

Instructions



WVR602UP, WVR712UP, and WVR712UP Upgrades WVR6020, WVR7020, and WVR7120 Series Waveform Rasterizers

075-0939-00

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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- Worldwide, visit www.tektronix.com to find contacts in your area.

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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.

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.

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.

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, 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 document provides instructions for installing the video and audio upgrade listed below into an existing Tektronix WVR6020, WVR7020, and WVR7120 Waveform Rasterizer. Find your kit in the table of kits supported that follows.

Table 1: Supported upgrades

Video Upgrades	WVR602UP	WVR702UP	WVR712UP	Description
Option HD		■	■	Adds support for monitoring high definition, digital video
Option DL		■	■	Adds support for monitoring dual link (requires option HD)
Option SIM			■	Adds support for monitoring two simultaneous inputs
Audio Upgrades	WVR602UP	WVR702UP	WVR12UP	Description
Option AD	■	■	■	Adds the capabilities of Option DS plus adds support for monitoring analog audio
Option DDE			■	Adds the capabilities of Option DD plus adds support for monitoring and decoding Dolby E audio
Analysis Upgrades	WVR602UP	WVR702UP	WVR712UP	Description
Option AVD			■	Adds support for out-of-service audio video delay measurements
Option EYE			■	Adds support for eye pattern and basic jitter measurements; includes cable length measurements
Option PHY			■	Adds the capabilities of Option EYE plus advanced physical layer measurements; includes automated eye measurements

Products

The following Tektronix products are supported by this kit:

WVR6120 Waveform Rasterizer	All instruments
WVR7020 Waveform Rasterizer	All instruments
WVR7120 Waveform Rasterizer	All instruments

Required Tools

The following table lists the tools required to install the upgrade.

Table 2: Required tools

Required tools and equipment	Description
Screwdriver handle (Hardware options only)	Accepts TORX-driver bits
T-10 and T-15 TORX tips (Hardware options only)	TORX-driver bit for T-10 and T-15 screw heads
3/16 Nutdriver (Hardware options only)	Standard tool
1/4 Nutdriver. Used for removing or installing internal audio board mounting posts. Used for audio and EYE display options.	Standard tool
XGA Monitor	
Standard PC	Running Windows 98, Windows NT 4.0, Windows ME, Windows 2000, or Windows XP
Anti-static wrist strap (Hardware options only)	
<i>WVR6020, WVR7020, and WVR7120 Specifications and Performance Verification</i> manual and all test equipment listed within to perform the verification checks	Tektronix part number 071-2234-XX Available for download from the Tektronix web site

Kit Parts Lists

The following tables list the parts supplied with each upgrade kit. Before you start the upgrade, verify that you received all of the parts for the upgrade kit you ordered.

**WVR702UP HD
WVR712UP HD
WVR712UP SIM
WVR702UP DL
WVR712UP DL
WVR712UP AVD**

Table 3: Option HD, SIM, DL, and AVD parts list

Quantity	Part number	Description
1 EA	-----	ENVELOPE, IMPORTANT DOCUMENTS; CONTAINS SOFTWARE OPTION KEY
1 EA	075-0939-XX	INSTRUCTIONS; WVR602UP, WVR702UP, AND WVR712UP UPGRADES

**WVR602UP-AD
WVR702UP-AD
WVR712UP-AD**

Quantity	Part number	Description
1 EA	-----	ENVELOPE, IMPORTANT DOCUMENTS; CONTAINS SOFTWARE OPTION KEY
1 EA	075-0939-XX	INSTRUCTIONS; WVR602UP, WVR702UP, AND WVR712UP UPGRADES
3 EA	129-1570-XX	Post, spacer; 1.385 X 0.250 X 0.375 deep
1 EA	131-7430-XX	Connector, DSUB; male, 62 pins, 0.100 center, 30 gold
1 EA	174-4973-XX	Cable assembly 80 POS. Cable with two 2X40 connectors
8 EA	210-1039-XX	Washer, lock; 0.521 ID; 0.025 thick
3 EA	211-0722-XX	Screw; 6-32 X 0.250, panhead T-15 TORX drive
2 EA	214-3903-XX	Screw; 4-40 X 0.312 long, 0.188 H hex head stand off
8 EA	220-0497-XX	Nut; hex; 0.5-28 X 0.562
1 EA	671-9938-XX	Circuit-board assembly; Digital Analog Audio

WVR712UP-DDE

Quantity	Part number	Description
1 EA	-----	ENVELOPE, IMPORTANT DOCUMENTS; CONTAINS SOFTWARE OPTION KEY
1 EA	075-0939-XX	INSTRUCTIONS; WVR602UP, WVR702UP, AND WVR712UP UPGRADES
1 EA	119-7167-XX	Circuit-board assembly; Dolby E/Digital Decoder Module; 72 PIN SIMM
3 EA	129-1570-XX	Post, spacer; 1.385 X 0.250 X 0.375 deep
1 EA	131-7430-XX	Connector, DSUB; male, 62 pins, 0.100 center, 30 gold

Quantity	Part number	Description
1 EA	174-4973-XX	Cable assembly 80 POS. Cable with two 2X40 connectors
8 EA	210-1039-XX	Washer, lock; 0.521 ID; 0.025 thick
3 EA	211-0722-XX	Screw; 6-32 X 0.250, panhead T-15 TORX drive
2 EA	214-3903-XX	Screw; 4-40 X 0.312 long, 0.188 H hex head stand off
8 EA	220-0497-XX	Nut; hex; 0.5-28 X 0.562
1 EA	671-9938-XX	Circuit-board assembly; Digital Analog Audio

WVR712UP-EYE

Quantity	Part number	Description
1 EA	-----	ENVELOPE, IMPORTANT DOCUMENTS; CONTAINS SOFTWARE OPTION KEY
1 EA	075-0939-XX	INSTRUCTIONS; WVR602UP, WVR702UP, AND WVR712UP UPGRADES
5 EA	129-0208-XX	SPACER, POST; 0.312 L, 6-32 STUD, BRS
2 EA	174-5301-00	COAXIAL CABLE, SMA
1 EA	671-6324-XX	CIRCUIT BD.SUB ASSY; EYE BOARD

