

Instruction Manual



TLA7UP Logic Analyzer Field Upgrade Kit

071-0865-04

This document applies to TLA System Software
version 4.2.

Warning

These 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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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Use only the power cord specified for this product and certified for the country of use.

Use Proper Voltage Setting. Before applying power, ensure that the line selector is in the proper position for the power source being used.

Connect and Disconnect Properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Ground the Product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and marking 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.

Replace Batteries Properly. Replace batteries only with the proper type and rating specified.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Use Proper Fuse. Use only the fuse type and rating specified for this product.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

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

Symbols and Terms

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.*

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. The following symbols may appear on the product:



WARNING
High Voltage



Protective Ground
(Earth) Terminal



CAUTION
Refer to Manual



Double
Insulated



Mains Disconnected
OFF (Power)



Mains Connected
ON (Power)



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 instruction manual contains specific information about the TLA7UP mainframe field upgrades. The mainframe field upgrades consist of software and hardware options for the TLA700 series logic analyzer.

Products Eligible for TLA7UP Upgrades

Table i lists all of the TLA700 series logic analyzers eligible for upgrades via the TLA7UP field upgrade kits. Review Table i to determine if your logic analyzer is eligible for an upgrade and then use Table ii on page xvii to determine the upgrades available for your TLA715 or TLA721 logic analyzers or use Table iii, on page xxi for your TLA714 or TLA720 logic analyzers.

Table i: TLA700 Series logic analyzers eligible for upgrades

Configuration	Operating system	TLA application software
TLA715 Standard or with Option 1S	Windows 2000 Professional	Version 4.3
TLA721 Standard		Version 4.2
		Version 4.1
TLA714 Standard or with Option 1S with TLA715 Controller upgrade	Windows 2000 Professional	Version 4.3
TLA720 Standard with TLA721 Controller upgrade		Version 4.2
		Version 4.1
TLA714 Standard or with Option 1S	Windows 2000 Professional	Version 4.3
TLA720 Standard		Version 4.2
		Version 4.1
		Version 4.0
TLA714 Standard or with Option 1S	Windows 98 Second Edition	Version 3.2
TLA720 Standard		Version 3.1
		Version 3.0

NOTE. *TLA704 and TLA711 logic analyzers are not eligible for upgrades. However these instruments still qualify for Mainframe Trade-in program. Contact your local Tektronix representative for details on the program.*

Logic analyzer modules installed in an TLA704 or TLA711 mainframe, are eligible for upgrades. However, the logic analyzer mainframes must have the Windows 98 Second Edition operating system with V3.2 TLA application software or the Windows 2000 Professional operating system and V4.0 or higher TLA application software.

If your current instrument is a TLA715 Portable Mainframe Logic Analyzer or a TLA721 Benchtop Mainframe Logic Analyzer, use Table ii to explore your possible upgrade paths.

If you have a TLA714 Standard or with Option 1S with a TLA715 Controller upgrade (TLA7UP Option 16) or a TLA720 Standard or with Option 1S with a TLA721 Controller upgrade (TLA7UP Option 17), use Table ii for your upgrade paths.

If your current instrument is a TLA714 Color Portable Mainframe Logic Analyzer or a TLA720 Benchtop Mainframe Logic Analyzer, use Table iii, beginning on page xxi to explore your possible upgrade paths.

The TLA7UP upgrade kits are designed for one TLA7UP upgrade kit per TLA714/715/720/721 mainframe. If you want to upgrade multiple mainframes, you must order one TLA7UP upgrade kit with the appropriate options for each mainframe.

The latest TLA Application Software has been tested and can be installed and will be supported by Tektronix only on the Tektronix-supplied version of Microsoft Windows 2000 Professional.

Table ii: TLA7UP Mainframe field upgrade matrix for TLA715 or TLA721 logic analyzers

New capability desired	Current mainframe configuration and TLA application software ¹	Please order
Add More DRAM and a Larger HDD	TLA715 Std or Opt 1S with V4.3 TLA Application SW	TLA7UP Option 12 ²
Add up to 512 MB DRAM and/or:	TLA721 Std with V4.3 TLA Application SW	
<ul style="list-style-type: none"> • Replace current hard disk drive with a larger (replaceable) bootable MAX hard disk drive configured as the master drive. • Reconfigure replaceable hard disk drive for data storage only and add a second (internal fixed) bootable hard disk drive configured as the master drive. • Add an additional (replaceable) MAX hard disk drive configured as the slave drive. 	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW	TLA7UP Option 12 ² TLA7UP Option 31 (with Restore CD, Recommended) OR
	TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 32 (without Restore CD)
	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.3 TLA Application SW	N/A (TLA715 and TLA721 Upgrades already include 512 MB and MAX hard disk drive)
	TLA720 Std with TLA721 Controller upgrade and V4.3 TLA Application SW	
	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW	N/A (TLA715 and TLA721 Upgrades already include 512 MB and MAX hard disk drive)
	TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 33 (with Restore CD, Recommended) OR
		TLA7UP Option 32 (without Restore CD)
Add New Software Features	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW	TLA7UP Option 31 (with Restore CD, Recommended) OR
Add new functionality to existing TLA700 Series Logic Analyzers by upgrading to the latest TLA Application Software.	TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 32 (without Restore CD)
TLA Application Software requires Windows 2000 Professional Operating System.	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 33 (with Restore CD, Recommended) OR
	TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 32 (without Restore CD)

Table ii: TLA7UP Mainframe field upgrade matrix for TLA715 or TLA721 logic analyzers (Cont.)

New capability desired	Current mainframe configuration and TLA application software ¹	Please order
Add iView External Oscilloscope Capability Add iView capability to view data from TDS oscilloscopes on the TLA700 logic analyzer display. Requires latest TLA Application Software and Windows 2000 Professional Operating system.	TLA715 Std or Opt 1S with V4.3 TLA Application SW TLA721 Std with V4.3 TLA Application SW TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.3 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.3 TLA Application SW	TLA7UP Option 15
TLA700 mainframe memory requirements: 256 MByte minimum, 512 MByte preferred. (For a list of supported TDS oscilloscopes, please visit our website at www.tektronix.com/la)	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 15 TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 15 TLA7UP Option 33 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
Upgrade Logic Analyzer State Speed and Memory Depth Enhance your current TLA700 series logic analyzer modules by increasing state speed or memory depth. Enhance your TLA7PG2 Pattern Generator Modules with increased memory depth. Run the PowerFlex Utility to inform you what upgrades are available. Instructions to obtain an upgrade are provided.	Any TLA700 series logic analyzer with V4.3 TLA SW	Run the PowerFlex Utility software located on the instrument and then purchase the appropriate PowerFlex kit.
Upgrade Logic Analyzer State Speed and Memory Depth Enhance your current TLA700 series logic analyzer modules by increasing state speed or memory depth. Enhance your TLA7PG2 Pattern Generator Modules with increased memory depth. Once installed, the PowerFlex Utility will inform you what upgrades are available. Instructions to obtain an upgrade are provided.	Any TLA700 series logic analyzer with V4.2 TLA SW or earlier	TLA7UP Option PF or visit www.tektronix.com/LA for the PowerFlex Utility software

Table ii: TLA7UP Mainframe field upgrade matrix for TLA715 or TLA721 logic analyzers (Cont.)

New capability desired	Current mainframe configuration and TLA application software ¹	Please order
Add CD-RW Drive Add CD-RW Drive to backup or transfer user or data files.	TLA715 Std or Opt 1S with V4.3 TLA Application SW TLA721 Std with V4.3 TLA Application SW TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.3 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.3 TLA Application SW	TLA7UP Option 20
	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 20 TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 20 TLA7UP Option 33 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
Add New Measurement Modules to Existing Mainframe: Add new TLA7Axx Logic Analyzer, TLA7Nx/Px/Qx Logic Analyzer, TLA7PG2 Pattern Generator, and/or TLA7Dx/Ex Digitizing Oscilloscope module(s) to your new or existing mainframe. Requires latest TLA Application Software and Windows 2000 Professional Operating system.	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 33 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)

Table ii: TLA7UP Mainframe field upgrade matrix for TLA715 or TLA721 logic analyzers (Cont.)

New capability desired	Current mainframe configuration and TLA application software ¹	Please order
Add New Expansion Mainframe to Existing Mainframe: Add new TLA7XM expansion mainframe(s) to your existing TLA mainframe.	TLA715 Std or Opt 1S with V4.2 or V4.1 TLA Application SW TLA721 Std with V4.2 or V4.1 TLA Application SW	TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
Requires Version 4.2 TLA Application Software and Windows 2000 Professional Operating system. TLA7UP Option 09 (Required only for TLA720 Benchtop Mainframes with serial number B19999 or lower.)	TLA714 Std or Opt 1S with TLA715 Controller upgrade and V4.2 or V4.1 TLA Application SW TLA720 Std with TLA721 Controller upgrade and V4.2 or V4.1 TLA Application SW	TLA7UP Option 33 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)

¹ **TLA715, TLA721, TLA714 with TLA715 controller upgrade, or TLA720 with TLA721 controller upgrade require Windows 2000 Professional Operating System**

- 2** **If you need to preserve user files on your current mainframe hard disk, please order an additional hard disk drive using TLA7UP Option 12 and install it as a second, internal hard disk in your mainframe. This procedure is documented in this manual. For TLA7UP Option 16 or 17, TLA7UP Option 33 (new hard disk image CD-ROM) is required since there is a new controller with different drivers. The hard disk image for the TLA715 and TLA721 is different than the TLA714 and TLA720.**
- 3** **Version 1.5 PatGen Application Software is available either as part of the latest TLA Application Software or on the Web (primarily for TLA704/711 and TLA714/721 users who have Windows 98 operating system and Version 3.2 TLA Application Software). Note that the latest TLA Application Software on the Web does NOT have SnagIt, CheckIt, RecordNow MAX, or the NI USB-to-GPIB software due to licensing issues. You must order TLA7UP Options 31, 32, or 33 to receive these software components.**

Table iii: TLA7UP mainframe field upgrade matrix for TLA714 or TLA720 logic analyzers

New capability desired	Current mainframe configuration	Current TLA application software version and operating system	Please order	
Add More DRAM and a Larger HDD Add up to 512 MB DRAM and/or: <ul style="list-style-type: none">Replace current hard disk drive with a larger (replaceable) bootable MAX hard disk drive configured as the master drive.Reconfigure replaceable hard disk drive for data storage only and add a second (internal fixed) bootable hard disk drive configured as the master drive.Add an additional (replaceable) MAX hard disk drive configured as the slave drive.	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.3 TLA and Windows 2000 Professional	TLA7UP Option 10 ¹	
		TLA software V4.2, or V4.1 and Windows 2000 Professional	TLA7UP Option 10 ¹ TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)	
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 10 ¹ TLA7UP Option 31 (with Restore CD only)	
		TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)	
Add New Software Features Add new functionality to existing TLA700 Series Logic Analyzers by upgrading to the latest TLA Application Software. TLA Application Software requires Windows 2000 Professional Operating System.	TLA714 Standard or Option 1S TLA720 Standard	TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 31 (with Restore CD only)	
		TLA software V4.3, V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 16 TLA7UP Option 33 (with Restore CD only)	
Upgrade TLA714 Controller Upgrade controller in the TLA714 mainframe to the controller in the TLA715 mainframe. Requires latest TLA Application Software and Windows 2000 Professional Operating System.	TLA714 Standard or Opt 1S	TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 16 TLA7UP Option 33 (with Restore CD only)	
		TLA software V4.3, V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 17 TLA7UP Option 33 (with Restore CD only)	
Upgrade TLA720 Controller Upgrade controller in the TLA720 mainframe to the controller in the TLA721 mainframe. Requires latest TLA Application Software and Windows 2000 Professional Operating System.	TLA720 Standard	TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 17 TLA7UP Option 33 (with Restore CD only)	

Table iii: TLA7UP mainframe field upgrade matrix for TLA714 or TLA720 logic analyzers (Cont.)

New capability desired	Current mainframe configuration	Current TLA application software version and operating system	Please order
Add iView External Oscilloscope Capability Add iView capability to view data from TDS oscilloscopes on the TLA700 logic analyzer display. Requires latest TLA Application Software and Windows 2000 Professional Operating system. TLA700 mainframe memory requirements: 256 MByte minimum, 512 MByte preferred. (For a list of supported TDS oscilloscopes, please visit our website at www.tektronix.com/la)	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.3 and Windows 2000 Professional	TLA7UP Option 15
		TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 15 TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 15 TLA7UP Option 31 (with Restore CD only)
Upgrade Logic Analyzer State Speed and Memory Depth Enhance your current TLA700 series logic analyzer modules by increasing state speed or memory depth. Enhance your TLA7PG2 Pattern Generator Modules with increased memory depth. Run the PowerFlex Utility to inform you what upgrades are available. Instructions to obtain an upgrade are provided.	Any TLA700 series logic analyzer with V4.3 TLA SW	Windows 98 Second Edition, or Windows 2000 Professional	Run the PowerFlex Utility software located on the instrument and then purchase the appropriate PowerFlex kit.
Upgrade Logic Analyzer State Speed and Memory Depth Enhance your current TLA700 series logic analyzer modules by increasing state speed or memory depth. Enhance your TLA7PG2 Pattern Generator Modules with increased memory depth. Once installed, the PowerFlex Utility will inform you what upgrades are available. Instructions to obtain an upgrade are provided.	Any TLA700 series logic analyzer with V4.2 TLA SW or earlier	Windows 98 Second Edition, or Windows 2000 Professional	TLA7UP Option PF or visit www.tektronix.com/LA for the PowerFlex Utility software
Add CD-RW Drive Add CD-RW Drive to backup or transfer user or data files.	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.3 and Windows 2000 Professional	TLA7UP Option 20
		TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 20 TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 20 TLA7UP Option 31 (with Restore CD only)

Table iii: TLA7UP mainframe field upgrade matrix for TLA714 or TLA720 logic analyzers (Cont.)

New capability desired	Current mainframe configuration	Current TLA application software version and operating system	Please order
Add New Measurement Modules to Existing Mainframe: Add new TLA7Axx Logic Analyzer, TLA7Nx/Px/Qx Logic Analyzer, TLA7PG2 Pattern Generator, and/or TLA7Dx/Ex Digitizing Oscilloscope module(s) to your new or existing mainframe.	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 31 (with Restore CD only)
Add Pattern Generator Probes for PECL/LVPECL, LVDS, LVCmos, and Variable Data Strobe Support: Add new P6472 (PECL), P6473 (LVDS), P6474 (LVCmos), and P6475 (Variable Data Strobe). Requires Version 1.5 PatGen Application Software or greater, available as part of the latest TLA Application Software; requires Windows 2000 Professional Operating system.	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional	TLA7UP Option 31 ² (with Restore CD, Recommended) OR TLA7UP Option 32 ² (without Restore CD)
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 31 ² (with Restore CD only)
Add New Expansion Mainframe to Existing Mainframe: Add new TLA7XM expansion mainframe(s) to your existing TLA mainframe. Requires Version 4.2 TLA Application Software and Windows 2000 Professional Operating system. TLA7UP Option 09 (Required only for TLA720 Benchtop Mainframes with serial number B19999 or lower.)	TLA714 Standard or Option 1S TLA720 Standard	TLA software V4.2, V4.1, or V4.0 and Windows 2000 Professional Windows 2000 Professional	TLA7UP Option 31 (with Restore CD, Recommended) OR TLA7UP Option 32 (without Restore CD)
		TLA software V3.2, V3.1, or V3.0 and Windows 98 Second Edition	TLA7UP Option 31 (with Restore CD only)

¹ If you need to preserve user files on your current mainframe hard disk, please order an additional hard disk drive using TLA7UP Option 10 and install it as a second, internal hard disk in your mainframe. This procedure is documented in this manual. For TLA7UP Option 16 or 17, TLA7UP Option 33 (new hard disk image CD-ROM) is required since there is a new controller with different drivers. The hard disk image for the TLA715 and TLA721 is different than the TLA714 and TLA720.

² Version 1.5 PatGen Application Software is available either as part of the latest TLA Application Software or on the Web (primarily for TLA704/711 and TLA714/721 users who have Windows 98 operating system and Version 3.2 TLA Application Software). Note that the latest TLA Application Software on the Web does NOT have SnagIt, CheckIt, RecordNow Max, or the NI USB-to-GPIB software due to licensing issues. You must order TLA7UP Options 31, 32, or 33 to receive these software components.

Service and Upgrade Notes

To prevent personal injury or damage to the instrument, consider the following requirements before attempting service:

- Read the *General Safety Summary* and *Service Safety Summary* found at the beginning of this manual.
- The procedures in this manual may only be performed by a qualified service person.

Be sure to follow all warnings, cautions and notes.

Adjustment and Certification Interval

Generally, you should perform the adjustments and certification (calibration) described in the *Performance Verification* and *Adjustment Procedures* chapters of the product service manual once per year, or after repairs have been made that may affect adjustment or calibration.

Service Offerings

Tektronix provides service to cover repair under warranty as well as other services that are designed to meet your specific service needs.

Whether providing warranty repair service or any of the other services listed below, Tektronix service technicians are equipped to service the mainframe. Services are provided at Tektronix Services Centers and on-site at your facility, depending on your location.

Warranty Repair Service

The warranty for this product is located behind the title page in this manual. Tektronix technicians provide warranty service at most Tektronix service locations worldwide. The Tektronix product catalog lists all service locations worldwide, or you can visit us on our *Customer Services World Center* web site at:

www.Tektronix.com/Measurement/Service

Calibration and Repair Service

In addition to warranty repair, Tektronix Service offers calibration and other services which provide solutions to your service needs and quality standards compliance requirements.

The following services can be tailored to fit your requirements for calibration and/or repair.

Service Options. Tektronix Service Options can be selected at the time you purchase your instrument. You select these options to provide the services that best meet your service needs. These service options are listed on the *Tektronix Service Options* page following the title page of this manual.

Service Agreements. If service options are not added to the instrument purchase, then service agreements are available on an annual basis to provide calibration services or post-warranty repair coverage. Service agreements may be customized to meet special turn-around time and/or on-site requirements.

Service on Demand. Tektronix offers calibration and repair services on a “per-incident” basis that is available with standard prices.

Self Service. Tektronix supports repair to the replaceable-part level by providing for circuit board exchange.

Use this service to reduce down-time for repair by exchanging circuit boards for remanufactured ones. Tektronix ships updated and tested exchange boards. Each board comes with a 90-day service warranty.

For More Information. Contact your local Tektronix service center or sales engineer for more information on any of the Calibration and Repair Services just described.

Contacting Tektronix

Phone	1-800-833-9200*
Address	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com
Sales support	1-800-833-9200, select option 1*
Service support	1-800-833-9200, select option 2*
Technical support	Email: techsupport@tektronix.com 1-800-833-9200, select option 3* 6:00 a.m. - 5:00 p.m. Pacific time

- * This phone number is toll free in North America. After office hours, please leave a voice mail message.
- Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.



TLA7UP Option 09

TLA7UP Option 09: Enhanced Monitor Board Replacement

TLA7UP option 09 supports the removal and replacement of the enhanced monitor board. The new enhanced monitor board supplied with this kit provides functionality to the TLA720 benchtop mainframe so that the mainframe can be used with the TLA7XM expansion mainframe.



This option is required on all mainframes manufactured before the serial numbers specified in *Instruments* below.

Instruments

TLA720 B010100 to B019999

Parts List

Table 1-1: TLA7UP Option 09 parts list

Quantity	Part number	Description
1 ea	671-3982-02	Enhanced Monitor Board
1 ea	N/A	TLA 7UP kit label

Minimum Tool and Equipment List

Table 1-2: Tools required for installing upgrade

Item no.	Name	Description
1 ea	#1 Phillips screwdriver	Screwdriver for removing the enhanced monitor board.



WARNING. *To avoid electric shock, always power down the instrument and disconnect the power cord before performing this upgrade procedure.*



CAUTION. *Many components within the mainframe are susceptible to static-discharge damage.*

Service only in a static-free environment. Observe standard handling precautions for static-sensitive devices.

Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.

Removal Instructions

To remove the enhanced monitor board follow these instructions.

1. Power down the instrument and disconnect the power cord.
2. Refer to Figure 1-1 and unscrew the captive screw that attaches the cable cover. Remove the cable cover and set it aside.
3. Unplug the blower cable from the connector marked 1/BLOWER.
4. Unscrew the two captive screws that attach the monitor board to the chassis.
5. Slide the enhanced monitor board out of the chassis as shown in Figure 1-2.
6. Dispose of the old enhanced monitor board.

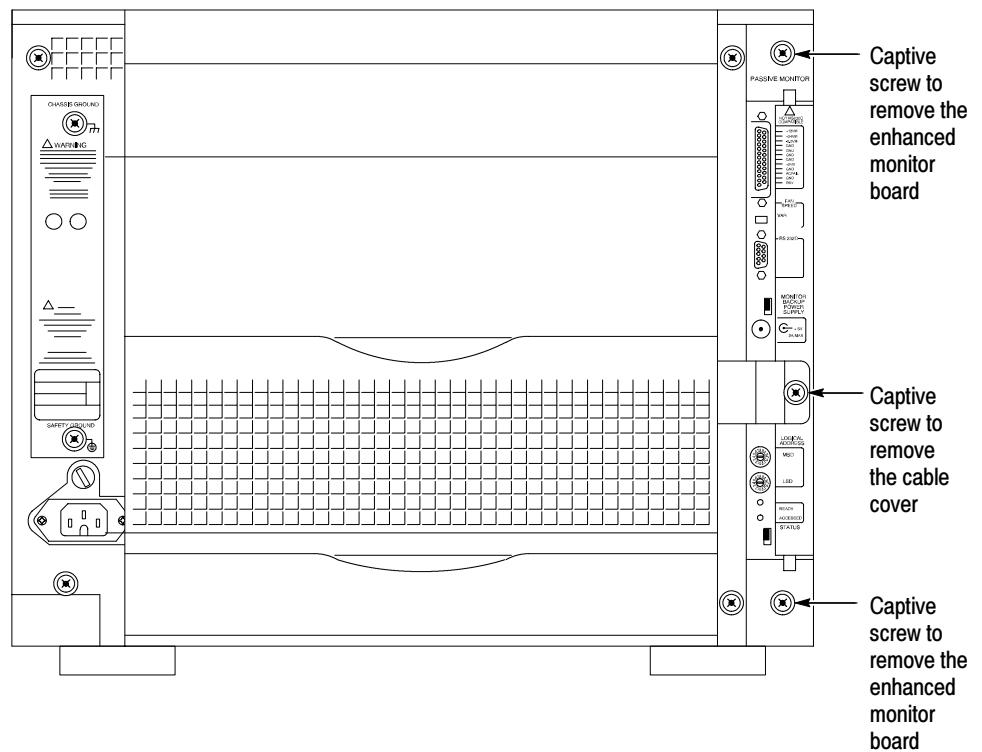


Figure 1-1: Location of enhanced monitor board screws

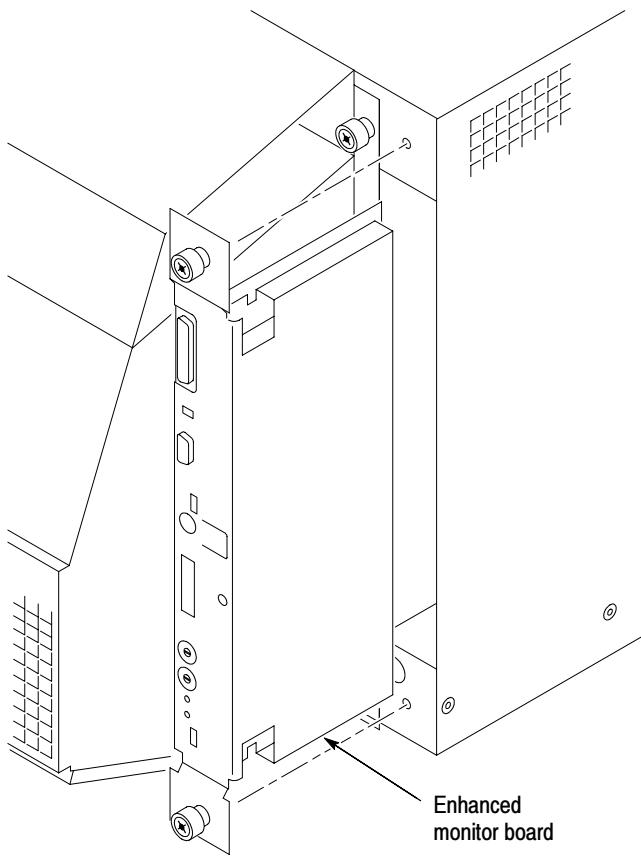


Figure 1-2: Remove/install the enhanced monitor board

Installation Instructions

To install the new enhanced monitor board shipped with this option kit follow these instructions:

1. Slide the enhanced monitor board into the chassis as shown in Figure 1-2. You might have to adjust the enhanced monitor board a little to engage the connectors on the rear of the board.
2. Push the board fully into the chassis to fully mate the rear connectors.
3. Tighten the two screws that attach the monitor board to the chassis.
4. Plug the blower cable into the connector marked 1/BLOWER.
5. Install the cable cover and tighten the captive screw that attaches to the chassis.
6. Remove the benchtop controller from the mainframe.

7. Locate the large label on the side of the benchtop controller.
8. Refer to Figure 1-3 and install the upgrade kit label on the large label as shown. If there is already an upgrade kit label, install the new label either above or below the existing label.



Figure 1-3: Mainframe upgrade kit label location

9. Install the controller in the mainframe and tighten the controller hold-down screws.
10. Connect the power cord.
11. Power on the instrument and verify that the diagnostics pass.



TLA7UP Option 10

TLA7UP Option 10: TLA714 & TLA720 MAX HDD and MAX DRAM Installation

TLA7UP Option 10 supports the addition of a second (fixed) hard disk drive for your TLA714 or TLA720 mainframe. This option also supports the upgrade to 256 MB of memory for TLA714 Portable Mainframes.

When you install the hard disk drive, you can use the replaceable hard disk drive as a spare or you can discard the replaceable hard disk cartridge and install the hard disk as a second hard disk drive in the controller.



Instruments

TLA714 Portable Mainframe
TLA720 Benchtop Mainframe

All Serial Numbers
All Serial Numbers

Parts List

Table 2-1: TLA7UP Option 10 parts list

Quantity	Part number	Description
2 ea	156-4858-xx	128 MB SO DIMM (TLA714 Only)
1 ea	650-4272-xx	Replaceable hard disk cartridge with hard disk drive (No software is installed on hard disk drive.)
1 ea	131-5829-xx	Hard disk drive jumper, 2 mm
4 ea	211-0910-xx	Screw, machine, M3 x 0.5 x 4 mm, PNH, STL
1 ea	003-0008-xx	Spudger tool for removing trim ring on portable mainframe
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

Table 2-2: Tools required for installing upgrade

Item no.	Name	Description
1	Screwdriver handle	Accepts Torx®-driver bits
2	T-10 Torx tip	Used for removing screws that attach the TLA714 hard disk drive to its bracket. Torx®-driver bit for T-10 size screw heads
3	T-15 Torx tip	Used for removing most the instrument's screws. Torx®-driver bit for T-15 size screw heads
4	#1 Phillips screwdriver	Screwdriver for removing small Phillips screws
5	#2 Phillips screwdriver	Screwdriver for removing small Phillips screws

Installation Prerequisites

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to either the *TLA714 Portable Mainframe Service Manual* (071-0267-01) or the *TLA720 Benchtop Controller Service Manual* (071-0269-01). You may also contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.

Be sure to observe the following precautions to avoid damaging the mainframe while preparing to service it.



CAUTION. *Many components within the mainframe are susceptible to static-discharge damage.*

Service only in a static-free environment. Observe standard handling precautions for static-sensitive devices.

Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.



WARNING. *Dangerous voltages may be present. Before performing any procedure in this section, disconnect the power cord from the line voltage source. Failure to do so could cause serious injury or death.*

- Do not handle static-sensitive components on boards.
- Transport and store static-sensitive boards in their original containers or on conductive foam. Label any package that contains static-sensitive assemblies.
- Wear an anti static wrist strap while handling the boards to discharge the static voltage from your body.
- Do not allow anything capable of holding or generating a static charge on the work surface.
- Avoid handling boards in areas that have a floor or work surface cover that is capable of generating a static charge.

Mainframe-Specific Instructions

If you are updating your benchtop mainframe, refer to *MAX Hard Disk Drive Installation* on page 2-5, and *Benchtop Mainframe-Specific Update Instructions* on page 2-11 for update instructions.

If you are updating your portable mainframe, refer to *MAX Hard Disk Drive Installation* on page 2-5, and *Portable Mainframe-Specific Update Instructions* on page 2-17 for update instructions.

TLA7UP Option 10: MAX Hard Disk Drive Installation

The following instructions direct you through the preliminary stages of installing a fixed (second) MAX hard disk drive on either a portable mainframe or on a benchtop mainframe. Because mainframe disassembly instructions differ substantially between the portable and benchtop mainframes, details are tailored to each instrument and are individually addressed in subsections to follow.

Master/Slave Drive Decision

At this point you need to decide where you would like the master hard disk drive to be, and where you would like the slave hard disk drive to be. The following guidelines may help you in your decision:

Master Hard Disk Drive

The master hard disk drive:

- Must have the Windows operating system resident.
- Must be the boot drive.
- Must have the TLA application software resident.
- Must not have a slave jumper installed.
- Can be the fixed or replaceable hard disk drive.

Slave Hard Disk Drive

The slave hard disk drive:

- Must not have an operating system resident.
- Cannot be a bootable drive.
- May not have the TLA application software loaded on it.
- Must have a slave jumper installed.
- Can be the fixed or replaceable hard disk drive.

NOTE. If the slave hard disk drive is the replaceable hard disk drive, it does not need to be installed to use the instrument.

Back Up Your Software

Before installing the new hard disk, make sure that you back up any files, applications, and personal documents to an external storage device. You can do this in one of several different ways:

- Move the files to another PC via a network or via another backup medium such as a ZIP drive.
- Place the new hard disk drive in the removable hard disk drive assembly (master configuration), and then place the original hard disk drive in the second hard disk location (slave configuration). This allows you to use a second hard disk drive so you can still access the user files.

For TLA714 logic analyzers, the second fixed hard disk drive location is behind the front panel; For TLA720 logic analyzers, the hard disk drive plugs into a connector on an internal circuit board in the slot 0 controller.

You can find most TLA user files using the Windows Find utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click the folder and select Find. Enter one of the suffixes from Table 2-3 to locate the TLA files in the current folder and all subfolders:

Table 2-3: TLA user file suffixes

Suffix	Description
.tla	TLA setup files and stored data
.tsf	TLA symbol files
.tbf	Tektronix binary format files
.tls	TLA script files
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy or drag them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you will need to reinstall them after you reinstall the hard disk image. If you do not have a copy of the microprocessor support software, contact your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center.

Set Up The Slave Hard Disk Drive

Decide which hard disk drive you want to be the slave hard disk drive. If you want the replaceable hard disk drive to be the slave, you will need to add a slave jumper. If you want the fixed hard disk drive to be the slave, you will need to remove that hard disk drive from the replaceable cartridge and add a slave jumper.

To set up the hard disk drive as a slave drive, follow these instructions:

1. Determine which hard disk drive you want to be the slave drive.
2. Locate the shorting jumper that you received with this kit.
3. Remove the four #1 Phillips screws from the replaceable hard disk drive cartridge as shown in Figure 2-3 on page 2-9.
4. Lift the hard disk drive from the cartridge, using the procedure that begins on page 2-9, but do not unplug the data cable.
 - a. If the slave hard disk drive is to be the replaceable hard disk drive, do not remove the cable.
 - b. If the slave hard disk drive is to be the fixed hard disk drive, remove the cable and set the replaceable cartridge aside.
5. To designate the hard disk drive as a slave drive, you will need to install a shorting jumper. Refer to the label on the hard disk drive for the correct jumper position; if necessary, you may need to refer to the disk drive vendor's web site for the jumper information. Figure Figure 2-1 shows the jumper position for the IBM (TravelStar) hard disk drive; your drive jumper location may differ depending on the model and vendor.

