020-2664-01
TLA6200 & TLA6400 Series Logic Analyzers and TLA7012 Portable Mainframe Rackmount Kit

Instructions

071-1750-01

Tektronix

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Instructions

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 before performing service.

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071-1750-01

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- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

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 introduction describes the installation of the rackmount kit for the TLA7012 Portable Mainframe, TLA6200 series logic analyzers, and TLA6400 series logic analyzers.

CAUTION. *This kit requires you to remove the right-side panel of the instrument rack you intend to use. You must have access to the right side of your instrument to connect the logic analyzer probes when the instrument is installed in the rack.*

The rackmount kit is a collection of parts that, once installed, configure the instrument for mounting into a standard 19-inch equipment rack.

Products

Product	Serial numbers
TLA7012	All serial numbers
TLA6202, TLA6203, TLA6204	All serial numbers
TLA6401, TLA6402, TLA6403, TLA6404	All serial numbers

The following figure shows a completed rackmount installation of a TLA7012 Portable Mainframe with two logic analyzer modules and probes attached. Installation of TLA6200 series logic analyzers or TLA6400 series logic analyzers is similar, except as noted in these instructions.

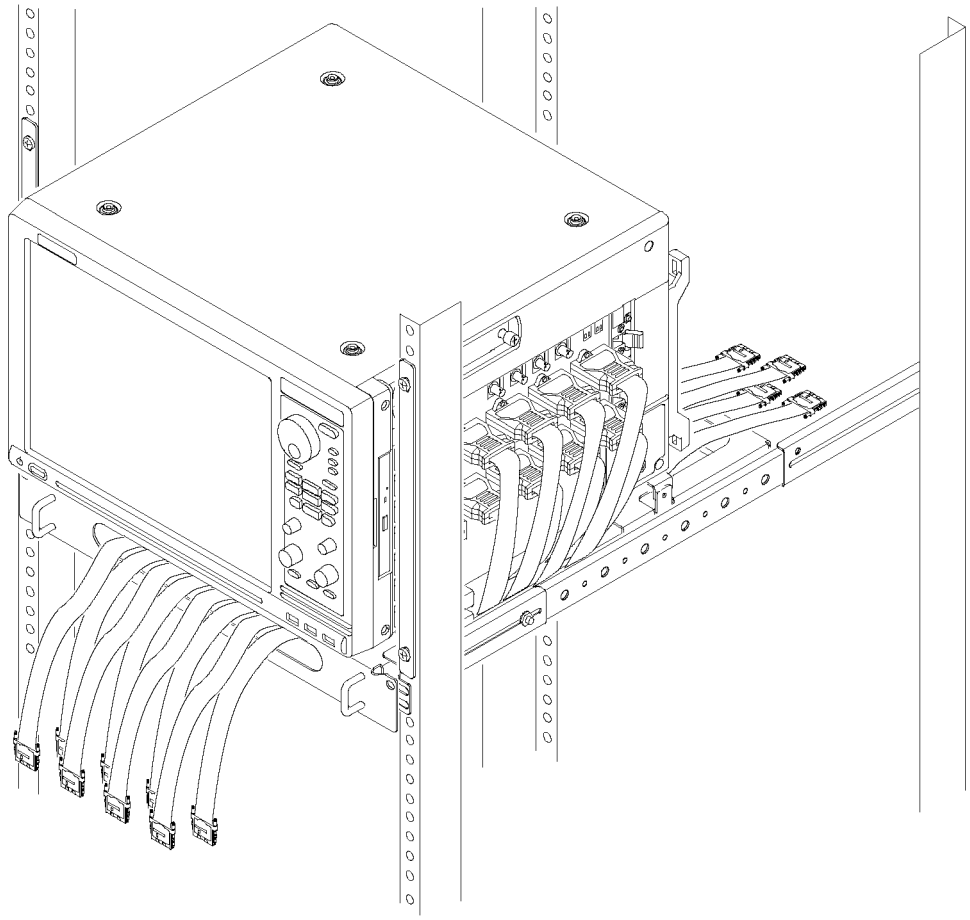

Figure 1: Completed TLA7012 Portable Mainframe rackmount installation

Kit Parts List

(See Figure 2 on page 5.)	Quantity	Part number	Description
———	1 ea	020-2664-xx	Rackmount kit consisting of the following items:
———	1 ea	071-1750-01	Instruction manual, available on the TLA Documentation CD or downloadable from the Tektronix Web site
1	1 ea	436-0426-00	Chassis assembly, CHASSIS ASSY, includes 6-32 and 10-32 screws
2	1 ea	407-5122-00	Bracket, locking
3	2 ea	386-7459-00	Panel, cosmetic
4	1 ea	351-1119-00	Guide, slide (rackmount, left and right)
5	2 ea	407-5125-00	Bracket, rackmount guide, set of 4 with hardware
6	1 ea	407-5131-00	Bracket, TLA7012 or TLA6200 series rackmount adapter, right side (R)
7	1 ea	407-5124-00	Bracket, TLA7012 or TLA6200 series rackmount adapter, left side (L)
8	2 ea	367-0530-00	Handle: bow
9	1 ea	407-5671-00	Bracket, TLA6400 series rackmount adapter, left side (L)
10	1 ea	407-5672-00	Bracket, TLA6400 series rackmount adapter, right side (R)

