Medalist i1000 In-circuit Test System

Installation Guide

Agilent Technologies

Notices

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Safety Notices

WARNING

A WARNING notice with this symbol indicates a risk of electric shock. The operator must follow the instructions carefully to avoid electric shock.
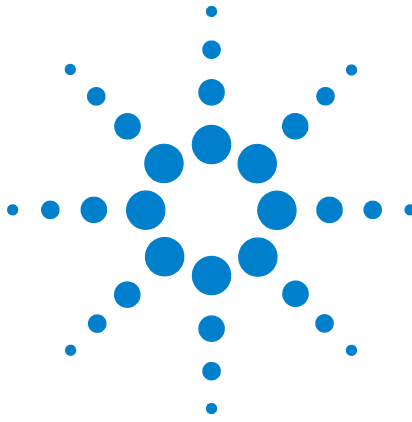
WARNING

A WARNING notice calls attention to a procedure, practice, or condition which could possibly cause bodily injury or death.

CAUTION

A **CAUTION** notice calls attention to a procedure, practice, or condition which could possibly cause damage to the equipment of permanent loss of data.

Medalist i1000 Installation Guide

This guide describes how to install the Medalist i1000 In-circuit Test Systems. Procedures are provided for both the press down model (U9401A) and the vacuum model (U9402A).

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Safety Precautions

WARNING

Installation
Before you turn on the power, verify that the ac mains supply voltage matches the voltage marked on the system specifications plate on the back of the equipment.

This equipment must be connected to a properly installed earth ground. Do not operate the equipment until it has been properly earthed by a qualified electrician.

Overcurrent protection must be provided for this equipment. Do not operate the equipment until proper overcurrent protection has been installed by a qualified electrician.

This equipment is not intended for use near explosive or corrosive hazards.

CAUTION

Servicing
All fuses must be replaced only with fuses of the specified type. Do not modify the equipment or use unapproved replacement parts.

Front Panel Access

The front panel of the Medalist i1000 provides access to the power switches and cards in the testhead. The front panel can also be removed when servicing is required.

- Opening the Front Panel
- Removing the Front Panel
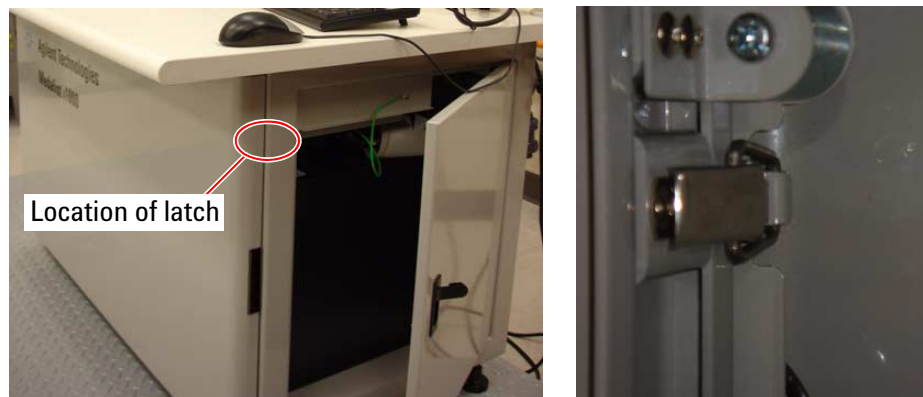- Replacing the Front Panel

Opening the Front Panel

1 The front panel has two recessed handles, one on each side of the panel. Push the bottom of the handle on the front panel as shown in Figure 1 and rotate the handle out from its recessed position. Do the same on the other side of the front panel.

Figure 1   Handle on front panel

2 Latches on the inside of the front panel secures the panel in place. You have to open the side panel to reach and unfasten the latch (Figure 2). Do the same on the other side of the test station.

Figure 2   Unlock front panel

Location of latch

3 Hold the handles of the front panel and pull towards you. The front panel opens from the top and is supported by two cables when fully open (Figure 3).

With the door in this position, you will be able to access the power switches and replace any cards.

Figure 3   Front panel open

supporting cable

Removing the Front Panel

If the front panel needs to be removed, continue with the following steps.

1 Support the front panel while you loosen the screws that secure the supporting cables to the test station (Figure 4). Then unhook the cables from the screws.

**Figure 4**   Unfasten supporting cables

2 Once the supporting cables are released, use the handles to lift the front panel upwards and away from the test station.

Replacing the Front Panel

Follow these steps to replace the front panel:

1 There are two pins at the bottom of the front panel. Fit the pins into the corresponding holes at the bottom front edge of the test station (Figure 5).

Figure 5 Replace front panel

fit pin into this hole
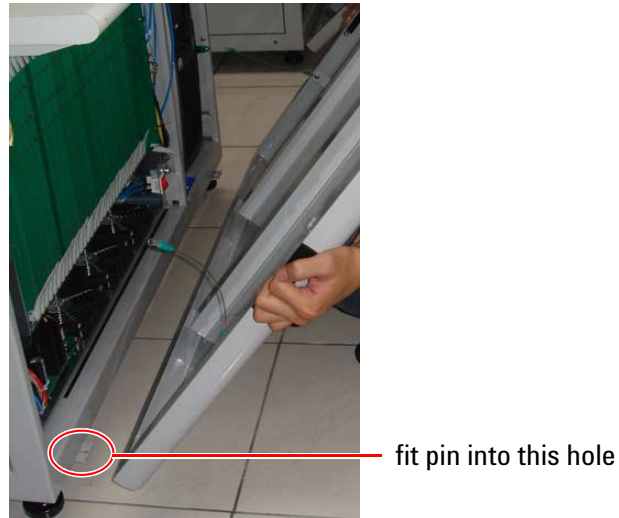
2 Support the front panel while you loop the supporting cables over the screws (Figure 3). Tighten the screws to secure the cables.
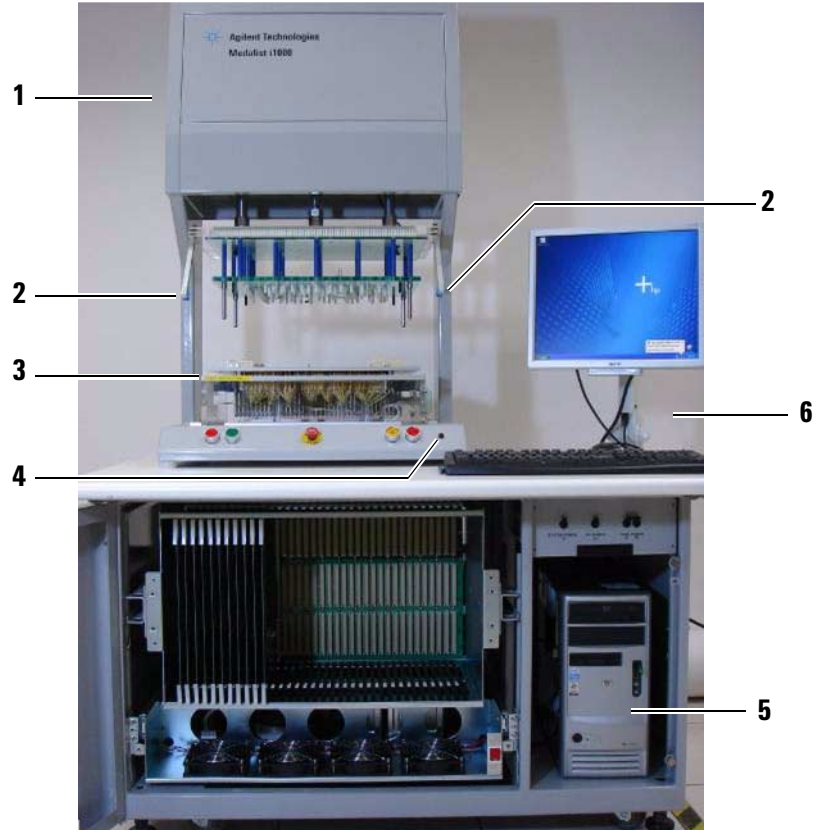
Figure 6 Secure supporting cables