WVR712UP-PHY

Quantity	Part number	Description
1 EA	-----	ENVELOPE, IMPORTANT DOCUMENTS; CONTAINS SOFTWARE OPTION KEY
1 EA	075-0939-XX	INSTRUCTIONS; WVR602UP, WVR702UP, AND WVR712UP UPGRADES
5 EA	129-0208-XX	SPACER, POST; 0.312 L, 6-32 STUD, BRS
2 EA	174-5301-00	COAXIAL CABLE, SMA
1 EA	671-6324-XX	CIRCUIT BD.SUB ASSY; EYE BOARD

Upgrade Installation

This section provides instructions for the following:

- Verifying the currently installed options
- Preventing electrostatic discharge
- Installing the software upgrade
- Installing the hardware upgrade
- Installing the software option key

Verify the Currently Installed Options

The software option key supplied in this kit is based on the serial number you supplied when you ordered the upgrade for the instrument. The new software option key should enable the new option(s) you ordered, and also preserve your previously purchased options.

Before you install the upgrade, perform the following steps to verify which options are currently installed in your instrument. After you install the upgrade, you will verify that the new options are installed and that any previously installed options are still enabled.

1. Power on the instrument you are upgrading.
2. Press the **CONFIG** button on the front panel.
3. Navigate to **Utilities > View Instmt Options**.
4. Make a list of the installed options.

List installed options

How to Prevent Electrostatic Discharge

When you perform any service that requires internal access to the instrument, adhere to the following precautions to avoid damage due to electrostatic discharge (ESD):

1. Minimize handling of static-sensitive circuit boards and components.
2. Transport and store static-sensitive boards or modules in static protected containers.
3. Discharge the static voltage from your body by wearing a grounded antistatic wrist strap while handling these modules.
4. Service static-sensitive modules only at a static-free work station.
5. Do not allow anything capable of generating or holding a static charge on the work surface.
6. Handle circuit boards by the edges or hold onto grounded shields when possible.
7. Do not slide circuit boards over any surface.

Install the Software Upgrade



CAUTION. *To prevent upgrade failure, your instrument must have the latest version of software installed before you install the hardware upgrade and before you install the software option key.*

Before You Begin

You do not need to perform the software upgrade if your instrument has the latest version of software installed. Perform the following steps to determine if the software on your instrument needs to be upgraded:

1. Power on the instrument.
2. Verify the current software version installed on the instrument:
 - a. Press the **CONFIG** button on the front panel.
 - b. Navigate to **Utilities > View Hw/Sw Version**.
 - c. In the Hardware and Software Versions display window, note the software version number of the instrument.

Instrument Software version number	
------------------------------------	--

3. Verify the latest version of software at the Tektronix Web site:
 - a. Use the Web browser on a PC to navigate to the following Tektronix Web site:

`http://www.tek.com/products/video_test`
 - b. On the Video Test Web page, click the link **Software Downloads** under Product Resources.
 - c. On the Software and Firmware Finder Web page, search by model number (i.e.: WVR7120) or use the keyword WVR to locate the software-upgrade package for the instrument.
 - d. Note the latest version number of the software-upgrade package(s).

Web site Software version number	
----------------------------------	--

4. If the latest software version at the Web site is newer than the version on your instrument, you need to upgrade the firmware.

To perform the upgrade, you will use a PC to transfer the new software to the instrument using your local Ethernet network or using an Ethernet cross-over cable. Read the entire procedure before starting the software upgrade. The time required to complete the upgrade is about 25 minutes.



CAUTION. *Once the instrument has started to erase internal flash, DO NOT remove power from the instrument. If you do so, the instrument flash will be corrupted. The instrument will have to be sent to a Tektronix factory service center to have the system software restored.*

NOTE. *If power to the instrument is lost before it begins erasing the internal flash, you can restart the software upgrade after the instrument reboots.*

PC System Requirements. The data-transfer utility used to upgrade the waveform monitor runs on the following PC systems: Windows 98, Windows NT 4.0, Windows ME, Windows 2000, and Windows XP. The utility also requires an Ethernet interface and 128 MB of free disk space be present on the PC system.

Upgrade the Software

After you have verified that your instrument needs to have the software upgraded, perform the following procedure to upgrade the software on your instrument:

1. If you are connecting your PC directly to the instrument, connect the Ethernet cross-over cable between the Ethernet ports on the PC and instrument, otherwise proceed to step 2.
2. Connect the instrument and PC to your local Ethernet network.
3. Power on the instrument.

4. Assign the instrument an IP address:

NOTE. *The data-transfer utility requires that the instrument be assigned a valid IP address. To allow network access to the instrument, the instrument must be assigned a valid IP address for your network. Network addresses can be assigned either manually or automatically using DHCP. If your network does not use DHCP, you will have to manually enter the address for the instrument. To get a valid IP address, contact your local LAN administrator.*

Alternatively, if you connect the PC directly to the instrument using an Ethernet cross-over cable, you can assign the instrument any IP address that is compatible with the IP address of the PC.

- a. Press the **CONFIG** button on the front panel.
- b. Navigate to **Network Settings > IP Config Mode**.
- c. Select either **Manual** or **DHCP** as directed by your LAN administrator. Select Manual if you are using an Ethernet cross-over cable to connect the PC directly to the waveform monitor.
- d. If you selected Manual mode, enter the IP address, subnet mask, and gateway address as directed by your LAN administrator. You need to enter only an IP address if you are using an Ethernet cross-over cable to connect the PC directly to the instrument.

NOTE. *If you selected DHCP mode, the network will automatically assign the instrument an IP address.*

- e. Press the **CONFIG** button on the front panel to close the menus.
- #### 5. Download the latest version of software at the Tektronix Web site:
- a. Use the Web browser on the PC to navigate to the following Tektronix Web site:

`http://www.tek.com/products/video_test`
 - b. On the Video Test Web page, click the link **Software Downloads** under Product Resources.
 - c. On the Software Downloads page, search by model number (i.e.: WVR7120) or use the keyword WVR to locate the latest software-upgrade package for the instrument.
 - d. Download the latest version to your PC.

