Instructions

Tektronix

CSA8UP and TDS8UP Option CPU

TDS8000 and CSA8000 Series Instruments CPU Upgrade Kit

071-1384-00

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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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. Power cord needed only in the mainframe, not modules.

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

Ground the Product. The mainframe 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.

Ground the Product. The modules are indirectly grounded through the grounding conductor of the mainframe 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 markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

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.

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

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.*

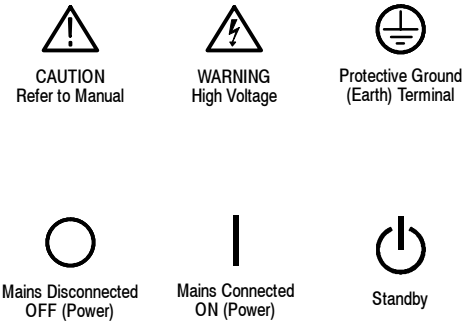
Terms on the Product. These terms may appear on the product:

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:



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.

Kit Description

This document supports upgrading the CPU board and microprocessor. To install the upgrade, perform each of the following procedures in order.

Tektronix installation service (Option IF) is highly recommended for this upgrade. If installation service is desired, please contact the service center in your region to schedule installation.

This document supports Tektronix modification: ECO1092

Products

CSA8000 Series All serial numbers
TDS8000 Series All serial numbers

Kit Parts List

Circuit/figure number	Quantity	Part number	Description
1	1 ea	650-4603-XX	COMPONENT KIT; MOTHERBOARD/ MICROPROCESSOR UPGRADE
1	1 ea	407-4880-XX	BRACKET; CD-ROM, REAR DRIVE BAY CHASSIS, 0.035 CRS
1	1 ea	071-1384-XX	MANUAL, KIT INSTRUCTIONS

Installation Instructions

This section contains the procedures needed to install the CSA8UP or TDS8UP Option CPU in the CSA8000 and TDS8000 Series instruments.

These instructions are a service procedure and should be performed by qualified service personnel. If you need further details for disassembling or reassembling the product, refer to the TDS8000 and CSA8000 Series Service manual. Contact your nearest Tektronix Service Center or Tektronix Factory Service for installation assistance.

CAUTION. *To prevent static discharge damage, service the product 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.*

Preparation

WARNING. *Before doing this or any other procedure in this manual, read the Safety Summaries found at the beginning of these instructions.*

This subsection contains the following items:

- Preparatory information that you need to properly do the procedures that follow.
- A list of tools required.
- Procedures to disassembly the instrument and install the new NLX Board assembly.

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

Equipment Required. Most modules in this instrument can be removed with a screwdriver handle mounted with a size T-15, Torx® screwdriver tip. Use this tool whenever a procedure step instructs you to remove or install a screw unless a different size screwdriver is specified in that step.

Table 1: Tools required for module removal

Item No.	Name	Description	Part number
1	Screwdriver handle	Accepts Torx®-driver bits	General Tool: 620-440
2	T-15 Torx tip	Used for removing most the instrument's screws.	General Tool: 640-247
3	T-20 Torx tip	Used for removing the handle screws.	General Tool: 640-250
4	$^1/_4$ inch flat-bladed screwdriver	Screwdriver for unlocking side panels.	Standard tool
5	#0 Phillips screwdriver	Screwdriver for removing small phillips screws.	Standard tool

The following procedures are found here and are listed in order presented.

- Trim (all)
- Bottom cover
- Left and Right covers

Trim and Carrying Handle

1. *Locate module to be removed:* Locate the Trim to be removed. See Figure 1, page 10.
2. *Remove the top cover trim:* Use Figure 1, page 10 as a guide.
   a. Remove the accessory pouch; it snaps off.
   b. Remove the four T-15 Torxdrive screws that secure the top cover trim to the instrument. The T-15 Torxdrive screws also secure the snap studs to the top cover.
   c. Remove the top cover trim from the instrument.
3. *Remove the front panel trim:* Use Figure 1, page 10, as a guide.
   a. Slide the flat end of a soldering aid (or flat screwdriver) into the side slot on the trim ring to help detach the side snaps.
   b. Swing the bottom of the ring upward and off the front panel.
4. *Remove the acquisition trim:* Use Figure 1, page 10 as a guide.
   a. Remove the six T-15 Torxdrive screws that secure the acquisition trim to the instrument.
   b. Remove the knobs from the electrical and optical ejector levers. Grasp the knobs with your fingers and pull straight out.
   c. Remove the acquisition trim from the instrument.
5. *Remove the carrying handle and the right/left side trim panels:* Use Figure 1, page 10 as a guide.
   a. Remove the two T-20 Torxdrive screws that secure the handle to the instrument. Remove the handle from the instrument.

