



**TRANE®**

# Installation Operation Maintenance

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## CDQ™

# Desiccant Wheels

## for Climate Changer™ Air Handlers



Part No. X39641062010

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June 2006

**CDQ-SVX01A-EN**

## NOTICE:

Warnings and Cautions appear at appropriate sections 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 also be used to alert against unsafe practices.

### **CAUTION**

...indicates a situation that may result in equipment or property-damage-only accidents.



# Introduction

Use this manual to install, startup, operate, and maintain the CDQ desiccant wheel module for Trane Climate Changer™ air handlers. Carefully review the procedures discussed in this manual to minimize installation and startup difficulties. The startup and adjustment procedures discussed in this manual should be done by *qualified, experienced* HVAC technicians.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

## Product Information

Trane CDQ™ (Cool, Dry, Quiet) desiccant dehumidification wheel is a water vapor transfer tool. The Trane CDQ™ desiccant wheel is used to enhance the dehumidification performance of a traditional cooling coil. The wheel is configured in series with the coil such that the "regeneration" side of the wheel is located upstream of the coil and the "process" side of the wheel is located downstream of the cooling coil. The wheel recirculates the water vapor trapped downstream of the cooling coil back into the air upstream of the coil where the coil removes it through condensation. This process is accomplished without the need for a second regeneration air stream. The addition of the CDQ desiccant wheel to the system enhances the dehumidification performance of the traditional cooling coil.

## Protecting the Environment

World environmental scientists have concluded, based on the best currently available evidence, that ozone in our upper atmosphere is being reduced due to the release of CFC (chlorofluorocarbon) fully halogenated compounds.

Trane urges that all HVAC service technicians working on Trane equipment, or any manufacturer's products, make every effort to eliminate, if possible, or vigorously reduce the emission of CFC, HCFC (halocarbon that contains fluorine, chlorine, carbon, and hydrogen), and HFC (halocarbon that contains only fluorine, carbon, and hydrogen) refrigerants to the atmosphere resulting from installation, operation, routine maintenance, or major service on this equipment. Always act in a responsible manner to conserve refrigerants for continued use even when acceptable alternatives are available.

Refrigerant used in any type of air-conditioning or refrigerating equipment should be recovered for reuse, recovered and/or recycled for reuse, reprocessed (reclaimed), or properly destroyed, whenever it is removed from equipment. *Never release it to the atmosphere!*

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# General Information

## Operating Environment

When considering the placement of the air handlers, it is important to consider the operating environment. The acceptable ambient temperature range for unit operation is -40°F to 140°F (-40°C to 60°C).

For heating applications, a special motor may be required to withstand the higher temperatures. Motors with Class B insulation are acceptable for ambient temperatures up to 104° F, while motors with Class F insulation can withstand ambient temperatures to +140° F (60° C).

## Controls

### Wiring Sizes and Connections

There are no penetrations into a Climate Changer™ air handler for any field-provided wiring or device. Before installation, consider overall unit serviceability and accessibility before mounting, running wires (power), making cabinet penetrations, or mounting any components to the module cabinet.

Wiring to air handlers must be provided by the installer and must comply with all national and local electrical codes. The fan motor nameplate includes a wiring diagram. If there are any questions concerning the wiring of the motor, be sure to write down the information from the motor nameplate and contact your local fan motor manufacturer representative for assistance.

### Factory-Mounted Controls

Small items that cannot be factory mounted will ship inside the control enclosures. Larger items may ship inside the fan module.

*Note: All control valves ship directly to the "ship-to address" from the vendor unless another address is given on the Trane sales order.*

All factory-mounted control systems (controls that are factory-wired to a unit controller or termination strip) ordered without starters or variable-frequency drives (VFDs) are provided with line to 24 Vac control transformers mounted and wired in the auxiliary control panel. The customer must provide 120 Vac control power, 50/60 Hz, typically 3 amps for unit sizes 3 to 57 and 5 amps for unit sizes 66 to 120. A dedicated 15-amp circuit is recommended.

Factory-mounted control systems ordered with factory-mounted starters or VFDs are supplied with line to 24 Vac control transformers. No additional power wiring is required.

