



Installation Operation Maintenance

RegenPlus™

Carbon Tank Regeneration System



Model Numbers: CTRA

CTRA-SVX01A-EN

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General Information

Warnings and Cautions

Warnings and Cautions appear at appropriate locations throughout this manual. Read these carefully.

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, may result in minor or moderate injury. It may be used to alert against unsafe practices and where property-damage-only accidents could occur.

Model Number Description

Digit 1, 2, 3 - Unit Description

CTR = Carbon Tank Regeneration Compressor Unit

Digit 4 - Development Sequence

A = First Development

Digit 5, 6, 7 - Product Characteristics

000 = None

Digit 8 - Voltage

1 = 120/60/1

Digit 9 - Future Options

0 = None

Digit 10, 11 - Design Sequence

A0 = First

Literature History

CTRA-SVX01A-EN (July 2001)

Original issue of manual. Describes the Installation, Operation and Maintenance procedures for the unit.

General Information

Background

Activated Carbon and Adsorption

The Purifier Plus™ Purge Emission Collection Canister is installed on the pumpout exhaust port of the Trane Purifier Purge™. This canister contains approximately 18 lbs of activated carbon.

Activated carbon is like a molecular magnet. Its internal structure is made up of interconnected capillary passages not much larger than the refrigerant molecules it adsorbs.

Adsorption (different from absorption, which involves actually taking in or incorporating a substance) is a physical action based on molecular (Van de Walde) forces. When the refrigerant comes in contact with activated carbon, the carbon attracts and holds the refrigerant.

The activated carbon in the Plus tank is used to selectively pull refrigerant from the purge exhaust stream resulting in nearly zero refrigerant emissions from the purge/canister combination. This collected refrigerant is held (adsorbed) within the porous structure of the carbon until the porous structure is saturated (filled). After the canister is saturated with refrigerant, the purge exhaust stream from the canister essentially becomes the same as the exhaust stream from the purge pumpout compressor. That is, no further adsorption is possible after saturation.

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 canister will hold approximately 12 lbs of refrigerant.

In order to continue refrigerant emissions “near zero” from the purge/canister combination after the Plus tank becomes saturated, the Plus tank must be regenerated or replaced.

The RegenPlus carbon tank regeneration system is a series of tools that allow a service technician to regenerate a tank in a variety of ways depending on how much time is available and how complete a regeneration is desired. All regeneration methods described involve a combination of elevated temperature and vacuum. This method of regeneration was chosen so as to avoid the introduction of other fluids that would then have to be separated at a subsequent step. This method works with R-11, R-113, and R-123. The negatives associated with this method of regeneration are dealing with elevated temperatures above 300° F and ensuring proper compressor performance to maintain a deep vacuum. The following tables show the types of regeneration available, which tools are required to complete the regeneration, and how complete of a regeneration each method gives.

Installation

Table 1 — Required Components

Method of Regeneration	Components Required			Approximate Amount of Refrigerant Removed ¹ (Amount Remaining in carbon tank)	Approximate Amount of Moisture Removed (Amount Returned to Chiller)
	Band Heater & Insulated Bag	Compressor Package	Purge Filter/Dryer		
Basic Regen back to Evaporator ²	X			6.25# (5.75#)	0 oz. (5 oz.)
Complete Regen back to Evaporator ²	X	X	X	8.5# (3.5#)	3.25 oz. (1.25 oz.)

Notes on Table:

1 — Assumes carbon tank contains 18 pounds of carbon and carbon is saturated with refrigerant at start of regeneration.

2 — Assumes chiller is running.

Moisture Adsorption and Using a Filter/Dryer

Refrigerant is not the only substance that will adsorb to carbon. However, since the carbon in the Plus tank is only exposed to refrigerant, moisture, and air when in use, the only other substance worth discussing is moisture. Generally there is some moisture in the purge gas stream and there is some level of residual moisture in the carbon when the tanks were originally manufactured. As a result, moisture will generally be present when the carbon is regenerated. We have seen, on average, approximately 5 ounces of water vapor from the carbon when a tank is regenerated for the first time. We feel the majority of this moisture is present when the tanks were manufactured and therefore subsequent regenerations will result in less water vapor. However, 5 ounces of water could be a significant amount of moisture to reintroduce into the chiller refrigerant. For this reason a purge filter/dryer canister can be part of the regeneration system. This canister is used to strip the moisture from the regeneration vapor stream prior to sending it back to the chiller.

