

Instructions



TLA 7F1

**TLA 700 Series Logic Analyzer DRAM and
Hard Disk Drive Upgrade Installation**

070-9838-00

Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

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Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the safety summaries in your product manual 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, disconnect the main power by means of the power cord or, if provided, the power switch.

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.

Kit Description

This kit includes parts and instructions to upgrade the memory and hard disk drive in the instrument.

Instruments

TLA 704 All Serial Numbers
TLA 711 All Serial Numbers

Minimum Tool and Equipment List

Table 1: Tools required for installing upgrade

Item number	Name	Description
1	Torx-drive screwdriver with a T-9 tip	Standard tool
2	Small flat-bladed screwdriver	Standard tool
3	#0 Phillips screwdriver	Standard tool
4	#1 Phillips screwdriver	Standard tool
5	Diagonal cutters (to remove cable ties)	Standard tool
6	Three-sixteenth (3/16) inch nut driver	Standard tool
7	Needle nose plier	Standard tool
8	Torx-drive screwdriver with a T-10 tip	Standard tool
9	Torx-drive screwdriver with a T-15 tip	Standard tool

Kit Parts List

Quantity	Part number	Description
2	156-7503-00	16 MB SIMMs
1	119-5607-00	2.16 GB Hard Disk Drive
1	342-1027-00	Lexan Insulator
1	070-9838-00	TLA 7F1 Installation Instructions
1		TLA 7F1 Kit Label
1		TLA 7F1 Shipping List

Installation Instructions for the TLA 704 Color Portable Mainframe

These instructions direct you to replace the existing hard disk drive with a greater capacity, but unformatted, hard disk drive. Prior to performing these procedures, use the Windows 95 Back Up tool to back up any user files stored on the hard disk drive. Use the backup media that was shipped with the instrument to reinstall the operating system and applications. For further information on software backup and installation, refer to the *TLA 700 Series Logic Analyzer Installation Manual*.

NOTE. *The following instructions are for upgrading the TLA 704 Color Portable Mainframe. If you are upgrading a TLA 711 Color Benchtop Controller, proceed to page 15.*

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to the *TLA 704 Color Portable Mainframe Service Manual*. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.



CAUTION. *To prevent static discharge damage, service the instrument only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.*

These instructions must be performed in the sequence in which they are presented; they include the following procedures:

- *Disassembly*, which removes the external parts needed to access the SIMM boards and hard disk drive inside the portable mainframe.
- *RAM SIMM Replacement*, which removes the existing SIMM boards and installs the upgrade SIMM boards.
- *Hard Disk Drive Replacement*, which removes the existing hard disk drive and installs the upgrade hard disk drive.
- *Reassembly*, which reinstalls parts removed in *Disassembly*.
- *Verify Operation*, which reinstalls the software on the new hard disk drive and runs some verification tests of the new memory and hard disk drive.

Disassembly

You will need a screwdriver with a size T-15 Torx tip to perform this procedure.

1. Disconnect the power cord from the mainframe.
2. Remove the modules and probes from the mainframe.
3. Set the mainframe on your work surface with the cord wrap feet facing down and with the bottom facing you. (See Figure 1 on page 7.)
4. Remove the four screws that attach the bottom cover to the mainframe.
5. Lift the bottom cover off.
6. Grasp the front cover by its left and right edges and snap it off the front panel. (See Figure 1 on page 7.)
7. Grasp the trim ring by its bottom edge and pull toward you to detach the three plastic snaps. (Alternatively, you can use a flat-bladed screwdriver or other small prying tool to help you detach the snaps.) Then, swing the bottom of the ring upward and work the rest of the ring off the front panel.