For a more in-depth understanding of controls, refer to the following manuals:

- For factory-configured AH540/ AH541 controllers, CNT-SVX05B-EN
- For programmable MP580 controllers, CNT-SVP01A-EN
- For hardware installation, CNT-SVN01A-EN
- For Danfoss VFD, TR1-SVX10A-EN
- For universal programmable control modules (UPCMs):
  - EMTX-PG-5
  - EMTX-IN-22A

## Ultraviolet (UV) Germicidal Irradiation Lights (optional)

The United States Environmental Protection Agency (EPA) believes that molds and bacteria inside buildings have the potential to cause health problems in sensitive individuals. If specified, Trane provides ultraviolet lights (UV-C) as a factory-engineered and installed option in select commercial air handling products for the purpose of reducing microbiological growth (mold and bacteria) within the equipment. When factory provided, polymer materials that are susceptible to deterioration by the UV-C light will be substituted or shielded from direct exposure to the light. In addition, UV-C radiation can damage human tissue, namely eyes and skin. To reduce the potential for inadvertent exposure to the lights by operating and maintenance personnel, electrical interlocks that automatically disconnect power to the lights are provided at all unit entry points to equipment where lights are located.

### **WARNING** Equipment Damage From Ultraviolet (UV) Lights!

Trane does not recommend field installation of ultraviolet lights in its air handling equipment for the intended purpose of improving indoor air quality. High intensity C-band ultraviolet light is known to severely damage polymer (plastic) materials and poses a personal safety risk to anyone exposed to the light without proper personal protective equipment (could cause damage to eyes and skin). Polymer materials commonly found in HVAC equipment that may be susceptible include insulation on electrical wiring, fan belts, thermal insulation, various fasteners and bushings. Degradation of these materials can result in serious damage to the equipment.

Trane accepts no responsibility for the performance or operation of our air handling equipment in which ultraviolet devices were installed outside of the Trane factory.



# Operation

## **⚠ WARNING** **Rotating Components!**

Disconnect all electrical power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Secure drive sheaves to ensure rotor cannot freewheel. Failure to secure drive sheaves or disconnect power before servicing could result in death or serious injury.

## **CAUTION** **Do Not Exceed Maximum Airflow!**

Do not exceed the maximum rated airflow. Excess pressure could accelerate wear and cause damage to the wheel.

## **CDQ Wheel Startup**

1. Set seals. See "Seal Adjustment" on page 17.
2. With hands and objects away from moving parts, activate the wheel and confirm the wheel rotation. The correct rotation direction is counter-clockwise as viewed from the pulley side.
3. Verify rotational speed 8-10 rotations per hour. The wheel should be a 1/4 turn in 100-150 seconds.
4. If the wheel has difficulty starting, confirm seals adjustment and belt tension. See "Seal Adjustment" on page 17. If belt slips, see "Drive Belt Adjustment/Replacement" on page 16.
5. Start and stop the wheel several times to confirm seal adjustment and proper belt tracking on the wheel rim.

## **⚠ WARNING** **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

6. If the wheel has difficulty starting, turn off the power and inspect for excessive interference between the wheel surface and the four diameter seals. To correct, loosen the diameter seal adjusting screws and back the diameter seals away from the surface of the wheel. Apply power to confirm that the wheel rotates freely. Readjust and tighten the seals according to instructions in "Seal Adjustment" on page 17.
7. Damper actuators (if so equipped): Stroke the actuators to observe full open and full closure of dampers. Adjust the actuator and/or linkage to prevent "over-stroking" so excessive pressure is not placed on the damper at the full open or full closed position.

*Note: Do not exceed the maximum rated airflow for the wheel. The pressure drop across the wheel is not to exceed 1.5 inches w.g.*



# Wiring

## CAUTION Do Not Install VFDs!

Do not install a variable-frequency drives (VFDs) to control wheel speed. This may result in failure of the wheel motor.

## CAUTION Factory-Installed Wiring!

Use caution when penetrating unit casing. Factory wiring may be routed in the side panels of the module. Misplaced penetrations may result in damage to the wiring.

## CAUTION Penetration Leaks!

Properly seal all penetrations in unit casing. Failure to seal penetrations from inner panel to outer panel may result in unconditioned air entering the module, and water infiltrating the insulation, resulting in equipment damage.

Figure 1. CDQ wheel modules may have factory-installed ribbon cables attached inside. Take care when penetrating the unit casing. Modules will be labeled.



