



INDUSTRIAL AIR COMPRESSOR

**LS-20 SERIES
125-150HP/90-110KW
STANDARD AND 24KT**

**OPERATOR'S
MANUAL AND
PARTS LIST**

Part Number 02250060-165
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Effective 2/94

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Sullair Air Care Seminars are 3–day courses that provide hands–on instruction in the proper operation, maintenance and service of Sullair equipment. Individual seminars on Industrial compressors and compressor electrical systems are presented at regular intervals throughout the year at a dedicated training facility at Sullair’s corporate headquarters in Michigan City, Indiana.

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1.1 GENERAL

Sullair Corporation and its subsidiaries designs and manufactures 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 may 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/or any 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/or 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 $\frac{1}{2}$ " (13mm) 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) and/or any applicable Federal, State and Local codes, standards and regulations.

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 $\frac{1}{2}$ " (13mm) 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 (23m) of hose in runs of air hose exceeding $\frac{1}{2}$ " (13mm) 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 device 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) and/or any applicable Federal, State, and Local codes, standards and regulations.

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, if 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.

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SAFETY

C. DO NOT permit fluids, including air line anti-icer system antifreeze compound or fluid film to accumulate 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/or any applicable Federal, State or Local codes or regulations.

DANGER

Death or serious injury can result from inhaling compressed air without using proper safety equipment. See OSHA standards and/or any applicable Federal, State, and Local codes, standards and regulations 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. Consult Material Safety Data Sheet for information pertaining to fluid of fill.

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 and/or any applicable Federal, State, and Local codes, standards and regulations.

B. Inspect points of attachment for cracked welds and for cracked, bent, corroded or otherwise degraded 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 condition 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 a level surface capable of safely supporting at least its weight and its loading unit.

K. When moving the compressor 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 fully 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.

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1.10 ENTRAPMENT

A. If the compressor enclosure, if any, 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.

2.1 MOUNTING OF COMPRESSOR PACKAGE

The compressor package should be placed over a surface of foundation that is capable of supporting its weight, while remaining level and free of deflection which may affect the driveline mounts or the inboard pipework.

It is recommended that the package frame be leveled and secured to the foundation with adequate anchorage, and that a good grade grouting be used to insure full contact between the load bearing surfaces.

The compressor/motor driveline is self-aligned by the use of a rigid distance piece and supported by flexible vibration isolation mounts. Poor leveling or excessive deflections may adversely affect the operation and longevity of these devices.

No piping loads should be transmitted to the air and water connections provided with the package.

2.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit a sufficient unobstructed flow of air through the compressor 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:

WATER TEMP. ° F (° C)	WATER FLOW GPM (LPM)	
	125HP/90KW	150HP/110KW
70 (21)	17.5 (66.2)	21.0 (79.5)
80 (27)	23.5 (89.0)	28.0 (106.0)

(water pressure should be between 25 and 75 psig (1.7 and 5.2 bar))

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 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 no additional pressure drop is created across the fan. Consult a Sullair representative for assistance in utilizing this heat.

DO NOT install a water-cooled or an air-cooled/aftercooled compressor where it will be exposed to temperature less than 32°F (0°C).

2.3 SERVICE AIR PIPING

Service air piping should be installed as shown in Figure 2-11. A shut-off valve should be installed to isolate the 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.

2.4 SHAFT COUPLING CHECK

The compressor unit and motor are rigidly connected via a cast adaptor piece which maintains the shaft coupling in proper alignment. It is recommended that prior to initial startup, all coupling fasteners are checked for proper tensioning. Refer to the Coupling Service Procedures included in the Maintenance section of this manual.

2.5 FLUID LEVEL CHECK

The 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 near the sump. If the sump is properly filled, the fluid level should be visible in the sight glass.

2.6 MOTOR ROTATION CHECK

After the electrical installation has been done, it is necessary to check the direction of motor rotation.

Pull out the **EMERGENCY STOP** button and press once, quickly and in succession, the **(START)** “I” and **(STOP)** “O” pads. This action will “bump start” the motor for a very short time. When looking at the motor rear end, the driveline should be rotating counterclockwise. If the reversed rotation is noted, 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 top of the compressor/motor adaptor piece.

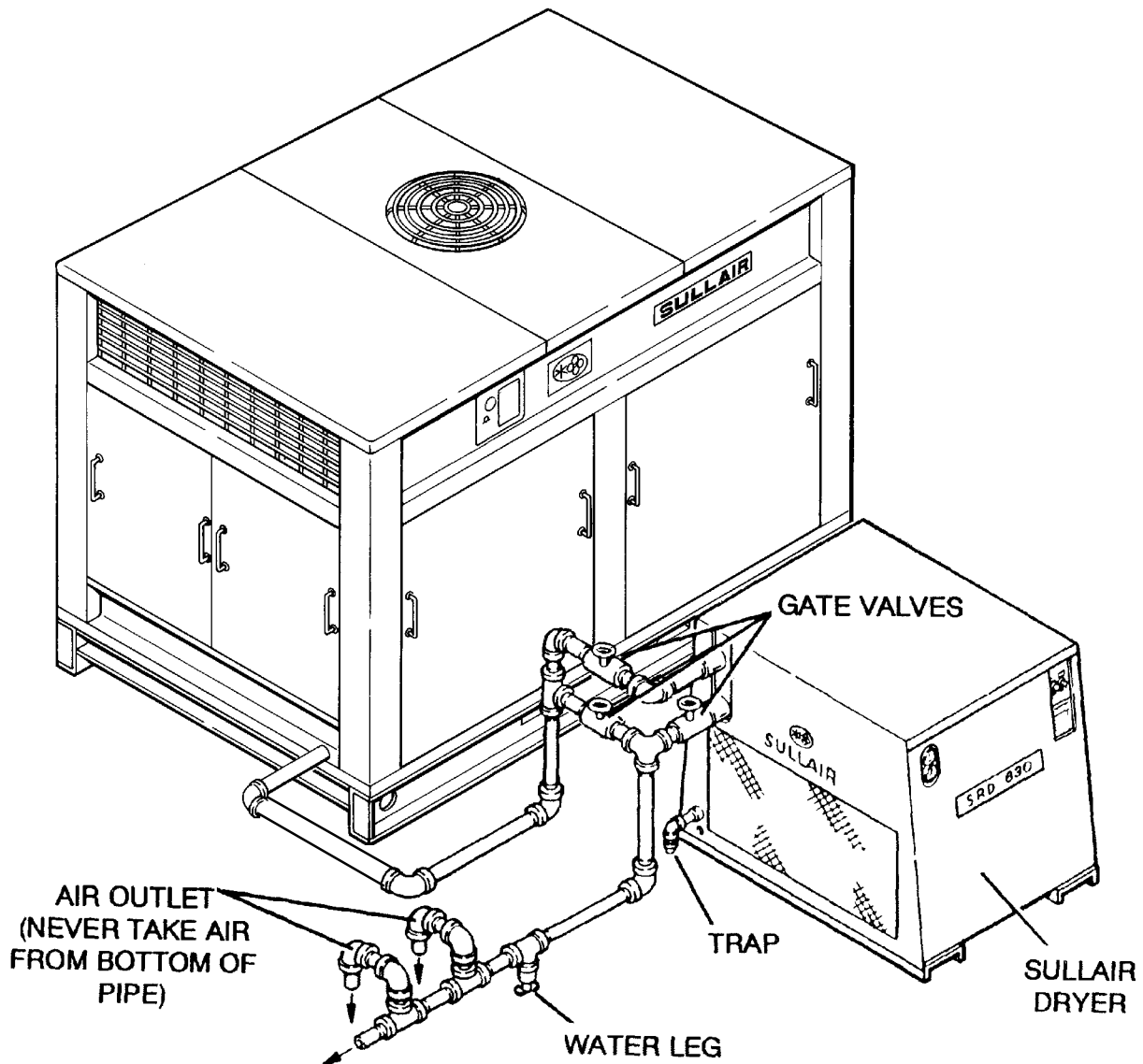
VENTILATION REQUIREMENTS

Cooling Type	Air-Cooled		Water-Cooled	
Motor KW	90	100	90	100
Fan Air CFM (I)	15,500	15,500	2,370 (I)	2,370 (I)
Heat Rejection BTU/Min.	6,081	7,267	28,110	33,610

(I) Applies to compressors with canopy only (vent fan).

Section 2 INSTALLATION

Figure 2–1 Service Air Piping (Typical Installation)



2.7 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 applicable local electrical codes 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.

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)** "I" pad 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 2.6.

3.1 TABLE OF SPECIFICATIONS

Model Series	DIMENSIONS						Weight (I)	
	Length		Width		Height			
	in	mm	in	mm	in	mm	lb	kg
	20 – 125HP/90KW	100	2540	60	1524	66.5	1690	4694
20 – 150HP/110KW	100	2540	60	1524	66.5	1690	4944	2243

(I) open package. Add 650 lbs./295 kg. to weight and 1.5 in. to height for enclosure package.

COMPRESSOR:

Type:	Positive displacement, fluid–lubricated, twin rotary screws
Configuration:	Single–stage geared integral drive
Bearing Type:	Anti–friction
Lubricant:	Pressurized Sullube 32
Coolant:	See Sections 3.2 and 3.3 on Lubrication
Sump Capacity:	13 gallons (49 liters)
Duty Press:	100–110 psig (6.9–7.6 bar)
Control Type:	Electro–pneumatic
Options:	Higher duty pressures up to 175 psig (12.1 bar), spiral valve, 24KT lubricant

MOTOR:

Size:	125–150HP/90–110KW, 4–pole speed
Service:	3 ph, 60 Hz, 460 VAC, 40°C ambient
Type:	ODP enclosure, NEMA frames 405TSC through 445TSC
Options:	TEFC enclosure, various voltages

MOTOR:

Size:	125–150HP/90–110KW, 3000 RPM
Service:	3 ph, 50 Hz, 400 VAC, 40°C ambient
Type:	Frame: IP23, P250SP–P250MP, Mounting: IM1001 (Foot)
Options:	IP55 enclosure, various voltages

3.2 LUBRICATION GUIDE – STANDARD COMPRESSORS

Sullair standard compressors are filled with Sullube 32 fluid as factory fill. **MIXING OF OTHER FLUIDS WITHIN THE COMPRESSOR 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.

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

Sullair encourages the user to participate in a fluid analysis program with the fluid suppliers. This

could result in a fluid change interval differing from that stated in the manual. Contact your Sullair dealer for details.

3.3 LUBRICATION GUIDE – 24KT COMPRESSORS

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

NOTES

4.1 INTRODUCTION

Refer to Figure 4-1. The Supervisor II has an LCD to display temperature, pressure, time and status. It has a keypad for operating the compressor, programming the control points and selecting the item to be displayed. There is a graphic illustration with LEDs that light to show the item being displayed.

4.2 SUPERVISOR II, FUNCTIONAL DESCRIPTION

By default, line pressure (P2) and discharge temperature (T1) are shown on the bottom row of the display, system status on the top row. This default display appears as follows:

MANUAL
110 180

- To view other data you must enter “DISPLY” mode. In this mode temperature, other pressures, operating parameters and hours can be viewed. To enter display mode press

DISPLY

- Display mode has six screens of information. To view each successive screen press (elsewhere indicated as delta key)

▲

- To leave display mode and return to the default display press

DISPLY

- If no key is pressed within 30 seconds, display mode will default and the main display will reappear. To lock in a certain display mode, press Sullair logo 3 times consecutively.



Release the display lock by pressing the “DISPLY” key once.

- Stop Key (Also used for resetting fault conditions).

O

- Start Key for continuous run.

I

- Automatic mode selection.

A

- Lamp Test



- The other operating parameters to be displayed in this mode occur in the following order (data shown represents typical values):

- Screen #1** – Separator differential pressure (dP) and the maximum advisable value for dP (MAX). If dP exceeds MAX the Supervisor will issue a maintenance warning.

dP 1#
MAX 10#

- Screen #2** – LOAD and UNLOAD operating parameters. The load solenoid is energized at any P2 value below the LOAD setting. This solenoid is de-energized when P2 exceeds the UNLD setting. LOAD also defines the automatic start pressure. If P2 falls below LOAD, the compressor will start if in automatic mode.

LOAD 100
UNLD 110

- Screen #3** – Sump pressure (P1) and the maximum permissible value for P1 (MAX). If P1 exceeds MAX the Supervisor will shut the compressor off with system status indicating “HI P1”.

P1 113#
MAX 135#

- Screen #4** – The total hours that the compressor has been running. “HRS RUN”, “000000.0”.

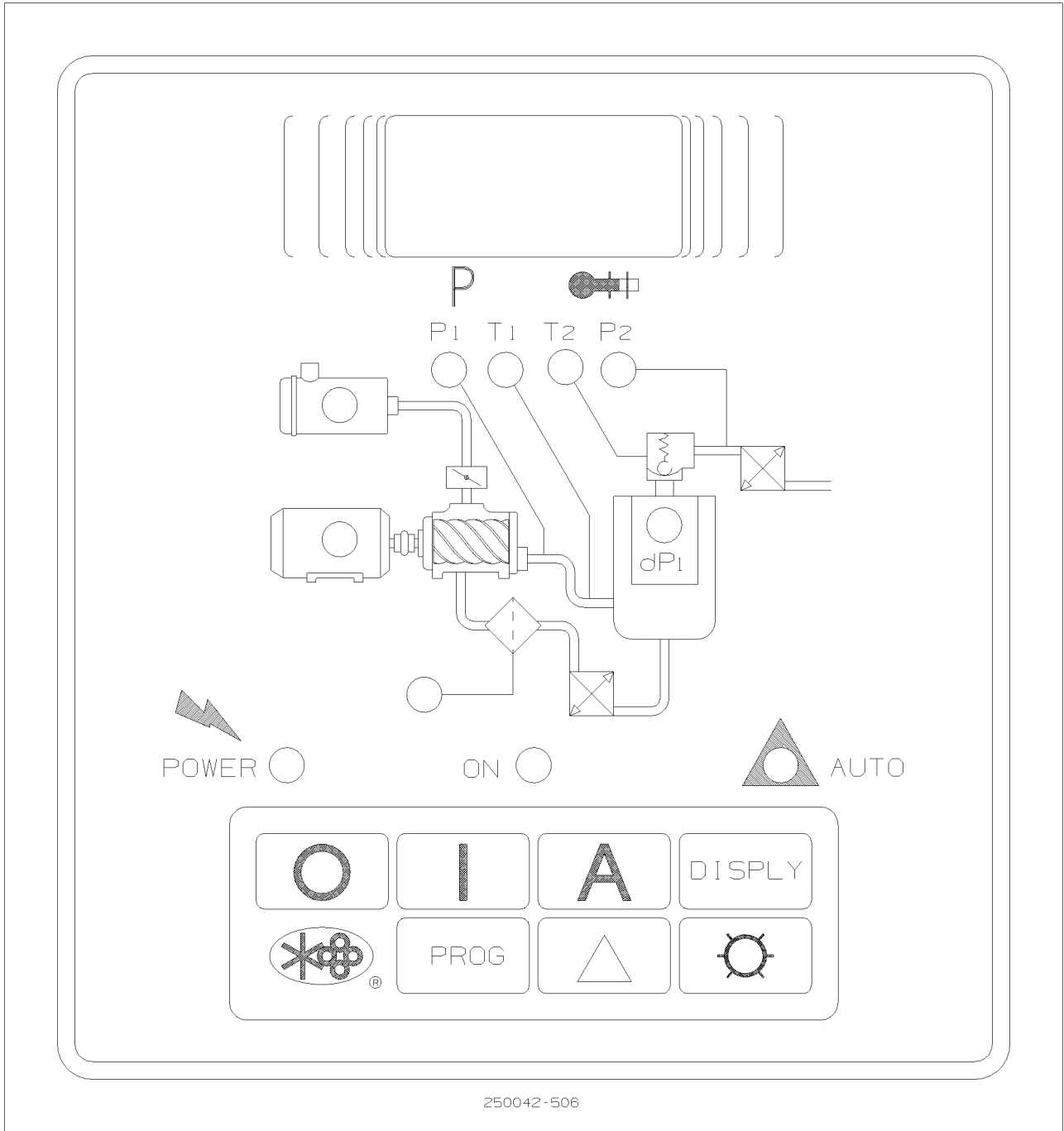
HRS RUN
000000.0

- Screen #5** – The total hours that the compressor has been loaded. “HRS LOAD”, “000000.0”.

HRS LOAD
000000.0

Section 4
SUPERVISOR II

Figure 4–1 Supervisor II Panel



4.3 SUPERVISOR OUTPUT RELAYS

PARAMETERS	OPERATION
RUN RELAY (K1)	Contact closure energizes the compressor starter.
* – DELTA (K2)	A timed contact used to provide wye – delta transition time.
UNLOAD/LOAD (K3)	Controls ON LOAD/OFF LOAD operation of the load control solenoid valve.
COMMON FAULT (K4)	May be used to provide remote indication of any pre – alarm, maintenance or fault shutdown condition.
DRAIN VALVE (K5)	Deluxe only – controls a solenoid valve to provide automatic condensate removal.
FULL LOAD/MODULATE (K6)	Deluxe only – used with sequencing feature.

NOTE: All output relays will handle 8 amps at 120/240 VAC.

NOTES

5.1 INTRODUCTION

Your new Sullair lubricated rotary screw air compressor will provide 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 mechanical reliability, with “no wear” and “no inspection” required of the working parts within the compressor unit.

Read Section 6 (Maintenance) to see how surprisingly easy it is to keep your air compressor in top operating condition. Should any questions arise which cannot be answered in the following text, call your nearest Sullair representative or the Sullair Corporation Service Department (see back cover).

5.2 DESCRIPTION OF COMPONENTS

Refer to Figure 5-1. The components and assemblies of the air compressors are clearly shown. The

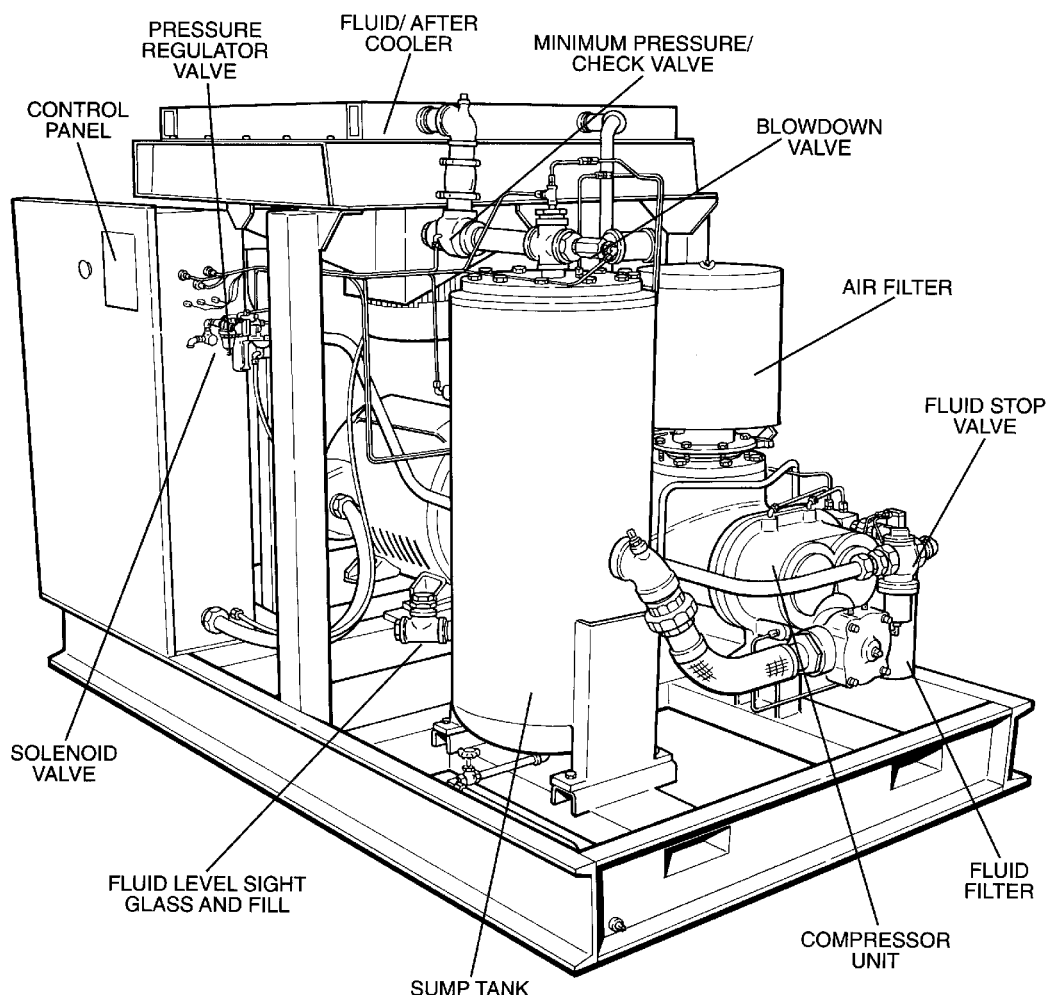
complete package includes **compressor, electric motor, compressor inlet system, compressor discharge system, compressor cooling and lubrication system, capacity control system, and Supervisor control system**, all mounted on a heavy gauge steel frame.

On air-cooled models, a separate motor-driven fan forces air through the cooler/aftercooler assembly, thereby removing the heat of compression from the cooling fluid.

On water-cooled models, fluid is piped into a four-pass exchanger where the heat of compression is removed from the fluid. A fan is used to supply sufficient ventilating air to the 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 5-1 Sullair Series 20 150HP/110KW Rotary Screw Compressor (Air-Cooled Version)



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COMPRESSOR SYSTEMS

5.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

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

Sullair 24KT compressors are filled with a fluid which rarely needs to be changed. In the event a change or make-up fluid is required, use only Sullair 24KT fluid. **MIXING OF OTHER LUBRICANTS WITHIN THE COMPRESSOR UNIT 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. The sample kit with instruction and self-addressed container is to be supplied by your Sullair representative at start-up. The user will receive an analysis report with recommendations.

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

- As coolant, it controls the rise of air temperature normally associated with the heat of compression.
- Seals the leakage paths between the rotors and the stator and also between the rotors themselves.
- 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 reinjection.

The fluid also serves as lubricant for the anti-friction bearings and the drive gear sets.

5.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 5-2 and 5-3. The **cooling and lubrication system** (air-cooled version) consists of a **fan, radiator-type cooler/aftercooler assembly, full-flow main line filter, thermal valve, fluid stop valve** and **interconnecting piping**.

For the water-cooled models, a shell and tube fluid cooler, aftercooler and water-flow regulating valve are substituted for the radiator-type cooler on air-cooled compressors.

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 filter and directly to the compressor unit where it lubricates, cools and seals the rotors and the compression chamber.

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 filter and on to the compressor unit.

The filter has a replacement element and an integral pressure bypass valve. When the element pressure drop exceeds 20 psid (1.4 bar), an internal switch contact opens and the Supervisor module displays a maintenance requirement message.

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. This 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.

5.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

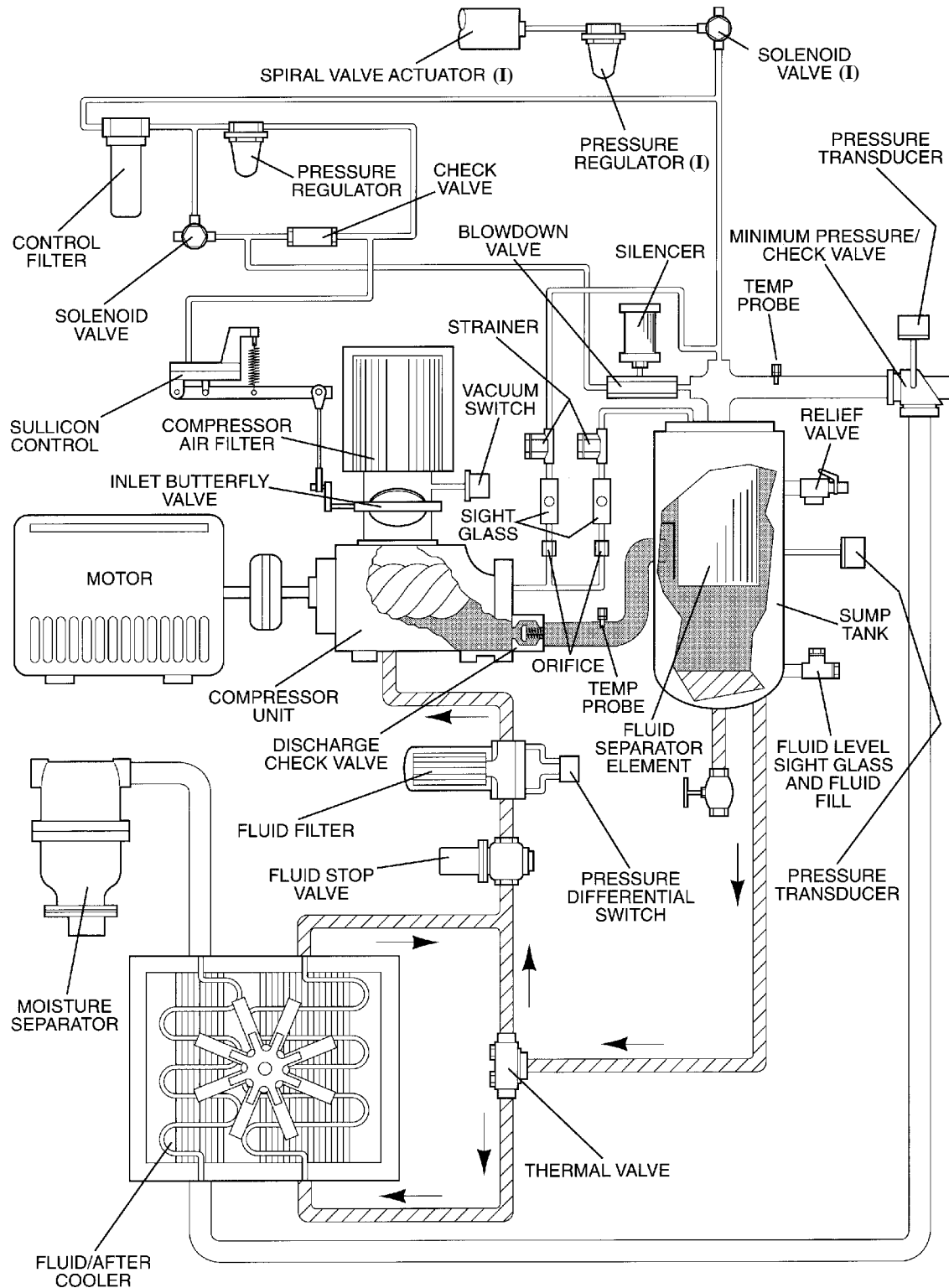
Refer to Figure 5-4. The compressor unit discharges the compressed air/fluid moisture through a discharge check valve into the combination receiver/sump. The discharge check valve prevents air in the receiver from returning to the compression chamber after the compressor has been shut down. The receiver has three functions:

- It acts as a primary fluid separator.
- Serves as the compressor fluid sump.
- Houses the final fluid separator elements.

The compressed air/fluid mixture enters the receiver and is directed against a curved shroud. Its direction of movement is changed and its velocity significantly reduced, thus causing large droplets of fluid to form and fall to the bottom of the receiver/sump. The fractional percentage of fluid remaining in the compressed air collects on the surface of the dual separator elements as the compressed air flows through them. Two return lines (or scavenge tubes) lead from the bottom of each separator element to the inlet region of the compressor unit. Fluid collecting on the bottom of each separator is returned to the compressor by a pressure difference between the receiver and the compressor in-

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Figure 5–2 Compressor Piping and Instrument Diagram

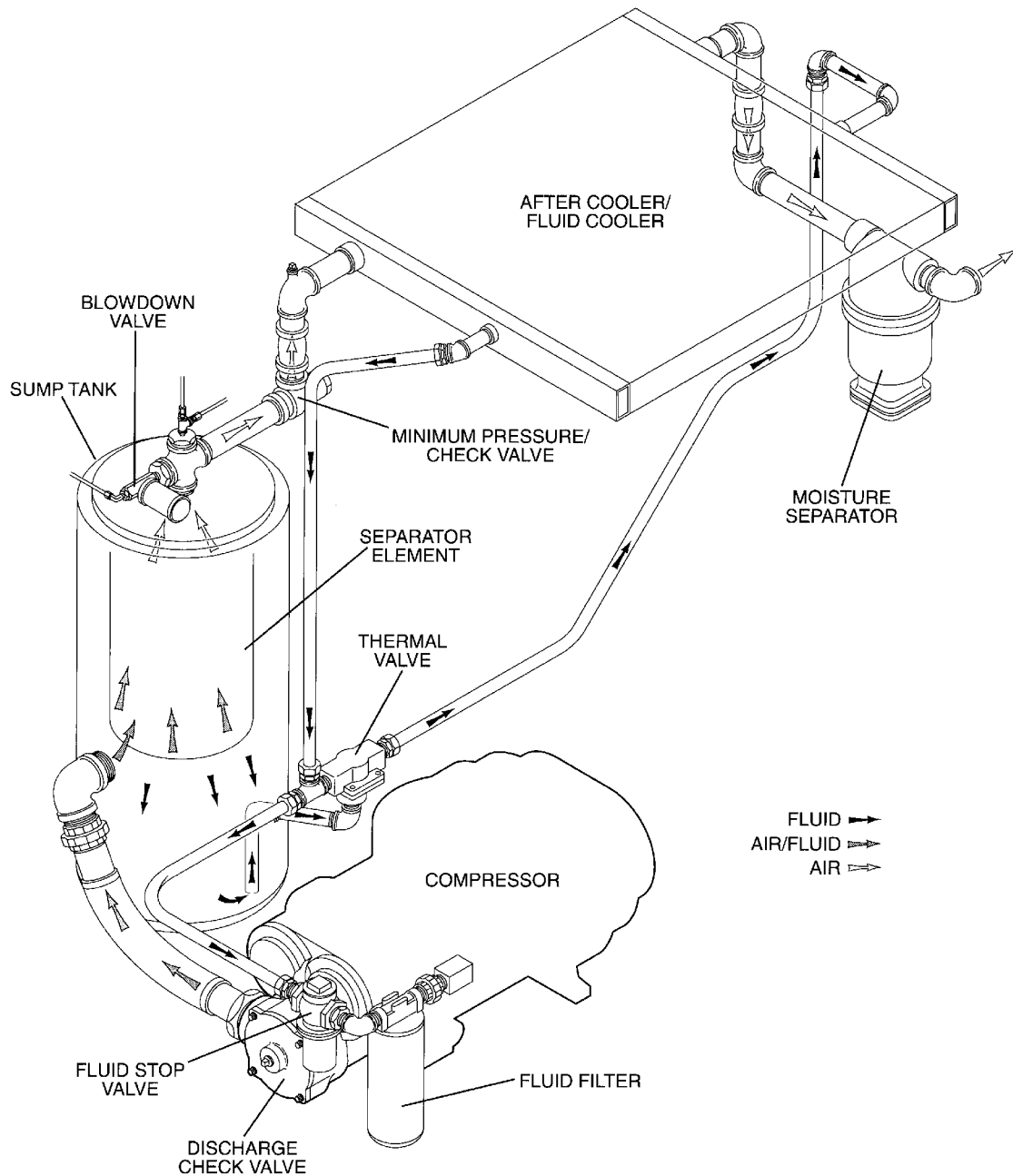


(I) Use with spiral valve option only.

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Figure 5–3 Compressor Cooling, Lubrication and Discharge Systems Diagram

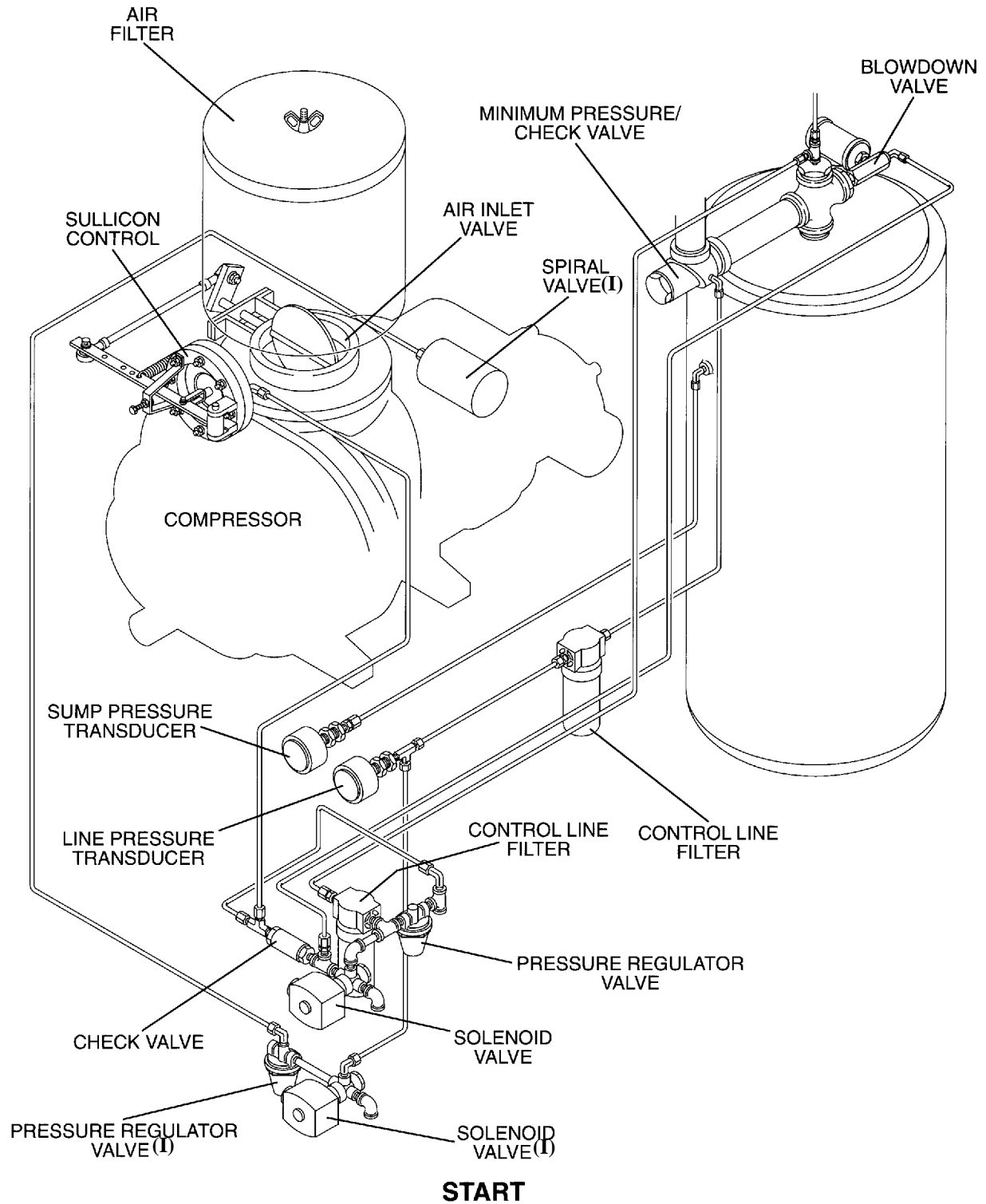


let. Sight glasses are located in the return lines to observe this fluid flow. There are also orifices in these return lines (protected by strainers) to assure proper flow. When the total pressure drop across the elements exceeds 10 psid (0.7 bar), the Supervisor module displays a maintenance requirement message.

