

# Instructions



**606-0125-00**

**Rackmount Kit**

**WCA200 and WCA200A Series**

**Portable Wireless Communication Analyzers**

**RSA200, RSA2000A and RSA3000A Series**

**Real-Time Spectrum Analyzers**

**075-1263-01**

**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 Information

This introduction describes the WCA Wireless Communication Analyzers and RSA Real-Time Spectrum Analyzers Rack Adapter Kit, discusses its effects on analyzer performance, and lists its clearance requirements. *Please read these topics before attempting to rackmount your analyzer.*

The remainder of this document refers to the WCA Wireless Communication Analyzers and RSA Real-Time Spectrum Analyzers generically as analyzers.

## Products

<b>WCA230A and WCA280A</b>	All serial numbers
<b>WCA230 and WCA280</b>	All serial numbers
<b>RSA2203A and RSA2208A</b>	All serial numbers
<b>RSA230 and RSA280</b>	All serial numbers
<b>RSA3303A and RSA3308A</b>	All serial numbers
<b>RSA3408A</b>	All serial numbers

## Rack-Adapter Kit Description

The rack adapter kit is a collection of parts that, once installed, configure the analyzer for mounting in a standard 19-inch equipment rack.

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**NOTE.** *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*

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The rack-adapter kit can be obtained in two ways:

- Customers with a standard-version analyzer can order the kit by part number and install it to adapt the analyzer for rackmounting.
- Customers who purchase a new analyzer can order it with option 1R. Tektronix will ship option 1R analyzers with the rack adapter kit hardware already installed on the analyzer.

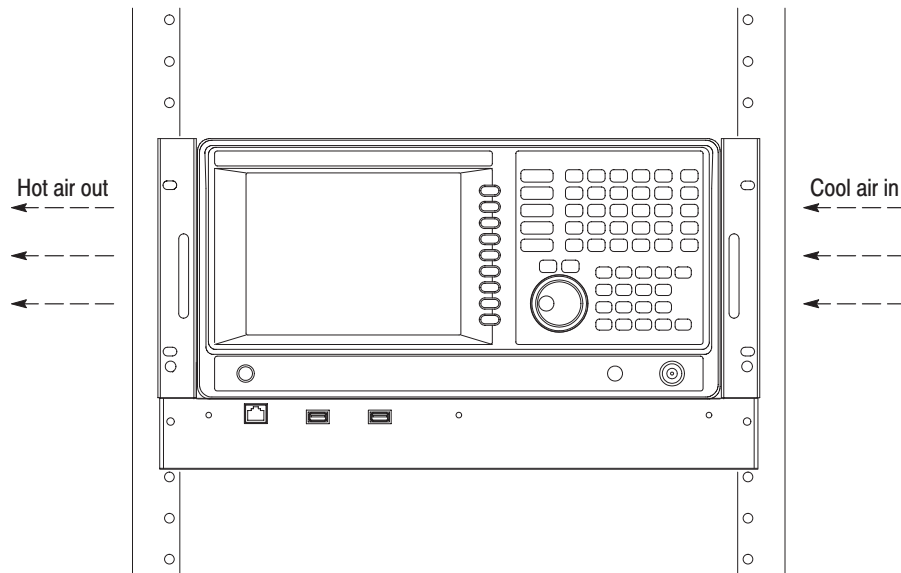
The instructions in this document cover the installation of option 1R analyzers, as well as rack-adapting and installation of standard analyzers.

The dimensional drawing in Figure 4 on page 8 illustrates the rack-adapted analyzer.

**Warranted Characteristics**

When the analyzer is installed according to the instructions in this document, the rackmounted analyzer meets all warranted requirements except for those listed in *Environmental Requirements* below. *Analyzers mounted using methods other than those described in these instructions may cause the analyzer to not meet its warranted requirements.*

Cooling air enters on the right side as shown in Figure 1. You assume responsibility to provide adequate cool air to meet the exhaust temperature requirements independent of ambient temperature.



**Figure 1: Analyzer cooling**

Refer to *Specification* in the user or service manual that applies to your analyzer model for tables of the warranted characteristics.

**Environmental Requirements**

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

**Table 1: Warranted characteristics**

Characteristic	Description
Temperature, operating	
Inside rack cabinet	+10 °C to +40 °C

## Clearance Requirements

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

- A minimum of 265.9 mm (10.5 in) of vertical space.
- A minimum width of 443.6 mm (17.5 in) between the left- and right-front rails in the rack.
- A minimum inside height depth of at least 507.0 mm (20.0 in).



**WARNING.** *Adhering to these clearance requirements mounts the rack adapted analyzer with sufficient for air circulation and accommodation of the power cord and mounting hardware. Failure to provide these clearances can result in overheating and can cause the analyzer to operate improperly and/or fail.*

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## Kit Parts List

Table 2 and 3 show the kit parts lists for a standard-version analyzer and an analyzer with option 1R, respectively.

**NOTE.** For replaceable parts, refer to the service manual of your instrument.

**Table 2: Kit parts list for a standard-version analyzer**

Fig. & index number	Quantity	Part number	Description
2-1	14	211-A039-00	SCREW,MACHINE:M4X14MM L,PNH, STL ZN PL,CROSS REC
2-2	4	386-A866-00	PLATE:NUT
2-3	8	220-0193-00	NUT,PLAIN,HEX:M4X7MM HEX,STL,ZN-C
2-4	8	211-8800-50	SCREW,MACHINE:M4X8MM L,BDGH, STL,ZN-C
2-5	2	407-A708-00	BRACKET:SLIDE RAIL MT
2-6	2	351-A167-00	GUIDE,SLIDE:RACKMOUNT,L AND R, 457.2MM SLIDE LENGTH
2-7	2	407-A052-00	BRACKET(5517)
2-8	2	407-A694-00	BRACKET:REAR,RACKMOUNT
2-9	2	407-A695-00	BRACKET:SHIELD,SIDE PANEL
2-10	1	211-0871-00	SCREW,MACHINE:M3X6MM L,PNH,STL, ZN PL,CROSS REC,W/FLAT(7MM OD) &LOCK WASHER
2-11	4	212-A012-00	SCREW,MACHINE:M4X8MM L,TRUSS HD, STL,NI PL,CROSS REC
2-12	1	129-A137-00	SPACER,POST:46.0MM L,M3 INT/EXT,STL, MFZN-C PL,5.5MM HEX
2-13	1	129-A595-00	SPACER,POST:46.0MM L,M4 INT/EXT,STL, MFZN-C PL,7MM HEX
2-14	8	211-1028-00	SCREW,MACHINE:M4X8MM L,PNH, STL ZN-C PL,CROSS REC
2-15	1	-	TRAY ASSY
2-16	1	-	RIGHT SIDE BRACKET ASSY
2-17	1	-	LEFT SIDE BRACKET ASSY
2-18	1	333-A447-00	PANEL,FRONT:RACKMOUNT
2-19	1	075-1263-01	INSTRUCTION MANUAL, WCA2UP-1R