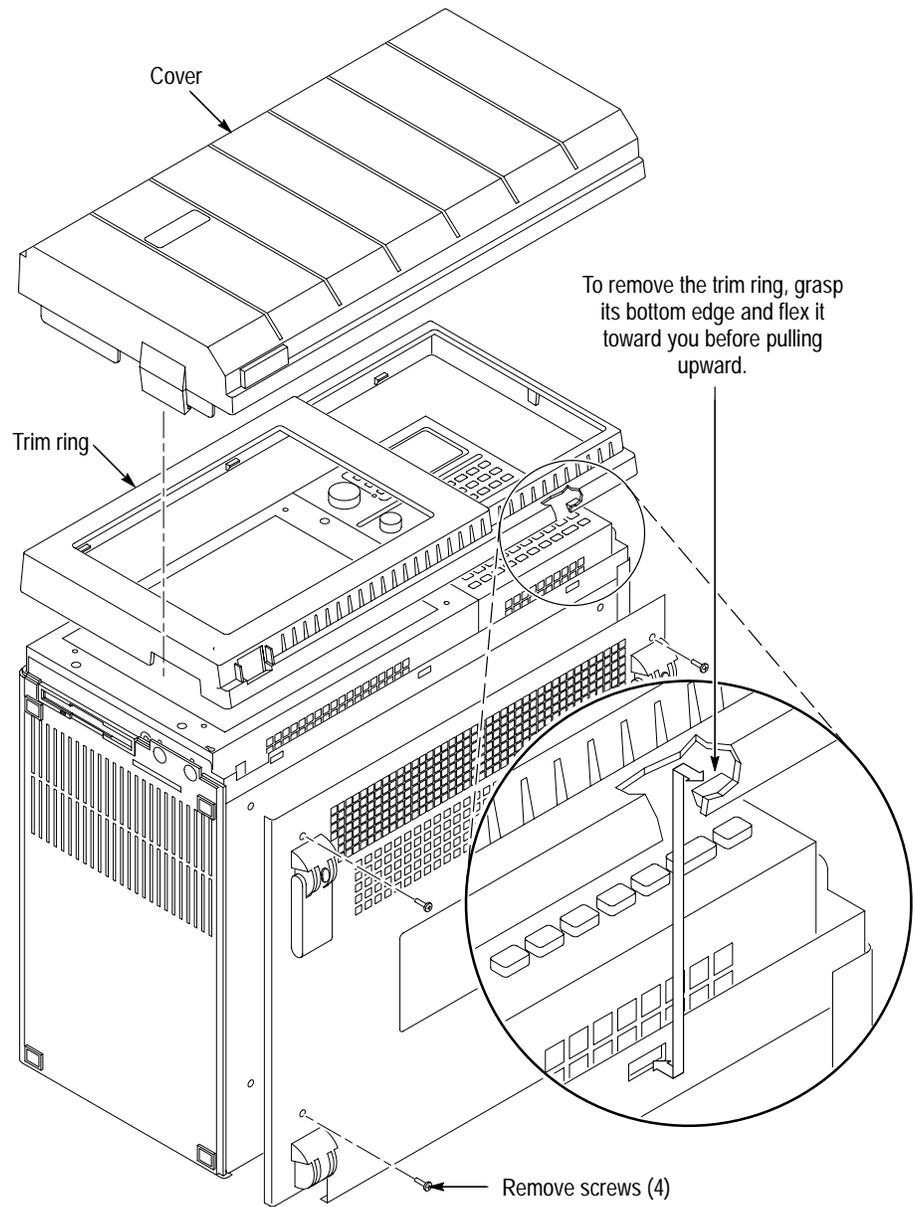


Figure 1: Front cover and trim ring removal

8. Set the mainframe on your work surface with the bottom facing down and the front facing you. (See Figure 2.)
9. Remove the accessories pouch from the top cover. (It unsnaps.)
10. Remove the four screws that attach the top cover to the mainframe.

NOTE. Support the left side cover as you perform the following step. As you lift off the top cover, the side cover will come free.

11. Lift the top cover off.
12. Remove the left side cover.

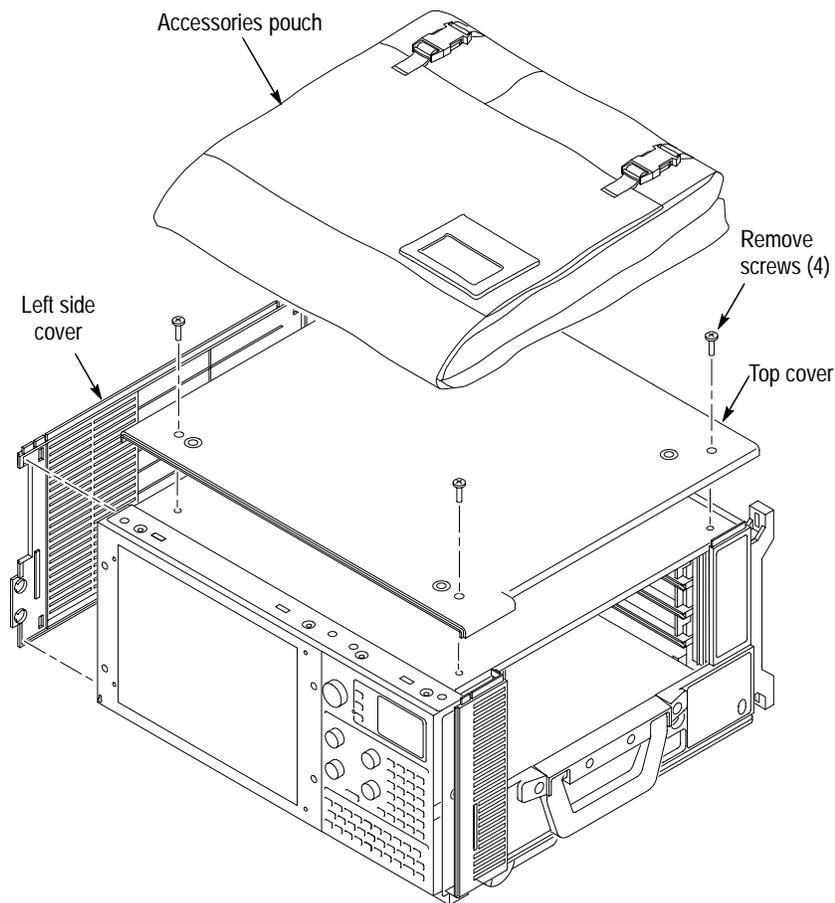


Figure 2: Pouch, top cover and left side cover removal

13. Remove the five screws that attach the flat panel display assembly to the mainframe. (See Figure 3.)
14. Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the mainframe.
15. Detach the cable connecting the flat panel display assembly to the interface board.

