



1677 SONET Link Maintenance and Trouble Clearing

PN 3EM13853AF 01
R06.02, Issue 01, September 2007

THIS PRODUCT COMPLIES WITH D.H.H.S. RADIATION PERFORMANCE STANDARDS 21 CFR, 1040.10, FOR A CLASS 1 LASER PRODUCT.

DANGER

Invisible laser radiation is present when the optic connector is open. AVOID DIRECT EXPOSURE TO BEAM.

WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

NOTICE

This manual applies to 1677 SONET Link R06.02 software. Release notes describing revisions to this software may impact operations described in this manual.

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DOCUMENTATION

Product documentation is available on Alcatel-Lucent's Online Support Documentation and Software web site at <https://www1.alcatel-lucent.com/osds>.

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Introduction

1. OVERVIEW

1.1 This manual provides step-by-step procedures to enable the user to perform a task. Each procedure contains important introductory information that is essential to understanding and completing the task properly. Procedures must be started at step 1, and steps must be performed in the order given. Failure to do so may cause unforeseen hazardous conditions.

Writing Conventions

1.2 Boldface characters indicate commands or parameters the user must enter or keys the user must press. Enter input parameters exactly as shown in the examples.

Admonishments

1.3 To avoid hazardous conditions, observe the following admonishments:

DANGER Possibility of personal injury.

CAUTION Possibility of service interruption.

WARNING *Possibility of equipment damage.*

Related Documentation

1.4 For additional system information, refer to the following related documents:

- 1677 SONET Link Product Information manual (PN 3EM13848AF)
- 1677 SONET Link Installation Practices manual (PN 3EM13849AF)
- 1677 SONET Link Operation and Administration manual (PN 3EM13851AF)
- 1677 SONET Link Turn-Up manual (PN 3EM13850AD)
- 1677 SONET Link Commands and Messages manual (PN 3EM13852AF)
- 1677 SONET Link Address and Location Guide (PN 3EM13854AD)

Document Types

1.5 The documentation contains all instructions needed to perform a task. This manual consists of the following types of documents:

- Task Index List (IXL)
- Routine Task List (RTL)
- Trouble Analysis Procedure (TAP)
- Detailed Level Procedure (DLP)

Task Index List (IXL)

1.6 IXLs group procedures by function. Each IXL lists procedures alphabetically by name and refers the user to the appropriate procedure number.

Routine Task List (RTL)

1.7 The RTL is a list of preventive maintenance procedures. It recommends a schedule (monthly, semiannual, or annual) for the performance of each procedure.

Trouble Analysis Procedure (TAP)

1.8 TAPs contain sequential steps required to perform trouble clearing. Trouble clearing involves clearing and repairing malfunctions in the system. Trouble clearing may be done to answer a customer complaint or to respond to an office alarm, a trouble report, or an abnormal display. Steps can refer to other procedures.

Detailed Level Procedure (DLP)

1.9 DLPs contain detailed steps and supporting information required to complete tasks. When a DLP is referenced from another part of the manual, perform the DLP, then return to the point where the DLP was referenced.

2. MAINTENANCE PHILOSOPHY

2.1 Maintenance of the system consists of repair and preventive maintenance. Repair covers isolation of faults, troubleshooting to the circuit card level, and subsequent replacement of the faulty circuit card. Circuit card repair is not covered. Preventive maintenance covers periodic routine tasks that are performed to ensure continued proper operation of the system.

2.2 The system incorporates both software- and firmware-based diagnostics to continuously monitor system integrity. Also available are diagnostics that can be manually invoked. Problems detected by diagnostics are reported as alarm/event messages displayed at a user terminal and/or lighted alarm indicators on the equipment. These messages and lights are the primary trouble analysis tools for fault isolation.

2.3 The instruction “contact next level of technical support for assistance” appears throughout this manual. The intent of this statement is to trigger escalation of problems that are beyond the scope of this Task Oriented Practice (TOP) to a higher level of expertise. Users who have local interim levels and/or procedures should implement those in response to this instruction. Refer to Introduction for customer access (HELP) contacts.

Troubleshooting

2.4 Troubleshooting procedures generally assume the following conditions:

- An alarm indication was received through a user terminal or a lighted alarm indicator.
- Maintenance personnel are familiar with system operation and use of the TL1 language.
- Maintenance personnel have system administration privileges or a system administrator is available.
- Replacement components (spares) are available and fully functional.

2.5 The following guidelines and information should be observed during troubleshooting:

- Trouble clearing begins with an analysis of alarm indications. The proper TAP is referenced in the IXL.
- Clear upstream problems first. This may also clear downstream problems.
- As a rule, no circuit card should be physically removed unless it was logically removed by entering the appropriate TL1 command. Exceptions to this are addressed in specific DLPs.
- To avoid unnecessary service interruption, exercise care when removing circuit cards, performing commands, and doing other maintenance tasks.
- Always follow electrostatic-sensitive device procedures when handling circuit cards.
- TL1 commands can be entered directly or in Menu mode as desired.
- After circuit card replacement, alarms can take up to 120 seconds to clear. Allow time for the alarm to clear before assuming the replacement did not clear the trouble.
- When replacing a circuit card does not clear the trouble, remove the replacement circuit card and return the original circuit card to service.
- When TAPs fail to clear the fault, an obscure or multiple fault is assumed to exist.

3. SAFETY AWARENESS

Fan, Equipment Rack, and Equipment Cabinet Precautions

3.1 When installing the equipment observe the following:

- DANGER** Possibility of personal injury. Keep your fingers away from the rotating fan blades. Pull the fan-tray module by the thumbscrews only and wait for the fan blades to stop spinning before you attempt to remove the fan-tray module completely from the chassis.
- DANGER** Possibility of personal injury. The Alcatel-Lucent 1677 SONET Link requires at least three people to support, align, and attach it to an equipment rack. To prevent equipment damage or personal injury, make sure you have enough help.
- DANGER** Possibility of personal injury. To prevent personal injury and equipment damage due to unbalanced loading of the equipment rack or cabinet, make sure the equipment rack or cabinet is properly secured to the floor, ceiling, or other rigid structure before mounting the Alcatel-Lucent 1677 SONET Link in it. For approved methods of securing the equipment rack, read the equipment-rack installation instructions or contact the equipment-rack manufacturer.

Electrical Precautions

3.2 Take appropriate safety precautions when performing procedures on electrical equipment. Hazardous electrical potentials are present when system power is on.

3.3 Some procedures in this manual require working with small conductive objects, such as screwdrivers, fuses, washers, screws, and nuts. When working on a chassis at the top of an equipment rack, a dropped object that falls into a lower chassis can cause physical damage and electrical short circuits. To prevent this, place a piece of paper or other cover over the lower chassis to catch fallen objects. Remove the paper or other cover when work is complete.

- DANGER** Possibility of personal injury. Install the Alcatel-Lucent 1677 SONET Link in a restricted-access area only. Entrance to a restricted-access area is intended for qualified or trained personnel and access to it is controlled by a locked barrier.

- DANGER** Possibility of personal injury. The chassis does not contain main overcurrent protection devices. The user must provide circuit breakers or fuses and disconnects between the power source and the Alcatel-Lucent 1677 SONET Link. Each power feed from a source (-48 V dc and Return) requires a 25-amp dc-rated fast-trip circuit breaker or fuse and disconnect. Circuit breakers or fuses must meet applicable local and national electrical safety codes and be approved for the intended application.
- DANGER** Possibility of personal injury. Make sure you connect the node to a -48 V dc source that is electrically isolated from the ac source and is reliably connected to earth ground.
- DANGER** Possibility of personal injury. For personal safety, make sure you connect and secure the installation site's frame-ground (earth ground) wire to the frame-ground terminal on the 1677 SONET Link before you connect any other wires to the node.
- DANGER** Possibility of personal injury. A dc-power source provides high energy, which can cause serious injury or equipment damage. Only Alcatel-Lucent qualified personnel should connect the dc power to the Alcatel-Lucent 1677 SONET Link. To prevent serious injury or equipment damage, make sure the power source cables are de-energized before you handle or connect them to the node.

Laser Precautions

3.4 Verify that laser labels on equipment state that the system conforms to all applicable standards of 21 CFR 1040.10. See figure 3-1 and 3-2. If there are no danger labels, call the Alcatel-Lucent Technical Assistance Center (TAC).

3.5 The invisible infrared radiation emitted by the fiber-optic transmitter can cause eye damage. Observe local office procedures and the following dangers:

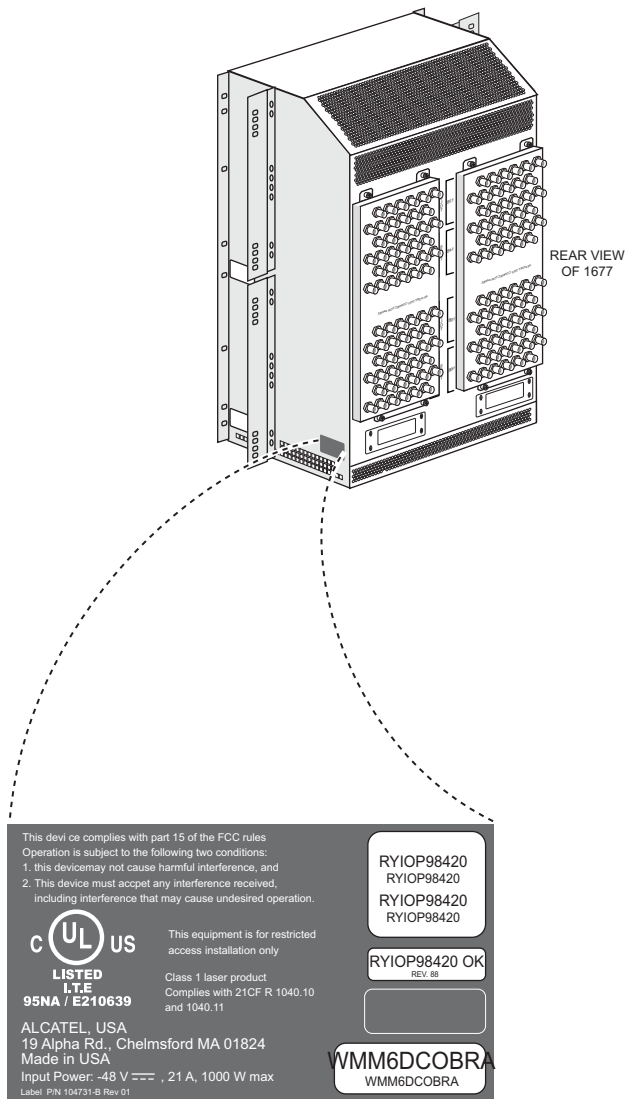
- DANGER** Possibility of personal injury. The use of controls and/or adjustments, or the performance of procedures other than those specified herein may result in hazardous infrared radiation exposure.
- DANGER** Possibility of personal injury. Laser infrared radiation is not in the visible spectrum; therefore, it is not visible to the naked eye or with laser safety glasses. Although it cannot be seen, laser radiation may be present.

- DANGER** Possibility of personal injury. Never look directly into an unterminated fiber-optic connector unless it is absolutely known that no optical power is being emitted by the connector.
- DANGER** Possibility of personal injury. Never look into a broken optical fiber cable unless it is absolutely known that no laser radiation is present.
- DANGER** Possibility of personal injury. Never look at an optical fiber splice, cable, or connector unless it is absolutely known that no laser radiation is present in the fiber. Laser radiation can come from a fiber-optic transmitter, an Optical Time Domain Reflectometer (OTDR), or other optical test equipment.
- DANGER** Possibility of personal injury. Never look directly into an unterminated optical connector or cable with a magnifier/microscope unless it is absolutely known that no laser radiation is being emitted from the connector or cable. A magnifier or microscope greatly increases the laser radiation hazard to the eyes.
- DANGER** Possibility of personal injury. This system normally operates as a Class I Laser Product (no hazard). However, during servicing operations, when optical connectors are being connected, disconnected, or handled without dust covers, it is possible to be exposed to Class IIIb laser radiation, which can cause eye damage.
- DANGER** Possibility of personal injury. Everyone within a 10-foot radius of an unterminated optical fiber or connector that is connected to a powered transmitter must wear laser safety goggles or eye shields.

3.6 Laser safety goggles or eye shields are not required if the following work rules are strictly followed:

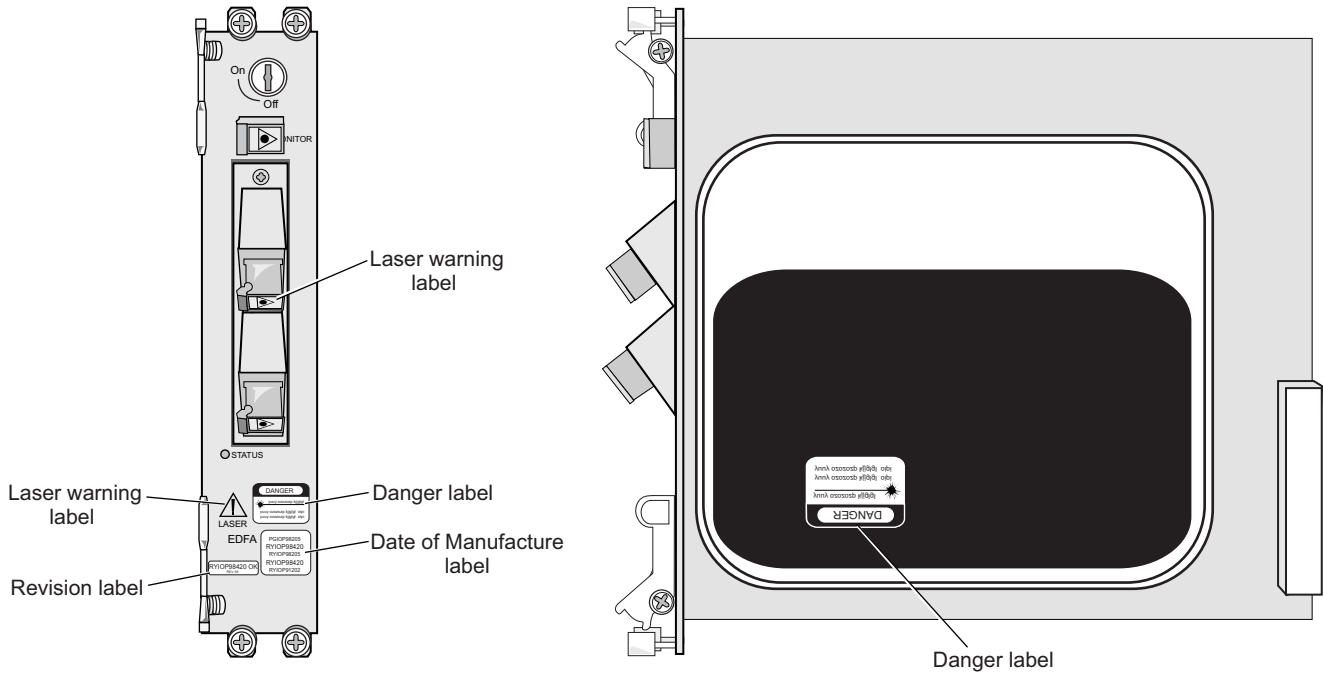
1. Always remove electrical power from fiber-optic transmitters before disconnecting fiber-optic connectors in the path between the transmitter and the receiver.
2. Never connect an unterminated optical cable to a fiber-optic transmitter. Always connect fiber-optic cables to fiber-optic receivers, test sets, or some other termination first.

Figure 3-1. Manufacture Date Label (Chassis)



677-0057-1
032003

Figure 3-2. Danger and Manufacture Date Labels (Cards)



677-0058-1
032003

4. ELECTROSTATIC-SENSITIVE DEVICES

Electrostatic-Sensitivity

4.1 An electrostatic-sensitive device (ESD) can withstand voltage spikes of only 10 to 100 volts and can be damaged or effectively destroyed by a discharge that might go unnoticed by a technician. Some devices have built-in protection. However, because this protection is effective only against the lower levels of electrostatic charges, a false sense of security often prevails.

WARNING *Possibility of equipment damage. Common plastic, white foam, cellophane, and masking adhesive tapes must not come in contact with ESDs or their packaging.*

4.2 Common plastics (synthetic insulating materials), clothing, and paper or cardboard are the most common sources of static charges.

4.3 Observe special precautions when the ESD sign is displayed. See figure 4-3.

Figure 4-3. Electrostatic-Sensitive Device (ESD) Sign



677-0356-1
071105

4.4 The following items are examples of ESDs:

- MOS (Metal Oxide Semiconductor) capacitors, transistors, Integrated Circuits (ICs)
- CMOS (Complementary Metal Oxide Semiconductor) transistors, ICs
- JFET (Junction Field Effect Transistors)
- IGFET (Insulated Gate Field Effect Transistors)

Handling Circuit Cards

4.5 Although the risk of damage to an ESD is reduced considerably after it is assembled into a circuit designed to protect sensitive components, take the following precautions to reduce static charges to harmless levels:

- Handle all circuit cards as ESDs unless they are known not to contain electrostatic-sensitive parts.

WARNING *Possibility of equipment damage. Heel straps are effective only while standing on conductive or electrostatic-dissipative surfaces.*

- Wear wrist ground straps (PN 1AD012470001) before and while touching or handling circuit cards containing ESDs.
- Cover surfaces with resistance to ground in excess of 100 megohms, such as ordinary tile, with properly grounded static dissipative runners.
- Store (even temporarily), pack, and ship circuit cards in antistatic bags or containers.
- Do not handle printed circuit board or components unnecessarily. Use plastic handle.
- Do not use synthetic bristled brushes or acid brushes to clean circuit cards.
- Handle failed circuit cards with same precautions as good circuit cards.

Repairing Circuit Cards

4.6 To protect ESDs during repair, take the following precautions:

- The workbench must be earth-grounded, and the work surface must be covered with an antistatic or static dissipative material bonded to the bench (bolt). A field service kit (PN 1AD069890001) or equivalent can be used if an adequate workbench is not available.
- Repair technicians must wear a wrist strap of 250 kilohms to 2 megohms that contacts the repair technician's skin and the bolt bonding the covering to the bench or safety ground. The wrist strap must be connected before parts are removed from packaging.
- All electrical equipment must be grounded using a 3-wire power cord.
- Clothing must not touch the device under repair.
- ESDs are delivered with protective packing (containers or conductive foam). The devices should remain in their original containers until needed.
- Containers with ESDs must contact the antistatic work surface, and the wrist strap must be connected before parts are removed from packaging. Devices must be handled by their bodies. Leads must be contacted only when necessary.
- Test setups must have correct voltage polarity.
- Volt Ohm Milliamp (VOM)-type meters must not be used to measure resistance; they can damage devices.
- Only antistatic (metallized) desoldering tools should be used.

4.7 ESDs are protected when properly packaged in conductive or antistatic packaging. Acceptable packaging is marked as either conductive or antistatic.

5. PRODUCT SUPPORT INFORMATION

Telephone Support

Customer Service Telephone Support

5.1 For telephone support for the customer services mentioned in this Product Support Information, call *888-ALCATEC (888-252-2832)* or *613-784-6100*, 8:00 a.m. to 5:00 p.m., Central Time, Monday through Friday. Ask the operator for the appropriate service to be connected to a qualified representative or engineer.

5.2 After-hours emergency telephone support is also available by calling *888-ALCATEC (888-252-2832)* or *613-784-6100*. An emergency is defined as an out-of-service, traffic-affecting problem or a nonoperating alarm system on traffic-bearing systems.

Product Documentation and Training

Product Documentation

5.3 Product documentation is available on both paper and CD-ROM. The documentation can also be accessed through Alcatel-Lucent's Online Support Documentation and Software web site at *https://www1.alcatel-lucent.com/osds*. Product documentation updates appear on Alcatel-Lucent's Online Support Documentation and Software web site before they are available in any other format.

5.4 At Alcatel-Lucent's Online Support Documentation and Software web site, follow the on-screen instructions to register for access and obtain a login ID. In addition to accessing product documentation, the Alcatel-Lucent Online Support Documentation and Software web site allows the user to view the following:

- Application notes
- Configuration notes
- Data collections
- Frequently Asked Questions (FAQs)
- General information books
- General Release Documents (GRDs)
- Installation documents
- Methods of Procedure (MOPs)
- Product Change Notifications (PCNs)
- Product Information Bulletins (PIBs)
- Product manual updates
- Software patch and software load documents
- Software Update Documents (SUDs)
- Technical bulletins
- Training documents
- Urgent Product Warnings (UPWs)

Training

5.5 Equipment training is available to all customers. Crafts and maintenance personnel who are trained by Alcatel-Lucent's Training department can expect more effective assistance if they need to call the Technical Assistance Center. Regularly scheduled courses are available at the training facilities in Plano, Texas. If a customer cannot attend a standard course, the Training department can arrange a course for a specific requirement and conduct it at the customer's facility. For further information, call customer service telephone support and ask for a training coordinator or write to one of the following addresses:

IN USA:

Alcatel-Lucent USA
3400 W. Plano Pkwy.
Plano, Texas 75075
ATTN: Training M/S 1206-553

IN CANADA:

Alcatel-Lucent Canada
Network Services Division
P.O. Box 13600
Ottawa, Ontario K2K 2E6

5.6 The annual Product Training Catalog can be ordered by calling the training coordinator, or it can be viewed on-line at http://www1.alcatel-lucent.com/us/product_training/catalog.

Technical Assistance Center

5.7 The Technical Assistance Center staff is always ready to provide high-quality technical assistance. Customers can expect effective telephone assistance when their crafts and maintenance personnel have been trained by Alcatel-Lucent's Training department and are equipped with adequate test equipment, spares, and documentation at the site.

5.8 For technical assistance, call customer service telephone support.

After-hours Emergency Telephone Support

5.9 Emergency support is available after-hours through dispatch operators. Call customer service telephone support and ask for the Lightwave, Microwave, Operations Support System (OSS), Digital Loop Carrier (LMS), or Digital Cross-Connect emergency duty engineer.

5.10 An emergency is defined as an out-of-service, traffic-affecting problem or a nonoperating alarm system on traffic-bearing systems.

5.11 Nonemergency is defined as installation turn-ups, application questions, traffic cutover, routine maintenance, or other non-service-affecting maintenance. All non-service-affecting, after-hours telephone services are billable to the customer.

5.12 Please provide the operator with the following information:

- Company name
- Caller name
- A telephone number where caller can be reached
- A brief description of the problem, including the product involved

After-hours Nonemergency Telephone Support

5.13 After-hours telephone support to address new installations, system expansions, system operations, system application, or other non-service-affecting issues is available by contacting Alcatel-Lucent Customer Service at 1-888-252-2832 (1-888-ALCATEC) or 1-613-784-6100.

On-site Technical Support

5.14 On-site technical support is available when an issue cannot be resolved remotely. This determination is usually made by Alcatel-Lucent TAC during the problem investigation process. These services may or may not be billable to a customer. This depends on several factors such as what type of Service Level Agreement a customer has with Alcatel-Lucent, the age of the product, etc.

Repair and Return Services

5.15 As part of a comprehensive technical support program, Alcatel-Lucent provides factory repair services for equipment. This service is available both during and after the warranty period through Alcatel-Lucent's Return and Repair department.

Spare Parts and Replacement Modules

5.16 For spare parts, spare modules, module exchange, and in-warranty replacement on a routine or emergency basis, call customer service telephone support.

5.17 Provide the following information:

- Company name
- Caller name
- A telephone number where caller can be reached
- A brief description of the problem, including product line, part number, and quantity of parts needed

5.18 For emergency assistance after normal business hours, call customer service telephone support, ask the operator for Emergency Parts Assistance, and provide the operator with the required information. The operator will contact an appropriate individual to respond.

Return for Credit or Warranty Exchange Procedure

5.19 Returned equipment must have a Return Authorization (RA) number. Obtain an RA number either by calling customer service telephone support or by fax (*972-519-4611*).

5.20 No equipment should be returned without an RA number. The following information is required:

- Description and quantity of equipment to be returned
- Reason for return
- Order number the equipment was purchased against and approximate date of purchase

Service Center

5.21 The Service Center tests, repairs, and modifies all modules (both in and out of warranty). Modules received for repair or modification are returned promptly.

Return for Repair Procedure

5.22 Refer to paragraph 5.19 for information on obtaining an RA number. Notification to the Service Center and issuance of an RA number by Alcatel-Lucent personnel *must be made prior to shipment of parts*. The following information must be furnished with the request for return authorization:

- Purchase order number or requisition number
- Description and quantity of equipment to be returned
- Reason for return:
 - Modification required
 - Defective equipment to be repaired
- Warranty status (in or out of warranty) and warranty date stamped on unit
- Specific nature of problem
- Name and telephone number of person who identified problem
- Special instruction/information

Shipping Instructions for Repair, Credit, or Warranty Exchange

5.23 Return equipment or parts prepaid to the address provided when the RA number was issued. The RA number must be prominently marked on the shipping label, the packing list, and any correspondence regarding the order.

- Include company name, address, and name of person to contact in case of a question.
- Include specific reason for return. (This aids prompt processing.)
- Include the same requisition number or purchase order number that was furnished with request for return authorization.
- Include type number and part number of unit.
- State whether equipment is in or out of warranty.
- Furnish shipping address for return of unit, if applicable, or other pertinent details.
- Mail purchase order, if applicable, to address shown under Return for Repair Procedure, Attention: Service Center.

Installation and Maintenance Services

Engineering and Installation Service

5.24 Whether installation for specific equipment or a full turnkey network facility is needed, Installation Service can help. Alcatel-Lucent has experience in central office, outside plant, and customer premises applications, and specializes in flexible scheduling and high-quality service. Qualified staff are in place nationwide, so an installation can be started and completed promptly.

Contract Maintenance Service

5.25 Field service from Alcatel-Lucent offices nationwide is available if a maintenance contract is selected. Alcatel-Lucent field service is well-suited for private networks of any size. For a fixed annual fee, Alcatel-Lucent provides prompt response to service calls and provides scheduled preventive maintenance, including FCC-required measurements and record keeping.

5.26 Factory-trained service technicians are qualified on similar systems before they are allowed to maintain customer equipment. They have direct access to additional technical support around the clock and to all necessary tools and test equipment.

IXL-100

Task Index List

Refer to table [100-A](#) to select the type of procedure or information needed to perform maintenance and trouble clearing on the system.

Table 100-A. Task Index List

TYPE OF PROCEDURE/INFORMATION	REFERENCE
Alarm and event condition clearing procedures	IXL-101
Support procedures	IXL-102
Equipment replacement procedures	IXL-103
Supporting information	IXL-104
Preventive maintenance procedures	RTL-100
Performance monitoring	RTL-101

IXL-101

Alarm and Event Condition Clearing Procedures

Refer to table [101-A](#) to identify a condition type and the corresponding procedure, which describes how to clear the condition type. The EQUIPMENT and FACILITY columns list the entities to which a condition type can apply. Depending on the entities affected, some condition types have more than one corresponding procedure.

In the EQUIPMENT column, entities are listed by software mnemonic. Refer to [IXL-103](#) for corresponding hardware mnemonics. In the FACILITY column also, entities are listed by software mnemonic. Observe the following definitions:

- Stand-alone DS3: DS3 that is not embedded
- Embedded DS3: DS3 embedded in EC1, OC-3, OC-12, OC-48, or OC-192
- EC1: EC1
- OC3: OC-3
- OC12: OC-12
- OC48: OC-48
- OC192: OC-192
- STS1: STS-1 embedded in EC1, OC-3, OC-12, OC-48, or OC-192
- STS3c: STS-3c embedded in OC-3, OC-12, OC-48, or OC-192
- STS12c: STS-12c embedded in OC-12, OC-48, or OC-192
- STS48c: STS-48c embedded in OC-48 or OC-192
- T0: T0 embedded in T1 embedded in DS3, T3, or VT1.5
- T1: T1 embedded in DS3, T3, or VT1.5
- VT1.5: VT1.5 embedded in STS-1

The RTRV-ALM-ALL command is used to retrieve alarm condition types present in the system.

The RTRV-COND-ALL command is used to retrieve event (non-alarmed or not-reported) condition types present in the system.

Table 101-A. Condition Types

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
ACTLPBK	Looped-back port		EC1, OC3, OC12, OC48, OC192, T0, T1, T3, VT1	TAP-100
AIC	DS3 Application Identification Channel detected.		T3	TAP-100
AIS	Incoming alarm indication signal		T1, T3	TAP-100
AIS-L	Line alarm indication signal		EC1, OC-3, OC-12, OC-48, OC-192	TAP-100
AIS-P	Path alarm indication signal		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
AIS-V	VT path alarm indication signal		VT1	TAP-100
APSB	Automatic protection switching byte failure		OC-3, OC-12, OC-48, OC-192	TAP-113
APSCDFLTK	Default K byte received		OC-48, OC-192	TAP-100
APSCIMP	Improper K byte received		OC-48, OC-192	TAP-100
APSCINCON	Inconsistent K byte received		OC-48, OC-192	TAP-100
APSCM	Automatic protection switching channel match failure on OC-n ports		OC-3, OC-12, OC-48, OC-192	TAP-100
APSCNMIS	Node identifier mismatch in K-bytes (2F-BLSR)		OC-48, OC-192	TAP-100
APSMM	Automatic protection switching mode mismatch on OC-n ports		OC-3, OC-12, OC-48, OC-192	TAP-100
AUTORESET	Automatic system reset.	CHASSIS (transient ¹)		No action
BATTERYLOW	Battery on the real time clock/NVRAM chip is low.	CCC, SSC, TC, DISK, IOC, MOS		TAP-138
BKUPMEMP	Redundant disk is not available. Applies to logical disk.	DSK		TAP-101
BKUPMEMS	Physical disk is not available. Applies to physical disk.	DSK		TAP-101
BKUPMEMSYNCH	Disk synchronization in progress. Applies to logical disk.	DSK		No action
BKUPMEMSYNCH FAIL	Disk synchronization operation failure. Applies to logical disk.	DSK (transient ¹)		No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
BLSRAD-AUTO	BLSR Autodiscovery Auto Mode Mismatch		OC-48, OC-192	TAP-100
BLSRAD-DUPNODE	BLSR Autodiscovery Duplicate Node ID		OC-48, OC-192	TAP-100
BLSRAD-OSI-ERR	BLSR Autodiscovery OSI Communication Error		OC-48, OC-192	TAP-100
BLSRAD-TOPOERR	BLSR Autodiscovery Topology Error		OC-48, OC-192	TAP-100
BOOTROM-VER	Boot ROM version check skipped due to disk synchronization.	CCC, SSC (transient ¹)		No action
BP	BLSR Protection Switching State is Bidirectional Full Passthrough		OC-192	TAP-100
CARD-8K-DF	Card detects 8k clock loss defect.	SSC (transient ¹)		TAP-139
CARD-INT-DF	Card internal defect is detected on component.	SSC (transient ¹)		TAP-139
CFG-RESET	Creation of initial facility set in progress as part of SSC boot process	SSC		No action
CFGFLT	Configuration database download failure for processor module.	CCC, SSC		TAP-102
CFGFLT	Configuration database download failure for system.	CHASSIS (transient ¹)		No action
CFGNOSAVE	Disallow writing config change to disk, config activate pending.	CHASSIS (transient ¹)		TAP-140
CGAAIS	Alarm Indication Signal - Carrier Group Alarm		T1	TAP-100
CGARED	Red - Carrier Group Alarm		T1	TAP-100
CGAYEL	Yellow - Carrier Group Alarm		T1	TAP-100
CLFAN	Failure of one or more fans in the tray.	FANTRAY		TAP-110

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
CLKALM	System clock alarm detected.	TMUX, VSC, DS0G, DS3, EC1, GIGE, OC3, OC12, OC48, OC192 (transient ¹)		No action
CONTBUS-7	Unable to select a valid message bus A arbiter.	CHASSIS		TAP-104
CONTBUS-8	Unable to select a valid message bus B arbiter.	CHASSIS		TAP-104
CONTBUS-MOS-1	Hardware error is detected when attempting to enumerate MOS devices after MOS discovery.	MOS		TAP-105
CONTBUS-MOS-2	After MOS discovery, MOS devices are seen by only one of the two CCCs.	MOS		TAP-105
CONTBUS-MOS-3	Mismatch in number of MOS devices discovered by each CCC.	MOS (transient ¹)		No action
CONTR	Control processor failure	CCC, SSC		TAP-113
CONTR-TACC	Test access is inhibited due to control processor module failure.	SSC		TAP-114
CTRLREAD	Fan controller read operation failure.	FANTRAY		TAP-110
CTRLWRITE	Fan controller write operation failure.	FANTRAY		TAP-110
DISK90 (A)	Drive A has less than 10 Megabytes of free space	DSK		TAP-125
DISK90 (B)	Drive B has less than 10 Megabytes of free space	DSK		TAP-124
DP-CARD-DF	Card detects TBS data path defect.	SSC, TMUX, VSC (transient ¹)		No action
DP-CARD-DF	Card detects TBS data path defect.	DS0G, DS3, EC1, GIGE, OC-3, OC-12, OC-48, OC-192 (transient ¹)		No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
DP-IOC-DF	IOC card detects data path defect.	DS0G, SSC, MUX, VSC (transient ¹)		No action
DP-IOC-DF	IOC card detects data path defect.		OC-48, C192 (transient ¹)	No action
DP-PEER-DF	IOC card detects data path defect from peer.		OC-48, C192 (transient ¹)	No action
EOC	Embedded Operations Channel failure on section DCC. No Adjacencies formed.		OC-3, OC-12, OC-48, OC-192	TAP-100
EOCL	Embedded Operations Channel failure on line DCC. No Adjacencies formed.		OC-3, OC-12, OC-48, OC-192	TAP-100
ERROR	Network timing automatic reference clock switching disabled.	TC-SYNC		TAP-149
EXER-MULT	Multiple EXER-R commands detected.		OC48, OC192 (transient ¹)	No action
EXER-RING-DONE	Exercise ring complete.		OC48, OC192 (transient ¹)	No action
EXT-CMD-PREEMPT	Command preempted by ring condition.		OC48, OC192 (transient ¹)	No action
EXTCMD-DEFAULT	Command was rejected; adjacent node is incapable of signaling.		OC48, OC192 (transient ¹)	No action
EXTCMD-DUP	Command was rejected; duplicated command.		OC48, OC192 (transient ¹)	No action
EXTCMD-EQUAL-PRI	Command was rejected; equal priority to the existing command.		OC48, OC192 (transient ¹)	No action
EXTCMD-LOWER-PRI	Command was rejected; lower priority than existing one.		OC48, OC192 (transient ¹)	No action
EXTCMD-LWR-RING	Command was rejected; lower priority than ring existing ring condition.		OC48, OC192 (transient ¹)	No action
EXTCMD-LWR-SPAN	Command was rejected; lower priority than span existing ring condition.		OC48, OC192 (transient ¹)	No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
FACTERM	Facility termination failure. Fault detected associated with a datapath module. Protection for module traffic is not available (SA) or is available (NSA).	DS0G, IOC, SSC, TC, TMUX, VSC		TAP-137
FAILTOSW-RING	Fail to switch.		OC48, OC192 (transient ¹)	No action
FEACAIS	DS3 AIS failure at remote terminal		T3	TAP-100
FEACDS1EFAILNSA	Non-service affecting DS1 equipment failure at remote terminal		T3	TAP-100
FEACDS1EFAILSA	Service affecting DS1 equipment failure at remote terminal		T3	TAP-100
FEACDS1LOS	Single DS1 LOS failure at remote terminal		T3	TAP-100
FEACDS1MLOS	Multiple DS1 LOS failure at remote terminal		T3	TAP-100
FEACEFAILCOM	Common equipment failure at remote terminal		T3	TAP-100
FEACEFAILNSA	Non-service affecting DS3 equipment failure at remote terminal		T3	TAP-100
FEACEFAILSA	Service affecting DS3 equipment failure at remote terminal		T3	TAP-100
FEACISD	DS3 ISD failure at remote terminal		T3	TAP-100
FEACLOF	DS3 LOF failure at remote terminal		T3	TAP-100
FEACLOS	DS3 LOS failure at remote terminal		T3	TAP-100
FEPRLF	Far-end protection-line failure. Applies to the protection OC-n facility.		OC-3, OC-12, OC-48, OC-192	TAP-113
FPGAIP	FPGA upgrade is in progress	TMUX		No action
FPGAUPFAIL	FPGA upgrade has failed.	TMUX (transient ¹)		No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
FPSWUNLCK	Front panel switch is unlocked	CCC, SSC, TC		TAP-108
FRCDWKSWBK	Forced switch to working. Applies to protection facility. Applies to the protection OC-n facility.		OC-3, OC-12, OC-48, OC-192	TAP-100
FRCDWKSWBK	Forced switch to working. Applies to UPSR facilities.		STS1, STS3C, STS12C, STS48C	No action
FRCDWKSWPR	Forced switch to protection. Applies to working DS3, ECC, TMUX, and VSC.	IOC		TAP-117
FRCDWKSWPR	Forced switch to working. Applies to UPSR facilities.		STS1, STS3C, STS12C, STS48C	No action
FRCDWKSWPR	Forced switch to protection. Applies to working OC-n facility.		OC-3, OC-12, OC-48, OC-192	TAP-100
FRCDWKSWPR-RING	Forced switch from working to protection. Applies to BLSR facilities.		OC-48, OC-192	TAP-100
FRD	Intrusion is suspected.	CHASSIS (transient ¹)		No action
FWMISM	Firmware mismatch	CCC, SSC, IOC (TMUX)		TAP-127
HLDOVRSYNC	Manual or automatic switch to hold-over synchronization mode	TC-SYNC		TAP-118
HLTHVER	Health FPGA version is incompatible with peer card	IOC, SSC, CCC		TAP-142
IDROMREADERR	Physical ID ROM could not be read.	CCC, SSC, TC, DISK, IOC, MOS		TAP-144
IMPROPINS	Improper Insertion - Timing card is not compatible with existing one.	TC		TAP-143
IMPROPRMVL	Card physical removal was not preceded by logical removal	All cards		TAP-123
INHMSG-PM	PM reports inhibited		All facilities	TAP-129
INHMSG-PM	PM reports inhibited for all entities	CHASSIS		TAP-129
INHSWPR	Switching from working card to protection is inhibited	DS3, ECC, TMUX, VSC		TAP-130

