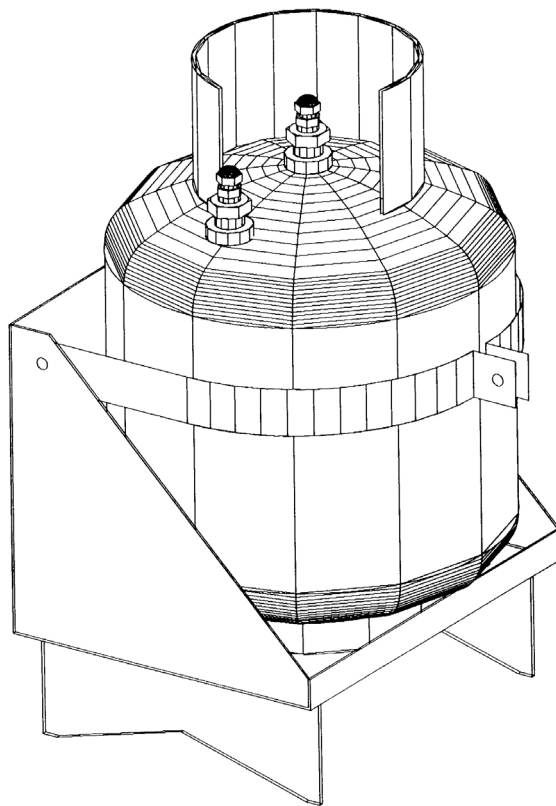




Installation, Operation, and Maintenance

PRPA - Purifier Plus™ Purge

Emission Collection Cylinder



Model Numbers: PRPA, TNK00858, KIT08067

This document applies to service offering application 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/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 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.



Model Number Description

Digit 1,2,3 – Product Description

PRP = Purge Plus

Digit 4 – Development Sequence

A = First development

Digit 5, 6 – Future Use

Digit 7 – Cylinder Origin

0 = Trane

1 = Out source

Digit 8 – Cylinder Type

N = New

R = Regenerated

Digit 9 – Refrigerant

1 = R-11

2 = R-123

3 = R-113

4 = Generic (R-11, R-123, or R-113)

Digits 10, 11 – Design Sequence

B0 = Second design sequence



General Information

About This Manual

The Purifier Plus purge emission collection cylinder is designed to be installed in the exhaust line of a Trane Purifier™ purge. The cylinder contains activated carbon which filters the refrigerant from the purge exhaust and holds it in the carbon. Proper application of a Trane Purifier purge and a Purifier Plus collection cylinder can result in near zero refrigerant emissions due to the purging of non-condensable from low pressure chillers.

The Purifier Plus cylinders can be used effectively for chillers operating on CFC-11, CFC-113, and HCFC-123. When the carbon is saturated, the cylinder must be removed and returned. Once received, the refrigerant is extracted from the carbon and recycled. The cylinders are cleaned and tested to ensure proper performance and made available for reuse.

Note: *The Purifier Plus can only be used with Trane Model PRGA, PRGB, and PRGC Purifier purges. Use with other purges may result in a potential safety hazard and/or damage to the purge due to partial restriction of the purge exhaust. Information, Installation, Operation, Startup, etc.*

⚠ WARNING

Cylinder Damage!

The Purifier Plus cylinder is designed for use on low pressure refrigerants only. Use of this cylinder with a medium or high pressure could result in a violent explosion causing death or serious injury.

Receiving

Upon receipt of the unit, inspect the shipping carton for signs of visible damage. Report any damage to the carrier.

Store unit in a dry, secure place prior to its installation and use.

Carefully remove the collection cylinder from the shipping containers. Inspect it for signs of visible shipping damage. If any damage is found, report it to the freight company immediately. Confirm all loose items shipped with the collection cylinder have been received. Do not install or operate a damaged unit.

The Purifier Plus is sold in two configurations for either new installation, or in exchange for existing cylinder of the same style.

