SULLAIR

INDUSTRIAL AIR COMPRESSOR

LS20TS

WATER-COOLED: 300-600HP / 224-447KW

AIR-COOLED: 300-450HP / 224-336KW

SUPERVISOR CONTROLLER™

OPERATOR'S MANUAL AND PARTS LIST

KEEP FOR FUTURE REFERENCE

Part Number

02250157-066

AIR CARE
SEMINAR TRAINING

Sullair Air Care Seminars are 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.

Instruction includes discussion of the function and installation of Sullair service parts, troubleshooting of the most common problems, and actual equipment operation. The seminars are recommended for maintenance and service personnel.

For detailed course outlines, schedule and cost information contact:

Sullair Corporate Training Department

1-888-SULLAIR or
219-879-5451 (ext. 5363)
www.sullair.com

- Or Write -

Sullair Corporation

3700 E. Michigan Blvd.
Michigan City, IN 46360
Attn: Service Training Department

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Section 9 ILLUSTRATIONS AND PARTS LIST

Section 1
SAFETY

1.1 GENERAL

OPERATOR IS REQUIRED TO READ ENTIRE INSTRUCTION MANUAL

Sullair Corporation and its subsidiaries design and manufacture all of their 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 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 exceeding13mm 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 23m of hose in runs of air hose exceeding13mm inside diameter to reduce pressure in case of hose failure.

D. Flow-limiting valves are listed by pipe size and flow-rated. 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 filler 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 2.1 bar 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.

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. 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 into 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 fifteen 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.

⚠ DANGER

All field equipment must be tested for electrostatic fields prior to servincing or making contact with the machine using the following or equivalent test equipment:

- **90-600 VAC : Volt detector such as Fluke Model 1AC-A**
- **600-7000 VAC : Voltage detector such as Fluke Networks Model C9970**

It is the responsibility of each organization to provide/arrange trainng for all their associates expected to test for electrostatic fields.

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.

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.

Section 2
DESCRIPTION

2.1 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 7 (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.

2.2 DESCRIPTION OF COMPONENTS

Refer to Figures 2-1A and 2-1B. The components and assemblies of the air compressor 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 Controller System**” all mounted on a structural steel frame.

On air-cooled models, the cooling package is mounted within the package. The separate motor-driven fan cooling package forces air through the coolers, which removes the heat of compression from the cooling fluid.

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.

2.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

Sullair air compressors feature the Sullair compressor unit, a two-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.

Fluid is injected into the compressor unit at each stage, and mixes directly with the air as the rotors turn, compressing the air. The fluid flow has three main 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.

2.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-2, and Sections 9.28, 9.29 and 9.30 in the Parts List portion of this manual. The cooling and lubrication system consists of a fluid cooler, aftercooler, full flow fluid filters, fluid stop valve, thermal valve and interconnection piping. For water-cooled models, a shell and tube fluid cooler and aftercooler are mounted on the compressor package. For air-cooled models, they are radiator-type coolers, and are mounted on the compressor package.

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 when the discharge temperature is below 220ºF (104.4ºC). The fluid passes through the thermal valve, the main fluid filter and directly to the compressor unit, thus feeding the bearings, seals and rotor area.

As the discharge temperature rises above 220ºF (104.4ºC), 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 fluid filter has a replacement element and an integral pressure bypass valve.

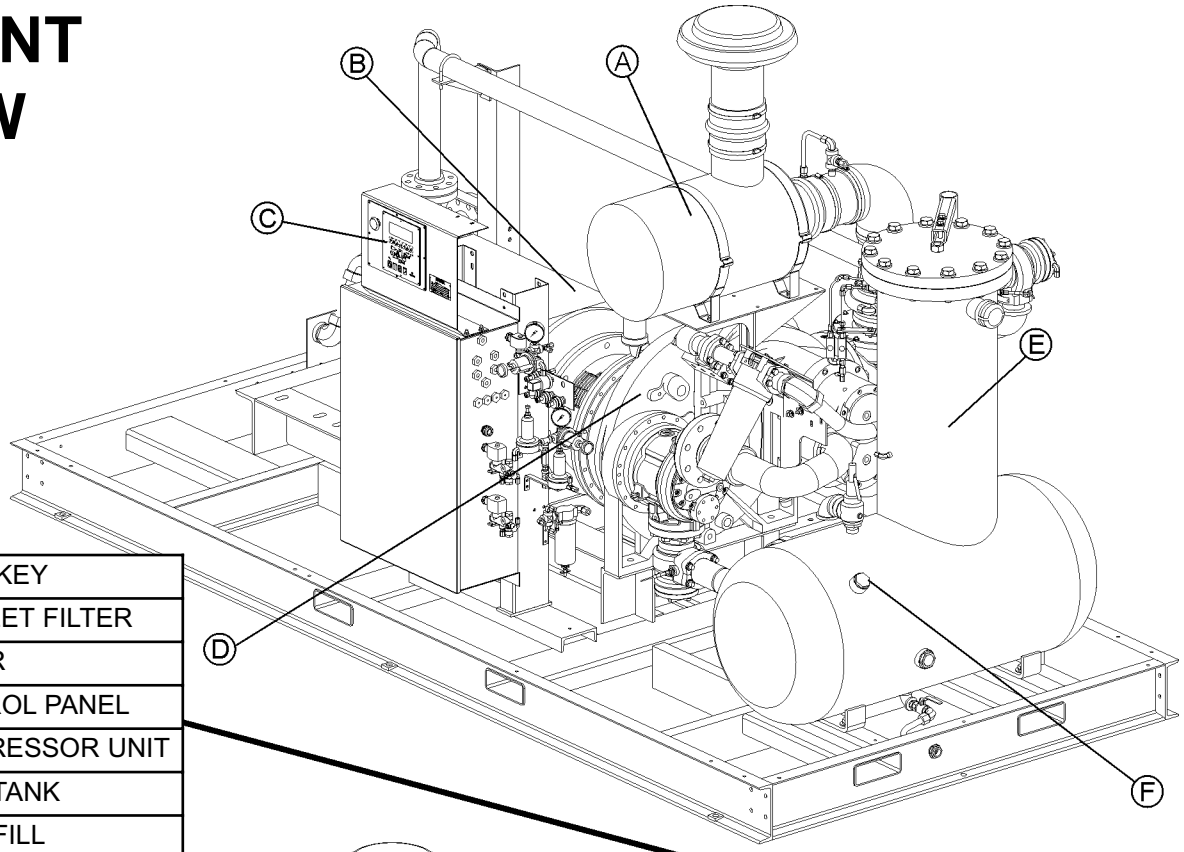
The fluid stop valve prevents fluid from filling the compressor unit when the compressor is shut down. When the compressor is operating, the fluid stop valve is held open by air pressure from the compressor unit allowing a free flow of fluid from the receiver/sump back to the compressor unit. On shutdown,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

2.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-2, and Sections 9.28, 9.29 and

Figure 2-1A Sullair Series LS20T Rotary Screw Compressor- Air-cooled (Typical)

FRONT VIEW



KEY	
A	AIR INLET FILTER
B	MOTOR
C	CONTROL PANEL
D	COMPRESSOR UNIT
E	SUMP TANK
F	FLUID FILL
G	COOLERS

REAR VIEW

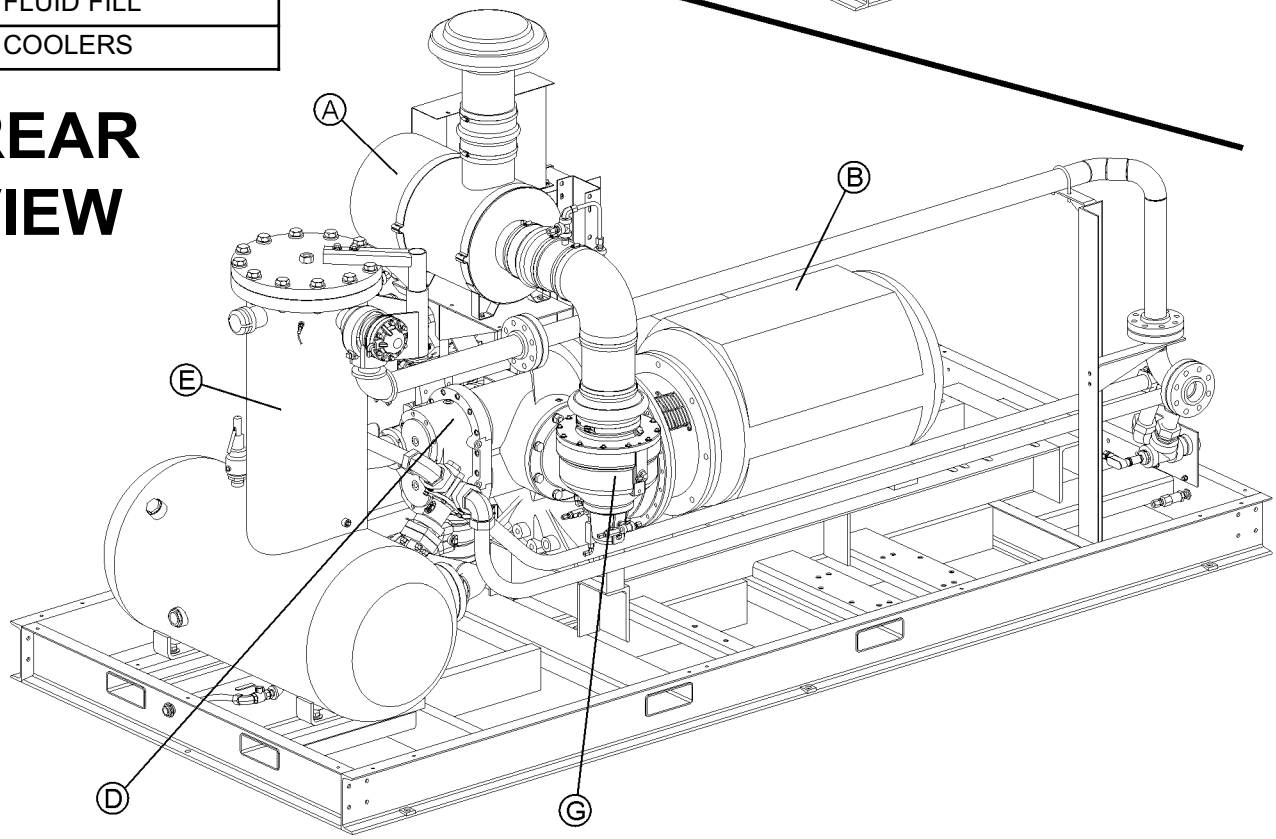
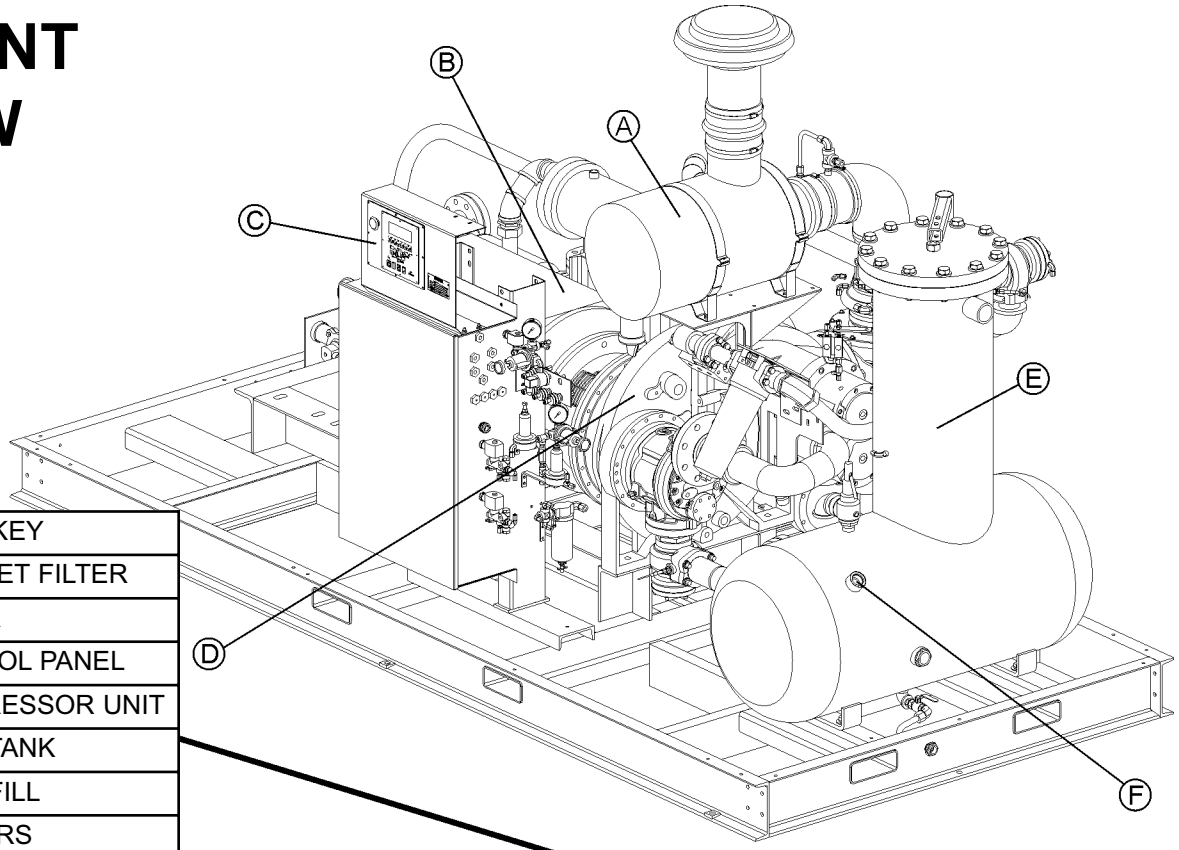


Figure 2-1B Sullair Series LS20T Rotary Screw Compressor- Water-cooled (Typical)

FRONT VIEW



KEY	
A	AIR INLET FILTER
B	MOTOR
C	CONTROL PANEL
D	COMPRESSOR UNIT
E	SUMP TANK
F	FLUID FILL
G	COOLERS
H	COOLERS
J	WATER SEPARATOR
K	AUTO-TRAP

