

Instructions



050-3695-00

**F-Connector Replacement for 8VSB Interface
MTM400 MPEG Transport Stream Monitor &
MTS400 Series MPEG Test Systems**

075-0975-00

Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

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- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Use only the power cord specified for this product and certified for the country of use.

Connect and Disconnect Properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Ground the Product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Power Disconnect. The power cord disconnects the product from the power source. Do not block the power cord; it must remain accessible to the user at all times.

Replace Batteries Properly. Replace batteries only with the specified type and rating.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Use Proper Fuse. Use only the fuse type and rating specified for this product.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Provide Proper Ventilation. Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Terms in this Manual

These terms may appear in this manual:



WARNING. *Warning statements identify conditions or practices that could result in injury or loss of life.*



CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Symbols and Terms on the Product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.

The following symbol(s) may appear on the product:



Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, switch off the instrument power, then disconnect the power cord from the mains power.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

Kit Description

This kit provides parts and instructions for replacing the F-connector on an 8VSB interface card for a MTM400 MPEG Transport Stream Monitor or a MTS400 Series MPEG Test system. The replacement F-connector has a longer threaded section to ensure a more secure cable connection.

There are separate replacement instructions for the MTM400 monitor and the MTS400 Series test system. Use the appropriate instructions for the type of instrument you are servicing.

This document supports Tektronix modification: ECR31519.

Products

MTM400 VS All instruments
MTS400 VS All instruments
MTS430 VS All instruments

Kit Parts List

Quantity	Part number	Description
1 EA	103-0458-00	ADAPTER, CONN; F FEMALE TO QUICK DISCONNECT MALE ADAPTER
1 EA	075-0975-00	KIT INSTRUCTION; F-CONNECTOR REPLACEMENT, 8VSB INTERFACE; 050-3695-00

Replacement Instructions - MTM400 Monitor

These instructions are for personnel who are familiar with servicing the MTM400 monitor. If you need further details for disassembling or reassembling the instrument, contact your nearest Tektronix Service Center or Tektronix Factory Service for assistance.



CAUTION. To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.

Only qualified personnel should perform this procedure. Read the General Safety Summary and the Service Safety Summary located at the beginning of these instructions before performing the following procedure.

Minimum Tool and Equipment List

Required tools and equipment	Part number
Anti-static wrist strap	NA
Screwdriver with T-10, T-15, and T-20 TORX tips	NA
Wrench, 7/16 inch	NA

Replacement Procedure

Perform the following steps to replace the F-connector on the 8VSB interface card in your MTM400 monitor.

Preparation

If necessary, disconnect any signal and power cables from the instrument, remove the instrument from the instrument rack, and then place the instrument on a static-free workbench.



WARNING. To prevent serious injury or death from electrical shock, do not operate the instrument with the cover or panels removed. Disconnect power from the instrument before removing the covers or panels.

Remove the Instrument Cover

1. Remove the 21 retaining screws (see Figure 1) and lift the cover clear of the instrument.

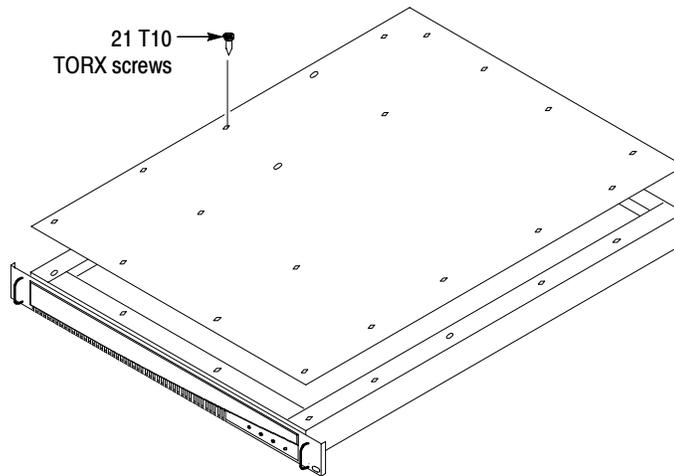


Figure 1: Removing the instrument cover

Remove the 8VSB Interface Card

2. Locate the 8VSB interface card in your instrument (see Figure 2). The interface card is mounted on the right side of the instrument as viewed from the rear.
3. Remove the cables connected to the interface card (see Figure 2 and Table 1):
 - a. Disconnect the ribbon cable from the connector labeled J14 on the interface card.
 - b. Disconnect the eight-wire power cable from the connector labeled JR1 on the interface card.
4. Remove the six retaining screws from the interface card and remove the three retaining screws from the rear panel (see Figure 3).

Table 1: Interface card connectors

Interface card connection	Cable type	Connects to location	Function
JR1	Eight wires	J7 on the Power Distribution card	Power
J14	Ribbon	J750 on the TS Processor card	Data (serializer)