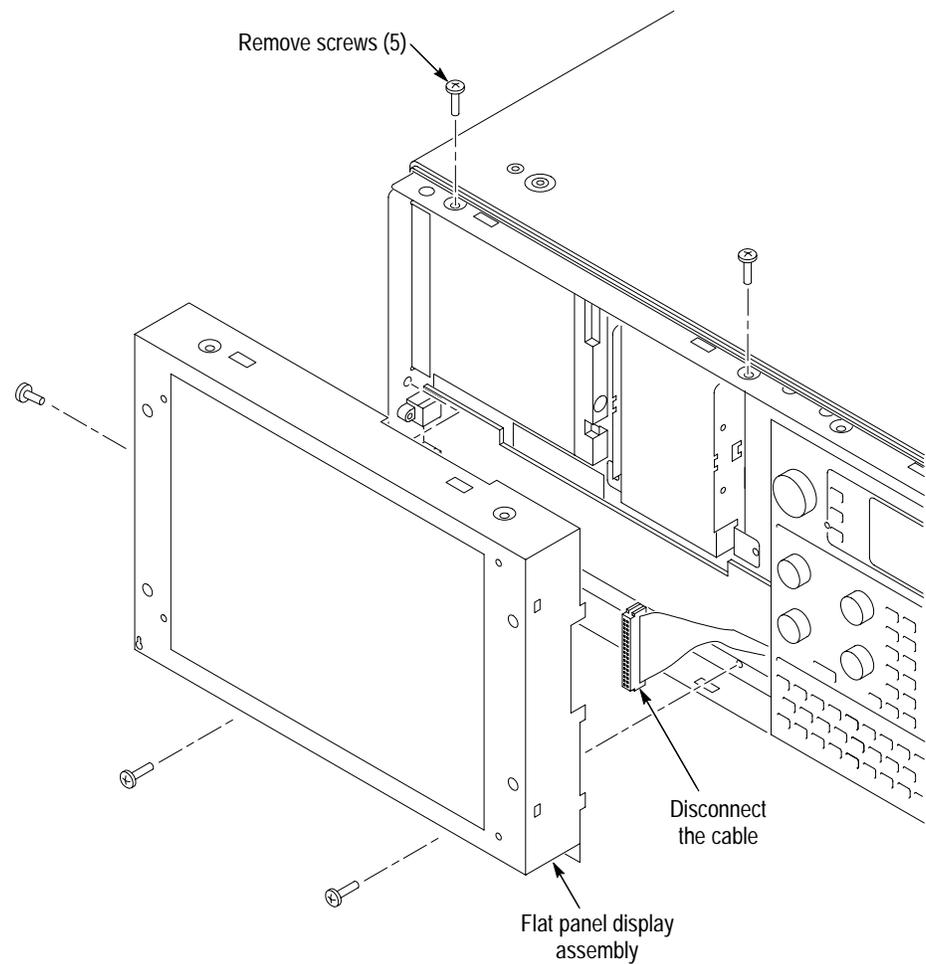


Figure 3: Flat panel display assembly removal

RAM SIMMs Replacement

You will need a screwdriver with a size T-15 Torx tip to perform this procedure.

Removal Use the following procedure to remove the RAM SIMMs:

1. Set the mainframe on your work surface with the bottom facing down and with the left side facing you.
2. Remove the eight screws securing the EMI shield to the chassis and lift off the EMI shield.
3. Locate the SIMM boards in Figure 4 on page 11. Note that there are two SIMM boards, an upper and a lower.
4. Press outward on the clips holding each SIMM board to the controller board and lift off the SIMM board. Remove both boards.

Installation Use the following procedure to install the new SIMM boards:

NOTE. *When installing the SIMM boards, make sure that both SIMM boards contain RAM memory of the same size.*

1. Install the new SIMM boards. Press down gently until the clips that hold the SIMM boards to the controller board snap into place.
2. Reposition the EMI shield and install the eight screws that secure it to the chassis.

