WFM2200
SD/HD/3G SDI Waveform Monitor & Generator
Declassification and Security

Instructions

www.tektronix.com

077-0663-00

Tektronix

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

Table of Contents

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.

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.

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. Remove the power cord of the external AC adapter to disconnect mains power from the product. Also remove any installed battery pack to completely disconnect power from the product.

Do not operate without covers. Do not operate this product with covers or panels removed. The battery compartment cover can be removed during instrument operation to install or replace the battery pack.

Do not operate with suspected failures. If you suspect that 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.

Replace battery pack properly. Replace the battery pack only with the specified type and rating.

Recharge battery pack properly. Recharge the battery pack only for the recommended charge cycle at the recommended temperature.

Use proper battery charger. Use only the WFM2200 waveform monitor or the WFM200BC external battery charger to charge the WFM200BA battery pack.

Use proper AC adapter. Use only the AC adapter specified for this product.

Remove battery pack before transporting or storing the instrument. Remove the battery pack when transporting or storing the instrument in an enclosed container such as the WFM200FSC Soft Carrying Case.

Do not operate in wet/damp conditions.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry.

Provide proper ventilation. See 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:

CAUTION
Refer to Manual

Standby

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.

Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the WFM2200 SD/HD/3G SDI Waveform Monitor & Generator.

This product has data storage (memory) devices and data output devices (USB ports). These instructions tell how to clear or sanitize the memory devices and disable the data output devices. The instructions also tell how to declassify an instrument that is not functioning.

Reference

The procedures in this document are written to meet the requirements specified in:

- NISPOM, DoD 5220.22–M, Chapter 8
- ISFO Process Manual for Certification & Accreditation of Classified Systems under NISPOM

Products

The following Tektronix product is covered by this document:

WFM2200 (Options 3G and DATA).

Related documents

The following table lists the documentation that is available for the product and shows where you can find it: in a printed manual or on the Tektronix Web site.

Table i: Product documentation

Item	Purpose	Location
Installation and Safety Instructions	Provides safety and compliance information with hardware installation instructions and associated safety warnings. This manual is available in English, Japanese, and Simplified Chinese.	Printed manual and also available at www.tektronix.com/manuals
User Manual	Provides operation and application information. This manual is available in English.	Available at www.tektronix.com/manuals
Online Help	In-depth instrument operation and UI help.	On the instrument
Specifications and Performance Verification Technical Reference	Specifications and procedures for checking instrument performance.	Available at www.tektronix.com/manuals
Declassification and Security Instructions (this manual)	Provides information for sanitizing the product.	Available at www.tektronix.com/manuals
Release Notes	Provides information about the key features and known limitations of a specific software version release.	Available at www.tektronix.com/manuals
WFM200BA Rechargeable Battery Pack Instructions	Provides safety, operating, and recycling information for the Lithium-Ion battery pack.	Printed manual and also available at www.tektronix.com/manuals
WFM200BC External Battery Charger Instructions	Provides safety and operating information for the optional, external battery charger.	Printed manual and also available at www.tektronix.com/manuals

Terms

The following terms may be used in this document:

- **Clear.** This removes data on media/memory before reusing it in a secured area. All reusable memory is cleared to deny access to previously stored information by standard means of access.
- **Erase.** This is equivalent to clear.
- **Media storage/data export device.** Any of several devices that can be used to store or export data from the instrument, such as a USB port.
- **Nonvolatile memory.** Data is retained when the instrument is powered off.
- **Power off.** This instrument has a “Standby” mode, in which power is still supplied to the instrument. For the purpose of clearing data, putting the instrument in Standby mode does not qualify as powering off. For this product, you will need to press and hold the Standby button for 5-10 seconds or remove the power source (AC adapter and battery pack) from the instrument.
- **Remove.** This is a physical means to clear the data by removing the memory device from the instrument.
- **Sanitize.** This eradicates the data from media/memory so that the data cannot be recovered by other means or technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a non-secured area.
- **Scrub.** This is equivalent to sanitize.
- **User-modifiable.** The user can write to the memory device during normal instrument operation, using the instrument interface or remote control.
- **Volatile memory.** Data is lost when the instrument is powered off.

Clear and sanitize procedures

Memory devices

The following tables list the volatile and nonvolatile memory devices in the standard instrument and listed options. Detailed procedures to clear or sanitize these devices, if any, are shown following each table.

Terminology

- User data – Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.
- User settings – Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.
- Both – Describes the type of information stored in the device. It means that both user data and user settings are stored in the device.
- None – Describes the type of information stored in the device. It means that neither user data nor user settings are stored in the device.
- Directly – Describes how data is modified. It means that the user can modify the data.
- Indirectly – Describes how data is modified. It means that the instrument system resources modify the data and that the user cannot modify the data.

