

# Owners Manual

## Single Stage Portable Compressors



### Introduction

Congratulations on the purchase of your new air compressor. The air compressor is precision built from the finest materials using the finest state of the art design, and high tech engineering available today. Quality, performance and trouble free operation will assure you a dependable supply of air power on demand

**CAUTION** READ THIS MANUAL CAREFULLY before operating or servicing this air compressor, to familiarize yourself with the proper safety, operation, and standard operating procedures of this unit. **FAILURE TO COMPLY WITH INSTRUCTIONS IN THIS MANUAL COULD RESULT IN THE VOIDING OF YOUR WARRANTY, AND PERSONAL INJURY, AND/OR PROPERTY DAMAGE. THE MANUFACTURER OF THIS AIR COMPRESSOR WILL NOT BE LIABLE FOR ANY DAMAGE BECAUSE OF FAILURE TO FOLLOW THE INSTRUCTIONS IN THIS MANUAL.** By following the instructions and recommendations in this manual you will ensure a longer and safer service life of your air compressor.

## Compressed Air Systems

Simplicity. It's What We Do

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## **SAFETY PRECAUTIONS AND WARNINGS**

Listed are some, but not all safety precautions that must be observed with compressors and compressed air systems. Failure to follow any of these warnings may result in severe personal injury, death, property damage and/or compressor damage.

**Air from this compressor will cause severe injury or death if used for breathing or food processing. Air used for these processes must meet OSHA 29 CFR 1910 or FDA 21 178.3570 regulations.**

**This compressor is designed for use in the compression of normal atmospheric air only. No other gases, vapors or fumes should be exposed to the compressor intake, nor processed through the compressor.**

**Disconnect all power supplies to the compressor plus any remote controllers prior to servicing the unit.**

**Relieve all pressure internal to the compressor prior to servicing.**

**Do not depend on check valves to hold system pressure.**

**A properly sized safety valve must be installed in the discharge piping ahead (upstream) of any shut-off valve (block valve), heat exchanger, orifice or any potential blockage point. Failure to install a safety relief valve could result in rupturing or explosion of some compressor or safety component.**

**Do not change the pressure setting of the safety relief valve, restrict the function of the safety relief valve, or replace the safety valve with a plug.**

**Over pressurization of some system or compressor component can occur, resulting in severe personal injury, death and property damage.**

**Never use plastic pipe, rubber hose, or soldered joints in any part of the compressed air system. Failure to ensure system compatibility with compressor piping is dangerously unsound.**