## CDQ™ Desiccant Wheel Cassette

### Motor Data

If not factory-installed, the electrical contractor must provide and install a starter or starting contactor, disconnect, fuses, etc., as required by local codes, for the CDQ wheel motor. Do not install a variable frequency drive (VFD) to control the desiccant wheel speed. This may result in failure of the wheel motor. The motor requires air movement for continuous operation. Operating the wheel for long periods with the fan off may result in motor failure.

### Optional Damper Actuators

Each actuator requires 24 Vac supply power and wiring for the 2–10 Vdc control signal. This wiring should be sized and installed as required per national and local electrical codes.

### Optional Air Temperature Sensors

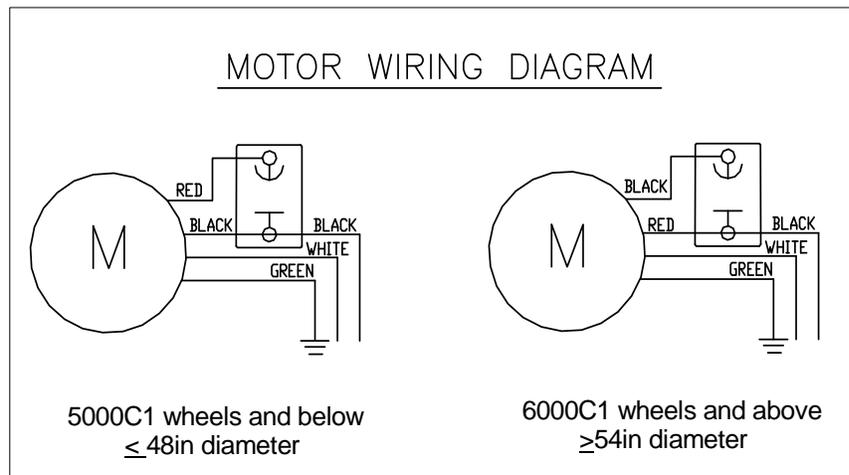
If not factory-wired, connection to the air temperature sensors is made by penetrating through the side of the module wall and making electrical connections to the temperature sensor. Nominal resistance of these sensors is 1,000 ohms at 32 degrees F (0 degrees C). The sensor is a thermistor with a platinum 375 resistance curve. This wiring should be sized and installed as required per national and local electrical codes.

Table 1. Motor Data

Wheel Size (nominal cfm)	HP	Voltage/phase	HZ	Full Load Amps	Rotation RPM	Rotation Direction
500-5000	1/80	115 Volt Single Phase	60	0.3	2.30	CW/CCW*
6000-40,000	1/80	115 Volt Single Phase	60	0.3	4.50	CW/CCW*

\*Motors are wired for counter clockwise rotation

Figure 2. Motor wiring





# Routine Maintenance

## **⚠ WARNING** **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

## **⚠ WARNING!** **Protect Eyes!**

Always wear proper eye protection when blowing compressed air or water. Failure to wear proper personal protection equipment (PPE) could result in death or serious injury.

## **CAUTION** **Cleaners, Solvents and Excess Pressure!**

Do not use acid based cleaners, aromatic solvents, steam, or temperatures in excess of 170°F to clean wheel. Do not use air or water with pressures in excess of 20 PSIG. Doing so may cause damage to the wheel!

## **CAUTION!** **Keep Wheel Clean!**

Accumulated dirt and debris may result in reduced airflow and/or increased pressure drop across the wheel. Increased pressure drop can result in permanent damage to the wheel or module.

## **Cleaning the Desiccant Wheel**

If routine inspection indicates there is dirt or dust buildup in the wheel, clean the wheel using the following procedure:

### **Vacuum the wheel**

- 1 Using a standard shop vacuum, vacuum any debris from both faces of the wheel. Slowly work around the entire face of the wheel to complete the procedure. Do not damage wheel face by excessive pressure of the vacuum nozzle on the wheel face.
- 2 Using 20 psig clean dry air, and a small air nozzle, blow air through one face of the wheel. At a similar location on the opposite side of the wheel, gently apply a shop vacuum to "receive" any remaining debris exiting the wheel.

In most instances this should adequately clean the wheel. In the event the wheel is subject to an aerosol, smoke or other material that coats the wheel, it can be washed with water and/or a mild detergent. The desiccant wheel can be washed thoroughly without affecting the performance of the wheel. The wheel will simply dry out following a washing procedure and resume dehumidification without any deviation in performance.

If the desiccant wheel can be easily removed from the cassette or unit, it is recommended to do so to facilitate the washing process. However, in most cases, it is impractical to remove larger wheels and therefore, the washing procedure must take place within the air handling unit and provisions need to be made to collect

the runoff water from the bottom of the unit.