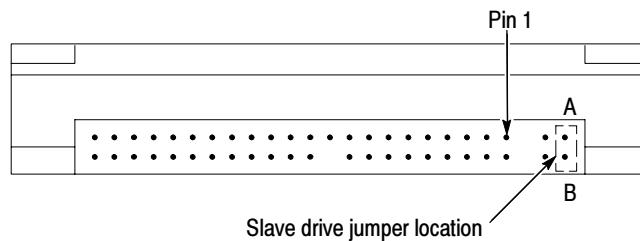


Figure 2-1: Slave drive jumper location

6. Place the hard disk drive back into the cartridge if it is to be the replaceable hard disk drive.
7. Replace the four screws into the cartridge to secure the hard disk drive (only if it is to be the replaceable hard disk drive). Tighten the screws to 4 in-lbs.

8. Label this hard disk drive with a permanent marker as a slave drive.

Remove the Replaceable Hard Disk Drive



CAUTION. Do not remove the hard disk drive while the instrument is powered on. Always power down the instrument before removing the hard disk drive.

The hard disk drive can be permanently damaged if you remove it while the instrument is powered on.

Verify that the instrument is turned off.

Remove the replaceable hard disk drive cartridge by depressing it to release the latch as shown in Figure 2-2. Pull on the replaceable hard disk drive cartridge to remove it from the chassis.

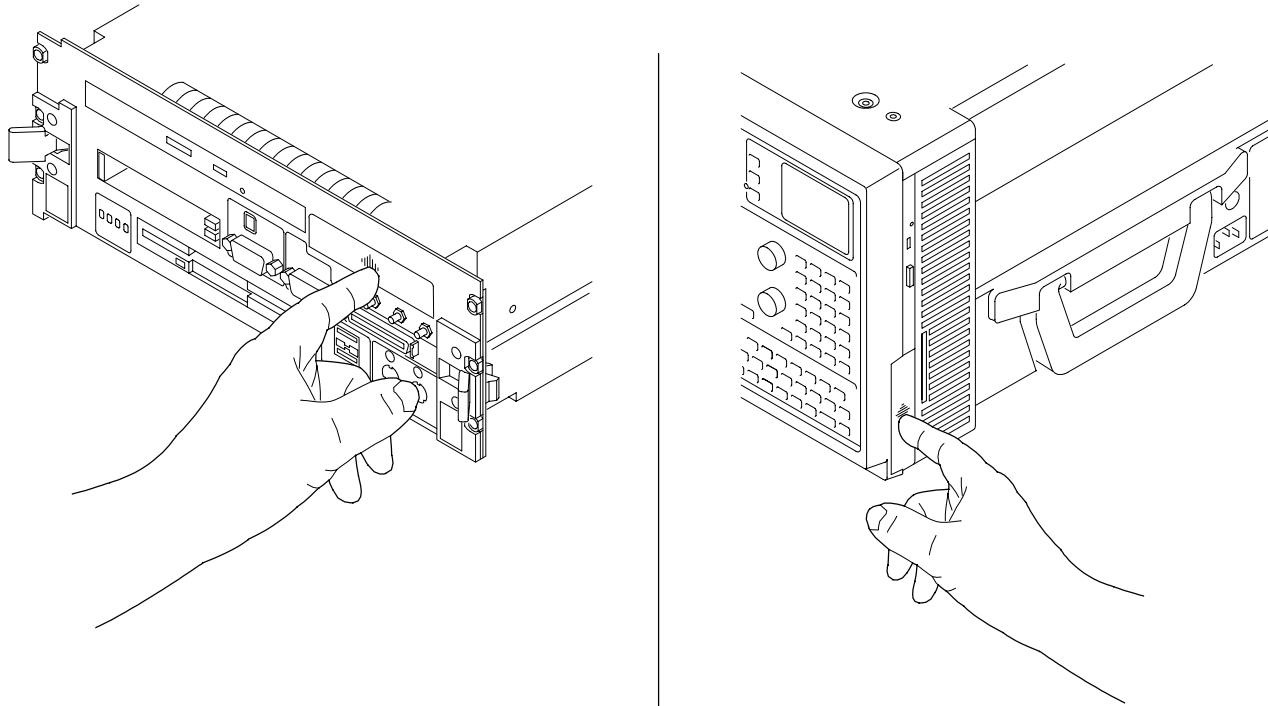


Figure 2-2: Depress the latch to release

Set Up The Master Hard Disk Drive

If you want the master hard disk drive to be the replaceable hard disk drive, you do not have to do anything to the drive. If you want the master hard disk drive to be the fixed hard disk drive, you will need to remove that hard disk drive from the replaceable cartridge.

Use the following steps and refer to Figure 2-3 to perform this procedure:

1. Remove the four #1 Phillips screws that fasten the hard disk drive to the cartridge.
2. Carefully remove the hard disk drive from the cartridge and remove the cable assembly from the connector on the hard disk drive.
3. With a permanent marker label this hard disk drive as the fixed hard disk drive for reference. This is the hard disk drive you will install as the fixed hard disk drive.
4. Set the disk drive aside. You will install this drive after the mainframe is disassembled. If the replaceable hard disk drive cartridge will not be used, you can keep the cartridge as a spare part.

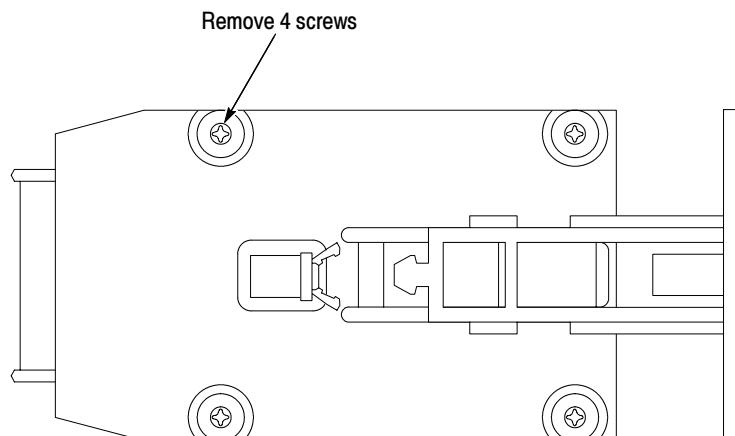


Figure 2-3: Remove the hard disk drive from the cartridge

TLA7UP Option 10: Benchtop Mainframe-Specific Update Instructions

The following instructions direct you through the process of disassembling your benchtop mainframe and installing a second, fixed MAX hard disk drive.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix service representative for installation information.

Remove the Benchtop Controller Covers

Remove the eight T-10 Torx-drive screws shown in Figure 2-4 and lift the controller cover off.

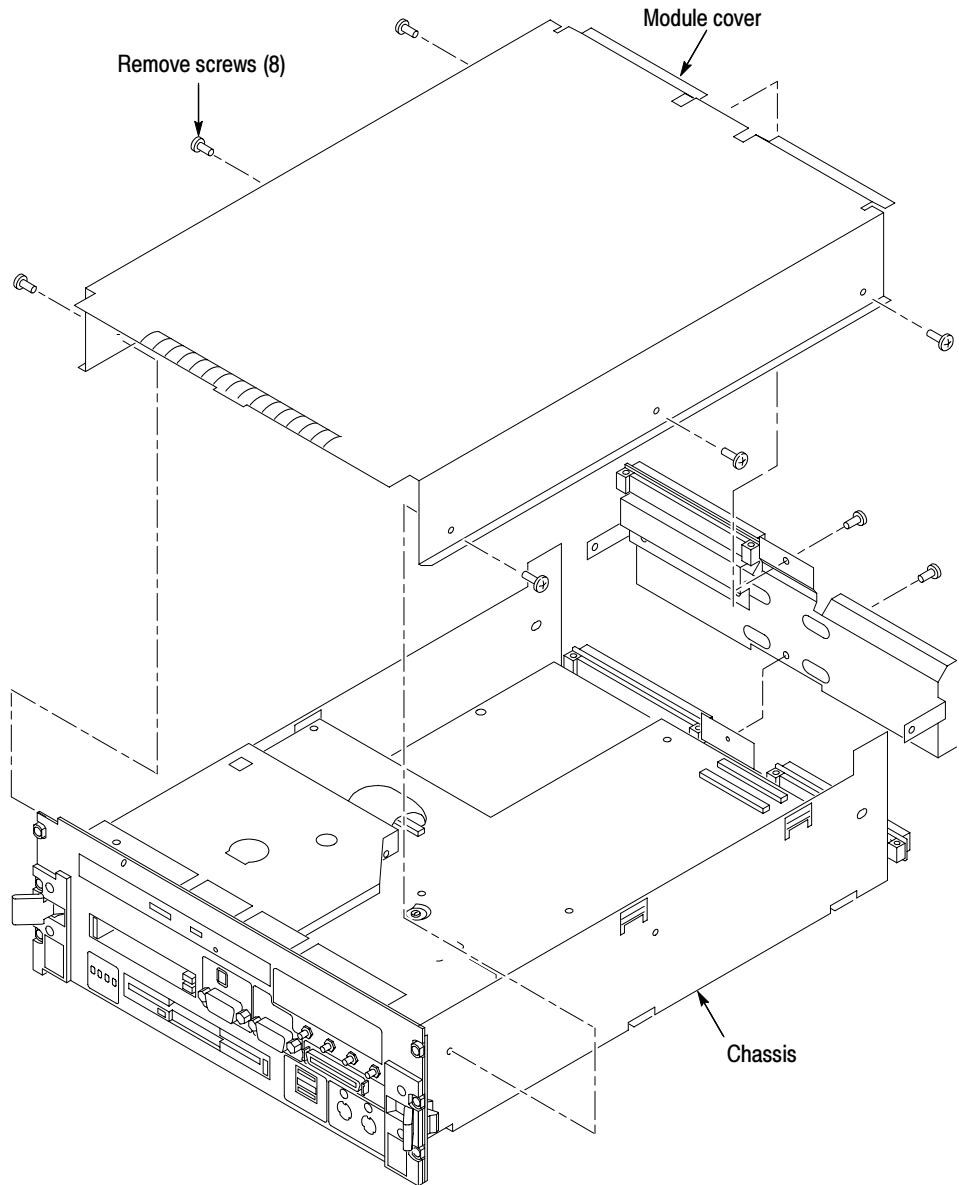


Figure 2-4: Removing the covers from the controller

Remove the Hard Disk Drive Interface Board

Use the following procedure, and refer to Figure 2-5, to remove the hard disk drive interface board from the controller.

1. Disconnect the two ribbon cables located on the rear of the board.
2. Remove the four T-10 Torx-drive screws that secure the hard disk drive interface board.
3. Lift the hard disk drive interface board out of the module.

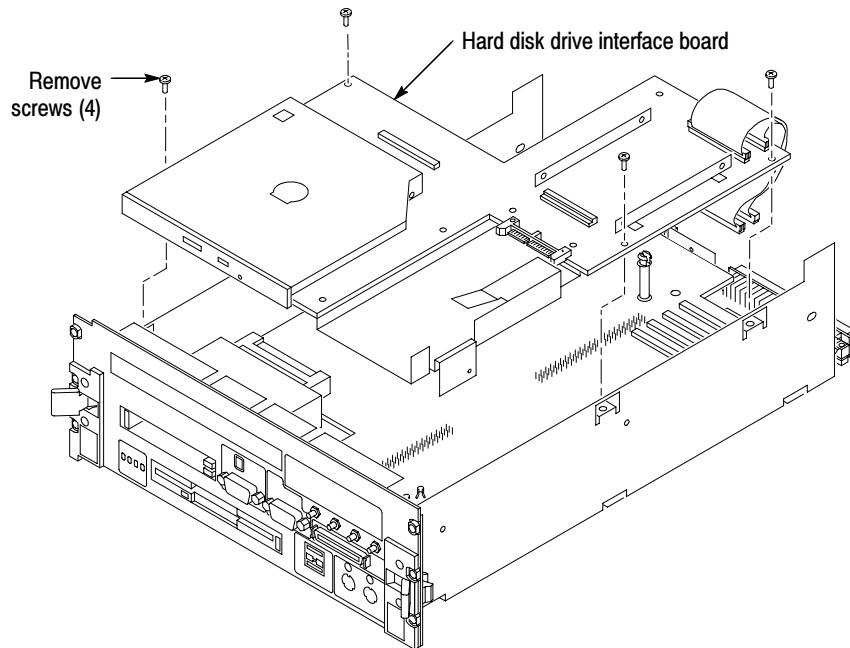


Figure 2-5: Remove the hard drive interface board from the controller

Install the Fixed Hard Disk Drive

Use the following procedure to secure the fixed hard disk drive to the interface board.

1. Loosen the fixed hard disk drive bracket T-10 Torx-drive screws to easily insert the hard disk drive between the brackets.
2. Carefully align the connector pins on the back of the hard disk drive to the socket on the board. Gently slide the hard disk drive into the socket. Verify that all of the pins are fully engaged and that no pins are bent.
3. Use a #2 Phillips screwdriver to install the four panhandle screws that came with this kit to secure the fixed hard disk drive to the brackets, as shown in Figure 2-6. Tighten the screws to 1 in-lbs.
4. Tighten the fixed hard disk drive bracket T-10 Torx-drive screws that secure the fixed hard disk drive brackets to the interface board to 3 in-lbs.

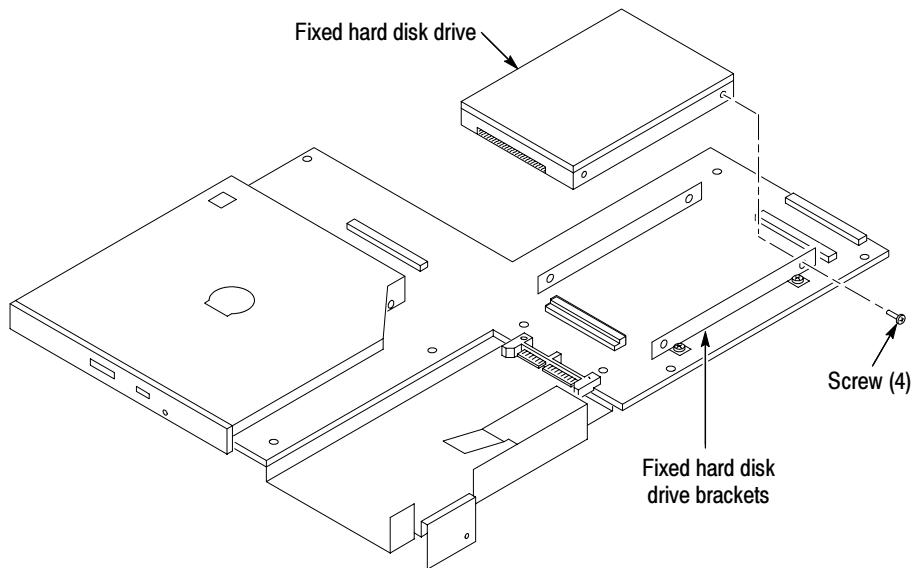


Figure 2-6: Install the fixed hard disk drive

Install the Hard Disk Drive Interface Board and the Covers

Use the following instructions, and refer to Figure 2-5 on page 2-13, to install the hard drive interface board:

1. Connect the hard disk drive interface board to the processor board by first inserting the CD-ROM faceplate into its chassis cutout. Then, locate the center standoff and center it on the hole. Carefully apply pressure to both boards until the two connectors engage.
2. Install the four T-10 Torx-drive screws; tighten the screws to 3 in-lbs.
3. Connect the two ribbon cables located on the rear of the board.
4. Push forward on the cover so the tab on the front edge of the cover inserts into the rear of the front subpanel, as shown in Figure 2-7. Ensure that the cover is fully seated, with no gaps, against the front and rear chassis flanges.
5. Secure the left side cover to the module with eight T-10 Torx-drive screws; tighten the screws to 3 in-lbs.

NOTE. *Squeeze the sides together before tightening to ensure a good EMI seal and mechanical connection.*

6. Install the replaceable hard disk drive by reversing the procedure located on page 2-8.
7. Install the controller in the mainframe and tighten the controller hold-down screws.

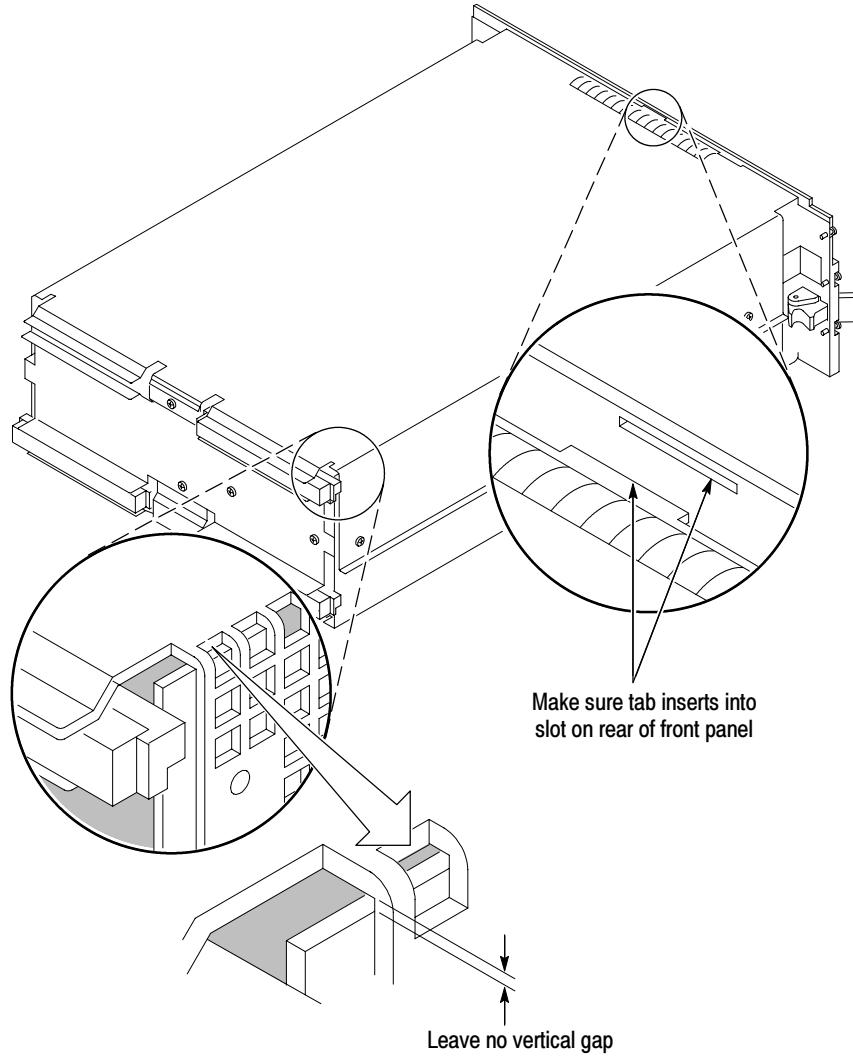


Figure 2-7: Seat the cover on the TLA720 chassis

Set Up the Two Hard Disk Drives

If the master hard disk drive already contains the Windows operating system and the TLA application software loaded, the system will boot up and function properly.

If the master hard disk drive is the blank hard disk drive you received with this kit, you need to ensure that the hard disk drive is detected correctly using the verification procedure on page 2-25. If the hard disk drive is detected, then format the hard disk drive, load Windows and load both the TLA application and associated software.

TLA7UP Option 10: Portable Mainframe-Specific Update Instructions

The following instructions direct you through the process of disassembling your portable mainframe and installing a second, MAX hard disk drive.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation.

Remove the Trim Ring

Remove the trim ring to access the flat panel display assembly. You will need a spudger (or other small prying tool) to perform this procedure.

Use the following procedure and Figure 2-8 on page 2-18 to remove the trim ring:

1. Set the mainframe with the cord-wrap feet on the work surface and the bottom facing you.
2. Use the spudger tool (supplied with this kit) to gently pry under the trim ring to detach the three plastic snaps along the bottom edge. Then, swing the bottom of the ring upward and work the rest of the ring off the front panel.

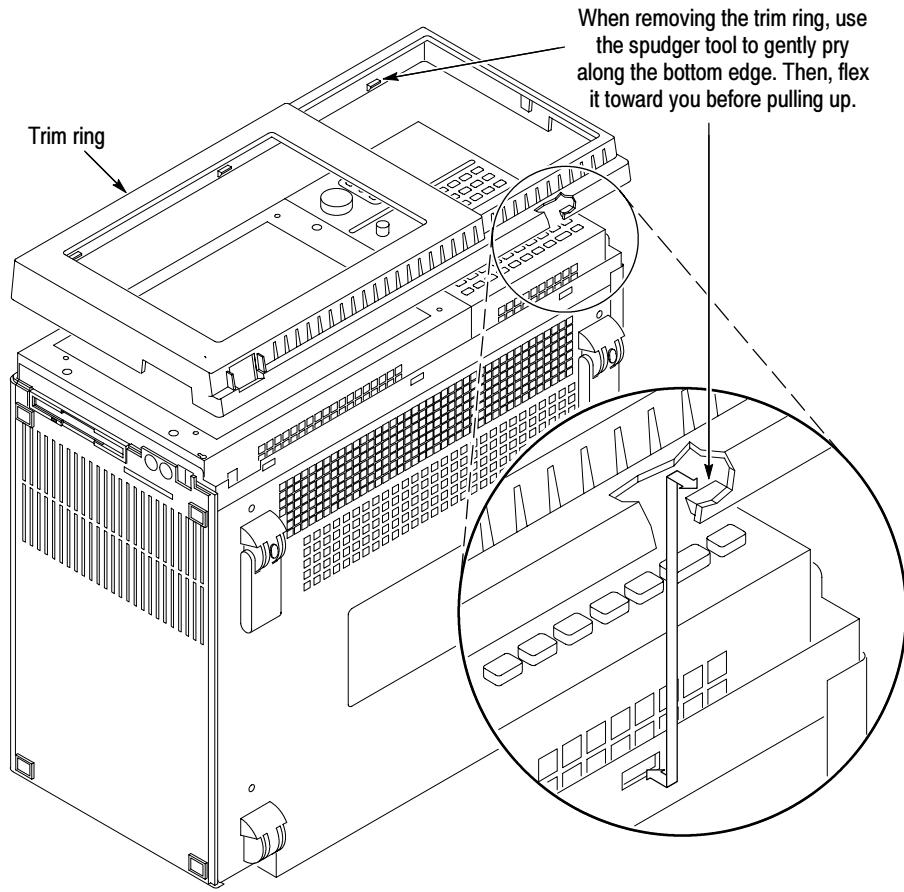


Figure 2-8: Trim ring removal

Remove Flat Panel Display Assembly

Use the following procedure and Figure 2-9 to remove the flat panel display assembly:

1. Remove the five T-15 Torx-drive screws that attach the flat panel display assembly to the mainframe.
2. Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the mainframe.

NOTE. Exercise care not to dislodge the light pipe, which is located in the lower-left corner of the front panel display assembly.

3. Detach the cables that connect from the flat panel display assembly to both the front panel interface board and the high-voltage power supply.

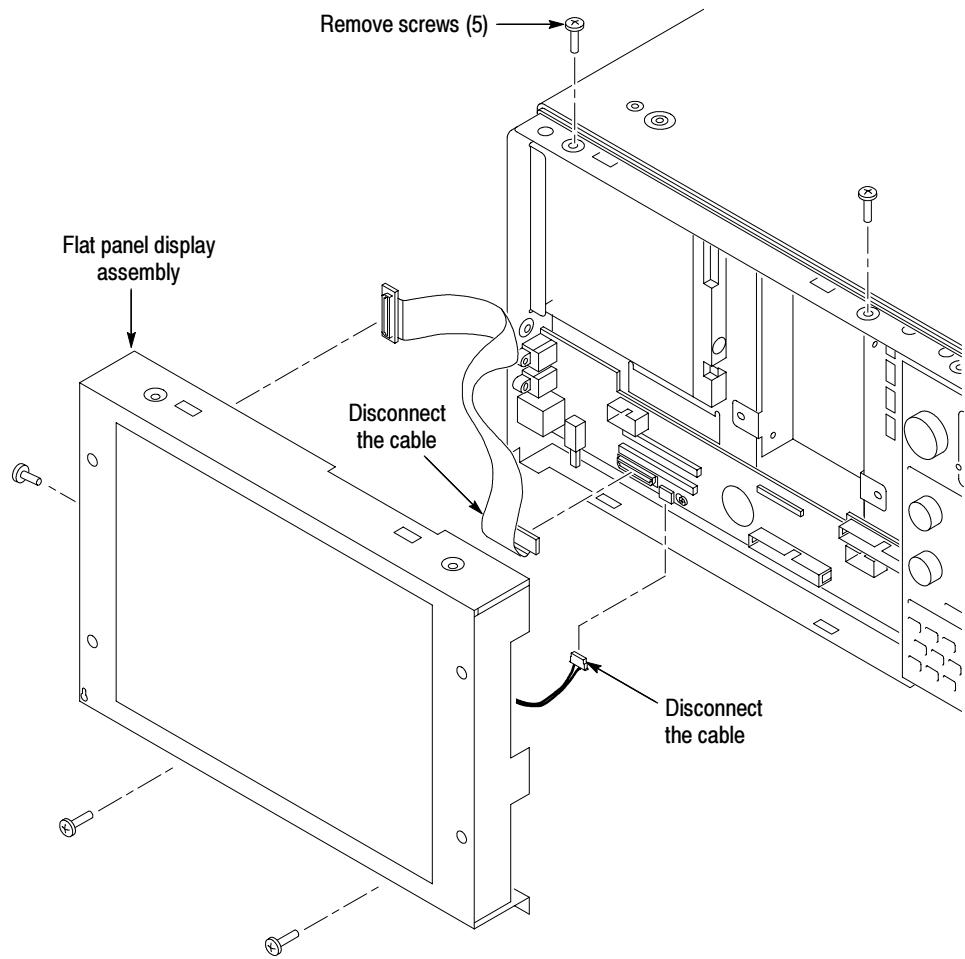


Figure 2-9: Flat panel display assembly removal

Install Fixed Hard Disk Drive

Use the following procedure, and refer to Figure 2-10, to install the fixed hard disk drive:

1. Remove the four T-15 Torx-drive screws that secure the fixed hard disk drive bracket to the chassis.
2. Locate the hard disk drive that will become the fixed hard disk drive.

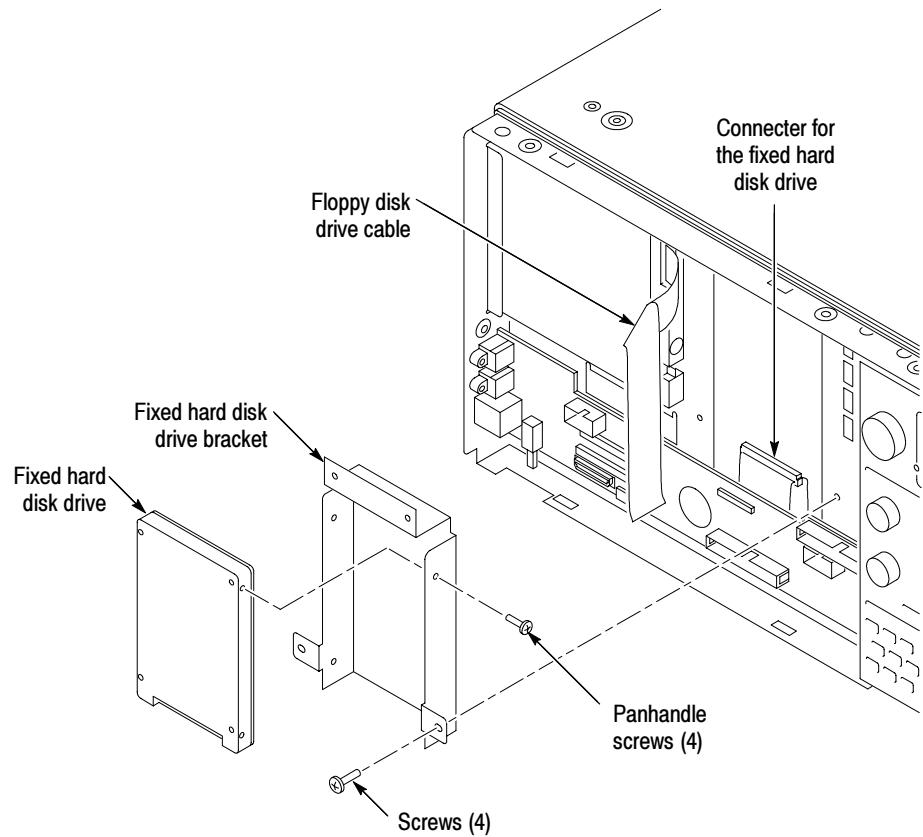


Figure 2-10: Installing the fixed hard disk drive

3. Mount the fixed hard disk drive to the fixed hard disk drive bracket with the four panhandle screws included in this kit (tighten the screws to 1 in-lbs). Ensure that the orientation matches the key on the data cable.
4. Attach the data cable to the fixed hard disk drive.
5. Attach the fixed hard disk drive bracket to the chassis with four T-15 Torx-drive screws. Tighten the screws to 8 in-lbs.

Install Flat Panel Display Assembly

Use the following procedure, and refer to Figure 2-9 on page 2-19, to reinstall the flat panel display assembly:

1. Reattach the cable connecting the flat panel display assembly to the interface board.
2. Reattach the high-voltage power supply cable to the power supply.
3. Reinstall the flat panel display assembly by first inserting the top edge and then rotating the bottom edge downward into position. Ensure that the tabs are engaged at the top of the assembly. Insert the five T-15 Torx-drive screws that attach the flat panel display assembly to the mainframe: two screws at the bottom of the assembly on the front of the instrument, two screws on the top, and one screw on the left side. Tighten the screws to 8 in-lbs.

Portable Mainframe MAX DRAM Installation

The following instructions support the upgrade to 256 MB of DRAM memory on your portable mainframe.

Remove the Top Cover

Use the following procedure to remove the top cover:

1. Set the mainframe with the bottom on the work surface and the front facing you.
2. Unsnap the accessories pouch from the top cover.
3. Remove the four T-15 Torx-drive screws that attach the top cover to the mainframe, as shown in Figure 2-11.
4. Lift the top cover off.

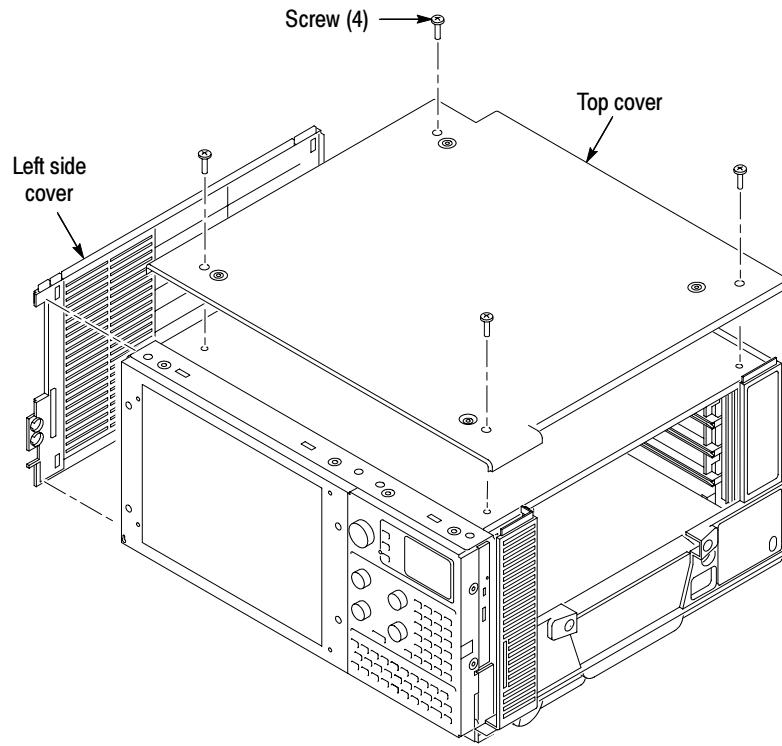


Figure 2-11: Top and side cover removal

Remove the Left Side Cover and Controller Cover

No screws attach the left side cover to the mainframe. However, you must loosen the two T-15 Torx-drive screws closest to the left side of the bottom cover in order to remove the left side cover. Place the mainframe on cord-wrap feet, with the left-side of the mainframe facing you.