CAUTION. *Over-tightening the handle screws may cause the handle to break off from the cabinet. When reinstalling the screws, use a torque wrench to tighten the screws to 8–10 in.lb.*

   b. Slide the side trim panels towards the rear of the instrument allowing the tabs to clear the cover openings, then pull out to remove the panels from the instrument.
6. *Reinstallation:* Do in reverse steps 2 through 5 to reinstall the appropriate trim.

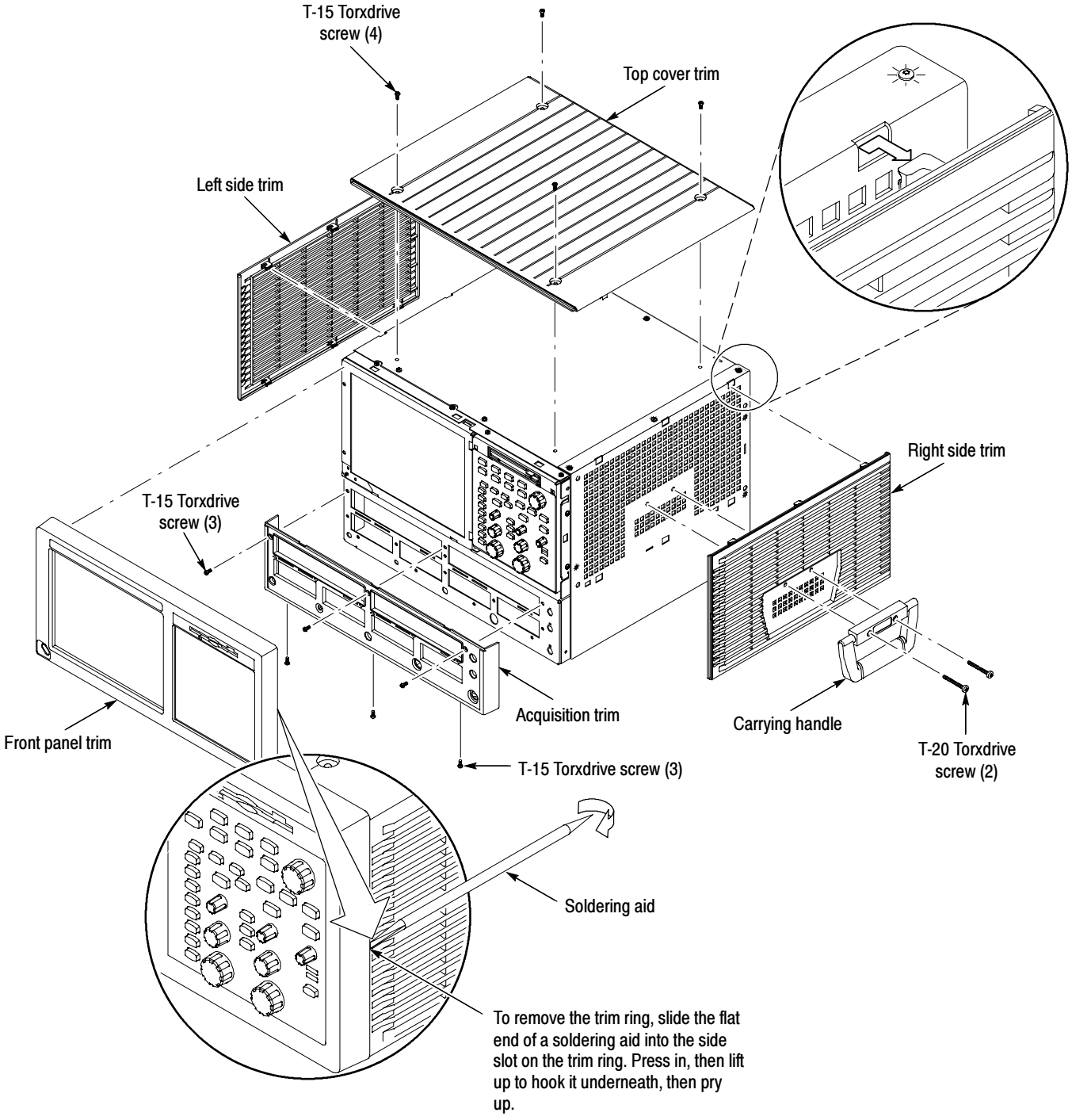


Figure 1: Trim removal

Bottom Cover

1. *Locate the module to be removed:* Locate the bottom cover. See Figure 2, page 11.
2. *Orient the instrument:* Set the instrument so its top is down on the work surface and its bottom is facing you.
3. *Remove the bottom cover:* Use Figure 2 on page 11 as a guide.
   a. Remove the five T-15 Torxdrive screws that secure the bottom cover to the instrument.
   b. Remove the bottom cover from the instrument.
4. *Reinstallation:* Do in reverse steps a and b to reinstall the cabinet feet.

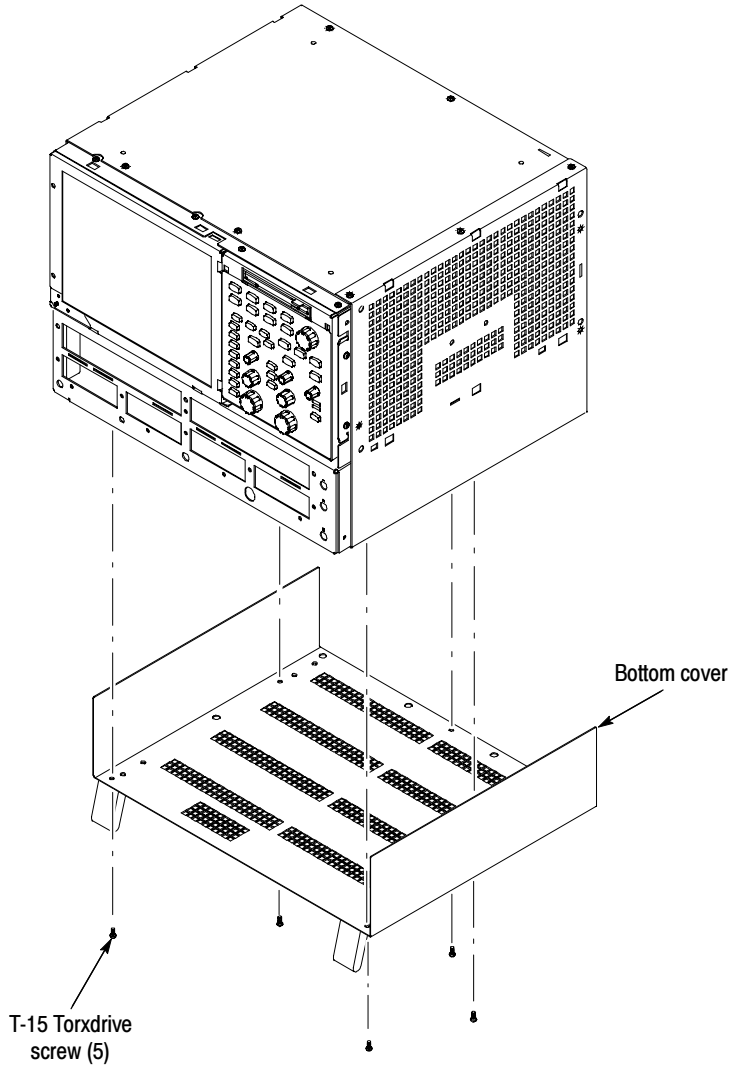


Figure 2: Bottom cover removal

Left and Right Covers

1. *Locate the module to be removed:* Locate the left and right covers. See Figures 3 and 4, pages 13 and 14
2. *Orient the instrument:* Set the instrument so its rear is on the work surface and the front of the instrument facing the technician.

***NOTE**. All mounting screw holes are indicated by a star etched around the mounting hole.*

3. *Remove the left and right covers:* Use Figures 3 and 4 on pages 13 and 14 as a guide.
   a. Remove the thirteen T-15 Torxdrive screws that secure the covers to the top and both sides of the chassis.
   b. Remove the nine T-15 Torxdrive screws that secure the covers to the bottom of the chassis.
   c. Pull the bottom-right cover down and slide to the right to remove from the instrument. Pull the top-left cover upward and slide to the left to remove from the instrument.

***CAUTION.** Take care not to bind or snag the covers on the instrument's internal cabling as you remove or install.*

4. *Reinstallation:* Do in reverse steps a through c to reinstall the cabinet.

