

SAFETY PRECAUTIONS ENCLOSED

DO NOT DESTROY

This manual contains important safety information and should be made available to all personnel who operate and/or maintain this product. Carefully read this manual before attempting to operate or perform maintenance.

PRECAUCIONES DE SEGURIDAD

NO DESTRUIR

Este manual contiene información importante y debe estar al alcance de todo el personal que opera y/o mantiene este producto. Lea cuidadosamente este manual antes de intentar operar o efectuar cualquier mantenimiento a este producto.

OWNER'S MANUAL

Model 2545 Two-Stage Industrial Air Compressor

INGERSOLL-RAND®

AIR COMPRESSORS

⚠ WARNING

STATEMENT CONCERNING THE USE OF THIS EQUIPMENT FOR BREATHING AIR AND/OR AQUA LUNG SERVICE.

If the model number on a compressor contains the letters "BAP", the air compressor is suitable for breathing air services. Compressors that DO NOT bear this designation are NOT capable of producing air of breathing quality. For use in breathing air applications, an air compressor must be fitted with additional specialized equipment to properly filter and/or purify the air to meet all applicable federal, state and local laws, rules, regulations and codes, such as, but not limited to, OSHA 29 CFR 1910.34, Compressed Gas Association Commodity Specifications G-7.1-1966, Grade D Breathing Air, and/or Canadian Standards Association. Should the Purchaser and/or User fail to add such specialized equipment, and proceed to use the air compressor for breathing air service, the Purchaser/User assumes all liability resulting therefrom without any responsibility or liability being assumed by Ingersoll-Rand Company.

The purchaser is urged to include the above provisions in any agreement for any resale of this compressor.

Hazardous vapors. Can cause severe nausea, fainting or death.

Compressed air or gas from this compressor may contain poisonous vapors or gases.

Certain sprayed material such as paints, insecticides, weed killer, sand, etc., may be harmful if inhaled or used in a closed area.

Never directly inhale the compressed air or gas produced by this compressor.

Always read container labels when spraying paints or poisons.

Always use the compressor in a well-ventilated area.

Use a respirator or mask whenever there is a chance that you might inhale any sprayed material. If a mask is used, read all instructions provided with the mask to ensure it will protect you from the materials you are spraying.

Hazardous voltage. Can cause severe injury or death.

Always disconnect the power supply cord before performing any maintenance or repair work.

Always connect the power supply cord to a grounded electrical receptacle with the specified voltage and fuse protection.

Never use the compressor in rain, in a wet area, or near an explosive environment.

Flammable vapors. Can cause a fire or explosion, and result in severe injury or death.

Sparks from the motor's electrical contacts can ignite flammable vapors from gasoline, natural gas or solvents.

Do not operate the compressor in any areas where explosive or flammable vapors or liquids may exist.

Never smoke or use open flame in the vicinity of the compressor or any gas bottle or source.

Compressed air/gas has great force.

Over-pressurizing the bottle, tank or receiver, or using a receiver which does not meet the design limits for this compressor, can cause them to rupture or explode, and result in severe injury or death.

Changes to the bottle, tank or receiver structure will cause it to weaken and can cause it to rupture or explode, and result in severe injury or death.

Internal rusting in the bottle, tank or receiver will cause it to weaken and can cause it to rupture or explode, and result in severe injury or death.

Pressure beyond design limits can cause the bottle, tank or receiver to rupture or explode, and result in severe injury or death.

Improper use of air tools or attachments can cause an explosion, and result in severe injury or death.

The bottle, tank or receiver is equipped with a relief valve to protect against over-pressurization. DO NOT REMOVE, ADJUST OR MAKE SUBSTITUTIONS FOR THE RELIEF VALVE. Periodically pull the ring on the relief valve to ensure it operates freely. If the valve is stuck or does not operate freely, it must be replaced.

Never drill into, weld to, or alter the bottle, tank or receiver in any manner.

Drain water/condensate from the air receiver daily or before each use.

Pressure switch and unloader valve operation is related to motor/engine horsepower, air receiver rating, and relief valve setting. DO NOT ATTEMPT TO ADJUST, REMOVE OR BYPASS THE PRESSURE SWITCH, OR CHANGE OR MODIFY ANY PRESSURE CONTROL RELATED DEVICE.

Do not use any air tools or air attachments without first determining the maximum air pressure recommended for that particular piece of equipment.

Compressed natural gas compressors are equipped with explosion-proof electrical systems. Ensure any additional electrical equipment is also explosion-proof.

Gas leaks can occur in compressed natural gas compressors or associated piping. Even small leaks pose a potential hazard and should be corrected before the compressor is operated. If a maintenance function involves breaking a gas-tight joint, always recheck for gas leaks after reassembling by using a commercial gas leak detector.

Rotating compressor. Can propel dirt, sand, metal shavings, etc., and result in severe injury.

Never point an air nozzle or air sprayer toward any part of the body, or toward another person.

Always wear safety glasses or goggles when servicing.

Moving parts. Can cause severe injury.

Always disconnect the power supply before attempting to perform any maintenance or repair work.

Always ensure the pressure is released from the compressor, bottles, tanks, receiver and air attachments before performing any maintenance or repair work.

Always disconnect the power supply on electric motor models if the compressor is to be left unattended.

Never operate compressor with the fan shroud removed, or if the shroud is damaged or broken.

Hot parts. Compressors get hot while running, and can cause severe burns if touched.

Never touch the compressor, motor/engine, or tubing during or shortly after compressor operation.

⚠ ADVERTENCIA

DOCUMENTO CONCERNIENTE AL USO DE ESTE EQUIPO PARA EL SERVICIO DE AIRE RESPIRABLE Y/O SERVICIO DE BUCEO.

Si el número del modelo en un compresor de aire contiene las letras BAP, el compresor está diseñado para el uso en servicios de aire respirable. En la ausencia de tal designación, el compresor no puede ser considerado adecuado para producir aire respirable. Para que un compresor sea adecuado para ser usado en aplicaciones de aire respirable, debe estar acondicionado con equipo especializado para filtrar y/o purificar apropiadamente el aire y así cumplir con las leyes, reglas y regulaciones federales, locales y estatales, no limitadas a OSHA 29 CFR 1910.34, las Especificaciones de la Asociación de Gas Comprimido G-7.1-1966 Aire respirable Grado D, y/o Asociación de Estándares Canadienses. Si el comprador y/o el usuario no añaden este equipo especializado y procede a usar el compresor para servicio de aire respirable, el Comprador/Usuario asume toda la responsabilidad resultante de esto sin que ninguna responsabilidad u obligación sea asumida por la compañía Ingersoll-Rand.

Se sugiere al comprador que incluya la anterior provisión en cualquier acuerdo por cualquier re-venta de este compresor.

Vapores peligrosos. Pueden causar náusea, desmayo o muerte.

El aire comprimido de este compresor puede contener monóxido de carbono venenoso.

Ciertos materiales propulsados por aire tales como pinturas, insecticidas, arena etc. pueden ser peligrosos si se inhalan o utilizan en un área cerrada.

Nunca inhale directamente el aire comprimido producido por este compresor.

Lea siempre las etiquetas de los contenedores cuando esté rociando pintura o venenos.

Siempre utilice el compresor en un área bien ventilada.

Utilice el respirador o máscara cuando haya riesgo de inhalar cualquier material que esté rociando. Si utiliza máscara, lea muy bien las instrucciones para que usted pueda saber de qué lo va a proteger mientras rocía.

Voltaje peligroso. Puede causar heridas severas o muerte.

Siempre desconecte el suministro eléctrico antes de hacer cualquier mantenimiento o reparación.

Siempre conecte el suministro eléctrico a un circuito adecuado y con el voltaje especificado.

Nunca utilice el compresor en la lluvia, o en un área cerca de una atmósfera explosiva.

Vapores inflamables. Pueden causar fuego o una explosión, y el resultado puede ser herida severa o muerte.

Chispas del motor eléctrico pueden encender vapores inflamables de gasolina, gas natural o solventes.

No operan el compresor en ningunas áreas donde vapores o los líquidos explosivos o combustibles pueden existir.

Nunca fumar o el uso abre llama en la vecindad del compresor, botella de gas o fuente de gas.

El aire comprimido tiene gran fuerza.

El tanque de aire sobre-presurizado puede causar que el tanque de aire explote o se rompa, y puede resultar en heridas severas o muerte.

Cambios en la estructura del tanque de aire pueden causar que el tanque de aire se debilite causando la ruptura o explosión de este, resultando en herida severa o muerte.

El debilitamiento de la estructura del tanque de aire debido a oxidación interna puede causar rupturas o explosión del tanque y puede resultar en heridas severas o muerte.

La presión de aire fuera de sus límites puede causar que el tanque explote o se rompa, y esto causaría heridas severas o muerte.

El uso impropio de las herramientas neumáticas o sus accesorios pueden causar explosión, y resultar en heridas severas.

El tanque de aire está protegido de sobrepresurización por una válvula de seguridad. NO quite, haga ajustes, o sustituciones en esta válvula. Ocasionamente hale el anillo en la válvula de seguridad para asegurarse de que la válvula funcione libremente. Si la válvula está atascada o no funciona, debe ser reemplazada.

Nunca perforo, suelde o cambie el tanque de aire en ninguna forma.

Drene el agua/condensado del tanque de aire diariamente o antes de cada uso.

NO trate de ajustar, remover, o derivar el botón del interruptor de presión, o cambie y modifique cualquier estructura relacionada con el control de presión.

No utilice ninguna herramienta neumática o accesorio sin determinar la presión máxima de aire comprimido que se recomienda para esa herramienta en particular.

Los compresores comprimidos de gas natural se equipan con sistemas eléctricos que no estallarán. Asegure cualquier equipo eléctrico adicional es también incapaz de estallar.

Los escapes de gas pueden ocurrir en los compresores naturales de gas o asociados tubos. Cualquier escape es un peligro potencial y debería corregirse antes de el compresor se opera. Si una función de mantenimiento involucra quitando un sujetador, siempre detecta cualquier gas escapa después de armar nuevamente por usar un detector de escape de gas.

Aire comprimido. Puede expulsar polvo, metal o arena etc. y puede resultar en heridas.

Nunca apunte la boquilla hacia alguna parte del cuerpo o hacia otra persona.

Use siempre gafas protectoras.

Las partes en movimiento pueden causar heridas severas.

Desconecte siempre el suministro eléctrico antes de cualquier mantenimiento ó reparación.

Desconecte siempre el suministro eléctrico si el compresor no va ser usado.

Asegúrese que el aire a presión es liberado del compresor, del tanque de aire, y demás accesorios de aire antes de hacer cualquier mantenimiento o reparación.

Nunca opere el compresor sin el guarda poleas. Nunca opere el compresor con una polea dañada o rota.

Partes calientes. Los compresores de aire se calientan en operación y pueden causar quemaduras severas.

Nunca toque el compresor, el motor, o la tubería de descarga durante o poco después de operar el compresor.



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No. Cylinders	2
Compression Stages	2
Power Supply	Electric Motor
Cooling Method	Air
Regulation	Dual Control
Max. Discharge Pressure	250 psig (18 kg/cm ²)
Lubricant Capacity	2.3 quarts (2.2 liters)
Recommended Lubricant	T30 SELECT™
First Stage Relief Valve	80 PSIG

Table 1-1. Model 2545 Leading Particulars.

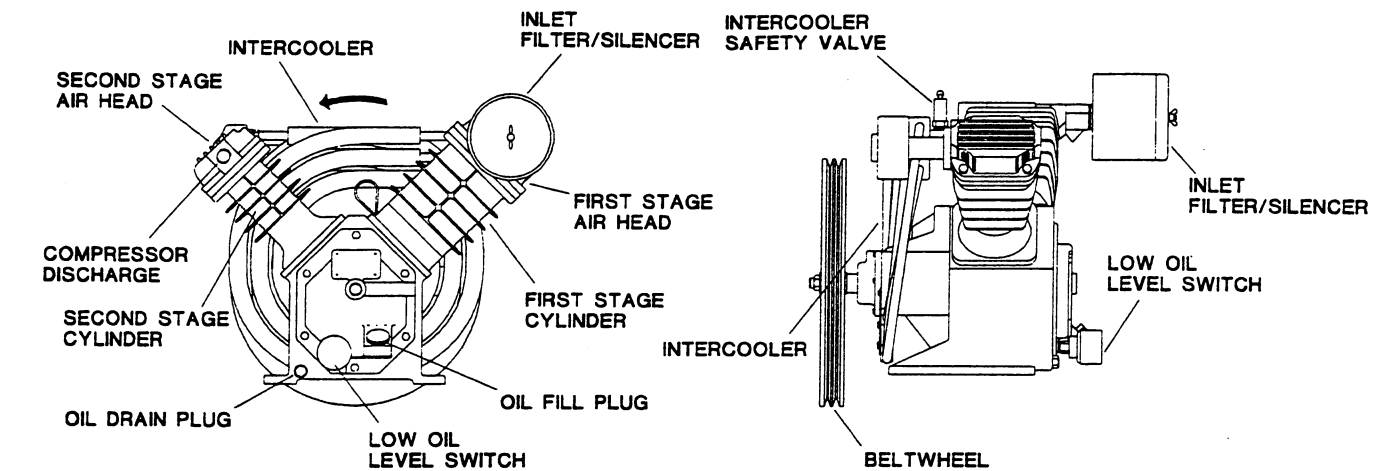


Figure 1-1. Typical Model 2545 Bare Compressor.

