



PRODUCT MANUAL

RS80AC

Hydraulically Driven Air Compressor



This manual must be read carefully before using your Auto Crane RS80AC. Store in a safe and convenient location for future reference.

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Welcome

General Information

Thank you for choosing the Auto Crane RS80AC Hydraulically Driven Air Compressor. Before operating, carefully read this manual and become well acquainted with your new machine. Doing this will increase your safety and maximize the life of the machine.

While this manual is written to be as accurate as possible, Auto Crane strives to continually improve the efficiency and performance of its machines. As a result, sometimes there may be slight differences between a given version of the manual and the machine.

Safety

Safety - General Safety Overview

IMPORTANT: READ BEFORE OPERATING EQUIPMENT

Remember, safety is basically common sense. While there are standard safety rules, each situation has its own peculiarities that cannot be covered by rules. Therefore with your experience and common sense, you are in a position to ensure the safety of yourself and those around you. Lack of attention to safety can result in: accidents, personal injury, reduction in efficiency, and worst of all - Loss of Life. Watch for safety hazards and correct them promptly.

Understanding the proper operation of this equipment is critical to its safe operation. The owner, lessor, or operator of this equipment is hereby notified and forewarned that any failure to observe the safety and operating guidelines may result in injury and/or

damage. Auto Crane expressly disclaims responsibility or liability for an injury or damage caused by failure to observe the specified precautions or by failure to exercise the ordinary caution and due care required while operating or handling this equipment, even though not expressly specified.

In addition to following these safety guidelines, the operator should follow any company specific guidelines and procedures. Consult your immediate supervisor for specific company safety guidelines and/or procedures.

The following safety symbols are used throughout the manual to draw attention to important information. If the information is not carefully read and the instructions are not followed, severe injury, death, and/or damage to property and equipment may occur.



Indicate[s] an imminently hazardous situation, which, if not avoided, will result in death or serious injury.



Indicate[s] a potentially hazardous situation, which, if not avoided, could result in death or serious injury.



Indicate[s] a potentially hazardous situation, which, if not avoided, could result in minor or moderate injury.



Indicate[s] a potentially unsafe situation or practice, which, if not avoided, can result in property and/or equipment damage only

Safety

Safety Precautions

The following safety precautions are a general guide to safe operation of the equipment.

DANGER

Pressurized System. Do not attempt to remove any compressor parts without first completely relieving entire system of pressure. Do not attempt to service any part of the equipment while in operation. Never attempt to repair or modify any pressure vessel or device.

DANGER

System contains hot oil. The compressor system must be shut off prior to servicing. Open the service valve to ensure complete relief of system air pressure and stored energy. Then permit system to cool down prior to adding compressor oil or servicing the unit.

DANGER

Do not use air from this compressor for breathing or food processing. Air from this compressor will cause severe injury if used for breathing or food processing.

DANGER

The compressor is designed to compress air only. Do not attempt to compress other gases. Compression of other gases may create a situation where an explosion or fire may occur.

DANGER

Do not use flammable solvents for cleaning compressor parts as this can cause the unit to ignite or explode during operation. Keep combustibles out of and away from compressor inlet, and any associated enclosures.

DANGER

Never disable, override, or remove safeties, either temporarily or permanently.

DANGER

Connect air hoses only in full compliance with OSHA Standard 29 CFR 1926:302 (b) (7). The required safety devices (velocity fuse) should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use. Failure to comply could result in personal injury or death and/or damage to equipment and property.

DANGER

Do not modify system to operate equipment at a higher pressure than specified in this manual.

DANGER

Never leave the machine running unattended or leave a tool connected to an air hose when not using. Relieve system of all stored air pressure after use.

WARNING

Read and understand the operations manual and all other safety instructions before using this equipment. Failure to follow operating instructions and/or failure to follow maintenance procedures and intervals could result in personal injury, death, and/or damage to equipment and property.

Safety

Safety Precautions (continued)

WARNING

Read and understand the operations manual and all other safety instructions before using this equipment. Failure to follow operating instructions and/or failure to follow maintenance procedures and intervals could result in personal injury, death, and/or damage to equipment and property.

CAUTION

Mount the compressor in a stable location capable of supporting the weight of the machine. Slight vibration may occur during operation and the machine may move if not securely mounted.

