



PRODUCT DOCUMENTATION

BTI 7000 Series Alarm and Troubleshooting Guide

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Preface

This preface explains who should read this guide, related documentation, and documentation conventions.

Audience

This guide is primarily intended for technicians and network operation center (NOC) staff.

Features of the BTI 7000 Series

For detailed information about this release, see the *BTI 7000 Series Release Notes* for this release.

BTI 7000 Series common equipment

The following table lists the shelves and other common equipment introduced as part of the BTI 7000 Series. For detailed information, see the *BTI 7000 Series Product Guide* and the *BTI 7000 Series Common Equipment Installation Guide*.

BTI 7000 Series common equipment

Equipment	PEC
BTI 7060	BT7A50AA
BTI 7060 with rear access -48V	BT7A50AR
BTI 7060 Cooling Unit (CU)	BT7A52DA, BT7A52EA
BTI 7060 Main Shelf Interface (MSI)	BT7A53BA, BT7A53BB
BTI 7060 Expansion Shelf Interface (ESI)	BT7A54BA
BTI 7060/BTI 7200 System Control Processor (SCP)	BT7A20CA
BTI 7060 AC Power Assembly Kit	BT7A50BA
BTI 7060 AC Power Module	BT7A58AA
BTI 7060 Filler Panel Kit	BT7A55EA

BTI 7000 Series common equipment (Continued)

Equipment	PEC
2U Cover – ANSI	BT7A5070
2U Cover – ETSI	BT7A5071
BTI 7030	BT7A56AA
BTI 7030 Cooling Unit (CU)	BT7A57BA
BTI 7030 Main Shelf Interface (MSI)	BT7A53CA, BT7153CB, BT7A53BB
BTI 7030 System Control Processor (SCP)	BT7A21BA
BTI 7030 AC Power Assembly Kit	BT7A56CA
BTI 7030 AC Power Module	BT7A58BA
1U Cover – ANSI	BT7A5670
1U Cover – ETSI	BT7A5671
BTI 7020	BT7A56BA
BTI 7200	BT7A51AA
BTI 7200 with rear access -48V	BT7A51AR
BTI 7200 Cooling Unit (CU)	BT7A52EA
BTI 7200 Main Shelf Interface (MSI)	BT7A53EA
BTI 7200 Common Communication Module (CCM)	BT7A54EA
BTI 7200 ANSI shelf cover	BT7A5180
BTI 7200 ETSI shelf cover	BT7A5181
BTI 7200 Air Deflector	BT7A59EA
BTI 7200 Installation kit	BT7A5034
BTI 7200 Pack of 5 Mounting Bracket Pairs (7200)	BT7A5035
BTI 7200 Pack of 5 Center Guides	BT7A5036
Single Expansion Shelf Kit (2x 1310 SFP, 1x Dual SM Patch Cord 1.5m)	BP1A58LA-01.5
Single Expansion Shelf Kit (2x 1310 SFP, 1x Dual SM Patch Cord 2m)	BP1A58LA-02

The BTI 7000 Series shelves support a wide range of modules. For the list of modules supported, see the *BTI 7000 Series Product Guide*.

The following table lists the BTI graphical user interface management software suite. For detailed information about each application, refer to the documentation set for the application.

Management software suite

proNX Management Suite
proNX Service Manager (PSM)
proNX 900 Node Controller (proNX 900)

Equipment compliance

The following table provides agency-compliance information for BTI 7000 Series equipment.




Agency	Compliance information
FDA	This equipment is classified by the FDA under IEC 60825, parts 1 and 2, as a Class 1 laser product with a Class 1 hazard rating.
FCC	This equipment complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.
Industry Canada	This Class A digital apparatus complies with Canadian ICES-003.

Organization of the BTI 7000 Series documentation

The following guides are contained in the BTI 7000 Series documentation suite.

- *BTI 7000 Series Alarm and Troubleshooting Guide*
- *BTI 7000 Series Command Line Interface Reference Guide*
- *BTI 7000 Series Common Equipment Installation Guide*
- *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*
- *BTI 7000 Series Management Communications Channel Solutions Guide*
- *BTI 7000 Series Multiplexing Solutions Guide*
- *BTI 7000 Series Muxponder Solutions Guide*
- *BTI 7000 Series Operations Solutions Guide*
- *BTI 7000 Series Optical Amplifier and DCM Solutions Guide*
- *BTI 7000 Series packetVX Solutions Guide*
- *BTI 7000 Series Product Guide*
- *BTI 7000 Series SNMP Overview Guide*
- *BTI 7000 Series Test and Turn-up Guide*
- *BTI 7000 Series TLI Reference Guide*
- *BTI 7000 Series Transceiver InformationGuide*
- *BTI 7000 Series Transponder Solutions Guide*
- *BTI 7000 Series Upgrade Guide*
- *BTI 7000 Series Release Notes*
- *BTI 7000 Series Quick Installation Notes (various)*

Documentation conventions

Convention	Description
Note	Means reader take note. Notes contain helpful suggestions or background information.
 Caution	Means reader be careful. Equipment damage or loss of data can result from your actions.
 Warning	Means reader be careful. Harm to yourself or others can result from your actions.
 Laser Warning	Invisible laser radiation can be emitted from the aperture ports of amplifier circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

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1.0 State management

This section provides state-management information for the BTI 7000 Series.

- 1.1, “Entity management”
- 1.2, “Telcordia state model”
- 1.3, “Telcordia state attributes”
- 1.4, “Equipment and entity state management”
- 1.5, “State management behavior interactions”
- 1.6, “State management provisioning interactions”
- 1.7, “State change reporting”
- 1.8, “Supporting and supported physical entities”
- 1.9, “Fault reporting interactions”

1.1 Entity management

The state of a managed entity represents the current condition of availability of the resource or service in the network element. It is important for the BTI 7000 Series to manage and report on the state of various system components.

The purpose of a state model is to indicate the availability of an entity in providing its functions, and if an entity is not available, to indicate the cause of the unavailability and what kind of activity can be taken by the operator to make the entity available.

For example the operator can choose to take an optical amplifier out of service. In this case, the optical amplifier reports that it is in the out-of-service state due to a maintenance action. In other cases, the amplifier might be out of service due to a fault.

1.2 Telcordia state model

The Telcordia state model is used for network element state management when TL1 is used as a management interface. The BTI 7000 Series employs the Telcordia state model as defined in *GR-1093-CORE Generic State Requirements for Network Elements* to provide a simple mapping.

1.2.1 Expansion shelf state transitions

The following figure shows the expansion shelf state transition diagram and indicates the resulting reports and events that occur from expansion shelf state transitions.

Figure 1-1 Expansion shelf state diagram

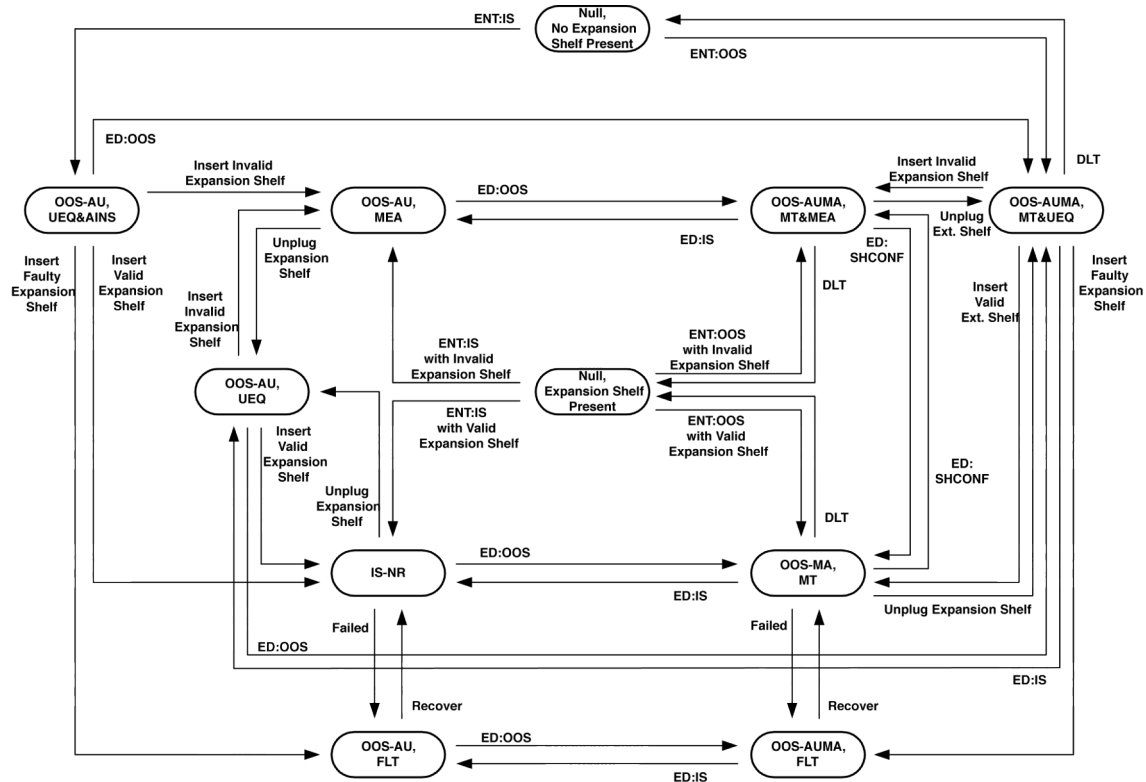


Table 1-1 Equipment State Transitions with Reports and Events (Part 1)

Event	Null, Empty Slot	Null, CP Present	Null, Filler Present	Null, Faulty CP Present	IS-NR
Insert Valid CP	Null, CP Present	n/a	n/a	n/a	n/a
Insert Invalid CP	Null, CP Present	n/a	n/a	n/a	n/a
Unplug CP	n/a	Null, Empty Slot	Null, Empty Slot	Null, Empty Slot	OOS-AU, UEQ REPT EVT REPT RMV (REPT ALM)
ENT:IS	OOS-AU, UEQ REPT RMV REPT DBCHG (cmd)	IS-NR REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AU, MEA & AINS	n/a	n/a
ED:OOS	n/a	n/a	n/a	n/a	OOS-MA, MT REPT RMV REPT DBCHG (cmd)
Equipment Fails	n/a	n/a	n/a	n/a	OOS-AU, FLT REPT RMV REPT ALM REPT DBCHG (state)
Equipment Recovers	n/a	n/a	n/a	n/a	n/a
Invoke Upgrade	n/a	n/a	n/a	n/a	OOS-AU, SWDL
Upgrade Completed	n/a	n/a	n/a	n/a	n/a

Table 1-2 Equipment State Transitions with Reports and Events (Part 2)

Event	OOS-AU				
	UEQ	MEA	FLT	COMM	SWDL
Insert Valid CP	IS-NR REPT EVT REPT ALM REPT RST	n/a	n/a	n/a	n/a
Insert Invalid CP	OOS_AU, MEA REPT EVT REPT ALM REPT DBCHG (state)	n/a	n/a	n/a	n/a
Unplug CP	n/a	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)
ENT:IS	n/a	n/a	n/a	n/a	n/a
ED:OOS	OOS-AUMA, MT & MEA REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & MEA REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & FLT REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & COMM REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	n/a
Equipment Fails	n/a	n/a	n/a	n/a	n/a
Equipment Recovers	n/a	n/a	IS-NR REPT ALM REPT DBCHG (state) REPT RST	IS-NR REPT ALM REPT DBCHG (state) REPT RST	n/a
Invoke Upgrade	n/a	n/a	n/a	n/a	n/a
Upgrade Completed	n/a	n/a	n/a	n/a	IS-NR

Table 1-3 Equipment State Transitions with Reports and Events (Part 3)

Event	OOS-AU			IS-NR
	UEQ	MEA	FLT	
Insert Valid CP	IS-NR REPT EVT REPT ALM REPT RST	n/a	n/a	n/a
Insert Invalid CP	OOS-AU, MEA REPT EVT REPT ALM REPT DBCHG (state)	n/a	n/a	n/a
Unplug CP	n/a	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)	OOS-AU, UEQ REPT EVT REPT ALM REPT DBCHG (state)	OOS-AU, UEQ REPT EVT REPT ALM REPT RMV
ED:IS	n/a	n/a	n/a	n/a
ED:OOS	OOS-AUMA, MT & UEQ REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & MEA REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & FLT REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-MA, MT REPT RMV REPT DBCHG (cmd)
Equipment Fails	n/a	n/a	n/a	OOS-AU, FLT REPT RMV REPT ALM REPT DBCHG (state)
Equipment Recovers	n/a	n/a	IS-NR REPT ALM REPT RST REPT DBCHG (state)	n/a

Table 1-4 Equipment State Transitions with Reports and Events (Part 4)

Event	OOS-AUMA MT			OOS-MA MT
	UEQ	MEA	FLT	
Insert Valid CP	OOS-AUMA, MT REPT EVT REPT ALM REPT DBCGHG (state)	n/a	n/a	n/a
Insert Invalid CP	OOS-AUMA, MT & MEA REPT EVT REPT ALM REPT DBCGHG (state)	n/a	n/a	n/a
Unplug CP	n/a	OOS-AUMA, MT & UEQ REPT EVT REPT ALM REPT DBCGHG (state)	OOS-AUMA, MT & UEQ REPT EVT REPT ALM REPT DBCGHG (state)	OOS-AUMA, MT & UEQ REPT EVT REPT ALM REPT DBCGHG (state)
ED:IS	OOS-AU, UEQ REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AU, MEA REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AU, FLT REPT DBCHG (state) REPT DBCHG (cmd)	IS-NR REPT RST REPT DBCHG (state)
ED:OOS	n/a	n/a	n/a	n/a
Equipment Fails	n/a	n/a	n/a	OOS-AUMA, MT & FLT REPT ALM REPT DBCHG (state)
Equipment Recovers	n/a	n/a	OOS-AUMA, MT REPT ALM REPT DBCHG (state)	n/a

1.2.3 Optical Amplifier state transitions

Table 1-5 Optical Amplifier State Transitions with Reports and Events (Part 1)

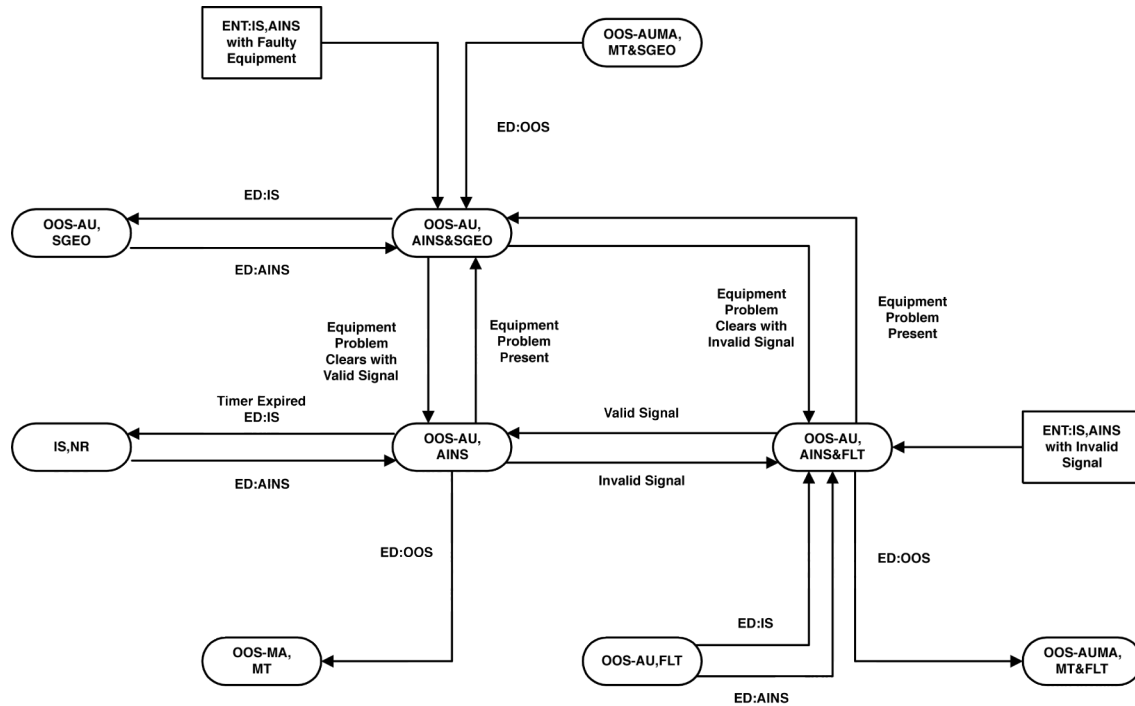
Event	OOS-AU UEQ & AIN & SGEO	OOS-AU UEQ & SGEO	OOS-AU FLT	IS-ANR	IS-NR
Equipment Fault Clears	IS-NR REPT RST	IS-NR REPT RST	n/a	n/a	n/a
Equipment Fault Present	n/a	n/a	OOS-AU, UEQ & SGEO REPT DBCHG (state)	OOS-AU UEQ & SGEO REPT RMV REPT DBCHG (state)	OOS-AU UEQ & SGEO REPT RMV REPT DBCHG (state)
ED:IS	n/a	n/a	n/a	n/a	n/a
ED:OOS	OOS-AUMA, MT & UEQ & SGEO REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & UEQ & SGEO REPT DBCHG (state) REPT DBCHG (cmd)	OOS-AUMA, MT & FLT REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	OOS-MA, MT & ANR REPT RMV REPT DBCHG (cmd)	OOS-MA, MT REPT RMV REPT DBCHG (cmd)
Amplifier Component Fault	n/a	n/a	n/a	n/a	OOS-AU, FLT REPT ALM REPT RMV
Amplifier Component Fault Clears	n/a	n/a	IS-NR REPT ALM REPT RST	n/a	n/a
Optical Metric Met	n/a	n/a	n/a	IS-NR REPT ALM REPT DBCHG (state)	n/a
Optical Metric Not Met	n/a	n/a	n/a	n/a	IS-ANR REPT DBCHG (state)

Table 1-6 Optical Amplifier State Transitions with Reports and Events (Part 2)

Event	OOS-AUMA MT & UEQ & SGEO	OOS-MA MT	OOS-AUMA MT & FLT	OOS-MA MT & ANR
Equipment Fault Clears	OOS-MA, MT REPT DBCHG (state)	n/a	n/a	n/a
Equipment Fault Present	n/a	OOS-AUMA, MT & UEQ & SGEO REPT DBCHG (state)	OOS-AUMA, MT & UEQ & SGEO REPT DBCHG (state)	OOS-AUMA, MT & UEQ & SGEO REPT DBCHG (state)
ED:IS	OOS-AU, UEQ & SGEO REPT DBCHG (state) REPT DBCHG (cmd)	IS-NR REPT RST REPT DBCHG (cmd)	OOS-AU, FLT REPT ALM REPT DBCHG (state) REPT DBCHG (cmd)	IS-ANR REPT RST REPT ALM REPT DBCHG (cmd)
ED:OOS	n/a	n/a	n/a	n/a
Amplifier Component Fault	n/a	OOS-AUMA, MT & FLT REPT DBCHG (state)	n/a	n/a
Amplifier Component Fault Clears	n/a	n/a	OOS-MA, MT REPT DBCHG (state)	n/a
Optical Metric Met	n/a	n/a	n/a	OOS-MA, MT REPT DBCHG (state)
Optical Metric Not Met	n/a	OOS-MA, MT & ANR REPT DBCHG (state)	n/a	n/a

1.2.4 Automatic in-service (AINS) state transitions

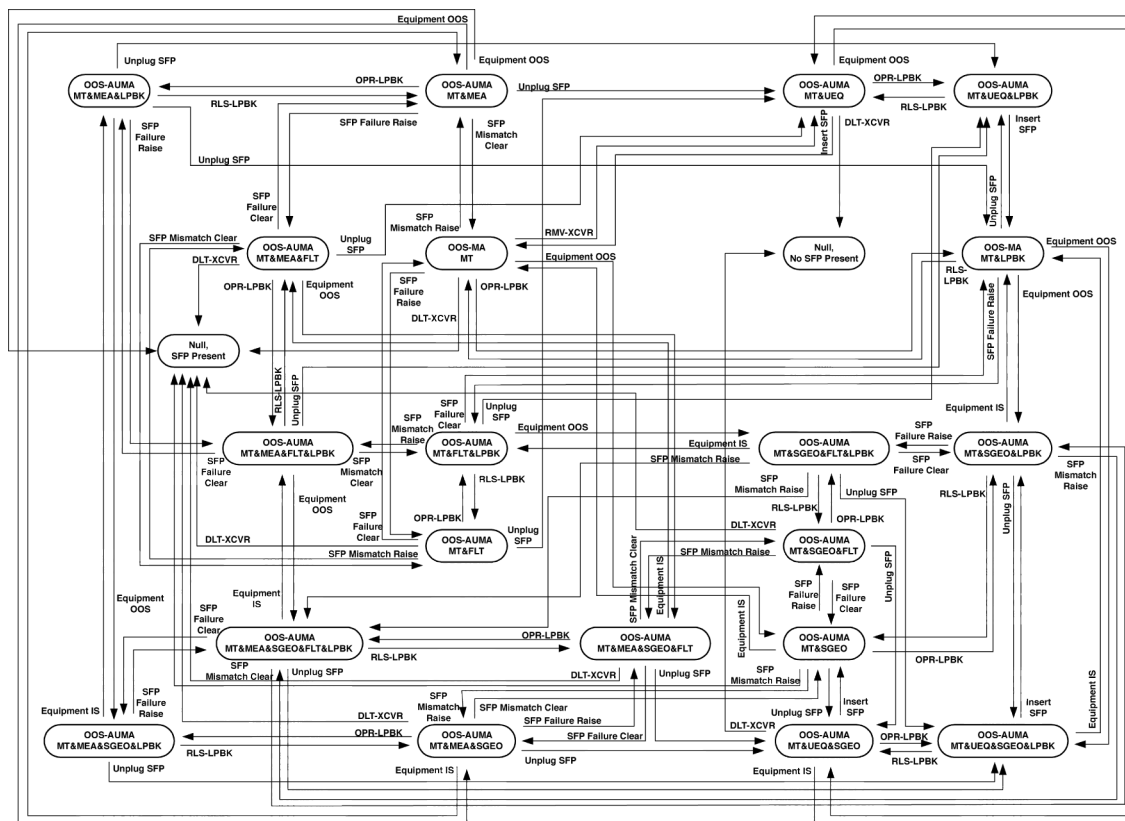
Figure 1-4 Automatic In-Service (AINS) state transition diagram



1.2.5 Transponder transceiver port out-of-service state transitions

The following figure shows a portion of the transponder transceiver port out-of-service state transitions diagram. The transponder transceiver port in-service state transitions diagram appears in the illustration that follows this one.

Figure 1-5 Transponder transceiver port OOS state transitions diagram



The following tables indicate the resulting reports and events that occur from Transponder transceiver port state transitions.

Table 1-7 SFP and XFP State Transitions with Reports and Events (Part 1)

Event	OOS-MA MT	OOS-MA MT & LPBK	OOS-AUMA MT & FLT & LPBK
Insert SFP or XFP	n/a	n/a	n/a
Unplug SFP or XFP	OOS-AUMA MT & UEQ REPT-DBCHG (state)	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)
SFP or XFP Mismatch Raised	OOS-AUMA MT & MEA REPT-DBCHG (state)	OOS-AUMA MT & MEA & LPBK REPT-DBCHG (state)	OOS-AUMA MT & MEA & FLT & LPBK REPT-DBCHG (state)
SFP or XFP Mismatch Cleared	n/a	n/a	n/a
ED:IS	IS-NR REPT-RST (state) REPT-DBCHG (cmd)	n/a	n/a
ED:OOS	n/a	n/a	n/a
SFP or XFP Failure Raised	OOS-AUMA MT & FLT REPT-DBCHG (state)	OOS-AUMA MT & FLT & LPBK REPT-DBCHG (state)	n/a
SFP or XFP Failure Clears	n/a	n/a	OOS-MA MT & LPBK
Equipment OOS	OOS-AUMA MT & SGEO REPT-DBCHG (state)	OOS-AUMA MT & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & FLT & LPBK REPT-DBCHG (state)
Equipment IS	n/a	n/a	n/a
OPR-LPBK	OOS-MA MT & LPBK	n/a	n/a
RLS-LPBK	n/a	OOS-MA MT REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & FLT REPT-DBCHG (state)
ENT-XCVR	n/a	n/a	n/a
DLT-XCVR	Null, SFP Present REPT-DBCHG (cmd)	n/a	n/a

Table 1-8 SFP and XFP State Transitions with Reports and Events (Part 2)

Event	OOS-AUMA MT			
	UEQ	MEA	SGEO	FLT
Insert SFP or XFP	OOS-MA MT REPT-DBCHG (state)	n/a	n/a	n/a
Unplug SFP or XFP	n/a	OOS-AUMA MT & UEQ REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & UEQ REPT-DBCHG (state)
SFP or XFP Mismatch Raised	n/a	n/a	OOS-AUMA MT & MEA & SGEO REPT-DBCHG (state)	OOS-AUMA MT & MEA & FLT REPT-DBCHG (state)
SFP or XFP Mismatch Cleared	n/a	OOS-MA MT REPT-DBCHG (state)	n/a	n/a
ED:IS	OOS-AU UEQ REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AU MEA REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AU SGEO REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AU FLT REPT-DBCHG (state) REPT-DBCHG (cmd)
ED:OOS	n/a	n/a	n/a	n/a
SFP or XFP Failure Raised	n/a	OOS-AUMA MT & MEA & FLT REPT-DBCHG (state)	OOS-AUMA MT & SGEO & FLT REPT-DBCHG (state)	n/a
SFP or XFP Failure Clears	n/a	n/a	n/a	OOS-MA MT REPT-DBCHG (state)
Equipment OOS	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO REPT-DBCHG (state)	n/a	OOS-AUMA MT & SGEO & FLT REPT-DBCHG (state)
Equipment IS	n/a	n/a	OOS-MA MT REPT-DBCHG (state)	n/a
OPR-LPBK	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)	OOS-AUMA MT & MEA & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & FLT & LPBK REPT-DBCHG (state)
RLS-LPBK	n/a	n/a	n/a	n/a
ENT-XCVR	n/a	n/a	n/a	n/a
DLT-XCVR	Null, No SFP or XFP Present REPT-DBCHG (cmd)	Null, SFP or XFP Present REPT-DBCHG (cmd)	Null, SFP or XFP Present REPT-DBCHG (cmd)	Null, SFP or XFP Present REPT-DBCHG (cmd)

Table 1-9 SFP and XFP State Transitions with Reports and Events (Part 3)

Event	OOS-AUMA MT & UEQ		
	SGEO	LPBK	SGEO & LPBK
Insert SFP or XFP	OOS-AUMA MT & SGEO REPT-DBCHG (state)	OOS-MA MT & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & LPBK REPT-DBCHG (state)
Unplug SFP or XFP	n/a	n/a	n/a
SFP or XFP Mismatch Raised	n/a	n/a	n/a
SFP or XFP Mismatch Cleared	n/a	n/a	n/a
ED:IS	OOS-AU UEQ & SGEO REPT-DBCHG (state) REPT-DBCHG (cmd)	n/a	n/a
ED:OOS	n/a	n/a	n/a
SFP or XFP Failure Raised	n/a	n/a	n/a
SFP or XFP Failure Clears	n/a	n/a	n/a
Equipment OOS	n/a	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)	n/a
Equipment IS	OOS-AUMA MT & UEQ REPT-DBCHG (state)	n/a	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)
OPR-LPBK	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)	n/a	n/a
RLS-LPBK	n/a	OOS-AUMA MT & UEQ REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)
ENT-XCVR	n/a	n/a	n/a
DLT-XCVR	Null, No SFP or XFP Present REPT-DBCHG (cmd)	n/a	n/a

Table 1-10 SFP and XFP State Transitions with Reports and Events (Part 4)

Event	OOS-AUMA MT & MEA						
	SGEO	FLT	LPBK	SGEO & FLT	FLT & LPBK	SGEO & LPBK	SGEO & FLT & LPBK
Insert SFP	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Unplug SFP	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & UEQ REPT-DBCHG (state)	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & UEQ & LPBK REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)
SFP Mismatch Raised	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SFP Mismatch Cleared	OOS-AUMA MT & SGEO REPT-DBCHG (state)	OOS-AUMA MT & FLT REPT-DBCHG (state)	OOS-AUMA MT & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & FLT REPT-DBCHG (state)	OOS-AUMA MT & FLT & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & SGEO & FLT & LPBK REPT-DBCHG (state)
ED:IS	OOS-AU MEA & SGEO REPT-DBCHG (state)	OOS-AU MEA & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)	n/a	OOS-AU UEQ & SGEO & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)	n/a	n/a	n/a
ED:OOS	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SFP Failure Raised	OOS-AUMA MT & MEA & SGEO & FLT REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & FLT & LPBK REPT-DBCHG (state)	n/a	n/a	OOS-AUMA MT & MEA & SGEO & FLT & LPBK REPT-DBCHG (state)	n/a
SFP Failure Clears	n/a	OOS-AUMA MT & MEA REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & SGEO REPT-DBCHG (state)	OOS-AUMA MT & MEA & LPBK REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & SGEO & LPBK REPT-DBCHG (state)

Table 1-10 SFP and XFP State Transitions with Reports and Events (Part 4) (Continued)

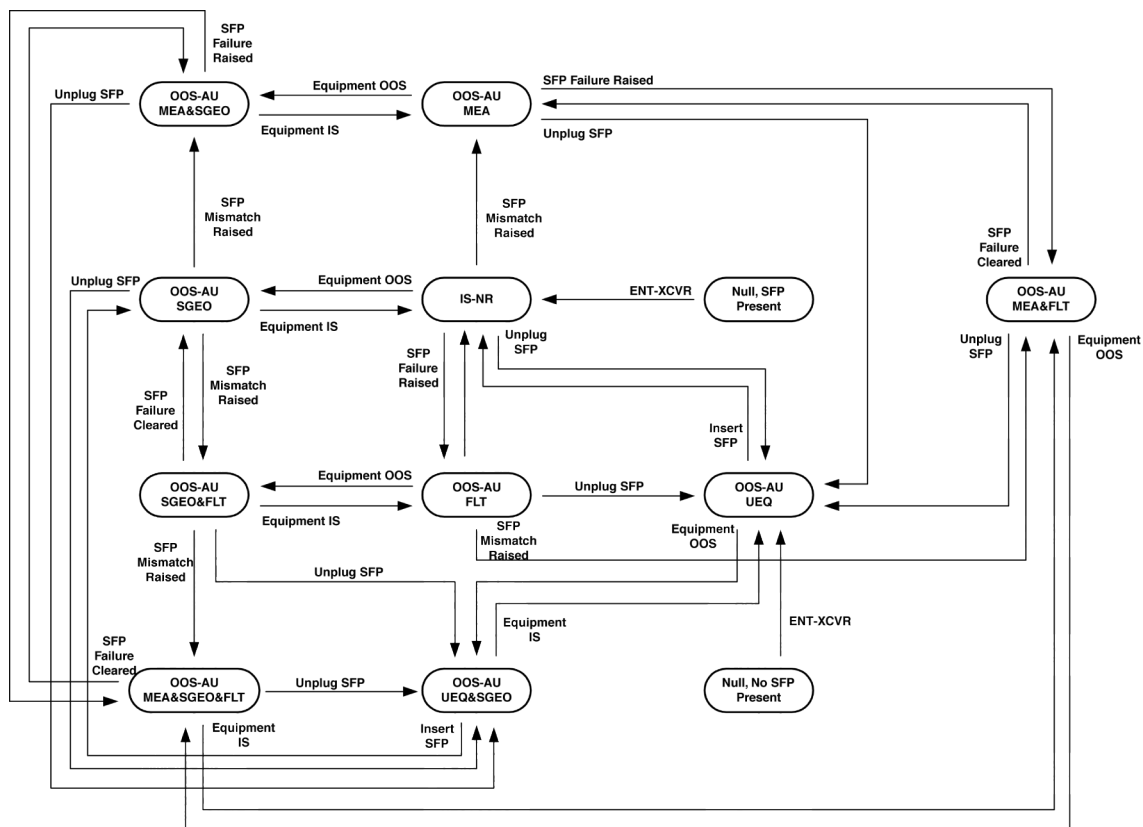
Event	OOS-AUMA MT & MEA						
	SGEO	FLT	LPBK	SGEO & FLT	FLT & LPBK	SGEO & LPBK	SGEO & FLT & LPBK
Equipment OOS	n/a	OOS-AUMA MT & MEA & SGEO & FLT REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO & LPBK REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & SGEO & FLT & LPBK REPT-DBCHG (state)	n/a	n/a
Equipment IS	OOS-AUMA MT & MEA REPT-DBCHG (state)	n/a	n/a	OOS-AUMA MT & MEA & FLT REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & LPBK REPT-DBCHG (state)	OOS-AUMA MT & MEA & FLT & LPBK REPT-DBCHG (state)
OPR-LPBK	OOS-AUMA MT & MEA & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & MEA & FLT & LPBK REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & SGEO & FLT & LPBK REPT-DBCHG (state)	n/a	n/a	n/a
RLS-LPBK	n/a	n/a	OOS-AUMA MT & MEA REPT-DBCHG (state)	n/a	OOS-AUMA MT & MEA & FLT REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO & FLT REPT-DBCHG (state)
ENT-XCVR	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DLT-XCVR	Null, SFP Present REPT-DBCHG (cmd)	Null, SFP Present REPT-DBCHG (cmd)	n/a	Null, SFP Present REPT-DBCHG (cmd)	n/a	n/a	n/a

Table 1-11 SFP and XFP State Transitions with Reports and Events (Part 5)

Event	OOS-AUMA MT & SGEO		
	FLT	LPBK	FLT & LPBK
Insert SFP	n/a	n/a	n/a
Unplug SFP	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & UEQ & SGEO & LPBK REPT-DBCHG (state)
SFP Mismatch Raised	OOS-AUMA MT & MEA & SGEO & FLT REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO & LPBK REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO & FLT & LPBK REPT-DBCHG (state)
SFP Mismatch Cleared	n/a	n/a	n/a
ED:IS	OOS-AU SGEO & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)	n/a	n/a
ED:OOS	n/a	n/a	n/a
SFP Failure Raised	n/a	OOS-AUMA MT & SGEO & FLT & LPBK REPT-DBCHG (state)	n/a
SFP Failure Clears	OOS-AUMA MT & SGEO REPT-DBCHG (state)	n/a	OOS-AUMA MT & SGEO & LPBK REPT-DBCHG (state)
Equipment OOS	n/a	n/a	n/a
Equipment IS	OOS-AUMA MT & FLT REPT-DBCHG (state)	OOS-AUMA MT & LPBK REPT-DBCHG (state)	OOS-AUMA MT & FLT & LPBK REPT-DBCHG (state)
OPR-LPBK	OOS-AUMA MT & SGEO & FLT & LPBK REPT-DBCHG (state)	n/a	n/a
RLS-LPBK	n/a	OOS-AUMA MT & SGEO REPT-DBCHG (state)	OOS-AUMA MT & SGEO & FLT REPT-DBCHG (state)
ENT-XCVR	n/a	n/a	n/a
DLT-XCVR	Null, SFP Present REPT-DBCHG (cmd)	n/a	n/a

1.2.6 Transponder transceiver port in-service state transitions

Figure 1-6 Transponder transceiver port IS state transitions diagram



Note Where SFP is indicated, the action is also applicable to an XFP.

Table 1-12 SFP and XFP State Transitions with Reports and Events (Part 1)

Event	IS-NR	OOS-AU			
		UEQ	MEA	SGEO	FLT
Insert SFP or XFP	n/a	IS-NR REPT-RST (state)	n/a	n/a	n/a
Unplug SFP or XFP	OOS-AU UEQ REPT-RMV (state)	n/a	OOS-AU UEQ REPT-DBCHG (state)	OOS-AU UEQ & SGEO REPT-DBCHG (state)	OOS-AU UEQ REPT-DBCHG (state)
SFP or XFP Mismatch Raised	OOS-AU MEA REPT-RMV (state)	n/a	n/a	OOS-AU MEA & SGEO REPT-DBCHG (state)	OOS-AU MEA & FLT REPT-DBCHG (state)
SFP or XFP Mismatch Cleared	n/a	n/a	n/a	n/a	n/a
ED:IS	n/a	n/a	n/a	n/a	n/a
ED:OOS	OOS-MA MT REPT-RMV (state) REPT-DBCHG (cmd)	OOS-AUMA MT & UEQ REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & MEA REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & SGEO REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)
SFP or XFP Failure Raised	OOS-AU FLT REPT-RMV (state)	n/a	OOS-AU MEA & FLT REPT DBCHG (state)	OOS-AU SGEO & FLT REPT-DBCHG (state)	n/a
SFP or XFP Failure Clears	n/a	n/a	n/a	n/a	IS-NR REPT-RST (state)
Equipment OOS	OOS-AU SGEO REPT-RMV (state)	OOS-AU UEQ & SGEO REPT-DBCHG (state)	OOS-AU MEA & SGEO	n/a	OOS-AU SGEO & FLT REPT-DBCHG (state)
Equipment IS	n/a	n/a	n/a	IS-NR REPT-RST (state)	n/a
OPR-LPBK	n/a	n/a	n/a	n/a	n/a
RLS-LPBK	n/a	n/a	n/a	n/a	n/a
ENT-XCVR	n/a	n/a	n/a	n/a	n/a
DLT-XCVR	n/a	n/a	n/a	n/a	n/a

Table 1-13 SFP and XFP State Transitions with Reports and Events (Part 2)

Event	OOS-AU				
	UEQ & SGEO	MEA & SGEO	MEA & FLT	SGEO & FLT	MEA & SGEO & FLT
Insert SFP or XFP	OOS-AU SGEO REPT-DBCHG (state)	n/a	n/a	n/a	n/a
Unplug SFP or XFP	n/a	OOS-AU UEQ & SGEO REPT-DBCHG (state)	OOS-AU UEQ REPT-DBCHG (state)	OOS-AU UEQ & SGEO REPT-DBCHG (state)	OOS-AU UEQ & SGEO REPT-DBCHG (state)
SFP or XFP Mismatch Raised	n/a	n/a	n/a	OOS-AU MEA & SGEO & FLT REPT-DBCHG (state)	n/a
SFP or XFP Mismatch Cleared	n/a	n/a	n/a	n/a	n/a
ED:IS	n/a	n/a	n/a	n/a	n/a
ED:OOS	OOS-AUMA MT & UEQ & SGEO REPT-DBCHG (state)	OOS-AUMA MT & MEA & SGEO REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & MEA & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & SGEO & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)	OOS-AUMA MT & MEA & SGEO & FLT REPT-DBCHG (state) REPT-DBCHG (cmd)
SFP or XFP Failure Raised	n/a	n/a	n/a	n/a	n/a
SFP or XFP Failure Clears	n/a	n/a	OOS-AU MEA REPT-DBCHG (state)	OOS-AU SGEO REPT-DBCHG (state)	OOS-AU MEA & SGEO REPT-DBCHG (state)
Equipment OOS	n/a	n/a	OOS-AU MEA & SGEO & FLT REPT-DBCHG (state)	n/a	n/a
Equipment IS	OOS-AU UEQ REPT-DBCHG (state)	OOS-AU MEA REPT-DBCHG (state)	n/a	OOS-AU FLT REPT-DBCHG (state)	OOS-AU MEA & FLT REPT-DBCHG (state)
OPR-LPBK	n/a	n/a	n/a	n/a	n/a
RLS-LPBK	n/a	n/a	n/a	n/a	n/a
ENT-XCVR	n/a	n/a	n/a	n/a	n/a
DLT-XCVR	n/a	n/a	n/a	n/a	n/a

1.2.7 Protection Switching Group Transition Table

The protection switching state transition table is based on the assumption that there are two SFP transceiver ports, A and B, where B is protecting A. The following command is assumed to have provisioned the protection switching group:

```
ENT-FFP-XCVR:BTI7000:WR-1-2-1,WR-1-2-3::;
```

The following table describes the state transitions of both A and B due to various events. In each state row, the top state is for A whereas the bottom state is for B. The event columns indicate the following:

Table 1-14 Protection Switching State Transitions

Event Title	Indicates
SD:A ¹	Signal Degrade on A
SD:B ¹	Signal Degrade on B
SF:A ¹	Signal Failure on A
SF:B ¹	Signal Failure on B
A:MAN ²	OPR-PROTNSW-XCVR::A::MAN;
B:MAN ²	OPR-PROTNSW-XCVR::B::MAN;
A:FRCD ²	OPR-PROTNSW-XCVR::A::FRCD;
B:FRCD ²	OPR-PROTNSW-XCVR::B::FRCD;
A:LKDO ²	OPR-PROTNSW-XCVR::A::LKDO;
B:LKDO ²	OPR-PROTNSW-XCVR::B::LKDO;
RLS:A ²	RLS-PROTNSW-XCVR::A;
RLS:B ²	RLS-PROTNSW-XCVR::B;
RMV:A	RMV-XCVR::A; (same as SF:A)
RMV:B	RMV-XCVR::B; (same as SF:B)
RST:A	RST-XCVR::A; (represents any transition from OOS to IS)
RST:B	RST-XCVR::B; (represents any transition from OOS to IS)

¹Currently not supported.

² Applies only to transponders that support protection switching.

1.3 Telcordia state attributes

The Telcordia state model is based on the concept of the service condition of an entity. In the model, the state information of an entity is represented by the following attributes:

Primary State (PST)—This attribute indicates the overall service condition of the entity. The service condition can be either in service (IS) or out of service (OOS).

Primary State Qualifier (PSTQ)—This attribute qualifies the PST. If the entity is in service, the PSTQ indicates whether it is totally or partially in service. If the entity is out of service, the PSTQ indicates whether this is due to an external management command or is determined by the network element based on an internal event or situation.

Secondary State (SST) attributes—This parameter provides additional information pertaining to the PST and PSTQ.

1.3.1 PST and PSTQ values

The following table lists the PST and PSTQ values that the system can use.

Table 1-15 Primary state and primary state qualifier values

Value	Description
IS-NR	In service, normal
IS-ANR	In service, abnormal
OOS-AU	Out of service, autonomous
OOS-MA	Out of service, management
OOS-MAANR	Out of service, management and abnormal
OOS-AUMA	Out of service, autonomous and management

1.3.2 IS — In service

The entity is available for providing its provisioned functions. That is, the entity is operationally capable and at the same time administratively allowed to provide its provisioned functions.

If the entity is partially available for providing its provisioned functions, whether partially capable, partially allowed, or both, it is still considered to be in service. However, the fact that it is partially available is qualified by a value of the PSTQ parameter.

For a usage-sensitive entity, as long as the entity is available for providing its provisioned functions, whether it is currently in use or not, it is still considered in service.

1.3.3 OOS — Out of service

The entity is not available for providing any of its provisioned functions. The PSTQ parameter will qualify the unavailability of the entity. That is, whether it is operationally incapable or administratively inhibited from providing its provisioned functions, or both.

1.3.4 NR — Normal

This value implies that the entity is normally in service. That is, it is capable and allowed to provide all of its provisioned functions.

While the entity is in this state, updates of provisioning data and maintenance activity that affect service are not permitted. Physical actions (such as, unplugging a circuit pack) performed in this state can generate alarms. Fault detection continues in this state.

1.3.5 ANR — Abnormal

The entity is allowed to perform all of its provisioned functions, but it is capable of performing only part of (but not none of) these functions, or of performing these functions at a degraded level.

While the entity is in this state, updates of provisioning data and maintenance activities that affect service are not permitted. Physical actions (such as unplugging a circuit pack) performed in this state can generate alarms. Fault detection is continued to determine if the operational problem has been corrected. Before a maintenance activity to cure the operational problem can be performed, the entity must be explicitly removed from service by using the REMOVE or EDIT commands (the entity transitions into the MAANR state that is discussed later). Otherwise, the maintenance activity can trigger unnecessary notifications.

1.3.6 AU — Autonomous

The entity is incapable of performing any of its provisioned functions, and there is no external administrative restriction inhibiting the entity from performing these functions.

In general, the cause of incapability is an unsolicited event occurrence on the NE or in the associated network. Examples of such events include, but are not limited to, a defect developed in the entity, or its supporting entity is OOS. The transition between “PST=IS” and “PST=OOS, PSTQ=AU” is determined by the NE, based on the event that occurred in the entity (or in the entity’s supporting entity). Such a transition should not be achieved by simply applying a state change command to the entity.

While the entity is in this state, updates of provisioning data and maintenance activities are not permitted. Physical actions (such as unplugging a circuit pack) performed in this state can generate an alarm. Fault detection continues to determine if the operational problem has been corrected or whether additional operational problems have occurred. Before maintenance activities to cure the operational problem can be performed, the entity should be explicitly removed from service by using the REMOVE or EDIT commands (the entity transitions into the

AUMA state that is discussed later). Otherwise, the maintenance activity can trigger unnecessary notifications.

1.3.7 MA — Management

The entity is intentionally suspended by the external management command from performing all of its provisioned functions. In this state, the entity itself is still operationally capable of, even though it is currently being suspended from performing its provisioned functions. Such suspension is temporary in nature. Otherwise, the permanent suspended functions should be excluded from the domain of the entity's provisioned functions.

It should be noted that if some functions are not included in the provisioned functions of the entity, then any change of operational capability of the non-provisioned functions should be outside the scope of the state of the entity. For example, if a bidirectional termination point is provisioned for receiving only, then any change to its operational capability regarding transmit should not be reflected in the state of this termination point. That is, the termination point behaves like a receive-only termination point and shows the state information that is relevant to receive only.

The “PST=OOS, PSTQ=MA” state is also called “*Manual Out-Of-Service*”. In other words, the transition between “PST=IS” and “PST=OOS, PSTQ=MA” is caused by a management command external to the NE (for example, by a command from an OS or a craft directed to the entity). Examples of such a command are the TL1 commands REMOVE, RESTORE, and EDIT.

When equipment is put into the OOS&MA state, alarms against the equipment are not raised.

1.3.8 MAANR — Management and abnormal

The entity is operationally capable of performing only part of its provisioned functions or at a degraded level, and at the same time is intentionally suspended from performing all of its provisioned functions.

To transition from “PST=OOS, PSTQ=MAANR” to the in-service state, the cause of “being intentionally suspended” is released completely (that is, it transitions to “PST=IS, PSTQ=ANR”). The transition from “PST=OOS, PSTQ=MAANR” to “PST=IS, PSTQ=ANR” is done by editing the service from OOS to IS.

When equipment is put into the OOS&MAANR state, alarms against the equipment are not raised.

1.3.9 AUMA — Autonomous and management

The entity is incapable of performing any of its provisioned functions, and at the same time has been intentionally suspended from performing all of its provisioned functions.

To transition from “PST=OOS, PSTQ=AUMA” to the in-service state, both the causes of “being operationally incapable” and of “being intentionally suspended” must be corrected (either completely or partially).

While the entity is in this state, updates of provisioning data and maintenance activities are permitted. Physical actions (such as unplugging a circuit pack) performed in this state do not generate alarms. Fault detection continues to determine if an operational problem has been corrected or an additional operational problem has occurred.

1.3.10 SST values

This parameter provides additional information, called secondary state (SST) values, pertaining to the PST and PSTQ. For example, it can indicate the type and/or reason of the external command, or the event that occurred in the NE. Multiple SST values can be applied to an entity at any given moment.

The following table lists the SST values that the system can use.

Table 1-16 Secondary state values

Value	Description
AINS	Automatic in service
COMM	Communication error
FLT	Fault
FRCD	Forced
LKDO	Locked out
LPBK	Loopback
MEA	Mismatch of equipment and attributes
MT	Maintenance
PWR	Loss of shelf power
SGEO	Supporting entity outage
STDBY	Standby
SWDL	Software download
UEQ	Unequipped
WRK	Working

1.3.11 AINS — Automatic in service

The entity is in a delay transition (to IS) state. The transition to IS is pending on the correction of off-normal conditions on the entity (such as, UEQ for equipment). Alarms and threshold crossing alerts (TCA) are not generated for the entity if AINS is present. Once the off-normal conditions clear, the entity transitions to IS according to the autonomous rules of the OOS-AU state.

When the ENT command is used to provision an entity, if the requested state in the command is IS and the required resource is not present (such as circuit pack is not present for the equipment, or valid signal is not present for the termination point), then the entity enters the OOS-AU,AINS state and alarms are not generated.

1.3.12 COMM — Communication error

The entity is OOS because the SCP cannot communicate with the affected circuit pack, SFP, or XFP.

1.3.13 FLT — Fault

The entity is OOS because of a hardware fault.

1.3.14 FRCD — Forced

The entity is FRCD because a user-invoked FRCD protection switch was applied to the entity.

1.3.15 LKDO — Locked out

The entity is LKDO because a user-invoked LKDO protection switch was applied to the entity.

1.3.16 LPBK — Loopback

The entity is LPBK because the equipment is in the loopback test mode.

1.3.17 MEA — Mismatch of equipment and attributes

The equipment provisioned is different from the equipment that is inserted. The system compares the provisioned product equipment code (PEC) to the inserted equipment PEC.

For SFP and XFP transceivers, the system checks the provisioned protocol bit rate and the provisioned wavelength against the actual SFP transceiver that is inserted into the circuit pack.

1.3.18 MT — Maintenance

The entity has been manually removed from service for maintenance activity. This value must be accompanied with the PSTQ value MA or AUMA.

1.3.19 SGEO — Supporting entity outage

The associated facility is in an outage state because its supporting entity is in an out-of-service state due to equipment missing, an equipment mismatch, or an equipment failure. The SGEO value is for qualifying the OOS-AU state of an entity when its supporting entity is OOS-AU, OOS-MA, or OOS-AUMA.

1.3.20 STDBY — Standby

The entity is in standby because it backs up another entity and it is synchronized with the backed up entity. An entity in STDBY can immediately take over the role of the backed up entity without the need for initialization activity. This is conditional on the absence of other faults and the current switching state associated with the entity. This state is only applicable when protection switching is provisioned.

1.3.21 SWDL — Software download

The associated entity is in a software download process.

1.3.22 UEQ — Unequipped

The equipment entity is not equipped with the necessary hardware. This value is used for clarifying the PSTQ value AU.

1.3.23 WRK — Working

The entity is working because it is currently the active entity in a redundant object pair. This state is only applicable when protection switching is provisioned.

1.4 Equipment and entity state management

BTI 7000 Series modules and shelves support Telcordia state attributes described in [1.3, “Telcordia state attributes”](#). For a list of the BTI 7000 Series modules and shelves, refer to the next section, [1.4.1, “Hardware and software compatibility”](#).

1.4.1 Hardware and software compatibility

Table 1-17 Shelves and Common Equipment

Product	PEC	System software introduced
BTI 7060	BT7A50AA	7.1.0
BTI 7060 with rear access -48V	BT7A50AR	7.1.0
BTI 7060 Cooling Unit	BT7A52EA	7.1.0
BTI 7060 Main Shelf Interface	BT7A53BA BT7A53BB	7.1.0
BTI 7060 Expansion Shelf Interface	BT7A54BA	7.1.0
BTI 7060 System Control Processor	BT7A20CA	7.1.0
BTI 7200	BT7A51AA	8.2
BTI 7200 with rear access -48V	BT7A51AR	8.2
BTI 7200 Cooling Unit	BT7A52EA	8.2
BTI 7200 Main Shelf Interface	BT7A53EA	8.2
BTI 7200 Common Communication module	BT7A54EA	8.2
BTI 7030 Shelf	BT7A56AA	7.1.0
BTI 7030 Cooling Unit	BT7A57BA	7.1.0
BTI 7030 Main Shelf Interface	BT7A53CA BT7A53CB	7.1.0
BTI 7030 System Control Processor	BT7A21BA	7.1.0
Filler module	BP1A55AA	7.1.0
BTI 7020	BT7A56BA	7.1.0

Table 1-18 Optical Amplifiers

Module	PEC	System Software introduced
DWDM C-Band Pre-Amplifier (OPA)	BP1A01DA	7.1.0
DWDM C-Band Booster Amplifier (OBA)	BP1A02DA	7.1.0
DWDM Optical Line Amplifier (OLA)	BP1A03AA	7.1.0
DWDM Optical Line Amplifier with Mid-Stage Access (OLAM)	BP1A04BA	7.1.0
Single-Channel/Sub-Band Booster Amplifier (SBA)	BP1A05BB	7.1.0

Table 1-18 Optical Amplifiers (Continued)

Module	PEC	System Software introduced
Single-Channel/Sub-Band Pre-Amplifier (SPA)	BP1A05PB	7.1.0
DWDM C-Band Low Gain Amplifier (LGA)	BT7A02AA	12.1
DWDM C-Band Mid Gain Amplifier (MGA)	BT7A03AA	12.1
DWDM C-Band Mid Gain Amplifier with Mid-stage access (MGM)	BT7A04AA	12.1

Table 1-19 Dispersion Compensation modules

Module	PEC	System software introduced
Dispersion Compensation Modules (DCF-type)		
SMF DCM 20 KM	BP1A10CH-UC	7.1.0
SMF DCM 40 KM	BP1A10CC-SC	7.1.0
SMF DCM 60 KM	BP1A10CA-SC	7.1.0
SMF DCM 80 KM	BP1A10CB-SC	7.1.0
C-Band Dispersion Compensation Modules (FBG-type)		
SMF 100 GHz C-Band DCM 40 KM	BP1A10AA-UC	7.1.0
SMF 100 GHz C-Band DCM 60 KM	BP1A10AB-UC	7.1.0
SMF 100 GHz C-Band DCM 80 KM	BP1A10AC-UC	7.1.0
Dispersion Compensation Modules (Expandable)		
Dispersion Compensation Module - SMF 5 km	BT7A13AA	9.1
Dispersion Compensation Module - SMF 10 km	BT7A12AA	9.1
Dispersion Compensation Module - SMF 15 km	BT7A13BA	9.1
Dispersion Compensation Module - SMF 20 km	BT7A12BA	9.1
Dispersion Compensation Module - SMF 30 km	BT7A12CA	9.1
Dispersion Compensation Module - SMF 40 km	BT7A12DA	9.1
Dispersion Compensation Module - SMF 50 km	BT7A12EA	9.1
Dispersion Compensation Module - SMF 60 km	BT7A12FA	9.1
Dispersion Compensation Module - SMF 70 km	BT7A12GA	9.1
Dispersion Compensation Module - SMF 80 km	BT7A12HA	9.1
Dispersion Compensation Module - SMF 90 km	BT7A12JA	9.1
Dispersion Compensation Module - SMF 100 km	BT7A12KA	9.1

Table 1-20 Optical Multiplexers

Modules	PEC	System software introduced
Passive multiplexing modules		
1-Channel DWDM Optical Add/Drop Module	BP1A36AA	7.1.0

Table 1-20 Optical Multiplexers (Continued)

Modules	PEC	System software introduced
Double 1-Channel CWDM OADM/Double OSC Coupler Splitter	BP1A32CA	7.1.0
4-Channel CWDM Mux/Demux, Channel 1 - 4		7.1.0
4-Channel CWDM Mux/Demux, Channel 5 - 8	BP1A33BB	7.1.0
4-Channel CWDM Mux/Demux, Channel 9 - 12	BP1A33BC	7.1.0
4-Channel CWDM Mux/Demux, Channel 13 - 16	BP1A33BD	7.1.0
4-Channel CWDM Mux/Demux, Channel 1 - 4, LC (without inventory)		
4-Channel CWDM Mux/Demux, Channel 5 - 8, LC (without inventory)		
4-Channel CWDM Mux/Demux, Channel 9 - 12, LC (without inventory)		
4-Channel CWDM Mux/Demux, Channel 13 - 16, LC (without inventory)		
32-Channel DWDM Mux/Demux Module 1	BP1A35AA	7.1.0
32-Channel DWDM Mux/Demux Module 2	BP1A35AB	7.1.0
32-Channel DWDM Mux/Demux Module 3	BP1A35AC	7.1.0
32-Channel DWDM Mux/Demux Module 4	BP1A35AD	7.1.0
32-Channel DWDM Bidirectional Mux/Demux (Mux Band 1, Demux Band 2)	BP1A35DA-12	7.1.0
32-Channel DWDM Bidirectional Mux/Demux (Mux Band 2, Demux Band 1)	BP1A35DA-21	7.1.0
32-Channel DWDM Bidirectional Mux/Demux (Mux Band 4, Demux Band 2)	BP1A35DA-42	7.1.0
32-Channel DWDM Bidirectional Mux/Demux (Mux Band 2, Demux Band 4)	BP1A35DA-24	7.1.0
2-Channel DWDM OADM	BP1A36AB	7.1.0
4-Channel DWDM OADM	BP1A36AC	7.1.0
4-Channel DWDM OADM, BTI Channels E1, E3, E5, E7	BP1A36BC	7.1.0
Coupler/Splitter modules		
1310 nm and C-Band Coupler/Splitter	BP1A38AA	7.1.0
CWDM + DWDM Splitter Combiner	BP1A30AA	7.1.0
DWDM Bidirectional Coupler/Splitter	BP1A39CA	7.1.0
Single 50/50 Coupler/Splitter	BP1A39DA	7.1.0
Multiplexer/Demultiplexer passive shelves		
40-Channel DWDM Mux/Demux	BT7A37AA	7.1.0
40-Channel DWDM Mux/Demux (ETSI)	BT7A37CA	7.1.0
96-Channel DWDM Mux/Demux	BT8A96MD01-I02	10.3
96-Channel DWDM Mux/Demux (ETSI)	BT8A96MD02-I02	10.3

Table 1-20 Optical Multiplexers (Continued)

Modules	PEC	System software introduced
96-Channel DWDM Mux/Demux (FMD96)	BT8A78MD03	13.2

Table 1-21 Transponders

Modules	PEC	System software introduced
Dual 2.5G Multiprotocol Transponders		
2.5G Wavelength Regenerator	BP1A42AA	7.1.0
2.5G Wavelength Manager	BP1A43AA	7.1.0
Dual 4G Multiprotocol Transponders		
Dual 4G Multiprotocol Transponder	BT7A41CA	7.2.0
10G Transponders		
Dual 10G Multiprotocol Transponder	BT7A49AA	7.1.0
	BT7A49AA-I02	10.4.1
Dual 10G Multiprotocol Transponder Lite	BT7A49AC	7.2.0
10G Multiprotocol Transponder	BT7A49AB	7.1.0

Table 1-22 Muxponders

Modules	PEC	System software introduced
2-Port GbE Muxponders		
2-Port GbE Muxponder – SONET	BP1A46AA	7.1.0
2-Port GbE Muxponder SDH	BP1A46BA	7.1.0
8-Port Multiprotocol Muxponders		
8-Port Multiprotocol Muxponder – SONET	BT7A47JA	7.2.0
8-Port Multiprotocol Muxponder – SDH	BT7A47KA	7.2.0
8-Port Multiprotocol Muxponder – SDH CCAT	BT7A47MA	
10-Port Multiprotocol Muxponders		
10-Port Multiprotocol Muxponder – SONET	BT7A48AA	7.1.1
	BT7A48AA-I02	13.1
10-Port Multiprotocol Muxponder – SDH	BT7A48BA	7.1.1
10-Port Multiprotocol Muxponder – SDH CCAT	BT7A48BA-I02	13.1
	BT7A48DA	7.1.1

Table 1-23 packetVX modules

Module	PEC	System software introduced
packetVX 12/2	BT7A81AA	7.1.2
packetVX 24/2	BT7A81BA	7.1.2
packetVX 24/4	BT7A81CA	7.1.2
packetVX 80	BT7A81GA	10.2.0

Table 1-24 ROADM-on-a-Blade modules

Module	PEC	System software introduced
2D ROADM-on-a-Blade	BT7A07AA	9.1
40-channel 4D ROADM-on-a-Blade	BT7A07BA	10.1
96-channel 4D ROADM-on-a-Blade	BT7A07CA	11.2

1.5 State management behavior interactions

When equipment is taken out of service, any subordinate entities must be in the out-of-service state as a prerequisite. Any state change attempted by the operator when this prerequisite is not satisfied will result in a command failure.

1.6 State management provisioning interactions

Certain provisioning operations can cause an interruption in service. For example, the ability to turn off the laser in an amplifier is an important safety feature. However, if performed by mistake, this operation potentially places terabits of data at risk of an outage.

If potential service-affecting changes are attempted while the affected component is providing service, then the provisioning request is rejected with an error.

For further information, see [1.2, “Telcordia state model”](#) in this document.

1.7 State change reporting

Whenever the state of an entity changes, the change is reported autonomously through all active management interfaces. Some state changes are initiated by the operator, while others are caused by system faults or network conditions.

Example

```
BTI7000 02-07-04 23:43:16
A 90 REPT DBCHG
  "TIME=23-43-16,DATE=02-07-04,SOURCE=100,LINKID=2-12,
USERID=BTI7000,DBCHGSEQ=12:RMV-OA:OLAM-1-1-1"
;
```

1.8 Supporting and supported physical entities

BTI 7000 Series modules have a supporting/supported relationship with the devices that reside on them. In this relationship, the supported entity's operational capability is affected by the service availability of the supporting entity. That is, the state of the supported entity is affected by the state of the supporting entity. However, the state of the supporting entity is not affected by the state of the supported entity.

An example of this relationship is an optical amplifier and its supporting equipment. If the supporting equipment is out of service, the supported optical amplifier is out of service autonomously. In this case, the secondary state of the optical amplifier indicates "supporting entity outage" (that is, SST=SGEO).

As a result, if a module goes out of service, all devices present on it autonomously transition to the out-of-service state with the SGEO secondary state qualifier.

For more information about the Telcordia state model, see [1.2, "Telcordia state model"](#).

1.9 Fault reporting interactions

When an entity is placed in the OOS-MA state, updates of provisioning data and maintenance activities are permitted. Fault detection continues in this state but does not generate any alarms.

An alarm is generated if the system is in service. Otherwise, faults are reported as conditions that can be retrieved.

The primary state of the entity determines, in part, the alarm forwarding characteristics when conditions are raised against the entity. If the entity is in service, then a condition might be raised as an alarm. If the entity is in service and goes out of service, then any active alarms are cleared. If the entity is out of service and goes in service, then any active conditions are raised as alarms.

Example

```
BTI7000 02-08-26 20:37:13
M 100 COMPLD
"OLAM-1-1-1,OA:MJ,T-CTEMP-HT,NSA,02-08-26,02-26-14,NEND,,NA:\"Case
temperature threshold exceeded.\" , , , , , \"
;
```


2.0 Clearing alarms

This chapter explains the BTI 7000 Series events, conditions, alarms and how to clear alarms, and is organized as follows:

- 2.1, “Events, conditions and alarms”
- 2.2, “Alarms ”

With no audible alarm present, press the alarm cutoff/lamp test button continuously to turn all of the management shelf interface (MSI) LEDs on and all of the circuit pack LEDs on. If an LED does not turn on, the module needs to be replaced.

Failure of either the MSI or SCP circuit packs disables the alarm cutoff/lamp test button.

Important If you are unsure about whether an LED is actually working, use the alarm cutoff/lamp test button to check if the LED is functioning correctly.

2.1 Events, conditions and alarms

2.1.1 Events

An event is an autonomous message that is reported from a network element across its management interfaces. An event can indicate status, a periodic report of information, or asynchronous command completion information. There are no raise or clear semantics associated with events.

The information that is typically reported with an event includes the AID of the entity reporting the event, the event type, whether the event is service affecting, the date and time of the event and a text description of the event being reported.

General events are reported using the REPT-EVT message as well as other specific autonomous messages. The common types of autonomous events issued by the BTI 7000 Series include

- Database change events contain all provisioning change events
- State change events contain the other events not included in the database changes category, including removals from service and restores to service
- Circuit pack insertion and removal events
- Threshold crossing alerts for SFP and XFP transceivers

These event messages are used to keep the operator informed of the state of the system and are also used by the proNX 900 Node Controller to remain synchronized with the system.

2.1.2 Conditions

When a fault is detected on a network element (NE) and continues to exist for a minimum time period, it raises a fault condition, to indicate whether or not this particular fault currently exists on the NE. When the fault is resolved, the fault condition is cleared--removed from the system.

Using SNMP, the following conditions can be modified to provision a severity level to minor, major or critical, or back to not alarmed:

Table 2-1 Conditions that can be modified

Acronym	Name
AIS-L-OCN	OCn Line Alarm Indication Signal
AIS-L-PVX	PVX Line Alarm Indication Signal
AIS-L_XCVR	XCVR Line Alarm Indication Signal
AIS-P-STSN	STS Path Alarm Indication Signal
BDI-PVX	PVX Backward Defect Indicator
BDI-XCVR	XCVR Backward Defect Indicator
LF-XCVR	XCVR Local Fault
LSRMANOFF	Laser Manually Shut Off
RFI-XCVR	XCVR Remote Fault Indication
RPF-FC	FC Remote Path Failure
RPF-GE	GE Remote Path Failure
OTUTTI-PVX	PVX OTU trail trace mismatch

If the severity level is provisioned, a change of state for the provisioned condition includes a corresponding, autonomous message, indicating the raise or clear of the condition.

2.1.3 Alarms

Depending on the state of the system or equipment at the time, fault conditions can be reported as alarms. (For additional information, see 2.1.11, “Alarm codes” and 2.1.10, “Alarm masking and alarm hierarchy” in this document.) An alarm is an autonomous message that corresponds to the act of raising and clearing the underlying fault condition.

If equipment is in-service or out-of-service autonomous, then any fault conditions pertaining to that equipment are reported autonomously as alarms. Each alarm is sent with the AID of the entity that has the alarmed condition, the notification code of the alarmed condition (one of critical, major or minor), the condition type, whether the alarmed condition is service affecting or not, the date and time when the alarmed condition was raised and a text description of the alarmed condition. A list of the active alarms can also be retrieved by the TL1 command RTRV-ALM.

If equipment is out-of-service maintenance, then autonomous alarm reporting is suppressed for the entity. If the entity transitions from in-service to out-of-service maintenance, then any raised alarms are cleared. However, in both cases, the conditions still exist and can be retrieved by the TL1 command RTRV-COND. Each condition is listed with the AID of the entity that has the condition, the notification code of the condition (that is, critical, major or minor), the condition type, whether the condition is service affecting or not, the date and time when the condition occurred and a text description of the condition.

2.1.4 Alarm (severity) codes

Alarm (severity) codes appear in autonomous messages and indicate the severity of an alarm. Table 2-2 lists the valid values for alarm codes in decreasing order of severity.

Table 2-2 Alarm Code Severity

Alarm (severity) code	Description
“*C”	Critical alarm is a severe, service affecting condition that requires immediate corrective action.
“**”	Major alarm is a serious disruption of service, malfunctioning or failure of important circuits that usually is not service affecting.
“* “	Minor alarm is for troubles that do not have a serious effect on service to customers or that indicate troubles in circuits that are not essential to network element operation.
“A “	Non-alarm is for non-alarmed events, periodic measurements, or results of previously-scheduled diagnostics or audits.

If multiple alarms are reported in the same message, the alarm (severity) code represents the highest severity of the alarms being reported.

2.1.5 Configuring alarm severity

Alarm severities can be modified from the default value by specifying the condition type and changing the notification code using the TL1 command SET-ATTR-ALL. The notification codes are:

- CR: Critical
- MN: Minor
- MJ: Major
- NA: Not alarmed (default)

For example, an LOS alarm raised against a transceiver is set by default to critical (CR). To change the severity to Major, specify the condition type of LOS, and change the notification code to MJ.

This guide lists the default settings for the alarms. To reset all alarm severities to the default setting, specify a condition type of ALL in the TL1 command SET-ATTR-ALL.

2.1.6 Alarm thresholds

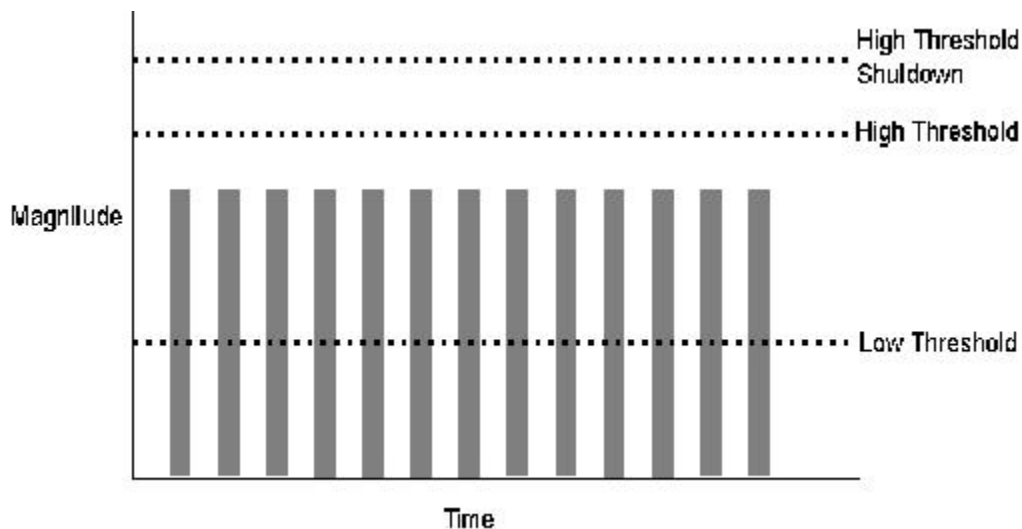
The BTI 7000 Series supports the ability to set the threshold value (for example, the case temperature threshold) at which an alarm is raised. All EDFA optical amplifiers are shipped with default thresholds that can be modified.

2.1.7 Setting thresholds

Thresholds are set when provisioning the optical amplifiers.

For detailed information on the range of values and the default value for all thresholds, see the *Solutions Guide* for the equipment with which you working.

The following figure shows a generic example of typical thresholds for a monitored value and how the normal operating range is within the designated thresholds.

Figure 2-1 Example of Typical Alarm Thresholds

In addition, threshold crossing alerts (TCA) can be set for SFP and XFP transceivers. For further information about TCAs, see the *Solutions Guide* for the equipment with which you working..

2.1.8 Autosutdown

Autosutdown of the optical amplifiers occurs when a preset shutdown threshold has been exceeded. The shutdown thresholds are set at the factory and are not configurable by the system operator. By default, autosutdown is always on.

2.1.9 Laser on/off

Pump lasers are normally on all of the time. However, on the detection of excessive input signal power (that is, the signal power is greater than the maximum shutdown threshold), the pump lasers power down in three seconds.

2.1.10 Alarm masking and alarm hierarchy

Alarm masking occurs when an alarm with a high priority level takes precedence over an alarm of less importance. The purpose of establishing an alarm hierarchy is to draw the operator's attention to the most serious alarm condition.

Any alarm that resides above another alarm can mask a lower level alarm.

Clearing a higher level alarm can solve the lower level alarm. However, it is possible for lower level alarms to become unmasked after a higher level alarm is cleared. As a result, the operator then needs to clear any lower level alarms that appear.

Maintenance state alarm masking

When a unit is placed in the out-of-service maintenance state, all alarms at that level and below are masked for the unit that is out-of-service. As a result, alarms can exist for out-of-service units

but they are not flagged as being active since the unit is out-of-service. Instead the alarms are reported as conditions.

Once a unit is brought back into service, existing alarms are unmasked and are identified as such.

2.1.11 Alarm codes

The following table lists the alarm codes, a brief description, directions to alarm clearing procedures, alarm severity level, whether the alarm is service affecting, and whether equipment or amplifiers are affected.

Table 2-3 Alarm Codes

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
AIS-O	2.2.1, "AIS-O (Alarm Indication Signal, Optical Level)"	NR	No	Optical port	No	None
AIS-P	2.2.2, "AIS-P (Alarm Indication Signal, Path)"	MN	No	XFP port	Yes	LOP-P, SD
APSD	2.2.3, "APSD (Automatic Power Shutdown)"	Critical	Yes	OSC, WDM	Yes; if not masked by an OSC Receive Loss of Light fault	PMI, BDI, LOLIGHT-RX
AMPCOND	2.2.4, "AMPCOND (Amplifier Conditioning)"	Minor	No	Amplifier	No	None
BDI	2.2.5, "BDI (Backward Defect Indication)"	NR	No	Optical line port	No	None
BWMISM	2.2.6, "BWMISM (Bandwidth Mismatch)"	Critical	Yes	GE or FC client port	No	None
CHNDFC	2.2.7, "CHNDFC (Channel Count Deficiency)"	Major	Yes		No	None
CNXMEA	2.2.8, "CNXMEA (Connection Mismatch)"	Critical Critical	Yes	ROADM-on-a-blade	No	None
CNXVLDTMOUT	2.2.9.1, "Clearing a CNXVLDTMOUT connection validation timeout alarm"		Yes	ROADM-on-a-blade	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
CONNMEA	2.2.10, "CONNMEA (Connector Mismatch)"	Minor	No	Equipment	No	None
CONTCOM	2.2.11, "CONTCOM (Control Communications Failure with Circuit Pack)"	Major	No	Circuit Pack Inventory	Yes	DSPCOMM FAIL, amplifier, OSC, and SFP XCVR
CONTCOM	2.2.12, "CONTCOM (Control Communications Failure with SFP or XFP)"	Major	No	SFP and XFP Inventory	Yes	REPLUNIT UNK (for SFP)
CONTCOM-E	2.2.13, "CONTCOM-E (Control Communications Failure, Equalization Section)"	NR	No	OSC	No	None
CONTCOM-S	2.2.14, "CONTCOM-S (Control Communications Failure, Span Section)"	Major	Yes	OSC	No	None
CUFEEDFAIL	2.2.15, "CUFEEDFAIL (Cooling Unit Feed Failure) — BTI 7030 only"	Major or Minor	No	Cooling Unit Inventory	No	None
DBRECVRYFAIL	2.2.16, "DBRECVRYFAIL (Database Recovery Failure)"	Major	No	SCP Equipment	No	None
DBRSTPROG	2.2.17, "DBRSTPROG (Database Restore in Progress)"	Major	No	SCP Equipment	Yes	Equipment, amplifier, OSC, and SFP XCVR alarms.
DISKUSAGEHI	2.2.18, "DISKUSAGEHI (Disk Usage High)"	Major	No	Slot	No	None
DSPCOMMFAIL	2.2.19, "DSPCOMMFAIL (DSP Communications Failure)"	Major	No	Circuit Pack Inventory	No	None
EXPSHCOMDEVICEUNS	2.2.20, "EXPSHCOMDEVUNS or EXPSHCOMDEVICEUNS (Expansion Shelf Communications	Major	No	Expansion Shelf Inventory	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
	Device Unsupported)"					
EXPSHCOMDEVUNS	2.2.20, "EXPSHCOM DEVUNS or EXPSHCOMDEVICE UNS (Expansion Shelf Communications Device Unsupported)"	Major	No	Expansion Shelf Inventory	No	None
EXPSHCOMLNKDWN	2.2.21, "EXPSHCOM LNKDWN (Expansion Shelf Communications Link Down)"	Major	No	Expansion Shelf Inventory	No	None
EXPSHCOMLOS	2.2.22, "EXPSHCOM LOS (Expansion Shelf Communications Loss of Signal)"	Major	No	Expansion Shelf Inventory	No	None
FECI	2.2.23, "FECI (Far End Configuration Inconsistent)"	Major	Yes	OSC	No	None
FEEDAFAIL	2.2.24, "FEEDAFAIL (Power Feed A Failure)"	Major	No	Shelf Inventory	No	None
FEEDBFAIL	2.2.25, "FEEDBFAIL (Power Feed B Failure)"	Major	No	Shelf Inventory	No	None
FEEDAFUSEFAIL	2.2.26, "FEEDAFUS EFAIL (Circuit Pack Feed A Fuse Failure)"	Major	No	Circuit Pack Inventory	No	None
FEEDBFUSEFAIL	2.2.27, "FEEDBFUS EFAIL (Circuit Pack Feed B Fuse Failure)"	Major	No	Circuit Pack Inventory	No	None
FEIM	2.2.28, "FEIM (Far- end Node Identification Mismatch)"	Major	Yes	Optical line port	No	None
GAIN-NA-TX	2.2.29, "GAIN-NA-TX (Transmitted Gain Not Achievable)"	Minor	No	Amplifier	No	None
GCC0FAIL	2.2.30, "GCC0FAIL (General Communication Channel Failure)"	Critical	Yes	GCC	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
GFPPLM	2.2.31, "GFPPLM (GFP Payload Mismatch)"	Critical	Yes	GE, OCn, or FC port	No	None
HITEMP	2.2.32, "HITEMP (High Shelf Temperature)"	Major	No	Shelf Inventory	No	None
HTASUNS	2.2.33, "HTASUNS (High Temperature Automatic Shutdown Unsupported)"	Major	No	TPR	No	None
IAOCB	2.2.34, "IAOCB (Invalid Amplifier Operating Configuration Booster-amplifier)"	Minor	No	WDM	No	None
IAOCM	2.2.35, "IAOCM (Invalid Amplifier Operating Configuration Mid-amplifier)"	Minor	No	WDM	No	None
IAOCP	2.2.36, "IAOCP (Invalid Amplifier Operating Configuration Pre-amplifier)"	Minor	No	WDM	No	None
INVPROV	2.2.37, "INVPROV (Invalid Provisioning)"	Minor	No	Equipment	No	None
IPLCKOUT	2.2.38, "IPLCKOUT (IP Lockout)"	Minor	No	USER	No	None
LCK-XCVR	2.2.39, "LCK-XCVR (Lockout Transceiver)"	NR	No	XCVR Port	No	None
LOA	2.2.41, "LOA (Loss of Alignment for FC or GE client-side port)"	Critical	Yes	GE or FC Client Port	No	None
LOF	2.2.42, "LOF (Loss of Frame)"	Critical	Yes	XCVR Port	No	None
LOF	2.2.43, "LOF (Loss of Frame for line port)"	Critical	Yes	OC48 STM16	No	None
LOF-RX	2.2.44, "LOF-RX (Received Loss of Frame) for OSC"	Major	Yes	OSC	No	None
LOL	2.2.45, "LOL (Loss of Lock for bit-rate"	Critical	Yes	XCVR Port	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
	independent ports on 8-Port Multiprotocol Muxponder modules)"					
LOL	2.2.46, "LOL (Loss of Lock)"	Critical	Yes	XCVR Port	No	None
LOLIGHT-RX	2.2.47, "LOLIGHT-RX (Received Loss of Light) for an amplifier port"	Critical	Yes	Amplifier	Yes	POS-RX-HIGH/LOW (amplifier) and all of their subordinate alarms
LOLIGHT-RX	OSC: 2.2.48, "LOLIGHT-RX (Received Loss of Light) for OSC"	Critical	Yes	Optical line Port	Yes	APSD-RX, PMI, BDI
					Yes, if LOLIGHT-RX for wavelength channel is raised at the same time	LOSPEC-RX, T-LOSSRX-HT, CHNDFC (only on ROB module)
LOLIGHT-RX	Optical ports: 2.2.49, "LOLIGHT-RX (Received Loss of Light) for an optical port"	Critical	Yes	Line port of a DLA of a ROB module. DCM In port of a ROB module. Client port 1 (C1) of a DLA or ROB module, and for DLA Line Amplifier Node Inter-module connection patch fiber. Client port 2 (C2) of a ROB module, and for Alien wavelengths on a ROADM Terminal or C2 inter-module connection	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
				patch fiber on a ROADM Node or Line Equalizing Node.		
LOLIGHT-RX	Wavelength channel: 2.2.50, "LOLIGHT-RX (Received Loss of Light) for a wavelength channel"	Critical	Yes	C1/C2	Yes, if LOLIGHT-RX for OSC is raised at the same time	LOSPEC-RX, T-LOSSRX-HT, CHNDFC (only on ROB module)
LOLIGHT-TX	2.2.51, "LOLIGHT-TX (Transmitted Loss of Light) for OSC" and 2.2.52, "LOLIGHT-TX (Transmitted Loss of Light) for a wavelength channel"	Major	Yes	OSC	No	None
LOM	2.2.53, "LOM (Loss of Multiframe for client-side port)"	Critical	Yes	VCG on GE or FC Client Port	No	None
LOP-P	2.2.54, "LOP-P (Loss of Pointer for STS Rx port)"	Critical	Yes	Muxponder Line Port	Yes	UEQ-P and SD
LOS	2.2.55, "LOS (Loss of Signal for FC or GE client-side port)"	Critical	Yes	GE or FC Client Port	Yes	LOSYNC and LOM
LOS	2.2.56, "LOS (Loss of Signal for OCn line-side port)"	Critical	Yes	Line Port - OC48 STM16	Yes	LOF, AIS-L and SD
LOS	2.2.57, "LOS (WT/WR/TPR Loss of Signal)"	Critical	Yes	XCVR Port	Yes	LOL (for SFP and XFP)
LOS	2.2.58, "LOS (WM Loss of Signal)"	Critical	Yes	XCVR Port	Yes	LOF and LOL (for SFP)
LOSPEC-RX	2.2.59, "LOSPEC-RX (Received Loss Out of Specification)"	Critical	Yes	Optical port	No	None
LOSYNC	2.2.60, "LOSYNC (Loss of Synchronization)"	Critical	Yes	XCVR Port	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
LOSYNC	2.2.61, "LOSYNC (Loss of Synchronization for FC or GE client-side port)"	Critical	Yes	GE or FC Client Port	Yes	LOM
LSRMANOFF	2.2.62, "LSRMANOFF (Laser Manually Off)"	NR	No	XCVR Port Muxponder Line and Client Ports	No	None
OBR-HTSO	2.2.63, "OBR-HTSO (OBR - High Threshold Safety Override)"	Minor	No	Amplifier	No	None
OBROS	2.2.64, "OBROS (Optical Back Reflection Out of Specification)"	Critical	Yes	OSC	No	None
OCI	2.2.66, "OCI (Open Connection Indicator)"	Critical	Yes	Muxponder Line Port	No	None
ODU1-AIS	2.2.65, "ODU1-AIS alarm"	NR	Yes	XFP port	Yes	ODUPLM OCI
ODUPLM	2.2.67, "ODUPLM (ODU Payload Mismatch)"	Critical	Yes	Muxponder Line Port	No	None
OPR-HIGH-FAIL	2.2.68, "OPR-HIGH-FAIL (Received Power High Fail) for a wavelength channel"	Critical	Yes	Client ports 1 and 2	No	None
OSCLOS	2.2.69, "OSCLOS (OSC Loss of Signal)"	Major	No	OSC IP Interface	No	None
OTNPLM	2.2.70, "OTNPLM (OTN Payload Mismatch)"	Critical	Yes	GE, OCn, or FC port	No	None
PACKUPGRDFAIL	2.2.71, "PACKUPGRDFAIL (Circuit Pack Upgrade Failure)"	Major	No	Circuit Pack Inventory	Yes	SYSUPGR DPROG, CONTCOM , DSPCOMM FAIL
PMI	2.2.72, "PMI (Payload Missing Indication)"	NR	No	Optical line port	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
POS-RX	2.2.73, "POS-RX (Received Power Out of Specification) for an optical port"	Critical	Yes	Optical port	No	None
POS-RX-HIGH	2.2.74, "POS-RX-HIGH (Received Power Out of Specification - High) for an amplifier port"	Critical	Yes	Amplifier	Yes	SSI- LOLIGHT- RX and all of its subordinate alarms, T-OPR-HT/LT (amplifier)
POS-RX-HIGH	2.2.75, "POS-RX-HIGH (Received Power Out of Specification - High) for a wavelength channel"	Major	Yes	Client ports 1 and 2	No	None
POS-RX-LOW	2.2.76, "POS-RX-LOW (Received Power Out of Specification - Low) for an amplifier port"	Critical	Yes	Amplifier	Yes	SSI- LOLIGHT- RX and all of its subordinate alarms, T-OPR-HT/LT (amplifier)
POS-RX-LOW	2.2.77, "POS-RX-LOW (Received Power Out of Specification - Low) for a wavelength channel"	Major	Yes	Client ports 1 and 2	No	None
POS-TX	2.2.78, "POS-TX (Transmitted Power Out of Specification) for a wavelength channel"	Critical	Yes	Optical port	No	None
PWRBRWNT	2.2.80, "PWRBRWNT (Power Brownout)"	Critical	Yes	Shelf Inventory	No	None
PWR-NA-TX	2.2.79, "PWR-NA-TX (Transmitted Power Not Achievable)"	Minor	No	Amplifier	No	None
RELNUMMEA	2.2.82, "RELNUMMEA (Release Number Mismatch)"	Major	No	Equipment	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
REPLUNITFAIL	2.2.83, “REPLUNITFAIL (Circuit Pack Failure)”	Critical	Yes	Circuit Pack Inventory	No	None
REPLUNITDEGRADE	2.2.81, “REPLUNITDEGRADE (Circuit Pack Degrade)”	Major	No	Circuit Pack Inventory	No	None
REPLUNITFAIL	2.2.84, “REPLUNITFAIL (SFP or XFP Failure)”	Critical	Yes	SFP/XFP Port	No	None
REPLUNITHTAS	2.2.86, “REPLUNITHTAS (Circuit Pack High Temperature Automatic Shutdown)”	Critical	Yes	Circuit Pack Inventory	No	None
REPLUNITIDMEA	2.2.85, “REPLUNITIDMEA (Replaceable Unit Identifier Mismatch)”	Major	No	Expansion Shelf Inventory	No	None
REPLUNITMEA	2.2.87, “REPLUNITMEA (Circuit Pack Mismatch)”	Major	No	Equipment	No	None
REPLUNITMEA	2.2.88, “REPLUNITMEA (Shelf Mismatch)”	Major	No	Equipment	No	None
REPLUNITMEA	2.2.89, “REPLUNITMEA (SFP or XFP Mismatch)”	Critical	Yes	XCVR Port	No	None
REPLUNITMISS	2.2.90, “REPLUNITMISS (Circuit Pack Missing)”	Critical or Major	Yes / No	Circuit Pack Inventory	No	None
REPLUNITMISS	2.2.91, “REPLUNITMISS (Expansion Shelf Missing)”	Major	No	Equipment	No	None
REPLUNITMISS	2.2.92, “REPLUNITMISS (SFP or XFP Missing)”	Critical	Yes	XCVR Port	No	None
REPLUNITPWR	2.2.93, “REPLUNITPWR (Circuit Pack Power Failure)”	Critical	Yes	Circuit Pack Inventory	No	None
REPLUNITUNK	2.2.94, “REPLUNITUNK (Circuit Pack Unknown)”	Major	No	Circuit Pack Inventory	No	None
REPLUNITUNK	2.2.95, “REPLUNITUNK (Shelf Unknown)”	Major	No	Shelf Inventory	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
REPLUNITUNK	2.2.96, "REPLUNITUNK (SFP or XFP Unknown)"	Critical	Yes	SFP/XFP Port	No	None
REPLUNITUNS	2.2.97, "REPLUNITUNS (Replaceable Unit Unsupported)"	Major	No	Circuit Pack Inventory	No	None
REPLUNITUNS-SFP	2.2.98, "REPLUNITUNS-SFP (SFP Unsupported)"	Critical	Yes	SFP/XFP Port	No	None
SCPRNCHGPROG	2.2.99, "SCPRNCHGPROG (SCP Release Number Change in Progress)"	Major	No	SCP Equipment	No	None
SD	2.2.100, "SD (Signal Degrade for line-side port)"	Minor	No	SONET Line Port	No	None
SD	2.2.101, "SD (Signal Degrade for STS Rx port)"	Minor	No	SDH Line Port	No	None
SQM	2.2.102, "SQM (Loss of Sequence for FC or GE client-side port)"	Critical	Yes	GFP Mapped GE Client Port	No	None
SRVR-UNRESPONSIVE	2.2.103, "SRVR-UNRESPONSIVE (Server unresponsive)"	Minor	No	NE NTP server	No	None
SSI-LOLIGHT-RX	2.2.104, "SSI-LOLIGHT-RX (Received Loss of Light) for a second stage input port"	Critical	Yes	Amplifier	Yes	SSI-POS-RX-HIGH/LOW and all of their subordinate alarms
SSI-POS-RX-HIGH	2.2.105, "SSI-POS-RX-HIGH (Received Power Out of Specification - High) for a second stage input port"	Critical	Yes	Amplifier	Yes	T-SSI-OPR-HT/LT, T-FSOOPT-HT/LT, T-OPT-HT/LT (amplifier), T-MSLOSS-HT, PWR-NA-TX, GAIN-NA-TX, TILT-NA-TX