Installation

This is another adsorption process with the same restraints as above. The purge filter/dryer used will adsorb approximately 3.25 oz. of moisture. After the adsorption material (molecular sieve) is saturated, any subsequent moisture will go into the chiller. Thus, approximately 1.25 oz. of water will be put back into the evaporator. A larger filter/dryer could be used, but the larger surface area associated with larger capacity filter/dryers tend to cause refrigerant to condense in the filter/dryer rather than return to the evaporator.

The adsorbent material used in these canisters was specifically designed to hold large quantities of moisture and small quantities of refrigerant. However, please note that some residual refrigerant is expected to remain in the filter/dryer. A procedure is included in the operation section to remove most refrigerant from the filter/dryer after a tank is regenerated. The filter/dryer is intended to be used only once and then properly discarded.

Air Introduction Into The Chiller

Since the carbon tank contains air prior to system startup, some of this air will be pushed into the chiller during the regeneration process. The process outlined in this manual will attempt to keep the quantity of air introduced into the chiller at a minimum by doing a short pumpdown of the tanks and hoses prior to starting the regeneration cycle. If this pumpdown is conducted at ambient temperature (prior to heating the carbon tank), minimal refrigerant from the carbon tank will be lost to the ambient. After this initial pumpdown, the regeneration system discharge line is connected to the chiller. The residual air introduced into the chiller is of little concern and should be less than ½ cubic foot of standard air. However this quantity of air can be much higher if leaks exist in the regeneration setup. For this reason, a safety pressure switch set to a 10 psig cutout is included in the package which shuts off the compressor unit and heater to insure the rupture disk does not blow if a large leak occurs on the suction side of the compressor. The operator must insure the system is leak tight prior to starting the regeneration process.

Regeneration System Overview

The Complete Regeneration System consists of the following components:

- RegenPlus™ carbon tank regeneration system compressor unit (TOL01411)
Included and shipped with each compressor unit:
 - (2) - O-ring face seal adapters (RNG01706)
 - Inlet filter (DHY00816)
 - (2) - ¼" to 3/8" hose adapter (ADP00934)
 - Braided steel hose ¼" x 3/8" (HSE01283)
- Insulated bag for carbon tank (CAS00966)
- Heater band for carbon tank w/ heat exchanger coil (HTR03307)
- Label kit (LBL00186)
- Purge filter/dryer (DHY00337)
- (4) -¼" refrigerant hose with ball valves (HSE01127)

Installation

The Economy Regeneration System consists of the following components:

- Insulated bag for carbon tank (CAS00966)
- Heater band for carbon tank (HTR03308)
- Label kit (LBL00201)
- 1/4" to 3/8" hose adapter (1 req'd) (ADP00934)
- 1/4" refrigerant hose with ball valves (HSE01127)

The operator will need to supply:

- Extension-type cord to connect the compressor unit to a 115 VAC, 60 Hz., 15 amp power source. The compressor unit has a male plug fitting. Keep cord as short as possible.
- Scale (measure to the nearest ounce or 0.1 pound)
- Any fittings to convert evaporator connection to 1/4" male flare hose connection.
- Beige paint to touch up carbon tank after regeneration.

Figure 1 — Regen Plus™ Parts



Heater Band



Heater Bag



Top View of Regen Plus

Operation — Complete Regeneration

⚠ WARNING

Hazardous Voltage!
Disconnect all electric power including remote disconnects before servicing.
Failure to disconnect power before servicing can cause severe personal injury or death due to electrocution.

⚠ Caution:

To avoid release of refrigerant to atmosphere, this unit to be operated by certified personnel only.

Setup

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

1. Disconnect and plug the ¼" 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 canister.
3. Remove the 3/8" line from the purge exhaust to the Purifier Plus carbon tank inlet.
4. Remove the 3/8" line from the carbon tank outlet to the chiller vent line.
5. Remove the carbon tank from the holder bracket and take down from the mounting bracket.

Notice: Carbon tank can weigh in excess of 50 pounds. Use caution when lifting.

6. Weigh the carbon tank (nearest 0.1 lbs or 1 ounce) to verify that sufficient refrigerant is contained in the carbon tank to justify regeneration—at least tank tare weight plus 4 lbs. The tare weight of the carbon tank and carbon is contained on a sticker on the bottom of the carbon tank (sometimes located elsewhere on the tank). See figure 2. The weight is listed as pounds-ounces. For example 42-10 means 42 lbs. 10 ounces. Fill in initial weight and other data on Log Sheet included in this manual. A copy of the log sheet may be made and filled in and left at the job site or placed in the job folder for the current chiller.

