

**A S S O C I A T E  
E N G I N E E R I N G  
C O R P O R A T I O N**

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# Rol-Air

## PORTABLE BELT DRIVEN AIR COMPRESSORS MANUAL



### WARNING

**COMPRESSOR DISCHARGE AIR MAY CONTAIN HYDROCARBONS AND OTHER  
CONTAMINANTS! DO NOT USE DISCHARGE AIR FOR BREATHING!**

## PARTS

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. Part number
5. Quantity required

# OPERATION AND MAINTENANCE

## CONTROLS

### START/STOP CONTROL

When the pressure in the air receiver reaches a designated low level, the pressure switch starts the motor. When the pressure in the air receiver reaches a designated high level, the pressure switch stops the motor.

**NOTE:** An electric motor should not be subjected to more than fifteen (15) starts per hour. If motor is subjected to more than fifteen (15) starts per hour, it will overheat and trip the overload. Run unit continuously to prevent overload and extend motor life. Consult your dealer/service center for pricing on conversion kit if your unit is not equipped with dual control feature.

### CONSTANT SPEED CONTROL

The electric motor or gas engine is constantly running and the pump on the compressor is constantly pumping. When the pressure in the air receiver reaches the designated high level, a pilot unloader valve will channel the air being compressed into the atmosphere instead of into the air receiver. During this step, the motor or the engine, continues to run (engine will idle). When the designated low pressure in the air receiver is reached, the pilot unloader valve will redirect the air being compressed to the air receiver (the engine speed will return to the high RPM level).

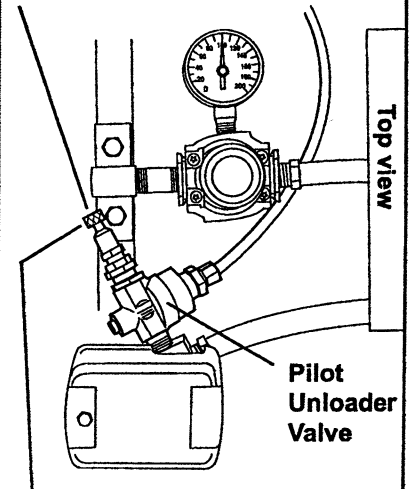
**NOTE:** All gas units must be built this way and any electrical units can be ordered with constant speed control.

### DUAL CONTROL

Electric compressors can be equipped with both start-stop and constant speed controls. With this feature the operator can change the control of the unit as their needs change from start-stop to constant speed. (See Figure 1).

Figure 1

**FOR START/STOP:**  
Rotate thumbscrew completely clockwise.



**FOR CONSTANT SPEED:**  
Rotate thumbscrew completely counterclockwise.

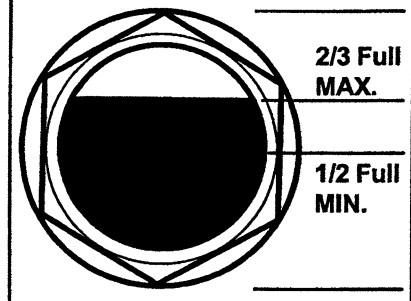
## OPERATION

### 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 (See Figure 2). 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!**

**NOTE:** Unit must be level when in operation.

Figure 2



## OIL TYPE TABLE

Temperature	0-40°	40° & Above
NON-DETERGENT - Straight Weight	10WT*	30WT*

\*For maximum performance and service life, we recommend using ROL-AIR Premium Quality compressor oil.

### COLD-STARTING PROCEDURE

Cold weather conditions present starting problems for air compressors. As operating temperatures decrease, the oil weight used in the air pump must be thinned according to the OIL TYPE TABLE above. It is also necessary to remove the effects of the back pressure (load) on a cold motor. A drain cock is installed on the 90° "finned" aftercooler as a means to eliminate the load. Open the aftercooler drain cock and allow the motor and the pump to run "unloaded" for one to two minutes. Close the drain cock and repeat the procedure if the motor continues to struggle.

**NOTE:** Do not operate your air compressor on a generator. Most generators will not supply the "locked rotor" amperage required to properly start an air compressor motor. Operation on a generator voids the motor warranty.

## MAINTENANCE

Your new compressor represents the finest engineering and construction available, however, regular maintenance insures trouble-free operation. Be certain to follow the maintenance schedule below to get peak performance from your compressor.

