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General Information

Warnings and Cautions
Notice that Warning and Caution appear at appropriate places in this manual.

⚠️ WARNING
...indicates a potentially hazardous situation that could result in death of serious injury.

⚠️ CAUTION
...alerts you to conditions that may result in minor or moderate injury or equipment damage.

Unit Description
The T-Series Climate Changer™ (TSC) energy wheel section is an efficient, low maintenance energy recovery device. It is an integral part of an entire air-handling system. The section consists of the energy wheel cassette assembly, dampers, and an outside air hood. A single, large access door is provided on one side of the section for service access into the return/exhaust air section (see Figure 1).

Figure 1. T-Series energy wheel section
Two additional access doors are provided for service access into the outside/supply air section. The two access doors are accessible from the inside of the air handler.

The energy wheel cassette is permanently installed in the section. In all but the 1500 CFM wheel size, the individual segments of the energy wheel are removable for cleaning or replacement. The 1500 CFM wheel is small enough to be removed and cleaned as a single unit.

Optional air bypass dampers, actuators, and temperature sensors may ship with the section. If ordered, these options are factory-installed.

**How the Section Arrives at the Job Site**

The energy wheel section will arrive mounted to wood blocks on the corners. The section is held on to the skid with screws. Leave the section mounted to the wood skid until it is ready to install to help protect it from damage during rigging and handling.

**Amowrap® Covering:** The large openings of the section are protected by Amowrap reinforced plastic covering. The Amowrap covering is held on to the section with a wood frame and sheet metal screws. Leave the Amowrap covering attached to the section until it is ready to install to prevent debris from entering the section.

**Hardware Kit:** A hardware kit ships inside the T-Series air handler. This kit contains gasketing, roof joint connection strips, wall panel seam caps, and screws, which are used when fastening the section to the air handler. This kit also contains the screws and gasket tape to mount the outside air hood to the section. Keep the hardware kit with the energy wheel section until it is ready to install.

**Access Doors:** The internal access doors are secured for shipment with conduit clamps. Remove and discard the conduit clamps when the section arrives.

**Outside Air Hoods:** Outside air hoods may ship separately from the energy wheel section. They are fastened to a wood skid. Keep the hoods fastened to the skid until they are ready to install. The screws and gasket tape to mount the hoods are in the hardware kit located inside the section.
Contractors’ Responsibilities

Installing Contractor:

- Unpack the section and remove the skid.
- Remove the Amowrap® protective covering.
- Rig and/or move the section to the air handler location. The contractor must provide slings, spreader bars, clevis, hooks, pins, etc. for rigging.
- Provide a level roof curb or structural steel support system for the air handler. The air handler cannot be set on a ground level pad because ductwork connections to the energy wheel section are made from underneath the section.
- Assemble the energy wheel section to the air-handling system. Refer to the T-Series installation and maintenance manual, CLCH-IM-16A, for specific assembly instructions.

Electrical and/or Controls Contractor:

- Provide high voltage power to the energy wheel section. See the “Wiring” section on page 13 for voltage requirements. Note that the energy wheel may have different voltage and phase requirements than the exhaust fan. A starter for the energy wheel may be provided. It is located in the exhaust fan control panel.
- If the unit is not ordered with controls or end devices, it is the installer’s responsibility to provide and install them.

Receiving Inspection

Upon receipt of the section, inspect it for damage that may have occurred during shipment. Report damage immediately to the freight company.

- Inspect the access door latches and hinges for damage.
- Open the access door and check for internal, hidden damage. Concealed damage must be reported within 15 days of receipt. The Trane Company is not responsible for shipping damage.
- Locate the hardware kit. Examine the energy wheel motor, drive, and energy transfer segments for damage. Do not remove the section from the skid at this time.
- Manually rotate the energy wheel to ensure free movement of the bearings and drive.