Purifier Plus Kit, KIT08067 (Required for Initial Installation)

Qty	Description
1	Holding bracket
2	Mounting brackets and hardware

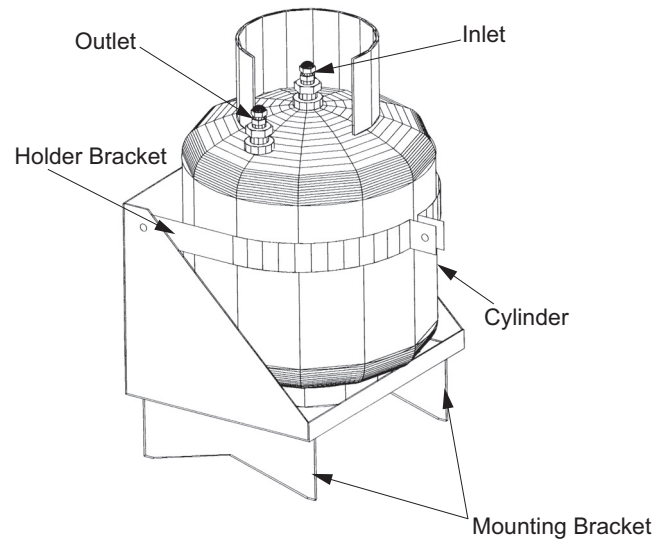
Purifier Plus Replacement Cylinder (for Exchanged Cylinders)

Qty	Description
1	Regenerated Purifier Plus cylinder
1	Return shipping package and shipping instructions
1	SO-SVX001*-EN (this manual)

Field-Supplied Items

Qty	Description
3	3/8-inch Flare nuts
1	3/8-inch OD refrigeration-grade copper tubing (length determined by location of cylinder).
4	1/4-inch Bolts, when bolted directly to chiller, like Option 3 in Figure 2, p. 6 .

Figure 1. Purifier plus cylinder and bracket



Installation

Installation Considerations

The mounting location of the Purifier Plus cylinder is determined by:

1. The style of chiller.
2. Chiller options such as free-cooling, hot gas bypass, etc.
3. Service access to the chiller and cylinder.

⚠ WARNING

Hazardous Pressures!

Failure to follow these safety precautions could result in a cylinder rupture, which could result in death or serious injury.

Do not pressurize cylinder from an external source.

It is recommended that it be securely mounted to the chiller, off the floor in a dry, clean location. Refer to [Figure 2, p. 6](#) for possible mounting locations on a CVHE-style chiller.

NOTICE

Refrigerant Contamination!

Failure to do so may lead to cylinder contamination and unit damage.

Before installation, verify that the refrigerant type marked on the Purifier Plus cylinder matches that of the refrigerant in the chiller.

⚠ WARNING

Hazardous Gas!

Failure to remove refrigerant could result in death or serious injury.

The units refrigerant charge must be removed before welding or drilling on the condenser shell.

1. Mount the cylinder in the holding bracket. The bracket has holes in both the bottom and back plates for mounting directly to chiller leg ([Figure 2, p. 6, Option 3](#)). V-Brackets are included in the kit for mounting to the curved surface of the condenser ([Figure 2, Option 1 or 2](#)). Refer to [Figure 6, p. 10](#) for dimensions.
2. Install 3/8-inch OD copper tube from the purge exhaust to the cylinder inlet. The inlet is in the center of the cylinder. Install 3/8-inch OD copper tube from the cylinder outlet to the chiller vent line per [Figure 3, p. 6](#).
3. Confirm there are no restrictions in the exhaust line. If any valves are included in the line, they must be fully open during use.
4. Install or modify the Change Purifier Plus cylinder label [Figure 3, p. 6](#) on the Purifier purge. Add the applicable value from [Table 1, p. 6](#) to the current value on the purge. Record this number on line A. Add three years to the installation date and record on line B.

5. Record the requested information on the cylinder nameplate per [Figure 5, p. 7](#), including refrigerant type in appropriate check box.

