Installation Instructions

# Field Service Kit—Oil Tank Relay

## For CVHE, CVHF, CVHG, CDHF, and CDHG CenTraVac Chillers with Refrigerant/Oil Pump


**⚠ 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.**

May 2020 **PART-SVN193B-EN**

# 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-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

### 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**

**Refrigerant may be under Positive Pressure!**

**System contains oil and refrigerant and may be under positive pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives. Failure to recover refrigerant to relieve pressure or the use of non-approved refrigerants, refrigerant substitutes, or refrigerant additives could result in an explosion which could result in death or serious injury or equipment damage.**

## Trademarks

All trademarks referenced in this document are the trademarks of their respective owners.

# Discussion

The purpose of this literature is to describe the process for installing the CenTraVac™ chiller's oil tank motor starting relay in the Tracer AdaptiView™ control panel. This literature applies to CVHE, CVHF, CVHG, CDHF, and CDHG CenTraVac chillers specified in Table 1.

**Table 1. Units to which this literature applies**

| Model | Shell Size | Design Sequence[a] |
|---|---|---|
| CVHE | 800 | 3F and later |
| | 320, 500 | 3G and later |
| CVHF | 142 | 1K and later |
| | 210, 250 | 1M and later |
| | 800 | 1R and later |
| | 320, 500 | 1T and later |
| CVHG | 142 | 1C and later |
| | 210, 250 | 1E and later |
| | 800 | 1H and later |
| | 320, 500 | 1J and later |
| CDHF | All | L0 and later |
| CDHG | All | K0 and later |

(a) Design sequence is represented in the 10th and 11th digits of the chiller's service model number.

## Overview

The new relay (RLY03555) will be located in the Tracer AdaptiView control panel.

To install the new relay without replacement of the existing Fusite®, use a Term-Lok® adapter kit (KIT07955) to connect wires to existing Fusite.

If the existing Fusite is damaged or if the chiller has its refrigerant removed for other service, replace the current Fusite part with the new Fusite part (TER01548) and connect using standard wire connectors.

***Important:*** *Soldering right to terminal pins is not recommended. Use a Term-Lok adapter kit (KIT07955) if not replacing Fusite.*

***Note:*** *Always use a new O-ring (RNG001029) if replacing the Fusite.*

## Parts

Order as needed from Trane Parts (Trane part numbers shown).

***Using existing Fusite:***

1. New relay (RLY03555)
2. Term-Lok adapter kit (KIT07955)
3. Insulator (GKT04571)

***Using new Fusite:***

1. New relay (RLY03555)
2. New Fusite part (TER01548)
3. O-ring for Fusite (RNG01029)

***Other parts needed:***

- 16-gauge wire
- 6-32 X 0.50 screws (SCR00721) for use with new relay
- External lock washer for relay installation
- 1/4-in. quick connects wire terminals

# Installation

Before beginning installation, observe the following electrical requirements:

- Follow all lockout-tagout procedures prior to performing installation and/or service on the unit.
- Always wear appropriate personal protective equipment.
- Wait the required time to allow the capacitor(s) to discharge; this could be up to 30 minutes.
- Verify that all capacitors are discharged prior to service using a properly rated volt meter.
- Use appropriate capacitor discharge tool when necessary.
- Comply with the safety practices recommended in PROD-SVB06A-EN.

**⚠WARNING**

**Hazardous Voltage w/Capacitors!**

**Disconnect all electric power, including remote disconnects 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 an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.**

*For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN*

**⚠CAUTION**

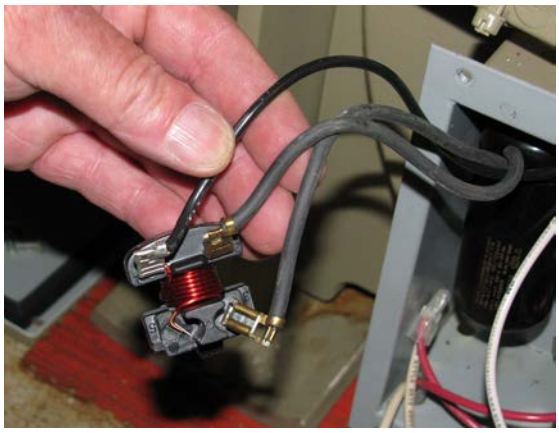
**Level 2 or Greater Cut-Resistant Gloves Required!**

**The following figures are for illustration only. When performing mechanical work, Level 2 or greater cut-resistant gloves must be worn. Failure to follow these instructions could result in minor to moderate injury.**