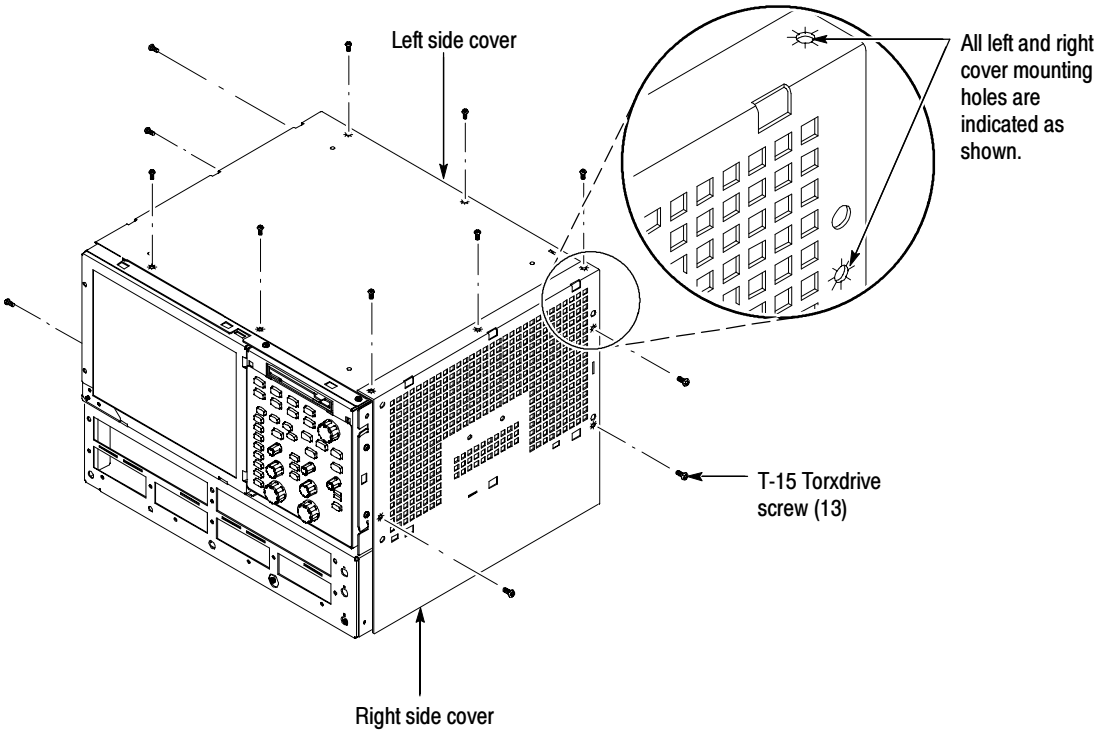


Figure 3: Cover removal

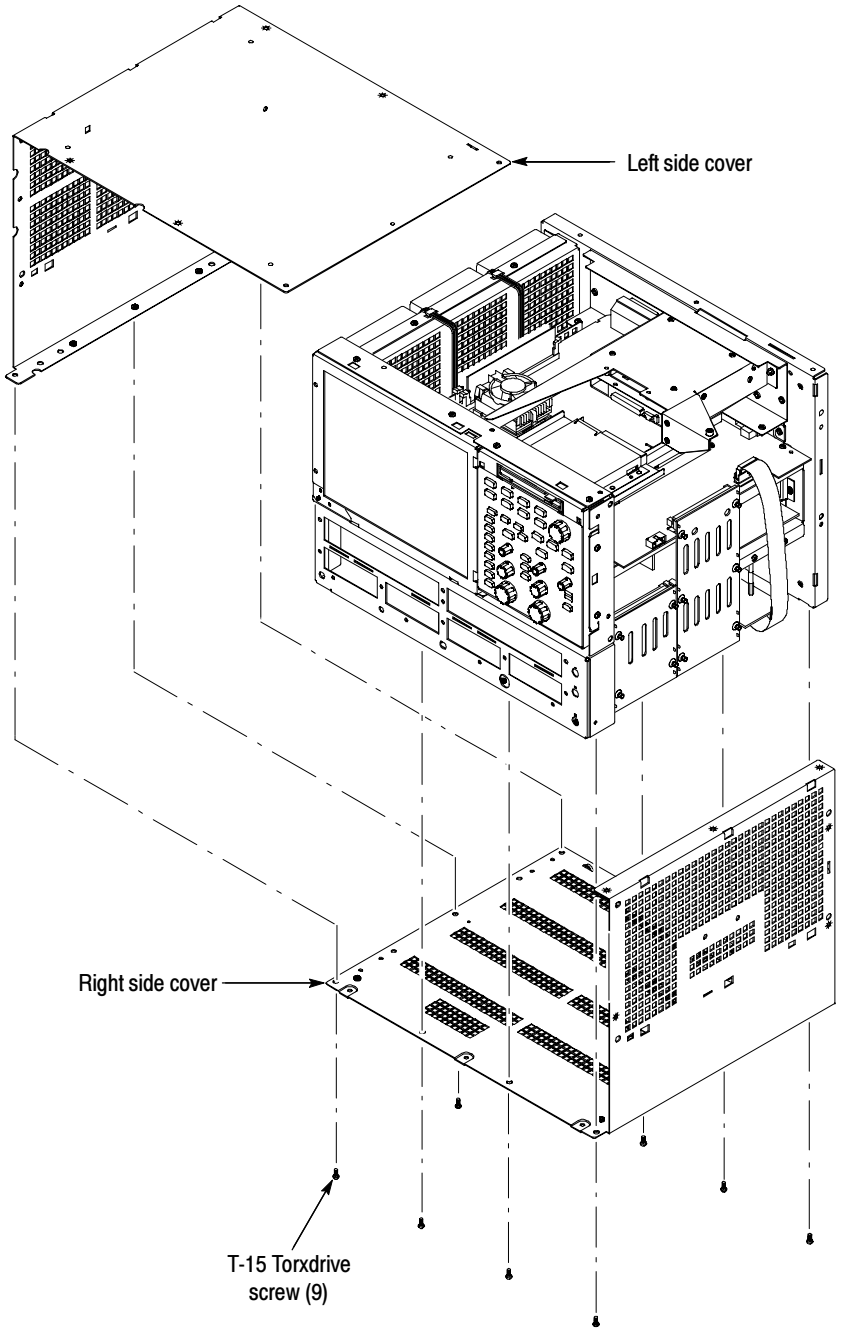


Figure 4: Cover removal

Remove NLX Board Assembly

1. *Locate the module*: Locate the NLX board assembly. See Figure 5, page 16
2. *Orient the instrument:* Set the instrument so its bottom is down on the work surface and its top panel is facing you.
3. *Remove the NLX Board assembly:* Use Figure 5 on page 16 as a guide.
   a. Remove the five T-15 Torxdrive screws that secure NLX board assembly to the inner chassis.
   b. Remove the five T-15 Torxdrive screws that secure NLX board assembly to the rear chassis.

***NOTE**. If you wish, you may remove the entire floppy disk drive assembly from the front chassis to ease the removal and installation of the NLX board assembly. Remove the two Torxdrive screws that secure the floppy disk drive assembly to the front chassis. Lay the floppy disk drive assembly on top of the NLX board assembly.*

   c. Grasp the front edge of the NLX board assembly and pull up on the assembly to disconnect the Riser Adapter from the PC Processor board's edge connector.

***CAUTION.** If you are leaving the floppy disk drive installed, be careful not to stress the floppy drive ribbon cable while removing the NLX board assembly.*

   d. Remove the NLX board assembly from the instrument and set it on top of the instrument chassis.
   e. Disconnect the floppy disk drive cable from the Riser Adapter board (unless you've removed the floppy disk drive assembly from the front chassis).