Use the following procedure to remove the left side cover:

1. Loosen the two T-15 Torx-drive screws on the bottom cover closest to the left side of the mainframe.
2. Remove the left side cover.
3. Remove the eight T-15 Torx-drive screws securing the controller cover to the chassis, as shown in Figure 2-12, and then lift off the cover.

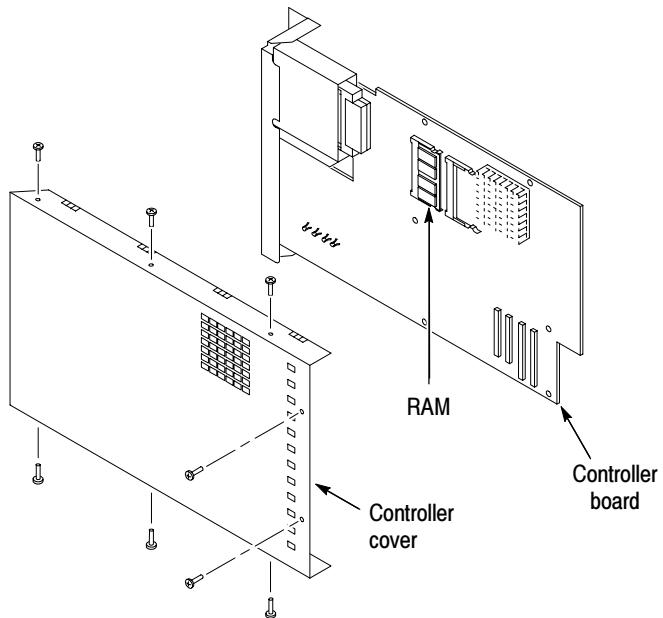


Figure 2-12: Removing the controller cover

Install the SODIMM

The SODIMM memory is located on the controller board.

Remove any existing SODIMMs. Then, insert the new memory into the controller board by pressing down gently until the clips that hold the memory board to the controller board snap into place.

Install the Left Side Cover

Complete the following procedure to install the left side cover.

1. Replace the controller cover by first inserting the left edge beneath the chassis lip and then press the shield into place.
2. Fasten the eight T-15 Torx-drive screws that secure the controller cover to the chassis. Tighten the screws to 8 in-lbs.
3. Reposition the left side cover, then tighten the two T-15 Torx-drive bottom cover screws that attach the bottom cover to the chassis. These screws are located nearest the left side of the instrument. Tighten the screws to 8 in-lbs.

Install the Top Cover

Use the following procedure to reinstall the top cover:

1. Reposition the top cover on the portable mainframe.
2. Insert the four T-15 Torx-drive screws that attach the top cover to the mainframe. Tighten the screws to 8 in-lbs. See Figure 2-11 on page 2-22.
3. Reattach the accessories pouch to the top cover. (It snaps on.)

Install the Trim Ring

Replace the trim ring on the front panel. Start at the top edge and work around to the bottom until the three plastic snaps engage. Press the trim ring down all around the edges until it is completely seated.

Set Up the Two Hard Disk Drives

If the master hard disk drive already contains the Windows operating system and the TLA application software loaded, the system will boot up and function properly.

If the master hard disk drive is the blank hard disk drive you received with this kit, you will have to set up the BIOS, format the hard disk drive, load Windows and load the TLA application software and the associated software.

TLA7UP Option 10: Verify Operation

After installing the hardware upgrades, use the following procedures to verify that the hard disk drive and DRAM are recognized and are operating correctly.

Verify MAX Hard Disk Drive Operation

Follow the steps below to ensure proper operation of the instrument after completing the fixed hard disk drive upgrade instructions:

1. Run the hardware setup routine to ensure that the fixed hard disk drive is detected and that the disk drive size is correctly recognized:
 - a. Power on the logic analyzer and press function key F2 before the Windows operating system boots.
 - b. From the Main menu, select IDE Adapter O Master and press Enter.
 - c. Select Autotype Fixed Disk and press Enter to automatically detect the size of your hard disk drive.
2. If you defined the MAX hard disk drive as your master, reboot your instrument to confirm that the hard disk drive is operating properly. To complete the upgrade process, refer to *Reinstall Software* on page 2-27.
3. If you defined the MAX hard disk drive as your slave, access the hard disk drive using Microsoft Windows Explorer and transfer one or more files to confirm that the hard disk drive is operating properly.

Verify MAX DRAM Operation

Follow the steps below to ensure that your instrument recognizes the newly installed DRAM after completing the upgrade:

1. Click Start → Programs → Accessories → System Tools.
2. Click System Information. The system responds by displaying the Microsoft System Information dialog.
3. Verify that the Microsoft System Information dialog indicates that 256 MB of RAM is installed.

Attach the Upgrade Kit Label to the Instrument

After completing all the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

Locate the large label on the instrument. On the benchtop controller the label is located on the side; on the portable mainframe, the label is located on the bottom of the instrument.

Attach the TLA7UP kit label on the large label as shown in Figure 2-13. If the instrument already has an upgrade label, install the new label directly above or below the old upgrade kit label.



Figure 2-13: Kit label locations

Reinstall Software

Install the software that originally came with your mainframe. To do this, use the software media that came with your mainframe. Use the procedure that came in your mainframe documentation.



CAUTION. *Depending on when you received your original mainframe, the procedure for reinstalling software is located in one of several places. Make sure that you use the correct procedure to install the software.*

- If your original TLA700 Series Logic Analyzer came with Version 3.0 software, refer to *Appendix A: Restoring and Reinstalling Software* in the *TLA700 Series Logic Analyzer, Version 3.0 Installation Manual* (071-0264-XX) to reinstall the software.
- If your original TLA700 Series Logic Analyzer came with Version 3.1 software, refer to *Restoring and Reinstalling Software* in the *TLA700 Series, Version 3.1 Software User Manual* (071-0684-XX) to reinstall the software.
- If your original TLA700 Series Logic Analyzer came with Version 3.2 software, refer to *Installing Software on the TLA700 Series* in the *Tektronix Logic Analyzer Family, Version 3.2 Software User Manual* (071-0729-XX) to reinstall the software.
- If your original TLA700 Series Logic Analyzer came with Version 4.0 or 4.1 software and you do not want to upgrade to a newer software version, refer to *Appendix G: Installing Software* in the *Tektronix Logic Analyzer Family User Manual* (071-0863-xx) to reinstall the software.

If your TLA700 Series Logic Analyzer has TLA Application Software Version 4.2 or higher, use the procedure in the *TLA Application Software and Windows Operating System Upgrade* beginning on page 8-1 to upgrade the operating system and software to the latest version.



TLA7UP Option 12

TLA7UP Option 12: TLA715 & TLA721 MAX HDD and MAX DRAM Installation

TLA7UP Option 12 supports the addition of a second (fixed) hard disk drive for your TLA715 or TLA721 mainframe. It also supports the upgrade to 512 MB of memory for the TLA715 Portable Mainframe (the TLA721 Benchtop Mainframe already has a maximum of 512 MB). The standard TLA715 Portable Mainframe has two SODIMM sockets in a MIN configuration with one 256 MB DRAM installed. This kit installs a second 256 MB SODIMM for a total of 512 MB.



Instruments

TLA715 Portable Mainframe
TLA721 Benchtop Mainframe

All Serial Numbers
All Serial Numbers

Parts List

Table 3-1: TLA7UP Option 12 parts list

Quantity	Part number	Description
1 ea	156-4857-xx	256 MB SO DIMM (for TLA715 Controller)
1 ea	650-4272-xx	Replaceable hard disk cartridge with hard disk drive (No software is installed on hard disk drive.)
4 ea	211-0910-xx	Screw, machine, M3 x 0.5 x 4 mm, PNH, STL
1 ea	131-5829-xx	Hard disk drive jumper, 2 mm
1 ea	003-0008-xx	Spudger tool for removing trim ring on portable mainframe
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

Table 3-2: Tools required for installing upgrade

Item no.	Name	Description
1	Screwdriver handle	Accepts Torx®-driver bits
2	T-10 Torx tip	Torx®-driver bit for T-10 size screw heads
3	T-15 Torx tip	Torx®-driver bit for T-15 size screw heads
4	Flat blade screwdriver	Screwdriver for removing screws that attach the TLA721 parallel port on the front panel
5	#1 Phillips screwdriver	Screwdriver for removing small Phillips screws
6	#2 Phillips screwdriver with a 6-inch long narrow shaft (< 0.25 inch diameter)	Screwdriver for removing small Phillips screws on the TLA721 internal hard disk drive
7	3/16-inch nut driver	For removing standoffs from the TLA721 Controller front panel
8	1/4-inch nut driver	For removing nuts on the back of the TLA721 Controller front panel

Installation Prerequisite

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to either the *TLA715 Portable Mainframe Service Manual* (071-0913-xx) or the *TLA721 Benchtop & TLA7XM Expansion Mainframe Service Manual* (071-0912-xx). You may also contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.

When you install the hard disk drive, you can use the replaceable hard disk drive as a spare or you can discard the replaceable hard disk cartridge and install the hard disk as a second hard disk drive in the controller.

Be sure to observe the following precautions to avoid damaging the mainframe while preparing to service it.



CAUTION. *Many components within the mainframe are susceptible to static-discharge damage.*

Service only in a static-free environment. Observe standard handling precautions for static-sensitive devices.

Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.



WARNING. *Dangerous voltages may be present. Before performing any procedure in this section, disconnect the power cord from the line voltage source. Failure to do so could cause serious injury or death.*

- Do not handle static-sensitive components on boards.
- Transport and store static-sensitive boards in their original containers or on conductive foam. Label any package that contains static-sensitive assemblies.
- Wear an anti static wrist strap while handling the boards to discharge the static voltage from your body.
- Do not allow anything capable of holding or generating a static charge on the work surface.
- Avoid handling boards in areas that have a floor or work surface cover that is capable of generating a static charge.

Mainframe-Specific Instructions

If you are updating your benchtop mainframe, refer to *MAX Hard Disk Drive Installation* on page 3-5, and *Benchtop Mainframe-Specific Update Instructions* on page 3-11 for update instructions. If you are updating your portable mainframe, refer to *MAX Hard Disk Drive Installation* on page 3-5, and *Portable Mainframe-Specific Update Instructions* on page 3-15 for update instructions.

TLA7UP Option 12: MAX Hard Disk Drive Installation

The following instructions direct you through the preliminary stages of installing a fixed (second) MAX hard disk drive on either a portable mainframe or on a benchtop mainframe. Because mainframe disassembly instructions differ substantially between the portable and benchtop mainframes, details are tailored to each instrument and are individually addressed in subsections to follow.

Master/Slave Drive Decision

At this point you need to decide where you would like the master hard disk drive to be, and where you would like the slave hard disk drive to be. The following guidelines may help you in your decision:

Master Hard Disk Drive

The master hard disk drive:

- Must have the Windows operating system resident.
- Must be the boot drive.
- Must have the TLA application software resident.
- Must not have a slave jumper installed.
- Can be the fixed or replaceable hard disk drive.

Slave Hard Disk Drive

The slave hard disk drive:

- Must not have an operating system resident.
- Cannot be a bootable drive.
- May not have the TLA application software loaded on it.
- Must have a slave jumper installed.
- Can be the fixed or replaceable hard disk drive.

NOTE. If the slave hard disk drive is the replaceable hard disk drive, it does not need to be installed to use the instrument.

Back Up Your Software

Before installing the new hard disk, make sure that you back up any files, applications, and personal documents to an external storage device. You can do this in one of several different ways:

- Move the files to another PC via a network or via another backup medium such as a ZIP drive.
- Place the new hard disk drive in the removable hard disk drive assembly (master configuration), and then place the original hard disk drive in the second hard disk location (slave configuration). This allows you to use a second hard disk drive so you can still access the user files.

For TLA715 logic analyzers, the second fixed hard disk drive location is behind the front panel; For TLA721 logic analyzers, the hard disk drive plugs into a connector on an internal circuit board in the slot 0 controller.

You can find most TLA user files using the Windows Find utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click the folder and select Find. Enter one of the suffixes from Table 3-3 to locate the TLA files in the current folder and all subfolders:

Table 3-3: TLA user file suffixes

Suffix	Description
.tla	TLA setup files and stored data
.tsf	TLA symbol files
.tbf	Tektronix binary format
.tls	TLA script file
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy or drag them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you will need to reinstall them after you reinstall the hard disk image. If you do not have a copy of the microprocessor support software, contact your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center.

Set Up The Slave Hard Disk Drive

Decide which hard disk drive you want to be the slave hard disk drive. If you want the replaceable hard disk drive to be the slave, you will need to add a slave jumper. If you want the fixed hard disk drive to be the slave, you will need to remove that hard disk drive from the replaceable cartridge and add a slave jumper.

To set up the hard disk drive as a slave drive, follow these instructions:

1. Determine which hard disk drive you want to be the slave drive.
2. Locate the shorting jumper that you received with this kit.
3. Remove the four #1 Phillips screws from the replaceable hard disk drive cartridge as shown in Figure 2-3 on page 2-9.
4. Lift the hard disk drive from the cartridge, using the procedure that begins on page 2-9, but do not unplug the data cable.
 - a. If the slave hard disk drive is to be the replaceable hard disk drive, do not remove the cable.
 - b. If the slave hard disk drive is to be the fixed hard disk drive, remove the cable and set the replaceable cartridge aside.
5. To designate the hard disk drive as a slave drive, you will need to install a shorting jumper. Refer to the label on the hard disk drive for the correct jumper position; if necessary, you may need to refer to the disk drive vendor's web site for the jumper information. Figure Figure 3-1 shows the jumper position for the IBM (TravelStar) hard disk drive; your drive jumper location may differ depending on the model and vendor.

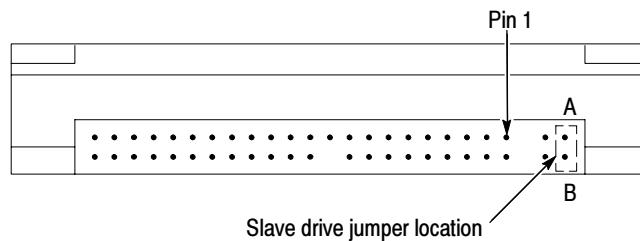


Figure 3-1: Slave drive jumper location

6. Place the hard disk drive back into the cartridge if it is to be the replaceable hard disk drive.

7. Replace the four screws into the cartridge to secure the hard disk drive (only if it is to be the replaceable hard disk drive). Tighten the screws to 4 in-lbs.
8. Label this hard disk drive with a permanent marker as a slave drive.

Remove the Replaceable Hard Disk Drive



CAUTION. Do not remove the hard disk drive while the instrument is powered on. Always power down the instrument before removing the hard disk drive.

The hard disk drive can be permanently damaged if you remove it while the instrument is powered on.

Verify that the instrument is turned off.

Remove the replaceable hard disk drive cartridge by depressing it to release the latch as shown in Figure 3-2. Pull on the replaceable hard disk drive cartridge to remove it from the chassis.

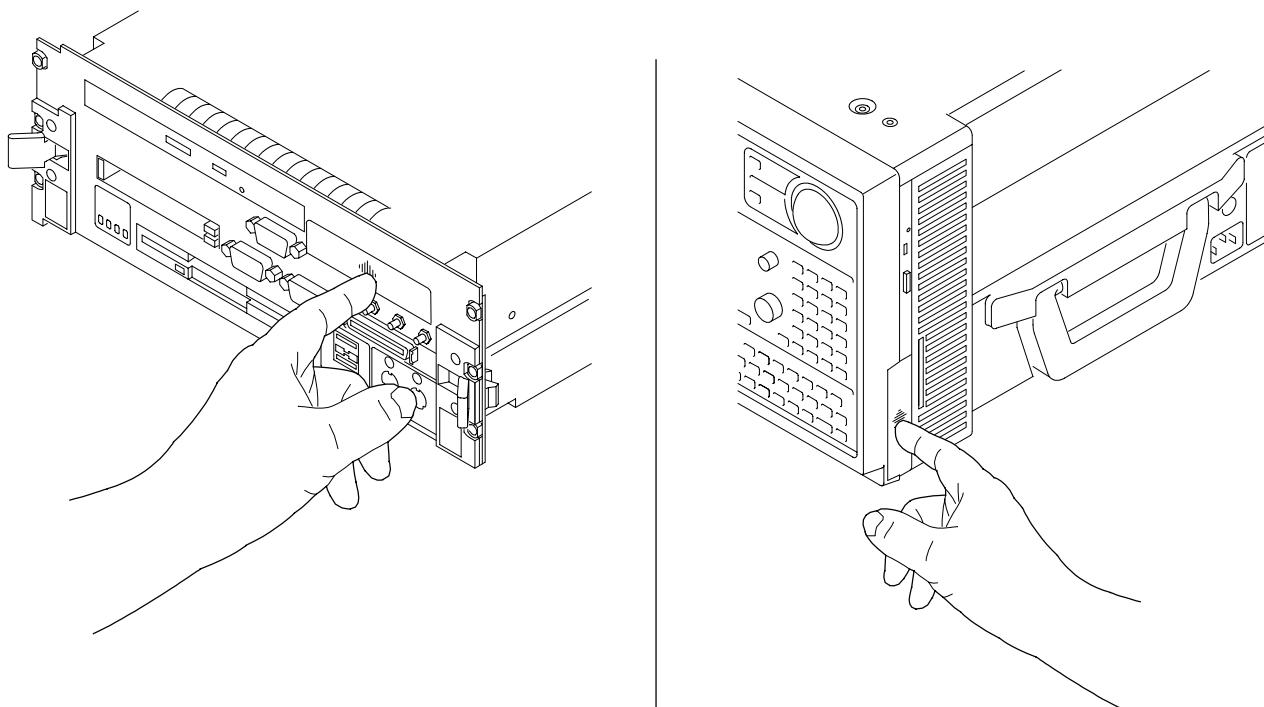


Figure 3-2: Depress the latch to release

Set Up The Master Hard Disk Drive

If you want the master hard disk drive to be the replaceable hard disk drive, you do not have to do anything to the drive. If you want the master hard disk drive to be the fixed hard disk drive, you will need to remove that hard disk drive from the replaceable cartridge.

Use the following steps and refer to Figure 3-3 to perform this procedure:

1. Remove the four #1 Phillips screws that fasten the hard disk drive to the cartridge.
2. Carefully remove the hard disk drive from the cartridge and remove the cable assembly from the connector on the hard disk drive.
3. With a permanent marker label this hard disk drive as the fixed hard disk drive for reference. This is the hard disk drive you will install as the fixed hard disk drive.
4. Set the disk drive aside. You will install this drive after the mainframe is disassembled. If the replaceable hard disk drive cartridge will not be used, you can keep the cartridge as a spare part.

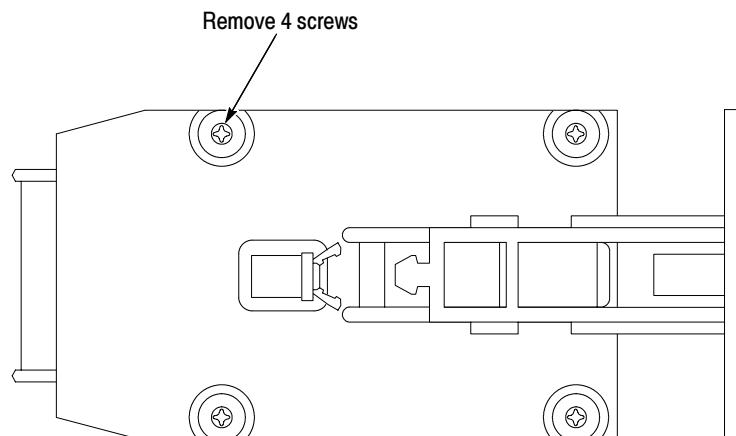


Figure 3-3: Remove the hard disk drive from the cartridge

TLA7UP Option 12: Benchtop Mainframe-Specific Update Instructions

The following instructions direct you through the process of disassembling your benchtop mainframe and installing a second, fixed MAX hard disk drive.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix service center for installation information.

1. If you have not already done so, power down the mainframe and disconnect the power cord.
2. Remove the benchtop controller from the mainframe and place it on a clean, static free, work surface.

Remove the Benchtop Controller Covers

To install a second hard disk drive, you must remove the covers from the mainframe controller. If you have a, 6-inch long, narrow shaft, #2 Phillips screwdriver, there is no need to remove the front panel and the hard disk drive interface board. Otherwise, you will need to refer to the *TLA721 Benchtop Mainframe & TLA7XM Expansion Mainframe Service Manual* for detailed instructions for removing the front panel and hard disk drive interface board on the TLA721 Benchtop Controller.

Remove the ten flat-head T-10 Torx-drive screws shown in Figure 3-4 and then lift off the controller left and rear covers.

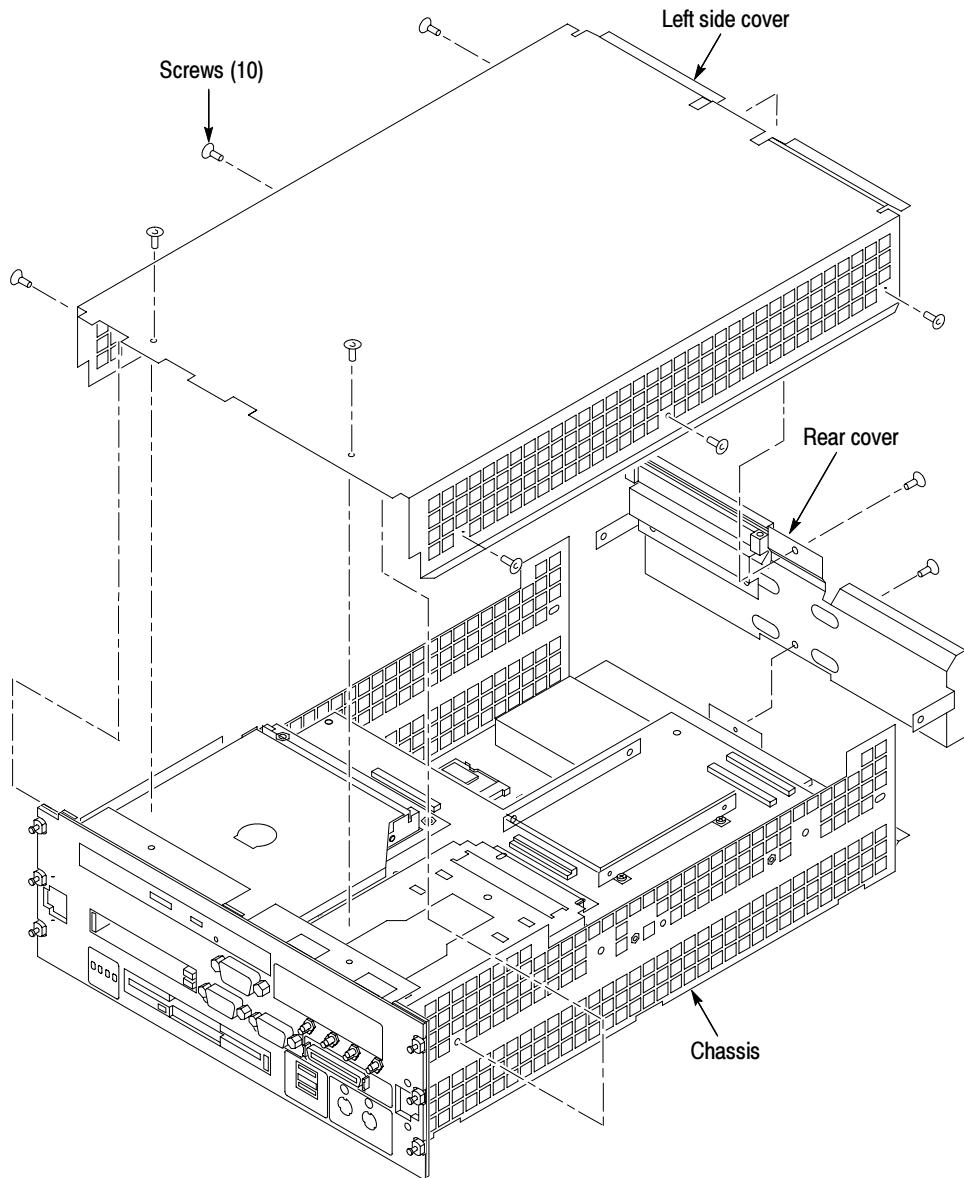


Figure 3-4: Removing the covers on the TLA721 Benchtop controller

Install the Fixed Hard Disk Drive

Use the following procedure to secure the fixed hard disk drive to the interface board.

1. Loosen the fixed hard disk drive bracket T-10 Torx-drive screws to easily insert the hard disk drive between the brackets (refer to Figure 3-5 as necessary).
2. Carefully align the connector pins on the back of the hard disk drive to the socket on the board. Gently slide the hard disk drive into the socket. Verify that all of the pins are fully engaged and that no pins are bent.

NOTE. You can access the hard disk drive brackets and the screws by reaching through the holes of the chassis with a 6-inch long, narrow shaft #2 Phillips screwdriver.

3. Using a 6-inch long, narrow shaft, #2 Phillips screwdriver, install the four pan head screws that came with this kit to secure the fixed hard disk drive to the brackets. Tighten the screws to 1 in-lbs.
4. Tighten the T-10 Torx-drive screws that secure the fixed hard disk drive brackets to the interface board to 3 in-lbs.

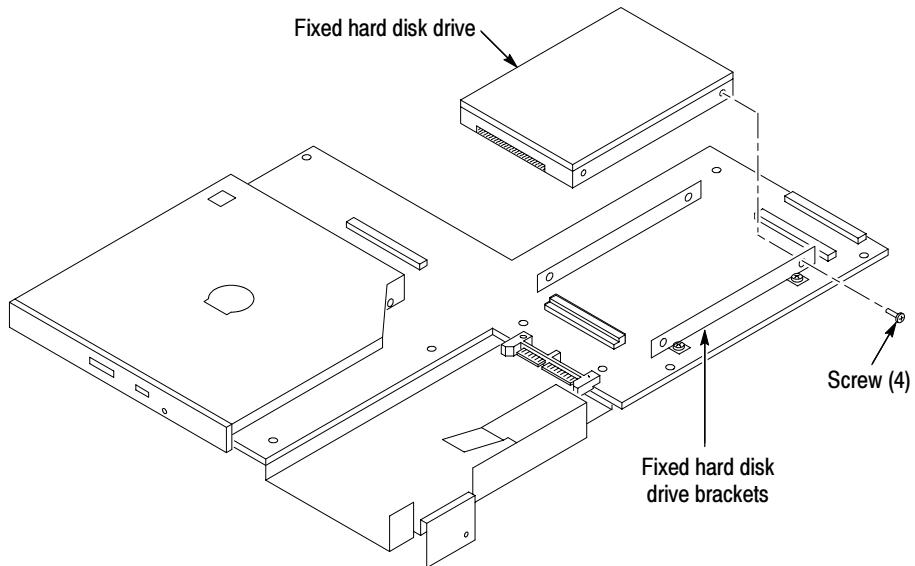


Figure 3-5: Install the fixed hard disk drive

5. Reinstall the left side cover and the rear cover; tighten the screws to 3 in-lbs.

6. Install the replaceable hard disk drive by reversing the procedure located on page 3-8.
7. Install the controller in the mainframe and tighten the controller hold-down screws.

Set Up the Two Hard Disk Drives

If the master hard disk drive already contains the Windows operating system and the TLA application software loaded, the system will boot up and function properly.

If the master hard disk drive is the blank hard disk drive you received with this kit, you need to ensure that the hard disk drive is detected correctly using the verification procedure on page 3-23. If the hard disk drive is detected, then format the hard disk drive, load Windows and load both the TLA application and associated software.

TLA7UP Option 12: Portable Mainframe-Specific Update Instructions

The following instructions direct you through the process of disassembling your portable mainframe and installing a second, MAX hard disk drive.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation.

Remove the Trim Ring

Use the following procedure and Figure 3-6 on page 3-16 to remove the trim ring:

1. Set the mainframe with the cord-wrap feet on the work surface and the bottom facing you.
2. Use the spudger tool (supplied with this kit) to gently pry under the trim ring to detach the three plastic snaps along the bottom edge. Then, swing the bottom of the ring upward and work the rest of the ring off the front panel.

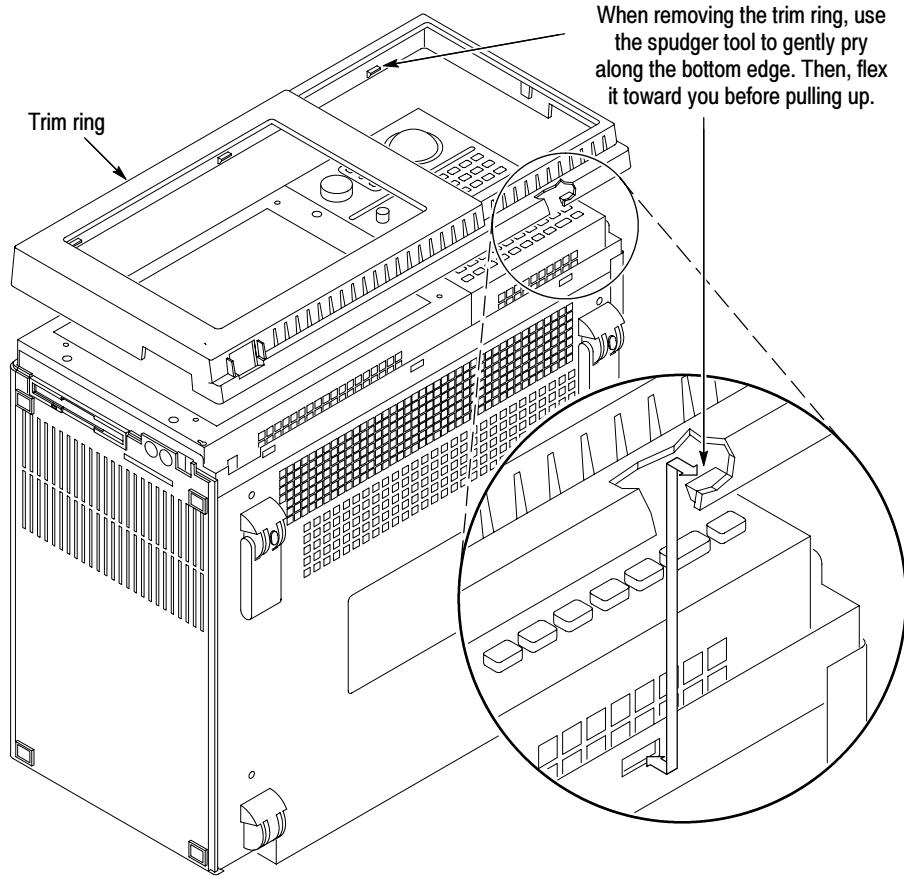


Figure 3-6: Trim ring removal

Remove Flat Panel Display Assembly

Use the following procedure and Figure 3-7 to remove the flat panel display assembly:

1. Remove the five T-15 Torx-drive screws that attach the flat panel display assembly to the mainframe.
2. Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the mainframe.

NOTE. Exercise care not to dislodge the light pipe, which is located in the lower-left corner of the front panel display assembly.

3. Detach the cables that connect from the flat panel display assembly to both the front panel interface board and the high-voltage power supply.

