

IMPORTANT INFORMATION! READ AND FOLLOW THESE INSTRUCTIONS. RETAIN FOR REFERENCE.

SAFETY

DEFINITIONS

- △ **DANGER** WILL cause DEATH, SEVERE INJURY or substantial property damage.
- △ **WARNING** CAN cause DEATH, SEVERE INJURY or substantial property damage.
- △ **CAUTION** WILL or CAN cause MINOR INJURY or property damage.

GENERAL SAFETY PRECAUTIONS

- △ **DANGER** **INTAKE AIR.** Can contain carbon monoxide or other contaminants. Will cause serious injury or death. Ingersoll Rand air compressors are not designed, intended or approved for breathing air. Compressed air should not be used for breathing air applications unless treated in accordance with all applicable codes and regulations.
- △ **WARNING** **HAZARDOUS VOLTAGE.** Can cause serious injury or death. Disconnect power and bleed pressure from tank before servicing. Lockout/Tagout machine. Compressor must be connected to properly grounded circuit. See grounding instructions in manual. Do not operate compressor in wet conditions. Store indoors.
MOVING PARTS. Can cause serious injury. Do not operate with guards removed. Machine may start automatically. Disconnect power before servicing. Lockout/Tagout machine.
HOT SURFACES. Can cause serious injury. Do not touch. Allow to cool before servicing. Do not touch hot compressor or tubing.
HIGH PRESSURE AIR. Bypassing, modifying or removing safety/relief valves can cause serious injury or death. Do not bypass, modify or remove safety/relief valves. Do not direct air stream at body. Rusted tanks can cause explosion and severe injury or death. Drain tank daily or after each use. Drain valve located at bottom of tank.
- △ **CAUTION** **RISK OF BURSTING.** Use only suitable air handling parts acceptable for pressure of not less than the maximum allowable working pressure of the machine.

GENERAL INFORMATION

Your air compressor unit is suitable for operating air tools, caulking guns, grease guns, sandblasters, etc. Depending on your application, the following accessories may be required:

- An air pressure regulator to adjust the air pressure entering the tool or accessory.
- An air line filter for removal of moisture and oil vapor in compressed air.
- An in-line lubricator to prolong the life of air tools.
- Separate air transformers which combine the functions of air regulation and/or moisture and dirt removal.

Contact your nearest authorized dealer or call 1-800-AIR-SERV for more information on air tools and accessories for your application.

PREPARATION FOR USE

TRANSPORTING THE UNIT

- △ **CAUTION** The wheels and handle do not provide adequate clearance, stability or support for pulling the unit up and down stairs or steps. The unit must be lifted or pushed up a ramp. Do not use the handle to lift the unit.

SELECTING A LOCATION

GENERAL. Select a clean, dry, well-lighted area with plenty of space for proper cooling air flow and accessibility. Locate the unit on a solid level surface at least 12 inches (30 cm) from walls. Ensure unit is as level as possible.

TEMPERATURE. Ideal operating temperatures are between 32°F and 104°F (0°C and 40°C). In lower temperatures, you must protect safety/relief valves and drain valves from freezing.

- △ **CAUTION** Never operate in temperatures below 20°F (-6.6°C) or above 125°F (51.0°C).

HUMID AREAS. In frequently humid areas, moisture may form in the bare pump and produce sludge in the lubricant, causing running parts to wear out prematurely. Excessive moisture is especially likely to occur if the unit is located in an unheated area that is subject to large temperature changes. Two signs of excessive humidity are external condensation on the bare pump when it cools down and a "milky" appearance in petroleum compressor lubricant. You may be able to prevent moisture from forming in the bare pump by increasing ventilation or operating for longer intervals.

NOISE CONSIDERATIONS. Consult local officials for information regarding acceptable noise levels in your area. To reduce excessive noise, use vibration mounts or intake silencers, relocate the unit or construct total enclosures or baffle walls. Contact your dealer for assistance.

INSTALLING THE AIR INLET FILTER

⚠ CAUTION Do not operate without air inlet filter.

Install the air inlet filters at the inlet connections at the bare pump. If heavy duty filtration is required, contact your dealer for information.

INSTALLING DISCHARGE PIPING

If it is necessary to install air discharge piping or condensate discharge piping, adhere to the following general guidelines. Contact your dealer for more information.

⚠ WARNING If an aftercooler, check valve, block valve, or any other restriction is added to the compressor discharge, install a properly-sized ASME approved safety/relief valve between the compressor discharge and the restriction.

⚠ CAUTION If you will be using All Season Select synthetic compressor lubricant, all downstream piping material and system components must be compatible. Refer to the following material compatibility list. If there are incompatible materials present in your system, or if there are materials not included in the list, contact your dealer.