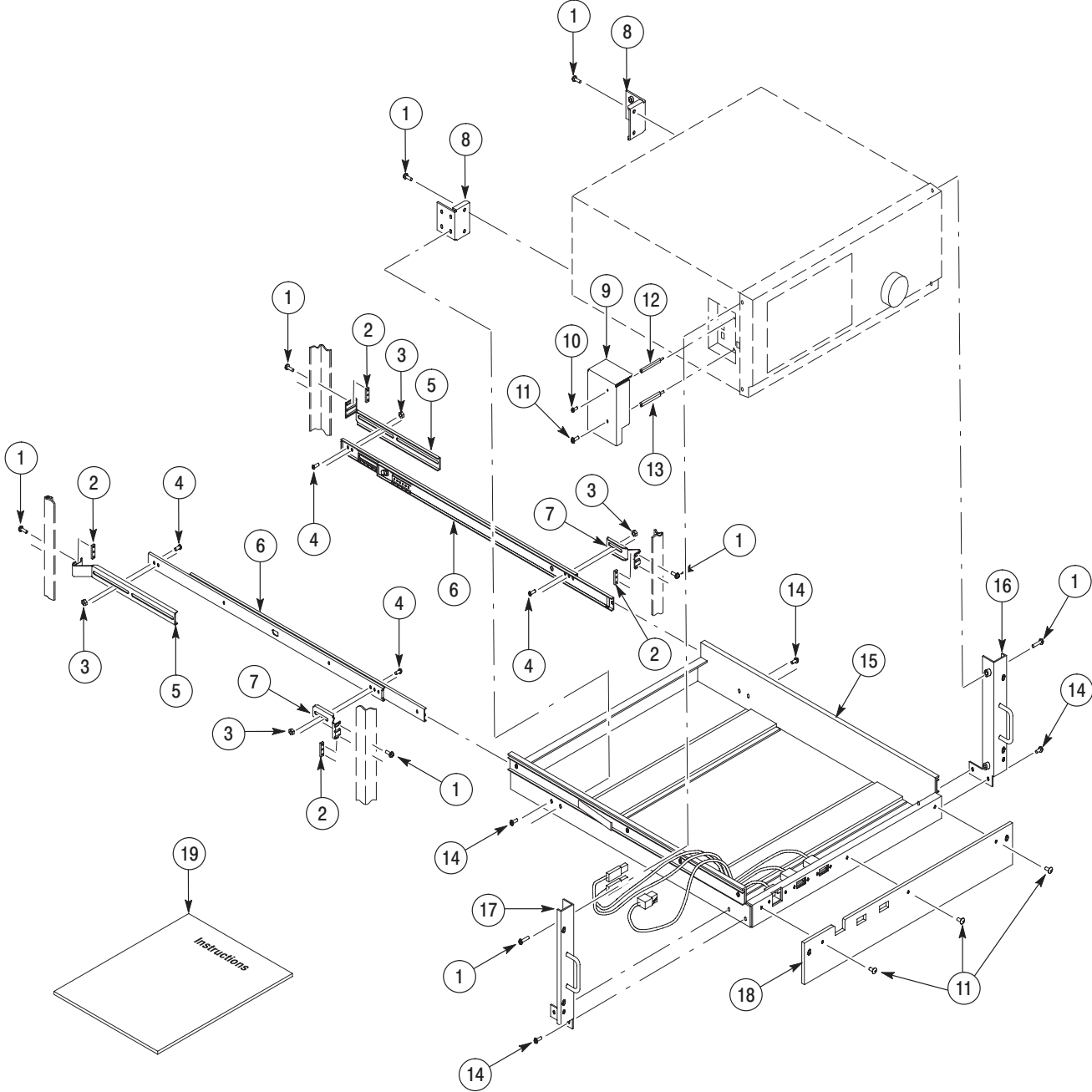


Figure 2: Kit parts for a standard-version analyzer

**Table 3: Kit parts list for option 1R analyzer**

<b>Fig. &amp; index number</b>	<b>Quantity</b>	<b>Part number</b>	<b>Description</b>
3-1	8	211-A039-00	SCREW,MACHINE:M4X14MM L,PNH, STL ZN PL,CROSS REC
3-2	4	386-A866-00	PLATE:NUT
3-3	8	220-0193-00	NUT,PLAIN,HEX:M4X7MM HEX,STL,ZN-C
3-4	8	211-8800-50	SCREW,MACHINE:M4X8MM L,BDGH, STL,ZN-C
3-5	2	407-A708-00	BRACKET:SLIDE RAIL MT
3-6	2	351-A167-00	GUIDE,SLIDE:RACKMOUNT,L AND R, 457.2MM SLIDE LENGTH
3-7	2	407-A052-00	BRACKET(5517)
3-8	4	211-A132-00	SCREW,MACHINE:M5X16MM L,PNH, STL ZN PL,CROSS REC
3-9	3	212-A012-00	SCREW,MACHINE:M4X8MM L,TRUSS HD, STL,NI PL,CROSS REC
3-10	1	333-A447-00	PANEL,FRONT:RACKMOUNT
3-11	1	075-1263-00	INSTRUCTION MANUAL, WCA2UP-1R