**Never use a flammable or toxic solvent for cleaning the air filter or any parts.**

**Do not attempt to service any part while the compressor is operating.**

**Do not operate the compressor at pressures in excess of its rating.**

**Do not remove any guards while the compressor is operating.**

**Observe gauges daily to ensure compressor is operating properly.**

**Follow all maintenance procedures and check all safety devices on schedule.**

**Compressed air is dangerous, do not play with it.**

**Use the correct lubricant at all times.**

## Troubleshooting Chart

NOTE: TROUBLESHOOTING PROBLEMS MAY HAVE SIMILAR CAUSES AND SOLUTIONS

**ALWAYS MAKE SURE ELECTRICAL POWER IS OFF BEFORE REMOVING ANY INSPECTION COVERS OR PLATES**

**You should always contact an authorized service center before attempting to fix or repair your air compressor**

Problem	Possible causes	Solutions
Breaker Trips	<ol style="list-style-type: none"> <li>1. Low Voltage supply</li> <li>2. Motor overloads tripped</li> <li>3. Restricted air passages</li> <li>4. Loose wires at contact points</li> <li>5. Seized Pump</li> </ol>	<ol style="list-style-type: none"> <li>1. Check that incoming power wire size is adequate for compressor</li> <li>2. Check that compressor is on dedicated circuit</li> <li>3. Adjust belt tension</li> <li>4. Check wire connections to make sure they are tight</li> <li>5. Inspect transfer tubes and, check valve</li> </ol>
Compressor Stalls	<ol style="list-style-type: none"> <li>1. Low voltage supply to compressor</li> <li>2. Loose compressor belts</li> <li>3. Bad check valve</li> <li>4. Seized compressor pump</li> </ol>	<ol style="list-style-type: none"> <li>1. Check compressor power supply for adequate breaker and wire size</li> <li>2. Inspect check valve for proper operation</li> <li>3. Tighten belts</li> <li>4. Check compressor for proper oil level</li> </ol>
Low Discharge Pressure	<ol style="list-style-type: none"> <li>1. Air leaks in shop</li> <li>2. Leaking valves</li> <li>3. Restricted air intake</li> <li>4. Blown gaskets/seals</li> <li>5. Worn piston rings or cylinder</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten or replace leaking fittings, or joints</li> <li>2. Clean or replace air filter</li> </ol>
Compressor Pump Knocking	<ol style="list-style-type: none"> <li>1. Loose motor pulley or compressor flywheel</li> <li>2. Low oil level in compressor pump</li> <li>3. Carbon build up on valve and piston</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten pulley or flywheel</li> <li>2. Keep oil level at recommended level for proper operation</li> <li>3. Only use factory recommended oil</li> </ol>

## Troubleshooting Chart (continued)

NOTE: TROUBLESHOOTING PROBLEMS MAY HAVE SIMILAR CAUSES AND SOLUTIONS

**ALWAYS MAKE SURE ELECTRICAL POWER IS OFF BEFORE REMOVING ANY INSPECTION COVERS OR PLATES**

**You should always contact an authorized service center before attempting to fix or repair your air compressor**

Problem	Possible causes	Solutions
Excessive oil discharge in air (All Compressors have a small amount of oil carry over in compression)	<ol style="list-style-type: none"> <li>1. Worn piston rings or cylinder</li> <li>2. Restricted air intake</li> <li>3. Oil level too high</li> <li>4. Compressor has exceeded its duty cycle</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace air filters</li> <li>2. Reduce oil level to recommended amount</li> <li>3. Reduce compressor duty cycle (repair leaks or add another unit to handle the excess demand)</li> </ol>
Compressor Overheating	<ol style="list-style-type: none"> <li>1. Poor ventilation</li> <li>2. Dirty cooling surfaces</li> <li>3. Compressor is out of its operating duty cycle</li> </ol>	<ol style="list-style-type: none"> <li>1. Relocate compressor to any area with better ventilation (at least 18 inches from the nearest wall)</li> <li>2. Clean all cooling surfaces</li> <li>3. Reduce compressor duty cycle (repair leaks or add another unit to handle the excess demand)</li> </ol>
Excessive Belt Wear	<ol style="list-style-type: none"> <li>1. Pulley out of alignment</li> <li>2. Improper belt tension</li> <li>3. Pulley damaged or loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Realign pulley with flywheel</li> <li>2. Re-adjust belt tension</li> </ol>
Compressor won't start in Cold weather	<ol style="list-style-type: none"> <li>1. Bad check valve</li> <li>2. Compressor has wrong grade oil</li> <li>3. Control lines frozen</li> </ol>	<ol style="list-style-type: none"> <li>1. Use IS 100 (30W) compressor oil for cold weather conditions</li> <li>2. Move compressor to a warmer location</li> <li>3. Put a heat lamp on compressor to maintain above freezing temperatures</li> </ol>

**Troubleshooting Chart (continued)**

NOTE: TROUBLESHOOTING PROBLEMS MAY HAVE SIMILAR CAUSES AND SOLUTIONS

**ALWAYS MAKE SURE ELECTRICAL POWER IS OFF BEFORE REMOVING ANY INSPECTION COVERS OR PLATES****You should always contact an authorized service center before attempting to fix or repair your air compressor**

