

M40e and M160 Craft Interface Installation Instructions

Part No. 530-005361-01
Revision 1
21 January 2002

This document describes how to remove and replace the craft interface panel on a Juniper Networks M40e Internet router or M160 Internet router.

For additional installation and configuration information, refer to the following documentation:

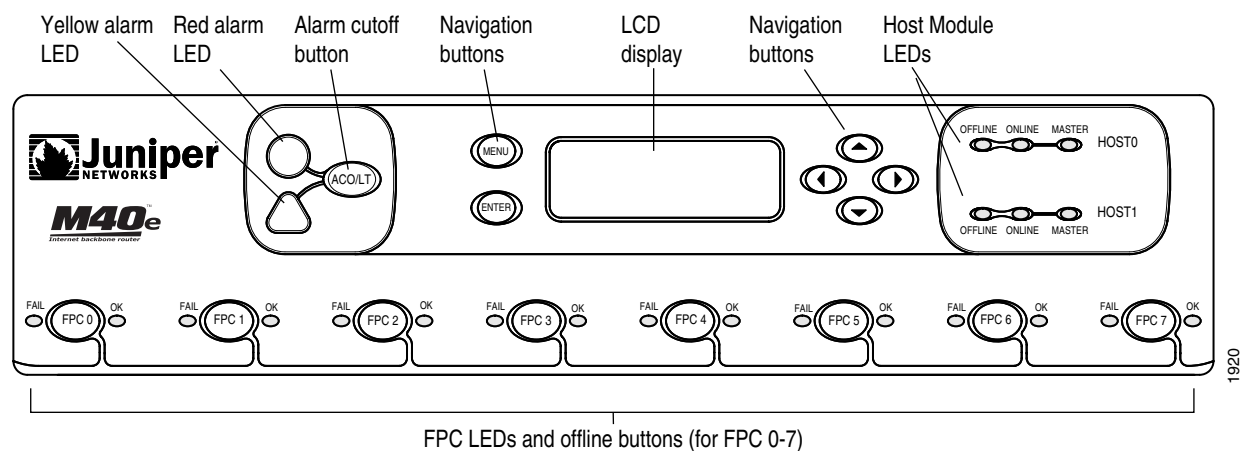
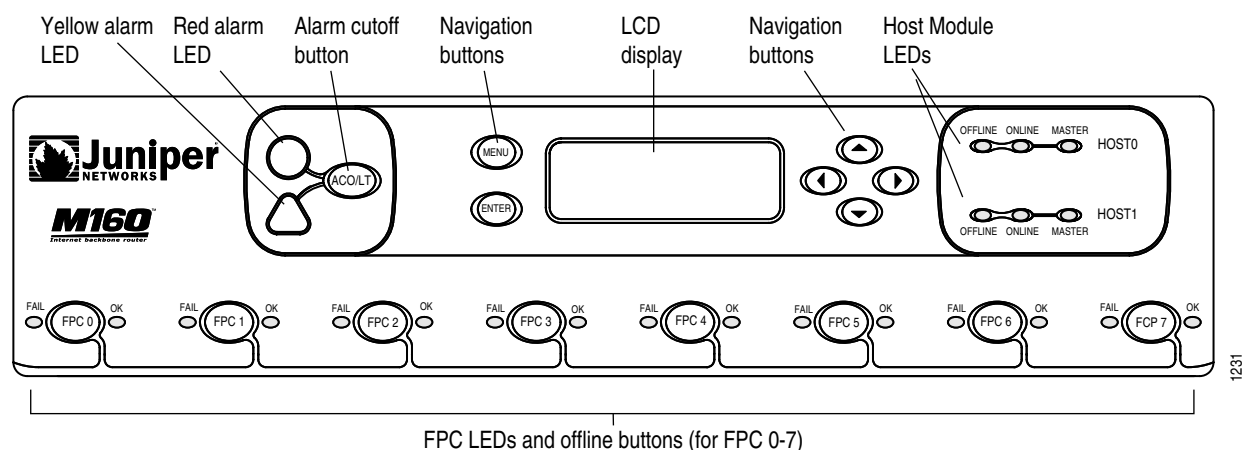
- *M40e Internet Router Hardware Guide*
- *M160 Internet Router Hardware Guide*
- *JUNOS Internet Software Operational Mode Command Reference*
- JUNOS Internet software configuration guides