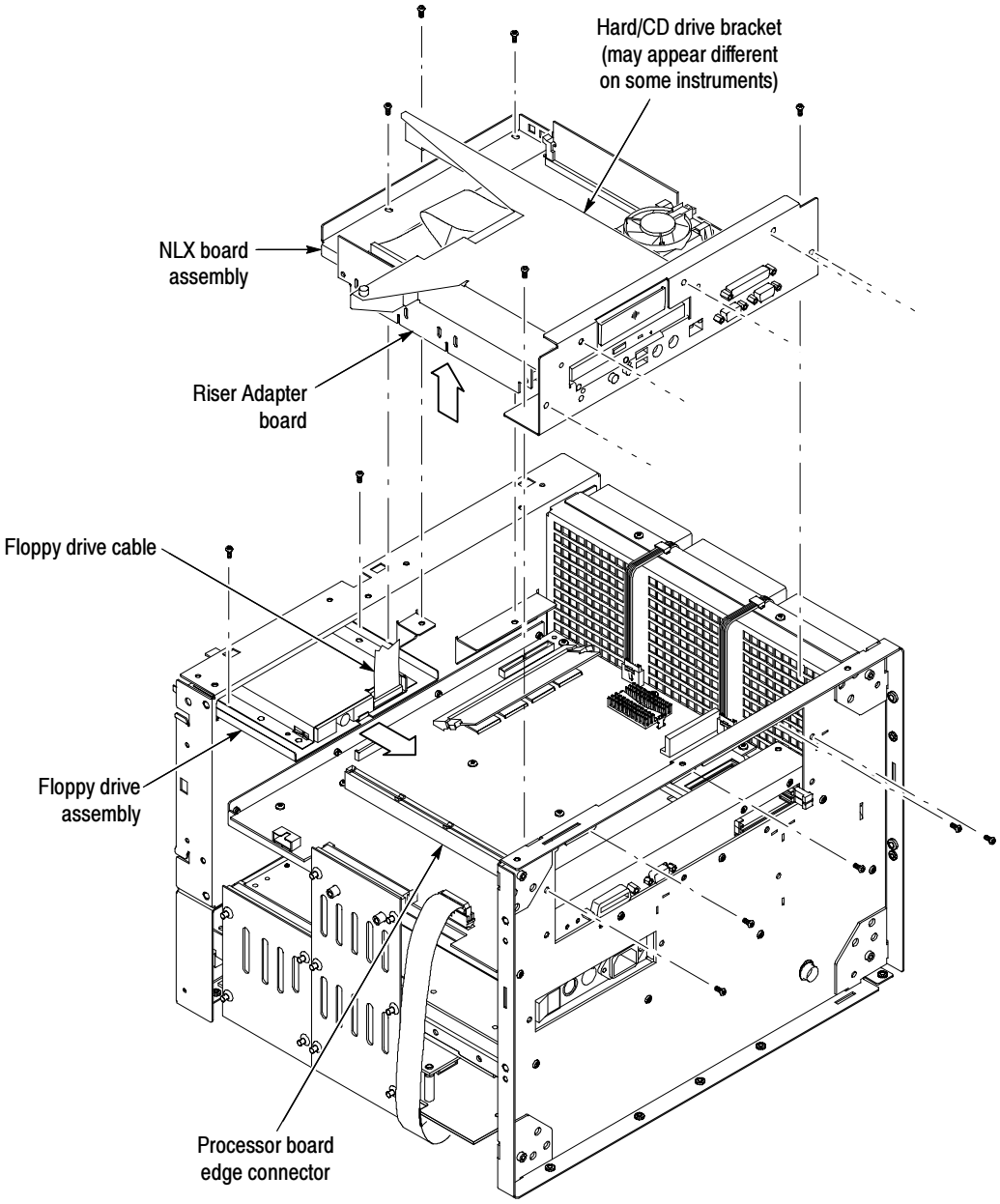


Figure 5: NLX assembly removal

4. *Remove the Riser Adapter board:* See Figure 6, page 17.

   a. Remove the two T-15 Torxdrive screws that secure Riser Adapter board to the NLX support bracket.

b. Disconnect the ribbon cables from the hard drive and CDROM drive. (Disconnect the ribbon cable from the Floppy drive if you removed the Floppy drive assembly.)

c. Grasp the Riser board and pull it straight out to disconnect J510 edge card connector from the NLX board. Remove the Riser Adapter board from the NLX board assembly.