Suitable:

Viton®, Teflon®, Epoxy (Glass Filled), Oil Resistant Alkyd, Fluorosilicone, Fluorocarbon, Polysulfide, 2-Component Urethane, Nylon, Delrin®, Celcon®, High Nitrile Rubber (Buna N. NBR more than 36% Acrylonitrile), Polyurethane, Polyethylene, Epichlorohydrin, Polyacrylate, Melamine, Polypropylene, Baked Phenolics, Epoxy, Modified Alkyds
(® indicates trademark of DuPont Corporation)

Not Recommended:

Neoprene, Natural Rubber, SBR Rubber, Acrylic Paint, Lacquer, Varnish, Polystyrene, PVC, ABS, Polycarbonate, Cellulose Acetate, Low Nitrile Rubber (Buna N. NBR less than 36% Acrylonitrile), EPDM, Ethylene Vinyl Acetate, Latex, EPR, Acrylics, Phenoxy, Polysulfones, Styrene Acrylonitrile (San), Butyl

GENERAL REQUIREMENTS. The piping, fittings, receiver tank, etc. must be certified safe for at least the maximum working pressure of the unit. Use hard-welded or threaded steel or copper pipes, cast iron fittings and hoses that are certified safe for the unit's discharge pressure and temperature. **DO NOT USE PVC PLASTIC.** Use pipe thread sealant on all threads, and make up joints tightly to prevent air leaks.

CONDENSATE DISCHARGE PIPING. If installing a condensate discharge line, the piping must be at least one size larger than the connection, as short and direct as possible, secured tightly and routed to a suitable drain point. Condensate must be disposed of in accordance with local, state, and federal laws and regulations.

NOTE: All compressed air systems generate condensate which accumulates in any drain point (e.g. tanks, filters, drip legs, aftercoolers, dryers). This condensate contains lubricating oil and/or substances which may be regulated and must be disposed of in accordance with local, state, and federal laws and regulations.

ELECTRICAL WIRING & GROUNDING

⚠ WARNING Any electrical installation and service required should be performed by a qualified electrician who is familiar with all applicable local, state and federal laws and regulations.

GENERAL. The motor rating, as shown on the motor nameplate, and the power supply must have compatible voltage, phase and hertz characteristics.

FUSES. Refer to the National Electric Code to determine the proper fuse or circuit breaker rating required. When selecting

fuses, remember the momentary starting current of an electric motor is greater than its full load current. Time-delay or "slow-blow" fuses are recommended.

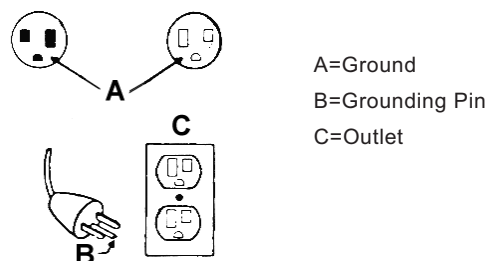
GROUNDING. The unit is equipped with a power cord having a grounding wire and an appropriate grounding plug. The plug must be used with an outlet that has been installed and grounded in accordance with all local codes and ordinances. The outlet must have the same configuration as the plug. **DO NOT USE AN ADAPTER.**

⚠ WARNING In the event of a short circuit, grounding reduces the risk of shock by providing an escape for the electric current. The unit must be properly grounded.

⚠ DANGER Improper installation of the grounding plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded. Do not modify the plug provided; if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

This product is for use on a nominal 120-volt circuit and has a grounding plug that looks like the plug illustrated below. Make sure the product is connected to an outlet having the same configuration as the plug. No adapter should be used with this product.



EXTENSION CORDS. It is preferable to use extra air hose instead of an extension cord to avoid voltage drop and power loss to the motor, and to prevent overheating. If an extension cord must be used, ensure it meets the following criteria:

- Three wire cord with a three blade grounding plug, and a three slot receptacle that will accept the plug on the unit.
- Good condition
- No longer than 50 feet.
- 12 gauge or larger.

NOTE Wire size increases as gauge number decreases. For example, 10 AWG and 8 AWG wire is acceptable, whereas 14 or 16 AWG are NOT acceptable.

COMPRESSOR LUBRICATION

⚠ CAUTION Do not operate without lubricant or with inadequate lubricant. Ingersoll Rand is not responsible for compressor failure caused by inadequate lubrication.

SYNTHETIC LUBRICANT. We recommend All Season Select synthetic compressor lubricant from start-up. See the WARRANTY section for extended warranty information.

ALTERNATE LUBRICANTS. You may use a petroleum-based lubricant that is premium quality, does not contain detergents, contains only anti-rust, anti-oxidation, and anti-foam agents as additives, has a flashpoint of 440°F (227°C) or higher, and has an auto-ignition point of 650°F (343°C) or higher.

See the petroleum lubricant viscosity table below. The table is intended as a general guide only. Heavy duty operating conditions require heavier viscosities. Refer specific operating conditions to your dealer for recommendations.

Temperature Around Unit		Viscosity @ 100°F (37.8°C)		Viscosity Grade	
°F	°C	SUS	Centistokes	ISO	SAE
40 & below	4.4 & below	150	32	32	10
40 - 80	4.4 - 26.7	500	110	100	30
80 - 125	26.7 - 51.0	750	165	150	40

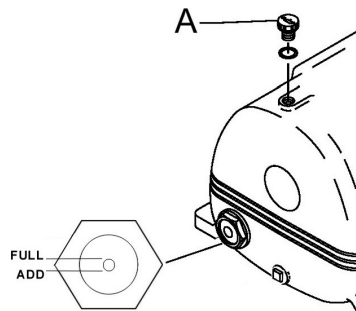
If you use a petroleum-based compressor lubricant at start-up and decide to convert to All Season Select synthetic compressor lubricant later on, the compressor valves must be thoroughly decarbonized and the crankcase must be flushed before conversion.

