CISCO™

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Hot Swapping a Fan Unit on the Netcrypt Bulk Encryptor

Overview

Introduction

The Netcrypt™ Bulk Encryptor is a powerful data encryption device that you can use in your network to secure broadcast and on-demand applications in systems that use MPEG transport over User Datagram Protocol (UDP), Internet Protocol (IP), and Ethernet. A hot-swappable fan unit for the Netcrypt Bulk Encryptor provides a quick and easy way to replace the fan. When you hot swap a fan, you do not need to remove the bulk encryptor from the rack before replacing the fan. And, best of all, the hot-swappable fan unit allows you to replace a failed fan without disrupting service to your subscribers. This document provides instructions for replacing a fan unit on the bulk encryptor by either hot swapping the fan unit, or by powering off, disconnecting, and removing the bulk encryptor completely from the rack.

How to Identify the Fan that Failed

If a fan fails on the bulk encryptor, a front panel alarm light illuminates. You can pull the bulk encryptor partially out of the rack to determine which fan you need to replace. Any fan that is not spinning indicates a fan failure.

If you are using Cisco's optional DBDS Alarm Management System to monitor network elements, Netcrypt Bulk Encryptor alarms are monitored on the DNCS. If a fan fails on the bulk encryptor the Alarm Management System issues a Fan Failure alarm. The fans are numbered 1 to 5 from front to back on the Netcrypt Bulk Encryptor. If fan 1 fails, the message "Fan 1 failure" appears. If fan 2 fails, the message "Fan 2 failure" appears, and so forth.

When to Replace a Fan

Replace a failed fan as soon as you identify it has failed.

Heed Cautions and Warnings

Heed all cautions and warnings included in these instructions.

What Do You Need to Replace a Fan?

To replace a fan unit, you must have the following:

■ The ability to externally support the bulk encryptor with a cart or table or with the assistance of another person

■ A replacement fan unit (part number 4007846)

■ A #10 Torx bit

Audience

This document is written for system operators of Cisco's Digital Broadband Delivery System (DBDS), Digital Network Control System (DNCS) operators, and Cisco Services engineers.

Related Publications

Refer to *Netcrypt™ Bulk Encryptor Hardware Installation and Operation Guide* (part number 4001444) for additional procedures for diagnosing fan performance and equipment operating temperature.

Document Version

This is the third release of this guide. In addition to minor text and graphic changes, the following table provides the technical changes to this guide.

Description	See Topic
Updated the installation drawings to show only two screws. Only two screws are provided for each fan now.	*Replace the Fan* (on page 3)

Replace the Fan

Introduction

This section provides the procedure for replacing a fan unit on the Netcrypt by either hot swapping the fan unit, or by powering off, disconnecting, and removing the Netcrypt Bulk Encryptor completely from the rack.

Replacing a Fan

The Netcrypt Bulk Encryptor has five fans on the side panel. The fans are designed to be hot swappable, meaning that it is not mandatory that you power down the unit to replace a failed fan. If you have provided sufficient cable length during installation, you can slide the bulk encryptor forward in the rack to fully access the fans and allow the unit to operate uninterrupted.

> ⚠ **CAUTION:**
>
> **Avoid damage to this product. Replace a fan unit only with a replacement fan unit from Cisco. Contact your Cisco Customer Service Representative to order replacement fan units.**

To replace a fan on the bulk encryptor, complete these steps.

1   Are the cables connected to the back of the bulk encryptor panel long enough to allow you to slide the bulk encryptor forward in the rack sufficiently to access the side panel where the fans are located?

■   If **yes**, carefully remove the four screws that secure the bulk encryptor in the rack, and carefully slide the bulk encryptor forward in the rack until you can access the fan units. Then go to step 5.

> ⚠ **CAUTION:**
>
> **To avoid damaging the unit, you must be able to externally support the Netcrypt with a cart or table or with assistance when you slide the chassis forward in the rack.**

■   If **no**, go to step 2.

2   If you cannot slide the bulk encryptor forward in the rack because any of the cables in the rack are not long enough to allow access to the fan, you must power off the bulk encryptor and disconnect all cables.

3   Remove the four screws that secure the bulk encryptor in the rack. Then, remove the bulk encryptor completely from the rack to replace the fan unit.

4   After removing the bulk encryptor, place it carefully on a sturdy flat surface.

5   Identify the fan that failed on the bulk encryptor (the one that is not spinning). If you removed power from the bulk encryptor apply power from a temporary source to identify which fan failed. Then, power off again before continuing.