The receiver is a pressure vessel designed and built to codes administered by appropriate governing bodies. A combination minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 50 psig (3.5 bar) during all conditions. This pressure is necessary for proper air/fluid separation and proper

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Figure 5-4 Control System Diagram

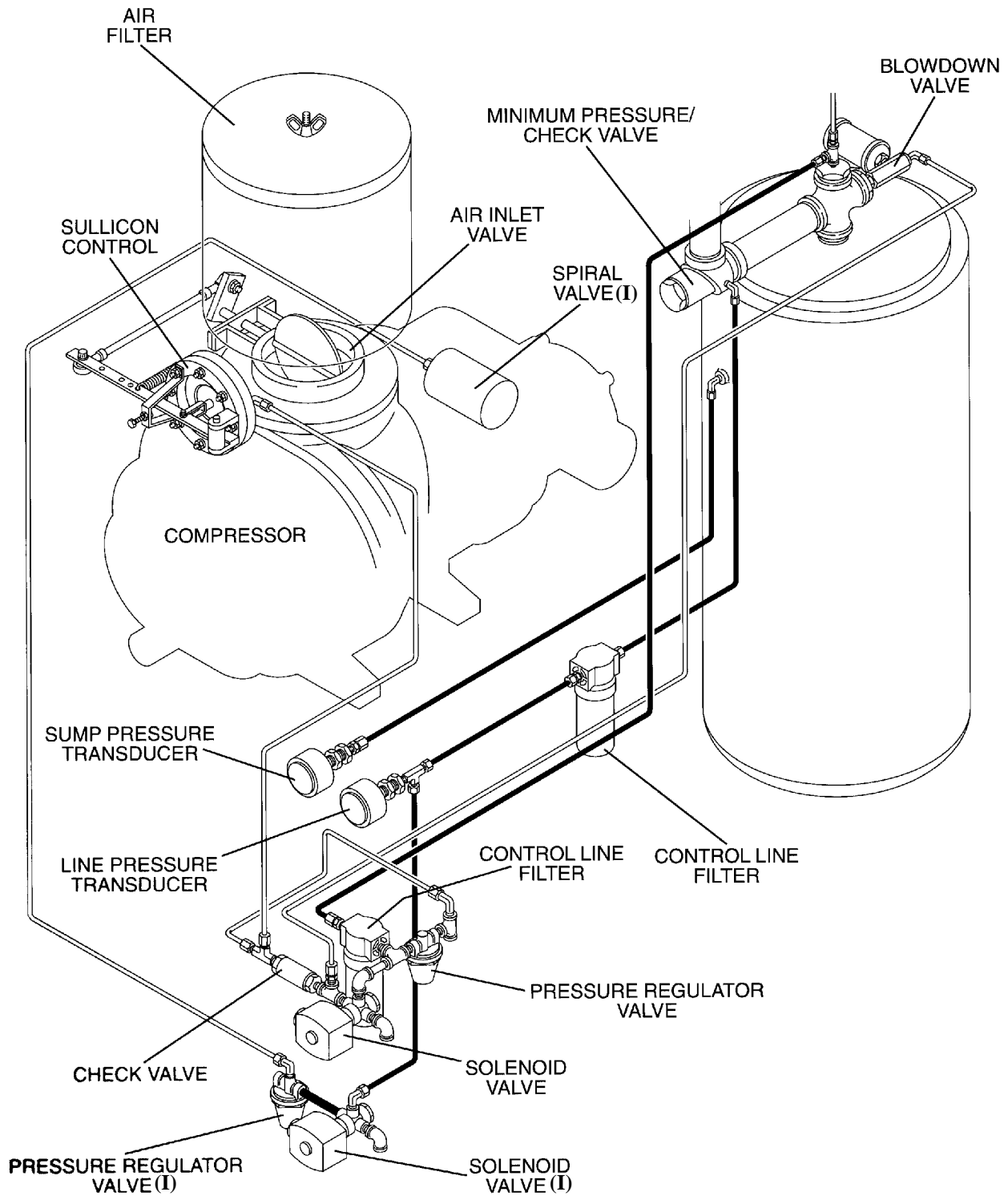


(I) Optional

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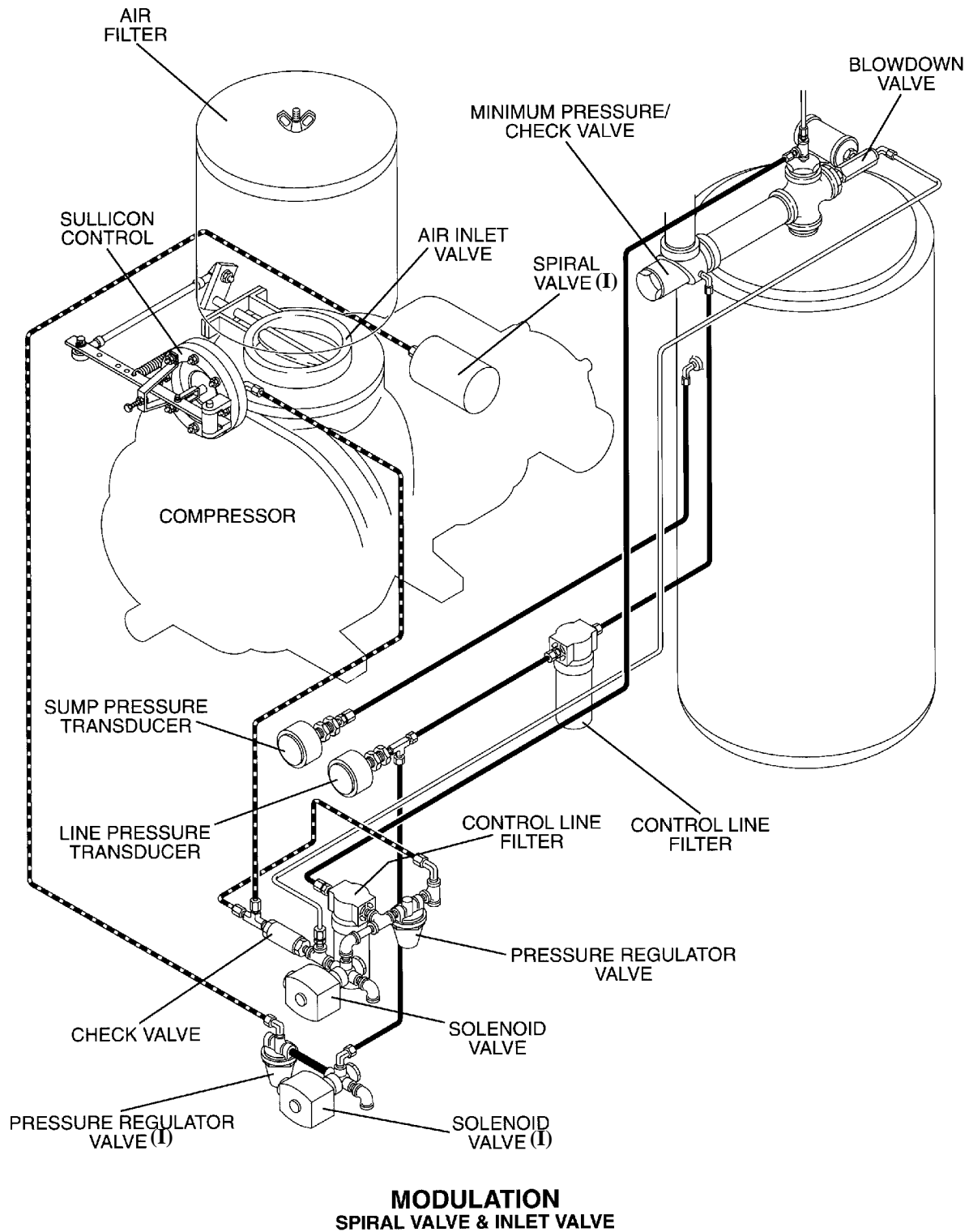
Figure 5-4 Control System Diagram



(I) Optional

FULL LOAD

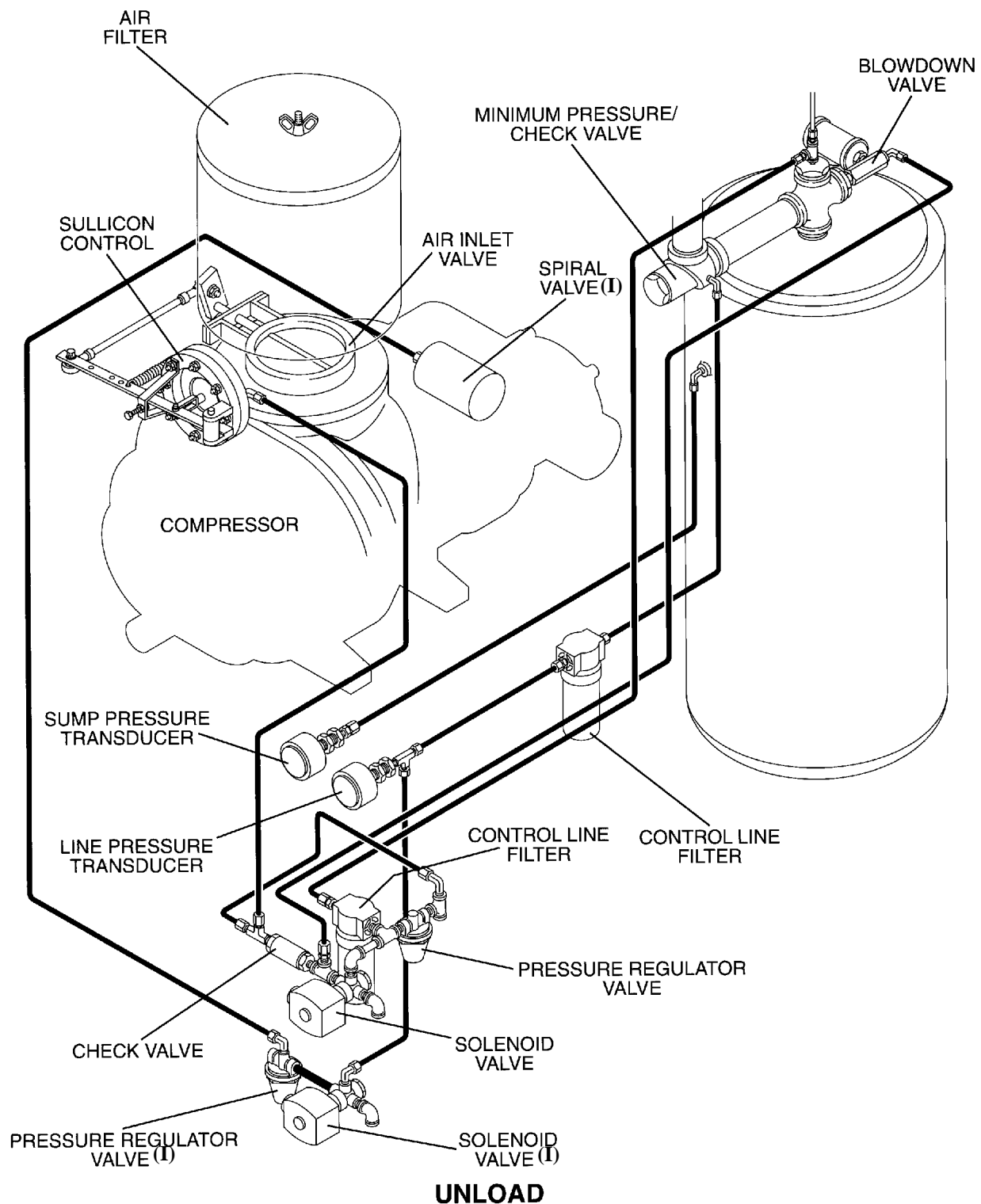
Figure 5-4 Control System Diagram



(I) Optional

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Figure 5–4 Control System Diagram



(I) Optional

fluid circulation while supplying air to the system. This valve also acts as a check valve preventing compressed air in the service line from bleeding back into the receiver on shutdown and during operation on the compressor in an unloaded condition.

A pressure relief valve (located on the wet side of the separator) is set to open if the sump pressure exceeds 200 psig (13.8 bar). For added safety the Supervisor module is programmed to shutdown the package when:

- a) A pressure level, above unload setting but below relief valve setting, is reached.
- b) A temperature level exceeding 240°F (116°C) is reached.

See Supervisor module functional description for further details on shutdown pressure levels.

All Sullair compressor models are equipped with a high pressure shutdown protection to shut down the compressor at 190 psig (13.1 bar). This prevents the pressure relief valve from opening under routine conditions, thereby preventing fluid loss through the pressure relief valve. A temperature switch will shut down the compressor if the discharge temperature reaches 240°F (115°C).

⚠ WARNING

DO NOT remove caps, plugs, and/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 tank to prevent overfilling of the sump. A sight glass enables the operator to visually monitor the sump fluid level

5.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 5-4. 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. The **capacity control system** consists of a **Sullicon Control**, a **butterfly valve** (located on the compressor air inlet), a **pressure switch**, **pilot valve pressure regulator(s)** and a **control line filter**. The functional description of the control system is described below in four distinct phases of operation. For explanation purposes, this description will apply to a compressor with an operating range of 100 to 110 psig (6.9 to 7.6 bar). A compressor with any other pressure range would operate in the same manner except stated pressures.

START MODE – 0 TO 50 PSIG (0 TO 3.5 BAR)

When the Supervisor Module “I” or “A” pad is de-

pressed, the unit starts and the pressure quickly rises from 0 to 50 psig (0 to 3.5 bar). The pressure regulator(s) and the pilot valve(s) remain closed, and the Sullicon Control and spiral valve are inoperative. The spring on the control holds the butterfly valve fully open via its spring-loaded lever arm. The minimum pressure valve (MPV) isolates the compressed air from reaching the service line while building enough backpressure (40–50 psig [2.8–3.5 bar]) to maintain adequate lubricant fluid flow. If the optional Closed Inlet Start assembly is provided, a spring-loaded, single acting pneumatic cylinder holds the butterfly valve almost fully closed, minimizing the compression load for special drivers (i.e., Wye-Delta electric motors) during the start-up phase. After a pre-determined amount of time, a solenoid valve energizes the pneumatic cylinder and the butterfly valve is thus opened fully. All further Sullicon Control operation takes place with the pneumatic cylinder energized.

NORMAL OPERATING MODE – 50 TO 100 PSIG (3.5 TO 6.9 BAR)

When the compressed air pressure rises above 50 psig (3.5 bar), 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 the Supervisor. The pressure regulators and the solenoid valve remain closed during this phase, keeping the Sullicon Control and spiral valve inactive. Both the spiral valve as well as the inlet butterfly valve remain in the full load position as long as the compressor is running at 100 psig (6.9 bar) or below.

MODULATING MODE (STANDARD CONTROL) – 100 TO 110 PSIG (6.9 TO 7.6 BAR)

If less than the rated capacity of compressed air is being used, the line pressure will rise above 100 psig (6.9 bar), and a pressure regulator starts feeding an air signal to the pneumatic Sullicon actuator. The linear action of this device begins to close the butterfly valve via a rod-and-lever linkage, throttling the mass of air entering the compressor and thereby reducing the latter's air delivery. The air throttling of the Sullicon control system increases proportionately with a rise of line pressure from 101 to 110 psig (7 to 7.6 bar).

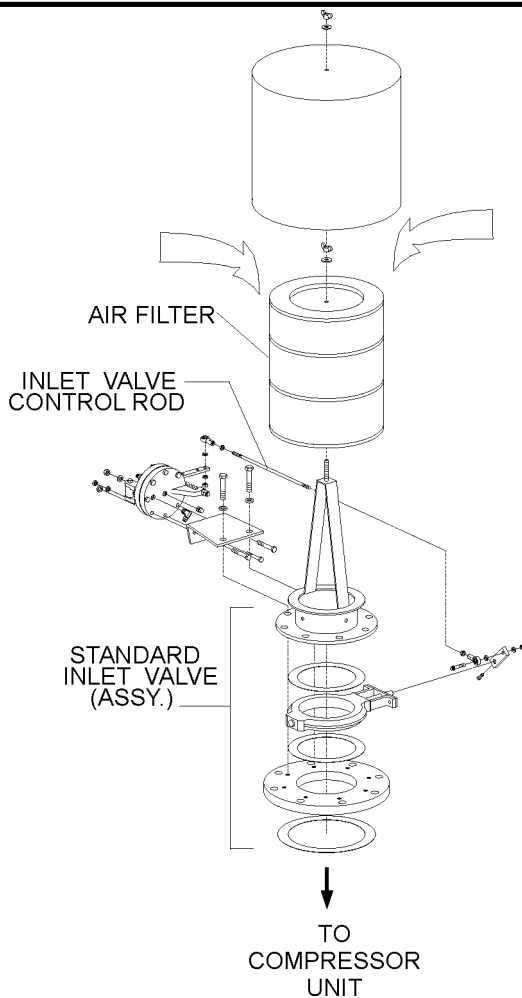
MODULATING MODE WITH OPTIONAL SPIRAL VALVE – 100 TO 110 PSIG (6.9 TO 7.6 bar)

As air demand drops below the rated capacity of the compressor, the line pressure will rise above 100 psig (6.9 bar). As a result, the differential pressure regulator for the spiral valve gradually opens, applying air pressure to the spiral valve actuator. Air pressure at the actuator expands the diaphragm. The rack, in turn, engages with the pinion mounted on the spiral valve shaft assembly. This results in a rotary motion. As the spiral valve rotates, it starts opening the bypass ports gradually. Excess air is then being returned back internally to suction end of the compressor unit. Now the compressor is fully compressing only that amount of air which is being used. As air demand keeps dropping further, the

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Figure 5–5 Air Inlet System



spiral valve keeps opening more and more until all the bypass ports are fully open. At this point, the spiral valve has moved into the unload (minimum) position.

The spiral valve provides a modulation range from 100 to 50%. During this period, the pressure rises approximately from 100 to 105 psig (6.9 to 7.2 bar). As the air pressure exceeds 105 psig (7.2 bar), the differential pressure regulator controlling the Sullicon Control opens. This allows the air pressure to expand the diaphragm chamber of the Sullicon Control, which starts partially closing the inlet butterfly valve. The inlet butterfly valve provides modulation range from 50 to 40%. During this period, the pressure rises approximately from 106 to 110 psig (7.3 to 7.6 bar). During this range, the spiral valve remains in the unload position.

UNLOAD MODE – IN EXCESS OF 110 PSIG (7.6 BAR) LINE PRESSURE

When little or no air demand is present, the line pressure increases beyond 110 psig (7.6 bar). At this point, the Supervisor Module energizes a solenoid valve which feeds an air signal to a) directly close the butterfly valve via the Sullicon actuator and b) open the blowdown valve and depressurize the package to its unload level of 40 to 50 psig (2.8 to 3.5 bar). The minimum pressure valve now isolates the sump vessel from the service line.

If the Supervisor Module is operating on an “I” mode, the unit runs unloaded until the line pressure falls below 100 psig (6.9 bar), at which point it proceeds to the Normal Modulating Mode. If on the other hand, the Supervisor Module is operating in the “A” mode, the unit runs unloaded for a pre-set length of time, and unless the line pressure falls below the 100 psig (6.9 bar) level, it stops at the end of this period. Once the line pressure falls below the 100 psig (6.9 bar) level, the compressor automatically restarts, followed by package operation in the Load mode.

When the line pressure drops back to 100 psig (6.9 bar) due to an increase in the air demand, Supervisor energizes the solenoid valve allowing the air pressure behind the Sullicon Control to be vented through the solenoid valve exhaust port. The blow-down valve closes, and the inlet butterfly valve opens. Also the air pressure at the spiral valve actuator diaphragm is reduced through a vent hole at the spiral valve differential pressure regulator, and a spring in the actuator causes the spiral valve to return to the full load (maximum) position.

5.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 5-5. The compressor inlet system consists of a **single-stage, dry-type air filter**, a **butterfly-type air inlet valve**, and an **adaptor piece** which mounts both devices to the compressor inlet flange. Optionally, a two-stage, heavy-duty, dry-type filter with inertial dust separation and collection, is available for added air filtration and sound attenuation.

When the pressure drop across the filter element(s) exceeds a level of 15 in. of water column, a switch contact opens in the Supervisor module and a filter maintenance annunciation is displayed.

Section 6

COMPRESSOR OPERATION

6.1 INTRODUCTION

While Sullair has built into the 20 Series package a comprehensive array of controls and indicators to assure its proper operation, the user should recognize and interpret readings which call for service or indicate the onset of a malfunction. Before starting the unit, the user should become familiar with the controls and indicators – their purpose,

location, and use.

6.2 PURPOSE OF CONTROLS

All Supervisor II Module (Supervisor) related functions and indicators are presented in Section 4.2, so please refer to that section for your information. Additional indicators and functions included in the package are as follows:

CONTROL OR INDICATOR	PURPOSE
EMERGENCY STOP SWITCH	Pushing in this switch, found adjacent to the Supervisor, cuts all AC outputs from the latter and de-energizes the starter. A fault message (E STOP) is displayed by the Supervisor until the button is pulled out and the “O” pad is depressed.
THERMAL O/L RESET	Momentarily pushing this button, found on the starter’s thermal overload element housing, re-closes the latter’s contacts after a current overload takes place. Please be aware that the elements must be allowed to cool sufficiently before resetting.
SULLICON ACTUATOR	Actuates the inlet butterfly valve which throttles the air flow to the compressor inlet, in order to match air supply to the demand.
SPIRAL VALVE (OPTIONAL)	Internally bypasses and controls the air flow capacity of the compressor, in order to match air supply to the demand. This device is optional.
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.
PRESSURE REGULATOR (WITH OPTIONAL SPIRAL VALVE)	Opens a pressure line between the service line and the spiral valve actuator allowing the spiral valve to regulate air delivery according to air demand.
SOLENOID VALVE	Electrically actuated, 3-way valve which controls the flow of pneumatic logic signals. Used throughout package to: <ul style="list-style-type: none">•Open the blowdown valve.•Load the Sullicon device/close the inlet butterfly valve during shutdown operation.•Close the spiral valve during shutdown operation.
DISCHARGE CHECK VALVE	Blocks the reverse flow of air/fluid through the compressor unit during shutdown.
MINIMUM PRESSURE VALVE	Maintains 50 psig (3.5 bar) pressure in sump vessel. When pressure falls below 40 psig (2.8 bar), it closes and isolates the sump vessel from the air service line, thus preventing compressed air backflow during unloading or shutdown.
PRESSURE RELIEF VALVE	Vents the sump vessel to atmosphere if the compressed air pressure exceeds 200 psig (13.8 bar). Its operation indicates fault with the Supervisor operation or its programming.
BLOWDOWN VALVE ASSEMBLY	Vents the sump vessel to atmosphere during unloading and shutdown.

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CONTROL OR INDICATOR	PURPOSE
THERMAL MIXING VALVE	Bypasses fluid flow around the cooler until the former reaches a temperature of 170°F (77°C). Useful for fast warm-up during start. Maintains a minimum temperature of 180°F (82°C) during periods of low load or low ambient temperatures.
FLUID STOP VALVE	Blocks the flow of fluid to the compressor during shut-down, thus preventing the discharge of fluid through the compressor inlet pipework.
SUMP SIGHT GLASS	Indicates level of lubricant in the sump. Located on the sump side, it should show half-full (compressor stopped) for proper fluid level.
SEPARATOR RETURN LINE SIGHT GLASSES	Indicate fluid flow in the separator return lines. Large flow should be visible during full load operation; little to no flow during unloaded operation. Sluggish flow during full load operation indicates the need to clean the strainers fitted to the return lines.
WATER PRESSURE SWITCH	De-energizes the starter, via the Supervisor, if the water pressure falls below 10 psig (0.7 bar). This switch is not adjustable. Used on water-cooled packages only.
WATER REGULATOR VALVE	Regulates the amount of water used, as well as shutting the water flow off when the package is not running. Used on water-cooled packages only.
DRAIN GLOBE VALVES	Furnished as manual backup and bypass for the automatic (float-type) drain valve used in the condensate separator vessel. Also used as lubricant sump drain valve.

6.3 SUPERVISOR OPERATING PARAMETERS SET UP

Refer to Figure 4-1 in Section 4, Supervisor.

- To change operating parameters you must go into “PROGRAM” mode. PROGRAM mode can only be accessed from the default display mode. To enter PROGRAM mode press “PROG”.



- When in PROGRAM mode you will be prompted with the name of the parameter, its current value and its units. To increase the value press “▲”.



- If you desire a lower value, you must increase until you reach the maximum allowable value; at this point the next increase will set the value to the minimum.

- To confirm the new value, or to go to the next item on the list, press “PROG”.



- While modifying a setpoint, you may want to restore the original value. To do so, press the Sullair logo.



- To return to the default display, cancelling any changes to the current parameter, press “DISPLY”.



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The following parameters can be modified in this mode:

1. Turn off the load solenoid when P2 goes above "UNLD".

**UNLD P2
110 PSI**

2. Turn on the load solenoid when P2 falls below "LOAD".

**LOAD P2
100 PSI**

3. If the machine is in automatic mode and it is unloaded for "UNLD TIM" minutes, the compressor will turn off and the system status will indicate "STANDBY".

**UNLD TIM
10 MIN**

4. Shut off the compressor if P1 exceeds "P1 MAX". System status will indicate "HI P1".

**P1 MAX
190 PSI**

5. Set the wye to delta transition time. For full voltage starters, set this parameter to zero.

**WYE DELT
10 SEC**

6. On deluxe machines only. This is the time interval between openings of the condensate drain valve.

**DRN INTV
10 MIN**

7. On deluxe machines only. This is the length of time that the drain condensate valve will be open.

**DRN TIME
3 SEC**

8. Defines the machine number for serial communications and/or setting the order of machine sequencing.

**COM ID #
1**

9. Set the baudrate (speed) of the serial communication network. Selections include 1200, 2400, 4800 and 9600.

**BAUDRATE
9600**

10. Whether remote start/stop is permitted. Remote start/stop can be done via the serial port or if a deluxe machine, by a dry contact input.

**REMOTE
DISABLED**

11. This selects the language that the display will use (English, Spanish, French, German or Italian).

**LANGUAGE
ENGLISH**

12. This selects the units, either English or metric.

**UNITS
ENGLISH**

NOTE

At compressor shutdown, the sump pressure is released to atmosphere through the solenoid and blowdown valve. The Supervisor digital display will continue to read system pressure P2.

6.4 OPERATING THE COMPRESSOR

Before operating the compressor the operating parameters must be setup. See the previous section (6.3) on operating parameter setup.

There are three modes of operation: manual, automatic and remote control. Remote control is performed via the RS-485 serial communication port.

MANUAL OPERATION MODE

In this mode the compressor will run indefinitely, as long as temperatures and pressure remain within the valid operating ranges, and the motor overload or emergency stop contacts are not tripped. Pressing the "I" will turn on the compressor and put it in manual mode. If the compressor is already running, but in automatic mode, pressing "I" will switch operation to manual. Pressing "I" while already running in manual mode will cause the Su-

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pervisor to turn off the common fault relay, if engaged, and clear any maintenance indicators.

To stop the compressor, press “O”. If the compressor is already off when “O” is pressed, the common fault relay will be turned off, if engaged, and it will try to clear the alarm and maintenance indicators. Regardless of what the compressor is doing, pressing “O” puts the Supervisor in manual stop mode.

AUTOMATIC OPERATION MODE

In this mode the compressor will start if line pressure (P2) is less than the parameter “LOAD”. It will stop if the compressor runs unloaded for the number of minutes indicated by the parameter “UNLD TIM”. To put the compressor in automatic mode press “A”. If P2 is already less than “LOAD” the compressor will start immediately, otherwise the system status will indicate “STANDBY” and the LED marked “AUTO” will flash.

If the compressor is already running, but in manual mode, pressing “A” will switch operation to automatic. Pressing “A” while already running in automatic mode will cause the Supervisor to turn off the common fault relay, if engaged, and clear any maintenance indicators.

In automatic mode the compressor can be stopped manually by pressing “O”. Stopping the compressor using “O” will put the Supervisor in manual stop mode.

Regardless of whether in “automatic” or “manual” mode, control of the load solenoid will be based on the parameters “UNLD” and “LOAD”. This operation is as follows:

P2 > UNLD --> load solenoid turned off
P2 < LOAD --> load solenoid turned on

POWER FAILURE RESTART (AUTOMATIC MODE)

If the compressor is running in **AUTO** or in **STANDBY** mode when a power interruption occurs, the Supervisor control will restore the machine to **AUTO** operating state when power is restored. All parameters and times are maintained. However, if the machine is manually stopped or stopped by a fault condition before a power interruption, the machine will remain **MANUAL** stopped on power restoration.

REMOTE CONTROL OPERATION MODE

Refer to protocol document (P/N 02250050–768). The Supervisor has an RS–485 serial communication port. Through this a remote computer can control the compressor. Rather than having a completely different operating mode, the commands emulate the keypads on the Supervisor panel. The remote computer can send “O”, “I” or “A”. However, the remote computer cannot reset fault conditions.

By default the load solenoid will operate as in “Manual” or “Automatic” modes. With the optional deluxe controller additional features such as force full load function, hard–wired remote stop/start, elec-

tronic drain valve, and sequencing may be incorporated.

6.5 LED INDICATORS

Embedded into the front panel schematic of the compressor are several LEDs. As a diagnostic for checking LED operation, pressing “⌘” will turn all the LEDs on for about 3 seconds. Each LED has the following purpose:

P1	If lit steady, P1 is being displayed. If flashing, P1 has been the cause of a system shutdown or currently in prealarm.
P2	If lit steady, P2 is being displayed. If flashing, P2 has been the cause of a system shutdown.
dP1	If lit steady, dP1 is being displayed. If flashing, the separator is in need of maintenance.
T1	If lit steady, T1 is being displayed. If flashing, T1 has been the cause of a system shutdown or currently in prealarm.
T2	If lit steady, T2 is being displayed. If flashing, T2 has been the cause of a system shutdown or currently is prealarm.
MOTOR	If flashing, the motor overload contact has opened. Should only be lit steady during a lamp test.
INLET FILTER	If flashing, the inlet filter is in need of maintenance.
OIL FILTER	If flashing, the oil filter is in need of maintenance.
POWER	Always lit if 120 VAC power is applied to the Supervisor. Should never flash.
ON	Lit steady, if the compressor is running. Should only flash on deluxe systems, this indicates that the compressor is armed but waiting for remote start.
AUTO	Lit steady if the compressor is running and in automatic mode. Flashing when the compressor is off and in automatic mode.

6.6 SYSTEM STATUS MESSAGES

The top row of the display is for the System Status Messages. These messages tell what mode the compressor is in, if maintenance is required, or if the compressor is “shutdown” due to an operating parameter violation. True first–out indication of a fault shutdown is assured by displaying only the first condition of shutdown on the message display. Subsequent fault conditions may appear as LED indications on the graphic map.

The following messages indicate that everything is

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COMPRESSOR OPERATION

normal:

MANUAL – Compressor is off, in manual mode.

STANDBY – Compressor is off, in automatic mode.

OFF LOAD – Compressor is on, the load solenoid is de-energized.

ON LOAD – Compressor is on, the load solenoid is energized.

The following messages indicate that the compressor may need maintenance. The message is cleared by pressing “O”.

SEP MNTN – While the compressor was running, the separator differential pressure was greater than 10 psid (0.7 bar). Separator maintenance is recommended. While the compressor was running the separator differential was greater than 10 psid (0.7 bar). Separator maintenance is recommended.

HI SUMP – There has been a start request, but P1 is greater than 5 psig (0.3 bar). The compressor will wait until P1 drops to 5 psig (0.3 bar) before starting. Maintenance to the blowdown valve may be required.

The following messages indicate that the compressor has exceeded an operational limit. Pressing “O” will clear these messages, but only if the condition causing these messages is no longer present. The compressor will not run if any of these messages are still present.

P1 HI – P1 was greater than P1 MAX.
P1 prealarm occurs at P1 MAX–3psig (0.2 bar).

T1 HI – T1 was greater than 235°F (113°C).
T1 prealarm occurs at 225°F (107°C).

T2 HI – T2 was greater than 235°F (113°C). T2 prealarm occurs at 225°F (107°C).

E–STOP – The emergency stop pushbutton was pushed in.

MOTOR OL – The motor overload contact has opened.

P1–LOW – P1 < 5 psig (0.3 bar) while running. This will also occur if the motor fails to run when the RUN relay is energized. An alternate cause for this condition may be a defective P1 transducer.

