



OPERATING INSTRUCTIONS  
**TWO STAGE COMPRESSORS**  
 PROFESSIONAL SERIES  
 - MODELS HS5610, HS5810 AND HS5811

READ CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE! RETAIN INSTRUCTIONS FOR FUTURE REFERENCE. REFER ANY QUESTIONS REGARDING THE OPERATION OF THIS AIR COMPRESSOR TO 1-800-543-6400.

**Description**

These Campbell Hausfeld compressors are two-stage commercial duty unit. Pressure switch start/stop control is standard. Maximum operating pressure is 175 PSI.

Form U-1A, Manufacturer's Data Report for Pressure Vessels, is available upon request. This form certifies air receivers were built in accordance with ASME codes.

**Unpacking**

When unpacking the unit, inspect carefully for any damage that may have occurred during transit. Make sure any loose fittings, bolts, etc., are tightened before putting unit into service. In case of damage or missing parts, please call 1-800-543-8622 for customer assistance or call the nearest Campbell Hausfeld Authorized Service Center.



**DO NOT RETURN THE PRODUCT TO THE RETAILER!**

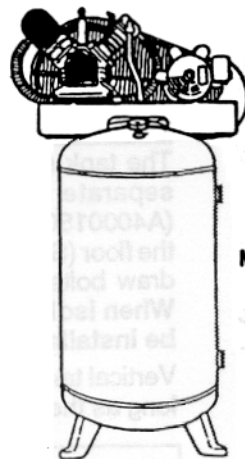
A listing of service center locations is enclosed. Have the serial number, model number, and parts list (with missing parts circled) before calling.

**▲ DANGER ▲**

This compressor/pump is not equipped and should not be used "as is" to supply breathing quality air. For any application of air for human consumption, the air compressor/pump will need to be fitted with suitable in-line safety and alarm equipment. This additional equipment is necessary to properly filter and purify the air to meet minimal specifications for Grade D breathing as described in Compressed Gas Association Commodity Specification G 7.1 - 1966, OSHA 29 CFR 1910. 134, and/or Canadian Standards Association (CSA).

**DISCLAIMER OF WARRANTIES**

In the event the compressor is used for the purpose of breathing air application and proper in-line safety and alarm equipment is not simultaneously used, existing warranties shall be voided, and Campbell Hausfeld disclaims any liability whatsoever for any loss, personal injury or damage.



MODELS  
 HS5610  
 HS5810  
 HS5811

Record the Model No., Serial No. and the Date of Purchase located on the base below the pump in the space below.

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_ Date of Purchase \_\_\_\_\_

Retain these numbers for future reference.

## General Safety Information

### ⚠ WARNING ⚠

**DISCONNECT POWER AND RELEASE ALL PRESSURE FROM THE SYSTEM BEFORE ATTEMPTING TO INSTALL, SERVICE, RELOCATE OR PERFORM ANY MAINTENANCE.**

1. Follow all local electrical and safety codes as well as National Electrical Codes (NEC) and Occupational Safety and Health Act (OSHA).
2. Electric motors and starters must be securely and adequately grounded.

### ⚠ DANGER ⚠

**NEVER STORE FLAMMABLE LIQUIDS OR GASES IN THE VICINITY OF THE COMPRESSOR. ELECTRIC ARCS CAN BE PRODUCED BY THE PRESSURE SWITCH AND BY THE ELECTRIC MOTOR**

### ⚠ WARNING ⚠

**DO NOT OPERATE THE COMPRESSOR WITHOUT THE BELT GUARD IN PLACE. MOVING PARTS CAN CAUSE SERIOUS INJURY.**

3. Do not kink power cable, or allow the cable to come in contact with oil, grease, chemicals, or sharp objects.
4. Do not exceed pressure limits for any component in the system.
5. Inspect to make sure that all fittings, bolts, etc., are tight and secure.
6. Do not touch compressor or motor while in operation; these parts are HOT in normal operation. Allow unit to cool before performing maintenance or repairs.
7. Do not increase the settings on control components. These provide safety against over pressurization. Pressure switch settings are preset at the factory for normal operating conditions. Increasing the settings will result in compressor and motor damage.
8. Regularly inspect hoses, fittings, plugs, wires, piping, etc., for signs of damage, deterioration, weakness or leakage before using the compressor.
9. Fast moving air will stir up dust and debris which may be harmful. Release air slowly when draining moisture or depressurizing the system.
10. Tanks rust and weaken with moisture. Make sure to drain tank daily to prevent rust formation.
11. Inspect air tank for rust, pin holes, bulges, cracks (especially near welds) and other changes in the tank. Never weld or drill holes in the air tank.
12. Keep others at a safe distance from the work area.

