response: `INIT:AAP "LANCMD" completed`

    2. At the 1B MTC terminal, enter: **ALW:SCS 0,LAN!**

       Response: `ALW:SCS 0,LAN COMPL`

16. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-I - Configure

1. Verify that the CDSU-I monitor and keyboard are connected to the desired CDSU-I. If not, connect the CDSU-I monitor and keyboard to the CDSU-I (DLP-544).

   Note: If the Custom Data Services Unit-I (CDSU-I) monitor and keyboard are already connected to another CDSU-I within the same Custom Data Services Cabinet-I (CDSC-I), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-I within the same CDSC-I by entering the following at the CDSU-I keyboard:
   rlogin cds*xyyzz*

   where *x* = SCS member number (0-7)
   yy = SCU submember number (00-15)
   zz = CDSU-I number (00-04 for Phase 1 ASR)

2. At the CDSU-I keyboard, with the `console login:` prompt, enter: **root**

3. If prompted for a `Password:`, press **Enter**.

4. At the # prompt, enter: **/cdsconfig/bin/cdsu_setup**

5. At the `Service Circuit System` prompt, enter the appropriate member number (0-7).

6. At the `Service Circuit Unit` prompt, enter the appropriate SCU number (0-15).

7. At the `Custom Data Services` prompt, enter the appropriate CDSU-I number (0-4).

8. At the `T1 cable` prompt, enter the appropriate option length (1-4).

   The cable length option is determined by adding 25 feet to the total T1 cable length (in the cable rack) for the SCU/CDSU-I combination as follows:
   For length **0-133 ft.** use option **1**.
   For length **133-266 ft.** use option **2**.
   For length **266-399 ft.** use option **3**.
   For length **399-440 ft.** use option **4**.

   Response: An `Installation was Successful` message appears.

9. Verify that the correct cable option length was entered by entering the following at the CDSU-I keyboard:

   tail -1 /cdsconfig/defaults/t1length

   Response: The assigned cable option length is displayed.

10. Press **Control** **Alt** **Delete** to reboot the system.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-I - Connect CDSU Monitor and Keyboard

Note: If the Custom Data Services Unit-I (CDSU-I) monitor and keyboard are already connected to another CDSU-I within the same Custom Data Services Cabinet-I (CDSC-I), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-I within the same CDSC-I by entering the following at the CDSU-I keyboard:
rlogin cds*xyyzz*

where *x* = SCS member number (0-7)
yy = SCU submember number (00-15)
zz = CDSU-I number (00-04 for Phase 1 ASR)

1. At the rear of the CDSU-I, connect the keyboard cable to the upper connector at location A18 (see Figure 1).

2. At the rear of the CDSU-I, connect the monitor cable to the connector at location A2 (see Figure 1).

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

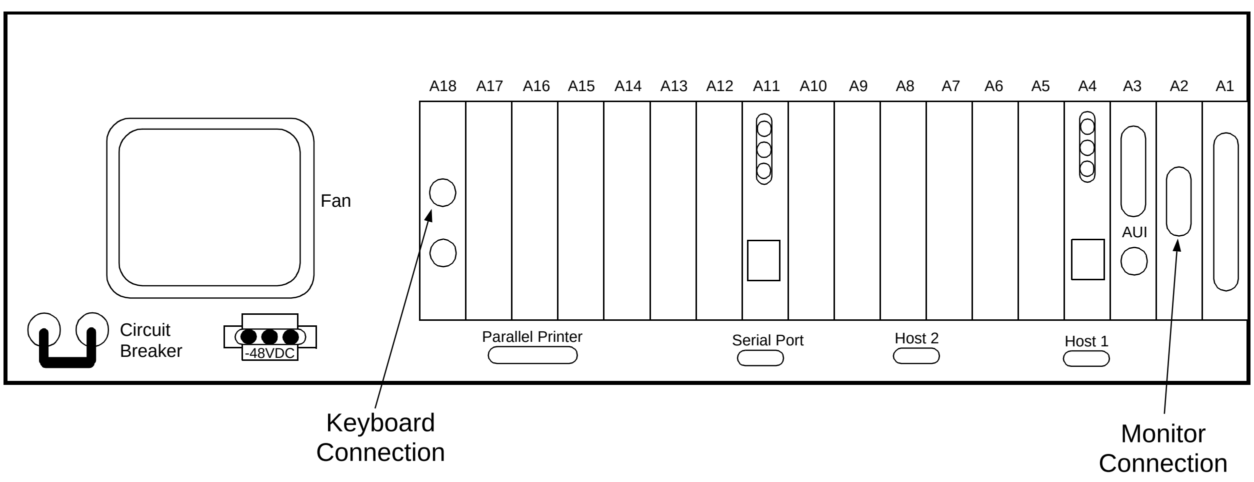


Figure 1. CDSU-I Monitor and Keyboard Connections

CDSU-I — Install CDSU-I Application Software Using Floppy Disk

Note: When installing Custom Data Services Unit-I (CDSU-I) Application software, ensure that the same software version is applied to all CDSU-Is within the Custom Data Services Cabinet-I (CDSC-I). If all associated CDSU-Is do not have the same software version, SCU/CDSU-I diagnostics will fail.

1. Verify that the CDSU-I terminal and keyboard are connected to the desired CDSU-I. If not, connect the CDSU-I terminal and keyboard to the CDSU-I (DLP-544).

   Note: If the CDSU-I monitor and keyboard are already connected to another CDSU-I within the same CDSC-I, it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-I within the same CDSC-I by entering the following at the CDSU-I keyboard:
   rlogin cds*xyyzz*

   where *x* = SCS member number (0-7)
   yy = SCU submember number (00-15)
   zz = CDSU-I number (00-04 for Phase 1 ASR)

2. At the CDSU-I keyboard, with the `console login:` prompt, enter: **root**

3. If prompted for a `Password:`, press **Enter**.

4. At the CDSU-I terminal, with the `#` prompt, enter:
   pkgadd -d diskette1 cdsu

5. At the `insert floppy disk` prompt, insert the **CDSU-I Application Software** diskette into floppy drive 1 and press **Enter**.

   Note: If more than one diskette is provided, insert Disk 1 first. You will then be prompted to insert any additional diskettes as necessary. Insert the additional diskettes when prompted to do so.

   Response: `PROCESSING` followed by various status messages ending with:
   `Installation of .... was successful`
   The `#` prompt is returned after installation is complete.
   This could take 2-4 minutes.

6. Remove the **CDSU-I Application Software** diskette from the CDSU-I floppy drive and retain for possible later use.

7. At the CDSU-I keyboard, enter **/etc/init 6** to reboot the CDSU-I.

   Note: The reboot will take 3-5 minutes. After completion, the **OUT OF SERVICE** LED will extinguish and the **UNAVAILABLE** LED will be lighted on the CDSU-I control panel.

8. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

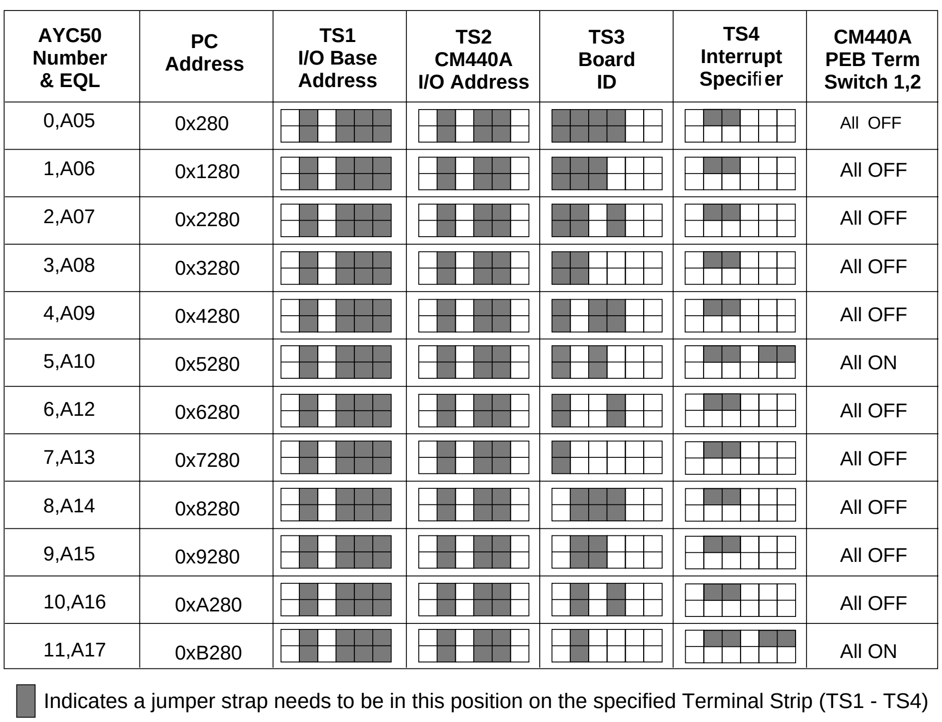
AYC50 Card - Configure

1. Based on the AYC50 number and location, use Figure 1 to determine the proper jumper strap locations for Terminal Strips 1-4 and the proper Switch 1 and 2 settings for the AYC50 currently being configured.

2. On the AYC50 card install or change the jumper straps on Terminal Strips 1-4 as necessary. Figure 2 shows the location of Terminal Strips 1-4.

3. On the AYC50/CM440A (daughter board), set Switches 1 and 2 to the correct values determined in Step 1. Figure 2 shows the location of Switches 1 and 2. (The daughter board has to be removed from the main board in order to verify switch settings.)

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**



AYC50 Number & EQL	PC Address	TS1 I/O Base Address	TS2 CM440A I/O Address	TS3 Board ID	TS4 Interrupt Specifier	CM440A PEB Term Switch 1,2
0,A05	0x280					All OFF
1,A06	0x1280					All OFF
2,A07	0x2280					All OFF
3,A08	0x3280					All OFF
4,A09	0x4280					All OFF
5,A10	0x5280					All ON
6,A12	0x6280					All OFF
7,A13	0x7280					All OFF
8,A14	0x8280					All OFF
9,A15	0x9280					All OFF
10,A16	0xA280					All OFF
11,A17	0xB280					All ON

Indicates a jumper strap needs to be in this position on the specified Terminal Strip (TS1 - TS4)

Figure 1. CDSU-I Terminal Connections

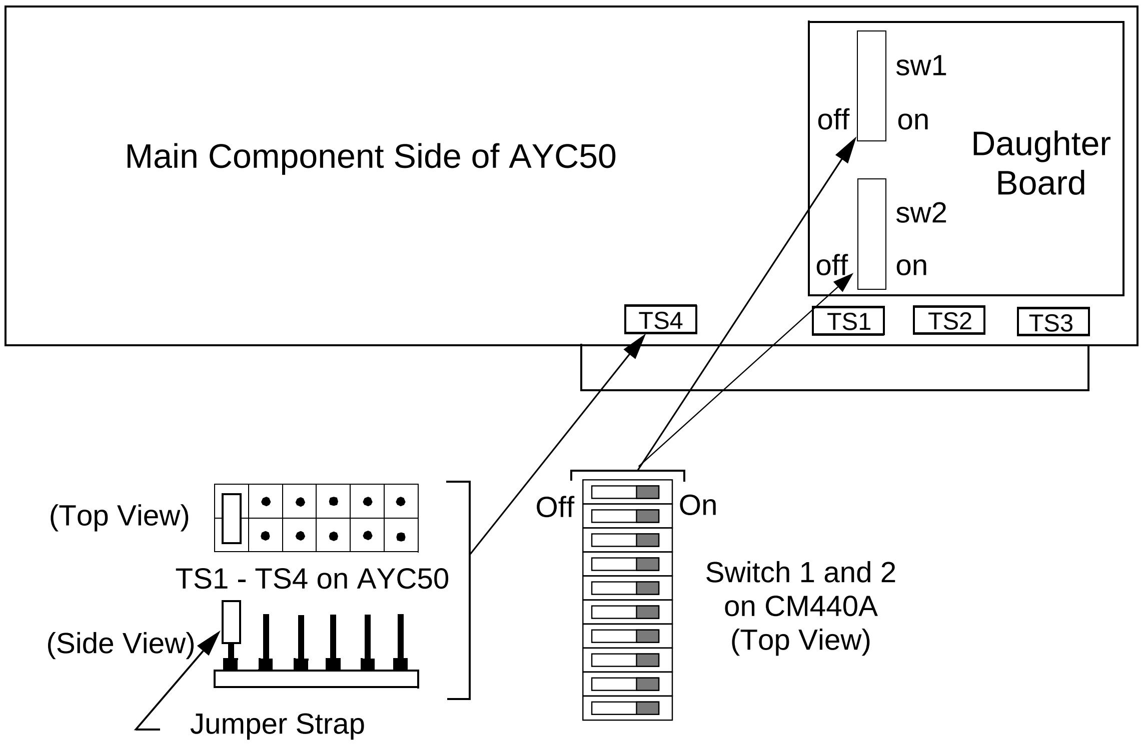


Figure 2. AYC50 Switch and Terminal Strip Locations

Replace Fan Filter in the CDSU-I

1. If the Custom Data Services Unit (CDSU-I) is not powered down, shut down the CDSU-I (DLP-537).
2. Remove power from the CDSU-I by moving the **ON/OFF** switch on the CDSU-I control panel to the OFF position.
3. Remove the 4 screws at the front of the CDSU-I that secure the CDSU-I to the frame.
4. Carefully slide the unit out far enough to access the top cover.
5. Remove the top cover from the CDSU-I.
6. Remove the cover that covers the fans and fan filter (see Figure 1).
7. Remove the fan filter from the CDSU-I and replace with a new fan filter (see Figure 2).
8. Replace the cover over the fans and fan filter.
9. Replace the top cover of the CDSU-I.
10. Slide the CDSU-I back into the frame.
11. Attach the CDSU-I to the frame with the 4 screws that were removed earlier.
12. Restore power to the CDSU-I (DLP-539).
13. Restore the associated SCU to service (DLP-524).
14. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

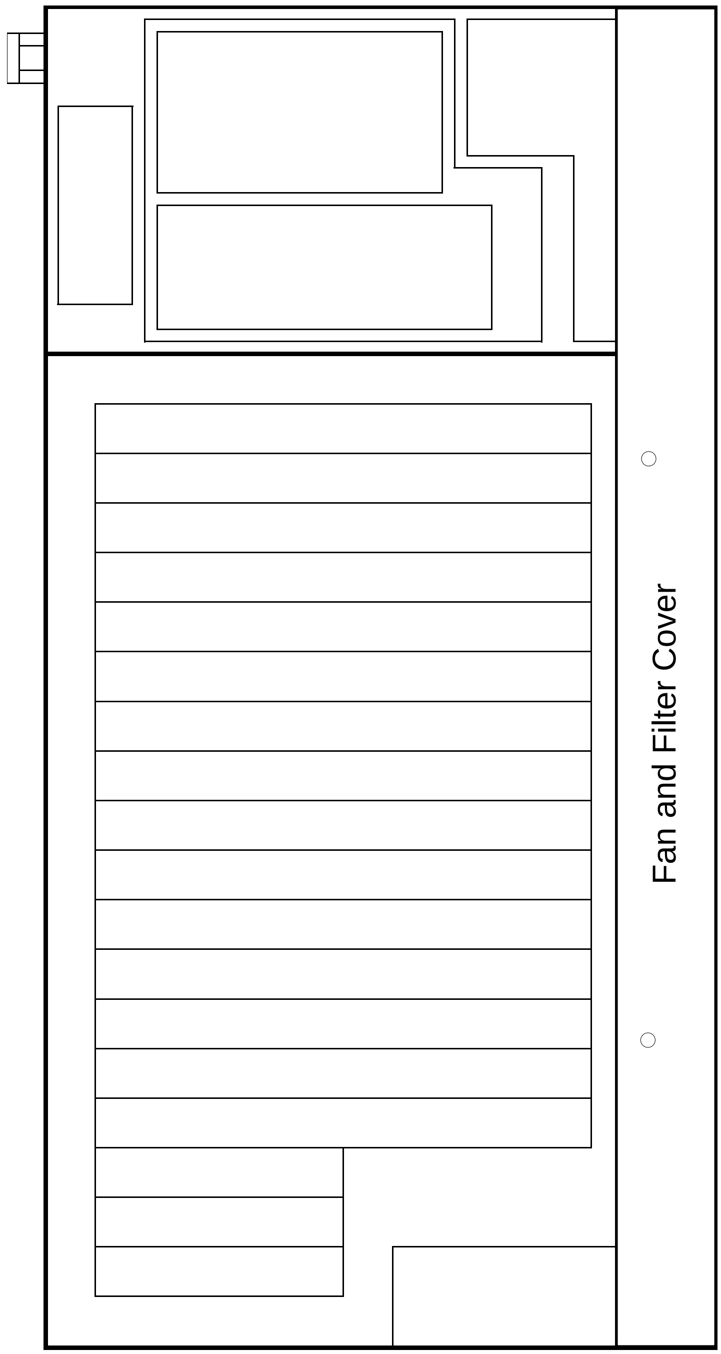


Figure 1. CDSU-I (Top View Showing Fan and Filter Cover)