COMPRESSOR PUMP FILLING PROCEDURES:

⚠ WARNING HAZARDOUS VOLTAGE. Can cause serious injury or death. Disconnect power and Lockout/Tagout machine.

1. Unscrew and remove the oil fill plug (A).
2. Slowly fill the crankcase with lubricant until the lubricant reaches the "full" level of the sight glass as shown. Crankcase capacity is one (1) pint (0.5 liters).
3. Replace the oil fill plug HAND TIGHT ONLY.

Filling Procedures



OPERATION

GENERAL

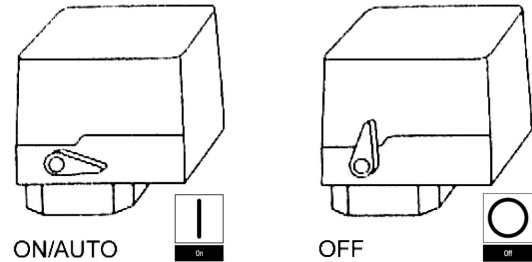
Your air compressor was designed for 100% continuous duty operation with the use of All Season Select synthetic compressor lubricant and 60% continuous duty operation with the use of petroleum lubricant. In other words, synthetic lubricant allows the compressor to pump continuously without cycling. Petroleum lubricant limits the compressor to a maximum of 36 minutes of

pumping time per hour. The compressor should not cycle more than 10 times per hour.

NORMAL START-UP

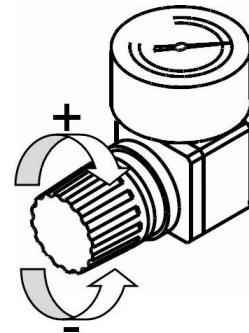
1. Set the pressure switch lever to "OFF".

Pressure Switch Lever



2. Close the regulator by turning it fully counterclockwise (-).

Regulator



3. Attach hose and accessory.
4. Move the pressure switch lever to "ON/AUTO". The unit will start.
5. Allow tank pressure to build. The motor will stop when tank pressure reaches cut-out pressure.
6. Adjust the regulator to the desired secondary pressure by turning it clockwise (+) to increase the pressure or counterclockwise (-) to decrease the pressure.

NOTE: When the receiver tank pressure drops below the factory pre-set minimum, the pressure switch resets and restarts the unit.

SHUTDOWN

1. Set the pressure switch lever to "OFF".
2. Close the service valve fully.
3. Remove the air tool or accessory.
4. Slowly open the service valve to bleed air pressure down to 20 psig.
5. Slowly open the manual drain valve at the bottom of the tank to drain all condensate (water).
6. Close the drain valve and the service valve for the next use.
7. Wrap the power cord firmly around the handle.
8. Store the unit indoors.

MAINTENANCE

⚠ **WARNING** Unplug the unit and release air pressure from the tank before performing maintenance.

⚠ **WARNING** Wear appropriate personal safety equipment such as safety glasses and gloves.

NOTE All compressed air systems contain maintenance parts (e.g. lubricating oil, filters, separators) which are periodically replaced. These used parts may be, or may contain, substances that are regulated and must be disposed of in accordance with local, state, and federal laws and regulations.

NOTE Take note of the positions and locations of parts during disassembly to make reassembly easier. The assembly sequences and parts illustrated may differ for your particular unit.

NOTE Follow engine owner's manual for engine maintenance schedules and procedures.

NOTE Any service operations not included in this section should be performed by an authorized service representative.

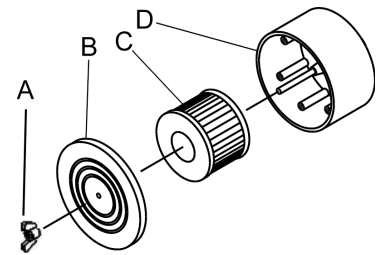
ROUTINE MAINTENANCE SCHEDULE

Daily or Before Each Operation	<ul style="list-style-type: none"> ● Check lubricant level. Fill as needed. ● Drain receiver tank condensate. Open the manual drain valve and collect and dispose of condensate accordingly. ● Check for unusual noise and vibration. ● Ensure covers are securely in place. ● Ensure area around compressor is free from rags, tools, debris, and flammable or explosive materials.
Weekly	<ul style="list-style-type: none"> ● Inspect air filter element. Clean or replace if necessary.
Monthly	<ul style="list-style-type: none"> ● Inspect for air leaks. Squirt soapy water around joints during compressor operation and watch for bubbles. ● Check tightness of screws and bolts. Tighten as needed. ● Clean exterior.
3/500 *	<ul style="list-style-type: none"> ● Change petroleum lubricant while crankcase is warm.
12/2000 *	<ul style="list-style-type: none"> ● Change synthetic lubricant while crankcase is warm. ● Replace filter element.

* indicates months/operating hours, whichever occurs first.

