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Revision D
December 2020

Models P1.5IU-A9 & P1.5IU-A9-H

Owner's Manual

EN Owner's Manual
ES Manual del usuario
FR Manuel de l'utilisateur

Save These Instructions

Ingersoll Rand®

EN

CONTENTS

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 an 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

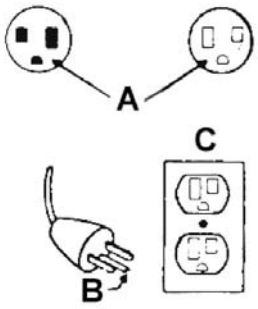
In the event of a short circuit, grounding reduces the risk of shock by providing an escape for the electric current. The unit must be properly grounded.

⚠ 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.



A=Ground
B=Grounding Pin
C=Outlet

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	Centistoke	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.

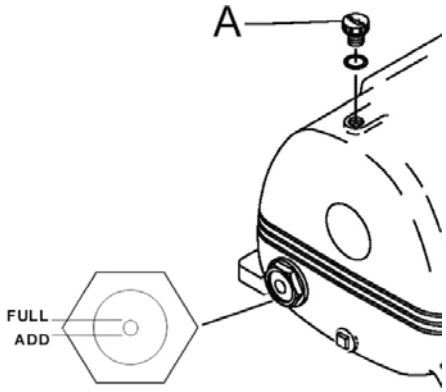
COMPRESSOR PUMP FILLING PROCEDURES:

⚠ 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

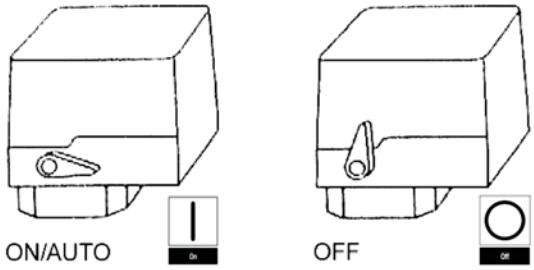
■ GENERAL

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

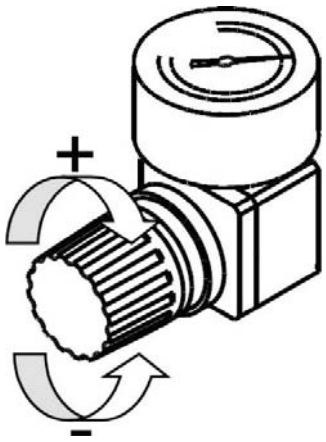
1. Set the pressure switch lever to "OFF".

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.
9.

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.

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.

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

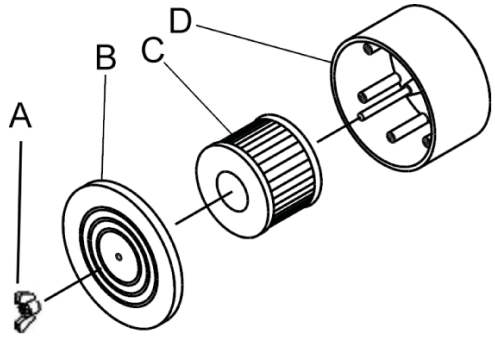
Any service operations not included in this section should be performed by an authorized service representative.

ROUTINE MAINTENANCE SCHEDULE	
Daily or Before	Check lubricant level. Fill as needed.
Each Operation	Drain receiver tank condensate. Open the manual drain valve and collect and dispose of condensate accordingly.
	Check for unusual noise and vibration.
	Ensure and covers are securely in place.
	Ensure area around compressor is free from rags, tools, debris, and flammable or explosive materials.
Weekly	Inspect air filter element. Clean or replace if necessary.
Monthly	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 *	Change petroleum lubricant while crankcase is warm.
12/2000 *	Change synthetic lubricant while crankcase is warm.
	Replace filter element.

