Calibrated Leak Replacement for VS C15, VS, and (G8610, G8611, or G8612) Series Leak Detectors

Part Number 699909998
Rev. C
July 2017
Calibrated Leak Replacement for VS C15, VS, and (G8610, G8611, or G8612) Series Leak Detectors

Preface
This instruction sheet gives the procedure for replacing the calibrated leak for both the VS C15 (“Section One: VS C15 Calibrated Leak Replacement” on page 3), VS Series leak detectors (“Section Two: Calibrated Leak Replacement for VS Series Leak Detectors” on page 7), and (G8610, G8611, or G8612) series leak detectors (“Section Three: Calibrated Leak Replacement for G8610, G8611, or G8612”). This manual is shipped with material VSFLDCL for calibrated leak replacement.

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
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.

**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:

**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® L grease and wipe the O-rings shiny dry.

**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
- Protective Conductor Terminal
- Earth (Ground) Terminal
- Caution, Hot Surface
- Caution, Risk of Electrical Shock
- Frame or chassis Terminal
Section One: VS C15 Calibrated Leak Replacement

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. Loosen and remove the clamp (Figure 2: Remove Clamp).

![Figure 2: Remove Clamp](image)

5. Disconnect the cable from the calibrated leak board (Figure 3: Cable to Calibrated Leak Connection).

![Figure 3: Cable to Calibrated Leak Connection](image)
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](image)

7. Discard the calibrated leak and the O-ring.

8. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.

9. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver.

10. 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](image)
11. Reattach the leak assembly to the flange with the clamp.
12. Close the cover and secure using the existing hardware.
13. Power up the VS C15 component leak detector.
14. 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).

Perform an internal calibration (via the I/O, Front Panel Display or RS232) to validate a successful installation of the internal calibrated leak.
Section Two: Calibrated Leak Replacement for VS Series Leak Detectors

**Equipment Required**
- Extended Length M5 Allen Wrench (included with leak detector)
- Slotted Screw Driver

**Installation Procedure**
For clarity, some items have been omitted from views.

![Rear Cover Screws](image)

**Figure 1: Rear 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 an extended length M5 Allen wrench, remove the four screws holding the rear plastic cover (Figure 1: Rear Cover Screws) and detach the rear plastic cover from the unit.
4. Carefully disconnect the calibrated leak temperature cable from the calibrated leak PC board.
5. Using a slotted screwdriver, remove the two screws holding the calibrated leak in place (Figure 2: Calibrated Leak Location).
6. Discard the calibrated leak and the O-ring.
7. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.
8. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver (Figure 2: Calibrated Leak Location).
9. Reconnect the calibrated leak temperature cable to the replacement calibrated leak.

Figure 2: Calibrated Leak Location

Figure 3: High Voltage Location
WARNING

Extreme care must be taken due to the presence of high voltage. Ensure that high voltage shield and front cover are in position before proceeding (Figure 3: High Voltage Location).

10. Connect the power cord and power up the unit.

11. 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.

12. Leak check the calibrated leak O-ring to ensure a leak free joint between the atmosphere and the vacuum space inside.

13. Configure the internal leak by:

   a. Opening the VS Display screen and selecting Menu/Setup/ Maintenance/Internal Calibrated Leak.
   b. Entering the following information from the calibration certificate and pressing OK after each input:
      • Leak rate
      • Temperature
      • Temperature coefficient
      • Calibration expiration date
   c. Pressing to exit.

14. Attach the rear cover and secure it to the frame using the existing hardware.

Agilent recommends a full calibration of the unit prior to leak test operations.

Calibrated Leak Replacement for VS C15, VS, and (G8610, G8611, or G8612) Series Leak Detectors
Section Three: Calibrated Leak Replacement for G8610, G8611, or G8612

Equipment Required

• Slotted Screw Driver

Installation Procedure

For clarity, some items have been omitted from views.