- e. After the software package is downloaded, click on the self-extracting archive to extract the following files into the directory of your choice: `transfer.exe` and `firmware.pkg`. There may also be a `readme.txt` file.
6. Prepare the waveform monitor for the software upgrade:
 - a. Press the **CONFIG** front panel button.
 - b. Navigate to **Utilities > System Upgrade > Upgrade Options > Network Upgrade**.
 - c. Press the **SEL** front panel button. This displays the System Software Upgrade window.
 - d. To continue with the upgrade, select **Continue** and press **SEL**. The monitor display goes to black and the DISPLAY SELECT keys flash in sequence.

If the arrow keys also flash, the instrument is in DHCP mode. Wait until the arrow keys stop flashing before proceeding.

7. Perform the software upgrade:
 - a. On the PC, double-click the **transfer.exe** file to launch the transfer program.
 - b. Type the IP address or DNS name of the instrument you are upgrading, and then press **Enter**. This starts the software upgrade process.



CAUTION. *To prevent upgrade failure, do not close the `transfer.exe` window until the transfer utility asks for another IP address. When the software upgrade completes, the instrument may reboot.*

- c. The transfer utility displays done when the software upgrade completes. When the software upgrade completes, the instrument will reboot.

```
Please enter DNS name or address of target instrument:  
128.181.221.2  
Opened TCP connection to 128.181.221.2:77  
Reading Firmware Data... done  
Erasing Flash... done  
Programming Flash... done  
Verifying Flash Programming... done  
done
```

```
Please enter DNS name or address of target instrument:  
-
```

Figure 1: Sample of transfer.exe window after the upgrade is complete

8. If the instrument did not reboot at the completion of the software upgrade, remove and then reapply power to the instrument to cause it to reboot.
9. Verify the software upgrade:
 - a. Press the **CONFIG** button on the front panel.
 - b. Navigate to **Utilities > View Hw/Sw Version**.
 - c. Verify that the software version number matches the version of the software-upgrade package you installed.
10. Remove power from the instrument.

Install the Hardware Upgrade



WARNING. Before installing any hardware option, disconnect the power cord from the line voltage source. Failure to do so could cause serious injury or death.



CAUTION. To prevent upgrade failure, your instrument must have the latest version of software installed before you install the hardware upgrade. Refer to *Install the Software Upgrade* on page 7.

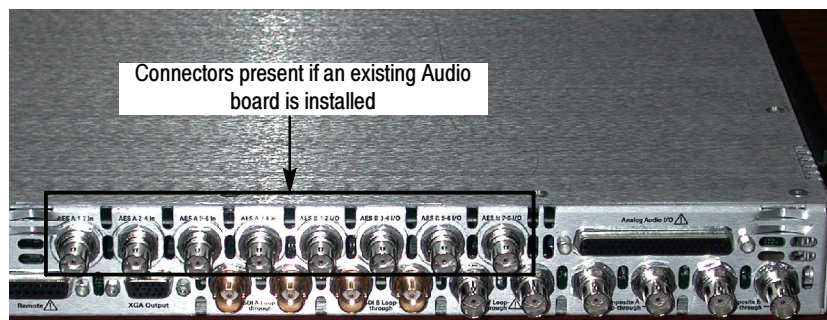
The procedures in this section are only for upgrades that include the installation of hardware modules. For software-only upgrades, you do not need to remove the instrument cover since these upgrades are enabled by the new software key you received with this kit.

If you are only installing one of the software-only upgrades (Options HD, SIM, DL, or AVD), proceed to *Install the Software Option Key* on page 24.

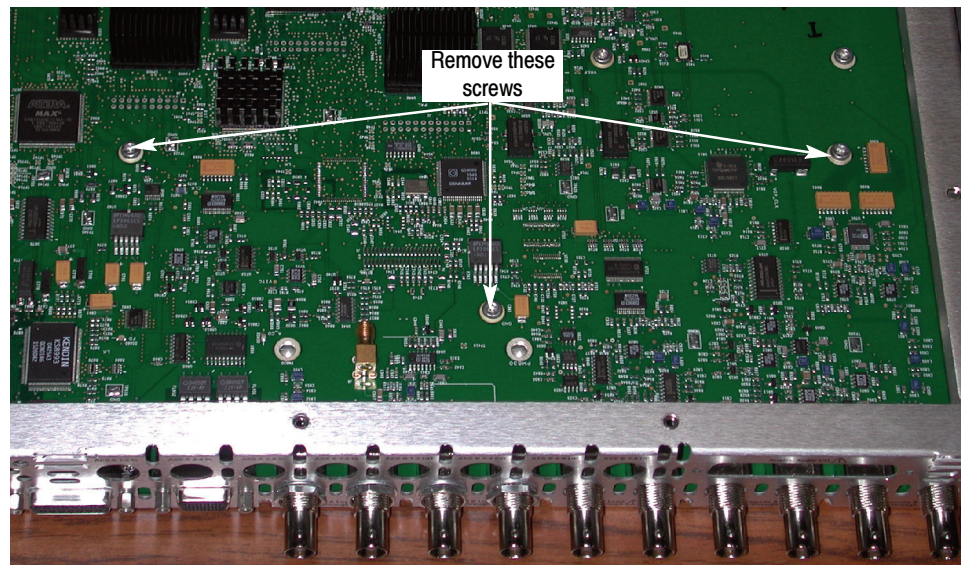
Hardware Installation WVR602UP AD WVR702UP AD WVR712UP AD WVR712UP DDE

For audio upgrades only (Option AD or DDE), perform the following steps to install the audio module into the instrument. Read the entire installation procedure before installing the module.

1. Remove power from the instrument.
2. Arrange access to the top of the instrument (remove from rack as needed).
3. Remove the 18 T-10 screws that secure the cabinet top cover to its chassis and lift it off.
4. Inspect your instrument for an installed Audio board. If an Audio board is installed, the AES BNC connectors are visible at the rear panel; instruments without an Audio board have plug covers in place of the audio connectors.



