This manual contains important safety information and must be carefully read in its entirety and understood prior to installation by all personnel who install, operate and/or maintain this product.

Product warranty information is available at www.quincycompressor.com/about/warranties

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SECTION 1

Safety First

At Quincy Compressor safety is not only a primary concern, but a faithfully performed practice. Beginning with the design stage, safety is built into “The World’s Finest Compressor”. It is the intention of this manual to pass along the “safety first” concept to you by providing safety precautions throughout its pages.

“DANGER!”, “WARNING!”, and “CAUTION!” are displayed in large bold capital letters in the left hand column to call attention to areas of vital concern. They represent different degrees of hazard seriousness, as stated below. The safety precaution is spelled out in bold upper and lower case letters in the right hand column.

DANGER!

Immediate hazards which will result in severe personal injury or death.

WARNING!

Hazards or unsafe practices that could result in personal injury or death.

CAUTION!

Hazards or unsafe practices which could result in minor personal injury, product or property damage.

Each section of this instruction manual, as well as any instructions supplied by manufacturers of supporting equipment, should be read and understood prior to starting the compressor. If there are any questions regarding any part of the instructions, please call your local Quincy Compressor Distributor, or the Quincy Compressor factory before creating a potentially hazardous situation.

Life, limb, or equipment could be saved with a simple phone call.

Compressors are precision high speed mechanical equipment requiring caution in operation to minimize hazard to property and personnel. There are many obvious safety rules that must be observed in the operation of this type of equipment. Listed below are some additional safety precautions that must be observed.

• Transfer of toxic, dangerous, flammable or explosive substances using Quincy Compressor products is at the user’s risk.

• All installation, maintenance and repair must be performed by a qualified technician and / or electrician.

• Turn off and lockout/tagout (per OSHA regulation 1910.147) the main power disconnect switch before attempting to perform maintenance on any part of the unit.

• Do not attempt to service any part of the unit while it is operating.

• Per OSHA regulation 1910.147, relieve the system of all pressure before attempting to service any part of the unit.
• Do not operate the unit with any of its safety guards, shields, or screens removed.

• Do not remove or paint over any DANGER!, WARNING!, CAUTION!, or instructional materials attached to the compressor. Lack of information regarding hazardous conditions can cause property damage or personal injury.

• Periodically check all pressure relief valves for proper operation.

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

• Do not install a shutoff valve in the compressor discharge line without first installing a pressure relief valve of proper size and design between the shutoff valve and the compressor.

• Do not use plastic pipe, rubber hose, or lead-tin soldered joints in any part of the compressed air system.

• Alterations must not be made to this compressor without Quincy Compressor’s approval.

• Be sure that all tools, shipping and installation debris have been removed from the compressor and installation site prior to starting the compressor.

• Do not operate the compressor in excess of the ASME pressure vessel rating for the receiver or the service rating of the compressor, whichever is lower.

• Make a general overall inspection of the unit daily and correct any unsafe situations. All fasteners must be kept tight.

• Reckless behaviour of any kind involving compressed air is dangerous and can cause very serious injury to the participants.

• 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 the manual is lost, have it replaced immediately. The instruction manual should be read periodically to refresh one’s memory. It may prevent a serious or fatal accident.

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

• Wear safety glasses and hearing protection during operation, service and maintenance procedures.

DANGER!

Air used for breathing or food processing must meet OSHA 29 CFR 1910.134 or FDA 21 CFR 178.3570 or NFPA 99 regulations. Failure to do so may cause severe injury or death.

The owner, lessor or operator of any compressor unit manufactured by Quincy Compressor is hereby warned that failure to observe the above safety precautions may result in serious injury to personnel and/or damage to property.
Quincy Compressor neither states as fact, nor in any way implies that the above list of safety precautions is an all inclusive list, the observance of which will prevent all damage to property or injury to personnel.

Every effort has been taken to ensure that complete and correct instructions have been included in this manual. However, possible product updates and changes may have occurred since this printing. Quincy Compressor reserves the right to change specifications without incurring any obligation for equipment previously or subsequently sold.

**Summary of Changes to This Manual**
*(since previous printing dated September 2009):*

- Removed warranty statement and added URL address on front cover for warranty information available on the Quincy Compressor website.
- Edited Electrical Supply Requirements to include Canadian Standards Association (CSA) requirements.
- Added Air Tank Inspection information and a graphic explanation of the tank drain decal.
**Description & Application**

The Quincy Compressor QRD Series consists of heavy duty industrial, belt driven, single or two stage air cooled compressors. Single stage compressors are capable of delivering up to 100 PSIG continuously. Two stage compressors can deliver up to 150 PSIG continuously, depending upon operating and maintenance parameters (consult factory).

**Principles of Compression Cycles**

**Single Stage Compressors**

During the downstroke of a single stage compressor, air is drawn through an intake valve in the head of the compressor and into the cylinder. At the bottom of the stroke, the intake valve closes and air is trapped in the cylinder. The air is then compressed in the cylinder during the upstroke of the piston. Total compression, from atmospheric pressure to the final discharge pressure, is accomplished in one stroke of the piston.

**Two Stage Compressors**

During the downstroke of the piston of a two stage compressor, air is drawn through an intake valve in the head of the compressor into the low pressure cylinder and compressed during the upstroke of the piston.

The compressed air is then released through a discharge valve in the head of the compressor to an intercooler (usually finned tubing) where the heat resulting from compression is allowed to dissipate. The cooler compressed air is then drawn into a second compression cylinder, the high pressure cylinder, for compression to final pressure.

From there the compressed air is released through a discharge valve to an air receiver tank or directly to a network of compressed air supply lines. In one revolution of the crankshaft a compression cycle is completed.

**Principles of Lubrication Systems**

No lubrication is required for the pistons and cylinders. PTFE® composite compression rings provide sealing and PTFE® composite rider rings carry the thrust loads. The wrist pin needle bearings are grease lubricated and require maintenance (Refer to **SECTION 5, Maintenance Schedule**). All bearings on the crankshaft are sealed and lubricated for the life of the bearing.

**Principles of Cooling Systems**

Fan blades of the compressor sheave force ambient air across fins of a discharge manifold and the cylinder heads, and intercooler fins of two stage compressors, to cool the compressor. QRD series compressors are normally set up at the factory with a sheave that turns in a counterclockwise rotation (refer to **directional arrow on sheave**). Due to standard drive motor limitations, it is recommended that the compressor be operated in temperatures under 104°F.
**Principles of Dryers & Filters**

Moisture occurs naturally in air lines as a result of compression. Moisture vapor in ambient air is concentrated when pressurized and condenses when cooled in downstream air piping. Compressed air dryers reduce the moisture vapor concentration and prevent water formation in compressed air lines. Dryers are a recommended companion to filters, aftercoolers, and automatic drains for improving the productivity of compressed air systems.

Water and moisture vapor removal increases the efficiency of air operated equipment, reduces contamination and rusting, increases the service life of pneumatic equipment and tools, prevents air line freeze-ups, and reduces product rejects.

**Control Components**

**Head Unloader:** Pneumatic control device designed to allow the compressor to run continuously without compressing air until there is a demand for more compressed air.

**Pilot Valve:** Used in conjunction with head unloaders when the compressor is to run continuously and an operating pressure range is to be maintained. Refer to your parts manual for correct pilot valve, ranges and settings.

**Pressure Switch:** Used for start/stop applications. The pressure switch detects the demand for compressed air and allows the unit to start. When the demand is satisfied, the unit stops.

**Control Versions**

QRDS single stage compressors can be operated with one of three control configurations: Control Version L, S or LVD.

Control Version L (for start/stop operation, see Fig. 2-1, Control Version L Schematic) automatically starts and stops the compressor in response to a pressure switch. The pressure switch detects the demand for compressed air and allows the unit to start. When the demand is satisfied, the pressure switch stops the unit.
Control Version S (for continuous run or load/unload operation, see Fig. 2-2, Control Version S Schematic) allows the compressor to run continuously, with the unit loading and unloading in response to a pilot valve. This control version should be used whenever the compressor must start more than 6 times per hour. If the demand for compressed air is continuous and exceeds one-half or more of the compressor’s capacity, Control Version S or LVD should be used.