### Spraying Precautions

1. Always wear a respirator and safety glasses when spraying.

2. Spray in an open, well-ventilated area to prevent fumes from accumulating and causing health and fire hazards. Fumes are dangerous.
3. Do not spray near open flames or electrical equipment.
4. Do not smoke when spraying paint, insecticides, or other flammable substances.
5. Do not direct paint or other sprayed material at the compressor. Locate compressor as far away from the spraying area as possible to minimize overspray accumulation on the compressor.
6. When spraying solvents or chemicals, follow instructions provided by the manufacturer.
7. Never use air pressurized accessories or parts in the air system not suitable for 175 PSI.

**IMPORTANT: WHEN HUMIDITY IS HIGH OR WHEN A COMPRESSOR IS USED FOR AN EXTENDED PERIOD OF TIME, MOISTURE WILL COLLECT IN THE TANK. THIS CONDENSATION WILL CAUSE WATER DROPLETS TO APPEAR IN THE PAINT JOB. TO HELP ELIMINATE THE EFFECT OF THIS MOISTURE, DRAIN THE TANK OFTEN TO REDUCE MOISTURE BUILD UP. A FILTER IN THE AIR LINE, LOCATED AS NEAR TO THE GUN AS POSSIBLE, WILL ALSO HELP ELIMINATE THIS MOISTURE.**

## Installation

### Location

It is extremely important to install the compressor in a clean, well ventilated area where the surrounding air temperature will not be more than 100°F.

A minimum clearance of 12 to 18 inches between the compressor flywheel or fan and a wall is required because objects could obstruct air flow.

### ⚠ CAUTION

**Do not locate the compressor air inlet near steam, paint spray, sandblast areas or any other source of contamination.**

### Tank Mounting

The tank should be bolted to a concrete floor or on a separate concrete foundation. Vibration isolators (A40001500AJ) can be used between the tank leg and the floor (See Figure 1). When using isolator pads, do not draw bolts tight. Allow the pads to absorb vibrations. When isolators are used, a flexible coupling should be installed between the tank and service piping.

Vertical tanks have three feet and need no shimming as long as the floor or foundation is relatively level.

### ⚠ CAUTION

**Never use the wood shipping skids for mounting the compressor.**

## Installation (continued)

### Installing A Shut-Off Valve

A shut-off valve should be installed on the discharge port of the tank to control the air flow out of the tank. The valve should be located between the tank and the piping system (See Figure 1). A shut-off valve kit, Model HS9053, is available.

## ⚠ WARNING ⚠

**NEVER INSTALL A SHUT-OFF VALVE BETWEEN THE COMPRESSOR PUMP AND THE TANK. PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY OCCUR.**

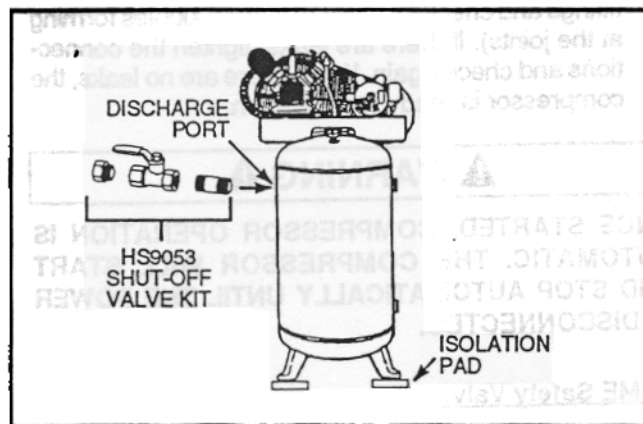


Figure 1 - Shut-off Valve Installation

### Piping

If a pipe line is used, the line must be at least 3/4" NPT. Smaller piping restricts the air flow. Use 1" NPT pipe if pipe line is over 100 feet long to prevent excessive pressure drop.