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
SSI-POS-RX-LOW	2.2.106, “SSI-POS-RX-LOW (Received Power Out of Specification - Low) for a second stage input port”	Critical	Yes	Amplifier	Yes	T-SSI-OPR-HT/LT, T-FSOOPT-HT/LT, T-OPT-HT/LT (amplifier), T-MSLOSS-HT, PWR-NA-TX, GAIN-NA-TX, TILT-NA-TX
SWBNKAFail	2.2.108, “SWBNKAFail (Software Bank A Failure) — BTI 7060/BTI 7200 only”	Minor	No	SCP	No	None
SWBNKBFail	2.2.109, “SWBNKBFail (Software Bank B Failure) — BTI 7060/BTI 7200 only”	Minor	No	SCP	No	None
SYNCPRI	2.2.110, “SYNCPRI (Synchronization of Primary Timing Reference)”	Major	Yes	Primary SONET or SDH Timing Source	No	None
SYNCSEC	2.2.111, “SYNCSEC (Synchronization of Secondary Timing Reference)”	Major	Yes	Secondary SONET or SDH Timing Source	No	None
SYSKOM	2.2.112, “SYSKOM (System Communications Failure) — BTI 7060/BTI 7200 only”	Major	No	Main Shelf Inventory	Yes	Equipment, amplifier, OSC, and SFP XCVR.
SYSUPGRDPROG	2.2.113, “SYSUPGRDPROG (System Software Upgrade in Progress)”	Minor to Major	No	Equipment	Yes	CONTCOM (for equipment)
T-CTEMP-HT	2.2.114, “T-CTEMP-HT (Case Temperature High Threshold)”	Major	No	Amplifier	No	None
T-CTEMP-HTS	2.2.115, “T-CTEMP-HTS (Case Temperature High Threshold Shutdown)”	Critical	Yes	Amplifier	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
T-FSOOPT-HT	2.2.116, "T-FSOOPT-HT (First Stage OPT High Threshold for amplifiers)"	Major	No	Amplifier	No	None
T-FSOOPT-LT	2.2.117, "T-FSOOPT-LT (First Stage OPT Low Threshold for amplifiers)"	Major	No	Amplifier	No	None
T-LOSSRX-HT	2.2.118, "T-LOSSRX-HT (Received Loss High Threshold Exceeded)"	Minor	No	Optical line port	No	None
T-LTEMP-HTS	2.2.119, "T-LTEMP-HTS (Laser Temperature High Threshold Shutdown)"	Critical	Yes	Amplifier	No	None
T-LTEMP-LTS	2.2.120, "T-LTEMP-LTS (Laser Temperature Low Threshold Shutdown)"	Critical	Yes	Amplifier	No	None
T-MSLOSS-HT	2.2.121, "T-MSLOSS-HT (Mid-stage Insertion Loss High Threshold)"	Major	No	Amplifier	No	None
T-OBR-HT	2.2.122, "T-OBR-HT (OBR - High Threshold)"	Minor	No	Amplifier	No	None
T-OBR-HTS	2.2.123, "T-OBR-HTS (Optical Back Reflection High Threshold Safety)"	Critical	Yes	Amplifier	Yes	T-OBR-HT
T-OPR-HT	2.2.124, "T-OPR-HT (OPR High Threshold)"	Major	No	Amplifier, or XCVR Port	No	None
T-OPR-LT	2.2.125, "T-OPR-LT (OPR Low Threshold)"	Major	No	Amplifier or XCVR Port	No	None
T-OPT-HT	2.2.126, "T-OPT-HT (OPT High Threshold for amplifiers)"	Major	No	Amplifier	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
T-OPT-HT	2.2.127, "T-OPT-HT (OPT High Threshold for SFP or XFP)"	Major	No	XCVR Port	No	None
T-OPT-LT	2.2.128, "T-OPT-LT (OPT Low Threshold for amplifiers)"	Major	No	Amplifier	No	None
T-OPT-LT	2.2.129, "T-OPT-LT (OPT Low Threshold for SFP)"	Major	No	XCVR Port	No	None
T-REPLUNIT-HT	2.2.130, "T-REPLUNIT-HT (Circuit Pack High Temperature Threshold Exceeded)"	Major	No	Circuit Pack Inventory	No	None
T-REPLUNIT-HTS	2.2.131, "T-REPLUNIT-HTS (Circuit Pack Temperature Shutdown Threshold Exceeded)"	Critical	Yes	Circuit Pack Inventory	No	None
T-SSIOPR-HT	2.2.132, "T-SSIOPR-HT (Second Stage OPR High Threshold)"	Major	Yes	Amplifier	No	None
T-SSIOPR-LT	2.2.133, "T-SSIOPR-LT (Second Stage OPR Low Threshold)"	Major	No	Amplifier	No	None
T-TEMP-HT	2.2.134, "T-TEMP-HT (Temperature Above High Threshold)"	Major	No	Equipment	No	None
TILT-NA-TX	2.2.135, "TILT-NA-TX (Tilt Not Achievable)"	Minor	No	Amplifier	No	None
UNEQ-O	2.2.136, "UNEQ-O (Wavelength Channel Unequipped)"	Critical	Yes	WDM composite signal	No	None
UNEQ-P	2.2.137, "UNEQ-P (Unequipped for STS Rx port)"	Critical	Yes	SDH Line Port	Yes	SD
UPGRDPROG	2.2.138, "UPGRDPROG (Circuit Pack Upgrade in Progress)"	Minor	No	Circuit Pack Inventory	No	None

Table 2-3 Alarm Codes (Continued)

Alarm Code	To Clear Alarm, Go To...	Alarm Severity	Service Affected	Entity Affected	Masks	Alarms Masked
USRLCKOUT	2.2.139, “USRLCKOUT (User Locked Out)”	Minor	No	USER	No	None
WNA	2.2.140, “WNA (Wavelength Not Achievable)”	Critical	Yes	Tunable XCVR Port	No	None

2.1.12 AID-to-event mapping (REPT EVT)

Table 2-4 AID-to-event mapping (REPT EVT)

AID	Modifier	Condition Type
C1ADM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
C1ADM-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
C1ADM-(1,11,21,31)-(1-20)-1-P	PORT	AUTOPROVFAIL
C1ADM-(1,11,21,31)-(1-20)-1-(1-9)	PORT	AUTOPROVFAIL
CCM-(1,11,21,31)-1	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
	EQPT	SYSLOADFAIL
	EQPT	SYSLOADPASS
	EQPT	SYSUPGRDFAIL
	EQPT	SYSUPGRDPASS
CDSC-(1,11,21,31)-(1-20)	EQPT	SCPRNCHGPASS
CDSC-(1,11,21,31)-(1-20)-1	EQPT	SYSCHKFAIL
CDSC-(1,11,21,31)-(1-20)-1-C	EQPT	SYSCHKPASS
CDSC-(1,11,21,31)-(1-20)-1-D	EQPT	SYSLOADFAIL
CS-(1,11,21,31)-(1-20)	EQPT	SYSLOADPASS
CS-(1,11,21,31)-(1-20)-(1,2)	EQPT	SYSUPGRDFAIL
CS-(1,11,21,31)-(1-20)-(1,2)-(1-9)	EQPT	SYSUPGRDPASS
CS-(1,11,21,31)-(1-20)-(1,2)-D	PORT	AUTOPROVFAIL
CU-(1,11,21,31)	EQPT	REPLUNITPLUGIN
CU-(1,11,21,31)-(1-4)	EQPT	REPLUNITUNPLUG
D1ADM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
D1ADM-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
D1ADM-(1,11,21,31)-(1-20)-1-P	PORT	AUTOPROVFAIL
D1ADM-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
D2ADM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
D2ADM-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
D2ADM-(1,11,21,31)-(1-20)-1-P	PORT	AUTOPROVFAIL
D2ADM-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
D4ADM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
D4ADM-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
D4ADM-(1,11,21,31)-(1-20)-1-P	PORT	AUTOPROVFAIL
D4ADM-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
D32MD1-(1,11,21,31)-(1,3,5...19)	EQPT	AUTOPROVFAIL
D32MD1-(1,11,21,31)-(1,3,5...19)-1	PORT	AUTOPROVFAIL
D32MD1-(1,11,21,31)-(1,3,5...19)-1-E	PORT	AUTOPROVFAIL
D32MD1-(1,11,21,31)-(1,3,5...19)-1-(1-32)	PORT	AUTOPROVFAIL
D32MD2-(1,11,21,31)-(1,3,5...19)	EQPT	AUTOPROVFAIL
D32MD2-(1,11,21,31)-(1,3,5...19)-1	PORT	AUTOPROVFAIL
D32MD2-(1,11,21,31)-(1,3,5...19)-1-E	PORT	AUTOPROVFAIL
D32MD2-(1,11,21,31)-(1,3,5...19)-1-(1-32)	PORT	AUTOPROVFAIL
D32MD3-(1,11,21,31)-(1,3,5...19)	EQPT	AUTOPROVFAIL
D32MD3-(1,11,21,31)-(1,3,5...19)-1	PORT	AUTOPROVFAIL
D32MD3-(1,11,21,31)-(1,3,5...19)-1-E	PORT	AUTOPROVFAIL
D32MD3-(1,11,21,31)-(1,3,5...19)-1-(1-32)	PORT	AUTOPROVFAIL
D32MD4-(1,11,21,31)-(1,3,5...19)	EQPT	AUTOPROVFAIL
D32MD4-(1,11,21,31)-(1,3,5...19)-1	PORT	AUTOPROVFAIL
D32MD4-(1,11,21,31)-(1,3,5...19)-1-E	PORT	AUTOPROVFAIL
D32MD4-(1,11,21,31)-(1,3,5...19)-1-(1-32)	PORT	AUTOPROVFAIL
DLA-(11,21,31)-(1-20)	EQPT	REPLUNITDEGRADE
DLA-(11,21,31)-(1-20)-(L1)	OSC	CONTCOM-E
	OSC	CONTCOM-S
	OSC	FECI
	OSC	LOLIGHT-RX
	OSC	LOLIGHT-TX
	PORT	APSD
	PORT	BDI
	PORT	PMI
	PORT	T-LOSSRX-HT
	WDM	IAOCB
	WDM	IAOCP
DLA-(11,21,31)-(1-20)-(L1,C1)	PORT	LOLIGHT-RX
	PORT	LOSPEC-RX
DLA-(11,21,31)-(1-20)-(L1,C2)	OSC	OBROS
DLA-(11,21,31)-(1-20)-(C1)	PORT	POS-RX

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
ES-(11,21,31)	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
	EQPT	AUTOPROVFAIL
ESFP-1-5-(1,2,3)	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
ESFP-(11,21,31)-1	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
IP-1-1-(1,2)	IP	AUTOPROVFAIL
IP-1-5-(1,2)		
LGA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
LGA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
MGA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
MGA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
MGM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
MGM-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
MS-1	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
MXP-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
	EQPT	SYNCSWITCH
MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2)	PORT	AUTOPROVFAIL
MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2)- (1-48)	VC	AUTOPROVFAIL
MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2)-ALL	VC	AUTOPROVFAIL
OBA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
OBA-(1,11,21,31)-(1-20)-1	OA	AMPTRANS
OBA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
OLA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
OLA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
OLAM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
OLAM-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
OPA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
OPA-(1,11,21,31)-(1-20)-1	OA	AMPTRANS
OPA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
OSC-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
ROB-(11,21,31)-(1, 3, 5...19)	EQPT	REPLUNITDEGRADE
ROB-(11,21,31)-(1, 3, 5...19)-(L1)	OSC	CONTCOM-E
	OSC	CONTCOM-S
	OSC	FECI
	OSC	LOLIGHT-RX

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
	OSC	LOLIGHT-TX
	PORT	APSD
	PORT	BDI
	PORT	CHNDFC
	PORT	PMI
	PORT	T-LOSSRX-HT
	WCH	AIS-O
	WCH	UNEQ-O
	WDM	IAOCB
	WDM	IAOCM
	WDM	IAOCP
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C1,C2)	WCH	LOLIGHT-TX
	WCH	POS-TX
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C1,C2,DCM)	PORT	LOLIGHT-RX
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C2,DCM)	OSC	OBROS
	PORT	LOSPEC-RX
ROB-(11,21,31)--(1, 3, 5...19)-(C1,C2)	WCH	LOLIGHT-RX
	WCH	POS-RX
ROB2-(11,21,31)--(1, 3, 5...19)-(C2)	PORT	CNXMEA
ROB4-(11,21,31)--(1, 3, 5...19)-(C2 to C4)		
ROB2-(11,21,31)--(1, 3, 5...19)-(C2)		CNXVLDTMOUT
ROB4-(11,21,31)--(1, 3, 5...19)-(C2 to C4)		
SBA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SBA-(1,11,21,31)-(1-20)-1	OA	AMPTRANS
SBA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
SCP-1-(1,3,5)	EQPT	APPLDBRSTPASS
	EQPT	DBBKUPFAIL
	EQPT	DBBKUPPASS
	EQPT	DBLOADFAIL
	EQPT	DBRECVRYFAIL
	EQPT	INVKDBRSTFAIL
	EQPT	INVKDBRSTPASS
	EQPT	SCPRNCHGFAIL
	EQPT	SCPRNCHGPASS
	EQPT	SYSCHKFAIL
	EQPT	SYSCHKPASS
	EQPT	SYSLOADFAIL
	EQPT	SYSLOADPASS

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
SFP-(1,11,21,31)-(1-20)-(1-4)	EQPT	SYSUPGRDFAIL
	EQPT	SYSUPGRDPASS
	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
SI-(11,21,31)	EQPT	UPGRDPROG
	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
SLOT-(1,11,21,31)-(1-20)	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG
SMF20-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SMF20-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
SMF40-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SMF40-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
SMF40-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
SMF60-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SMF60-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
SMF60-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
SMF80-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SMF80-(1,11,21,31)-(1-20)-1	PORT	AUTOPROVFAIL
SMF80-(1,11,21,31)-(1-20)-1-(1-32)	PORT	AUTOPROVFAIL
SPA-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
SPA-(1,11,21,31)-(1-20)-1	OA	AMPTRANS
SPA-(1,11,21,31)-(1-20)-1	OA	AUTOPROVFAIL
TPR-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
TPR-(1,11,21,31)-(1-20)-(1-4)	XCVR	AUTOPROVFAIL
	XCVR	LPBK
	XCVR	RFI
	XCVR	WKSWPR
	XCVR	WKSWBK
	XCVR	MANWKSWPR
	XCVR	MANWKSWBK
	XCVR	FRCDMANWKSWPR
	XCVR	FRCDMANWKSWBK
	XCVR	T-CVS
	XCVR	T-ESS
	XCVR	T-SEFS-S
	XCVR	T-SESS
USER	USER	SESSION
WM-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
WM-(1,11,21,31)-(1-20)-(1-4)	XCVR	AUTOPROVFAIL
	XCVR	LPBK
	XCVR	T-CVS
	XCVR	T-ESS
	XCVR	T-SEFS-S
	XCVR	T-SESS
WR-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
WR-(1,11,21,31)-(1-20)-(1-4)	XCVR	AUTOPROVFAIL
	XCVR	LPBK
	XCVR	RFI
	XCVR	WKSWPR
	XCVR	WKSWBK
	XCVR	MANWKSWPR
	XCVR	MANWKSWBK
	XCVR	FRCDMANWKSWPR
	XCVR	FRCDMANWKSWBK
	XCVR	LOCKOUTOFWK
	XCVR	LOCKOUTOFPR
	XCVR	T-CVS
	XCVR	T-ESS
	XCVR	T-INVBLK
	XCVR	T-SEFS
	XCVR	T-SESS

Table 2-4 AID-to-event mapping (REPT EVT) (Continued)

AID	Modifier	Condition Type
WT-(1,11,21,31)-(1-20)	EQPT	AUTOPROVFAIL
WT-(1,11,21,31)-(1-20)-(1-4)	XCVR	AUTOPROVFAIL
	XCVR	LPBK
	XCVR	RFI
XFP-(1,11,21,31)-(1-20)-(2)	EQPT	REPLUNITPLUGIN
	EQPT	REPLUNITUNPLUG

2.1.13 AID-to-condition mapping (REPT ALM)

Table 2-5 AID-to-condition mapping (REPT ALM)

AID	Modifier	Notification	Service Effect	Condition Type
C1ADM-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
EQPT	MJ CL	NSA NSA	REPLUNITMEA	
CCM-(1,11,21,31)-1	EQPT	MJ CL	NSA NSA	CONTCOM
	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	MJ CL	NSA NSA	REPLUNITMISS
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
	EQPT	MN MJ CL	NSA NSA	SYSUPGRDPROG
CDSC-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
CU-(1,11,21,31)	EQPT	CR CL	SA NSA	REPLUNITFAIL
CU-(1,11,21,31)-(1-4)	EQPT	MJ CL	NSA NSA	REPLUNITMISS
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
CU-(1,11,21,31)-(1-4)	EQPT	MJ CL	NSA NSA	REPLUNITMEA
D1ADM-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
D2ADM-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
D4ADM-(1,11,21,31)-(1,3,5...19)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
D4MD-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
D32MD1-(1,11,21,31)-(1,3,5...19) D32MD2-(1,11,21,31)-(1,3,5...19) D32MD3-(1,11,21,31)-(1,3,5...19) D32MD4-(1,11,21,31)-(1,3,5...19)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
D32BMD24-(1,11,21,31)-(1,3,5...19) D32BMD42-(1,11,21,31)-(1,3,5...19)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
DLA-(11,21,31)-(1-20)	EQPT	MJ	SA	REPLUNITDEGRADE
DLA-(11,21,31)-(1-20)-(L1)	OSC	NR	NSA	CONTCOM-E
	OSC	MJ	SA	CONTCOM-S
	OSC	MJ	SA	FECI
	OSC	MJ	SA	LOLIGHT-RX
	OSC	MJ	SA	LOLIGHT-TX
	PORT	CR	SA	APSD
	PORT	NR	SA	BDI
	PORT	NR	SA	PMI
	PORT	MJ	NSA	T-LOSSRX-HT
	WDM	MN	SA	IAOCB
	WDM	MN	SA	IAOCP
	PORT	CR	SA	LOLIGHT-RX
DLA-(11,21,31)-(1-20)-(L1,C1)	PORT	CR	SA	LOSPEC-RX
DLA-(11,21,31)-(1-20)-(L1,C2)	OSC	CR	SA	OBROS
DLA-(11,21,31)-(1-20)-(C1)	PORT	CR	SA	POS-RX
ES-(11,21,31)	EQPT	MJ CL	NSA NSA	EXPSHCOMDEVICEUNS
	EQPT	MJ CL	NSA NSA	EXPSHCOMLNKDWN
	EQPT	MJ CL	NSA NSA	EXPSHCOMLOS
	EQPT	MJ CL	NSA NSA	FEEDAFAIL
	EQPT	MJ CL	NSA NSA	FEEDBFail
	EQPT	MJ CL	NSA NSA	HITEMP
	EQPT	MJ CL	NSA NSA	PWRBRWNT
	EQPT	MJ CL	NSA NSA	REPLUNITIDMEA
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
	EQPT	MJ CL	NSA NSA	REPLUNITMISS
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
ESFP-1-5-(1-3)	EQPT	MJ CL	NSA NSA	CONTCOM
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
	EQPT	CR CL	SA NSA	REPLUNITFAIL
IP-(1,11,21,31)-(1-20)-(0-3)	EQPT	MJ CL	NSA NSA	OSCLOS
LGA-(1,11,21,31)-(1-20)	EQPT	MN	NSA	CONNMEA
MGA-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MN	NSA	REPLUNITMEA
LGA-(1,11,21,31)-(1-20)-1	OA	MN	NSA	AMPCOND

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
MGA-(1,11,21,31)-(1-20)-1	OA	MN	NSA	GAIN-NA-TX
	OA	CR	SA	LOLIGHT-RX
	OA	MN	NSA	OBR-HTSO
	OA	CR	SA	POS-RX-HIGH
	OA	CR	SA	POS-RX-LOW
	OA	MN	NSA	PWR-NA-TX
	OA	MN	NSA	T-OBR-HT
	OA	CR	SA	T-OBR-HTS
	OA	MJ	NSA	T-OPR-HT
	OA	MJ	NSA	T-OPR-LT
	OA	MJ	NSA	T-OPT-HT
	OA	MJ	NSA	T-OPT-LT
	OA	MN	NSA	TILT-NA-TX
	OA	MN	NSA	TILT-NA-TX
MGM-(1,11,21,31)-(1-20)	EQPT	MN	NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MN	NSA	REPLUNITMEA
MGM-(1,11,21,31)-(1-20)-1	OA	MN	NSA	AMPCOND
	OA	MN	NSA	GAIN-NA-TX
	OA	CR	SA	LOLIGHT-RX
	OA	MN	NSA	OBR-HTSO
	OA	CR	SA	POS-RX-HIGH
	OA	CR	SA	POS-RX-LOW
	OA	MN	NSA	PWR-NA-TX
	OA	CR	SA	SSI-LOLIGHT-RX
	OA	CR	SA	SSI-POS-RX-HIGH
	OA	CR	SA	SSI-POS-RX-LOW
	OA	MJ	NSA	T-FSOOPT-HT
	OA	MJ	NSA	T-FSOOPT-LT
	OA	MJ	NSA	T-MSLOSS-HT
	OA	MN	NSA	T-OBR-HT
	OA	CR	SA	T-OBR-HTS
	OA	MJ	NSA	T-OPR-HT
	OA	MJ	NSA	T-OPR-LT
	OA	MJ	NSA	T-OPT-HT
	OA	MJ	NSA	T-OPT-LT
	OA	MJ	SA	T-SSIOPR-HT
	OA	MJ	NSA	T-SSIOPR-LT
	OA	MN	NSA	TILT-NA-TX
	OA	MN	NSA	TILT-NA-TX

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
MS-1	EQPT	MJ CL	NSA NSA	FEEDAFAIL
	EQPT	MJ CL	NSA NSA	FEEDBFail
	EQPT	MJ CL	NSA NSA	HITEMP
	EQPT	MJ CL	NSA NSA	PWRBRWNT
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
	EQPT	MJ CL	NSA NSA	SYSCOM
MXP-(1,11,21,31)-(1-20)- (C1-C10)	MXP	NA CL	NSA NSA	LOCKPROG
	MXP	CR CL	SA NSA	LOS
	MXP	CR CL	SA NSA	LOSYNC
	MXP	CR CL	SA NSA	REPLUNITMEA
	MXP	MJ CL	NSA NSA	T-OPR-HT
	MXP	MJ CL	SA NSA	T-OPR-LT
	MXP	MJ CL	NSA NSA	T-OPT-HT
	MXP	MJ CL	NSA NSA	T-OPT-LT
	MXP	MJ CL	NSA NSA	T-TEMP-HT
MXP-(1,11,21,31)-(1-20)- (L1,L2)	MXP	CR CL	SA NSA	LOF
	MXP	MJ CL	SA NSA	LOP
	MXP	CR CL	SA NSA	LOS
	MXP	CR CL	SA NSA	REPLUNITMEA
	MXP	CR CL	SA NSA	REPLUNITUS-SFP
	MXP	MJ CL	SA NSA	SD
	MXP	MJ CL	SA SA	SYNCPRI
	MXP	MJ CL	SA SA	SYNCSEC
	MXP	MJ CL	NSA NSA	T-OPR-HT
	MXP	MJ CL	SA NSA	T-OPR-LT
	MXP	MJ CL	NSA NSA	T-OPT-HT
	MXP	MJ CL	NSA NSA	T-OPT-LT
	MXP	CR CL	SA NSA	UEQ-P
	MXP	CR CL	SA	WNA
	MXP	NR	NSA NSA	ODU1-AIS
OBA-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
OBA-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	CR CL	SA SA	OBR-HTSO
	OA	MJ CL	NSA NSA	T-CTEMP-HT

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	CR CL	SA SA	T-OBR-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
OLA-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
OLA-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	CR CL	SA SA	OBR-HTSO
	OA	MJ CL	NSA NSA	T-CTEMP-HT
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	CR CL	SA SA	T-OBR-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
OLAM-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
OLAM-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	CR CL	SA SA	OBR-HTSO
	OA	MJ CL	NSA NSA	T-CTEMP-HT
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
	OA	MJ CL	NSA NSA	T-MSLOSS-HT
	OA	CR CL	SA SA	T-OBR-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA SA	T-SSIOPR-HT

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
OPA-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
OPA-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	MJ CL	NSA NSA	T-CTEMP-HT
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24)	GE	CR CL	SA	LOS
	GE	CR CL	SA	LOSYNC
PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24)-(X1-X4)	GE	CR CL	SA	REPLUNITMEA
	XFP			
	GE	CR CL	SA	REPLUNITMISS
	XFP			
	GE	MJ CL	NSA	T-OPR-HT
	XFP			
	GE	MJ CL	NSA	T-OPR-LT
	XFP			
	GE	MJ CL	NSA	T-OPT-HT
	XFP			
PVX-(1,11,21,31)-(1,3,5...19)-(X1-X4)	GE	MJ CL	NSA	T-OPT-LT
	XFP			
PVX-(1,11,21,31)-(1,3,5...19)-(X1-X4)	XFP	MJ CL	NSA	WNA
PVX-(1,11,21,31)-(1,3,5...19)-(X1-X8)	XFP	MN	NSA	AIS-L
	XFP	MN	NSA	AIS-P
	XFP	NA	NSA	BDI
	XFP	CR	SA	LOF
	XFP	CR	SA	LOP-P
	XFP	CR	SA	LOS
	XFP	CR	SA	LOSYNC
	XFP	CR	SA	OTNPLM
	XFP	NA	NSA	OTUTTI
	XFP	CR	SA	PLM-P

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
	XFP	NA	NSA	RDI-L
	XFP	NA	NSA	RDI-P
	XFP	MN	NSA	SD
ROB-(11,21,31)-(1, 3, 5...19)	EQPT	MJ	SA	REPLUNITDEGRADE
ROB-(11,21,31)-(1, 3, 5...19)-(L1)	OSC	NR	NSA	CONTCOM-E
	OSC	MJ	SA	CONTCOM-S
	OSC	MJ	SA	FECI
	OSC	MJ	SA	LOLIGHT-RX
	OSC	MJ	SA	LOLIGHT-TX
	PORT	CR	SA	APSD
	PORT	NR	SA	BDI
	PORT	MJ	SA	CHNDFC
	PORT	NR	SA	PMI
	PORT	MJ	NSA	T-LOSSRX-HT
	WCH	NR	NSA	AIS-O
	WCH	CR	SA	UNEQ-O
	WDM	MN	SA	IAOCB
	WDM	MN	SA	IAOCM
	WDM	MN	SA	IAOCP
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C1,C2)	WCH	CR	SA	LOLIGHT-TX
	WCH	CR	SA	POS-TX
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C1,C2,DCM)	PORT	CR	SA	LOLIGHT-RX
ROB-(11,21,31)--(1, 3, 5...19)-(L1,C2,DCM)	OSC	CR	SA	OBROS
	PORT	CR	SA	LOSPEC-RX
ROB-(11,21,31)--(1, 3, 5...19)-(C1,C2)	WCH	CR	SA	LOLIGHT-RX
	WCH	MJ	SA	POS-RX
SBA-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
SBA-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	CR CL	SA SA	OBR-HTSO
	OA	MJ CL	NSA NSA	T-CTEMP-HT
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	CR CL	SA SA	T-OBR-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
SCP-1-3	EQPT	MJ MN CL	NSA NSA NSA	CUFEEDFAIL
SCP-1-(1,3,5)	EQPT	MJ CL	NSA NSA	DBRECVRYFAIL
	EQPT	MJ CL	NSA NSA	DBRSTPROG
	EQPT	MJ CL	NSA NSA	PACKUPGRDFAIL
	EQPT	MJ CL	NSA NSA	RELNUMMEA
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
	EQPT	MJ CL	NSA NSA	SCPRNCHGPROG
	EQPT	MJ CL	NSA NSA	SWBNKAFail
	EQPT	MJ CL	NSA NSA	SWBNKBFAIL
	EQPT	MN MJ CL	NSA NSA	SYSUPGRDPROG
SFP-(1,11,21,31)-(1-20)-(1-4)	EQPT	MJ CL	NSA NSA	CONTCOM
	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	CR CL	SA NSA	REPLUNITMISS
	EQPT	MN CL	SA SA	REPLUNITUNK
SH-(1)	EQPT	MJ CL	NSA NSA	FEEDAFail
	EQPT	MJ CL	NSA NSA	FEEDBFAIL
	EQPT	MJ CL	NSA NSA	PWRBRWNT
SI-1	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	MJ CL	NSA NSA	REPLUNITMISS
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
SI-(11,21,31)	EQPT	MN CL	NSA NSA	CONTCOM
	EQPT	MN CL	NSA NSA	PACKUPGRDFail
	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	CR MJ CL	SA NSA NSA	REPLUNITMISS
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
	EQPT	MN CL	NSA NSA	UPGRDPROG
SLOT-(1,11,21,31)-(1-20)	EQPT	MJ CL	NSA NSA	CONTCOM
	EQPT	MJ	NSA	DISKUSAGEHI
	EQPT	MJ	NSA	FEEDAFUSEFAIL
	EQPT	MJ	NSA	FEEDBFUSEFAIL
	EQPT	MJ	NSA	HTASUNS
	EQPT	MJ CL	NSA NSA	PACKUPGRDFail
	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	CR	SA	REPLUNITHTAS
	EQPT	CR MJ CL	SA NSA NSA	REPLUNITMISS

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
	EQPT	CR	SA	REPLUNITPWR
	EQPT	MJ CL	NSA NSA	REPLUNITUNK
	XCVR	MJ CL	NSA NSA	T-TEMP-HT
	EQPT	MJ	NSA	T-REPLUNIT-HT
	EQPT	CR	SA	T-REPLUNIT-HTS
	EQPT	MN CL	NSA NSA	UPGRDPROG
SLOT-(11,21,31)-5	EQPT	MJ CL	NSA NSA	REPLUNITUNS
SMF20-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
SMF40-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
SMF60-(1,11,21,31)-(1-20)	EQPT	MJ CL	NSA NSA	REPLUNITMEA
SMF80-(1,11,21,31)-(1-20)				
SPA-(1,11,21,31)-(1-20)	EQPT	MN CL	NSA NSA	CONNMEA
	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
SPA-(1,11,21,31)-(1-20)-1	OA	MN CL	NSA NSA	AMPCOND
	OA	MJ CL	NSA NSA	T-CTEMP-HT
	OA	CR CL	SA SA	T-CTEMP-HTS
	OA	MJ CL	NSA NSA	T-OPR-HT
	OA	MJ CL	NSA NSA	T-OPR-LT
	OA	MJ CL	NSA NSA	T-OPT-HT
	OA	MJ CL	NSA NSA	T-OPT-LT
	OA	CR CL	SA NSA	T-LTEMP-HTS
	OA	CR CL	SA NSA	T-LTEMP-LTS
TPR-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
TPR-(1,11,21,31)-(1-20)-(1-4)	XCVR	NR	NSA	FRCDWKS WPR
	XCVR	NR	NSA	FRCDWKS WBK
	XCVR	NR	NSA	LOCKOUTOFWK
	XCVR	NR	NSA	LOCKOUTOFPR
	XCVR	CR CL	NSA NSA	LOF
	XCVR	CR CL	SA NSA	LOS
	XCVR	CR CL	SA NSA	LOSYNC
	XCVR	NR	NSA	LPBK
	XCVR	CR CL	NSA NSA	REPLUNITMEA
	XCVR	MJ CL	NSA NSA	T-OPR-HT
	XCVR	MJ CL	NSA NSA	T-OPR-LT
	XCVR	MJ CL	NSA NSA	T-OPT-HT
	XCVR	MJ CL	NSA NSA	T-OPT-LT
	XCVR	CR CL	SA	WNA

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
USER	SECU	MN CL	NSA NSA	IPLCKOUT
	SECU	MN CL	NSA NSA	USRLCKOUT
WM-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
WM-(1,11,21,31)-(1-20)-(1-4)	XCVR	CR CL	NSA NSA	LOF
	XCVR	CR CL	SA NSA	LOS
	XCVR	NR	NSA	LPBK
	XCVR	CR CL	NSA NSA	REPLUNITMEA
	XCVR	MJ CL	NSA NSA	T-OPR-HT
	XCVR	MJ CL	NSA NSA	T-OPR-LT
	XCVR	MJ CL	NSA NSA	T-OPT-HT
	XCVR	MJ CL	NSA NSA	T-OPT-LT
WR-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
WR-(1,11,21,31)-(1-20)-(1-4)	XCVR	NR	NSA	FRCDWKS WPR
	XCVR	NR	NSA	FRCDWKS WBK
	XCVR	NR	NSA	LOCKOUT OFWK
	XCVR	NR	NSA	LOCKOUT OFPR
	XCVR	CR CL	SA NSA	LOF
	XCVR	CR CL	SA NSA	LOL
	XCVR	CR CL	SA NSA	LOS
	XCVR	CR CL	SA NSA	LOSYNC
	XCVR	NR	NSA	LPBK
	XCVR	CR CL	NSA NSA	REPLUNITMEA
	XCVR	MJ CL	NSA NSA	T-OPR-HT
	XCVR	MJ CL	NSA NSA	T-OPR-LT
	XCVR	MJ CL	NSA NSA	T-OPT-HT
	XCVR	MJ CL	NSA NSA	T-OPT-LT
	XCVR	MJ CL	NSA NSA	WNA
WT-(1,11,21,31)-(1-20)	EQPT	MN	NSA	INVPROV
	EQPT	MJ CL	NSA NSA	REPLUNITMEA
WT-(1,11,21,31)-(1-20)-(1-4)	XCVR	CR CL	SA NSA	LOS
	XCVR	NR	NSA	LPBK
	XCVR	CR CL	NSA NSA	REPLUNITMEA
	XCVR	MJ CL	NSA NSA	T-OPR-HT
	XCVR	MJ CL	NSA NSA	T-OPR-LT
	XCVR	MJ CL	NSA NSA	T-OPT-HT
	XCVR	MJ CL	NSA NSA	T-OPT-LT

Table 2-5 AID-to-condition mapping (REPT ALM) (Continued)

AID	Modifier	Notification	Service Effect	Condition Type
XFP-(1,11,21,31)-(1-20)-(2)	EQPT	MJ CL	NSA NSA	CONTCOM
	EQPT	CR CL	SA NSA	REPLUNITFAIL
	EQPT	MN CL	SA SA	REPLUNITUNK

2.1.14 Environmental alarm types and descriptions

The following table provides environmental condition alarm types and descriptions for the environmental inputs on the MSI module (BT7A53BB)(BT7A53CB) .

Table 2-6 MSI module environmental alarms

Alarm type (almtype) or condition type (condtype)	Default alarm message (almmsg) or condition description (conddescr)
UNASSIGNED	(None)
AIRCOMPR	Air compressor failure
AIRCOND	Air conditioning failure
AIRDRYR	Air Dryer failure
BATDSCHRG	Battery discharging
BATTERY	Battery failure
POWER	Commercial power failure
CLFAN	Cooling fan failure
CPMAJOR	Centralized Power Major
CPMINOR	Centralized Power Minor
DOOROPEN	Enclosure door open
ENGINE	Engine failure
ENGOPRG	Engine operating
EXPLGS	Explosive gas
FIRDETR	Fire detector failure
FIRE	Fire
FLOOD	Flood
FUSE	Fuse failure
GEN	Generator failure
GENERIC	(None)
HIAIR	High airflow
HIHUM	High humidity
HITEMP	High temperature
HIWIND	High wind
HIWTR	High water
ICEBUILDUP	Ice build up

Table 2-6 MSI module environmental alarms (Continued)

Alarm type (almtyp) or condition type (condtype)	Default alarm message (almmsg) or condition description (conddescr)
INTRUDER	Intrusion detection
LWBATVG	Low battery voltage
LWFUEL	Low fuel
LWHUM	Low humidity
LWPRES	Low cable pressure
LWTEMP	Low temperature
LWWTR	Low water
MISC	Miscellaneous
OPENDR	Open door
POWER	Commercial power failure
PUMP	Pump failure
RECT	Rectifier failure
RECTHI	Rectifier high voltage
RECTLO	Rectifier low voltage
SMOKE	Smoke
TOXICGAS	Toxic gas
UNSUPPORTED	Housekeeping Input Not Supported
VENTN	Ventilation system failure

2.2 Alarms

This section describes the alarms and clearing procedures for the BTI 7000 Series.

2.2.1 AIS-O (Alarm Indication Signal, Optical Level)

Problem Description

The far-end NE has signaled the local NE that the signal payload for the indicated wavelength channel is in a failed state and has not been transmitted within the WDM composite signal.

This fault applies to ROADM Terminal, Line Equalizing Node and ROADM Node configurations and only to channels on the Line port of the ROB module.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on the Line port.

Impact

Not reported. The upstream NE has a critical channel alarm, and service is affected on that channel.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.1.1 Clearing an AIS-O alarm indication signal, optical level alarm

Use this procedure to clear an AIS-O alarm.

- Step 1** Look for and clear all "LOLIGHT-RX" alarms against wavelengths channels on upstream NEs.
- Step 2** Ensure that all fibers are correctly connected.
- Step 3** Check for excessive loss on the receive span fiber. Check and clean all upstream fiber connections.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.2 AIS-P (Alarm Indication Signal, Path)

Problem Description

The local NE has received an AIS-P signal from the far-end.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

LED behavior on transceiver port LEDs

None

Impact

Minor, not service affecting

Affected AIDs

PVX-(1,11,21,31)-(1,3,5...19)-(X1-X8)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.2.1 Clearing an AIS-P alarm

Use this procedure to clear an AIS-P alarm.

- Step 1** Check for an LOP-P alarm at the far end

Determine if an LOP-P alarm exists at the far end. If an LOP-P alarm exists, resolve the alarm:

- If the AIS-P alarm clears, you have successfully completed this procedure.
- If the AIS-P alarm does not clear, contact your next level of support.

Step 2 Check for a provisioning error at the far end

Determine if a provisioning error exists at the far end and if a provisioning error exists resolve it:

- If the AIS-P alarm clears, you have successfully completed this procedure.
- If the AIS-P alarm does not clear, contact your next level of support.

2.2.3 APSD (Automatic Power Shutdown)

Problem Description

The transmitting amplifier has been automatically shutdown. A LOLIGHT-RX alarm is active against both the OSC and the WDM composite signal. The far-end NE has signaled the local NE to transition to APSD state.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.3.1 Clearing a APSD automatic power shutdown alarm

Use this procedure to clear a APSD alarm.

Step 1 Check the PM OPR value for the Line port on the alarmed module. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

Step 2 Check for and resolve the following possible problems:

- A LOLIGHT-RX alarm is active against both the OSC and the WDM, possibly caused by Line fiber disconnect or fiber cut.
- The far-end NE has signaled the local NE to transition to the APSD state.

Step 3 Check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.4 AMPCOND (Amplifier Conditioning)

Problem Description

There is an amplifier conditioning alarm.

When an amplifier is initially plugged in, the thermo-electric coolers (TEC) work to control the pump laser temperature to between 16° and 34° C. Until the pump laser temperature is within range, the amplifier conditioning alarm is present.

If the amplifier conditioning alarm persists for more than 15 minutes, the alarm is cleared and a T-LTEMP-LTS or T-LTEMP-HTS alarm is raised.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Minor alarm—service is not affected.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

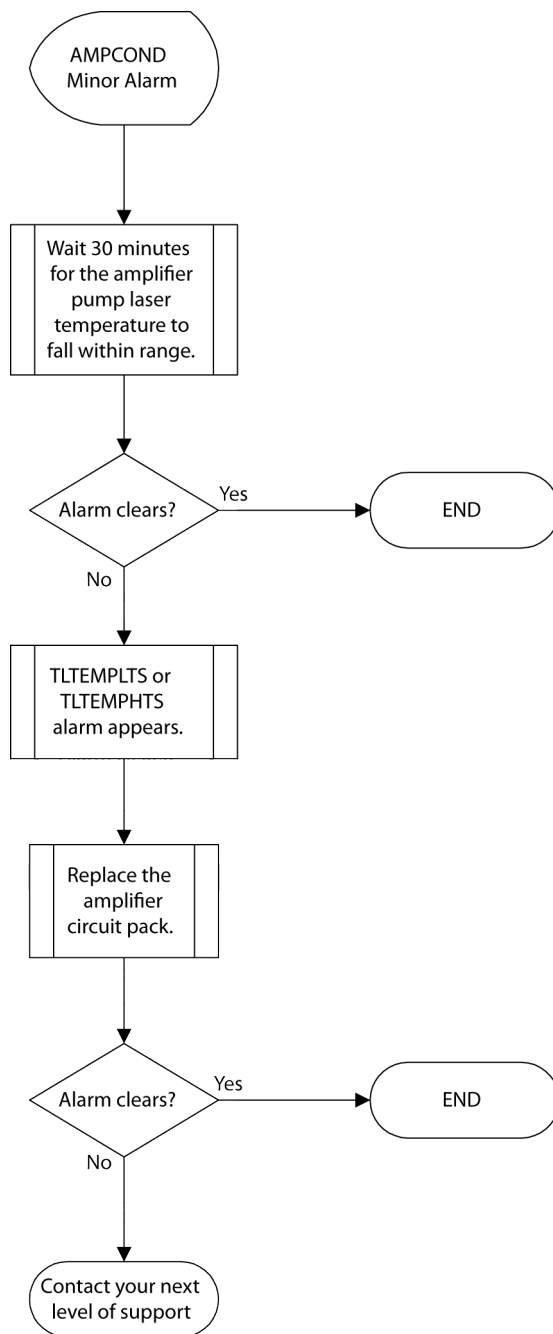


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-2 Clearing a AMPCOND alarm

2.2.4.1 Clearing an AMPCOND amplifier conditioning alarm

Use this procedure to clear an AMPCOND amplifier conditioning alarm.

Step 1 Wait 30 minutes.

Wait 30 minutes for the alarm to clear.

- If the alarm clears, the amplifier has warmed up and is now functioning correctly.
- If the alarm does not clear, go to the next step.

Step 2 TLTEMPLTS alarm appears.

If a TLTEMPLTS alarm appears, replace the affected optical amplifier circuit pack with another optical amplifier module having the same product equipment code (PEC). See [3.7, “Replace Optical Amplifier modules”](#) for information.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.5 BDI (Backward Defect Indication)

Problem Description

This alarm applies to ROB, DLA, and TPR modules.

For ROB and DLA modules, the far-end NE has signaled the local NE that a downstream APSD condition is active and as a result, no WDM composite signal is being transmitted to the local NE.

For TPR modules, the far-end NE has signaled the local NE that a signal fail status was detected by the far-end NE in its upstream direction.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

LED behavior DLA or ROB modules

The Fault LED on the Line port of the downstream module is ON.

Impact

Not reported—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

TPR-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.5.1 Clearing a BDI backward defect indication alarm

Use this procedure to clear a BDI alarm for ROB and DLA modules.

Step 1 Check for and resolve all “LOLIGHT-RX” alarms on downstream Line ports on the DLA or ROB modules.

Step 2 Check for and resolve the following:

- A downstream NE within the same equalization section as the local NE has detected a WDM composite signal “LOLIGHT-RX” alarm and an OSC “LOLIGHT-RX” alarm on its line port, and has initiated an APSD. The detected “LOLIGHT-RX” alarms are in the direction of the local NE that raised the BDI fault.

Step 3 Check for a possible fiber break in the downstream Line fiber span.

A break in the input fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

Step 4 Check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.6 BWMISM (Bandwidth Mismatch)

Problem Description

This alarm indicates that more bandwidth is being received through the cross-connection than is expected.

LED behavior for BTI 7060/BTI 7200

Not applicable

LED behavior for transceiver port LEDs

Not applicable

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1, 3, 5)-(C1-C10)

2.2.6.1 Clearing a BWMISM bandwidth mismatch alarm

The provisioning of the port and/or the cross-connection must be corrected. To provision Muxponder parameters, see the *Muxponder Solutions Guide*.

2.2.7 CHNDFC (Channel Count Deficiency)**Problem Description**

The number of channels received on the alarmed port is below the minimum required based on the measured span loss of the receive fiber.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for ROB modules

The Fault LED on the Line port is ON.

Impact

Major alarm—service might be affected.

Guidelines

For the ROB2 and the 40-channel ROB4 modules:

- For a span loss from 30 dB to 33 dB, the minimum number of channels is 2.
- For a span loss from 33 dB to 34 dB, the minimum number of channels is 3.
- For a span loss from 34 dB to 35 dB, the minimum number of channels is 4.

The maximum span loss for the ROB2 or the 40-channel ROB4 modules is 35 dB, after which the port is declared out of specification.

For the 96-channel ROB4 modules:

- For a span loss from 26 dB to 29 dB, the minimum number of channels is 2.
- For a span loss from 29 dB to 31 dB, the minimum number of channels is 4.

The maximum span loss for the 96-channel ROB4 module is 31 dB, after which the port is declared out of specification.

Note The span loss values at which this alarm is raised and cleared may not exactly match the values above because of hysteresis.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.7.1 Clearing a CHNDFC channel count deficiency alarm

Use this procedure to clear a CHNDFC alarm.

Step 1 Check the PM Span Loss value for the Line port on the alarmed module. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

Step 2 Check the number of channels provisioned at each end of the span. Perform the following steps at each end of the span. The number of channels counted for this fault is the number of received channels actually present on the receive fiber, and not the number of locally provisioned channels.

a) In the proNX 900, click the **Optical Layer** icon.

b) In the hierarchy window, right-click on the Group, and choose **Provision Cross Connects**.

The **Optical Cross Connects** window is displayed.

c) Using the **Optical Cross Connects** windows, compare the optical cross connects at both ends of the span to determine if there are inconsistencies with the number of provisioned cross connects, or with the channels that have been provisioned. Resolve any problems that you find.

Step 3 Check for and resolve all upstream alarms on Client In ports.

Step 4 Check for and resolve all other channel-related alarms on this span.

Step 5 Check for and resolve the following possible problems:

- The span loss of the Line port receive fiber has reached the specification maximum. A minimum number of lit channels must be present on the receive fiber to ensure that stable optical control can be maintained.
- The minimum channel count requirement is enforced for a span loss that exceeds 30dB.
 - For a span loss between 30-33dB, the minimum number of channels is 2.
 - For a span loss between 33-34dB, the minimum number of channels is 3.
 - For a span loss between 34-35dB, the minimum number of channels is 4.
- Beyond 35dB, the Channel Count Deficiency alarm no longer applies as the LOSPEC-RX (Received Loss Out of Specification) alarm takes precedence at that span loss level.

Consult your network engineering group to determine the minimum channel count required for the span loss.

2.2.8 CNXMEA (Connection Mismatch)

Problem Description

There is a mismatch between the client port on a ROADM-on-a-blade (ROB) module and the Reconfigurable Add/Drop node to which it is assigned. This fault occurs on Client port 2 (C2) of a 2D ROAM-on-a-blade (ROB2) module, or Client ports 2 to 4 (C2 to C4) of a 4D ROAM-on-a-blade (ROB4) module.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for ROB module

The Fault LED on the Client port is ON.

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(C2 on ROB2; C2 to C4 on ROB4)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.8.1 Clearing a CNXMEA connection mismatch alarm

Use this procedure to clear a CNXMEA alarm on an optical port, by determining the expected module and fiber connections, using the proNX 900 Node Controller to view the fiber patchcords.

Step 1 In the toolbar, click the **Optical Layer** icon.

Step 2 In the Navigation pane, fully expand **Optical Groups**. Right-click the particular port and choose **Edit Port**.

Step 3 From the **Provision Port** dialog, choose the **Port** tab.

View the expected port and connection details, to determine how the fibers must be connected.

Step 4 Physically, re-fiber the connections to match the expected module and fiber connections.

- If the alarm clears, you completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.9 CNXVLDTMOUT (Connection Validation Timeout)

Problem Description

The port is unable to receive or decode a connection validation message on the client input port within the system-determined timeout interval. This fault occurs only on client port 2 (C2) of a 2D ROADM-on-a-blade (ROB2) module or client ports 2 to 4 (C2 to C4) of a 4D ROADM-on-a-blade (ROB4) module. .

Following are possible causes:

- A fiber connection error to a dynamic optical layer group, DCM/line port, Mux/Demux port
- The communication within the backplane is down

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for ROB module

The Fault LED on the Client port is ON.

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(C2 on ROB2; C2 to C4 on ROB4)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
-------------	--

Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.9.1 Clearing a CNXVLDTMOUT connection validation timeout alarm

Use this procedure to clear a CNXVLDTMOUT alarm on an optical port.

Before you proceed with these clearing procedures, we recommend that you first rule out other communication failures, and other fiber errors to line or DCM ports.

- Step 1** Check if the alarm is caused by an incorrect fiber connection, using the proNX 900 Node Controller.
- Step 2** In the toolbar, click the **Optical Layer** icon.
- Step 3** In the Navigation pane, fully expand **Optical Groups**. Right-click the particular port and choose **Edit Port**.
- Step 4** From the **Provision Port** dialog, choose the **Port** tab.
View the expected port and connection details, to determine how the fibers must be connected.
- Step 5** Physically, re-fiber the connections to match the expected module and fiber connections.
- If the alarm clears, you completed this procedure. Otherwise, go to the next step to clear a backplane communication problem.
 - If the alarm does not clear, proceed to the next step, to clear a backplane communication problem.

Step 6 Clear the backplane communication problem. Refer to the topic "Clearing a DSP communications failure alarm," in this guide.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.10 CONNMEA (Connector Mismatch)

Problem Description

A connector mismatch alarm occurs on a circuit pack that is provisioned with a connector type that is different to the one actually inserted.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior of amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	OFF	OFF

Impact

Minor alarm—service is not affected.

Affected AIDs

OBA-(1,11,21,31)-(1-20)

OLA-(1,11,21,31)-(1-20)

OLAM-(1,11,21,31)-(1-20)

OPA-(1,11,21,31)-(1-20)

SBA-(1,11,21,31)-(1-20)

SPA-(1,11,21,31)-(1-20)

SMF20-(1,11,21,31)-(1-20)

SMF40-(1,11,21,31)-(1-20)

SMF60-(1,11,21,31)-(1-20)

SMF80-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.10.1 Clearing a CONNMEA connector mismatch alarm

Use this procedure to clear a CONNMEA connector mismatch alarm.

Step 1 Determine what circuit pack and version is listed in the system inventory.

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>;;
```

Example output for one slot

```
"SLOT-1-2,EQPT:NAME=OLAM-FC,PEC=BP1A04BA-FC,CLEI=UNKNOWN,
FNAME=Optical Line Amplifier-Midstage-FC,SER=00112233445566,
HWREV=1,MFGDAT=2002-10-16,MFGLOCN=Thurston,
TSTDAT=2002-10-16,TSTLOCN=Thurston,"
```

Step 2 Determine what circuit pack and version is provisioned in the slot

Verify the product equipment code (PEC) and version of the circuit pack that is provisioned in the slot of the BTI 7000 Series by entering the following at the TL1 command line interface:

```
RTRV-EQPT:[TID]::<CTAG>;;
```

Example:

```
BP1A04BA-FC
```

Step 3 Determine whether the provisioned parameters or the circuit pack is correct.

Check the office records or engineering specifications to determine whether the provisioned parameters in the BTI 7000 Series or the physical circuit pack in the slot is correct:

- If the provisioned parameters in the BTI 7000 Series are correct, obtain a correct circuit pack and go to Step 4.
- If the physical circuit pack is correct, go to Step 5 to change the provisioned parameters.

Step 4 Replace the circuit pack

Obtain a replacement circuit pack. Go to the applicable circuit pack replacement procedure in this document (listed below) and insert the new circuit pack.

[3.7, “Replace Optical Amplifier modules”](#)

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 5 Change the provisioned parameters

Go to the applicable provisioning procedure in the *Solutions Guide* for the module, provision the circuit pack, and then return to this procedure:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

As seen in the example output, slot-1-2 is provisioned for a BP1A04BA-FC circuit pack.

2.2.11 CONTCOM (Control Communications Failure with Circuit Pack)

Important There are two CONTCOM alarm clearing procedures. This procedure is for clearing control communications between the SCP and a circuit pack. The procedure after this one is for clearing control communications between a transponder and an SFP transceiver inserted in the circuit pack.

Problem Description

This alarm indicates that backplane communication between the system control processor (SCP) and the circuit pack is interrupted. Normal operations to the circuit pack, like provisioning and performance monitoring, are affected while this alarm is active.

If an amplifier or transponder has been provisioned already, it continues to operate normally.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior of amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	ON	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

CCM-(1,11,21,31)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

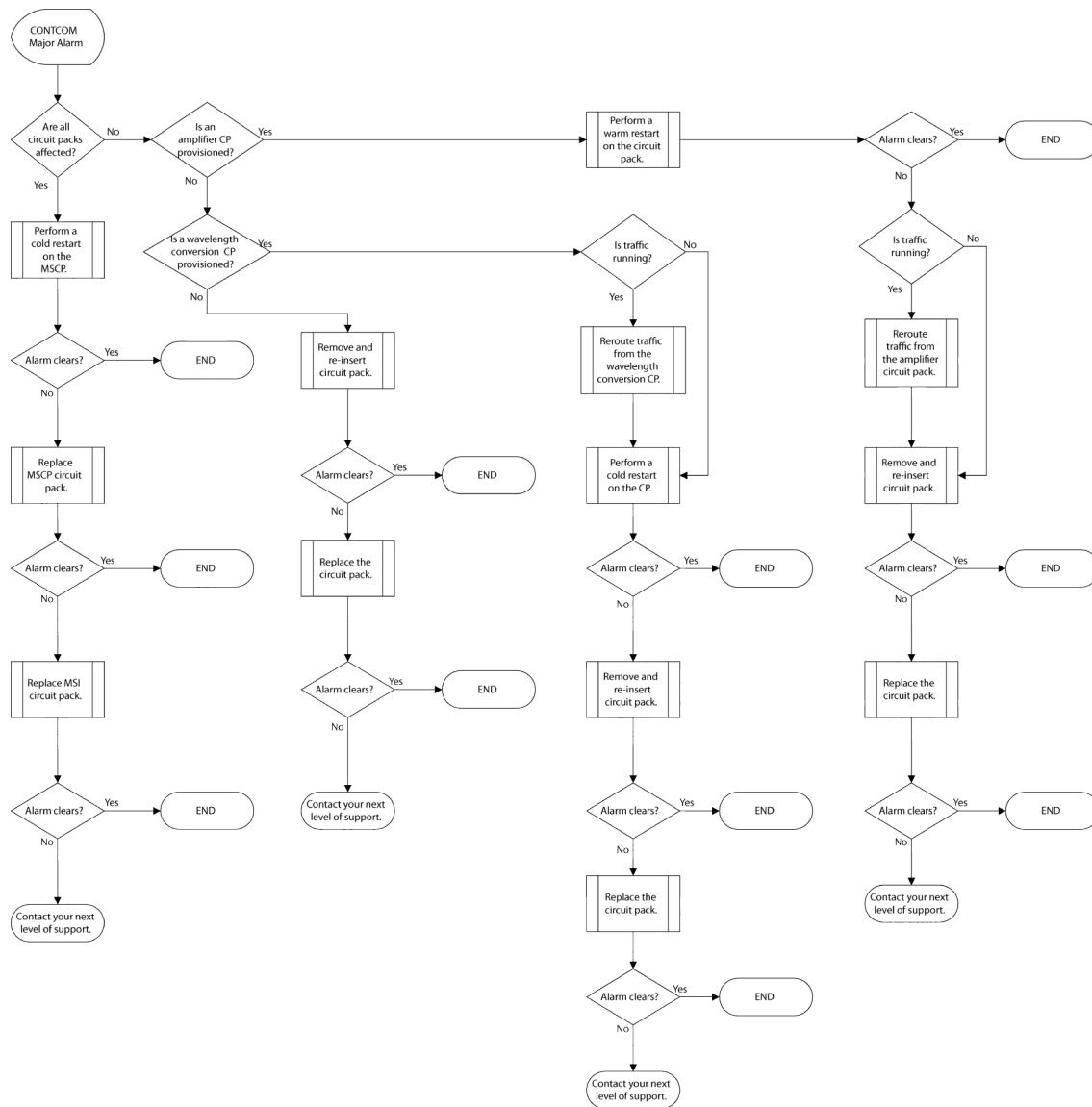


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-3 Clearing a CONTCOM alarm

2.2.11.1 Clearing a CONTCOM control communications failure alarm

Use this procedure to clear a CONTCOM control communications failure alarm.

Note To clear this alarm, if you need to re-seat a Dual 10G Transponder module (BT7A49AA) that is part of a client protection (y-cable) configuration, refer to the section "Replacing Transponder modules," in this guide for alarm clearing procedures.

Step 1 Determine what components are involved

Depending on what BTI 7000 Series components are involved, there are alternate routes to clearing the alarm:

- If all circuit packs are affected by the alarm, go to Step 11.
- If only one circuit pack is affected by the alarm, go to the next step.

Step 2 Determine what is provisioned in the affected circuit pack slot

To determine if an amplifier or a transponder is provisioned in the affected circuit pack slot, enter the following entries at the TL1 command line interface:

```
RTRV-EQPT:BTI7000::100::;
```

Example Output For Amplifiers

```
BTI7000 04-02-19 10:43:56
M 100 COMPLD
"MS-1:BT7A53BA:SHCONF=6-SLOT:IS-NR,"
"SCP-1-5:BT7A20CA::IS-NR,"
"OLAM-1-1:BP1A04BA::OOS-AU,MEA"
"OPA-1-2:BP1A01DA::OOS-AU,MEA"
"OLAM-1-3:BP1A04BA::OOS-AU,MEA"
"OLAM-1-4:BP1A04BA::OOS-AU,MEA"
"OLAM-1-6:BP1A04BA::OOS-AU,SWDL"
;
```

Action

- If an amplifier circuit pack is provisioned in the affected slot, go to the next step.
- If a transponder circuit pack is provisioned in the affected slot, go to step 7.
- If an amplifier or transponder circuit pack is not provisioned in the affected slot, go to step 5.

Step 3 Perform a warm restart on the amplifier circuit pack

To perform a warm restart on the optical amplifier circuit pack, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

Example

```
INIT-SYS:BTI7000:OLAM-1-3:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Determine if traffic is running through the amplifier circuit pack.

- If traffic is running, first reroute the traffic and then go to the next step.
- If traffic is not running, go to the next step.

Step 5 Remove and re-insert the circuit pack

- If the circuit pack boots and the alarm clears, you have successfully completed this procedure.
- If the circuit pack boots and the alarm does not clear, go to the next step.

Step 6 Replace the circuit pack

- If the circuit pack is replaced and the alarm clears, you have successfully completed this procedure.
- If the circuit is replaced and the alarm does not clear, contact your next level of support.

Step 7 Determine if traffic is running through the transponder circuit pack

- If traffic is running, first reroute the traffic and then go to the next step.
- If traffic is not running, go to the next step.

Step 8 Perform a cold restart on the transponder circuit pack

To perform a cold restart on the transponder circuit pack, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```

Example

```
INIT-SYS:BTI7000:WR-1-3:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 9 Remove and re-insert the transponder circuit pack

- If the circuit pack boots and the alarm clears, you have successfully completed this procedure.
- If the circuit pack boots and the alarm does not clear, go to the next step.

Step 10 Replace the circuit pack

- If the circuit pack is replaced and the alarm clears, you have successfully completed this procedure.
- If the circuit is replaced and the alarm does not clear, contact your next level of support.

Step 11 Perform a cold restart on the SCP

To perform a cold restart on the SCP, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```


Example

```
INIT-SYS:BTI7000:SCP-1-5:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 12 Replace the SCP circuit pack

Note: Before replacing an SCP circuit pack, record the IP addresses used by the system. For details on retrieving the SCP IP addresses, see the RTRV-IP command in the TL1 Reference Guide.

Obtain a replacement SCP circuit pack. Go to the SCP circuit pack replacement procedure in this document and insert the new SCP circuit pack:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 13 Replace the MSI circuit pack

Go to the MSI circuit pack replacement procedure in this document and replace the MSI circuit pack.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.12 CONTCOM (Control Communications Failure with SFP or XFP)

Important There are two CONTCOM alarm clearing procedures. This procedure is for clearing control communications between a circuit pack and an SFP or XFP transceiver inserted in the circuit pack. The procedure before this one is for clearing control communications between the SCP and a circuit pack.

Problem Description

This alarm indicates that communication between a circuit pack and an inserted small form factor pluggable (SFP) or a 10-Gigabit small form factor pluggable (XFP) transceiver is interrupted.

If the circuit pack has been provisioned already, it continues to operate normally.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for SCP and ESI circuit packs

Location	Circuit Pack LEDs	
	Fail	Active
SCP and ESI	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
Transceiver	OFF	ON

Impact

Major alarm—service is not affected.

Affected AIDs

ESFP-1-5-(1-3)

ESFP-(11,21,31)-1

SFP-(1,11,21,31)-(1-20)

XFP-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

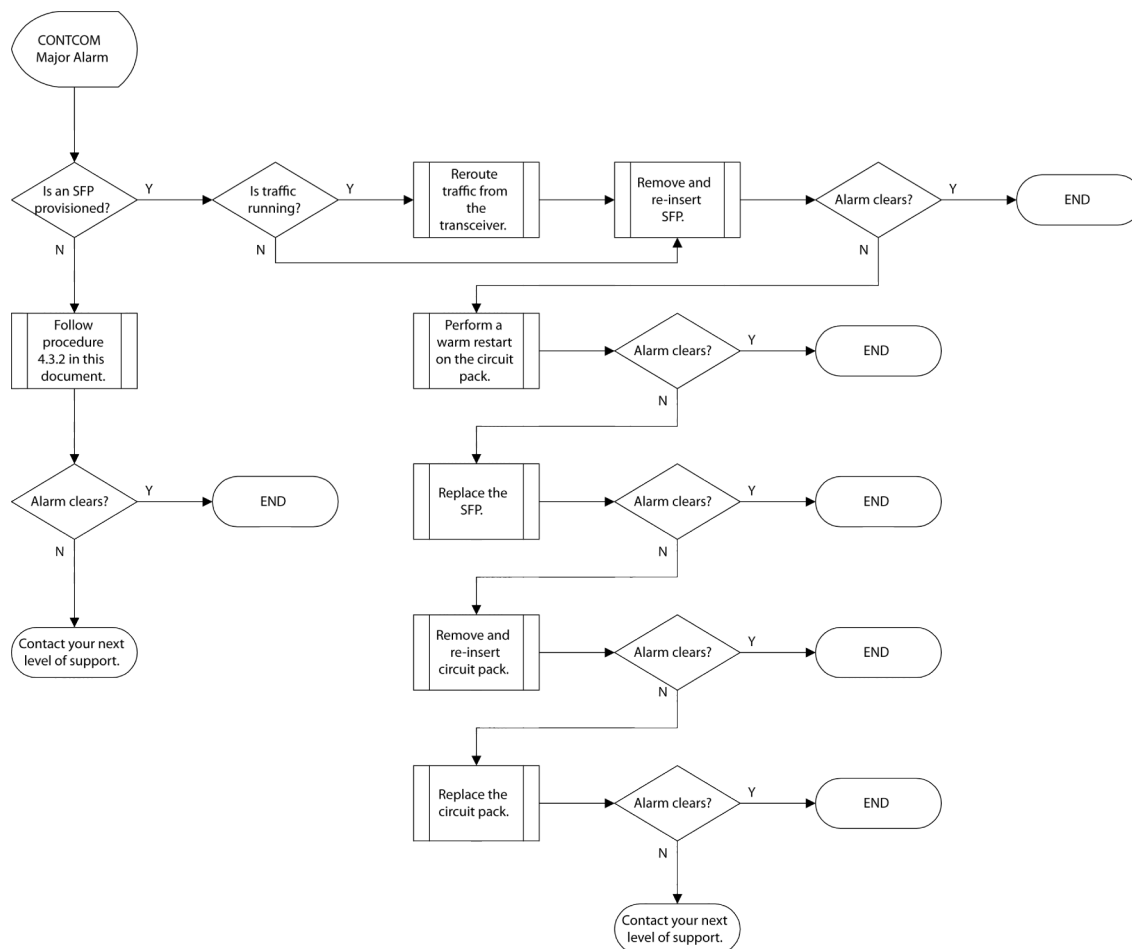


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-4 Clearing a CONTCOM alarm for an SFP or XFP transceiver

Important When a CONTCOM alarm is raised against an SFP or XFP transceiver, the CONTCOM alarm can mask other SFP or XFP alarms. Once the CONTCOM alarm is cleared, the other alarms appear, if present.

2.2.12.1 Clearing a CONTCOM control communications failure alarm for an SFP or XFP transceiver

Use this procedure to clear a CONTCOM control communications failure alarm for an SFP or XFP transceiver.

Step 1 Determine if SFP or XFP transceiver is provisioned in the affected circuit pack slot

To determine if an SFP or XFP transceiver is provisioned in the affected circuit pack slot, enter the following syntax at the TL1 command line interface:

```
RTRV-XCVR:[TID]:[<aid>]:<CTAG>;
```

Example

```
BTI7000 05-02-03 14:29:58
M 100 COMPLD
  "WM-1-2-1:GRID=20,PROTOCOL=OC3,WAVELENGTH=850,TCAMON=OFF,
FPSD=OFF,OPT-LT=-1.9,OPT-HT=3.0,OPR-LT=-30.9,OPR-HT=-5.0:
OOS-AU,MEA&FLT"
  "WM-1-2-2:GRID=20,PROTOCOL=OC3,WAVELENGTH=1550,TCAMON=OFF,
FPSD=OFF,OPT-LT=-1.9,OPT-HT=3.0,OPR-LT=-30.9,OPR-HT=-5.0:
OOS-AU,FLT"
;
```

Action

- If an SFP transceiver is provisioned in the affected slot, go to the next step.
- If an XFP transceiver is provisioned in the affected slot, go to step 3.

Step 2 Determine if traffic is running

- If traffic is running, first reroute the traffic and then go to step 4.
- If traffic is not running, go to step 4.

Step 3 Follow the XFP replacement procedure

See [3.12, “Replacing optical transceivers”](#) for information about replacing the XFP transceiver.

Step 4 Remove and re-insert SFP or XFP transceiver

- If the SFP or XFP transceiver initializes and the alarm clears, you have successfully completed this procedure.
- If the SFP or XFP transceiver initializes and the alarm does not clear, go to the next step.

Step 5 Perform a warm restart on the circuit pack

Perform a warm restart on the circuit pack by entering the following syntax at the command line interface:

```
INIT-SYS:[TID]:<aid>:<CTAG>::0;
```

where

```
<aid>      is the selected circuit pack in the form:      WR-<shelf#>-
<slot#> or  WM-<shelf#>-<slot#>
<ph>      is the phase and 0 is for a warm restart
```

Action

- If the circuit pack restarts and the alarm clears, you have successfully completed this procedure.
- If the circuit pack restarts and the alarm does not clear, go to the next step.

Step 6 Replace the SFP transceiver

- If the replacement SFP transceiver initializes and the alarm clears, you have successfully completed this procedure.
- If the replacement SFP transceiver initializes and the alarm does not clear, go to the next step.

Step 7 Remove and re-insert the affected circuit pack

- If the circuit pack boots and the alarm clears, you have successfully completed this procedure.
- If the circuit pack boots and the alarm does not clear, go to the next step.

Step 8 Replace the circuit pack

- If the circuit pack is replaced and the alarm clears, you have successfully completed this procedure.
- If the circuit is replaced and the alarm does not clear, contact your next level of support.

2.2.13 CONTCOM-E (Control Communications Failure, Equalization Section)

Problem Description

This alarm indicates that bi-directional control communications to the NE at the far end of the equalization section have failed.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

Module LED behavior

None.

Impact

Not reported—service is not affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.13.1 Clearing a CONTCOM-E control communications failure, equalization section alarm

Use this procedure to clear a CONTCOM-E alarm.

- Step 1** Check for OSC alarms on the NE(s) between the local (monitored) NE and the far-end equalizing NE. If there are existing OSC alarms, clear them before continuing at the next step.
- Step 2** Check the far-end NE for software upgrade alarms or module resets. Resolve any problems on the far-end NE.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.14 CONTCOM-S (Control Communications Failure, Span Section)

Problem Description

This alarm indicates that bi-directional control communications with the far-end NE on the span section have failed. This fault is not monitored when the OSC is administratively disabled.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for ROB and DLA modules

The Fault LED on the Line Input port is ON

Impact

Major alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.
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Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.14.1 Clearing a CONTCOM-S control communications failure, span section alarm

Use this procedure to clear a CONTCOM-S alarm.

- Step 1** Check for OSC alarms on the far-end NE. If there are existing OSC alarms, clear them before continuing at the next step.
- Step 2** Check the far-end NE for software upgrade alarms or module resets. Resolve any problems on the far-end NE.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.15 CUFEEDFAIL (Cooling Unit Feed Failure) — BTI 7030 only

Problem Description

A cooling unit feed failure has occurred on a BTI 7030 shelf.

There are two cooling unit power feeds from the SCP to the cooling unit. If one power feed fails, a minor alarm is raised. If both power feed fails, a major alarm is raised.

Replace the SCP circuit pack.

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

Impact

Major or minor alarm—service is not affected.

Affected AIDs

SCP-1-3



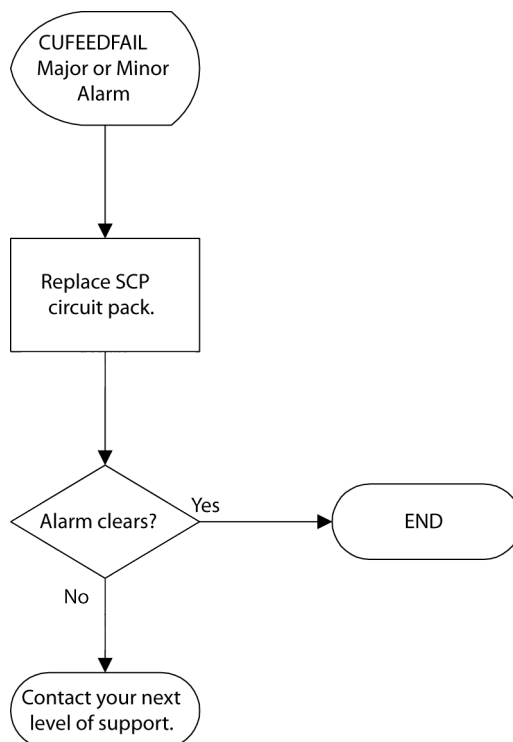
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-5 Clearing a CUFEEDFAIL alarm



2.2.15.1 Clearing a CUFEEDFAIL alarm

Use this procedure to clear a CUFEEDFAIL alarm.

Step 1 Replace SCP circuit pack

Obtain a replacement BTI 7030 SCP circuit pack. Go to the SCP circuit pack replacement procedure (3.2.2, “[Install the BTI 7030 Cooling Unit module](#)”) and insert the new circuit pack.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.16 DBRECVRYFAIL (Database Recovery Failure)

Problem Description

There is a database recovery failure. If a new SCP circuit pack fails to acquire the database from the system, the DBRECVRYFAIL alarm can be triggered after replacing the SCP.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Location	Circuit Pack LEDs	
	Fail	Active
SCP	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major alarm—service is not affected.

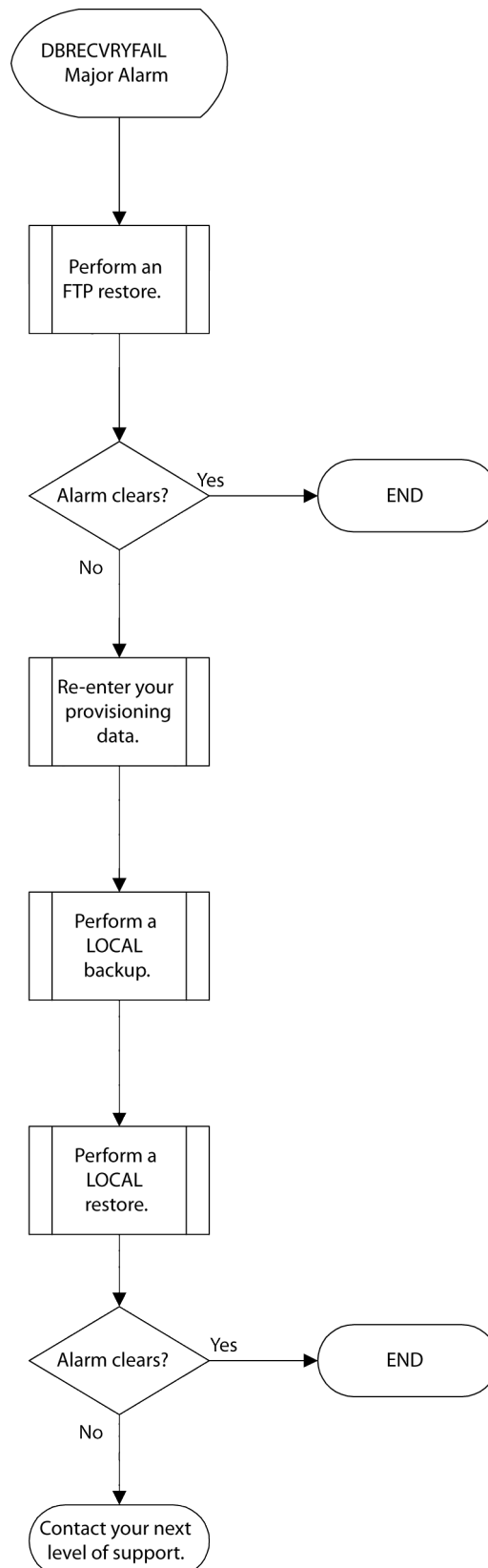
Affected AIDs

SCP-1-5

SCP-1-3

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-6 Clearing a DBRECVRYFAIL alarm

2.2.16.1 Clearing a DBRECVRYFAIL database recovery failure alarm

Use this procedure to clear a DBRECVRYFAIL alarm.

Step 1 Perform a FTP restore of the desired database

Go to the *Operations Solutions Guide* and perform the restore procedure using the type as FTP:

- If the FTP restore procedure clears the DBRECVRYFAIL alarm, you have successfully completed this procedure.
- If the FTP restore procedure does not clear the DBRECVRYFAIL alarm, go to the next step.

Step 2 Re-enter your data, perform a LOCAL backup, and perform a LOCAL restore

Go to the *Operations Solutions Guide* and perform the following procedures in sequence:

a) Re-enter your provisioning data.

b) Perform a LOCAL backup.

c) Perform a LOCAL restore.

- If the LOCAL restore procedure clears the DBRECVRYFAIL alarm, you have successfully completed this procedure.
- If the LOCAL restore procedure does not clear the DBRECVRYFAIL alarm, contact your next level of support.

2.2.17 DBRSTPROG (Database Restore in Progress)

Problem Description

There is a database restore in progress in the BTI 7000 Series.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Location	Circuit Pack LEDs	
	Fail	Active
SCP	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major alarm—service is not affected.

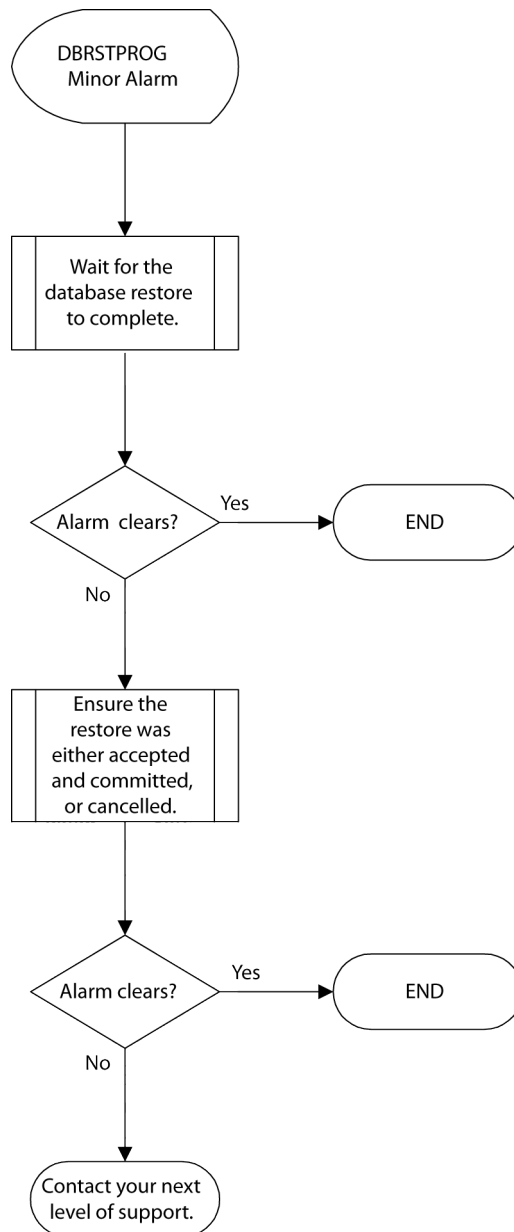
Affected AIDs

SCP-1-5

SCP-1-3

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-7 Clearing a DBRSTPROG alarm

2.2.17.1 Clearing a DBRSTPROG database restore is in progress alarm

Use this procedure to clear a DBRSTPROG alarm.

Step 1 User access restricted

The DBRSTPROG alarm indicates that a database restore is in progress. During this process, the system is restricted to read access only. Once the database restore actually starts, system access is not available.

- If the alarm clears after completing the database restore, no further action is required.

- If the alarm does not clear after completing the database restore, contact your next level of support.

Note Ensure that the ACPT-DB-RST and CMMT-DB-RST commands have been issued, or that the CANC-DB-RST command has been issued.

2.2.18 DISKUSAGEHI (Disk Usage High)

Problem Description

The disk usage on the circuit pack has exceeded the high threshold.

LED behavior

Table 2-7 LED behavior of BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Table 2-8 LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Major alarm—service is not affected.

This alarm is supported on the following modules:

- SCP (all)
- PVX modules (all)
- ROADM-on-a-Blade (ROB) modules (all)
- Dual 10G Multiprotocol Transponder (BT7A49AA, BT7A49AA-I02)
- 10-Port Multiprotocol Muxponder (BT7A48AA/BA, BT7A48AA-I02/BA-I02)

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.18.1 Clearing a DISKUSAGEHI Disk Usage High alarm

Step 1 This alarm should not occur under normal operation. If this alarm is raised, contact your next level of support.

2.2.19 DSPCOMMFAIL (DSP Communications Failure)

Problem Description

This alarm indicates that communication has failed between the DSP and the processor handling backplane communications on an optical amplifier circuit pack.

Normal operations to the circuit pack, like provisioning and performance monitoring, is affected when this alarm is active.

If an amplifier is provisioned already, it continues to operate and amplify normally.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amp	ON	OFF	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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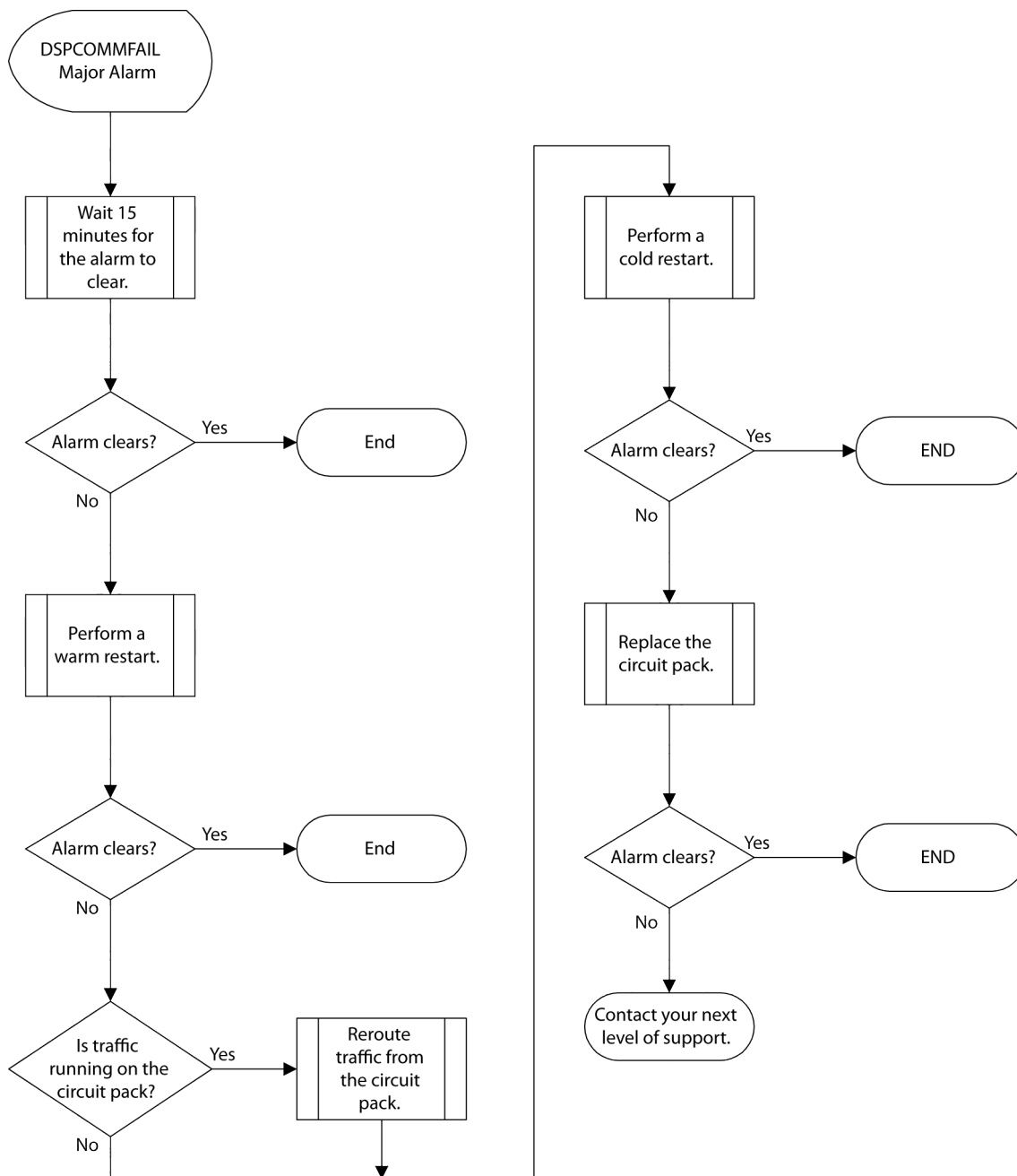


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-8 Clearing a DSPCOMMFAIL alarm**2.2.19.1 Clearing a DSP communications failure alarm**

Use this procedure to clear a DSP communications failure alarm.

Step 1 Wait 15 minutes for the alarm to clear

Normally, the alarm should clear itself in fifteen minutes:

- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, go to the next step.

Step 2 Perform a warm restart

To perform a warm restart, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

where

aid is the selected circuit pack in the form:

```
OBA-(1,11,21,31)-(1-20)  OLA-(1,11,21,31)-(1-20)  OLAM-(1,11,21,
31)-(1-20)  OPA-(1,11,21,31)-(1-20)  SBA-(1,11,21,31)-(1-20)  SPA-
(1,11,21,31)-(1-20)
LGA-(1,11,21,31)-(1-20)  MGA-(1,11,21,31)-(1-20)  MGM-(1,11,21,31)-(1-20)
```

Example

```
INIT-SYS:BTI7000:OLAM-1-3:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Determine if traffic is running on the circuit pack

- If traffic is running on the circuit pack, first reroute the traffic and then go to the next step.
- If traffic is not running on the circuit pack, go to the next step.

Step 4 Perform a cold restart

Note	To perform a cold restart on a circuit pack, the circuit pack must first be placed out-of-service (OOS).
-------------	--

To perform a cold restart, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```

where

aid is the selected circuit pack in the form:

```
OBA-(1,11,21,31)-(1-20)  OLA-(1,11,21,31)-(1-20)  OLAM-(1,11,21,
31)-(1-20)  OPA-(1,11,21,31)-(1-20)  SBA-(1,11,21,31)-(1-20)  SPA-
(1,11,21,31)-(1-20)
LGA-(1,11,21,31)-(1-20)  MGA-(1,11,21,31)-(1-20)  MGM-(1,11,21,31)-(1-20)
```

Example

```
INIT-SYS:BTI7000:OLAM-1-3:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Replace the circuit pack

- If the circuit pack is replaced and the alarm clears, you have successfully completed this procedure.
- If the circuit is replaced and the alarm does not clear, contact your next level of support.

2.2.20 EXPSHCOMDEVUNS or EXPSHCOMDEVICEUNS (Expansion Shelf Communications Device Unsupported)

Problem Description

This alarm indicates that an unknown device is connected to the expansion shelf port of the system control processor (SCP) on the BTI 7000 Series main shelf.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for SFP port on the SCP

Location	SFP LEDs	
	Fail	LOS
SCP	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

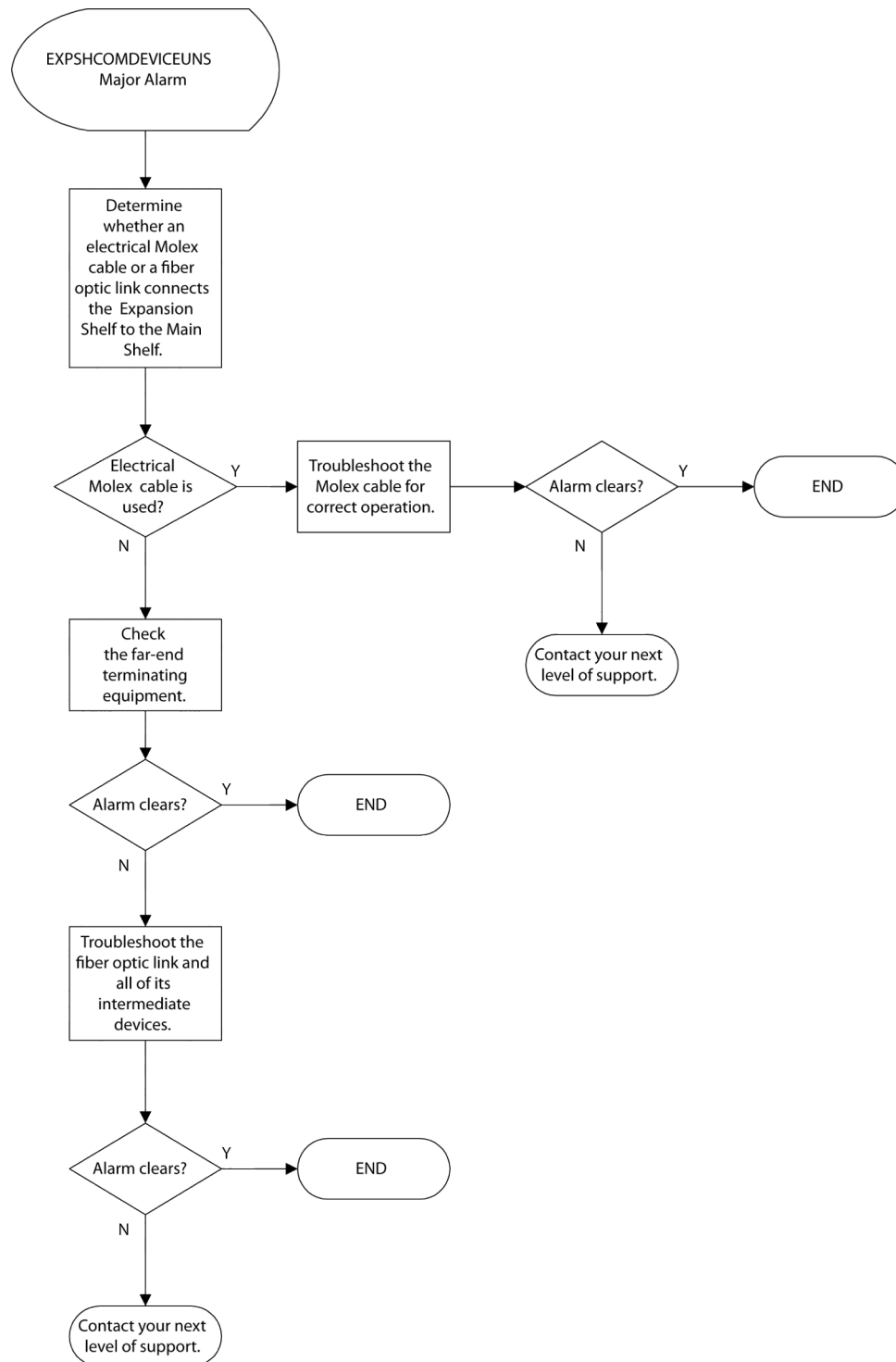
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
-------------	--

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. The flow chart to understand the context of the alarm. Use the following procedure to clear the alarm.

Figure 2-9 Clearing a EXPSHCOMDEVUNS or EXPSHCOMDEVICEUNS alarm

2.2.20.1 Clearing an EXPSHCOMDEVUNS or EXPSHCOMDEVICEUNS expansion shelf communications device failure alarm

Use this procedure to clear an EXPSHCOMDEVUNS or EXPSHCOMDEVICEUNS expansion shelf communications device failure alarm.

Step 1 Determine the interface cable type connected to the expansion shelf port

Check the expansion shelf port on the SCP to determine whether a Molex connector and cable assembly, or a fiber optic link is used to connect to the expansion shelf:

- If a Molex connector and cable assembly is used, go to step 2.
- If a fiber optic cable is used, go to step 3.

Step 2 Troubleshoot the Molex connector and cable assembly

Use a continuity tester to ensure that there are no breaks in the Molex connector and cable assembly:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Check the far-end terminating equipment

With the assistance of someone at the far-end terminating equipment, ensure that the correct protocol and wavelength is deployed. That is, the fiber optic link connecting the BTI 7000 Series expansion shelf to the BTI 7000 Series main shelf must use the 100FX protocol.

If any modifications are required, make the necessary changes and then check the status of the alarm:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, proceed to the next step.

Step 4 Troubleshoot the fiber optic link and all of its intermediate devices

Check the fiber optic cable and all of the intermediate devices along the link for breaks or faults.

If any modifications are required, make the necessary changes and then check the status of the alarm:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.21 EXPSHCOMLNKDWN (Expansion Shelf Communications Link Down)

Problem Description

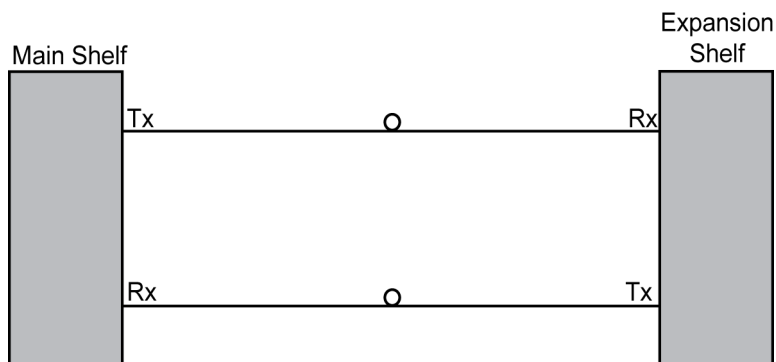
This alarm indicates that a connected expansion shelf has a communications failure between the system control processor (SCP) and the expansion shelf interface (ESI) circuit packs.

Note This alarm is masked when the EXPSHCOMLOS alarm is present.

In the case where the expansion shelf is co-located with the main shelf, an electrical Molex connector and cable assembly can connect the main shelf and the expansion shelf together. If a fault occurs to the Molex connector and cable assembly, then both an EXPSHCOMLNKDWN alarm and a LOS alarm occurs.

The following illustration shows the fiber optic links that are present between a BTI 7000 Series main shelf and a remote expansion shelf.

Figure 2-10 Fiber optic links between the BTI 7000 Series main shelf and a remote expansion shelf



If a fault occurs between the main shelf SFP transmitter and the remote expansion shelf SFP receiver, an EXPSHCOMLNKDWN alarm occurs.

If a fault occurs between the remote expansion shelf SFP transmitter and the main shelf SFP receiver, then both an EXPSHCOMLNKDWN alarm and a LOS alarm occurs.