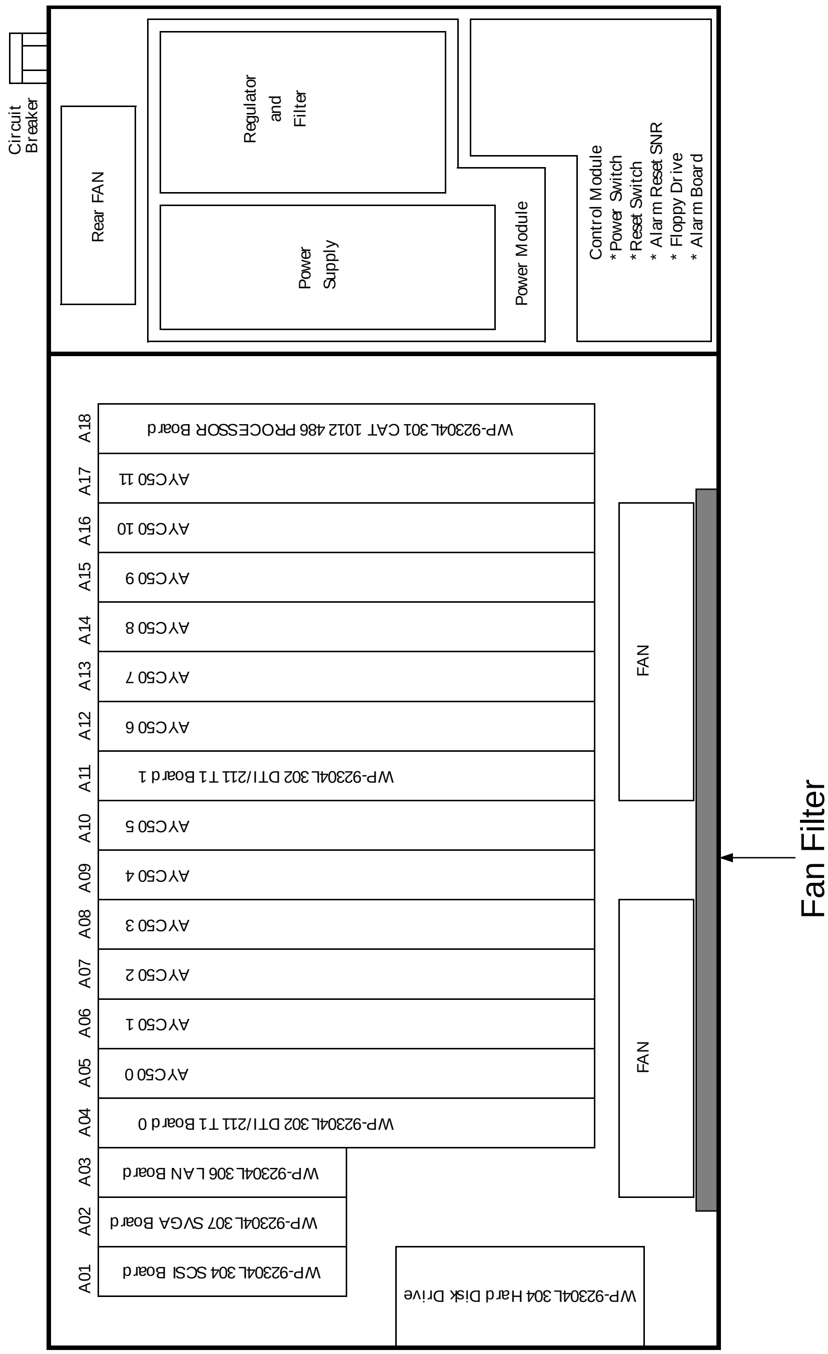


Figure 2. CDSU-I (Top View Showing Fan Filter Location)

Replace a DTI/211 Card in the CDSU-I

1. If the Custom Data Services Unit-I (CDSU-I) is not powered down, shut down the CDSU-I (DLP-537).

2. Turn the power off at the CDSU-I by moving the **ON/OFF** switch at the control panel, on the front of the CDSU-I, to the OFF position.

3. Remove the 4 screws at the front of the CDSU-I that secure the CDSU-I to the frame.

4. Carefully slide the unit out far enough to access the top cover.

5. Remove the top cover from the CDSU-I (several screws will have to be removed).

6. See WARNING. Remove the holding screw from the back of the DTI/211 card to be removed.

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-I.

7. Lift up the DTI/211 card far enough to disconnect the ribbon cable from the card and disconnect the ribbon cable from the card.

8. Remove the DTI/211 card from the CDSU-I.

9. Configure the new DTI/211 card to have the same jumper and switch settings as the old DTI/211 card that is being replaced (DLP-549).

10. At the CDSU-I, connect the ribbon cable to the new DTI/211 card.

11. Insert the new DTI/211 card into the position of the defective card.

12. Ensure that the new card is fully seated into position.

13. Replace the holding screw at the back of the DTI/211 card.

14. Replace the top cover of the SCU (replace the screws that were removed in Step 5).

15. Slide the CDSU-I back into the frame.

16. Attach the CDSU-I to the frame with the 4 screws that were removed earlier.

17. Restore power to the CDSU-I (DLP-539).

18. Restore the associated SCU to service (DLP-524).

19. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

DTI/211 Card - Configure

1. On the DTI/211 card, ensure that the remote loopback test switch (SW101) is **OFF**. When SW101 is **OFF**, the red LED next to the switch will be **OFF**. The **OFF** switch position is usually to the left or closest to the surface of the board (see Figure 1). However, the switch position may vary depending on the vintage of the DTI/211 card. For example, the movement of the switch may be in the same plane as the board instead of perpendicular to the board as shown in Figure 1. (The switch may be mounted either horizontally or vertically on the board.)

2. There are two DTI/211 cards in the CDSU-I. Ensure that the Interrupt Terminator jumper (JP2) on this DTI/211 card is set the opposite from the JP2 on the other DTI/211 card. (In each CDSU-I, one of the DTI/211 cards must have JP2 set and the other DTI/211 card must **not** have the JP2 set. [See Figure 2.])

3. Ensure that the IRQ jumper block, JP4 is set for IRQ 15. (See Figure 2.)

4. Ensure that dip switch, SW1 (see Figure 2 for location) is set correctly, depending on the DTI/211 card location:

DTI/211 Location	**SW1 Dip Switch Settings**							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
A4	On	On	Off	On	On	Off	Off	Off
A11	Off	On	Off	On	On	Off	Off	Off

5. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

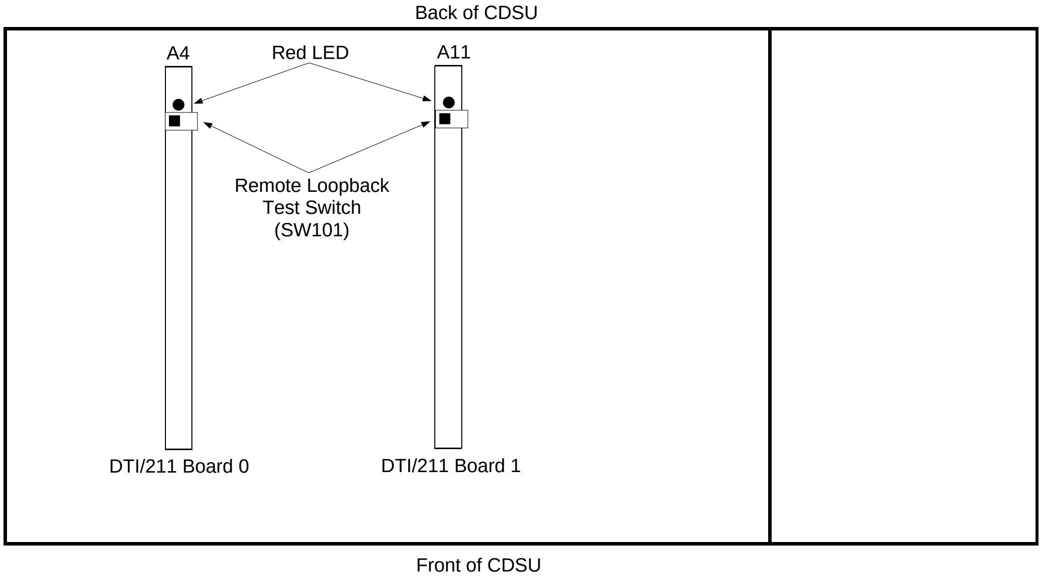


Figure 1. Location of SW101 on DTI/211 Card (Top View of CDSU-I)

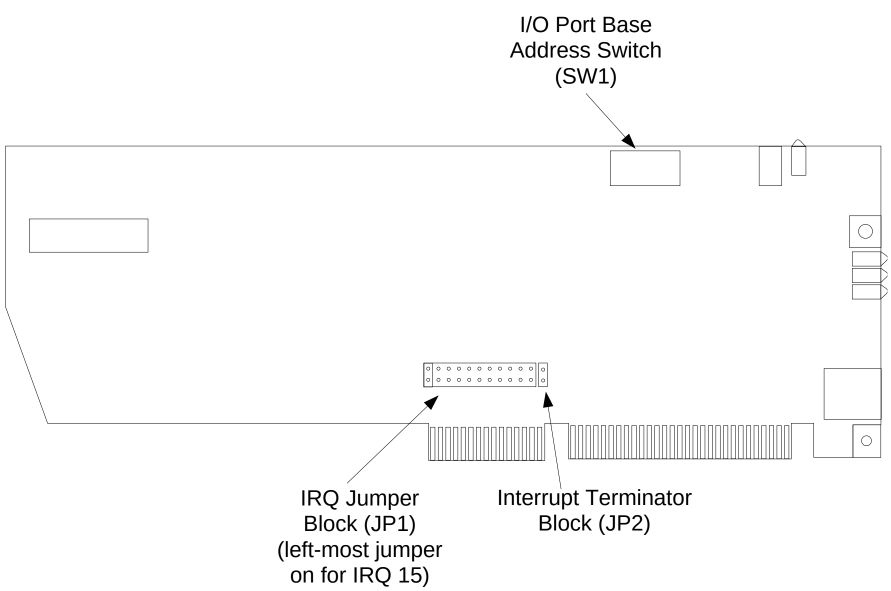


Figure 2. Location of JP1, JP2, and SW1 on DTI/211 Card

Verify CDSC Number in the SCS Unit Type Translator

1. At the 1B Maintenance (MTC) terminal, enter: **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed and printed.

   Note: The words shown in Figure 1 are in **octal** format.

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR
WORD 0 ____ ____ ____ ____
WORD 10 ____ ____ ____ ____
WORD 20 ____ ____ ____ ____
WORD 30 ____ ____ ____ ____
WORD 40 ____ ____ ____ ____
WORD 50 ____ ____ ____ ____
WORD 60 ____ ____ ____ ____
WORD 70 ____ ____ ____ ____
WORD 100 ____ ____ ____ ____
WORD 110 ____ ____ ____ ____
WORD 120 ____ ____ ____ ____
WORD 130 ____ ____ ____ ____
WORD 140 ____ ____ ____ ____

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. The SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

   If **YES**, continue with Step 3.
   If **NO**, determine and resolve the cause, and repeat from Step 1.

3. Looking at the Unit Type (UT) translator printout, use Figure 2 to determine the Custom Data Services Cabinet (CDSC) number assigned to the desired CDSC. The CDSC number is determined by bits 0 through 5 of the appropriate word.

4. Is the value in the UT translator output correct?

   If **YES**, go to Step 6.

   If **NO**, continue to Step 5.

5. Using DLP-515 in TOP 234-153-060AC, perform a functional word change.

   Note: Depending on local procedures, supervisory or Telephone Company (TELCO) engineering approval must be obtained prior to performing any data change.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

WORD:	30	35	42	47	54	61	66	73	100	105	112	117	124	131	136	143
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Entry Data Octal Output	0			0			0			0			0			0			Y			Y		
Bit Position	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary Values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	X	Z	Z	Z	Z	Z	Z
																ASR CDSU HARDWARE VERSION			ASR CDSC NUMBER					

X . . . X = ASR CDSU Hardware Version Number (0-7)   Z . . . Z = ASR CDSC Number (0-63)

Figure 2. Unit Type Translator Words Used to Verify CDSC Number

Verify Custom Data Services Cabinet (CDSC) Grid Lineup Frame (GLF) Number

1. At the 1B Maintenance (MTC) terminal, enter **VER:UTYPE:SCS** *x***!**

   where *x* = Member Number (0-7)

   Response: The information shown in Figure 1 is displayed.

   Note: The words shown in Figure 1 are in **octal** format.

VER:UTMN;OPT(),CUR: **FLN** *a* **UTYN** *b*

MEMN *c* **ME** *d*
ENTRY ADDRESS *e* **ENTRY SIZE** *f*

CUR
WORD 0 ______ ______ ______ ______
______ ______ ______ ______
WORD 10 ______ ______ ______ ______
______ ______ ______ ______
WORD 20 ______ ______ ______ ______
______ ______ ______ ______
WORD 30 ______ ______ ______ ______
______ ______ ______ ______
WORD 40 ______ ______ ______ ______
______ ______ ______ ______
WORD 50 ______ ______ ______ ______
______ ______ ______ ______
WORD 60 ______ ______ ______ ______
______ ______ ______ ______
WORD 70 ______ ______ ______ ______
______ ______ ______ ______
WORD 100 ______ ______ ______ ______
______ ______ ______ ______
WORD 110 ______ ______ ______ ______
______ ______ ______ ______
WORD 120 ______ ______ ______ ______
______ ______ ______ ______
WORD 130 ______ ______ ______ ______
______ ______ ______ ______
WORD 140 ______ ______ ______ ______

a **= Floor location number**
b **= Unit type name**
c **= Member number of growth associated complex**
d **= Member equipage**
e **= 8-digit entry address**
f **= 2-digit entry size**

Figure 1. SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

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

   If **NO**, determine and resolve the cause and repeat from Step 1.

3. Verify that the GLF word in the Unit Type (UT) translator (Figure 1) is correct for the appropriate SCU/CDSC. Figure 2 shows the layout of the GLF word for each SCU.

   If the **GLF is correct**, go to Step 18.

   If the **GLF is not correct**, continue to the next step.

WORD:	27	34	41	46	53	60	65	72	77	104	111	116	123	130	135	142
ASSOCIATED SCU:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

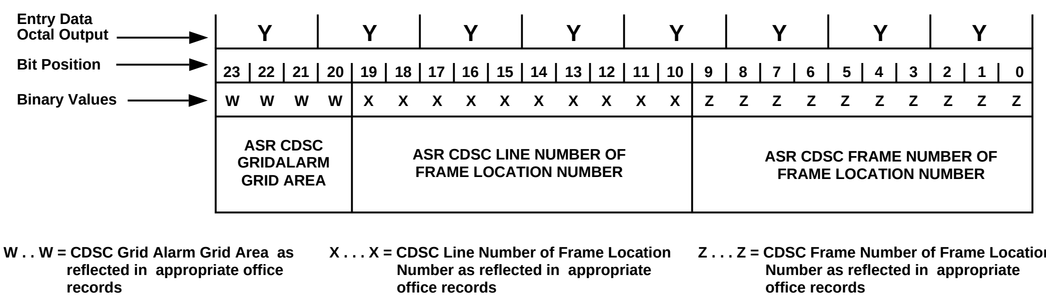


Figure 2. GLF Word in Unit Type Translator

4. At the RC/V terminal, enter: **OP:RCFORM 801!**

   Response: Recent Change Form 801 appears on the screen.

5. At `RC:FUNC;CHG;OPT(TRANS)`, enter **FTA**.

6. At `TRANSID`, enter **UTSCS**.

7. At `ORNU`, enter a unique Order Number assigned to this word change.

8. At `ENTRY`, enter the SCS Member Number requiring change (only 0-3 are valid).

9. At `WORDNO`, enter the decimal number of the appropriate SCU word in translations:

SCU	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Decimal Word	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93	98

10. At `SIZE`, enter **24**.

11. At `DISP`, enter **0**.

12. At `BINOCT`, enter **O**.

13. At `NEWDATA`, enter the correct 8-digit octal GLF number.

14. At `OLDDATA`, enter the existing 8-digit octal GLF number (from the UT translator)

15. If no `REMARKS` are needed, return the cursor to the top of the form by pressing **HOME**.

16. Press **SEND/ ENTER**

    Response: `RC ORNU` *a* `ACTIVATED` followed by all new entries.

    where *a* = RC Order Number

    Note: All entries should be checked for accuracy. If any entries are found to be incorrect, repeat Steps 4 through 16.

17. Return to Step 1 to verify that the newly entered GLF is correct.

18. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Inter-SCU Disk Copy

Summary: This procedure is used to perform an inter-SCU disk copy. However, even though an inter-SCU disk copy is being done, the copy is not directly from one SCU to another SCU. In this procedure, a good disk associated with one SCU (referred to as the "source" SCU) is manually removed from the source SCU and inserted at another SCU (referred to as the "destination" SCU). This good disk that was inserted at the destination SCU is then used to perform an **intra-SCU** disk copy in order to update the destination SCU. The original good disk is then returned to the source SCU. This procedure should only be used to copy announcements between the same type disk pairs.

1. Using Figure 1 (SCC Cabinet) and/or Figure 2 (SCU Cabinet), determine the location of the source/destination SCUs and their associated disk pair(s).