Bury underground lines below the frost line and avoid pockets where condensation can gather and freeze.

Apply air pressure to the piping installation and make sure all joints are free from leaks BEFORE underground lines are covered.

Before putting the compressor into service, find and repair all leaks in the piping, fittings and connections.

## Electrical Installation

## ⚠ WARNING ⚠

**ALL WIRING AND ELECTRICAL CONNECTIONS SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN. INSTALLATION MUST BE IN ACCORDANCE WITH LOCAL CODES AND NATIONAL ELECTRICAL CODES.**

### Grounding

This product must be grounded. Grounding reduces the risk of electrical shock by providing an escape wire for the electric current, if short circuit occurs. This product must be equipped with a power cord or cable that provides a grounding wire.

## ⚠ CAUTION

**Improperly grounded motors and starters are shock hazards. Make sure all the equipment is properly grounded.**

### Wiring

Have an electrician connect the unit to an appropriate line disconnect service and make sure:

1. Electric disconnect and fuse box are large enough and located within sight distance of the compressor.
2. Service is of adequate ampere rating.
3. Supply line has the same electrical characteristics (voltage, cycles and phase) as the motor.
4. Line wire is the proper size and no other equipment is operated from the same line. See Chart 1 for minimum wire sizes. If supply line is over 100 ft., use the next larger size wire - 6 AWG.

HP	VOLTAGE	WIRE SIZE
5	230	8 AWG

Chart 1 - Minimum Wire Size (Rubber Covered)

## Electrical Connections

### Models HS5610, HS5810 AND HS5811 ONLY

The motors supplied with models HS5610, HS5810 and HS5811 have built-in thermal overload protection and do not require magnetic motor starters. The wiring between the pressure switch and the motor is factory connected.

1. Connect power lines and ground to terminals in the pressure switch (See Figure 2).

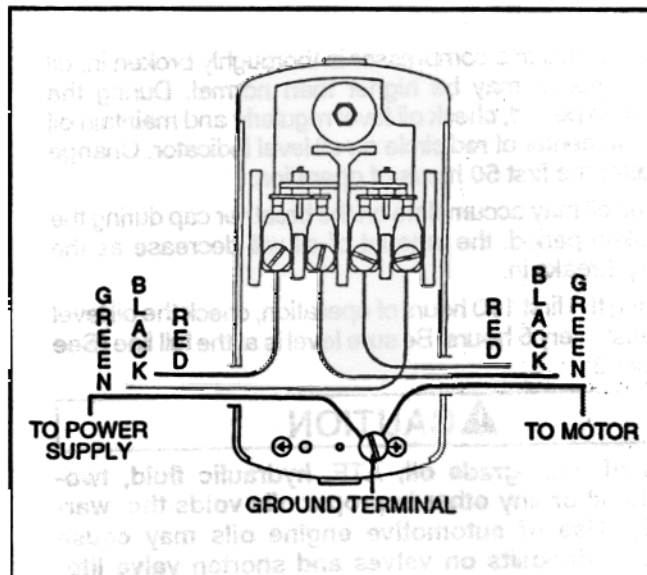


Figure 2 - Pressure Switch Connections

## Operation

### Lubrication

#### ⚠ CAUTION

**Add oil first! This compressor contains no oil.**

Use Campbell Hausfeld Two-Stage oil, ST1267 or a naphtha-based, non-detergent oil with foam and oxidation inhibitors. For temperatures above 55°F, use ISO 100(SAE 30) oil. Between 32°F and 55°F, use ISO 68 (SAE 20W20) oil. Do not operate the compressor above 120°F or below 32°F.

1. Remove the breather cap and the oil fill plug.
2. Fill slowly to the center of the red circle on the oil level indicator and replace filler plug and breather cap (See Figure 3).