FILTER REPLACEMENT

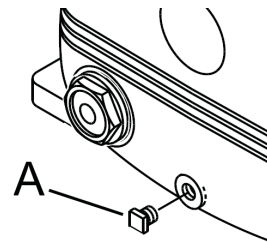
1. Unscrew and remove the wing nut (A).
2. Remove the filter cover (B) and element (C) from the base (D).
3. Install a new element and reassemble the filter assembly.



Filter Replacement

COMPRESSOR PUMP OIL CHANGE

1. Remove the oil drain plug (A) and allow the lubricant to drain into a suitable container.
2. Replace the oil drain plug.
3. Follow the filling procedures in PREPARATION FOR USE section.



Compressor Pump Oil Change

BELT ADJUSTMENT

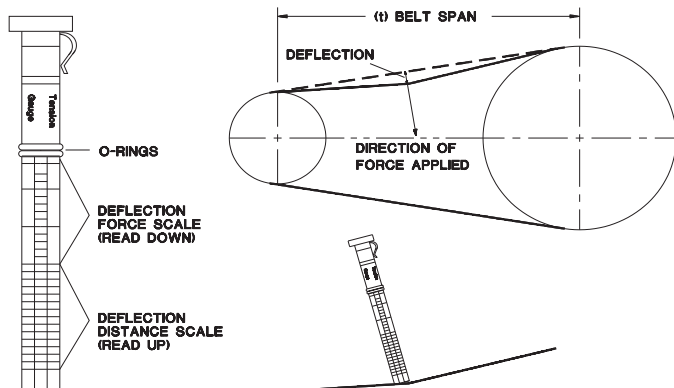
CHECKING BELT TENSION Check belt tension occasionally, especially if looseness is suspected. A quick check to determine if adjustment is proper may be made by observing the slack side of the belt for a slight bow when the unit is in operation. If a slight bow is evident, the belt is usually adjusted satisfactorily.

TENSIONING BELTS Belt tensioning can be achieved by loosening the motor anchor screws, pushing the motor away from the pump, and retightening the motor anchor screws. The motor can be easily moved by placing a prying tool beneath it. A commercially available spreader or other belt tensioning device can also be helpful should tensioning be necessary.

Follow the procedures outlined below to correctly set and measure belt tension.

1. Lay a straight edge across the top outer surface of the belt drive from pulley to sheave.
2. At the center of the span, perpendicular to the belt, apply pressure to the outer surface of the belt with a tension gauge. Force the belt to the deflection indicated in the table at right. Compare the reading on the tension gauge to the table below.

Deflection in Inches	Min. Tension (Lbs.)	Max. Tension (Lbs.)
0.17	3.0	6.0



Ensure the pulley and sheave are properly aligned and the motor anchor screws are adequately retightened prior to restarting the compressor.

△ CAUTION **Improper pulley/sheave alignment and belt tension can result in motor overload, excessive vibration, and premature belt and/or bearing failure.**

To prevent these problems from occurring, ensure the pulley and sheave are aligned and belt tension is satisfactory after installing new belts or tensioning existing belts.

TANK INSPECTION _____

The life of an air receiver tank is dependent upon several factors including, but not limited to, operating conditions, ambient

environments, and the level of maintenance. The exact effect of these factors on tank life is difficult to predict; therefore, Ingersoll Rand recommends that you schedule a certified tank inspection within the first five years of compressor service. To arrange a tank inspection, contact the nearest Ingersoll Rand Customer Center or distributor, or call 1-800-AIR SERV.

If the tank has not been inspected within the first 10 years of compressor service, the receiver must be taken out of service until it has passed inspection. Tanks that fail to meet requirements must be replaced.

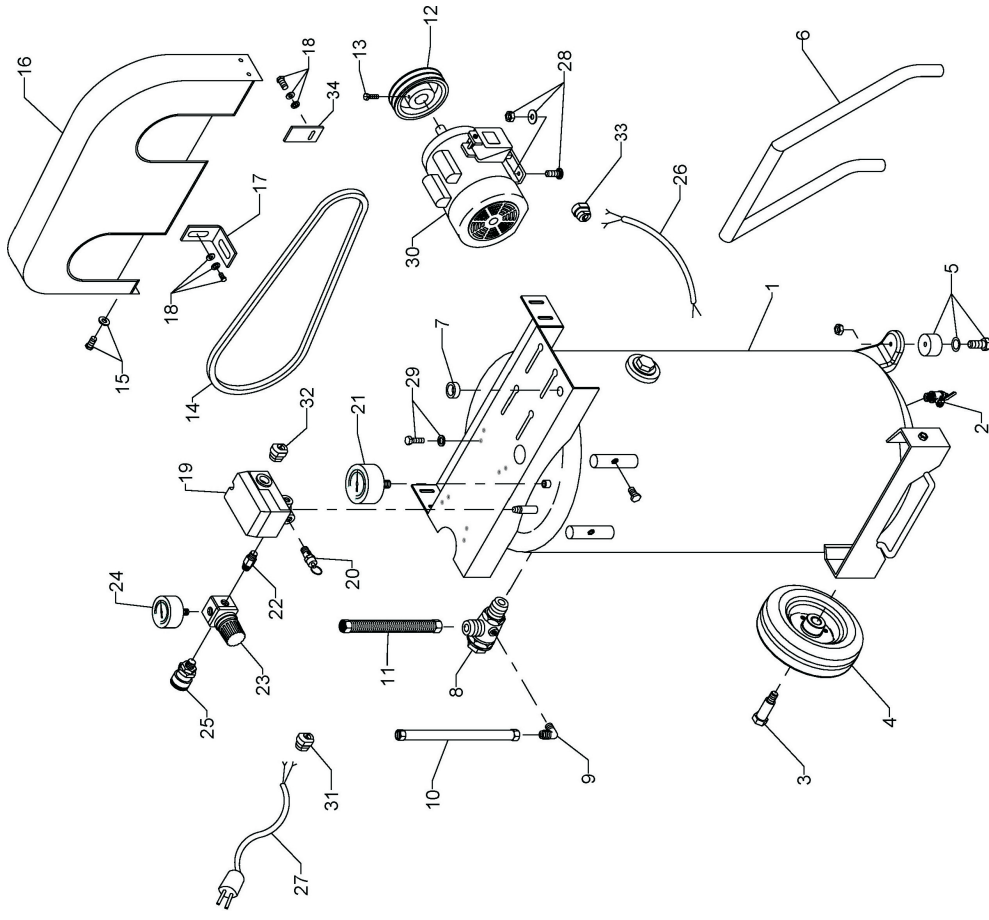
△ WARNING **Failure to replace a rusted air receiver tank could result in air receiver tank rupture or explosion, which could cause substantial property damage, severe personal injury, or death. Never modify or repair tank. Obtain replacement from service center.**

