

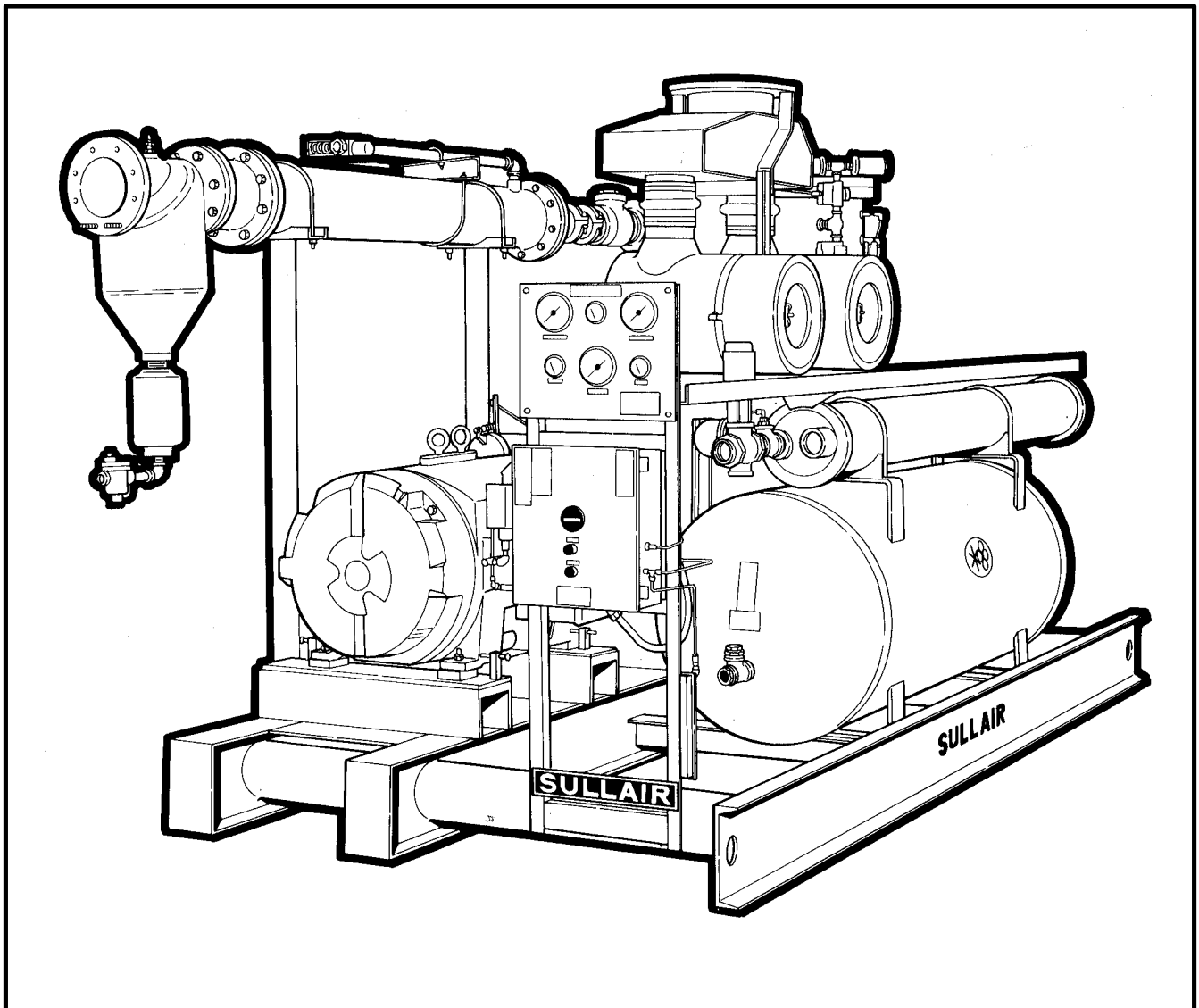


# Operator's Manual

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# SULLAIR<sup>®</sup> COMPRESSOR

Series 32 400HP Thru 450HP  
Industrial Rotary Screw Air Compressor



# STATEMENT OF WARRANTY

Sullair Corporation ("Sullair") warrants that, under normal use and service, if properly stored, handled, installed, operated, and maintained, its portable and stationary air compressors ("Compressors") shall, for a period of twelve (12) months ("Warranty Period") (1) beginning at machine start-up if the registration card is returned within ten (10) days after start-up and the start-up occurs within twelve (12) months after shipment by Sullair from the factory, or (2) if not, beginning thirty (30) days after shipment by Sullair from the factory, be free of defects in materials and workmanship, under normal use and service; and that its rotary screw air-end ("Air end") utilized in Compressors, shall, for a period of twenty-four (24) months ("Warranty Period"), (1) beginning at machine start-up if the registration card is returned within ten (10) days after start-up and the start-up occurs within twelve (12) months after shipment by Sullair from the factory, or (2) if not, beginning thirty (30) days after shipment by Sullair from the factory, be free of defects in materials and workmanship, under normal use and service. Should any such defect become apparent within such time, and written notice of each and every such defect is promptly provided to Sullair, and Sullair reasonably determines that any such product is defective in material or workmanship, Sullair will, at its option, replace or repair such product. Sullair's obligation with respect to such product shall be limited to repair or replacement, F.O.B. Sullair's place of business, without any further expense to Sullair, and except as expressly provided herein, Sullair shall not in any event be liable for any other labor, transportation, installation, adjustment or other expenses which may arise in connection with such product. Any misuse or abuse of the product(s) voids this limited warranty.

The Sullair warranty does not extend to products not assembled by Sullair. As to such products by others, Purchaser shall be entitled to proceed only upon the terms of that particular manufacturer's warranty. Warranty does not apply to defects in materials provided by Purchaser or design stipulated by Purchaser.

Used products, and products not assembled by Sullair, are sold AS IS with no representation or warranty, and ALL WARRANTIES OF QUALITY, WRITTEN, ORAL OR IMPLIED, other than may be expressly agreed to by Sullair in writing, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE HEREBY DISCLAIMED.

IN NO EVENT SHALL SULLAIR BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES however arising whether in warranty, strict liability, contract, tort, negligence or otherwise, including but not limited to loss of profits or revenue, loss of total or partial use of the Products, facilities or services, downtime costs, or claims of Purchaser for such or other damages whether on account of Products furnished hereunder or delays in delivery thereof of services performed upon or with respect to such Products. Sullair's liability on any claim whether in warranty, strict liability, contract, tort, negligence or otherwise for any loss or damage arising out of, connected with, or resulting from this contract or the performance or breach thereof, or from the design, manufacture, sale, delivery, resale, repair, replacement, installation, technical direction of installation, inspection, servicing, operation or use of any Product covered by or furnished under this contract shall in no case exceed the purchase price allowable to the Product or part thereof which give rise to the claim. Notice of claims against Sullair hereunder for any reason, including breach of warranty, must be made to Sullair in writing within forty-eight (48) hours of discovery to afford Sullair an opportunity to make a prompt investigation of surrounding facts and mitigate any damage which might ensue, should it be determined to be Sullair's responsibility. Failure to give such notice to Sullair shall constitute a waiver by Purchaser of any right later to assert such a claim. Any cause of action against Sullair arising out of or relating to the contract or the performance hereof shall expire unless brought within one year of the time of accrual thereof.

THE FOREGOING LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

**SULLAIR CORPORATION**  
A Subsidiary of Sundstrand Corporation  
Michigan City, Indiana 46360

**NOTE: Additional Warranty Information for 24KT Units, See Inside Back Cover**

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### 1.1 GENERAL

Sullair® Corporation and its subsidiaries design and manufacture all of its products so they can be operated safely. However, the responsibility for safe operation rests with those who use and maintain these products. The following safety precautions are offered as a guide which, if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment.

The compressor should be operated only by those who have been trained and delegated to do so, and who have read and understood this Operator's Manual. Failure to follow the instructions, procedures and safety precautions in this manual can result in accidents and injuries.

**NEVER** start the compressor unless it is safe to do so. **DO NOT** attempt to operate the compressor with a known unsafe condition. Tag the compressor and render it inoperative by disconnecting and locking out all power at source or otherwise disabling its prime mover so others who may not know of the unsafe condition cannot attempt to operate it until the condition is corrected.

Install, use and operate the compressor only in full compliance with all pertinent OSHA regulations and all applicable Federal, State, and Local codes, standards and regulations.

**DO NOT** modify the compressor and/or controls in any way except with written factory approval.

While not specifically applicable to all types of compressors with all types of prime movers, most of the precautionary statements contained herein are applicable to most compressors and the concepts behind these statements are generally applicable to all compressors.

### 1.2 PERSONAL PROTECTIVE EQUIPMENT

Prior to installing or operating the compressor, owners, employers, and users should become familiar with, and comply with, all applicable OSHA regulations and any applicable Federal, State and Local codes, standards, and regulations relative to personal protective equipment, such as eye and face protective equipment, respiratory protective equipment, equipment intended to protect the extremities, protective clothing, protective shields and barriers and electrical protective equipment, as well as noise exposure administrative and/or engineering controls and/or personal hearing protective equipment.

### 1.3 PRESSURE RELEASE

**A.** Install an appropriate flow limiting valve between the service air outlet and the shut-off (throttle) valve, either at the compressor or at any other point along the air line, when an air hose exceeding ½" inside diameter is to be connected to the shut-off (throttle) valve, to reduce pressure in case of hose

failure, per OSHA Standard 29 CFR 1926.302(b)(7).

**B.** When the hose is to be used to supply a manifold, install an additional appropriate flow limiting valve between the manifold and each air hose exceeding ½" inside diameter that is to be connected to the manifold to reduce pressure in case of hose failure.

**C.** Provide an appropriate flow limiting valve at the beginning of each additional 75 feet of hose in runs of air hose exceeding ½" inside diameter to reduce pressure in case of hose failure.

**D.** Flow limiting valves are listed by pipe size and rated CFM. Select appropriate valves accordingly, in accordance with their manufacturer's recommendations.

**E. DO NOT** use air tools that are rated below the maximum rating of the compressor. Select air tools, air hoses, pipes, valves, filters, and other fittings accordingly. **DO NOT** exceed manufacturer's rated safe operating pressures for these items.

**F.** Secure all hose connections by wire, chain or other suitable retaining devices to prevent tools or hose ends from being accidentally disconnected and expelled.

**G.** Open fluid filter cap only when compressor is **not running and is not pressurized**. Shut down the compressor and bleed the sump (receiver) to zero internal pressure before removing the cap.

**H.** Vent all internal pressure prior to opening any line, fitting, hose, valve, drain plug, connection or other component, such as filters and line oilers, and before attempting to refill optional air line anti-icer systems with antifreeze compound.

**I.** Keep personnel out of line with and away from the discharge opening of hoses or tools or other points of compressed air discharge.

**J.** Use air at pressures less than 30 PSIG (207kPa) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b).

**K. DO NOT** engage in horseplay with air hoses as death or serious injury may result.

### 1.4 FIRE AND EXPLOSION

**A.** Clean up spills of lubricant or other combustible substances immediately, when such spills occur.

**B.** Shut off the compressor and allow it to cool. Then keep sparks, flames and other sources of ignition away and **DO NOT** permit smoking in the vicinity when checking or adding lubricant or when refilling air line anti-icer systems with antifreeze compound.

**C. DO NOT** permit fluids, including air line anti-icer system antifreeze compound or fluid film to accu-

# Section 1

## SAFETY

mulate on, under, or around acoustical material, or on any external surfaces of the air compressor or on internal surfaces of the enclosure. Wipe down using an aqueous industrial cleaner or steam clean as required. If necessary, remove acoustical material, clean all surfaces and then replace acoustical material. Any acoustical material with a protective covering that has been torn or punctured should be replaced immediately to prevent accumulation of liquids or fluid film within the material. **DO NOT** use flammable solvents for cleaning purposes.

**D.** Disconnect and lock out all power at source prior to attempting any repairs or cleaning of the compressor or of the inside of the enclosure, if any.

**E.** Keep electrical wiring, including all terminals and pressure connectors in good condition. Replace any wiring that has cracked, cut abraded or otherwise degraded insulation, or terminals that are worn, discolored or corroded. Keep all terminals and pressure connectors clean and tight.

**F.** Keep grounded and/or conductive objects such as tools away from exposed live electrical parts such as terminals to avoid arcing which might serve as a source of ignition.

**G.** Remove any acoustical material or other material that may be damaged by heat or that may support combustion and is in close proximity, prior to attempting weld repairs.

**H.** Keep suitable fully charged Class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the compressor.

**I.** Keep oily rags, trash, leaves, litter or other combustibles out of and away from the compressor.

**J. DO NOT** operate the compressor without proper flow of cooling air or water or with inadequate flow of lubricant or with degraded lubricant.

**K. DO NOT** attempt to operate the compressor in any classification of hazardous environment unless the compressor has been specially designed and manufactured for that duty.

### 1.5 MOVING PARTS

**A.** Keep hands, arms and other parts of the body and also clothing away from couplings, fans and other moving parts.

**B. DO NOT** attempt to operate the compressor with the fan, coupling or other guards removed.

**C.** Wear snug fitting clothing and confine long hair when working around this compressor, especially when exposed to hot or moving parts.

**D.** Keep access doors, if any, closed except when making repairs or adjustments.

**E.** Make sure all personnel are out of and/or clear of the compressor prior to attempting to start or operate it.

**F.** Disconnect and lock out all power at source and verify at the compressor that all circuits are de-energized to minimize the possibility of accidental start-up or operation prior to attempting repairs or adjustments. This is especially important when compressors are remotely controlled.

**G.** Keep hands, feet, floors, controls and walking surfaces clean and free of fluid, water or other liquids to minimize the possibility of slips and falls.

### 1.6 HOT SURFACES, SHARP EDGES AND SHARP CORNERS

**A.** Avoid bodily contact with hot fluid, hot coolant, hot surfaces and sharp edges and corners.

**B.** Keep all parts of the body away from all points of air discharge.

**C.** Wear personal protective equipment including gloves and head covering when working in, on or around the compressor.

**D.** Keep a first aid kit handy. Seek medical assistance promptly in case of injury. **DO NOT** ignore small cuts and burns as they may lead to infection.

### 1.7 TOXIC AND IRRITATING SUBSTANCES

**A. DO NOT** use air from this compressor for respiration (breathing) except in full compliance with OSHA Standards 29 CFR 1910 and any other Federal, State or Local Codes or regulations.



Death or serious injury can result from inhaling compressed air without using proper safety equipment. See OSHA standards on safety equipment.

**B. DO NOT** use air line anti-icer systems in air lines supplying respirators or other breathing air utilization equipment and **DO NOT** discharge air from these systems in unventilated or other confined areas.

**C.** Operate the compressor only in open or adequately ventilated areas.

**D.** Locate the compressor or provide a remote inlet so that it is not likely to ingest exhaust fumes or other toxic, noxious or corrosive fumes or substances.

**E.** Coolants and lubricants used in this compressor are typical of the industry. Care should be taken to avoid accidental ingestion and/or skin contact. In the event of ingestion, seek medical treatment promptly. Wash with soap and water in the event of skin contact.

**F.** Wear goggles or a full face shield when adding antifreeze compound to air line anti-icer systems.

**G.** If air line anti-icer system antifreeze compound enters the eyes or if fumes irritate the eyes, they should be washed with large quantities of clean water for 15 minutes. A physician, preferably an eye specialist, should be contacted immediately.

**H. DO NOT** store air line anti-icer system antifreeze compound in confined areas.

**I.** The antifreeze compound used in air line antifreeze systems contains methanol and is toxic, harmful, or fatal if swallowed. Avoid contact with the skin or eyes and avoid breathing the fumes. If swallowed, induce vomiting by administering a tablespoon of salt, in each glass of clean, warm water until vomit is clear, then administer two teaspoons of baking soda in a glass of clean water. Have patient lay down and cover eyes to exclude light. Call a physician immediately.

### 1.8 ELECTRICAL SHOCK

**A.** This compressor should be installed and maintained in full compliance with all applicable Federal, State and Local codes, standards and regulations, including those of the National Electrical Code, and also including those relative to equipment grounding conductors, and only by personnel that are trained, qualified and delegated to do so.