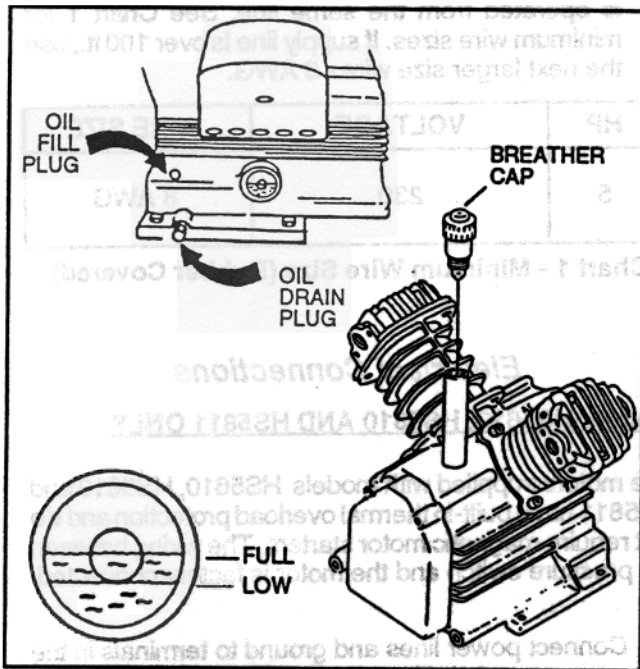


Figure 3 - Sight Gauge

**NOTE:** Until this compressor is thoroughly broken in, oil consumption may be higher than normal. During the break-in period, check oil level regularly and maintain oil level at center of red circle on oil level indicator. Change oil after the first 50 hours of operation.

Some oil may accumulate on the breather cap during the break-in period. The amount of oil will decrease as the pump breaks in.

During the first 100 hours of operation, check the oil level at least every 5 hours. Be sure level is at the full line (See Figure 3).

#### ⚠ CAUTION

Use of multi-grade oil, ATF, hydraulic fluid, two-cycle oil or any other improper oils voids the warranty. Use of automotive engine oils may cause carbon deposits on valves and shorten valve life.

## Start-up Procedure

1. Check the oil level.
2. Turn power on and allow the compressor to run.
3. Close the shut-off valve. Compressor will build to a maximum preset pressure of 175 PSI and shut off.
4. Open the shut-off valve to allow air to bleed off. Compressor will restart at the preset pressure of 145 PSI.
5. Close the shut-off valve and turn off power at the circuit breaker or disconnect switch.
6. Connect compressor output to piping system (if not done previously) and turn the shut-off valve fully on. Apply a soap and water solution around the pipe fittings and check for signs of leaks (bubbles forming at the joints). If there are leaks, tighten the connections and check again. When there are no leaks, the compressor is ready for operation.

#### ⚠ WARNING ⚠

**ONCE STARTED, COMPRESSOR OPERATION IS AUTOMATIC. THE COMPRESSOR WILL START AND STOP AUTOMATICALLY UNTIL THE POWER IS DISCONNECTED.**

### ASME Safety Valve

#### ⚠ DANGER ⚠

**DO NOT REMOVE OR TAMPER WITH THIS VALVE.**

This valve automatically releases air if the air tank pressure exceeds the preset maximum for the unit (See Figure 4). This valve should be checked occasionally by pulling the ring by hand. If air leaks after the ring has been released, or the valve is stuck and cannot be actuated by the ring, the valve **MUST** be replaced.

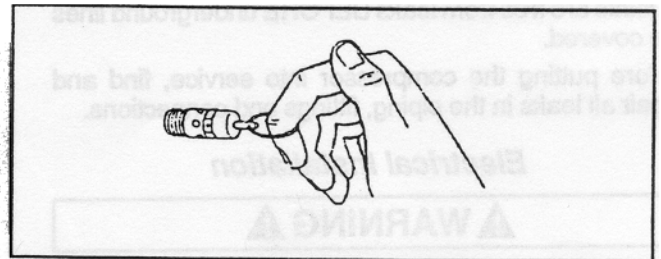


Figure 4 - ASME Safety Valve

### Pressure Switch

Operation of this switch is automatic. When pressure in the tank builds to 175 PSI, the pressure switch will shut the compressor off and automatically unload the cylinder head. A short air hiss will occur which is normal. If the air hissing sound is constant, the unloader valve or check valve is defective and must be replaced. At 145 PSI, the pressure switch will restart the compressor.

### Start-up Procedure (continued)

The pressure setting of 175 PSI is the maximum allowable pressure setting.