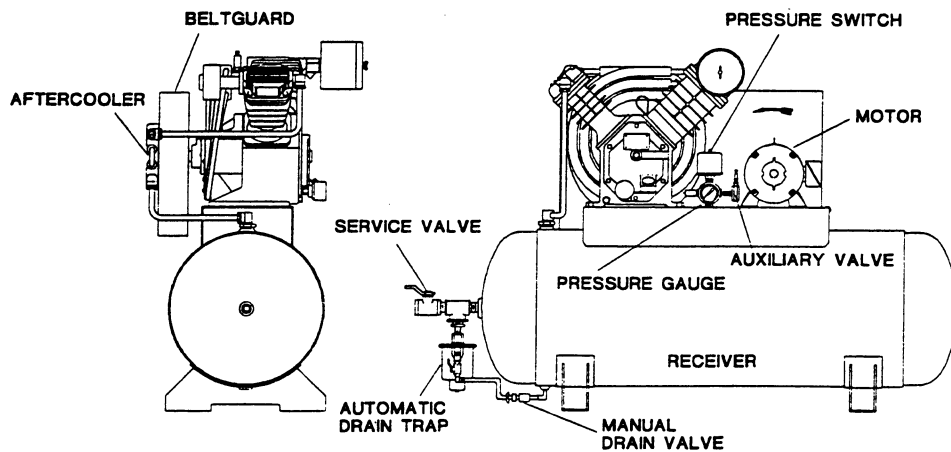


Figure 1-2. Typical Simplex Package.

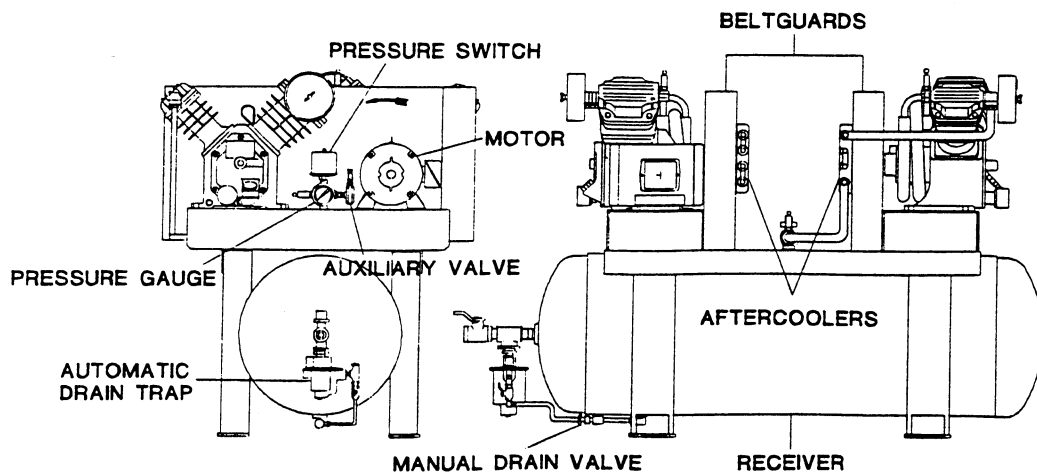


Figure 1-3. Typical TPT Duplex Package.

SECTION I - GENERAL INFORMATION

INTRODUCTION

This manual provides safe and reliable instructions for the installation, operation and maintenance of your Ingersoll-Rand Model 2545 Air Compressor. Carefully read this manual before attempting to operate or perform any maintenance on this compressor. If you are uncertain about any of the instructions or procedures provided in this manual, contact your nearest Ingersoll-Rand Full Service Distributor. We recommend you retain this manual, and all publications provided with your air compressor, in a location which is accessible to all operators and maintenance personnel when operating or servicing this air compressor.

ADDITIONAL REFERENCES

Unless otherwise stated, dimensions, weights and measurements are provided in standard U.S. measure followed in parentheses by the metric conversion. Any torque values given are stated in inch or foot pounds followed by the Newton-meter equivalent in parentheses. Electrical characteristics are given in voltage-phase-hertz.

IMPORTANT STATEMENTS

DANGER, WARNING, CAUTION and NOTICE statements are used in this manual and are defined below. A statement will always precede the text to which it applies, or follow the paragraph heading under which it applies. Be sure to read the important information on the inside front and inside back cover.



DANGER

A DANGER statement indicates the presence of a hazard which will cause *death, severe personal injury, or substantial property damage* if the DANGER statement is not heeded.



CAUTION

A CAUTION statement indicates the presence of a hazard which will or can cause *minor personal injury or property damage* if the CAUTION statement is not heeded.



WARNING

A WARNING statement indicates the presence of a hazard which can cause *death, severe personal injury, or substantial property damage* if the WARNING statement is not heeded.

NOTICE

A NOTICE statement advises the user of installation, operation or maintenance information which is important, but not hazard related.

AIR COMPRESSOR DESCRIPTION

(Refer to Figure 1-1 for component locations)

APPLICATION. The Ingersoll-Rand Model 2545 is a two stage, single-acting, air-cooled compressor capable of delivering compressed air at a maximum discharge pressure of 250 PSIG (18 kg/cm²). The compression stages are designed with efficient intercooler tubing and proportioned compression ratios to provide a dependable source of compressed air for many industrial applications.

CONSTRUCTION. In addition to the many advantages offered by compact, air-cooled construction and moderate compressor speeds, efficient single-piece finger valves, solid-end connecting rods and positive-acting starting unloading provide long-life dependability. The 2545 is equipped with highly efficient intercooler tubes that obtain maximum heat dissipation between stages of compression, resulting in more air per horsepower and less trouble from oil carbonization. Also, simplified design permits rapid access to any part of the unit for inspection or replacement of parts.

AIR INLET FILTER. The Model 2545 uses a filter element to trap dirt and debris in the inlet air as it is drawn into the compressor. The element must be kept clean at all times, as a dirty or clogged element will reduce the capacity and performance of the air compressor. The compressor should never be operated with the filter removed. While the standard element is suitable for most industrial applications, a heavy-duty element may be required if the compressor is located in an environment which contains heavy concentrations of dirt, dust or other airborne residue. Consult your local Ingersoll-Rand Air Center or Full Service Distributor.

RELIEF VALVES. A relief valve is furnished on the discharge side of the first stage head. Package-mounted compressors also feature a discharge relief valve and a receiver relief valve. These valves are designed to help protect the unit from over-pressurization at each stage of compression. Should a valve leak or become defective, it must be replaced.

INTERCOOLER ASSEMBLY. This compressor is equipped with coiled copper intercooler tubing between the compression stages. The purpose of the intercooler tubing is to remove excess heat from the compressed

air, and thus improve the compressor's efficiency by decreasing the final discharge air temperature.

FRAME PRESSURE VENT. A breather tube is routed from the shaft end cover to the first stage inlet connection. The breather tube permits pulsations created by the reciprocating action of the crankshaft to be vented from the compressor frame, thus preventing pressure build-up within the frame.

TYPES OF REGULATION

AUTOMATIC START AND STOP CONTROL. Automatic Start and Stop Control is obtained by means of the pressure switch which controls the operation of the drive motor. When the receiver pressure reaches the pre-set cut-out point of the pressure switch, the switch contacts open, cutting off the power to the drive motor and stopping the compressor. When the air receiver pressure drops to the re-set pressure of the pressure switch, the switch contacts close, restoring power to the drive motor and restarting the compressor.

Automatic Start and Stop Control should only be used when the motor starts no more than 6-8 times per hour.

CONSTANT SPEED CONTROL. Constant Speed Control is used when the demand for air is practically constant at the capacity of the compressor. This type of regulation is obtained by means of an auxiliary valve that controls the operation of the inlet unloaders, thereby loading and unloading the compressor in accordance with air receiver pressure. This action maintains receiver pressure within definite limits while the compressor continues to operate.

Typically, the auxiliary valve is piped directly to the receiver. When receiver pressure reaches the pre-set unload pressure, the auxiliary valve actuates and compressed air from the receiver activates the inlet unloader piston. This compressed air forces the unloader piston against the intake air seat in the unloader which blocks the flow of intake air through the filter. When receiver pressure falls to the pre-set load pressure, the auxiliary valve closes, shutting off pressure to the unloader. With receiver pressure removed from the unloader, vacuum within the inlet port retracts the piston. The air inlet opens and the compressor reloads.

DUAL CONTROL. Dual control is accomplished by adjusting the lockout knob on the top of the auxiliary valve. (See Figure 1-4). For constant speed operation, turn the knob counterclockwise until fully open. This adjustment will allow the valve to function. Turning the knob clockwise locks-out operation of the auxiliary valve. Note the pressure gauge reading at which the compressor cuts-out and re-establish this point if necessary.

For proper dual control operation, the cut-out setting of the pressure switch must be at least 5 psig (0.35 kg/cm²) greater than the cut-out pressure of the auxiliary valve.

COMPRESSOR PACKAGE DESCRIPTION

(Refer to Figures 1-2 and 1-3 for component locations)

ELECTRIC MOTOR. Model 2545 packages feature baseplate-mounted, single phase or three-phase electric motors.

PRESSURE SWITCH. (See Figure 1-5). The pressure switch is a piston-actuated differential control used to establish, and monitor changes in, the discharge pressure range. A three-phase pressure switch has two adjustable controls; the Range Adjustment sets the cut-in and cut-out pressure levels, while the Differential Adjustment establishes the span between the two pressures. A single-phase pressure switch is not adjustable. When the compressor is operated in the Automatic Start and Stop mode, the cut-out pressure is the point at which the compressor reaches the maximum discharge level and the motor is stopped. The cut-in pressure is the point at which the motor is started. The pressure switch is provided in a NEMA 1 enclosure. Refer to the instructions provided for the pressure switch.

RECEIVER. If the air system into which the compressor discharges does not have sufficient volume, the compressor will cycle too frequently. In this case, an air receiver must be used to provide enough volume to operate the regulation system of the compressor. The Model 2545 is available on an ASME, National Board coded receiver, and includes a discharge check valve, pressure gauge, manual drain valve, service valve and relief valve.

PRESSURE GAUGE. The pressure gauge displays the current working pressure in the receiver.

DRAIN VALVE. As condensate is separated from the compressed air, it settles at the bottom of the air receiver. Since excessive condensate accumulation can impair air delivery, it is important to drain condensate through the manual valve in accordance with Table 4-1. An automatic drain valve is available as an option.

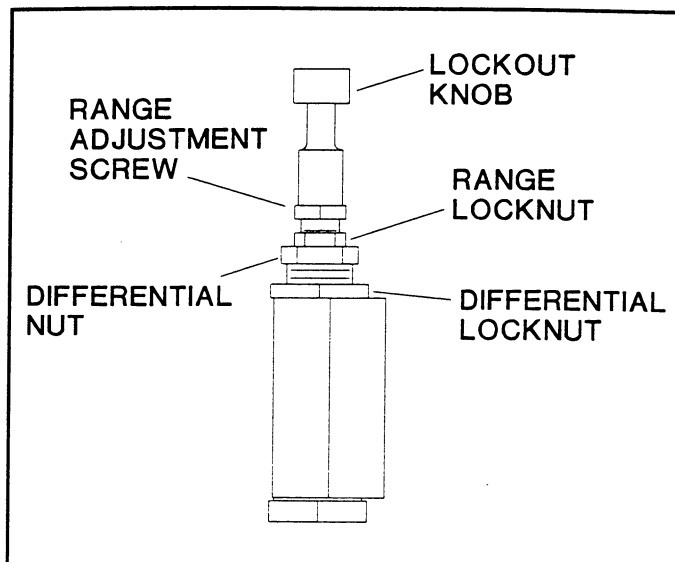


Figure 1-4. Typical auxiliary valve adjustments.

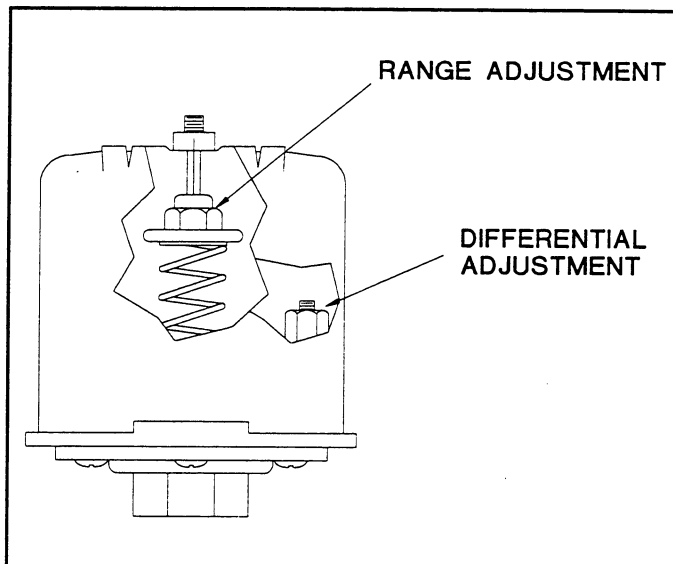


Figure 1-5. Typical pressure switch adjustments.

SECTION 2 - INSTALLATION & START-UP PROCEDURES



WARNING

Falling objects. Can cause severe injury or death.

Always ensure lifting equipment is properly rated for the weight of the unit.

Do not walk under suspended machinery.

Do not perform any maintenance on the compressor while it is suspended.



NOTICE

Do not operate compressor while it is mounted on the shipping pallet or crate.

UNPACKING

INSPECTION FOR DAMAGE. Your compressor was inspected at the factory and packaged for protection against shipping damage. The purchaser assumes title to the compressor equipment at the manufacturer's shipping dock. Immediately upon receipt of the equipment, it should be inspected for any damage or missing parts which might have occurred during shipment. If any parts are found to be damaged or missing, demand an immediate inspection by the carrier. The transportation company's agent should also make a notation to that effect on the bill of lading. Claims for damage should be settled directly with the transportation company.

UNLOADING. Ensure adequate lifting equipment is available at the job site for unloading the compressor. Lift the compressor by the shipping pallet mounted on the base to prevent damaging the unit.

UNCRATING. Before uncrating, check the nameplate on the face of the compressor to ensure the unit is the model and size ordered. If the compressor is ordered as part of a package, check the motor nameplate to ensure the motor is compatible with your electrical conditions (Voltage-Phase-Hertz). The compressor must be removed from the shipping pallet prior to use.

LOCATION

VENTILATION. Adequate ventilation is important in selecting a location for your compressor. Choose a clean, relatively cool atmosphere with plenty of fresh air. Ventilation by gravity or mechanical means is acceptable.

COLD CLIMATES. In cold climates, it is desirable to install the compressor within a heated building. Choose a clean, relatively cool location, and provide ample space around the unit for proper air flow, cooling and general accessibility. Place the beltwheel side toward the wall, leaving at least 15 inches (380 mm) for air circulation to the beltwheel. (Note: If a detached receiver is to be used, consider placing the receiver outdoors to provide more efficient heat dissipation, keeping in mind that condensation in the receiver may freeze).