**B.** Keep all parts of the body and any hand-held tools or other conductive objects away from exposed live parts of electrical system. Maintain dry footing, stand on insulating surfaces and **DO NOT** contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system. Make all such adjustments or repairs with one hand only, so as to minimize the possibility of creating a current path through the heart.

**C.** Attempt repairs in clean, dry and well lighted and ventilated areas only.

**D. DO NOT** leave the compressor unattended with open electrical enclosures. If necessary to do so, then disconnect, lock out and tag all power at source so others will not inadvertently restore power.

**E.** Disconnect, lock out, and tag all power at source prior to attempting repairs or adjustments to rotating machinery and prior to handling any ungrounded conductors.

### 1.9 LIFTING

**A.** If the compressor is provided with a lifting bail, then lift by the bail provided. If no bail is provided, then lift by sling. Compressors to be air lifted by helicopter must not be supported by the lifting bail but by slings instead. In any event, lift and/or handle only in full compliance with OSHA standards 29 CFR 1910 subpart N.

**B.** Inspect points of attachment for cracked welds and for cracked, bent, corroded or otherwise de-

graded members and for loose bolts or nuts prior to lifting.

**C.** Make sure entire lifting, rigging and supporting structure has been inspected, is in good conditions and has a rated capacity of at least the weight of the compressor. If you are unsure of the weight, then weigh compressor before lifting.

**D.** Make sure lifting hook has a functional safety latch or equivalent, and is fully engaged and latched on the bail or slings.

**E.** Use guide ropes or equivalent to prevent twisting or swinging of the compressor once it has been lifted clear of the ground.

**F. DO NOT** attempt to lift in high winds.

**G.** Keep all personnel out from under and away from the compressor whenever it is suspended.

**H.** Lift compressor no higher than necessary.

**I.** Keep lift operator in constant attendance whenever compressor is suspended.

**J.** Set compressor down only on level surfaces capable of safely supporting at least its weight and its loading unit.

**K.** When moving compressors by forklift truck, utilize fork pockets if provided. Otherwise, utilize pallet if provided. If neither fork pockets or pallet are provided, then make sure compressor is secure and well balanced on forks before attempting to raise or transport it any significant distance.

**L.** Make sure forklift truck forks are full engaged and tipped back prior to lifting or transporting the compressor.

**M.** Forklift no higher than necessary to clear obstacles at floor level and transport and corner at minimum practical speeds.

**N.** Make sure pallet mounted compressors are firmly bolted or otherwise secured to the pallet prior to attempting to forklift or transport them. **NEVER** attempt to forklift a compressor that is not secured to its pallet, as uneven floors or sudden stops may cause the compressor to tumble off, possibly causing serious injury or property damage in the process.

### 1.10 ENTRAPMENT

**A.** If the compressor enclosure is large enough to hold a man, and if it is necessary to enter it to perform service adjustments, inform other personnel before doing so, or else secure and tag the access door in the open position to avoid the possibility of others closing and possibly latching the door with personnel inside.

**B.** Make sure all personnel are out of compressor before closing and latching enclosure doors.

## Section 2

# DESCRIPTION

### 2.1 INTRODUCTION

Your new Sullair® lubricated rotary screw air compressor provides you with a unique experience in improved reliability and greatly reduced maintenance.

Compared to other types of compressors, the Sullair rotary screw is unique in its mechanical reliability and lack of “wear”. The compressor requires absolutely no inspection of its internal parts.

By reading through Section 6, you will notice the easy process of caring and maintaining this Sullair manufactured product. Should any questions arise which cannot be answered in this text, call your nearest Sullair representative or the Sullair Corporation Service Department.

### 2.2 DESCRIPTION OF COMPONENTS

Refer to Figure 2-1. The components and assemblies of the air compressors are clearly shown. The complete package includes **compressor, electric**

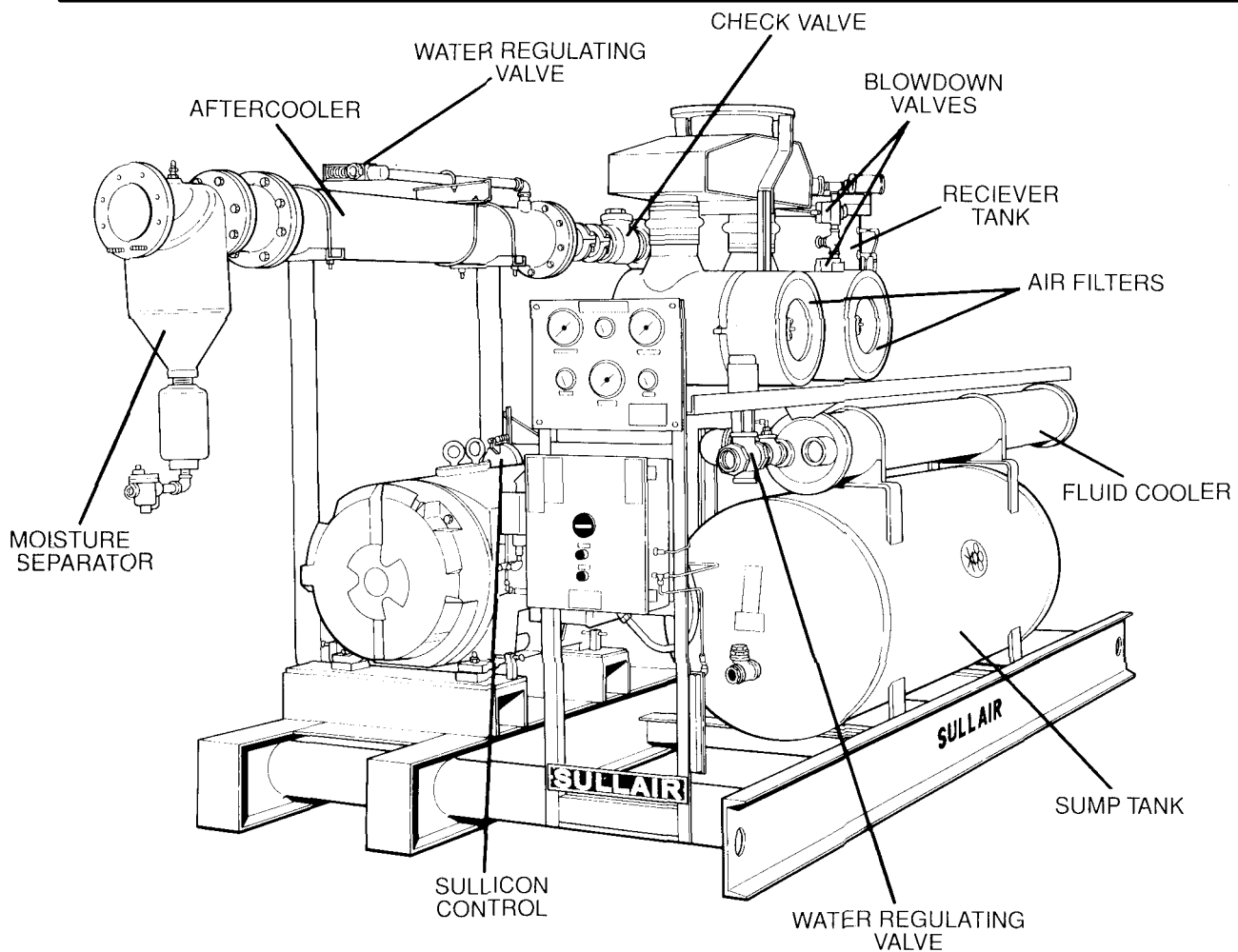
**motor, compressor inlet system, compressor discharge system, compressor cooling and lubrication system, capacity control system and instrument panel** all mounted on a structural steel frame.

On air-cooled models, the cooling package is remote mounted and shipped as a separate unit. The separate motor-driven fan cooling package forces air through the assembly, thereby removing the heat of compression from the cooling fluid.

On water-cooled models, fluid is piped into a water-cooled heat exchanger where the heat of compression is removed from the fluid. Fans are used to supply sufficient ventilating air to compressors equipped with a canopy.

Both air-cooled and water-cooled versions have easily accessible items such as the fluid filters and control valves. The inlet air filters are also mounted for easy access and servicing.

Figure 2-1 Sullair Series 32 Rotary Screw Air Compressor





## Section 2

# DESCRIPTION

### 2.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

Sullair air compressors feature the Sullair compressor unit, a single-stage, positive displacement fluid lubricated-type compressor. This unit provides continuous air compression to meet your needs.

Fluid is injected into the compressor unit in large quantities where it mixes directly with the air as the internal rotors turn, compressing the air. The fluid flow has three basic functions:

1. As coolant, it controls the rise of air temperature normally associated with the heat of compression.
2. Seals the leakage paths between the rotors and the stator and also between the rotors themselves.
3. Acts as a lubricating film between the rotors allowing one rotor to directly drive the other, which is an idler.

After the air/fluid mixture is discharged from the compressor unit, the fluid is separated from the air. At this time, the air flows to the service line and the fluid is cooled in preparation for re-injection.

#### NOTE

With a Sullair compressor, there is no maintenance or inspection of the internal parts of the compressor unit permitted in accordance with the terms of the warranty.

### 2.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-2 and 2-3. The cooling and lubrication system consists of a **fluid cooler, after-cooler, bearing fluid filter, full flow fluid strainer, fluid stop valve, thermal valve and a water regulating valve** (for water-cooled models only). For water-cooled models, a fluid cooler and aftercooler are mounted on the compressor package. For air-cooled models, they are mounted on separate cooling packages.

The pressure in the receiver/sump causes fluid flow by forcing the fluid from the high pressure area of the sump to an area of lower pressure in the compressor unit.

Fluid flows from the bottom of the receiver/sump to the thermal valve. The thermal valve is fully open to the compressor unit when the fluid temperature is below 170°F (77°C). The fluid passes through the thermal valve, the main fluid filter and directly to the compressor unit.

As the discharge temperature rises above 170°F (77°C), due to the heat of compression, the thermal valve begins to close and a portion of the fluid then flows through the cooler. From the cooler, the fluid flows to the main strainer, and on to the compressor

unit. The strainer has an integral pressure bypass valve.

A portion of the fluid flowing to the compressor is routed to the anti-friction bearings which support the rotors inside the compressor unit. Prior to entering the compressor unit, this fluid is taken through an extra fine bearing filter, thus assuring properly filtered lubricant for bearing supply.

The bearing filter has a replacement element and an integral pressure bypass valve. An associated maintenance gauge indicates when the filter needs servicing. This gauge has a red zone setting lower than that of the bypass valve. After the initial 50 hour filter change, the gauge will rarely read in the red under normal operating conditions.

The fluid stop valve prevents fluid from filling the compressor unit when the compressor is shut down. When the compressor is operating, the fluid stop valve is held open by air pressure from the compressor unit allowing a free flow of fluid from the receiver/sump back to the compressor unit. On shutdown, the compressor unit pressure is reduced, causing the fluid stop valve to close and isolate the compressor unit from the cooling system.

Water-cooled versions of the compressor have a water-flow regulating valve which operates to conserve water during periods of varying load on the compressor. This same valve automatically shuts off the water supply when the compressor is shut down. In addition, water-cooled models have a water pressure switch to prevent operation with inadequate water pressure.

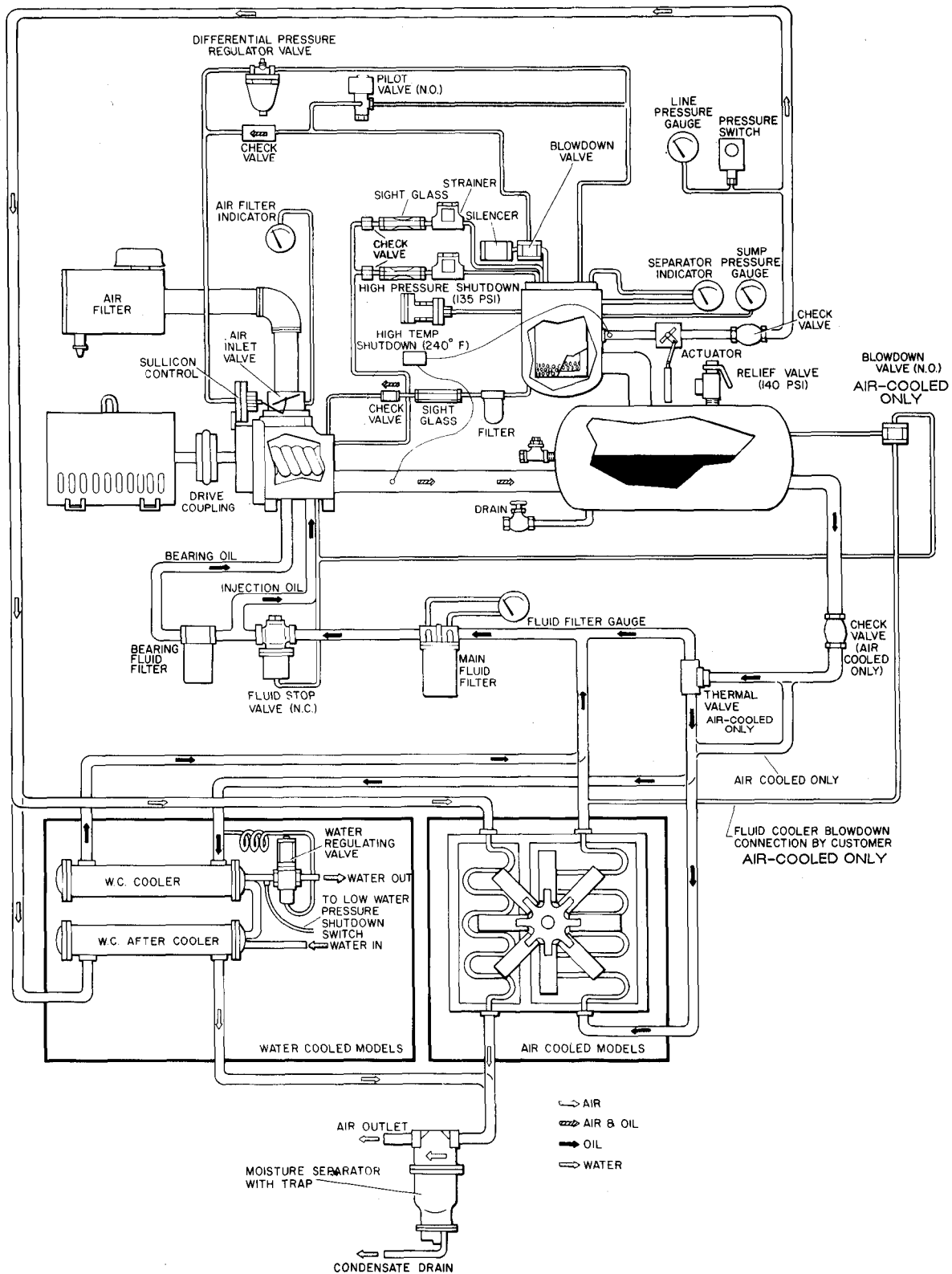
### 2.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-4. The compressor unit discharges the compressed air/fluid mixture through a discharge check valve into the sump. The air/fluid mixture enters the sump and is directed against the tank. Its direction of movement is changed and its velocity significantly reduced, thus causing the large droplets of fluid to fall to the bottom of the tank. The compressed air with the remaining fluid enters the receiver. As the compressed air passes through nested separators (primary and secondary), the remaining fluid is removed from the air. The fluid removed in the receiver flows to the bottom of each separator which is in turn returned back to the compressor through two scavenger lines. Some fluid will drop to the bottom of the receiver prior to the air entering the separator elements. This fluid is also returned to the compressor via another scavenger tube. Sight glasses are provided in the scavenger lines to observe this fluid flow. There are also orifices on these lines (protected by strainers to assure proper flow). A separator differential pressure gauge, located on the instrument panel, is provided to facilitate maintenance of the separators. All tanks, sump and receiver are ASME pressure vessels.