1. Wearing appropriate personal protective equipment, lockout/tagout the unit.
2. Remove cover of terminal box.

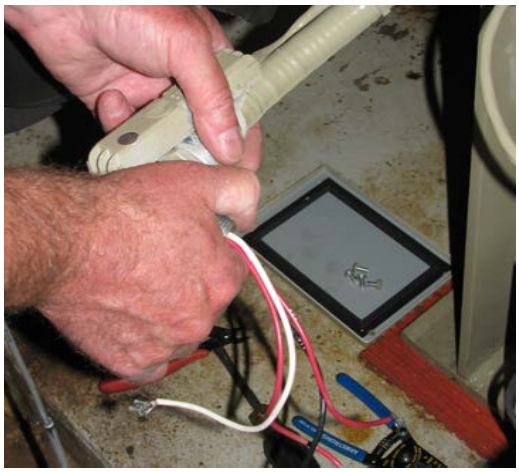
3. Remove old oil tank relay.

**Figure 1. Original relay**



4. Disconnect conduit from terminal box and disconnect Seal-Tite® fitting from conduit.

**Figure 2. Disconnect conduit**



5. Use fish tape to thread wire through conduit for the new relay location in the control panel.

**Figure 3. Run wires**

6. In the control panel, attach the new oil tank relay to the circuit board using pre-drilled holes. Use 6-32 X 0.50 screws (SCR00721) and external lock washers to fasten new relay in place.

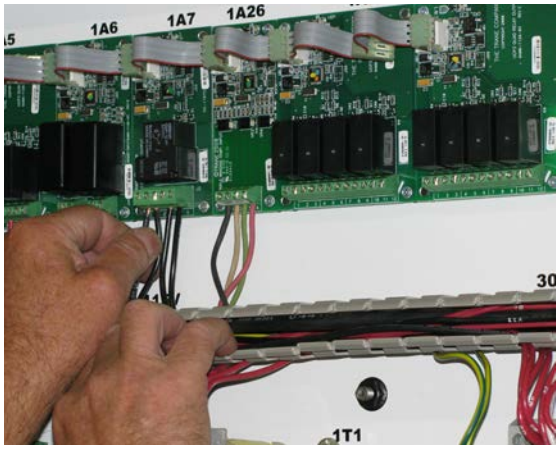
***Note:*** *The oil tank relay will be wired to 1A7; the recommended position for the relay is shown in Figure 4.*

**Figure 4. Relay location**


7. Connect wire to oil tank relay and wire relay to 1A7 (see Figure 12, p. 7).

**Figure 5. Wire relay**


**Figure 6. 1A7 Terminal block**

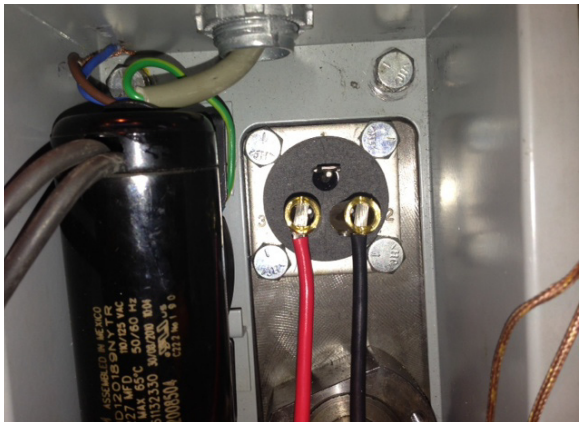


8. Remove terminal box.

**Figure 7. Installed gasket**

9. *If you are re-using the original Fusite connector, then before attaching the Term-Lok adapters*, remove the backing to expose the adhesive on the insulator (GKT04571), and then install the insulator over the Fusite pins. Pre-assemble terminals with relay wires.

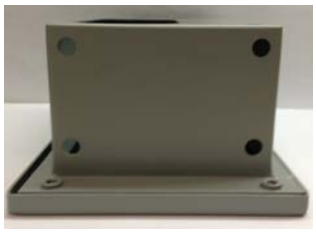
**Figure 8. Installed Term-Lok adapter**



10. *Before attaching wiring*, ensure the terminal box venting is enhanced.
    - Older production units will have no holes in the bottom of the terminal box, or they will have four holes in the bottom corners of the box. These older production units should have their venting improved by adding 8–10 holes in the bottom of the box using a 0.25-in. drill bit. Seal the edges of the holes with paint.
    - Newer production units will have slots in the bottom of the terminal box, these newer units do NOT need their venting to be improved.

    Figure 9 illustrates the old and new terminal boxes for reference.