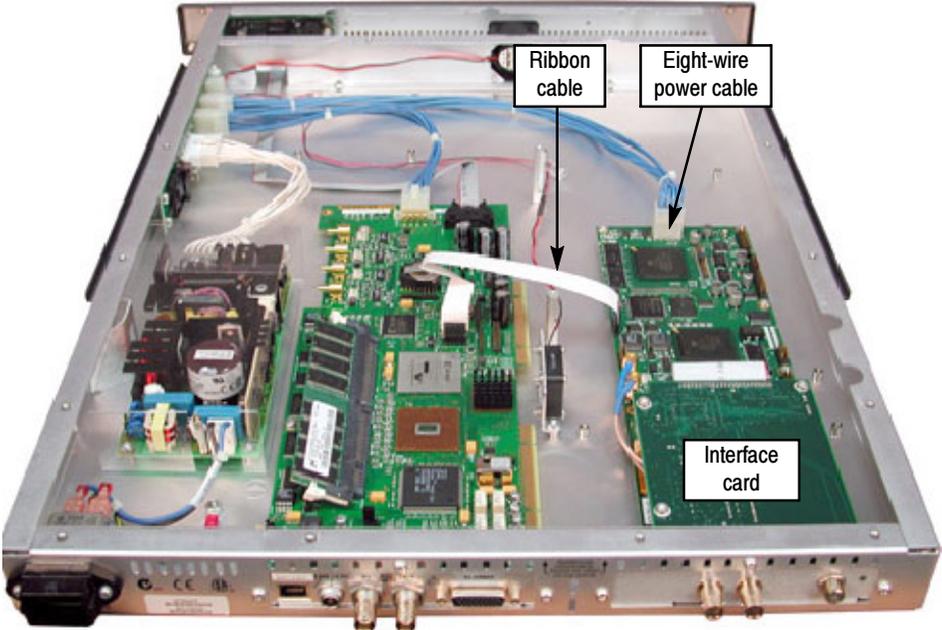


Figure 2: 8VSB interface card location

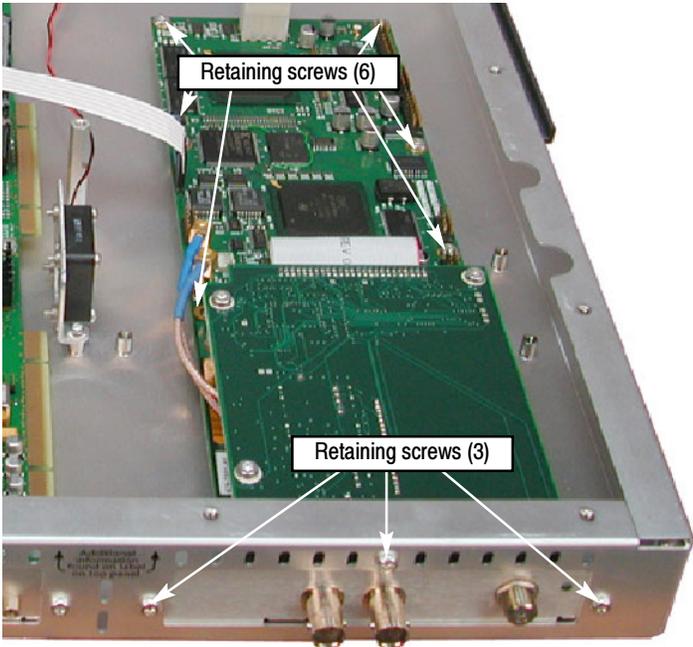


Figure 3: Interface card retaining screw locations

5. Lift the interface card clear of the instrument and place the card on a static-free work surface.



CAUTION. *To prevent static damage to the removed interface card, be sure to work on it only in a static-free environment. Failure to properly protect the interface card might result in the card needing repair before it will operate properly when reinstalled.*

Replace the F-Connector

6. Remove the three retaining screws from the top circuit board of the interface card (see Figure 4).

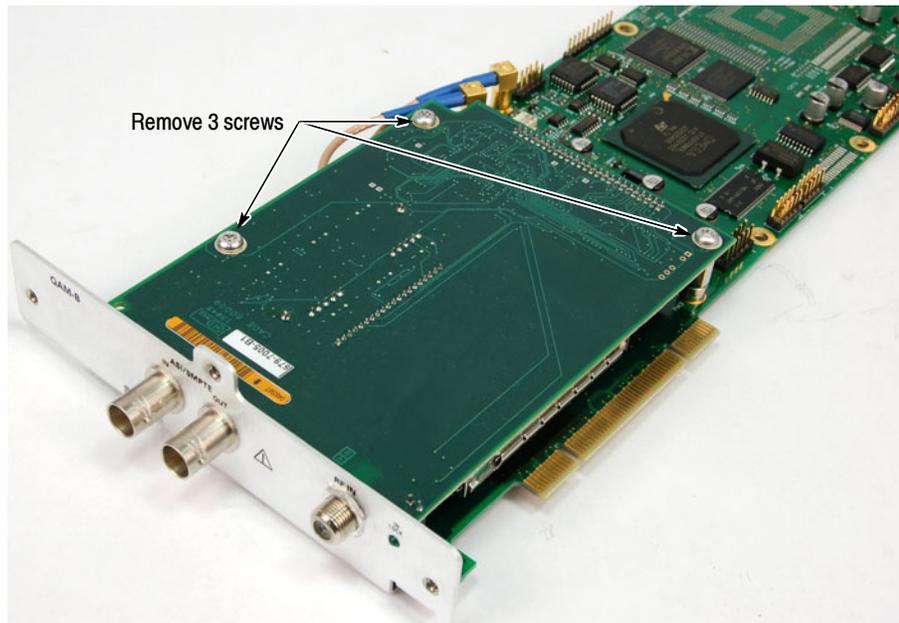


Figure 4: Top circuit board retaining screw locations

7. Grasp the rear panel on the interface card, and then slide the top circuit board away from the rear panel until the F-connector is disengaged from the circuit board (see Figure 5).
8. Use a 7/16 inch wrench to remove the retaining nut from the F-connector (see Figure 6), and then remove the F-connector from the rear panel.
9. Install the replacement F-connector supplied with this kit in the same rear-panel location, and then use the wrench to tighten the retaining nut.

