



HP 75000 SERIES B

HP E1313F Upgrade Kit, 32 Ch. to 64 Ch.

Installation Guide



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E0695

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Edition 1
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Documentation History

All Editions and Updates of this manual and their creation date are listed below. The first Edition of the manual is Edition 1. The Edition number increments by 1 whenever the manual is revised. Updates, which are issued between Editions, contain replacement pages to correct or add additional information to the current Edition of the manual. Whenever a new Edition is created, it will contain all of the Update information for the previous Edition. Each new Edition or Update also includes a revised copy of this documentation history page.

Edition 1 June, 1995

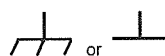
Safety Symbols



Instruction manual symbol affixed to product. Indicates that the user must refer to the manual for specific WARNING or CAUTION information to avoid personal injury or damage to the product.



Indicates the field wiring terminal that must be connected to earth ground before operating the equipment—protects against electrical shock in case of fault.



Frame or chassis ground terminal—typically connects to the equipment's metal frame.



Alternating current (AC).



Direct current (DC).



Indicates hazardous voltages.

WARNING

Calls attention to a procedure, practice, or condition that could cause bodily injury or death.

CAUTION

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

WARNINGS

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Hewlett-Packard Company assumes no liability for the customer's failure to comply with these requirements.

Ground the equipment: For Safety Class 1 equipment (equipment having a protective earth terminal), an uninterruptible safety earth ground must be provided from the mains power source to the product input wiring terminals or supplied power cable.

DO NOT operate the product in an explosive atmosphere or in the presence of flammable gases or fumes.

For continued protection against fire, replace the line fuse(s) only with fuse(s) of the same voltage and current rating and type. DO NOT use repaired fuses or short-circuited fuse holders.

Keep away from live circuits: Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers or shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to a Hewlett-Packard Sales and Service Office for service and repair to ensure that safety features are maintained.

DO NOT service or adjust alone: Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

DO NOT substitute parts or modify equipment: Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to a Hewlett-Packard Sales and Service Office for service and repair to ensure that safety features are maintained.

Declaration of Conformity
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company
Loveland Manufacturing Center

Manufacturer's Address: 815 14th Street S.W.
Loveland, Colorado 80537

declares, that the product:

Product Name: Upgrade Kit, 32 Channel to 64 Channel.

Model Number: E1313F

Product Options: All

conforms to the following Product Specifications:


Safety: IEC 1010-1 (1990) Incl. Amend 1 (1992)/EN61010-1 (1993)
CSA C22.2 #1010.1 (1992)
UL 1244

EMC: CISPR 11:1990/EN55011 (1991): Group1 Class A
IEC 801-2:1991/EN50082-1 (1992): 4kVCD, 8kVAD
IEC 801-3:1984/EN50082-1 (1992): 3 V/m
IEC 801-4:1988/EN50082-1 (1992): 1kV Power Line
.5kV Signal Lines

Supplementary Information: The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carries the CE-marking accordingly.

Tested in a typical configuration in an HP B-Size VXI mainframe.

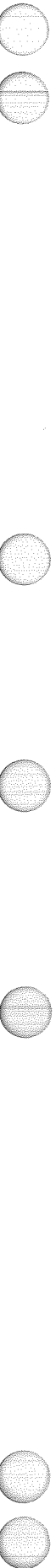
May, 1995



Jim White, QA Manager

European contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE, Herrenberger Straße 130, D-71034 Böblingen, Germany (FAX +49-7031-14-3143).

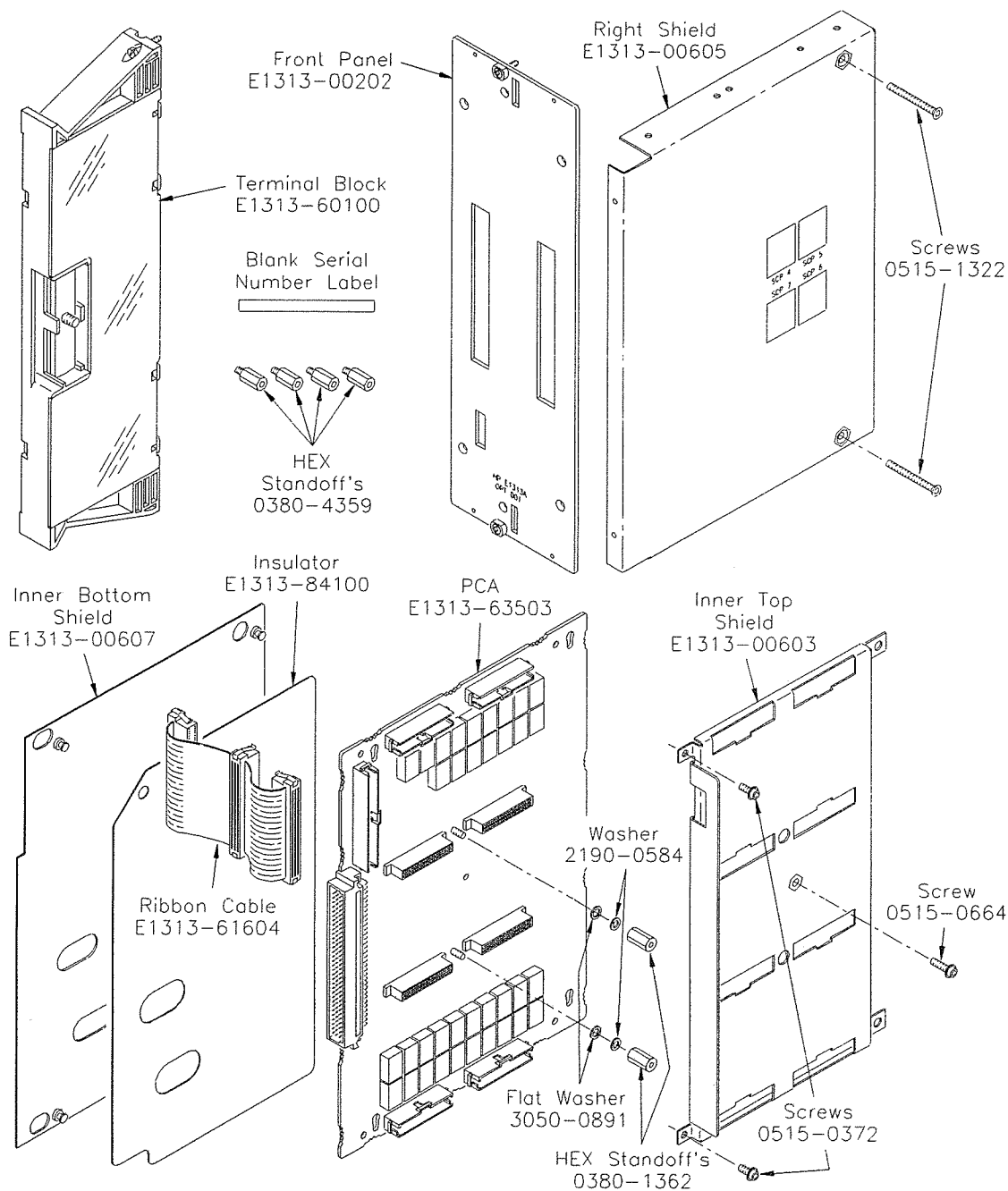
Notes



HP E1313F Upgrade Kit Introduction

This Installation Guide describes how to install the HP E1313F Upgrade Kit. The kit converts an HP E1313A, 32 Channel Scanning A/D Converter to an HP E1313A Option 001, 64 Channel Scanning A/D Converter. One additional slot is required in the VXI mainframe for the Option 001.

The figure below shows the front panel, shields, PC Board (PCA), and hardware supplied with the Upgrade Kit. The figure shows the general assembly procedure. Make certain that you have received all of these parts.



Parts Supplied with the HP E1313F Upgrade Kit

Tools Required

Tools required but not supplied are:

T8 Torx™ Driver
T10 Torx™ Driver
1/4" Nut Driver

SCP Modules

SCP modules are not supplied in this upgrade kit. They must be purchased separately. Refer to the *HP E1313A & E1413A/B User's Manual* and the user's manual supplied with the SCP for specific installation instructions.