REAR VIEW

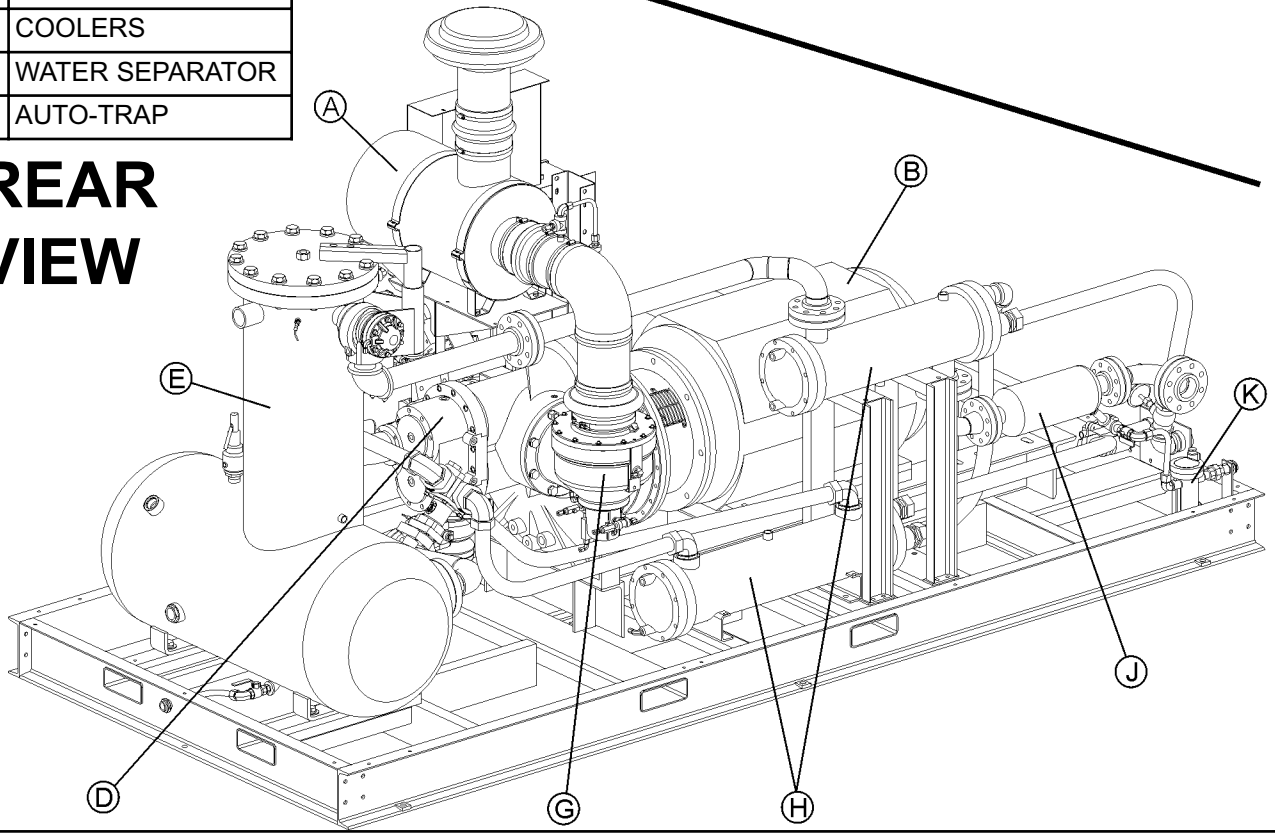
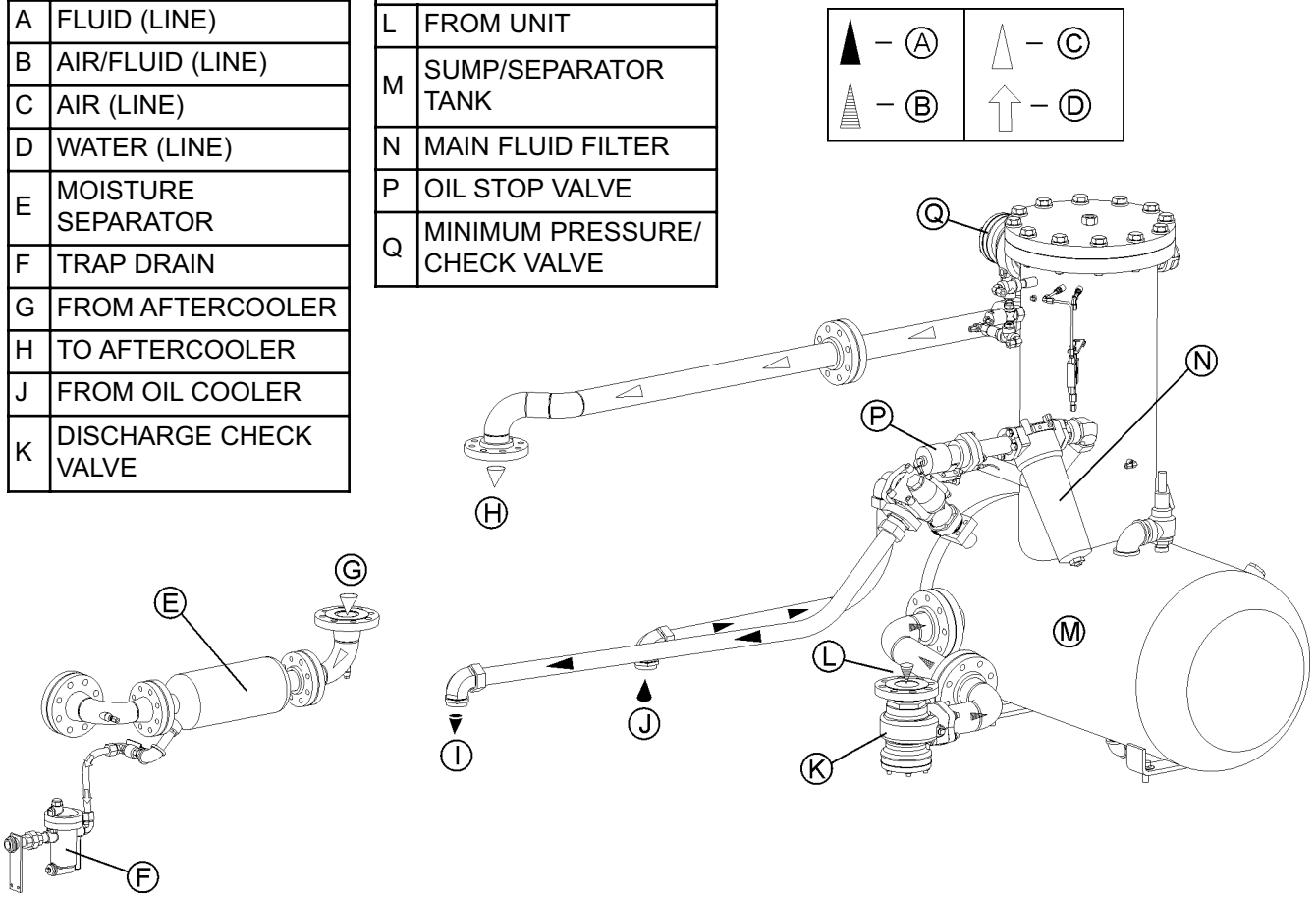


Figure 2-2 Compressor Cooling, Lubrication and Discharge System (Typical)

KEY	
A	FLUID (LINE)
B	AIR/FLUID (LINE)
C	AIR (LINE)
D	WATER (LINE)
E	MOISTURE SEPARATOR
F	TRAP DRAIN
G	FROM AFTERCOOLER
H	TO AFTERCOOLER
J	FROM OIL COOLER
K	DISCHARGE CHECK VALVE

KEY (CONTINUED)	
L	FROM UNIT
M	SUMP/SEPARATOR TANK
N	MAIN FLUID FILTER
P	OIL STOP VALVE
Q	MINIMUM PRESSURE/ CHECK VALVE



9.30 in the Parts List portion of this manual. 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 the ends of the tank. The 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 surfaces 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 interstage 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. Sight glasses are located in the return lines to observe this fluid flow. There are also orifices in this return line (protected by strainers) to assure proper flow. By pressing the ↓ + ↵ pads on the Supervisor Controller, the operator may monitor the condition of the separator elements by reading differential pressure on the digital display. At a differential of 10 psid (0.7 bar) or greater, the operator will be told to service the separator element. At this time, separator element replacement is necessary.

The receiver is an ASME pressure vessel. A combination minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 160 psig (11 bar) during full load operation. This pressure is necessary for proper air/fluid separation and proper fluid circula-

tion 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 at rated tank pressure.

The compressor is also equipped with high pressure shutdown protection to shut down at high MAX P1 setpoint. This prevents the relief valve from opening. High temperature probes are provided to shut down the compressor.

⚠ 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, located on the tank to prevent overfilling of the sump. A sight glass enables the operator to visually monitor the sump fluid level.

2.6 CAPACITY CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-3A, 2-3B, 2-3C, 2-3D and 2-3E, as well as Sections 9.28, 9.29 and 9.30 in the Parts List portion of this manual. The purpose of the compressor control system is to regulate the compressor air intake to match the amount of compressed air being utilized. At 0 to 10 percent air output, the control system will automatically unload the compressor and reduce power consumption. The unload sump pressure can be set using the unload control regulator valve (140-175 psig).

The **Control System** consists of an **inlet poppet valve**, **startup solenoid valve**, **reference (equalizing) pressure regulator**, **blowdown solenoid valve**, **pneumatic blowdown valve**, **control pressure regulator**, **unload pressure regulator**, **sequencing solenoid valve**, and a **control line filter** located prior to the controls.

The functional description of the Control System is described below in five distinct phases of the compressor operation. For explanation purposes, this description will apply to compressors with an operating range of 350 to 360 psig (24.1 to 24.8 bar). A compressor with any other pressure range would operate in a similar manner except for the stated pressures.

START MODE - TO 160 PSIG (11 BAR)

When the compressor start button is depressed, the pressure will rise from 0 to 160 psig (0 to 11 bar). During this period, the control inlet solenoid is closed, which keeps the inlet poppet valve closed. The control pressure regulator is also closed at this time. After the startup timer times out, the startup solenoid valve changes state and the reference pressure regulator controls the pressure signal to the poppet valve at a maximum 60 psig (4 bar). The inlet poppet valve opens allowing full airflow to the compressor inlet and the discharge pressure builds to approximately 160 psig (11 bar). No air is supplied to the system service line during this phase by the minimum pressure valve. When the discharge pressure exceeds approximately 160 psig (11 bar), the minimum pressure valve may start to open and allow air to flow to the system service line.

NORMAL OPERATION MODE - 160 TO 350 PSIG (11 TO 24.1 BAR)

When the sump pressure rises above 160 psig (11 bar), the minimum pressure valve opens and delivers compressed air to the system service line. From this point on, a line air pressure transducer continually monitors the air pressure. The control pressure regulator valve remains closed during this phase, keeping the inlet poppet valve wide open. The blowdown solenoid valve also remains closed during this phase. Flow will occur when the discharge pressure is higher than the line pressure. The check valve, which is built into the minimum pressure valve, will prevent back flow into the compressor.

MODULATING MODE - 350 TO 360 PSIG (24.1 TO 24.8 BAR)

If less than the rated capacity of compressed air is being used, the system service line pressure will rise above 350 psig (24.1 bar). The control pressure regulator valve gradually opens applying air pressure to the control side of the inlet poppet valve, which modulates the position of the inlet poppet valve. This reduces the amount of air entering the compressor until it matches the amount of air being utilized. The control system functions continually in this manner, between the limits of 350 to 360 psig (24.1 to 24.8 bar) in response to varying demands from system service line. The control pressure regulator valve has an orifice, which vents a small amount of air to the atmosphere when the control pressure regulator valve modulates the inlet poppet valve.

Section 2
DESCRIPTION

UNLOAD MODE - EXCESS OF 360 PSIG (24.8 BAR)

As the required air is reduce, the discharge pressure and line pressure rise above the 360 psig (24.8 bar), the Supervisor activates the unload solenoid valve which in turn pressurizes the blowdown valve. This opens the blowdown valve, which allows discharge air to flow back to the compressor inlet. Since the inlet poppet valve is fully closed, the air pressure from the sump tank will be relieved through the blowdown valve, which will reduce the sump pressure. Some of the outgoing air will flow directly into the compressor inlet to avoid cavitation during this time of blowdown. As the sump pressure drops, motor power consumption is also reduced. The unload pressure regulator is set to maintain the unload pressure at a designated value, between 140 and 175 psig (9.6 to 12 bar). At this time, the compressor is in the unload mode.

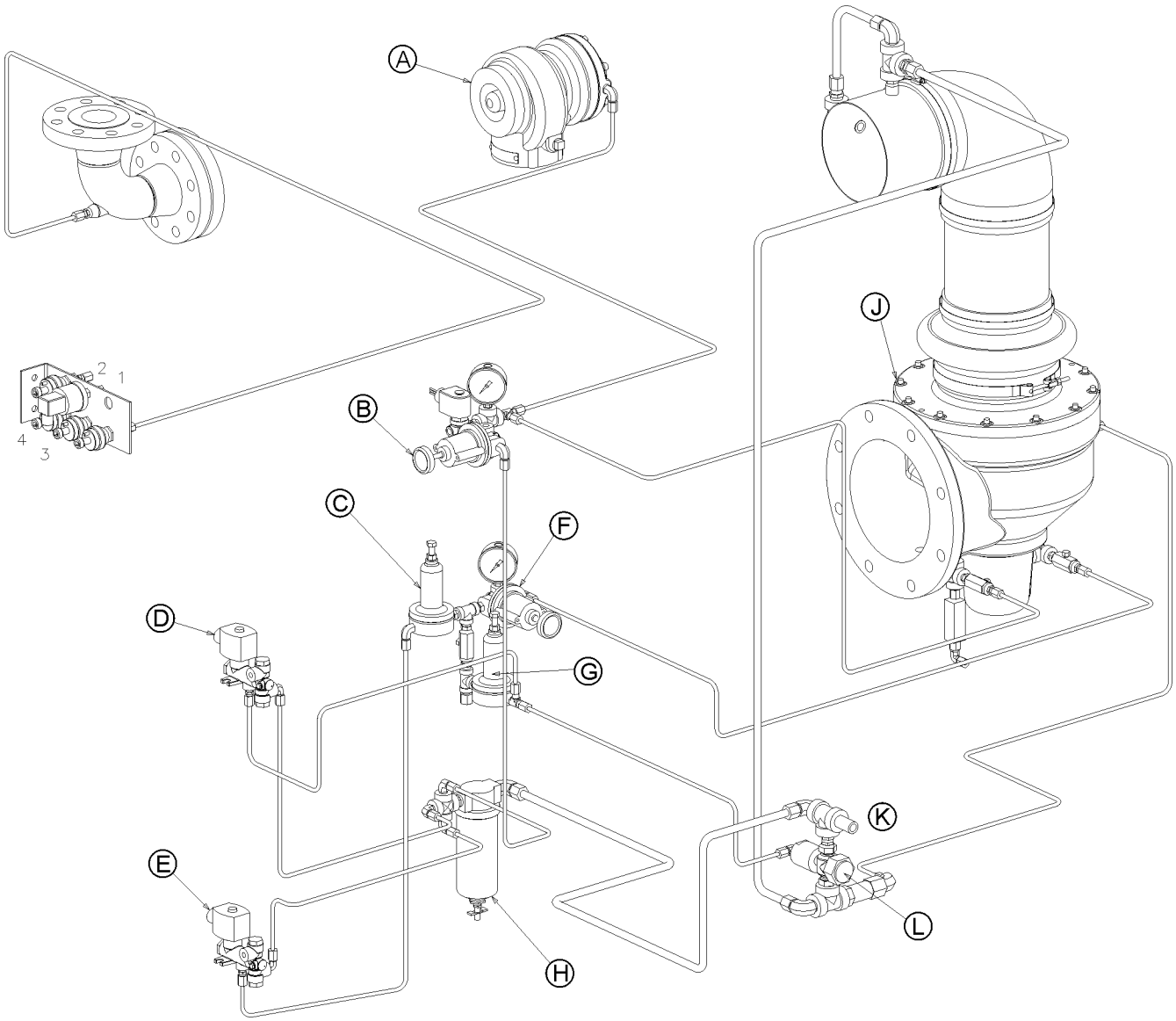
When the line pressure drops back to the load point (cut-in pressure) of the pressure transducer, usually 350 psig (24.1 bar), the compressor will change state back to the modulating mode as discussed earlier. This cycle will repeat itself, maintaining the demand required on the system line supply.

SHUTDOWN MODE

When the compressor is shut down based on a manual shutdown, a safety shutdown or an automatic shutdown from the Supervisor touch pad, the unload solenoid valve is de-energized allowing air to flow through the check valve and into the poppet valve keeping the inlet poppet valve closed. This also opens the blowdown valve to allow compressed air to vent back above inlet poppet valve through the inlet filter. The control lines are properly sized and routed to allow the compressed air to relieve to atmosphere rather than below the inlet poppet valve.

If the compressor Supervisor Controller is in the automatic mode, the compressor will shut down after running unloaded for a specific amount of time. The reverse also holds true, if the system line pressure requires additional compressed air, the compressor will start automatically to satisfy this demand.

Figure 2-3A Control System Diagram- ***Functional Components***

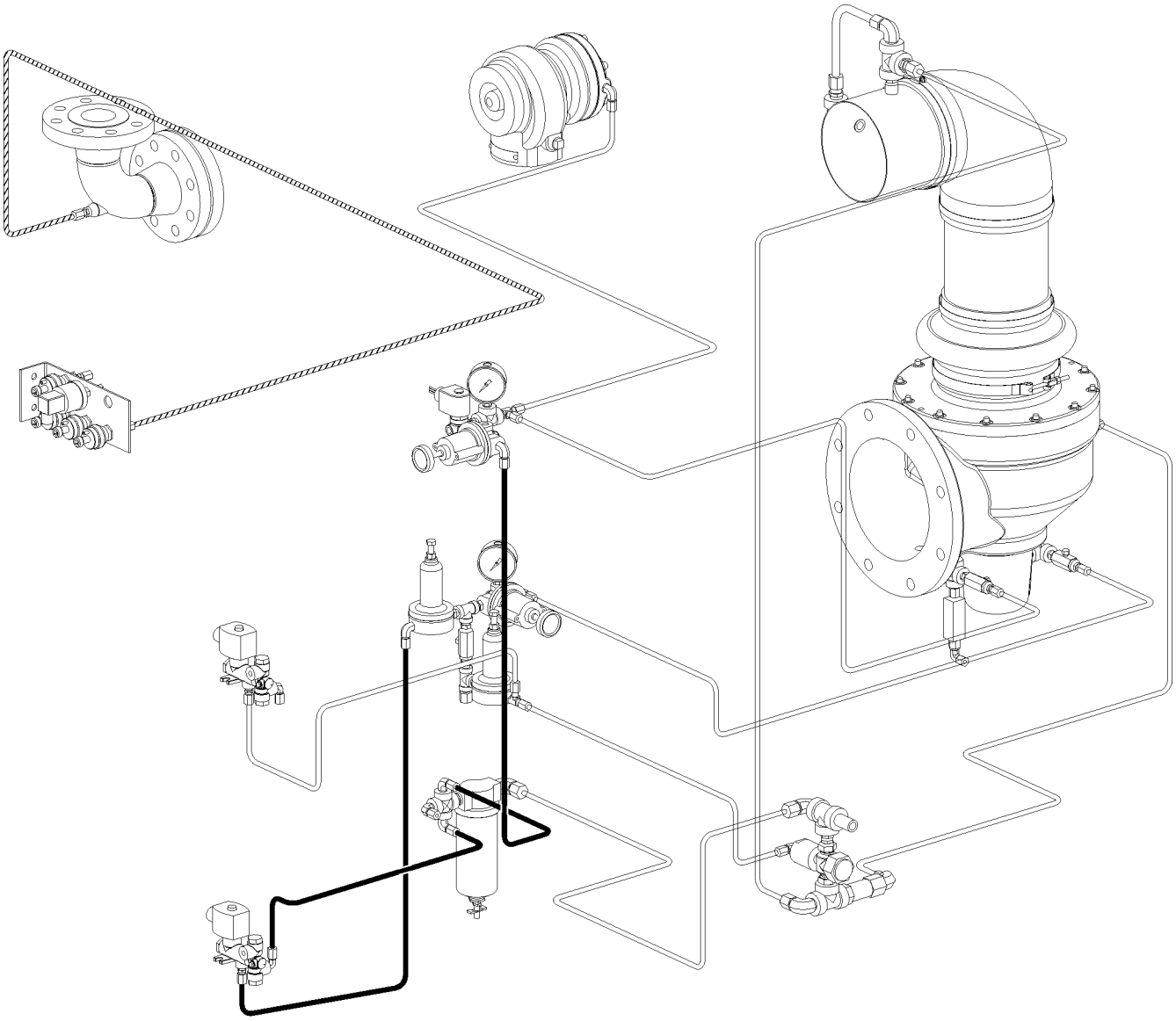


KEY	
A	MINIMUM PRESSURE/ CHECK VALVE
B	DOWNSTREAM PRESSURE REGULATOR VALVE (60 PSIG)
C	MODULATING CONTROL REGULATOR VALVE
D	BLOWDOWN SOLENOID VALVE
E	SEQUENCING SOLENOID VALVE
F	DOWNSTREAM PRESSURE REGULATOR VALVE
G	UNLOAD CONTROL REGULATOR VALVE