■ 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

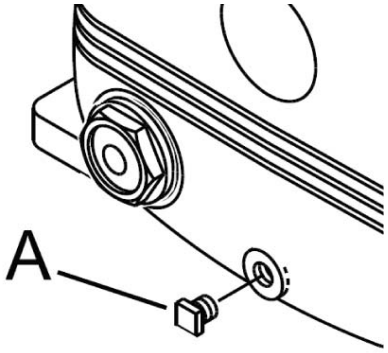


■ COMPRESSOR PUMP OIL CHANGE

1. Remove the oil drain plug (A) and allow the lubricant to drain into a suitable container.
2. Replace the oil drain plug.

Follow the filling procedures in PREPARATION FOR USE section.

Compressor Pump Oil Change



■ *BELT ADJUSTMENT*

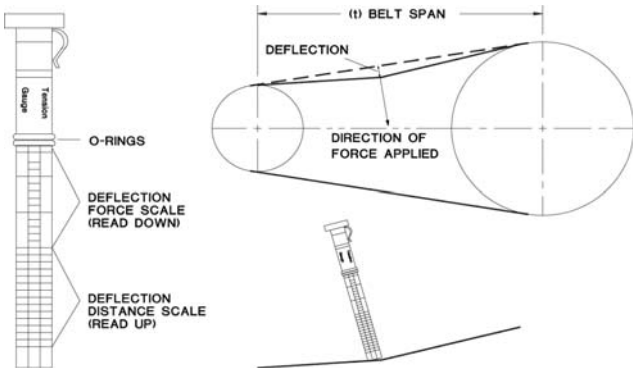
CHECKING BELT TENSION - Check belt tension occasionally, especially if looseness is suspected. A quick check to determine if adjustment is proper may be made by observing the slack side of the belt for a slight bow when the unit is in operation. If a slight bow is evident, the belt is usually adjusted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