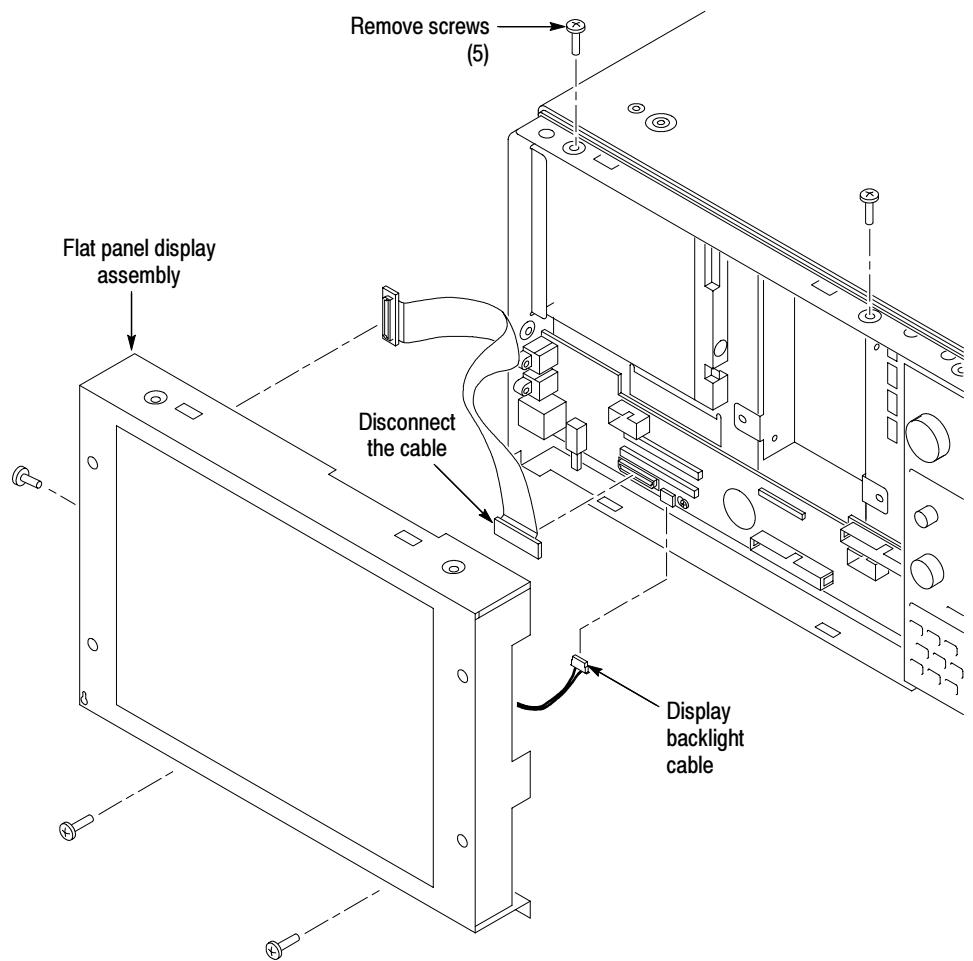


Figure 3-7: Flat panel display assembly removal

Install Fixed Hard Disk Drive

Use the following procedure, and refer to Figure 3-8, to install the fixed hard disk drive:

1. Remove the four T-15 Torx-drive screws that secure the fixed hard disk drive bracket to the chassis.
2. Locate the hard disk drive that will become the fixed hard disk drive.

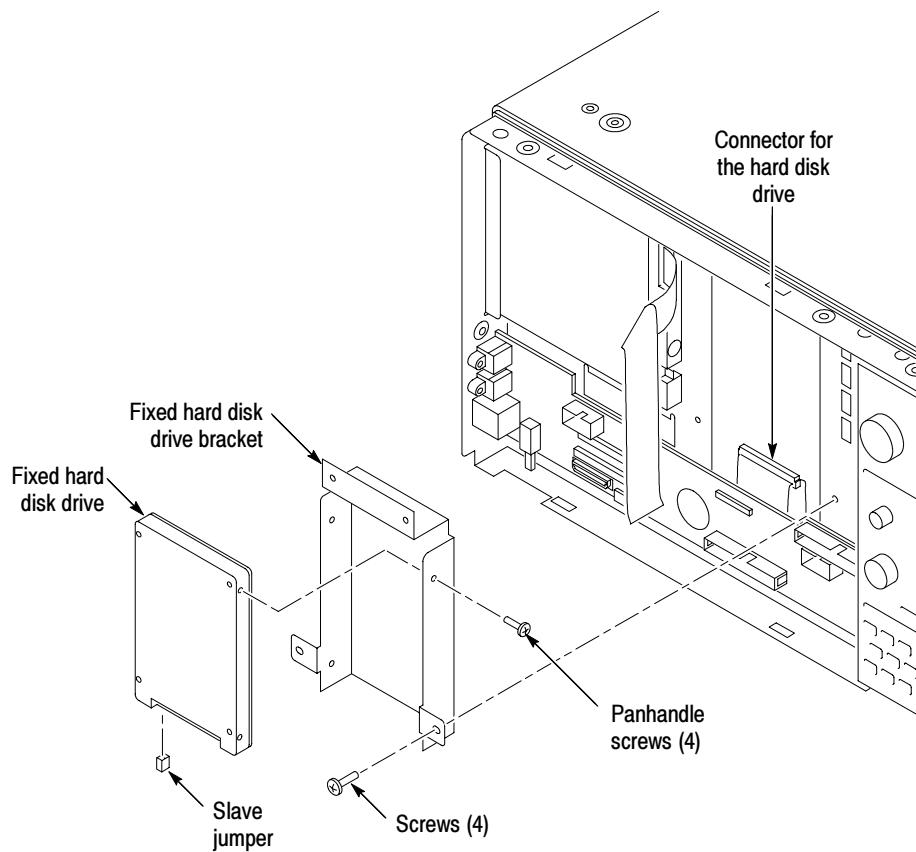


Figure 3-8: Installing the fixed hard disk drive

3. Mount the fixed hard disk drive to the fixed hard disk drive bracket with the four panhandle screws included in this kit (tighten the screws to 1 in-lbs). Ensure that the orientation matches the key on the data cable.
4. Attach the data cable to the fixed hard disk drive.
5. Attach the fixed hard disk drive bracket to the chassis with four T-15 Torx-drive screws; tighten the screws to 8 in-lbs.

Install Flat Panel Display Assembly

Use the following procedure, and refer to Figure 3-7 on page 3-17, to reinstall the flat panel display assembly:

1. Reattach the cable connecting the flat panel display assembly to the interface board.
2. Reattach the high-voltage power supply cable to the power supply.
3. Reinstall the flat panel display assembly by first inserting the top edge and then rotating the bottom edge downward into position. Ensure that the tabs are engaged at the top of the assembly. Insert the five T-15 Torx-drive screws that attach the flat panel display assembly to the mainframe: two screws at the bottom of the assembly on the front of the instrument, two screws on the top, and one screw on the left side. Tighten the screws to 8 in-lbs.

Portable Mainframe MAX DRAM Installation

The following instructions support the upgrade to 512 MB of DRAM memory on your portable mainframe.

Remove the Top Cover

Use the following procedure to remove the top cover:

1. Set the mainframe with the bottom on the work surface and the front facing you.
2. Unsnap the accessories pouch from the top cover.

NOTE. *When removing the screws from the instruments, keep all of the screws that hold the blue plastic covers together. These screws are longer than those screws used to hold the aluminum chassis parts in place.*

3. Remove the four T-15 Torx-drive screws that attach the top cover to the mainframe, as shown in Figure 3-9.
4. Lift the top cover off.

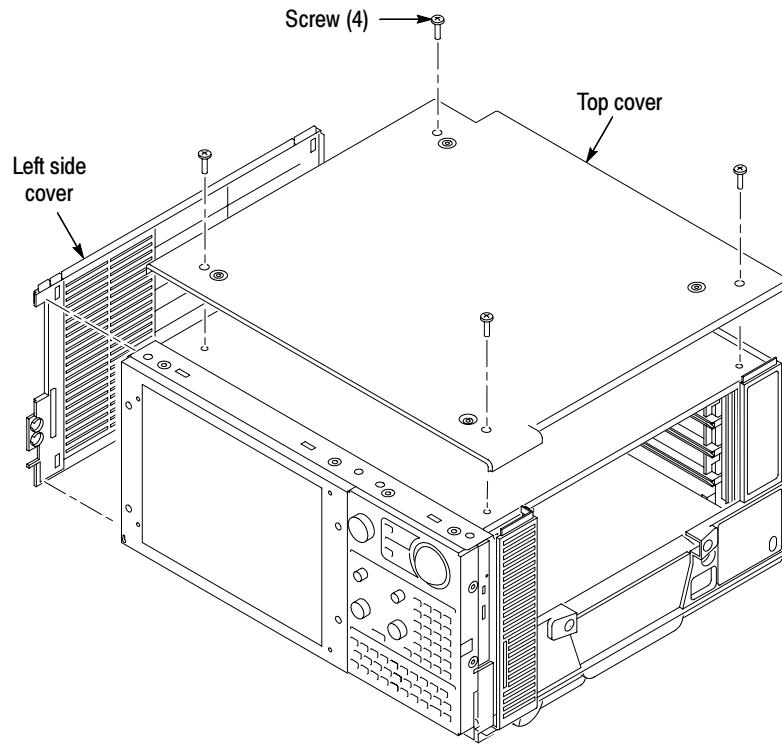


Figure 3-9: Top and side cover removal

Remove the Left Side Cover and Controller Cover

No screws attach the left side cover to the mainframe. However, you must loosen the two T-15 Torx-drive screws closest to the left side of the bottom cover in order to remove the left side cover. Place the mainframe on cord-wrap feet, with the left-side of the mainframe facing you.

Use the following procedure to remove the left side cover:

1. Loosen the two T-15 Torx-drive screws on the bottom cover closest to the left side of the mainframe.
2. Remove the left side cover.
3. Remove the ten T-15 Torx-drive screws securing the controller cover to the chassis, as shown in Figure 3-10, and then lift off the cover.

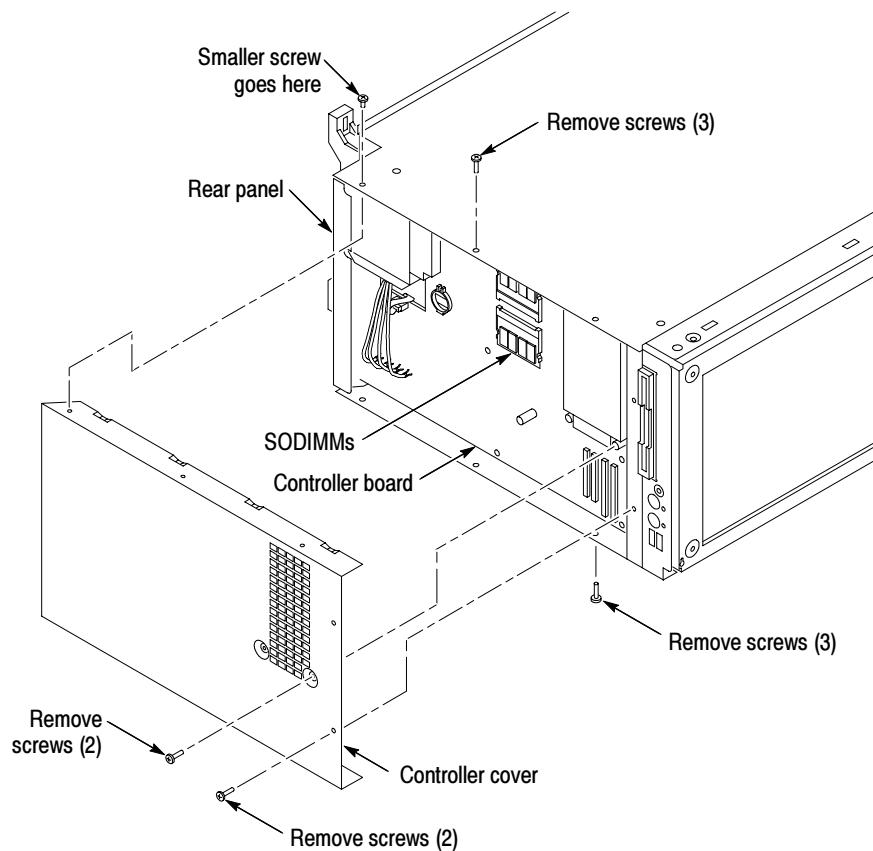


Figure 3-10: Removing the controller cover

Install the SODIMM

The SODIMM memory is located on the controller board.

Insert the additional memory into the empty socket on the controller board by pressing down gently until the clips that hold the memory board to the controller board snap into place.

Install the Left Side Cover

Complete the following procedure to install the left side cover.

1. Replace the controller cover by first inserting the left edge beneath the chassis lip and then press the shield into place.
2. Fasten the ten medium length T-15 Torx-drive screws that secure the controller cover to the chassis; tighten the screws to 8 in-lbs.

3. Reposition the left side cover, then tighten the two T-15 Torx-drive bottom cover screws that attach the bottom cover to the chassis. These screws are located nearest the left side of the instrument. Tighten the screws to 8 in-lbs.

Install the Top Cover

Use the following procedure to reinstall the top cover:

1. Reposition the top cover on the portable mainframe.
2. Insert the four long T-15 Torx-drive screws that attach the top cover to the mainframe. Tighten the screws to 8 in-lbs. See Figure 3-9 on page 3-20.
3. Reattach the accessories pouch to the top cover. (It snaps on.)

Install the Trim Ring

Replace the trim ring on the front panel. Start at the top edge and work around to the bottom until the three plastic snaps engage. Press the trim ring down all around the edges until it is completely seated.

Set Up the Two Hard Disk Drives

If the master hard disk drive already contains the Windows operating system and the TLA application software loaded, the system will boot up and function properly.

If the master hard disk drive is the blank hard disk drive you received with this kit, you will have to set up the BIOS, format the hard disk drive, load Windows and load the TLA application software and the associated software.

TLA7UP Option 12: Verify Operation

After installing the hardware upgrades, use the following procedures to verify that the hard disk drive and DRAM are recognized and are operating correctly.

Verify MAX Hard Disk Drive Operation

Follow the steps below to ensure proper operation of the instrument after completing the fixed hard disk drive upgrade instructions:

1. Run the hardware setup routine to ensure that the fixed hard disk drive is detected and that the disk drive size is correctly recognized:
 - a. Power on the logic analyzer and press function key F2 before the Windows operating system boots.
 - b. From the Main menu, select IDE Adapter O Master and press Enter.
 - c. Select Autotype Fixed Disk and press Enter to automatically detect the size of your hard disk drive.
2. If you defined the MAX hard disk drive as your master, reboot your instrument to confirm that the hard disk drive is operating properly. To complete the upgrade process, refer to *Reinstall Software* on page 3-24.
3. If you defined the MAX hard disk drive as your slave, access the hard disk drive using Microsoft Windows Explorer and transfer one or more files to confirm that the hard disk drive is operating properly.

Verify MAX DRAM Operation

Follow the steps below to ensure that your instrument recognizes the newly installed DRAM after completing the upgrade:

1. Click Start → Programs → Accessories → System Tools.
2. Click System Information. The system responds by displaying the Microsoft System Information dialog.
3. Verify that the Microsoft System Information dialog indicates that 512 MB of RAM is installed.

CheckIt Utilities

If you already have TLA Application Software Version 4.1 (or higher) installed on your logic analyzer, you can also use the CheckIt Utilities to verify the hard disk and the available memory. To use the CheckIt Utilities, select Start → Program → CheckIt Utilities.

Attach the Upgrade Kit Label to the Instrument

After completing all the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

Locate the large label on the bottom of the instrument and then attach the TLA7UP kit label as shown in Figure 3-11.



Figure 3-11: Kit label locations

Reinstall Software

TLA7UP Option 32 provides the procedures and items needed to upgrade your portable mainframe to the latest TLA application software. If you have purchased TLA7UP Option 32, continue with the *TLA Application Software and Windows Operating System Upgrade* instructions beginning on page 9-1 to upgrade the operating system and software to the latest version.



TLA7UP Option 15

TLA7UP Option 15: iView External Oscilloscope Cable Installation

TLA7UP option 15 allows you to connect your logic analyzer to an external oscilloscope and to view the oscilloscope waveforms on the logic analyzer.



Instruments

TLA714 Series Logic Analyzers

All Serial Numbers

TLA715 Series Logic Analyzers

All Serial Numbers

TLA720 Series Logic Analyzers

All Serial Numbers

TLA721 Series Logic Analyzers

All Serial Numbers

Minimum Tool and Equipment List

No special tools or equipment required

Parts List

Table 4-1: TLA7UP Option 15 parts list

Quantity	Part number	Description
1 ea	012-1614-xx	iView external oscilloscope cable kit (includes USB-to-GPIB & BNC, BNC-to-SMB adapter, and instruction card)
1 ea	N/A	TLA7UP kit label

Installation Prerequisite

Requires TLA Application Software Version 4.2 (or higher), Windows 2000 Professional operating system, and 256 MB minimum memory (512 MB preferred).

Installation Instructions

Online installation instructions are provided within the TLA application through a wizard. After powering on the instrument, select Add iView External Scope from the System menu and follow the online instructions.

Attach the Upgrade Kit Label to the Instrument

After completing all the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

Locate the big label on the bottom of the instrument if you have a portable mainframe or on the side of the benchtop controller. Attach the TLA7UP kit label as shown in Figure 4-1.

NOTE. If there already is an upgrade kit label installed, install the new label just above the old one.



Figure 4-1: Kit label locations



TLA7UP Option 16

TLA7UP Option 16: TLA714 Controller Board Upgrade

TLA7UP option 16 allows you to upgrade your TLA714 Portable Mainframe with a new faster controller with dual monitor support and 512 MB memory. This kit also included new display assembly and requires you to order TLA7UP Option 33 which includes version 4.3 of the TLA application software and the Multi-Language Windows 2000 Professional operating system.



* Includes LCD plat panel, not shown.

Parts List

Table 5-1: TLA7UP Option 16 parts list

Quantity	Part number	Description
1 ea	039-0114-xx	Controller with 512 MB memory
1 ea	337-4244-xx	Controller cover
2 ea	211-0722-xx	T-15 Torx drive screws for controller cover
1 ea	650-4244-xx	Display assembly
1 ea	650-4272-xx	Replaceable hard disk cartridge with MAX hard disk (No software is installed on hard disk drive.)
1 ea	003-0008-xx	Spudger tool, for removing trim ring
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

Table 5-2: Tools required for installing upgrade

Item no.	Name	Description
1	Screwdriver handle	Accepts Torx®-driver bits
2	T-10 Torx tip	Torx®-driver bit for T-10 size screw heads
3	T-15 Torx tip	Torx®-driver bit for T-15 size screw heads
4	Flat blade screwdriver	Screwdriver for removing screws that attach the hard disk drive to its bracket
5	#2 Phillips screwdriver	Screwdriver for removing small Phillips screws
6	Needle nose pliers	Needle nose pliers for handling small parts

Installation Prerequisite

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to either the *TLA714 Portable Mainframe Service Manual* (071-0267-01) or the *TLA715 Portable Mainframe Service Manual* (071-0913-xx). You may also contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.

Be sure to observe the following precautions to avoid damaging the mainframe while preparing to service it.



CAUTION. *Many components within the mainframe are susceptible to static-discharge damage.*

Service only in a static-free environment. Observe standard handling precautions for static-sensitive devices.

Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.



WARNING. *Dangerous voltages may be present. Before performing any procedure in this section, disconnect the power cord from the line voltage source. Failure to do so could cause serious injury or death.*

- Do not handle static-sensitive components on boards.
- Transport and store static-sensitive boards in their original containers or on conductive foam. Label any package that contains static-sensitive assemblies.
- Wear an anti static wrist strap while handling the boards to discharge the static voltage from your body.
- Do not allow anything capable of holding or generating a static charge on the work surface.
- Avoid handling boards in areas that have a floor or work surface cover that is capable of generating a static charge.

TLA7UP Option 16: TLA714 Controller Update Instructions

The following instructions direct you through the process of disassembling your portable mainframe and installing the new controller board.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation.

Initial Preparation

Complete the following steps before disassembling the instrument:

Back Up User Files

Before installing the new controller, make sure that you back up any files, applications, and personal documents to an external storage device. You can do this by moving the files to another PC via a network or via another backup medium such as a ZIP drive or a second hard disk (if you have one installed in your logic analyzer).

You can find most TLA user files using the Windows Find utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click the folder and select Find. Enter one of the suffixes from Table 5-3 to locate the TLA files in the current folder and all subfolders:

Table 5-3: TLA user file suffixes

Suffix	Description
.tla	TLA setup files and stored data
.tsf	TLA symbol files
.tbf	Tektronix binary format
.tls	TLA script file
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy or drag them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you will need to reinstall them after you reinstall the hard disk image. If you do not have a copy of the microprocessor support software, contract your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center.

Prepare to Disassemble the Instrument

After you have backed up any user files complete the following steps to get ready to install the new controller.

1. If you have not already done so, power down the instrument and disconnect the power cord.
2. Remove the replaceable hard disk. You can keep this hard disk as spare part because you will install a new replaceable hard disk at the end of this procedure.
3. Disconnect any probes or accessories attached to the instrument.
4. Remove any installed application modules.

Remove the Trim Ring

1. Set the mainframe with the cord-wrap feet on the work surface and the bottom facing you.
2. Use the spudger tool to detach the three plastic snaps from the bottom cover (see Figure 5-1). Then, swing the bottom of the ring upward and work the rest of the ring off the front panel.

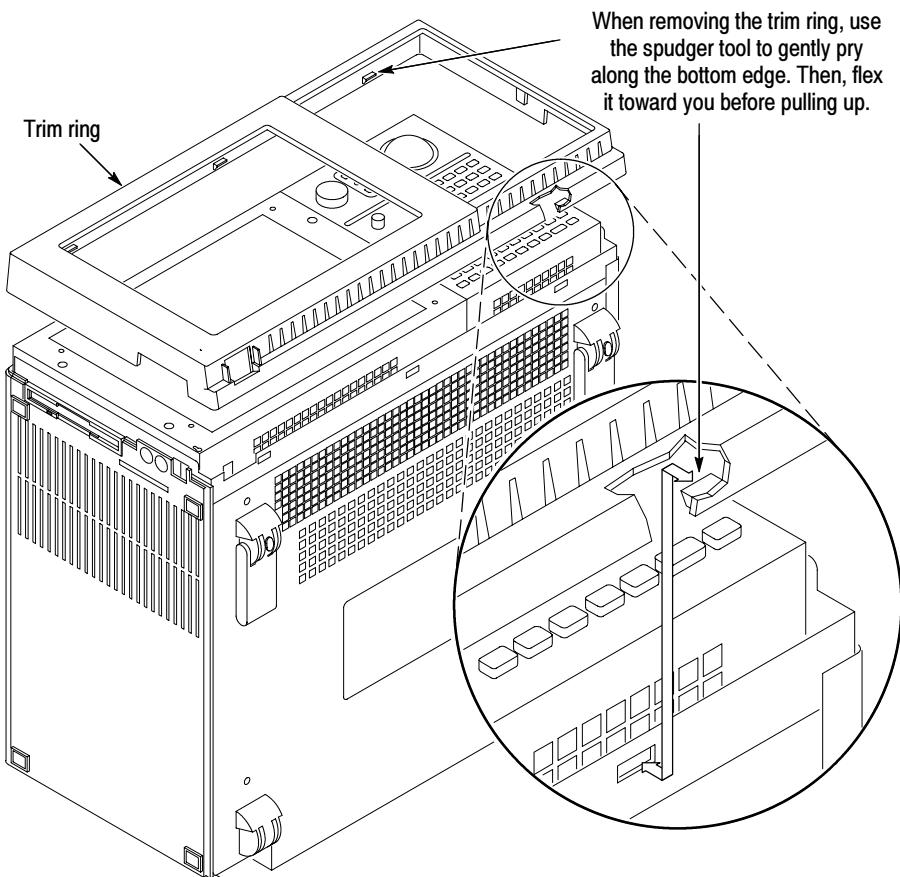


Figure 5-1: Trim ring removal

Remove the Display Assembly

1. Remove the five medium length screws that attach the flat panel display assembly to the mainframe. (See Figure 5-2 for screw locations.)
2. Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the instrument.
3. Detach the ribbon cable connecting the flat panel display assembly to the front panel interface board.
4. Detach the display backlight cable and then set the assembly aside.

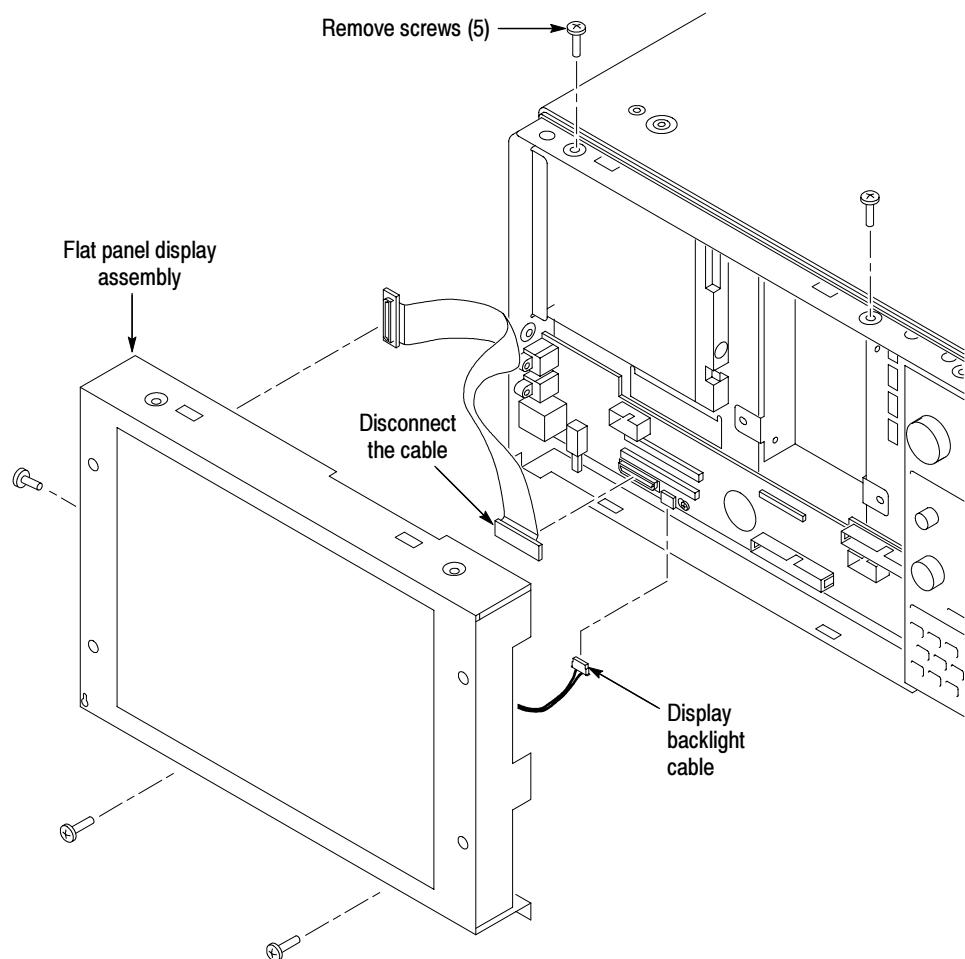


Figure 5-2: Flat panel display assembly removal

Install the New Display Assembly

1. Reattach the cable connecting the flat panel display assembly to the interface board.
2. Reattach the display backlight power cable.
3. Reinstall the flat panel display assembly by first inserting the top edge and then rotating it downward into position. (Be sure the tabs are engaged at the top of the assembly. Insert the five screws that attach the flat panel display assembly to the mainframe: two screws at the bottom of the assembly on the front of the instrument, two screws on the top, and one screw on the left side. (See Figure 5-2). Tighten the screws to 8 in-lbs.

Remove the Top Cover

1. Set the mainframe with the bottom on the work surface and the front facing you.
2. Unsnap the accessories pouch from the top cover.
3. Remove the four T-15 Torx-drive screws that attach the top cover to the mainframe, as shown in Figure 5-3.
4. Lift the top cover off.

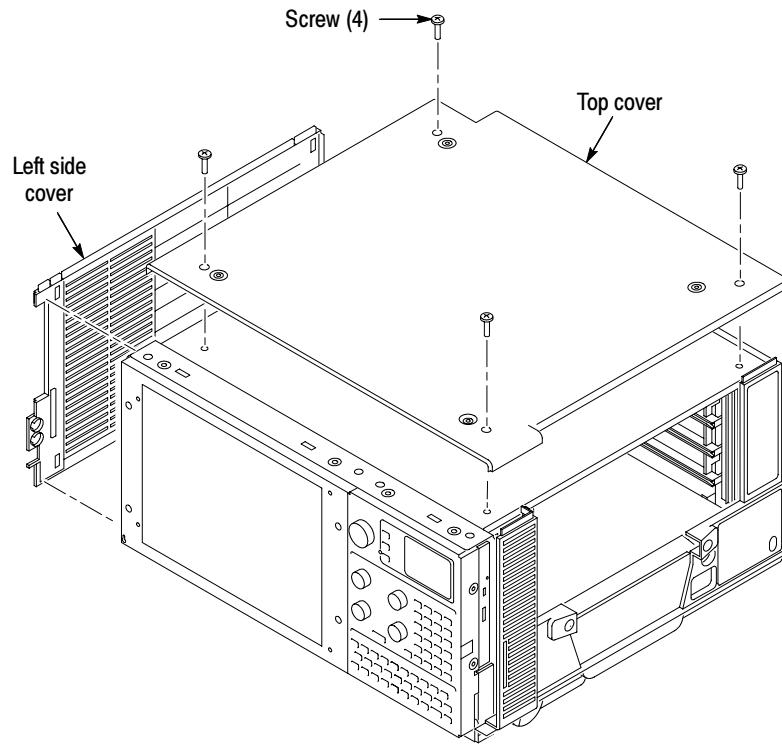


Figure 5-3: Top and side cover removal

Remove the Left Side Cover and the Controller Cover

No screws attach the left side cover to the mainframe. However, you must loosen the two T-15 Torx-drive screws closest to the left side of the bottom cover in order to remove the left side cover. Place the mainframe on cord-wrap feet, with the left-side of the mainframe facing you.

1. Loosen the two T-15 Torx-drive screws on the bottom cover closest to the left side of the mainframe.
2. Remove the left side cover.
3. Remove the eight T-15 Torx-drive screws securing the controller cover to the chassis, as shown in Figure 5-4 (the bottom screws can be accessed through holes in the bottom cover).
4. Remove the controller cover (you will replace this cover with a new controller cover that you received with this kit).

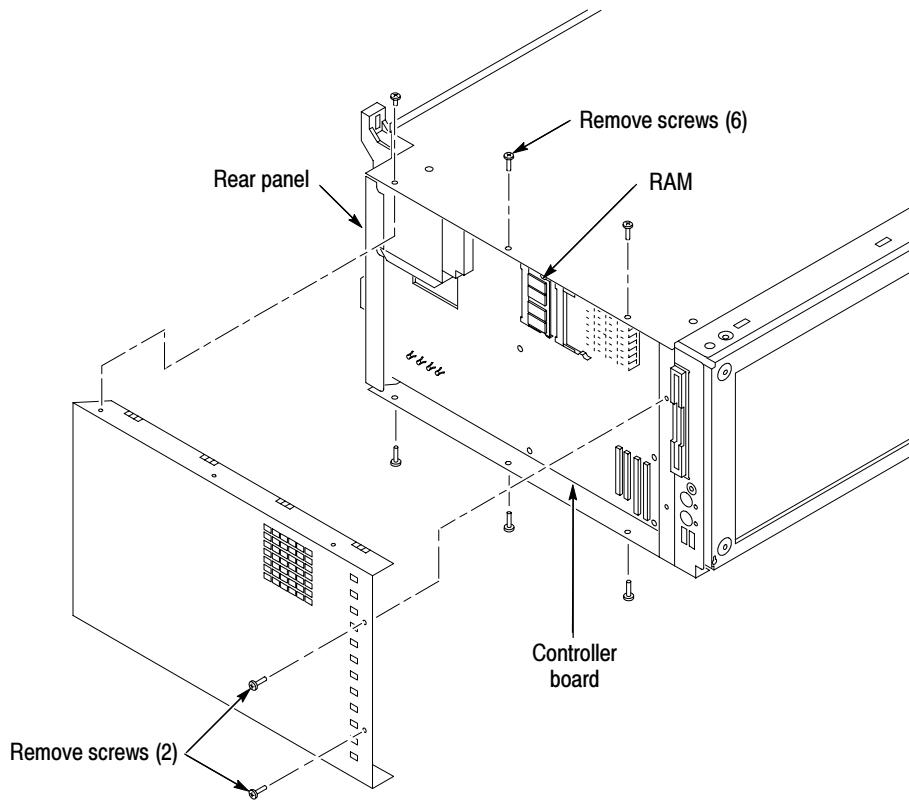


Figure 5-4: Removing the controller cover

Remove the Controller Board

Refer to Figure 5-5 and complete the following steps to remove the controller board from the instrument:

1. Detach the four ribbon cables located near the bottom front corner of the controller board.
2. Remove the center screw from the controller board.
3. Remove the two screws securing the controller board to the chassis at the back panel.
4. Pull firmly on the rear panel until the controller board disconnects from the backplane board.
5. Remove the controller board from the chassis and set it aside.