2. At the destination SCUs, remove the destination SCU from service by toggling the **ROS** switch on the TN1984 circuit pack from **NORMAL** to **ROS**. When the **OS** lamp goes on, perform a Soft Initialization (TYP 1) on the disk pair associated with the SCU by entering the following messages at the 1B MTC terminal:

   A. **INIT:SCS** *a*,**SCU** *b*,**DSK** *c*,**BUS 0,TYP 1!**

      where *a* = SCS Number (0-7)
      b = SCU Number (0-15)
      c = SCU Disk Pair Number (0-1)

      Response: `INIT:SCS` *a*, `SCU` *b* `COMPLETE`

   B. **INIT:SCS** *a*,**SCU** *b*,**DSK** *c*,**BUS 1,TYP 1!**

      where *a* = SCS Number (0-7)
      b = SCU Number (0-15)
      c = SCU Disk Pair Number (0-1)

      Response: `INIT:SCS` *a*, `SCU` *b* `COMPLETE`

   Note: If the disk pair associated with the SCU is made up of TN4000 circuit packs, each of the above commands needs to be input twice (once for each disk in the TN4000). Thus, a total of four INITs is required. For example, at a disk pair 0 location, INITs are required for the following combinations:

   - DSK 0, BUS 0
   - DSK 0, BUS 1
   - DSK 1, BUS 0
   - DSK 1, BUS 1

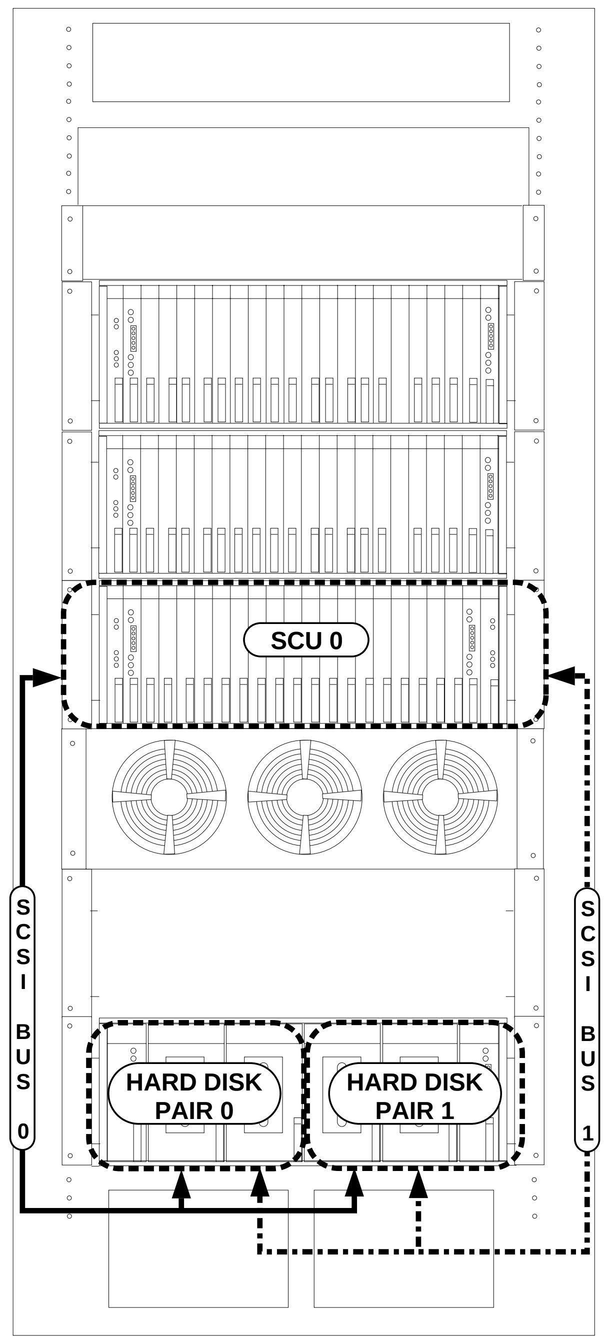


Figure 1. SCU, Associated Disk Pairs, and Bus Connections in the SCC Cabinet

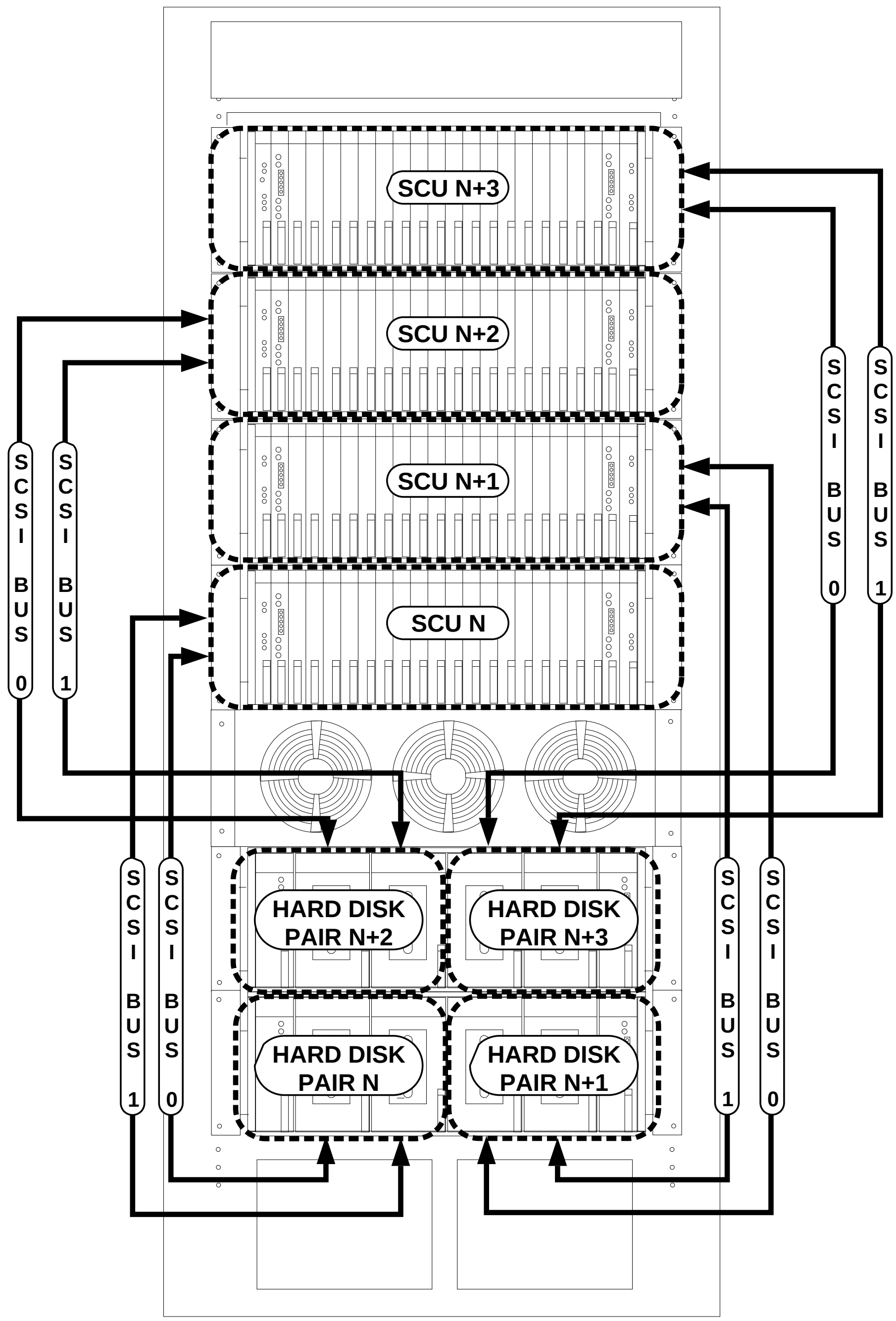


Figure 2. SCUs, Associated Disk Pairs, and Bus Connections in the SCU Cabinet

3. At the source SCUs, remove the source SCU from service by toggling the **ROS** switch on the TN1984 circuit pack from **NORMAL** to **ROS**. When the **OS** lamp goes on, continue to the next step.

4. Power-down the disk pair(s) associated with the **source** SCUs by pressing the "OFF" button on the Disk Power Controller (DPC) UN356 circuit pack(s) associated with the disk pair(s).

5. Power-down the disk pair(s) associated with the **destination** SCUs by pressing the "OFF" button on the DPC UN356 circuit pack(s) associated with the disk pair(s).

6. Power-down the **source** SCU by pressing the "OFF" button on the SCU's Master Power Controller MPC TN1984 circuit pack.

7. Power-down the **destination** SCU by pressing the "OFF" button on the SCU's MPC TN1984 circuit pack.

8. Following all existing electrostatic discharge practices, remove the destination SCU's Bus 0 hard disk circuit pack. (See Figure 1 or 2 to determine the Bus 0 hard disk circuit pack location.) Set this pack aside for later use.

9. Following all existing electrostatic discharge practices, remove the source SCU's Bus 0 hard disk circuit pack. (See Figure 1 or 2 to determine the Bus 0 hard disk circuit pack location.)

10. Following all existing electrostatic discharge practices, install the hard disk circuit pack that contains the announcements (the one that was removed at the source SCU in Step 9) at the empty Bus 0 location of the destination SCU. (The hard disk circuit pack that contains the announcements replaces the hard disk circuit pack that was removed in the Step 8.)

11. At the destination SCU, power-up the SCU and associated disk pair(s).

    A. At the associated disk pair(s), press the "ON" button to power the DPC UN356 circuit pack.

       Note: Wait at least 60 seconds before proceeding with Step B. This allows the disk drives to spin up to operational speed.

    B. At the SCU, press the "ON" button to power the MPC TN1984 circuit pack.

12. Hard disk type being copied a TN1672/TN1972/TN9000 or TN4000?

    If **TN1672/TN1972/TN9000**, continue to Step 13.

    If **TN4000**, go to Step 14.

13. At the 1B MTC terminal, do a mirrored disk copy from the destination SCU's Bus 0 to Bus 1 by entering:

    COPY:SCS *a*,SCU *b*,SDP *c*,BUS 0!

    where *a* = Member Number (0-7)
    b = SCU Number (0-15)
    c = SCU Disk Pair (0-1 for SCU 0, or 0 for SCUs 1-15)

    Response: `COPY:SCS` *a* `COMPLETED`

    Note: This disk copy can take over an hour for the TN9000. The time varies depending on the size of the disk being copied. An `IN PROGRESS` message will be displayed every 5 minutes during the copy.

    When the above response is received, **continue to Step 15**.

14. At the 1B MTC terminal, do a mirrored disk copy from the destination SCU's Bus 0 to Bus 1 by entering the following two messages:

    A. **COPY:SCS *a*,SCU *b*,SDP 0,BUS 0!**

       where *a* = Member Number (0-7)
       b = SCU Number (1-15)

       Response: `COPY:SCS` *a* `COMPLETED`

    B. **COPY:SCS *a*,SCU *b*,SDP 1,BUS 0!**

       where *a* = Member Number (0-7)
       b = SCU Number (1-15)

       Response: `COPY:SCS` *a* `COMPLETED`

    Note: Each of the above disk copies will take approximately 25 minutes for a TN1972 and over an hour for a TN9000. An `IN PROGRESS` message will be displayed every 5 minutes during the copy.

15. Power-down the disk pair associated with the destination SCU by pressing the "OFF" button on the DPC UN356 circuit pack associated with the disk pair.

16. Power-down the destination SCU by pressing the "OFF" button on the SCU’s TN1984 circuit pack.

17. Following all existing electrostatic discharge practices, remove the destination SCU’s Bus 0 hard disk circuit pack (the one that was installed in Step 10), and reinstall this hard disk circuit pack back into the Bus 0 location of the source SCU.

18. Power-up the source SCU and associated disk pair(s).

    A. At the associated disk pair(s), press the "ON" button on the DPC UN356 circuit pack, to power down the disk pair.

        Note: Wait at least 60 seconds before proceeding with Step B. This allows the disk drives to spin up to operational speed.

    B. At the SCU, press the "ON" button on the TN1984 circuit pack to power down the SCU.

19. At the source SCU, restore the SCU to service by toggling the **ROS** switch on the TN1984 circuit pack from **ROS** to **NORMAL**.

    Response: The source SCU will be diagnosed and returned to service.

20. Following all existing electrostatic discharge practices, install the hard disk circuit pack that was removed in Step 8 back onto Bus 0 of the destination SCU.

21. Power-up the destination SCU and associated disk pair(s).

    A. At the associated disk pair(s), press the "ON" button on the DPC UN356 circuit pack, to power down the disk pair.

        Note: Wait at least 60 seconds before proceeding with Step B. This allows the disk drives to spin up to operational speed. If a TN1672/TN1972/TN9000 circuit pack is used, an alarm LED on the TN1672/TN1972/TN9000 circuit pack will light (this LED will extinguish after Step 23 is complete).

B. At the SCU, press the "ON" button on the TN1984 circuit pack to power down the SCU.

C. Ensure that the destination SCU is in the ROS state (the **ROS** switch is in the **ROS** position).

22. Hard disk type being copied a TN1672/TN1972/TN9000 or TN4000?

If **TN1672/TN1972/TN9000**, continue to Step 23.

If **TN4000**, go to Step 24.

23. At the 1B MTC terminal, do a mirrored disk copy from the destination SCU's Bus 1 to Bus 0 by entering:

COPY:SCS *a***,SCU** *b***,SDP** *c***,BUS 1!**

where *a* = Member Number (0-7)
b = SCU Number (0-15)
c = SCU Disk Pair (0-1 for SCU 0, or 0 for SCUs 1-15)

Response: `COPY:SCS` *a* `COMPLETED`

> ***Note:*** This disk copy can take over an hour for the TN9000. The time varies depending on the size of the disk being copied. An `IN PROGRESS` message will be displayed every 5 minutes during the copy.

When the above response is received, **continue to Step 25**.

24. At the 1B MTC terminal, do a mirrored disk copy from the destination SCU's Bus 1 to Bus 0 by entering the following two messages:

A. **COPY:SCS** *a***,SCU** *b***,SDP 0,BUS 1!**

where *a* = Member Number (0-7)
b = SCU Number (0-15)

Response: `COPY:SCS` *a* `COMPLETED`

B. **COPY:SCS** *a***,SCU** *b***,SDP 1,BUS 1!**

where *a* = Member Number (0-7)
b = SCU Number (0-15)

25. At the destination SCU, restore the SCU to service by toggling the **ROS** switch on the TN1984 circuit pack from **ROS** to **NORMAL**.

    Response: The appropriate SCU will be diagnosed and returned to service.

26. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace a BYC51 Card in the CDSU-II

1. If the Custom Data Services Unit-II (CDSU-II) is not powered down, shut down the CDSU-II (DLP-556).

2. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

3. Remove the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

4. Carefully slide the unit out far enough to access the large top cover.

5. Remove the large top cover from the CDSU-II.

6. See WARNING. Remove the ribbon cable that is connected to the BYC51 card to be removed. (It may also be necessary to remove the ribbon cable from other cards in order to remove the desired BYC51 card.)

    WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-II.

7. Remove the hold-down bar that stretches across the top of the circuit packs by removing the screw at the end of the bar and lifting the bar.

8. Remove the holding screw from the back of the BYC51 card to be removed.

9. See WARNING. Lift up and remove the BYC51 card.

    WARNING: The BYC51 card has 3 fan sinks (heat sinks with fans inside) mounted on the board. When handling the BYC51 card, do not touch these fan sinks. The fan sinks can become detached from the card if handled. In the event that a fan sink should become detached from the BYC51 card, return the BYC51 card to the factory for repair. Do not attempt to re-attach the fan sink to the board.

10. Configure the new BYC51 card (DLP-561).

11. Insert the new BYC51 card into the position of the defective card.

12. Ensure that the new card is fully seated into position.

13. Replace the holding screw at the back of the BYC51 card.

14. Replace the hold-down bar across the top of the circuit packs.

15. Reconnect the ribbon cable that was removed from the defective pack. (Be sure to also connect the ribbon cable to any other card from which it was disconnected.)

16. Replace the large top cover of the CDSU-II.

17. Slide the CDSU-II back into the frame.

18. Attach the CDSU-II to the frame with the 4 screws that were removed earlier.

19. Restore power to the CDSU-II (DLP-558).

20. Restore the associated SCU to service (DLP-524).

21. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace an AYC52 Card in the CDSU-II

1. If the Custom Data Services Unit-II (CDSU-II) is not powered down, shut down the CDSU-II (DLP-556).

2. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

3. Disconnect the T1 cable from the AYC52 card at the rear of the CDSU-II.

4. Remove the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

5. Carefully slide the unit out far enough to access the large top cover.

6. Remove the large top cover from the CDSU-II.

7. See WARNING. Remove the ribbon cable that is connected to the AYC52 card to be removed. (It may also be necessary to remove the ribbon cable from other cards in order to remove the desired AYC52 card.)

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-II.

8. Remove the hold-down bar that stretches across the top of the circuit packs by removing the screw at the end of the bar and lifting the bar.

9. Remove the holding screw from the back of the AYC52 card to be removed.

10. Lift up and remove the AYC52 card.

11. Configure the new AYC52 card (DLP-562).

12. Insert the new AYC52 card into the position of the defective card.

13. Ensure that the new card is fully seated into position.

14. Replace the holding screw at the back of the AYC52 card.

15. Replace the hold-down bar across the top of the circuit packs.

16. Reconnect the ribbon cable that was removed from the defective pack. (Be sure to also connect the ribbon cable to any other card from which it was disconnected.)

17. Replace the large top cover of the CDSU-II.

18. Slide the CDSU-II back into the frame.

19. Attach the CDSU-II to the frame with the 4 screws that were removed earlier.

20. Reconnect the T1 cable to the AYC52 card at the rear of the CDSU-II.

21. Restore power to the CDSU-II (DLP-558).

22. Restore the associated SCU to service (DLP-524).

23. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace an AYC53 Card in the CDSU-II

1. If the Custom Data Services Unit-II (CDSU-II) is not powered down, shut down the CDSU-II (DLP-556).

2. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

3. Remove the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

4. Carefully slide the unit out far enough to access the large top cover.

5. Remove the large top cover from the CDSU-II.

6. See WARNING. Remove the ribbon cable that is connected to the AYC53 card to be removed. (It may also be necessary to remove the ribbon cable from other cards in order to remove the desired AYC53 card.)

   WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-II.

7. Remove the hold-down bar that stretches across the top of the circuit packs by removing the screw at the end of the bar and lifting the bar.

8. Remove the holding screw from the back of the AYC53 card to be removed.

9. Lift up and remove the AYC53 card.

10. Configure the new AYC53 card (DLP-563).

11. Insert the new AYC53 card into the position of the defective card.

12. Ensure that the new card is fully seated into position.

13. Replace the holding screw at the back of the AYC53 card.

14. Replace the hold-down bar across the top of the circuit packs.

15. Reconnect the ribbon cable that was removed from the defective pack. (Be sure to also connect the ribbon cable to any other card from which it was disconnected.)

16. Replace the large top cover of the CDSU-II.

17. Slide the CDSU-II back into the frame.

18. Attach the CDSU-II to the frame with the 4 screws that were removed earlier.

19. Restore power to the CDSU-II (DLP-558).

20. Restore the associated SCU to service (DLP-524).

21. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-II — Shutdown

1. Verify that the SCU associated with the CDSU-II is out of service. If it is not out of service, remove the SCU from service (DLP-510).

2. If the CDSU-II monitor and keyboard are not connected to the CDSU-II, connect them (DLP-560).

   Note: If the CDSU-II monitor and keyboard are already connected to another CDSU-II within the same Custom Data Services Cabinet-II (CDSC-II), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-II within the same CDSC-II by entering the following at the CDSU-II keyboard: **rlogin cds***xyyzz*

   where *x* = SCS member number (0-7)
   yy = SCU member number (00-15)
   zz = CDSU-II number (00-03)

3. At the `console login:` prompt, enter: **root**

4. At the CDSU-II keyboard, connected to the CDSU-II, enter:

   /etc/init 0

   followed by (optional):

   exit

   Response: The `system is down` message is displayed on the monitor after a slight delay.