T1 or T2 FAIL – T1 < 6°F while the compressor

was running. Since this is an impossibly low value, the Supervisor assumes that the temperature probe has failed.

P1 FAIL – P1 ≥ 198 psig (13.7 bar) while the compressor is stopped. Since this is an impossibly high value, the Supervisor assumes that the pressure transducer has failed.

P2 FAIL – P2 ≥ 198 psig (13.7 bar) while the compressor is stopped. Since this is an impossibly high value, the Supervisor assumes that the pressure transducer has failed.

P2 FAIL – P2 ≤ 5 psig (0.3 bar) while the compressor is running.

6.7 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. Jog motor to check for correct rotation of fan (refer to Section 2.6).
3. Be sure that all preparations and checks described in the Installation Section have been made.
4. Open the shut–off valve to the service line.
5. Check for possible leaks in piping.
7. Slowly close the shut–off valve to assure proper nameplate pressure unload setting is correct. The compressor will unload at nameplate pressure. If adjustments are necessary, see Control System Adjustments.
7. Observe the operating temperature. If the operating temperature exceeds 200°F (93°C), the cooling system and installation environment should be checked.
8. Open shut–off valve to the service line.
9. Reinspect the compressor for temperature and leaks the following day.

6.8 SUBSEQUENT START–UP PROCEDURE

On subsequent start–ups, check that the proper level is visible in the fluid level sight glass and simply press “I” for manual or “A” for automatic operation. When the compressor is running, observe the various parameter displays.

6.9 SHUTDOWN PROCEDURE

To shut the compressor down, push “O” pad.

NOTES

7.1 GENERAL

As you proceed in reading this section, it will be easy to see that Maintenance Program for the air compressor is quite minimal. The Supervisor monitors the status of the air filter, fluid filter, and separator elements. When maintenance to these devices is required, the Supervisor will display the appropriate maintenance message and flash the location LED on the graphics map as a visual reminder.

⚠ WARNING

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

Stop compressor and relieve all internal pressure before doing so.

7.2 DAILY OPERATION

Following a routine start, observe the various Supervisor displays to check that normal readings are being made – previous records are very helpful in determining the normalcy of the measurements. These observations should be made during all expected modes of operation (i.e. full load, no-load, different line pressures, cooling water temperatures, etc.).

During the initial start-up or servicing of the package, fluid may have to be added to the sump vessel to restore an adequate level. Frequent fluid additions to maintain said level would be indicative of excessive fluid consumption, and should be investigated – see the Troubleshooting Section 8 of this manual for probable cause and remedy.

7.3 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. Perform the following maintenance operations to prevent unnecessary problems.

1. Clean the return line strainers.
2. Clean the return line orifices.
3. Change the fluid filter element.

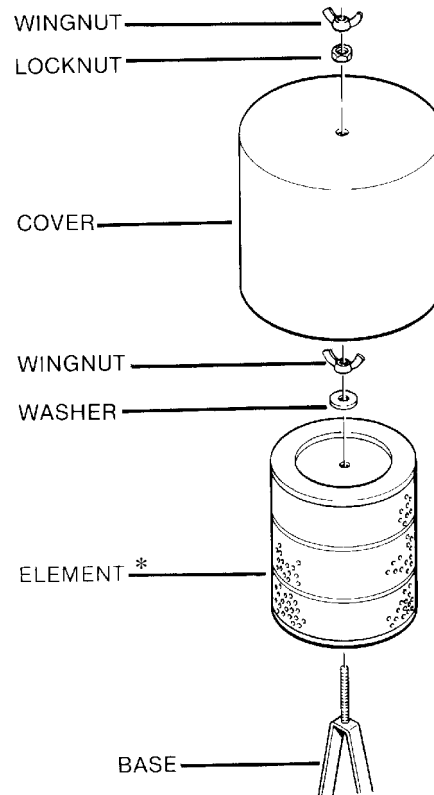
7.4 MAINTENANCE EVERY 1000 HOURS OF OPERATION

1. Clean the return line strainers.
2. Lubricate the Sulicon actuator linkage.
3. Change the fluid filter element.

7.5 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

Please familiarize yourself with the safety guidelines offered in Section 1 of this manual before attempting any maintenance on the package.

Figure 7-1 Air Filter (Std.) (P/N 02250047-993)



* Element Kit P/N 405158

AIR FILTER MAINTENANCE

Refer to Figure 7-1. Air filter maintenance should be performed when the corresponding maintenance message is displayed by the Supervisor – this corresponds to a pressure loss condition across the unit of 15 in. of water column. Your filter assembly includes a single element – the optional heavy-duty filter adds a secondary element.

ELEMENT REMOVAL

1. Clean the exterior of the filter housing.
2. Remove the cover assembly by loosening the wingnut securing it.
3. Loosen the corresponding nut and sealing washer assemblies and pull the element(s) from the housing.
4. Clean the interior of the housing with a damp cloth. **DO NOT** blow dirt out with compressed air.

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 disclose 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.

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4. After the element has been installed, inspect and tighten all air inlet connections prior to resuming operation.
5. **DO NOT** strike element(s) against a hard surface to dislodge dirt – this may damage the sealing surfaces and/or rupture the element.
6. **DO NOT** oil the element(s).

ELEMENT REPLACEMENT

1. Element replacement is performed by reversing the removal instructions. Make sure that the sealing washers and cover gasket are fully seated by their corresponding nuts.

FLUID FILTER MAINTENANCE

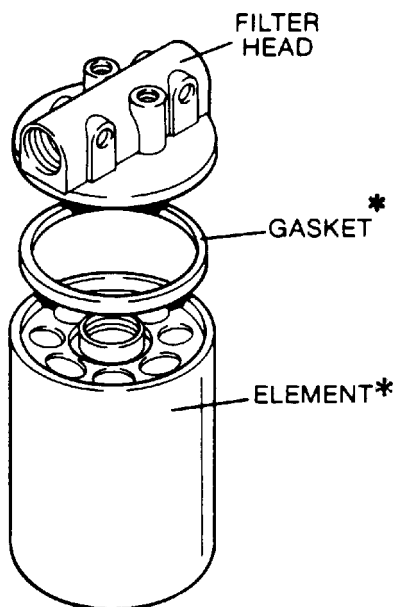
Refer to Figure 7-2. Fluid filter maintenance should be performed when one or more of the following items occurs:

- when corresponding maintenance message is displayed by the Supervisor – this corresponds to a pressure loss condition across the units of 20 psig (1.4 bar).
- every 1000 hours.
- every 6 months.
- every fluid charge change – STANDARD MACHINES ONLY.

Your fluid filter includes a propriatory replaceable element available solely from Sullair and its agents – **DO NOT** substitute.

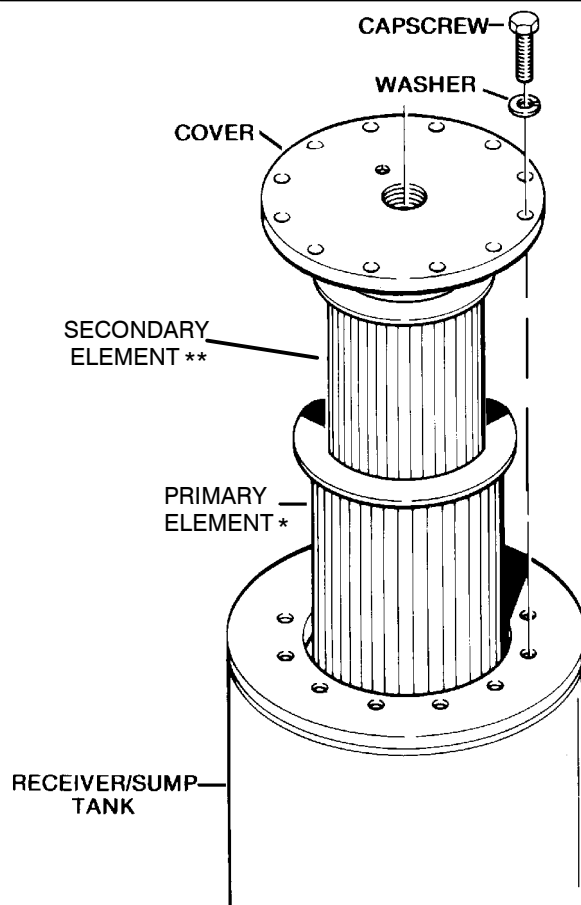
1. Using a strap wrench, remove the old element and gasket.
2. Clean the gasket seating surfaces.

Figure 7-2 Compressor Fluid Filter
(P/N 250025-022)



* Repair Kit P/N 250025-526

Figure 7-3 Separator Element Replacement



* Replacement element P/N 250034-085
(primary)

** Replacement element P/N 02250047-808
(secondary)

3. Apply a light film of fresh oil to the new gasket and hand tighten new element until gasket contacts the seat.
4. Continue tightening element an additional $\frac{1}{2}$ to $\frac{3}{4}$ turn.
5. Restart package and check for leaks.

SEPARATOR ELEMENT MAINTENANCE

Refer to Figure 7-3. The separator elements should be serviced by the Supervisor (this happens when the pressure drop across the elements has exceeded 10 psig [0.7 bar]), or once a year, whichever occurs first. Element service can be provided as follows:

1. Relieve all pressure from the sump tank and package pipework.
2. Disconnect all pipework connected to the sump cover.

3. Loosen and remove the twelve (12) hex head capscrews ($\frac{3}{4}$ " x $2\frac{1}{2}$ ") from the cover plate.
4. Lift the cover plate from the sump.
5. Remove the two (2) nested separator elements.
6. Scrape the old gasket material from the cover and sump flange – avoid dropping any scraps into the sump.
7. Inspect the sump vessel for rust, dirt, etc.
8. **DO NOT** remove grounding staples from the gaskets. **DO NOT** use any type of gasket eliminator. Reinsert the separator element, with gasket attached, into the sump, taking care not to dent the former against the tank opening.
9. Replace the cover plate and re-fasten washer/capscrew assemblies to 155 ft.-lbs. (211Nm).
10. Re-connect all pipework, making sure the return lines extend within $\frac{1}{4}$ " from the bottom of each element. This will insure proper fluid return during operation.

Figure 7–4 Solenoid Valve – Various

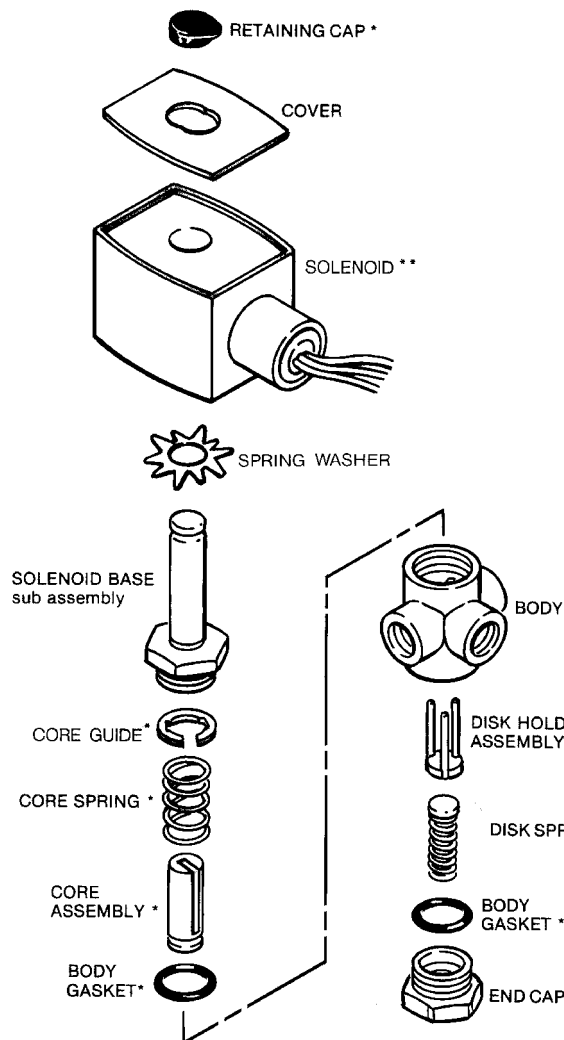
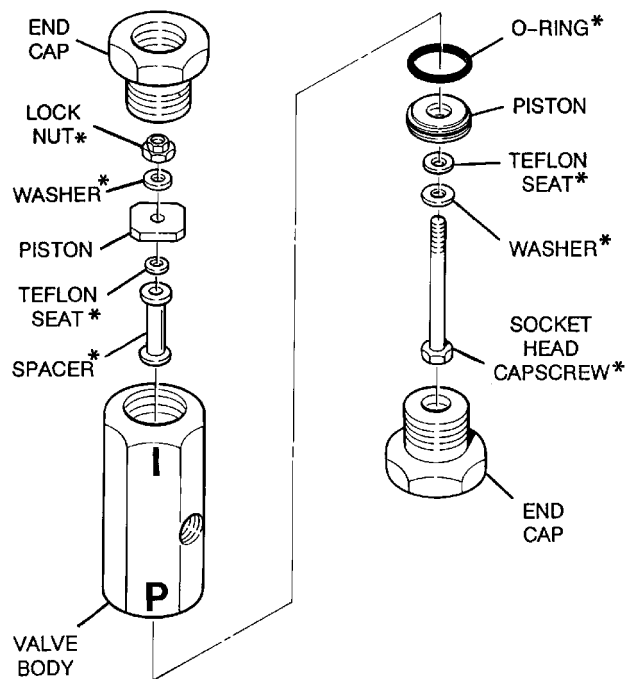


Figure 7–5 Blowdown Valve (P/N 250030–276)



* Repair Kit P/N 02250045–132

11. Clean the return line strainers.

SOLENOID VALVE MAINTENANCE

Refer to Figure 7-4. Little maintenance is required, but a periodic (dictated by service conditions) cleansing is desirable. In general, if the voltage to the coils is correct, sluggish valve operation or excessive leakage indicates that cleansing is required. When parts replacement is required, refer to the Spare Parts Listing for the replacement kits' part numbers and proceed as follows:

⚠ WARNING

Turn off all power, relieve package pressure, and disconnect coil lead wires to the valve before making repairs. It is not necessary to remove the valve from pipework for repairs.

DISASSEMBLY AND REASSEMBLY

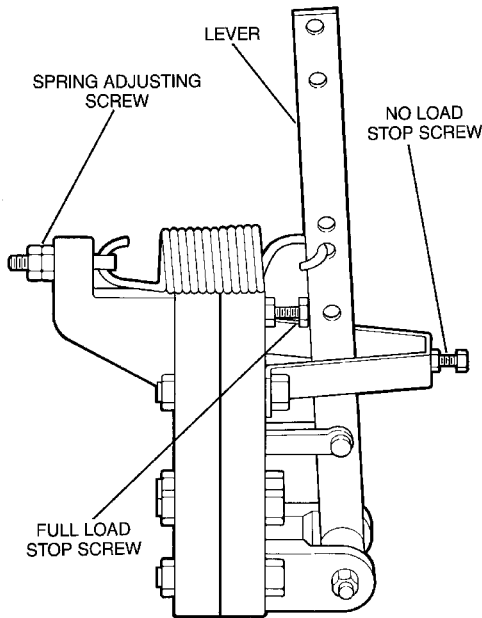
1. Remove the retaining cap and slip the entire solenoid off the solenoid base subassembly.
2. Unscrew the solenoid base assembly, remove the core assembly, core spring, and body gasket.
3. Remove the end cap, body gasket, disc spring, and disc holder assembly.
4. All parts are now accessible for cleansing or replacement. Replace worn or damaged parts.

COIL REPLACEMENT

1. Remove the retaining cap, nameplate, and cover.

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Figure 7–6 Sullicon Control (P/N 011682–003)



* Repair Kit P/N 250020–353

2. Slip the yoke containing the coil and sleeves off the solenoid base subassembly.
3. Replace coil and reassemble in reverse order.

BLOWDOWN VALVE MAINTENANCE

Refer to Figure 7–5. This pneumatic two-way valve calls for little maintenance. In general, if the pres-

sure signal (P2) is present, sluggish valve operation or excessive leakage indicates that cleansing is required. For servicing, proceed as follows:

⚠ WARNING

Relieve package pressure before making repairs. It is not necessary to remove the valve from pipework for repairs.

1. Remove adjacent air signal tubework, muffler pipework, and unscrew valve from process pipework.
2. Remove brass end caps (bushings).
3. Loosen/remove hexscrew/washer/locknut assembly holding piston assemblies together – hexscrew may have to be lightly tapped on its end in order to remove. Carefully note order of parts as they are disassembled.
4. Inspect, clean or replace worn parts.
5. Re-assemble in reverse order.

SULLICON ACTUATOR MAINTENANCE

Refer to Figure 7–6. The Sullicon actuator was adjusted at the factory and should require only periodic lubrication of its links and pivot points to keep operating properly. In general, if the pressure signal (P2) is present and proper lubrication link lubrication is evident, sluggish valve operation or excessive leakage indicates a damaged diaphragm. A replacement diaphragm is available in kit no. 250020–353, and may be installed as follows:

⚠ WARNING

Relieve package pressure before making repairs.

Figure 7–7 Drive Coupling

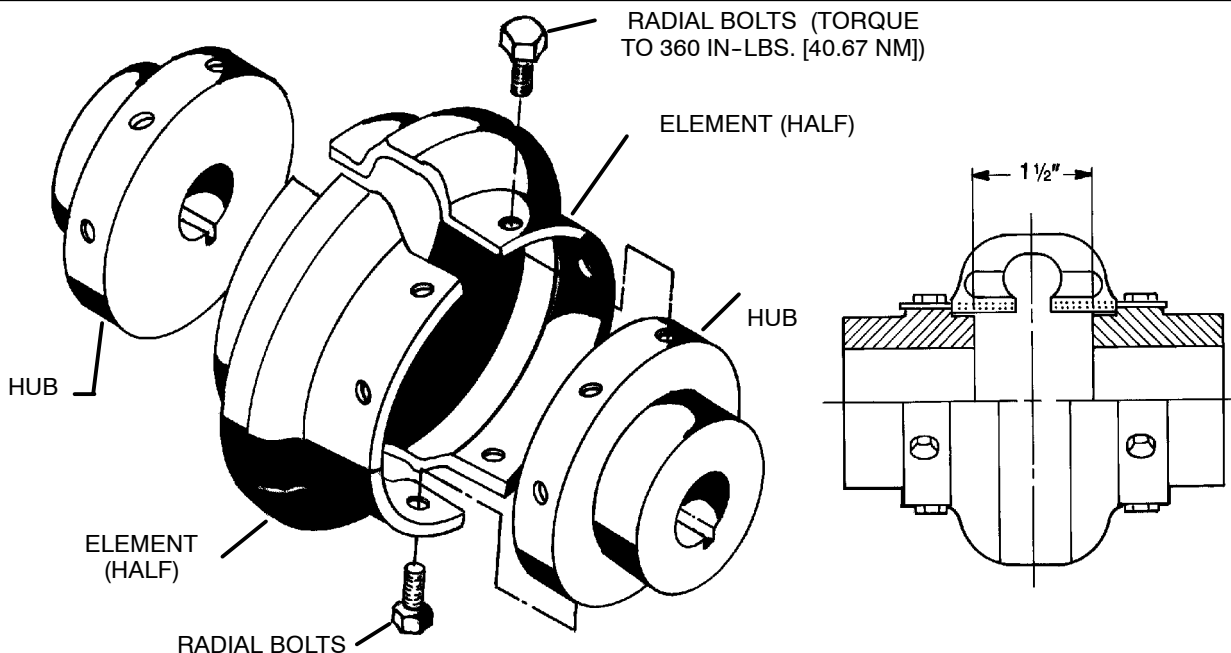


Figure 7–8 Drive Coupling Alignment

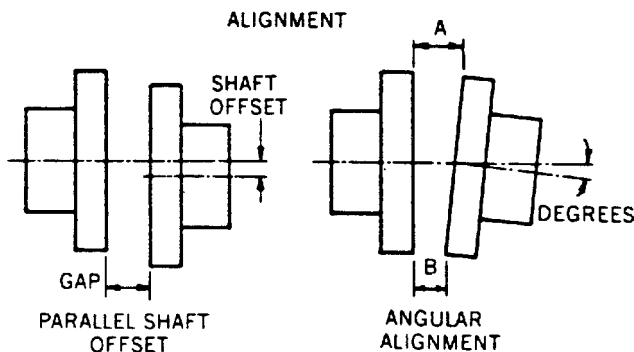


Table 1 – Installation Data

Tightening Torque lb.-in.	Gap \pm .030 Inches	Max Operating Coupling Parallel Offset Inches	Misalignment Capscrew	
			Angular Degrees	Inches (I)
360	1.50	T.I.R. .005	.5	.005

(I) Angular misalignment in inches equals maximum A minus minimum B. DO NOT exceed values in table above.

1. Remove adjacent air signal tubework.
2. Loosen/remove cap screw fastening the valve arm link to the Sullicon control lever and let link hang aside.
3. Loosen/remove the two (2) capscrew/nut assemblies securing Sullicon to its mounting bracket and pull Sullicon away.
4. Loosen/remove remaining capscrew/nut assemblies holding Sullicon body, diaphragm and cover together. Note that control stop bracket also comes off; without disturbing the stop screw/nut assembly, put it aside.
5. Loosen/remove screw/washer assembly fastening diaphragm to the yoke – carefully make note of order of parts as they are disassembled. Now the diaphragm may be inspected or replaced.
6. Reassemble in reverse order.

SHAFT COUPLING MAINTENANCE

Refer to Figure 7-7. The compressor unit and motor are rigidly connected via a rigid adaptor piece, thus the shafts are maintained in proper alignment at assembly. For reference only, the allowable angular and parallel shaft misalignments are presented in Figure 7-8. The only component requiring regular inspection or servicing is the coupling flexible element, which may be accessed as follows:

⚠ DANGER

Disconnect all power at source before attempting maintenance or adjustments.

INSPECTION/REMOVAL OF FLEXIBLE ELEMENT

1. Loosen fasteners securing wireform guard to the distance piece and remove to allow access to the coupling assembly.
2. Loosen and remove all capscrews securing each flexible element half to the shaft hubs.
3. Inspect each element body for signs of tears or separation away from the metal flanges – if any faults are found, elements must be replaced and Sullair contacted for further assistance.
4. Reassemble in reverse order. Capscrews must be re-torqued to 30 ft.-lbs. (40.7Nm) (dry). Please note that capscrews have self-locking patches

good for two re-uses, but the application of a thread-locking adhesive increases this number.
DO NOT LUBRICATE CAPSCREW THREADS!

Please note that replacement of either shaft hub requires the removal of the motor, an operation best handled by Sullair personnel.

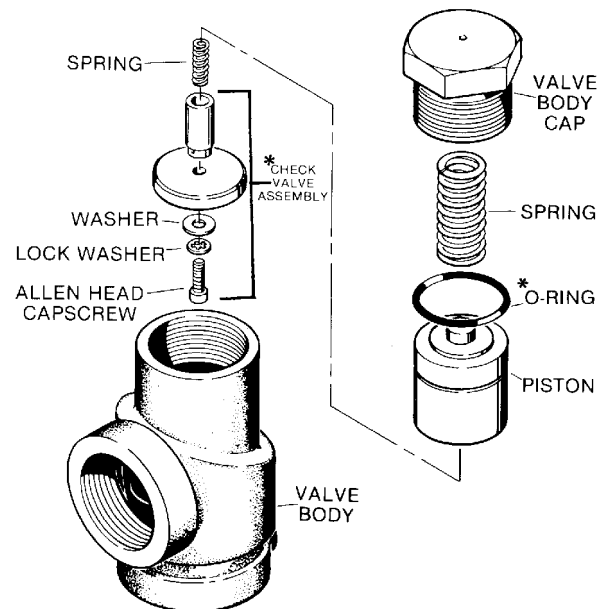
MINIMUM PRESSURE/CHECK VALVE MAINTENANCE

Refer to Figure 7-9. Minimum pressure valve maintenance requires the replacement of the parts contained in repair kit no. 001176 (125, 150HP/90–110KW). Follow the procedure below for proper installation:

⚠ WARNING

Before performing maintenance on valve, be sure that all pressure has been relieved in the machine

Figure 7–9 Minimum Pressure / Check Valve
125, 150HP/90–110KW use: 242405



Repair Kit P/N 001176

Section 7 MAINTENANCE

sump, and all downstream pressure has been vented to the atmosphere. Also, be sure that the components of the machine are cool to the touch.

1. Unscrew the minimum pressure/check valve from the receiver cover.
2. Unscrew cap and remove it. Remove main spring.
3. At this time turn assembly over and tap the check valve assembly with screwdriver until the piston and check valve assembly come out.
4. Now clean the body and reusable parts as needed.
5. Lightly cover the new check valve assembly with oil and position it in the valve body. Install the new check valve spring.
6. Install new piston o-ring on piston and lightly oil. Place piston in the valve and install new piston spring. Apply Loctite® to valve cap, replace cap and tighten.

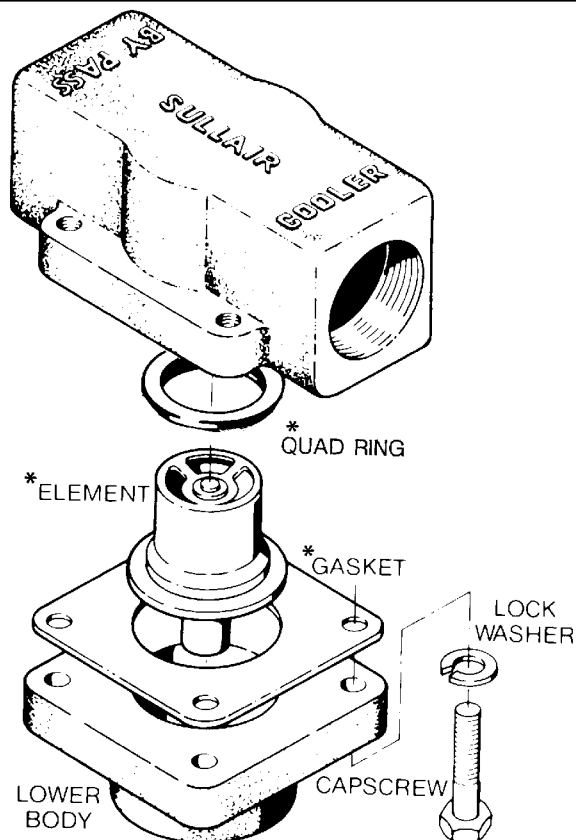
THERMAL VALVE MAINTENANCE

Refer to Figure 7-10. For thermal valve element maintenance follow the procedure explained below for installation.

DISASSEMBLY

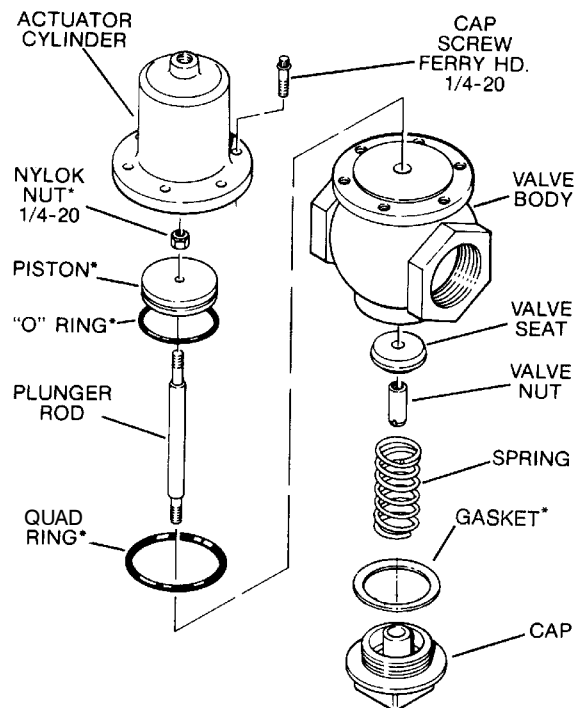
1. Remove the appropriate piping from the thermal valve before starting disassembly.

Figure 7-10 Thermal Valve (P/N 014512)



*Repair Kit P/N 001168

Figure 7-11 Fluid Stop Valve (P/N 016742)



* Repair Kit P/N 001684

2. Remove the four (4) capscrews holding the body together and separate the upper body from the lower body.
3. Remove the gasket from between the bodies.
4. Pull firmly on the thermal element and remove.

NOTE

There will be a slight resistance from the quad ring centered in the upper housing.

REASSEMBLY

1. Grease and replace the quad ring on the element.
2. Reinsert the thermal element pushing down until the brass ring is flush with the surface of the upper housing.
3. Position the new gasket on the lower body making sure holes are properly aligned.
4. Place the upper body on the lower body and re-tighten the capscrews to 30 ft.-lbs. (40.7Nm).
5. Replace all piping connected to the thermal valve.

FLUID STOP VALVE MAINTENANCE

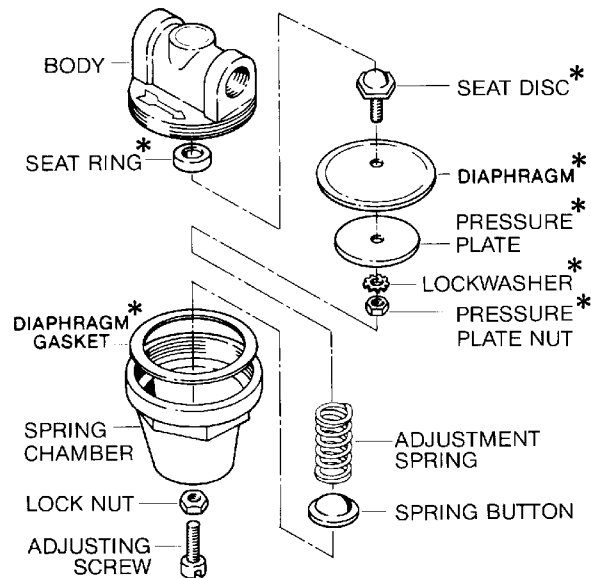
Refer to Figure 7-11. When servicing fluid stop valve no. 016742, order repair kit no. 001684.

The following instructions are in accordance with seal replacement kit no. 001684.

1. **DO NOT** attempt to service valve without first turning off machine, disconnecting power and relieving all pressure in sump.

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Figure 7–12 Pressure Regulator Valves
Sullicon Use: P/N 406929
Spiral Valve Use: P/N 408275



*Repair Kit P/N 041742 (for 406929)
P/N 250028–693 (for 408275)

2. Disassemble $\frac{1}{4}$ " pilot tube, remove six (6) $\frac{1}{4}$ "–20 capscrews that secure the cylinder to the valve body. Carefully slide cylinder off of piston.
3. Remove o–ring from piston and discard. Remove quad ring from cylinder and discard.
4. Place new o–ring over piston, apply light coating of compressor lubricant to o–ring and inside wall of cylinder. Position quad ring in cylinder flange recess.
5. Carefully slide cylinder over piston and secure to housing with six (6) capscrews. (4–5 ft.–lbs. [5–7Nm]).
6. Reconnect pilot tubing and make sure all joints are properly tightened before starting compressor.

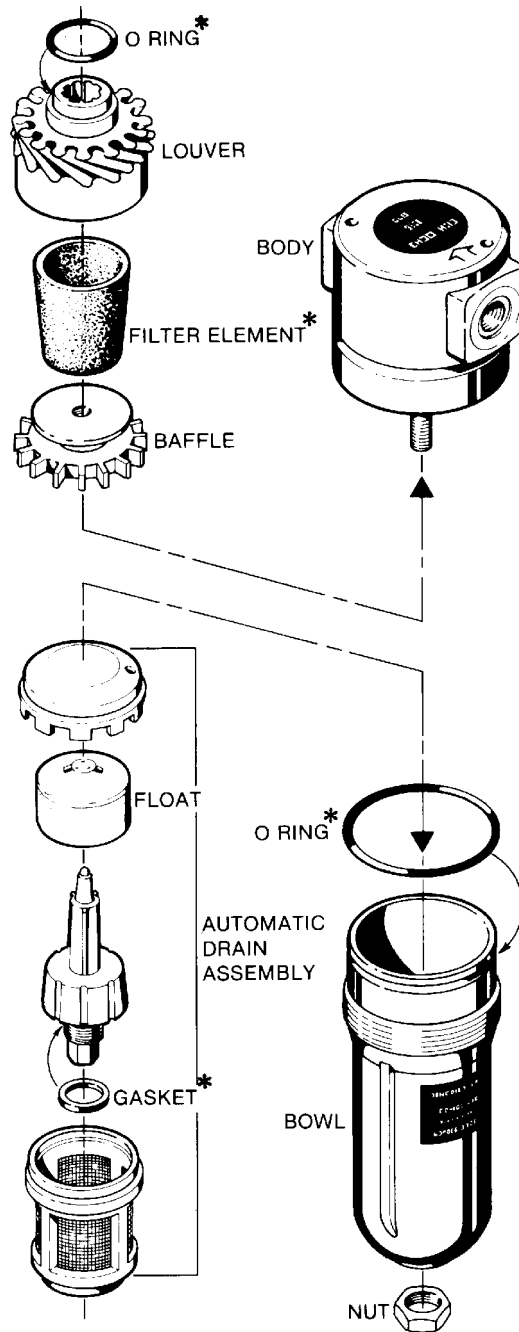
PRESSURE REGULATOR VALVE MAINTENANCE

Refer to Figure 7-12. Pressure regulator valve maintenance normally requires the replacement of the internal diaphragm. Use repair kit no. 041742 and follow the procedure below for proper installation.

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 chamber from 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.

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.