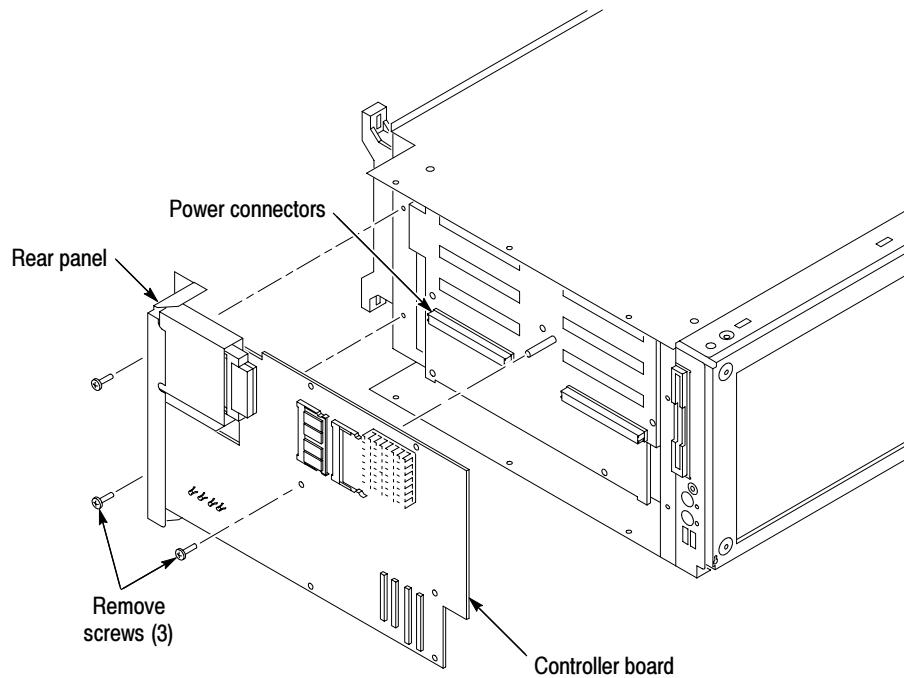


Figure 5-5: Removing the controller board

Install the New Controller Board

1. Position the new controller board on top of the backplane board making sure that the board lines up with the power connectors.



CAUTION. Do not apply any pressure or push on the any of the integrated circuits to seat the controller board. Doing so can damage the components.

2. Push firmly above and below the two backplane bus connectors until the board is fully seated in the connectors.
3. Insert the center screw into the controller board and tighten the screw to 8 in-lbs.
4. Insert the two screws securing the controller board to the chassis at the back panel and tighten the screws to 8 in-lbs.



CAUTION. *There are no guides on the ribbon cable connectors. When you reattach the cables, make sure that you center the cable connectors in their respective sockets on the controller board. If you install the connectors off by one pin, you will damage the instrument when you power up the instrument.*

5. Reattach the four cables located near the bottom front corner of the controller board.
6. Position the *new* controller cover by sliding it back and under the edge of the rear panel.
7. Line up the two holes over the heat sink and install the two T-15 screws (that you received with this kit); tighten the screws to 8 in-lbs. Refer to Figure 5-6 if necessary.
8. Install the short T-15 screw on the top cover near the rear of the chassis (refer to Figure 5-6, if necessary).
9. Install the remaining seven T-15 screws that hold the cover in place. Tighten all screws to 8 in-lbs.

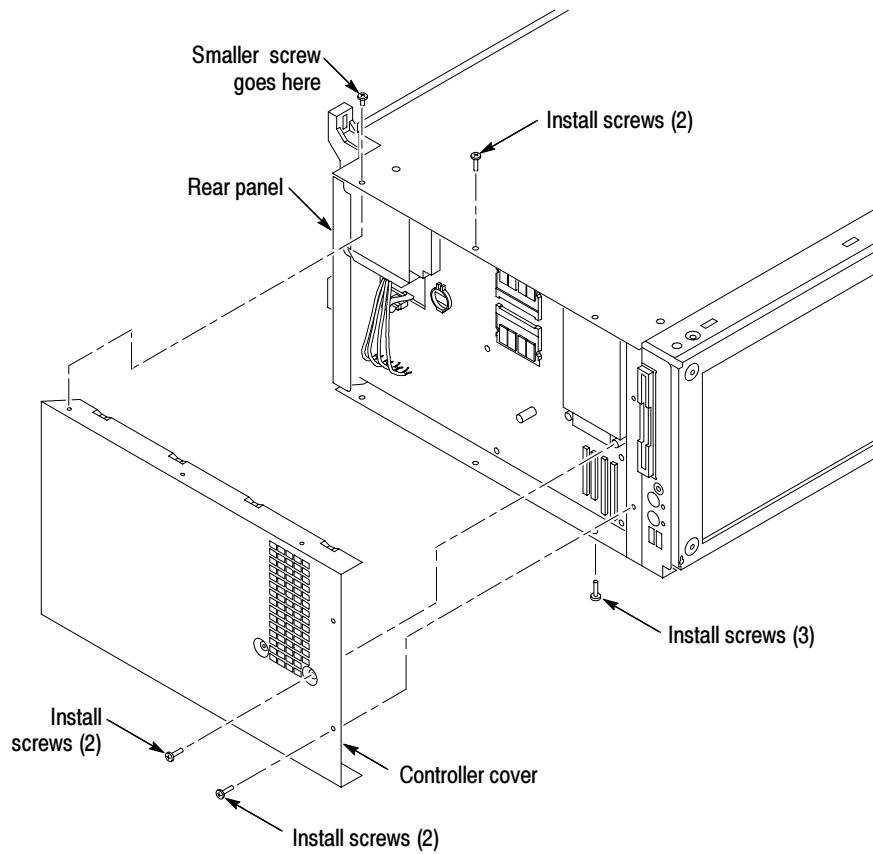


Figure 5-6: Installing the new controller cover

Install the Left Side Cover

Reposition the left side cover as necessary to get a good fit. Tighten the two T-15 Torx-drive bottom cover screws to 8 in-lbs. These screws are located nearest the left side of the instrument.

Install the Trim Ring

To replace the trim ring on the front panel. Place the trim ring on the front panel. Start at the top edge and work around to the bottom until the three plastic snaps engage. Press the trim ring down around each edge until it is completely seated.

Install the Top Cover and the Accessories Pouch

1. Reposition the top cover on the mainframe.
2. Insert the four T-15 Torx-drive screws that attach the top cover to the mainframe. Tighten the screws to 8 in-lbs.
3. Reattach the accessories pouch to the top cover. (It snaps on.)
4. Reinstall the application modules.
5. Reattach the power cord and any accessories that you removed earlier.

Install Software

Install the new replaceable hard disk drive. The new hard disk drive does not contain any software. Follow the instructions under *TLA7UP Option 33*, beginning on page 10-1, to install the TLA Application Software and the Windows 2000 Professional operating system.



TLA7UP Option 17

TLA7UP Option 17: TLA720 Benchtop Controller Upgrade

TLA7UP option 17 allows you to upgrade your TLA720 Benchtop Mainframe with a new faster controller with dual monitor support. This option also requires you to order TLA7UP option 33 which includes version 4.3 of the TLA application software and the Multi-Language Windows 2000 Professional operating system.

These instructions assume that you are familiar with servicing the instrument. You may also contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.



Instruments

TLA720 Benchtop Mainframe

All Serial Numbers

Minimum Tool and Equipment List

No special tools or equipment is required to install this option.

Parts List

Table 6-1: TLA7UP Option 17 parts list

Quantity	Part number	Description
1 ea	039-0115-xx	TLA721 Controller
1 ea	650-4272-xx	Replaceable hard disk cartridge (No software is installed on hard disk drive.)
1 ea	119-6574-xx	Three button, wheel mouse, PS2 mini-DIN
1 ea	N/A	TLA7UP kit label

Back Up User Files

Before installing the new controller, make sure that you back up any files, applications, and personal documents to an external storage device. You can do this by moving the files to another PC via a network or via another backup medium such as a ZIP drive or a second hard disk (if you have one installed in your logic analyzer).

You can find most TLA user files using the Windows Find utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click the folder and select Find. Enter one of the suffixes from Table 6-2 to locate the TLA files in the current folder and all subfolders:

Table 6-2: TLA user file suffixes

Suffix	Description
.tla	TLA setup files and stored data
.tsf	TLA symbol files
.tbf	Tektronix binary format
.tls	TLA script file
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy or drag them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you will need to reinstall them after you reinstall the hard disk image. If you do not have a copy of the microprocessor support software, contract your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center.

Installation Instructions

Complete the following steps to install the new controller in your mainframe:

1. If you have not already done so, power off the benchtop mainframe and disconnect the power cord.
2. Remove the old TLA720 Benchtop Controller from the mainframe.
3. On the new TLA721 Benchtop Controller, locate the large label on the side of the controller.
4. Refer to Figure 6-1 and attach the Replacement For Serial Number Label to the large label.
5. Record the serial number of the instrument on the new label.
6. Affix the TLA7UP kit sticker to the lower left side of the big label.

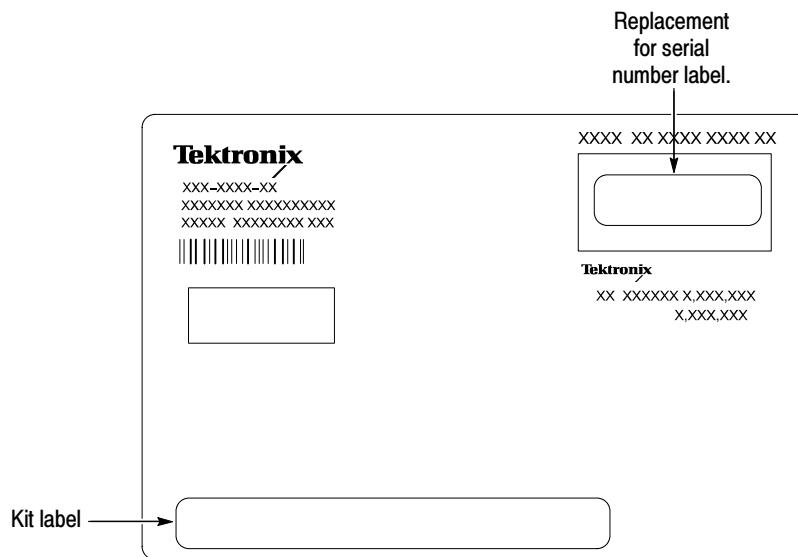


Figure 6-1: Label location

7. Install the new controller in the mainframe and tighten the controller hold-down screws.

8. Install the new blank replaceable hard disk drive in the controller.
9. Connect the other accessories (including the new mouse) to the controller.
10. Follow the instructions under *TLA7UP Option 33*, beginning on page 10-1, to install the TLA Application Software and the Windows 2000 Professional operating system.



TLA7UP Option 20

TLA7UP Option 20: CD-RW Drive for TLA700 Series Logic Analyzers

TLA7UP option 20 provides parts and instructions to replace the CD-ROM drive with a CD-RW drive. This option can be installed on any TLA714, TLA715, TLA720, or TLA721 logic analyzer mainframe. This option is not available for the TLA704 or TLA711 logic analyzer mainframes. Please order TLA7UP Option 31, 32, or 33 to get the latest TLA software.



Instruments

TLA714 Portable Mainframe
TLA715 Portable Mainframe
TLA720 Benchtop Mainframe
TLA721 Benchtop Mainframe

All serial numbers
All serial numbers
All serial numbers
All serial numbers

Parts List

Table 7-1: TLA7UP Option 20 parts list

Quantity	Part number	Description
1 ea	119-6839-xx	CD-RW drive
1 ea	407-4570-xx	TLA714 CD mounting bracket
1 ea	407-4910-xx	Left side TLA720 CD mounting bracket (Early models)
	407-4911-xx	Right side mounting bracket (Early models)
1 ea	407-4915-xx	TLA720 CD mounting bracket(later models)
1 ea	407-4913-xx	TLA721 CD mounting bracket
1 ea	003-0008-xx	Spudger tool for removing TLA714 or TLA715 Trim Ring
1 ea	N/A	TLA7UP Kit Label

Minimum Tool and Equipment List

Table 7-2: Tools required for installing upgrade

Item no.	Name	Description
1	Screwdriver handle	Accepts Torx®-driver bits
2	T-10 Torx tip	Used for removing most of the T-10 size screw heads on the TLA720 and TLA721 controllers
3	T-15 Torx tip	Used for removing most or the TLA714 or TLA715 instrument's screws. Torx®-driver bit for T-15 size screw heads
4	#1 Phillips screwdriver	Screwdriver for removing small Phillips screws
5	#0 Phillips screwdriver with 6-inch shaft	Screwdriver for removing small Phillips screws on the CD-ROM drive
6	Nut driver	A 3/16-inch nut driver used for removing controller front panel hardware
7	Nut driver	A 1/4-inch nut driver used for removing nuts on the back side of the controller front panel
8	Flat blade screwdriver	Small flat blade screwdriver for removing controller front panel hardware

Installation Prerequisites

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to one of the following service manuals:

- *TLA714 Portable Mainframe Service Manual* (071-0267-xx)
- *TLA715 Portable Mainframe Service Manual* (071-0913-xx)
- *TLA720 Benchtop Controller Service Manual* (071-0269-xx)
- *TLA721 Benchtop & TLA7XM Expansion Mainframe Service Manual* (071-0912-xx)

You may also contact your nearest Tektronix service center for installation assistance.

Preventing ESD

When performing any service which requires internal access to the instrument, adhere to the following precautions to avoid damaging internal circuit boards and their components due to electrostatic discharge (ESD).



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

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

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

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

7. Avoid handling circuit boards in areas that have a floor or work-surface covering capable of generating a static charge.



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

Mainframe Specific Instructions

If you are installing the CD-RW drive in a TLA714 or TLA715 portable logic analyzer mainframe, follow the instructions under *TLA714 and TLA715 CD-RW Drive Upgrade Instructions* beginning on page 7-5.

If you are installing the CD-RW drive in a TLA720 Benchtop Controller follow the instructions under *TLA720 CD-RW Drive Upgrade Instructions* beginning on page 7-13.

If you are installing the CD-RW drive in a TLA721 Benchtop Controller follow the instructions under *TLA721 CD-RW Drive Upgrade Instructions* beginning on page 7-23.

TLA7UP Option 20: TLA714 and TLA715 CD-RW Drive Upgrade Instructions

This section contains procedures for removing the current CD-ROM drive from the TLA714 or TLA715 portable mainframe and installing the CD-RW drive. The instructions for the TLA714 and TLA715 are similar and differences between the two products are called out as necessary.

These instructions require that you be familiar with servicing the instrument. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix service representative.

Remove the Replaceable Hard Disk Drive

Complete the following steps to remove the replaceable hard disk drive from the mainframe. Always remove the hard disk drive before accessing any of the replaceable components in the instrument.



CAUTION. *Do not remove the replaceable hard disk drive while the instrument is powered on. You can permanently damage the replaceable hard disk drive if you remove it while the instrument is powered on. Always power down the mainframe before removing the replaceable hard disk drive.*

1. Power down the instrument and disconnect the power cord.
2. Press the latch on the side of the instrument to unlatch the hard disk drive.
3. Remove the hard disk drive from the instrument by pulling on the handle.

Remove the Accessories Pouch

The accessories pouch is held in place on the top cover by snaps. Gently lift up on each corner of the pouch until the pouch snaps free from the top cover.

Remove the Trim Ring

1. Set the mainframe with the cord-wrap feet on the work surface and the bottom facing you.
2. Use the spudger tool to detach the three plastic snaps from the bottom cover (see Figure 7-1). Then, swing the bottom of the ring upward and work the rest of the ring off the front panel.

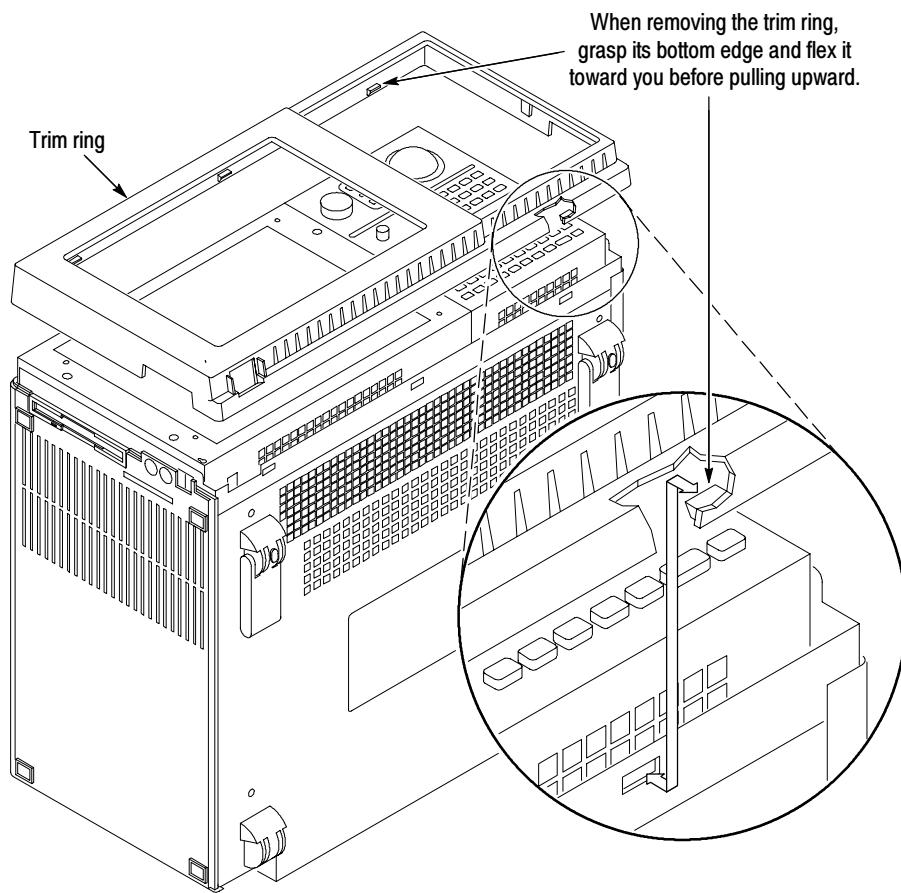


Figure 7-1: Trim ring removal

Remove the Flat Panel Display Assembly

1. Remove the five screws that attach the flat panel display assembly to the mainframe (See Figure 7-2).
2. Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the instrument.

3. Detach the ribbon cable connecting the flat panel display assembly to the front panel interface board.
4. Detach the five-pin display backlight power connector and then set the assembly aside.

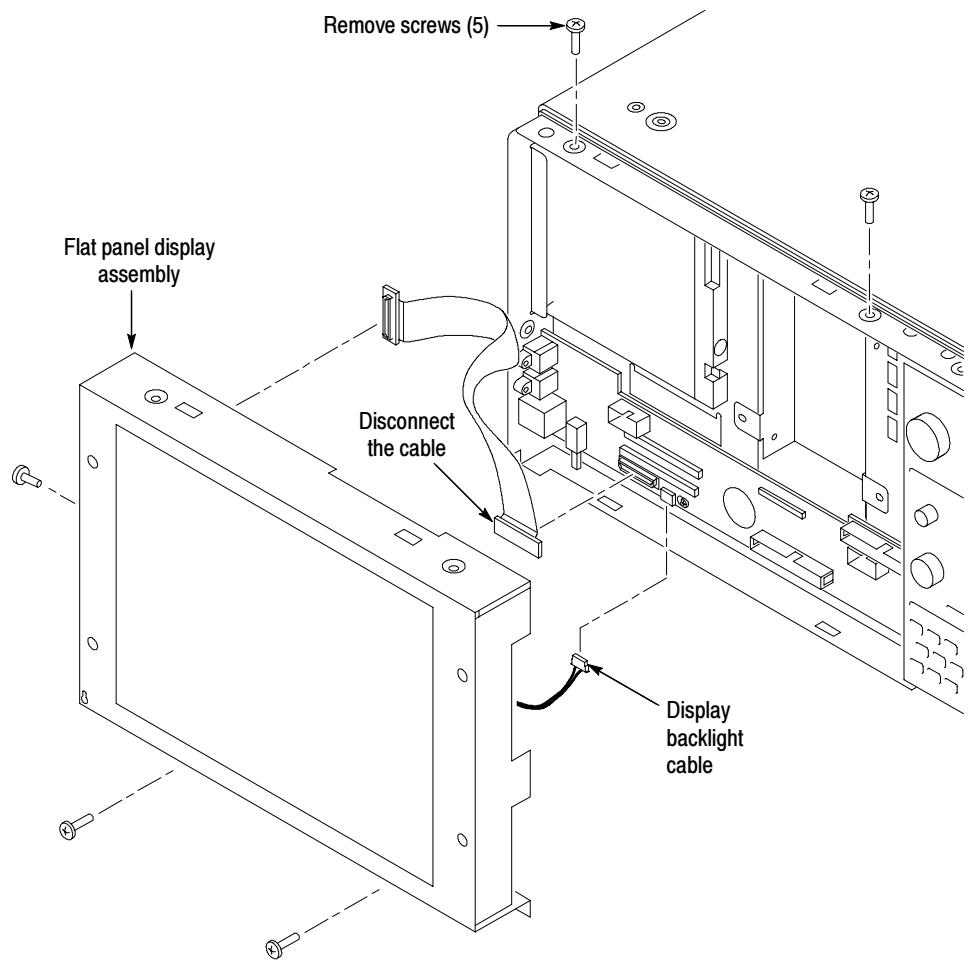


Figure 7-2: Flat panel display assembly removal

Remove the Front Panel Control Assembly

1. Disconnect the cable at J102 on the front panel interface board.
2. Remove the four screws that attach the front panel control assembly to the mainframe (See Figure 7-3).
3. Lift the bottom edge of the front control panel assembly and rotate it up and off the front face of the mainframe.
4. Detach the ribbon cable connecting the CD-ROM to the interface board.

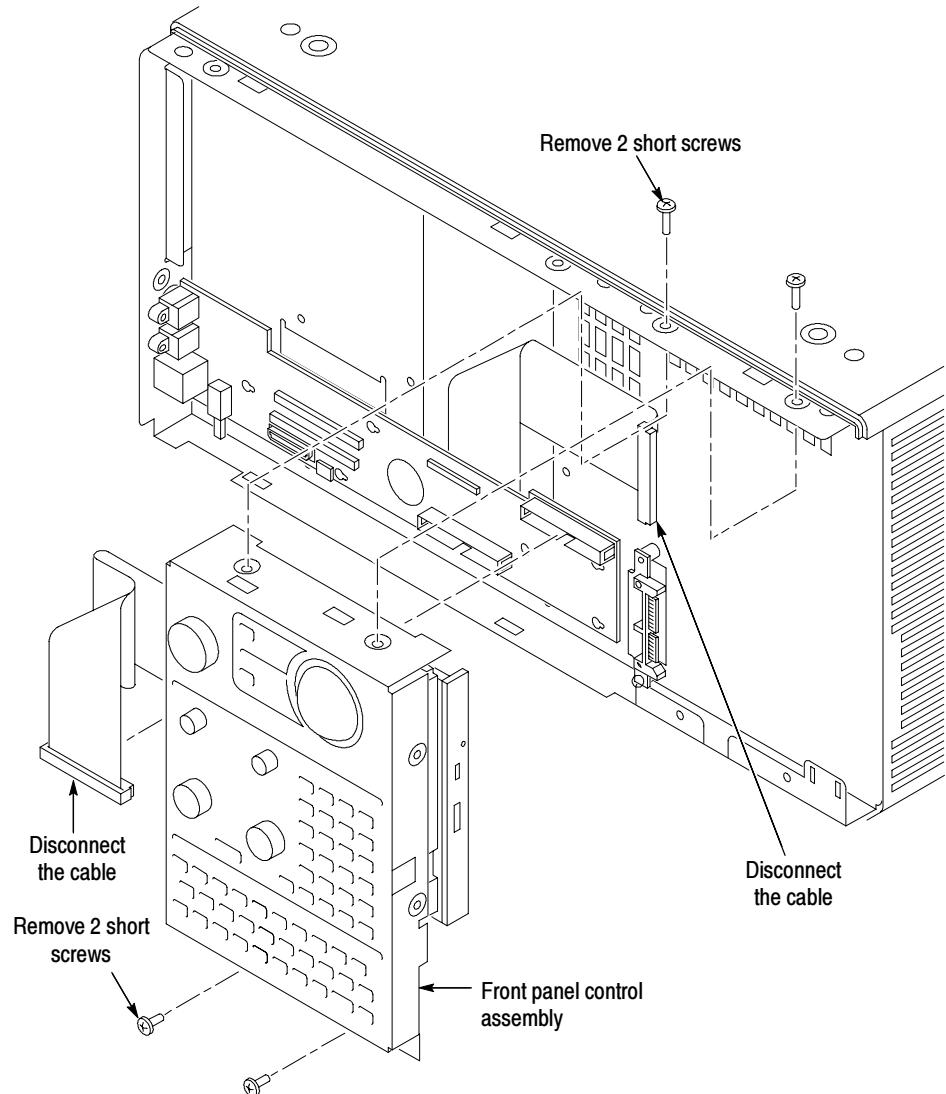


Figure 7-3: Front-panel control assembly removal

Remove CD-ROM Drive

The CD-ROM drive is attached to the underside of the front panel control assembly.

1. Remove the four screws that attach the CD-ROM drive to the front panel control assembly and then separate the CD-ROM drive from the front panel assembly.
2. Remove the small Phillips screws that hold the CD-ROM drive to the bracket and then slide the CD-ROM drive out of the bracket.
3. If your instrument is a TLA715 portable mainframe, use the existing bracket to install the CD-RW drive.
4. If your instrument is a TLA714 portable mainframe, discard the bracket; you will install a new bracket with the CD-RW drive.

NOTE. *The TLA714 portable mainframe uses the 407-4570-00 bracket that comes with this kit. The holes in the older TLA714 brackets do not line up with the holes in the CD-RW drive. You can compare the holes in your TLA714 bracket against the holes in the CD-RW drive to determine if you need to change the brackets.*

5. Disconnect the interface board from the CD-ROM drive.

Install the CD-RW Drive

To install the new CD-RW drive, complete the following steps:

1. Install the interface board that you removed from the CD-ROM drive.
2. Install the CD-RW drive in the bracket.
3. Install the small Phillips screws that hold the CD-RW drive to the bracket and tighten the screws to 4 in-lbs.
4. Install the CD-RW drive assembly on the back of the front panel control assembly.
5. Install the four screws and tighten the screws to 8 in-lbs.

Install the Front Panel Control Assembly

1. Reattach the cable connecting the CD-RW drive to the interface board.
2. Reattach the cable from the front panel control assembly to J102 on the interface board.
3. Reinstall the front panel control assembly by first inserting the top edge and then rotating it downward into position. (Be sure the tabs are engaged at the top of the assembly.)
4. Insert the four short screws that attach the front panel control assembly to the mainframe (See Figure 7-3 on page 7-8). Tighten the screws to 8 in-lbs.

NOTE. Make sure that you only use the short screws on the front panel control assembly. You will be unable to install the removable hard disk if you use longer screws.

Install the Flat Panel Display Assembly

1. Reattach the cable connecting the flat panel display assembly to the interface board.
2. Reattach the display backlight power cable.
3. Reinstall the flat panel display assembly by first inserting the top edge and then rotating it downward into position. (Be sure the tabs are engaged at the top of the assembly. Insert the five screws that attach the flat panel display assembly to the mainframe: two screws at the bottom of the assembly on the front of the instrument, two screws on the top, and one screw on the left side. (See Figure 7-2). Tighten the screws to 8 in-lbs.

Install the Trim Ring

Place the trim ring on the front panel. Start at the top edge and work around to the bottom until the three plastic snaps engage. Press the trim ring down around each edge until it is completely seated.

Install the Accessories Pouch

To reinstall the pouch, align the pouch over each snap and push down on the corners of the cover (it may be easier to open the pouch and press down on the corners from inside the pouch).

Reinstall the Replaceable Hard Disk

Slide the hard disk assembly into the side of the instrument. Push on the handle until it latches in place.

Verify Operation

After installing the removable hard disk drive, reconnect the power cord and power on the instrument; verify that the power-on diagnostics pass.

Attach the Upgrade Kit Label to the Instrument

After completing all the previous steps, you need to install the upgrade kit label on the bottom of instrument to indicate that the kit is installed.

Attach the TLA7UP kit label on the large label as shown in Figure 7-4. If the instrument already has an upgrade label, install the new label directly above or below the old upgrade kit label.



Figure 7-4: Kit label locations

TLA7UP Option 20: TLA720 CD-RW Drive Upgrade Instructions

This section contains procedures for removing the current CD-ROM drive from the TLA720 Benchtop controller and installing the CD-RW drive.

These instructions require that you be familiar with servicing the instrument because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix service representative for installation information.

Remove the Replaceable Hard Disk Drive



CAUTION. *Do not remove the replaceable hard disk drive while the mainframe is powered on. You can permanently damage the replaceable hard disk drive if you remove it while the mainframe is powered on.*

1. Power down the instrument and disconnect the power cord.
2. Press the latch on the side of the instrument to unlatch the hard disk drive.
3. Remove the hard disk drive from the instrument by pulling on the handle.