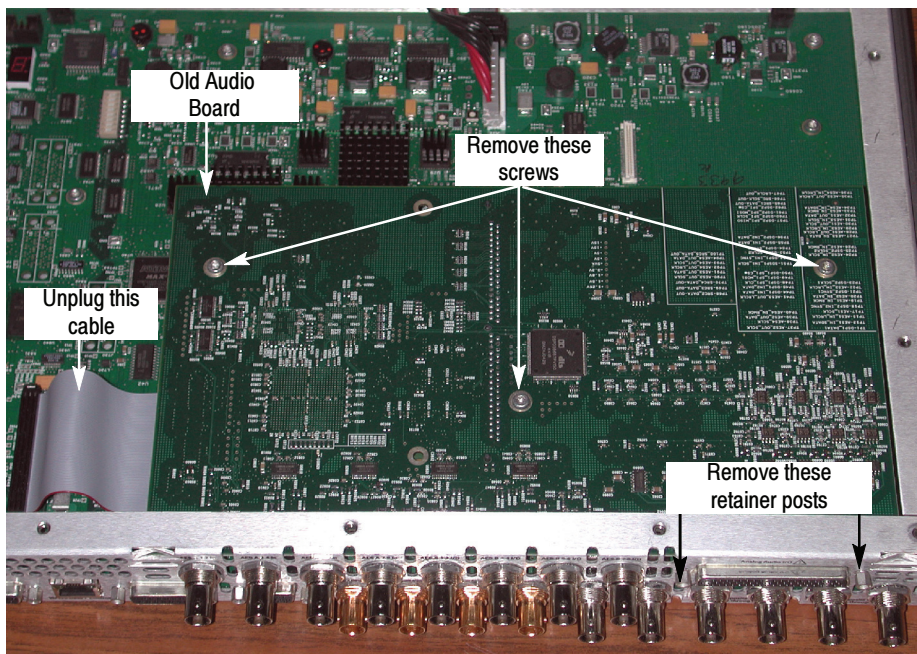
5. If an Audio board is installed, perform the steps in the section titled *Remove Old Audio Board*, on page 13 and then continue with *Install Upgrade Audio Board* on page 15.
6. If your instrument does not have an Audio board installed, perform the following steps:
 - a. Remove the eight plugs from the AES input holes on the rear panel. Pinch and compress each plug from the inside while prying the plug out from the outside of the rear panel. A flat-blade screwdriver may help pry out the plug.
 - b. Remove the three Main board mounting screws as shown below.
 - c. Continue with *Install Upgrade Audio Board* on page 15.



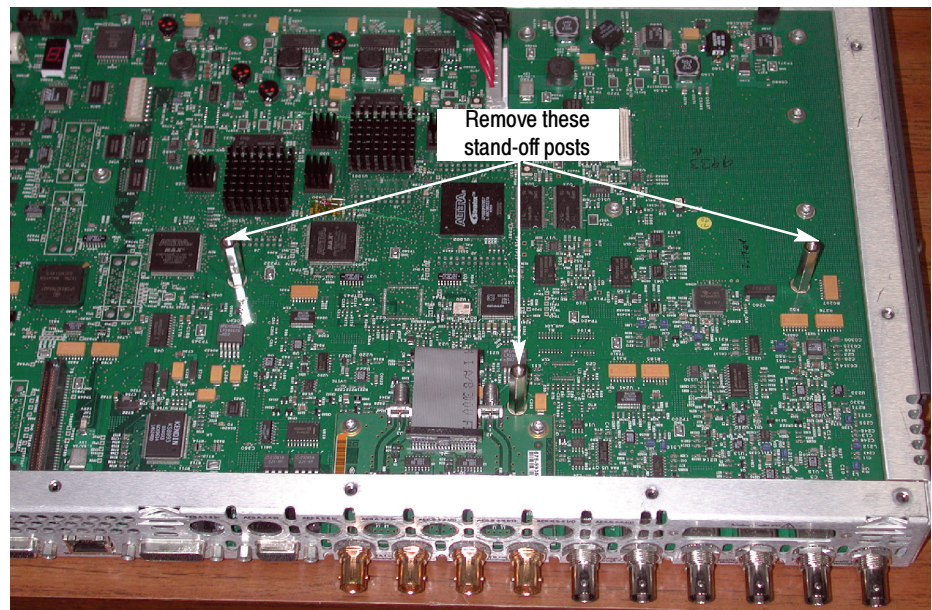
Remove Old Audio Board

Perform the following steps to remove the existing Audio board in preparation for installing the new Audio board.

1. Unplug the cable from the Audio board at J750 on the Main board.
2. Remove the three screws (T-15) that secure the old Audio board to the three mounting posts. Screw locations are shown below.



3. Remove the nut and washers that secure the eight audio BNC connectors to the rear panel.
4. If an analog audio connector is present, use a 3/16 in. nut driver to remove the two retainer posts that secure it to the rear panel.
5. Move the old Audio board toward the front of the instrument until the connectors clear the rear panel, and then lift the board out of the chassis.
6. Using a 1/4 in. nut driver, remove the three mounting posts from which you removed the screws in step 2. Discard these three mounting posts; they will not be reused.