TROUBLESHOOTING

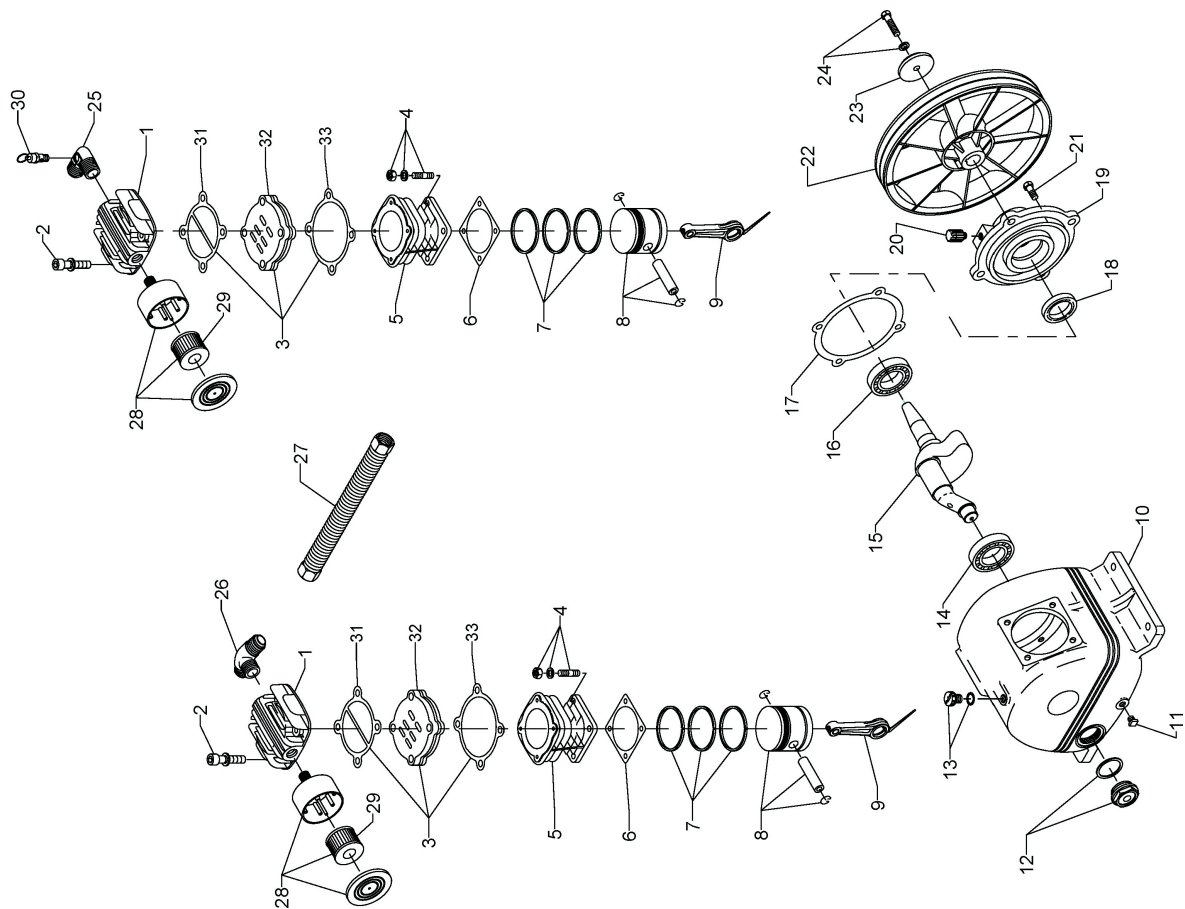
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Abnormal piston, ring or cylinder wear	<ol style="list-style-type: none"> 1. Lubricant viscosity too low. 2. Lubricant level too low. 3. Detergent type lubricant being used. 4. Cylinder(s) or piston(s) scratched, worn or scored. 5. Extremely dusty atmosphere. 6. Worn cylinder finish. 	<ol style="list-style-type: none"> 1. Drain existing lubricant and refill with proper lubricant. 2. Add lubricant to crankcase to proper level. 3. Drain existing lubricant and refill with proper lubricant. 4. Repair or replace as required. 5. Install remote air inlet piping and route to source of cleaner air. Install more effective filtration. 6. Deglaze cylinder with 180 grit flex-hone.
Air delivery drops off	<ol style="list-style-type: none"> 1. Clogged or dirty inlet and/or discharge line filter. 2. Air leaks in air discharge piping. 3. Lubricant viscosity too high. 4. Compressor valves leaky, broken, carbonized or loose. 5. Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance. 6. Piston rings not seated, are stuck in grooves or end gaps not staggered. 7. Cylinder(s) or piston(s) scratched, worn or scored. 8. Defective safety/relief valve. 	<ol style="list-style-type: none"> 1. Clean or replace. 2. Check tubing and connections. 3. Drain existing lubricant and refill with proper lubricant. 4. Inspect valves. Clean or replace as required. Install valve kit. 5. Install ring kit. 6. Adjust piston rings. 7. Repair or replace as required. 8. Replace.
Unit does not come up to speed	<ol style="list-style-type: none"> 1. Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts. 2. Lubricant viscosity too high. 3. Improper line voltage. 4. Compressor valves leaky, broken, carbonized or loose. 5. Defective ball bearings on crankshaft or motor shaft. 	<ol style="list-style-type: none"> 1. Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required. 2. Drain existing lubricant and refill with proper lubricant. 3. Check line voltage and upgrade lines as required. Contact electrician. 4. Inspect valves. Clean or replace as required. Install valve kit. 5. Inspect bearings and replace crankshaft assembly if required.
Unit is slow to come up to speed	<ol style="list-style-type: none"> 1. Lubricant viscosity too high. 2. Leaking check valve or check valve seat blown out. 3. Ambient temperature too low. 4. Bad motor. 	<ol style="list-style-type: none"> 1. Drain existing lubricant and refill with proper lubricant. 2. Replace check valve. 3. Relocate unit to warmer environment. Install crankcase heater kit. 4. Replace.
Unit runs excessively hot	<ol style="list-style-type: none"> 1. Inadequate ventilation around beltwheel. 2. Drive belts too tight or misaligned. 3. Compressor valves leaky, broken, carbonized or loose. 4. Wrong beltwheel direction of rotation. 	<ol style="list-style-type: none"> 1. Relocate unit for better air flow. 2. Adjust belts to proper tension and alignment. 3. Inspect valves. Clean or replace as required. Install valve kit. 4. Check motor wiring for proper connections. Reverse two leads on three-phase motors.