Table 1: Volatile memory devices

Type and minimum size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data input method	Location	User accessible[1]	To clear	To sanitize
DDR2 RAM 256 MB	Microprocessor system memory, alarm logs, and the current instrument state	Both	No	Written by microprocessor	Indirectly	Main board, U33, U34	Yes	None	Remove the power source from the instrument for at least 20 seconds
FPGA DSP 4.3 MB	Rasterizer	None	No	Written by microprocessor	Indirectly	FPGA board, U20	No	None	Remove the power source from the instrument for at least 20 seconds
QDR2 RAM 4.5 MB	DSP RAM	None	No	Written by FPGA DSP	Indirectly	FPGA board, U3, U4	No	None	Remove the power source from the instrument for at least 20 seconds
FPGA DSY 8.1 MB	Display FPGA	None	No	Written by microprocessor	Indirectly	FPGA board, U19	No	None	Remove the power source from the instrument for at least 20 seconds
DDR2 DSY 256 MB	Frame Buffer #1 for DSY FPGA	User data	No	Written by FPGA DSY	Indirectly	FPGA board, U14, U15	Yes	None	Remove the power source from the instrument for at least 20 seconds
DDR2 DSY 256 MB	Frame Buffer #2 for DSY FPGA	User data	No	Written by FPGA DSY	Indirectly	FPGA board, U22, U23	Yes	None	Remove the power source from the instrument for at least 20 seconds
DDR2 DSY 256 MB	System display graphics buffer	User data	No	Written by FPGA DSY	Indirectly	FPGA board, U24, U25	No	None	Remove the power source from the instrument for at least 20 seconds

1 During normal instrument operation.

Table 2: Nonvolatile memory devices

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible [1]	To clear	To sanitize
NOR Flash 64 MB	Contains instrument SW, user-defined presets, and FPGA code storage	User settings	Directly	Programmed by software during software upgrade and user interface	Main board, U32	Yes	Perform the *Clear Presets Procedure* (See page 4.)	Reload the system software per the loading instructions and perform the *Clear Presets Procedure* (See page 4.)
NVSRAM plus Real Time Clock 32 KB	Stores time set by user, network access parameters, software option key, current instrument state, and diagnostics log	User settings	Directly	User Interface	Main board, U37	Yes	Perform both the *Clear Diagnostic Log Procedure* and the *Clear IP and SNMP Address Fields Procedure* (See page 4.)	Perform both the *Clear Diagnostic Log Procedure* and the *Clear IP and SNMP Address Fields Procedure* (See page 4.)
PLD, Glue	Control logic	None	Indirectly	Programmed by software after software upgrade	Main board, U2	No	None	Reload the system software per the loading instructions

[1] During normal instrument operation.

Clear presets procedure

1. Press and hold the **PRESET** button to display the Preset menu. Then select **Recall Preset** > **Recall Factory Preset** > **Press SEL**. Press **SEL** to restore the presets to the factory state.
2. Press and hold the **PRESET** button. Then select **Save Preset** > **Select Group A**. For all presets that are not empty “<e>”, select **Save** and then press **SEL** to overwrite that preset with the factory settings.
3. Check each group and overwrite presets that are not empty as described in the previous step.
4. Navigate to the top level menu and select **Rename Preset**. Rename all named groups and presets with the label “Default”.

Clear diagnostic log procedure

1. Press the **CONFIG** button. Then press **Utilities** > **View Diagnostic Log**. Press **SEL** to display the log.
2. Press **>** until the box by “Erase Log” is highlighted. Then press **SEL** to remove all entries in the diagnostic log.
3. Press **>** until the box by “Exit” is highlighted. Then press **SEL** to exit the log display.
4. Press the **CONFIG** button to exit the Configuration menu.

Clear IP and SNMP address fields procedure

1. Press the **CONFIG** button. Then select **Network Settings**.
2. Set **IP Config Mode** to **Manual** to display the IP address.
3. Navigate to **IP Address**. Then press **>** to enter the edit mode. Enter “000.000.000.000” for the IP address.
4. Repeat Step 3 for the Subnet Mask, Gateway Address, and SNMP Trap Address 1 through SNMP Trap Address 4.
5. Press the **CONFIG** button to exit the configuration menu.

Data export devices

The following table lists the data export devices in the standard instrument and listed options. Detailed procedures to disable these devices, if any, are shown following the table.

Table 3: Data export devices

Type and minimum size	Function	Method of modification	Data input method	Location	Process to disable
Ethernet	Communications	Indirectly	Standard Ethernet protocol	Side edge of instrument	Perform the *Disable Web and SNMP Access Procedure* (See page 5.)
USB	Data storage	Indirectly	Standard USB protocol	Top edge of instrument	None

Disable Web and SNMP access procedure

1. Press the **CONFIG** button. Then select **Network Settings**.
2. Navigate to **Web Enable** and set it to **Off**.
3. Navigate to **SNMP Enable** and set it to **Off**.
4. Press the **CONFIG** button to exit the configuration menu.

Enable Web and SNMP access procedure

To enable Web and SNMP access, perform the *Disable Web and SNMP Procedure* above, but select **On** to enable each protocol.

Troubleshooting

How to clear or sanitize a nonfunctional instrument

To sanitize a nonfunctional instrument, you must remove the Main board and return the instrument to Tektronix for the installation of a new Main board.