1. To reduce the pressure setting, turn the nut on top of the spring counterclockwise (See Figure 5).

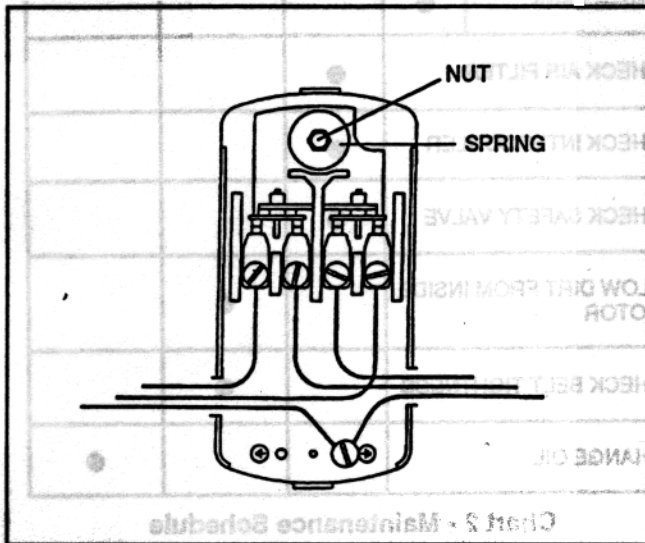


Figure 5 - Pressure Switch

### ⚠ WARNING ⚠

USE A REGULATOR TO OBTAIN THE WORKING PRESSURE REQUIRED FOR AIR TOOLS AND AIR POWERED EQUIPMENT. DO NOT USE PRESSURE SWITCH IN PLACE OF A REGULATOR.

A regulator, such as Campbell Hausfeld Professional Filter/Lubricator/Regulator (F/R/L - PA2078), must be used to reduce tank pressure to the desired working pressure (See Figure 6).

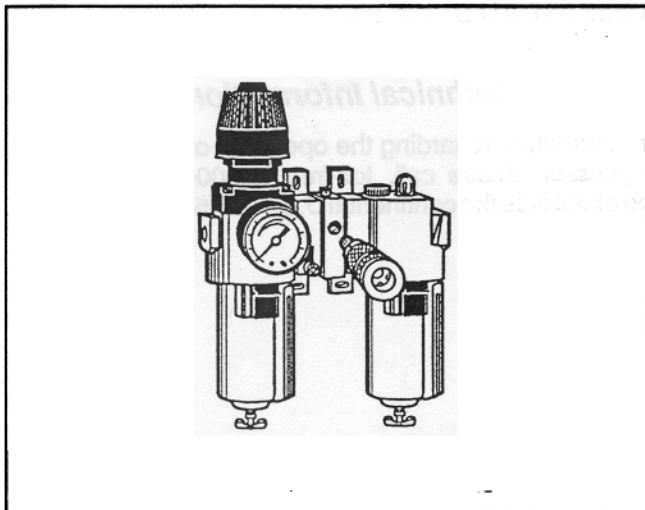


Figure 6 - Filter/Regulator/Lubricator (PA2078)

### Maintenance

#### ⚠ WARNING ⚠

DISCONNECT POWER AND RELEASE ALL PRESSURE FROM THE SYSTEM BEFORE ATTEMPTING TO INSTALL, SERVICE, RELOCATE OR PERFORM ANY MAINTENANCE.

#### Daily

1. Check compressor visually.
2. Check oil level and add oil if necessary to bring level to full (maximum) level.
3. Drain moisture from tank by opening the drain cock (See Figure 7) underneath the tank. (Before opening make sure pressure is 10 PSI or less).
4. Drain moisture from shop air distribution system piping.

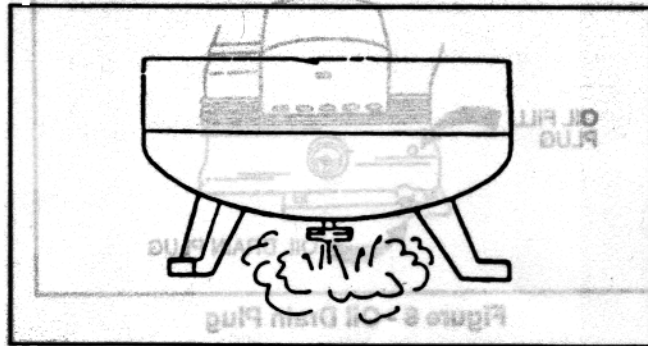


Figure 7 - Drain Cock

#### Weekly

1. Pull ring on safety valve and allow the ring to snap back to normal position (See Figure 4).
2. Remove and clean the intake air filter(s). Blow dirt out of element from inside with light air pressure. Do not wash or oil the element.
3. Clean dust or foreign material from the cylinder head, motor, fan blade, air lines, intercooler and tank.

