



Low Ambient Damper Kit Installation Instruction

LADFMK-V and LADFMK-H MODELS

*(SPVAC and SPHAC Vertical and Horizontal
Air conditioner Units)*

1. General Information

Low Ambient Damper Kit (LADK) is required when the unit is running at any ambient temperature between 60°F and 0°F - To maintain proper compressor head pressure during low ambient conditions. Different from the VFD low ambient control, which controls air flow rate by modulating the power frequency to outdoor fan motor, LADK controls air flow rate by modulating the damper position.

2. Unit features

The damper comes with damper motor mounted and with control package mounted on the damper assembly. All components are wired and tested.

Low ambient damper control package consists of a crankcase heater for each compressor, Strain relief fittings for the control wires.

3. Field Installation

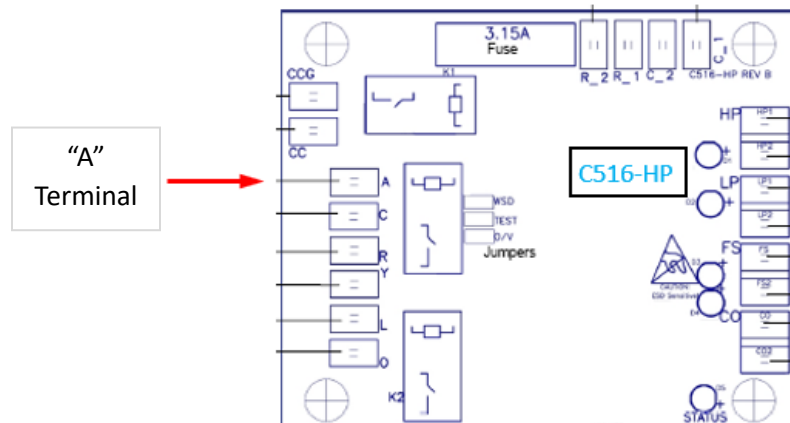
For SPHAC horizontal unit, the damper assembly is installed directly over the intake duct connection of condensing unit.

For SPVAC vertical unit, the damper is installed over the discharge duct connection of condensing unit.

Note:

The wiring for the 24 volt supply (red and black wires) and the pressure transducer are located at the control panel in the damper assembly.

- 1) Drill two 7/8 inch holes on the metal face of cabinet at the location of the electrical panel.
- 2) Feed the wire for the 24 volt supply and control wire through the top opening and over to the control panel in the condenser section. Feed wire through one of the low voltage wire fittings.
- 3) Connect 24 volt RED wire to the R terminal and the BLACK wire to the common terminal on the control terminal strip.
- 4) Connect the orange wire to "A" terminal in the unit C516-HP control board:

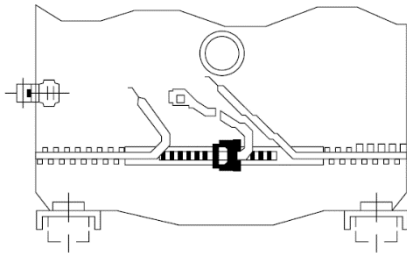


- 5) When the wires are in place, place the strain relief over the wires and push the strain relief into the hole, locking the wires in place.
- 6) Remove wire harness connector from P499 or P599 sensor. Feed wire harness through the second drilled opening, to location of compressor #1 liquid line.

Note: On dual compressor units, the pressure transducer MUST be connected to the #1 circuit liquid line service fitting. Connection to the #2 circuit will result in system malfunction.