Figure 7–13 Control Line Filter (P/N 408389)



*Repair Kit P/N 001692

Section 7

MAINTENANCE

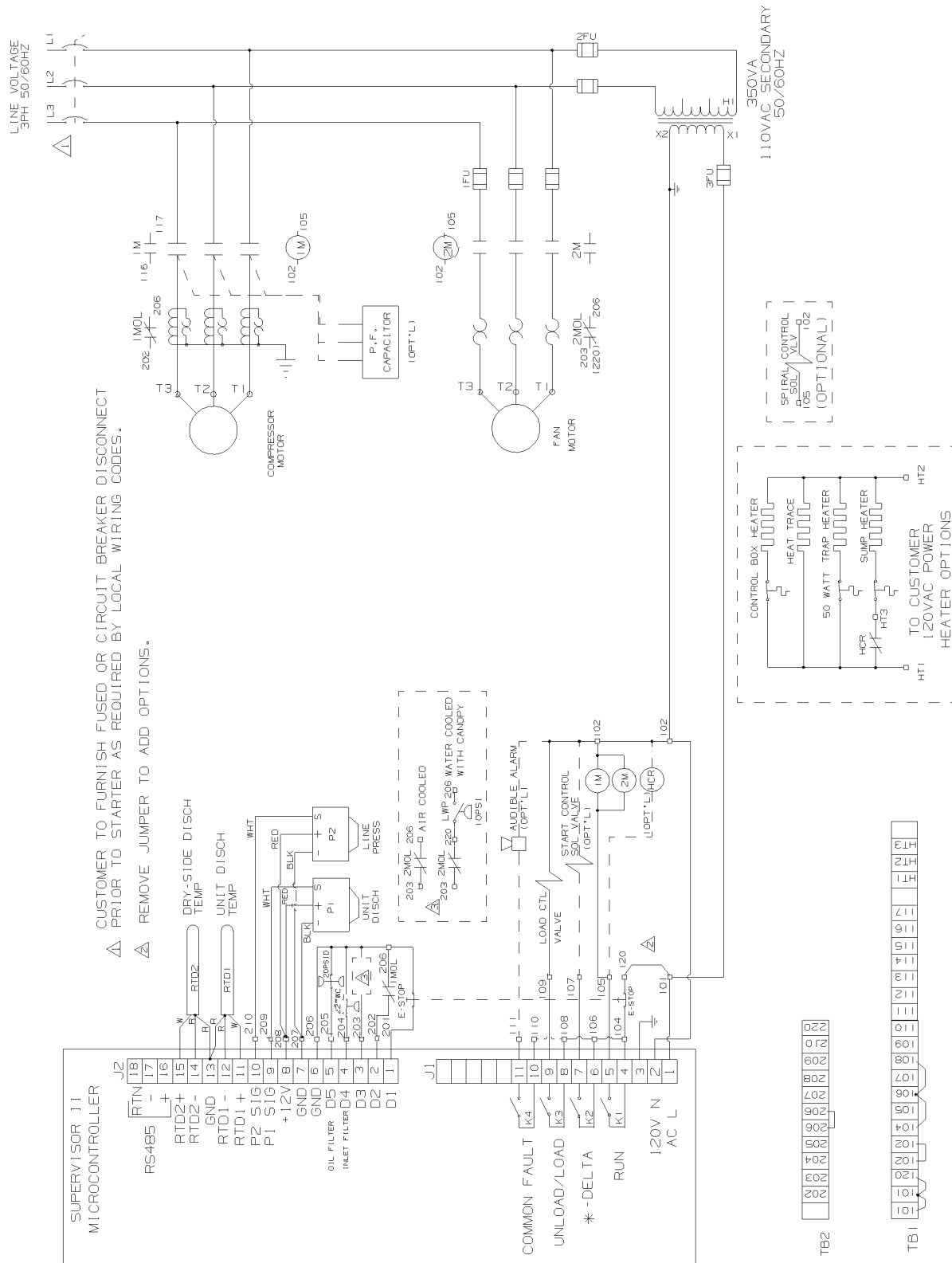
6. Remove and discard the seat ring.
7. The next step is to reassemble the regulator using the new parts provided in your repair kit.
8. Reassemble the diaphragm, pressure plate, gasket, seat disc and seat disc gasket and tighten the nut. All of these parts with the exception of pressure plate are provided in the repair kit.
9. Replace the seat ring with the new seat ring provided.
10. Replace brass gasket and diaphragm gasket stop.
11. 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.

CONTROL LINE FILTER MAINTENANCE

Refer to Figure 7-13. Control line filter maintenance normally requires replacement of the filter element, strainer gasket and o-rings. Use repair kit no. 001692 and follow the procedure below for proper installation.

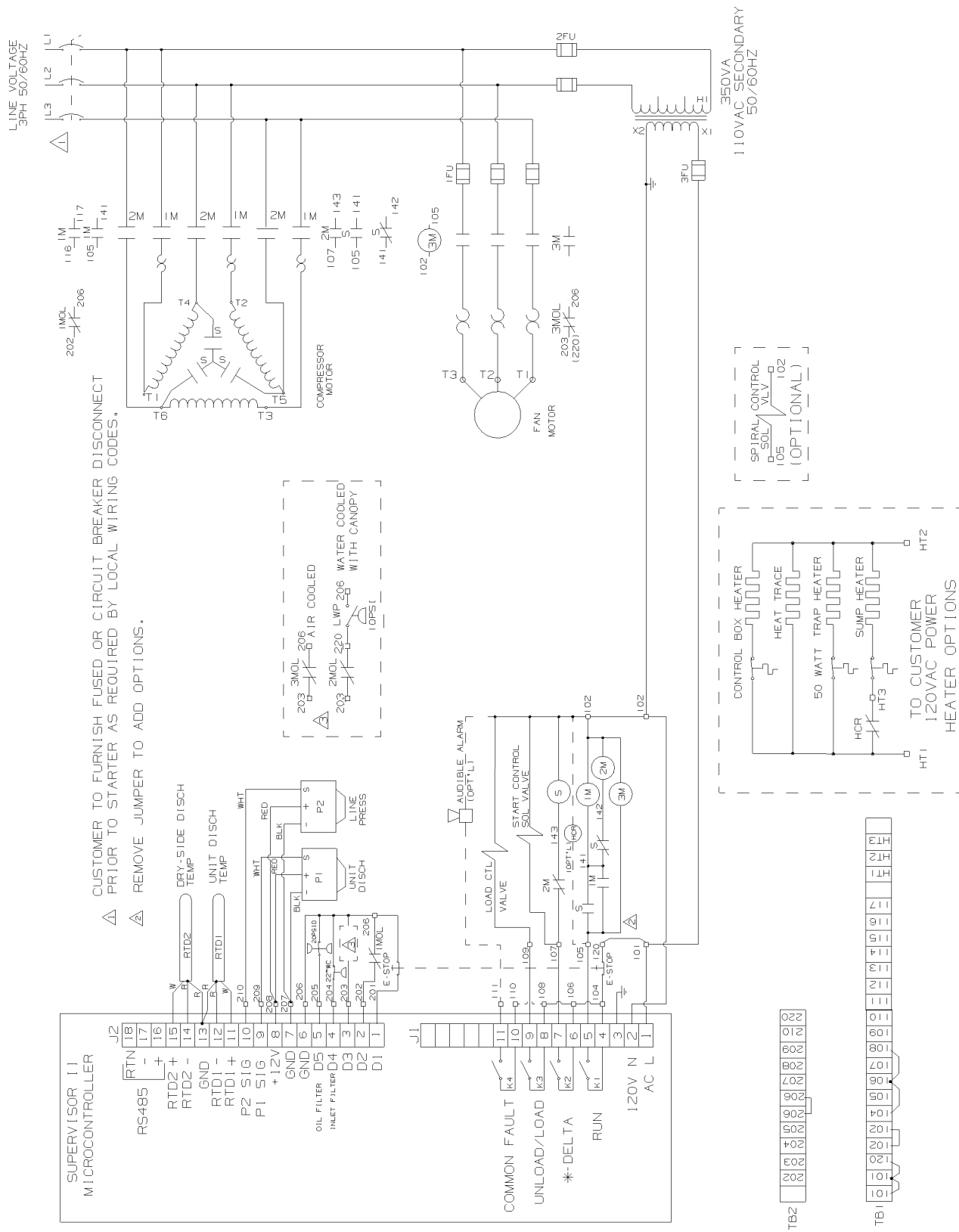
1. Loosen the body from the bowl and unscrew the two assemblies.
2. Unscrew the baffle, holding the filter element in place. Remove the element, louver and o-ring.
3. Discard the o-ring and element.
4. Replace the o-ring on the louver and reinsert into the body.
5. Insert the filter element and baffle and tighten.
6. Loosen and remove the nut on the bottom of the body.
7. Remove the automatic drain assembly and replace its internal gasket.
8. Replace the body o-ring.
9. Reassemble the automatic drain assembly and place it back into the body. Tighten the nut.
10. Reconnect the body and bowl assemblies. Tighten 2½ turns.

Figure 7–14 Wiring Diagram



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Figure 7–15 Wye–Delta



Section 8

TROUBLESHOOTING

8.1 INTRODUCTION

The foregoing information has been compiled from operational experience with your package. It identifies symptoms and diagnosis of SEVERAL probable difficulties, but NOT ALL of those possible.

The systematic collection of operational data cannot be over-emphasized, as it may give evidence of the presence (or not) of a fault before it turns into a serious breakdown – for example, the vibrations signature increase of a damaged bearing, or the efficiency decrease of a dirty heat exchanger.

A detailed visual inspection is worth per-

forming for almost all problems and may avoid unnecessary additional damage to the compressor. Always remember to:

1. Check for loose wiring.
2. Check for damaged piping.
3. Check for parts damaged by heat or an electrical short circuit, usually apparent by discoloration or a burnt odor.

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

8.2 TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR WILL NOT START: POWER LED OFF	Main Disconnect Switch Open	Close switch.
	Line Fuse Blown	Replace fuse.
	Control Transformer Fuse Blown	Replace fuse.
MOTOR OL MESSAGE	Motor Starter Overloads Tripped down. Should trouble persist,	Reset after heater elements cool check whether motor starter contacts are functioning properly.
	Low Incoming Line Voltage	Check voltage. Should voltage check low, consult power company.
T-1, T-2 FAIL MESSAGE	Temperature Transducer Failure	Check connections from transducer. If adequate, replace transducer.
P-1, P-2 FAIL MESSAGE	Pressure Transducer Failure	Check connections from transducer. If adequate, replace transducer.
MOTOR WILL NOT START, E-STOP MESSAGE	Emergency Switch Open (depressed)	Close switch (pull).
LO WATER MESSAGE (Water-cooled packages only)	Water Pressure Feed Below 10 psig (0.7 bar)	Check cooling water supply (i.e., closed valves).
COMPRESSOR SHUTS DOWN WITH AIR DEMAND:		
MOTOR OL MESSAGE	Motor Starter Overloads Tripped	Reset after heater elements cool down. Should trouble persist, check whether motor starter contacts are functioning properly.
	Low Incoming Line Voltage	Check voltage. Should voltage check low, consult power company.
P1-LO	P1 is Less Than 10 psig (0.7 bar) charge pressure above 10	First, check starter wiring. If dis-psig (0.7 bar) was evident, then sensor is at fault – check connections from transducer. If adequate, replace transducer.

Section 8

TROUBLESHOOTING

8.2 TROUBLESHOOTING (Continued)

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR SHUTS DOWN WITH AIR DEMAND: (Cont'd.) HI T1, HI T2 MESSAGE HI P1, HI P2 MESSAGE	Discharge Temperature Exceeded 235°F (113°C) Because:	
	Ambient temperature exceeded 105°F (41°C)	Improve local ventilation (i.e., remote intake of process and/or cooling air).
	Fluid Level in Sump is Too Low	Check/correct fluid level.
	Thermal Valve Malfunctioned	Check/replace thermal valve.
	Cooler Fins are Dirty	Clean cooler fins.
	Water Flow is Low (water-cooled packages only)	Check cooling water supply (i.e., closed valves).
	Water Temperature is High (water-cooled packages only)	Increase water flow, lower water temperature.
	Cooler is Plugged (water-cooled packages only)	Clean tubes and/or shell – if tube plugging persists, provide cleaner water.
	Temperature RTD Malfunction	Check connections from RTD. If adequate, replace RTD.
	Discharge Pressure Exceeded Shutdown Level Because:	
	Unloading Device (i.e., blowdown valve, Sullicon actuator, optional spiral valve) failed to operate	Check operation of unloading device See Section 7.5.
	Pressure Regulator Maladjusted	Check operation of pressure regulator – see Section 7.5.
	Solenoid Valve Failed to Operate	Check operation of solenoid valve See Section 7.5.
	Control Air Signal Leaks	Check tubework feeding control signal for leaks.
	Control Air Signal Filter Clogged	Service filter assembly See Section 7.5.
COMPRESSOR DOES NOT BUILD FULL DISCHARGE PRESSURE	Air Demand Exceeds Supply	Check air service lines for open valves or leaks.
	Inlet Air Filter Clogged	Check for maintenance message on Supervisor display. Clean or change element.
	Inlet Valve Not Fully Open	Check actuation and butterfly disc position.
	Pressure Sensor and/or Connections at Fault	Check connections from transducer. If adequate, replace transducer.
	Blowdown Valve Leaking	Repair or replace.
LINE PRESSURE RISES ABOVE UNLOAD SETTING	Pressure Sensor P2 at Fault	Check connections from transducer. If adequate, replace transducer.
	Unloading Device (i.e., Blowdown Valve, Sullicon Actuator, Optional Spiral Valve) Failed to Operate	Check operation of unloading device See Section 7.5.

8.2 TROUBLESHOOTING (Continued)

SYMPTOM	PROBABLE CAUSE	REMEDY
LINE PRESSURE RISES ABOVE UNLOAD SETTING (Cont'd.)	Pressure Regulator Maladjusted	Check operation of pressure regulator – See Section 7.5.
	Solenoid Valve Failed to Operate	Check operation of solenoid valve – See Section 7.5.
	Control Air Signal Leaks	Check tubework feeding control signal for leaks.
	Control Air Signal Filter Clogged	Service filter assembly – See Section 7.5.
EXCESSIVE FLUID CONSUMPTION	Clogged Return Line Strainer or Orifice	Clean strainer – screen and o-ring replacement kit available. Clean orifice.
	Damaged or Improperly Gasketed Separator Elements	Inspect separator elements and gaskets. Replace if damaged.
	Fluid System Leaks	Check tube/pipework for leaks.
	Fluid Level Too High	Drain excess fluid.
	Excessive Fluid Foaming	Drain and change fluid.

NOTE ON TRANSDUCERS:

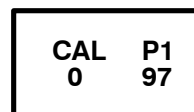
Whenever a sensor is suspected of fault, the recommended cause of action is to measure the signal (pressure, temperature, etc.) with an alternate calibrated instrument and compare readings. If conflicting, the electrical and/or tubing connections should be inspected, and if no faults are evident, then replace the sensor and re-evaluate against the calibrated instrument.

8.3 CALIBRATION

The Supervisor II has software calibration of the pressure and temperature probes. This calibration affects the offset but not the slope of the pressure and temperature calculations. Because of this, the most accurate method is to heat or pressurize the transducer to its operating value. If this is too difficult, room temperature/open atmosphere calibration is adequate. Calibration may only be done while machine is stopped and unarmed.

To enter calibration mode, you must press the following keys in sequence while in the default status display mode: **“LOGO”, DELTA, DISPLY, LAMP TEST, PROG**. Once in

calibration mode, you will see a screen like the following:



In the above example, “0” refers to the amount of adjustment (in psi or °F, “97” refers to the current value of P1).

To make adjustments, Press the **“DELTA”** key to increase the value, press the **“↵”** key to decrease the value. The number on the left will increase or decrease always showing the total amount of adjustment. Maximum adjustment is ± 7 .

Other keys operate the same as in program mode. The **“LOGO”** key restores the original value of the current item. The **“DISPLY”** key exits, wiping out changes to the current item, while saving changes to any previous items. The **“PROG”** key saves the current item and advances to the next. Items following P1 calibration are (in order): P1, P2, T1, T2 calibration. For deluxe models, the items are: P1, P2, T1, T2, P3, P4, T3, T4, T5 and T6 calibration.

NOTES

9.1 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 or phone numbers 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 U.S.A.
Telephone: 1-800-SULLAIR or
1-219-879-5451
FAX: (219) 874-1273

SULLAIR ASIA, LTD.
ROOM 2304A
Shartex Plaza Ctr.
No. 88 Zun Yi Nan Rd.
Shanghai, P.R.C.
Telephone: 21-2192066
FAX: 21-2196568

SULLAIR EUROPE, S.A.
Chemin de Genas BP 639
69800 Saint Priest, France
Telephone: 33-72232425
FAX: 33-78907168

9.2 RECOMMENDED SPARE PARTS LIST

DESCRIPTION	KIT NUMBER	QUANTITY
element for air filter 408399	405158	1
repair kit for blowdown valve 250030-276	02250045-132	1
element for thermal valve 014512	001168	1
repair kit for solenoid valve 250038-674	250038-673	1
replacement coil for solenoid valve 250038-674	250031-738	1
repair kit for solenoid valve 250031-695	250031-737	1
replacement coil for solenoid valve 250031-695	250031-738	1
repair kit for solenoid valve 250038-675	250038-672	1
replacement coil for solenoid valve 250038-675	250038-730	1
repair kit for solenoid valve 250038-755	250038-676	1
replacement coil for solenoid valve 250038-755	250038-730	1
repair kit for fluid stop valve 016742	001684	1
repair kit for fluid filter 250025-522	250025-526	1
repair kit for Sullicon control 011682-003	250020-353	1
repair kit for pressure regulator 406929 (Sullicon)	041742	1
repair kit for flexible coupling 040913 (Sullube 32 use)	040930	2
repair kit for flexible coupling 045133 (24KT use)	046988	2
repair kit for return line strainer 241771	241772	1
repair kit for control line filter 408389	001692	1
repair kit primary separator element w/gaskets	250034-085	1
repair kit secondary separator element w/gaskets	02250047-808	1
repair kit primary heavy duty filter element (optional)	409853	1
repair kit secondary heavy duty filter element (optional)	409854	1
43repair kit for compressor shaft seal	608627-001	1
document, Protocol (I)	02250050-768	1
lubricant, 24KT (5 gallon container)	046850-001	1
lubricant, Sullube 32 (5 gallon container) (II)	250022-669	1
repair kit for pressure regulator 408275 (spiral valve)	250028-693	1
repair kit for minimum pressure/check valve 242405	001176	1
replacement spring for check valve 049905	250003-657	1
repair kit for water separator no. 410143	250033-038	1

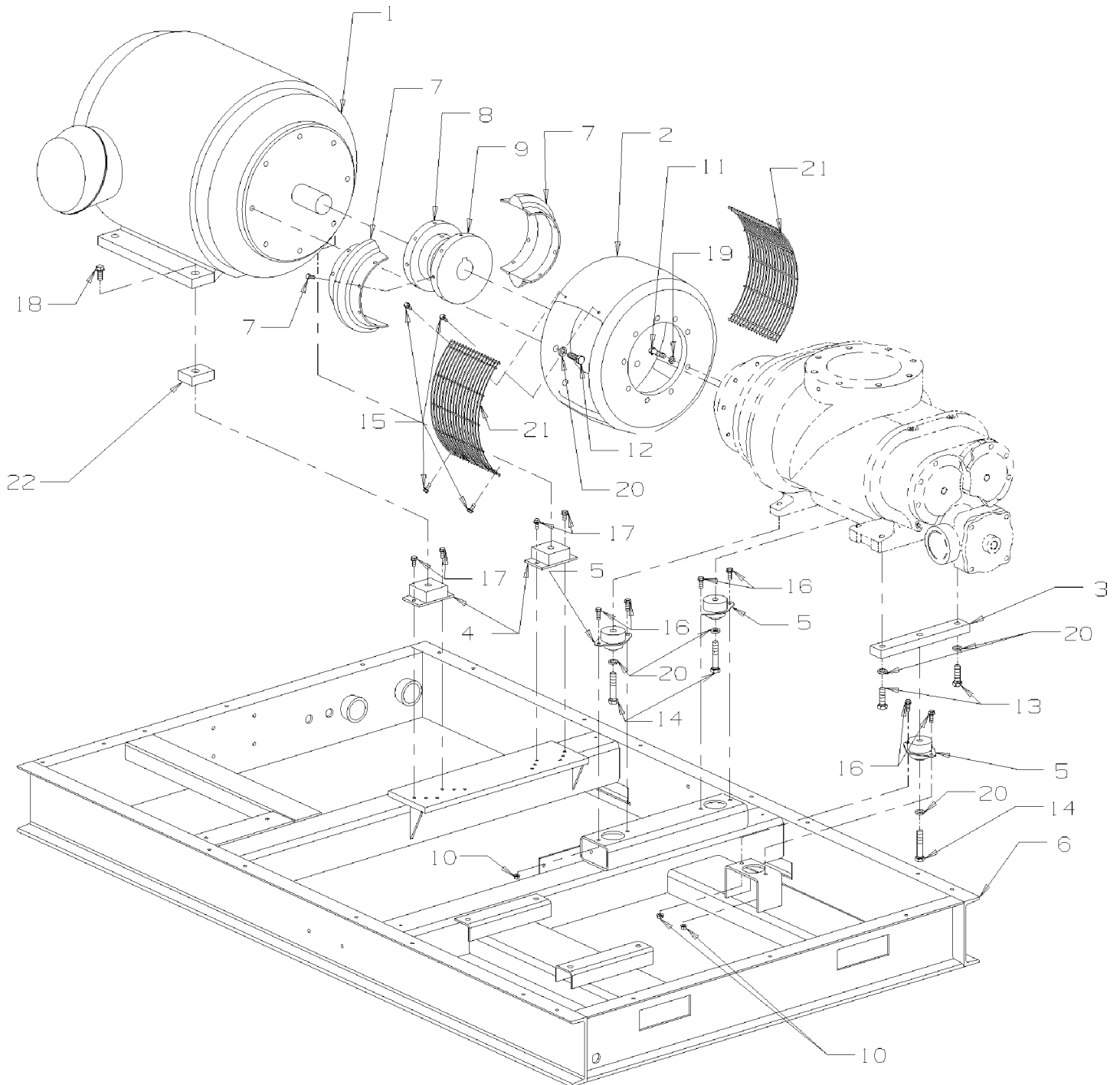
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR.

(I) This document is required to program your personal computer to communicate with the Supervisor II panel.

(II) Sullube 32 available in 55 gallon drum (part number) 250022-670.

Section 9 PARTS LIST

9.3 MOTOR, COMPRESSOR AND FRAME



9.3 MOTOR, COMPRESSOR AND FRAME (I)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	mtr, 150hp 460/3/60 4p odp-c	250042-866	1
	•mtr, 125 hp 4p odp-c	250042-865	1
2	adptr, mtr/compr 444-445tsc (150HP/110KW)	250042-487	1
	•adptr, mtr/compr 365-405tsc (125HP/90KW)	250042-486	1
3	support, compr foot dxn20	250042-454	1
4	isolator, vibration 670-10	250042-785	2
5	isolator, vibration-compr	250042-541	3
6	frame, base assy dxn20	250042-725	1
7	element, coupling e-50	406631	1
8	hub, cpl e-50 2" bore (150HP/110KW)	407985	1
	•hub, coupling 2 1/8" i.d. (125HP/90KW)	407986	1
9	hub, cpl e-50 2 3/8" bore	407988	1
10	nut, hex flgd pltd 3/8"-16	825306-347	6
11	capscr, hx gr5 1/2"-13 x 2"	828608-200	9
12	capscr, hx gr5 5/8"-11 x 1 3/4"	828610-175	8
13	capscr, hx gr5 5/8"-11 x 2"	828610-200	2
14	capscr, hx gr5 5/8"-11 x 3 1/4"	828610-325	3
15	screw, hx ser wash 5/16" x 3/4"	829705-075	8
16	screw, hx ser wash 3/8" x 1"	829706-100	6
17	screw, hx ser wash 3/8" x 3/4"	829706-075	4
18	screw, hx ser wash 1/2" (II)	various	2
19	washer, sprlock reg 1/2"	837508-125	9
20	washer, sprlock reg 5/8"	837510-156	13
21	guard, coupling sds adptr	02250050-131	2
22	block, motor mounting 3 x 3 x 1 (125HP/90KW only)	224511	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

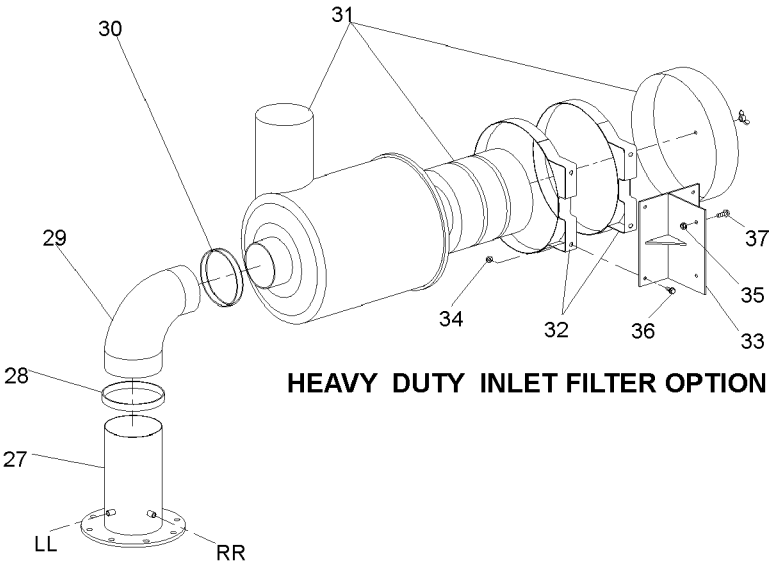
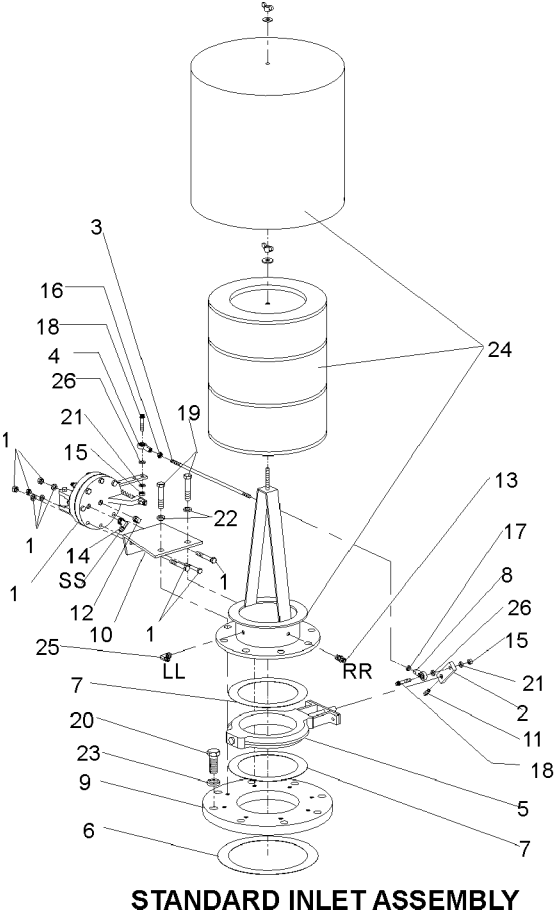
(I) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

The shaft seal is not considered part of the compressor unit in regard to the two year warranty. The normal Sullair parts warranty applies. For shaft seal repairs consult factory.

(II) Bolt lengths vary with different motor vendors.

Section 9
PARTS LIST

9.4 AIR INLET SYSTEM



9.4 AIR INLET SYSTEM

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	control, sullicon less bracket	011682-003	1
2	lever, inlet valve	020687	1
3	rod, 5/16" - 24nf x 12 3/4"	022374	1
4	rod, end spherical	040136	1
5	valve, butterfly 6" inl ctl	040336	1
6	gasket, flange-8" x 1/32"	040422	1
7	gasket, compressor inlet	040696	2
8	rod, end spherical lh 5/16" - 24	042004	1
9	adapter, air inl 8" x 6"	250002-615	1
10	bracket, sullicon-6" inlet	250031-765	1
11	screw, set sq hd 5/16" - 18	408383	1
12	plug, pipe 1/4"	807800-010	1
13	connector, tube-m 1/4" x 1/8"	813604-125	1
14	elbow, tube 90-m 1/4" x 1/4"	813704-250	1
15	nut, hex unfin 5/16" - 18	824205-273	2
16	nut, jam rh 5/16" - 24	824605-195	1
17	nut, jam lh 5/16" - 24	824705-195	1
18	capscr, ferry 5/16" - 18 x 1 1/2"	828405-150	2
19	capscr, hx gr5 1/2" - 13 x 2 1/2"	828608-250	8
20	capscr, hx gr5 3/4" - 10 x 2"	828612-200	8
21	washer, sprlock reg 5/16"	837505-078	2
22	washer, sprlock reg 1/2"	837508-125	8
23	washer, sprlock reg 3/4"	837512-188	8
24	filter, assy air inlet (I)	408399	1
25	elbow, tube 90-m 1/4" x 1/8"	813704-125	1
26	washer, springlock-hi collar 5	837605-093	2
27	adapter, air inlet-6"	02250047-270	1
28	clamp, hose 6 1/2"	040305	1
29	elbow, rubber red 6" x 5"	407458	1
30	clamp, hose 5 1/2"	250028-404	1
31	filter, air hd 750cfm (II)	409264	1

(Continued on Page 49)

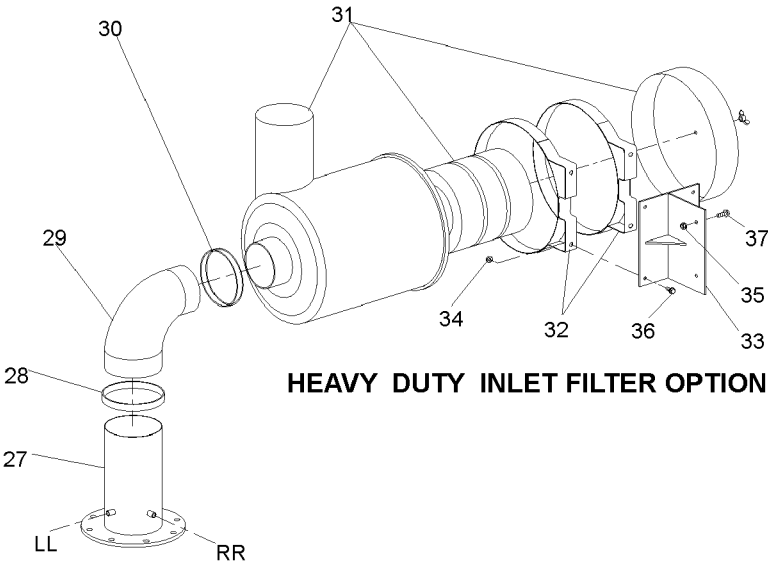
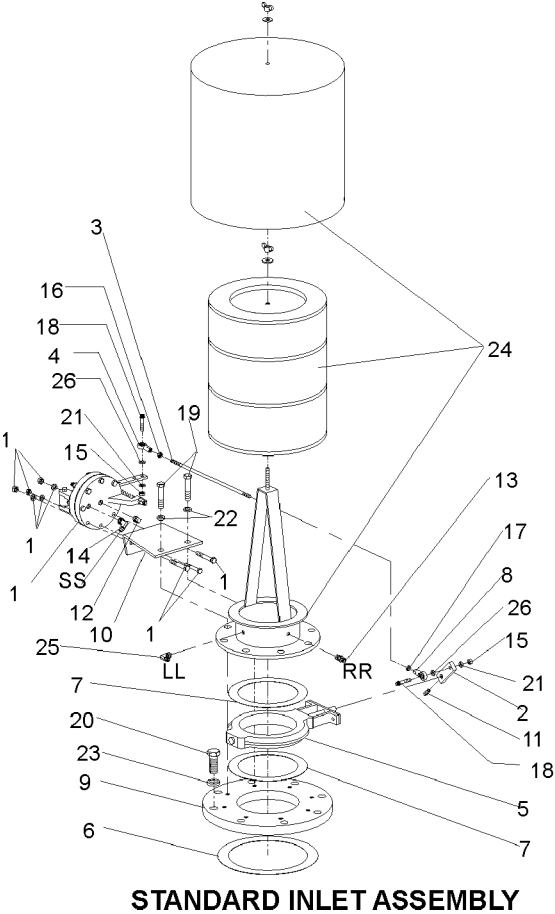
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(I) For maintenance on air filter no. 408399, order replacement filter no. 405158.

(II) For maintenance on air filter no. 409264, order replacement element no. 049853 (primary), and 049854 (secondary).