5. Power can now be removed from the CDSU-II, if desired (DLP-558).

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace a Custom Data Services Unit-II (CDSU-II)

1. Shut down the CDSU-II (DLP-556).

2. Remove power from the CDSU-II by moving the **ON/OFF** switch on the CDSU-II control panel (Figure 1) to the OFF position.

   Response: All CDSU-II control panel LEDs extinguish, indicating that power has been removed from the CDSU-II.

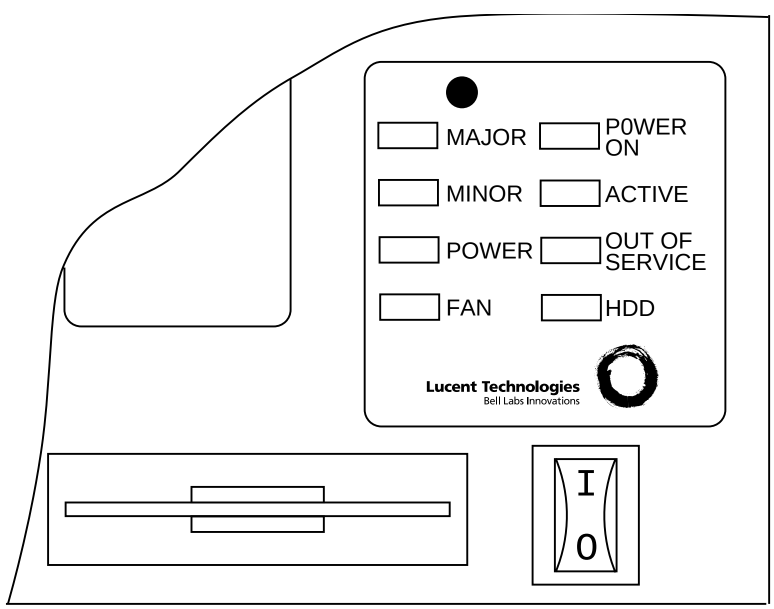


Figure 1. The CDSU-II Control Panel

3. Disconnect the following cables from the rear of the CDSU-II (Figure 2):
   - Power cable
   - T1 cables (location E2)
   - LAN connector (location E14)
   - Keyboard cable, if connected
   - CDSU-II Terminal cable, if connected
   - Alarm cables.

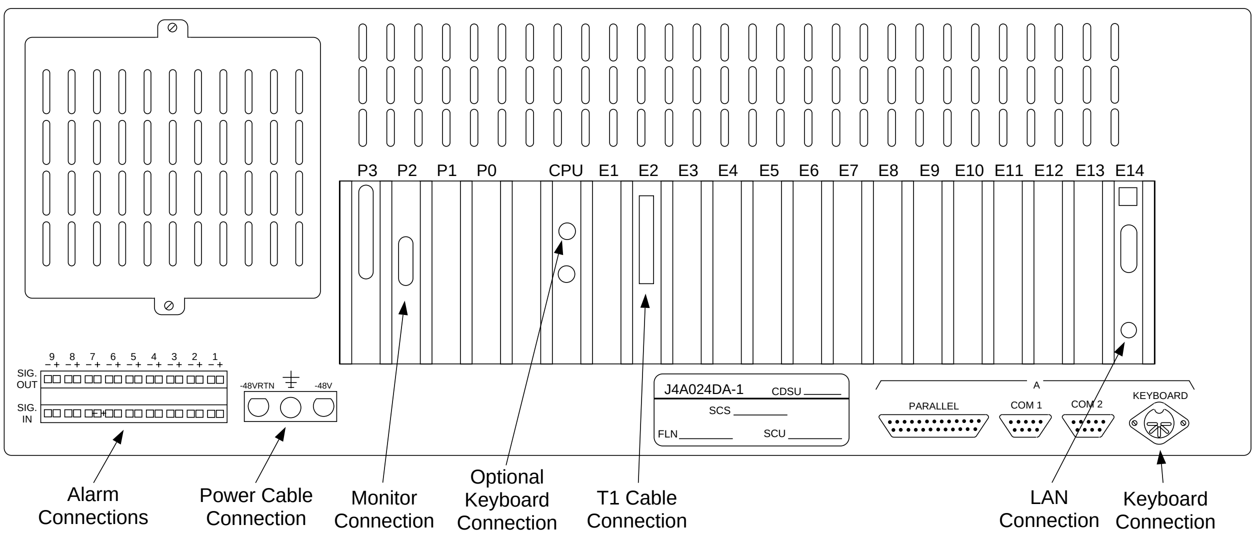


Figure 2. CDSU-II Rear View

4. Remove and save the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

5. Carefully slide the unit out until it is stopped by the slide mechanism.

6. Disconnect the cable arm at the rear of the CDSU-II by pulling up and removing the cable arm release pin. Save this pin for re-installation.

7. Facing the front of the cabinet, with one hand on either side of the CDSU-II, press in on the slide release mechanisms (one on each side of the CDSU-II) and slide the unit out to remove it from the cabinet. Place the CDSU-II on a work table.

   Note: Because of the bulk and weight of the CDSU-II, the person performing this step should obtain assistance from another person for removal of the CDSU-II.

8. Remove the top cover from the replacement CDSU-II.

9. Is the replacement CDSU-II equipped with BYC51, AYC52, and AYC53 circuit packs (Figure 3)?

   If **YES**, replace the top cover of the replacement CDSU-II and go to Step 13.

   If **NO**, go to Step 10.

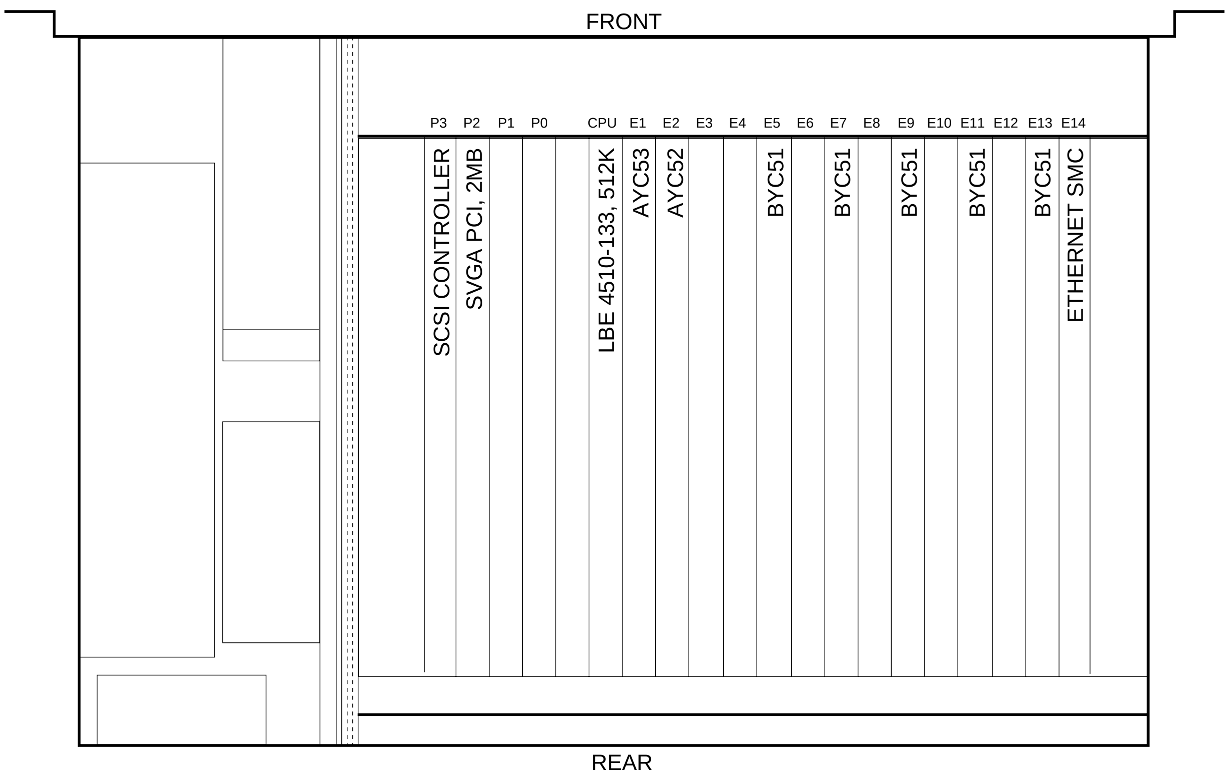


Figure 3. CDSU-II Circuit Pack Locations (Top View)

10. Remove the top cover from the CDSU-II that was removed from the cabinet.

11. Complete the following steps to move the BYC51, AYC52, and AYC53 cards from the old CDSU-II to the new CDSU-II.

    A. At the old CDSU-II, disconnect the ribbon cables connected to the BYC51, AYC52, and AYC53 cards to be removed.

    B. See WARNING. One at a time, remove the holding screw from each BYC51, AYC52, and AYC53 card, lift up and remove the card, and install the card in the same location in the new CDSU-II.

       Ensure that each new card is fully seated into position, and replace the holding screw at the back of each card.

       WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards from the CDSU-II.

    C. At the new CDSU-II, connect the ribbon cables to the BYC51, AYC52, and AYC53 cards in the same positions they were removed from in the old CDSU-II.

12. Attach the top cover to the new CDSU-II.

13. Slide the new CDSU-II into the cabinet until it locks into position. (It is recommended that two people perform this function.)

14. Reconnect the cable arm at the rear of the CDSU-II by re-inserting the pin that was removed in Step 6.

15. Slide the CDSU-II the rest of the way into the cabinet.

16. Reconnect the cables (with the exception of the LAN cable) that were removed in Step 3. The LAN cable will be reconnected later.

17. Insert the 4 screws at the front of the CDSU-II to secure the CDSU-II to the frame.

18. Restore power to the CDSU-II by moving the **ON/OFF** switch on the CDSU-II control panel (Figure 1) to the ON position.

    Response: The **POWER** LED lights, indicating that power has been restored to the CDSU-II. Also, the **OUT OF SERVICE** LED will light. When the SCU associated with the CDSU-II is restored to service and the LAN connection to the SCU is complete, the **ACTIVE** LED will light.

    Also, if the CDSU-II terminal is connected, status information is provided during the reboot (power-up). Upon completion of the reboot, the `Console Login:` prompt is displayed.

19. Configure the CDSU-II (DLP-559).

20. Reconnect the LAN cable that was removed in Step 3.

21. Determine the latest CDSU BWM by getting a BWM status report (DLP-570). Then apply that BWM (DLP-571).

    Note: Reapplying the last BWM loads software.

22. At the 1B MTC terminal, diagnose the CDSU-II by entering:

    DGN:SCS *a***,SCU** *b***:PH 17!**

    where *a* = SCS member number (0-7)
    b = Associated SCU number (0-15)

    Note: Any other CDSU-II assigned to the same SCU will also be diagnosed. Phase 17 diagnostics will take approximately 2 minutes per CDSU-II.

    Response: The screen returns output messages with `ATP`.

23. Restore the associated SCU to service (DLP-524).

24. Stamp the new CDSU-II label with the appropriate information (same as the old CDSU-II).

25. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Removing and Restoring Power From a Custom Data Services Unit-II (CDSU-II)

1. Is power being removed or restored?

   If power is being **removed**, continue to Step 2.
   If power is being **restored**, go to Step 5.

2. If the CDSU-II has not already been shut down, shut down the CDSU-II (DLP-556). Otherwise, continue to Step 3.

3. Remove power from the CDSU-II by moving the **ON/OFF** switch on the CDSU-II control panel (see Figure 1) to the OFF position.

   Response: All CDSU-II control panel LEDs extinguish, indicating that power has been removed from the CDSU-II.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

5. Restore power to the CDSU-II by moving the **ON/OFF** switch on the CDSU-II control panel to the ON position.

   Response: The **POWER ON** LED lights, indicating that power has been restored to the CDSU-II. Also, the **OUT OF SERVICE** LED will light. When the SCU associated with the CDSU-II is restored to service and the LAN connection to the SCU is complete, the **ACTIVE** LED will light.

   Also, if the CDSU-II terminal is connected, status information is provided during the reboot (power-up). Upon completion of the reboot, the `Console Login:` prompt is displayed.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

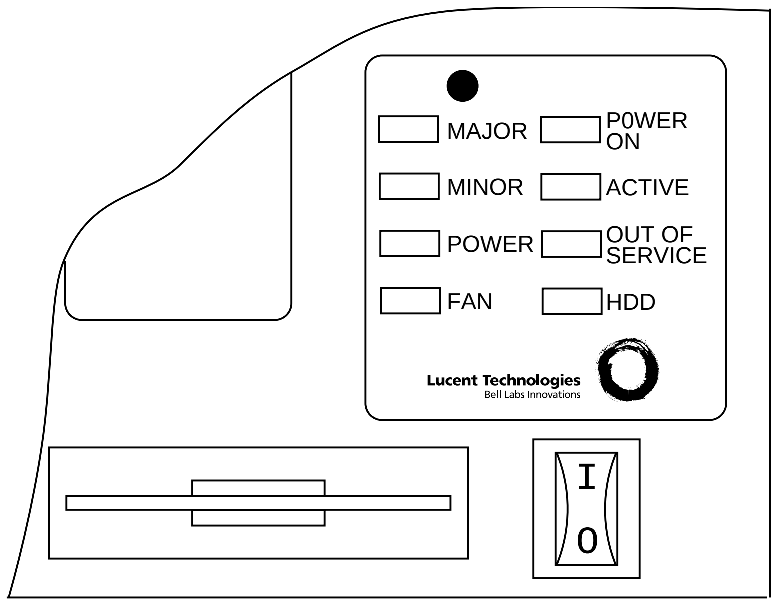


Figure 1. The CDSU-II Control Panel

CDSU-II - Configure

1. Verify that the CDSU-II monitor and keyboard are connected to the desired CDSU-II. If not, connect the CDSU-II monitor and keyboard to the CDSU-II (DLP-560).

   Note: If the Custom Data Services Unit-II (CDSU-II) monitor and keyboard are already connected to another CDSU-II within the same Custom Data Services Cabinet-II (CDSC-II), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-II within the same CDSC-II by entering the following at the CDSU-II keyboard:
   rlogin cds*xyyzz*

   where *x* = SCS member number (0-7)
   yy = SCU submember number (00-15)
   zz = CDSU-II number (00-03)

2. At the CDSU-II keyboard, with the `console login:` prompt, enter: **root**

3. If prompted for a `Password:`, press **Enter**.

4. At the # prompt, enter: **/cdsconfig/bin/cdsu_setup**

5. At the `Service Circuit System` prompt, enter the appropriate member number (0-7).

6. At the `Service Circuit Unit` prompt, enter the appropriate SCU number (0-15).

7. At the `Custom Data Services` prompt, enter the appropriate CDSU-II number (0-3).

8. At the `T1 cable` prompt, enter the appropriate option length (1-2).

   The cable length option is determined by adding 25 feet to the total T1 cable length (in the cable rack) for the SCU/CDSU-II combination as follows:
   For length **0-220 ft.**, use option **1**.
   For length **220-440 ft.**, use option **2**.

   Response: An `Installation was Successful` message appears.

9. Verify that the correct cable option length was entered by entering the following at the CDSU-II keyboard:

   tail -1 /cdsconfig/defaults/t1length

   Response: The assigned cable option length is displayed.

10. Press **Control** **Alt** **Delete** to reboot the system.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

CDSU-II - Connect CDSU Monitor and Keyboard

Note: If the Custom Data Services Unit-II (CDSU-II) monitor and keyboard are already connected to another CDSU-II within the same Custom Data Services Cabinet-II (CDSC-II), it is not necessary to move the monitor and keyboard. You can log in remotely to any CDSU-II within the same CDSC-II by entering the following at the CDSU-II keyboard:
rlogin cds*xyyzz*

where *x* = SCS member number (0-7)
yy = SCU submember number (00-15)
zz = CDSU-II number (00-03)

1. At the rear of the CDSU-II, connect the keyboard cable to the keyboard connector (see Figure 1).

    Note: There is an optional keyboard connector located on the CPU board. Either connector can be used.

2. At the rear of the CDSU-II, connect the monitor cable to the connector at location P2 (see Figure 1).

3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

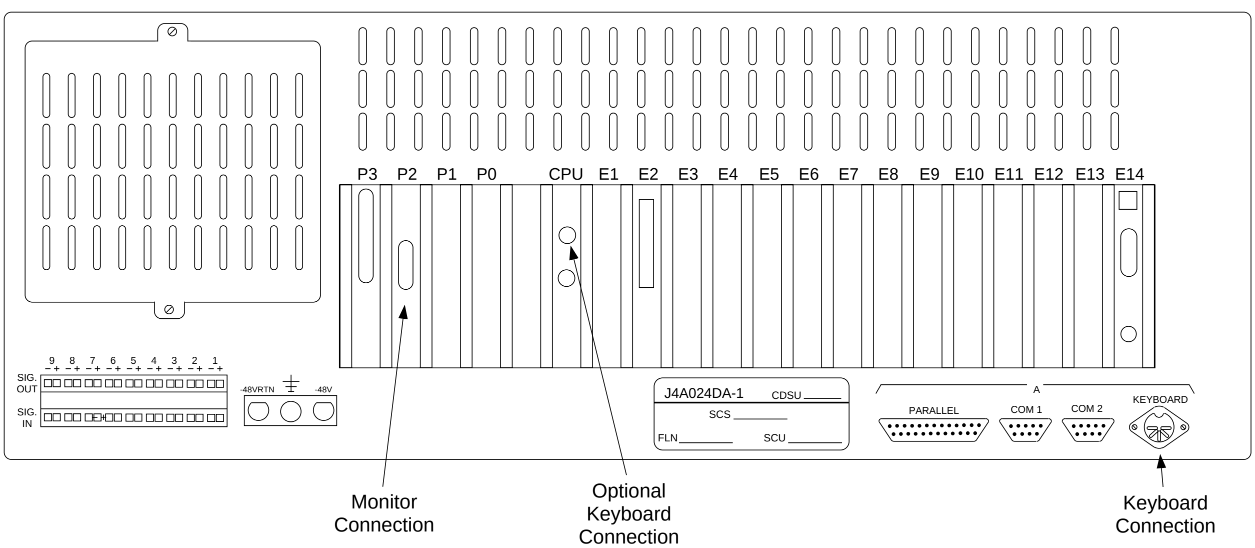


Figure 1. CDSU-II Monitor and Keyboard Connections

BYC51 Card - Configure

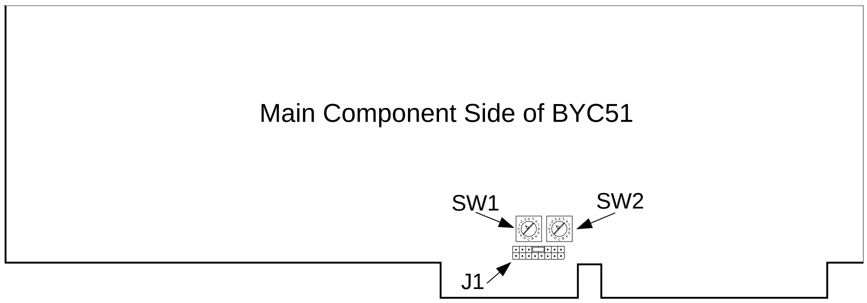
WARNING: The BYC51 card has 3 fan sinks (heat sinks with fans inside) mounted on the board. When handling the BYC51 card, do not touch these fan sinks. The fan sinks can become detached from the card if handled. In the event that a fan sink should become detached from the BYC51 card, return the BYC51 card to the factory for repair. Do not attempt to re-attach the fan sink to the board.