ESD Precautions

Electrostatic discharge (ESD) may damage CMOS and other static-sensitive devices in the Scanning A/D such as ROM or RAM ICs. This damage can range from slight parameter degradation to catastrophic failure. When working on Scanning A/D or SCP modules, follow these guidelines to avoid damaging components:

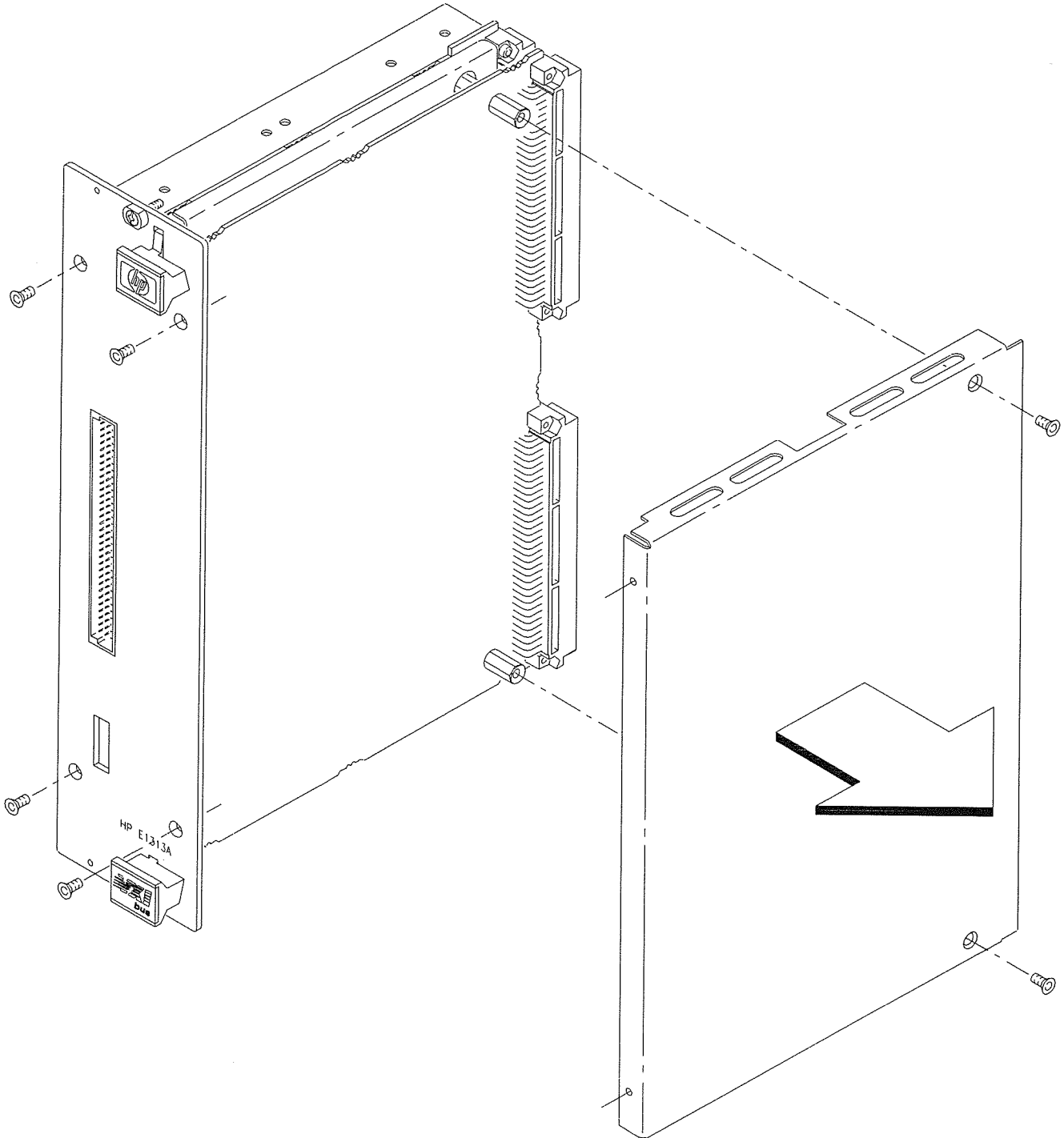
- Always use a static-free work station with a pad of conductive rubber or similar material when handling module components.
- Always use an appropriately grounded wriststrap.
- After you remove a module from the frame, place the module on a conductive surface to guard against ESD damage.

CAUTION

Do not touch the Scanning A/D or SCP edge connector pins at any time unless you are actively using a static-free workstation.

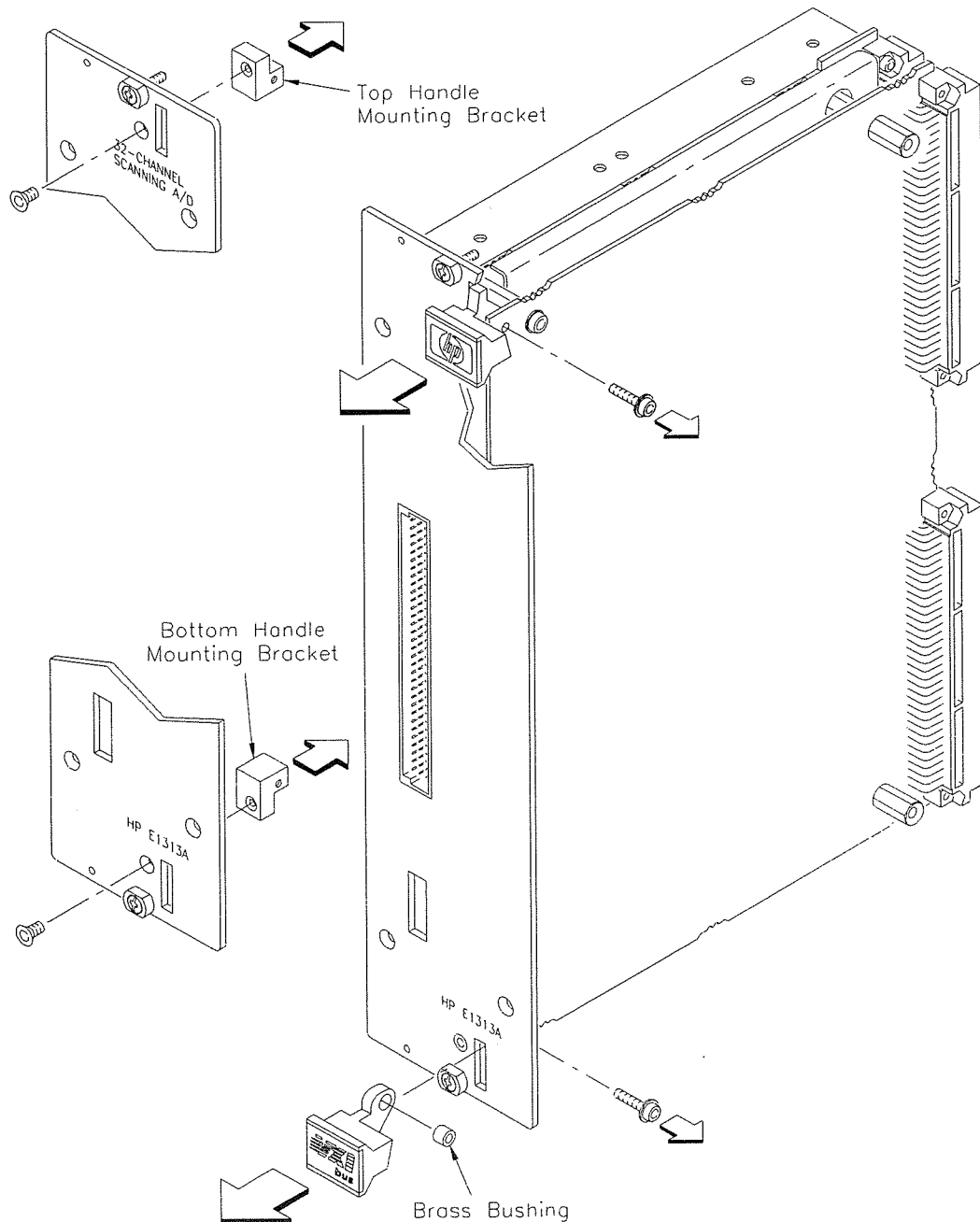
Step 1. Remove the Right Shield from the E1313A

- ☐ Record the module serial number on the blank label supplied with the upgrade kit.
- ☐ Remove the 4 screws from the HP E1313A module's front panel. Set the 4 screws aside, they will be needed for re-assembly (Step 6 and Step 13).
- ☐ Remove the two screws from the right side shield. Remove and discard the right shield and 2 screws.



