



**Agilent Technologies**

*Vacuum Products Division*

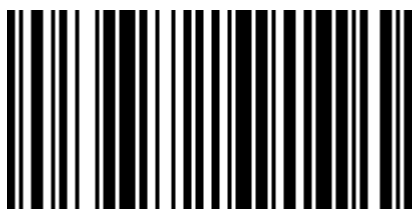
***I/O Board for VS  
Series and (G8610,  
G8611, or G8612)  
Series Leak  
Detectors (VSFLDIO)***

*FIELD INSTALLATION  
INSTRUCTIONS*

Part Number 699910001

Rev. B

October 2006



699910001

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# Agilent Field Instruction Sheet

## I/O Board for VS and (G8610, G8611, or G8612) Series Leak Detectors

### Preface

#### Documentation Standards

This manual uses the following documentation standards:

#### NOTE

Notes contain important information.



#### CAUTION

Cautions appear before instructions, which if not followed, could cause damage to the equipment or data loss.











#### WARNING

Warnings appear for a particular procedure or practice which, if not followed correctly, could lead to serious injury or death.



#### Hazard and Safety Information

The common international symbols used in this manual and on the equipment are defined below.

	OFF Supply (Power)		Earth (Ground) Terminal
	ON Supply (Power)		Caution, Hot Surface
	AC – Alternating Current		Caution, Risk of Electrical Shock
	Warning, Risk of danger		Protective Conductor Terminal
	Frame or chassis Terminal		



Operators and service personnel must be aware of all hazards associated with this equipment. They must know how to recognize hazardous and potentially hazardous conditions, and know how to avoid them. The consequences of unskilled, improper, or careless operation of the equipment can be serious. Every operator or service person must read and thoroughly understand operation/maintenance manuals and any additional information provided by Agilent. All warning and cautions must be read carefully and strictly observed. Consult local, state, and national agencies regarding specific requirements and regulations. Address any safety, operation, and/or maintenance questions to your nearest Agilent office.

**Solvents**

**WARNING**



The mechanical components of leak detectors may be cleaned with one of the recommended solvents. When heated, sprayed, or exposed to high-temperature equipment, these solvents become flammable and explosive, causing serious injury or death. Do not use these solvents near a high-temperature source. Ventilate the working area with a blower and work in a large, well-ventilated room.

Solvents are irritants, narcotics, depressants and/or carcinogens. Their inhalation and/or ingestion may produce serious side effects. Prolonged or continued contact with the skin results in absorption through the skin and moderate toxicity. Always ensure that cleaning operations are carried out in large, well-ventilated rooms, and wear eye shields, gloves, and protective clothing.

Due to the effective cleaning nature of VacuSolv solvent and its residue-free properties, Agilent Component and Spectrometer Cleaning Kit (Part Number 670029096), used in accordance with the kit instructions, is recommended for cleaning spectrometer components. The kit can also be used for fine cleaning of other parts in the leak detector's vacuum system such as valves and fittings. No rinsing steps or high-temperature drying is required following cleaning with VacuSolv. Although appropriate precautions are advised, VacuSolv is compatible with most materials and does not contain toxic chemicals or CFCs (chlorofluorocarbons). Other acceptable solvents are isopropyl alcohol (IPA) or Dow Corning<sup>®</sup> OS-20.

To clean the leak detector plastic enclosure, the LCD display and Front Panel buttons, use only a soft cloth slightly dampened with water or a mild soap.

Do NOT use excess water or cleaning solvents of any kind.

Avoid splashing any cleaning solvents into the unit through the ventilation openings or Front Panel buttons. Wipe the surface with a dry lint-free cloth.

**Vacuum Equipment and Cleanliness**

Cleanliness is vital when servicing the leak detector or any vacuum equipment. There are some techniques that are more important in leak detector servicing than in general vacuum work:

**CAUTION**



Wear non-powdered, ESD-safe Nitride or equivalent gloves to prevent skin oils from getting on spectrometer internal components.

## O-ring Care

When removing, checking or replacing O-rings, keep in mind the following:

### NOTE



Agilent recommends replacing all O-rings during routine maintenance or during any maintenance procedure requiring that O-rings be removed.

### CAUTION



Remove O-rings carefully with your fingers. Do not use metal tools for this task; this prevents scratching of any sealing surfaces.

- Wipe all O-rings clean with a lint-free cloth before installation to ensure that no foreign matter is present to impair the seal.
- Do not use grease or any other substance on O-rings that will come in contact with the vacuum surfaces.
- Do not use alcohol, methanol or other solvents on O-rings. Doing so causes deterioration and reduces their ability to hold a vacuum.
- Agilent does not recommend the use of vacuum grease. If applicable, apply a small amount of Apiezon<sup>®</sup> L grease and wipe the O-rings shiny dry.