A minimum pressure valve is provided to assure minimum sump pressure of 50 PSIG (345kPa). This

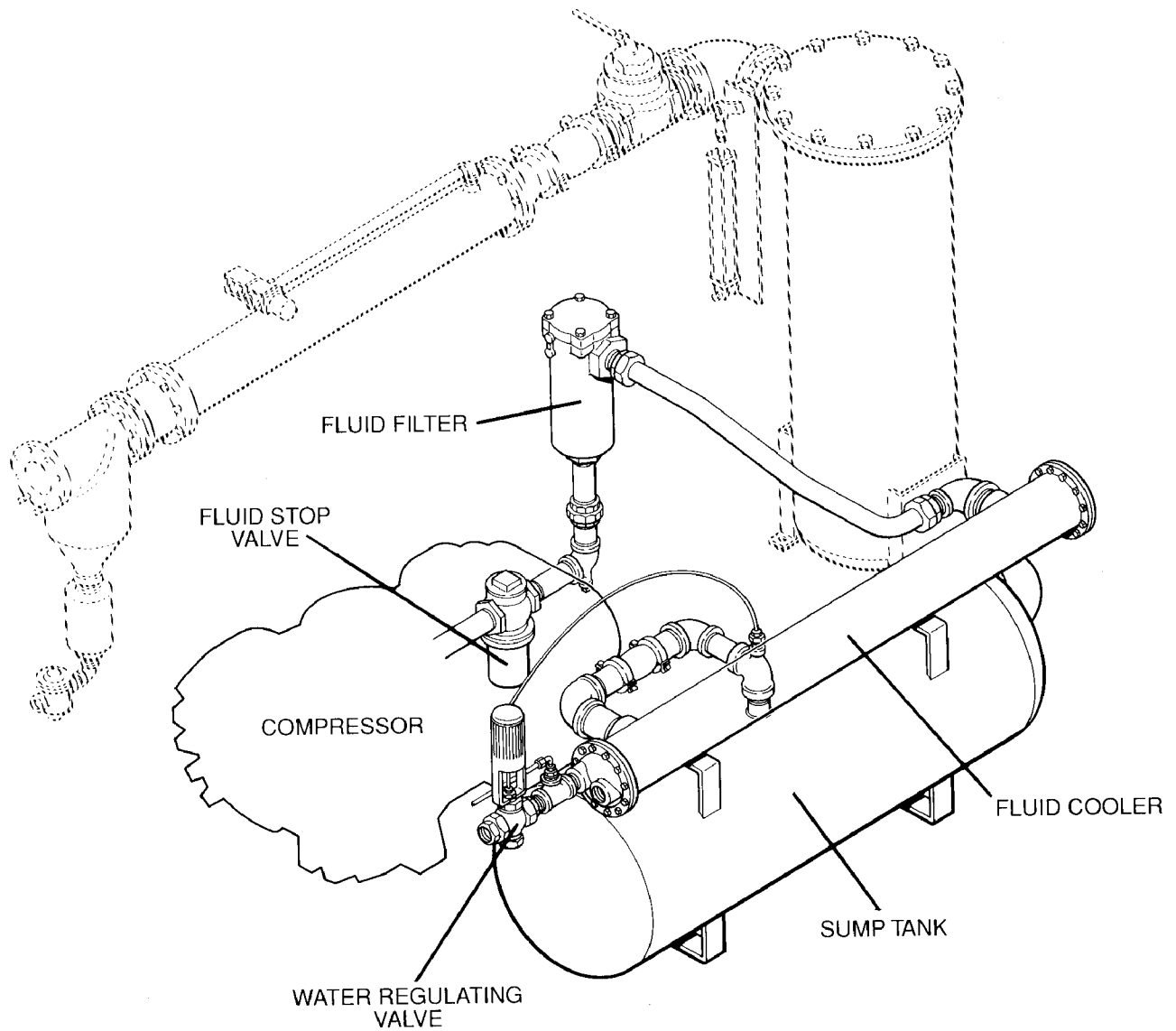
# Section 2 DESCRIPTION

Figure 2-2 Compressor Piping and Instrument Diagram



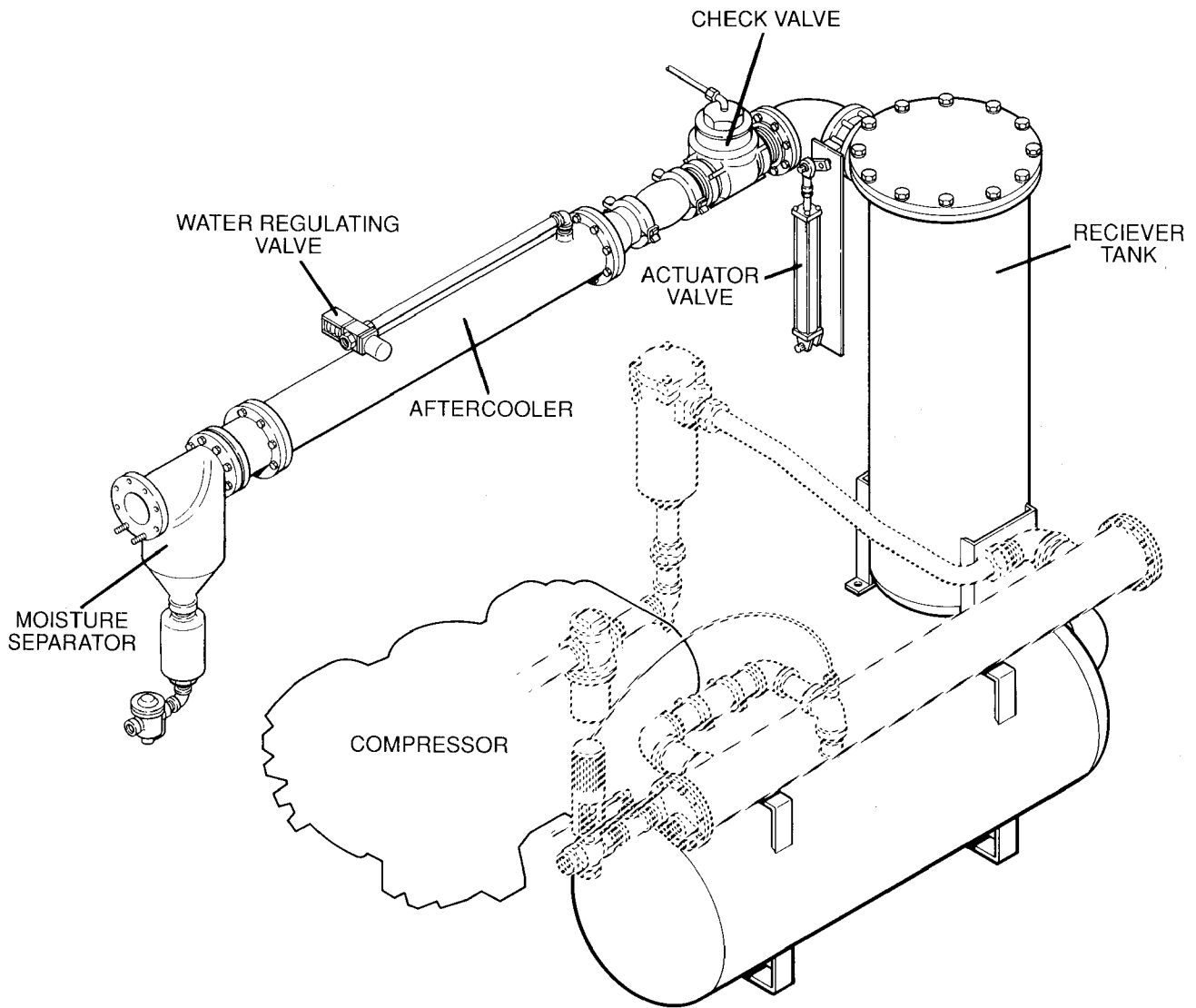
## Section 2 DESCRIPTION

Figure 2-3 Compressor Cooling and Lubrication System



## Section 2 DESCRIPTION

Figure 2-4 Compressor Discharge System



## Section 2

# DESCRIPTION

pressure is necessary for proper air/fluid separation and to assure proper fluid circulation while supplying air to the system. Also, a check valve is provided to prevent compressed air in the service line from bleeding back into the receiver during shutdown, as well as in the unload operation mode.

An ASME pressure relief valve, located on the wet side of the sump, is set to open at 140 PSIG (965kPa). The compressor is also equipped with a high pressure shutdown switch to shut down the compressor at 135 PSIG (931kPa). This prevents the relief valve from opening and dumping fluid under normal conditions. Also, a thermistor type high discharge temperature switch is provided to shut down the compressor if the discharge temperature reaches 240° (116°C).

### **⚠ WARNING**

**DO NOT remove caps, plugs, or other components when compressor is running or pressurized.**

**Stop compressor and relieve all internal pressure before doing so.**

Fluid is added to the sump via a capped fluid filler opening, placed low on the sump tank to prevent overfilling of the sump. A sight glass enables the operator to visually monitor the sump fluid level.

## 2.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-5. The purpose of the compressor control system is to regulate the amount of air being compressed to match the amount of compressed air being used. At a 0 to 100 percent air output, the control system will automatically blowdown the compressor and greatly reduce the unload power consumption. The control system consists of a Sullicon Control, a butterfly valve located on the compressor air inlet, a pressure regulator, pressure switch, pilot valve and blowdown valve. The functional description of the control system is described below in four distinct phases of compressor operation. The following descriptive text applies to all Series 32 compressors. For explanation purposes, this description will apply to a compressor with an operating pressure range of 100 to 110 PSI (689 to 758kPa). A compressor with any other pressure range would operate in the same manner excepting stated pressures.

### **START MODE – 0 TO 50 PSIG (0 TO 345kPa)**

When the compressor **START** button is depressed, the pressure will quickly rise from 0 to 50 PSIG (0 to 345kPa). During this period, both the pressure regulator and the pilot valve are closed and the Sullicon Control is inoperative. The spring on the control holds the butterfly valve fully open and the compressor pumps at full rated capacity. The rising air pres-

sure is isolated from the service line in this phase by the minimum pressure valve, set at approximately 50 PSI (345kPa).

### **NORMAL OPERATION – 50 TO 100 PSIG (345 TO 689kPa)**

When the compressed air pressure rises above 50 PSI (345kPa), the minimum pressure valve opens and delivers compressed air to the service line. From this point on, the line air pressure is continually monitored by a line pressure gauge. The pressure regulator and the pilot valve remain closed during this phase, keeping the Sullicon Control inactive.

### **MODULATION MODE – 100 to 110 PSIG (689 TO 758kPa)**

If less than the rated capacity of compressed air is being used, the service line pressure will rise above 100 PSIG (689kPa). The pressure regulator valve gradually opens, applying air pressure to the diaphragm chamber of the Sullicon Control which partially closes the butterfly valve on the compressor air inlet, reducing the amount of air entering the compressor until it matches the amount of air being used. The control system functions continually in this manner, between the limits of 100 to 110 PSIG (689 to 758kPa), in response to varying demands from the service line.

The pressure regulator has an orifice which vents a small amount of air to the atmosphere when the pressure regulator controls the butterfly valve. The orifice also bleeds any accumulated moisture from the Sullicon Control.

### **UNLOAD MODE – IN EXCESS OF 110 PSIG (758kPa)**

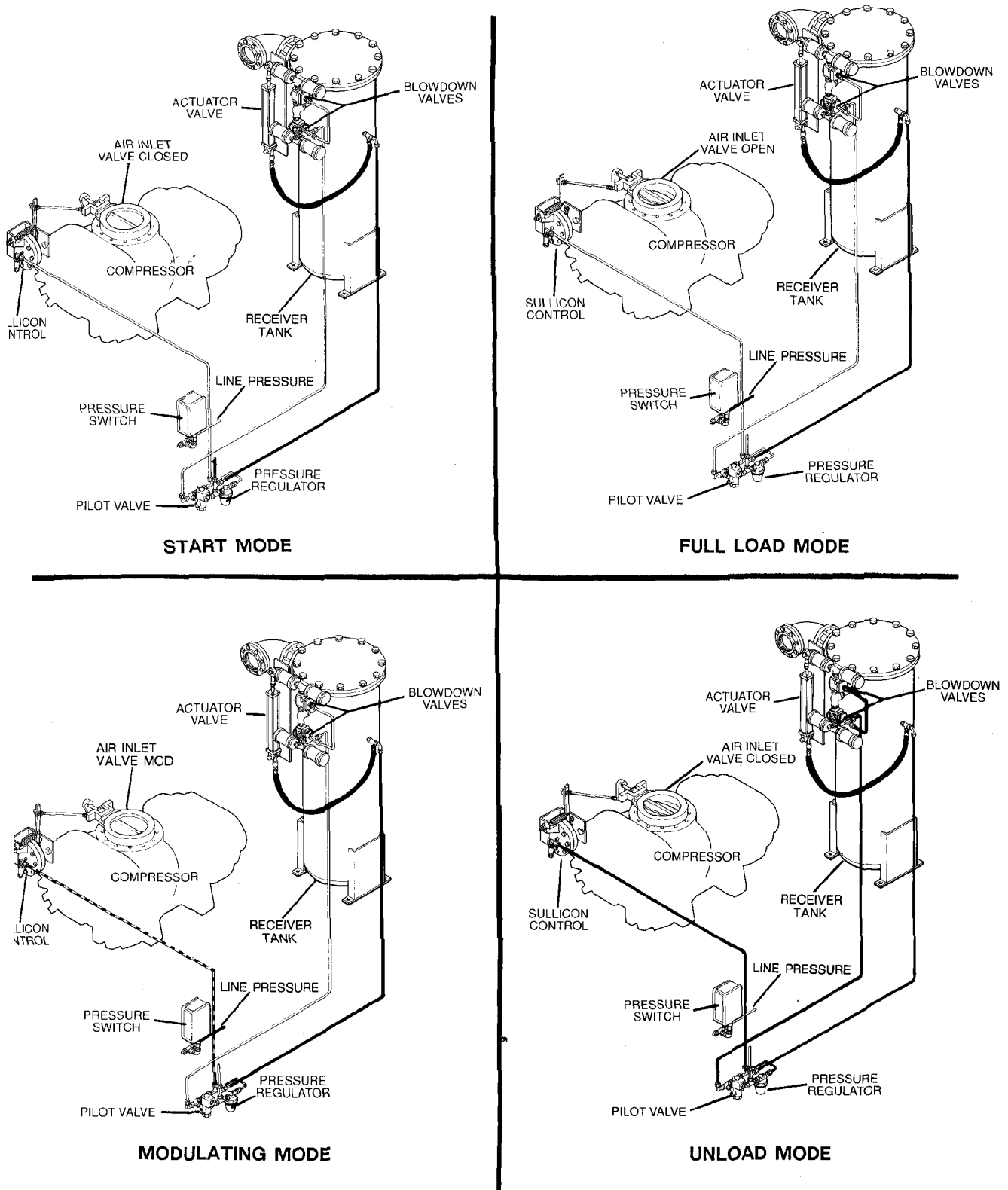
When a relatively small amount, or no air is being used, the service line pressure rises to the setting (cut-out pressure) of the pressure switch. The pressure switch opens, interrupting the electrical power to the solenoid-type pilot valve. At this time, the pilot valve allows dry separator tank air pressure to be applied directly to the control diaphragm, keeping the butterfly valve closed. Simultaneously, the pilot valve sends a pneumatic signal to the blowdown valve. The blowdown valve opens the sump to the atmosphere, reducing the sump pressure to approximately 40 to 55 PSIG (276 to 379kPa). The check valve in the air service line prevents line pressure from returning to the separator tank.

When the line pressure drops to the low setting (cut-in pressure) of the pressure switch (usually 100 PSIG [689kPa]) due to an increase in air demand, the pressure switch closes, re-energizing the three-way pilot valve and allowing the blowdown valve to close. The re-energized pilot valve again prevents line pressure from reaching the Sullicon Control. Should the pressure begin to rise, the pressure regulator will resume its normal function as previously described.