Control Version LVD (see Fig. 2-3, Control Version LVD Schematic) provides for the selection of either start/stop or continuous run operation. To operate the compressor in the start/stop mode, screw the knurled knob on the pilot valve all the way in. (Note: The pilot valve cut-out setting must be set lower than the pressure switch cut-out setting. This will ensure that the compressor will not operate in the continuous run mode.)

To operate the compressor in the continuous run mode, turn the knurled knob on the pilot valve out.
QRDT two stage compressors can be operated with either control version SV or SVD.

Control Version SV (see Figs. 2-4, 2-5 & 2-6 Control Version SV Schematic) provides for the selection of start/stop or continuous run operation via a selector switch located on the electrical control panel.
Control Version SVD (see Fig. 2-7, Control Version SVD Schematic) provides for the selection of start/stop operation through the unit controls or from a remote Demand-A-Matic controller via a selector switch on the compressor control panel. An optional selector switch can also be added to the compressor control panel to provide continuous-run capability.

Fig. 2-6 Control Version SV Schematic
(solenoid valve dual control operation; duplex unit)

Fig. 2-7 Control Version SVD Schematic
(solenoid valve auto-demand control operation)
Electrical Control Operation

A wiring diagram is provided with all QRD units and can be found inside the control panel.

Switches

“START”: This push button starts the compressor. It must be depressed after power interruption or other unit shutdown.

“STOP”: Stops the motor but does not unload the receiver. Do not service the unit unless the control is off and the power is disconnected and locked out!

“HAND”: Will operate the motor continuously. The unit will load and unload in response to the pilot valve.

“AUTO”: Provides unattended start/stop operation. The unit will start automatically, load, and stop in response to the automatic controls.

Indicators

“POWER”: Indicates AC power is present inside the control panel. Do not open the panel door or service the unit until power is disconnected and locked out!

“HIGH AIR TEMPERATURE”: Indicates high air temperature, power outage, or other shutdown has occurred. Allow the unit to cool and correct the problem before restarting the unit.

“HOURMETER”: An hourmeter is supplied as standard equipment on every QRD unit and provides a method of recording the number of hours elapsed since the last service interval. (Note: Whenever a QRD unit is purchased without the electrical controls, it is the user’s responsibility to wire an hourmeter, provided by the seller, into the control system, see Fig. 2-7, Hourmeter Wiring Schematic.)

CAUTION!

Verify all wire ends are properly installed and lugs are torqued to specifications before connecting the unit to a power supply.
**Specifications**

**QRDS Single Stage Single Cylinder Compressors**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRDS-2</td>
<td>2</td>
<td>1</td>
<td>4.000 x 2.000</td>
<td>400-1060</td>
<td>.01454</td>
</tr>
<tr>
<td>QRDS-3</td>
<td>3</td>
<td>1</td>
<td>4.750 x 2.000</td>
<td>400-1060</td>
<td>.02051</td>
</tr>
<tr>
<td>QRDS-5</td>
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<td>1</td>
<td>5.250 x 2.000</td>
<td>400-1060</td>
<td>.02506</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 npt (female)
- Discharge Manifold Connections: 1 npt (female)
- Bare Compressor Weight: 120 lbs.
- Compressor with Flywheel: 155 lbs.

**QRDS Single Stage Two Cylinder Compressors**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
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<td>.04871</td>
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<tr>
<td>QRDS-10</td>
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<td>2</td>
<td>5.250 x 2.375</td>
<td>400-1011</td>
<td>.05951</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 npt (female)
- Discharge Manifold Connections: 1 1/4 npt (female)
- Bare Compressor Weight: 201 lbs.
- Compressor with Flywheel: 270 lbs.

**QRDS Single Stage Three Cylinder Compressors**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
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<tr>
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<td>4.750 x 2.375</td>
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<td>QRDS-20</td>
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<td>3</td>
<td>5.250 x 2.375</td>
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<td>.08926</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 npt (female)
- Discharge Manifold Connections: 1 1/4 npt (female)
- Bare Compressor Weight 15 h.p. = 280 lbs.; 20 h.p. = 315 lbs.
- Compressor with Flywheel 15 h.p. = 415 lbs.; 20 h.p. = 450 lbs.

* Cubic Feet per Revolution x RPM = CFM
**QRDS Single Stage Four Cylinder Compressor**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRDS-30</td>
<td>25</td>
<td>4</td>
<td>5.25 x 3.00</td>
<td>600-1040</td>
<td>.15033</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>4</td>
<td>5.25 x 3.00</td>
<td>600-1040</td>
<td>.15033</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 1/4 npt (female)
- Discharge Manifold Connections: 1 1/4 npt (female)
- Bare Compressor Weight: 488 lbs.
- Compressor with Flywheel: 640 lbs.

**QRDT Two Stage Two Cylinder Compressor**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRDT-7.5</td>
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<td>5.25 x 4.00 x 2.375</td>
<td>500-1000</td>
<td>.02975</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 npt (female)
- Discharge Manifold Connections: 3/4 npt (female)
- Bare Compressor Weight: 201 lbs.
- Compressor with Flywheel: 270 lbs.

**QRDT Two Stage Three Cylinder Compressor**

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th>*Piston Displacement Cubic Ft. per Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRDT-15</td>
<td>10</td>
<td>3</td>
<td>5.25 x 4.00 x 2.375</td>
<td>500-1040</td>
<td>.05951</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>3</td>
<td>5.25 x 4.00 x 2.375</td>
<td>500-1040</td>
<td>.05951</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 1 npt (female)
- Discharge Manifold Connections: 1 npt (female)
- Bare Compressor Weight: 310 lbs.
- Compressor with Flywheel: 445 lbs.

* Cubic Feet per Revolution x RPM = CFM
### QRDT Two Stage Four Cylinder Compressors

<table>
<thead>
<tr>
<th>Compressor Model</th>
<th>Motor h.p.</th>
<th>No. of Cylinders</th>
<th>Bore &amp; Stroke (inches)</th>
<th>RPM Range</th>
<th><em>Piston Displacement Cubic Ft. per Rev.</em></th>
</tr>
</thead>
<tbody>
<tr>
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<td>4</td>
<td>7.12 x 4 x 3.00</td>
<td>500-1040</td>
<td>.13825</td>
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<tr>
<td></td>
<td>25</td>
<td>4</td>
<td>7.12 x 4 x 3.00</td>
<td>500-1040</td>
<td>.13825</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>4</td>
<td>7.12 x 4 x 3.00</td>
<td>500-1040</td>
<td>.13825</td>
</tr>
</tbody>
</table>

- Allowable Ambient Temperature Range: +32° F to 104° F
- Inlet Connections: 2 npt (female)
- Discharge Manifold Connections: 1 1/2 npt (female)
- Bare Compressor Weight: 518 lbs.
- Compressor with Flywheel: 680 lbs.

* Cubic Feet per Revolution x RPM = CFM
SECTION 3  INSTALLATION

Receiving Delivery

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. (Refer to SECTION 3, Freight Damage for complete details.) Shipping damage is not covered by Quincy Compressor warranty.

Step 2) Insure that adequate lifting equipment is available for moving the compressor equipment.

CAUTION!

Improper lifting can result in component or system damage, or personal injury. Follow good shop practices and safety procedures when moving the unit.

Step 3) Read the compressor nameplate to verify the model and size ordered.

Step 4) Read the motor nameplate to verify that the volt, phase and hertz ratings are the same as the electrical power supply connecting to the motor. NOTE: Do not use a triple voltage (115/208-230) single-phase motor or (208-230/460) 3-phase motor for 208 volts or lower. Use a 200 volt or 208 volt motor only.

Step 5) Read the pressure relief valve nameplate to be sure it does not exceed the working pressure shown on the compressor or any other component in the system.

Step 6) Read and understand the safety precautions contained within this manual. The successful and efficient operation of compressor equipment depends largely upon the amount of care taken to install and maintain the equipment. Quincy Compressor strongly recommends that any or all person(s) in charge of installing, maintaining, or servicing one of our compressors read and understand the entire contents of this manual in order to perform such duties safely and efficiently.