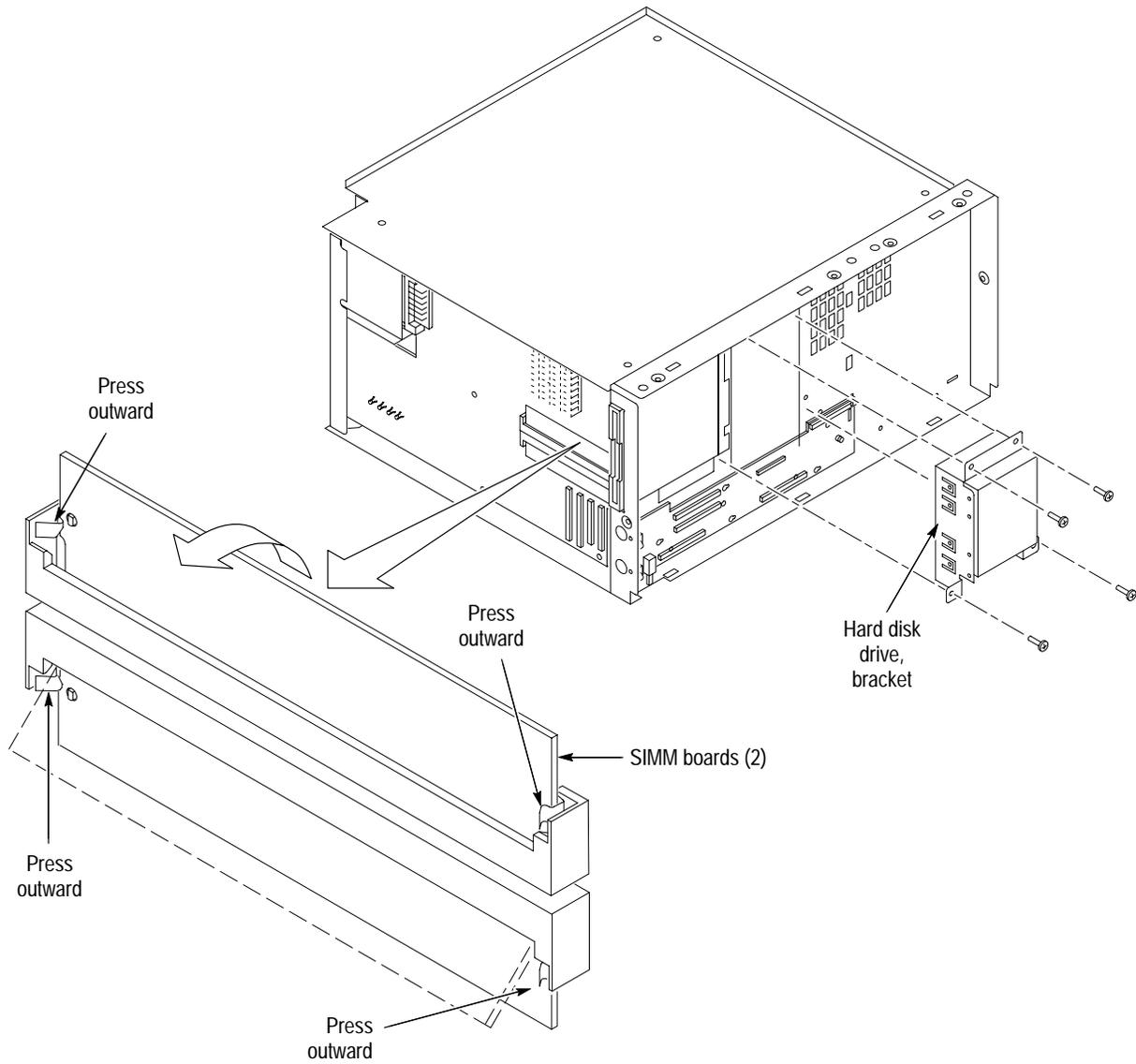


Figure 4: SIMM boards and hard disk drive replacement

Hard Disk Drive Replacement

You will need screwdrivers with a size T-15 Torx tip and a size T-10 Torx tip to perform this procedure.

Removal Use the following procedure to remove the hard disk drive:

1. Locate the hard disk drive in Figure 4 on page 11.
2. Detach the cable at the bottom of the hard disk drive by pressing down (away from the hard disk drive) on the connector.
3. Remove the four screws that attach the hard disk drive bracket to the chassis.
4. Lift the hard disk drive and bracket out of the chassis.
5. Remove the four screws that attach the hard disk drive to the bracket.
6. Lift out the hard disk drive.

Installation Use the following procedure to install the hard disk drive:

1. Reposition the hard disk drive in the bracket.
2. Install the four screws that attach the hard disk drive to the bracket.
3. Reposition the hard disk drive and bracket in the chassis.
4. Install the four screws that attach the hard disk drive bracket to the chassis.
5. Reattach the cable at the bottom of the hard disk drive by carefully aligning the pins on the hard disk drive to the cable connector.
6. Gently press the cable connector into the bottom of the hard disk drive.

Reassembly

Use the following procedure to reassemble the instrument:

1. Reattach the cable connecting the flat panel display assembly to the interface board.
2. 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.)
3. Install the five screws that attach the flat panel display assembly to the mainframe. (See Figure 3 on page 9.)

4. Reposition the left side cover.
5. Reposition the top cover on the portable mainframe.
6. Install the four screws that attach the top cover to the mainframe.
7. Reattach the accessories pouch to the top cover. (It snaps on.)
8. Replace the trim ring on the front panel. Start at the top edge and work around to the bottom (using care not to damage the light pipe or power switch), until the three plastic snaps engage. Press the trim ring down all around the edges until it is completely seated.
9. Press the front cover back onto the front panel until the left and right edges snap into place.
10. Reposition the bottom cover on the portable mainframe.
11. Install the four screws that attach the bottom cover to the mainframe.
12. Reinstall the modules and probes that were removed during disassembly.
13. Connect the power cord to the mainframe.

Verify Operation

Follow the steps below to ensure proper operation of the instrument:

1. Reinstall all software. For help on software installation, refer to the *TLA 700 Series Logic Analyzer Installation Manual*.
2. Run memory and hard disk drive verification tests from the QAPLus diagnostics.

NOTE. *You must have Windows 95 running to run QAPLus.*

- a. Turn off all other applications.
- b. Click Start in the Windows 95 tool bar.
- c. Select Programs from the Start menu.
- d. Select the QAPLus application from the Programs menu.
- e. Run the memory and hard disk drive tests from the QAPLus menu. If needed, refer to the QAPLus online help for more information on running QAPLus.

Installation Instructions for the TLA 711 Color Benchtop Controller

These instructions direct you to replace the existing hard disk drive with a greater capacity, but unformatted, hard disk drive. Prior to performing these procedures, use the Windows 95 Back Up tool to back up any user files stored on the hard disk drive. Use the backup media that was shipped with the instrument to reinstall the operating system and applications. For further information on software backup and installation, refer to the *TLA 700 Series Logic Analyzer Installation Manual*.

NOTE. *The following instructions are for upgrading the TLA 711 Color Benchtop Controller. If you are upgrading a TLA 704 Color Portable Mainframe, proceed to page 5. Otherwise, please read the following paragraph closely.*

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



CAUTION. *To prevent static discharge damage, service the instrument only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.*

These instructions must be performed in the sequence in which they are presented; they include the following procedures:

- *Disassembly*, which removes the external parts needed to remove the Controller subassembly from its enclosure to access the SIMM boards and hard disk drive.
- *RAM SIMM Replacement*, which removes the existing SIMM boards and installs the upgrade SIMM boards.
- *Hard Disk Drive Replacement*, which removes the existing hard disk drive and installs the upgrade hard disk drive.
- *Reassembly*, which reinstalls parts removed in *Disassembly*.
- *Verify Operation*, which reinstalls the software on the new hard disk drive and runs some verification tests of the new memory and hard disk drive.

Disassembly

Verify that the power cord has been disconnected from the mainframe. Remove any connected cables or probes from the benchtop controller and remove the benchtop controller from the mainframe.