For a compressor with varied periods of time when there are no air requirements, a “Dual Control” op-

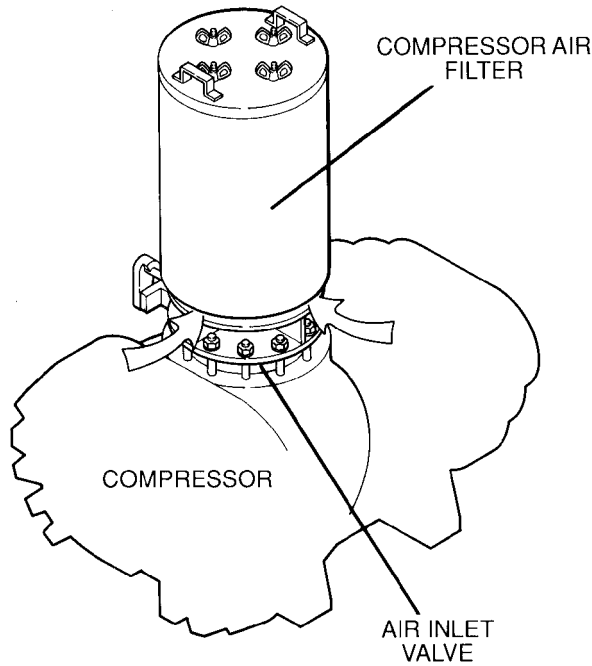
# Section 2 DESCRIPTION

Figure 2-5 Control System, Sequence of Operation



## Section 2 DESCRIPTION

Figure 2–6 Air Inlet System



tion is available. This option allows you to set the compressor in an automatic position whereby the compressor will shut down (time delayed) when no compressed air requirement is present and restart as compressed air is needed.

### 2.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-6. The compressor inlet system consists of an **air filter**, a **maintenance gauge** and an **air inlet valve**.

The maintenance gauge, located on the compressor instrument panel, indicates the condition of the air filter. When the pointer reaches the red zone, filter maintenance is required.

The **butterfly-type air inlet valve** directly controls the amount of air intake to the compressor in response to the operation of the Sullicon Control (Section 2.5).

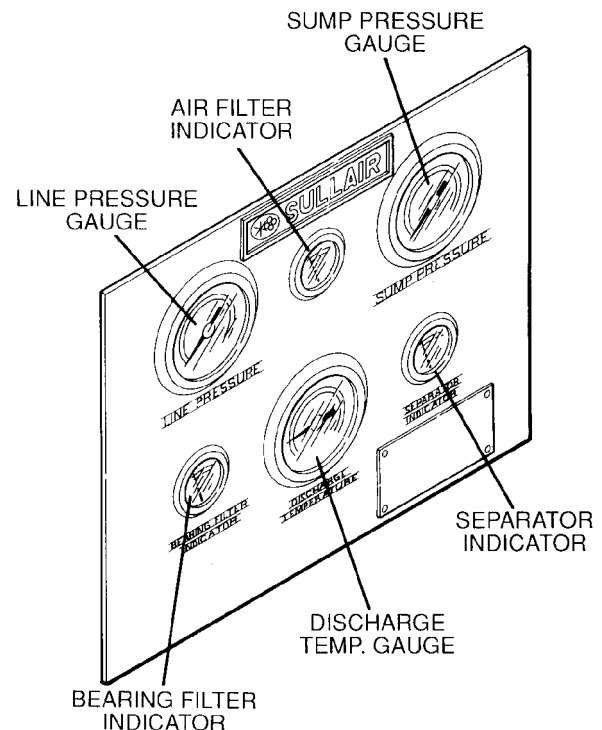
### 2.8 INSTRUMENTATION, FUNCTIONAL DESCRIPTION

Refer to Figure 2-7 for specific location of parts described. The panel group consists of a number of gauges, buttons, and status indicator lights. Refer to Figure 2-7 as you read this segment. Locate the following: **line pressure, sump pressure and discharge temperature gauge** and the **air filter indicator, separator and fluid filter restriction gauges**, along with **start, stop and reset buttons** and an **hourmeter**, located on starter panel.

Refer to Figures 2-2 for functional locations of the following indicators and controls:

- The **line (terminal) pressure gauge** is connected to the dry side of the receiver downstream from the check valve. It continually monitors the air pressure.
- The **sump pressure gauge** continually monitors the sump pressure at the various load and/or unload conditions.
- The **discharge temperature gauge** monitors the temperature of the air leaving the compressor unit. For both air-cooled and water-cooled compressors the normal reading is approximately 180°F

Figure 2–7 Instrument Panel Group



## Section 2

# DESCRIPTION

(82°C) with ambient and water temperatures less than 80°F (27°C).

- The **air filter restriction gauge** monitors the condition of the air intake filter. When pointer reaches the red zone, filter service is required (see Figure [2-21](#)).
- The **START pushbutton** turns the compressor on and resets the compressor.
  - The **STOP pushbutton** turns the compressor off.
- The **hourmeter** records cumulative hours of operation of the compressor. It is useful for planning and logging service operations.

- The **separator maintenance gauge** monitors the condition of the separator element(s). Pointer will move into the red zone when the element(s) should be replaced. This gauge is automatically reset after the element has been replaced.
- The **fluid filter maintenance gauge** monitors the condition of the bearing fluid filter element. Pointer will move into the red zone when the element should be replaced. This gauge is also automatically reset after elements have been changed.
- The **red light** on the instrument panel indicates when power to the compressor is supplied.
- The **green light** indicates when the compressor is running.



## Section 3 SPECIFICATIONS

### SULLAIR SERIES 32 SPECIFICATIONS

COOLING	MODEL SERIES	DIMENSIONS						WEIGHT	
		LENGTH		WIDTH		HEIGHT		lb	kg
		in	mm	in	mm	in	kg		
Water	32-400HP	198	5029	96	2489	82	2083	14100	6396
Water	32-450HP	198	5029	96	2489	82	2083	14100	6396
Air	32-400HP	198	5029	96	2489	82	2083	13700	6214
Air	32-450HP	198	5029	96	2489	82	2083	13700	6214
Air-Cooled Module		46	1168	64	1626	88	2235	1500	680

#### COMPRESSOR:

Type  
 Standard Operating Pressure (I)  
 Bearing Type  
 Ambient Temperature (Max.) (III)  
 Cooling  
 Lubricant  
 Sump Capacity  
 Control

#### STANDARD MODELS

Rotary Screw  
 110 PSIG (758kPa) (L), Unload Pressure  
 125 PSIG (862kPa) (H) Unload Pressure (II)  
 Anti-Friction  
 105°F (41°C)  
 Pressurized Fluid  
 Sullube 32  
 70 Gallons (265 Liters)  
 Electro-Pneumatic

#### MOTOR:

Size  
 Type  
 Speed

#### STANDARD MODELS

400 and 450HP  
 Open Dripproof, 460V, AC, Three Phase,  
 60 Cycles, 40°C Maximum Ambient Temperature  
 Options Available: 575V, 2300V, 4160V  
 TEFC Also Available  
 1770 RPM

- (I) Special compressors are available for operating at higher pressures.  
 (II) Maximum full load pressure (L) = 100 PSIG (689kPa) (H) = 115 PSIG (793kPa).  
 (III) Special compressors are available for operation in higher ambient temperatures.

## Section 3

# SPECIFICATIONS

### **LUBRICATION GUIDE—STANDARD COMPRESSORS**

Sullair 32 Series standard compressors are filled with Sullube 32 fluid as factory fill. **(MIXING OF OTHER FLUIDS WITHIN THE COMPRESSOR SHOULD BE AUTHORIZED BY THE FACTORY OTHERWISE THIS WILL VOID ALL WARRANTIES).**

Sullube 32 fluid should be changed every 8000 hours or once a year, whichever comes first. The fluid should be changed more frequently under severe operating conditions, such as high ambient temperatures coupled with high humidity, or when high particulate level, corrosive gases or strong oxidizing gases are present in the air.

Sullair encourages the user to participate in a fluid analysis program with the fluid suppliers. This could result in an fluid change interval differing from that

stated in the manual. Contact your Sullair dealer for details.

Maintenance of all other components is still recommended as indicated in the Operator's Manual.

### **LUBRICATION GUIDE— 24KT COMPRESSORS**

Sullair 24KT compressors are filled with a lubricant which rarely ever needs to be changed. In the event a change of fluid is required, use only Sullair 24KT fluid. **MIXING OF OTHER FLUIDS WITHIN THE COMPRESSOR WILL VOID ALL WARRANTIES.**

Sullair recommends that a 24KT sample be taken at the first filter change and sent to the factory for analysis. This is a free service. A sample kit with instructions and self-addressed container is to be supplied by your Sullair representative at start-up. The user will receive an analysis report with recommendations.

# Section 4 INSTALLATION

## 4.1 MOUNTING OF COMPRESSOR

A foundation or mounting capable of supporting the weight of the compressor, and rigid enough to maintain the compressor frame level and the compressor in alignment is required. The compressor frame must be leveled and secured with foundation bolts, and full uniform contact must be maintained between the frame and foundation. It is recommended that the frame be grouted to the foundation. The compressor unit and driver must be aligned after installation as specified in the Operator's Manual. No piping loads shall be transmitted to the compressor at the external connections.

## 4.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit sufficient unobstructed air flowing in and out of the compressor cooling package to keep the operating temperature stable. The minimum distance that the compressor should be from surrounding walls is three (3) feet (914mm). To prevent excessive ambient temperature rise, it is imperative to provide adequate ventilation.

For water-cooled compressors, it is necessary to check the cooling water supply. The water system must be capable of supplying the following flows:

MODEL	WATER FLOW (GPM)
32-400HP	87
32-450HP	92

**NOTE**

Water flow requirements are based on 80°F to 85°F (27°C to 29°C) water inlet temperature.

Recommended water pressure range is 40 to 75 PSIG (276 to 517kPa).

Water flow rates will vary with operating conditions. For rates based on criteria other than that listed, consult your local Sullair representative.

The table below indicates the ventilation requirements necessary to keep the compressor running at a normal operating temperature. The fan air requirement is the volume of air which must flow through the compressor and/or cooling package for

proper ventilation. The specified heat rejection requirement is the amount of heat that is radiated by the compressor. This heat must be removed to assure a normal operating temperature. With air-cooled compressors it is possible to use this heat for space heating, providing excessive pressure drop is not created across the fan. Consult a Sullair office for assistance in utilizing this heat.

**DO NOT** install a water-cooled or an air-cooled/aftercooled compressor without adequate freeze protection where it will be exposed to temperature less than 32°F(0°C).

## 4.3 SERVICE AIR PIPING

Service air piping should be installed as shown in ~~Figure 4-11~~. ~~A shut-off valve should be installed to~~ isolate a compressor from the service line if required. Also notice that the service line should be equipped with water legs and condensate drains throughout the system.

## 4.4 COUPLING ALIGNMENT CHECK

In preparation for the factory test, the coupling supplied with your compressor is properly aligned for operation. However, due to shipping and handling, it is necessary to recheck the coupling alignment. Refer to Coupling Alignment procedure explained in the Maintenance section of this manual.

## 4.5 FLUID LEVEL CHECK

Your air compressor is also supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation. The level is checked by looking at the sight glass located on the sump. If the sump is properly filled, the coolant level should fill the sight glass.

## 4.6 FLUID PIPING (AIR-COOLED ONLY)

To allow depressurization of the cooling package and connecting piping between the compressor and the cooling package upon shutdown of the compressor, a 1/2" depressurization line must be installed between the top of the fluid cooler and the depressurization valve, which is mounted on the compressor sump tank. This line must be maintained at a higher level than the supply and return piping for the fluid cooler.

The supply and return piping for the fluid cooler must be adequately sized to prevent excessive

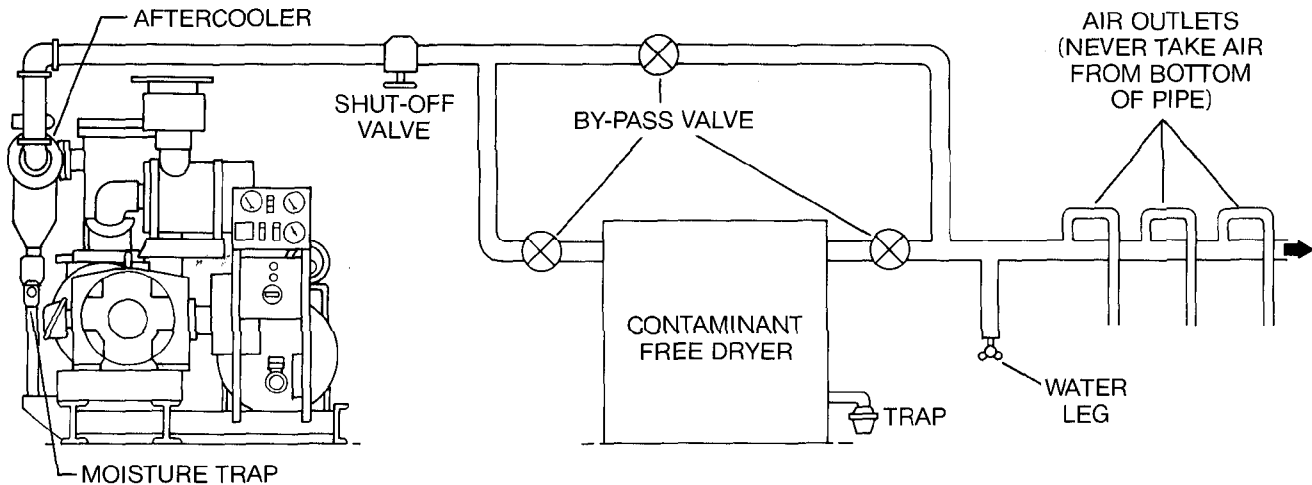
## VENTILATION REQUIREMENTS

COMPRESSOR PACKAGE				REMOTE AIR-COOLED COOLING PACKAGE (I)	
MODEL	MOTOR HP	HEAT REJECTION BTU/HR	VENT FAN FLOW CFM	HEAT REJECTION BTU/HR	AIR FLOW CFM
32-400HP	400	81360	8300	1138800	32500
32-450HP	450	83630	8300	1207800	32500

(I) Applicable to air-cooled models only.

## Section 4 INSTALLATION

Figure 4–1 Service Air Piping (Typical Installation)



pressure drop. The total pressure drop in the supply and return piping and associated fittings and valves shall not exceed 10 PSI (70kPa). If the pressure drop is excessive, a pump may be installed. Consult the Sullair Service Department for recommendations.

### 4.7 ELECTRICAL PREPARATION

Interior electrical wiring is performed at the factory. Required customer wiring is minimal, but should be done by a qualified electrician in compliance with OSHA, National Electrical Code, and any other applicable state or local electrical code concerning isolation switches, fuse disconnects, etc. Sullair provides a wiring diagram for use by the installer.

A few electrical checks should be made to help assure that the first start-up will be trouble free.

#### **▲ DANGER**

Lethal shock hazard inside.

Disconnect all power at source, before opening or servicing starter or control panel.

1. Check incoming voltage. Be sure that the incoming voltage is the same voltage that the compressor was wired for.

2. Check starter and overload heater sizes (see electrical parts in Parts Manual).
3. Check all electrical connections for tightness.
4. “DRY RUN” the electrical controls by disconnecting the three (3) motor leads from the starter. Energize the control circuits by pushing the START button and check all protective devices to be sure that they will de-energize the starter coil when activated.
5. Reconnect the three (3) motor leads and jog the motor for a direction of rotation check, as explained in Section 4.8.

### 4.8 MOTOR ROTATION DIRECTION CHECK

After the electrical wiring has been done, it is necessary to check the direction of the motor rotation. This can be done by jogging the **START** and **STOP** buttons on the control panel. When looking at the motor from the end opposite the compressor unit, the shaft should be turning clockwise. If the motor shaft is not turning in the proper direction, disconnect the power to the starter and exchange any two of the three power input leads, then re-check rotation. A “Direction of Rotation” decal is located on the coupling guard between the motor and compressor to show proper motor/compressor rotation.

