



**Tektronix BERTScope BSX Series  
Bit Error Rate Analyzer  
Declassification and Security Instructions**







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Bit Error Rate Analyzer  
Declassification and Security Instructions**

**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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### **Contacting Tektronix**

Tektronix, Inc.  
14150 SW Karl Braun Drive  
P.O. Box 500  
Beaverton, OR 97077  
USA

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit [www.tek.com](http://www.tek.com) to find contacts in your area.

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# Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, see the *Service safety summary* that follows the *General safety summary*.

## General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

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.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of 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. Do not use the provided power cord for other products.

**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. Do not disable the power cord grounding connection.

**Power disconnect.** The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

**Connect and disconnect properly.**

**Observe all terminal ratings.** To avoid fire or shock hazard, observe all rating 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.

The measurement terminals on this product are not rated for connection to mains or Category II, III, or IV circuits.

**Do not operate without covers.** Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

**Avoid exposed circuitry.** Do not touch exposed connections and components when power is present.

**Do not operate with suspected failures.** If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Before use, inspect voltage probes, test leads, and accessories for mechanical damage and replace when damaged. Do not use probes or test leads if they are damaged, if there is exposed metal, or if a wear indicator shows.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

Use only specified replacement parts.

**Use proper fuse.** Use only the fuse type and rating specified for this product.

**Wear eye protection.** Wear eye protection if exposure to high-intensity rays or laser radiation exists.

**Do not operate in wet/damp conditions.** Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

**Do not operate in an explosive atmosphere.**

**Keep product surfaces clean and dry.** Remove the input signals before you clean the product.

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

Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

**Provide a safe working environment.** Always place the product in a location convenient for viewing the display and indicators.

Avoid improper or prolonged use of keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.

Use care when lifting and carrying the product. This product is provided with handles for lifting and carrying.

Use only the Tektronix rackmount hardware specified for this product.

## Service safety summary

The *Service safety summary* section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

**To avoid electric shock.** Do not touch exposed connections.

**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 product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

**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.

**Verify safety after repair.** Always recheck ground continuity and mains dielectric strength after performing a repair.

## Terms in the manual

These terms may appear in this manual:



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

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

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## 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.

## Symbols on the product



When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbols may appear on the product:



CAUTION  
Refer to Manual



WARNING  
High Voltage



Protective Ground  
(Earth) Terminal



Earth Terminal



Chassis Ground



Mains Disconnected  
OFF (Power)



Mains Connected  
ON (Power)



Standby

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# Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix BERTScope BSX Series Bit Error Rate Analyzers.

These products have data storage (memory) devices and data output devices. 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 products are covered by this document:

- BSX125
- BSX240
- BSX320

## Terms used in this document

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.
- **Instrument Declassification.** A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal, and sometimes both.
- **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.** Some instruments have 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 these products, you will need to remove the power source from the instrument.
- **Remove.** This is a physical means to clear the data by removing the memory device from the instrument. Instructions are available in the product Service Manual.
- **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 Accessible.** User is able to directly retrieve the memory device contents.
- **User-modifiable.** 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.

## Device terms

The following terms are used with the memory devices in this document:

- **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.



# Memory devices

## Volatile memory devices

<b>Device name</b>	Microprocessor memory
<b>Type and size</b>	SDRAM 8 GB (std)
<b>Function</b>	Microprocessor system memory
<b>Type of user information stored</b>	User data, user settings
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Directly
<b>Data input method</b>	Written by the processor system
<b>Location</b>	Socket, computer board
<b>User accessible</b>	Yes
<b>To clear</b>	Remove power from the instrument for at least 20 seconds.
<b>Process to sanitize</b>	Remove power from the instrument for at least 20 seconds.

---

<b>Device name</b>	Pattern memory
<b>Type and size</b>	SRAM 576 Mb
<b>Function</b>	User pattern memory
<b>Type of user information stored</b>	User data patterns
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Through the application
<b>Data input method</b>	Written by the processor system
<b>Location</b>	Generator section MIC
<b>User accessible</b>	Yes
<b>To clear</b>	Remove power from the instrument for at least 20 seconds.
<b>Process to sanitize</b>	Remove power from the instrument for at least 20 seconds.

---

<b>Device name</b>	Pattern memory
<b>Type and size</b>	SRAM 576 Mb
<b>Function</b>	User pattern memory
<b>Type of user information stored</b>	User data patterns
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Through the application
<b>Data input method</b>	Written by the processor system
<b>Location</b>	Detector section MIC
<b>User accessible</b>	Yes

---

<b>To clear</b>	Remove power from the instrument for at least 20 seconds.
<b>Process to sanitize</b>	Remove power from the instrument for at least 20 seconds.