Required equipment

You will need the following equipment to remove the Main board from the instrument:

Item
TORX driver with T9 and T10 bits
3/16 inch driver
9/16 inch driver
Anti-static bag (5 x 8 inches minimum)

Remove the Main board

1. Remove the AC adapter and battery pack from the instrument. Leave the battery door off of the instrument.
2. Remove the handle strap from the instrument.
3. Remove the rubber boot from the instrument as described in the following steps:

CAUTION. *To prevent damage to the rubber boot, perform the boot removal steps in the order given. The rubber boot can rip or tear when it is stretched over the edge of the instrument during removal.*

   a. From the back of the instrument, loosen the boot by pulling up the boot near the securing latches. The following figure shows the location of the latches.

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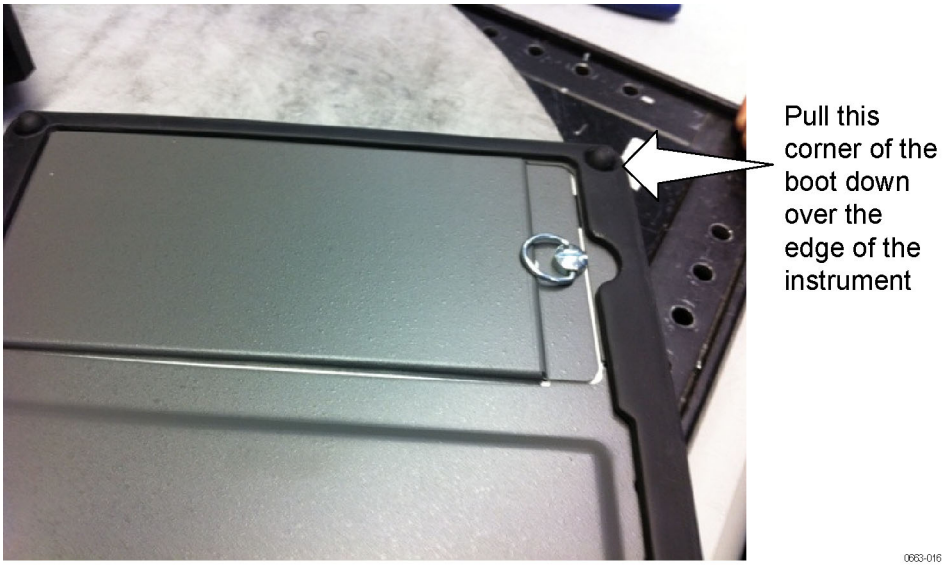
b. From the back of the instrument, loosen the boot by pulling up the boot near the securing latches, and then pull the rubber boot over the left bottom corner towards the front of the instrument.

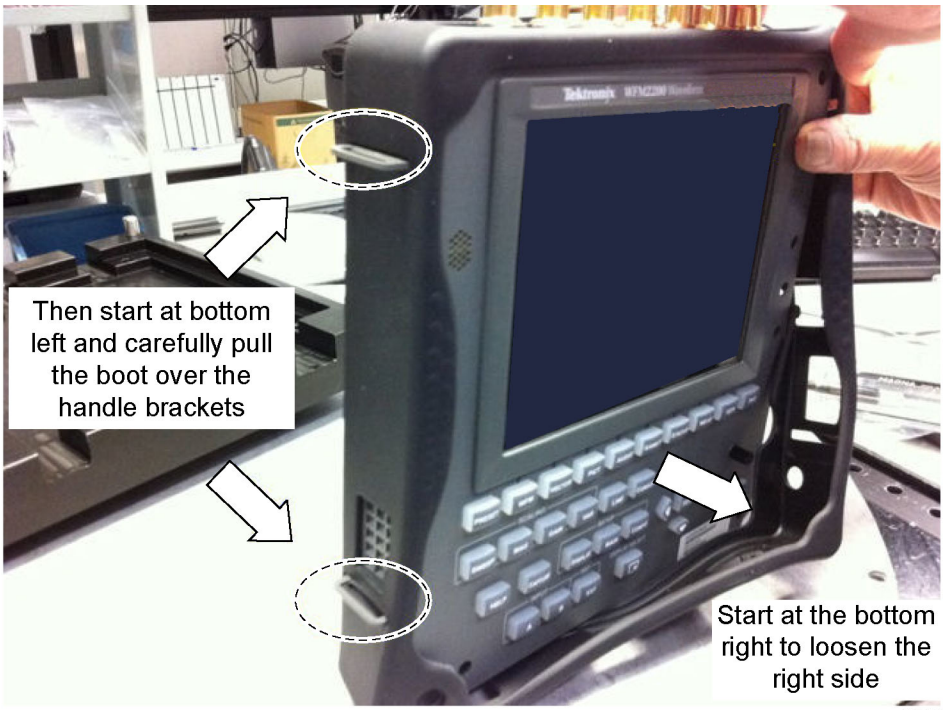


c. Turn the instrument over so that the front is facing you.

d. Loosen the rubber boot by pulling up the boot near the securing latches. The following figure shows the location of the latches.

e. With the instrument front panel facing you as shown in the following figure, start at the bottom right and pull the boot towards you over the right side of the instrument until the top right corner of the boot is loose.

f. Starting at the bottom left, pull the boot over the corner of the instrument, and then carefully pull the boot over the handle brackets.



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h. Remove the boot by lifting the boot over the top of the BNC connectors.