Excessive noise during operation	<ol style="list-style-type: none"> 1. Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts. 2. Lubricant viscosity too high. 3. Lubricant level too low. 4. Compressor valves leaky, broken, carbonized or loose. 5. Carbon build-up on top of piston(s). 6. Defective ball bearings on crankshaft or motor shaft. 7. Leaking check valve or check valve seat blown out. 	<ol style="list-style-type: none"> 1. Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required. 2. Drain existing lubricant and refill with proper lubricant. 3. Add lubricant to crankcase to proper level. 4. Inspect valves. Clean or replace as required. Install valve kit. 5. Clean piston(s). Repair or replace as required. 6. Inspect bearings and replace crankshaft assembly if required. 7. Replace check valve.
Excessive starting and stopping	<ol style="list-style-type: none"> 1. Air leaks in air discharge piping. 2. Pressure switch differential too narrow. 3. Leaking check valve or check valve seat blown out. 4. Excessive condensate in receiver tank. 	<ol style="list-style-type: none"> 1. Check tubing and connections. 2. Adjust pressure switch to increase differential, if differential adjustment is provided. Install pressure switch with differential adjustment feature if differential adjustment is desired. 3. Replace check valve. 4. Drain receiver tank with manual drain valve.
High oil consumption	<ol style="list-style-type: none"> 1. Clogged or dirty inlet and/or discharge line filter. 2. Lubricant viscosity too low. 3. Detergent type lubricant being used. 4. Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance. 5. Piston rings not seated, are stuck in grooves or end gaps not staggered. 6. Cylinder(s) or piston(s) scratched, worn or scored. 7. Connecting rod, piston pin or crankpin bearings worn or scored. 8. Crankshaft seal worn or crankshaft scored. 9. Worn cylinder finish. 	<ol style="list-style-type: none"> 1. Clean or replace. 2. Drain existing lubricant and refill with proper lubricant. 3. Drain existing lubricant and refill with proper lubricant. 4. Install ring kit. 5. Adjust piston rings. 6. Repair or replace as required. 7. Inspect all. Repair or replace as required. 8. Replace seal or crankshaft assembly. 9. Deglaze cylinder with 180 grit flex-hone.
Knocking or rattling	<ol style="list-style-type: none"> 1. Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts. 2. Compressor valves leaky, broken, carbonized or loose. 3. Carbon build-up on top of piston(s). 4. Cylinder(s) or piston(s) scratched, worn or scored. 5. Connecting rod, piston pin or crankpin bearings worn or scored. 6. Defective ball bearings on crankshaft or motor shaft. 	<ol style="list-style-type: none"> 1. Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required. 2. Inspect valves. Clean or replace as required. Install valve kit. 3. Clean piston(s). Repair or replace as required. 4. Repair or replace as required. 5. Inspect all. Repair or replace as required. 6. Inspect bearings and replace crankshaft assembly if required.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Lights flicker or dim when running	<ol style="list-style-type: none"> 1. Improper line voltage. 2. Wiring or electric service panel too small. 3. Poor contact on motor terminals or starter connections. 4. Improper starter overload heaters. 5. Poor power regulation (unbalanced line). 	<ol style="list-style-type: none"> 1. Check line voltage and upgrade lines as required. Contact electrician. 2. Install properly sized wire or service box. Contact electrician. 3. Ensure good contact on motor terminals or starter connections. 4. Install proper starter overload heaters. Contact electrician. 5. Contact power company.