Freight Damage

It is extremely important that you examine every carton and crate as soon as you receive it. If there is any obvious damage to the shipping container, have the delivering carrier sign the freight bill, noting the apparent damage, and request a damage report.

If concealed damage is discovered at a later date, the carrier must be notified within 15 days of initial receipt of freight. Concealed shipping damage is not covered by Quincy Compressor Warranty.
Contact the carrier as soon as possible, giving them an opportunity to inspect the shipment at the premises where the delivery was made. Do not move the damaged freight from the premises where the original delivery was made. Retain all containers and packing for inspection by the carrier.

A claim form can be requested from the carrier: Standard Form for Presentation of Loss and Damage Claims (form # 3208). Your claim will need to be substantiated with the following documents:

a.) form #3208  
b.) original bill of lading  
c.) original paid freight bill  
d.) original invoice or certified copy  
e.) other particulars obtainable in proof of loss or damage (photos, damage inspection, etc.)

The proper description and classification of our product in the National Motor Freight Classification 100-H, contained in item 118100, reads as follows: Compressors, air, or air ends: with or without air tanks, hose or nozzles, mounted or not mounted.”

We suggest that these instructions be circulated to your shipping and receiving personnel.

**Location**

Quincy air compressors must be installed and operated in a secure, upright and level position in an area that is clean, dry, well lighted, and adequately ventilated not closer than 24 inches to a wall or another compressor. Ample circulation of air across the compressor cylinders, heads and cooler (if so equipped) must be provided. Compressors should be located in such a way that the sheave fan of one compressor does not blow hot air towards another compressor.

QRD compressors are equipped with ventilated crankcases to promote cooling of internal parts. Excessive crankcase moisture could result in undue wear, unnecessary maintenance and reduced performance. **Indoor installation of QRD Series compressors is recommended.** If it is necessary to install the compressor outside, it must be protected from rain and other sources of moisture.

**CAUTION !**

**Protect compressor from rain and other water spray.**

Inspection and maintenance checks are required daily. Therefore, sufficient space needs to be provided around the compressor for safe and proper inspection, cleaning, and maintenance. If at all possible, the pulley drive system (i.e. motor pulley, compressor sheave, belts and guard) should be located next to a wall to minimize any danger created by the drive system while the compressor is operating.

Due to standard drive motor limitations, it is recommended that the compressor be operated in temperatures under 104°F. In cold climates, the compressor should be installed in a heated building.
CAUTION!

Do not operate this compressor in ambient temperatures lower than 32° F.

If the air receiver is going to be subject to temperatures of 32°F or below, provisions must be made to guard against freezing of the pressure relief valves, pressure gauge, check valve, and moisture drain.

WARNING!

Under no circumstances should a compressor be used in an area that may be exposed to toxic, volatile, or corrosive atmosphere. Do not store toxic, volatile, or corrosive agents near the compressor.

Noise

Noise is a potential health hazard that must be considered. There are federal and local laws governing acceptable noise levels. Check with local officials for specifications.

Excessive noise can be effectively reduced through various methods. Total enclosures, intake silencers, baffle walls, relocating or isolating the compressor can reduce noise levels. Care must be taken when constructing total enclosures or baffle walls. If not properly constructed or positioned, they could contribute to unacceptable noise levels or overheating. Consult your local Quincy Compressor Distributor if assistance is required.

CAUTION!

Unusual noise or vibration indicates a problem. Do not operate the compressor until the source has been identified and corrected.

Electrical Supply Requirements

The electrical installation of this unit must be performed by a qualified electrician in accordance with the National Electrical Code (NEC) or the Canadian Electrical Code (CEC), the National Electrical Safety Code (NESC), OSHA and/or state and local codes. Failure to abide by the national, state and local codes may result in physical harm and/or property damage.

Before installation, the electrical supply must be checked for adequate wire size and transformer capacity. Verify that the electrical supply voltage matches the requirements of the motor. A suitable circuit breaker or fused disconnect switch should be provided. When a 3 phase motor is used to drive a compressor, any unreasonable voltage imbalance between the legs must be eliminated and any high or low voltage corrected to prevent excessive current draw. Note: This unit must be grounded.

DANGER!

High voltage may cause personal injury or death. Disconnect and lockout/tagout per OSHA regulation 1910.147 all electrical power supplies before opening the electrical enclosure or servicing.

WARNING!

Never assume a compressor is safe to work on just because it is not operating. It could restart at any time. Follow all safety precautions outlined in SECTION 5, Stopping For Maintenance.

CAUTION!

NEMA electrical enclosures and components must be appropriate to the area installed.
Overload Relay
An overload relay monitors the compressor motor electrical current and turns the compressor motor off when an overload is sensed. It is mounted on the bottom of the motor starter. The overload relay is designed for motors with a 1.15 service factor. The overload relay setting should be adjusted to the motor nameplate amp rating. If the motor has a service factor rating other than 1.15, the overload relay setting must be adjusted to compensate. Contact your Quincy distributor for assistance.

Overload relays are designed to protect the motor from damage due to motor overload. If the overload relay trips persistently, DO NOT CONTINUE TO PUSH THE RESET BUTTON! Contact your local Quincy distributor for assistance.

CAUTION!

Mounting

WARNING!
The compressor unit must be removed from the shipping skid prior to operation.

Proper mounting of Quincy compressors is crucial to the safe operation and longevity of the equipment. The installation requires a flat and level concrete floor or pad. Satisfactory results can usually be obtained by mounting horizontal units on vibration isolating pads available from your local Quincy Distributor. All vertical tank units must be anchored! Refer to Fig. 3-1, Isolator Installation for Unanchored or Anchored Receivers. Quincy recommends that all vertical tank units be mounted as indicated without isolators.

State or local codes may mandate that the compressor be anchored to the floor. In this case the unit must be leveled and anchored making absolutely certain the feet are not stressed in any manner. Leave the locknut loose!
Uneven feet drawn tightly to the concrete pad will cause severe vibrations resulting in cracked welds or fatigue failure. The customer is responsible for providing a suitable foundation and isolator mounting where necessary.

CAUTION!

Do not operate this compressor more than 15° off level or move it while it is running.

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

Drive Pulleys / Sheaves
Drive pulleys & compressor sheaves must be properly aligned and drive belt tension set to specifications (refer to SECTION 5, Pulley / Sheave Alignment & Belt Tension). Improper pulley/sheave alignment and belt tension
can cause motor overloading, excessive vibration, and premature belt and/or bearing failure.

**WARNING !**

Excessive compressor RPM's (speed) could cause a pulley or sheave to shatter. In an instant, the pulley or sheave could separate into fragments capable of penetrating the belt guard and causing bodily harm or death. Do not operate the compressor above the recommended RPM (refer to SECTION 2, Specifications).

**Guards**

The QRD is equipped with a high air flow fan built into the compressor sheave capable of creating air flow of 5400 CFM at maximum speed. This and 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. Any restriction of the fan air flow will cause higher operating temperatures and reduce the service life of the compressor. Guards shall be in compliance with OSHA safety and health standards 29 CFR 1910.219 in OSHA manual 2206 and any state or local codes.

**WARNING !**

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

**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 pressure relief valve capable of being manually released. The pressure relief valve should be installed between the manual shutoff valve and the compressor (refer to Fig. 3-2, Typical Drop Leg & Component Location).

**Pressure Relief Valves**

Pressure relief valves aid in preventing system failures by relieving system pressure when compressed air reaches a determined level. They are available in various pressure settings to accommodate a range of applications. Pressure relief valves are preset by the manufacturer and under no circumstances should the setting be changed by anyone other than the manufacturer.

**DANGER !**

Pressure relief valves are designed to protect compressed air systems in accordance with ASME B19 safety standards. Failure to provide properly sized pressure relief valves may cause property damage, severe personal injury or even death.
**Induction System**

**Air Intake**

A clean, cool and dry air supply is essential to the satisfactory operation of your Quincy air compressor. The standard air filter that the compressor is equipped with when leaving the factory is of sufficient size and design to meet normal conditions, when properly serviced, in accordance with the maintenance section of this manual.