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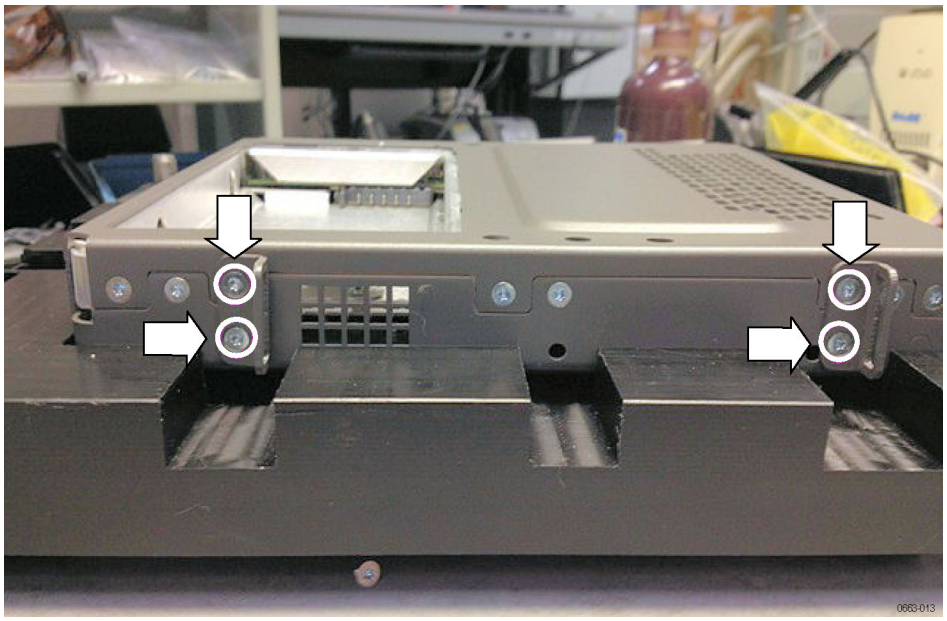
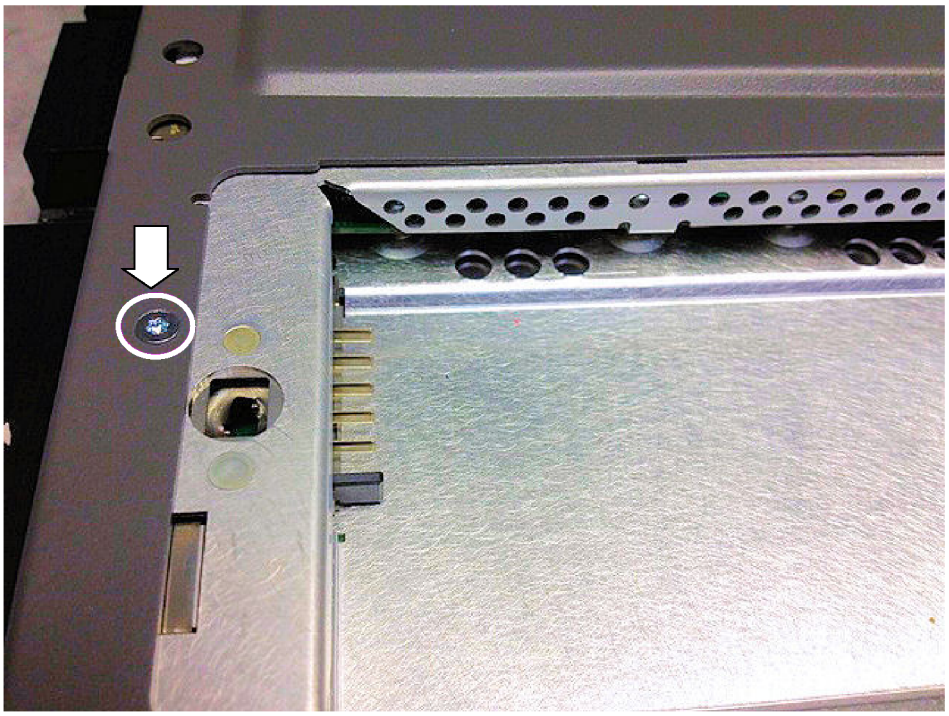
4. Use a 9/16 inch driver to remove the nuts and lock washers from the BNC connectors.