Section 9
PARTS LIST

9.4 AIR INLET SYSTEM



9.4 AIR INLET SYSTEM (Continued)

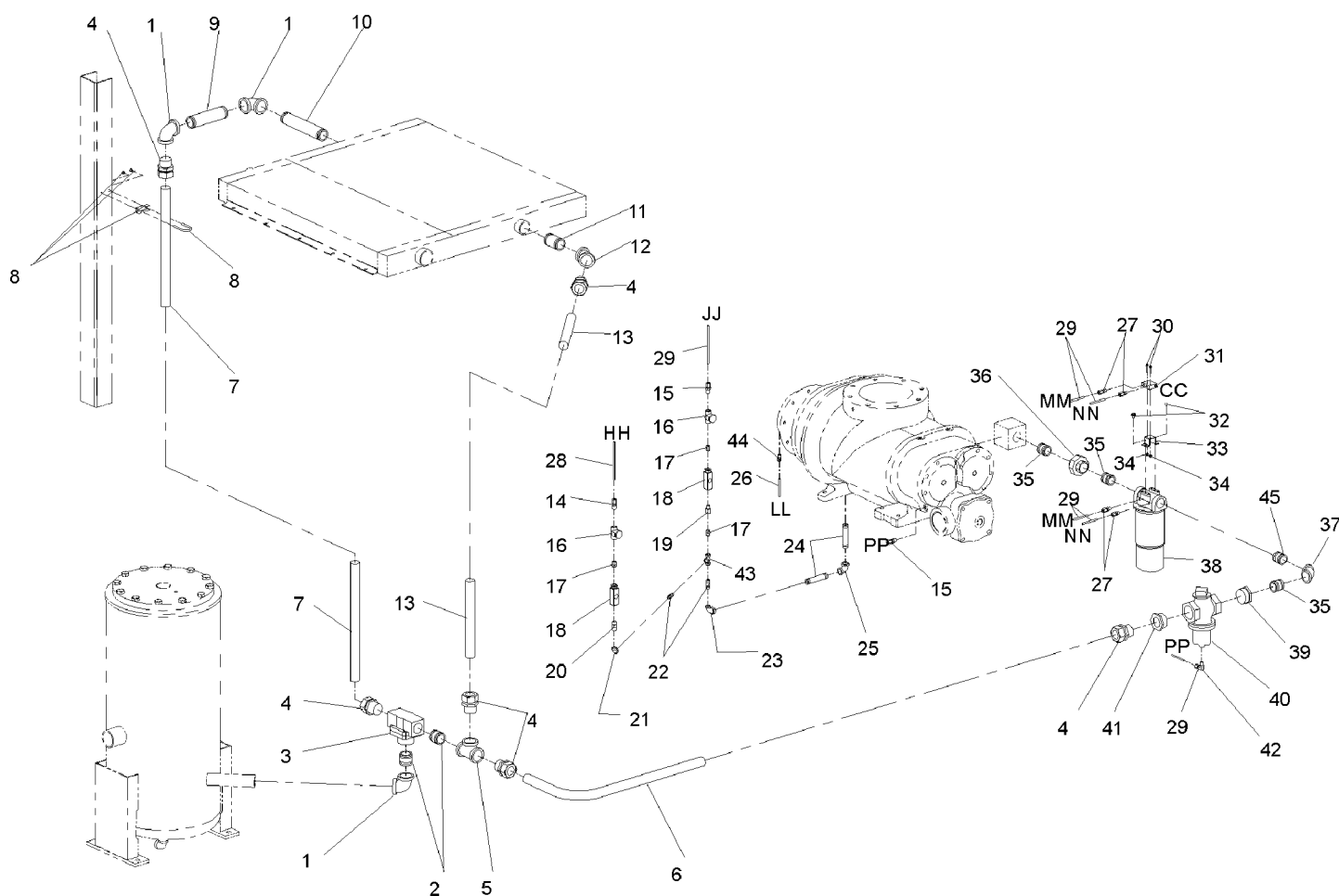
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
32	band, mounting—14"	041062	2
33	support, hd air filter dxr20	02250047—269	1
34	nut, hex ser—5/16"	825305—283	4
35	nut, hex ser—3/8"	825306—347	2
36	screw, hex ser—5/16" x 3/4"	829705—075	4
37	screw, hex ser 3/8" x 1"	829706—100	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.5 COMPRESSOR LUBRICATION SYSTEM (AIR-COOLED)



9.5 COMPRESSOR LUBRICATION SYSTEM (AIR–COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	elbow, pipe 90 deg 1–1/2"	801515–060	3
2	nipple, pipe xs 1–1/2" x close	822224–000	2
3	assy, thermal vlv 12/16 series (I)	014512	1
4	conn, tube–m 1–1/2" x 1–1/2"	810224–150	6
5	tee, pipe 1–1/2" 150#	802415–060	1
6	tube, 1.50 thermo vlv to oil s	02250047–416	1
7	tube, 1.50 thermo vlv to oil c	02250047–412	1
8	clamp, exhaust 1 3/8"	250039–749	1
9	nipple, pipe 1–1/2" x 7"	822124–070	1
10	nipple, pipe 1–1/2" x 9–1/2"	822124–095	1
11	nipple, pipe 1–1/2" x 4 1/2"	822124–045	1
12	elbow, pipe 45 deg 1–1/2"	801415–060	1
13	tube, 1.50 clr out to thermo v	02250047–414	1
14	conn, tube–m 5/16" x 1/4"	810205–025	1
15	conn, tube–m 1/4" x 1/4"	810204–025	2
16	strainer, y–type 1/4" (II)	241771	2
17	nipple, pipe xs 1/4" x close	822204–000	3
18	glass, sight – 24kt	046559	2
19	orifice, restrictor 1/32"	040381	1
20	orifice, 1/4m x 1/4m x .062	027443	1
21	elbow, pipe 90 deg 1/4" 150#	801515–010	1
22	nipple, pipe 1/4" x 1–1/2"	822104–015	2
23	elbow, red 1/2" x 1/4" 150#	801602–010	1
24	nipple, pipe 1/2" x 4"	822108–040	2
25	elbow, pipe 90 deg 1/2" 150#	801515–020	1
26	hose, nylon 1/4"	842215–004	4 ft
27	conn, tube–m 1/4" x 1/8"	810204–012	4
28	tubing, stl dbl brz 5/16"	841015–005	4 ft
29	tubing, stl dbl brz 1/4"	841015–004	6 ft
30	screw, hx ser wash 10–24 x 1"	829702–100	2
31	switch, diff pressure 20psid	02250050–154	1
32	screw, hx ser wash 5/16" x 1/2"	829705–050	2
33	bracket, switch mtg	02250050–500	1
34	nut, ser wash #10–24	825301–219	2

(Continued on Page 53)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

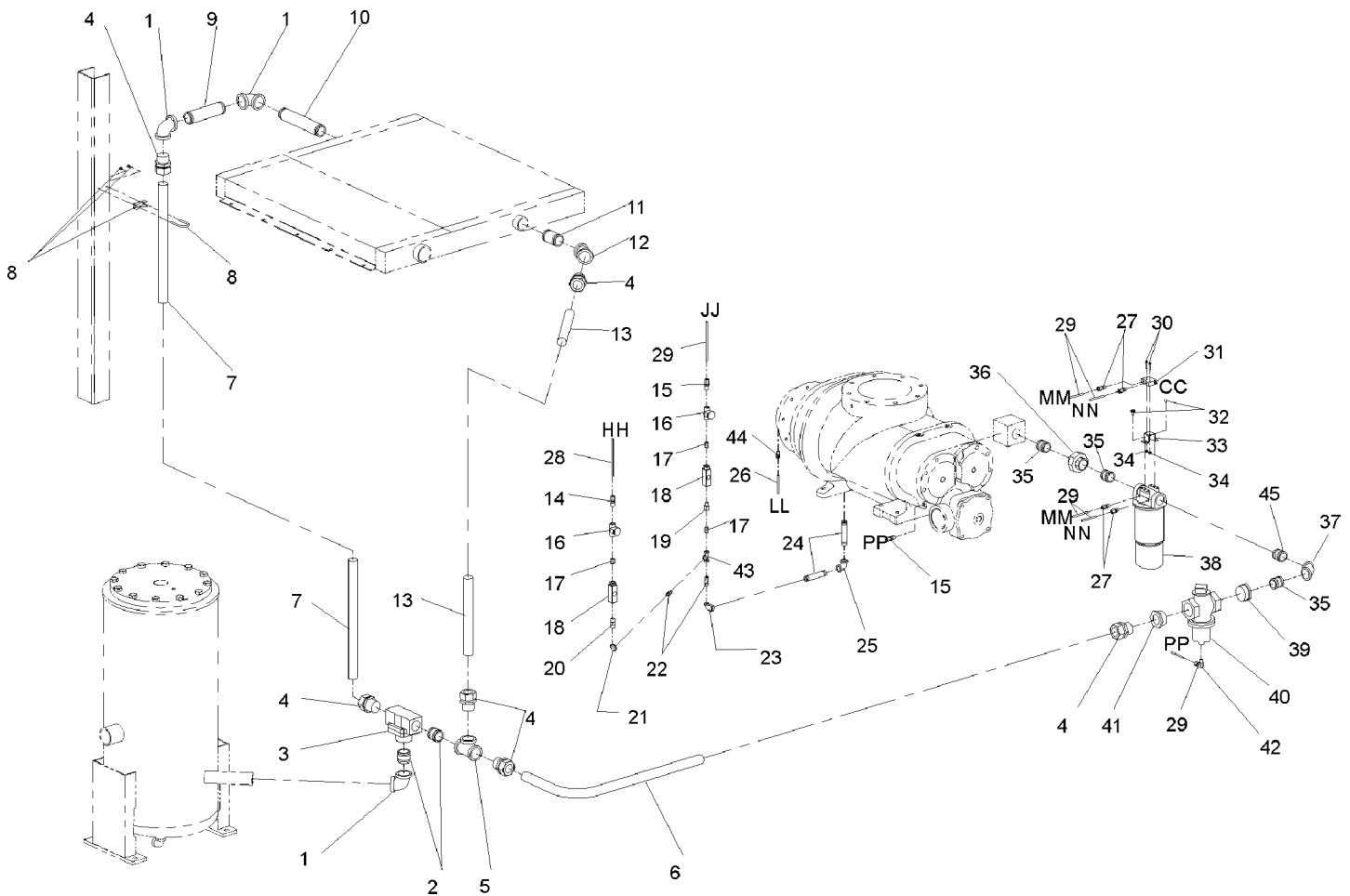
(I) For maintenance on thermal valve assembly valve no. 014512, order repair kit no. 001168.

(II) For maintenance on y–type strainer no. 241771, order repair kit no. 241772.

Section 9

PARTS LIST

9.5 COMPRESSOR LUBRICATION SYSTEM (AIR-COOLED)



9.5 COMPRESSOR LUBRICATION SYSTEM (AIR–COOLED) (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
35	nipple, pipe xs 1–1/4" x close	822220–000	3
36	union, pipe–brs seat 1–1/4"	802515–050	1
37	elbow, pipe 90 deg 1–1/4"	801515–050	1
38	filter, fluid 12/16 (III)	250025–522	1
39	bushing, red hex 2" x 1–1/4"	802108–050	1
40	valve, fluid stop ci 2" npt (IV)	016742	1
41	bushing, red hex 2" x 1–1/2"	802108–060	1
42	elbow, tube–m 1/4" x 1/4"	810504–025	1
43	tee, pipe 1/4" 150#	802415–010	1
44	conn, tube–m–1/4" x 1/8"	813604–125	1
45	nipple, pipe xs 1 1/4" x 3"	822120–030	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

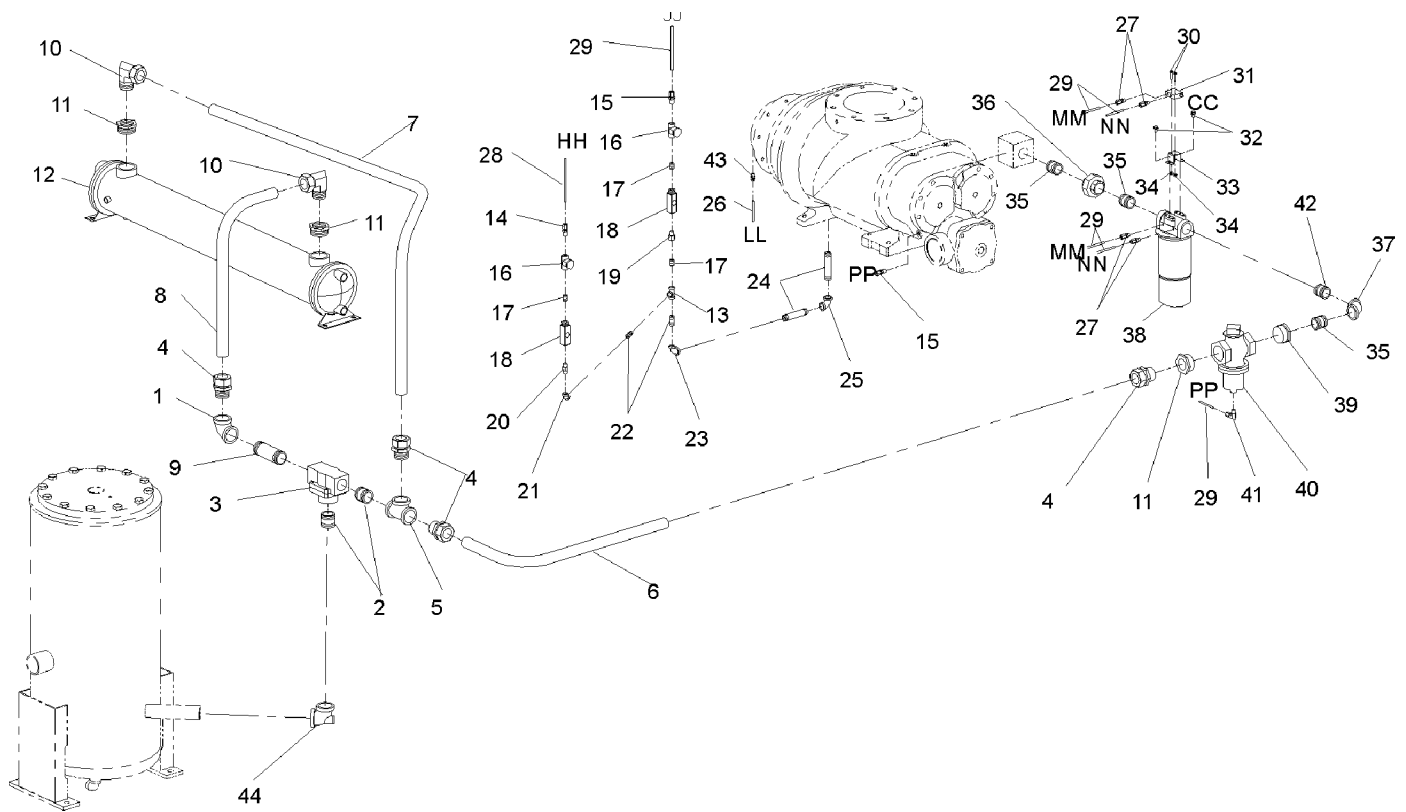
(III) For maintenance on fluid filter no. 250025–522, order repair kit no. 250026–526.

(IV) For maintenance on fluid stop valve no. 016742, order repair kit no. 001684.

Section 9

PARTS LIST

9.6 COMPRESSOR LUBRICATION SYSTEM (WATER-COOLED)



9.6 COMPRESSOR LUBRICATION SYSTEM (WATER-COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	elbow, pipe 90 deg 1 1/2"	801515-060	1
2	nipple, pipe xs 1 1/2" x close	822224-000	2
3	assy, thermal vlv 12/16 series (I)	014512	1
4	conn, tube-m 1 1/2" x 1 1/2"	810224-150	4
5	tee, pipe 1 1/2" 150#	802415-060	1
6	tube, 1.50 thermo vlv to oil s	02250047-416	1
7	tube, 1.50 clr outlet to therm	02250052-115	1
8	tube, thermo vlv to clr inlet	02250052-117	1
9	nipple, pipe 1 1/2" x 6"	822124-060	1
10	elbow, tube 90 deg 1 1/2"	810524-150	2
11	bushing, red hx 2" x 1 1/2"	802108-060	3
12	ht exch, basco 06048-s4	040751	1
13	tee, pipe 1/4" x 150#	802415-010	1
14	conn, tube-m 5/16" x 1/4"	810205-025	1
15	conn, tube-m 1/4" x 1/4"	810204-025	2
16	strainer, y-type 1/4" (II)	241771	2
17	nipple, pipe xs 1/4" x close	822204-000	3
18	glass, sight - 24kt	046559	2
19	orifice, restrictor 1/32"	040381	1
20	orifice, 1/4"m x 1/4"m x .062	027443	1
21	elbow, pipe 90 deg 1/4" 150#	801515-010	1
22	nipple, pipe 1/4" x 1 1/2"	822104-015	2
23	elbow, red 1/2" x 1/4" 150#	801602-010	1
24	nipple, pipe 1/2" x 4"	822108-040	2
25	elbow, pipe 90 deg 1/2" 150#	801515-020	1
26	hose, nylon 1/4"	842215-004	4 ft
27	conn, tube-m 1/4" x 1/8"	810204-012	4 ft
28	tubing, stl dbl brz 5/16"	841015-005	4 ft
29	tubing, stl dbl brz 1/4"	841015-004	6
30	screw, hx ser wash 10-24 x 1"	829702-100	2
31	switch, diff pressure 20psid	02250050-154	1
32	screw, hx ser wash 5/16" x 1/2"	829705-050	2
33	bracket, switch mtg	02250050-500	1
34	nut, ser wash #10-24	825301-219	2

(Continued on Page 57)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

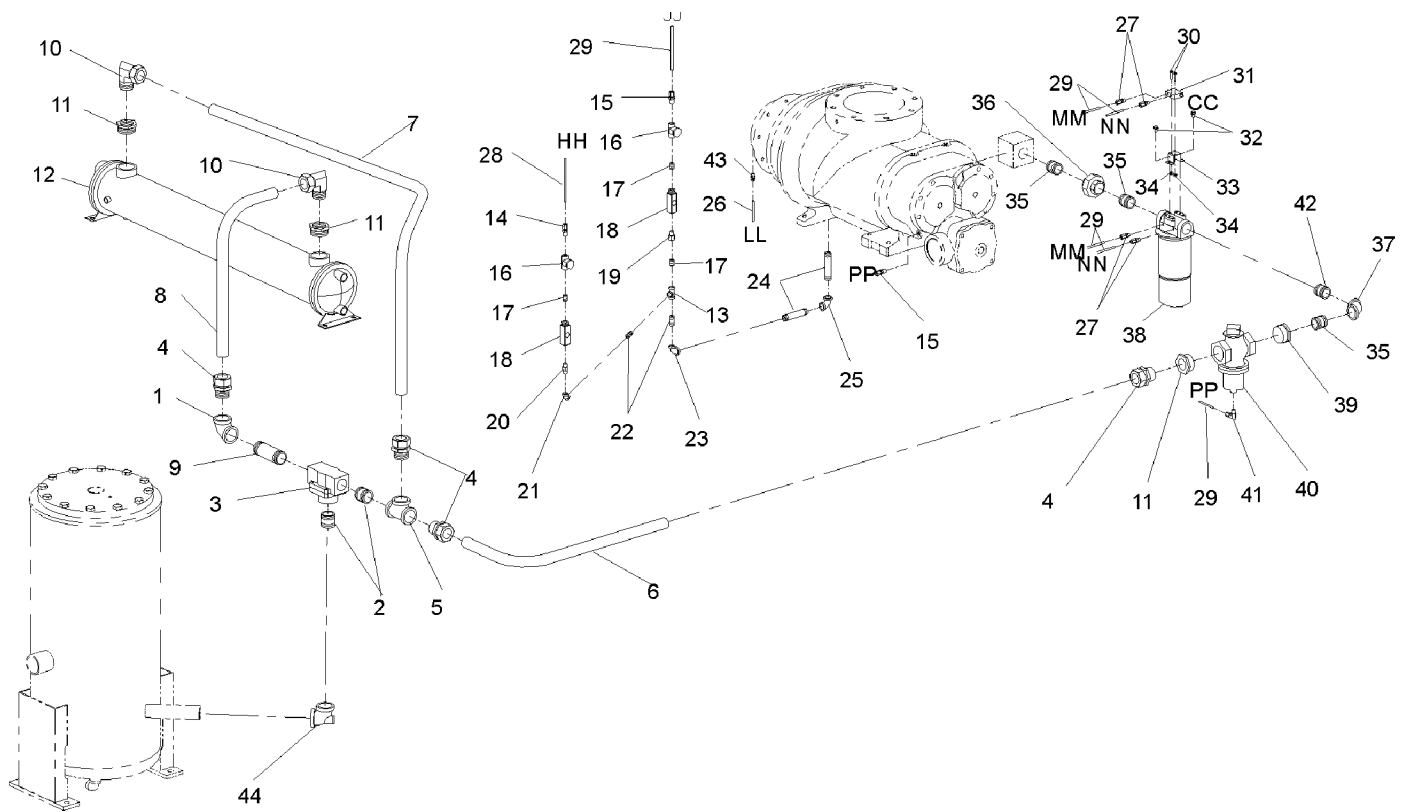
(I) For maintenance on thermal valve assembly valve no. 014512, order repair kit no. 001168.

(II) For maintenance on y-type strainer no. 241771, order repair kit no. 241772.

Section 9

PARTS LIST

9.6 COMPRESSOR LUBRICATION SYSTEM (WATER-COOLED)



9.6 COMPRESSOR LUBRICATION SYSTEM (WATER–COOLED) (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
35	nipple, pipe xs 1 1/4" x close	822220–000	3
36	union, pipe brs seat 1 1/4"	802515–050	1
37	elbow, pipe 90 deg 1 1/4"	801515–050	1
38	filter, fluid 12/16 (III)	250025–522	1
39	bushing, red hex 2" x 1 1/4"	802108–050	1
40	valve, oil stop ci 2" npt (IV)	016742	1
41	elbow, tube m 1/4" x 1/4"	810504–025	1
42	nipple, pipe–xs–1 1/4" x 3"	822120–030	1
43	conn, tube m 1/4" x 1/8"	813604–125	1
44	tee, red 1 1/2" x 1/2" x 1 1/2"	802206–026	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

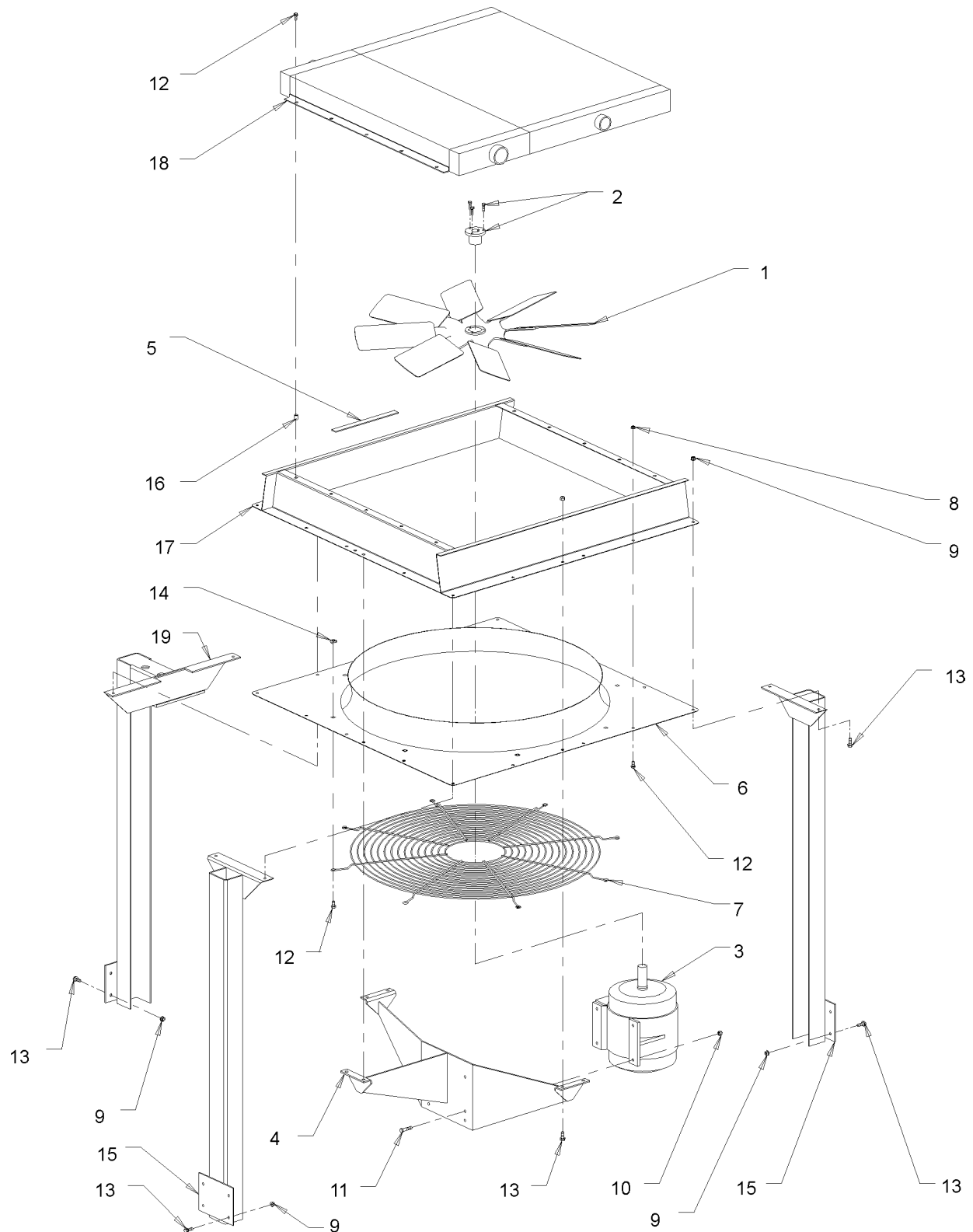
(III) For maintenance on fluid filter no. 250025–522, order repair kit no. 250026–526.

(IV) For maintenance on fluid stop valve no. 016742, order repair kit no. 001684.

Section 9

PARTS LIST

9.7 COMPRESSOR COOLER ASSEMBLY (AIR-COOLED)



9.7 COMPRESSOR COOLER ASSEMBLY (AIR–COOLED)

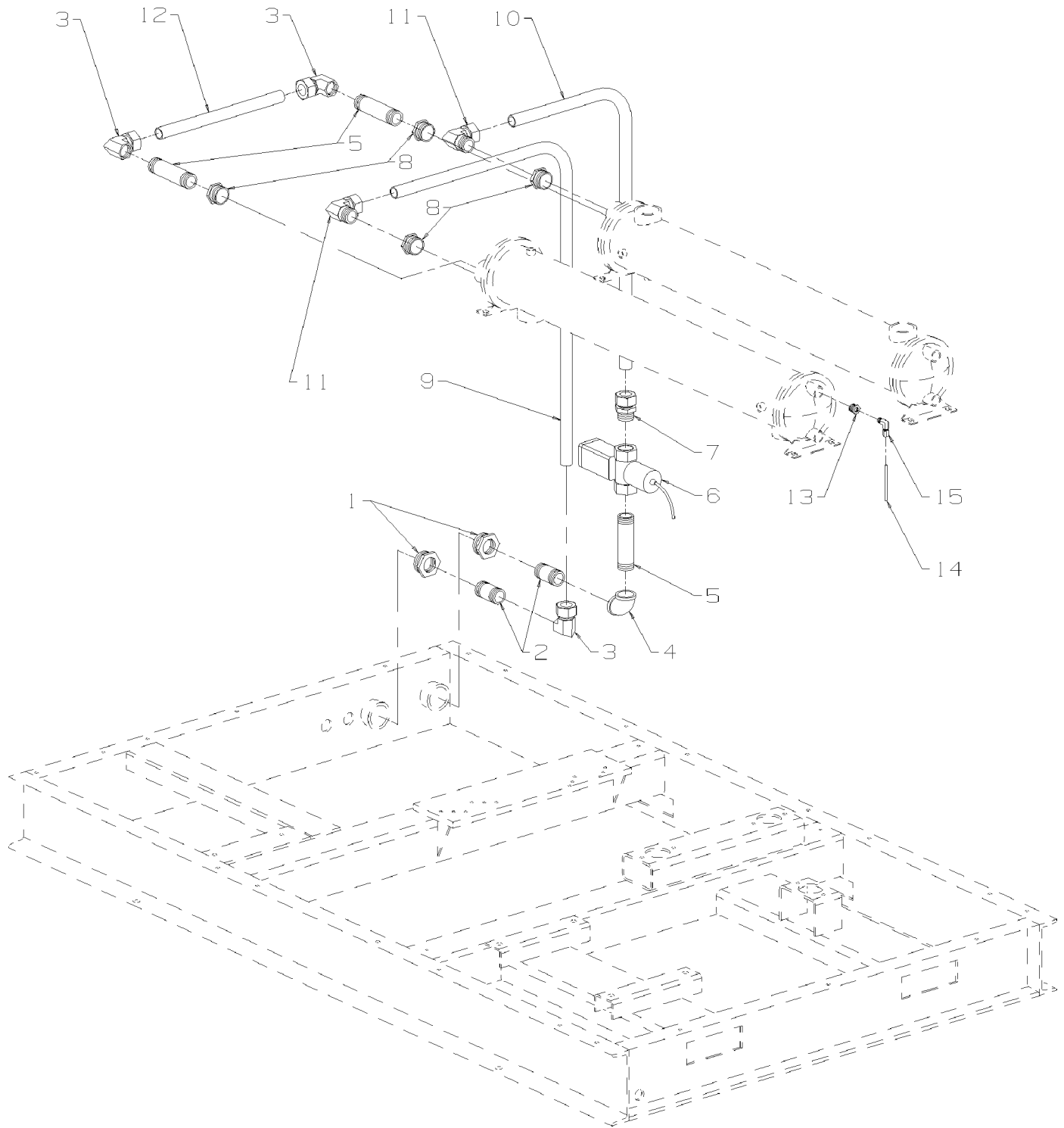
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	fan, 36" dia	various	1
2	bushing, split taper	various	1
3	motor, fan tefc	various	1
4	support, fan motor	015641	1
5	weatherstrip, felt 1/8" x 1" x 12"	043502	16
6	panel, venturi 36"	245579	1
7	guard, fan 38" dia.	248744	1
8	nut, hex flgd pltd 5/16–18	825305–283	7
9	nut, hex flgd pltd 3/8–16	825306–347	18
10	nut, hex locking 3/8"–16 pltd	825506–198	10
11	capscr, hx gr5 3/8–16 x 1.75	828606–175	4
12	screw, hx ser wash 5/16 x 3/4	829705–075	25
13	screw, hx ser wash 3/8 x 1	829706–100	24
14	nut, retainer 5/16–18 .090	861405–092	8
15	support, clr assy dxr20	02250043–287	2
16	insert, 5/16"–18 thrd blind	02250043–765	10
17	adapter, venturi panel dxr20	02250043–027	1
18	cooler, oil & air dxr20–150	02250046–596	1
19	support, cooler assy	02250060–547	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.8 COMPRESSOR WATER SYSTEM (WATER-COOLED)



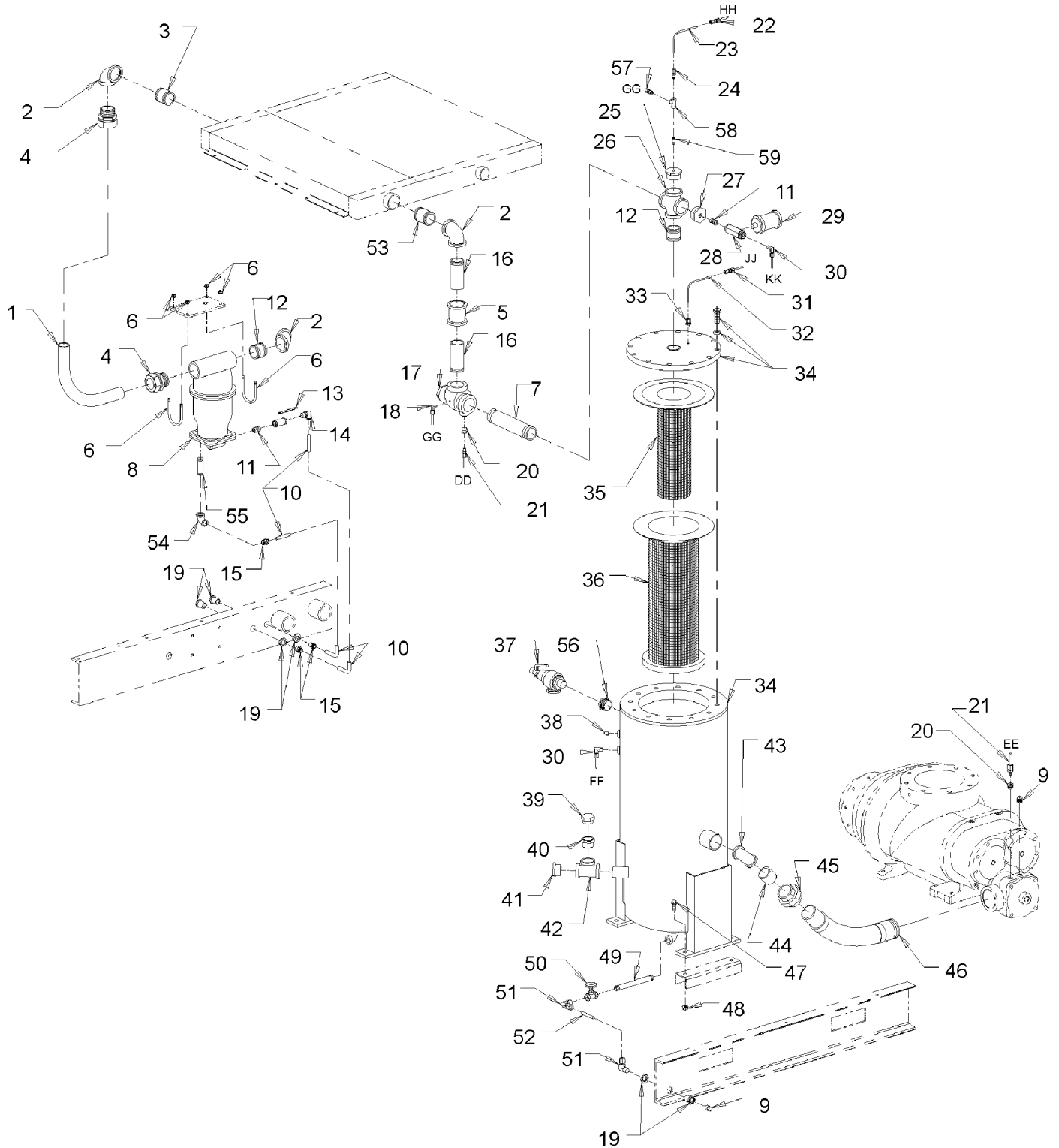
9.8 COMPRESSOR WATER SYSTEM (WATER–COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	bushing, pipe red 2" x 1 1/4"	802108–050	2
2	nipple, pipe 1 1/4" x 2 1/2"	822120–025	2
3	elbow, tube f 1 1/4" x 90°	810420–125	3
4	elbow, pipe 1 1/4" x 90°	801515–050	1
5	nipple, pipe 1 1/4" x 4"	822120–040	3
6	valve, water reg 1 1/4"	049474	1
7	conn, tube m 1 1/4" x 1 1/4"	810220–125	1
8	bushing, pipe 1 1/2" x 1 1/4"	802106–050	4
9	tube, 1 1/4" water inlet to ac	02250052–330	1
10	tube, 1 1/4" water outlet from	02250052–326	1
11	elbow, tube m 1 1/4" x 1 1/4"	810520–125	2
12	tube, 1 1/4" water ac to oil c	02250052–328	1
13	bushing, pipe 1/2" x 1/4"	802102–010	1
14	tubing, stl dbl brz 1/4"	841015–004	6
15	elbow, tube f 1/4" x 1/4"	810504–025	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9 PARTS LIST