DAMP OR HUMID ENVIRONMENTS. If the compressor is to be operated in a damp climate, or under conditions of high humidity, proper ventilation is important to minimize the formation of moisture in the frame.

Condensation of moisture in the compressor frame leads to lubricant breakdown and the formation of sludge which can cause running parts to wear out prematurely. If the compressor is to be used in a damp or high humidity atmosphere, running the compressor for longer intervals can help to prevent moisture build-up.

FOUNDATION & LEVELING

FOUNDATION. The compressor may be bolted to any substantial, relatively level foundation or base. If such a surface is not available, one

must be constructed. Foundation bolts must be of sufficient length to project at least 1/2" (13 mm) through the nuts to allow for leveling.

LEVELING.

- 1). Align the foundation bolts with the mounting holes on the base. Install nuts on the foundation bolts and tighten any three of the nuts evenly to a moderate torque.
- 2). Check the unit for level. If the compressor is not level, insert metal shims under one foot to obtain level.
- 3). After all shims are inserted and the unit is level, tighten the nuts on all foundation bolts to a moderate torque.
- 4). Check for stress by loosening the nuts one at a time, and noting any upward movement of the mounting foot. Any noticeable movement indicates that Step 2 must be repeated.

Severe vibration will result when nuts are pulled down tightly and the feet are not level. This can lead to undue stress on the compressor frame, base plate and receiver.

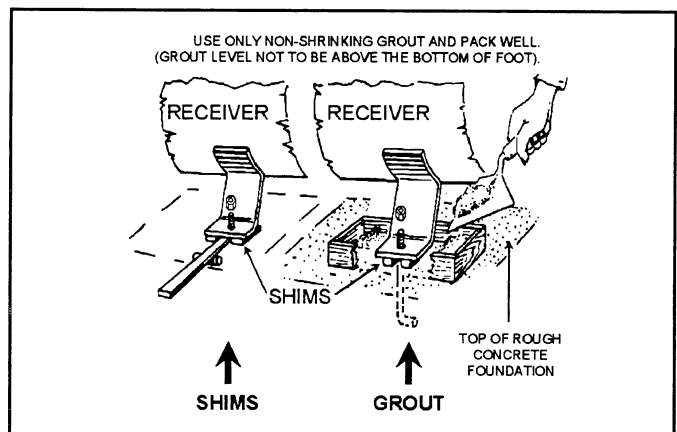


Figure 2-1. Methods of Leveling Unit.

PIPING INSTALLATION

INLET PIPING. If the air in the vicinity of the compressor is unduly dirty or contains corrosive fumes, we recommend piping the air filter to a source of cleaner air or use a special heavy duty filter. If it is necessary to install inlet piping, make the line as short and direct as possible and as large, or larger than the diameter of the inlet connection at the compressor. The inlet piping must increase in diameter for every 50 feet (15.25m) of length. If the total length is between 50 feet (15.25m) and 100 feet (30.5m), increase the pipe diameter at the mid-point in the length, i.e., if the total length is 80 feet (24.4m) increase the pipe diameter at the 40-foot (12.2m) point. Connect the air filter to the end of the inlet air pipe. If the inlet filter is piped outdoors, it should be hooded to prevent the entrance of rain or snow. See Figure 2-2. Fine airborne dust, such as cement and rock dust, require special filtration equipment not furnished as standard equipment on these compressors. Such filtration equipment is available from Ingersoll-Rand Company.

DISCHARGE PIPING. When installing discharge piping to a detached receiver or system, the following precautions should be observed.

- 1). It is good practice to install a check valve as close to the receiver as possible. **DO NOT INSTALL THE CHECK VALVE IN THE COMPRESSOR DISCHARGE CONNECTION.**
- 2). Discharge piping must be at least one size larger than the discharge connection. The piping, fittings, receiver, etc. must be certified safe for at least 250 PSIG (18 kg/cm²) working pressure.

- 3). The discharge piping should be as short and direct as possible, and must be adequately braced. Pipe thread sealant should be used on all threads, and all joints must be made up tightly to prevent air leaks.

CONDENSATE DISCHARGE PIPING. A condensate discharge connection is provided at the receiver drain valve. Condensate discharge piping should be routed to a suitable drain. To prevent back pressure which could impair compressor performance, discharge piping should be at least one size larger than the connection.

The piping should be as short and direct as possible, and firmly secured at both ends.

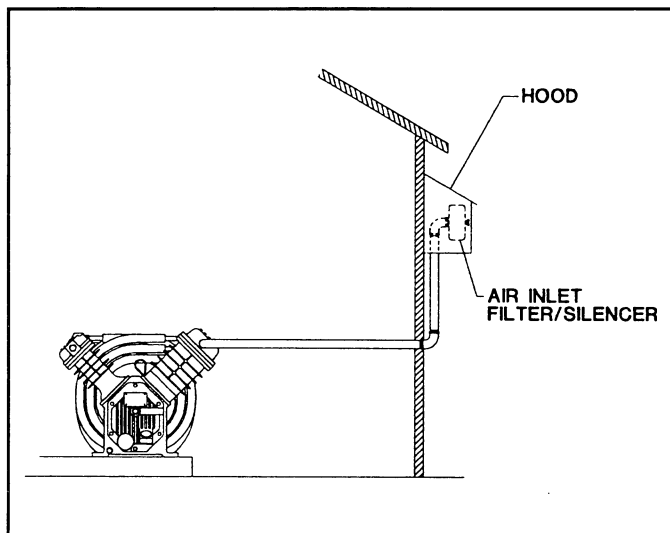


Figure 2-2. Typical Inlet Piping Arrangement.

ELECTRICAL/MOTOR INSTALLATION

The electrical installation should be performed by a licensed electrician who is familiar with the regulations of the National Electrical Code and the requirements of applicable local codes.

PRE-INSTALLATION CHECKS. Before wiring the motor to the power supply, the following checks must be performed to ensure compatibility.

- 1). Check the motor rating, as shown on the motor nameplate, against the power supply to ensure they have the same characteristics (voltage, phase and hertz).
- 2). Ensure the electrical supply provides sufficient ampere rating.
- 3). Ensure power supply wires are of proper gauge, and no other equipment is operated from the same line.

STARTING SWITCH. If the ratings of the motor and power supply are not the same, do not connect the motor. Consult a qualified electrician before proceeding with the installation. The electrical wiring between the power supply and the electric motor varies according to the motor horsepower.

MAGNETIC STARTERS. Compressors regulated by automatic start and stop control using motors with ratings higher than 1-1/2 horsepower on 115 volts, single-phase; 3 horsepower on 230 volts, single-phase; or 3 horsepower on 230 or 460 volts, three-phase, must be equipped with a magnetic starter. 230V, single-phase motors with built-in motor protection do not require a magnetic starter. The wiring diagrams at the end of this section show typical wiring arrangements for single-phase and three-phase motors and starters.

MOTOR PROTECTION. All starters must include thermal overload protection to prevent possible motor damage. These starting switches are furnished with the manufacturer's instructions for installation. Ingersoll-Rand cannot accept responsibility for damages arising from failure to provide adequate motor protection.

FUSES. The momentary starting current of an electric motor is greater than its full load current. Refer to the National Electric Code to determine the proper fuse or circuit breaker rating required for your installation. Fuse failure usually results from the use of fuses with insufficient capacity. If fuses are the correct size and still fail, check for conditions that cause local heating, such as bent, weak or corroded fuse clips.

PRESSURE SWITCH. If pressure switch installation is required, select a pulsation free point in the system which registers receiver pressure. Select a high point where condensate will not accumulate. Most pressure switches may be aligned in any position, but must be securely mounted against a solid surface. Heed all instructions provided with the pressure switch when installing. The connecting line to the receiver should be short and direct, and certified safe for at least 250 PSIG (18 kg/cm²).

Wire the pressure switch to the motor magnetic starter in accordance with the wiring schematic provided with the pressure switch.

WIRING REQUIREMENTS. Using the proper size wire is important to the safety and operation of your air compressor. Connections must also be mechanically and electrically secure. Information for selecting the proper wire size, and securing connections, should be provided with your motor. If this information is not available, the wire sizes shown in Table 2-3 can be used as a safe guide if the distance from the electrical supply does not exceed 100 feet (30.5m).

The use of undersized wire results in low voltage and high amperes, and unnecessary tripping of overload relays or blown fuses. If other electrical equipment is connected to the same circuit, the total electrical load must be considered in selecting the proper wire size(s). A burned out motor due to low voltage may result unless the motor is properly protected.

COMPRESSOR LUBRICATION

Ingersoll-Rand recommends the use of only T30 SELECT™ synthetic lubricant in the compressor. T30 SELECT™ reduces wear and eliminates most carbon build-up on compressor valves. This allows the compressor to run more efficiently and for valve life to be increased.

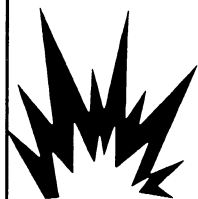
You must be certain that the downstream components of your compressor system will not be damaged by the action of this lubricant, as this lubricant is not compatible with certain materials. Please refer to Table 2-1.

Suitable	Not Recommended
Viton®	Neoprene
Teflon®	Natural Rubber
Epoxy (Glass Filled)	SBR Rubber
Oil Resistant Alkyd	Acrylic Paint
Fluorosilicone	Lacquer
Fluorocarbon	Varnish
Polysulfide	Polystyrene
2-Component Urethane	PVC
Nylon	ABS
Delrin®	Polycarbonate
Celcon®	Cellulose Acetate
High Nitrile Rubber (Buna N. NBR more than 36% Acrylonitrile)	Low Nitrile Rubber (Buna N. NBR less than 36% Acrylonitrile)
Polyurethane	EPDM
Chlorosulfonate	Ethylene Vinyl Acetate
Polyethylene	Latex
Epichlorohydrin	EPR
Polyacrylate	Acrylics
Melamine	Phenoxys
Polypropylene	Polysulfones
Baked Thenoics	Styrene Acrylonitrile (San)
Epoxy	Butyl
Modified Alkyds	

(® Indicates Trademark of DuPont Corporation)

Table 2-1. T30 Select™ Material Compatibility.

WARNING



Compressed air has great force. Can cause severe injury or death.

Always relieve pressure from compressor and receiver before removing plugs, fittings, etc.

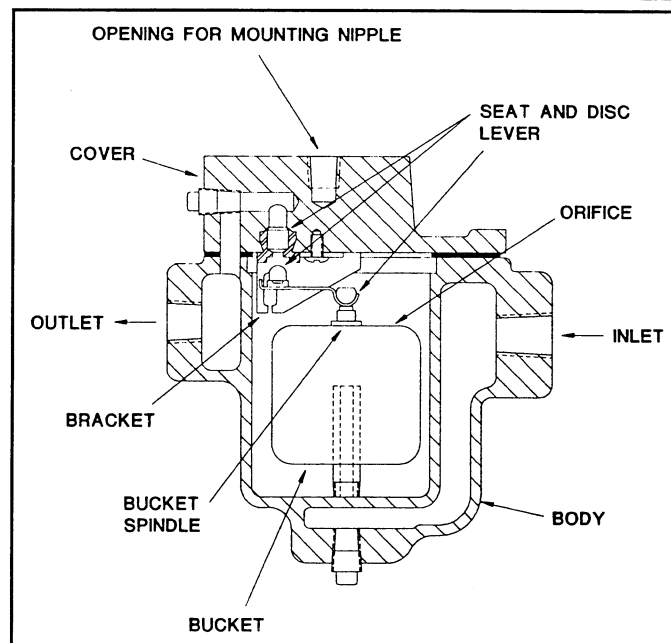


Figure 2-3. Typical automatic condensate drain trap.

AUTOMATIC CONDENSATE DRAIN TRAP

The purpose of an optional automatic condensate drain trap is to expel the condensate from the receiver and/or the aftercooler.

PRIMING THE TRAP. Close the manual shut-off valve installed in the bottom side of the pipe tee. Remove pipe plug installed in top of pipe tee, and pour water into top opening of pipe tee until trap and pipe tee are filled with water. Open manual shut-off valve releasing water in pipe tee into air receiver. Re-install pipe plug using thread lubricant and tighten to prevent air leakage.

A small amount of intermittent air leakage is perfectly normal in a properly primed trap and should be no cause for alarm. However, if air leakage occurs on a continuous basis, the trap may have lost its prime or may be faulty.

TO PREVENT REPRIMING THE TRAP, CLOSE MANUAL SHUT-OFF VALVE ON TRAP BEFORE COMPLETE AIR LOSS OF RECEIVER.

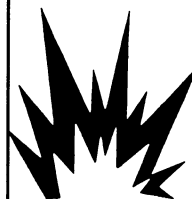
START-UP

PRE-START CHECKS. See Table 2-2 before putting the unit in operation.

START-UP PROCEDURES. The following procedures should be followed when initially starting the unit, and to verify the integrity of the installation.

- 1). Close the service valve.

WARNING



Compressed air has great force. Can cause severe injury or death.

Air pressure beyond design limits can cause pipes or receiver to rupture or explode, and result in severe injury or death.

Always ensure pressure switch is adjusted to a pressure setting below the maximum rating of the receiving unit.

Never increase pressure switch cut-out setting beyond the factory pre-set pressure limit.

Do not remove, change or make substitutions for relief valves.

Check relief valves regularly to ensure they operate freely. Defective valves must be replaced.

- 2). Momentarily start the compressor to ensure the beltwheel rotation is the same as that shown by the directional arrow. If rotation is incorrect, interchange any two of the three leads on three phase motors. On single phase motors, refer to the reverse wiring diagram on the motor nameplate.
- 3). Start the compressor. As the unit builds pressure, check for air leaks.
- 4). When the receiver reaches maximum pressure, the unit should stop.
- 5). Open the service valve and/or drain valve to bleed air from the receiver. Note the pressure at which the compressor starts.
- 6). As the unit builds pressure, check for unusual noise or vibration.
- 7). Pull the ring on all relief valves to ensure they relieve and reseal. Do this several times.
- 8). Shut the compressor off. When all pressure has been vented from the compressor and receiver, check the tightness of all bolts and fittings and tighten as necessary.

