

**MSO70000DX Series Mixed Signal Oscilloscopes,
DPO70000DX Series Digital Phosphor Oscilloscopes, and
DPO5000B Series Digital Phosphor Oscilloscopes
Declassification and Security
Instructions**

www.tektronix.com

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Tektronix

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the DPO5000B, DPO70000DX, MSO5000B, and MSO70000DX Series instruments.

This series of instruments contains an open architecture PC with a removable hard drive. You can order additional removable hard drives to swap in and out of the instrument as needed for security reasons.

These products have data storage (memory) devices and data export devices (USB ports, CD-RW/DVD ROM drive [except for DPO5000B and MSO5000B Series instruments], Ethernet, GPIB [except for DPO5000B and MSO5000B Series instruments], eSATA, and TekLink [except for DPO5000B and MSO5000B Series instruments]). These instructions describe how to clear or sanitize the memory devices and disable the data output devices. The instructions also describe 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:

- DPO5034B, DPO5054B, DPO5104B, and DPO5204B
- DPO/MSO73304DX, DPO/MSO72504DX, DPO/MSO72304DX,
- DPO/MSO72004DX, DPO/MSO71604DX, DPO/MSO71254DX, and DPO/MSO70804DX

Related Documents

DPO5000/B, DPO7000C, DPO70000C, DPO70000D/DX, DSA70000C, DSA70000D, MSO5000/B, and MSO70000C/DX Series Service Manual.

Terms

The following terms may be used in this document:

- **Clear.** This eradicates 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. A device that is used to store or export data from the instrument, such as a USB port/USB flash drive.
- **Sanitize.** This removes the data from media/memory so that the data cannot be recovered using any known technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a nonsecured area.
- **Scrub.** This is equivalent to sanitize.
- **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.
- **User Accessible.** User is able to directly retrieve the memory device contents.
- **User-Modifiable.** The memory device can be written to by the user during normal instrument operation, using the instrument user interface or remote control.
- **Volatile memory.** Data is lost when the instrument is powered off.
- **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 must either press a rear-panel OFF switch or remove the power source from the instrument.
- **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.

Clear and Sanitize Procedures

Memory Devices

The following tables list the volatile and nonvolatile memory devices in the instrument.

Terminology

The following terms are used in the tables in this section:

- 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 or 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 modifies the data and that the user cannot modify the data.

Table 1: Volatile memory devices (DPO7000, DPO70000/B, and DSA70000/B Series Instruments)

Type and minimum size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
SDRAM, 512M X 16 up to 512M X 64 bits	Acquisition memory for holding and processing waveforms, and processor system RAM	User data	No	Indirectly	Written by processor system	Analog acquisition board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
PC RAM (See page 16, <i>PC Ram Size</i> .)	PC motherboard	User data	No	Indirectly	Written by processor system	PC motherboard or COM-E module	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
SDRAM, 512M X 16 bits	Acquisition memory for holding and processing digital waveforms	User data	No	Indirectly	Written by processor system	Digital acquisition board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds

Table 2: Volatile memory devices (MSO/DPO5000/B, DPO7000C, DSA70000C/D, DPO70000C/D/DX, and MSO70000/C/DX Series Instruments)

Type and minimum size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
SDRAM, 512M X 16 up to 1024M X 64 bits	Acquisition memory for holding and processing waveforms, and processor system RAM	User data	No	Indirectly	Written by processor system and ASICs	Analog acquisition board or, on MSO/DPO5000/B instruments, Main acquisition board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
PC RAM (See page 16, <i>PC Ram Size</i> .)	PC motherboard	User data	No	Indirectly	Written by processor system	PC motherboard or COM-E module	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
SDRAM, 512M X 16 bits up to 1024M X 16 bits	Acquisition memory for holding and processing digital waveforms	User data	No	Indirectly	Written by processor system	Digital acquisition board or, on MSO/DPO5000/B Series instruments, Main Acquisition board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds

Table 3: Nonvolatile memory devices (DPO7000, DPO70000/B, and DSA70000/B Series Instruments)

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Removable hard drive (See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)	Holds all user-storable data (waveforms and instrument settings)	User data and user settings	Directly and indirectly	Windows UI and TekScope UI	Rear panel	Yes	(See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)	(See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)
FLASH 512K X 4 bits	Video controller BIOS	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or settings	Not applicable, does not contain user data or settings

Table 3: Nonvolatile memory devices (DPO7000, DPO70000/B, and DSA70000/B Series Instruments) (cont.)