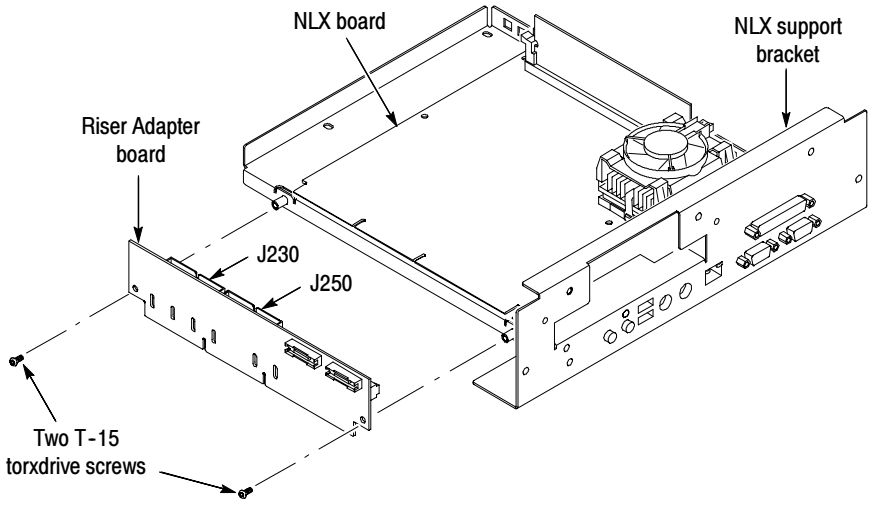


Figure 6: Riser Adapter & NLX board removal

5. *Remove the Hard/CD Drive assembly:* See Figure 7, page 18.

a. Remove the two T-15 Torxdrive screws that secure CDROM drive assembly to the NLX Board assembly.

b. Slide the CDROM drive assembly out through the rear of the NLX Board assembly.

c. Save the CDROM drive for assembly into the new NLX Board assembly.

d. Remove the two T-15 Torxdrive screws that secure Hard/CD drive bracket to the NLX Board assembly.

e. Lift the Hard/CD drive assembly out and set it aside for installation into the new NLX Board assembly.

