

NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to **www.agilent.com/chem**.



Agilent Technologies

Flapper Box Installation Kit for VS Series Leak Detectors

*FIELD INSTALLATION
INSTRUCTIONS*

Part Number 699910006
Rev. A
January 2008

Varian Field Instruction Sheet

Flapper Box Installation Kit for VS 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)



ON Supply (Power)



AC – Alternating Current



Warning, Risk of danger



Frame or chassis Terminal



Earth (Ground) Terminal



Caution, Hot Surface



Caution, Risk of Electrical Shock



Protective Conductor 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 Varian. 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 Varian 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, Varian' 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® 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



Varian 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.**
- **Varian does not recommend the use of vacuum grease. If applicable, apply a small amount of Apiezon[®] 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.

Equipment Required

- Extended Length M5 Allen Wrench
- Metric Allen Wrench Set
- Flapper box kit, P/N VSFLDFBCP for leak detectors with Compression Port adapter installed.
- Flapper box kit, P/N VSFLDFBNW25 for leak detectors with NW-25 Flange



To operate the Flapper Box the leak detector must have CPU software LD02.11 or greater. If correct software is not installed, contact Varian Customer Service.

Installation Procedure

For clarity, some items have been omitted from views.

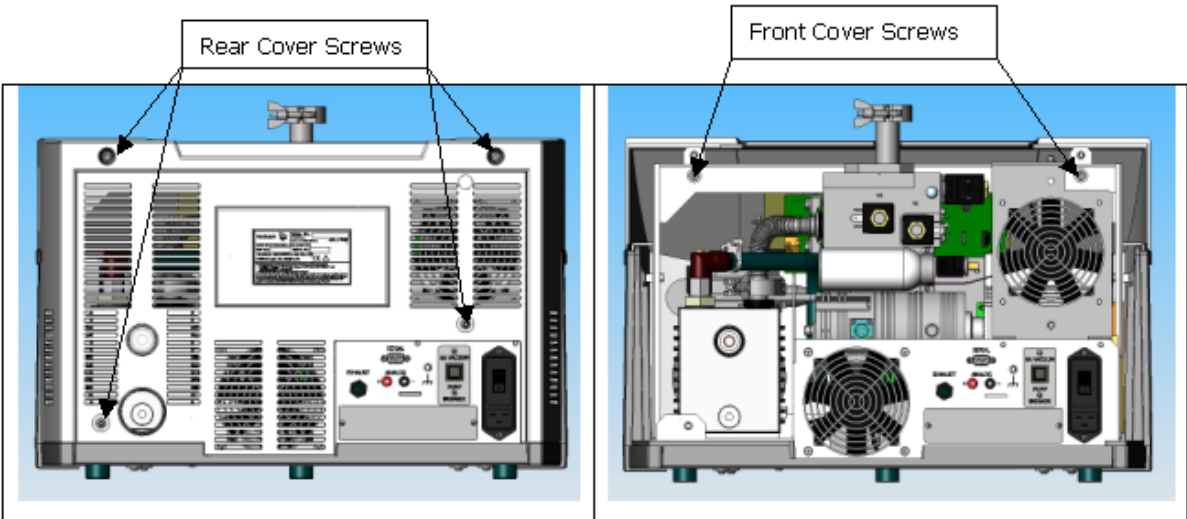


Figure 1: Rear and Front Cover Screws



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 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”).

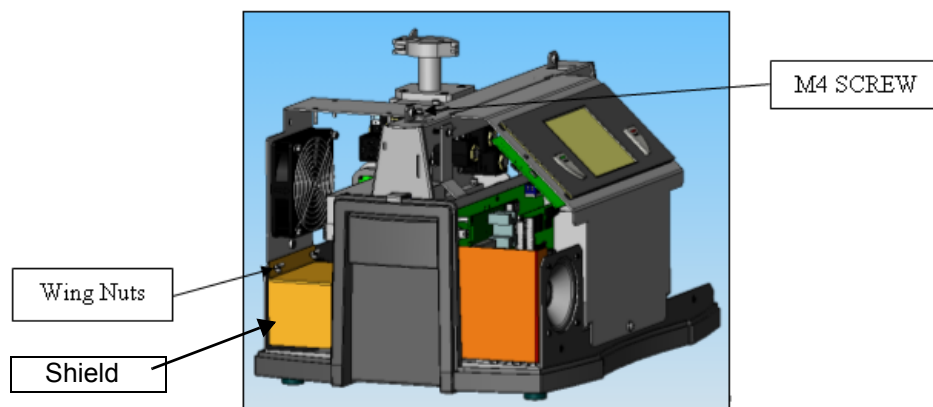


Figure 2: Plastic Shield

5. Remove the two wing nuts holding the plastic shield around the leak detector power input area and remove the shield ("Figure 2: Plastic Shield").
6. Remove the fan assembly by loosening the M4 socket head cap screw ("Figure 2: Plastic Shield").