Remove the Benchtop Controller from the Mainframe

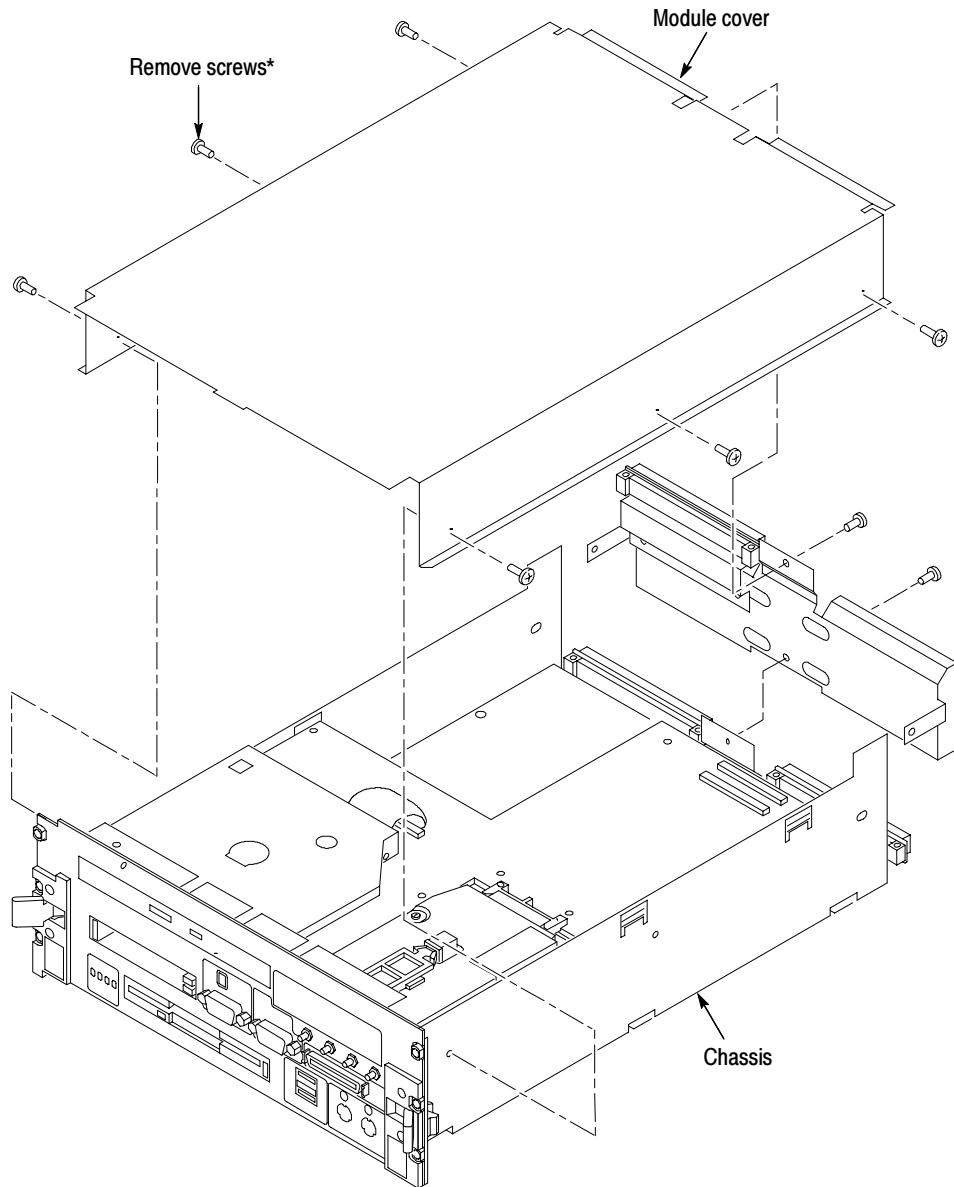


CAUTION. *Do not remove or install the benchtop controller while the mainframe is powered on. You can damage the controller or the mainframe if you attempt to remove or install the controller while the mainframe is powered on.*

1. If you have not already done so, power down the mainframe and disconnect the power cord.
2. Disengage the benchtop controller from the mainframe using the injector/ejector handles.
3. Remove the controller from the mainframe and place it on a static-free work surface.

Remove the Benchtop Controller Covers

Remove the T-10 Torx-drive screws shown in Figure 7-5 and then remove the module and rear panel the covers.



Note: * Older TLA720 controllers have eight (8) screws that hold the cover in place. Newer TLA720 controllers have ten (10) screws similar to the TLA721 controllers in Figure 7-12 on page 7-25.

Figure 7-5: Removing the covers from the controller

Install the CD-RW Drive (Older TLA720 Benchtop Controllers)

NOTE. Earlier versions of the TLA720 Benchtop Controllers had two separate brackets for mounting the CD-ROM drive. Later versions had a single bracket. If your benchtop controller has the two piece mounting bracket, continue with the following steps. If your benchtop controller has the single piece bracket, follow the instructions beginning on page 7-17 to remove the CD-ROM drive.

The CD-ROM drive is located on the hard drive interface board. You can remove the CD-ROM drive and the brackets without removing the hard drive interface board.

Remove the CD-ROM Drive and Brackets

Complete the following steps to remove the CD ROM drive and the mounting brackets:

1. Using a #0 Phillips head screwdriver with a 6-inch long shaft, remove the two screws on the side of the CD-ROM bracket by reaching through one of the holes in the chassis as shown in Figure 7-6.
2. Remove the two screws on the other side of the CD-ROM bracket by reaching through one of the holes of the chassis.

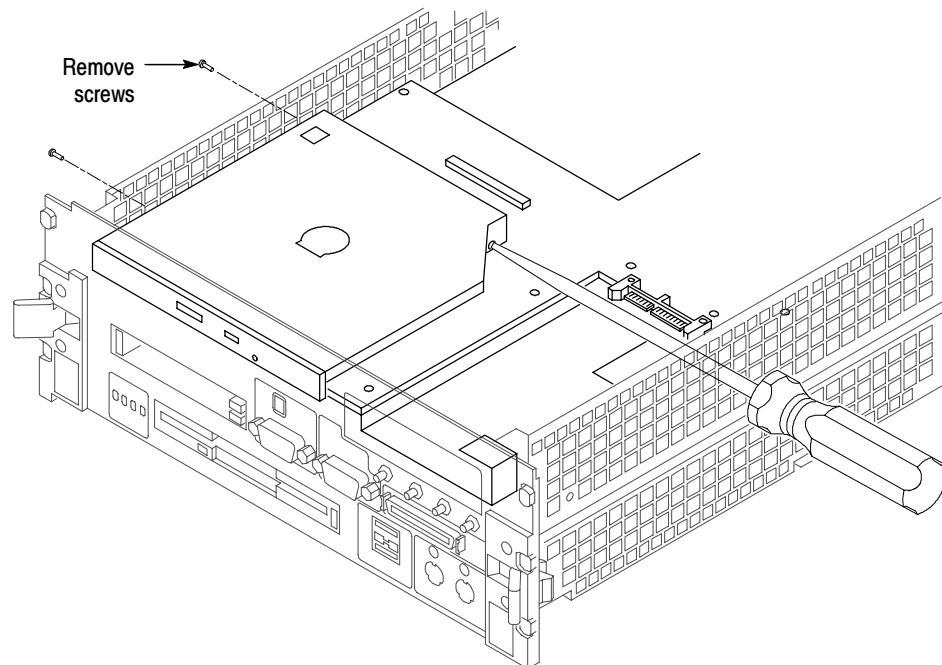


Figure 7-6: Remove screws from the CD ROM bracket

3. Slide the CD-ROM drive out of the bracket.
4. Disconnect the ribbon cable and the small interface board from the CD-ROM drive. Leave the other end connected to the hard drive interface board.
5. Remove the four screws that hold the brackets to the hard drive interface board. Keep the four screws; you will need them to install the new brackets.
6. Remove the two brackets from the hard drive interface board.

Install the CD-RW Drive and Brackets

Complete the following steps to install the new CD-RW drive and mounting brackets.

NOTE. *You must install the new mounting brackets. Otherwise, the screw holes from the CD-RW drive will not line up.*

1. Install the new right and left mounting brackets in place of the old brackets on the hard drive interface board. Use the screws that you removed from the old brackets.
2. Connect the small interface board with the drive ribbon cable to the CD-RW drive. Verify that pin-1 of the cable is connected to pin-1 of the connector.
3. Slide the new CD-RW drive into the bracket until the front of the drive is flush with the front panel.
4. Attach the CD-RW drive to the bracket using the the four screws from the removal process. (Use the long screw driver as necessary.)
5. Complete the instructions under *Reinstall the Controller Covers* on page 7-20.

Install the CD-RW Drive (Newer TLA720 Benchtop Controllers)

Use the following procedures to install the CD-RW drive on newer TLA720 benchtop controllers. You will need to remove the front panel and the hard disk drive interface board to remove the CD mounting bracket.

Remove the Front Panel

You must remove the front panel and the injector handles before you can access the hard disk drive interface board in the newer benchtop controllers. You will need a screwdriver with a T-10 Torx tip, a 1/4-inch nut driver, a 3/16-nut driver, and a small flat-blade screwdriver to complete the procedure.

1. Place the controller on the right side and then remove the T-10 Torx screws that secure the top and bottom handles to the chassis; remove the handles and set them aside.
2. Remove the five 1/4-inch nuts on the back of the front panel.
3. Using a small, flat-blade screw driver, remove the two screws from the printer port connector on the front panel (see Figure 7-7).
4. Using the 3/16-nut driver, remove the four jack screws from the video port and the COM A port connectors.
5. Pull the front panel off so that you can access the flat-head T-10 screws underneath the front panel.

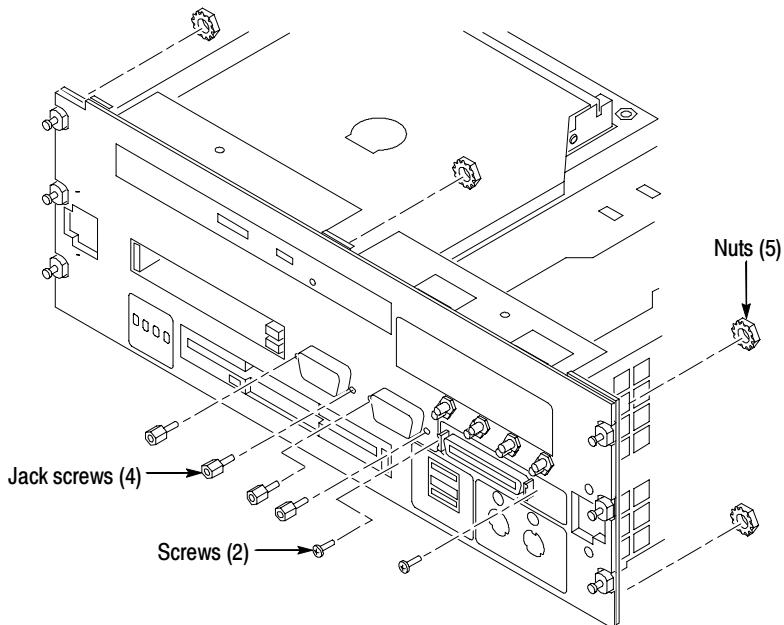


Figure 7-7: Removing the front panel hardware

Remove the Hard Disk Drive Interface Board

Complete the following steps to remove the hard disk drive interface board from the chassis:

1. Refer to Figure 7-8 and remove the four T-10 screws from the front of the controller.
2. Remove the four flat-head T-10 screws on the chassis that hold the hard drive interface board in place. See Figure 7-8.
3. Disconnect the two ribbon cables located on the rear of the hard disk interface board.
4. Slide the hard disk drive interface board out of the chassis.

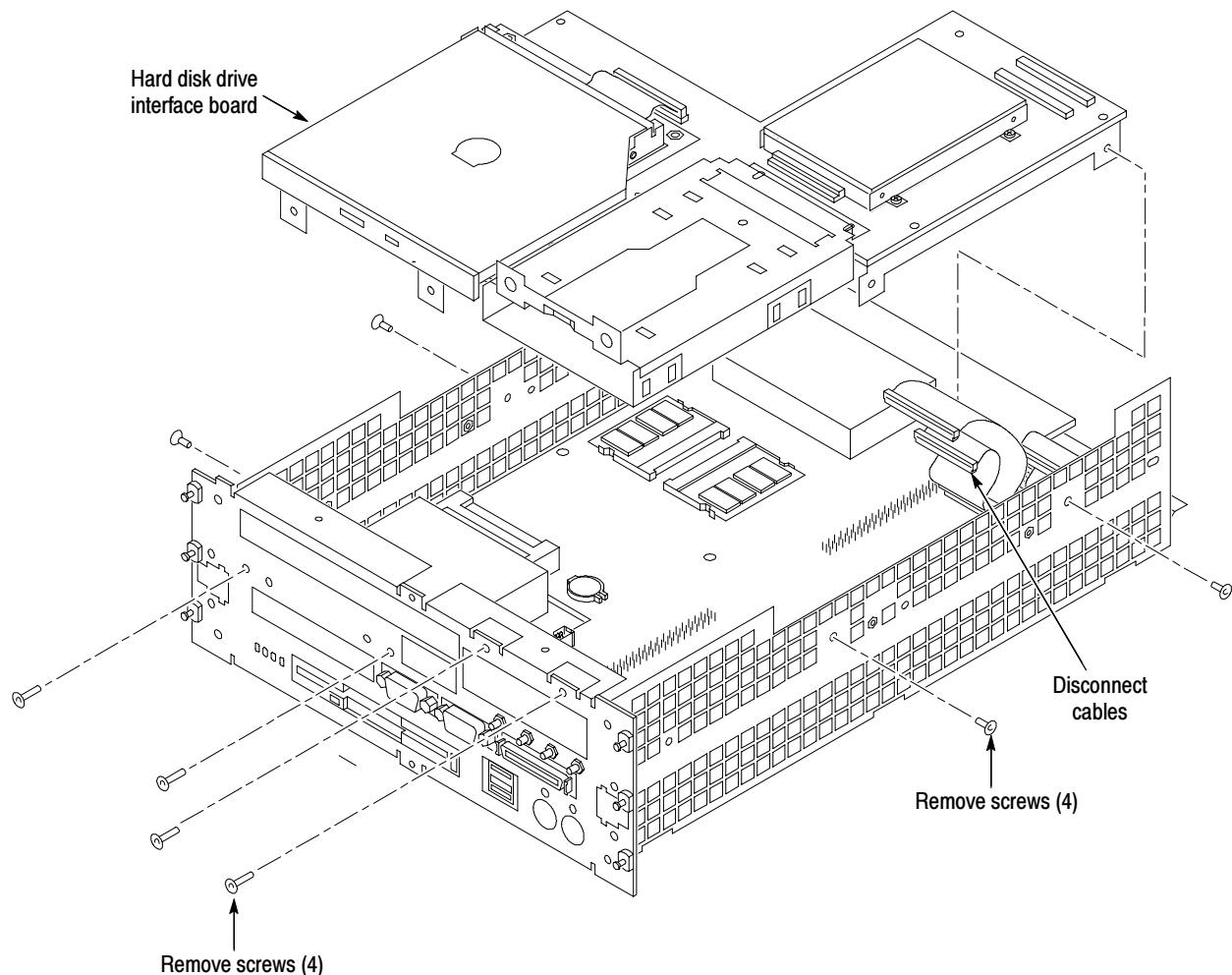


Figure 7-8: Removing the hard disk drive interface board from the chassis

Remove the CD-ROM Drive

Complete the following steps to remove the CD-ROM drive from the hard disk drive interface board:

1. Disconnect the small interface board and ribbon cable at the rear of the CD-ROM drive from the the hard disk drive interface board.
2. Using a #0 Phillips head screwdriver, remove the four screws on the sides of the CD-ROM bracket.
3. Remove the CD-ROM drive assembly from the bracket.
4. Disconnect the small interface board and ribbon cable from the CD-ROM drive and set them aside.
5. Turn the hard disk drive interface board over and then remove the six nuts that secure the CD-ROM drive bracket to the hard disk drive interface board.
6. Remove the CD-ROM drive bracket from the hard disk drive interface board (you will install a new bracket for the CD-RW drive).

Install the CD-RW Drive and Bracket

Complete the following steps to install the new CD-RW drive and mounting bracket.

NOTE. *Make sure that you use the correct mounting bracket that came with this kit. Use the 407-4915-00 mounting bracket with the outside-threaded studs. If you use the wrong bracket, you will not be able to install the CD-RW drive properly.*

1. Locate the mounting bracket with the outside-threaded studs (part number 407-4915-00).
2. Install the new CD-RW drive mounting bracket on the hard disk drive interface board by attaching the six nuts on the bottom of the board.
3. Connect the small interface board with the ribbon cable to the CD-RW drive.
4. Slide the CD-RW drive into the new bracket.
5. Attach the CD-RW drive to the bracket using the four screws that you removed earlier. Tighten the screws to 1 in-lbs.
6. Connect the ribbon cable from the small interface board at the rear of the CD-RW drive to the hard disk drive interface board.

Install the Hard Disk Drive Interface Board and Front Panel

Complete the following steps to install the hard disk drive interface board and front panel.

1. Install the hard disk drive interface board in the chassis making sure that the CD-RW drive fits into the opening at the front of the chassis.
2. Install the four flat-head T-10 screws on the top and bottom of the chassis; tighten the screws to 4 in-lbs (refer to Figure 7-8 on page 7-18 as necessary).
3. Connect the two ribbon cables from the processor board to the hard disk drive interface board.
4. Install the four flat-head T-10 screws on the front of the chassis; tighten the screws to 4 in-lbs.
5. Secure the front panel in place by lining up the five studs on the front panel with the holes on the front of the chassis. Install and tighten the five $1\frac{1}{4}$ -inch nuts on the back of the front panel to 4 in-lbs.
6. Using the $\frac{3}{16}$ -nut driver, install the four jack screws to the video port and to the COM A port connectors. Tighten the jack screws to 3 in-lbs.
7. Install the two screws on the printer port connector using a small, flat-blade screw driver.

NOTE. *The top and bottom ejector handles are not interchangeable. The top ejector handle has the slotted tab.*

8. Install the ejector handles through the front panel cutouts onto the mounting posts and then install the screws to secure the handles to the chassis.

Reinstall the Controller Covers

1. Place the cover on the chassis. Push forward on the cover so the tab on the front edge of the cover inserts into the rear of the front subpanel. Make sure that the cover is fully seated, with no gaps, against the front and rear chassis flanges (refer to Figure 7-9 on page 7-21 as necessary).
2. Install the rear panel cover.
3. Squeeze the sides together before tightening to ensure a good EMI seal and mechanical connection.

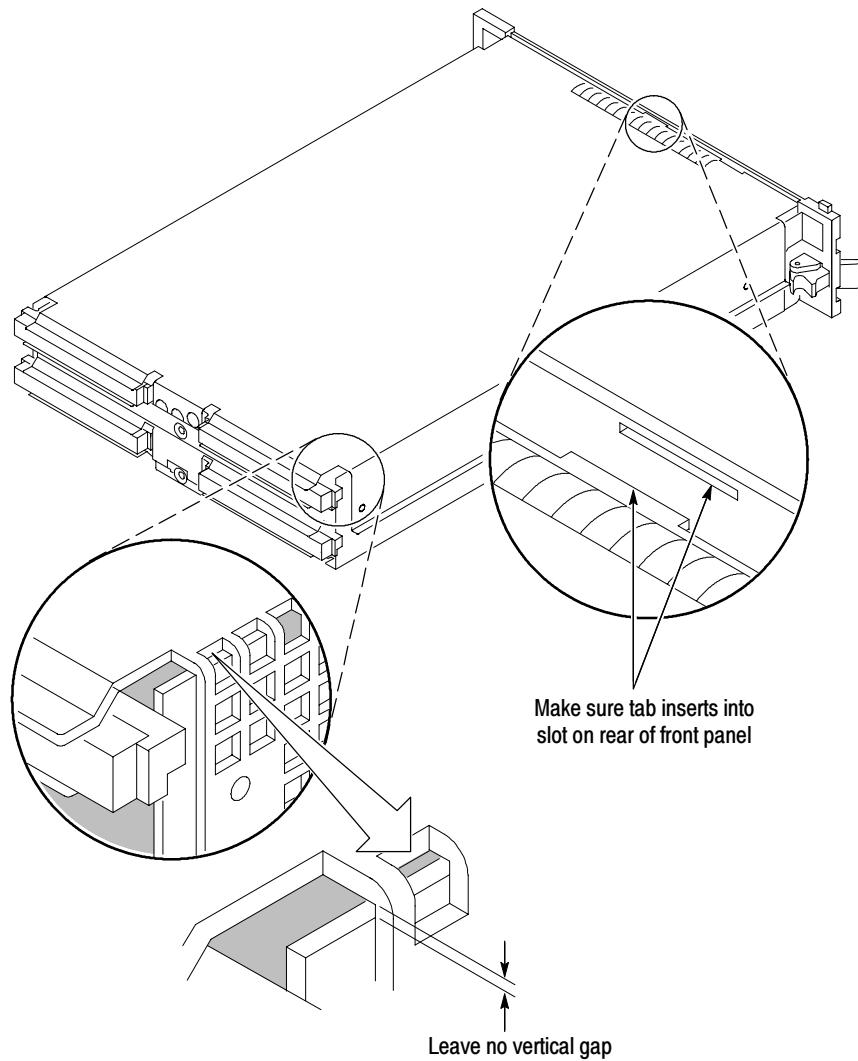


Figure 7-9: Seating the cover on the chassis

Reinstall the Replaceable Hard Disk

Slide the hard disk assembly into the front panel. Push on the handle until it latches in place.

Attach the Upgrade Kit Label to the Benchtop Controller

After completing all the previous steps, you need to install the upgrade kit label on the side of controller to indicate that the kit is installed.

Attach the TLA7UP kit label on the large label as shown in Figure 7-10. If the instrument already has an upgrade label, install the new label directly above or below the old upgrade kit label.



Figure 7-10: Kit label locations

Install the Controller in the Mainframe

After installing the upgrade kit label, slide the controller into the mainframe and latch it in place. Tighten the controller hold-down screws.

Verify Operation

After installing the controller, reconnect the power cord to the mainframe and then power on the instrument; verify that the power-on diagnostics pass.

TLA7UP Option 20: TLA721 CD-RW Drive Upgrade Instructions

This section contains procedures for removing the current CD-ROM drive from the TLA721 Benchtop controller and installing the CD-RW drive.

These instructions require that you be familiar with servicing the instrument, because of the complexity of the Controller subassembly. If you are not familiar with servicing the instrument, you are strongly recommended to contact your nearest Tektronix service representative for installation information.

Remove the Replaceable Hard Disk Drive



CAUTION. *Do not remove the replaceable hard disk drive while the mainframe is powered on. You can permanently damage the replaceable hard disk drive if you remove it while the mainframe is powered on.*

1. Power down the instrument and disconnect the power cord.
2. Press the latch on the side of the instrument to unlatch the hard disk drive.
3. Remove the hard disk drive from the instrument by pulling on the handle.

Remove the Benchtop Controller from the Mainframe



CAUTION. *Do not remove or install the benchtop controller while the mainframe is powered on. You can damage the controller or the mainframe if you attempt to remove or install the controller while the mainframe is powered on.*

1. If you have not already done so, power down the mainframe and disconnect the power cord.
2. Disengage the benchtop controller from the mainframe using the ejector handles.
3. Remove the controller from the mainframe and place it on a static-free work surface.

Remove the Ejector Handles

You must remove the ejector handles to provide access to the front panel. The front panel contains hardware that holds the hard disk drive interface board in place.

Place the controller on the right side as shown in Figure 7-11. Remove the T-10 Torx screws that secure the handle to the chassis and then remove the handles.

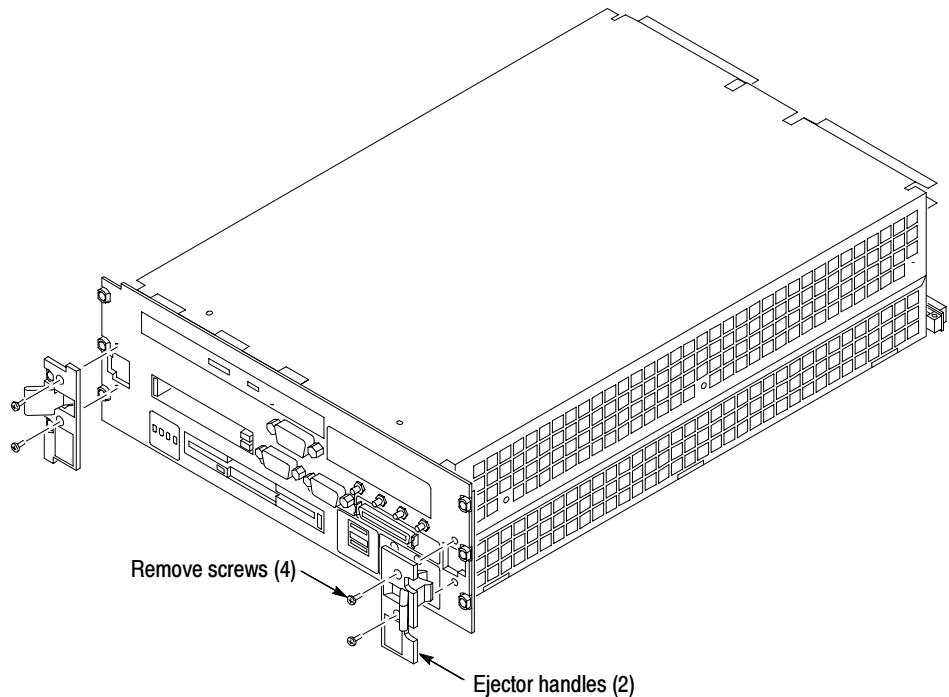


Figure 7-11: Removing the ejector handles

Remove the Benchtop Controller Covers

Remove the ten flat-head T-10 Torx-drive screws, shown in Figure 7-12, and lift off the controller left and rear covers.

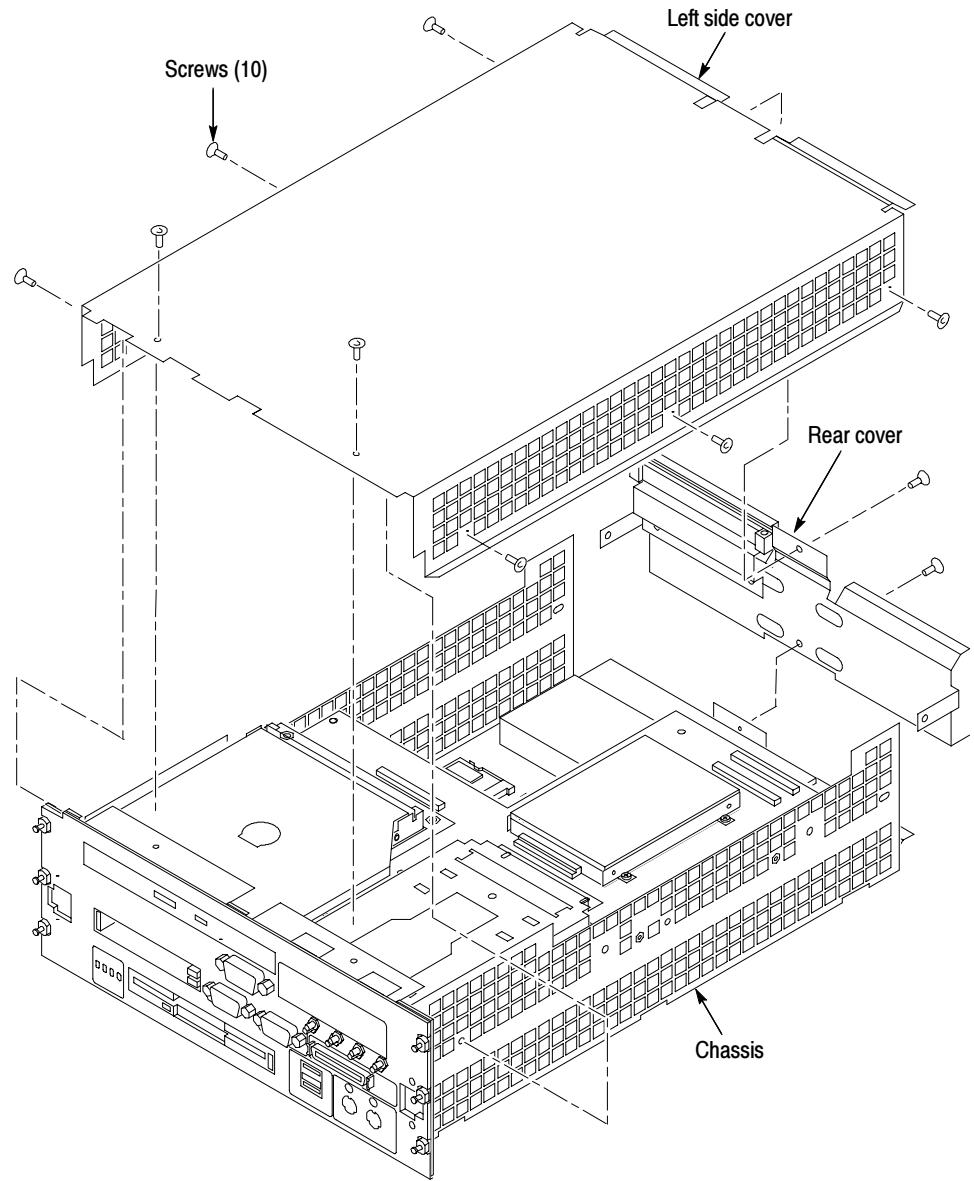


Figure 7-12: Removing and installing the left and rear covers

Remove the Front Panel and Hard Disk Drive Interface Board

You must remove the front panel and then the hard disk drive interface board before you can access the CD-ROM drive in the benchtop controller. You will need a screwdriver with a T-10 Torx tip, a $\frac{1}{4}$ -inch nut driver, a $\frac{3}{16}$ -nut driver, and a small flat-blade screwdriver to complete the procedures.

1. Remove the five $\frac{1}{4}$ -inch nuts on the back of the front panel.
2. Using a small, flat-blade screw driver, remove the two screws from the printer port connector on the front panel (see Figure 7-13).
3. Using the $\frac{3}{16}$ -nut driver, remove the four jack screws from the two video port connectors (do not remove the jack screws at the COM A connector).
4. Pull the front panel off so that you can access the flat-head T-10 screws underneath the front panel (be careful so that you do not damage the cable from the COM A connector).

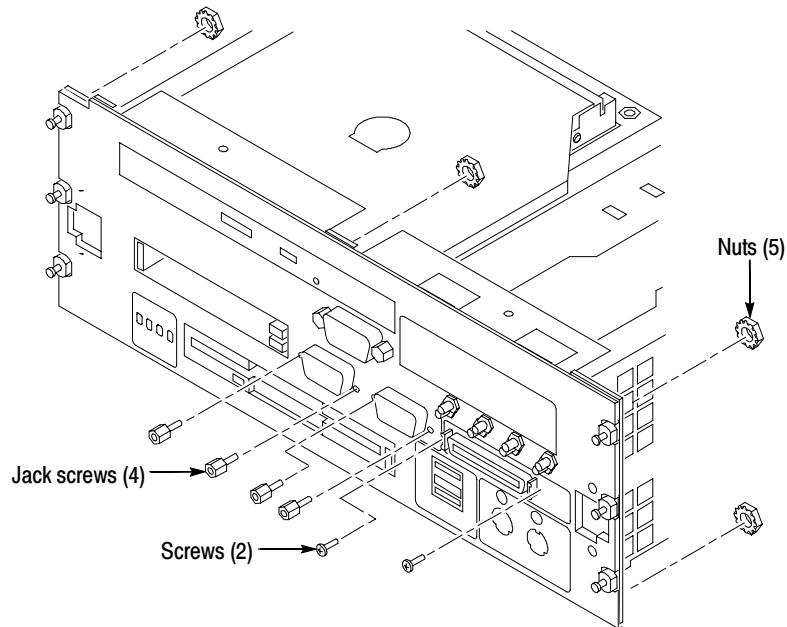


Figure 7-13: Removing and installing the front panel hardware

5. Refer to Figure 7-14 and remove the four T-10 screws from the front of the controller.
6. Remove the four flat-head T-10 screws on the bottom cover that hold the hard drive interface board in place. See Figure 7-14.

7. Disconnect the two ribbon cables located on the rear of the hard disk interface board.
8. Slide the hard drive interface board out of the chassis.

