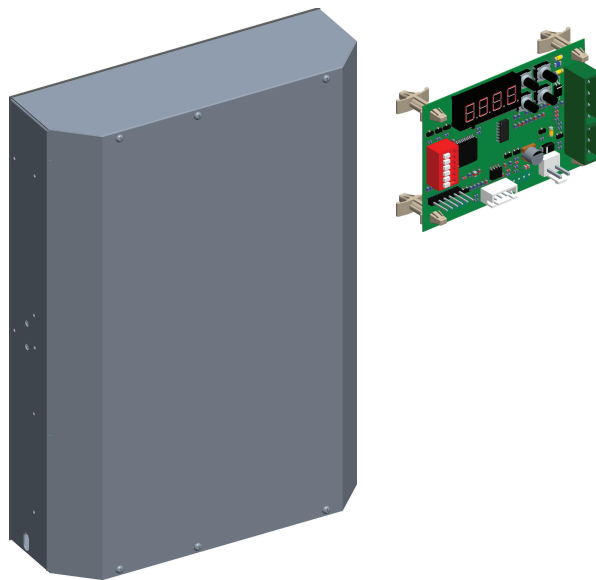


# Installation Instructions

# Variable Speed Drive Replacement Kit

Precedent™ and Voyager™ 2



**Model Number:**    **Used With:**

DRV03900            3 to 5 Tons 460V eFlex Precedent™ and 460V eFlex Voyager™ 2 units

DRV04059            3 to 5 Tons 460V eFlex Precedent™ and 460V eFlex Voyager™ 2 units

## **⚠ 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/national 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 Labelling 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

- Added Model Number and Used with for DRV04059.
- Updated quantity for Interface module in Parts list.
- Added Control harness PPM-CVD (436684720110).
- Updated DIM module (X13651807001) connection diagram and DIM module.

# Pre-Installation

## Inspection

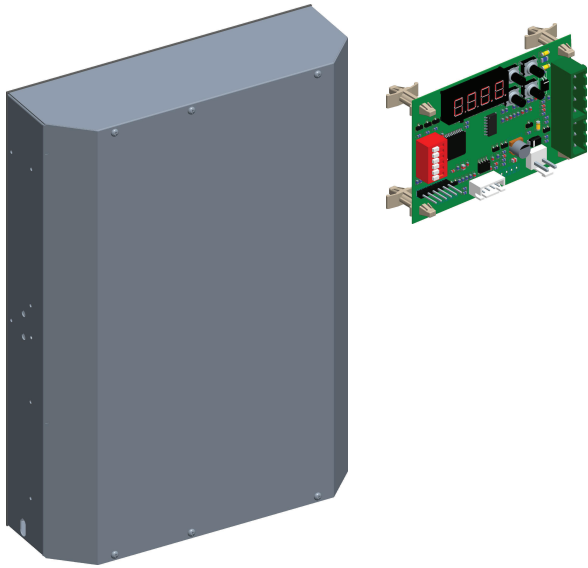
- 1. Unpack all components of the kit.
- 2. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company.

## Parts List

Table 1. Parts list

Part Number	Description	Qty
X13610009040 (DRV04033)	Inverter drive	1
X13651807001 (MOD04106)	Interface module	1

Figure 1. Variable speed drive and interface module





# Installation

## ⚠ WARNING

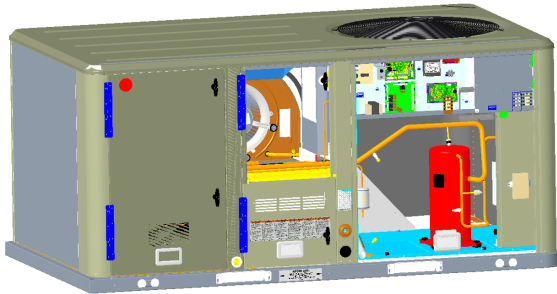
### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