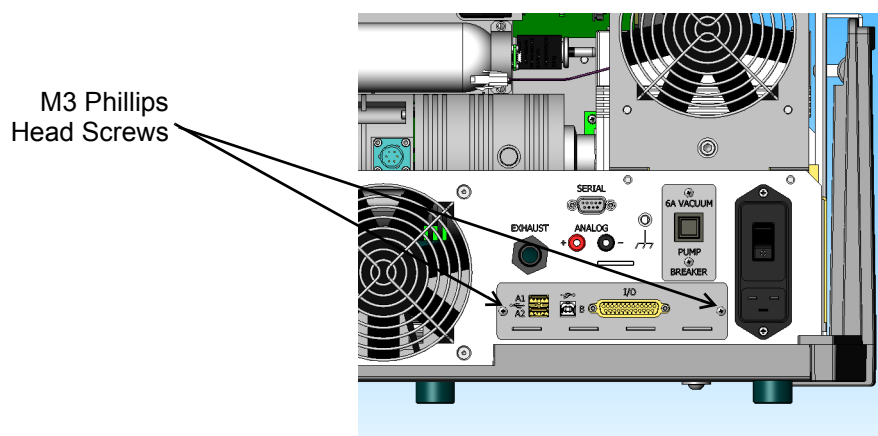


Figure 3: I/O Assembly with Screws

CAUTION



Use proper ESD safety techniques when handling a PCB card.

7. Remove the two I/O board Phillips head screws w/lock washers and remove the I/O board that is installed in the unit ("Figure 3: I/O Assembly with Screws").
8. Slide the I/O assembly back to allow room to connect the flapper box wiring harness to the I/O board.

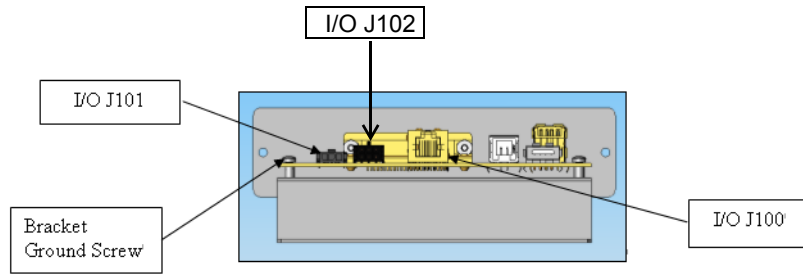


Figure 4: I/O Bracket

9. Connect the *P102* Molex receptacle on the flapper box wire harness to the *J102* connector on the I/O board ("Figure 4: I/O Bracket").

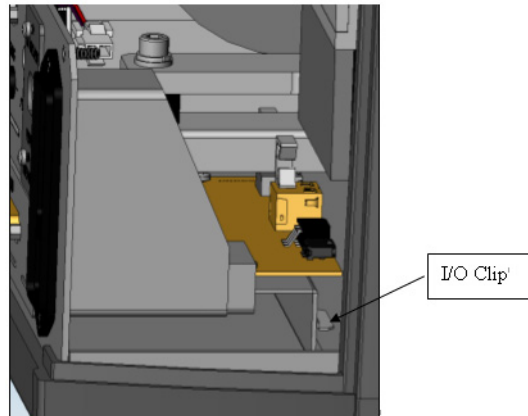


Figure 5: I/O Clip

10. 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 5: I/O Clip").
11. Reinstall the two I/O board Philips head screws w/lock washers ("Figure 3: I/O Assembly with Screws").

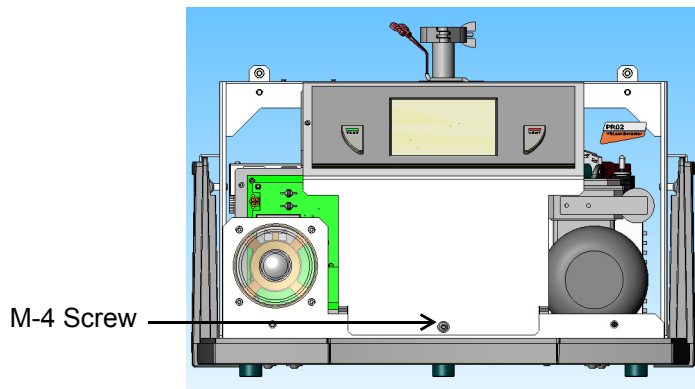


Figure 6: Front Panel Removal

12. Remove M4 screw ("Figure 6: Front Panel Removal") and open front panel to provide required room for installing the Flapper Box Wiring harness.