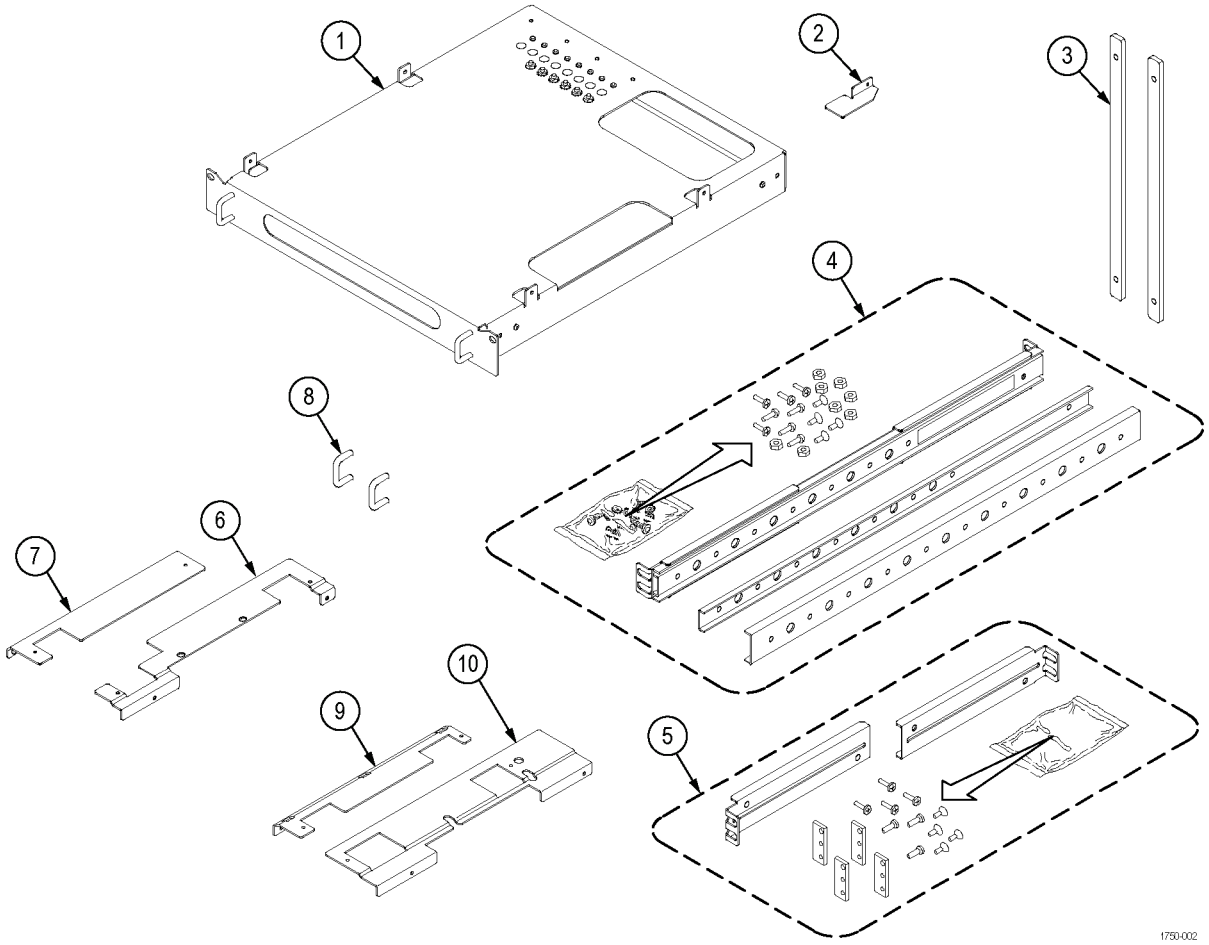

Figure 2: Rackmount kit parts

Warranted Characteristics

When the instrument is installed according to the instructions in this document, the rackmounted instrument meets all warranted requirements listed in the instrument specification except for those listed in *Environmental Requirements*.

Instruments mounted using methods other than those described in these instructions may not meet their warranted requirements.

See *Specifications* in the user or service manual that applies to your instrument model for tables of the warranted characteristics.

Cooling air enters from the bottom-front and right sides. (See Figure 3 on page 6.) You must provide adequate cool air to meet the ambient temperature requirements. (See Table 1 on page 6.)

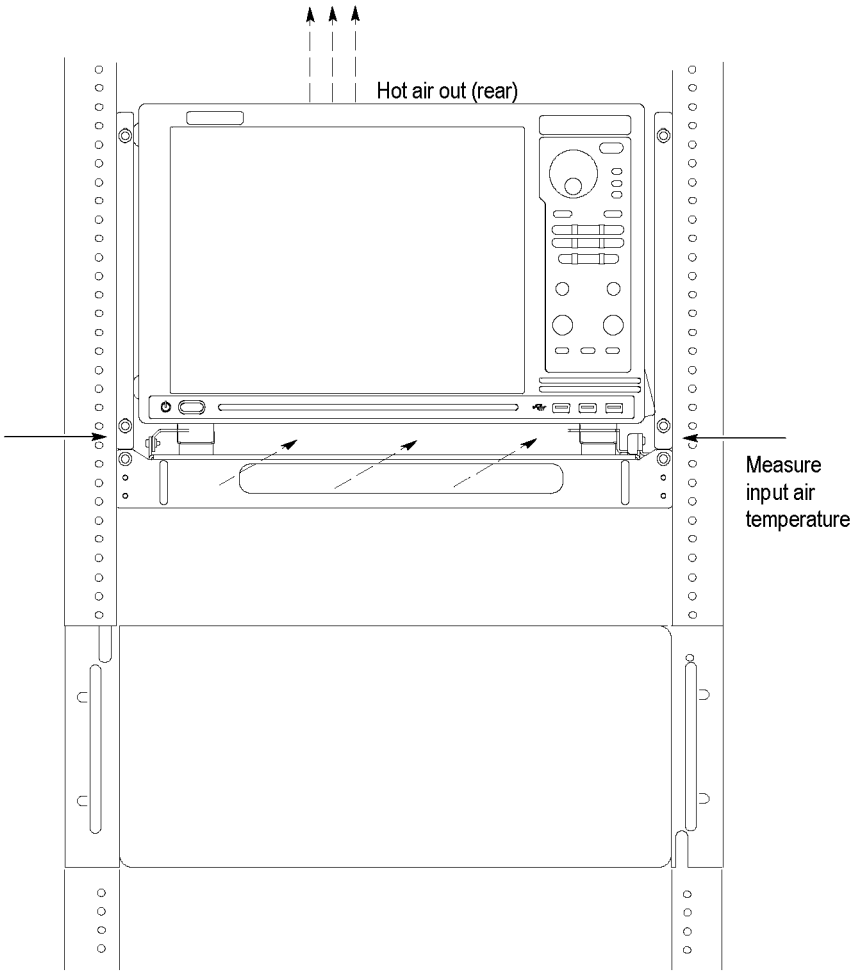

Figure 3: Instrument cooling

Environmental Requirements

The following environmental characteristics supercede those listed in the user or service manual for your instrument.

Table 1: Warranted characteristics

Characteristic	Description
Temperature, Inside Rack Cabinet	
Operating	+10 ° C to +45 ° C (+50 ° F to +113 ° F)
Nonoperating	-22 ° C to +60 ° C (- 7.6 ° F to +140 ° F)

Clearance Requirements

The rack in which the rack adapted instrument is mounted must provide the following clearance requirements:

- A minimum of 14.0 inches (355.6 mm) of vertical space.
- A minimum width of 17.717 inches (450 mm) between the left- and right-front rails in the rack.
- A minimum depth of 20 inches (508 mm).

CAUTION. *Adhering to these clearance requirements provides the rack-mounted instrument with enough clearance for air circulation and accommodation of the power cord and mounting hardware. Failure to provide these clearances can result in overheating and can cause instrument faults or failure.*