CAUTION

When using tools, maintain secure footing at all times. Do not overreach or awkwardly use air tools.

CAUTION

Never place machine on a grade more than 10 degrees.

NOTICE

Use only Auto Crane approved replacement parts or equivalent.

Specifications

Specification Sheet

COMPRESSOR SPECIFICATIONS				
Model	RS80AC			
Type	Hydraulically Driven Air Compressor			
	Output	Compressor RPM	Hyd Flow	Hyd Pressure
Delivery	45 CFM @ 175 PSI	1477	10.7 GPM	2900 PSI
	60 CFM @ 175 PSI	1924	14.0 GPM	3000 PSI
	65 CFM @ 150 PSI	2060	15.0 GPM	2750 PSI
	80 CFM @ 100 PSI	2450	17.8 GPM	2300 PSI
Operating Pressure Range	80 - 175 PSI			
Ambient Operating Temperature Range	-20° - 110°F			
Oil Capacity (Compressor)	1.25 gallons			
Air Service Connection	3/4" NPT			
Overall Dimensions	33" L X 20.13" W X 20.63" H			
Weight	300 lbs.			

*CALCULATIONS PERFORMED @ 85% EFFICIENCY MECHANICAL AND 96% EFFICIENCY VOLUMETRIC.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Installation & Operation

System Installation Overview

This machine should be installed only by those who have been trained and delegated to do so and who have read and understand the manual. Failure to follow the instructions, procedures, and safety precautions in this manual may result in accidents and injuries.

Install, use, and operate this machine only in full compliance with all pertinent OSHA, Federal, State, and Local codes or requirements in addition to any company regulations.

Do not modify this machine except with written factory approval.

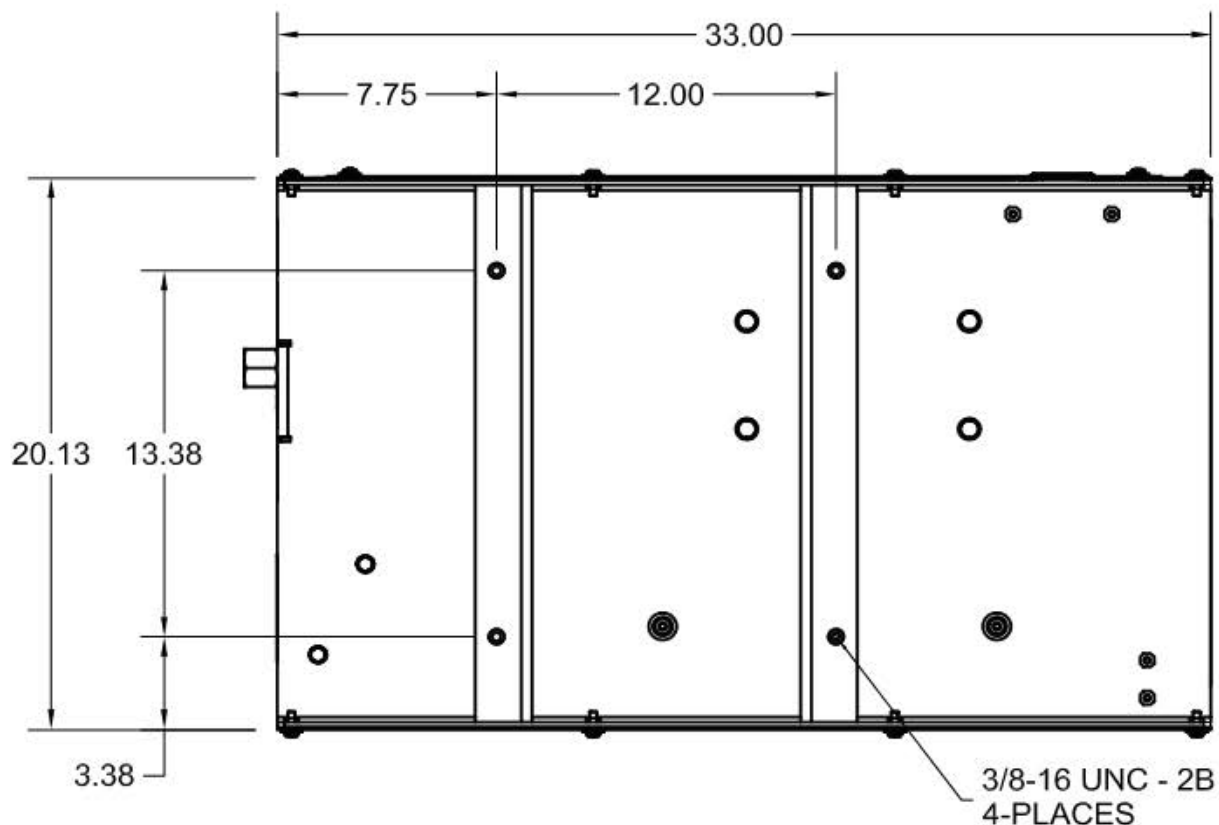
ambient air to enter the air filter and the hot air to exhaust without recirculating into the machine. A minimum of 12" of clearance is needed for the hot discharge air from the cooler. A minimum of 10" of clearance is required from the front of the compressor to allow for proper air intake. Cool ambient air is drawn in from the front of the machine. One last consideration in the mounting should be the routing of hydraulic hoses. Be sure these can be safely run to the hydraulic manifold on the machine. The unit should be secured to the vehicle with four 3/8" grade 8 bolts, flat washers, and lock washers. Ensure that you have a sub structure that will support the weight of the compressor. Be sure to follow all National Vehicle Safety Standards.