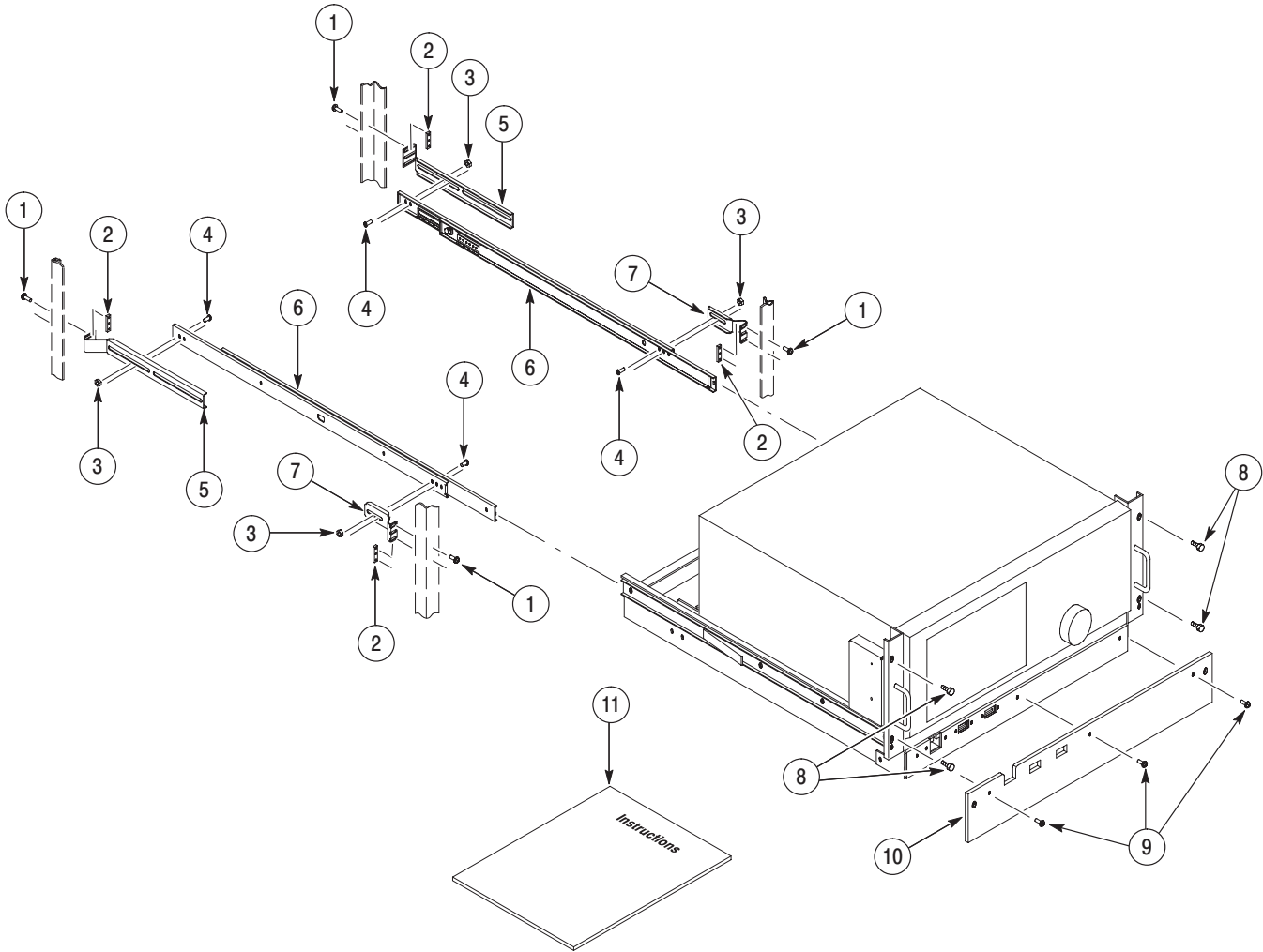
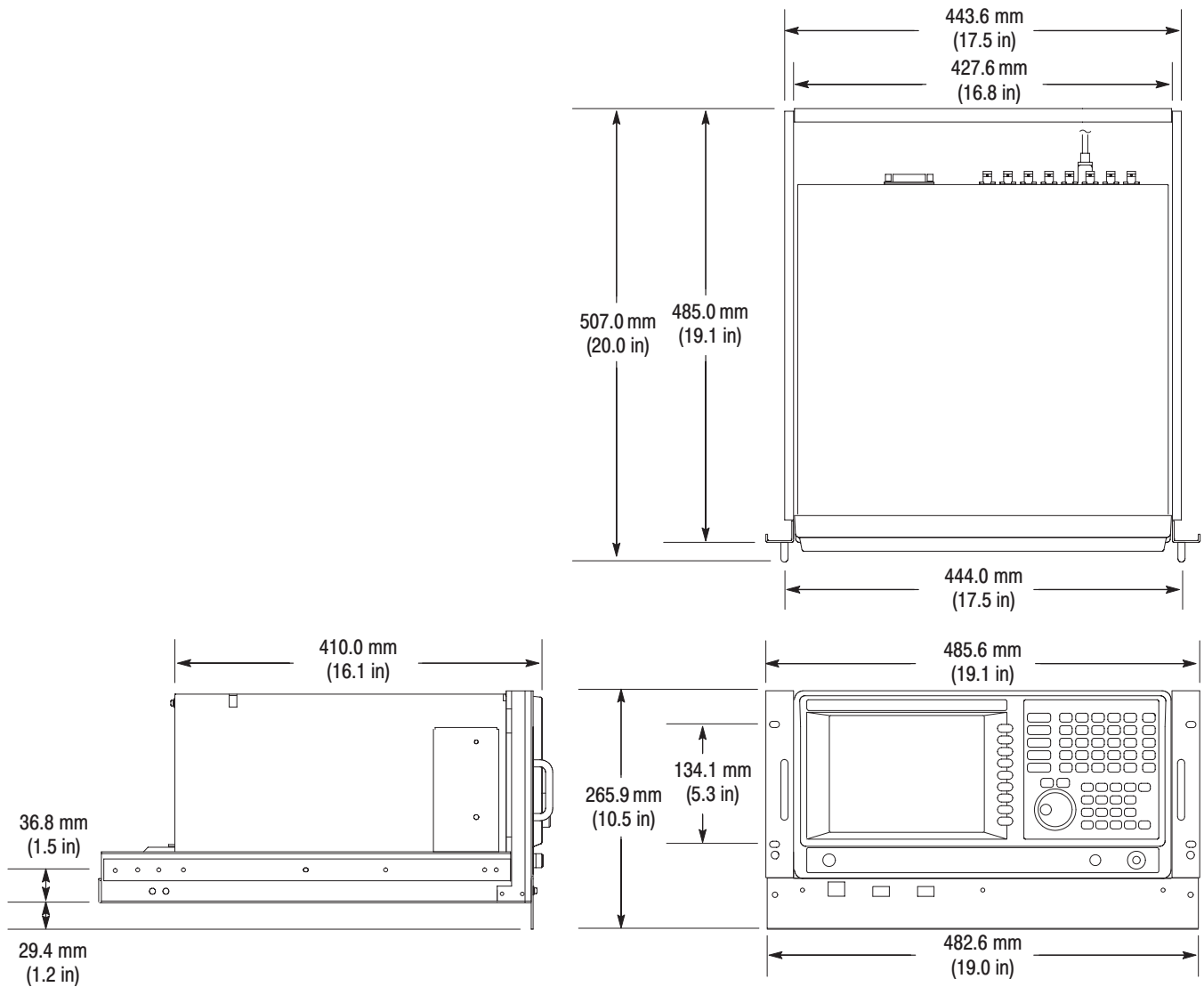


Figure 3: Kit parts for option 1R analyzer



**Figure 4: Instrument with rack adapter installed**

# Installation Instructions

This section contains all procedures needed to rackmount the WCA or RSA analyzer. Begin with *General Instructions*, on page 10.

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**NOTE.** Throughout this document, WCA or RSA Analyzers are referred to as either “standard” or “option 1R” versions. Standard versions are simply WCA or RSA Analyzers not equipped with option 1R. (The option-1R analyzers are shipped from the factory already configured for rackmounting.)

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**WARNING.** To avoid personal injury, prevent the instrument from tipping or dropping onto the installers. Two or more people should install this instrument into the rack cabinet. Install the instrument so that the operator will be able to access its rear panel connections without pushing on the instrument.

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## Equipment List

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

Depending on the type of installation you are doing, you may not need every item in this list. Refer to *General Instructions* on page 10 to determine which equipment your particular installation requires.

Required tools and equipment	Description
Screwdriver handle	Accepts Phillips-driver bits
#2 Phillips tip	Phillips-driver bit for #2 size screw heads
Nutdriver, 5.5 mm (7/32 inch)	Standard tool
Nutdriver, 7 mm (9/32 inch)	Standard tool

## General Instructions

First do these *General Instructions* to determine the type of installation, which procedures to perform, and what tools are required.

1. *Prepare for installation:* Be sure the rack meets the *Clearance Requirements* on page 3.
2. *Determine your installation type:*
  - a. **Field conversion:**
    - You have acquired the rack adapter kit, Tektronix part number 606-0125-00.
    - You are using the kit to adapt and install a standard version WCA or RSA analyzer in a standard 19-inch equipment rack.
  - b. **Option 1R installation:**
    - You have acquired an option-1R version WCA or RSA analyzer (Option-1R analyzers are configured for rackmounting from the factory.)
    - You are installing the slide-out track assemblies shipped with the option-1R analyzer to an equipment rack and mounting the option-1R analyzer in the rack.
  - c. **Reinstallation:** Your analyzer has been removed from the rack and you wish to reinstall it.
3. *Perform the installation according to type:*
  - a. **Field conversion:** Gather all items listed in *Equipment List*. Then do, in the order listed, the following procedures:
    - *Install the Rack Adapter Kit* on page 11
    - *Rackmount the Rack-Adapted Analyzer* on page 17
  - b. **Option 1R installation:** Gather all items in *Equipment List*. Then do the following procedure:
    - *Rackmount the Rack-Adapted Analyzer* on page 17
  - c. **Reinstallation:** If reinstalling a rack-adapted analyzer, only a #2 Phillips screwdriver is required. Just do steps 1 and 3 of *Mount Analyzer in Rack* on page 22.

## Install the Rack Adapter Kit

Be sure you have done the procedure *General Instructions*.