KEY (CONTINUED)	
H	CONTROL LINE FILTER
J	AIR INLET POPPET VALVE
K	FROM SUMP
L	BLOWDOWN VALVE

LEGEND	
1	TO INLET FILTER
2	TO FLUID FILTER (P4)
3	TO WET SIDE SUMP (P1)
4	TO INLET FLUID INJECTION BLOCK

Figure 2-3B Control System Diagram- ***START***



Line Pressure Air
Dry Side Air
Regulated Air

Figure 2-3C Control System Diagram- ***MODULATION***

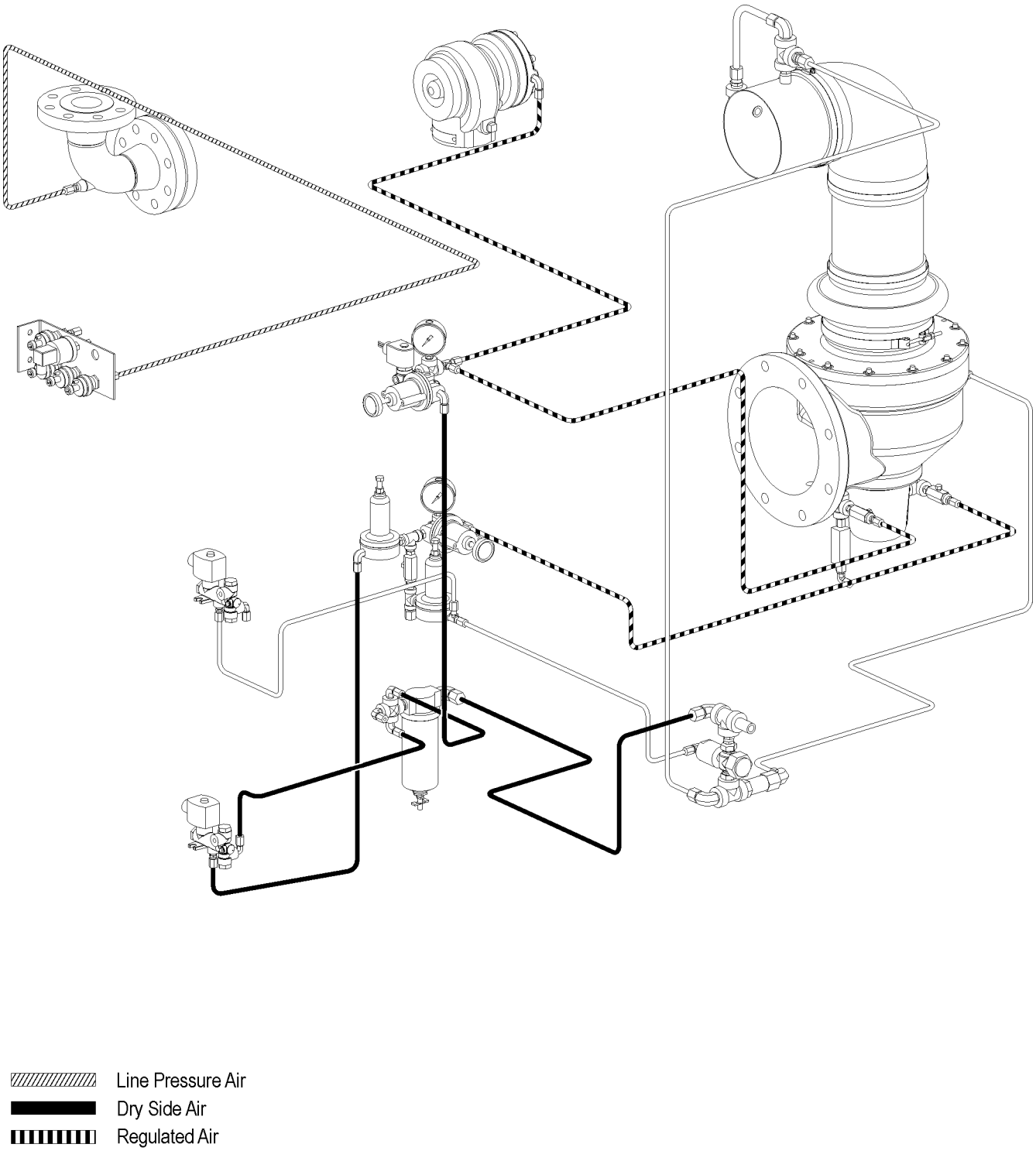


Figure 2-3D Control System Diagram- ***FULL LOAD***

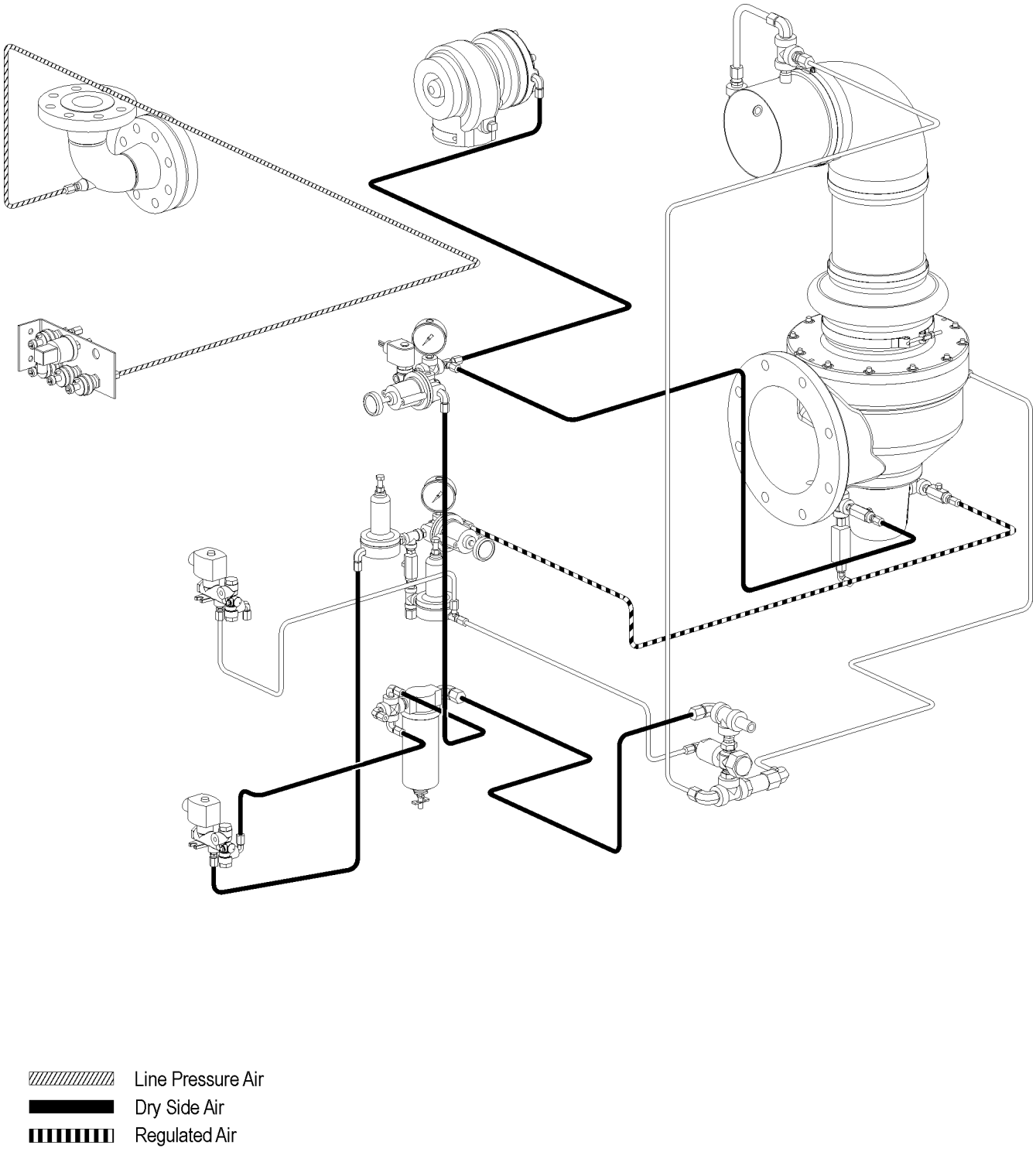
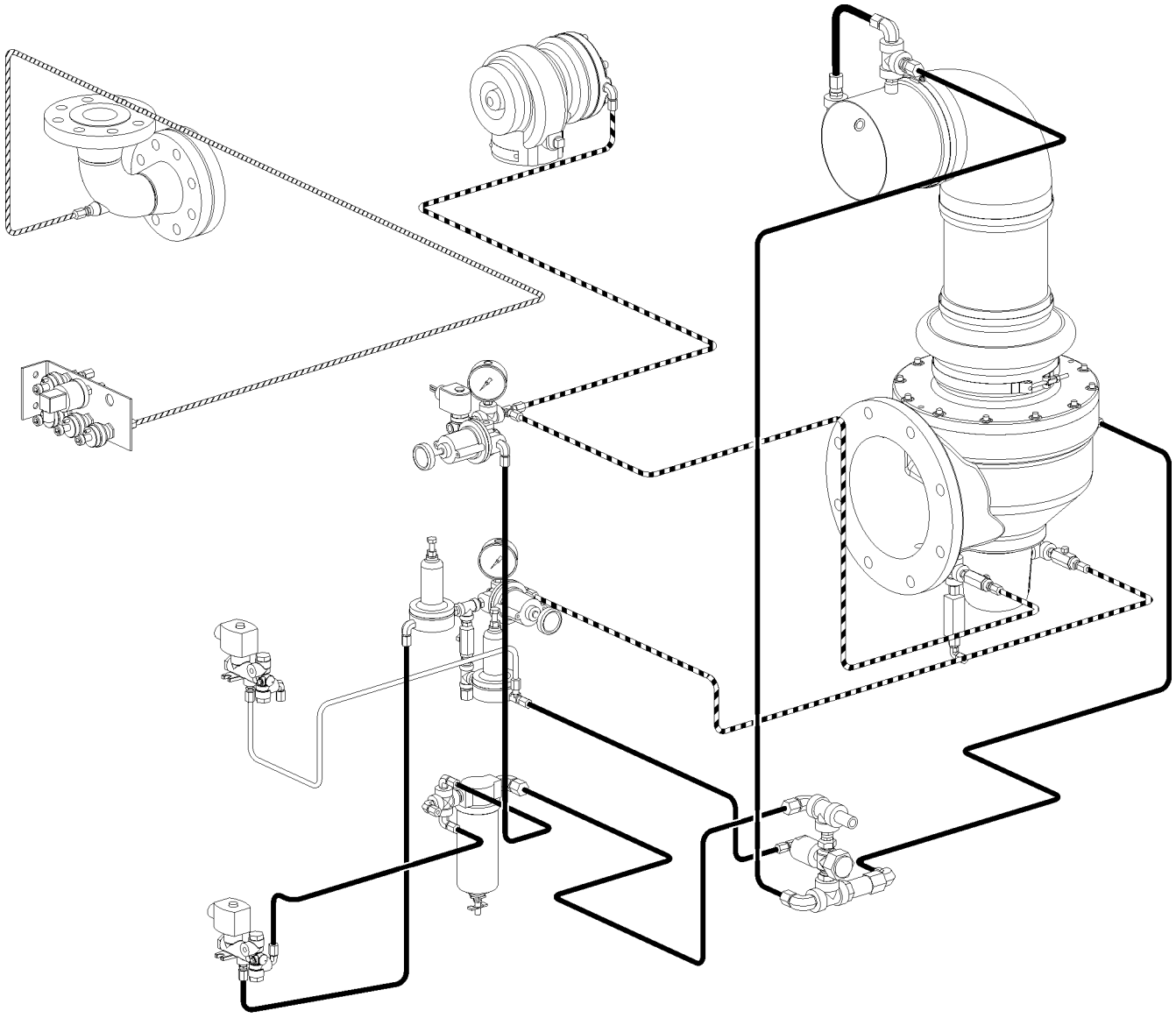
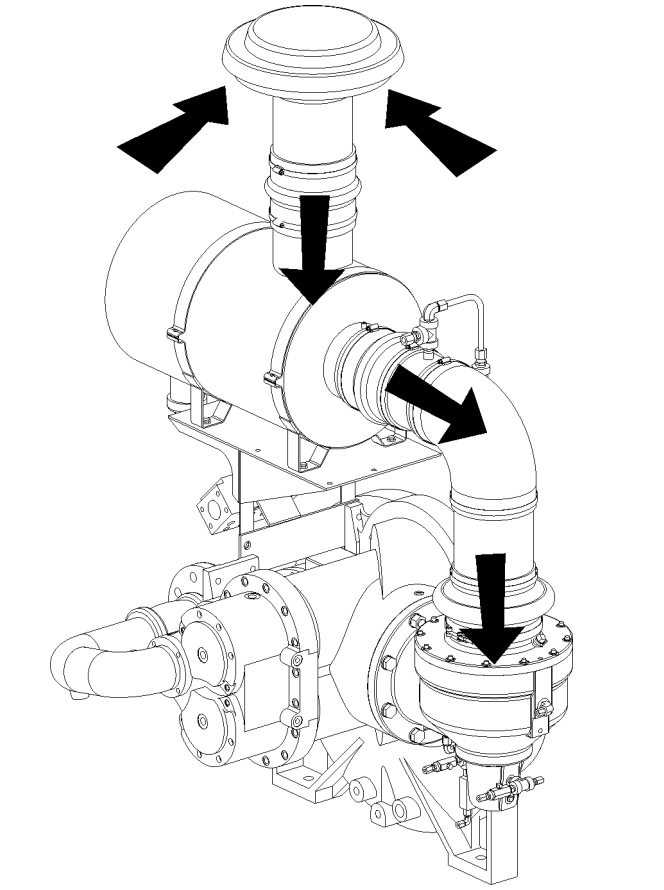


Figure 2-3E Control System Diagram- ***UNLOAD***



Line Pressure Air
Dry Side Air
Regulated Air

Figure 2-4 Air Inlet System



2.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-4. The **Compressor Inlet System** consists of a **dry-type air filter**, a **vacuum switch**, and an **air inlet valve**.

At 20” water column, the inlet vacuum switch will allow the Supervisor Controller to indicate that “AIR FILTER MAINT RQD” (inlet filter element maintenance is required).

3.1 SPECIFICATIONS- LS20TS

Model Series	DIMENSIONS WITHOUT ENCLOSURE (I)							
	Length		Width		Height		Weight	
	in	mm	in	mm	in	mm	lb	kg
LS20T 800 CFM	157	3988	72	1821	92	2339	**(II)**	**(II)**
LS20T 960 CFM	157	3988	72	1821	92	2339	**(II)**	**(II)**
LS20T 1100 CFM	157	3988	72	1821	92	2339	**(II)**	**(II)**
LS20T 1450 CFM	157	3988	72	1821	92	2339	**(II)**	**(II)**

(I) Add an additional mm to Height for enclosed models. Add an additional mm to height for air inlet cap.
(II) Add kg for enclosed models.

NOTICE

For noise level information, please contact the Sullair Factory Service Department.

COMPRESSOR:

Type:	2-Stage Oil Flooded Rotary
Maximum Full Load Operating Pressure:	350 psig (24.1 bar)
Bearing Type:	Anti-Friction
Cooling:	Pressurized Compressor Fluid
Lubricant:	Sullube
Sump Capacity:	50 U.S. Gallons (189.3 Liters)
Control:	Supervisor Controller

MOTOR:

Type:	O.D.P., 460V, A.C., Three Phase, 60 Cycles
Size:	300, 350, 400, 450, 500, 600HP
Speed:	1800 RPM

3.2 LUBRICATION GUIDE-STANDARD COMPRESSORS

Refer to Figure 3-1 for fluid fill port location. Sullair standard compressors are filled with Sullube fluid as factory fill.