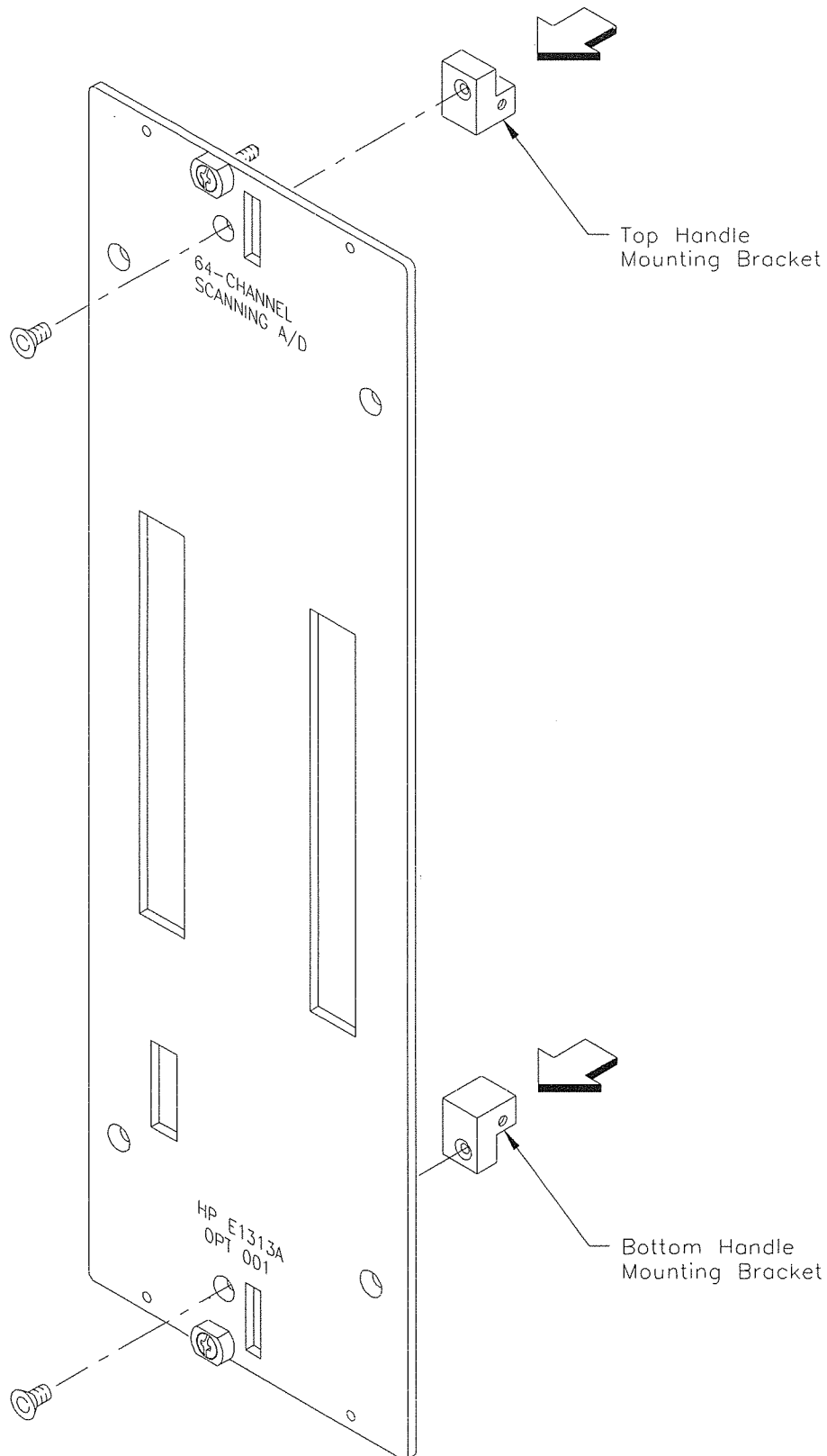
Step 2. Remove the Front Panel Handles

- ☐ Remove the two screws holding the "HP" and "VXI" handles to the PCA and handle mounting brackets. Be careful not to lose the brass bushings from the handles.
- ☐ Remove the front panel from the PCA assembly.
- ☐ Remove the top and bottom handle mounting bracket from the front panel. Keep track of which is the top and which is the bottom mounting bracket; the brackets are not interchangeable.
- ☐ Discard the old 3-slot wide front panel. Save the handles, handle mounting brackets, and screws. They must be installed on the new, 4-slot wide front panel (Step 3 and Step 7).



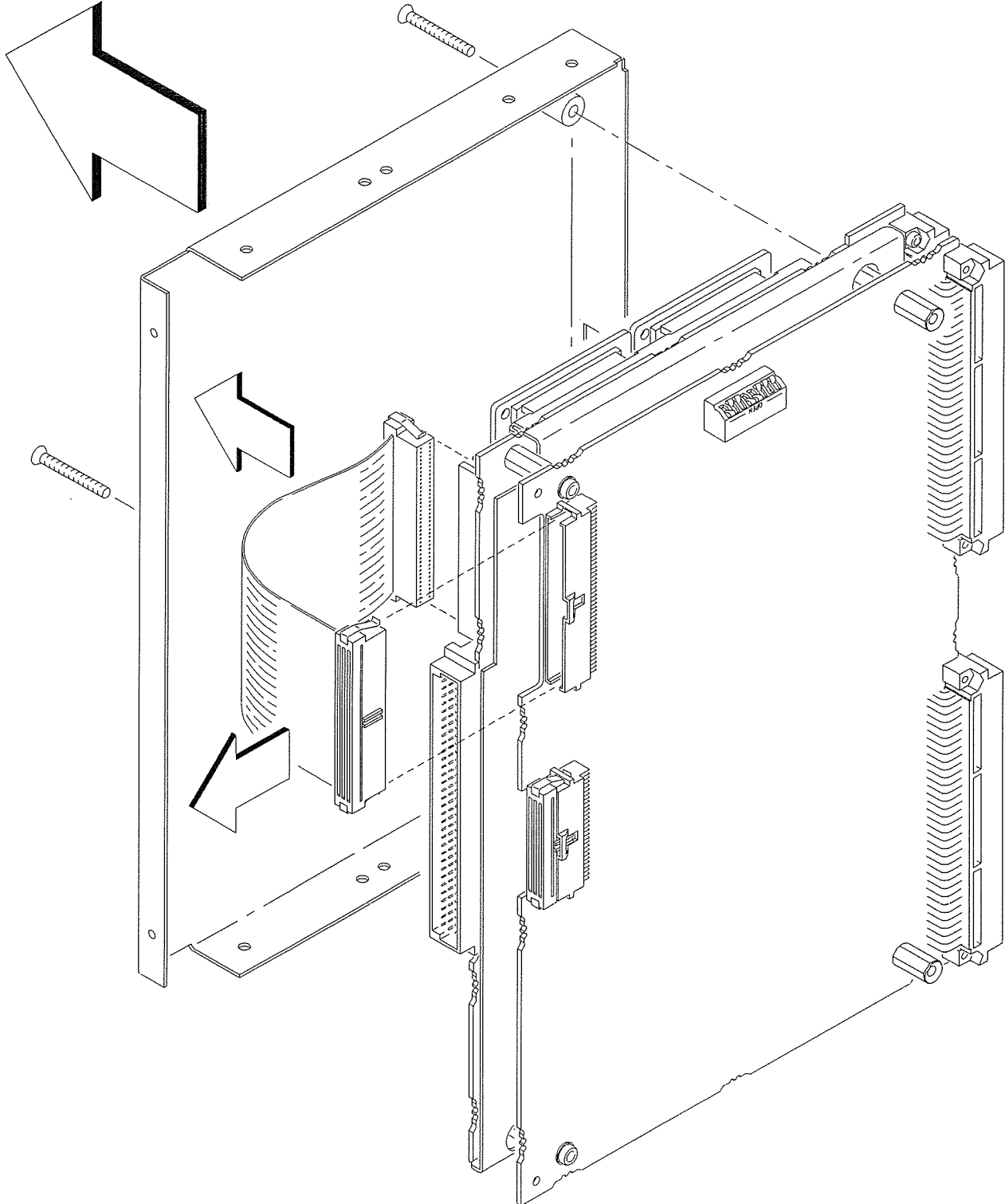
Step 3. Install the Handle Mounting Brackets

❑ Install the top and bottom handle mounting brackets on the new HP E1313-00202, 4-slot-wide front panel. These brackets are not interchangeable. The edge of the bracket should be flush with the edge of the handle slot when properly installed.