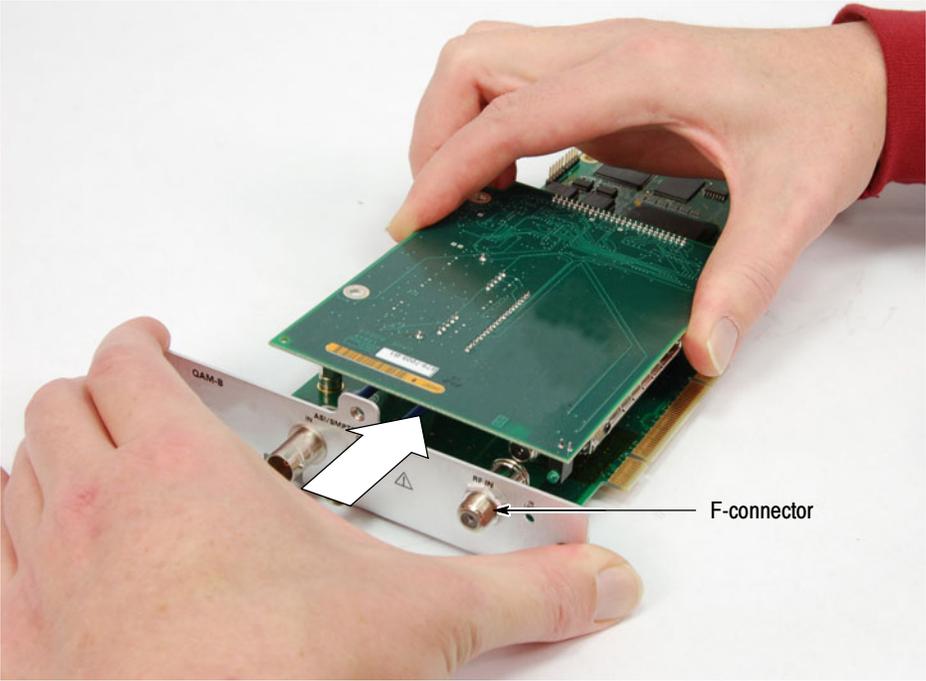


Figure 5: Disengaging the F-connector from the top circuit board

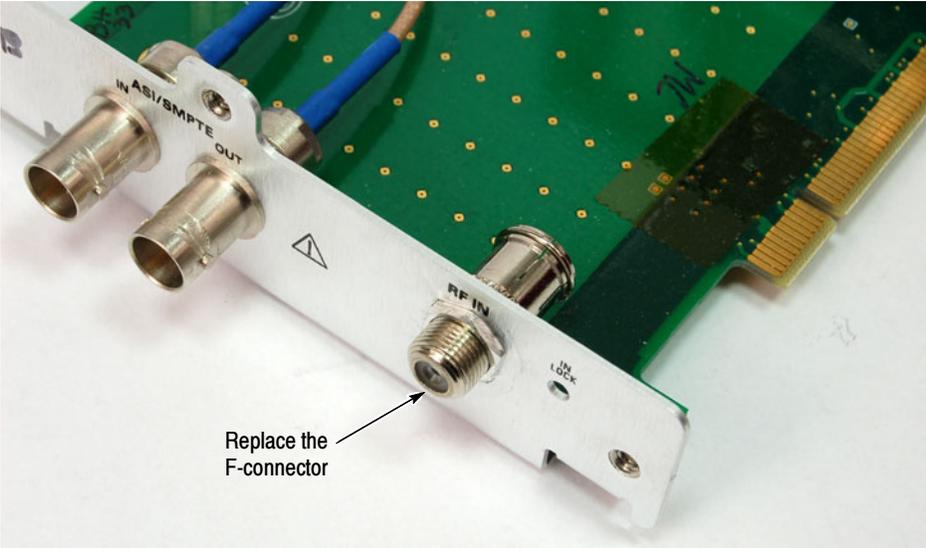


Figure 6: Replacing the F-connector

10. Grasp the rear panel on the interface card, and then slide the top circuit board towards the rear panel until the F-connector is engaged with the circuit board (see Figure 7).

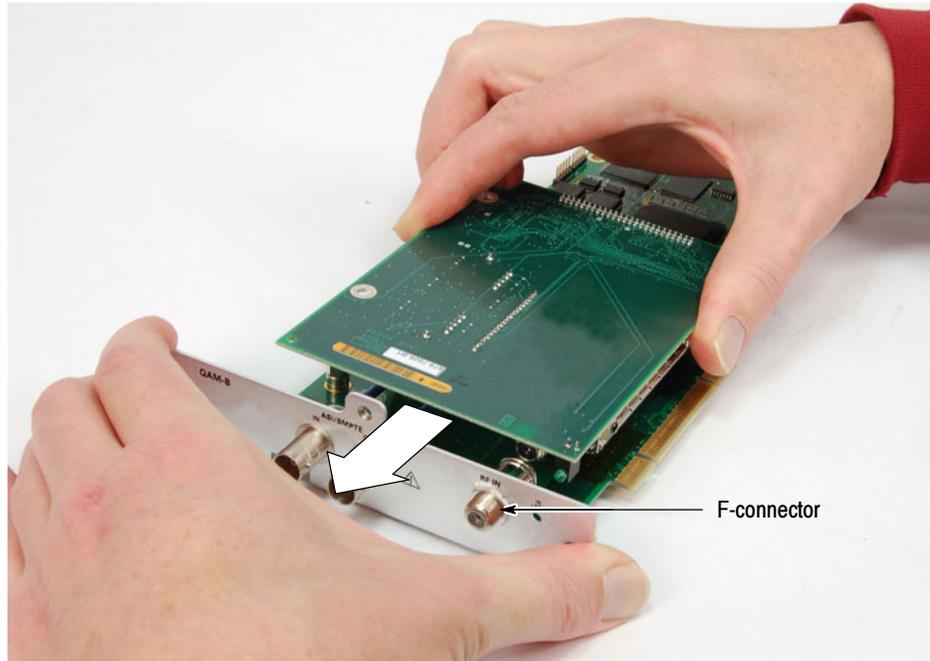


Figure 7: Engaging the F-connector with the top circuit board

11. Install the three retaining screws in the top circuit board of the interface card (see Figure 4 on page 6).

Reinstall the 8VSB Interface Card

12. Position the interface card in the instrument chassis, and then install the six retaining screws in the interface card and install the three retaining screws in the rear panel (see Figure 3 on page 5).