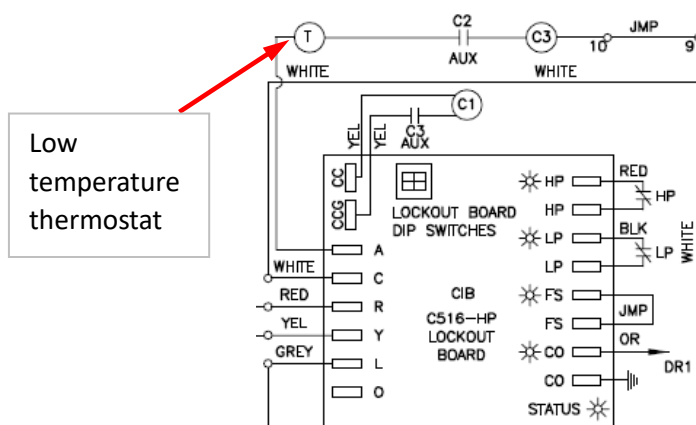
- 7) Remove protection cover from end of pressure sensor. Remove cap from the Schrader access fitting. Be sure the copper gasket (P499) is in place proper inside the sensor or remove the gasket and place on the Schrader fitting with a little refrigerant thread sealer, which holds it in place while you screw the pressure sensor onto the access fitting. Attach the wire harness to the sensor. When wiring is finished, coil up excess wires and tie to the insulated suction gas line. Do NOT tie to the hot gas line. When the sensor wire is connected, slip the wire strain relief over the wire on the outside of the unit and place into the hole through which the wire is passing and lock in place.

- 8) Install crankcase heater on the compressor and wire to the load side of each compressor fuses or the supply side of the compressor contactor (The crankcase heater remains energised during compressor off cycles), one for each compressor.



The crankcase heater must be mounted below the oil schraeder valve located on the bottom shell.

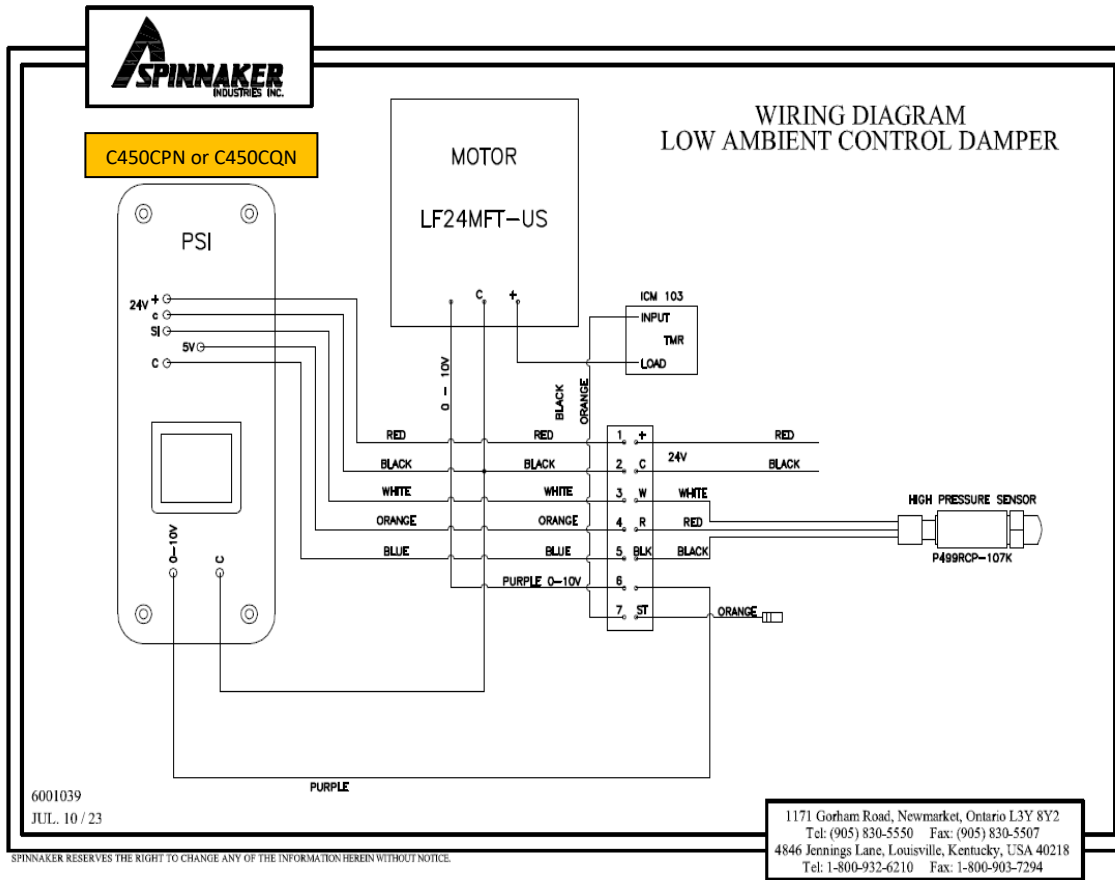
- 9) Pressure control is set at 480 PSI and control will begin to close damper as pressure starts to fall below 360 PSI. Controller will put out a control signal to damper motor to close as needed to maintain pressure at the compressor.
- 10) Control is preset for pressure and control band width. Please leave as set from factory.
- 11) When low ambient damper is installed, reset the low temperature thermostat located on top of the electrical control box from 60 degrees F to 0 degrees F.