<b>Problem</b>	<b>Possible causes</b>	<b>Solutions</b>
Compressor Motor Hums wont start	<ol style="list-style-type: none"> <li>1. Fuse or Breaker blown in main panel (or fuse in fused disconnect if applicable)</li> <li>2. Low voltage to compressor</li> <li>3. Compressor starting with head pressure</li> <li>4. Power leads in motor or magnetic starter loose</li> <li>5. Starter or Pressure switch contacts corroded or broken</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-set breaker or replace blown fuse</li> <li>2. Inspect check valve for proper operation</li> <li>3. Check all power wire lead to solid connection</li> <li>4. Replace starter and Pressure switch</li> </ol>
Unit has power but wont run	<ol style="list-style-type: none"> <li>1. Starter tripped</li> <li>2. Starter coil out</li> <li>3. Pressure switch closed</li> <li>4. Low Oil monitor tripped (Elite units)</li> <li>5. Motor or Pump locked up</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-set starter</li> <li>2. Replace starter and Pressure switch</li> <li>3. Check unit for proper oil level</li> <li>4. Replace motor or pump</li> </ol>
Compressor Chatters (run and stops in a short period of time)	<ol style="list-style-type: none"> <li>1. Pressure switch connection corroded</li> <li>2. Starter is not getting enough voltage to close coil</li> <li>3. Low oil switch tripping</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace pressure switch</li> <li>2. Check unit voltage</li> <li>3. Check the oil level in the unit</li> </ol>

**NOTE:** Low Voltage-Low voltage can cause a multitude of problems. The most common cause of low voltage is when the wire size supplying the power to the compressor is too small. The longer the run of wire the larger the diameter must be to overcome the inherent voltage loss caused by the wire resistance. The supply voltage at the main panel could also be low as supplied by you local power company or you may have too many other pieces of equipment running off the same panel. You local electrician should be contacted to evaluate and correct the problem according to the Nation Electric Code. Other Symptoms of low voltage can be flickering lights and computer screen when the compressor tries to turn on.

## Troubleshooting Chart (continued)

NOTE: TROUBLESHOOTING PROBLEMS MAY HAVE SIMILAR CAUSES AND SOLUTIONS

**ALWAYS MAKE SURE ELECTRICAL POWER IS OFF BEFORE REMOVING ANY INSPECTION COVERS OR PLATES**

**You should always contact an authorized service center before attempting to fix or repair your air compressor**

Problem	Possible causes	Solutions
Compressor Stalls and Dies	<ol style="list-style-type: none"> <li>1. Drive engine low on fuel</li> <li>2. Compressor check valve not functioning</li> <li>3. Compressor Pilot valve not functioning</li> <li>4. Spark Plug in Engine bad</li> <li>5. Drive engine Low on oil</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fuel level in drive engine</li> <li>2. Inspect compressor check valve</li> <li>3. Check drive engine spark plug</li> <li>4. Check oil level on compressor drive engine</li> <li>5. Check oil on compressor pump</li> </ol>
Compressor is running and is not compressing air	<ol style="list-style-type: none"> <li>1. Compressor Pilot valve is actuated</li> <li>2. Compressor pilot valve is malfunctioning</li> <li>3. Compressors pump head unloaders stuck engaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Check pilot valve to make sure it in the proper position</li> <li>2. Replace compressor pilot valve</li> <li>3. Check and clean compressor pump head unloaders</li> </ol>
Compressor does not idle up for Compression	<ol style="list-style-type: none"> <li>1. Throttle control valve (bullwhip) not engaging</li> <li>2. Throttle control valve cable broken</li> <li>3. Drive engine throttle linkage damaged</li> </ol>	<ol style="list-style-type: none"> <li>4. Check throttle control valve (bullwhip) for proper function</li> <li>5. Replace throttle control valve</li> <li>6. Check drive engine throttle linkage</li> </ol>
Compressor Pump Knocking	<ol style="list-style-type: none"> <li>1. Loose motor pulley or compressor flywheel</li> <li>2. Low oil level in compressor pump</li> <li>3. Carbon build up on valve and piston</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten pulley or flywheel</li> <li>2. Keep oil level at recommended level for proper operation</li> <li>3. Only use factory recommended oil</li> </ol>

## Compressor Maintenance

**Warning:** To avoid personal injury, always shut OFF the main power supply and disconnects to the compressor, relieve all air pressure from the system, and check electrical system with electrical probe before starting any service or maintenance on the compressor.