13. Connect the cables to the interface card (see Figure 2 on page 5 and Table 1 on page 4):

- a. Connect the ribbon cable to the connector labeled J14 on the interface card.
- b. Connect the eight-wire power cable to the connector labeled JR1 on the interface card.

Reinstall the Instrument Cover

14. Position the cover on the instrument chassis and install the 21 retaining screws (see Figure 1 on page 4).

Verify Operation

To verify the operation of the MTM400 monitor, you will need to access the instrument RUI using a PC meeting the system requirements listed in Table 2. The MTM400 monitor and the PC need to be connected to the same Ethernet network.

Table 2: MTM400 monitor RUI platform requirements

Characteristic	Description
Minimum Specification	1 GHz Intel Pentium Processor (Preferred: 2 GHz)
Operating System	Microsoft Windows operating systems Windows 2000 or Windows XP (Recommended: Windows XP Pro)
Disk space	2 GB free disk space
Ethernet	10/100-base T
Installed software	Microsoft Internet Explorer, Version 6.0 minimum; Microsoft Java Virtual Machine installed, Version 5.0 minimum
RAM	1 GB
CD-ROM Drive	8x
Display	1024 x 768 pixel video monitor with 16 available colors

Perform the following steps to verify that the MTM400 monitor and the 8VSB interface card you reinstalled are operating properly:

NOTE. This procedure assumes that the MTM400 monitor is operating with firmware version 2.6.1.

1. Connect the MTM400 monitor to an Ethernet network, power up the instrument, and then wait for the instrument to initialize. When the initialization process is complete, the instrument beeps and the front-panel LEDs illuminate.

2. Using a PC connected to the same Ethernet network as the MTM400 monitor, perform the following steps to open the MTM400 monitor RUI:

NOTE. *The following procedure uses Microsoft Internet Explorer to open the MTM400 monitor RUI. You can also access the RUI using the Tektronix Web Monitoring Systems Manager (WebMSM). The instructions for using WebMSM are located in the WebMSM User Manual (Tektronix part number 071-1239-xx).*

- a. Launch Microsoft Internet Explorer.
- b. In the address bar of the Web browser, enter the network identity or IP address of the MTM400 monitor, for example: `http://TSMonitor01` or `http://111.222.333.444`.

When you press the Enter key, a Java applet is downloaded from the MTM400 monitor and launched. The file size is approximately 1.5 MB; the download time will depend on the network speed and traffic.



CAUTION. *The Java applet will not run unless a temp directory is properly configured on the PC. A temp directory is set up by default in the Windows XP operating system; previous operating systems may require operator action.*

The Java applet will not run unless the Microsoft Java Virtual Machine is installed. Type `jview` at the command prompt to verify that it is installed and that the version is 5.00.3809 or greater. If it is not installed, obtain the installation file from the Tektronix Web site.

If the Sun Virtual Machine has also been installed, the Sun Virtual Machine must not be set as the default in the Java control panel or Internet Explorer options, advanced tab.

3. After the Java applet is downloaded, the MTM400 monitor splash screen will appear, and then be quickly overlaid by the Login Details dialog box (see Figure 8).
4. In the Login Details dialog box, select **Administrator** from the User drop-down list.

NOTE. *Do not select User from the drop-down list. The User login type does not have sufficient permissions to perform software option upgrades.*

5. Enter the appropriate password, and then click **OK** to accept the login details. The default password for the Administrator login type is `tek`.

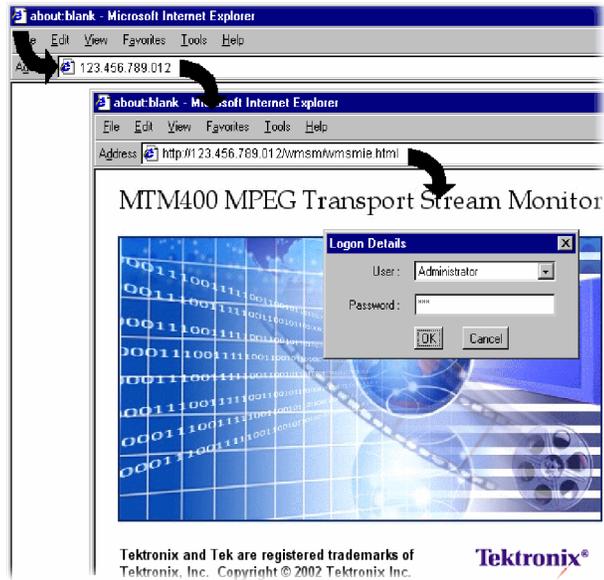


Figure 8: Logging on to MTM400 monitor

6. After you log on to the MTM400 monitor, the Hotspot view is displayed (see Figure 9). Click the **Stream** button to open the Stream view. Figure 10 shows an example Stream view.



Figure 9: Hotspot view

7. In the Stream view, click the **Config** button to open the Configuration screen (see Figure 11).
8. In the Configuration screen, use the **Interface** drop-down list to select the 8VSB interface.
9. If you are able to connect to the MTM400 monitor, display the RUI, and select the 8VSB interface in the Configuration screen, then the instrument is operating normally.