The instructions found here accomplish the following:

- Strips the standard analyzer of hardware not used when it is rack-adapted
- Installs those hardware items from the rack-adapter kit that attach directly to the analyzer

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**NOTE.** *All parts removed from the analyzer in this procedure should be kept. Some of those parts will be needed to perform this rack conversion and the remainder will be needed if reversion to a standard analyzer configuration is desired at a later time.*

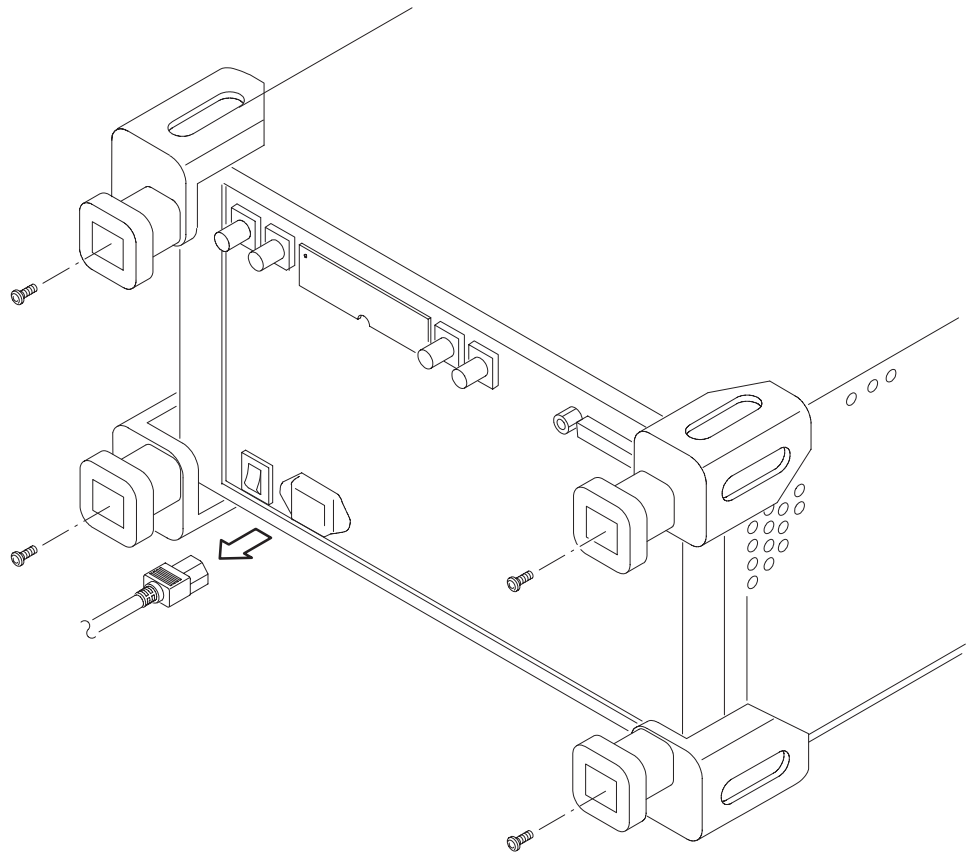
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## Strip the Analyzer for Conversion

*Equipment Required:* One #2 Phillips screwdriver.

*Procedure:*

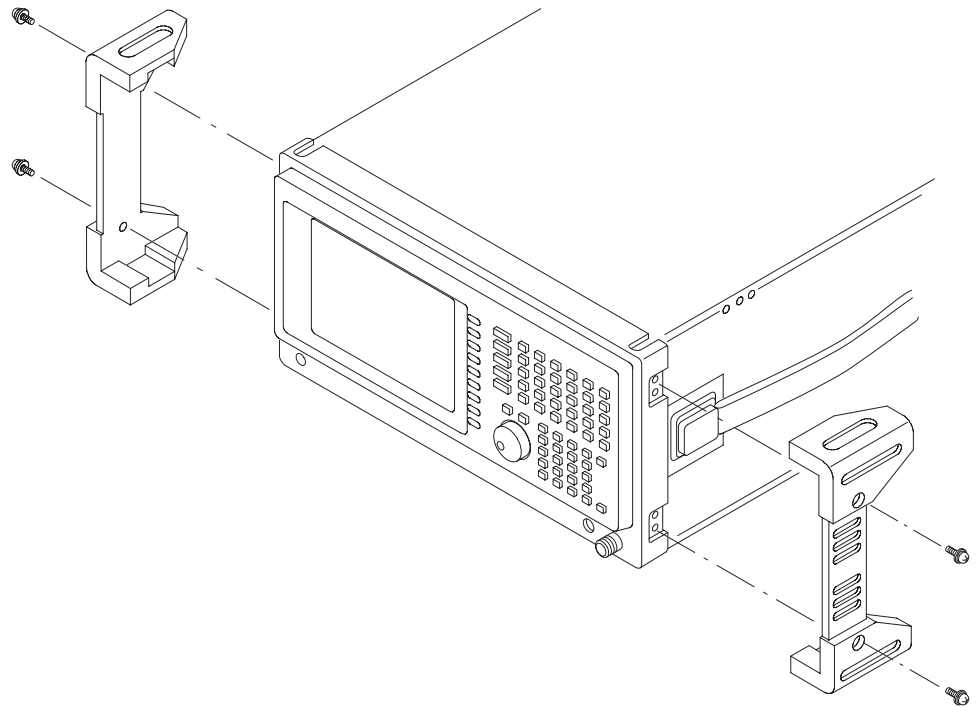
1. *Remove cables and rear cushions:*
  - a. Disconnect all external cables and the power cord from the analyzer.
  - b. Remove the one screw securing the rear cushion over the cabinet to the rear panel at each corner. Detach the cushions. See Figure 5.



**Figure 5: Rear cushions removal**

**2. Removing the Front Cushions:**

- a. Remove the two screws securing the front cushion to the side panel at each side. See Figure 6.
- b. Lifting the front of the analyzer slightly, move the front cushion away.