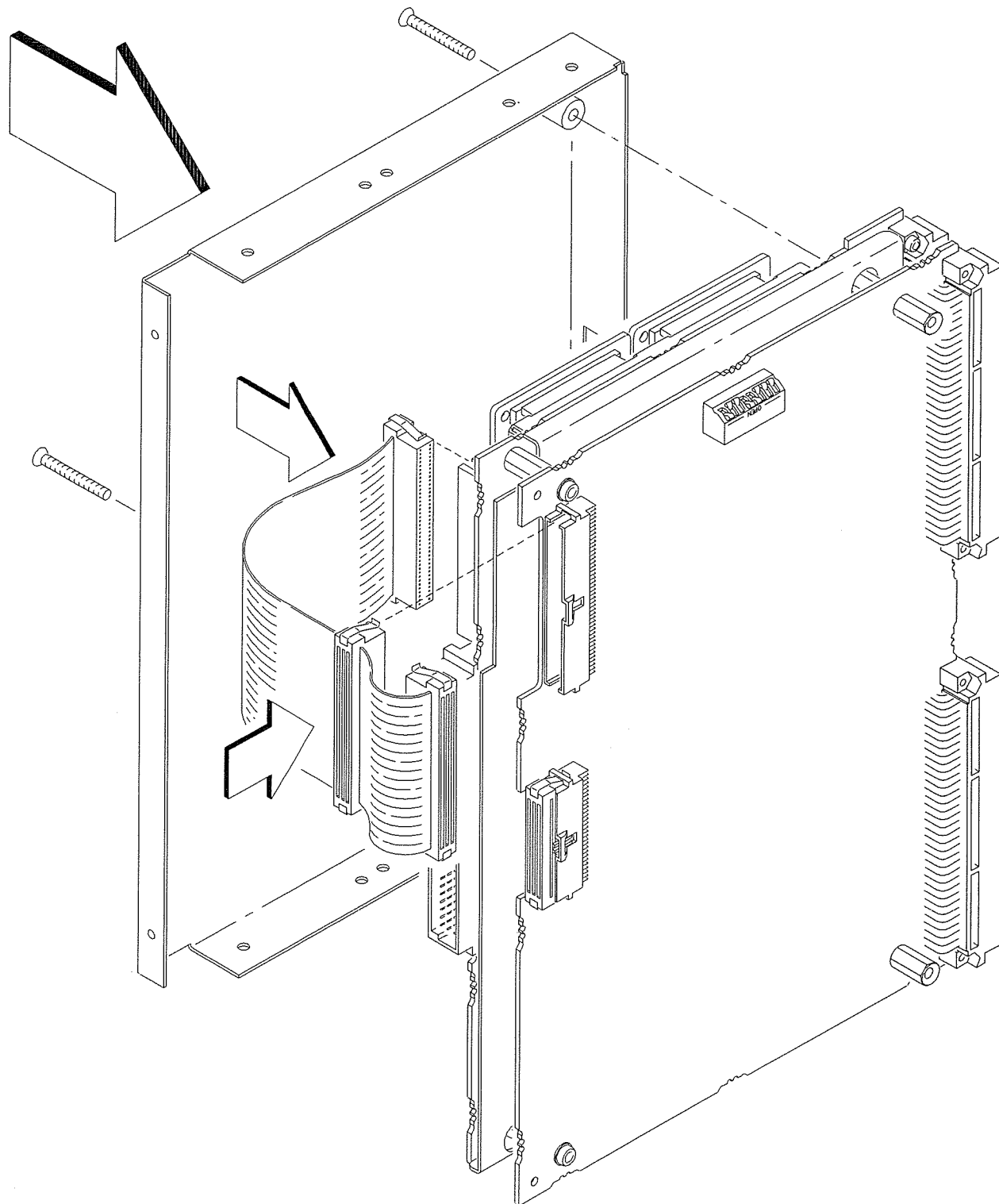
Step 4. Remove the Digital Bus Ribbon Cable

- ☐ Remove the left side shield. Save the shield and screws, they will be re-installed in Step 5.
- ☐ Remove and discard the 2-connector, digital bus ribbon cable.



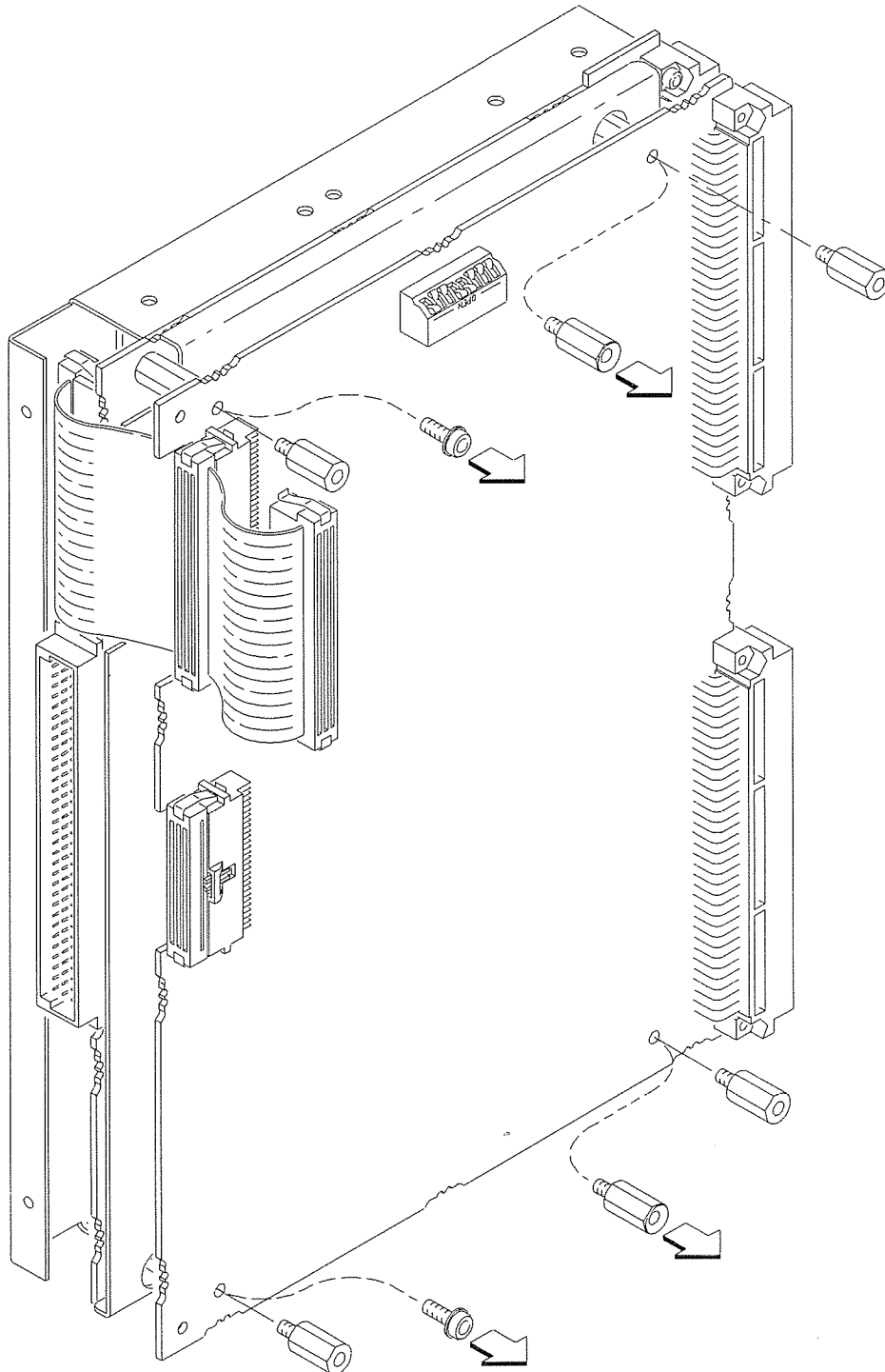
Step 5. Install the New Digital Bus Ribbon Cable

- ☐ Install the new, HP E1313-61604, 3-connector ribbon cable. Use the longest section of the cable.
- ☐ Re-install the left side shield.