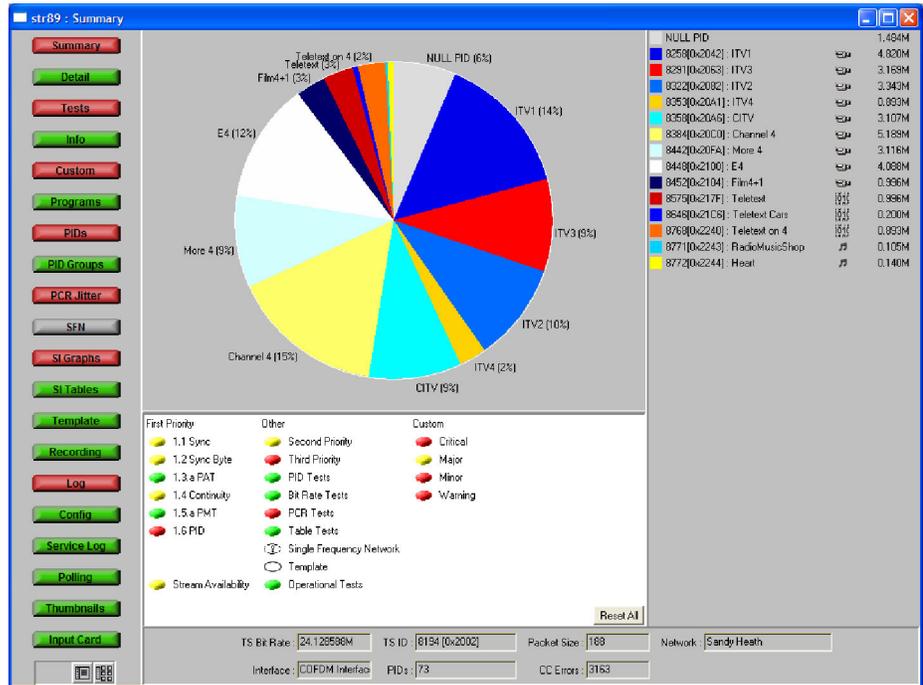


Figure 10: Stream view example

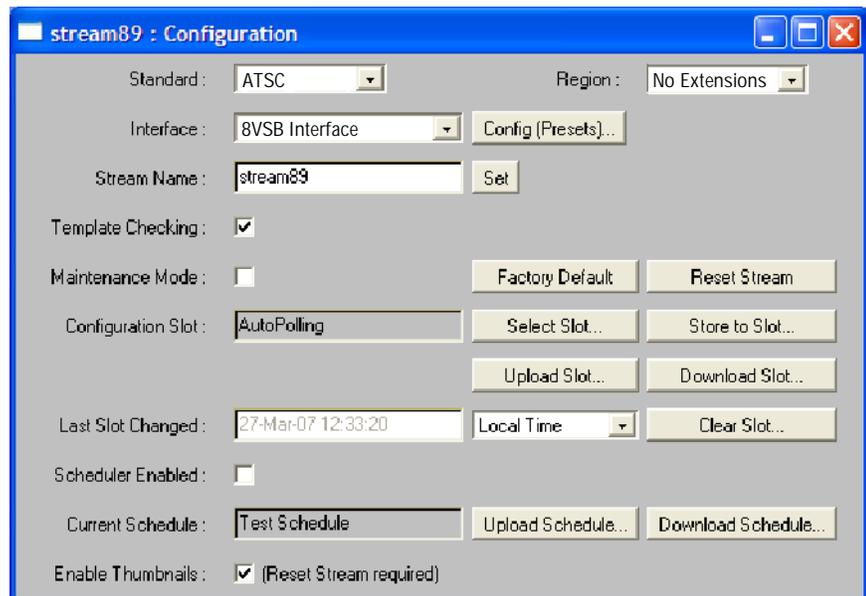


Figure 11: Configuration screen

Replacement Instructions - MTS400 Series Systems

These instructions are for personnel who are familiar with servicing the MTS400 Series systems. If you need further details for disassembling or reassembling the instrument, contact your nearest Tektronix Service Center or Tektronix Factory Service for assistance.



CAUTION. *To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.*

Only qualified personnel should perform this procedure. Read the General Safety Summary and the Service Safety Summary located at the beginning of these instructions before performing the following procedure.

Minimum Tool and Equipment List

Required tools and equipment	Part number
Anti-static wrist strap	NA
Screwdriver with T-10, T-15, and T-20 TORX tips	NA
Flat blade screwdriver	NA
Wrench, 7/16 inch	NA

Replacement Procedure

Perform the following steps to replace the F-connector on the 8VSB interface module in your MTS400 Series system.

Preparation

If necessary, disconnect any signal and power cables from the instrument, and then place the instrument on a static-free workbench.



WARNING. To prevent serious injury or death from electrical shock, do not operate the instrument with the cover or panels removed. Disconnect power from the instrument before removing the covers or panels.

Remove the Cabinet

1. Install the protective cover on the front of the instrument and place the instrument on the working surface with the rear panel facing up.
2. Remove the handle from the side of the instrument and remove the four feet from the rear of the instrument (see Figure 12). Retain the screws for reinstallation.



Figure 12: Removing the handle and feet from the cabinet



WARNING. To prevent damage to the EMI shielding and injury to yourself, use care when touching the EMI shielding strips around the front of the chassis. If you accidentally bend the “fingers” of the strip, it could create sharp protruding edges, which may cut you as you handle the chassis.

3. Position a flat blade screwdriver below the PEM nut on the rear panel as shown in Figure 13. Use the screwdriver as a lever to pry the cabinet loose from the chassis. Loosen each side alternately until the cabinet is released from the EMI gasket.
4. Slide the cabinet up and off the chassis.



Figure 13: Prying the cabinet loose from the chassis

Remove the 8VSB Interface Module

5. Remove the circuit board retaining plate (see Figure 14).
6. The 8VSB interface module is installed in slots 4 and 5 (see Figure 15). Disconnect the interface cable from the 8VSB module.