4. Sequence of Operation

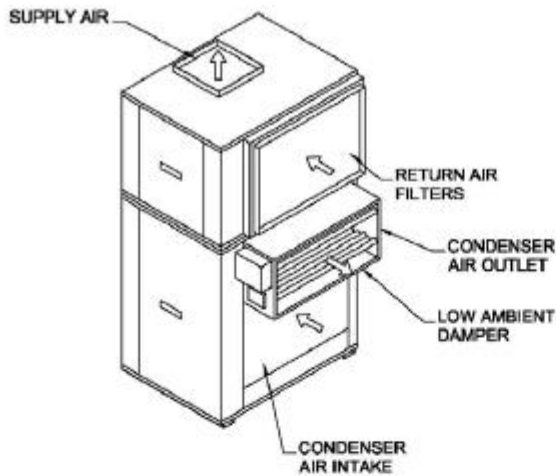
Damper position depends on the C450's 0-10v analog output signal. Damper is fully open when power is off. C450's 0-10v analog output signal is controlled by pressure transducer which senses system liquid line pressure. When pressure is 260 PSI or below, its output is 10V, damper fully close. When pressure is 360 PSI or above, its output is 0V, damper fully open. Between 260 and 360 PSI, the control follows below chart. A delay timer is employed to ignore the low pressure reading in the first 60 seconds of the compressor operation.

