



Tecumseh

Field Installation Guidelines for Tecumseh Condensing Units



WARNING

Never install, service, repair, or troubleshoot an air conditioning or refrigeration system unless you are a professional service person in that trade.

ELECTROCUTION AND COMPRESSOR TERMINAL VENTING HAZARDS

Oil and refrigerant can spray from compressor electrical terminals and be ignited by electricity or other sources of ignition. To avoid serious injury or death from electrocution or compressor terminal venting with ignition:

1. Disconnect electrical power before removing the protective cover of any electrical terminal.
2. Never re-connect electrical power unless the protective covers of all electrical terminals are securely fastened.
3. Never operate condensing unit or connect electrical power, unless it is connected to ground.

COMPRESSOR EXPLOSION HAZARD

Never expose system to leak test pressures greater than 150 PSIG (1136 KPa). Never overcharge system.

INSTALLATION TIPS:

1. This document is not intended to be a substitute for proper training. For additional service or installation information refer to a Tecumseh Hermetic Compressor Service Data Book available from your Tecumseh Wholesaler or Tecumseh Products Company by calling 1-800-211-3427.
2. Upon receipt check for shipping damage. **Report damage immediately.**
3. Check that **voltage, phase, frequency, and refrigerant** on the nameplate are correct for the intended use.
4. **Air Cooled Condensing Unit Placement and Care:** Locate so that the:
 - Condenser face is at least one coil width from obstructions.
 - Air entering the condenser does not exceed 110°F (43°C).Periodically clean the condenser of dirt and grease.
5. **Water Cooled Condensing Units:** Water leaving the condenser should not exceed 95°F (35°C). This will prevent mineral deposits and early condenser replacement. For normal operation the water valve must be set to maintain a head pressure no higher than: a) 150 PSIG (1136 KPa) for R12 and R134a: b) 265 PSIG (1928 KPa) for R22 and R502: c) 305 PSIG (2204 KPa) for R404A and R507. If the supply water pressure is above 80 PSIG (653 KPa) a pressure reducer **MUST** be installed ahead of the condenser inlet so that the water valve will work properly. Installation with water towers or evaporative coolers and closed loop systems should have bleed valves and sediment traps to prevent fouling the condenser with suspended matter.
6. When installing suction and liquid lines **do not increase or decrease line sizes** from what attaches to the unit. To do so may decrease gas velocities and hinder oil return. When possible slope the suction line towards the condensing unit.
7. Installation of a sight glass and liquid line filter/drier is strongly recommended.
8. When servicing equipment **do not vent refrigerant**. Recover refrigerant using certified recovery/reclamation equipment.

LEAK TESTING AND SYSTEM CHARGING:

1. Tecumseh Products Condensing Units are shipped with a dry nitrogen or dry air holding charge. Purge the holding charge prior to any brazing or system evacuation. **Do not leave the unit open to the atmosphere.** To do so will contaminate the oil and cause excessive evacuation time, and could cause premature failure.
2. Leak test with regulated dry nitrogen or dry nitrogen plus trace amounts of nameplate refrigerant to a pressure not to exceed 150 PSIG (1136 KPa) or marked low side design pressure. Repair any leaks and leak test again.
3. Once the system is leak free, evacuate from both sides of the system to at least 1000 microns for one hour. The vacuum levels should be measured with an electronic gauge. **Do not use the compressor as a vacuum pump, and do not apply power to the compressor under deep vacuum.** Either can cause damage to the compressor.
4. Break the vacuum with dry nitrogen to a positive pressure. Repeat the evacuation a second time, holding the vacuum to 1000 microns for 15 minutes.
5. After isolating the vacuum pump from the system, then break the vacuum to a positive pressure using **nameplate refrigerant** connected to the liquid line. Add as much liquid refrigerant as possible into the **liquid line** up to but not exceeding the correct system charge.
6. Complete the charging process by starting the compressor and add the charge balance into the suction side of the system. Important: Liquid refrigerant should not enter the compressor directly. Liquid should be put into an accumulator inlet if one is present. On systems without an accumulator the liquid should enter the suction line through a metering device such as a capillary or an orifice. Note: single part refrigerants such as R12, R134a, R22 and R502 can be added in the gas phase. Two part refrigerants such as R404A and R507 **MUST** be added in the liquid state to avoid altering the composition.