Figure 2. Recommended purifier plus mounting locations

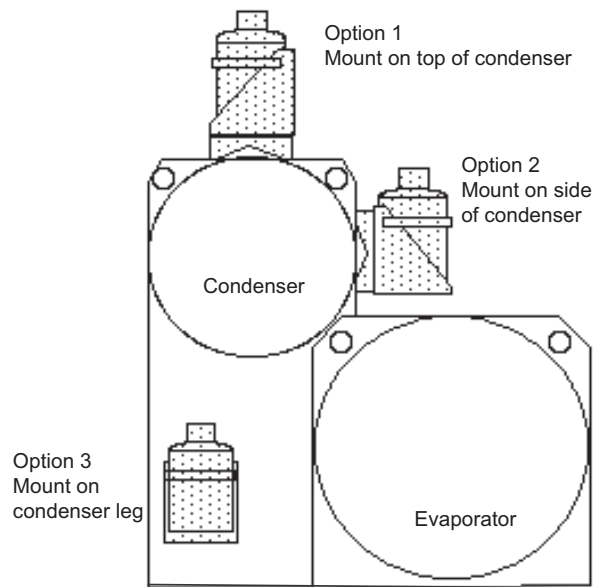


Figure 3. Purifier plus connections

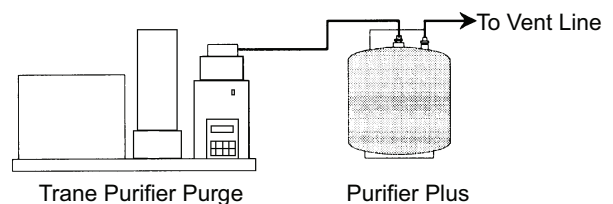


Table 1. Purifier purge pump out minutes

Model	Chiller refrigerant type		
	R-113 (Minutes)	R-11 (Minutes)	R-123 (Minutes)
PRGA	5000	1500	2000
PRGB	5000	3000	4000
PRGC	5000	3000	4000

Figure 4. Change cylinder label

Change Purifier Plus™ Cylinder


AT A Minutes

OR B Date

A = Purge pump out timer value at installation plus appropriate value from [Table 1](#).

B = Installation date plus 3 years.

Figure 5. Typical cylinder nameplate


Order No.Example
Customer Name:
Trane Location:
Date Installed:
Purge Minutes:
Date Removed:
Purge Minutes:
Mark only one of the following:
R-123 R-11 R-113



Cylinder Replacement

Determining When to Replace the Cylinder

Important: *The contents of this cylinder must be reclaimed at a Trane authorized facility. Disposal of the cylinder or the contents in any other way may be a violation of Federal CFC/HCFC Venting Regulations.*

The saturation level of the activated carbon in the cylinder is directly related to the accumulated pump out time on the Purifier purge. When the pump out time on the Purifier Purge reaches the value listed in line A or the date on line B of the Change Purifier Plus cylinder label the carbon is saturated and the cylinder needs to be replaced, see [Figure 4, p. 6](#) for sample label.

The most accurate way to determine if a cylinder needs replacement is to weigh the cylinder. The tare weight of the carbon cylinder and carbon is contained on the label. The weight is listed as pounds-ounces. For example 42-10 means 42 lb 10 ounces.

The amount of refrigerant that can be held within a given quantity of activated carbon depends on many variables including the carbon type, refrigerant type, as well as the temperature and pressure of the carbon. At typical equipment room temperatures the Purifier Plus cylinder will hold approximately 12 lb of refrigerant.

If the current cylinder weight is any more than 6 lb over the tare weight listed on the label, it is time to exchange the cylinder. In the above example, any weight over 48 lb 10 ounces (42 lb 10 ounces + 6 pounds = 48 lb 10 ounces) should be exchanged. It is also okay to exchange a cylinder at a weight between 0 and 6 lb over the tare weight.

Removing the Cylinder

The refrigerant vapor in the purge exhaust line can be pumped into the cylinder before removing the copper lines by:

1. Disconnect and plug the 1/4-inch line entering the pump out compressor.
2. Remove the bypass cap from the pump out compressor inlet tee and turn on the pump out system using the purge service switch for ten to fifteen seconds. This will pull room air into the pump out compressor and force purge exhaust into the Purifier Plus cylinder.
3. Disconnect the copper lines from the full cylinder and cap, using the supplied plastic caps, the inlet and outlet ports of the cylinder.
4. Install replacement cylinder and update all label information per [Step 4](#) and [Step 5](#) of "Installation," p. 6.
5. Reconnect the tubing and replace the cap removed in [Step 1](#) and [Step 2](#) above.



Return Instructions

Return Details

The Replacement Purifier Plus kit includes the materials needed to replace a saturated Purifier Plus cylinder. It also includes the shipping box, shipping instructions and shipping labels needed to return a saturated cylinder to the Trane site. The replacement Purifier Plus shipping box can be reused to ship, free of charge, the saturated Purifier Plus cylinder back to Trane.