Figure 2 — Carbon Tank Tare Weight Sticker (Lbs.-Oz.)



Operation

7. Copy information from the carbon tank nameplate and weight sticker onto new sticker kit sheet. These new stickers will be applied to tank after tank has been regenerated. The information must be copied now since it may be unreadable after a regeneration due to the extreme heat.
8. Locate an appropriate site to perform the regeneration procedure. The location should be close to the chiller but out of the way so it won't be disturbed. The tank will be in excess of 300 °F when in operation.

Figure 3 — Complete Regeneration Setup



⚠ Caution:

To reduce the risk of personal injury, care should be taken when moving the Regen Plus™ unit.

⚠ Caution:

To avoid release of refrigerant to atmosphere, this unit to be operated by certified personnel only.

9. It is recommended that the compressor unit be located above the carbon tank to ensure any refrigerant that condenses in compressor suction lines be allowed to run downhill back to this tank. Although, this is an unlikely possibility, since the compressor is maintaining a very low saturation temperature in this line, this arrangement may be of value if the compressor were to shut off on a thermal limit and then restart at a later time.
 10. Place the tank heater on the carbon tank. The heater should be placed below the seam weld in the tank. Verify that the heater is making good contact with the tank and there are no foreign substances or weld beads between the heater and the tank. The two copper lines on the heater band should be pointing up. Do not plug the heater band into the outlet on the compressor unit at this time.
 11. Connect the 3/8" to 1/4" fittings on both of the carbon tank fittings.
 12. Attach a 1/4" hose from the off-center tank fitting to the fitting on top of the compressor unit labeled "from carbon tank off-center fitting (compressor suction)".
- Note:** Hoses should be no longer than 8 feet with service valves located within 12 inches of end of hose.
13. Attach the braided steel hose from one of the copper lines on the heater band to the carbon tank center fitting.

Operation

14. Attach a ¼" hose from the other copper line on the heater band to the fitting on top of the compressor unit labeled "to carbon tank heater band".
15. Place the tank inside the insulation bag. Ensure the heater band cord and hoses are not pinched under the tank and can exit the bag without being kinked.
16. Tighten the straps on the bag lid and ensure the tank and heater band are wrapped tightly inside the insulated bag.
17. Add the o-ring face adapters to each end of the purge filter/dryer. Ensure that the o-rings that are included with the filter/dryer are installed.

Note: The purge filter/dryer is not required to complete a tank regeneration. As described above, it will aid in removing moisture. If a filter/dryer is not used, connect the compressor unit "to evaporator" fitting directly to the chiller connection point with a ¼" hose.

18. Attach a ¼" hose from the fitting on the top of the compressor unit labeled "to evaporator" to the inlet to the filter/dryer. An arrow on the filter/dryer indicates flow direction.
19. Locate a connection on the chiller for the discharge from the compressor unit (through the filter/dryer) to the chiller. The chiller should be operational. It is recommended that the connection be made to the evaporator to reduce the possibility of liquid accumulation in the discharge line between the compressor unit and the chiller. If the connection is made to the chiller condenser or the chiller is off but the saturation temperature is higher than the ambient, a hose with valves should be used (or other means) to minimize the amount of entrained refrigerant liquid that would otherwise be lost to the atmosphere.
20. Attach a ¼" hose from the discharge of the filter/dryer but DO NOT connect to the chiller at this point.
21. Plug the compressor unit to a 115 VAC, 60 Hz., 15 amp power source using operator supplied cord. Ensure compressor unit power switch is off.

Evacuation of Hoses/Tank

1. Turn mode switch to "Regen".
2. Turn on the compressor by turning the power switch and run for approximately 4 minutes. This will evacuate the tank and all suction side hoses to approximately 20" Hg. Discharge to an appropriate location-trace quantities of refrigerant may be expelled.
3. Close ball valve on hose to connect to chiller evaporator while turning off compressor power. Pressure in system, as indicated by suction pressure gauge on compressor unit, should remain in a vacuum. If not, check system for leaks, repair, and repeat evacuation.

 **Caution:**

To avoid risk of fire, keep cord as short as possible.

 **Caution:**

To avoid release of refrigerant to atmosphere, this unit to be operated by certified personnel only.