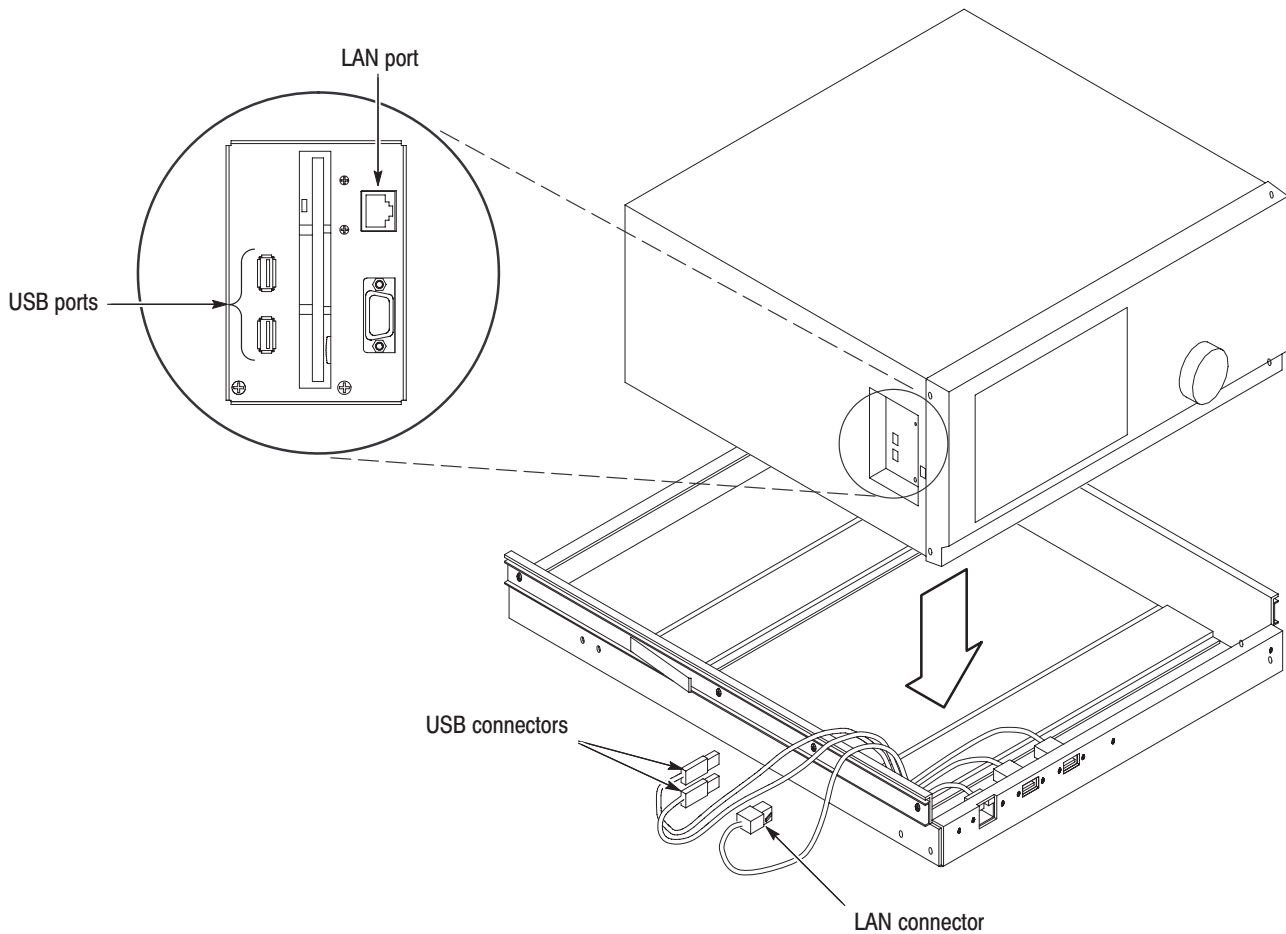
**Figure 6: Front cushions removal**

### Install Kit Hardware

*Equipment Required:* One #2 Phillips screwdriver, one 5.5 mm nutdriver and one 7 mm nutdriver.

*Procedure:*

1. Place the analyzer on the drawer:
  - a. Put the analyzer in the front of the drawer. See Figure 7.  
(You will position the analyzer precisely in step 2 on the next page.)
  - b. Plug the USB and LAN connectors into the USB and LAN ports on the side panel.