Storage

The T-Series energy wheel section is designed for outdoor use and requires no special protection during storage. Select a solid, well-
drained area. Concrete or black top surfaces are recommended. If concrete or black top is not available, set the section on wood timbers to prevent dirt, mud, snow, etc. from getting into the section. Trane does not recommend covering the section with clear or black plastic sheets because this material traps condensed moisture, which can cause equipment damage resulting from rust and corrosion. If needed, cover with a canvas tarp. The Trane Company warranty does not cover equipment damage due to negligence during storage.

Service Clearance Recommendations
A minimum clearance of 48 inches on the access door side of the energy wheel section is recommended for routine maintenance. Clearance equal to the cabinet width is recommended on one side to permit disassembly and wheel removal if required. Refer also to the T-Series installation and maintenance manual, CLCH-IM-16A, for air handler service clearance recommendations.
Installation

⚠️ CAUTION
Do not lift the unit from the top! Lift only from lifting lugs located at the bottom of the unit. Failure to do so may cause product or property damage.

Section Weights and Dimensions
Refer to Figure 2, Figure 3, Table 1, and Table 2 for section dimensions and weights.

Figure 2. Dimensional data, plan view
Figure 3. Dimensional data, side elevation
**Table 1. Energy wheel section dimensions (inches) and weights: 100% outside air**

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Section Dimensions</th>
<th>Outside Air Hood</th>
<th>Return Air</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W</td>
<td>H</td>
<td>L</td>
<td>S</td>
</tr>
<tr>
<td>8</td>
<td>54</td>
<td>38.75</td>
<td>68.50</td>
<td>21.50</td>
</tr>
<tr>
<td>10</td>
<td>66</td>
<td>41.75</td>
<td>83.50</td>
<td>34.50</td>
</tr>
<tr>
<td>12</td>
<td>70</td>
<td>45.75</td>
<td>83.50</td>
<td>34.50</td>
</tr>
<tr>
<td>14</td>
<td>74</td>
<td>48.75</td>
<td>99.00</td>
<td>38.50</td>
</tr>
<tr>
<td>17</td>
<td>80</td>
<td>52.75</td>
<td>99.00</td>
<td>38.50</td>
</tr>
<tr>
<td>21</td>
<td>82</td>
<td>57.75</td>
<td>108.00</td>
<td>46.75</td>
</tr>
<tr>
<td>25</td>
<td>84</td>
<td>63.50</td>
<td>115.50</td>
<td>50.75</td>
</tr>
<tr>
<td>30</td>
<td>97</td>
<td>63.50</td>
<td>120.00</td>
<td>50.75</td>
</tr>
<tr>
<td>35</td>
<td>102</td>
<td>72.75</td>
<td>127.00</td>
<td>54</td>
</tr>
<tr>
<td>40</td>
<td>115</td>
<td>72.75</td>
<td>135.00</td>
<td>54.00</td>
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<tr>
<td>50</td>
<td>126</td>
<td>85.00</td>
<td>148.50</td>
<td>64.50</td>
</tr>
</tbody>
</table>

1. Section dimensions and weights subject to change without notice. Refer to Trane submittals for current dimensions and weights.