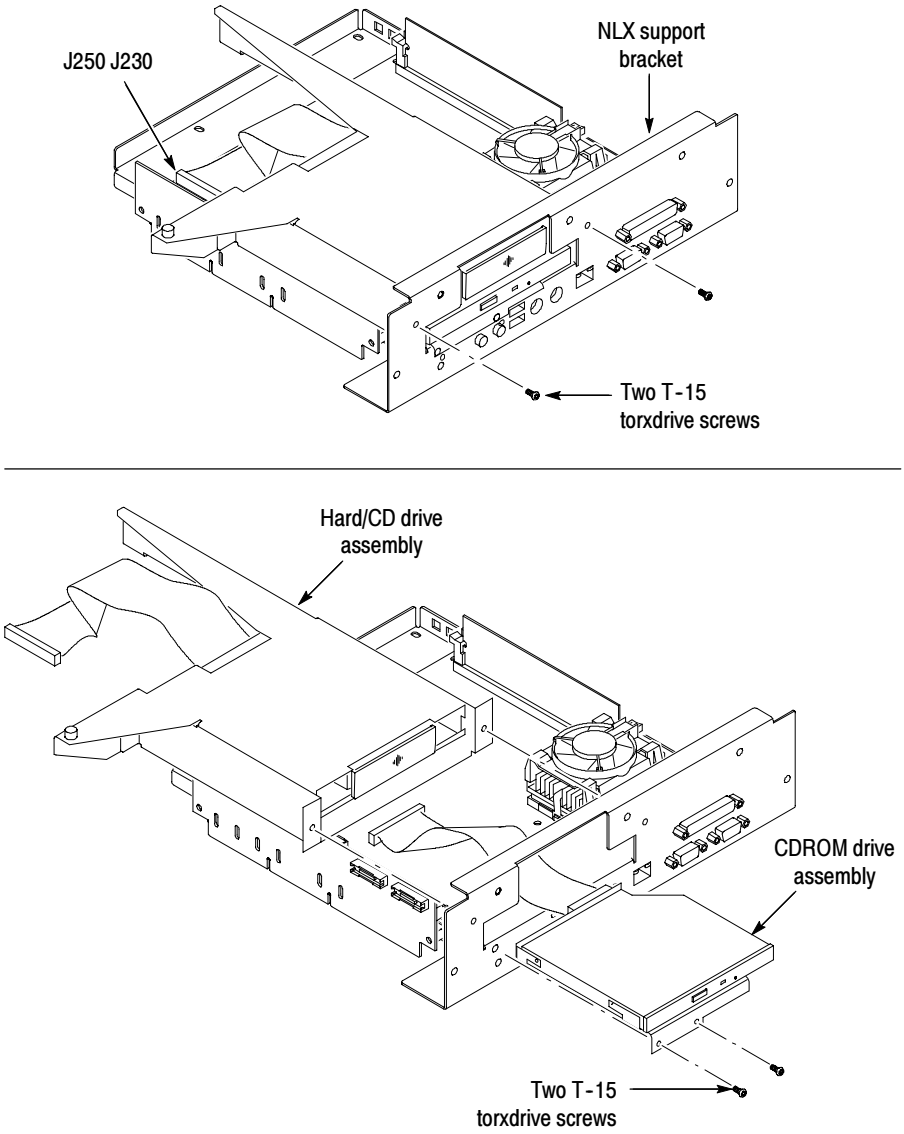


Figure 7: Riser Adapter & NLX board and CDROM drive assembly removal

Prepare New NLX Board Assembly

1. *Prepare the new NLX Board assembly*: The NLX board contained in this kit requires the installation of the Riser Adapter board and the Hard/CD drive bracket that was removed from the old NLX board assembly before installation into the main instrument.
2. *Install the Riser Adapter board:* See Figure 6, page 17.
   a. Install the Riser Adapter board (removed from the old NLX board) onto the J510 edge card connector of the NLX board.
   b. Secure the Riser Adapter board using two T-15 torxdrive screws.
3. *Install the Hard/CD drive bracket:* See Figure 7, page 18.
   a. Attach the Hard/CD drive bracket to the NLX board assembly using two T-15 torxdrive screws.

4. *Prepare the CDROM drive assembly*: The CDROM drive assembly removed from your instrument needs to be modified before installation into the new NLX board assembly. See Figure 8, page 20.

   a. Remove the four small phillips head screws securing the CDROM drive bracket to the CDROM drive.

   b. Install the new CDROM drive bracket (from this kit) to the CDROM drive using the same four small phillips head screws.

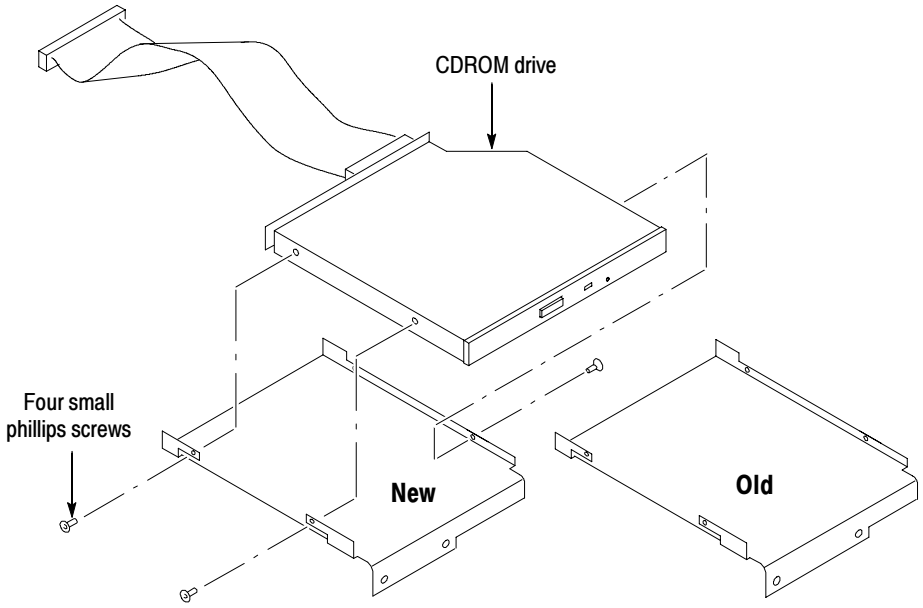


Figure 8: CDROM drive assembly

5. *Install CDROM drive assembly:* See Figure 7, page 18.

   a. Slide the CDROM drive assembly into the CDROM drive bay of the NLX board assembly from the rear of the assembly.

   b. Secure the CDROM drive assembly with two T-15 torxdrive screws.

Install New NLX Board Assembly

1. *Install the New NLX board assembly into the mainframe:* See Figure 5, page 5.

   a. Lay the NLX board assembly on top of the instrument chassis.

   b. Reconnect the floppy disk drive ribbon cable to the Riser board.

   c. Lift the NLX board assembly into place, making sure to line up the Riser Adapter board edge card connector to the PC Processor board edge connector.

   d. When the Riser Adapter board and PC Processor board connector are lined up, press down firmly on the Riser Adapter board to seat the board edge card into the PC Processor board edge connector.

   e. Reinstall the five T-15 torxdrive screws to secure the NLX board assembly into the instrument chassis.

Reassemble the Chassis

1. *Reassembly the main instrument by performing the removal procedures (listed below) in reverse.*

   - Left and Right covers
   - Bottom cover
   - Trim (all)

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