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
INHSSWWKG	Switching from protection to working card is inhibited	DS3, ECC, TMUX, VSC		TAP-131
INIT	System initialization in progress	CHASSIS		No action
INIT-2	Module is reset.	CCC, SSC (transient ¹)		No action
INT	Unrecognized fan controller	FANTRAY		TAP-110
INT-1	No valid oscillator could be selected	CHASSIS		TAP-133
INT-19	Module ID ROM (remote inventory data) is improperly programmed.	IOC		TAP-134
INT-2	No valid system clock could be selected	CHASSIS		TAP-135
INTERR	Internal error has been detected for the module. Applies to DS0G, DS3, ECC, EDFA, GIGE, OC3, OC12, OC48, and OC192 modules.	IOC (transient ¹)		No action
IOC-8K-DF	IOC card detects 8k clock loss defect. Applies to DS0G, DS3, EC1, GIGE, OC-3, OC-12, OC-48, OC-192, TMUX, and VSC modules.	IOC (transient ¹)		No action
IOC-INT-DF	IOC card internal defect is detected on HYPERMAPPER component. Applies to DS0G, EC1, GIGE, OC12, OC192, OC3, OC48, TMUX, and VSC modules.	IOC (transient ¹)		TAP-103
IPCPLCONFAL	IPCP Line DCC connection failure		OC-3, OC-12, OC-48, OC-192	TAP-100
IPCPLDCF	IPCP Line DCC connection failure. Alarm raised after MAXTERM count exhausted or reception of Code reject		OC-3, OC-12, OC-48, OC-192	TAP-100
IPCPSCONFAL	IPCP Section DCC connection failure		OC-3, OC-12, OC-48, OC-192	TAP-100

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
IPCPSDCF	IPCP Section DCC connection failure. Alarm raised after MAXTERM count exhausted or reception of Code reject		OC-3, OC-12, OC-48, OC-192	TAP-100
ISD	DS3 idle signal detected		T3	TAP-100
L2LCONFAIL	Layer 2 Line DCC connection failure.		OC-3, OC-12, OC-48, OC-192	TAP-100
L2SCONFAIL	Layer 2 Section DCC connection failure.		OC-3, OC-12, OC-48, OC-192	TAP-100
LCPLCONFAIL	LCP Line DCC connection failure. Alarm raised after MAXCONFIG count exhausted		OC-3, OC-12, OC-48, OC-192	TAP-100
LCPLDF	LCP Line DCC failure. Alarm raised after MAXTERM count exhausted or ECHOREPCOUNT exhausted or reception of Code reject.		OC-3, OC-12, OC-48, OC-192	TAP-100
LCPSCONFAIL	LCP Section DCC connection failure. Alarm raised after MAXCONFIG count exhausted		OC-3, OC-12, OC-48, OC-192	TAP-100
LCPSDF	LCP Section DCC failure. Alarm raised after MAXTERM count exhausted or ECHOREPCOUNT exhausted or reception of Code reject.		OC-3, OC-12, OC-48, OC-192	TAP-100
LDCCDLFL	Line DCC data link connection failure. After establishing a connection, Line DCC communication failed and the problem persists for L2REX times L2WAIT times.		OC-3, OC-12, OC-48, OC-192 (transient ¹)	No action
LDCCFRMR	Line DCC Frame Reject. FRMR (frame reject) PDU was received over Line DCC.		OC-3, OC-12, OC-48, OC-192 (transient ¹)	No action
LDCCIFRX	Invalid Line DCC Frame code Received		OC-3, OC-12, OC-48, OC-192 (transient ¹)	No action
LOCC	Loss of Client Character Synchronization		GIGE	TAP-100

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
LOCKOUTOFPR	Lockout of protection facility		OC-3, OC12, OC48, OC-192 (1+1 FFP) OC48, OC-192 (BLSR)	TAP-100
LOCKOUTOFPR	Lockout of protection facility. Applies to UPSR facilities.		STS-1, STS-3c, STS-12c, STS-48c	No action
LOCS	Loss of Client Signal event		GIGE	TAP-100
LOF	Incoming loss of frame		EC1, OC3, OC12, OC48, OC192, T1, T3	TAP-100
LOL	Gigabit Ethernet Loss of link		GIGE	TAP-100
LOP-P	Loss of pointer		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
LOP-V	Loss of pointer		VT1	TAP-100
LOS	Loss of signal		Stand-alone DS3, EC1, OC3, OC12, OC48, OC192, GIGE, OFA	TAP-100
MAN	Manual (Management) Removal - Logical removal was performed and protection is not available (SA) or protection is available (NSA).	DSK		DLP-128
MANRESET	Manual system reset.	CHASSIS (transient ¹)		No action
MANWKSWBK	Manual switch to working		OC3, OC12, OC48, OC192	TAP-100
MANWKSWBK	Manual switch to working. Applies to UPSR facilities.		STS-1, STS-3c, STS-12c, STS-48c	No action
MANWKSWPR	Manual switch to protection		OC3, OC12, OC48, OC192	TAP-100
MANWKSWPR	Manual switch to protection. Applies to UPSR facilities.		STS-1, STS-3c, STS-12c, STS-48c	No action
MANWKSWPR	Manual switch to protection	DS3, ECC, TMUX, VSC		TAP-117
MANWKSWPR- RING	Manual switch from working to protection. Applies to BLSR facilities.		OC-48, OC-192	No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
MEM-ACCESS-DF	Memory Access Defect. Applies to DS0G, DS3, EC1, GIGE, OC3, OC12, OC48, OC192, TMUX, and VSC.	IOC		TAP-145
NO2KCLOCK	Subcard 2K clock signal not available	IOC		TAP-146
OALCASETEMP	Optical case temperature		OFA	TAP-100
OALKEYLOCK	EDFA key lock		OFA	TAP-100
OALLBC	Excessive Laser bias current level detected		OC-48, OC-192, OFA	TAP-100
OALLOPOW	Optical Loss of Power		OFA	TAP-100
OALPWR	Excessive Laser Power detected		OFA, OC-48, OC-192	TAP-100
OALRXLOCK	Laser Receiver Lock error detected		OFA	TAP-100
OALTEMP	Excessive laser temperature detected		OFA, OC-48, OC-192	TAP-100
OALTXLOCK	Laser Transmitter Lock error detected		OFA	TAP-100
OOL-RXD	Out of Lock receive data		GIGE	TAP-100
OOL-RXR	Out of Lock receive reference		GIGE	TAP-100
OOL-TXR	Out of Lock transmit reference		GIGE	TAP-100
OOS	Out of Sync		GIGE	TAP-100
PLM-P	Payload label mismatch-path		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
PLM-V	Payload label mismatch-path		VT1	TAP-100
PRCDRERR	Procedure error. Card is inserted in wrong slot.	TC, IOC		TAP-136
PROTNA	Protection Not Available - Applies to UPSR STS1, STS3c, STS12c, STS48c working facilities.		STS1, STS3c, STS12c, STS48c	TAP-100
PWR	Power failure	POWER, IOC		TAP-132
RAI	Remote alarm indication		T1, Stand-alone DS3, embedded DS3	TAP-100
RARFAIL	Rearrangement Failure	SSC		TAP-148
RFI-L	Line remote failure indication		EC1, OC-3, OC-12, OC-48, OC-192	TAP-100

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
RFI-P	Path remote failure indication		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
RFI-V	Remote failure indication		VT1	TAP-100
RMOPTIC	Removable Optics unplugged		GIGE	TAP-100
RNG-SQUELCH	Traffic on ring squelched		STS1, STS3c, STS12c, STS48c	TAP-100
SB-DF	Slavebus Defect	SSC (transient ¹)		No action
SD	Signal Degrade (Path)		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
SD	Signal Degrade (Line)		OC-3, OC-12, OC-48, OC-192	TAP-100
SDCCDLFL	Section DCC data link connection failure. After establishing a connection, Section DCC communication failed and the problem persists for L2REX times and L2WAIT times.		OC-3, OC-12, OC-48, OC-192 (transient ¹)	No action
SDCCFRMR	Section DCC Frame Reject. FRMR (frame reject) PDU was received over Section DCC.		OC-3, OC-12, OC-48, OC-192 (transient ¹)	No action
SF	Signal Fail (Path)		STS-1, STS-3c, STS-12c, STS-48c	TAP-100
SF	Signal Fail (Line)		OC-3, OC-12, OC-48, OC-192	TAP-100
SNTP	Failed to synchronize time from the server at the specified interval.	CHASSIS		TAP-112
SRFLT-CIRRUS	Internal subsystem failure - Error while accessing the Cirrus PC Card controller.	TC (transient ¹)		No action
SRFLT-DISK0	Internal subsystem failure - Error while accessing lower disk control registers.	TC (transient ¹)		No action
SRFLT-DISK1	Internal subsystem failure - Error while accessing upper disk control registers.	TC (transient ¹)		No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
SRFLT-ISAIO	Internal subsystem failure - Error while accessing ISA bus for an I/O operation.	TC (transient ¹)		No action
SRFLT-ISAMEM	Internal subsystem failure - Error while accessing ISA bus for a memory operation.	TC (transient ¹)		No action
SRFLT-SRREG	Internal subsystem failure - Error while accessing a System Resource Bus status register.	TC (transient ¹)		No action
SRFLT-SSCRAM	System resource fault - SSC RAM mismatch	SSC		TAP-141
SRFLT-T1FR1	Internal subsystem failure - Error while accessing a DS1 Framer 1 register.	TC (transient ¹)		No action
SRFLT-T1FR2	Internal subsystem failure - Error while accessing a DS1 Framer 2 register.	TC (transient ¹)		No action
SWCPLLERR	SWC reported a detected PLL loss of 8K clock.	SSC (transient ¹)		No action
SWTMGREF	Timing reference is switched.	TC (transient ¹)		No action
SYNCINT	System timing in internal mode	TC-SYNC		TAP-121
SYNCOOS	Both primary and secondary external clock reference failure	TC-SYNC		TAP-106
SYNCPRI	Primary external clock reference failure	TC-SYNC		TAP-106
SYNCSEC	Secondary external clock reference failure	TC-SYNC		TAP-106
SYNCSTATCHNG	Timing reference quality level has changed.	TC (transient ¹)		No action
SYSBOOT	Startup configuration database download has completed.	CHASSIS (transient ¹)		No action
SYSDBG	System is operating in debug mode	CHASSIS		TAP-122
SYSREADY	System is ready to accept TL1 messages	CHASSIS		No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
TEMP	Temperature sensor has detected very high temperature (CR) or marginally high temperature (MN)	CHASSIS		TAP-126
TH-LBCN-HT	Laser Bias Current upper threshold crossed		OFA, OC-48, OC-192	TAP-100
TH-LSRTEMP-HT	Laser Temperature upper threshold crossed		OFA, OC-48, OC-192	TAP-100
TH-OPRN-HT	Optical Power Received upper threshold crossed		OFA, OC-48, OC-192	TAP-100
TH-OPRN-LT	Optical Power Received lower threshold crossed		OFA, OC-48, OC-192	TAP-100
TH-OPTN-HT	Optical Power Transmitted upper threshold crossed		OFA	TAP-100
TH-OPTN-LT	Optical Power Transmitted lower threshold crossed		OFA	TAP-100
TIM-P	Path trace mismatch between incoming and expected		STS-1, STS-3c, STS-12c, STS-48c	TAP-114
TOPOLOGY-CHANGED	Ring Topology has changed.	CHASSIS (transient ¹)		No action
TSISWAP	TSI swap failed, resetting card.	SSC (transient ¹)		No action
UNEQ-P	Unequipped		STS-1, STS-3c, STS-12c, STS-48c	TAP-114
UNEQ-V	Unequipped		VT1	TAP-100
USTHRESHOLD	Resource module usage has reached 80%	TMUX, VSC		TAP-120
VERSION	VT card version below 3.	VSC		TAP-150
WKSRRP	Cross-connect path switch to protection alarm.		STS-1, STS-3c, STS-12c, STS-48c (transient ¹)	No action
WKSWBK	Automatic Protection Switch to Working		OC-3, OC-12, OC-48, OC-192 (transient ¹)	TAP-100
WKSWBK	Automatic Protection Switch to Working. Applies to UPSR.		STS-1, STS-3c, STS-12c, STS-48c (transient ¹)	No action

Table 101-A. Condition Types (cont.)

CONDITION	DEFINITION	EQUIPMENT	FACILITY	REF
WKSWBK-RING	A ring switch back to working has completed. Applies to BLSR.		OC-48, OC-192 (transient ¹)	No action
WKSWPR	APS automatic switch from working to protection. This condition is a standing condition for 1+1 FFP provisioned facilities. Applies to the working OC-n facility.		OC-3, OC-12, OC-48, OC-192 (transient ¹)	TAP-100
WKSWPR	Automatic Working Switch to Protection. Applies to UPSR.		STS-1, STS-3c, STS-12c, STS-48c (transient ¹)	No action
WKSWPR	Automatic switch to protection is in effect for a working module. Applies to working DS3, ECC, TMUX, and VSC modules.	IOC		TAP-117
WKSWPR-RING	APS automatic switch from working to protection. Applies to BLSR facilities.		OC-48, OC-192 (transient ¹)	No action
WKSWPR-RING-FE	A working switch to protect has occurred due to a far-end SF. Applies to BLSR.		OC-48, OC-192 (transient ¹)	No action
WTR	Wait to restore state is in effect for a working module. Applies to working DS3, ECC, TMUX, and VSC modules.	IOC		TAP-100
WTR	OC-n facility in wait to restore state		OC-3, OC-12, OC-48, OC-192	TAP-100
WTR	STS-n facility in wait to restore state		STS1, STS3C, STS12C, STS48C	TAP-100
XMTLPBK	Active loopback request to the far end.		T1, T3	TAP-100

[1] Transient alarms are issued only once and are not retrievable using RTRV-ALM-ALL or RTRV-COND-ALL. Alone, a transient alarm does not indicate a problem with the system, and no action is required to clear it.

IXL-102

Support Procedures

Refer to table [102-A](#) to select the support procedure needed to perform maintenance and trouble clearing on the system.

For references to Commands and Messages manual, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF). For references to Operation and Administration manual, refer to the 1677 SONET Link Operation and Administration manual (PN 3EM13851AF).

Table 102-A. Support Procedures

SUPPORT PROCEDURE	REFERENCE
Alarm attributes, Retrieve or set	Commands and Messages manual
Alarm and event reports, Retrieve	Operation and Administration manual
Alarm cut-off control	Operation and Administration manual
Change Line Buildout (LBO)	Operation and Administration manual
Clean fiber-optic connectors	DLP-100
Clock reference and operation mode selections	Commands and Messages manual
Provision equipment	Operation and Administration manual
Log into system	Operation and Administration manual
Loopback (DS3, EC1, OC-3, OC-12, OC-48, OC-192, STS-1, STS-3c, STS-12c, STS-48c, T1, or VT1)	Operation and Administration manual
Manage cross-connections	Operation and Administration manual
Password change	Operation and Administration manual
Performance monitoring	Operation and Administration manual
Protection switching controls	Operation and Administration manual
Provision or edit ports	Operation and Administration manual
Routine task procedures	RTL-100
Test access	Operation and Administration manual

IXL-103 Equipment Replacement Procedures

Refer to table [103-A](#) to find the detailed level procedure (DLP) for replacing or adding each 1677 SONET Link replaceable unit.

Table 103-A. Equipment Replacement Procedures

EQUIPMENT	PROCEDURE
GIGE Card	DLP-126
Air-Filter Element	DLP-127
Common Control Card (CCC)	DLP-128
DS3 Connector Panel	DLP-129
DS3 Interface Card	DLP-130
Erbium-Doped Fiber Amplifier (EDFA)	DLP-131
Fan-Tray Assembly (15RU)	DLP-132
Filler Panels	DLP-133
Node Protection Shield	DLP-134
OC-n Line Card	DLP-135
STS Switch Card (SSC, SWC/DCC)	DLP-136
Timing Card (TC)	DLP-137
Card Slot Adapter	DLP-138
VT Switch Card (VSC)	DLP-141
Modular Optical System (MOS)	DLP-143
Transmux Card (TMUX)	DLP-144
Fan-Tray Assembly (18RU)	DLP-145
ECC Interface Card	DLP-146
Replace DS3 Card with ECC Module	DLP-147
DS0 Groomer (DS0G)	DLP-148

IXL-104 Supporting Information

Refer to table 104-A for supporting information needed to perform maintenance and trouble clearing on the system. The following references are used:

- For references to Commands and Messages manual, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).
- For references to Operation and Administration manual, refer to the 1677 SONET Link Operation and Administration manual (PN 3EM13851AF).

Table 104-A. Supporting Information

SUPPORTING INFORMATION	REFERENCE
Alarm condition types	Commands and Messages manual
Circuit card locator and addressing	Address and Location Guide
Command structure and response messages	Commands and Messages manual
Product support information	Introduction
Electrostatic-sensitive devices	Introduction
Error codes	Commands and Messages manual
How to use TOP documentation	Introduction
Laser precautions	Introduction
Maintenance philosophy	Introduction
Operations support system	Operation and Administration manual
Safety awareness	Introduction
Security/user authorization	Operation and Administration manual
State event tables	Commands and Messages manual
Test access	Operation and Administration manual
VDT operating functions	Operation and Administration manual

RTL-100 Preventive Maintenance Procedures

Refer to table [100-A](#) for preventive maintenance procedures and their corresponding references. Frequencies listed are recommended. Local conditions may require maintenance procedures be performed more or less frequently.

Table 100-A. Preventive Maintenance Procedures

ACTIVITY	FREQUENCY	REFERENCE
Replace air filters	Every 3 months	DLP-127
Check air filters	Every 2 months	DLP-127
Clean equipment	Every 2 months	DLP-127
Maintain printer	Monthly	Refer to manufacturer's documentation.
Maintain terminal	Monthly	Refer to manufacturer's documentation.

RTL-101 Performance Monitoring

PURPOSE

This procedure provides instructions for monitoring performance of the 1677 SONET Link.

GENERAL

Individual performance monitoring (PM) registers are used to store performance information that can be retrieved under command. This data is stored on 15-minute increments for up to eight hours (or 32 consecutive 15-minute periods), and daily for the current and previous 24-hour period.

Performance information can be retrieved on demand, or through scheduled PM reports.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Select action. To retrieve PM data, go to step 2. To initialize PM registers, go to step 5. To retrieve threshold values, go to step 7. To set thresholds, go to step 10. To retrieve PM mode, go to step 12. To set PM mode, go to step 15. To retrieve PM reporting schedule, go to step 17. To schedule PM reporting, go to step 19. To inhibit PM reporting, go to step 21. To allow PM reporting, go to step 23. To end this procedure, go to step 25.

Retrieve PM Data

2 Enter **RTRV-PM-ALL:::[MONTYPE],[MONLEV],,,[TMPER],[MONDAT],[MONTM];**

or

RTRV-PM-x:::[AID]:::[MONTYPE],[MONLEV],,,[TMPER],[MONDAT],[MONTM];

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility, or is omitted for all facilities of that type.

MONTYPE=Threshold (monitored parameter) name, or is omitted for all thresholds.

MONLEV=Discrimination level of the requested monitored parameter, given in the form n -**UP** or n -**DN**, where n is an integer in the range 0-255 (optional). For example, **1-UP** reports only if the value of the parameter is 1 or higher; **2-DN** reports only if the value is 2 or lower.

TMPPER=Accumulation period for the counter: either **15-MIN** (default) or **1-DAY**.

MONDAT=Starting date of the data to retrieve, or is omitted for the current date.

MONTM=Starting time of the data to retrieve, or is omitted for the current time.

3 Examine output.

4 Go to step 1.

Initialize PM Registers

5 Enter **INIT-REG-x::AID::[MONTYPE],[MONVAL],[LOCN],[TMPPER],;**

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility.

MONTYPE=Threshold (monitored parameter) name, or is omitted for all thresholds for the facility type.

MONVAL=New value for the register, or is omitted to use the default value 0.

LOCN=Location associated with command (NEND or FEND)

TMPPER=Accumulation period for the counter: either **15-MIN** (default) or **1-DAY**.

6 Go to step 1.

Retrieve Threshold Values

7 Enter **RTRV-TH-ALL:::[MONTYPE],[TMPPER];**

or

RTRV-TH-x::[AID]::[MONTYPE],[TMPPER];

where:

rr in the command name is the type of facility (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access identifier of the facility, or is omitted for all facilities of that type.

MONTYPE=Threshold (monitored parameter) name, or is omitted for all thresholds.

TMPPER=Accumulation period for the counter: either **15-MIN** (default) or **1-DAY**.

8 Examine output.

For example, the following command retrieves current thresholds for OC-12 ports:

```
agent>RTRV-TH-OC12;
```

```
ALCATEL-1677SL 04-02-05 10:55:25
M 0 COMPLD
"OC12-14-A-1:CVS,,,16383,"
"OC12-14-A-1:ESS,,,751,"
"OC12-14-A-1:SESS,,,900,"
"OC12-14-A-1:SEFS-S,,,900,"
"OC12-14-A-1:CVL,,,16383,"
"OC12-14-A-1:ESL,,,10,"
"OC12-14-A-1:SESL,,,900,"
"OC12-14-A-1:UASL,,,900,"
"OC12-14-A-1:CV-LFE,,,16383,"
"OC12-14-A-1:ES-LFE,,,900,"
"OC12-14-A-1:SES-LFE,,,900,"
"OC12-14-A-1:UAS-LFE,,,900,"
"OC12-14-A-1:LBCN,,,95,"
"OC12-14-A-1:OPRN-HT,,,95,"
"OC12-14-A-1:OPRN-LT,,,3,"
"OC12-14-A-1:LSRTEMP,,,85,"
"OC12-14-A-2:CVS,,,16383,"
"OC12-14-A-2:ESS,,,900,"
"OC12-14-A-2:SESS,,,900,"
"OC12-14-A-2:SEFS-S,,,900,"
"OC12-14-A-2:CVL,,,16383,"
"OC12-14-A-2:ESL,,,900,"
"OC12-14-A-2:SESL,,,900,"
"OC12-14-A-2:UASL,,,900,"
"OC12-14-A-2:CV-LFE,,,16383,"
"OC12-14-A-2:ES-LFE,,,900,"
"OC12-14-A-2:SES-LFE,,,900,"
"OC12-14-A-2:UAS-LFE,,,900,"
"OC12-14-A-2:LBCN,,,95,"
"OC12-14-A-2:OPRN-HT,,,95,"
"OC12-14-A-2:OPRN-LT,,,3,"
"OC12-14-A-2:LSRTEMP,,,85,"
/* RTRV-TH-OC12 */
;
```

9 Go to step 1.

Set Thresholds

10 Enter **SET-TH-x::AID::MONTYPE,THRESH,,[TMPER];**

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access identifier of the facility.

MONTYPE=Threshold name or **ALL**. If the NE is configured for dual thresholds, the suffixes -HT and -LT indicate the high and low thresholds, respectively.

THRESH=Threshold value given as an integer, or **DFLT** for the standard default for that threshold.

TMPER=Accumulation period for the counter: either **15-MIN** or **1-DAY**.

For example:

```
agent>SET-TH-OC12::OC12-14-A-1::ESL,10;
```

```
ALCATEL-1677SL 04-02-05 11:53:47
M 0 COMPLD
/* SET-TH-OC12 */
;
```

11 Go to step [1](#).

Retrieve PM Mode

12 Enter **RTRV-PMODE-x::AID::LOCN;**

where:

x=Facility type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility.

LOCN=Location: either **NEND** (near end) or **FEND** (far end).

13 Examine output.

```
agent>RTRV-PMODE-OC12::OC12-14-A-1;
```

```
ALCATEL-1677SL 04-02-05 09:25:04
M 0 COMPLD
"oc12-14-a-1:NEND,L&S"
"oc12-14-a-1:FEND,L"
/* RTRV-PMODE-OC12 */
;
```

14 Go to step [1](#).

Set PM Mode

15 Enter **SET-PMMODE-x::AID::LOCN,ALL,[PMSTATE];**

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility.

LOCN=Location: **ALL**, **NEND** (near end), or **FEND** (far end).

PMSTATE=PM state: either **ON** (default) or **OFF**.

16 Go to step 1.

Retrieve PM Reporting Schedule

17 Enter **RTRV-PMSCHED-x::AID;**

where:

x=ALL or Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID is the access identifier of the facility.

18 Go to step 1.

Schedule PM Reporting

19 Enter **SCHED-PMREPT-ALL:::[REPTINVL],[REPTSTATM],[NUMREPT],[MONTYPE],[MONLEV],,,[TMPER],[TMOFST];**

or

SCHED-PMREPT-x::[AID]:::[REPTINVL],[REPTSTATM],[NUMREPT],[MONTYPE],[MONLEV],,,[TMPER],[TMOFST];

where:

x=**ALL** or the Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access identifier of the facility.

REPTINVL=Reporting interval, indicating how often to generate reports: **15-MIN**, **1-DAY**, or **15-DAY**, or is omitted to use the value specified for TMPER.

REPTSTATM=Next reporting time (hour:minute) starting on a 15-minute boundary, specified in the format *hh-mm*.

NUMREPT=Number of reports to generate, or is omitted for continuous (unlimited) reporting.

MONTYPE=Monitored type to report (&-grouping is supported), or is omitted for all types.

MONLEV=Discrimination level of the requested monitored parameter, given in the

form *n-UP* or *n-DN*, where *n* is an integer in the range 0-255. For example, **1-UP** reports only if the value of the parameter is 1 or higher; **2-DN** reports only if the value is 2 or lower.

TMPER=Accumulation period for the counter: either **15-MIN** (default) or **1-DAY**.

TMOFST=Time offset between reporting/diagnostics/exercises.

20 Go to step [1](#).

Inhibit PM Reporting

21 Enter **INH-PMREPT-COM**; or **INH-PMREPT-rr::AID**;

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility.

22 Go to step [1](#).

Allow PM Reporting

23 Enter **ALW-PMREPT-ALL**; or **ALW-PMREPT-COM**; or **ALW-PMREPT-x::AID**;

where:

x=Facility Type (EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1).

AID=Access Identifier of the facility.

24 Go to step [1](#).

25 **STOP. This procedure is complete.**

TAP-100 Facility Alarm or Event

PURPOSE

This procedure provides instructions to clear a facility alarm or event.

GENERAL

In this procedure, x=port type and AID=individual port AID.

Refer to the 1677 SONET Link Address and Location Guide (PN 3EM13854AD) to determine facility and module location and address.

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; and observe output.
2	Select alarm to clear. For facility alarms or events not listed, refer to IXL-101 . For ACTLPBK, go to step 3 . For AIC, go to step 6 . For AIS, go to step 7 . For AIS-L, go to step 8 . For AIS-P, go to step 9 . For AIS-V, go to step 10 . For APSB, go to step 11 . For APSCCDFLTK, go to step 26 . For APSCIMP, go to step 28 . For APSCINCON, go to step 30 . For APSCM, go to step 31 . For APSCNMIS, go to step 54 . For BLSRAD-AUTO, go to step 64 . For BLSRAD-DUPNODE, go to step 65 . For BLSRAD-OSI-ERR, go to step 75 . For BLSRAD-TOPOERR, go to step 76 . For BP, go to step 89 . For CGAAIS, go to step 90 . For CGARED, go to step 91 . For CGAYEL, go to step 92 . For EOC, go to step 95 . For EOCL, go to step 95 . For FEAC alarms, go to step 96 . For FEPRLF, go to step 97 . For FRCKWKSWBK, go to step 98 . For FRCDWKSWPR, go to step 98 .

For FRCDWKSWPR-RING, go to step 98.
For INHMSG-PM, go to step 101.
For IPCPLCONFAL, go to step 104.
For IPCPLDCF, go to step 104.
For IPCPSCONFAL, go to step 105.
For IPCPSDCF, go to step 105.
For ISD, go to step 106.
For L2LCONFAL, go to step 107.
For L2SCONFAL, go to step 107.
For LCPLCONFAL, go to step 108.
For LCPLDF, go to step 109.
For LCPSCONFAL, go to step 108.
For LCPSDF, go to step 109.
For LOCC, go to step 110.
For LOCKOUTOFPR, go to step 111.
For LOCS, go to step 114.
For LOF, go to step 115.
For LOL, go to step 116.
For LOP-P, go to step 117.
For LOP-V, go to step 117.
For LOS, go to step 118.
For MANWKSWBK, go to step 119.
For MANWKSWPR, go to step 119.
For OALCASETEMP, go to step 122.
For OALKEYLOCK, go to step 123.
For OALLBC, go to step 124.
For OALLOPOW, go to step 125.
For OALPWR, go to step 126.
For OALRXLOCK, go to step 127.
For OALTEMP, go to step 128.
For OALTXLOCK, go to step 127.
For OOL-RXD, go to step 129.
For OOL-RXR, go to step 130.
For OOL-TXR, go to step 130.
For OOS, go to step 131.
For PLM-P, go to step 132.
For PLM-V, go to step 134.
For PROTNA, go to step 136.
For RAI, go to step 139.
For RFI-L, go to step 140.
For RFI-P, go to step 140.
For RFI-V, go to step 140.
For RMOPTIC, go to step 141.
For RNG-SQUELCH, go to step 142.
For SD, go to step 143.
For SF, go to step 144.
For TH-LBCN-HT, go to step 145.
For TH-LSRTEMP-HT, go to step 150.

For TH-OPRN-HT, go to step 151.
For TH-OPRN-LT, go to step 151.
For TH-OPTN-HT, go to step 152.
For TH-OPTN-LT, go to step 152.
For TIM-P, go to step 153.
For UNEQ-P, go to step 154.
For UNEQ-V, go to step 154.
For WKSWBK, go to step 155.
For WKSWPR, go to step 155.
For WTR, go to step 156.
For XMTPBK, go to step 157.

ACTLPBK

- 3 ACTLPBK indicates OPR-LPBK has been executed and one of the following ports is in loopback: EC1, OC-3, OC-12, OC-48, OC-192, T0, T1, T3, or VT1.

Does loopback need to be released?

If yes, go to step 4.
If no, go to step 161.

- 4 Enter **RLS-LPBK-x::AID;**
- 5 Did output return a COMPLD or DENY?
- If COMPLD, go to step 161.
If DENY, go to step 160.

AIC

- 6 AIC indicates DS3 Application Identification Channel detected. Go to step 160.

AIS

- 7 AIS indicates system is detecting incoming Alarm Indication Signal (AIS).
- Problem is outside system. Go to step 160.

AIS-L

- 8 AIS-L indicates system is detecting incoming Line Alarm Indication Signal (AIS-L) on one of the following ports: EC1, OC-3, OC-12, OC-48, or OC-192.
- Problem is outside system. Go to step 160.

AIS-P

- 9** AIS-P indicates system is detecting Path Alarm Indication Signal (AIS-P) on one of the following ports: STS-1, STS-3c, STS-12c, or STS-48c.

Problem is upstream. Go to step [160](#).

AIS-V

- 10** AIS-V is an alarm indication signal on incoming VT1.

Problem is upstream. Go to step [160](#).

APSB

- 11** CAUTION: Possibility of service interruption. Follow procedure in DLP-135 when replacing a card to avoid service interruption.

- 12** Enter **RTRV-ALM-ALL**; to retrieve alarms at far-end.

- 13** Are there any OC-n alarms?

If yes, clear alarms. Go to step [2](#).

If no, go to step [14](#).

- 14** Enter **RTRV-ALM-ALL**; to retrieve alarms at near-end.

- 15** Are there any OC-n card alarms?

If yes, clear alarms. Go to IXL-[101](#).

If no, go to step [16](#).

- 16** Enter **RTRV-OCn::AID**; for facility in alarm.

where:

OCn=Optical facility type (OC3, OC12, OC48, or OC192)

AID=Facility Access Identifier

- 17** Observe output and note primary and secondary states.

- 18** Does the alarmed OC-n facility have secondary state of WRK or STBYH?

If WRK, go to step [19](#).

If STBYH, go to step [20](#).

- 19** Enter **OPR-PROTNSW-OCn::AID::MAN**; to switch service away from alarmed facility.

where:

OCn=Optical facility type (OC3, OC12, OC48, or OC192)

AID=Facility Access Identifier

- 20** Repeat steps [16](#) through [19](#) at far-end NE that terminates alarmed OC-n span to switch active side away from alarmed facility.

- 21** Refer to [DLP-135](#) to replace OC-n card, then go to step [22](#).

- 22** Was a protection switch performed on OC-n facility at near-end or far-end?

If yes, go to step [23](#).

If no, go to step [24](#).

- 23** Enter **RLS-PROTNSW-OCn::AID**; to release protection switch at near end and/or far end.

where:

OCn=Optical facility type (OC3, OC12, OC48, or OC192)

AID=Facility Access Identifier

- 24** Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;

- 25** Did alarm clear?

If yes, go to step [161](#).

If no, go to step [160](#).

APSCDFLTK

- 26** APSCDFLTK indicates a default K byte received. This alarm is transmitted until a valid ring map is created. While this alarm is present, no BLSR protection is available.

Refer to the Operation and Administration manual (PN 3EM13851AF) to provision ring map.

- 27** Go to step [160](#).

APSCIMP

- 28** APSCIMP indicates the incoming K byte does not match.

Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;

- 29** Are there other OC-48 or OC-192 facility alarms?

If yes, go to step [2](#) and clear these alarms.
If no, go to step [160](#).

APSCINCON

- 30** APSCINCON indicates inconsistent K byte received. Go to step [160](#).

APSCM or APSMM

- 31** APSCM indicates automatic protection switching channel match failure. APSMM indicates automatic protection switching mode match failure.

Enter **RTRV-FFP-OCn::AID;** to check provisioning of protection switching parameters at both ends of alarmed OC-n span.

where:

OCn=Optical facility type (OC3, OC12, OC48, or OC192)

AID=Facility Access Identifier

- 32** Observe output. Are parameters same at both ends?

If yes, go to step [36](#).
If no, go to step [33](#).

- 33** Enter **ED-FFP-OCn::PROTECTEDID[,PROTECTINGID]::::[APSTRC=][,PSDIRN=][,RVRTV=][,RVRTTIM=][,NODEID=][,NODEDESCR=][,AUTOMAP=][RINGID=];** to change protection switching parameters at incorrect end.

PROTECTED_ID=Working OC-48 in 1+1 FFP group, working (preferred) OC-48 in UPSR group, or west OC-48 in BLSR

PROTECTING_ID=Protecting OC-48 in 1+1 FFP group, protecting (alternate) OC-48 in UPSR group, or east OC-48 in BLSR

Other parameters are optional. If a value is not entered for these parameters, the system will use the default value. Refer to Commands and Messages manual (PN 3EM13852AF) for details on parameter values.