If two faults occur, one between the main shelf SFP transmitter and the remote expansion shelf SFP receiver, as well as one between the remote expansion shelf SFP transmitter and the main shelf SFP receiver, then Molex connector and cable assembly.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main	To Expansion		
	Trouble	Active	Fail	LOS	Fail	LOS
ESI	ON	ON	OFF	ON	OFF	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



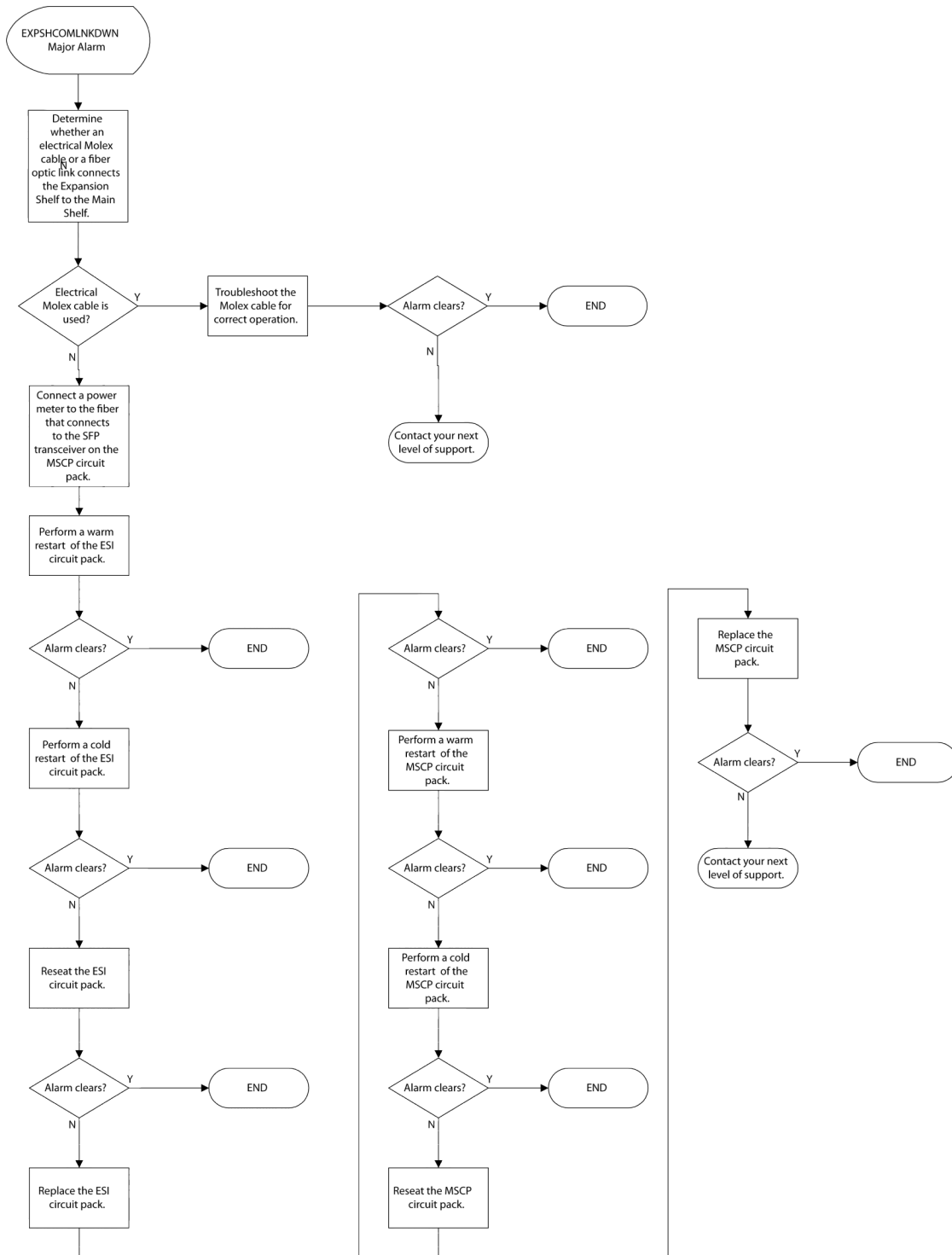
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-11 Clearing an EXPSHCOMLNKDWN alarm



2.2.21.1 Clearing an EXPSHCOMLNKDWN expansion shelf communications link down alarm

Use this procedure to clear an EXPSHCOMLNKDWN expansion shelf communications link down alarm.

Step 1 Determine the interface cable type connected to the expansion shelf port

Check the expansion shelf port on the SCP to determine whether a Molex connector and cable assembly, or a fiber optic link is used to connect to the expansion shelf:

- If a Molex connector and cable assembly is used, go to step 2.
- If a fiber optic cable is used, go to step 3.

Step 2 Troubleshoot the Molex connector and cable assembly

Use a continuity tester to ensure that there are no breaks in the Molex connector and cable assembly:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Perform a warm restart of the ESI circuit pack

To perform a warm restart of the ESI circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

Example

```
INIT-SYS:BTI7000:ESI-11:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Perform a cold restart of the ESI circuit pack

To perform a cold restart of the ESI circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```

Example

```
INIT-SYS:BTI7000:ESI-11:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Reseat the ESI circuit pack

Reseat the ESI circuit pack in the expansion shelf:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 6 Replace the ESI circuit pack

Go to section 3.1.4, “[Install the BTI 7060 Expansion Shelf Interface module](#)” of this document and follow the instructions on how to replace an ESI circuit pack. Once the ESI circuit pack has been replaced, return to here:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 7 Perform a warm restart of the SCP circuit pack

To perform a warm restart of the SCP circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

Example

```
INIT-SYS:BTI7000:SCP-1-5:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 8 Perform a cold restart of the SCP circuit pack

To perform a cold restart of the SCP circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```

Example

```
INIT-SYS:BTI7000:SCP-1-5:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 9 Reseat the SCP circuit pack

Reseat the SCP circuit pack in the BTI 7000 Series main shelf:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 10 Replace the SCP circuit pack

Go to section [3.1.5, “Install the System Control Processor module in a BTI 7060 ”](#) of this document and follow the instructions on how to replace an SCP circuit pack. Once the SCP circuit pack has been replaced, return to here:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.22 EXPSHCOMLOS (Expansion Shelf Communications Loss of Signal)

Problem Description

This alarm indicates that a connected expansion shelf has a loss of signal between the system control processor (SCP) and the expansion shelf interface (ESI) circuit packs. The most likely causes are a fiber cut or a fault with the Molex connector and cable assembly.

An EXPSHCOMLOS alarm always implies that there is an associated EXPSHCOMLKNDWN alarm. However, an EXPSHCOMLKNDWN alarm does not imply that there is an associated EXPSHCOMLOS alarm.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for SFP ports on the SCP

Location	SFP LEDs	
	Fail	LOS
SCP	OFF	ON

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main	To Expansion	Fail	LOS
	Trouble	Active	Fail	LOS		
ESI	ON	ON	OFF	ON	OFF	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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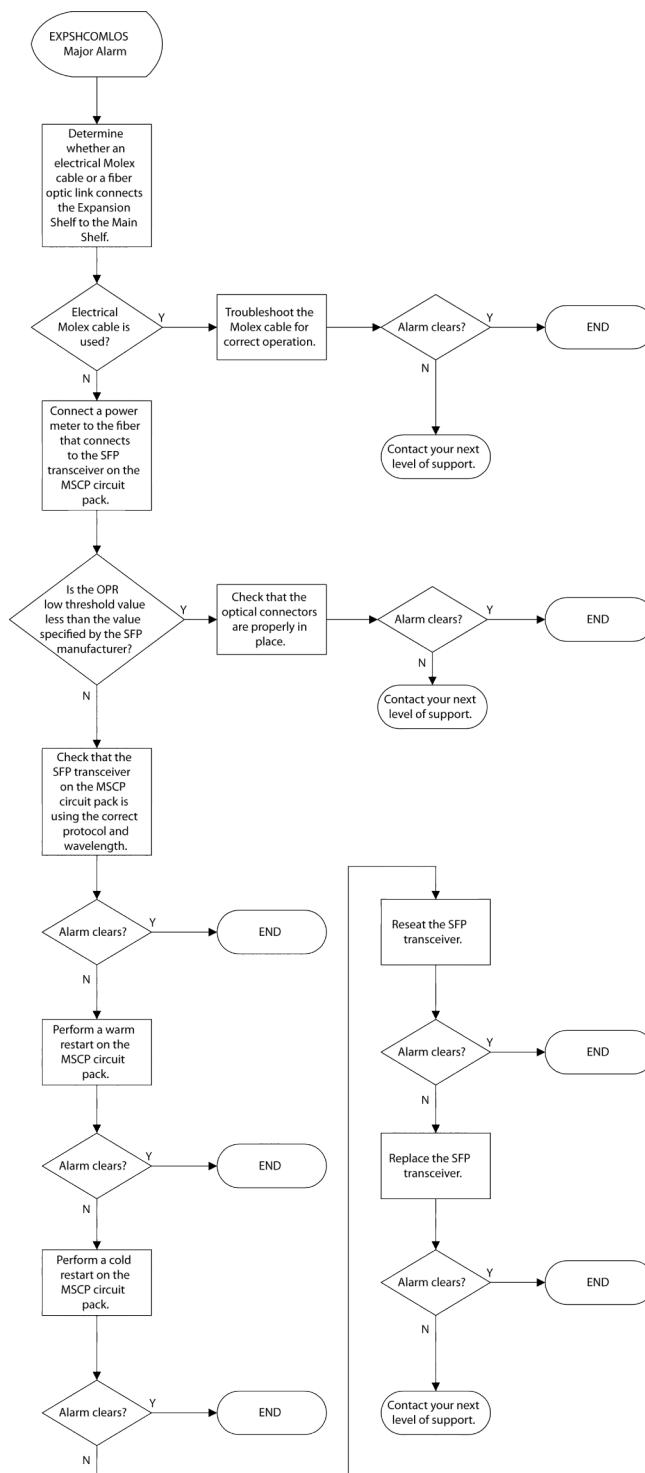
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-12 Clearing an EXPSHCOMLOS alarm



2.2.22.1 Clearing an EXPSHCOMLOS expansion shelf communications loss of signal alarm

Use this procedure to clear an EXPSHCOMLOS expansion shelf communications loss of signal alarm.

Step 1 Determine the interface cable type connected to the expansion shelf port

Check the expansion shelf port on the SCP to determine whether a Molex connector and cable assembly, or a fiber optic link is used to connect to the expansion shelf:

- If a Molex connector and cable assembly is used, go to step 2.
- If a fiber optic cable is used, go to step 3.

Step 2 Troubleshoot the Molex connector and cable assembly

Use a continuity tester to ensure that there are no breaks in the Molex connector and cable assembly:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Connect a power meter to the fiber that connects to the SFP transceiver

To measure the optical power received (OPR) value for the fiber that connects to the SFP transceiver on the SCP circuit pack, connect a power meter to the fiber.

Notes:

- a) The optical power received thresholds for the SFP transceiver are available in the Product Description.
- b) The EXPSHCOMLOS alarm can also occur when no coherent modulated signal is connected to the SFP transceiver on the SCP circuit pack.

Action

- If the OPR level is less than the specified value for the SFP transceiver (see Note 1 above), go to step 4.
- If the OPR level is greater than the specified value for the SFP transceiver (see Note 1 above), go to step 5.

Step 4 Check that the optical connectors are properly in place

Check that the optical connectors of the fiber optic link are properly in place:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 5 Check the SFP transceiver's protocol and wavelength

Check that the SFP is using the correct protocol and wavelength. That is, the fiber optic link connecting the BTI 7000 Series expansion shelf to the BTI 7000 Series main shelf must use the 100FX protocol.

If any modifications are required, make the necessary changes and then check the status of the alarm:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, proceed to the next step.

Step 6 Perform a warm restart of the SCP circuit pack

To perform a warm restart of the SCP circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

Example

```
INIT-SYS:BTI7000:SCP-1-5:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 7 Perform a cold restart of the SCP circuit pack

To perform a cold restart of the SCP circuit pack, enter the following syntax at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::1;
```

Example

```
INIT-SYS:BTI7000:SCP-1-5:100::1;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 8 Reseat the SFP transceiver

Reseat the SFP transceiver in the SCP circuit pack:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 9 Replace the SFP transceiver

Go to section [3.12, “Replacing optical transceivers”](#) of this document and follow the instructions on how to replace an SFP transceiver. Once the SFP transceiver has been replaced, return to here:

- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, contact your next level of support.

2.2.23 FECI (Far End Configuration Inconsistent)

Problem Description

This alarm indicates that interoperation of the local NE, provisioned in a group, with the NE at the far-end of the span is not supported.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Major alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.23.1 Clearing a FECI far-end node configuration inconsistent alarm

Use this procedure to clear a FECI alarm.

Step 1 Ensure that the DOL components in the NE are properly configured according to the configurations and procedures in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.

Step 2 Make sure that the DOL groups on the near-end and on the far-end NEs are compatible, as follows:

- An Amplifier Terminal NE must be connected to another Amplifier Terminal NE
- Any of the other DOL types, as follows, can be connected to each other:
 - ROADM Terminal
 - Line Amplifier Node
 - ROADM Node
 - Line Equalizing Node
- Both the near-end and far-end nodes must support the same wavelength spacing and the same number of supported channels.

Step 3 If the alarm clears, you have completed this procedure.

If the alarm does not clear, contact your next level of support.

2.2.24 FEEDAFAIL (Power Feed A Failure)

Problem Description

There is a power feed A failure.

The system can continue to function on power feed B. Plan to diagnose and correct the problem as soon as possible.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

MS-1

SH-1



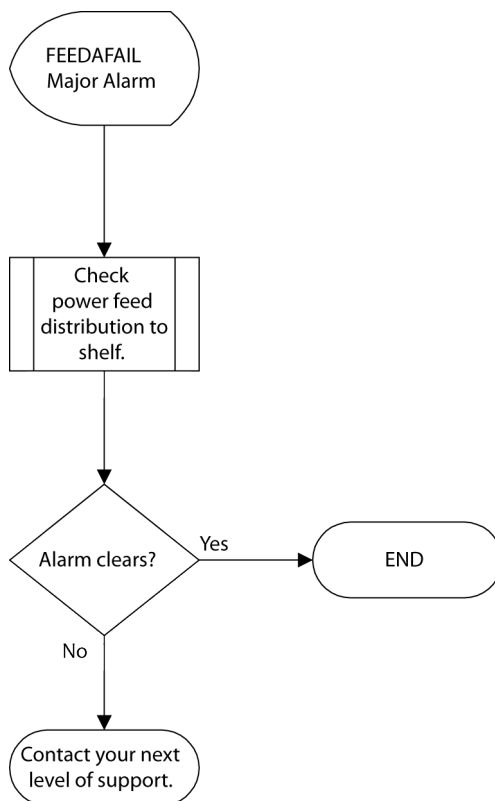
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-13 Clearing a FEEDAFAIL alarm



2.2.24.1 Clearing a FEEDAFAIL alarm

Use this procedure to clear a FEEDAFAIL alarm.

Step 1 Check power distribution to the shelf

Check the following areas for possible problems:

- a) Verify that the power connection to the chassis is firmly in place.
- b) Verify that the circuit power switch(es) are in the on position.
- c) Verify that the external source DC power circuit breaker(s) are on.
- d) Verify that the external power wires are delivering power correctly.
 - If the alarm clears, you have successfully completed this procedure
 - If the alarm does not clear, contact your next level of support.

2.2.25 FEEDBFAIL (Power Feed B Failure)

Problem Description

There is a power feed B failure.

The system can continue to function on power feed A. Plan to diagnose and correct the problem as soon as possible.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

MS-1

SH-1



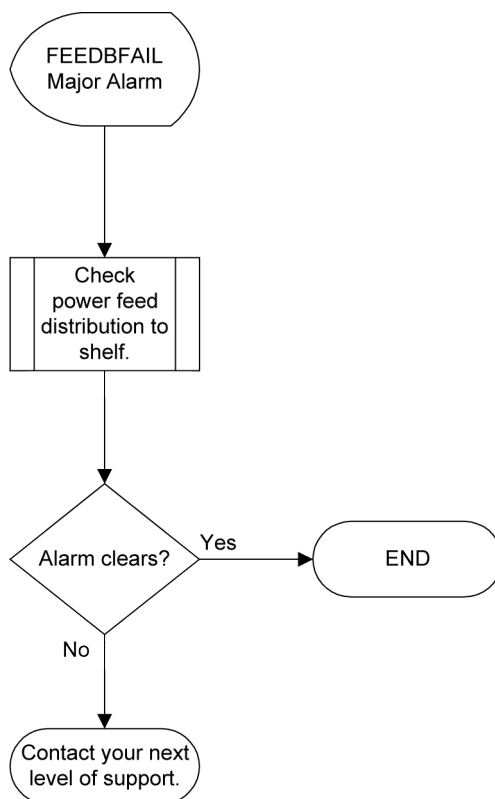
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-14 Clearing a FEEDBFAIL alarm

**2.2.25.1 Clearing a FEEDBFAIL alarm**

Use this procedure to clear a FEEDBFAIL alarm.

Step 1 Check power distribution to the shelf

Check the following areas for possible problems:

- a) Verify that the power connection to the chassis is firmly in place.
 - b) Verify that the circuit power switch(es) are in the on position.
 - c) Verify that the external source DC power circuit breaker(s) are on.
 - d) Verify that the external power wires are delivering power correctly.
- If the alarm clears, you have successfully completed this procedure
 - If the alarm does not clear, contact your next level of support.

2.2.26 FEEDAFUSEFAIL (Circuit Pack Feed A Fuse Failure)**Problem Description**

The circuit pack's 48V fuse for feed A has failed.

The system can continue to function on power feed B. Plan to replace the circuit pack in the next available maintenance window.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for circuit pack

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.26.1 Clearing a FEEDAFUSEFAIL alarm

Use this procedure to clear a FEEDAFUSEFAIL alarm. The system can continue to function on power feed B. Plan to replace the circuit pack in the next available maintenance window.

Step 1 Replace the circuit pack.

Go to the applicable circuit pack replacement procedure in [Chapter 3, “Replacing modules”](#), insert the replacement circuit pack, and the alarm clears.

If the alarm does not clear, contact your next level of support.

2.2.27 FEEDBFUSEFAIL (Circuit Pack Feed B Fuse Failure)**Problem Description**

The circuit pack’s 48V fuse for feed B has failed.

The system can continue to function on power feed A. Plan to replace the circuit pack in the next available maintenance window.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for circuit pack

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.27.1 Clearing a FEEDBFUSEFAIL alarm

Use this procedure to clear a FEEDBFUSEFAIL alarm. The system can continue to function on power feed A. Plan to replace the circuit pack in the next available maintenance window.

Step 1 Replace the circuit pack.

Go to the applicable circuit pack replacement procedure in [Chapter 3, “Replacing modules”](#), insert the replacement circuit pack, and the alarm clears.

If the alarm does not clear, contact your next level of support.

2.2.28 FEIM (Far-end Node Identification Mismatch)**Problem Description**

The far-end node identifier attributes do not match the expected identifier attributes. The line span may be connected to the wrong far-end node.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Major alarm—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.28.1 Clearing a FEIM far-end node identification mismatch alarm

Use this procedure to clear a FEIM alarm.

Step 1 Retrieve the far-end node attributes of the OSC entity that raised the FEIM alarm. Refer to the topic "Validate fiber connections" in the *BTI 7000 Series Dynamic Optical Layer Engineer Guidelines*, or in the online help for the proNX 900 Node Controller.

Step 2 Compare each of the following pairs of attributes:

- Expected and Actual Far End System Identifier
- Expected and Actual Far End NMS IP Address
- Expected and Actual Far End Group Number
- Expected and Actual Far End Degree Number

Step 3 For any of the above-listed pair of values, if the expected value is not correct, and, the actual value is the correct value, modify the expected value to match the actual value.

This procedure clears the alarm.

Step 4 If any actual value of the far-end node is not correct, and, the expected value is correct, this means the line fiber, on which the OSC is carried, is not connected to the expected far end node.

You must resolve the misconnection between the local and far-end nodes.

2.2.29 GAIN-NA-TX (Transmitted Gain Not Achievable)

Problem Description

The configured gain level cannot be achieved on the output signal.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Minor alarm—service is not affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.29.1 Clearing a GAIN-NA-TX transmitted gain not achievable alarm

Use this procedure to clear a GAIN-NA-TX alarm.

Step 1 Check the input signal as the output signal is a function of the input signal

Determine whether the input signal is within the acceptable operating range for the amplifier:

- If the input signal is below the minimum input level, go to the next step.
- If the input signal is above the maximum input level, go to [Step 3](#).
- If the input signal is within the acceptable operating range, contact your next level of support.

Step 2 Amplify the input signal

Amplify the input signal to above the minimum input level by either increasing amplification upstream, or checking for potential problems with the upstream transmitters:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Adjust the input signal or the threshold

Attenuate the input signal or adjust the threshold:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support

2.2.30 GCC0FAIL (General Communication Channel Failure)

Problem Description

This alarm indicates that an OSI link is down.

This alarm can be raised for one of the following reasons:

- an LOS condition exists which is interfering with GCC communications
- a module that is carrying GCC communications is missing (REPLUNITMISS)
- GCC0 provisioning is not correct or activated
- there is a LAPD configuration parameter mismatch

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

Impact

Critical alarm— management traffic is affected.

Affected AIDs

MXP-(1,11,21,31)-(1,3,5...19)-(L1,L2)

TPR-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.30.1 Clearing a GCC0FAIL General Communication Channel failure alarm

Use this procedure to clear a GCC0FAIL alarm.

Step 1 Examine the network to determine if any of the following alarms that may relate to the GCC0FAIL alarm exist in the network. If any of these alarms are active, fix them first. If there are no related alarms raised, or if after fixing those alarms the GCC0FAIL alarm is still raised, continue at the next step.

- LOS
- REPLUNITMISS

Step 2 Ensure that GCC0 is provisioned and applied at all endpoints, and that the provisioning at each endpoint matches the other(s).

Enter the following at the TL1 command line interface:

```
RTRV-GCC0:[TID]:[<aid>]:[CTAG]::;
```

Example command and output:

```
RTRV-GCC0:BTI7000::100::;
```

```
BTI7000 10-10-13 17:26:05
```

```
M 100 COMPLD
```

```
"TPR-1-3-1:FRATE,OSI,CREATING:OOS-AU,FLT"
```

```
"TPR-1-3-3:FRATE,OSI,ACTIVE:IS-NR"
```

```
"TPR-1-1-1:FRATE,OSI,ACTIVE:IS-NR"
```

```
;
```

- If each endpoint that is returned shows "FRATE,OSI,ACTIVE:IS-NR" then the provisioning is correct, active and in service . Continue at step 3.
- If an endpoint shows LRATE instead of FRATE, or IP instead of OSI, you must:
 - 1 Use the TL1 command DLT-GCC0 to delete the endpoint, followed by the TL1 command INIT-OIF to activate the change.
 - 2 Use the TL1 command ENT-GCC0 to enter the correct provisioning, followed by the TL1 command INIT-OIF to activate the change.
 - 3 If the alarm does not clear, continue at step 3.
- If an endpoint shows "CREATING" instead of "ACTIVE", then there are provisioning changes or a new link that has not been activated yet. Use the TL1

command INIT-OIF to activate the change. If the alarm does not clear, continue at step 3.

Step 3 Ensure that the LAPD configuration parameters are the same at all endpoints.

Enter the following at the TL1 command line interface for each NE:

```
RTRV-LAPD:[TID]::[CTAG]::;
```

Example command and output:

```
RTRV-LAPD:BTI7000::100::;
```

```
BTI7000 10-05-01 14:07:30
```

```
M 100 COMPLD
```

```
"K=7 "
```

```
"L2CR=PLUS-R "
```

```
"T200=200 "
```

```
"T203=10 "
```

```
"N200=3 "
```

```
"N201=512 "
```

```
"SRV=AITTS "
```

```
;
```

If after changing the parameters to match the default values the alarm does not clear, contact your next level of support.

2.2.31 GFPPLM (GFP Payload Mismatch)

Problem Description

For GE , FC, OCn and STMn client ports, this alarm indicates that the expected payload type does not match the payload type received. For example, GE GFP-F is expected, but GE GFP-T is received.

LED behavior for BTI 7060/BTI 7200

Not applicable

LED behavior for transceiver port LEDs

Not applicable

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1,3,5...19)-(C1-C10)

2.2.31.1 Clearing a GFPPLM payload mismatch alarm

The Muxponder module is provisioned incorrectly. Make sure the provisioning matches the traffic type. To provision the Muxponder module see the *Muxponder Solutions Guide*.

2.2.32 HITEMP (High Shelf Temperature)

Problem Description

The shelf temperature is monitored from the cooling unit for BTI 7060 shelves and from the system control processor for the BTI 7030. Once a preset temperature of 73°C is crossed, the alarm is triggered. The alarm clears once the shelf temperature falls below a preset temperature of 68°C.

LED behavior for MSI circuit pack

	Shelf LEDs		System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main		To Expansion	
	Trouble	Active	Fail	LOS	Fail	LOS
ESI	ON	ON	OFF	OFF	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

MS-1

ES-(11,21,31)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

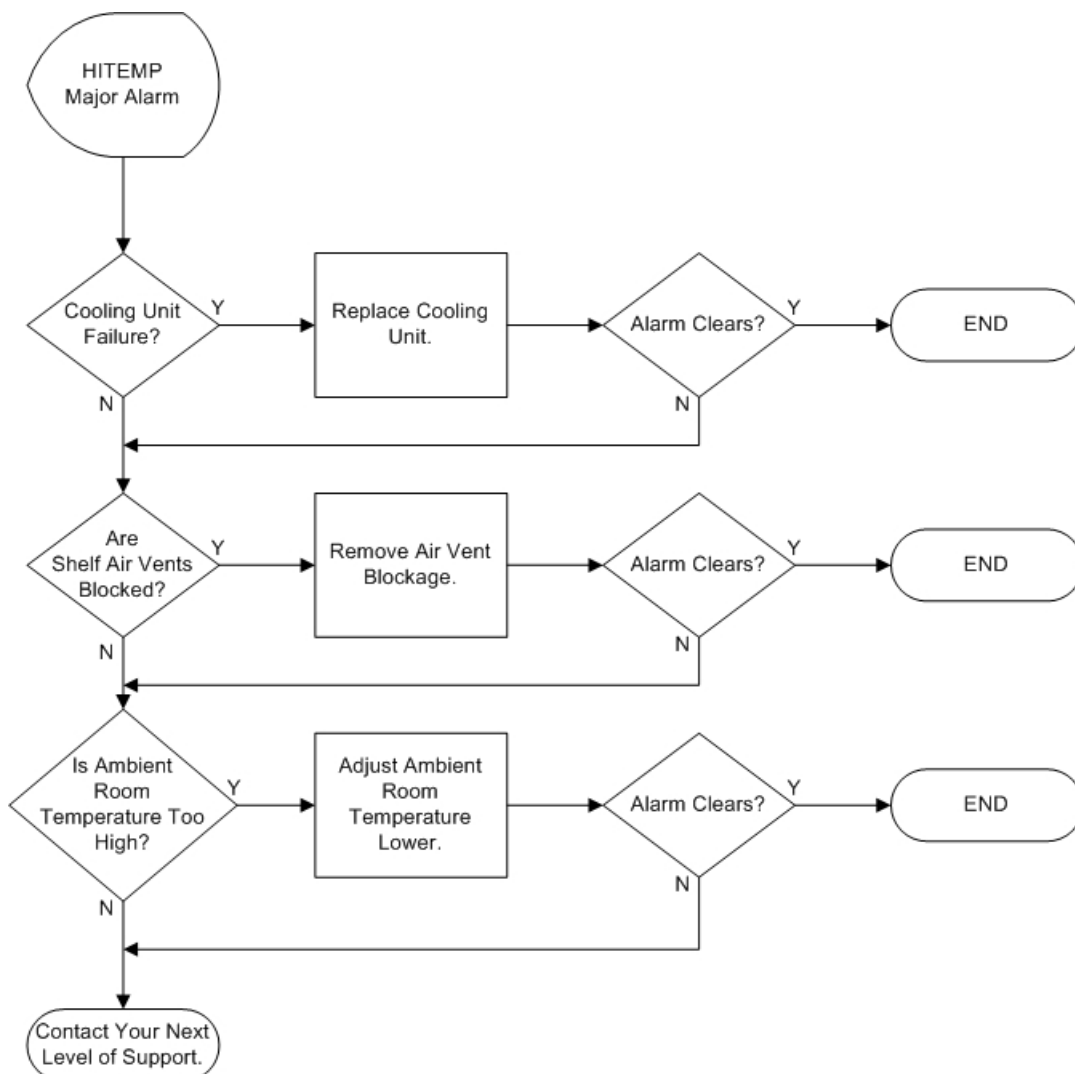
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-15 Clearing an HITEMP alarm



2.2.32.1 Clearing a HITEMP alarm

Use this procedure to clear a HITEMP alarm.

Step 1 Check for a cooling unit failure

Check the LEDs on the front of the cooling unit:

- If the red failure LED is lit on the cooling unit, there has been a failure. Obtain a new cooling unit circuit pack. Go to the cooling unit replacement procedure [3.1.2, “Install the BTI 7060 Cooling Unit module”](#) and replace the circuit pack. If the alarm does not clear, go to the next step.
- If the green active LED is lit on the cooling unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Check for shelf air vent obstructions

Check the shelf for any obstacles that may be blocking the air vents:

- If the air vents are being blocked, clear the obstructions and wait for the alarm to clear. If the alarm does not clear after a couple of minutes, go to the next step.
- If the air vents are not blocked, go to the next step

Step 3 Check ambient air temperature

Check the ambient air temperature where the shelf is located:

- If the ambient air temperature is greater than 50°C (122°F), you must lower the ambient air temperature. Once the ambient air temperature is back to the normal operating range, the alarm should clear. If the alarm does not clear, contact your next level of support.
- If the ambient room temperature is in the normal operating temperature range, contact your next level of support.

2.2.33 HTASUNS (High Temperature Automatic Shutdown Unsupported)

Problem Description

The HTAS option has been enabled, but the system is not able to support the feature.

LED behavior

Table 2-10 LED behavior of BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Table 2-11 LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
-------------	--



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.33.1 Clearing a HTASUNS High Temperature Automatic Shutdown Unsupported alarm

Use this procedure to clear a HTASUNS alarm.

Step 1 The HTAS feature has been enabled, but the system is not able to support the feature. To clear the alarm, disable the HTAS option. From the main menu of the proNX 900, choose **Tools>Provision System**.

The Provision System window is displayed.

Step 2 From the **High Temperature Auto-Shutdown** drop-down menu, choose **OFF**.

Step 3 Click **Apply**.

The alarm clears.

Step 4 To properly activate this feature, you must replace the MSI with one that supports the feature. Contact your next level of support.

2.2.34 IAOCB (Invalid Amplifier Operating Configuration Booster-amplifier)

Problem Description

The pre-amplifier on the alarmed module is operating outside of the acceptable operating power range, with an invalid configuration for the span loss currently measured.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Module LED behavior

Location	Circuit Pack LEDs		
	Fail	Active	Fault
DLA, ROB	OFF	ON	ON

Impact

Minor alarm – service might be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.34.1 Clearing a IAOCB invalid amplifier operating configuration, booster-amplifier alarm

Use this procedure to clear a IAOCB alarm.

- Step 1** Determine whether a “Received Power Out of Specification” alarm is raised for the client port (C1/C2) of the alarmed ROB2 module. If that alarm exists, clear it before continuing with this procedure.
- Step 2** Determine whether a “Received Power Out of Specification” alarm is raised for the Line port of the alarmed DLA2 module. If that alarm exists, clear it before continuing with this procedure.

- Step 3** If traffic is not affected, wait for a maintenance window to perform the following steps. If traffic is affected, perform the following steps immediately.
- Step 4** Check for and clear any other alarms on the alarmed module.
- Step 5** There may be a problem with the upstream equipment. Resolve any upstream problems.
- Step 6** Check and clean all upstream fiber connections.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.35 IAOCM (Invalid Amplifier Operating Configuration Mid-amplifier)

Problem Description

The pre-amplifier on the alarmed module is operating outside of the acceptable operating power range, with an invalid configuration for the span loss currently measured.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

Module LED behavior

Location	Circuit Pack LEDs		
	Fail	Active	Fault
ROB	OFF	ON	ON

Impact

Minor alarm – service might be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.35.1 Clearing a IAOCM invalid amplifier operating configuration, mid-amplifier alarm

Use this procedure to clear a IAOCM alarm.

- Step 1** Check the PM OPR (Loss) value for the Line port on the alarmed module. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.
The **PM Statistics** window is displayed, in which you can view the port's PMs.
- Step 2** If traffic is not affected, wait for a maintenance window to perform the following steps. If traffic is affected, perform this procedure immediately.
- Step 3** Check for and clear any other alarms on the alarmed module.
- Step 4** There may be a problem with the upstream equipment. Resolve any upstream problems.
- Step 5** Check that any of the DCM modules that are connected to the DCM port on the ROB module are within specification for loss. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**. Check and clean all DCM fiber connections.
- Step 6** Check and clean all upstream fiber connections.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.36 IAOCF (Invalid Amplifier Operating Configuration Pre-amplifier)

Problem Description

The pre-amplifier on the alarmed module is operating outside of the acceptable operating power range, with an invalid configuration for the span loss currently measured.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

Module LED behavior

Location	Circuit Pack LEDs		
	Fail	Active	Fault
DLA, ROB	OFF	ON	ON

Impact

Minor alarm – service might be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.36.1 Clearing a IAOCPP invalid amplifier operating configuration, pre-amplifier alarm

Use this procedure to clear a IAOCPP alarm.

Step 1 Check the PM OPR (Loss) value for Line port on the alarmed module. Using the proNX 900, right-click on the port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

Step 2 If traffic is not affected, wait for a maintenance window to perform the following steps. If traffic is affected, perform this procedure immediately.

Step 3 Check for and clear any other alarms on the alarmed module.

Step 4 There may be a problem with the upstream equipment. Resolve any upstream problems.

Step 5 Check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.37 INVPROV (Invalid Provisioning)

Problem Description

Invalid provisioning is affecting the system.

This alarm can appear after physically changing the BTI 7000 Series shelf configuration and then rebooting the BTI 7000 Series shelf. There are three possible situations when this alarm appears:

- If a single-width circuit pack is provisioned in either slot-1 or slot-3 of a 6-slot shelf configuration respectively and the shelf is reconfigured to a 5-slot or 4-slot configuration and then the shelf is rebooted.
- If a double-width circuit pack is provisioned in either slot-1 or slot-3 of a 5-slot or 4-slot shelf configuration respectively and the shelf is reconfigured to a 6-slot configuration and then rebooted.
- If a database restore occurs thereby returning the system to a configuration that does not match the current system.

Note In any of the described situations, there must be a physical reconfiguration of the BTI 7000 Series shelf that includes either the removal or the addition of a center support.

To clear this alarm, delete the equipment that should not be present.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for circuit pack

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit Pack	OFF	ON	OFF

Impact

Minor alarm - service is not affected

Affected AIDs

D1ADM-(1,11,21,31)-(1-20)

D2ADM-(1,11,21,31)-(1-20)

D4ADM-(1,11,21,31)-(1,3,5...19)

D32BMD24-(1,11,21,31)-(1,3,5...19)

D32BMD42-(1,11,21,31)-(1,3,5...19)

D32MD1-(1,11,21,31)-(1,3,5...19)

D32MD2-(1,11,21,31)-(1,3,5...19)

D32MD3-(1,11,21,31)-(1,3,5...19)

D32MD4-(1,11,21,31)-(1,3,5...19)

C1ADM-(1,11,21,31)-(1-20)

C2ADM-(1,11,21,31)-(1-20)

CDSC-(1,11,21,31)-(1-20)

CS-(1,11,21,31)-(1-20)

MXP-(1,11,21,31)-(1-20)

OBA-(1,11,21,31)-(1-20)

OLA-(1,11,21,31)-(1-20)

OLAM-(1,11,21,31)-(1-20)

OPA-(1,11,21,31)-(1-20)

OSC-(1,11,21,31)-(1-20)

SBA-(1,11,21,31)-(1-20)

SMF20-(1,11,21,31)-(1-20)

SMF40-(1,11,21,31)-(1-20)

SMF60-(1,11,21,31)-(1-20)

SMF80-(1,11,21,31)-(1-20)

SPA-(1,11,21,31)-(1-20)

TPR-(1,11,21,31)-(1-20)

WM-(1,11,21,31)-(1-20)

WR-(1,11,21,31)-(1-20)

WT-(1,11,21,31)-(1-20)

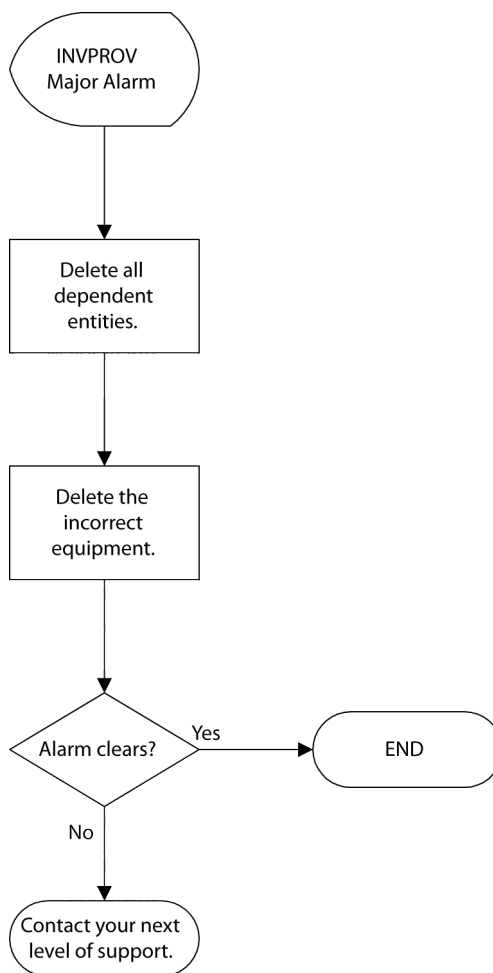
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-16 Clearing an INVPROV alarm



2.2.37.1 Clearing a INVPROV invalid provisioning alarm

Use this procedure to clear a INVPROV alarm.

Step 1 Delete dependent entities

Delete all dependent entities by using the appropriate command.

Step 2 Delete the incorrect equipment

Use the DLT-EQPT command to delete the incorrect equipment:

```
DLT-EQPT:[TID]:<aid>:<CTAG>:::[CMDMDE=<cmdmde>];
```

where

TID is the target identifier

<aid> is one of the following access identifiers:

D1ADM-(1,11,21,31)-(1-20)

D2ADM-(1,11,21,31)-(1-20)

D4ADM-(1,11,21,31)-(1,3,5...19)

D32BMD24-(1,11,21,31)-(1,3,5...19)

D32BMD42-(1,11,21,31)-(1,3,5...19)

D32MD1-(1,11,21,31)-(1,3,5...19)

D32MD2-(1,11,21,31)-(1,3,5...19)

D32MD3-(1,11,21,31)-(1,3,5...19)

D32MD4-(1,11,21,31)-(1,3,5...19)

C1ADM-(1,11,21,31)-(1-20)

C2ADM-(1,11,21,31)-(1-20)

CDSC-(1,11,21,31)-(1-20)

CS-(1,11,21,31)-(1-20)

MXP-(1,11,21,31)-(1-20)

OBA-(1,11,21,31)-(1-20)

OLA-(1,11,21,31)-(1-20)

OLAM-(1,11,21,31)-(1-20)

OPA-(1,11,21,31)-(1-20)

OSC-(1,11,21,31)-(1-20)

SBA-(1,11,21,31)-(1-20)

SMF20-(1,11,21,31)-(1-20)

SMF40-(1,11,21,31)-(1-20)

SMF60-(1,11,21,31)-(1-20)

SMF80-(1,11,21,31)-(1-20)

SPA-(1,11,21,31)-(1-20)

TPR-(1,11,21,31)-(1-20)

WM-(1,11,21,31)-(1-20)

WR-(1,11,21,31)-(1-20)

WT-(1,11,21,31)-(1-20)

CTAG is the correlation tag

<cmdmde> is the command mode (NORM or FRCD)

Step 3 Check the Alarm

- If the INVPROV alarm clears, you have successfully completed this procedure.
- If the INVPROV alarm does not clear, contact your next level of support.

2.2.38 IPLCKOUT (IP Lockout)

Problem Description

After three incorrect attempts to login from the same IP address, the IP address from which the three attempts are made is blocked for 60 seconds.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

Impact

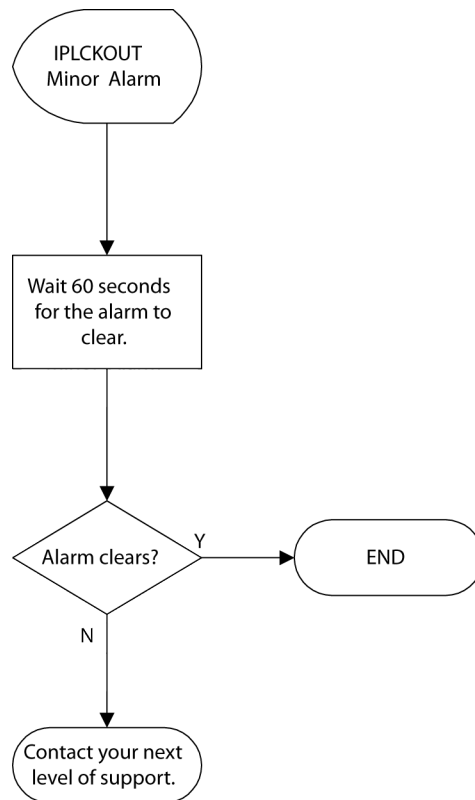
Minor alarm—service is not affected.

Affected AIDs

USER

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-17 Clearing an IPLCKOUT alarm

2.2.38.1 Clearing an IPLCKOUT IP lockout alarm

Use this procedure to clear an IPLCKOUTIP lockout alarm.

Step 1 Wait for the alarm to clear

The alarm should clear in about 60 seconds:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.39 LCK-XCVR (Lockout Transceiver)

Problem Description

The far-end NE has signaled the local NE that a lockout condition exists on the line port.

LED behavior for BTI 7060/BTI 7200

None.

LED behavior TPR modules

None.

Impact

If the lockout condition occurs on the working port, the transponder switches to the protecting port. If the lockout condition occurs on the protecting port, the protecting port is no longer available for protection, and consequently the working port is no longer protected.

Affected AIDs

TPR-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.39.1 Clearing an LCK-XCVR lockout transceiver alarm

Use this procedure to clear an LCK-XCVR alarm.

Step 1 A lockout condition occurs because a lockout protection switch was issued on the far-end NE. To clear this alarm, cancel the lockout on the far-end NE.

2.2.40 LD (Link Down)

Problem Description

This alarm indicates that there is no communication on that port at the Ethernet layer. A link down alarm is often caused by problems with the optical layer on optical interfaces (LOS, OPRLow, etc). On copper interfaces, there are no such physical alarms, and so physical problems with the cable in the copper case are reported as Link Down.

LED behavior on packetVX

The Link down alarm does not affect LEDs.

LED behavior on the SCP/shelf

Location	SFP LEDs	
	Fail	LD
SCP	OFF	ON

Impact

Major, service affecting on the alarmed port

2.2.40.1 Clearing a Link Down alarm

Use this procedure to clear a Link Down alarm.

Step 1 Determine if the interface is optical or copper.

- a) If the interface is copper, check the connections are seated properly and that the cable passes continuity testing.
 - If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, go to step 2.
- b) If the interface is optical, and the associated interface has no alarms, and if there is a Transponder in the path, there could be a missing cross-connect. Set up any missing cross-connects.
 - If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, go to step 2.

Step 2 Warm restart the SCP.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to step 3.

Step 3 Cold restart the SCP.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, and:
 - the interface is optical, contact your next level of support.
 - the interface is copper, go to step 4.

Step 4 Reseat the optical or copper sfp.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to step 5.

Step 5 Replace the optical or copper sfp.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.41 LOA (Loss of Alignment for FC or GE client-side port)

Problem Description

This alarm indicates that a FC or GE client port on a muxponder circuit pack is experiencing a loss of alignment due to a differential delay that is greater than 190 milliseconds.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

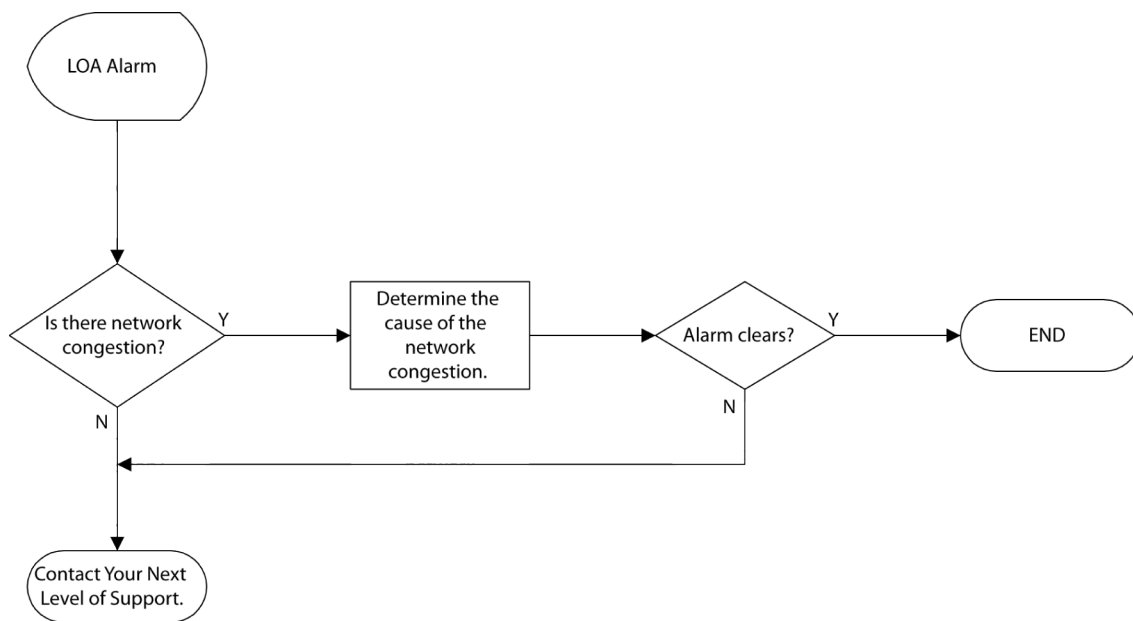
Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-18 Clearing an LOA alarm**2.2.41.1 Clearing an LOA loss of alignment for FC or GE client-side port alarm**

Use this procedure to clear an LOA alarm.

Step 1 Check if there is network congestion

Determine if there is network congestion on the client-side network. If congestion is present, check the respective nodes for the reason of the congestion. This should resolve the problem:

- If the LOA alarm clears, you have successfully completed this procedure.
- If the LOA alarm does not clear, contact your next level of support.

2.2.42 LOF (Loss of Frame)

Important There are two LOF alarm clearing procedures. This procedure is for clearing a loss of frame for transceiver on a circuit pack.

The other LOF procedure is

- [2.2.43, “LOF \(Loss of Frame for line port\)”](#)

Problem Description

An SFP transceiver detects a loss of frame (LOF) alarm when a severely errored framing (SEF) defect on the incoming SONET/SDH signal is detected and persists for 2.5 seconds (± 0.5 sec.). When the LOF defect is absent for 10 seconds (± 0.5 sec.), the LOF alarm clears.

An XFP transceiver detects a LOF alarm when an OC192 or STM64 32-bit A1-A1-A2-A2 framing bytes sequence cannot be locked onto for 3 ms. When the LOF defect is absent for two consecutive frames, the LOF alarm clears.

Note An SEF defect is detected when the SEF persists for 3 milliseconds. When an SEF defect is absent for 1 millisecond, or optionally 3 milliseconds, the SEF defect clears.

This alarm applies to the protocols: OC3, OC12, OC48, OC192, STM16 and STM64.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for module

Location	Circuit Pack LEDs	
	Fail	Active
WM	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
Transceiver	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

TPR-(1,11,21,31)-(1-20)-(1-4)

WM-(1,11,21,31)-(1-20)-(1-4)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

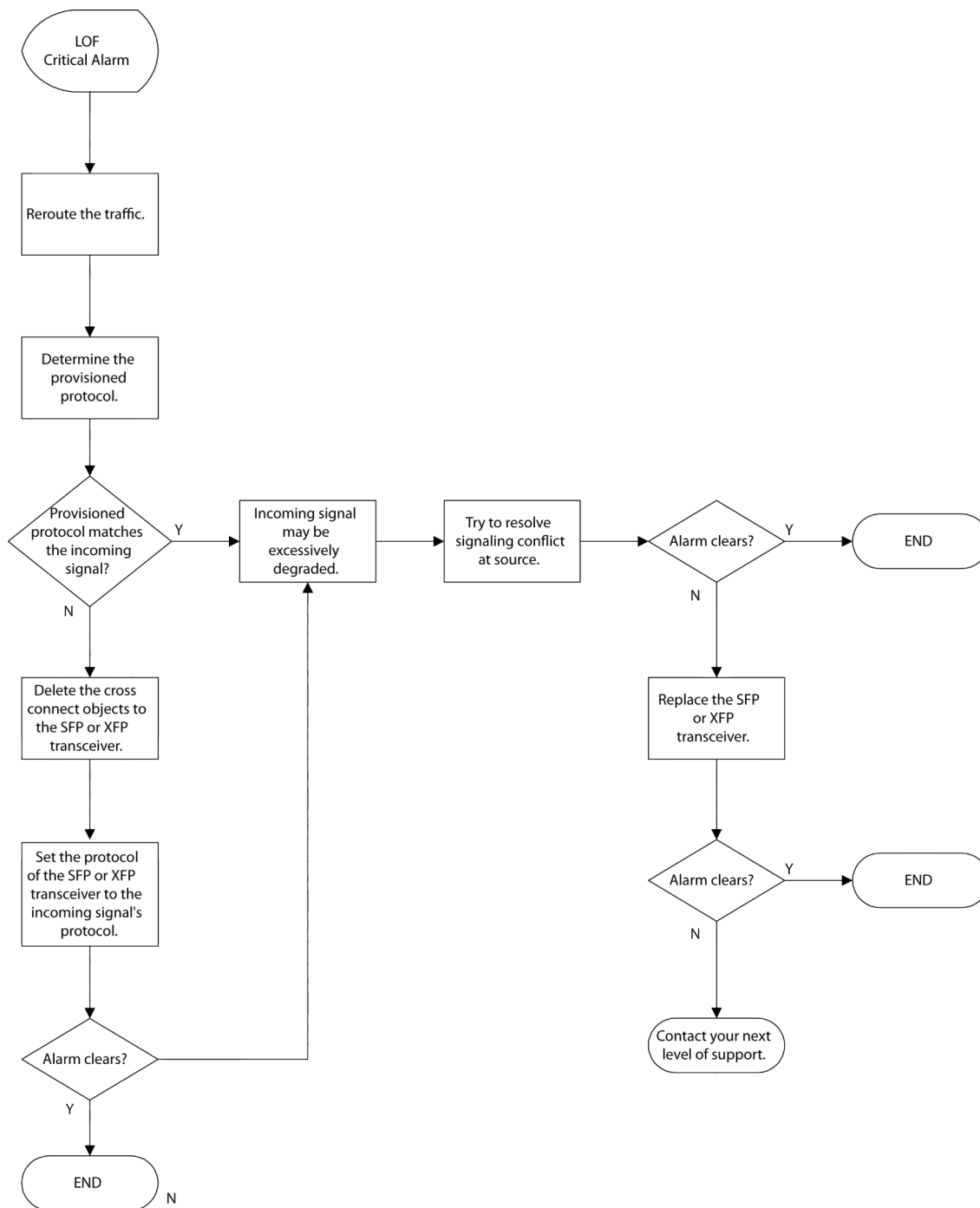


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-19 Clearing an LOF alarm**2.2.42.1 Clearing an LOF loss of frame alarm**

Use this procedure to clear an LOF alarm.

Step 1 Reroute the traffic

Reroute the traffic to another link.

Step 2 Determine the provisioned protocol

To determine the provisioned protocol for the SFP transceiver in the circuit pack, enter the following at the TL1 command line interface:

```
RTRV-XCVR:[TID]:[<aid>]:<CTAG>;
```

Example Input

```
RTRV-XCVR::WR-1-4-2;;
```

Example Output

```
BTI7000 05-02-03 14:29:58
M 100 COMPLD
"WR-1-4-2:GRID=20,PROTOCOL=OC192,WAVELENGTH=1530,
PHYPMON=OFF,FPSD=OFF,:OOS-AU,UEQ&SGEO"
;
```

The PROTOCOL parameter indicates the protocol that the transceiver is expecting. In this example, the protocol expected is OC192.

Action

- If the PROTOCOL parameter is not correct, go to step 3.
- If the PROTOCOL parameter is correct, go to step 5.

Step 3 Delete any existing cross connect objects

To delete the cross connect object, enter the following at the TL1 command line interface:

```
DLT-CRS-XCVR:BTI7000:WR-1-4-1,WR-1-4-2;;
BTI7000 05-02-03 07:34:04
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:34:06
A 494 REPT DBCHG
"TIME=07-34-06,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=271:DLT-CRS-XCVR:WR-1-4-1,WR-1-4-2"
;
```

Step 4 Set the protocol for the incoming signal

To set the protocol of the SFP or XFP transceiver, enter the following at the TL1 command line interface:

```
ED-XCVR::<aid>:::[PROTOCOL=<protocol>],[CMDMDE=<cmdmde>];;
```

where

protocol is the protocol parameter that sets the bit rate

cmdmde is the command mode equal to forced (FRCD)

Note: If the command mode FRCD is not used, the SFP or XFP transceiver must be taken out of service.

Example Input

```
ED-XCVR::WR-1-4-2:::PROTOCOL=OC192,CMDMDE=FRCD;
```

Example Output

```
BTI7000 05-02-03 07:39:49
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:39:50
A 496 REPT RMV XCVR
"WR-1-4-2:OOS-AU,UEQ&SGEO"
;
BTI7000 05-02-03 07:39:50
A 497 REPT DBCHG
"TIME=07-39-50,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=273:ED-XCVR:WR-1-4-2:::PROTOCOL=OC192,
WAVELENGTH=1530"
;
```

Note: If the SFP or XFP transceiver was taken out of service, it must now be placed back in service.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, go to the next step.

Step 5 Resolve the problem with the incoming signal

The incoming signal may be excessively degraded. Contact the personnel responsible for the far-end source to resolve the signaling problem.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, go to the next step.

Step 6 Replace the SFP or XFP transceiver

Go to section 3.12, [“Replacing optical transceivers”](#) and follow the instructions on how to replace a transceiver. After this is completed, return to this step.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

2.2.43 LOF (Loss of Frame for line port)

Important There are two LOF alarm clearing procedures. This procedure is for clearing a loss of frame for a SONET line port on a muxponder circuit pack.

The other LOF procedure is

- [2.2.42, “LOF \(Loss of Frame\)”](#)

Problem Description

This alarm indicates that a SONET line port on a muxponder circuit pack is experiencing one or more of the following:

- fiber cut
- dirty fiber and or connector
- excessive attenuation
- circuit pack is either missing or mismatched at the far end
- incorrect cross connect is provisioned at the far end

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs
----------	---------------

	Fault	Fail
SFP	ON	OFF

Impact

Critical alarm—service is affected if carrying traffic. Major alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

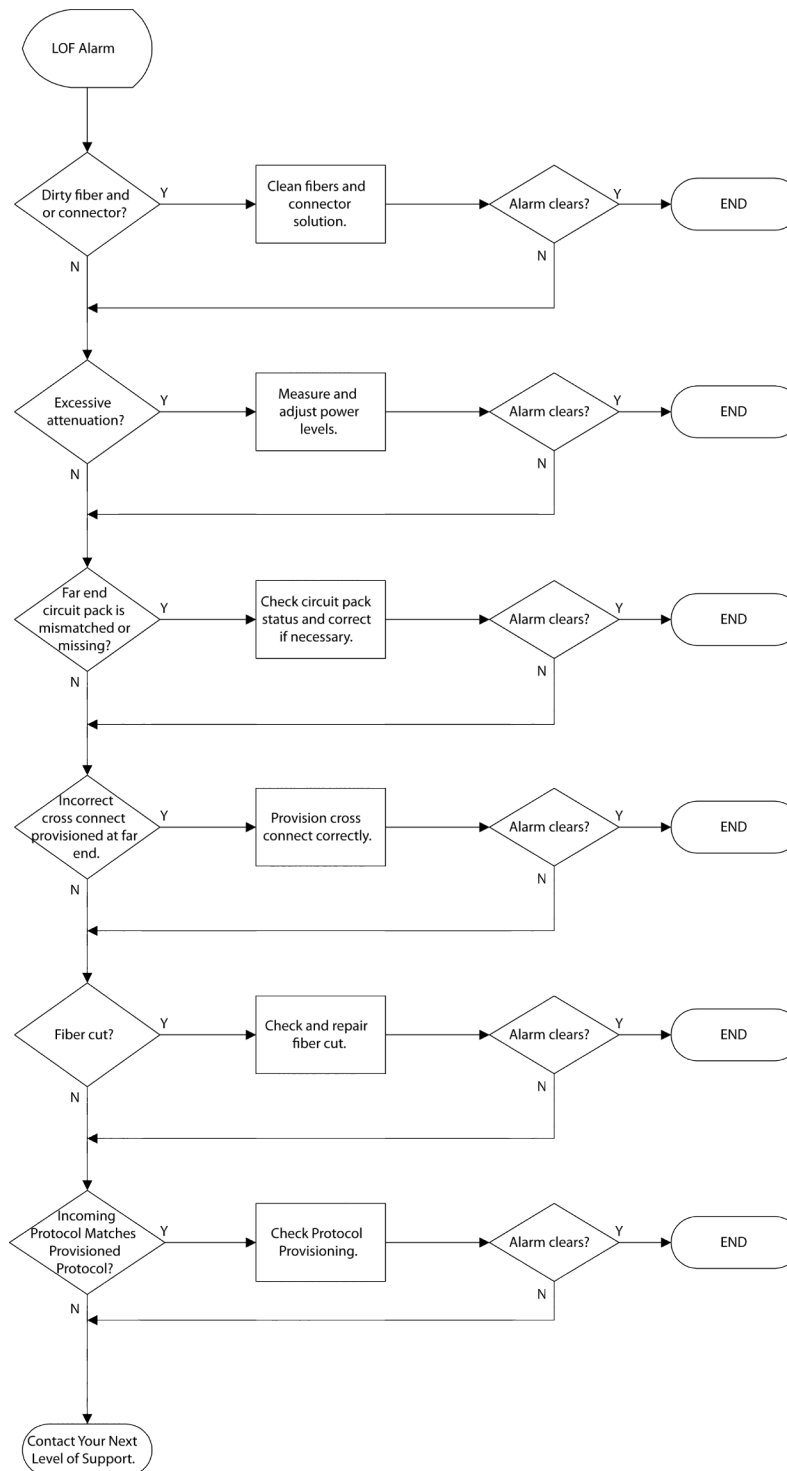


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-20 Clearing an LOF alarm

2.2.43.1 Clearing a LOF loss of frame for a SONET line port on a muxponder circuit pack

Use this procedure to clear an LOF alarm.

Step 1 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check if the far end circuit pack is mismatched or missing

Determine if the far end circuit pack is mismatched or missing and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check if an incorrect cross connect exists at the far end

Determine if an incorrect cross connect exists at the far end and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Check for a fiber cut

Determine if the fiber is cut and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 6 Check if the incoming protocol matches the provisioned protocol

Determine if the incoming protocol matches the provisioned protocol and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.44 LOF-RX (Received Loss of Frame) for OSC

Problem Description

This alarm indicates that the received OSC signal cannot be framed.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior

The Fault LED on the Line Input port is ON.

Impact

Major alarm - service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.44.1 Clearing a LOF-RX received loss of frame alarm for OSC

Use this procedure to clear a LOF-RX alarm.

Step 1 Check the OPR value for the Line-input port on the alarmed module. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

Step 2 If the power is too low, check and clean the upstream fiber connections.

Step 3 Check upstream NEs for any “LOLIGHT-TX (OSC)”, or “REPLUNITFAIL” or “REPLUNITDEGRADE” alarms. If any of these alarm are present, fix them and then check to see whether the “LOF-RX” alarm clears.

Step 4 If there are no alarms on the upstream NEs, check the OSC upstream power level by connecting a patch cord to the Line Out port and measuring the power with a power meter. If the power level is too low or if there is no light, and there is no “LOLIGHT-TX (OSC)” alarm, then the OSC transmitter is faulty (internal component on DLA and ROB modules). Replace the module.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.45 LOL (Loss of Lock for bit-rate independent ports on 8-Port Multiprotocol Muxponder modules)

Problem Description

This alarm indicates that the rate of the signal applied at the RX of a client port does not match the rate provisioned for the port.

LED behavior for BTI 7060/BTI 7200

Not applicable

LED behavior for transceiver port LEDs

Not applicable

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1, 3, 5)-(C1-C4)



Laser

Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.45.1 Clearing a LOL loss of lock alarm bit-rate independent ports

Use this procedure to clear a LOL alarm for bit-rate independent ports.

Step 1 Reroute the traffic

Reroute the traffic to another link.

Step 2 Determine the provisioned protocol

To determine the provisioned protocol for the port, enter the following at the TL1 command line interface:

```
RTRV-BRI:[TID]:[<src>]:CTAG::;
```

Example Input

```
RTRV-BRI:BTI7000:MXP-1-1-C2:100::;
```

Example Output

```
BTI7000 07-08-13 14:27:54
M 100 COMPLD
"MXP-1-1-C2:PHYPMON=OFF,LASERSTATUS=ON,OPRHT=4.0,OPRLT=-22.0,
OPTHT=0.0,OPTLT=-5.0,SPEED=1000,DUPLEX=FULL,MTU=9600,MEDIARATE=AUTO,
WAVELENGTH=1310,FPSD=OFF,MACADDRESS=0014d0000270,AINSTMR=08-00,:IS-
NR,"
;
```

Action

- If the PROTOCOL parameter is not correct, go to step 3.
- If the PROTOCOL parameter is correct, go to step 5.

Step 3 Delete any existing cross connect objects

To delete the cross connect object, enter the appropriate DLT-CRS command at the TL1 command line interface.

Step 4 Delete the port

To delete the port, enter the following at the TL1 command line interface:

```
DLT-BRI:[TID]:<src>:[CTAG]:::[CMDMDE=<cmdmde>];
```

Step 5 Set the provisioning for the port

To set the provisioning for a BRI port, enter the following at the TL1 command line interface:

```
ED-BRI:[TID]:<src>:[CTAG]:::[ID1=<id>],[C1=<custom>],
[FIBERTYPE=<fibertype>],[WAVELENGTH=<wavelength>],
[PHYPMON=<phyppmon>],[VENDORPN1=<vendorpn1>],[VENDORPN2=<vendorpn2>],
[VENDORPN3=<vendorpn3>],[PEC=<pec>],BRIPROTOCOL=<briprotocol>,
[AINSTMR=<ainstmr>],[CMDMDE=<cmdmde>]:[<pst>],[<sst>];
```

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

2.2.46 LOL (Loss of Lock)

Problem Description

This alarm indicates that a Dual 2.5G Multiprotocol Transponder or 1G wavelength regenerator (WR) port is unable to lock on the incoming bit stream. This is a result of either:

- the provisioned protocol does not match the incoming signal, or
- the incoming signal is excessively degraded.

Note A downstream SFP in a transponder circuit pack can declare a LOL when the upstream SFP is transmitting an idle pattern.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	ON	ON	OFF	ON	OFF	OFF

LED behavior for transponder

Location	Circuit Pack LEDs	
	Fail	Active
WM or WR	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
Transceiver	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

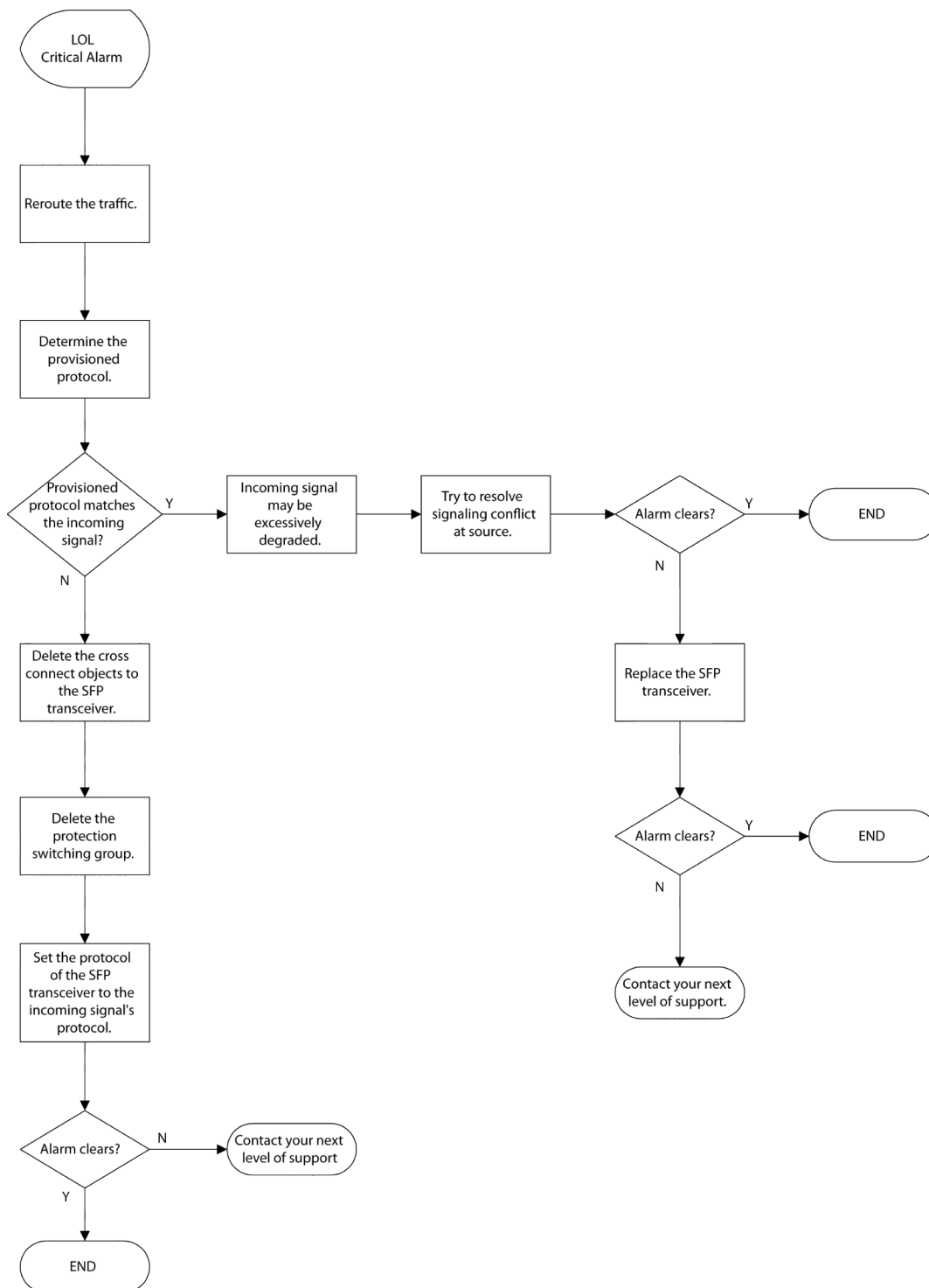


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-21 Clearing an LOL alarm**2.2.46.1 Clearing a LOL loss of lock alarm**

Use this procedure to clear a LOL alarm.

Step 1 Reroute the traffic

Reroute the traffic to another link.

Step 2 Determine the provisioned protocol

To determine the provisioned protocol for the SFP transceiver in the circuit pack, enter the following at the TL1 command line interface:

```
RTRV-XCVR:[TID]:[<aid>]:<CTAG>;
```

Example Input

```
RTRV-XCVR::WR-1-4-2;;
```

Example Output

```
BTI7000 05-02-03 14:29:58
M 100 COMPLD
"WR-1-4-2:GRID=20,PROTOCOL=OC48,WAVELENGTH=1530,TCAMON=OFF,
FPSD=OFF,:OOS-AU,UEQ&SGEO"
;
```

The PROTOCOL parameter indicates the protocol that the SFP transceiver is expecting. In this example, the protocol expected is OC48.

Action

- If the PROTOCOL parameter is not correct, go to step 3.
- If the PROTOCOL parameter is correct, go to step 5.

Step 3 Delete any existing cross connect objects

To delete the cross connect object, enter the following at the TL1 command line interface:

```
DLT-CRS-XCVR:BTI7000:WR-1-4-1,WR-1-4-2;;
BTI7000 05-02-03 07:34:04
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:34:06
A 494 REPT DBCHG
"TIME=07-34-06,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=271:DLT-CRS-XCVR:WR-1-4-1,WR-1-4-2"
;
```

Step 4 Delete the protection switching group

To delete the protection switching group, enter the following at the TL1 command line interface:


```
DLT-FFP-XCVR:[<TID>]:<work>,<protect>:<CTAG>;
```

where

work is the access identifier of the working SFP transceiver

protect is the access identifier of the protecting SFP transceiver

Example Input

```
DLT-FFP-XCVR:BTI7000:WM-1-2-2,WM-1-2-4:100;
```

Example Output

```
BTI7000 05-06-22 09:26:30
M 100 COMPLD
;
BTI7000>
BTI7000 05-06-22 09:26:30
A 47 REPT DBCHG
"TIME=09-26-30,DATE=05-06-22,SOURCE=100,LINKID=2-23,USERID=admin,
DBCHGSEQ=25:DLT-FFP-XCVR:WM-1-2-2,WM-1-2-4"
;
```

Step 5 Set the protocol for the incoming signal

To set the protocol of the SFP transceiver, enter the following at the TL1 command line interface:

```
ED-XCVR::<aid>:::[PROTOCOL=<protocol>],[CMDMDE=<cmdmde>]:;
```

where

protocol is the protocol parameter that sets the bit rate

cmdmde is the command mode equal to forced (FRCD)

Note: If the command mode FRCD is not used, the SFP transceiver must be taken out of service.

Example Input

```
ED-XCVR::WR-1-4-2:::PROTOCOL=GE,CMDMDE=FRCD;;
```

Example Output

```
BTI7000 05-02-03 07:39:49
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:39:50
A 496 REPT RMV XCVR
"WR-1-4-2:OOS-AU,UEQ&SGEO"
```

```
;
BTI7000 05-02-03 07:39:50
A 497 REPT DBCHG
"TIME=07-39-50,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=273:ED-XCVR:WR-1-4-2::PROTOCOL=GE,
WAVELENGTH=1530"
;
```

Note: If the SFP transceiver was taken out of service, it must now be placed back in service.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

Step 6 Resolve the problem with the incoming signal

The incoming signal may be excessively degraded. Contact the personnel responsible for the far-end source to resolve the signaling problem.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, go to the next step.

Step 7 Replace the SFP transceiver

Go to section 3.12, “[Replacing optical transceivers](#)” and follow the instructions on how to replace an SFP transceiver. After this is completed, return to this step.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

2.2.47 LOLIGHT-RX (Received Loss of Light) for an amplifier port

Problem Description

The input signal is below the detectable threshold.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for LGA, MGA, or MGM modules

The Fault LED is ON.

Impact

Critical alarm – service is affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.47.1 Clearing a LOLIGHT-RX received loss of light alarm for an amplifier port

Use this procedure to clear a LOLIGHT-RX alarm on an amplifier port.

Step 1 Using the proNX 900, navigate to the amplifier to check the OPR value on the line port.

Step 2 Right-click on the amplifier and choose **View Amplifier PM**.

The Performance window is displayed, in which you can view the port's PMs.

Step 3 Click **Start** to start PM collection.

Step 4 Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power (OPR) to the line port is lower than the specified range of operation.

Step 5 Check for and resolve the following possible problems:

- the span fiber or patch panel fiber has been cut or disconnected or has excessive loss
- the amplifier transmitting into the patch fiber has shut down
- excessive loss on the DCM module(s) that are connected to the alarmed port
- excessive loss on upstream patch fibers

Step 6 Check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.48 LOLIGHT-RX (Received Loss of Light) for OSC

Problem Description

This alarm indicates that the received OSC signal cannot be detected.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for DLA or ROB modules

The Fault LED on Line port is ON.

Impact

Major alarm - service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.48.1 Clearing a LOLIGHT-RX received loss of light alarm for OSC

Use this procedure to clear a LOLIGHT-RX for OSC alarm.

Step 1 Check if the far-end NE DLA or ROB module has been provisioned.

From the Toolbar, click the **Optical Layer** icon. Navigate to the group to which the module should be a member. Right-click and choose **Edit Group**; the **Provision Group** dialog displays:

Step 2 Check if the far-end OSC is administratively enabled—In Service (IS).

Using the proNX 900, right-click on the far-end ROB or DLA module, and choose **View OSC Info**. The **Provision OSC** dialog appears. From the **General** tab go to the **Administration Info** panel:

- If the **Administrative State** reads In-Service (IS) do nothing.
- To enable the administrative state, from the drop-down menu choose **In-Service (IS)**.

Step 3 Determine if a fiber is cut or if a fiber is disconnected.

If necessary, replace or re-connect the fiber.

Step 4 Check the power level of the signal connected to the Line In port. Using the proNX 900, right-click on the port, and choose **View Port PM**. The **PM Statistics** window is displayed, in which you can view the port's OPR PMs. If power is too low, check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.49 LOLIGHT-RX (Received Loss of Light) for an optical port

Problem Description

The receive WDM composite signal power is below the detectable threshold. This alarm applies to the following:

- the Line port of a DLA or ROB module
- the DCM-In port of a ROB module
- the Client-C1 port of a DLA or ROB module (also for DLA Line Amplifier Node Inter-module connection patch fiber)
- the Client-C2 port of a ROB module (for Alien wavelengths on a ROADM Terminal or C2 Inter-Card connection patch fiber on a ROADM Node or Line Equalizing Node).

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line, DCM, or Client port is ON.

Impact

Critical alarm – service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1,C1,C2,DCM)

DLA-(1,11,21,31)-(1-20)-(L1,C1)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.49.1 Clearing a LOLIGHT-RX received loss of light alarm for an optical port

Use this procedure to clear a LOLIGHT-RX alarm on an optical port.

Step 1 Check the PM OPR value for the alarmed port, and determine if it is within specification. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's OPR PMs.

Step 2 Check for and resolve the following possible problems:

- the span fiber or patch panel fiber has been cut or disconnected or has excessive loss
- the amplifier transmitting into the patch fiber has shut down
- excessive loss on the DCM module(s) that are connected to the alarmed port
- excessive loss on upstream patch fibers

Step 3 Check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.50 LOLIGHT-RX (Received Loss of Light) for a wavelength channel**Problem Description**

This fault applies to both Channel Equalizing Terminal and Reconfigurable Add/Drop Node configurations and only to channels on the add/drop port (C1) of the ROB module and the C2 port if it is configured for alien DWDM wavelengths.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on Client ports (C1/C2).

Impact

Critical alarm – service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1-20)-(C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.50.1 Clearing a LOLIGHT-RX received loss of light alarm for a wavelength channel

Use this procedure to clear a LOLIGHT-RX alarm.

Step 1 Determine whether the upstream transmitting transceiver is administratively disabled (OOS). If it is, enable the administrative state of the transceiver by setting it to In-Service (IS). Using the proNX 900, right-click on the transceiver port, and choose **Provision Transceiver**.

The **Provision Transceiver** window is displayed. From the **Initial State** drop-down menu, choose **IS**, and then click **Apply**.

Step 2 Determine whether the upstream transceiver has the proper wavelength channel setting. If the wavelength channel is incorrect, use the **Wavelength** drop-down menu to choose the correct one, and then click **Apply**.

For information about wavelength channel settings refer to "Wavelength channel performance monitoring," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*

Step 3 Check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.51 LOLIGHT-TX (Transmitted Loss of Light) for OSC

Problem Description

This alarm indicates that the transmitted OSC signal cannot be detected.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Major alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.51.1 Clearing a LOLIGHT-TX transmitted loss of light alarm for OSC

Use this procedure to clear a LOLIGHT-TX for OSC alarm.

Step 1 Replace the alarmed module.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.52 LOLIGHT-TX (Transmitted Loss of Light) for a wavelength channel

Problem Description

This fault applies to ROADM Terminal, Line Equalizing Node and ROADM Node configurations and to channels on the add/drop port (C1) of the ROB module, the C2 port if it is configured for alien DWDM wavelengths, and the Line port.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on ports L1,C1, and C2.

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1,C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.52.1 Clearing a LOLIGHT-TX transmitted loss of light alarm for a wavelength channel

Use this procedure to clear a LOLIGHT-TX alarm.

Step 1 Using the proNX 900, navigate to the optical group and the alarmed module to check the following:

- OPT value on the Client output port
- OPR value on the Client input port on the upstream NE
- OPT value on the Line output port on the upstream NE
- OPR value on the Line input port

Step 2 Right-click on the alarmed port and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs. From the **Select PM** drop-down menu, choose **Wavelength Channel** and click **Start**, to retrieve the statistics.

Step 3 Refer to the **Metric** table to determine whether the received power (OPR/OPT) for the wavelength channel on the port is out of specification or cannot be detected (alarm "LOLIGHT-RX"). For information about threshold values refer to "DOL threshold and hysteresis values," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.

If the power is too low, check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.53 LOM (Loss of Multiframe for client-side port)

Problem Description

This alarm indicates that a GE or FC client port on a muxponder circuit pack is experiencing a missed frame in a virtual concatenation group.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

VCG-(1,11,21,31)-(1-20)-(L1,L2)-(1-4)

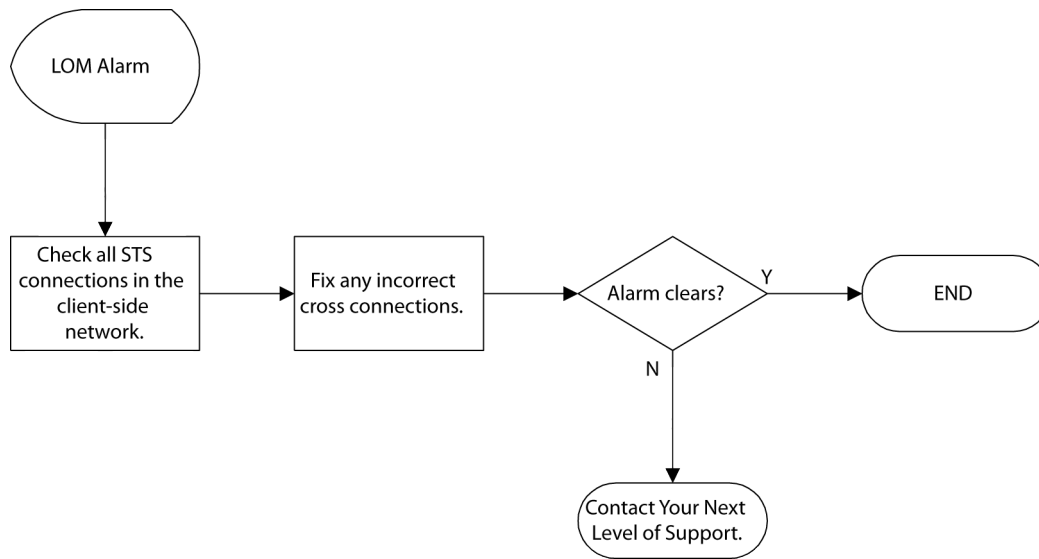
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-22 Clearing an LOM alarm

2.2.53.1 Clearing an LOM loss of multiframe for client-side port alarm

Use this procedure to clear an LOM alarm.

Step 1 Check all STS connections in the applicable network

Determine whether the STS cross connections in virtual concatenation groups (VCG) are provisioned correctly.

Use the RTRV-VCG command to retrieve the VCG provisioning information.

For default VCG formats for SONET or SDH line-side ports on 2-Port GbE Muxponder modules, refer to the *Muxponder Solutions Guide*.

Step 2 Fix any incorrect cross connections in the network.

Based on the information referenced in the *Muxponder Solutions Guide* identified above, and the provisioning information found in Step 1, fix any provisioning information that is incorrect.

Step 3 Does the alarm clear?

Check on whether the alarm clears:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.54 LOP-P (Loss of Pointer for STS Rx port)

Problem Description

This alarm indicates that a path inside a SONET/SDH line port on a muxponder circuit pack is experiencing one or more of the following:

- the pointer value in the SONET/SDH overhead is out of range
- the pointer value in the SONET/SDH overhead is not stable
- incorrect network synchronization
- something other than an STS1 signal is received (that is, STS3c, STS12c, VT1, etc.)

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	ON

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Critical alarm—service is affected.

Minor alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4)-(1-48) [for SONET] MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4)-(1-16) [for SDH] MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)-(ALL)

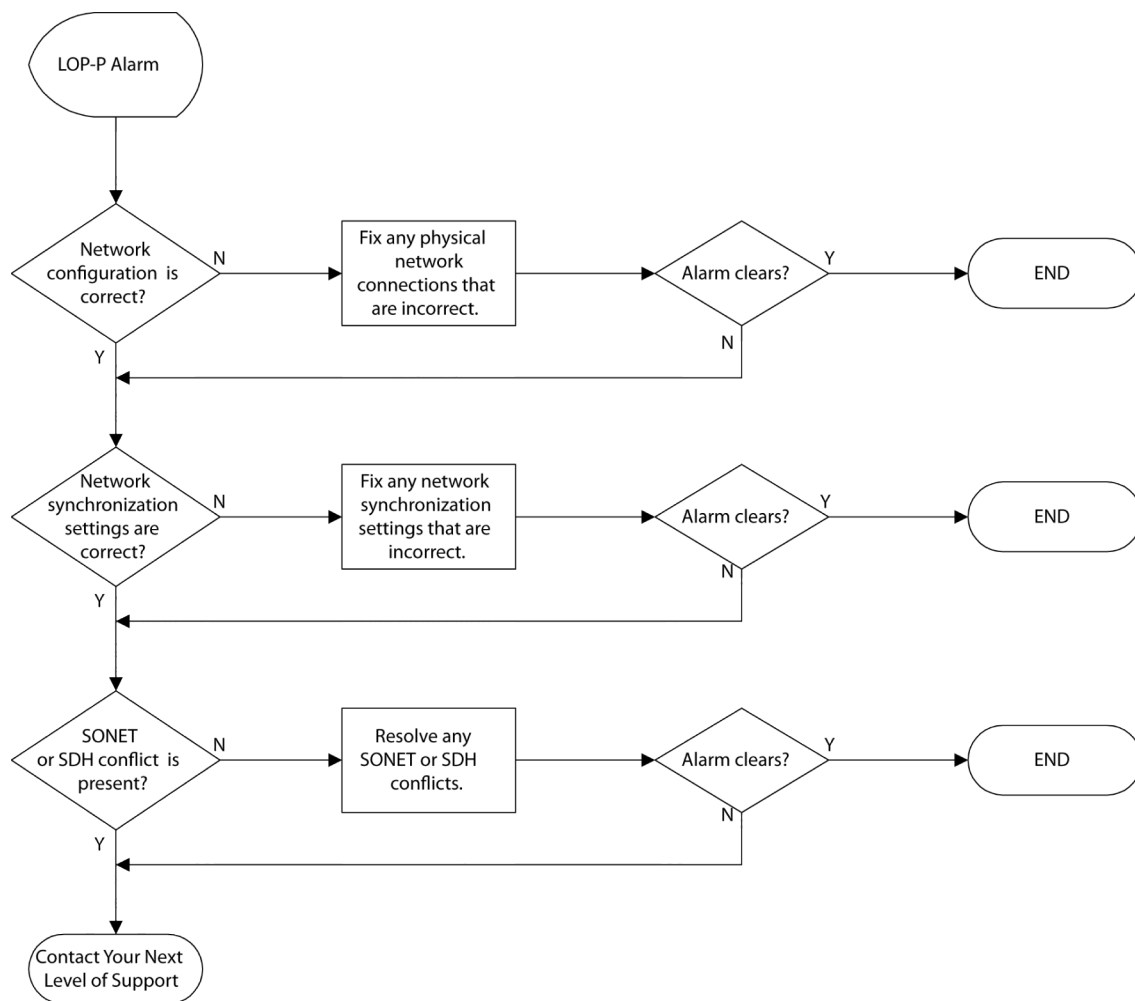
Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-23 Clearing an LOP-P alarm**2.2.54.1 Clearing an LOP-P loss of pointer for STS Rx port alarm**

Use this procedure to clear an LOP-P alarm.

Step 1 Check the physical network configuration

Determine if the physical network configuration is correct:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check the network synchronization settings

Determine if the network synchronization settings are correct:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check for SONET and SDH conflicts

Determine if any SONET and SDH conflict exists:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.55 LOS (Loss of Signal for FC or GE client-side port)

Important There are several LOS alarm clearing procedures. This procedure is for a muxponder that has experienced an input power drop at a FC or GE client-side port that is below the manufacturer's preset threshold.

The other LOS procedures are:

- [2.2.56, "LOS \(Loss of Signal for OCn line-side port\)"](#)
- [2.2.57, "LOS \(WT/WR/TPR Loss of Signal\)"](#)
- [2.2.58, "LOS \(WM Loss of Signal\)"](#)

Problem Description

This alarm indicates that a FC or GE client port on a muxponder circuit pack is experiencing a loss of signal due to one or more of the following:

- fiber cut
- dirty fiber and or connector
- excessive attenuation
- client-side router or switch related problem

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

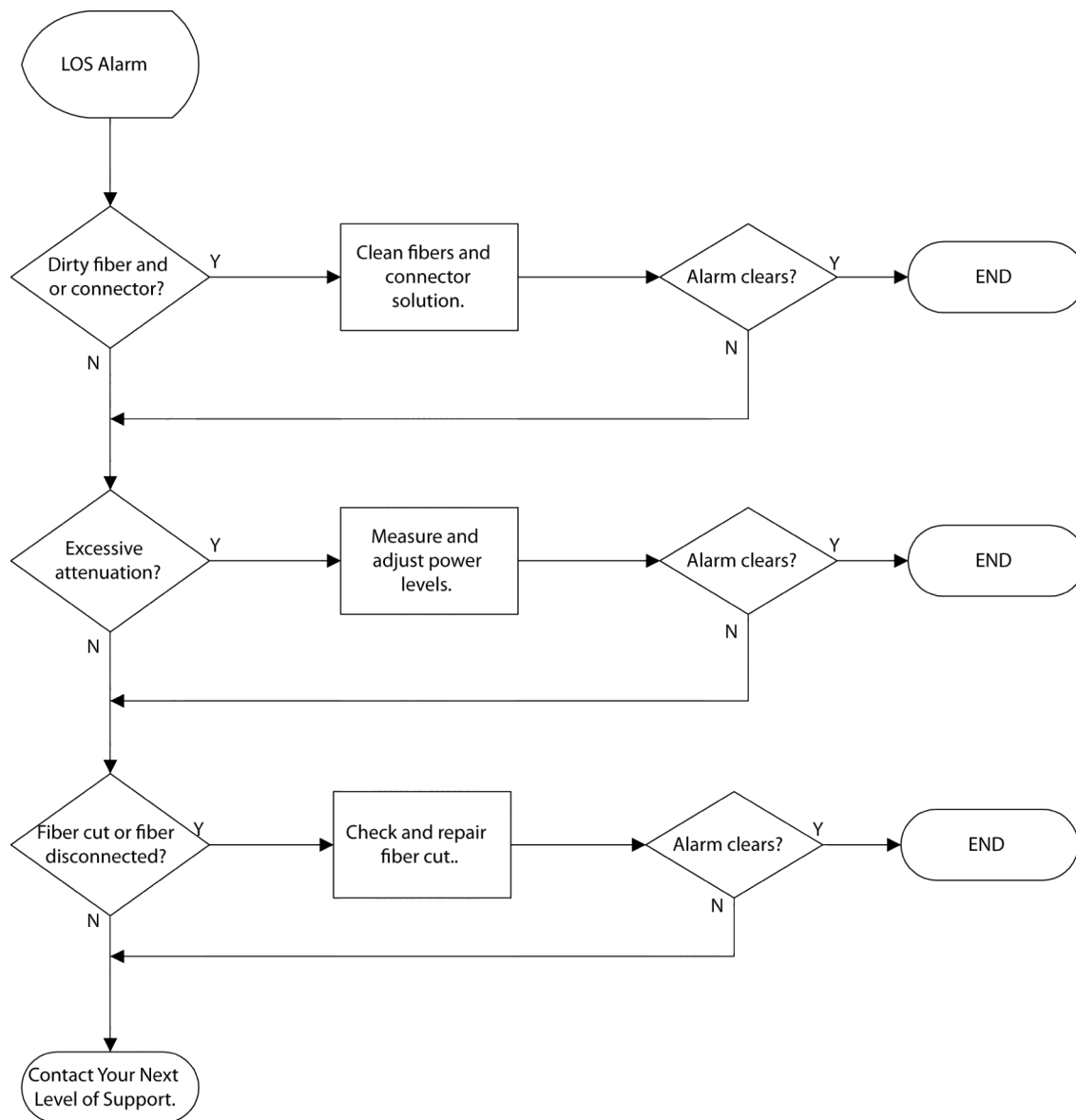


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-24 Clearing an LOS for a FC or GE client-side port alarm**2.2.55.1 Clearing an LOS loss of signal for FC or GE client-side port alarm**

Use this procedure to clear an LOS for a FC or GE client-side port alarm.

Step 1 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check if the far end circuit pack is mismatched or missing

Determine if the far end circuit pack is mismatched or missing and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check for a fiber cut or disconnected fiber

Determine if the fiber is cut or if a fiber is disconnected and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.56 LOS (Loss of Signal for OCn line-side port)

Important There are several LOS alarm clearing procedures. This procedure is for a muxponder that has experienced an input power drop at an OCn line-side port that has experienced an input power drop that is below the manufacturer's preset threshold.

The other LOS procedures are:

- [2.2.55, “LOS \(Loss of Signal for FC or GE client-side port\)”](#)
- [2.2.57, “LOS \(WT/WR/TPR Loss of Signal\)”](#)
- [2.2.58, “LOS \(WM Loss of Signal\)”](#)

Problem Description

This alarm indicates that a SONET/SDH line port on a muxponder circuit pack is experiencing a loss of signal due to one or more of the following:

- fiber cut
- dirty fiber and or connector
- excessive attenuation
- circuit pack is either missing or mismatched at the far end

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MPX	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Critical alarm—service is affected if carrying traffic Major alarm—service is affected.

Affected AIDs

MPX-(1,11,21,31)-(1-20)-(L1,L2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

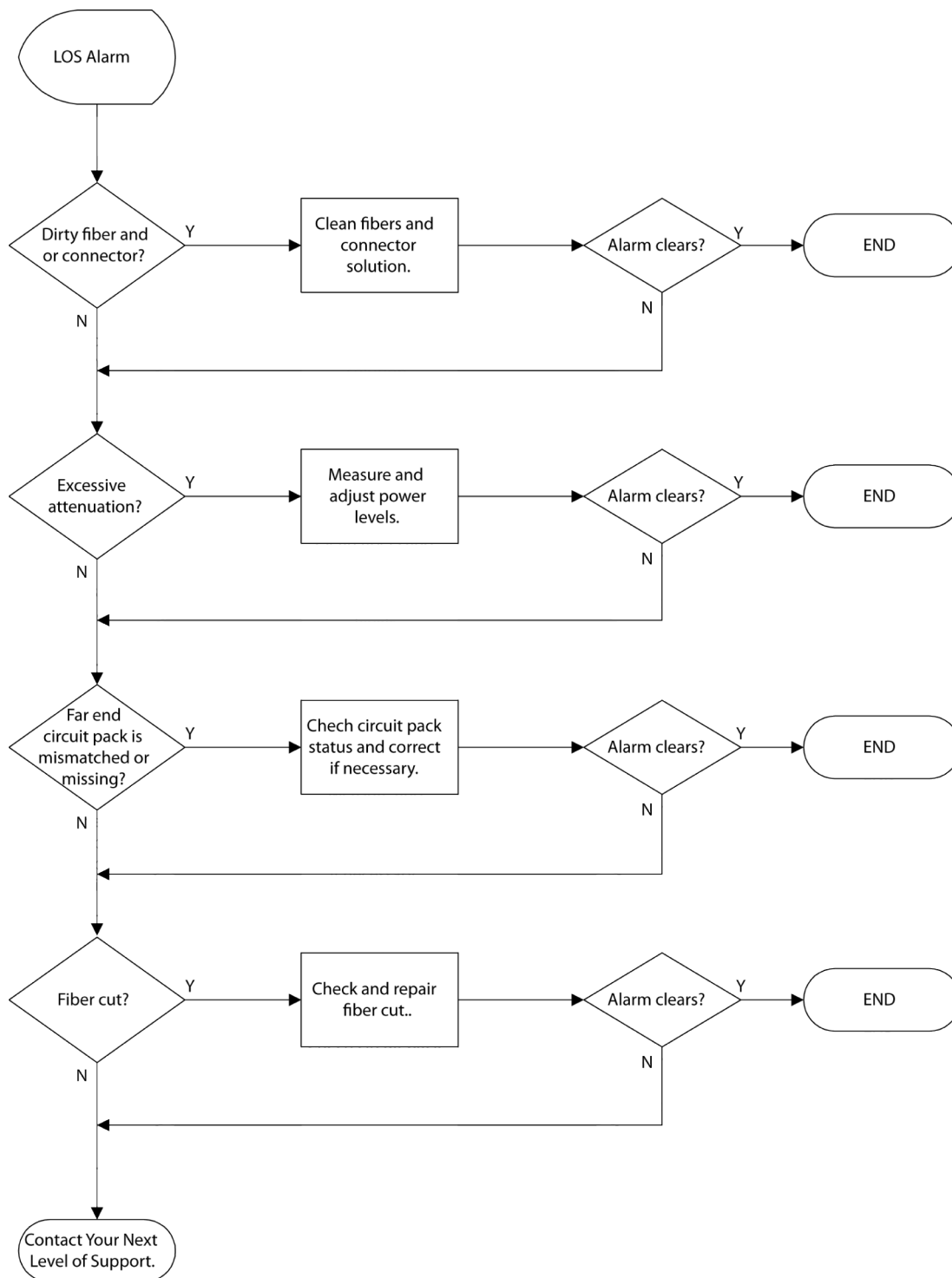


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-25 Clearing a LOS for an OCn line-side port alarm**2.2.56.1 Clearing an LOS loss of signal for an OCn line-side port alarm**

Use this procedure to clear a LOS for an OCn line-side port alarm.

Step 1 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check if the far end circuit pack is mismatched or missing

Determine if the far end circuit pack is mismatched or missing and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check for a fiber cut

Determine if the fiber is cut and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.57 LOS (WT/WR/TPR Loss of Signal)

Important There are several LOS alarm clearing procedures. This procedure is for either a transponder that has experienced an input power drop that is below the manufacturer's preset threshold.

The other LOS procedures are:

- [2.2.55, "LOS \(Loss of Signal for FC or GE client-side port\)"](#)
- [2.2.56, "LOS \(Loss of Signal for OCn line-side port\)"](#)
- [2.2.58, "LOS \(WM Loss of Signal\)"](#)

Problem Description

This alarm indicates that an SFP or XFP transceiver has experienced an input power drop that is below the manufacturer's preset threshold.

Note The LOS alarm can also be raised for excessive power levels. Refer to the *Product Description* for SFP and XFP transceiver specifications.

A downstream SFP or XFP in a transponder circuit pack can declare a LOS when the upstream SFP is transmitting an idle pattern.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for a circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP, XFP or MSA	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

TPR-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

WT-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

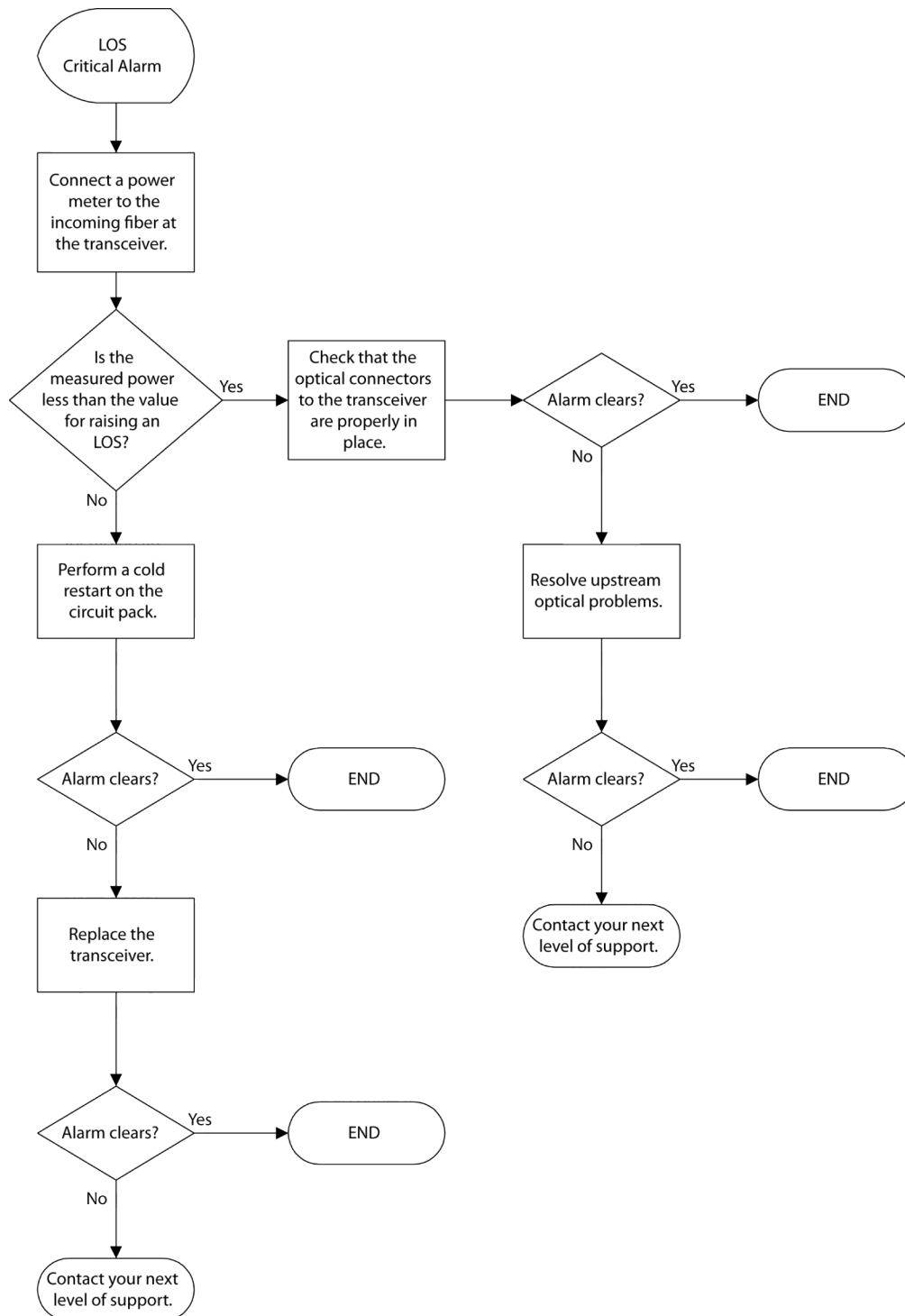


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-26 Clearing an LOS alarm

2.2.57.1 Clearing an LOS WT/WR/TPR Loss of Signal alarm

Use this procedure to clear an LOS alarm. See the *Product Guide* for information about transceiver specifications.

Step 1 Measure the OPR at the transceiver

To measure the optical power received (OPR) value for the transceiver, connect a power meter to the transceiver.

Note A Loss of Signal (LOS) alarm can occur when no coherent modulated signal is connected to an SFP, XFP or MSA transceiver.

- If the OPR level is greater than the specified value for the transceiver, adjust the input optical power and go to step 2.
- If the OPR level less than the specified value for the transceiver, go to step 3.

Step 2 Replace the Transceiver

To replace the SFP or XFP transceiver, refer to section 3.12, “[Replacing optical transceivers](#)”.

Step 3 Check all optical connectors and connections

There may be a problem with the optical connectors on the circuit pack:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check upstream equipment

There may be a problem with the upstream equipment. Resolve any upstream problem:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Possible fiber break in input fiber span.

A break in the fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

2.2.58 LOS (WM Loss of Signal)

Important There are several LOS alarm clearing procedures. This procedure is for clearing a loss of signal (LOS) alarm for a wavelength manager.

The other LOS procedures are:

- [2.2.55, “LOS \(Loss of Signal for FC or GE client-side port\)”](#)
- [2.2.56, “LOS \(Loss of Signal for OCn line-side port\)”](#)
- [2.2.57, “LOS \(WT/WR/TPR Loss of Signal\)”](#)

Problem Description

This alarm indicates that a loss of signal (LOS) alarm has occurred. This is a result of link signals being outside the required values for proper operation. Generally, the LOS alarm indicates that either an input power drop or an input power rise beyond the preset thresholds has occurred. Refer to the *Product Guide* for SFP transceiver specifications.

For an LOS alarm to occur to a wavelength manager, the following LOS defect criteria must be met.

Protocol	Criteria for raising an LOS defect on a wavelength manager
OC3 OC12 OC48 STM16	<ul style="list-style-type: none"> - LOS indication from SFP, or - All zeros pattern lasts for 100 microseconds or longer, or - If the zero pattern lasts for less than 2.5 microseconds then the LOS defect is not reported. - LOS can also be triggered by a low input power threshold. The threshold must be set such that a LOS is not detected if the BER is still acceptable.

LOS defects clear when the following criteria are met.

Protocol	Criteria for clearing an LOS defect on a wavelength manager
OC3 OC12 OC48 STM16	<ul style="list-style-type: none"> - Defect clears when the signal with a valid pulse density lasts for 125 to 150 microseconds, or - LOS indication clears from the SFP.

The LOS alarm occurs to a wavelength manager for the reasons listed in the following table.

Protocol	Criteria for raising an LOS alarm on a wavelength manager
OC3 OC12 OC48 STM16	<ul style="list-style-type: none"> - LOS defect persists for 1.5 seconds, or - LOS defect is present when an LOF failure is raised.

The LOS alarm clears when the LOS defect is absent for 10 seconds.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for a wavelength manager

Location	Circuit Pack LEDs	
	Fail	Active

WM	OFF	ON
----	-----	----

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

WM-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

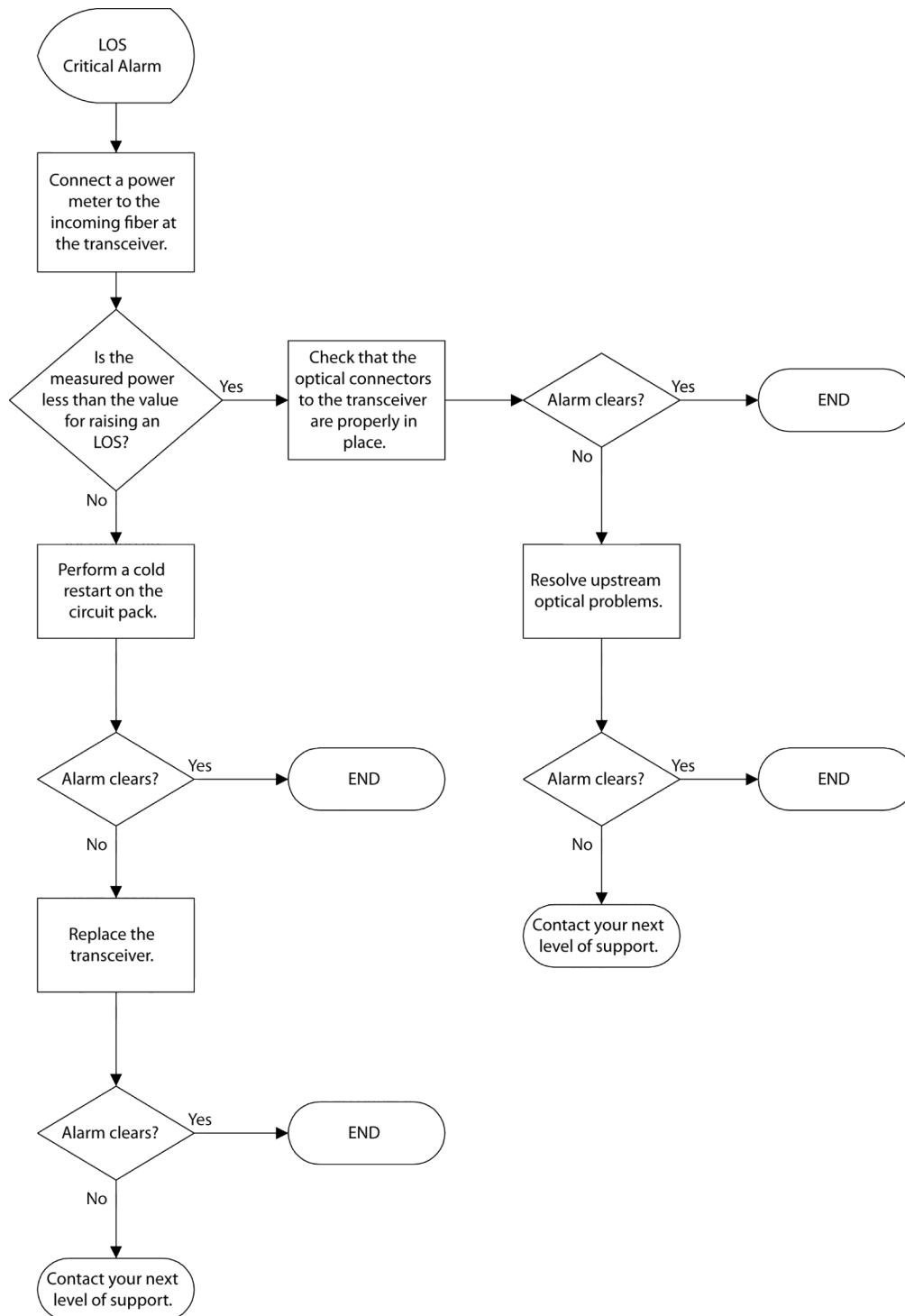


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-27 Clearing an LOS alarm

2.2.58.1 Clearing an LOS WM loss of signal alarm

Use this procedure to clear an LOS alarm. See the *Product Guide* for information about optical power received thresholds for SFP transceivers

Step 1 Measure the power level of the incoming fiber at the SFP transceiver

To measure the power level of the incoming fiber at the SFP transceiver, connect a power meter to the fiber

Note A Loss of Signal (LOS) alarm can occur when no coherent modulated signal is connected to an SFP transceiver.

- If the OPR level is greater than the specified value for the SFP transceiver (see Note 1 above), adjust the input optical power and go to step 2.
- If the incoming power level is less than the specified value for the SFP transceiver (see Note 1 above), go to step 5.

Step 2 Perform a cold restart of the circuit pack

To perform a cold restart of the wavelength manager circuit pack, enter the following at the command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::<ph>:[CMDMDE=<cmdmde>];
```