### Daily:

**Drain the Receiver-** condensation will accumulate in the tank daily, and should be drained at least once a day. This is done to reduce corrosions of the tank from the inside. Always wear protective eyewear when draining the tank.

**Check Pump Oil Level-** All units have a sight glass the oil level non running units should be no lower than ½ way on the sight glass if it is lower then you need to add oil until it is at least ½ way up the sight glass.

Check unit for any unusual noise or vibrations

### Weekly:

**Clean air filter:** this will ensure that no dirt or heavy particulate makes its way into the compressors valve assemblies

**Clean external parts of compressor and electric motor:** this helps to ensure proper cooling and prevents rust and corrosion on critical parts

**Check safety Valves:** this is don't to ensure they are not stuck in place and operating properly

### Monthly:

**Inspect complete air system for leaks:** this is done to make sure the compressor does not get out of its duty cycle due to air leak in the system

**Inspect Oil for Contamination:** this is done to ensure that harmful deposits do not build up in the oil

**Check belt tension:** this is done to ensure the belt do not fail pre-maturely, tighten them as needed to ensure they do not slip

### Every 3 months:

**Change Oil:** this is done to ensure that the compressor has proper oil level and that the oil in the machine does not deteriorate past factory specifications

**Inspect Valve assemblies:** this is done to prevent premature failure and clean out and carbon that can form in older valves

### Storage of Compressor:

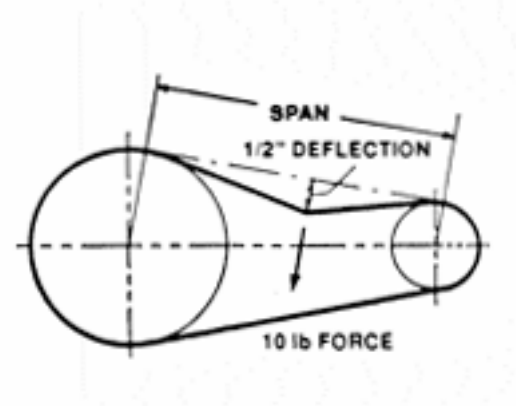
Before storing the compressor for a prolonged period of time, use a blow gun to clean all debris from compressor. Shut OFF main power and turn OFF disconnect. Drain tank pressure, clean air filter, drain old oil and replace with new oil. Cover the unit to prevent dust and moisture from collecting on the unit.

## Adjusting Belt Tension

Proper belt tension and pulley alignment must be maintained for maximum drive efficiency and for maximum belt life. The correct tension exists if a deflection of ½ inch occurs by placing 10lbs of force midway between the motor pulley and the compressor flywheel. This deflection can be adjusted by the following procedure. The pulley should be carefully aligned with the flywheel and set screws should be kept tight.

1. Remove the belt guard
2. Loosen the motor mounting bolts
3. Shift the motor to the point where the correct deflection exists
4. Retighten the motor mounting belts
5. Check to ensure that the tension remain correct after tightening
6. Re-install the belt guard. All moving parts must be guarded

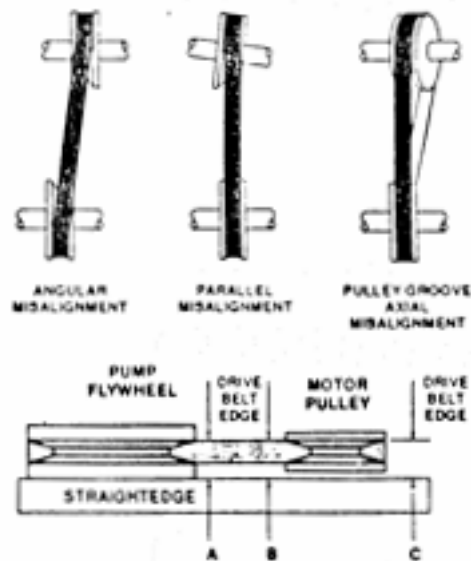
NOTE: Drive belt tension and pulley alignment are done at the same time. They are discussed separately for clarity.