Step 6. Install Standoffs

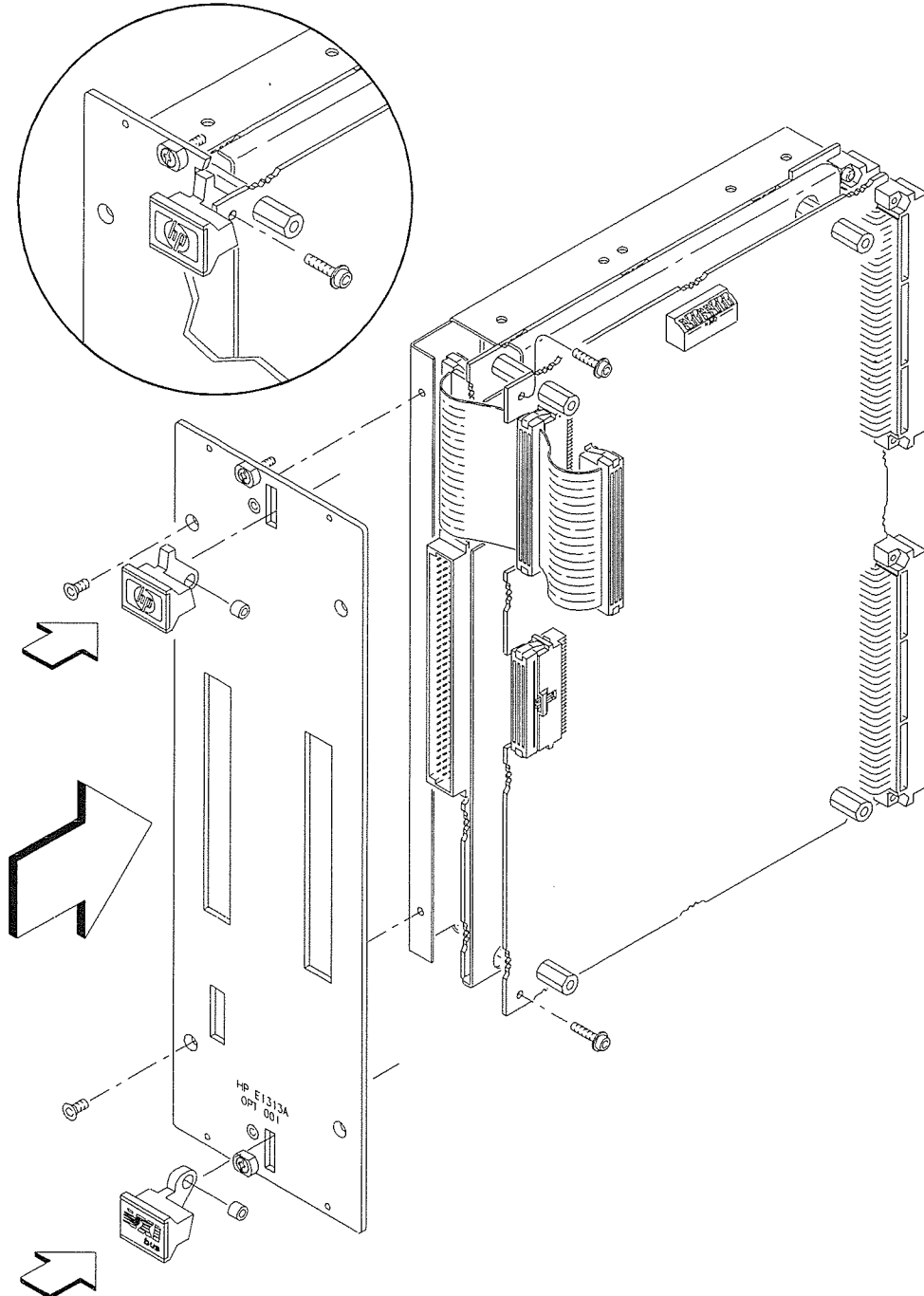
- ☐ Remove and discard the two T10 Torx™ screws near the front of the module.
- ☐ Remove and discard the two countersunk standoffs from the rear of the module (these standoffs have counter-sunk tops).
- ☐ Replace the screws and old standoffs with the 11.44mm long threaded, flat-top standoffs (HP P.N. 0380-4359) supplied with the Upgrade Kit. **DO NOT OVERTIGHTEN.**



Step 7. Install the New Front Panel and Handles

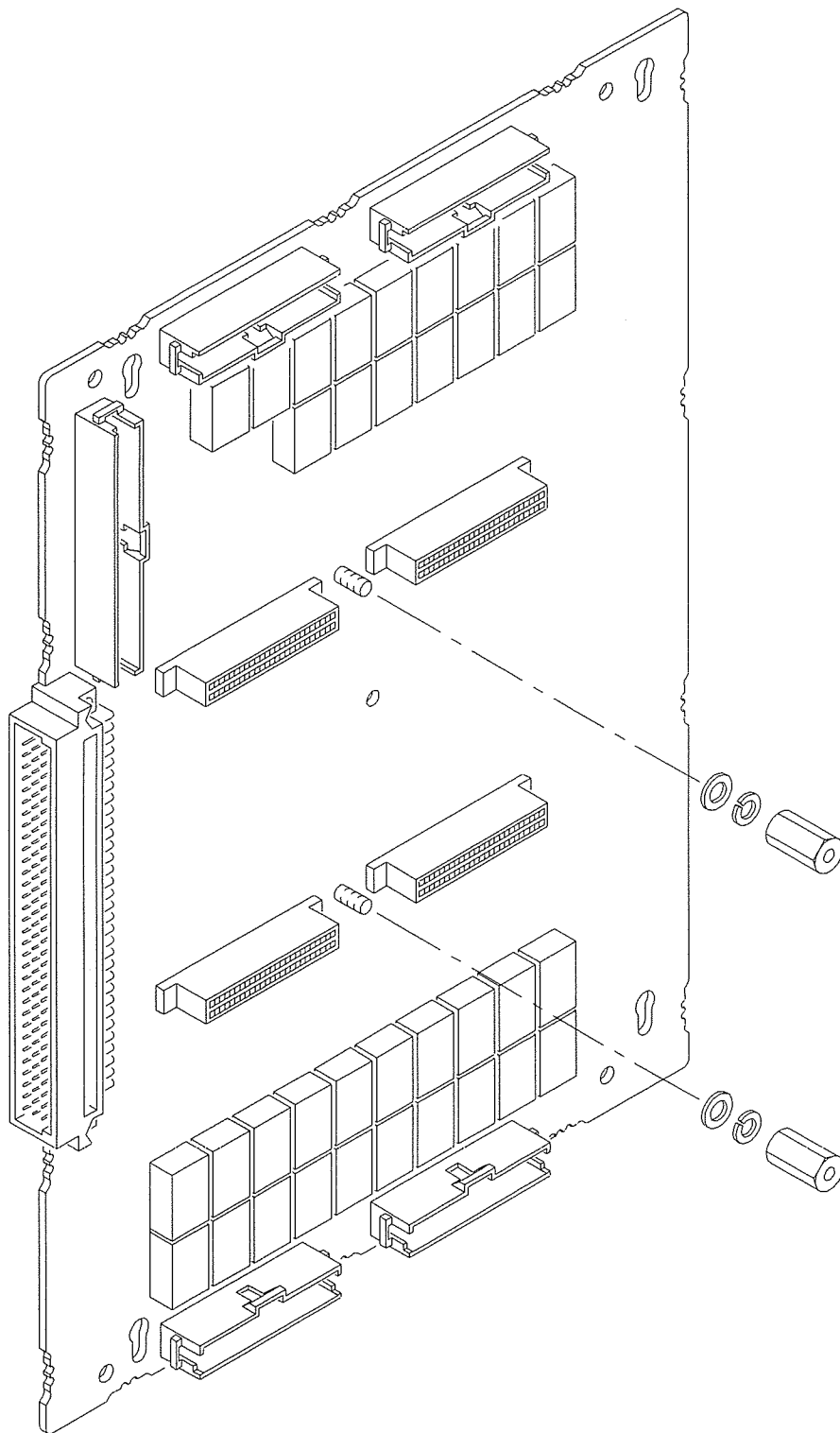
- ☐ Install the new 4-slot wide front panel using 2 of the screws removed from the old front panel (from Step 1).
- ☐ Install the handles (removed during Step 2) on the new front panel. Be careful not to loose the brass bushings from the handles. **DO NOT OVERTIGHTEN.**

NOTE: The handles should fit between the PCA and the handle mounting brackets without excess space. If too much space exists between the PCA and the handle mounting brackets, then the top and bottom handle mounting brackets are reversed. Remove the front panel and switch the top and bottom handle mounting brackets. See Steps 2 and 3.