Moisture in crankcase or "milky" appearance in petroleum lubricant or rusting in cylinders	<ol style="list-style-type: none"> 1. Detergent type lubricant being used. 2. Extremely light duty cycles. 3. Unit located in damp or humid location. 	<ol style="list-style-type: none"> 1. Drain existing lubricant and refill with proper lubricant. 2. Run unit for longer duty cycles. 3. Relocate unit.
Motor overload trips or draws excessive current	<ol style="list-style-type: none"> 1. Lubricant viscosity too high. 2. Improper line voltage. 3. Wiring or electric service panel too small. 4. Poor contact on motor terminals or starter connections. 5. Improper starter overload heaters. 6. Poor power regulation (unbalanced line). 7. Drive belts too tight or misaligned. 8. Compressor valves leaky, broken, carbonized or loose. 9. Cylinder(s) or piston(s) scratched, worn or scored. 10. Connecting rod, piston pin or crankpin bearings worn or scored. 11. Defective ball bearings on crankshaft or motor shaft. 12. Leaking check valve or check valve seat blown out. 13. Ambient temperature too low. 14. Bad motor. 	<ol style="list-style-type: none"> 1. Drain existing lubricant and refill with proper lubricant. 2. Check line voltage and upgrade lines as required. Contact electrician. 3. Install properly sized wire or service box. Contact electrician. 4. Ensure good contact on motor terminals or starter connections. 5. Install proper starter overload heaters. Contact electrician. 6. Contact power company. 7. Adjust belts to proper tension and alignment. 8. Inspect valves. Clean or replace as required. Install valve kit. 9. Repair or replace as required. 10. Inspect all. Repair or replace as required. 11. Inspect bearings and replace crankshaft assembly if required. 12. Replace check valve. 13. Relocate unit to warmer environment. Install crankcase heater kit. Convert to synthetic lubricant. 14. Replace
Motor will not start	<ol style="list-style-type: none"> 1. Improper line voltage. 2. Wiring or electric service panel too small. 3. Poor contact on motor terminals or starter connections. 4. Improper starter overload heaters. 5. Bad motor. 	<ol style="list-style-type: none"> 1. Check line voltage and upgrade lines as required. Contact electrician. 2. Install properly sized wire or service box. Contact electrician. 3. Ensure good contact on motor terminals or starter connections. 4. Install proper starter overload heaters. Contact electrician. 5. Replace
Oil in discharge air (oil pumping)	<ol style="list-style-type: none"> 1. Lubricant viscosity too low. 2. Detergent type lubricant being used. 3. Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance. 4. Piston rings not seated, are stuck in grooves or end gaps not staggered. 5. Cylinder(s) or piston(s) scratched, worn or scored. 6. Worn cylinder finish. 7. Excessive condensate in receiver tank. 	<ol style="list-style-type: none"> 1. Drain existing lubricant and refill with proper lubricant. 2. Drain existing lubricant and refill with proper lubricant. 3. Install ring kit. 4. Adjust piston rings. 5. Repair or replace as required. 6. Deglaze cylinder with 180 grit flex-hone. 7. Drain receiver tank with manual drain valve.
Oil leaking from shaft seal	<ol style="list-style-type: none"> 1. Crankshaft seal worn or crankshaft scored. 	<ol style="list-style-type: none"> 1. Replace seal or crankshaft assembly.
Safety/relief valve "pops"	<ol style="list-style-type: none"> 1. Clogged or dirty inlet and/or discharge line filter. 2. Compressor valves leaky, broken, carbonized or loose. 3. Defective safety/relief valve. 	<ol style="list-style-type: none"> 1. Clean or replace. 2. Inspect valves. Clean or replace as required. Install valve kit. 3. Replace