## Pulley Alignment

The figure to the side shows 3 examples of misaligned pulleys. To check pulley alignment, remove the belt guard and place a straightedge against the compressor flywheel, measure and record the distance from the straightedge to the edge of the drive belt. Then measure the distance to the edge of the drive belt on the motor pulley at the same edge. As long as both points measure the same distance the pulleys will be aligned if not you will need to move the pulley until its in alignment this may take a few tries. To re-align the pulley follow the steps below

1. Loosen the motor mounting bolts
2. Remove the belt guard
3. Loosen the set screw on the motor pulley
4. Align the motor pulley with the compressor flywheel
5. Re-tighten the motor pulley set screws
6. Adjust the proper belt tension
7. Re-tighten the motor mounting bolts
8. Re-install the belt guard



## Description of Compressor

### What is a reciprocating compressor

A reciprocating compressor is a piston type pump which develops pressure from the action of a piston moving through a cylinder. The cylinder, or cylinders, may be vertical, horizontal or angular.

When air is drawn in from the atmosphere and compressed to its final pressure in a single stroke, the compressor is referred to as a "single stage" pump. Single stage units normally are used in the 90 to 125 PSI range and are available as single or multi-cylinder (twin cylinder) compressors.

When the air drawn from the atmosphere is compressed first to an intermediate pressure, and then further compressed to a higher pressure, it is done in a "two stage" pump. These cylinders are unequal in size and the first stage always takes place in the larger, low pressure cylinder. From there it passes through the inner cooler to the smaller, high pressure cylinder. The cycle is completed as the air then moves through the after cooler and discharge line into the tank. Two stage compressors are generally used for pressure ranges from 100 to 175 PSI and deliver more air per horsepower at these pressures. This increase in efficiency is partially due to the heat dissipated as the air passes through the inner cooler.

### Description Of Cooling

Our compressors are cooled by fan blades, incorporated into the driven sheave (pulley), blowing air across the intercooler, after cooler, and cylinder head.

### Description Of Controls

Stop/Start Receiver or plant air system pressure is controlled within limits by a pressure switch automatically stopping and starting the compressor as the air pressure reaches a maximum preset pressure (cut out) and then drops to a minimum pressure (cut in).

## Receiving and Uncrating of your Compressor

Before uncrating the compressor the following steps should be taken.

1. Immediately upon receipt of the equipment, it should be inspected for damage that may have occurred during shipment. If any damage is found, demand an inspection immediately by an inspector from the carrier. Ask him how to file a claim for damages. (See Appendix "A" for Details).
2. Insure that adequate lifting equipment is available for moving the machinery.
3. Read the compressor nameplate to be sure the compressor is the model and size ordered.
4. Read the motor nameplate to be sure the motor is compatible with your electrical conditions. (Volts-Phase-Hertz).

**IMPORTANT: If voltage supplied to the compressor is below 208 volts the unit need a 200 Volt drive motor and 208-230-460 Volt should not be used below 208 volts.**

**NOTE: Standard motors are open drip proof with a maximum ambient temperature rating of 104 degrees F. They are not suitable for salt laden, corrosive, dirty, wet, or explosive environments.**



**Improper lifting can result in component or system damage or personal injury. Follow good shop practices and safety procedures**

## Compressor Installation

### LOCATION

Locate the compressor in an indoor area that is clean, dry, well lighted, and well ventilated, with sufficient space for safe and proper inspection and maintenance. Ambient temperatures should not exceed 104 degrees F or fall below 30 degrees unless an electric motor rated for a higher temperature is used. Inspection and maintenance checks are required daily, therefore, ample space is required around the compressor.

The compressor must not be installed closer than fifteen inches from a wall or from another compressor to allow ample circulation of air across the compressor cylinders and head, and through the coolers if they are part of the system. Additional safety can be achieved by locating the pulley guard next to the wall.

### MOUNTING

We recommend the use of rubber pads or isolators between the tank legs and the floor. If a shim is required to level the unit, place it between the pad and floor. If you bolt the unit to the floor, use the bolts as guide pins and do not tighten the bolts. The rubber pads are used to absorb machine vibration and cannot work effectively if bolted tightly.