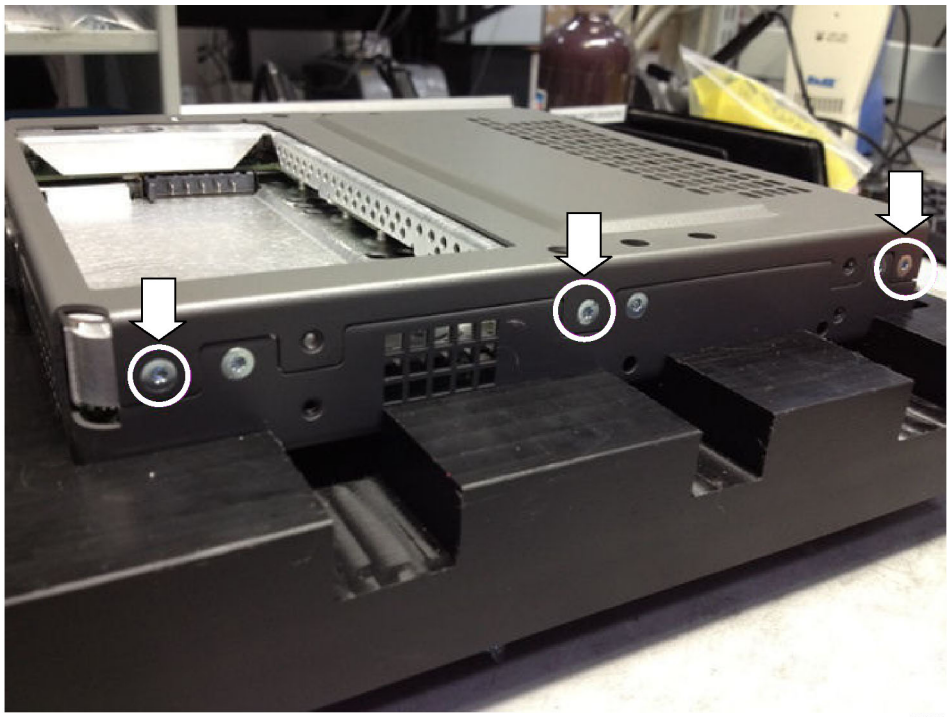
5. Remove the two handle brackets from the side of the instrument. Note the orientation of the brackets for reinstallation.



6. Remove the back-panel screw near the battery door.



7. Remove the side panel screws shown in the following four illustrations.



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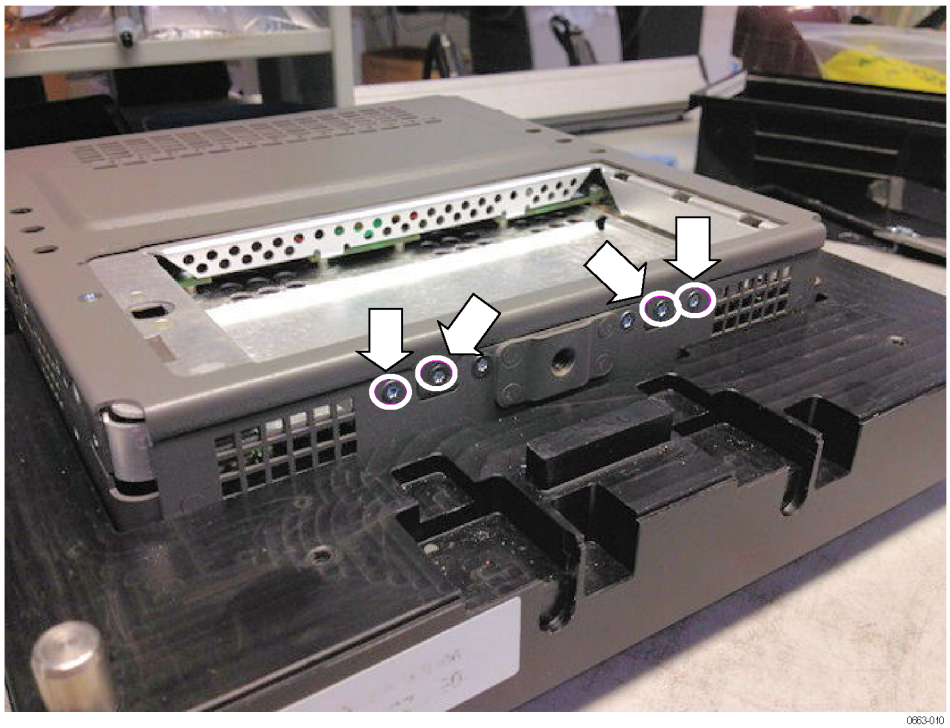

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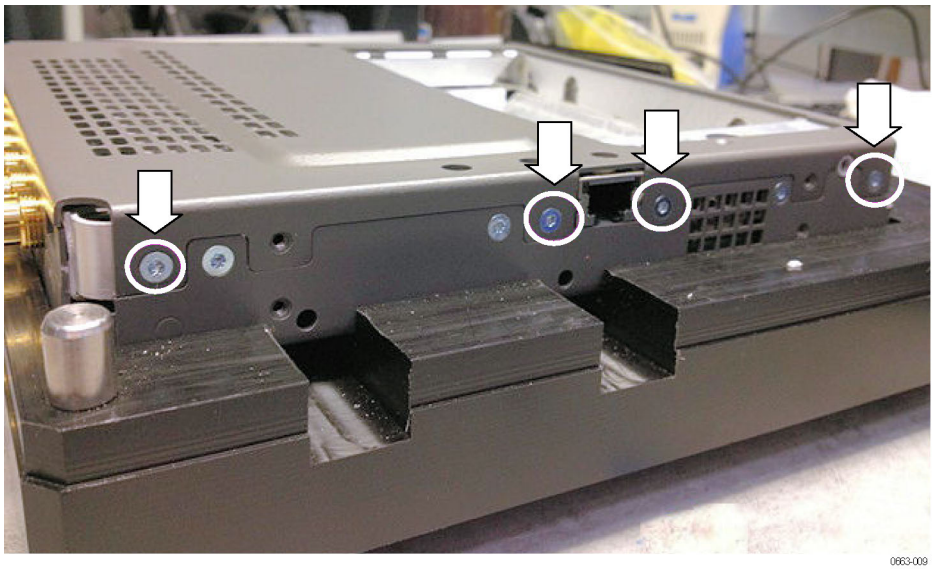