**Table 2. Energy wheel section dimensions (inches) and weights: partial outside air**

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Section Dimensions</th>
<th>Outside Air Hood</th>
<th>Return Air</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W</td>
<td>H</td>
<td>L</td>
<td>S</td>
</tr>
<tr>
<td>8</td>
<td>54</td>
<td>38.75</td>
<td>79.00</td>
<td>21.50</td>
</tr>
<tr>
<td>10</td>
<td>66</td>
<td>41.75</td>
<td>83.50</td>
<td>34.50</td>
</tr>
<tr>
<td>12</td>
<td>70</td>
<td>45.75</td>
<td>83.50</td>
<td>34.50</td>
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<td>14</td>
<td>74</td>
<td>48.75</td>
<td>99.00</td>
<td>38.50</td>
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<tr>
<td>17</td>
<td>80</td>
<td>52.75</td>
<td>99.00</td>
<td>38.50</td>
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<tr>
<td>21</td>
<td>82</td>
<td>57.75</td>
<td>108.00</td>
<td>46.75</td>
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<td>25</td>
<td>84</td>
<td>63.50</td>
<td>115.50</td>
<td>50.75</td>
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<tr>
<td>30</td>
<td>97</td>
<td>63.50</td>
<td>120.00</td>
<td>50.75</td>
</tr>
<tr>
<td>35</td>
<td>102</td>
<td>72.75</td>
<td>127.00</td>
<td>54</td>
</tr>
<tr>
<td>40</td>
<td>115</td>
<td>72.75</td>
<td>135.00</td>
<td>54.00</td>
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<tr>
<td>50</td>
<td>126</td>
<td>85.00</td>
<td>148.50</td>
<td>64.50</td>
</tr>
<tr>
<td>66</td>
<td>141</td>
<td>97.00</td>
<td>152.00</td>
<td>71.00</td>
</tr>
<tr>
<td>80</td>
<td>141</td>
<td>112.00</td>
<td>152.00</td>
<td>71.00</td>
</tr>
<tr>
<td>100</td>
<td>156</td>
<td>124.50</td>
<td>152.00</td>
<td>71.00</td>
</tr>
</tbody>
</table>

1. Section dimensions and weights subject to change without notice. Refer to Trane submittals for current dimensions and weights.
Rigging/Lifting
Refer to the T-Series installation and maintenance manual, CLCH-IM-16A, for instructions on equipment rigging and lifting. It ships inside the air handler fan section.

⚠️ WARNING
HEAVY OBJECT! Follow good lifting practices before lifting the unit. These include following instructions in the T-Series installation and maintenance manual, CLCH-IM-16A, estimating the center of gravity, and test lifting the unit to check balance and stability. Do NOT use fork lifts to handle the units. Never lift the units in windy conditions or raise the units above personnel. Failure to follow all instructions could result in death or serious injury.

⚠️ CAUTION
Do not attach the outside air hoods to the unit prior to lifting the unit. Doing so could damage the equipment.

Assembly
Refer to the design engineer’s plans and submittals and the factory sales order for location of the energy wheel section in the air handler. The energy wheel section will arrive at the job site as an individual section of the air handler. Each individual section must be hoisted, set on the roof curb or pier mount, and assembled. The outside air hoods must also be mounted as individual sections. Refer to the T-Series installation and maintenance manual, CLCH-IM-16A, for further instructions on equipment assembly. This manual ships inside the air handler fan section.

| Table 3. Air bypass damper torque requirements (lb-in) per damper: 100% outside air |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|
| Unit Size | 8 | 10 | 12 | 14 | 17 | 21 | 25 | 30 | 35 | 40 | 50 |
| Torque | 13 | 17 | 18 | 28 | 30 | 32 | 45 | 47 | 54 | 60 |    |

| Table 4. Air bypass damper torque requirements (lb-in) per damper: partial outside air |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|
| Unit Size | 8 | 10 | 12 | 14 | 17 | 21 | 25 | 30 | 35 | 40 | 60 |
| Torque | 18 | 22 | 26 | 32 | 34 | 36 | 51 | 63 | 66 | 76 | 124 | 140 |
Refer to Table 5 for the actuator sizing requirements for Traq™ dampers. Traq dampers are optional dampers that measure the outside air CFM. The torque values specified are for each side.

Table 5. Traq™ damper torque requirements (lb-in) per side

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>17</th>
<th>21</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>50</th>
<th>66</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque</td>
<td>12</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
Wiring

Energy Wheel Motor
A separate power source for the energy wheel motor is required. The energy wheel section is provided with fuses, a disconnect switch, and a starter located in the exhaust fan starter cabinet. The power connection for the energy wheel motor is made to a terminal block at this point. Follow all national and local electrical codes for running power to the terminal block. Refer to Table 6 for the energy wheel voltage and amperage requirements. Refer to the factory sales order to determine the energy wheel size. Voltage and amperage specifications can also be found on the energy wheel motor nameplate located inside the energy wheel section.