Mounting the Compressor

When mounting the compressor, care should be taken to ensure that its location does not impede the operation of other components on the vehicle. For example, if your vehicle is equipped with a crane, you must make sure the compressor will not interfere with the swing of the crane. In addition, the compressor should be installed in an area that permits cool

Connecting Air Discharge Line

Connect the customer supplied air discharge line, designed to handle a minimum of 250 PSI continuously, to the 3/4" NPT air discharge port.



Installation & Operation

Installation of Wiring

This unit is shipped from the factory with all necessary internal wiring installed. The only remaining wiring necessary is the wiring needed to interface your vehicle/power source with the Auto Crane compressor. The unit is shipped with 1 end of a 4 pin connector. They need to be connected as follows:

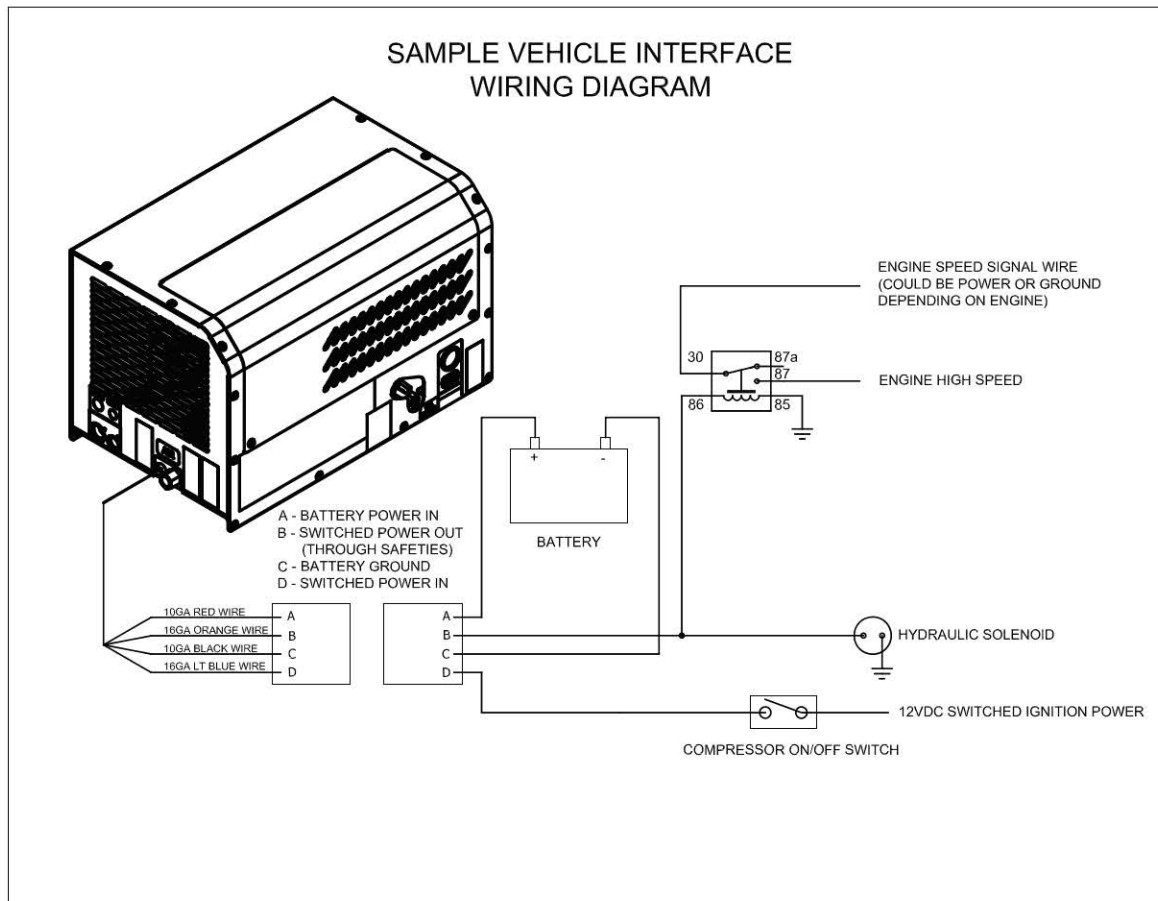
Pin A (Red Wire) - Battery Power

Pin B (Orange Wire) - Power out to hydraulic system solenoid through safeties

Pin C (Black Wire) - Battery Ground

Pin D (Lt Blue Wire) - 12VDC switched power for operation

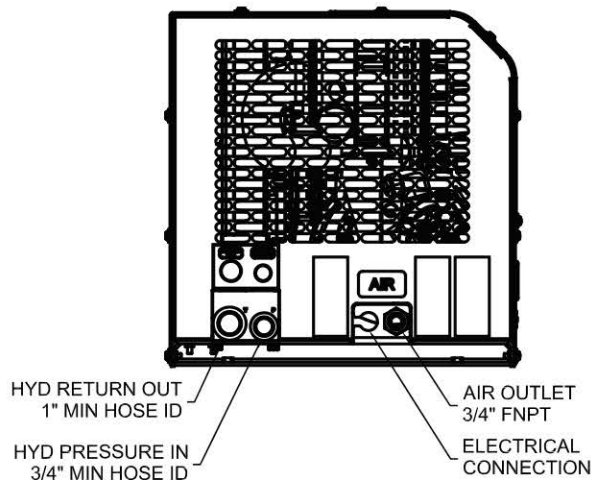
Pin 'B' should be used to direct hydraulic flow to the compressor. This wire can also be used with a relay to signal the engine speed to increase if additional hydraulic flow is required during compressor operation. See one example below.