NOTICE

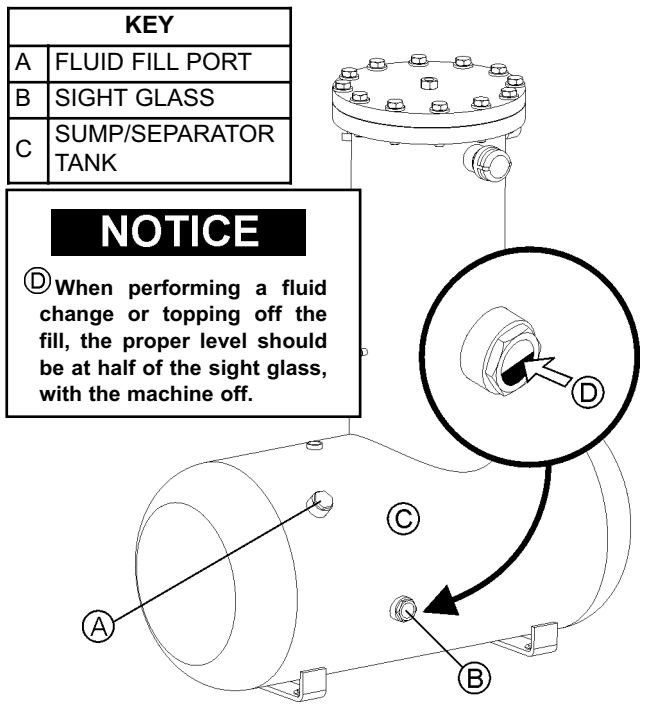
To be sure that you receive the correct fluid for your compressor, when ordering fluid, always confirm your compressor's fluid fill with the parts technician by using your compressor's serial number.

NOTICE

Mixing of other fluids within the compressor will void all warranties.

Sullube fluid should be changed every 1200 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

Figure 3-1 Fluid Fill Port Location



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.

NOTICE

Mixing of other lubricants within the compressor unit will void all warranties!

"The Plastic Pipe Institute recommends against the use of thermoplastic pipe to transport compressed air or other compressed gases in exposed above ground locations, e.g. in exposed plant piping." (I)

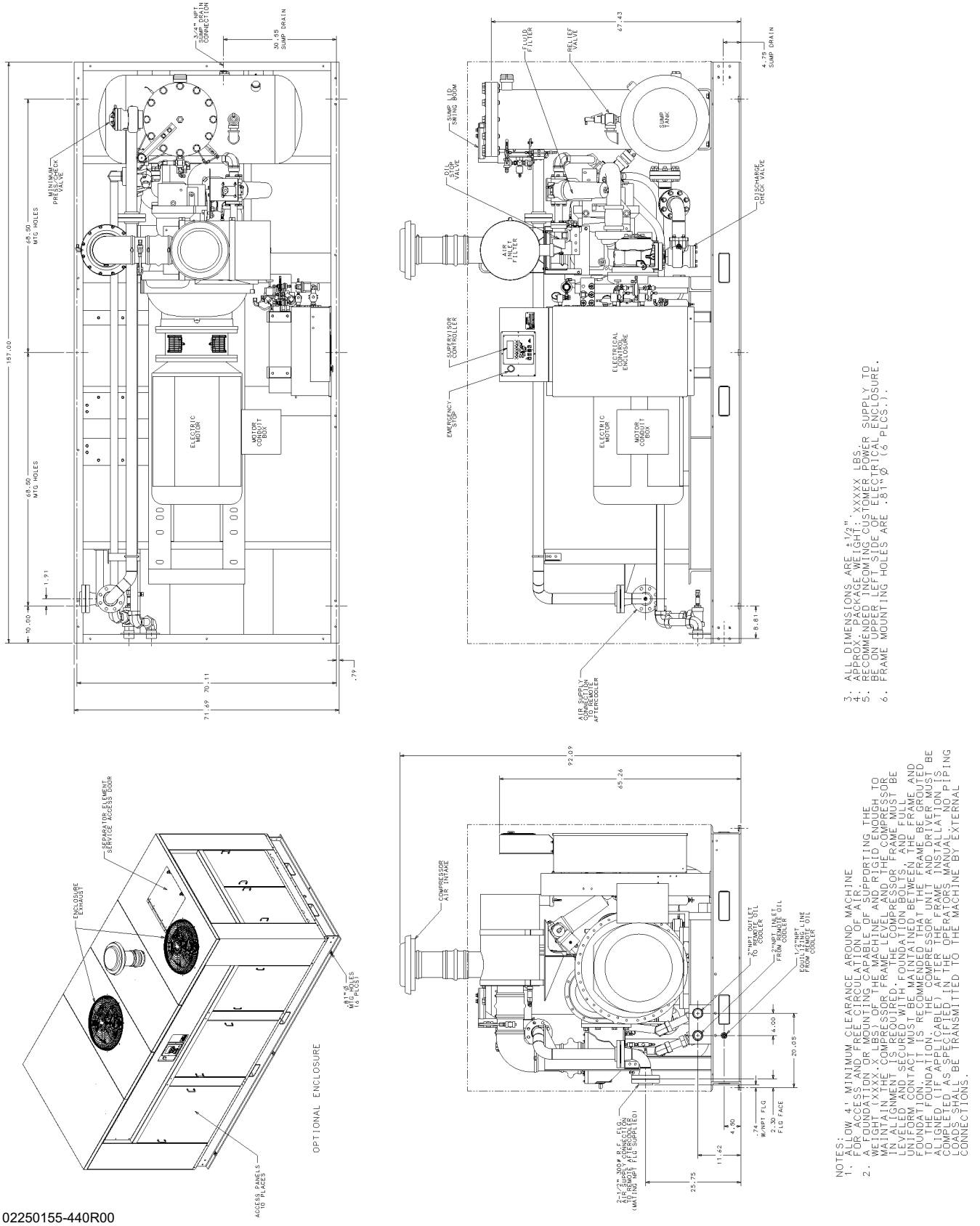
Sullube should not be used with PVC piping systems. It may affect the bond at cemented joints. Certain other plastic materials may also be affected.

(I) Plastic Pipe Institute, Recommendation B, Adopted January 19, 1972.

3.3 APPLICATION GUIDE

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.

Figure 3-2A Identification LS20TS 300-450HP/ 224-336KW Air-cooled with Supervisor Controller



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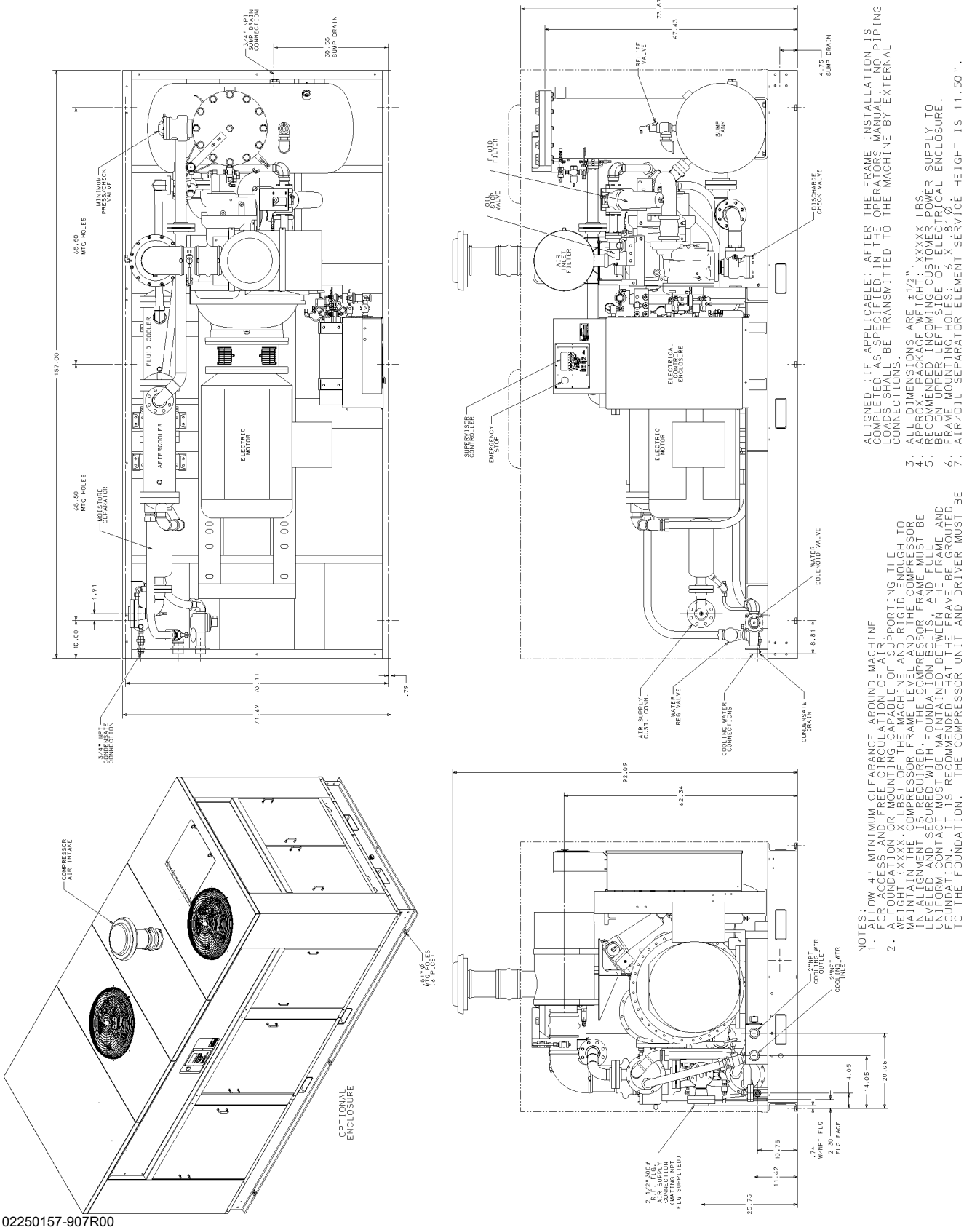
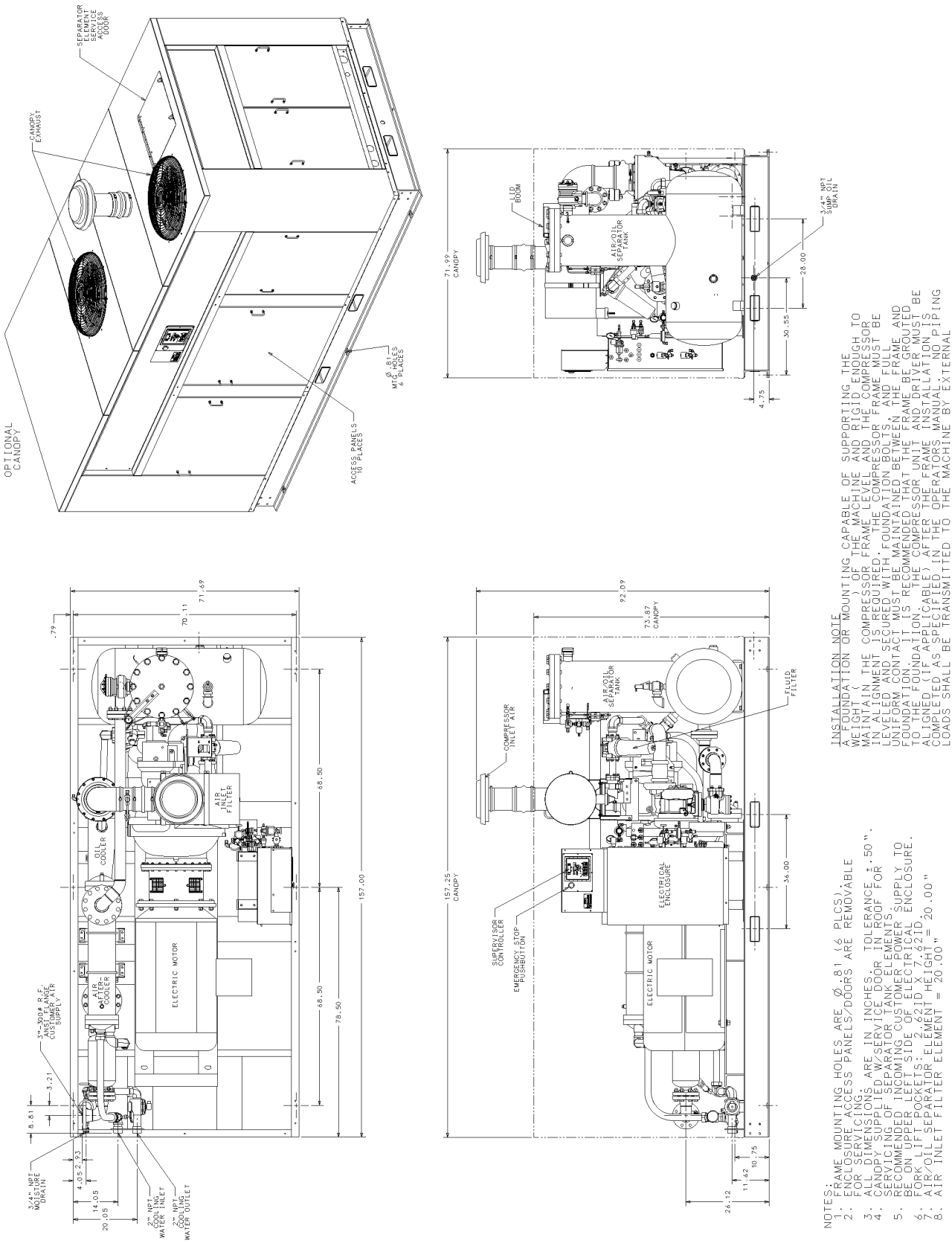
Section 3
SPECIFICATIONS

Figure 3-2B Identification LS20TS 300-450HP/ 224-336KW Water-cooled with Supervisor Controller



02250157-907R00

Figure 3-2C Identification LS20TS 500-600HP/ 373-447KW Water-cooled with Supervisor Controller



INSTALLATION NOTE
A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT ( ) OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL AND THE COMPRESSOR IN ALIGNMENT IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL UNIFORM CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND FOUNDATION. IT IS RECOMMENDED THAT THE FRAME BE GROUTED TO THE FOUNDATION. THE COMPRESSOR UNIT AND DRIVER MUST BE ALIGNED (IF APPLICABLE) AFTER THE FRAME INSTALLATION IS COMPLETED, AS SPECIFIED IN THE OPERATORS MANUAL. NO PIPING LOADS SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.

ALLOW 4FT MINIMUM CLEARANCE ALL AROUND FOR SERVICE ACCESS/FREE AIR FLOW FOR COOLING.

NOTES:
1. FRAME MOUNTING HOLES ARE Ø.81 (6 PLCS).
2. ENCLOSURE ACCESS PANELS/DOORS ARE REMOVABLE FOR SERVICING.
3. ALL DIMENSIONS ARE IN INCHES. TOLERANCE ±.50".
4. CANOPY SUPPLIED W/SERVICE DOOR IN ROOF FOR SERVICING OF SEPARATOR TANK ELEMENTS.
5. RECOMMENDED INCOMING CUSTOMER POWER SUPPLY TO BE ON UPPER LEFT SIDE OF ELECTRICAL ENCLOSURE.
6. FORK LIFT POCKETS: 2.62ID X 7.62ID.
7. AIR/OIL SEPARATOR ELEMENT HEIGHT = 20.00"
8. AIR INLET FILTER ELEMENT = 20.00"

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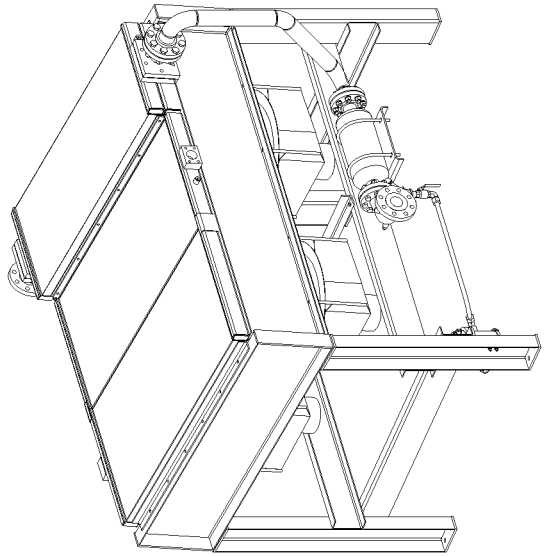
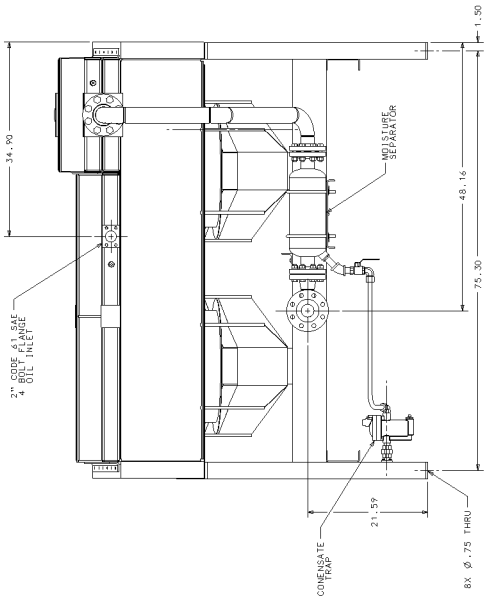
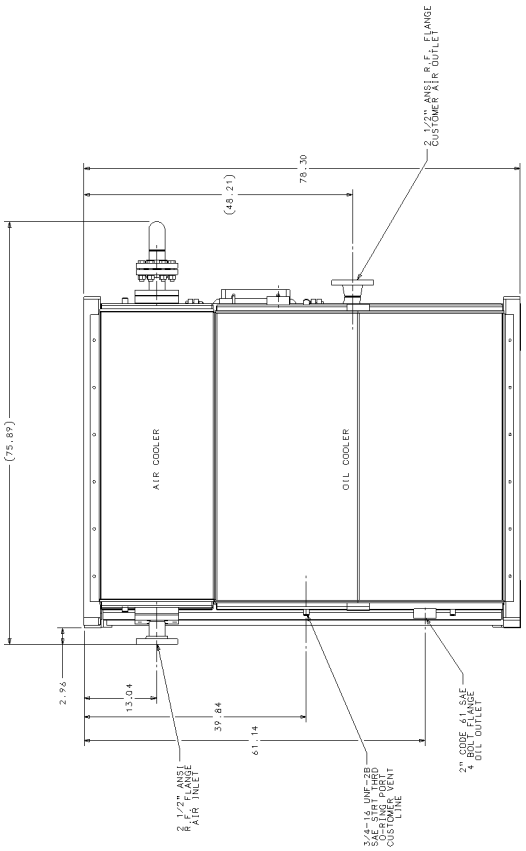
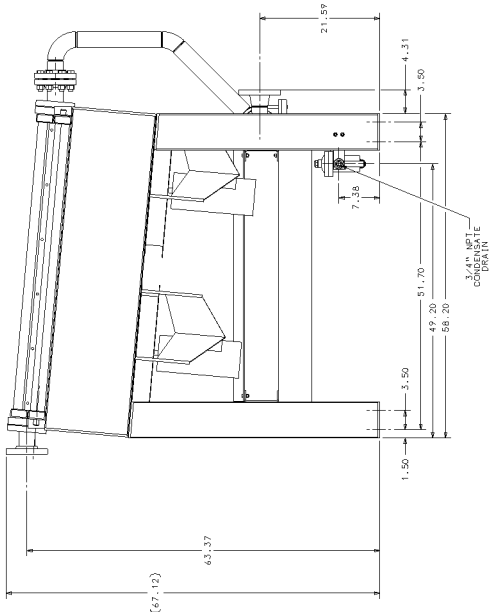
Section 3
SPECIFICATIONS