Step #	Procedure	Requirement	Does condition meet requirements?	
			Yes	No
1	Level unit.	Unit is properly leveled on foundation.	Go to step #2.	Level unit.
2	Check inlet & discharge piping.	Piping is of sufficient size and rating for this compressor.	Go to step #3.	STOP! Do not proceed until adequate piping has been installed.
3	Check tightness of all tubing connections and fasteners.	All tubing connections must be secure.	Go to step #4.	STOP! Tighten all tubing connections securely.
4	Check electrical installation.	Motor and electrical supply are compatible in voltage, phase and hertz.	Go to step #5.	STOP! Do not apply power to the motor. Correct wiring or consult a qualified electrician before continuing.
		Electrical supply has adequate ampere rating.		
		Motor is correctly wired. Wire is correct size.		STOP! Do not apply power to the motor until all components are wired correctly.
		All electrical components are correctly wired.		
5	Check beltwheel rotation. Rotate beltwheel by hand in direction of rotation (See Figure 1-1).	Beltwheel rotates freely in direction of rotation. All parts are in good working condition.	Go to step #6.	STOP! Repeat Step #4.
6	Check automatic condensate drain trap (if provided).	Trap is properly primed.	Go to step #7.	Prime drain trap.
7	Check cleanliness of area around unit.	Area on and around compressor should be free from objects that could interfere with compressor operation.	Go to paragraph on Start-Up Procedures .	Remove rags, tools, and any other objects on and around compressor.

Table 2-2. Pre-start checklist.

Motor HP	Single Phase				Three Phase							
	115V		230V		200V		230V		460V		575V	
	AWG	SWG	AWG	SWG	AWG	SWG	AWG	SWG	AWG	SWG	AWG	SWG
1	12	14	14	16	14	16	14	16	14	16	14	16
1.5	10	12	14	16	14	16	14	16	14	16	14	16
2	8	10	14	16	14	16	14	16	14	16	14	16
3	8	10	12	14	14	16	14	16	14	16	14	16
5	4	6	8	10	18	12	12	14	14	16	14	16
7.5	--	--	6	8	8	10	10	12	14	16	14	16

AWG = American Wire Gauge

SWG = British Imperial Standard Wire Gauge

Table 2-3. Wire Selection Guide.

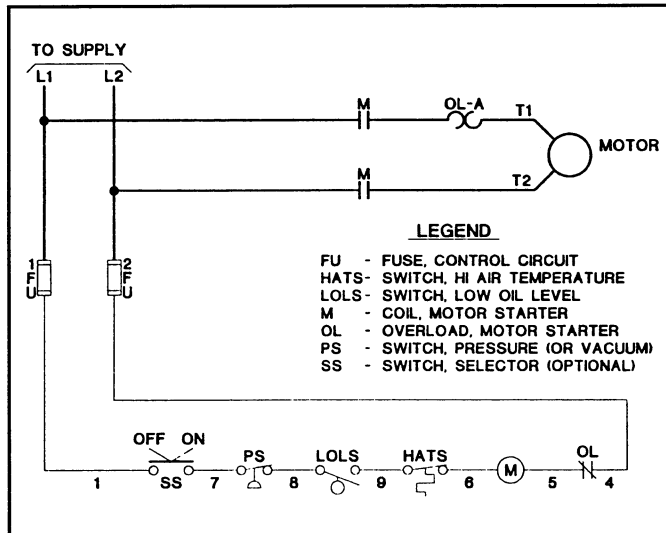


Figure 2-4. Typical Single-Phase Wiring.

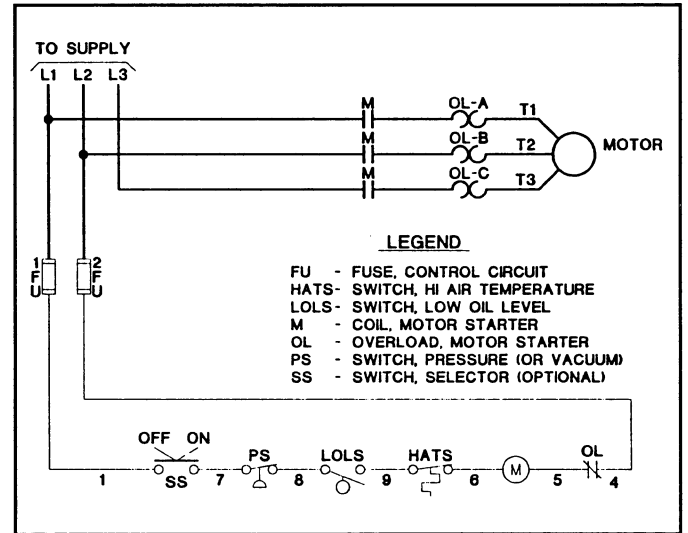


Figure 2-5. Typical Three-Phase Wiring.

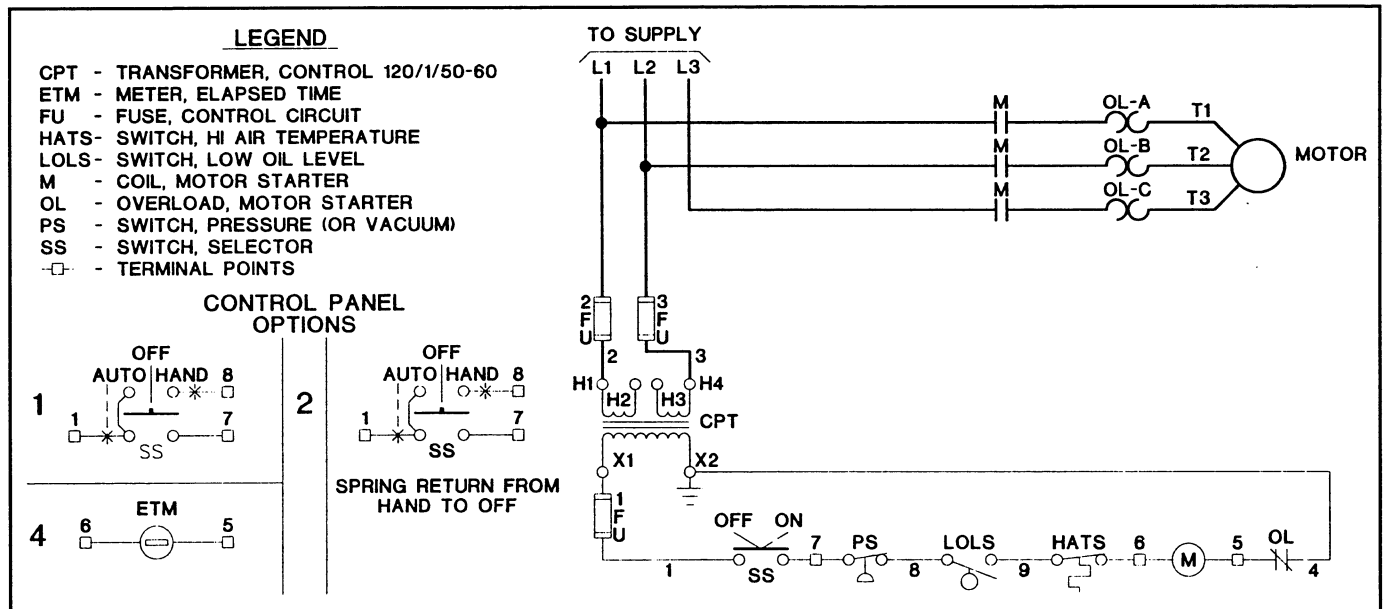


Figure 2-6. Typical Three-Phase Wiring (with control transformer).

SECTION 3 - TROUBLESHOOTING

Trouble	Checkpoint Reference
Motor will not run.	12, 13
Oil in discharge air.	1, 4, 7, 9, 17, 18
Knocks or rattles.	2, 15, 16, 18, 19, 20
Air delivery has dropped off.	1, 6, 15, 17, 18
Relief valve pops.	15, 24
Trips motor overload or draws excessive current.	5, 12, 13, 14, 15, 18, 19, 20
Moisture in frame or rusting in cylinders.	9, 10
Excessive starting and stopping.	6, 11, 23
Compressor runs excessively hot.	3, 8, 11, 14, 15, 21
Compressor does not come up to speed.	2, 12
Lights flicker or dim when compressor is running.	12, 13
Abnormal piston, ring or cylinder wear.	1, 4, 5, 8, 9, 22

Check Point	Possible Cause	Corrective Action
1	Clogged or dirty air inlet filter.	Clean or replace filter element.
2	Loose beltwheel or motor pulley. Excessive end play in motor shaft.	Check beltwheel, motor pulley and shaft. Repair or replace as required.
3	Inadequate ventilation around beltwheel.	Relocate compressor for adequate airflow.
4	Oil viscosity too low.	Drain existing lubricant from frame. Refill with proper lubricant.
5	Oil viscosity too high.	Drain existing lubricant from frame. Refill with proper lubricant.
6	Air leaks in piping (on compressor or external piping/system).	Check tubing and connections. Repair or replace as required.
7	Oil level too high.	Drain lubricant from frame to proper level.
8	Oil level too low.	Add lubricant to frame to bring level up to acceptable point.
9	Detergent type lubricant being used.	Change to T30 SELECT™ or non-detergent lubricant with rust and oxidation inhibitors.
10	Extremely light duty cycles.	Run compressor for longer duty cycles.
	Compressor located in damp or humid spot.	Relocate compressor or add crankcase heaters.
11	Receiver check valve leaking.	Tighten or replace check valve.
12	Improper line voltage.	Check line voltage, change lines as required.
	Poor contact on motor terminals or starter connections.	Ensure good contact on motor terminals and starter connections.
	Improper starter heaters.	Install proper starter heaters.
13	Poor power regulation (unbalanced line).	Consult local power company.
14	V-belt is pulled too tight.	Adjust belt tension.
15	Valves leaking, broken, carbonized or loose. Air passages restricted.	Check valves. Clean or replace as required.
16	Carbon build-up on top of piston(s).	Clean piston(s). Repair or replace parts as required.
17	Piston rings damaged or worn (broken, rough, scratched, excessive end gap or side clearance).	Replace piston rings.
	Piston rings not seated, stuck in grooves, or end gaps not staggered.	Clean and adjust piston rings. Replace as required.
18	Cylinder scratched, worn or scored.	Repair or replace as required.
	Piston scratched, worn or scored.	Repair or replace as required.
19	Connecting rod, piston pin or crankpin bearings worn or scored.	Inspect all. Repair or replace as required.
20	Defective ball bearings on crankshaft or motor shaft.	Check ball bearings. Replace as required.
21	Wrong beltwheel direction of rotation.	Check motor wiring for proper connections.
22	Extremely dusty or polluted environment.	Route air inlet filter to a clean air source. Use heavy duty filter element
23	Excessive condensate in receiver.	Drain receiver.
24	Defective relief valve.	Replace relief valve.

Table 3-1. Troubleshooting guide.

SECTION 4 - MAINTENANCE

WARNING

Compressed air has great force.
Can cause severe injury or death.

Always release pressure from the compressor
and all associated tubing and components
before servicing compressor.

WARNING

Hazardous voltage.
Can cause severe injury or death.

Always disconnect power supply before
performing any maintenance or repair work on
this compressor.

Maintenance Operation	Service Interval				
	Operating hours/months (whichever occurs first)				
	500/3	1000/6	1500/9	2000/12	2500/15
COMPRESSOR					
Frame lubricant level - check	Daily				
Air Inlet filter - inspect & clean	Weekly				
Intercooler - clean exterior	Weekly				
Relief valves - check manually	Weekly				
Cylinder cooling fins - clean	Weekly				
Inspect T30 SELECT™ lubricant for contamination - change if necessary				•	
Inspect other lubricant for contamination - change if necessary	•	•	•	•	•
Compressor valves - inspect & clean	•	•	•	•	•
V-BELT DRIVE					
Belt tension - check	Monthly				
MOTOR					
Clean	Monthly - (weekly in dusty or polluted environments)				
Motor bearings - inspect & lubricate				•	
RECEIVER					
Drain condensate - manual	Daily				
Relief valves - check manually	Weekly				
GENERAL					
Check for unusual noise/vibration	Daily				
Check & tighten screws/bolts	Monthly				
Inspect for air leaks	Monthly				

Table 4-1. Maintenance Guide.

SECTION 5 - PARTS LIST

GENERAL INFORMATION

The following is an illustrated list and description of the parts required to maintain and repair your unit. Also included is a list of Step Saver Kits which are designed for routine maintenance and repair tasks.

DESCRIPTION

The parts list contains a breakdown of the unit into assemblies, subassemblies and detail parts. Each assembly is followed by its subassemblies and component parts, which are indented with "bullet" symbols to show the relationship to the next higher assembly. Assemblies which are broken down in separate lists and illustrations list the appropriate figure number and page reference after the item description.

EXPLANATION OF COLUMNS

Each parts list is divided into the following columns:

Reference Number (Ref. Nbr.)

Each illustration is accompanied by the list of parts. This column lists the figure number for the illustration, followed by the call-out number on the illustration which identifies that item. The reference number is usually not required for ordering parts or kits.

The following abbreviations might be used in the Reference Number column:

- NI = Not Illustrated.
- REF = Reference Only. You may be referred to a figure and page noted in the Description column.

Part Number

All items listed in this section bear Ingersoll-Rand part numbers, which are listed in this column. The part number must always be specified when ordering spare or replacement parts.

The following abbreviations might be used in the Part Number column:

- NSS = Not Sold Separately. Such items must be ordered as part of the next higher assembly; or, where applicable, as part of a Step Saver Kit.
- * * = Part Number will vary. Specify the compressor discharge pressure and complete motor nameplate data when ordering.

Description

The description column identifies items by standard name, or nomenclature, and modifiers. The modifiers are used to identify specific characteristics (i.e., dimensions, capacity, pressure setting, etc.), and/or the particular location or function on this unit. The relationship of a subassembly or component part to higher assemblies is shown by indentation and bullet symbols. Always provide the part description when ordering.