Table 6. Energy wheel voltage and terminal block

<table>
<thead>
<tr>
<th>Wheel Size (nominal cfm)</th>
<th>Motor hp</th>
<th>Motor voltage/phase</th>
<th>Motor Hz</th>
<th>Motor Amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
<td>1/6 hp</td>
<td>200-208/240 volt, single-phase</td>
<td>50/60</td>
<td>1.1</td>
</tr>
<tr>
<td>3,000</td>
<td>1/2 hp</td>
<td>200-208/240 volt, single-phase</td>
<td>50/60</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>1/6 hp</td>
<td>200-230/460 volt, three-phase</td>
<td>50/60</td>
<td>0.84/0.52</td>
</tr>
<tr>
<td>4,000, 5,000</td>
<td>1/2 hp</td>
<td>200-208/240 volt, single-phase</td>
<td>50/60</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>1/6 hp</td>
<td>200-230/460 volt, three-phase</td>
<td>50/60</td>
<td>0.84/0.38</td>
</tr>
<tr>
<td>6,000–25,000</td>
<td>1/4 hp</td>
<td>200-230/460 volt, three-phase</td>
<td>60</td>
<td>1.6/0.8</td>
</tr>
</tbody>
</table>

CAUTION
Do not install a variable frequency drive (VFD) to control the energy wheel speed. This may result in failure of the energy wheel motor.

Optional Air Bypass Damper Actuators: If actuators are factory-provided, no field wiring is required.

Field-Provided Damper Actuators: If bypass damper actuators are field-provided, it will be necessary to remove two or three segments from the energy wheel to gain access to the damper. See the “Routine Maintenance” section on page 16 for the segment removal procedure.
Operation

⚠️ WARNING
TOXIC HAZARDS! Do not use an energy wheel in an application where the exhaust air is contaminated with harmful toxins or biohazards, which could result in death or serious injury.

⚠️ WARNING
HAZARDOUS VOLTAGE! Disconnect the electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

⚠️ WARNING
ROTATING PARTS! Disconnect all electrical and remote disconnects before servicing. Secure drive sheaves to ensure rotor cannot freewheel. Failure to disconnect all electrical power before servicing could result in death or serious injury.

⚠️ WARNING
Keep hands away from the rotating wheel! Contact with the rotating wheel can cause physical injury.

Energy Wheel Start-Up

1. Turn the energy wheel clockwise (as viewed from the pulley side) by hand to verify that the wheel turns freely through a full rotation.

2. Confirm that all wheel segments are fully engaged in the wheel frame and that the segment retainers are completely fastened (see Figure 4).

3. With hands and objects away from moving parts, activate the wheel and confirm that the wheel rotates. Correct rotation direction is clockwise as viewed from the pulley side.

4. Start and stop the wheel several times to confirm the seal adjustment and proper belt tracking on the wheel rim. Correct belt tracking is approximately midway between the seal plate and the outer edge of the rim (see Figure 5).

5. If the wheel has difficulty starting, turn off the power and inspect the wheel for excessive interference between the wheel surface and the four diameter seals. To correct interference, loosen the diameter seal adjusting screws and back
the diameter seals away from the surface of the wheel. Apply power to confirm free wheel rotation. Re-adjust and tighten the seals according to instructions in the “Service and Repair” section on page 21.

**Figure 4. Segment retainers**

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**Figure 5. Belt tracking**

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**Damper Actuators (if so equipped):** Stroke the actuators to observe full open and full closure of the dampers. Adjust the actuator and/or linkage to prevent “over-stroking” so that excessive pressure is not placed on the damper at the full open or full closed position.
Routine Maintenance

CAUTION
Do not use acid based cleaners, aromatic solvents, steam, or temperatures in excess of 170°F. Doing so may cause damage to the wheel!