Figure 3-2D Identification LS20TS 300-450HP/ 224-336KW Remote Cooler









INSTALLATION NOTES

1. A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE FRAME LEVEL, IS REQUIRED. IT IS RECOMMENDED THAT FULL UNIFORM CONTACT BE MAINTAINED BETWEEN THE FRAME AND FOUNDATION. LOOSE SHIMMING SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.
2. ALL DIMENSIONS ARE ± .50 INCHES.
3. DRAIN TRAP AND PIPING MUST BE HEAT TRACED FOR OPERATION BELOW FREEZING.
4. ALLOW 4FT MINIMUM CLEARANCE ALL AROUND FOR SERVICE ACCESS/FREE AIR FLOW FOR COOLING.
5. THE TOATAL PRESSURE DROP IN THE SUPPLY AND RETURN LINE PIPING FOR THE COOLER PACKAGE SHOULD NOT EXCEED 10 PSIG AT THE WORST CONDITION (i.e. COLD DAY START-UP). AN OIL PUMP AND/OR BYPASS VALVE AT THE COOLER MAY BE REQUIRED IF THIS LIMIT IS EXCEEDED.
6. ADDITIONAL OIL REQUIRED TO FILL PIPING AT START-UP:

PIPE SIZE	GALLONS/FT OF PIPE
2.0 IN	.1635
2.5 IN	.2555
3.0 IN	.3680

7. 15.0 GAL OF ADDITIONAL OIL REQUIRED TO FILL COOLER AT START-UP.
8. APPROX. WEIGHT - 1575#.

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Section 4
INSTALLATION

4.1 MOUNTING OF COMPRESSOR

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

4.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit sufficient unobstructed air flow in and out to the compressor to keep the operating temperature stable. The minimum distance that the compressor should be from surrounding walls is 4 feet/1.22m. 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 flow rate as listed in *Table 4A - Water Cooling Supply Flow*.

NOTICE

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

Recommended water pressure range is 40 to 75 psig (2.8 to 5.2 bar). Water flow rates will vary with operating conditions. For rates based on criteria other than that listed, consult your local Sullair representative.

Table 4A - Water Cooling Supply Flow

MODEL - LS20TS		WATER FLOW	
HP	KW	GPM	LPM
300	224	54	204
350	262	65	246
400	298	76	288
450	336	80	303
500	373	80	303
600	447	95	360

Table 4B- Ventilation Requirements 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 excessive pressure drop is not created across the fan. Consult a Sullair office for assistance in utilizing this heat.

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

4.3 SERVICE AIR PIPING

Service air piping should be installed as shown in Figure 4-1. A shut-off valve should be installed to isolate a compressor from the service line if required. Also notice that the service line should be equipped with water legs and condensate drains throughout the system.

Table 4B- Ventilation Requirements

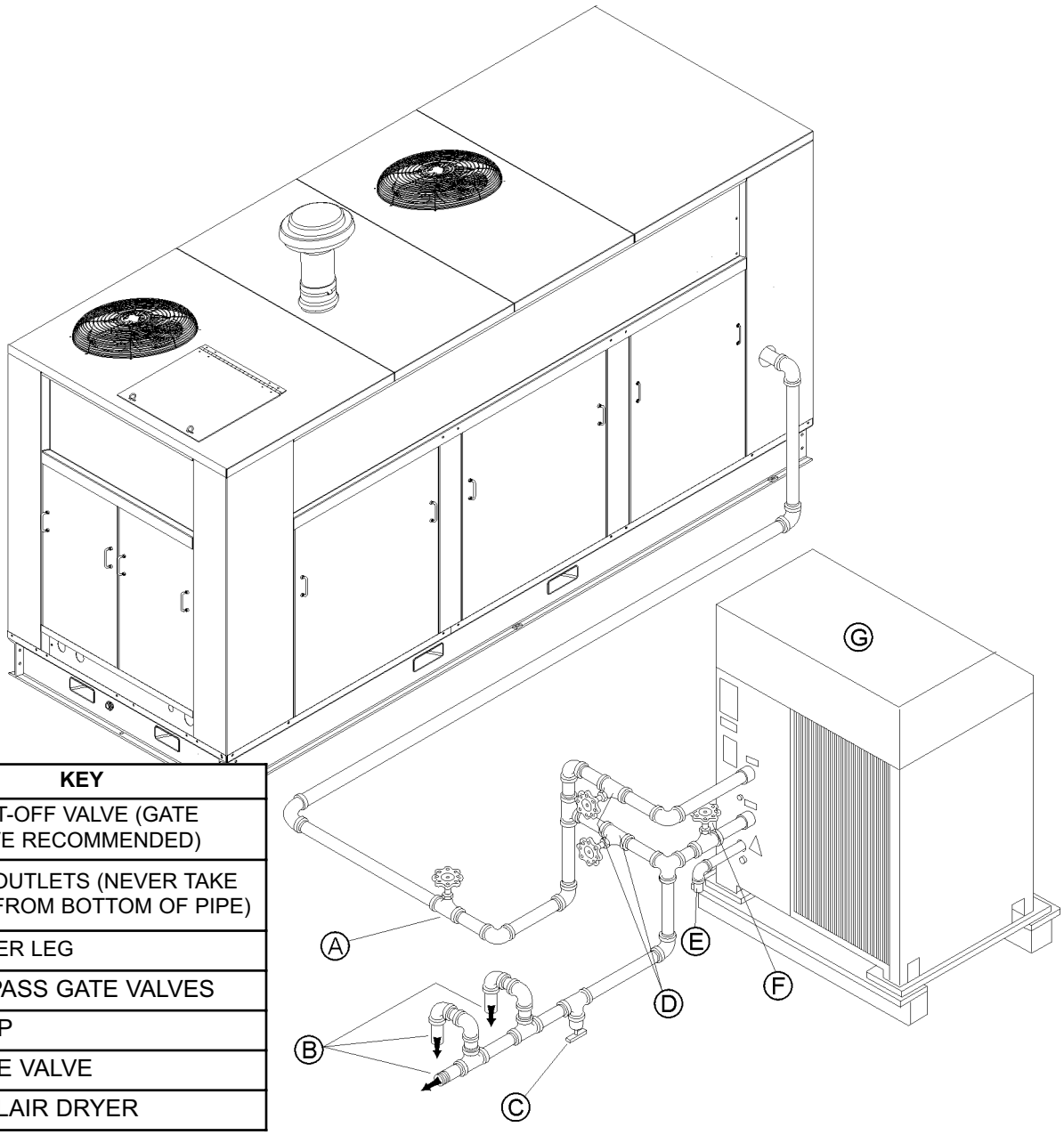
		WATER COOLED OR REMOTE COOLED COMPRESSOR PACKAGE		AIR-COOLED (I) COOLING PACKAGE	
MODEL	MOTOR HP / KW	HEAT REJECTION BTU/HR	VENT FAN FLOW CFM (II)	HEAT REJECTION BTU/HR	AIR FLOW CFM
LS20TS-300	300 / 224	80,136	2,800	801,360	21,600
LS20TS-350	350 / 261	89,000	2,800	890,000	21,600
LS20TS-400	400 / 298	111,400	2,800	1,114,000	21,600
LS20TS-450	450 / 336	114,400	2,800	1,144,000	21,600
LS20TS-500	500 / 373	127,800	2,800	-	-
LS20TS-600	600 / 447	152,640	2,800	-	-

(I) Applicable to air-cooled models only.

(II) Applicable to compressors with enclosure.

Section 4
INSTALLATION

Figure 4-1 Service Air Piping (Typical)



KEY	
A	SHUT-OFF VALVE (GATE VALVE RECOMMENDED)
B	AIR OUTLETS (NEVER TAKE AIR FROM BOTTOM OF PIPE)
C	WATER LEG
D	BY-PASS GATE VALVES
E	TRAP
F	GATE VALVE
G	SULLAIR DRYER

NOTICE

Mixing of other lubricants within the compressor unit will void all warranties!

"The Plastic Pipe Institute recommends against the use of thermoplastic pipe to transport compressed air or other compressed gases in exposed above ground locations, e.g. in exposed plant piping." (I)

CONTINUED

(I) Plastic Pipe Institute, Recommendation B, Adopted January 19, 1972.

...NOTICE CONTINUED

Sullube should not be used with PVC piping systems. It may affect the bond at cemented joints. Certain other plastic materials may also be affected.

4.4 COUPLING ALIGNMENT CHECK

In preparation for the factory test, the coupling supplied with your compressor is properly aligned for operation. The motor is flange-mounted to the compressor unit adapter. Therefore, it is not necessary

to check this alignment, unless high vibration is noticed.

4.5 FLUID LEVEL CHECK

Your air compressor is also supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation. The level is checked by looking at the sight glass located on the sump. If the sump is properly filled, the coolant level should fill 1/2 of the sight glass when the compressor is shutdown.

4.6 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 any applicable regional or local electrical code concerning isolation switches, fuse disconnects, etc. Sullair provides a wiring diagram for use by the installer.

⚠ WARNING

Lethal shock hazard inside.

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

1. Check incoming voltage. Be sure that the incoming voltage is the same voltage that the compressor was wired for.
2. Check starter and overload heater sizes (see electrical parts in Parts Manual).
3. Check all electrical connections for tightness.
4. “DRY RUN” the electrical controls by disconnecting the three (3) motor leads from the starter. Pull out the EMERGENCY STOP button on the control panel. Depress the PROG pad twice to get to AUTOMATIC/MANUAL mode selection and use the cursor pad to change to MANUAL mode.
5. Reconnect the three (3) motor leads and jog the motor for a direction of rotation check, as explained in Section 4.7.

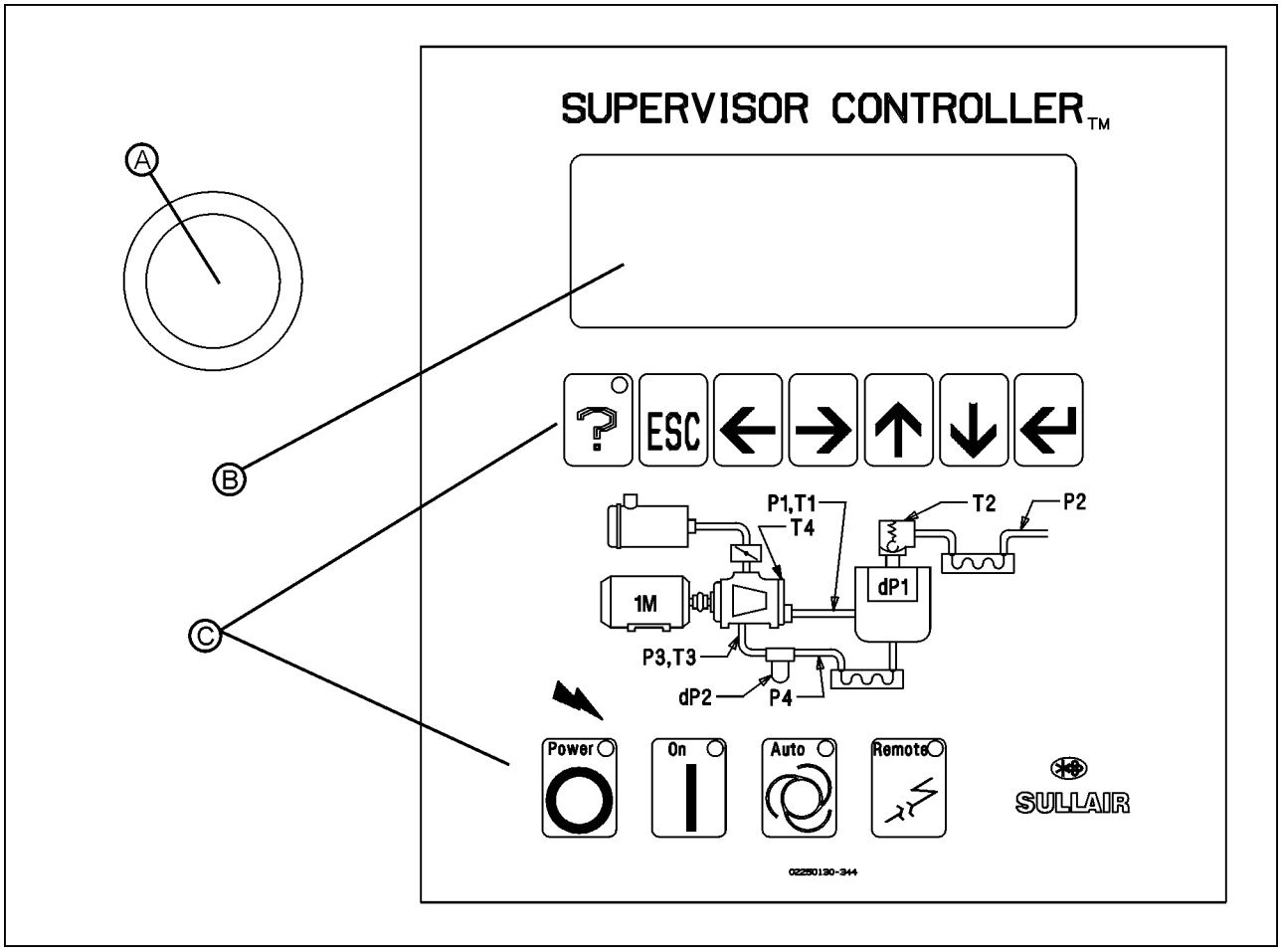
4.7 MOTOR ROTATION CHECK

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

With the control system in MANUAL MODE, 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 in the direction indicated by the “Direction of Rotation” decal located on the top of the compressor/motor adapter piece. 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 adapter piece.

Section 5
SUPERVISOR CONTROLLER™

Figure 5-1 Supervisor Controller Panel



KEY	
A	E-STOP BUTTON
B	DISPLAY
C	KEY PADS

NOTICE

For information concerning all aspects of the Supervisor Controller, consult the Supervisor Controller Manual.

Section 6
OPERATION

6.1 GENERAL

While Sullair has built into this compressor a comprehensive array of controls and indicators to assure you that it is operating properly, you will want to recognize and interpret the reading which will call for service or indicate the beginning of a malfunction. Before starting your Sullair compressor, read this section thoroughly and familiarize yourself with the controls and indicators - their purpose, location and use.

6.2 PURPOSE OF CONTROLS

CONTROL OR INDICATION	PURPOSE
FLUID LEVEL SIGHT GLASS	Monitors fluid level in the sump. Proper level should fill the sight glass. Check level when the compressor is shut down. DO NOT OVERFILL.
SEPARATOR RETURN LINE SIGHT GLASS	Used to indicate fluid flow in the return lines. When the compressor is running at full load, fluid flow should be visible in this sight glass. There may b little or no flow when the compressor is running unloaded, but a sluggish flow at full load indicates a need to clean the return line strainer.
FLUID STOP VALVE	Cuts off flow of fluid to compressor unit at compressor shutdown and allows flow of fluid to the unit on startup.
DISCHARGE CHECK VALVE	Cuts off the reverse flow of air/fluid mixture through compressor discharge system at compressor shutdown.
THERMAL VALVE	Regulates flow of fluid to and around the cooler. Designed to maintain a minimum operating temperature of 220ºF (104ºC). Also used for fast warm-up on startup.
MINIMUM PRESSURE/CHECK VALVE	Maintains minimum of 160 psig (11 bar) in the compressor sump. Valve piston restricts receiver air discharge from receiver/sump when pressure falls to 160 psig (11 bar). Prevents line pressure backflow into the sump during unload conditions and after shutdown.
PRESSURE RELIEF VALVE (SUMP)	Opens sump pressure to the atmosphere should pressure inside the sump becomes too high (400 psig [27.6 bar]). Operation of this valve indicates that the high pressure transducer is either faulty or out of adjustment.
PRESSURE RELIEF VALVE (INTERSTAGE)	Opens interstage of compressor to atmosphere should the pressure become too high (150 psig [10.3 bar]). Operation of this valve indicates unit pressurization during shutdown. Causes may be plugged control lines, faulty discharge check valve, or faulty fluid stop valve.
INLET POPPET VALVE	Regulates the amount of air allowed to enter the inlet. This regulation is determined by the amount of air being used at the service line.
PRESSURE REGULATOR (INLET POPPET VALVE)	Opens a pressure line between the sump and inlet poppet valve allowing to regulate air delivery according to the air demand.
PRESSURE REGULATOR (UNLOAD)	Opens a pressure line between the sump and the inlet poppet valve to regulate the unload pressure.