Installation & Operation

Connecting the Hydraulic Hoses

The hydraulic hoses to the compressor should be connected directly to the hydraulic manifold with appropriately sized fittings. The input line should be made from a good quality high pressure (min. 3500 PSI) hydraulic hose 3/4" i.d. The return line can be made from a medium pressure (min. 1500 PSI) hydraulic hose 1" i.d. Care should be taken to see that the hoses are not installed with kinks or bends that inhibit flow of the hydraulic oil. Lack of flow could result in damage to the motor and compressor. Lastly, check to make sure hoses are not in contact with sharp objects or edges that may fray, chafe, or cut them over time. Secure all hoses with tie down straps or clamps.



Pre-Start-up Inspection Checks

This inspection should be done prior to the compressor test.

- I. Check all assemblies, clamps, fittings, hose connections, nuts, and bolts to ensure they are properly tied and secured to the vehicle. This is a very critical area of inspection. The vehicle should not be moved until this inspection has been completed.
- II. Remove all tools, rags, and installation equipment from the area.
- III. Check all valves to ensure they are in correct operating position.
- IV. Vacuum all areas that have metal or plastic shavings. Wipe all fingerprints off unit and vehicle.

Check All Fluid Levels

Position the unit on a level surface so that proper amount of fluids can be added.