- 34** Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;**

- 35** Did alarm clear?

If yes, go to step [161](#).
If no, go to step [36](#).

- 36** Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** at near-end NE.

- 37** Observe output. Note AID in alarm.

- 38** Enter **RTRV-OCn::AID;** for facility in alarm.
- where:
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
AID=Facility Access Identifier
- 39** Observe output and note primary and secondary states.
- 40** Does the alarmed OC-n facility have secondary state of WRK or STBYH?
- If WRK, go to step [41](#).
If STBYH, go to step [42](#).
- 41** Enter **OPR-PROTNSW-OCn::AID::MAN;** to switch service away from alarmed facility.
- where:
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
AID=Facility Access Identifier
- 42** Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** at far-end NE.
- 43** Observe output. Note AID in alarm.
- 44** Enter **RTRV-OCn::AID;** for facility in alarm (far-end).
- where:
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
AID=Facility Access Identifier
- 45** Observe output and note primary and secondary states.
- 46** Does the alarmed OC-n facility have secondary state of WRK or STBYH?
- If WRK, go to step [47](#).
If STBYH, go to step [48](#).
- 47** Enter **OPR-PROTNSW-OCn::AID::MAN;** to switch service away from alarmed facility at far-end.
- where:
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
AID=Facility Access Identifier
- 48** CAUTION: Possibility of service interruption. Follow [DLP-135](#) when replacing a card to avoid interrupting service.
- 49** Replace OC-n card. Refer to [DLP-135](#). Then go to step [50](#).

- 50** Was a protection switch performed on OC-n facility at near-end or far-end?
- If yes, go to step [51](#).
If no, go to step [52](#).
- 51** Enter **RLS-PROTNSW-OCn::AID**; to release protection switch at near end and/or far end.
- where:
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
AID=Facility Access Identifier
- 52** Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;
- 53** Did alarm clear?
- If yes, go to step [161](#).
If no, go to step [160](#).

APSCNMIS

- 54** APSCNMIS indicates mismatched node IDs in a BLSR ring.
- Enter **RTRV-FFP-OCn::[AID]**;
- where:
OCn=Optical facility type (OC-48 or OC-192)
AID=OC-48/OC-192 access identifier
- 55** Observe output and note current value of NODEID parameter.
- 56** Enter **OPR-PROTNSW-OCn::AID::LOP-S**;
- where:
OCn=Optical facility (OC-48 or OC-192)
AID=East OC-n facility access identifier
- 57** Enter **OPR-PROTNSW-OCn::AID::LOP-S**;
- where:
OCn=Optical facility (OC-48 or OC-192)
AID=West OC-n facility access identifier
- 58** Enter **ED-FFP-OCn::PROTECTED_ID:::,NODEID=;**
- where:
OCn=Optical facility type (OC-48 or OC-192)
PROTECTED_ID=OC-48/OC-192 access identifier
NODEID=New value of node identifier (0-15)

59 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=West OC-n facility access identifier

60 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=East OC-n facility access identifier

61 Enter **RTRV-FFP-OCn::[AID];** to verify new node ID value.

where:

OCn=Optical facility type (OC-48 or OC-192)

AID=OC-48/OC192 access identifier

62 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** and observe output.

63 Did APSCNMIS condition clear?

If yes, go to step [161](#).

If no, go to step [160](#).

BLSRAD-AUTO

64 BLSRAD-AUTO indicates autodiscovery auto mode is set on own node but not on neighbor. Go to step [160](#).

BLSRAD-DUPNODE

65 BLSRAD-DUPNODE indicates a duplicate node ID has been detected.

Enter **RTRV-FFP-OCn::[AID];**

where:

OCn=Optical facility type (OC-48 or OC-192)

AID=OC-48/OC-192 access identifier

66 Observe output and note current value of NODEID parameter.

67 Enter **OPR-PROTNSW-OCn::AID::LOP-S;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=East OC-n facility access identifier

68 Enter **OPR-PROTNSW-OCn::AID::LOP-S;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=West OC-n facility access identifier

69 Enter **ED-FFP-OCn::PROTECTED_ID:::,NODEID=;**

where:

OCn=Optical facility type (OC-48 or OC-192)

PROTECTED_ID=OC-48/OC-192 access identifier

NODEID=New value of node identifier (0-15)

70 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=West OC-n facility access identifier

71 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=East OC-n facility access identifier

72 Enter **RTRV-FFP-OCn::[AID];** to verify new node ID value.

where:

OCn=Optical facility type (OC-48 or OC-192)

AID=OC-48/OC192 access identifier

73 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** and observe output.

74 Did BLSRAD-DUPNODE condition clear?

If yes, go to step [161](#).

If no, go to step [160](#).

BLSRAD-OSI-ERR

75 BLSRAD-OSI-ERR indicates node is unable to communicate with its neighbor. Go to step [160](#).

BLSRAD-TOPOERR

- 76** BLSRAD-TOPOERR indicates inability to communicate around the ring completely in both directions. If automap is enabled, this alarm is based on the ability to communicate around the entire ring in both directions. If automap is disabled, this alarm is based on the values in the manual ring map. Applies to both working and protection OC-48 or OC-192 facilities.

Enter **RTRV-FFP-OCn::AID;**

where:

OCn=Optical facility type (OC48 or OC192)

AID=facility Access Identifier or ALL

- 77** Observe output. Note value of AUTOMAP parameter.

- 78** Does AUTOMAP parameter have value of Y or N?

If Y, ring maps are automatically learned and can not be changed manually. Go to step [161](#).

If N, go to step [79](#).

- 79** Enter **RTRV-RINGMAP::[AID];** to retrieve the existing BLSR ring maps.

where:

AID=OC48 or OC192 Access Identifier or ALL

Example Output:

```
ALCATEL-1677SL 04-05-30 19:26:57
M 0 COMPLD
"OC192-5-AB-1,OC192-6-AB-1::RINGID=DALLAS,NODEID=4,RINGMAP=1&2&3"
"OC48-1-A-1,OC48-2-A-1::RINGID=MADRID,NODEID=6,RINGMAP=3&1&2"
/* RTRV-RINGMAP */
;
```

- 80** Observe output. Note values of RINGID, NODEID, and RINGMAP parameters.

- 81** Enter **OPR-PROTNSW-OCn::AID::LOP-S;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=East OC-n facility access identifier

82 Enter **OPR-PROTNSW-OCn::AID::LOP-S;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=West OC-n facility access identifier

83 Enter **ED-RINGMAP::AID:::RINGMAP=;**

where:

AID=OC-48 or OC-192 access identifier of BLSR node

RINGMAP=Sequence of node IDs within a BLSR. (0-15) Ampersand (&) grouping is used to join each node ID value (up to 15 values). The first RINGMAP value defines the node ID of the adjacent BLSR node (east side). Subsequent RINGMAP values define the node ID of the BLSR node (in the eastward side). The last RINGMAP value defines the node ID of the adjacent BLSR node (west side).

84 Enter **RTRV-RINGMAP::[AID];** to verify the new ring map.

where:

AID=OC48 or OC192 access identifier or ALL

85 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=West OC-n facility access identifier

86 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Optical facility (OC-48 or OC-192)

AID=East OC-n facility access identifier

87 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** and observe output.

88 Did BLSRAD-TOPOERR condition clear?

If yes, go to step [161](#).

If no, go to step [160](#).

BP

89 BP indicates BLSR protection switching state is bidirectional full pass-through. Go to step [160](#).

CGAAIS

- 90** CGAAIS indicates system is detecting incoming Alarm Indication Signal - Carrier Group Alarm.

Problem is outside system. Go to step [160](#).

CGARED

- 91** CGARED indicates system is detecting incoming Red - Carrier Group Alarm.

Problem is outside system. Go to step [160](#).

CGAYEL

- 92** CGAYEL indicates the adjacent NE is detecting a problem coming from the 1677 SONET Link.

Enter **SW-DX-EQPT::AID**; to copy switch the supporting DS0G modules.

where: AID=Access Identifier of either DS0G module in the pair

- 93** Enter **RTRV-COND-ALL**; and observe output.

- 94** Did CGAYEL alarm clear?

If yes, go to step [161](#).

If no, go to step [160](#).

EOC or EOCL

- 95** EOC indicates Embedded Operations Channel failure on section DCC. EOCL indicates Embedded Operations Channel failure on line DCC. Go to step [160](#).

FEAC Alarms

96 The following alarms indicate failure at remote terminal:

- FEAC AIS
- FEACDS1EFAILNSA or FEACDS1EFAILSA
- FEACDS1LOS
- FEACDS1MLOS
- FEACEFAILCOM
- FEACEFAILNSA or FEACEFAILSA
- FEACISD
- FEACLOF
- FEACLOS

Go to step [160](#).

FEPRLF

97 FEPRLF indicates far end protection failure on one of the following ports: OC-3, OC-12, OC-48, or OC-192. This failure is applicable to 1+1 bidirectional FFP provisioned facilities. It applies to the protection OC-n facility.

Check far-end OC-3, OC-12, OC-48, and OC-192 provisioning. Correct provisioning if necessary. Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF). Then go to step [161](#).

FRCDWKSWBK, FRCDWKSWPR, or FRCDWKSWPR-RING

98 FRCDWKSWBK indicates forced switch of service from protect to working. FRCDWKSWPR indicates forced switch of service from working to protect. This condition is a result of the OPR-PROTNSW-OCn (n=3, 12, 48, or 192) command.

Is forced switch to be released?

If yes, go to step [99](#).

If no, go to step [161](#).

99 Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Facility type (OC3, OC12, OC48, OC192)

AID=Facility Access Identifier

100 Did output return a COMPLD or DENY?

If COMPLD, go to step 161.
If DENY, go to step 160.

INHMSG-PM

101 INHMSG-PM indicates facility PM reports are inhibited.

Are PM report to be allowed?

If yes, go to step 102.
If no, go to step 161.

102 Enter **ALW-PMREPT-x::AID;**

where:

x=facility type (ALL, COM, EC1, GIGE, OC3, OC12, OC48, OC192, OFA, STS1, STS3C, STS12C, STS48C, T1, T3, VT1)
AID=Facility Access Identifier

103 Go to step 161.

IPCPLCONFAIL or IPCPLDCF

104 IPCPLCONFAIL indicates line IPCP DCC connection failure. IPCPLDCF indicates IPCP Line DCC connection failure and is raised after MAXTERM count exhausted or reception of code reject.

Go to step 160.

IPCPSCONFAIL or IPCPSDCF

105 IPCPSCONFAIL indicates Section IPCP DCC connection failure. IPCPSDCF indicates IPCP Section DCC connection failure and is raised after MAXTERM count exhausted or reception of code reject.

Go to step 160.

ISD

106 ISD indicates system is receiving and detecting an idle signal on a stand-alone or embedded DS3.

Problem is outside system. Go to step 160.

L2LCONFAIL or L2SCONFAIL

- 107** L2LCONFAIL indicates Layer 2 Line DCC connection failure. L2SCONFAIL indicates Layer 2 Section DCC connection failure.

Go to step [160](#).

LCPLCONFAIL or LCPSCONFAIL

- 108** LCPLCONFAIL indicates LCP Line DCC connection failure. LCPSCONFAIL indicates LCP Section DCC connection failure. These alarms are raised after MAXCONFIG count is exhausted.

Go to step [160](#).

LCPLDF or LCPSDF

- 109** LCPLDF indicates Line DCC failure. LCPSDF indicates LCP Section DCC failure. These alarms are raised after MAXTERM count is exhausted, ECHOREPCOUNT is exhausted, or reception of code reject.

LOCC

- 110** LOCC indicates Loss of Client Character Synchronization on a GIGE facility.

Go to step [160](#).

LOCKOUTOFPR

- 111** LOCKOUTOFPR indicates lockout of a protection OC3, OC12, OC48, or OC192 facility. The protect facility is locked out of use by any associated working facility. This condition is initiated by OPR-PROTNSW-OCn command.

Is lockout of protection to be released?

If yes, go to step [112](#).

If no, go to step [161](#).

- 112** Enter **RLS-PROTNSW-OCn::AID;**

where:

OCn=Facility type (OC3, OC12, OC48, OC192)

AID=Facility Access Identifier

- 113** Did output return COMPLD or DENY?

If COMPLD, go to step [161](#).

If DENY, go to step [160](#).

LOCS

114 LOCS indicates Loss of Client Signal on a GIGE facility.

Go to step [160](#).

LOF

115 LOF indicates system is detecting Loss of Frame (LOF) on one of the following incoming signals: T1, T3, EC1, OC-3, OC-12, OC-48, or OC-192.

Problem is outside system. Go to step [160](#).

LOL

116 LOL indicates Gigabit Ethernet Loss of Link.

Go to step [160](#).

LOP-P or LOP-V

117 LOP-P indicates system is detecting Loss of Pointer-Path (LOP-P) on one of the following incoming signals: STS-1, STS-3c, STS-12c, or STS-48c. LOP-V indicates system is detecting Loss of Pointer-VT Path (LOP-V) on an incoming VT1 signal.

Check provisioning. Correct provisioning if required. Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF). Otherwise, problem is outside system. Go to step [160](#).

LOS

118 LOS indicates system is detecting Loss of Signal (LOS) on incoming stand-alone DS3, EC1, OC-3, OC-12, OC-48, OC-192, GIGE, or OFA.

Problem is outside system. Go to step [160](#).

MANWKSWBK or MANWKSWPR

119 MANWKSWBK indicates manual switch of OC3, OC12, OC48, or OC192 facility from protect to working. MANWKSWPR indicates manual switch of OC3, OC12, OC48, or OC192 facility from working to protect.

Is manual switch to be released?

If yes, go to step [120](#).

If no, go to step [161](#).

120 Enter **RLS-PROTNSW-OCn::AID**;

where:

OCn=Facility type (OC3, OC12, OC48, OC192)

AID=Facility Access Identifier

121 Did output return a COMPLD or DENY?

If COMPLD, go to step [161](#).

If DENY, go to step [160](#).

OALCASETEMP

122 OALCASETEMP indicates optical case temperature on an OFA facility.

Go to step [160](#).

OALKEYLOCK

123 OALKEYLOCK indicates EDFA key lock on an OFA facility.

Go to step [160](#).

OALLBC

124 OALLBC indicates excessive laser bias current level detected on an OC-48, OC-192, or OFA facility.

Go to step [160](#).

OALLOPOW

125 OALLOPOW indicates optical loss of power on an OFA facility.

Go to step [160](#).

OALPWR

126 OALPWR indicates excessive laser power detected on an OFA, OC-48, or OC192 facility.

Go to step [160](#).

OALRXLOCK or OALTXLOCK

- 127** OALRXLOCK indicates laser receive lock error detected on an OFA facility.
OALTXLOCK indicates laser transmitter lock error detected on an OFA facility.

Go to step [160](#).

OALTEMP

- 128** OALTEMP indicates excessive laser temperature detected on an OFA, OC-48, or OC-192 facility.

Go to step [160](#).

OOL-RXD

- 129** OOL-RXD indicates Out of Lock - receive data on GIGE facility.

Go to step [160](#).

OOL-RXR or OOL-TXR

- 130** OOL-RXR indicates Out of Lock - receive reference for GIGE facility. OOL-TXR indicates Out of Lock - transmit reference for GIGE facility.

Go to step [160](#).

OOS

- 131** OOS indicates GIGE facility is out of sync.

Go to step [160](#).

PLM-P

- 132** PLM-P indicates payload label mismatch on STS-1, STS-3C, STS-12C, or STS48C facility. Mapping can be changed to match the incoming facility.

Check provisioning. Correct provisioning if necessary. Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF).

- 133** Go to step [161](#).

PLM-V

- 134** PLM-V indicates payload label mismatch on VT1 facility. Mapping can be changed to match the incoming VT1 facility.

Check provisioning. Correct provisioning if necessary (ED-VT1). Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF).

- 135** Go to step [161](#).

PROTNA

- 136** PROTNA indicates protection not available or has failed. Applies to UPSR STS1, STS3c, STS12c, or STS48c working facilities.

- 137** Clear alarms or conditions associated with protection facility. Refer to 1677 SONET Link Maintenance and Trouble Clearing manual (PN 3EM13853AF).

- 138** Did PROTNA alarm clear?

If yes, go to step [161](#).

If no, go to step [160](#).

RAI

- 139** RAI indicates Remote Alarm Indication (RAI) detected for a T1, stand-alone DS3, or embedded DS3 facility.

Go to step [160](#).

RFI-L, RFI-P, or RFI-V

- 140** RFI-L indicates a Line Remote Failure Indication for an EC1, OC-3, OC-12, OC-48, or OC-192 facility. RFI-P indicates a Path Remote Failure Indication for an STS-1, STS-3C, STS-12C, or STS-48C facility. RFI-V indicates Remote Failure Indication for a VT1 facility.

Check and clear alarms on far-end NE. Go to step [161](#).

RMOPTIC

- 141** RMOPTIC indicates removable optics unplugged for a GIGE facility.

Go to step [160](#).

RNG-SQUELCH

142 RNG-SQUELCH indicates traffic on ring is squelched.

Go to step [160](#).

SD

143 SD indicates Signal Degrade Path for STS-1, STS-3C, STS-12C, or STS-48C facilities or Signal Degrade Line for OC-3, OC-12, OC-48, or OC-192 facilities.

Go to step [160](#).

SF

144 SF indicates Signal Fail Path for STS-1, STS-3C, STS-12C, or STS-48C facilities or Signal Fail Line for OC-3, OC-12, OC-48, or OC-192 facilities.

Go to step [160](#).

TH-LBCN-HT

145 TH-LBCN-HT indicates laser bias current upper threshold crossed for OFA, OC-48, or OC-192 facilities.

Enter **RTRV-ALM-ALL**;

146 Examine output and note AID of facility in alarm to determine which card is generating Laser Bias Current event.

147 Replace IOC card. To replace an OC-n card, refer to [DLP-135](#). To replace an EDFA card, refer to [DLP-131](#).

148 Enter **RTRV-ALM-ALL**;

149 Did alarm clear?

If yes, go to step [161](#).

If no, go to step [160](#).

TH-LSRTEMP-HT

150 TH-LSRTEMP-HT indicates laser temperature upper threshold crossed for OFA, OC-48, or OC-192 facilities.

Go to step [160](#).

TH-OPRN-HT or TH-OPRN-LT

- 151** TH-OPRN-HT indicates optical power received upper threshold crossed for OFA, OC-48, or OC-192 facilities. TH-OPRN-LT indicates optical power received lower threshold crossed for OFA, OC-48, or OC-192 facilities.

Go to step [160](#).

TH-OPTN-HT or TH-OPTN-LT

- 152** TH-OPTN-HT indicates optical power transmitted upper threshold crossed for OFA facilities. TH-OPTN-LT indicates optical power transmitted lower threshold crossed for OFA facilities.

Go to step [160](#).

TIM-P

- 153** TIM-P indicates a path trace mismatch between incoming and expected STS-1, STS-3C, STS-12C, or STS-48C facility.

Check provisioning of near-end and far-end NE. Correct provisioning if necessary. Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF). Go to step [161](#).

UNEQ-P or UNEQ-V

- 154** UNEQ-P indicates unequipped path for STS-1, STS-3C, STS-12C, or STS-48C facility. UNEQ-V indicates unequipped VT1.

Check provisioning of supporting equipment. Correct provisioning if necessary. Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF). Go to step [161](#).

WKSWBK or WKSWPR

- 155** WKSWBK indicates automatic switch from protection to working for OC-3, OC-12, OC-48, or OC-192 facilities. WKSWPR indicates automatic switch from working to protection for OC-3, OC-12, OC-48, or OC-192 facilities.

Go to step [161](#).

WTR

- 156** WTR indicates OC-3, OC-12, OC-48, or OC-192 facility is in wait to restore state.

Wait for wait-to-restore timer to expire, at which time equipment returns to normal working order. Go to step [161](#).

XMTLPBK

157 XMTLPBK indicates far end DS1 or DS3 port loopback is active.

Does loopback need to be released?

If yes, go to step [158](#).

If no, go to step [161](#).

158 Enter **RLS-LPBK-x::AID::[LOCM],,,[LPBKTYPE];**

where:

x=Facility type (T1 or T3)

AID=Facility Access Identifier

Other parameters are optional. If a value is not entered for these parameters, the system will use the default value. Refer to Commands and Messages manual (PN 3EM13852AF) for details on parameter values.

159 Did output return COMPLD or DENY?

If COMPLD, go to step [161](#).

If DENY, go to step [160](#).

160 Contact next level of technical support for assistance.

161 **STOP. This procedure is complete.**

TAP-101

BKUPMEMP or BKUPMEMS Alarm

PURPOSE

This procedure provides instructions to clear a BKUPMEMP or BKUPMEMS alarm.

GENERAL

BKUPMEMP indicates the redundant disk is not available. This applies to the logical disk.
BKUPMEMS indicates the redundant disk is not available. This applies to the physical disk.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-102 CFGFLT Alarm

PURPOSE

This procedure provides instruction to clear a CFGFLT alarm against a CCC or SSC.

GENERAL

CFGFLT indicates configuration database download failure for the processor module.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-103 IOC-INT-DF Alarm

PURPOSE

This procedure provides instructions to clear an IOC-INT-DF against a TMUX.

GENERAL

IOC-INT-DF indicates IOC card internal defect is detected on HYPERMAPPER component.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-104

CONTBUS-7 or CONTBUS-8 Alarm

PURPOSE

This procedure provides instructions to clear a CONTBUS-7 or CONTBUS-8 alarm against the CHASSIS.

GENERAL

CONTBUS-7 indicates the system is unable to select a valid message bus A arbiter. CONTBUS-8 indicates the system is unable to select a valid message bus B arbiter.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-105

CONTBUS-MOS-1 or CONTBUS-MOS-2 Alarm

PURPOSE

This procedure provides instructions to clear a CONTBUS-MOS-1 or CONTBUS-MOS-2 alarm against the Modular Optical System (MOS).

GENERAL

CONTBUS-MOS-1 indicates hardware error is detected when attempting to enumerate MOS devices after MOS discovery. CONTBUS-MOS-2 indicates MOS devices are seen by only one of the two CCCs after MOS discovery.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-106 SYNCPRI Alarm

PURPOSE

This procedure provides instruction to clear a SYNCPRI alarm against a TC.

GENERAL

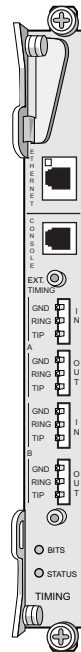
SYNCPRI indicates primary timing reference is not available.

This procedure assumes the user is logged into the alarmed Network Element (NE) using a telnet session to port 3083.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-SYNCN ;
2	Observe output. Note primary reference and secondary reference.
3	Enter RTRV-SYNCN-SRC ; to verify timing source on indicated card.
4	Observe output. Note any defects.
5	Contact next level of technical support for assistance.
6	STOP. This procedure is complete.

Figure 106-1. Locate BITS Connections on TC



BITS A / BITS B
WIRE-WRAP CONNECTIONS

677-0103-1
090804

TAP-107 SYNCSEC Alarm

PURPOSE

This procedure provides instruction to clear a SYNCSEC alarm against a TC.

GENERAL

SYNCSEC indicates secondary timing reference is not available and/or no backup TC module is available.

This procedure assumes the user is logged into the alarmed Network Element (NE) using a telnet session to port 3083.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-SYNCN ;
2	Observe output. Note primary reference and secondary reference.
3	Enter RTRV-SYNCN-SRC ; to verify timing source on indicated card.
4	Observe output. Note any defects.
5	Contact next level of technical support for assistance.
6	STOP. This procedure is complete.

TAP-108 FPSWUNLCK Alarm

PURPOSE

This procedure provides instruction to clear a FPSWUNLCK alarm against a CCC, SSC, or TC.

GENERAL

FPSWUNLCK indicates front panel switch is unlocked.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
2	Observe output. Note AID of module in alarm.
3	Locate module with FPSWUNLCK alarm and fully engage interlock switch.
4	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
5	Did FPSWUNLCK alarm clear? If yes, go to step 7. If no, go to step 6.
6	Contact next level of technical support for assistance.
7	STOP. This procedure is complete.

TAP-109 SYNCOOS Alarm

PURPOSE

This procedure provides instructions to clear SYNCOOS alarm against a TC.

GENERAL

SYNCOOS indicates both primary and secondary external clock reference failure.

This procedure assumes the user is logged into the alarmed Network Element (NE) using a telnet session to port 3083.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Select action. If no timing card (TC) is installed, go to step 2. If TC with alarm is present and its latch is closed, go to step 4. If no valid timing source is available (synchronization is in holdover mode), go to step 6.
2	Install a TC. Refer to DLP-137.
3	Go to step 7.
4	Replace TC in alarm. Refer to DLP-137.
5	Go to step 7.
6	Resolve at least one of the outstanding SYNCPRI/SYNCSEC alarms. Refer to IXL-101.
7	Enter RTRV-ALM-ALL ; or RTRV-COND-ALL ;
8	Did SYNCOOS alarm clear? If yes, go to step 10. If no, go to step 9.

- 9 Contact next level of technical support for assistance.
- 10 **STOP. This procedure is complete.**

TAP-110

Fan Faults (CLFAN, CTRLREAD, CTRLWRITE, INT)

PURPOSE

This procedure provides instructions to clear a fault indication for the fan-tray assembly.

GENERAL

The fan-controller card monitors the rotational speed of each fan. When all fans rotate at the correct speed, the FAN light, on the common control card, is green to indicate the fan tray is working.

If one fan fails, the FAN light turns amber; this indicates the fan tray must be replaced within 72 hours to maintain $n+1$ protection.

If two or more fans fail, the FAN light turns red; this indicate the fan-tray module must be replaced *immediately* to prevent the node from overheating.

CLFAN indicates failure of one or more fans in the fan tray.

CTRLREAD indicates fan controller read operation failure. CTRLWRITE indicates fan controller write operation failure.

INT indicates unrecognized fan controller.

STEP	PROCEDURE
1	Refer to DLP-132 to replace 15RU fan-tray assembly or DLP-145 to replace 18RU fan-tray assembly.
2	STOP. This procedure is complete.

TAP-111

Fuse and Alarm Panel (FAP) Alarm

PURPOSE

This procedure provides instruction to clear an alarm indication for the fuse and alarm panel (FAP).

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-112

SNTP Alarm

PURPOSE

This procedure provides instructions to clear an SNTP alarm against a CHASSIS.

GENERAL

SNTP indicates the system failed to synchronize time from the server at the specified interval.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-113 CONTR Alarm

PURPOSE

This procedure provides instructions to clear a CONTR alarm on a CCC or SSC.

GENERAL

CONTR indicates control processor module failure.

In this procedure, the equipment address is N-R-Sh-S, where N=name of equipment, R=rack number, Sh=shelf number, and S=slot location number of the equipment in the shelf.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Module can be installed or removed with bay power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain static-sensitive devices. These devices can be damaged by static discharge. Refer to for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note AID of module with CONTR alarm.
5	Enter RTRV-EQPT::N-R-Sh-S ; for module with CONTR alarm.
6	Is state IS-NR, OOS-AU, OOS-MA, or OOS-AUMA? If IS-NR or OOS-AU, go to step 7. If OOS-MA or OOS-AUMA, go to step 9.
7	Enter RMV-EQPT::N-R-Sh-S ; for module in alarm.
8	Did output return COMPLD or DENY? If COMPLD, go to step 9. If DENY, go to step 18.
9	Locate CCC or SSC with CONTR alarm. Unseat module. Refer to DLP-101.

- 10 After 10 seconds, insert same module into slot.
- 11 Enter **RST-EQPT::N-R-Sh-S**; for module in alarm.
- 12 Did output return COMPLD or DENY?
 - If COMPLD, go to step 13.
 - If DENY, go to step 15.
- 13 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;
- 14 Did CONTR alarm clear?
 - If yes, go to step 19.
 - If no, go to step 15.
- 15 Replace module with CONTR alarm. Refer to one of the following procedures:
 - CCC: DLP-128
 - SSC: DLP-136
- 16 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;
- 17 Did CONTR alarm clear?
 - If yes, go to step 19.
 - If no, go to step 18.
- 18 Contact next level of technical support for assistance.
- 19 **STOP. This procedure is complete.**

TAP-114

CONTR-TACC Alarm

PURPOSE

This procedure provides instructions to clear a CONTR-TACC alarm on an SSC.

GENERAL

CONTR-TACC indicates test access is inhibited due to control processor module failure.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-116

Resolve Craft Communications Loss

PURPOSE

This procedure provides instruction to resolve loss of communications on the craft terminal.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-117

FRCDWKSWPR or MANWKSWPR Alarm

PURPOSE

This procedure provides instructions to clear a FRCDWKSWPR or MANWKSWPR alarm on a DS3, ECC, TMUX, or VSC module.

GENERAL

FRCDWKSWPR indicates a forced switch of service from working to protection equipment.
MANWKSWPR indicates a manual switch of service from working to protection equipment.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Module under protection must be manually switched back to working to clear FRCDWKSWPR or MANWKSWPR alarm. Is module to be switched back to working at this time? If yes, go to step 2. If no, go to step 15.
2	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
3	Are there other alarms on module with FRCDWKSWPR or MANWKSWPR? If yes, go to step 4. If no, go to step 5.
4	Resolve other alarms. Refer to IXL-101.
5	Enter RTRV-EQPT::AID ; for module with FRCDWKSWPR or MANWKSWPR alarm.
6	Is module state IS,STBYH or OOS-MA? If IS,STBYH, go to step 10. If OOS-MA, go to step 7.
7	Is module to be logically restored into service? If yes, go to step 8. If no, go to step 15.

- 8 Enter **RST-EQPT::AID;**

where:
AID=Equipment Access Identifier of module
- 9 Did output return COMPLD or DENY?

If COMPLD, go to step 10.
If DENY, go to step 14.
- 10 Enter **SW-TOWKG-EQPT::AID;**

where:
AID=Equipment Access Identifier of working module
- 11 Did output return COMPLD or DENY?

If COMPLD, go to step 12.
If DENY, go to step 14.
- 12 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;;**
- 13 Observe output. Did FRCDWKSWPR or MANWKSWPR alarm clear?

If yes, go to step 15.
If no, go to step 14.
- 14 Contact next level of technical support for assistance.
- 15 **STOP. This procedure is complete.**

TAP-118 HLD Alarm

PURPOSE

This procedure provides instructions to clear a HLDOVRSYNC alarm on a TC-SYNC.

GENERAL

A HLDOVRSYNC alarm indicates system timing is in holdover mode.

Holdover mode can occur under the following conditions:

- During time period between selection of a new reference and stabilization
- During time period between sync problem and declaring it unavailable
- When sync reference is unavailable and there is no other reference

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-SYNCN ;
2	Examine output values of PRIREF, SECREP, and CURREFSRC parameters.
3	Was Sync Reference Order recently changed? If yes, go to step 4. If no, go to step 9.
4	Wait 5 minutes.
5	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
6	Is HLDOVRSYNC alarm still active? If yes, go to step 7. If no, go to step 19.
7	Re-evaluate sync sources.
8	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;

- 9 Are there any source reference alarms on sync referenced facilities or equipment?
If yes, go to step 10.
If no, go to step 11.
- 10 Clear these alarms first. Refer to IXL-101.
- 11 CAUTION: Possibility of service interruption. Follow procedure in DLP-137 when replacing CLK unit to avoid interrupting service.
- 12 Replace standby TC. Refer to DLP-137.
- 13 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;
- 14 Did alarm clear?
If yes, go to step 19.
If no, go to step 15.
- 15 Replace other TC. Refer to DLP-137.
- 16 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;
- 17 Did alarm clear?
If yes, go to step 19.
If no, go to step 18.
- 18 Contact next level of technical support for assistance.
- 19 **STOP. This procedure is complete.**

TAP-119

Power Distribution Unit (PDU) Alarm

PURPOSE

This procedure provides instructions to clear a PDU alarm.

GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

RECOMMENDED TOOLS

PDU manufacturer's documentation

STEP	PROCEDURE
1	Refer to documentation that came with PDU and determine if a Fuse alarm or a Critical, a Major, or a Minor power alarm has occurred.
2	Select action. To clear a Fuse alarm, go to step 3. To clear a Critical, a Major, or a Minor power alarm, go to step 5.

Fuse Alarm

- 3 Contact local power installation personnel and request that they troubleshoot and replace the fuse.

To locate fuses, refer to documentation that came with PDU.

- 4 Go to step 11.

Critical/Major/Minor Alarms

- 5 Locate chassis the fuse panel is servicing.
- 6 Inspect LEDs on CCC(s) for critical, major, or minor alarms.
- 7 Connect a terminal to Console port of TC.
- 8 Log on to system.
- 9 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**;

- 10 Refer to IXL-[101](#) to clear power-related alarm.
- 11 **STOP. This procedure is complete.**

TAP-120 USTHRESHOLD Alarm

PURPOSE

This procedure provides instructions to clear a USTHRESHOLD alarm against a TMUX or VSC.

GENERAL

USTHRESHOLD indicates resource module usage has reached 80%.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-USAGE-EQPT ;
2	Observe output.
3	Is module usage percentage to be reduced? If yes, go to step 4. If no, go to step 7.
4	Module resource usage can be reduced by deleting cross-connections or by adding another TMUX or VSC module, if possible. Refer to the Operation and Administration manual (PN 3EM13851AF).
5	Go to step 7.
6	Contact next level of technical support for assistance.
7	STOP. This procedure is complete.

TAP-121 SYNCINT Alarm

PURPOSE

This procedure provides instructions to clear a SYNCINT alarm against a TC.

GENERAL

SYNCINT indicates system timing is in internal mode.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
2	Enter RTRV-SYNCN ; to retrieve current synchronization timing parameters.
3	Observe output.
4	Enter RTRV-SYNCN-SRC ; to retrieve the status of the external timing sources.
5	Observe output. Determine external timing sources to use as primary reference and secondary reference.
6	Enter SET-SYNCN:::PRIREF=,SECREF= ; to set the primary and secondary timing references to external sources. where: PRIREF=Primary timing source (EXTERNALA or EXTERNALB) SECREF=Secondary timing source (EXTERNALA or EXTERNALB) PRIREF and SECREF cannot specify the same external source.
7	Did output return COMPLD or DENY? If COMPLD, go to step 8. If DENY go to step 10.
8	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;

9 Did SYNCINT alarm clear?

If yes, go to step [11](#).

If no go to step [10](#).

10 Contact next level of technical support for assistance.

11 **STOP. This procedure is complete.**

TAP-122 SYSDBG Alarm

PURPOSE

This procedure provides instructions to clear an SYSDBG alarm against a CHASSIS.

GENERAL

SYSDBG indicates the system is operating in debug mode.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-123 IMPROPRMVL Alarm

PURPOSE

This procedure provides instructions to clear an IMPROPRMVL alarm against a module.

GENERAL

IMPROPRMVL indicates a card was physically removed before being logically removed.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	<i>WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.</i>
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Is removed card to be replaced? If no, go to step 5 . If yes, go to step 7 .
5	Enter DLT-EQPT::AID ; to delete card and remove it from equipment database. Common cards (CCC, SSC, TC) are always assumed to be redundant and an alarm will be outstanding if both cards are not present.
6	Go to step 9 .
7	Refer to IXL-103 for card replacement procedures.
8	Go to step 9 .
9	STOP. This procedure is complete.

TAP-124

DISK90 Alarm (Drive B)

PURPOSE

This procedure provides instructions to clear a DISK90 alarm declared against the B disk drive.

GENERAL

DISK90 (B) indicates there is less than 10 Megabytes of free disk space on drive B. Once this alarm is declared, no more PM data is written to drive B until the alarm is cleared.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
------	-----------

Check PM Files on Disk

- 1 Enter **RTRV-RFILE::DISK-B::::LOCN="STATS";**

Sample output response showing the stats directory:

```
1677SVT19 03-09-30 13:52:25
M 0 COMPLD
"DISK-B:d00f8400.gig,657,SEP-29-2003,10:50:08,"
"DISK-B:d00f8400.ocx,2382,SEP-29-2003,10:50:10,"
"DISK-B:d00f8400.sts,2874,SEP-29-2003,10:50:10,"
"DISK-B:d00f8400.t3,1881,SEP-29-2003,10:50:10,"
"DISK-B:d01208a0.gig,0,SEP-29-2003,10:50:10,"
"DISK-B:d01208a0.ocx,705,SEP-29-2003,10:50:10,"
"DISK-B:d01208a0.sts,0,SEP-29-2003,10:50:10,"
"DISK-B:d01208a0.t3,0,SEP-29-2003,10:50:10,"
```

- 2 Examine the dates associated with PM files and determine how many previous days (from current day) of files should be kept. (For example, if 3 days of files are to be kept, 3-DN is entered in LEVEL= field of step 3.)