3 Close the front panel.

4 Open the side panels and secure the latches on the inside of the front panel.

Installation Overview

Figure 7 shows where the hardware components are installed on the U9401A (press down model). On the U9402A (vacuum model), the controller is installed in the same location.

Figure 7   U9401A (press down model)

1	Press Down Unit
2	Sensors
3	Fixture
4	Debug probe/ESD ground connector
5	CPU
6	Monitor, keyboard, and mouse

Before you begin installation, prepare the power cable for the system. Refer to the instructions in "Preparing the Power Cord" on page 8. Then continue with the installation procedure for your system:

- Installation Procedure for Press Down Model (U9401A)
- Installation procedure for Vacuum Model (U9402A)

Installation Procedure for Press Down Model (U9401A)

1 Install the Press Down Unit (U9401A)

2 Install the Controller

3 Connect the Debug Probe

4 Connect Power and Compressed Air Supply

5 Power Up the System

6 Install Medalist i1000 Software

7 Install the Fixture

8 Align the Safety Sensors

9 Perform a System Check

Installation procedure for Vacuum Model (U9402A)

1 Install the Controller

2 Connect the Debug Probe

3 Connect Power and Compressed Air Supply

4 Power Up the System

5 Install Medalist i1000 Software

6 Install the Fixture

7 Perform a System Check

Preparing the Power Cord

The Medalist i1000 is shipped without a power cord. This allows local support engineers to purchase a power cord that is suitable for use in the facility where the system is installed and meets the regulatory requirements of the country.

Be sure to purchase a power cord rated to operate at 200~240 VAC and 10 Amps, with a minimum length of 2.5 m.

To assemble the power cord, follow these steps:

1 Locate the power connector provided (Figure 8).

Figure 8　Power connector

2 Loosen the two screws holding the cable retainer at the back of the power connector. Then unscrew the black connector insert to separate it from the metal casing (Figure 9).

Figure 9　Remove black connector insert

3 Strip the insulation of the power cord to expose the wires. Insert the power cord through the metal casing of the power connector (Figure 10).

Figure 10   Strip power cord and insert in connector

4 Solder the wires to the correct terminals on the connector insert. The terminals are numbered as shown in Figure 11.

WARNING

Ensure the wires are connected to the correct terminals as shown in Figure 11. Otherwise the system could be damaged.

Figure 11   Solder wires to terminals

5 Screw the connector insert back into the metal casing. Also replace and fasten the cable retainer to hold the power cord in place (Figure 12).

CAUTION

Ensure that the retainer holds the power cord securely to prevent any movement that may break the solder connections of the wires to the terminals in the connector.

Figure 12 Reassemble connector

cable retainer

Hardware Installation

- Install the Press Down Unit (U9401A)
- Install the Controller
- Connect the Debug Probe
- Connect Power and Compressed Air Supply
- Power Up the System

Install the Press Down Unit (U9401A)

CAUTION   The Press Down Unit weighs approximately 70 kg. Be very careful when lifting the Press Down Unit onto the test station to avoid personal injury and any damage to the system.

1 Place the PVC pad on the left side of the test station and place the Press Down Unit on the pad.

2 Secure the four L-brackets that hold the Press Down Unit to the test station.

Figure 13   Secure L-brackets

L-bracket
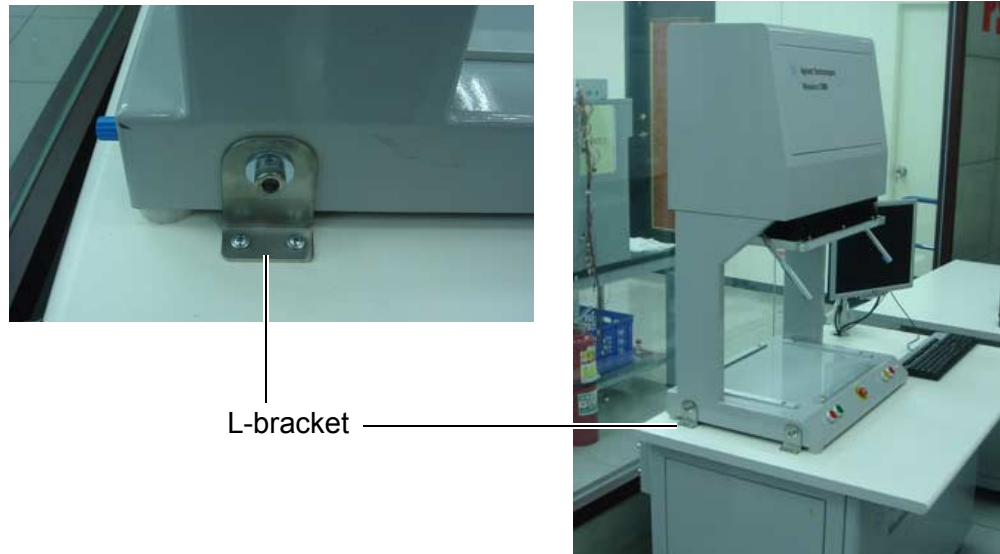
3 Locate the control cable connected to the system card (at the rear of the test station). Connect the other end to the rear of the Press Down Unit. See Figure 14 (a).