Cleaning the Energy Wheel
Disconnect all electrical power, then use a vacuum or brush to remove accumulated material from the face of the wheel. Examine the energy wheel monthly for material build-up on the wheel.

If more aggressive cleaning is needed, follow these steps:

1. Wash the segments or the wheel in a five-percent solution of non-acid-base coil cleaner (part no. CHM00021 at your local Trane parts center) or in a alkaline detergent and warm water.
2. Soak the segments in the solution until grease, oil, and tar deposits are loosened.
3. Before removing the cleaner, rapidly run your fingers across the surface of segments to separate polymer strips for better cleaning action.
4. Rinse the dirty solution from the segments and remove the excess water before re-installing the segments in the wheel. Note that some permanent staining of the desiccant may remain but is not harmful to performance.

Cleaning Frequency
In reasonably clean office or school buildings, cleaning with a coil cleaner solution may not be required for several years. If the energy wheel is exposed to air streams containing, for example, high levels of occupant tobacco smoke, cooking facility exhaust air, or oil-based aerosols found in machine shop areas, annual or more frequent cleaning may be required to remove these contaminants and restore performance. Periodic inspection of the wheel should be done to determine the cleaning intervals.

⚠️ WARNING
Disconnect electrical power before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.
Always keep hands away from the bearing support beam when installing or removing segments. Failure to do so could result in serious injury.

High-maintenance applications may benefit from keeping a spare set of clean segments on hand. This allows for rapid change-out of clean segments with minimal downtime. The dirty segments can then be cleaned at a convenient time.

### Segment Removal

**WARNING**

HAZARDOUS VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

Wheel segments are secured to the wheel frame by a segment retainer that pivots on the wheel rim and is held in place by a segment retaining catch.

1. Disconnect all electrical power.
2. Unlock the two segment retainers, one on each side of the selected segment opening (see Figure 6).
3. Remove the segment from the wheel frame. It may be necessary to gently pry the segment out of the wheel with a screwdriver.
4. Pull the segment up and out of the wheel frame.
5. Close any open segment retainer prior to rotating the wheel. Failure to close the retainer may damage the retainer, seals, or segments.
6. Rotate the wheel and continue this procedure to remove all segments (see Figure 7).
WARNING

HAZARDOUS VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

1. Disconnect all electrical power.
2. Unlock the two segment retainers, one for each side of the selected segment opening.
3 With the embedded stiffener facing the motor side, insert the nose of the segment between the hub plates.

4 Holding the segment by the two outer corners, press the segment toward the center of the wheel and inward against the spoke flanges. If hand pressure does not fully seat the segment, insert the flat tip of a screwdriver between the wheel rim and the outer corners of the segment and apply gentle force while guiding the segment into place. Be careful not to bend the wheel frame or the segment frame with the screwdriver.

5 Close and latch each segment retainer under the segment retaining catch.

6 Rotate the wheel and repeat this sequence with the remaining segments.

Removing and replacing the segments with a spare set can be accomplished more quickly. Remove the dirty segment, replace it with a clean segment, then move to the next segment.

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

Cleaning the Section

⚠️ WARNING

HAZARDOUS VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

1 Disconnect all electrical power.

2 Use a vacuum cleaner to remove dust and debris from the section surfaces. If needed, use a detergent solution to remove grease, oil, or other stubborn deposits from section surfaces. Follow the manufacturer’s instructions regarding use of the product.

3 Rinse the cleaning product thoroughly from section walls. The use of a water stream from a garden hose or high pressure washer is not recommended.

4 Examine the section monthly for material build-up on the wall surfaces.
Filtration
Debris screens are provided on the energy wheel section to prevent debris from entering the energy wheel section. Inspect these screens monthly and clean them as necessary.