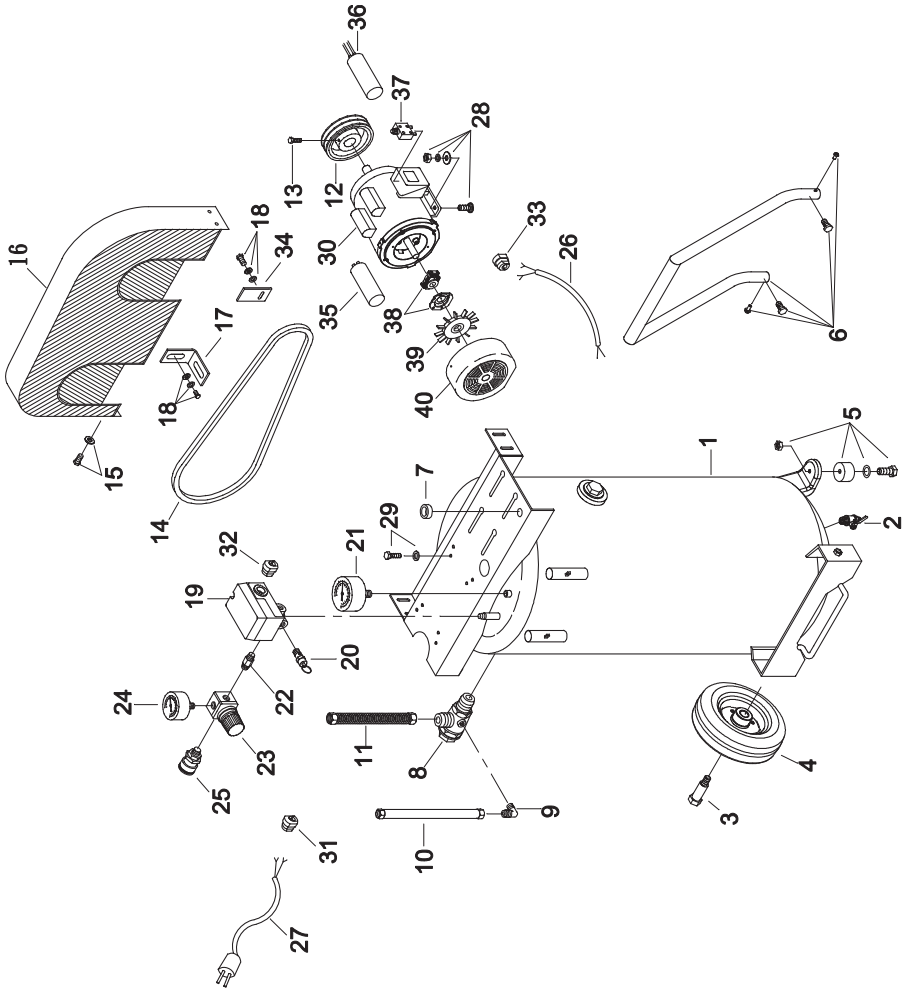
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Abnormal piston, ring or cylinder wear	Lubricant viscosity too low.	Drain existing lubricant and refill with proper lubricant.
	Lubricant level too low.	Add lubricant to crankcase to proper level.
	Detergent type lubricant being used.	Drain existing lubricant and refill with proper lubricant.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Extremely dusty atmosphere.	Install remote air inlet piping and route to source of cleaner air. Install more effective filtration.
	Worn cylinder finish.	Deglaze cylinder with 180 grit flex-hone.
Air delivery drops off	Clogged or dirty inlet and/or discharge line filter.	Clean or replace.
	Air leaks in air discharge piping.	Check tubing and connections.
	Lubricant viscosity too high.	Drain existing lubricant and refill with proper lubricant.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance.	Install ring kit.
	Piston rings not seated, are stuck in grooves or end gaps not staggered.	Adjust piston rings.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Defective safety/relief valve.	Replace.
Unit does not come up to speed	Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts.	Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required.
	Lubricant viscosity too high.	Drain existing lubricant and refill with proper lubricant.
	Improper line voltage.	Check line voltage and upgrade lines as required. Contact electrician.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Defective ball bearings on crankshaft or motor shaft.	Inspect bearings and replace crankshaft assembly if required.
Unit is slow to come up to speed	Lubricant viscosity too high.	Drain existing lubricant and refill with proper lubricant.
	Leaking check valve or check valve seat blown out.	Replace check valve.
	Ambient temperature too low.	Relocate unit to warmer environment. Install crankcase heater kit.
	Bad motor.	Replace.
Unit runs excessively hot	Inadequate ventilation around beltwheel.	Relocate unit for better air flow.
	Drive belts too tight or misaligned.	Adjust belts to proper tension and alignment.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Wrong beltwheel direction of rotation.	Check motor wiring for proper connections. Reverse two leads on three-phase motors.
Excessive noise during operation	Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts.	Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required.
	Lubricant viscosity too high.	Drain existing lubricant and refill with proper lubricant.
	Lubricant level too low.	Add lubricant to crankcase to proper level.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Carbon build-up on top of piston(s).	Clean piston(s). Repair or replace as required.
	Defective ball bearings on crankshaft or motor shaft.	Inspect bearings and replace crankshaft assembly if required.