You will need a T-9 Torx tip driver to remove the left side cover and rear panel.

1. Place the module on its right side as shown in Figure 5.
2. Remove the six screws from the top and bottom of the left side cover.
3. Remove the two screws from the rear panel. (See Figure 5.)
4. Remove the rear panel.
5. Remove the left side cover.

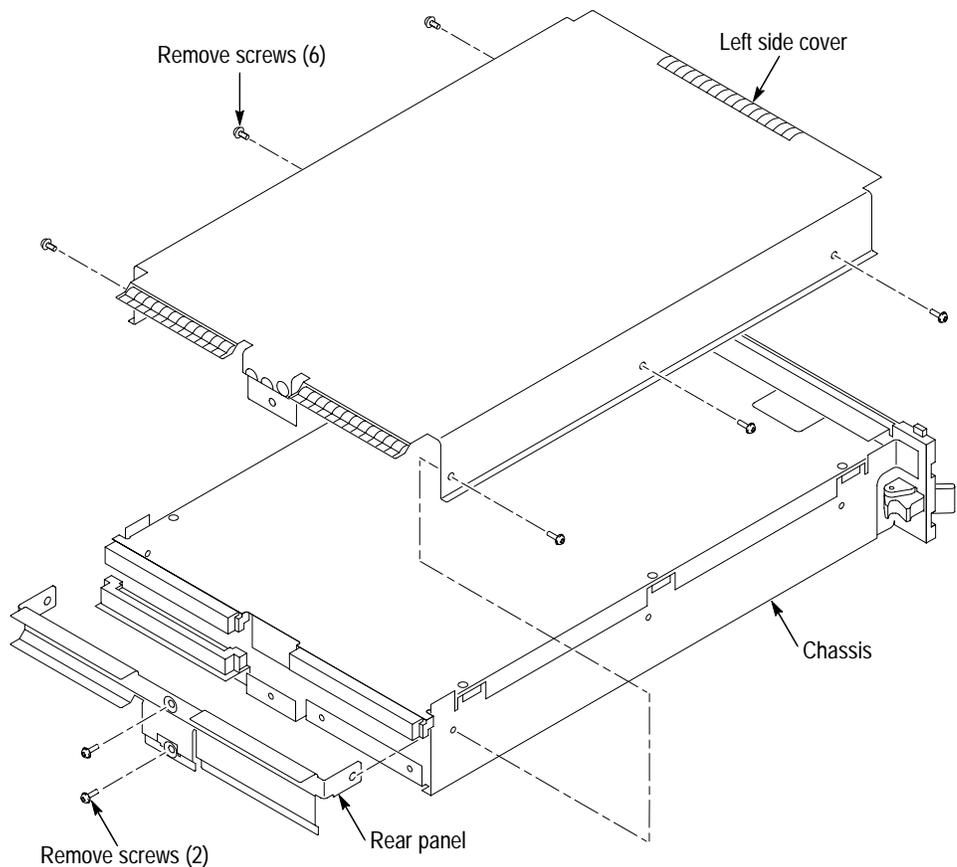


Figure 5: Left side cover and rear panel removal

You will need a T-9 Torx tip driver, a small flat-bladed screwdriver, a #0 Phillips screwdriver, a #1 Phillips screwdriver, a 3/16 inch nut driver, and a needle nose plier to remove the Controller subassembly.

NOTE. The following steps remove the subassembly from the enclosure to gain access to the internal parts. Note that subassembly removal is a two part procedure: first you will remove the front panel hardware to relieve mechanical stress on the soldered-on connectors. Second, you will remove the subassembly from the enclosure.

6. Remove the four 3/16 inch standoffs from the SVGA OUT and COM connectors. (See Figure 6.)
7. Remove the two screws from the LPT connector.
8. Remove the two Phillips screws, located to the right of the PC card slot.
9. DO NOT remove the 1/4 inch nuts on the SMB connectors.