Bearing and Motor Lubrication
The wheel drive motor and wheel support shaft bearings are permanently lubricated and no further lubrication is necessary.

Energy Wheel Drive Belt Adjustment
The drive belt is a urethane stretch belt designed to provide constant tension throughout the life of the belt. No periodic adjustment is required. 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.
Service and Repair

Bearing and Drive Belt Replacement

⚠️ WARNING

HAZARDOUS VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

Bearing removal on the pulley side of the wheel is required to remove and replace the drive belt on removable-segment wheels. Bearing removal is not required on small, non-segment wheels (unit size 8, 1500 CFM). These belts may be replaced by temporarily dismounting and rotating the pulley side bearing beam to allow the new belt to be installed on the wheel rim. Bearing removal is discussed first in this procedure.

1. Disconnect all electrical power.
2. Obtain access to the pulley side bearing access plate. (You may need to remove the wheel segments.)
3. Remove the two bearing access plate retaining screws and the access plate.
4. Using a hexagonal wrench, loosen the set screw in the bearing locking collar.
5. Using a light hammer and a drift placed in the drift pin hole in collar, tap the collar in the opposite direction of wheel rotation to unlock the collar.
6. Remove the collar.
7. Using a socket wrench with an extension, remove the two nuts that secure the bearing housing to the bearing support beam.
8. Slide the bearing from the shaft. Note that slight hand pressure against the wheel rim will lift the weight of the wheel from the inner race of the bearing to assist bearing removal and installation. The use of a bearing puller may be required.
9. Using a wrench, remove the diameter seal retaining screws or hub seal retaining screws and remove the diameter seals or hub seals from the bearing beam. See Figure 8 for an exploded view of the shaft, bearings, belt, etc.
10. Remove the old belt.
**CAUTION**

SHARP EDGES! Protect hands and the belt from possible sharp edges of the hole in the bearing support beam. Failure to do so may result in minor or moderate injury or product damage.

**CAUTION**

Before laying across the energy wheel, place a rigid board across the span of the energy wheel cassette. Failure to do so may result in personal injury and damage to the energy wheel.

*Figure 8. Bearing and belt replacement*

11 Form a small loop of the belt and pass it through the hole in the bearing support beam.

12 Grasp the belt at the wheel hub and pull the entire belt down.

13 Loop the trailing end of the belt over the shaft. Figure 8 shows the belt partially through the opening.

14 Re-install the bearing onto the wheel shaft, being careful to engage the two locating pins into the holes in the bearing support beam.

15 Secure the bearing with two self-locking nuts.

16 Install the belt around the wheel and pulley according to the instructions provided with the belt.
17 Re-install the diameter seals or hub seal and tighten the retaining screws.
18 Adjust the seals per the “Seal Adjustment” procedure.
19 Rotate the wheel in a clockwise direction to confirm that the wheel rotates freely with a slight drag on the seals.
20 Re-install the bearing locking collar.
21 Rotate the collar by hand in the direction of wheel rotation.
22 Lock the collar in position by tapping the drift pin hole with a hammer and drift.
23 Secure the collar in position by tightening the set screw.
24 Re-install the bearing access cover.
25 Apply power to the wheel and ensure that the wheel rotates freely without interference.

Figure 9. Wheel rotation

Seal Adjustment
1 Loosen the diameter seal adjustment screws and back the seals away from the wheel surface (see Figure 9).
2 Rotate the wheel clockwise until two opposing spokes are hidden behind the bearing support beam.
3 Using a folded piece of paper as a feeler gauge, position the paper between the wheel surface and the diameter seals.
4 Adjust the seals toward the wheel surface until slight friction on the paper feeler gauge is felt when the gauge is moved along the length of the spoke.