**Figure 9. Terminal boxes**

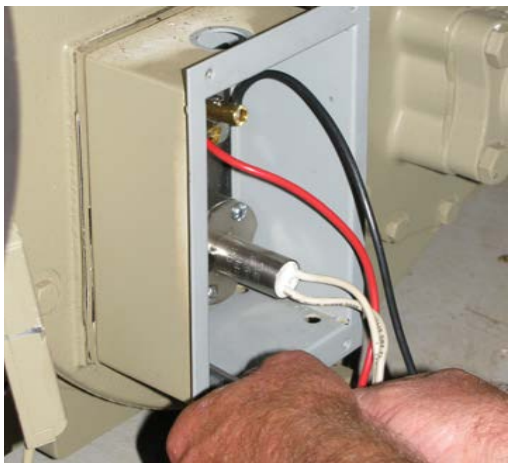


Old Terminal Box

New Terminal Box

11. Reconnect terminal box.

**Figure 10. Reinstalled terminal box**

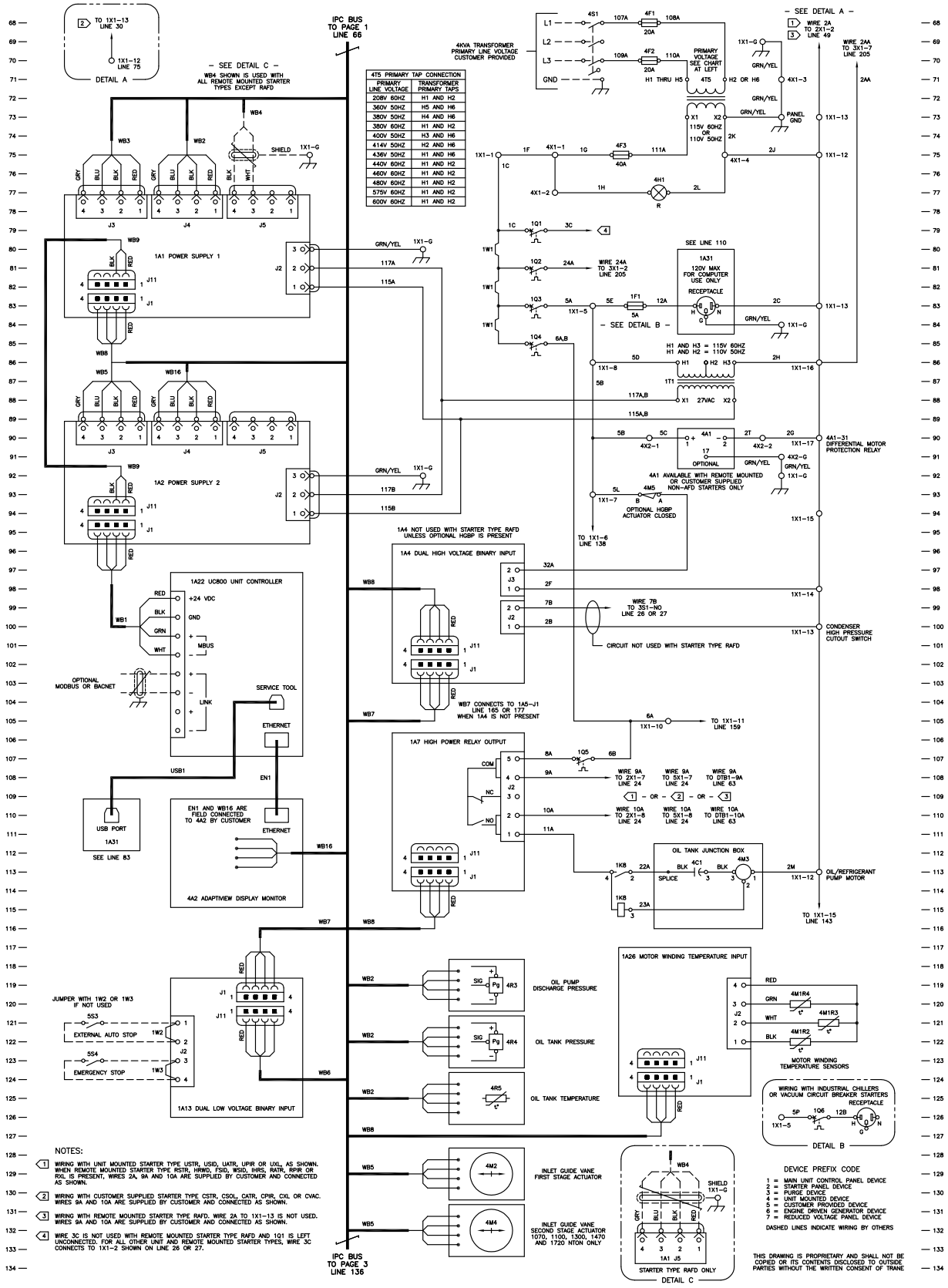


12. Wire per connection diagram for Tracer AdaptiView.
13. Reconnect joint to conduit and reconnect conduit to terminal box.
14. Reattach cover to terminal box.

**Figure 11. Connect power**


15. Restore power.

## Figure 12. Oil tank relay connection diagram



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