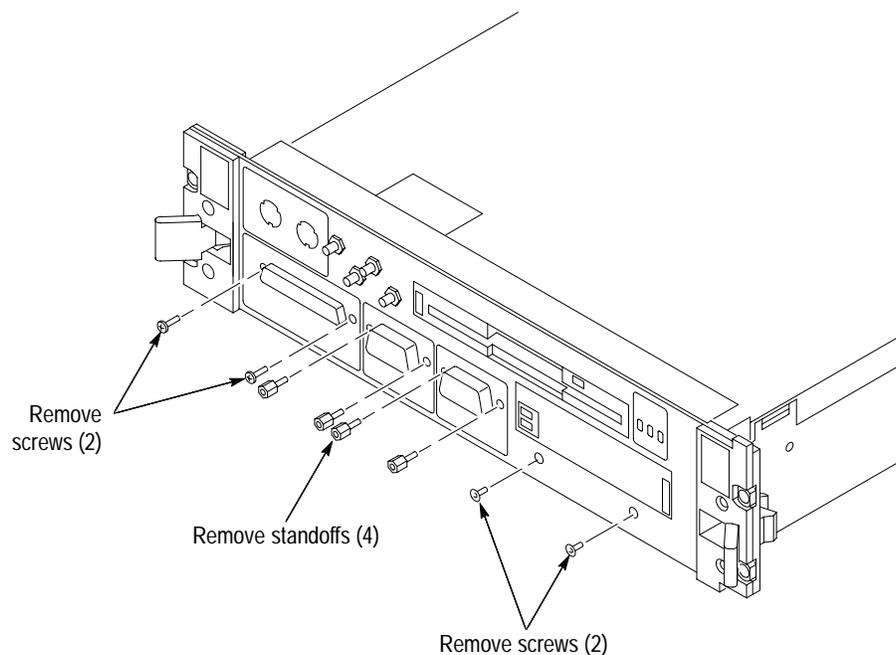


Figure 6: Front panel hardware removal

10. Remove the six Phillips screws that attach the subassembly to the chassis. (See figure 7.)

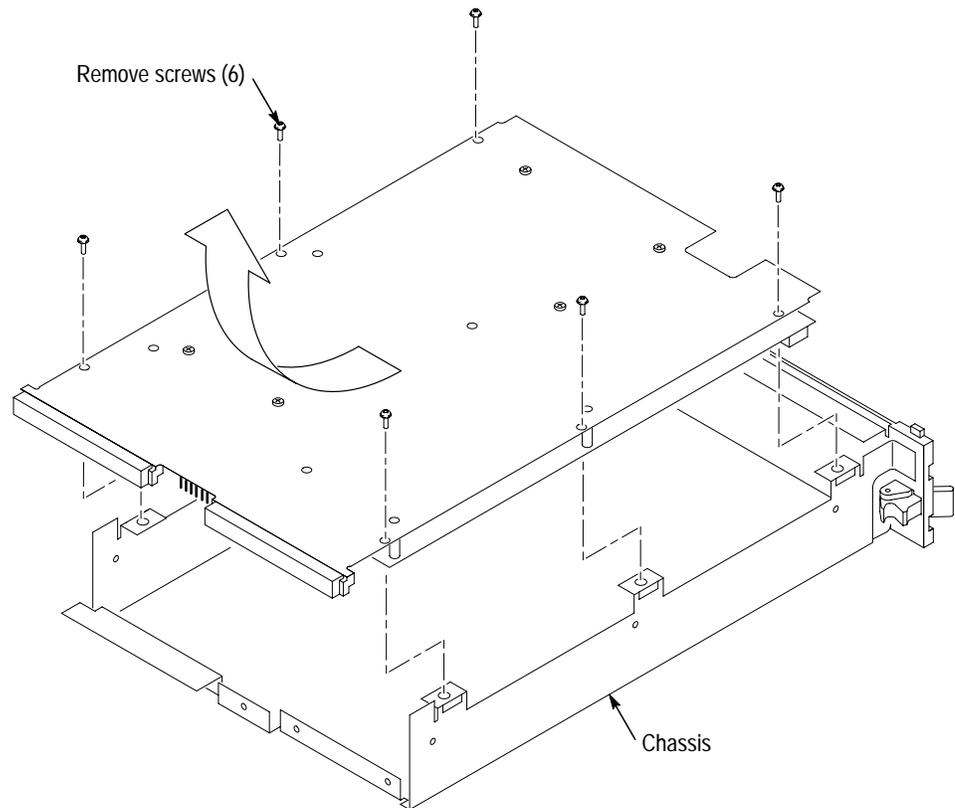


Figure 7: Subassembly removal



CAUTION. *The subassembly is attached to the chassis by the four SMB connector cable assemblies. To avoid damaging the subassembly, use care when lifting the subassembly out.*

- 11.** Carefully lift the subassembly part way out of the chassis.
- 12.** Carefully turn the subassembly over and disconnect the four SMB cable assemblies on the Controller board. See Figure 9 and Table 2 for the color code placement of the four SMB cable assemblies.
- 13.** Pass the SMB cable assemblies through the space between the Controller board and the Adapter board to remove the subassembly from the chassis.

RAM SIMMs Replacement

The RAM SIMMs are located on the Controller board of the subassembly that you just removed. (See Figure 8.) Removal and installation of the SIMM boards do not require the use of tools.

Removal

1. Press outward on the clips holding each SIMM board to the Controller board and lift off the SIMM board. Remove both boards. (See Figure 8.)

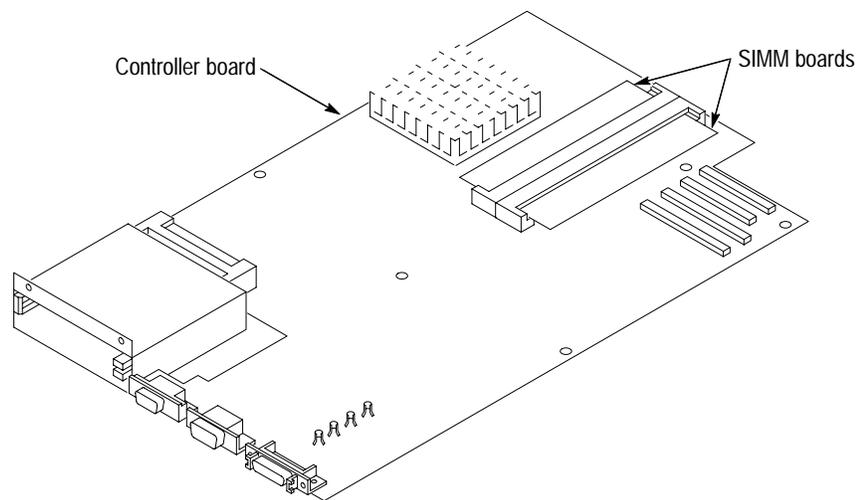


Figure 8: SIMM boards removal

Installation

NOTE. When installing the SIMM boards, make sure that both SIMM boards contain RAM memory of the same size.

1. Align the SIMM board with the socket and gently push the SIMM board into the socket.
2. The tabs on each side of the SIMM board will engage and lock the SIMM board into place. Install both SIMM boards.

Hard Disk Drive Replacement

You will need a #0 Phillips screwdriver and a #1 Phillips screwdriver.