Purge PM Files from Disk

- 3 Enter **OPR-DISK:::::TYPE=STATS,ACTION=PURGE,,LEVEL=x;**

where:

x=PM statistics files to be purged. Refer to table [124-A](#).

Table 124-A. Purge Level Options

LEVEL	PM STATISTIC FILES TO BE PURGED UNDER B:/stats/
0-UP	All PM statistics
1-DN	PM statistics files older than 1 day ago
2-DN	PM statistics files older than 2 days ago
3-DN	PM statistics files older than 3 days ago
4-DN	PM statistics files older than 4 days ago
5-DN	PM statistics files older than 5 days ago
6-DN	PM statistics files older than 6 days ago
7-DN	PM statistics files older than 7 days ago
8-DN	PM statistics files older than 8 days ago
9-DN	PM statistics files older than 9 days ago
10-DN	PM statistics files older than 10 days ago
11-DN	PM statistics files older than 11 days ago
12-DN	PM statistics files older than 12 days ago
13-DN	PM statistics files older than 13 days ago
14-DN	PM statistics files older than 14 days ago
15-DN	PM statistics files older than 15 days ago

- 4 Did OPR-DISK command show COMPLD or DENY response?
 - If COMPLD, go to step 5.
 - If DENY, go step 3, and check that syntax is entered exactly as shown.
 - If DENY is received after repeating step 3, go to step 7.
- 5 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 6 Did DISK90 alarm clear?
 - If yes, go to step 8.
 - If no, go to step 7.
- 7 Contact next level of technical support for assistance.
- 8 **STOP. This procedure is complete.**

TAP-125

DISK90 Alarm (Drive A)

PURPOSE

This procedure provides instruction to clear a DISK90 alarm declared against the A disk drive.

GENERAL

DISK90 (A) indicates there is less than 10 Megabytes of free disk space on drive A. Once this alarm is declared, no additional configuration or image files can be written to drive A until the alarm is cleared.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
------	-----------

Check Image Files on Disk

- 1 Enter **RTRV-RFILE::DISK-A::::LOCN="BIN";**

Sample output response showing bin directory:

```
1677SVT19 03-09-30 13:56:27
M 0 COMPLD
"DISK-A:last,2048,SEP-29-2003,13:53:54,<DIR>"
"DISK-A:temp,2048,SEP-29-2003,11:31:16,<DIR>"
"DISK-A:3-1-2,2048,SEP-29-2003,11:26:48,<DIR>"
"DISK-A:tmux0003.jbc,180430,SEP-29-2003,13:57:18,"
"DISK-A:tmux0.jbc,204645,SEP-29-2003,13:57:16,"
"DISK-A:swc.cmp,4483968,SEP-29-2003,13:57:14,"
"DISK-A:dcc.cmp,1488952,SEP-29-2003,13:56:50,"
"DISK-A:ccc.cmp,5618388,SEP-29-2003,13:56:40,"
"DISK-A:apc8260.rom,3211264,SEP-29-2003,13:56:02,"
"DISK-A:apc750.rom,3211264,SEP-29-2003,13:55:14,"
/* RTRV-RFILE */
```

Check Configuration Files on Disk

- 2 Enter **RTRV-RFILE::DISK-A::::LOCN="CFG"**;

Sample output response showing cfg directory:

```
1677SVT19 03-09-30 13:57:44
M 0 COMPLD
"disk-a:last,2048,SEP-29-2003,11:25:48,<DIR>"
"disk-a:922,2048,SEP-29-2003,11:31:54,<DIR>"
"disk-a:tbl1006.cfg,148,SEP-29-2003,14:10:10,"
"disk-a:tbl1007.cfg,17410,SEP-29-2003,14:10:10,"
"disk-a:tbl1020.cfg,148,SEP-29-2003,14:10:06,"
```

- 3 Examine source and configuration listings in steps 1 and 2. Determine which files should be purged.
- 4 Select action.

To purge image files from disk, go to step 5.

To purge configuration files from disk, go to step 9.

Purge Image Files from Disk

- 5 Enter **OPR-DISK:::::TYPE=IMAGE,ACTION=PURGE,SRC="image file name or directory"**;
- 6 Did OPR-DISK command show COMPLD or DENY response?
- If COMPLD, go to step 7.
If DENY, go to step 5, and check that syntax is entered exactly as shown. If DENY is received after repeating step 5, go to step 14.
- 7 Repeat step 5 for each image file to be purged.
- 8 Go to step 12.

Purge Configuration Files from Disk

- 9 Enter **OPR-DISK:::::TYPE=CFG,ACTION=PURGE,SRC="configuration file name or directory"**;
- 10 Did OPR-DISK command show COMPLD or DENY response?
- If COMPLD, go to step 11.
If DENY, go to step 9, check that syntax is entered exactly as shown. If DENY is received after repeating step 9, go to step 14.
- 11 Repeat step 9 for each configuration file to be purged.

- 12** Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 13** Did DISK90 alarm clear?
 - If yes, go to step [15](#).
 - If no, go to step [14](#).
- 14** Contact next level of technical support for assistance.
- 15** **STOP. This procedure is complete.**

TAP-126 TEMP Alarm

PURPOSE

This procedure provides instructions to clear a TEMP alarm against a CHASSIS.

GENERAL

TEMP indicates the temperature sensor has detected high temperature.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-127 FWMISM Alarm

PURPOSE

This procedure provides instruction to clear a FWMISM alarm on a CCC, SSC, and TMUX module.

GENERAL

FWMISM indicates the FPGA revision of a CCC, SSC, or TMUX module does not match the software expected version.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to <i>Introduction</i> for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
4	Observe output. Note module with FWMISM alarm.
5	Is the module with FWMISM alarm CCC, SSC, or TMUX? If CCC or SSC, go to step 6. If TMUX, go to step 16.
6	Enter RTRV-EQPT::AID ; to check SWVER of CCC or SSC in FWMISM alarm. where: AID=Equipment Access Identifier of CCC or SSC card.
7	Is SWVER=current running software? If yes, go to step 16. If no, go to step 8.
8	Enter RMV-EQPT::AID ; to remove CCC or SSC card in FWMISM alarm. where: AID=Equipment Access Identifier of CCC or SSC card in alarm.

- 9 Did output return COMPLD or DENY?
If COMPLD, go to step 10.
If DENY, go to step 19.
- 10 Enter **INIT-SYS::AID::;**

where: AID=Equipment access identifier of card with FWMISM alarm
- 11 Did command return COMPLD or DENY?

If COMPLD, go to step 12.
If DENY, go to step 19.
- 12 Enter **RST-EQPT::AID;**

where: AID=Equipment access identifier of card with FWMISM alarm
- 13 Did output return COMPLD or DENY?

If COMPLD, go to step 14.
If DENY, go to step 19.
- 14 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** to retrieve all alarms and conditions.
- 15 Observe output. Did FWMISM alarm clear?

If yes, go to step 20.
If no, go to step 16.
- 16 Replace module reporting FWMISM alarm. Refer to IXL-103 for the correct module replacement procedure.
- 17 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** to retrieve all alarms and conditions.
- 18 Did FWMISM clear?

If yes, go to step 20.
If no, go to step 19.
- 19 Contact next level of technical support for assistance.
- 20 **STOP. This procedure is complete.**

TAP-129

INHMSG-PM Alarm

PURPOSE

This procedure provides instructions to clear an INHMSG-PM alarm against the CHASSIS and clear an INHMSG-PM alarm against a specific facility.

GENERAL

INHMSG-PM indicates PM reports are inhibited for all entities. This condition was caused by execution of the INH-PMREPT-COM command.

The ALW-PMREPT-COM command used in this procedure does not affect any inhibitions set for individual ports through the INH-PMREPT-rr command.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Are performance monitoring reports to be allowed for all entities? If yes, go to step 2. If no, go to step 6.
2	Enter ALW-PMREPT-COM;
3	Did output return COMPLD or DENY? If COMPLD, go to step 4. If DENY, go to step 11.
4	Enter RTRV-ALM-ALL; and RTRV-COND-ALL; to retrieve all alarms and conditions.
5	Did INHMSG-PM alarm clear for CHASSIS? If yes, go to step 12. If no, go to step 11.
6	Are performance monitoring reports to be allowed for a specific facility? If yes, go to step 7. If no, go to step 12.
7	Enter ALW-PMREPT- EC1/GIGE/OC3/OC12/OC48/OC192/OFA/STS1/STS3C/STS12C/STS48C/T1/T3/VT1::AID;;

- 8 Did output return COMPLD or DENY?
If COMPLD, go to step 9.
If DENY, go to step 11.
- 9 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 10 Did INHMSG-PM alarm clear for specific facility?
If yes, go to step 12.
If no, go to step 11.
- 11 Contact next level of technical support for assistance.
- 12 **STOP. This procedure is complete.**

TAP-130 INHSWPR Alarm

PURPOSE

This procedure provides instructions to clear an INHSWPR alarm against a DS3, ECC, TMUX, or VSC card.

GENERAL

INHSWPR indicates protection switching (automatic and manual) from working to protect is inhibited.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
2	Note AID of card with INHSWPR alarm.
3	Enter ALW-SWTOPROTN-EQPT::AID ; for card with INHSWPR. where: AID=Equipment Access Identifier of card with INHSWPR
4	Did output return COMPLD or DENY? If COMPLD, go to step 5. If DENY, go to step 7.
5	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
6	Did INHSWPR alarm clear for card? If yes, go to step 8. If no, go to step 7.
7	Contact next level of technical support for assistance.
8	STOP. This procedure is complete.

TAP-131 INHSWWKG Alarm

PURPOSE

This procedure provides instructions to clear an INHSWWKG alarm against a DS3, ECC, TMUX, or VSC card.

GENERAL

INHSWWKG indicates protection switching (automatic and manual) from protect to working is inhibited.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
2	Note AID of card with INHSWWKG alarm.
3	Enter ALW-SWTOWKG-EQPT::AID ; for card with INHSWWKG. where: AID=Equipment Access Identifier of card with INHSWWKG
4	Did output return COMPLD or DENY? If COMPLD, go to step 5. If DENY, go to step 7.
5	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
6	Did INHSWWKG alarm clear for card? If yes, go to step 8. If no, go to step 7.
7	Contact next level of technical support for assistance.
8	STOP. This procedure is complete.

TAP-132 PWR Alarm

PURPOSE

This procedure provides instructions to clear a PWR alarm against an IOC or POWER.

GENERAL

PWR indicates battery A/B -48V DC error is detected on a fan power supply, chassis power supply, or ECC card.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-133 INT-1 Alarm

PURPOSE

This procedure provides instructions to clear an INT-1 alarm against a CHASSIS.

GENERAL

INT-1 indicates no valid oscillator could be selected.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-134

INT-19 Alarm

PURPOSE

This procedure provides instructions to clear an INT-19 alarm against a DS0G, DS3, ECC, EDFA, GIGE, OC3, OC12, OC48, OC192, TMUX, or VSC card.

GENERAL

INT-19 indicates module ID ROM (remote inventory data) is improperly programmed.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-135 INT-2 Alarm

PURPOSE

This procedure provides instructions to clear an INT-2 alarm against a CHASSIS.

GENERAL

INT-2 indicates no valid system clock could be selected.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-136 PRCDRERR Alarm

PURPOSE

This procedure provides instructions to clear a PRCDRERR alarm against a TC, DS0G, DS3, ECC, EDFA, GIGE, OC3, OC12, OC48, OC192, TMUX, or VSC card.

GENERAL

PRCDRERR indicates physically equipped module is inconsistent with slot provisioning.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	<i>WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.</i>
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with PRCDRERR alarm.
5	Replace card with PRCDRERR alarm. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
7	Did PRCDRERR clear? If yes, go to step 9 . If no, go to step 8 .
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-137 FACTERM Alarm

PURPOSE

This procedure provides instructions to clear a FACTERM alarm against an IOC module.

GENERAL

FACTERM indicates facility/circuit termination equipment failure.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to <i>Introduction</i> for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with FACTERM alarm.
5	Are FACTERM alarms declared against both the ACTIVE and STANDBY IOC modules in a protection pair? If yes, go to step 18. If no, go to step 6.
6	Enter RMV-EQPT::AID ; where: AID=Equipment access identifier of card with FACTERM alarm
7	Did command return COMPLD or DENY? If COMPLD, go to step 8. If DENY, go to step 18.
8	Reset card with FACTERM alarm.

- 9 Enter **INIT-SYS::AID:::0;**
where: AID=Equipment access identifier of card with FACTERM alarm
- 10 Did command return COMPLD or DENY?
If COMPLD, go to step 13.
If DENY, go to step 15.
- 11 Enter **RST-EQPT::AID;**
where: AID=Equipment access identifier of card with FACTERM alarm
- 12 Did output return COMPLD or DENY?
If COMPLD, go to step 13.
If DENY, go to step 18.
- 13 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;** to retrieve all alarms and conditions.
- 14 Observe output. Did FACTERM alarm clear?
If yes, go to step 19.
If no, go to step 15.
- 15 Replace card with FACTERM alarm. Refer to IXL-103 for card replacement procedures.
- 16 Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;**
- 17 Did FACTERM alarm clear?
If yes, go to step 19.
If no, go to step 18.
- 18 Contact next level of technical support for assistance.
- 19 **STOP. This procedure is complete.**

TAP-138

BATTERYLOW Alarm

PURPOSE

This procedure provides instructions to clear a BATTERYLOW alarm against a CCC, SSC, TC, DISK, IOC, or MOS card.

GENERAL

BATTERYLOW indicates battery on the real time clock/NVRAM chip is low.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	<i>WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.</i>
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with BATTERYLOW alarm.
5	Replace card with BATTERYLOW alarm. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
7	Did BATTERYLOW clear? If yes, go to step 9 . If no, go to step 8 .
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-139

CARD-8K-DF and CARD-INT-DF Alarm

PURPOSE

This procedure provides instructions to clear a CARD-8K-DF or CARD-INT-DF alarm against a SSC card.

GENERAL

CARD-8K-DF indicates the SSC detects 8k clock loss defect.

CARD-INT-DF indicates an internal defect is detected on an SSC component.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to <i>Introduction</i> for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with CARD-8K-DF or CARD-INT-DF alarm.
5	Replace card with CARD-8K-DF or CARD-INT-DF alarm. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
7	Did CARD-8K-DF or CARD-INT-DF clear? If yes, go to step 9. If no, go to step 8.
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-140

CFGNOSAVE Alarm

PURPOSE

This procedure provides instruction to clear a CFGNOSAVE alarm against the NE.

GENERAL

CFGNOSAVE indicates writing configuration changes to disk is disallowed and configuration activation pending.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-141

SRFLT-SSCRAM Alarm

PURPOSE

This procedure provides instructions to clear a SRFLT-SSCRAM alarm against a SSC card.

GENERAL

SRFLT-SSCRAM indicates system resource fault - the alarmed module is equipped with smaller RAM size than its mate.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	<i>WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.</i>
3	Enter RTRV-ALM-ALL; and RTRV-COND-ALL; to retrieve all alarms and conditions.
4	Observe output. Note module with SRFLT-SSCRAM alarm.
5	Replace SSC card with SRFLT-SSCRAM alarm. Ensure the replacement SSC has the same RAM size as the non-alarmed SSC. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL; and RTRV-COND-ALL;
7	Did SRFLT-SSCRAM clear? If yes, go to step 9 . If no, go to step 8 .
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-142 HLTHVER Alarm

PURPOSE

This procedure provides instructions to clear a HLTHVER alarm against a IOC, SSC, and CCC card.

GENERAL

HLTHVER indicates health FPGA version is incompatible with peer card.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with HLTHVER alarm.
5	Replace card with HLTHVER alarm. Ensure replacement card is the same revision as its mate. Refer to appropriate module UDS in the 1677 SONET Link Product Information manual for module revision information. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ;
7	Did HLTHVER clear? If yes, go to step 9 . If no, go to step 8 .
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-143 IMPROPINS Alarm

PURPOSE

This procedure provides instructions to clear a IMPROPINS alarm against a TC card.

GENERAL

IMPROPINS indicates timing card is not compatible with existing one.

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to <i>Introduction</i> for special handling instructions.
3	Enter RTRV-ALM-ALL; and RTRV-COND-ALL; to retrieve all alarms and conditions.
4	Observe output. Note module with IMPROPINS alarm.
5	Replace card with IMPROPINS alarm. Ensure replacement card is the latest revision. Refer to appropriate TC module UDS in the 1677 SONET Link Product Information manual for module revision information. Refer to IXL-103 for card replacement procedures.
6	Enter RTRV-ALM-ALL; and RTRV-COND-ALL;
7	Did IMPROPINS clear? If yes, go to step 9 . If no, go to step 8 .
8	Contact next level of technical support for assistance.
9	STOP. This procedure is complete.

TAP-144

IDROMREADERR Alarm

PURPOSE

This procedure provides instructions to clear a IDROMREADERR alarm on a CCC, SSC, TC, DISK, IOC, or MOS module.

GENERAL

IDROMREADERR indicates physical ID ROM could not be read.

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
2	Observe output. Note AID of module in alarm.
3	Replace module reporting IDROMREADERR alarm. Refer to IXL 103 for the correct module replacement procedure.
4	Did IDROMREADERR alarm clear? If yes, go to step 6 If no, go to step 5
5	Contact next level of technical support for assistance.
6	STOP. This procedure is complete.

TAP-145 MEM-ACCESS-DF Alarm

PURPOSE

This procedure provides instructions to clear a MEM-ACCESS-DF alarm on an IOC module.

GENERAL

MEM-ACCESS-DF indicates system clock alarm detected on an IOC module.

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.
3	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
4	Observe output. Note module with MEM-ACCESS-DF alarm.
5	Enter RMV-EQPT::AID ; where: AID=Equipment access identifier of card with MEM-ACCESS-DF alarm
6	Did command return COMPLD or DENY? If COMPLD, go to step 7. If DENY, go to step 16.
7	Enter INIT-SYS::AID::; where: AID=Equipment access identifier of card with MEM-ACCESS-DF alarm
8	Did command return COMPLD or DENY? If COMPLD, go to step 9. If DENY, go to step 16.
9	Enter RST-EQPT::AID; where: AID=Equipment access identifier of card with MEM-ACCESS-DF alarm

- 10 Did output return COMPLD or DENY?
If COMPLD, go to step 11.
If DENY, go to step 16.
- 11 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 12 Observe output. Did MEM-ACCESS-DF alarm clear?
If yes, go to step 17.
If no, go to step 13.
- 13 Replace module reporting MEM-ACCESS-DF alarm. Refer to IXL-103 for the correct module replacement procedure.
- 14 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 15 Did MEM-ACCESS-DF clear?
If yes, go to step 17
If no, go to step 16
- 16 Contact next level of technical support for assistance.
- 17 **STOP. This procedure is complete.**

TAP-146

NO2KCLOCK Alarm

PURPOSE

This procedure provides instructions to clear a NO2KCLOCK alarm on an IOC module.

GENERAL

NO2KCLOCK indicates subcard 2k clock signal not available.

STEP	PROCEDURE
1	Contact next level of technical support for assistance.
2	STOP. This procedure is complete.

TAP-147 CLKALM Alarm

PURPOSE

This procedure provides instructions to clear a CLKALM alarm on an IOC module.

GENERAL

CLKALM indicates system clock alarm detected on an IOC module.

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Modules can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	WARNING: Possibility of equipment damage. Modules contain electrostatic-sensitive devices (ESDs). These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.
3	Enter RTRV-ALM-ALL; and RTRV-COND-ALL; to retrieve all alarms and conditions.
4	Observe output. Note module with CLKALM alarm.
5	Enter RMV-EQPT::AID; where: AID=Equipment access identifier of card with CLKALM alarm
6	Did command return COMPLD or DENY? If COMPLD, go to step 7. If DENY, go to step 16.
7	Enter INIT-SYS::AID::; where: AID=Equipment access identifier of card with CLKALM alarm
8	Did output return COMPLD or DENY? If COMPLD, go to step 9. If DENY, go to step 16.
9	Enter RST-EQPT::AID; where: AID=Equipment access identifier of card with CLKALM alarm

- 10 Did output return COMPLD or DENY?
If COMPLD, go to step 11.
If DENY, go to step 16.
- 11 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 12 Observe output. Did CLKALM clear?
If yes, go to step 17
If no, go to step 13
- 13 Replace module reporting CLKALM alarm. Refer to IXL-103 for the correct module replacement procedure.
- 14 Enter **RTRV-ALM-ALL**; and **RTRV-COND-ALL**; to retrieve all alarms and conditions.
- 15 Did CLKALM clear?
If yes, go to step 17
If no, go to step 16
- 16 Contact next level of technical support for assistance.
- 17 **STOP. This procedure is complete.**

TAP-148 RARFAIL (SSC)

PURPOSE

This procedure provides instructions to clear Rearrangement Failure (RARFAIL) alarm/condition.

GENERAL

Rearrangement failure is an indication connections can not be routed through the SSC module.

STEP	PROCEDURE
1	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve equipment alarms and conditions.
2	Observe output. Note module with RARFAIL alarm.
3	Enter RTRV-EQPT::SWC-7 ; to retrieve state of SSC in slot seven.
4	Enter RTRV-EQPT::SWC-8 ; to retrieve state of SSC in slot eight.
5	Verify the SST of both SSC modules. Is one SSC module WRK and the other SSC module STBYH? If yes, go to step 6. If no, go to step 9.
6	Enter SW-DX-EQPT::AID ; to switch SSC in RARFAIL alarm. where: AID=Access Identifier of either SSC
7	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve equipment alarms.
8	Did RARFAIL alarm clear? If yes, go to step 10. If no, go to step 9.
9	Contact next level of technical support for assistance.
10	STOP. This procedure is complete.

TAP-149 ERROR

PURPOSE

This procedure provides instructions to clear an ERROR equipment alarm or event.

GENERAL

Refer to the 1677 SONET Link Address and Location Guide (PN 3EM13854AD) to determine facility and module location and address.

STEP	PROCEDURE
1	<p>ERROR indicates SET-SYNCN has been executed and AUTOREFSW has been set to switching inhibited (INH).</p> <p>Does AUTOREFSW need to be set to switching allowed (ALW)?</p> <p style="padding-left: 40px;">If yes, go to step 2. If no, go to step 7.</p>
2	<p>Enter SET-SYNCN:::AUTOREFSW=ALW;</p>
3	<p>Did output return a COMPLD or DENY?</p> <p style="padding-left: 40px;">If COMPLD, go to step 4. If DENY, go to step 6.</p>
4	<p>Enter RTRV-ALM-ALL; and RTRV-COND-ALL; to retrieve all alarms and conditions.</p>
5	<p>Observe output. Did ERROR alarm clear?</p> <p style="padding-left: 40px;">If yes, go to step 7. If no, go to step 6.</p>
6	<p>Contact next level of technical support for assistance.</p>
7	<p>STOP. This procedure is complete.</p>

TAP-150 VERSION

PURPOSE

This procedure provides instructions to clear an VERSION equipment alarm or event declared against a VSC.

GENERAL

Refer to the 1677 SONET Link Address and Location Guide (PN 3EM13854AD) to determine facility and module location and address.

STEP	PROCEDURE
1	VERSION indicates VSC module hardware version is below 03.
2	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
3	Observe output. Note AID of module in alarm.
4	Enter RTRV-EQPT::AID;
5	Observe output. Note HWVER and PST.
6	Is HWVER less than 03? If yes, go to step 7 . If no, go to step 12 .
7	Is primary state OOS? If yes, go to step 9 . If no, go to step 8 .
8	Enter ED-EQPT::AID:::OOS ;
9	Replace VSC with HWVER 03 or higher. Refer to DLP-141 .
10	Enter RTRV-ALM-ALL ; and RTRV-COND-ALL ; to retrieve all alarms and conditions.
11	Observe output. Did VERSION alarm clear? If yes, go to step 13 . If no, go to step 12 .

- 12 Contact next level of technical support for assistance.
- 13 **STOP. This procedure is complete.**

DLP-100

Clean Fiber-Optic Connectors

PURPOSE

This procedure provides the recommended instructions to clean fiber-optic connectors found in Alcatel-Lucent equipment.

PREREQUISITE

Anyone who performs this procedure must be familiar with cleaning fiber-optic connectors and with the specific system on which the procedure is to be performed.

This procedure must not be performed on traffic-carrying equipment. If a system is in service, traffic must be removed from equipment to be cleaned.

RECOMMENDED TOOLS

The following tools must be available for this procedure:

- Optical power meter with standard accessories
- Optical power meter adapter
 - Spider, MPX-to-SC, 2-meter, single-mode, 8-fiber—AMP 492328-2
 - Spider, MPX-to-SC, 2-meter, multimode, 8-fiber—AMP 97-A169-62-2
- Inspection microscope, 200X to 400X—Aerotech World Trade Ltd. AWT200 or AWT300
- Inspection microscope tip
 - MPX tip—Aerotech World Trade Ltd. AWT-MPX
 - MPX backplane tip—Aerotech World Trade Ltd. AWT-MPXAPC
- Anti-static lint-free swab—Texwipe PN TX757E
- CLETOP^{®1} fiber-optic cleaner, Aerotech World Trade Ltd. PN 14100500 for all fiber-optic connectors except MPX and bulkhead type
- CLETOP[®] 2.5mm Stick-Type cleaner- Aerotech World Trade Ltd. PN 14100400, box of 200
- CLETOP[®] 1.25mm Stick-Type cleaner - Aerotech World Trade Ltd. PN 14100401 box of 200

1. CLETOP is a registered trademark of NTT International.

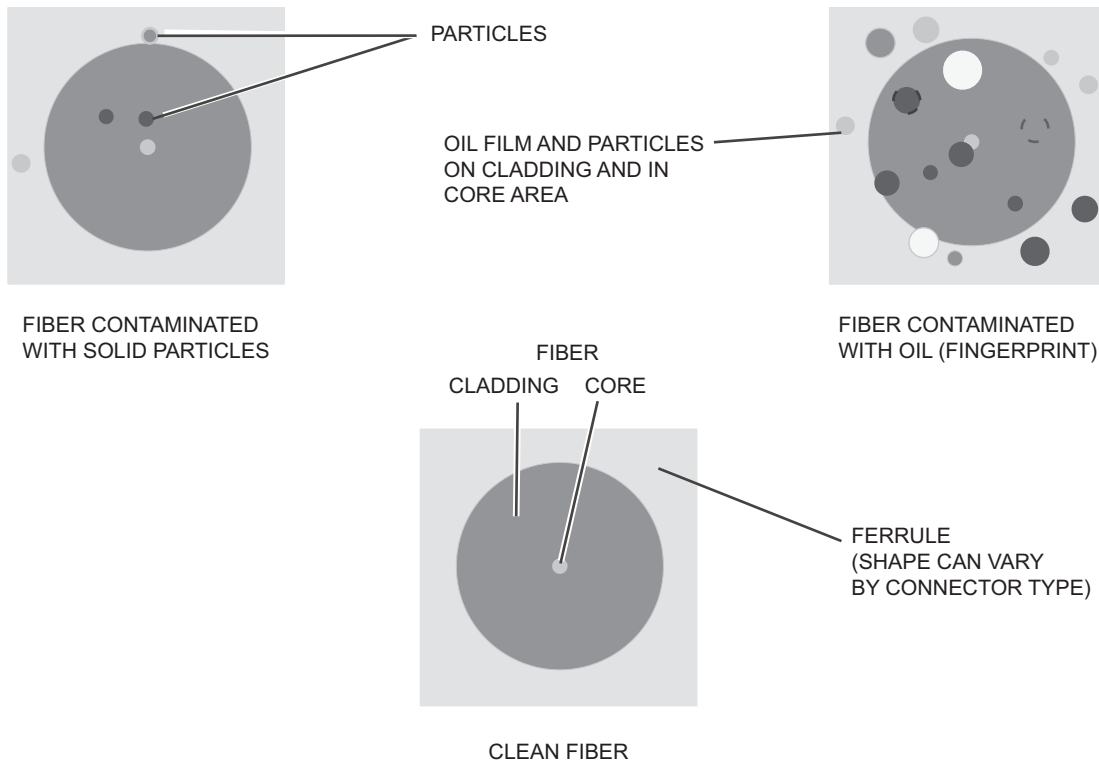
- Optical removal and cleaning tool—Alcatel-Lucent PN 3EM07060AAAA
- Penlight (pocket-style flashlight)
- Laser safety glasses

GENERAL

If the cleaning method described in this procedure does not produce acceptable results, connector may need to be replaced.

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. DO NOT LOOK INTO FIBER-OPTIC CONNECTOR. Laser infrared radiation is present when fiber-optic connector is open and optical interface is installed. Laser infrared radiation is not visible to naked eye or with laser safety glasses.
2	DANGER: Possibility of personal injury. Ensure no optical power is connected to fiber being tested. An optical power meter must be used to ensure all optical power has been removed.
3	WARNING: Possibility of equipment damage. Do not disassemble modules to clean fibers. Disassembling module could cause damage to optical splice and could void warranty.
4	WARNING: Possibility of equipment damage. To preserve integrity of fiber-optic connectors, observe the following precautions: <ul style="list-style-type: none"> -Do not use cleaning swabs more than once. -Do not use alcohol or any type of liquid to clean fiber-optic connectors. -Do not use canned air to clean fiber-optic connectors. Canned air propellant leaves residue that clouds fiber-optic connectors. -Do not touch polished optical surface of fiber-optic connector. Oil from skin can degrade performance of fiber-optic connector and attract dust particles. -Always use protective covers to protect disconnected fiber-optic connectors. When protective covers are not in use, store them in a clean container. Do not store protective covers in clothes pocket.

Figure 100-1. Fiber-Optic Connector Inspection

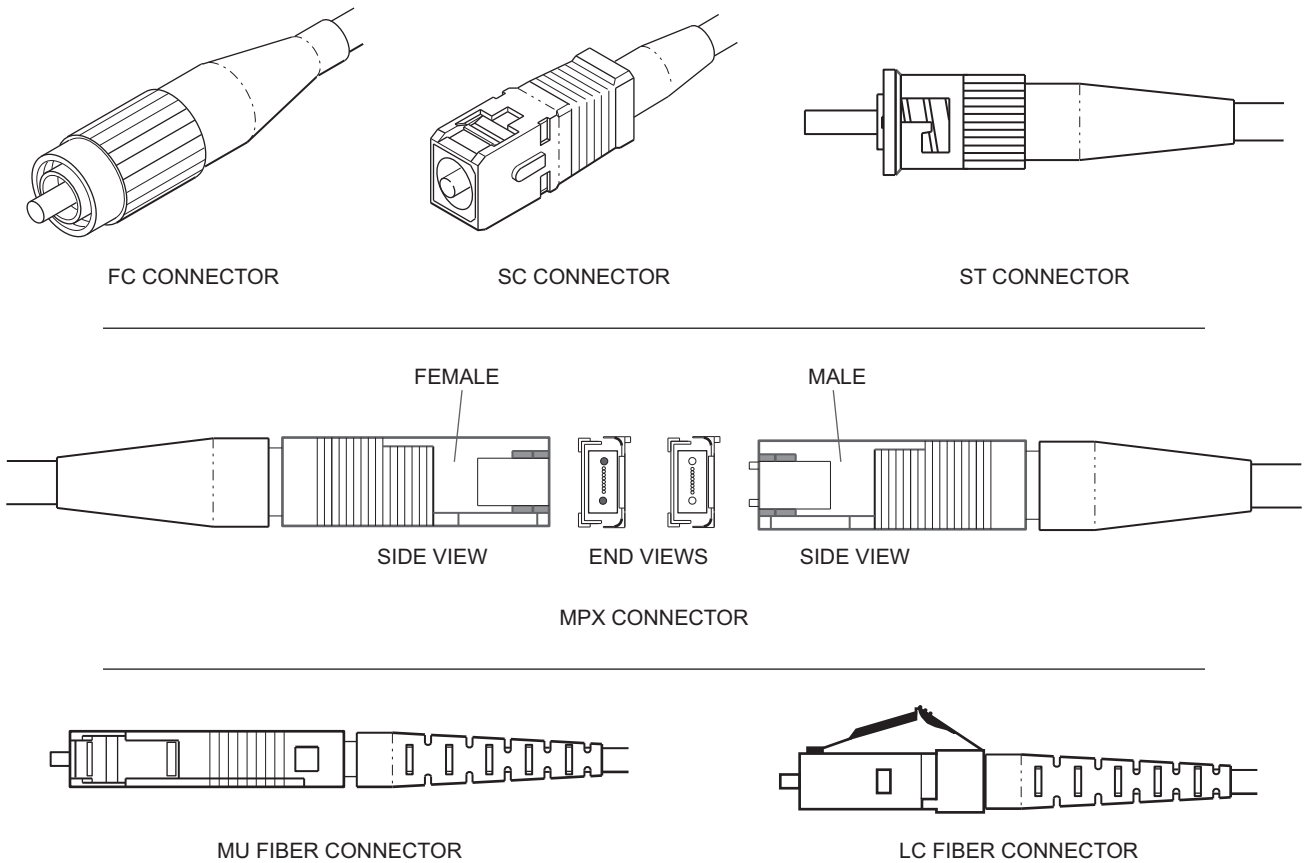


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- 5 Use optical power meter to determine if light is coming out of fiber-optic connector.
- 6 Does optical power meter detect light coming out of fiber-optic connector?
If yes, go to step 7.
If no, go to step 8.
- 7 Find laser transmission source and disable it.
- 8 Remove fiber-optic connector from receptacle, if necessary.

- 9** Use inspection microscope to inspect fiber-optic connector. See figure 100-1 for examples of clean and contaminated fibers. Note that MPX connector has multiple fibers. Use the following criteria to determine clean fiber:
- a. Fiber core must have no contaminants or defects.
 - b. Fiber cladding must have no contaminants. Minor defects (pits and scratches) are acceptable.
 - c. Fiber ferrule may not have contaminants or defects that interfere with fiber-optic connector mating.
- 10** Is fiber-optic connector clean?
- If yes, go to step 34.
If no, go to step 11.
- 11** Select type of connector to clean. For illustrations and photographs of connector types, see figures 100-2 and 100-3, respectively.
- If nonbackplane-mounted MPX fiber-optic connector, go to step 12.
If FC, SC, MU, LC, or ST/STII fiber-optic connector, go to step 14.
If backplane-mounted MPX fiber-optic connector, go to step 18.
If bulkhead connectors, go to step 26.