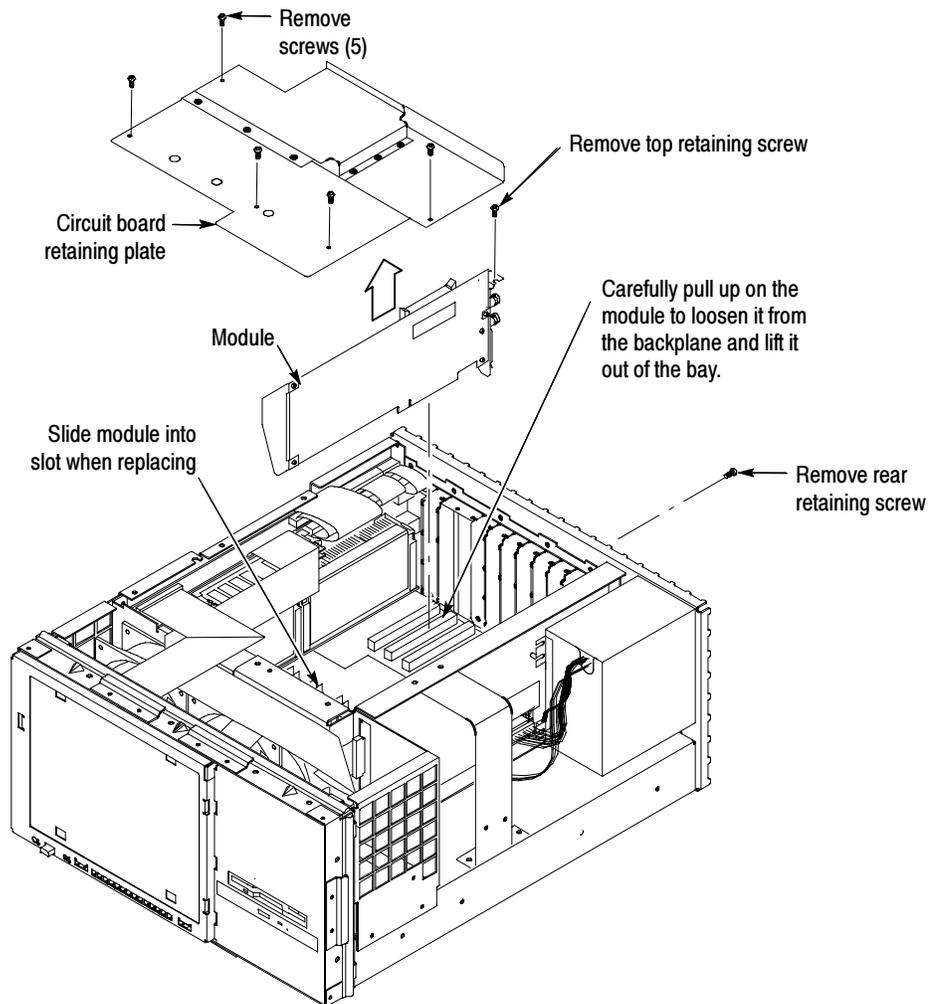


Figure 14: Removing a module

7. Remove the two retaining screws from the top of the 8VSB module and also the retaining screw from the top of the bracket in slot 6 (see Figure 15).
8. Remove the two rear retaining screws from the bottom of the 8VSB module.

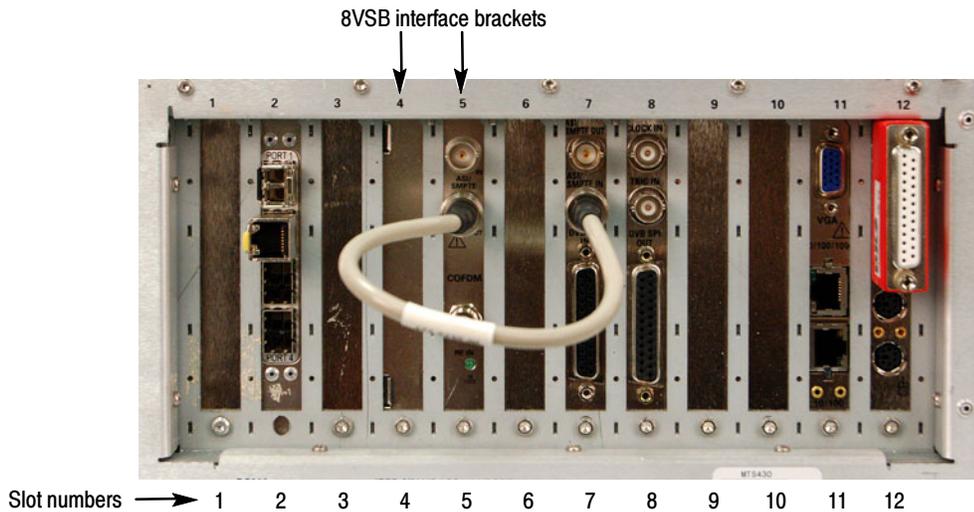


Figure 15: MTS400 Series system rear panel

9. As you hold back any overlapping cables, carefully pull up on the 8VSB module to loosen it from the connectors on the Backplane board. You may have to alternate lifting on the front and rear of the module to work it loose from the connectors and the chassis.
10. Lift the interface module clear of the instrument and place the board on a static-free work surface.



CAUTION. To prevent static damage to the removed board, be sure to only work on it in a static free work environment. Failure to properly protect the board may result in the board needing repair before it will operate properly when reinstalled.