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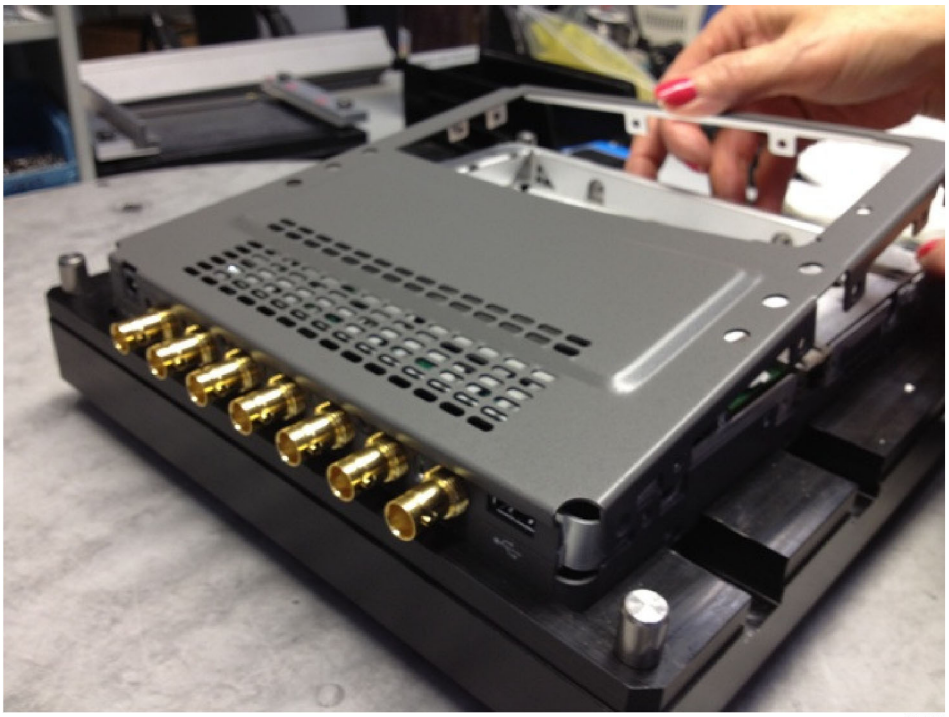
8. Place the instrument face down on your work surface, and then lift the rear chassis off of the instrument.

CAUTION. *To prevent damage to the front panel knob, do not put excessive weight on the instrument while it is face down during the disassembly process.*



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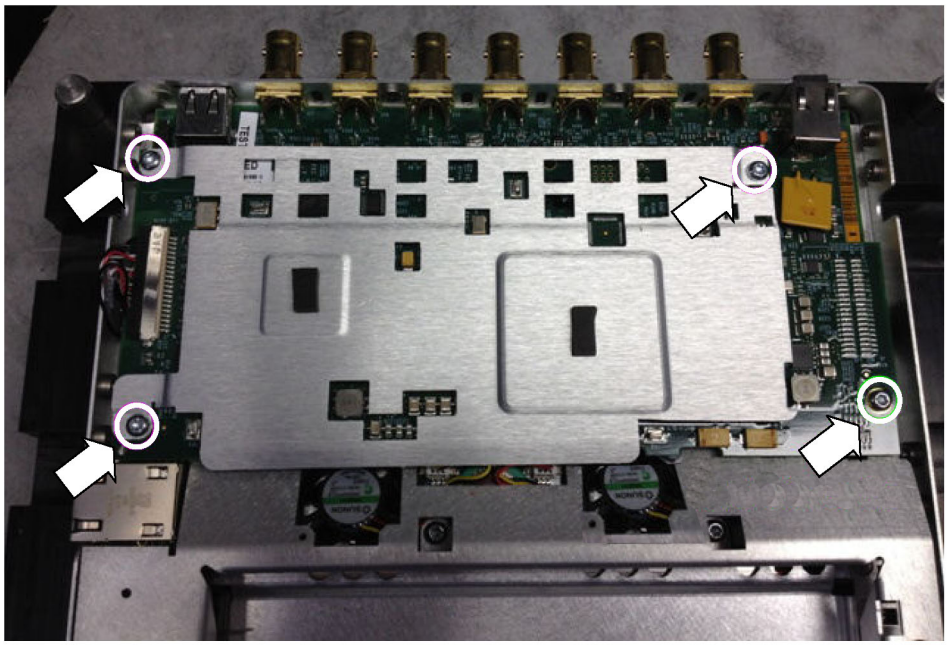
9. Remove the four screws securing the heat spreader, and then lift the heat spreader out of the instrument.