Figure 100-2. Fiber-Optic Connector Types, Illustrations

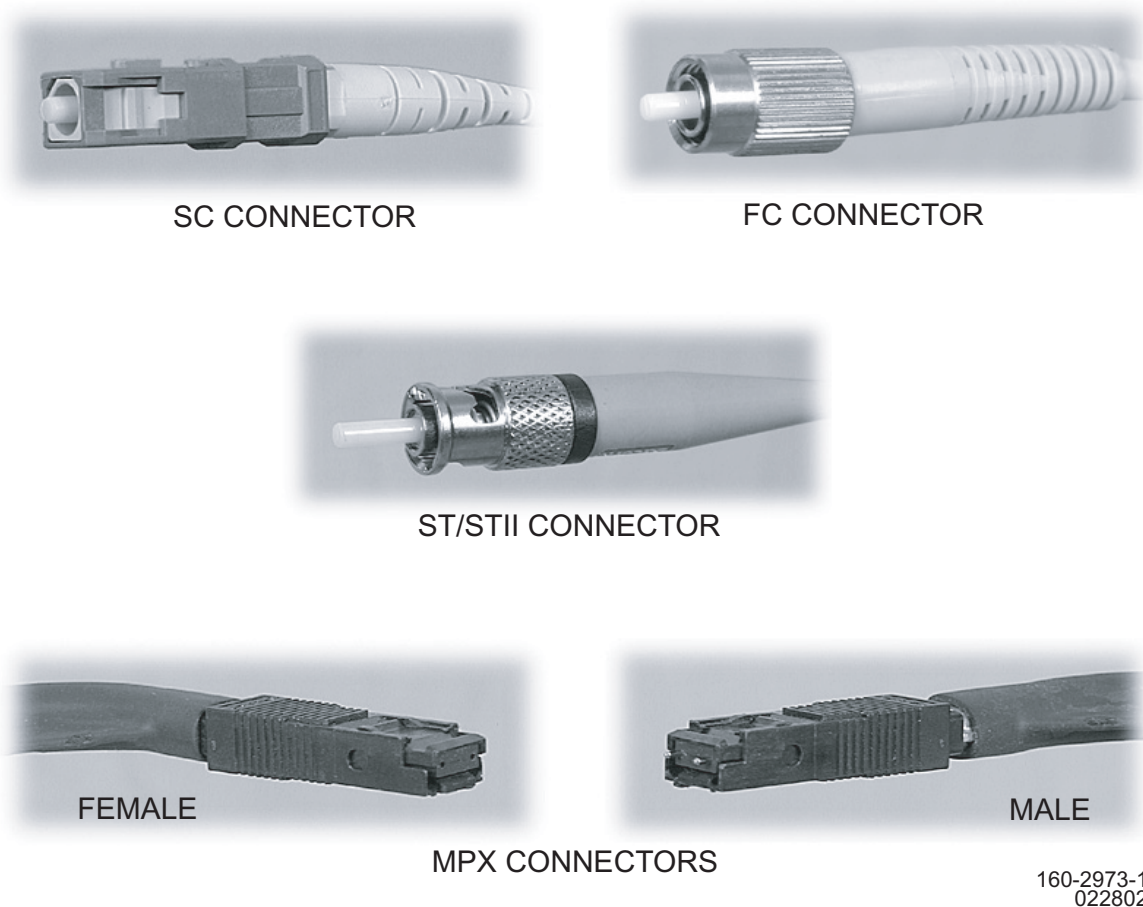


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Nonbackplane-Mounted MPX Fiber-Optic Connector

- 12** Do not touch tip of TX757E swab.

Use TX757E swab to clean fiber-optic connector by gently wiping once between two metal alignment pins, then discard swab.
- 13** Go to step [29](#).

Figure 100-3. Fiber-Optic Connector Types, Photographs**FC, SC, MU, LC, or ST/STII Fiber-Optic Connector**

- 14 Holding CLETOP fiber-optic cleaner with one hand, use metal lever to open metal slide and expose cleaning surface. Do not release lever.
- 15 Place fiber ferrule firmly against CLETOP fiber-optic cleaner cleaning surface, rotate ferrule 90 degrees, then gently wipe ferrule along cleaning surface one time in one direction only.
- 16 Release metal lever.
- 17 Go to step [29](#).

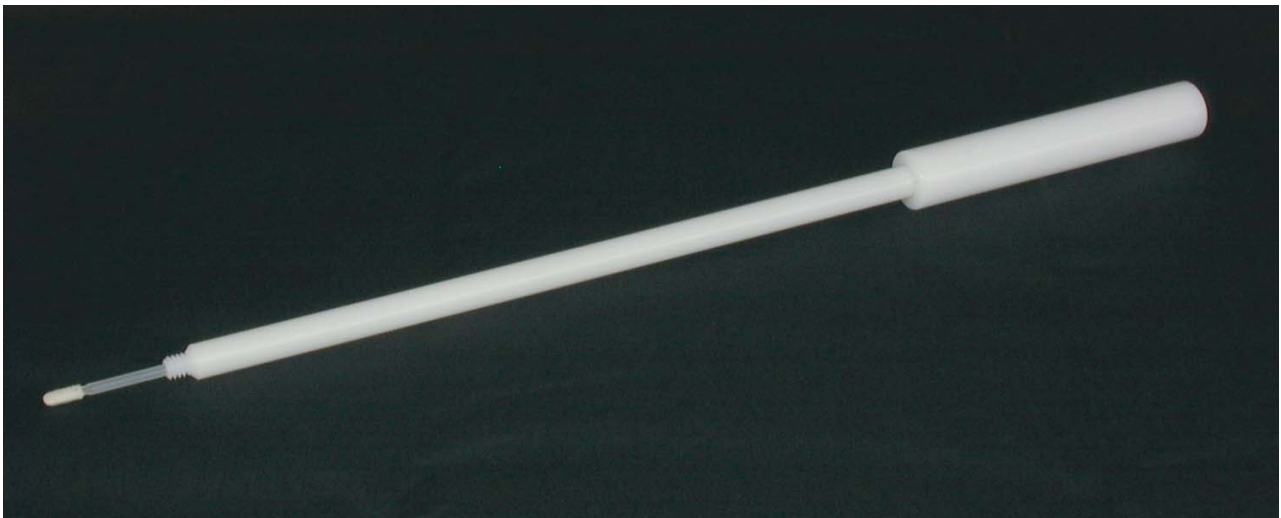
Backplane-Mounted MPX Fiber-Optic Connector

- 18 Do not touch tip of TX757E swab.

Insert swab handle into swab optical cleaning tool (extender). See figure [100-4](#).
- 19 ***WARNING: Possibility of equipment damage. Use care to prevent damaging backplane-mounted fiber-optic connector pins when cleaning backplane-mounted fiber-optic connectors.***
- 20 Use penlight to light backplane-mounted fiber-optic connector.
- 21 Is fiber-optic connector top mounted or bottom mounted?

If top mounted, go to step [22](#).
If bottom mounted, go to step [23](#).
- 22 Clean fiber-optic connector by gently wiping fiber ferrule once from top to bottom, discard TX757E swab, then go to step [24](#).
- 23 Clean fiber-optic connector by gently wiping fiber ferrule once from bottom to top, discard TX757E swab, then go to step [24](#).
- 24 Insert TX757E swab into bulkhead (barrel) receptacle and rotate swab, sliding it in and out to clean inside of receptacle, then discard swab.
- 25 Go to step [29](#).

Figure 100-4. Optical Removal and Cleaning Tool (PN 3EM07060AAAA)



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Bulkhead Connectors

- 26** Select appropriate CLETOP Stick-Type to clean bulkhead connector for fiber optic connection.
- For FC, SC and ST bulkhead connectors use the CLETOP 2.5mm Stick-Type cleaner
 - For LC and MU bulkhead connectors use the CLETOP 1.25mm Stick-Type cleaner
- 27** Insert CLETOP swab into the optical bulkhead adapter and gently twist/wipe to clean fiber-optic interface. Discard swab after each use.
- 28** Are there more fiber optic bulkheads to clean?
- If yes, go to step [26](#).
If no, go to step [29](#).

Inspect Connector

- 29** Use inspection microscope to inspect fiber-optic connector. See figure [100-1](#) for examples of clean and contaminated fibers. Note that MPX connector has multiple fibers. Use the following criteria to determine clean fiber:
- Fiber core must have no contaminants or defects.
 - Fiber cladding must have no contaminants. Minor defects (pits and scratches) are acceptable.
 - Fiber ferrule may not have contaminants or defects that interfere with fiber-optic connector mating.
- 30** Is fiber-optic connector clean?
- If yes, go to step [34](#).
If no, go to step [31](#).
- 31** Clean and inspect fiber-optic connector up to five more times.
- 32** Is fiber-optic connector clean?
- If yes, go to step [33](#).
If no, contact next level of support.
- 33** Remove permanent plastic cap retainer, if applicable. Follow customer practices.

34 Are there more fiber-optic connectors to clean?

If yes, go to step [11](#).

If no, go to step [35](#).

35 **STOP. This procedure is complete.**

DLP-101

Module Mechanical Removal and Replacement

PURPOSE

This procedure provides instructions to mechanically remove and replace modules.

PREREQUISITES

Module logical removal must be done first. This procedure addresses only mechanical procedures. Refer to IXL-103.

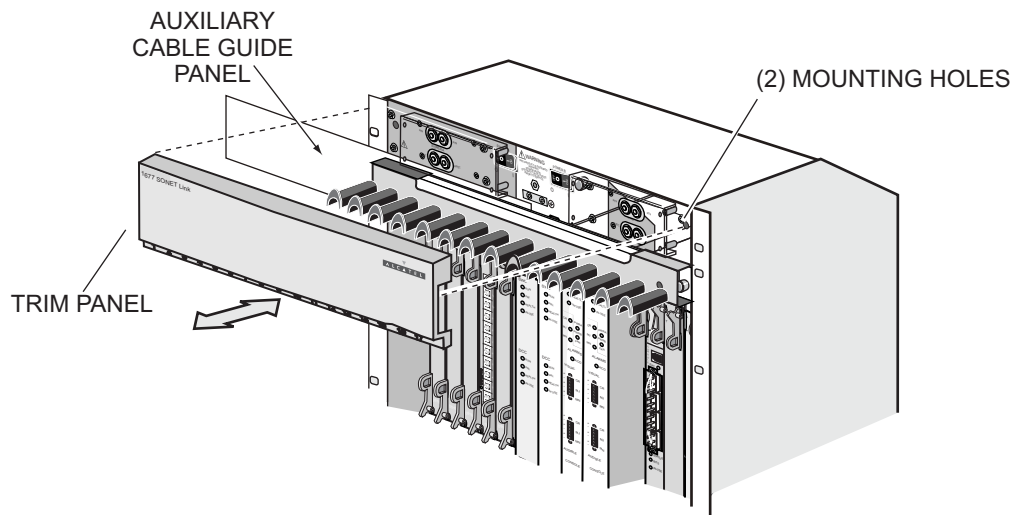
GENERAL

Refer to the 1677 SONET Link Address and Location Guide (PN 3EM13854AD) to determine module location and address.

RECOMMENDED TOOLS

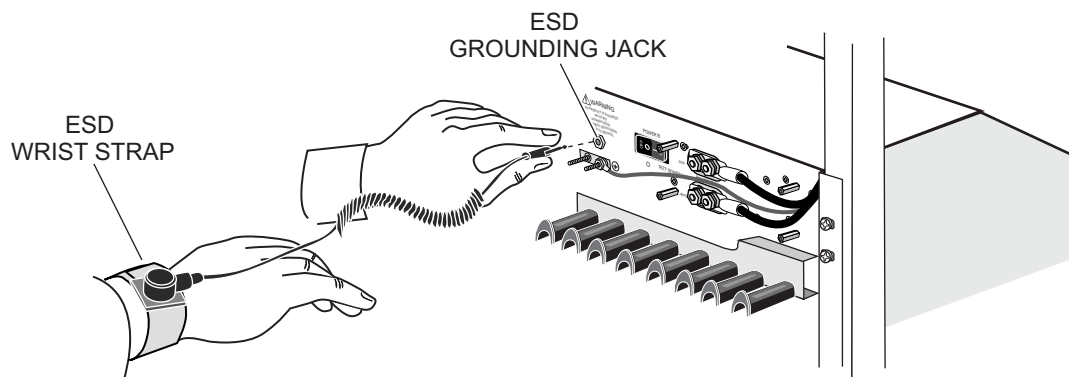
Phillips screwdriver, #2 × 6-inch

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Module can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.
2	CAUTION: Possibility of service interruption. Do not remove an in-service (IS) module. Removing a module that is in the IS state causes a hit to or a loss of traffic. Do applicable trouble clearing and logical replacement procedures before proceeding with this procedure.
3	<i>WARNING: Possibility of equipment damage. Modules contain static-sensitive devices. These devices can be damaged by static discharge. Refer to Introduction for special handling instructions.</i>
4	Place the plug-style ESD wrist strap around your wrist. Secure it tightly, making sure the metal plate on the wrist strap contacts your skin.
5	Remove the upper trim panel from the front of the chassis to expose the ESD grounding jack. See figure 101-1. To remove the trim panel, grasp the left and right ends of the trim panel and gently pull it forward to disengage the ball studs.

Figure 101-1. Remove/Replace Trim Panel677-0054-1
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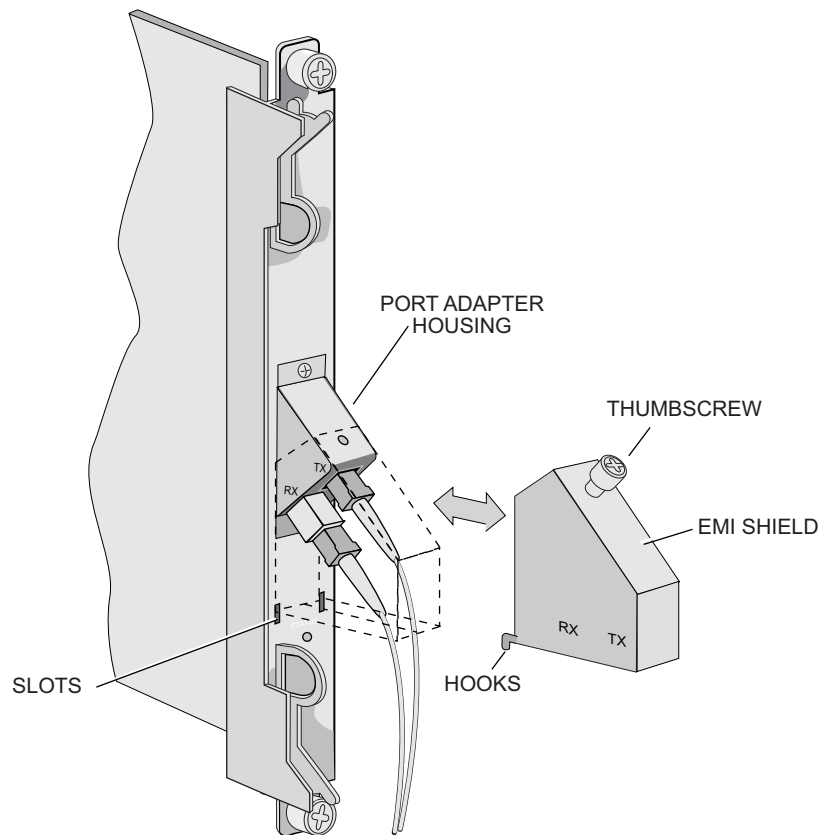
- 6 Plug the wrist strap's cord into the ESD grounding jack. See figure [101-2](#).
- 7 Is card to be replaced an OC-48 IOC?
 - If yes, go to step [8](#).
 - If no, go to step [10](#).
- 8 Use #2 Phillips screwdriver to loosen thumbscrew on EMI shield. See figure [101-3](#).
- 9 Tilt shield forward to disengage and remove it from front panel of card.
- 10 Carefully remove any wires or cables connected to card that needs to be removed.
- 11 Install protective caps on all exposed fiber cables and port adapters if applicable.
- 12 Mark cables for easy reconnection.
- 13 Loosen top and bottom thumbscrews.

Figure 101-2. Connect ESD Wrist Strap to Grounding Jack



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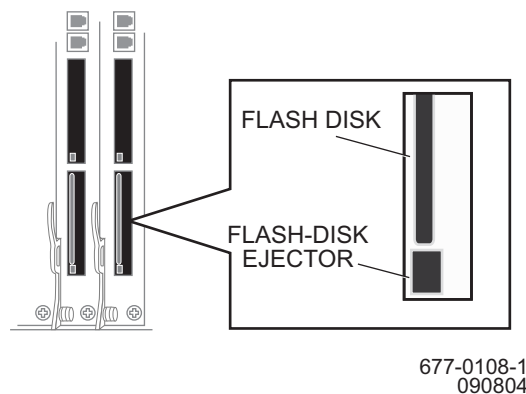
Figure 101-3. Remove or Install EMI Shield



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- 14** Is card being removed a CCC?
If yes, go to step [15](#).
If no, go to step [18](#).
- 15** Loosen thumbscrews on flash-disk access cover of CCC being removed. Slide cover up and remove.
- 16** Press flash-disk ejectors on each flash disk in CCC being removed. Ejector handle is inside flash-disk slot above flash disk. See figure [101-4](#).
- 17** Physically remove disks that were deactivated in procedure and set them aside. Note slot from which each disk was removed.

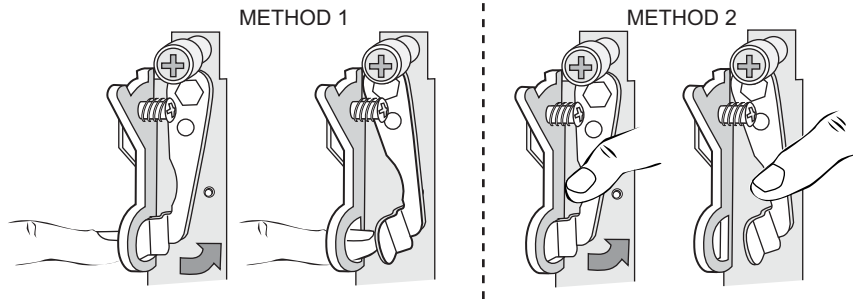
Figure 101-4. Flash Disk Ejector



- 18** Is module a CCC, TC, or SSC?
If yes, go to step [19](#).
If no, go to step [26](#).
- 19** Determine type of interlock switch/lever on module. Figure [101-5](#) shows type A lever. Figure [101-6](#) shows type B lever.
- 20** Is lever type A or type B?
If type A, go to step [21](#).
If type B, go to step [23](#).
- 21** Push interlock switch to the right. See figure [101-5](#).
- 22** Go to step [24](#).
- 23** Disengage interlock lever and switch. See figure [101-6](#).

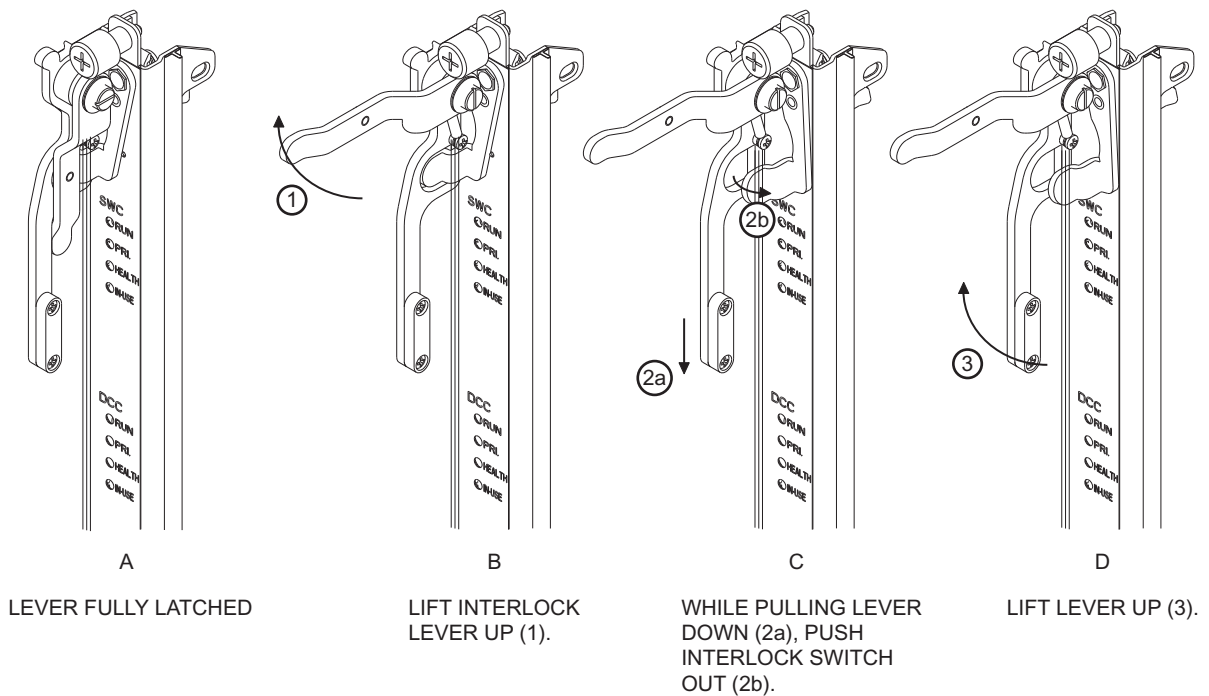
- 24 If applicable, wait for IN USE light to go out and PRI and/or IN USE light to turn green on other card.
- 25 Loosen top and bottom thumbscrews.

Figure 101-5. Move Switch to Right - Type A Lever



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Figure 101-6. Disengage Interlock Lever and Switch - Type B Lever

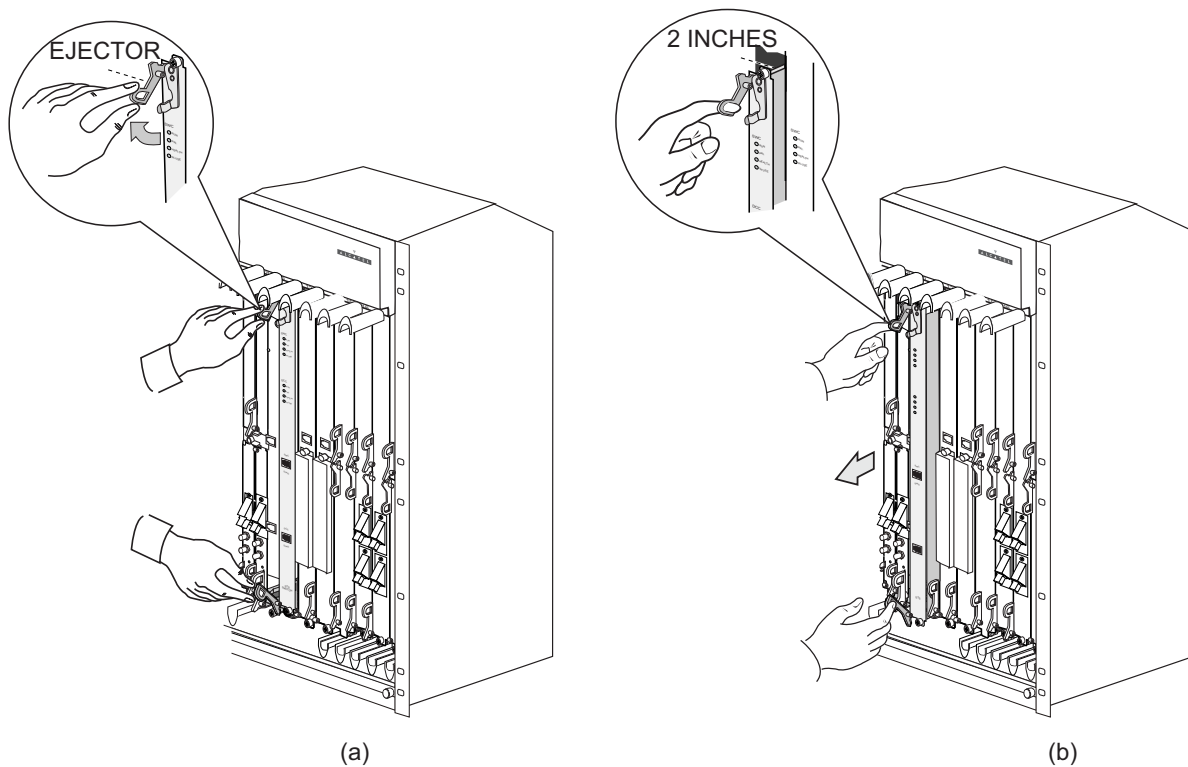


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- 26 Lift up on top and bottom ejectors. See figure 101-7.
- 27 Carefully slide card out of shelf and place in antistatic packaging.

- 28** Remove the replacement card from its antistatic packaging.
- 29** Is card being replaced a CCC?
If yes, go to step [30](#).
If no, go to step [32](#).
- 30** Loosen thumbscrew on flash-disk access cover of replacement CCC. Slide cover up and remove.
- 31** Insert flash disks into replacement CCC in the same position they were removed.

Figure 101-7. Lift Up Top and Bottom Ejectors

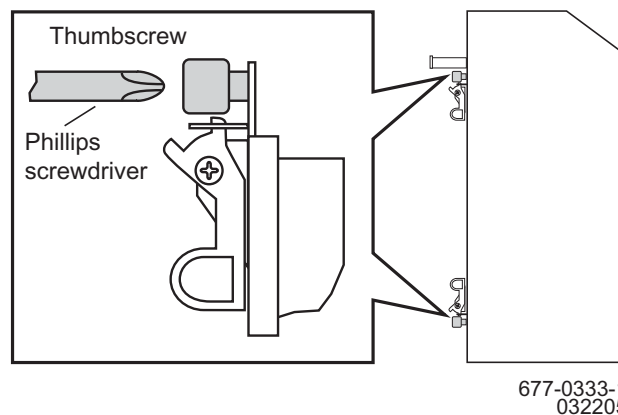


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- 32** Is replacement module a CCC, TC, or SSC?
If yes, go to step [33](#).
If no, go to step [38](#).
- 33** Determine type of interlock switch/lever on module. Figure [101-5](#) shows type A lever. Figure [101-6](#) shows type B lever.

- 34 Is lever type A or type B?
If type A, go to step 35.
If type B, go to step 37.
- 35 Push the interlock switch out (right) on replacement card. See figure 101-5.
- 36 Go to step 38.
- 37 Disengage interlock lever and switch on replacement card. See figure 101-6.
- 38 Extend both ejector handles.
- 39 **WARNING: Possibility of equipment damage. Do not force module into slot or connectors.**
- 40 To install modules, use the following procedure:
- Check slot and connectors for any obstacles or bent connectors before installing modules.
 - Make sure cables are clear of insertion slot.
 - Slide module into slot until it contacts backplane.
 - Carefully push on ejector handles at top and bottom of module until modules fully seats.
- 41 Use Phillips screwdriver to tighten captive thumbscrews at top and bottom of card. See figure 101-8.

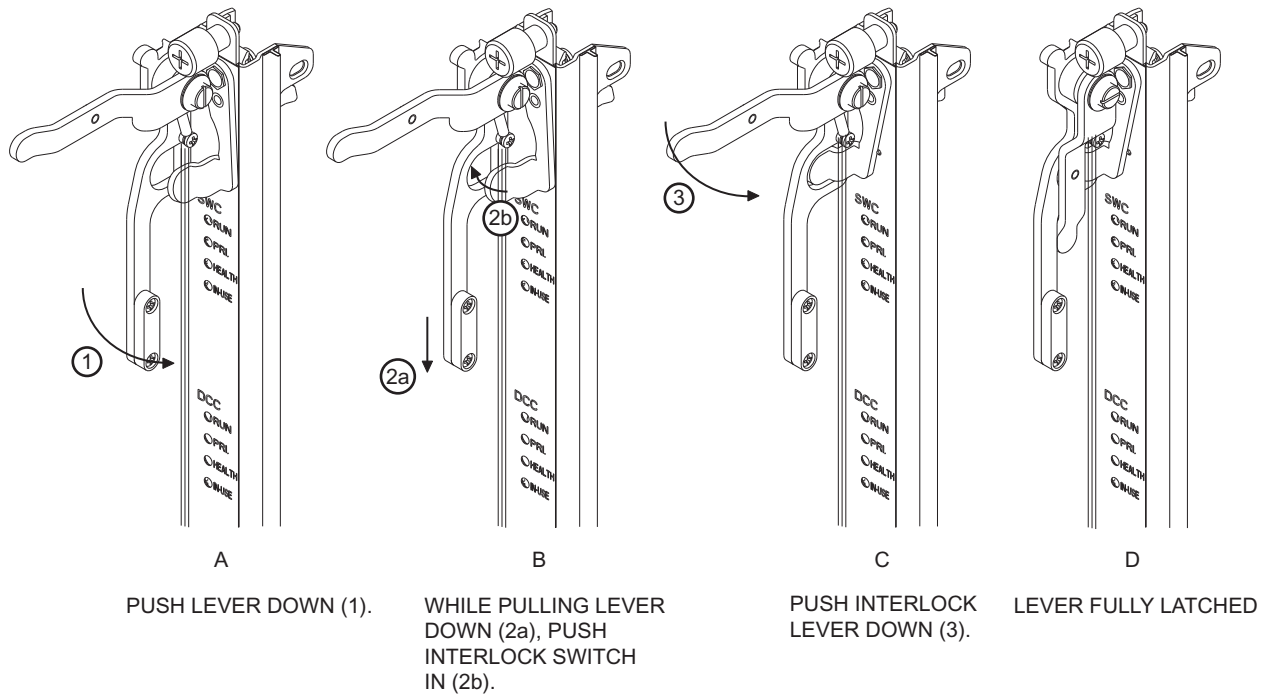
Figure 101-8. Captive Thumbscrew Detail



- 42** Is card just inserted a CCC?
If yes, go to step [43](#).
If no, go to step [45](#).
- 43** If card is a CCC 104, verify part number and mnemonic on cover match the CLEI code on card. Refer to the Product Information manual (PN 3EM13848AF).
- 44** Reinstall flash disk access cover on each card and tighten thumbscrews.
- 45** Remove protective caps from fiber cables and port adapters if applicable.
- 46** Always inspect and clean a fiber-optic cable and adapter before reconnecting. Refer to [DLP-100](#) for more information.
- 47** Reconnect any cables or wires that were disconnected in step [10](#) to the replacement card.
- 48** Is replacement card an OC-48 IOC?
If yes, go to step [49](#).
If no, go to step [53](#).
- 49** Slide shield over cables and engage hooks on shield with slots on front panel of card. See figure [101-3](#).
- 50** Ensure transmit cable and receive cable align with TX and RX labels, respectively, on side of shield. (This allows identification of cables without removing shield.)
- 51** Align thumbscrews on shield with threaded hole on port adapter housing.
- 52** Use #2 Phillips screwdriver to tighten thumbscrews.
- 53** Is replacement module a CCC, TC, or SSC?
If yes, go to step [54](#).
If no, go to step [58](#).
- 54** Is lever type A or type B (from step [34](#))?
If type A, go to step [55](#).
If type B, go to step [57](#).
- 55** Push interlock switch to the left.
- 56** Go to step [58](#).
- 57** Engage interlock switch and lever. See figure [101-9](#).

- 58 Reinstall the trim panel by aligning the ball studs in the holes in the power panel and gently pushing in the trim panel until you feel it snap in place. See figure 101-1.
- 59 Return to DLP that logically removed this module, then logically restore it.
- 60 **STOP. This procedure is complete.**

Figure 101-9. Engage Interlock Switch and Lever



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DLP-114

Handling Static-Sensitive Devices

PURPOSE

This procedure provides instructions to handle static-sensitive devices.

RECOMMENDED TOOLS

Wrist strap

STEP	PROCEDURE
1	<i>WARNING: Possibility of equipment damage. Circuit cards contain static-sensitive devices. These devices are susceptible to static discharge damage when they are not connected to backplane of node. The following procedure should always be followed when installing or removing cards.</i>
2	Wear a ground wrist strap.
3	Plug ground wrist strap into grounding jack between Power A and Power B switches.
4	Handle units at front and side edges only. Do not touch circuit traces or components.
5	STOP. This procedure is complete.

DLP-126

Replace GIGE Card

PURPOSE

This procedure provides instructions to replace a GIGE card.

GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.
2	WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to Introduction for special handling instructions.
3	If GIGE card is carrying unprotected traffic, provision this traffic to another circuit.
4	Enter RTRV-EQPT::AID; where: AID=Equipment Access Identifier of GIGE card.
5	Observe output.
6	Enter RMV-EQPT::AID; to remove GIGE card. where: AID=Equipment Access Identifier of GIGE card to be replaced.
7	Did output return COMPLD or DENY? If COMPLD, go to step 8. If DENY, go to step 11.
8	Remove and replace GIGE card. Refer to DLP-101 .
9	Enter RST-EQPT::AID; where: AID=Equipment Access Identifier of GIGE card just replaced.

- 10 Did output return COMPLD or DENY?

If COMPLD, go to step 12.
If DENY, go to step 11.
- 11 Contact next level of technical support for assistance.
- 12 **STOP. This procedure is complete.**

DLP-127

Inspect/Replace Air-Filter Element

PURPOSE

This procedure provides instructions to inspect or replace an air-filter element.

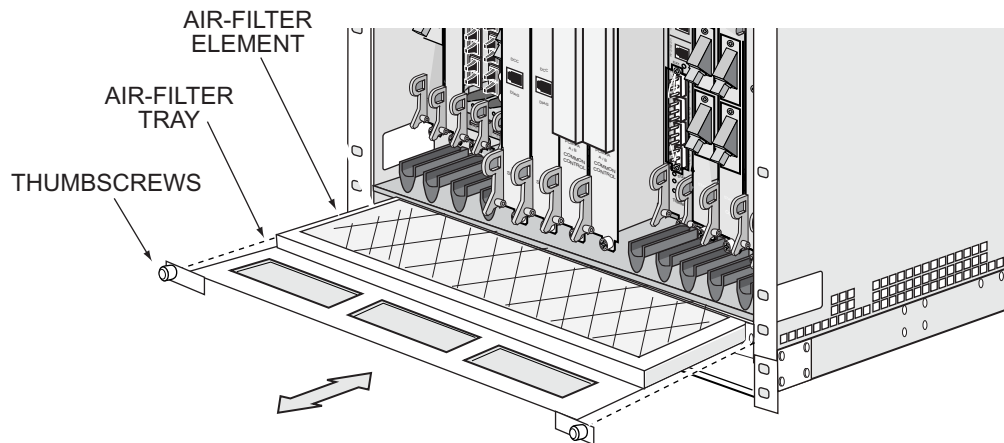
RECOMMENDED TOOLS

Phillips screwdriver, #2 X 6-inch

STEP	PROCEDURE
1	<i>WARNING: Possibility of equipment damage. Check air-filter element every 2 months and replace it at least every 3 months. A dirty air-filter element blocks airflow through the bay, which can cause overheating and subsequent equipment damage.</i>
2	Vacuum air intake grilles at bottom of chassis and air-exhaust grille at top of chassis.
3	Use #2 Phillips screwdriver to loosen two thumbscrews that hold system air-filter tray in place (see figure 127-1).
4	Slide out air-filter tray (see figure 127-1) and remove air-filter element from tray.
5	Vacuum air-filter tray, air-filter plenum, and air-filter element.
6	Check equipment maintenance records for last installation date of a new air-filter element.
7	Has it been 3 months since air-filter was replaced with a new one? If yes, go to step 9. If no, go to step 8.
8	Is air-filter element torn or heavily restricted by dust and dirt? If yes, go to step 9. If no, go to step 10.
9	Replace air-filter element with a new one.
10	Reinstall air filter in tray. Make sure air-flow arrows on metal frame of filter point up.
11	Align air-filter tray in chassis opening with filter-side up. Hold air-filter in place with thumb, and push air-filter tray all way in.

- 12 **WARNING:** *Possibility of equipment damage. To prevent thumbscrew damage, never tighten a thumbscrew with a power screwdriver and never tighten it more than .09 m-kg (8 in.-lbs).*
- 13 Lift up front of air-filter tray, align thumbscrews with holes, and tighten thumbscrews using a #2 Phillips screwdriver.
- 14 Record installation date of new air-filter in equipment maintenance records.
- 15 **STOP. This procedure is complete.**

Figure 127-1. Remove/Install Air-Filter Tray



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DLP-128

Replace Common Control Card (CCC)

PURPOSE

This procedure provides instructions to replace a Common Control Card (CCC).

PREREQUISITE

Contact Alcatel-Lucent CTAC at 1-888-252-2832 prior to performing this procedure.

GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

STEP	PROCEDURE
1	DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.
2	WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to Introduction for special handling instructions.
3	Is a CCC card present in both slots 9 and 10? If yes, go to step 4. If no, go to step 109 .
4	Enter RTRV-PRMTR-NE;
5	Observe output. Note software release on system.
6	CAUTION: Possibility of service interruption. Failure to replace CCC while node is powered up may cause node to copy wrong release of system software. Not following ESD precautions may severely damage replacement card.
7	Enter RTRV-EQPT::CCC-9;
8	Enter RTRV-EQPT::CCC-10;

- 9 Observe output.
- 10 Determine AID of disks for CCC that is being replaced. Refer to table [128-A](#).