## Metal Seal Care

### CAUTION



Metal Seals must be replaced any time a spectrometer is opened. All fasteners must be installed and torqued per assembly procedure specifications. Remove Metal Seals carefully with your fingers or a soft tool. Metal tools scratch sealing surfaces.

- Metal Seals are supplied in pre-cleaned condition. No cleaning is required. If necessary, Metal Seals can be cleaned using the recommended solvents. Wipe Metal Seals clean with a lint-free cloth before installation to ensure that no foreign matter impairs the seal.
- Do not use grease or any other substance on Metal Seals that will come in contact with the spectrometer.

## Spectrometer

### CAUTION



Store the Ion Source/Preamplifier sub-assembly in a cool, dry area in a tightly sealed, ESD protected container. Wear non-powdered, ESD-safe Nitride or equivalent gloves when handling the spectrometer. Wash hands thoroughly after handling the spectrometer filaments and especially before smoking or eating.

The spectrometer and PCB's are static sensitive devices. Wear a grounding strap when performing any maintenance on these units and especially when performing maintenance of static sensitive parts.

### CAUTION



The spectrometer operates at a very high vacuum produced by the high vacuum turbomolecular pump. Service of the spectrometer requires that this vacuum be vented to the atmosphere.

This manual contains directions for a VS Series (Part One) and a G8610, G8611, or G8612 Series (Part Two) leak detector.

## Part One: VS Series Leak Detector

### Equipment Required

- Extended Length M5 Allen Wrench
- Slotted screw driver
- Metric Allen Wrench Set
- M3 Philips Head Screw Driver
- 

### Installation Procedure

For clarity, some items have been omitted from views.

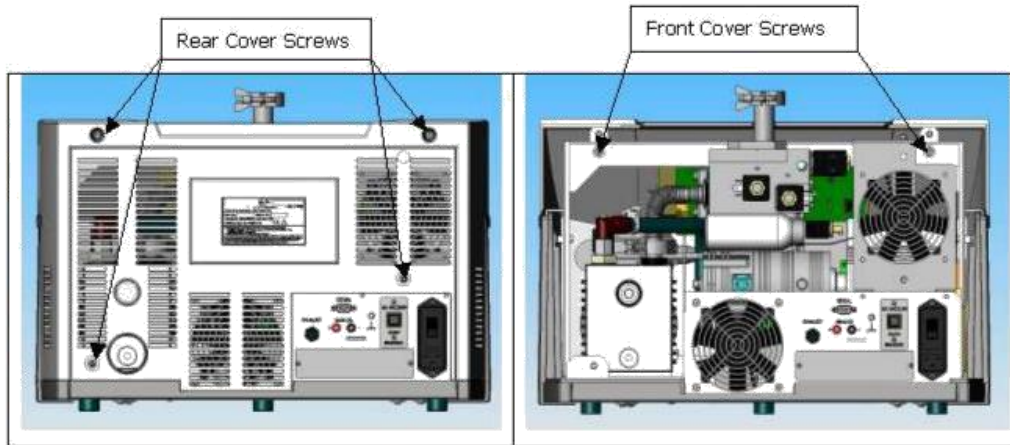


Figure 1: Rear and Front Cover Screws

#### WARNING



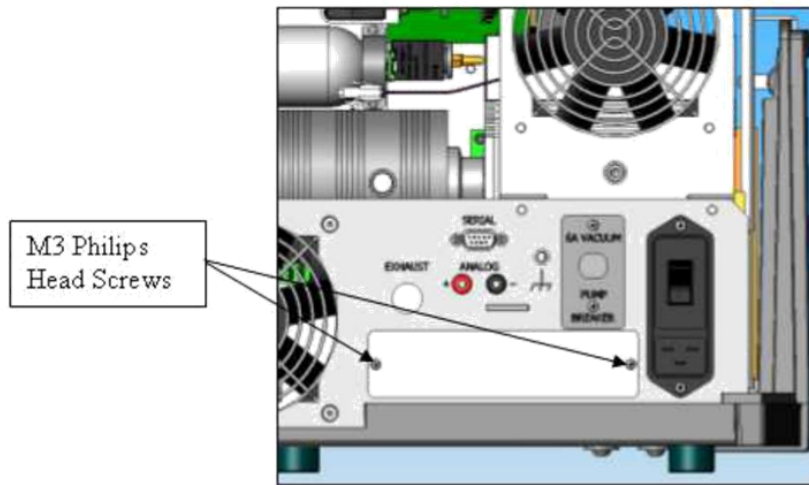
Disconnect power from the unit before performing any maintenance procedure that requires physically disconnecting any part of the system.

