Instructions

Tektronix

TDSXF2C, TDSXF3C, TDSXF4C, TDSXF1M2 & TDSXF1M4 Upgrades

071-0375-00

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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Kit Description

This kit includes parts and instructions for installing the TDSXF1M4, TDSXF1M2, TDSXF2C, TDSXF3C, and TDSXF4C upgrades into the oscilloscopes listed under *Instruments*. These upgrades must be installed at a Tektronix service depot, Customer Care Center, or at the Beaverton Metrology Center.

Instruments

TDS Models (All Serial Numbers)	**Upgrades**				
	TDSXF1M4 Increased Record Length – 4 Ch	**TDSXF1M2** Increased Record Length – 2 Ch	**TDSXF2C** Communication Signal Analyzer	**TDSXF3C** Short Wavelength Optical Reference Receiver	**TDSXF4C** Long Wavelength Optical Reference Receiver
TDS 794D	X		X		
TDS 784D/C	X		X	X	X
TDS 784A	X				
TDS 782A		X			
TDS 754D/C	X		X	X	X
TDS 754D/C, option 1G	X				
TDS 754A	X				
TDS 744A	X				
TDS 724D/C		X	X	X	X
TDS 724A		X			
TDS 580D/C	X		X	X	X
TDS 544A	X				
TDS 540D/C	X		X	X	X
TDS 540B/A	X				
TDS 524A		X			
TDS 520D/C		X	X	X	X
TDS 520B/A		X			

Kit Parts List

Quantity	Part Number	Name & Description
1 ea.	071-0375-00	Manual, Tech Instructions;TDSXF2C,3C,4C,1M
1 ea.	NS	Label

NS – Not Saleable

Service Safety Summary

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 the* General Safety Summary *in the appropriate TDS service manual before performing any service.*

Do Not Service Alone

Do not perform internal service on this product unless another person capable of rendering first aid and resuscitation is present.

Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

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.

Installation Instructions

The instructions needed to upgrade the TDS follow. Use the Option Key disk to enable the appropriate upgrade features. Operate the disk as described starting on page 4.

Option Key Description

This disk enables the TDS oscilloscopes, listed under *Instruments* on page 1, to use the selected options. The Option Key disk and enabling an options features are authorized for use only by Tektronix personnel or personnel who have written permission from Tektronix to perform this function. Contact Beaverton Service Support for additional information regarding this policy.

Minimum Tools & Equipment List

- Software: Option Key; 063-2780-00 or later, not supplied with kit
- IBM compatible PC
- GPIB card such as the National Instruments PCII/IIA (Tek S3FG210)
- IEEE Std 488.1-1987 GPIB cable, such as Tektronix part number 012-0991-00
- GPIB driver software appropriate to the GPIB card, such as NI-488.2 software

Software Installation

Setting Up PC & TDS

The following instructions will guide you through setting up your PC and the TDS Oscilloscope.

1. Attach a GPIB cable to the 24-pin GPIB connector on the rear panel of the TDS, as shown in Figure 1.

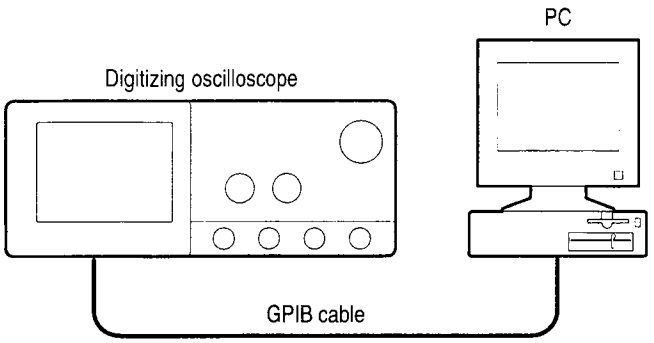

Figure 1: PC & TDS setup

Setting the GPIB Parameters

You need to set the GPIB parameters of the oscilloscope to match the configuration of the bus. Once you have set these parameters, you can control the oscilloscope through the GPIB interface.

1. Press the **UTILITY** (**SHIFT DISPLAY**) button to display the Utility menu.
2. Press the **System** button in the main menu until it highlights the **I/O** selection in the pop-up menu. See Figure 2.

