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Agilent Technologies

VS C15 Calibrated Leak Installation

FIELD INSTALLATION INSTRUCTIONS

Part Number 699910009
Rev. A
July 2008

Varian Field Instruction Sheet

VS C15 Calibrated Leak Replacement

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 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.**

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

- M4 Allen Wrench
- Flat Head Screwdriver

Installation Procedure

WARNING



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

1. Disconnect the power to back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using an M4 Allen wrench, remove the two screws on the unit's top and open the unit (Figure 1: Unit Top Screws).



Figure 1: Unit Top Screws

4. Disconnect the cable from the calibrated leak board (Figure 2: Cable to Calibrated Leak Connection).

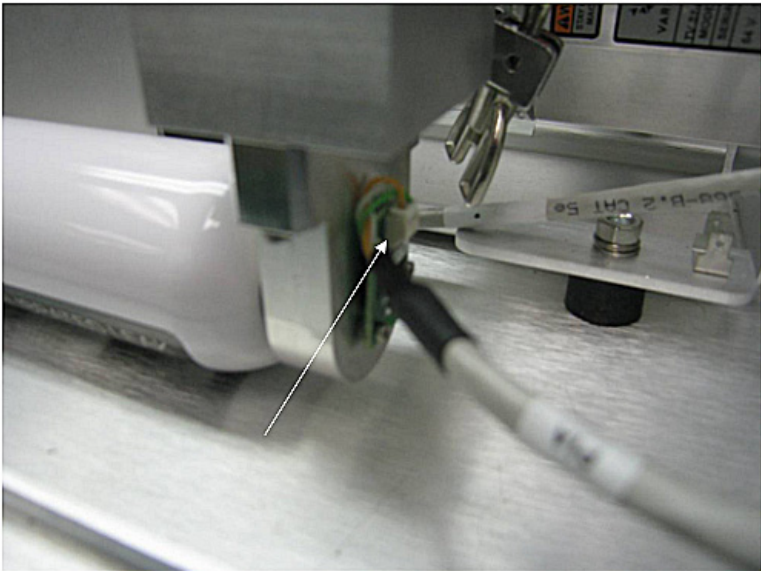


Figure 2: Cable to Calibrated Leak Connection

5. Loosen and remove the clamp (Figure 3: Remove Clamp).

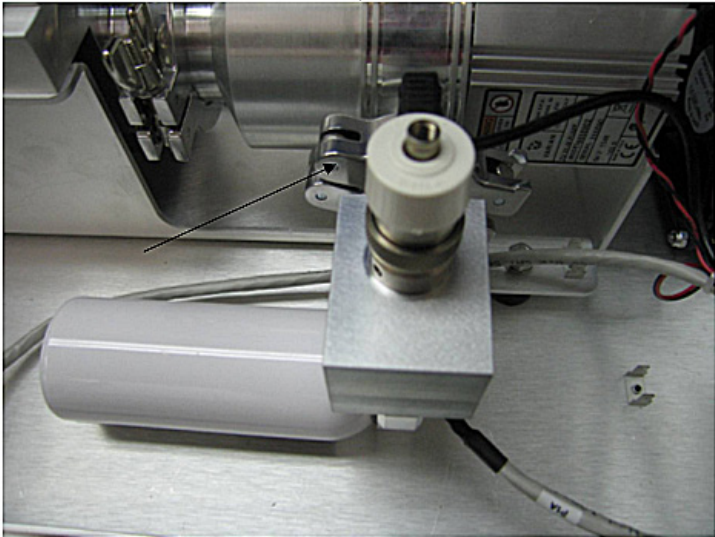


Figure 3: Remove Clamp

6. Remove the assembly and use a flat head screw driver to remove the two screws holding the calibrated leak (Figure 4: Calibrated Leak Screws).



Figure 4: Calibrated Leak Screws

7. Install the new calibrated leak using the same two screws.
8. Reattach the leak assembly to the flange with the clamp.
9. Connect the calibrated leak temperature cable end labeled P1A to the leak assembly board connector J1A (Figure 5: Leak Assembly Board Connection).

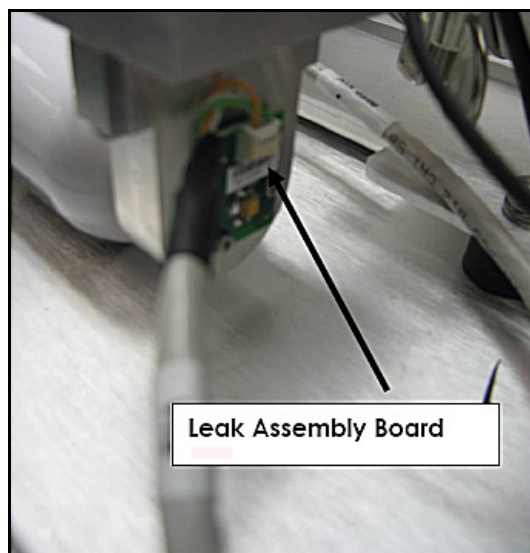


Figure 5: Leak Assembly Board Connection

10. Close the cover and secure using the existing hardware.
11. Power up the VS C15 component leak detector.

12. Set up the Internal Calibrated Leak by either:

- *Setting up the Internal Calibrated Leak Option via the front panel display by:*
 - a. Select *Advanced Parameters > Internal Type* and select *STD LEAK*.
 - b. Select *Maintenance > Internal Calibrated Leak* and input the calibration data from the Calibration Certificate for the internal calibrated leak including:
 - *Internal Leak Value*
 - *Temperature*
 - *Temperature coefficient factor*
 - *Cal Leak - Date of Expiration*
 - c. Validate the setup using the *Calibration Set Up* menu: the temperature compensated leak value, internal calibrated leak temperature and date of expiration.

— or —

- *Setting up the Internal Calibrated Leak Option via the RS232 serial communications port (see the operation manual for communicating via the RS232 serial port) by:*
 - a. Enter the following commands:
 - *1 INIT-INTERANL-TYPE*
 - *X.XE-0X INIT-STDLEAK* (Enter the leak rate value from the calibration certificate ex. *1.8E-07 INIT-STDLEAK*).
 - *XX.X INIT-LEAKTEMP* (Enter the temperature from the calibration certificate ex. *23.5 INIT-LEAKTEMP*).
 - *-/+XX INIT-TEMPFACTOR* (Enter the temperature coefficient from the calibration certificate ex. *-7 INIT-TEMPFACTOR*).
 - *mm dd yyyy INIT-LKEXPIRE* (Enter the date of expiration from the calibration certificate ex. *12 22 2008 INIT-LKEXPIRE*).
 - b. Validating that the correct internal leak data was inputted (data from the Calibration Certificate) by:
 - *?STDLEAK* (reports back the value of the internal calibrated leak).
 - *?LEAKTEMP* (reports back the temperature of the calibrated leak from the factory calibration).
 - *?TEMPFACTOR* (reports back the temperature coefficient).
 - *?LKEXPIRE* (reports back the date of expiration).
13. Perform an internal calibration (via the I/O, Front Panel Display or RS232) to validate a successful installation of the internal calibrated leak.



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