Operation

Regeneration of Carbon Tank

1. Attach hose to chiller evaporator fitting selected earlier. Open ball valve on hose.
2. Plug the heater band into the outlet on the compressor unit.
3. Turn mode switch to “Auto”.
4. Turn compressor power switch to “On”.
5. Unit operates automatically to complete the 5 hour regeneration process. See Table 2 for sequence of operation.
6. Verify that the compressor has started and that the tank heater is warming up.

Unit will begin a two-hour recirculation cycle in which the heater will begin to heat the carbon tank and the hot refrigerant will circulate through the compressor unit, through the heater band tubing and through the carbon in the tank. This ensures rapid heating of the entire carbon bed and releases the carbon's “bond” with the refrigerant. The three-way solenoid valve in the compressor unit isolates the chiller's evaporator from this circuit. If, however, the pressure in this circuit exceeds 7 psig, the solenoid valve will open the line to the evaporator and dump the refrigerant into the evaporator, thus relieving the pressure. Once the pressure falls below 2 psig, the solenoid will again isolate the evaporator connection and resume the recirculating of the heated refrigerant through the carbon tank.

CAUTION

The carbon tank heater will maintain a setpoint of 350 °F. The tank heater as well as all components inside the insulating bag will be very hot. DO NOT touch any components inside the bag with bare hands. If the components are hot, use only an insulated glove, suitable for the application, that will provide protection to the operator.

After two hours of recirculating refrigerant, the carbon bed will be above 250° F and the refrigerant is “freed up” from the carbon and ready to be recovered. The unit will automatically switch over to regeneration mode. In regeneration mode, the solenoid valve opens to the line connected to the chiller evaporator and isolates the heater band heat exchanger tubing. This allows the carbon tank's pressure to be pulled down. For the next three hours, the unit will remove the refrigerant from the carbon tank and move it to the evaporator and lower the tank pressure. The heater remains on.

After the three hour regeneration is complete, the unit will automatically shut off the compressor and heater band. The three way solenoid will close the path from the compressor unit to the chiller to prevent any possible air infiltration.

Operation

Table 2 — Mode Sequence

AUTO Mode Sequence of Events and Light Status

Time from Power On	Operating Mode	Light	Status
0-2 Hours	Recirculation	High Pressure Heater On Recirculate Mode Regeneration Mode Regeneration Complete	Off On On Off Off
2-5 Hours	Regeneration	High Pressure Heater On Recirculate Mode Regeneration Mode Regeneration Complete	Off On Off On Off
>5 Hours	Cool Down	High Pressure Heater On Recirculate Mode Regeneration Mode Regeneration Complete	Off Off Off Off On

Shut Down Procedure

1. Unplug the heater band from the compressor unit.

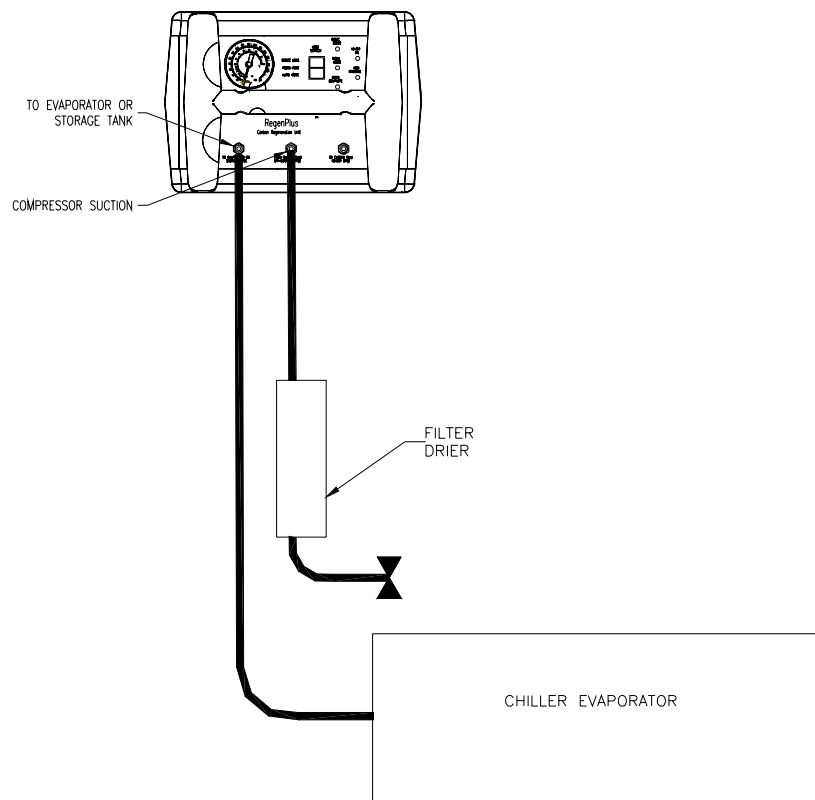
Because some refrigerant may have condensed in the purge filter/dryer, it will need to be evacuated. That procedure follows. Close the ball valves on the hose connected to the compressor unit and the ball valve on the chiller evaporator connection point. See Figure 4 for details.

