

504,616M
07/2016
Supersedes 5/2013

LOW AMBIENT CONTROL KIT

INSTALLATION INSTRUCTIONS FOR LOW AMBIENT CONTROL KIT (34M72) USE WITH PSC FAN AIR CONDITIONER UNITS

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

⚠ WARNING



Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

2. Outdoor unit must have installed a compressor crankcase heater (order separately) for low ambient operation. Refer to the model's Production Specification bulletin to order the required **crankcase heater**.
3. Use ONLY expansion valve metering devices on units with low ambient kits. Refer to the air conditioner's Production Specification bulletin to order the required expansion valve for the indoor coil.

Application

NOTE - This kit may be applied in expansion valve systems only. It is not suitable for use in systems using either piston-type or capillary tube metering devices.

NOTE - This kit is suitable only for use with air conditioner units in HFC-410A refrigerant applications.

The low ambient control pressure switch (S11) cycles the condenser fan, while allowing continuous compressor operation during a cooling demand. This intermittent outdoor fan operation maintains a minimum pressure differential across the expansion device as the ambient temperature drops, thus reducing capacity losses during low ambient conditions. This kit is designed for use in ambient temperatures no lower than 30F (-1C) unless otherwise noted in the Product Specification bulletin.

Shipping & Packing List

Package 1 of 1 contains the following:

- 1 - Low ambient pressure switch assembly (S11)
- 2 - Wire nuts
- 1 - Schrader® depressor tee with seal cap

Additional Parts Required

1. All units will require one field-provided properly sized freezestat (S49) for use with this kit. Order part using table 1.

Table 1. Freezestat Selection (S49)

Tubing Size	Wire Length	Wire Gauge	Catalog Number	Freezestat Set Points	
				Open	Close
3/8"	90-13/16"	18	93G35	29°F (-2°C)	58°F (10°C)
5/8"	36-1/2"	18	50A93	36°F (2°C)	58°F (10°C)

Installation

LOW AMBIENT PRESSURE SWITCH (S11)

The provided low ambient pressure switch is factory set for 450 psig (3100 kPa) cut-in and 240 psig (1600 kPa) cut-out. This switch is not adjustable. See figure 2 for S11 installation example.

1. - Turn off the electrical power to the unit.
2. - Remove compressor compartment access panel, if applicable.
3. - Install provided low ambient pressure switch on open port (no valve core) of provided tee fitting.

NOTE — Pressure switch must be installed on tee first. Then install tee on liquid line service port to avoid refrigerant loss.

3a. If the unit has a mechanical fitting high pressure switch, remove the switch and install the end of the tee to the pressure tap fitting where you removed the high pressure switch. Connect the unit high pressure switch onto the last port with the valve core. Run the wires in the back of the control panel through the hole with the compressor wires. Wire the pressure switch per figure 3 wiring diagram. Make all electrical connections in the control box.



Figure 1. Both Switches Installed on the Tee. Tee Installed on the Suction Line.

3b. If the unit does not have a mechanical fitting high pressure switch, install tee fitting on the condensing unit liquid line service port. Run the wires up into the control box. Wire the pressure switch as per figure 3 wiring diagram. Make all electrical connections in the control box.

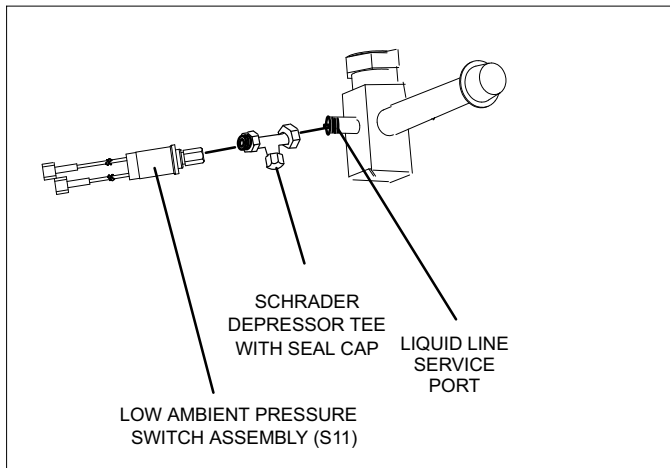
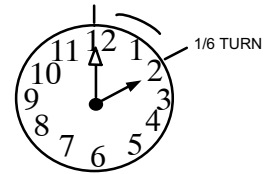


Figure 2. Installation Pressure Switch (S11) on Liquid Line Service Valve

4. - Install cap on valve core port and tighten to 6 to 8 ft.-lbs. When a torque wrench is not available, finger tighten and use an appropriately sized wrench to turn an additional 1/6 turn clockwise.



5. - Low ambient control pressure switch (S11) is wired in series with condenser fan. See figure 3 for typical field wiring for the low ambient control pressure switch.