---

<b>Device name</b>	Synthesizer memory
<b>Type and size</b>	RAM 28 Kb
<b>Function</b>	Synthesizer control
<b>Type of user information stored</b>	System frequency
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	None
<b>Data input method</b>	Written by the processor system
<b>Location</b>	SYN-FM board
<b>User accessible</b>	No
<b>To clear</b>	Remove power from the instrument for at least 20 seconds.
<b>Process to sanitize</b>	Remove power from the instrument for at least 20 seconds.

---

<b>Device name</b>	Microcontroller memory
<b>Type and size</b>	RAM 56 Kb
<b>Function</b>	TxEQ control
<b>Type of user information stored</b>	None
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	None
<b>Data input method</b>	None
<b>Location</b>	Written by the processor system
<b>User accessible</b>	No
<b>To clear</b>	Remove power from the instrument for at least 20 seconds.
<b>Process to sanitize</b>	Remove power from the instrument for at least 20 seconds.

---

## Nonvolatile memory devices

<b>Device name</b>	Fixed hard disk drive
<b>Type and size</b>	Fixed hard disk drive
<b>Function</b>	Holds operating system and application software. Holds all user storable data patterns, measurement results, and instrument settings.
<b>Type of user information stored</b>	User data, user settings
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Manufacturing operations, user input
<b>Location</b>	Internal
<b>User accessible</b>	Yes
<b>To clear</b>	Erase the hard disk drive with commercial erasure software. Remove the hard disk drive. (See <a href="#">Remove the hard disk drive</a> on page 12.) When the hard disk drive is erased, the instrument is disabled.
<b>Process to sanitize</b>	Erase the hard disk drive with commercial erasure software. Remove the hard disk drive. (See <a href="#">Remove the hard disk drive</a> on page 12). When the hard disk drive is erased, the instrument is disabled.

<b>Device name</b>	EEPROM 64b
<b>Type and size</b>	EEPROM 64Kb + Flash 256 Kb
<b>Function</b>	Holds instrument manufacturing data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Pattern generator (PGM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

<b>Device name</b>	Flash 32 Mb
<b>Type and size</b>	Flash 32 Mb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Main interface controller (MIC) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

---

<b>Device name</b>	EEPROM 64Kb
<b>Type and size</b>	EEPROM 64Kb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Delay (DLY) board There are two of these
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

---

<b>Device name</b>	EEPROM 64Kb
<b>Type and size</b>	EEPROM 64Kb
<b>Function</b>	Holds instrument manufacturing data and instrument serial number
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Pattern detector (PDM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

---

<b>Device name</b>	EEPROM 8Kb
<b>Type and size</b>	EEPROM 8 Kb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Generator stress module (GSM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

---

<b>Device name</b>	Flash 32 Mb
<b>Type and size</b>	Flash 32 Mb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations

<b>Location</b>	Generator stress module (GSM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<hr/>	
<b>Device name</b>	Flash 32 Mb
<b>Type and size</b>	Flash 32 Mb
<b>Function</b>	Holds instrument manufacturing data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Mini-MUL board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<hr/>	
<b>Device name</b>	Flash 256 Kb
<b>Type and size</b>	Flash 256 Kb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Mini_MUL board MCU
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<hr/>	
<b>Device name</b>	Flash 32 Mb
<b>Type and size</b>	Flash 32 Mb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Synthesizer, FM (SYN-FM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

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<b>Device name</b>	Flash 280Kb
<b>Type and size</b>	Flash 280Kb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Synthesizer, FM (SYN-FM) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

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<b>Device name</b>	FPGA 128 Mb
<b>Type and size</b>	FPGA 128 Mb
<b>Function</b>	Holds configuration firmware data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	TxEQ controller board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

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<b>Device name</b>	Flash 32 Mb
<b>Type and size</b>	Flash 32 Mb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	TxEQ controller board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

---

<b>Device name</b>	Computer BIOS memory
<b>Type and size</b>	NVRAM
<b>Function</b>	Computer BIOS
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Through the user interface
<b>Data input method</b>	Written by the processor system