	Leaking check valve or check valve seat blown out.	Replace check valve.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Excessive starting and stopping	Air leaks in air discharge piping.	Check tubing and connections.
	Pressure switch differential too narrow.	Adjust pressure switch to increase differential, if differential adjustment is provided. Install pressure switch with differential adjustment feature if differential adjustment is desired.
	Leaking check valve or check valve seat blown out.	Replace check valve.
	Excessive condensate in receiver tank.	Drain receiver tank with manual drain valve.
High oil consumption	Clogged or dirty inlet and/or discharge line filter.	Clean or replace.
	Lubricant viscosity too low.	Drain existing lubricant and refill with proper lubricant.
	Detergent type lubricant being used.	Drain existing lubricant and refill with proper lubricant.
	Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance.	Install ring kit.
	Piston rings not seated, are stuck in grooves or end gaps not staggered.	Adjust piston rings.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Connecting rod, piston pin or crankpin bearings worn or scored.	Inspect all. Repair or replace as required.
	Crankshaft seal worn or crankshaft scored.	Replace seal or crankshaft assembly.
	Worn cylinder finish.	Deglaze cylinder with 180 grit flex-hone.
Knocking or rattling	Loose beltwheel or motor pulley, excessive end play in motor shaft or loose drive belts.	Check beltwheel, motor pulley, crankshaft, drive belt tension and alignment. Repair or replace as required.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Carbon build-up on top of piston(s).	Clean piston(s). Repair or replace as required.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Connecting rod, piston pin or crankpin bearings worn or scored.	Inspect all. Repair or replace as required.
	Defective ball bearings on crankshaft or motor shaft.	Inspect bearings and replace crankshaft assembly if required.
Lights flicker or dim when running	Improper line voltage.	Check line voltage and upgrade lines as required. Contact electrician.
	Wiring or electric service panel too small.	Install properly sized wire or service box. Contact electrician.
	Poor contact on motor terminals or starter connections.	Ensure good contact on motor terminals or starter connections.
	Improper starter overload heaters.	Install proper starter overload heaters. Contact electrician.
	Poor power regulation (unbalanced line).	Contact power company.
Moisture in crankcase or "milky" appearance in petroleum lubricant or rusting in cylinders	Detergent type lubricant being used.	Drain existing lubricant and refill with proper lubricant.
	Extremely light duty cycles.	Run unit for longer duty cycles.
	Unit located in damp or humid location.	Relocate unit.