6 Locate the 9-pin connector for the fan you want to replace. The following diagram shows the location of the 9-pin connectors on the bulk encryptor:

Fan Module with 9-Pin Connector

Netcrypt Bulk Encryptor Side Panel

T12787
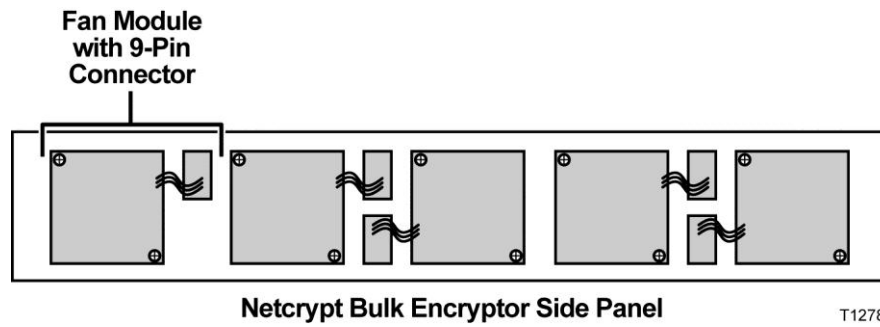
7 Carefully remove the two screws that secure the 9-pin connector to the side panel and place them in a safe location nearby.

9-Pin Connector

**9-Pin Connector Screws**

T12788
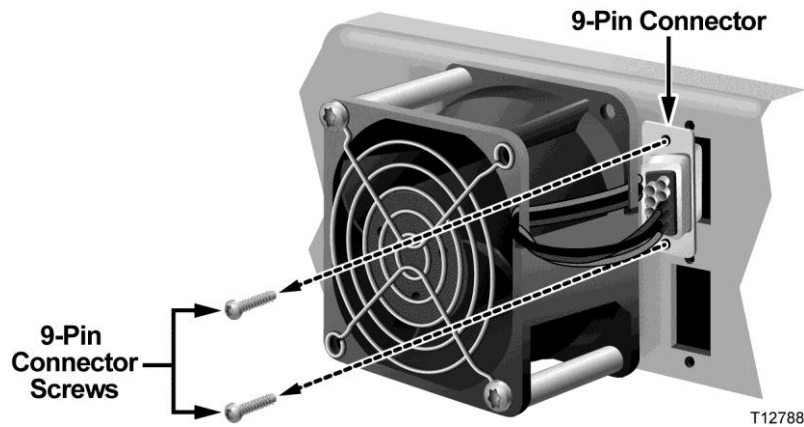
8 Carefully disconnect the 9-pin connector.

9 Carefully remove the following components from the unit and place them in a safe location nearby:

- Two torx screws
- Two sleeves
- The grill that secures the fan unit to the side panel

  Important: The sleeves are loosely positioned between the flanges on the corners of the fan and are not connected to the fan. Be careful not to drop them.
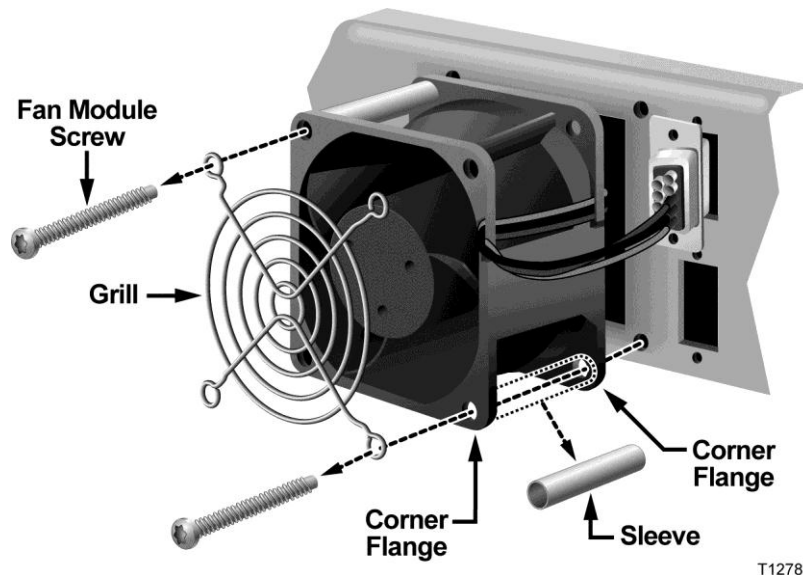
**10** Remove the non-functioning fan unit. Set this fan unit aside for safe disposal later.

⚠ **WARNING:**

Avoid electric shock hazard. Hazardous voltage can be accessed inside the unit when a fan is removed.