Replace the F-connector

11. Remove the three retaining screws from the top circuit board of the interface module (see Figure 16).

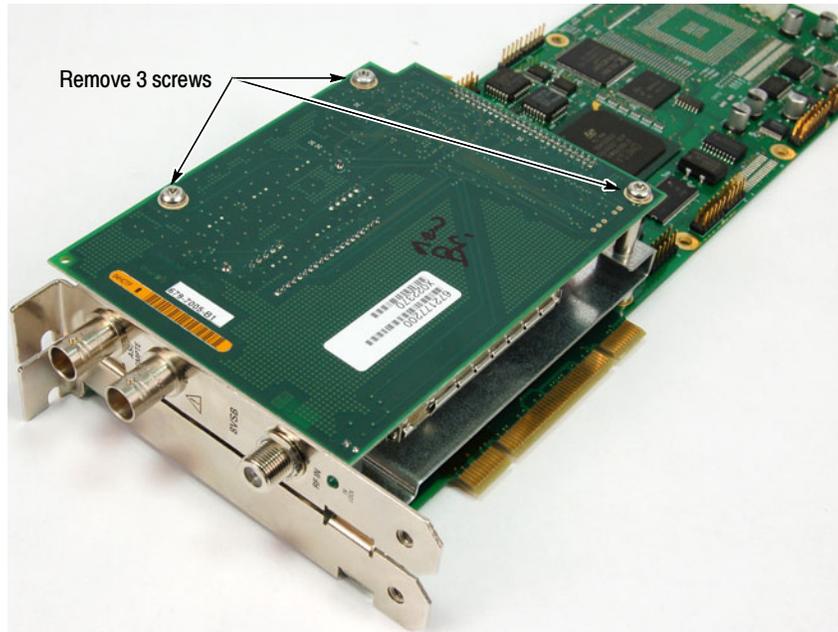


Figure 16: Top circuit board retaining screw locations

12. Grasp the rear panel on the interface module, and then slide the top circuit board away from the rear panel until the F-connector is disengaged from the circuit board (see Figure 17).
13. Use a 7/16 inch wrench to remove the retaining nut from the F-connector (see Figure 18), and then remove the F-connector from the rear panel.
14. Install the replacement F-connector supplied with this kit in the same rear-panel location, and then use the wrench to tighten the retaining nut.

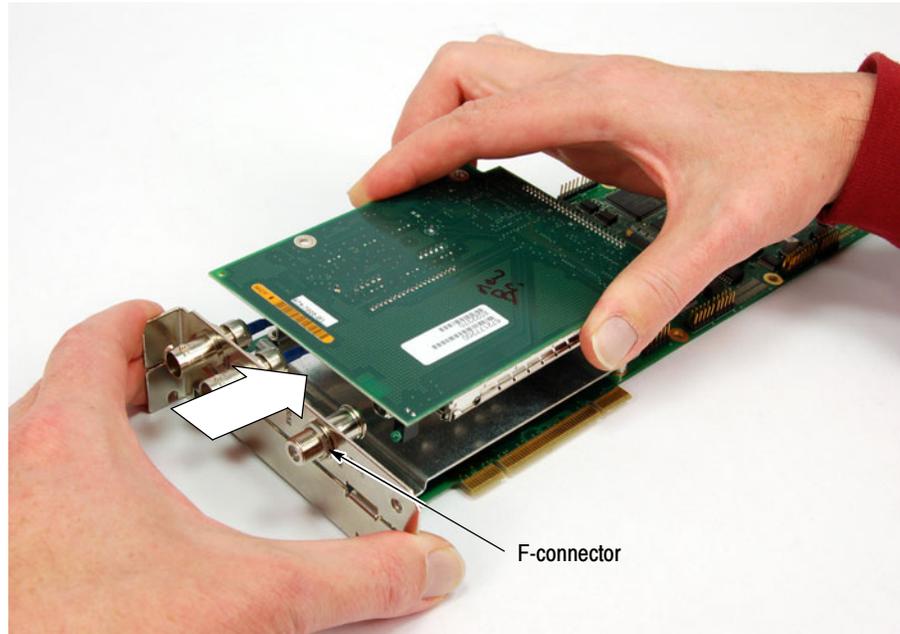


Figure 17: Disengaging the F-connector from the top circuit board

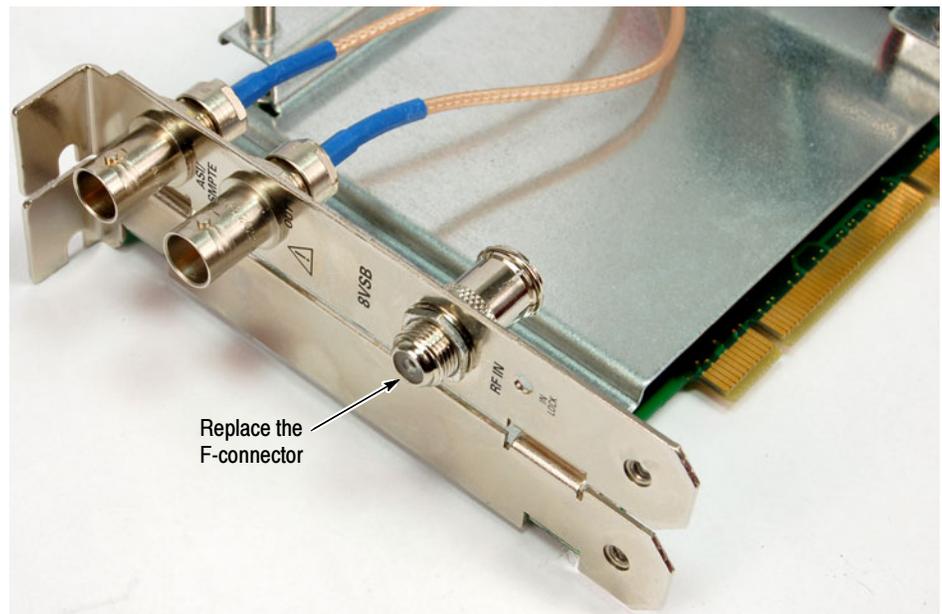


Figure 18: Replacing the F-connector

15. Grasp the rear panel on the interface module, and then slide the top circuit board towards the rear panel until the F-connector is engaged with the circuit board (see Figure 19).