### **Washing the wheel**

- 1 Disconnect all power.
- 2 Shield or remove all electrical components with plastic sheeting. Shield the bearing with plastic sheeting. Precautions should be taken to ensure the motor windings and capacitor do not get wet.
- 3 Ensure that an adequate drainage system exists to collect runoff water from the bottom of the unit.
- 4 Using standard pressure water (do not use a high pressure washer) and working from the lower half of the wheel, wash the wheel with a standard "garden" nozzle to flush any debris trapped within the flutes of the wheel. Minimize water contact with the seals. Wash from one side and vacuum up water from the other side with a wet vacuum.
- 5 Once the entire process side is adequately washed, rotate the wheel one half turn and wash the section that was at the top.
- 6 After washing, there will be a temporary derate in performance as the wheel dries out. To expedite the dry out time, regeneration preheat should be activated if it was provided.

## Cleaning the Motor

### **WARNING** **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electrical power, then use a vacuum cleaner and brush to remove accumulated material from the CDQ wheel motor. The use of spray aerosol cleaners is not recommended. Examine the motor monthly for debris accumulation.

## Cleaning the CDQ Module

1. Disconnect all electrical power.
2. Use a vacuum cleaner to remove dust and debris from the module surfaces.
3. If needed, use a detergent solution to remove grease, oil, or other stubborn deposits from module surfaces. Follow the manufacturer's instructions regarding use of the product.
4. Rinse any cleaning product thoroughly from the module walls. The use of a water stream from a garden hose or high pressure washer is *not* recommended. Saturation of the wall panel insulation could result in potential microbial growth.
5. Examine the module monthly for material build-up on the wall surfaces.

## Bearing and Motor Lubrication

The wheel gear motor bearings are pre-lubricated at the manufacturer and do not require re-lubrication. Wheels smaller than 8500 cfm, 66- inches in diameter, have a permanently sealed inboard bearing and need no maintenance. Larger wheels come equipped with a external flanged bearing that should be greased annually.

## Drive Belt Tension

The drive belt is a link stretch belt designed to provide tension throughout the life of the belt. Inspect the belt annually for proper tracking and tension. A properly tensioned belt will turn the wheel immediately, with no visible slippage, when power is applied. If belt needs tensioning, see "Drive Belt Adjustment/Replacement" on page 16.

# Service and Repair

## **⚠ WARNING** Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

## **⚠ CAUTION** Sharp edges!

Protect hands and belt from sharp edges around hole in bearing support beam. Always wear proper personal protection equipment (PPE). Failure to do so may result in minor or moderate injury.

## Procedure for Internal Bearing Replacement

Prepare wheel for removal of old bearing and installation of new bearing.

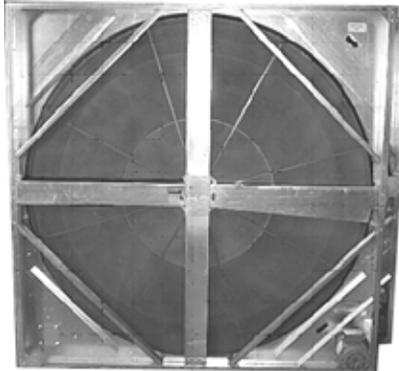
- 1 Remove belt from motor and wheel.
- 2 Support wheel with wooden blocks on both sides of the wheel (see Figure 3).

Figure 3. Wooden blocks support wheel.



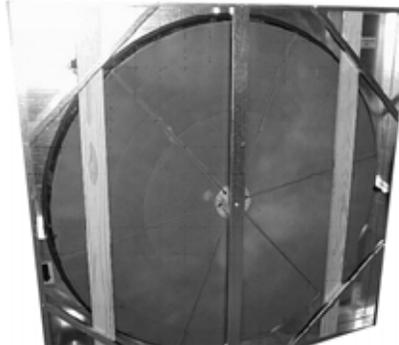
- 3 Make sure the wheel is secure. The short posts are removed first (see Figure 4).

Figure 4. Remove short posts first.