1. Based on the BYC51 board location, use Figure 1 to determine the proper jumper strap location for terminal strip J1 and the proper SW1 and SW2 switch settings for the BYC51 currently being configured.

2. On the BYC51 card install or change the jumper strap on terminal strip J1 as necessary. Note that a pull-up resistor is used on the BYC51 in location E5. Figure 1 shows the location of terminal strip J1.

3. On the BYC51, set switches SW1 and SW2 to the correct values determined in Step 1. Figure 1 shows the location of switches SW1 and SW2.

4. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**



BYC51 LOCATION	J1 JUMPER STRAP LOCATIONS	SW1 SETTINGS	SW2 SETTINGS
E13	Jumper Strap	2	2
E11	Jumper Strap	2	3
E9	Jumper Strap	2	4
E7	Jumper Strap	2	5
E5	Jumper Strap Pull-up Resistor	2	6

Figure 1. BYC51 Jumper Strap and Switch Locations and Settings

AYC52 Card - Configure

1. On the AYC52, set switches SW1, SW2, SW3, SW4, and SW5 to the correct settings. Figure 1 shows the location of these switches as well as the correct settings.

2. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

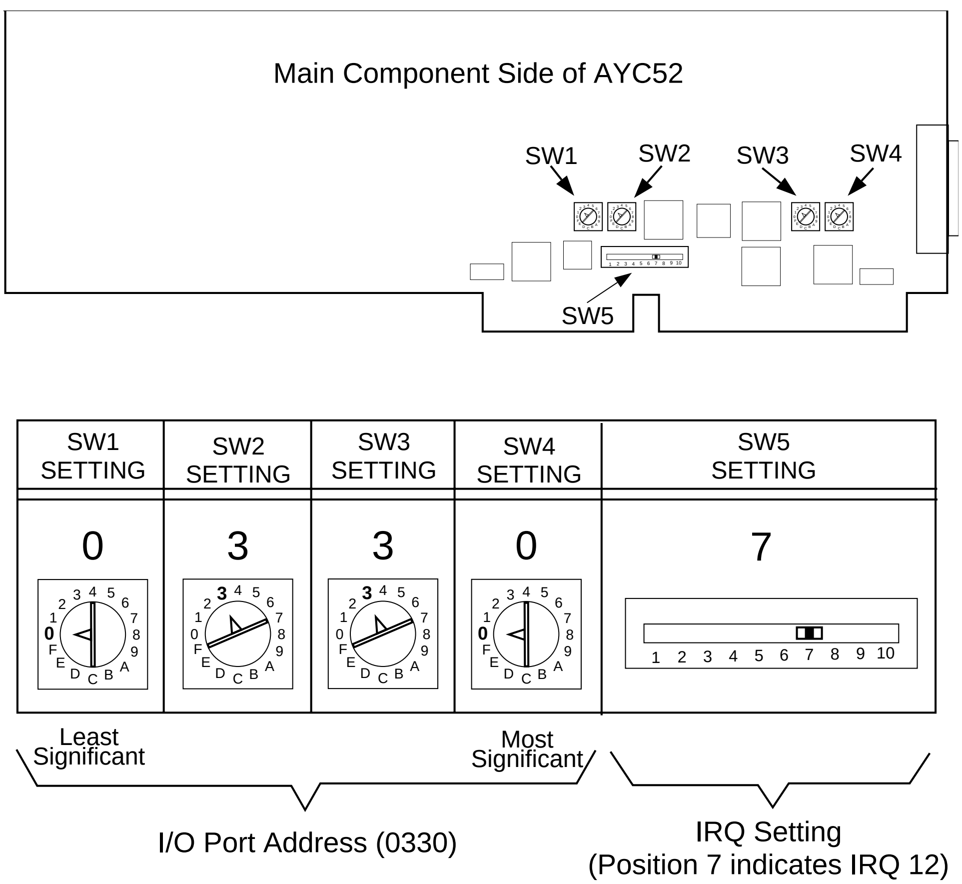
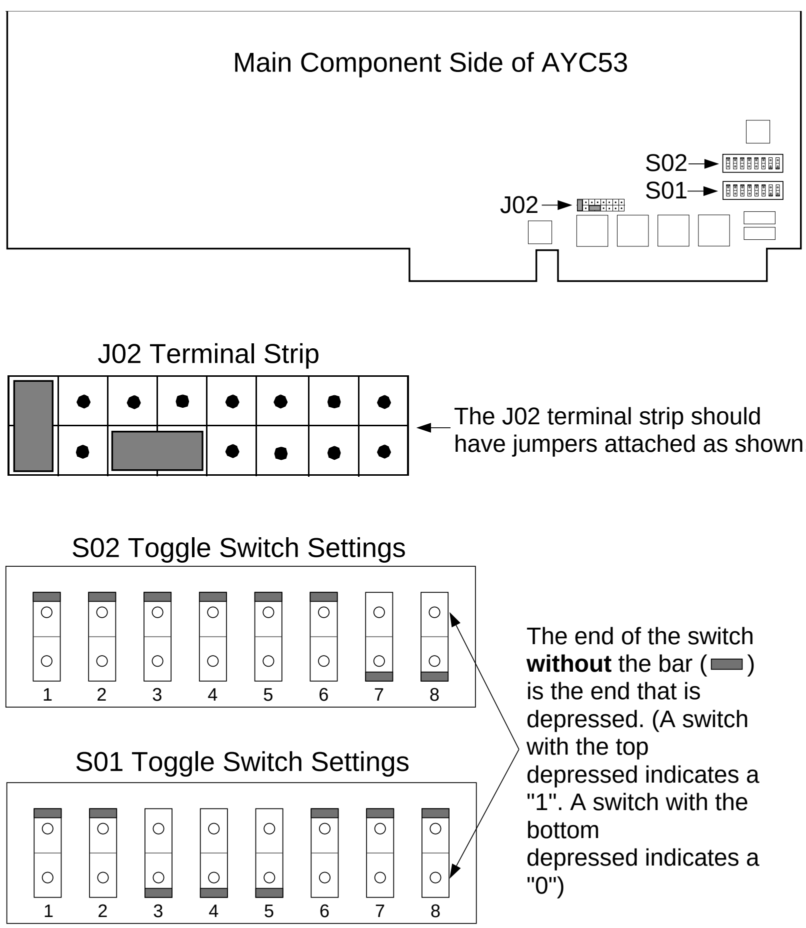


Figure 1. AYC52 Switch Locations and Settings

AYC53 Card - Configure

1. On the AYC53, set switches S01 and S02 to the correct settings. Also verify that terminal strip J02 has the two jumper straps positioned correctly. Figure 1 shows the location of the switches and terminal strip as well as the correct settings.

2. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**



Note: The S02 and S01 switch settings indicate a hexadecimal port address of "0338" (binary = 0000 0011 0011 1000). S02 contains the upper byte of the port address. S01 contains the lower byte.

Figure 1. AYC53 Switch Locations and Settings

Replace Fan Filter in the CDSU-II

1. Open the door at the front of the CDSU-II.

2. Remove the retainer that holds the fan filter in place from the door.

3. Remove the fan filter and replace with a new fan filter.

4. Reattach the retainer with the fan filter to the CDSU door.

5. Close the door at the front of the CDSU-II.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace UN351 Circuit Packs With UN591 Circuit Packs in Service Circuit Controllers

Note: This procedure is to be used only in the event that a spare UN351 circuit pack is not available. If a spare UN351 circuit pack is available, use DLP-502 to replace the bad UN351, then send the bad UN351 to the factory for repair.

1. Verify that the UN352 circuit pack (location 45-088 for SCC0 and location 53-088 for SCC1) is **Version 1:4 or later**. If Version 1:4 or later is not provided, this procedure cannot be completed. Contact the next level of support.

2. Verify that the KCN3 circuit packs (locations 45-048, 45-056, and 45-064 for SCC0 and locations 53-048, 53-056, and 53-064 for SCC1) are **Version 6.6 or later**. If Version 6.6 or later is not provided, this procedure cannot be completed. Contact the next level of support.

3. Ensure that the Service Circuit System (SCS) is in service and operational.

4. Ensure that all Service Circuit Units (SCUs) are operational and in service.

5. Routine Exercise (REX) should be disabled. This is accomplished by entering the following at the 1B Maintenance (MTC) terminal:

   INH:MACLI,CLASS MTCE;REX!

   Response: `MACLI,CLASS MTCE INHIBITED`
   `AUTOMATIC JOB SCHEDULING DISALLOWED`

6. At the 1B MTC terminal, diagnose Service Circuit Controller (SCC) 0 by entering:
   DGN:SCS *x*,CONTR 0!

   where *x* = Member Number (0-7)

   Response: The screen returns an output message with `ATP`.

7. Restore SCC 0 by entering the following input message at the 1B MTC terminal:

   RST:SCS *x*,CONTR 0!

   where *x* = Member Number (0-7)

   Response: The screen returns an output message with `CATP`, then `RESTORE COMPLETE`. Bit **21** will be **set** in the CATP **reason word** (unless the SCS is equipped with one or more SCUs in the SCU8 to SCU15 range), indicating that the `unused EBI link test skipped`. This is the only allowable exception (no other bits in the CATP reason word should be set).

8. At the 1B MTC terminal, diagnose SCC 1 by entering:

   DGN:SCS *x*,CONTR 1!

   where *x* = Member Number (0-7)

   Response: The screen returns an output message with `ATP`.

9. Restore SCC 1 by entering the following input message at the 1B MTC terminal:

   RST:SCS *x*,CONTR 1!

   where *x* = Member Number (0-7)

   Response: The screen returns an output message with `CATP`, then `RESTORE COMPLETE`. Bit **21** will be **set** in the CATP **reason word** (unless the SCS is equipped with one or more SCUs in the SCU8 to SCU15 range), indicating that the `unused EBI link test skipped`. This is the only allowable exception (no other bits in the CATP reason word should be set).

10. At the SCC, change circuit pack designation on designation strip.

11. At SCC 0, move the **ROS** switch on the TN1984 circuit pack (EQL 45-005) to the ROS position. Then press the **OFF** button on the same TN1984 circuit pack.

12. At SCC 0, EQL 45-072, remove the existing UN351 circuit pack and insert the new UN591 circuit pack.

13. Verify and update the Controller Hardware Version Number for SCC 0 using RC Form 801 (DLP-566).

14. Restore power to SCC 0 by pressing the **ON** button on the TN1984 circuit pack at EQL 45-005.

15. At the 1B MTC terminal, diagnose SCC 0 by entering:

    DGN:SCS *x*,CONTR 0!

    where *x* = Member Number (0-7)

    Response: The screen returns an output message with `ATP`.

16. Using the correct controller version number from DLP-566, determine the SCS controller version number (should be the same for SCC0 and SCC1).

17. At the 1B MTC terminal, enter:

    UPD:SCS *a*,CONTR 0,SVN *b*!

    where *a* = SCS Member Number (0-7)
    b = Controller Version Number (from Step 16)

    Response: Several output messages as follows:
    `UDP:SCS` *a* `CONTR UPDATE STARTED`
    `UDP:SCS` *a* `CONTR 0 PUMP IN PROGRESS`
    `UDP:SCS` *a* `CONTR 0 SWITCH IN PROGRESS`
    `UDP:SCS` *a* `CONTR UPDATE COMPLETED`

    Note: The purpose of the **UPD** (update) message is to replace the software in one SCS controller with another software version and make the SCS controller active. Once the updated controller is active, the second controller is then automatically updated. The SCS complex must be operating in duplex to accomplish this update.

18. At SCC 0, move the **ROS** switch on the TN1984 circuit pack (EQL 45-005) from **ROS** to **NORMAL**.

19. At the SCC, change circuit pack designation on designation strip.

20. At SCC 1, move the **ROS** switch on the TN1984 circuit pack (EQL 53-005) to the ROS position. Then press the **OFF** button on the same TN1984 circuit pack.

21. At SCC 1, EQL 53-072, remove the existing UN351 circuit pack and insert the new UN591 circuit pack.

22. Verify and update the Controller Hardware Version Number for SCC 1 using RC Form 801 (DLP-566).

23. Restore power to SCC 1 by pressing the **ON** button on the TN1984 circuit pack at EQL 53-005.

24. At the 1B MTC terminal, diagnose SCC 1 by entering:

    DGN:SCS *x***,CONTR 1!**

    where *x* = Member Number (0-7)

    Response: The screen returns an output message with `ATP`.

25. At SCC 1, move the **ROS** switch on the TN1984 circuit pack (EQL 53-005) from **ROS** to **NORMAL**.

26. At the 1B MTC terminal, allow REX by entering:

    ALW:MACLI,CLASS MTCE!

    Response: `AUTOMATIC JOB SCHEDULING RESUMED`

27. Write a backup 1B Processor Office Data Assembler (ODA) tape (DLP-567).

28. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Verify and Update the Controller Hardware Version Number for Service Circuit Controllers (SCCs) 0 and 1

Caution: Calling up a Recent Change (RC) Form will cause all data on the screen to be cleared.

1. At the 1B Maintenance (MTC) terminal, enter: **VER:UTYPE:SCS** *x***!**

   where *x* = Member number (0-7)

   Response: The information shown in Figure 1 is displayed.

   Note: The words shown in Figure 1 are in **octal** format.

```
VER:UTMN;OPT(),CUR:        FLN a          UTYN b

MEMN c              ME d
ENTRY ADDRESS e                     ENTRY SIZE f

CUR
WORD 0     ____ ____ ____ ____
           ____ ____ ____ ____
WORD 10    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 20    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 30    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 40    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 50    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 60    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 70    ____ ____ ____ ____
           ____ ____ ____ ____
WORD 100   ____ ____ ____ ____
           ____ ____ ____ ____
WORD 110   ____ ____ ____ ____
           ____ ____ ____ ____
WORD 120   ____ ____ ____ ____
           ____ ____ ____ ____
WORD 130   ____ ____ ____ ____
           ____ ____ ____ ____
WORD 140   ____ ____ ____ ____

a = Floor location number
b = Unit type name
c = Member number of growth associated complex
d = Member equipage
e = 8-digit entry address
f = 2-digit entry size
```

Figure 1. SCS Unit Type Translator

2. Is the message format and member identification correct as shown in Figure 1?

   If **YES**, continue with Step 3.
   If **NO**, determine and resolve the cause and repeat from Step 1.

3. Using the TTY output and Figure 2, record the Controller Hardware Version Number for Controller 0 and Controller 1 (bits **6**,**7**, and **8** for **SCC 0** and bits **9**, **10**, and **11** for **SCC 1**).

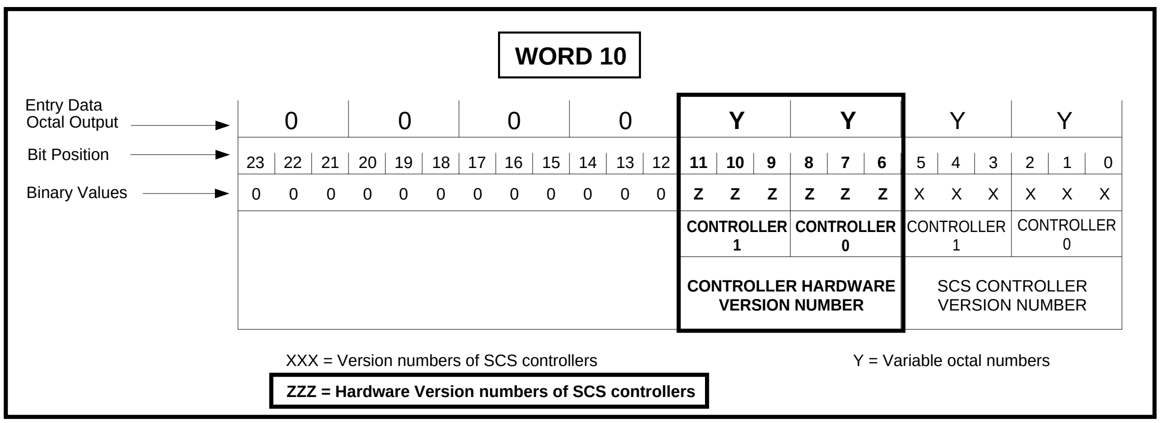


Figure 2. Word Used to Determine Controller Hardware Version Number

4. Determine if the Controller Hardware Version Numbers recorded in the previous step are correct for both controllers. The correct values are as shown in Table A. Both controllers (within an SCS) should always have the same type of circuit pack in horizontal location 072. Thus, the Controller Hardware Version Number should always be the same for both controllers within an SCS.

TABLE A Correct Values for Controller Hardware Version Numbers

IF THE CIRCUIT PACK IN HORIZONTAL LOCATION 072 OF THE SCC IS:	THEN THE BINARY VALUE FOR THE APPROPRIATE 3 BITS IN WORD 10 SHOULD BE:	THUS, THE OCTAL VALUE FOR THE SAME BITS WOULD BE:
UN351	000	0
UN591	001	1

5. Are the current Controller Hardware Version Numbers for both controllers correct?

   If **YES**, continue to Step 20.
   If **NO**, continue to the next step.