Table 128-A. CCC/Disk Relationship

CCC TO BE REPLACED	AID OF DISK (DISK AID)	ASSOCIATED TC
CCC in slot 9	DISK-A9, DISK-B9	TC in slot 11-A
CCC in slot 10	DISK-A10, DISK-B10	TC in slot 11-B

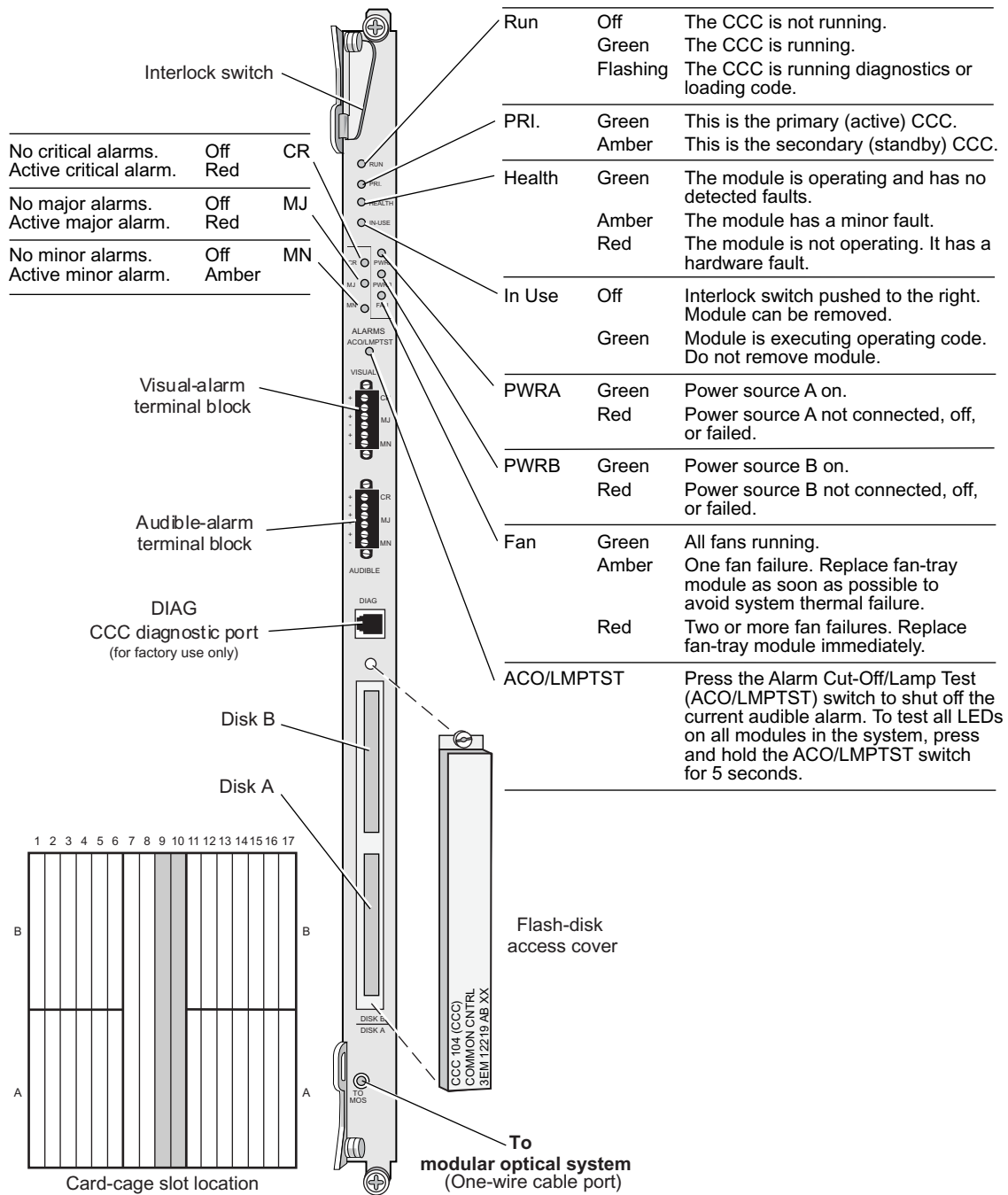
- 11 Enter **RTRV-DISK**; to check state of all disks.
- 12 Observe output. Note state of disks A9 and A10.
- 13 Are disks in both CCCs in valid state? (One Disk A is IS,WRK, one Disk A is IS,STBYH, one Disk B is IS,WRK, and one Disk B is IS,STBYH)
- If yes, go to step [14](#).
If no, go to step [109](#).
- 14 Enter **ACT-DISK::AID:::ACTION=DEACTIVATE**; to deactivate the “A” disk in CCC being replaced.
- where: AID=Access Identifier of disk on CCC to be replaced (DISK- $\{A9, A10\}$).
- When disks in CCC that is being replaced are deactivated, disks on CCC that is not being replaced become active.
- 15 Enter **ACT-DISK::AID:::ACTION=DEACTIVATE**; to deactivate the “B” disk in CCC being replaced.
- where:
AID=Access Identifier of disk corresponding to CCC to be replaced (DISK- $\{B9, B10\}$).
- 16 Enter **RTRV-DISK**;
- 17 Observe output. Note Primary State (PST) of disks that were deactivated.
- 18 Are PSTs of disks that were deactivated OOS-MA?
- If yes, go to step [19](#).
If no, go to step [109](#).
- 19 Is state of disks in CCC **NOT** being replaced IS,WRK?
- If yes, go to step [20](#).
If no, go to step [109](#).

- 20** Enter **ACT-DISK::AID:::ACTION=UNMOUNT**; to unmount the “A” disk on CCC to be replaced.
- where: AID=Access Identifier of disk on CCC to be replaced (DISK-{A9, A10}).
- When disks in CCC that is not being replaced become active, disks on CCC that must be replaced become inactive.
- 21** Enter **ACT-DISK::AID:::ACTION=UNMOUNT**; to unmount the “B” disk on CCC to be replaced.
- where: AID=Access Identifier of disk on CCC to be replaced (DISK-{B9, B10}).
- 22** Enter **RTRV-DISK::AID**; to verify the “A” disk on CCC to be replaced are unmounted.
- where: AID=Access Identifier of disk on CCC to be replaced (DISK-{A9, A10}).
- 23** Enter **RTRV-DISK::AID**; to verify the “B” disk on CCC to be replaced are unmounted.
- where: AID=Access Identifier of disk on CCC to be replaced (DISK-{B9, B10}).
- 24** Observe output. Note value of TOTAL, FREE, and PST. If disk is unmounted, those parameters should have the following values:
- PST=OOS-MA
TOTAL=0
FREE=0
- 25** Did output indicate disks are unmounted?
- If yes, go to step [26](#).
If no, go to step [109](#).
- 26** Enter **RTRV-EQPT::CCC-9**;
- 27** Enter **RTRV-EQPT::CCC-10**;
- 28** Observe output.
- 29** What is PST,SST of CCC to be replaced?
- If IS,WRK, go to step [30](#).
If IS,STBYH, go to step [32](#).
- 30** Enter **SW-DX-EQPT::AID**; to switch CCC to replace to standby.
- where: AID=Access Identifier of either CCC

- 31** Did output return COMPLD or DENY?
If COMPLD, go to step [32](#).
If DENY, go to step [109](#).
- 32** Enter **RMV-EQPT::AID;** for CCC to be replaced.
where: AID=Access Identifier of CCC to be replaced.
- 33** Did output return COMPLD or DENY?
If COMPLD, go to step [34](#).
If DENY, go to step [109](#).
- 34** Enter **RTRV-EQPT::TC-11-A;**
- 35** Observe output.
- 36** Enter **RTRV-EQPT::TC-11-B;**
- 37** Observe output.
- 38** Identify the TC associated with CCC to be replaced. Refer to table-[128-A](#).
- 39** What is PST,SST of TC associated with the CCC to be replaced?
If IS,WRK, go to step [40](#).
If IS,STBYH, go to step [46](#).
- 40** Enter **SW-DX-EQPT::TC-11-x;** Wait five minutes after Standby TC restores before proceeding.
where:
x=A or B (slot number of TC associated with CCC to be replaced)
- 41** Enter **RTRV-EQPT::TC-11-A;**
- 42** Observe output.
- 43** Enter **RTRV-EQPT::TC-11-B;**
- 44** Observe output.
- 45** What is PST,SST of TC to be replaced?
If IS,WRK, go to step [109](#).
If IS,STBYH, go to step [46](#).

- 46** Enter **RMV-EQPT::TC-11-x;**
- where:
x=A or B (slot number of TC associated with CCC to be replaced)
- 47** Did output return COMPLD or DENY?
- If COMPLD, go to step [48](#).
If DENY, go to step [109](#).
- 48** Open latch on STBY, OOS-MA TC. Refer to [DLP-101](#) steps [19](#) through [24](#).
- 49** Remove CCC. Refer to [DLP-101](#).
- 50** Before inserting new CCC, use a CCC interface cable to connect laptop or VDT to DIAG port on CCC. See figure [128-1](#).

Figure 128-1. CCC Front Panel



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- 51** Set laptop or VDT terminal session to following settings:
- 9600 Baud
 - 1 Stop Bit
 - No Parity
 - No Flow Control
- 52** Insert new CCC. Refer to DLP-101.
- 53** Close latch on OOS TC. Refer to DLP-101 steps 54 through 60.
- 54** Watch the laptop or VDT as CCC goes through a startup sequence.
- 55** When prompted, press any key to stop the auto-boot.
- 56** At the LOADER> prompt, enter **factory defaults**.
- 57** Press **Enter**.
- 58** At the LOADER> prompt, enter **date**.
- 59** Is the date returned correct?
- If yes, go to step 61
 - If no, enter correct date using **date MM/DD/YYYY** and press **Enter**.
- 60** Repeat step 58 to verify system returns correct date.
- 61** At the LOADER> prompt, enter **reboot**.
- 62** Press **Enter** to start reboot.
- Various messages display. On successful reboot, system responds with the following:
- ```
INITIALIZING SYSTEM MANAGER...
STARTUP COMPLETE.

PCM file load complete: CLI, TL1 and Snmpd enabled
NOTICE: This is a private computer system.
Unauthorized access may lead to prosecution.

Username:
```
- 63** Remove laptop or VDT and CCC interface cables connected to DIAG port on CCC.

- 64** Observe output. MAN alarms are set against disks in CCC just installed until they are activated.
- 65** Enter **RST-EQPT::AID;** for CCC just replaced.
- where: AID=Access Identifier of CCC just replaced.
- 66** Did output return COMPLD or DENY?
- If COMPLD, go to step [67](#).  
If DENY, go to step [109](#).
- 67** Enter **RST-EQPT::AID;** for OOS-MA TC.
- where: AID=Access Identifier of TC just replaced.
- 68** Did output return COMPLD or DENY?
- If COMPLD, go to step [69](#).  
If DENY, go to step [109](#).
- 69** Installing replacement CCC causes a CONTR alarm. Check for CONTR alarm. Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;**
- 70** Observe output. A CONTR alarm should be declared against CCC that was just installed. Repeat step [70](#) until CONTR alarm clears. If alarm does not clear within 10 minutes, go to step [109](#).
- 71** Wait five minutes after CONTR alarm clears before continuing.
- 72** Enter **RTRV-EQPT::AID;**
- where: AID=Access Identifier of CCC just replaced.
- 73** Does PST=IS and SST=STBYH?
- If yes, go to step [74](#).  
If no, go to step [109](#).
- 74** Enter **RTRV-EQPT::AID;**
- where: AID=Access Identifier of TC just restored.
- 75** Does PST=IS and SST=STBYH?
- If yes, go to step [76](#).  
If no, go to step [109](#).



- 76** Enter **RTRV-DISK;** to check state of disks.
- 77** Observe output. Note states of disks in CCC just replaced.
- 78** Is state of disks in CCC just replaced OOS-MA?  
If yes, go to step [79](#).  
If no, go to step [109](#).
- 79** Activate the “A” disk as secondary in CCC that has been replaced.  
Enter **ACT-DISK::AID:::MODE=SEC,ACTION=ACTIVATE;**  
where: AID=Access Identifier of the “A” disk in CCC just replaced (DISK-{A9, A10}).
- 80** Did output return COMPLD or DENY?  
If COMPLD, go to step [81](#).  
If DENY, go to step [109](#).
- 81** Enter **RTRV-DISK;**
- 82** Observe output. Note states of disks in CCC just replaced.
- 83** Verify PST=OOS-AUMA and SST=SWDL. While secondary disk synchronizes, a BKUPMEMSYNCH condition exists. Wait until BKUPMEMSYNCH condition clears before continuing. Note that MAN condition clears.
- 84** Wait for disk to synchronize.
- 85** Activate the “B” disk as secondary in CCC that has been replaced.  
Enter **ACT-DISK::AID:::MODE=SEC,ACTION=ACTIVATE;**  
where: AID=Access Identifier of the “B” disk in CCC just replaced (DISK-{B9, B10}).
- 86** Did output return COMPLD or DENY?  
If COMPLD, go to step [87](#).  
If DENY, go to step [109](#).
- 87** Enter **RTRV-DISK;**
- 88** Observe output. Note states of disks in CCC just replaced.
- 89** Verify PST=OOS-AUMA and SST=SWDL. While secondary disk synchronizes, a BKUPMEMSYNCH condition exists. Wait until BKUPMEMSYNCH condition clears before continuing. Note that MAN condition clears.

- 90** Wait for disk to synchronize.
- 91** Enter **RTRV-PRMTR-NE;**
- 92** Observe output. Note software release on system and status.
- 93** Is software release on system the same as it was in step 4?  
If yes, go to step 94.  
If no, go to step 109.
- 94** What is status on the system?  
If COMPLETE, go to step 95.  
If IN PROGRESS, go to step 109.
- 95** Enter **RTRV-EQPT::CCC-9;**
- 96** Enter **RTRV-EQPT::CCC-10;**
- 97** Observe output. Note FWVER, SWVER, PST, and SST parameters.
- 98** Is the FWVER and SWVER the same for both CCCs?  
If yes, go to step 99.  
If no, go to step 109.
- 99** Is the state of one CCC IS,WRK and the state of the other CCC IS,STBYH?  
If yes, go to step 100.  
If no, go to step 109.
- 100** Enter **SW-DX-EQPT::AID;** to switch CCC just replaced to working.  
where: AID=Access Identifier of either CCC
- 101** Did output return COMPLD or DENY?  
If COMPLD, go to step 102.  
If DENY, go to step 109.
- 102** Enter **RTRV-EQPT::AID;**  
where: AID=Access Identifier of CCC just replaced

- 103** Is state of CCC just replaced IS,WRK?  
If yes, go to step [104](#).  
If no, go to step [109](#).
- 104** Enter **RTRV-EQPT::AID;**  
where: AID=Access Identifier of other CCC
- 105** Is state of CCC just replaced IS,STBY?  
If yes, go to step [106](#).  
If no, go to step [109](#).
- 106** Enter **RTRV-ALM-ALL;** and **RTRV-COND-ALL;**
- 107** Observe outputs.
- 108** All alarms and conditions normal for the CCC replaced and the TC restored?  
If yes, go to step [110](#).  
If no, go to step [109](#).
- 109** Contact next level of technical support for assistance.
- 110** **STOP. This procedure is complete.**



## DLP-129

### Replace DS3 Connector Panel

#### PURPOSE

This procedure provides instructions to remove and install a DS3 connector panel.

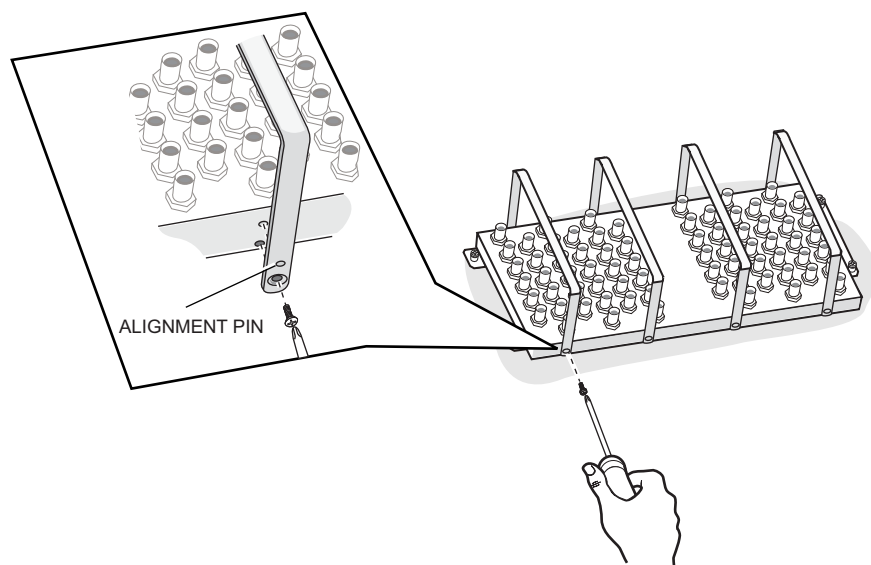
#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <p>Reroute network traffic on 1-to-4 DS3 cards that are serviced by connector panel to be replaced.</p> <p>Refer to 1677 SONET Link Operation and Administration manual (PN 3EM13851AF) for more information.</p> |
| 2    | <p>Select action.</p> <p>To replace a connector panel on rear of chassis, go to step 3.<br/>To replace a connector panel on equipment rack, go to step 14.</p>                                                    |

#### Replace Connector Panel on Chassis

- 3 Disconnect cables from transmit and receive ports. Carefully mark each cable for easy reinstallation.
- 4 Untie cables from cable-tie brackets.
- 5 Use a #2 Phillips screwdriver to loosen thumbscrews that attach connector panel to rear of chassis. Remove connector panel and place it to one side.
- 6 Attach four cable-tie brackets to replacement connector panel. See figure 129-1.  
  
Insert alignment pin on bracket in top hole and secure bracket with a #10-24 flat-head Phillips screw in bottom threaded hole. Tighten screw with a #2 Phillips screwdriver. Do this to both sides of each bracket.

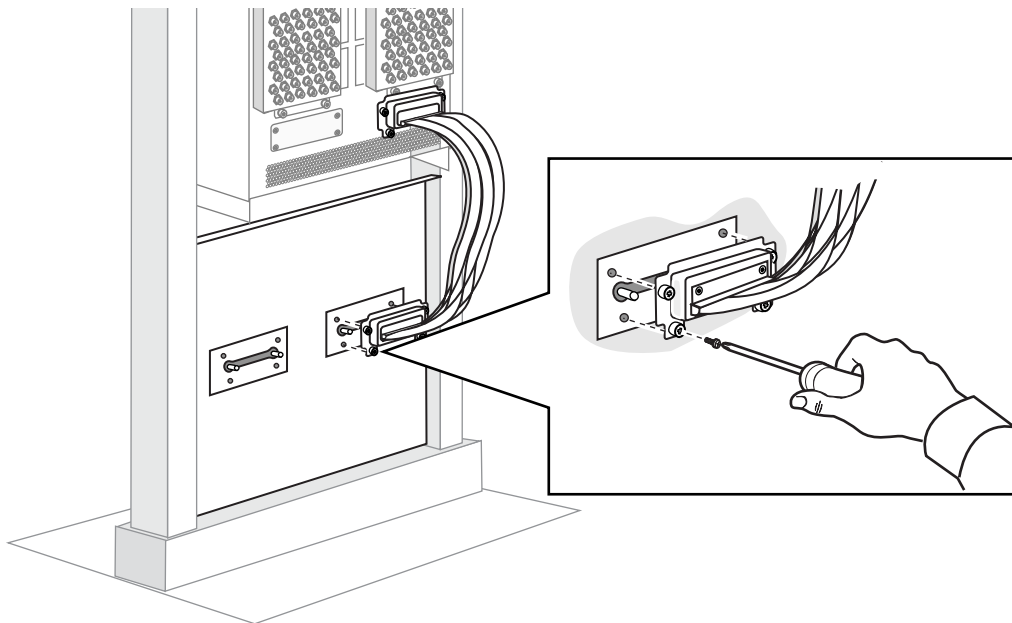
**Figure 129-1. Attach Cable-Tie Brackets to Chassis Mounted Connector Panel**677-0109-1  
090804

- 7 Position connector panel so the two guide pins enter two guide holes in chassis.
- 8 ***WARNING: Possibility of equipment damage. To prevent damage to connector pins, do not force panel into connector. Make sure connector of panel aligns correctly with chassis connector before seating it.***
- 9 Gently press connector panel into connector on 1677 SONET Link until it seats. Do not force it.
- 10 ***WARNING: Possibility of equipment damage. To prevent thumbscrew damage, never tighten a thumbscrew with a power screwdriver or more than .09 m-kg (8 in.-lbs).***
- 11 Align four captive screws on panel with threaded holes, and tighten each screw using a #2 Phillips screwdriver.
- 12 Reconnect cables to transmit and receive ports on connector panel.
- 13 Go to step [29](#).

**Replace Connector Panel on Equipment Rack**

- 14 Undo captive screws that secure cable to back of connector panel. See figure [129-2](#).

**Figure 129-2. Remove Cable to Rack-Mounted Connector Panel**



677-0110-1  
090804

- 15 Unplug cable from back of connector panel.
- 16 Disconnect cables from transmit and receive ports on front of panel. Carefully mark each cable for easy reinstallation.
- 17 Untie cables from cable-tie brackets.
- 18 Select action.

To remove a connector panel on left edge of adapter plate, only remove screws that attach adapter plate to left edge of equipment rack. Then go to step 19.

To remove a connector panel on right edge of adapter plate, only remove screws that attach adapter plate to right edge of equipment rack.
- 19 Pull unattached edge of adapter plate away from equipment rack.
- 20 Use a #2 Phillips screwdriver to remove screws that attach cable-tie brackets to connector panel being replaced.
- 21 Use a #2 Phillips screwdriver to loosen thumbscrews that attach connector panel to adapter plate, then place connector panel to one side.

- 22 Align replacement panel with mounting hole on adapter plate, then use a #2 Phillips screwdriver to tighten mounting thumbscrews.
- 23 ***WARNING: Possibility of equipment damage. To prevent thumbscrew damage, never tighten a thumbscrew with a power screwdriver or more than .09 m-kg (8 in.-lbs).***
- 24 Pull adapter plate away from equipment rack. Use #2 Phillips screwdriver to attach cable-tie brackets to replacement connector panel.
- 25 Reattach adapter plate to equipment rack. Use #2 Phillips screwdriver to tighten screws.
- 26 Reinstall cable in rear connector of panel. Use #2 Phillips screwdriver to tighten screws.
- 27 Reconnect cables to transmit and receive ports on front of connector panel.
- 28 Secure cables to cable-tie brackets.
- 29 **STOP. This procedure is complete.**



## DLP-130

### Replace DS3 Card with a DS3 Card

#### PURPOSE

This procedure provides instructions to replace a 12-port DS3 card with another 12-port DS3 card.

To replace a DS3 card with an ECC card, refer to [DLP-147](#).

#### PREREQUISITES

Normally, this procedure is performed to replace a failed (inactive) module. Always verify module state before removal.

If a DS3 card has a state of OOS-AU or OOS-AUMA, perform the appropriate trouble clearing procedures before replacing the module. Refer to [IXL-101](#).

It is recommended to disconnect loopback and test connections before proceeding with the replacement procedure. The TYPE parameter of a DS3 card cannot be changed while any of its ports are in a Loopback state (SST is LPBK) or in a Test state (SST is TACC).

#### GENERAL

DS3 and ECC working modules can be mixed within the same protection group if the protection module is an ECC. An ECC/DS3 card protection group is defined when the corresponding protection slot is provisioned. Refer to [table 130-A](#). The ECC module can operate in an unprotected mode. If the protection module is a DS3 module, all working modules in the protection group must be DS3. There is no restriction on the provisioning order.

**Table 130-A. Slot Definitions for ECC and DS3 Card Protection Groups**

| Protection Slot | Working Slot       |
|-----------------|--------------------|
| 1A              | 2A, 3A, 4A, 5A     |
| 1B              | 2B, 3B, 4B, 5B     |
| 17A             | 16A, 15A, 14A, 13A |
| 17B             | 16B, 15B, 14B, 13B |

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

---

| STEP | PROCEDURE |
|------|-----------|
|------|-----------|

---

- 1** **DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.**

- 2 **WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to [Introduction](#) for special handling instructions.**
- 3 Enter **RTRV-EQPT::AID**; for DS3 card being replaced.  
  
where:  
AID=Equipment Access Identifier of DS3 card to be replaced.
- 4 Observe output.
- 5 Is DS3 card to be replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?  
  
If yes, go to step [6](#).  
If no, go to step [9](#).
- 6 Is state of protect module IS, WRK?  
  
If yes, go to step [31](#).  
If no, go to step [7](#).
- 7 Enter **INH-SWTOPROTN-EQPT::AID**; to inhibit switching to protection.  
  
where:  
AID=Equipment Access Identifier of the DS3 protection card to be replaced.
- 8 Go to step [16](#).
- 9 Is state of DS3 card IS, WRK?  
  
If yes, go to step [12](#).  
If no, go to step [10](#).
- 10 Enter **INH-SWTOWKG-EQPT::AID**; to inhibit switching to working.  
  
where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 11 Go to step [16](#).
- 12 Enter **RTRV-EQPT::AID**; to check state of protection DS3 card in group where DS3 card is being replaced.  
  
where:  
AID=Equipment Access Identifier of the protect DS3 card in group.

- 13** Is the state of protect card IS, STBYH?
- If yes, go to step [14](#).  
If no, go to step [31](#).
- 14** Enter **SW-TOPROTN-EQPT::AID**; to switch working DS3 card to protect.
- where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 15** Did output return COMPLD or DENY?
- If COMPLD, go to step [16](#).  
If DENY, go to step [31](#).
- 16** Release loopbacks on DS3 card to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).
- 17** Release test connections on DS3 card to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).
- 18** Enter **RMV-EQPT::AID**; for DS3 card being replaced.
- where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 19** Did output return COMPLD or DENY?
- If COMPLD, go to step [20](#).  
If DENY, go to step [31](#).
- 20** Remove and replace DS3 card. Refer to [DLP-101](#).
- 21** Enter **RST-EQPT::AID**; for replacement DS3 card.
- where:  
AID=Equipment Access Identifier of the DS3 card just replaced.
- 22** Did output return COMPLD or DENY?
- If COMPLD, go to step [23](#).  
If DENY, go to step [31](#).
- 23** Enter **RTRV-EQPT::AID**; to verify state of DS3 card.
- where:  
AID=Equipment Access Identifier of the DS3 card just replaced.

- 24** Is state of DS3 card IS, STBYH?
- If yes, go to step [26](#).  
If no, go to step [25](#).
- 25** Replacement DS3 card should be in standby state within 3 minutes. Repeat step [23](#).  
If card is not in “IS, STBYH” state after 5 minutes, go to step [31](#).
- 26** Is DS3 card just replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?
- If yes, go to step [27](#).  
If no, go to step [29](#).
- 27** Enter **ALW-SWTOPROTN-EQPT::AID**; to allow switching to protection.
- where:  
AID=Equipment Access Identifier of the DS3 card just replaced.
- 28** Go to step [32](#).
- 29** Enter **ALW-SWTOWKG-EQPT::AID**; to allow switching to working.
- where:  
AID=Equipment Access Identifier of the DS3 card just replaced.
- 30** Go to step [32](#).
- 31** Contact next level of technical support for assistance.
- 32** **STOP. This procedure is complete.**

## DLP-131

### Replace EDFA Card

#### PURPOSE

This procedure provides instructions to replace an EDFA card.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

#### RECOMMENDED TOOLS

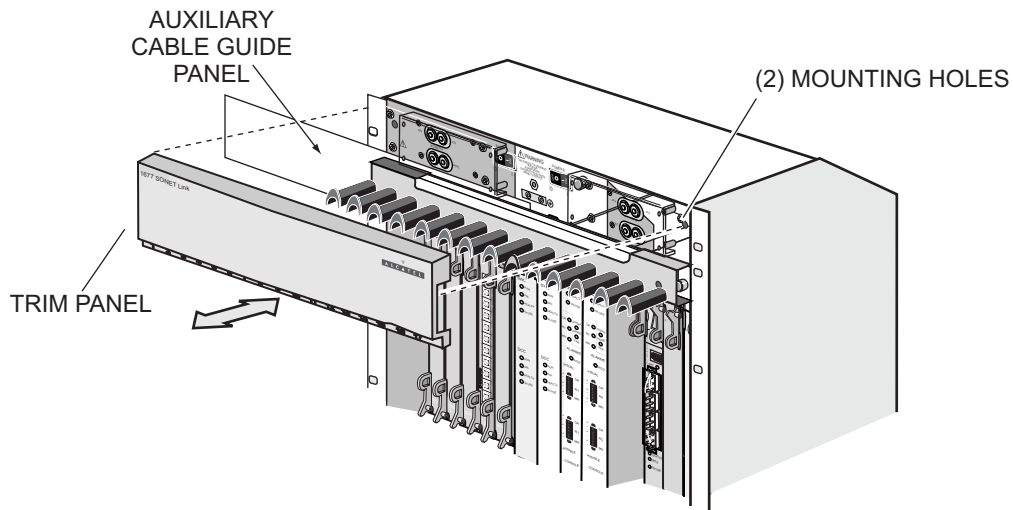
Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | If EDFA card is amplifying unprotected traffic, provision this traffic to another circuit. Refer to the Operation and Administration manual (PN 3EM13851AF).                                                        |
| 4    | Enter <b>RTRV-EQPT::AID;</b><br><br>where:<br>AID=Equipment Access Identifier of EDFA card.                                                                                                                         |
| 5    | Observe output.                                                                                                                                                                                                     |
| 6    | Enter <b>RMV-EQPT::AID;</b> to remove EDFA card.<br><br>where:<br>AID=Equipment Access Identifier of EDFA card to be replaced.                                                                                      |
| 7    | Place plug-style ESD wrist strap around wrist. Secure it tightly, making sure metal plate on wrist strap contacts skin.                                                                                             |

- 8 Remove upper trim panel from front of chassis to expose ESD grounding jack. See figure 131-1.

To remove trim panel, grasp left and right ends of trim panel and gently pull it toward you to disengage ball studs.

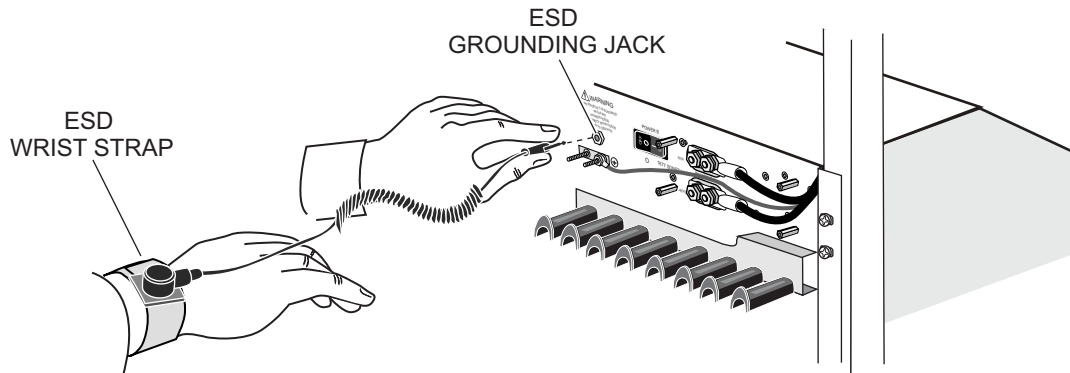
**Figure 131-1. Remove or Install Trim Panel**



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090804

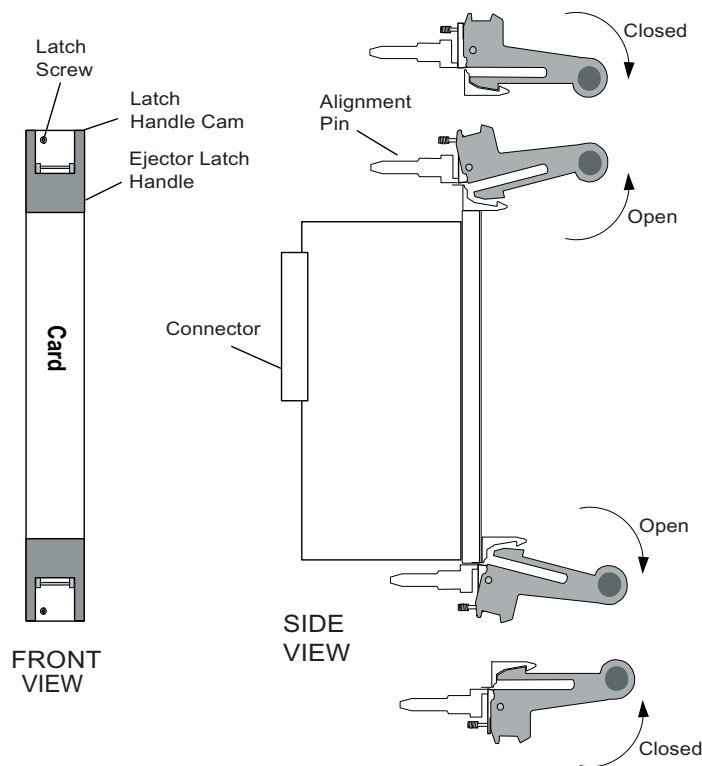
- 9 Plug wrist-strap cord into ESD grounding jack. See figure 131-2.
- 10 **CAUTION:** Possibility of service interruption. Make sure EDFA card is not handling traffic before turning off safety key switch.
- 11 Locate EDFA card to be replaced and turn its safety key switch to OFF position. See figure 131-4 for location of safety key switch.
- 12 Disconnect fiber-optic cables from two port adapters on card. See figure 131-4. Install protective caps on all exposed fiber cables and mark cables for easy reinstallation.

**Figure 131-2. Connect ESD Wrist Strap to Grounding Jack**



677-0106-1  
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- 13 Loosen top and bottom thumbscrews.
- 14 Lift up on top and bottom ejectors.
- 15 Carefully slide card out of shelf and place in antistatic packaging.
- 16 Remove the replacement card from its antistatic packaging.
- 17 Extend both ejector handles.
- 18 Make sure safety key switch is in OFF position.
- 19 Align the card with the slot guides and push in the card until both card ejectors engage the tabs at the edge of the slot. See figure [131-3](#).

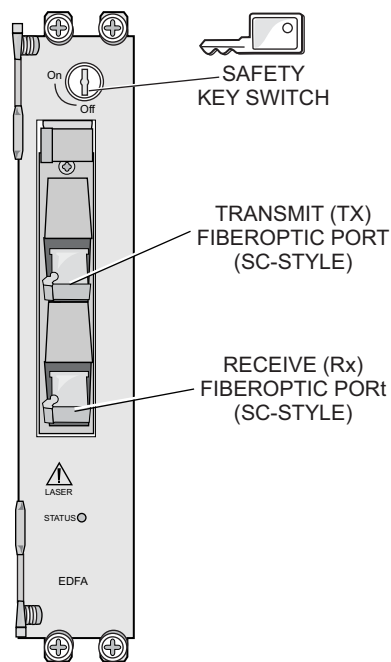
**Figure 131-3. Card Ejector Handle Operation**677-0351-1  
032105

- 20** ***WARNING: Possibility of equipment damage. To prevent damage to tabs, make sure card ejectors engage openings in tabs before pushing in card-ejector handles.***
- 21** **CAUTION:** Possibility of service interruption. Tighten all four thumbscrews to ensure the card remains properly seated. However, to prevent thumbscrew damage, never tighten a thumbscrew with a power screwdriver or more than .09 m-kg (8 in.-lbs).
- 22** Push in both card ejector handles to seat card in backplane connectors.
- 23** Tighten both thumbscrews.
- 24** Remove protective caps from fiber-optic cables removed in step 12, and reconnect them to port adapters on card. See figure 131-4.
- Always inspect and clean a fiber-optic cable and adapter before reconnecting them. Refer to DLP-100 for more information.
- 25** Turn safety key switch on replacement card to ON position.



- 26** Replacement EDFA card is now installed. Unplug ESD wrist strap.
- 27** Enter **RST-EQPT::AID;**
- where:  
AID=Equipment Access Identifier of EDFA card just replaced.
- 28** Did output return COMPLD or DENY?
- If COMPLD, go to step **29**.  
If DENY, go to step **31**.
- 29** Reinstall trim panel by aligning ball studs in holes in power panel and gently pushing in trim panel until it snaps in place. See figure **131-1**.
- 30** Go to step **32**.
- 31** Contact next level of technical support for assistance.
- 32** **STOP. This procedure is complete.**

**Figure 131-4. EDFA Safety Key Switch**



677-0111-1  
090804



## DLP-132

### Replace Fan-Tray Assembly (15 RU Shelf)

#### PURPOSE

This procedure provides instructions to remove and install a fan-tray assembly.