Contents	Craft Interface Description	1
	Alarm LEDs and Alarm Cutoff/Lamp Test Button	2
	LCD Display and Navigation Buttons.....	3
	Host Module LEDs.....	4
	FPC LEDs and Offline Button	5
	Tools and Parts Required	5
	Replace the Craft Interface.....	5
	Remove the Front Impeller Assembly	6
	Detach the Craft Interface from the Front Impeller Assembly	6
	Attach the Craft Interface to the Front Impeller Assembly.....	7
	Install the Front Impeller Assembly.....	7
	Contact Juniper Networks.....	8

Craft Interface Description

The craft interface provides status and troubleshooting information at a glance and has buttons for deactivating alarms and preparing FPCs for removal. The craft interface is located on the front of the chassis above the FPC card cage. As shown in Figure 1 and Figure 2, the layout of elements on the craft interface is the same for the M40e and M160 routers. Only the logo and the color of some elements differs on the two routers. For information about the elements on the craft interface, see the following sections:

- Alarm LEDs and Alarm Cutoff/Lamp Test Button on page 2
- LCD Display and Navigation Buttons on page 3
- Host Module LEDs on page 4
- FPC LEDs and Offline Button on page 5

Figure 1: M40e Craft Interface**Figure 2: M160 Craft Interface**




Alarm LEDs and Alarm Cutoff/Lamp Test Button

Two large alarm LEDs are located at the upper left of the craft interface (see Figure 1 and Figure 2). The circular red LED lights to indicate a critical condition that can result in a system shutdown. The triangular yellow LED lights to indicate a less severe condition that requires monitoring or maintenance. Both LEDs can be lit simultaneously. Table 1 describes the alarm LEDs in more detail.

A condition that causes an LED to light also activates the corresponding alarm relay contact on the Connector Interface Panel (CIP). The LCD display on the craft interface reports the cause of the alarm, as described in “LCD Display Alarm Mode” on page 4.

To deactivate red and yellow alarms, press the button labeled **ACO/LT** (for “alarm cutoff/lamp test”), which is located to the right of the alarm LEDs. Deactivating an alarm turns off both LEDs and deactivates the device attached to the corresponding alarm relay contact on the CIP. However, the LCD display continues to report the alarm message until you clear the condition that caused the alarm.

Table 1: Alarm LEDs and Alarm Cutoff Button

Shape	Color	State	Description
	Red	On steadily	Critical alarm LED—Indicates a critical condition that can cause the router to stop functioning. Possible causes include component removal, failure, or overheating.
	Yellow	On steadily	Warning alarm LED—Indicates a serious but nonfatal error condition, such as a maintenance alert or a significant increase in component temperature.
	—	—	Alarm cutoff/lamp test button—Deactivates red and yellow alarms. Causes all LEDs on the craft interface to light (for testing purposes), when pressed and held.

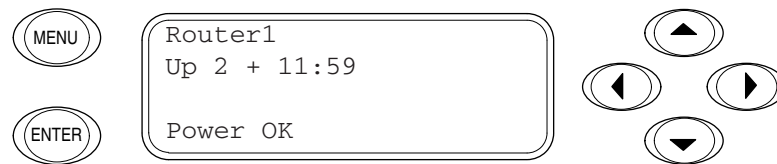
LCD Display and Navigation Buttons

A four-line LCD display is located in the upper center part of the craft interface, flanked by six navigation buttons. The LCD display operates in two modes, as described in the following sections:

- LCD Display Idle Mode on page 3
- LCD Display Alarm Mode on page 4

LCD Display Idle Mode

During normal operation, the LCD display operates in idle mode and reports current status information, as shown in Figure 3.

Figure 3: LCD Display in Idle Mode

1263

The lines in the display report the following information:

- First line—Router name.
- Second line—Length of time the router has been running, reported in the following form:

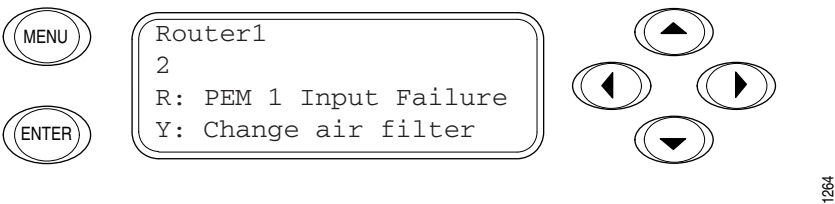
Up *days* + *hours:minutes*
- Third and fourth lines—Status messages, which rotate at two-second intervals. Some situations, such as hot-removal or hot-insertion of a system component, can interrupt the messages.

You can add a message that alternates every 2 seconds with the default status messages by issuing the **set chassis display message** command. For more information, see the *JUNOS Internet Software Operational Mode Command Reference*.

LCD Display Alarm Mode

When a red or yellow alarm occurs, the LCD screen switches to alarm mode and reports about the alarm condition, as shown in Figure 4.