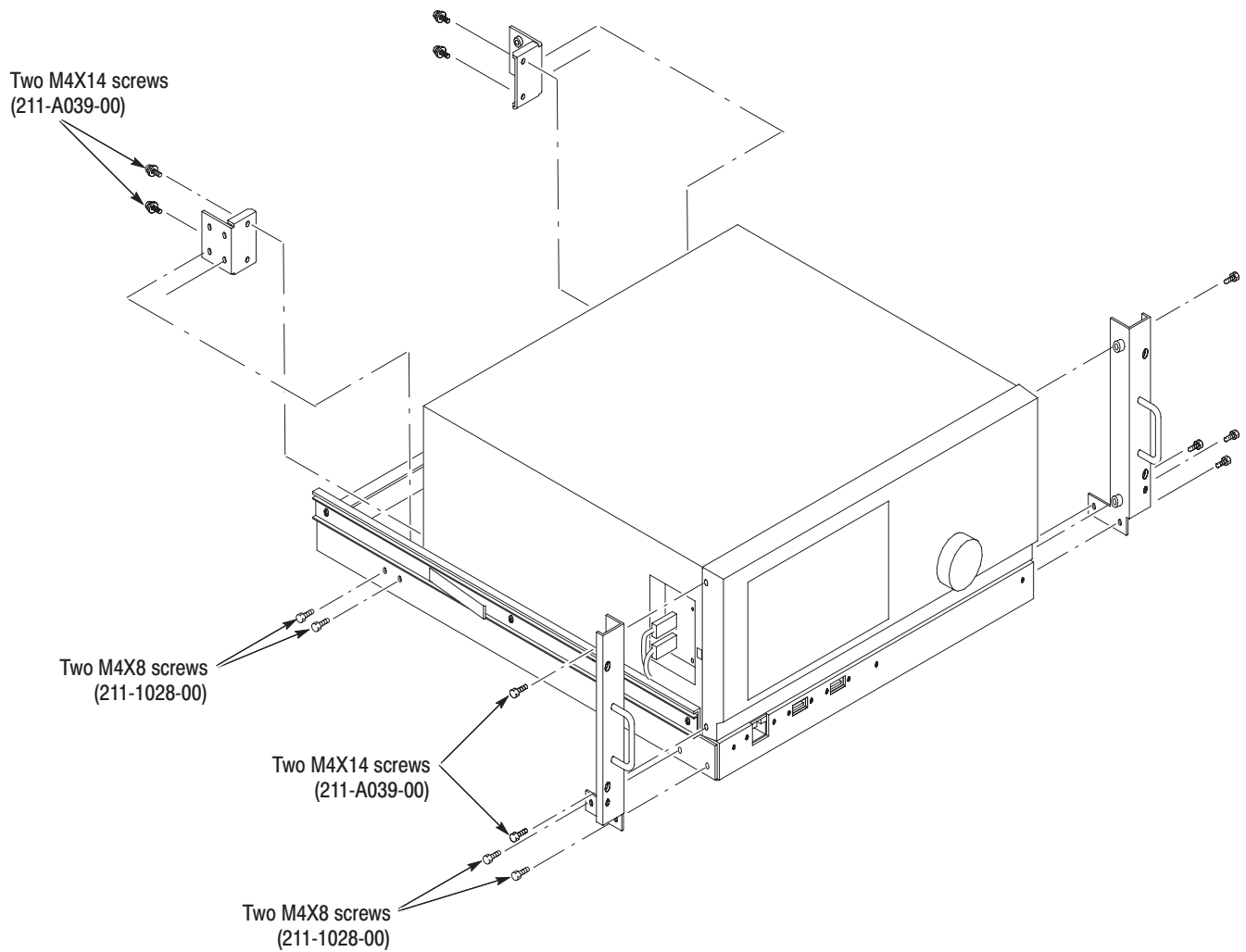


**Figure 7: Placing the analyzer on the drawer**



**2. Attach the front and rear support brackets:**

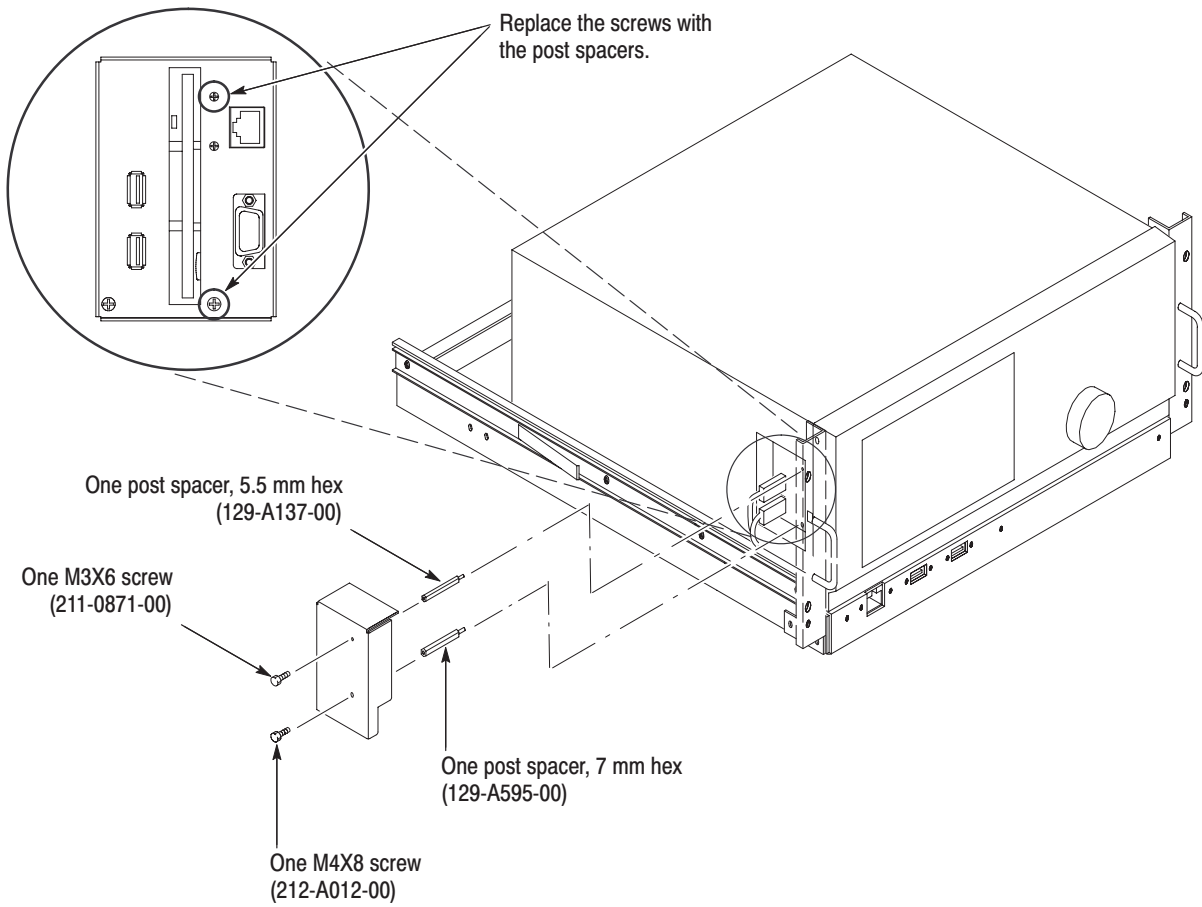
- a.** Attach the front support bracket with two M4×14 (Tektronix part number 211-A039-00) and two M4×8 (211-1028-00) screws at each side. See Figure 8.
- b.** Attach the rear support bracket with two M4×14 (211-1028-00) and two M4×8 (211-1028-00) screws at each side.



**Figure 8: Attaching the front and rear support brackets**

**3. Attach the side panel shield bracket:**

- a.** Remove the two screws on the side panel. See Figure 9.
- b.** Secure the post spacers to the screw holes (Tektronix part number 129-A137-00 for the upper and 129-A595-00 for the lower).
- c.** Secure the shield bracket to the side panel with the two screws (211-0871-00 for the upper and 212-A012-00 for the lower).



**Figure 9: Attaching the side panel shield bracket**

## Rackmount the Rack-Adapted Analyzer

This procedure assembles and installs the slide-out tracks in the equipment rack, and then installs the rack-adapted analyzer in the rack.

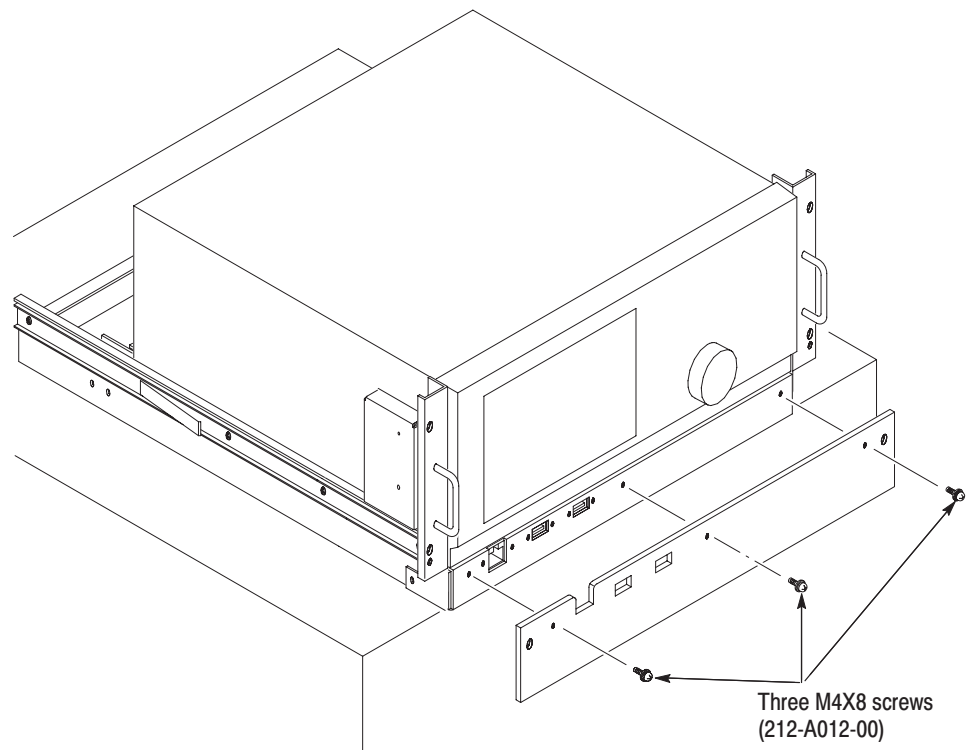
### Install Track Assembly

*Equipment Required:* One #2 Phillips screwdriver.

*Procedure:*

1. Attach the front panel to the mainframe with three M4 × 8 mm screws (Tektronix part number 212-A012-00). See Figure 10.

Place the mainframe on the edge of your bench with the front facing you to offset the height of the front panel.



**Figure 10: Attaching the front panel**

2. *Attach the brackets to the slide guides:* See Figure 11 for the right side.

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**NOTE.** *If the slide stops at the catch, you can unlatch the track by rotating the rear lock latch (see Figure 11) clockwise a little.*

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- a. Secure the rear bracket to the slide guide with two M4 × 8 screws (Tektronix part number 211-8800-50) and nuts (220-0193-00).

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**NOTE.** *Leave the screws loose so that the overall length of the slide guide assembly can be adjusted when installing it in the rack.*