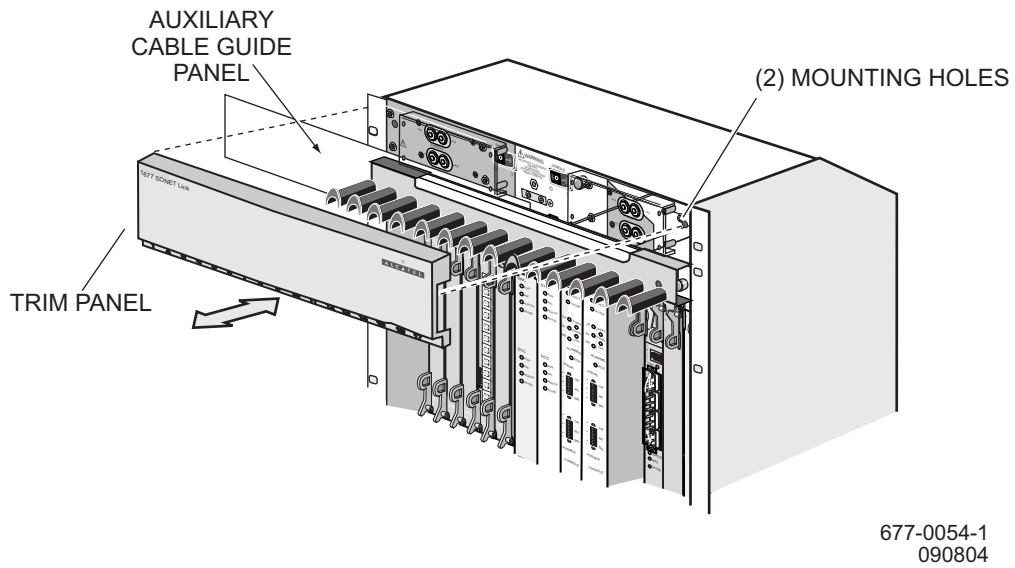
#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

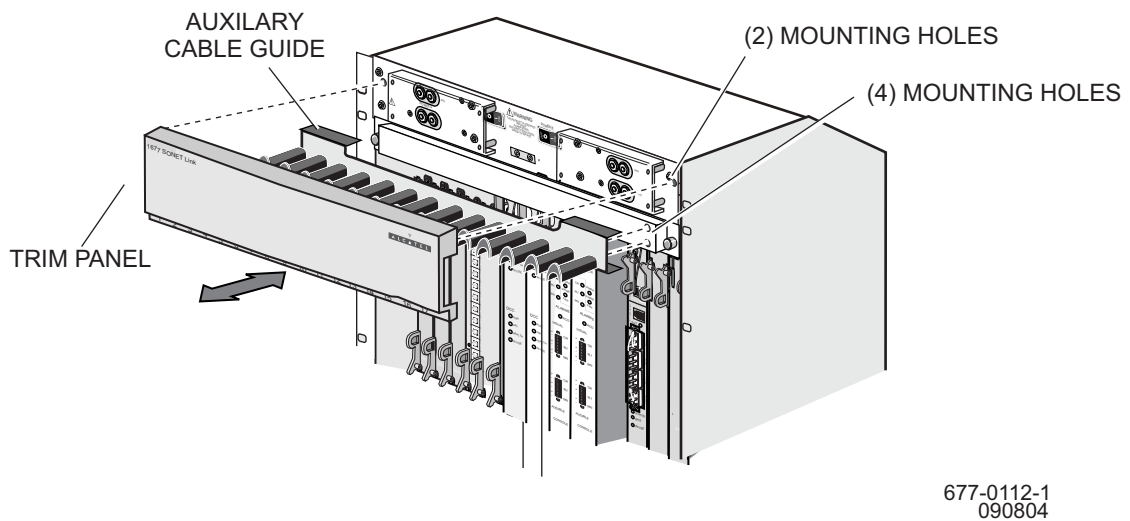
| STEP | PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                              |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Remove upper trim panel from chassis. See figure <a href="#">132-1</a> .                                                                                                                                                                                                                                                                                                                               |
| 2    | Grasp outer edges of trim panel and gently pull it toward you.                                                                                                                                                                                                                                                                                                                                         |
| 3    | Temporarily remove all cables from auxiliary cable-guide and place them aside.                                                                                                                                                                                                                                                                                                                         |
| 4    | Use #2 Phillips screwdriver to loosen two thumbscrews on auxiliary cable-guide panel.                                                                                                                                                                                                                                                                                                                  |
| 5    | Use #2 Phillips screwdriver to loosen thumbscrews on fan-tray assembly.                                                                                                                                                                                                                                                                                                                                |
| 6    | Remove auxiliary cable-guide panel from chassis.                                                                                                                                                                                                                                                                                                                                                       |
| 7    | Grasp outer edges of auxiliary cable-guide panel and gently pull it toward you.                                                                                                                                                                                                                                                                                                                        |
| 8    | <b><i>WARNING: Possibility of equipment damage. Operating node for more than 5 minutes with fan-tray assembly removed may cause node to overheat and disrupt network traffic.</i></b><br><br>Ensure replacement fan-tray assembly is close by, unpacked, and ready to install immediately. Check outer edge of replacement fan-tray assembly to ensure EMI gasket is in place and not damaged.         |
| 9    | <b>DANGER: Possibility of personal injury. Keep your fingers away from rotating fan blades. Pull fan-tray assembly by thumbscrews only. Wait for fan blades to stop spinning before you attempt to remove fan-tray assembly completely from chassis.</b><br><br>Grasp two thumbscrews and pull fan-tray assembly out about 1 inch from chassis. Wait about 15 seconds for fan blades to stop spinning. |
| 10   | Remove fan-tray assembly from chassis (see figure <a href="#">132-2</a> ) and place it aside.                                                                                                                                                                                                                                                                                                          |

- 11 Align replacement fan-tray assembly with guides and push it into chassis. Fans immediately begin to spin.
- 12 ***WARNING: Possibility of equipment damage. To prevent thumbscrew damage, never use a power screwdriver to tighten them and never tighten them more than .09 m-kg (8 in.-lbs.).***  
  
Use #2 Phillips screwdriver to tighten both fan-tray assembly thumbscrews.
- 13 Reinstall auxiliary cable-guide panel.  
  
Align auxiliary cable-guide panel ball studs in holes in fan tray. Use palms of hands to gently push in both outside edges of cable-guide panel until panel snaps into place.
- 14 Use #2 Phillips screwdriver to tighten two thumbscrews on auxiliary cable-guide panel.
- 15 Reinstall cables that were removed from auxiliary cable guides in step 3.  
  
When routing a cable through top auxiliary cable guides, leave at least a 2-foot service loop to service fan-tray assembly.
- 16 Reinstall upper trim panel. See figure [132-1](#).  
  
Align trim-panel ball studs in holes in fan tray. Use palms of hands to gently push in outside edges of trim panel until panel snaps in place.
- 17 **STOP. This procedure is complete.**

**Figure 132-1. Remove or Install Trim Panel and Auxiliary Cable Guide**



**Figure 132-2. Remove or Install Fan-Tray Assembly**





## DLP-133

### Remove/Install Filler Panel

#### PURPOSE

This procedure provides instructions to remove or install a filler panel.

#### GENERAL

The 1677 SONET Link uses a half-high slot filler panel and a full-high slot filler panel. See figure 133-1. The filler panel is a metal plate that has two captive thumbscrews and special gasket material along its edges. The panel minimizes electromagnetic interference (EMI) and also guides airflow through the chassis for cooling.

The chassis, filler panels, access covers, and card front panels are part of a complete EMI-compliant enclosure. Never operate the node with access covers or filler panels removed. If the node will be operated with a card slot empty, install a filler panel over the opening. Failure to follow these instructions will cause the equipment to violate part 15 of the FCC rules.

***WARNING: Possibility of equipment damage. Make sure each empty card-cage slot is covered with a filler panel whenever the 1677 SONET Link is turned on. This is necessary so that the chassis cooling system performs as designed. Never operate the 1677 SONET Link with an open empty card slot for more than 5 minutes at a time while servicing.***

#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------|
| 1    | Select action.<br><br>To install a filler panel, go to step 2.<br>To remove a filler panel, go to step 8. |

#### Installing a Filler Panel

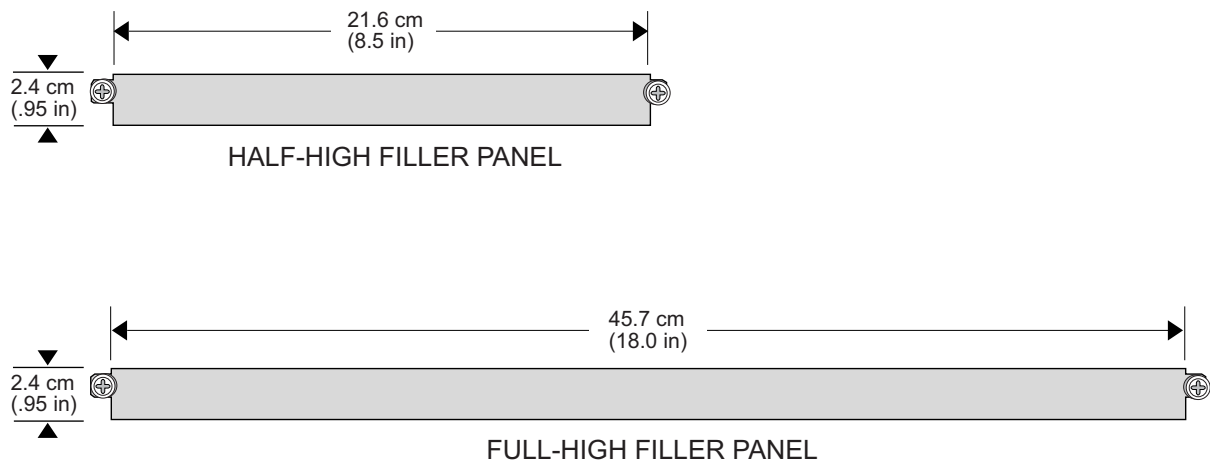
- 2 Select either a half-high panel or full-high panel, depending on size of empty slot that you want to cover. See figure 133-1.
- 3 Ensure EMI gasket material along top, bottom, and one side of filler panel is present and not damaged. If material is damaged or missing, do not use panel. Get another one.
- 4 Position filler panel in empty card-cage slot opening with EMI gasket material on right side. Hand-tighten the two thumbscrews.

- 5 **WARNING: Possibility of equipment damage. To prevent thumbscrew damage, never tighten a thumbscrew with a power screwdriver or more than .09 m-kg (8 in.-lbs).**
- 6 Use #2 Phillips screwdriver to finish tightening two thumbscrews.
- 7 Go to step 10.

### Removing a Filler Panel

- 8 Locate filler panel and use #2 Phillips screwdriver to loosen its two thumbscrews.
- 9 Remove filler panel, then store it in an area where it will not be damaged and is safe for future use.
- 10 **STOP. This procedure is complete.**

Figure 133-1. Half-High and Full-High Filler Panels



677-0113-1  
090804



## DLP-134

# Install Node Protection Shield Kit/Replace Node Protection Shield

### PURPOSE

This procedure provides instructions to install the optional node protection shield kit or to remove and install the node protection shield.

### GENERAL

The optional node protection shield kit protects the fiber-optic cables and metallic cables connected to the cards from damage. It also discourages equipment tampering and vandalism. The transparent shield is held in place by four thumbscrews. One node protection-shield kit protects one 1677 SONET Link. The kit includes the following:

- |                                            |                               |
|--------------------------------------------|-------------------------------|
| (1) 1/8-inch transparent protection shield | (4) #12-24 × 3/8" thumbscrews |
| (4) #12-24 × 1-1/2" hex standoffs          | (4) #12-24 hex nuts           |
| (4) #12 lockwashers                        | (4) #12 flat washers          |

### RECOMMENDED TOOLS

Nut driver, 3/8-inch

Open-end wrench, 3/8-inch

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                                                               |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Select action.<br><br>To install kit on a node front-mounted in equipment rack, go to step 2.<br>To install kit on a node mid-mounted in equipment rack, go to step 10.<br>To replace protection shield, go to step 16. |

### Install Kit on Front-Mounted Node

- |   |                                                                                                                                                                                                                                                                                                                                                                                    |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Select action.<br><br>To install on a node in a 19-inch ANSI/EIA-310-D or IEC equipment rack, go to step 3.<br>To install on a node in a 19-inch equipment rack with one-inch on-center mounting holes, go to step 4.<br>To install on a node in a 23-inch ANSI/EIA-310-D or IEC equipment rack, or a 23-inch equipment rack with one-inch on-center mounting holes, go to step 5. |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- 3 Install #12-24 hex standoffs in threaded holes. See figure 134-1. Tighten standoffs using a 3/8-inch nut driver, then go to step 6.
- 4 Install #12-24 hex standoffs in threaded holes. See figure 134-2. Tighten standoffs using a 3/8-inch nut driver, then go to step 6.
- 5 ***WARNING: Possibility of equipment damage. The 23-inch mounting brackets of the node have both #10-32 and #12-24 threaded holes. Make sure to install the hex standoffs only in #12-24 holes. See figure 134-3.***  
  
Install #12-24 hex standoffs in threaded holes. See figure 134-3. Use 3/8-inch nut driver to tighten standoffs.
- 6 Remove protective paper from both sides of shield.
- 7 Position shield over standoffs and loosely secure shield to standoffs with four thumbscrews. See figure 134-4.
- 8 Adjust shield so that it is squarely positioned over card cage, then finger-tighten all four thumbscrews.
- 9 Go to step 20.

#### Install Kit on Mid-Mounted Node

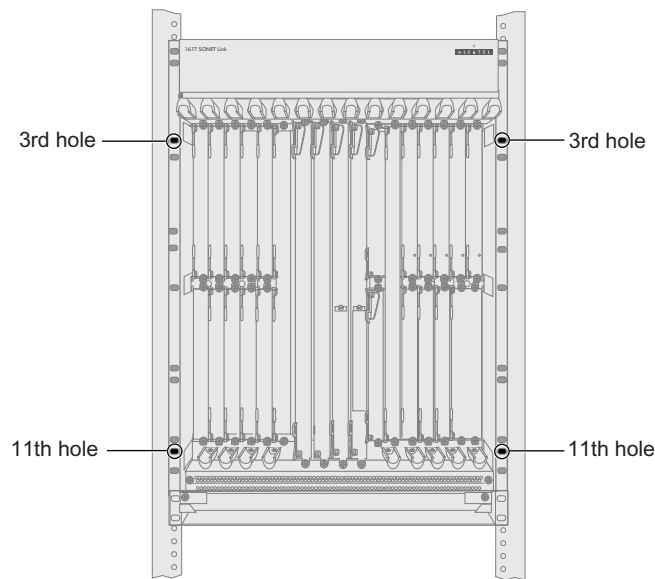
- 10 Install #12-24 hex standoffs in holes.
- 11 Secure standoffs with four #12-24 hex nuts, lockwashers, and washers, using a 3/8-inch nutdriver and a 3/8-inch open-end wrench.
- 12 Remove protective paper from both sides of shield.
- 13 Position shield over standoffs and loosely secure shield to standoffs with four thumbscrews. See figure 134-4.
- 14 Adjust shield so that it is squarely positioned over card cage. Then finger tighten all four thumbscrews.
- 15 Go to step 20.

#### Replace Protection Shield

- 16 Loosen four thumbscrews that secure shield to four standoffs.
- 17 Lift shield off standoffs.

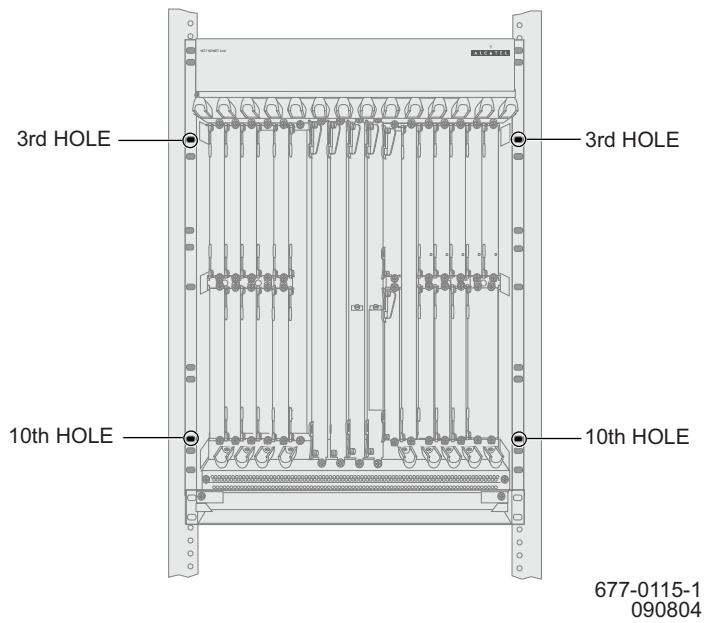
- 18 Position shield over four standoffs and loosely secure shield to standoffs with four thumbscrews. See figure 134-4.
- 19 Adjust shield so that it is squarely positioned over card cage, then finger-tighten all four thumbscrews.
- 20 **STOP. This procedure is complete.**

**Figure 134-1. Mounting Holes—19-inch ANSI/EIA 310D or IEC Equipment Rack**

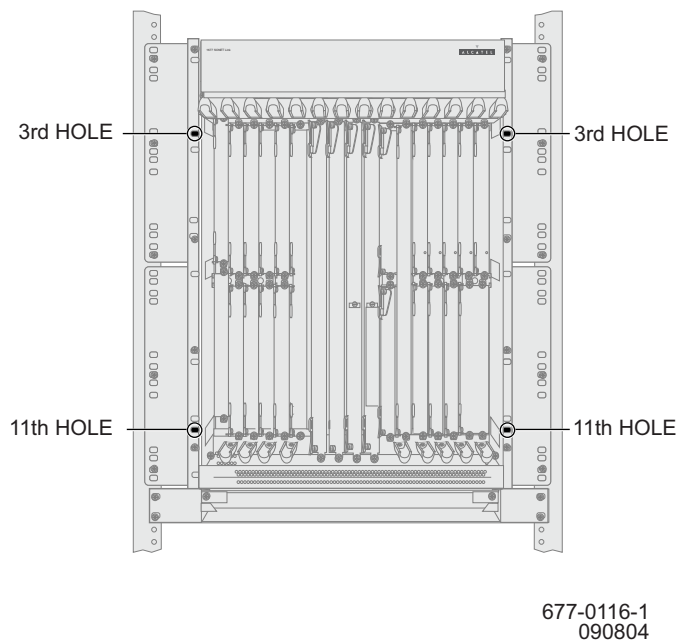


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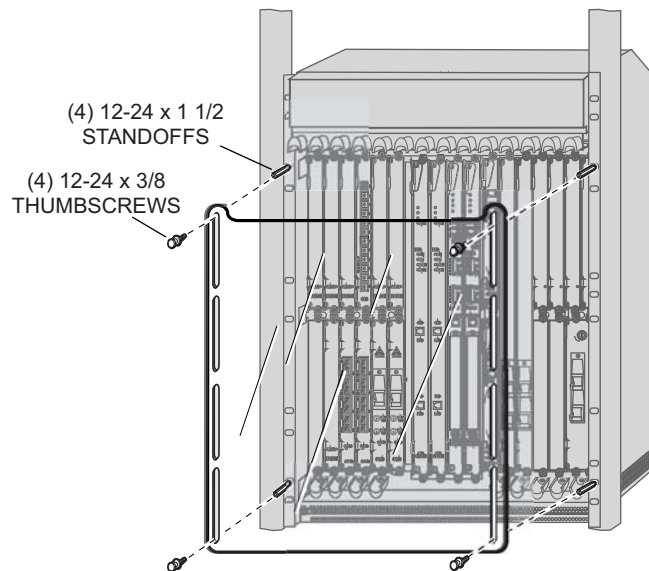
**Figure 134-2. Mounting Holes—19-inch One-inch On-Center Rack**



**Figure 134-3. Mounting Holes— 23-inch Racks**



**Figure 134-4. Remove or Install Shield**



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## DLP-135

### Replace OC-n Line Card

#### PURPOSE

This procedure provides instructions to replace an OC-3, OC-12, OC-48, or OC-192 line card.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Enter <b>RTRV-FFP-OCn::AID</b> ; to retrieve information about FFP group.<br><br>where:<br>OCn=Optical facility type (OC3, OC12, OC48, or OC192)<br>AID=Access Identifier of facility on card to be removed.        |
| 4    | Observe output.                                                                                                                                                                                                     |
| 5    | What protection type is indicated in output (PTYPE parameter)?<br><br>If LINEAR, go to step 6.<br>If BLSR, go to step 14.<br>If UPSR, go to step 20.<br>If NOPROTECTION, go to step 39.                             |

#### Linear Protection

- 6 Enter **RTRV-OCn**; to retrieve all facilities of a certain type.  
  
where:  
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
- 7 Observe output. Note facilities on card to be removed.

- 8** Do any facilities on card to be removed have state of IS,WRK?
- If yes, go to step [9](#).  
If no, go to step [31](#).
- 9** Enter **RTRV-FFP-OCn**;
- where:  
OCn=Optical facility type (OC3, OC12, OC48, or OC192)
- 10** Are any ports on the card to be removed listed as ACTIVE in the output?
- If yes, go to step [11](#).  
If no, go to step [31](#).
- 11** Enter **OPR-PROTNSW-OCn::AID::MAN**; to switch all working traffic off the card to be replaced.
- where:  
OCn=Optical facility type (OC3, OC12, OC48, or OC192)  
AID=Access Identifier of facility on card to be removed.
- 12** Repeat step [9](#) to switch all working traffic off card to be replaced.
- 13** Go to step [31](#).

**BLSR Protection**

- 14** Enter **RTRV-BLSR-TRC::WEST**;
- where:  
WEST=West port of the protection pair
- 15** Observe output.
- 16** Enter **RTRV-COND-BLSR::AID**; to check BLSR state.
- where:  
AID=Access Identifier of facility on card to be replaced
- 17** Observe output. Does CONDDDESCR parameter indicate IDLE?
- If yes, go to step [18](#).  
If no, go to step [39](#).



- 18** Enter **OPR-PROTNSW-OCn::AID::MAN-R**; to switch ring traffic away from card to be removed.

where:

OCn=Optical facility type (OC48 or OC192)

AID=Access Identifier of facility on card to be removed.

- 19** Did output return COMPLD or DENY?

If COMPLD, go to step [31](#).

If DENY, go to step [39](#).

### UPSR Protection

- 20** Enter **RTRV-CRS-ALL**;

- 21** Enter **RTRV-FFP-OCn**;

where:

OCn=Optical facility type (OC3, OC12, OC48, or OC192)

- 22** Observe output. Note value of ACTIVE parameter for all connections associated with card to be replaced.

- 23** In any associated connections, is value of ACTIVE parameter the same as the card to be replaced? (WEST card is on the left and is lower-numbered. EAST card is on the right and is higher-numbered.)

If yes, go to step [24](#).

If no, go to step [31](#).

- 24** Enter **OPR-PROTNSW-STSn::AID::SWTCHCMD**; to switch traffic away from card to be removed.

where:

STSn=Signal type (STS1, STS3C, STS12C, or STS48C)

AID=Access Identifier of facility to switch

SWTCHCMD=Switch command. Use MANWKSWPR if card to be removed is in WEST slot (working) and use MANWKSWBK if card to be removed is in EAST slot (protect).

- 25** Repeat step [24](#) for each connection to be switched away from card to be deleted.

- 26** Enter **RTRV-FFP-STSn**;

- 27** Observe output. Note ACTIVE parameter for returned protection groups.

- 28** For any groups, is ACTIVE facility on the card to be replaced?
- If yes, go to step [29](#).  
If no, go to step [31](#).
- 29** Enter **OPR-PROTNSW-STS1::AID::MANWKSWPR**; to switch traffic away from card to be deleted.
- where:  
AID=Access Identifier of facility to switch
- 30** Repeat step [29](#) for each protection group to be switched away from card to be deleted.
- 31** Enter **RMV-EQPT::AID**; to remove OC-n card.
- where:  
AID=Access Identifier of card to be replaced.
- 32** Did output return COMPLD or DENY?
- If COMPLD, go to step [33](#).  
If DENY, go to step [39](#).
- 33** Remove and replace OC-n line card. Refer to [DLP-101](#).
- 34** Enter **RST-EQPT::AID**; to restore OC-n card.
- where:  
AID=Access Identifier of card just replaced.
- 35** Did output return COMPLD or DENY?
- If COMPLD, go to step [36](#).  
If DENY, go to step [39](#).
- 36** Was traffic switched off card before it was replaced?
- If yes, go to step [37](#).  
If no, go to step [40](#).
- 37** Enter **RLS-PROTNSW-x::AID**;
- where:  
x=Facility type (OC3, OC12, OC48, OC192, STS1, STS3C, STS12C, STS48C)  
AID=Facility Access Identifier
- 38** Repeat step [37](#) to switch all working traffic back to card just replaced.

- 39**            Contact next level of technical support for assistance.
- 40**            **STOP. This procedure is complete.**



## DLP-136

### Replace STS Switch Card (SSC)

#### PURPOSE

This procedure provides instructions to replace the SSC.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Is an SSC card present in both slots 7 and 8?<br><br>If yes, go to step <a href="#">4</a> .<br>If no, go to step <a href="#">42</a> .                                                                               |
| 4    | Enter <b>RTRV-EQPT::SWC-7</b> ; to retrieve state of SSC.                                                                                                                                                           |
| 5    | Enter <b>RTRV-EQPT::SWC-8</b> ; to retrieve state of other SSC.                                                                                                                                                     |
| 6    | Observe output. Note states of modules.                                                                                                                                                                             |
| 7    | Is state of both SSC modules IS?<br><br>If yes, go to step <a href="#">8</a> .<br>If no, go to step <a href="#">42</a> .                                                                                            |
| 8    | Enter <b>RTRV-ALM-EQPT</b> ; to retrieve equipment alarms.                                                                                                                                                          |
| 9    | Observe output.                                                                                                                                                                                                     |

- 10 Are alarms declared against both SSC modules?  
If yes, go to step 42.  
If no, go to step 11.
- 11 Are alarms declared against the SSC that is not being replaced?  
If yes, go to step 42.  
If no, go to step 12.
- 12 Enter **RTRV-EQPT::SWC-7**; to retrieve state of SSC.
- 13 Enter **RTRV-EQPT::SWC-8**; to retrieve state of other SSC.
- 14 What is state of SSC to replace?  
If IS,WRK, go to step 15.  
If IS,STBYH, go to step 17.
- 15 Enter **SW-DX-EQPT::AID**; to switch SSC to replace to standby.  
where: AID=Access Identifier of either SSC
- 16 Did output return COMPLD or DENY?  
If COMPLD, go to step 17.  
If DENY, go to step 42.
- 17 Enter **RMV-EQPT::AID**; for module to be replaced.  
where: AID=Access Identifier of SSC to be replaced.
- 18 Did output return COMPLD or DENY?  
If COMPLD, go to step 20.  
If DENY, go to step 42.
- 19 Ensure the replacement SSC has the same RAM size as its mate. Refer to the SSC UDS in the 1677 SONET Link Product Information manual (PN 3EM13848AF).
- 20 Remove and replace SSC module. Refer to DLP-101.
- 21 Observe output. Note CFG-RESET alarm against new SSC.
- 22 Wait five minutes after CFG-RESET alarm clears (SSC synchronization period) before restoring new module.

- 23** CAUTION: Possibility of service interruption. Any delay or restart of the SSC (INIT-SYS, autonomous restart, etc.) during its synchronization period may cause service interruption.
- 24** Enter **RST-EQPT::AID**; for module just replaced.
- where: AID=Access Identifier of SSC just replaced.
- 25** Did output return COMPLD or DENY?
- If COMPLD, go to step [26](#).  
If DENY, go to step [42](#).
- 26** Enter **RTRV-COND-EQPT**;
- 27** Observe output.
- 28** Is a CONTR alarm set against SSC?
- If yes, go to step [42](#).  
If no, go to step [29](#).
- 29** Enter **RTRV-EQPT::SWC-7**; to retrieve state of SSC.
- 30** Enter **RTRV-EQPT::SWC-8**; to retrieve state of other SSC.
- 31** Observe output. Note states of modules and firmware version.
- 32** Is state of both SSC modules IS?
- If yes, go to step [33](#).  
If no, go to step [42](#).
- 33** Is firmware version (FWVER) the same for both modules?
- If yes, go to step [34](#).  
If no, go to step [42](#).
- 34** Enter **RTRV-EQPT::DCC-7**; to retrieve DCC.
- 35** Enter **RTRV-EQPT::DCC-8**; to retrieve other DCC.
- 36** Observe output. Note firmware version.
- 37** Is firmware version (FWVER) the same for both modules?
- If yes, go to step [38](#).  
If no, go to step [42](#).

- 38** Enter **SW-DX-EQPT::AID;** to switch SSC just replaced to working.  
where: AID=Access Identifier of either SSC
- 39** Did output return COMPLD or DENY?  
If COMPLD, go to step [40](#).  
If DENY, go to step [42](#).
- 40** Enter **RTRV-EQPT::AID;**  
where: AID=Access Identifier of SSC just replaced
- 41** Is state of SSC just replaced IS,WRK?  
If yes, go to step [43](#).  
If no, go to step [42](#).
- 42** Contact next level of technical support for assistance.
- 43** **STOP. This procedure is complete.**



## DLP-137

### Replace Timing Card (TC)

#### PURPOSE

This procedure provides instructions to replace a TC.

#### PREREQUISITES

Contact Alcatel-Lucent CTAC at 1-888-252-2832 before performing this procedure.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Is a TC card present in both slots?<br><br>If yes, go to step <a href="#">4</a> .<br>If no, go to step <a href="#">94</a> .                                                                                         |
| 4    | Enter <b>RTRV-EQPT::TC-11-A</b> ;                                                                                                                                                                                   |
| 5    | Enter <b>RTRV-EQPT::TC-11-B</b> ;                                                                                                                                                                                   |
| 6    | Observe output.                                                                                                                                                                                                     |
| 7    | Determine AID of disks corresponding to TC that is being replaced. Refer to table <a href="#">137-A</a> .                                                                                                           |

Table 137-A. TC/Disk Relationship

| TC TO BE REPLACED | DISKS TO BE DEACTIVATED (DISK AID) |
|-------------------|------------------------------------|
| TC-11-A           | DISK-A9, DISK-B9                   |
| TC-11-B           | DISK-A10, DISK-B10                 |

- 8** Enter **RTRV-DISK**; to check state of all disks.
- 9** Observe output. Note state of disks.
- 10** Are disks in both CCCs in a valid state (One Disk A is IS,WRK, one Disk A is IS,STBYH, one Disk B is IS,WRK, and one Disk B is IS,STBYH)?
- If yes, go to step [11](#).  
If no, go to step [94](#).
- 11** Enter **ACT-DISK::AID::::ACTION=DEACTIVATE**; to deactivate the “A” disk corresponding to TC to be replaced.
- where:  
AID=Access Identifier of disk corresponding to TC to be replaced (DISK-[{A9, A10}](#)).
- 12** Enter **ACT-DISK::AID::::ACTION=DEACTIVATE**; to deactivate the “B” disk corresponding to TC to be replaced.
- where:  
AID=Access Identifier of disk corresponding to TC to be replaced (DISK-[{B9, B10}](#)).
- 13** Enter **RTRV-DISK**;
- 14** Observe output. Note Primary State (PST) of disks that were deactivated.
- 15** Are PSTs of disks that were deactivated OOS-MA? Refer to table [137-A](#).
- If yes, go to step [16](#).  
If no, go to step [94](#).
- 16** Is state of disks corresponding to TC not being replaced IS,WRK? Refer to table [137-A](#).
- If yes, go to step [17](#).  
If no, go to step [94](#).
- 17** Enter **ACT-DISK::AID::::ACTION=UNMOUNT**; to unmount the “A” disk corresponding to TC to be replaced.
- where:  
AID=Access Identifier of disk corresponding to TC to be replaced (DISK-[{A9, A10}](#)).

- 18** Enter **ACT-DISK::AID:::ACTION=UNMOUNT**; to unmount the “B” disk corresponding to TC to be replaced.

where:

AID=Access Identifier of disk corresponding to TC to be replaced (DISK-{B9, B10}).

- 19** Enter **RTRV-DISK::AID**; to verify the “A” disk corresponding to TC to be replaced are unmounted.

where:

AID=Access Identifier of disk corresponding to TC to be replaced (DISK-{A9, A10}).

Refer to table [137-A](#).

- 20** Enter **RTRV-DISK::AID**; to verify the “B” disk corresponding to TC to be replaced are unmounted.

where:

AID=Access Identifier of disk corresponding to TC to be replaced (DISK-{B9, B10}).

Refer to table [137-A](#).

- 21** Observe output. Note value of TOTAL, FREE, and PST. If disk is unmounted, those parameters should have the following values:

PST=OOS-MA

TOTAL=0

FREE=0

- 22** Did output indicate disks are unmounted?

If yes, go to step [27](#).

If no, go to step [94](#).

- 23** Enter **RTRV-EQPT::TC-11-A**;

- 24** Enter **RTRV-EQPT::TC-11-B**;

- 25** Observe output.

- 26** What is PST,SST of TC to be replaced?

If IS,WRK, go to step [27](#).

If IS,STBYH, go to step [33](#).

- 27** Enter **SW-DX-EQPT::TC-11-x**; Wait five minutes after Standby TC restores before proceeding.

where:

x=A or B (slot number of TC to be replaced)

- 28** Enter **RTRV-EQPT::TC-11-A;**
- 29** Observe output.
- 30** Enter **RTRV-EQPT::TC-11-B;**
- 31** Observe output.
- 32** What is PST,SST of TC to be replaced?  
If IS,WRK, go to step [94](#).  
If IS,STBYH, go to step [33](#).
- 33** Enter **RMV-EQPT::TC-11-x;**  
where:  
x=A or B (slot number of TC to be replaced)
- 34** Did output return COMPLD or DENY?  
If COMPLD, go to step [35](#).  
If DENY, go to step [94](#).
- 35** Enter **RTRV-EQPT::CCC-9;**
- 36** Observe output.
- 37** Enter **RTRV-EQPT::CCC-10;**
- 38** Observe output.
- 39** Determine AID of Primary CCC.
- 40** Are both CCCs present and In-Service?  
If yes, go to step [41](#).  
If no, go to step [94](#).
- 41** Are the “A” and “B” disks working on the PRI-CCC and OOS on the STBY-CCC?  
If yes, go to step [48](#).  
If no, go to step [42](#).
- 42** Enter **SW-DX-EQPT::CCC-9;** Wait five minutes after Standby CCC restores before proceeding.
- 43** Enter **RTRV-EQPT::CCC-9;**

- 44** Observe output.
- 45** Enter **RTRV-EQPT::CCC-10;**
- 46** Observe output.
- 47** Are the “A” and “B” disks working on the PRI-CCC and OOS on the STBY-CCC?  
  
If yes, go to step [48](#).  
If no, go to step [94](#).
- 48** Enter **RMV-EQPT::CCC-x;**  
  
where:  
x=slot number of Standby CCC with OOS disks.
- 49** Enter **RTRV-EQPT::CCC-9;**
- 50** Observe output.
- 51** Enter **RTRV-EQPT::CCC-10;**
- 52** Observe output.
- 53** Are the “A” and “B” disks working on the PRI-CCC and OOS on the STBY-CCC?  
  
If yes, go to step [54](#).  
If no, go to step [94](#).
- 54** Open latch on OOS CCC. Refer to [DLP-101](#) steps [19](#) through [24](#).
- 55** Remove and replace TC. Refer to [DLP-101](#) steps [1](#) through [52](#).
- 56** Close latch on OOS CCC. Refer to [DLP-101](#) steps [54](#) through [57](#).
- 57** Close latch on OOS TC. Refer to [DLP-101](#) steps [54](#) through [60](#).
- 58** Enter **RST-EQPT::CCC-x;**  
  
where:  
x=slot number of Standby CCC with OOS disks.
- 59** Did out put return COMPLD or DENY?  
  
If COMPLD, go to step [60](#).  
If DENY, go to step [94](#).