2. Remove the filter/dryer/hose assembly from the chiller evaporator and compressor unit.
3. Remove the other two hoses from the carbon tank and heater band.
4. Reattach one end of one of the hoses from the connection on the compressor unit labeled “to evaporator” and the other to the chiller evaporator connection.
5. Attach the filter/dryer/hose assembly to the connection on the compressor unit labeled “(compressor suction)”.
6. Open the ball valve on the hose assembly nearest the compressor unit. Leave the ball valve on the other end closed.
7. Turn the compressor unit mode switch to “regen”. Turn on the compressor power switch.

Operation

8. Run the compressor unit until the pressure gauge on the compressor unit has leveled out at it's lowest level. Depending on how much refrigerant is contained in the filter/dryer this can take a few minutes.
9. Turn off the compressor unit. Remove all hoses and properly dispose of purge filter/dryer canister.

Figure 4 — Regen Plus™ Setup



10. Allow the carbon tank to adequately cool then remove from the insulated bag and remove the heater band.

The heating process can damage tank labels and paint. Remove any old damaged stickers. Repaint tank if necessary. After tank is dry, apply stickers as shown in Figure 5. Information on new labels should have been copied from old labels prior to regeneration.

11. Place tank back on chiller and reattach brackets and exhaust and vent lines.

Operation — Economy Regeneration

Figure 5 — Tank Label Location

Name Tag



Economy Regeneration

As noted previously, an economy regeneration does not require the compressor unit but does not perform as complete of a regeneration (i.e., it does not remove as much refrigerant) as the complete regeneration. This process also takes 24 hours to complete vs. 5 hours using the compressor unit. This process will take any moisture in the tank and move it back to the evaporator. This could be 5 ounces of moisture, which will consume a large portion of a new filter/dryer on the purge unit. If the carbon tank and hose are not evacuated prior to beginning this regeneration, air in those items will also be introduced into the chiller evaporator.

Operation

⚠ Caution:

To avoid release of refrigerant to atmosphere, this unit to be operated by certified personnel only.

Setup

Note: To complete a regeneration, the tank will be removed from the purge unit for 24 hours. If purge pumpout is not desired during this 24 hour tank regeneration (since tank will not be connected to purge exhaust), push the Stop button on the purge human interface or select stop for the purge from the UCP2 panel. Stop means that the condensing unit will not run and the pumpout compressor will not turn on.

1. Remove the 3/8" line from the purge exhaust to the Purifier Plus carbon tank inlet.
2. Remove the 3/8" line from the carbon tank outlet to the chiller vent line.
3. Remove the carbon tank from the holder bracket and take down from the mounting bracket.

Notice: Carbon tank can weigh in excess of 50 pounds. Use caution when lifting.

4. Weigh the carbon tank (nearest 0.1 lbs or 1 ounce) to verify that sufficient refrigerant is contained in the carbon tank to justify regeneration--at least tank tare weight plus 4 lbs. The tare weight of the carbon tank and carbon is contained on a sticker on the bottom of the carbon tank (sometimes located elsewhere on the tank). See figure 6. The weight is listed as pounds-ounces. For example 42-10 means 42 lbs, 10 ounces. Fill in initial weight and other data on Log Sheet included in this manual. A copy of the log sheet may be made and filled in and left at the job site or placed in the job folder for the current chiller.