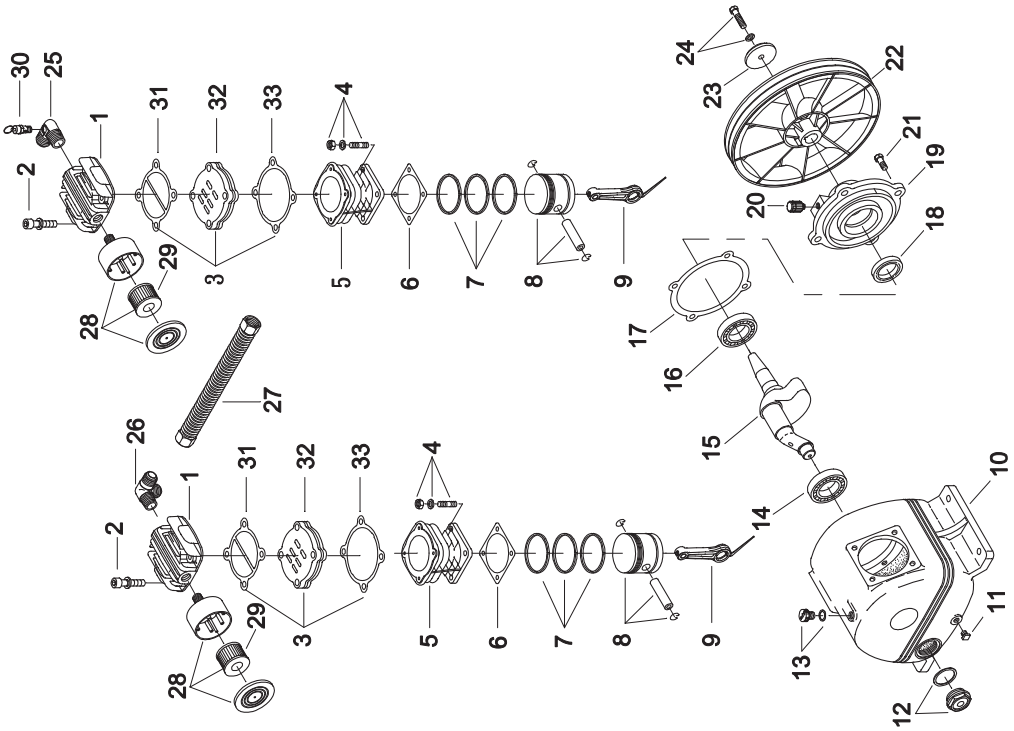
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Motor overload trips or draws excessive current	Lubricant viscosity too high.	Drain existing lubricant and refill with proper lubricant.
	Improper line voltage.	Check line voltage and upgrade lines as required. Contact electrician.
	Wiring or electric service panel too small.	Install properly sized wire or service box. Contact electrician.
	Poor contact on motor terminals or starter connections.	Ensure good contact on motor terminals or starter connections.
	Improper starter overload heaters.	Install proper starter overload heaters. Contact electrician.
	Poor power regulation (unbalanced line).	Contact power company.
	Drive belts too tight or misaligned.	Adjust belts to proper tension and alignment.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Connecting rod, piston pin or crankpin bearings worn or scored.	Inspect all. Repair or replace as required.
	Defective ball bearings on crankshaft or motor shaft.	Inspect bearings and replace crankshaft assembly if required.
	Leaking check valve or check valve seat blown out.	Replace check valve.
	Ambient temperature too low.	Relocate unit to warmer environment. Install crankcase heater kit. Convert to synthetic lubricant.
	Bad motor.	Replace
Motor will not start	Improper line voltage.	Check line voltage and upgrade lines as required. Contact electrician.
	Wiring or electric service panel too small.	Install properly sized wire or service box. Contact electrician.
	Poor contact on motor terminals or starter connections.	Ensure good contact on motor terminals or starter connections.
	Improper starter overload heaters.	Install proper starter overload heaters. Contact electrician.
	Bad motor.	Replace
Oil in discharge air (oil pumping)	Lubricant viscosity too low.	Drain existing lubricant and refill with proper lubricant.
	Detergent type lubricant being used.	Drain existing lubricant and refill with proper lubricant.
	Piston rings damaged or worn (broken, rough or scratched). Excessive end gap or side clearance.	Install ring kit.
	Piston rings not seated, are stuck in grooves or end gaps not staggered.	Adjust piston rings.
	Cylinder(s) or piston(s) scratched, worn or scored.	Repair or replace as required.
	Worn cylinder finish.	Deglaze cylinder with 180 grit flex-hone.
	Excessive condensate in receiver tank.	Drain receiver tank with manual drain valve.
Oil leaking from shaft seal	Crankshaft seal worn or crankshaft scored.	Replace seal or crankshaft assembly.
Safety/relief valve "pops"	Clogged or dirty inlet and/or discharge line filter.	Clean or replace.
	Compressor valves leaky, broken, carbonized or loose.	Inspect valves. Clean or replace as required. Install valve kit.
	Defective safety/relief valve.	Replace