#### NOTE



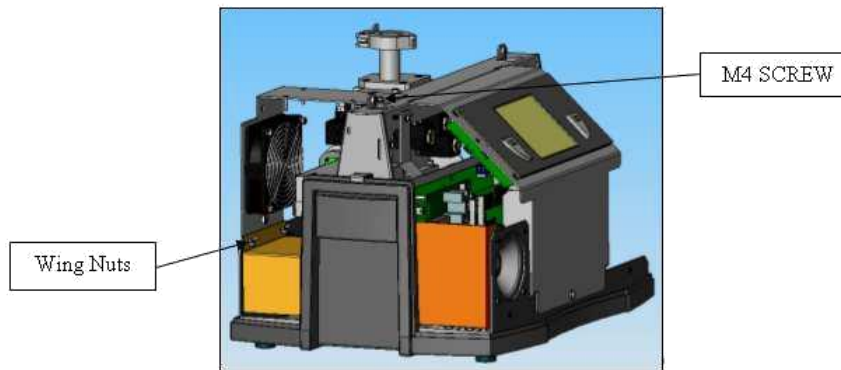
Prior to I/O installation, ensure that the software revision is 2.0 by navigating from the *Home* screen menu to *System Information*. If not, contact Agilent customer services, see the back cover of this manual for a listing of our sales and service offices. This note only applies to a VS system leak detector.

1. Turn off the power switch located on the back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using an extended length M5 Allen wrench, remove the four screws holding the rear plastic cover (Figure 1: Rear and Front Cover Screws) and detach the rear plastic cover from the unit.
4. Remove the four screws holding the front plastic cover and detach the cover from the unit. Two screws are situated at the front of the unit (not shown) and two screws are positioned inside the unit (Figure 1: Rear and Front Cover Screws).



**Figure 2: Back Plate with Screws**

- Remove the two back plate Philips head screws w/lock washers (Figure 2: Back Plate with Screws) and pull the blank back plate off and discard.



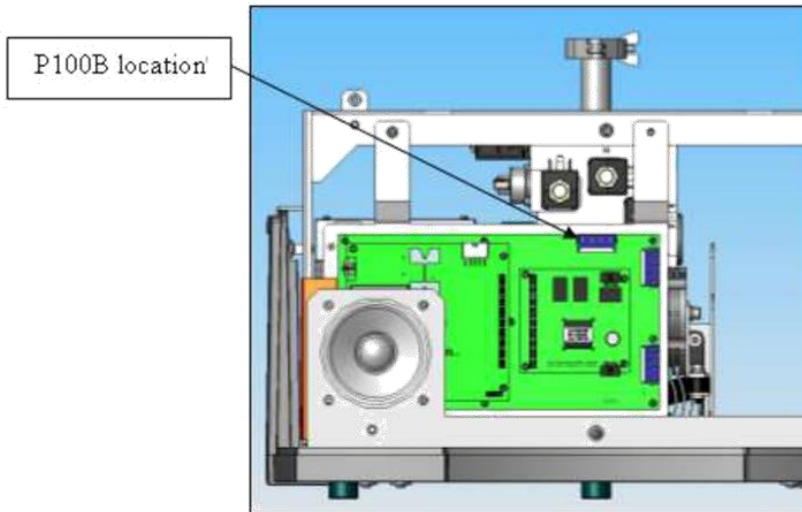
**Figure 3: Plastic Shield**

- Remove the two wing nuts holding the plastic shield around the power input area inside the leak detector and remove the shield (Figure 3: Plastic Shield).
- Remove the fan assembly by loosening the M4 socket head cap screw (Figure 3: Plastic Shield).