CONTINUED...

Section 6
OPERATION

6.2 PURPOSE OF CONTROLS (CONTINUED)	
CONTROL OR INDICATION	**PURPOSE**
PRESSURE REGULATOR (REFERENCE)	Opens a pressure line between the sump and the inlet poppet valve after initial startup. This pressure overcomes the internal spring load, allowing the inlet poppet valve the ability to modulate as required by the service line.
DOWNSTREAM INLET PRESSURE REGULATOR	Maintains a supply pressure of 100 psi (6.9 bar) to inlet control valve during modulation modes (protects the inlet control valve).
STARTUP SOLENOID VALVE	Assures no flow to the reference regulator during startup for approximately 7-seconds. After the timer times out, this valve opens to allow air to flow to the reference pressure regulator.
BLOWDOWN SOLENOID VALVE	Opens when a demand for an unload/shutdown condition exists. When valve is opened, it will supply air to the blow-down valve.
BLOWDOWN VALVE	Vents sump pressure to the atmosphere during unload/shutdown conditions.
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 "○" pad is depressed.

6.3 INITIAL START-UP PROCEDURE

⚠ CAUTION

Do Not attempt to start compressor more than once over a period of thirty minutes.

The following procedure should be used to make the initial start-up of the compressor.

1. Be sure that all preparations and checks described in the Installation Section have been made.
2. Read the preceding pages of this manual thoroughly.
3. Jog motor to check for correct rotation of fan (refer to Section 4.7).
4. Start the compressor in the desired operating mode I or ◎.
5. Slowly open the shut-off valve to the service line.
6. 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, consult *Differential Pressure Regulator Adjustment* in Section 7(Maintenance) of this manual.
8. Observe the operating temperature. Refer to compressor operator's manual for acceptable operating range. If temperature exceeds this range, the cooling system and installation environment should be checked.
9. Open shut-off valve to the service line.
10. Reinspect the compressor for temperature and leaks the following day.

6.4 SUBSEQUENT START-UP PROCEDURE

⚠ CAUTION

Do Not attempt to start compressor more than once over a period of thirty minutes.

On subsequent start-ups, check that the proper level is visible in the fluid sight glass and simply press the START I or AUTO MODE ◎ button. When the compressor is running, observe the instrument panel and maintenance indicators.

6.5 SHUTDOWN PROCEDURE

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

Section 7
MAINTENANCE

7.1 MAINTENANCE INTRODUCTION

The Supervisor Controller 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 Controller 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 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 which may have accumulated during compressor assembly. 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 elements.
4. Clean the control line filter.
5. Clean moisture drain trap strainer.

7.4 MAINTENANCE AS REQUIRED BY LUBRICATION GUIDE (SECTION 3)

1. Drain the sump and change the compressor fluid.
2. Replace the main fluid filter element.
3. Clean the return line strainers and orifices.
4. Clean or replace the control line filter element.

7.5 FLUID CHANGE

Standard models are filled with Sullube. Sullube should be changed under the following conditions, whichever occur first:

1. Every 1200 hours.
2. Once a year.
3. As indicated by fluid analysis.

A fluid sample at every 1000 hours is recommended. For a free Sullube analysis, send fluid to:

Dow Chemical
Lubricant Technology Center
Building B-1605
Freeport, TX 77541

To facilitate this, a sample bottle is included with the compressor.

7.5.1 FLUID CONTAMINATION BASED UPON FLUID ANALYSIS

Under certain conditions fluid may become contaminated. While this may indicate a fluid change, attention must be taken to the potential remaining fluid left inside the system after a change out.

NOTICE

When performing a fluid change, there is a possibility that fluid may be retained in the oil cooler. There may also be fluid in the unit, the discharge valve and piping. If this fluid is not removed before introducing fresh fluid (as per fluid change out), the fresh fluid may become contaminated.

7.6 MOTOR BEARINGS

Grease motor per manufacturer's recommendations.

7.7 SEPARATOR MAINTENANCE INTRODUCTION

Refer to *Separator Maintenance* in Section 7.8. Replace the separator elements when the separator maintenance message is displayed or after one (1) year, whichever comes first. The separator elements must be replaced. **DO NOT** clean the separator elements.

⚠ WARNING

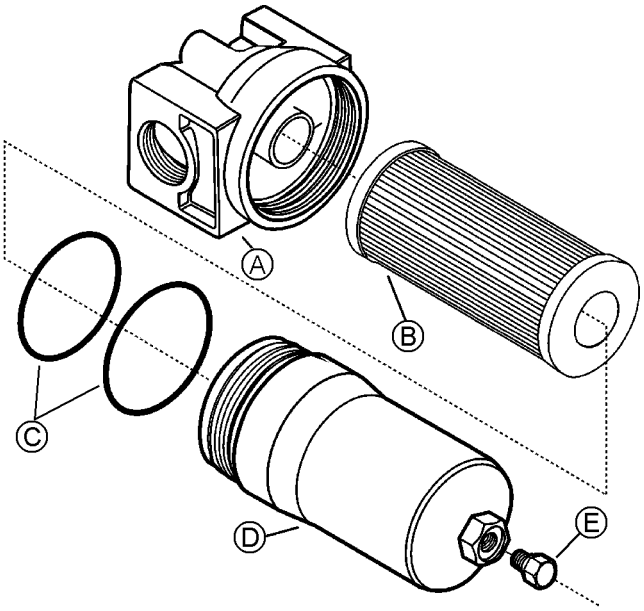
A continuity check is critical to perform when replacing separator elements.

7.8 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

FLUID FILTER MAINTENANCE

Refer to Figure 7-1. The fluid filter (P/N 02250111-592) is located schematically between the thermal valve on the sump and the oil stop valve on the

Figure 7-1 Main Filter (P/N 02250111-592)



KEY	
A	FILTER HEAD
B	ELEMENT*
C	SEALS*
D	BOWL
E	DRAIN PLUG
*	**REPAIR KIT: P/N 250031-850**

compressor-mounting bracket. When servicing this filter, shut the compressor down, and make sure all pressure has been released.

⚠ CAUTION

To minimize the possibility of filter element rupture, it is important that ONLY replacement elements identified with the Sullair name, logo and appropriate part numbers be used, and that substitute elements NOT be used, due to the fact that such filters may have inadequate or questionable working pressure ratings.

☑ What you may need to perform this maintenance:

- ✓ *Element replacement kit no. 250031-850*
- ✓ *Fluid Fliter wrench*
- ✓ *Solvent cleaner and applicator (cloth, etc.)*
- ✓ *Machine fluid (for coating seal)*

Use the following procedure for separator replacement:

1. Unthread the filter canister from the head. A hex nut is supplied on the bottom of the canister along with the bottom portion of the canister has a rough textured surface. Either can be used to assist in removal of the canister.
2. Pull the canister away from the filter head. The filter elements will be attached to the filter head.
3. Separate the element from the filter head.
4. Remove the canister seal.
5. Thoroughly clean the filter head and canister in solvent.
6. Lubricate the new seals with the same type of fluid used in the compressor and position each seal in its appropriate place.
7. Carefully push the element into position under the housing/head.
8. Replace the canister by threading back onto the filter head.

AIR FILTER MAINTENANCE

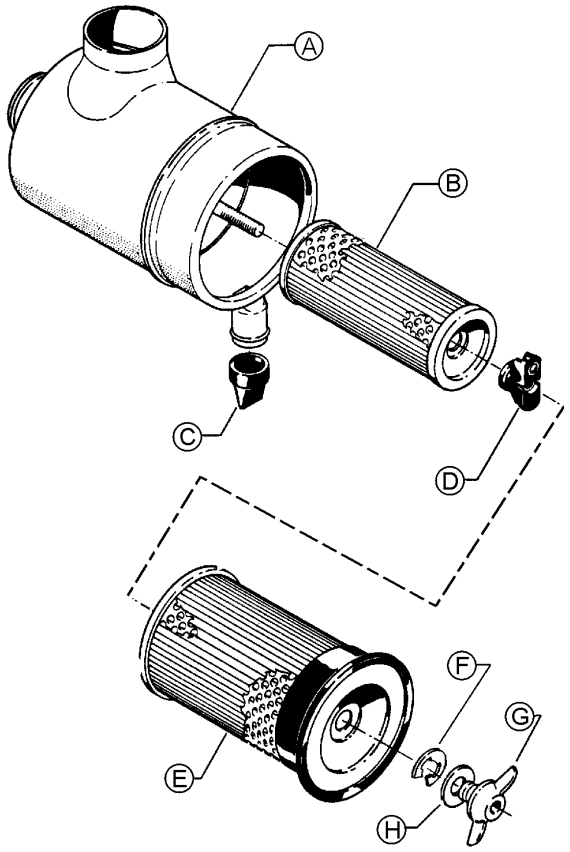
Refer to Figure 7-2. Air filter maintenance should be performed when the air filter maintenance message is displayed. The air filter is equipped with a primary and a secondary element. As previously stated, the Supervisor will alert you as to when the primary element maintenance is necessary. When removing the primary element, always check the secondary element for visible dirt, grease/oil, or damage. The secondary element must be changed after every sixth primary element inspection. **DO NOT** clean the secondary element.

☑ What you may need to perform this maintenance:

- ✓ *Primary replacement element no. 02250135-150*

CONTINUED

Figure 7-2 Air Filter Replacement (P/N 048456)



KEY	
A	HOUSING
B	SECONDARY ELEMENT**
C	DUST COVER
D	SAFETY SIGNAL
E	PRIMARY ELEMENT*
F	RETAINING CLIP
G	WING NUT
H	SEALING WASHER
*	**REPLACEMENT ELEMENT P/N: 02250135-150 (Primary)**
**	**REPLACEMENT ELEMENT P/N: 048463 (Secondary)**

☑ What you may need to perform this maintenance (continued):

- ✓ *Secondary replacement element no. 048463*
- ✓ *Cleaning materials (dampened cloth, etc.) for cleaning exterior of housing*
- ✓ *Damp cloth (separate from that used on exterior) for cleaning interior of housing*
- ✓ *Clean container (if new element is to be stored for later use)*
- ✓ *(Optional) Light source to check for damage and/or leaks in filter element*

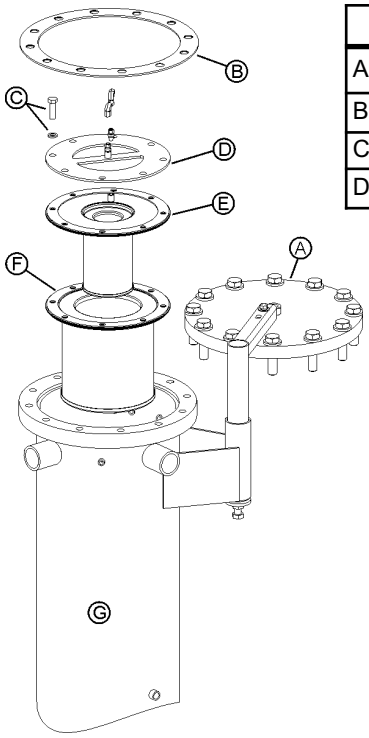
AIR FILTER ELEMENT REMOVAL

1. Clean exterior of air filter housing.
2. Remove the cover/element assembly by loosening the wing nut securing it.
3. Pull the cover/element assembly out of the housing.
4. On the inside of the element, you will notice a lock ring, which fastens the cover to the element. Remove the lock ring and pull the cover and element apart.
5. Clean the interior of the housing by using a damp cloth. **DO NOT** blow dirt with compressed air.
6. Inspect the secondary element and replace if necessary. This element is **NOT** cleanable.
7. To remove the secondary element, unscrew the secondary restriction indicator from the threaded rod running through the element. Pull the element out of the housing.
8. Install the new secondary element and replace the restriction indicator.
9. With the secondary element in place, clean or replace the primary element. Cleaning instructions follow.

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

Figure 7-3 Separator Element Replacement



KEY			
A	(12) CAPSCREW & WASHER	E	SECONDARY ELEMENT**
B	COVER GASKET***	F	PRIMARY ELEMENT*
C	(8) CAPSCREW & LOCKWASHER	G	SUMP TANK
D	RETAINING RING		

Table 7A - Separator Element Replacement Kits

MODEL	*PRIMARY ELEMENT NUMBER	ORDER: PRIMARY ELEMENT KIT NUMBER	**SECONDARY ELEMENT NUMBER	ORDER: SECONDARY ELEMENT KIT NUMBER
LS20TS 300-450HP / 224-336KW	02250119-666	**02250122-833**	02250119-667	**02250122-832**
LS20TS 500-600HP / 373-447KW	02250152-893	**02250158-170**	02250152-894	**02250152-901**

***Tank lid cover gasket is included with the primary element kit. **NOTE:** Replace the cover gasket (cover gasket replacement no. 02250121-188) anytime the sump lid is removed regardless of performing separator element maintenace or not.

of the housing. Should faulty gaskets be evident, correct the condition immediately.

3. If the clean element is to be stored for later use, it must be stored in a clean container.
4. After the element has been installed, inspect and tighten all air inlet connections prior to resuming operation.

PRIMARY ELEMENT REPLACEMENT

1. Place the element in position on the cover and replace the locking to secure the cover and element.
2. Install the cover/element assembly and replace the wing nut. Tighten the wing nut so to seat the element gasket fully.

SEPARATOR MAINTENANCE

Refer to Figure 7-3 and Table 7A. Separator elements replacement is indicated by the display message “Separator Maintenance Required”, or once per year, whichever occurs first.

☑ What you may need to perform this maintenance:

- ✓ *Torque wrench or power tool able to accomdate 3/4” (exterior) capscrews, and 5/8” sized (interior) capscrews*

CONTINUED

☑ What you may need to perform this maintenance:

- ✓ *Scraping tool (for removing old gasket material from sump)*
- ✓ *Primary element replacement kit**
- ✓ *Secondary element replacement kit**
- ✓ *Cover replacement gasket**

*** See Table 7A for kit order parts numbers.**

Use the following procedure for separator replacement:

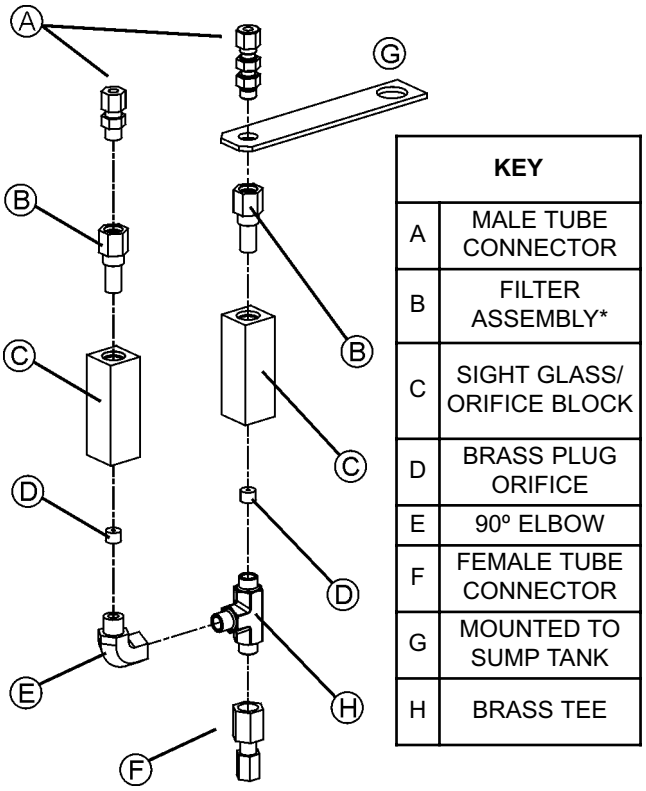
1. Remove the air receiver/separator tank lid by removing the twelve (12) hex head capscrews.

⚠ WARNING

If receiver tank is not provided with a swing arm for maintenance, to assist with the removal of the tank lid, Sullair has provided a 1”-8unc nut to the top lid so it can be removed by a 1”-8unc eyebolt (which is available from Sullair) or a similar type of lifting device.

2. Remove the 3/4”-10 jam nut and sealing hex nut from the 3/4”-10 separator hold down rod.
3. Remove the round separator cover plate from the

Figure 7-4 Oil Return/Sight Glass



KEY	
A	MALE TUBE CONNECTOR
B	FILTER ASSEMBLY*
C	SIGHT GLASS/ ORIFICE BLOCK
D	BRASS PLUG ORIFICE
E	90º ELBOW
F	FEMALE TUBE CONNECTOR
G	MOUNTED TO SUMP TANK
H	BRASS TEE

*Replacement Filter Assembly P/N 02250117-782

top of the separator element.