Quantity (Qty.)

Quantities listed in this column reflect the number of each item used in the next higher assembly, and are not necessarily the total quantity of the part in complete model. Specify desired quantities when ordering.

Spares

Quantities under this heading reflect the number of each item which we recommend be kept on hand for maintenance or repair. The appropriate quantity for your application will depend on how critical interruptions in service are to your operation.

- Class 1 - Minimum. Recommended quantity for Domestic Service where interruptions in service are not important.
- Class 2 - Average. Suggested quantity for Domestic Service where some interruptions in continuity of service are not objectionable.
- Class 3 - Maximum. Suggested for Export Service or for Domestic Service where interruptions in service are objectionable.

STEP SAVER KITS

Step Saver Kits for your unit are listed on the following page. These kits provide all of the parts you will need to perform common repair or scheduled maintenance tasks, such as piston ring replacement or valve replacement. The reference numbers listed in the Contents column reflect the parts included in each kit, and correspond to the reference numbers for the parts as they appear throughout this manual. The quantity of each item included in the kits is the same as that listed for the item under the given reference number. When ordering kits, use the Description and Part Number as shown.

ORDERING INSTRUCTIONS

All parts listed in this section can be ordered through your local Ingersoll-Rand Air Center or Full Service Distributor. Consult the Directory of Distributors included with the air compressor to find the distributor in your area.

When ordering, always provide the following information:

- The MODEL NUMBER and SERIAL NUMBER stamped on the compressor nameplate.
- The FORM NUMBER of this manual, as listed in the lower right-hand corner on the front cover.
- The QUANTITY, DESCRIPTION & PART NUMBER of the part(s) you are ordering.

Refer to the example on the inside back cover of this manual.

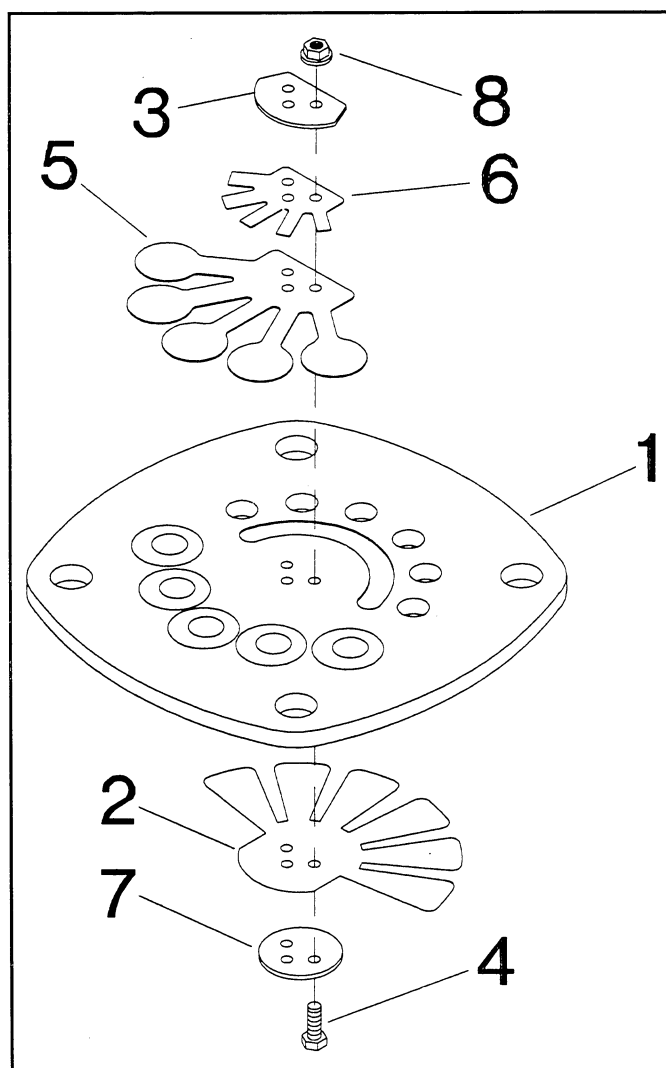


Figure 1. High Pressure Valve Plate Assembly.

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
REF.	32293904	ASSY., VALVE PLATE - HP	1			
1-1	32294266	PLATE, VALVE - HP - 2.75"	1			
1-2	32294282	VALVE, FINGER - HP - INTAKE	1			
1-3	32294316	RETAINER, DISCHARGE VALVE - HP	1			
1-4	97511042	SCREW, HEX HEAD - M3x16	3			
1-5	32294290	VALVE, DISCHARGE - HP	1			
1-6	32294357	VALVE, DAMPER - HP - DISCHARGE	1			
1-7	32294308	RETAINER, INTAKE VALVE - HP	1			
1-8	97511059	NUT, HEX - M3 W/ LOCKWASHER	3			

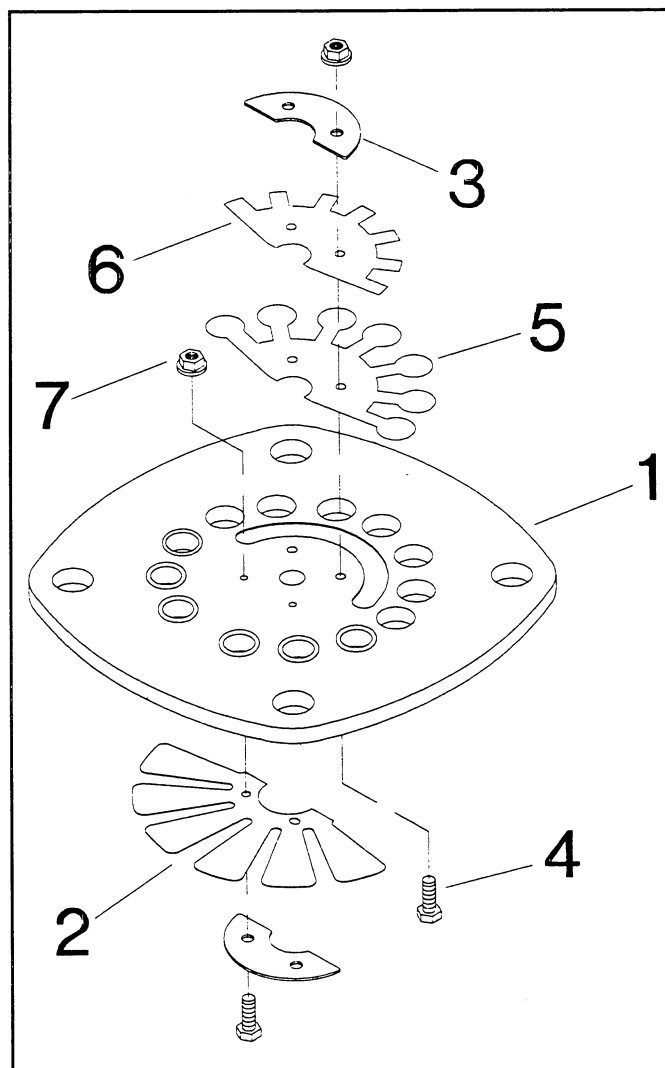


Figure 2. Low Pressure Valve Plate Assembly.

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
REF.	32293912	ASSY., VALVE PLATE - LP	1			
2-1	32294274	PLATE, VALVE - LP - 5"	1			
2-2	32294324	VALVE, FINGER - LP - INTAKE	1			
2-3	32294340	RETAINER, INTAKE/DISCHARGE	2			
2-4	32247512	SCREW, HEX HEAD - M4x12	4			
2-5	32294332	VALVE, FINGER - LP - DISCHARGE	1			
2-6	32294365	VALVE, DAMPER - LP - DISCHARGE	1			
2-7	32246936	NUT, HEX - M4 W/LOCKWASHER	4			

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
3-1	95344651	PLUG, PIPE - HEX HEAD 1/2"	1			
3-2	32179061	COUPLING, PIPE - 1/2"	1			
3-3	95273330	NIPPLE, PIPE - 1/2x1-1/8"	1			
3-4	32247843	PLUG, OIL FILLER	1			
3-5	32247850	O-RING, OIL FILLER PLUG	1	1	1	2
3-6	95105250	CAPSCREW, HEX - 5/16-18x1"	8			
3-7	95674651	GASKET, COPPER WASHER - 5/8"	2			
3-8	32293938	ASSEMBLY, COVER - FRAME END	1			
3-9	37127057	• BUSHING, PILOT VALVE	1			
3-10	NSS	• COVER, FRAME END	1			
3-11	37113701	VALVE, PILOT	1			
3-12	30346597	WASHER, COPPER - 7/8"	1		1	1
3-13	32028698	ASSEMBLY, THRUST PIN	1			
3-14	95210225	• O-RING, THRUST PIN	1	1	1	2
3-15	32294035	GASKET, FRAME END COVER	1	1	1	2
3-16	90799289	LOCKWIRE, 12 GA - 5"	1			
3-17	30278667	CAPSCREW, LOCK - 3/8-16x7/8"	2			
3-18	30289110	ASSEMBLY, CRANKPIN CAP	1			
3-19	32006587	• LOCKWIRE, 12 GA - 4"	1			
3-20	30215008	• PIN, CENTRIFUGAL UNLOADER WEIGHT	2			
3-21	30221725	• WEIGHT, CENTRIFUGAL UNLOADER	2			
3-22	30216113	• PLUNGER, CENTRIFUGAL UNLOADER	1			
3-23	30416978	• SPRING, CENTRIFUGAL UNLOADER	1			1
3-24	30210447	• BODY, CRANKPIN CAP	1			

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
3-25	32198160	ROD, CONNECTING	2		2	2
3-26	32294126	BELTWHEEL	1			
3-27	95079984	CAPSCREW, HEX - 5/16-18x1-1/4"	2			
3-28	32203192	FRAME, COMPRESSOR	1			
3-29	32183972	ASSEMBLY, SHAFT END COVER	1			
3-30	32204570	• SEAL, OIL	1		1	2
3-31	NSS	• COVER, SHAFT END	1			
3-32	32294027	GASKET, SHAFT END COVER	1	1	1	2
3-33	32294431	ASSEMBLY, CRANKSHAFT	1			
3-34	NSS	• ASSEMBLY, DISC/SHAFT	1			
3-35	95200770	• BEARING, BALL	2			
3-36	32203218	• SPACER, BEARING - INNER	1			
3-37	32203226	• SPACER, BEARING - OUTER	1			
3-38	95305546	• BEARING, BALL-W/SNAP RING	1			
3-39	37127941	• RING, BEARING RETAINER	1			
3-40	30210165	• BUSHING, CRANKPIN	1			
3-41	95433173	• KEY, WOODRUFF	1			
3-42	95098315	• NUT, BELTWHEEL -7/8-14	1			
3-43	95043162	• LOCKWASHER, SPRING - 7/8"	1			
DETAIL A						
3-44	95311650	CAPSCREW, HEX - 1/4-20x1/2"	2			
3-45	95043196	LOCKWASHER, SPRING - 1/4"	2			
3-46	32270654	BAFFLE, LOW OIL LEVEL SWITCH	1			
3-47	32276313	SWITCH, LOW OIL LEVEL	1			
3-48	95200333	PLUG, PIPE - HEX HEAD - 3/4"	1			

STEP SAVER KITS

Part Number	Description	Contents (by Ref. Nbr.)
32204307	KIT, BEARING/ CONNECTING ROD	3-25, 3-35, 3-37, 3-38, 3-40
32307084	KIT, RING/GASKET	3-5, 3-12, 3-15, 3-30, 3-32, 4-19, 4-42 through 4-47, 5-15
32307118	KIT, VALVE/GASKET	1-2 through 1-8, 2-2 through 2-7, 4-14, 4-26, 4-28, 4-29, 4-31, 4-33, 4-35, 5-15
32307126	SET, GASKET	3-5, 3-14, 3-15, 3-32, 4-14, 4-19, 4-26, 4-29, 4-31, 4-33, 4-35, 4-49, 5-15

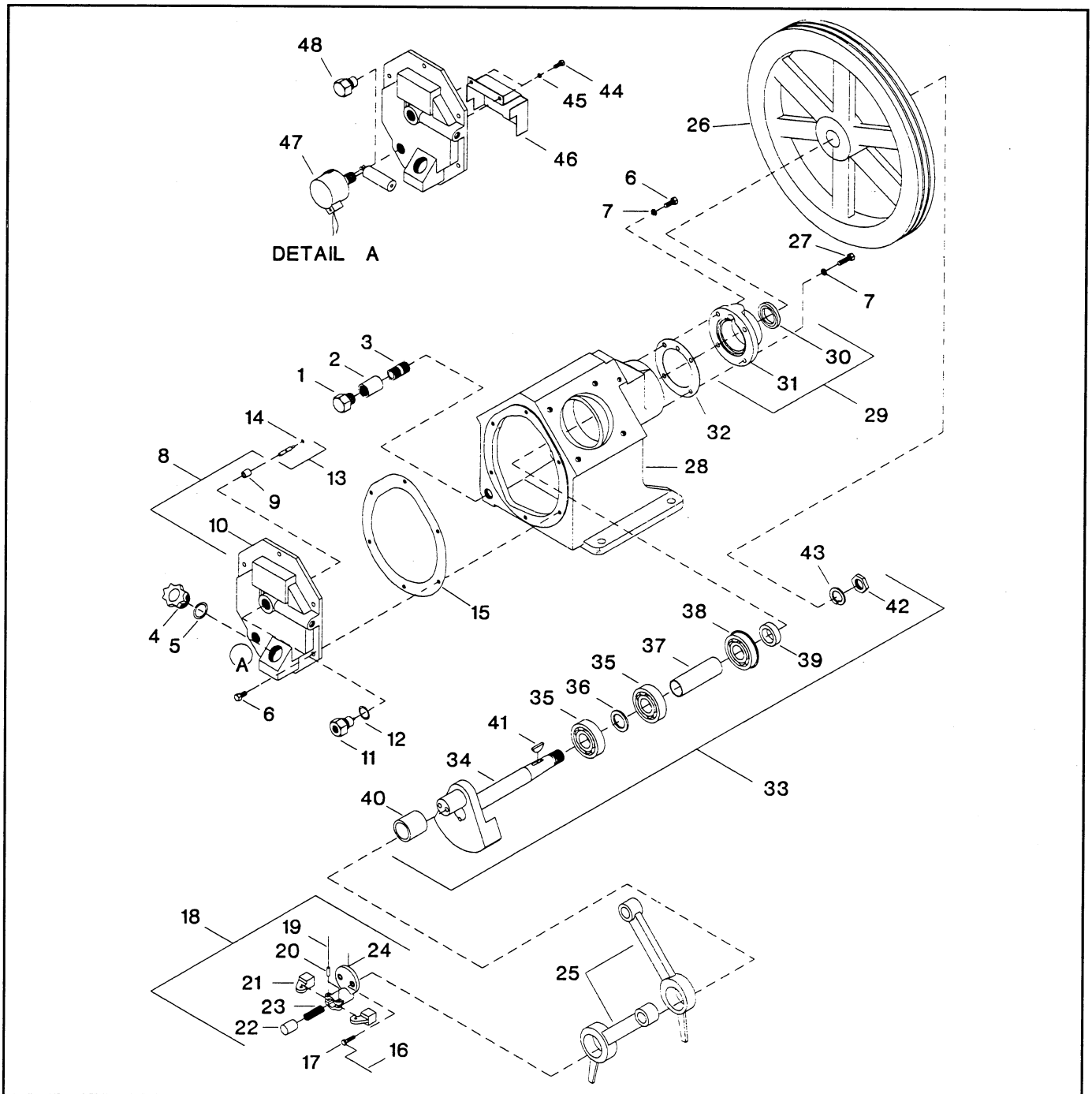


Figure 3. Compressor Frame Assembly.