PARTS LIST

P1.5IU-A9



RECEIVER TANK



PUMP

P1.5IU-A9

PUMP COMPONENTS			
ITEM	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			
ITEM	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	2
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
35	24235087	CAPACITOR, STARTING	1
36	24235095	CAPACITOR, RUNNING	1
37	24235103	PROTECTOR, THERMAL	1
38	24235111	SET, CENTRIFUGAL SWITCH	1
39	24235129	FAN, COOLING	1
40	24235137	COVER, FAN	1

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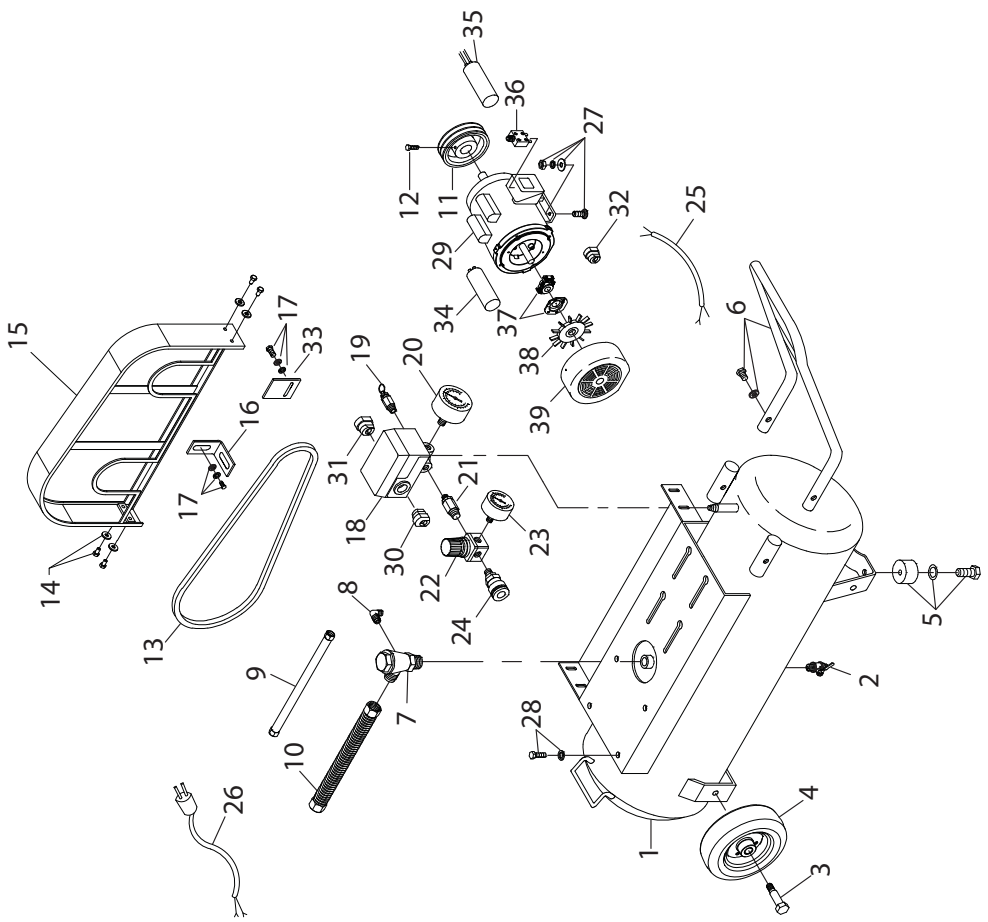
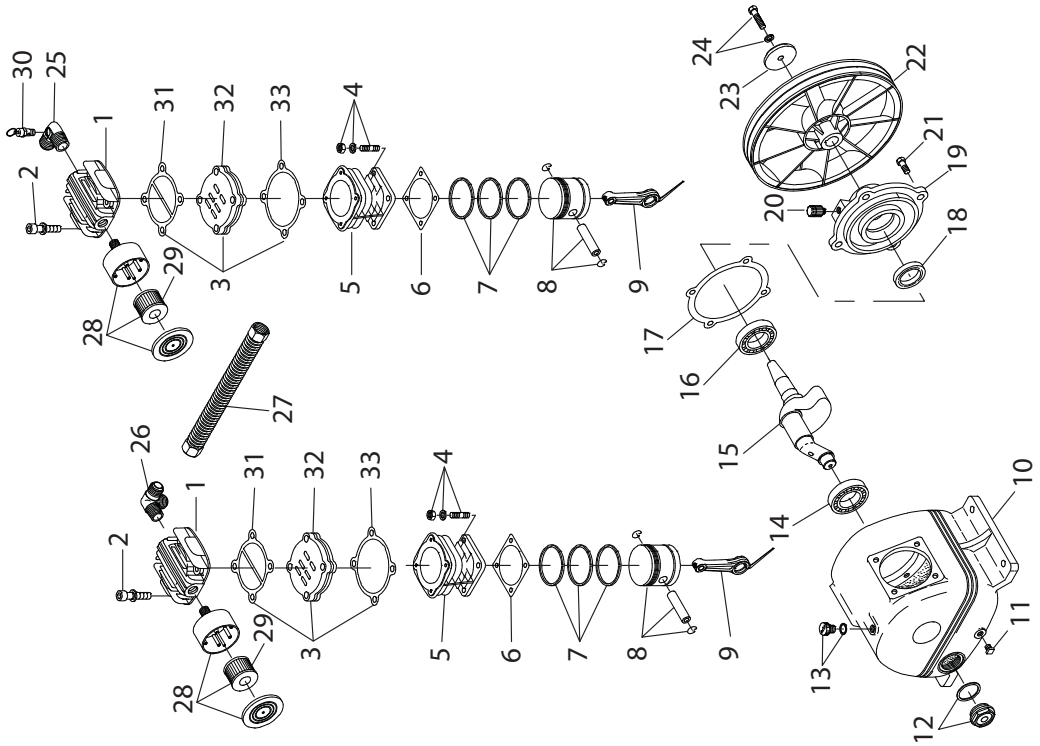