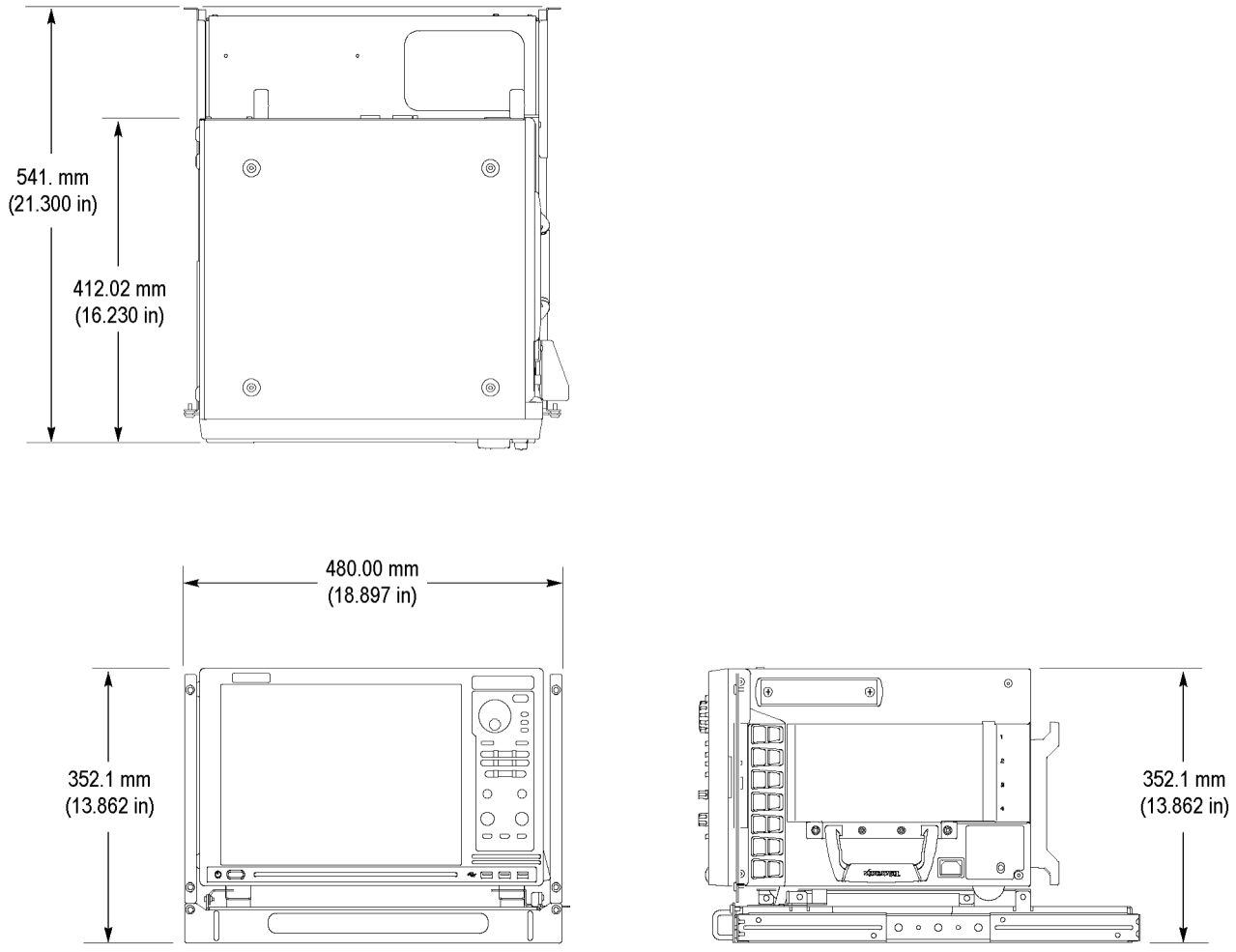

Figure 4: TLA7012 or TLA6200 series instrument with rack adapter installed

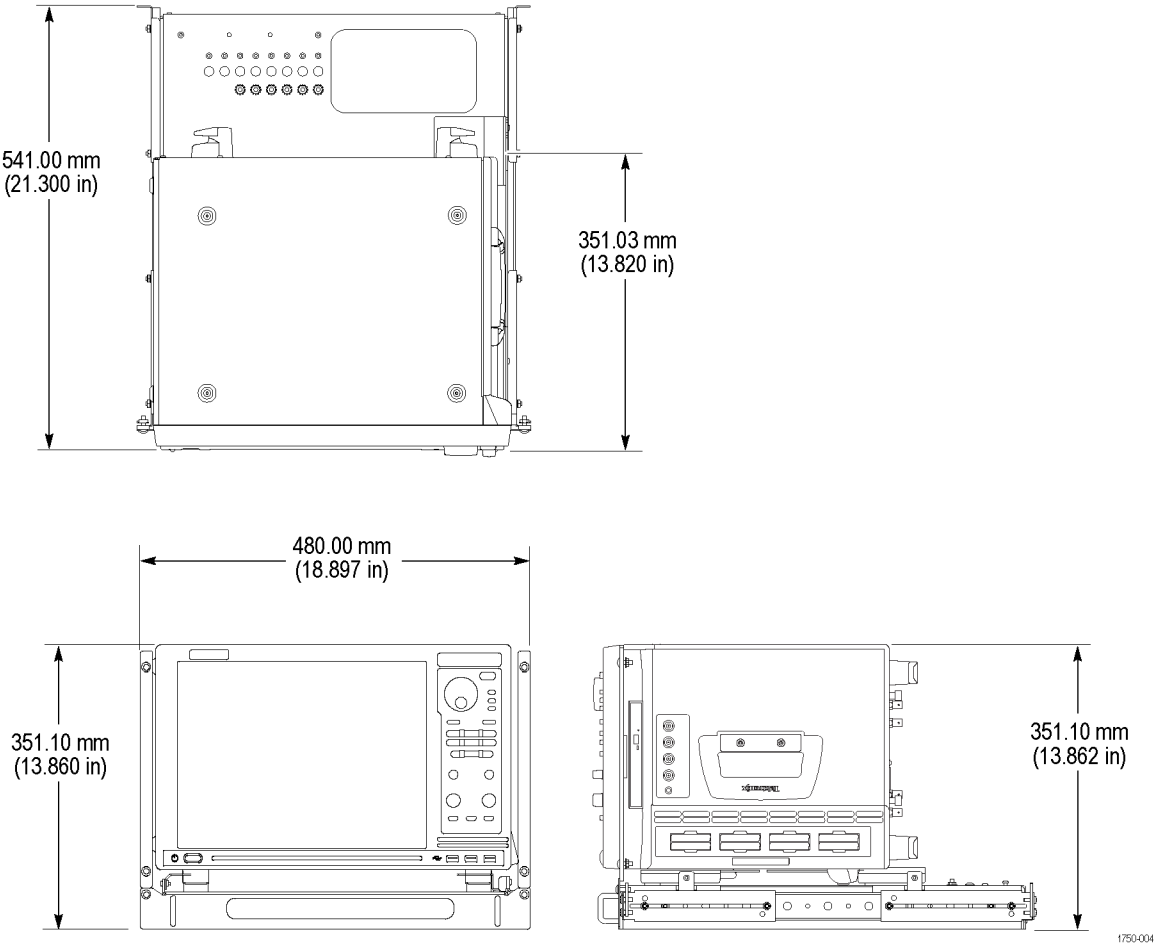

Figure 5: TLA6400 series instrument with rack adapter installed

Installation Instructions

This section contains all procedures needed to rackmount the instrument.

CAUTION. *This kit requires you to remove the right-side panel of the instrument rack you intend to use. You must have access to the right side of your instrument to connect the logic analyzer probes when the instrument is installed in the rack.*

Minimum Tool and Equipment List

The following tools are required to attach the rack-adapter kit hardware, install cabling hardware, and mount the rack-adapted instrument into a standard equipment cabinet. All tools are standard tools that are readily available.