Removal

The hard disk drive is mounted to the Adapter board, which must be separated from the Controller board in order to replace the hard disk drive. Refer to Figure 9 and follow these steps:

1. Disconnect the two ribbon cables from the component side of the Controller board. Note the location of the ribbon cables for reassembly.
2. Remove the five Phillips screws that attach the Controller board to the Adapter board.
3. Squeeze the two sides of the standoff located in the center of the Controller board to unlatch the standoff while separating the two boards. You might feel some mechanical resistance from the two 96-pin interconnections between the two boards.

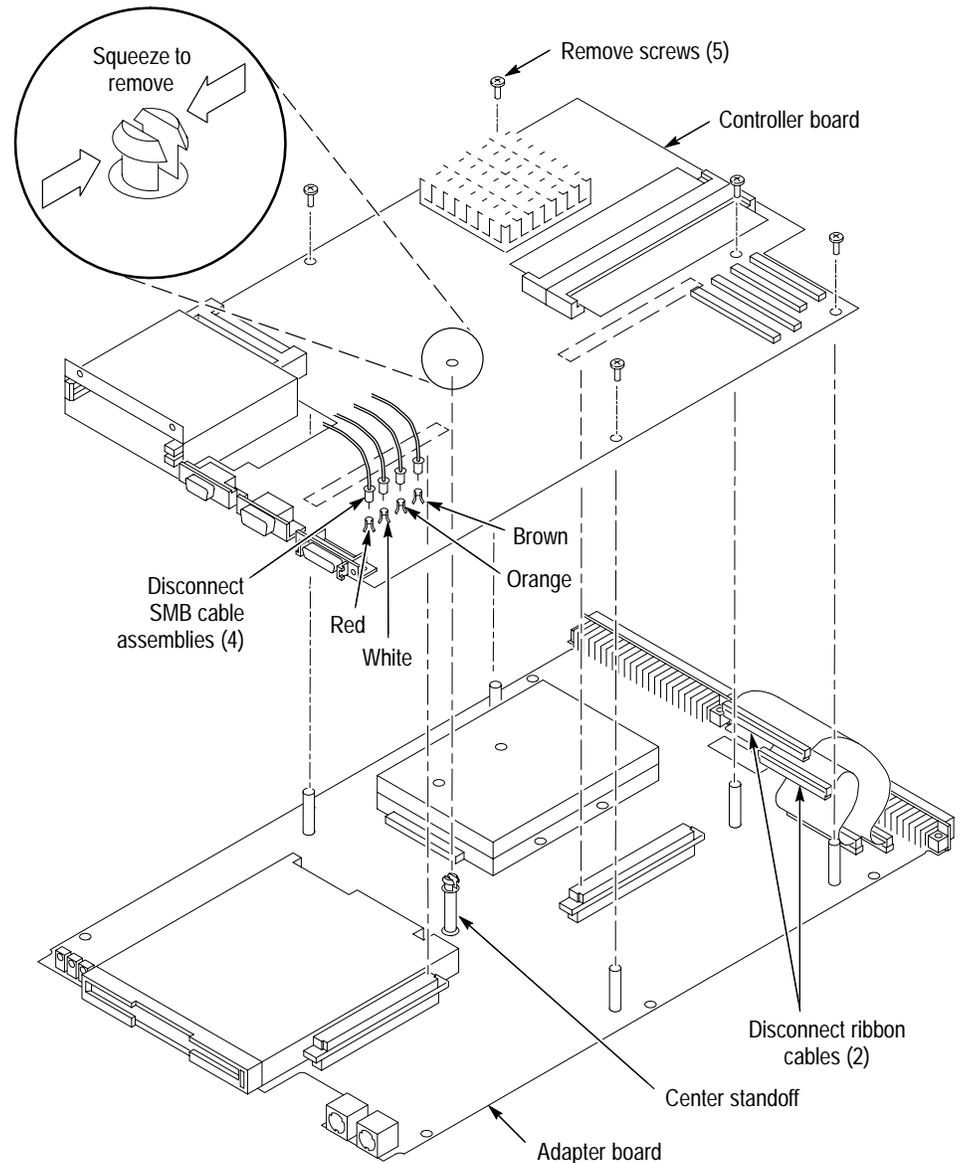


Figure 9: Controller board and Adapter board interconnection

4. Remove the four Phillips screws securing the hard disk drive to the solder side of the Adapter board. (See Figure 10.)
5. Carefully slide the hard disk drive away from the hard disk drive connector.