4 Connect the compressed air hose to the connector at the rear of the Press Down Unit (a) and the rear of the test station (b).

Figure 14 Control cable and compressed air hose
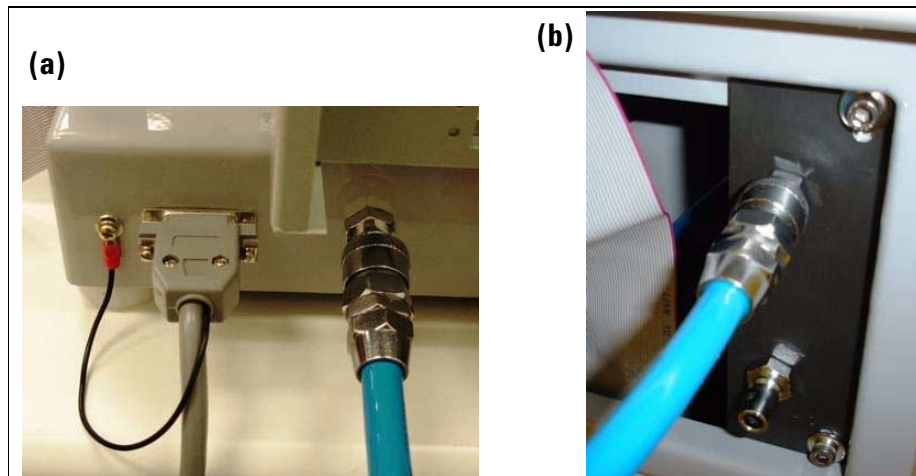
**5** Install the pair of safety sensors on the arms at either side of the Press Down Unit.

Figure 15 Sensor

Install the Controller

1 Set up the monitor (Figure 16):

   a Attach the collar to the back of the monitor with the four screws provided.

   b Clamp the base to the right side or back of the test station.

   c Assemble the support arm as shown. Tighten the screws with the Allen key provided.

   d Set the monitor on top of the arm.

Figure 16   Monitor
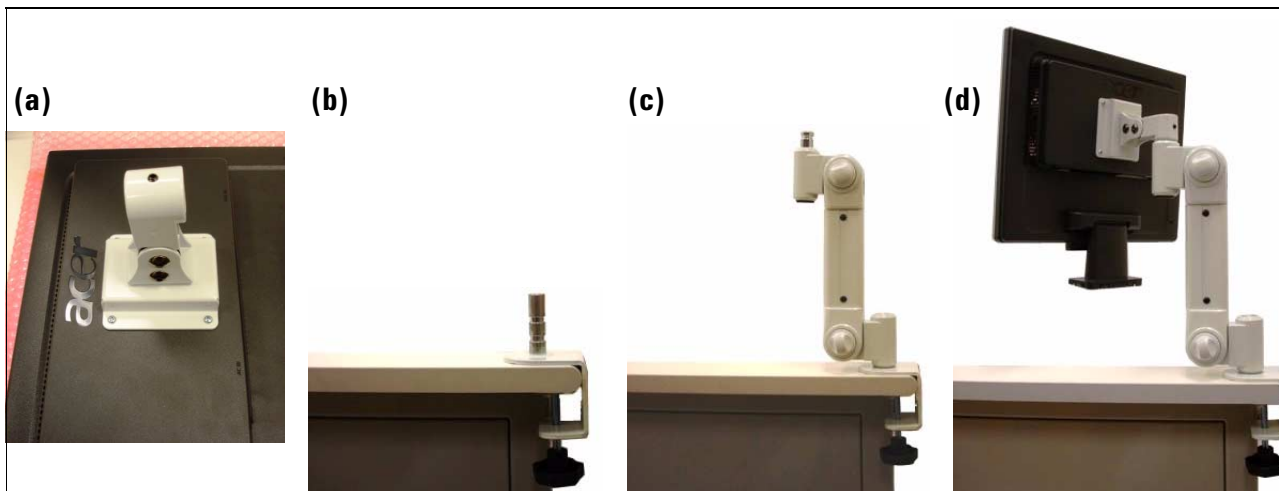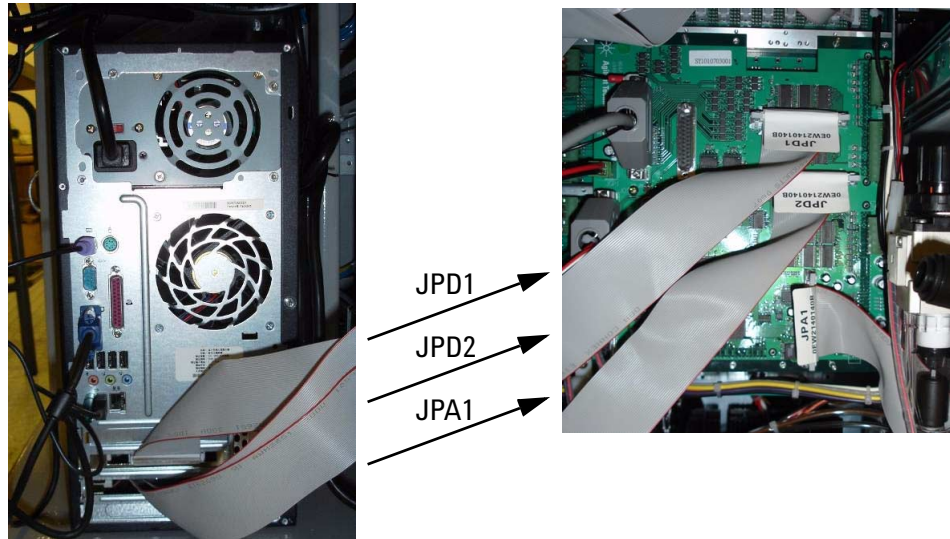