**CAUTION**

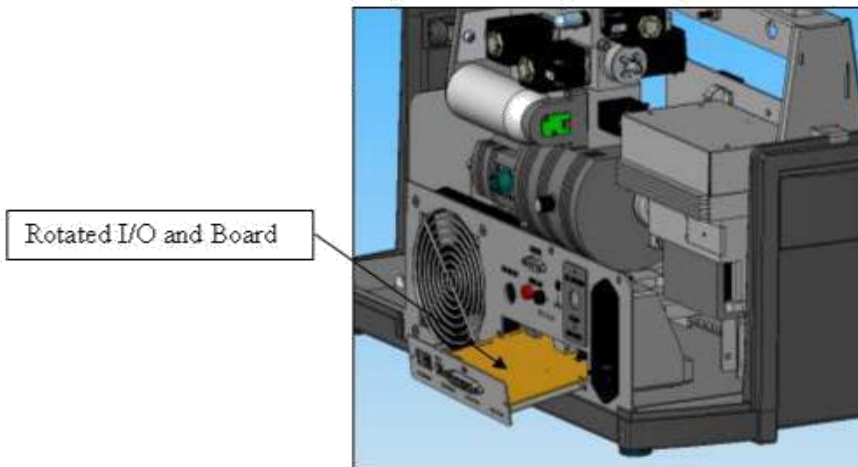
**Use proper ESD safety techniques when performing a PCB card install.**





**Figure 4: I/O Cable to Mother Board**

8. Connect the I/O cable end labeled P100B, provided with the kit, to J100 (marked Yellow) on the mother board PCB (Figure 4: I/O Cable to Mother Board). Then run the cable along the base of the leak detector to the I/O board location.

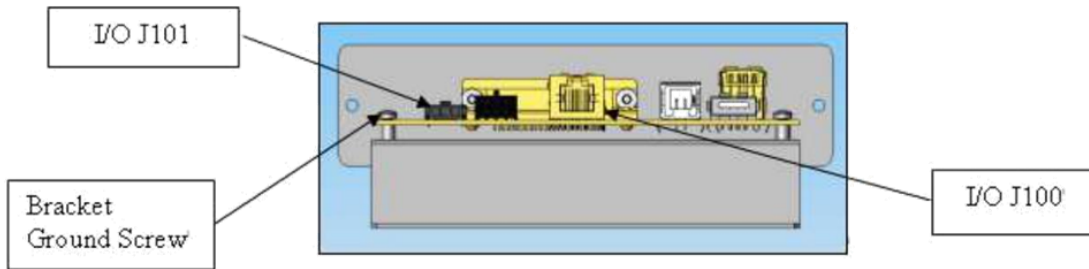


**Figure 5: I/O Bracket Installation**

9. Rotate the I/O bracket and board to approximately a 30° angle and insert into the leak detector (Figure 5: I/O Bracket Installation).



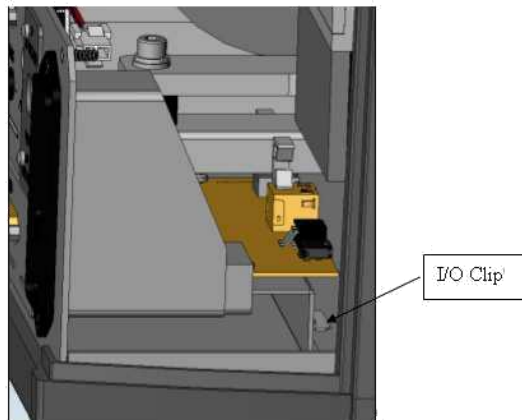




**Figure 6: I/O Bracket**

10. Connect the (Figure 6: I/O Bracket):


- Opposite end of the cable labeled P1 to J100 on the I/O board.
- 24 V plug labeled P101, which is tie rapped at the base of the leak detector, to the connector labeled J101 on the I/O board.
- 24 V lug as a ground to one of the bracket screws.



**Figure 7: I/O Clip**

- Slide the I/O assembly into the leak detector and ensure that the I/O bracket engages the clip at the base of the leak detector (Figure 7: I/O Clip).
- Reinstall the two back plate Philips head screws w/lock washers (Figure 2: Back Plate with Screws).
- Reinstall the (Figure 3: Plastic Shield):
  - Fan assembly by tightening the M4 socket head screw.
  - Reinstall the plastic shield using the two wing nuts.

- 14. Attach the front cover and secure to the frame using existing hardware.
- 15. Attach the rear cover and secure to the frame using existing hardware.
- 16. Connect the power cord and power up the unit.
- 17. Watch the home screen to verify the *Spectube Pressure Wait* message progresses to *Stabilization Wait* and *System Ready* within ten minutes. Refer to the operator's manual if the system fails to reach the System Ready mode.
- 18. Agilent recommends a full calibration of the unit prior to leak test operations.
- 19. Connect operators 25-pin cable to the I/O connector and verify the connection. Refer to Section A.3 of the user's manual for the I/O pin connector signals.

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		 <b>Agilent Technologies</b>

## Part Two: G8610, G8611, or G8612 Series Leak Detector

### Equipment Required

- Slotted screw driver
- Metric Allen Wrench Set
- M3 Philips Head Screw Driver
- 

### Installation Procedure

For clarity, some items have been omitted from views.