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
EEPROM, 4096 bits	PCI/PCIe bus settings	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or setting. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
SPI Flash 2 Megabits	Option key, event log, serial number, and model number	None	Directly	Programmed at factory. Option keys can be input by the user	PC Interface board	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
SERIAL EEPROM, 4096 bits	TekLink settings	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or settings	Not applicable, does not contain user data or settings. (See page 14, <i>To Disable TekLink Using the Windows Device Manager.</i>)
NVRAM, 2 MB	Calibration data	None	User cannot modify	Programmed at factory	Acquisition board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
NVRAM, 4 MB	Motherboard BIOS and BIOS settings	None	Directly	BIOS UI. User can change BIOS settings.	PC motherboard	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality

Table 4: Nonvolatile memory devices (DPO7000C, DPO7000C/D/DX, DSA7000C/D, and MSO7000C/DX Series Instruments)

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Removable hard drive (See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)	Holds all user-storable data (waveforms and instrument settings)	User data and user settings	Directly and indirectly	Windows UI and TekScope UI	Rear panel	Yes	(See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)	(See page 15, <i>Removable Hard Drive/Solid State Drive</i> .)
EEPROM, 4096 bits	PCI/PCIe local bus settings	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or setting. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
EEPROM, 1024 bits	PCI/PCIe bridge settings	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or setting. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
SPI Flash 2 Megabits	Option key, event log, serial number, and model number	None	Directly	Programmed at factory. Option keys can be input by the user	PC Interface board	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
SERIAL EEPROM, 1024 bits	TekLink and GPIB settings	None	User cannot modify	Programmed at factory	PC Interface board	No	Not applicable, does not contain user data or settings	Not applicable, does not contain user data or settings. (See page 14, <i>To Disable TekLink Using the Windows Device Manager</i> .)
NVRAM, 16 Megabits	Calibration data	None	User cannot modify	Programmed at factory	Acquisition board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
NVRAM, 4 Megabytes	Motherboard BIOS and BIOS settings	None	Directly	BIOS UI. User can change BIOS settings.	PC motherboard	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality

Table 5: Nonvolatile memory devices (DPO5000/B and MSO5000/B Series Instruments)

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
Removable hard drive (See page 15, <i>Removable Hard Drive/Solid State Drive.</i>)	Holds all user-storable data (waveforms and instrument settings)	User data and user settings	Directly and indirectly	Windows UI and TekScope UI	Side panel	Yes	(See page 15, <i>Removable Hard Drive/Solid State Drive.</i>)	(See page 15, <i>Removable Hard Drive/Solid State Drive.</i>)
EEPROM, 1024 bits	PCI/PCIe bus settings	None	User cannot modify	Programmed at factory	Main Acquisition board	No	Not applicable, does not contain user data or setting. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality
SPI Flash 4 Megabits	Calibration data on DPO5000/B and MSO5000/B Series instruments	None	Directly	Programmed at factory. Option keys can be input by the user	Main Acquisition board	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
SPI Flash, 2 MB	Motherboard BIOS and BIOS settings on COM-E module	None	Directly	BIOS UI. User can change BIOS settings.	COM-E module	Yes	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality

Media and Data Export Devices

The following table lists the data export devices in the instrument.

Table 6: Media and Data export devices (DPO7000/C, DPO70000/B/C/D/DX, DSA70000/B/C/D, and MSO70000/C/DX Series Instruments)

Type and minimum size	Function	Method of modification	Data input method	Location	User accessible	To disable
USB port	Supports removable USB flash drive. User storage of reference waveforms, screen images, and instrument setups	Directly	Directly by system resources	USB host ports on front, side, or rear of instrument	Yes	Remove all USB memory devices. USB devices can be formatted, stored in a secure area, or destroyed. USB ports can be disabled. (See page 10, <i>Disabling USB and CD-RW Capability</i> .)
CD-RW/DVD ROM Drive	User storage of reference waveforms, screen images, and instrument setups and installation of software	Directly	System resources and directly by user	Drive on front of instrument	Yes	Remove all DVDs. Rewriteable DVDs can be formatted, stored in a secure area, or destroyed. Nonrewriteable DVDs can either be stored or destroyed. Drive can be disabled. (See page 10, <i>Disabling USB and CD-RW Capability</i> .)
Ethernet	User storage of reference waveforms, screen images, and instrument setups and installation of software	Directly	System resources	Ethernet port on, side or rear of instrument	Yes	Disconnect from Network cable. Ethernet port can be disabled. (See page 13, <i>To Disable LAN Ethernet Connectivity Using the BIOS</i> .)
eSATA port	Supports removable hard drive. User storage of reference waveforms, screen images, and instrument setups	Directly	Read, write and control programs	eSATA port on rear of some instruments	Yes	Files can be deleted or overwritten on the instrument or a PC; drive can be removed and destroyed. To disable the eSATA port, remove the eSATA port cable.