5. Wiring diagram

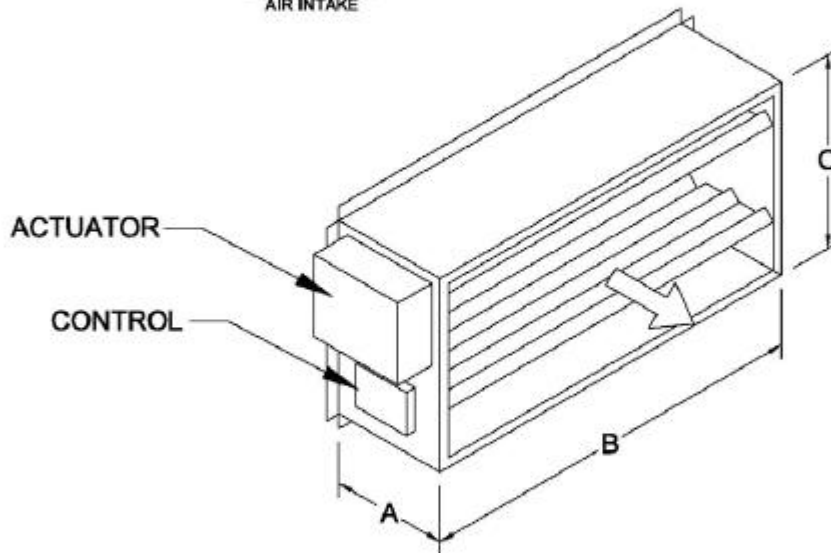


6. Unit dimensions

SPVAC Optional Low Ambient Damper Kit Dimensional Data



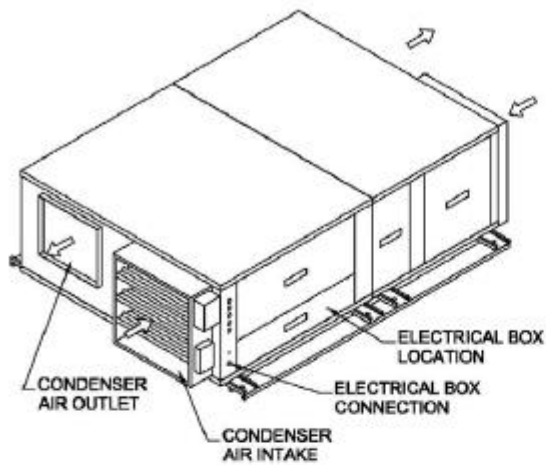
- For use with SPVAC Model Series Units
- This accessory ships loose for field installation



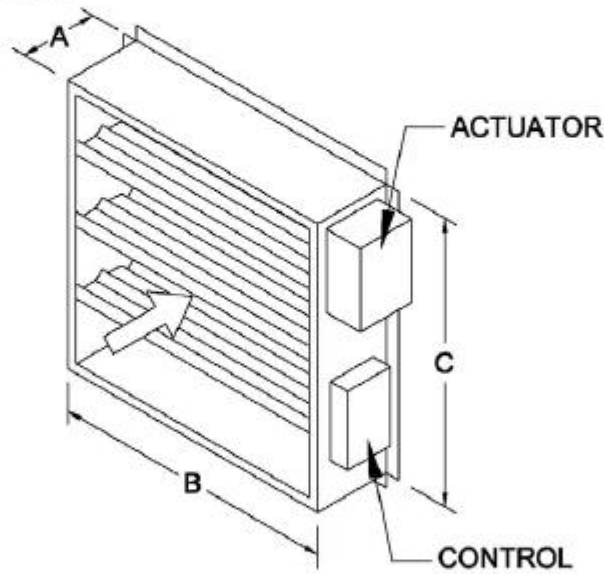
PART NUMBER	TONNAGE	A	B	C	TO SUIT
LADFMK-V-3	3	12"	34"	11"	SPVAC-036
LADFMK-V-4	4	12"	34"	11"	SPVAC-048
LADFMK-V-5	5	12"	48"	12"	SPVAC-060
LADFMK-V-8	8	12"	48"	12"	SPVAC-096
LADFMK-V-10	10	12"	60"	13"	SPVAC-120
LADFMK-V-12	12	12"	60"	13"	SPVAC-144
LADFMK-V-15	15	12"	70"	13"	SPVAC-180
LADFMK-V-20	20	12"	70"	13"	SPVAC-240
LADFMK-V-25	25	12"	80"	13"	SPVAC-300

Dimensions shown in (inches)

SPHAC Optional Low Ambient Damper Kit Dimensional Data



- ◆ For use with SPHAC Model Series Units
- ◆ This accessory ships loose for field installation



PART NUMBER	TONNAGE	A	B	C	TO SUIT
LADFMK-H-2	2	8"	21"	23-1/2"	SPHAC-024
LADFMK-H-3	3	8"	21"	27-1/2"	SPHAC-036
LADFMK-H-4	4	8"	24"	27-1/2"	SPHAC-048
LADFMK-H-5	5	8"	24"	30-1/2"	SPHAC-060
LADFMK-H-8	8	8"	30"	31-1/2"	SPHAC-096
LADFMK-H-10	10	8"	36"	33-1/2"	SPHAC-120
LADFMK-H-12	12	8"	40"	33-1/2"	SPHAC-144
LADFMK-H-15	15	8"	40"	39-1/2"	SPHAC-180

Dimensions shown in (inches)