<b>Location</b>	Computer board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<hr/>	
<b>Device name</b>	Computer CMOS settings
<b>Type and size</b>	NVRAM
<b>Function</b>	Computer BIOS
<b>Type of user information stored</b>	User settings
<b>Method of modification</b>	Through the user interface
<b>Data input method</b>	Written by the processor system
<b>Location</b>	Computer board
<b>User accessible</b>	Yes
<b>To clear</b>	(See <a href="#">Clear or sanitize the CMOS settings</a> on page 9.) Clearing would disable instrument functionality.
<b>Process to sanitize</b>	(See <a href="#">Clear or sanitize the CMOS settings</a> on page 9.) Clearing would disable instrument functionality.
<hr/>	
<b>Device name</b>	32 Mb
<b>Type and size</b>	32 Mb
<b>Function</b>	Holds instrument calibration data
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirect
<b>Data input method</b>	Firmware operations
<b>Location</b>	Synthesizer, FM power (SYN-FM PWR) board
<b>User accessible</b>	No
<b>To clear</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.
<b>Process to sanitize</b>	N.A., does not contain user data or settings. Clearing would disable instrument functionality.

## Media and data export devices

This section describes the media and data export devices in the standard instrument and listed options.

<b>Device type</b>	RS-232
<b>Function</b>	Controls peripheral devices
<b>Method of modification</b>	Directly
<b>Data input method</b>	-
<b>Location</b>	Rear panel (COM1)
<b>Process to disable</b>	The RS-232 port can be disabled. (See <a href="#">Disable the RS-232 port and USB functions</a> on page 11.)

<b>Device type</b>	USB Host port (supports removable USB flash drives)
<b>Function</b>	User storage of reference waveforms, screen images, and instrument setups. Control peripheral devices.
<b>Data input method</b>	User writeable
<b>Location</b>	Front and rear of instrument
<b>Process to disable</b>	Files can be deleted or overwritten on the BERTScope or on a PC, or USB flash drive can be removed or destroyed. The USB ports can be disabled. (See <a href="#">Disable the RS-232 port and USB functions</a> on page 11.)

<b>Device type</b>	LAN Ethernet connector
<b>Function</b>	Control + data
<b>Method of modification</b>	Directly
<b>Data input method</b>	N.A.
<b>Location</b>	Rear panel
<b>Process to disable</b>	The Ethernet port can be disabled. (See <a href="#">Disable the Ethernet and GPIB ports</a> on page 12.)

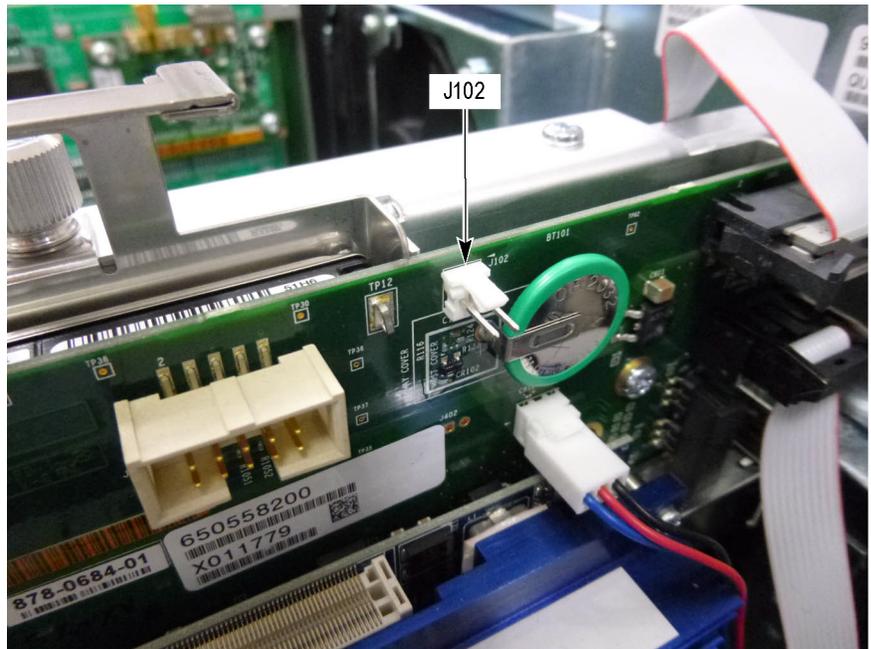
<b>Device type</b>	GPIB connector
<b>Function</b>	Control + data
<b>Method of modification</b>	Directly
<b>Data input method</b>	N.A.
<b>Location</b>	Rear panel
<b>Process to disable</b>	The GPIB port can be disabled. (See <a href="#">Disable the Ethernet and GPIB ports</a> on page 12.)