RECEIVER TANK



PUMP

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PUMP COMPONENTS			
ITEM	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			
ITEM	PART NO.	DESCRIPTION	QTY.
1	47715031001	TANK - AIR	1
2	23192313	VALVE - BALL	1
3	23192321	BOLT - TANK WHEEL	2
4	23192339	WHEEL - TANK	2
5	47715032001	SET - RUBBER PAD	2
6	47714791001	GRIP	1
7	23192370	VALVE - CHECK	1
8	23192388	ELBOW - UNLOADING	1
9	47714792001	TUBE - UNLOADING	1
10	23192404	SET - EXHAUST TUBE	1
11	23192412	PULLEY - MOTOR	1
12	23192420	BOLT - ALLEN	2
13	47714793001	BELT - V	1
14	23192446	SET - HEXAGON BOLT	4
15	47714794001	GUARD - BELT	1
16	23192461	BRACKET	1
17	23192479	SET - HEXAGON BOLT	6
18	23192487	SWITCH - PRESSURE	1
19	23192495	VALVE - PRESSURE RELIEF	1
20	23192503	GAUGE - PRESSURE	1
21	23192511	NIPPLE	1
22	47714795001	REGULATOR	1
23	23192537	GAUGE - PRESSURE	1
24	23192545	COUPLER - QUICK	1
25	23192552	CABLE	1
26	23192560	CABLE - POWER	1
27	23192578	SET - MOTOR FEET BOLT	4
28	23192586	SET - HEXAGON BOLT	4
29	23192594	MOTOR	1
30	23244411	BUSHING - STRAIN RELIEF	1
31	23244429	BUSHING - STRAIN RELIEF	1
32	23244437	BUSHING - STRAIN RELIEF	1
33	23244445	BRACKET	1
34	24235087	CAPACITOR, STARTING	1
35	24235095	CAPACITOR, RUNNING	1
36	24235103	PROTECTOR, THERMAL	1
37	24235111	SET, CENTRIFUGAL SWITCH	1
38	24235129	FAN, COOLING	1
39	24235137	COVER, FAN	1

■ REPAIR KITS

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DESCRIPTION	KIT CCN	KIT COMPOSITION
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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DESCRIPTION	KIT CCN	KIT COMPOSITION
GASKET KIT	42665463	GASKET - CYLINDER CCN 23191901 (QTY 2) PUMP ITEM # 6 GASKET - REAR BEARING SEAT CCN 23192016 PUMP ITEM # 17 GASKET - CYLINDER HEAD CCN 23192040 (QTY 2) PUMP ITEM #
PUMP REPLACEMENT	42660597	PUMP PARTS LIST ITEMS 1 - 30
VALVE KIT	23191877	GASKET - CYLINDER HEAD CCN 23192040 (QTY 2) PUMP ITEM # 31 ASSEMBLY - IN. & EX. VALVE CCN 23213044 (QTY 2) PUMP ITEM # 32 GASKET - VALVE SEAT CCN 23213051 (QTY 2) PUMP ITEM # 33
PISTON RING KIT	42665950	GASKET - CYLINDER CCN 23191901 (QTY 2) PUMP ITEM # 6 SETPISTON RING CCN 23191919 (QTY 2) PUMP ITEM # 7

WARRANTY

WARRANTY

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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Retain your receipt as proof of purchase in the event of a claim under warranty.

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