Figure 4: LCD Display in Alarm Mode



The lines in the display report the following information:

- First line—Router name.
- Second line—Number of active alarms.
- Third and fourth lines—Individual alarm messages, with the most severe condition shown first. The prefix on each line indicates whether the alarm is a red (R) or yellow (Y) alarm.

Host Module LEDs

At the upper right corner of the craft interface (see Figure 1 and Figure 2) are two sets of LEDs that indicate host module status: the set labeled **HOST0** report the status of the Routing Engine in slot **RE0** and MCS in slot **MCS0**, while the set labeled **HOST1** report the status of the Routing Engine in slot **RE1** and the MCS in slot **MCS1**. Each set includes three LEDs—a green one labeled **MASTER**, another green one labeled **ONLINE**, and a red one labeled **OFFLINE**. Table 2 describes the LED states.

Table 2: States for Host Module LEDs

Label	Color	State	Description
MASTER	Green	On steadily	Host module is functioning as master.
ONLINE	Green	On steadily	Routing Engine and MCS are installed.
		Blinking	Host module is starting up.
OFFLINE	Red	On steadily	One or both host module components are not installed or have failed.

FPC LEDs and Offline Button

Each of the eight FPC slots in the router has two LEDs and an offline button located directly above it on the craft interface, as shown in Figure 1 and Figure 2. The green LED labeled **OK** and red LED labeled **FAIL** indicate FPC status, as described in Table 3.

The offline button, labeled with the FPC slot number (for example, **FPC4**), prepares the FPC for removal from the router when pressed. Press and hold the button for about 5 seconds, until the **FAIL** LED lights.

Table 3: States for FPC LEDs

Label	Color	State	Description
OK	Green	On steadily	FPC is functioning normally.
		Blinking	FPC is starting up.
FAIL	Red	On steadily	FPC has failed.

Tools and Parts Required

To replace the craft interface, you need the following tools and parts:

- Phillips (+) screwdrivers, numbers 1 and 2
- Flat-blade screwdriver, approximately 1/4 in. (6 mm)
- Electrostatic bag or antistatic mat
- ESD grounding wrist strap

Replace the Craft Interface

The craft interface is attached to the front of the front impeller assembly. If the replacement craft interface you are installing is not attached to a replacement impeller assembly, you must remove the existing craft interface from the impeller assembly before installing the replacement craft interface. Perform the procedures described in the following sections:

- Remove the Front Impeller Assembly on page 6
- Detach the Craft Interface from the Front Impeller Assembly on page 6
- Attach the Craft Interface to the Front Impeller Assembly on page 7
- Install the Front Impeller Assembly on page 7

If the replacement craft interface is attached to a replacement front impeller assembly, perform only the procedures in “Remove the Front Impeller Assembly” on page 6 and “Install the Front Impeller Assembly” on page 7.

Remove the Front Impeller Assembly

To remove the front impeller assembly, follow this procedure (see Figure 5, which shows the front impeller on an M40e router):

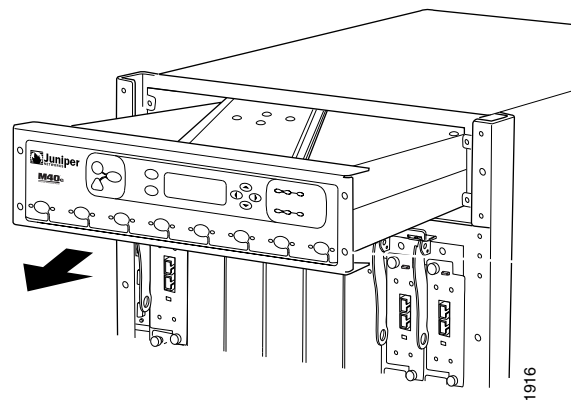
1. Attach an ESD strap to your bare wrist and connect the strap to one of the ESD points on the chassis.
2. Using a Phillips screwdriver, loosen the captive screws at the corners of the craft interface.
3. Insert a flat-blade screwdriver into the gap around the craft interface and gently pry the impeller assembly forward until you can grasp the sides of the assembly and slide it halfway out of the chassis.



If the impeller is still spinning, do not touch it with your fingers or any tool as you slide the impeller assembly out. To avoid injury, wait until the impeller stops spinning before removing the assembly.

4. When the impeller is no longer spinning, slide the assembly completely out of the chassis.
5. If the replacement craft interface is already installed on a replacement front impeller assembly, proceed to “Install the Front Impeller Assembly” on page 7. Otherwise, proceed to “Detach the Craft Interface from the Front Impeller Assembly” on page 6.