Table 2: Tools required for rackmount installation

Item no.	Name	Description
1	Screwdriver handle (magnetic)	Accepts 1/4-inch hexagonal head driver tips
2	No. 2 Phillips or Pozidriv tip	Phillips or Pozidriv-driver tip for number 2 size screw heads
3	T-15 Torx tip	Torx-driver tip for T-15 size screw heads
4	11/32-inch wrench	Wrench or nut driver can be used to install slides
5	Torque driver	Accepts 1/4-inch hexagonal head driver tips

These instructions are for personnel who are familiar with servicing the product. If you need further details for disassembling or reassembling the product, refer to the appropriate product manual. Contact your nearest Tektronix Service Center or Tektronix Factory Service for installation assistance.

WARNING. *To prevent the rackmounted instrument from tipping forward onto the operator, install the instrument so that the operator is able to access all of its rear-panel connectors without pushing down on the instrument.*

Verify that the rack does not become unstable with the instrument fully extended. Do not leave the instrument extended when finished accessing the rear panel.

Assemble the Shelf

Begin the installation procedure by attaching the brackets to the track assembly:

1. Remove the mounting screw that is attached to each track. (See Figure 6.)
2. Mount one bracket to the front of each track assembly using two 8-32 flat-head screws for each bracket. You must slide the rail within the track assembly to gain access to the mounting screws and holes. See the latch detail. (See Figure 7 on page 11.)

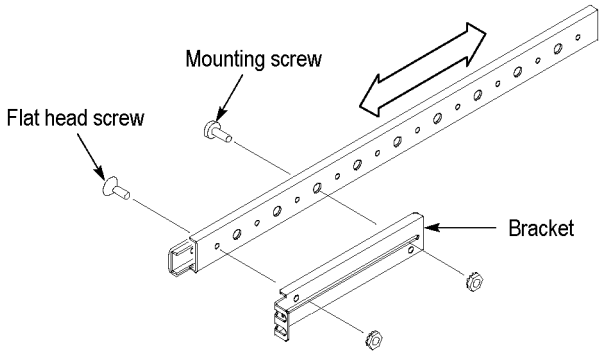

Figure 6: Preparing the track assembly

3. Use two 8-32 locking-nut washer assemblies to attach the track on the shelf assembly, applying 28 inch-lbs of torque. (Move the rail within the track to gain access to the rearward mounting hole).

   Refer to the following figure to help you attach the tracks to the shelf.

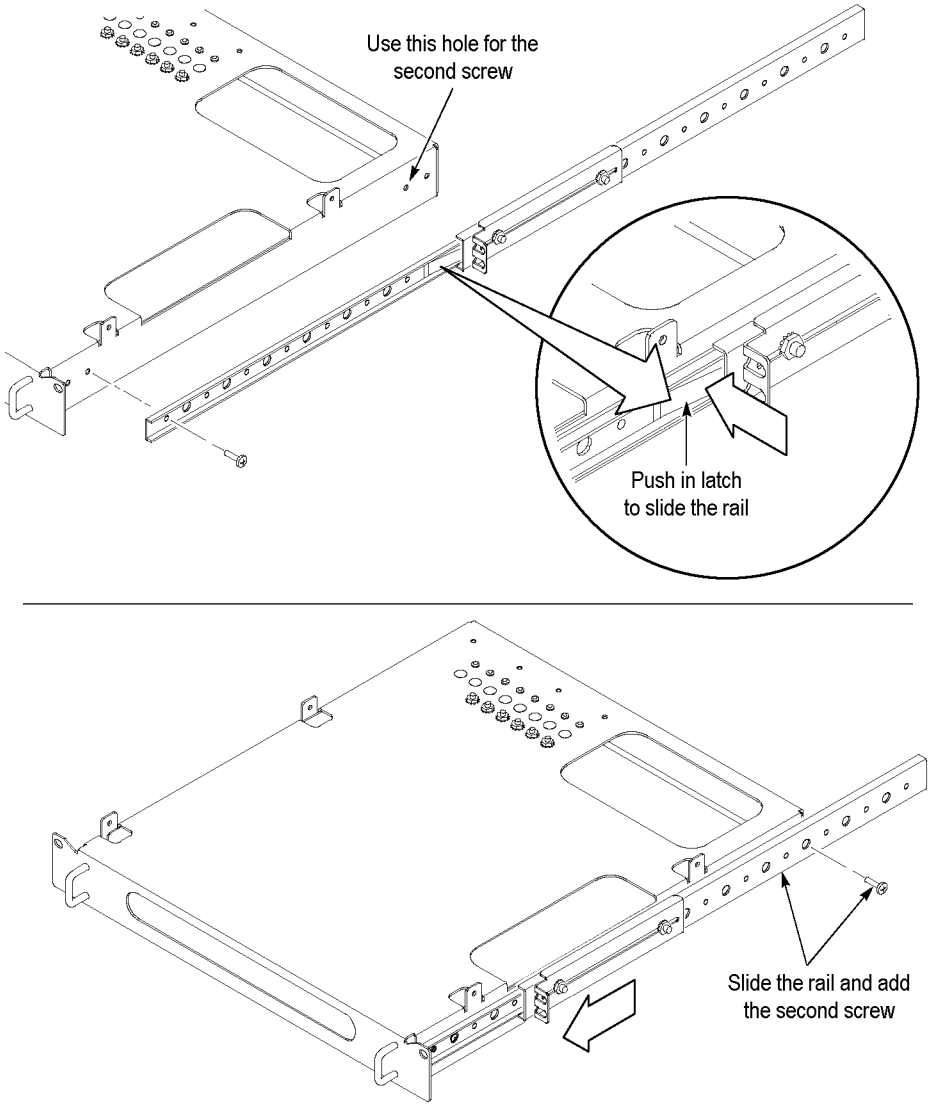

Figure 7: Rackmount shelf preassembly

Prepare the Instrument Rack

This section describes mounting the rackmount parts to the instrument rack.

1. Remove the right-side panel of the instrument rack.
2. Select two 0.5 inch-spaced holes that have at least 14 inches of clearance above, on all four rails of the rack. (See Figure 8.)