![Rear Cover Screws](image)

**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, unfasten the four screws holding the rear cover (Figure 1: Rear Cover Screws) and detach the rear cover from the unit.
4. Carefully disconnect the calibrated leak temperature cable from the calibrated leak PC board.
5. Using a slotted screwdriver, remove the two screws holding the calibrated leak in place (Figure 2: Calibrated Leak Location).
6. Discard the calibrated leak and the O-ring.
7. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.
8. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver (Figure 2: Calibrated Leak Location).
9. Reconnect the calibrated leak temperature cable to the replacement calibrated leak.
10. Connect the power cord and power up the unit.
11. 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.
12. Leak check the calibrated leak O-ring to ensure a leak free joint between the atmosphere and the vacuum space inside.
13. Configure the internal leak by:
   a. Menu/Maintenance/General
   b. Entering the following information from the calibration certificate
      • Internal leak rate
      • Temperature
      • Temperature +/- coefficient
      • Calibration expiration date
   c. Pressing the home icon to exit.
15. Attach the rear cover and secure it to the frame using the existing hardware. Agilent recommends a full calibration of the unit prior to leak test operations.

Figure 4. Calibrated leak information update
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, etc).

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:

<table>
<thead>
<tr>
<th>EUROPE:</th>
<th>NORTH AMERICA:</th>
<th>PACIFIC RIM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax: 00 39 011 9979 330</td>
<td>Fax: 1 781 860 9252</td>
<td>please visit our website for individual</td>
</tr>
<tr>
<td>Fax Free: 00 800 345 345 00</td>
<td>Toll Free: 800 882 7426</td>
<td>office information</td>
</tr>
<tr>
<td>Toll Free: 00 800 234 234 00</td>
<td><a href="mailto:vpl-ra@agilent.com">vpl-ra@agilent.com</a></td>
<td><a href="http://www.agilent.com">http://www.agilent.com</a></td>
</tr>
<tr>
<td><a href="mailto:vpt-customercare@agilent.com">vpt-customercare@agilent.com</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.
## Customer information

<table>
<thead>
<tr>
<th>Company</th>
<th>Contact Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Tel</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
</tbody>
</table>

## Equipment

<table>
<thead>
<tr>
<th>Product description</th>
<th>Agilent PartNo</th>
<th>Agilent Serial No</th>
<th>Original Purchasing Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Failure description</th>
<th>Type of process (for which the equipment was used)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Type of return

- [ ] Non Billable
- [ ] Billable
  - New PO # (hard copy must be submitted with this form): ______________________________________
- [ ] Exchange
- [ ] Repair
- [ ] Upgrade
- [ ] Consignment/Demo
- [ ] Calibration
- [ ] Evaluation
- [ ] Return for Credit

## Health and safety

The product has been exposed to the following substances:
(by selecting ‘YES’ you MUST complete the table to the right)

<table>
<thead>
<tr>
<th>Substances</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrosive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive (*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radioactive (*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological (*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other dangerous substances</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Substances (please refer to MSDS forms)

* Agilent will not accept delivery of any product that is exposed to radioactive, biological, explosive substances or dioxins, PCB’s without written evidence of decontamination.

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Chemical name</th>
<th>Chemical Symbol</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Goods preparation

If you have replied YES to one of the above questions. Has the product been purged?
- [ ] YES
- [ ] NO

If yes, which cleaning agent/method:

Has the product been drained from oil?
- [ ] YES
- [ ] NOT APPLICABLE

I confirm to place this declaration on the outside of the shipping box.

## Declaration

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:  

**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.
Agilent Vacuum Products Division/Sales and Service Offices

United States
Agilent Technologies
121 Hartwell Avenue
Lexington, MA 02421 - USA
Tel. +1 781 861 7200
Fax +1 781 860 5437
Toll-Free: +1 800 882 7426
vpl-customercare@agilent.com

India (Service)
Agilent Technologies India Pvt. Ltd.
C-Block, RMZ Centennial Plot Number -8A, 8B, 8C, 8D,
Doddanakundi Industrial Area, ITPL Road,
Mahadevapura Post, Bangalore- 560048
Tel. +91 80 40614000
Fax +91 80 40148991

Southeast Asia
Agilent Technologies Sales Sdn Bhd
Unit 201, Level 2 uptown 2,
2 Jalan SS21/37, Damansara Uptown
47400 Petaling Jaya, Selangor, Malaysia
Tel. +603 7712 6181
Fax. +603 7727 1239
Toll-Free: +1 800 880 805
vps-customerservice@agilent.com

Belgium
Agilent Technologies Belgium S.A./N.V.
Customer Contact Center
Pegasus Park
De Kleetlaan 12A bus 12
B-1831 Diegem
Tel. +32 2 464 92 22
Fax. +32 2 626 46 30
customercare_belgium@agilent.com