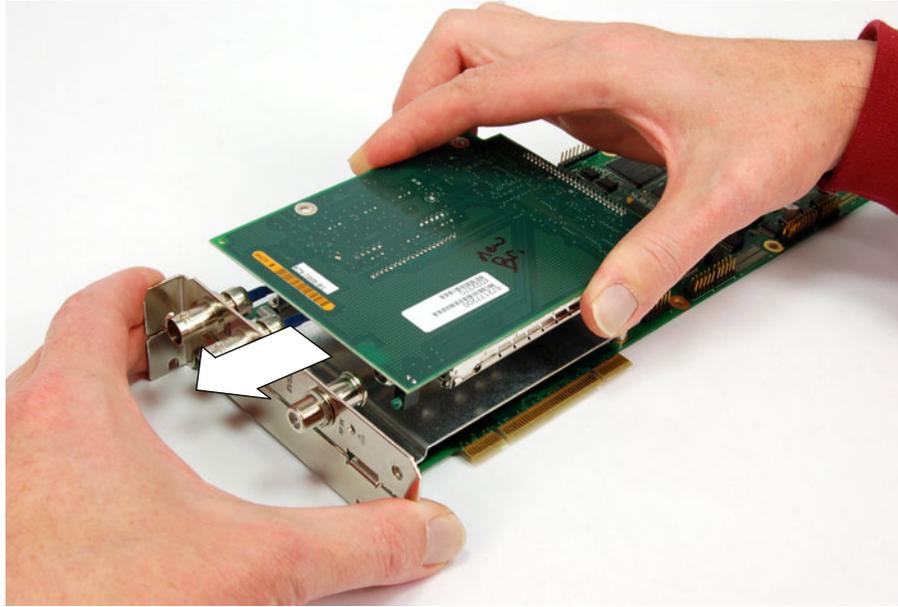


Figure 19: Engaging the F-connector with the top circuit board

16. Install the three retaining screws in the top circuit board of the interface module (see Figure 16 on page 18).

Reinstall the 8VSB Interface Module

17. Position the interface module in slots 4 and 5 of the instrument chassis (see Figure 15 on page 17). As you hold back any overlapping cables, carefully align the connector on the bottom edge of the module with the connector on the Backplane board, and then apply firm pressure to completely seat the module in the Backplane board connector.
18. Install the two retaining screws in the top of the 8VSB interface module and also the retaining screw in the top of the bracket in slot 6.
19. Install the two rear retaining screws in the bottom of the 8VSB interface module.
20. Reconnect the interface cable to the 8VSB interface module (see Figure 20).

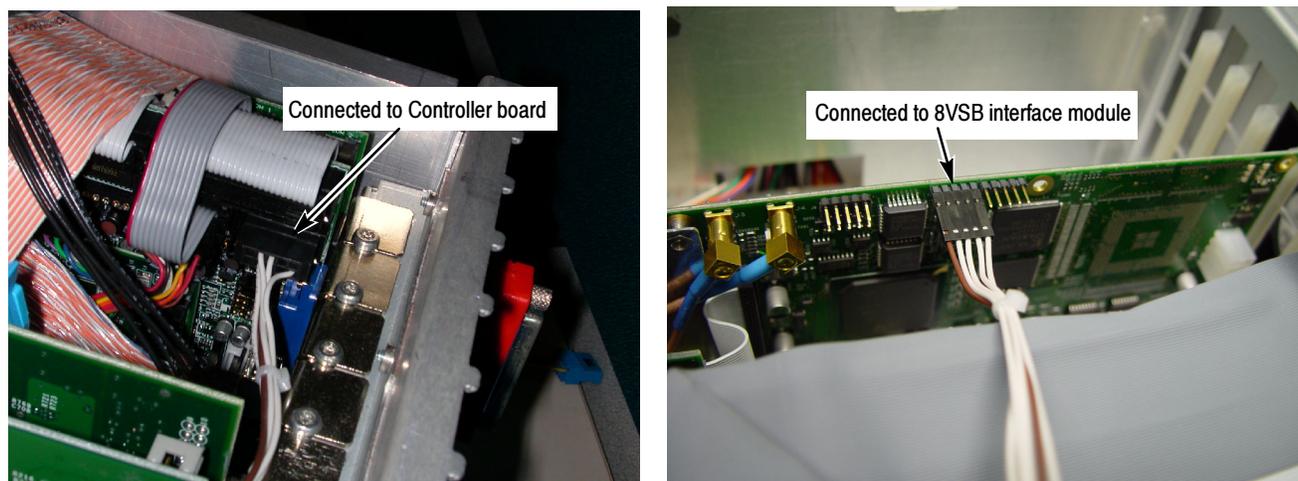


Figure 20: Reconnecting the 8VSB interface cable

Reinstall the Cabinet

21. Position the instrument on the working surface with the rear panel facing up.
22. Slide the cabinet down and onto the chassis.



CAUTION. To prevent damage to the instrument, make sure that the internal cables do not catch when you slide the cabinet back onto the chassis. Make sure that the edges of the cabinet go under the retaining tabs around the front of the chassis. You may have to push on the side of the cabinet to get all of the edges under the tabs and over the EMI gasket.

At the rear of the chassis, you may have to push on the sides of the cabinet to get the rear of the cabinet to fit over the edges of the chassis and EMI gasket.

23. Install the handle on the side of the instrument and install the four feet on to the rear of the instrument (see Figure 12 on page 14).

Verify Operation

To verify the operation of the MTS400 Series system, perform the performance verification procedure in the *MTS400 Series MPEG Test Systems Specifications and Performance Verification Technical Reference* (Tektronix part number 071-1724-05). You need to use version -05 or greater of this document in order to verify the 8VSB interface module.

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