

# Wiring Instructions for Magnetic Starters

Carefully read this sheet and the owner's manual for complete information. Keep this sheet with your owner's manual.

## IMPORTANT

If the compressor has a factory mounted magnetic starter, the starter has been wired to the pressure switch and motor. Connect power and ground leads from a fused disconnect or circuit breaker directly to the magnetic starter. No other electrical connections are required.

## IMPORTANT

All electrical components must be grounded. In the event of a short circuit, grounding reduces the risk of electrical shock by providing an alternate current path to the ground. Ground fault protection is required on the power leads. A circuit breaker, or fused disconnect may be used.

## Installation

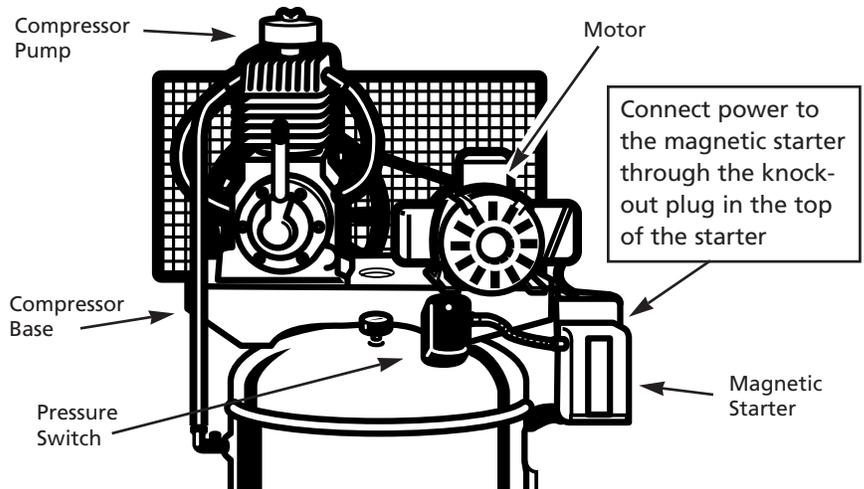
If a magnetic starter is already permanently mounted, it is connected to the pressure switch and motor. To correctly wire the compressor with power, connect power leads directly from a fused disconnect or a circuit breaker to the magnetic starter.

The power and ground leads must enter the magnetic starter through the knockout plug in the top of the starter, as shown below. No other electrical connection is required at the compressor.

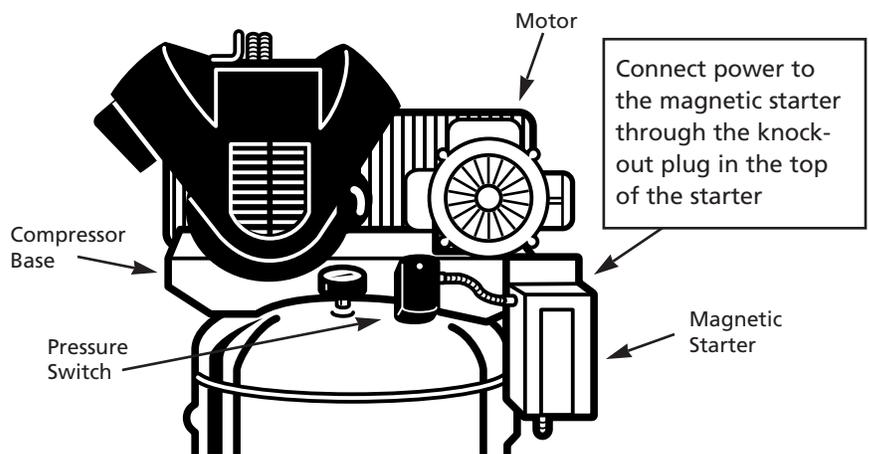
If a magnetic starter is not mounted, install it on the compressor base or nearby wall. Use the wiring diagrams on the back of this sheet to install and connect power wires for the starter and motor.

To ground a factory-mounted starter, connect the ground terminal in the magnetic starter to a known ground in the electrical system. If not mounted, connect ground circuit conductors from the pressure switch and motor to the ground terminal in the starter. Join the ground terminal to a known ground in the electrical system.

