

# Rol-Air

STATIONARY

## Air Compressors

# MANUAL

## INSTALLATION – OPERATION MAINTENANCE

### WARNING

COMPRESSOR DISCHARGE AIR MAY CONTAIN HYDROCARBON AND OTHER CONTAMINANTS; THEREFORE, DO NOT USE DISCHARGE AIR FOR BREATHING.

### IMPORTANT

Record factory pump-up time on the space provided. Periodically test your compressor against factory pump-up time. If time is considerably off, contact your local "Rol-Air" representative to arrange maintenance.

Make a permanent record of the Model and Serial number of your machine here. You'll save time and expense by including this reference identification on replacement parts orders.

FROM \_\_\_\_\_ PSI to \_\_\_\_\_ PSI  
\_\_\_\_\_ MIN. \_\_\_\_\_ SEC.

MODEL \_\_\_\_\_

VOLTS \_\_\_\_\_ HZ \_\_\_\_\_ HP \_\_\_\_\_

\_\_\_\_\_  
SERIAL NUMBER



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## RECEIVING DELIVERY

### CONGRATULATIONS ON YOUR NEW "ROL-AIR" COMPRESSOR

Immediately upon receipt of compressor equipment and prior to completely uncrating, the following steps should be taken:

- Step 1) Inspect compressor equipment for damage that may have occurred during shipment. If any damage is found, demand an inspection from the carrier. Ask the carrier how to file a claim for shipping damages. Freight damage is not covered by Associate Engineering warranty.
- Step 2) Insure that the adequate lifting equipment is available for moving the compressor equipment.
- Step 3) Record nameplate information and the pump up time from the test sheet provided with the unit on the front of your owner's manual.

### 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.

1. 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 CFR 178.3570 regulations.
2. 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.
3. Disconnect all power supplies to the compressor plus any remote controllers prior to servicing the unit.
4. Relieve all pressure internal to the compressor prior to servicing. Do not depend on check valves to hold system pressure.
5. A properly sized safety relief 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 the rupturing or explosion of some compressor or system components.
6. Do not change the pressure setting of the safety relief valve, restrict the function of the safety relief valve, or replace the safety relief valve with a plug. Over pressurization of system or compressor components can occur, resulting in severe personal injury, death and property damage.
7. Never use plastic pipe, rubber hose, or soldered joints in any part of the compressed air or gas system. Failure to ensure system compatibility with compressor piping is dangerously unsound.
8. Never use a flammable or toxic solvent for cleaning the air filter or any parts.
9. Do not attempt to service any part while the compressor is operating.
10. Do not operate the compressor at pressures in excess of its rating.
11. Do not remove any guards while the compressor is operating.
12. Follow all maintenance procedures and check all safety devices on schedule.
13. Never disconnect or tamper with any safety devices.
14. Compressed air is dangerous, do not play with it.
15. Use the correct lubricant at all times.

## INSTALLATION

### LOCATION:

- Locate the compressor in a cool, dry, clean and well ventilated area with temperature range between 35°F to 105°F.

**WARNING!** Under no circumstances should compressor be installed in an area that may be exposed to dirty/corrosive atmosphere, toxic vapors, or volatile fumes. Do not store toxic, volatile, or corrosive agents near the compressor.