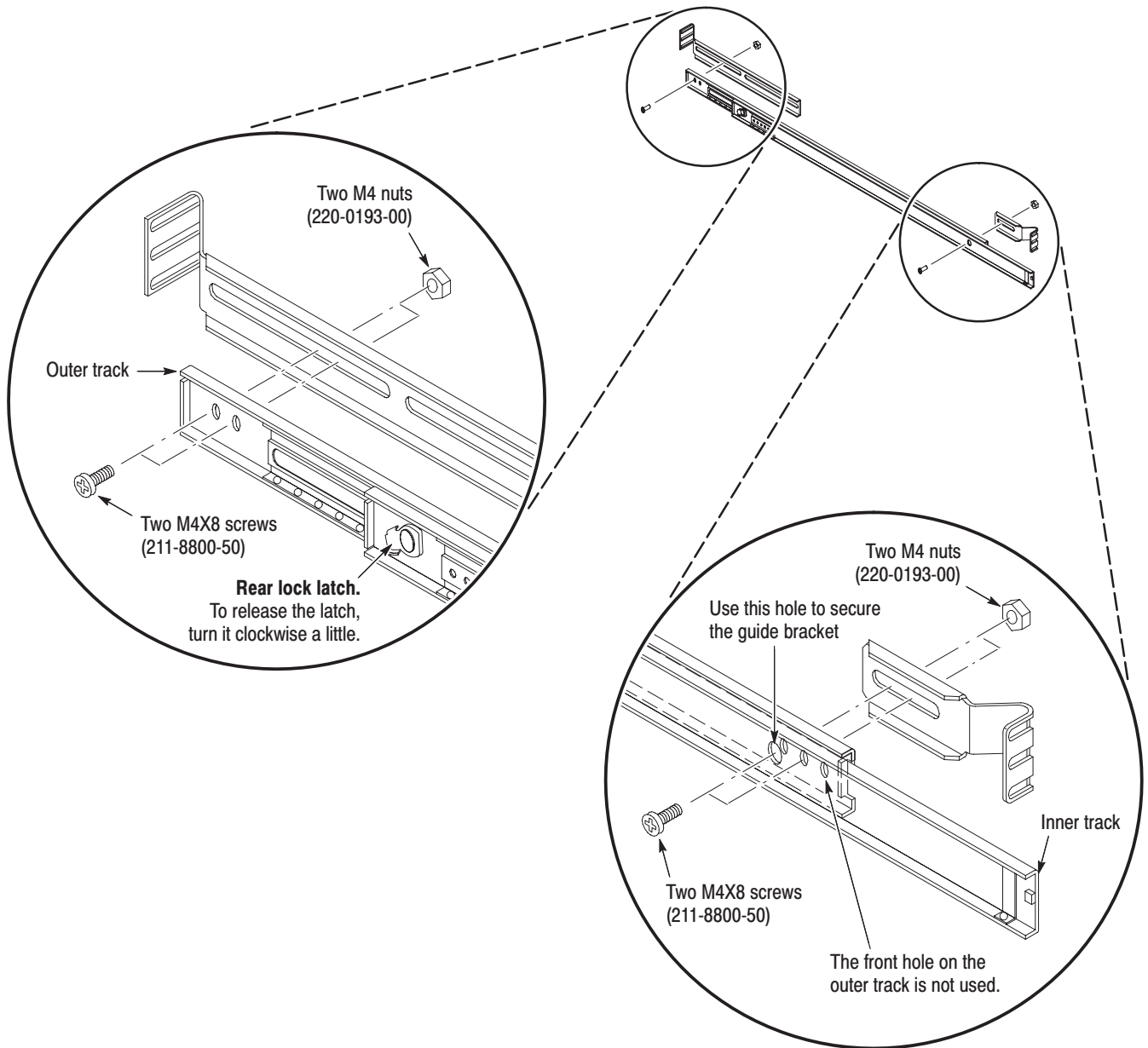
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- b. Secure the front bracket to the slide guide with two M4 × 8 screws (Tektronix part number 211-8800-50) and nuts (220-0193-00).

Use a hole on the inner track to screw the bracket on the outer track.

The front hole on the outer track is not used.

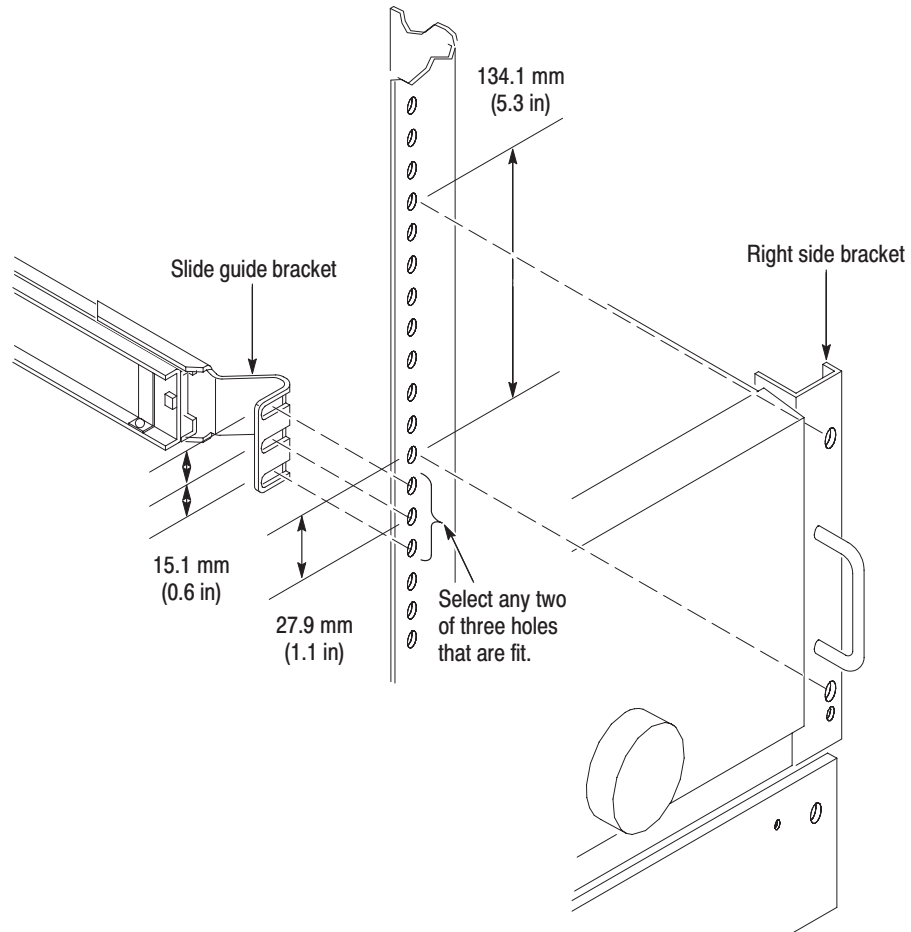
- c. Repeat substeps a and b for the left side.



**Figure 11: Attaching the slide guide brackets (the right side)**

**3. Mount the slide guide assemblies:**

- a. Select the mounting position in the rack:** See Figure 12 for the right side. Select two holes each for the right side bracket and the slide guide bracket. For the slide guide bracket, you can use any two of three holes that are fit.