4. Remove the old separator element and discard.
5. Scrape the old gasket material from the tank lid mounting surface and the flanges mounting surface on the tank. Be sure to keep all scrapings from falling back inside of the tank.
6. Before installing the new separator elements, make sure to lubricate both sealing gaskets on the element with a lubricating compound (i.e. Silglyde). Now install the new separator elements and retaining ring. Torque the capscrews to 150 ft.-lbs. (203 Nm). **DO NOT** over-tighten, as damage to the separator element can result.
7. Next, install the tank flange gasket that is provided. Before installing, lubricate both sides of the gasket (i.e. Silglyde). Reinstall the tank lid. Install the capscrews finger tight, then gradually tighten in a crisscross pattern in 4 to 5 steps. Always tighten the capscrews alternately at opposite sides of the cover. Lube torque capscrews to 225 ft.-lbs. (305 Nm).
8. Clean or replace fluid return line strainer.
9. Clean the fluid return line orifice installed in the side of the compressor unit air end.
10. After assembly is complete, check for continuity between the separator flange and the lid and tank flange with an ohmmeter.

OIL RETURN/SIGHT GLASS MAINTENANCE

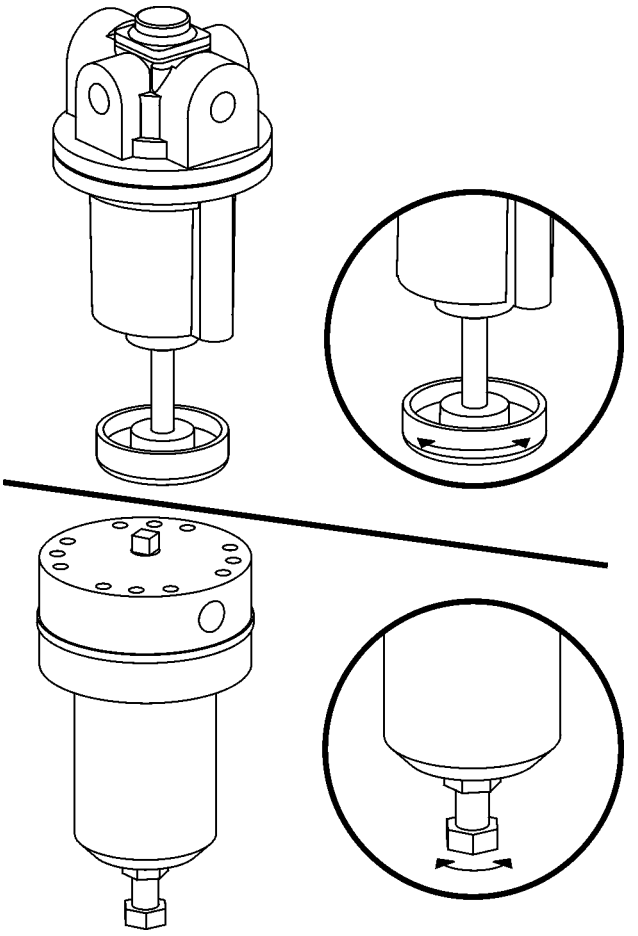
Refer to Figure 7-4. The oil return/sight glass subassembly is attached to the separator tank lid. Oil return/sight glass maintenance should be performed on a routine basis parallel to that of the fluid filter, or as indicated in the Troubleshooting Section of this manual.

NOTE

For additional information, consult the Troubleshooting Section in the Supervisor Controller manual.

The maintenance on an oil return/sight glass is mainly concerned with the condition of the filter assembly.

Figure 7-5 Pressure Regulator Adjustments



Section 7
MAINTENANCE

☑ What you may need to perform this maintenance:

- ✓ *Replacement filter assembly no. 02250117-782*
- ✓ *Open-ended (size 1/4") or adjustable cresent wrench*

Use the following instructions as a guide:

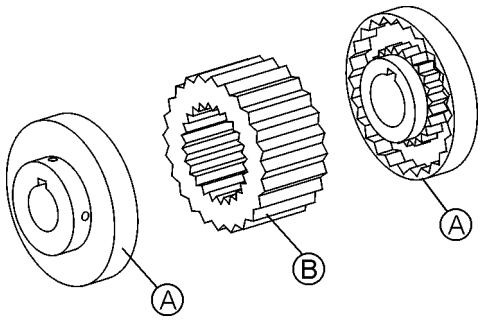
1. Disconnect the tubes at the tops of the sight glass assemblies.
2. Unscrew male connector (for left-side glass), or the straight thread tube connector (for right-side glass) from sight glass/orifice blocks.
3. Remove used filter assembly, and replace with new assembly.
4. Coat/lubricate the o-rings will silicone grease.
5. Reattach the connectors to the sight glass/orifice blocks.

DIFFERENTIAL PRESSURE REGULATOR ADJUSTMENT

Refer to Figure 7-5 and 7-6. The differential pressure regulators are adjusted by loosening the adjusting screw on the end of the cone-shaped cover of the pressure regulator. When the jam nut is loose, turn the adjusting screw clockwise to increase or counterclockwise to decrease the setting.

The unload pressure regulator should be set at 150 psig (10.3 bar) to control the compressor package during unload only. The inlet poppet valve control pressure regulator should be set to control the systems modulation to the service line desired pressure.

Figure 7-6 Drive Coupling



KEY	
A	COUPLING HUB
B	DRIVE SLEEVE

DRIVE COUPLING INSTALLATION AND ALIGNMENT

⚠ WARNING

Units mounted through common housing are self-aligning. If alignment is suspect, consult Service Department.

Figure 7-6 shows layout view of drive sleeve and coupling hubs.

Section 8
TROUBLESHOOTING

8.1 TROUBLESHOOTING

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

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

a. Check for loose wiring.

b. Check for damaged piping.

c. Check for parts damaged by heat or an electrical short circuit, usually apparent by discoloration or a burnt odor.

Should your problem persist after making the recommended check, consult your nearest Sullair representative or the Sullair Corporation factory.

8.2 TROUBLESHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR WILL NOT START	Main Disconnect Switch Open	Close switch.
	Line Fuse Blown	Replace fuse.
	Control Transformer Fuse Blown	Replace fuse.
	Motor Starter Overloads Tripped	Reset. Should trouble persist, check whether motor starter contacts are functioning properly.
	Low Incoming Line Voltage	Check voltage. Should voltage check low, consult power company.
	Pressurized Sump	Check blowdown valve and minimum pressure check valve for proper operation. Repair or replace as necessary (kits available).
COMPRESSOR SHUTS DOWN	Loss of Control Voltage	Reset. If trouble persists, check that line pressure does not exceed maximum operating pressure of the compressor (specified on nameplate).
	Low Incoming Voltage	Consult power company.
	Excessive Operating Pressure	Separator requires maintenance; check dP1 under full load conditions.
		High pressure shutdown parameter is adjusted too low; readjust.
		Defective blowdown solenoid valve; repair if defective (kit available).
		Defective blowdown valve; blowdown valve should exhaust sump pressure to the atmosphere when maximum operating pressure is reached. Repair or replace as necessary (kit available).
	High Discharge Temperature	Cooling water temperature too high; increase water flow (water-cooled).

CONTINUED...

8.2 TROUBLESHOOTING GUIDE (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR SHUTS DOWN (CONTINUED)	High Discharge Temperature (Cont.)	Cooling water flow insufficient; check water lines and valves (water-cooled).
		Cooler plugged; clean tubes. If plugging persists, install water conditioner (water-cooled).
		Low fluid level; add fluid.
		Clogged filter; change the fluid filter element if maintenance indicator shows red, and/or dP2 on controller indicates high dP.
		Thermal valve not functioning properly; replace element.
		Cooling air flow restricted; clean cooler and check for proper ventilation (air-cooled).
		Ambient temperature too high; provide sufficient ventilation (air-cooled).
		RTD probe out of calibration, or bad RTD. Replace if necessary.
	Low Fluid Pressure	Clogged filter; replace fluid filter element.
		Check oil stop valve for proper operation. Repair or replace as necessary (kit available).
	Low Water Pressure	Check water lines and valves (water-cooled).
COMPRESSOR WILL NOT BUILD UP FULL DISCHARGE PRESSURE	Air Demand is Too Great	Check service lines for leaks or open valves.
	Dirty Air Filter	Check the filter indicator and change or clean element if required.
	Pilot Pressure Regulator Out of Adjustment	Adjust regulator according to control adjustment instructions in the Maintenance section.
	Defective Pilot Pressure Regulator	Check diaphragm and replace if necessary (kit available).
	Defective Minimum Pressure Valve	Check that the piston is moving freely.
	Inlet Valve Not Opening Completely	Check poppet regulating valve; signal must be 60 psi. Readjust if necessary.
	Defective Control Inlet Solenoid Valve	Repair or replace.
LINE PRESSURE RISES ABOVE P2 PRESSURE	Leak in Control System Causing Loss of Pressure Signals	Check for leaks.

CONTINUED...

8.2 TROUBLESHOOTING GUIDE (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
LINE PRESSURE RISES ABOVE P2 PRESSURE (CONT.)	Defective Blowdown Solenoid Valve	Repair or replace if necessary (kit available).
	Defective Blowdown Valve	Check that sump pressure is exhausted to the atmosphere when the unload pressure setting on Supervisor Controller is met, or repair or replace if necessary (kit available).
EXCESSIVE COMPRESSOR LUBRICANT CONSUMPTION	Clogged Return Line or Orifice	Clean strainer (screen and o-ring replace-ment kit available).
		Clean orifice.
	Separator Elements Damaged or Not Functioning Properly	Change separator elements.
	Leak in the Lubrication System	Check all pipes, connections and components.
	Excessive Fluid Foaming	Drain fluid and change.
	Fluid Level Too High	Drain excess fluid.
	Line Pressure Too Low Over Extended Period	Increase pressure.
SUMP PRESSURE RELIEF VALVE OPENS REPEATEDLY	High Pressure Shutdown Parameter is Out of Adjustment	Readjust below pressure relief valve setting.
	Defective Pressure Relief Valve	Replace pressure relief valve.
	Defective Pressure Transducer	Recalibrate or replace.
	Defective Minimum Pressure Valve	Repair or replace.
	High Separator Differential (dP1)	Replace separator elements.
	Defective Blowdown Valve	Repair or replace (kit available).
	Defective Blowdown Solenoid Valve	Repair or replace (kit available).
	Plugged or Frozen Control Lines	Replace or thaw as needed.
INTERSTAGE PRESSURE RELIEF VALVE OPENS REPEATEDLY	Defective Discharge Check Valve	Repair or replace (kit available).
	Defective Oil Stop Valve	Repair or replace (kit available).
	Defective Pressure Relief Valve	Replace pressure relief valve.

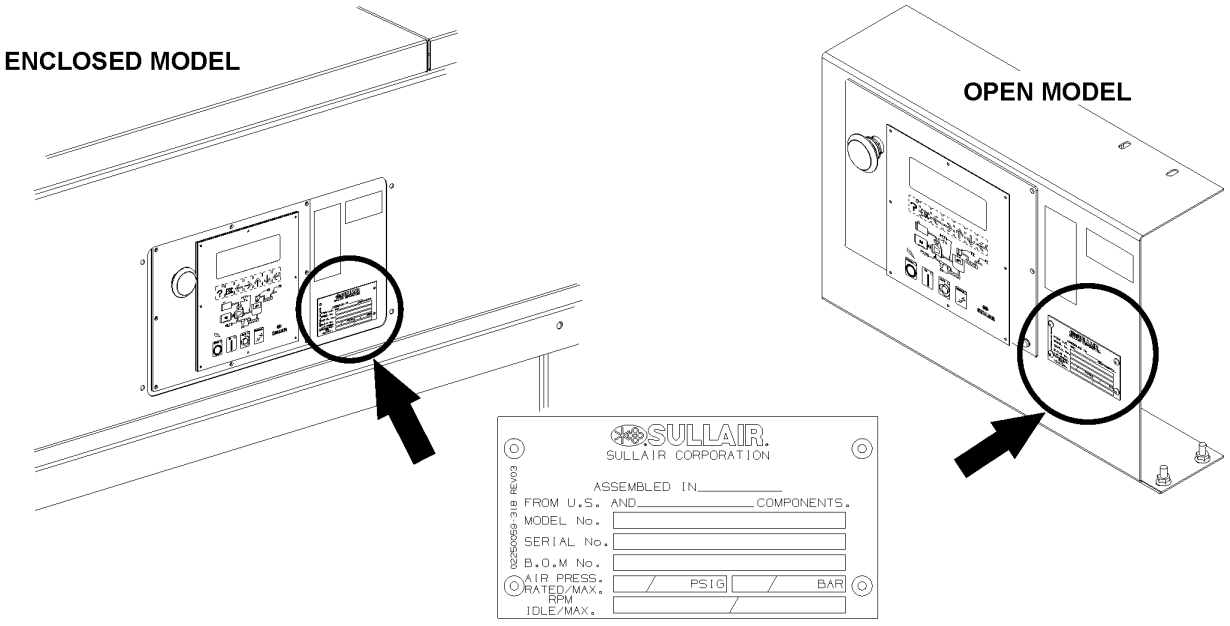
NOTES

Section 9
ILLUSTRATIONS AND PARTS LIST

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 addresses, telephone or fax 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 (see Figure 9-1).

Figure 9-1 Serial Number Plate Locations



Typical Serial Number Name Plate

NOTE: For future convenience, write the machine serial number below:

Serial Number _____

SULLAIR CORPORATION

3700 East Michigan Boulevard
Michigan City, Indiana 46360 U.S.A.
www.sullair.com
☎: 1-800-SULLAIR (U.S.A. Only)
or 1-219-879-5451
Fax: (219) 874-1273

PARTS DEPARTMENT
☎: 1-888-SULLAIR
Fax: (219) 874-1835
www.sullair.com

SERVICE DEPARTMENT
☎: 1-888-775-1604 (U.S.A. & Canada Only)
Fax: (219) 874-1205
www.sullaircompressors.com

SULLAIR ASIA, LTD.
Sullair Road, No. 1
Chiwan, Shekou
Shenzhen, Guangdong PRV.
PRC POST CODE 518068
☎: 755-6851686
Fax: 755-6853473
www.sullair-asia.com

CHAMPION COMPRESSORS, LTD.
Princes Highway
Hallam, Victoria 3803
Australia
☎: *1800-810-015 (for Australia -wide Branch Network Only)*
☎: 61-3-9796-4000
Fax: 61-3-9703-8053
www.championcompressors.com.au

SULLAIR EUROPE, S.A.
Zone Des Granges BP 82
42602 Montbrison Cedex,
France
☎: 33-477968470
Fax: 33-477968499
www.sullaireurope.com

Section 9
ILLUSTRATIONS AND PARTS LIST

9.2 SPARE PARTS LIST- LS20TS

LIST REFERENCE	DESCRIPTION	ORDER KIT NUMBER	QTY
1	Replacement element kit for primary separator element 02250119-666 (including cover gasket) (300-450HP/224-336KW) **(I)**	**02250122-833**	**1**
2	Replacement element kit for secondary separator element 02250119-667 (300-450HP/224-336KW) **(I)**	**02250122-832**	**1**
3	Replacement element kit for primary separator element 02250152-893 (including cover gasket) (500-600HP/373-447KW) **(I)**	**02250158-170**	**1**
4	Replacement element kit for secondary separator element 02250152-894 (500-600HP/373-447KW) **(I)**	**02250152-901**	**1**
5	Replacement gasket 02250121-188 for separator	**02250121-188**	**1**
6	Replacement element (primary) for inlet filter 048456 **(I)**	**02250135-150**	**1**
7	Replacement element (secondary) for inlet filter 048456 **(I)**	**048463**	**1**
8	Replacement element for fluid filter 02250111-592 **(I)**	**250031-850**	**1**
9	Replacement element for control line filter 02250058-442 **(I)**	**02250058-441**	**1**
10	Replacement filter assembly 02250117-782	**02250117-782**	**2**
11	Repair kit for fluid stop valve 250041-069	**02250051-747**	**1**
12	Repair kit for minimum pressure valve 250031-852	**02250044-196**	**1**
13	Repair kit for inlet valve 02250140-758	**02250112-531**	**1**
14	Rebuild kit for inlet valve 02250140-758	**02250157-367**	**1**
15	Replacement gasket for inlet valve assembly	**240621-013**	**1**
16	Repair kit for unit discharge check valve 02250126-832	**606208-001**	**1**
17	Repair kit for blowdown valve 045116	**047524**	**1**
18	Repair kit for pressure regulator 02250139-030 **(I)**	**02250139-037**	**1**
19	Repair kit for pressure regulator 02250140-060 **(I)**	**02250145-667**	**1**
20	Repair kit for solenoid valve 407390 **(I)**	**02250053-830**	**1**
21	Replacement coil for solenoid valve 407390	**250031-431**	**1**
22	Repair kit for solenoid valve 02250125-657 **(I)**	**02250125-829**	**1**
23	Replacement coil for solenoid valve 02250125-657	**02250125-861**	**1**
24	Replacement drive-coupling element **(I) (II)**	**02250075-399**	**1**

Continued on page 41

(I) Recommended spare parts.

(II) Due to custom motor requests, drive-coupling elements may vary. Consult factory for correct size/component.