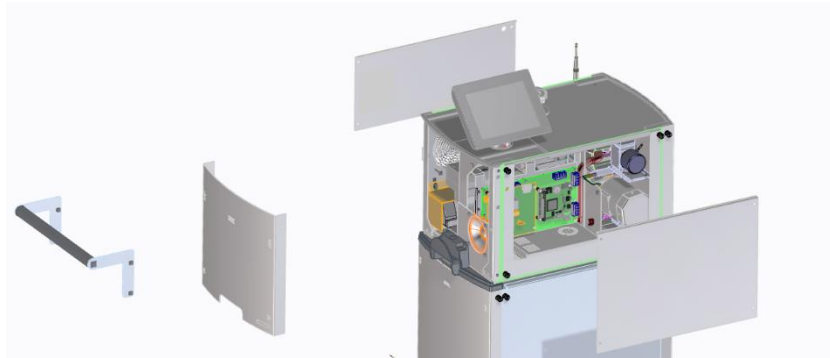


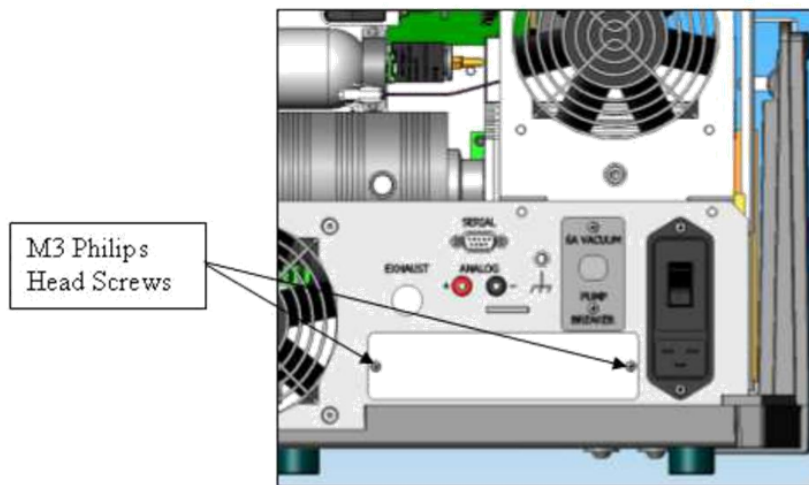
Figure 1: Rear and Front Cover Screws

### WARNING



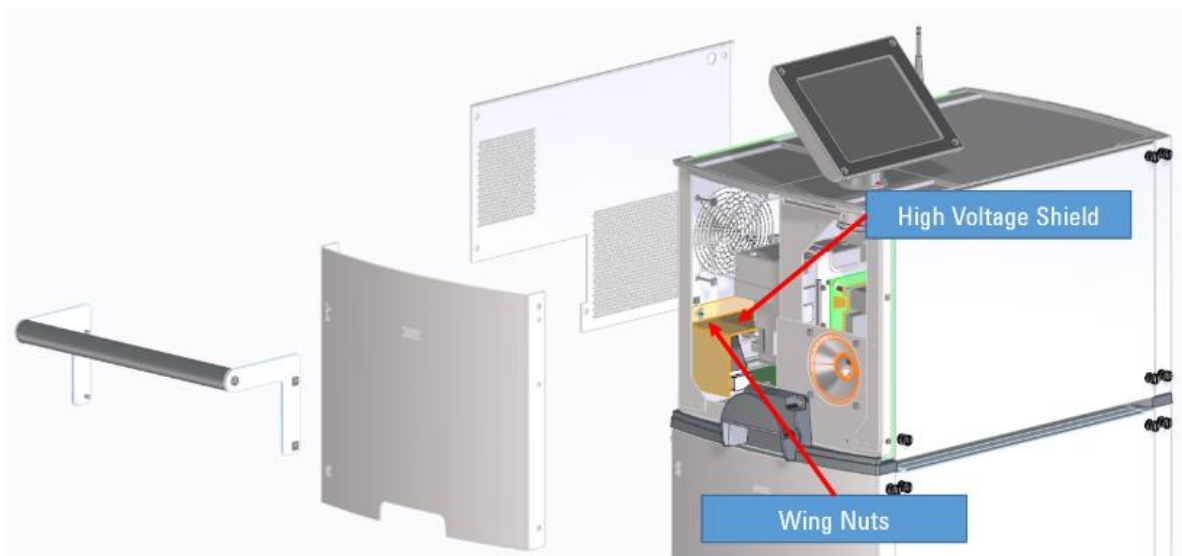
Disconnect power from the unit before performing any maintenance procedure that requires physically disconnecting any part of the system.