If however, the compressor is to be installed in a location where considerable dust, dirt and other contaminants are prevalent, consult your local Quincy distributor for advice and optional filters. A condensate trap must be installed as close as possible to the inlet filter if, as a result of installation or environmental conditions, there is any risk of moisture forming in the inlet piping. It is the user’s responsibility to provide adequate filtration for those conditions. Oil bath filters are not to be used. Warranty will be voided if a failure is determined to be caused by inadequate filtration.

**Remote Inlet Filters**

Depending on the size of the compressor and the size and construction of the room in which the unit operates, the air inlet may have to be located outside of the room. If it is necessary to remotely install the air filter, make the inlet piping as short and direct as possible. Remotely installed air filters can lead to vibrations in the inlet piping. These vibrations can be minimized by adding a pulsation dampener or flex hose in the inlet piping between the remote inlet filter(s) and the compressor.

If the intake is piped to outside atmosphere, a hooded filter should be installed to prevent water or snow from being ingested into the compressor.

All inlet piping should be at least the same size (or larger) in diameter as the inlet connection to the compressor. For every 10 feet of inlet piping or every 90° bend, increase the inlet piping diameter by one pipe size. The inlet piping must be thoroughly clean inside. Warranty may be voided if a failure results from incorrectly sized or improperly installed piping. Consult your local Quincy distributor for expert advice about installing Quincy QRD series compressors.

If an inlet manifold is required, the pipe diameter of the manifold must be large enough to limit the pressure drop in the inlet piping to less than 3 inches of water. Excessive pressure drop in the inlet will significantly affect the compressor’s performance and life.

Never locate the compressor air inlet system where toxic, volatile or corrosive vapors, air temperatures exceeding 100°F, water, or extremely dirty air could be ingested. These types of atmospheres could adversely affect the performance of the compressor system.

**Compressed Air Discharge System**

The discharge piping should be of the same diameter as the compressor discharge connection, or sized so that the pressure drop at any point in the system does not exceed 10% of the air receiver pressure. Install auxiliary air receivers near heavy loads or at the far end of a long system. This will insure
sufficient pressure if the use is intermittent, or sudden large demands are placed on the system.

The compressed air supply line from the air receiver of stationary unit must be equipped with a properly rated flexible connection. Discharge piping should slope to a drop leg (refer to Fig. 3-2, Typical Drop Leg & Component Location) or moisture trap to provide a collection point where moisture can be easily removed. All service line outlets should be installed above the moisture traps to prevent moisture from entering the tool or device using the air. Manual shutoff valves, protected by pressure relief valves, should be installed at all service line outlets to eliminate leakage while the tools are not in use.

As with any piping, all parts of the discharge piping should fit so as not to create any stress between the piping and components.

**Pneumatic Circuit Breakers or Velocity Fuses**

The Occupational Safety and Health Act (OSHA), Section 1926.303, Paragraph 7, published in the Code of Federal Regulations 29 CFR 1920.1, revised July 1, 1982 states that all hoses exceeding 1/2” inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of a hose failure

These pneumatic safety devices are designed to prevent hoses from whipping and/or the loss of hazardous or toxic gasses, all of which could result in a serious or fatal accident.

**WARNING !**

Do not use plastic pipe, rubber hose, or lead-tin soldered joints in any part of the compressed air system.

**Pressure Vessels**

Air receiver tanks and other pressure containing vessels such as (but not limited to) pulsation bottles, heat exchangers, moisture separators and traps, must be in accordance with ASME Boiler and Pressure Vessel Code Section VIII and ANSI B19.3 safety standards. They must be equipped with a pressure relief valve, pressure gauge, tank drain, & manual shutoff valve (refer to Fig. 3-2, Typical Drop Leg & Component Location).
DANGER!

Follow ASME code for air receiver tanks and other pressure containing vessels. Pressure vessels must not be modified, welded, repaired, reworked or subjected to operating conditions outside the nameplate ratings. Such actions will negate code status, affect insurance status and may cause property damage, severe injury or even death. Always replace worn, cracked or damaged tanks.

A drain valve must be located in the bottom of the air receiver to allow for moisture drainage. An automatic drain valve is recommended. Extend drain valve piping away from the unit and any personnel in the immediate area to provide safe and convenient removal of excess moisture.

If the air receiver is going to be subject to temperatures of 32°F or below, provisions must be made to guard against freezing of the pressure relief valves, pressure gauge, check valve, and moisture drain.

Condensation

Rust can form inside the crankcase and on internal components as a result of condensation. A compressor must operate long enough during each run cycle to reach full operating temperature in order to reduce the risk of condensation.

Condensation can also form in the air tank of your compressor. When this happens, a mixture of air and moisture will be expelled through the service valve and into whatever is connected to the valve (e.g. air hoses, metal air lines, pneumatic tools, spray guns). An in-line filter or dryer, available from your local Quincy distributor, may be required to eliminate the moisture.

Condensation in the air tank can be kept to a minimum by draining the tank on a daily basis. This also reduces the risk of rust developing and weakening the tank.

Manual Tank Drain Valve Operation

The manual tank drain valve on portable compressors and some stationary compressors is located on the underside of the air tank. Portable compressors can be tilted in the direction of the drain to allow removal of tank moisture.

Some tanks use an internal drain tube (Refer to Fig. 3-3, Internal Drain Tube) to drain the moisture. Tank pressure is required to force moisture out of the tank through the drain tube. Safe removal of tank moisture from the air tank is dependent upon an internal tank pressure of no more than 30 p.s.i.g. Higher internal tank pressures are dangerous and could cause serious injury!

WARNING! Do not open a manual tank drain valve on any air tank containing more than 30 PSIG of air pressure!

WARNING! Never attempt to relieve an air tank by removing a pipe plug or any other system component!
Manually Draining An Air Tank:

Step 1) Disconnect & lockout the compressor from the power source (electric models) or disconnect the spark plug wire from the spark plug (gas engine models).

Step 2) Tank(s) subjected to freezing temperatures may contain ice. Store the compressor in a heated area before attempting to drain moisture from the tank(s). Reduce the air pressure in the tank to 30 p.s.i.g. by pulling the pressure relief valve ring (refer to Fig. 3-4, Checking Pressure Relief Valves & Relieving System Pressure).

Step 3) Slowly open the drain valve and allow the moisture and air mixture to drain from the tank.

Step 4) Once the moisture has been completely drained, close the drain valve.

Air Tank Inspection

<table>
<thead>
<tr>
<th>Tank Capacity</th>
<th>Horizontal or Vertical</th>
<th>Minimum Allowable Wall Thickness</th>
<th>Visually Inspect</th>
<th>Hydrostatically Inspect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Head</td>
<td>Shell</td>
<td></td>
</tr>
<tr>
<td>30 Gal.</td>
<td>Horizontal</td>
<td>.094</td>
<td>.106</td>
<td>Yearly</td>
</tr>
<tr>
<td>30 Gal.</td>
<td>Vertical</td>
<td>.109</td>
<td>.111</td>
<td>Yearly</td>
</tr>
<tr>
<td>60 Gal.</td>
<td>Horizontal</td>
<td>.109</td>
<td>.135</td>
<td>Yearly</td>
</tr>
<tr>
<td>60 Gal.</td>
<td>Vertical</td>
<td>.109</td>
<td>.111</td>
<td>Yearly</td>
</tr>
<tr>
<td>80 Gal.</td>
<td>Horizontal</td>
<td>.109</td>
<td>.135</td>
<td>Yearly</td>
</tr>
<tr>
<td>80 Gal.</td>
<td>Vertical</td>
<td>.131</td>
<td>.133</td>
<td>Yearly</td>
</tr>
<tr>
<td>120 Gal.</td>
<td>Horizontal</td>
<td>.131</td>
<td>.162</td>
<td>Yearly</td>
</tr>
<tr>
<td>120 Gal.</td>
<td>Vertical</td>
<td>.163</td>
<td>.199</td>
<td>Yearly</td>
</tr>
<tr>
<td>200 Gal.</td>
<td>Horizontal</td>
<td>.163</td>
<td>.199</td>
<td>Yearly</td>
</tr>
<tr>
<td>240 Gal.</td>
<td>Horizontal</td>
<td>.163</td>
<td>.199</td>
<td>Yearly</td>
</tr>
</tbody>
</table>

Fig. 3-5 Recommended Air Tank Inspection Intervals

Quincy Compressor recommends that all air tanks be inspected at scheduled intervals. Refer to Fig. 3-5 Recommended Air Tank Inspection Intervals for relative information. Measure tank wall thickness at several locations, including the lowest point where condensation can accumulate.