2 Place the keyboard and mouse next to the monitor.

3 Open the front panel (see "Front Panel Access" on page 3). Place the CPU in the right compartment of the test station.

Figure 17   CPU

4 Connect the keyboard, mouse, and monitor cables to the CPU.

5 Connect the three flat cables from the CPU to the system card.

Figure 18   Flat cables

JPD1
JPD2
JPA1

6   Plug the power cables of the CPU and monitor firmly into the sockets labeled **PC POWER OUTLET**.

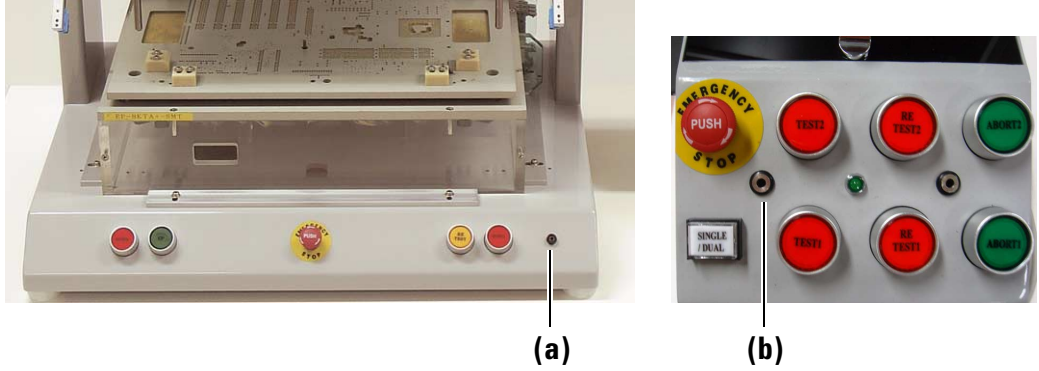**Before connecting the power cables, check them for damage and ensure that no internal wires are exposed.**

Figure 19   Power cables

Connect the Debug Probe

1 Connect the debug probe to the connector on the front of the press down model (a) or the control box (b) of the vacuum model.

Figure 20 Connector for debug probe

(a)   **(b)**

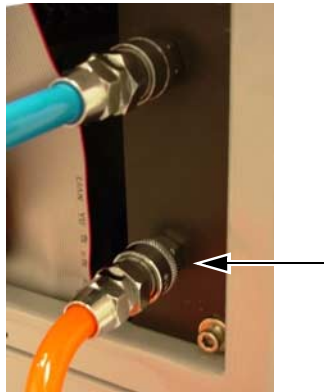## Connect Power and Compressed Air Supply

1 Connect the power cable from the test station to a power outlet.

Figure 21   Main power cable

2 Connect the compressed air supply to the inlet at the rear of the test station.
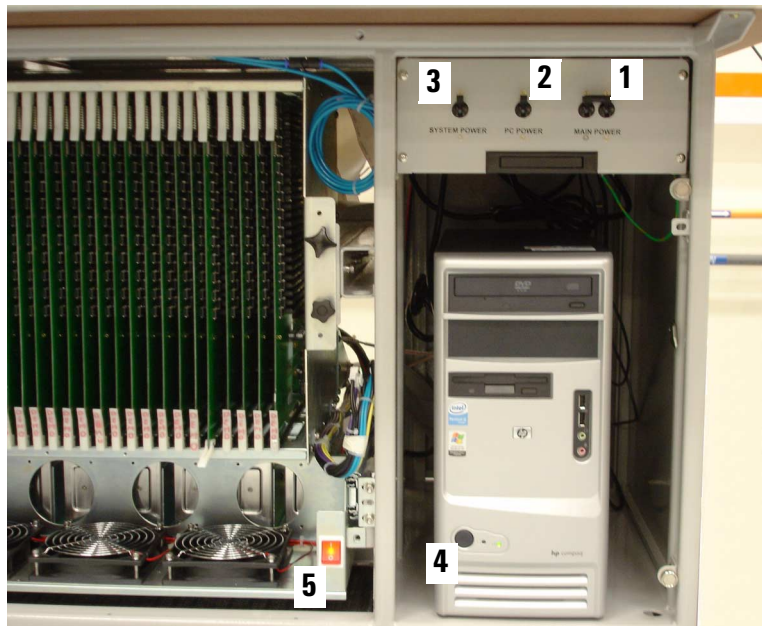
Figure 22   Compressed air supply

3 For the vacuum model, also connect the vacuum hose.

Power Up the System

Turn on the power to the system in the following order:

1 MAIN POWER

2 PC POWER

3 SYSTEM POWER

4 CPU power

5 Testhead power

Figure 23 Power up the system

Software Installation

Before installing the Medalist i1000 software, set the screen resolution to to **1024 x 768 pixels** and color quality to **16-bit color** (**Start** > **Control Panel** > **Display** > **Settings** tab).

1 Insert the **Medalist i1000 Software** disc in the controller's drive.

2 Follow the instructions to install the software and restart the system when prompted.

3 When installation is completed, select the option **Yes, launch the program file** and click **Finish**.

This will start the installation of the KEY PRO driver.

4 When installation is completed, launch the Medalist i1000 software by clicking its icon on the desktop.

5 At the prompt **Use Demo Version?** click **No**.

6 Enter the license key and click **OK**.

If a new license key is needed, copy the serial number from the title bar of the dialog box, and contact your Agilent representative to apply for a license key.

7 You have to log in to use the software. The default user name and password are both **i1000**. The security level for this user name is **Administrator**.
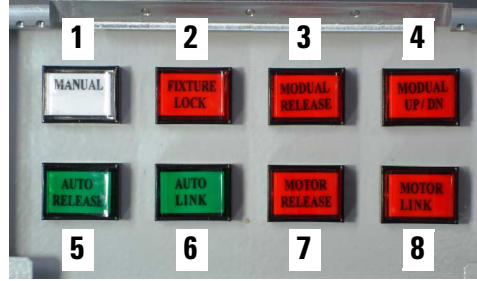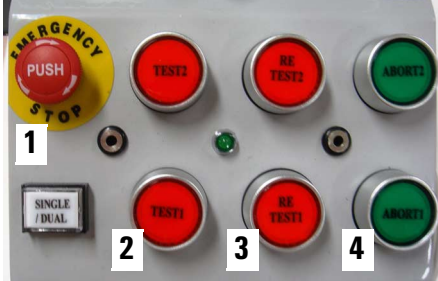
Control Buttons

Table 1   Control buttons on U9401A (press down model)
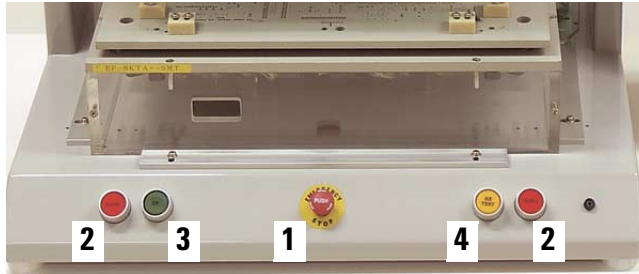
1   Press **EMERGENCY STOP** in an emergency to release the press.