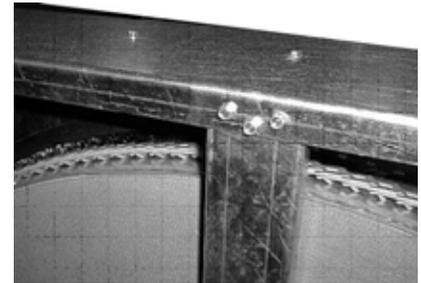
- 4 **IMPORTANT:** To prevent wheel from flipping out, cut two 1-inch x 4-inch boards for placement across the face and behind the lip and corner braces on the cassette (see Figure 5).

Figure 5. Prevent wheel from flipping out with boards.



- 5 Remove the post mounting screws or bolts at both ends of the long post (see Figure 6).

Figure 6. Remove post mounting screws.



- 6 Remove the shaft bolt (see Figure 7).

Figure 7. Remove shaft bolt.



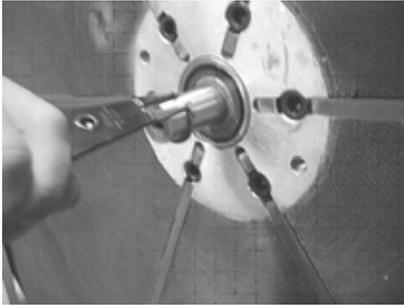
- 7 Remove the post (see Figure 8).

Figure 8. Remove post.



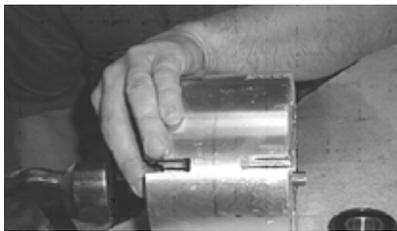
- 8 Remove the snap ring from the shaft (see Figure 9).

**Figure 9. Remove snap ring.**



- 9 Remove shaft bolt, post and snap ring from opposite side using the same procedure. Remove shaft, being careful not to damage it. You may want to install a short bolt in the end of the shaft and tap the bolt to remove shaft.
- 10 The old bearing is removed by tapping it from the back using a rod or punch passed through the other bearing. It is best to use brass or other soft metal, but if bearing is being replaced, it is okay to use a steel rod. Gently work around the race with a series of gentle taps. Using excessive force can cock the bearing and make removal difficult and/or damage the aluminum hub. Once one bearing is out, go to the other side and repeat procedure to remove the other bearing (see Figure 10).

**Figure 10. Remove old bearing by tapping from the back. Gently tap around the race. Repeat on opposite side.**



- 11 Clean the hub and new bearing races before installing
- 12 Gently tap the outer race of the new bearings into the hub using a hammer, making sure that the bearing is not cocked. It is best to alternate to opposite sides of the race as shown in the two pictures at right. Do not strike the inner race of the bearing or it may be damaged (see Figure 11).

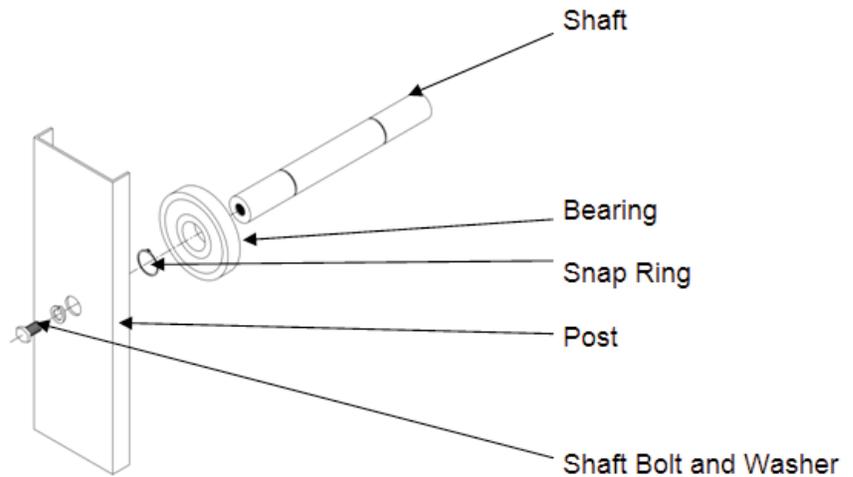
**Figure 11. Tap outer race of new bearing, alternating sides.**



- 13 Repeat the procedure for the other bearing.
- 14 Install one snap ring on the shaft and gently slide the shaft through the bearings. It may be necessary to tap it gently with a hammer.
- 15 After the shaft is through the bearings and snap ring is against the inner race, install the other snap ring.
- 16 Install the long post on one side and re-install the shaft bolt.
- 17 Install the long post on the other side and re-install the shaft bolt.
- 18 Install the short posts.