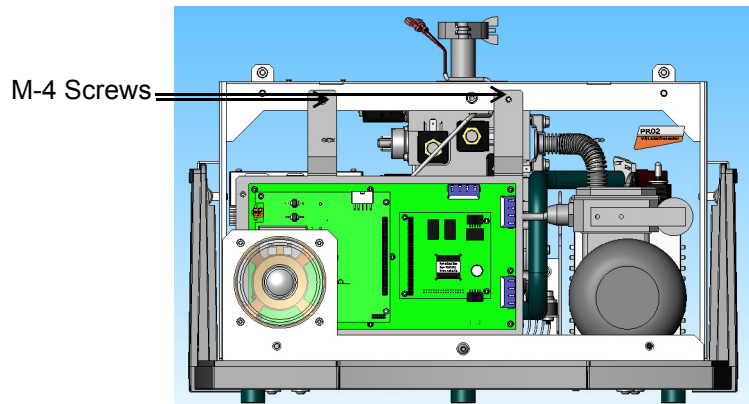


Figure 7: PCB Mounting Tray

13. Remove the M4 screws (“Figure 7: PCB Mounting Tray”) and gently lean the PCB Mounting Tray forward to gain access to the Flapper Box Wiring Harness.

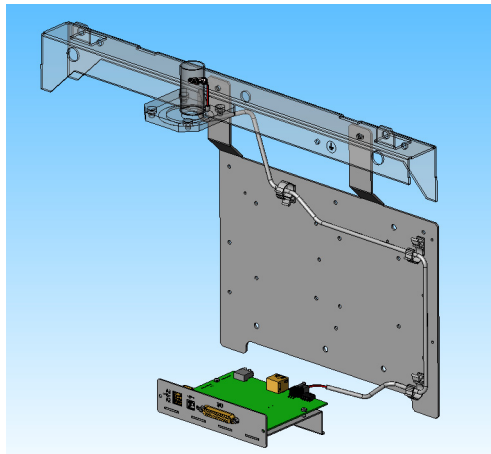


Figure 8: Flapper Box Wiring Harness Layout

14. Install the Flapper Box Wiring Harness, as shown (“Figure 8: Flapper Box Wiring Harness Layout”), utilizing the top two wire clips, only use bottom wire clip, if accessible.
15. Reinstall the M4 screws (“Figure 7: PCB Mounting Tray”).
16. Reinstall the M4 screw (“Figure 6: Front Panel Removal”).
17. Reinstall the (“Figure 2: Plastic Shield”):
- Fan assembly by tightening the M4 socket head screw.
 - The plastic shield using the two wing nuts.
18. Attach the front cover and secure to the frame using existing hardware.

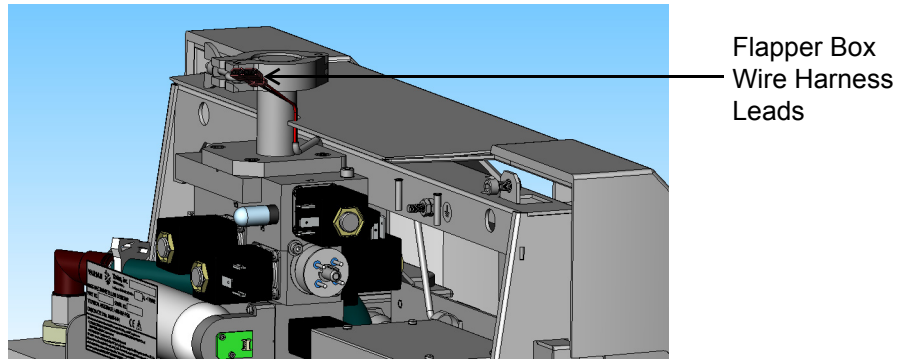


Figure 9: Front Cover Assembly

19. Carefully locate the Flapper Box Wire Harness leads between the front cover and the test port ("Figure 9: Front Cover Assembly").
20. Attach the rear cover and secure the unit using existing hardware.