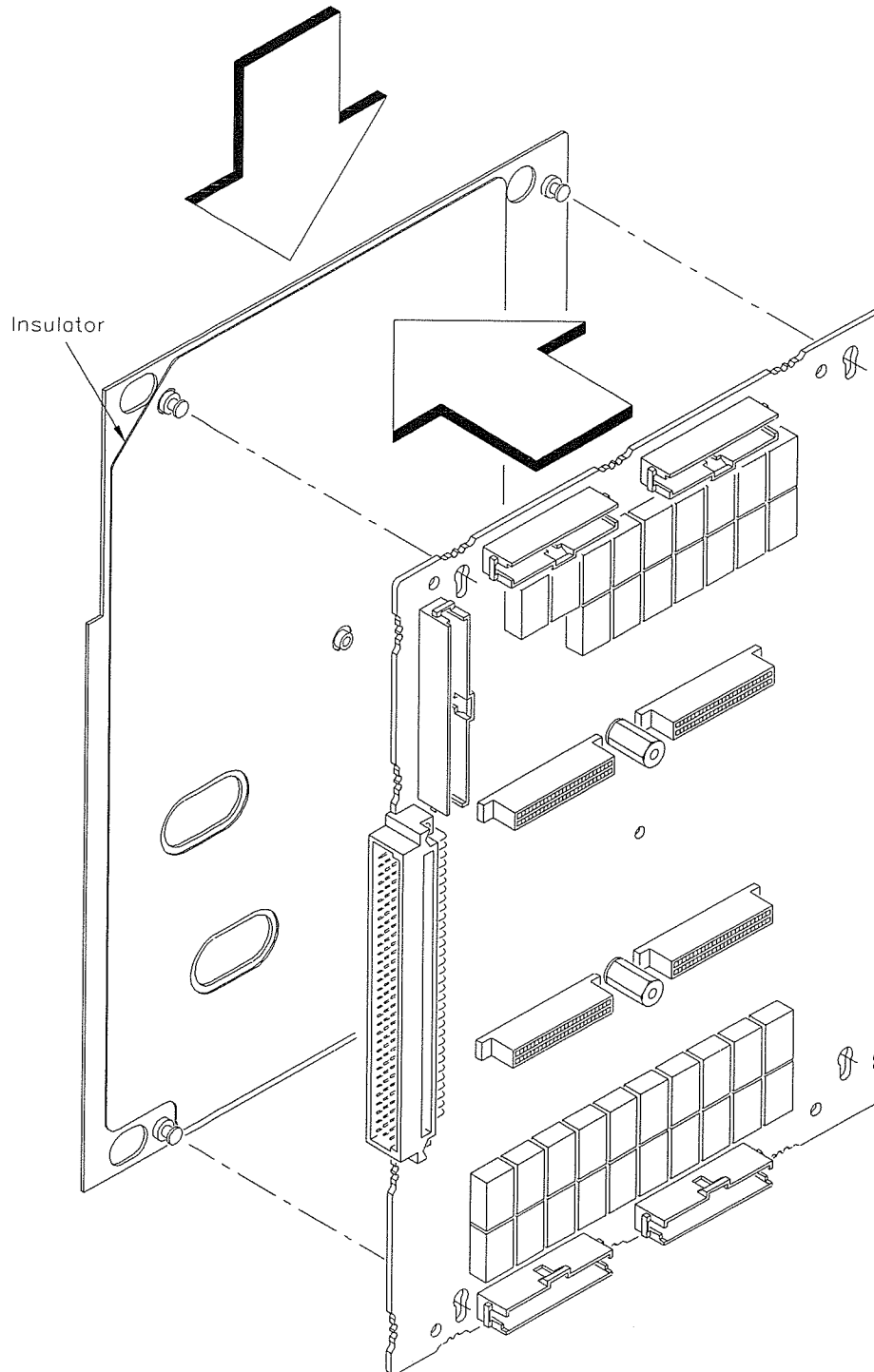
Step 8. Install Standoffs on the New PCA

- On the new HP E1313-66503 PCA, install two 3050-0891 flat washers, two 2190-0584 lockwashers and two 0380-1362 12mm long standoffs. **DO NOT OVERTIGHTEN.**



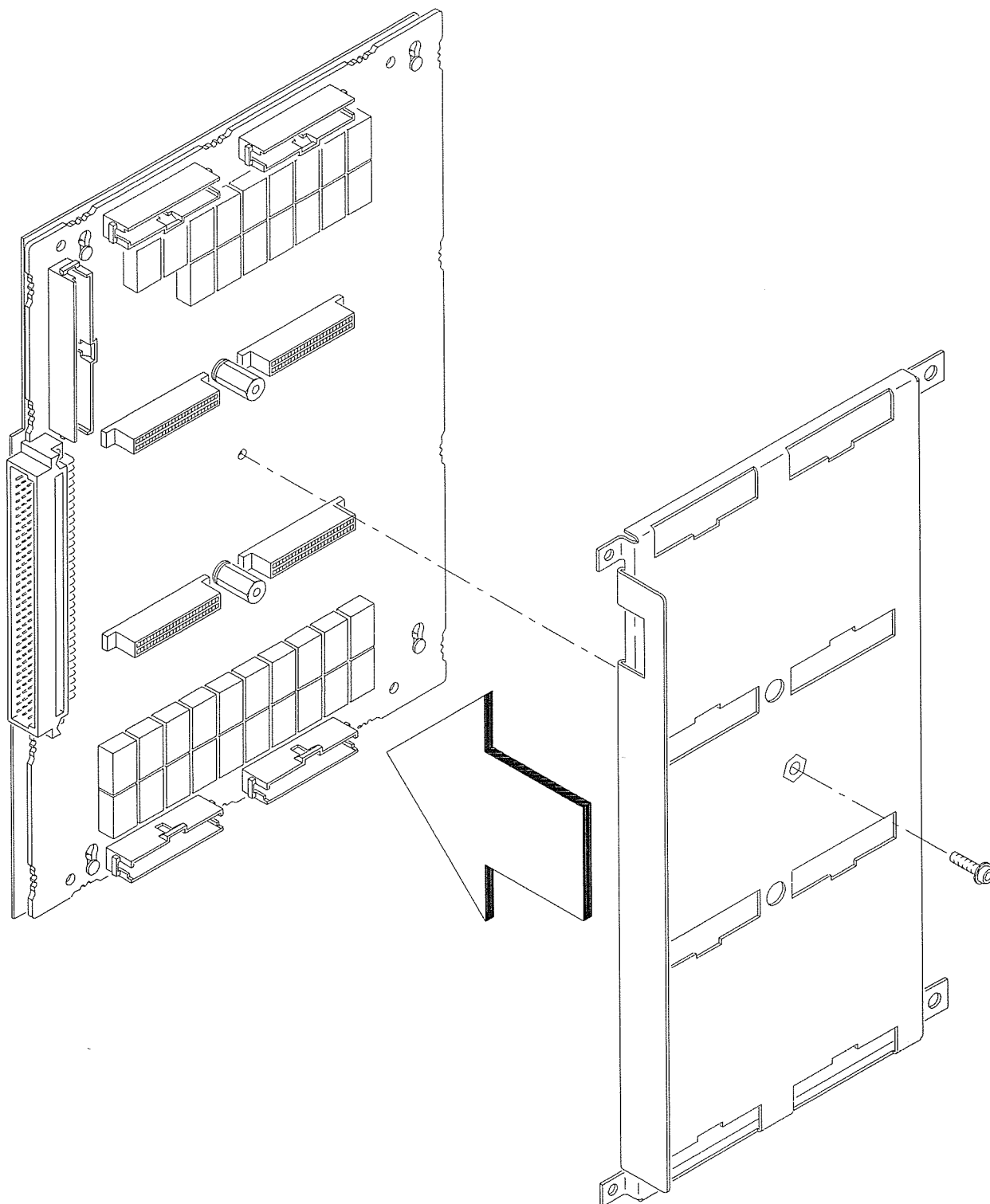
Step 9. Install Insulator and PCA on Inner Bottom Shield

- ☐ Install the E1313-84100 Insulator on the HP E1313-00607 Inner Bottom Shield.
- ☐ Install the new HP E1313-66503 PCA on the HP E1313-00607 Inner Bottom Shield.
- ☐ Ensure the keys are firmly placed in the PCA keyholes.



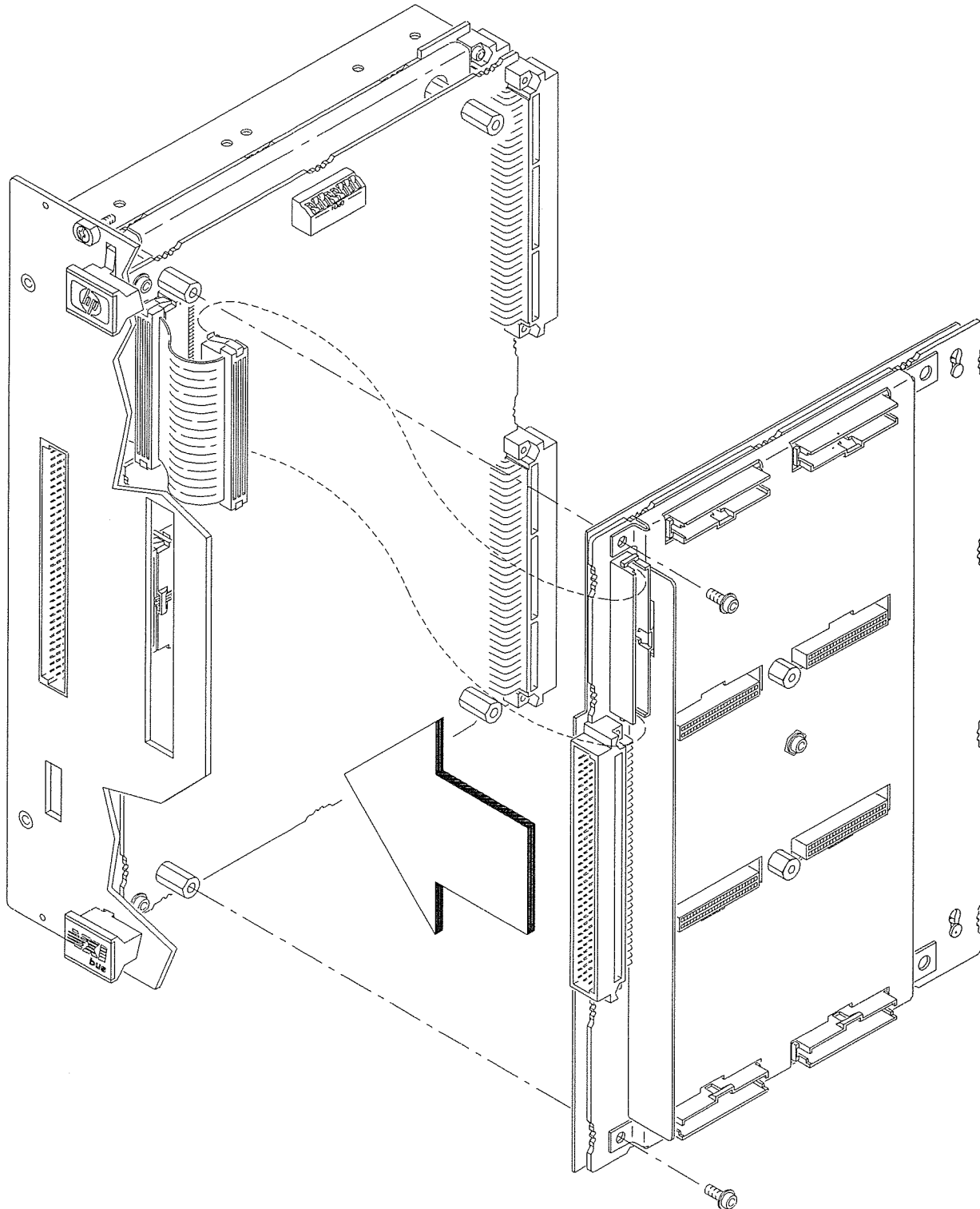
Step 10. Install the New Inner Top Shield.