Refer to federal, state or provincial, or local codes for mandatory air tank maintenance information.
Explanation of Tank Drain Decal

Read and understand the instruction manual

WARNING! Drain the tank daily

WARNING! Condensation could cause rust resulting in reduced wall thickness and risk of explosion.

Drain the tank daily

Visually inspect the tank every year

Drain locator (general location)

Visual inspection log (annual entries made by operator)
SECTION 4

***START-UP & OPERATION***

**Pre-starting Checklist**

**WARNING !**

Never assume a compressor is safe to work on just because it is not operating. It could restart at any time. Follow all safety precautions outlined in SECTION 5, Stopping For Maintenance.

**WARNING !**

Failure to perform the pre-starting checklist may result in mechanical failure, property damage, serious injury or even death.

Steps 1 through 12 should be performed prior to connecting the unit to a power source. If any condition of the checklist is not satisfied, make the necessary adjustments or corrections before starting the compressor.

**Step 1)** Remove all installation tools from the compressor and check for installation debris.

**Step 2)** Check motor pulley and compressor sheaves for alignment and tightness on shaft. (Refer to SECTION 5, Pulley / Sheave Alignment & Belt Tension.)

**Step 3)** Manually rotate the compressor sheave several rotations to be sure there are no mechanical interferences.

**Step 4)** Check inlet piping installation (Refer to SECTION 3, Induction System.)

**Step 5)** Check belt tension. (Refer to SECTION 5, Pulley / Sheave Alignment & Belt Tension.)

**Step 6)** Check all pressure connections for tightness.

**Step 7)** Make sure all pressure relief valves are correctly installed. (Refer to SECTION 3, System Components.)

**Step 8)** Be sure all guards are in place and securely mounted. (Refer to SECTION 3, System Components.)

**Step 9)** Check fuses, circuit breakers, and overload relays for proper size. (Refer to SECTION 3, Electrical Supply Requirements.)

**Step 10)** Open all manual shutoff valves at and beyond the compressor discharge.

**Step 11)** After all the above conditions have been satisfied, the unit can be connected to the proper power source.

**Step 12)** Jog the starter switch to check the rotational direction of the compressor. It should agree with the rotation arrow embossed on the compressor sheave.
Step 13) Check for proper rotation of the cylinder cooling fan (fins inside sheave). The fan should blow cooling air across the cylinder.

Initial Starting & Operating

This instruction manual, as well as any instructions supplied by manufacturers of supporting equipment, should be read and understood prior to starting the compressor. If there are any questions regarding any part of the instructions, please call your local Quincy distributor, or the Quincy Compressor factory.

With the pre-starting checklist completed and satisfied, start the compressor. Watch and listen for excessive vibration and strange noises. If either exist, stop the compressor. Refer to SECTION 6, Troubleshooting for help in determining the cause of such problems.

Check the air receiver pressure gauge or system pressure gauges for proper readings. If inadequate or excessive air pressure conditions exist, refer to Section 6 Troubleshooting.

Heat created during the initial startup of a new compressor will cause slight expansion of the head(s). This slight expansion crushes the head gasket ever so slightly and affects the torque value of the cylinder fasteners (capscrews). To ensure optimal performance, Quincy recommends that you initially operate the compressor for at least one hour. Shut the compressor off and follow precautions outlined in SECTION 5, Stopping for Maintenance. Retorque the cylinder to head capscrews to the specifications outlined in the parts book corresponding to the Record of Change for your compressor after the compressor has cooled.

Observe compressor operation closely for the first hour of operation and then frequently for the next seven hours. After the first eight hours, monitor the compressor at least once every eight hours. Check all pressurized components for rust, cracks or leaks. Immediately discontinue use of equipment and relieve all system pressure if any of these problems are discovered. Do not use the equipment until it has been repaired by a qualified mechanic. After two days of operation check belt tension, and inspect the system for leaks.

Important Operating Instructions

It is important that your QRD air compressor reaches proper operating temperatures while it is running. Failure to do so will result in unwanted moisture in the internal components. To reach these operating temperatures a minimum run time cycle should be established. This cycle should be reviewed with your local Quincy Compressor distributor, or contact the Quincy Compressor factory in Quincy, Illinois at 217-222-7700 and ask for the Service Department.

Daily Starting Checklist

Do not proceed until the Pre-starting Checklist and Initial Starting & Operating subsections have been read and are thoroughly understood.

Step 1) Drain liquid from the air receiver (if so equipped).
**Step 2)** Check all hoses and fittings for weak or worn conditions and replace if necessary.

**Step 3)** Jog the starter button and check compressor rotation. *Note: Continuous Run Units - Prior to starting a continuous run unit, flip the toggle lever on the pilot valve stem to the “MANUAL UNLOAD” position (see below). Now the compressor can be started unloaded. Once the compressor is running at full speed, flip the toggle back to the “RUN” position.*

![Diagram of Continuous Run Pilot Valve](image)

**Step 4)** Start compressor per factory instructions. (Refer to **SECTION 4, Pre-Starting Checklist and Initial Starting & Operating.**)

**Step 5)** Check system pressure.

**Step 6)** Check cooling fan.

**Step 7)** Check all pressure relief valves for proper operation.

**Step 8)** Check control system for proper operation.
Stopping for Maintenance

The following procedures should be followed when stopping the compressor for maintenance or service:

**Step 1)** Per OSHA regulation 1910.147: The Control of Hazardous Energy Source (Lockout/Tagout), disconnect and lockout the main power source. Display a sign in clear view at the main power switch stating that the compressor is being serviced.

**WARNING !**

Never assume a compressor is safe to work on just because it is not operating. It could restart at any time.

**Step 2)** Isolate the compressor from the compressed air supply by closing a manual shutoff valve upstream and downstream from the compressor. Display a sign in clear view at the shutoff valve stating that the compressor is being serviced.

**Step 3)** Open a pressure relief valve within the pressurized system to allow it to be completely de-pressurized. **NEVER** remove a plug to relieve the pressure!

**Step 4)** Open all manual drain valves within the area to be serviced.

**Step 5)** Wait for the unit to cool before starting to service. (Temperatures of 125°F can burn skin. Some surface temperatures exceed 350°F when the compressor is operating.)

Maintenance Schedule

To assure maximum performance and service life of your compressor, a routine maintenance schedule should be developed. A sample schedule has been included here showing suggested maintenance intervals, to help you to develop a maintenance schedule designed for your particular application. Time frames may need to be shortened in harsher environments.

At the back of this instruction manual you will find a Maintenance Schedule Checklist. Make copies of this checklist and retain the master to make more copies as needed. On a copy of the checklist, enter dates and initials in the appropriate spaces. Keep the checklist and this Instruction Manual readily available near the compressor.

Scheduled maintenance intervals are rated for continuous duty operation at maximum pressure capability of the compressor. The service interval can vary with duty cycle, speed and operating pressure.
Improper pulley/sheave alignment and belt tension are causes for motor overloading, excessive vibration, and premature belt and/or bearing failure. To prevent this from happening, check the pulley/sheave alignment and belt tension on a regular basis (refer to Table 5-1, Sample Maintenance Schedule).

Periodically inspect the motor pulley(s) and compressor sheave(s) for oil, grease, nicks or burrs. Clean or replace if necessary. Make sure they are securely fastened. Align the compressor sheave with the motor or engine pulley. Drive belt grooves of the pulley(s) and sheave(s) should be in line with each other. The compressor crankshaft must be parallel to the motor or engine drive shaft.