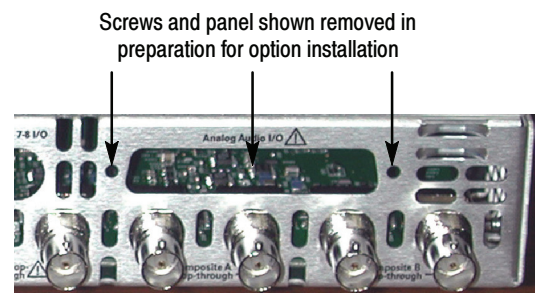


Install Upgrade Audio Board

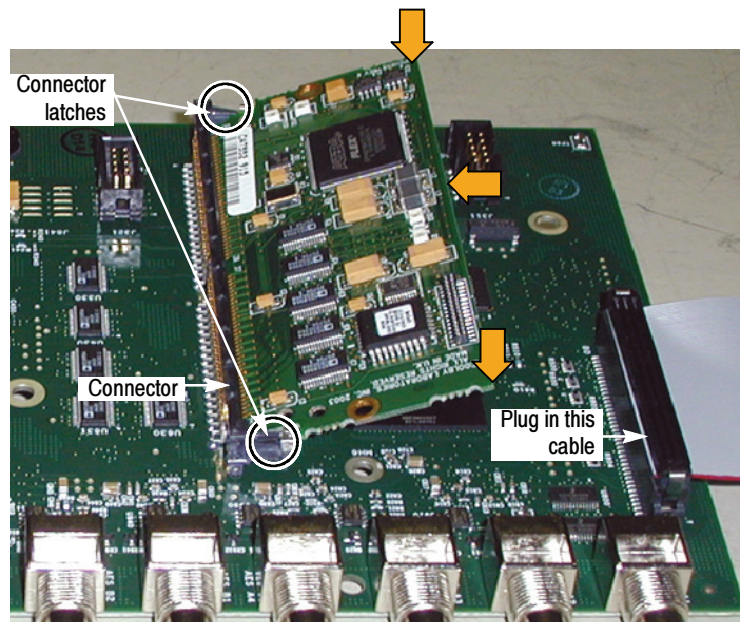
STOP. If you are also installing either a video EYE or PHY upgrade, perform the video upgrade (beginning on page 19) before proceeding with the audio board installation. The video option board resides below the audio board.

After the video option is installed, return to this procedure to install the audio board.

1. If a panel covers the analog audio input/connector hole at the rear panel, remove the two screws that secure the panel. Remove the panel by pulling it away from the inside.



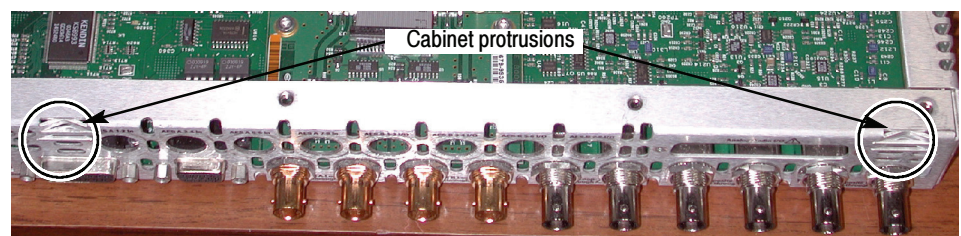
2. If you are installing Option DDE, perform the following sub-steps; otherwise, skip to step 3.
 - a. Find the Dolby Module in your kit. In a static safe workstation only, remove it from the static protective container.
 - b. As shown in the following figure, push the module into the SIMM connector on the Audio board to seat it, and then push downward to rotate the module until it is parallel to the board surface and the two connector latches are locked.



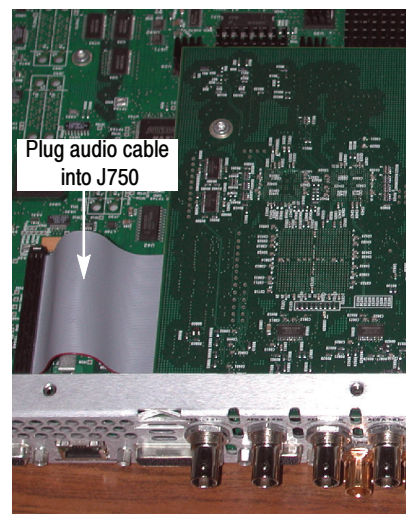
3. Plug the 80-pin cable from the kit into its jack on the underside of the Audio board.
4. Install the three mounting posts from the kit in the locations from which you removed the mounting screws or the mounting posts earlier. The figure associated with step 6 on page 14 indicates the post locations. Tighten firmly, but not excessively.

NOTE. Note that these three posts are longer than the five posts delivered with either of the video options (EYE or PHY).

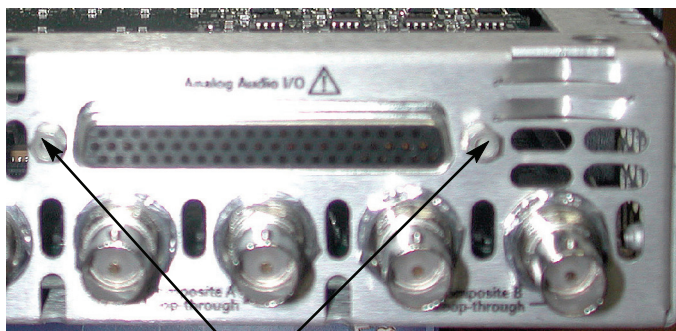
5. Insert the Audio board into position, aligning the mounting holes with the mounting posts and guiding the board connectors into their holes in the rear panel:
 - The mounting holes in the audio board should align with the screw holes in the mounting posts.
 - When sliding the board into place, its rear edge should be captured between a pair of small alignment features that protrude from the rear panel into the chassis. The board right corner should be captured between an identical pair of alignment features at the chassis rear corner.



6. Secure the board to the three mounting posts with the three T-15 screws from the kit. Tighten firmly, but not excessively.
7. From the kit, install a washer, and then a nut, to each of the BNC connectors of the new board.
8. Plug the cable from the new Audio board into J750 on the Main board.



9. Install the two standoff retainers that secure the audio analog connector to the rear panel. These screws install from the outside of the rear panel. Tighten firmly, but not excessively.



Install stand-off retainers

10. Reinstall the top cover on the instrument.

NOTE. For audio options AD and DDE, use the supplied 62-pin DSUB connector to attach analog-audio signals to the instrument. Solder wires to the connector as needed to accommodate the desired audio inputs and outputs. Refer to the Quick Start User Manual for the connector pin assignments.