**⚠ DANGER** All wiring must be performed by a qualified electrician in accordance with



Cast Iron Series Unit With a Mounted and Wired Magnetic Starter



Premium Series Unit With a Mounted and Wired Magnetic Starter

**national electric code and local codes. The compressor and starter must be installed on a grounded circuit with short circuit protection and a service disconnect. Improper installation of fuses or circuit breakers may cause severe injury or damage. Disconnect power before servicing.**

## Operation

The magnetic starter is a large relay that switches high current from the main power line in response to a signal from the pressure switch. The

## Operation (Continued)

starter also has a device to protect the electric motor against overheating due to overcurrent. This protection is accomplished by heater elements that become hot in response to the motor current. The heaters are sized so that overcurrent causes them to interrupt power to the section of the starter controlling motor current, turning the motor off. After the heater elements cool, reset the starter to resume operation.

In normal operation, the starter requires no attention. If an overload occurs, the compressor motor will not restart, even when the tank pressure drops. It is important to find the cause of the overload and correct it.

**CAUTION** Repeated overloads can cause damage to the motor and void the product warranty.

OVERLOADS ARE CAUSED BY:

- 1. Pressure setting too high** — Check to make sure the pressure switch opens at or before the maximum rated operating pressure of the model purchased. Adjust if required.
- 2. Low voltage condition** — Voltage at the motor terminals must be within 10% of the rated voltage during start-up and while the motor is running. Have an electrician check this and correct it as needed.
- 3. Loose connections or open fuse** — Loose connections or blown fuses cause high currents in the remaining wires of the circuit. Have an electrician check and correct these conditions.
- 4. Unloader valve or check valve malfunction** — The motor will overload if it starts against the air trapped in the discharge tube. Adjust or replace valves which aren't working correctly.

## Thermal Unit Installation

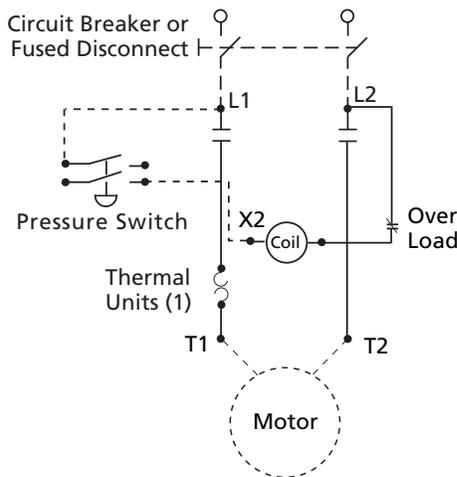
Be sure the motor has thermal overload protectors (heaters) installed. If not, install the heaters provided. Install the heaters so the size and part

numbers are visible. Tighten the screws to secure the heaters to the main unit and replace the enclosure cover. Finally, push the reset button on the enclosure to reset the heaters.

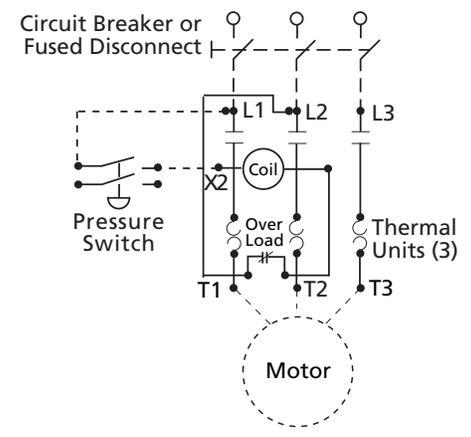
### Required Fuse/Breaker Size in Amperes

HP	115V 1Ø	208-230V 1Ø	208-230V 3Ø	460V 3Ø	575V 3Ø
1/2	12/20	8/15	3.5/15	1.6/15	1.25/15
3/4	20/25	10/15	5/15	2.25/15	1.8/15
1	25/30	12/15	6.25/15	2.8/15	2.25/15
1½	-	12/20	10/15	4/15	3.2/15
2	-	17.5/25	12/15	5.6/15	4.5/15
3	-	25/35	17.5/20	8/15	6.25/15
5	-	40/60	25/35	12/15	10/15
7½	-	60/80	40/50	17.5/20	15/15
10	-	-	50/60	20/25	17.5/20
15	-	-	60/90	30/40	25/35
20	-	-	90/100	40/60	30/45
25	-	-	100/110	50/70	40/60

**Important:** Refer to local codes for proper wire size and installation.



Wiring for 115-208/230V single-phase circuit



Wiring for 208/230-460V three-phase circuit