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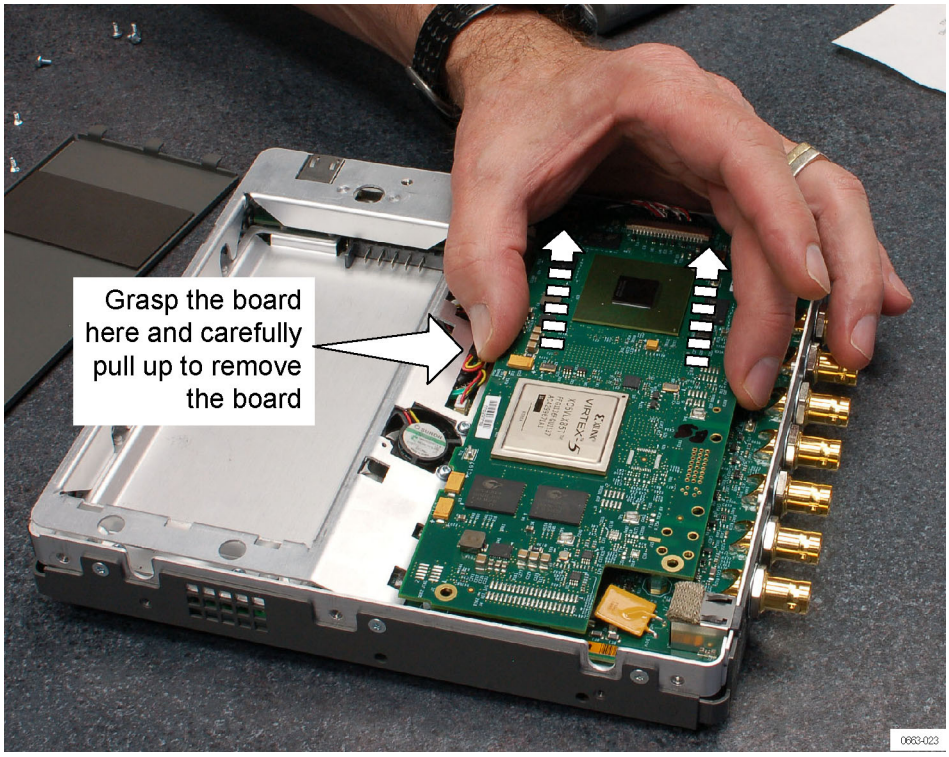
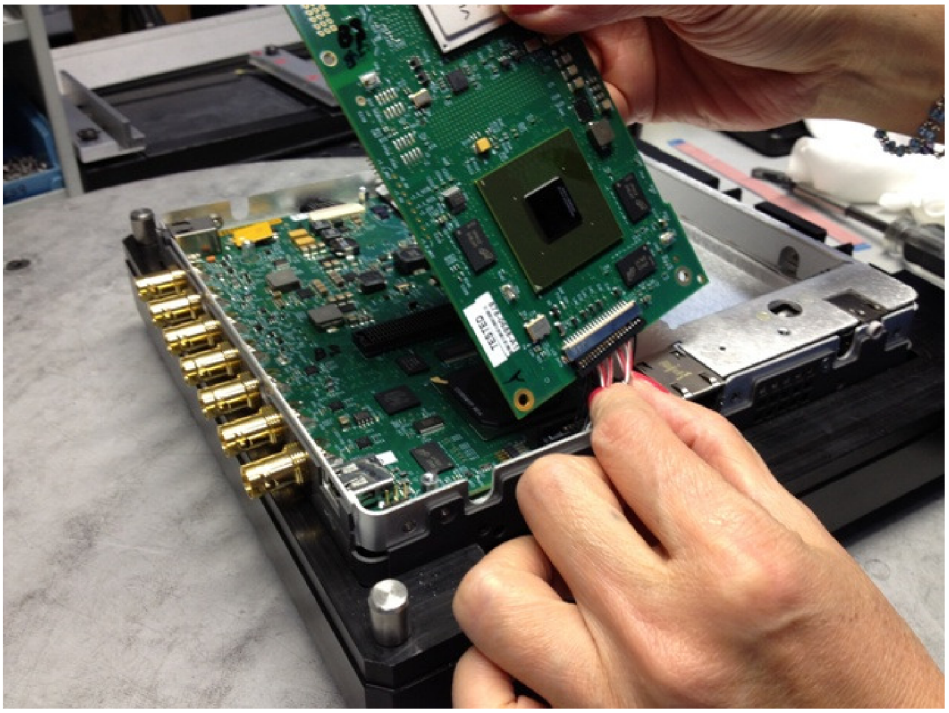
10. Grasp the FPGA board near the connector in the middle of the board as shown in the following figure, and then carefully pull up on the FPGA board to disconnect it from the Main board.

Although the connector is on the bottom side of the FPGA board, you can see the rows of soldered connector pins on the top side of the board.