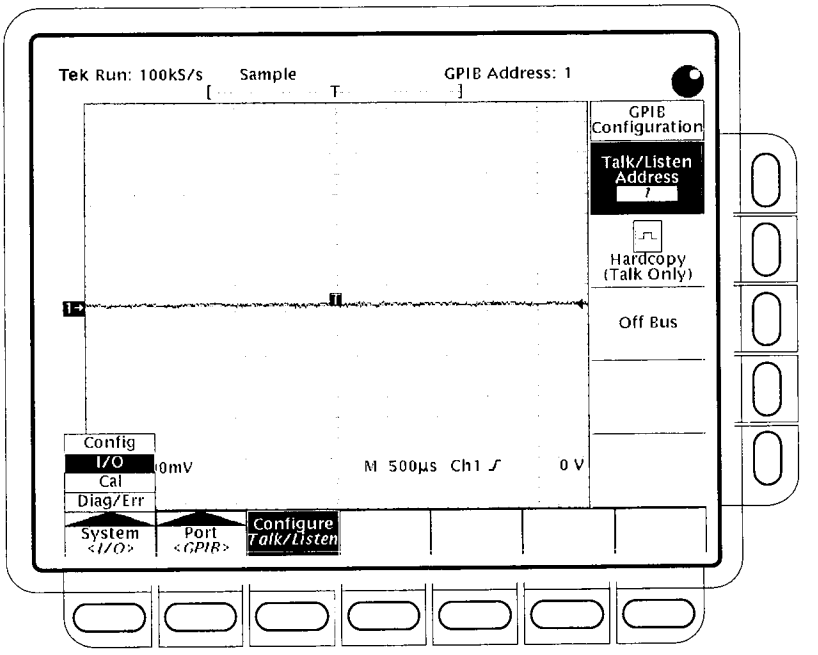

Figure 2: Selecting the I/O system in the main menu

3. Press the **Port** button in the main menu until it highlights the **GPIB** selection in the pop-up menu. See Figure 3.
4. Press the **Configure** button in the main menu to display the GPIB Configuration side menu. See Figure 3.
5. Press the **Talk/Listen Address** side menu button, and set the GPIB address using either the general purpose knob or the keypad.

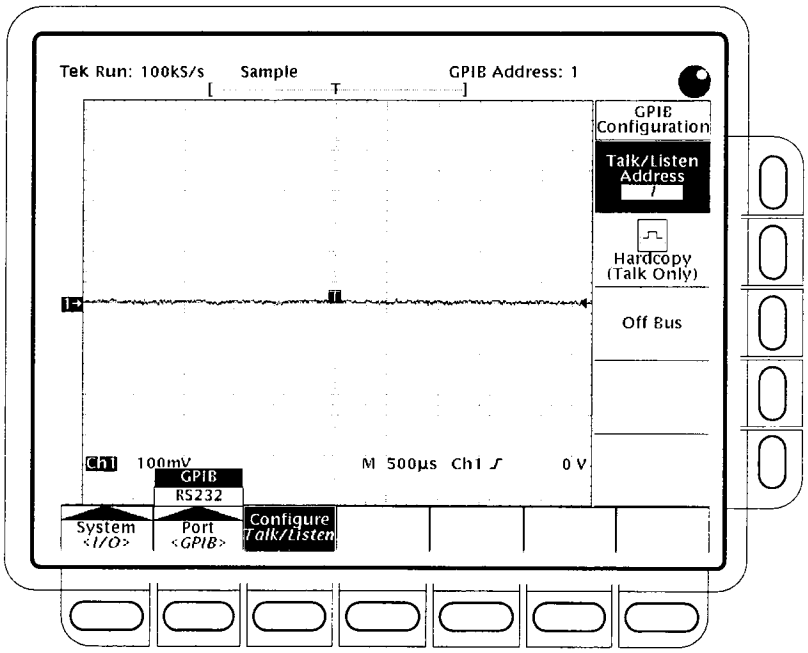

Figure 3: Selecting the GPIB address in the GPIB configuration side menu

Installing Software

Instructions for installing an approved card (National Instruments PCII/IIA or Tek S3FG210) and the accompanying driver software (NI-488.2 software) come with your card. The following equipment is required for installation:

- IBM PC or equivalent
- GPIB card
- GPIB cable

Perform the following procedure to install the TDS option key software:

1. Insert the software disk into the floppy disk drive of the PC.
2. Move to the floppy drive containing the disk (typically A:).
3. From the DOS prompt enter:

   `hdinstal <space><drive>:\<filename>` press **Return**.

The proper filename is `setopt` if you have the newer software-load software. This software has a DOS command line interface. The proper filename is `loadopt` if you have the older software-load software. This older software has pull-down menus.

Example: `hdinstal c:\loadopt`

or `hdinstal c:\setopt`

NOTE. *To change TDS option settings, the NVRAM protect switch must be set to the Unprotected position while the TDS instrument power is off. Changing the position of the NVRAM protect switch with the instrument running, may cause the NVRAM to be misprogrammed.*

1. Power off the instrument.
2. Insert a small, nonconductive object (adjustment tool) into the front access hole located on the right side of the oscilloscope near the front panel. Push the nonconductive object inward to position the NVRAM protection rocker switch in the Unprotected (write-enable) position. See Figure 4.