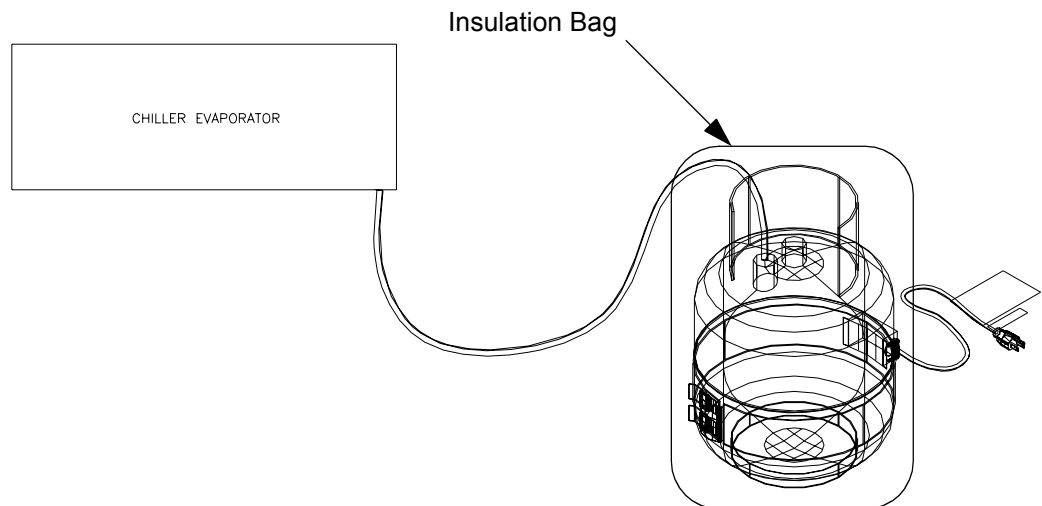
Figure 6 — Carbon Tank Tare Weight Sticker (Lbs.-Oz.)



Operation

5. Copy information from the carbon tank nameplate and weight sticker onto new sticker kit sheet. These new stickers will be applied to tank after tank has been regenerated. The information must be copied now since it may be unreadable after a regeneration due to the extreme heat.
6. Locate an appropriate site to perform the regeneration procedure. The location should be close to the chiller but out of the way so it won't be disturbed. The tank will be in excess of 300 °F when in operation.

Figure 7 — Economy Regeneration Set-up



7. Place the tank heater on the carbon tank. The heater should be placed below the seam weld in the tank. Verify that the heater is making good contact with the tank and there are no foreign substances or weld beads between the heater and the tank. Do not plug the heater band into an outlet at this time.

Note: Hoses should be no longer than 8 feet with service valves located within 12 inches of end of hose.

8. Connect a 3/8" to 1/4" fitting to the off-center fitting on the carbon tank. Tightly cap center fitting on tank.
9. Locate a connection on the chiller for the discharge from the compressor unit (through the filter/dryer) to the chiller. The chiller should be operational. It is recommended that the connection be made to the evaporator to reduce the possibility of liquid accumulation in the discharge line between the compressor unit and the chiller. If the connection is made to the chiller condenser or the chiller is off but the saturation temperature is higher than the ambient, a hose with valves should be used (or other means) to minimize the amount of entrained refrigerant liquid that would otherwise be lost to the atmosphere.

Operation

⚠ CAUTION

The carbon tank heater will maintain a setpoint of 350 °F. The tank heater as well as all components inside the insulating bag will be very hot. **DO NOT** touch any components inside the bag with bare hands. If the components are hot, use only an insulated glove, suitable for the application, that will provide protection to the operator.

10. Attach a ¼" hose from the off-center tank fitting to the fitting on the evaporator.

Note: If the tank and hose are not evacuated prior to beginning this regeneration, any air in the tank and hose will be introduced into the chiller evaporator. It is strongly recommended that the tank and hose be evacuated to at least 20" Hg prior to beginning a regeneration.

11. Place the tank inside the insulation bag. Ensure the heater band cord and hose are not pinched under the tank and can exit the bag without being kinked.

12. Tighten the straps on the bag lid and ensure the tank and heater band are wrapped tightly inside the insulated bag.

Regeneration of Carbon Tank

1. Plug the heater band into a 115 VAC, 15 amp outlet.

The heater band will begin heating the carbon tank and freeing the refrigerant from the carbon inside the tank. The refrigerant will move from the higher pressure, due to increased temperature, in the carbon tank to the lower pressure in the evaporator.

2. This process requires heating for 24 hours.

3. After at least 24 hours of heating, unplug the heater band.

4. Close the ball valve on the hose connected to the chiller evaporator and close the evaporator connection point. Some refrigerant may have condensed in the hose. Allow this to run back into the tank (or chiller evaporator) prior to removing hose from tank to prevent refrigerant release into the atmosphere.