- 19 Check the wheel for rotation and insure that is centered in the cassette. It may be necessary to loosen the shaft bolts and adjust the wheel so that it is equidistant from posts on both sides.
- 20 Install the belt.
- 21 Start up unit and check wheel for clearance. Seals on the short posts may have to be adjusted for proper sealing.

Figure 12. Exploded view of internal bearing and shaft assembly (no hub shown)

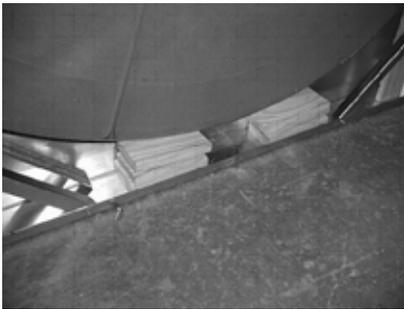


## Procedure for External Bearing Replacement

Prepare wheel for removal of old bearing and installation of new bearing.

- 1 Remove belt from motor and wheel.
- 2 Support wheel with wooden blocks on both sides of the wheel (see Figure 13).

**Figure 13. Wooden blocks support wheel.**



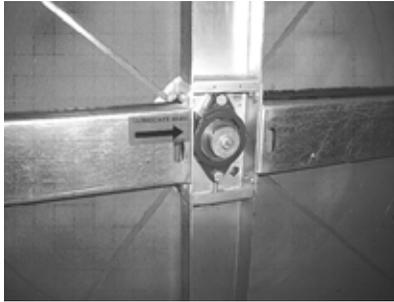
- 3 Remove cover plate from bearing housing if present (see Figure 14).

**Figure 14. Remove cover plate.**



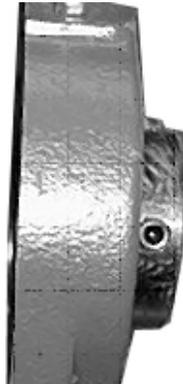
- 4 Remove the bolt and washer from the end of the shaft (see Figure 15).

**Figure 15. Remove bolt and washer from shaft.**



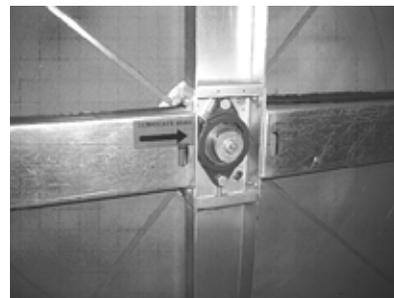
- 5 Loosen the set screws in the bearing inner race (see Figure 16).

**Figure 16. Loosen set screws.**



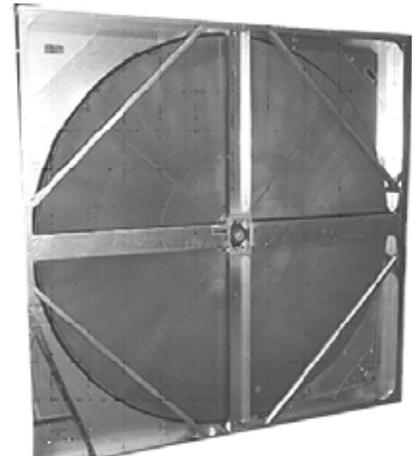
- 6 Remove the bolts securing the bearing to the cassette (see Figure 17).

**Figure 17. Remove bolts securing bearing.**



- 7 Remove the bearing. Use a bearing puller if necessary.
- 8 Clean shaft and install new bearing on shaft, insuring that set screws line up with flats on the shaft.
- 9 Install bearing mounting bolts (see Figure 18). It may be necessary to move wheel up or down to align bolts. The easiest method is to apply pressure at the top of the wheel. Using a 1-foot by 1-foot square of ½-inch thick plywood on the face will spread the force enough to prevent damage to the media face while pushing on the top of the wheel. The other method of lifting the wheel is to use a pry bar at the bottom, taking care to only apply force at a spoke to prevent bending the band.