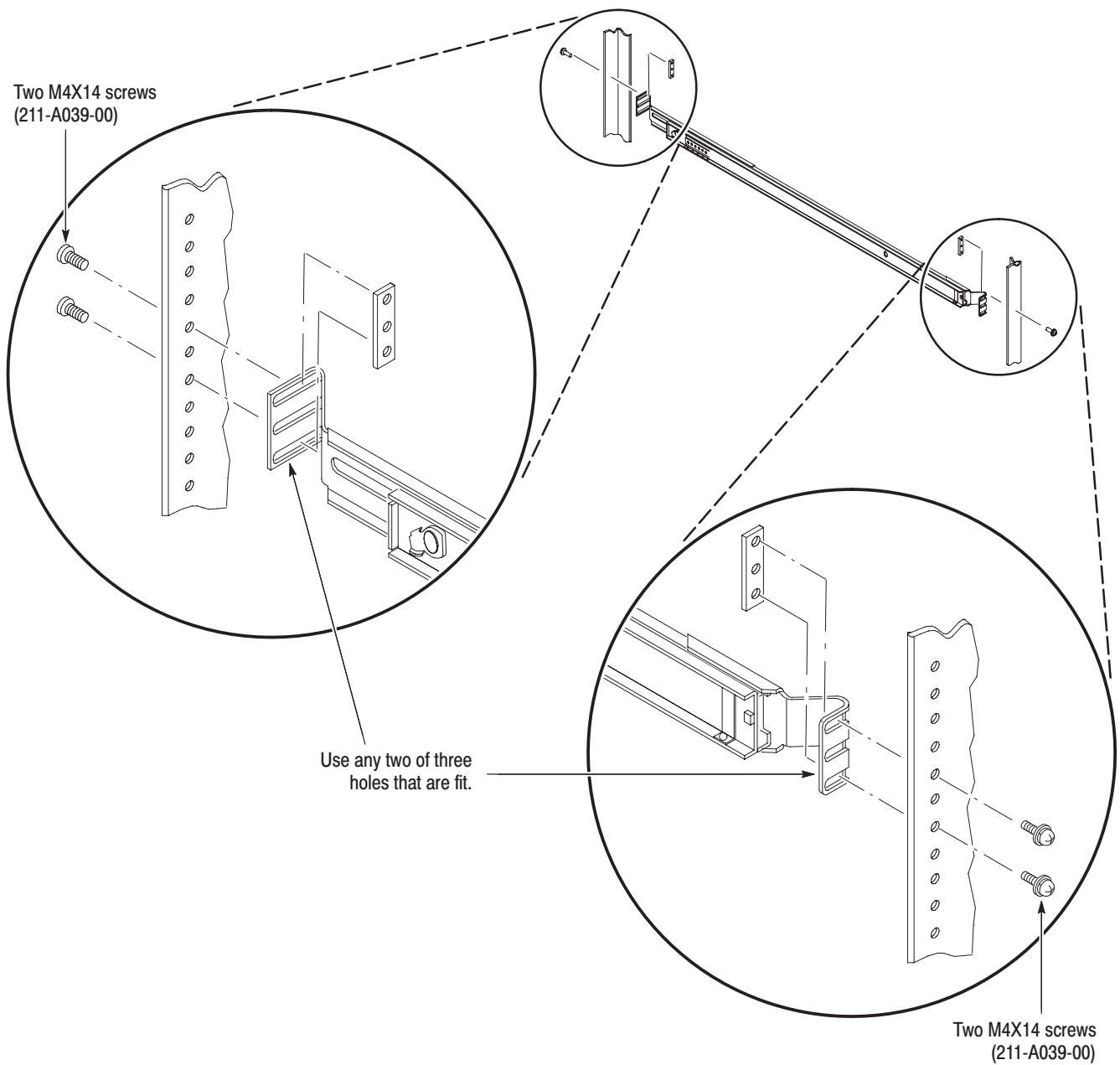


**Figure 12: Selecting the holes (the right side)**

- b. Install the slide guide assembly in the rack:** See Figure 13. Secure the right slide guide assembly to the front and the rear rails with two M4 × 14 screws (Tektronix part number 211-A039-00) and nut plates (386-A866-00), respectively.

The screws should be fully, but lightly, seated so mounting can be adjusted later.

- c. *Fix the length of the slide guide assembly:* Tighten the screws left loose in step 2 on page 18 to fix the length of the slide guide assembly.
- d. *Mount the left slide guide assembly:* Repeat substeps a through c just above for the left side.



**Figure 13: Mounting the slide guide assembly (the right side)**

## Mount Analyzer in Rack

*Equipment Required:* One #2 Phillips screwdriver.

*Procedure:* See Figure 14.

### 1. *Install the analyzer:*

- a. Working from the front of the rack, slide out the inner track of each slide guide until it stops at the catch.
- b. Insert the left and right inner tracks into the tracks on the analyzer. Make sure that the tracks on the analyzer slip inside the inner tracks.
- c. Slide the analyzer backwards until it stops.
- d. Press to release the automatic latch on each side, and continue to slide the analyzer until it stops.
- e. Release the rear lock latch on the inner track to slide the analyzer all the way into the cabinet.

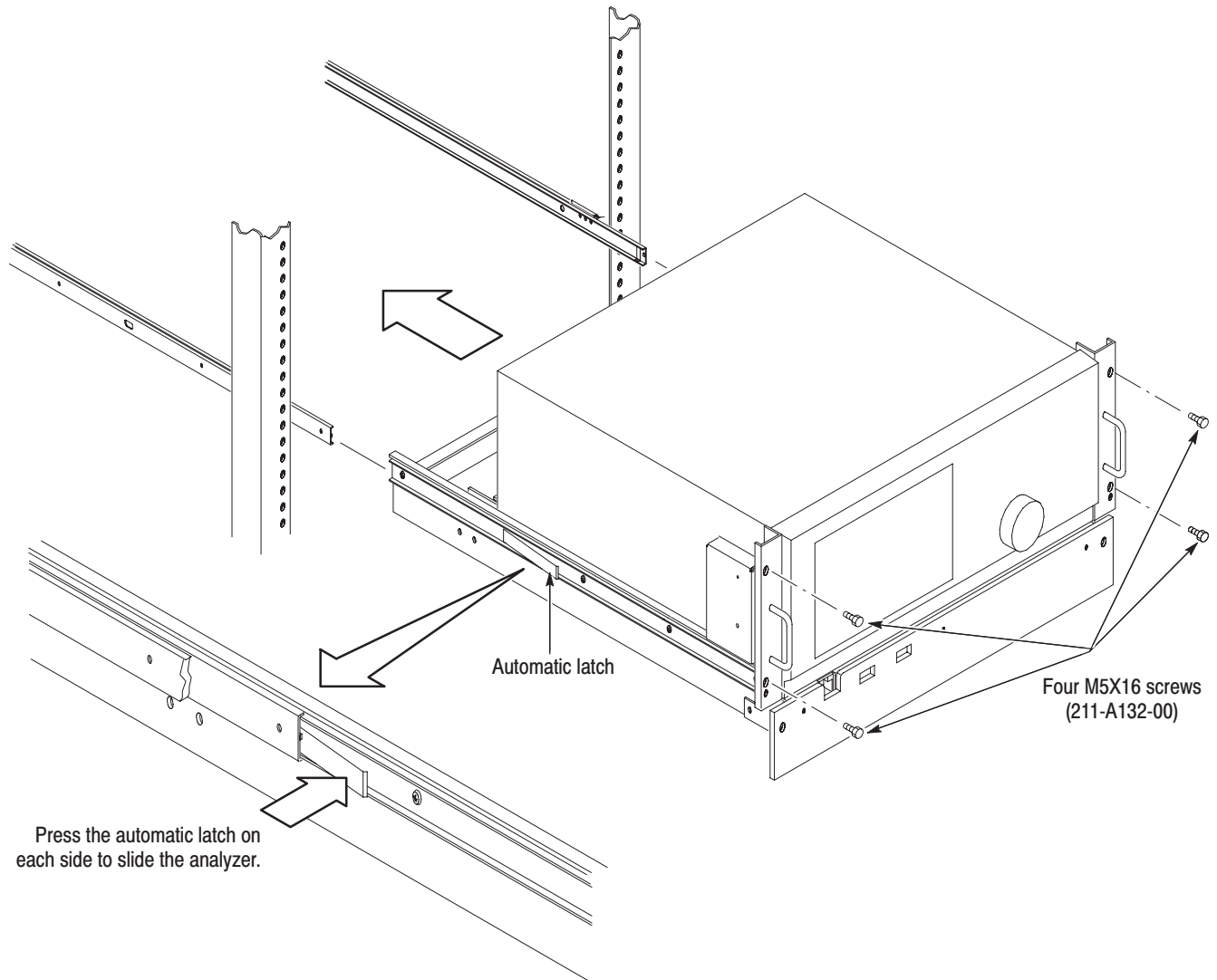
### 2. *Level the rackmounted analyzer:*

- a. Tighten the four screws that were left loose at the rear of the rack when you did step 3, substep b, then pull the analyzer part way out of the rack.
- b. Be sure the four screws that were left loose at the front of the rack are loose enough to allow the slide guide assemblies to seek their normal positions.
- c. Retighten the four screws and push the analyzer all the way into the rack. If the tracks do not slide smoothly, readjust the level using the method just detailed.
- d. When leveling is completed, tighten the four screws at the front of the rack.

### 3. *Secure the analyzer and make rear panel connections:*

- a. Secure the right and left side brackets to the front rails with four M5 × 16 screws (Tektronix part number 211-A132-00).
- b. Install the power cord on the rear panel.
- c. If necessary, connect cables on the rear panel.





**Figure 14: Placing the analyzer in the rack**



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**WARNING.** *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.*

*To avoid personal injury, operators should prevent the rackmounted instrument from tipping forward onto them. Operators should verify that the rack does not become unstable with the instrument fully extended. Do not leave the instrument extended.*

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To remove the analyzer from the rack mount, slide it out until it stops at the catches. Support the analyzer while you press in on the automatic latch on each side. This action will free the analyzer to slide completely out of the rack. Provide support while you slide the mainframe out of the rack.

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