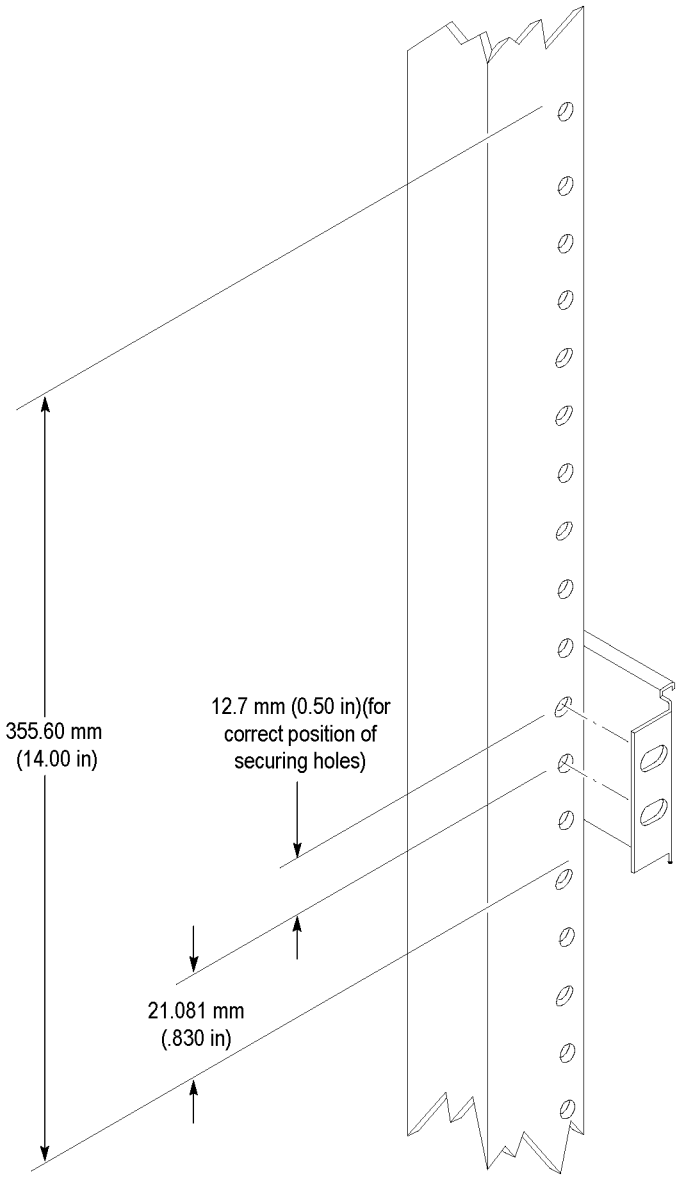

Figure 8: Vertical clearances for rack installation (left-front rail shown)

3. Select the mounting method according to rack type:
   - To mount the brackets with their rear flanges outside the rear rails, use the Mounting Method A when doing Step 4. Add a bar nut to the installation only if the rails have untapped holes.
   - To mount with the rear flanges inside the rails, use the Mounting Method B. This mounting method assumes untapped holes.

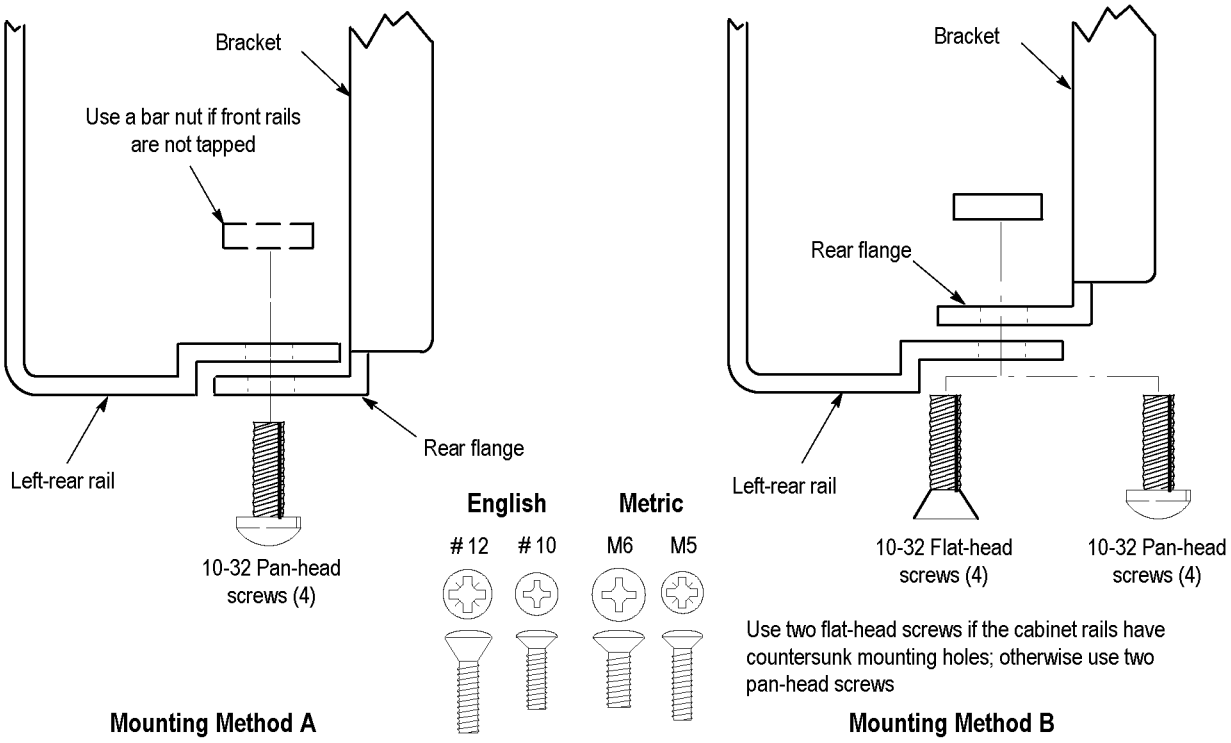

Figure 9: Installation of slide-out track assemblies in rack (top view)

4. Using the method and hardware determined from step 3, attach the brackets to the rear rails. The screws should be fully, but lightly, seated so mounting can be adjusted later.

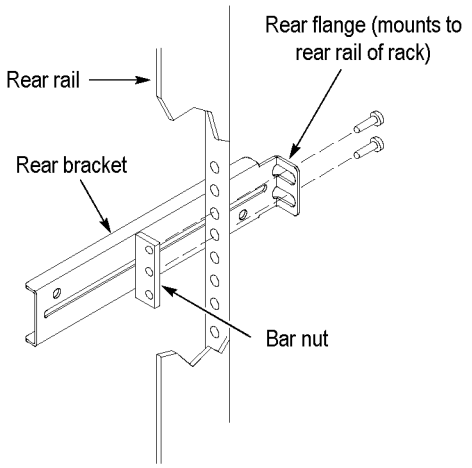

Figure 10: Attaching the rear brackets to the instrument rails

5. Mount the cosmetic trim on the front, using two 10-32 screws each. (See Figure 11.) (Item 2 in this figure shows you where to locate the shelf during shelf installation).

Install the Shelf/Track Assembly into the Rack

You will need the following tools to install the shelf/track assembly. (See Table 2 on page 9.)

- One screwdriver handle (Item 1)
- One number two Pozidriv tip (Item 2)
- One torque driver (Item 5)

NOTE. *The rack hardware kit contains hardware for mounting the instrument in several configurations. Not all of the hardware in the kit is needed.*

A standard equipment rack has rails with universal hole spacing. If you use a rack with other than universal hole spacing, you may have to drill additional mounting holes in the rack.

1. Grab the shelf/track assembly and slide the tracks into the brackets on the rear rails of the instrument rack.
2. Align the front of the shelf to the bottom of the cosmetic trim on the front of the instrument rack.