#### Monthly

1. Be sure the flywheel and motor pulley are tight on the appropriate shafts.
2. Check belts for tightness. Adjust belt tension to allow approximately 3/8" - 1/2" deflection with normal thumb pressure.

#### Quarterly

1. Every 3 months, check entire system for air leaks around fittings with a soap solution. Tighten nuts and cap screws as needed.
2. Check tank for air leaks near welds. If the tank is cracked, replace the tank.

#### ⚠ WARNING ⚠

NEVER REPAIR A CRACKED TANK OR PERSONAL INJURY COULD OCCUR.

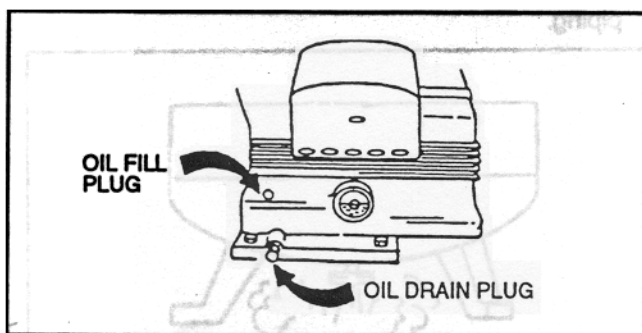
**Maintenance (continued)**

- 3. Every 3 months or 500 operating hours, change the crankcase oil. See the lubrication section for type and grade of oil. Change oil more often if compressor is used in a dirty place or if air temperature exceeds 90° while the unit is in use.

**Changing Oil**

To avoid spilling oil while draining oil:

- A. Loosen drain plug (See Figure 8) with wrench but do not remove.
- B. Hold funnel under edge of pump and remove drain plug allowing oil to flow through the funnel to a pan or can for disposal.
- C. Fill with specified oil until level with the center of the red circle on the oil level indicator (See Lubrication). Crankcase capacity is 42 oz. and the difference between the full level and the low level is 6 oz.



**Figure 8 - Oil Drain Plug**

- 4. Remove and replace the intake air filter(s). Change air filter more often if compressor is used in a dusty place.

**Changing Filter**

Never run the compressor without an intake air filter or with a clogged intake air filter. Use compressed air to blow the filter clean. If the filter cannot be blown clean, the filter should be replaced.

**CAUTION**

Do not allow intercooler fins to become clogged with dirt, dust, lint, paint, etc. If surrounding air is dirty and cause the intercooler to clog, move the compressor to a cleaner area or use ductwork to bring clean air to the cooling fan intake.

OPERATION	DAILY	WEEKLY	MONTHLY	3 MONTHS (500 HRS.)
CHECK OIL LEVEL	●			
DRAIN TANK	●			
CHECK AIR FILTER		●		
CHECK INTERCOOLER		●		
CHECK SAFETY VALVE		●		
BLOW DIRT FROM INSIDE MOTOR			●	
CHECK BELT TIGHTNESS			●	
CHANGE OIL				●

**Chart 2 - Maintenance Schedule**

**Storage**

Store hoses and compressor in a cool, dry place. Disconnect hose and hang with ends down to allow any moisture to drain.

**Replacement Parts & Service Locations**

If replacement parts or service is needed, take the unit to your nearest authorized service center. For the location of the closest center, refer to the enclosed Service Center Listing or call toll-free, 1-800-543-8622 In Ohio or outside the continental U.S., call collect (513) 367-1182.

**Technical Information**

For information regarding the operation or repair of this compressor please call, toll-free, 1-800-543-6400. In Ohio or outside the continental U.S., call (513) 367-1182.