# Secure user memory devices

## Clear or sanitize the CMOS settings

The computer carrier board contains a jumper that can erase CMOS data and reset the system BIOS information. To access this jumper, you need to disassemble the instrument.

1. Refer to the procedures to remove the chassis from the instrument enclosure. (See [Disassemble the instrument](#) on page 16.)
2. Locate the CMOS jumper J102 on the carrier board as shown in the following figure.



**Figure 1: Location of J102 on the carrier board**

3. Temporarily place a jumper across J102 to drain the residual voltage from the CMOS memory.
4. Remove the jumper from J102.

---

**NOTE.** If you need to remove the hard disk drive from the instrument for security purposes, do so before reassembling the instrument.

---

5. Refer to the procedures to reinstall the chassis in the instrument enclosure while being careful not to damage any circuit boards or cables. (See [Reassemble the instrument](#) on page 17.)

## Clearing hard disk drives

If your organization's security protocols allow the use of software to purge or sanitize hard drives, you can use commercial software to erase free space on the hard drive before sending the instrument out for upgrades or repair. Follow the instructions that come with the software to ensure that the erasure of sensitive data from the hard drive complies with your organization's security protocols.

---

# Media and data export devices clear and sanitize procedures

## Disable the RS-232 port and USB functions

Complete the following steps to disable the RS-232 ports and USB functions:

1. Press Delete on the keyboard during Boot Up to go to the BIOS configuration menu.
2. Press the down arrow key and go to Integrated Peripherals.
3. Press Enter.
4. Press the down arrow key and go to Super IO Device.
5. Press Enter.
6. Go to Onboard Serial Port 1.
7. Press Enter.
8. Press the up arrow and set Serial Port to Disable.
9. Press Enter.
10. Press Esc to go back a menu.

---

**NOTE.** Do not disable Serial Port 2. it is used (COM2) internally (only) for the touch screen.

---

11. While still in the Integrated Peripherals menu, go to USB Device Setting and then press Enter.
12. Select USB IO Controller and then press Enter.
13. Select Disabled and then press Enter.
14. Select USB 2.0 Controller and then press Enter.
15. Select Disabled and then press Enter.
16. Press F10 and then select Yes to save and exit.

## Disable the Ethernet and GPIB ports

Complete the following steps to disable the Ethernet and GPIB ports:

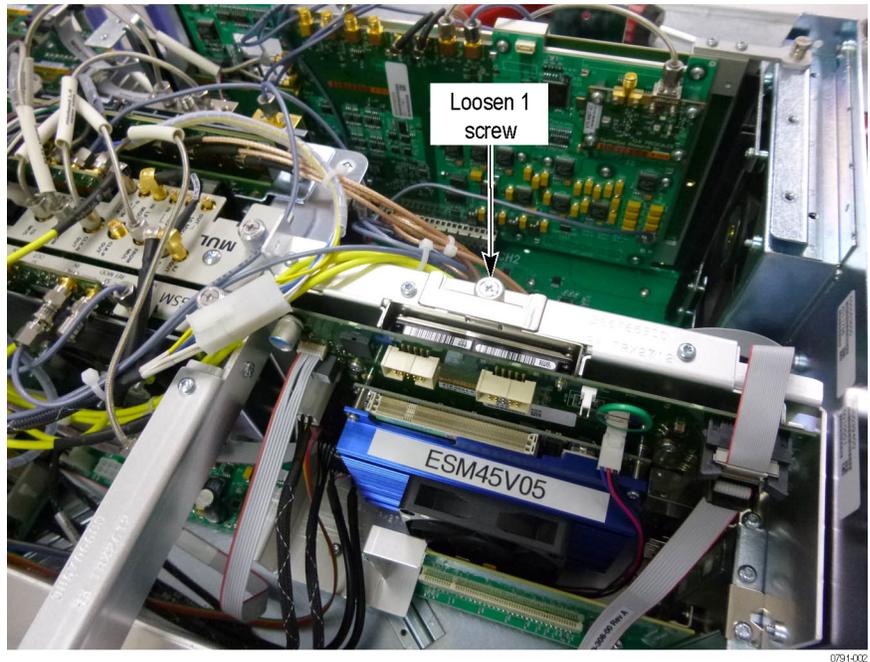
1. Go to the desktop and click Start on the task bar.
2. Right-click My Computer and select Properties.
3. Go to the Hardware tab and click Device Manager.
4. Double-click Network adapters to expand the list.
5. Double-click the adapter device (for example, Intel® 82583V).
  - a. Under the General tab, go to Device usage at the bottom of the tab page and select Do not use this device (disable).
  - b. Click OK,
6. In the Device Manager, double-click National Instruments GPIB Interfaces to expand the list.
7. Double-click PCI-GPIB.
  - a. Under the General tab, go to Device usage at the bottom of the tab page and select Do not use this device (disable).
  - b. Click OK,
8. Close the Device Manager and then click OK in the System Properties dialog box. Tektronix