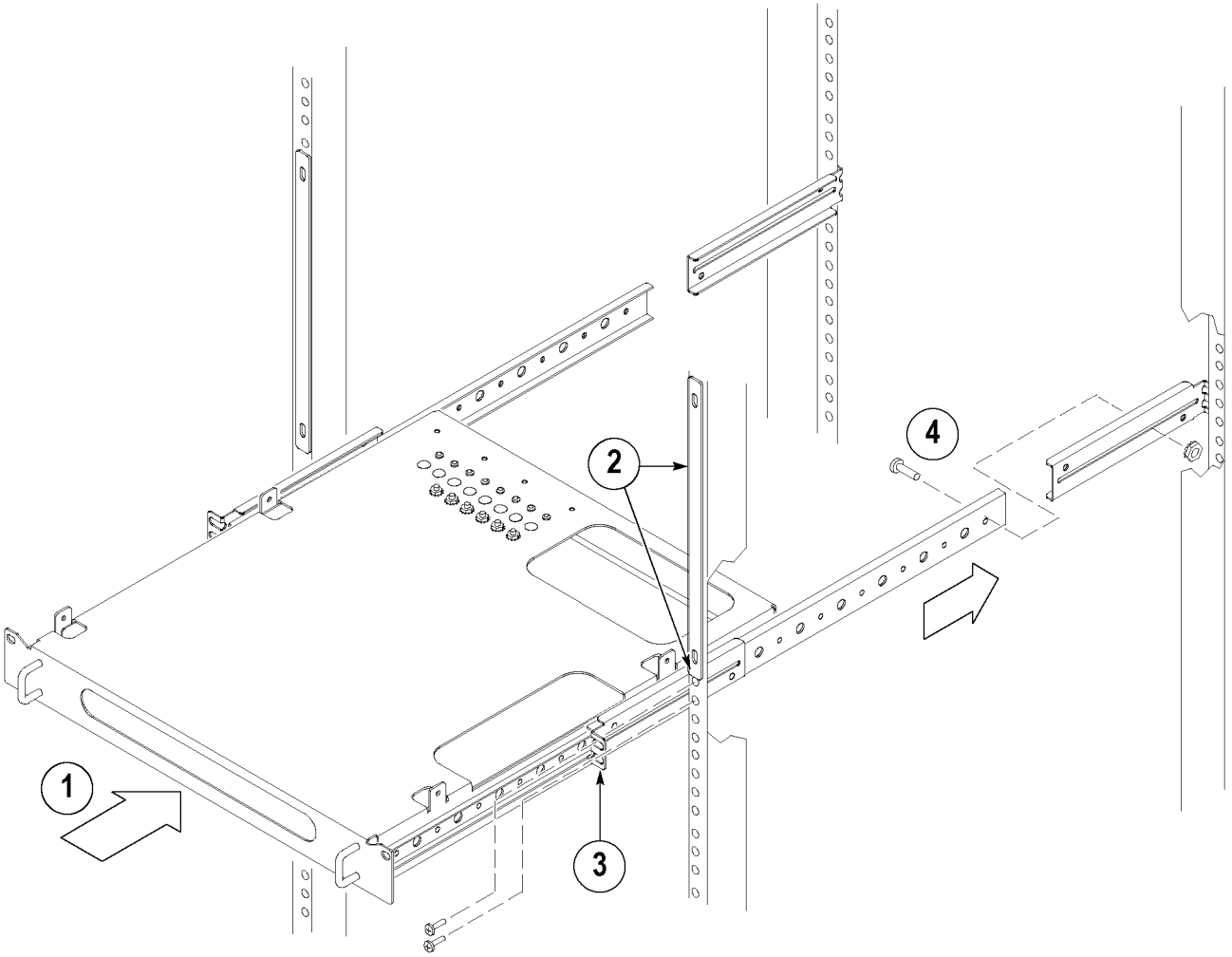

Figure 11: Installing the shelf/track assembly

3. Install two 10-32, P2 screws through the front brackets to the rack on each side of the shelf front.
4. Install two 8-32 screws through the shelf tracks to the rear brackets. Attach the screws with the 8-32 lock nuts included in the kit.
5. Tighten all of the screws and check that the shelf slides in and out easily. Loosen and adjust, if necessary.

Attach the Brackets to the Instrument

1. Set the instrument on its back feet to expose the instrument bottom.
2. Remove the four T-15 Torx screws near the bottom feet. Refer to the appropriate illustration for your instrument.

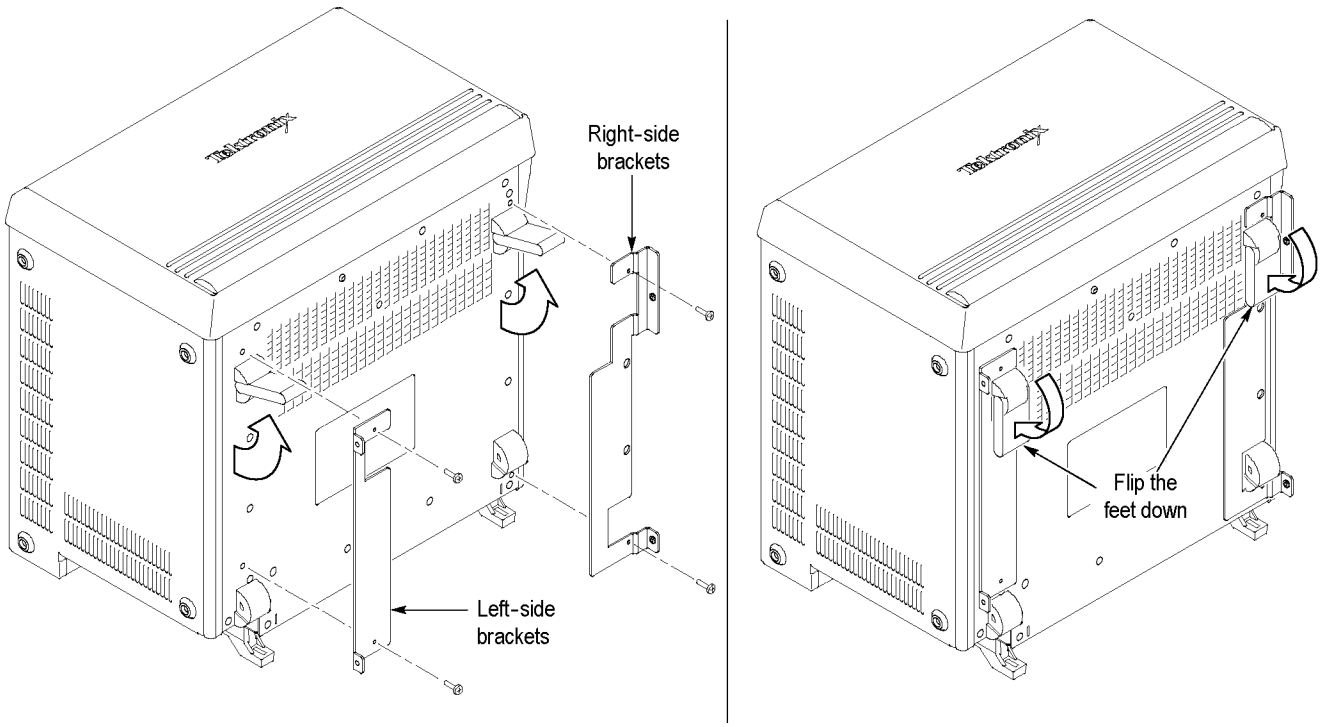

Figure 12: Location of screws on the TLA7012 or TLA6200 series instrument for bracket mounting