### INDUCTION SYSTEM

Do not locate the compressor where it could ingest or ignite toxic, explosive or corrosive vapors, ambient air temperatures exceeding 104 degrees F, water or extremely dirty air. Ingestion of any of the above noted atmospheres by the compressor could jeopardize the performance of the equipment and all personnel exposed to the total compressed air system.

Depending on the size of the compressor and the size and construction of the compressor room it may be necessary to locate the air pickup point outside the room. Destructive pulsations can be induced by reciprocating compressors that will damage walls and break windows. Pulsation can be minimized by adding a pulsation dampener on the inlet side of the compressor.



**Under no circumstances should a compressor be placed in an area that may be exposed to a toxic, volatile or corrosive atmosphere nor should toxic, volatile or corrosive agents be stored near the compressor.**

## NOISE

Noise is a potential health hazard that must be considered. There are local and federal laws specifying maximum acceptable noise levels that must not be exceeded. Most of the noise from a reciprocating compressor originates from the air inlet point. Excessive noise can be greatly reduced by installing an intake noise silencer.

## PIPING FITUP

Care must be taken to avoid assembling the piping in a strain with the compressor. It should line up without having to spring or twist into position. Adequate expansion loops or bends should be installed to prevent undue stresses at the compressor resulting from the changes between hot and cold conditions. Pipe support should be mounted independently of the compressor and anchored as necessary to limit vibration and prevent expansion strains.



**Safety valves are to protect system integrity in accordance with ASME Codes and ANSI B19.3 safety standards. Failure to use safety valves of the proper capacity and pressure will cause severe personal injury or death.**

**NOTE: Standard motors are open drip proof with a maximum ambient temperature rating of 104 degrees F. They are not suitable for salt laden, corrosive, dirty, wet, or explosive environments.**

**SAFETY VALVES** Safety valves are pressure relief valves and should be sized and purchased with a pressure setting to protect the weakest link in the system. Never change the pressure setting, only the safety valve manufacturer is qualified to make a change. Safety valves are to be placed ahead of any potential blockage point which included but is not limited to, shutoff valves, heat exchangers, pulsation dampeners, and discharge silencers.

**Failure to properly size, set and install pressure relief valves can be fatal.**



**ASME coded pressure vessels must not be modified, welded, repaired, rewired or subjected to operation conditions outside the nameplate ratings. Such actions will negate code status, affect insurance status and may cause severe personal injury, death, and property damage.**

### **PRESSURE VESSELS**

Air receiver tanks and other pressure containing vessels such as, but not limited to, pulsation bottles, heat exchangers, moisture separators and traps, shall be in accordance with ASME Boiler and Pressure Vessel Code Section VIII and ANSI B19.3 Safety Standards.



**The installation, wiring, and all electrical controls must be in accordance with ANSI C1 National Electric Code, ANSE C2 National Electric Safety Code, state and local codes. All electrical work should be performed by a qualified electrician. Failure to abide by the national, state and local codes may result in physical and/or property damage.**

### **ELECTRICAL**

Before installation, the electrical supply should be checked for adequate wire size and transformer capacity. During installation a suitable fused or circuit breaker disconnect switch should be provided. Where a 3 phase motor is used to drive a compressor, any unreasonable voltage unbalance between the legs must be eliminated and any low voltage corrected to prevent excessive current draw. Compressors must be equipped with a properly wired magnetic motor starter or a pressure switch rated to carry the full motor current load. The coil which engages and disengages the contact points in the motor starter is controlled by the pressure switch. Never attempt to bypass the pressure switch or adjust it past the factory set pressure range. Improper installation of the electrical system can cause the motor to overheat or a short circuit to occur.



Electric power always exists inside the pressure switch when there is electric power at the compressor package. Either a qualified electrician should make the pressure adjustments or the electric power supply should be disconnected and locked out before making any adjustment.

NEVER exceed the designed pressure for the system or overload the motor beyond its service factor.

FAILURE TO HEED THESE WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH, PROPERTY DAMAGE AND/OR MECHANICAL FAILURE

### **PRESSURE SWITCH**

The pressure switch is automatic in operation and is adjusted to start and stop the unit at the minimum and maximum desired air receiver pressure by cutting in and out the power to the electric motor. On some models, the pressure switch incorporates a release valve, which releases air between the check valve located in the receiver and discharge valve in the head of the compressor.