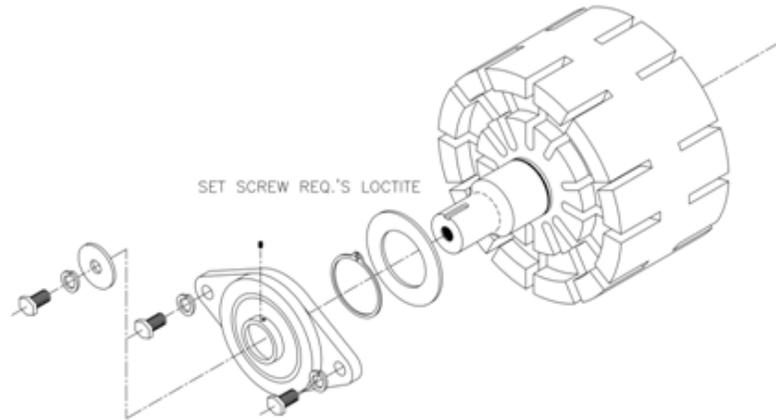
**Figure 18. Install bearing mounting bolts.**



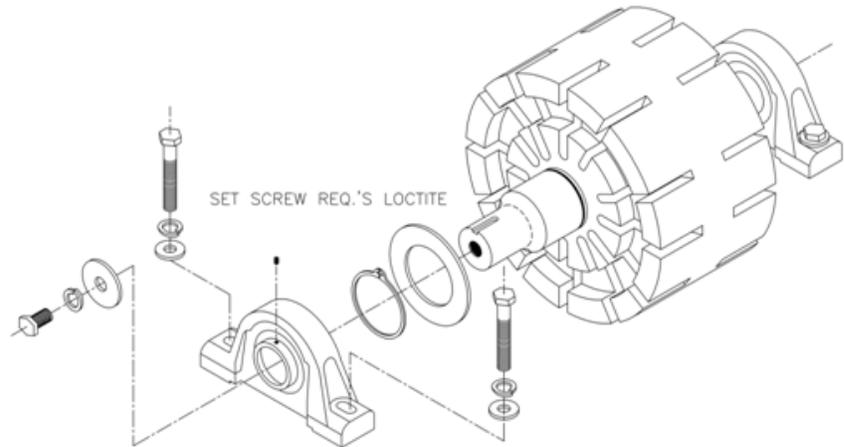
- 10 Tighten the bearing mounting bolts.
- 11 Check alignment of the set screws and tighten to the specifications provided in the literature with the bearing.

- 12 Rotate the wheel and make sure that it is aligned in the cassette so that the face is equidistant from each post. If not, loosen the bearing mounting bolts and adjust as necessary. Flange bearing units have jack bolts (see Figure 19). Pillow block bearing units require shims to adjust the bearing up or down (see Figure 20). Retighten bearing mounting bolts once alignment is correct.
- 13 Install bearing cover plates. Remove blocks supporting wheel. Install belts.

**Figure 19. Typical Flange Bearing, Shaft and Hub Assembly**



**Figure 20. Typical Pillow Block Bearing, Shaft and Hub Assembly**



## Drive Belt Adjustment/Replacement

The CDQ wheel uses a link belt that has no tension devices that need adjustment. Tension the belt by adjusting the number to links in the belt. If the belt becomes too loose it can be tightened by removing a link from the belt.

### **⚠ WARNING** **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

### Belt Tension

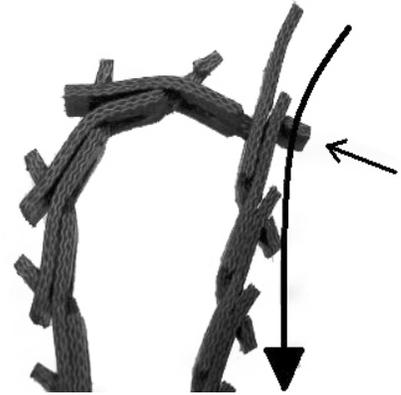
- 1 Disconnect all power to the desiccant wheel.
- 2 Slip belt off of drive pulley.
- 3 Hold the belt with tabs facing outward as shown in Figure 21, twist tab and push through one link.

Figure 21. Hold belt with tabs facing outward.



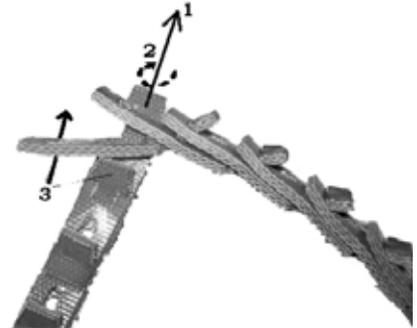
- 4 Twist the next tab and push through the two links as shown in Figure 22.