Table 6: Media and Data export devices (DPO7000/C, DPO70000/B/C/D/DX, DSA70000/B/C/D, and MSO70000/C/DX Series Instruments) (cont.)

Type and minimum size	Function	Method of modification	Data input method	Location	User accessible	To disable
GPIB	Remote control of instrumentation systems	Directly	System resources	GPIB port on rear of instrument	Yes	The GPIB can be disabled. (See page 15, <i>To Disable GPIB Using the Windows Device Manager.</i>)
TekLink	Remote control of instrumentation systems	Indirectly	Read, write and control programs	TekLink port on side or rear of instrument	No	TekLink can be disabled. (See page 14, <i>To Disable TekLink Using the Windows Device Manager.</i>)

Table 7: Media and Data export devices (DPO5000/B and MSO5000/B Series Instruments)

Type and minimum size	Function	Method of modification	Data input method	Location	User accessible	To disable
USB port	Supports removable USB flash drive. User storage of reference waveforms, screen images, and instrument setups	Directly	Directly by system resources	USB host ports on front or rear of instrument	Yes	Remove all USB memory devices. USB devices can be formatted, stored in a secure area, or destroyed. USB ports can be disabled. (See page 10, <i>Disabling USB and CD-RW Capability.</i>)
Ethernet	User storage of reference waveforms, screen images, and instrument setups and installation of software	Directly	System resources	Ethernet port on, rear of instrument	Yes	Disconnect from Network cable. Ethernet port can be disabled. (See page 14, <i>To Disable TekLink Using the Windows Device Manager.</i>)
USB device	Remote control of instrumentation systems	Directly	System resources	Rear of instrument	No	The USB Device Controller cannot be disabled. Disabling the controller would prevent the instrument from booting.

NOTE. *The following procedure covers only Tektronix installed software.*

Clearing Hard Disk/Solid State Disk Drives

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

On solid state drives, the drive and the operating system work together to reallocate sectors on the drive to even out the wear of the storage cells. Make sure that software you use to purge or clear a solid state drive is approved for solid state drives.



CAUTION. *Before clearing the drive to meet security requirements, be sure that an OS-restore disk and product software restore disk are available and that you have the procedures needed to restore the OS and product software. On MSO5000/B and DPO5000/B Series instruments, if you delete files that are required by the operating system or the instrument software, you must install a new drive that has the OS and instrument software already installed.*

Sequence for clearing secure data from a drive:

1. Erase all files with the following extensions:
 - *.png; *.bmp; *.pcx, *.tif, *.jpg – These file types can be screenshots that can contain valuable information.
 - *.msk, *.set, *.wfm, *.csv, *.txt, *.dat – These file types can contain data exported from the instrument (setup, waveforms, measurement results).
2. Acquire several full memory-length acquisitions of noise (no signal attached to the input).
3. Close the TekScope application and erase the free space on the hard disk using commercial software.

Removing a Removable Hard Drive/Solid State Drive

For detailed information on removing parts from the instrument, see the **DPO5000/B, DPO7000/C, DPO70000/B/C/D/DX, DSA70000/B/C/D, MSO5000/B, and MSO70000/C/DX Series Service Manual**, Tektronix part number 077-0076-XX.



WARNING. *Before doing this procedure, disconnect the power cord from the line voltage source. Failure to do so could cause serious injury or death.*



CAUTION. *To avoid damaging the drive, perform the following procedure in a static-safe environment with proper electro-static discharge controls in place.*

DPO7000/C, DPO70000/B/C/D/DX, DSA70000/B/C/D, and MSO70000/C/DX Series Instruments.

1. Loosen the thumbscrews on the removable drive panel.
2. Pull the removable drive out from the instrument.

DPO5000/B and MSO5000/B Series Instruments.

1. Remove the drive cover.
2. Loosen the thumbscrew on the removable drive panel.
3. Pull the removable drive out from the instrument.

Disabling USB and CD-RW Capability

The following instructions describe how to disable the built-in USB and CD-RW capability. Using the BIOS disables the devices for DOS and Windows programs, while the Windows Device Manager disables the devices for Windows programs. These procedures disable both USB and the CD-RW to prevent their use.

NOTE. *If you disable the USB, CD-RW, and LAN in the following procedures, you cannot write new firmware to the hard drive. To do so, you must enable one of these items.*

To disable USB DOS using the BIOS on DPO7000, DPO70000/B, and DSA70000/B Series Instruments.

