



Installation Instructions

Compressor Sealant Kit

KIT09237

Model Numbers: CDHF, CDHG, CVHE, CVHF, CVHG

This document applies to service offering applications only.

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- ⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- ⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Revision History

Document updated to reflect Service Offering number.



General Information

This kit contains the sealant and corresponding instructions to be used when reassembling a compressor with or without O-rings.

Table 1. KIT contents

Part Number	Quantity	Description
CHM00210	2	Loctite® Chisel
SEL00376	2	Loctite® 515™, 300 mL tube
SO-SVN011*-EN	1	Installation Instructions



Installation

Sealing of Chiller flanges with the use of O-rings

⚠ WARNING

Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

1. Inspect the O-ring groove for nicks and scratches. Minor surface scratches or nicks can be repaired by filling the imperfections with a soft soldering material. File or sand the high spots to obtain a flat surface.
2. Remove all high spots or burrs that may have occurred on the flange faces because of the use of the jack bolt holes. File the high spots and burrs to obtain a flat surface. Wire or abrasive bristle brushes, either hand or powered, may also be used but care must be taken to ensure that you do NOT polish the flange. Do not use solid grinding wheels, disks, or power sanding tools because of the excessive damage they may cause to the flange surface. If a flange surface does get extremely smooth (mirrorlike), use some 80 to 120 grit sandpaper on a hand-sanding block to rough up the surface. Loctite® 515™ is not effective on polished or glass-smooth surfaces.

⚠ CAUTION

Chemical Irritant!

Failure to follow all safety instructions below could result in minor to moderate injury. Loctite® 515™ Gasket Eliminator® has been shown to be a skin, eye, and respiratory irritant. Always wear proper eye protection, plastic or rubber gloves, long sleeves and pants and avoid prolonged inhalation of vapors. Obtain a copy of the manufacturer's Materials Safety Data Sheet (MSDS) and follow all recommended safe handling practices.

Loctite® 515™ Gasket Eliminator® is a relatively fluid substance that will not harden in the presence of air. It will set up to form an effective seal between the O-ring and the mating surface, or between the mating surfaces, in the absence of air after the flanges or castings have been properly torqued. Loctite® should not be applied to any O-ring mating surface where excessive amounts of it can

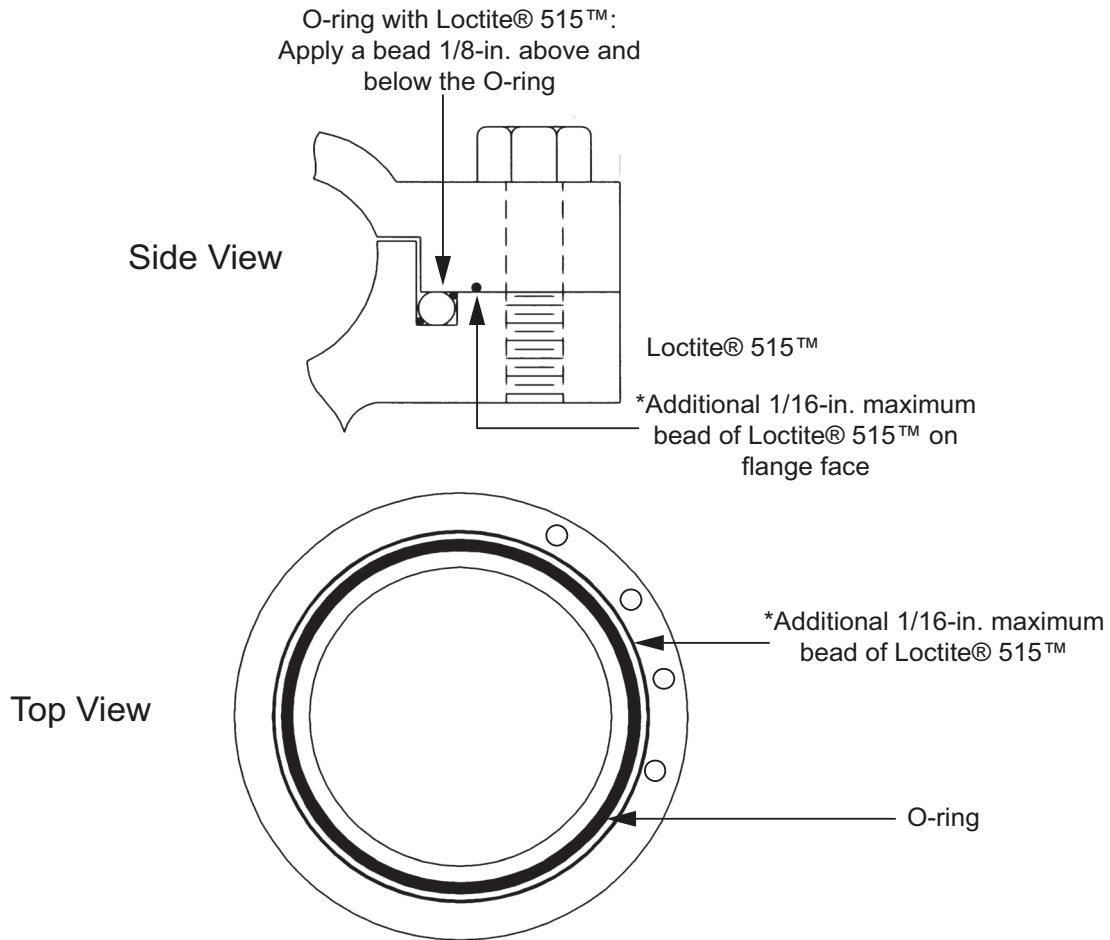
extrude or seep into undesirable areas, making removal of additional components difficult.