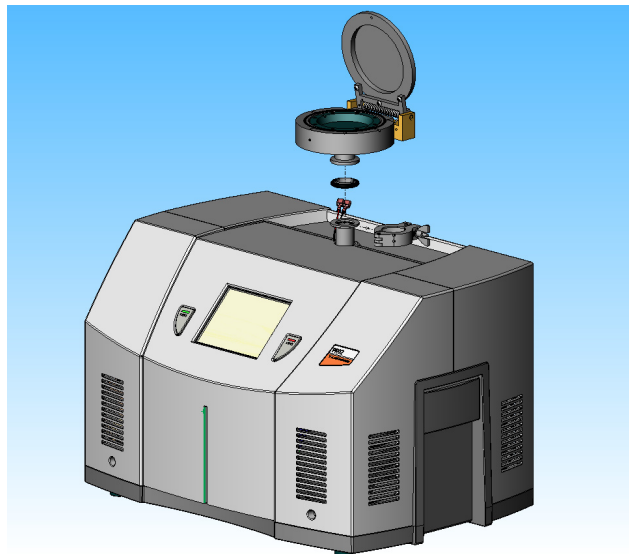


Figure 10: Flapper Box Assembly, NW25 Installation

21. Install the flapper box for:
 - P/N VSFLDFBNW25: Utilizing the NW-25 Centering Ring and Quick Clamp ("Figure 10: Flapper Box Assembly, NW25 Installation").
 - P/N VSFLDFBCP: Inserting the Flapper Box into leak detector's Compression Port Adapter and tighten.
22. Connect the leads of the Flapper Box to the leads of the Wire Harness: Red to Red and Black to Black.
23. Connect the power cord and power up the unit.
24. Watch the home screen to verify that 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.
25. Manually close the flapper box, the leak detector should transfer into test.
26. After 30 seconds verify that the vent button is operational (the flapper box should open).
27. Varian recommends a full calibration of the unit prior to leak test operations.

Sales and Service Offices

Canada

Central coordination through:

Varian, Inc.
121 Hartwell Avenue
Lexington, MA 02421
USA
Tel: (781) 861 7200
Fax: (781) 860 5437
Toll Free: (800) 882 7426

China

Varian Technologies - Beijing

Room 1201, Jinyu Mansion
No. 129A, Xuanwumen Xidajie
Xicheng District
Beijing 1000031
P.R. China
Tel: (86) 10 6608 1031
Fax: (86) 10 6608 1541

France and Benelux

Varian s.a.

7 avenue des Tropiques
Z.A. de Courtaboeuf – B.P. 12
Les Ulis cedex (Orsay) 91941
France
Tel: (33) 1 69 86 38 13
Fax: (33) 1 69 28 23 08

Germany and Austria

Varian Deutschland GmbH

Alsfelder Strasse 6
Postfach 11 14 35
64289 Darmstadt
Germany
Tel: (49) 6151 703 353
Fax: (49) 6151 703 302

India

Varian India PVT LTD

101-108, 1st Floor
1010 Competent House
7, Nangal Raya Business Centre
New Delhi 110 046
India
Tel: (91) 11 5548444
Fax: (91) 11 5548445

Italy

Varian, Inc.

Via F.lli Varian, 54
10040 Leini, (Torino)
Italy
Tel (39) 011 997 9 111
Fax (39) 011 997 9 350

Japan

Varian, Inc.

Sumitomo Shibaura Building, 8th Floor
4-16-36 Shibaura
Minato-ku, Tokyo 108
Japan
Tel: (81) 3 5232 1253
Fax: (81) 3 5232 1263

Korea

Varian Technologies Korea, Ltd.

Shinsa 2nd Building 2F
966-5 Daechi-dong
Kangnam-gu, Seoul
Korea 135-280
Tel: (82) 2 3452 2452
Fax: (82) 2 3452 2451

Mexico

Varian S.A.

Concepcion Beistegui No 109
Col Del Valle
C.P. 03100
Mexico, D.F.
Tel: (52) 5 523 9465
Fax: (52) 5 523 9472

Russia

Central coordination through:

Varian, Inc.
via F.lli Varian 54
10040 Leini, (Torino)
Italy
Tel: (39) 011 997 9 252
Fax: (39) 011 997 9 316

Taiwan

Varian Technologies Asia Ltd.

18F-13 No.79, Hsin Tai Wu Road
Sec. 1, Hsi Chih, Taipei Hsien
Taiwan, R.O.C.
Tel: (886) 2 2698 9555
Fax: (886) 2 2698 9678

UK and Ireland

Varian Ltd.

28 Manor Road
Walton-On-Thames
Surrey KT 12 2QF
England
Tel: (44) 1932 89 8000
Fax: (44) 1932 22 8769

United States

Varian, Inc.

121 Hartwell Avenue
Lexington, MA 02421
USA
Tel: (781) 861 7200
Fax: (781) 860 5437

Other Countries

Varian, Inc.

Via F.lli Varian 54
10040 Leini, (Torino)
Italy
Tel: (39) 011 997 9 111
Fax: (39) 011 997 9 350

Customer Support and Service:

North America

Tel: 1 (800) 882-7426 (toll-free)
vtl.technical.support@varianinc.com

Europe

Tel: 00 (800) 234 234 00 (toll-free)
vtl.technical.support@varianinc.com

Japan

Tel: (81) 3 5232 1253 (dedicated line)
vtj.technical.support@varianinc.com

Korea

Tel (82) 2 3452 2452 (dedicated line)
vtk.technical.support@varianinc.com

Taiwan

Tel: 0 (800) 051 342 (toll-free)
vtw.technical.support@varianinc.com

Worldwide Web Site, Catalog and On-line Orders:

www.varianinc.com

Representatives in most countries



VARIAN