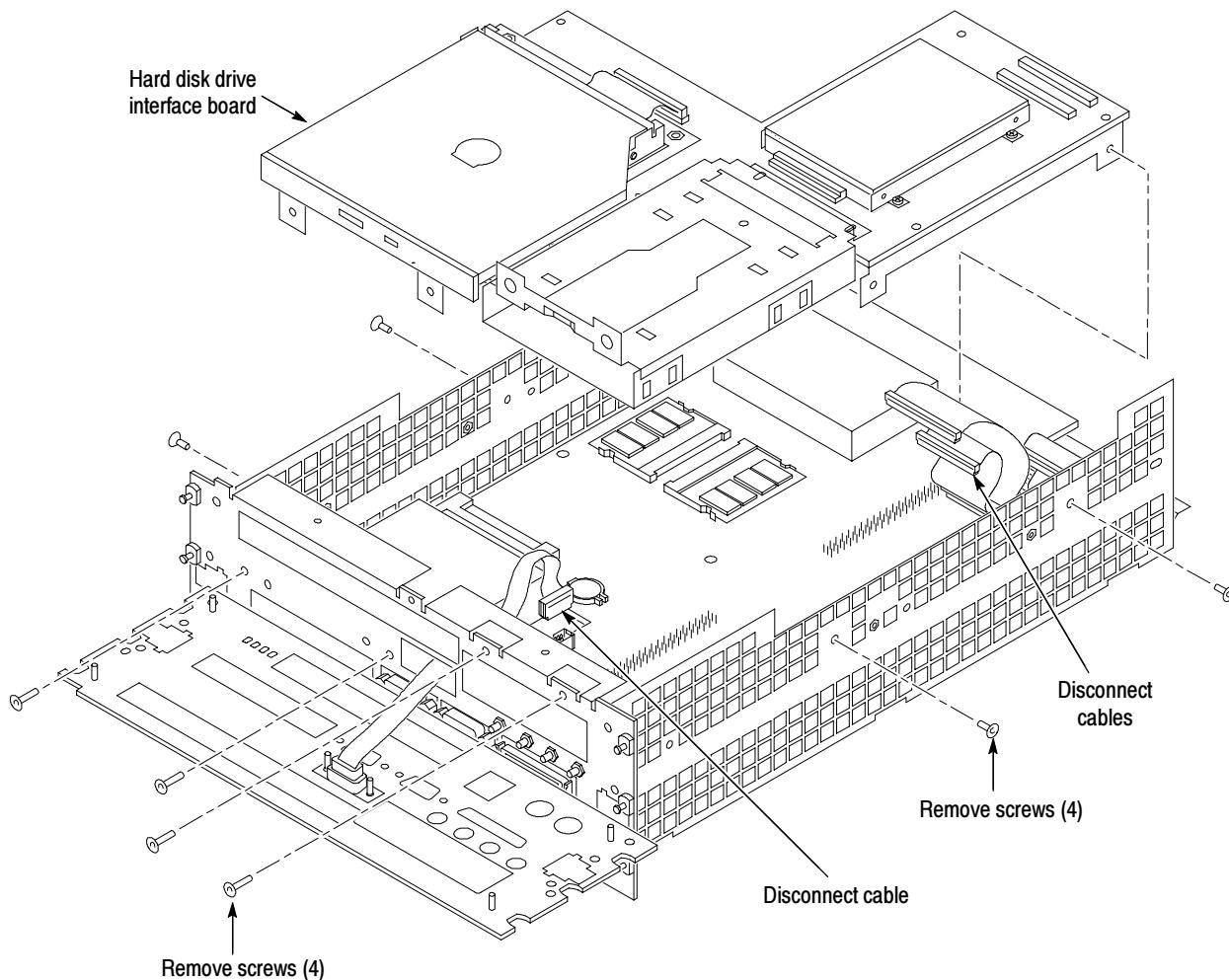


Figure 7-14: Removing screws from the front and sides of the controller

Remove the CD-ROM Drive

The CD-ROM drive is located on the hard drive interface board.

1. Using a #0 Phillips head screwdriver, remove the four screws on the sides of the CD-ROM bracket (see Figure 7-15).
2. Remove the CD-ROM drive assembly from the bracket.
3. Disconnect the interface board and ribbon cable from the CD-ROM drive; leave the other end of the ribbon cable connected to the hard disk drive interface board.

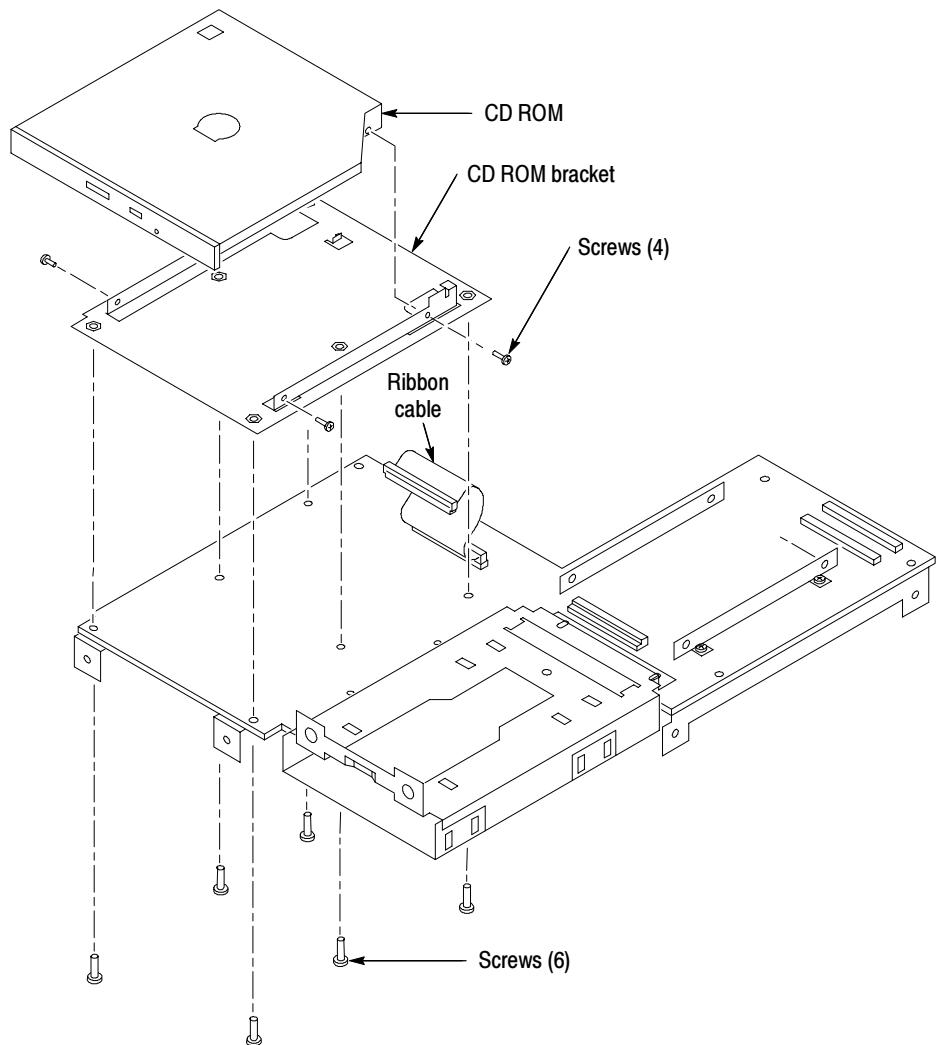


Figure 7-15: Removing the CD-ROM drive

4. Remove the six T-10 screws on the bottom of the hard disk drive interface board that secure the CD-ROM drive bracket (see Figure 7-15).
5. Remove the CD-ROM drive bracket from the hard disk drive interface board.

Install the CD-RW Drive and Bracket

NOTE. *You must install the new bracket with the inside-threaded standoffs. Otherwise, the screw holes from the CD-RW drive will not line up.*

1. Locate the single-piece mounting bracket with the inside-threaded standoffs (part number 407-4913-00).
2. Install the CD-RW drive bracket to the hard disk drive interface board by attaching the six T-10 screws on the bottom of the board; tighten the screws to 3 in-lbs.
3. Connect the small interface board with the drive ribbon cable to the CD-RW drive. Verify that pin-1 of the cable is connected to pin-1 of the connector.
4. Slide the CD-RW drive into the new bracket.
5. Attach the CD-RW drive to the bracket using the four screws from the removal process. Tighten the screws to 1 in-lbs.

Install the Hard Disk Drive Interface Board and the Front Panel

1. Install the hard disk drive interface board in the chassis making sure that the CD-RW drive fits into the opening at the front of the chassis.
2. Install the four flat-head T-10 screws on the top and bottom of the chassis; tighten the screws to 4 in-lbs.
3. Connect the two ribbon cables from the processor board to the hard disk drive interface board.
4. Install the four flat-head T-10 screws on the front of the chassis; tighten the screws to 4 in-lbs.
5. Secure the front panel in place by lining up the five studs on the front panel with the holes on the front of the chassis. Install and tighten the five $1\frac{1}{4}$ -inch nuts on the back of the front panel to 4 in-lbs.
6. Using the $\frac{3}{16}$ -nut driver, install the four jack screws to the two video port connectors. Tighten the jack screws to 3 in-lbs.

7. Install the two screws on the printer port connector using a small, flat-blade screw driver.

Reinstall the Controller Covers and the Ejector Handles

1. Place the left side cover on the chassis.
2. Secure the rear cover to the module.
3. Make sure that all the holes line up and then install the T-10 Torx-drive screws; tighten the screws to 4 in-lbs.
4. Install the ejectors handle through the front panel cutouts onto the mounting post, and install the screws to secure the handle to the chassis.

NOTE. *The top and bottom injector/ejector handles are not interchangeable.*

Reinstall the Replaceable Hard Disk

Slide the hard disk assembly into the front panel. Push on the handle until it latches in place.

Attach the Upgrade Kit Label to the Benchtop Controller

After completing all the previous steps, you need to install the upgrade kit label on the side of controller to indicate that the kit is installed.

Attach the TLA7UP kit label on the large label as shown in Figure 7-16. If the instrument already has an upgrade label, install the new label directly above or below the old upgrade kit label.



Figure 7-16: Kit label locations

Install the Controller in the Mainframe

After installing the upgrade kit label, slide the controller into the mainframe and latch it in place. Tighten the controller hold-down screws.

Verify Operation

After installing the controller, reconnect the power cord to the mainframe and then power on the instrument. Verify that all diagnostics pass.



TLA7UP Option 31

TLA7UP Option 31: Application Software and Windows Operating System Upgrade

TLA7UP option 31 supports the upgrade to TLA application software, version 4.3 and Multi-Language Windows 2000 Professional operating system. TLA application software version 4.3 will only run on Windows 2000 Professional. This option is for instruments with TLA application software version 3.x and Windows 98 operating system or for customers interested in having the current Windows operating system. You can also use this option for newer instruments where you intend to upgrade the software by overwriting the hard disk drive and install a new operating system.

If you already have TLA Application Software V4.2, V4.1 or V4.0 and Windows 2000 Professional operating system and you do not want to install a new operating system, use TLA7UP Option 32 to upgrade to the latest application software.



Instruments

TLA714 Portable Mainframe
TLA720 Benchtop Mainframe

All serial numbers
All serial numbers

Parts List

Table 8-1: TLA7UP Option 31 parts list

Quantity	Part number	Description
1 ea	N/A	Tektronix Logic Analyzer Family Application Software Version 4.3 (dual CD-ROM set: TLA App SW and TLAVu Offline software)
1 ea	N/A	Tektronix Logic Analyzer Family TLA714 & TLA720 Hard Disk Image Version 4.3 (dual CD-ROM set)
1 ea	N/A	EasyRestore license
1 ea	N/A	RecordNow MAX license
1 ea	N/A	CheckIt Utilities sticker
1 ea	N/A	Microsoft Windows 2000 Certificate of Authenticity sticker
1 ea	N/A	Microsoft Windows 2000 license
5 ea	131-4356-xx	Jumper with pull-tab
1 ea	016-1524-xx	TLA mouse pad
1 sheet	N/A	Software revision labels
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

No special tools are required to install this option.

TLA7UP Option 31: Application Software and Windows Operating System Instructions

TLA7UP option 31 supports the upgrade to Multi-Language Windows 2000 Professional operating system and TLA application software, version 4.3.

This kit provides instructions for upgrading the software and firmware that is specifically written for the TLA714 Portable and TLA720 Benchtop Mainframes.



CAUTION. *The software installation procedure will remove the entire contents of your hard disk. To avoid losing any files or software applications, back them up to another media before continuing with this procedure.*

This kit provides information for installing software on your logic analyzer. Note that loading the contents of the CD provided in this upgrade kit will destroy user files and programs currently on your hard disk drive.

If you do not care that the contents of your hard disk drive will be overwritten, proceed to *Installing Windows 2000 Professional and the TLA Application Software* on page 8-5. However, if you want to preserve your user files, continue following the instructions contained in this upgrade kit.

In addition to the Tektronix Logic Analyzer application software, there are other software programs that are installed separately; Table 8-2 lists some of the software that you may have installed on your logic analyzer.

Table 8-2: Software not covered by the software setup

Software	Installation information
Microprocessor or bus support software	Refer to the manual that was shipped with the microprocessor or bus support.
PC Card Software	Refer to the instructions that come with your PC Card.
Other Software	Refer to the instructions that come with your software.

Set the Default Controller BIOS Settings

To configure the Controller BIOS, complete the following steps:

1. Power on the logic analyzer and press function key F2 before the logic analyzer boots the Windows operating system.
2. Press function key F9, then select Yes and press Enter. This sets defaults and verifies that both the hard disk was auto-recognized and that the correct size of the hard disk is displayed in the Primary Master setting.
3. Press function key F10 to exit and save the BIOS setup.

Install the Hard Disk Image

The Tektronix Logic Analyzer comes with a CD set entitled *TLA714 & TLA720 Hard Disk Image*, which contains the Microsoft Windows 2000 Professional operating system and the latest application software. All software required to run the logic analyzer comes with the CD set with the exception of any Microprocessor support packages or non-logic analyzer application software. The process of reloading the software on the hard disk will destroy any files or programs installed on the hard disk.



CAUTION. *To avoid losing any files or software applications on the hard disk, back them up to another media (a second hard drive, CD, or a network drive) before continuing with this procedure.*

Backing Up Files

Before loading the Hard Disk Image software, make sure that you back up any files, applications, and personal documents to an external storage device. You can do this in one of several different ways:

You can find most TLA user files using the Windows Find utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click the folder and select Find. Enter one of the suffixes from Table 8-3 to locate the TLA files in the current folder and all subfolders:

Table 8-3: TLA user file suffixes

Suffix	Description
.tla	TLA setup files and stored data
.tsf	TLA symbol files
.tbf	Tektronix binary format
.tls	TLA script file
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy or drag them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you will need to reinstall them after you reinstall the hard disk image. If you do not have a copy of the microprocessor support software, contract your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center.

Installing Windows 2000 Professional and the TLA Application Software

This procedure automatically reformats the hard disk, installs the Windows 2000 Professional Operating system software, and installs the the Tektronix Logic Analyzer application software. Because this procedure reformats the hard disk drive, back up any files or software that you want to preserve by following the steps in the previous section.

Change the BIOS Boot Settings. Before installing the Hard Disk Image, you must change the BIOS settings to enable booting from the CD-ROM.

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. In the BIOS setup, go to the Boot menu.

3. Set the Boot devices as shown below to enable booting from the CD-ROM:

First Boot Device:	[ATAPI CD-ROM Drive]
Second Boot Device:	[Diskette Drive]
Third Boot Device:	[Hard Drive]

4. Save the settings by pressing function key F10 and confirm that you want to save the new settings.

Load the Hard Disk Image. Complete the following steps to load the Hard Disk Image.

1. Insert the Hard Disk Image CD Disc 1 in the CD-ROM drive.
2. Reboot the logic analyzer. After booting from the CD-ROM drive, the program on the CD will display its license agreement.
3. Review the license agreement. If you agree to the terms of the license agreement, proceed with the next step.

NOTE. Use care when proceeding through the software license agreement to avoid confirming that you want to cancel the software installation procedure.

4. After you review the software license agreement, the EasyRestore dialog displays and prompts you to continue, or to cancel the upgrade process. Click the Continue button to load the contents of the upgrade CD.

EasyRestore may display the following message:

This program has detected error 110 on the partition...
Would you like the program to fix this error?

When prompted, click Yes to fix the displayed error. If other errors display, allow the program to fix them and continue with the installation procedure.

5. EasyRestore displays a warning that the contents of your hard disk drive will be destroyed if you choose to continue. Click Yes to continue the upgrade process.
6. Install Disc 2 when prompted to continue the installation.
7. The program automatically loads the hard disk image. This procedure is fully automatic and takes approximately 15 minutes to complete.

The image loading procedure installs and sets up the logic analyzer application. You should not need to make any changes to the setup to use the logic analyzer.

8. After the image is loaded, remove the CD from the CD-ROM drive and reboot the logic analyzer.
9. The System Settings Change error message displays, prompting you to restart the computer before your changes can take effect. Click Yes to restart your computer.
10. Reinstall any user files that you backed up previously. Reinstall any software (such as the microprocessor support packages) that you want to use on the logic analyzer.

Reset the BIOS Boot Settings. After you have successfully installed the hard disk image, reset the BIOS settings to disable booting from the CD-ROM.

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. In the BIOS setup, go to the Boot menu.
3. Set the Boot devices as shown below to disable booting from the CD-ROM:

First Boot Device:	[Diskette Drive]
Second Boot Device:	[Removable Devices]
Third Boot Device:	[Hard Drive]
Fourth Boot Device:	[ATAPI CD-ROM Drive]

4. Save the settings by pressing function key F10 and press Enter to confirm that you want to save the new settings.

Update TLA Module Firmware

You may have to update the firmware on any installed logic analyzer or DSO modules (and pattern generator modules when used with the TLA Pattern Generator Application) if the modules do not appear in the TLA System (or Pattern Generator System) window after you have installed new application software. You can update multiple modules and module types during a single firmware update session.

1. Note which modules require new firmware.

If any modules are missing from the System window, you can verify the status of the modules by doing the following steps:

- a.** Select System Properties from the System menu.
- b.** Click the Modules tab.
- c.** Note the information under the Messages column for any installed modules. If any modules indicate invalid or similar messages, you must update the firmware for those modules.

NOTE. *If you only have a TLA7Axx series logic analyzer module, do not power off the instrument. These products do not require you to install and remove the flash jumper. Continue the procedure with step 8.*

- 2.** Turn off the instrument.
- 3.** Remove the modules from the instrument.
- 4.** Refer to Figure 8-1 and locate the flash programming pins on the rear of the module.
- 5.** Install a jumper on the flash programming pins (use one of the spare jumpers that came with your logic analyzer).
- 6.** Reinstall the module(s) in the instrument.
- 7.** Power on the instrument.

NOTE. *Any modules with the flash programming jumper installed will not display in the TLA or Pattern Generator System window.*

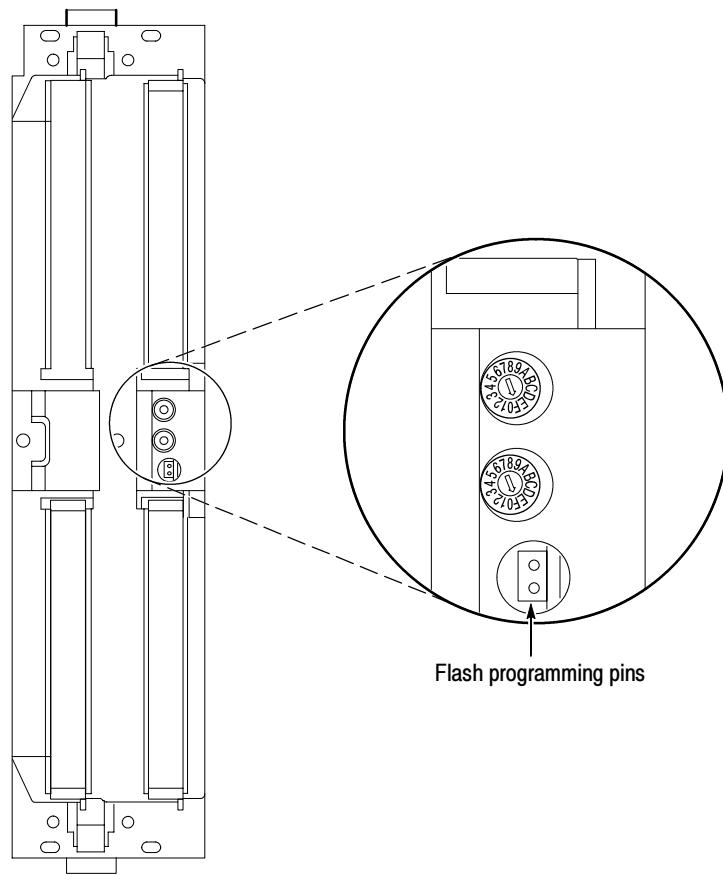


Figure 8-1: Flash programming pins

8. Exit the logic analyzer application (and pattern generator application if installed on your instrument).
9. Click Start → Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
10. Select all of the modules that you want to update from the list of modules displayed in the Supported list box near the top of the window. If you are updating more than one module at a time, note the slot location of the module in the selection box.
11. Select Load Firmware from the Execute menu.
12. Click the proper .lod file for the selected module; refer to Table 8-4 if necessary.

NOTE. Be sure to select the proper .lod file for each module. Note the slot number in the title bar so that you select the correct module for the .lod file.

Table 8-4: TLA firmware files

Module type	.lod file
TLA7Axx logic analyzer modules	TLA7AXX.lod
TLA7Nx, TLA7Px, TLA7Qx logic analyzer modules	TLA7NPQ.lod
TLA7Lx and TLA7Mx logic analyzer modules	TLA7LM.lod
TLA7Dx and TLA7Ex DSO modules	FirmwareDSO.lod
TLA720 Benchtop controller module	TLA720.lod
TLA7PG2 Pattern Generator modules ¹	tla7pg2.lod

¹ The .lod files for the pattern generator modules are located in the C:\Program Files\Tektronix Pattern Generator\Firmware folder. All other files are located in the C:\Program files\TLA 700\Firmware folder.

13. Click OK. You will be prompted to confirm your action; click Yes.

NOTE. The program will not allow you to load firmware to an incompatible module. For example, the program will not load DSO firmware to a logic analyzer module.

The program will load the firmware for each module one at a time. The process may take several minutes per module.

14. Exit the firmware loader program.

15. Turn off the instrument.

NOTE. If you have a TLA7Axx series logic analyzer module, skip step 16, but you must still remove the module from the mainframe to install the upgrade label.

16. Remove the module from the instrument and remove the jumper from the Flash programming pins on the rear of the module. Keep the jumper for future updates.

17. Locate the big label on the side of the module.

18. Attach a new revision label and kit label on the big label for each module as shown in Figure 8-2.

19. Locate the big label on the either the portable mainframe or on the side of the Benchtop controller (depending on your instrument) and attach the revision label and the TLA7UP kit label as shown in Figure 4.2.

NOTE. *If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.*

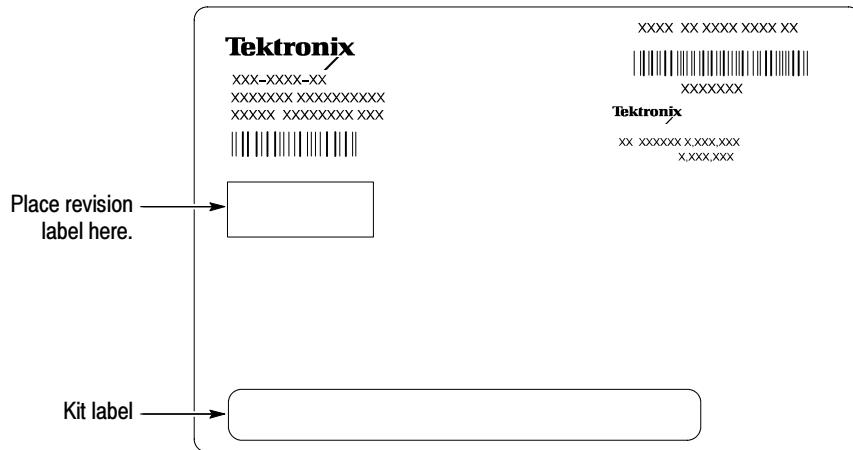


Figure 8-2: Revision and kit label locations

20. Reinstall the module in the instrument and tighten the hold-down screws.
21. Reconnect the power cord and power on the instrument.
22. Verify that the power-on diagnostics pass.

Calibrate the Logic Analyzer and DSO Modules

After upgrading the firmware on the logic analyzer and DSO modules you need to calibrate those modules.

1. Allow the instrument to warm up for at least 30 minutes before continuing.
2. In the System window, select Calibration and Diagnostics from the System menu.
3. Click the Self Calibration tab.
4. Select all of the modules in the dialog box and Click Run.
5. Verify that the Status column for each module changes to Calibrated.

NOTE. Please be patient. The calibration process may take several minutes for each module.

6. After all of the modules have been calibrated close the dialog box and power down the instrument.

Upgrade the TLAVu or PatGenVu Offline Software (Optional)

The TLAVu and PatGenVu software allow you to view data and create setups for your logic analyzer or pattern generator on a PC. You must ensure that the versions of the TLAVu or PatGenVu software are the same as that of TLA or pattern generator applications and that your PC has the Microsoft.NET Framework software installed.

Complete the following steps to install the Microsoft.NET Framework software and upgrade the TLAVu or PatGenVu application software on your PC. If you have an older version already installed on your PC, the installation program will automatically detect it and replace it during the upgrade process.

1. Install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
2. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSetup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.

6. After the software has been successfully installed, restart Windows.
7. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSvcPack.exe.
8. Click Next to start the installation.
9. Read and accept the license agreement.
10. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
11. After the software has been successfully installed, restart Windows.
12. Remove Disc 1 and install Disc 2 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
13. Start Windows Explorer, and browse to and execute D:\TLAVu\Setup.exe (or D:\PatGenVu\Setup.exe).
14. Click OK to perform the installation. Follow any on-screen instructions.
15. Windows will uninstall the selected application. If you are prompted for permission to remove or overwrite unused shared files or any read-only files, select Yes to All.

NOTE. *The ReadMe file for the offline applications contains most of the information that you need to run the applications. Access the ReadMe files by selecting either: Start → Programs → Tektronix Logic Analyzer → TLA Documentation → TLAVu ReadMe or Start → Programs → Tektronix Pattern Generator → Pattern Generator Documentation → PatGenVu ReadMe.*



TLA7UP Option 32

TLA7UP Option 32: Application Software Upgrade

TLA7UP option 32 supports the upgrade to TLA application software, version 4.3. This option also supports the upgrade to Version 1.5 Pattern Generator application software for those instruments with TLA7PG2 Pattern Generator modules. The TLA application software version 4.0 and higher will only run on instruments with the Windows 2000 Professional operating system that were purchased from Tektronix.



Instruments

TLA714 Portable Mainframe
TLA715 Portable Mainframe
TLA720 Benchtop Mainframe
TLA721 Benchtop Mainframe

All serial numbers
All serial numbers
All serial numbers
All serial numbers

Parts List

Table 9-1: TLA7UP Option 32 parts list

Quantity	Part number	Description
1 ea	N/A	Tektronix Logic Analyzer Family Application Software Version 4.3 (dual CD-ROM set: TLA App SW and TLAVu Offline software)
1 ea	N/A	Mainframe BIOS floppy disk (TLA715 or TLA721 only)
1 ea	N/A	RecordNow MAX license
1 ea	N/A	CheckIt Utilities sticker
5 ea	131-4356-xx	Jumper with pull-tab
1 ea	016-1524-xx	TLA mouse pad
1 sheet	N/A	Software revision labels
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

No special tools are required to install this option.

TLA7UP Option 32: Application Software Instructions

The following instructions direct you through the process of upgrading the TLA application software on your TLA714, TLA715, TLA720 or TLA721 logic analyzer. Steps are also included for upgrading the pattern generator application software. These instructions apply only to instruments with TLA Application Software Version 4.0 or higher.

Upgrade Instruction Overview

The basic upgrade procedure is to manually remove the older software and reinstall the new software. The upgrade steps are listed in this document.

While performing the upgrade procedures, keep the following items in mind:

- Throughout this procedure you will see the term “log on as Administrator.” The instrument is set up to automatically log on as Administrator (with no password) so you may not see the log in prompt. If the network setups have been changed on your instrument, make sure that you log on as Administrator or as a user who has administrator privileges. Failure to do so can prevent the software upgrade from completing successfully.
- After logging on as administrator, quit any applications.
- If your instrument does not display the file extensions, you need to change your folder options to display the file extensions. (From the Control Panel, double-click Folder Options, select the View tab, and then deselect the “Hide file extensions for known file types” selection.)
- Use the Windows Add or Remove Programs Control Panel utility to remove existing software.
- You will be asked to restart Windows after you install each software package. If you do not restart Windows when prompted your software may not install properly and can cause unpredictable behavior.
- If Windows does not restart normally, press and hold the On/Standby button for five or six seconds to force a shutdown.
- You may be asked to remove some software packages that may not be loaded on your instrument. If this is the case, skip those instructions.

Remove the Old Software

Complete the following steps to remove the old software packages from your logic analyzer. Skip any steps that mention software that isn't installed on your logic analyzer.

1. If you have not already done so, power on the logic analyzer and log on as Administrator.
2. After logging on, wait for the instrument to complete the start-up sequence.
3. Exit the TLA application (and pattern generator application if you have it installed on your instrument).
4. Open the Control Panel by clicking Start → Settings → Control Panel.
5. Double-click the Add or Remove Programs icon.
6. For each of the following software packages, select the software package (the exact names may vary depending on the software version), click the Change/Remove button, and follow the on-screen instructions to remove the software:
 - Adobe Acrobat Reader
 - CheckIt Utilities
 - Click'N Burn Pro
 - NI-488.2
 - NI-Max
 - QA+Win32
 - Snagit
 - Tektronix Pattern Generator
 - Tektronix TLA Application
7. Windows will uninstall the selected application. If any messages appear asking you for permission to remove unused shared files or any read-only files, select Yes to All.
8. After the software has been successfully removed, restart Windows.

General Software Installation

The following procedures assume that your CD drive is the D: drive. If this is not the case, substitute the appropriate letter for your CD drive. Unless otherwise specified, for each procedure, install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD drive of the logic analyzer. Then follow the instructions to install each software package.

Install Adobe Acrobat Reader

1. Log on to the instrument as Administrator.
2. If you have not already done so, install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD drive of the logic analyzer.
3. Start Windows Explorer, and browse to and execute D:\Documentation\AdobeReader60Install.exe.
4. Click Next to start the the installation. Follow the on-screen instructions.
5. Before clicking Finish, clear any check boxes that ask you to start the application or to view the Readme file.
6. After the software has been successfully installed, restart Windows.

Install CheckIt Utilities

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\CheckIt\Util7.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. When prompted for the CheckIt serial number, use **U7-999999**.
6. Follow any on-screen instructions and use all of the default choices provided by the installer.
7. Before clicking Finish, clear any check boxes that ask you to start the application or to view the Readme file.
8. After the software has been successfully installed, restart Windows.

Install SnagIt

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\SnagIt\Setup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions and use all of the default choices provided by the installer.
6. Before clicking Finish, clear any check boxes that ask you to start the application or to view the Readme file.
7. After the software has been successfully installed, restart Windows.

Install RecordNow Max

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\RecordNow MAX\Setup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions and use all of the default choices provided by the installer.
6. Cancel the installation of the Stomp DLA software.
7. Before clicking Finish, clear any check boxes that ask you to start the application or to view the Readme file.
8. After the software has been successfully installed, restart Windows.

Install NI-GPIB

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\NI-GPIB-USB-B\Setup.exe.
3. Click Next to start the installation.
4. Accept the license agreement and click Next for all other responses.

5. If error 1706 displays, ignore it, and click OK to continue with the installation.
6. When the GPIB Hardware wizard displays, click Cancel.
7. Restart Windows.
8. When the Getting Started wizard displays, select “Do not show this at Windows startup,” and then click X to exit.

Install Flash Player

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\Macromedia\flash-player6_winax.exe.
3. Click Yes to perform the installation and then click OK when the installation is complete.
4. After the software has been successfully installed, restart Windows.

Install Windows 2000 Service Pack 3 (SP3)

You must obtain the this software from the Microsoft web site at www.microsoft.com. Follow the instructions from the web site to download and install the software. If your instrument does not have a web connection, you must download the software to a PC and then transfer the files to the TLA via CD-RW drive or by other media.

Remember to restart Windows after you successfully install the software.

Install Microsoft.NET Framework 1.0

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSetup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
6. After the software has been successfully installed, restart Windows.

Install Microsoft.NET Framework 1.0 Service Pack 2

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSvcPack.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
6. After the software has been successfully installed, restart Windows.