## Section 5 OPERATION

### 5.1 GENERAL

While Sullair has built into this compressor a comprehensive array of controls and indicators to assure you that it is operating properly, you will want to recognize and interpret the reading which will call

for service or indicate the beginning of a malfunction. Before starting your Sullair compressor, read this section thoroughly and familiarize yourself with the controls and indicators – their purpose, location and use.

### 5.2 PURPOSE OF CONTROLS

CONTROL OR INDICATOR	PURPOSE
START PUSHBUTTON	Depress to turn the compressor ON.
STOP PUSHBUTTON	Depress to turn the compressor OFF.
HOURLMETER	Records cumulative hours of compressor operation; useful for planning and logging service schedules.
LINE PRESSURE GAUGE	Continually monitors service line air pressure. Located on dry side of receiver downstream from check valve.
SUMP PRESSURE GAUGE	Continually monitors receiver/sump pressure at various load and/or unloaded conditions.
DISCHARGE TEMPERATURE GAUGE	Monitors temperature of the air leaving the compressor unit. For both air and water-cooled compressors, the normal reading should be approximately 180°F to 205°F (82°C to 96°C) depending on water and ambient temperatures.
FLUID FILTER MAINTENANCE GAUGE	Indicates when a fluid filter element change is required. The pointer will move into the red zone when the pressure drop through the filter is excessive.
SEPARATOR MAINTENANCE GAUGE	Indicates when separator element change is required. The pointer will move into the red zone when pressure drop through the separator is excessive.
INLET AIR FILTER GAUGE	Indicates when the air filter element change is required. The pointer will move into the red zone when the pressure drop through the filter is excessive.
“POWER ON” LIGHT (RED)	Indicates when the control panel is receiving power.
“RUNNING” LIGHT (GREEN)	Indicates when compressor is in operation.
FLUID LEVEL SIGHT GLASS	Monitors fluid level in the sump. Proper level should fill the sight glass. Check the level when the compressor is shut down. <b>DO NOT OVERFILL.</b>
SEPARATOR RETURN LINE SIGHT GLASS	Used to indicate fluid flow in the return line. When the compressor is running at full load, fluid flow should be visible in this sight glass. There may be little or no flow when the compressor is running unloaded, but a sluggish flow at full load indicates a need to clean the return line strainer.
FLUID STOP VALVE	Cuts off flow of fluid to compressor unit at compressor shutdown and allows flow of fluid to the unit on start-up.
DISCHARGE CHECK VALVE	Cuts off the reverse flow of air/fluid mixture through compressor discharge system at compressor shutdown.

## Section 5

# OPERATION

### 5.2 PURPOSE OF CONTROLS (continued)

CONTROL OR INDICATOR	PURPOSE
THERMAL VALVE	Regulates flow of fluid to and around the fluid cooler. Designed to maintain a minimum operating temperature of 170°F (77°C); used for fast warm-up on start-up.
MINIMUM PRESSURE VALVE	Maintains minimum of 40 PSIG (276kPa) in compressor sump. This valve restricts receiver air discharge from the receiver/sump when the pressure falls to 40 PSIG (276kPa).
COMPRESSOR DISCHARGE TEMPERATURE SWITCH	Designed to shut the compressor down when the discharge temperature reaches 240°F (116°C).
HIGH PRESSURE SHUTDOWN SWITCH	An added protective device designed to shut down the compressor when the pressure becomes too high. This switch is set for shutdown at approximately 135 PSIG (930kPa).
WATER PRESSURE SWITCH (water-cooled compressors only)	Prevents compressor operation if water pressure is too low. Standard setting is 15 PSIG (103kPa).
PRESSURE RELIEF VALVE	Opens sump pressure to the atmosphere should pressure inside the sump become too high (140 PSIG [965kPa]). Operation of this valve indicates that the high pressure switch is either faulty or out of adjustment.
SULLICON CONTROL	Regulates the amount of air allowed to enter the air inlet valve. This regulation is determined by the amount of air being used at the service line.
PRESSURE REGULATOR (Sullicon)	Opens a pressure line between the sump and Sullicon Control allowing the Sullicon Control to regulate air delivery according to the air demand.
PILOT VALVE	Bypasses the pressure regulator valve causing the Sullicon Control to close the inlet valve and open the blow-down valve when the compressor reaches maximum operating pressure.
PRESSURE SWITCH	Senses service line pressure. When line pressure reaches maximum setting the pressure switch signals the pilot valves to unload the compressor.
BLOWDOWN VALVE	Vents sump pressure to the atmosphere during unload conditions and shutdown.
WATER REGULATING VALVE (water-cooled only)	Regulates the amount of cooling water used in the cooler to keep the compressor running at a normal operating temperature.
LINE CHECK VALVE	Prevents line pressure backflow into the separator tank during unload conditions and after shutdown.
FLUID COOLER DEPRESSURIZATION VALVE (air-cooled only)	Vents cooler pressure to the atmosphere during shut-down.

### 5.3 INITIAL START–UP PROCEDURE

The following procedure should be used to make the initial start–up of the compressor:

1. Read the preceding pages of this manual thoroughly.
2. Be sure that all preparations and checks described in the Installation section have been made.
3. Crack open the shut off valve to the service line.

**▲ WARNING**

Be sure that the blowdown valve connection on the air–cooled cooler package is connected as explained in Section 3 (Page 6).

4. Start the compressor by pushing the **START** button.
5. Check for possible leaks in piping.
6. Slowly close the shut–off valve and check that the setting on the pressure switch is set correctly. If set correctly, the compressor will unload at the

desired unload pressure. If adjustments are necessary, see Control System Adjustments in the Maintenance Section of the manual.

7. Observe the operating temperature. If the operating temperature exceeds 200°F (93°C), the cooling system or installation environment should be checked.
8. Observe return line sight glass and maintenance indicators.
9. Open shut–off valve to service line.
10. Reinspect the compressor for temperature and leaks the following day.

### 5.4 SUBSEQUENT START–UP PROCEDURE

On subsequent start–ups, check that the proper level is visible in the fluid sight glass and simply press the **START** button. When the compressor is running, observe the instrument panel and maintenance indicators.

### 5.5 SHUTDOWN PROCEDURE

To shut the compressor down, simply press the **STOP** button.

## Section 6 MAINTENANCE

### 6.1 GENERAL

As you proceed in reading this section, it will be easy to see that the Maintenance Program for the air compressor is quite minimal yet important. The use of the service gauges provided for the fluid filter, air filter and fluid separator, will alert you when service maintenance is required. When the maintenance gauge shows red, maintenance for that specific item is required. See instructions for each item in Section 6.7, Parts Replacement and Adjustment procedures.

### 6.2 DAILY OPERATION

Prior to starting the compressor, it is necessary to check the fluid level in the sump. Should the level be low, simply add the necessary amount. If the addition of fluid becomes too frequent, a simple problem has developed which is causing this excessive loss. See the Troubleshooting Section (6.7) under Excessive Fluid Consumption for a probable cause and remedy.

After a routine start has been made, observe the instrument panel gauges and be sure they monitor the correct readings for that particular phase of operation. After the compressor has warmed up, it is recommended that a general check of the overall compressor and instrument panel be made to assure that the compressor is running properly.

#### **⚠ WARNING**

DO NOT remove caps, plugs, or other components when compressor is running or pressurized.

Stop compressor and relieve all internal pressure before doing so.

### 6.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

After the initial 50 hours of operation, a few maintenance requirements are needed to rid the system of any foreign materials if any. Perform the following maintenance operations to prevent unnecessary problems.

1. Clean the return line strainers.
2. Clean the return line orifices.
3. Clean compressor unit gear housing, bearing and shaft seal orifices.

### 6.4 MAINTENANCE AFTER 1000 HOURS

After 1000 hours of operation, it will be necessary to perform the following:

1. Clean the return line strainers.
2. Lubricate the Sullicon Control linkage.
3. Replace the bearing fluid filter element.

### 6.5 FLUID CHANGE

Fluid should be changed under following conditions whichever occurs first:

1. Every 8000 hours.
2. Once a year.
3. As indicated by fluid analysis.

A fluid sample at every 4000 hours is recommended. Return fluid to Sullair Corporation in Michigan City for free analysis. To facilitate this, a sample bottle is included with the compressor.

### 6.6 SEPARATOR MAINTENANCE

Replace the separator element when your separator maintenance gauge shows red or after one (1) year, whichever comes first. The separator elements must be replaced. **DO NOT** clean the separator element.

### 6.7 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

#### BEARING FILTER ELEMENT MAINTENANCE

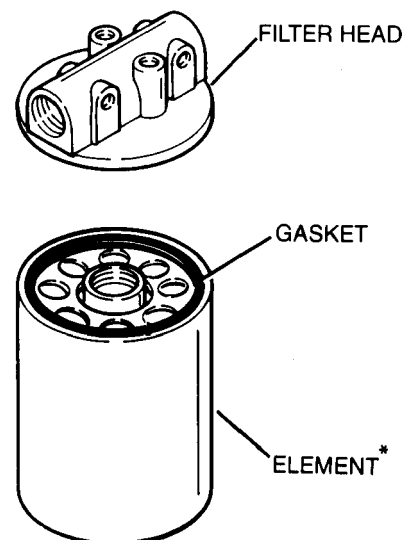
Refer to Figure 6-1.

1. Using a strap wrench, remove the old element and gasket.
2. Clean gasket seating surface.
3. Apply a light film of fluid to the new gasket.
4. Hand tighten new element until new gasket is seated in the gasket groove.
5. Continue to tightening element by hand an additional  $\frac{1}{2}$  to  $\frac{3}{4}$  turn.
6. Restart compressor and check for leaks.

#### MAIN FILTER MAINTENANCE

Refer to Figure 6-2. The main filter (P/N 44286) is located schematically in the coolant line between the receiver/sump and the compressor unit. The main filter element is a washable type element and

Figure 6-1 Bearing Filter (P/N 250025-521)

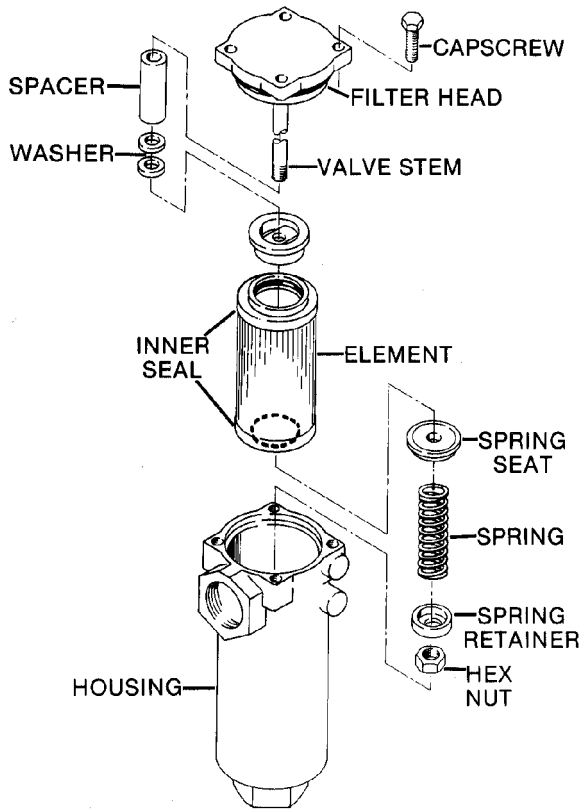


\* Repair Kit P/N 250025-525



## Section 6 MAINTENANCE

Figure 6-2 Main Filter (P/N 044286)



\* Repair Kit P/N 001100

should never require changing unless damage occurs. For installation of the filter seal number 001100, follow the procedure explained below.

### DISASSEMBLY

1. Disassemble the filter by removing the four (4) capscrews and separate the filter head and element (as an assembly) from the housing.
2. Remove the hex nut, located inside the element, from the valve stem.
3. At this time, pull the element, spring, spring seat and spring retainer from the valve stem.
4. Remove the inner seals of the element and the filter head seal and discard.
5. Clean all parts of the filter thoroughly including the housing.

### REASSEMBLY

1. Lubricate the new inner seals and install in the ends of the clean element.
2. Place the filter element, spring seat, spring and spring retainer over the valve stem and secure with hex nut.

3. Lubricate and install the new filter seal.
4. Install the filter head and element (as an assembly) in the filter housing. The element is to slide over the housing sleeve when properly installed.
5. Secure the filter head with the four (4) capscrews.

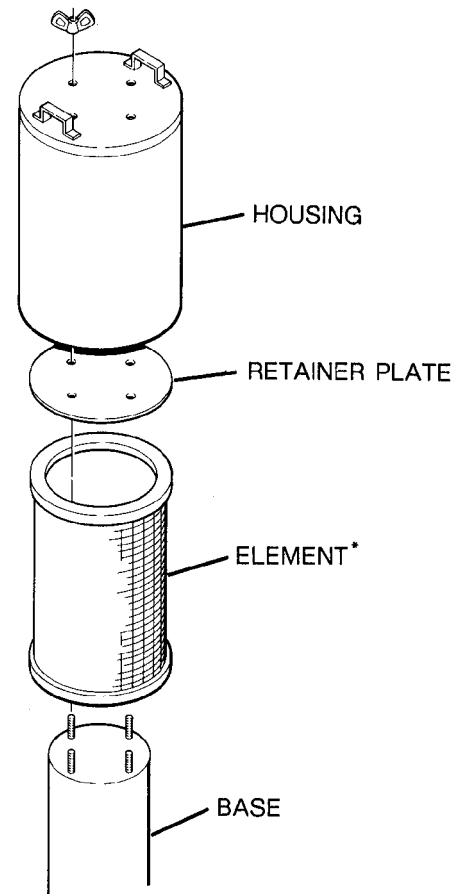
### AIR FILTER MAINTENANCE

Refer to Figure 6-3. Air filter maintenance should be performed when the maintenance gauge shows a red signal. The air filter supplied with the compressor has a cleanable-type element. Below you will find procedures on how to replace and how to clean the air filter element.

### AIR FILTER ELEMENT REPLACEMENT

1. Clean the exterior of the air filter housing.
2. Remove the air filter cover assembly by loosening the wingnut securing it.
3. Remove the internal cover plate.
4. Remove element and clean the interior of the housing using a damp cloth. **DO NOT** blow dirt out with compressed air.

Figure 6-3 Air Filter (P/N 012516 - Base)  
(P/N 013448 - Housing)



\* Replacement element P/N 042643

## Section 6

# MAINTENANCE

5. At this time, clean or replace the element.
6. Reassemble in reverse order of disassembly.

### AIR FILTER ELEMENT CLEANING

The air filter element is cleanable by one of two methods. One method is by washing with a mild household detergent and water. The other method is using compressor air. The maximum amount of times that an element should be cleaned is six (6), however, the element should be used no longer than a period of one (1) year without changing.

Prior to cleaning an element, check the element for damage. Damaged elements must be replaced. When cleaning an element, never exceed the recommended maximum pressure for water (40 PSIG [276kPa]) or compressed air (30 PSIG [207kPa]).

**DO NOT** strike the element against any hard surface to dislodge dust. This will damage the sealing surfaces and possibly rupture the element.

**DO NOT** “blow” dirt out of the interior of the filter housing. This may introduce dust downstream of the filter. Instead, use a clean damp cloth.

**DO NOT** oil the element.

### METHOD 1 – CLEANING THE ELEMENT BY WASHING

When washing the element, **NEVER** use petroleum solutions or solvents. Also, never immerse a dirty element in water or cleaning solution. This will carry dust onto the “clean side” (inside surface) of the element. Instead, dust must be removed by reverse flushing the element. Use clean clear water with a garden hose at no more than 40 PSIG (276kPa). Direct the water up and down the pleats in the filter media from the “clean side” of the element until all dust is removed.

If, after washing as described above, the element is found to be contaminated with fluid or greasy dirt, it should then be agitated in a solution of mild household detergent and water. Add 4 tablespoons of detergent to one gallon of lukewarm water and mix well. After a sufficient amount of agitation has been done, rinse thoroughly and carefully shake out excess water. Lay the element on its side and allow to dry before installation. The element should be protected from dirt and/or freezing while drying. Mechanical drying methods can be used, however, heated air must be well circulated and must not be over 180°F (82°C). **DO NOT** use a light bulb for drying, as the pressure will rupture the element when wet. Regardless of the drying procedure, always inspect the element for damage prior to installation (see Element Inspection).