5. Open the flap on the insulated bag and allow the carbon tank to cool. Once tank is cool, remove heater band and hose.

The heating process can damage tank labels and paint. Remove any old damaged stickers. Repaint tank if necessary. After tank is dry, apply stickers as shown in Figure 8. Information on new labels should have been copied from old labels prior to regeneration.

6. Place tank back on chiller and reattach brackets and exhaust and vent lines.

7. Restart the purge by pressing Auto/On from the purge human interface or the UCP2 panel menu selection. Select appropriate purge operating mode. Refer to the Installation, Operation, and Maintenance manual shipped with the purge for details on this operation.

Figure 8 — Tank Label Location



Operation

Table 3 — Carbon Tank Regeneration

Carbon Tank Regeneration Log Sheet

Job Name	
Operator	
Date	
Chiller Model Number (first 11 digits)	
Chiller Serial Number	
Carbon Tank Sequence Number (from bottom of tank)	
Refrigerant Type	
A Original carbon tank weight-from sticker on bottom of tank (lbs.)	
B Current carbon tank weight (lbs.)	
(B-A) Refrigerant in tank (lbs.)	
C Purge filter/dryer initial weight (lbs.—oz.)	
D Purge filter/dryer final weight (lbs.—oz.)	
(D-C) Moisture removed (oz.)	
E Final carbon tank weight (lbs.)	
(B-E) Refrigerant recovered	
(E-A) Refrigerant remaining in carbon tank	