Belt tension should be measured and adjusted to provide smooth operation. Step-by-step procedures are provided here to correctly measure and set the drive belt tension:

Table 5-1 Sample Maintenance Schedule

<table>
<thead>
<tr>
<th>Recommended Maintenance</th>
<th>8 Hrs. or Daily</th>
<th>40 Hrs. or Weekly</th>
<th>160 Hrs. or Monthly</th>
<th>5,000 Hrs. or Yearly</th>
<th>10,000 Hrs. or 36 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain tank, drop legs and moisture traps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall visual inspection. Make sure safety guards are in place</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for unusual noise or vibrations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manually operate pressure relief valves.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean cooling surfaces of intercooler, aftercooler and compressor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for air leaks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean or replace air filter (more often in humid conditions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check belt tension.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Inspect pressure switch diaphragm and contacts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Inspect motor / starter contacts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Re-grease wrist pin needle bearing(s). (See parts manual for proper maintenance kit.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Inspect compressor valve assemblies. Replace if necessary.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Inspect piston rings, gaskets, floating pin bushing and buttons. Replace* if necessary. Replace crankshaft assembly and compressor valves.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

* Applies to factory built packages equipped with HAT switches in each head assembly.
* Consult your local authorized Quincy distributor for specifications and repairs.

Fig. 5-1
Setting Belt Tension
Step 1) Measure the span length of the drive. (Refer to Fig. 5-1, Setting Belt Tension.)

<table>
<thead>
<tr>
<th>Belt Cross Section</th>
<th>Motor Pulley Dia. Range (inches)</th>
<th>Recommended Deflection Force (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial Installation Min.</td>
<td>Initial Installation Max.</td>
</tr>
<tr>
<td>up to 4.6</td>
<td>7.3</td>
<td>6.4</td>
</tr>
<tr>
<td>B</td>
<td>4.7 - 5.6</td>
<td>8.7</td>
</tr>
<tr>
<td>5.7 - 7.0</td>
<td>9.3</td>
<td>6.2</td>
</tr>
<tr>
<td>7.1 + above</td>
<td>10.0</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Step 2) Determine the amount of deflection (in inches) required to measure deflection force (in pounds) by multiplying the span length x 1/64 (.016) (i.e. 32” span length x 1/64 [.016] = 1/2” [.50] of deflection required to measure deflection force).

Step 3) Lay a straightedge across the top outer surface of a drive belt from pulley to sheave.

Step 4) At the center of the span, perpendicular to the belt, apply pressure to the outer surface of the belt with a belt tension gauge (refer to Fig. 5-2, Belt Tension Gauge). Force the belt to the predetermined deflection (refer to Step 2 above). Record the reading on the belt tension gauge and compare to the chart following Step 1 above. The deflection force reading should be within the minimum and maximum values shown. Adjust belt(s) accordingly. New belts should be tensioned to the initial installation deflection force shown in the table above.

Step 5) Recheck the tension of the new belts several times in the first 50 hours of operation and adjust if necessary. Thereafter, check belt tension on a regular basis (refer to Table 5-1, Sample Maintenance Schedule).

**Pressure Switch Adjustment**

Pressure switches provided by Quincy Compressor are preset at the factory and usually do not require adjustment. However, the following procedures can be performed by a qualified electrician to adjust the pressure switch.

Step 1) Remove the pressure switch cover.

Step 2) While the compressor is running, screw the spring loaded adjustment screw in (clockwise) to increase the amount of air pressure required to open the switch and stop the unit. Screw the spring loaded adjustment screw out (counterclockwise) to...
decrease the amount of air pressure required to open the switch and stop the unit.

Standard pressure switches supplied by Quincy Compressor are equipped with a fixed 20 PSIG (approx.) differential. Optional switches include both pressure and differential adjustment capabilities.

**WARNING !** Electric power always exists inside the pressure switch whenever the compressor package is connected to a power supply. Be careful not to touch any electrical leads when setting the pressure switch.

**WARNING !** Never exceed the designed pressure for the system or overload the motor beyond its Maximum Amp Draw.

* Full Load Amps x Service Factor = Maximum Amp Draw

**WARNING !** Never assume a compressor is safe to work on just because it is not operating. It may be in the automatic standby mode and may restart any time. Follow all safety precautions outlined in SECTION 5, Stopping For Maintenance.

### Torque Specifications

<table>
<thead>
<tr>
<th></th>
<th>Wrist Pin Setscrews</th>
<th>Discharge Manifold Bolts</th>
<th>Cylinder to Crankcase Bolts</th>
<th>Head to Cylinder Bolts</th>
<th>Head to Valve Plate Nut</th>
<th>Bearing Carrier Bolts</th>
<th>Compressor Sheave Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 in.-lbs.</td>
<td>30 ft.-lbs.</td>
<td>30 ft.-lbs.</td>
<td>30 ft.-lbs.</td>
<td>25 ft.-lbs.</td>
<td>30 ft.-lbs.</td>
<td>75 ft.-lbs.</td>
</tr>
</tbody>
</table>

**Table 5-4 Torque Specifications**  
(specifications listed for dry threads only)

*Full Load Amps (FLA) & Service Factor can be found on the motor nameplate.*
PILOT VALVE ADJUSTMENTS

All adjustments made to the pilot valve must be performed by a qualified technician. The adjustments must be made while the unit is operating, therefore, extreme caution must be taken while working on the unit. Observe all necessary precautions. Always use a back-up wrench and make all differential and unload pressure adjustments in very small increments (1/8 turn).

WARNING!
The pressure switch and / or pilot valve are set at the factory for maximum efficiency. Adjustments to either component must be performed by a qualified technician. Exceeding the factory recommended maximum pressure will void the warranty and may cause personal injury.

**Setting Unload Pressure**

**Step 1.** Flip the toggle to the “RUN” position as shown, or turn the knurled knob (if so equipped) counterclockwise until it stops.

**Step 2.** Loosen locknut (counterclockwise). *Stabilize with back-up wrench!*

**Step 3.** Turn clockwise to increase unload pressure, turn counterclockwise to decrease unload pressure. Hold position with wrench and proceed to Step 4.

**Step 4.** Tighten locknut (clockwise) with wrench. *Stabilize with back-up wrench!*

**Setting Differential Pressure**

**Step 5.** Loosen locknut (counterclockwise). *Stabilize with back-up wrench!*

**Step 6.** Turn clockwise to decrease the differential pressure and counterclockwise to increase the differential pressure. Hold position with wrench and proceed to Step 7.