2   Press both **DOWN** buttons simultaneously to lower the press.

3   Press **UP** to raise the press.

4   Press **RETEST** to run a test.

**Table 2**   Control buttons on U9402A (vacuum model)

1 Press **EMERGENCY STOP** in an emergency to release the vacuum fixture.	**1** **MANUAL** – Initiate manual mode for fixture installation.
2 Press **TEST1** to run a test. TEST2 is used only for dual-well fixtures.	**2** **FIXTURE LOCK** – Lock or release the fixture.
3 Press **ABORT1** to stop the test.	**3** **MODUAL RELEASE** – Release or lock the module holder.
4 Press **RETEST1** to run a test.	**4** **MODUAL UP/DN** – Raise or lower the module support. The light is on when the module support is raised.
	5 **AUTO RELEASE** – Automatically disengage and release the fixture.
	6 **AUTO LINK** – Automatically lock and engage the fixture.
	7 **MOTOR RELEASE** – Disengage the module from the tester interface.
	8 **MOTOR LINK** – Press and hold to engage the module.

Installing the Fixture on the Press Down Model (U9401A)

1 Loosen two of the alignment bars on the base of the Press Down Unit.

Figure 24 Loosen alignment bars
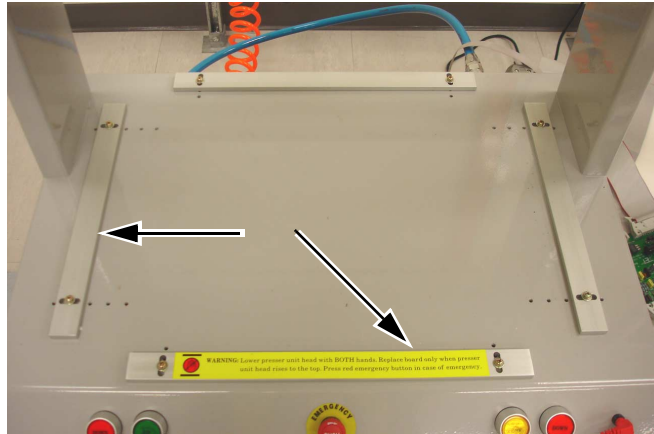
2 Disable the sensors by flipping the sensor switch down. (The sensor switch is located at the rear of the Press Down Unit. See (a) in Figure 43.)

When the sensors are disabled, the **RETEST** button blinks.

3 Place the fixture on the base of the Press Down Unit.

4 Press both **DOWN** buttons to lower the honeycomb plate towards the fixture, but allow room for moving the fixture.

5 The honeycomb plate of the Press Down Unit has three holes along its left and right sides (Figure 25). Move the fixture so that the slots along the left and right sides of the top plate line up with the center holes of the honeycomb plate.

Figure 25 View of honeycomb plate from the left
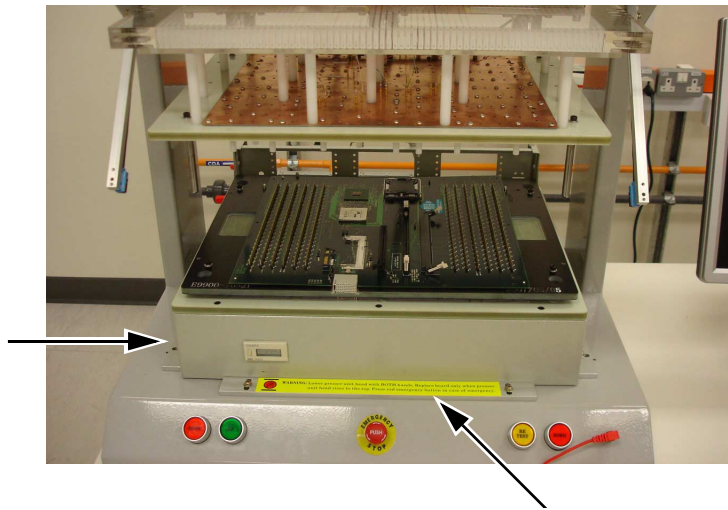

Medalist i1000 Installation Guide
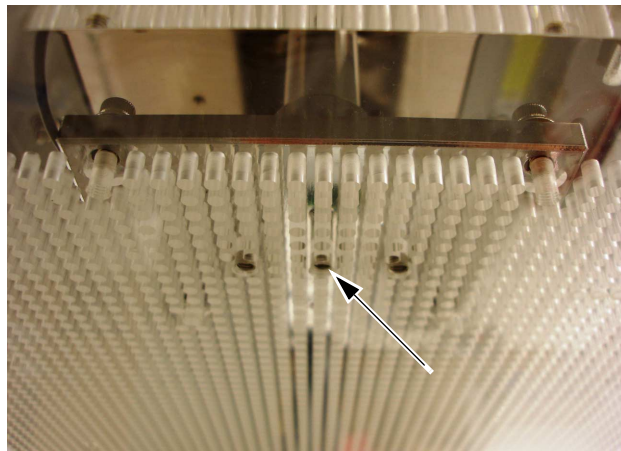
6 Insert the screw through the slot of the top plate into the center hole of the honeycomb plate and tighten it. Do the same on the other side.

Figure 26 Secure the top plate
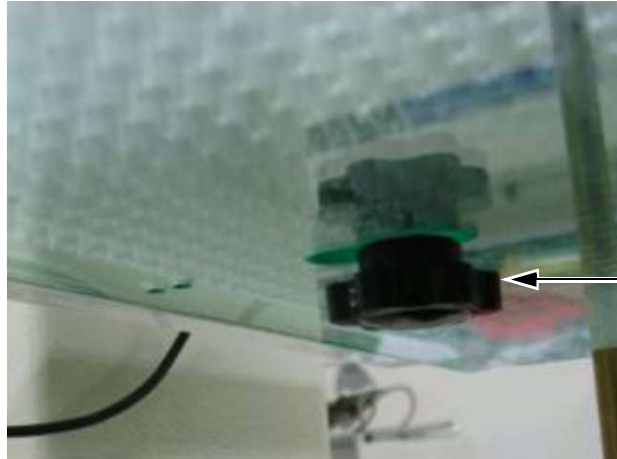
7 Secure the alignment bars to hold the fixture firmly in place.