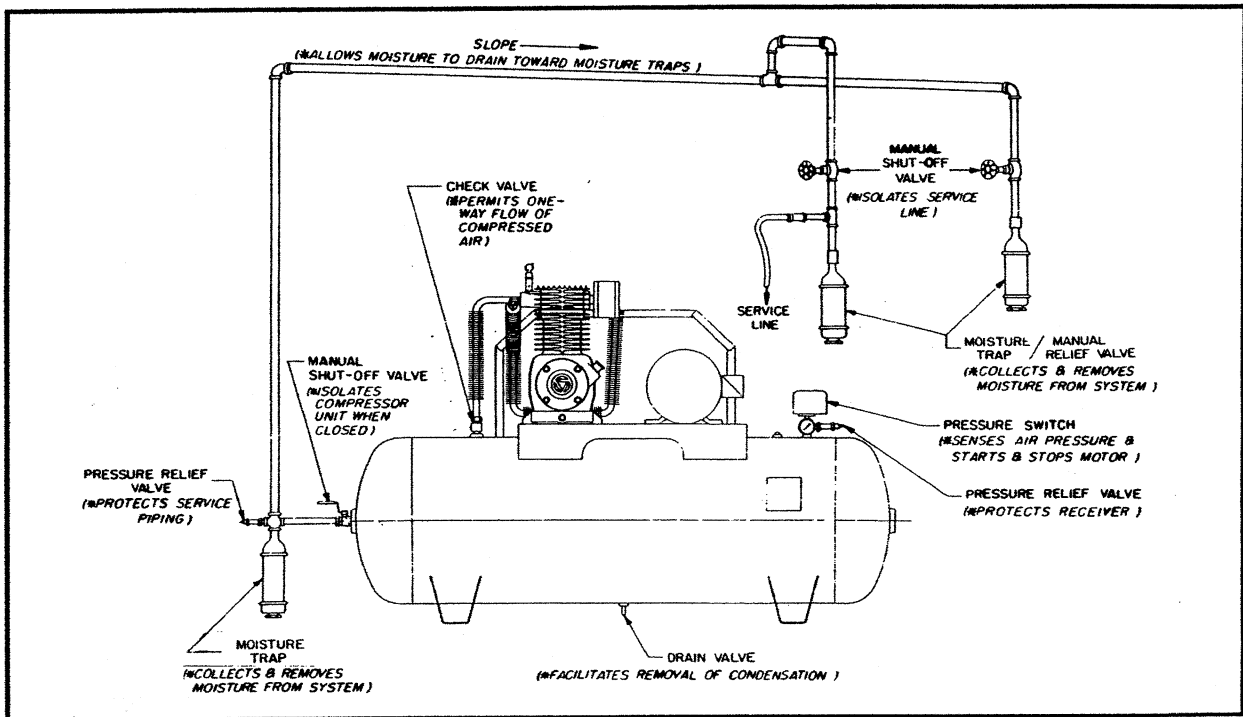
- The intake filter may be remotely located. Enlarge size of intake piping by 1/4" in size for each 10 feet of length.
- Install so that the flywheel/belt guard is at least 18" from an adjacent wall. Allow space on all sides for air circulation & ease of maintenance.
- Make sure the compressor tank is mounted level on a solid foundation using vibration dampening pads made of felt/rubber. If vibration pads cannot be located the skid on which the compressor is shipped may be left on & used as a mounting base. Solid shims may be used to level unit before bolting or lagging unit to prevent movement.

**NOTE:** Contact your local Rol-Air Representative for information on level-rite mounting pads or if excessive vibration/movement is noticed upon initial test run.

## INSTALLATION

### PIPING:

The compressed air distribution system should be of sufficient pipe size to keep the pressure drop between the supply and point of use to a minimum. All piping should be sloped to an accessible drainpoint. Outlets should be taken from top of mainline so that moisture will not enter the outlet.



### PIPING FITUP:

Care must be taken to avoid assembling the piping in a strain with the compressor - it should be lined up without having to spring or twist it 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 supports should be mounted independently of the compressor and anchored as necessary to limit vibration and prevent expansion strains.

\* Never join pipes or fittings with lead-tin soldering. Welded or threaded steel pipes and cast iron fittings, designed for the pressures and temperatures, are recommended. Never use PVC or plastic pipe.

Pipe sizes for compressed air lines:								
Air	Length of Pipe Lines in Feet							
c.f.m.	25	50	75	100	150	200	250	300
1	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
3	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
5	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
10	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
15	1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4
20	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
25	3/4	3/4	3/4	3/4	3/4	1	1	1
30	3/4	3/4	3/4	3/4	1	1	1	1
35	3/4	3/4	1	1	1	1	1	1
40	3/4	1	1	1	1	1	1	1
50	1	1	1	1	1	1	1	1
60	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
70	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
80	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2
100	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2

**Check all piping and fittings regularly to avoid "leaks" in the system.**

## ELECTRICAL CONNECTIONS & MOTOR WIRING:

The electrical installation of this unit should be performed by a qualified electrician with knowledge of the National Electrical Code (N.E.C.), O.S.H.A. code and/or any local state codes having precedence.

Check the electrical supply for voltage, phase, and frequency to see that they match the nameplate stampings on the motor, magnetic starter, solenoids, and other controls. Use electrical wires of adequate size to carry the full load current of the motor without excessive voltage drop.

The motor must always be protected by a starter with properly sized thermal overload(s). The starter should protect the motor from overheating and burn-out due to an overload, low voltage or single phasing of a 3-phase circuit. Failure to install the proper starter and overloads will void the motor manufacturer's warranty. Follow the National Electric Code or local electric code in providing wiring, fusing and disconnect switches.