- I. Check the compressor oil level.
 - A. Add oil if needed.
 - B. Additional oil may need to be added after test.
 - C. Top off oil level to 3/4 of the upper sightglass when finished with the test.
- II. Check hydraulic system oil level.

Machine Documentation

Record all serial numbers for this installation.

- A. Auto Crane Serial Number

-
- B. Compressor Serial Number

-
- C. Note any special applications relating to specific installations.
-

Installation & Operation

Operating Procedure

- I. Read this manual carefully before proceeding.
- II. Verify the service valve is closed.
- III. Engage hydraulic system.
- IV. Allow hydraulic system to run on bypass for 3-5 minutes to warm-up.
- V. Engage hydraulic flow to compressor.
- VI. Allow compressor speed to stabilize before opening service valve for use.

Shutdown Procedure

- I. Close service valve.
- II. Disengage hydraulic flow to compressor.
- III. Disengage hydraulic system.

Operating Conditions

The following conditions should exist for maximum performance of the compressor:

- The machine should be as close to level as possible when operating.
- Ambient temperature for operation should be below 110°F (43°C). The machine may experience high temperature shutdown above this level.

Maintenance

Maintenance Overview

This section contains instructions for performing the inspection, lubrication, and maintenance procedures required to maintain the machine in proper operating condition. The importance of performing the maintenance described herein cannot be overemphasized.

The periodic maintenance procedures to be performed on the equipment covered by this manual are listed on the following page. It should be understood that the intervals between inspections specified are maximum intervals. More frequent inspections should be made if the unit is operating in a dusty environment, in high ambient temperature, or in other unusual conditions. A planned program of periodic inspection and maintenance will help avoid premature failure and costly repairs. Daily visual inspections should become a routine.



Compressor must be shut down and completely relieved of pressure prior to checking fluid levels. Open service valve to ensure relief of system air pressure. Relieve all stored air pressure energy prior to starting machine. Failure to comply with this warning will cause damage to property and serious bodily harm.

Maintenance

Maintenance Chart

The MAINTENANCE CHART lists serviceable items on this compressor package. The items are listed according to their frequency of maintenance.

INTERVAL	REQUIRED MAINTENANCE
EVERY 10 HOURS OR DAILY	1. Check compressor oil level.
	2. Check for oil and air leaks.
	3. Check compressor air filter maintenance indicator. Clean or change filter as required.
EVERY 50 HOURS OR WEEKLY	1. Drain water from compressor sump. More frequent draining may be required under high humidity conditions.
	2. Inspect compressor mounting bolts.
	*3. After first 50 hours, install 50-Hour Maintenance Kit. Steps include changing oil and oil filter element. Then follow yearly maintenance schedule.
EVERY 250 HOURS OR 6 MONTHS	1. Check compressor shaft seal for leakage.
	2. Check compressor air filter connections, fittings, and clamps.
EVERY 500 HOURS OR 1 YEAR	1. Install 1-Year or 500-Hour Maintenance Kit. Steps include changing oil, oil filter element, air/oil coalescing element, and air filter element.
	2. Check compressor pressure relief valve.
	3. Clean cooler fins on all coolers.

Maintenance

Compressor Oil

CAUTION

It is important that the compressor oil be of a recommended type, and inspected and replaced as stated in this manual.

WARNING

The combination of a coalescer element loaded with dirt and oxidized oil products together with increased air velocity as a result of this clogged condition may produce a critical point while the machine is in operation where ignition can take place and could cause a fire in the separator tank.

The following are general characteristics for a rotary screw lubricant. Due to the impossibility of establishing limits on all physical and chemical properties of lubricants which can affect their performance in the compressor over a broad range of environmental influences, the responsibility for recommending and consistently furnishing a suitable heavy duty lubricant must rest with the individual supplier if they choose not to use the recommended Auto Crane Rotary Screw Lubricant. The lubricant supplier's recommendation must, therefore, be based upon not only the following general characteristics, but also upon his or her own knowledge of the suitability of the recommended lubricant in helical screw type air compressors operating in the particular environment involved.

Recommended Compressor Lubricant: Auto Crane Rotary Screw Lubricant

1. Specifications

1. Flash point 496°F minimum.
2. Pour point -40°F.
3. Contains rust and corrosion inhibitors.
4. Contains foam suppressors.