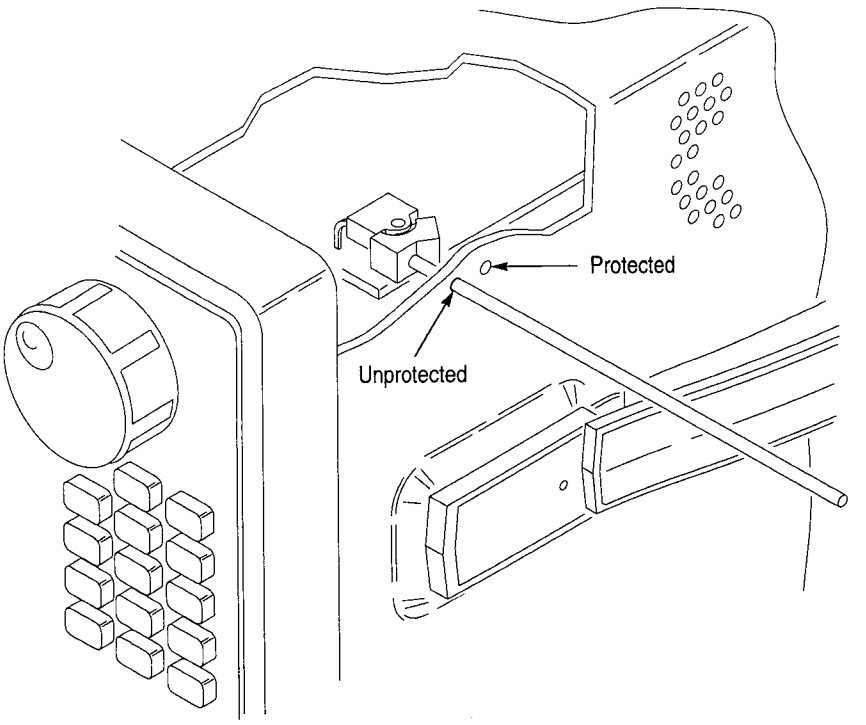

Figure 4: Accessing the protection switch

3. Power on the instrument.

4. To enable options, move to the disk and directory containing the software.

5. Newer software to enable options uses a DOS command line style interface. Older software to enable options uses pull-down menus. If you have the older software, proceed to step 12.

6. To enable or disable oscilloscope options using the newer options software, type: `setopt` and press **Return**.

7. In response to the `Enable?` question for each option, type `Y` if you want to enable the firmware for that option or `N` if you do not want to enable firmware for that option.

8. When the program completes execution it should display `(A)ccept or (C)hange?` Type: `A`.

9. When the program completes execution it should display `(A)bort or (C)ontinue?`

10. Insert a small, nonconductive object (adjustment tool) into the rear access hole located on the right side of the oscilloscope near the front panel. Push the nonconductive object inward to position the NVRAM protection rocker switch in the Protected (write-protect) position. See Figure 4 on page 7.

11. Type: `C` and proceed to step 17.

12. To enable or disable oscilloscope options using the older options software, move to the disk and directory containing the software.

    Type `loadopt`

    Press **RETURN**

    This starts the program.

13. In the PC, highlight the **Options** window and press **Return**.

14. Highlight the **Set Option Status** window and press **Return**.

The program will return the status of each option (enabled or disabled) and ask the user if the status of the option should be changed.

NOTE. *This program determines which hardware options are installed in the oscilloscope. If the hardware option is not installed, the Loadopt program will not display the status of that option.*

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15. To exit, highlight **Quit**, press **RETURN**, highlight **Exit**, press **RETURN**.

16. Insert a small, nonconductive object (adjustment tool) into the rear access hole located on the right side of the oscilloscope near the front panel. Push

the nonconductive object inward to position the NVRAM protection rocker switch in the Protected (write-protect) position. See Figure 4 on page 7.

17. Remove the protective backing from the nomenclated-kit label and place it on a clean, dry area immediately above the BNC connectors located on the instrument rear panel. This label indicates that the kit has been installed.

18. Power off the instrument.

19. Refer to Section 4, *Performance Verification,* and Section 5, *Adjustment Procedures* in the relevant TDS service manual and calibrate as required.

Option 3C and 4C Adjustment

Adjust the 3C and 4C options using the Field Adjust Software.

Verify Installation

Verify the operation by attempting to access the menu items. Confirm that they are present or no longer greyed out.

For Option 2C, press the front panel **TRIGGER MENU** button. Press the main-menu **Type** button and select the **Comm** item. The main menu Code should appear.

For Option 3C and 4C, successful adjustment verifies the operation.

For Option 1M, press the front panel **HORIZONTAL MENU** button. Press the main-menu **Record Length** button. Verify that the new record length selections appear in the side menu.

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