Figure 27 Secure alignment bars

8 Connect the 64-pin flat cables from the back of the fixture to the testhead. Connect the cables according to the slot numbers shown on the back of the fixture.

9 Turn the sensor switch back on.

Align the Sensors on the Press Down Model (U9401A)

After installing the fixture, follow these steps to align the two safety sensors at the front of the Press Down Unit.

<table><tr><td>NOTE</td><td>Make sure the Medalist i1000 software is not running.</td></tr></table>

1 Disable the sensors by flipping the sensor switch down (see (a) in Figure 43).

When the sensors are disabled, the **RETEST** button blinks.

2 Press both **DOWN** buttons to lower the press.

3 Loosen the screws on one of the sensor arms and adjust the position of the sensor so that it is at the same height as the fixture support plate, where the operator's hands would be when loading a board.

Figure 28 Screws on sensor arm
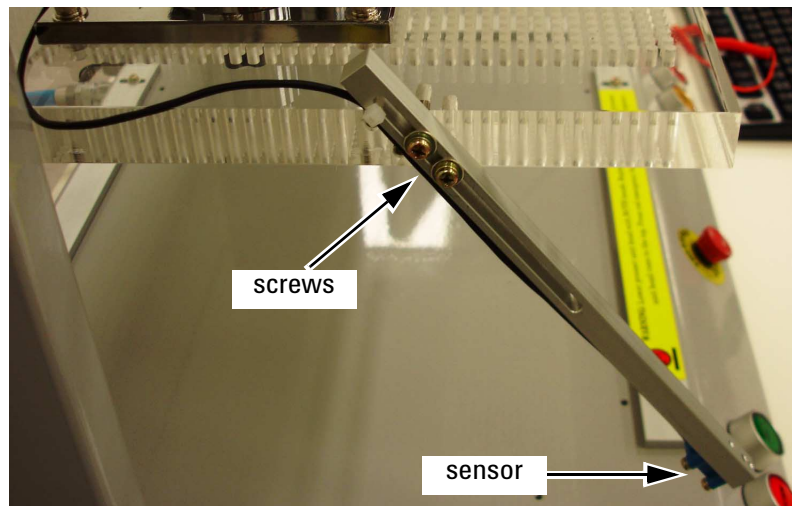
4 Tighten the screws to secure the sensor in place.

5 Press the **UP** button to raise the press.

6 Reactivate the sensors by flipping the sensor switch up.

7 Check the **RETEST** button.

• If it is blinking, the sensors are not aligned. Continue with step 8 to align them.

• If it is not blinking, the sensors are properly aligned. Tighten the screws on the other sensor arm if necessary, to secure the sensor in place. This completes the alignment process.

8 Loosen the screws on the other sensor arm, and adjust the position of the sensor until the two sensors are aligned (the **RETEST** button will stop blinking).

Figure 29 Adjust second sensor
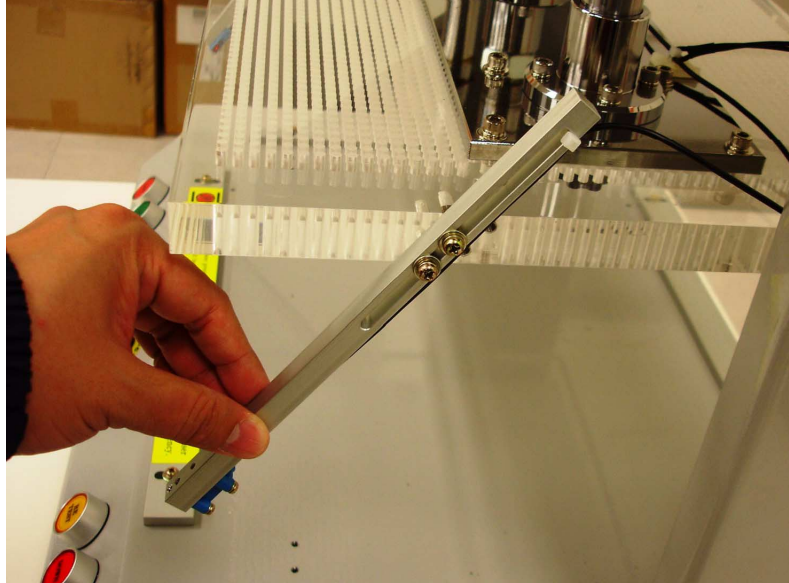
9 Tighten the screws to secure the sensor in place.

Installing the Fixture on the Vacuum Model (U9402A)

On the vacuum model, the fixture can be installed and engaged automatically or manually.
- Automatic Mode
- Manual Mode

See also "Parts of the Vacuum Fixture (U9402A)" on page 28.
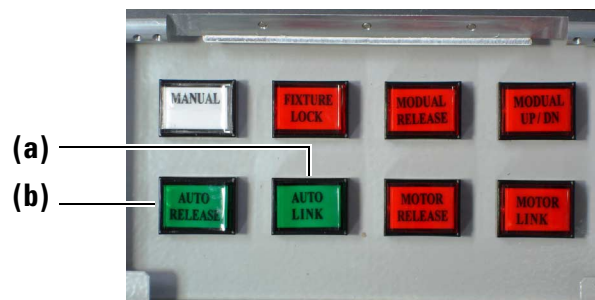
Automatic Mode

1 Place the fixture between the guide rails and push it over the tester interface.

Figure 30   Vacuum fixture

2 Press the **AUTO LINK** button (a) to automatically lock and engage the fixture.

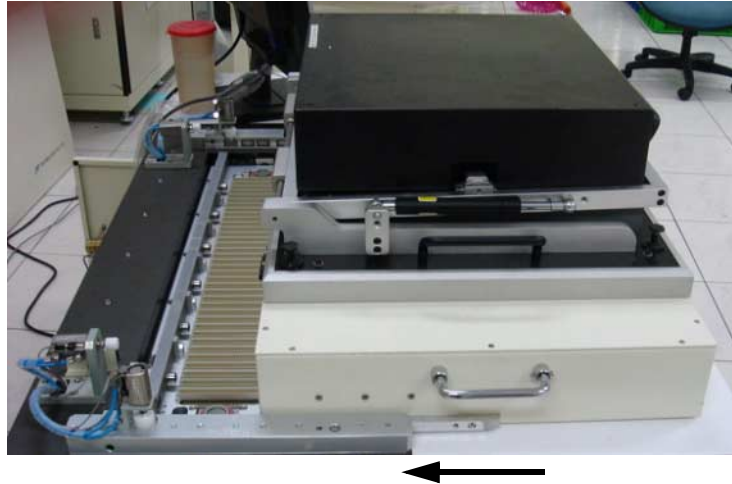**Figure 31**   Control box

Releasing the Fixture

To disengage and release the fixture, press the **AUTO RELEASE** button (b).