- Install the new E1313-00603 Inner Top Shield using the 0515-0664 screw supplied with the upgrade kit.



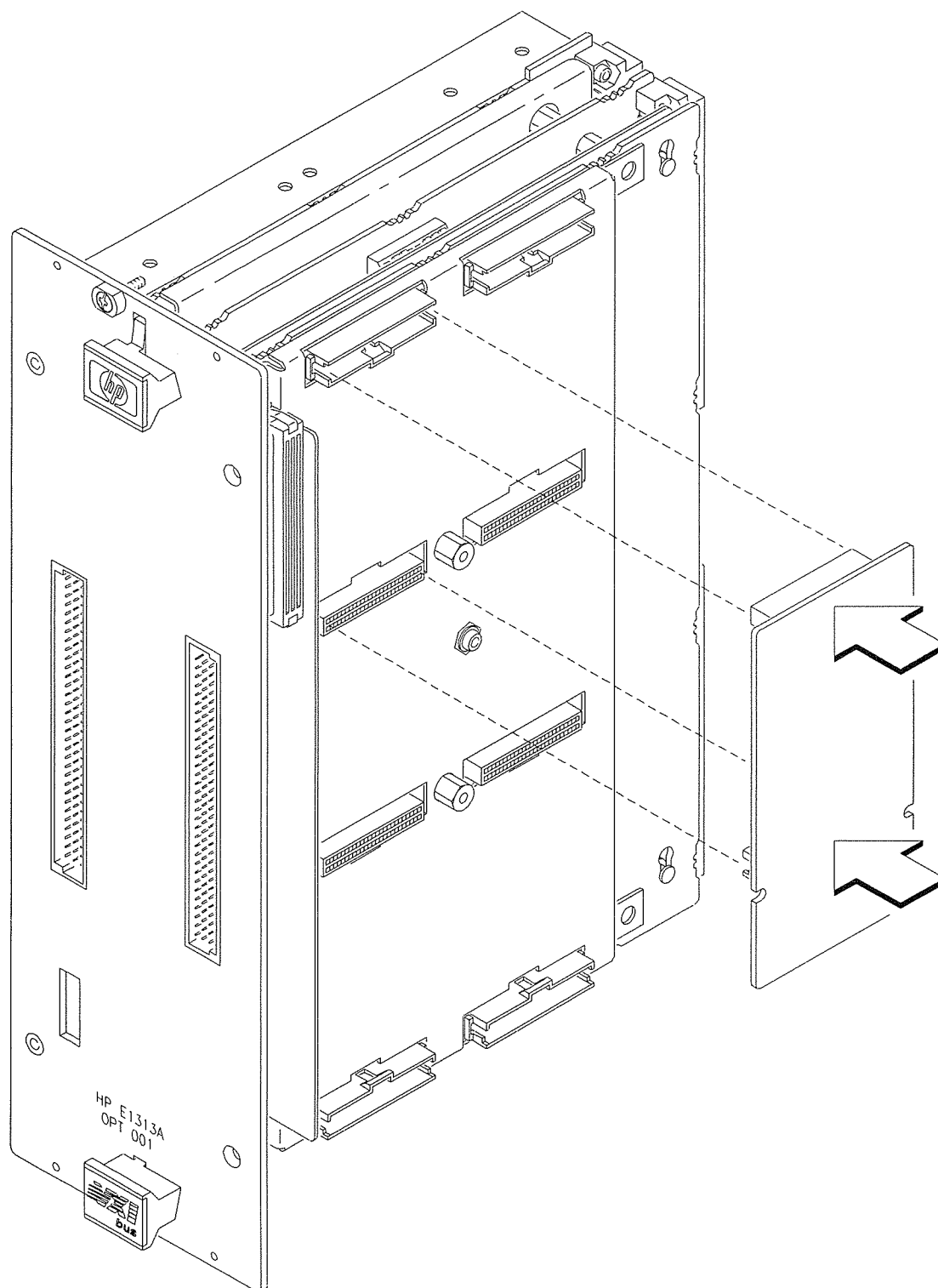
Step 11. Assemble the PCA to the Module

- ☐ Assemble the new PCA to the HP E1313A module using the two 0515-0372 screws supplied in the upgrade kit.
- ☐ Connect the ribbon cable to the new PCA.



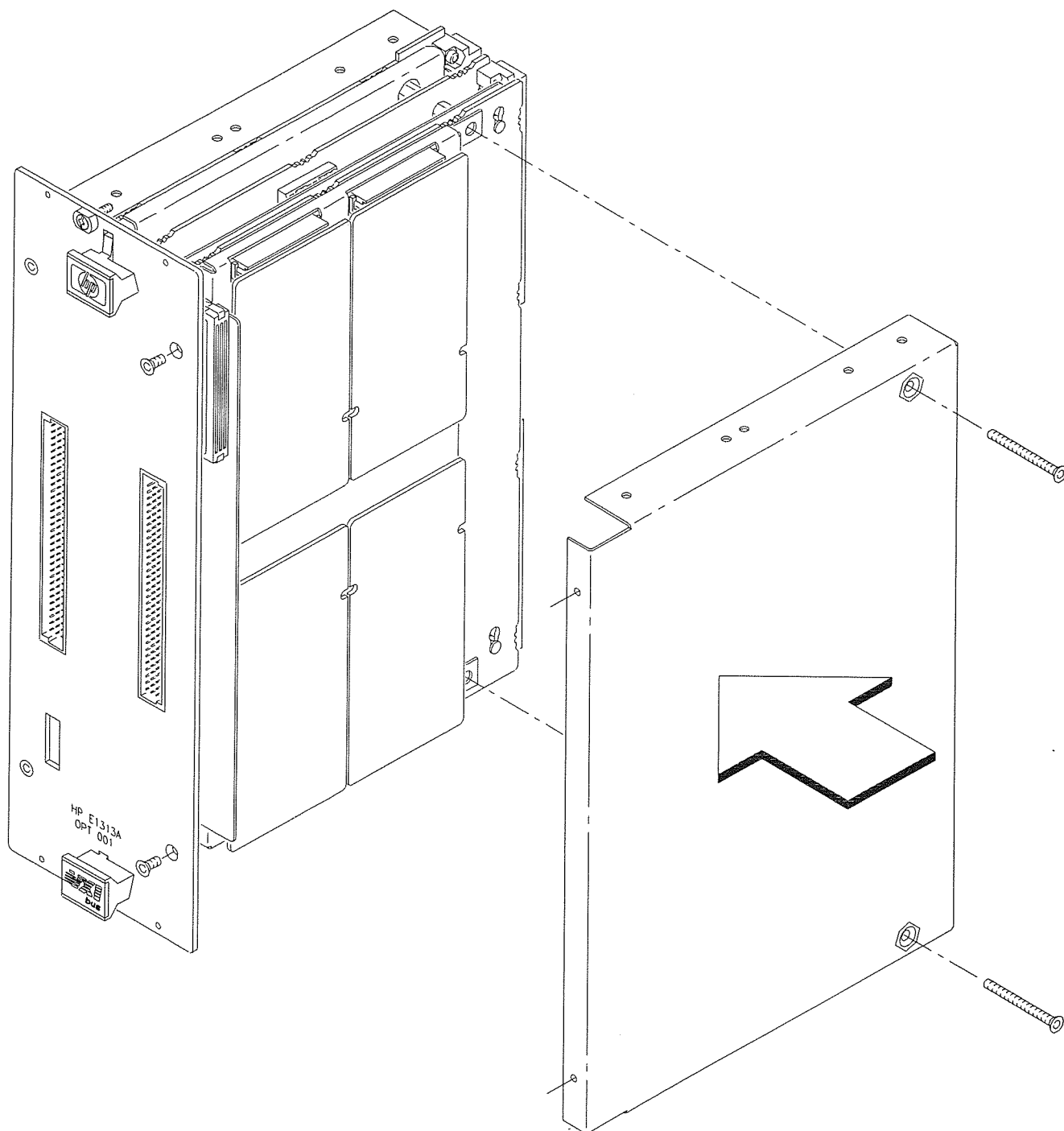
Step 12. Install SCP's on the Module

- ❑ Install up to 4 optional SCPs on the new module. these are not supplied with the upgrade kit and must be purchased separately.