**Step 7.** Tighten locknut (clockwise) with wrench. *Stabilize with back-up wrench!*

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QRD Series

50118-106, January 2013

Quincy Compressor

3501 Wismann Lane, Quincy IL - 62305-3116
<table>
<thead>
<tr>
<th>Trouble</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low discharge pressure</td>
<td>• Restricted inlet</td>
</tr>
<tr>
<td></td>
<td>• Defective compressor valves or valve unloading mechanism</td>
</tr>
<tr>
<td></td>
<td>• Leaks in the compressed air distribution system at fittings, connections, etc.</td>
</tr>
<tr>
<td></td>
<td>• Unloader pilot defective or set wrong</td>
</tr>
<tr>
<td></td>
<td>• Pressure switch defective or set wrong</td>
</tr>
<tr>
<td></td>
<td>• Drive belt slipping</td>
</tr>
<tr>
<td></td>
<td>• Incorrect speed</td>
</tr>
<tr>
<td></td>
<td>• Worn piston rings or loose piston</td>
</tr>
<tr>
<td></td>
<td>• Leaking head gasket</td>
</tr>
<tr>
<td></td>
<td>• Drain valve open</td>
</tr>
<tr>
<td></td>
<td>• Defective pressure gauge</td>
</tr>
<tr>
<td></td>
<td>• Pressure relief valve leaking</td>
</tr>
<tr>
<td></td>
<td>• Clogged intercooler</td>
</tr>
<tr>
<td></td>
<td>• Loose compressor valves or leaking at valve gaskets</td>
</tr>
<tr>
<td></td>
<td>• Compressor incorrectly sized for the operating altitude</td>
</tr>
<tr>
<td>Excessive vibration</td>
<td>• Incorrect speed</td>
</tr>
<tr>
<td></td>
<td>• Compressor valves not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Loose pulley/sheave</td>
</tr>
<tr>
<td></td>
<td>• Motor or engine out of balance</td>
</tr>
<tr>
<td></td>
<td>• Compressor, motor or engine not secured tightly, or tightened into a bind</td>
</tr>
<tr>
<td></td>
<td>• Foundation or frame inadequate</td>
</tr>
<tr>
<td></td>
<td>• Piping inadequately supported or tightened into a bind</td>
</tr>
<tr>
<td></td>
<td>• Excessive discharge pressure</td>
</tr>
<tr>
<td></td>
<td>• Compressor feet may need to be leveled with shims</td>
</tr>
<tr>
<td>Excessive drive belt wear</td>
<td>• Pulley/sheave out of alignment</td>
</tr>
<tr>
<td></td>
<td>• Belt too loose or too tight</td>
</tr>
<tr>
<td></td>
<td>• Belt slipping</td>
</tr>
<tr>
<td></td>
<td>• Pulley/sheave wobbling</td>
</tr>
<tr>
<td></td>
<td>• Pulley/sheave groove damaged or rough</td>
</tr>
<tr>
<td></td>
<td>• Incorrect belts</td>
</tr>
<tr>
<td>Compressor loads and unloads excessively</td>
<td>• Air receiver too small</td>
</tr>
<tr>
<td></td>
<td>• Compressor valves or unloaders defective</td>
</tr>
<tr>
<td></td>
<td>• Excessive system leakage</td>
</tr>
<tr>
<td></td>
<td>• Compressor operating at incorrect speed</td>
</tr>
<tr>
<td></td>
<td>• Unloader pilot differential set too close</td>
</tr>
<tr>
<td></td>
<td>• Pressure switch defective</td>
</tr>
<tr>
<td>Defective pressure switch</td>
<td>• Moisture buildup on the pressure switch diaphragm</td>
</tr>
<tr>
<td></td>
<td>• Ruptured diaphragm</td>
</tr>
<tr>
<td></td>
<td>• Burned contact points</td>
</tr>
<tr>
<td></td>
<td>• Plugged air passage from the receiver to the pressure switch</td>
</tr>
<tr>
<td></td>
<td>• Loose electrical connection</td>
</tr>
<tr>
<td>Trouble</td>
<td>Probable Cause</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Excessive air pressure in air</td>
<td>• Air pressure gauge inaccurate</td>
</tr>
<tr>
<td>receiver</td>
<td>• Pilot valve or pressure switch set incorrectly or defective</td>
</tr>
<tr>
<td></td>
<td>• Pressure switch wired incorrectly</td>
</tr>
<tr>
<td>Excessive intercooler pressure</td>
<td>• Intercooler restricted or plugged</td>
</tr>
<tr>
<td>(Two stage models only)</td>
<td>• Compressor valves in second stage broken or not functioning properly</td>
</tr>
<tr>
<td></td>
<td>• Pilot valve or pressure switch set incorrectly or defective</td>
</tr>
<tr>
<td></td>
<td>• Pressure gauge defective</td>
</tr>
<tr>
<td>Intercooler pressure abnormally</td>
<td>• Compressor valves or valve unloaders in first stage not functioning properly</td>
</tr>
<tr>
<td>low (Two stage models only)</td>
<td>• Restricted air inlet filter or suction line</td>
</tr>
<tr>
<td></td>
<td>• Pilot valve or pressure switch set incorrectly or defective</td>
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<tr>
<td></td>
<td>• Compressor valve or head gasket leaking</td>
</tr>
<tr>
<td></td>
<td>• Worn piston rings</td>
</tr>
<tr>
<td></td>
<td>• Defective pressure gauge</td>
</tr>
<tr>
<td></td>
<td>• Leaking air at intercooler or intercooler connections</td>
</tr>
<tr>
<td>Compressor overheats</td>
<td>• Restrictive Belt Guard <em>(see page 14 for belt guard information)</em></td>
</tr>
<tr>
<td></td>
<td>• Clogged intake system</td>
</tr>
<tr>
<td></td>
<td>• Defective compressor valves</td>
</tr>
<tr>
<td></td>
<td>• Pressure setting too high</td>
</tr>
<tr>
<td></td>
<td>• Clogged intercooler, internally or externally</td>
</tr>
<tr>
<td></td>
<td>• Inadequate ventilation, or recirculation of hot air</td>
</tr>
<tr>
<td></td>
<td>• Pulley/sheave rotation wrong</td>
</tr>
<tr>
<td></td>
<td>• Incorrect speed</td>
</tr>
<tr>
<td></td>
<td>• Running clearances insufficient <em>(piston to cylinder wall or running gear)</em></td>
</tr>
<tr>
<td></td>
<td>• Compressor incorrectly sized</td>
</tr>
<tr>
<td>High discharge temperature</td>
<td>• Compressor valve assemblies defective</td>
</tr>
<tr>
<td></td>
<td>• Discharge pressure too high</td>
</tr>
<tr>
<td></td>
<td>• Inadequate ventilation or hot air recirculating</td>
</tr>
<tr>
<td></td>
<td>• Cooling surfaces of compressor or intercooler excessively dirty</td>
</tr>
<tr>
<td></td>
<td>• Internal surface of heat exchanger fouled</td>
</tr>
<tr>
<td></td>
<td>• Ambient temperature too high</td>
</tr>
<tr>
<td></td>
<td>• Scored or excessively worn cylinder walls</td>
</tr>
<tr>
<td>Compressor knocks</td>
<td>• Head clearance insufficient</td>
</tr>
<tr>
<td></td>
<td>• Piston loose in cylinder bore, cylinder bore worn, piston or piston rings</td>
</tr>
<tr>
<td></td>
<td>• Worn piston or main bearing</td>
</tr>
<tr>
<td></td>
<td>• Wrong pressure setting, discharge pressure excessive</td>
</tr>
<tr>
<td></td>
<td>• Loose pulley/sheave</td>
</tr>
<tr>
<td></td>
<td>• Compressor valve assemblies loose</td>
</tr>
<tr>
<td>Trouble</td>
<td>Probable Cause</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Excessive current draw</strong></td>
<td>• Low voltage (<em>must be within 10% of nameplate voltage</em>)</td>
</tr>
<tr>
<td><em>(To determine maximum amperage allowed, multiply the FLA on the motor nameplate by the service factor.)</em></td>
<td>• Loose electrical connection</td>
</tr>
<tr>
<td>CAUTION!</td>
<td>• Wire size too small</td>
</tr>
<tr>
<td><strong>Motor surface temperature</strong></td>
<td>• Discharge pressure too high</td>
</tr>
<tr>
<td>normally exceeds 170° F.</td>
<td>• Intercooler plugging</td>
</tr>
<tr>
<td></td>
<td>• Bearings tight or seizing</td>
</tr>
<tr>
<td></td>
<td>• Motor sized incorrectly</td>
</tr>
<tr>
<td></td>
<td>• Motor defective</td>
</tr>
<tr>
<td></td>
<td>• Drive belts too tight</td>
</tr>
<tr>
<td><strong>Failure to start</strong></td>
<td>• Power not on</td>
</tr>
<tr>
<td></td>
<td>• Blown circuit fuse</td>
</tr>
<tr>
<td></td>
<td>• Overload relay fuses tripped</td>
</tr>
<tr>
<td></td>
<td>• Low voltage</td>
</tr>
<tr>
<td></td>
<td>• Faulty start switch</td>
</tr>
<tr>
<td></td>
<td>• Power failure</td>
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<td></td>
<td>• Pressure switch incorrectly adjusted or faulty</td>
</tr>
<tr>
<td></td>
<td>• Loose or broken wire</td>
</tr>
<tr>
<td></td>
<td>• Motor defective</td>
</tr>
<tr>
<td></td>
<td>• Compressor seized</td>
</tr>
<tr>
<td><strong>CAUTION!</strong></td>
<td>Overload relays are designed to protect the motor from damage due to motor overload. If the overload relay trips persistently, DO NOT CONTINUE TO PUSH THE RESET BUTTON! Contact your local Quincy distributor for assistance.</td>
</tr>
<tr>
<td><strong>Motor stalls</strong></td>
<td>• Motor overloaded (<em>refer to Excessive current draw</em>)</td>
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</table>