11 Place the new fan unit on a flat surface, such as the top of the Netcrypt unit.

12 Place the grill in the proper location on the fan.

**13** Insert the sleeves between the corner flanges.

14 Hold each sleeve in place while you carefully insert the screw through the grill, sleeve, and the back of the fan unit. Repeat this step for both screws.

Note: You may find an alternate method for reassembling the fan pieces that is more comfortable for you. Whatever method you choose, be careful that you do not drop one of the fan components.
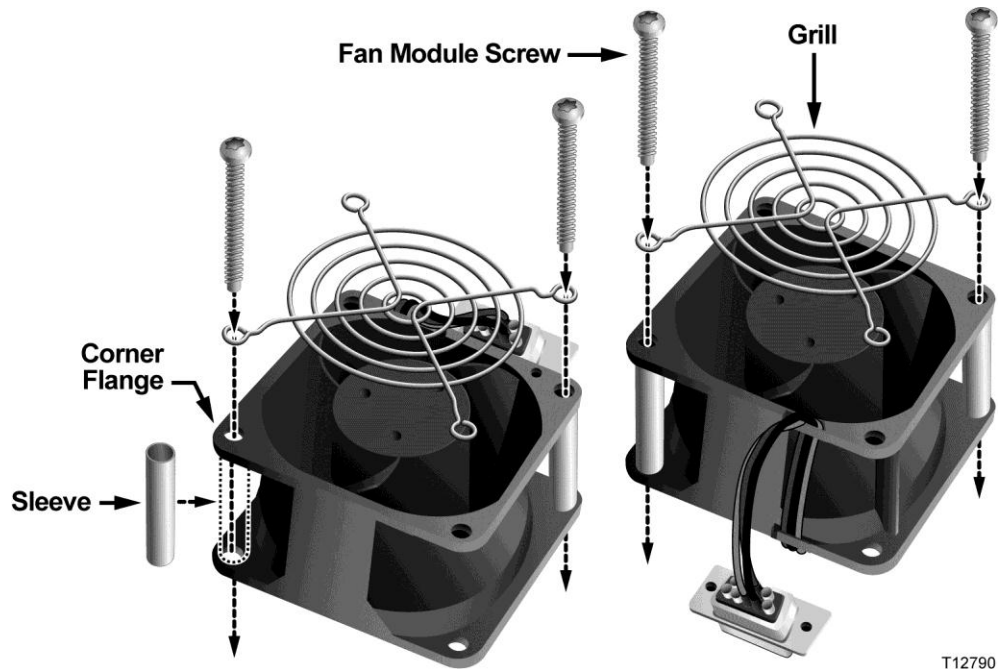
15 Carefully hold the new fan unit in place on the side panel of the bulk encryptor so that the 9-pin connector aligns with its socket. Verify that the arrows indicating air flow direction are pointing up and into the unit (see the following diagram). Make sure the arrows are not pointing toward you. Tighten both screws to secure the fan in place.
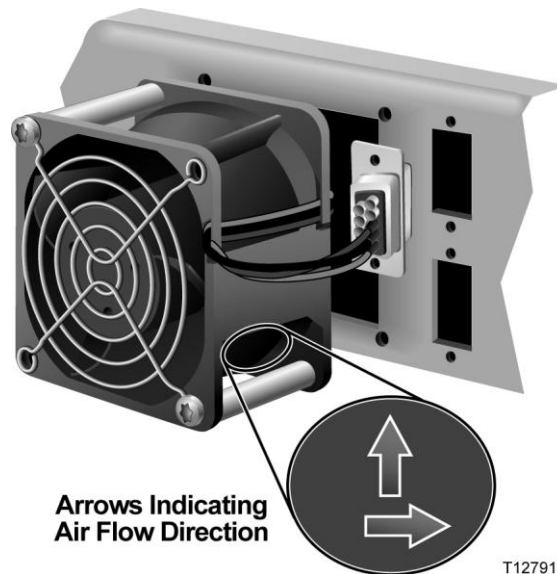
16 Carefully insert the 9-pin connector into the 9-pin socket, and then replace and carefully tighten both screws that secure the 9-pin connector to the side panel. Do not over tighten or cross thread any of the screws.

17 Did you have to remove the bulk encryptor completely from the rack?

- ■ If **yes,** go to step 18.

- ■ If **no,** replace the bulk encryptor into its original position in the rack and secure it in the rack using the original screws. Then, go to step 19.

18 Replace the bulk encryptor into its original position in the rack, secure it in the rack using the original screws, reconnect all cables, reconnect the power cord, and then power on the bulk encryptor.

19 Does the new fan unit operate properly and did the alarm(s) clear?

- ■ If **yes**, you have completed this procedure.

- ■ If **no**, contact Cisco Services for assistance.

For Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

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