Manual Mode

Engaging the Fixture

1 Place the fixture between the guide rails and push it over the tester interface.

Figure 32 Vacuum fixture

2 Press the **MANUAL** button to initiate manual mode.

3 Press **FIXTURE LOCK** to lock the fixture.

4 Press **MODUAL UP/DN** to raise the module support.

5 Press **MODUAL RELEASE** to move the module holder to the unlocked position (see Figure 34 on page 27).

6 Press **MODUAL UP/DN** to lower the module onto the tester interface. (Note that the light turns off when the module is lowered.)

7 Press and hold the **MOTOR LINK** button until the fixture is engaged. There is no indicator to signal if the module is fully engaged. Typically it will be fully engaged in about 6 seconds.

8 Press **MODUAL RELEASE** to return the module holder to its locked position (see Figure 34 on page 27).

Releasing the Fixture

To release the fixture manually:

1 Press the **MANUAL** button to initiate manual mode.

2 Press **MODUAL RELEASE** to move the module holder to the unlocked position ().

3 Press and hold the **MOTOR RELEASE** button to disengage the module from the tester interface.

4 Press **MODUAL UP/DN** to raise the module support, which moves the module to the disengaged position ().

5 Press **MODUAL RELEASE** to move the module holder to the locked position to hold the module in place.

Figure 33

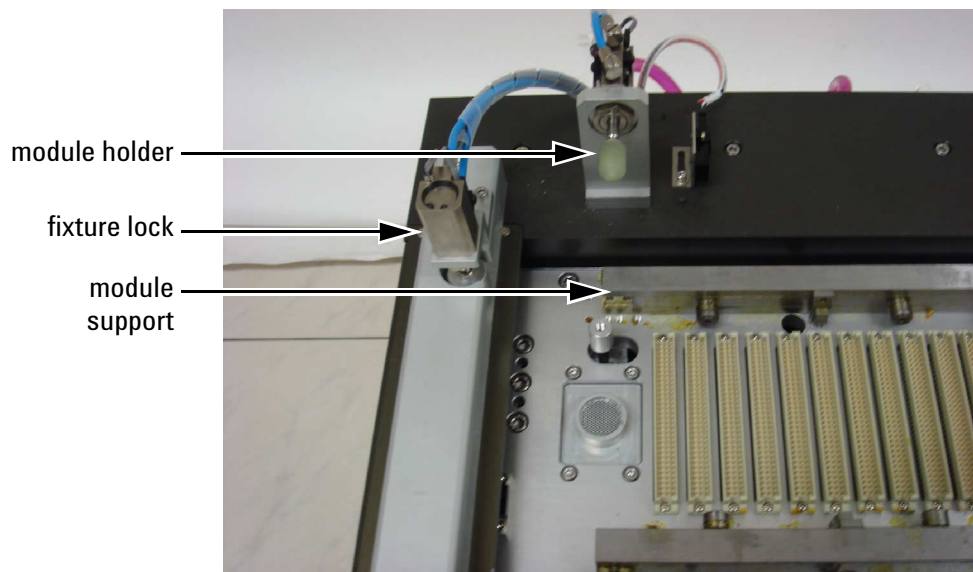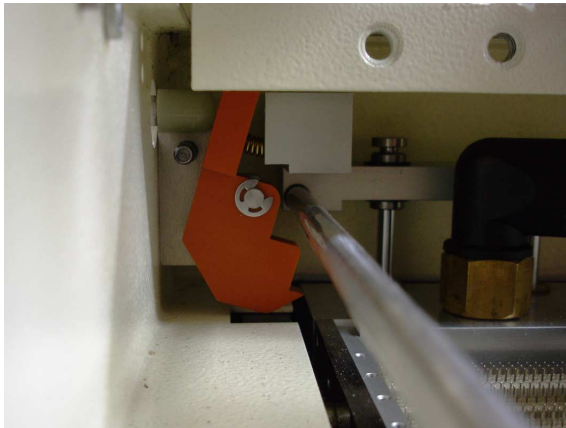module holder

fixture lock

module support

Figure 34 Module holder positions

Module holder in unlocked position

Module holder in locked position

Figure 35 Module positions

Module in unlocked position

Module in fully engaged position

Parts of the Vacuum Fixture (U9402A)

The parts of the vacuum fixture are shown below.
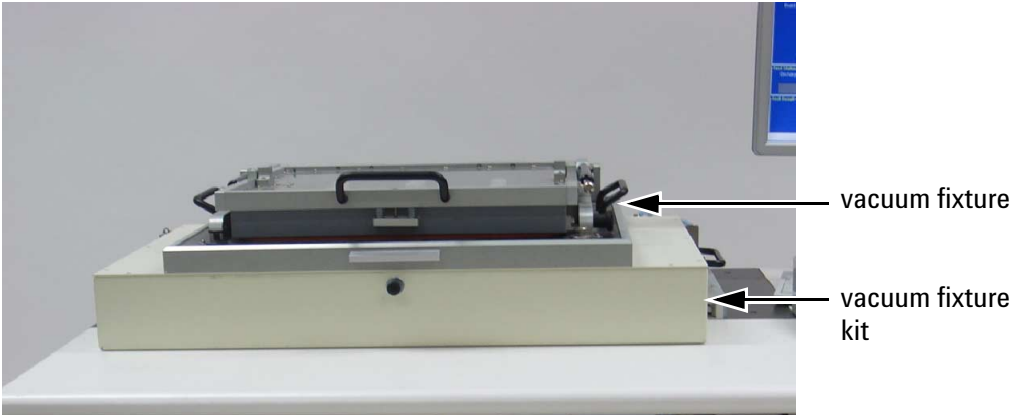
Figure 36   Vacuum fixture