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
4-1	32230542	FILTER, AIR INLET - COMPLETE	1			
4-2	32012957	• ELEMENT, FILTER - 10 MICRON	1	1	1	1
4-3	32293953	ASSY., TUBE - PILOT VALVE/HP HEAD	1			
4-4	32201444	ASSY., TUBE - FRAME END COVER TEE/INLET	1			
4-5	32293961	ASSY., TUBE - FEC CHECK VALVE/LP HEAD	1			
4-6	32293946	ASSY., TUBE - BREATHER	1			
4-7	95031860	ELBOW, TUBE - 5/16x1/8"	2			
4-8	95082483	CONNECTOR, TUBE - 5/16x1/8"	2			
4-9	32001141	VALVE, CHECK	1			
4-10	95796017	NIPPLE, CLOSE - 1/8x3/4"	1			
4-11	32203242	CONNECTOR, MALE - 5/16x1/4"	1			
4-12	95007522	TEE, MALE BRANCH - 5/16x1/8"	1			
4-13	32294084	HEAD - HP	1			
4-14	32294043	GASKET, HEAD - HP	1	1	1	2
4-15	32293904	ASSY., VALVE PLATE - HP (SEE FIG. 1)	1			
4-16	95053567	CAPSCREW, HEX - 1/2-13x1-1/4"	8			
4-17	95674701	GASKET, COPPER WASHER - 1/2"	8			
4-18	32295248	CYLINDER, AIR - 2-3/4" - 2ND STAGE	1			
4-19	32294019	GASKET, FLANGE	2	2	2	4
4-20	32293888	ASSY., PISTON/PIN - HP	1		1	1
4-21	32182818	• PIN, PISTON	1			
4-22	NSS	• PISTON, AIR - 2/3/4"	1			
4-23	30287791	RING, LOCK	2			
4-24	95043188	LOCKWASHER, SPRING - 5/16"				
4-25	32230633	COVER, UNLOADER	1			

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
4-26	32182826	GASKET, UNLOADER COVER	1	1		
4-27	32256265	ASSEMBLY, PISTON UNLOADER	1	1	1	2
4-28	32254740	• SEAL, UNLOADER PISTON	1	1	1	2
4-29	32188385	• O-RING, UNLOADER PISTON	1	1	1	2
4-30	NSS	• PISTON, UNLOADER	1			
4-31	95104188	CAPSCREW, HEX - 1/2-13x1-3/4"	8			
4-32	32294100	HEAD - LP	1			
4-33	32294050	GASKET, HEAD - LP	1	1	1	2
4-34	32293912	ASSY., VALVE PLATE - LP (SEE FIG. 2)	1			
4-35	32294076	O-RING, VALVE PLATE	1	1	1	2
4-36	32295271	CYLINDER, AIR - 5" - FIRST STAGE	1			
4-37	32293896	ASSY., PISTON/PIN - LP	1	1	1	2
4-38	30297022	• PIN, PISTON	1			
4-39	NSS	• PISTON, AIR - 5"	1			
4-40	30287791	RING, LOCK	2		1	1
4-41	95110441	ELBOW, TUBE - 5/16x1/4"	1			
4-42	32294167	RING, COMPRESSION - 2.75	1			
4-43	32294175	RING, SCRAPER - 2.75	1			
4-44	32294183	RING, OIL CONTROL - 2.75	1			
4-45	32294209	RING, COMPRESSION - 5"	1			
4-46	32294217	RING, SCRAPER - 5"	1			
4-47	32294225	RING, OIL CONTROL - 5"	1			
4-48	95079927	CAPSCREW, HEX - 5/16-18x1-3/4"	2			
4-49	32294068	O-RING, VALVE PLATE - HP	1	1	1	2
4-50	32294373	CAPSCREW, HEX - 3/8-24x2-1/4"	1			
4-51	95674677	GASKET, COPPER - 3/8"	1			
4-52	95318978	CAPSCREW, HEX - 1/4-28x2-1/4"	1			
4-53	32255903	WASHER, COPPER - 1/4"	1			

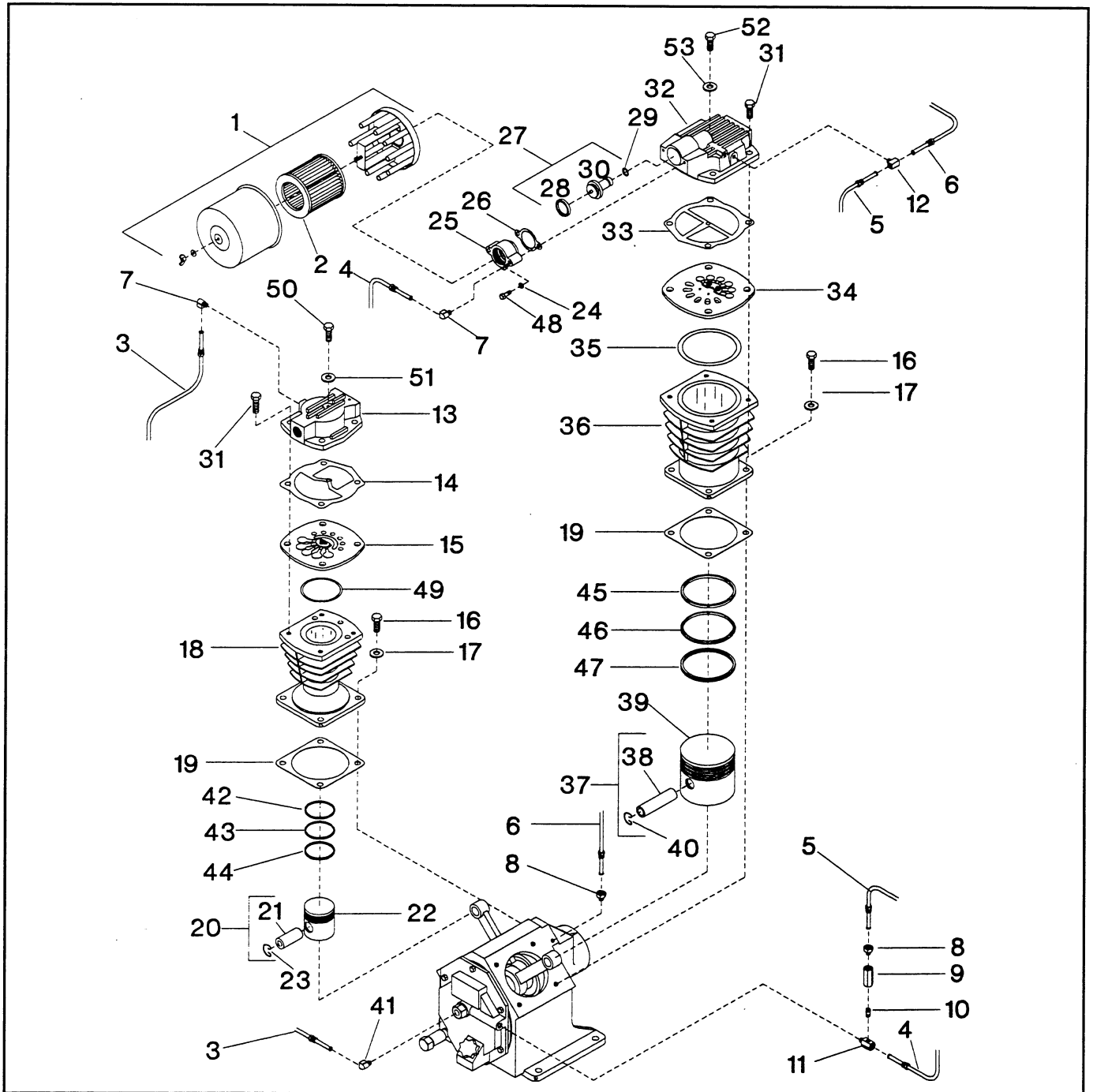


Figure 4. Model 2545 Bare Compressor.

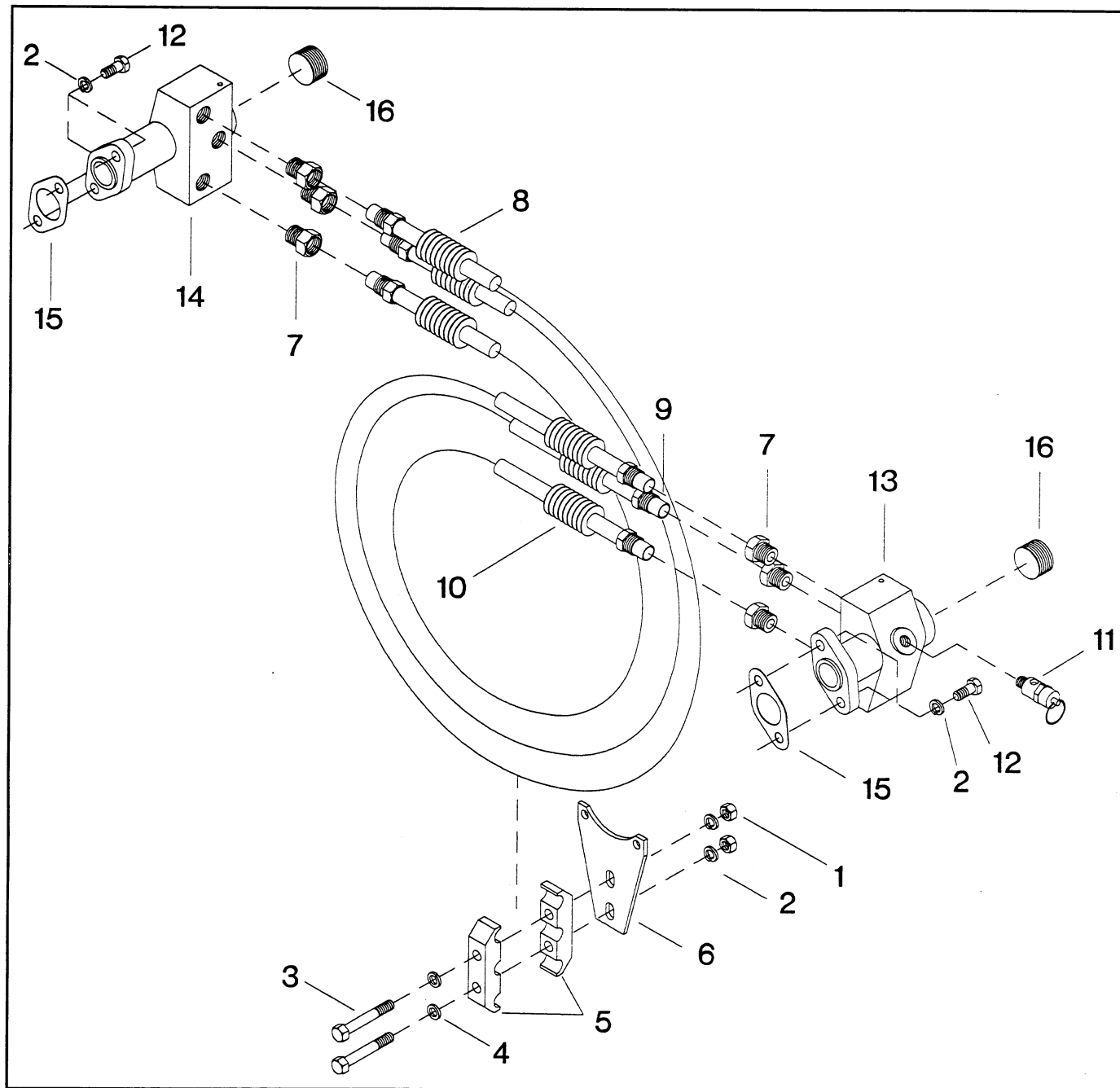


Figure 5. Intercooler Assembly.