1. Turn off the power switch located on the back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using a slotted screw driver, remove the four screws holding the front and side covers (Figure 1: Rear and Front Cover Screws) and detach the covers. Some leak detector models have a handle. If the option is present, remove the handle using a metric Allen wrench before removing the front cover.



**Figure 2: Back Plate with Screws**

- Remove the two back plate Philips head screws w/lock washers (Figure 2: Back Plate with Screws) and pull the blank back plate off and discard.



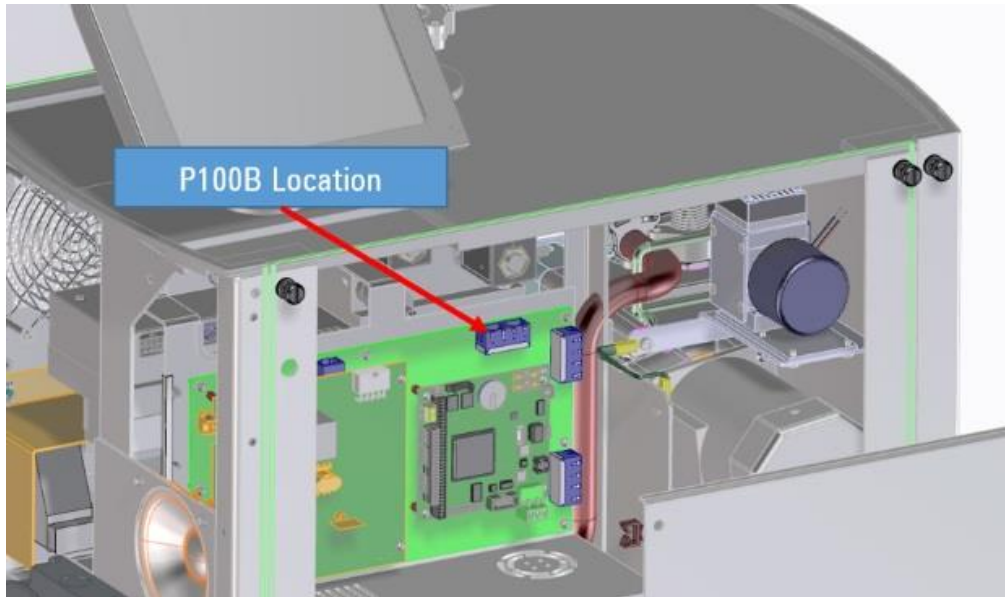
**Figure 3: Plastic Shield**

- Remove the two wing nuts holding the plastic shield around the power input area inside the leak detector and remove the shield (Figure 3: Plastic Shield).

**CAUTION**

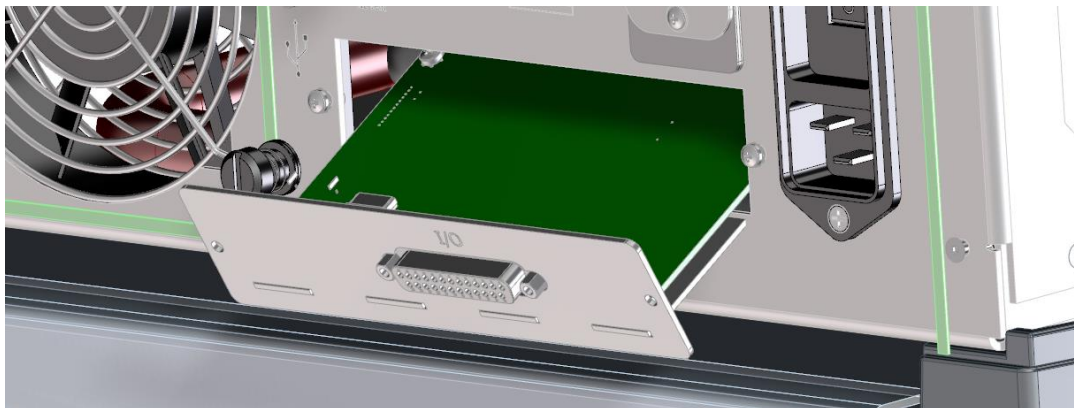


Use proper ESD safety techniques when performing a PCB card install.