### METHOD 2 – CLEANING THE ELEMENT WITH COMPRESSED AIR

When cleaning the element with compressed air, never let the air pressure exceed 30 PSI (207kPa).

Reverse flush the element by directing the compressed air up and down the pleats in the filter media from the “clean side” of the element. Continue reverse flushing until all dust is removed. Should any fluid or greasy dirt remain on the filter surface, the element should then be cleaned by Method 1. When the element is sufficiently cleaned, inspect thoroughly prior to installation (see Element Inspection).

### ELEMENT INSPECTION

1. Place a bright light inside the element to inspect for damage or leak holes. Concentrated light will shine through the element and locate any holes.
2. Inspect all gaskets and gasket contact surfaces of the housing. Should faulty gaskets be evident, correct the condition immediately.
3. If the clean element is to be stored for later use, it must be stored in a clean container.
4. After the element has been installed, inspect and tighten, if necessary, all air inlet connections prior to resuming operation.

### SEPARATOR ELEMENT REPLACEMENT

Refer to Figure 6-4. The separator elements must be changed when the maintenance gauge pointer moves into the red zone, or once a year whichever comes first. Order separator element kit number 250034–126 (primary) and number 250034–132 (secondary), and follow the procedure explained below for separator element replacement.

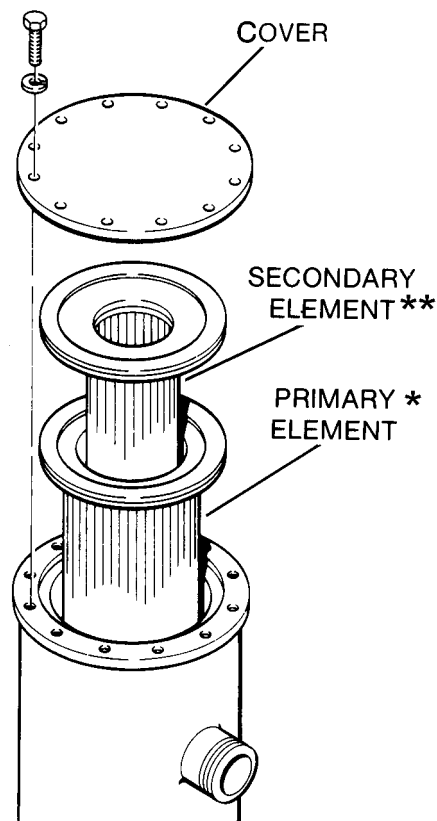
1. Relieve all pressure from the separator and all compressor lines.
2. Disconnect all piping connected to the separator cover to allow removal (return lines, service lines, etc.).
3. Loosen and remove the twelve (12) ¾” x 3” hex head capscrews from the cover plate.
4. Lift the cover plate from the separator.
5. Remove the primary and secondary separator elements.
6. Scrape the old gasket material from the cover and flange on the sump being careful not to let the scraps fall in the sump.
7. Inspect the separator tank for rust, dirt, etc.
8. Reinsert the separator elements, with gaskets attached, into the sump taking care not to dent it against the tank opening.
9. Clean the underside of the separator tank cover and remove any rust.
10. Replace the cover plate, washers and capscrews. Torque to 55 ft./lbs. (75Nm).
11. Reconnect all piping making sure the return line tube extends to the bottom or ¼” above the bottom of the separator element. This will assure proper fluid return flow to the compressor.
12. Check the return line filter before restarting the compressor.

### CONTROL SYSTEM ADJUSTMENT

Refer to Figures 6-5 and 6-6. Prior to adjusting the control system, it is necessary to determine the desired operating pressure range and also the

## Section 6 MAINTENANCE

Figure 6-4 Separator (P/N 049028)



- \* Replacement element P/N 250034-126 (primary)
- \*\* Replacement element P/N 250034-132 (secondary)

maximum pressure at which your compressor is to operate. (The pressure must not exceed the maximum operating pressure which is stamped on the compressor serial number nameplate). The following explanation applies to a typical installation with a desired operating range of 100 to 110 PSI (689 to 758kPa). This information applies to a compressor with any other operating range except the stated pressures.

Remove the appropriate cover of the pressure switch (P/N 040694). With the shut-off valve closed, or slightly cracked open, start the compressor. Observe the line pressure gauge and pressure switch contacts. When the line pressure reaches the desired unload (maximum) pressure, the pressure switch contacts should open. If the pressure switch contacts **DO NOT** open or they open prior to the desired pressure, the pressure switch setting will require adjustment (refer to Figure 6-4).

### ▲ DANGER

**DO NOT** touch the electrical contacts, terminal or leads with any metallic object. Severe electrical shock may occur.

#### FOR PRESSURE RANGE ADJUSTMENT:

1. Remove cover to pressure switch.
2. Turn the range adjusting screw to the high pressure setting. Turning the screw counterclockwise lowers both the high and low pressure equally.

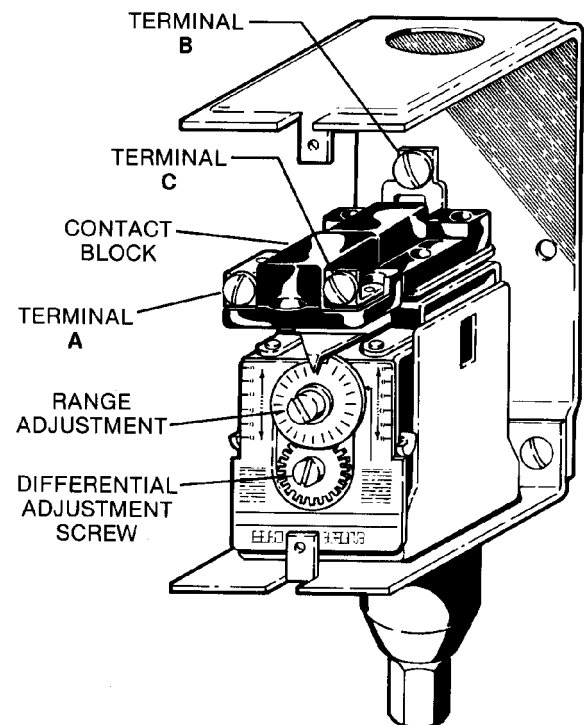
#### FOR DIFFERENTIAL ADJUSTMENT:

Differential is the difference between the high and low pressure settings, 10 PSIG (69kPa) is typical.

Turn the differential adjusting screw to the lower (reset) setting. Turning the screw counterclockwise widens the differential by lowering the reset (lower) setting only.

The differential pressure regulator is adjusted by loosening the jam nut on the end of the cone shaped cover of the pressure regulator (refer to

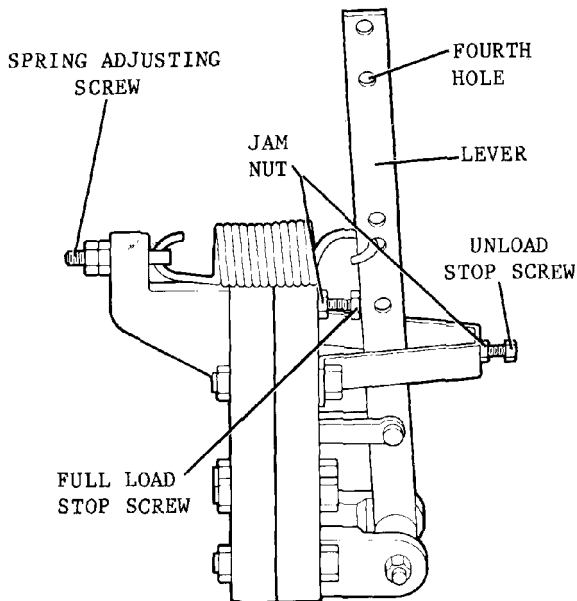
Figure 6-5 Pressure Switch



## Section 6

# MAINTENANCE

Figure 6–6 Sullicon Control (P/N 011682–003)



\* Repair Kit P/N 250020–353

Figure 6–12 for the location). When the jam nut is loosened, turn the adjusting screw clockwise to increase or counterclockwise to decrease the setting.

Above 100 PSIG (689kPa), the regulator should allow pressure to flow into the control chamber of the Sullicon Control (P/N 011682–003). The Sullicon Control lever should start to move at this time. Cycle the Control System several times and recheck all pressure settings. For Sullicon Control replacement, order repair kit number 250020–353.

### MINIMUM PRESSURE VALVE ACTUATOR MAINTENANCE

Refer to Figure 6–7. Under normal circumstances, the only maintenance required would be the changing of the seal cups, o–rings and wiper seal. Use repair kit number 001116, and follow the procedure explained below for proper repair.

1. Remove the spherical rod end from the end of the actuator.

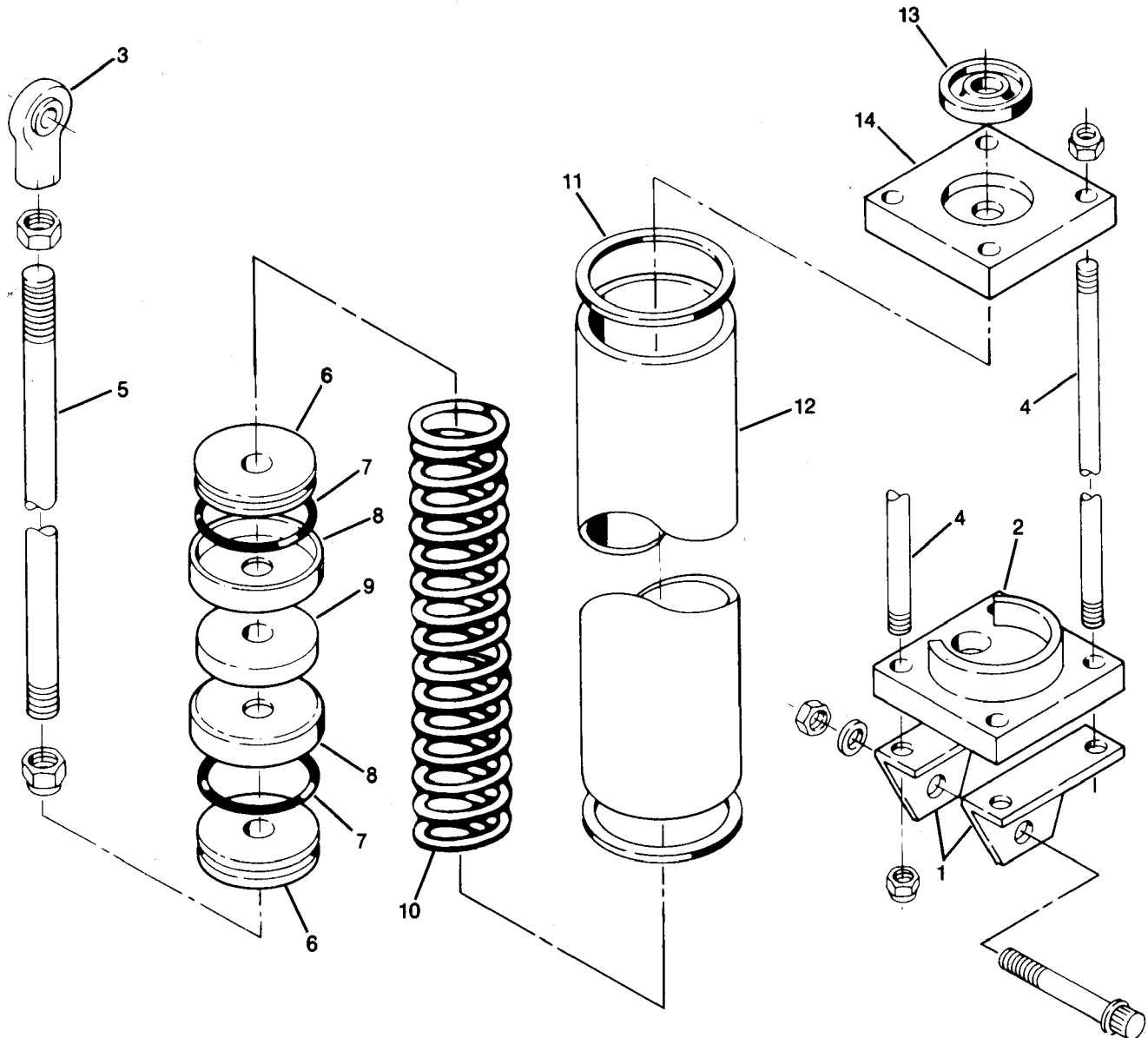
2. Evenly remove the nuts securing front end cap. Exercise extreme caution when removing the nuts as the end cap is under heavy spring tension. Hold the end cap in place while removing the nuts and ease the end cap off until the spring tension is relieved.
3. Remove the spring.
4. Pull the piston rod and piston from the cylinder to change the seal cups and o–ring.
5. Disassemble the pistons and seal cups by removing the  $\frac{1}{4}$ " nut on the end of the piston.
6. Remove and replace the o–rings on each piston. Lubricate the piston o–rings with Parker Super "O" Seal or an equivalent quality silicone–based lubricant. Re–assemble the pistons and seal cups using the new seal cups. Coat the seal cups with the silicone–base lubricant and slide the piston rod with the assembled pistons and seal cups into the cylinder to prevent dirt from coming in contact with the seal cups.
7. Remove and replace the o–rings which seal the end caps and cylinder. These o–rings are located in each end cap.
8. A rod wiper seal is also provided with the kit. Remove and replace this seal. Prior to installing the new seal, lubricate with silicone lubricant.
9. With all new parts installed, the actuator is now ready to be reassembled. Position the cylinder back in place over the rear end cap and run the tie studs through the 4 holes in the end cap.
10. If you haven't placed the piston rod and seal cup assembly into the cylinder, do that at this time.
11. Replace the spring.
12. The next step is to replace the front end cap. A significant amount of spring tension is realized when attempting to replace the end cap. It will be necessary to use a large clamp to overcome the spring tension. Push the end cap into place and hold while replacing the nuts to secure the end cap.
13. Tighten the nuts on the end caps and replace the rod end jam nut on the exposed end of the piston rod.
14. Reinstall the actuator.

### DRIVE COUPLING INSTALLATION AND ALIGNMENT

Refer to Figures 6–8 and 6–9. For coupling installation and alignment, the tools required will be one set of standard allen wrenches, one set of standard socket wrenches and a dial indicator. Should a dial indicator not be available, an alternate method of checking the alignment may be used as a secondary or less desirable technique. This method of checking is done by careful use of a square, feeler gauge and a set of outside calipers (see Figure 6–9). Those specifications in Table 1 which are designated in inches are provided for this method. When you are changing the element, **DO NOT** at-

## Section 6 MAINTENANCE

Figure 6-7 Minimum Pressure Valve Actuator (P/N 013710)



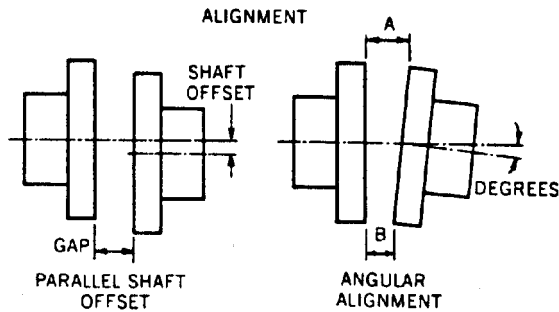
1. PIVOT BRACKETS
2. END CAP
3. ROD END - RIGHT HAND
4. ROD
5. PISTON ROD
6. ACTUATOR PISTON
7. O-RING

8. CUP SEAL
9. FOLLOWER PLATE
10. SPRING
11. SEAL
12. ACTUATOR CYLINDER
13. ROD WIPER SEAL
14. END CAP

\* Repair Kit P/N 001116

## Section 6 MAINTENANCE

Figure 6–8 Drive Coupling Shaft Alignment



tempt to remove the donut portion of the drop out of assembly.

### ⚠ WARNING

Disconnect all power at source, before attempting maintenance or adjustments.

For installation and alignment of the drive coupling, follow the steps explained below.