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
REF.	32188666	ASSEMBLY, INTERCOOLER	1			
5-1	95077764	NUT, HEX - 3/8-16	2			
5-2	95081857	LOCKWASHER, SPRING - 3/8"	6			
5-3	95079646	CAPSCREW, HEX - 3/8-16x2-1/2"	2			
5-4	95069597	WASHER, FLAT - 3/8"	2			
5-5	32294159	CLAMP, INTERCOOLER	2			
5-6	32294142	BRACKET, INTERCOOLER CLAMP	1			
5-7	95083226	CONNECTOR, MALE - 5/8x1/2"	6			

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
5-8	32211708	ASSY., TUBE - #3 INTERCOOLER	1		1	2
5-9	32211690	ASSY., TUBE - #2 INTERCOOLER	1		1	2
5-10	32211682	ASSY., TUBE - #1 INTERCOOLER	1		1	2
5-11	72062185	VALVE, RELIEF - 80 PSIG	1			2
5-12	95468443	CAPSCREW, HEX - 3/8-16x1"	4			
5-13	32185787	MANIFOLD, HEAD - LP	1			
5-14	32185795	MANIFOLD, HEAD - HP	1			
5-15	32188377	GASKET, MANIFOLD	2	2	2	4
5-16	95101457	PLUG, PIPE - SQUARE COUNTERSUNK - 1"	2			

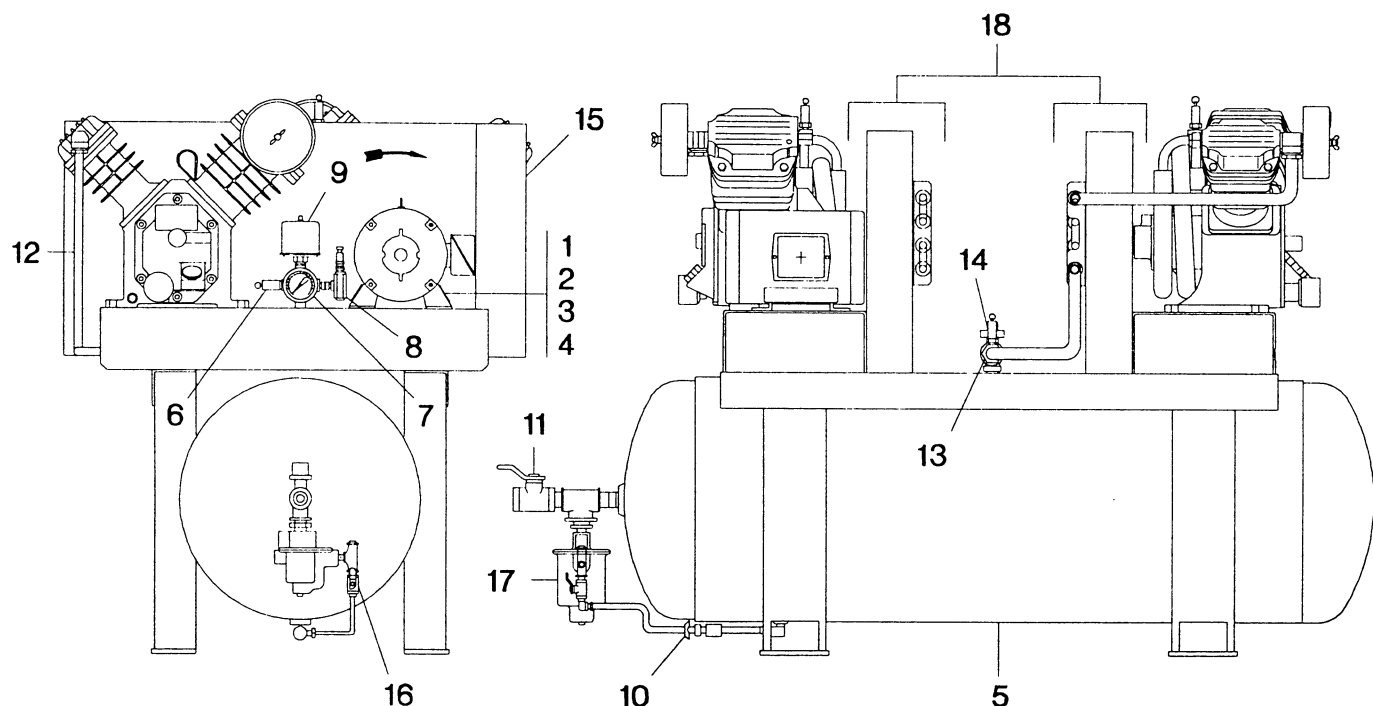


Figure 6. Typical Duplex Package & Options.

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
6-1	**	MOTOR, ELECTRIC	2			
6-2	**	PULLEY, MOTOR	2			
6-3	**	BELT, V	4			
6-4	32203408	TIGHTENER, BELT - COMPLETE	2			
6-5	32194169	ASSY., RECEIVER - 120 GAL. HORIZONTAL	1			
6-5	32194177	ASSY., RECEIVER - 240 GAL. HORIZONTAL	1			
6-6	31385693	VALVE, RELIEF - RECEIVER - 200 PSIG	1			1
6-6	72061971	VALVE, RELIEF - RECEIVER - 135 PSIG (TEMP. CONTROL)	1			1
6-7	32013872	GAUGE, PRESSURE - 300 PSIG	1	1	1	1
6-8	32170797	VALVE, AUXILIARY - DUAL CONTROL - 175 PSIG	1			
6-8	32170789	VALVE, AUXILIARY - DUAL CONTROL - 125 PSIG	1			

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
6-9	37005907	SWITCH, PRESSURE - NEMA 1	2	2	2	2
6-9	32061368	SWITCH, PRESSURE - NEMA 1	2	2	2	2
6-10	32027120	VALVE, DRAIN - MANUAL	1			
6-11	32202657	VALVE, BALL - 1-1/2"	1			1
6-12	32304701	ASSY., TUBE - COMPRESSOR - 120 GAL. HORIZONTAL RECEIVER	2			
6-12	32304727	ASSY., TUBE - COMPRESSOR - 240 GA. HORIZONTAL RECEIVER	2			
6-13	32223596	ASSY., BALL VALVE - 3/4"	2			2
6-14	32174286	VALVE, RELIEF - DISCHARGE - 325 PSIG	2		2	2
6-15	32209447	BELTGUARD, COMPLETE	2			
OPTIONAL EQUIPMENT						
6-16	32180200	VALVE, BALL - 1/4"	1			
6-17	32005282	TRAP, AUTO DRAIN	1			1
6-18	REF.	AFTERCOOLER, AIR COOLED (SEE FIG. 8)				

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
7-1	**	MOTOR, ELECTRIC	1			
7-2	**	PULLEY, MOTOR	1			
7-3	**	BELT, V	2		2	2
7-4	32203408	TIGHTENER, BELT - COMPLETE	1			
7-5	32190548	ASSY., RECEIVER - 80 GAL. HORIZONTAL	1			
7-5	32185126	ASSY., RECEIVER - 120 GAL. HORIZONTAL	1			
7-6	31385693	VALVE, RELIEF - RECEIVER - 200 PSIG	1			1
7-7	32013872	GAUGE, PRESSURE - 300 PSIG	1	1	1	1
7-8	32170797	VALVE, AUXILIARY - DUAL CONTROL - 175 PSI	1			
7-9	37005907	SWITCH, PRESSURE - NEMA 1	1	1	1	1

Ref. Nbr.	Part Number	Description	Qty.	Spares		
				1	2	3
7-10	32027120	VALVE, DRAIN - MANUAL	1			
7-11	32223596	VALVE, BALL - 3/4" M/F (SERVICE VALVE) - 80 GAL. RECEIVER	1			1
7-11	32223604	VALVE, BALL - 3/4" M/F (SERVICE VALVE) - 80 GAL. RECEIVER	1			1
7-12	32304644	ASSY., TUBE - COMPRESSOR/80 GAL. RECEIVER	1			
7-12	32304628	ASSY., TUBE - COMPRESSOR/120 GAL. RECEIVER	1			
7-13	32209447	BELTGUARD, COMPLETE	1			
OPTIONAL EQUIPMENT						
7-14	32180200	VALVE, BALL - 1/4"	1			1
7-15	32005282	TRAP, AUTO DRAIN	1			
7-16	REF.	AFTERCOOLER, AIR COOLED (SEE FIG. 8)				

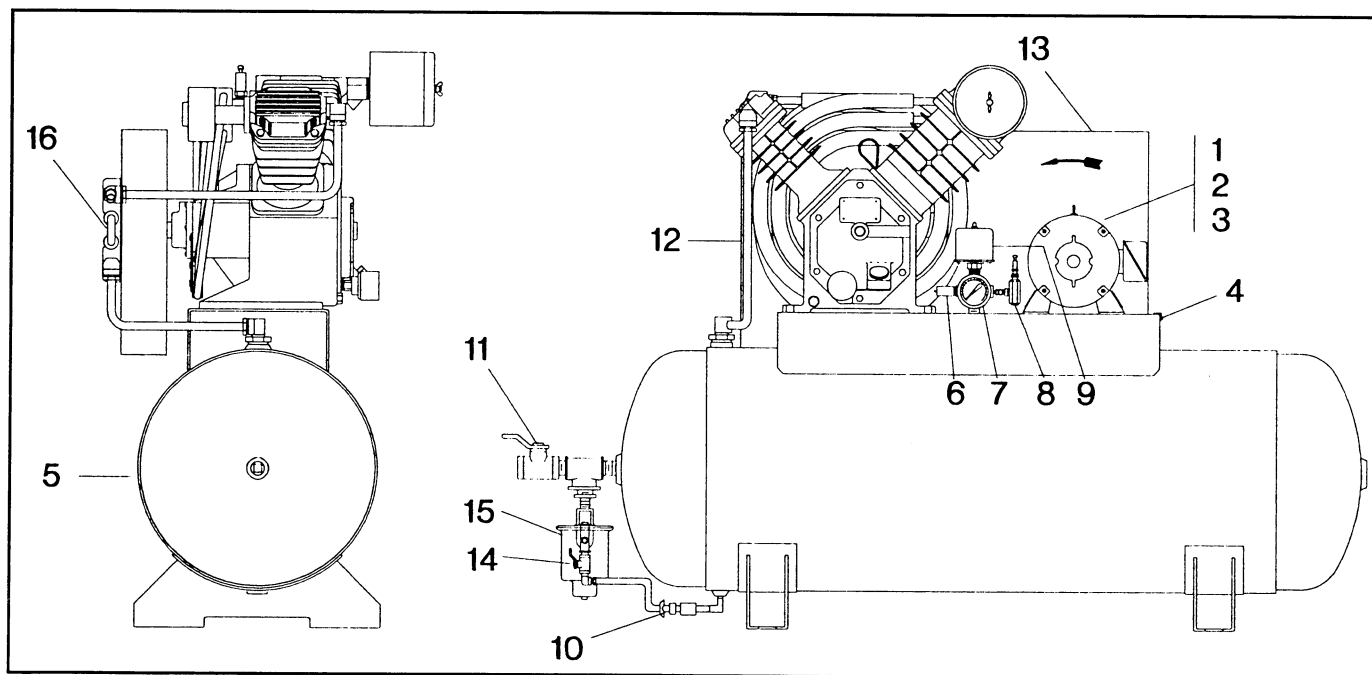


Figure 7. Typical Simplex Package & Options.

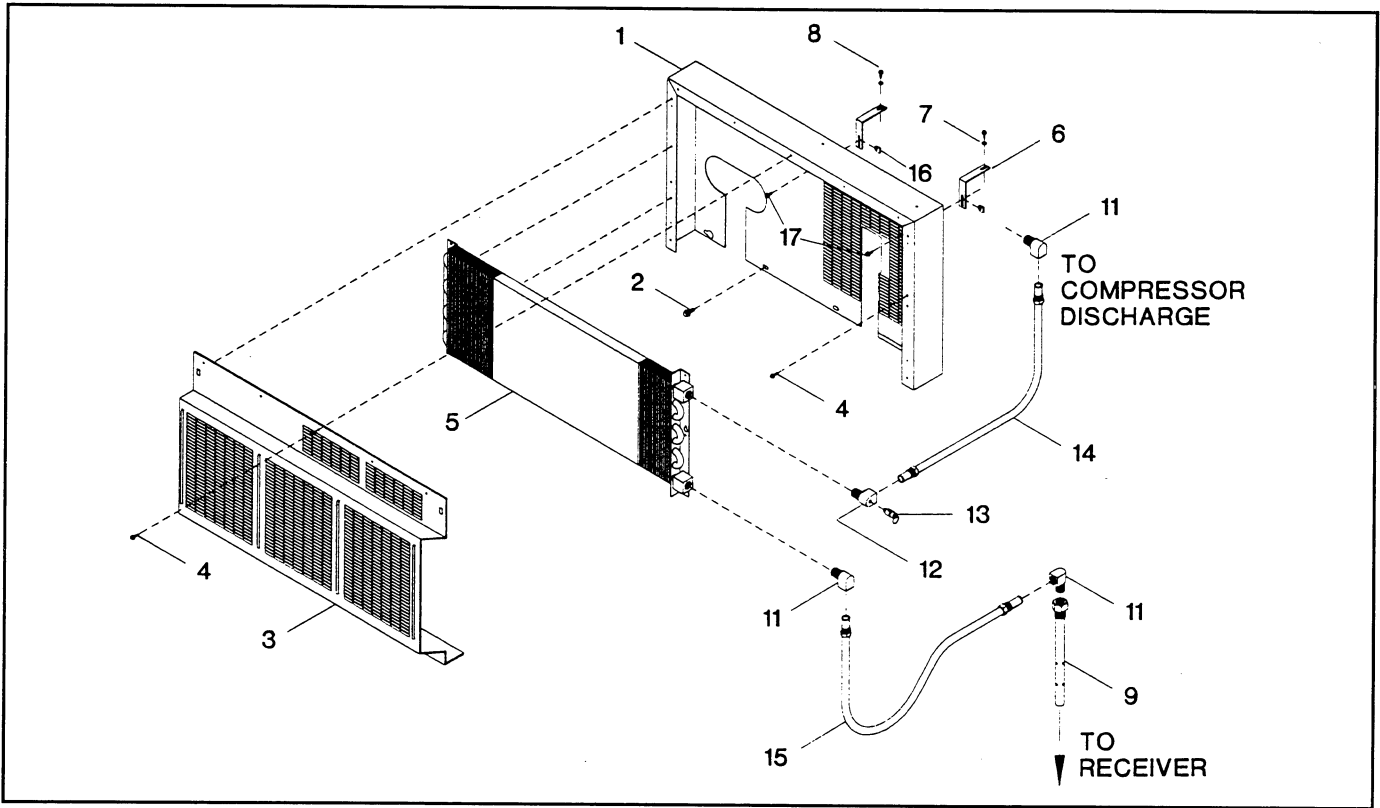


Figure 8. Air Cooled Aftercooler Option.