Figure 22. Twist and push through links.



- 5 Remove one link.
- 6 Reconnect the belt as shown in Figure 23.
  - a Push tab through
  - b Align belt
  - c Flex second tab through

Figure 23. Reconnect the belt.



## ⚠ WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

## Seal Adjustment

Neoprene brush seals are located on both sides of the cassette around the wheel perimeter and the center diameter posts (see Figure 24). The seals are designed to come in contact with the wheel and require no maintenance other than adjustment. The seals consist of a metal and neoprene clip that grips to the metal posts or panels. These clips can be manually adjusted.

To minimize air that bypasses the wheel the perimeter seals should be adjusted such that air gaps are not visible around the wheel. Do not over compress the seal against the perimeter as this may cause the wheel not to turn or overload the motor. To minimize air the leaks from one side to the next the diameter seals should be adjusted to come in full contact with the wheel face (see Figure 25).

Figure 24. Neoprene brush seals are located around wheel perimeter and center diameter posts.

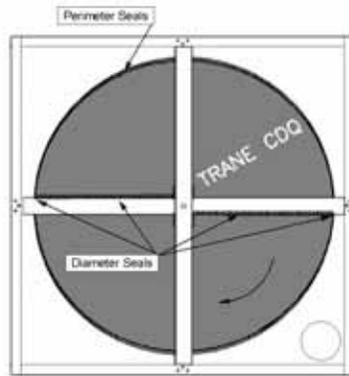


Figure 25. Adjust seals to fully contact wheel face to minimize leaks.



## Drive Motor and Pulley Replacement

1. Disconnect all electrical power.
2. Remove the belt from the pulley and temporarily position it around the wheel rim.
3. Measure and record the distance from the inner edge of the pulley to the mounting wall.
4. Loosen the set screw in the wheel drive pulley using an Allen wrench and remove the pulley from the motor drive shaft.
5. While supporting the weight of the drive motor in one hand, loosen and remove the four mounting bolts.
6. Install a replacement motor with the hardware kit supplied.
7. Install the pulley and adjust it to the distance recorded in the previous step.
8. Tighten the set screw to the drive shaft.
9. Stretch the belt over the pulley and engage it in the groove.

# Troubleshooting

**⚠ WARNING**  
**Hazardous Service Procedures!**

The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

**⚠ WARNING**  
**Toxic Hazards!**

Do not use a CDQ desiccant wheel in an application where the exhaust air is contaminated with harmful toxins or biohazards. This could result in death or serious injury.

**⚠ WARNING**  
**Rotating Components!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Secure drive sheaves to ensure rotor cannot freewheel. Failure to secure drive sheaves or disconnect power before servicing could result in death or serious injury.

**Table 2. Troubleshooting energy wheels**

Symptom	Probable Cause	Recommended Action
Wheel will not rotate	Motor is not running	The fuse or circuit breaker may be blown or open. Check the breaker/fuse box and replace.
		There may be a loss of incoming power. Attempt to trace the power loss back to its source and correct.
		The motor may have failed. Check for power at the motor terminals. If present, disconnect the belt from the motor pulley and see if the motor runs without a load. If it still doesn't run, replace the motor.
		The motor may have failed because it is connected to a variable frequency drive. Disconnect the VFD and run the motor on 60 Hz power only. Capacitor may be defective. Replace. Refer to unit name plate for correct value.
	Excessive friction at the seals	Re-adjust the diameter seals per the Seal Adjustment procedure.
	Drive belt is broken	Inspect visually. Replace the drive belt.
	Wheel main shaft bearing is seized	Replace the seized bearing.
Loss of wheel capacity	Wheel is not rotating	See above
	Wheel is rotating too slowly	Belt is stretched, slipping. Replace the belt
		Seized bearing on the main shaft; replace the bearing.
		Excessive friction in seals; adjust.
	Media surface is contaminated	Clean the media surfaces.
Replace the media if it is severely contaminated and cannot be cleaned. Consider adding a contaminate filter before (upstream) of the wheel.		
	Wheel may be saturated with liquid water	Check for moisture carryover from coil or other possible sources such as steam or water leaks in the unit which may be spraying the wheel with water. Remove source.



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*For more information, contact your local Trane office or e-mail us at [comfort@trane.com](mailto:comfort@trane.com)*

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