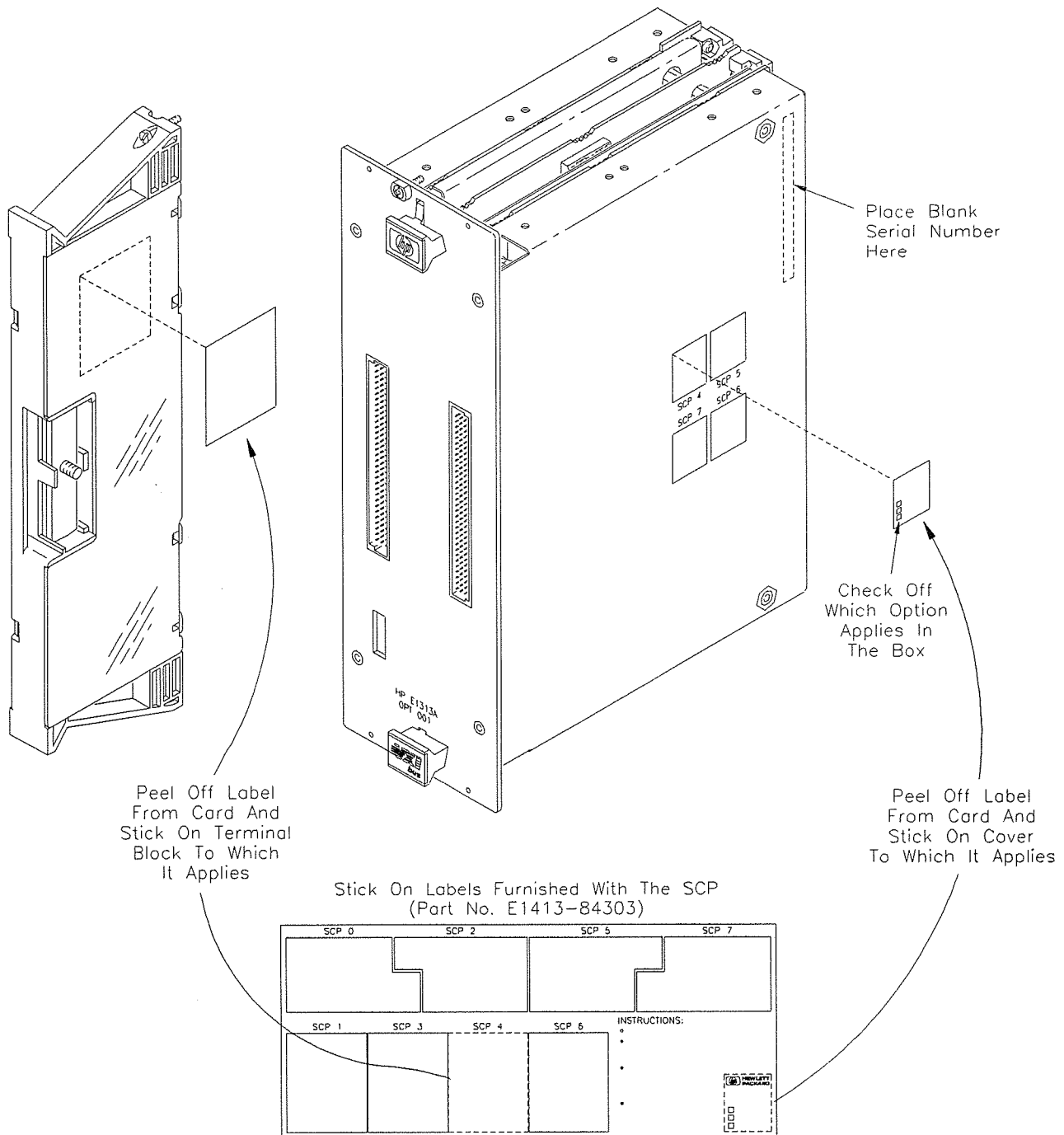
Step 13. Install the Right Side Shield

- ☐ Install the new E1313-00605 right side shield using the two 0515-1322 screws supplied with the upgrade kit.
- ☐ Replace the remaining 2 front panel screws (removed in Step 1).



Step 14. Install the Labels

- ☐ Install the serial number label. Ensure the serial number that you wrote on the label matches the old serial number on the discarded right shield.
- ☐ Install the SCP labels on the module and on the terminal block assembly.
- ☐ For information on installing the module in a VXI mainframe, using the module and SCPs, wiring the terminal module, etc., refer to the *HP E1313A & E1413A/B User's Manual*.



Step 15. Verify Installation

To verify the 64 channel installation, install the module in your VXI mainframe and send the IDN? command to the module. The following C language program verifies that the HP E1313A has been upgraded from 32 channels to the maximum 64 Channels. This program uses the HP VISA Transition Library (VTL) enhancements. The program also identifies which SCP modules are installed on the HP E1313A module. The self test may take several minutes to complete.

```
/* This example program queries the HP E1313A for its Identification String */
```

```
#include <visa.h>
#include <stdio.h>
#include <stdlib.h>
```

```
void main() {
    ViStatus err;
    ViSession defaultRM, scan_ad;
    char buf[256] = {0}, scp_id [100];
    int err_no, scp_addr
```

```
/* Open session to E1313A at address 24 */
```

```
viOpenDefaultRM (&defaultRM);
viOpen (defaultRM,"GPIB-VXI0::9::24",VI_NULL,VI_NULL,&scan_ad);
```

```
/* Initialize Device and wait for response */
```

```
viPrintf (scan_ad, "*RST;*CLS;*OPC?\n");
viScanf (scan_ad,"%s",&buf);
```

```
/* Send the *IDN? string to HP E1313A */
```

```
viPrintf (scan_ad,"*IDN?\n");
viScanf (scan_ad,"%s",&buf);
printf ("Instrument Identification String: %s\n",buf);
```

```
/* Identify SCPs installed on the Scanning A/D */
```

```
for (scp_addr = 100; scp_addr <= 156; scp_addr += 8)
{
    viPrintf (scan_ad,"SYST:CTYP? (@%d)\n",scp_addr);
    viScanf (scan_ad,"%t",&scp_id);
    printf ("\nID String of SCP %d is %s", (scp_addr - 100)/8, scp_id);
}
```

```
/*Perform Self Test (optional) */
```

```
printf ("Performing the Self Test. This may take several minutes");
viPrintf (scan_ad, "**TST?\n");
err = viScanf (scan_ad,"%d",&err_no);
while (err != VI_SUCCESS) err = viScanf (scan_ad,"%d",&err_no);
while (err_no > 0) {
    printf (Self Test Error: %d\n",err_no);
    viScanf (scan_ad,"%d",&err_no); }
printf ("\n\nNo Self Test Errors.");
```

```
viClose (scan_ad);
viClose (defaultRM);
}
```

The program should return the string:

HP,E1313A_64channel, <*serial number*> <*rev number*>

followed by the identification strings of the SCP modules.

If the program returns the string:

HP,E1313A_32channel, <*serial number*> <*rev number*>

then the upgrade was not completed successfully. Check to ensure that the ribbon cables and printed circuit assemblies are installed properly.

You have now finished converting the HP E1313A to the HP E1313A Option 01. For information on installing the module in a VXI mainframe, using the module and SCPs, wiring the terminal module, etc., refer to the *HP E1313A & E1413A/B User's Manual*.

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Reader Comment Sheet

HP E1313F Upgrade Kit, 32 Ch. to 64 Ch. Installation Guide

Edition 1

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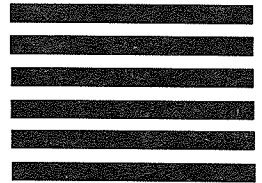
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