3. Wipe the O-ring grooves and flange surfaces clean with alcohol wipes. Avoid touching the cleaned surfaces with bare hands as body oils can affect the adhesion of the sealant.
4. Check the expiration date on the tube of Loctite®.

Important: Do not use Loctite® beyond the expiration date.

5. Apply a bead of Loctite® 515™ (1/8-in. diameter max) to the entire circumference of the bottom inside diameter (I.D.) of the O-ring groove as shown in the following figure.
6. Place the O-ring into the groove and gently press it into sealant.
7. Apply a bead of Loctite® 515™ (1/8-in. diameter max.) to the entire circumference between the O-ring and top outside diameter (O.D.) of the groove as shown in the following figure.
8. A final smaller bead (1/16-in. diameter maximum) should be applied around the flange-mating surface between the O-ring groove and the bolt holes as shown in the following figure.
9. Assemble the mating surfaces and install and properly torque all bolts. Ideally, Loctite® recommends that no more than 3 minutes be allowed to elapse between the mating of the flanges and the application of the final bolt torque.
10. In standard conditions (plant room temp 70°F [21°C] or above), allow the Loctite® to cure for a minimum of 8 hours before adding refrigerant to the unit.

The use of Loctite® Primer N™ or Loctite® Primer T accelerators will reduce the effective cure time of the Loctite® 515™ to as little as 15 minutes, increasing the risk of the product partially curing before assembly and final bolt torque. If the Loctite® partially cures during assembly, it may act as a shim and prevent a proper seal. Because of this risk, the use of accelerating primers is not recommended as a standard service procedure.

Figure 1. Loctite® 515™ application, with O-ring groove

Sealing of Chiller flanges without the use of O-rings

⚠ WARNING

Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

1. Surface preparation prior to reassembly will first require the removal of the old Loctite® 515™.

During Loctite® removal, use cloth or plastic to cover any openings in the parts or the chiller. Avoid the uncontrolled use of compressed air or nitrogen to blow sealant debris from the part, as it may push the debris into inaccessible areas. Take all possible actions to keep the internal chiller parts clean and free of debris.

The Loctite® removal product, Loctite® Chisel MC Free, provided in this kit, can be used to remove the old Loctite®. Before using this product, read and follow all of the manufacturer's directions carefully. Review the product Materials Safety Data Sheet (MSDS) and be aware of and follow any safety requirements for eye, face, and hand protection, space ventilation, respirator use, waste disposal, etc.

⚠ CAUTION

Chemical Irritant!

Failure to follow all safety instructions below could result in minor to moderate injury. Some gasket removal compounds (such as Loctite® #790 Gasket Remover-Chisel) may contain chemicals that are known to be skin, eye and respiratory tract irritants. Always wear eye protection, protective gloves, long sleeves, pants and respiratory mask. Obtain a copy of the manufacturer's Materials Safety Data Sheet (MSDS) and follow all recommended safe handling practices.

Cured Loctite® 515™ may also be removed with a scraper, such as a putty knife or gasket removal tool, if care is taken to not seriously scratch or gouge the flange. Wire or abrasive bristle brushes, either hand or powered, may also be used, but care must be taken to ensure that you do not polish the flange. Do not use solid grinding wheels or disks or powered sanding tools because of the excessive damage they may cause to the flange surface.

2. Remove all high spots or burrs that may have occurred on the flange faces because of the use of the jack bolt holes. File the high spots and burrs to obtain a flat surface. If a flange surface does get extremely smooth (mirror-like), use some 80- to 120-grit sandpaper on a hand-sanding block to rough up the surface. Loctite® 515™ is not effective on polished or glass-smooth surfaces.
3. After the flange surfaces are free of any cured Loctite® and the surface finish is acceptable, wipe the flange surfaces clean with alcohol wipes. Avoid touching the cleaned surfaces with bare hands as body oils can affect the adhesion of the sealant.
4. With both mating flanges fully cleaned and ready, select one of the flanges and apply two continuous beads of Loctite® 515™ in a crossing pattern as shown in the following figure. The approximate thickness of each bead of sealant is given in the following table. The thickness of the bead that is applied can be adjusted by trimming the tip of the applicator tube and by varying the pressure that is applied to the sealant container. Practice on a different surface may be desirable before applying Loctite® to the actual flanges.