**NOTE: Always unplug or shut down your compressor and completely drain the air tanks before attempting any type of maintenance!**

<p><b>IMPORTANT:</b></p> <p><b>1. CHANGE THE COMPRESSOR OIL* AFTER THE FIRST 50 HOURS (2 WEEKS) OF OPERATION.</b></p> <p><b>2. RETORQUE HEAD BOLTS TO 29 ft.-lbs. FOR K30 PUMP AND 20-1/4 ft.lbs. FOR K24 AND K17 PUMPS AFTER THE FIRST 200 HOURS (4 WEEKS) OF OPERATION.</b></p>
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**Daily:**

1. Drain moisture from tanks
2. Check oil level and fill as required

**Weekly:**

1. Repeat daily procedures
2. Clean air intake filter and replace if necessary
3. Check belt tension and drive assembly and adjust if necessary
4. Clean compressor

**Monthly:**

1. Repeat weekly procedures
2. Change compressor oil\*
3. Check for air and oil leaks and correct if necessary
4. **Tighten all hardware - Retorque head bolts, cylinder bolts, flywheel, pulley, etc.**
5. Replace worn or missing rubber feet

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

**NOTE: Test pump up periodically to determine if the air compressor system is working at maximum capability. If the time is significantly off, one of the following is true:**

1. There is an external plumbing leak that needs to be corrected.
2. An internal pump gasket/reed valve problem exists in the upper head group.

## TROUBLESHOOTING AND SOLUTIONS

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
A. Knocking	<ol style="list-style-type: none"> <li>1. Loose motor pulley or compressor flywheel</li> <li>2. Loose Belts</li> <li>3. Lack of oil in crankcase</li> <li>4. Worn piston pin</li> <li>5. Worn main bearings</li> <li>6. Worn con rod inserts</li> <li>7. Dirty or defective check valve</li> <li>8. Piston hitting valve plate, due to foreign matter or carbon deposits</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten appropriate parts (Heat engine pulley before removing. Loctite is used to secure.)</li> <li>2. Adjust belt tension (see back page)</li> <li>3. Add oil (Take to service center if knocking persists)</li> <li>4. Replace</li> <li>5. Replace</li> <li>6. Replace</li> <li>7. Clean or replace</li> <li>8. Inspect, repair or replace valves and pistons</li> </ol>
B. Overheating Compressor	<ol style="list-style-type: none"> <li>1. Poor ventilation</li> <li>2. Incorrect flywheel rotation</li> <li>3. Dirty or defective check valve</li> <li>4. Restricted air intake</li> <li>5. Low oil level</li> <li>6. Unit not run on level surface</li> <li>7. Dirty or defective reed valves</li> </ol>	<ol style="list-style-type: none"> <li>1. Move compressor to ventilated area</li> <li>2. Rewire for correct rotation</li> <li>3. Clean or replace</li> <li>4. Replace filter</li> <li>5. Add non-detergent, single viscosity oil</li> <li>6. Level unit</li> <li>7. Clean valve plates and replace valves</li> </ol>
C. Overheating Motor	<ol style="list-style-type: none"> <li>1. Too light of gauge extension cord</li> <li>2. Too light of an amperage circuit</li> <li>3. Dirty motor</li> <li>4. Compressor not loading</li> <li>5. Bad check valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Use heavier gauge cord or locate unit closer to power</li> <li>2. Run compressor on proper circuit</li> <li>3. Take to service center for cleaning</li> <li>4. Check unloader mechanism</li> <li>5. Replace check valve</li> </ol>
D. Air pump is slow to build tank pressure	<ol style="list-style-type: none"> <li>1. Air leaks</li> <li>2. Restricted air intake</li> <li>3. Slipping belts</li> <li>4. Blown gaskets</li> <li>5. Compressor too small for load</li> </ol>	<ol style="list-style-type: none"> <li>1. Check system for air leaks</li> <li>2. Replace filter</li> <li>3. Adjust belt tension</li> <li>4. Replace gaskets</li> <li>5. Consult dealer regarding larger ROL-AIR compressor</li> </ol>
E. Engine fails to attain proper RPM's	<ol style="list-style-type: none"> <li>1. Loose belts</li> <li>2. Leaking pilot valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust belt tension</li> <li>2. Repair or replace</li> </ol>
F. Excessive oil consumption	<ol style="list-style-type: none"> <li>1. Worn piston rings</li> <li>2. Compressor air intake restricted</li> <li>3. Restricted crankcase breather</li> <li>4. Excessive oil in the basic compressor pump</li> <li>5. Wrong oil viscosity / type of oil</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace rings</li> <li>2. Replace filter</li> <li>3. Clean crankcase breather</li> <li>4. Check sight glass and adjust to proper oil level</li> <li>5. Replace oil with non-detergent oil (See oil chart)</li> </ol>