After the wiring is completed, momentarily start the motor to make certain that the compressor flywheel rotates in the same direction as that indicated by the direction arrow on the compressor flywheel.

**NOTE:** An easy way to check for proper rotation is to place a piece of paper on the outside of the belt guard cover while the machine is running. If the piece of paper is blown away, the rotation is incorrect. Consult a qualified electrician to correct the rotation. Improper rotation will lead to overheating and oil blowing out of the crankcase breather.

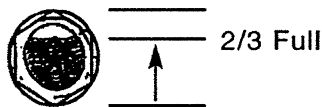
## OPERATION

### LUBRICATION

Prior to daily operation, make a habit of checking the oil level in your compressor pump. A sight glass on the outside of the pump's crankcase is provided to make the job easier. Always maintain the oil level to read 2/3 full on the sight glass. Oil levels over this amount will result in oil blowing past the rings or through the crankcase breather. Lower amounts of oil will result in insufficient lubrication of moving parts.

Reciprocating compressors will consume a certain amount of oil under normal operation. If you are concerned about your oil consumption, monitor and record oil consumption daily and consult your local dealer. When filling your crankcase with oil, be sure to use a single viscosity, non-detergent oil. **DO NOT USE A DETERGENT OIL!!**

Proper oil level:



### Oil Capacity OZ.

K8	12
K11	17
K12	15
K17	34
K18	34
K22	61
K23	61
K24	61
K25	61
K30	47
K35	47
K50	59
K60	98
K70	98
K100	127

Ambient Temp.	Viscosity at 100°F SSU	ISO Viscosity CS+	SAE No.
0° - 40°	250-350	46-68	20
40° - 80°	450-550	100	30
80° - 120°	650-750	150	40
Under 0° Consult Over 120° Factory			

## Lubrication Continued

Check the oil before starting.

Prior to shipping, complete units are filled with a break in oil and tested. Your new unit should be run with the break in oil for 100 hours.

**Note:** Bare pumps are shipped without oil. These will need to be properly filled prior to operation (See below).

Whether you have purchased a complete unit or bare pump, be sure the oil level is correct before starting each day.

**Important:** Do not over fill your pump. It will cause harm.

After the break-in period, use a single grade, non-detergent motor oil with foam, rust, and oxidation inhibitors. (See your oil distributor or representative for compressor oil)

**DO NOT USE A DETERGENT OIL.**

See chart for oil recommendation in varying temperature conditions.

## SYSTEM COMPONENTS

Efficiency and safety are the primary concerns when selecting components for compressed air systems. Products of inferior quality can not only hinder the performance of the unit, but could cause system failures or bodily harm. Select only top quality components for your system. Call your local Rol-Air Distributor for quality parts and professional advice.

### **DRIVE PULLEYS:**

Drive pulleys must be properly aligned and drive belt tension set to specifications. Improper pulley alignment and belt tension can cause motor overloading, excessive vibration, and premature belt and/or bearing failure.

### **GUARDS:**

All mechanical action or motion is hazardous in varying degrees and needs to be guarded. Guards should be designed to achieve the required degree of protection and still allow full air flow from the compressor sheave across the unit. Guards shall be in compliance with OSHA safety and health standards and any state or local codes. When the compressor is installed, make sure guard side is at least 18" away from a wall to provide adequate cooling of motor and pump.

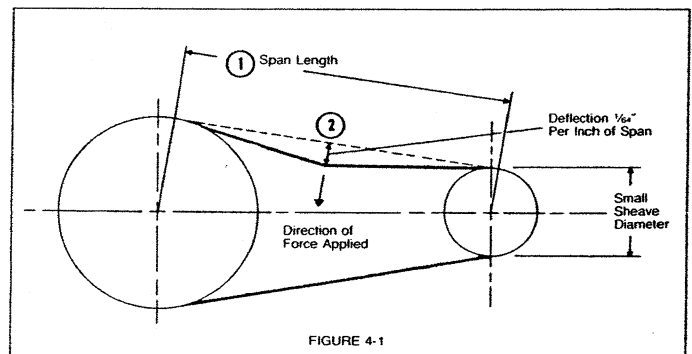


FIGURE 4-1

### **CHECK VALVES:**

Check valves are designed to prevent back-flow of air pressure in the compressed air system (air flows freely in one direction only). The check valve must be properly sized for air flow and temperature. Do not rely upon a check valve to isolate a compressor from a pressurized tank or compressed air delivery system during maintenance procedures!