### Troubleshooting Chart

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Motor hums and runs slowly or not at all.	<ol style="list-style-type: none"> <li>1. Low voltage or no voltage.</li> <li>2. Shorted or open motor winding.</li> <li>3. Defective check valve or unloader valve.</li> <li>4. Defective pressure switch - contacts will not close.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check with voltmeter, check overload relay in magnetic starter or reset switch on motor. If overload or reset switch trips repeatedly, the problem is not in the motor. Have electrical system inspected by an electrician.</li> <li>2. Replace motor.</li> <li>3. Replace check valve or unloader valve.</li> <li>4. Repair or replace pressure switch.</li> </ol>
Excessive noise in operation.	<ol style="list-style-type: none"> <li>1. Loose pulley, flywheel, belt, beltguard, etc.</li> <li>2. Lack of oil in crankcase.</li> <li>3. Compressor floor mounting loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten.</li> <li>2. Check for damage to bearings, replenish oil.</li> <li>3. Shim and tighten.</li> </ol>
Milky oil in oil reservoir.	<ol style="list-style-type: none"> <li>1. Water condensing in crankcase due to high humidity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Pipe air intake to less humid air source.</li> </ol>
Excessive oil consumption or oil in air lines	<ol style="list-style-type: none"> <li>1. Restricted air intake.</li> <li>2. Wrong oil viscosity.</li> <li>3. Worn piston rings.</li> <li>4. Oil leaks.</li> <li>5. Scored cylinder.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace air filter.</li> <li>2. Drain oil. Refill with oil of proper viscosity.</li> <li>3. Replace rings.</li> <li>4. Tighten bolts, replace gaskets or o-rings.</li> <li>5. Replace cylinder.</li> </ol>
Water in discharge air.	<ol style="list-style-type: none"> <li>1. Excessive water in tank.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain tank.</li> </ol>
Air blowing out of inlet.	<ol style="list-style-type: none"> <li>1. Broken first stage inlet valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace valve assembly.</li> </ol>
Insufficient pressure.	<ol style="list-style-type: none"> <li>1. Air demand too high.</li> <li>2. Leaks or restrictions in hoses or piping.</li> <li>3. Slipping belts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Limit air usage.</li> <li>2. Check for leaks or restriction in hose or piping.</li> <li>3. Tighten belts.</li> </ol>
Tank does not hold pressure when compressor is off and shutoff valve is closed.	<ol style="list-style-type: none"> <li>1. Faulty check valve.</li> <li>2. Check all connections and fittings for tightness.</li> <li>3. Check tank for crack or pin holes</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace faulty valve.</li> </ol> <div style="text-align: center; background-color: black; color: white; padding: 5px;"> <p><b>▲ DANGER</b>  <b>DO NOT DISASSEMBLE CHECK VALVE WITH AIR IN TANK.</b></p> </div> <ol style="list-style-type: none"> <li>2. Tighten</li> <li>3. Replace tank. Never repair a damaged tank.</li> </ol>
Excessive belt wear. (Light dust from start is normal. Worn belts will separate at layers).	<ol style="list-style-type: none"> <li>1. Pulley out of alignment.</li> <li>2. Belts too tight or too loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Realign motor pulley.</li> <li>2. Adjust tension.</li> </ol>
Tank pressure builds slowly.	<ol style="list-style-type: none"> <li>1. Dirty air filter.</li> <li>2. Blown cylinder head gasket.</li> <li>3. Worn/broken intake/discharge valves.</li> <li>4. Air leaks.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace filter element.</li> <li>2. Install new gasket.</li> <li>3. Install new valve plate assembly.</li> <li>4. Tighten joints.</li> </ol>
Tank pressure builds up quickly on compressor.	<ol style="list-style-type: none"> <li>1. Excessive water in tank.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain tank.</li> <li>2. Check speed. See Performance table.</li> </ol>
Reset mechanism cuts out repeatedly or fuses blow repeatedly.	<ol style="list-style-type: none"> <li>1. Improperly adjusted pressure switch.</li> <li>2. Faulty check valve</li> <li>3. Wrong fuse size or magnetic starter heaters.</li> <li>4. Defective motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust or replace</li> <li>2. Clean or replace faulty valve.</li> <li>3. Be sure that fuses and heaters are rated properly.</li> <li>4. Replace motor.</li> </ol>
ASME safety valve pops open while compressor is running.	<ol style="list-style-type: none"> <li>1. Wrong pressure switch setting.</li> <li>2. Defective ASME safety valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust to lower pressure (175 maximum) (See Operation section).</li> <li>2. Replace valve.</li> </ol>