## PILOT VALVE ADJUSTMENT

### RESETTING DIFFERENTIAL (2)

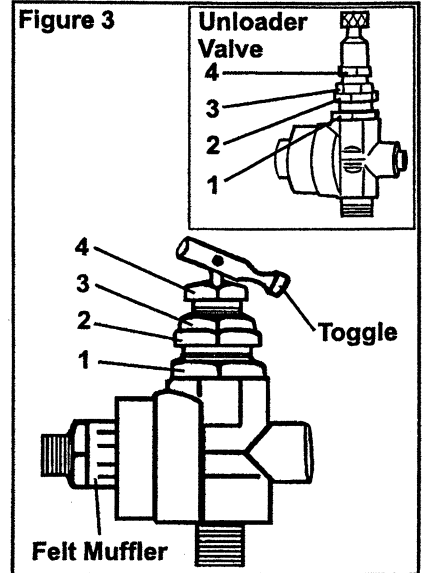
Make sure the top toggle lever is positioned as shown. (See Figure 3). Loosen locknut (1) by turning counterclockwise several full turns. Gently turn differential setting (2) clockwise only until the internal rod makes contact with the steel ball inside. After making contact, turn differential (2) counterclockwise 1/4 turn. Hold this position with one wrench and proceed to top end setting.

### TOP END SETTING (4)

Loosen locknut (3) by turning counterclockwise several full turns. (4) is the top end setting. Turning (4) clockwise will increase the top end pressure setting. Turning counterclockwise will decrease the top end pressure setting. Begin at a low setting by turning counterclockwise one full turn. Proceed to fine tuning instructions.

### FINE TUNING INSTRUCTIONS

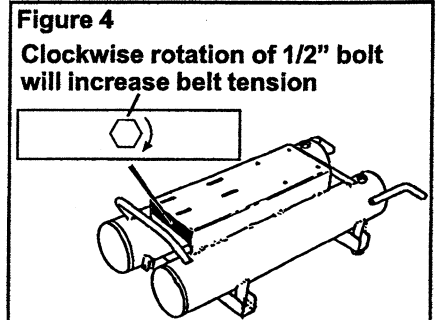
Start engine/motor and observe tank pressure gauge. As tank pressure approaches 100-130 P.S.I.G., the pilot valve should begin unloading at felt muffler and cause gas engine to slow down to idle speed. If pilot valve does not unload as tank pressure approaches 130 P.S.I.G., slowly turn top end setting (4) counterclockwise until pilot starts to unload. If pilot valve starts to unload prematurely (at 100 P.S.I.G.), turn top end setting (4) clockwise in 1/4 turn increments, tap down on the internal rod at toggle attachment, and repeat until desired top end setting is reached. If pilot valve begins to rattle (sputter), fine tune differential setting (2) 1/16 turn in either direction until rattling stops. After fine tuning, secure settings by turning locknuts (1 & 3) clockwise until tight. Hold setting (2 & 4) in place with one wrench while turning locknuts to secure.



## SCHMIDT BELT TIGHTENING DEVICE (FOR GAS UNITS ONLY)

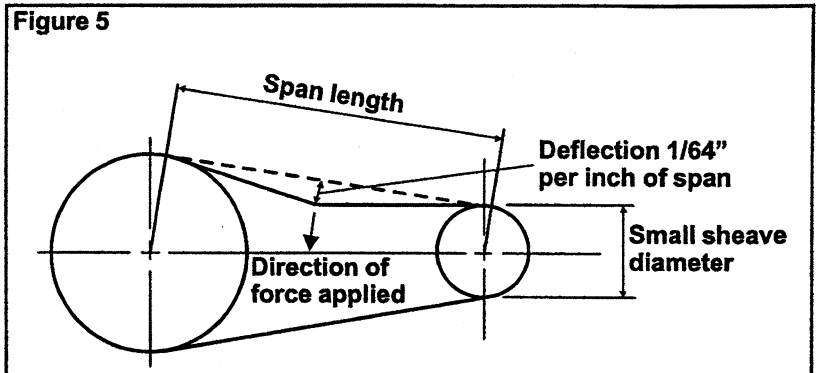
To tighten belt tension, proceed as follows:

1. Loosen locknuts for engine hold-down bolts only until washers beneath spin freely.
2. Rotate 1/2" adjusting bolt clockwise until desired tension is reached. (See Figure 4).
3. Retighten hold-down bolts.



## 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. (See Figure 5).



### ELECTRIC EXTENSION CORD TABLE

Extension Cord Length	Minimum Wire Size	
	Motor 1/2 and 3/4 H.P.	Motor 1, 1-1/2 and 2 H.P.
Up to 25 ft.	14 Ga.	12 Ga.
25 - 50 ft.	12 Ga.	10 Ga.
50 - 100 ft.	10 Ga.	8 Ga.

### GASOLINE ENGINE RPM SETTINGS

Model	Top RPM	Idle RPM	Pump RPM
4090 Series	2950	1900	1025
1040 & 2040 Series	2775	1900	1175
6590 Series	3150	1900	1125
8422 & 8230 Series	3000	1900	900

**NOTE: Engine RPM's (High - Low Settings) are factory set for maximum efficiency. Adjusting RPM's above factory specifications will void the warranty.**