### **MANUAL SHUTOFF VALVES:**

Manual shutoff valves block the flow of air pressure in either direction. This type of valve can be used to isolate a compressor from a pressurized system, provided the system is equipped with a safety relief valve capable of being manually released. The safety relief valve should be installed between the manual shutoff valve and the compressor.

### **SAFETY RELIEF VALVES:**

Safety relief valves aid in preventing system failures by relieving system pressure when compressed air reaches a determined level. A check valve and safety relief valve are required in all compressed air systems. Safety relief valves are preset by the manufacturer and under no circumstances should the setting be changed.

### **PRESSURE SWITCH:**

The pressure switch detects the demand for compressed air and allows the motor to start. When the demand is satisfied, the unit stops and unloads the head pressure with a short hissing noise. Engine driven units use a pilot valve instead of a pressure switch. It will discharge compressed air to atmosphere or open the intake valves upon reaching a predetermined pressure setting.

### **PRESSURE VESSELS:**

ASME coded pressure vessels must not be modified, welded, repaired, reworked or subjected to operating conditions outside the nameplate ratings. Such actions will negate code status.

## MAINTENANCE

Regular maintenance insures trouble-free operation. Your new compressor represents the finest engineering and construction available. However, even the finest machinery requires periodic maintenance. A good maintenance program will add years of service to your air compressor. The following is recommended as a minimum maintenance program. For your protection, disconnect power supply after each day's operation and drain air from system before any maintenance.

### **DAILY MAINTENANCE**

1. Check and maintain oil level. Always use a single viscosity non-detergent oil (**SEE CHART**).
2. Drain condensated water from receiver unless it is equipped with an automatic tank drain, in which case the drain should be checked to ensure that it is operating.
3. Check for unusual noise or vibration.

### **WEEKLY:**

1. Check oil in the compressor and add as necessary.\*  
**IMPORTANT:** Replace the oil after the first 100 hours of operation.
2. Clean compressor — especially the intercooler and aftercooler.
3. Open drain cock located on bottom of receiver and drain condensated water.
4. Clean air intake filter.
5. Check drive belt and adjust if necessary.

### **MONTHLY:**

1. Repeat weekly procedures.
2. Change compressor oil.\*
3. Check for air and oil leaks and correct.
4. Tighten all hardware.

### **1,000 HOURS:**

1. Repeat weekly procedures.
2. Replace the oil in the compressor.\*

### **2,000 HOURS:**

1. Repeat weekly procedures.
2. Replace the oil in the compressor.\*
3. Check the valves in the compressor and replace if they are damaged or worn.

\* Always make sure crankcase vent (breather) is free and unobstructed when changing or checking oil.

## TROUBLE SHOOTING

### **A. LOW DISCHARGE PRESSURE...PROBABLE CAUSE:**

1. Air Leaks
2. Leaking Valves
3. Restricted Air Intake
4. Slipping Belts
5. Unloading Mechanism Not Operating Properly
6. Blown Gaskets
7. Worn Compressor Rings
8. Defective Gauge
9. Compressor Too Small For Load

**NOTE:** Before checking the above, first isolate the problem to the unit or the air lines and tools. To do this, close the manual shutoff valve to your air lines. Then drain all air from the receiver. Now pump up the receiver checking the pump up time, and compare it to the time you should have recorded on the front of your manual. The pump up time will vary slightly due to temperature, humidity and barometric pressure. If your pump up time is reasonably close, the problem is outside of the unit.

### **B. KNOCKING:**

1. Loose Motor Pulley or Compressor Flywheel
2. Loose Belts
3. Lack of Oil in Crankcase
4. Worn Connecting Rod Bearings
5. Worn Piston Pin Bearing
6. Worn Main Bearings
7. Excessive Crankshaft End Play
8. Excessive Motor Shaft End Play
9. Loose Valve Assemblies
10. Loose Piston
11. Piston Hitting the Head Due to Foreign Matter or Carbon Deposits

### **C. OVERHEATING:**

1. Poor Ventilation
2. Dirty Cooling Surfaces
3. Incorrect Flywheel Rotation
4. Defective Valves
5. Flywheel Too Close to Wall
6. Restricted Air Intake