Figure 5: Remove the Front Impeller Assembly



Detach the Craft Interface from the Front Impeller Assembly

To detach the craft interface from the impeller assembly, follow this procedure:

1. If not immediately transferring the craft interface to a replacement impeller assembly, prepare an electrostatic bag or antistatic mat to receive it.
2. Attach an ESD strap to your bare wrist and connect the strap to one of the ESD points on the chassis.

3. Place the front impeller assembly on an antistatic mat on a flat, stable surface, top side down (the lettering on the craft interface is upside down).
4. Using Phillips screwdriver, loosen and remove the four screws that secure the bottom of the craft interface housing to the impeller assembly.
5. Turn the impeller assembly over so that the lettering on the craft interface is right side up.
6. Using a Phillips screwdriver, loosen and remove the four screws that secure the top of the craft interface housing to the impeller assembly.
7. Using a Phillips screwdriver, loosen and remove the screws located on the rear side of the craft interface at the sides. There are two screws on each side, located near the holes for the captive screws that secure the impeller assembly to the chassis.
8. Grasp the sides of the craft interface and pull it straight off the front of the impeller assembly. If not immediately transferring it to a replacement impeller assembly, place it in the electrostatic bag or on the antistatic mat prepared in Step 1.

Attach the Craft Interface to the Front Impeller Assembly

To attach the craft interface to the front impeller assembly, follow this procedure:

1. Attach an ESD strap to your bare wrist and connect the strap to one of the ESD points on the chassis.
2. Place the impeller assembly top side up on an antistatic mat on a flat, stable surface.
3. Orient the craft interface so that the lettering is right side up. The connector on the rear should be at the left end so that it will line up with the connector on the chassis when you reinstall the impeller assembly. Push the craft interface straight back onto the face of the impeller assembly.
4. Using a Phillips screwdriver, install round-head screws in the four holes on the rear side of the craft interface at the sides. There are two screws on each side, located near the holes for the captive screws that secure the impeller assembly to the chassis.
5. Using a Phillips screwdriver, install flat-head screws into the four holes along the top of the craft interface housing.
6. Carefully turn the impeller assembly over (top side down) and install flat-head screws into the four holes along the bottom of the craft interface housing.

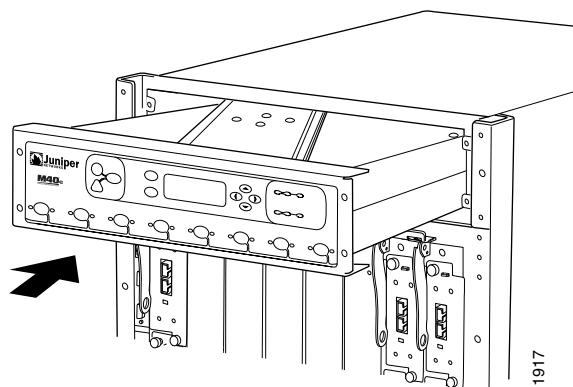
Install the Front Impeller Assembly

To install the front impeller assembly onto the chassis, follow this procedure (see Figure 6, which shows an M40e router):

1. Attach an ESD strap to your bare wrist and connect the strap to one of the ESD points on the chassis.
2. Grasp the sides of the impeller assembly and align the rear of the assembly with the guides inside the chassis.

3. Slide the impeller assembly all the way into the chassis.
4. Using a Phillips screwdriver, tighten the captive screws at the corners of the craft interface.
5. Verify that the replacement craft interface is functioning correctly by checking that the green LED labeled **OK** is lit for each installed FPC and the green LED labeled **ONLINE** is lit for each installed host module.

Figure 6: Install the Front Impeller Assembly



Contact Juniper Networks

For technical support, contact Juniper Networks at support@juniper.net. If you are reporting a software problem, please issue the following command from the CLI before contacting support:

```
user@host> request support information | save filename
```

For documentation issues, contact Juniper Networks at tech-doc@juniper.net.

To provide a core file to Juniper Networks for analysis, **gzip** the file, rename the file to include your company name, copy it to [ftp.juniper.net:pub/incoming](ftp://ftp.juniper.net/pub/incoming), and then send the filename, along with software version information (the output of the **show version** command) and the configuration, to support@juniper.net.

Juniper Networks is a registered trademark of Juniper Networks, Inc. Internet Processor, Internet Processor II, JUNOS, JUNOScript, M5, M10, M20, M40, M40e, and M160 are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks may be the property of their respective owners. All specifications are subject to change without notice.

Copyright © 2002, Juniper Networks, Inc.
All rights reserved. Printed in USA.