5 Check the seal adjustment through a full rotation of the wheel.

6 Retighten the adjusting screws and recheck the clearance with the paper feeler gauge.

**Drive Motor and Pulley Replacement**

⚠️ **WARNING**

HAZARDOUS VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

1 Disconnect all electrical power.

2 Remove the belt from the pulley and position it temporarily 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 earlier in this procedure.

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 VOLTAGE! Disconnect all electrical and remote disconnects before servicing. Do not open the service access doors while the unit is operating. Failure to disconnect all electrical power before servicing could result in death or serious injury.

⚠️ WARNING
ROTATING PARTS! Disconnect all electrical and remote disconnects before servicing. Secure drive sheaves to ensure rotor cannot freewheel. Failure to disconnect all electrical power before servicing could result in death or serious injury.

⚠️ WARNING
Disconnect the electrical power source and allow all rotating equipment to stop completely before inspecting or servicing the unit. Failure to do so may result in personal injury or death from electrical shock or moving parts.

⚠️ CAUTION
Keep hands away from the rotating wheel. Contact with the rotating wheel can cause physical injury.
Use Table 7 to aid in troubleshooting problems.

**Table 7  Troubleshooting energy wheels**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Probable Cause</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel will not rotate</td>
<td>Motor is not running</td>
<td>The fuse or circuit breaker may be blown or open. Check the breaker/fuse box and replace.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There may be a loss of incoming power. Attempt to trace the power loss back to its source and correct.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The motor may have failed because it is connected to a variable frequency drive (VFD). Disconnect the VFD and run the motor on 60 Hz power only. Do not install a VFD to control the energy wheel speed. This may result in failure of the energy wheel motor.</td>
</tr>
<tr>
<td>Excessive friction at seals</td>
<td>Re-adjust the diameter seals per the “Seal Adjustment” procedure on page 23.</td>
<td></td>
</tr>
<tr>
<td>Energy wheel frame or spokes are bent or warped</td>
<td>Inspect the wheel, locate the bent section, and straighten the section or replace the frame.</td>
<td></td>
</tr>
<tr>
<td>During winter operation, excessive frost/ice forms in the heat transfer media</td>
<td>Disconnect the power to the wheel motor, adjust the outside air dampers shut and let the wheel thaw. After the initial section thaws, rotate the wheel 90° by hand until a “new” section rotates into the warm exhaust air stream. Continue this procedure until the wheel is completely thawed.</td>
<td></td>
</tr>
<tr>
<td>Drive belt is broken</td>
<td>Inspect visually. Replace the drive belt.</td>
<td></td>
</tr>
<tr>
<td>Wheel main shaft bearing is seized</td>
<td>Replace the seized bearing.</td>
<td></td>
</tr>
<tr>
<td>Loss of wheel capacity</td>
<td>Wheel is not rotating</td>
<td>See above.</td>
</tr>
<tr>
<td>Wheel is rotating too slowly</td>
<td>Belt is stretched or slipping. Replace the belt.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ice forms on the wheel; thaw the wheel as recommended above.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seized bearing on the main shaft; replace the bearing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excessive friction at seals; adjust.</td>
<td></td>
</tr>
<tr>
<td>Energy transfer surface is contaminated</td>
<td>Clean the energy transfer surfaces. Consider purchasing a second set of energy transfer segments for continuous operation while cleaning.</td>
<td>Replace the energy transfer segments if they are severely contaminated and cannot be cleaned. Consider adding a contaminate filter before (upstream) the energy wheel.</td>
</tr>
<tr>
<td>Frost/ice forms on heat transfer surfaces</td>
<td>Thaw the wheel surfaces per the procedure above. Consider adding outside air preheat.</td>
<td></td>
</tr>
<tr>
<td>Literature Order Number</td>
<td>CLCH-SVX01B-EN</td>
<td></td>
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<tr>
<td>File Number</td>
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<tr>
<td>Supersedes</td>
<td>CLCH-SVX01A-EN (December 2000)</td>
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<tr>
<td>Stocking Location</td>
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<td></td>
</tr>
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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.