Follow these instructions for Purifier Plus returns:

1. Upon receipt of the replacement cylinder, confirm the items listed under replacement cylinder were received.
2. Record all information on the data sheet (see [Table 2, p. 11](#)) and/or on cylinder labels and return the completed sheet with the saturated cylinder. Data can be found on cylinder nameplate/stickers, purge or UCP2 human interface, and chiller nameplate. *It is very important that all information be filled in on all labels and the data sheet returned with the cylinder.*
3. Attach preprinted return shipping label to outside of box.
4. Put cylinder in box that is to be returned. Seal the carton with heavy-duty shipping tape. Please do not use masking or cellophane tape, these are not strong enough for a proper seal.
5. Contact FedEx for pick-up.
6. On the FedEx ground label, identify product as non-pressurized carbon, inert solid. Fill in the document using the information on the shipping label. Use the 3rd party billing address for FedEx shipments: Trane, 5200 Tradeport Drive, Memphis, TN 38141. Use FedEx Acct#: 908777816.

Note: *All FedEx account numbers require the appropriate Trane billing address when processing shipments.*



Maintenance

Typical Maintenance

Normal maintenance is required for the cylinder. Keep the cylinder clean and dry in a corrosive free environment.

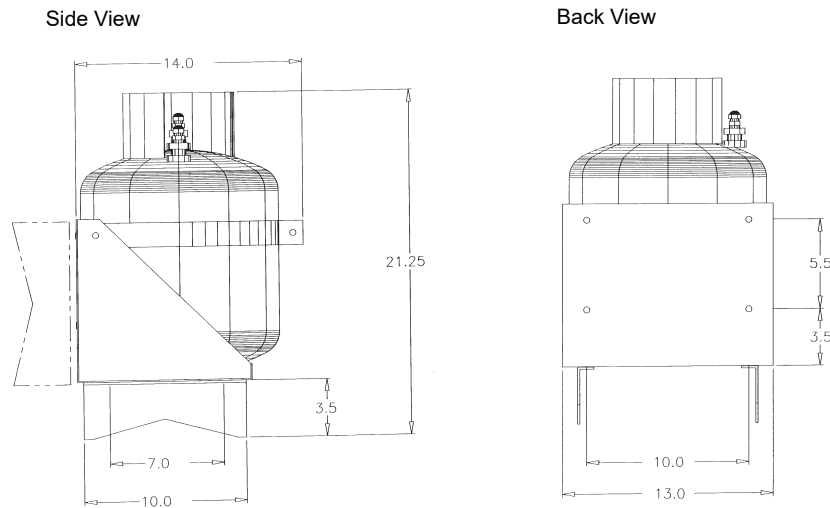
Specifications

- Weight (Including brackets):
50 lb
- Overall Size (Including bracket):
21-in. H X 13-in. W X 14-in. L

- Connection sizes:
Inlet: 3/8-inch Male flare
Outlet: 3/8-inch Male flare
- Temperature Range:
Operating: 40°F to 120°F
Shipping and Storage: -40°F to 150° F

Note: Do not paint the cylinder. The performance of the carbon is tracked by weight. Any added weight will invalidate the cylinder data.

Figure 6. Purifier plus dimensions





Purge Cylinder Return Program

Return Cylinder Data Sheet

The following information is required to be sent along with a cylinder. In order to ensure the proper leak credit for refrigerant is received, all information must be included. This information should be written on the nameplate and stickers on the cylinder, purge, and chiller.

Table 2. Data to include with cylinder return

Technician name and number	
Sales office	
Cylinder serial number (impregnated on cylinder)	
Empty weight of cylinder from label on cylinder	
Refrigerant type	
Chiller model number (first 12 digits)	
Chiller serial number	
Chiller sales order number	
Cylinder order number from nameplate, or N/A	
Cylinder model number from nameplate	
Cylinder serial number from nameplate	
Purge minutes and date when cylinder was installed	
Purge minutes and date when cylinder was removed	
Purge model number	
Purge serial number, or leave blank if none	

Send Cylinder and Data Sheet to:

Trane Purge Cylinder Return Program
4500 Morris Field Drive
Charlotte, NC, 28208.

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