Ref. Nbr.	Part Number	Description	Quantities					
			Simplex				Duplex	
			Vert.		Horiz.		Horiz.	
			80*	120*	80*	120*	120*	240*
8-1	32184319	BACK, BELTGUARD	1	1	1	1	2	2
8-2	32000705	SCREW, TAPPING - 3/8-16x3/4"	4	4	4	4	8	8
8-3	32244808	COVER, BELTGUARD - ACAC	1	1	1	1	2	2
8-4	32187056	SCREW, SELF-DRILLING	17	17	17	17	34	34
8-5	32244428	COIL, AFTERCOOLER	1	1	1	1	2	2
8-6	32188518	BRACE, BELTGUARD	2	2	2	2	4	4
8-7	97007447	WASHER, FLAT - 1/4"	2	2	2	2	4	4
8-8	97173595	CAPSCREW - 1/4-20x1/2" - SELF-TAP	2	2	2	2	4	4
8-9	32306953	VALVE, CHECK	1	1	1	1	-	-
8-10	32186421	BUSHING, REDUCING - 1x3/4"	1	1	1	1	2	2
8-11	95031761	ELBOW, TUBE - 3/4"x3/4"	3	3	3	3	2	2
8-12	32145088	ELBOW, TUBE - 3/4"x3/4"	1	1	1	1	2	2
8-13	32174286	VALVE, RELIEF - 325 PSIG	1	1	1	1	2	2
8-14	32195117	ASSY., TUBE - COMP/ACAC	1	1	1	1	2	2
8-15	32304693	ASSY., TUBE - ACAC/RCVR	-	1	-	-	-	-
8-15	32304677	ASSY., TUBE - ACAC/RCVR	1	-	-	-	-	-
8-15	32304651	ASSY., TUBE - ACAC/RCVR	-	-	1	1	-	-
8-15	32304735	ASSY., TUBE - ACAC/RCVR	-	-	-	-	-	2
8-15	32304719	ASSY., TUBE - ACAC/RCVR	-	-	-	-	2	-
8-16	32241200	CLIP, U	2	2	2	2	4	4
8-17	32175564	CAPSCREW, 1/4-20x3/4"	2	2	2	2	4	4
NI	95083275	CONNECTOR, TUBE - 3/4x3/4"	-	-	-	-	2	2

* - NUMBER DENOTES RECEIVER SIZE IN GALLONS

NOTES

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NOTICE

THE USE OF REPAIR PARTS OTHER THAN THOSE INCLUDED WITHIN THE INGERSOLL-RAND COMPANY APPROVED PARTS LIST MAY CREATE UNSAFE CONDITIONS OR MECHANICAL FAILURES OVER WHICH INGERSOLL-RAND COMPANY HAS NO CONTROL. INGERSOLL-RAND COMPANY SHALL BEAR NO RESPONSIBILITY FOR EQUIPMENT ON WHICH NON-APPROVED REPAIRS PARTS ARE INSTALLED.

The manufacturer reserves the right to make changes or add improvements without notice and without incurring any obligation to make such changes or add such improvements to products previously sold.

GLOSSARY

Group Assembly Parts List

Parts are listed in disassembly sequence, where applicable. Each assembly is broken down into subassemblies and detail parts which are identified with "bullet" (•) symbols in the DESCRIPTION column to indicate the relationship to the next higher assembly:

Assemblies and Detail Parts

- Attaching Parts for Assemblies and Detail Parts
- • Subassemblies
- • • Detail Parts for Subassemblies, etc.

Reference Number Column

The reference number is the number assigned to the part in the listing. The reference number corresponds to the item on the associated illustration. Where applicable, the following abbreviations might appear in this column:

NI	Not Illustrated.
REF	Reference Only. Refer to the figure and page noted in the description column.

Part Number Column

All numbers listed in this column are INGERSOLL-RAND part numbers, and must be specified when ordering replacement parts. The following abbreviations appear in this column:

NA	Not Applicable. This abbreviation indicates items which are not used on particular models or packages.
NSS	Not Sold Separately. These items must be ordered under the next higher assembly, or, where applicable, as part of a Step Saver Kit.
*	Consumable Materials (lubricants, sealants, etc.). Purchase directly from your local INGERSOLL-RAND Air Center or Full Service Distributor.
**	Part Number Varies. Specify the compressor bare speed and complete nameplate data when ordering.

Description Column

The description column indicates the item by standard name followed by modifiers. The modifiers identify specific characteristics (i.e. dimensions, capacity, pressure setting, etc.), and/or the particular location or function on the compressor. Always include the description when ordering replacement parts or kits.

Quantity Per Assembly Column

Quantities listed in this column reflect the number used in the next higher assembly, and are not necessarily the total quantity of the part used in the complete package. Specify the desired quantity when ordering replacement parts.

Recommended Spares Column

Quantities listed in this column reflect the number of each item which we recommend be kept on hand for maintenance or repair.

CLASS 1	MINIMUM. Recommended quantity for Domestic Service where interruptions in service are not important.
CLASS 2	AVERAGE. Recommended quantity for Domestic Service where interruptions in continuity of service are not objectionable.
CLASS 3	MAXIMUM. Recommended quantity for International or Domestic Service where interruptions in service are not acceptable.

Step Saver Kits

Step Saver Kits are available for all compressor models. These kits are designed to provide all of the parts you will need to perform routine maintenance and repair tasks. A list of available Step Saver Kits is included in the Parts List manual which came with your compressor. When ordering Step Saver Kits, please follow the instructions set out below for ordering replacement parts.

ORDERING INSTRUCTIONS

All parts listed in the Part List manual for your compressor are available through your local INGERSOLL-RAND Air Center or Full Service Distributor. Consult the Directory of Distributors included with your compressor to locate the distributor in your area.

When ordering replacement parts or Step Saver Kits, please specify:

1. The MODEL and SERIAL NUMBER as stamped on the compressor nameplate.
2. The FORM NUMBER of the Parts List manual.
3. The QUANTITY, DESCRIPTION and PART NUMBER exactly as listed.

EXAMPLE

Send the following parts for model	7100
Serial Number	T30000000
Literature Form Number	SCD-478A
1 Switch, Pressure - NEMA 1	37005907
2 Element, Filter	32012957
1 Gauge, Pressure	32013872

NOTA

EL USO DE PARTES PARA REPARACION DIFERENTES A LAS INCLUIDAS EN LA LISTA DE PARTES APROBADA DE INGERSOLL-RAND PUEDE CREAR CONDICIONES INSEGURAS O FALLAS MECANICAS SOBRES LAS CUALES INGERSOLL-RAND NO TIENE CONTROL. POR LO TANTO INGERSOLL-RAND NO PUEDE SER RESPONSABLE POR EQUIPOS EN LOS QUE SE HAN USADO PARTES NO APROBADAS.

El fabricante se reserva el derecho a hacer cambios o adicionar mejoras sin notificación y sin incurrir en la obligación de hacer dichos cambios o adicionar tales mejoras a productos vendidos previamente.

GLOSARIO

Lista de Partes de Conjuntos de Ensamble

Las partes están listadas en secuencia de desarme en donde sea aplicable. La relación de un artículo con su más alto e inmediato ensamble está indicado por una indentación (•). Por ejemplo en la columna de DESCRIPCIÓN:

Ensamblajes y partes detalladas

- Partes para ensambles y partes detalladas
- • Subensambles
- • • Partes detalladas para sub-ensambles etc.

Columna de Items

El número de ítem es el asignado a la parte en el listado. Este número de ítem identifica la parte en la ilustración asociada. Las abreviaturas siguientes podrían aparecer en esta columna:

NI	No ilustra.
REF	Para la referencia. Refiera a la página e ilustración apropiada.

Columna de Numero de Parte

Todos los números son números de parte INGERSOLL-RAND los cuales deben ser especificados cuando se ordenen los repuestos. Las abreviaturas siguientes podrían aparecer en esta columna:

NA	Significan que la parte no es aplicable a determinados modelos.
NSS	Indican que la parte no se vende por separado para determinados modelos. Las letras
*	Los Materiales Consumibles (lubricantes, adhesivos, etc.). Compradirectamente desde un INGERSOLL-RAND Distribuidor de Servicio o Air Center.
**	El Número de Parte Varía. Especifique los datos completos de compresor cuandoordenación.

Columna de Descripción

Esta columna de descripción contiene el nombre del artículo estándar con modificadores. La relación de un artículo con su próximo ensamble más alto se muestra en esta columna por una indentación. Siempre incluir la descripción cuando ordenadora conjuntos o partes dereemplazo.

Columna de Cantidad Por Ensamble

Las cantidades especificadas en esta columna son el número de partes usadas por cada ensamble superior y no necesariamente son el número total de partes del modelo en general. Especifique la cantidad deseada cuando partes ordenadoras de reemplazo.

Como Seleccionar Repuestos Recomendados

Este catálogo contiene una lista de partes que está incluidas en cada una de las siguientes clases de repuestos recomendados:

CLASE 1	MINIMA. Sugerida para uso doméstico donde interrupciones en la continuidad del servicio no son importantes.
CLASE 2	PROMEDIO. Sugerida para servicio doméstico donde algunas interrupciones en la continuidad del servicio no son objetables.
CLASE 3	MAXIMA. Sugerida para exportación o para servicio doméstico donde la interrupción en el servicio es objetable.

Conjuntos de Partes

Los conjuntos de Partes son disponibles para todos los compresores. Estos conjuntos se diseñan para proveer todas las partes usted necesitará desempeñar el mantenimiento de rutina y repara tareas. Una lista de Conjuntos disponibles se incluye en el lista de partes que vino con su compresor. Cuando se ordenen repuestos recomendados o kits prácticos, siga el procedimiento descrito para partes del compresor.

INSTRUCCIONES DE ORDEN DE COMPRA

Todas las partes enumeraron en el Lista de Partes para su compresor son disponibles mediante su Air Center o Distribuidor de Servicio de INGERSOLL-RAND. Consulte el Directorio de Distribuidores incluyócon su compresor para ubicar el distribuidor en su área.

Cuando se ordenen repuestos, por favor especifique:

1. El MODELO y NUMERO DE SERIE como está impreso en la placa del compresor
2. El NUMERO DE FORMATO de la lista de partes.
3. La CANTIDAD, DESCRIPCION y NUMERO DE PARTE exactamente como fue listado.

EJEMPLO

Envíe las siguientes partes para un modelo	7100
Número de Serie	T30000000
Número de formato de la literatura	SCD-478A
1 Interruptor, Presión	37005907
2 Elemento, Filtro	32012957
1 Manómetro	32013872

Look What INGERSOLL-RAND
Can Do For YOU. . .

Vea Lo Que INGERSOLL-RAND
Puede Hacer Por USTED. . .

EFFICIENT FIELD SERVICE

We maintain a highly trained staff of technicians to service your equipment for preventive maintenance, or to assist you should emergencies ever occur.



EFICIENTE SERVICIO EN EL CAMPO

Mantenemos un grupo de mecánicos entrenados para suministrarle mantenimiento preventivo o atender cualquier emergencia que puede tener.

COMPLETE REPAIR SERVICE

Our trained technicians will repair or overhaul your equipment to factory specifications, using only genuine I-R parts.



COMPLETO SERVICIO DE REPARACION

Mecánicos entrenados repararán su compresor según los métodos recomendados por fábrica usando solamente partes genuinas Ingersoll-Rand.

SPECIAL ENGINEERING SERVICE

We can help you identify and solve your compressed air problems by evaluating your needs and recommending the proper compressor and air piping system to give you maximum efficiency.



SERVICIO DE INGENIERIA ESPECIAL

Nosotros podemos ayudarlo con sus problemas de aire comprimido investigando sus necesidades y recomendando el compresor y el sistema de aire adecuados para lograr máxima eficiencia.

SPARE PARTS

By stocking genuine I-R spare parts, we can help you avoid costly delays, or substituting inferior parts. Using genuine I-R parts on your I-R equipment will help to keep even older machines running in good-as-new condition.

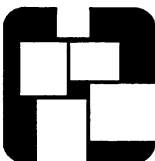


PARTES DE REPUESTO

Mantenemos partes genuinas Ingersoll-Rand, evitando posibles sobrecostos debido a demoras en la sustitución de partes menores. Como resultado, los equipos antiguos son mantenidos como nuevos.

COMPLETE STOCK OF EQUIPMENT

We carry a complete line of I-R equipment and accessories designed to met any compressed air application. We are backed by Ingersoll-Rand's prompt factory shipment to ensure you on-time delivery.



STOCK COMPLETO DE EQUIPOS

Nuestro stock de máquinas completas que pueden encargarse usualmente de cualquier necesidad, está soportado por un eficiente sistema de despachos de fábrica de Ingersoll-Rand para asegurarle entrega a tiempo.

A SUBSTITUTE IS NOT A REPLACEMENT

Ensure you get peak performance and longevity out of your Ingersoll-Rand compressor by insisting on genuine Ingersoll-Rand replacement parts and maintenance kits. Not only are the replacement parts made to precise dimensions and OEM-specified metallurgy, but each part is backed by the Ingersoll-Rand warranty. Your local Air Center, Full-Service distributor or direct Ingersoll-Rand salesperson will work with you to ensure you get the parts you need to do the job right. Equip your machines with only the best - Ingersoll-Rand Genuine Parts.

**DISTRIBUTED BY:
DISTRIBUIDO POR:**



UN SUSTITUTO NO ES UN REEMPLAZO

Asegúrese que obtiene máximo desempeño y duración de su compresor insistiendo en usar solamente partes de reemplazo genuinas y kits de mantenimiento Ingersoll-Rand. No solamente están construidas con dimensiones precisas y especificaciones exactas de metalurgia, sino que cada parte está respaldada por la garantía Ingersoll-Rand. Su Air Center, su Distribuidor de Servicio o el personal de ventas directo de Ingersoll-Rand trabajarán con Usted para asegurarle que recibe las partes para efectuar el trabajo correcto. Equipe sus máquinas sólo con lo mejor - Partes Genuinas Ingersoll-Rand.

**Ingersoll-Rand Company
Reciprocating Compressor Division
Small Compressor Business Unit
Campbellsville, KY 42718**