## Remove the hard disk drive

Remove the hard disk drive and return the instrument to Tektronix. A new hard disk drive will be installed and the instrument will be repaired and adjusted as necessary.

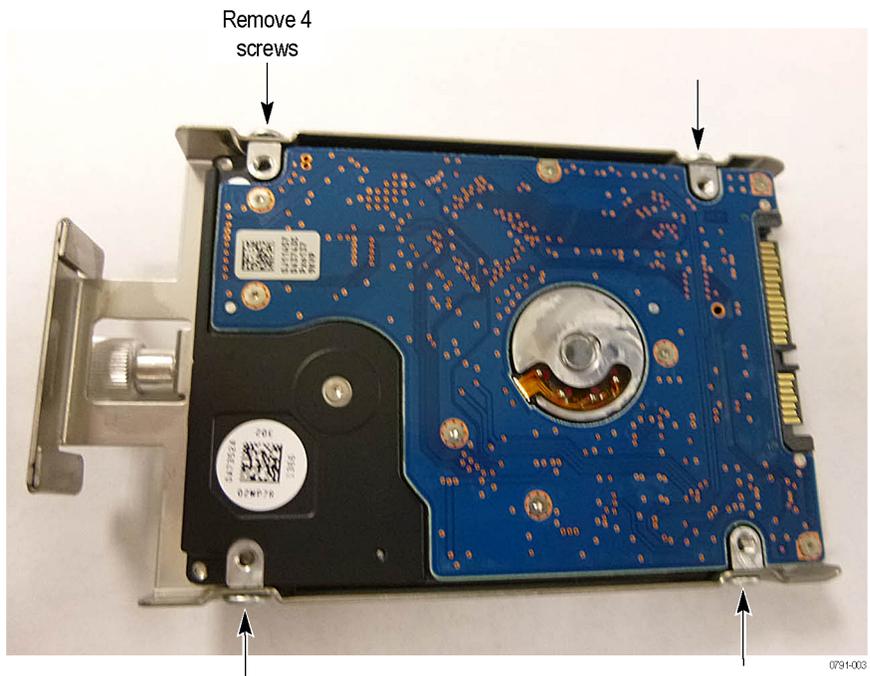
1. Refer to the procedures to remove the chassis from the instrument enclosure. (See *Disassemble the instrument* on page 16.)
2. Locate the hard disk drive assembly on the top rear of the instrument.

3. Loosen the screw securing the hard disk drive assembly using a P2 tip and then remove the assembly from the instrument.



**Figure 2: Loosen the one screw to remove the hard disk drive assembly**

4. Place the hard disk drive assembly on a clean, static-free working surface.
5. Refer to the following figure and remove screws securing the hard disk drive from the hard disk drive plate using a P2 tip.



**Figure 3: Remove the screws securing the hard disk drive to the hard disk drive plate**

6. Follow your company's internal procedures for storing or disposing the hard disk drive.
7. Reinstall the hard disk drive bracket (without the hard disk drive) in the computer card cage and tighten the one screw using a P2 tip.
8. Refer to the procedures to reinstall the chassis in the instrument while being careful not to damage any circuit boards or cables. (See *Reassemble the instrument* on page 17.)

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## Product disassembly procedures

Follow the procedures in this section to disassemble the instrument to remove the hard disk drive and to access the single-board computer.

You will need a screwdriver or screwdriver handle with the following tips: P1, P2, and T15 to disassemble and reassemble the instrument.