6. At the 1B Maintenance (MTC) terminal, enter: **OP:RCFORM 801!**

   Response: Recent Change Form 801 appears on the screen.

7. At `RC:FUNC;CHG;OPT(TRANS)`, enter **FTA**.

8. At `TRANSID`, enter **UTSCS**.

9. At `ORNU`, enter a unique Order Number assigned to this word change.

10. At `ENTRY`, enter the SCS Member Number (0 through 7) of the growth SCS complex.

11. At `WORDNO`, enter **8**.

12. At `SIZE`, enter **6**.

13. At `DISP`, enter **6**.

14. At `BINOCT`, enter **O**.

15. At `NEWDATA`, enter the **new** 2-digit octal number for the updated hardware version numbers as shown in Table B.

TABLE B Data to be Entered in NEWDATA Field

IF THE CIRCUIT PACKS IN HORIZONTAL LOCATION 072 OF THE SCCs ARE AS FOLLOWS:	THEN ENTER THESE 2 DIGITS IN THE "NEWDATA" FIELD
UN351 in Both SCC 0 and SCC 1	00
UN591 in SCC 0 only	01
UN591 in Both SCC 0 and SCC 1	11

Caution: Only one SCC should be updated at a time.

16. At `OLDDATA`, enter the **existing** 2-digit octal number represented by bits 6 through 11 of octal word 10 in the SCS Unit Type (UT) translator (recorded in Step 3).

17. If no `REMARKS` are needed, press **HOME** to return the cursor to the top of the form.

18. Press **SEND/ENTER**

    Response: `RC ORNU` *a* `ACTIVATED` followed by all new entries.

    where *a* = RC Order Number

19. At the 1B MTC terminal, enter **VER:UTYPE:SCS** ***x*!**

    where *x* = Member number (0-7)

    Response:
    `VER:UTMN;OPT(),CUR:`
    `FLN` *a*
    `UTYN` *b*
    `MEMN` *c*
    `ME` *d*
    `ENTRY ADDRESS` *e*
    `ENTRY SIZE` *f*

    where *a* = Floor location number
    b = Unit type name
    c = Member number of growth associated complex
    d = Member equipage
    e = An 8-digit entry address
    f = A 2-digit entry size

    The above responses are followed by a complete printout of the SCS UT entry data. Use this printout and Figure 2 to determine if the SCC data (Controller Hardware Version Number) was properly entered for both controllers. If any entries are found to be incorrect, repeat Steps 6 through 19 using the correct data.

20. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Write Backup 1B Processor ODA Tape

Caution: Certain system audits are inhibited during tape writing. Therefore, tape writing should be done during light traffic periods.

1. At the 1B Maintenance (MTC) terminal, enter: **AUD:NUM(43,44,45,66,72)!**

   Ensure that 0 errors are received for each audit.

   > ***Note:*** It will take approximately 20-40 minutes for audits to run.

2. At the 1B MCC terminal, is the 108 Page displayed?

   If **NO**, continue to Step 3.

   If **YES**, go to Step 4.

3. At the 1B MCC terminal, enter **108**.

4. At the 1B MCC terminal, is `RESTRICT RC` colored black on white?

   If **NO**, continue to Step 5.

   If **YES**, go to Step 6.

5. At the 1B MCC terminal, enter **801**.

6. Select an available Attached Processor System (APS) tape transport for mounting the tape to be written. Demount the tape if one is mounted (DLP-568).

7. Mount a blank or erasable tape with the write-enable ring attached (DLP-569).

8. At the 1B MTC terminal, enter: **CLR:ADSFUNC CPY!**

9. At the 1B MTC terminal, enter: **SET:TUC *a*:FUNCTION CPY!**

   where *a* = TUC Member Number

   Response: Tape header information is printed.

10. If the tape is erasable, check the header information by entering the following at the 1B MTC terminal: **ALW:TUC *a*:RW!**

    where *a* = TUC Member Number

11. At the 1B MTC terminal, enter: **COPY:ODA;TAPE:VFY!**

    Response:

    Tape starts writing. After the tape is written, the following message is received:
    `COPY:ODA;TAPE COMPL` *date and time*
    The tape will then rewind and be verified. After verification is complete, the following message is received:
    `COPY:VFY:TAPE COMPL`
    `REPT:DEMOUNT TAPE FROM TUC` *a*

12. Is another backup ODA tape to be written?

    If **YES**, continue to Step 13.

    If **NO**, continue to Step 15.

13. After `REPT:DEMOUNT TAPE FROM TUC` *a* is printed, demount the ODA tape just written (DLP-568).

14. Repeat Steps 7 through 12.

15. After `REPT:DEMOUNT TAPE FROM TUC` *a* is printed, demount the ODA tape just written (DLP-568), remove the write-enable ring (if equipped), and attach the tape retainer strap.

16. Label and store the tape(s) written per local instruction.

17. Has the **NORM** file been copied to the **UPDATE** file since the generic retrofit.

    If **NO**, continue to Step 18.

    If **YES**, continue to Step 19.

18. At the APS MCRT terminal, enter: **COPY:APPFILE NORM;UCL!**

    Then go to Step 20.

19. At the APS MCRT terminal, enter: **COPY:APPFILE NORM!**

20. Is the `COPY APPFILE COMPLETE` message received?

    If **NO**, continue to Step 21.

    If **YES**, continue to Step 22.

21. Contact the next higher technical support group and inform personnel of the actions performed and the results obtained.

22. At the 1B MCC terminal 108 Page, enter **801** (`RESTRICT RC` colored white on black).

23. Store tapes per local procedure.

24. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Demount Tape on 1B Processor Tape Transport

WARNING: Cycling tape transport or tape unit controller with tape over read/write heads may garbage tape. Also, if tape is being demounted due to a faulty tape unit, proper tape unit maintenance documentation should be used.

1. At the tape unit controller, press the **REQ DMT** pushbutton.

   Response: The tape rewinds, and the **OK DMT** lamp lights.

2. At the tape transport, open the interlocked cover door: at the upper right of the tape transport, pull out the interlock plunger.

3. At the tape transport, press the **LOCAL/REMOTE** switch as needed to obtain **LOCAL** lighted condition.

   Response: The **LOCAL** lamp lights.

4. Is the tape at a Beginning Of Tape (BOT) marker.

   If **NO**, continue to Step 5.

   If **YES**, continue to Step 6.

5. At the tape transport, press the **REVERSE** pushbutton.

   Response:

   The **REVERSE** lamp lights and the tape rewinds to the BOT marker and stops.

6. At the tape transport, press the **ARMS UNLOAD** pushbutton.

   Response: The **ARMS UNLOAD** lamp lights until tension arms retract.

7. At the tape transport, while pressing the **BRAKE RELEASE** pushbutton, manually wind the tape onto the upper reel and release the **BRAKE RELEASE** pushbutton.

   WARNING: Pulling or dragging the last 2 feet of tape across the heads may contaminate the heads.

8. At the tape transport, rotate the hub (knob) of the upper reel holder counterclockwise to unlock the tape reel.

9. At the tape transport, remove the upper tape reel.

10. At the tape transport, close the interlocked cover door.

11. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Mount Tape on 1B Processor Tape Transport

1. At the tape transport, open the interlocked cover door: at the upper right of the tape transport, pull out the interlock plunger.

2. At the tape transport, press the **LOCAL/REMOTE** switch as needed to obtain **LOCAL** lighted condition.

   Response: The **LOCAL** lamp lights.

3. Verify that the empty lower (take-up) tape reel is the same size or larger than the tape reel to be mounted.

4. At the tape transport, with the hub (knob) of the upper reel in the counterclockwise position, mount the reel with tape on the reel holder.

5. At the tape transport, rotate the hub (knob) of the upper reel clockwise to the detent to lock the tape reel securely.

   (The tape reel and take-up reel are now mounted.)

6. At the tape transport, press and hold the **BRAKE RELEASE** pushbutton.

7. At the tape transport, manually unwind about 5 feet of the tape and release the **BRAKE RELEASE** pushbutton.

   WARNING: Contamination of tape by contact with floor will damage tape heads.

8. At the tape transport, thread the tape through the tape path indicated on the tape transport.

   WARNING: Do not touch the tape head surfaces: body oils will contaminate tape.

9. Start the tape end on the lower (take-up) reel making sure that the tape is not twisted.

   Note: To start the tape on the take-up reel, it may help to moisten the tape end (using moistened fingers) and stick it to the reel axle.

10. At the tape transport, press and hold the **BRAKE RELEASE** pushbutton.

11. At the tape transport, manually wind the lower (take-up) reel clockwise 2 or 3 turns, and release the **BRAKE RELEASE** pushbutton.

    WARNING: If the tape is not properly aligned along the rollers and guides, of if the tape is too loose, it may be damaged.

12. At the tape transport, press the **ARMS NORMAL** pushbutton.

    Response: The arms apply tension to the tape.

13. At the tape transport, press **FORWARD** pushbutton.

    Response: The tape winds forward, then stops at BOT marker.

    Note: The tape may not stop at BOT marker if fast forward is pressed.

14. At the tape transport, operate the **25 IPS** switch to obtain **25 IPS** lighted condition.

    Response: The **25 IPS** lamp lights.

15. At the tape transport, operate the **LOCAL/REMOTE** switch to obtain **REMOTE** lighted condition.

    Response: The **REMOTE** lamp lights.

16. At the tape transport, close the interlocked cover door.

    WARNING: Closing the tape transport door in a harsh manner may upset alignment.

17. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

BWM/SU Status Report for the AAP—Generate

Summary: This section tells how to generate a BWM/SU status report in order to monitor the Broadcast Warning Messages/Software Updates (BWMs/SUs) that have been downloaded to an AAP. This report lists the BWM/SUs by ID and status (that is, those pending, applied, and ‘‘permed’’).

1. To get the BWM/SU Status Report, access the Craft Shell interface and enter the following command:

   IN:REMOTE:REPORT.

   Response:

```
IN:REMOTE:REPORT In_Progress
IN:REMOTE:REPORT output, Part 1 of 2

Status of UUCP BWM download
---------------------------

<Status>

<Output>

ENTRIES IN THE /etc/bwm DIRECTORY
---------------------------------

/etc/bwm/<update>

Currently perm’d and currently applied BWMs
-------------------------------------------

Currently perm’d BWM is:  <update>

Currently applied BWM is:  <update>
```

2. **STOP! YOU HAVE COMPLETED THIS TASK.**

CDSU BWM/SU—Apply

Summary: When a Broadcast Warning Message/Software Update (BWM/SU) is applied, it is placed in a temporary state which makes it available for CDSU use, even though it is not yet in a permanent state.

WARNING: Refer to the SCANS file for special instructions before applying this BWM/SU. Before applying a BWM, the SCU must be removed from service and proper notifications of SCU removal must be made.

1. Is the BWM/SU being applied higher in number than ‘‘currently applied?’’

   If **YES**, then continue.
   If **NO**, then go to Step 4.

2. Does the BWM/SU have ‘‘CFT’’ or ‘‘BWM’’ status?

   If **CFT**, then enter: **UPD:CDSUBWM:APPLY:CFT***xx-yyyy***:SCS=***a***,SCU=***b* **[,UNIT=***c***]**
   If **BWM**, then enter: **UPD:CDSUBWM:APPLY:BWM***xx-yyyy***:SCS=***a***,SCU=***b* **[,UNIT=***c***]**

   where *xx* = Last 2 digits of the year
   yyyy = Unique 4-digit number associated with the CFT or BWM
   a = SCS Number
   b = SCU Number
   c = CDSU Number

   Response: `UPD:CDSUBWM:APPLY Completed`

3. Did the BWM/SU apply complete successfully?

   If **YES**, put BWM in the permanent state and go to Step 6.
   If **NO**, follow the specified action in any associated failure message or go to Step 7.

4. Does the BWM/SU that is to be applied have ''CFT'' status?

   If **YES**, then enter: **UPD:CDSUBWM:APPLY:CFT***xx-yyyy***:SCS=***a***,SCU=***b* **[,UNIT=***c***]:NIO**
   If **NO**, then enter: **UPD:CDSUBWM:APPLY:BWM***xx-yyyy***:SCS=***a***,SCU=***b* **[,UNIT=***c***]:NIO**

   where *xx* = Last 2 digits of the year
   yyyy = Unique 4-digit number associated with the CFT or BWM
   a = SCS Number
   b = SCU Number
   c = CDSU Number

   Response: `UPD:CDSUBWM:APPLY Completed`

   Caution: It should also be noted that the use of the Not In Order (NIO) option could cause overwriting of data associated with other BWMs/SUs. There is NO AUTOMATIC PROTECTION against corrupting or destroying other data when using the **NIO** ***option.***

5. Did the BWM/SU apply complete successfully?

   If **YES**, put the BWM in the permenant state and go to Step 6.
   If **NO**, follow the specified action in any associated failure message or go to Step 7.

6. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

7. **STOP! PROCEDURE CANNOT BE COMPLETED AT THIS TIME.** Contact the next level of support.

CDSU-II — Verify and Configure Current Sensors

Summary: The CDSU-II has 6 current-sensing daughter boards (referred to throughout the rest of this section as "current sensors") mounted on the CDSU-II backplane. These current sensors are equipped with switches which are used to set the overcurrent values for the various circuit pack slots within the CDSU-II. In order to verify and configure the switch settings on these current sensors, they have to be removed from the backplane (because the switches are located on the underside of the current sensors). Also, since the current sensors are located underneath the various circuit packs, circuit packs will have to be removed in order to gain access to the current sensors. The locations of the various current sensors are shown in Figure 1. The correct switch settings for the various current sensors (along with slot assignments for the current sensors) are shown in Figure 2.

1. Determine which current sensor(s) are to be verified and configured. If a specific circuit pack is causing problems you may want to just check the settings for the specific current sensor associated with that pack (see Figures 1 and 2 for current sensor locations and slot assignments)

2. If the Custom Data Services Unit-II (CDSU-II) is not powered down, shut down the CDSU-II (DLP-556).

3. Turn the power off at the CDSU-II by moving the **ON/OFF** switch at the control panel on the front of the CDSU-II to the OFF position.

4. Remove the 4 screws at the front of the CDSU-II that secure the CDSU-II to the frame.

5. Carefully slide the unit out far enough to access the large top cover.

6. Remove the large top cover from the CDSU-II.

7. See WARNING. Remove the ribbon cable (that runs across the top of the circuit packs) from any circuit packs to be removed. The circuit packs that need to be removed will vary depending on which current sensor(s) are to be verified and/or configured. The ribbon cable may also have to be removed from other packs to obtain clearance for removal of the desired pack(s).

    WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any cards or cables from the CDSU-II.

8. Remove the hold-down bar that stretches across the top of the circuit packs by removing the screw at the end of the bar and lifting the bar.

9. Remove the holding screw from the back of the circuit packs to be removed.

10. Lift up and remove the appropriate circuit packs, being sure to note the slot location of each circuit pack that is removed. (The circuit packs **must** be replaced later in the same locations from which they were removed.

11. Lift up and remove the desired current sensor(s).

12. Verify that the switch settings on the underside of the current sensors are correct as shown in Figure 2.

13. If the current sensor switch settings are not correct as shown in Figure 2, change them to the correct settings.

14. Reinsert the current sensor(s) into the same positions from which they were removed.

15. Ensure that the current sensor(s) are fully seated into position.

16. Reinsert the circuit packs that were removed in Step 10 into same slots from which they were removed.

17. Ensure that each circuit pack is fully seated into the correct slot.

18. Replace the holding screw at the back of each circuit pack.

19. Replace the hold-down bar across the top of the circuit packs.

20. Reconnect the ribbon cable that was removed in Step 8, being sure that the connections are the same as when the cable was removed.