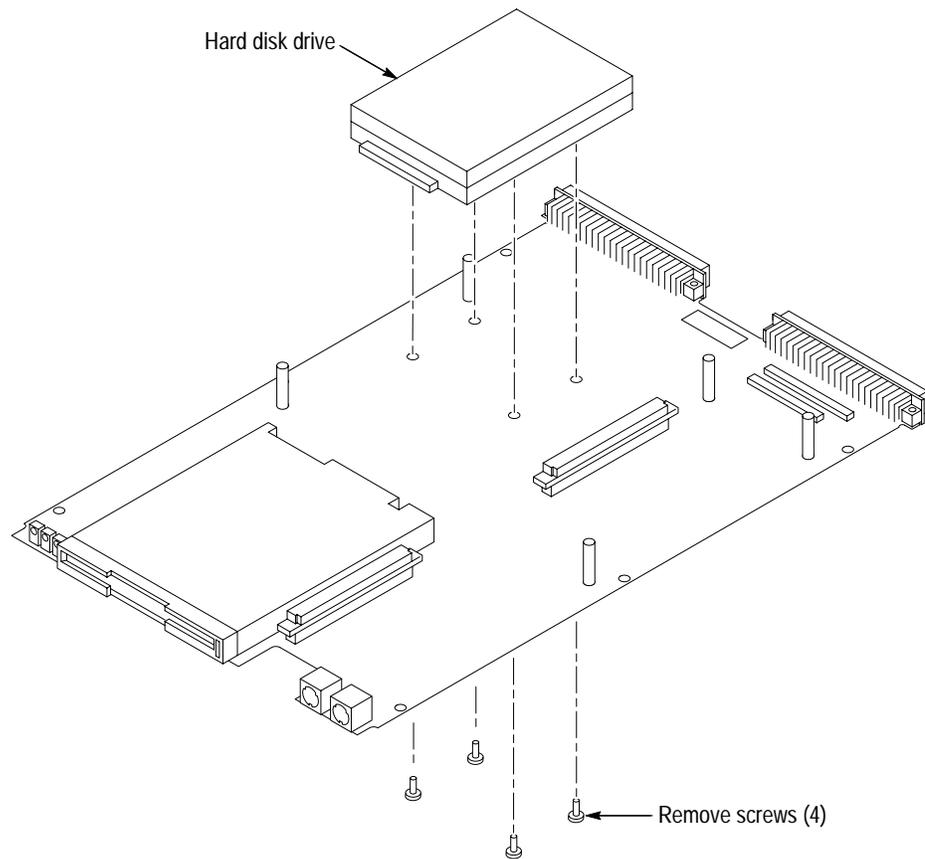


Figure 10: Hard disk drive removal

Installation

To install the hard disk drive you will need a #0 Phillips screwdriver and a #1 Phillips screwdriver.

1. Peel the backing off of the Lexan insulator included in the kit and apply it to the hard disk drive. (See Figure 11.)

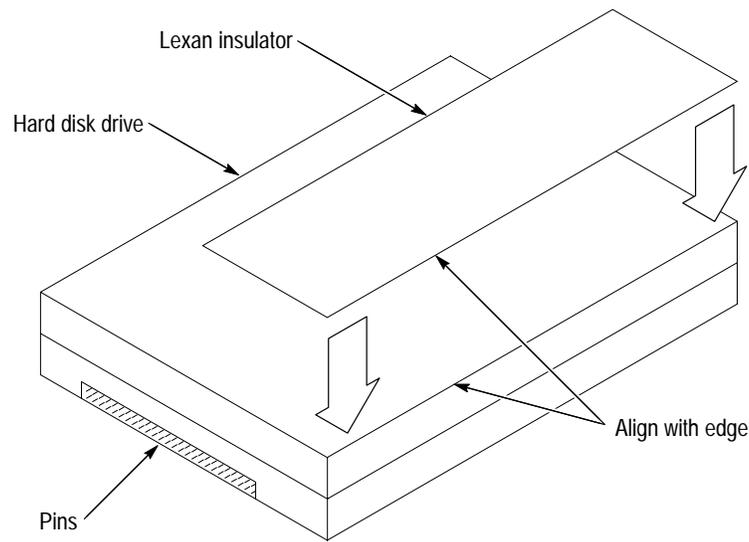


Figure 11: Applying the Lexan insulator

2. Carefully align the connector pins on the back of the hard disk drive to the socket on the Adapter 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. Install the four screws to secure the hard disk drive to the Adapter board.
4. Connect the Controller board to the Adapter board by aligning the two connectors between the Controller board and the Adapter board. Locate the center standoff (see Figure 9 on page 21) and center it on the hole on the Controller board. Carefully apply pressure to both boards until the two connectors engage.
5. Connect the two ribbon cables to the component side of the Controller board. Note the location of the ribbon cables from the disassembly procedure, step 1.
6. Install the five screws to secure the Controller board to the Adapter board.

Reassembly

To install the subassembly into the enclosure refer to Figures 6 and 7 as you follow these steps:

1. Pass the four SMB cable assemblies through the space between the Controller board and the Adapter board.

2. Carefully turn the subassembly over and connect the four SMB cable assemblies to the four SMB connectors on the Controller board. Figure 9 on page 21 shows the locations for plugging in the four connectors. Table 2 identifies each connector by color code and signal name.

Table 2: Signal wire identification

Signal wire color	Signal identification
White	SYSTEM TRIG IN
White / Brown stripe	SYSTEM TRIG OUT
White / Red stripe	EXTERNAL SIG IN
White / Orange stripe	EXTERNAL SIG OUT

3. Carefully slide the subassembly into the chassis. Locate all of the front panel connectors into the proper cut-outs on the front panel.
4. Attach the six Phillips screws that hold the subassembly to the chassis. DO NOT tighten the screws until the front panel hardware has been secured.
5. Install the two screws located to the right of the PC card slot.
6. Install the four standoffs on the SVGA OUT and COM connectors.
7. Install the two screws on the LPT connector.
8. Tighten the six screws that secure the subassembly to the chassis.
9. Install the module in the mainframe and connect any cables that were removed during disassembly, including the power cord.

Verify Operation

Follow the steps below to ensure proper operation of the instrument:

1. Reinstall all software. For help on software installation, refer to the *TLA 700 Series Logic Analyzer Installation Manual*.
2. Run memory and hard disk drive verification tests from the QAPlus diagnostics.

NOTE. To run QAPlus you must have either a working keyboard or working mouse (or other pointing device) and Windows 95 running.

- a. Turn off all other applications.

- b.** Click Start in the Windows 95 tool bar.
- c.** Select Programs from the Start menu.
- d.** Select the QAPLus application from the Programs menu.
- e.** Run the memory and hard disk drive tests from the QAPLus menu. If needed, refer to the QAPLus online help for more information on running QAPLus.