**STEP 1 MOUNT HUBS** – Mount the motor hub and the compressor hub on their respective shafts, after carefully inspecting the hub bores and the shafts for dirt and burrs. It is also necessary to check for a proper key fit. Place the keys in position being sure that the end of the key is flush with the end of the shaft. Position the hubs to establish the correct gap specified in Table 1. Secure each hub with a setscrew.

**STEP 2 PARALLEL OFFSET ALIGNMENT** – Clean any fluid, grease, dirt or paint from the hub faces in preparation for parallel alignment. Place a dial indicator on the compressor hub as shown in Figure 6-8, and rotate the motor hub to check alignment. The vertical offset is adjusted by the addition or removal of motor mounting shims. To correct the horizontal offset, loosen the motor mounting bolts and slide the motor sideways until parallel offset alignment specification are reached.

**STEP 3 ANGULAR ALIGNMENT** – Reposition the dial indicator as shown in Figure 6-8 to check an

gular alignment. Once again, rotate the motor hub to check misalignment, loosen the motor mounting bolts and adjust the position until the angular alignment is within tolerance.

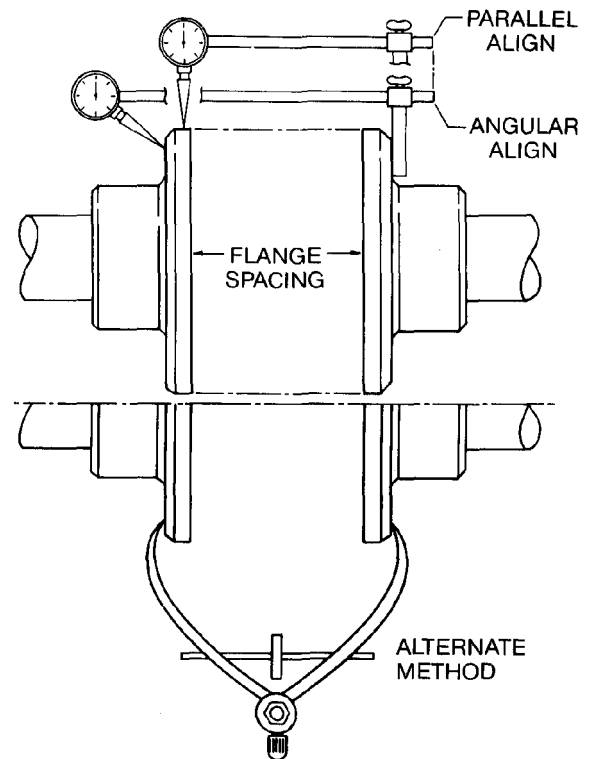
### ⚠ WARNING

DO NOT upset the offset alignment or hub gap when adjusting motor position.

When within the limits specified in Table 1, tighten the motor mounting bolts and recheck the offset and angular alignment. If the vertical angular alignment is not within .010 tolerance, shim the front or rear of the motor separately to correct. Recheck the vertical offset.

**STEP 4 INSTALL THE FLEXIBLE ELEMENT** – Insert the drop out assembly between the hubs caring not to damage the edges of the male pilots. Draw one of the pilots into the female pilots of the mating hub and install the hex head capscrews snug enough to hold the mating flanges flush. Tighten the hex head capscrew so to guide the pilot into the mating hub. Repeat this procedure on the mating hub.

Figure 6–9 Coupling



## Section 6 MAINTENANCE

**TABLE 1  
INSTALLATION DATA – SERIES 32 COUPLINGS**

Capscrew Tightening Torque ft./lbs	Coupling Gap inches	Max. Operating Misalignment	
		Parallel Offset inches	Angular inches*
200 wet 260 dry	6.0	.010	.010

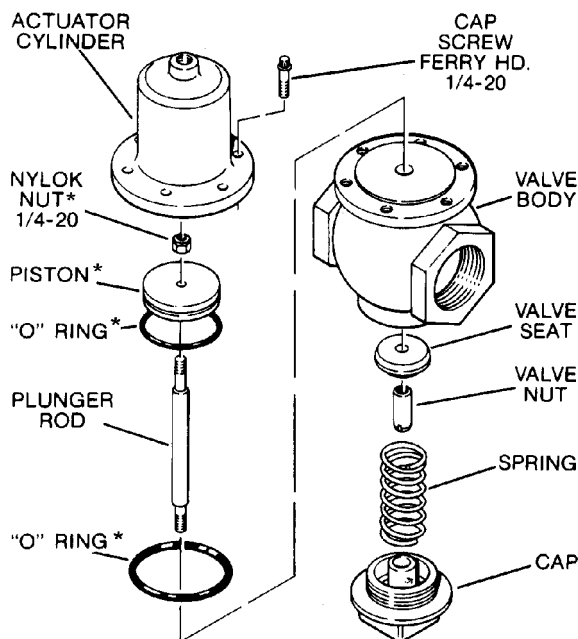
\* Angular misalignment in inches equals maximum A minus minimum B as shown in Figure 6-7. **DO NOT** exceed values in Table above.

Visually check that the pilots are properly engaged and tighten all capscrews to the torque specifications shown in Table 1.

### FLUID STOP VALVE MAINTENANCE

Refer to Figure 6-10 when servicing fluid stop (P/N 016742), and order repair kit number 001684. The following instructions are in accordance with repair kit number 001684. For best results, remove the fluid stop valve from the compressor and service at a work bench.

*Figure 6–10 Fluid Stop Valve (P/N 016742)*



\* Repair Kit P/N 001684

- DO NOT** attempt to service valve without first turning off compressor, disconnecting power and relieving all pressure in sump.
- Disassemble the 1/4" pilot tube, and remove the six (6) 1/4"-20 capscrews that secure the cylinder to the valve body. Carefully slide cylinder off of piston.
- Remove the o-ring from piston and discard. Remove the quad ring from cylinder and discard.
- Place new o-ring over piston, applying a light coating of compressor lubricant to o-ring and inside wall of cylinder. Position quad ring in cylinder flange recess.
- Carefully slide cylinder over piston and secure to housing with the six (6) capscrews. Torque to 4 to 5 ft./lbs. (5 to 7 Nm).
- Reconnect pilot tubing and make sure all joints are properly tightened before starting compressor.

### PILOT VALVE MAINTENANCE

Refer to Figure 6-11. Pilot valve (P/N 250038-668) maintenance is quite minimal but a periodic cleaning is desirable. The time between cleanings will vary depending on operating conditions. In general, if the voltage to the coils is correct, sluggish valve operation or excessive leakage will indicate that cleaning is required. If parts replacement is required, order repair kit number 250038-673 and follow the procedure explained below.

### ⚠ WARNING

Turn off all power, relieve line pressure, and disconnect coil lead wires to the valve before making repairs.

It is not necessary to remove the valve from the pipe line for repairs.

### DISASSEMBLY AND REASSEMBLY

Prior to performing this, be sure all pressure is removed from the system.

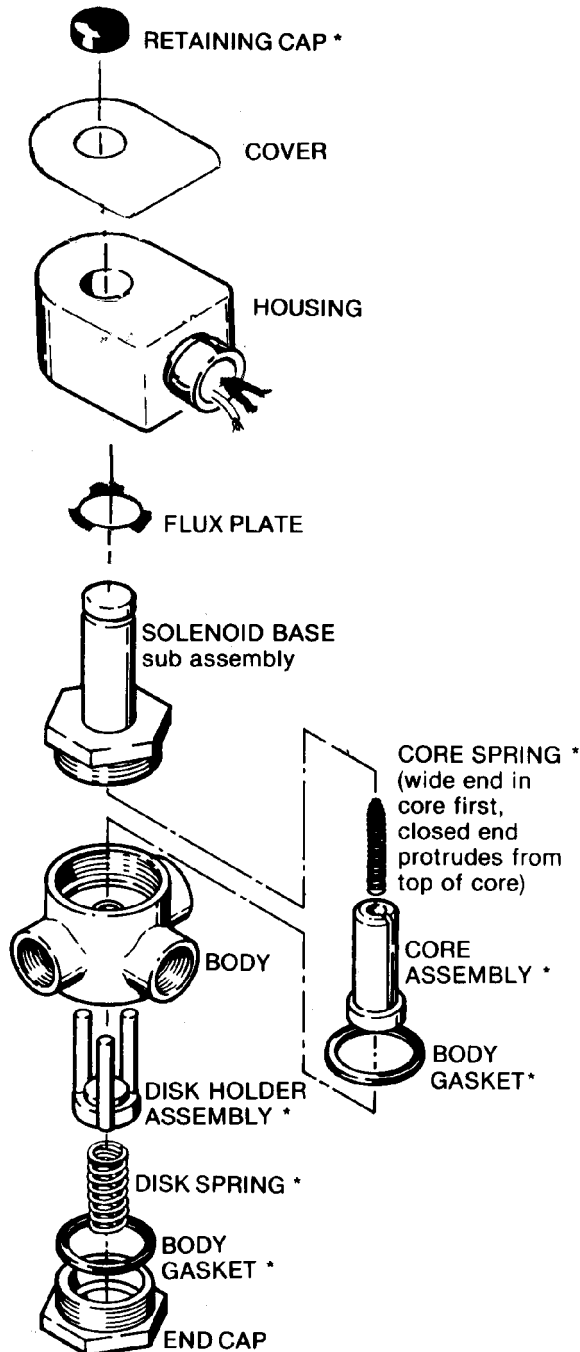
- Remove the retaining cap and slip the entire solenoid off the solenoid base sub-assembly.
- Unscrew the solenoid base assembly. Remove the core assembly, core spring and body gasket.
- Next, remove the end cap, body gasket, disc spring, and disc holder assembly.
- All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with repair kit number 250038-673 for best results.
- Reassemble in reverse order of disassembly.

### COIL REPLACEMENT KIT

- Remove the retaining cap, nameplate and cover.
- Slip the yoke containing the coil and sleeves off the solenoid base sub-assembly.
- Reassemble in reverse order of disassembly.

## Section 6 MAINTENANCE

Figure 6-11 Pilot Valve (P/N 250038-668)



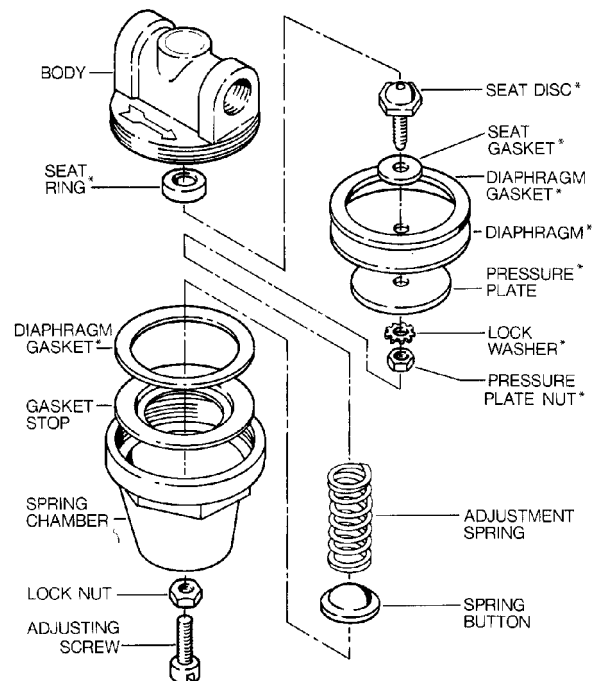
\* Repair Kit P/N 250038-673  
 \*\* Repair Kit P/N 250031-738 (coil)

## PRESSURE REGULATOR VALVE MAINTENANCE

Refer to Figure 6-12. Pressure Regulator Valve (P/N 041517) maintenance normally requires the replacement of the internal diaphragm. Use repair kit number 041742 and follow the procedure below for proper installation. Prior to performing this, be sure all pressure is removed from the system.

1. Loosen the locknut and turn the adjusting screw counterclockwise until the inner spring tension is relieved. The adjusting screw should turn freely when the spring tension is relieved.
2. Remove the spring housing form the body to allow access to internal parts.
3. Next, remove the spring button and the spring. The dampener will stay inside the spring as it is removed. Leave the dampener inside the spring as there is no need to remove it.
4. After removing the spring, remove the gasket stop and brass gasket.
5. At this time, remove the pressure plate nut and disassemble the pressure plate, diaphragm, diaphragm gasket (rubberized asbestos), seat disc and seat gasket.
6. Remove and discard the seat ring.

Figure 6-12 Pressure Regulator Valve (P/N 041517)



\* Repair Kit P/N 041742



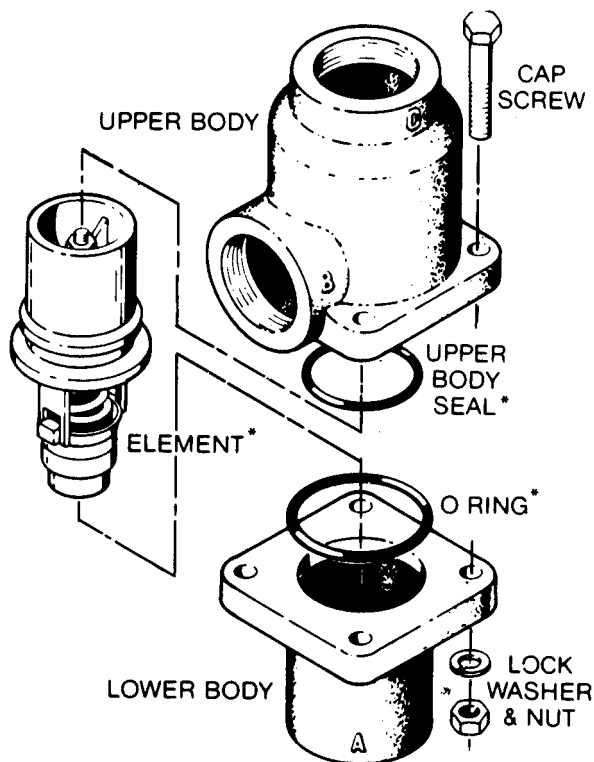
## Section 6 MAINTENANCE

7. The next step is to reassemble the regulator using the new parts provided in your repair kit.
8. Reassemble the diaphragm, pressure plate, gasket, seat disc and seat disc gasket and tighten the nut. All of these parts with the exception of the pressure plate are provided in the repair kit.
9. Replace the seat ring with the new seat ring provided.
10. Replace the existing brass gasket and diaphragm gasket stop.
11. Next, place these parts in their proper place on the body and replace the spring as it was prior to disassembly.
12. Place the spring button over the spring as shown.
13. With all parts in order, replace the spring chamber and tighten.
14. Tighten the adjusting screw until tension is realized.
15. At this time, refer to Control System Adjustment Procedure to readjust the control regulator.

### THERMAL VALVE MAINTENANCE

Refer to Figure 6-13. For thermal valve (P/N 041299) maintenance, use repair kit number

Figure 6-13 Thermal Valve (P/N 041299)



\* Repair Kit P/N 001084

001084, and follow the procedure explained below for repair kit installation

1. Remove appropriate piping for disassembly of the thermal housing.
2. Remove the four (4) capscrews which hold the housing together and pull the upper housing away from the lower housing.
3. Remove element.
4. Remove and replace the element seal in the upper housing.
5. Remove and replace the o-ring between the upper and lower housings.
6. Replace element.
7. Reassemble the housing.

### BLOWDOWN VALVE MAINTENANCE

Refer to Figure 6-14. When it becomes necessary to make repairs on running blowdown valve (P/N 409783, use repair kit number 001667, and follow the instructions provided below.

1. Unscrew the four (4)  $\frac{1}{4}$ " x  $\frac{3}{4}$ " capscrews securing the top cover and remove.
2. Remove the two (2) Viton washers from the top of the main body and discard.
3. Remove the cover o-ring, cylinder liner, piston, piston guide and piston seat.
4. Discard the cover o-ring, piston o-ring, piston guide o-rings, and the piston seat o-rings. Replace with o-rings provided in the repair kit.
5. Reassemble in reverse order of disassembly.

### FLEXIBLE COUPLING MAINTENANCE

Refer to Figure 6-15. Flexible coupling maintenance normally requires the replacement of the (two) 2 gasket rings on the coupling. Select appropriate gasket rings from Table 3 and follow the procedure below for proper installation.