Relieve compressor and system air pressure by opening the appropriate manual relief valve prior to servicing. Failure to relieve all system pressure may result in severe personal injury, death and property damage.

### **MANUAL RELIEF AND SHUTOFF VALVES**

Install a manual relief valve to vent the compressor to atmosphere. In those instances where the air receiver tank services a single compressor, the manual relief valve can be installed on the receiver. When a manual shut-off valve, and a safety relief valve installed upstream from the manual relief valve. These valves are to be designed and installed as to permit maintenance to be performed in a safe manner. Never substitute a check valve for a manual shut-off valve (block valve) if the purpose is to isolate the compressor from a system for servicing.



**Guards must be fastened in place before starting the compressor and never removed before cutting off and locking out the main power supply.**

## **GUARDS**

All mechanical action or motion is hazardous in varying degrees and needs to be guarded. Guarding shall be in compliance with OSHA Safety and Health Standards 29 CFR 1910.219 in OSHA manual 2206 and any state or local code.



**Excessive speed of the compressor or driver can be lethal. Never operate the compressor beyond the manufacturer's recommendation. Bursting of the flywheel may be the greatest threat because the normal guard may not contain all the pieces. Crankshaft and connecting rod breakage is a possibility and compressor efficiency, valve life and bearing life will be abnormally reduced.**

## **DRIVES**

It is important that the compressor and motor pulleys are aligned properly and the V belt is correctly tensioned. Improper pulley alignment and belt tension are causes for motor overloading, excessive vibration, and premature belt and/or bearing failure.

**Removal or painting over safety labels will result in uninformed conditions. This may result in personal injury or property damage. Warnings signs and labels shall be provided with enough light to read, conspicuously located and maintained for legibility. Do not remove any warning, caution, or instructional material attached!**

**Provisions should be made to have the instruction manual readily available to the operator and maintenance personnel. If for any reason any part of the manual becomes illegible or if the manual is lost, have it replaced immediately. The instruction manual should be periodically read to refresh one's memory, it may prevent a serious or fatal accident.**

## Receiving and Uncrating of your Compressor

Before uncrating the compressor the following steps should be taken.

1. Immediately upon receipt of the equipment, it should be inspected for damage that may have occurred during shipment. If any damage is found, demand an inspection immediately by an inspector from the carrier. Ask him how to file a claim for damages. (See Appendix "A" for Details).
2. Insure that adequate lifting equipment is available for moving the machinery.
3. Read the compressor nameplate to be sure the compressor is the model and size ordered.
4. Read the motor nameplate to be sure the motor is compatible with your electrical conditions. (Volts-Phase-Hertz).

**IMPORTANT: Compressor drive engine comes with its own manual refer to drive engine manual for any specifications or troubleshooting issues wth the drive engine of the air compressor**



**Improper lifting can result in component or system damage or personal injury. Follow good shop practices and safety procedures**

## Start Up Preparation & Procedures

The following check list shall be adhered to before putting the compressor into operation.

**FAILURE TO PERFORM THE CHECKS MAY RESULT IN SERIOUS INJURY OR DEATH, PROPERTY DAMAGE AND/OR MECHANICAL FAILURE. DISCONNECT AND LOCK OUT POWER SUPPLY.**

1. Remove all loose pieces and tools around the compressor installation.
2. Check oil level in crankcase, add as necessary.
3. Check all pressure connections for tightness and leaks.
4. Check to make sure all safety relief valves are in place and operational.
5. Check to be sure all guards are in place and securely mounted.
6. Check fuses, circuit breakers and thermal overloads for proper size.
7. Open all manual shut-off valves (block valves) at and beyond the compressor discharge.
8. On all 3 phase units, after all of the above conditions have been satisfied, jog the starter switch button to check the rotational direction of the compressor. It should agree with the rotation arrow on the flywheel/pulley (counter clockwise, facing the shaft).

The following procedures should be followed for start-up of a new installation, or after changes have been made to an existing installation, and/or after service repair work has been performed.