Confirm all process holes and jack-bolt holes have sufficient Loctite® 515™ applied directly around them. A process hole is a hole that was used during the factory machining process. It may be unused or open on the final assembled product.

⚠ CAUTION

Chemical Irritant!

Failure to follow all safety instructions below could result in minor to moderate injury. Loctite® 515™ Gasket Eliminator® has been shown to be a skin, eye, and respiratory irritant. Always wear proper eye protection, plastic or rubber gloves, long sleeves and pants and avoid prolonged inhalation of vapors. Obtain a copy of the manufacturer's Materials Safety Data Sheet (MSDS) and follow all recommended safe handling practices.

Table 2. Loctite® 515™ bead size when no O-ring is applied

Flange Face Width (in.)	Sealant Bead Size (in.)
1	3/32
1-1/4	
1-1/2	
1-3/4	1/8
2	
2-1/4	
2-1/2	5/32
2-3/4	
3	
3-1/4	
3-1/2	
3-3/4	3/16
4	

- After the sealant is applied, quickly assemble the flanges and properly torque all fasteners.

Loctite® 515™ is an anaerobic sealant and very little curing will occur until the sealant is pressed between the flanges and air can no longer contact it. Loctite® 515™ will begin to cure very quickly once the flanges are assembled. Because of its fast cure rate, it is recommended the time between Loctite® application, flange assembly, and final bolt torque be kept as short as possible. Loctite® recommends that no more than 3 minutes be allowed to

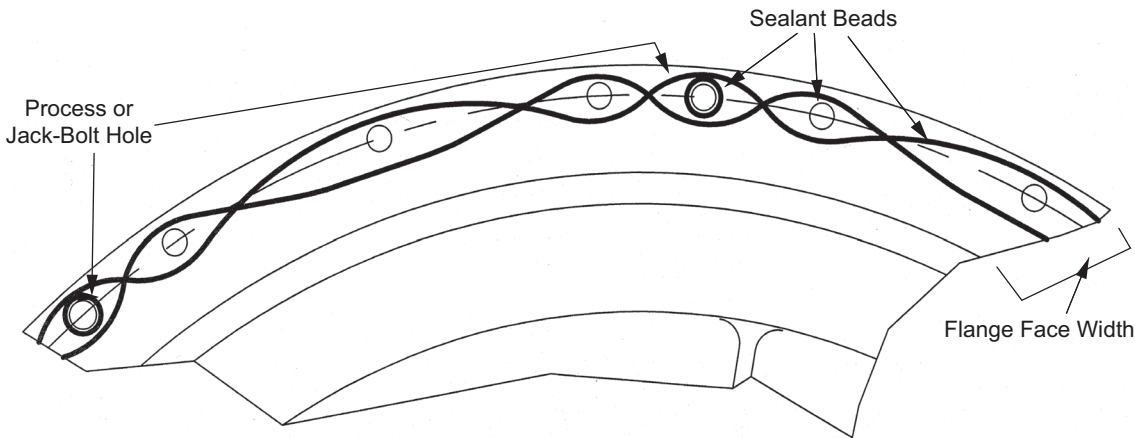
elapse between mating of the flanges and applying the final bolt torque.

Typical effective cure times for Loctite® 515™ will range from 1 to 12 hours depending on surrounding temperatures and flange gaps. For typical applications and in a plant room with a surrounding temperature of 70°F (21°C) or higher, it is recommended a minimum of 6 to 8 hours be allowed before pressure testing, evacuation, or charging of the unit. For plant room temperatures below 70°F (21°C), a minimum time of 12 hours is recommended before pressure testing, evacuation, or charging of the unit.

Application of Loctite® 515™ at ambient temperatures below 8°C (46°F) is not recommended.

The use of Loctite® Primer N™ or Loctite® Primer T accelerators will reduce the effective cure time of the Loctite® 515™ to as little as 15 minutes, increasing the risk of the product partially curing before assembly and final bolt torque. If the Loctite® partially cures during assembly, it may act as a shim and prevent a proper seal. Because of this risk, the use of accelerating primers is not recommended as a standard service procedure.

Note: *Loctite® 515™ Gasket Eliminator® should ideally be stored in a cool, dry location in unopened containers at a temperature that is between 46°F to 82°F (8°C to 28°C). Do not use previously opened sealant. Loctite® 515™ Gasket Eliminator® has a limited shelf life; SEL00376 (300 mL) caulking tubes have a use by date marked on each individual tube.*

Figure 2. Loctite® 515™ application, without O-ring




Notes

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