### ⚠ WARNING

Disconnect all power at source before attempting maintenance or adjustments.

### PIPE END PREPARATION

1. Deburr and clean the pipe ends.
2. The pipe ends should be free of all deep scratches, gouges, dents, etc. A special finish is not required.

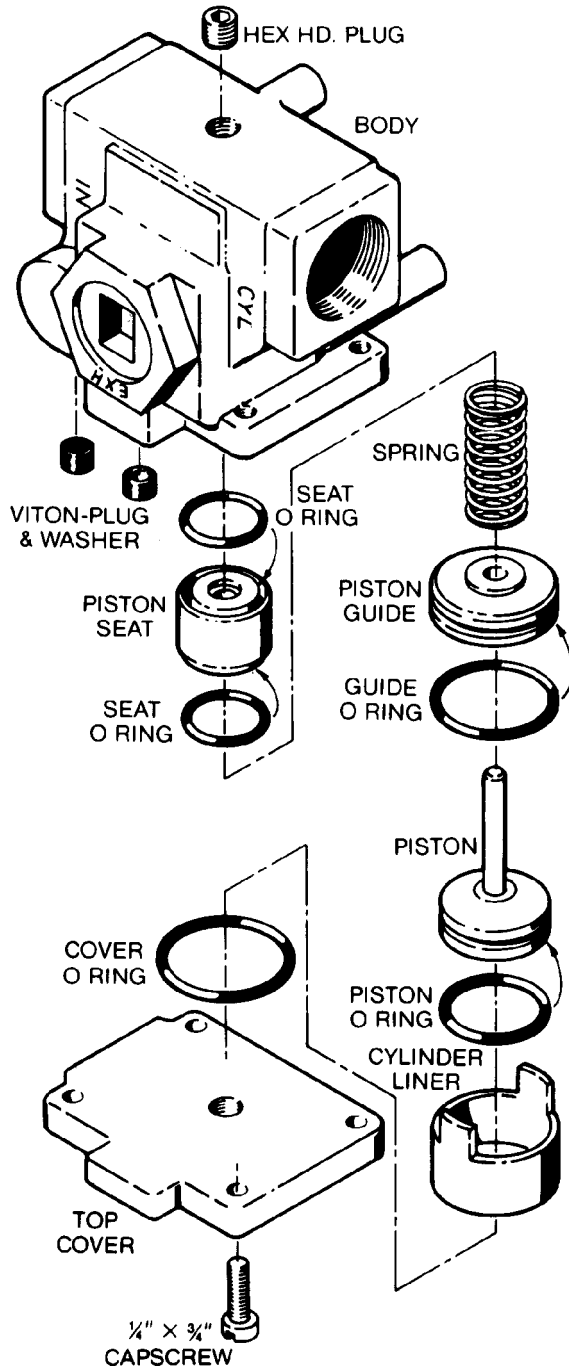
### JOINT INSTALLATION

1. Install the retainer (1), gasket (2), and sleeve on one side of the pipe as shown in Step 1.
2. Install the remaining retainer (4) and gasket (5) on the other pipe end.
3. Position the retainer (4) and gasket to proper pipe insertion depth ("D") as shown in Table 1.
4. Slide the sleeve (3) to the gasket (5) and move gasket (2) and retainer (1) into position as shown in Step 2.. The pipe **MUST** be inserted to the proper depth ("D") into both gaskets.

### COUPLER INSTALLATION

## Section 6 MAINTENANCE

Figure 6-14 Blowdown Valve (P/N 409783)



1. Install both V couplings as shown in Step 3, encompassing the retainer, gasket and sleeve, **DO NOT** tighten either coupling until the entire joint has been assembled.
2. Tighten the nuts to the torque valve shown in Table 2. **RECOMMENDED ASSEMBLY TORQUE MUST BE MAINTAINED.** Retightening of the coupler will be necessary if leakage occurs.

### SPECIAL NOTES

1. Assembly of the gaskets can be made easier by dipping the gaskets in water or the fluid to be sealed. **DO NOT USE THE RUBBER LUBRICANTS.**
2. Flexible joints are not intended to support end loads caused by internal pressure or other forces causing pipe separation.
3. **ALL** external restraints must be replaced after servicing the flexible coupling.

### 6.8 TROUBLESHOOTING

The information contained in the Troubleshooting chart is based upon both the actual applied situations and extensive testing at the factory. It contains symptoms and usual causes for the described problems, however **DO NOT** assume that these are the only problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repair or component replacement procedures.

A detailed visual inspection is worth performing for almost any problems which may prevent unnecessary damage to the compressor. Always remember to:

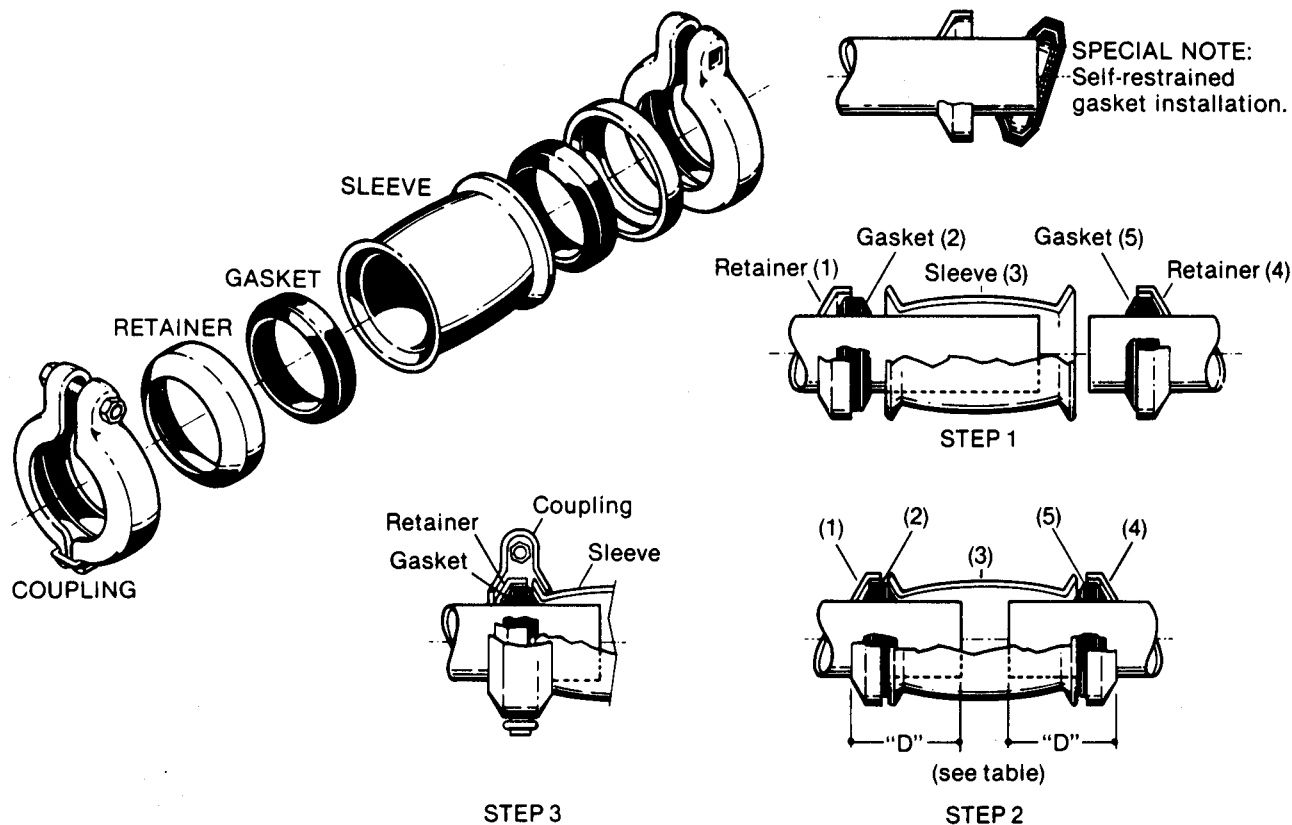
- a. Check for loose wiring.
- b. Check for damaged piping.
- c. Check for parts damaged by heat or an electrical short circuit, usually apparent by discoloration or a burnt order.

Should your problem persist after making the recommended check, consult your nearest Sullair representative or the Sullair Corporation factory toll free at 1-800-348-2722.

\* Repair Kit P/N 001667

# Section 6 MAINTENANCE

Figure 6–15 Flexible Coupling



**TABLE 1 INSERTION DEPTH**

Pipe Size	"D" Min.	"D" Max.
3" (76.2mm)	1.70" (43.2mm)	2.40" (60.9mm)
4" (101.6mm)	1.74" (44.2mm)	2.44" (62mm)

**TABLE 2 ASSEMBLY TORQUE (I)**

Size	Standard
3" (76.2mm)	180 to 220 in./lbs. (20.3 to 24.8Nm)
4" (101.6mm)	240 to 260 in./lbs. (27.1 to 29.3Nm)

(I) Tighten as shown in chart or a minimum of  $\frac{1}{16}$ " (1.5mm) clearance between coupling lugs, whichever comes first.

**TABLE 3 GASKET RING SELECTION**

Size	Part Number (STD & 24KT)
3" (76.2mm)	241732
4" (101.6mm)	046291

# Section 6

## MAINTENANCE

### TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
Compressor will not start	Main disconnect switch open	Close switch.
	Line fuse blown.	Replace fuse.
	Control transformer fuse blown	Replace fuse.
	Motor starter overloads tripped	Reset. Should trouble persist, check whether motor starter contacts are functioning properly.
	Low incoming line voltage	Check voltage. Should voltage check low, consult power company.
Compressor shuts down with air demand present	Defective discharge temperature thermistor switch	Check for a short or open circuit to the probe and correct wiring. Also check for short or open circuit to the control card. If current is not present, replace the control card. Should the above check out normal, it is possible that the thermistor probe is defective.
	Loss of control voltage	
	Low incoming voltage	Consult power company.
	Excessive operating pressure	Defect in pressure switch; check pressure at which contact points open. Separator requires maintenance; check maintenance gauge under full load conditions. High pressure shutdown switch is adjusted too low; readjust to 135 PSIG (931kPa). Defective pilot valve; pilot valve should cause control lever to move to unload stop when the pressure switch contacts open. Repair if defective. Defective blowdown valve; blowdown valve should exhaust sump pressure to atmosphere when maximum operating pressure is reached. Repair if defective.
	Discharge temperature switch open	Cooling water temperature too high; increase water flow (water-cooled only). Cooling water flow insufficient; check water lines and valves (water-cooled only). Cooler plugged; clean tubes. If plugging persists, install water conditioner (water-cooled only). Ambient temperature is too high; provide sufficient ventilation. Low fluid level; add fluid. Clogged filter; clean the main fluid filter element and change the bearing filter element if maintenance gauge shows red. Defective discharge temperature thermistor switch; Check for a short or open circuit to the probe and correct wiring. Also check for short or open circuit to the control card. If current is not present, replace the control card. Should the above check out normal, it is possible that the thermistor probe is defective.

## Section 6 MAINTENANCE

### TROUBLESHOOTING (continued)

SYMPTOM	PROBABLE CAUSE	REMEDY
Compressor will not build up full discharge pressure	Air demand is too great	Check service lines for leaks or open valves.
	Dirty air filter	Check the filter gauge and change or clean element if required.
	Pressure regulator out of adjustment	Adjust regulator according to control adjustment instructions in the Maintenance section.
	Defective pressure regulator	Check diaphragms and replace if necessary (kit available).
Line pressure rises above cut-out pressure setting on pressure switch	Leak in control system causing loss of pressure signals	Check for leaks.
	Defective pressure switch	Check that diaphragm and contacts are not damaged. Repair or replace if necessary (kit available).
	Defective pilot valve	Check that Sullicon Control lever is moved to unload stop when the pressure switch contacts open. Repair or replace if necessary (kit available).
	Defective blowdown valve	Check that sump pressure is exhausted to the atmosphere when the pressure switch contacts close. Repair or replace if necessary (kit available).
	High pressure shutdown is defective or adjustment is incorrect	Readjust or replace.
Excessive compressor fluid consumption	Clogged return line strainers, filters or orifices	Clean strainer (screen and o-ring replacement kit available). Clean orifice. Change element on separator tank return line filter.
	Separator element damaged or not functioning properly	Change separator.
	Leak in the lubrication system	Check all pipes, connections and components.
Pressure relief valve open repeatedly	High pressure shutdown switch is defective or out of adjustment (135 PSIG [932kPa]).	Readjust below pressure relief valve setting or replace.
	Defective pressure relief valve	Replace.

## Section 7

# ILLUSTRATIONS AND PARTS LIST

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### 7.1 PROCEDURE FOR ORDERING PARTS

Parts should be ordered from the nearest Sullair Representative or the Representative from whom the compressor was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address below.

When ordering parts always indicate the **Serial Number** of the compressor. This can be obtained from the Bill of Lading for the compressor or from the Serial Number Plate located on the compressor.

### SULLAIR CORPORATION

Subsidiary of Sundstrand Corporation  
3700 East Michigan Boulevard  
Michigan City, Indiana 46360

Telephone: (219) 879-5451  
Telex: 4946922  
FAX: (219) 874-1273  
See Toll-free Numbers Below.

### SULLAIR CORPORATION

Parts Distribution Division and Service Department  
1625 E. Second Street  
Michigan City, Indiana 46360

Telephone: (219) 879-5451 or  
1-800-348-2722 (U.S. except Indiana)  
1-800-225-6226 (Indiana)  
1-800-525-5506 (Canada)  
Telex: 4320147  
FAX: (219) 874-1835 (Parts)  
FAX: (219) 874-1805 (Service)

### 7.2 RECOMMENDED SPARE PARTS LIST

DESCRIPTION	KIT NUMBER	QUANTITY
replacement element kit for bearing filter 250025-521	250025-525	2
replacement element (primary) for separator 250034-125	250034-126	1
replacement element (secondary) for separator 250034-131	250034-132	1
replacement element for air filter	048462	1
replacement element for air filter	048463	1
repair kit for pressure regulator 041517	041742	1
repair kit for Sullicon Control 011682-003	250020-353	1
repair kit for control spring 250006-526	250006-526	1
repair kit for discharge valve o-ring 018165	826502-173	1
repair kit for fluid stop valve 013544	013671	1
repair kit for return line strainer 241771	241772	2
repair kit for o-ring cap	826502-221	1
repair kit for main filter 044286	001100	1
repair kit for blowdown valve 409783	001667	1
replacement element for return line filter 250025-520	250025-524	1
main oil filter element	044241	2
solenoid valve assy (250038-668)	250038-673	1

# NOTES

# NOTES



# STATEMENT OF WARRANTY

Sullair Corporation ("Sullair") warrants that under normal use and service, if properly stored, handled, installed, operated and maintained, its 24 KT air end shall, for a period of ten (10) years if continuously charged with 24 KT Coolant, (1) beginning at machine start-up if the registration card is returned within ten (10) days after start-up and the start-up occurs within twelve (12) months after shipment by Sullair from the factory, or (2) if not, beginning thirty (30) days after shipment by Sullair from the factory, be free of defects in materials and workmanship, under normal use and service, and free of loss of capacity due to wear. Should any such defect become apparent within such time, and written notice of each and every such defect is promptly provided to Sullair, and Sullair reasonably determines that any such Product is defective in material or workmanship, Sullair will, at its option, replace or repair such Product. Sullair's obligation with respect to such Product shall be limited to repair or replacement, F.O.B. Sullair's place of business, without any further expense to Sullair, and except as expressly provided herein, Sullair shall not in any event be liable for any other labor, transportation, installation, adjustment or other expenses which may arise in connection with such Product. Any misuse or abuse of the Products(s) voids this limited warranty.

The Sullair warranty does not extend to Products not assembled by Sullair. As to Products assembled by others, Purchaser shall be entitled to proceed only upon the terms of that particular manufacturer's warranty. The Sullair warranty does not apply to defects in materials provided by Purchaser or design stipulated by Purchaser.

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