1. Instructions in addition to those contained within this manual, supplied by manufacturers of supporting equipment, must also be read and understood before start-up.
2. Check oil level in crankcase.
3. Drain moisture from air receiver and traps.
4. Start compressor and watch for excessive vibration or strange noises. If either is observed, stop the compressor immediately and correct.
5. Check air receiver or system pressure.
6. Manually activated safety relief valves by pulling ring or lever.
7. Check operation of controls.
8. Run the compressor for one half hour, unloaded and change the oil after the first 8 hours of use.
9. After two days of operation check belt tension, air piping for leaks, and crankcase oil level.

## Stopping for Maintenance or Service



**Never assume the compressor is ready for maintenance or service because it is stopped. The automatic stop-start control may start the compressor at any time!**

The following procedure should be followed to maximize safety when preparing for maintenance or service.

1. Disconnect and lock-out the main power switch and hang a sign at the switch Informing of the unit being serviced.
2. Close shut-off valve (block valve) between receiver and compressor, or receiver and Plant air system, to prevent any back-up of air flow into the area to be serviced.
3. Lock open manual vent valve and wait for the pressure in the area to be serviced (compressor, receiver, etc.) to be completely relieved before starting service. The Manual vent valve may be the drain valve in the receiver. NEVER remove a plug to relieve the pressure.
4. Open all manual drain valves within the area to be serviced.
5. Wait for the unit to cool before starting service, (temperatures at 125 degrees F can burn the skin), some surface temperatures exceed 400 degrees F when the compressor is working).
6. Clean up all oils spills immediately to prevent slipping.

## Maintenance Procedures Review

### SAFETY PROCEDURES

Adherence to safe working procedures are important to Service personnel at the time of servicing and to those who may, at a later date be around the compressor and the system it serves. Routine maintenance insures trouble free operation and protects your investment. All warranties are void if maintenance is neglected.

### DAILY

**CHECK THE OIL LEVEL.** Maintain the level at the center of the sight glass with 30w non-detergent.

**DRAIN THE TANK.** Turn off the power to the compressor and drain all the moisture from the bottom of the tank.

### WEEKLY

**CLEAN THE OIL.** If the oil appears contaminated by moisture or dirt, change immediately.

**CHECK THE V BELTS.** Turn off the compressor and inspect the belts for damage, excessive wear, and correct tension. Replace if necessary.

**TEST THE SAFETY VALVE.** Pull the ring on the safety valve. Air should escape and then reset. In the event the compressor ran over pressure, the safety valve would reduce the tank pressure to a safe level. Never run the unit without this safety valve or attempt to adjust it.

**GENERAL INSPECTION.** Check the overall operation of the unit. Tighten any loosen bolts, inspect for air leaks and inspect for any unusual noises or vibrations.

### EVERY 3 MONTHS OR 500 HRS OF OPERATION

**CHANGE THE OIL.** Refill with 30w non-detergent oil.

**INSPECT COMPRESSOR VALVES AND VALVE PLATES.** The compressor valves are manufactured from high quality stainless steel for long life. Inspect and clean the valves and valve plates by brushing with a stiff bristle brush. Do not use a steel or wire brush as severe damage to the sealing surfaces may result. Clean safety solvent may also be used to loosen carbon deposits. NEVER use gasoline, thinners or other flammable solutions to clean valves or related parts. Check to be sure the valves are seated against the sealing surface around each port. If the valves are not sealing, compressor capacity will be severely reduced and excessive heat will be generated, resulting in carbon build-up.

#### CERTIFICATE OF LIMITED WARRANTY

All component parts on this compressor are warranted to be free of defects, workmanship and material for a period of one year. Transportation charges are the responsibility of purchaser. This warranty extends to the original purchaser of the compressor only.

There are no express warranties except as contained in this limited warranty statement and implied warranties, including those of merchantability and fitness for a particular purpose, are limited to the period of warranty.

Our liability is limited solely to replacement of nonconforming parts as set forth herein and does not include any liability for any incidental, consequential, or other damages of any kind. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.











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**Simplicity. It's What We Do.**