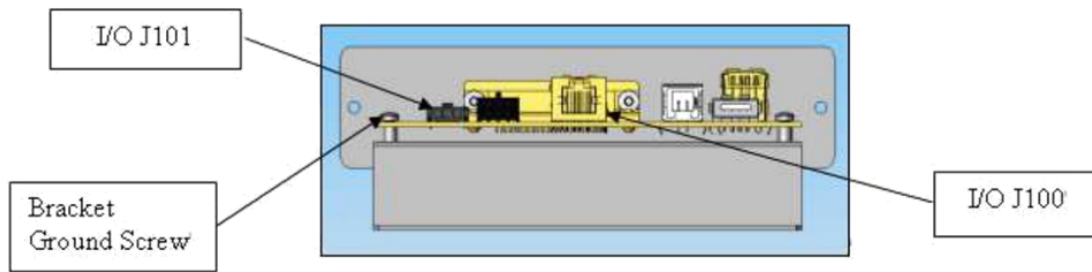
**Figure 4: I/O Cable to Mother Board**

6. Connect the I/O cable end labeled P100B, provided with the kit, to J100 (marked Yellow) on the mother board PCB (Figure 4: I/O Cable to Mother Board). Then run the cable along the base of the leak detector to the I/O board location.



**Figure 5: I/O Bracket Installation**

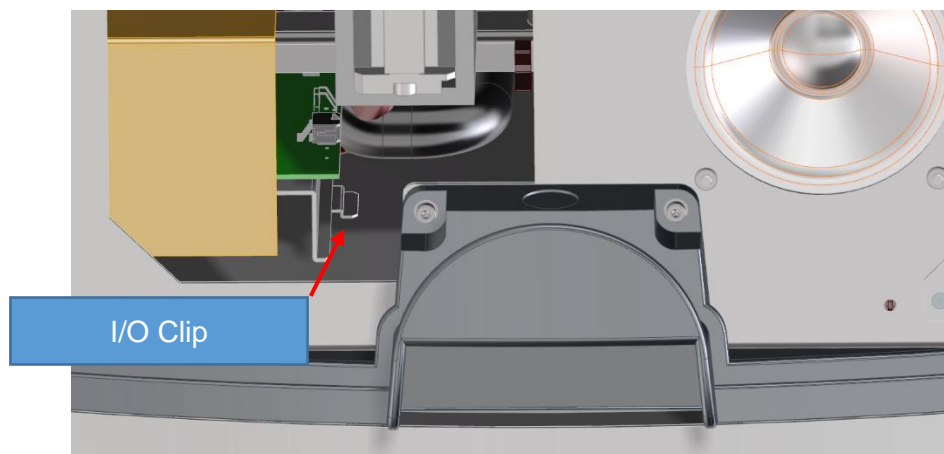
7. Rotate the I/O bracket and board to approximately a 30° angle and insert into the leak detector (Figure 5: I/O Bracket Installation).



**Figure 6: I/O Bracket**

10. Connect the (Figure 6: I/O Bracket):


- Opposite end of the cable labeled P1 to J100 on the I/O board.
- 24 V plug labeled P101, which is tie-wrapped at the base of the leak detector, to the connector labeled J101 on the I/O board.
- 24 V lug as a ground to one of the bracket screws.



**Figure 7: I/O Clip**

- Slide the I/O assembly into the leak detector and ensure that the I/O bracket engages the clip at the base of the leak detector (Figure 7: I/O Clip).
- Reinstall the two back plate Philips head screws w/lock washers (Figure 2: Back Plate with Screws).
- Reinstall the plastic shield covering the line voltage components using the two wing nuts (Figure 3: Plastic Shield).

- 20. Reattach covers.
- 21. Connect the power cord and power up the unit.
- 22. Watch the home screen to verify the *Spectube Pressure Wait* message progresses to *Stabilization Wait* and *System Ready* within ten minutes. Refer to the operator's manual if the system fails to reach the System Ready mode.
- 23. Agilent recommends a full calibration of the unit prior to leak test operations.
- 24. Connect operators 25-pin cable to the I/O connector and verify the connection. Refer to the I/O section of the user manual for pin connection signals.

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 <b>Agilent Technologies</b>		





## Vacuum Products Division Instructions for returning products

Dear Customer,

Please follow these instructions whenever one of our products needs to be returned.

Complete the attached **Request for Return form** and send it to Agilent Technologies (see below), taking particular care to include the completed **Health and Safety** declaration Section. No work can be started on your unit until we receive a completed copy of this form.

After evaluating the information, Agilent Technologies will provide you with a **Return Authorization (RA) number** via email or fax, as requested. Note: Depending on the type of return, a Purchase Order may be required at the time **the Request for Return is submitted**. We will quote any necessary services (evaluation, repair, special cleaning, eg).