1. Press F2 during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Advanced > USB Configuration.
3. Set High-Speed USB and Legacy USB Support to Disabled.
4. Hit Esc once to return to the main BIOS configuration menu.
5. Go to Security > Set Supervisor Password. Press Enter.
6. Specify a password. You will be asked to confirm the password by entering it again. Note the password, and store it in a safe place for future use.
7. Set User Access Level to No Access.
8. Exit Saving Changes by pressing F10, and selecting OK.

To disable USB DOS using the BIOS on DPO7000C, DPO70000C/D/DX, DSA70000C/D, and MSO70000/C/DX Series Instruments.

1. Press Delete during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Chipset > South Bridge Configuration.
3. Set USB Functions and USB Port Configure to Disabled.
4. Hit Esc once to return to the main BIOS configuration menu.
5. Go to Security > Set Supervisor Password. Press Enter.
6. Specify a password. You will be asked to confirm the password by entering it again. Note the password, and store it in a safe place for future use.
7. Set User Access Level to No Access.
8. Exit Saving Changes by pressing F10, and selecting OK.

To disable USB DOS using the BIOS on DPO5000/B and MSO5000/B Series Instruments.

1. Press Delete during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Integrated Peripherals > USB Device Settings.
3. Set High-Speed USB and Legacy USB Support to Disabled.
 - Set USB 2.0 Controller to Disabled.
 - Set USB UHCI #2 Support to Disabled.
 - Set USB UHCI #3 Support to Disabled.
 - Set USB UHCI #4 Support to Disabled.
4. Hit Esc once to return to the main BIOS configuration menu.
5. Go to Security > Set Supervisor Password. Press Enter.
6. Specify a password. You will be asked to confirm the password by entering it again. Note the password, and store it in a safe place for future use.
7. Exit Saving Changes by pressing F10, and selecting OK.

To Disable USB and CD-RW for Windows Using the Windows Device Manager.

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. Right-click My Computer on the desktop, and select Properties.
4. On DPO7000, DPO70000/B, and DSA70000/B Series Instruments, select the Hardware tab.
5. Click Device Manager.
6. Expand the Universal Serial Bus controllers entry by clicking the + next to it.
7. Double-click the first USB Root Hub entry.
8. Select the Power tab.

9. If the Device Description is anything other than Generic USB Hub (4 ports), click the General tab, and select Do not use this device (disable) in the Device usage drop-down list.

NOTE. *It is critical to leave the USB Root Hub operating; otherwise, the front panel will not function.*

10. Click OK.
11. Repeat steps 7 through 9 for each USB Root Hub shown in the Device Manager window.
12. On DPO7000/C, DPO70000/B/C/D/DX, DSA70000/B/C/D, and MSO70000/C/DX Series instruments, expand DVD/CD-ROM drives in the Device Manager window.

Right-click TEAC DW-224E-C, and select Disable.
13. Reboot the instrument to make the changes effective.
14. We suggest that you password-protect the Windows Administrator account and set up Guest accounts for end users so that these changes cannot be easily reversed.

To Disable LAN Ethernet Connectivity Using the BIOS

DPO7000, DPO70000/B, and DSA70000/B Series instruments.

1. Press F2 during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Advanced > Peripheral Configuration.
3. Set Onboard LAN to Disabled.
4. Press Esc once to return to the main BIOS configuration menu.

NOTE. *If you do not use a BIOS password, the LAN can be reactivated by any user.*

5. Press F10, and select OK to save changes and exit. The LAN system will be disabled and will no longer allow data traffic in or out.

DPO7000C, DPO7000C/D/DX, DSA7000C/D, and MSO70000/C/DX Series instruments.

1. Press Delete during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Chipset > South Bridge Configuration.
3. Set Onboard LAN to Disabled.
4. Press Esc once to return to the main BIOS configuration menu.

NOTE. *If you do not use a BIOS password, the LAN can be reactivated by any user.*

5. Press F10, and select OK to save changes and exit. The LAN system will be disabled and will no longer allow data traffic in or out.

**To Disable TekLink Using
the Windows Device
Manager**

On instruments that have TekLink, do the following steps to disable TekLink:

NOTE. *On instruments with software version 6.8.1 or above, TekLink has already disabled.*

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. Right-click My Computer on the desktop, and select Properties.
4. On DPO7000, DPO70000/B, and DSA70000/B Series Instruments, select the Hardware tab.
5. Click Device Manager.
6. Expand the device category Network Adapters.

