



Maintenance

Monthly Maintenance

Air Handling Equipment

⚠ WARNING

Hazardous Voltage!

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

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

Before completing the following checks, turn the system control circuit switch 1S2 and 5S1 to the "Off" position. Open the main power disconnect switch for the Condensing Unit and Air Handling Unit and "lock it" in the "Off" position before removing any access panels.

- Inspect the return air filters. Clean or replace them if necessary.
- Check the evaporator drain pan and condensate piping to ensure that there are no blockages.
- Inspect the evaporator coils for dirt. If the coils appear dirty, clean them according to the instructions described in "Coil Cleaning," p. 56," p. 117.
- Inspect the economizer damper hinges and pins (if applicable) to ensure that all moving parts are securely mounted. Clean the blades as necessary.
- Verify that all damper linkages move freely. Lubricate with white grease, if necessary.
- Check Supply Fan motor bearings. Repair or replace the motor as necessary.
- Check the fan shaft bearings for wear. Replace the bearings as necessary.
- Lubricate supply fan bearings. Contact equipment manufacturer for recommended greases.

NOTICE

Bearing Damage!

Over lubrication could result in as much damage to fan bearings as not enough grease.

To prevent damage to fan bearings, do not over lubricate.

Important: Use a hand grease gun to lubricate bearings. Add grease until a light bead appears all around the seal.

After greasing the bearings, check the setscrews to ensure that the shaft is held securely to the bearings and fan wheels. Make sure that all bearing supports are tight.

- Check the supply fan belt(s). If the belts are frayed or worn, replace them.
- Verify that all wire terminal connections are tight.
- Inspect unit for unusual conditions (e.g., loose access panels, leaking piping connections, etc.)
- When checks are complete, verify all retaining screws are reinstalled in unit access panels.

Condensing Unit

⚠ WARNING

Rotating Components!

Failure to disconnect power before servicing could result in rotating components cutting and slashing technician which could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

- Manually rotate the condenser fans to ensure free movement and check motor bearings for wear. Verify that all of the fan mounting hardware is tight.
- Verify that all wire terminal connections are tight.
- Inspect the condenser coils for dirt and foreign debris. If the coils appear dirty, clean them according to the instructions described in Coil Cleaning section.
- Inspect the compressor and condenser fan motor contactors. If the contacts appear severely burned or pitted, replace the contactor. Do not clean the contacts.
- Check the compressor oil level. (Compressors "Off")

Coil Cleaning

NOTICE

Damaging Coil Cleaners!

Coil cleaners can damage roofs, surrounding buildings, vehicles, etc.

Cleaning substances should be checked to ensure that they will not cause damage to surroundings.

Coils and roof (if applicable) should be rinsed thoroughly. Do not spray coil cleaners in windy conditions.

Regular coil maintenance, including annual cleaning, enhances unit's operating efficiency by minimizing:

- compressor head pressure and amperage draw;
- water carryover;
- fan brake horsepower; and,
- static pressure losses.

At least once each year—or more often if the unit is located in a "dirty" environment—clean the microchannel



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condenser using the instructions outlined below. Be sure to follow these instructions as closely as possible to avoid damaging the coils.

To clean refrigerant coils, use a soft brush and a sprayer.

Note: *DO NOT use any detergents with microchannel condenser coils. Pressurized water or air ONLY.*

1. Remove enough panels from the unit to gain safe access to coils..

⚠ WARNING

No Step Surface!

Failure to follow instruction below could result in death or serious injury.

Do not walk on the sheet metal drain pan. Walking on the drain pan could cause the supporting metal to collapse and result in the operator/technician falling.

***Important:** Bridging between the main supports required before attempting to enter into the unit. Bridging may consist of multiple 2 by 12 boards or sheet metal grating.*

2. Straighten any bent coil fins with a fin comb.
3. For accessible areas, remove loose dirt and debris from both sides of the coil. For dual row microchannel condenser coil applications, seek pressure coil wand extension through the local Trane Parts Center.
Note: *DO NOT use any detergents with microchannel coils. Pressurized water or air ONLY.*
4. Pour the cleaning solution into the sprayer. If a high-pressure sprayer is used:
 - a. The minimum nozzle spray angle is 15 degrees.
 - b. Do not allow sprayer pressure to exceed 600 psi.
 - c. Spray the solution perpendicular (at 90 degrees) to the coil face.
5. Spray the leaving-airflow side of the coil first; then spray the opposite side of the coil. For evaporator and reheat coils, allow the cleaning solution to stand on the coil for five minutes.
6. Rinse both sides of the coil with cool, clean water.
7. Inspect both sides of the coil; if it still appears to be dirty, repeat Steps 6 and 7.
8. Reinstall all of the components and panels removed in Step 1; then restore power to the unit.
9. For evaporator and reheat coils, use a fin comb to straighten any coil fins which were inadvertently bent during the cleaning process.

Microchannel Condenser Coil Repair and Replacement

If microchannel condenser coil repair or replacement is required, see Service Guide document RT-SVB83*-EN for further details.

EVP Remote Evaporator Chiller

The brazed plate evaporator is difficult to clean should it become plugged with debris so proper installation and maintenance of the inlet water strainer is important. Particles larger than 0.039" entering the heat exchanger could block flow passages causing a failure. Indications of a plugged BPHE evaporator include "wet" suction due to lack of heat exchange, loss of superheat control, depressed discharge superheat (superheat less than 63° F), compressor oil dilution and/or starvation and premature compressor failure.

Minimum water flow rate must be maintained to avoid laminar flow, potential evaporator freezing, scaling and poor temperature control.

NOTICE

Heat Exchanger Damage!

Freezing and heat exchanger damage could occur if water flow is interrupted.

Do not stop water flow with the refrigeration system running.

Maximum water flow rate must not be exceeded to avoid possible erosion.

Water Strainer Maintenance

To protect the evaporator and for maximum efficiency, the strainer must be cleaned. A differential pressure gauge installed across the inlet and outlet will indicate pressure loss due to clogging and may be used as a guide to determine when cleaning is required. Normally when differential pressure reaches 5-10 psi, the screen must be cleaned. To clean, open and flush out until any sediment is removed.

EVP Evaporator Replacement

If the evaporator requires replacement, it is very important that the new evaporator be replaced correctly and with the correct refrigerant and water piping connections. The refrigerant inlet/liquid connection is at the bottom of the evaporator and the refrigerant outlet/suction connection is at the top of the evaporator and both are on the same side. Pay particular attention to evaporators with dual circuits. Avoid cross-circuiting when installing the new evaporator. Proper brazing techniques for dissimilar materials must be followed, see "Brazing Procedures" section.

Water Loop

If the water loop is drained for an extended period, pipe sections between the strainer and the heat exchanger should be cleaned or replaced, to prevent rust buildup from entering the chiller.