### Product preparation

- Remove all accessories from the core product (e.g. inlet screens, vent valves).
- Prior to shipment and if applicable for your product, drain any oils or other liquids, purge or flush all gasses, and wipe off any excess residue.
- If ordering an Advance Exchange product, please use the packaging from the Advance Exchange to return the defective product.
- Seal the product in a plastic bag, and package product carefully to avoid damage in transit. You are responsible for loss or damage in transit.
- Include a copy of the Health and Safety Declaration in the shipping documentation on the outside of the shipping box of your returning product.
- Clearly label package with RA number. Using the shipping label provided will ensure the proper address and RA number are on the package. Packages shipped to Agilent without a RA clearly written on the outside cannot be accepted and will be returned.
- Return only products for which the RA was issued.

### Shipping

- Ship to the location specified on the printable label, which will be sent, along with the RA number, as soon as we have received all of the required information. Customer is responsible for freight charges on returning product.
- Return shipments must comply with all applicable Shipping Regulations (IATA, DOT, ADR, etc.) and carrier requirements.

RETURN THE COMPLETED **REQUEST FOR RETURN** FORM TO YOUR NEAREST LOCATION:

#### EUROPE:

Fax: 00 39 011 9979 330

Fax Free: 00 800 345 345 00

Toll Free: 00 800 234 234 00

[vpt-customer@agilent.com](mailto:vpt-customer@agilent.com)

#### NORTH AMERICA:

Fax: 1 781 860 9252

Toll Free: 800 882 7426

[vpl-ra@agilent.com](mailto:vpl-ra@agilent.com)

#### PACIFIC RIM:

please visit our website for individual  
office information

<http://www.agilent.com>



**TERMS AND CONDITIONS**

**Please read the terms and conditions below as they apply to all returns and are in addition to the Agilent Technologies Vacuum Product Division – Products and Services Terms of Sale.**

- Unless otherwise pre-negotiated, customer is responsible for the freight charges for the returning product. Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.
- Agilent Technologies is not responsible for returning customer provided packaging or containers.
- Customers receiving an Advance Exchange product agree to return the defective, rebuildable part to Agilent Technologies **within 15 business days**. Failure to do so, or returning a non-rebuildable part (crashed), will result in an invoice for the non-returned/non-rebuildable part.
- Returns for credit toward the purchase of new or refurbished Products are subject to prior Agilent approval and may incur a restocking fee. Please reference the original purchase order number.
- Units returned for evaluation will be evaluated, and a quote for repair will be issued. If you choose to have the unit repaired, the cost of the evaluation will be deducted from the final repair pricing. A Purchase Order for the final repair price should be issued within 3 weeks of quotation date. Units without a Purchase Order for repair will be returned to the customer, and the evaluation fee will be invoiced.
- Products returned that have not been drained from oil will be disposed.
- A Special Cleaning fee will apply to all exposed products
- If requesting a calibration service, units must be functionally capable of being calibrated.



Vacuum Products Division
Request for Return Form

Customer information
Company :
Address:
Contact Name:
Tel:
Fax:
Email:

Equipment
Product description
Agilent PartNo
Agilent Serial No
Original Purchasing Reference
Failure description
Type of process (for which the equipment was used)

Type of return
Non Billable
Billable
Exchange
Repair
Upgrade
Consignment/Demo
Calibration
Evaluation
Return for Credit

Health and safety
Substances (please refer to MSDS forms)
The product has been exposed to the following substances:
Toxic
Harmful
Corrosive
Reactive
Flammable
Explosive (\*)
Radioactive (\*)
Biological (\*)
Oxidizing
Sensitizer
Other dangerous substances

Goods preparation
If you have replied YES to one of the above questions. Has the product been purged?
If yes, which cleaning agent/method:
Has the product been drained from oil?
I confirm to place this declaration on the outside of the shipping box.

I declare that the above information is true and complete to the best of my knowledge and belief.
I understand and agree to the terms and conditions on page 2 of this document.

Name:
Position:
Date:
Authorized Signature:

NOTE: If a product is received at Agilent which is contaminated with a toxic or hazardous material that was not disclosed, the customer will be held responsible for all costs incurred to ensure the safe handling of the product, and is liable for any harm or injury to Agilent employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.

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vps-customer-service@agilent.com

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vps-customer-service@agilent.com

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Toll-Free fax.: 00 800 345 345 00  
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[www.agilent.com/chem/vacuum](http://www.agilent.com/chem/vacuum)  
Representatives in most countries