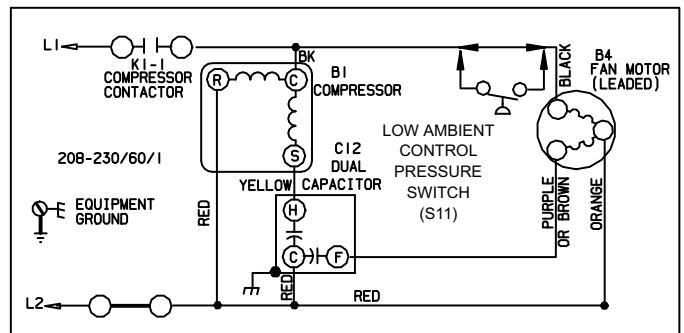


Figure 3. Typical Field Wiring of Low Ambient Control Pressure Switch (S11)

FREEZESTAT (S49)

The freezestat (ordered separately) will open and close at the non-adjustable set points listed in the following table.

1. - A freezestat, sized per table 1 and ordered separately, must be installed. Install the freezestat on one of the copper lines between the last hairpins and the suction manifold (see figure 4).
2. - The freezestat senses the line temperature and cycles the compressor off when the line temperature fails below its setpoint. The freezestat will open and closed as listed in table 1.
3. - Connect freezestat (S49) wires as shown in figure 5.

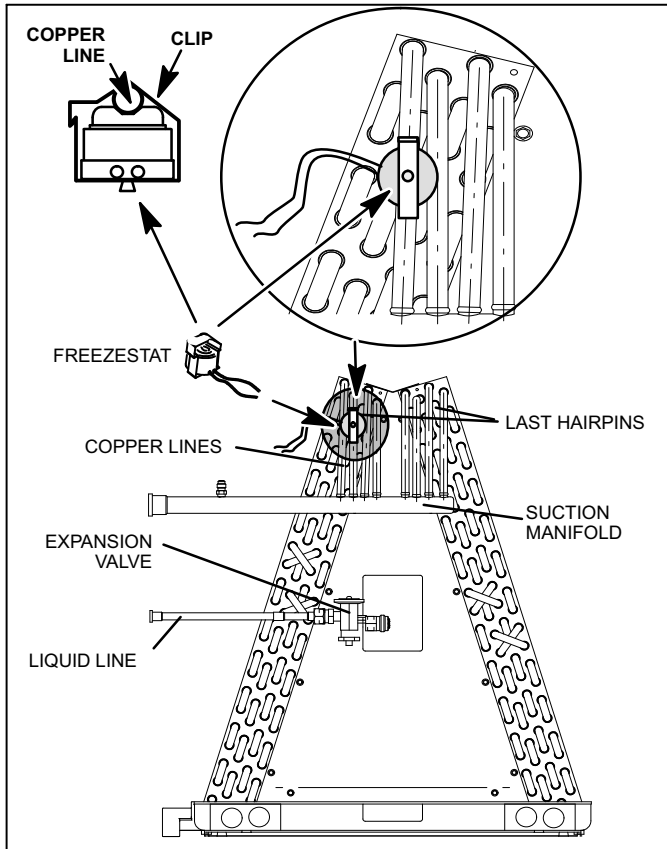


Figure 4. Typical Freezestat (S49) Installation (Indoor Coil)

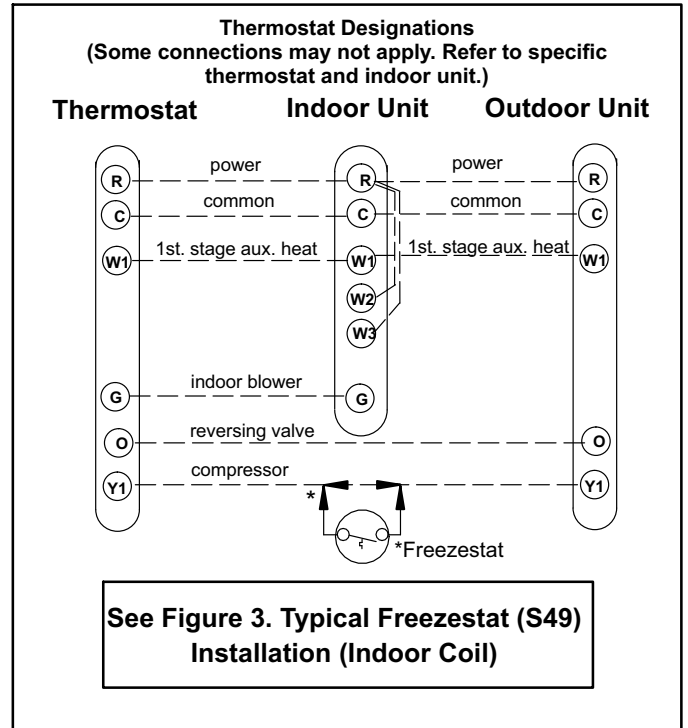


Figure 5. S49 Freezestat Installation

Operational Check

Set the room thermostat to call for cooling. The unit will receive a Y signal from the room thermostat. The compressor will cycle on. The outdoor fan will be OFF until the liquid line pressure reaches the ON setting (450 psig - 3100 kPa) of the low ambient pressure switch.

NOTE - the outdoor fan motor will be cycled by the low ambient pressure switch. During a call for cooling when the liquid line pressure rises above 450 psig (3100 kPa), the outdoor fan will cycle ON. When the liquid line pressure falls below 240 psig (1600 kPa), the outdoor fan will cycle OFF.