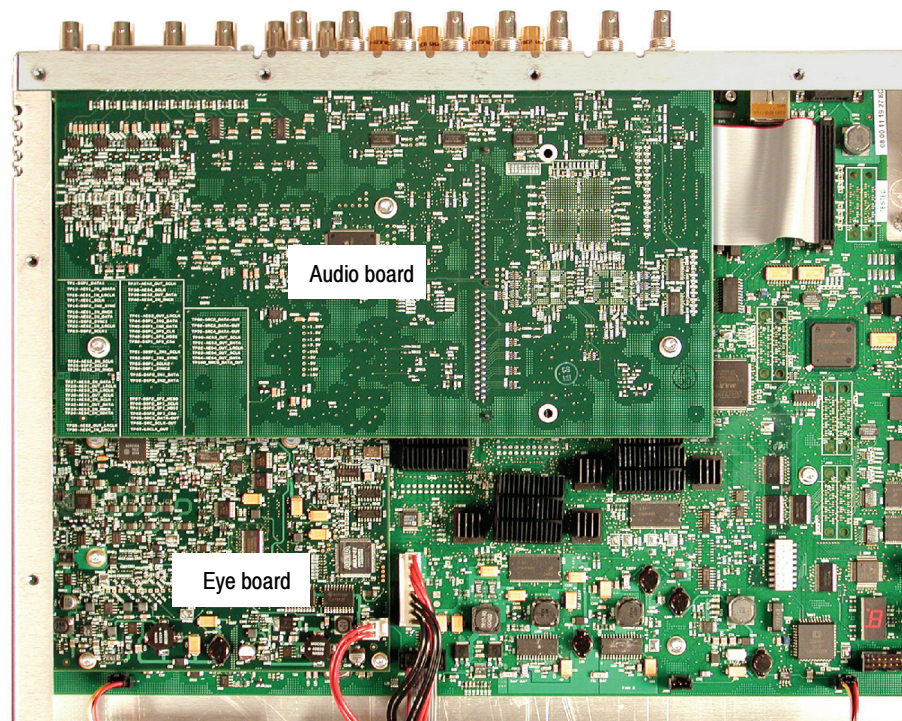
Audio signals can be connected as either balanced or unbalanced. Be sure to use a suitable cable when you are wiring balanced audio. An example of a suitable cable is Belden 8451, which is a shielded twisted pair cable.

Alternatively, you can purchase an audio breakout cable (Tektronix part number 012-1688-00), which provides a two meter cable with XLR connectors for all twelve inputs and eight outputs.

**Hardware Installation
WVR712UP EYE
WVR712UP PHY**

For Option EYE and PHY upgrades, perform the following steps to install the Option EYE or PHY module into the instrument. Read the entire installation procedure before installing the module.

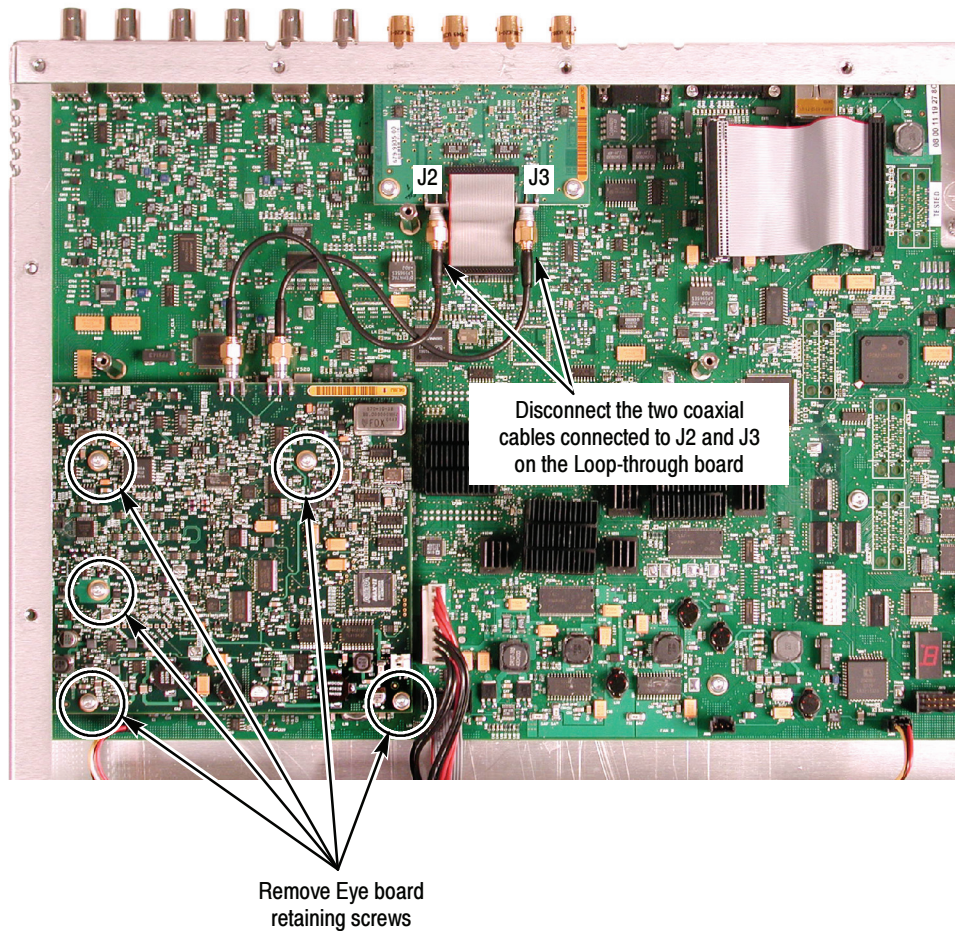
1. Arrange access to the top of the instrument (remove from rack as needed).
2. Remove the 18 T-10 screws that secure the cabinet top cover to its chassis and lift the cover off.
3. Use the illustration below to inspect the instrument for the presence of an existing Audio board.
4. If an Audio board is installed, perform the *Remove Old Audio Board* procedure starting on page 13.