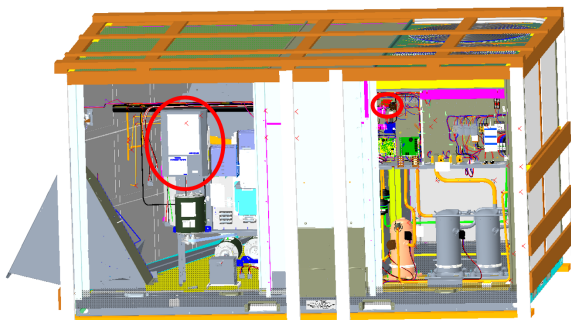
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

1. Disconnect and lock out power from the unit.
2. Recover refrigerant charge from the unit.
3. Open the middle upper and condenser side panels on the front side of the unit. See [Figure 2, p. 5](#) and [Figure 3, p. 5](#) for location.

**Figure 2. Precedent™ – drive and interface module mounting locations**

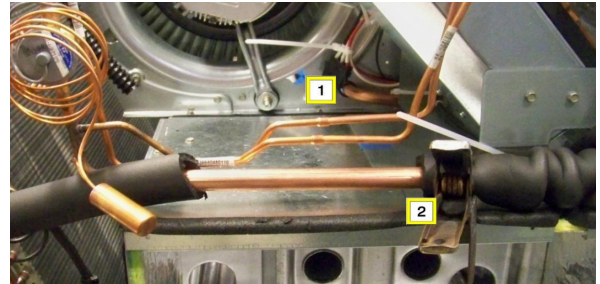


**Figure 3. Voyager™ 2 – drive and interface module mounting locations**



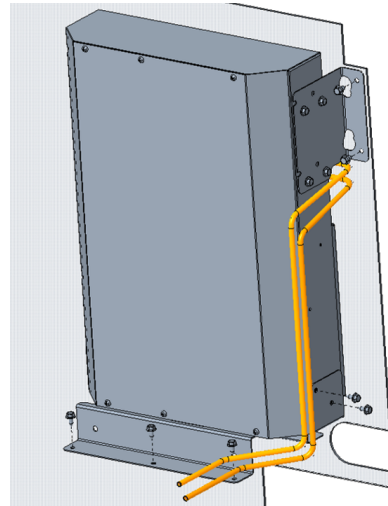
4. Unbraid connecting tubes between drive and manifold. See [Figure 4, p. 5](#).

**Figure 4. Manifold brazing**



5. Remove the screws that attach the drive to the unit and remove the drive along with the support brackets. See [Figure 5, p. 5](#).

**Figure 5. Drive removal**



6. Remove the screws that attach the support brackets to the drive and remove the support brackets. See [Figure 6, p. 6](#).

Figure 6. Support bracket removal

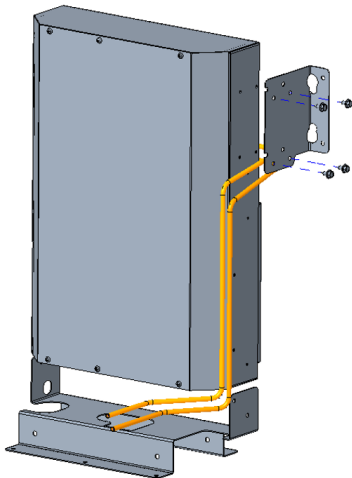


Figure 9. Controls harness (438577730200)