Install TLA Application Software Version 4.3

1. Log on to the instrument as Administrator.
2. Start Windows Explorer, and browse to and execute D:\TLA Application SW\Setup.exe.
3. Click Next to start the installation.
4. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
5. After the software has been successfully installed, restart Windows.

Install Pattern Generator Application Software Version 1.5

1. Log on to the instrument as Administrator.
2. Exit the TLA application.
3. Start Windows Explorer, and browse to and execute D:\Pattern Generator Application SW\Setup.exe.
4. Click Next to start the installation.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
6. After the software has been successfully installed, restart Windows.

Final Software Adjustments

Complete the following steps to finalize the software settings in the TLA application with other installed software.

1. Log on to the instrument as Administrator.
2. After the TLA application starts, select Options from the System menu to display the System Options dialog box.
3. Select the Tools tab.
4. Click the item in the list and then click the Edit button.
5. Change the Menu Name box from &Paint to &SnagIt, if necessary.
6. Click the Browse button and choose the following path:
`C:\Program Files\TechSmith\SnagIt 6\SnagIt32.exe`
7. Leave the Arguments and Initial Directory blank and then Click OK twice to apply the changes.

NOTE. *The first time that you use SnagIt, you will use a wizard to define the SnagIt settings. Thereafter, SnagIt will start automatically when you click the Tool icon in the TLA application.*

8. If desired, delete the two SnagIt icons from the desktop.
9. Restart Windows.

Upgrade the Module Firmware

You will need to upgrade the firmware on the mainframe or the individual modules. Use the following procedure to upgrade the firmware. You can easily tell if the firmware needs updating when a startup message appears telling you that you need to upgrade.

NOTE. *The pattern generator application has its own System menu which is separate from the TLA application System menu.*

Complete the following steps to upgrade the module firmware (you can also use the Firmware Loader online help for more information):

1. Determine which modules require new firmware.

NOTE. If you only have a TLA7Axx series logic analyzer module, do not power off the instrument. These products do not require you to install and remove the flash jumper. Continue the procedure with step 9.

2. Turn off the logic analyzer and disconnect the power cord.
3. Remove the modules from the logic analyzer.
4. Refer to Figure 9-1 and locate the flash programming pins on the rear of each module.
5. Install a jumper on the flash programming pins (use one of the spare jumpers that came with your logic analyzer).
6. Reinstall the module(s) in the logic analyzer.

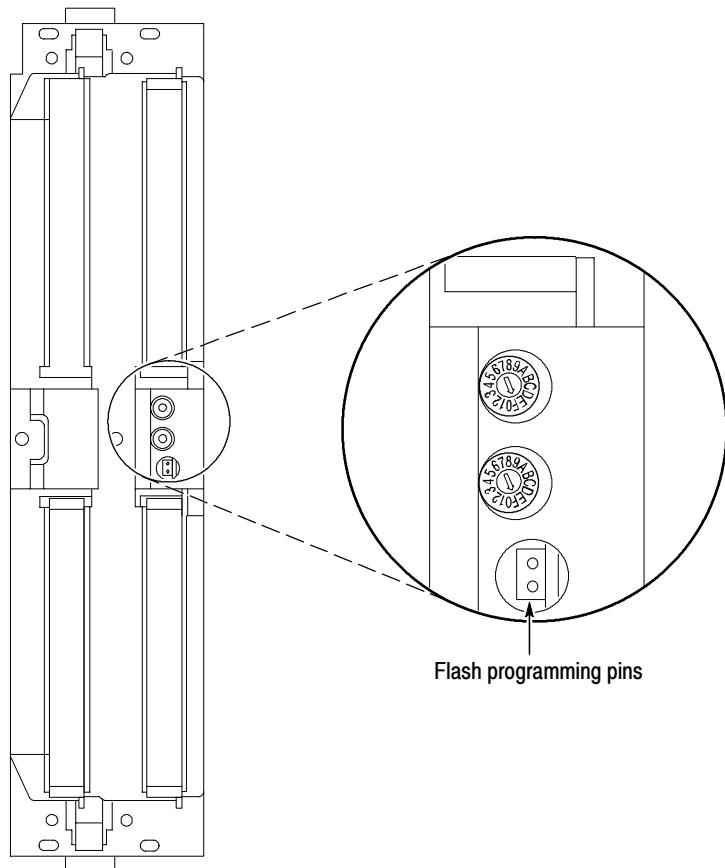


Figure 9-1: Flash programming pins

7. Reconnect the power cord and then power on the logic analyzer.

8. Log on as Administrator and then wait for the TLA application to start.

NOTE. Any modules with the flash programming jumper installed will not display in the System window.

9. Exit the TLA application (and pattern generator application if you have it installed on your instrument).
10. Click Start → Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
11. Select the modules that you want to update from the list of modules displayed in the Supported list box near the top of the window. This selects the modules for the upgrade.
12. If you are upgrading more than one module at a time, note the slot location of the module in the selection box.
13. Select Load Firmware from the Execute menu.
14. Click the proper .lod file for the selected module; refer to Table 9-2 if necessary.

NOTE. Be sure to select the proper .lod file for each module. Note the slot number in the title bar so that you select the correct module for the .lod file.

Table 9-2: TLA firmware files

Module type	.lod file
TLA7Axx logic analyzer modules	TLA7AXX.lod
TLA7Nx, TLA7Px, TLA7Qx logic analyzer modules	TLA7NPQ.lod
TLA7Lx and TLA7Mx logic analyzer modules	TLA7LM.lod
TLA7Dx and TLA7Ex DSO modules	FirmwareDSO.lod
TLA7PG2 Pattern Generator modules ¹	tla7pg2.lod

¹ The .lod files for the pattern generator modules are located in the C:\Program Files\Tektronix Pattern Generator\Firmware folder. All other files are located in the C:\Program files\TLA 700\Firmware folder.

15. Click OK. When prompted to confirm your action; click Yes.

NOTE. The program will not allow you to load firmware to an incompatible module. For example, the program will not load DSO firmware to a logic analyzer module.

The program will load the firmware for each module one at a time. The process may take several minutes per module.

16. When the upgrade is complete, exit the program.
17. Turn off the logic analyzer and disconnect the power cord.
18. Remove the module from the instrument and remove the jumper from the Flash programming pins on the rear of the module. Keep the jumper for future updates.
19. Locate the big label on the side of the module.

NOTE. If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.

20. Attach a new revision label and kit label on the big label for each module as shown in Figure 9-2.

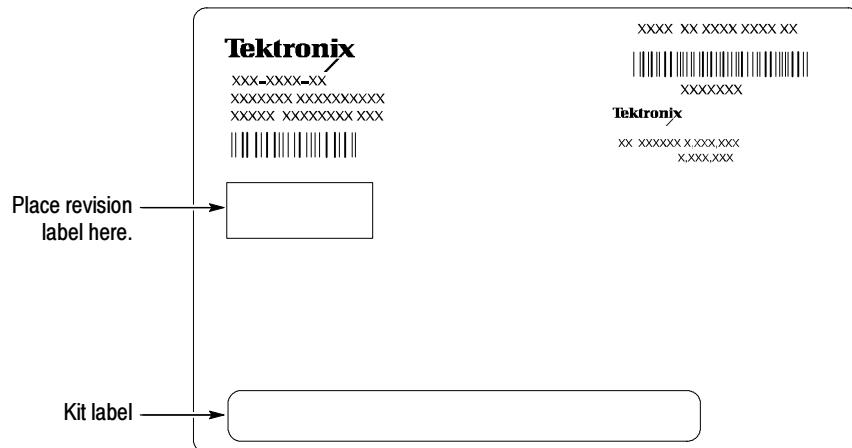


Figure 9-2: Revision and kit label locations

21. Reinstall the module in the logic analyzer, latch it in place, and tighten the hold-down screws.

Upgrade the Mainframe BIOS

Use the following steps to determine if you need to upgrade the BIOS on the logic analyzer mainframe:

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. Check that the BIOS version is 1.00.02.
3. If you have the correct version, go to the Exit menu, select “Exit Discarding Changes” and press Enter. Skip the remaining steps in this procedure.
4. If you need to update the BIOS, install the BIOS floppy disk in the floppy disk drive.
5. Go to the Exit menu, select “Exit & Update BIOS”, and then press the Enter key twice.

The logic analyzer will update the BIOS from the floppy disk. During the update processes you will hear several beeps. The update process takes about one minute; then you will hear a long beep.

6. After you hear the long beep, the logic analyzer will restart. Remove the floppy disk so that the logic analyzer can boot from the hard drive.

Verify Proper Operation

After you have installed all of the latest software, upgraded the module firmware, and upgraded the mainframe BIOS, you are ready to verify proper operation.

1. If you have not already done so, power on the logic analyzer and log on as Administrator.
2. After logging on, wait for the instrument to complete the start-up sequence.
3. Verify that the Power-on diagnostics pass (if any Power-on diagnostics fail, the Power-on Diagnostics dialog box automatically displays in the System window).
4. In the System window and verify that all installed modules appear in the window.
5. If any modules are missing from the System window, you can verify the status of the modules by doing the following steps:
 - a. Select System Properties in the System menu.
 - b. Click the Modules tab.

- c. Note the information under the Messages column for any installed modules. If any modules indicate invalid or similar messages, you must update the firmware for those modules. Repeat the steps under *Upgrade the Logic Analyzer Module Firmware*.
- d. If any of the modules indicate that the jumper is installed, power down the logic analyzer, remove the module, and then remove the jumper from the rear of the module. Reinstall the module in the instrument and try again.

Calibrate the Logic Analyzer and DSO Modules

After verifying proper operation it is recommended that you calibrate the logic analyzer and DSO modules (pattern generator modules do not require calibration).

1. Allow the instrument to warm up for at least 30 minutes before continuing.
2. In the System window, select Calibration and Diagnostics from the System menu.
3. Click the Self Calibration tab.
4. Select all of the modules in the dialog box and Click Run.
5. Verify that the Status column for each module changes to Calibrated.

NOTE. Please be patient. The calibration process may take several minutes for each module.

6. After all of the modules have been calibrated close the dialog box and power down the instrument.

Upgrade the TLAVu or PatGenVu Offline Software (Optional)

The TLAVu and PatGenVu software allow you to view data and create setups for your logic analyzer or pattern generator on a PC. You must ensure that the versions of the TLAVu or PatGenVu software are the same as that of TLA or pattern generator applications and that your PC has the Microsoft.NET Framework software installed.

Complete the following steps to install the Microsoft.NET Framework software and upgrade the TLAVu or PatGenVu application software on your PC. If you have an older version already installed on your PC, the installation program will automatically detect it and replace it during the upgrade process.

1. Install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
2. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSetup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
6. After the software has been successfully installed, restart Windows.
7. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSvcPack.exe.
8. Click Next to start the installation.
9. Read and accept the license agreement.
10. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
11. After the software has been successfully installed, restart Windows.
12. Remove Disc 1 and install Disc 2 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
13. Start Windows Explorer, and browse to and execute D:\TLAVu\Setup.exe (or D:\PatGenVu\Setup.exe).
14. Click OK to perform the installation. Follow any on-screen instructions.
15. Windows will uninstall the selected application. If you are prompted for permission to remove or overwrite unused shared files or any read-only files, select Yes to All.

NOTE. The *ReadMe* file for the offline applications contains most of the information that you need to run the applications. Access the *ReadMe* files by selecting either: *Start* → *Programs* → *Tektronix Logic Analyzer* → *TLA Documentation* → *TLAVu ReadMe* or *Start* → *Programs* → *Tektronix Pattern Generator* → *Pattern Generator Documentation* → *PatGenVu ReadMe*.

Attach the Upgrade Kit Label to the Instrument

After completing all the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

NOTE. *If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.*



CAUTION. *To avoid damaging the mainframe or the controller, always power down the mainframe before removing the controller.*

Locate the big label on the either the portable mainframe or on the side of the Benchtop controller (you will need to remove the benchtop controller from the mainframe) and attach the software revision label and the TLA7UP kit label as shown in Figure 9-3.

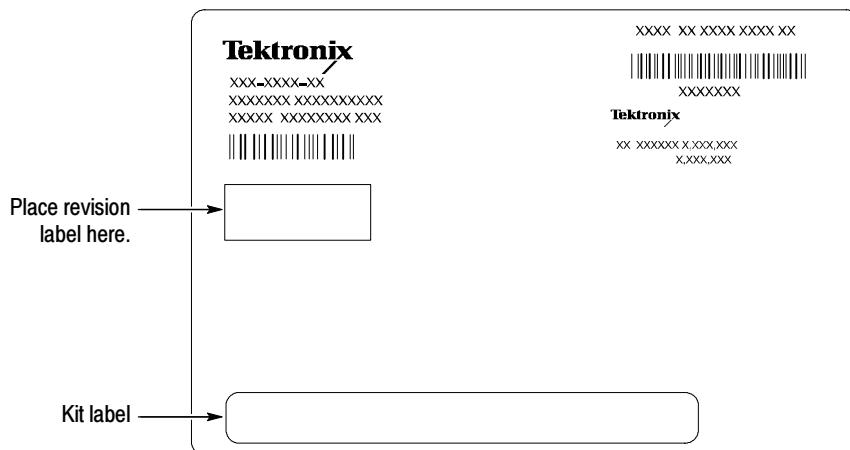


Figure 9-3: Revision and kit label locations

After you reinstall the controller in the benchtop mainframe, tighten the hold-down screws.

You have now successfully upgraded the software on your Tektronix logic analyzer.



TLA7UP Option 33

TLA7UP Option 33: TLA Application Software and Windows Operating System Upgrade

TLA7UP option 33 supports the upgrade to TLA application software, version 4.3 and Multi-Language Windows 2000 Professional operating system. This option is intended for TLA715 and TLA721 logic analyzers or for TLA714 and TLA720 instruments that have been upgraded with a new TLA715 or TLA721 controller.



Instruments

TLA715 Portable Mainframe
TLA721 Benchtop Mainframe

All serial numbers
All serial numbers

Parts List

Table 10-1: TLA7UP Option 33 parts list

Quantity	Part number	Description
1 ea	N/A	Tektronix Logic Analyzer Family Application Software Version 4.3 (dual CD-ROM set: TLA App SW and TLAVu Offline software)
1 ea	N/A	Tektronix Logic Analyzer Family TLA715 & TLA721 Hard Disk Image Version 4.3 (dual CD-ROM set)
1 ea	N/A	Mainframe BIOS floppy disk
1 ea	N/A	EasyRestore license
1 ea	N/A	CheckIt Utilities sticker

Table 10-1: TLA7UP Option 33 parts list (Cont.)

Quantity	Part number	Description
1 ea	N/A	Microsoft Windows 2000 Certificate of Authenticity sticker
1 ea	N/A	Microsoft Windows 2000 license
1 ea	N/A	RecordNow MAX license
5 ea	131-4356-xx	Jumper with pull-tab
1 ea	016-1524-xx	TLA mouse pad
1 sheet	N/A	Software revision labels
1 ea	N/A	TLA7UP kit label

Minimum Tool and Equipment List

No special tools are required to install this option.

TLA7UP Option 33: Application Software Windows and Operating System Instructions

TLA7UP option 33 supports the upgrade to Multi-Language Windows 2000 Professional operating system and TLA application software, version 4.3.

This kit provides instructions for upgrading the software and firmware that is specifically written for the TLA715 Portable and TLA721 Benchtop Mainframes and for TLA714 and TLA720 instrument that have had their controllers upgraded to TLA715 and TLA721 controllers.



CAUTION. *The software installation procedure will remove the **entire contents** of your hard disk. If you want to save any files or software applications on the hard disk, back them up to another media (a second hard drive, floppy disks, or a network drive) before continuing with this procedure.*

This kit provides information for installing software on your logic analyzer. Note that loading the contents of the CD provided in this upgrade kit will destroy user files and programs currently on your hard disk drive.

In addition to the Tektronix Logic Analyzer application software, there are other software programs that are installed separately; Table 10-2 lists some of the software that you may have installed on your logic analyzer.

Table 10-2: Software not covered by the software setup

Software	Installation information
Microprocessor or bus support software	Refer to the manual that was shipped with the microprocessor or bus support.
PC Card Software	Refer to the instructions that come with your PC Card.
Other Software	Refer to the instructions that come with your software.

Set the Default Controller BIOS Settings

To configure the Controller BIOS, complete the following steps:

1. Power on the logic analyzer and press function key F2 before the logic analyzer boots the Windows operating system.
2. Press function key F9, then select Yes and press Enter. This sets defaults and verifies that both the hard disk was auto-recognized and that the correct size of the hard disk is displayed in the Primary Master setting.
3. Press function key F10 to exit and save the BIOS setup.

Install the Hard Disk Image

The Tektronix Logic Analyzer comes with a CD set entitled *TLA715 & TLA721 Hard Disk Image*, which contains the Microsoft Windows 2000 Professional operating system and the latest application software. All software required to run the logic analyzer comes with the CD set with the exception of any Microprocessor support packages or non-logic analyzer application software.

This procedure automatically formats the hard disk, installs the Windows 2000 Professional Operating system software, and installs the Tektronix Logic Analyzer application software.

Change the BIOS Boot Settings

Before installing the Hard Disk Image, you must change the BIOS settings.

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. In the BIOS setup, go to the Boot menu.
3. Set the Boot devices as shown below to enable booting from the CD-ROM:

First Boot Device:	[ATAPI CD-ROM Drive]
Second Boot Device:	[Diskette Drive]
Third Boot Device:	[Hard Drive]

4. Save the settings by pressing function key F10 and confirm that you want to save the new settings.

Load the Hard Disk Image

Complete the following steps to load the Hard Disk Image.

1. Insert the Hard Disk Image CD Disc 1 in the CD-ROM drive.
2. Reboot the logic analyzer. After booting from the CD-ROM drive, the program on the CD will display its license agreement.
3. Review the license agreement. If you agree to the terms of the license agreement, proceed with the next step.

NOTE. Use care when prompting through the software license agreement to avoid confirming that you want to cancel the software installation procedure.

4. After you have reviewed the software license agreement, the EasyRestore dialog displays and prompts you to continue, or to cancel the upgrade process. Click the Continue button to load the contents of the upgrade CD.
5. EasyRestore displays a warning that the contents of your hard disk drive will be destroyed if you choose to continue. Click Yes to continue the upgrade process.
6. When prompted remove Disc 1 and insert Disc 2 to continue the software installation.
7. The program automatically loads the hard disk image. This procedure is fully automatic and takes approximately 15 minutes to complete.

The image loading procedure installs and sets up the logic analyzer application. You should not need to make any changes to the setup to use the logic analyzer.

8. After the image is loaded, remove the CD from the CD-ROM drive and reboot the logic analyzer.
9. The System Settings Change error message displays, prompting you to restart the computer before your changes can take effect. Click Yes to restart your computer.
10. Reinstall any user files that you backed up previously. Reinstall any software (such as the microprocessor support packages) that you want to use on the logic analyzer.

Reset the BIOS Boot Settings

After you have successfully installed the hard disk image, you are recommended to reset the BIOS settings to disable booting from the CD-ROM.

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. In the BIOS setup, go to the Boot menu.

3. Set the Boot devices as shown below to disable booting from the CD-ROM:

First Boot Device:	[Diskette Drive]
Second Boot Device:	[Removable Devices]
Third Boot Device:	[Hard Drive]
Fourth Boot Device:	[ATAPI CD-ROM Drive]

4. Save the settings by pressing function key F10 and press Enter to confirm that you want to save the new settings.

Update TLA Module Firmware

You may have to update the firmware on any installed logic analyzer or DSO modules (and pattern generator modules when used with the TLA Pattern Generator Application) if the modules do not appear in the TLA System window (or pattern generator System window) after you have installed new application software. You can update multiple modules and module types during a single firmware update session.

1. Note modules require new firmware.

If any modules are missing from the System window, you can verify the status of the modules by doing the following steps:

- a. Select System Properties in the System menu.
- b. Click the Modules tab.
- c. Note the information under the Messages column for any installed modules. If any modules indicate invalid or similar messages, you must update the firmware for those modules.

NOTE. *If you only have a TLA7Axx series logic analyzer module, do not power off the instrument. These modules do not require you to install and remove the flash jumper. Continue the procedure with step 8.*

2. Turn off the instrument.
3. Remove the modules from the instrument.

4. Refer to Figure 10-1 and locate the flash programming pins on the rear of the module.
5. Install a jumper on the flash programming pins (use one of the spare jumpers that came with your logic analyzer).
6. Reinstall the module(s) in the instrument.
7. Power on the instrument.

NOTE. Any modules with the flash programming jumper installed will not display in the TLA or Pattern Generator System window.

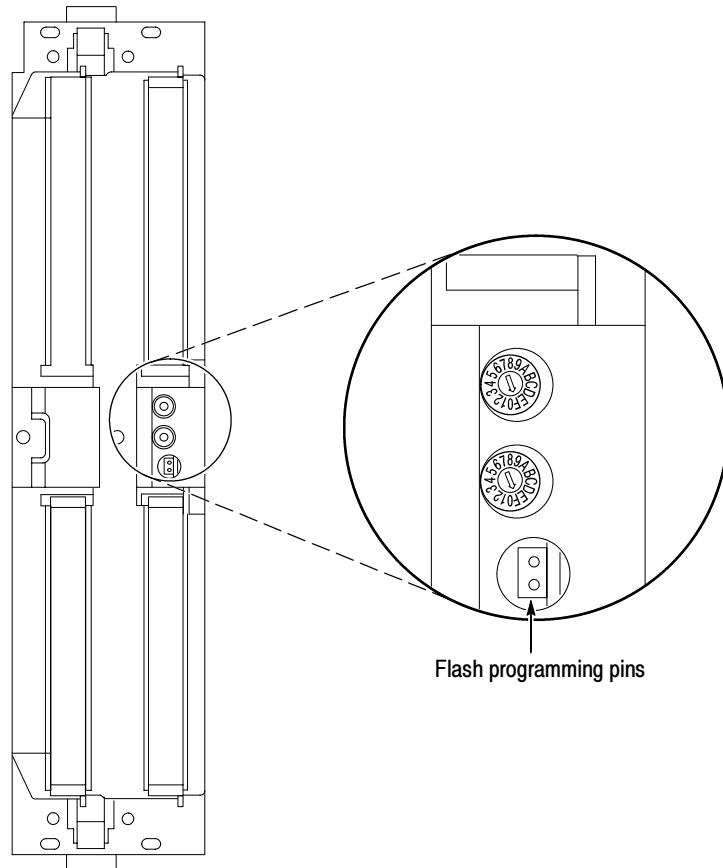


Figure 10-1: Flash programming pins

8. Exit the logic analyzer application (and pattern generator application if installed on your instrument).

9. Click Start → Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
10. Select the modules that you want to update from the list of modules displayed in the Supported list box near the top of the menu. If you are updating more than one module at a time, note the slot location of the module in the selection box.
11. Select Load Firmware from the Execute menu.
12. Click the proper .lod file for the selected module; refer to Table 10-3 if necessary.

NOTE. Be sure to select the proper .lod file for each module. Note the slot number in the title bar so that you select the correct module for the .lod file.

Table 10-3: TLA firmware files

Module type	.lod file
TLA7Axx logic analyzer modules	TLA7Axx.lod
TLA7Nx, TLA7Px, TLA7Qx logic analyzer modules	TLA7NPQ.lod
TLA7Lx and TLA7Mx logic analyzer modules	TLA7LM.lod
TLA7Dx and TLA7Ex DSO modules	FirmwareDSO.lod
TLA720 Benchtop controller module	TLA720.lod
TLA7PG2 Pattern Generator modules ¹	tla7pg2.lod

¹ The .lod files for the pattern generator modules are located in the C:\Program Files\Tektronix Pattern Generator\Firmware folder. All other files are located in the C:\Program files\TLA 700\Firmware folder.

13. Click OK. When prompted to confirm your action; click Yes.

NOTE. The program will not allow you to load firmware to an incompatible module. For example, the program will not load DSO firmware to a logic analyzer module.

The program will load the firmware for each module one at a time. The process may take several minutes per module.

14. Exit the firmware loader program.
15. Turn off the instrument.

NOTE. If you have a TLA7Axx series logic analyzer module, skip step 16, but you must still remove the module from the mainframe to install the upgrade label.

16. Remove the module from the instrument and remove the jumper from the Flash programming pins on the rear of the module. Keep the jumper for future updates.
17. Locate the big label on the side of the module.
18. Attach a new revision label and kit label on the big label for each module as shown in Figure 10-2.
19. Locate the big label on the either the portable mainframe or on the side of the Benchtop controller (depending on your instrument) and attach the revision label and the TLA7UP kit label as shown in Figure 10-2.

NOTE. If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.

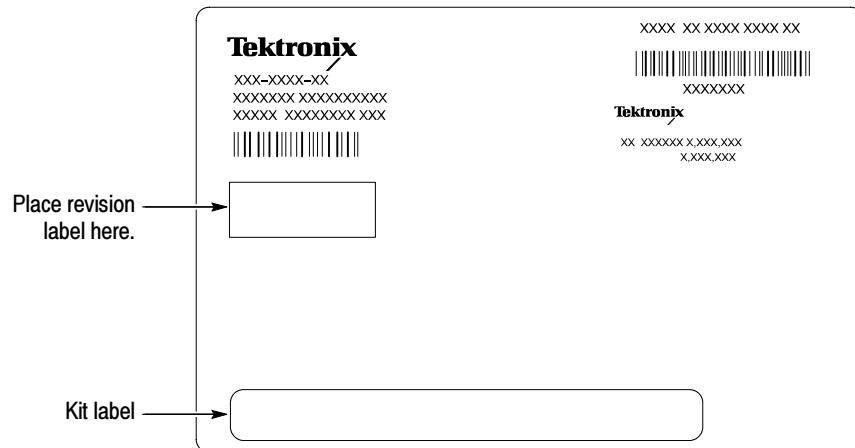


Figure 10-2: Revision and kit label locations

20. Reinstall the module in the instrument, tighten the hold-down screws, and then reconnect the probes.
21. Reconnect the power cord and power on the instrument.
22. Verify that the power-on diagnostics pass.

Upgrade the Mainframe BIOS

Use the following steps to determine if you need to upgrade the BIOS on the logic analyzer mainframe:

1. Restart the logic analyzer and then press function key F2 to enter the BIOS setup.
2. Check that the BIOS version is 1.00.02.
3. If you have the correct version, go to the Exit menu, select “Exit Discarding Changes” and press Enter. Skip the remaining steps in this procedure.
4. If you need to update the BIOS, install the BIOS floppy disk in the floppy disk drive.
5. Go to the Exit menu, select “Exit & Update BIOS”, and then press the Enter key twice.

The logic analyzer will update the BIOS from the floppy disk. During the update processes you will hear several beeps. The update process takes about one minute; then you will hear a long beep.

6. After you hear the long beep, the logic analyzer will restart. Remove the floppy disk so that the logic analyzer can boot from the hard drive.

Calibrate the Logic Analyzer and DSO Modules

After upgrading the firmware on the logic analyzer and DSO modules you should calibrate those modules.

1. Allow the instrument to warm up for at least 30 minutes before continuing.
2. In the System window, select Calibration and Diagnostics from the System menu.
3. Click the Self Calibration tab.
4. Select all of the modules in the dialog box and Click Run.
5. Verify that the Status column for each module changes to Calibrated.

NOTE. Please be patient. The calibration process may take several minutes for each module.

6. After all of the modules have been calibrated close the dialog box and power down the instrument.

Upgrade the TLAVu or PatGenVu Offline Software (Optional)

The TLAVu and PatGenVu software allow you to view data and create setups for your logic analyzer or pattern generator on a PC. You must ensure that the versions of the TLAVu or PatGenVu software are the same as that of TLA or pattern generator applications and that your PC has the Microsoft.NET Framework software installed.

Complete the following steps to install the Microsoft.NET Framework software and upgrade the TLAVu or PatGenVu application software on your PC. If you have an older version already installed on your PC, the installation program will automatically detect it and replace it during the upgrade process.

1. Install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
2. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSetup.exe.
3. Click Next to start the installation.
4. Read and accept the license agreement.
5. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
6. After the software has been successfully installed, restart Windows.
7. Start Windows Explorer, and browse to and execute D:\DotNet Framework\FrameworkSvcPack.exe.
8. Click Next to start the installation.
9. Read and accept the license agreement.
10. Follow any on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.
11. After the software has been successfully installed, restart Windows.
12. Remove Disc 1 and install Disc 2 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
13. Start Windows Explorer, and browse to and execute D:\TLAVu\Setup.exe (or D:\PatGenVu\Setup.exe).
14. Click OK to perform the installation. Follow any on-screen instructions.
15. Windows will uninstall the selected application. If you are prompted for permission to remove or overwrite unused shared files or any read-only files, select Yes to All.

NOTE. *The ReadMe file for the offline applications contains most of the information that you need to run the applications. Access the ReadMe files by selecting either: Start → Programs → Tektronix Logic Analyzer → TLA Documentation → TLAVu ReadMe or Start → Programs → Tektronix Pattern Generator → Pattern Generator Documentation → PatGenVu ReadMe.*



TLA7UP Option PF

TLA7UP Option PF: PowerFlex Utility Upgrade

TLA7UP Option PF installs the TLA PowerFlex Utility on your TLA700 series logic analyzer mainframe. You can use the PowerFlex Utility to determine possible upgrades for your logic analyzer module to increase the state speed or memory depth. You can also use the utility to determine possible memory depth upgrades for your TLA7PG2 Pattern Generator modules. The PowerFlex Utility comes with online help that describes the upgrade processes.

Instruments

TLA7Lx/Mx/Nx/Px/Qx Logic Analyzer Modules	All Serial Numbers
TLA7AAx/7ABx Logic Analyzer Modules	All Serial Numbers
TLA7PG2 Pattern Generator Modules	All Serial Numbers

Minimum Tool and Equipment List

No special tools or equipment are required.

Parts List

Table 11-1: TLA7UP Option PF parts list

Quantity	Part number	Description
1 ea.	N/A	PowerFlex Utility software for TLA series logic analyzers

Installation Prerequisites

Any TLA700 series logic analyzer mainframe with TLA Application Software Version 4.2, 4.1, 4.0 or 3.2. Logic analyzers with version 4.3 already have this software installed.

Logic analyzer mainframes must have a CD-ROM or CD-RW drive or network access to a CD-ROM or CD-RW drive.

Installation Instructions

Complete the following steps to install the PowerFlex Utility on your TLA700 series logic analyzer:

1. Install the PowerFlex CD in the CD drive of your logic analyzer.
2. If required, log on to the instrument as Administrator.
3. Click Run in the Windows Start menu to display the Run dialog box.
4. Enter D:\PowerFlex\Disk 1\Setup.exe in the Run dialog box.
5. Follow the on-screen instructions. If any messages appear asking you for permission to overwrite any read-only files, select Yes to All.

Start the PowerFlex Utility

Complete the following steps to start and use the PowerFlex Utility:

NOTE. *You must exit the TLA application and pattern generator application before you start the PowerFlex Utility. You cannot run the PowerFlex Utility and the TLA application or the pattern generator application at the same time.*

1. Exit the TLA application.
2. Start the PowerFlex Utility using the Windows Start menu. Select Start → Program Files → Tektronix Logic Analyzer → TLA PowerFlex Utility.
3. The PowerFlex window appears. Refer to the PowerFlex Utility online help for information on using the utility to order and install the upgrade.



TLA7UP Option IF

TLA7UP Option IF: Upgrade Installation Service

TLA7UP option IF provides installation of product upgrades performed at a Tektronix service location.

NOTE. Availability of installation and on-site services depend on the type of product and may vary by geography.

Instruments

TLA714	All Serial Numbers
TLA715	All Serial Numbers
TLA720	All Serial Numbers
TLA721	All Serial Numbers



TLA7UP Option IN

TLA7UP Option IN: On-Site Installation Service

TLA7UP option IN provides initial product installation/configuration and start up training session including front panel and product familiarization at your site (excludes network integration).

NOTE. Availability of installation and on-site services depend on the type of product and may vary by geography.

Instruments

TLA714	All Serial Numbers
TLA715	All Serial Numbers
TLA720	All Serial Numbers
TLA721	All Serial Numbers