NOTICE

Due to environmental factors, the useful life of all "extended life" lubricants may be shorter than quoted by the lubricant supplier. Auto Crane encourages the user to closely monitor the lubricant condition and to participate in an oil analysis program with the supplier.

NOTICE

No lubricant, however good and/or expensive, can replace proper maintenance and attention. Select and use it wisely.

Maintenance

Compressor Oil Fill, Level, and Drain

Before adding or changing compressor oil, make sure that the compressor is completely relieved of pressure. The drain is located on the side of the machine towards the bottom of the airend. To drain the oil, remove the plug from the oil drain valve and rotate the valve to the open position to release all of the oil from the compressor sump. When oil has been drained, rotate the valve to the closed position and reinstall the plug on the end of the valve.

The oil fill is located inside the maintenance access panel. First, remove the access panel from the right side (by the pressure gauge) of the machine by removing the 2 bolts securing it. Inside the access panel will be a cap labeled "OIL" located above the 2 sightglass fittings. Remove this cap and add oil until the level is $\frac{3}{4}$ full on the upper oil sightglass when the unit is shut down and has had time to settle. The machine must be level when checking the oil. **DO NOT OVERFILL.** The oil capacity is given in "Compressor Specifications".



Do not attempt to drain condensate, remove the oil level fill cap, or break any connection in the air oil system without shutting off the compressor and relieving the system of all stored air pressure.

Changing the Oil Filter

The oil filter is a spin-on type element that is easily replaced through the maintenance access panel. First, remove the access panel from the right side (by the pressure gauge) of the machine by removing the 2 bolts securing it. Inside the access panel will be 2 spin-on filter elements: the oil filter and the air/oil coalescer. The oil filter will be located closer to the side of the machine and is the smaller of the 2 filters. To remove the old element, turn it counter-clockwise until it is loose and then lift it off of the stem and out of the access panel. It is normal for this filter to drip oil when it is removed. You may need the assistance of a band wrench to remove the old element, but new elements should be installed by hand tightening only. Once the old element is out, put a film of oil on the rubber ring of the new element and place it onto the stem and turn clockwise with your hands until it is tight. The element should spin on very freely until the last full turn. Make sure the threads are engaging properly if it does not spin freely. Once the new element has been installed, reinstall the access panel using the 2 bolts that were previously removed.



Do not substitute element. Use only an Auto Crane approved replacement element. This element is rated at 200 PSI working pressure. Use of any non-approved element may be hazardous and could impair the performance and reliability of the compressor, possibly voiding the warranty and/or resulting in damage to property and serious bodily harm.

Maintenance

Changing the Air/Oil Coalescer

The air/oil coalescer is a spin-on type element that is easily replaced through the maintenance access panel. First, remove the access panel from the machine by removing the 2 bolts securing it. Directly inside the opening you will find the air/oil coalescer. This is the larger of the 2 spin-on elements. To remove the old element, turn it counter-clockwise until it is loose, and then lift it off of the stem and out of the access panel. It is normal for this filter to drip oil when it is removed. You may need the assistance of a band wrench to remove the old element, but new elements should be installed by hand tightening only. Once the old element is out, put a film of oil on the rubber ring of the new element and place it onto the stem and turn clockwise with your hands until it is tight. The element should spin on freely until the last full turn. Make sure the threads are engaging properly if it does not spin freely. Once the new element has been installed, reinstall the access panel using the 2 bolts that were previously removed.

WARNING

Do not substitute element. Use only an Auto Crane approved replacement element. This element is rated at 290 PSI working pressure. Use of any non-approved element may be hazardous and could impair the performance and reliability of the compressor, possibly voiding the warranty and/or resulting in damage to property and serious bodily harm.

Changing the Air Intake Filter

The air intake filter is a heavy-duty dry type high efficiency filter designed to protect the compressor from dust and foreign objects.

Frequency of maintenance of the filter depends on dust conditions at the operating site. The filter element must be serviced when clogged. A clogged air filter element will reduce compressor performance and cause premature wear of components.