where

- TID is the target identifier
- aid is the access identifier
- ph is the phase of the initialization
- 0 is for a warm restart
- 1 is for a cold restart
- cmdmde is the command mode
- NORM is normal
- FRCD is forced

Note A cold restart of an active circuit pack does affect traffic and the device must be placed in the out-of service (OOS) state before performing the cold restart or the FRCD command mode must be used.

Example

```
INIT-SYS:BTI7000:WM-1-3:100::1;
```

Response

```
BTI7000 06-11-22 18:32:02
```

```
M 100 COMPLD  
;
```

Step 3 Check the results

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to step 4.

Step 4 Replace the SFP Transceiver

To replace the SFP transceiver, see [3.12, “Replacing optical transceivers”](#).

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 5 Check all optical connectors and connections

There may be a problem with the optical connectors on the circuit pack:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 6 Check upstream equipment

There may be a problem with the upstream equipment. Resolve any upstream problem:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.59 LOSPEC-RX (Received Loss Out of Specification)

Problem Description

The measured optical power loss is either above or below the specification limits. When reported against a Line port, the measured loss is the span loss of the receive fiber. When reported against a DCM port, the measure loss is that of the attached DCM module. When reported against a client port, the measured loss is that of the receive inter-module connection patch fiber between two ROB modules. This alarm may apply to any of the following:

- the span loss measured on the Line port of a DLA or ROB module. At least one cross connect or channel must be provisioned to raise the alarm for span loss.
- the DCM-In port of a ROB module
- the Client-C2 port of a ROB module (C2 inter-module connection patch fiber on a ROADM Node or a Line Equalizing Node).
- the C1 and DCM ports for a Line Amplifier Node

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line, DCM, or Client port is ON.

Impact

Critical alarm – service might be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1, C2, DCM)

DLA-(1,11,21,31)-(1-20)-(L1, C1, DCM)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.59.1 Clearing a LOSPEC-RX received loss out of specification alarm

Use this procedure to clear a LOSPEC-RX alarm.

Step 1 Check the PM Span/DCM/C1/C2 Loss value for the corresponding Line Port, DCM, or Client-Intercard port on the alarmed DLA or ROB module. Using the proNX 900, right-click on the alarmed port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

Step 2 Check for and resolve the following possible problems:

- excessive loss on the receive span fiber
- excessive span length resulting in loss that cannot be supported
- excessive loss on the DCM module(s) that are connected to the alarmed port
- excessive loss on upstream patch fibers

- excessive loss on the inter-module connection fiber panel

Step 3 Check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.60 LOSYNC (Loss of Synchronization)

Important There are two LOSYNC alarm clearing procedures. This procedure is for a transponder circuit pack when 16 synchronization block errors are detected in any group of 64 consecutive 64/66B blocks.

The other LOS procedure is

- [2.2.61, “LOSYNC \(Loss of Synchronization for FC or GE client-side port\)”](#)

Problem Description

A transceiver on a transponder circuit pack detects a LOSYNC alarm when 16 synchronization block errors are detected in any group of 64 consecutive 64/66B blocks. When 64 consecutive 64/66B blocks are transmitted free of synchronization errors, the LOSYNC alarm clears.

Note A LOSS_OF_SYNC defect is detected when the state machine enters the LOSS_OF_SYNC state. When a LOSS_OF_SYNC defect transitions to the SYNC_ACQUIRED_1 state, the LOSS_OF_SYNC defect clears.

This alarm applies to the following protocols: GE and 10GELAN.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for module

Location	Circuit Pack LEDs	
	Fail	Active
WM, WR, or TPR	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP or XFP	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(2)

TPR-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

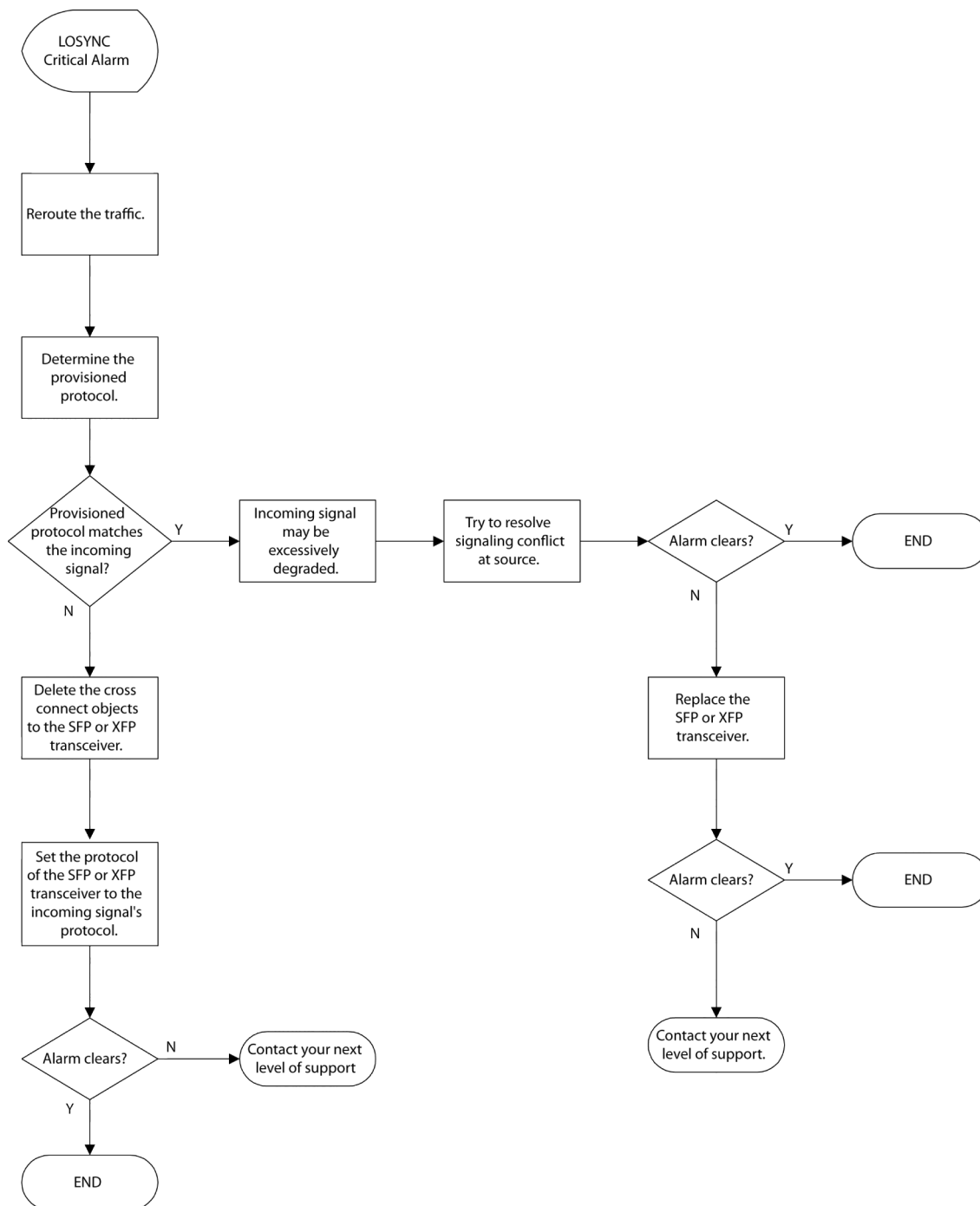


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-28 Clearing a LOSYNC alarm

2.2.60.1 Clearing a LOSYNC loss of synchronization alarm

Use this procedure to clear a loss of synchronization alarm.

Step 1 Reroute the traffic

Reroute the traffic to another link.

Step 2 Determine the provisioned protocol

To determine the provisioned protocol for the XFP transceiver in the circuit pack, enter the following at the TL1 command line interface:

```
RTRV-XCVR:[TID]:[<aid>]:<CTAG>;
```

Example Input

```
RTRV-XCVR::WR-1-4-2;;
```

Example Output

```
BTI7000 05-02-03 14:29:58
M 100 COMPLD
"WR-1-4-2:GRID=20,PROTOCOL=OC192,WAVELENGTH=1530,
PHYPMON=OFF,FPSD=OFF,:OOS-AU,UEQ&SGEO"
;
```

The PROTOCOL parameter indicates the protocol that the XFP transceiver is expecting. In this example, the protocol expected is OC192.

Action

- If the PROTOCOL parameter is not correct, go to step 3.
- If the PROTOCOL parameter is correct, go to step 4.

Step 3 Delete any existing cross connect objects

To delete the cross connect object, enter the following at the TL1 command line interface:

```
DLT-CRS-XCVR:BTI7000:WR-1-4-1,WR-1-4-2;;
BTI7000 05-02-03 07:34:04
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:34:06
A 494 REPT DBCHG
"TIME=07-34-06,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=271:DLT-CRS-XCVR:WR-1-4-1,WR-1-4-2"
;
```

Step 4 Set the protocol for the incoming signal

To set the protocol of the SFP or XFP transceiver, enter the following at the TL1 command line interface:

```
ED-XCVR::<aid>:::[PROTOCOL=<protocol>],[CMDMDE=<cmdmde>]:
```

Step 5 where

- `protocol` is the protocol parameter that sets the bit rate
- `cmdmde` is the command mode equal to forced (FRCD)

Note If the command mode FRCD is not used, the SFP transceiver must be taken out of service.

Example Input

```
ED-XCVR::WR-1-4-2:::PROTOCOL=10GELAN,CMDMDE=FRCD;
```

Example Output

```
BTI7000 05-02-03 07:39:49
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:39:50
A 496 REPT RMV XCVR
"WR-1-4-2:OOS-AU,UEQ&SGEO"
;
BTI7000 05-02-03 07:39:50
A 497 REPT DBCHG
"TIME=07-39-50,DATE=05-02-03,SOURCE=100,LINKID=2-15,
USERID=admin,DBCHGSEQ=273:ED-XCVR:WR-1-4-2:::PROTOCOL=10GELAN,
WAVELENGTH=1530"
;
```

Note If the SFP or XFP transceiver was taken out of service, it must now be placed back in service.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

Step 6 Re-provision cross connect objects

To enter the cross connect object, enter the following at the TL1 command line interface:

```
ENT-CRS-XCVR:BTI7000:WR-1-4-1,WR-1-4-2:100::2WAY;
BTI7000 05-02-03 07:32:56
M 100 COMPLD
;
BTI7000>
BTI7000 05-02-03 07:32:57
A 493 REPT DBCHG
"TIME=07-32-57,DATE=05-02-03,SOURCE=100,LINKID=2-15,USERID=admin,
DBCHGSEQ=270:ENT-CRS-XCVR:WR-1-4-1,
```

```
WR-1-4-2:2WAY"
;
```

Step 7 Resolve the problem with the incoming signal

The incoming signal may be excessively degraded. Contact the personnel responsible for the far-end source to resolve the signaling problem.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, go to the next step.

Step 8 Replace the SFP or XFP transceiver

Go to section 3.12, “[Replacing optical transceivers](#)” and follow the instructions on how to replace a transceiver. After this is completed, return to this step.

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

2.2.61 LOSYNC (Loss of Synchronization for FC or GE client-side port)

Important There are two LOSYNC alarm clearing procedures. This procedure applies when a FC or GE client port on a muxponder circuit pack experiences a loss of synchronization.

The other LOS procedure is

- [2.2.60, “LOSYNC \(Loss of Synchronization\)”](#)

Problem Description

This alarm indicates that a FC or GE client port on a muxponder circuit pack is experiencing a loss of synchronization.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

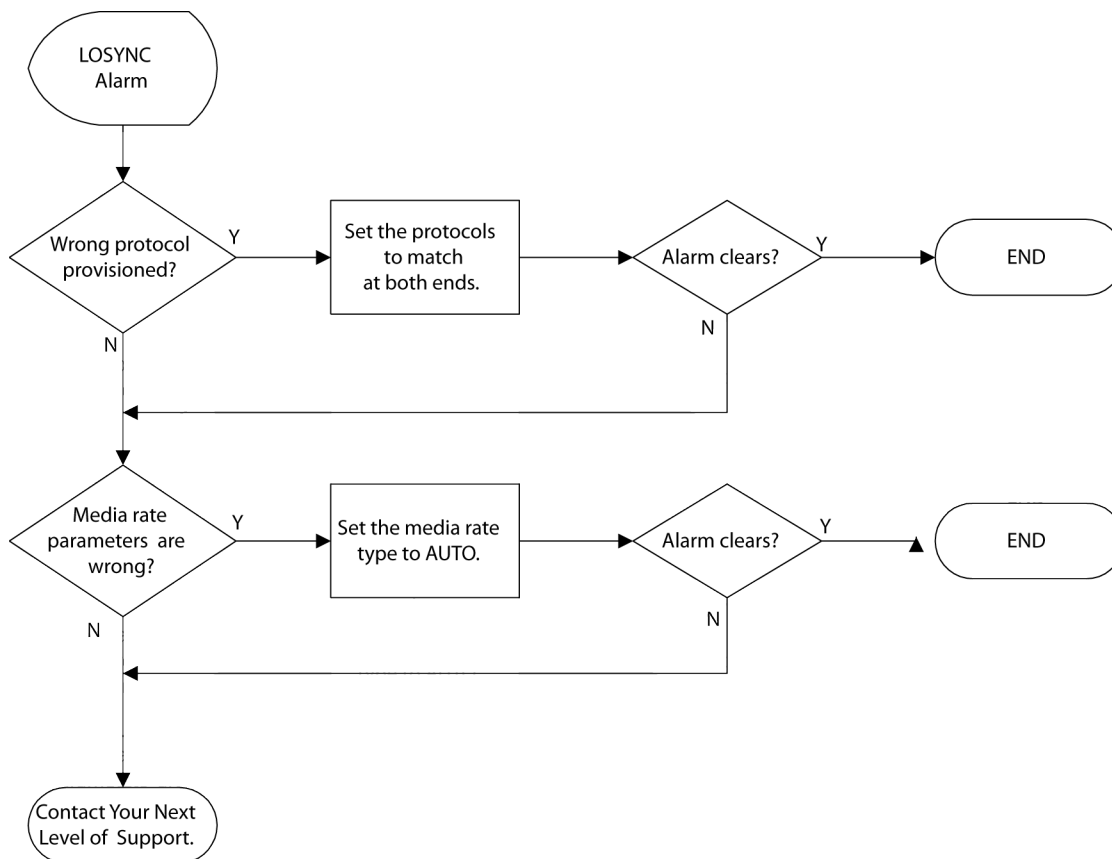
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
-------------	--

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-29 Clearing a LOSYNC alarm

2.2.61.1 Clearing a LOSYNC Loss of Synchronization for FC or GE client-side port alarm

Use this procedure to clear a LOSYNC alarm.

Step 1 Check if the wrong protocols are provisioned

Determine if the protocols are correctly set at the near end and the far end:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check if the MEDIARATE parameter is set correctly

Determine if the MEDIARATE parameter is set correctly at the near end and the far end:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.62 LSRMANOFF (Laser Manually Off)

Problem Description

An operator has changed the port laser control parameter to turn off the laser. This condition is raised only if the circuit pack and pluggable are inserted.

LED behavior

None

Impact

NR

Affected AIDs

TPR-(1,11,21,31)-(1-20)-(1-4)

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1-C10)

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
-------------	--



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.62.1 Clearing an LSRMANOFF laser manually off alarm

Use this procedure to clear an LSRMANOFF alarm.

Step 1 An LSRMANOFF condition occurs when an operator has changed the port laser control parameter to turn off the laser. To clear this condition, configure the port laser control parameter to turn the laser back on or to let software control the laser.

2.2.63 OBR-HTSO (OBR - High Threshold Safety Override)

Problem Description

The Optical Back Reflection - High Threshold Safety Override alarm indicates that the automatic power reduction (APR) feature of the amplifier lasers has been over-ridden by operator action. The override stays active for 20 to 600 seconds. When the timer expires, the OBR-HTSO alarm clears.

Note	If the amplifier reboots, the OBR-HTSO condition ends automatically.
-------------	--

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Minor alarm - service is not affected

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Important This alarm is an indication that the amplifier is not in eye safe mode and that appropriate precautions must be taken when working with the affected amplifier.

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

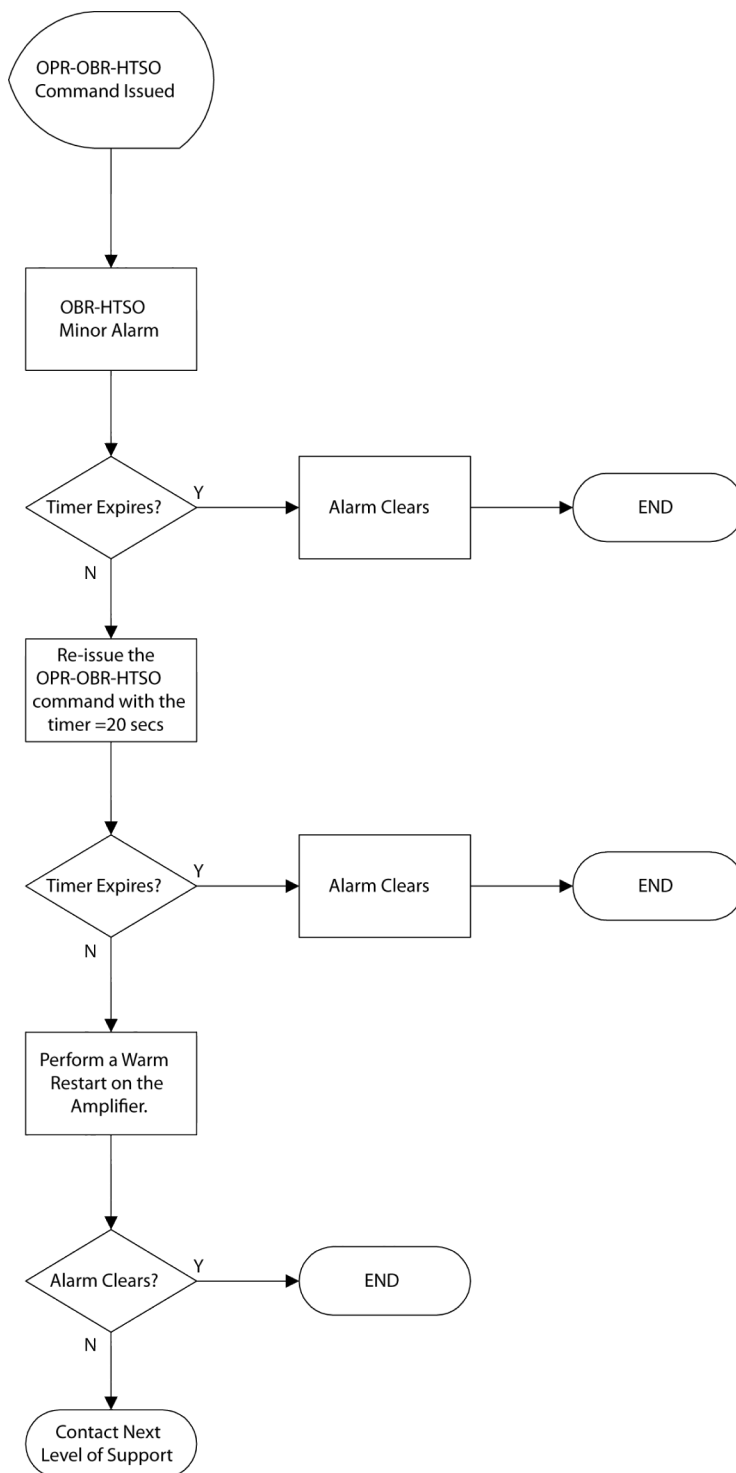


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-30 Clearing an OBR-HTSO alarm

2.2.63.1 Clearing an Optical Back Reflection - High Threshold Safety Override alarm

Use this procedure to clear an OBR-HTSO alarm.

Step 1 Wait for OBR-HTSO Timer to Expire

Under normal circumstances the OBR-HTSO timer expires and the amplifier goes back into an automatic power reduction mode, and the OBR-HTSO alarm clears. There are two possible results:

- If the timer expires and the alarm clears, you have completed this procedure.
- If the timer does not expire, go to the next step.

Step 2 Re-issue the OPR-OBR-HTSO Command

Re-issue the OPR-OBR-HTSO command with the timer equal to 20 seconds, by entering the following at the TL1 command line interface:

```
OPR-OBR-HTSO:[TID]:<aid>:<CTAG>::[TIME=<rtrid>];
```

Example

```
OPR-OBR-HTSO:BTI7000:OLAM-1-3:100::TIME=20;
```

Wait 20 seconds for the timer to expire.

- If the timer expires and the alarm clears, you have completed this procedure.
- If the timer does not expire, go to the next step.

Step 3 Perform a warm restart on the circuit pack

To perform a warm restart on the optical amplifier circuit pack, enter the following at the TL1 command line interface:

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::0;
```

Example

```
INIT-SYS:BTI7000:OLAM-1-3:100::0;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.64 OBROS (Optical Back Reflection Out of Specification)

Problem Description

This alarm indicates that the measured optical back reflection of the transmitted OSC signal exceeds the specification maximum limit. This fault is not monitored when the OSC is administratively disabled. This alarm behaves as follows:

- this alarm is raised at -18dB (clear hysteresis is -3dB)
- the raising of this alarm blocks the turning up of traffic
- since traffic is not turned up, OBR continues to be measured, and so the alarm may clear if the OBR is reduced.
- the threshold level used to evaluate this fault point is not user readable or configurable
- this alarm masks the OBR-HT alarm

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1, C2, DCM)

DLA-(1,11,21,31)-(1-20)-(L1, C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.64.1 Clearing a OBROS optical back reflection out of specification alarm

Use this procedure to clear an OBROS alarm.

- Step 1** Ensure that the span fiber that the Line output port fiber is properly connected and is not damaged.
- Step 2** Ensure that the fiber connectors are all of a compatible type.
- Step 3** Thoroughly clean the Line output port fiber connection, and also any downstream fiber connections.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.65 ODU1-AIS alarm

Problem Description

ODU1-AIS is raised on a down stream node due to a line level fault on a client port of the upstream node. The ODU1-AIS alarm will be raised against the ODU1 channel the upstream node client port is cross connected to.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

LED behavior

There is no Fault LED alarm on the Line port.

Impact

Should a fault occur on an ODU1 quadrant of the ODU1 cross connection, an ODU1-AIS will be reported at the local node. The ODU1-AIS alarm will be reported downstream and service **will be** affected on that cross connection.

If a LOS, LOF, AIS-L or OTNPLM fault condition occurs on Line 1 or Line 2 of an ODU1 cross connection a LOS, LOF, AIS-L and OTNPLM is reported at the local node. An ODU1-AIS alarm will be generated against the down stream node and service **will be** affected on that cross connection.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2) (1,2,3,4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.65.1 Clearing an ODU1-AIS alarm

Use this procedure to clear an ODU1-AIS alarm

Step 1 Perform steps 1-5 on the muxponder at the local node or the far end fault location:

Step 2 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check if the far end circuit pack is mismatched

Determine if the far end circuit pack is mismatched or missing and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Check for a fiber cut or disconnected fiber between the upstream node and its upstream neighboring node.

Determine if the fiber is cut or if a fiber is disconnected and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.66 OCI (Open Connection Indicator)

Problem Description

This alarm indicates that a cross-connection has not been provisioned at the far end, but a cross-connection has been provisioned at the near end.

Note	On the 8-Port Multiprotocol Muxponder, this alarm applies only when the line-mapping parameter is set to sub-ODU1-OTU1. On the 10-Port Multiprotocol Muxponder, this alarm applies only when the line-mapping parameter is set to ODU1-OTU2. On the Dual 10G Multiprotocol Transponder (BT7A49AA-I02), this alarm applies only when the port is configured for an OTN-type protocol.
-------------	--

LED behavior for BTI 7060/BTI 7200

Not applicable

LED behavior for transceiver port LEDs

Not applicable

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1, 3, 5)-(L1, L2)-(1-4)

TPR-(1,11,21,31)-(1-20)-(1-4)

2.2.66.1 Clearing an OCI open connection indicator alarm

Use this procedure to clear an OCI alarm.

Step 1 Check the cross connection at the far end, and at all intermediate NEs (as applicable) along the path.

Determine whether the cross connection provisioning is correct at the far end and at all intermediate NEs along the path. Resolve any problems.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check if there is a faulty circuit pack at the far end.

Determine whether there is a faulty circuit pack at the far end. If so, replace the faulty circuit pack:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.67 ODUPLM (ODU Payload Mismatch)

Problem Description

This alarm indicates that the cross-connections on the ODU1 quadrant at the near end do not match the cross-connections on the same quadrant at the far end.

Note On the 8-Port Multiprotocol Muxponder, this alarm applies only when the line-mapping parameter is set to sub-ODU1-OTU1. On the 10-Port Multiprotocol Muxponder, this alarm applies only when the line-mapping parameter is set to ODU1-OTU2.

LED behavior for BTI 7060/BTI 7200

Not applicable

LED behavior for transceiver port LEDs

Not applicable

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1,3,5...19)-(L1,L2)-(1-4)



Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.67.1 Clearing an ODUPLM payload mismatch alarm

Use this procedure to clear an ODUPLM alarm.

Step 1 Determine the cross-connection provisioning on the near end Muxponder.

To determine the cross-connection provisioning on the near end Muxponder, enter the following at the TL1 command line interface:

```
RTRV-CRS-ODU1:[TID]:[<src_aid>],[<dst_aid>]:[CTAG]:[<cct>]:
[SWMATE=<swmate>]:[DISPLAY=<display>];
```

Action

- If the cross-connection provisioning on the near end Muxponder is not correct, go to step 2.
- If the cross-connection provisioning on the near end Muxponder is correct, go to step 3.

Step 2 Correct the cross-connection provisioning on the near end Muxponder.

To correct the cross-connection provisioning on the near end Muxponder, delete the wrong cross-connection by entering the DLT-CRS-ODU1 command at the TL1 command line interface, then enter the correct cross-connection by entering the ENT-CRS-ODU1 command at the TL1 command line interface .

Step 3 Correct the cross-connection provisioning on the far end Muxponder.

To correct the cross-connection provisioning on the far end Muxponder, delete the wrong cross-connection by entering the DLT-CRS-ODU1 command at the TL1 command line interface, then enter the correct cross-connection by entering the ENT-CRS-ODU1 command at the TL1 command line interface .

Action

- If the alarm clears, you have successfully completed this procedure.
- If the alarm remains, contact your next level of support.

2.2.68 OPR-HIGH-FAIL (Received Power High Fail) for a wavelength channel

Problem Description

The received optical power of the channel signal is at an excessive high level and the channel is considered as failed.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on Client ports (C1/C2).

Impact

Critical alarm—service is affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.68.1 Clearing a OPR-HIGH-FAIL received power high fail alarm for a wavelength channel

Use this procedure to clear a OPR-HIGH-FAIL alarm.

Step 1 Check the PM OPR value for the alarmed channel. Using the proNX 900, right-click on the alarmed channel and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the channel PMs.

Step 2 Determine whether the received optical power to the Client-input port is at an excessive high level and the channel is failed.

If the received optical power is too high, add an attenuation pad in the optical path to bring the power level to within the specified range for operation.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.69 OSCLOS (OSC Loss of Signal)

Problem Description

There is a loss of signal to one of the optical IP interfaces of the Optical Supervisory Channel (OSC) module, or the optical IP interfaces of the System Control Processor (SCP) module.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for OSC on the SCP module

Location	module LEDs		
	Fail	Active	Fault
SCP	OFF	ON	ON

Impact

Major alarm - service is not affected

Affected AIDs

IP-1-5-(1,2)



Laser

Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

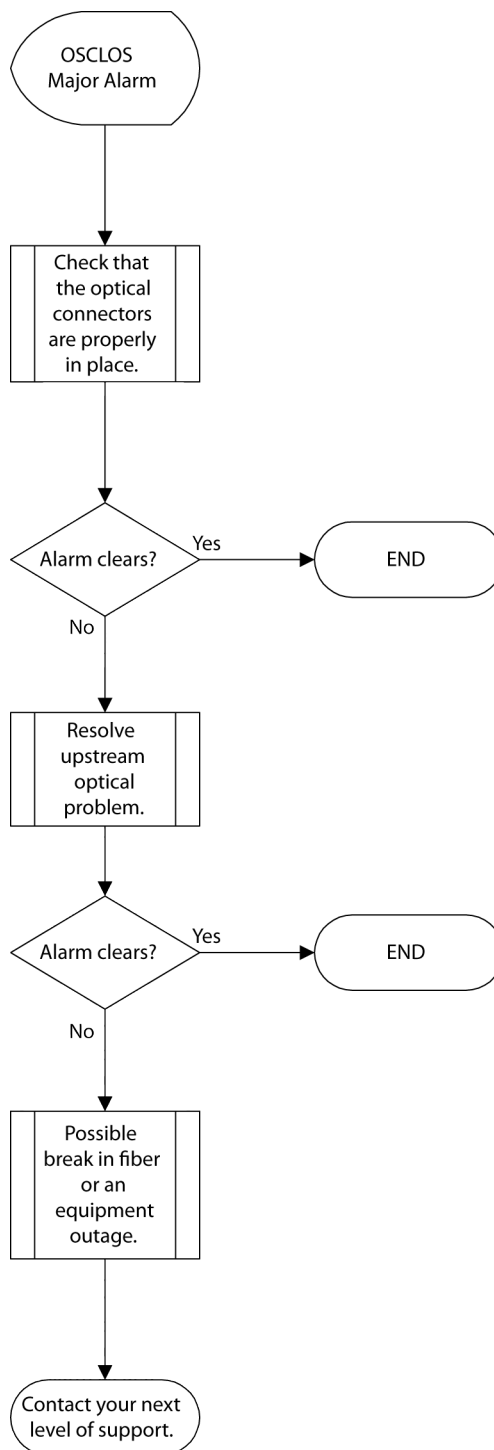


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-31 Clearing an OSCLOS alarm

2.2.69.1 Clearing an OSCLOS OSC loss of signal alarm

Use this procedure to clear an OSCLOS alarm.

Step 1 Check optical connectors

There may be a problem with the optical connectors at the OSC module or the SCP module:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check upstream equipment

There may be a problem with the upstream equipment. Resolve any upstream problem:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Possible fiber break in input fiber span

A break in the fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

2.2.70 OTNPLM (OTN Payload Mismatch)

Problem Description

This alarm indicates that the setting of the line-mapping parameter on the near-end line or lines does not match the setting of the line-mapping parameter on the far-end line or lines (the expected payload type is not the same as the received payload type).

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for transceiver port LEDs

Location	Transceiver port LEDs	
	Fault	Fail
Transceiver	ON	OFF

Impact

Critical alarm – service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1,3,5...19)-(L1,L2)

2.2.70.1 Clearing an OTNPLM payload mismatch alarm

The Muxponder module is provisioned incorrectly. Make sure the provisioning is the same at both ends. To provision the Muxponder module see the *Muxponder Solutions Guide*.

2.2.71 PACKUPGRDFAIL (Circuit Pack Upgrade Failure)**Problem Description**

There is a pack upgrade failure.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SCP-1-3 SCP-1-5

SI-(11,21,31)

SLOT-(1,11,21,31)-(1-20)

2.2.71.1 Clearing a PACKUPGRDFAIL circuit pack upgrade failure alarm

Use this procedure to clear a PACKUPGRDFAIL alarm.

Step 1 Force a reboot of the circuit pack.

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::[<ph>]:CMDMDE=<cmdmde>;
```

Example

```
INIT-SYS:BTI7000:TPR-1-3:100::0:CMDMDE=FRCD;
```

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, proceed to the next step.

Step 2 Reseat the circuit pack.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, proceed to the next step.

Step 3 Replace the circuit pack.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.72 PMI (Payload Missing Indication)

Problem Description

The far-end NE has signaled the local NE that an upstream WDM composite signal failure condition has been detected, and as a result, no WDM composite signal is being transmitted to the local NE.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	OFF

LED behavior DLA or ROB modules

The Fault LED on Line port of the upstream DLA or ROB module is ON.

Impact

Not reported—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.72.1 Clearing a PMI payload missing indication alarm

Use this procedure to clear a PMI alarm.

Step 1 Check for and resolve all “LOLIGHT-RX” alarms on upstream Line, DCM or Intercard-Client ports on the DLA or ROB modules.

Step 2 Check for and resolve the following:

- an upstream Line Amplifier Node within the same equalization section as the local NE has detected a WDM composite signal LOLIGHT-RX and an OSC LOLIGHT-RX on its line port, and has initiated an APSD. The detected LOLIGHT-RX alarms are in the direction of the local NE that raises the PMI fault.
- a WDM composite signal LOLIGHT-RX has been detected on a DCM or client-interconnect port of an upstream Line Amplifier Node within the same equalization section as the local NE. The detected LOLIGHT-RX fault is in the direction of the local NE that raises the PMI fault.

Step 3 Check for a possible fiber break in the input fiber span.

A break in the input fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.73 POS-RX (Received Power Out of Specification) for an optical port

Problem Description

This alarm indicates that the received optical power is either above or below the specified range for operation. This fault applies only to the client port of the DLA module in a Amplifier Terminal configuration.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for DLA module

The Fault LED on the Client port is ON.

Impact

Critical alarm – service is affected.

Affected AIDs

DLA-(1,11,21,31)-(1-20)-(C1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.73.1 Clearing a POS-RX received optical power out of specification alarm for an optical port

Use this procedure to clear a POS-RX alarm on an optical port.

Step 1 Using the proNX 900, navigate to the optical group and the alarmed module to check the OPR value on the Client input port.

Step 2 Right-click on the alarmed port and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs. From the **Select PM** drop-down menu, choose **Optical Port** and click **Start**, to retrieve the statistics.

Step 3 Refer to the **Metric** table to determine whether the received optical power (OPR) to the Client-input port is higher or lower than the specified range for operation. For information about threshold values refer to "DOL threshold and hysteresis values," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.

- If the received optical power is too high, add an attenuation pad in the optical path to bring the power level to within the specified range for operation.
- If the received optical power is too low, check and clean the upstream fiber connections.
- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.74 POS-RX-HIGH (Received Power Out of Specification - High) for an amplifier port

Problem Description

This alarm indicates that the received optical power is above the specified range of operation.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for the LGA/MGA/MGM module

The Fault LED is on.

Impact

Critical alarm – service is affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.74.1 Clearing a POS-RX-HIGH received optical power out of specification high alarm for an amplifier port

Use this procedure to clear a POS-RX-HIGH alarm on an optical amplifier port.

Step 1 Using the proNX 900, navigate to the amplifier to check the OPR value on the line port.

Step 2 Right-click on the amplifier and choose **View Amplifier PM**.

The Performance window is displayed, in which you can view the port's PMs.

Step 3 Click **Start** to start PM collection.

Step 4 Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power (OPR) to the line port is higher than the specified range of operation.

Step 5 Add an attenuation pad in the optical path to bring the power level to within the specified range of operation.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.75 POS-RX-HIGH (Received Power Out of Specification - High) for a wavelength channel

Problem Description

The received optical power of the channel signal is above the specified range for operation. This applies only to channels on add/drop ports of ROB modules: C1 and C2 if configured for alien DWDM.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior

There is no Fault LED for WCH alarms on Client ports (C1/C2).

Impact

Major alarm—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.75.1 Clearing a POS-RX-High received optical power out of specification - High alarm for a wavelength channel

Use this procedure to clear a POS-RX-High alarm.

Step 1 Using the proNX 900, navigate to the optical group and the alarmed module to check the OPR value on the Client input port.

Step 2 Right-click on the alarmed port and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs. From the **Select PM** drop-down menu, choose **Wavelength Channel** and click **Start**, to retrieve the statistics.

Step 3 Refer to the Metric table to determine whether the received optical power (OPR) to the Client-input port is higher or lower than the specified range for operation. For information about threshold values refer to "DOL threshold and hysteresis values," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.

If the received optical power is too high, add an attenuation pad in the optical path to bring the power level to within the specified range for operation.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.76 POS-RX-LOW (Received Power Out of Specification - Low) for an amplifier port

Problem Description

This alarm indicates that the received optical power is below the specified range of operation.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for the LGA/MGA/MGM module

The Fault LED is on.

Impact

Critical alarm – service is affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.76.1 Clearing a POS-RX-LOW received optical power out of specification low alarm for an optical port

Use this procedure to clear a POS-RX-LOW alarm on an optical port.

Step 1 Using the proNX 900, navigate to the amplifier to check the OPR value on the line port.

Step 2 Right-click on the amplifier and choose **View Amplifier PM**.

The Performance window is displayed, in which you can view the port's PMs.

Step 3 Click **Start** to start PM collection.

Step 4 Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power (OPR) to the line port is lower than the specified range of operation.

Step 5 Check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.77 POS-RX-LOW (Received Power Out of Specification - Low) for a wavelength channel

Problem Description

The received optical power of the channel signal is below the specified range for operation. This applies only to channels on add/drop ports of ROB modules—C1 and C2— if configured for alien DWDM.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior

There is no Fault LED for WCH alarms on Client ports (C1/C2).

Impact

Major alarm—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.77.1 Clearing a POS-RX-LOW received optical power out of specification - Low alarm for a wavelength channel

Use this procedure to clear a POS-RX-High alarm.

- Step 1** Using the proNX 900, navigate to the optical group and the alarmed module to check the OPR value on the Client input port.
- Step 2** Right-click on the alarmed port and choose **View Port PM**.
The **PM Statistics** window is displayed, in which you can view the port's PMs. From the **Select PM** drop-down menu, choose **Wavelength Channel** and click **Start**, to retrieve the statistics.
- Step 3** Refer to the Metric table to determine whether the received optical power (OPR) to the Client-input port is higher or lower than the specified range for operation. For information about threshold values refer to "DOL threshold and hysteresis values," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.
- Step 4** If the received optical power to the client input port is lower than the specified range for operation, check the following. Re-check the power after each step:
- Clean the fibers attached to the affected ports.
 - Change the patch cord fiber.
 - Check the source of the channel to determine if it is transmitting at an adequate level.
 - Check the fibers, and, any attenuators in the path to ensure that no unintentional, additional attenuation is added to the path.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.78 POS-TX (Transmitted Power Out of Specification) for a wavelength channel

Problem Description

The transmitted optical power is either above or below or the specified range for operation.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on Line and Client ports.

Impact

Critical alarm - service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1,C1,C2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.78.1 Clearing a POS-TX transmitted optical power out of specification alarm for a wavelength channel

Use this procedure to clear a POS-TX alarm.

Step 1 Using the proNX 900, navigate to the optical group and the alarmed module to check the following:

- OPT value on the Client output port
- OPR value on the Client input port on the upstream NE
- OPT value on the Line output port on the upstream NE

Step 2 Right-click on the alarmed port and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs. From the **Select PM** drop-down menu, choose **Wavelength Channel** and click **Start**, to retrieve the statistics.

Step 3 Refer to the **Metric** table to determine whether the received power (OPR/OPT) for the wavelength channel on the port is out of specification or cannot be compensated through equalization to bring the transmitted power within specification. For information about threshold values refer to "DOL threshold and hysteresis values," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*.

- If the transmitted optical power is too high, add an attenuation pad in the optical path to bring the power level to within the specified range for operation.
- If the transmitted optical power is too low, check and clean the upstream fiber connections.
- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.79 PWR-NA-TX (Transmitted Power Not Achievable)

Problem Description

The configured power level cannot be achieved on the output signal.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Minor alarm—service is not affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.79.1 Clearing a PWR-NA-TX transmitted power not achievable alarm

Use this procedure to clear a PWR-NA-TX alarm.

- Step 1** Check the input signal as the output signal is a function of the input signal
Determine whether the input signal is below the minimum input level permitted:
- If the input signal is below the minimum input level, go to the next step.
 - If the input signal is above the minimum input level, contact your next level of support.
- Step 2** Amplify the input signal
Amplify the input signal to above the minimum input level by either increasing amplification upstream, or checking for potential problems with the upstream transmitters:
- If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.80 PWRBRWNT (Power Brownout)

Problem Description

There is a system power brownout. If a power brownout occurs, the amplifiers fail, followed by the SCP, and then the cooling unit fails.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	ON	ON	ON

Impact

Critical—service is affected.

Affected AIDs

ES-(11,21,31)

MS-1

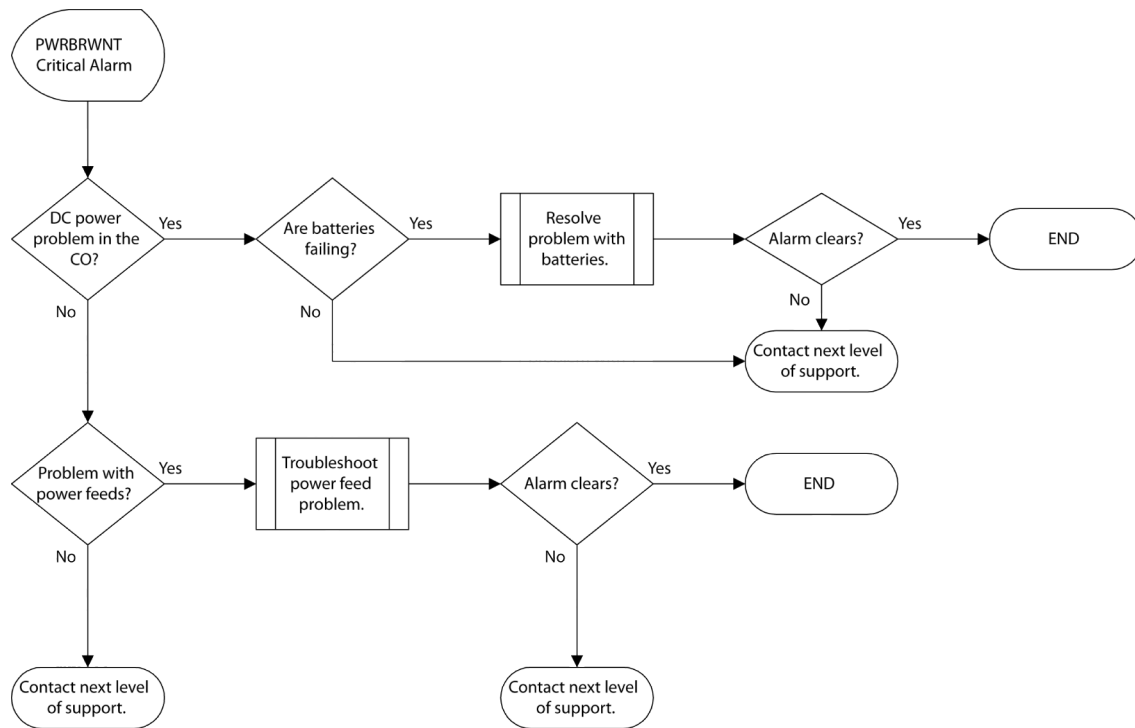
SH-1

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-32 Clearing a PWRBRWNT alarm

2.2.80.1 Clearing a PWRBRWNT power brownout alarm

Use this procedure to clear a PWRBRWNT alarm.

Step 1 Check if there is a DC Power problem in the central office

Check if the BTI 7000 Series is still functioning.

- If the BTI 7000 Series is still operational, go to the next step.
- If the BTI 7000 Series is not operational, go to step 4.

Step 2 Determine if the backup batteries are failing

A gradual decrease in the power voltage can be an indication that the backup batteries are failing:

- If the backup batteries are failing, resolve the problem and go to the next step.
- If the backup batteries are not failing, contact your next level of support.

Step 3 Check the alarm status

After resolving the backup battery problem, check the alarm status:

- If the PWRBRWNT alarm clears, you have successfully completed this procedure.
- If the PWRBRWNT alarm does not clear, contact your next level of support.

Step 4 Determine if there is a problem with the A and B power feeds

The power feeds are designed to take over from each other in case of a failure:

- If there is a problem with a power feed, troubleshoot the problem and then go to the next step.
- If there is not a problem with the power feeds, contact your next level of support.

Step 5 Check the alarm status

After resolving the power feed problem, check the alarm status:

- If the PWRBRWNT alarm clears, you have successfully completed this procedure.
- If the PWRBRWNT alarm does not clear, contact your next level of support.

2.2.81 REPLUNITDEGRADE (Circuit Pack Degrade)

Problem Description

This alarm is raised when a physical component failure or degradation is detected on a module. This alarm alerts the operator that the module could be defective or that the current conditions on the module may degrade it to the point that it might require replacement. This alarm may also be caused by operating the module outside of the acceptable operating power range for a period of time.

This alarm is masked when any of the following alarms are active:

- Circuit Pack Missing
- Circuit Pack Mismatch
- Circuit Pack Unknown
- Circuit Pack Fail

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for DLA or ROB modules

The Fault LED on the module is ON. Depending on the severity, all LEDs on the module might be ON.

Impact

Major alarm—service might be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)

DLA-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.81.1 Clearing a REPLUNITDEGRADE circuit pack degrade alarm

Use this procedure to clear a REPLUNITDEGRADE alarm.

Step 1 Perform a database backup before performing any troubleshooting steps. Refer to the *Operations Solutions Guide* for details.

Step 2 Check for and fix any other alarms on the alarmed DLA or ROB modules.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Perform a warm restart of the alarmed module.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.82 RELNUMMEA (Release Number Mismatch)

Problem Description

The release number of a replacement SCP does not match the software version of the shelf.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of SCP

Location	Circuit Pack LEDs	
	Fail	Active

SCP	OFF	ON
-----	-----	----

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

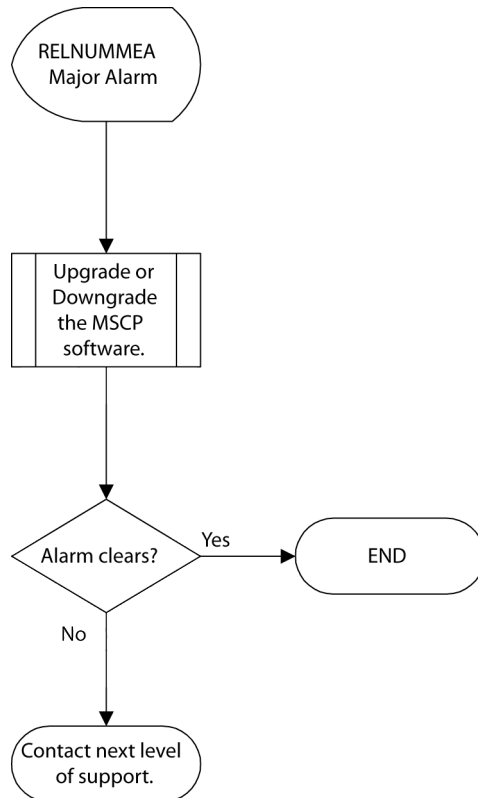
SCP-1-3

SCP-1-5

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-33 Clearing a RELNUMMEA alarm



2.2.82.1 Clearing a RELNUMMEA release number mismatch alarm

Use this procedure to clear a RELNUMMEA alarm.

Step 1 Upgrade or Downgrade the SCP software

See the *Upgrade Guide* for information.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.83 REPLUNITFAIL (Circuit Pack Failure)

Important There are two REPLUNITFAIL alarm clearing procedures. This procedure is for clearing a failed circuit pack. The procedure after this one is for clearing an SFP or XFP transceiver that has failed in its associated port in a circuit pack.

Problem Description

There is a circuit pack failure.

The alarm is critical when a circuit pack is provisioned and it fails in its associated slot.

Note The cooling unit is an exception in that it raises a major alarm rather than a critical alarm. The reason for this difference is that when a fan in the cooling unit fails it is not immediately or necessarily a traffic-affecting situation.

LED behavior

Table 2-13 LED behavior of BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

Table 2-14 LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Critical alarm—service is affected. Major alarm—service is not affected (for cooling unit only).

Affected AIDs

CCM-(1,11,21,31)-1

CU-(1,11,21,31)

CU-(1,11,21,31)-(1-4)

SI-(1,11,21,31)

SLOT-(1,11,21,31)-(1-20)

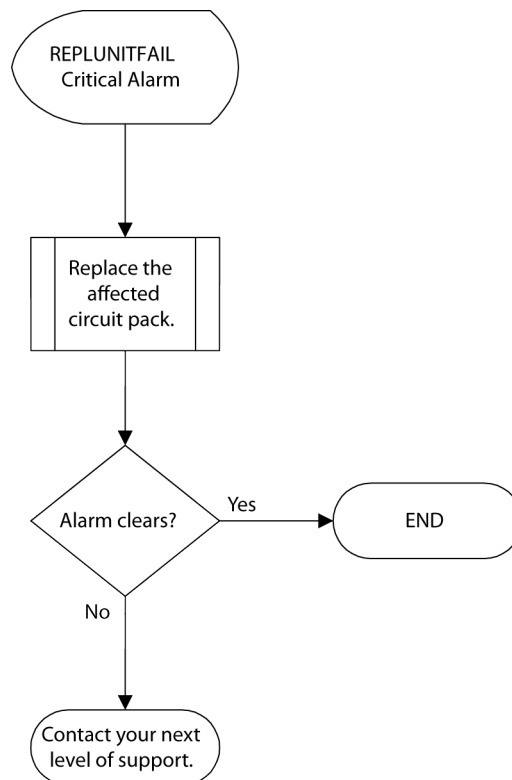
Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-34 Clearing a REPLUNITFAIL alarm

2.2.83.1 Clearing a REPLUNITFAIL circuit pack failure alarm

Use this procedure to clear a REPLUNITFAIL alarm.

Step 1 Replace the circuit pack

Go to the applicable circuit pack replacement procedure in [Chapter 3, “Replacing modules”](#), insert the replacement circuit pack, and the alarm clears.

Note If this is a packetVX™ module, and it is in a stacking configuration with another packetVX™ module, then the other packetVX™ module must be restarted once the new module has finished rebooting and has come up.

If the alarm does not clear, contact your next level of support.

2.2.84 REPLUNITFAIL (SFP or XFP Failure)

Important There are two REPLUNITFAIL alarm clearing procedures. This procedure is for clearing an SFP or XFP transceiver that has failed in its associated port in a circuit pack. The procedure before this one is for clearing a failed circuit pack.

Problem Description

There is an SFP or XFP transceiver failure.

The alarm occurs if an SFP or XFP transceiver is provisioned on a circuit pack and the transceiver has failed in its associated port.

LED behavior of BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for module

Location	Circuit Pack LEDs	
	Fail	Active
WM/WR/WT	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP or XFP	OFF	ON

Impact

Critical alarm—service is affected.

Affected AIDs

ESFP-1-5-(1-3)

SFP-(1,11,21,31)-(1-20)-(1-4)

XFP-(1,11,21,31)-(1-20)-2

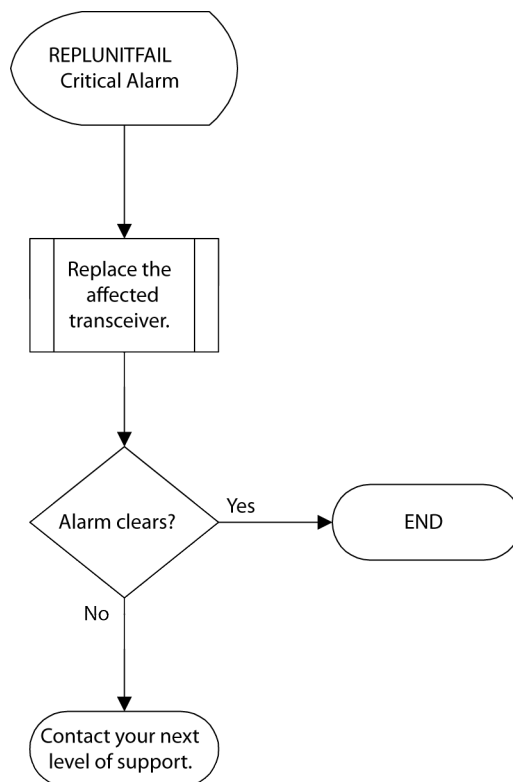
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-35 Clearing a REPLUNITFAIL alarm for an SFP transceiver

2.2.84.1 Clearing a REPLUNITFAIL alarm for an SFP or XFP transceiver

Use this procedure to clear a REPLUNITFAIL alarm for an SFP or XFP transceiver.

Step 1 Replace the transceiver

Go to procedure [3.12, “Replacing optical transceivers”](#) in this document to replace an SFP or XFP:

- If the alarm clears, you have successfully cleared this alarm.
- If the alarm does not clear, contact your next level of support.

2.2.85 REPLUNITIDMEA (Replaceable Unit Identifier Mismatch)

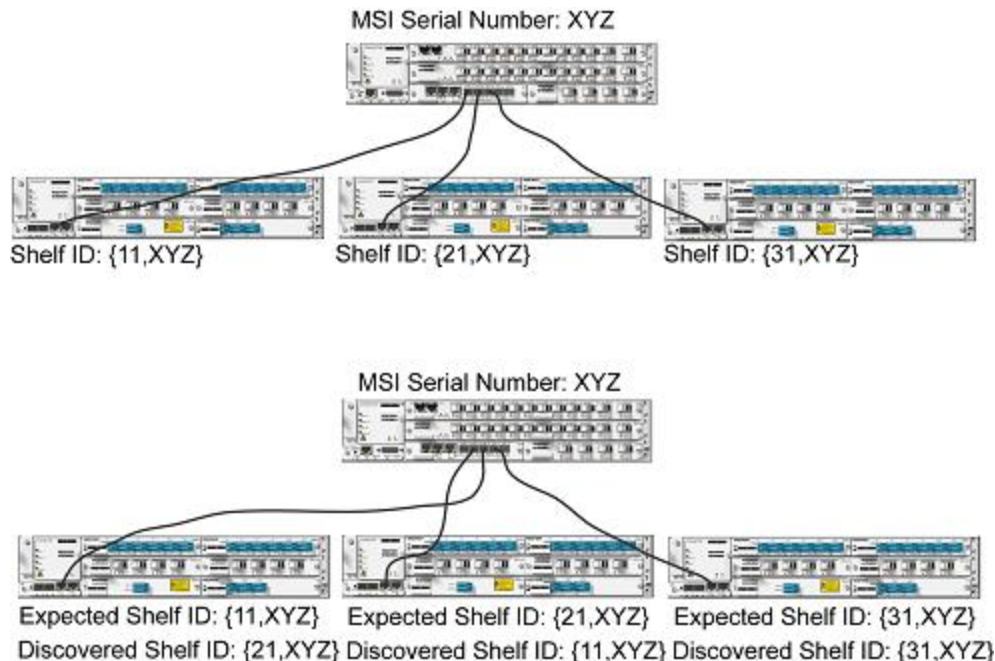
Problem Description

An expansion shelf is connected to an expansion shelf port on the SCP of the BTI 7000 Series that does not belong to that port. This mismatch can occur due to one of the following two scenarios:

- 1 The expansion shelf cables are swapped and reconnected to the wrong expansion shelf port on the SCP of the BTI 7060.

- 2 The expansion shelf from another network element (NE) is connected to an expansion shelf port on the SCP of the first system.

Figure 2-36 Scenario 1: The expansion shelf cables are swapped



In this scenario, the expansion shelf cables that are connected to the SCP circuit pack in the main shelf acquire expansion shelf IDs that are based on the order in which they are originally provisioned. Subsequently, the expansion shelf cables from expansion shelves 11 and 21 are reconnected in a reverse sequence. As a result, the BTI 7060 expects shelf IDs that are different from the discovered shelf IDs. This causes the REPLUNITIDMEA alarm to be triggered.

Shelf IDs

Expansion shelf IDs are assigned to the expansion when first connected to the main shelf SC port. The shelf ID is a function of the main shelf interface (MSI) circuit pack serial number and the expansion shelf port number (11, 21, or 31) on the SCP to which the expansion shelf is attached.

If the MSI circuit pack number, the expansion shelf port number, or both numbers are different than expected, then the REPLUNITIDMEA alarm is triggered.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of SCP

Location	Circuit Pack LEDs		ES LEDs	OSC LEDs			
	Fail	Active		11	21	31	1 2
SCP	OFF	ON	ON	ON	ON	ON	OFF OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main	To Expansion		
	Trouble	Active	Fail	LOS	Fail	LOS
ESI	ON	ON	ON	OFF	OFF	OFF

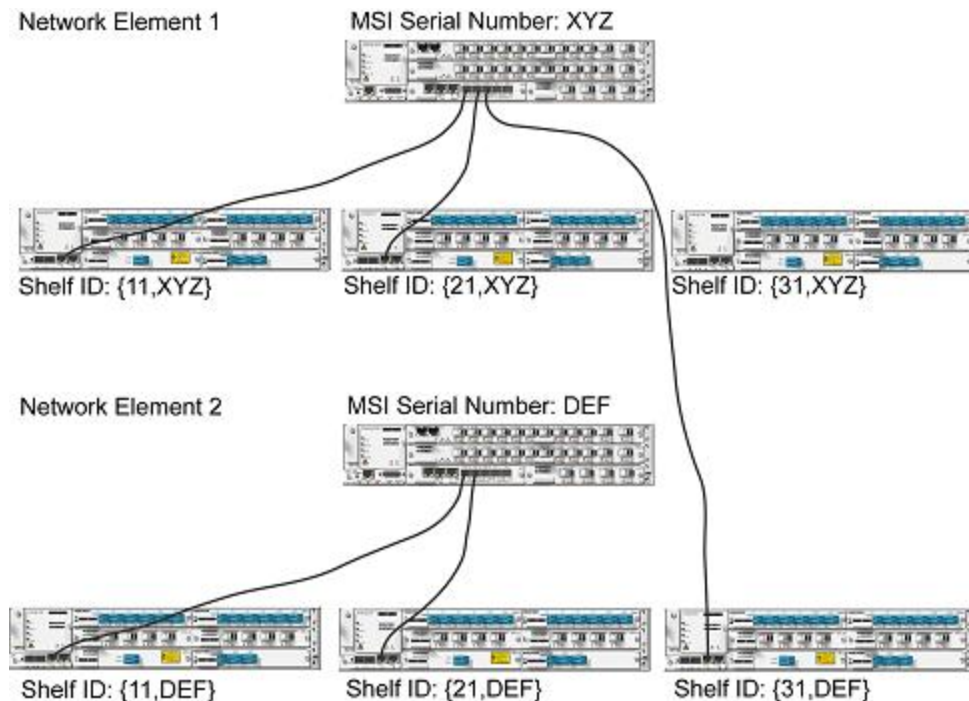
Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

Figure 2-37 Scenario 2: An expansion shelf from another NE is incorrectly connected



MSI Serial Numbers

MSI serial numbers are assigned at the time the MSI circuit pack is manufactured. The BTI 7000 Series uses this unique identifier to create associations between expansion shelves and the MSI circuit pack. As a result, unique identifiers can be created for each expansion shelf.

LED behavior for BTI 7060

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of multi-shelf SCP

Location	Circuit Pack LEDs		ES LEDs	OSC LEDs			
	Fail	Active	11	21	31	1	2
SCP	OFF	ON	OFF	OFF	ON	OFF	OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main	To Expansion		
	Trouble	Active	Fail	LOS	Fail	LOS
ESI	ON	ON	ON	OFF	OFF	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.85.1 Clearing a REPLUNITIDMEA replaceable unit identifier mismatch alarm

Use this procedure to clear a replaceable unit identifier mismatch alarm.

Step 1 Review the expected and discovered parameters that are generated by the alarm notification:

Expected	Discovered
-----	-----
TID	TID
NMS IP	NMS IP
Shelf ID	Shelf ID
MSI Serial Number	MSI Serial Number

where:

- TID is the target identifier
- NMS IP is the network management system IP address
- Shelf ID is the shelf identifier
- MSI Serial Number is the main shelf interface serial number

Note: TL1 displays the Craft port IP address instead of the NMS port IP address when there is a REPLUNITIDMEA alarm.

Step 2 Compare the expected MSI serial number with the discovered MSI serial number.

- If the expected MSI serial number matches the discovered MSI serial number, go to the next step.
- If the expected MSI serial number does not match the discovered MSI serial number, go to step 4.

Step 3 Compare the expected shelf identifier with the discovered shelf identifier.

- If the expected shelf identifier matches the discovered shelf identifier, contact your next level of support.
- If the expected shelf identifier does not match the discovered shelf identifier, go to the next step.

Step 4 You can either reconnect the expansion shelf to its original SCP expansion shelf port, or you can accept the current configuration.

If you choose to reconnect the expansion shelf to its original SCP expansion shelf port, check the alarm status after the expansion shelf is reconnected to its original SCP expansion shelf port:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

If you choose not to reconnect the expansion shelf to its original SCP expansion shelf port and would rather accept the current configuration, go to the next step.

Step 5 Power-down the affected expansion shelf and then power it back up.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.86 REPLUNITHTAS (Circuit Pack High Temperature Automatic Shutdown)

Problem Description

The circuit pack has exceeded its high temperature threshold and has been shut down because the HTAS feature is enabled.

LED behavior

Table 2-16 LED behavior of BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

Table 2-17 LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.86.1 Clearing a REPLUNITHTAS Circuit Pack High Temperature Automatic Shutdown alarm

Use this procedure to clear a REPLUNITHTAS alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the shelf is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear.
- If the ambient room temperature is in the normal operating temperature range, go to the next step.

Step 3 Determine whether there are any empty slots in the shelf

Check the BTI 7000 Series shelf for any empty slots.

- If empty slots exist, insert filler circuit packs into those slots.
- If no empty slots exist, go to the next step.

Step 4 Determine whether anything is obstructing the shelf ventilation

Check the BTI 7000 Series shelf to determine if there is anything obstructing the ventilation openings.

- If there are any obstructions, clear the obstructions from around the BTI 7000 Series shelf.
- Check the filter and clean it if necessary.

Step 5 If no problems are found, contact your next level of support.

Step 6 Once operating temperatures are back within specification, reset the circuit pack using the following command (or remove and reseal the circuit pack). If the circuit pack does not come back into service, replace it.

```
INIT-SYS:[TID]:[<aid>]:<CTAG>::phase;
```

For example:

```
INIT-SYS:BTI7000:TPR-1-3:100::2;
```

Note the use of phase parameter "2", which must be used to recover from a REPLUNITHTAS alarm.

2.2.87 REPLUNITMEA (Circuit Pack Mismatch)

Important There are three REPLUNITMEA alarm clearing procedures. This procedure is for clearing a mismatch between the equipment provisioned for the slot and the physical circuit pack that is inserted in the slot.

The other REPLUNITMEA procedures are

- [2.2.88, “REPLUNITMEA \(Shelf Mismatch\)”](#)
- [2.2.89, “REPLUNITMEA \(SFP or XFP Mismatch\)”](#)

Problem Description

There is a circuit pack mismatch in the BTI 7000 Series. There is a mismatch between the equipment provisioned for the slot and the physical circuit pack that is inserted in the slot.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior of circuit pack

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Major alarm—Service is not affected.

Affected AIDs

C1ADM-(1,11,21,31)-(1-20)

CDSC-(1,11,21,31)-(1-20)

CS-(1,11,21,31)-(1-20)
CU-(1,11,21,31)-(1-4)
D1ADM-(1,11,21,31)-(1-20)
D2ADM-(1,11,21,31)-(1-20)
D4ADM-(1,11,21,31)-(1,3,5...19)
D32MD1-(1,11,21,31)-(1,3,5...19)
D32MD2-(1,11,21,31)-(1,3,5...19)
D32MD3-(1,11,21,31)-(1,3,5...19)
D32MD4-(1,11,21,31)-(1,3,5...19)
DLA-(1,11,21,31)-(1-20)-(L1)
LGA-(1,11,21,31)-(1-20)
MGA-(1,11,21,31)-(1-20)
MGM-(1,11,21,31)-(1-20)
MXP-(1,11,21,31)-(1-20)
OBA-(1,11,21,31)-(1-20)
OLA-(1,11,21,31)-(1-20)
OLAM-(1,11,21,31)-(1-20)
OPA-(1,11,21,31)-(1-20)
OSC-(1,11,21,31)-(1-20)
ROB-(1,11,21,31)-(1,3,5...19)
SBA-(1,11,21,31)-(1-20)
SCP-1-5 SCP-1-3
SPA-(1,11,21,31)-(1-20)
SMF20-(1,11,21,31)-(1-20)
SMF40-(1,11,21,31)-(1-20)
SMF60-(1,11,21,31)-(1-20)
SMF80-(1,11,21,31)-(1-20)
TPR-(1,11,21,31)-(1-20)
WM-(1,11,21,31)-(1-20)
WR-(1,11,21,31)-(1-20)
WT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

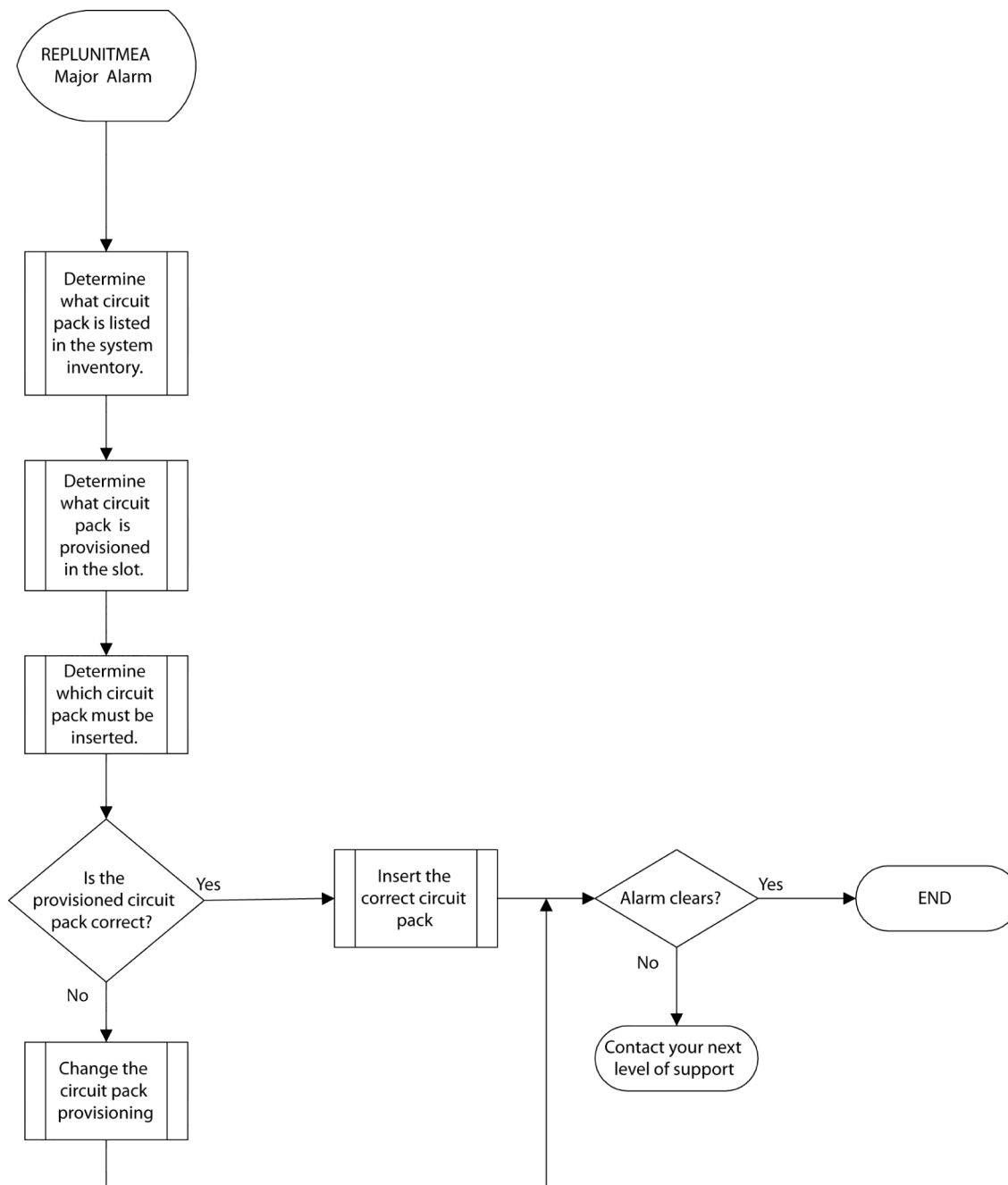


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-38 Clearing a REPLUNITMEA alarm**2.2.87.1 Clearing a REPLUNITMEA circuit pack mismatch alarm**

Use this procedure to clear a REPLUNITMEA alarm.

Step 1 Determine what circuit pack is listed in the system inventory

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>::;
```

Example output for one slot

```
"SLOT-2-1,EQPT:NAME=OBA,PEC=BP1A02DA-UC,CLEI=UNKNOWN, FNAME=Optical  
Booster Amplifier-UC,SER=00112233445566,HWREV=1,  
MFGDAT=2002-05-30,MFGLOCN=Thurston,  
TSTDAT=2002-05-30,TSTLOCN=Thurston,"
```

As seen in the example output, slot-2-1 is provisioned for a BP1A02DA-UC circuit pack

Step 2 Determine whether the provisioned slot or the inserted circuit pack is correct

Check the office records or engineering specifications to determine whether the provisioned slot in the BTI 7000 Series or the physical circuit pack inserted in the slot is correct:

- If the provisioned parameters of the system are correct, obtain a correct circuit pack and go to Step 3.
- If the physical circuit pack is correct, go to Step 4 to change the provisioned parameters.

Step 3 Replace the circuit pack

Obtain a replacement circuit pack, and then insert it. See [Chapter 3, “Replacing modules”](#) for information.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 4 Change the provisioned parameters for the circuit pack

Go to the applicable provisioning procedure in the *Solutions Guide* for the circuit pack, provision the circuit pack, and then return to this procedure:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.88 REPLUNITMEA (Shelf Mismatch)

Important There are three REPLUNITMEA alarm clearing procedures. This procedure is for clearing a mismatch between an expansion shelf configuration that is provisioned for the system and the physical shelf configuration of the expansion shelf that is connected to the system.

The other REPLUNITMEA procedures are

- [2.2.87, “REPLUNITMEA \(Circuit Pack Mismatch\)”](#)
- [2.2.89, “REPLUNITMEA \(SFP or XFP Mismatch\)”](#)

Problem Description

The expansion shelf is either physically configured with the wrong number of slots or the expansion shelf is provisioned incorrectly.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for ESI circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
ESI	ON	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP	OFF	ON

Impact

Major alarm—Service is not affected.

Affected AIDs

ES-(11,21,31)

MS-1

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

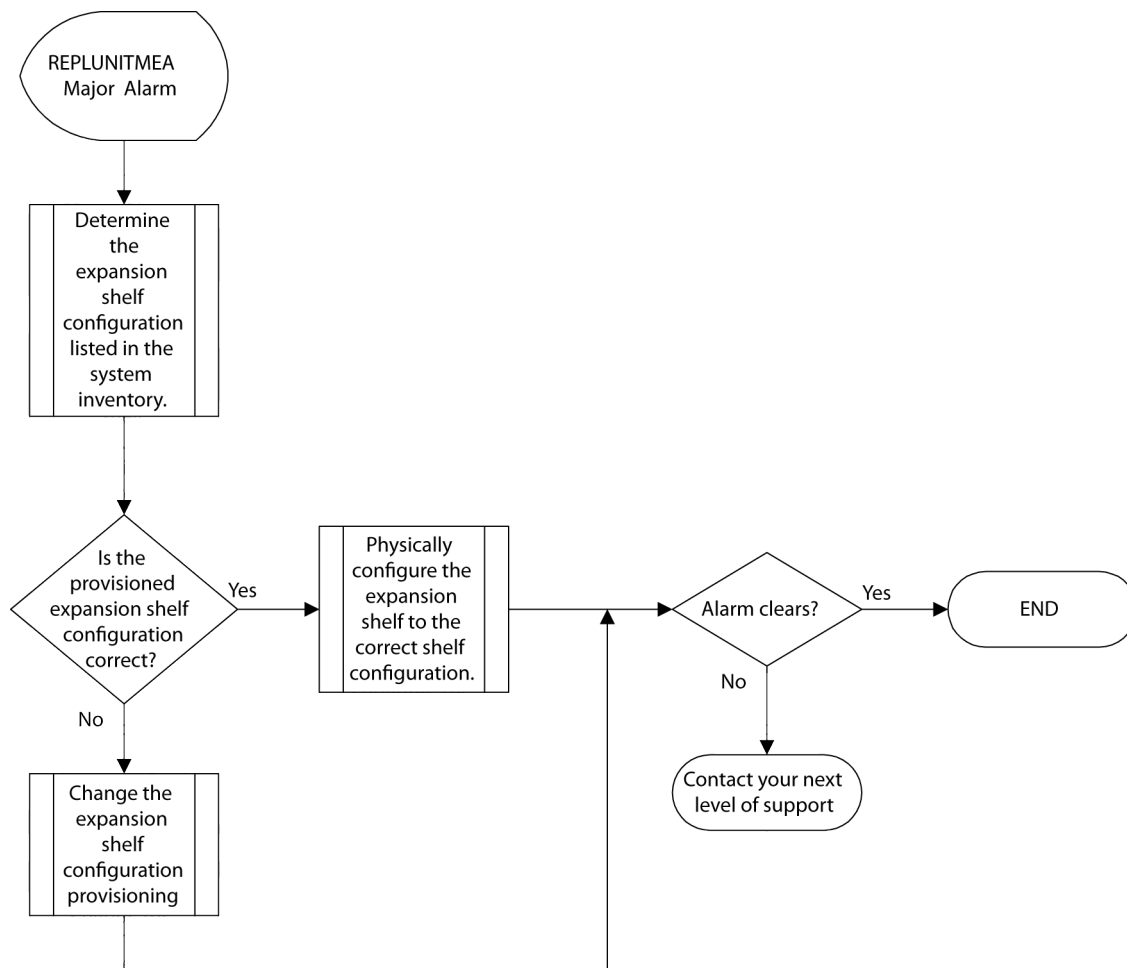


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-39 Clearing a REPLUNITMEA alarm**2.2.88.1 Clearing a REPLUNITMEA shelf mismatch alarm**

Use this procedure to clear an REPLUNITMEA alarm.