**WARNING.** *To avoid electric shock, always power off the instrument and disconnect the power cord before cleaning or servicing the instrument.*

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**CAUTION.** *Many components within the chassis are susceptible to static discharge damage. Service the chassis only in a static-free environment.*

*Observe standard handling precautions for static-sensitive devices while servicing the chassis.*

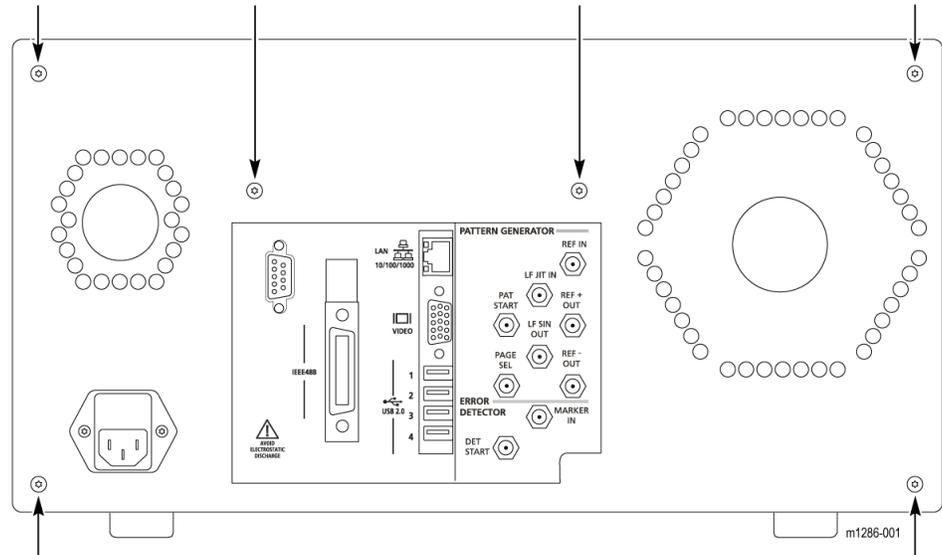
*Always wear a grounded wrist strap, or equivalent, while servicing the chassis.*

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## Disassemble the instrument

1. Disconnect the power cord from the instrument and set the instrument on a static-free, soft surface.
2. Refer to the following figure and remove the six screws from the rear of the chassis, one screw from each corner and two screws in the center of the rear panel.

Remove 6 screws



**Figure 4: Locations of screws on the rear panel**

3. Slide the instrument chassis out from the enclosure and set it aside.

## Reassemble the instrument



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**CAUTION.** *The circuit boards and cables can be damaged if you incorrectly install the cover/enclosure. Make sure that you do not damage any circuit boards or cables when you slide the chassis into the instrument enclosure.*

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Make sure that you have correctly installed the hard disk drive bracket before continuing the following steps:

1. Carefully slide the chassis into the cover shell making sure that none of the cables get pinched outside the shell. Verify that the EMI gasketing is seated on the front edges of the shell.



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**CAUTION.** *To avoid damaging the power cord connector, center the power connector in the hole as you tighten the screws.*

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2. Attach the chassis to the cover shell using the six screws that you removed earlier. Do not tighten the screws until all of them have started.
  - a. Install one of the center screws while moving the chassis as needed to align the screw holes; install the second center screw.
  - b. Attach the four outside screws moving the chassis as needed to align the screws.
3. Tighten all of the screws to 10.0 in.-lbs using a T15 tip.



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## Clear or Sanitize a non-functional instrument

If your instrument is not functioning, perform the following actions and return the instrument for Tektronix for repair. Describe the initial problem with the product. Tektronix will install replacement parts and then repair and return the instrument.

### External memory devices

Remove any USB flash drives or external hard drives from the instrument.

### Charges

Replacement of any missing hardware will be charged according to the rate at the time of replacement.

### Recover from clearing or removing the instruments memory

After the hard disk drive has been sanitized, the operating system, directory structure, computer drivers, and the BERTScope software must be reinstalled. Replace the hard disk drive with a new preprogrammed hard disk drive from Tektronix Customer Service.

Complete the following steps to reset the single-board computer settings to the default values:

1. Power on the instrument.
2. Press and hold the Delete key when the system powers on to enter the BIOS settings.
3. Press the right arrow key and the down key and then select Load Optimal Defaults.
4. Press Enter.
5. Enter Y and then press Enter.
6. Press F10 and then press Enter.
7. To disable the USB and RS-232 settings, refer to the procedures earlier in this document. (See [Disable the RS-232 port and USB functions](#) on page 11.)
8. Select Save Changes and Exit and then press Enter twice. The instrument automatically restarts.
9. To disable the Ethernet and GPIB ports, refer to the procedures earlier in this document.