Taiwan
Agilent Technologies Taiwan Limited
No. 20 Gao-shuang Road, Ping-zhen Dis
Tao-Yuan City
32450 Taiwan, R.O.C.
Tel. +8863 3 4959004
Toll-Free: 0800 018 768
vpw-customerservice@agilent.com

Brazil
Agilent Technologies Brasil
Avenida Marcos Penteado de Ulhoa Rodrigues, 939 - 6° andar
Castelo Branco Office Park
Torre Jacarandá - Tamboré
Barueri, Sao Paulo CEP: 06460-040
Toll-Free: +0800 728 1405

UK and Ireland
Agilent Technologies LDA UK Limited
Lakeside Cheadle Royal Business Park
Cheadle, Cheshire SK8 3GR, United Kingdom
Tel. +44 01865291570
Fax. +44 01865291571
Toll-Free: 0800 234 234 00
Toll-Free fax.: 0800 345 345 00
vpt-customercare@agilent.com

China
Agilent Technologies (China) Co. Ltd
No.3, Wang Jing Bei Lu, Chao Yang District
Beijing, 100102, China
Tel. +86 (0)10 64397888
Fax. +86 (0)10 64392765
Toll-free: 800 820 6778 (Phone)
Toll free: 400 820 6778 (Cell Phone)
vacuum.cnmarketing@agilent.com
vpc-customerservice@agilent.com

Japan
Agilent Technologies Japan, Ltd.
9-1 Takakura-cho Hachioji-city,
Tokyo, Japan
Tel. +81 3 5323-1253
Fax. +81 3 523-150-11
Toll-Free: +81-120-477-11
jp-vvt-sales.pdf-ext@agilent.com

Customer Support & Service
NORTH AMERICA:
Toll Free: 800 882 7426
vpl-ra@agilent.com
Lexington-service@agilent.com
EUROPE:
Toll-Free: 0800 234 234 00
vpt-customercare@agilent.com

France
Agilent Technologies
Parc Technopolis - Z.A. de Courttaboueuf
3, avenue du Canada - CS 90263
91876 Les Ulis cedex, France
Tel. +33 (0) 1 64 53 61 15
Fax. +33 (0) 1 64 53 50 01
vpl.sales@agilent.com

Pacific Rim:
please visit our website for individual office information
http://www.agilent.com/chem/vacuum
Worldwide Web Site, Catalog and Order Online:
www.agilent.com/chem/vacuum
Representatives in most countries

Germany and Austria
Agilent Technologies
Sales & Services GmbH & Co. KG
Lyoner Str. 20
60 528 Frankfurt am Main
GERMANY
Ph. +49 69 6773 43 2230
Fax. +49 69 6773 43 2250

Korea
Agilent Technologies Korea, Ltd.
Ithmin Building 4F
Yongsan-gu Hannam-daero
Seoul Korea 04418
Tel. +82 (0)2 2194 9449
Fax. +82 (0)2 2194 9853
Toll free: 080 222 2452
vpl-customerservice@agilent.com

Customer Support & Service
NORTH AMERICA:
Toll Free: 800 882 7426
vpl-ra@agilent.com
Lexington-service@agilent.com
EUROPE:
Toll-Free: 0800 234 234 00
vpt-customercare@agilent.com

India (Sales)
Agilent Technologiles India Pvt. Ltd.
Unit Nos 110-116, & Part of 101 & 109
First Floor, Splendor Forum,
Plot No. ,3, District Centre, Jasola
New Delhi-110025
Tel. +91 11 4623 7100
Fax. +91 4623 7105

Netherlands
Agilent Technologies Netherlands B.V.
Customer Contact Center
Laan van Langerhuize 1, toren A-8
1186 DS Amstelveen
Tel. +31 020 547 2600
Fax. +31 020 654 5748
customercare_netherlands@agilent.com

Agilent Technologies Singapore Pte. Ltd.
1 Yishun Avenue 7,
Singapore 788923
Tel. (65) 6215 8045
Fax. (65) 6754 0574
Toll-Free: 1 800 2762822
vps-customerservice@agilent.com

Singapore
Agilent Technologies Brasil
Castelo Branco Office Park
Rodrigues, 939
6° andar
Tamboré
Z.A. de Courtaboeuf
3, District Centre, Jasola
New Delhi-110025
Tel. +91 11 4623 7100
Fax. +91 4623 7105

© Agilent Technologies, Inc. 2017

Agilent Technologies