7. Double click on the Intel(R) PRO/100 M Network Connection. This will be the Network Adapter located on the interface board in PCI slot 2.
8. Click the General tab, and select Do not use this device (disable) in the Device usage drop-down list.

To Disable GPIB Using the Windows Device Manager

On instruments with a GPIB, do the following steps to disable the GPIB:

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. Right-click My Computer on the desktop, and select Properties.
4. On DPO7000, DPO70000/B, and DSA70000/B Series Instruments, select the Hardware tab.
5. Click Device Manager.
6. Expand the device category National Instruments NI-Device GPIB Interfaces.
7. Right-click on PCI-GPIB.
8. Select Disable from the list.

Removable Hard Drive/Solid State Drive

All user-storable data is stored on the rear- or side-panel removable drive. Sanitize or replace the drive in a manner that meets local and any other security requirements that you have.

NOTE. To see the size of the drive, refer to the (C:) local disk properties window.

NOTE. If your instrument did not ship with an OS Restore disk, be sure that you create OS Restore CD-ROMs before scrubbing the hard drive/solid state drive or moving the instrument into a secure area. For more information see *Creating Operating System Restore CD-ROMs* in your instrument User manual or in the 071-2501-xx Read This First.

On MSO5000/B and DPO5000/B Series instruments, if you scrub the drive, you must install a new drive that has the OS and instrument software already installed.

After the drive is sanitized or replaced, the operating system and instrument software can be reinstalled. Following reinstallation of the operating system and product software, you must run the Signal Path Compensation (SPC) procedure in the Utilities menu after a 20-minute warm-up period. This returns the instrument hard drive/solid state drive to the initial state shipped from the factory.

Scrubbing the drive will not affect calibration of the instrument, since the factory calibration constants are stored on the acquisition board, entirely separate from any acquisition data or user files. You can completely erase or remove any secure data without affecting the calibration of the instrument. You can also calibrate the instrument in a nonsecure site, and then use the instrument in a secure area without recalibration.

PC Ram Size To see the size of the PC RAM in the instrument, refer to the General tab of the Windows System Properties dialog box.

Troubleshooting

How to Clear or Sanitize a Non-Functional Instrument

If your instrument is not functioning, you may proceed as follows:

Hard Drive/Solid State Drive

Remove the drive and return the product to Tektronix. A new drive will be installed and the instrument will be repaired and adjusted as necessary. Alternatively you may use the Removable Hard Drive/Solid State Drive procedure before returning the product to Tektronix. (See page 15, *Removable Hard Drive/Solid State Drive*.)

For removal instructions, refer to the instrument service manual, available on the Tektronix Web site at www.tektronix.com/manuals.

CD-RW/DVD ROM Drive

On instrument with a CD-RW/DVD ROM drive, remove all CDs and/or DVDs. These can be stored or destroyed according to the internal policies of your organization.

External Memory Devices

Remove any attached USB flash drive or external hard drives from the instrument before returning the instrument to Tektronix for repair.

Refer to your company's internal policies regarding handling or disposal of the external memory device.

Charges

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

How to Recover from Clearing or Removing the Instrument Memory

After the hard drive/solid state drive is sanitized, the operating system and instrument software must be reinstalled. On instruments with a CD/DVD ROM drive, the restore software opens automatically if the CD/DVD drive is the first bootable device. If the CD/DVD drive is not the first bootable device, enable it as the first bootable device before performing a restore from the CD-ROMs.

On MSO5000/B and DPO5000/B Series instruments, if you scrub the hard drive/solid state drive, you must install a new drive that has the OS and instrument software already installed.

Change Log

Document part number	Revision date	Change description
077-0245-02	10-14-2010	Added <i>Reference</i> section to Preface. Updated <i>Volatile memory devices</i> and <i>Nonvolatile memory devices</i> tables to include type of user-information stored, battery-backup information, and data input method. Added terminology definitions to <i>Memory Devices</i> . Updated <i>Clearing Hard Disk Drives</i> .
077-0245-03	10-22-2010	Added information for DPO5000, MSO5000, DPO70000C, DSA70000C, and MSO70000C instruments.
077-0245-04	2-11-2011	Added information for the DPO7000C, DPO70000C, DSA70000C, and MSO70000C instruments.
077-0245-05	9/28/2011	Added information for the DSA70000D and DPO70000D instruments.
077-0245-06	7/4/2013	Added information for the MSO70000DX and DPO70000DX instruments.
077-0245-07	11/5/2013	Added information for the MSO5000B and DPO5000B instruments.
077-0245-07 REV A	4/25/2023	Added DPO & MSO models 72504DX, 72004DX, 71604DX, 71254DX.