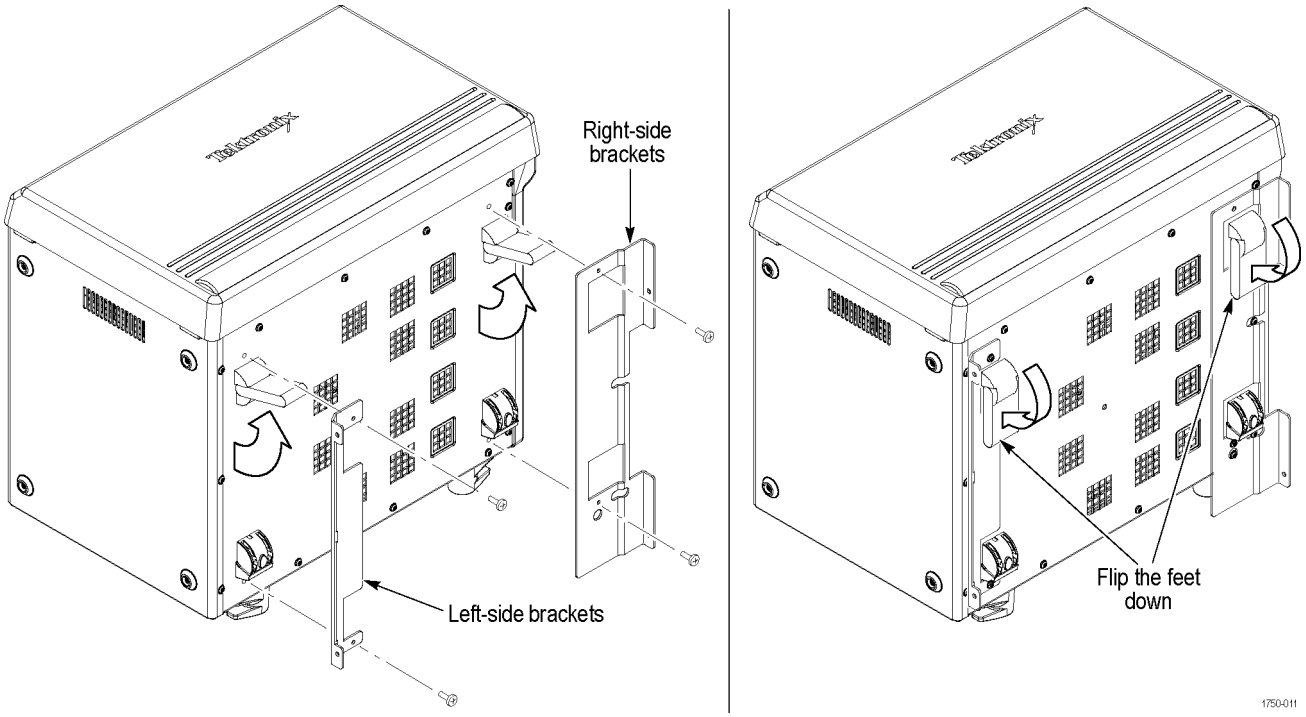

Figure 13: Location of screws on the TLA6400 series instrument for bracket mounting

3. Attach the right and left-side brackets to the bottom of the instrument using the screws that you removed in the previous step.
4. Fold the front feet down flat against the bottom of the instrument.

Mount the Instrument to the Shelf

The slide-out shelf permits the rack-adapted instrument to be extended out of the rack for rear-panel and connector maintenance without removing the instrument from the rack.

The rackmount kit includes a mechanical safety stop that prevents the instrument from accidentally being pulled out while probes are attached.

CAUTION. *To prevent damaging the probes, remove any probes from the instrument before extending the instrument. Also, for the TLA7012 Portable Mainframe, you may want to remove any modules from the instrument to make it lighter. Always reinstall the mechanical safety stop after you push the instrument back into the rack.*

WARNING. *To prevent the rackmounted instrument from tipping forward onto the operator, install the instrument so that the operator is able to access all of its rear devices without pushing down on the instrument.*

Verify that the rack does not become unstable with the instrument fully extended. Do not leave the instrument extended when finished accessing the rear panel.

WARNING. *To prevent the instrument from tipping or dropping onto the installers, two or more people should install this instrument into the rack cabinet.*

After completing the installation procedure, the installers should verify that the instrument and rack cabinet will not tip forward while the instrument is in the extended position.

1. Pull the shelf out from the rack.
2. Place the instrument on the shelf.
3. Align the instrument bracket screw holes with the threaded holes in the shelf.
4. Attach the instrument to the shelf with three 6-32 screws. Leave the front right-side screw out. The screws are stored on the rear of the shelf.

   The following figure shows a TLA6400 series instrument. The instrument brackets for the TLA7012 and TLA6200 series instruments look similar.

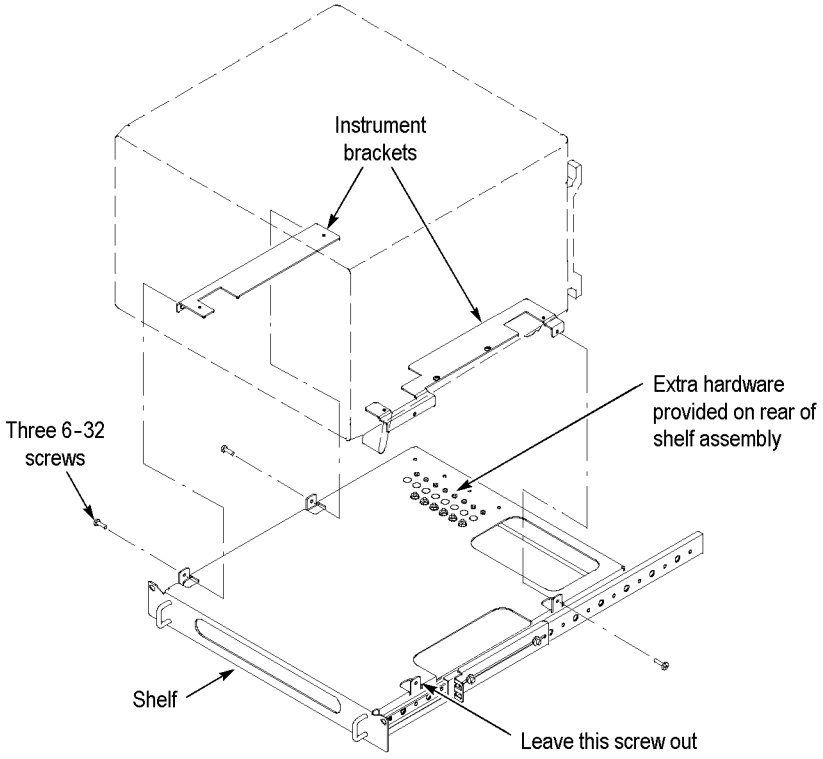

Figure 14: Mounting the instrument to the shelf

5. Slowly push the shelf back into the rack.

   If your instrument is a TLA7012 or TLA6200 series, verify that the instrument handle and power cord clear the right-side rack rail. If necessary, remove from the instrument:

   a. The handle, by first removing the right-side cover (six screws), and then the two handle screws. Replace the cover and mount the handle on the shelf as described in step 8.

   b. The power cord, by disconnecting it from the socket of the instrument and pushing the cord flat against the instrument. If necessary, remove the cord entirely by turning the cord mounting post 1/4-turn clockwise.