RECEIVER TANK



PUMP



PARTS LIST

PUMP COMPONENTS

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	23191851	HEAD - CYLINDER	2
2	23191869	SET - ALLEN BOLT	8
3	23191877	SET - IN. & EX. VALVE	2
4	23191885	SET - DOUBLE HEAD SCREW	8
5	23191893	CYLINDER	2
6	23191901	GASKET - CYLINDER	2
7	23191919	SET - PISTON RING	2
8	23191927	SET - PISTON	2
9	23191935	SET - ROD	2
10	23191943	CRANKCASE	1
11	23191950	PLUG - OIL DRAINING	1
12	23191968	SET - OIL SIGHT GAUGE	1
13	23191976	SET - OIL FILLING PLUG	1
14	23191984	BEARING	1
15	23191992	CRANKSHAFT & BALANCER	1
16	23192008	BEARING	1
17	23192016	GASKET - REAR BEARING SEAT	1
18	23192024	SEAL - OIL	1
19	23192032	SEAT - REAR BEARING	1
20	23194442	COVER - BREATHING	1
21	23192057	BOLT - HEXAGON	4
22	23192065	PULLEY	1
23	23192073	WASHER - PLATE	1
24	23192081	SET - HEXAGON BOLT	1
25	23192099	ELBOW - EXHAUST	1
26	23192107	PIPE - THREE WAY EXHAUST	1
27	23192115	SET - EXHAUST TUBE	1
28	23192123	SET - AIR FILTER	2
29	23192131	ELEMENT - FILTER	2
30	23192149	VALVE - PRESSURE RELIEF	1
31	23192040	GASKET - CYLINDER HEAD	2
32	23213044	ASSEMBLY - IN. & EX. VALVE	2
33	23213051	GASKET - VALVE SEAT	2

RECEIVER TANK COMPONENTS

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	23192305	TANK - AIR	1
2	23192313	VALVE - BALL	1
3	23192321	BOLT - TANK WHEEL	2
4	23192339	WHEEL - TANK	2
5	23192347	SET - RUBBER PAD	2
6	23192354	GRIP	1
7	23192362	BUSHING	1
8	23192370	VALVE - CHECK	1
9	23192388	ELBOW - UNLOADING	1
10	23192396	TUBE - UNLOADING	1
11	23192404	SET - EXHAUST TUBE	1
12	23192412	PULLEY - MOTOR	1
13	23192420	BOLT - ALLEN	2
14	23192438	BELT - V	1
15	23192446	SET - HEXAGON BOLT	4
16	23192453	GUARD - BELT	1
17	23192461	BRACKET	1
18	23192479	SET - HEXAGON BOLT	6
19	23192487	SWITCH - PRESSURE	1
20	23192495	VALVE - PRESSURE RELIEF	1
21	23192503	GAUGE - PRESSURE	1
22	23192511	NIPPLE	1
23	23192529	REGULATOR	1
24	23192537	GAUGE - PRESSURE	1
25	23192545	COUPLER - QUICK	1
26	23192552	CABLE	1
27	23192560	CABLE - POWER	1
28	23192578	SET - MOTOR FEET BOLT	4
29	23192586	SET - HEXAGON BOLT	4
30	23192594	MOTOR	1
31	23244411	BUSHING - STRAIN RELIEF	1
32	23244429	BUSHING - STRAIN RELIEF	1
33	23244437	BUSHING - STRAIN RELIEF	1
34	23244445	BRACKET	2

NOTE: FOR COMPLETE PUMP ORDER PART NO. 42660597

REPAIR KITS

DESCRIPTION	PART NO.	KIT CONTENTS
START UP AND MAINTENANCE KIT	42661561	(1) LITER OF OIL — PART NO. 38436721 (2) INLET FILTER COMPLETE — PART NO. 70243399
GASKET KIT	42665463	(2) CYLINDER GASKET — PART NO. 23191901 (1) REAR BEARING SEAT GASKET — PART NO. 23192016 (2) CYLINDER HEAD GASKET — PART NO. 23192040 (2) VALVE SEAT GASKET — PART NO. 23213051
COMPLETE PUMP	42660597	ALL PARTS IN "PUMP COMPONENTS" ILLUSTRATION, COMPLETELY ASSEMBLED.
VALVE KIT	23191877	(2) CYLINDER HEAD GASKETS — PART NO. 23192040 (2) IN. & EX. VALVE ASSEMBLY — PART NO. 23213044 (2) VALVE SEAT GASKETS — PART NO. 23213051
PISTON RING KIT	42665950	(2) CYLINDER GASKETS — PART NO. 23191901 (2) PISTON RING SETS — PART NO. 23191919

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Ingersoll-Rand Company warrants that the Equipment manufactured by it and delivered hereunder shall be free of defects in material and workmanship for a period of twelve (12) months from the date of delivery to the customer. Should any failure to conform to this Warranty be reported in writing to the Company within said period, the Company shall, at its option, correct such nonconformity by suitable repair to such Equipment, or furnish a replacement part F.O.B. point of shipment, provided the purchaser has installed, maintained and operated such equipment in accordance with good industry practices and has complied with specific recommendations of the Company. Accessories or equipment furnished by the Company, but manufactured by others, shall carry whatever warranty the manufacturer conveyed to Ingersoll-Rand Company and which can be passed on to the Purchaser. The Company shall not be liable for any repairs, replacements, or adjustments to the Equipment or any costs of labor performed by the Purchaser without the Company's prior written approval.

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1-800 AIR SERV

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