9.9 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)



9.9 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	tube,ac to sep. dxn20-2"	02250060-260	1
2	elbow, pipe 90 deg 2" 150#	801515-080	3
3	nipple,pipe 2 x 3 1/2"	822132-035	1
4	connector tube strt. 2"	810232-200	2
5	coupling, flxmstr 2" buna	040913	1
6	u-bolt, 3/8 x 3" pipe	829006-300	2
7	nipple,pipe 2 x 10"	822132-100	1
8	separator, water wa comb	410143	1
9	plug, pipe 1/2" 3000# stl	807800-020	2
10	tubing, 1/2 thermoplastic	250030-855	9
11	nipple,pipe xs 1/2 x close	822208-000	2
12	nipple,pipe xs 2 x close	822232-000	2
13	valve, ball 1/2 npt	047117	1
14	connector, tube el 1/2 mnpt x 1/2	250024-714	1
15	connector, tube strt 1/2 mnpt x 1/2	250024-695	3
16	nipple,half 2 x 3"	822832-030	2
17	valve, min press & check	242405	1
18	elbow, tube-m 1/4 x 1/8"	810504-012	1
19	bulkhead pipe 1/2" npt	841500-008	3
20	bushing,red hex 1/2 x 1/8	802102-005	2
21	fitting, compress adj	250028-635	2
22	union, tube hex 1/4"	811304-025	1
23	tubing, steel 1/4" 20ga	841015-004	4
24	connector, flex 1/4 t x 1/4	020169	1
25	bushing,red hex 2 x 1/4"	802108-010	1
26	cross, pipe 2" 150#	801315-080	1
27	bushing,red hex 2 x 1/2"	802108-020	1

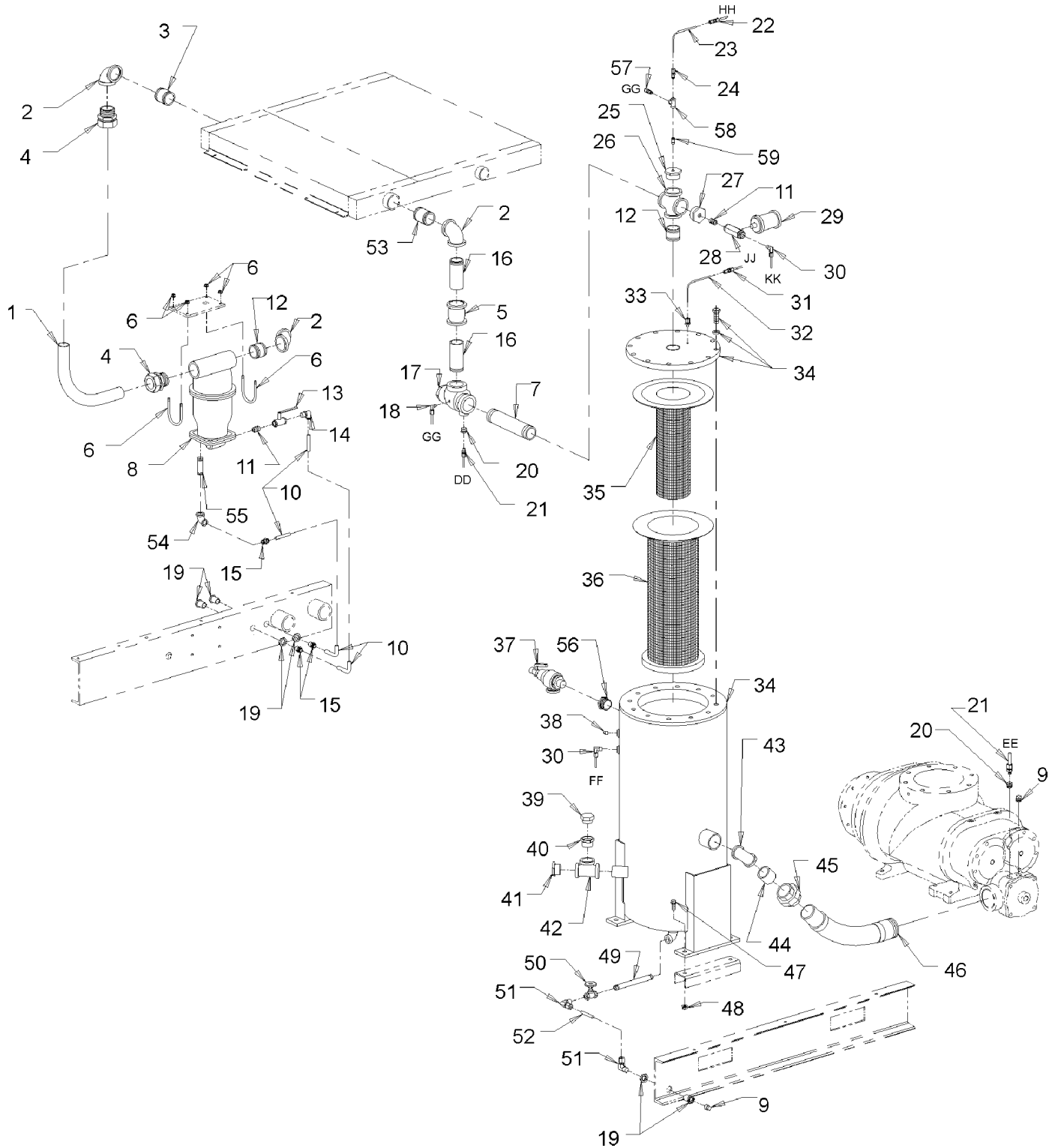
(Continued on Page 65)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

- (I) For maintenance on coupling no. 040913, order replacement gasket no. 040930 (two required).
- (II) For maintenance on coupling no. 045133, order replacement gasket no. 046988 (two required).
- (III) For maintenance on water separator no. 410143, order repair kit no. 250033-038.
- (IV) For maintenance on minimum pressure valve no. 242405, order repair kit no. 001176.

Section 9 PARTS LIST

9.9 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)



9.9 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED) (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
28	valve, 2-way pneumatic 1/2"	250030-276	1
29	silencer, air 1/2"	041006	1
30	elbow, tube-m 1/4 x 1/4"	810504-025	2
31	union, tube hex 5/16"	811305-031	1
32	tubing, steel 5/16" 20ga	841015-005	3
33	fitting, flex 5/16 x 1/4	020501	1
34	tank, oil sump/separator 18" dia	02250047-979	1
35	element, sep/sec 20 series	02250047-808	1
36	element, oil sep pri	250034-085	1
37	valve, relief 1 x 1/4 200 psig	02250047-679	1
38	plug, pipe 1/4" 3000# stl	807800-010	1
39	plug, o-ring boss sae 1 1/2	040029	1
40	adapter, filler	020044	1
41	glass, oil level 1 1/2 sight	040279	1
42	tee, pipe 1 1/2" 150#	802415-060	1
43	elbow, pipe-2 1/2"	801515-100	1
44	nipple, pipe 2 1/2 x close	822240-000	1
45	union, pipe-brs seat 2 1/2"	802515-100	1
46	joint, expansion unit to sep	250042-484	1
47	screw, hx ser wash 1/2 x 1 1/4	829708-125	4
48	nut, hex flgd pltd 1/2-13	825308-458	4
49	nipple, pipe 1/2 x 8"	822108-080	1
50	valve, globe 1/2"	041007	1
51	elbow, tube-m 1/2 x 1/2"	810508-050	2
52	tubing, steel 1/2"	841115-008	2
53	nipple, pipe-2"x4"	822132-040	1
54	elbow, red-3/4"x1/2"	801603-020	1
55	nipple, pipe-3/4"x3"	822112-030	1
56	bushing, red-1 1/4"x1"	802105-040	1
57	connector, tube-m-1/4x1/4	810204-025	1
58	tee, pipe-1/4"	802415-010	1
59	nipple, pipe-xs-1/4"	822204-000	1
60	coupling, flxmstr 2" viton	045133	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(V) For maintenance on blowdown valve no. 250030-276, order repair kit no. 02250045-132.

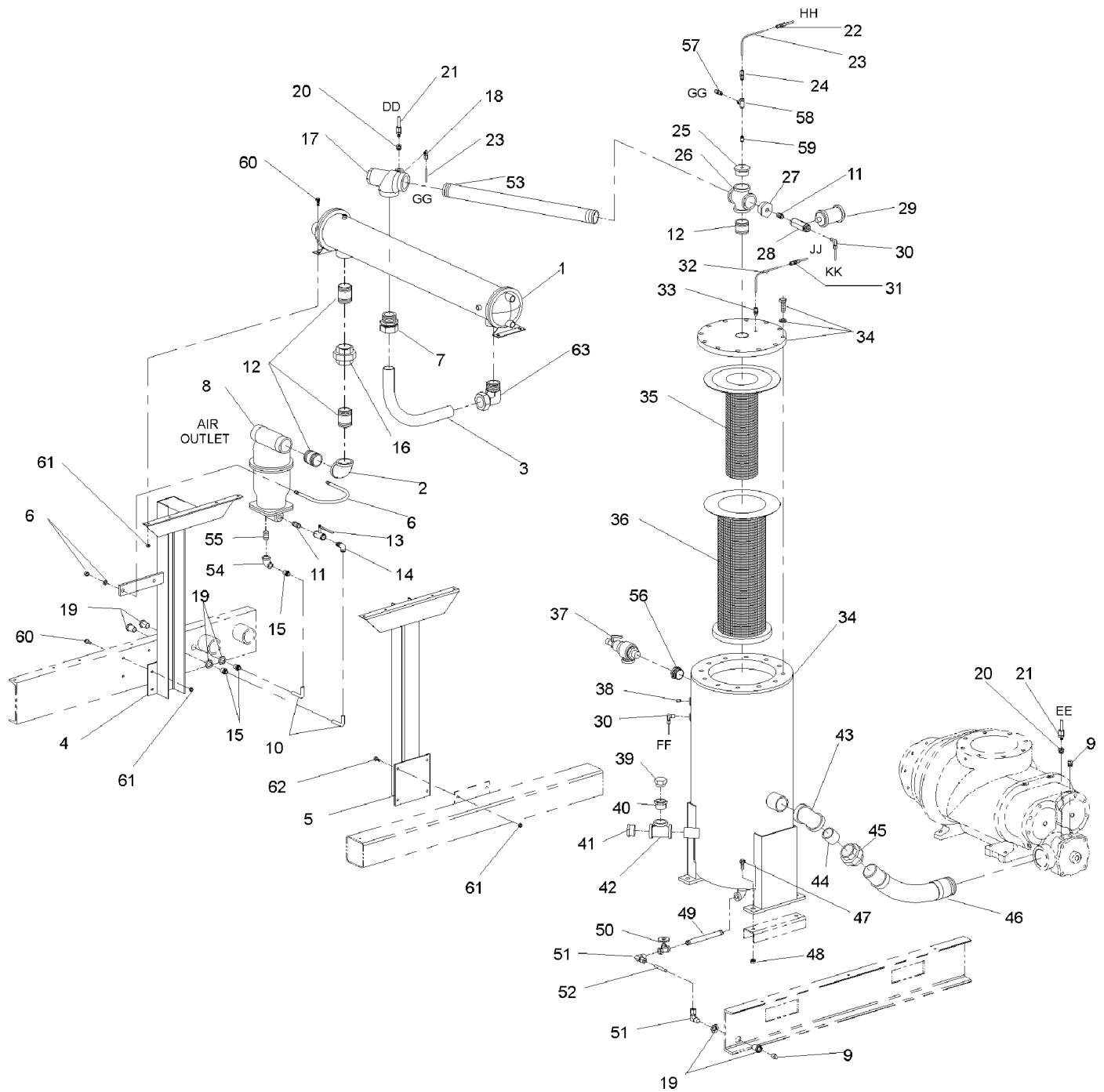
(VI) For maintenance on separator element no. 02250047-808, order replacement element (with gaskets) no. 02250047-808.

(VII) For maintenance on separator element no. 250034-085, order replacement element (with gaskets) no. 250034-085.

Section 9

PARTS LIST

9.10 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)



9.10 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	aftercooler, wc 6" x 48"	043009	1
2	elbow, pipe 90 deg 2" 150#	801515-080	1
3	tube, 2" min press vlv to ac	02250052-119	1
4	support, cooler mtr end	02250051-860	1
5	support, cooler sep end	02250051-862	1
6	u-bolt, 1/2" x 6" pipe	829008-600	1
7	conn, tube m 2" x 2"	810232-200	1
8	separator, water wa comb (I)	410143	1
9	plug, pipe 1/2" 3000# stl	807800-020	2
10	tubing, 1/2" thermoplastic	250030-855	9
11	nipple, pipe xs 1/2" x close	822208-000	2
12	nipple, pipe xs 2" x close	822232-000	4
13	valve, ball 1/2" npt	047117	1
14	conn, tube el 1/2" mnpt x 1/2"	250024-714	1
15	conn, tube strt 1/2" mnpt x 1/2"	250024-695	3
16	union, pipe 2"	802515-080	1
17	valve, min press & check (II)	242405	1
18	elbow, tube m 1/4" x 1/8"	810504-012	1
19	bulkhead pipe 1/2" npt	841500-008	3
20	bushing, red hex 1/2" x 1/8"	802102-005	2
21	fitting, compress adj	250028-635	2
22	union, tube hex 1/4"	811304-025	1
23	tubing, steel 1/4" 20ga	841015-004	4
24	connector, flex 1/4" t x 1/4"	020169	1
25	bushing, red hex 2" x 1/4"	802108-010	1
26	cross, pipe 2" 150#	801315-080	1
27	bushing, red hex 2" x 1/2"	802108-020	1
28	valve, 2-way pneumatic 1/2" (III)	250030-276	1
29	silencer, air 1/2"	041006	1
30	elbow, tube m 1/4" x 1/4"	810504-025	2
31	union, tube hex 5/16"	811305-031	1
32	tubing, steel 5/16" 20ga	841015-005	3

(Continued on Page 69)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(I) For maintenance on water separator no. 410143, order repair kit no. 250033-038.

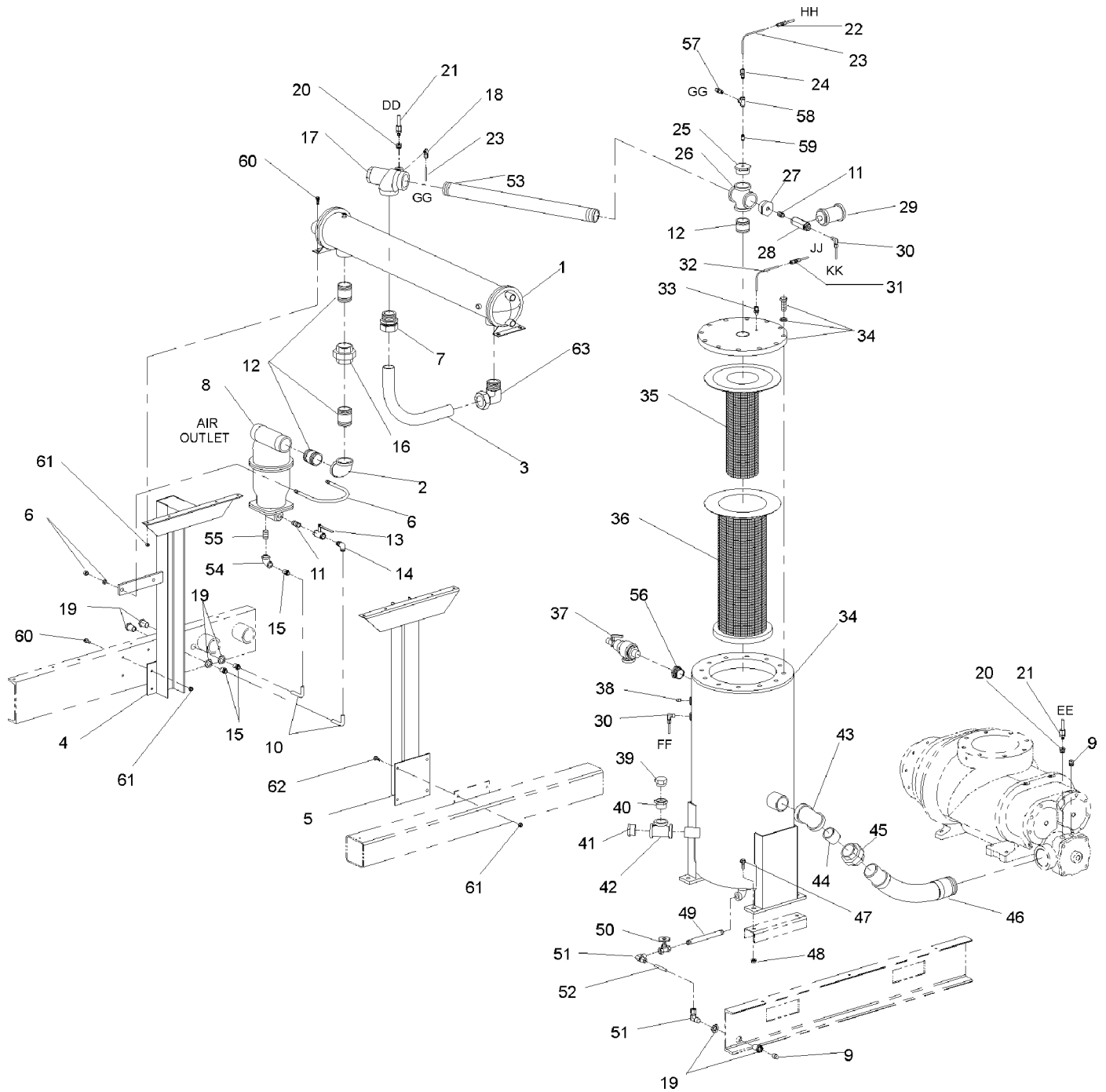
(II) For maintenance on minimum pressure valve no. 242405, order repair kit no. 001176.

(III) For maintenance on blowdown valve no. 250030-276, order repair kit no. 02250045-132.

Section 9

PARTS LIST

9.10 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)



9.10 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED) (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
33	fitting, flex 5/16" x 1/4"	020501	1
34	tnk, oil sump/sep 18" dia	02250047-979	1
35	elem, sep/sec 20 series (IV)	02250047-808	1
36	element, oil sep pri (IV)	250034-085	1
37	vlv, rlf 1" x 1/4" 200 psig	02250047-679	1
38	plug, pipe 1/4" 3000# stl	807800-010	1
39	plug, o-ring boss sae 1 1/2"	040029	1
40	adapter, filler	020044	1
41	glass, oil level 1 1/2" sight	040279	1
42	tee, pipe 1 1/2" 150#	802415-060	1
43	elbow, pipe 2 1/2"	801515-100	1
44	nipple, pipe 2 1/2" x close	822240-000	1
45	union, pipe brs seat 2 1/2"	802515-100	1
46	jnt, exp unit to sep	250042-484	1
47	screw, hx ser wash 1/2" x 1 1/4"	829708-125	4
48	nut, hex flgd pltd 1/2" - 13	825308-458	4
49	nipple, pipe 1/2" x 8"	822108-080	1
50	valve, globe 1/2"	041007	1
51	elbow, tube m 1/2" x 1/2"	810508-050	2
52	tubing, steel 1/2"	841115-008	2
53	nipple, pipe 2" x 18 1/2"	822132-185	1
54	elbow, red 3/4" x 1/2"	801603-020	1
55	nipple, pipe 3/4" x 3"	822112-030	1
56	bushing, red 1 1/4" x 1"	802105-040	1
57	connector, tube m 1/4" x 1/4"	810204-025	1
58	tee, pipe 1/4"	802415-010	1
59	nipple, pipe xs 1/4"	822204-000	1
60	screw, hex ser wash 3/8" x 1"	829706-100	12
61	nut, serr 3/8"	825306-347	16
62	screw, hex ser 3/8" x 1 1/4"	829706-125	4
63	elbow, tube m 2" x 2"	810532-200	1

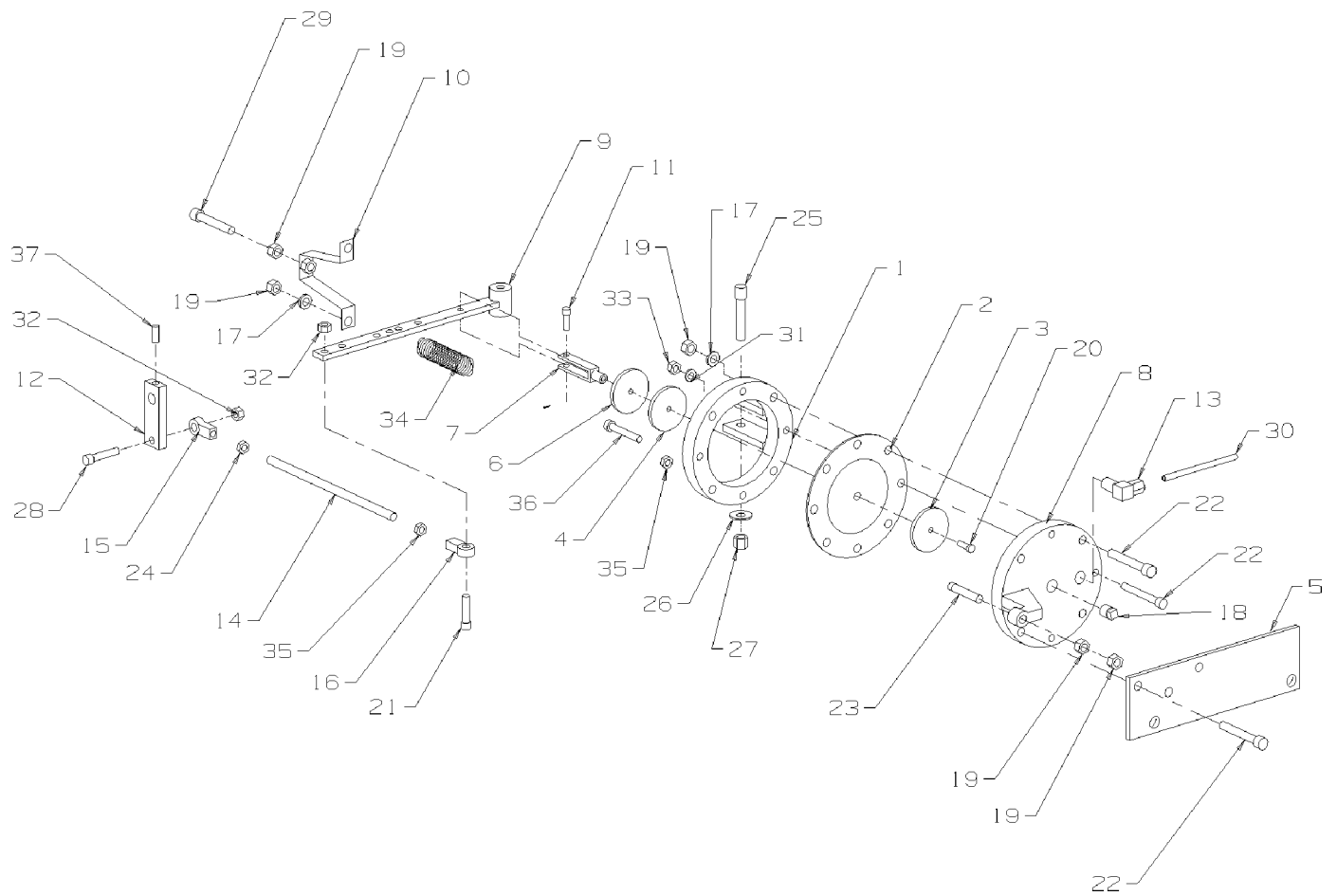
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(IV) For maintenance on separator, order replacement element no. 250034-085 (primary) and replacement element no. 02250047-808 (secondary).

Section 9

PARTS LIST

9.11 SULLICON ASSEMBLY



9.11 SULLICON ASSEMBLY (I)

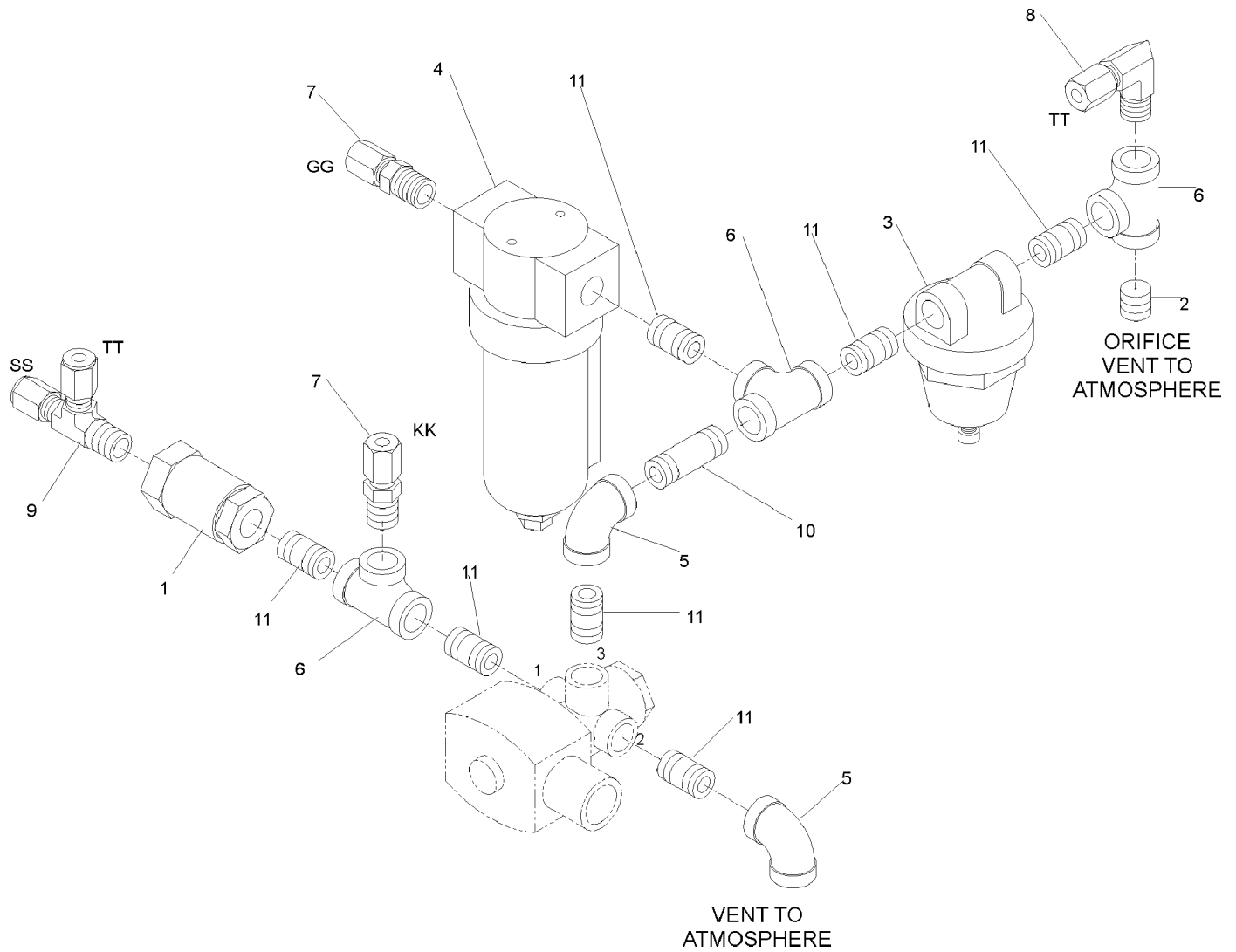
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	body, control	021635	1
2	diaphragm, sullicon	250020-028	1
3	washer, backup	021172	1
4	seal, cup	042538	1
5	bracket, control	233402	1
6	plunger	020094	1
7	yoke, rod end 1/4"-28	040138	1
8	cover, control	021654	1
9	lever, control	011084	1
10	bracket, control stop	020864	1
11	pin, yoke 1/4" with cotter pin	040065	1
12	lever, inlet valve	020687	1
13	elbow, tube m 1/4" x 1/4"	810504-025	1
14	rod, link 5/16"-24 x 8 3/4"	020863	1
15	rod end, spherical 5/16" lh	042004	1
16	rod end, spherical 5/16" rh	040136	1
17	washer, lock reg 3/8"	837506-094	4
18	plug, pipe 1/4" steel	807800-010	1
19	nut, hex 3/8"	824206-337	7
20	screw, sealing 1/4"-28 x 3/4"	041264	1
21	capscr, ferry hd 5/16"-18 x 1 1/4"	828405-125	1
22	capscr, hex gr5 3/8"-16 x 2 1/2"	828605-250	7
23	bolt, adjustable sullicon spring	250009-134	1
24	nut, hex jam 5/16"-24 lh	824705-195	1
25	screw, machine shoulder 3/8" x 2"	830506-200	1
26	washer, pl b r 3/8"	837206-071	1
27	nut, hex locking 3/8"	825506-198	1
28	capscr, ferry 5/16"-18 x 1 1/2"	828405-150	1
29	capscr, hx gr5 3/8"-16 x 2 1/4"	828606-225	1
30	tubing, steel double bronze 1/4"	841015-004	63
31	washer, lock reg 5/16"	837505-078	3
32	nut, hex flanged 5/16"	825305-283	2
33	nut, hex 5/16"	824205-273	3
34	spring, control light 3-7/8"	250006-526	1
35	nut, hex jam 5/16"-24 rh	824605-195	2
36	screw, mach hex 5/16"-24 x 2"	831105-200	1
37	screw, set sq hd 5/16" x 3/4"	408383	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(I) For maintenance on Sullicon Control no. 011682-003, order repair kit no. 250020-353.

Section 9 PARTS LIST

9.12 PNEUMATIC CONTROL SYSTEM



9.12 PNEUMATIC CONTROL SYSTEM

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	valve, check 1/4" inline (I)	049905	1
2	orifice, pipe plug flush 1/32"	232874	1
3	valve, diff press reg 1/4" (II)	406929	1
4	filter, control air 1/4" (III)	408389	1
5	elbow, pipe galv 1/4"	803515-010	2
6	tee, pipe 1/4" x 1/4" x 1/4" galv	804415-010	3
7	conn, tube m 1/4" x 1/4"	810204-025	2
8	elbow, tube m 1/4" x 1/4"	810504-025	1
9	tee, tube male run 1/4" x 1/4" x 1/4"	810904-025	1
10	nipple, pipe 1/4" x 1 1/2" galv	823204-015	1
11	nipple, pipe xs galv 1/4" x close	823204-000	7

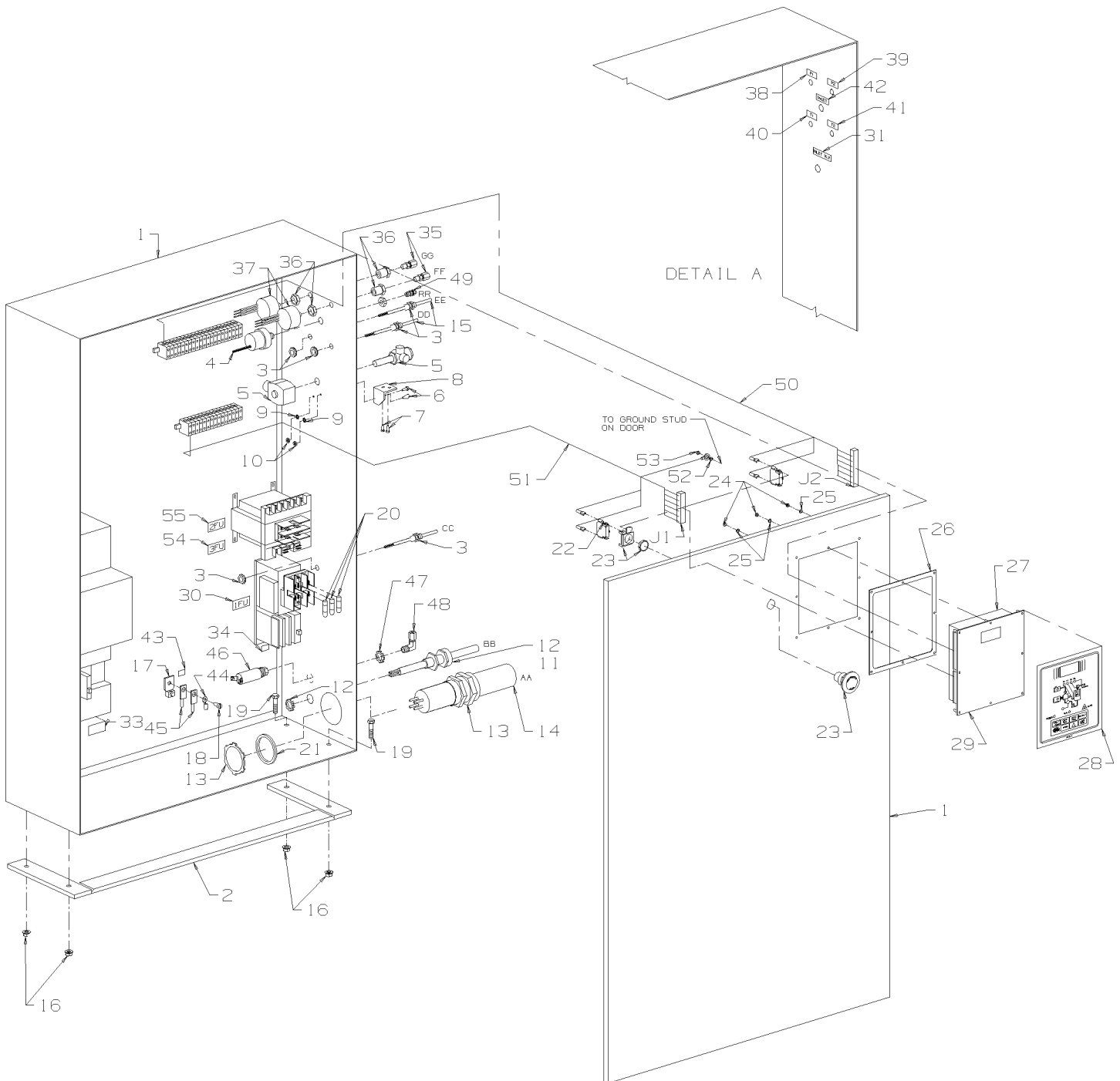
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

- (I) For maintenance on check valve no. 049905, order replacement spring no. 250003-657.
 (II) For maintenance on regulator valve no. 406929, order repair kit no. 041742.
 (III) For maintenance on control line filter no. 408389, order repair kit no. 001692.