Step 1 Determine what shelf configuration is listed in the system inventory

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>::;
```

Example output for expansion shelf

```
"ES-11,EQPT:NAME=XXXX,PEC=BT7A50AA,CLEI=UNKNOWN,FNAME=Expansion Shelf,SER=00112233445566,HWREV=1,MFGDAT=2005-05-30,MFGLOCN=Thurston,TSTDAT=2005-05-30,TSTLOCN=Thurston,SHCONF=4-SLOT"
```

As seen in the example output, a 4-SLOT shelf configuration is provisioned.

Step 2 Determine whether the provisioned shelf configuration or the physical expansion shelf configuration is correct

Obtain the shelf configuration requirements that are planned for your deployment:

- If the provisioned parameters of the system are correct, go to Step 3.
- If the physical expansion shelf configuration is correct, go to Step 4 to change the provisioned parameters.

Step 3 Correct the expansion shelf configuration

Follow the instructions provided in the *Common Equipment Installation Guide* to configure the expansion shelf correctly. Afterwards, connect the shelf to the main shelf:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 4 Change the provisioned parameters for the expansion shelf configuration

Provision the shelf configuration:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.89 REPLUNITMEA (SFP or XFP Mismatch)

Important There are three REPLUNITMEA alarm clearing procedures. This procedure is for clearing a mismatch between an SFP or XFP transceiver provisioned for a port of a circuit pack and the physical SFP or XFP transceivers that can be inserted in the port.

The other REPLUNITMEA procedures are

- [2.2.87, “REPLUNITMEA \(Circuit Pack Mismatch\)”](#)
- [2.2.88, “REPLUNITMEA \(Shelf Mismatch\)”](#)

Problem Description

There is an SFP or XFP mismatch in the BTI 7000 Series. There is a mismatch between the SFP or XFP transceiver provisioned for a port of a module and the physical SFP or XFP transceiver that is inserted in the port.

For a tunable XFP, the provisioned wavelength does not fit (± 20 picometers) into the defined fixed grid.

A 1000BT FD electrical (copper) SFP is installed in a port that is not provisioned as Gigabit Ethernet (GbE).

The provisioned SFP or XFP transceiver must match the transceiver installed the port; the wavelength provisioned for a tunable XFP must fall within the defined fixed grid; or the protocol provisioned on the port must support the SFP installed in the port.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for modules

Location	Circuit Pack LEDs	
	Fail	Active
TPR/MXP/ WM/WR/WT	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP or XFP	OFF	ON

Impact

Critical alarm—Service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10,L1,L2)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

TPR-(1,11,21,31)-(1-20)-(1-4)

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

WT-(1,11,21,31)-(1-20)-(1-4)

XFP-(1,11,21,31)-(1-20)-2



Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution

Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.



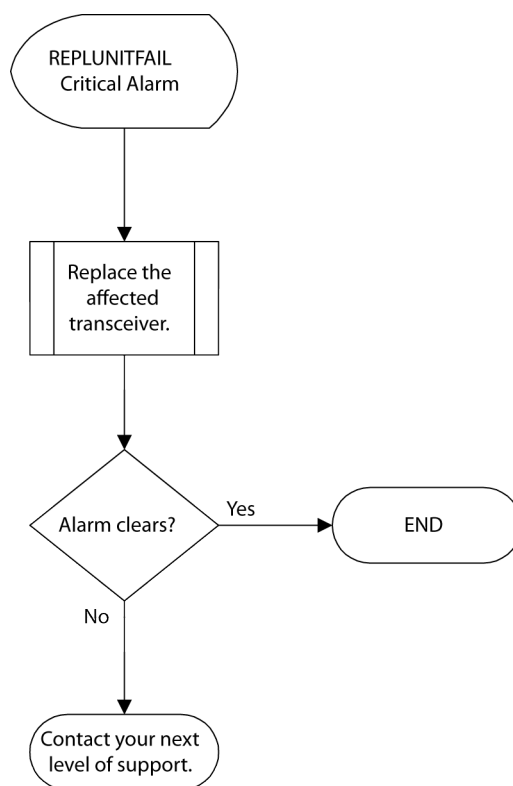
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-40 Clearing a REPLUNITMEA alarm for an SFP or XFP transceiver



2.2.89.1 Clearing a REPLUNITMEA alarm for an SFP or XFP transceiver

Use this procedure to clear a REPLUNITMEA alarm for an SFP or XFP transceiver.

Step 1 Determine what SFP or XFP transceiver is listed in the system inventory

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>;;
```

Example output

```
"SLOT-1-1,EQPT:NAME=MXP10G,PEC=BT7A48AA,FNAME=10G MULTIPROTOCOL
MUXPONDER - SONET and VCAT,SER="\SN00008058\","HWREV="\11\","FW="\NATIVE
\","MFGDAT="\2009-03-27\
","MFGLOCN=Northside,TSTDAT=2009-03-27,TSTLOCN=Northside,USI=N/A"
  "XFP-1-1-L1,EQPT:PEC=BP3AD1SS,SER="\F627604000C1\","HWREV=
"\02\","MFGDAT="\2006
-07-20\","WAVELENGTH=850,MINBR=9900,MAXBR=11100,ENCODING=UNKNOWN,CONNTY
PE=LC,VEND
ORNAME="\JDS Uniphase\","VENDORPN="\64P0194\","VENDOROUI="\00019C
\","TXFAULTIMP=Y,T
XDISABLEIMP=Y,LOSIMP=Y,DDIAGIMP=Y,MEDIA=OPTICAL,USI=N/A"
```

As seen in the example output, SFP-1-1-1 is physically present on shelf 1, slot 1, port 1.

Step 2 Determine whether the provisioned transceiver port is correct

Check the office records or engineering specifications to determine whether the provisioned transceiver data and the physical SFP or XFP transceiver inserted in the port of the circuit pack is correct. The following conditions must be met:

If the PEC is provisioned, then the SFP or XFP in the slot must match the PEC.

The provisioned wavelength and the actual SFP or XFP transceiver wavelength must match.

The wavelength provisioned for a tunable XFP must fall within the defined fixed grid.

The provisioned protocol must support the SFP installed in the port.

The bit rate of the provisioned protocol for the SFP or XFP must fall between the minimum and maximum bit rates for the SFP or XFP transceiver.

If the FPSD parameter is set to ON, the TXDISABLEIMP parameter of the SFP inventory item must be set to Y.

If the PHYPMON parameter is set to ON, the DDIAGIMP parameter of the SFP inventory must be set to Y.

If the VENDORPN is provisioned, it must match the SFP or XFP transceiver's vendor part number.

Action

- If the provisioned parameters of the transceiver port are correct, obtain a correct SFP or XFP transceiver and go to Step 3.
- If the physical SFP or XFP transceiver is correct, go to Step 4 to change the provisioned parameters.

Step 3 Replace the SFP or XFP transceiver

Obtain a replacement SFP or XFP transceiver. See [3.12, “Replacing optical transceivers”](#) to replace the SFP or XFP:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 4 Change the provisioned parameters for the SFP or XFP transceiver

Go to the applicable provisioning procedure in the *Solutions Guide* for the circuit pack in which the transceiver is inserted, provision the SFP or XFP transceiver, and then return to this procedure:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.90 REPLUNITMISS (Circuit Pack Missing)

Important There are three REPLUNITMISS alarm clearing procedures. This procedure is for clearing a missing circuit pack.

The other REPLUNITMISS procedures are

- [2.2.91, “REPLUNITMISS \(Expansion Shelf Missing\)”](#)
- [2.2.92, “REPLUNITMISS \(SFP or XFP Missing\)”](#)

Problem Description

Circuit pack is missing in the BTI 7000 Series.

The alarm is triggered for one of the following reasons:

- the provisioned circuit pack is missing from its associated slot
- a filler circuit pack is missing from an unprovisioned single-width or double-width slot
- a single-width circuit pack is provisioned in a double-width slot

To clear this alarm, insert an appropriate single-width or double-width circuit pack or filler circuit pack in the associated single-width or double-width slot.

Note When pre-provisioning a circuit pack against an empty slot in the shelf, the severity of the circuit pack missing (REPLUNITMISS) alarm is major instead of critical.

A filler circuit pack is required in all empty slots of the BTI 7060 main shelf for proper air flow.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major or Critical alarm—Service is not affected for a major alarm that occurs when no circuit pack is provisioned in the slot. Service is affected for a critical alarm that occurs when a circuit pack is provisioned in the slot.

Affected AIDs

CCM-(1,11,21,31)-1

CU-(1,11,21,31)

CU-(1,11,21,31)-(1-4)

SI-1

SLOT-(1,11,21,31)-(1-20)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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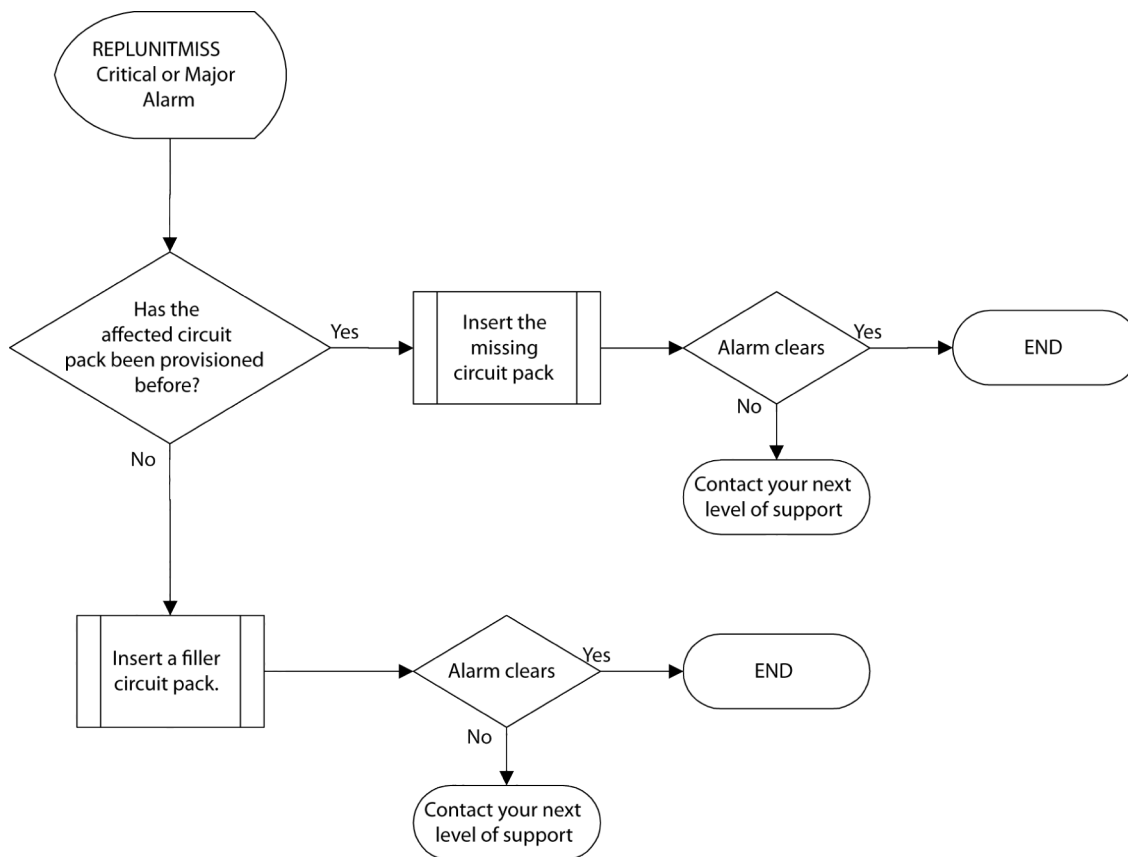
Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-41 Clearing a REPLUNITMISS alarm**2.2.90.1 Clearing a REPLUNITMISS circuit pack missing alarm**

Use this procedure to clear an REPLUNITMISS alarm.

Step 1 Determine if the affected circuit pack slot has been provisioned before

Determine if the affected circuit pack slot has been provisioned before by entering the following at the TL1 command line interface:

```
RTRV-EQPT:[TID]::<CTAG>;
```

Example Output

```
BTI7000 03-02-12 10:59:27
M 100 COMPLD
"SH-1:BP1A50AA::IS-NR,"
"SCP-1-5:BP1A20AA::IS-NR,"
"OLA-1-1:BP1A03AA::OOS-AU,AINS&UEQ"
"OLAM-1-2:BP1A04BA::IS-NR,"
"OLA-1-3:BP1A03AA::OOS-AU,AINS&MEA"
"OLAM-1-4:BP1A04BA::OOS-AU,UEQ"
```

```
"OPA-1-6:BP1A01AA::OOS-AU,UEQ"
```

```
;
```

- If the circuit pack slot has been provisioned before, go to step 2.
- If the circuit pack slot has not been provisioned before, go to step 3.

Step 2 Insert the missing circuit pack

Insert the replacement circuit pack. See [Chapter 3, “Replacing modules”](#) for information.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Insert a filler circuit pack

- a) Obtain a filler circuit pack.
- b) Go to the filler pack replacement procedure ([3.13, “Filler modules and panels”](#)) in this document.
- c) Insert the filler circuit pack:
 - If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.91 REPLUNITMISS (Expansion Shelf Missing)

Important There are three REPLUNITMISS alarm clearing procedures. This procedure is for clearing a missing expansion shelf alarm that occurs because a provisioned expansion shelf that has been provisioned is currently unplugged from the SCP circuit pack in the BTI 7000 Series main shelf. The reason for being unplugged can be either that the associated SFP transceiver is unplugged from the SCP or that the Molex connector and cable assembly is removed from the SCP.

The other REPLUNITMISS procedures are

- [2.2.90, “REPLUNITMISS \(Circuit Pack Missing\)”](#)
- [2.2.92, “REPLUNITMISS \(SFP or XFP Missing\)”](#)

Problem Description

Expansion shelf is missing in the BTI 7000 Series.

To clear this alarm, attach an appropriate expansion shelf to the SCP in the main shelf of the BTI 7000 Series.

Note The RELUNITMISS alarm is masked when an expansion shelf is placed out of service. To determine if this alarm is present, retrieve conditions present on the system using the RTRV-COND-ALL command.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for SFP ports on the SCP

Location	SFP LEDs	
	Fail	LOS
SCP	ON	OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs		To Main	To Expansion		
	Trouble	Active	Fail	LOS	Fail	LOS
ESI	ON	ON	OFF	ON	OFF	OFF

Impact

Major alarm—Service is not affected.

Affected AIDs

ES-(11,21,31)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

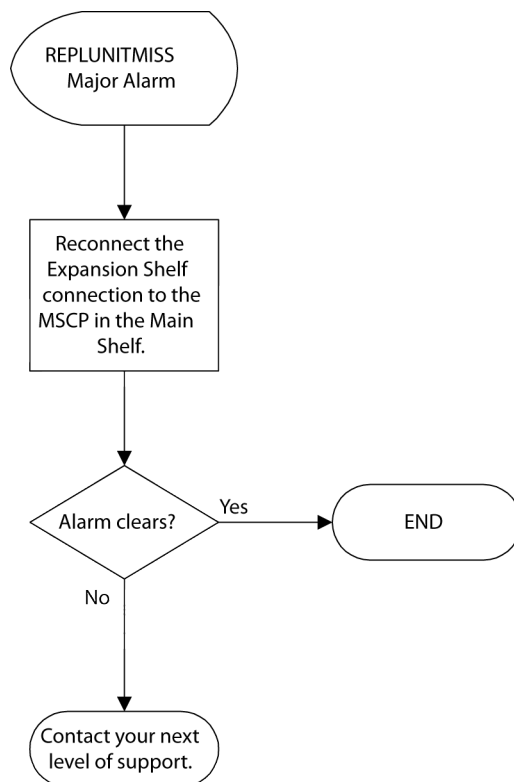


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-42 Clearing a REPLUNITMISS alarm

2.2.91.1 Clearing a REPLUNITMISS Expansion Shelf Missing alarm

Use this procedure to clear a REPLUNITMISS alarm.

Step 1 Reconnect the missing expansion shelf to the SCP

Reconnect the missing expansion shelf to the SCP located in the BTI 7000 Series main shelf:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.92 REPLUNITMISS (SFP or XFP Missing)

Important There are three REPLUNITMISS alarm clearing procedures. This procedure is for clearing a missing SFP or XFP transceiver in a transponder circuit pack.

The other REPLUNITMISS procedures are

- [2.2.90, “REPLUNITMISS \(Circuit Pack Missing\)”](#)
- [2.2.91, “REPLUNITMISS \(Expansion Shelf Missing\)”](#)

Problem Description

An SFP or XFP transceiver is missing from its associated port in a transponder circuit pack.

To clear this alarm, insert an appropriate transceiver in the associated port of the transponder circuit pack.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for transponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
WT/WR/WM	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP or XFP	OFF	ON

Impact

Critical alarm—Service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10,L1,L2)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

SFP-(1,11,21,31)-(1-20)-(1-4)

TPR-(1,11,21,31)-(1-20)-(1-4)

XFP-(1,11,21,31)-(1-20)-2

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.



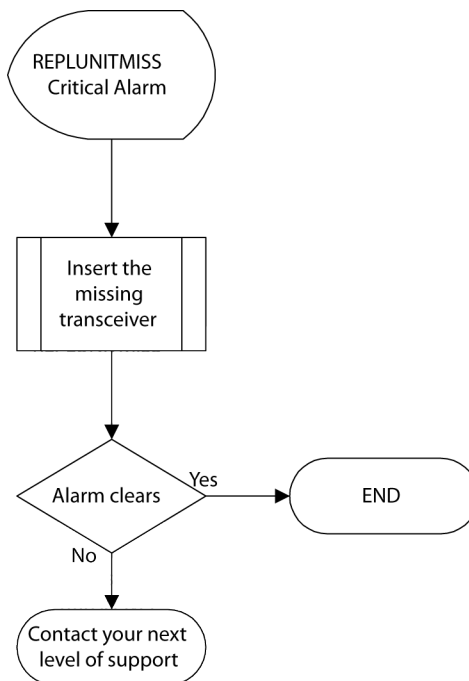
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-43 Clearing a REPLUNITMISS alarm for an SFP or XFP transceiver



2.2.92.1 Clearing a REPLUNITMISS alarm for an SFP or XFP transceiver

Use this procedure to clear an REPLUNITMISS alarm for an SFP or XFP transceiver.

Step 1 Insert the missing SFP or XFP transceiver

a) Obtain a replacement SFP or XFP transceiver.

- b) Go to procedure 3.12, “Replacing optical transceivers” in this document and insert the new SFP transceiver or XFP transceiver:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.93 REPLUNITPWR (Circuit Pack Power Failure)

Problem Description

There is a circuit pack power failure.

LED behavior

Table 2-19 LED behavior of BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

Table 2-20 LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Circuit pack	ON	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.93.1 Clearing a REPLUNITPWR Circuit Pack Power Failure alarm

Use this procedure to clear a REPLUNITPWR alarm.

Step 1 Check power distribution to the shelf

Check the following areas for possible problems:

- a) Verify that the power connection to the chassis is firmly in place.
- b) Verify that the circuit power switch(es) are in the on position.
- c) Verify that the external source DC power circuit breaker(s) are on.
- d) Verify that the external power wires are delivering power correctly.
 - If the alarm clears, you have successfully completed this procedure
 - If the alarm does not clear, contact your next level of support.

2.2.94 REPLUNITUNK (Circuit Pack Unknown)

Important There are three REPLUNITUNK alarm clearing procedures. This procedure is for clearing a circuit pack type that is unknown to the system.

The other REPLUNITUNK procedures are

- [2.2.95, “REPLUNITUNK \(Shelf Unknown\)”](#)
- [2.2.96, “REPLUNITUNK \(SFP or XFP Unknown\)”](#)

Problem Description

Circuit pack type is unknown to the system.

This alarm occurs when the circuit pack in the associated slot is unknown to the system (for example, the circuit pack is not supported by the software release running on the system) .

To clear this alarm, insert an appropriate circuit pack in the associated slot.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior of amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

CCM-(1,11,21,31)-1

CU-(1,11,21,31)

CU-(1,11,21,31)-(1-4)

SI-(1,11,21,31)

SLOT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

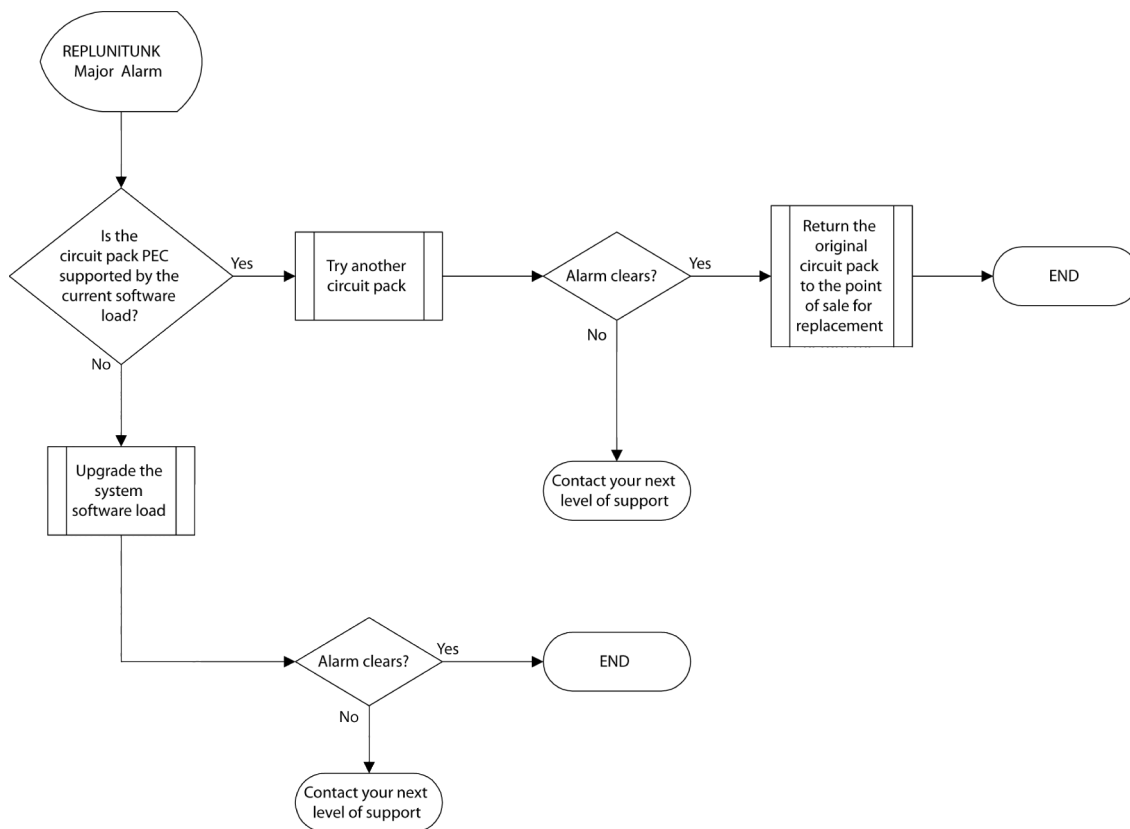


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-44 Clearing a REPLUNITUNK alarm**2.2.94.1 Clearing a REPLUNITUNK circuit pack unknown alarm**

Use this procedure to clear a REPLUNITUNK alarm.

Step 1 Retrieve the software load version

Enter the following at the TL1 command line interface:

```
RTRV-NETTYPE:[TID]::<CTAG>;;
```

Example output

```
BTI7000 02-07-18 09:49:36
M 100 COMPLD BTI7000,1.0,WDM,v1.0.0
```

where

- WDM is wavelength division multiplexing
- 1.0.0 is the software version

Step 2 Retrieve the circuit pack version

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>::;
```

Example output for one slot

```
"SLOT-2-1,EQPT:NAME=TPR, PEC=BT7A41CA,CLEI=UNKNOWN,
FNAME=TRANSPONDER=00112233445566,HWREV=1,
MFGDAT=2002-05-30,MFGLOCN=BTI7000,
TSTDAT=2002-05-30,TSTLOCN=BTI7000,"
```

where PEC=BT7A41CA and **HWREV=1** provide the required hardware identification

Step 3 Determine whether the software load supports the circuit pack version.

Compare the circuit pack PEC with the software release in [1.4.1, “Hardware and software compatibility”](#) to determine whether the software load supports the circuit pack version.

- If the circuit pack version is not supported by the software load, obtain the correct circuit pack version and go to the next step.
- If the circuit pack version is supported by the software load, contact your next level of support

Step 4 Replace the circuit pack with the correct version of circuit pack

Obtain a replacement circuit pack, and then insert it. See [Chapter 3, “Replacing modules”](#) for information.

If the alarm does not clear, contact your next level of support.

2.2.95 REPLUNITUNK (Shelf Unknown)

Important There are three REPLUNITUNK alarm clearing procedures. This procedure is for clearing an shelf type that is either unknown to the system or a BTI 7060 main shelf that has all three center supports removed.

The other REPLUNITUNK procedures are

- [2.2.94, “REPLUNITUNK \(Circuit Pack Unknown\)”](#)
- [2.2.96, “REPLUNITUNK \(SFP or XFP Unknown\)”](#)

Problem Description

A shelf is unknown to the system.

This alarm occurs because the shelf is unknown to the system (for example, the BTI 7000 Series cannot read the FRU data on the expansion shelf interface (ESI) circuit pack in the expansion shelf).

To clear this alarm, connect an appropriate shelf to its associated SCP.

Note The RELUNITUNK alarm is masked when an expansion shelf is placed out of service. To determine if this alarm is present, retrieve conditions present on the system using the RTRV-COND-ALL command.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of SCP LED behavior of ESI

Location	Circuit Pack LEDs	Multi-shelf LEDs	OSC LEDs					
	Fail	Active	Fault	1	2	3	1	2
SCP	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF

Location	Circuit Pack LEDs				
	Trouble	Active	Fault	To Main	To Ext Shelf
ESI	OFF	ON	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

ES-(11,21,31) MS-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.



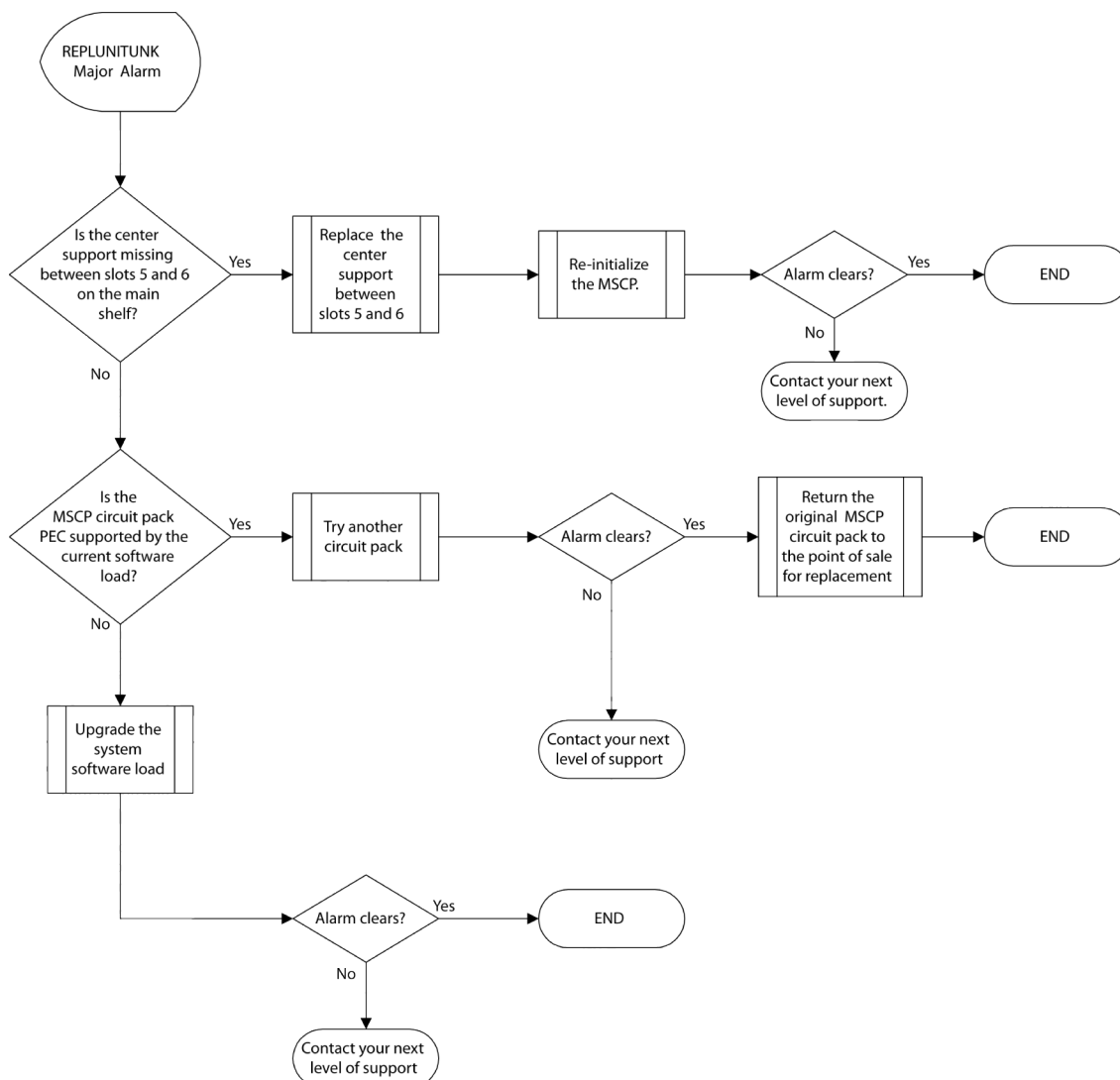
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-45 Clearing a REPLUNITUNK alarm



Use the following table as part of the following procedure.

Table 2-22 Hardware and Software Compatibility

Circuit Pack Name	PEC	Software Release
BTI 7060 System Control Processor		8.1

2.2.95.1 Clearing a REPLUNITUNK shelf unknown alarm

Use this procedure to clear a REPLUNITUNK alarm for a shelf.

Step 1 Check if the center support is missing between slots five and six of the main shelf

- If the center support is missing between slots five and six of the main shelf, go to the next step.
- If the center support is not missing between slots five and six of the main shelf, go to step five.

Step 2 Replace the center support between slots five and six
Obtain a center support for the shelf.

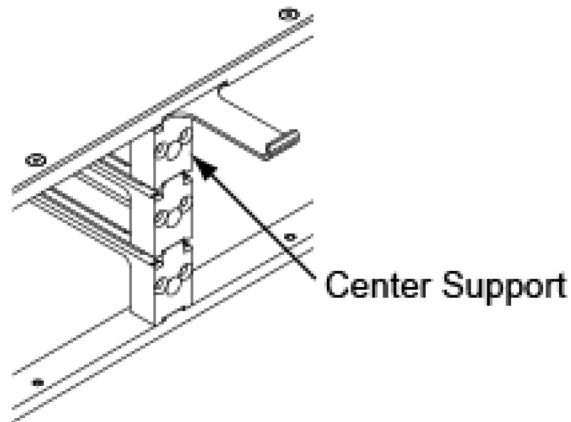
Note There are currently two versions of center supports in use:

- Version 1 uses a rear fastener
- Version 2 uses a front fastener

Version 1

Version 1 of the center supports has a hole at the front of the center support through which a screwdriver is used to access the rear-mounted fastener.

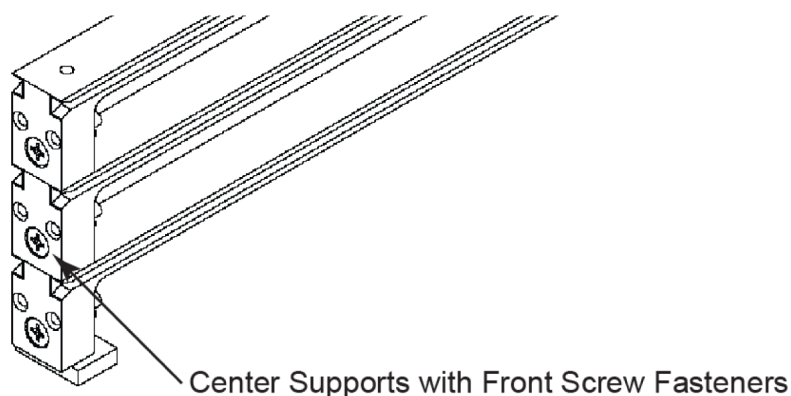
Note Do not perform this procedure on an in-service or powered Version 1 system..



If your BTI 7060 uses a Version 1 center support, go to step 3.

Version 2

Version 2 of the center supports has a screw fastener at the front of the center support.



If your BTI 7060 uses a Version 2 center support, go to step 4.

Step 3 Version 1 instructions

Important Do not perform this procedure on an in-service or powered system.

- a) Obtain a Version 1 center support for the shelf.

Align the center support between slots five and six. Then, carefully push the center support straight into the chassis.

- b) Using an extra-long, round shank Phillips screwdriver, insert the screwdriver through the front hole of the center support. (The screwdriver required, MC600151, can be ordered from BTI Systems). The fastening screw is located at the back of the center support (near the back of the chassis).
- c) Gently tighten the fastening screw.

Step 4 Version 2 instructions

Version 2 center supports can be replaced to an in-service or powered system.

- a) Obtain a Version 2 center support and a dowel pin for the shelf.
- b) Insert the dowel pin into the hole in the chassis base.
- c) Align the center support between slots five and six. Then, slide the center support into position with the dowel pin.
- d) Hold the nut behind the front mounting screw while gently tightening the fastening screw.

Step 5 Re-initialize the SCP

Re-initialize the SCP by entering the following syntax at the TL1 command line interface:

```
INIT-SYS : [ TID ] : SCP-1-5 : <CTAG> : : <ph> : [ CMDMDE=<cmdmde> ] ;
```

where

- `ph` is the phase and it can be either 0 for a warm restart or 1 for a cold restart.

- `cmdmode` is the command mode and it can be either NORM for normal or FRCD for forced.

Example

```
INIT-SYS:BTI7000:SCP-1-5:100::0;  
    BTI7000 02-11-22 18:32:02  
M 100 COMPLD  
;
```

Step 6 Check the alarm state

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 7 Retrieve the software load version

Enter the following at the TL1 command line interface:

```
RTRV-NETTYPE:[TID]::<CTAG>;;
```

Example output

```
BTI7000 02-07-18 09:49:36  
M 100 COMPLD BTI7000,1.0,WDM,v1.0.0
```

where

- WDM is wavelength division multiplexing
- 1.0.0 is the software version

Step 8 Retrieve the circuit pack version

Enter the following at the TL1 command line interface:

```
RTRV-INV:[TID]::<CTAG>;;
```

Example output for one slot

```
"SLOT-1-5,EQPT:NAME=SCP,PEC=BT7A20CA,CLEI=CL1A20BA,FNAME= System  
Control Processor,SER=\"4G08DW46\",HWREV=\"1\",MFGDAT=  
\"2002-07-18\",MFGLOCN=BTI7000, TSTDAT=2002-07-18, TSTLOCN=BTI7000,"
```

where **PEC=BT7A20CA** and **HWREV=1** provide the required hardware identification

Step 9 Determine whether the software load supports the circuit pack version

- Compare the circuit pack PEC with the software release in [1.4.1, “Hardware and software compatibility”](#) to determine whether the software load supports the circuit pack version.

- If the circuit pack version is not supported by the software load, obtain the correct circuit pack version and go to the next step.
- If the circuit pack version is supported by the software load, contact your next level of support

Step 10 Replace the circuit pack with the correct version of circuit pack

Go to the applicable circuit pack replacement procedure in [Chapter 3, “Replacing modules”](#), insert the replacement circuit pack, and the alarm clears.

If the alarm does not clear, contact your next level of support.

You have successfully completed this procedure.

2.2.96 REPLUNITUNK (SFP or XFP Unknown)

Important There are three REPLUNITUNK alarm clearing procedures. This procedure is for clearing an SFP or XFP transceiver type that is unknown to the system.

The other REPLUNITUNK procedures are

- [2.2.94, “REPLUNITUNK \(Circuit Pack Unknown\)”](#)
- [2.2.95, “REPLUNITUNK \(Shelf Unknown\)”](#)

Problem Description

The SFP or XFP transceiver type is unknown to the system.

This alarm occurs because the transceiver is not supported by the current software.

Note This alarm is not supported by a tunable XFP.

To clear this alarm, insert a readable SFP or XFP transceiver in the associated port of a circuit pack.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP or XFP	ON	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

ESFP-1-5-(1-3)

ESFP-(11,21,31)-1

SFP-(1,11,21,31)-(1-20)-(1-4)

XFP-(1,11,21,31)-(1-20)-2

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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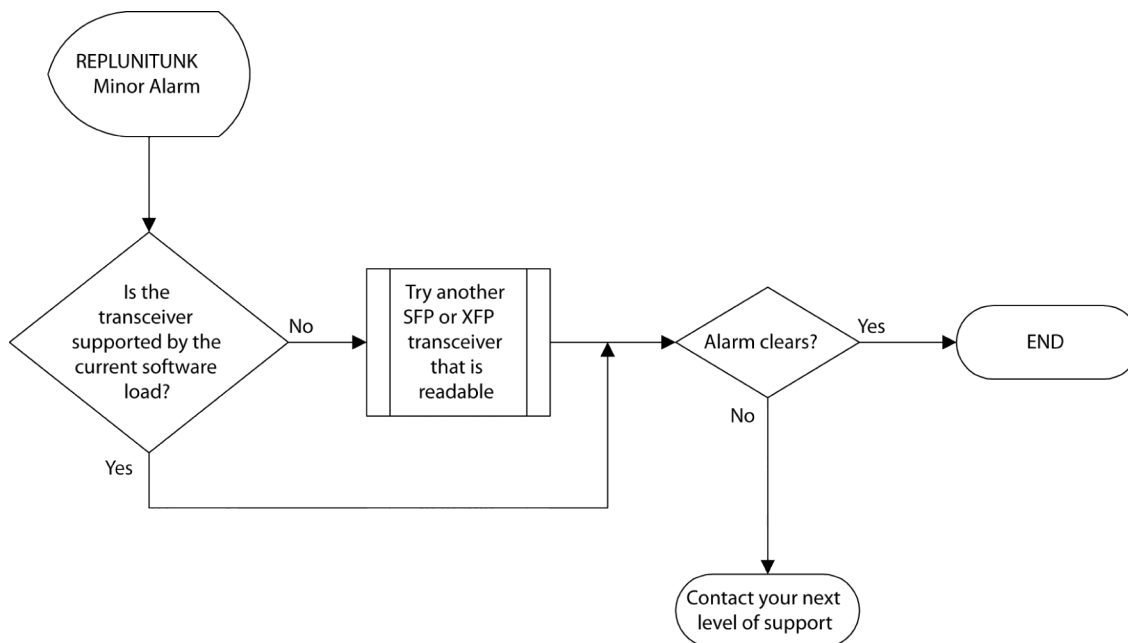
Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-46 Clearing a REPLUNITUNK alarm for an SFP transceiver

Use the following tables as part of the following procedure.

Table 2-23 SFP portfolio

SFP Type	SFP	PEC
850 nm SFPs	2.5G 850 nm SX	BP3AD1SS
	4 Gigabyte Quad-Rate 850 nm	BP3AD2SS
1310 nm SFPs	2.5G 1310 nm SR	BP3AM1MS
	2.5G 1310 nm IR	BP3AM1MI
	4 Gigabyte Quad-Rate 1310 nm	BP3AD2MS
Bidirectional SFPs	1310 TX/1550nm RX	BP3AM5MB
	1550 TX/1310nm RX	BP3AM5LB
	100BX, 1310nm TX/1490nm RX GE, SR	BP3AM5PB
	100BX, 1490nm TX/1310nm RX GE, SR	BP3AM5QB
	100BX, 1310nm TX/1490nm RX GE, IR	BP3AM5PI
	100BX, 1490nm TX/1310nm RX GE, IR	BP3AM5QI
CWDM SFPs	2.5G CWDM LR	BP3AM1CL
	4G CWDM	BP3AM2CL
DWDM SFPs	2.5G Multirate DWDM ER	BP3AM1DE
	4G DWDM	BP3AM2DL
Copper SFPs	10/100/1000BT Copper	BP3AD3ES
	1000BT Copper	BP3AE2ES
SFPs for OSC or multishelf use	1510 XR (for OSC)	BP3AE1CX
	CWDM ER (for OSC)	BP3AE1CE

Table 2-23 SFP portfolio (Continued)

SFP Type	SFP	PEC
	Multimode 1310 SR (for multishelf use)	BP3AE1MM

Table 2-24 XFP portfolio

XFP	PEC
850 nm XFP	BP3AM4SS
1310 nm SR XFP	BP3AM4MS
1550 nm IR XFP	BP3AM4LI
CWDM XFP	BP3AM4CL
DWDM XFP	BP3AM4DL
Tunable XFP	BP3AM4TL (manufacture discontinued, use BP3AM4TF instead) BP3AM4TF (50 GHz full-band 96-channel) BP3AM4TB-Bnn (100 GHz sub-band 40-channel) BP3AM4TC-Bnn (50 GHz sub-band 96-channel)
Note The BP3AM4TC-Bnn is intended for 50 GHz spacing applications only.	

2.2.96.1 Clearing a REPLUNITUNK alarm for an SFP transceiver

Use this procedure to clear an REPLUNITUNK alarm for an SFP or XFP transceiver.

Step 1 Replace the transceiver with a readable SFP or XFP transceiver

Go to procedure [3.12, “Replacing optical transceivers”](#):

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.97 REPLUNITUNS (Replaceable Unit Unsupported)

Problem Description

A replaceable unit is unsupported by the BTI 7000 Series. In this case, a system control processor (SCP) circuit pack is plugged into any slot of the expansion shelf. However, SCPs are only supported in slot five of the BTI 7000 Series main shelf.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior of ESI circuit pack

Location	Circuit Pack LEDs					
	Trouble	Active	Fault	To Main	To Ext Shelf	
ESI	ON	ON	OFF	OFF	OFF	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

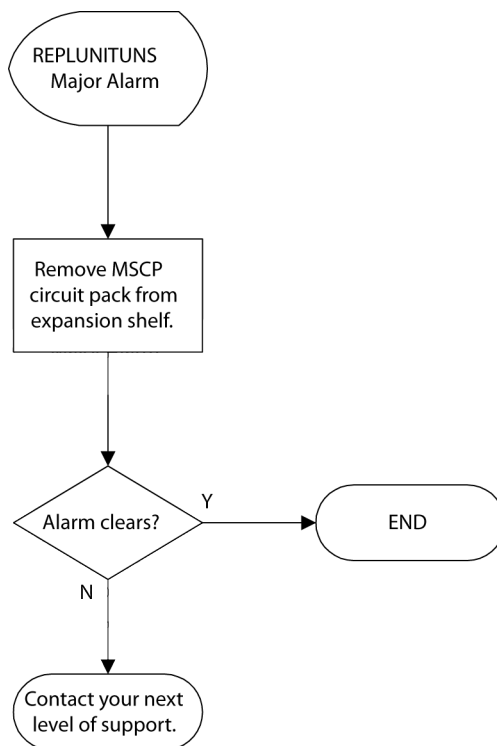


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-47 Clearing an REPLUNITUNS alarm

2.2.97.1 Clearing a REPLUNITUNS replaceable unit unsupported alarm

Use this procedure to clear a REPLUNITUNSreplaceable unit unsupported alarm.

Step 1 Remove the SCP from the expansion shelf

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.98 REPLUNITUS-SFP (SFP Unsupported)

Problem Description

A 1000BT FD electrical (copper) SFP is installed in a port that does not support Gigabit Ethernet (GE). Copper SFPs are supported only in ports that can be provisioned as GE.

LED behavior/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for module

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP	OFF	ON

Impact

Critical alarm—Service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2)

**Laser**

Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution

Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.98.1 Clearing a REPLUNITUS-SFP alarm

Use this procedure to clear a REPLUNITUS-SFP alarm

- Step 1** To clear a REPLUNITUS-SFP alarm, replace the 1000BT FD electrical (copper) SFP with a transceiver that is supported by the port. Follow the instructions in [3.12, “Replacing optical transceivers”](#).

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.99 SCPRNCHGPROG (SCP Release Number Change in Progress)

Problem Description

There is an SCP release number change in progress. The severity of the alarm is major because the SCP software is being upgraded or downgraded.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

Impact

Major alarm—service is not affected.

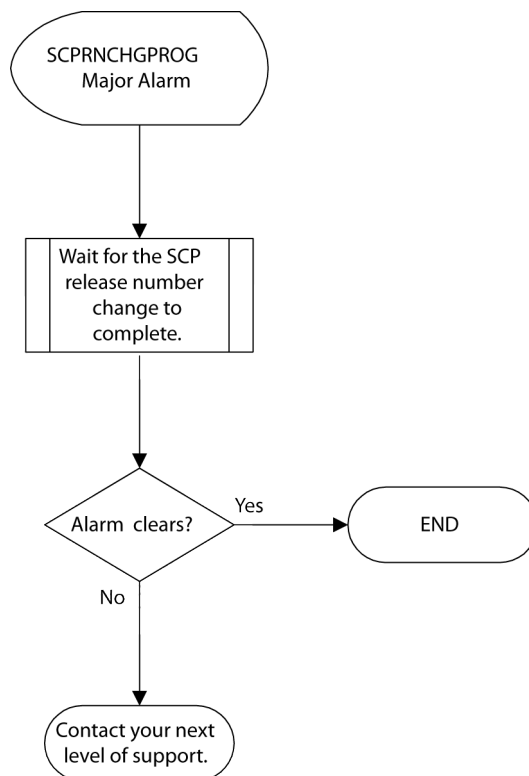
Affected AIDs

SCP-1-3

SCP-1-5

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-48 Clearing an SCPRNCHGPROG alarm

2.2.99.1 Clearing a SCPRNCHGPROG SCP release number change in progress alarm

Use this procedure to clear a SCPRNCHGPROG alarm.

Step 1 User access restricted

The SCPRNCHGPROG alarm indicates that an SCP release number change is in progress. During this process, the system is restricted to read access only. Once the SCP release number change actually starts, system access is not available.

- If the alarm clears after completing the SCP release number change, no further action is required.
- If the alarm does not clear after completing the SCP release number change, contact your next level of support.

2.2.100 SD (Signal Degrade for line-side port)

Important There are two SD alarm clearing procedures. This procedure is for a SONET/SDH line port on a muxponder, transponder or packetVX (PVX) module with signal degradation. The other SD procedure is [2.2.101, “SD \(Signal Degrade for STS Rx port\)”](#)

Problem Description

This alarm indicates that the SONET/SDH line port has signal degradation due to one or more of the following issues:

- dirty fiber and or connector
- excessive attenuation
- laser degradation at the far end

Signal degradation is calculated as follows:

- post-FEC: Muxponder module: Alarm is raised when SD threshold falls below 10e-6.
- pre-FEC: Transponder and packetVX modules: Alarm is raised when SD threshold crosses 10e-6.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for the circuit packs

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON
TPR	OFF	ON
PVX	OFF	ON

LED behavior for SFP/XFP port LEDs

Location	SFP/XFP Port LEDs	
	Fault	Fail
SFP/XFP	ON	OFF

Impact

Minor alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)

TPR-(1,11,21,31)-(1-20)-(1,3)

PVX-(1,11,21,31)-(1,3,5...19)

Note

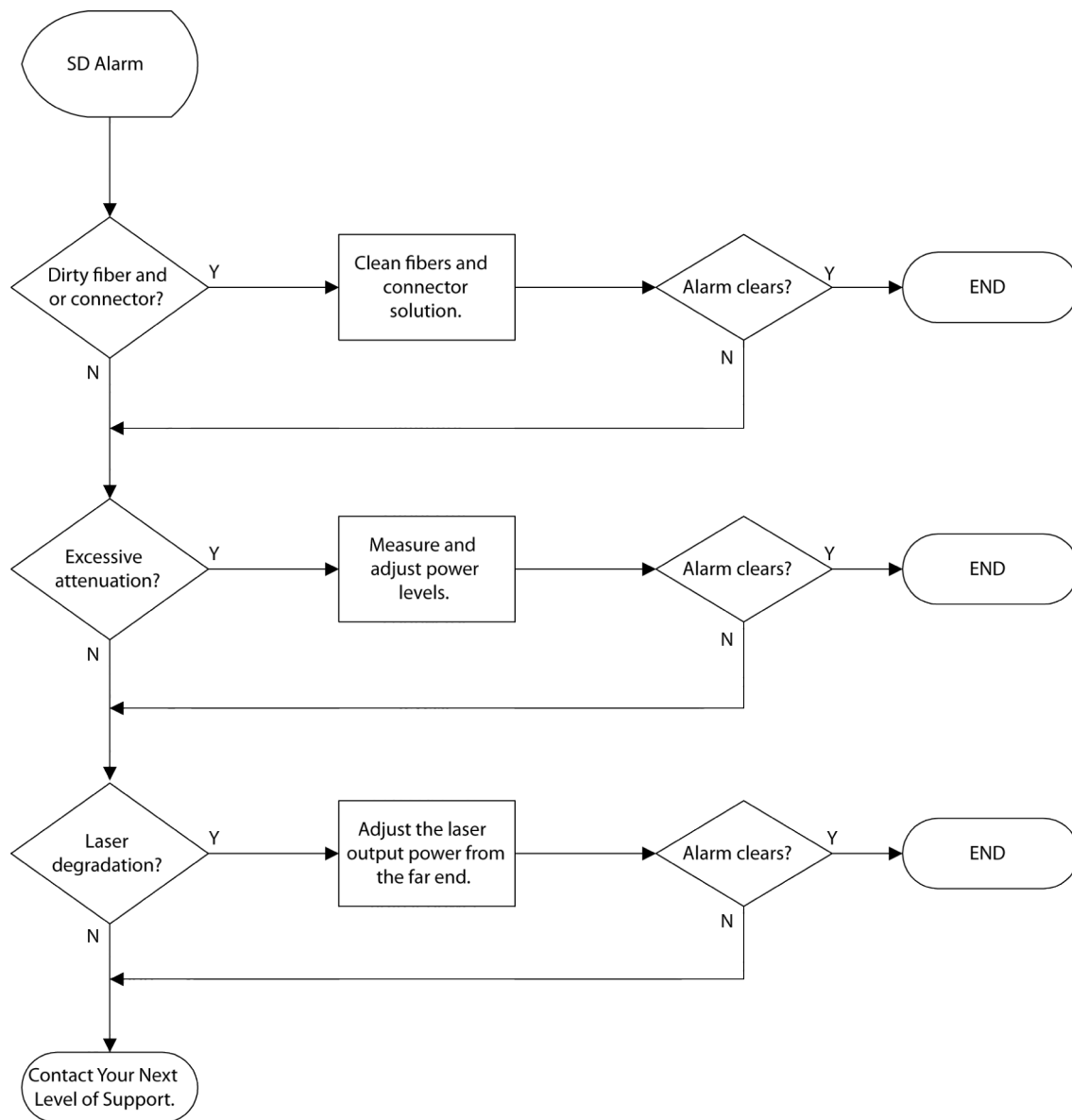
Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-49 Clearing an SD for an OCn line-side port alarm**2.2.100.1 Clearing an SD alarm for an OCn line-side port alarm**

Use this procedure to clear an SD for an OCn line-side port alarm.

Step 1 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check for laser degradation at the far end

Determine if the laser at the far end has degraded and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

2.2.101 SD (Signal Degrade for STS Rx port)

Important There are two SD alarm clearing procedures. This procedure is for a SONET/SDH line port on a muxponder circuit pack that has experienced signal degradation.

The other SD procedure is

- [2.2.100, “SD \(Signal Degrade for line-side port\)”](#)

Problem Description

This alarm indicates that an SDH line port on a muxponder circuit pack has either experienced signal degradation due to one or more of the following:

- dirty fiber and or connector
- excessive attenuation
- laser degradation at the far end

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active

MXP	OFF	ON
-----	-----	----

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Minor alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)

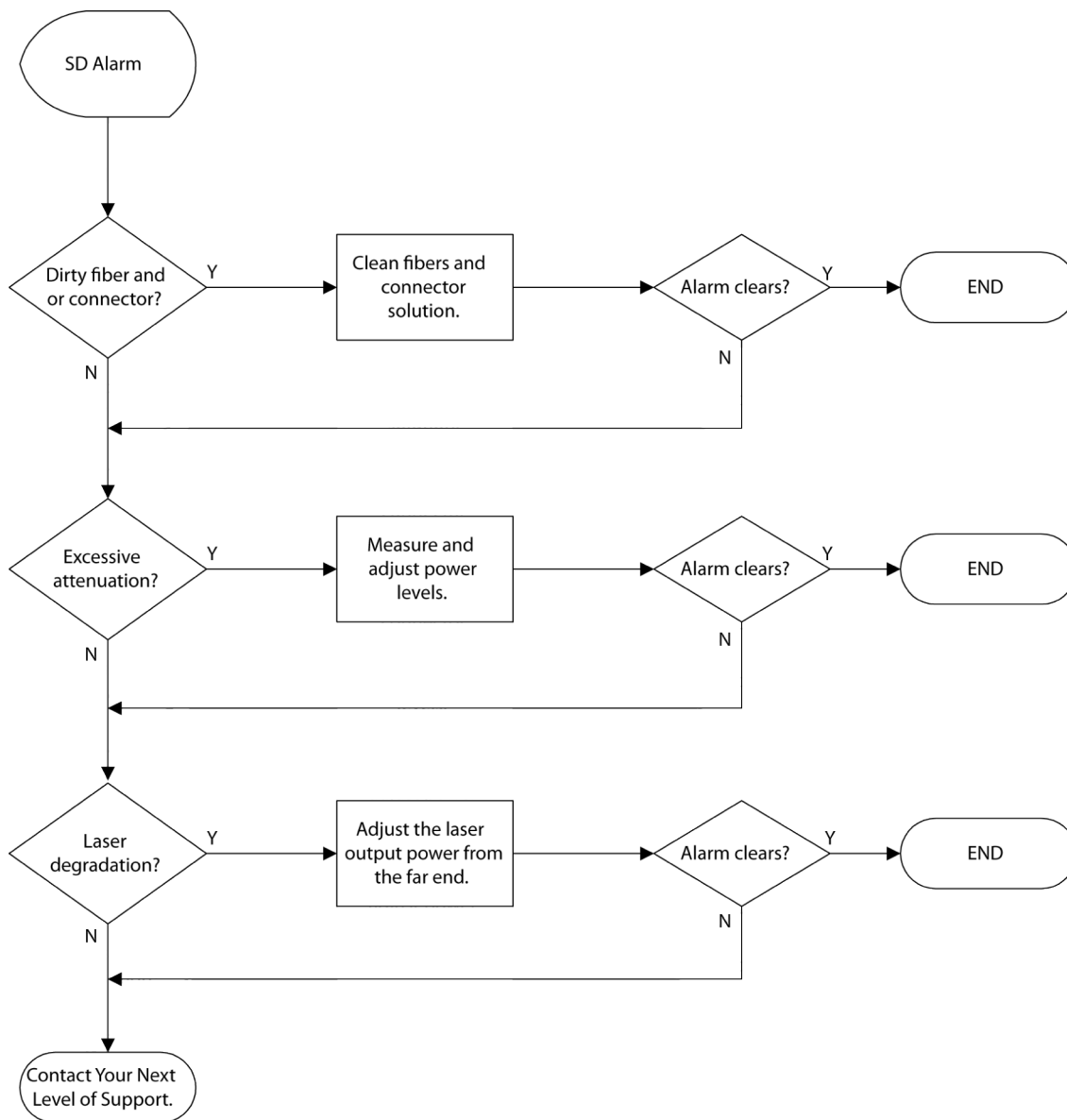
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-50 Clearing a SD alarm**2.2.101.1 Clearing an SD alarm for an STS Rx port alarm**

Use this procedure to clear a SD for an STS Rx port alarm.

Step 1 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check for laser degradation at the far end

Determine if the laser at the far end has degraded and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

2.2.102 SQM (Loss of Sequence for FC or GE client-side port)

Problem Description

This alarm indicates that a FC or GE client port on a muxponder circuit pack has received an incorrect multiframe sequence number.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



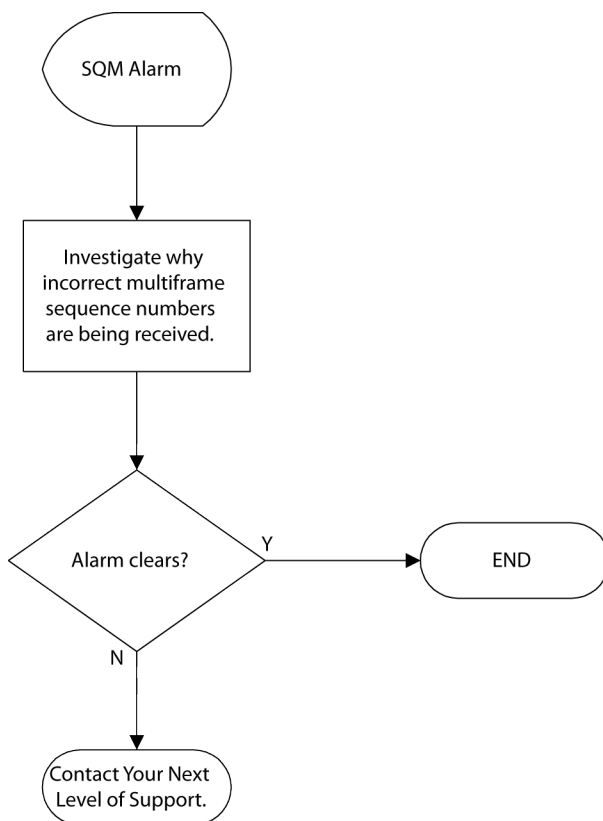
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-51 Clearing an SQM alarm



2.2.102.1 Clearing an SQM Loss of Sequence for FC or GE client-side port alarm

Use this procedure to clear an SQM alarm.

Step 1 Check for a provisioning error in the network configuration

Determine if a provisioning error is present at one of the network elements.

Note This alarm should not occur between two muxponders that are connected directly to each other. This means that the traffic is passing through other network elements that are situated between the source and destination network elements. Check these network elements for provisioning errors.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.103 SRVR-UNRESPONSIVE (Server unresponsive)

Problem Description

This alarm indicates that the system cannot obtain a timing reference from the specified NTP server. This could be due to one or more of the following causes:

- the NTP server at the IP address specified is not running
- the NTP server at the IP address specified is not responding
- the NTP server at the IP address specified is down
- the NTP server is not present at the IP address specified

LED behavior for BTI 7060/BTI 7200

None

Impact

Minor alarm – service is not affected. The system may be synchronized to an alternate NTP server.

Affected AIDs

The IP address specified for the NTP server.

Clearing a SRVR-UNRESPONSIVE alarm

Work with the operator of the alarmed NTP server to resolve any issues, or else delete the alarmed server from the NTP servers association list.

2.2.104 SSI-LOLIGHT-RX (Received Loss of Light) for a second stage input port

Problem Description

The receive composite signal power is below the operating range for the second stage input port of an amplifier.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for MGM modules

The Fault LED is ON.

Impact

Critical alarm – service is affected.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.104.1 Clearing an SSI-LOLIGHT-RX received loss of light alarm for a second stage input port

Use this procedure to clear an SSI-LOLIGHT-RX alarm on a second stage input port of an amplifier.

Step 1 Using the proNX 900, navigate to the amplifier to check the OPR value on the second stage input port.

Step 2 Right-click on the amplifier and choose **View Amplifier PM**.

The Performance window is displayed, in which you can view the port's PMs.

Step 3 Click **Start** to start PM collection.

Step 4 Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power (OPR) to the second stage input port is within the specified range of operation.

Step 5 Check for and resolve the following possible problems:

- the span fiber or patch panel fiber has been cut or disconnected or has excessive loss
- the amplifier transmitting into the patch fiber has shut down
- excessive loss on the DCM module(s) that are connected to the alarmed port
- excessive loss on upstream patch fibers

Step 6 Check and clean all upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.105 SSI-POS-RX-HIGH (Received Power Out of Specification - High) for a second stage input port

Problem Description

This alarm indicates that the received optical power at the second stage input port of an amplifier is above the specified range of operation.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for the MGM module

The Fault LED is on.

Impact

Critical alarm – service is affected.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.105.1 Clearing an SSI-POS-RX-HIGH received optical power out of specification high alarm for a second stage input port

Use this procedure to clear an SSI-POS-RX-HIGH alarm on a second stage input port of an amplifier.

- Step 1** Using the proNX 900, navigate to the amplifier and the alarmed port to check the OPR value on the second stage input port.
- Step 2** Right-click on the alarmed module and choose **View Amplifier PM**.
The Performance window is displayed, in which you can view the port's PMs.
- Step 3** Click **Start** to start PM collection.
- Step 4** Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power on the second stage input port is higher than the specified range of operation.
- Step 5** Add an attenuation pad in the optical path to bring the power level to within the specified range of operation.
 - If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.106 SSI-POS-RX-LOW (Received Power Out of Specification - Low) for a second stage input port

Problem Description

This alarm indicates that the received optical power is below the specified range of operation for a second stage input port of an amplifier.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for the MGM module

The Fault LED is on.

Impact

Critical alarm – service is affected.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.106.1 Clearing an SSI-POS-RX-LOW received optical power out of specification low alarm for a second stage input port

Use this procedure to clear an SSI-POS-RX-LOW alarm on a second stage input port of an amplifier.

- Step 1** Using the proNX 900, navigate to the amplifier to check the OPR value on the second stage input port.
- Step 2** Right-click on the alarmed module and choose **View Amplifier PM**.
The Performance window is displayed, in which you can view the port's PMs.
- Step 3** Click **Start** to start PM collection.
- Step 4** Refer to the *BTI 7000 Series Optical Amplifier and DCM Solutions Guide* to determine whether the received optical power (OPR) to the second stage input port is lower than the specified range of operation.

Step 5 Check and clean the upstream fiber connections.

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.107 STKLINKNOTPRESENT (Stacking Link Not Present)

Problem Description

This alarm is raised when the primary packetVX cannot communicate with the secondary packetVX in a stacking configuration. When this occurs, the primary packetVX is unable to synchronize with the secondary packetVX, and therefore, failover does not function properly and the traffic on the secondary packetVX is dropped:

- This alarm applies to the following packetVX modules: packetVX 12/2, packetVX 24/2, and packetVX 24/4.
- This alarm does not apply to a stacked packetVX 80 configuration, since stacking connectivity is over the backplane.

The following are some scenarios that trigger this alarm:

- Stacking is configured, but the stacking ports are not configured.
- Stacking is configured, the stacking ports are configured, but none of the stacking links is up.
- Stacking is configured, the stacking ports are configured, but an intermittent problem is causing the stacking ports to flap.

Examples

The **show alarm all** command displays the alarm:

Alarm	Equipment	Sev	Date	Time	SA/NSA	Description
VSwch	VSwitch 1	Crit	02-19	09:49:43	SA	Stacking link not present.

When the alarm is raised, the **show virtual-switch** command indicates that the stacking port is not connected:

Members:

Location	Stacking State	Stacking Port Comm State	Backplane Comm State
1/9	primary	no connection	connection ok
1/13	secondary	no connection	connection ok

LED behavior on packetVX cards

The Stacking Link Not Present alarm does not affect LEDs on the packetVX cards.

LED behavior on the SCP/shelf

The Stacking Link Not Present alarm does not affect LEDs on the SCP or shelf.

Impact

Critical, service affecting. Failover capability is disabled, and traffic is dropped on the secondary packetVX card.

Affected AIDs

VSWCH-(1-11)

2.2.107.1 Clearing a STKLINKNOTPRESENT stacking link not present alarm

Use this procedure to clear a STKLINKNOTPRESENT alarm.

Step 1 Verify that the stacking ports are configured properly. If not, configure the stacking ports and connect them with the proper cabling.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, go to step 2.

Step 2 Check for an associated physical layer alarm (for example, LOS) on the stacking port and take corrective action to repair that underlying fault. Refer to the LOS clearing procedures in this guide.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, go to step 3.

Step 3 Reboot both the primary and the secondary packetVX modules.

In some situations, such as, when the primary fails before the connection to the secondary can be established, the primary and secondary may require simultaneous rebooting to re-synchronize.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, go to step 4.

Step 4 In a stacking configuration, the secondary reboots when stacking connectivity is lost. If the secondary reboots, autonomously, in an intermittent manner, this may indicate a stacking port is flapping—a link is going up and down repeatedly.

a) Check all optical connections and use known working fibers.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, go to substep b.

b) Reseat the XFP.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, go to substep c.

c) Replace the XFP.

- If the alarm clears, you successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.108 SWBNKAFAIL (Software Bank A Failure) — BTI 7060/BTI 7200 only

Problem Description

There is a hardware failure in software bank A storage device. During this alarm, software backups, upgrades and restores cannot occur. When the SCP is rebooting, the LEDs on the MSI and the SCP are lit.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior of SCP

Location	Circuit Pack LEDs	
	Fail	Active
SCP	ON	OFF

Impact

Minor alarm—service is not affected.

Affected AIDs

SCP-1-5

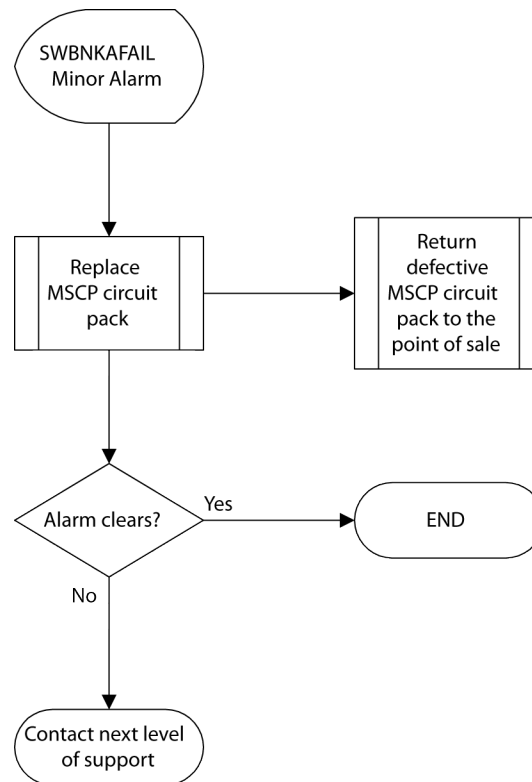


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-52 Clearing a SWBNKAFAIL alarm

2.2.108.1 Clearing a SWBNKAFAIL software bank A failure alarm - BTI 7060 only

Use this procedure to clear a SWBNKAFAIL alarm.

Step 1 Replace the SCP circuit pack

Note Before replacing an SCP circuit pack, record the IP addresses used by the system. For details on retrieving the SCP IP addresses, see the RTRV-IP command in the TL1 Reference Guide.

Obtain a replacement SCP circuit pack. Go to the SCP circuit pack replacement procedure in this document ([Chapter 3, “Replacing modules”](#)) and insert the new circuit pack.

- If the alarm clears, you have successfully replaced the SCP circuit pack.
- If the alarm does not clear, contact your next level of support.

Step 2 Return the defective SCP circuit pack

Arrange to have the defective SCP circuit pack returned to BTI Systems:

2.2.109 SWBNKBFAIL (Software Bank B Failure) — BTI 7060/BTI 7200 only

Problem Description

There is a hardware failure in software bank B storage device. During this alarm, software backups, upgrades and restores cannot occur. When the SCP is rebooting, the LEDs on the MSI and the SCP are lit.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for SCP

Location	Circuit Pack LEDs	
	Fail	Active
SCP	ON	OFF

Impact

Minor alarm—service is not affected.

Affected AIDs

SCP-1-5

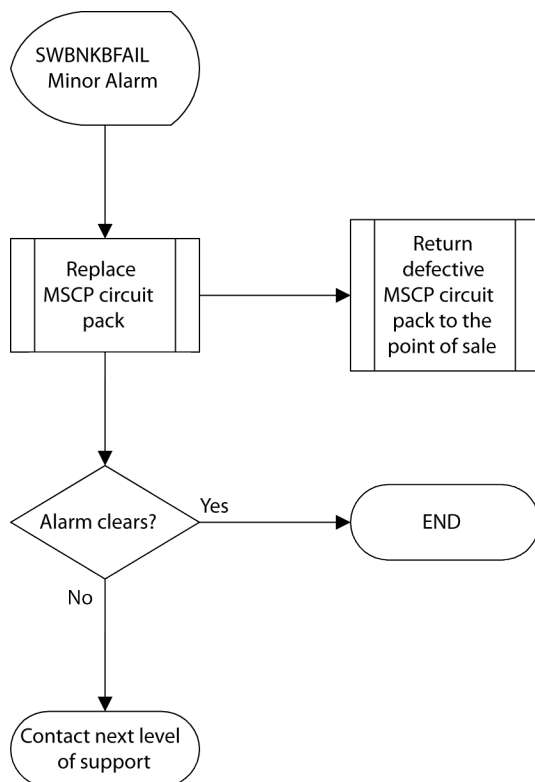


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-53 Clearing a SWBNKBFAIL alarm

2.2.109.1 Clearing a SWBNKBFAIL software bank B failure alarm - BTI 7060 only

Use this procedure to clear a SWBNKBFAIL alarm.

Step 1 Replace the SCP circuit pack

Note Before replacing an SCP circuit pack, record the IP addresses used by the system. For details on retrieving the SCP IP addresses, see the RTRV-IP command in the TL1 Reference Guide.

Obtain a replacement SCP circuit pack. Go to the SCP circuit pack replacement procedure in this document ([Chapter 3, “Replacing modules”](#)) and insert the new circuit pack.

- If the alarm clears, you have successfully replaced the SCP circuit pack.
- If the alarm does not clear, contact your next level of support.

Step 2 Return the defective SCP circuit pack

Arrange to have the defective SCP circuit pack returned to BTI Systems:

2.2.110 SYNCPRI (Synchronization of Primary Timing Reference)

Problem Description

This alarm indicates a loss of synchronization to the primary timing reference has occurred on a muxponder circuit pack due to one or more of the following:

- fiber cut
- dirty fiber and or connector
- excessive attenuation
- faulty circuit pack at either the near end or the far end

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	ON	OFF

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Major alarm—service is affected.

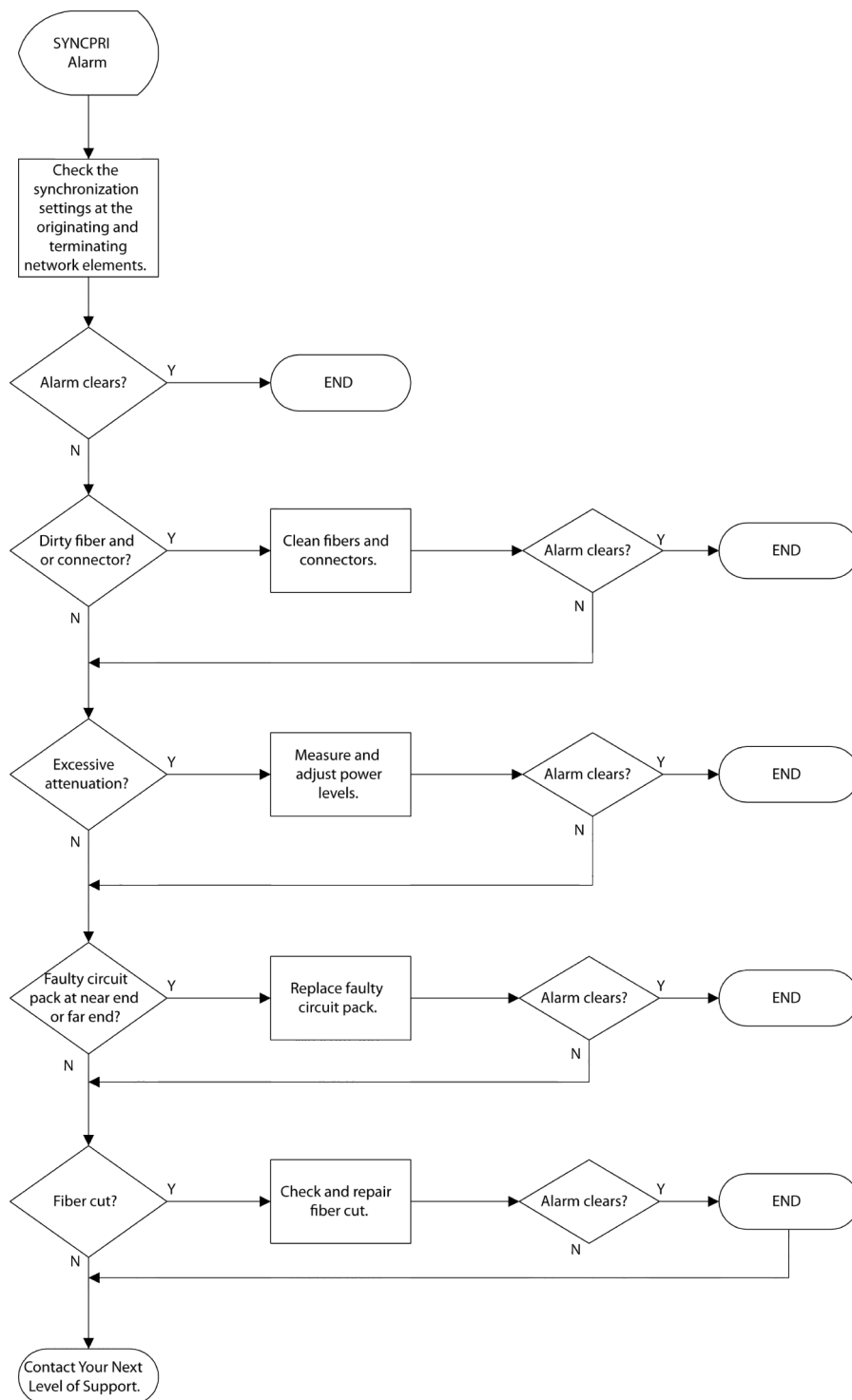
Affected AIDs

MXP-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-54 Clearing a SYNCPRI alarm

2.2.110.1 Clearing a SYNCPRI synchronization of primary timing reference alarm

Use this procedure to clear a SYNCPRI alarm.

Step 1 Check synchronization settings at originating and terminating network elements

Determine if the synchronization settings at the originating and terminating network elements are correct based on the following scenarios:

a) Default setting for two muxponders connected directly to each other

The default synchronization setting for two muxponders connected directly to each other is to run both units on the internal timing mode.

If this is not the case, use the SET-TMG-Mode T11 command to set the timing mode..



Default Synchronization Settings

b) Master and slave configuration

The master and slave synchronization setting for two muxponders connected directly to each other is to run one unit as the master using the internal timing mode, while the other unit is run as the slave using the line timing mode.

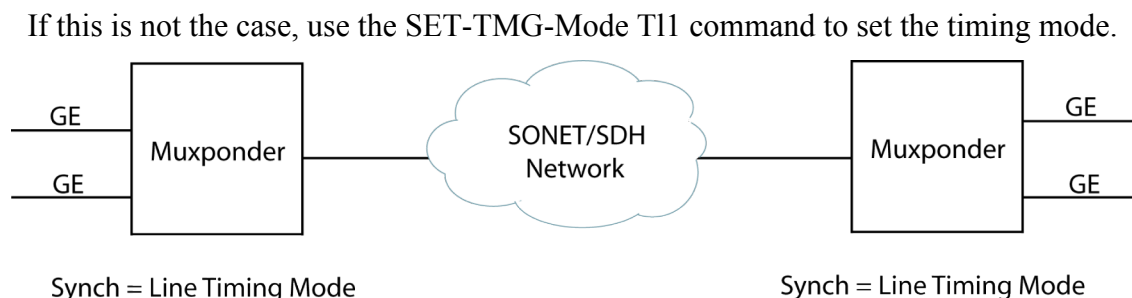
If this is not the case, use the SET-TMG-Mode T11 command to set the timing mode..



Master/Slave Synchronization Settings

c) Synchronized to a SONET or SDH network

The default synchronization setting for two muxponders connected to each other through either a SONET or SDH network is to run both units on the line timing mode thereby acquiring synchronization from the network.



SONET/SDH Synchronization Settings

Step 2 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check if a faulty circuit pack exists at either the near end or the far end

Determine if faulty circuit pack exists at either near end or the far end and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Check for a fiber cut

Determine if the fiber is cut and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.111 SYNCSEC (Synchronization of Secondary Timing Reference)

Problem Description

This alarm indicates a loss of synchronization to the secondary timing reference has occurred on a muxponder circuit pack due to one or more of the following:

- fiber cut
- dirty fiber and or connector

- excessive attenuation
- faulty circuit pack at either the near end or the far end

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	ON	OFF

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	OFF	ON

Impact

Major alarm—service is affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

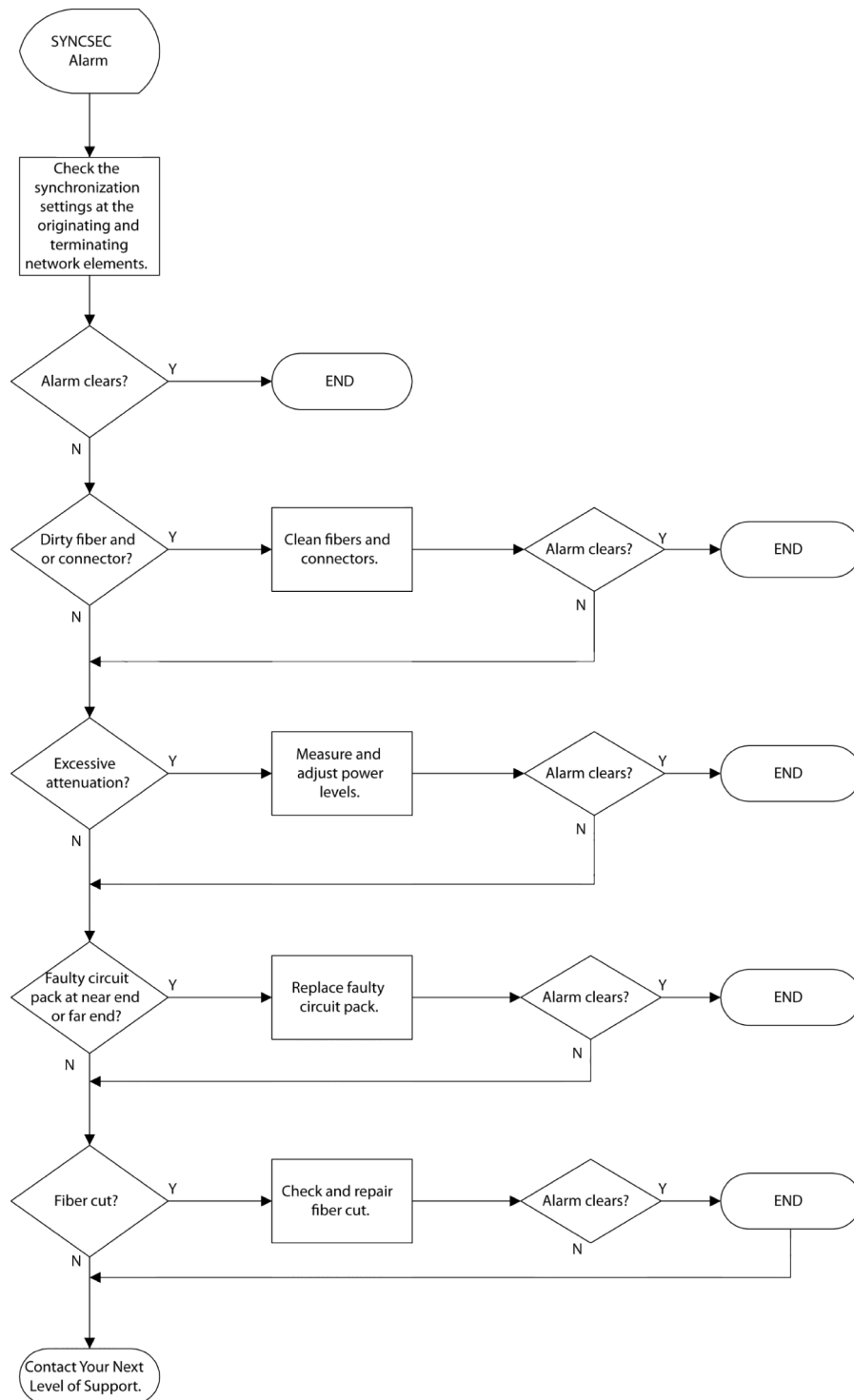


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-55 Clearing a SYNCSEC alarm

2.2.111.1 Clearing a SYNCSEC synchronization of secondary timing reference alarm

Use this procedure to clear a SYNCSEC alarm.

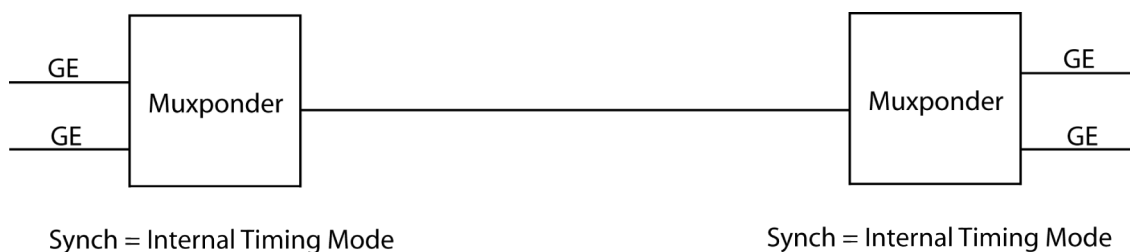
Step 1 Check synchronization settings at originating and terminating network elements

Determine if the synchronization settings at the originating and terminating network elements are correct based on the following scenarios:

a) Default setting for two muxponders connected directly to each other

The default synchronization setting for two muxponders connected directly to each other is to run both units on the internal timing mode.

If this is not the case, use the SET-TMG-Mode T11 command to set the timing mode.



Default Synchronization Settings

b) Master and slave configuration

The master and slave synchronization setting for two muxponders connected directly to each other is to run one unit as the master using the internal timing mode, while the other unit is run as the slave using the line timing mode.

If this is not the case, use the SET-TMG-Mode T11 command to set the timing mode.



Master/Slave Synchronization Settings

c) Synchronized to a SONET or SDH network

The default synchronization setting for two muxponders connected to each other through either a SONET or SDH network is to run both units on the line timing mode thereby acquiring synchronization from the network.

If this is not the case, use the SET-TMG-Mode T11 command to set the timing mode.



SONET/SDH Synchronization Settings

Step 2 Check for dirty fibers and connectors

Determine if the fibers and connectors are dirty and resolve the problem:

- - If the alarm clears, you have successfully completed this procedure.
- - If the alarm does not clear, go to the next step.

Step 3 Check for excessive attenuation

Determine if excessive attenuation is being used and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Check if a faulty circuit pack exists at either the near end or the far end

Determine if faulty circuit pack exists at either near end or the far end and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Check for a fiber cut

Determine if the fiber is cut and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.112 SYSCOM (System Communications Failure) — BTI 7060/BTI 7200 only

Problem Description

There is a system communications failure in the BTI 7000 Series. The alarm is triggered for one of the following reasons:

For the BTI 7060:

- the Main Shelf Interface (MSI) circuit pack is missing
- the MSI circuit pack has failed
- the System Control Processor (SCP) cannot detect or communicate with the MSI
- an incorrect circuit pack is inserted in the MSI slot

For the BTI 7200:

- the Common Communications Module (CCM) circuit pack is missing
- the CCM circuit pack has failed
- the System Control Processor (SCP) cannot detect or communicate with the CCM
- an incorrect circuit pack is inserted in the MSI slot

To clear this alarm, insert or replace the MSI circuit pack, or remove the incorrect circuit pack from the MSI slot.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

MS-1

CCM-(1,11,21,31)-1



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.112.1 Clearing a SYSCOM system communications failure alarm - BTI 7060/BTI 7200 only

Use this procedure to clear a SYSCOM alarm.

Step 1 In a BTI 7060 insert a new MSI circuit pack. In a BTI 7200 reset the CCM. If the CCM is unreachable, reseal the CCM. If reseating the CCM does not clear the alarm, insert a new CCM circuit pack.

Obtain a new MSI or CCM circuit pack. Go to the circuit pack replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and insert the new circuit pack.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.113 SYSUPGRDPROG (System Software Upgrade in Progress)

Problem Description

There is a system upgrade in progress. The severity of the alarm is minor if the optical amplifier software is being upgraded and major if the SCP software is being upgraded.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for SCP

Location	Circuit Pack LEDs	
	Fail	Active
SCP	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

Impact

Minor to Major —service is not affected.

Affected AIDs

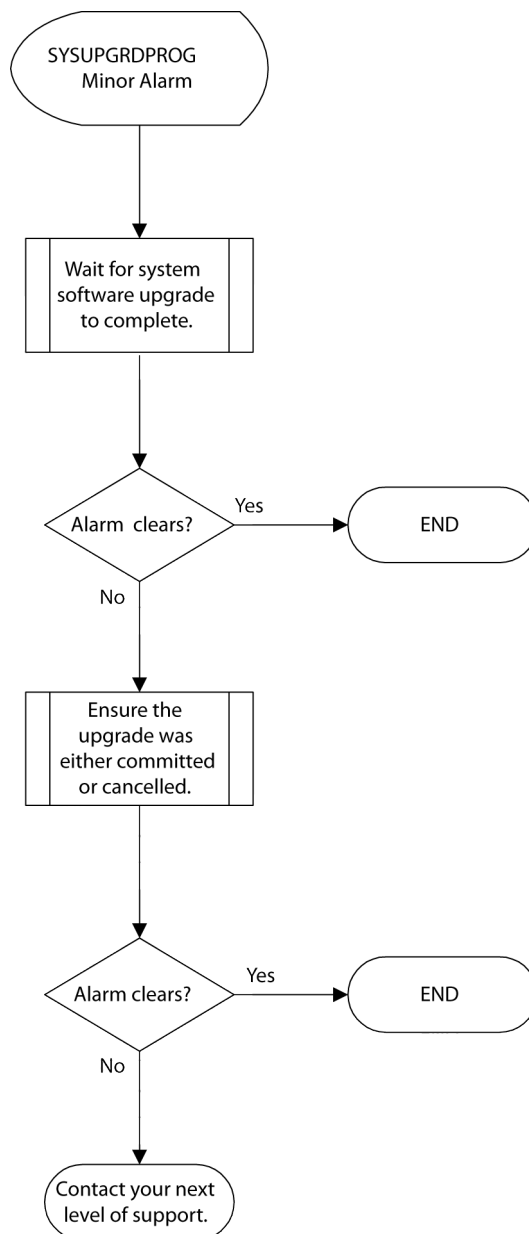
CCM-(1,11,21,31)-1

SCP-1-3

SCP-1-5

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-56 Clearing a SYSUPGRDPROG alarm

2.2.113.1 Clearing a SYSUPGRDPROG system software upgrade in progress alarm

Use this procedure to clear a SYSUPGRDPROG alarm.

Step 1 User access restricted

The SYSUPGRDPROG alarm indicates that a system upgrade is in progress. During this process, the system is restricted to read access only. Once the system upgrade actually starts, system access is not available.

- If the alarm clears after completing the system upgrade, no further action is required.
- If the alarm does not clear after completing the system upgrade, contact your next level of support.

Note Ensure that either the CMMT-SYS-UPGRD or the CANC-SYS-UPGRD command has been issued.

2.2.114 T-CTEMP-HT (Case Temperature High Threshold)

Problem Description

Case temperature high threshold is exceeded.

A warning is raised to indicate that the amplifier is nearing its shutdown threshold.

The circuit pack in the associated slot has exceeded its case temperature high threshold. If the case temperature continues to rise to its shutdown threshold, the circuit pack automatically shuts down.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

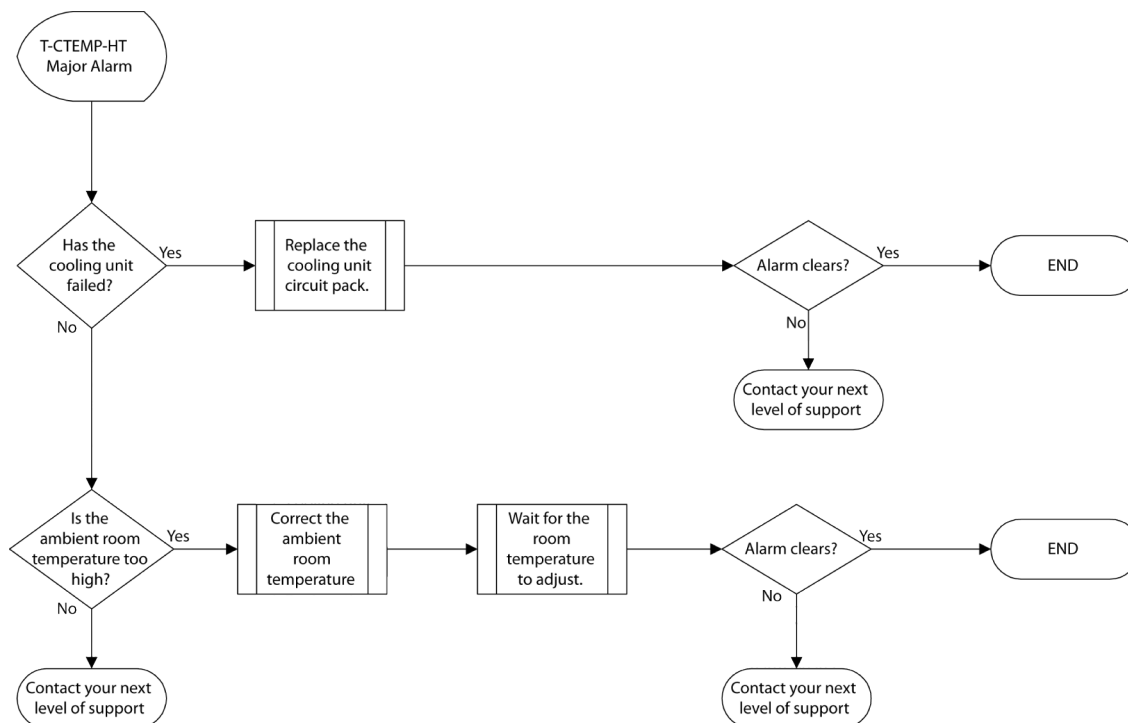
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-57 Clearing a T-CTEMP-HT alarm



2.2.114.1 Clearing a T-CTEMP-HT case temperature high threshold alarm

Use this procedure to clear a T-CTEMP-HT alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack. If the alarm does not clear, contact your next level of support.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the amplifier is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear. If the alarm does not clear, contact your next level of support.
- If the ambient room temperature is in the normal operating temperature range, contact your next level of support.

2.2.115 T-CTEMP-HTS (Case Temperature High Threshold Shutdown)

Problem Description

Case temperature high threshold shutdown has occurred. The optical amplifier is shutdown and taken out-of-service by the system. The pump lasers are turned off and there is no amplification.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Critical alarm—service is affected.

Note An T-OPT-LT (Optical Power Transmitted Low Threshold) alarm occurs as a result of this shutdown alarm. Shutdown alarms turn off both pump lasers in an amplifier.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

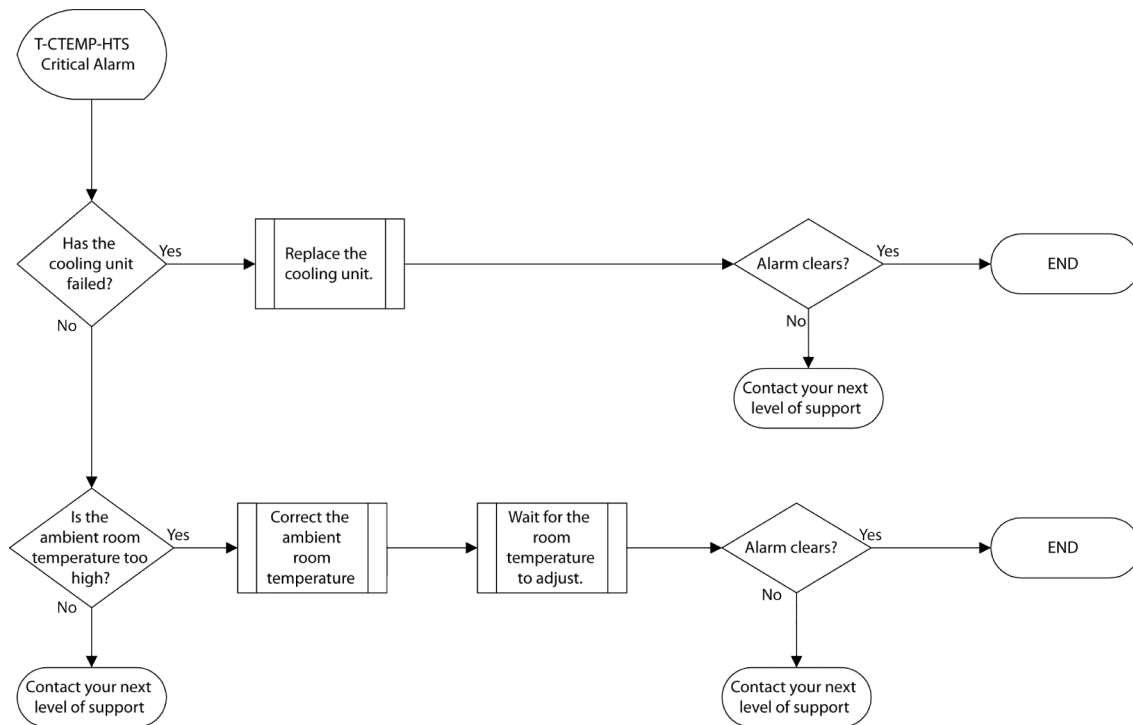


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-58 Clearing a T-CTEMP-HTS alarm

2.2.115.1 Clearing a T-CTEMP-HTS case temperature high threshold shutdown alarm

Use this procedure to clear a T-CTEMP-HTS alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack. If the alarm does not clear, contact your next level of support.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the amplifier is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear. If the alarm does not clear, contact your next level of support.
- If the ambient room temperature is in the normal operating temperature range, contact your next level of support.

2.2.116 T-FSOOPT-HT (First Stage OPT High Threshold for amplifiers)

Problem Description

The optical power transmitted (OPT) high threshold is exceeded in the first stage output.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.116.1 Clearing a T-FSOOPT-HT optical power transmitted high threshold exceeded alarm

Use this procedure to clear a T-FSOOPT-HT alarm.

Step 1 Check the input signal as the output is a function of the input signal

Determine whether the input signal is below the maximum permitted:

- If the input signal is above the maximum input level, go to the next step.
- If the input signal is below the maximum input level, go to step 3.

Step 2 Attenuate the input signal

Attenuate the input signal to below the maximum input level:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check the threshold setting

Determine if the threshold is set at the factory default value:

- If the threshold setting is at the factory default value, go to the next step.
- If the threshold setting is not at the factory default value, go to step 5.

Step 4 Replace the circuit pack

Go to the applicable circuit pack replacement procedure listed below, insert the circuit pack, and the alarm clears:

[3.7, “Replace Optical Amplifier modules”](#)

Step 5 Adjust the optical power transmitted or the threshold level

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.117 T-FSOPT-LT (First Stage OPT Low Threshold for amplifiers)

Problem Description

The optical power transmitted (OPT) low threshold is crossed in the first stage.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.117.1 Clearing a T-FSOOPT-LT alarm optical power transmitted low threshold alarm

Use this procedure to clear a T-FSOOPT-LT alarm.

- Step 1** Check the input signal as the output signal is a function of the input signal
Determine whether the input signal is below the minimum input level permitted:
- If the input signal is above the minimum input level, go to step 3.
 - If the input signal is below the minimum input level, go to the next step.

- Step 2** Amplify the input signal
Amplify the input signal to above the minimum input level by either increasing amplification upstream, or checking for potential problems with the upstream transmitters:
- If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, go to the next step.

- Step 3** Check the threshold setting
Determine if the threshold setting is at the factory default value:
- If the threshold setting is at the factory default value, go to [Step 4](#).
 - If the threshold setting is not at the factory default value, go to [Step 5](#).

- Step 4** Replace the circuit pack.
Go to the applicable circuit pack replacement procedure listed below, insert the circuit pack, and the alarm clears:

[3.7, “Replace Optical Amplifier modules”](#)

If the alarm does not clear, contact your next level of support.

- Step 5** Adjust the optical power transmitted or the threshold level
- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, contact your next level of support.

2.2.118 T-LOSSRX-HT (Received Loss High Threshold Exceeded)

Problem Description

The measured optical power loss is above the high threshold. This alarm occurs only on the Line port and applies to the loss of the receive fiber.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for DLA or ROB modules

The Fault LED on the Line port is ON.

Impact

Minor alarm—service is not affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.118.1 Clearing a T-LOSSRX-HT received loss high threshold exceeded alarm

Use this procedure to clear a T-LOSSRX-HT alarm.

Step 1 Check the PM Span Loss value for the Line port on the alarmed module. Using the proNX 900, right-click on the port, and choose **View Port PM**.

The **PM Statistics** window is displayed, in which you can view the port's PMs.

- Step 2** Determine if the Maximum Span Loss Alarm Threshold is provisioned to the proper value according to the Link Engineering Specifications. Consult with your network engineer to confirm the value. If the Maximum Span Loss Alarm Threshold value is set to too low, provision the threshold to the proper value and see if the alarm clears, as follows:
- Using the proNX 900, right-click the alarmed module and choose **View WDM Info**.
 - For the **Max. Span Loss Alarm Threshold** attribute, check the **Enable Alarm** checkbox, and then specify the desired value for the attribute.
 - Click **OK**.
- Step 3** Check for and resolve the following possible problems:
- excessive loss on the receive span fiber
 - excessive span length resulting in loss that cannot be supported
 - excessive loss on upstream patch fibers
- Step 4** Check and clean the upstream fiber connections.
- If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.119 T-LTEMP-HTS (Laser Temperature High Threshold Shutdown)

Problem Description

Pump laser temperature high threshold shutdown has occurred. The optical amplifier is shutdown and taken out-of-service by the system.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs
----------	-------------------

	Fail	Active	Fault
Amplifier	ON	OFF	ON

Impact

Critical alarm—service is affected.

Note When the T-LTEMP-HTS alarm is triggered, the T-OPT-LT is simultaneously triggered. This results in the major system LED also being turned on.

Note An T-OPT-LT (Optical Power Transmitted Low Threshold) alarm occurs as a result of this shutdown alarm. Shutdown alarms turn off both pump lasers in an amplifier.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

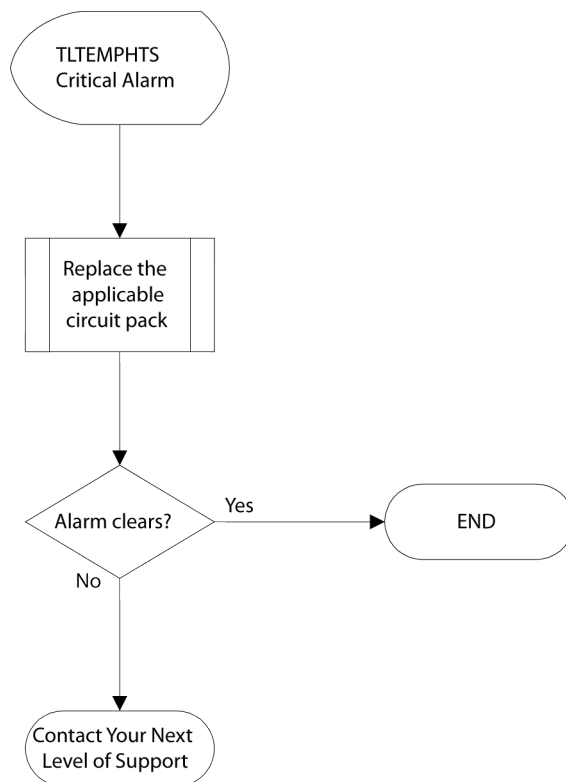


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-59 Clearing a T-LTEMP-HTS alarm

2.2.119.1 Clearing a T-LTEMP-HTS laser temperature high threshold shutdown alarm

Use this procedure to clear a T-LTEMP-HTS alarm.

Step 1 Replace the circuit pack

Replace the affected optical amplifier circuit pack with another optical amplifier circuit pack with the same product equipment code (PEC). Use the instructions provided in [3.7, “Replace Optical Amplifier modules”](#).

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.120 T-LTEMP-LTS (Laser Temperature Low Threshold Shutdown)

Problem Description

Pump laser temperature low threshold shutdown has occurred. The optical amplifier is shutdown and taken out-of-service by the system.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	ON	OFF	ON

Impact

Critical alarm—service is affected.

Note When the T-LTEMP-LTS alarm is triggered, the T-OPT-LT is simultaneously triggered. This results in the major system LED also being turned on.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

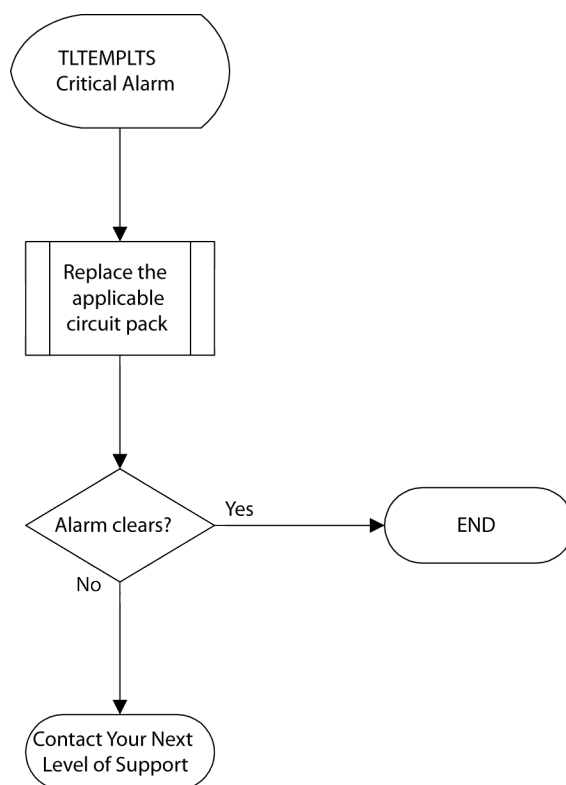
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-60 Clearing a T-LTEMP-LTS alarm



2.2.120.1 Clearing a T-LTEMP-LTS laser temperature low threshold shutdown alarm

Use this procedure to clear a T-LTEMP-LTS alarm.

Step 1 Replace the circuit pack

Replace the affected optical amplifier circuit pack with another optical amplifier circuit pack with the same product equipment code (PEC). Use the instructions provided in [3.7, “Replace Optical Amplifier modules”](#).

- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, contact your next level of support.

2.2.121 T-MSLOSS-HT (Mid-stage Insertion Loss High Threshold)

Problem Description

A mid-stage insertion loss high threshold is exceeded in a mid-stage amplifier in the BTI 7000 Series.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

OLAM-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



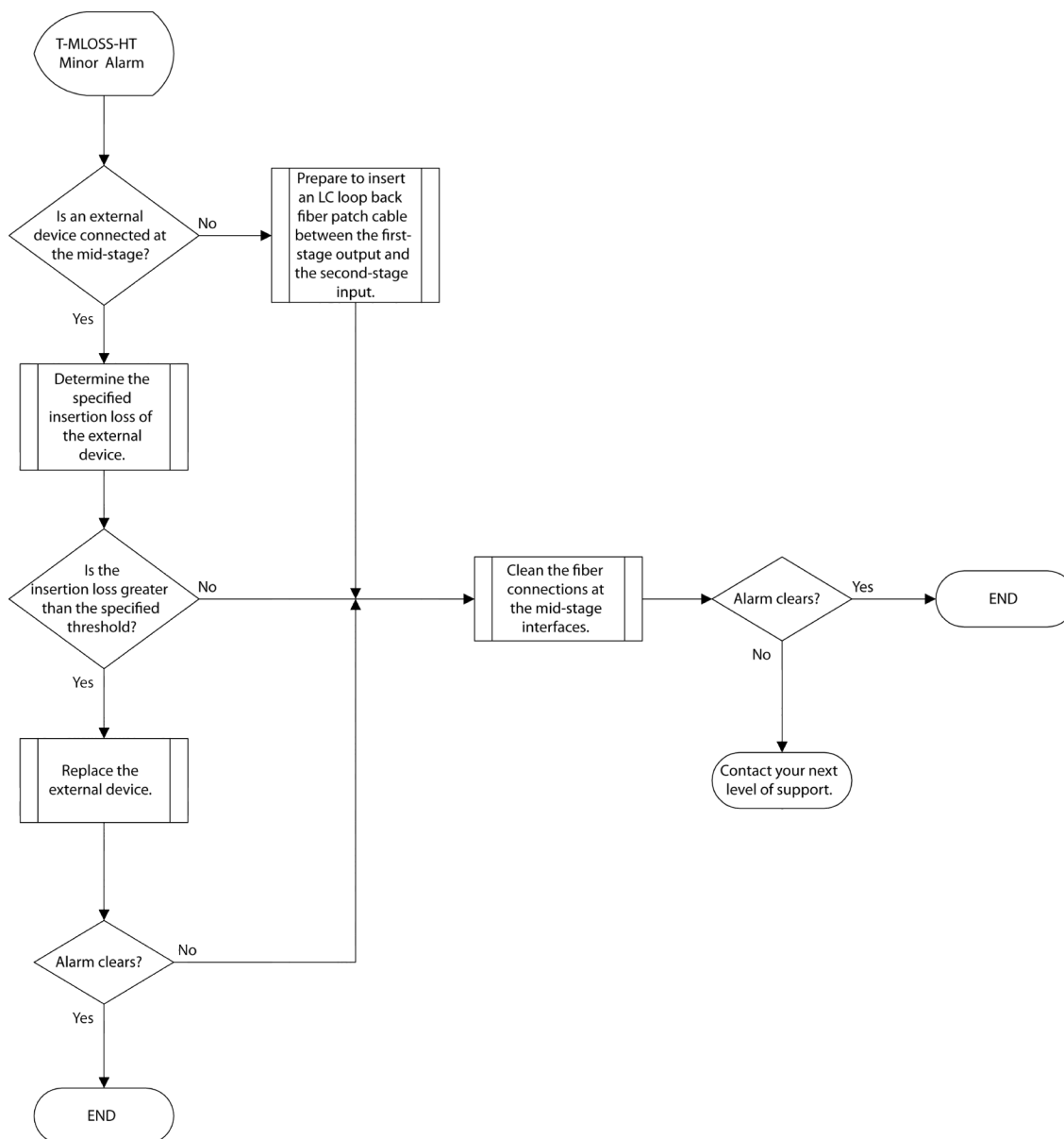
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-61 Clearing a T-MSLOSS-HT alarm



2.2.121.1 Clearing a T-MSLOSS-HT mid-stage insertion loss high threshold alarm

Use this procedure to clear a T-MSLOSS-HT alarm.

Step 1 Determine if an external device is connected at the mid-stage

- If an external device is connected at the mid-stage of the amplifier, go to the next step.
- If an external device is not connected at the mid-stage of the amplifier, go to step 5.

Step 2 Determine the maximum amount of insertion loss for the external device

Determine the maximum amount of insertion loss for the external device by checking the specifications for the device.

Record this value for use in the next step.

Step 3 Determine the mid-stage loss high threshold for the amplifier

Determine the mid-stage loss high threshold for the amplifier by entering the following syntax at the TL1 command line interface:

```
RTRV-OA:[TID]:[<aid>]:<CTAG>;
```

Example

```
BTI7000 03-01-29 09:19:17
M 100 COMPLD
"OLAM-1-2-1:LASERSTATUS=ON, GAIN=22.0,
PWR=-5.0,TLTCOM=0.0,CTEMP-HT=60,CTEMP-HTS=75,LTEMP-LTS=16,
LTEMPHTS=34,L1CURCAL=310.8,L2CURCAL=303.0,OPR-LT=-29.0,
OPR-HT=-4.0,SSIOPR-HT=17.0,OPT-LT=-6.0,OPT-HT=19.0,
OBR-HTS=-4.0,MSLOSS-HT=10.0,OASTATUS=COGAIN:IS-NR,"
;
```

In this example, the value set for the mid-stage loss high threshold (MSLOSS-HT) parameter is 10.0 dB.

- If the value recorded in step 2 is greater than the MSLOSS-HT parameter, go to the next step.
- If the value recorded in step 2 is less than the MSLOSS-HT parameter, go to step 6.

Step 4 Replace the external device

Replace the external device with one that is within the specified MSLOSS-HT value:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 5 Prepare to insert a loop back fiber patch cable

Obtain an LC fiber patch cable to connect the first-stage amplifier output to the second-stage amplifier input during the next step.

Step 6 Clean the fiber connections at the mid-stage interfaces

Clean the fiber connections at the input and output of the mid-stage device or loop back cable:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.122 T-OBR-HT (OBR - High Threshold)

Problem Description

An optical back reflection (OBR) high threshold alarm occurs when the back reflected power exceeds a preset threshold value (that is, -7 dBm).

The most likely causes of back reflection include:

- The optical output path is not terminated (that is, the output port is not connected).
- The optical output path is connected to a device that is not terminating the path (such as, an optical power meter) and as a result is causing back reflection.

Note If you are using an optical power meter to terminate the output path, ensure the power meter is actually terminating the output path. Otherwise, use an APC connector to connect the output to the optical power meter.

- The fibers are not connected correctly. This creates a gap or misalignment between the fiber ends.
- The coupler is faulty or the fibers are dirty.

The alarm clears when the back reflected power decreases to -8 dBm.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Minor alarm - service is not affected

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

ROB-(1,11,21,31)-(1-20)-(L1)

DLA-(1,11,21,31)-(1-20)-(L1)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

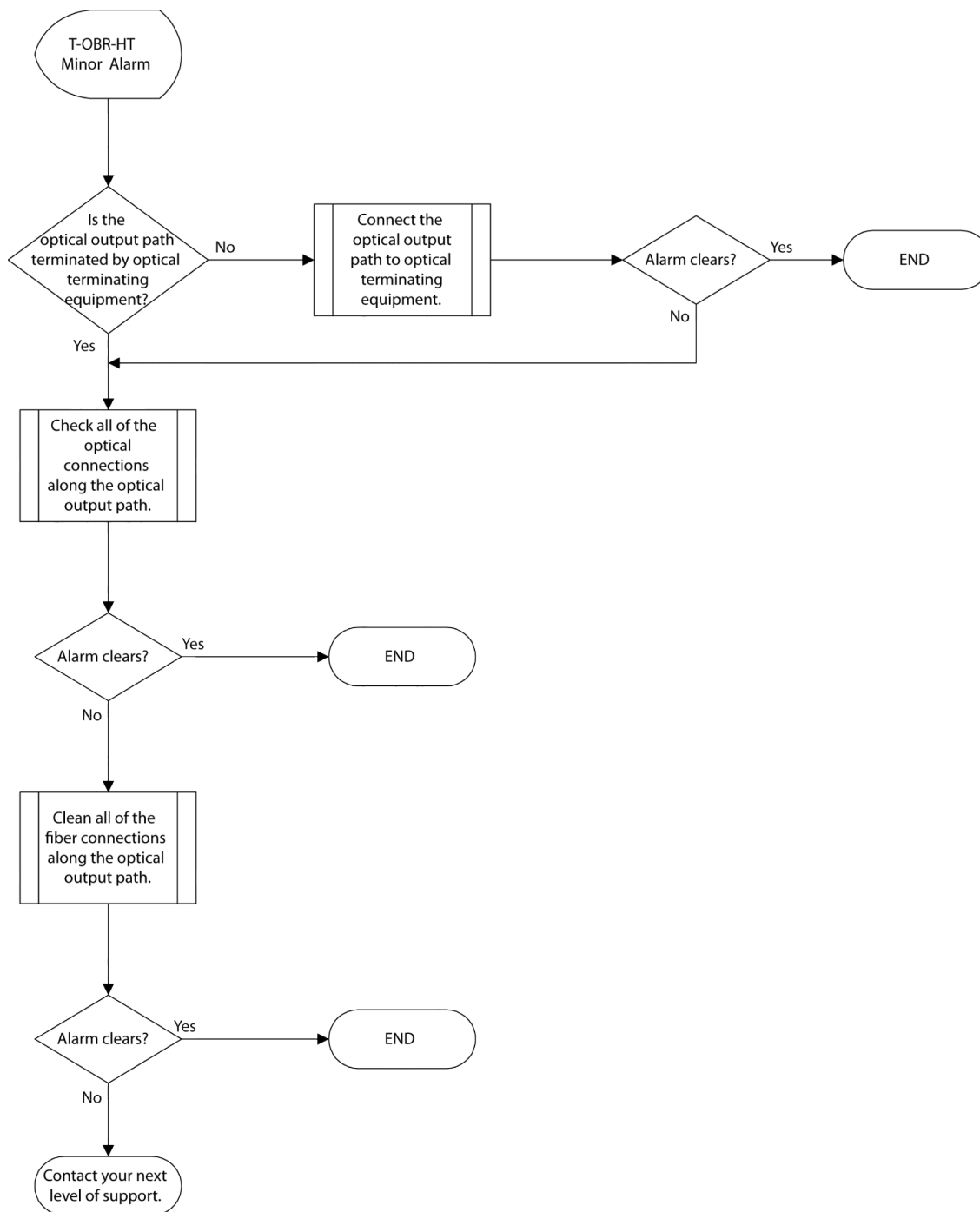
Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Note

If connected to an APC connector, measurements of output power can be off by up to 0.5 dBm

Figure 2-62 Clearing an T-OBR-HT alarm

2.2.122.1 Clearing a T-OBR-HT optical back reflection high threshold alarm

Use this procedure to clear a T-OBR-HT alarm.

Note To monitor progress in clearing the optical back reflection, retrieve the current performance measurements of the amplifier as you proceed through this procedure. For details about retrieving performance measurements, see the *Operations Solutions Guide*.

Step 1 Check if the optical output path is terminated to optical terminating equipment.

Determine whether the optical output path is terminated to optical terminating equipment:

- If the optical output path is terminated correctly, go to step 3. (If you are using an optical power meter to terminate the output path, ensure the power meter is actually terminating the output path. Otherwise, use an APC connector to connect the output to the optical power meter.)
- If the optical output path is not terminated correctly, go to the next step.

Step 2 Connect the optical output path to optical terminating equipment

- If the alarm clears, you have successfully completed this procedure. If the alarm does not clear, go to the next step.

Step 3 Check all of the optical connections along the optical output path

Ensure the fibers are firmly and correctly connected through couplers and patch panels:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Clean all the fiber connections along the optical output path

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.123 T-OBR-HTS (Optical Back Reflection High Threshold Safety)

Problem Description

An optical back reflection (OBR) high threshold shutdown occurs when the OBR value exceeds a preset threshold value.

The most likely causes of back reflection include:

- The optical output path is not terminated (that is, the output port is not connected).
- The optical output path is connected to a device that is not terminating the path (such as, an optical power meter) and as a result is causing back reflection.

Note If you are using an optical power meter to terminate the output path, ensure the power meter is actually terminating the output path. Otherwise, use an APC connector to connect the output to the optical power meter.

- The fibers are not connected correctly. This creates a gap or misalignment between the fiber ends.
- The coupler is faulty or the fibers are dirty.

The alarm clears when the optical back reflection decreases to about -20 dBm.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Critical alarm—service is affected. When the T-OBR-HTS alarm is triggered, only the first-stage amplifier is shutdown.

Important The first-stage amplifier shuts down and the second-stage amplifier remains active. This results in the output power being automatically reduced to a maximum of 0 dBm when the threshold is crossed.

Note When the T-OBR-HTS alarm is triggered, the T-OPT-LT may be simultaneously triggered depending on the minimum OPT threshold. This results in the major system LED also being turned on.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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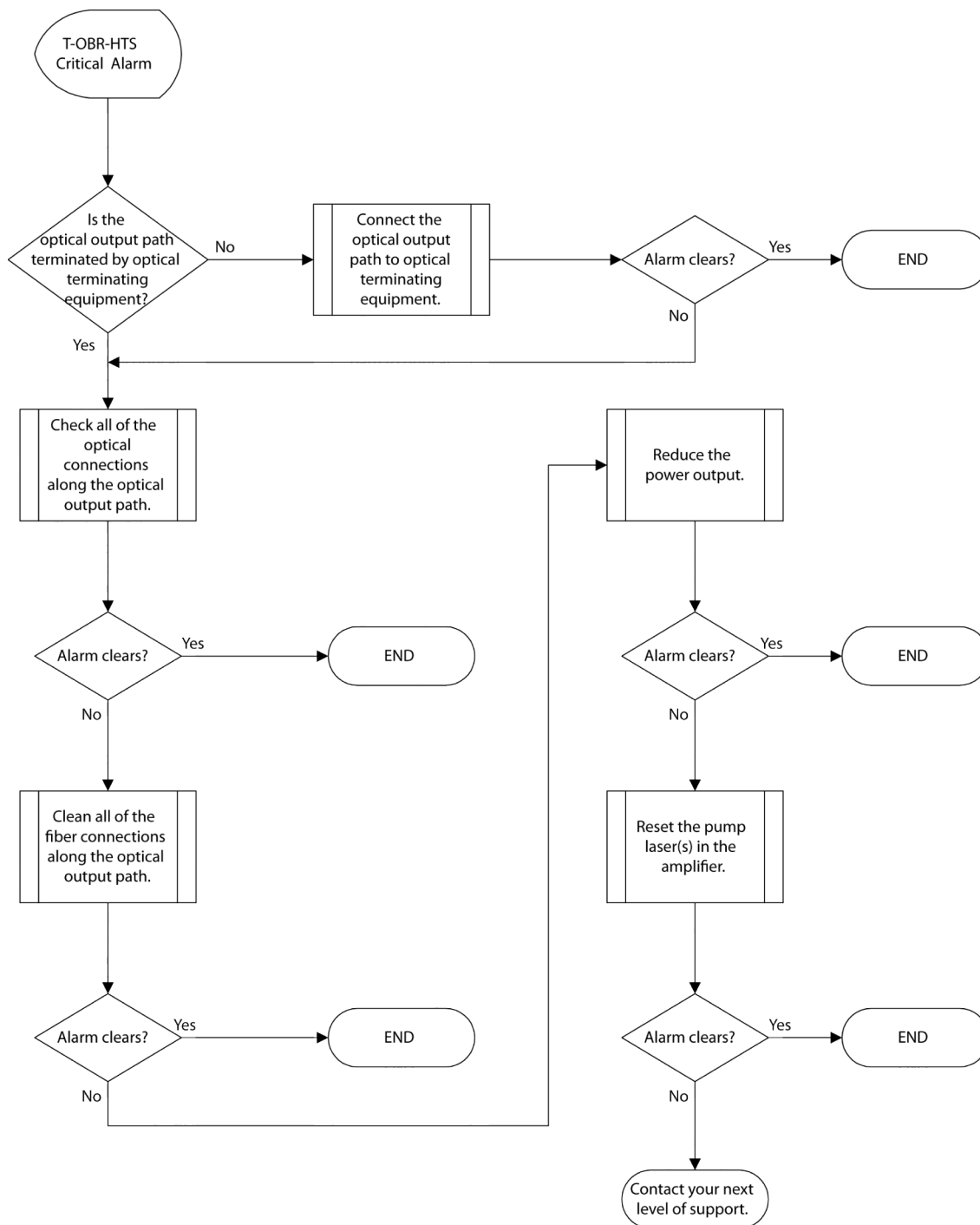
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Note	If you are connected to an APC connector, measurements of output power can be off by up to 0.5 dBm
-------------	--

Figure 2-63 Clearing a T-OBR-HTS alarm

Note Invisible laser radiation can be emitted from APC connectors. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

2.2.123.1 Clearing a T-OBR-HTS optical back reflection high threshold shutdown alarm

Use this procedure to clear a T-OBR-HTS alarm.

Note	To monitor progress in clearing the optical back reflection, retrieve the current performance measurements of the amplifier as you proceed through this procedure. For details about retrieving performance measurements, see the <i>Operations Solutions Guide</i> .
-------------	---

Step 1 Check if the optical output path is terminated to optical terminating equipment

Determine whether the optical output path is terminated to optical terminating equipment:

- If the optical output path is terminated correctly, go to step 3. (If you are using an optical power meter to terminate the output path, ensure the power meter is actually terminating the output path. Otherwise, use an APC connector to connect the output to the optical power meter.)
- If the optical output path is not terminated correctly, go to the next step.

Step 2 Connect the optical output path to optical terminating equipment

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Check all of the optical connections along the optical output path

Ensure the fibers are firmly and correctly connected through couplers and patch panels:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 4 Clean all the fiber connections along the optical output path

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 5 Reduce the output power

Reduce the output power by either reducing the gain setting or the input power:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Note	There is an assumption that an unacceptable eye-safe level is 10 dBm or more.
-------------	---

Step 6 Reset the pump lasers in the amplifier

Turn off the pump laser(s) of the amplifier and then turn the pump laser(s) back on by entering the following syntax at the TL1 command line interface:

```
RMV-OA:[TID]:<aid>:<CTAG>;
RST-OA:[TID]:<aid>:<CTAG>;
```

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.124 T-OPR-HT (OPR High Threshold)

Problem Description

The optical power received (OPR) high threshold is crossed.

The input signal to an optical amplifier or SFP transceiver has reached the optical power received high threshold.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

LED behavior for other circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

TPR-(1,11,21,31)-(1-20)-(1-4)

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

WT-(1,11,21,31)-(1-20)-(1-4)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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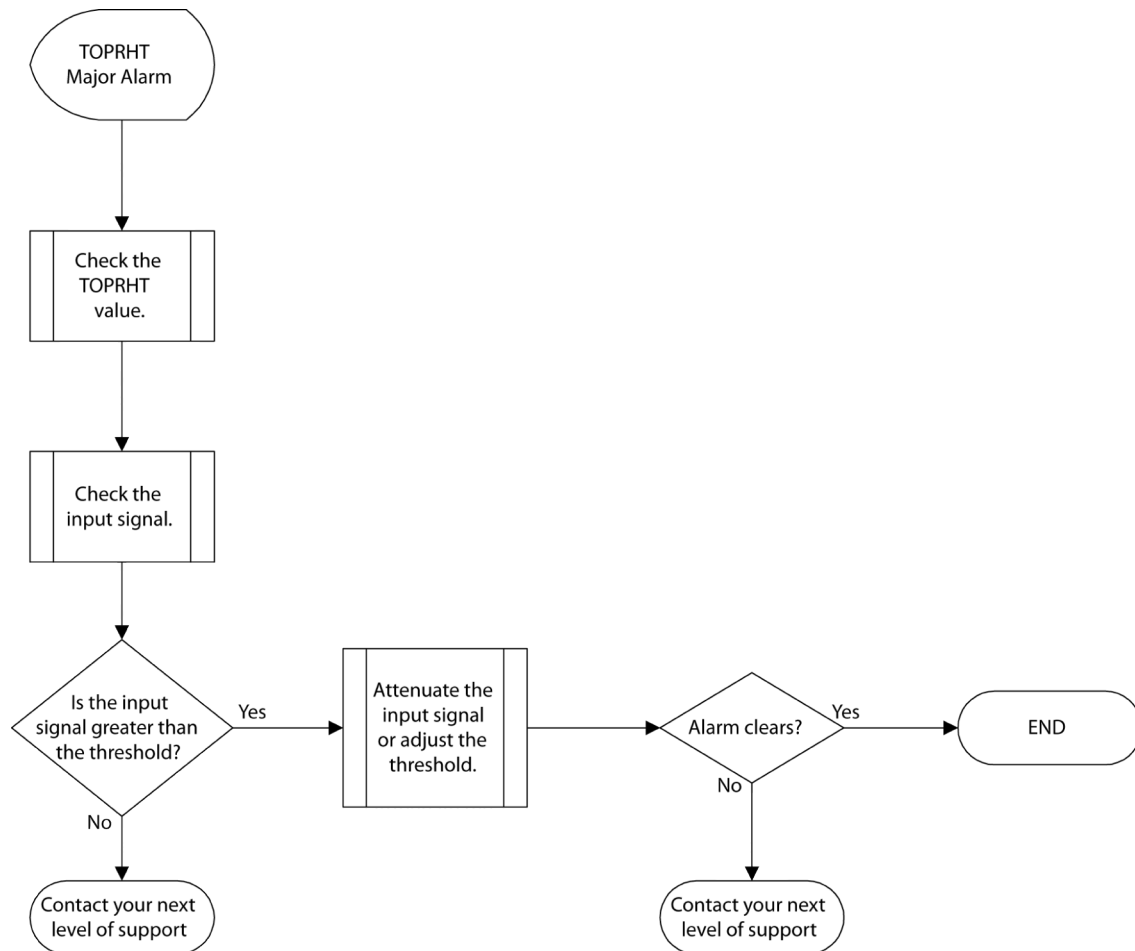
Caution	Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.
----------------	---

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-64 Clearing a T-OPR-HT alarm**2.2.124.1 Clearing a T-OPR-HT optical power received high threshold alarm**

Use this procedure to clear a T-OPR-HT alarm.

Step 1 Check the input signal to the circuit pack

Determine whether the input signal to the circuit pack is greater than the threshold:

- If the input signal is greater than the threshold, go to the next step.
- If the input signal is not greater than the threshold, contact your next level of support.

Step 2 Adjust the input signal or the threshold

Attenuate the input signal or adjust the threshold:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support

2.2.125 T-OPR-LT (OPR Low Threshold)

Problem Description

The optical power received (OPR) low threshold is exceeded.

The input signal to an optical amplifier or SFP transceiver has reached the optical power received low threshold. If the input signal drops to below the input sensitivity level, the circuit pack will degrade in performance.

Note When the T-OPR-LT alarm is triggered, the T-OPT-LT alarm is simultaneously triggered for the circuit pack.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

LED behavior for other circuit packs

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1
 OLAM-(1,11,21,31)-(1-20)-1
 OPA-(1,11,21,31)-(1-20)-1
 LGA-(1,11,21,31)-(1-20)-1
 MGA-(1,11,21,31)-(1-20)-1
 MGM-(1,11,21,31)-(1-20)-1
 PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)
 SBA-(1,11,21,31)-(1-20)-1
 SPA-(1,11,21,31)-(1-20)-1
 TPR-(1,11,21,31)-(1-20)-(1-4)
 WM-(1,11,21,31)-(1-20)-(1-4)
 WR-(1,11,21,31)-(1-20)-(1-4)
 WT-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

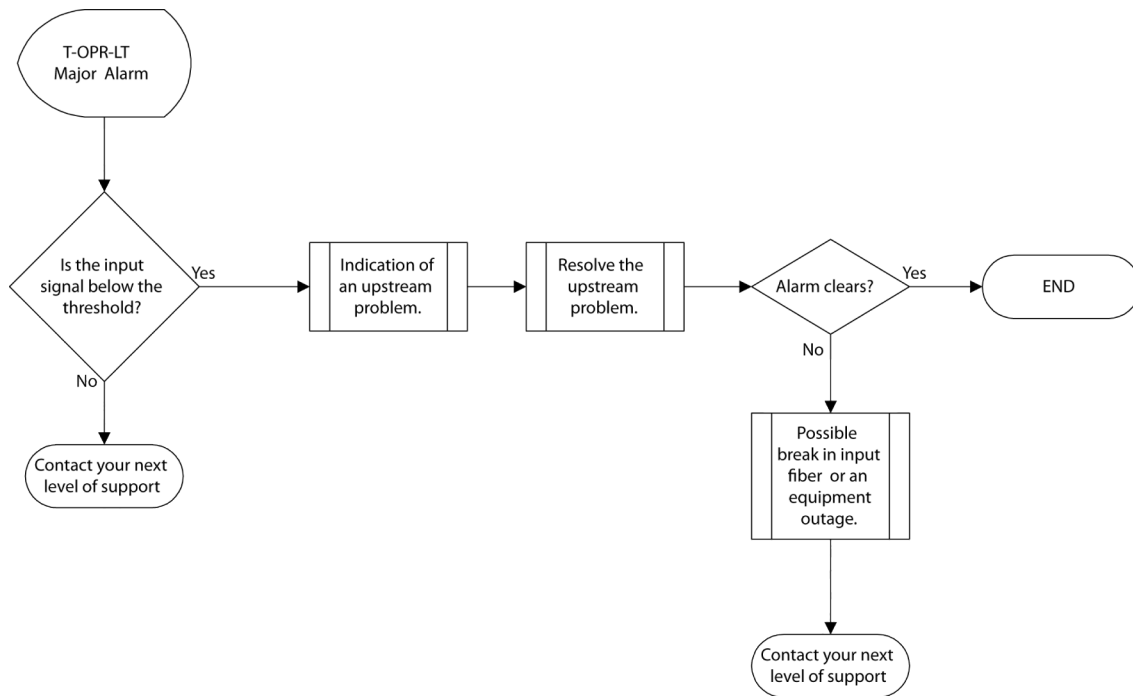


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-65 Clearing a T-OPR-LT alarm

2.2.125.1 Clearing a T-OPR-LT optical power received low threshold alarm

Use this procedure to clear a T-OPR-LT alarm.

Step 1 Check the input signal

Determine whether the input signal is below the threshold:

- If the input signal is below the threshold, go to the next step.
- If the input signal is not below the threshold, contact your next level of support.

Step 2 Check upstream equipment

There may be a problem with the upstream equipment. Resolve any upstream problem:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Possible fiber break in input fiber span

A break in the input fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

2.2.126 T-OPT-HT (OPT High Threshold for amplifiers)

Important There are two T-OPT-HT alarm clearing procedures. This procedure is for clearing an optical power transmitted (OPT) high threshold that is exceeded for amplifiers in the system. The procedure after this one is for clearing an optical power transmitted (OPT) high threshold for a small form factor pluggable (SFP) transceiver that is exceeded in the system.

Problem Description

The optical power transmitted (OPT) high threshold is exceeded.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1
OLA-(1,11,21,31)-(1-20)-1
OLAM-(1,11,21,31)-(1-20)-1
OPA-(1,11,21,31)-(1-20)-1
SBA-(1,11,21,31)-(1-20)-1
SPA-(1,11,21,31)-(1-20)-1
LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

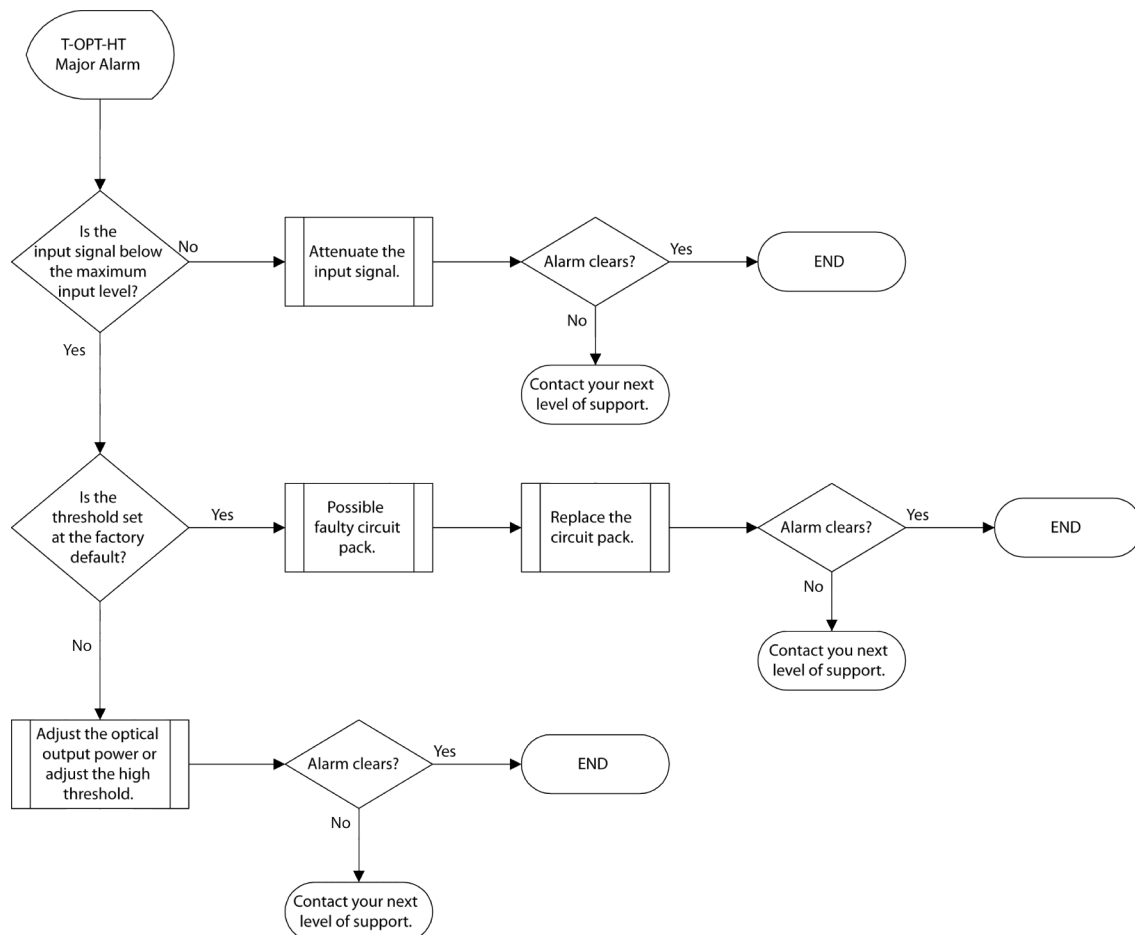
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-66 Clearing a T-OPT-HT alarm



2.2.126.1 Clearing a T-OPT-HT optical power transmitted high threshold exceeded alarm in the BTI 7000 Series

Use this procedure to clear a T-OPT-HT alarm.

- Step 1** Check the input signal as the output is a function of the input signal
Determine whether the input signal is below the maximum permitted:
- If the input signal is above the maximum input level, go to the next step.
 - If the input signal is below the maximum input level, go to step 3.
- Step 2** Attenuate the input signal
Attenuate the input signal to below the maximum input level:
- If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, contact your next level of support.
- Step 3** Check the threshold setting
Determine if the threshold is set at the factory default value:
- If the threshold setting is at the factory default value, go to the next step.
 - If the threshold setting is not at the factory default value, go to step 5.
- Step 4** Replace the circuit pack
Go to the applicable circuit pack replacement procedure listed below, insert the circuit pack, and the alarm clears:
[3.7, “Replace Optical Amplifier modules”](#)
- Step 5** If the alarm does not clear, contact your next level of support.
Adjust the optical power transmitted or the threshold level
- If the alarm clears, you have successfully completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.127 T-OPT-HT (OPT High Threshold for SFP or XFP)

Important There are two T-OPT-HT alarm clearing procedures. This procedure is for clearing an optical power transmitted (OPT) high threshold for an SFP or XFP transceiver that is exceeded in the BTI 7000 Series. The procedure before this one is for clearing an optical power transmitted (OPT) high threshold that is exceeded in the BTI 7000 Series.

Problem Description

The optical power transmitted (OPT) high threshold for an SFP or XFP transceiver is exceeded in the BTI 7000 Series.

Note The OPT high threshold for an SFP or XFP transceiver is preset and cannot be changed.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP	OFF	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

TPR-(1,11,21,31)-(1-20)-(1-4)

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

WT-(1,11,21,31)-(1-20)-(1-4)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



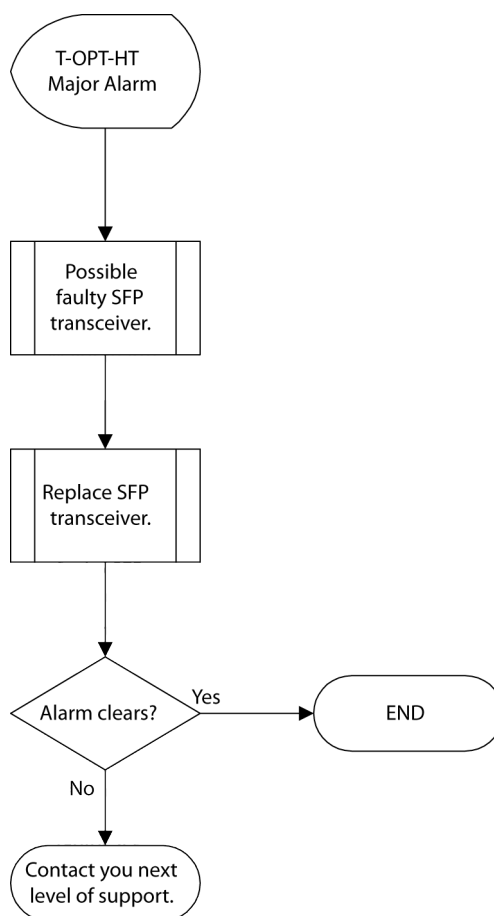
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-67 Clearing a T-OPT-HT alarm for an SFP or XFP transceiver



2.2.127.1 Clearing a T-OPT-HT alarm for an SFP or XFP transceiver

Use this procedure to clear a T-OPT-HT alarm for an SFP or XFP transceiver.

Step 1 Replace the SFP or XFP transceiver

Go to procedure [3.12, “Replacing optical transceivers”](#) in this document and replace the transceiver:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.128 T-OPT-LT (OPT Low Threshold for amplifiers)

Important There are two T-OPT-HT alarm clearing procedures. This procedure is for clearing an optical power transmitted (OPT) low threshold that is crossed for amplifiers in the BTI 7000 Series. The procedure after this one is for clearing an optical power transmitted (OPT) low threshold for a small form factor pluggable (SFP) transceiver that is crossed in the BTI 7000 Series.

Problem Description

The optical power transmitted (OPT) low threshold is crossed.

LED behavior for BTI 7060/BTI 7200

	Shelf LEDs		System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is not affected.

Affected AIDs

OBA-(1,11,21,31)-(1-20)-1

OLA-(1,11,21,31)-(1-20)-1

OLAM-(1,11,21,31)-(1-20)-1

OPA-(1,11,21,31)-(1-20)-1

SBA-(1,11,21,31)-(1-20)-1

SPA-(1,11,21,31)-(1-20)-1

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note

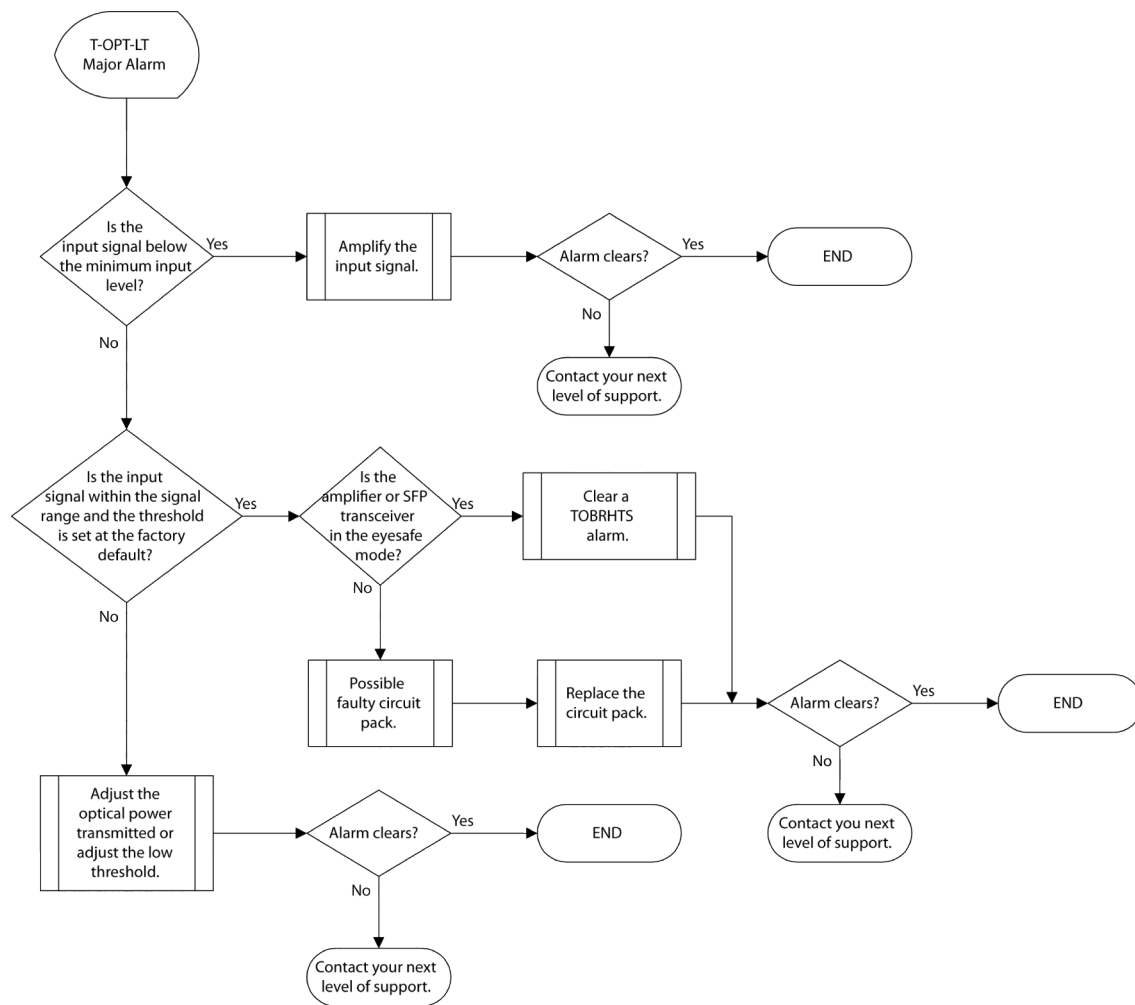
Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-68 Clearing a T-OPT-LT alarm

2.2.128.1 Clearing a T-OPT-LT alarm optical power transmitted low threshold alarm

Use this procedure to clear a T-OPT-LT alarm.

Step 1 Check the input signal as the output signal is a function of the input signal

Determine whether the input signal is below the minimum input level permitted:

- If the input signal is above the minimum input level, go to step 3.
- If the input signal is below the minimum input level, go to the next step.

Step 2 Amplify the input signal

Amplify the input signal to above the minimum input level by either increasing amplification upstream, or checking for potential problems with the upstream transmitters:

- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, contact your next level of support.

Step 3 Check the threshold setting

Determine if the threshold setting is at the factory default value:

- If the threshold setting is at the factory default value, go to the next step.
- If the threshold setting is not at the factory default value, go to step 7.

Step 4 Determine if the amplifier is in the eyesafe mode

Determine if the amplifier is in the eyesafe mode by entering the following syntax at the TL1 command line interface:

```
RTRV-OA:[TID]:[<aid>]:<CTAG>;
```

Example

```
BTI7000 03-02-25 13:19:26
M 100 COMPLD
"OLAM-1-2-1:LASERMDE=ON, GAIN=22.0,PWR=-5.0, TLTCOM=0.0,CTEMP-
HT=60,CTEMP-HTS=75,LTEMP-LTS=16,LTEMP-HTS=34, L1CURCAL=330.
7,L2CURCAL=348.6,OPR-LT=-29.0,OPR-HT=-4.0, SSIOPR-HT=17.0,OPT-LT=-6.
0,OPT-HT=19.0,OBR-HTS=-4.0,
MSLOSS-HT=10.0,OASTATUS=EYESAFE:IS-NR,"
;
```

In this example, the value set for the optical amplifier status (OASTATUS) parameter is EYESAFE.

- If the OASTATUS parameter is EYESAFE, then one of the pump lasers has been shutdown and this can cause a T-OBR-HTS alarm. Go to the next step.
- If the OASTATUS parameter is not EYESAFE, go to step 6.

Step 5 Clear a T-OBR-HTS alarm

Go to the T-OBR-HTS alarm clearing procedure in this document, clear the alarm if present, and then return to this procedure.

After clearing the T-OBR-HTS alarm, check if the T-OPT-LT alarm has cleared:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 6 Replace the circuit pack.

Go to the applicable circuit pack replacement procedure listed below, insert the circuit pack, and the alarm clears:

[3.7, "Replace Optical Amplifier modules"](#)

If the alarm does not clear, contact your next level of support.

Step 7 Adjust the optical power transmitted or the threshold level

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.129 T-OPT-LT (OPT Low Threshold for SFP)

Important There are two T-OPT-LT alarm clearing procedures. This procedure is for clearing an optical power transmitted (OPT) low threshold for an SFP transceiver that is crossed in the BTI 7000 Series. The procedure before this one is for clearing an optical power transmitted (OPT) low threshold that is crossed in the BTI 7000 Series.

Problem Description

The optical power transmitted (OPT) low threshold is crossed for an SFP in the BTI 7000 Series.

Note The OPT low threshold for an SFP transceiver is preset and cannot be changed.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
Circuit Pack	OFF	ON

LED behavior for transceiver port LEDs

Location	Transceiver Port LEDs	
	Fault	Fail
SFP	OFF	ON

Impact

Major alarm—service is not affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10)

PVX-(1,11,21,31)-(1,3,5...19)-(G1-G24,X1-X4)

TPR-(1,11,21,31)-(1-20)-(1-4)

WM-(1,11,21,31)-(1-20)-(1-4)

WR-(1,11,21,31)-(1-20)-(1-4)

WT-(1,11,21,31)-(1-20)-(1-4)

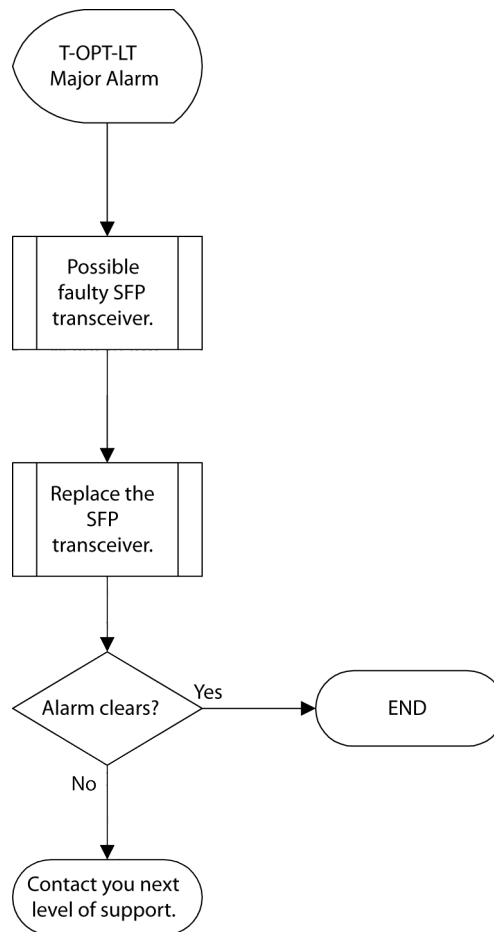
Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-69 Clearing a T-OPT-LT alarm

2.2.129.1 Clearing a T-OPT-LT alarm for an SFP transceiver

Use this procedure to clear a T-OPT-LT alarm for an SFP transceiver.

Step 1 Replace the SFP or XFP transceiver

Go to procedure [3.12, “Replacing optical transceivers”](#) in this document and replace the transceiver:

- - If the alarm clears, you have successfully completed this procedure.
- - If the alarm does not clear, contact your next level of support.

2.2.130 T-REPLUNIT-HT (Circuit Pack High Temperature Threshold Exceeded)

Problem Description

The circuit pack has exceeded the high temperature threshold but is below the temperature shutdown threshold.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.130.1 Clearing a T-REPLUNIT-HT Circuit Pack High Temperature Threshold Exceeded alarm

Use this procedure to clear a T-REPLUNIT-HT alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the shelf is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear.
- If the ambient room temperature is in the normal operating temperature range, go to the next step.

Step 3 Determine whether there are any empty slots in the shelf

Check the BTI 7000 Series shelf for any empty slots.

- If empty slots exist, insert filler circuit packs into those slots.
- If no empty slots exist, go to the next step.

Step 4 Determine whether anything is obstructing the shelf ventilation

Check the BTI 7000 Series shelf to determine if there is anything obstructing the ventilation openings.

- If there are any obstructions, clear the obstructions from around the BTI 7000 Series shelf.
- Check the filter and clean it if necessary.

Step 5 If no problems are found, contact your next level of support.

2.2.131 T-REPLUNIT-HTS (Circuit Pack Temperature Shutdown Threshold Exceeded)

Problem Description

The circuit pack has exceeded the temperature shutdown threshold.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

Impact

Critical alarm—service is affected.

Affected AIDs

SLOT-(1,11,21,31)-(1-20)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.131.1 Clearing a T-REPLUNIT-HTS Circuit Pack Temperature Shutdown Threshold Exceeded alarm

Use this procedure to clear a T-REPLUNIT-HTS alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the amplifier is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear.
- If the ambient room temperature is in the normal operating temperature range, go to the next step.

Step 3 Determine whether there are any empty slots in the shelf

Check the BTI 7000 Series shelf for any empty slots.

- If empty slots exist, insert filler circuit packs into those slots.
- If no empty slots exist, go to the next step.

Step 4 Determine whether anything is obstructing the shelf ventilation

Check the BTI 7000 Series shelf to determine if there is anything obstructing the ventilation openings.

- If there are any obstructions, clear the obstructions from around the BTI 7000 Series shelf.
- Check the filter and clean it if necessary.

Step 5 If no problems are found, contact your next level of support.

2.2.132 T-SSIOPR-HT (Second Stage OPR High Threshold)

Problem Description

A second stage input optical power received (OPR) high threshold has occurred.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—service is affected.

Affected AIDs

OLAM-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

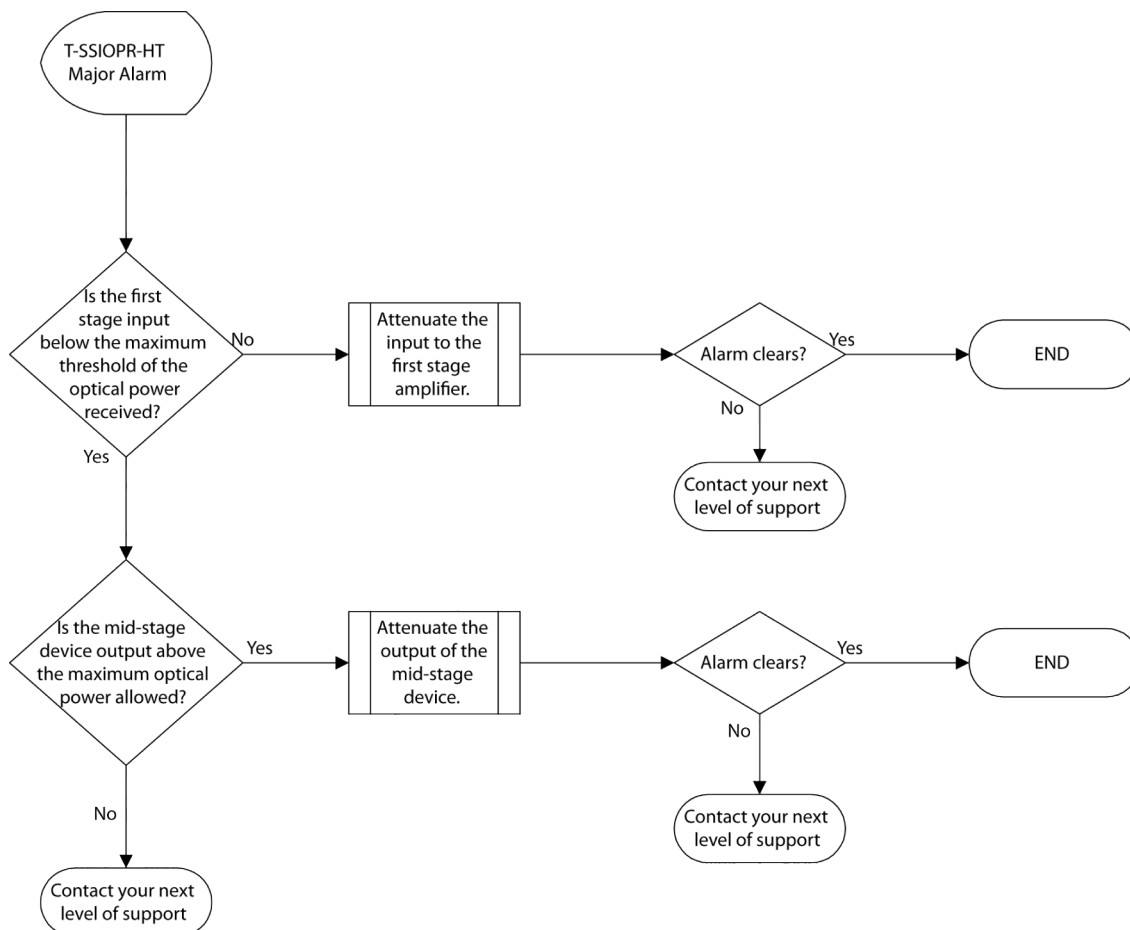


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-70 Clearing a T-SSIOPR-HT alarm

2.2.132.1 Clearing a T-SSIOPR-HT second stage input optical power received high threshold alarm

Use this procedure to clear a T-SSIOPR-HT alarm.

Step 1 Check the input signal to the first-stage amplifier

Determine whether the input signal to the amplifier is above the maximum threshold of the input power:

- If the input power to the first-stage amplifier is above the maximum threshold, go to the next step.
- If the input power to the first-stage amplifier is within range, go to step 3.

Step 2 Attenuate the input to the first-stage amplifier

Attenuate the input to the amplifier, then check the alarm status:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Check the output signal of the mid-stage device

Determine whether the output signal from the mid-stage device is above the maximum threshold of the mid-stage OPR:

- If the output power from the mid-stage device is above the maximum threshold, go to the next step.
- If the output power from the mid-stage device is within range, contact your next level of support.

Step 4 Attenuate the output from the mid-stage device

Attenuate the output from the mid-stage device, then check the alarm status:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.133 T-SSIOPR-LT (Second Stage OPR Low Threshold)

Problem Description

A second stage input optical power received (OPR) low threshold has occurred.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Major alarm—not service affecting.

Affected AIDs

MGM-(1,11,21,31)-(1-20)-1

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.133.1 Clearing a T-SSIOPR-LT optical power received low threshold alarm

Use this procedure to clear a T-SSIOPR-LT alarm.

Step 1 Check the input signal

Determine whether the input signal is below the threshold:

- If the input signal is below the threshold, go to the next step.
- If the input signal is not below the threshold, contact your next level of support.

Step 2 Check upstream equipment

There may be a problem with the upstream equipment. Resolve any upstream problem:

- If the alarm clears, you have completed this procedure.
- If the alarm does not clear, go to the next step.

Step 3 Possible fiber break in input fiber span

A break in the input fiber cable can cause a loss of signal. Contact your next level of support to determine if there is a break in the fiber span.

2.2.134 T-TEMP-HT (Temperature Above High Threshold)

Problem Description

The temperature above high threshold alarm has occurred.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	ON	OFF

Impact

Major alarm—service is not affected.

Affected AIDs

SLOT-(1,11,21,31)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.134.1 Clearing a T-TEMP-HT temperature above high threshold alarm

Use this procedure to clear a T-TEMP-HT alarm.

Step 1 Determine whether the cooling unit has failed

Check the LEDs on the front of the Cooling Unit:

- If the red failure LED is lit on the Cooling Unit, there has been a failure. Obtain a new Cooling Unit circuit pack. Go to the Cooling Unit replacement procedure ([Chapter 3, “Replacing modules”](#)) in this document and replace the circuit pack.
- If the green active LED is lit on the Cooling Unit, the circuit pack is functioning correctly. Go to the next step.

Step 2 Determine whether the ambient room temperature is excessive

Check the ambient room temperature where the amplifier is located:

- If the ambient room temperature is greater than 50°C (122°F), you must lower the ambient room temperature. Once the ambient room temperature is back to the normal operating range, the alarm should clear.
- If the ambient room temperature is in the normal operating temperature range, go to the next step.

Step 3 Determine whether there are any empty slots in the shelf

Check the BTI 7000 Series shelf for any empty slots.

- If empty slots exist, insert filler circuit packs into those slots.
- If no empty slots exist, go to the next step.

Step 4 Determine whether anything is obstructing the shelf ventilation

Check the BTI 7000 Series shelf to determine if there is anything obstructing the ventilation openings.

- If there are any obstructions, clear the obstructions from around the BTI 7000 Series shelf.
- Check the filter and clean it if necessary.
- If no obstructions are present, contact your next level of support.

2.2.135 TILT-NA-TX (Tilt Not Achievable)

Problem Description

The configured tilt level cannot be achieved on the output signal.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	ON

Impact

Minor alarm—service is not affected.

Affected AIDs

LGA-(1,11,21,31)-(1-20)-1

MGA-(1,11,21,31)-(1-20)-1

MGM-(1,11,21,31)-(1-20)-1

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.135.1 Clearing a TILT-NA-TX tilt not achievable alarm

Use this procedure to clear a TILT-NA-TX alarm.

Step 1 Check the input signal as the output signal is a function of the input signal

Determine whether the input signal is within the acceptable operating range for the amplifier:

- If the input signal is below the minimum input level, go to the next step.

- If the input signal is above the maximum input level, go to [Step 3](#).
- If the input signal is within the acceptable operatin range, contact your next level of support.

Step 2 Amplify the input signal

Amplify the input signal to above the minimum input level by either increasing amplification upstream, or checking for potential problems with the upstream transmitters:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

Step 3 Adjust the input signal or the threshold

Attenuate the input signal or adjust the threshold:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support

2.2.136 UNEQ-O (Wavelength Channel Unequipped)

Problem Description

The NE at the far end channel of the equalization section has signaled to the local NE that the indicated wavelength has not been configured to carry a channel in the WDM composite signal that it has transmitted to the local NE.

This fault applies to ROADM Terminal, Line Equalizing Node and ROADM Node configurations and only to channels on the Line port of the ROB module.

LED behavior for BTI 7060/BTI 7200

Shelf LEDs		System LEDs			
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior

There is no Fault LED for WCH alarms on the Line port.

Impact

Critical alarm—service may be affected.

Affected AIDs

ROB-(1,11,21,31)-(1,3,5...19)-(L1)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, SFP transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

2.2.136.1 Clearing a UNEQ-O wavelength channel unequipped alarm

Use this procedure to clear a UNEQ-O alarm.

Step 1 Using the proNX 900 navigate to the optical group.

Right-click a group and choose **Provision Cross Connects**. The **Optical Cross Connects - Group: <group number>** dialog appears.

Step 2 Determine whether the cross-connect exists for the channel at the far-end of the equalization section.

- If the cross-connect exists it is listed in the table. Go to Step 4.
- If the cross-connect does not exist you must create it. Go to the next step.

Step 3 Create the cross-connect.

To create the cross-connect refer to "Provisioning wavelength cross connections for DOL equipment," in the *BTI 7000 Series Dynamic Optical Layer Engineering Guideline*. Ensure that the channel matches the channel being reported in the alarm.

Step 4 Determine if the administrative state of the cross-connect channel is In-Service (IS). If the state is Out-of-service (OOS), change the state to IS:

- a) Navigate to the Optical Group, Degree and module that you are troubleshooting.
- b) Right-click the module and choose **View WDM Info**. The **Provision WDM: <module>** dialog appears.
- c) If the **Administrative State** is Out-of-Service (OOS), from the drop-down menu select In-Service or Auto-in-Service. Click **OK**.
 - If the alarm clears, you have completed this procedure.
 - If the alarm does not clear, contact your next level of support.

2.2.137 UNEQ-P (Unequipped for STS Rx port)

Problem Description

This alarm indicates that a path in a SONET/SDH line port on a muxponder circuit pack is reported unequipped due to one or more of the following:

- no cross connect provisioned at the far end.
- faulty circuit at the far end

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	ON	OFF	OFF

LED behavior for the muxponder circuit pack

Location	Circuit Pack LEDs	
	Fail	Active
MXP	OFF	ON

LED behavior for SFP port LEDs

Location	SFP Port LEDs	
	Fail	Fault
SFP	ON	ON

Impact

Critical alarm—service is may be affected.

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)

Note Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

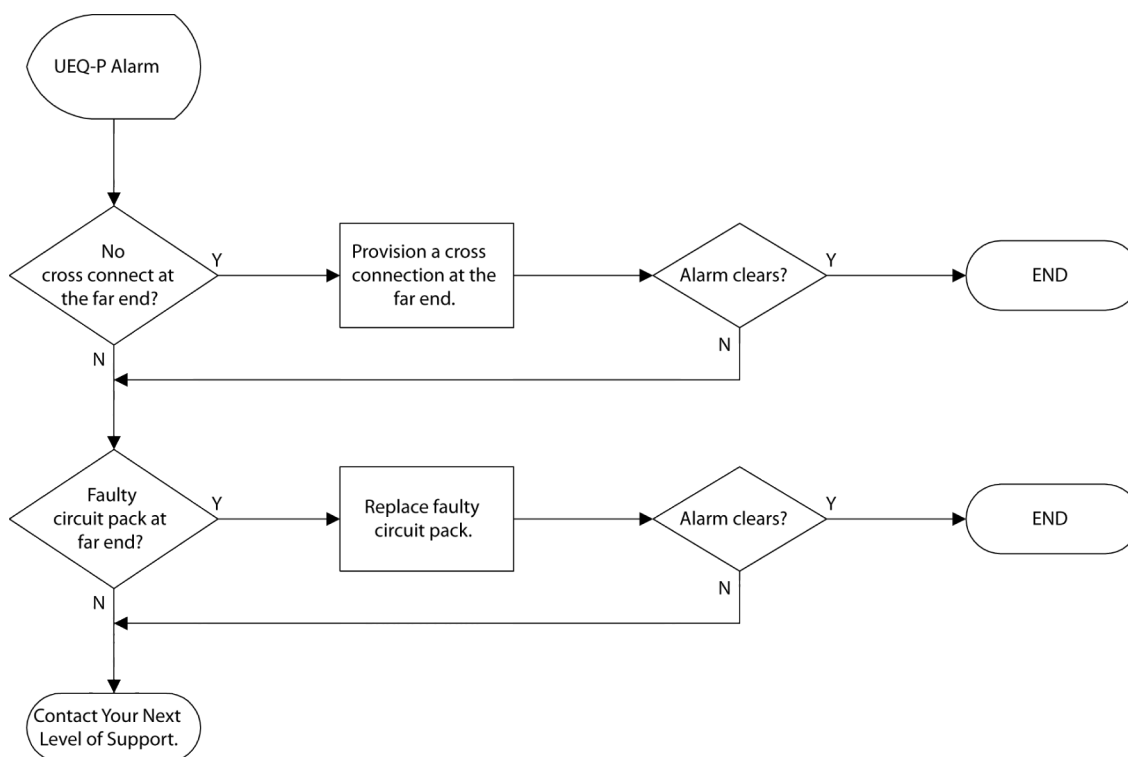
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-71 Clearing a UNEQ-P alarm



2.2.137.1 Clearing an UNEQ-P unequipped STS Rx port alarm

Use this procedure to clear a UNEQ-P alarm.

Step 1 Check for cross connection at far end

Determine whether the equipment at the far end has a correct cross connection and resolve the problem:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, go to the next step.

Step 2 Check if there is a faulty circuit pack at the far end

Determine whether there is a faulty circuit pack at the far end. If so, replace the faulty circuit pack:

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.138 UGRDPROG (Circuit Pack Upgrade in Progress)

Problem Description

There is an auto upgrade in progress. This alarm is typically seen when inserting a circuit pack other than a system control processor (SCP).

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

LED behavior for amplifier

Location	Circuit Pack LEDs		
	Fail	Active	Fault
Amplifier	OFF	ON	OFF

Impact

Minor alarm—service is not affected.

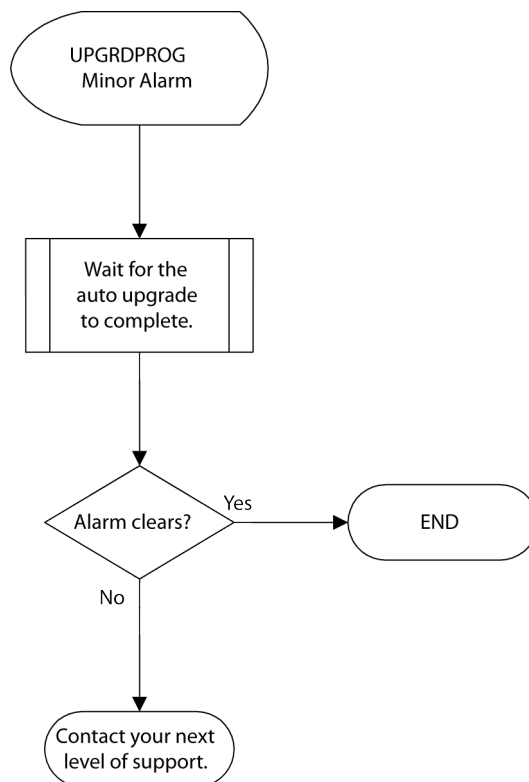
Affected AIDs

SI-(11,21,31)

SLOT-(1,11,21,31)-(1-20)

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-72 Clearing a UPGRDPROG alarm

2.2.138.1 Clearing a UPGRDPROG circuit pack upgrade in progress alarm

Use this procedure to clear a UPGRDPROG alarm.

Step 1 User access restricted

The UPGRDPROG alarm indicates that an auto upgrade is in progress. Once the auto upgrade starts, access to the affected slot is not available.

- If the alarm clears after completing the auto upgrade, no further action is required.
- If the alarm does not clear after completing the auto upgrade, contact your next level of support.

2.2.139 USRLCKOUT (User Locked Out)

Problem Description

A user is locked out of the BTI 7000 Series. After three incorrect attempts to login, a user is blocked from attempting to login again for 60 seconds.

LED behavior for BTI 7060/BTI 7200

Location	Shelf LEDs		System LEDs		
	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	OFF	OFF	ON

LED behavior for BTI 7030

Location	Fail	Active	Fan Fail	Critical	Major	Minor
SCP	OFF	ON	OFF	OFF	OFF	ON

Impact

Minor alarm—service is not affected.

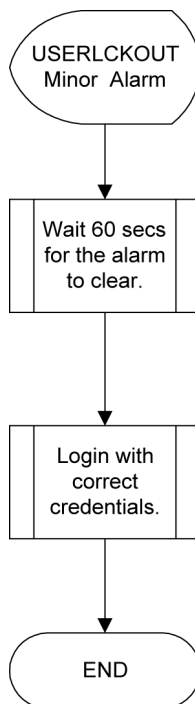
Affected AIDs

USER

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-73 Clearing a USRLCKOUT alarm



2.2.139.1 Clearing a USRLCKOUT user locked out alarm

Use this procedure to clear a USRLCKOUT alarm.

Step 1 Wait for the alarm to clear

Wait 60 seconds for the alarm to clear and then login with the correct credentials.

- If the alarm clears, you have successfully completed this procedure.
- If the alarm does not clear, contact your next level of support.

2.2.140 WNA (Wavelength Not Achievable)

Problem Description

The Wavelength Not Achievable alarm is raised against a tunable transceiver when tuning has failed.

LED behavior for BTI 7060

LED behavior for BTI 7060/BTI 7200

Shelf LEDs			System LEDs		
Location	Trouble	Power	Critical	Major	Minor
MSI	ON	ON	ON	OFF	OFF

LED behavior for module

Location	Circuit Pack LEDs	
	Fail	Active
MXP	ON	ON
TPR	ON	ON

Impact

Critical alarm—service may be affected.

Affected AIDs

MXP-(1,11,21,31)-(1,3,5...19)-(L1,L2)

TPR-(1,11,21,31)-(1-20)-(1-4)



Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

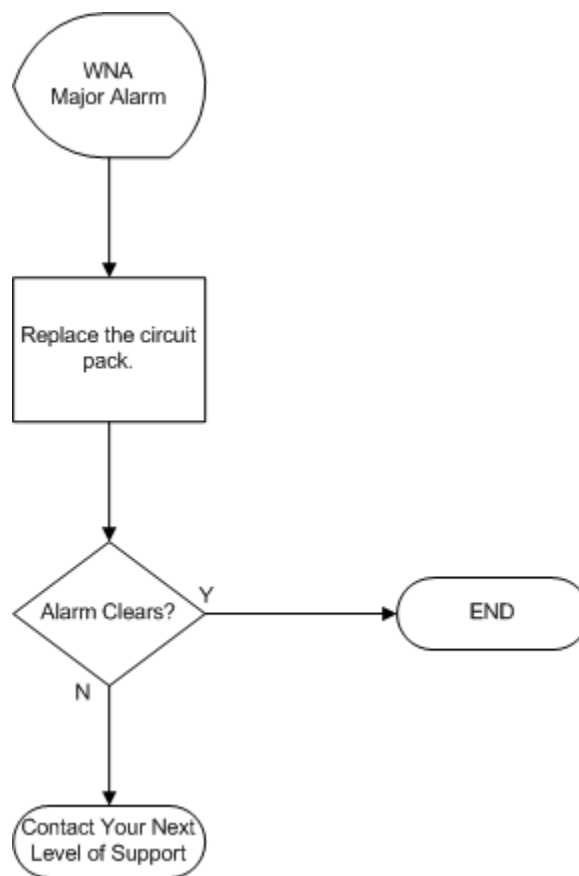
**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this alarm clearing procedure. Use the flow chart to understand the context of the alarm. Use the procedure to clear the alarm.

Figure 2-74 Clearing a WNA alarm



2.2.140.1 Clearing a WNA Wavelength Not Achievable alarm

Use this procedure to clear a WNA alarm.

Step 1 Replace the tunable XFP.

To clear the WNA alarm, replace the circuit pack tunable XFP. Follow the instructions in [3.12, “Replacing optical transceivers”](#).

- If the alarm clears, you have successfully completed this procedure.

- If the alarm does not clear, contact your next level of support.

3.0 Replacing modules

This chapter explains how to replace modules. This section is organized as follows:

- 3.1, “BTI 7060 common equipment modules”
- 3.2, “BTI 7030 common equipment modules”
- 3.3, “BTI 7200 common equipment modules”
- 3.4, “Replacing transponder modules”
- 3.5, “Replacing muxponder modules”
- 3.6, “Replacing packetVX modules”
- 3.7, “Replace Optical Amplifier modules”
- 3.8, “Replace Dispersion Compensation modules”
- 3.9, “Replacing Multiplexing modules”
- 3.10, “Replacing ROADM-on-a-blade modules”
- 3.12, “Replacing optical transceivers”
- 3.13, “Filler modules and panels”
- 3.14, “Inserting or replacing an air filter in the BTI 7060”
- 3.15, “Inserting or replacing an air filter in the BTI 7200”

3.1 BTI 7060 common equipment modules

This section provides information and procedures for locating and installing common equipment modules for the BTI 7060.

3.1.1 BTI 7060 common equipment module locations

The following figures show the location of each common equipment module for the main shelf and the expansion shelf.

The left side of the BTI 7060 accepts either the main shelf interface (MSI), or the expansion shelf interface (ESI), and the cooling unit (CU) modules. All of these modules have dedicated slots that are configured for them.

The remaining module slots are located to the right of the MSI, or ESI, and CU. In the main shelf, slot 5 is configured to accept the System Control Processor (SCP) module only, and the remaining slots can be provisioned to accept other modules. In the expansion shelf, all slots to the right of the ESI and CU can be provisioned to accept modules.

Main Shelf Common Equipment Module Locations

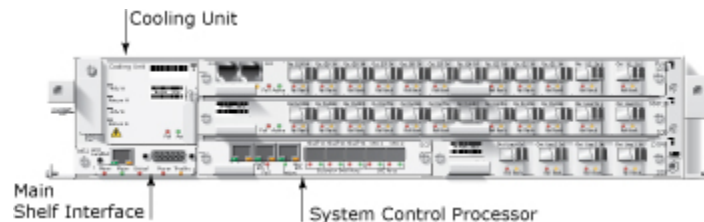
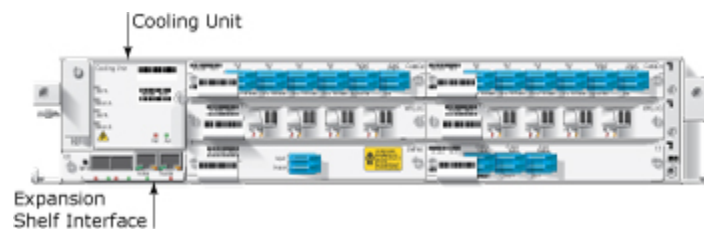


Figure 3-2 Expansion Shelf Common Equipment Module Locations



3.1.2 Install the BTI 7060 Cooling Unit module

Use this procedure to install the BTI 7060 Cooling Unit module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap with banana plug jack
- Cooling Unit module

Prerequisites

- None

Installation procedure

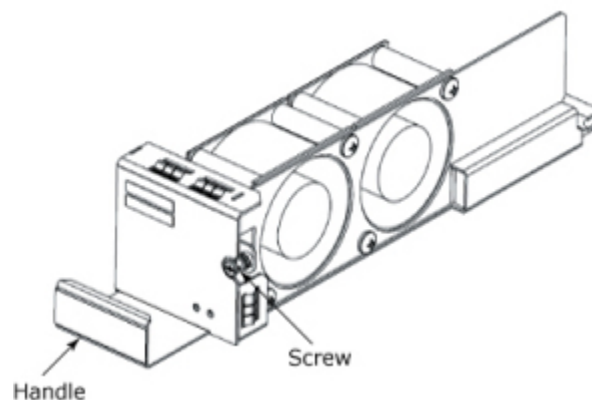


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7060 Cooling Unit module and its key features for this procedure.

Figure 3-3 BTI 7060 Cooling Unit module



Note The Cooling Unit must be installed in its dedicated slot in the shelf.

Note Install the Cooling Unit module before installing the System Control Processor module.

To install a Cooling Unit module, use the following procedure.

Step 1 Insert module

- a) Align the cooling unit to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 2 Tighten faceplate screw

- a) Facing the front of the shelf, align the cooling unit with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure.

3.1.3 Replacing the BTI 7060 Main Shelf Interface module

Use this procedure to replace the BTI 7060 Main Shelf Interface (MSI) module (BT7A53BA/BT7A53BB).

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- MSI module (BT7A53BA/BT7A53BB)

Prerequisites

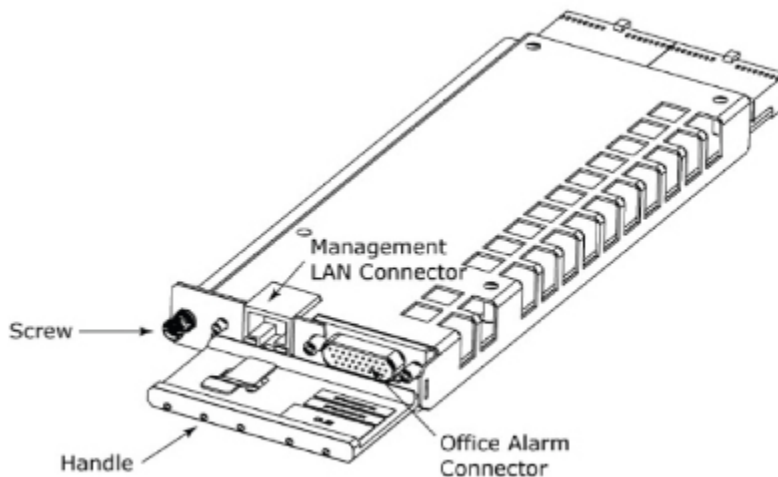
- None

Replacement procedure

CautionESD Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7060 MSI module and its key features for this procedure.

Figure 3-4 BTI 7060 MSI module



Note The MSI module must be installed in its dedicated slot in a main shelf.

Step 1 Before removing the existing MSI module, disconnect the expansion shelf, as follows:
On the SCP on the main shelf, unplug the SFP that connects to the expansion shelf.
Repeat this step for each connected expansion shelf.

Note Perform this procedure on the SCP on the main shelf, not on the ESI module on the expansion shelf.

Step 2 Remove the existing MSI by sliding the module out along the guides of the slot.

Step 3 Insert the new MSI module:

- a) Align the MSI to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 4 Tighten faceplate screw:

- a) Facing the front of the shelf, align the MSI with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 5 Plug back the SFP(s) that you disconnected in [Step 1](#).

You have successfully completed this procedure.

3.1.4 Install the BTI 7060 Expansion Shelf Interface module

Use this procedure to install the BTI 7060 Expansion Shelf Interface (ESI) module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- ESI module

Prerequisites

- None

Installation procedure

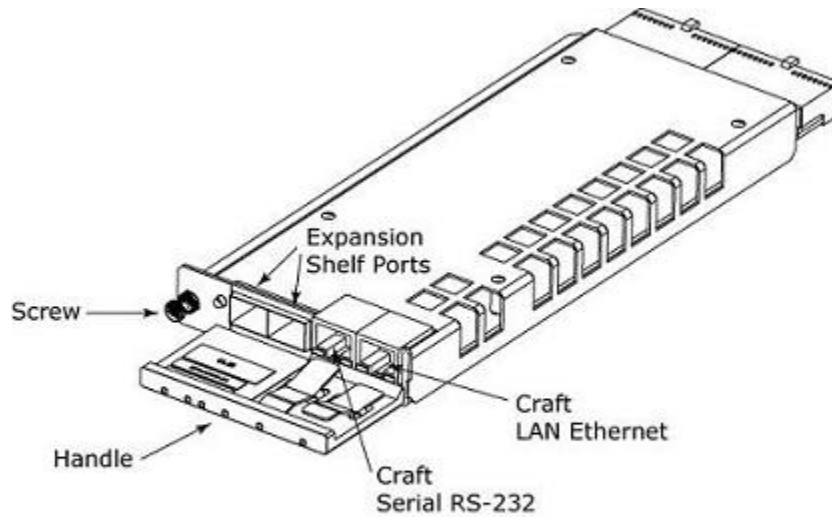


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7060 ESI module and its key features for this procedure.

Figure 3-5 BTI 7060 ESI module



Note The ESI module must be installed in its dedicated slot in an expansion shelf.

Step 1 Insert module

- a) Align the ESI to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 2 Tighten faceplate screw

- a) Facing the front of the shelf, align the ESI with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs

You have successfully completed this procedure.

3.1.5 Install the System Control Processor module in a BTI 7060

Use this procedure to install the BTI 7060 System Control Processor (SCP) module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- BTI 7060 SCP module

Prerequisites

- The BTI 7060 MSI module and the BTI 7060 Cooling Unit module are already installed.

Installation procedure

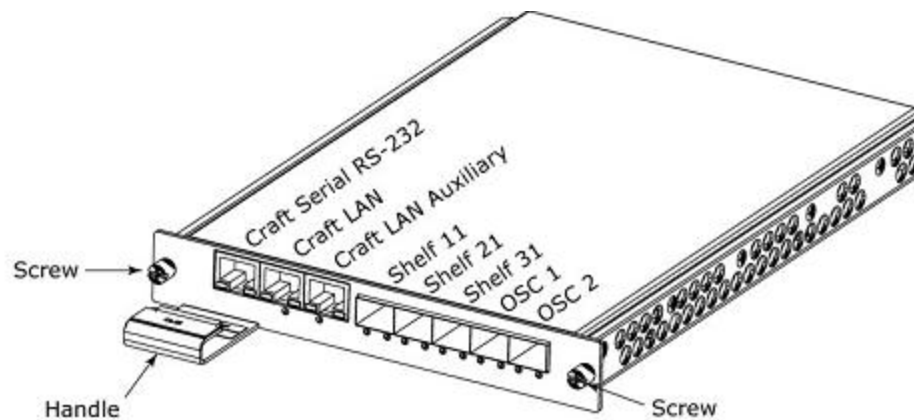


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows an SCP module and its key features for this procedure.

Figure 3-6 SCP module



Note The SCP module must be installed in slot five of the main shelf.

Follow these steps to install an SCP module:

Step 1 Insert module

- Align the SCP module with the guides in slot five.
- Slide the module straight into the slot.

Step 2 Tighten faceplate screws

- Facing the front of the shelf, align the module with its two mounting holes.
- Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws in sequence:
- Partially tighten one screw.
- Partially tighten the other screw.

- e) Fully tighten the first screw.
- f) Fully tighten the remaining screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure.

3.2 BTI 7030 common equipment modules

This section provides information and procedures for locating and installing common equipment modules for the BTI 7030.

3.2.1 BTI 7030 common equipment module locations

The following figure shows the location of the common equipment circuit packs for the BTI 7030.

The far left slot of the BTI 7030 shelf is provisioned to accept the cooling unit (CU) only.

The remaining slots, located to the right of the CU, accept modules. Two slots are provisioned to accept the BTI 7030 main shelf interface (MSI) module and the BTI 7030 system control processor (SCP) module. The two remaining slots can be provisioned to accept other modules.

BTI 7030 Shelf

BTI 7030 Shelf Common Equipment Module Locations



3.2.2 Install the BTI 7030 Cooling Unit module

Use this procedure to install the BTI 7030 Cooling Unit module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- BTI 7030 Cooling Unit module (BT7A57BA)

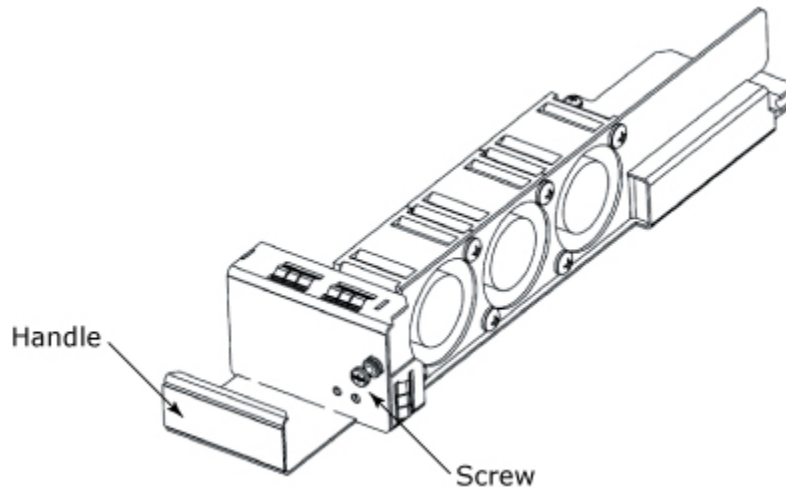
Prerequisites

- None

Installation procedure

caution ESD Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7030 Cooling Unit module and its key features for this procedure.

Figure 3-8 BTI 7030 Cooling Unit module

Note The BTI 7030 Cooling Unit module must be installed in its dedicated slot in a BTI 7030 shelf.

Note Install the BTI 7030 Cooling Unit module before installing the BTI 7030 System Control Processor module.

To install a BTI 7030 Cooling Unit module, use the following procedure.

Step 1 Insert module

- a) Align the cooling unit to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 2 Tighten faceplate screw

- a) Facing the front of the shelf, align the cooling unit with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

You have successfully completed this procedure.

3.2.3 Install the BTI 7030 Main Shelf Interface module

Use this procedure to install the BTI 7030 Main Shelf Interface (MSI) module (BT7A53CA) (BT7A53CB).

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- BTI 7030 MSI module (BT7A53CA)(BT7A53CB)

Prerequisites

- None

Installation procedure

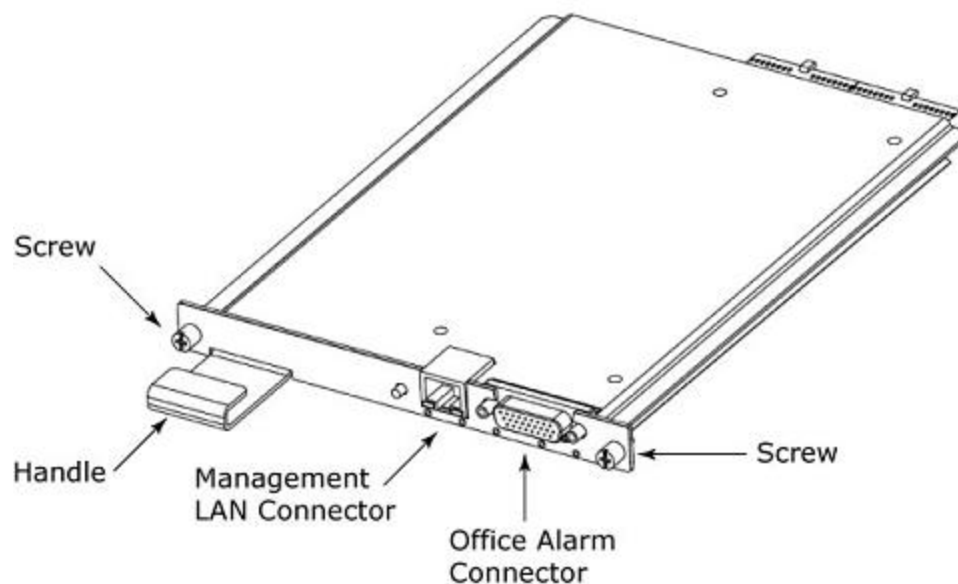


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7030 MSI module and its key features for this procedure.

Figure 3-9 BTI 7030 MSI module



Note The BTI 7030 MSI module must be installed in its dedicated slot in a BTI 7030 shelf.

Note Install the BTI 7030 MSI module before installing the BTI 7030 System Control Processor module.

To install a BTI 7030 MSI module, use the following procedure.

Step 1 Insert module

- a) Align the BTI 7030 MSI to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 2 Tighten faceplate screw

- a) Facing the front of the shelf, align the MSI with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

You have successfully completed this procedure.

3.2.4 Install the BTI 7030 System Control Processor module

Use this procedure to install the BTI 7030 System Control Processor (SCP) module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- BTI 7030 SCP module (BT7A21BA)

Prerequisites

- The BTI 7030 MSI module and the BTI 7030 Cooling Unit module are installed.

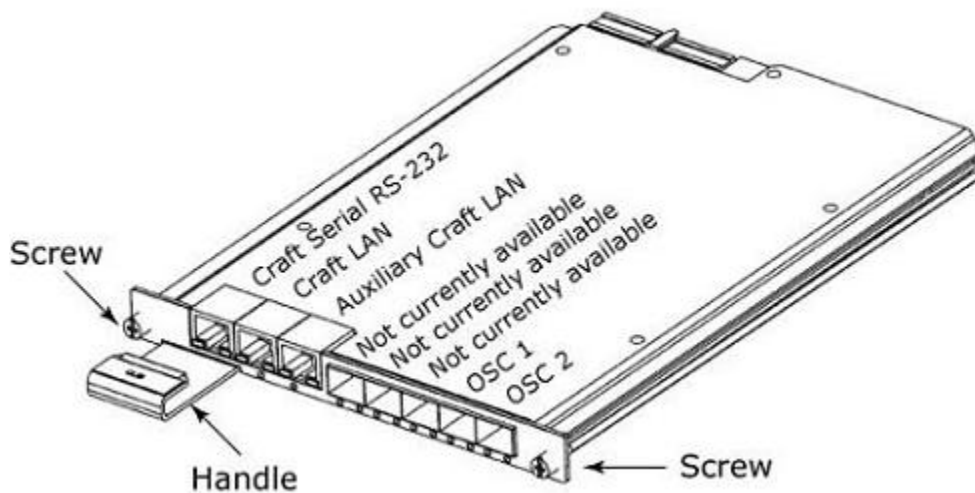
Installation procedure



Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7030 SCP module and its key features for this procedure.

Figure 3-10 BTI 7030 SCP module key features



Note The BTI 7030 SCP module must be installed in its dedicated slot in a BTI 7030 shelf.

To install a BTI 7030 SCP module, use the following procedure.

Step 1 Insert module

- a)** Align the SCP module with the guides in the slot.
- b)** Slide the module straight into the slot.

Step 2 Tighten faceplate screws

- a)** Facing the front of the shelf, align the module with the two mounting holes.
- b)** Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws in sequence:
 - c)** Partially tighten one screw.
 - d)** Partially tighten the other screw.
 - e)** Fully tighten the first screw.
 - f)** Fully tighten the remaining screw to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure.

3.3 BTI 7200 common equipment modules

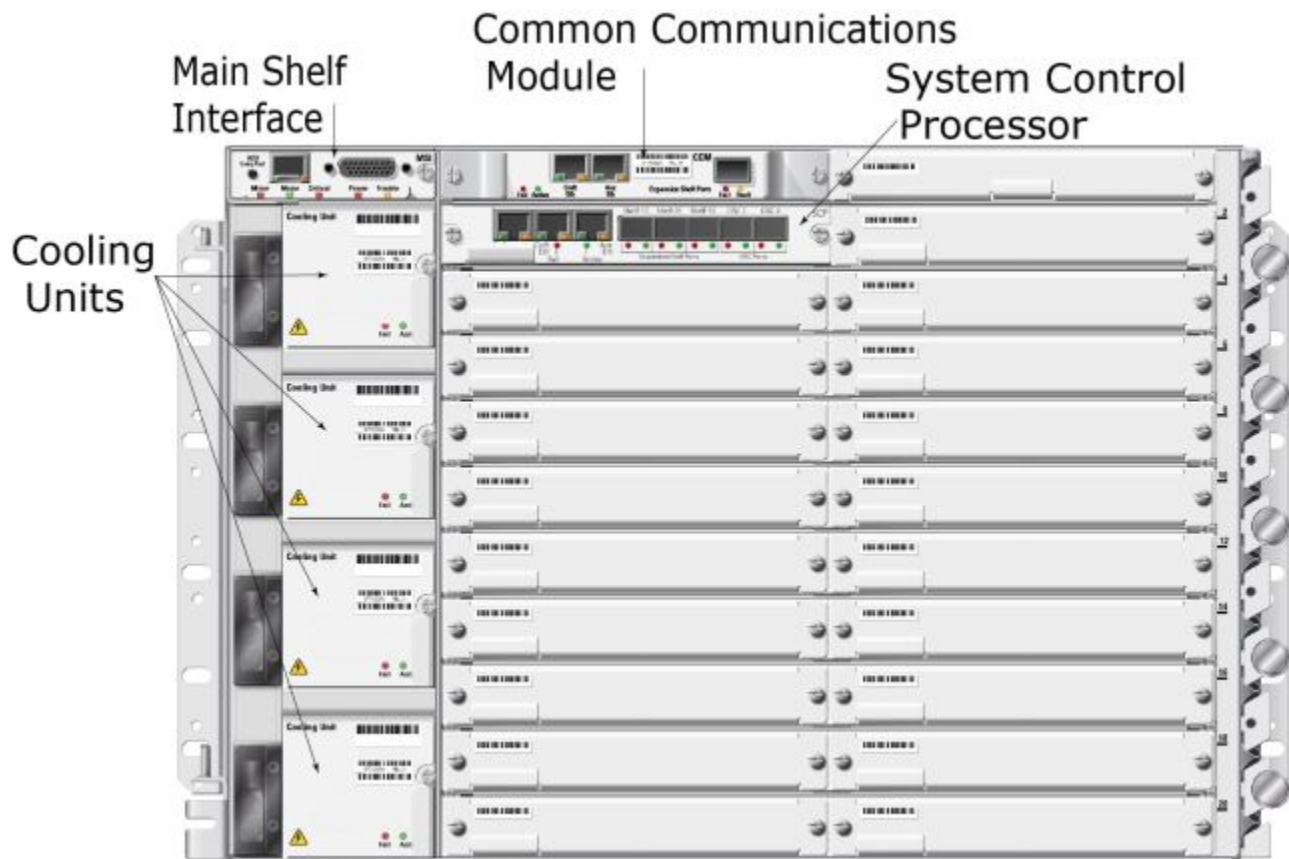
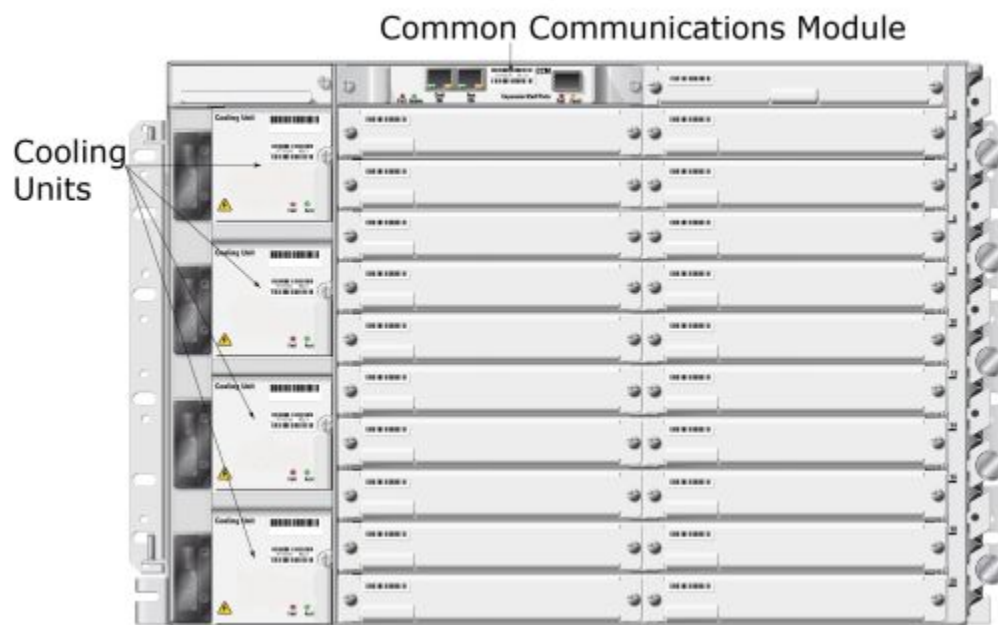
This section provides information and procedures for locating and installing common equipment modules for the BTI 7200.

3.3.1 BTI 7200 common equipment module locations

The following figures show the location of each common equipment module for the main shelf and the expansion shelf.

The BTI 7200 accepts the Main Shelf Interface (MSI), the Common Communications Module (CCM) and the Cooling Unit (CU) modules. All of these modules have dedicated slots that are configured for them.

- Where a BTI 7200 is used as a main shelf in a two-shelf configuration, slot 1 is dedicated for the system control processor (SCP) module. All of the remaining slots can be provisioned with any provisionable module.
- Where a BTI 7200 is used as an expansion shelf in a two-shelf configuration, all of the slots can be provisioned with any provisionable module.
- Where a BTI 7200 is used in a restricted three-shelf configuration, main shelf slot 1 is dedicated for the system control processor (SCP) module. All of the remaining slots can be provisioned with up to 40 10G Transponders, up to nine 10G Muxponders, up to nine packetVX, and up to nine ROADM-on-a-blade modules. Muxponders can be substituted with amplifiers, and passive modules.

Main Shelf Common Equipment Module Locations**Figure 3-12 Expansion Shelf Common Equipment Module Locations**

3.3.2 Install the Cooling Unit module in the BTI 7200

Use this procedure to install a Cooling Unit module in a BTI 7200 .The BTI 7200 requires up to four cooling unit modules depending on how many slots are equipped with service modules.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap with banana plug jack
- Cooling Unit module(s)

Prerequisites

- None

Installation procedure

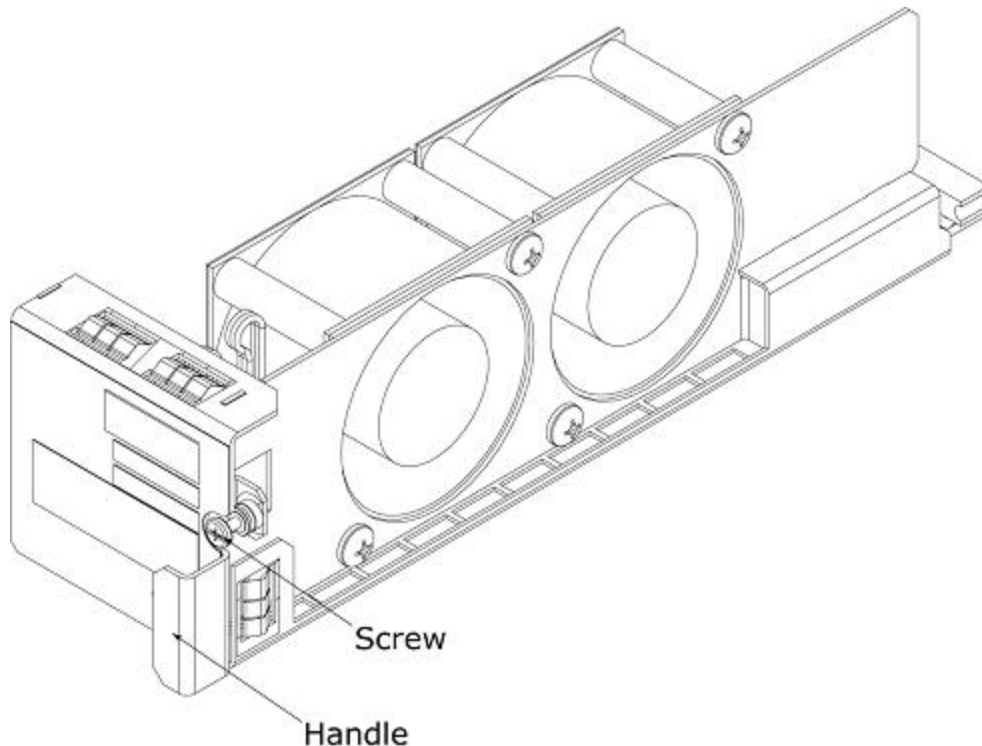


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7060/BTI 7200 Cooling Unit module and its key features for this procedure.

Figure 3-13 BTI 7060/BTI 7200 Cooling Unit module



Note The Cooling Unit must be installed in its dedicated slot in the shelf.

Note Install the Cooling Unit module before installing the System Control Processor module.

To install a Cooling Unit module, use the following procedure.

Step 1 Insert module

- a) Align the cooling unit to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 2 Tighten faceplate screw

- a) Facing the front of the shelf, align the cooling unit with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure.

3.3.3 Replacing the BTI 7200 Main Shelf Interface module

Use this procedure to replace the BTI 7200 Main Shelf Interface (MSI) module (BT7A53EA).

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- MSI module (BT7A53EA)

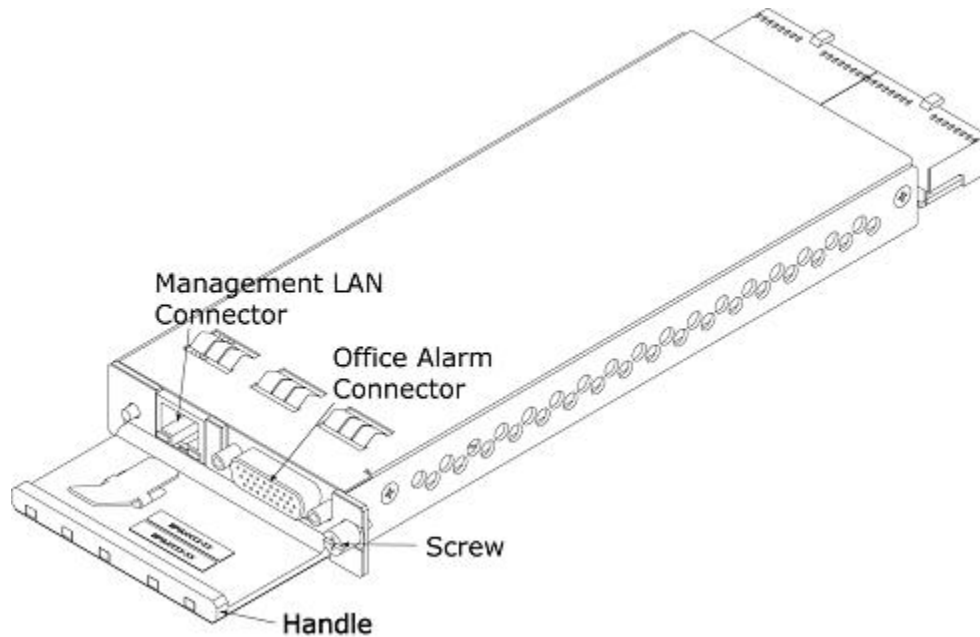
Prerequisites

- None

Replacement procedure

CautionESD Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7200 MSI module and its key features for this procedure.

Figure 3-14 BTI 7200 MSI module

Note The MSI module must be installed in its dedicated slot in a main shelf.

Step 1 Before removing the existing MSI module, disconnect the expansion shelf, as follows:
On the SCP on the main shelf, unplug the SFP that connects to the expansion shelf.
Repeat this step for each connected expansion shelf.

Note Perform this procedure on the SCP on the main shelf, not on the ESI module on the expansion shelf.

Step 2 Remove the existing MSI by sliding the module out along the guides of the slot.

Step 3 Insert the new MSI module:

- a) Align the MSI to the guides of the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 4 Tighten faceplate screw

- a) Facing the front of the shelf, align the MSI with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 5 Plug back the SFP(s) that you disconnected in [Step 1](#).

You have successfully completed this procedure.

3.3.4 Install the BTI 7200 Common Communications Module

Use this procedure to install the BTI 7200 Common Communications Module (CCM) (BT7A54EA).

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- CCM (BT7A54EA)

Prerequisites

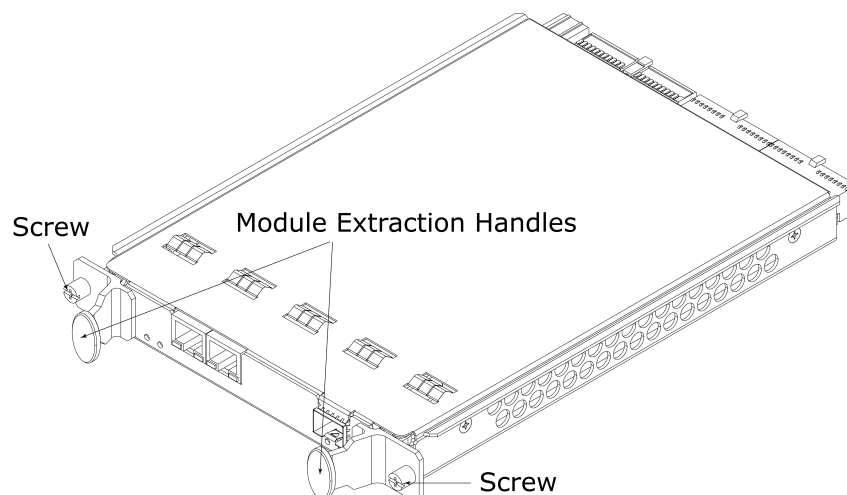
- None

Installation procedure

CautionESD Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows a BTI 7200 CCM.

Figure 3-15 BTI 7200 CCM



Note The CCM must be installed in its dedicated slot in a main shelf or an expansion shelf.

Note Install the CCM before installing the System Control Processor module.

Step 1 Insert module

- a) Align the CCM to the guides of the slot in which the module is being inserted.

- b) Carefully push the module straight into the slot, and seat it firmly and fully. Push on the latches on the CCM with your thumbs to seat the module. Ensure that the module is firmly seated in the slot before attempting to tighten the faceplate screws.

Step 2 Tighten the faceplate screws which are located on the module extraction handles. When the screws are fully tightened, the extraction handles have no play, and the module cannot be accidentally extracted.

- a) Facing the front of the shelf, align the CCM with its mounting hole.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure.

3.3.5 Install the System Control Processor module in a BTI 7200

Use this procedure to install the System Control Processor (SCP) module in a BTI 7200 shelf.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- SCP module

Prerequisites

- The Cooling Unit, MSI, and CCM modules are already installed. Prior to replacing an SCP, back up the database. When replacing the SCP, do not remove the CCM while the SCP is removed. Restore the database once the SCP is installed and in service.

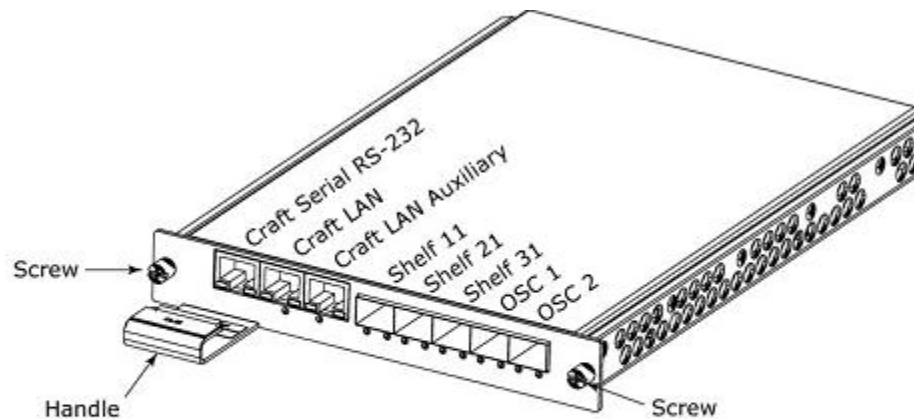
Installation procedure



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

The following figure shows an SCP module and its key features for this procedure.

Figure 3-16 SCP module

Note The SCP module must be installed in slot one of the main shelf.

Follow these steps to install an SCP module:

Step 1 Insert module

- a) Align the SCP module with the guides in slot one.
- b) Slide the module straight into the slot.

Step 2 Tighten faceplate screws

- a) Facing the front of the shelf, align the module with its two mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws in sequence:
- c) Partially tighten one screw.
- d) Partially tighten the other screw.
- e) Fully tighten the first screw.
- f) Fully tighten the remaining screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

You have successfully completed this procedure. It may take several minutes for the SCP to come fully into service, indicated by a green "Active" LED, and an unlit "Fail" LED.

3.4 Replacing transponder modules

3.4.1 System behavior when replacing the Dual 10G Multiprotocol Transponder

When replacing one issue of the Dual 10G Multiprotocol Transponder with another issue, the general rule is that higher issues of the module support a superset of hardware functionality when compared to lower issues of that module. There are two situations to consider:

- The new module contains hardware features that require new system software. Full support of the hardware features only occurs on a shelf running the new system software. When you install the new module on a shelf that is running software that pre-dates the software introduction release of that module, the functionality of the new module reverts to the functionality that is supported by the software running on the older system.
- The new module does not contain hardware features that require new system software. In this situation, the new hardware features are supported regardless of the software release of the shelf in which the module is installed.

The behavior of the new module is therefore dictated by which of the above two situations applies. This is depicted in the following table for the Dual 10G Multiprotocol Transponder modules:

Table 3-1 Dual 10G Multiprotocol Transponder replacement

Module issue	Software introduction release	Can be installed in software release	Resulting functionality
BT7A49AA	7.1	Release 7.1 and higher	BT7A49AA
BT7A49AA-I02	11.1	Release 10.3 up to but not including release 11.1	Equivalent to the BT7A49AA
		Release 11.1 and higher	BT7A49AA-I02

The rest of this section provides additional details to the table above:

- For the list of features that each issue supports, see the *BTI 7000 Series Transponder Solutions Guide*.
- In all supported replacement situations, the inventory displays the PEC of the replacement module once the replacement module is inserted into the shelf. Note that this inventory PEC might be different from the configured equipment PEC.
- **When you install a BT7A49AA-I02 module into an unprovisioned slot**
 - In shelves running release 11.1 or higher, the system auto-provisions the equipment PEC to match the PEC of the inserted module. Full functionality of the BT7A49AA-I02 is supported.
 - In shelves running releases prior to release 11.1, the system auto-provisions the equipment PEC to BT7A49AA. You cannot change the equipment PEC and you cannot enable the new features of the BT7A49AA-I02. In effect, the functionality of the BT7A49AA-I02 module is downgraded to be the same as the functionality of the BT7A49AA module. This situation

arises when you use the BT7A49AA-I02 to spare for the BT7A49AA in shelves running releases prior to release 11.1.

- **When you replace a provisioned BT7A49AA module with a BT7A49AA-I02 module**

- A provisioned BT7A49AA module, in this context, is a module that has been provisioned with a PEC of BT7A49AA.
- In all situations where the original module is already provisioned, the provisioning remains unchanged. This means that the equipment PEC remains configured as the original module PEC.
- In shelves running release 11.1 or higher, you can change the equipment PEC of BT7A49AA-I02 to support the new features of the BT7A49AA-I02. Use the TL1 command **EDT-EQPT** to perform this function. If you do not change the equipment PEC, the functionality of the replacement module is downgraded to be the same as the functionality of the original module.
- In shelves running releases prior to release 11.1, you cannot change the equipment PEC and you cannot enable the new features of the replacement module. In effect, the functionality of the replacement module is downgraded to be the same as the functionality of the original module. This situation arises when you use the BT7A49AA-I02 to spare for the BT7A49AA in shelves running releases prior to release 11.1.

- **When you replace a higher issue provisioned module with a lower issue module**

- The system generates a Circuit Pack Mismatch Alarm (REPLUNITMEA). Configuration settings are not transferred to the replacement module. You will need to deprovision the original module along with all associated services and provision the replacement module. Note that replacing the higher issue module with a lower issue module will take longer and will therefore affect traffic for a longer duration. Only those features supported by the lower issue module are supported after the replacement.

3.4.2 Replacing transponder modules

Use this procedure to replace any BTI 7000 Series transponder module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Transponder module
- Replacement SFP or XFP transceivers
- Isopropyl alcohol and lint-free pads

Prerequisites

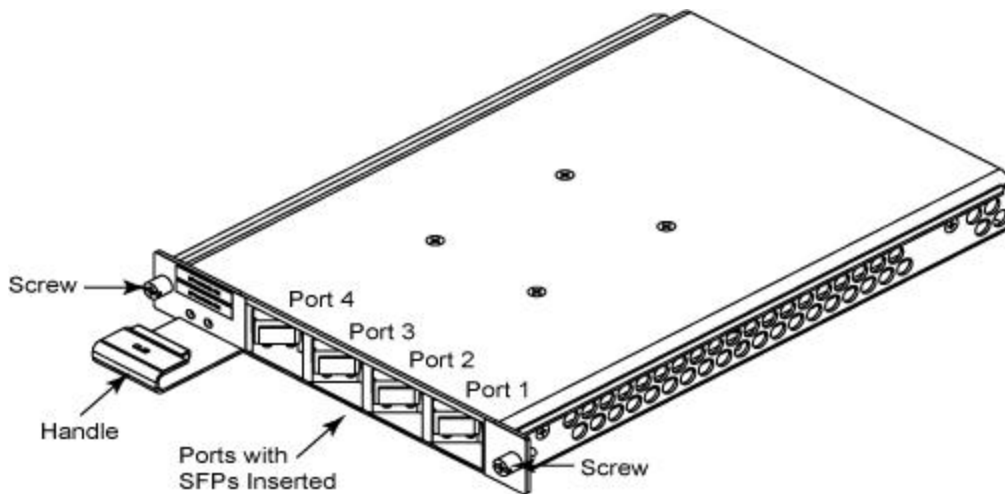


Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

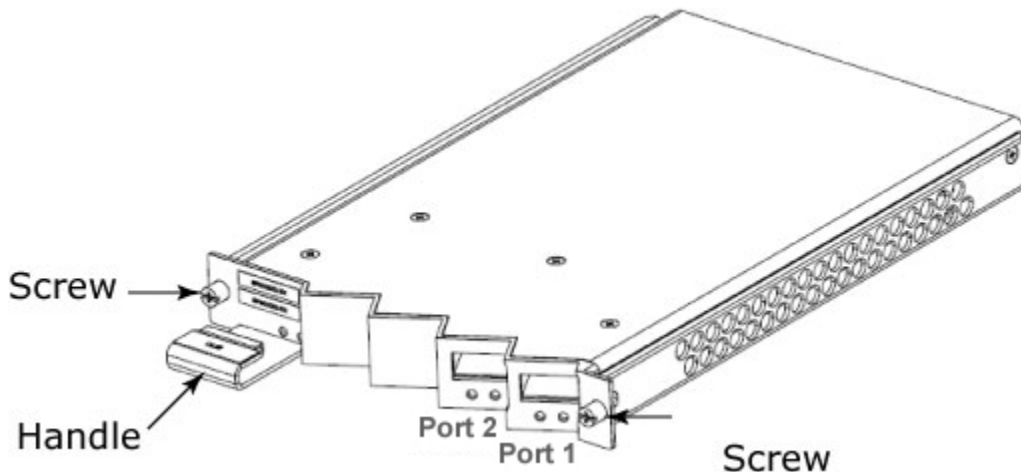
Key module replacement features

The following figures show the Transponder modules and indicate the key features for replacing them.

Dual 1G and Dual 2.5G Multiprotocol Transponder module



10G Multiprotocol Transponder module



Replacement procedure

Follow these steps to replace a Transponder module.

Note The following steps describe how to replace a Transponder module that is not part of a client protection (y-cable) configuration. For information on hitless replacement procedures for replacing a dual 10G transponder module that serves as a standby for client protection refer to the next section, "Replacing a dual 10G Transponder module in a client protection configuration."

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the Module

- a) Align the replacement module with the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 7 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.

- Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 8 Replace the SFP or XFP Transceivers

Step 9 Reconnect Optical Cables

Clean the optical cables then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 10 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.4.2.1 Replacing a Dual 10G Transponder module in a client protection configuration

The BTI Dual 10G Transponder module can be used for client protection. Use this procedure to perform a hitless replacement of a Dual 10G Transponder that serves as the standby module on the protecting port.

Note This procedure is used if the module is physically replaced or re-seated.

Step 1 Verify that the module you are replacing/re-seating is the standby module and is not actively carrying traffic.

Using the RTRV-XCVR command, view the states of both the working and protecting client ports. The state of the protecting port must indicate STBY (standby).

Step 2 Remove or re-seat the module:

- a) If you are replacing the module, disconnect the cables and remove the module from the shelf. Refer to steps 2 to 5, above, in the section "Replacement procedure." Or,
- b) If you need to only re-seat the module, release the module from the slot.

Step 3 Install the replacement module, or re-seat the module into the slot.

To install the module, refer to steps 6 and 7, above.

Step 4 Wait until the module completes the booting process, and the red LEDs are off.

Step 5 Reconnect the cables.

To reconnect the cables refer to steps 9 and 10, above.

You have successfully completed this procedure.

3.5 Replacing muxponder modules

3.5.1 System behavior when replacing the 10-Port Multiprotocol Muxponder

When replacing one issue of the 10-Port Multiprotocol Muxponder with another issue, the general rule is that higher issues of the module support a superset of hardware functionality when compared to lower issues of that module. There are two situations to consider:

- The new module contains hardware features that require new system software. Full support of the hardware features only occurs on a shelf running the new system software. When you install the new module on a shelf that is running software that pre-dates the software introduction release of that module, the functionality of the new module reverts to the functionality that is supported by the software running on the older system.
- The new module does not contain hardware features that require new system software. In this situation, the new hardware features are supported regardless of the software release of the shelf in which the module is installed.

The behavior of the new module is therefore dictated by which of the above two situations applies. This is depicted in the following table for the 10-Port Multiprotocol Muxponder modules:

Table 3-2 10-Port Multiprotocol Muxponder replacement

Module issues	Software introduction release	Can be installed in software release	Resulting functionality
BT7A48AA/BA	7.1	Release 7.1 and higher	BT7A48AA/BA
BT7A48AA-I02/BA-I02	13.1	Release 10.3 up to but not including release 13.1	Equivalent to the BT7A48AA/BA
		Release 13.1 and higher	BT7A48AA-I02/BA-I02

The rest of this section provides additional details to the table above:

- For the list of features that each issue supports, see the *BTI 7000 Series Muxponder Solutions Guide*.
- In all supported replacement situations, the inventory displays the PEC of the replacement module once the replacement module is inserted into the shelf. Note that this inventory PEC might be different from the configured equipment PEC.
- **When you install a BT7A48AA-I02/BA-I02 module into an unprovisioned slot**
 - In shelves running release 13.1 or higher, the system auto-provisions the equipment PEC to match the PEC of the inserted module. Full functionality of the BT7A48AA-I02/BA-I02 module is supported.
 - In shelves running releases prior to release 13.1, the system auto-provisions the equipment PEC to BT7A48AA or BT7A48BA respectively. You cannot change the equipment PEC and you cannot enable the new features of the BT7A48AA-I02/BA-I02. In effect, the functionality of the BT7A48AA-I02/BA-I02 module is downgraded to be the same as the functionality of

the BT7A48AA/BA module. This situation arises when you use the BT7A48AA-I02/BA-I02 to spare for the BT7A48AA/BA in shelves running releases prior to release 13.1.

- **When you replace a provisioned BT7A48AA/BA module with a BT7A48AA-I02/BA-I02 module**

- A provisioned BT7A48AA/BA module, in this context, is a module that has been provisioned with a PEC of BT7A48AA or BT7A48BA.
- In all situations where the original module is already provisioned, the provisioning remains unchanged. This means that the equipment PEC remains configured as the original module PEC.
- In shelves running release 13.1 or higher, you can change the equipment PEC to match the PEC of the replacement module to support the new features of the replacement module. Use the TL1 command **EDT-EQPT** to perform this function. If you do not change the equipment PEC, the functionality of the replacement module is downgraded to be the same as the functionality of the original module.
- In shelves running releases prior to release 13.1, you cannot change the equipment PEC and you cannot enable the new features of the replacement module. In effect, the functionality of the replacement module is downgraded to be the same as the functionality of the original module. This situation arises when you use the BT7A48AA-I02/BA-I02 to spare for the BT7A48AA/BA in shelves running releases prior to release 13.1.

Note When the module is installed in a shelf running a release prior to release 13.1, a CONTCOM alarm might be raised after 2 minutes. The alarm will clear in approximately 30 seconds. The module will provision and function normally. Should the alarm not clear after 3 minutes, refer to the Alarm and Troubleshooting Guide.

- **When you replace a higher issue provisioned module with a lower issue module**

- The system generates a Circuit Pack Mismatch Alarm (REPLUNITMEA). Configuration settings are not transferred to the replacement module. You will need to deprovision the original module along with all associated services and provision the replacement module. Note that replacing the higher issue module with a lower issue module will take longer and will therefore affect traffic for a longer duration. Only those features supported by the lower issue module are supported after the replacement.

3.5.2 Replacing 2-Port GbE Muxponder modules

Use this procedure to replace any 2-Port GbE Muxponder module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Muxponder module
- Replacement SFP transceivers

- Isopropyl alcohol and lint-free pads

Prerequisites

- None



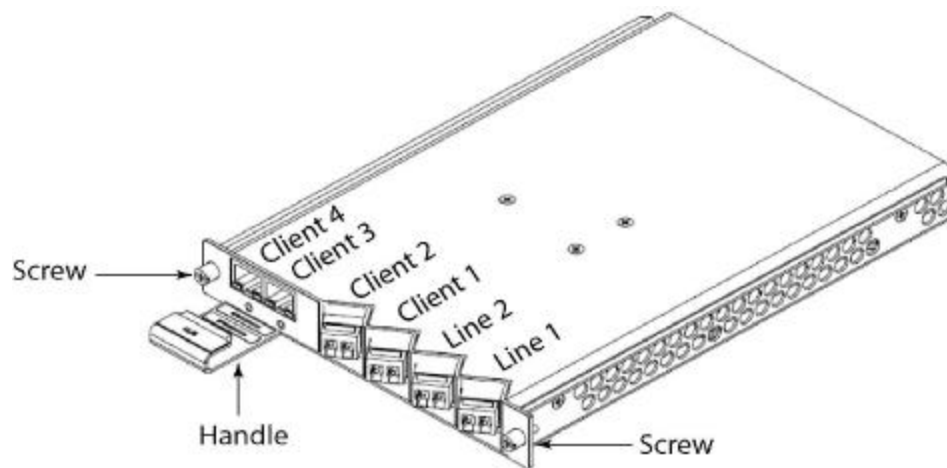
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Key module replacement features

The following figure shows the 2-Port GbE Muxponder module and indicates the key features for replacing it.

2-Port GbE Muxponder module



Replacement procedure

Follow these steps to replace a 2-Port GbE Muxponder module:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Remove the Transceiver Ports from Service

Remove the transceiver ports from service.

Step 3 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 4 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 5 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 6 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 7 Replace the Module

- a) Align the replacement module to the slot in which it is being inserted.
- b) Carefully push the module straight into the slot.

Step 8 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 9 Replace the Transceivers

See [3.12, “Replacing optical transceivers”](#) to insert the transceivers into the module, and then return to this procedure.

Step 10 Reconnect Optical Cables

Clean the optical cables and then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 11 Restore the Transceiver Ports to Service

Restore the transceiver ports to service.

Step 12 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.5.3 Replacing 8-Port and 10-Port Multiprotocol Muxponder modules

Use this procedure to replace an 8-Port or 10-Port Multiprotocol Muxponder module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Muxponder module
- Replacement transceivers
- Isopropyl alcohol and lint-free pads

Prerequisites

- None



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

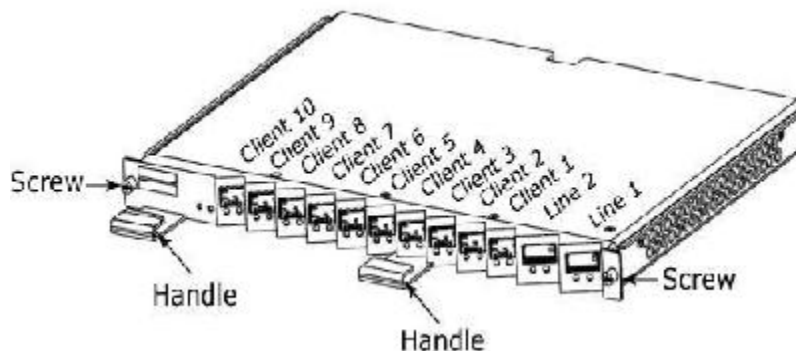
Key module replacement features

The following figures show the 8-Port and 10-Port Multiprotocol Muxponder modules and indicate the key features for replacing these modules.

8-Port Multiprotocol Muxponder



10-Port Multiprotocol Muxponder



Replacement procedure

Follow these steps to replace an 8-Port or 10-Port Multiprotocol Muxponder module:

Step 1 Reroute Traffic

Important Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module and then transfer traffic to the alternate route before proceeding to step 2.

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Remove the Transceiver Ports from Service

Remove the transceiver ports from service.

Step 3 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 4 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 5 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 6 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 7 Replace the Module

- a) Align the replacement module to the slot in which it is being inserted.
b) Carefully push the module straight into the slot.

Step 8 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
- Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 9 Replace the Transceivers

See 3.12, “[Replacing optical transceivers](#)” to insert the transceivers into the module, and then return to this procedure.

Step 10 Reconnect Optical Cables

Clean the optical cables and then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 11 Restore the Transceiver Ports to Service

Restore the transceiver ports to service.

Step 12 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.6 Replacing packetVX modules

Use this procedure to replace a packetVX module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- packetVX module
- Isopropyl alcohol and lint-free pads

Key module replacement features

The following figures show the key features of the packetVX modules and indicate the key features for replacing them.

Figure 3-22 packetVX module BT7A81AA 12/2

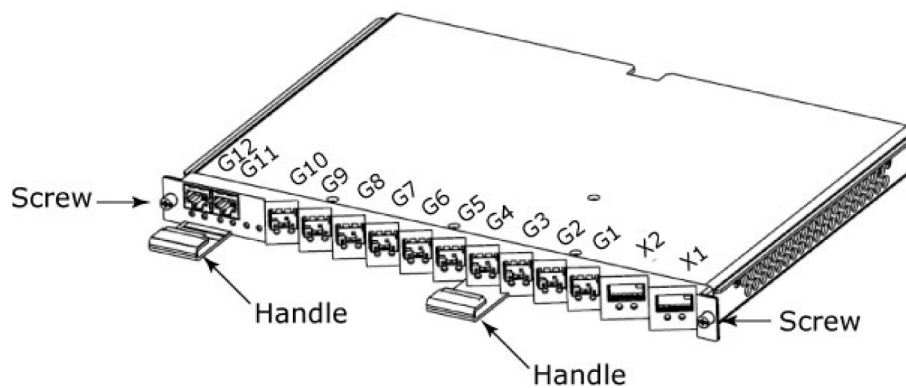


Figure 3-23 packetVX BT7A81BA 24/2 module

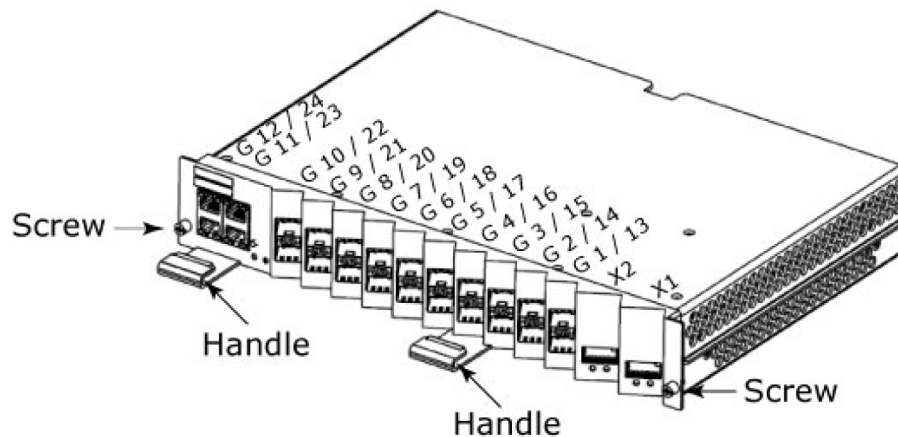
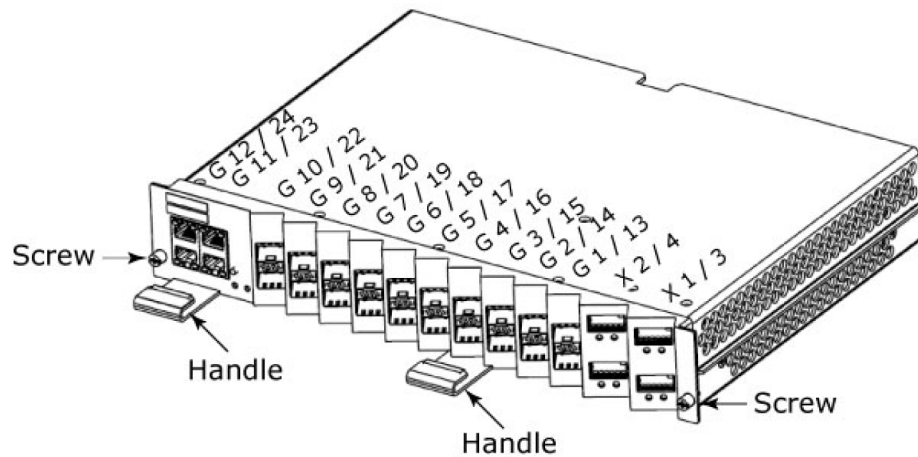


Figure 3-24 packetVX module BT7A81CA 24/4**Replacement procedure**

Follow these steps to replace a packetVX module:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the Module

- a) Align the replacement module to the slot in which the module is being inserted.
- b) Carefully push the module straight into the slot.

Step 7 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the first screw.
 - Partially tighten the other screw.
 - Fully tighten the first screw.
 - Fully tighten the other screw.

Caution Tighten with no more than 4.7 in-lbs of torque.

Step 8 Replace the SFP or XFP Transceivers

Replace the transceivers.

Step 9 Reconnect Optical Cables

Clean the optical cables and then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 10 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.7 Replace Optical Amplifier modules

Use this procedure to replace any Optical Amplifier module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Optical Amplifier module

Prerequisites

- None



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Key module replacement features

The following figures show typical amplifiers and indicate the key features for replacing them.

Figure 3-25 Single Channel /Sub-Band Amplifiers (SBA) and DWDM C-Band Amplifiers (OBA/OPA)

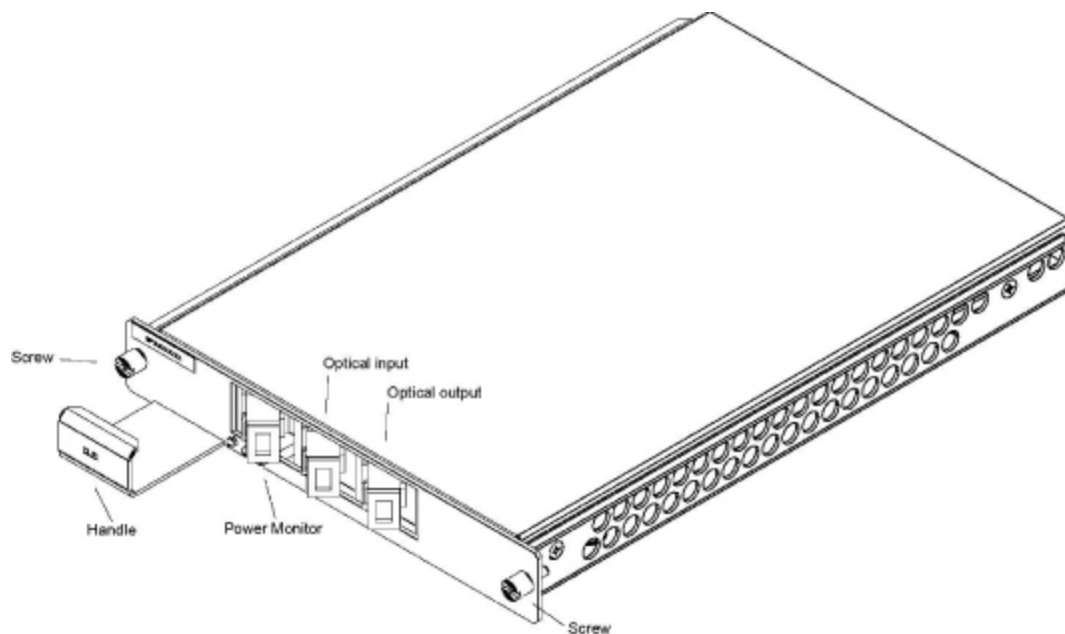


Figure 3-26 DWDM Optical Line Amplifier (OLA)

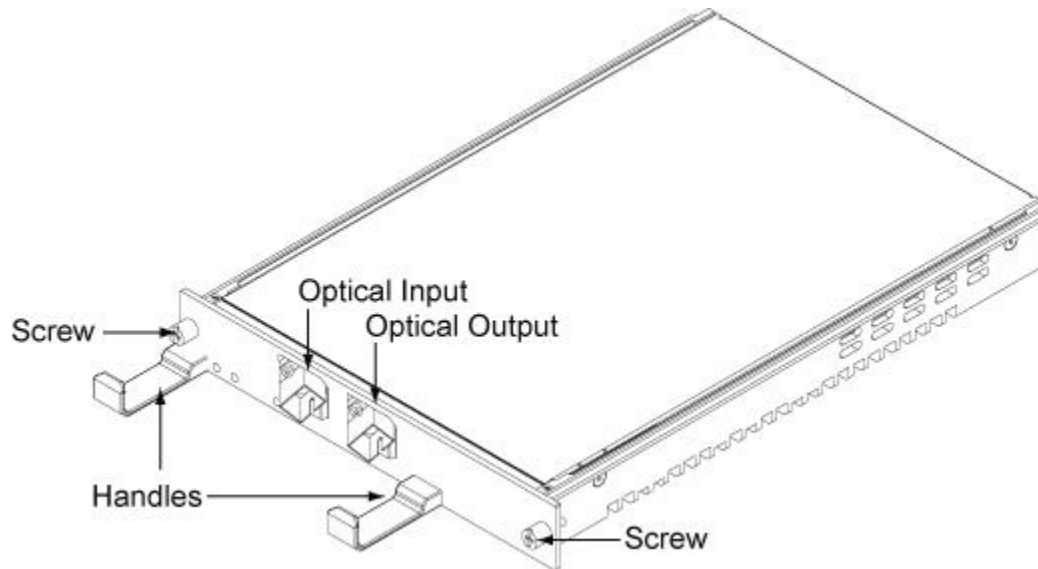


Figure 3-27 Optical Line Amplifier with Mid-Stage Access (OLAM)

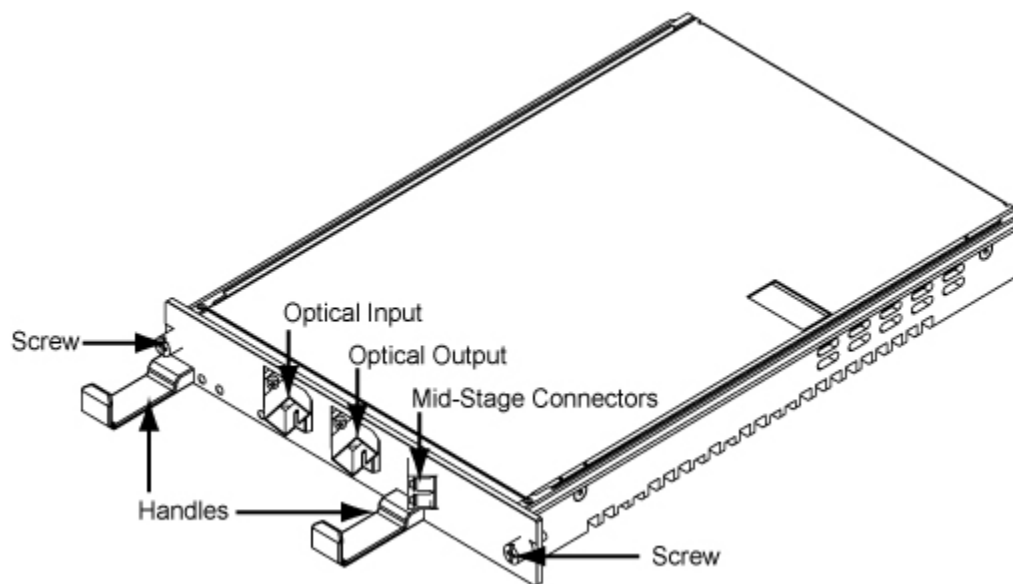
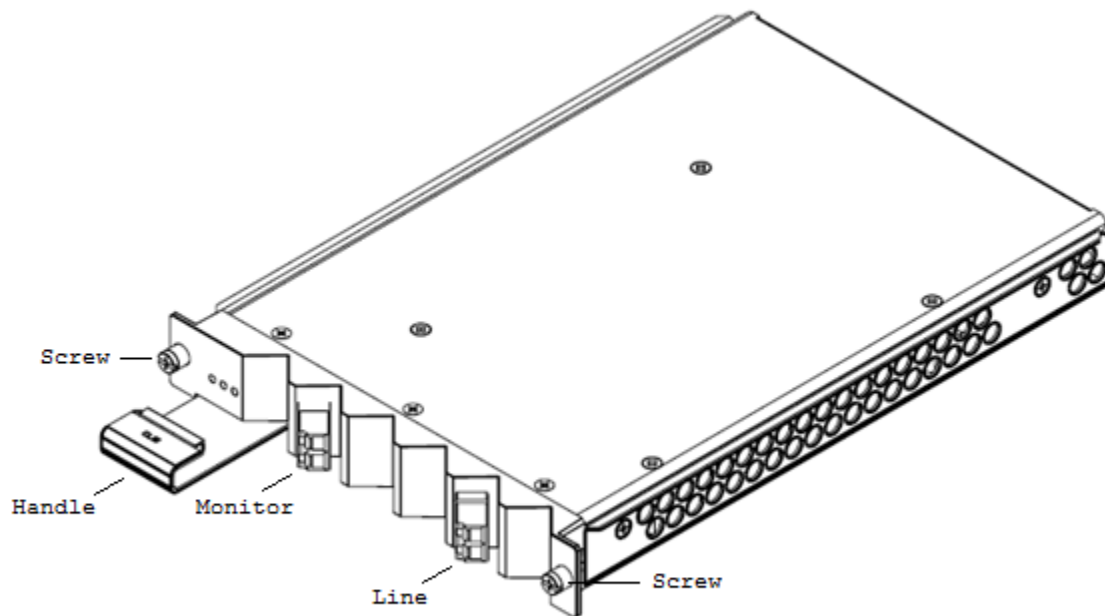
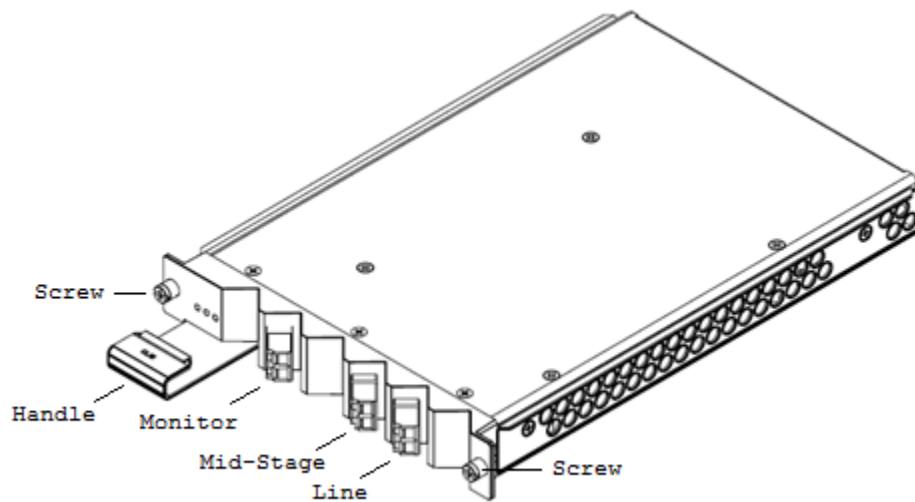


Figure 3-28 DWDM C-Band Low and Mid Gain Amplifiers (LGA/MGA)**Figure 3-29 DWDM C-Band Mid Gain Amplifier with Mid-Stage Access (MGM)**

Replacement procedure

Follow these steps to replace an Optical Amplifier module:

Step 1 Remove the Optical Amplifier from Service

The Optical Amplifier must be removed from service.

Step 2 Move the Cables

Optical cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note A REPLUNITMISS alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the Module

- a) Align the replacement module to the slot in which it is being inserted.
- b) Carefully push the module straight into the slot until the module LEDs turn on. The LEDs remain on for 5 to 10 seconds and then turn off. The REPLUNITMISS should clear after a few seconds.

Step 7 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 8 Reconnect Optical Cables

Clean the optical cables and then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 9 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

Step 10 Restore the Module to Service

The module can now be restored to service.

You have successfully completed this procedure.

3.8 Replace Dispersion Compensation modules

Use this procedure to replace any Dispersion Compensation module (DCM).

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Dispersion Compensation module
- Isopropyl alcohol and lint-free pads

Prerequisites

- None



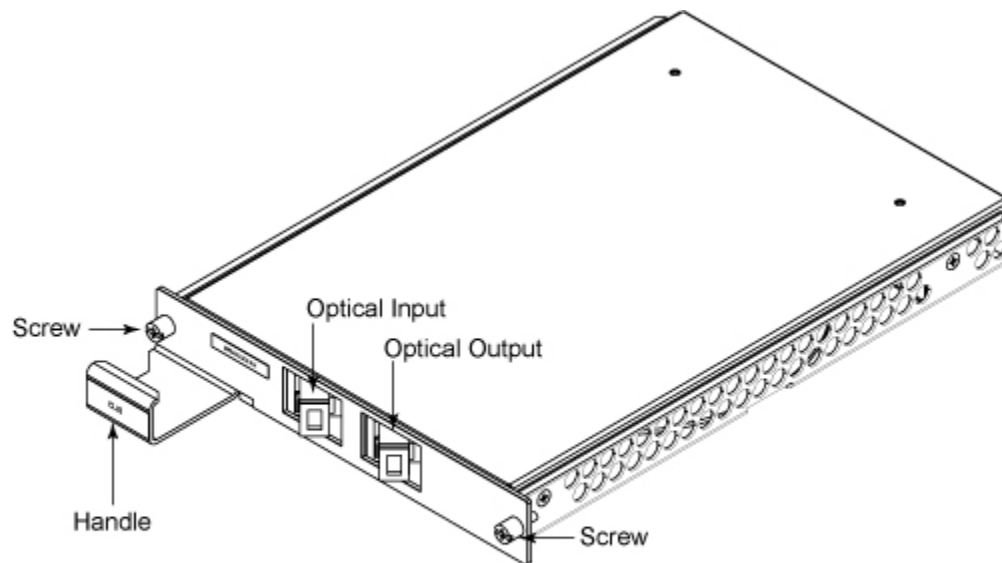
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Key module replacement features

The following figure shows a DCM and indicates the key features for replacing it.

Figure 3-30 Dispersion Compensation module



Replacement procedure

Follow these steps to replace a Dispersion Compensation module:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the optical amplifier, transceiver, or mux/demux. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the optical cables from the ports on the faceplate of the module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the Module

- a) Align the replacement module to the slot in which it is being inserted.
- b) Carefully push the module straight into the slot.

Step 7 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 8 Reconnect Optical Cables

Clean the optical cables and then reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 9 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.9 Replacing Multiplexing modules

Use this procedure to replace Multiplexing modules.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Multiplexing module

Prerequisites

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

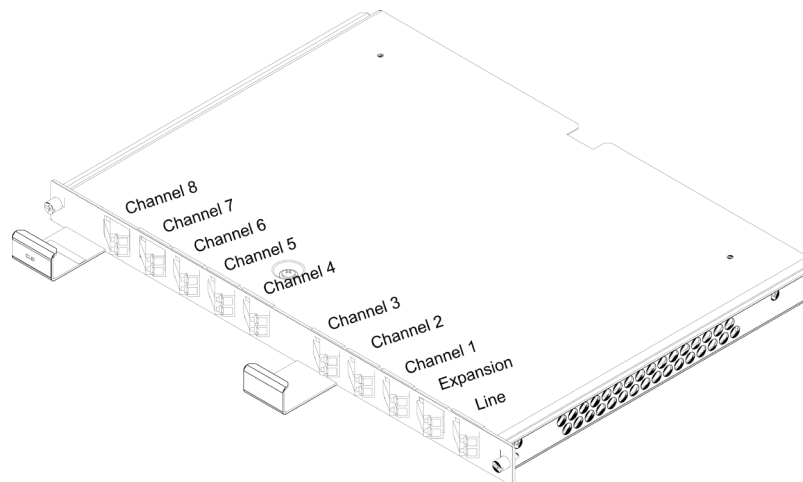


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

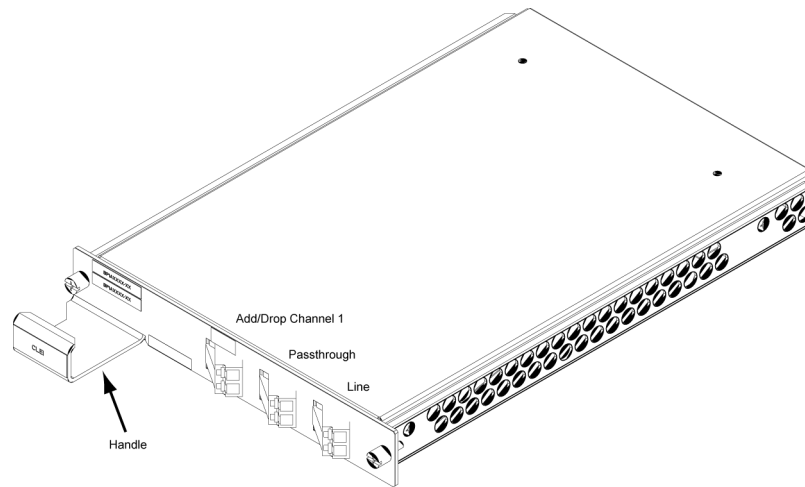
The following figure shows an 8-channel module of the 32-Channel DWDM Mux/Demux.

32-Channel DWDM Mux/Demux module

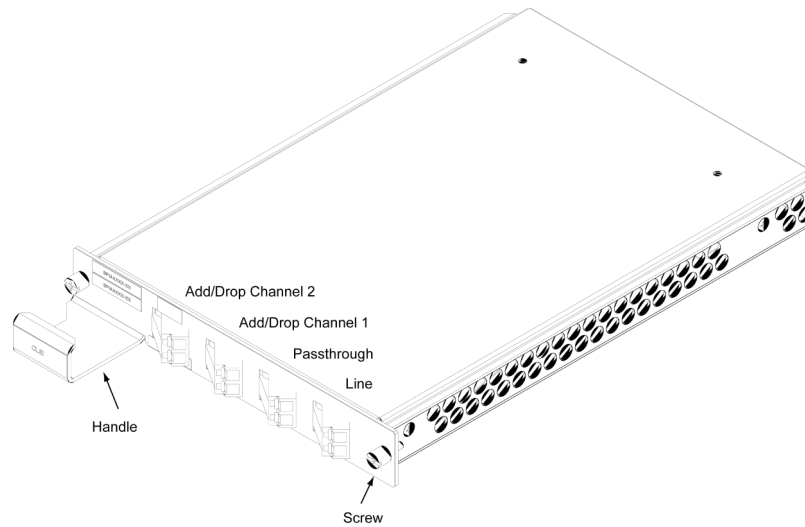


The following figures show the key physical features of the 1-Channel, 2-Channel, and 4-Channel DWDM Optical Add/Drop modules.

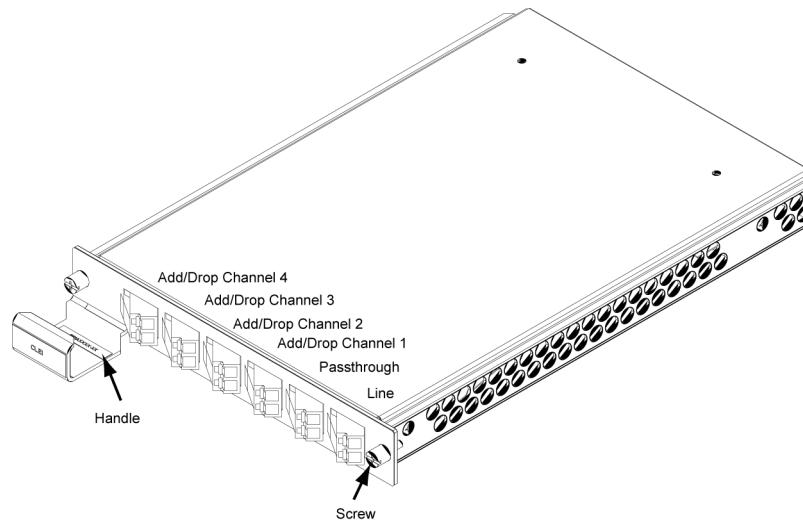
1-Channel OADM



2-Channel OADM



4-Channel OADM



Replacement procedure

To replace a Multiplexing module, follow these steps:

Step 1 Move Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 2 Disconnect Optical Cables

Disconnect the optical cables from the optical ports on the faceplate of the module.

Note Ensure that the optical ports on the modules and the optical cables are protected with protective caps while disconnected.

Step 3 Loosen Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.
- c) Push with sufficient pressure until the LEDs come on.

Step 4 Remove module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm appears once you remove the module.

- b) Place the module on a flat work surface.

Step 5 Replace module

- a) Align the replacement module to the slot in which it is being replaced.
- b) Carefully push the module straight into the slot.

Step 6 Replace Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 7 Reconnect Optical Cables

Clean the optical cables and then connect them to the module.

Step 8 Replace Cables

If any cables were moved to access the module, replace the cables to their original locations.

You have successfully completed this procedure.

3.10 Replacing ROADM-on-a-blade modules

Use this procedure to replace ROADM-on-a-blade (ROB) modules.

Note These procedures describe replacing a 2-degree ROB (ROB2) with a ROB2, or a 4-degree ROB (ROB4) with a ROB4 that has the same PEC.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- ROADM-on-a-blade (ROB) module
- Replacement transceivers
- Isopropyl alcohol and lint-free pads



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

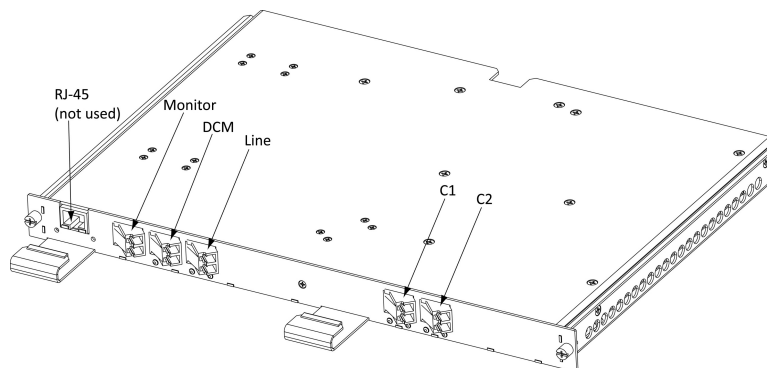
Prerequisites

You must do the following before replacing a ROB module:

- **Reroute traffic:** Transfer traffic going through the ROB module to an alternate route.
- **Database backup:** Perform a database backup, and ensure you know the location where the backup file is saved.
- **Fibers:** For the fiber connected to the module being replaced, ensure you have sufficient fiber slack to unseat the module, and ensure all fibers are labeled correctly.

Key module replacement features

The following figure shows the 2D ROADM-on-a-blade (ROB2) module. The difference between the ROB2 and ROB4 modules is the ROB4 has two additional client ports—C3 and C4.

Figure 3-35 2DROADM-on-a-blade (ROB2)**Replacement procedure**

Follow these steps to replace a ROADM-on-a-blade module:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the fiber cables from the module that is being replaced. Make note on how the cables are connected. You need this information when you install the replacement module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm—REPLUNITMISS—appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the ROB module

- a) Align the replacement module to the slot in which it is being inserted.
- b) Carefully push the module straight into the slot until the module LEDs turn on. The LEDs remain on for 5 to 10 seconds and then turn off. The REPLUNITMISS alarm should clear after a few seconds.

Step 7 Restore the Module to Service

The ROB module automatically upgrades to the same BTI software release that is running on the shelf, and automatically receives the module and channel provisioning from the SCP. The system should recover to its original state, this takes a few minutes.

Note If the system does not recover, contact your BTI representative.

Step 8 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten one of the screws.
 - Partially tighten the other screw.
 - Fully tighten both screws, to a torque that is no more than 4.7 in-lbs.

Step 9 Reconnect Optical Cables

If any cables were moved to access the module, clean the cables and reconnect them to their original positions.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 10 Reroute traffic

Provision the new ROB module with the preferred traffic route.

You have successfully completed this procedure.

3.11 Replacing a ROADM-on-a-blade module with a different degree ROADM module

This procedure describes using a spare ROADM-on-a-blade (ROB) module to temporarily replace a failed 2-degree ROADM module (ROB2) with a 4-degree module (ROB4), or replace a ROB4 with a ROB2 module—if using only the C1 and C2 ports on the ROB4. The procedures are very similar to same-degree ROADM module replacements. The primary difference is that you need to re-provision the equipment code (PEC), since you are replacing a failed module with a different module-type.

Note You cannot use this procedure to replace a ROB2 or a 40-channel ROB4 module with a 96-channel ROB4 module, or vice versa.

Note Depending on the failure condition, traffic may continue to run on the failed module. In this case, you must re-route traffic before replacing the module.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- ROADM module serving as the replacement
- Replacement transceivers
- Isopropyl alcohol and lint-free pads



Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

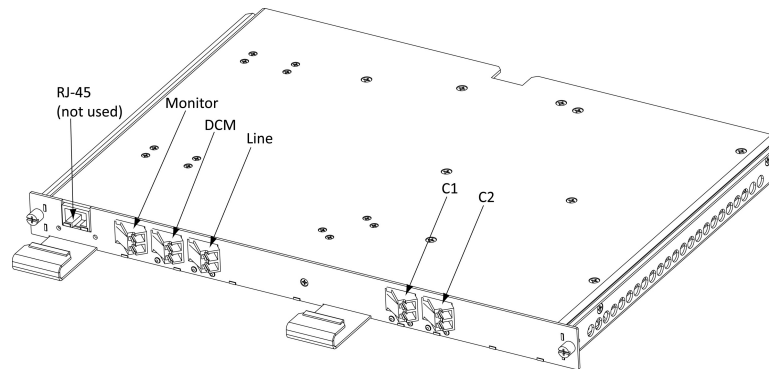
Prerequisites

You must do the following before replacing a ROB module:

- **Database backup:** Perform a database backup, and ensure you know the location where the backup file is saved.
- **Fibers:**
 - Ensure you have sufficient fiber slack to unseat the module.
 - Ensure all fibers are labeled correctly. You need to maintain the same cross-connection assignments.

Key module replacement features

The following figure shows the ROB2 module. The difference between the ROB2 and ROB4 modules is the ROB4 has two additional client ports—C3 and C4. You do not use C3 and C4 for this type of module replacement.

Figure 3-36 2DROADM-on-a-blade (ROB2)**Replacement procedure**

Follow these steps to replace a ROADM-on-a-blade module with a different degree ROADM module:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Move the Cables

Shelf cables may need to be moved aside to get clear access to the module. The cables rest on the handles that are at the front of the module.

Step 3 Disconnect the Cables

Disconnect the fiber cables from the module that is being replaced. Make note on how the cables are connected. You need this information when you install the replacement module.

Note Ensure that the optical ports on the module and the optical cables are protected with protective caps while disconnected.

Step 4 Loosen the Faceplate Screws

- a) Facing the front of the shelf, locate the faceplate screws.
- b) Using a slot-head or Phillips screwdriver, loosen the screws.

Step 5 Remove the Module

- a) Grasp the handles on the front of the module and firmly pull the module straight out.

Note An equipment missing alarm—REPLUNITMISS—appears once you remove the module.

- b) Place the module on a flat work surface.

Step 6 Replace the ROB module

- a) Align the replacement module to the slot in which it is being inserted.
- b) Carefully push the module straight into the slot until the module LEDs turn on. A circuit pack mismatch—REPLUNITMEA— alarm appears. To clear the alarm you need to assign the module to the slot. Go to the next step.

Step 7 Assign the PEC of the replacement module to the slot. This step assumes you are using proNX 900 Node Controller.

- a) Click the **System Configuration** icon and navigate to the system for which the module is replaced.
- b) Right-click on the slot that contains the replacement module. Click **Provision Module**.
- c) From the **PEC/CLEI Code** drop-down menu, select the PEC of the replacement module, and click **Apply**.
- d) The REPLUNITMISS and REPLUNITMEA alarms should clear after 5 to 10 seconds.

Step 8 Restore the Module to Service

The ROADM module automatically upgrades to the same BTI software release that is running on the shelf, and automatically receives the module and channel provisioning from the SCP. The system should recover to its original state, this takes a few minutes.

Note If the system does not recover, contact your BTI representative.

Step 9 Replace the Faceplate Screws

- a) Facing the front of the shelf, align the module with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the faceplate screws:
 - Partially tighten one of the screws.
 - Partially tighten the other screw.
 - Fully tighten both screws, to a torque that is no more than 4.7 in-lbs.

Step 10 Reconnect Optical Cables

If any cables were moved to access the module, clean the cables and reconnect them to their original positions. All corresponding line and client port alarms on replaced modules, as well as, adjacent node line alarms, should clear.

Note If you loop excess fiber around the fiber management spool, allow sufficient slack for the fiber management spool to move freely.

Step 11 Reroute traffic

Provision the new ROB module with the preferred traffic route.

You have successfully completed this procedure.

3.12 Replacing optical transceivers

Use this procedure to replace optical small form factor (SFP) or 10 Gb/s (XFP) transceivers.

What you need

- Electrostatic discharge (ESD) wrist strap
- Replacement transceiver
- Isopropyl alcohol and lint-free pads

Prerequisites

To prevent potential damage from electrostatic discharge, observe the following when handling transceivers:

- Do not remove a transceiver from its packaging until you are ready to install it into a module.
- Do not touch any of the pins, connections, or components of a transceiver.
- Always store or transport a transceiver in anti-static packaging.



Invisible laser radiation can be emitted from the aperture ports of various modules when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

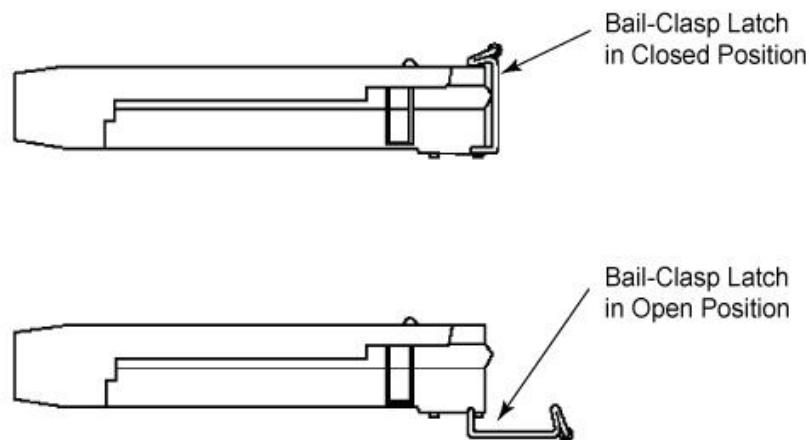


Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Transceiver key features

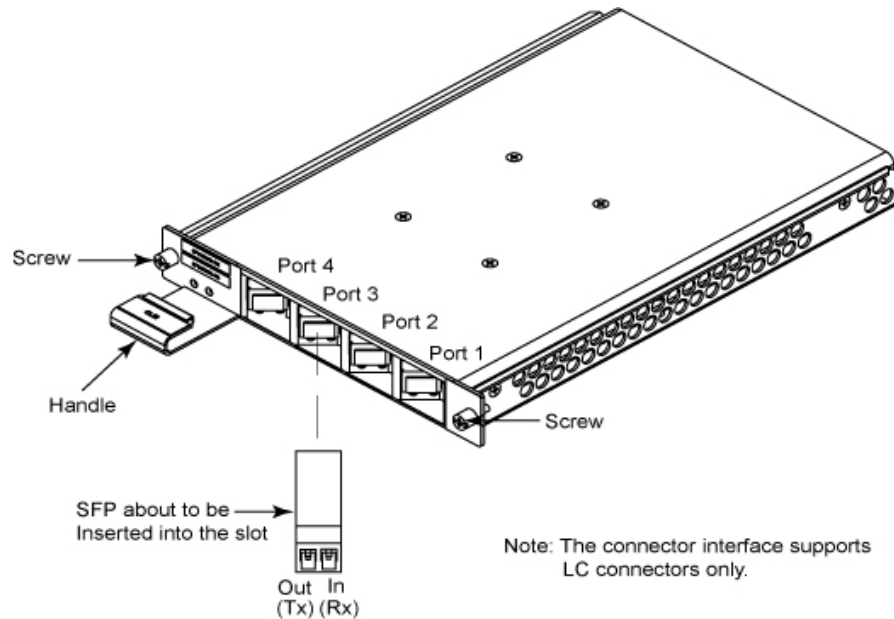
The following figure shows a typical SFP transceiver with a bale-clasp latch.

SFP transceiver with a bale-clasp latch



The following figure shows an SFP transceiver about to be inserted into its slot in a generic module.

Transceiver insertion



Replacement procedure

Follow these steps to replace a transceiver:

Step 1 Reroute Traffic

Caution Failure to reroute traffic can result in lost data. Select an alternate route for the traffic that passes through the module. Transfer traffic to this alternate route before proceeding with this procedure.

Step 2 Remove the Transceiver Port from Service

Remove the port from service.

Step 3 Move the Cables

Shelf cables may need to be moved aside to get clear access to the transceiver. The cables rest on the handles that are at the front of the circuit pack.

Step 4 Disconnect the Optical Cables

Disconnect the optical cables from the optical ports of the transceiver. Label the cables transmit and receive so that you can reconnect them to the correct ports later in this procedure.

Note Ensure that the optical ports on the transceiver and the optical cables are protected with protective caps while disconnected.

Step 5 Disengage the Latch Handle

Facing the front of the shelf, locate the latch handle on the transceiver. For a bale-clasp latch, pull the latch handle down until it is at a 90-degree angle to the transceiver.

Step 6 Remove the Transceiver

- a) Grasp the latch handle on the transceiver and firmly pull the transceiver straight out.

Note If the transceiver port is provisioned, an alarm (REPLUNITMISS) appears and the red LED turns on once you remove the transceiver.

- b) Place the transceiver into anti-static packaging and then lay it on a flat work surface.

Step 7 Insert the Replacement Transceiver

- a) Hold the transceiver so that the optical connectors face you. On an SFP, the product label will be visible. On an XFP, the product label is not visible.
- b) Ensure that the latch handle is in the closed position. For a bale-clasp latch, this is in the upright position.
- c) Align the transceiver to the port in which it is being inserted.
- d) Carefully slide the transceiver straight into the port until it clicks.

Note If the port is provisioned and the replacement transceiver has the same the wavelength, the REPLUNITMISS alarm clears.

Note If the port is provisioned, but the replacement transceiver has a different wavelength, the mismatch alarm (REPLUNITMEA) appears and the red LED turns on.

- e) Remove the plastic protective cover, if fitted.

Step 8 Clean the Ends of the Fiber Optic Cables

Use lint-free pads with isopropyl alcohol to clean the ends of the fiber optic cables.

Step 9 Connect the Optical Cables

Note Before connecting the optical cables to the transceiver, ensure that both the optical cable connectors and the optical surfaces are clean and that there is no residue on the optical surfaces.

Connect the input and output optical cables to the transceiver as follows:

- a) Ensure that the latch handle (or bale) of the transceiver is in the closed (up) position.
- b) Carefully slide the bottom of the male optical connector along the bottom of the transceiver opening.
- c) Gently push the male optical connector into the opening until a distinctive click is heard. Then continue exerting pressure on the connector to ensure a good connection is achieved.

Step 10 Restore the Transceiver Port to Service

Important XFPs and DWDM SFPs take about 90 seconds to reach a stable operating temperature. As a result, the REPLUNITFAIL (SFP or XFP Failure) alarm is disabled for 95 seconds after a transceiver is seated. If there is a transceiver hardware fault, the REPLUNITFAIL alarm is raised subsequent to the 95-second time delay.

Step 11 Replace the Cables

If any cables were moved to access the transceiver, replace the cables to their original locations.

You have successfully completed this procedure.

3.13 Filler modules and panels

Use this procedure to replace a filler module (for the BTI 7060 and BTI 7030) or filler panel (for the BTI 7200).

Note A filler module for the BTI 7060 and BTI 7030 or filler panel (for the BTI 7200) must be inserted in empty module slots to ensure proper cooling of the shelf. The filler is required to ensure adequate airflow to cool the system. Unfilled slots may cause overheating of the system.

Important By default, an alarm is not generated if a slot remains empty (that is, no module or filler is plugged in and seated), so the presence of fillers must be verified visually. An alarm to detect the presence of filler modules for the BTI 7060 and BTI 7030 (but not for the BTI 7200) can be enabled. See the *Operations Solutions Guide* for details.

Note Fillers are not required in empty module slots of the BTI 7020.

What you need

- Slot-head or Phillips screwdriver
- Electrostatic discharge (ESD) wrist strap
- Replacement filler module

Prerequisites

- None

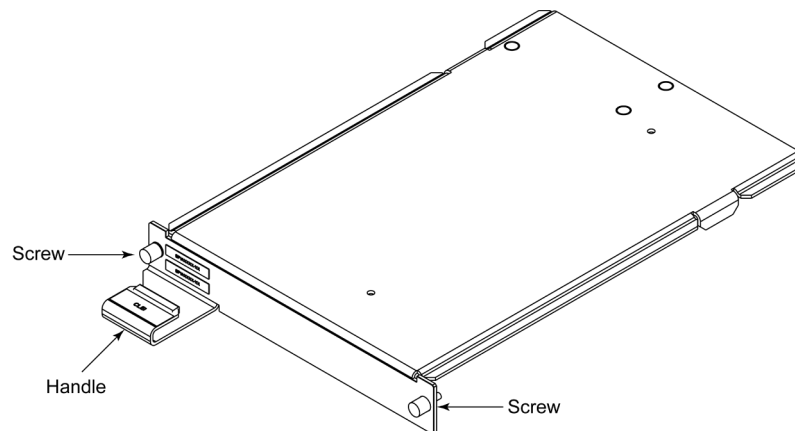


Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling modules as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

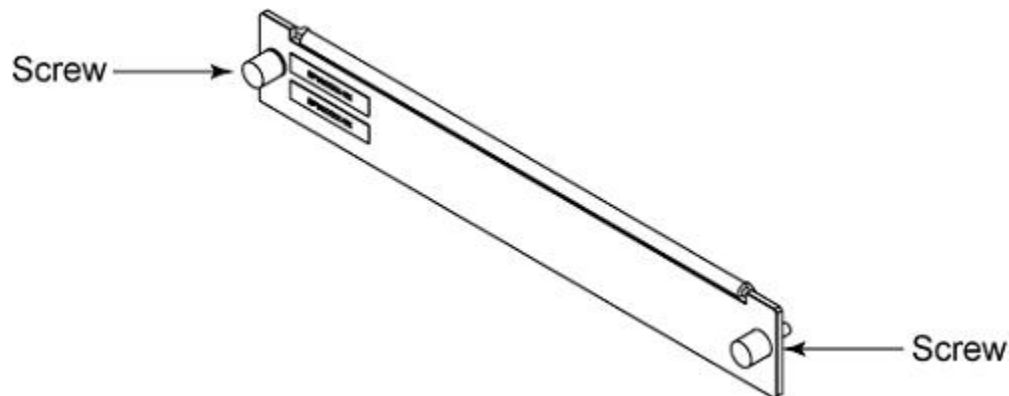
A single-width filler module and its key features for this procedure is shown in the following illustration.

Figure 3-39 Single-Width Filler module key features



A single-width filler panel and its key features for this procedure is shown in the following illustration.

Figure 3-40 Single-Width Filler panel key features



Step 1 Move Optical Cables

Depending on the slot in which the filler is located, optical cables may need to be moved aside to get access to the panel. The cables rest on the handles that are at the front of the filler.

Step 2 Remove Screws

- a) Facing the front of the BTI 7000 Series, locate the screws.
- b) Using a slot-head or Phillips screwdriver, loosen the two screws.

Step 3 Remove module

Grasp the handles on the front of the module and firmly pull the module straight out.

Step 4 Replace filler

- a) Align the replacement filler to the guides of the single- or double-width slot.
- b) Carefully push the filler straight into the slot(s).

Step 5 Replace Screws

- a) Facing the front of the BTI 7000 Series, align the filler with its mounting holes.
- b) Using a slot-head or Phillips screwdriver, carefully tighten the two screws:
 - Partially tighten the center support screw.
 - Partially tighten the other screw.
 - Fully tighten the center support screw.
 - Fully tighten the other screw.

Caution Tighten to a torque that is no more than 4.7 in-lbs.

Step 6 Replace Optical Cables

If any optical cables were moved to access the panel, replace the optical cables to their original locations.

3.14 Inserting or replacing an air filter in the BTI 7060

The BTI 7060 is a fully NEBS compliant system that includes a replaceable air filter (MP500857).

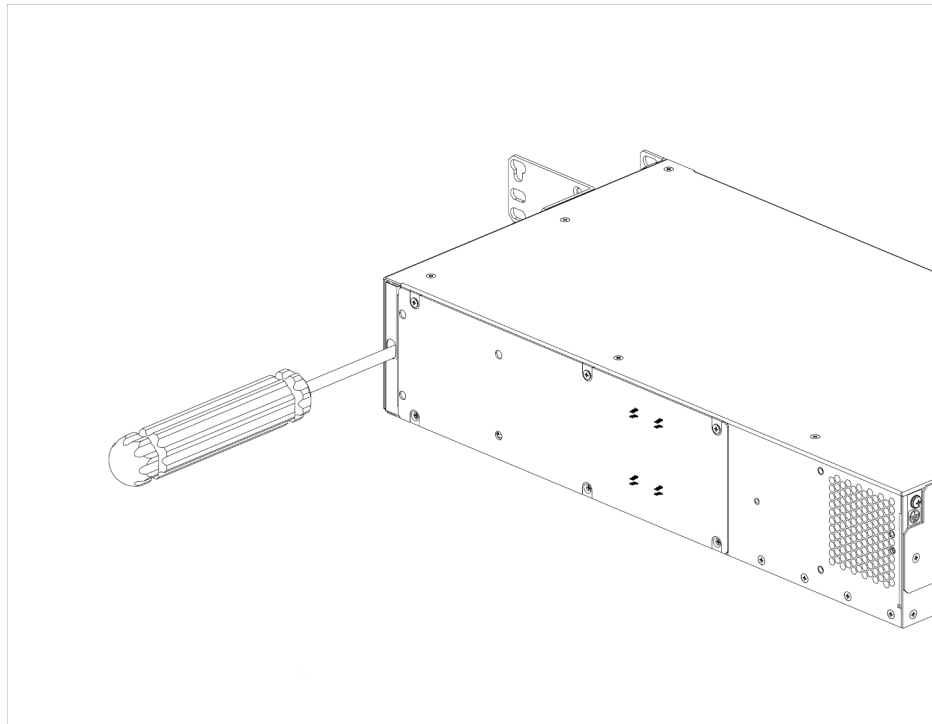
Note If the BTI 7060 AC power module is attached to the BTI 7060 shelf, a longer air filter is required. Contact your BTI representative for ordering details.

BTI recommends a visual inspection of the air filter at least once every three months. If dust is observed in the filter, replace the air filter. An air filter replacement kit is available from BTI.

To insert a new air filter, or to replace an existing air filter, use the following procedure.

Step 1 The air filter cover is located at the rear of the BTI 7060 and is secured by a snap-on cover.

Using a slot-head or Phillips screwdriver, remove the snap-on cover.



Step 2 If there is already an air filter in the slot, remove and discard it.

Step 3 Facing the shelf, align the new air filter with the slot.
Carefully slide the air filter straight into the slot.

Step 4 Re-install the cover by snapping it into place.

You have successfully completed this procedure.

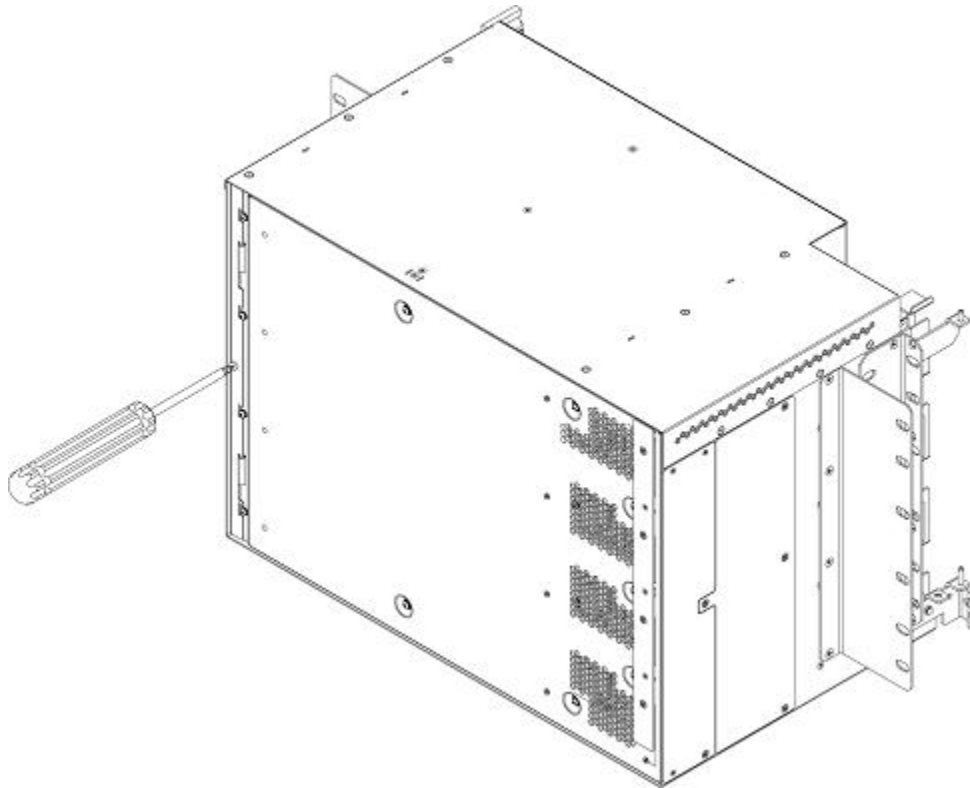
3.15 Inserting or replacing an air filter in the BTI 7200

The BTI 7200 is a fully NEBS compliant system that includes two replaceable air filters.

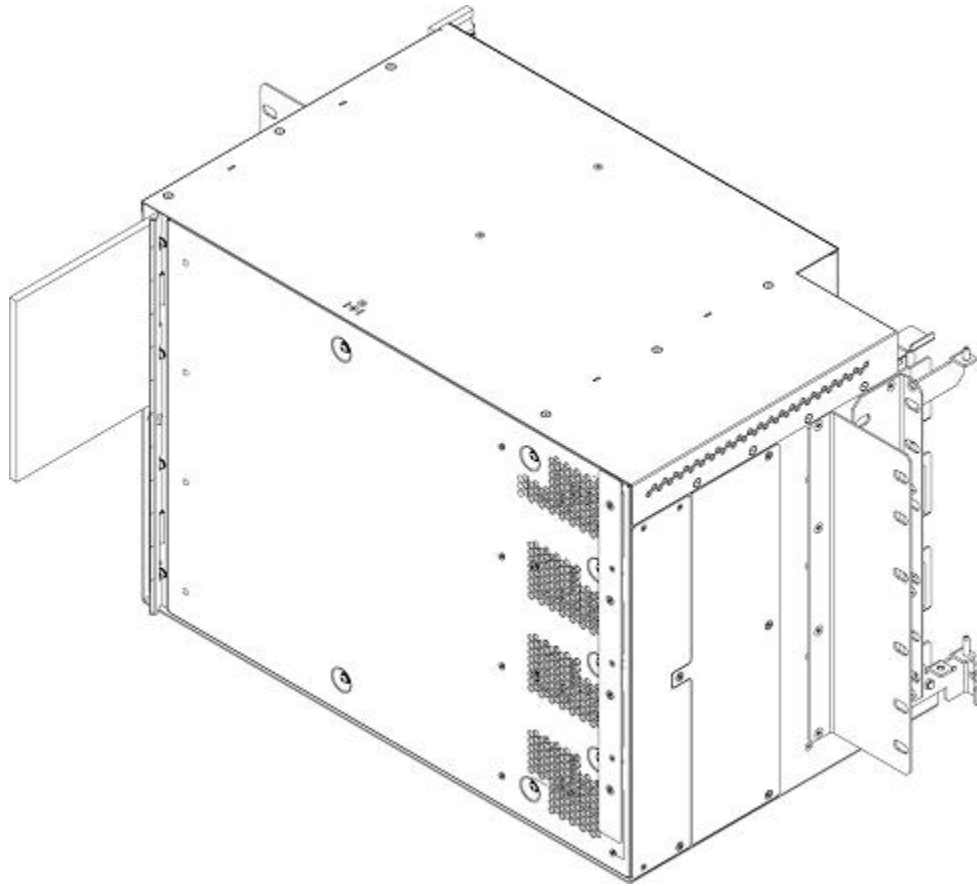
BTI recommends a visual inspection of the air filters at least once every three months. If dust is observed in the filters, replace the air filters. An air filter replacement kit is available from BTI.

To insert a new air filter, or to replace existing air filters, use the following procedure.

- Step 1** The air filter cover is located at the left rear of the BTI 7200 and is secured by a Phillips screw in the middle of the cover. The air filter may be covered by an air deflector. If so, remove it. See 3.16, “[Installing an air deflector on the BTI 7200](#)”.
- Step 2** Using a Phillips screwdriver, loosen the screw on the air filter cover until it is free to open.



- Step 3** Facing the shelf, note that there are two air filter slots, upper and lower. If there is an air filter in either slot, remove and discard it.
- Step 4** Align a new air filter with one of the the slots.
Carefully slide the air filter straight into the slot.



Carefully slide another air filter straight into the other slot.

Step 5 Close the air filter cover and screw it into place.

Step 6 If you removed an air deflector to access the air filters, replace it. See [3.16, “Installing an air deflector on the BTI 7200”](#).

You have successfully completed this procedure.

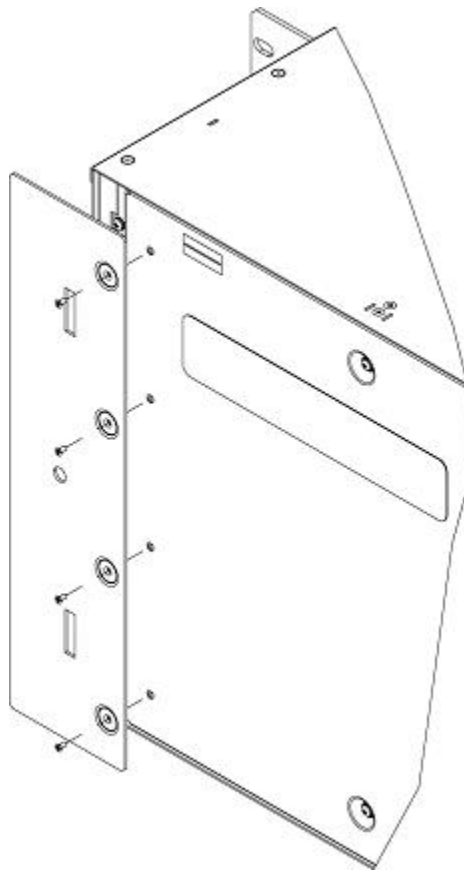
3.16 Installing an air deflector on the BTI 7200

In certain situations involving back-to-back equipment in close proximity, or in situations with restricted air flow, the BTI 7200 may require the installation of an air deflector to assist in cooling.

To install an air deflector, use the following procedure.

Step 1 The air deflector is located at the left rear of the BTI 7200 and is secured by four screws.

Using a Phillips screwdriver, attach the air deflector using the screws provided. The air deflector covers the air filter cover.



You have successfully completed this procedure.

4.0 Troubleshooting the BTI 7000 Series

This chapter explains how to troubleshoot various aspects of the BTI 7000 Series. This section is organized as follows:

- 4.1, “Troubleshooting LED problems”
- 4.2, “Troubleshooting alarms raised due to external failures”
- 4.3, “Troubleshooting alarms raised due to BTI 7000 Series failures”
- 4.4, “Troubleshooting alarms raised during operations”
- 4.5, “Determining protection switch faults”
- 4.6, “Verifying the Ethernet LAN connections”
- 4.7, “Performing loopback tests”
- 4.8, “Troubleshooting muxponder/transponder AIS conditions”
- 4.9, “Overriding optical back reflection safety alarms”
- 4.10, “Troubleshooting file transfers”
- 4.11, “Troubleshooting proNX 900 Node Controller problems”
- 4.12, “Troubleshooting SCP problems”
- 4.13, “Troubleshooting INVK-DB-RST failures”

4.1 Troubleshooting LED problems

Verify LED function with the alarm cutoff/lamp test button

Important If you are unsure about whether an LED is actually working, use the alarm cutoff/lamp test button to check if the LED is functioning correctly.

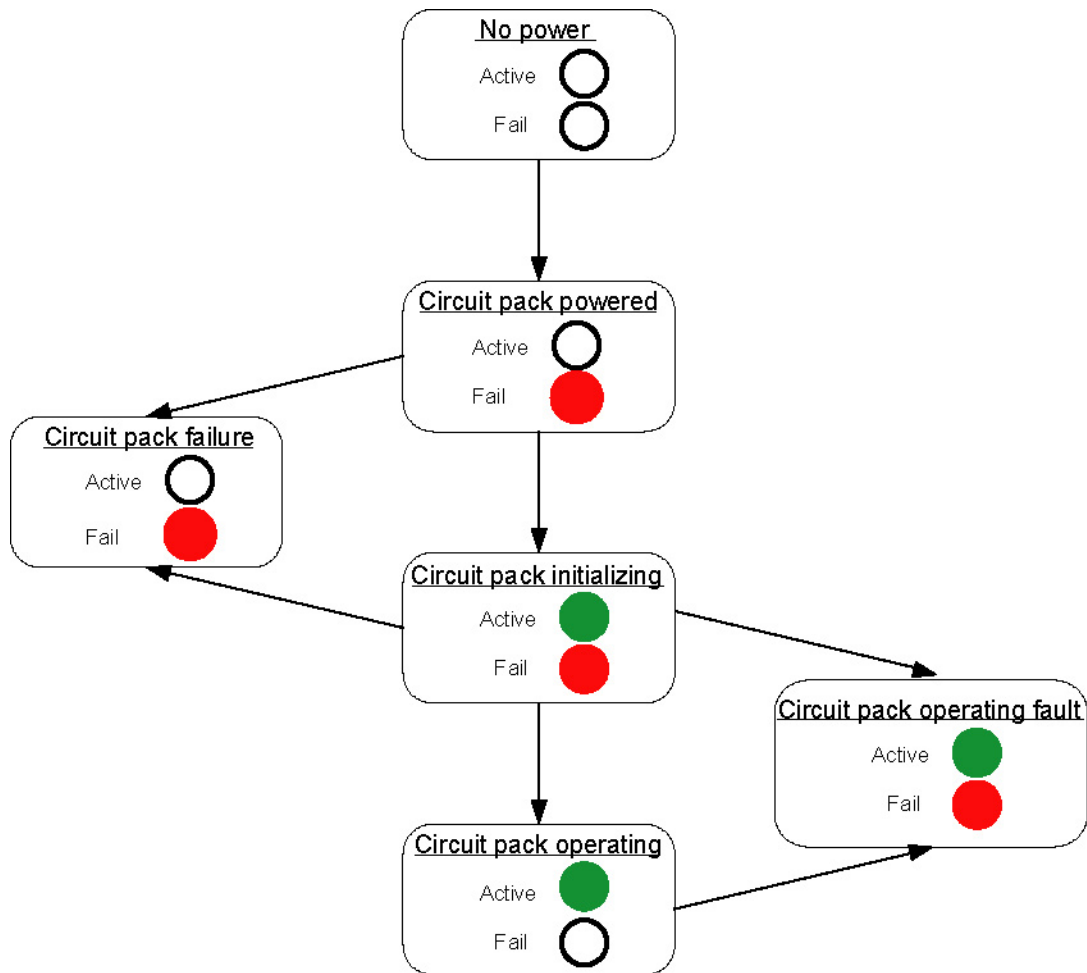
With no audible alarm present, press the alarm cutoff/lamp test button continuously to turn all of the management shelf interface (MSI) LEDs on and all of the circuit pack LEDs on. If an LED does not turn on, the LED needs to be replaced.

Failure of either the MSI or SCP circuit packs disables the alarm cutoff/lamp test button.

4.1.1 LED state transitions during initialization

During initialization, the LEDs on a circuit pack transition through a series of states. By watching the LED state transitions, you can understand where faults are being encountered.

The following figure illustrates the state transitions that the LEDs can indicate.

Figure 4-1 LED state transitions**No power**

As shown in the illustration, both the active and the fail LEDs are off when no power is available.

Circuit pack powered

When the circuit pack is inserted and power is applied, the LEDs change to show the red fail LED is on and the green active LED is off.

If the hardware fails to load the software image, the green active LED does not go on and the circuit pack goes to the circuit pack failure state.

Circuit pack initializing

When the software image is found and loading begins, both the green active LED and the red fail LED are on.

If the software image fails to load correctly, the green active LED turns off, the red fail LED remains on, and the circuit pack goes to the circuit pack failure state.

Circuit pack operating

If the software image loads correctly and no hardware faults are found, the red Fail LED turns off and the green active LED remains on. The circuit pack should now be operational.

Circuit pack failure

A circuit pack failure occurs when the software image cannot be loaded for some reason. The red fail LED remains on and the green active LED is off.

Recommendations:

- 1) Unplug and then reinsert the circuit pack.
- 2) Replace the circuit pack.

Circuit pack operating with fault

If the software image loads correctly but hardware faults are found, both the green active LED and the red fail LED remain on.

Recommendations:

- 1) Login and query alarms: - If you cannot login, wait 30 minutes for initialization to complete. - If you still cannot login, verify that the LAN is operating correctly. See procedure [4.6, “Verifying the Ethernet LAN connections”](#)
- 2) Check Chapter [Chapter 2, “Clearing alarms”](#) of this document.

4.1.2 Troubleshooting LED indicated circuit pack problems

Tracing circuit pack problems from the LED indications

Use this procedure to trace circuit pack problems from the LED indications.

Step 1 Determine the Likely Problem

Depending on what LEDs are on, use the following list to determine your next step:

- If no circuit pack LED is on, go to step 2.
- If the yellow circuit pack LED is on, go to step 3.
- If the red circuit pack LED is on, go to step 4.
- If the green and yellow circuit pack LEDs are on, go to step 5.
- If the yellow and red circuit pack LEDs are on, go to step 6.
- If the green and red circuit pack LEDs are on, go to step 7.
- If the green, yellow and red circuit pack LEDs are on, go to step 8.

Step 2 No LEDs On

If no circuit pack LED is on, press the lamp test button on the MSI circuit pack. All of the MSI LEDs and the circuit pack LEDs should turn on. If an LED fails to turn on, replace the LED.

Step 3 Yellow LED On

If the yellow circuit pack LED is on, this indicates that there is a non-equipment fault. For single stage amplifiers this includes:

- case temperature threshold
- case temperature shutdown
- optical power received minimum threshold
- optical power received maximum threshold
- optical power received maximum shutdown
- back reflection threshold
- back reflection shutdown
- back reflection high threshold safety
- optical power transmitted minimum threshold
- optical power transmitted maximum threshold
- optical power received minimum threshold
- optical power received maximum threshold

Note The last two conditions are most likely non-equipment faults.

In addition, for mid-stage amplifiers the following faults are also possible:

- second stage optical power received maximum shutdown
- mid-stage insertion loss

Step 4 Red LED On

If the red LED is on, this indicates an equipment fault. The faults include:

- communications failure
- laser temperature minimum shutdown
- laser maximum temperature shutdown
- circuit pack communications failure
- circuit pack failure
- circuit pack mismatch

Reset the circuit pack. If the red LED turns off after the reset is complete, then the circuit pack is operating normally. If the red LED does not turn off, then replace the circuit pack by referring to the appropriate procedure. See [Chapter 3, “Replacing modules”](#).

Step 5 Green and Yellow LEDs On

If the green and yellow LEDs are on, this indicates that the circuit pack is okay and a non-equipment fault is expected to clear.

No action is required.

Step 6 Yellow and Red LEDs On

If the yellow and red LEDs are on, this indicates that there is a circuit pack at fault and it needs to be reseated or replaced.

Replace the circuit pack by referring to the appropriate procedure. See [Chapter 3, “Replacing modules”](#).

Step 7 Green and Red LEDs On

If the green and red LEDs are on, this indicates that the following potential faults are present:

- circuit pack mismatch
- SCP/MSI or EDFA communications problem
- other equipment problems

Replace the circuit pack by referring to the appropriate procedure. See [Chapter 3, “Replacing modules”](#).

Step 8 Green, Yellow, and Red LEDs On

If the green, yellow and red LEDs are on, this indicates that the circuit pack needs to be replaced.

Replace the circuit pack by referring to the appropriate procedure. See [Chapter 3, “Replacing modules”](#).

4.1.3 Troubleshooting LED indicated SFP and XFP problems

Tracing SFP and XFP problems from the LED indications

Use this procedure to trace SFP and XFP problems from the LED indications.

Step 1 Determine the Likely Problem

Depending on what LEDs are on, use the following list to determine your next step:

- If the yellow SFP or XFP LED is on, go to step 2.
- If the red SFP or XFP LED is on, go to step 3.

Step 2 Yellow LED On

If the yellow LED is on, this indicates that there is either a fault or a loss of signal. This includes:

- expansion shelf communications
- expansion shelf communications entity unknown

- expansion shelf communications loss of signal
- loss of frame
- loss of lock
- loss of signal
- loss of synchronization
- unit unknown

Step 3 Red LED On

If the red LED is on, this indicates an equipment fault. The faults include:

- control communications failure
- transceiver communications failure
- transceiver failure
- transceiver mismatch
- transceiver missing
- transmitter failure

Replace the SFP or XFP transceiver by referring to the following procedure:

[3.12, “Replacing optical transceivers”](#)

4.2 Troubleshooting alarms raised due to external failures

The following table indicates how to troubleshoot alarms raised due to external failures.

Note This table only provides a quick summary of the potential problems that an alarm may indicate and a brief summary of actions to consider. For full details on clearing a particular alarm, refer to the appropriate section that appears earlier in this document.

Table 4-1 Troubleshooting Alarms Raised Due to External Failures

Alarm Code	Indicates	Action
FEEDAFAIL FEEDBFAIL	There is a problem with one of the redundant power feeds (that is, either feed (A or B) is not connected or the voltage on a feed is below -20 V (approx.).	<ul style="list-style-type: none"> • Measure the voltage. • Check the fuse or breakers. • Check that the feed is connected. • Check the power distribution.
HITEMP	There is a problem with the shelf temperature. Once a preset temperature of 73°C is crossed, the alarm is triggered. The alarm clears once the shelf temperature falls below a preset temperature of 68°C.	<ul style="list-style-type: none"> • Check for a cooling unit failure. • Check for shelf air vent obstructions. • Check ambient air temperature.
LOA	There is a problem with a FC or GE client port on a muxponder circuit pack that is experiencing a loss of alignment due to a differential delay that is greater than 190 milliseconds.	<ul style="list-style-type: none"> • Check if there is network congestion.
LOF	There is a problem with an SFP or XFP transceiver when a Severely Errored Framing (SEF) defect on the incoming SONET/SDH signal persists for three microseconds.	<ul style="list-style-type: none"> • Check if the provisioned protocol does not match the incoming signal. - Delete any existing cross-connect objects. - Set the protocol for the incoming signal. • Resolve any issues with the upstream equipment.
LOF	There is a problem with a SONET line port on a muxponder circuit pack.	<ul style="list-style-type: none"> • Check for the following: - fiber cut - dirty fiber and or connector - excessive attenuation - if the circuit pack is missing or mismatched at the far end - if incorrect cross connect is provisioned at the far end.
LOL	There is a problem with an SFP transceiver that is unable to lock on to the incoming signal bit stream. The yellow fault LED under the SFP cage is on.	<ul style="list-style-type: none"> • Check if the provisioned protocol does not match the incoming signal. - Delete any existing cross-connect objects. - Set the protocol for the incoming signal. • Resolve any problem with the upstream problem.

Table 4-1 Troubleshooting Alarms Raised Due to External Failures (Continued)

Alarm Code	Indicates	Action
LOM	There is a problem with a FC or GE client port on a muxponder circuit pack.	<ul style="list-style-type: none"> • Check all STS connections in the client-side network. • Fix any incorrect cross connections.
LOP-P	There is a problem with a path inside a SONET/SDH line port on a muxponder circuit pack.	<ul style="list-style-type: none"> • Check if the pointer value in the SONET/SDH overhead is out of range. • Check if the pointer value in the SONET/SDH overhead is not stable. • Check if there is incorrect network synchronization. • Check if there is something other than an STS1 signal is received.
LOS (FC or GE port)	There is a problem with a FC or GE client port on a muxponder circuit pack that is experiencing a loss of signal.	<ul style="list-style-type: none"> • Check for the following: - fiber cut - dirty fiber or connector - excessive attenuation - a client-side router or switch problem.
LOS (line port)	There is a problem with a SONET/SDH line port on a muxponder circuit pack that is experiencing a loss of signal.	<ul style="list-style-type: none"> • Check for the following: - fiber cut - dirty fiber or connector - excessive attenuation - if a circuit pack is missing or mismatched at the far end.
LOS (WT/WR/TPR)	There is a problem with a loss of signal to the SFP or XFP transceiver. An input power drop that is below the manufacturer's preset threshold has occurred. The yellow fault LED under the SFP or XFP cage is on.	<ul style="list-style-type: none"> • Measure the OPR at the SFP or XFP. • Replace the SFP or XFP transceiver. • Check the optical connectors. • Check the upstream equipment. • Possible fiber break in the input fiber span.
LOS (WM)	There is a problem with a Wavelength Manager that has experienced an input power drop or an input power rise beyond the preset thresholds.	<ul style="list-style-type: none"> • Measure the OPR at the SFP. • Replace the SFP transceiver. • Check the optical connectors. • Check the upstream equipment.
LOSYNC	The loss of synchronization indicates that the incoming signal cannot be framed according to the protocol.	<ul style="list-style-type: none"> • Reroute traffic. • Determine the provisioned protocol. • Delete any existing cross connect objects. • Set the protocol for the incoming signal. • Resolve the problem with the incoming signal. • Replace the SFP or XFP, if necessary.

Table 4-1 Troubleshooting Alarms Raised Due to External Failures (Continued)

Alarm Code	Indicates	Action
LOSYNC	There is a problem with a FC or GE client port on a muxponder circuit pack due to a loss of signal.	<ul style="list-style-type: none"> Check if the wrong protocols are set. Check if the MEDIARATE parameter is set correctly.
OBR-HTSO	The optical back reflection high threshold shutdown indicates that someone has issued the OPR-OBR-HTSO TL1 command to override the automatic power reduction (APR) feature on the amplifier lasers.	<ul style="list-style-type: none"> Wait for the timer to expire (20 to 600 seconds). Re-issue the timer with the time set to 20 seconds. Perform a warm restart of the amplifier circuit pack.
OSCLOS	There is a problem with a loss of signal on the OSC link. The alarm is triggered when the optical power is less than -38 dBm or greater than -3 dBm.	<ul style="list-style-type: none"> Check the power levels with a power meter. Check the connectors and connections. Check the splitter/coupler tray. Determine if there is an upstream problem.
PWRBRWNT	<p>There is a problem with the voltage level. The alarm is triggered at -45.5 V and clears at -46.5 V.</p> <p>Note: Amplifiers stop working at -39.7 V.</p> <p>SCP, OSC and MSI stop working at -36.8 V.</p> <p>Cooling Unit stops working at -34.2 V.</p>	<ul style="list-style-type: none"> Measure the voltage on each feed. Check that both feeds are connected. Check power distribution. Determine if there is a DC power problem in the central office.
SD (line-side port)	There is a problem with a SONET/SDH line port on a muxponder circuit pack that has experienced signal degradation.	<ul style="list-style-type: none"> Check for the following: - dirty fibers and connectors - excessive attenuation - laser degradation at the far end.
SD	There is a problem with a SONET/SDH line port on a muxponder circuit pack that has experienced signal degradation.	<ul style="list-style-type: none"> Check for the following: - dirty fibers and connectors - excessive attenuation - laser degradation at the far end.
SQM	There is a problem with a FC or GE client port on a muxponder circuit pack that has received an incorrect multiframe sequence number.	<ul style="list-style-type: none"> Check for provisioning errors in the network configuration.
SYNCPRI	There is a problem with the loss of synchronization to the primary timing reference for a muxponder circuit pack.	<ul style="list-style-type: none"> Check for the following: - fiber cut - dirty fiber and or connector - excessive attenuation - faulty circuit pack at either the near end or the far end.
SYNCSEC	There is a problem with the loss of synchronization to the secondary timing reference for a muxponder circuit pack.	<ul style="list-style-type: none"> Check for the following: - fiber cut - dirty fiber and or connector - excessive attenuation - faulty

Table 4-1 Troubleshooting Alarms Raised Due to External Failures (Continued)

Alarm Code	Indicates	Action
		circuit pack at either the near end or the far end.
T-CTEMP-HT T-CTEMP-HTS	<p>There is a problem with the case temperature of the amplifier exceeding its high threshold.</p> <p>If the case temperature continues to rise to its shutdown threshold of 75°C, the circuit pack automatically shuts down.</p>	<ul style="list-style-type: none"> • Use the RTRV-OA command to check the threshold setting. • Use the RTRV-PM-OA command to check the case temperature. • Ensure that circuit packs or fillers are inserted in all slots. • Ensure that the cooling unit is present and functioning. • Ensure that the BTI 7000 Series airflow is unobstructed (that is, intake, outlet and air filter, if used). • Ensure that room temperature is below +50°C.
T-MSLOSS-HT (SFP) T-SSIOPR-HT (SFP)	<p>For the T-MSLOSS-HT alarm, the mid-stage loss has exceeded the threshold setting.</p> <p>For the T-SSIOPR-HT alarm, the mid-stage input optical power high threshold is exceeded.</p>	<p>For the T-MSLOSS-HT alarm:</p> <ul style="list-style-type: none"> • Check that the mid-stage port is either looped back or connected to a dispersion compensation module (DCM). • Use the RTRV-OA command to check the threshold setting. • Use the RTRV-PM-OA command to check the loss of the DCM. <p>For the T-SSIOPR-HT alarm:</p> <ul style="list-style-type: none"> • Use the RTRV-OA command to check the threshold setting. • Use the RTRV-PM-OA command to check the signal level.
T-OBR-HT	An optical back reflection high threshold alarm occurs when the back reflected power exceeds a preset threshold value (that is, -7 dBm).	<p>Most likely causes include:</p> <ul style="list-style-type: none"> • The output port is disconnected at the amplifier or at the patch panel. Solution: Reconnect the output port. • The output port is connected to a device that is causing back reflection, such as a hand-held optical power meter. Solution: Reduce back-reflection from the device causing the problem. • The fibers are not connected correctly creating a gap or misalignment between the fiber ends. Solution: Check connectors.

Table 4-1 Troubleshooting Alarms Raised Due to External Failures (Continued)

Alarm Code	Indicates	Action
		<ul style="list-style-type: none"> A coupler is faulty or the fibers are dirty. Solution: Clean the connectors and fibers.
T-OBR-HTS	<p>The optical back reflection detected is greater than -4dBm.</p> <p>Note: The amplifier operates in automatic power reduction (APR) mode while this alarm is active.</p>	<p>Most likely causes include:</p> <ul style="list-style-type: none"> The output port is disconnected at the amplifier or at the patch panel. Solution: Reconnect the output port. The output port is connected to a device that is causing back reflection, such as a hand-held optical power meter. Solution: Reduce back-reflection from the device causing the problem. The fibers are not connected correctly creating a gap or misalignment between the fiber ends. Solution: Check connectors. A coupler is faulty or the fibers are dirty. Solution: Clean the connectors and fibers. Upstream fiber is cut. Solution: Use the OPR-OBR-HTSO TL1 command to check for a fiber cut.
T-OPR-HT T-OPR-LT T-OPT-HT T-OPT-LT	<p>The optical power received or transmitted has exceeded the high or low threshold.</p> <p>Note: The threshold crossing alerts must be enabled (they are disabled by default) on the transponder circuit packs.</p>	<ul style="list-style-type: none"> Use the RTRV-PM-XCVR command to check the signal level of the SFP. Use the RTRV-OA command to check the threshold setting and to check laser status. Use the RTRV-PM-OA command to check the signal level. If T-OPT-LT is raised on its own, this could indicate an amplification problem. Use the RTRV-PM-OA command to check pump laser PMs. Replace circuit pack if required. Replace SFP if required.
T-OPT-HT (SFP) T-OPT-LT (SFP)	<p>The optical power transmitted for an SFP has exceeded the high or low threshold.</p>	<ul style="list-style-type: none"> Replace the SFP transceiver.
T-TEMP-HT	<p>There is a problem with shelf temperature.</p>	<ul style="list-style-type: none"> Ensure that the cooling unit is present and functioning. Ensure that the room temperature is below +50°C.

Table 4-1 Troubleshooting Alarms Raised Due to External Failures (Continued)

Alarm Code	Indicates	Action
UNEQ-P	There is a problem with a path in a SONET/SDH line port on a muxponder circuit pack that is reporting it is unequipped.	<ul style="list-style-type: none"> • Ensure that circuit packs or fillers are inserted in all slots. • Ensure that the BTI 7000 Series airflow is unobstructed (that is, intake, outflow and air filter, if used). • If the MSA case temperature continues to rise, circuit packs can fail.
		<ul style="list-style-type: none"> • Check if there is no cross connect at the far end. • Check if there is a fault circuit at the far end.

4.3 Troubleshooting alarms raised due to BTI 7000 Series failures

Note This table provides only a quick summary of the potential problems that an alarm may indicate and a brief summary of actions to consider. For full details on clearing a particular alarm, refer to the appropriate section that appears earlier in this document.

Table 4-2 Troubleshooting Alarms Raised Due to System Failures

Alarm Code	Indicates	Action
AMPCOND T-LTEMP-LTS T-LTEMP-HTS	<p>When an amplifier is initially started, thermo-electric coolers (TECs) work to control the pump laser temperature to between 16° and 34°C.</p> <p>Until the pump laser temperature is within range, the AMPCOND alarm is present.</p> <p>If the AMPCOND alarm persists for more than 30 minutes, the alarm is cleared and a T-LTEMP-LTS or T-LTEMP-HTS alarm is raised.</p>	<ul style="list-style-type: none"> • If the T-LTEMP-LTS or the T-LTEMP-HTS alarm appears, the solution is to replace the circuit pack.
CONTCOM	<p>This alarm indicates that backplane communication between the system control processor (SCP) and a circuit pack is interrupted.</p> <p>Normal operations to the circuit pack, such as provisioning and performance monitoring, are affected when this alarm is active.</p> <p>If the circuit pack is already provisioned, it will continue to operate normally.</p>	<ul style="list-style-type: none"> • Perform a warm restart of the circuit pack. The processor handling backplane communications is restarted. • Perform a cold restart of the SCP. • Re-route traffic and then reseat the amplifier and reseat the SCP. • Replace the circuit pack.
CONTCOM (SFP or XFP)	<p>This alarm indicates that communication between a circuit pack and an SFP or XFP transceiver is interrupted.</p>	<ul style="list-style-type: none"> • Determine if the transceiver is provisioned in the affected circuit pack slot. • Determine if traffic is running. • Remove and re-insert the transceiver. • Perform a warm restart on the circuit pack. • Replace the transceiver.
CUFEEDFAIL	<p>A cooling unit feed failure has occurred on a BTI 7030 shelf.</p> <p>There are two cooling unit power feeds from the SCP to the cooling unit.</p>	<ul style="list-style-type: none"> • If one power feeds fails, a minor alarm is raised. Plan to replace the SCP circuit pack as soon as possible.

Table 4-2 Troubleshooting Alarms Raised Due to System Failures (Continued)

Alarm Code	Indicates	Action
		<ul style="list-style-type: none"> If both power feeds fail, a major alarm is raised. Replace the SCP circuit pack immediately.
DSPCOMMFAIL	<p>There is a problem in communications between the DSP and the processor handling backplane communications in an optical amplifier.</p> <p>Normal operations to the circuit pack, such as provisioning and performance monitoring, are affected when this alarm is active.</p> <p>If the circuit pack is already provisioned, it will continue to operate normally.</p>	<ul style="list-style-type: none"> Wait 15 minutes. The system queries historical PM data every 15 minutes. If it is successful the alarm clears. Perform a warm restart. The processor handling backplane communications is restarted. Re-route traffic and perform a cold restart. The circuit pack is restarted. Replace the circuit pack.
EXPSHCOMLNKDOWN	There is a problem with a connected expansion shelf is currently disconnected because the communications link between the system control processor (SCP) and the expansion shelf interface (ESI) circuit packs is down.	<ul style="list-style-type: none"> Check the connectors between the SCP and the ESI circuit packs. Reseat the ESI circuit pack. Reseat the SCP circuit pack.
EXPSHCOMLOS	There is a problem with an expansion shelf that is currently disconnected.	<ul style="list-style-type: none"> Determine the interface cable type. Measure the OPR on the incoming link. Check the connectors. Check the SFP's protocol and wavelength. Perform a warm restart of the SCP circuit pack. Perform a cold restart of the SCP circuit pack. Reseat the SFP transceiver. Replace the SFP transceiver.
PACKUPGRDFAIL	This alarm indicates that a circuit pack has failed to upgrade.	<ul style="list-style-type: none"> If alarm appears after an auto-upgrade: - perform a warm restart of the circuit pack - reseat the circuit pack - replace the circuit pack If the alarm appears after a system upgrade: - Use the CANCEL-SYS-UPGRD command to cancel the system upgrade. - Attempt the system upgrade again. - If the second upgrade fails, attempt a warm restart. - Finally, re-route traffic and replace the circuit pack.
REPLUNITFAIL	This alarm indicates that the circuit pack has failed.	<ul style="list-style-type: none"> When alarm is raised against a cooling unit, a fan has failed.

Table 4-2 Troubleshooting Alarms Raised Due to System Failures (Continued)

Alarm Code	Indicates	Action
		<p>Determine whether one, two or three fans have failed. The system can only run with one fan for 15 minutes.</p> <ul style="list-style-type: none"> • If traffic is down, reseal the circuit pack. • Otherwise, replace the circuit pack.
REPLUNITFAIL (SFP or XFP)	There is an SFP or XFP transceiver failure.	<ul style="list-style-type: none"> • Replace the SFP or XFP transceiver.
SWBNKAFail SWBNKBFail	<p>This alarm indicates that the SCP cannot read or write to the inactive software bank.</p> <p>It is impossible to perform a software upgrade with this alarm active.</p>	<ul style="list-style-type: none"> • Backup the provisioning database to an FTP server. • Replace the SCP circuit pack.
SYSKOM	<p>This alarm indicates that there is a backplane communications failure.</p> <p>While this alarm is active, the SCP cannot recognize or communicate with any circuit pack in the system.</p> <p>If the amplifiers are already provisioned, they will continue to operate and amplify normally.</p>	<ul style="list-style-type: none"> • The alarm is triggered for one of the following reasons: - The MSI is missing. - The MSI has failed. - The SCP cannot detect or communicate with the MSI. • Replace the MSI circuit pack.

4.4 Troubleshooting alarms raised during operations

The following table indicates how to troubleshoot alarms raised during operations.

Note This table only provides a quick summary of the potential problems that an alarm may indicate and a brief summary of actions to consider. For full details on clearing a particular alarm, refer to the appropriate section that appears earlier in this document.

Table 4-3 Troubleshooting Alarms Raised During Operations

Alarm Code	Indicates	Action
CONNMEA	The alarm is triggered if the connector types for the inserted circuit pack and the provisioned circuit pack differ.	<ul style="list-style-type: none"> • Use the RTRV-INV command to check the inventory. • Use the RTRV-EQPT command to check the provisioning. • Replace the circuit pack, if required. • Edit the provisioning, if required. Note: A connector type does not need to be specified when the equipment is provisioned.
DBRECVRYFAIL	This alarm is triggered after replacing an SCP, if the new SCP fails to acquire the database from the system.	<ul style="list-style-type: none"> • Restore the database from an FTP server server (assuming that the database was backed up), or • Re-enter the provisioning data, perform a local backup, and then perform a local restore, or • If this is a lab system, power cycle the shelf and re-enter the provisioning data.
DBRSTPROG	<p>The DBRSTPROG alarm is an alert to the user that a database restore is initiated using the INVK-DB-RST command.</p> <p>Note: Provisioning commands are blocked during the restore process.</p> <p>The DBRSTPROG alarm clears after the restore process</p>	<ul style="list-style-type: none"> • None.

Table 4-3 Troubleshooting Alarms Raised During Operations (Continued)

Alarm Code	Indicates	Action
	is complete and the CMMT-DB-RST command is issued.	
EXPSHCOMDEVICEUNS	This alarm indicates that an unknown device is connected to the expansion shelf port of the system control processor (SCP) on the BTI 7000 Series main shelf.	<ul style="list-style-type: none"> • Determine the interface cable type connected to the expansion shelf port. • Troubleshoot the Molex cable connector and cable assemblies. • Check the far-end equipment. • Troubleshoot the fiber optic link and all of the intermediate devices.
INVPROV	<p>This alarm is triggered when a single-width card is provisioned against a double-width slot or vice-versa.</p> <p>The alarm can occur after the chassis is re-configured (for example, six-slot, five-slot, four-slot, or three-slot configurations).</p>	<ul style="list-style-type: none"> • Use the DLT-EQPT command to delete the provisioned circuit pack.
IPLCKOUT	An IP address is locked out of the BTI 7000 Series. After three incorrect attempts to login, an IP address is blocked from attempting to login again for 60 seconds.	<ul style="list-style-type: none"> • Wait for the alarm to clear.
RELNUMMEA	<p>This alarm is triggered after replacing an SCP if the software release of the new SCP does not match the system software.</p> <p>Note: SCP replacement is also a supported means of upgrading the system software. If the intention was to upgrade the system, use the INVK-SYS-UPGRD command to initiate a full system upgrade. This will raise the System Upgrade in Progress alarm.</p>	<ul style="list-style-type: none"> • Use the LOAD-SYS-UPGRD command to load the correct software to the SCP. • Use the INVK-SCP-RELNUM command to initiate an SCP-only upgrade. Note: This will raise the SCP Release Number Change In Progress alarm.
REPLUNITIDMEA	This alarm indicates that there is a shelf mismatch in the BTI 7000 Series. The mismatch is between the expansion shelf that may be provisioned and the physical expansion shelf	<ul style="list-style-type: none"> • Review the expected and discovered parameters. • Compare the expected MSI serial number with the

Table 4-3 Troubleshooting Alarms Raised During Operations (Continued)

Alarm Code	Indicates	Action
	that is discovered by the BTI 7000 Series	<p>discovered MSI serial number.</p> <ul style="list-style-type: none"> • Compare the expected shelf identifier with the discovered shelf identifier. • Decide whether to reconnect the expansion shelf to its original SCP expansion shelf port. • Decide whether to reconfigure your system to its original hardware configuration. • Commit the expansion shelf to the system. • Check the alarm status.
REPLUNITMEA	The alarm is triggered if the inserted circuit pack and the provisioned circuit pack differ.	<ul style="list-style-type: none"> • Use the RTRV-INV command to check the inventory. • Use the RTRV-EQPT command to check the provisioning. • Replace the circuit pack, if required. • Delete and re-enter the provisioning, if required.
REPLUNITMEA (PEC)	This alarm is triggered if there is a mismatch between the expansion shelf PEC that is provisioned for the system and the actual shelf PEC that is connected to the system.	<ul style="list-style-type: none"> • Replace the shelf with one that has the correct PEC.
REPLUNITMEA (Shelf)	This alarm indicates that an expansion shelf is either physically configured with the wrong number of slots or the expansion shelf is provisioned incorrectly.	<ul style="list-style-type: none"> • Use the RTRV-INV command to determine the shelf configuration that is provisioned. • Determine whether the provisioned shelf configuration or the physical expansion shelf configuration is correct. • Connect the expansion shelf configuration. • Change the provisioned parameters for the expansion shelf configuration, if necessary.

Table 4-3 Troubleshooting Alarms Raised During Operations (Continued)

Alarm Code	Indicates	Action
REPLUNITMEA (SFP or XFP)	There is an SFP or XFP transceiver mismatch in the BTI 7000 Series. There is a mismatch between the transceiver provisioned for a circuit pack and the physical SFP or XFP transceiver that is inserted in the port.	<ul style="list-style-type: none"> • Determine what transceiver is listed in the system inventory. • Determine if the provisioned transceiver matches the physical transceiver. • Change the provisioned parameters for the transceiver. • Replace the SFP or XFP transceiver.
REPLUNITMISS	<p>The alarm indicates one of the following problems:</p> <ul style="list-style-type: none"> - The provisioned circuit pack is missing from its associated slot. - A filler circuit pack is missing from an un-provisioned single-width or double-width slot. - A single-width circuit pack is provisioned in a double-width slot. 	<ul style="list-style-type: none"> • Insert the correct circuit pack or filler circuit pack.
REPLUNITMISS (Expansion Shelf)	The alarm indicates that an expansion shelf is missing.	<ul style="list-style-type: none"> • Reconnect the missing expansion shelf to the BTI 7000 Series
REPLUNITMISS (SFP or XFP)	A transceiver is missing from its associated port in a circuit pack.	<ul style="list-style-type: none"> • Insert the missing transceiver.
REPLUNITUNK	<p>This alarm indicates one of the following problems:</p> <ul style="list-style-type: none"> - the circuit pack is not supported by the current system software - two single-width circuit packs are in a double-width slot - the circuit pack is not seated properly. 	<ul style="list-style-type: none"> • Use the RTRV-VERSION, RTRV-NETTYPE, or RTRV-SYS-RELNUM command to check the software release. • Use the RTRV-INV command to check the PEC. • Check the <i>Product Description</i> for supported hardware. • Reseat the circuit pack. • Upgrade the system software, if required. • Replace the circuit pack, if required.

Table 4-3 Troubleshooting Alarms Raised During Operations (Continued)

Alarm Code	Indicates	Action
REPLUNITUNK (Shelf Unknown)	<p>This alarm occurs because the shelf is unknown to the system.</p> <p>To clear this alarm, connect an appropriate shelf to its associated SCP.</p>	<ul style="list-style-type: none"> • Check for a missing center support between slots 5 and 6. • Replace the center support, if necessary. • Re-initialize the SCP circuit pack. • Check the alarm state. • Retrieve the software load version. • Retrieve the circuit pack version. • Determine whether the software load supports the circuit pack version. • Replace the circuit pack with the correct version of circuit pack.
REPLUNITUNK (SFP or XFP)	<p>The transceiver type is unknown to the system. This alarm occurs because the transceiver attributes cannot be adequately discerned.</p>	<ul style="list-style-type: none"> • Replace the transceiver with a qualified transceiver.
REPLUNITUNS	<p>A replaceable unit is unsupported by the BTI 7000 Series. In this case, an SCP circuit pack is plugged into slot five of an expansion shelf. However, SCPs are only supported in slot five of the BTI 7000 Series main shelf.</p>	<ul style="list-style-type: none"> • Remove the SCP from the expansion shelf.
SCPRNCHGPROG	<p>The SCPRNCHGPROG alarm is triggered after an SCP-only upgrade is initiated with the INVK-SCP-RELNUM command.</p> <p>The SCPRNCHGPROG alarm clears after the SCP reboots.</p>	<ul style="list-style-type: none"> • None.
SYSUPGRDPROG UPGRDPROG	<p>These alarms alert the user that a software upgrade is in progress.</p>	<ul style="list-style-type: none"> • None.
USRLCKOUT	<p>The USRLCKOUT alarm is triggered after three unsuccessful login attempts to a userid.</p> <p>The USRLCKOUT alarm clears after 60 seconds.</p>	<ul style="list-style-type: none"> • None.

Table 4-3 Troubleshooting Alarms Raised During Operations (Continued)

Alarm Code	Indicates	Action
WNA	The WNA alarm is raised against the line side on circuit packs that are equipped with tuneable transponders. The alarm is raised when the measured wavelength is offset from the provisioned wavelength by ± 0.025 nm.	<ul style="list-style-type: none"> • Replace the circuit pack.

4.5 Determining protection switch faults

Protection switching provisioning rules

Transponder circuit packs

Two transceiver ports (that is, ports 1 and 3 as well as ports 2 and 4) on a transponder circuit pack can be provisioned as a protection pair, using the ENT-FFP-XCVR command:

- 1 The working and protecting transceivers must be provisioned with the same protocol.
- 2 Both the working and the protecting transceivers must be provisioned in an existing transponder protection pair.
- 3 The protecting transceiver must not be involved in any provisioned cross-connects on the circuit pack.
- 4 On a 2.5G Wavelength Regenerator, both the working and protecting transceivers must be provisioned with the same Fault Propagation Shutdown setting; that is, the FPSD parameter on *both* ports is either enabled or disabled.
- 5 On a Dual 10G and 10G Multiprotocol Transponder, only ports 1 and 3 can be provisioned as a protection pair, and only for OC192 FEC, OC192 EFEC, STM64FEC, STM64EFEC, 10GELAN FEC, or 10GELAN EFEC protocols. FPSD restriction still applies.

Muxponder circuit packs

Two line ports (that is, line 1 and line 2) on a muxponder circuit pack can be provisioned as a protection pair, using the ENT-CRS-VCG command:

- 1 Both the working and the protecting paths must be provisioned on the same muxponder circuit pack.
- 2 Path protection is entered by provisioning a 2WAYPR logical connection type.

4.5.1 User invoked protection switching

Transponder

In addition to automatic protection switches, certain transponder circuit packs support user-invoked protection switching and user-modified protection switching through the use of protection switching commands. To apply a protection switch, enter the following command syntax:

```
OPR-PROTNSW-XCVR:[<tid>]:<aid>:[CTAG]::<sc>;
```

To clear the applied protection switch, enter the following command syntax:

```
RLS-PROTNSW-XCVR:[<tid>]:<aid>:[CTAG];
```

where

aid is one of the transceivers in the provisioned protection pair. sc is for switch command and it can be either - MAN for manual - FRCD for forced - LOCKOUT for lockout

Manual protection switch

A manual protection switch is invoked to cause the working and protecting ports to switch when both ports are free of faults. The rules for performing a manual protection switch are as follows:

- A manual protection switch can only operate on the working transceiver in a protection pair.
- A manual protection switch is accepted only if no other user-invoked switch is active, and if the protecting facility is free of faults.
- When a manual protection switch is invoked, the working facility becomes the protecting facility, and the protecting facility becomes the working facility. There are no further state changes.

Forced protection switch

A forced protection switch is invoked to cause the working and protecting ports to switch even if the protecting facility is in a signal degrade state. The rules for performing a forced protection switch are as follows:

- A forced protection switch targets the facility in a protection pair from which traffic is to be switched away from.
- A forced protection switch can be used to switch the working facility in a protection pair to a facility with a signal degrade fault level. It may also be used to switch the working facility to protecting, if the protecting facility is at the same fault severity level as the working facility (that is, either in a fault-free state or a signal-degrade state).
- A forced protection switch can be used to target the protecting facility in a signal degrade or fault free state. This would not cause a protection switch, but can block an automatic protection switch back to the protecting facility that might otherwise occur.
- A forced protection switch is accepted only if there is no forced or lockout switch active on either port.
- When a forced protection switch is invoked, the target facility goes to the secondary state of FRCD.
- To release a forced protection switch, the RLS-PROTNSW-XCVR command is used, targeting the transceiver with the FRCD secondary state.
- If the working facility experiences a signal fail condition while the protecting facility is in the forced state, and is not at the signal fail fault severity level, an automatic protection switch to protecting occurs, and the forced switch on the protecting facility is automatically released.

Lockout protection switch

The lockout protection switch is invoked to cause the working or protecting ports to become protecting, and to make the facility unavailable for protection. The rules for performing a lockout protection switch are as follows:

- A lockout protection switch targets the facility in a protection pair from which traffic is to be switched away from. It can be the working or protecting facility.
- When a lockout protection switch is applied to the working facility, a protection switch immediately occurs, regardless of the state of the protecting facility.
- When a lockout protection switch is invoked, the target facility goes to a secondary state of LKDO. In this state, the facility is no longer available for protection of the working facility.
- Protecting facilities can also be locked out.
- A lockout protection switch is accepted only when no other lockout switch is active on the protection pair.
- A lockout protection switch can be cancelled only when the switch is released using the RLS-PROTNSW-XCVR command that is targeted to the transceiver in the lockout secondary state.

Muxponder

Automatic protection switches take place on an STS1 or VC4 basis and not on an OC48 or STM16 line-side port basis. In addition to automatic protection switches, the muxponder supports user-invoked protection switching and user-modified protection switching through the use of protection switching commands.

Note	In the following commands, SONET networks use the STS1 commands and SDH networks use the VC4 commands.
-------------	--

To apply a protection switch, enter one of the following commands:

- OPR-PROTNSW-STSn/STSnC:[<tid>]:<aid>:[CTAG]::<sc>;
- OPR-PROTNSW-VCn/VCnC:[<tid>]:<aid>:[CTAG]::<sc>;

To clear the applied protection switch, enter the following command syntax:

- RLS-PROTNSW-STSn/STSnC:[<tid>]:<aid>:[CTAG];
- RLS-PROTNSW-VCn/VCnC:[<tid>]:<aid>:[CTAG];

where

aid is the STS1 or VC4 path AID on line 1 or line 2 in the provisioned protection pair. sc is for switch command and it can be either - MAN for manual - FRCD for forced - LOCKOUT for lockout

Manual protection switch

A manual protection switch is invoked to cause the working and standby virtual concatenation groups (STS1 or VC4) to switch when both line ports are free of faults. The rules for performing a manual protection switch are as follows:

- A manual protection switch can only operate on the working path in a protection pair.
- A manual protection switch is accepted only if no other user-invoked switch is active, and if the standby path is free of faults.

- When a manual protection switch is invoked, the working path becomes the standby path, and the standby path becomes the working path. There are no further state changes.

Forced protection switch

A forced protection switch is invoked to cause the working and standby paths to switch even if the standby path is in a signal degrade state. The rules for performing a forced protection switch are as follows:

- A forced protection switch targets the path in a protection pair from which traffic is to be switched away from.
- A forced protection switch can be used to switch the working path in a protection pair to a path with a signal degrade fault level. It may also be used to switch the working path to standby, if the standby path is at the same fault severity level as the working path (that is, either in a fault-free state or a signal-degrade state).
- A forced protection switch can be used to target the standby path in a signal degrade or fault free state. This would not cause a protection switch, but can block an automatic protection switch back to the standby path that might otherwise occur.
- A forced protection switch is accepted only if there is no forced or lockout switch active on either STS1 or VC4.
- When a forced protection switch is invoked, the target path goes to the secondary state of FRCD.
- To release a forced protection switch, either the RLS-PROTNSW-STSn/STSnC or RLS-PROTNSW-VCn/VCnC command is used, targeting the transceiver with the FRCD secondary state.
- If the working path experiences a signal fail condition while the standby path is in the forced state, and is not at the signal fail fault severity level, an automatic protection switch to standby occurs, and the forced switch on the standby facility is automatically released.

Lockout protection switch

The lockout protection switch is invoked to cause the working or standby VCGs to become standby, and to make the facility unavailable for protection. The rules for performing a lockout protection switch are as follows:

- A lockout protection switch targets the path in a protection pair from which traffic is to be switched away from. It can be the working or standby path.
- When a lockout protection switch is invoked, the target path goes to a secondary state of LKDO. In this state, the path is no longer available for protection of the working path.
- A lockout protection switch can be cancelled only when the switch is released using either the RLS-PROTNSW-STST1 or RLS-PROTNSW-VC4 command that is targeted to the path in the lockout secondary state.

4.5.2 Troubleshooting facility protection switching faults

Use this procedure to troubleshoot facility protection switching faults:

Step 1 Check for events and TCAs

To check for events and threshold crossing alerts (TCA), enter the following syntax at the TL1 command line interface:

```
RTRV-LOG::EVT:<CTAG>;
```

Events

Events have the following meanings:

- Automatic - Automatic switch over
- Manual - Manual switch over
- Forced - Forced switch over
- Lockout - Lockout

If an SFP/XFP transceiver should not be in a forced or locked out condition, correct the problem.

Event Examples

```
[BTI7000] [REPT-EVT-XCVR] [523157-26654] [2006-04-27] [13:17:56]
"WR-1-1-1:LOCKOUTOFWK,SC,04-27,13-17-55,,,,,\\"Working XCVR locked out.
\\",,,,:", "
[BTI7000] [REPT-EVT-XCVR] [523259-26667] [2006-04-27] [13:36:04]
"WR-1-1-3:WKS WBK,TC,04-27,13-36-04,,,,,\\"Active XCVR automatically
switched to working.\\",,,,:", "
```

Threshold crossing alerts

If a TCA is recorded, look for the cause of the TCA to resolve the problem.

Step 2 Check for SFP/XFP transceiver alarms

To check for SFP/XFP transceiver alarms, enter the following syntax at the TL1 command line interface:

```
RTRV-ALM-XCVR::[<aid>]:<CTAG>;
```

For protection switching, there are two severity levels that are relevant to input facility faults:

- Signal Degrade (SD)
- Signal Fail (SF)

Signal Degrade

Signal degrade alarms occur for the following reasons:

- If the bit error rate (BER) threshold for the protocol is exceeded.
- If any of the following alarms occur: OPR-LT, OPR-HT, or TIM.

Signal Fail

Signal fail indications occur if any of the following alarms appear: LOS, LOF, LOSYNC, or LOL.

Step 3 Check the SFP/XFP transceiver state and laser status

To check the SFP/XFP transceiver state and laser status, enter the following syntax at the TL1 command line interface:

```
RTRV-XCVR::[<aid>]:<CTAG>;
```

SFP/XFP transceiver primary states

- IS - The SFP/XFP transceiver is in-service.
- OOS - The SFP/XFP transceiver is out-of-service.

SFP/XFP transceiver secondary states

- FRCD - The SFP/XFP transceiver is forced.
- LKDO - The SFP/XFP transceiver is locked out.
- STDBY - The SFP/XFP transceiver is in standby.
- WRK - The SFP/XFP transceiver is working.

If the SFP/XFP transceiver state is incorrect, change the state of the SFP/XFP transceiver.

Laser status

The laser status can be any of the following:

- IDLE - DWDM SFP/XFPs take about 90 seconds to reach a stable operating temperature. As a result, the laser status indicates IDLE even though the laser is OFF during the first 90 seconds.
- OFF - The laser is off.
- ON - The laser is on.
- AIS-L - The laser is transmitting SONET AIS.
- ODU2-AIS - The laser is transmitting OTN G.709-compliant ODU2-AIS.
- MS-AIS - The laser is transmitting SDH AIS.

If the laser status is incorrect, change the laser status.

Note	The laser status AIS-L applies to OC-192 only. The laser status MS-AIS applies to STM-64 only.
-------------	--

Step 4 Check for protection conditions

To check for protection conditions, enter any of the following commands at the TL1 command line interface:

- RTRV-COND-OCn:[TID]:[<aid>]:[CTAG];

- RTRV-COND-STMn:[TID]:[<aid>]:[CTAG];
- RTRV-COND-STSn/STSnC:[TID]:[<aid>]:[CTAG];
- RTRV-COND-VCn/VCnC:[TID]:[<aid>]:[CTAG];
- RTRV-COND-XCVR:[TID]:[<aid>]:[CTAG];

Conditions have the following meanings:

- FRCDWKSWBK - Active transceiver force switched to protecting
- FRCDWKSWPR - Active transceiver force switched to working
- LOCKOUTOFPR - Protecting transceiver locked out
- LOCKOUTOFWK - Working transceiver locked out

If an SFP/XFP transceiver should not be in a forced or locked out condition, correct the problem.

Example

```
BTI7000 06-04-27 13:18:06
M 100 COMPLD
"WR-1-1-1,XCVR:MN,LOCKOUTOFWK,NSA,04-27,13-17-55,NEND,,,\"Working
XCVR locked out.\" "
;
```

Step 5 Check the PM counts

To check for PM counts, enter any of the following commands at the TL1 command line interface:

- RTRV-PM-GE:[TID]:<aid>:[CTAG];
- RTRV-PM-OCn:[TID]:<aid>:[CTAG];
- RTRV-PM-STMn:[TID]:<aid>:[CTAG]
- RTRV-PM-STSn/STSnC:[TID]:<aid>:[CTAG]
- RTRV-PM-VCn/VCnC:[TID]:<aid>:[CTAG]
- RTRV-PM-XCVR:[TID]:<aid>:[CTAG]

Based on the PM value, determine if a problem exists and then resolve the problem.

- If the fault clears, you have successfully completed this procedure.
- If the fault does not clear, contact your next level of support.

4.5.3 Troubleshooting path protection switching faults

Use this procedure to troubleshoot muxponder path protection switching faults:

Step 1 Check for events and TCAs

To check for events and threshold crossing alerts (TCA), enter the following syntax at the TL1 command line interface:

```
RTRV-LOG::EVT:<CTAG>;
```

Events

Events have the following meanings:

- Automatic - Automatic switch over
- Manual - Manual switch over
- Forced - Forced switch over
- Lockout - Lockout

If an SFP transceiver should not be in a forced or locked out condition, correct the problem.

Event Examples

```
[BTI7000] [REPT-EVT-XCVR] [523157-26654] [2006-04-27] [13:17:56]
"WR-1-1-1:LOCKOUTOFWK,SC,04-27,13-17-55,,,,,\\"Working XCVR locked out.
\\",,,,:", "
[BTI7000] [REPT-EVT-XCVR] [523259-26667] [2006-04-27] [13:36:04]
"WR-1-1-3:WKS WBK,TC,04-27,13-36-04,,,,,\\"Active XCVR automatically
switched to working.\\",,,,:", "
```

Threshold crossing alerts

If a TCA is recorded, look for the cause of the TCA to resolve the problem.

Step 2 Check for SFP transceiver alarms

To check for SFP transceiver alarms, enter the following syntax at the TL1 command line interface:

```
RTRV-ALM-XCVR::[<aid>]:<CTAG>;
```

For protection switching, there are two severity levels that are relevant to input facility faults:

- Signal Degrade (SD)
- Signal Fail (SF)

Signal Degrade

Signal degrade alarms occur for the following reasons:

- If the bit error rate (BER) threshold for the protocol is exceeded.
- If any of the following alarms occur: OPR-LT, OPR-HT, or TIM.

Signal Fail

Signal fail indications occur if any of the following alarms appear: LOS, LOF, LOSYNC, or LOL.

Step 3 Check the SFP cross connection provisioning information

To check the SFP transceiver state and laser status, enter the following syntax at the TL1 command line interface:

```
RTRV-CRS-VCG:[TID]:[<src_aid>],[<dst_aid>]:[CTAG]:[<cct>]:
[SWMATE=<swmate>]:[DISPLAY=ACT];
```

For information about source and destination AIDs, see the *Muxponder Solutions Guide*.

Step 4 Check for protection conditions

To check for protection conditions, enter any of the following commands at the TL1 command line interface:

- RTRV-COND-GE:[TID]:[<aid>]:[CTAG];
- RTRV-COND-OCn:[TID]:[<aid>]:[CTAG];
- RTRV-COND-STMn:[TID]:[<aid>]:[CTAG];
- RTRV-COND-STSn/STSnC:[TID]:[<aid>]:[CTAG];
- RTRV-COND-VCn/VCnC:[TID]:[<aid>]:[CTAG];
- RTRV-COND-XCVR:[TID]:[<aid>]:[CTAG];

Conditions have the following meanings:

- FRCDWKSWBK - Active transceiver force switched to protecting
- FRCDWKSWPR - Active transceiver force switched to working
- LOCKOUTOFPR - Protecting transceiver locked out
- LOCKOUTOFWK - Working transceiver locked out

If an SFP transceiver should not be in a forced or locked out condition, correct the problem.

4.6 Verifying the Ethernet LAN connections

Use this procedure to verify the Ethernet LAN connections:

Note The BTI 7000 Series Ethernet ports are set to Auto-Negotiate. To ensure optimum communication between the system and your equipment, we recommend that you set your equipment to Auto-Negotiate, as well.

Step 1 Check the RJ-45 Connector

Make sure that the RJ-45 connector is in good working condition; then plug it into the LAN port.

Step 2 Check the LAN Port

Check for LED activity on the LAN port. The green LED is on when an Ethernet connection is established. The yellow LED flickers when a signal is being transmitted to the Ethernet.

Step 3 Verify that the Correct Ethernet Cable is Being Used

In the table below, the correct shielded and grounded Ethernet cable type is indicated for the various connections to the system.

	To Craft LAN	To Management LAN
From hub or switch	Crossover	Straight-through
From PC or router	Straight-through	Crossover

Note Ensure that the PC or laptop is on the same subnet as the BTI 7000 Series.

Step 4 Check the Ethernet Connections

Check the following areas for possible problems if no LEDs are on:

- a) Verify that the RJ-45 connection to the chassis is firmly made.
- b) Verify that the RJ-45 connector is in good working condition.
- c) Verify that the external Ethernet source is on and delivering a signal.

Step 5 Contact Next Level of Support

If no apparent Ethernet LAN failure can be found, contact your next level of support.

4.7 Performing loopback tests

4.7.1 Transponder loopback tests

Use this procedure to perform a loopback tests through either a small form factor package (SFP) or a 10 Gbps small form factor pluggable (XFP) transceiver in transponder circuit packs.

Step 1 Lockout a working protection port

If the port is the working port of a protection switching group, lockout the port by entering the following command syntax at the TL1 command line interface:

```
OPR-PROTNSW-XCVR:[<tid>]:<aid>:<CTAG>::<sc>;
```

where

<sc> is the switch command that is to be initiated on the line(s) or path(s) identified in the AID (that is, LOCKOUT).

Step 2 Remove the SFP or XFP Transceiver from Service

To remove the SFP or XFP transceiver from service, enter the following syntax at the TL1 command line interface:

```
RMV-XCVR:[TID]:<aid>:<CTAG>;
```

where

<aid> is the selected SFP or XFP transceiver port of a transponder circuit pack in the form:

WM-<shelf#>-<slot#>-<port#>

WR-<shelf#>-<slot#>-<port#>

WT-<shelf#>-<slot#>-<port#>

TPR-<shelf#>-<slot#>-<port#>

Step 3 Initiate the Remote Loopback Test

To initiate the remote loopback test, enter the following syntax at the TL1 command line interface:

```
OPR-LPBK-XCVR:[TID]:<aid>:<CTAG>::[<locn>],,,[<lpbktype>;]
```

where

<aid> is the selected SFP or XFP transceiver port of a transponder circuit pack in the form:

WM-<shelf#>-<slot#>-<port#>

WR-<shelf#>-<slot#>-<port#>

WT-<shelf#>-<slot#>-<port#>

TPR-<shelf#>-<slot#>-<port#>

<locn> is the location NEND.

<lpbktype> is the loopback type FACILITY

The following illustration shows the path that is established when an SFP transceiver is setup in the loopback mode.



Step 4 Send a Test Signal Through the Loopback Link

Send a test signal through the loopback link using a bit error rate test (BERT) or packet generator test to check for error or problems on the link.

- If the transmitted test signal returns without a problem, the link is functioning properly.
- If the transmitted test signal encounters errors or problems, troubleshoot what may be causing the problem.

Step 5 Release the Remote Loopback Test

To release the remote loopback test, enter the following syntax at the TL1 command line interface:

```
RLS-LPBK-XCVR:[TID]:<aid>:<CTAG>::[<locn>],,,[<lpbktype>];
```

where

<aid> is the selected SFP or XFP transceiver port of a transponder circuit pack in the form:

WM-<shelf#>-<slot#>-<port#>

WR-<shelf#>-<slot#>-<port#>

WT-<shelf#>-<slot#>-<port#>

TPR-<shelf#>-<slot#>-<port#>

<locn> is the location NEND

<lpbktype> is the loopback type FACILITY

Step 6 Restore the SFP or XFP Transceiver to Service

```
RST-XCVR:[TID]:<aid>:<CTAG>;
```

where

<aid> is the selected SFP transceiver port of a transponder circuit pack in the form:

WM-<shelf#>-<slot#>-<port#>

WR-<shelf#>-<slot#>-<port#>

WT-<shelf#>-<slot#>-<port#>

TPR-<shelf#>-<slot#>-<port#>

Step 7 Release the lockout on the port

If the port was locked out, release the lockout by entering the following command syntax at the TL1 command line interface:

```
RLS-PROTNSW-XCVR:[<tid>]:<aid>:<CTAG>;
```

You have successfully completed this procedure.

4.7.2 Muxponder loopback tests

Use this procedure to perform a loopback test through a small form factor package (SFP) transceiver and virtual concatenation group (VCG) in a muxponder circuit pack.

Step 1 Lockout a standby path

If the port is the working path of a protection switching group, lockout the VCG by entering one of the following commands at the TL1 command line interface:

Note	In the following commands, SONET networks use the STS1 command format and SDH networks use the VC4 command format.
-------------	--

- OPR-PROTNSW-STSn/STSnC:[<tid>]:<aid>:<CTAG>::<sc>;
- OPR-PROTNSW-VCn/VCnC:[<tid>]:<aid>:<CTAG>::<sc>;

where

<sc> is the switch command that is to be initiated on the line(s) or path(s) identified in the AID (that is, LOCKOUT).

Step 2 Remove the SFP Transceiver from Service

To remove the SFP transceiver from service, enter one of the following commands at the TL1 command line interface:

- RMV-BRI:[TID]:<aid>:<CTAG>;
- RMV-FC:[TID]:<aid>:<CTAG>;
- RMV-GE:[TID]:<aid>:<CTAG>;
- RMV-OCn:[TID]:<aid>:<CTAG>;
- RMV-STMn:[TID]:<aid>:<CTAG>;

where

<aid> is the selected SFP transceiver port of a muxponder circuit pack in the form:

MXP-<shelf#>-<slot#>-<port#>

Step 3 Initiate the Loopback Test

Caution You may see alarms or conditions raised at the far end depending on your network configuration.

To initiate the loopback test, enter the following syntax at the TL1 command line interface:

- OPR-LPBK-BRI:[TID]:<aid>:[<CTAG>]:[<locn>],[<lpbktype>];
- OPR-LPBK-FC:[TID]:<aid>:[<CTAG>]:[<locn>],[<lpbktype>];
- OPR-LPBK-GE:[TID]:<aid>:[<CTAG>]:[<locn>],[<lpbktype>];
- OPR-LPBK-OCn:[TID]:<aid>:[<CTAG>]:[<locn>],[<lpbktype>];
- OPR-LPBK-STMn:[TID]:<aid>:[<CTAG>]:[<locn>],[<lpbktype>];

where

<aid> is the selected SFP transceiver port of a muxponder circuit pack in the form:

MXP-<shelf#>-<slot#>-<port#>

<locn> is the location NEND.

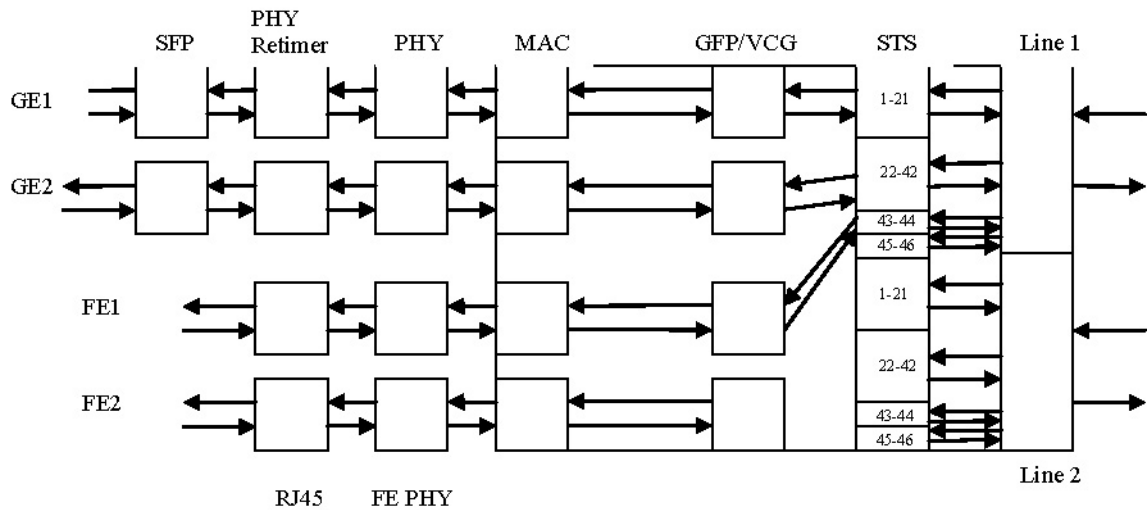
<lpbktype> is the loopback type FACILITY or TERMINAL

Note TERMINAL is only a valid selection for GE ports.

The following scenarios show the paths that are established when an SFP transceiver and VCG, if applicable, are set up in the various loopback modes.

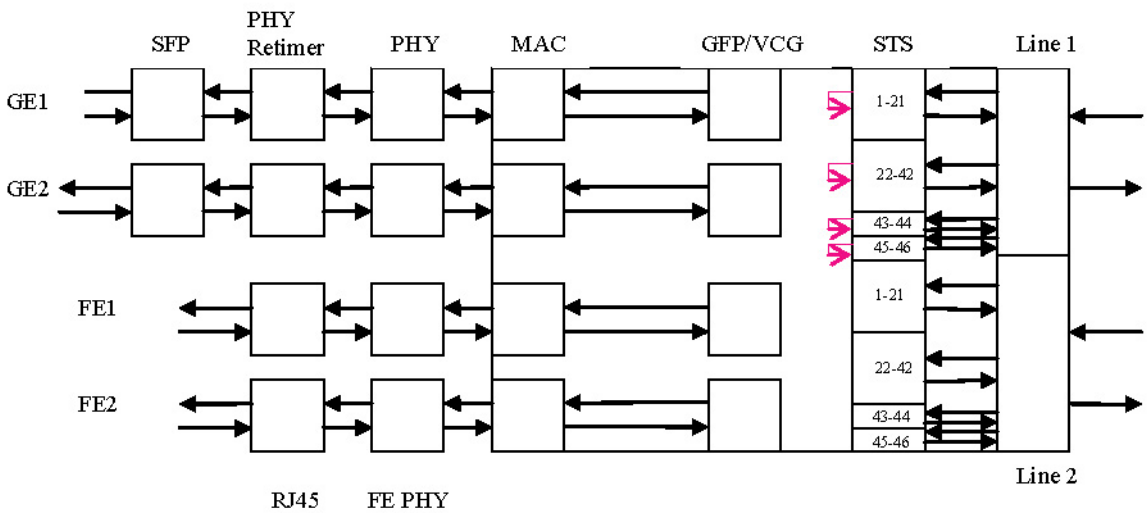
No Loopback

In the No Loopback scenario, the GE1, GE2 and FE1 ports are mapped to Line 1 without any loopback established.



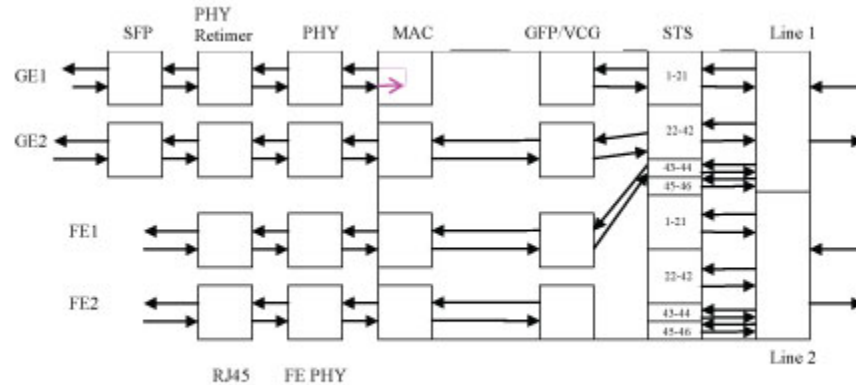
Line Facility Loopback

In the Line Facility Loopback scenario, all of the STS frames are looped back on line that is selected, in this case Line 1.



GE or FE Facility Loopback

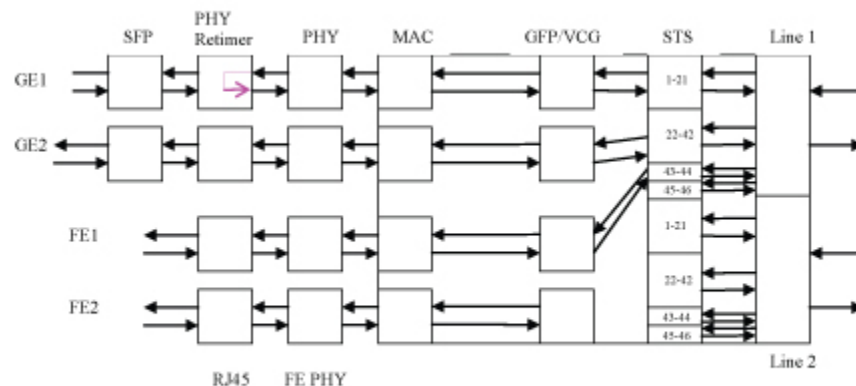
In the GE or FE Facility Loopback scenario, a GE signal, in this case GE1, is loop backed at the machine address code (MAC) interface on GE1. The fast Ethernet (FE1 and FE2) facilities can also be loop backed at the MAC interface.



GE Terminal Loopback

In the GE Terminal Loopback scenario, a line signal, in this case Line 1, is loop backed at the physical (PHY) layer of the SFP transceiver. The signal is returned on Line 1.

Note: This scenario does not apply to FE facilities.



Step 4 Send a Test Signal Through the Loopback Link

Send a test signal through the loopback link using a bit error rate test (BERT) or packet generator test to check for error or problems on the link.

- If the transmitted test signal returns without a problem, the link is functioning properly.
- If the transmitted test signal encounters errors or problems, troubleshoot what may be causing the problem.

Step 5 Release the Loopback Test

To release the loopback test configuration, enter one of the following commands at the TL1 command line interface:

- RLS-LPBK-BRI:[TID]:<aid>:[<CTAG>;
- RLS-LPBK-FC:[TID]:<aid>:[<CTAG>;
- RLS-LPBK-GE:[TID]:<aid>:[<CTAG>;
- RLS-LPBK-OCn:[TID]:<aid>:[<CTAG>;
- RLS-LPBK-STMn:[TID]:<aid>:[<CTAG>;

where

<locn> is the location NEND.

<lpbktype> is the loopback type FACILITY or TERMINAL

Note TERMINAL is only a valid selection for GE ports.

Step 6 Restore the SFP Transceiver to Service

To restore the SFP transceiver to service, enter the following at the TL1 command line interface:

- RST--BRI:[TID]:<aid>:[CTAG]::::[<pst>],[<sst>;
- RST--FC:<aid>:[CTAG]::::[<pst>],[<sst>;
- RST-GE:[TID]:<aid>:[CTAG]::::[<pst>],[<sst>;
- RST-OCn:[TID]:<aid>:[CTAG]::::[<pst>],[<sst>;
- RST-STMn:[TID]:<aid>:[CTAG]::::[<pst>],[<sst>;

You have successfully completed this procedure.

Step 7 Release the lockout on the port

If the port was locked out, release the lockout by entering one of the following commands at the TL1 command line interface:

Note In the following commands, SONET networks use the STS1 command format and SDH networks use the VC4 command format.

- RLS-PROTNSW-STSn/STSnC:[<tid>]:<aid>:[<CTAG>;
- RLS-PROTNSW-VCn/VCnC:[<tid>]:<aid>:[<CTAG>;

You have successfully completed this procedure.

4.8 Troubleshooting muxponder/transponder AIS conditions

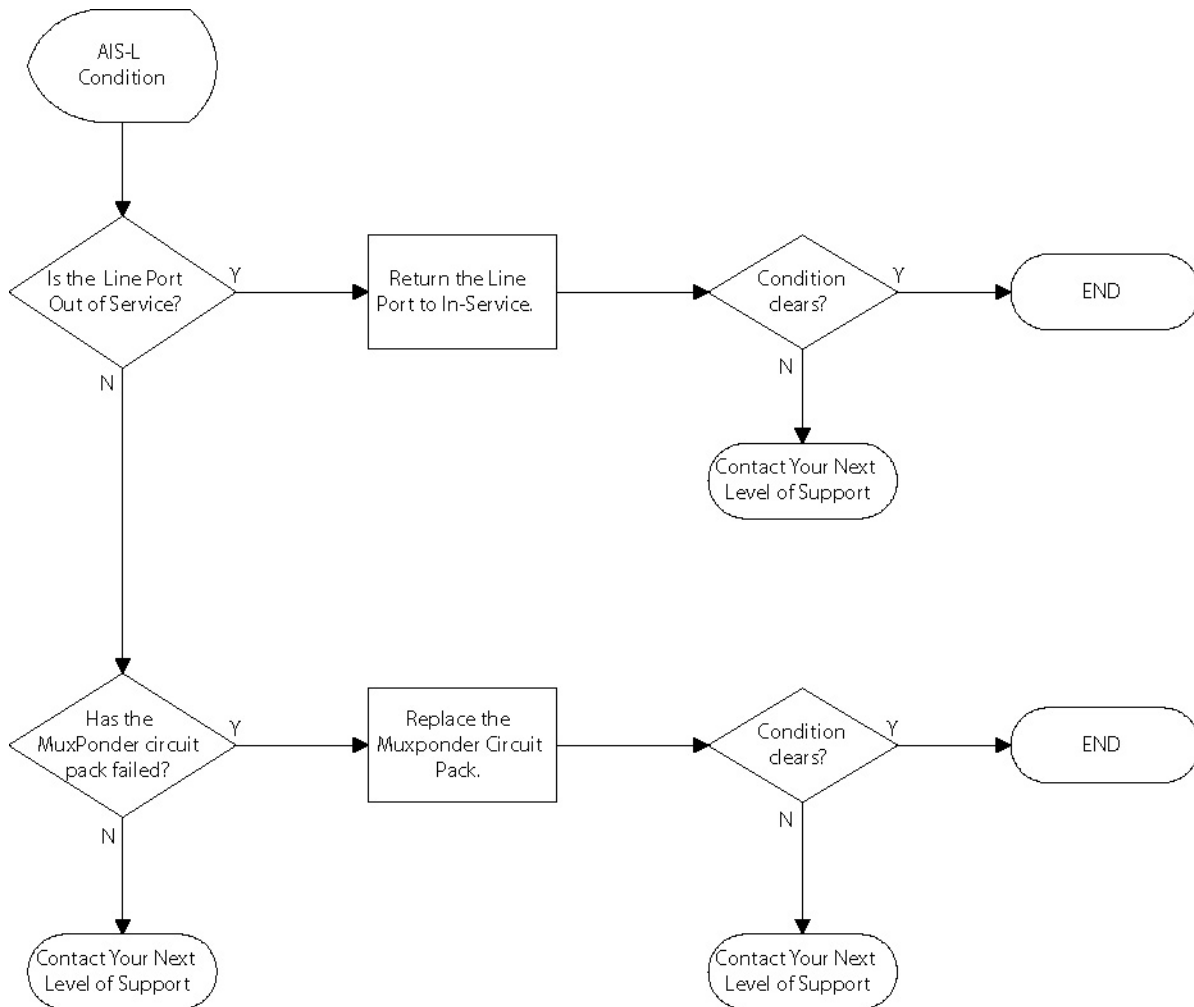
AIS-L condition: Problem Description

This condition indicates that a SONET/SDH line port on a circuit pack is receiving an AIS-L signal on the far end. It either means that the circuit pack has failed or the line port is out of service.

Flow chart

The following figure shows a flow chart of the activities that can be part of this condition clearing procedure. Use the flow chart to understand the context of the condition. Use the procedure to clear the condition.

Figure 4-2 Clearing an AIS-L condition



Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)

TPR-(1,11,21,31)-(1-20)-(1,3)

Note

Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.

**Caution**

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

4.8.1 Clearing an AIS-L condition

Use this procedure to clear an AIS-L condition.

Step 1 Check if the line port is out of service

To determine whether the muxponder line port is out of service, enter one of the following commands at the TL1 command line interface:

- RTRV-OC48:[TID]:[<aid>]:[CTAG];
- RTRV-OC192:[TID]:[<aid>]:[CTAG];
- RTRV-STM16:[TID]:<aid>:CTAG;
- RTRV-STM64:[TID]:<aid>:CTAG;
- RTRV-XCVR:[TID]:<aid>:CTAG;

where

<aid> is in the format MXP-(1,11,21,31)-(1-20)-(L1,L2) or TPR-(1,11,21,31)-(1-20)-(1,3)

- If the line port is in service, got to step 3.
- if the line port is not in service go to the next step.

Step 2 Return the line port to service

To return the line port to service, enter one of the following commands at the TL1 command line interface:

- RST-OC48:[TID]:<aid>:[CTAG]::[<pst>],[<sst>];
- RST-OC192:[TID]:<aid>:[CTAG]::[<pst>],[<sst>];
- RST-STM16:[TID]:<aid>:[CTAG]::[<pst>],[<sst>];
- RST-STM64:[TID]:<aid>:[CTAG]::[<pst>],[<sst>;];
- RST-XCVR:[TID]:<aid>:[CTAG]::[<pst>],[<sst>];

where

<aid> is in the format MXP-(1,11,21,31)-(1-20)-(L1,L2) or TPR-(1,11,21,31)-(1-20)-(1,3)

- If the line port returns to service and the condition clears, you have successfully completed this procedure.
- If the line port does not return to service, contact your next level of support.

Step 3 Check if the circuit pack has failed

To determine whether the circuit pack has failed, enter one of the following at the TL1 command line interface:

- RTRV-ALM-OC48:[TID]:[<aid>]:[CTAG]:[<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>;
- RTRV-ALM-OC192:[TID]:[<aid>]:[CTAG]:[<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>;
- RTRV-ALM-STM16:[TID]:[<aid>]:[CTAG]:[<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>;
- RTRV-ALM-STM64:[TID]:[<aid>]:[CTAG]:[<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>;
- RTRV-ALM-XCVR:[TID]:[<aid>]:[CTAG]:[<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>;

where

<aid> is in the format MXP-(1,11,21,31)-(1-20)-(L1,L2) or TPR-(1,11,21,31)-(1-20)-(1,3)

- If the circuit pack has failed, replace the circuit pack using a procedure in [Chapter 3, “Replacing modules”](#) in this document and then go to step 4 of this procedure.
- If the circuit pack has not failed, contact your next level of support.

Step 4 Check if the condition clears

Once the circuit pack is replaced, check if the condition clears:

- If the condition clears, you have successfully completed this procedure.
- If the condition does not clear, contact your next level of support.

4.8.2 AIS-P condition

Problem Description

This condition indicates that an SONET/SDH line port on a muxponder circuit pack is experiencing one or more of the following:

- a missing incoming signal
- an error at the far end
- a circuit pack failure at the far end
- an LOP condition at a pass through node

Affected AIDs

MXP-(1,11,21,31)-(1-20)-(L1,L2)-(1-48)

Note	Invisible laser radiation can be emitted from the aperture ports of various optical circuit packs when no fiber cable is connected. Avoid exposure and do not stare into open apertures to avoid permanent eye damage.
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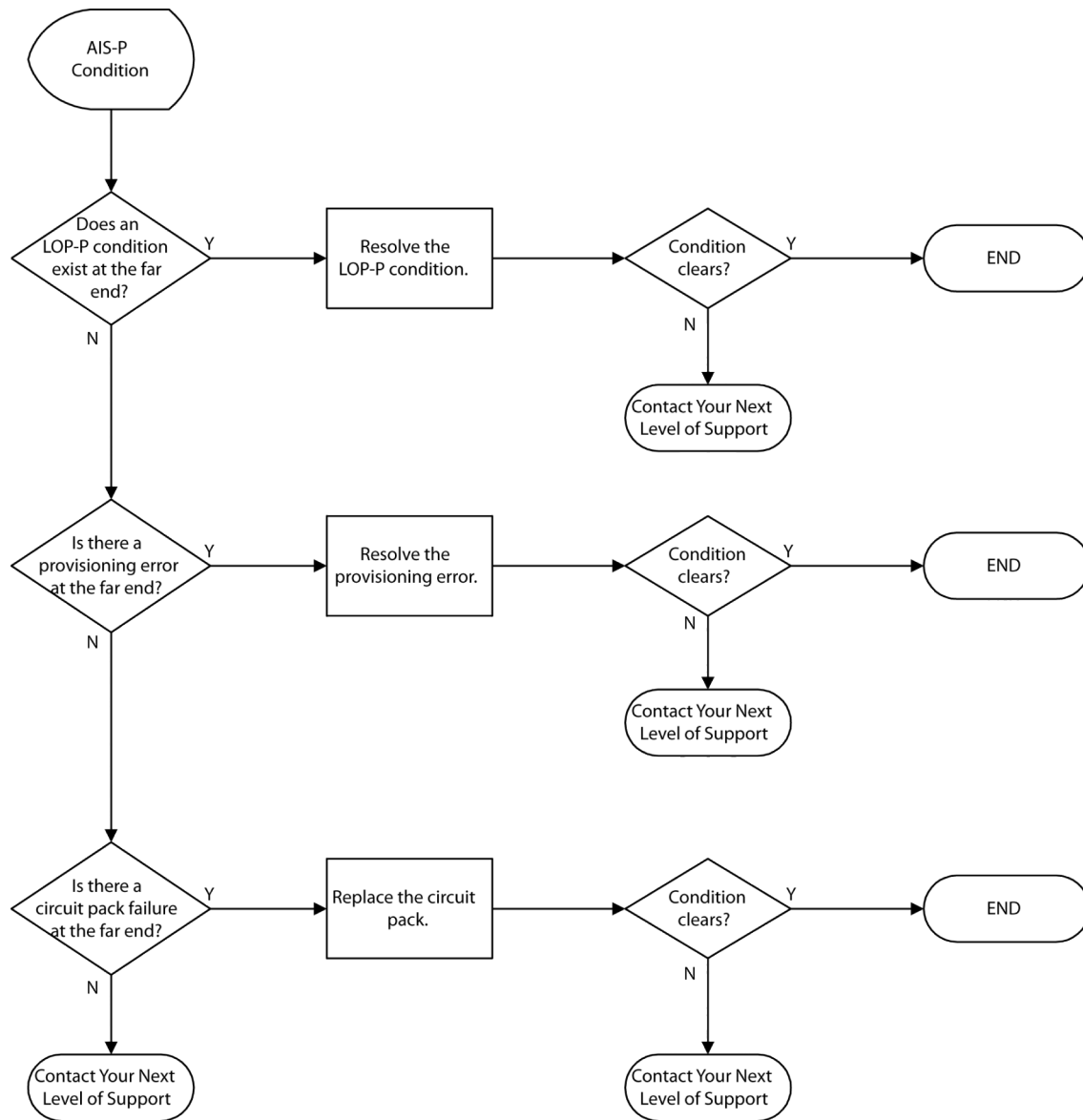
Caution

Use an ESD wrist strap whenever you open the equipment, particularly when you are handling circuit packs as well as SFP and XFP transceivers. To work properly, the wrist strap must make good contact at both ends (that is, with your skin at one end and with the chassis at the other).

Flow chart

The following figure shows a flow chart of the activities that can be part of this condition clearing procedure. Use the flow chart to understand the context of the condition. Use the appropriate procedure to clear the condition.

Figure 4-3 Clearing an AIS-P condition



4.8.3 Clearing an AIS-P condition

Use this procedure to clear an AIS-P condition.

Step 1 Check for an LOP-P condition at the far end

Determine if an LOP-P condition exists at the far end and if an LOP-P condition exists resolve the condition:

- If the AIS-P condition clears, you have successfully completed this procedure.
- If the AIS-P condition does not clear, contact your next level of support.

Step 2 Check for a provisioning error at the far end

Determine if a provisioning error exists at the far end and if a provisioning error exists resolve it:

- If the AIS-P condition clears, you have successfully completed this procedure.
- If the AIS-P condition does not clear, contact your next level of support.

Step 3 Check if a muxponder circuit has failed

Determine if a muxponder circuit has failed:

- If the AIS-P condition clears, you have successfully completed this procedure.
- If the AIS-P condition does not clear, contact your next level of support.

Step 4 Check if the AIS-P condition has cleared

Determine if the AIS-P condition has cleared on the Muxponder circuit pack by entering one of the following commands at the TL1 command line interface:

- RTRV-ALM-STSn/STSnC:[TID]:[<aid>]:[CTAG]:[<ntfncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>];
- RTRV-ALM-VCn/VCnC:[TID]:[<aid>]:[CTAG]:[<ntfncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>],[<tmper>];
- If the AIS-P condition clears, you have successfully completed this procedure.
- If the AIS-P condition does not clear, contact your next level of support.

4.9 Overriding optical back reflection safety alarms

When the optical back reflection of an amplifier exceeds -4 dBm (that is, 4% of 10 dBm), the optical back reflection high threshold safety (OBR-HTS) alarm is triggered and the amplifier transitions to the EYESAFE mode by shutting down the first pump laser.

Note	The OBR-HTS alarm does not apply to the Optical Pre-Amplifier (OPA) or the Single-channel/Sub-band Pre-Amplifier (SPA).
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To troubleshoot the cause of the excessive optical back reflection, an optical back reflection high threshold override feature is available through the TL1 command OPR-OBR-HTSO. This command overrides the OBR-HTS alarm by powering up the first pump laser and re-establishing the preset output power of the amplifier.

Using the OPR-OBR-HTSO command, it is possible to measure the output power of the amplifier using a hand-held power meter.

Look for the most likely causes of the optical back reflection, these include

- The output port is disconnected at the amplifier or at the patch panel.
- The output port is connected to a device that is causing back reflection, such as a hand-held optical power meter.
- The fibers are not connected correctly creating a gap or misalignment between the fiber ends.
- A coupler is dirty or the fibers are dirty.
- Downstream fiber is cut along its span.

For details about using the OPR-OBR-HTSO command, see the *TL1 Reference Guide*.

Additionally, the override functionality is also available through the proNX 900 Node Controller through the Provision Amplifier > Alarm Thresholds menus. For more information, users can see the *Online Help* for the proNX 900.

4.10 Troubleshooting file transfers

When performing a software upgrade, database backup, or database restore, the message “Database Load Failed” can appear. Review the following list to correct the problem and complete the file transfer successfully:

- Check that the filename is correct.
- Check that the correct IP address is entered.
- Check that the FTP server is running.
- Check that the gateway on the FTP server is correct.
- Check that the FTP server can communicate with the BTI 7000 Series by pinging the BTI 7000 Series from the FTP server.
- Check that the path is set correctly. (**Note:** Some UNIX FTP servers require the user to specify the complete directory path to the location of the file.)
- Check that the UNIX permissions are set to global read-write access.
- Check that there was no network interruptions during the system upgrade or database restore.
- If you have the Windows XP Firewall enabled, a firewall exception must be configured to allow the proNX 900’s FTP server to function. The firewall exception should be configured with the javaw executable found in the proNX 900’s Installation directory (“<installation directory>\jre\bin\javaw.exe”).

Note	If no apparent reason can be found for the file transfer failure, contact your next level of support.
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4.11 Troubleshooting proNX 900 Node Controller problems

The following sections provide recommendations to use when trying to resolve proNX 900 problems.

4.11.1 Installation problems

During the installation of the proNX 900, use the following suggestions if you encounter a problem:

- Windows may require a reboot after the installation process completes.
- Solaris requires a new console to be opened.
- Install the proNX 900 in an account with administrative privileges.
- Install the proNX 900 on a supported operating system: Windows 2003 Server, Windows XP, or Solaris 10 operating system
- Collect any error messages before contacting your next level of support.

4.11.2 Startup problems

During startup of the proNX 900, the following system messages can appear:

“Could not authenticate to host 10.1.1.124. Please check the information provided.” **means** an incorrect userid and or password was used.

“Unable to find the installation directory for the proNX 900. The proNX 900 for System Version x.y.z is not installed...” **means** the proNX 900 software version does not match the software running on the BTI 7000 Series

“Queue Timeout” **means** there are connectivity problems.

“Unable to connect to 10.1.1.129 on port 3082.” **means** the proNX 900 does not operate on a serial port.

4.11.3 Running problems

If the alarm status is incorrect, refresh the proNX 900 Node Controller.

4.12 Troubleshooting SCP problems

4.12.1 Older SCP version

If an older SCP version is substituted for a newer SCP circuit pack, most commands are blocked until the correct version of SCP is replaced.

However, both the RTRV-NETTYPE and RTRV-VERSION commands are supported. These commands support the retrieval of the current system software release.

4.13 Troubleshooting INVK-DB-RST failures

In the event that an INVK-DB RST command fails, enter the CANC-DB-RST command and then restart the database restore procedure.



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