vacuum fixture

vacuum fixture kit

Figure 37   Metal base

Figure 38   Lock down kit

lock down kit
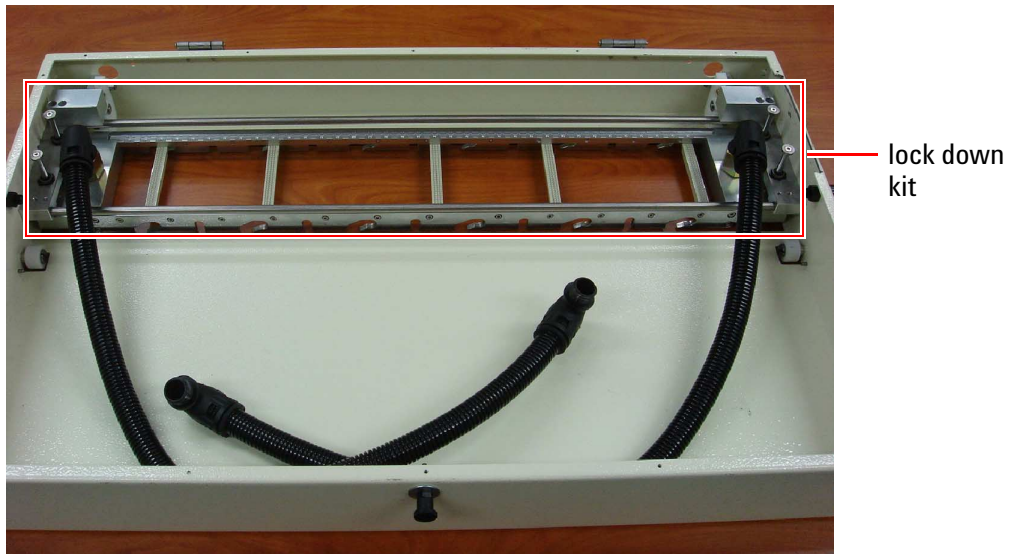
Figure 39   Guard rail

guard rail

Figure 40   Air cushion

air cushion

System Check

After completing the fixture installation, do the following checks.

1 Check the compressed air pressure, which should be between 100–110 psi.

Figure 41 Pressure check

2 Check that all sensors are functional by activating them.

   a Log on to the Medalist i1000 software.

   b From the **Diagnostics** menu, select **I/O Cards**. Click **Read All**.

   Upon activation of the sensor switches, the status of the sensors should change from **OFF** to **ON** or vice versa. (Figure 42 shows a sample sensor check for the press down model.)

Figure 42 Sensor check for press down model
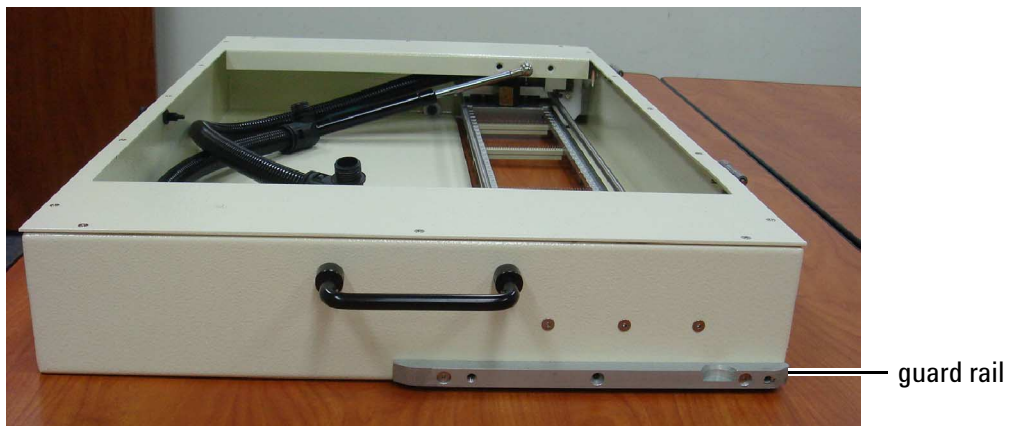
Adjusting Fixture Press Travel on the Press Down Model (U9401A)

During testing, inadequate travel of the press may result from loose contacts while excessive travel could damage the fixture. To correct the travel distance, adjust the position of the lower position sensor.

To correct excessive travel, move the lower position sensor up. To correct inadequate travel, move the sensor down.

Figure 43   Rear view of Press Down Unit showing sensors and sensor switch
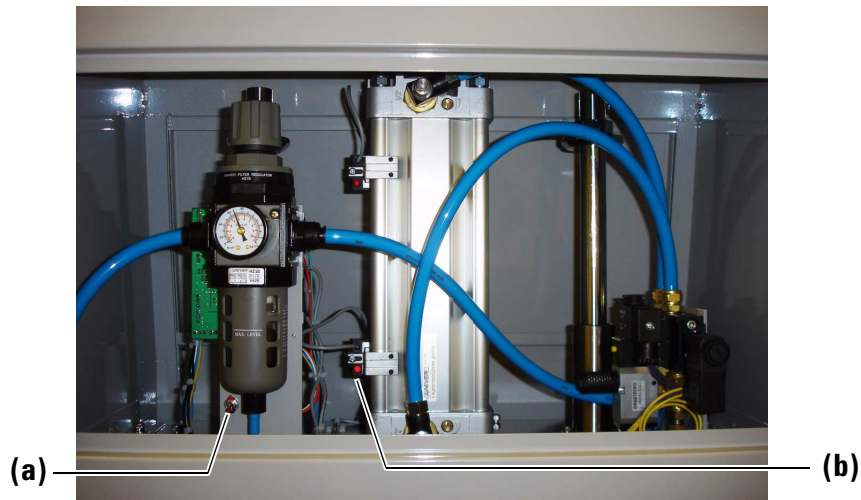
1 Open the access panel at the top of the Press Down Unit.

2 Disable the sensors by flipping the sensor switch down (a).

3 Press both **DOWN** buttons to lower the press to the correct position.

4 Move the lower position sensor (b) till the sensor light turns on. Secure the sensor.

5 Reactivate the sensors by flipping the sensor switch up.

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