21. Replace the large top cover of the CDSU-II.

22. Slide the CDSU-II back into the frame.

23. Attach the CDSU-II to the frame with the 4 screws that were removed earlier.

24. Restore power to the CDSU-II (DLP-558).

25. Restore the associated SCU to service (DLP-524).

26. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

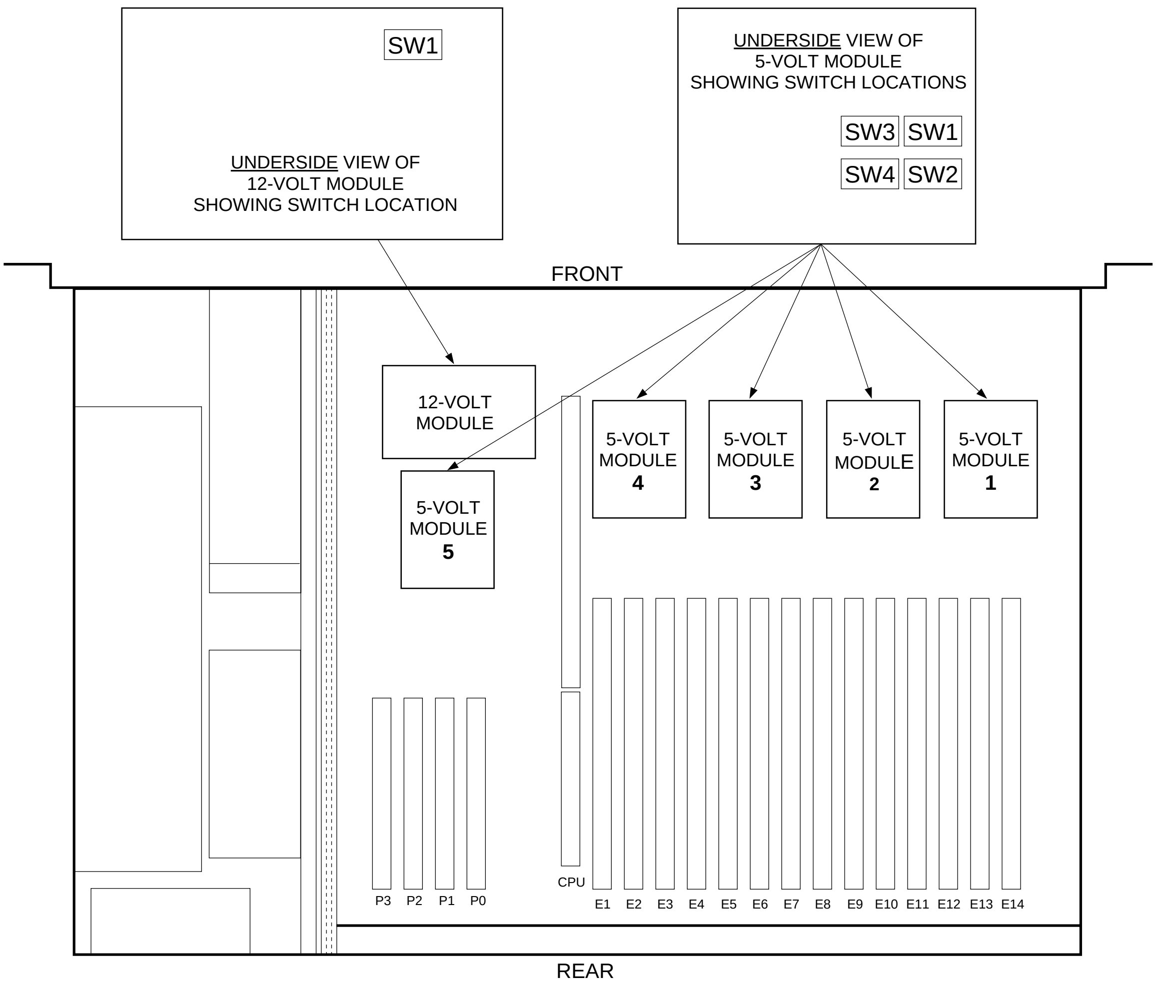


Figure 1. Current Sensor Locations

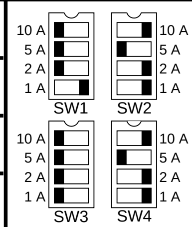
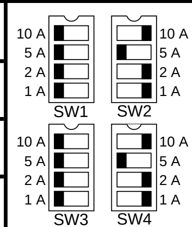
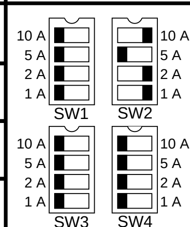
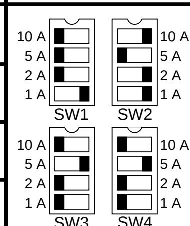
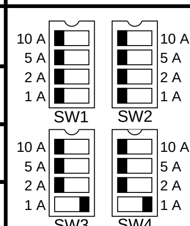
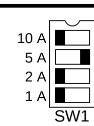
MODULE	SLOT	SWITCH	VALUE	SETTINGS
5-VOLT MODULE 1	E14	SW1	1 AMP	
	E13	SW2	13 AMP	
	E12	SW3	0 AMP	
	E11	SW4	13 AMP	
5-VOLT MODULE 2	E10	SW1	0 AMP	
	E9	SW2	13 AMP	
	E8	SW3	0 AMP	
	E7	SW4	13 AMP	
5-VOLT MODULE 3	E6	SW1	0 AMP	
	E5	SW2	13 AMP	
	E4	SW3	0 AMP	
	E3	SW4	0 AMP	
5-VOLT MODULE 4	E2	SW1	1 AMP	
	E1	SW2	13 AMP	
	DRIVES	SW3	5 AMP	
	CPU	SW4	5 AMP	
5-VOLT MODULE 5	P0	SW1	0 AMP	
	P1	SW2	0 AMP	
	P2	SW3	1 AMP	
	P3	SW4	1 AMP	
12-VOLT MODULE	NONE	SW1	5 AMP	

Figure 2. Current Sensor Settings and Assignments

CDSU-II - Correct Invalid NVRAM Setup Error

Summary: When a new card is added to the CDSU-II and the system is rebooted, the CDSU-II's Enhanced Industry Standard Architecture (EISA) configuration is updated. This configuration update is written to the CDSU-II's Non-Volatile Random Access Memory (NVRAM). If the CDSU-II is powered down, by any means, while the NVRAM is being updated, an NVRAM error will occur during the next boot attempt. The only way to correct this problem is to run NVRAM configuration software. This is done using the following procedure.

1. Verify that the CDSU-II monitor and keyboard are connected to the desired CDSU-II. If not, connect the CDSU-II monitor and keyboard to the CDSU-II (DLP-560).

2. Verify that an NVRAM configuration is needed by observing the CDSU-II monitor during bootup (the CDSU-II can be rebooted by simultaneously pressing **Control** **Alt** **Delete** at the CDSU-II keyboard). A system with an NVRAM configuration problem will exhibit the following behavior during the boot sequence:

   A. The following message line is displayed before the testing of system RAM:
   `EISA Configuration NVRam Bad - Run Configuration Utility`

   B. The following message lines are displayed after detection of the Adaptec SCSI controller:
   ```
   HA configuration error
   BIOS not installed!
   Press (F1) to resume, (F2) to Setup
   ```

   C. After pressing F1, the unit fails to load SCO UnixWare 2.1 from the hard disk and will display the following message:
   `Operating System Not Found`

3. Is an NVRAM configuration needed?

   If **YES**, continue to Step 4.

   If **NO**, go to Step 8.

4. Insert the diskette labeled "EISA Configuration Restoral Disk" (version 4E.1.0) into the floppy disk drive of the CDSU-II.

   Note: This EISA Configuration Restoral Disk was provided with the CDSU-II at initial installation.

5. Simultaneously press **Control** **Alt** **Delete** at the CDSU-II keyboard to reboot the system.

   Response: The system resets, displays the NVRAM configuration error message, and beeps twice. It then detects the presence of the diskette and boots from the diskette. The system beeps a "1 + 2" code as the EISA configuration is restored. A message on the screen prompts the user to remove the floppy diskette and reboot the system.

6. At the CDSU-II, remove the diskette from the floppy disk drive.

7. Simultaneously press **Control** **Alt** **Delete** at the CDSU-II keyboard to reboot the system.

   Response: The system again resets and this time does **not** display the NVRAM errors. The CDSU-II will proceed to boot SCO UnixWare 2.1 from the hard disk.

8. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Replace KS23884, L2 Fan System Controller Board in SCC or SCU Cabinets

1. Have the fan system controller board fuses (level 69) previously been removed?

   If **YES**, continue to Step 3.

   If **NO**, continue to Step 2.

   > ***Caution: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.***

2. Remove the three fuses associated with the fan unit. See Figure 1 if the fan system controller board is being changed in the SCC frame, or Figure 2 if the fan system controller board is being changed in the SCU frame.

   > ***Caution: Once the fuses are removed the fans will stop running. Therefore the rest of this procedure must be completed immediately after the fuses are removed to prevent equipment from overheating.*** **Do not** ***leave the cabinet for any length of time with the fuses removed.***

   > ***Note:*** A major alarm will be generated upon fan power loss.

3. At rear of fan unit, locate fan system controller board (28-004R) and identify location of controller board connectors **J2, J6, J1, J9,** and **J8**.

4. In the following order, unseat controller board connectors **J2, J6, J1, J9,** and **J8**.

5. Insulate connector ends with electrical tape to avoid shorting.

6. Attach working identification tags for later identification.

7. Using insulated screwdriver, carefully remove screw securing top of fan system controller board to cabinet. (See Figure 3.)

   Caution: When replacing fan system controller board, care must be taken to avoid shorting to -48V terminal strip lugs located directly above FAN A.

8. Carefully move controller board upward to remove tab on bottom of controller board from cabinet slot. (See Figure 3.)

9. Carefully remove controller board from back of cabinet.

10. Obtain replacement fan system controller board and carefully position controller board bottom tab into cabinet slot and secure top using screw previously removed.

11. In the following order, seat controller board connectors **J2, J6, J1, J9,** and **J8** onto replacement board and remove all working tags previously attached.

12. Replace fan system controller board fuses at (level 69), which were previously removed. (See the labeling on the fuse and filter panel.)

   Note: A "spurt" minor alarm will be generated when fan power is restored.

13. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

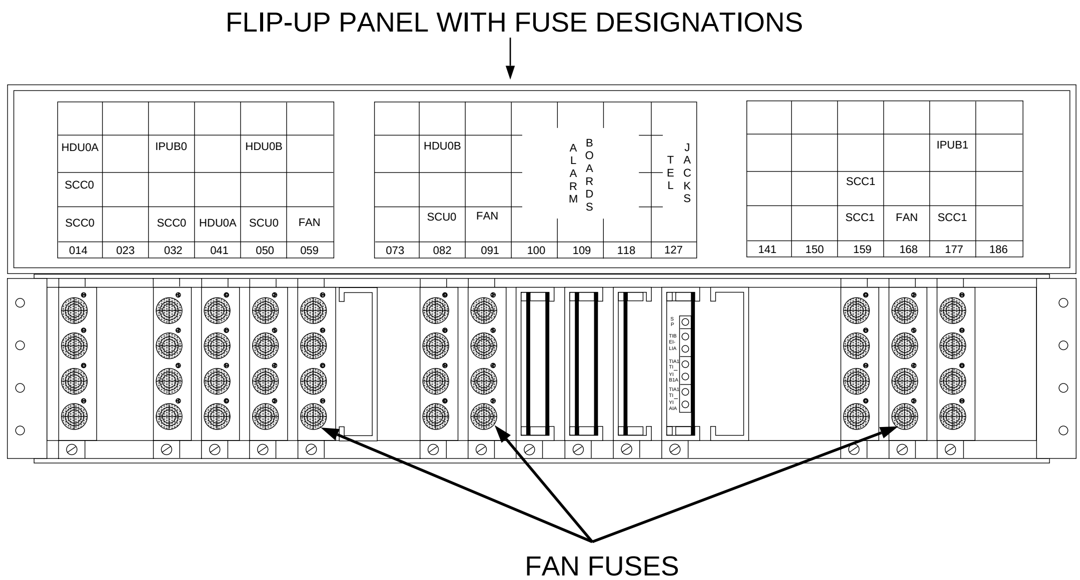


Figure 1. Location of Fan Fuses in the SCC Frame

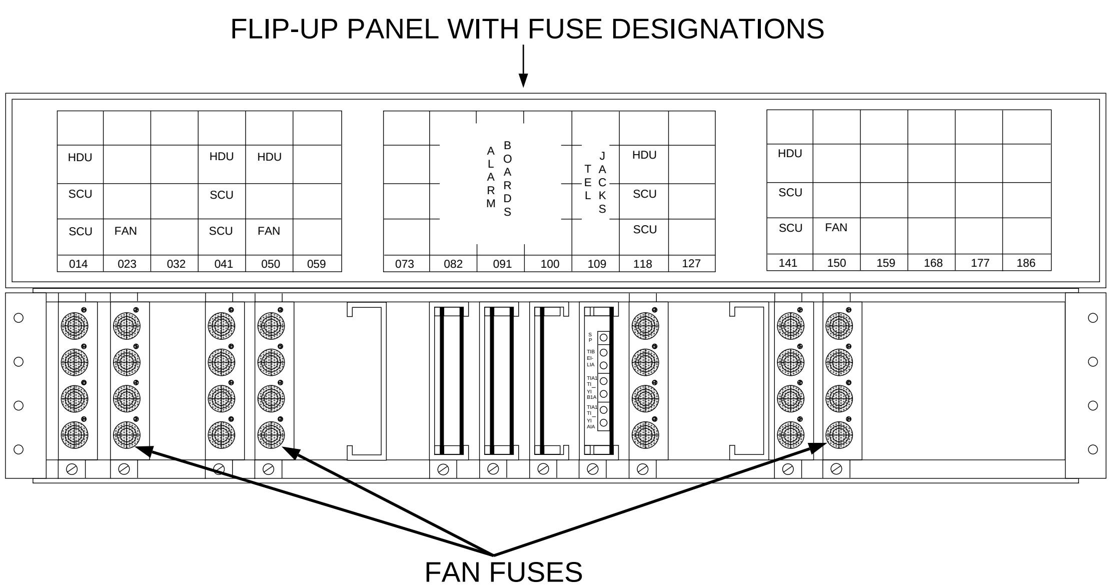
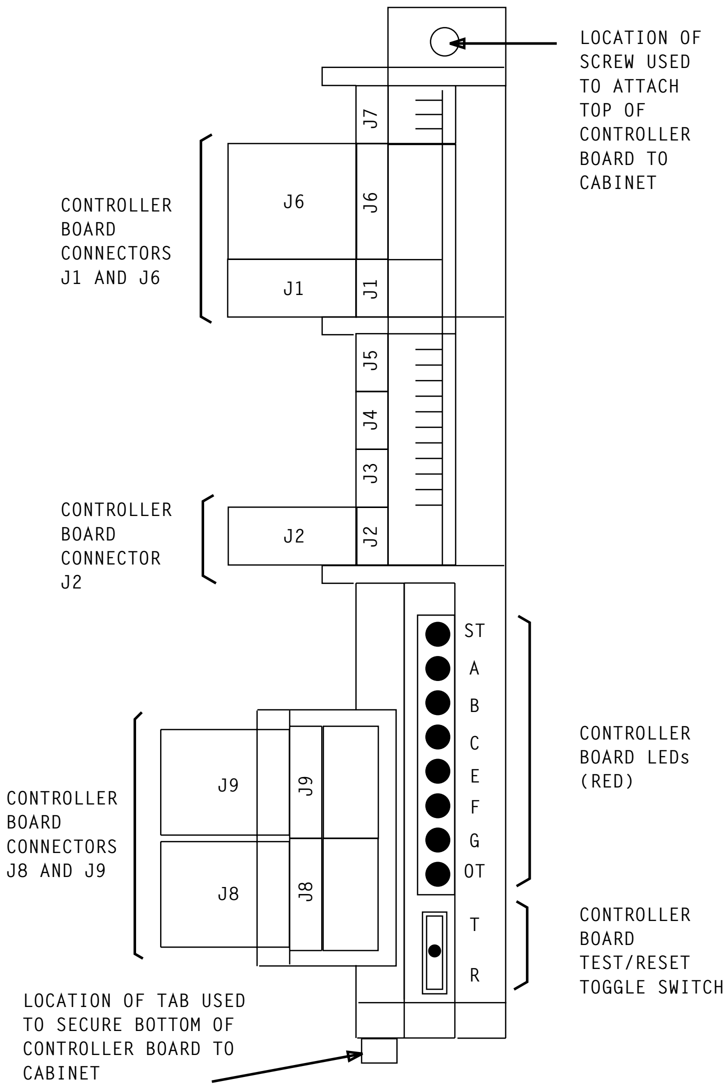


Figure 2. Location of Fan Fuses in the SCU Frame



Fan System Controller Board (28-004R)

Figure 3. Fan System Controller Board

TABLE A Fan System Controller Board (28-004R)

FAN SYSTEM CONTROLLER BOARD LEGEND	
Controller Board Indicator	**Indicator Identification**
ST LED	STATUS LED
A LED	FAN A FAIL LED
B LED	FAN B FAIL LED
C LED	FAN C FAIL LED
E LED	FAN E FAIL LED
F LED	FAN F FAIL LED
G LED	FAN G FAIL LED
OT LED	OVER TEMPERATURE LED
T	TEST (two function toggle switch)
R	RESET (two function toggle switch)

Replace 233A Fan System Controller Board in ED-5D195-10, G7 Equipped SCC or SCU Cabinets

1. Have the fan system controller board fuses (level 69) previously been removed?

   If **YES**, continue to Step 3.

   If **NO**, continue to Step 2.

   Caution: When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

2. Remove the three fuses associated with the fan unit. See Figure 1 if the fan system controller board is being changed in the SCC frame, or Figure 2 if the fan system controller board is being changed in the SCU frame.

   Caution: Once the fuses are removed the fans will stop running. Therefore the rest of this procedure must be completed immediately after the fuses are removed to prevent equipment from overheating. DO NOT leave the cabinet for any length of time with the fuses removed.

   Note: A major alarm will be generated upon fan power loss.

3. At rear of fan unit, locate fan system controller board (28-011R) and identify location of controller board connectors **J5, J8, J6,** and **J1** (Figure 4).

4. In the following order, unseat controller board connectors **J6, J8, J5,** and **J1**.

5. Insulate connector ends with electrical tape to avoid shorting.

6. Attach working identification tags for later identification.

7. Using insulated screwdriver, carefully remove screw securing top of fan system controller board to the ED-5D195-10, G7 Fan Unit Circuit Board Assembly (28-011R). (See Figure 3.)

   Caution: When replacing fan system controller board, care must be taken to avoid shorting to -48V terminal strip lugs located directly above FAN A.

8. Carefully move controller board upward to remove tab on bottom of controller board from cabinet slot.

9. Carefully remove controller board from back of cabinet.

10. Obtain replacement fan system controller board and carefully position controller board bottom tab into cabinet slot and secure top using screw previously removed.

11. In the following order, seat controller board connectors **J1, J5, J8,** and **J6** onto replacement board and remove all working tags previously attached.

12. Replace fan system controller board fuses at (level 69), which were previously removed. (See the labeling on the fuse and filter panel.)

    Note: A "spurt" minor alarm will be generated when fan power is restored.

13. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

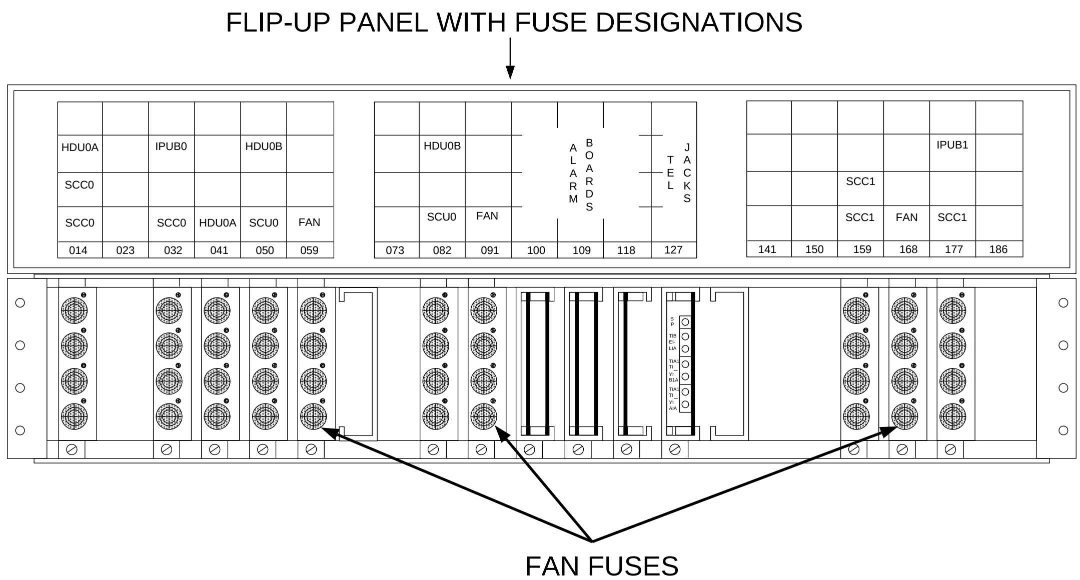


Figure 1. Location of Fan Fuses in the SCC Frame

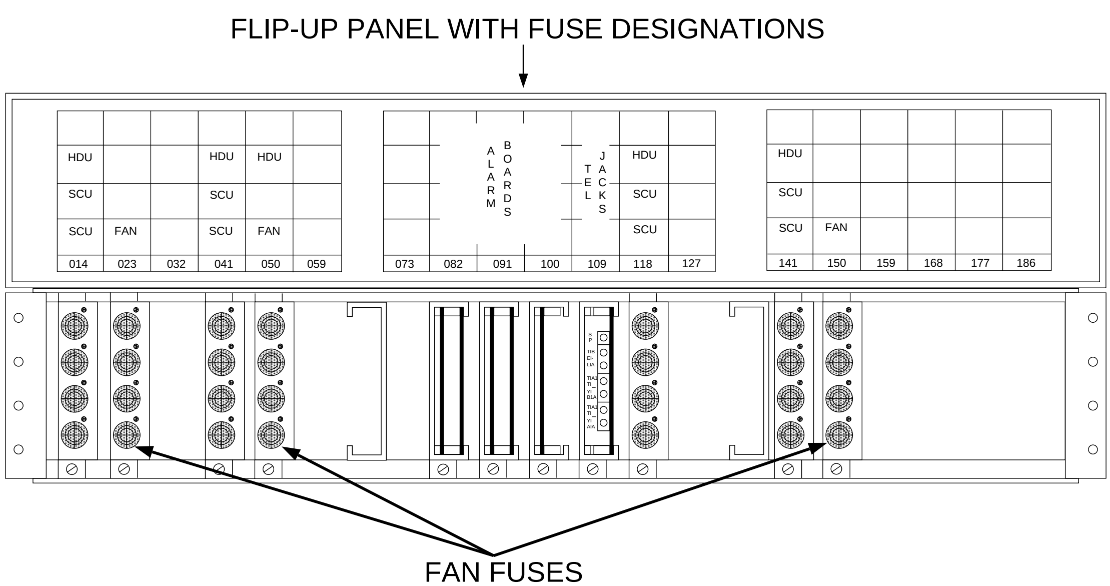


Figure 2. Location of Fan Fuses in the SCU Frame

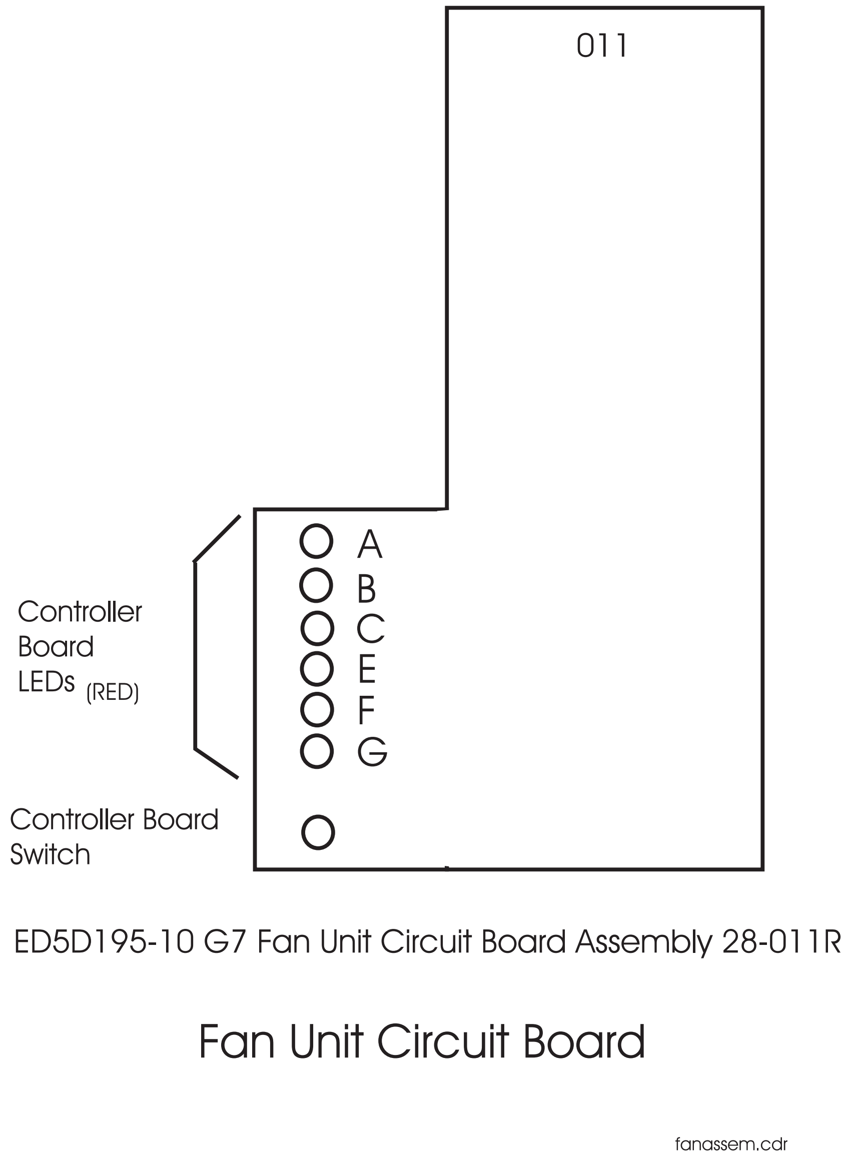


Figure 3. ED-5D195-10, G7 Fan Unit Circuit Board Assembly

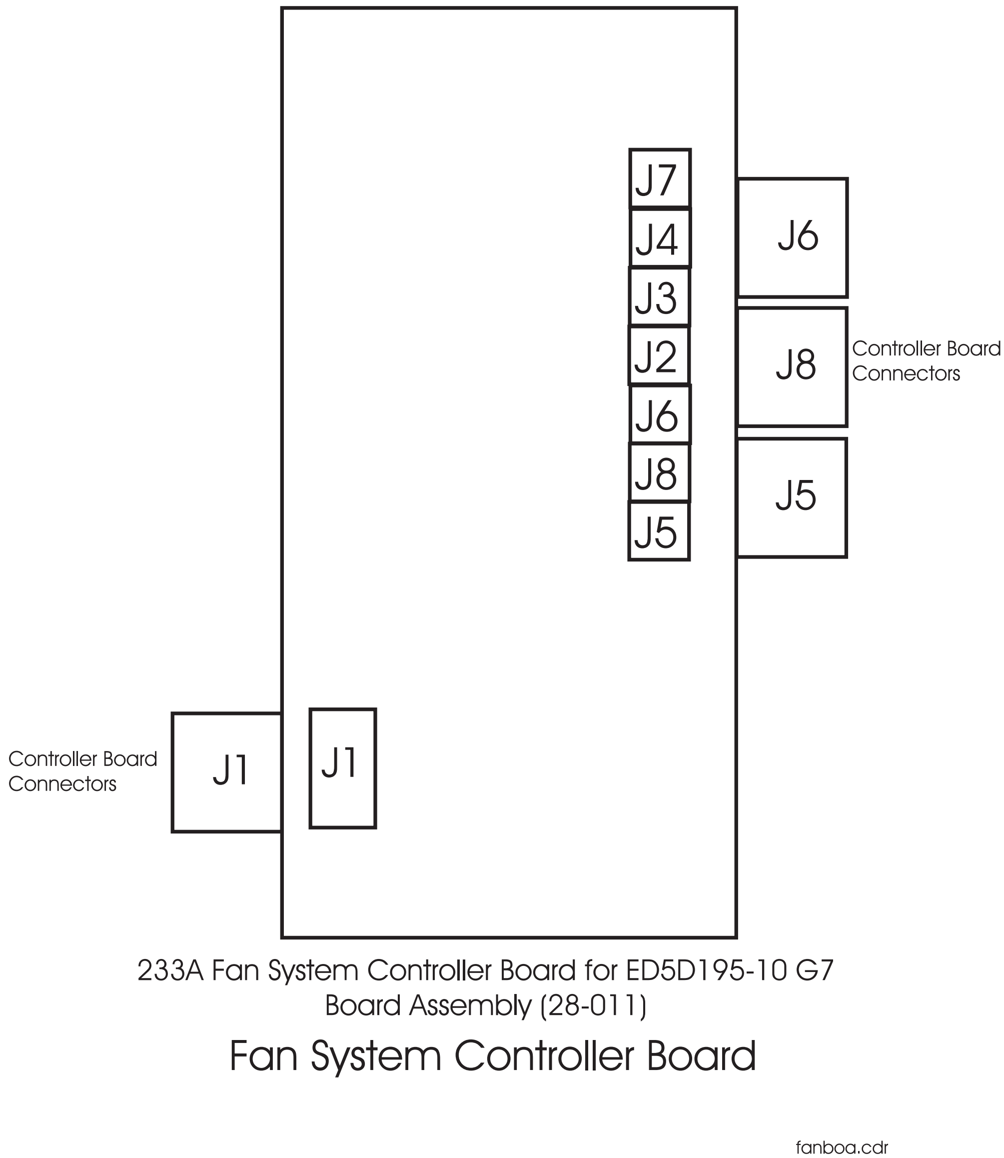


Figure 4. 233A Fan System Controller Board

TABLE A Fan System Controller Board (28-004R)

FAN SYSTEM CONTROLLER BOARD LEGEND	
Controller Board Indicator	**Indicator Identification**
A LED	FAN A FAIL LED
B LED	FAN B FAIL LED
C LED	FAN C FAIL LED
E LED	FAN E FAIL LED
F LED	FAN F FAIL LED
G LED	FAN G FAIL LED
-	TEST SWITCH

Replace Alarm Board in Fuse and Filter Panel in Service Circuit Controller (SCC) or Service Circuit Unit (SCU) Cabinets

1. Locate defective alarm board on the fuse and filter panel at the top of the Service Circuit Controller Cabinet (SCCC) or the Service Circuit Unit Cabinet (SCUC)(see Figures 1 and 2).

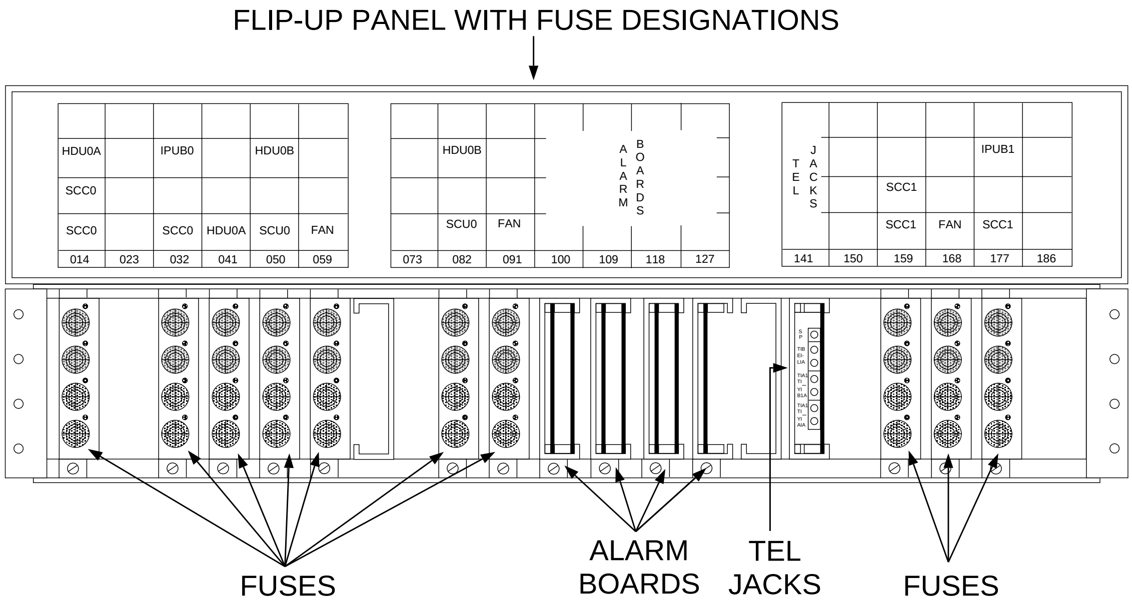


Figure 1. Fuse and Filter Panel for the SCCC

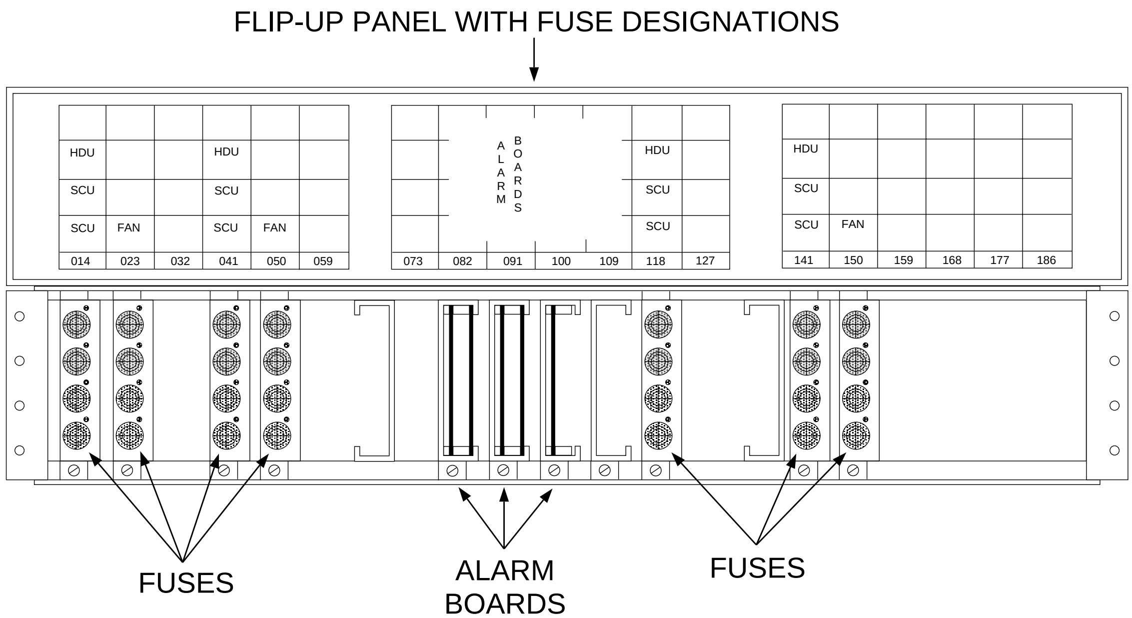


Figure 2. Fuse and Filter Panel for the SCUC

2. Identify circuit pack to be replaced.

3. At front of cabinet, remove screw and circuit pack locking mechanism securing the circuit pack to the cabinet.

> ***Caution: Place a sheet of paper over the top unit in this cabinet and beneath the circuit pack screw and clip to be removed to prevent possible service interruption and/or equipment damage.***
>
> ***WARNING: A wrist strap must always be worn and the clip must be grounded to the unit being worked on before inserting or removing any circuit packs.***

4. Remove defective circuit pack.

5. Insert new circuit pack into position of defective pack.

6. Ensure circuit pack is fully seated and locked into position.

7. Secure circuit pack to cabinet with screw and locking mechanism previously removed.

8. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

How To Use This Document

This Task Oriented Practice (TOP) document 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.

This document is divided into parts called procedures. Each procedure is given a 3-digit number. These numbers range from 001 through 893. Procedures are arranged in this document in numerical order beginning with 001.

Figure 1 is a typical IXL-001 procedure and is titled *Task Index List*. It is an alphabetical listing of the jobs that you may have to do. To use an IXL-001 procedure, 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 and begin the task. For example, suppose you are given the job of doing a system test. On the IXL-001 procedure, as shown in Figure 1, notice that it is listed in the THEN GO TO column as NTP-016. It could have been any other 3-digit number.

Figure 2 is an example of an NTP (Non-Trouble Procedure). Each NTP provides specific instructions for doing a job. 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 THE ITEMS BELOW IN 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 Figure 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 IXL-001 as shown in Figure 1, has directed you to NTP-016 as shown in Figure 2, and you are on item 8 ‘‘Mount Tape’’ in the DO ITEMS BELOW IN ORDER LISTED column. Mount the tape if you know how. 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 DLP-500. In either case, you must continue with the next item listed in NTP-016 until you complete the job.

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Issue 2

IXL-001
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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
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

Figure 1. Typical List of Jobs You May Have to Do

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Issue 2

NTP-016
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PERFORM SYSTEM TEST

DO THE 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-503
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

Figure 2. Typical List of Specific Instructions for Doing a Job

Figure 3 is a typical page of a DLP-500 (Detailed Level Procedure - 500) 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.

Now, look at Step 6 of DLP-500 as shown in Figure 3. Note that following the action statement there is the sentence, "For help see DLP-563." When you see a statement like this, it means that additional step-by-step instructions for doing just that step are given in the referenced procedure. In this case, DLP-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, cannot do Step 6, then go to DLP-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. However, if you came directly from IXL-001 to TAP-109, then your job is completed when you have fixed the trouble.

Admonishments: Three admonishments are used in this document 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: Table A lists the more important items used in this document.

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Issue 2 Page 1 of 2

MOUNT TAPE

SUMMARY: Install tape with or without write enable ring, as required. Thread tape and position tape at BOT (Beginning Of Tape) 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. For help see DLP-563.
7. Open tape transport door.

Figure 3. Typical List of Detailed Instructions for Doing a Job

TABLE A Important Procedural 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	The maintenance philosophy, when provided, gives an overview of the considerations designed into the trouble-clearing procedures.
DLP (Detailed Level Procedure)	Detailed, step-by-step instructions.
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.