Section 9

PARTS LIST

9.13 ELECTRIC CONTROL SYSTEM



Section 9 PARTS LIST

9.13 ELECTRIC CONTROL SYSTEM

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	starter, assy	various	1
2	spcr, starter box 3/8"	02250048-679	1
3	conn, cord grip .09-.26	250023-496	3
4	switch, vac 22" wc n4	250014-656	1
5	valve, sol 3w no 150 psi pnlt (I)	250038-674	1
6	screw, self tap 10-24 x 1/2"	835602-050	2
7	screw, tc-f pan 8-32 x 3/8"	835601-038	2
8	bracket, sol valve supt	250030-037	1
9	washer, lock ext tooth #10	838402-025	2
10	nut, hex unfin #10-24	824202-130	2
11	grip, cord for so 16/4 str 1/2" (II)	250021-321	1
12	grip, cord for so 12/4 st 1/2"	250018-495	1
13	grip, cord	various	1
14	wire, type g-gc	various	7
15	probe, rtd 100 ohm platinum	250039-909	2
16	nut, hex ser wash 3/8"-16	825306-347	4
17	lug, scrulug kpa-25 4-1/0	849215-025	1
18	screw, tc-f rd 5/16" x 1/2"	835705-050	1
19	capscr, hx gr5 3/8"-16 x 1 1/2"	829706-150	4
20	fuse, cc td	various	3
21	washer, reducing	various	2
22	block, contact 1 n.c.	250027-125	2
23	switch, oper red push/pull e22	250028-588	1
24	nut, hex metric m4 x .7	825904-070	8
25	washer, sprlock reg m4	838804-090	8
26	gskt, panel supervisor II	02250048-822	1
27	ic, assy eeprom super II	various	1
28	decal, super II flooded compr	250042-506	1
29	ctl, supervisor II	various	1
30	decal, 1fu (assy #250038-457)	-	1
31	decal, inlet valve (assy #250038-457)	-	1
32	decal, 1cr (assy #250038-457)	-	1
33	decal, 1m (assy #250038-457)	-	1
34	decal, 2m (assy #250038-457)	-	1
35	conn, tube m 1/4" x 1/8"	810204-012	2
36	bulkhead, pipe 1/8" npt	841500-002	2

(Continued on Page 77)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

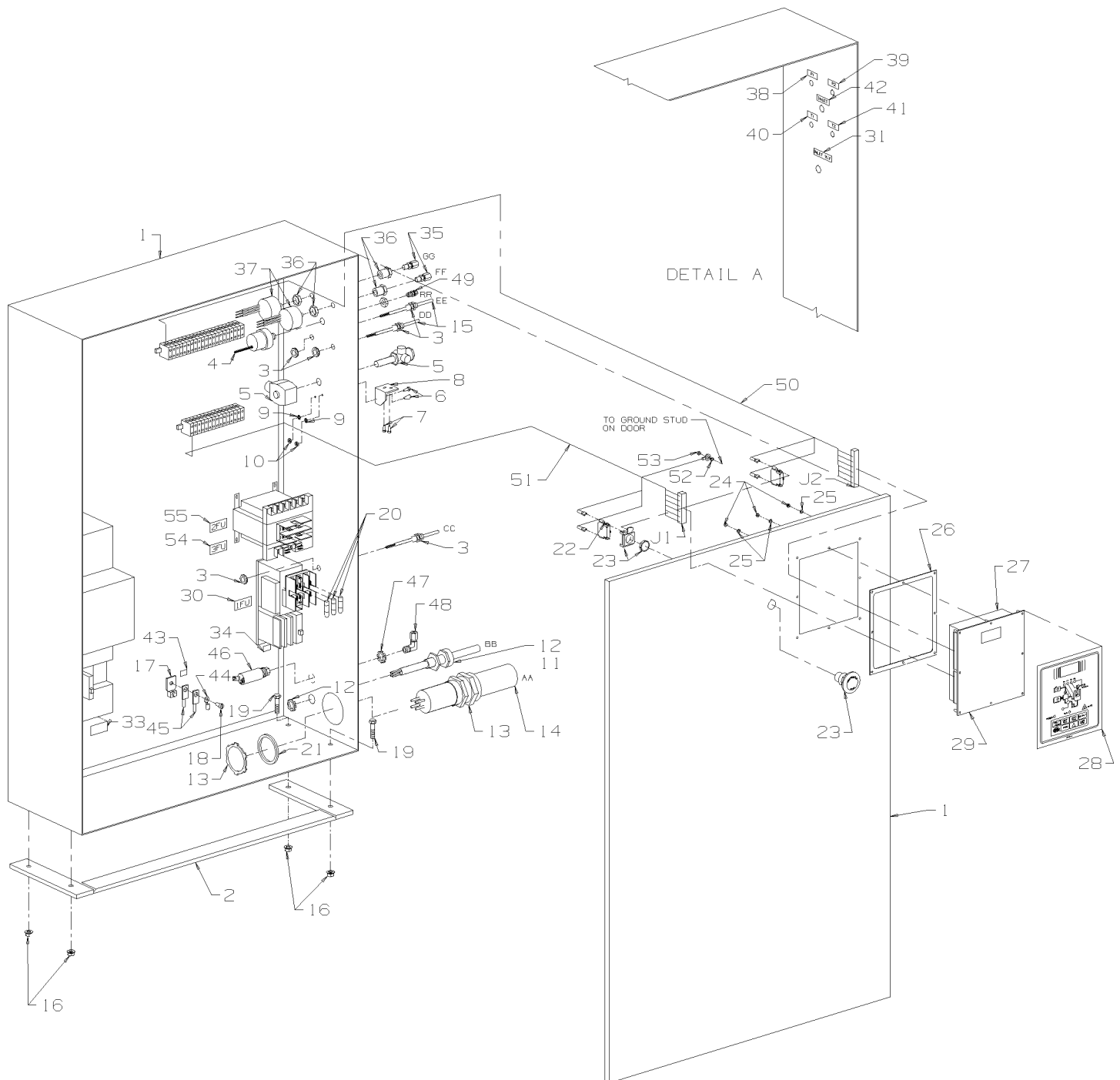
(I) For maintenance on solenoid valve no. 250038-674, order repair kit no. 250038-673 and replacement coil no. 250031-738.

(II) Used on water-cooled option only.

Section 9

PARTS LIST

9.13 ELECTRIC CONTROL SYSTEM



9.13 ELECTRIC CONTROL SYSTEM (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
37	transducer, press 0–200# 1–5vd	250039–910	2
38	decal, p1 (assy #250038–457)	–	1
39	decal, p2 (assy #250038–457)	–	1
40	decal, t1 (assy #250038–457)	–	1
41	decal, t2 (assy #250038–457)	–	1
42	decal, inlet (assy #250038–457)	–	1
43	decal, ground lug	045433	1
44	terminal, ring	849306–010	1
45	lug, hylug	849106–002	2
46	switch, press no 10psi (II)	250017–992	1
47	locknut, conduit 1/2" (II)	847200–050	1
48	elbow, tube m 1/4" x 1/4" (II)	810504–025	1
49	connector, tube m 1/4" x 1/8"	813604–125	1
50	harn, wrg dx ctl reg	02250054–329	1
51	harn, wrg dx pwr reg	02250054–328	1
52	washer, loc ext 5/16"	838405–034	1
53	nut, plated 5/16"–18	825205–273	1
54	decal, 3fu (assy #250038–457)	–	1
55	decal, 2fu (assy #250038–457)	–	1

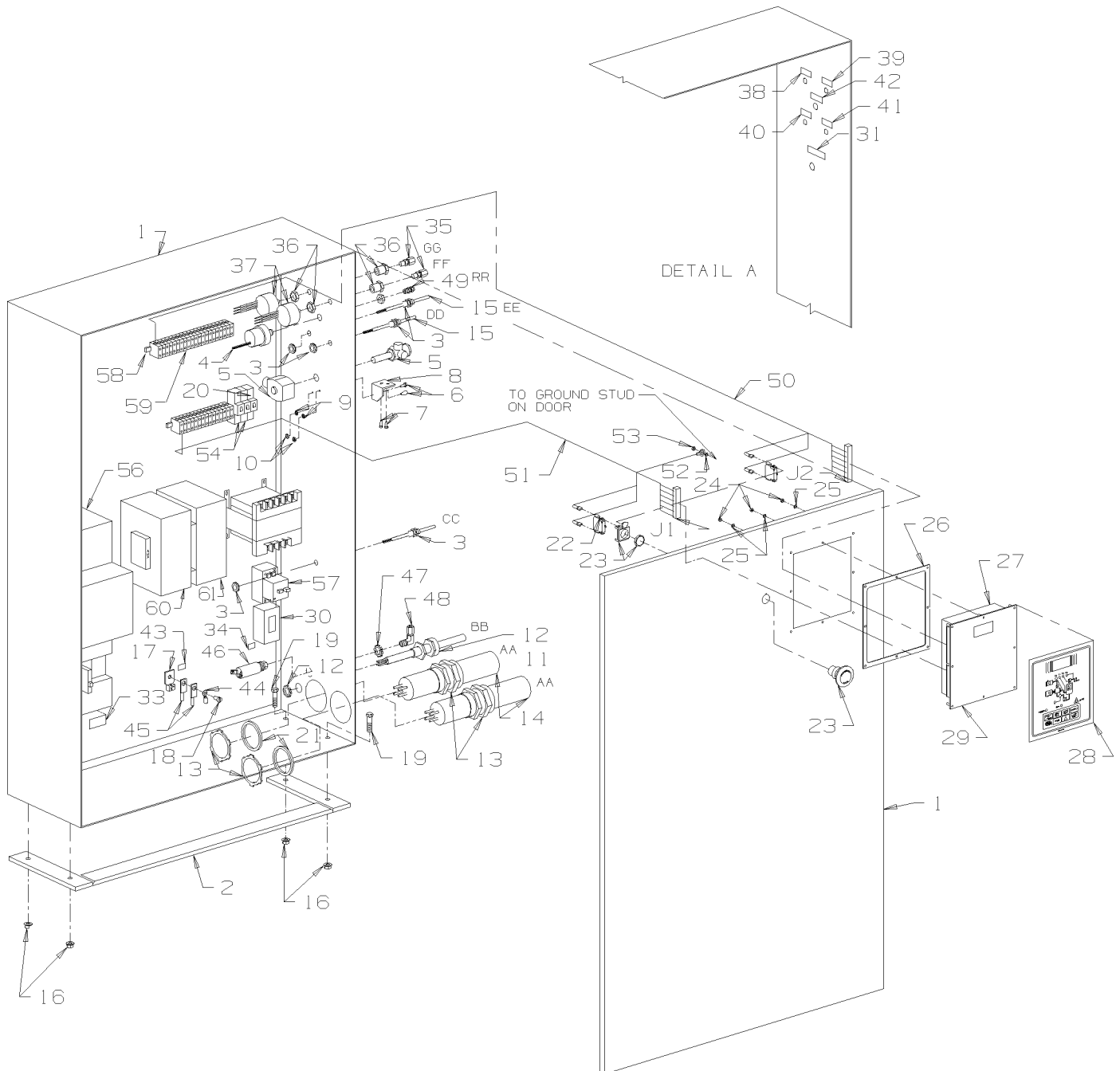
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(II) Used on water–cooled option only.

Section 9

PARTS LIST

9.14 WYE-DELTA (50Hz) ELECTRICAL ASSEMBLY



9.14 WYE-DELTA (50Hz) ELECTRICAL ASSEMBLY

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	starter, assy	various	1
2	sPCR, starter box 3/8"	02250048-679	1
3	conn, cord grip .09-.26	250023-496	3
4	switch, vac 22" wc n4	250014-656	1
5	valve, sol 3w no 150 psi pnlmt (I)	250038-674	1
6	screw, self tap 10-24 x 1/2"	835602-050	2
7	screw, tc-f pan 8-32 x 3/8"	835601-038	2
8	bracket, sol valve supt	250030-037	1
9	washer, lock ext tooth #10	838402-025	2
10	nut, hex unfin #10-24	824202-130	2
11	grip, cord for so 16/4 str 1/2" (II)	250021-321	1
12	grip, cord for so 12/4 st 1/2"	250018-495	1
13	grip, cord	various	1
14	wire, type g-gc	various	7
15	probe, rtd 100 ohm platinum	250039-909	2
16	nut, hex ser wash 3/8"-16	825306-347	4
17	lug, scrulug kpa-25 4-1/0	849215-025	1
18	screw, tc-f rd 5/16" x 1/2"	835705-050	1
19	capscr, hx gr5 3/8"-16 x 1 1/2"	829706-150	4
20	breaker, circuit 52	(III)	
21	washer, reducing	various	2
22	block, contact 1 n.c.	250027-125	2
23	switch, oper red push/pull e22	250028-588	1
24	nut, hex metric m4 x .7	825904-070	8
25	washer, sprlock reg m4	838804-090	8
26	gskt, panel supervisor II	02250048-822	1
27	ic, assy eeprom super II	various	1
28	decal, super II flooded compr	250042-506	1
29	ctl, supervisor II	various	1
30	contactor, ac 3p 32a 120v	250025-705	1
31	decal, inlet valve (assy #250038-457)	-	1
32	decal, 1cr (assy #250038-457)	-	1
33	decal, 1m (assy #250038-457)	-	1
34	decal, 2m (assy #250038-457)	-	1
35	conn, tube m 1/4" x 1/8"	810204-012	2
36	bulkhead, pipe 1/8" npt	841500-002	2

(Continued on Page 81)

(I) For maintenance on solenoid valve no. 250038-674, order repair kit no. 250038-673 and replacement coil no. 250031-738.

(II) Used on water-cooled option only.

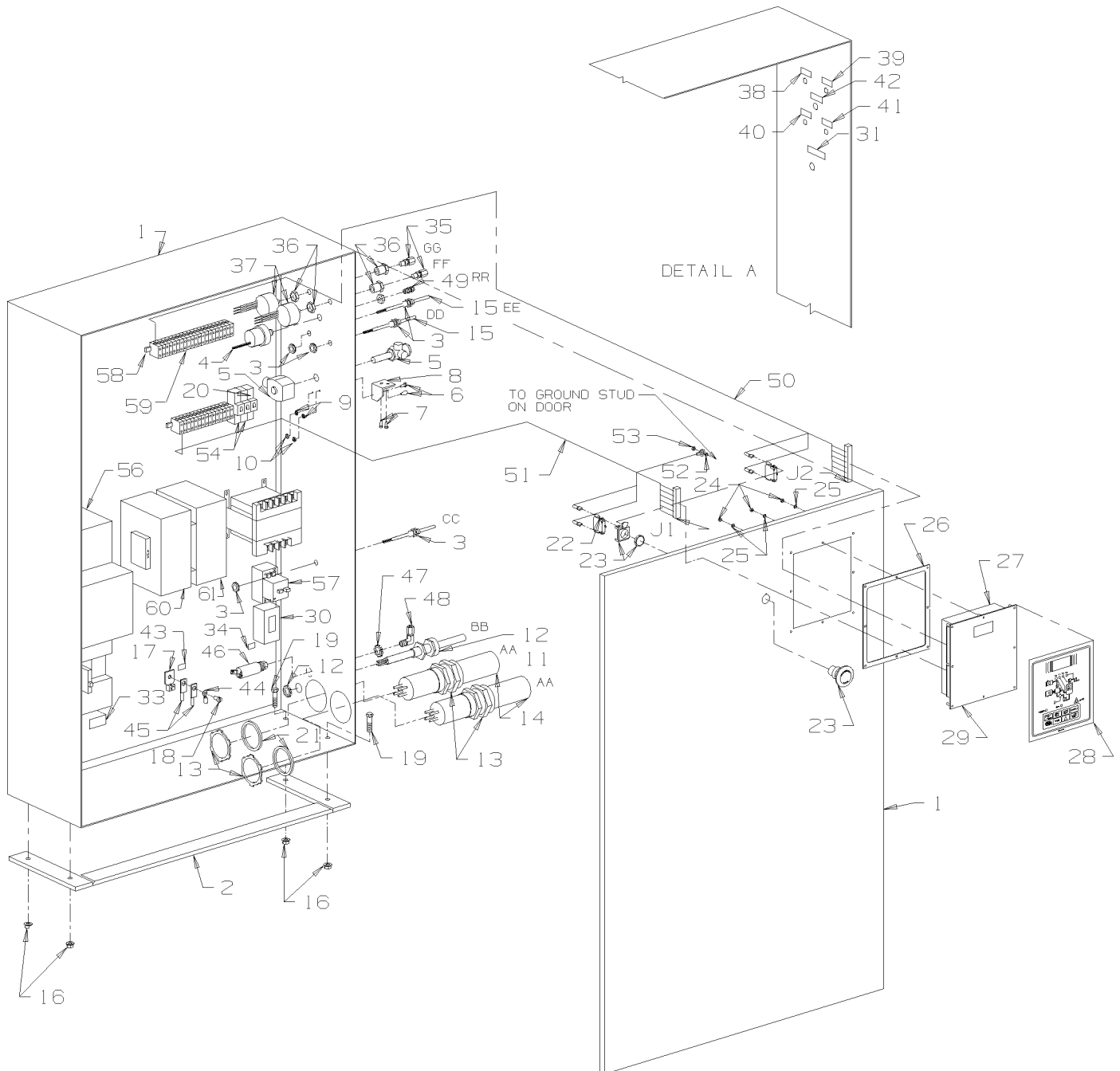
(III) Please consult factory for part number.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.14 WYE-DELTA (50 Hz) ELECTRICAL ASSEMBLY



9.14 WYE–DELTA (50 Hz) ELECTRICAL ASSEMBLY (Continued)

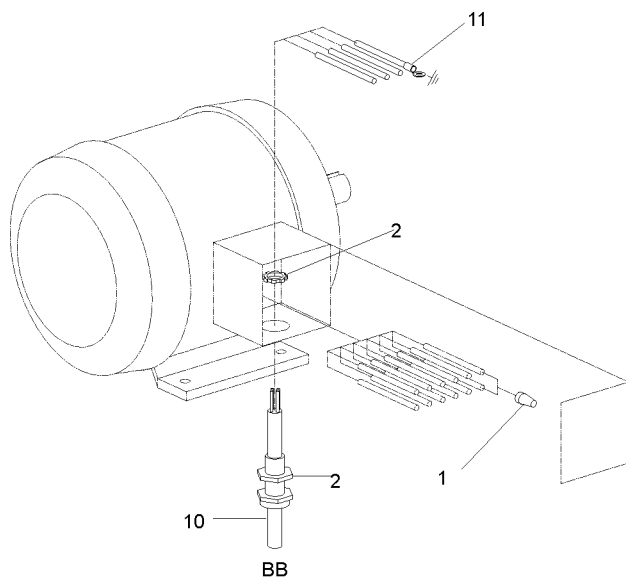
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
37	transducer, press 0–200# 1–5vd	250039–910	2
38	decal, p1 (assy #250038–457)	—	1
39	decal, p2 (assy #250038–457)	—	1
40	decal, t1 (assy #250038–457)	—	1
41	decal, t2 (assy #250038–457)	—	1
42	decal, inlet (assy #250038–457)	—	1
43	decal, ground lug	045433	1
44	terminal, ring	849306–010	1
45	lug, hylug	849106–002	2
46	switch, press no 10psi (II)	250017–992	1
47	locknut, conduit 1/2" (II)	847200–050	1
48	elbow, tube m 1/4" x 1/4" (II)	810504–025	1
49	connector, tube m 1/4" x 1/8"	813604–125	1
50	harn, wrg dx ctl reg	02250054–329	1
51	harn, wrg dx pwr reg	02250054–328	1
52	washer, loc ext 5/16"	838405–034	1
53	nut, plated 5/16"–18	825205–273	1
54	breaker, circuit 4a	(III)	1
55	block, power (not shown)	(III)	1
56	starter, 5 3ph mfv	250038–284	1
57	transformer, 380va 380/415v pri	(III)	1
58	block, term end stop	02250057–245	4
59	block, terminal 60a 600v	02250057–241	33
60	contactor, Sz5 3p	(III)	1
61	contactor, Sz4 3p	(III)	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

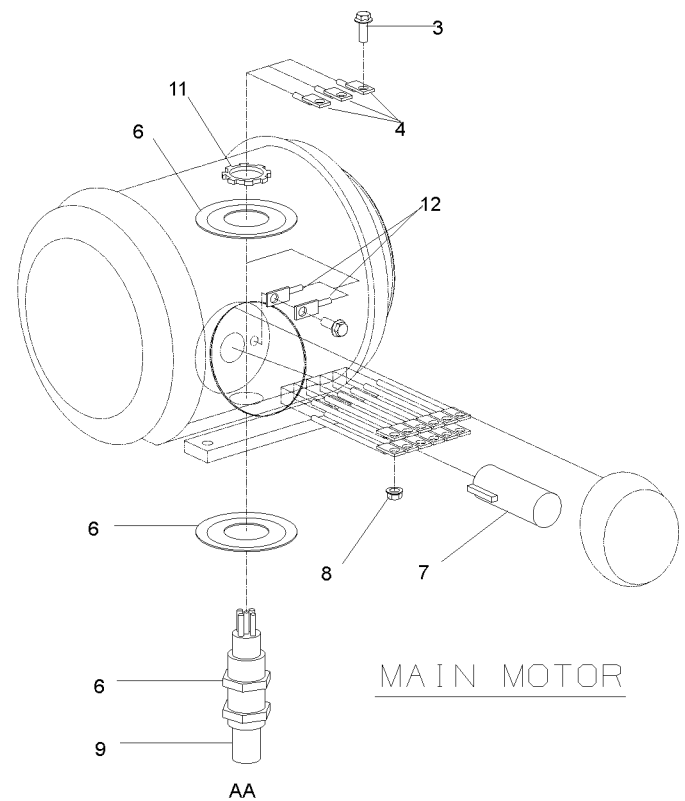
Section 9

PARTS LIST

9.15 MOTOR ASSEMBLY



FAN MOTOR



MAIN MOTOR

NOTE: SEE VOLTAGE NAMEPLATE ON MOTORS FOR WIRE CONNECTION.

9.15 MOTOR ASSEMBLY

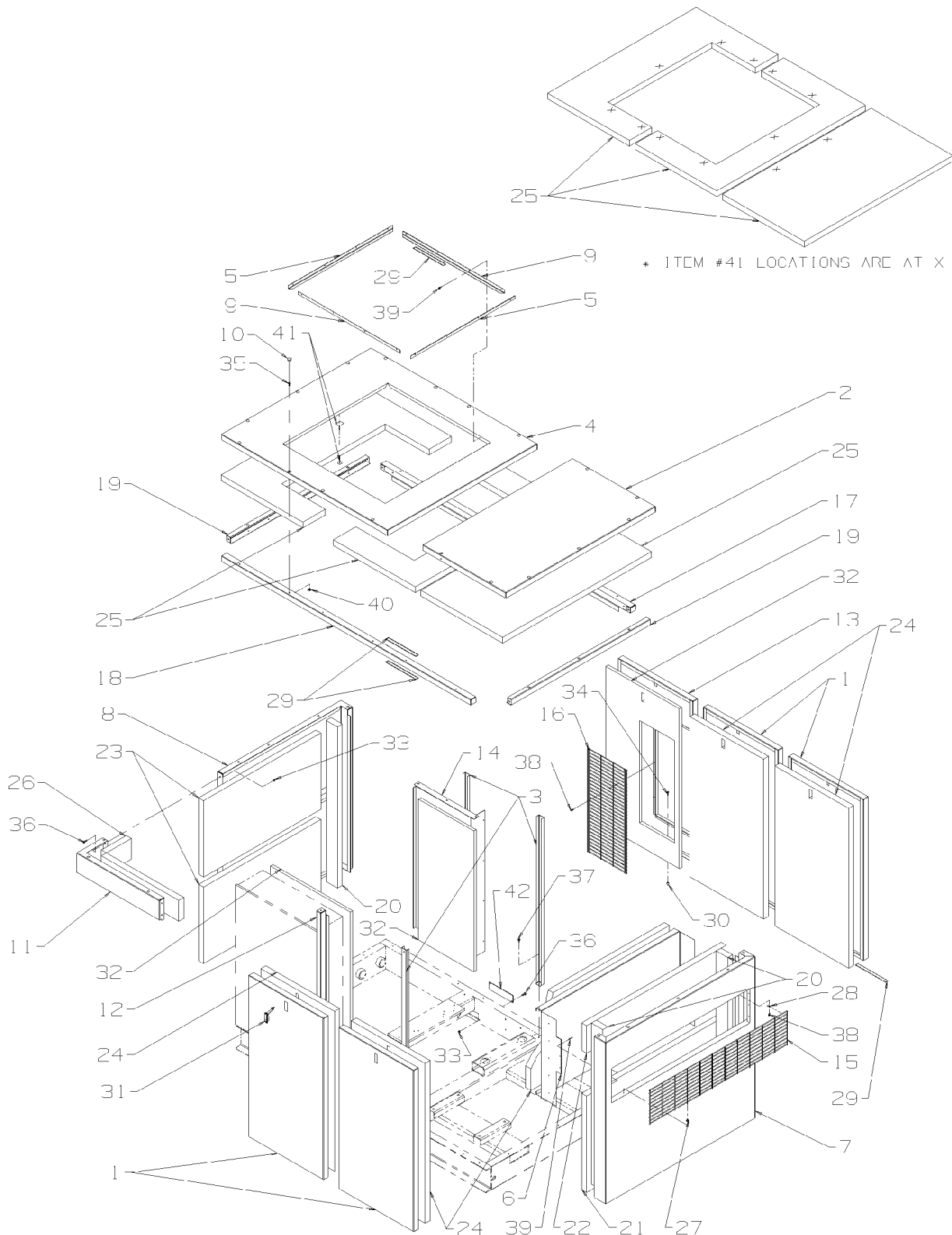
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	conn, wire yellow	851000-074	6
2	grip, cord for so 12/4 st	250018-495	1
3	screw, hx ser wash 3/8" x 3/4"	829706-075	3
4	lug, burndy ya27-1.4 3/0-3	849106-300	3
5	grip, cord	various	2
6	washer, conduit red 3-1/2" x 2"	847014-080	2
7	insulator, splice t&b msc	250006-113	3
8	nut, hex flgd pltd 3/8" - 16	825306-347	3
9	wire, type g-gc	various	7
10	wire, neoprene #12-4 so	850604-012	6
11	terminal, ring 1/4" x 12 ga	849304-010	1
12	lug, burndy ya2c-l #2-3/8"	849106-002	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.16 PACKAGE ENCLOSURE (AIR-COOLED)



9.16 PACKAGE ENCLOSURE (AIR-COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	panel, access	02250044-685	4
2	panel, roof end	02250044-688	1
3	channel, support encl	02250044-815	3
4	panel, roof air outlet	02250053-703	1
5	angle, cooler seal	02250046-424	2
6	baffle, air inlet compr end	02250046-858	1
7	panel, assy compr end	02250046-859	1
8	panel, assy motor end	02250046-860	1
9	angle, clr seal-short	02250047-268	2
10	plug, plastic - 1"	02250048-520	18
11	panel, corner w/small starter	02250049-343	1
12	panel, side member	02250049-344	1
13	panel, access-assy air inlet	02250049-398	1
14	baffle, air inlet motor end	02250049-469	1
15	grille, air inlet compr end	02250049-723	1
16	grille, air inlet motor end	02250049-724	1
17	angle, side member-mtr	02250049-807	1
18	angle, side member starter	02250049-808	1
19	channel, end member	02250049-811	2
20	panel, fiberglass 55 7/8" x 45"	02250049-900	3
21	panel, fiberglass 33 1/2" x 55"	02250049-901	1
22	panel, fiberglass 9 1/2" x 55 7/8"	02250049-902	1
23	panel, fiberglass 47" x 26 1/2"	02250049-903	2
24	panel, fiberglass 55 1/2" x 29"	02250049-904	5
25	panel, fiberglass 59 1/2" x 32 3/4"	02250049-905	3
26	panel, fiberglass 7 1/4" x 42"	02250049-920	1
27	grommet, rubber 1/4"	040125	2
28	clamp, wire	043194	3
29	weatherstrip, felt 1/8" x 1"	043502	145 ft
30	rivet, tubular int tap	049824	10
31	latch, adj trigger-2" pnl	250007-835	5
32	foam, acous 1" stk bk	250029-852	.1
33	nut, hx flngd-5/16"	825305-283	21
34	screw, ser-hd 1/4"-1	829704-100	10
35	screw, hx ser - 5/16" x 3/4"	829705-075	48
36	screw, hx ser 5/16" x 1"	829705-100	16

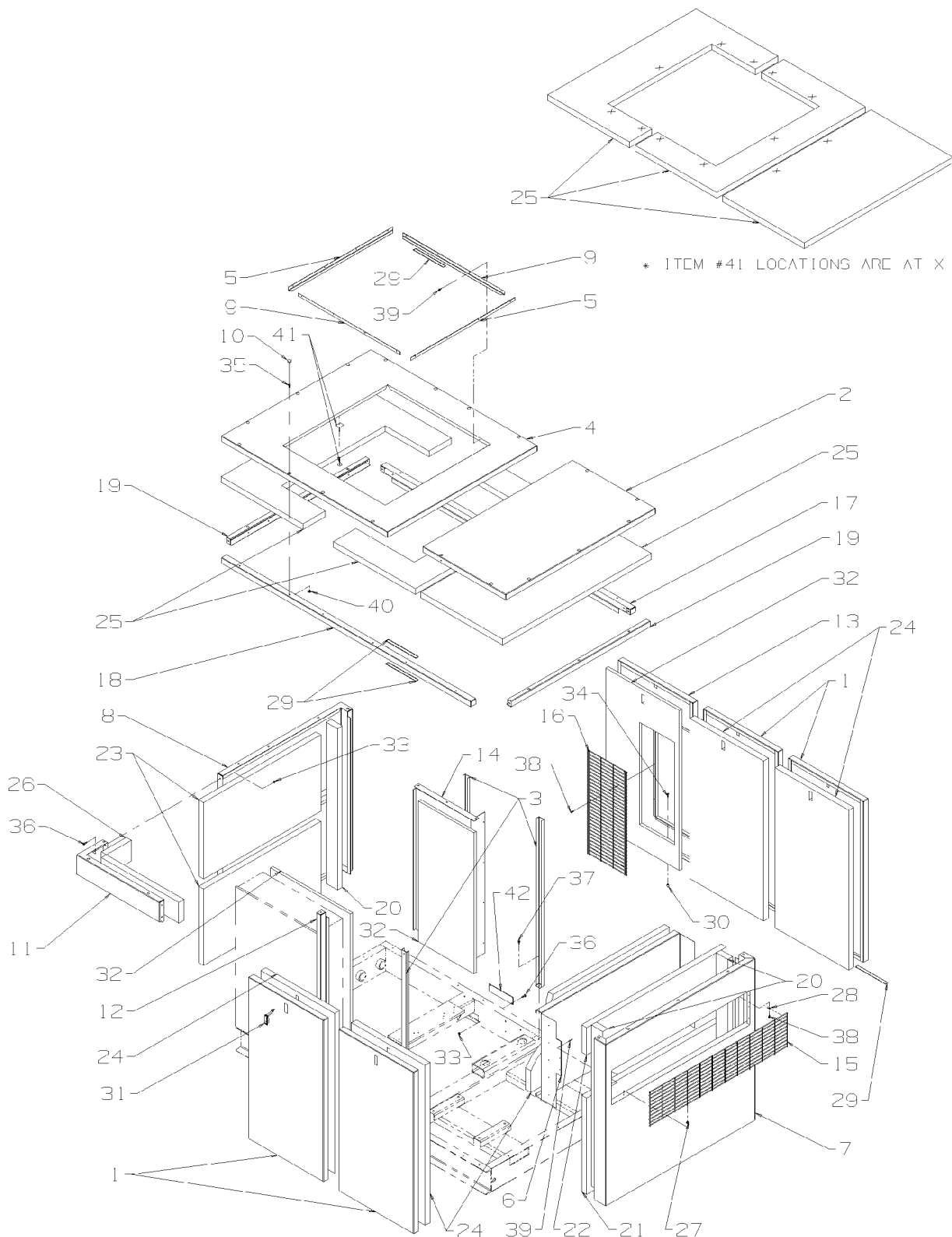
(Continued on Page 87)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.16 PACKAGE ENCLOSURE (AIR-COOLED)