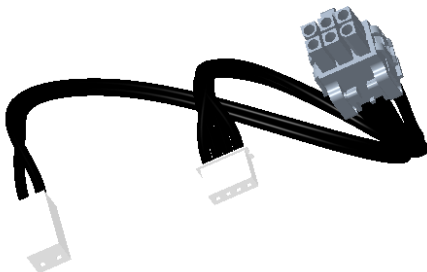
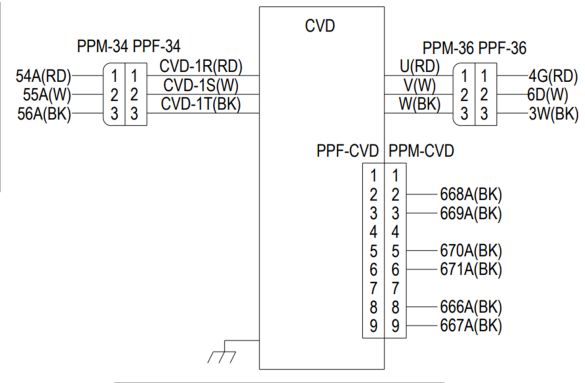


Figure 10. Controls harness PPM-CVD (436684720110)



7. Disconnect drives PPF-34 and PPM-36 power harnesses along with GRN (green) from units ground and 436684720110 harness PPM-CVD and 438577730200 harness PPM35 connectors from drive. See [Figure 7, p. 6](#), [Figure 8, p. 6](#), [Figure 9, p. 6](#), and [Figure 10, p. 6](#).

Figure 7. Inverter drive (X13610009040) connection diagram



8. Unbraid manifold tubes at drive. See [Figure 11, p. 6](#).

Figure 11. Manifold removal

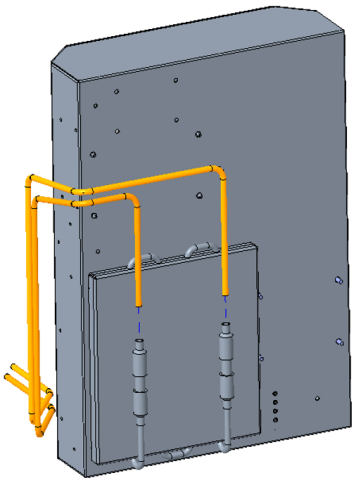
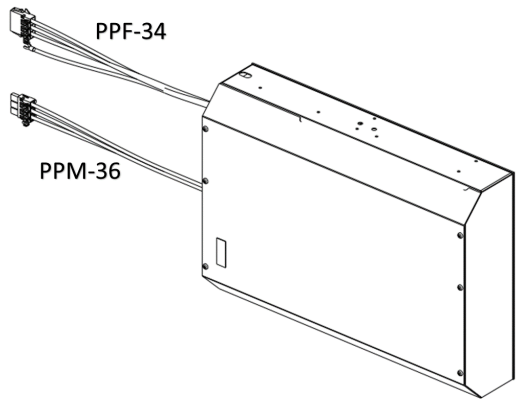
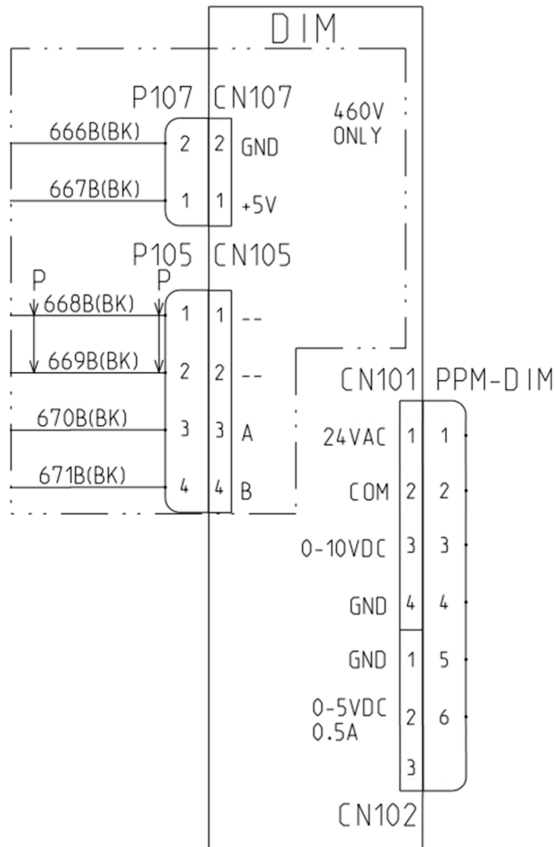