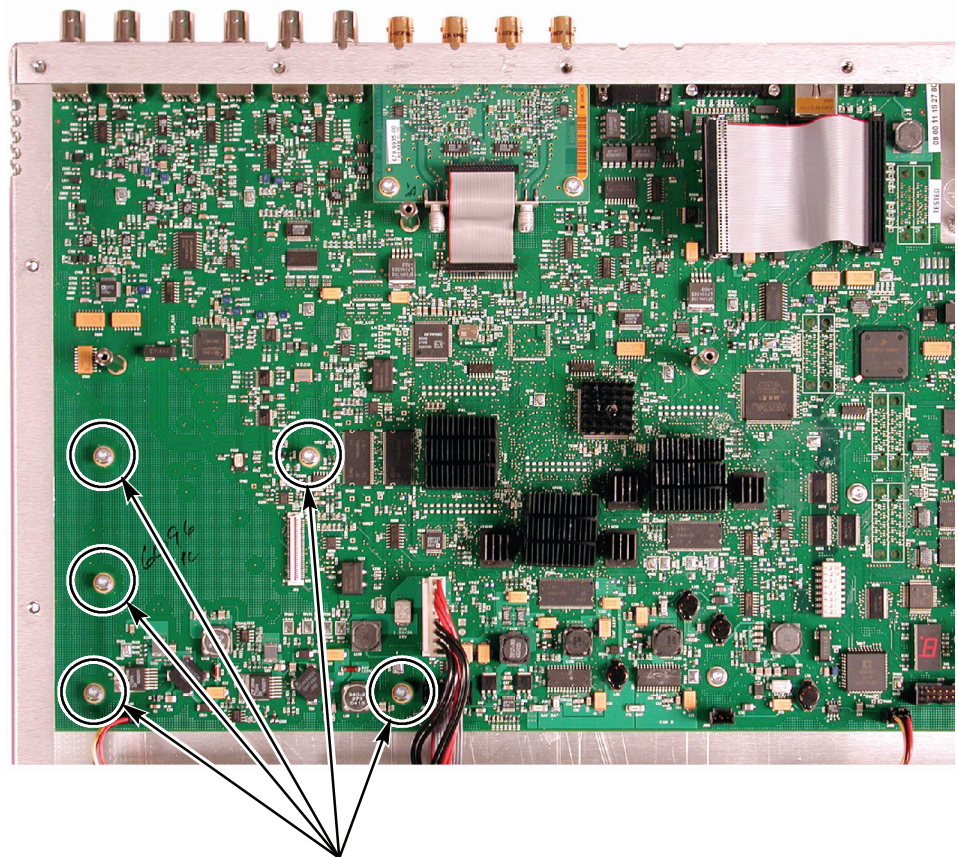
5. Use the illustration on page 19 to inspect the instrument for the presence of an installed Eye board.
6. If an Eye board is installed, perform the following steps to remove the board:
 - a. As shown below, disconnect the coaxial cable from J2 and J3 on the Loop-through board.
 - b. Remove the five retaining screws from the Eye board, and then lift the board out of the instrument.

NOTE. You can save the old Option Eye board for use in another instrument.

- c. Proceed to step 8 on page 21.



- 7. If an Eye board is not installed, perform the following steps to prepare for installing the Eye board.
 - a. Remove the five Main board 4-40 mounting screws in the locations shown below.
 - b. Install the five spacer posts from the kit in the locations from which you removed the mounting screws. Tighten firmly, but not excessively.
 - c. Proceed to step 8 on page 21.



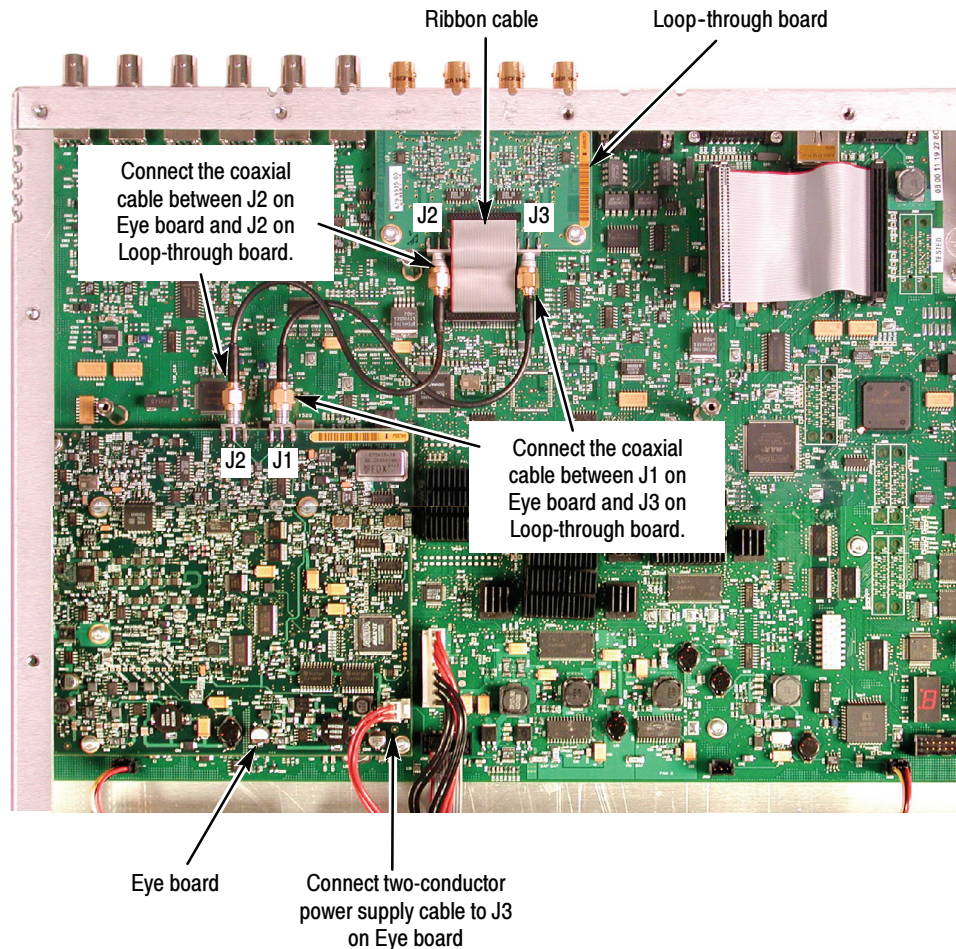
Remove Main board mounting screws and install spacer posts in these locations

8. Insert the Eye board from the kit into position, taking care to align the Eye board mounting holes over the spacer posts. Make sure that the connector between the boards mate correctly. Gently press the Eye board to seat the connector.
9. Secure the Eye board to the five mounting posts with the five 4-40 screws from the kit. Tighten firmly, but not excessively.