50118-106, January 2013
3501 Wismann Lane, Quincy IL - 62305-3116
### Approximate Capacity Correction for Altitude

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<th>Altitude (ft.)</th>
<th>Sea Level</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
<th>4000</th>
<th>5000</th>
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<th>7000</th>
<th>8000</th>
<th>9000</th>
<th>10000</th>
<th>12000</th>
<th>14000</th>
<th>15000</th>
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<tr>
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<td>25 PSIG</td>
<td>40 PSIG</td>
<td>60 PSIG</td>
<td>80 PSIG</td>
<td>90 PSIG</td>
<td>100 PSIG</td>
<td>Two Stage</td>
<td>100 PSIG</td>
<td>150 PSIG</td>
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<td></td>
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<tr>
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</tr>
</tbody>
</table>

Notes:

1. Correction factors are approximate and shown for **single stage compressors and high pressure discharge on two stage compressors**.

2. This chart does not allow for air tools which require more free air at altitudes above sea level.

3. To find the capacity of a compressor at a given altitude, multiply the rated capacity of the compressor by the factor corresponding to the altitude and discharge pressure. The result will be the actual capacity (CFM) of the compressor at the given altitude.
Decal Locations

Typical Two Stage QRD Base Mounted Unit
Typical Two Stage QRD Simplex Base Mounted Unit
Typical Two Stage QRD Simplex Tank Mounted Unit
QUINCY COMPRESSOR

STANDARD TERMS AND CONDITIONS

LEGAL EFFECT: Except as expressly otherwise agreed to in writing by an authorized representative of Seller, the following terms and conditions shall apply to and form a part of this order and any additional and/or different terms of Buyer’s purchase order or other form of acceptance are rejected in advance and shall not become a part of this order.

The rights of Buyer hereunder shall be neither assignible nor transferable except with the written consent of Seller.

This order may not be canceled or altered except with the written consent of Seller and upon terms which will indemnify Seller against all loss occasioned thereby. All additional costs incurred by Seller due to changes in design or specifications, modification of this order or revision of product must be paid for by Buyer.

In addition to the rights and remedies conferred upon Seller by this order, Seller shall have all rights and remedies conferred at law and in equity and shall not be required to proceed with the performance of this order if Buyer is in default in the performance of such order or of any other contract or order with Seller.

TERMS OF PAYMENT: Unless otherwise specified in the order acknowledgment, the terms of payment shall be 1% 15, net forty-five (45) days after shipment. These terms shall apply to partial as well as complete shipments. If any payment is not received within fifteen (15) days of notice of readiness for shipment, Seller shall have the right to cancel the order as to any unshipped item and require payment of its reasonable cancellation charges.

If Buyer delays shipment, payments based on date of shipment shall become due as of the date when ready for shipment. If Buyer delays completion of manufacture, Seller may elect to require payment according to percentage of completion. Equipment held for Buyer shall be at Buyer’s risk and storage charges may be applied at the discretion of Seller.

Accounts past due shall bear interest at the highest rate lawful to contract for but if there is no limit set by law, such interest shall be eighteen percent (18%). Buyer shall pay all cost and expenses, including reasonable attorney’s fees, incurred in collecting the same, and no claim, except claims within Seller’s warranty of material or workmanship, as stated below, will be recognized unless delivered in writing to Seller within thirty (30) days after date of shipment.

TAXES: All prices exclude present and future sales, use, occupation, license, excise, and other taxes in respect of manufacture, sales or delivery, all of which shall be paid by Buyer unless included in the purchase price at the proper rate or a proper exemption certificate is furnished.

ACCEPTANCE: All offers to purchase, quotations and contracts of sales are subject to final acceptance by an authorized representative at Seller’s plant.

DELIVERY: Except as otherwise specified in this quotation, delivery will be F. O. B. point of shipment. In the absence of exact shipping instruction, Seller will use its discretion regarding best means of insured shipment. No liability will be accepted by Seller for so doing. All transportation charges are at Buyer’s expense. Time of delivery is an estimate only and is based upon the receipt of all information and necessary approvals. The shipping schedule shall not be construed to limit Seller in making commitments for materials or in fabricating articles under this order in accordance with Seller’s normal and reasonable production schedules.

Seller shall in no event be liable for delays caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller’s control. No provision for liquidated damages for any cause shall apply under this order. Buyer shall accept delivery within thirty (30) days after receipt of notification of readiness for shipment. Claims for shortages will be deemed to have been waived if not made in writing within ten (10) days after the receipt of the material in respect of which any such shortage is claimed. Seller is not responsible for loss or damage in transit after having received “In Good Order” receipt from the carrier. All claims for loss or damage in transit should be made to the carrier.

TITLE & LIEN RIGHTS: The equipment shall remain personal property, regardless of how affixed to any realty or structure. Until the price (including any notes given therefore) of the equipment has been fully paid in cash, Seller shall, in the event of Buyer’s default, have the right to repossession such equipment.

PATENT INFRINGEMENT: If properly notified and given an opportunity to do so with friendly assistance, Seller will defend Buyer and the ultimate user of the equipment from any actual or alleged infringement of any published United States patent by the equipment or any part thereof furnished pursuant hereto (other than parts of special design, construction, or manufacture specified by and originating with Buyer), and will pay all damages and costs awarded by competent court in any suit thus defended or of which it may have had notice and opportunity to defend as aforesaid.

STANDARD WARRANTY: Seller warrants that products of its own manufacture will be free from defects in workmanship and materials under normal use and service for the period specified in the product instruction manual. Warranty for service parts will be Ninety (90) days from date of factory shipment. Electric Motors, gasoline and diesel engines, electrical apparatus and all other accessories, components and parts not manufactured by Seller are warranted only to the extent of the original manufacturer’s warranty.

Notice of the alleged defect must be given to the Seller, in writing with all identifying details including serial number, type of equipment and date of purchase within thirty (30) days of the discovery of the same during the warranty period.

Seller’s sole obligation on this warranty shall be, at its option, to repair or replace or refund the purchase price of any product or part thereof which proves to be defective. If requested by Seller, such product or part thereof must be promptly returned to seller, freight prepaid, for inspection.

Seller warrants repaired or replaced parts of its own manufacture against defects in materials and workmanship under normal use and service for ninety (90) days or for the remainder of the warranty on the product being repaired. This warranty shall not apply and Seller shall not be responsible or liable for:

(a) Consequential, collateral or special losses or damages;
(b) Equipment conditions caused by fair wear and tear, abnormal conditions of use, accident, neglect or misuse of equipment, improper storage or damage resulting during shipping;
(c) Deviation from operating instructions, specifications or other special terms of sale;
(d) Labor charges, loss or damage resulting from improper operation, maintenance or repairs made by person(s) other than Seller or Seller’s authorized service station.

In no event shall Seller be liable for any claims whether arising from breach of contract or warranty or claims of negligence or negligent manufacture in excess of the purchase price.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLERS AND ANY OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE ARE HEREBY SPECIFICALLY EXCLUDED.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, whether resulting from delays in delivery or performance, breach of warranty, negligent manufacture or otherwise.

ENVIRONMENTAL AND OSHA REQUIREMENTS: At the time of shipment of the equipment from the factory, Quincy Compressor / Ortiman Fluid Power will comply with the various Federal, State and local laws and regulations concerning occupational health and safety and pollution. However, in the installation and operation of the equipment and other matters over which the seller has no control, the Seller assumes no responsibility for compliance with those laws and regulations, whether by the way of indemnity, warranty or otherwise.

June 30, 2003