Figure 8. Inverter drive (X13610009040)

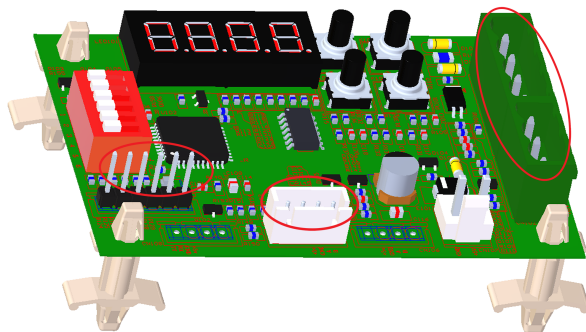


9. Install the new drive (X13610009040) by performing [Step 3](#) through [Step 8](#) in reverse order.
10. Open the control box panel. See [Figure 2](#), p. 5 and [Figure 3](#), p. 5 for location.
11. Disconnect 3 harnesses from the DIM modules CN107, CN108 (X13651608010)/CN105 (X13651807001), and CN101. See [Figure 12](#), p. 7 and [Figure 13](#), p. 7.

**Figure 12. DIM module (X13651807001) connection diagram**



**Figure 13. DIM module**

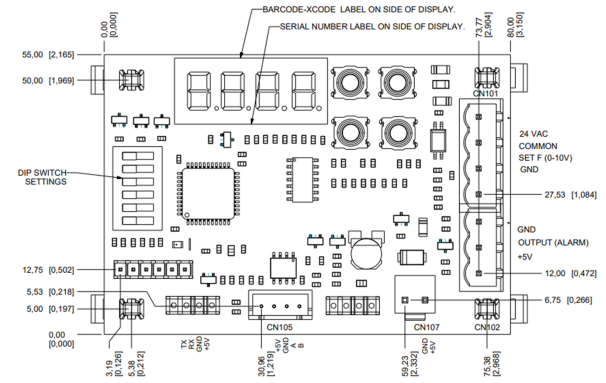


12. Replace the DIM module with the new DIM module (X13651807001) provided.

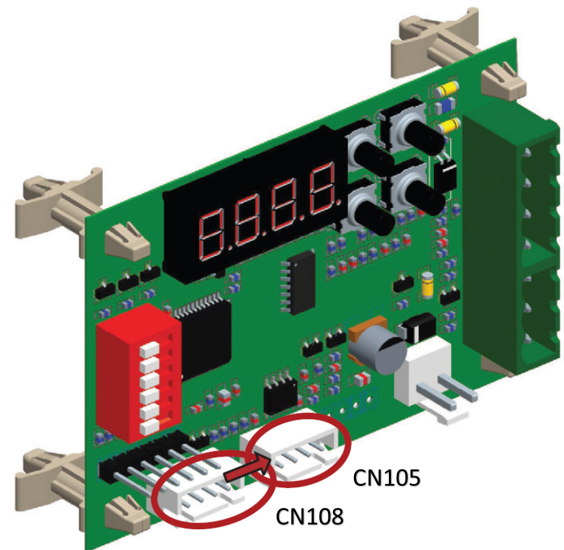
13. Reconnect harnesses as originally connected, with the exception of P105, which should connect to CN105 instead of CN108. See [Figure 14](#), p. 7 and [Figure 15](#), p. 7.

**Note:** CN108 will not be connected with any connector.

**Figure 14. DIM module (X13651807001) diagram**



**Figure 15. Reconnect harnesses**



14. Replace the filter drier in the unit.
15. Recharge the refrigerant.
16. Evacuate the refrigeration system.
17. Close the outer panels.
18. Reconnect all power to the unit.

**Notes:**

- Compressor setting is same as legacy DIM or show setting table.
- Comm loss counter is added in Nixie Tube display item 2 for new DIM.

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