Figure 9 — Regen Plus™ Wiring Diagram

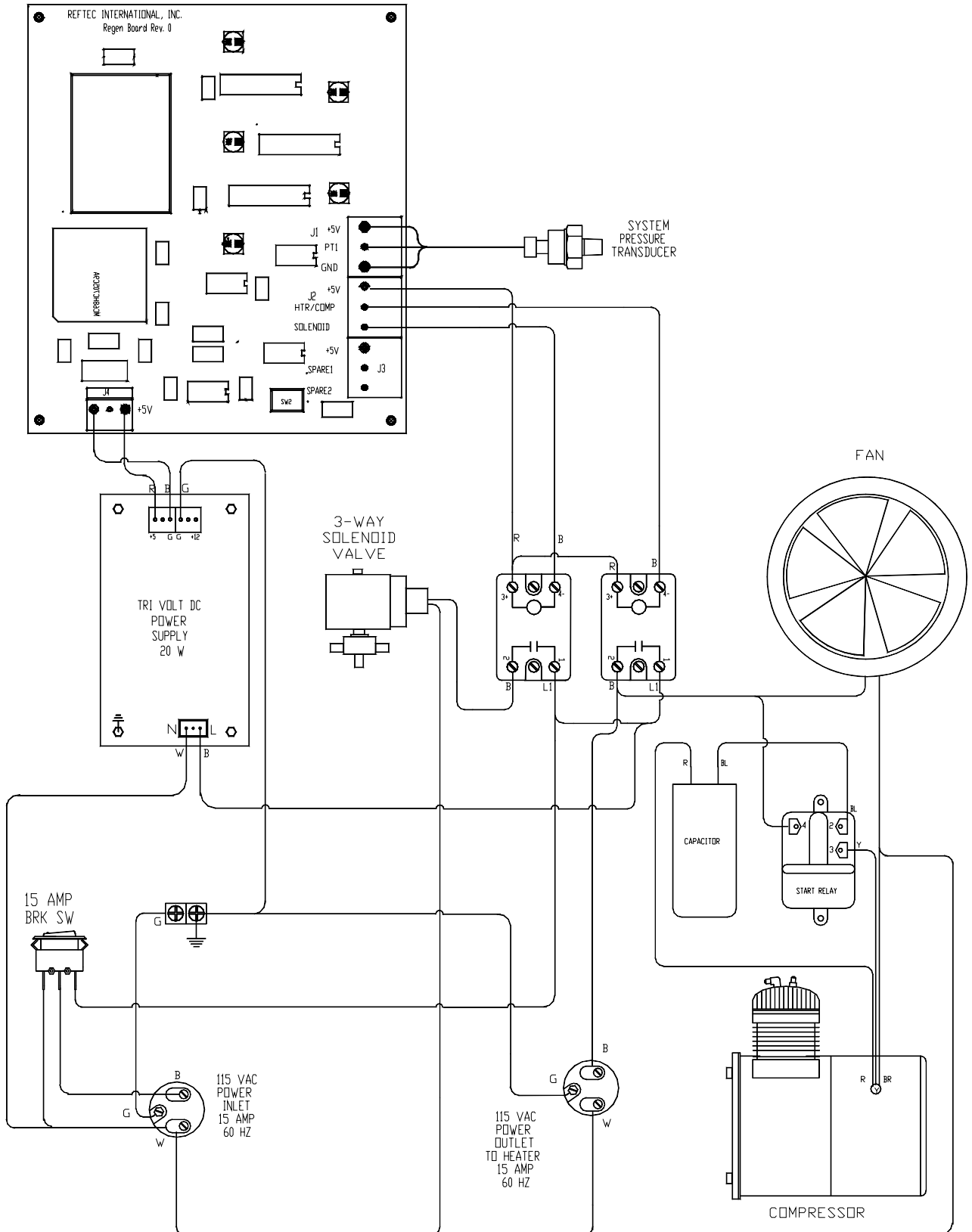


Figure 10 — Regen Plus™ Wiring Diagram

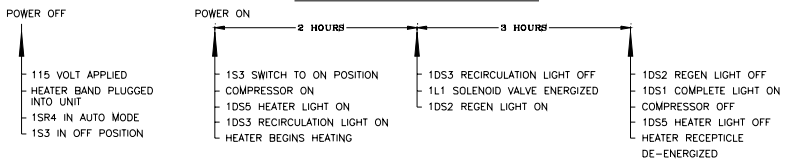
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LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
1B	CONDENSER FAN MOTOR	8
1DS5	HEATER ON LIGHT	19
1DS2	REGENERATION MODE LIGHT	18
1DS3	RECIRCULATION MODE LIGHT	20
1DS1	COMPLETE LIGHT	16
1DS4	HIGH PRESSURE LIGHT	17
1J1	RECEPTICLE FOR UNIT POWER	10
1J2	RECEPTICLE FOR HEATER (120V)	2
START CAP	COMPRESSOR START CAPACITOR	5
1L1	3-WAY SOLENOID VALVE	12
PT-1	HIGH PRESSURE SWITCH (10PSI)	22
PT-1	PRESSURE CUTOVER (RECIR TO REGEN@7PSI)	22
1S3	MAIN POWER SWITCH WITH BREAKER	2

SEQUENCE OF OPERATION



Troubleshooting

WARNING!

Hazardous Voltage! Disconnect all electric power including remote disconnects before servicing. Failure to disconnect power before servicing can cause severe personal injury or death due to electrocution.

WARNING!

To avoid injury or death due to inhalation of, or skin exposure to refrigerant, closely follow all safety procedures described in the Material Safety Data Sheet for the refrigerant and to all labels on refrigerant containers. Certain procedures common to refrigeration system service may expose personnel to liquid or vaporous refrigerant.

Troubleshooting Procedures

If functional difficulties are experienced and the preceding normal operations do not resolve the problem, refer to the following troubleshooting chart for assistance.

Troubleshooting Guide

The following guide is provided to assist in analyzing problems that could occur.

- **Symptom:** Describes what is happening;
- **Cause:** Suggests possible sources;
- **Solution:** Describes what must be done.

Symptom	Cause	Solution
Regen will not start.	Compressor thermal overload open. High-pressure switch opened. No power to unit.	Let unit cool down. Turn power off and the restart. Check power.
Regen process slow.	Filters clogged. Compressor bad. Heater Band bad.	Replace filters. Replace or rebuild compressor. Replace.
High-pressure light on.	Regen system-exceeded 10Psig. Restriction in line set. Outlet filter clogged.	Turn power off to reset. Find restriction and remove. Replace filter
Regen complete light turns on when unit is power up, and then goes out.	Regen unit is going through a self-calibration mode.	There is no problem.
High-pressure light flashes.	Pressure transducer is either shorted or open.	Replace pressure transducer.
Auto / Regen / Recirc mode not operating correctly.	Software problem. Circuit board bad.	Replace microprocessor chip. Replace circuit board.



The Trane Company
Aftermarket Business Unit
3600 Pammel Creek Road
La Crosse, WI 54601
www.trane.com
An American Standard Company

Literature Order Number	CTRA-SVX01A-EN
File Number	SV-CAP-CT-CTRA-SVX01A-EN-601
Supersedes	New
Stocking Location	La Crosse

Since The Trane Company has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice. Only qualified technicians should perform the installation and servicing of equipment referred to in this publication.