9.16 PACKAGE ENCLOSURE (AIR-COOLED) (Continued)

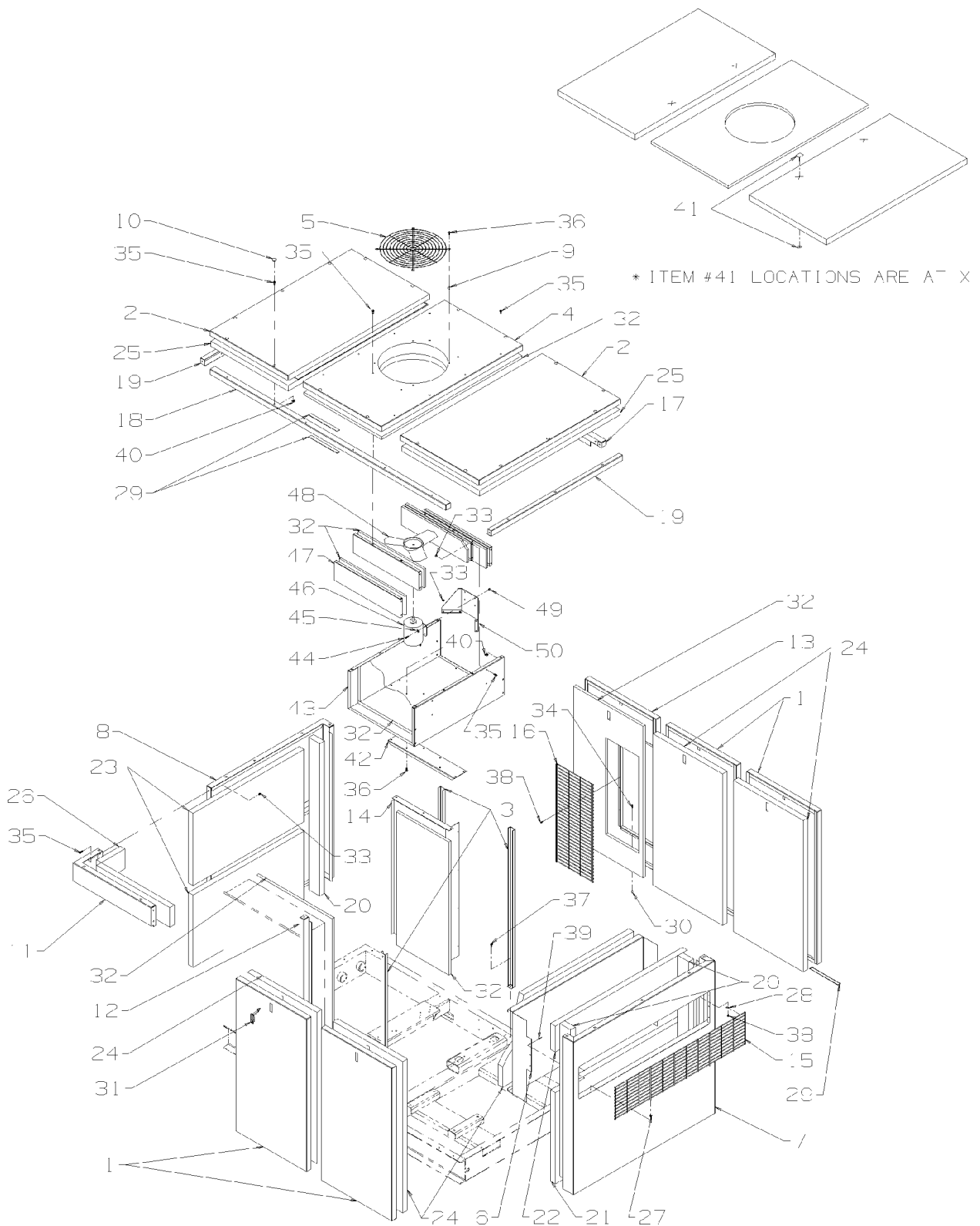
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
37	screw, tc-f hex 5/16" - 18	834205-075	5
38	screw, self drill 1/4" x 3/4"	834504-075	24
39	rivet, pop 3/16" x 3/8"	843103-038	18
40	nut, retainer 5/16" - 18	861405-092	38
41	hanger, insulation	02250054-281	12
42	plate, cover fork pocket	02250048-347	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.17 PACKAGE ENCLOSURE (WATER-COOLED)



Section 9 PARTS LIST

9.17 PACKAGE ENCLOSURE (WATER-COOLED)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	panel, access	02250044-685	4
2	panel, roof end	02250044-688	2
3	channel, support encl	02250044-815	3
4	panel, roof center section	02250044-689	1
5	guard, fan 22" dia	241137	1
6	baffle, air inlet compr end	02250046-858	1
7	panel, assy compr end	02250046-859	1
8	panel, assy motor end	02250046-860	1
9	insert, 5/16" - 18 thrd blind	02250043-765	4
10	plug, plastic - 1"	02250048-520	18
11	panel, corner w/small starter	02250049-343	1
12	panel, side member	02250049-344	1
13	panel, access-assy air inlet	02250049-398	1
14	baffle, air inlet motor end	02250049-469	1
15	grille, air inlet compr end	02250049-723	1
16	grille, air inlet motor end	02250049-724	1
17	angle, side member-mtr	02250049-807	1
18	angle, side member starter	02250049-808	1
19	channel, end member	02250049-811	2
20	panel, fiberglass 55 7/8" x 45"	02250049-900	3
21	panel, fiberglass 33 1/2" x 55"	02250049-901	1
22	panel, fiberglass 9 1/2" x 55 7/8"	02250049-902	1
23	panel, fiberglass 47" x 26 1/2"	02250049-903	2
24	panel, fiberglass 55 1/2" x 29"	02250049-904	5
25	panel, fiberglass 59 1/2" x 32 3/4"	02250049-905	2
26	panel, fiberglass 7 1/4" x 42"	02250049-920	1
27	grommet, rubber 1/4"	040125	2
28	clamp, wire	043194	3
29	weatherstrip, felt 1/8" x 1"	043502	150 ft
30	rivet, tubular int tap	049824	10
31	latch, adj trigger-2" pnl	250007-835	5
32	foam, acous 1" stk bk	250029-852	.15
33	nut, hx flngd-5/16"	825305-283	37
34	screw, ser-hd 1/4"-1	829704-100	10
35	screw, hx ser - 5/16" x 3/4"	829705-075	78
36	screw, hx ser 5/16" x 1"	829705-100	18

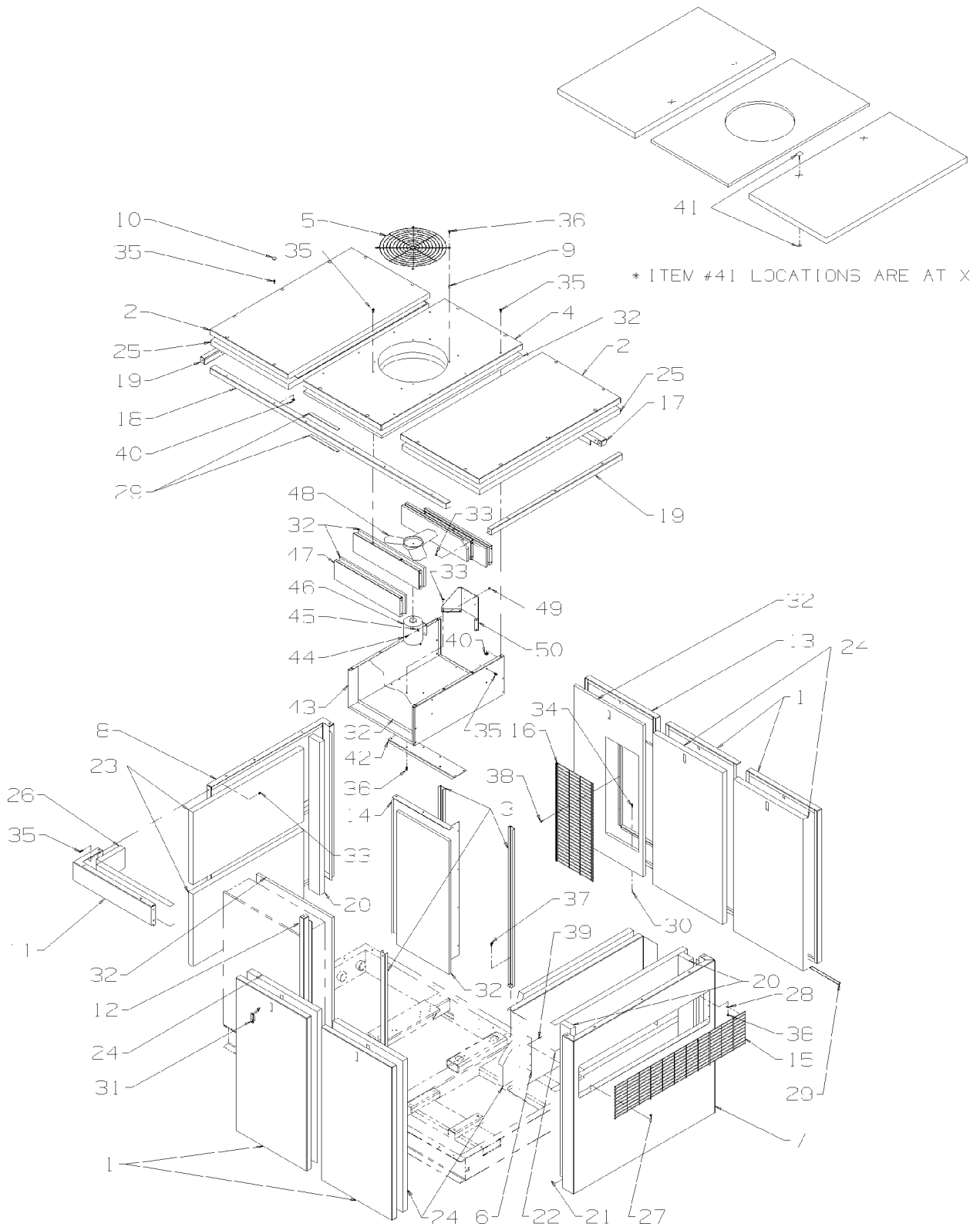
(Continued on Page 91)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.17 PACKAGE ENCLOSURE (WATER-COOLED)



9.17 PACKAGE ENCLOSURE (WATER-COOLED) (Continued)

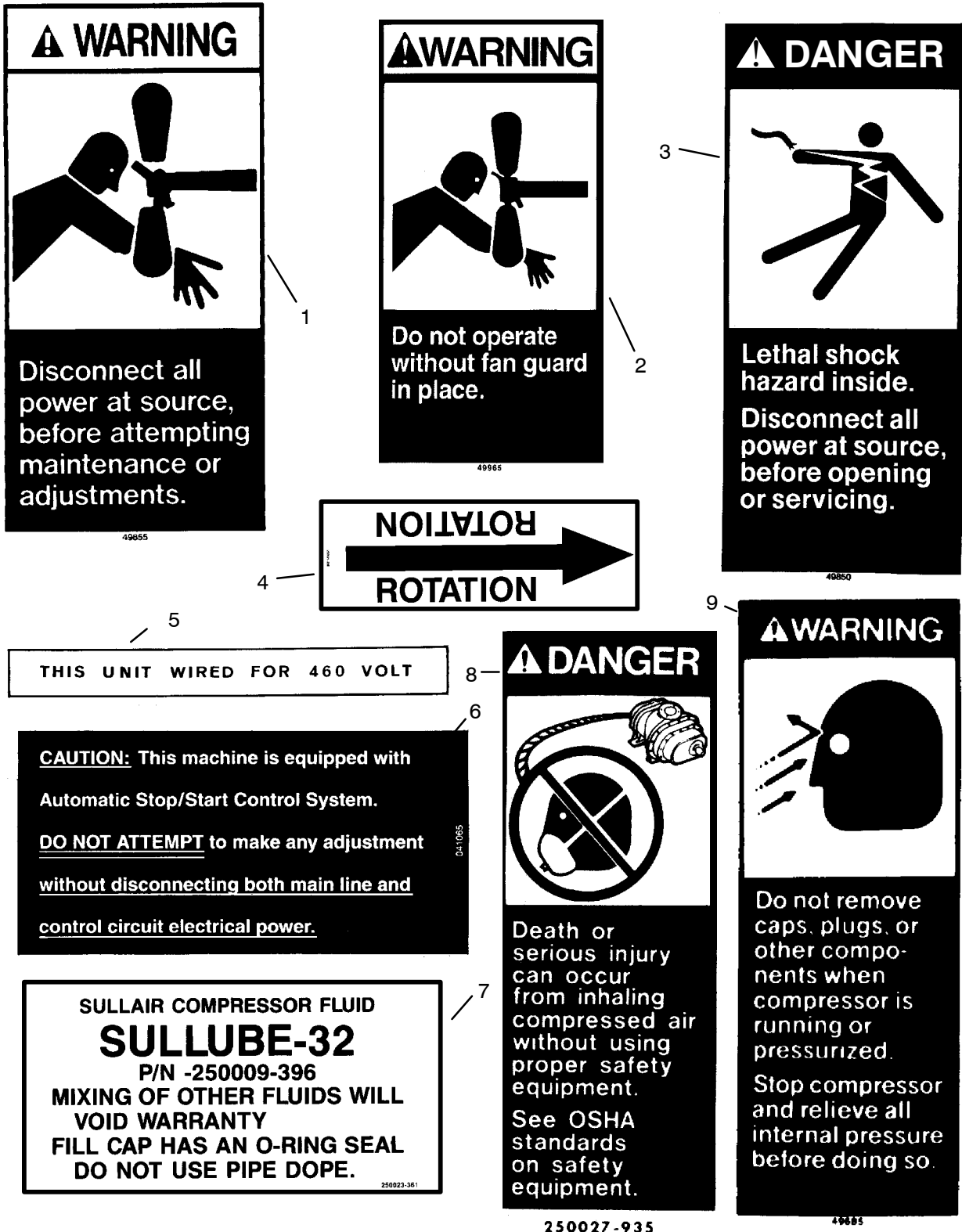
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
37	screw, tc-f hex 5/16" - 18	834205-075	5
38	screw, self drill 1/4" x 3/4"	834504-075	9
39	rivet, pop 3/16" x 3/8"	843103-038	18
40	nut, retainer 5/16" - 18	861405-092	55
41	hanger, insulation	02250054-281	4
42	channel, support	02250044-855	1
43	housing, baffle	02250044-817	1
44	capscrew, hex 5/16" x 1"	828605-100	4
45	washer, flat 5/16"	837205-071	4
46	motor, .25hp 230/460-60 tenv	250000-031	1
47	panel, baffle	02250044-816	4
48	fan, vent, 18" dia	410358	1
49	nut, hex locking 5/16"	825505-166	4
50	support, motor	02250044-854	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.18 DECAL GROUP



9.18 DECAL GROUP

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
1	sign, warning sever fan	049855	1
2	sign, warning sever fan port	049965	1
3	sign, danger electrocution	049850	1
4	decal, rotation 7"	250021–286	1
5	decal, 460 volt	040631	1
	•decal, 380 volt (I)	241926	1
	•decal, 415 volt (I)	24127	1
	•decal, 525 volt (I)	02250047–898	1
	•decal, 575 volt (I)	041124	1
6	decal, caution auto start/stop	041065	1
7	decal, Sullube 32	250023–361	1
8	sign, danger air breathing	250027–935	1
9	sign, warning compressor fluid fill	049685	1

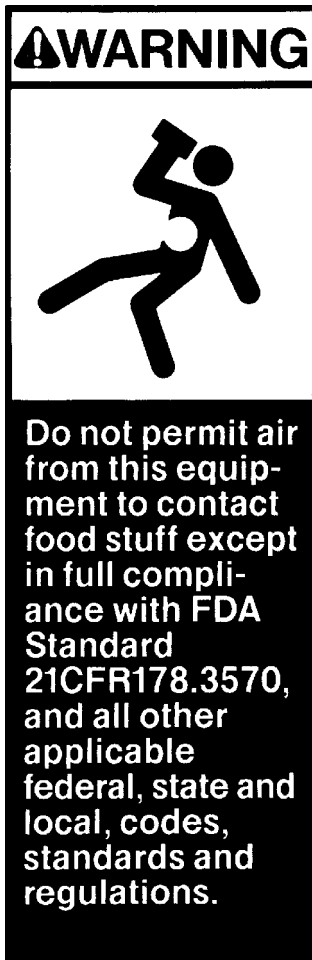
(Continued on Page 95)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

(I) Decal is for optional voltage (not shown).

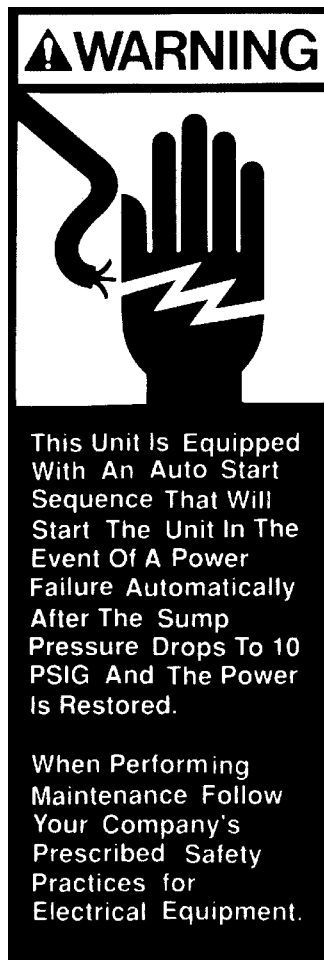
Section 9 PARTS LIST

9.18 DECAL GROUP



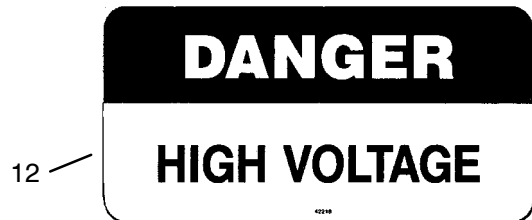
250003-144

10



250017-903

11



12



13



14



15



16

17



410239

**COMPRESSOR LUBRICANT
SULLAIR 24KT FLUID ONLY**

**DO NOT OPEN KT FILLER CAP
WHILE MACHINE IS OPERATING
OR PRESSURIZED. PIPE DOPE IS
NOT REQUIRED ON CAP.**

46540

19



241814

9.18 DECAL GROUP (Continued)

<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
10	sign, warning food grade	250003–144	1
11	decal, warning auto start	250017–903	1
12	decal, danger high voltage	042218	1
13	decal, water in	250019–107	1
14	decal, water out	250019–108	1
15	decal, rotation 3 1/2"	250021–564	1
16	decal, ground	045433	1
17	decal, compressor lubrication	046540	1
18	decal, fluid stop valve	410239	1
19	decal, fork lifting	241814	2

(Continued on Page 97)

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 9

PARTS LIST

9.18 DECAL GROUP

20



21



22

AMBIENT OPERATING TEMPERATURE 0°C TO 60°C

9.18 DECAL GROUP (Continued)

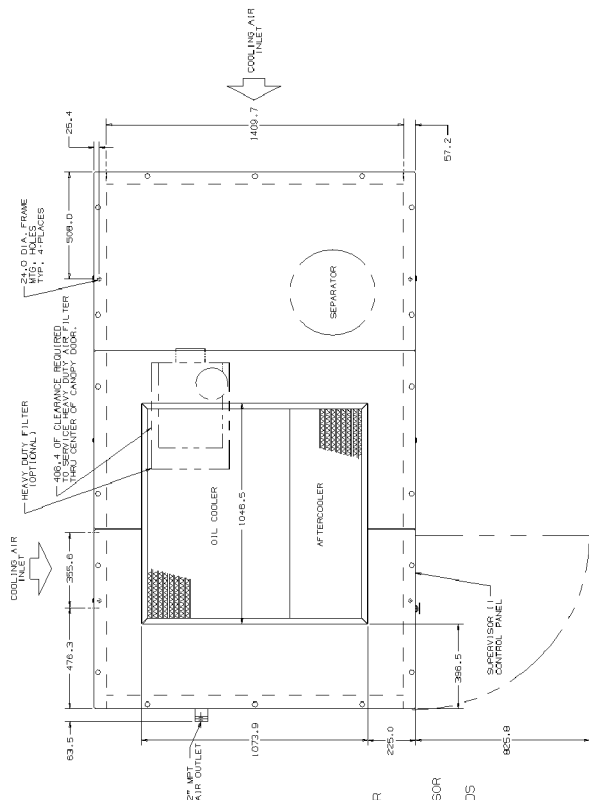
<i>key number</i>	<i>description</i>	<i>part number</i>	<i>quantity</i>
20	decal, ISO 9001	Consult Factory	1
21	decal, 24 KT	046415	2
22	decal, ambient operating temperature	02250060–682	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

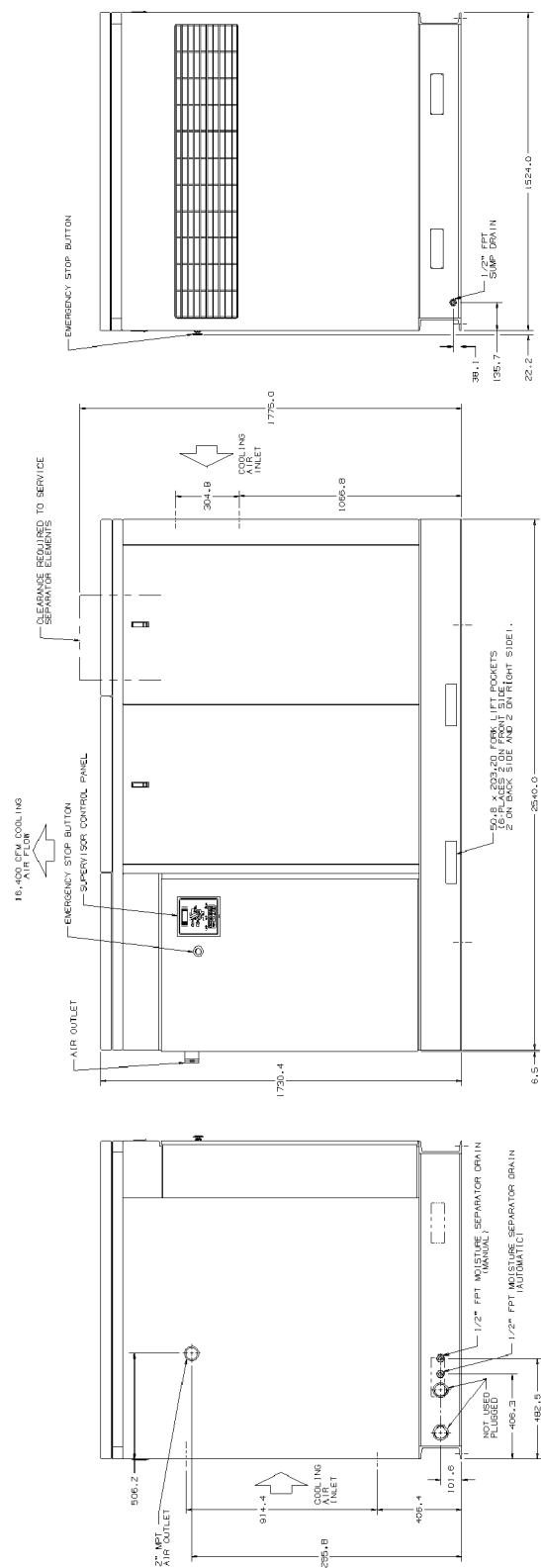
9.19 WIRING DIAGRAM



9.20 INSTALLATION WITH CANOPY (AIR-COOLED)



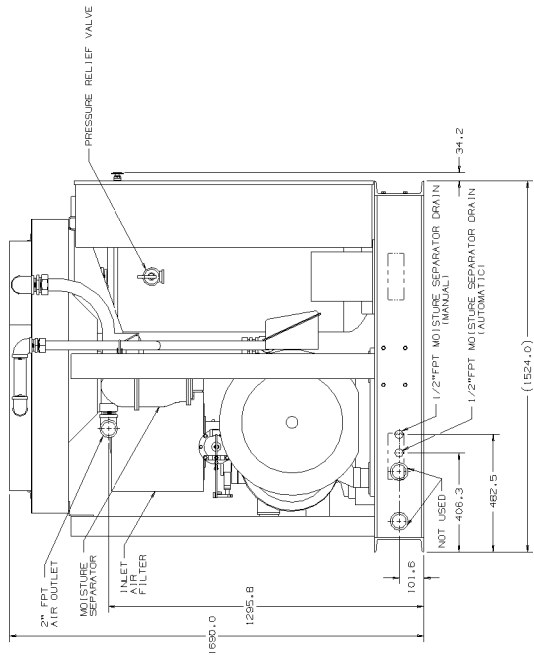
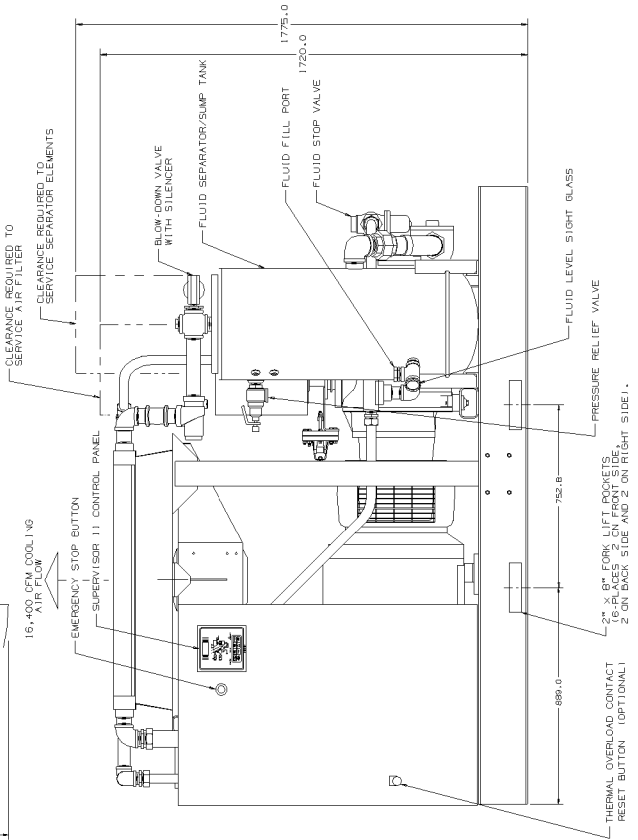
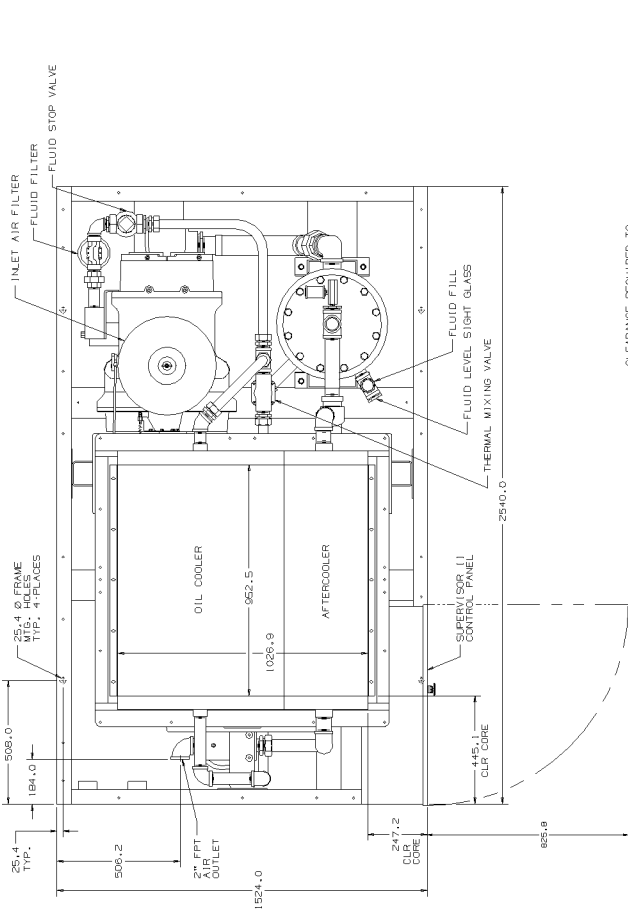
- NOTES:**
- 1. ALL DIMENSIONS IN MILLIMETERS EXCEPT PIPE THREADS.
 - 2. ALL DIMENSIONS $\pm 1.3\text{mm}$.
 - 3. ALLOW 915mm MINIMUM CLEARANCE ALL AROUND MACHINE FOR ACCESS AS WELL AS FREE CIRCULATION OF AIR.
 - 4. A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELLED AND SECURED WITH THE FOUNDATION. THE FOUNDATION MUST BE RIGID ENOUGH TO SUPPORT THE WEIGHT OF THE FRAME AND THE FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED AT THE EXTERNAL CONNECTIONS.



Section 9

PARTS LIST

9.21 INSTALLATION WITHOUT CANOPY (AIR-COOLED)

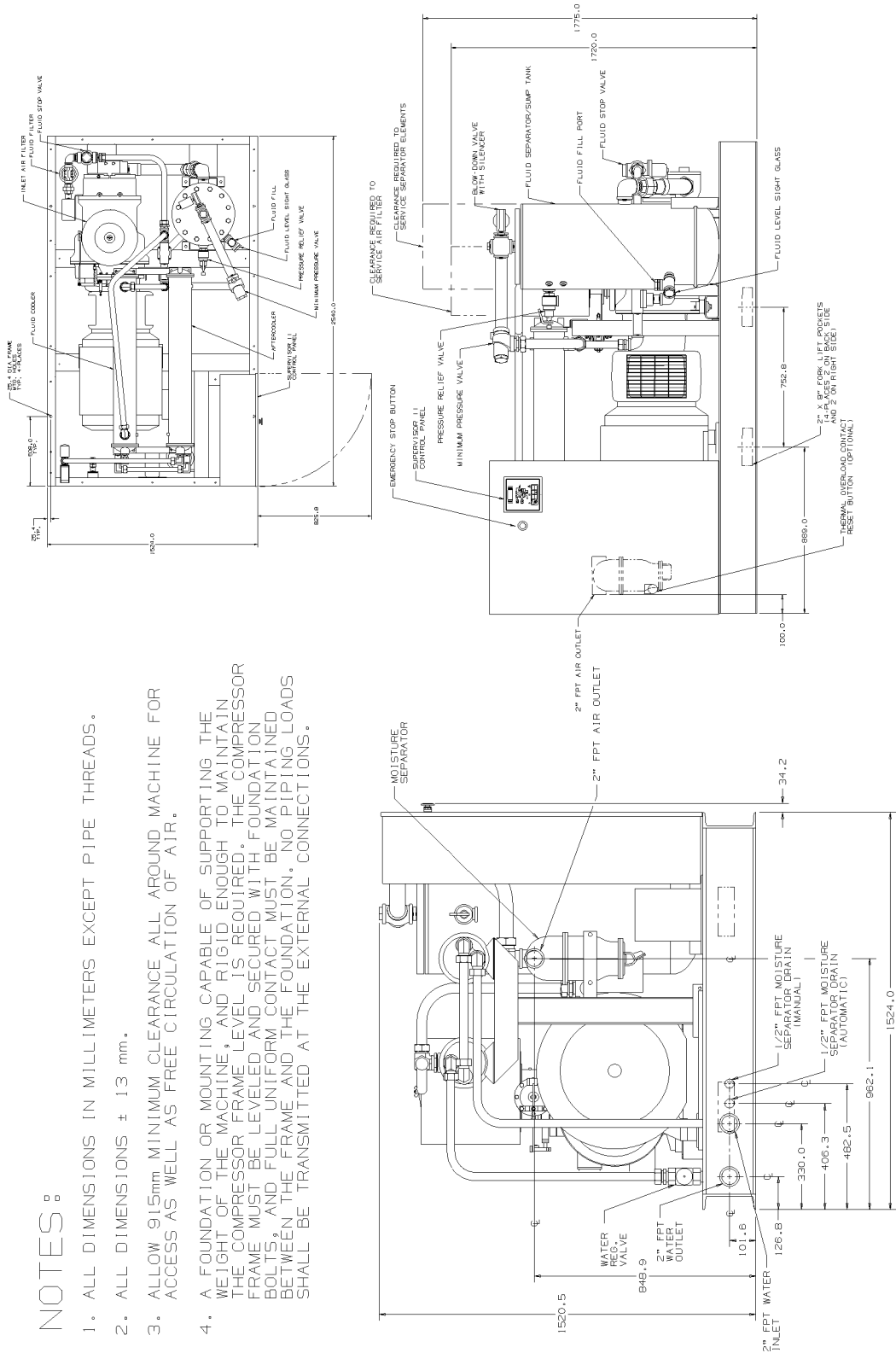


- NOTES:
1. ALL DIMENSIONS IN MILLIMETERS EXCEPT PIPE THREADS
 2. ALL DIMENSIONS ± 13mm.
 3. ALLOW 915mm MINIMUM CLEARANCE ALL AROUND MACHINE FOR ACCESS AS WELL AS FREE CIRCULATION OF AIR.
 4. A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL UNIFORM CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND THE FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED AT THE EXTERNAL CONNECTIONS.

9.22 INSTALLATION WITHOUT CANOPY (WATER--COOLED)

NOTES:

1. ALL DIMENSIONS IN MILLIMETERS EXCEPT PIPE THREADS.
2. ALL DIMENSIONS ± 13 mm.
3. ALLOW 915mm MINIMUM CLEARANCE ALL AROUND MACHINE FOR ACCESS AS WELL AS FREE CIRCULATION OF AIR.
4. A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT OF THE MACHINE, AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL UNIFORM CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND THE FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED AT THE EXTERNAL CONNECTIONS.



NOTES

WORLDWIDE SALES AND SERVICE



SULLAIR ASIA, LTD.

ROOM 2304A
Shartex Plaza Ctr.
No. 88 Zun Yi Nan Rd.
Shanghai, P.R.C.
Telephone: 21-2192066
FAX: 21-2196568

SULLAIR EUROPE, S.A.

Chemin de Genas BP 639
69800 Saint Priest, France
Telephone: 33-72232425
FAX: 33-78907168

SULLAIR CORPORATION

Subsidiary of Sundstrand Corporation
3700 East Michigan Boulevard
Michigan City, Indiana 46360 U.S.A.
Telephone: 1-800-SULLAIR or
1-219-879-5451
FAX: (219) 874-1273

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