6. When the shelf is pushed all the way in, attach the safety stop to the shelf with the fourth 6-32 screw.

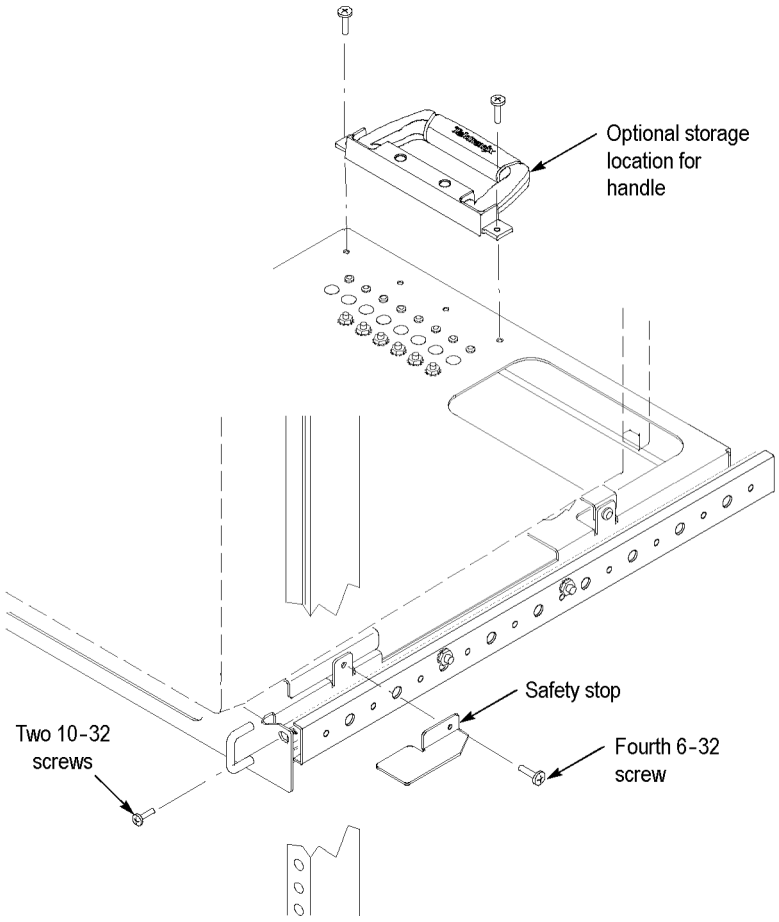

Figure 15: Mount the safety stop to the shelf

7. Attach the shelf to the front rails using two 10-32 screws (one each side).
8. If you removed the instrument handle in step 5, mount the handle on the rear of the shelf.
9. If necessary, reattach the power cord to the instrument by turning the mounting post 1/4-turn counterclockwise.
10. Connect the power cord to the instrument receptacle and the AC source in the instrument rack.

Route the Probes to Your System-Under-Test

The rackmount kit design allows you to route your logic analyzer probes out through the front or rear of your instrument rack.

1. Determine the best route for the probes to your system under test.
2. Push the logic analyzer end of the probe, one at a time, through the opening at the front or back of the instrument rack, depending on your system-under-test location.
3. Route the probe underneath the instrument and through the cable opening on the probe connection side of the shelf.
4. Connect the probe to the instrument. The following figures show the routing of the probes from the instrument to the front and rear of the rack.

NOTE. *It may be easier to first route all of the probes that you need through the shelf, and then connect them to the instrument.*

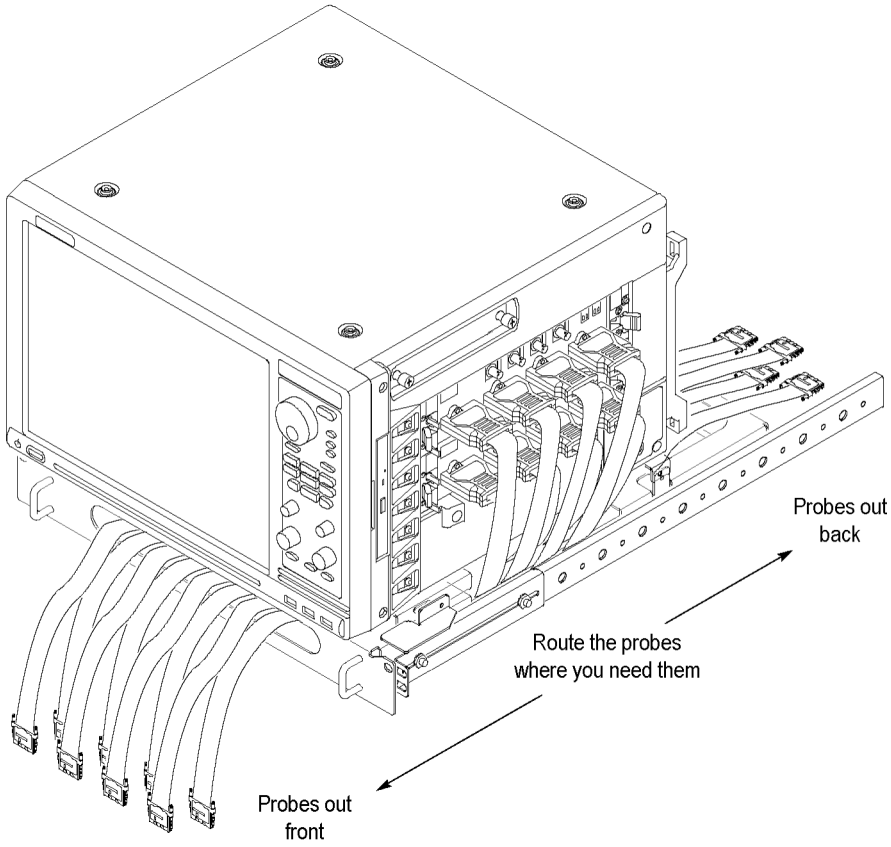

Figure 16: Routing the probes from the instrument

5. Repeat the above steps for the remaining probes.
6. Connect the probes to your system under test.