- 60** Enter **RTRV-EQPT::CCC-9;**
- 61** Observe output.
- 62** Enter **RTRV-EQPT::CCC-10;**
- 63** Observe output.
- 64** Are both CCCs IS?
- If yes, go to step [65](#).  
If no, go to step [94](#).
- 65** Enter **RST-EQPT::TC-x;**
- where:  
x=A or B (slot number of TC just installed)
- 66** Did out put return COMPLD or DENY?
- If COMPLD, go to step [67](#).  
If DENY, go to step [94](#).
- 67** Enter **RTRV-EQPT::TC-11-A;**
- 68** Observe output.
- 69** Enter **RTRV-EQPT::TC-11-B;**
- 70** Observe output.
- 71** Are both TCs IS?
- If yes, go to step [72](#).  
If no, go to step [94](#).
- 72** Enter **RTRV-RFILE::DISK-A;** to check primary disks.
- 73** Enter **RTRV-RFILE::DISK-B;** to check primary disks.
- 74** Check output response. Are errors present in output response?
- If yes, go to step [94](#).  
If no, go to step [75](#).

- 75** Enter **RTRV-DISK::AID;**
- where:  
AID=Access Identifier of the “A” disk in standby CCC (DISK-{A9, A10}).
- 76** Enter **RTRV-DISK::AID;**
- where:  
AID=Access Identifier of the “B” disk in standby CCC (DISK-{B9, B10}).
- 77** Observe output. Note state of disks.
- 78** Does output indicate that disks in standby CCC are present (PST=OOS-MA)?
- If yes, go to step [79](#).  
If no, go to step [83](#).
- 79** Enter **ACT-DISK::AID::::ACTION=MOUNT;** to mount disk just inserted.
- where:  
AID=Access Identifier of the “A” disk in the standby CCC
- 80** Did output return COMPLD or DENY?
- If COMPLD, go to step [81](#).  
If DENY, go to step [94](#).
- 81** Enter **ACT-DISK::AID::::ACTION=MOUNT;** to mount disk just inserted.
- where:  
AID=Access Identifier of the “B” disk in the standby CCC
- 82** Did output return COMPLD or DENY?
- If COMPLD, go to step [83](#).  
If DENY, go to step [94](#).
- 83** Enter **ACT-DISK::AID::::MODE=SEC,ACTION=ACTIVATE;** to activate disk “A” in the Standby CCC.
- where:  
AID=Access Identifier of the “A” disk in the standby CCC
- 84** Did output return COMPLD or DENY?
- If COMPLD, go to step [87](#).  
If DENY, go to step [94](#).

- 85** Wait for the “A” disk to synchronize.
- 86** While disk is synchronizing, a BKUPMEMSYNCH condition is present. This condition clears when process completes.
- 87** Enter **ACT-DISK::AID:::MODE=SEC,ACTION=ACTIVATE;** to activate disk “B” in the Standby CCC.
- where:  
AID=Access Identifier of the “B” disk in the standby CCC
- 88** Did output return COMPLD or DENY?
- If COMPLD, go to step [89](#).  
If DENY, go to step [94](#).
- 89** Wait for the “B” disk to synchronize.
- 90** While disk is synchronizing, a BKUPMEMSYNCH condition is present. This condition clears when process completes.
- 91** Enter **RTRV-DISK;**
- 92** Observe output. Note state of disks.
- 93** Are disks in both CCCs in a valid state (One Disk A is IS,WRK, one Disk A is IS,STBYH, one Disk B is IS,WRK, and one Disk B is IS,STBYH)?
- If yes, go to step [95](#).  
If no, go to step [94](#).
- 94** Contact next level of technical support for assistance.
- 95** **STOP. This procedure is complete.**



## DLP-138

### Remove/Install Card-Slot Adapter

#### PURPOSE

This procedure provides instructions to convert a full-high IOC slot to a half-high IOC slot or to convert a half-high IOC slot to a full-high IOC slot.

#### PREREQUISITES

This procedure assumes there is no card or filler panel installed in the slot. If the slot is not empty, refer to IXL-103 for the appropriate procedure to remove the card or filler panel before proceeding.

#### GENERAL

There are two types of card-slot adapters: a two card-slot adapter and a three card-slot adapter. An adapter to convert only one slot is not available. The minimum conversion is two slots.

A two card-slot adapter converts two full-high IOC slots to four half-high IOC slots. The adapter vertically divides each full-high slot in half.

A three card-slot adapter converts three adjacent full-high IOC slots to six half-high IOC cards. There are two types. One is labeled LH (left-hand) and the other is labeled RH (right-hand). Use the LH and RH three card-slot adapters for the following applications only:

- Use the adapter marked LH when the card cage contains a full-high OC-192 card installed in slot 6, and half-high cards are to be installed in adjacent slots 5A, 5B, or both.
- Use the adapter marked RH when the card cage contains a full-high OC-192 card installed in slot 12, and half-high cards are to be installed in adjacent slots 13A, 13B, or both.

For all other half-high requirements use only the two card-slot adapter.

#### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 8 inch

| STEP | PROCEDURE                                                                                                                                                     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Select action.<br><br>To convert an IOC slot from half-high to full-high, go to step 23.<br>To convert an IOC slot from full-high to half-high, go to step 2. |

- 2 Select action.  
  
To convert any IOC slot except 5A, 5B, 13A, or 13B to a half-high slot, go to step 5.  
To convert slot 5A or 5B to a half-high slot, go to step 3.  
To convert slot 13A or 13B to a half-high slot, go to step 4.
- 3 Is there an OC-192 card in slot 6?  
  
If yes, go to step 11.  
If no, go to step 5.
- 4 Is there an OC-192 card in slot 12?  
  
If yes, go to step 17.  
If no, go to step 5.

### Install a Two Card-slot Adapter for Half-high Card Support

- 5 Locate two empty full-high slots to convert to half-high slots.
- 6 Hold two-card-slot adapter so notch is on upper right side. See figure 138-1.
- 7 Insert tabs on card-slot adapter into metal backplane support.
- 8 ***WARNING: Possibility of equipment damage. To prevent damage to captive screw, never tighten it with a power screwdriver and never tighten it more than .09 m-kg (8 in.-lbs).***
- 9 Tighten captive screw of card-slot adapter to secure it in place.
- 10 Go to step 27.

### Install a Three Card-slot Adapter for Half-high Card Support

- 11 Locate three card-slot adapter marked LH.
- 12 Hold adapter with notch on the right and LH marking on top. See figure 138-2.
- 13 Insert tabs on card-slot adapter into metal backplane support so the adapter is over slots 3, 4, and 5.
- 14 ***WARNING: Possibility of equipment damage. To prevent damage to captive screw, never tighten it with a power screwdriver and never tighten it more than .09 m-kg (8 in.-lbs).***
- 15 Use #2 × 8-inch Phillips screwdriver to tighten captive screw of card-slot adapter to secure it in place.

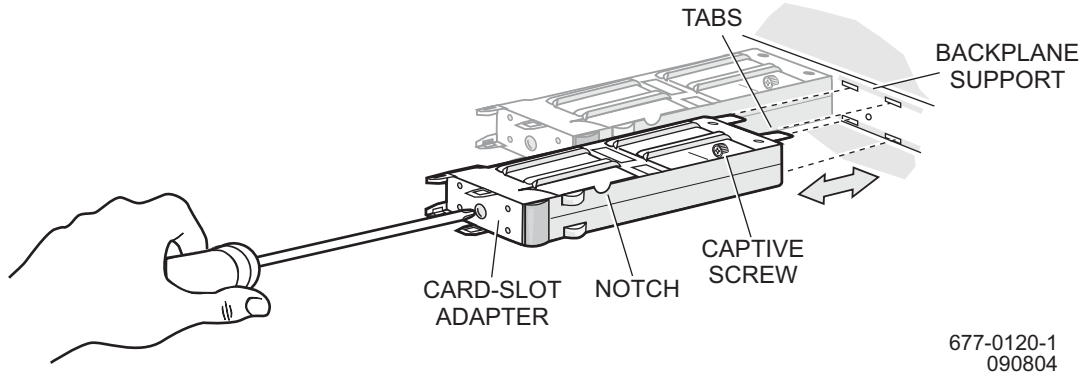
- 16 Go to step [27](#).
- 17 Locate three card-slot adapter marked RH.
- 18 Hold adapter with notch on the right and RH marking on top. See figure [138-3](#).
- 19 Insert tabs on card-slot adapter into metal backplane support so the adapter is over slots 13, 14, and 15.
- 20 ***WARNING: Possibility of equipment damage. To prevent damage to captive screw, never tighten it with a power screwdriver and never tighten it more than .09 m-kg (8 in.-lbs).***
- 21 Use a #2 × 8-inch Phillips screwdriver to tighten captive screw of card-slot adapter to secure it in place.
- 22 Go to step [27](#).

#### **Removing a Three or Two Card-slot Adapter for Full-high Card Support**

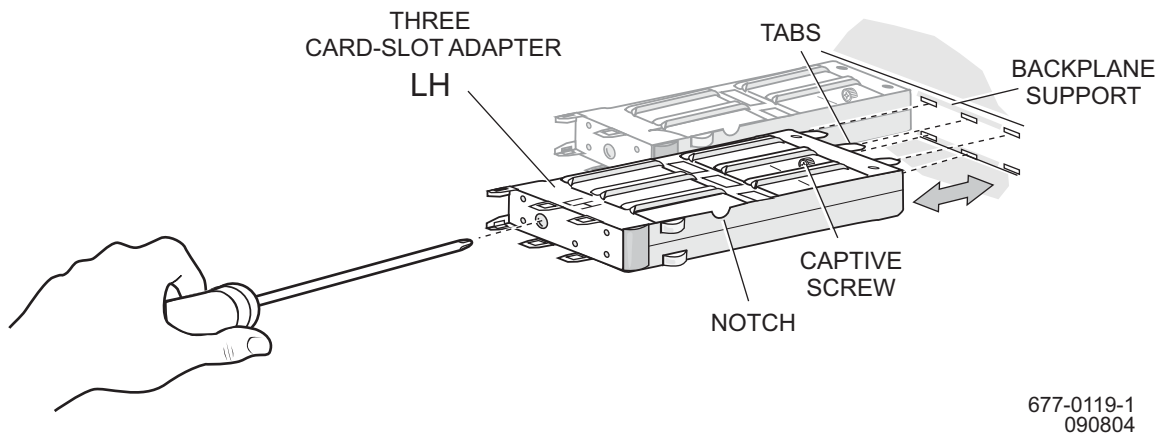
- 23 Locate half-high slots to convert to full-high slots.
- 24 Use #2 Phillips screwdriver to loosen captive screw that secures card-slot adapter. See figure [138-1](#).
- 25 Then remove adapter from chassis.
- 26 Store card-slot adapter in a convenient place for future use.
- 27 Is there another card-slot adapter be install or remove?  

If yes, go to step [1](#).  
If no, go to step [28](#).
- 28 **STOP. This procedure is complete.**

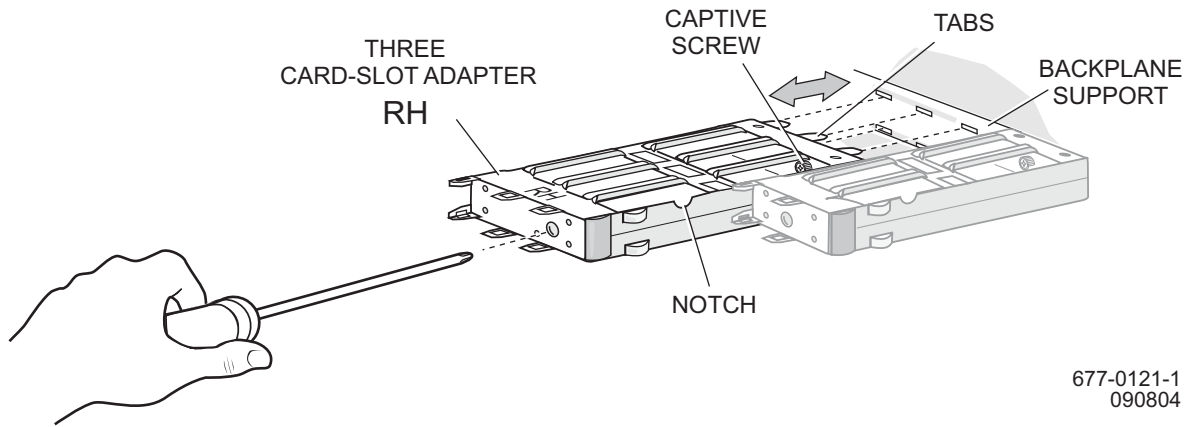
**Figure 138-1. Remove/Install Two Card-Slot Adapter**



**Figure 138-2. Remove/Install LH Three Card-Slot Adapter**



**Figure 138-3. Remove/Install RH Three Card-Slot Adapter**



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## DLP-141

### Replace VT Switch Card (VSC)

#### PURPOSE

This procedure provides instructions replace a VT switch card (VSC).

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Enter <b>RTRV-EQPT::AID</b> ; to check state of VSC to be replaced.<br><br>where:<br>AID=Access Identifier of VSC to be replaced.                                                                                   |
| 4    | Observe output.                                                                                                                                                                                                     |
| 5    | Determine AID of mate VSC. Refer to table <a href="#">141-A</a> .                                                                                                                                                   |

**Table 141-A. Protect and Working VT Card Slots**

| WORKING VT CARD SLOTS | PROTECT VT CARD SLOTS | WORKING/PROTECT PAIRS |
|-----------------------|-----------------------|-----------------------|
| 6A                    | 5A                    | 6A/5A                 |
| 6B                    | 5B                    | 6B/5B                 |
| 13A                   | 12A                   | 13A/12A               |
| 13B                   | 12B                   | 13B/12B               |

- 6 Is mate VSC present?  
  
If yes, go to step [7](#).  
If no, go to step [25](#).

- 7 Enter **RTRV-EQPT::AID**; to check state of mate VSC.
- where:  
AID=Access Identifier of mate VSC.
- 8 Observe output. Note state of mate VSC.
- 9 Is state of mate VSC IS?
- If yes, go to step 10.  
If no, go to step 25.
- 10 Is VSC to be replaced a working or protect card? Refer to table 141-A.
- If working, go to step 11.  
If protect, go to step 13.
- 11 Enter **INH-SWTOWKG-EQPT::AID**; to switch traffic to protect.
- where:  
AID=Access Identifier of VSC to be removed.
- 12 Did output return COMPLD or DENY?
- If COMPLD, go to step 15.  
If DENY, go to step 25.
- 13 Enter **INH-SWTOPROTN-EQPT::AID**; to switch traffic to working.
- where:  
AID=Access Identifier of VSC to be removed.
- 14 Did output return COMPLD or DENY?
- If COMPLD, go to step 15.  
If DENY, go to step 25.
- 15 Enter **RMV-EQPT::AID**; to remove VSC.
- where:  
AID=Access Identifier of VSC to be removed.
- 16 Did output return COMPLD or DENY?
- If COMPLD, go to step 17.  
If DENY, go to step 25.
- 17 Remove and replace VSC. Refer to DLP-101.



- 18** Enter **RST-EQPT::AID**; to restore VSC just installed.
- where:  
AID=Access Identifier of VSC just installed.
- 19** Did output return COMPLD or DENY?
- If COMPLD, go to step [20](#).  
If DENY, go to step [25](#).
- 20** Was VSC just replaced in a working or protect slot?
- If working, go to step [21](#).  
If protect, go to step [23](#).
- 21** Enter **ALW-SWTOWKG-EQPT::AID**; to allow switch to working (traffic will switch back to working card).
- where:  
AID=Access Identifier of VSC just installed.
- 22** Did output return COMPLD or DENY?
- If COMPLD, go to step [26](#).  
If DENY, go to step [25](#).
- 23** Enter **ALW-SWTOPROTN-EQPT::AID**; to allow switch to protect.
- where:  
AID=Access Identifier of VSC just installed.
- 24** Did output return COMPLD or DENY?
- If COMPLD, go to step [26](#).  
If DENY, go to step [25](#).
- 25** Contact next level of technical support for assistance.
- 26** **STOP. This procedure is complete.**



## DLP-143

# Replace Modular Optical System Modules

### PURPOSE

This procedure provides instructions to replace Modular Optical System (MOS) modules. The replaceable modules for the MOS are ADM, DWDM, and DCM.

### RECOMMENDED TOOLS

Phillips screwdriver, #2 × 6-inch

| STEP | PROCEDURE                                                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Locate module that must be replaced.                                                                                                                                             |
| 2    | If installed, remove module protection shield.                                                                                                                                   |
| 3    | Use #2 Phillips screwdriver to remove four screws that hold transparent shield in place.<br><br>Set shield and screws aside and secure them so they will not be lost or damaged. |
| 4    | Identify and label all fiber-optic cables and metallic cables before they are removed.                                                                                           |
| 5    | Disconnect fiber-optic cables and optical management bus (OMB) cables one at a time and cover ends of fiber-optic cables with dust caps.                                         |
| 6    | Use #2 Phillips screwdriver to remove four screws that attach module to equipment rack.                                                                                          |
| 7    | Slide module from rack.                                                                                                                                                          |
| 8    | Install replacement module in equipment rack.                                                                                                                                    |
| 9    | Use #2 Phillips screwdriver to install four screws removed in step 6.                                                                                                            |
| 10   | Reinstall OMB cables.                                                                                                                                                            |
| 11   | Clean the fiber-optic cables. Refer to <a href="#">DLP-100</a> .                                                                                                                 |
| 12   | Re-install fiber-optic cables.                                                                                                                                                   |

- 13 If module protection shield was removed in step 2, reinstall it.
- 14 **STOP. This procedure is complete.**

## DLP-144

### Replace Transmux Card (TMUX)

#### PURPOSE

This procedure provides instructions to replace a Transmux card.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Enter <b>RTRV-EQPT::AID</b> ; to check state of TMUX to be replaced.<br><br>where:<br>AID=Access Identifier of TMUX to be replaced.                                                                                 |
| 4    | Observe output.                                                                                                                                                                                                     |
| 5    | Determine AID of mate TMUX card. Refer to table <a href="#">144-A</a> .                                                                                                                                             |

**Table 144-A. Protect and Working Transmux Card Slots**

| WORKING TRANSMUX SLOTS | PROTECT TRANSMUX SLOTS | WORKING/PROTECTING PAIRS |
|------------------------|------------------------|--------------------------|
| 6A                     | 5A                     | 6A/5A                    |
| 6B                     | 5B                     | 6B/5B                    |
| 13A                    | 12A                    | 13A/12A                  |
| 13B                    | 12B                    | 13B/12B                  |

- 6 Is mate TMUX card present?
- If yes, go to step [7](#).  
If no, go to step [25](#).

- 7 Enter **RTRV-EQPT::AID**; to check state of mate TMUX card  
  
where:  
AID=Access Identifier of mate TMUX.
- 8 Observe output. Note state of mate TMUX.
- 9 Is state of mate TMUX card IS?  
  
If yes, go to step 10.  
If no, go to step 25.
- 10 Is TMUX card to be replaced a working or protect card? Refer to table 144-A.  
  
If working, go to step 11.  
If protect, go to step 13.
- 11 Enter **INH-SWTOWKG-EQPT::AID**; to switch traffic to protect.  
  
where:  
AID=Access Identifier of TMUX to be replaced.
- 12 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 15.  
If DENY, go to step 25.
- 13 Enter **INH-SWTOPROTN-EQPT::AID**; to switch traffic to working.  
  
where:  
AID=Access Identifier of TMUX to be replaced.
- 14 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 15.  
If DENY, go to step 25.
- 15 Enter **RMV-EQPT::AID**; to remove TMUX.  
  
where:  
AID=Access Identifier of TMUX to be replaced.
- 16 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 17.  
If DENY, go to step 25.
- 17 Remove and replace TMUX card. Refer to DLP-101.

- 18** Enter **RST-EQPT::AID**; to restore TMUX card.
- where:  
AID=Access Identifier of TMUX just installed.
- 19** Did output return COMPLD or DENY?
- If COMPLD, go to step [20](#).  
If DENY, go to step [25](#).
- 20** Was TMUX card just replaced in a working or protect slot?
- If working, go to step [21](#).  
If protect, go to step [23](#).
- 21** Enter **ALW-SWTOWKG-EQPT::AID**; to allow switch to working (traffic will switch back to working card).
- where:  
AID=Access Identifier of TMUX just installed.
- 22** Did output return COMPLD or DENY?
- If COMPLD, go to step [26](#).  
If DENY, go to step [25](#).
- 23** Enter **ALW-SWTOPROTN-EQPT::AID**; to allow switch to protect.
- where:  
AID=Access Identifier of TMUX just installed.
- 24** Did output return COMPLD or DENY?
- If COMPLD, go to step [26](#).  
If DENY, go to step [25](#).
- 25** Contact next level of technical support for assistance.
- 26** **STOP. This procedure is complete.**





## DLP-145

### Fan Tray Assembly Replacement (18 RU Shelf)

#### PURPOSE

This procedure provides instructions to remove and install a fan tray at top of 1677 SONET Link shelf.

#### PREREQUISITES

Read the following bullet list before starting this procedure.

- Although this procedure is normally done to replace a failed (inactive) component, always verify component state before removal.

#### GENERAL

Refer to the 1677 SONET Link Address and Location Guide (PN 3EM13854AD) to determine module location and address.

| STEP | PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Modules can be installed or removed with bay power on. Hazardous electrical potentials are present; use extreme care when installing or removing modules with power on.</b>                                                                                                                                                                                                                                                       |
| 2    | <b><i>WARNING: Possibility of equipment damage. Operating a 1677 SONET Link shelf for more than 3 minutes with the fan-tray assembly removed or not functioning properly, will cause the shelf to overheat and disrupt traffic.</i></b><br><br>Make sure the replacement fan-tray assembly is close by, unpacked, and ready to install immediately. Also, check the outer edge of the replacement fan-tray assembly to make sure the EMI gasket is in place and not damaged. |
| 3    | <b>DANGER: Possibility of personal injury. Keep fingers away from the rotating fan blades. Pull the fan-tray assembly by the thumbscrews only. Wait for the fan blades to stop spinning before attempting to remove the fan-tray assembly completely from the chassis.</b>                                                                                                                                                                                                   |
| 4    | Loosen four captive screws on front of fan tray assembly.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5    | Carefully slide out fan assembly.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6    | Line up replacement fan assembly with rails in the shelf.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 7    | Slide replacement fan assembly into place.                                                                                                                                                                                                                                                                                                                                                                                                                                   |

- 8 Tighten four captive screws on front of fan tray assembly.
- 9 **STOP. This procedure is complete.**

## DLP-146

### Replace ECC Card with an ECC Card

#### PURPOSE

This procedure provides instructions to replace a 12-port ECC card with another 12-port ECC card.

#### PREREQUISITES

Although these procedures are normally done to replace a failed (inactive) module, always verify module state before removal.

If an ECC card has a state of OOS-AU or OOS-AUMA, perform the appropriate trouble clearing procedures before replacing the module. Refer to IXL-101.

It is recommended to disconnect loopback and test connections before proceeding with the replacement procedure. The TYPE parameter of an ECC card cannot be changed while any of its ports are in a Loopback state (SST is LPBK) or in a Test state (SST is TACC).

#### GENERAL

DS3 and ECC working modules can be mixed within the same protection group if the protection module is an ECC. An ECC/DS3 card protection group is defined when the corresponding protection slot is provisioned. Refer to table 146-A. The ECC module can operate in an unprotected mode. If the protection module is a DS3 module, all working modules in the protection group must be DS3. There is no restriction on the provisioning order.

**Table 146-A. Slot Definitions for ECC and DS3 Card Protection Groups**

| Protection Slot | Working Slot       |
|-----------------|--------------------|
| 1A              | 2A, 3A, 4A, 5A     |
| 1B              | 2B, 3B, 4B, 5B     |
| 17A             | 16A, 15A, 14A, 13A |
| 17B             | 16B, 15B, 14B, 13B |

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <i>Introduction</i> for special handling instructions.</b>                                                  |

- 3 Enter **RTRV-EQPT::AID**; for ECC being replaced.  
  
where:  
AID=Equipment Access Identifier of ECC to be replaced
- 4 Observe output.
- 5 Is ECC card to be replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?  
  
If yes, go to step 6.  
If no, go to step 9.
- 6 Is state of protect module IS, WRK?  
  
If yes, go to step 33.  
If no, go to step 7.
- 7 Enter **INH-SWTOPROTN-EQPT::AID**; to inhibit switching to protection.  
  
where:  
AID=Equipment Access Identifier of the ECC protection card to be replaced.
- 8 Go to step 18.
- 9 Is state of ECC IS,WRK?  
  
If yes, go to step 12.  
If no, go to step 10.
- 10 Enter **INH-SWTOWKG-EQPT::AID**; to inhibit switching to working.  
  
where:  
AID=Equipment Access Identifier of the ECC card to be replaced.
- 11 Go to step 18.
- 12 Enter **RTRV-EQPT::AID**; to check the state of protection ECC in group where ECC is being replaced.  
  
where:  
AID=Equipment Access Identifier of the protect ECC in group.
- 13 Is the state of protect card IS,STBYH?  
  
If yes, go to step 14.  
If no, go to step 33.

- 14** Enter **SW-TOPROTN-EQPT::AID**; to switch working ECC to protect.

where:  
AID=Equipment Access Identifier of the ECC to be replaced.
- 15** Did output return COMPLD or DENY?

If COMPLD, go to step [16](#).  
If DENY, go to step [33](#).
- 16** Enter **INH-SWTOWKG-EQPT::AID**; to inhibit switching to working.

where:  
AID=Equipment Access Identifier of the ECC card to be replaced.
- 17** Did output return COMPLD or DENY?

If COMPLD, go to step [18](#).  
If DENY, go to step [33](#).
- 18** Release loopbacks on ECC module to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).
- 19** Release test connections on ECC module to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).
- 20** Enter **RMV-EQPT::AID**; for ECC being replaced.

where:  
AID=Equipment Access Identifier of the ECC to be replaced.
- 21** Did output return COMPLD or DENY?

If COMPLD, go to step [22](#).  
If DENY, go to step [33](#).
- 22** Remove and replace ECC. Refer to [DLP-101](#).
- 23** Enter **RST-EQPT::AID**; for replacement ECC.

where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 24** Did output return COMPLD or DENY?

If COMPLD, go to step [25](#).  
If DENY, go to step [33](#).

- 25** Enter **RTRV-EQPT::AID**; to verify state of ECC.
- where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 26** Is state of ECC IS,STBYH?
- If yes, go to step [28](#).  
If no, go to step [27](#).
- 27** Replacement ECC should be in standby state within 3 minutes. Repeat step [25](#). If card is not in “IS,STBYH” state after 5 minutes, go to step [33](#).
- 28** Is ECC just replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?
- If yes, go to step [29](#).  
If no, go to step [31](#).
- 29** Enter **ALW-SWTOPROTN-EQPT::AID**; to allow switching to protection.
- where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 30** Go to step [34](#).
- 31** Enter **ALW-SWTOWKGEQPT::AID**; to allow switching to working.
- where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 32** Go to step [34](#).
- 33** Contact next level of technical support for assistance.
- 34** **STOP. This procedure is complete.**

## DLP-147

### Replace DS3 Card with an ECC Card

#### PURPOSE

This procedure provides instructions to replace a 12-port DS3 card with a 12-port ECC card.

To replace a DS3 card with another DS3 card, see DLP-130.

#### PREREQUISITES

Although these procedures are normally done to replace a failed (inactive) module, always verify module state before removal.

If a DS3 card has a state of OOS-AU or OOS-AUMA, perform the appropriate trouble clearing procedures before replacing the module. Refer to IXL-101.

This procedure should be performed during a maintenance window. Cross-connections and facilities must be deleted on working slot DS3 cards before the ECC card can be entered into service.

It is recommended to disconnect loopback and test connections before proceeding with the replacement procedure. The TYPE parameter of a DS3 card or an ECC card cannot be changed while any of their ports are in a Loopback state (SST is LPBK) or in a Test state (SST is TACC).

#### GENERAL

DS3 and ECC working modules can be mixed within the same protection group if the protection module is an ECC. An ECC/DS3 card protection group is defined when the corresponding protection slot is provisioned. Refer to table 147-A. The ECC module can operate in an unprotected mode. If the protection module is a DS3 module, all working modules in the protection group must be DS3. There is no restriction on the provisioning order.

**Table 147-A. Slot Definitions for ECC and DS3 Card Protection Groups**

| Protection Slot | Working Slot       |
|-----------------|--------------------|
| 1A              | 2A, 3A, 4A, 5A     |
| 1B              | 2B, 3B, 4B, 5B     |
| 17A             | 16A, 15A, 14A, 13A |
| 17B             | 16B, 15B, 14B, 13B |

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                                                           |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b>                                 |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                                                         |
| 3    | CAUTION: Possibility of service interruption. This procedure should be performed during a maintenance window. Cross-connections and facilities will need to be deleted on working slot DS3 cards before the ECC module can be entered into service. |

#### Preparation for Removal of the DS3 Card

- 4 Enter **RTRV-EQPT::AID**; for DS3 card being replaced.  
  
where:  
AID=Equipment Access Identifier of DS3 card to be replaced.
- 5 Observe output.
- 6 Is DS3 card to be replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?  
  
If yes, go to step [9](#).  
If no, go to step [7](#).
- 7 Is the protect module an ECC?  
  
If yes, go to step [12](#).  
If no, go to step [8](#).
- 8 DS3 and ECC modules can be in the same protection group only if the protection module is an ECC.  
  
Replace protection module (DS3) with an ECC module also?  
  
If yes, go to step [1](#) and follow procedure to replace protect card with ECC module first.  
If no, go to step [42](#).
- 9 Is state of protect module IS, WRK?  
  
If yes, go to step [42](#).  
If no, go to step [10](#).



- 10** Enter **INH-SWTOPROTN-EQPT::AID**; to inhibit switching to protection.

where:  
AID=Equipment Access Identifier of the DS3 protection card to be replaced.
- 11** Did output return COMPLD or DENY?

If COMPLD, go to step 20.  
If DENY, go to step 42.
- 12** Is state of DS3 IS,WRK?

If yes, go to step 15.  
If no, go to step 13.
- 13** Enter **INH-SWTOWKG-EQPT::AID**; to inhibit switching to working.

where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 14** Did output return COMPLD or DENY?

If COMPLD, go to step 20.  
If DENY, go to step 42.
- 15** Enter **RTRV-EQPT::AID**; to check the state of protection ECC in group where DS3 is being replaced.

where:  
AID=Equipment Access Identifier of the protect ECC in group.
- 16** Observe output.
- 17** Is the state of protect card IS,STBYH?

If yes, go to step 18.  
If no, go to step 42.
- 18** Enter **INH-SWTOWKG-EQPT::AID**; to inhibit switching to working.

where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 19** Did output return COMPLD or DENY?

If COMPLD, go to step 20.  
If DENY, go to step 42.

- 20 Release loopbacks on DS3 card to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).
- 21 Release test connections on DS3 card to be replaced. Refer to Operation and Administration manual (PN 3EM13851AF).

### Removal and Replacement of the DS3 Card

- 22 Enter **RMV-EQPT::AID**; for DS3 card being replaced.  
  
where:  
AID=Equipment Access Identifier of the DS3 card to be replaced.
- 23 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 24.  
If DENY, go to step 42.
- 24 Remove DS3 card. Refer to DLP-101.
- 25 Enter **ED-EQPT::AID::ECC-12P**; for replacement ECC module.  
  
where:  
AID=Equipment Access Identifier of the ECC module to be inserted.
- 26 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 27.  
If DENY, go to step 42.
- 27 Insert ECC module. Refer to DLP-101.
- 28 Enter **RST-EQPT::AID::ECC-12P**; for replacement ECC module.  
  
where:  
AID=Equipment Access Identifier of the ECC module just inserted.
- 29 Did output return COMPLD or DENY?  
  
If COMPLD, go to step 30.  
If DENY, go to step 42.
- 30 Enter **RTRV-EQPT::AID**; to verify state of ECC module.  
  
where:  
AID=Equipment Access Identifier of the ECC module just inserted.
- 31 Observe output.

- 32** Is state of ECC IS,STBYH?  
If yes, go to step [34](#).  
If no, go to step [33](#).
- 33** Replacement ECC should be in standby state within 3 minutes.  
Repeat step [30](#).  
If card is not in “IS,STBYH” state after 5 minutes, go to step [42](#).
- 34** Is ECC just replaced a protect module (located in slots IOC-1-A, IOC-1-B, IOC-17-A, or IOC-17-B)?  
If yes, go to step [35](#).  
If no, go to step [37](#).
- 35** Enter **ALW-SWTOPROTN-EQPT::AID**; to allow switching to protection.  
where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 36** Did output return COMPLD or DENY?  
If COMPLD, go to step [43](#).  
If DENY, go to step [42](#).
- 37** Enter **ALW-SWTOWKG-EQPT::AID**; to allow switching to working.  
where:  
AID=Equipment Access Identifier of the ECC just replaced.
- 38** Did output return COMPLD or DENY?  
If COMPLD, go to step [39](#).  
If DENY, go to step [42](#).
- 39** Switch traffic to the replacement ECC?  
If yes, go to step [40](#).  
If no, go to step [43](#).
- 40** Enter **SW-TOWKG-EQPT::AID**; to switch protection ECC to working.  
where:  
AID=Equipment Access Identifier of the replacement ECC.

- 41** Did output return COMPLD or DENY?  
If COMPLD, go to step [43](#).  
If DENY, go to step [42](#).
- 42** Contact next level of technical support for assistance.
- 43** **STOP. This procedure is complete.**

## DLP-148

### Replace DS0G (DS0G)

#### PURPOSE

This procedure provides instructions replace a DS0 Groomer (DS0G) module.

#### GENERAL

For information on TL1 command syntax, refer to the 1677 SONET Link Commands and Messages manual (PN 3EM13852AF).

| STEP | PROCEDURE                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>DANGER: Possibility of personal injury. Cards can be installed or removed with rack power on. Hazardous electrical potentials are present; use extreme care when installing or removing cards with power on.</b> |
| 2    | <b>WARNING: Possibility of equipment damage. This equipment contains static-sensitive devices. Refer to <a href="#">Introduction</a> for special handling instructions.</b>                                         |
| 3    | Enter <b>RTRV-EQPT::AID</b> ; to check state of DS0G to be replaced.<br><br>where:<br>AID=Access Identifier of DS0G to be replaced.                                                                                 |
| 4    | Observe output.                                                                                                                                                                                                     |
| 5    | Determine AID of mate DS0G. Refer to table <a href="#">148-A</a> .                                                                                                                                                  |

**Table 148-A. Protect and Working DS0G Card Slots**

| WORKING DS0G CARD SLOTS | PROTECT DS0G CARD SLOTS | WORKING/PROTECT PAIRS |
|-------------------------|-------------------------|-----------------------|
| 3AB                     | 4AB                     | 3AB/4AB               |
| 14AB                    | 15AB                    | 14AB/15AB             |

- 6 Is mate DS0G present?  
  
If yes, go to step [7](#).  
If no, go to step [20](#).
- 7 Enter **RTRV-EQPT::AID**; to check state of mate DS0G.  
  
where:  
AID=Access Identifier of mate DS0G.

- 8        Observe output. Note state of mate DS0G.
- 9        Is state of DS0G mate ACTIVE?
- If yes, go to step 12.  
If no, go to step 10.
- 10       Enter **SW-DX-EQPT::AID**; to switch traffic to mate DS0G.
- where:  
AID=Access Identifier of DS0G to be removed.
- 11       Did output return COMPLD or DENY?
- If COMPLD, go to step 12.  
If DENY, go to step 20.
- 12       Enter **RMV-EQPT::AID**; to remove DS0G.
- where:  
AID=Access Identifier of DS0G to be removed.
- 13       Did output return COMPLD or DENY?
- If COMPLD, go to step 14.  
If DENY, go to step 20.
- 14       Remove and replace DS0G. Refer to DLP-101.
- 15       Enter **RST-EQPT::AID**; to restore DS0G just installed.
- where:  
AID=Access Identifier of DS0G just installed.
- 16       Did output return COMPLD or DENY?
- If COMPLD, go to step 17.  
If DENY, go to step 20.
- 17       Is a switch to the DS0G just replaced required? Refer to table 148-A.
- If yes, go to step 18.  
If no, go to step 20.
- 18       Enter **SW-DX-EQPT::AID**; to switch traffic to replaced DS0G.
- where:  
AID=Access Identifier of DS0G just installed.

- 19** Did output return COMPLD or DENY?  

If COMPLD, go to step [21](#).  
If DENY, go to step [20](#).
- 20** Contact next level of technical support for assistance.
- 21** **STOP. This procedure is complete.**