### **D. COMPRESSOR FAILS TO ATTAIN SPEED:**

1. Loose Belts
2. Low Voltage
3. Overloaded Motor
4. Check Electrical Installation
5. Unit Not Unloading or Defective Check Valve

### **E. EXCESSIVE BELT WEAR:**

1. Motor Pulley or Flywheel Out of Alignment
2. Belt Too Loose or Too Tight
3. Belt Slipping
4. Flywheel Wobble

### **F. EXCESSIVE STARTING AND STOPPING:**

1. Air Storage Capacity Too Small
2. Excessive System Leakage
3. Pressure Switch Set Too Close or Defective
4. Unloader Pilot Differential Set Too Close or Defective
5. Unit Too Small for Load

### **G. OIL IN THE DISCHARGE AIR:**

1. Worn Piston Rings
2. Compressor Air Intake Restricted
3. Restricted Crankcase Breather
4. Excessive Oil In Compressor
5. Wrong Oil Viscosity

### **H. WATER IN CRANKCASE (OIL APPEARS MILKY IN COLOR):**

1. Compressor Does Not Run Long Enough to Get Hot and Vaporize the Moisture Squeezed Out of the Air During Compression. Compressor May Be Too Large for the Application.
2. Incorrect or Inferior Grade of Oil

### **I. OIL BLOWING OUT OF THE CRANKCASE VENT:**

1. Crankcase overfilled
2. Improper weight of oil
3. Improper pump rotation
4. Obstructed breather
5. Inadequate ventilation  
(See system component section "Guard")

**NOTE:** Reciprocating compressors consume a certain amount of oil under normal operation. If you are concerned about your oil consumption, monitor and record oil consumption daily before consulting your dealer. When oil consumption is normal and what appears to be milky oil is found in your lines, this is caused by small particles of oil, along with water vapor, condensing in your air lines. To eliminate this problem: Air Cooled Aftercoolers, Refrigerated Dryers and Filters are available through your dealer.

# Rol-Air

## Guarantee

Associate Engineering Corporation (the Company) warrants, that for a period of twelve months from the date of purchase or 18 months from date of manufacture, whichever occurs first, it will replace or repair, free of charge, for the original retail purchaser only, any part or parts manufactured by the Company, found upon examination by the Company at Hustisford, Wisconsin to be defective in material or workmanship or both. All transportation charges for parts submitted for replacement or repair under this warranty must be borne by the original retail purchaser. This is the exclusive remedy under this warranty.

Failure by the original retail purchaser to install, maintain and operate said equipment in accordance with good industry practices and failure to comply with the specific recommendations of the Company set forth in the owner's manual, shall render this warranty null and void. The Company shall not be liable for any repairs, replacements or adjustments to the equipment or any costs for labor performed by the purchaser without the Company's prior written approval. The effects of corrosion, erosion and normal wear and tear are specifically excluded from this warranty.

**The Company makes no other warranty or representation of any kind whatsoever expressed or implied, except that of title. All implied warranties, including any warranty of merchantability and fitness for a particular purpose are hereby disclaimed. Liability for consequential and incidental damages under any and all warranties, other than contract, negligence or otherwise, are excluded to the extent exclusion is permitted by law.**

Notwithstanding the above, any legal claim against the Company shall be barred if legal action thereon is not commenced within twenty-four (24) months from the date of purchase or delivery whichever occurs last. This warranty constitutes the entire agreement between the Company and the original retail purchaser and no representative or agent is authorized to alter the terms of same without expressed written consent of the Company.

## Quality

Associate Engineering Corporation is devoted to continual quality control and thorough research of the products we build. It is our creed to give you, the user, all of the experience and engineering available in the production of every piece of equipment we produce.

Our line covers the complete needs of today's varied air requirements. Rely on "ROL-AIR" for all the newest and finest features that are available for the modern compressor.

"Rol-Air" air compressors and parts are sold by a nationwide network of distributors and service centers. Please contact the distributor or service center where you purchased your air compressor for any compressor needs. To avoid any confusion or delay when ordering parts for your compressor, please indicate the serial number and the model number of your unit.

### **TO ORDER REPLACEMENT PARTS:**

- 1.) GIVE COMPRESSOR MODEL NUMBER**
- 2.) GIVE COMPRESSOR SERIAL NUMBER (IF ANY)**
- 3.) NAME OF PART**
- 4.) QUANTITY REQUIRED**