NOTE. To gain easier access to the connections on the Loop-through board, you can disconnect the ribbon cable from the board. If you disconnect the ribbon cable, be sure to reconnect it when you finish connecting the coaxial cables.

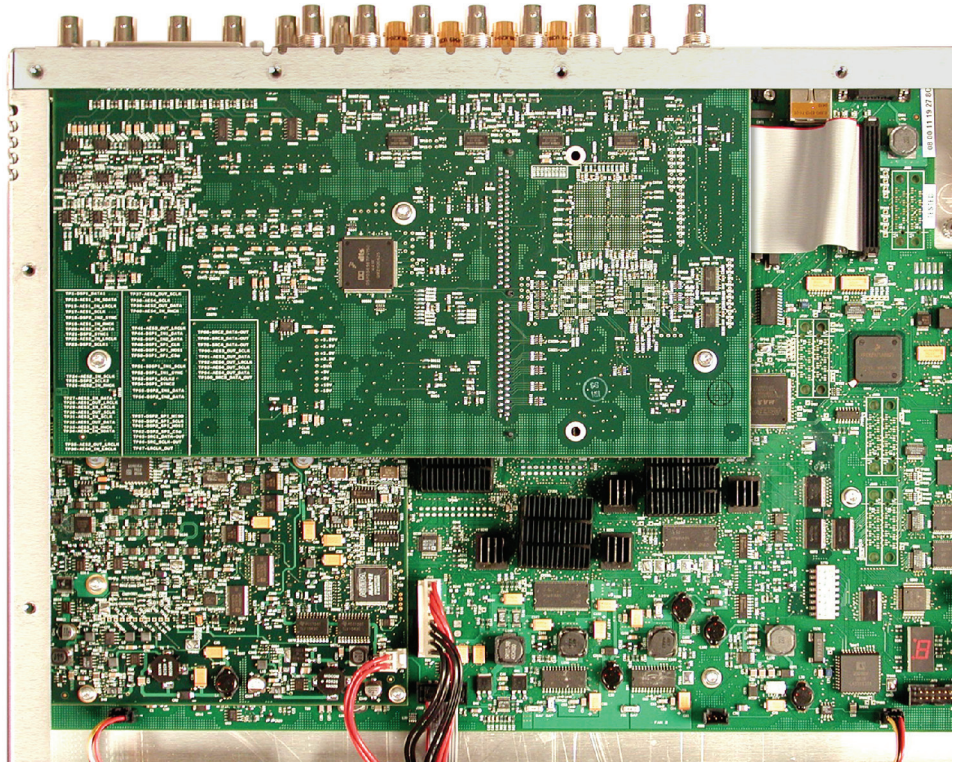
10. Connect one coaxial cable from the J3 connection of the Loop-through board to the J1 connection of the Eye board.
11. Connect the remaining coaxial cable from the J2 connection of the Loop-through board to the J2 connection of the Eye board.

12. Connect the two-conductor power supply cable (red/red) to J3 on the Eye board.
13. Verify that the installed Eye board appears as shown below.



14. Use a 5/16" open-end wrench to tighten the coaxial cable connectors firmly, but not excessively.
15. If your instrument had an Audio board installed, perform the *Install Upgrade Audio Board* procedure starting on page 15 to reinstall the board.

16. If you installed an Audio board, before replacing the top cover, check that your instrument appears as shown below.



17. Replace the top cover.

Option PHY Only

18. After installing the Eye board, go to page 24 and perform the steps in the *Install the Software Option Key* section.

Install the Software Option Key

If a software option key is provided with this kit, perform the following steps to activate the option:

NOTE. *This kit provides an option key based on the instrument serial number that you provided to Tektronix when you ordered this kit. The kit option key enables your new option(s) only on the instrument having the serial number that you provided.*

1. Make sure that the product to be activated is networked to a computer. See your *User Technical Reference* if you need help in doing so.
2. Start the Web browser, and set its address to that of the rasterizer to navigate to the Remote Interface page. See *Remote Communications* in your *User Technical Reference* if you need help in doing so.
3. Click on the **Instrument Options** to navigate to the **Active Options** page, and enter the key supplied with your kit.
4. Click the **Submit** button.

A pop-up message follows a successful upgrade, and the Active Options page reflects the newly installed option along with those already present. Refresh the page if the installed option is not displayed.

Verify the Upgrade

Quick Verification

Perform the following procedure to verify that the new option(s) have been installed and the instrument is functioning correctly:

1. Power on the instrument.
2. Verify the installed options by performing the following steps:
 - a. Press the **CONFIG** button on the front panel.
 - b. Navigate to **Utilities > View Instmt Options** to display the installed options.
 - c. Verify that the options installed prior to this upgrade are still enabled, and that the new option(s) you installed are enabled.

NOTE. *If the option(s) you just installed are not listed or if your previously installed options are not listed, contact Tektronix for assistance.*

3. Verify that the instrument passes the advanced diagnostic tests by performing the following steps:
 - a. In the Config menu, navigate to **Utilities > Run Advanced Diag.**
 - b. Press the **SEL** button on the front and select **Continue** in the Advanced Diagnostics dialog to start the tests.
 - c. Verify that for each diagnostic test the result reads **Pass**.
 - d. Press the **SEL** button on the front panel to reboot the instrument.

NOTE. *If a diagnostic test fails, contact Tektronix for assistance.*

Detailed Verification

To perform additional verification of the installed options, perform the *Incoming Inspection Tests* found in the *Specifications and Performance Verification* manual using the specified test equipment.

❏ End of document ❏