To change the air filter element, first remove the maintenance access panel from the machine by removing the 2 bolts securing it. Make sure the machine is not running when you perform this or any other maintenance. Inside the access panel you will find an air filter assembly with 2 latches. Disengage each latch and pull the end cover off of the air filter assembly. Inside you will find the air filter element. Remove the air filter element by pulling and gently twisting. Install the new filter element in reverse fashion. Reinstall the air filter assembly end cover and latch both latches to ensure a tight seal on the element inside. Reset the air filter maintenance indicator located on the air filter outlet. Once the new element has been installed, reinstall the access panel using the 2 bolts that were previously removed.

WARNING

Do not substitute element. Use only an Auto Crane approved replacement element. Use of any non-approved element may be hazardous and could impair the performance and reliability of the compressor, possibly voiding the warranty and/or resulting in damage to property and serious bodily harm.

Troubleshooting

Troubleshooting Overview

This section contains instructions for troubleshooting the equipment following a malfunction. The troubleshooting procedures to be performed on the equipment are listed below. Each symptom of trouble for a component or system is followed by a list of probable causes of the trouble and suggested procedures to be followed to eliminate the cause.

In general, the procedures listed should be performed in the order in which they are listed, although the order may be varied if the need is indicated by conditions under which the trouble occurred. In any event, the procedures that can be performed in the least amount of time and with the least amount of removal, disassembly, or parts should be performed first.

Improper Discharge Pressure

If discharge pressure is too low, check the following:

- I. Too much air demand. (Air tools required more air than the compressor can produce, air tools are free wheeling without resistance.)
- II. Service valve is wide open to atmosphere.
- III. Leaks in service line.
- IV. Restricted compressor inlet air filter.
- V. Faulty control system operation (i.e. regulator is sending a signal to close the inlet valve at all times).

If discharge pressure is too high or the safety valve blows, check the following:

- I. Coalescer plugged or blocked.
- II. Faulty safety valve.
- III. Faulty regulator (regulator air pressure signal is not getting to inlet valve).

If pressure relief valve blows at compressor idle, check the following:

- I. Inlet valve leaking or open.
- II. Faulty regulator.

Sump Pressure Does Not Blow Down

If after the compressor is shutdown, pressure does not automatically blow down (this process should take about 1 minute), check for:

- I. Blow down valve may be inoperative.
- II. Blow down valve exhaust port plugged. Blow down valve should have a 3/64" orifice fitting that is installed in the exhaust port.

Oil Consumption

Abnormal oil consumption or oil in service line can be caused by the following:

- I. Overfilling of oil sump.
- II. Leaking oil lines or oil cooler.
- III. Defective coalescer element.
- IV. Compressor shaft seal leakage.
- V. Discharge pressure below 65 PSI or above 175 PSI.

Relieving pressure too quickly after shutdown will cause the oil to foam and spill out of the blow down valve.

Coalescer Plugging

If the coalescer element has to be replaced frequently because it is plugging, it is an indication that foreign material may be entering the compressor inlet or the compressor oil is breaking down.

Compressor oil can break down prematurely for a number of reasons:

- I. Extreme operating temperature.
- II. Negligence in draining condensate from oil sump.
- III. Using the improper type of oil or dirty oil.

Troubleshooting

High Compressor Discharge Temperature

If the compressor shuts down on high temperature, check the following:

- I. Check compressor oil level. Add oil if required.
- II. Clean outside of oil cooler.
- III. Clean oil system (cooler) internally.
- IV. Check fan switch/relay harness. Fan should be running at all times when compressor is spinning.

Hydraulic Oscillation at Standby Pressures

If the compressor exhibits hydraulic oscillations or revving of the hydraulic flow and pressure, check the following:

- I. Check compressor oil level. Add oil if required. Oil level should be $\frac{3}{4}$ full on the upper sightglass.
- II. Excessive operating angle. If operating on an incline greater than 10° , the recommended oil level may not be sufficient. Reposition vehicle to eliminate excessive angle.

Contacting Auto Crane

If you need assistance with any of the preceding steps, or cannot find the solution to your problem, call the Auto Crane Service Department.

Phone: (800)777-2760

Email: actechsupport@ramseyindustries.com

Website: www.autocrane.com

When calling for technical support, have the following information available:

Machine Serial Number

Description of the problem