11. Disconnect the display cable from the FPGA board and remove the FPGA board from the instrument.

CAUTION. *To protect the circuit board from damage, place the FPGA board in an anti-static bag after you remove the board. The FPGA board will not be able to be reinstalled after the Main board is removed.*



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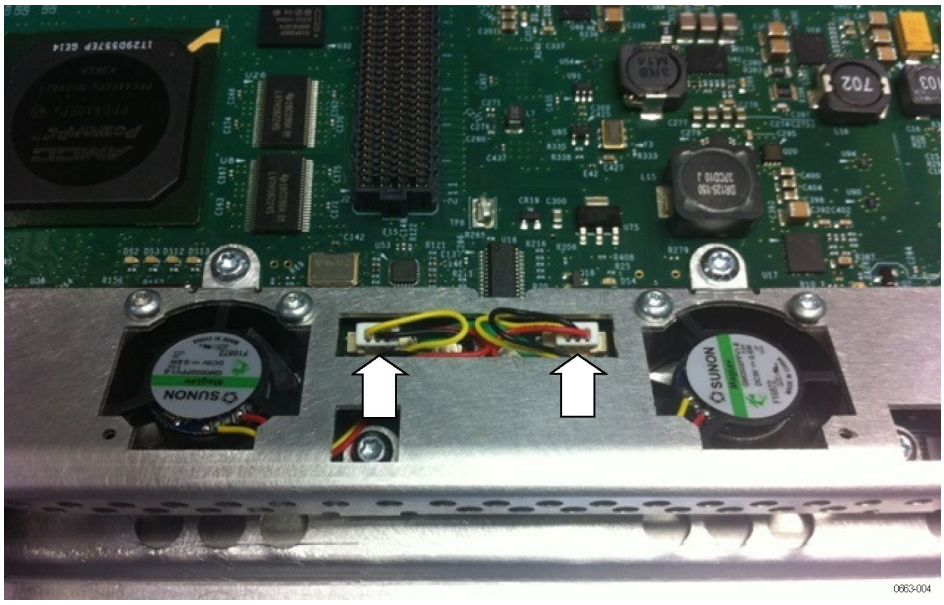
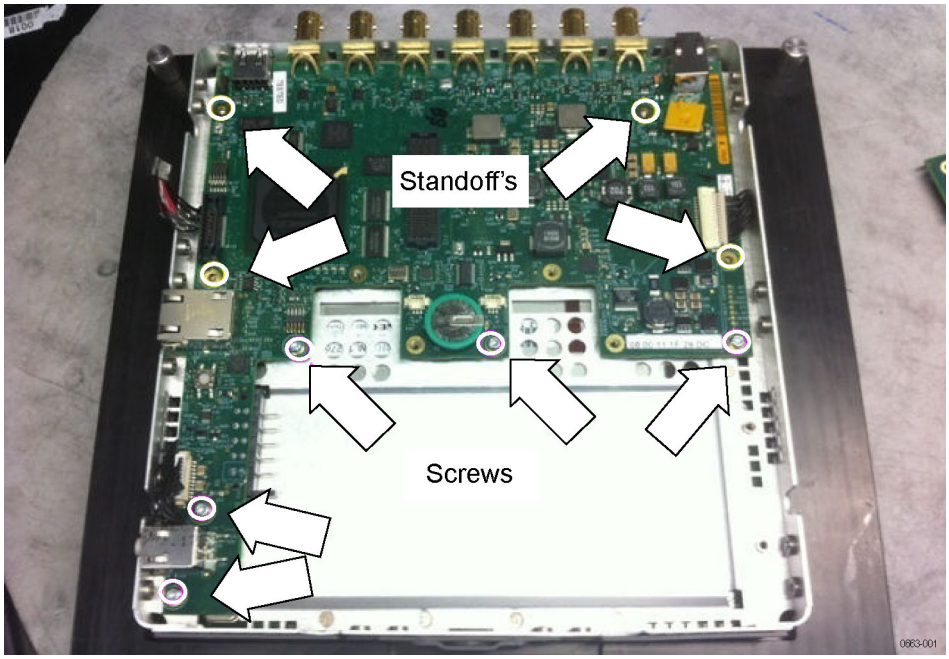
12. Disconnect the fan cables.



13. Remove the six screws securing the fan bracket assembly, and then lift the fan bracket assembly from the instrument chassis.

14. Disconnect the backlight and front-panel cables from the Main board.

15. Remove the four standoffs and five screws securing the Main board, and then lift the Main board from the instrument chassis.



16. As necessary for your installation, safely store or destroy the Main board.

Repackage the instrument for shipment

After you remove the Main board, perform the following steps to prepare the instrument for shipment to Tektronix to have the Main board replaced:

1. Reinstall the rear chassis onto the instrument:
   a. Align the cut outs in the rear chassis with the front chassis, and then carefully press down on the rear chassis to fit the two chassis pieces together.

   CAUTION. *To prevent damage to the front-panel knob, do not use excessive force when pressing down on the rear chassis.*

   b. Secure the rear chassis by reinstalling the side panel screws. See step 7 of the Main board removal procedure.
2. Place the FPGA board into an anti-static bag to protect the circuit board from damage.
3. Collect the rest of the loose parts and package them for shipment:
   a. Package all of the screws in one bag.
   b. Package the remaining loose components in separate bags to prevent damage during shipment.
4. If possible, ship the instrument to Tektronix using the original packaging. The bags containing the loose components should fit into the top tray of the original packaging.

NOTE. *If necessary, contact Tektronix customer support to obtain replacement packaging.*