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

9.2 SPARE PARTS LIST- LS20TS (CONTINUED)

LIST REFERENCE	DESCRIPTION	ORDER KIT NUMBER	QTY
25	Repair kit for thermal valve 02250139-130	**02250139-865**	**1**
26	Replacement probe for 02250058-087	**02250058-087**	**1**
27	Replacement probe for 250039-909	**250039-909**	**2**
28	Repair kit for shaft seal	**001811A**	**1**
29	Repair kit for discharge check valve assembly 02250127-507	**606208-001**	**1**
30	Fluid, Sullube (5-gal can) **(III)**	**250022-669**	**50-gal**
31	Fluid, Sullube (55-gal drum) **(I) (III)**	**250022-670**	**50-gal**
32	Kit, fluid sample	**02250138-667**	**1**

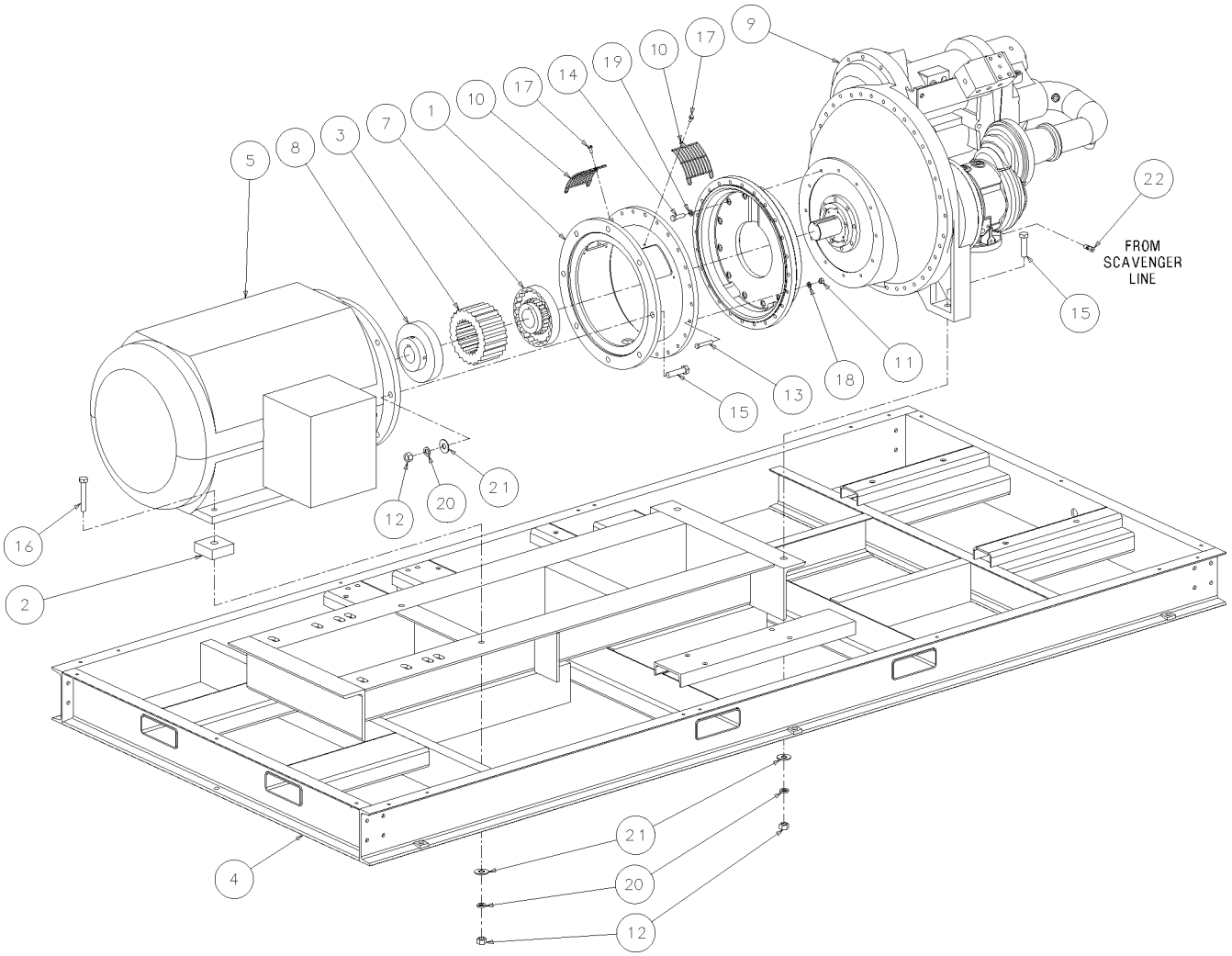
(I) Recommended spare parts.

(III) Refer to Specifications Section for lubrication information.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.3 MOTOR, FRAME, COMPRESSOR AND PARTS- 300-450HP/ 224-336KW



02250142-662R00

Section 9
ILLUSTRATIONS AND PARTS LIST

9.3 MOTOR, FRAME, COMPRESSOR AND PARTS- 300-450HP/ 224-336KW

key number	*description*	*part number*	*quantity*
1	adapter, mtr/compr ls20t **(I)**	-	1
2	bar, 1 1/2 x 4 x 4 hrs	022216	2
3	sleeve, 11h hytrel **(I)**	-	1
4	frame, main LS20TS-300/600hp ac/wc	02250139-133	1
5	motor, 4ppe **(I)**	-	1
6	adapter (231811c) sae 1ddh20	026974	1
7	hub, coupling 2-3/4 - 11su	047141	1
8	hub, coupling 11 su 2-3/8”bore	049923	1
9	compr model, 20-12stretch unit **(II)**	-	1
10	grille, cplg guard compr/mtr	250040-319	2
11	nut, hex pltd 7/16-14	825207-385	24
12	nut, hex pltd 3/4-10	825212-665	12
13	capscr, hex gr5 7/16-14 x 2 1/2	829107-250	24
14	capscr, hex gr5 1/2-13 x 1 3/4	829108-175	12
15	capscr, hex gr5 3/4-10 x 3	829112-300	10
16	capscr, hex gr5 3/4-10 x 4 1/2	829112-450	2
17	screw, hex ser washer 5/16-18 x 3/4	829705-075	6
18	washer, spr lock reg pltd 7/16	837807-112	24
19	washer, spr lock reg pltd 1/2	837808-125	12
20	washer, spr lock reg pltd 3/4	837812-188	12
21	washer, pl-b reg pltd 3/4	838212-112	12
22	connector, tube-m 1/4 x 1/4 ss	876804-025	1

(I) Due to customized motor variances consult factory for part number.

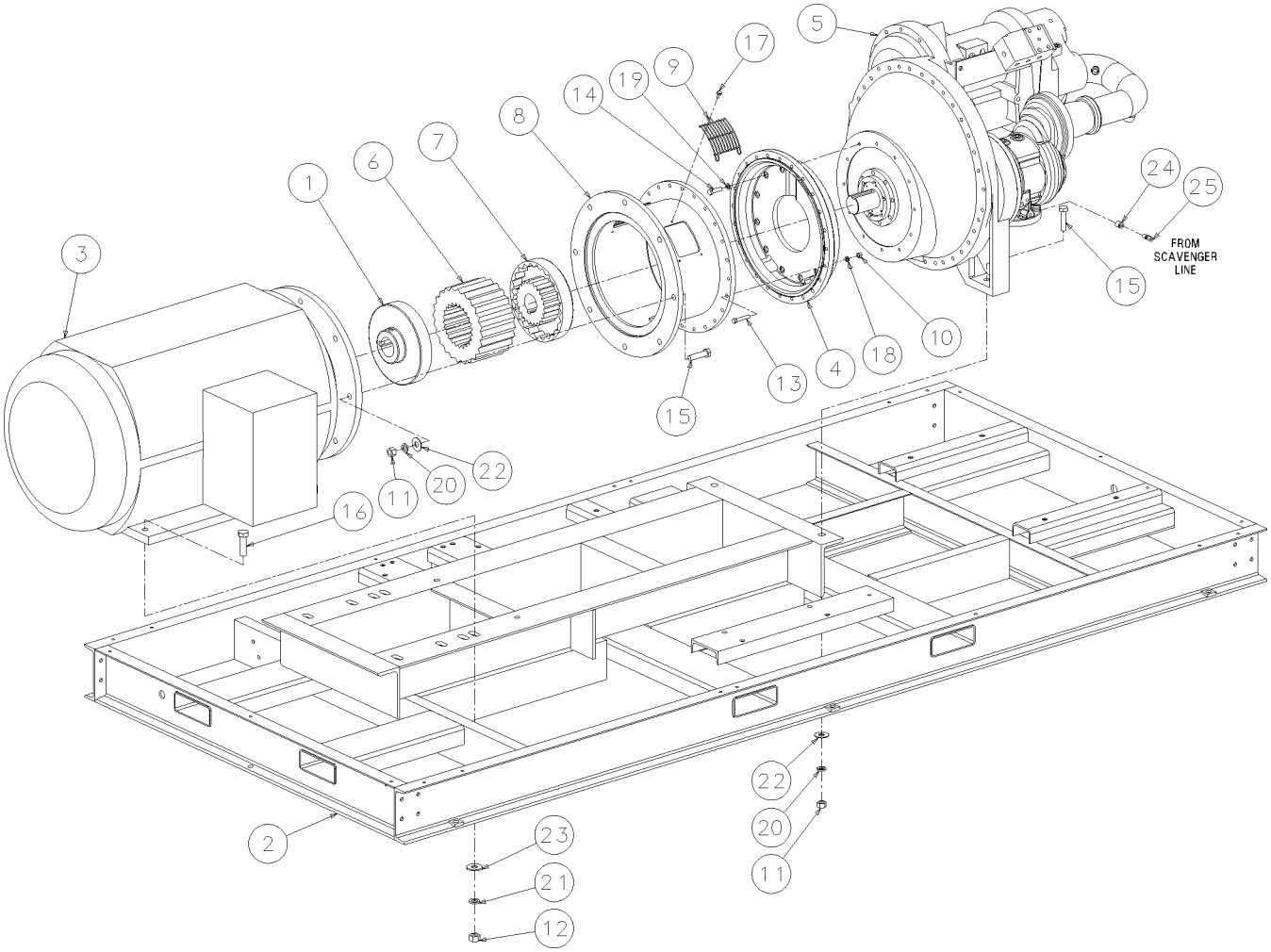
(II) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

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 order repair kit no. 001811A.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.4 MOTOR, FRAME, COMPRESSOR AND PARTS- 500-600HP/373-447KW



02250153-394R00

9.4 MOTOR, FRAME, COMPRESSOR AND PARTS- 500-600HP/373-447KW

key number	description	*part* number	quantity
1	hub, coupling 135 - mtr **(I)**	-	1
2	frm, mn ls20ts-300/600hp ac/wc	02250139-133	1
3	mtr, 4p pe **(I)**	-	1
4	adapter (231811c) sae 1ddh20	026974	1
5	compr model, 20-12 stretch unit **(I)**	-	1
6	sleeve, drive 13hs	250023-463	1
7	hub, coupling 13s 2-3/4" bore	250023-464	1
8	adpt, mtr/compr ls20t	250024-300	1
9	grille, cplg guard compr/mtr	250040-319	2
10	nut, hex pltd 7/16-142	825207-385	4
11	nut, hex pltd 3/4-10	825212-665	10
12	nut, hex pltd 7/8-9	825214-776	2
13	capscr, hex gr5 7/16-14 x 2 1/2	829107-250	24
14	capscr, hex gr5 1/2-13 x 1 3/4	829108-175	12
15	capscr, hex gr5 3/4-10 x 3	829112-300	10
16	capscr, hex gr5 7/8-9 x 3	829114-300	2
17	screw, hex ser washer 5/16-18 x 3/4	829705-075	6
18	washer, spr lock reg pltd 7/16	837807-112	24
19	washer, spr lock reg pltd 1/2	837808-125	12
20	washer, spr lock reg pltd 3/4	837812-188	10
21	washer, spr lock reg pltd 7/8	837814-219	2
22	washer, pl-b reg pltd 3/4	838212-112	10
23	washer, pl-b reg pltd 7/8	838214-174	2
24	bushing, red pltd 1/2 x 1/4	867102-010	1
25	conn, tube-m 1/4 x 1/4 ss	876804-025	1

(I) Due to customized motor variances consult factory for part number.

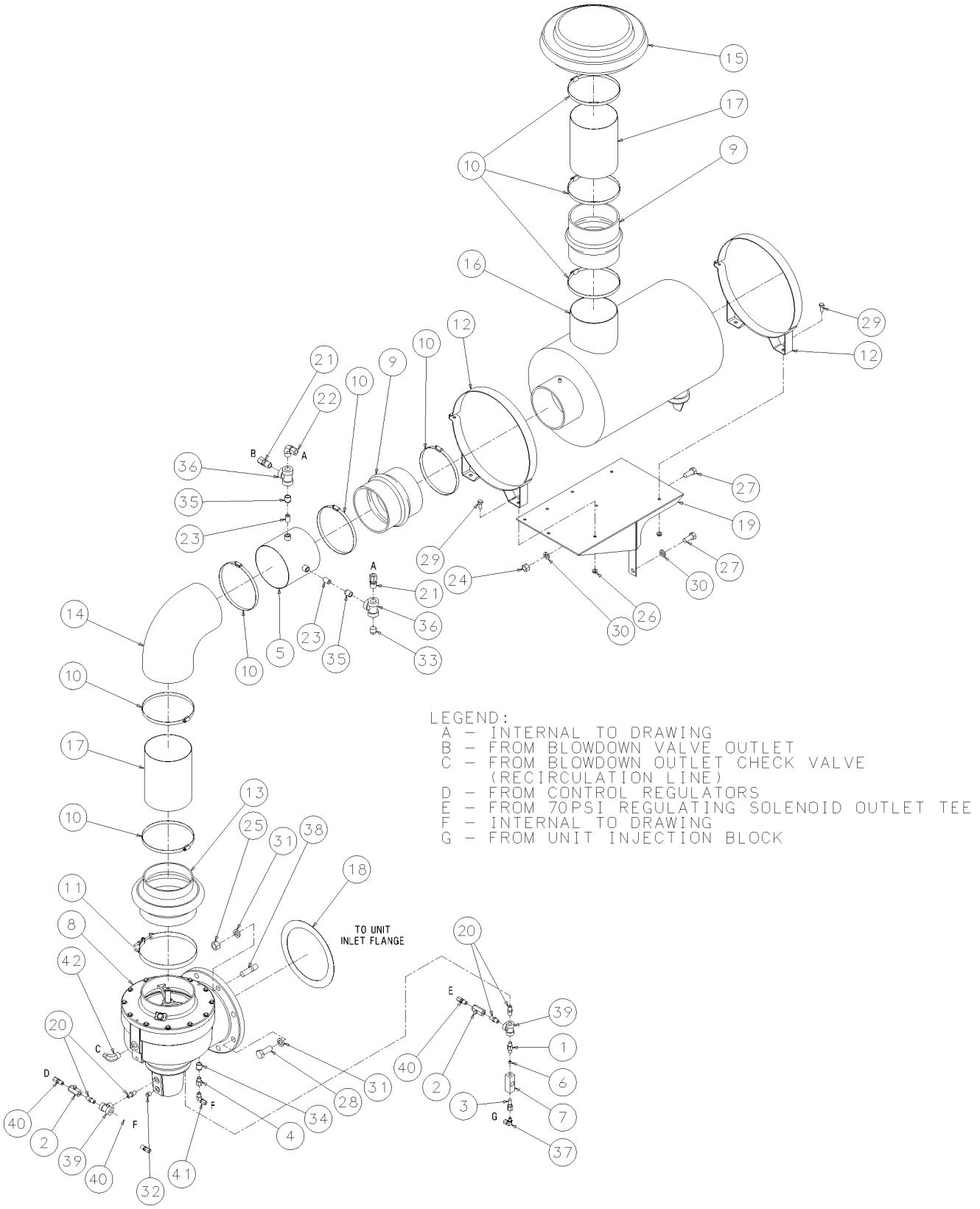
(II) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

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 order repair kit no. 001811A.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.5 AIR INLET SYSTEM WITH OIL INJECTION VALVE



02250142-581R00

9.5 AIR INLET SYSTEM WITH OIL INJECTION VALVE

key number	description	*part* number	quantity
1	orifice, .031” x .25m x .25m nptf -	02250101-191	1
2	valve, check 1/4”nptf viton seat	02250110-557	2
3	filter, assembly genisis filter **(I)**	02250117-782	1
4	orifice, .062 .25 fnpt x .25 mnpt	02250118-585	1
5	tube, 7” x 6.5” w/3/8” conn	02250120-368	1
6	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
7	sightglass, orf block sae	02250126-129	1
8	sub assembly, 8” inlet valve w/orifice **(II)**	02250140-758	1
9	hose, hump 7”	041917	2
10	clamp, hose 7”	041992	8
11	clamp, hose 8”	043598	1
12	band, mounting 16”	044248	2
13	adapter, red hump 8 x 7 x 6	045356	1
14	rubber elbow 7 i.d. x 90 deg.	046078	1
15	cap, air inlet 7”	046307	1
16	filter, inlet optimalair 16”odx7”inlt **(III)**	048456	1
17	tube, alum air inlet 7”od x 9”lg	232591	2
18	gasket, asa flange 150# 8” **(IV)**	240621-013	1
19	support, air inlet filter	250000-826	1
20	nipple, hx tbe 316s 1/4”	250018-760	4
21	connector, tube-m 1/2 x 1/2	810208-050	2
22	elbow, tube 90 deg m 1/2 x 1/2	810508-050	1
23	nipple, pipe-xs galv 3/8 x cl	823206-000	2
24	nut, hex pltd 5/8-11	825210-559	1
25	nut, hex pltd 3/4-10	825212-665	2

Continued on page 49

(I) For maintenance on filter assembly no. 02250117-782, order replacement filter assembly no. 02250117-782.

(II) For maintenance on air inlet valve assembly no. 02250140-758, order repair kit no. 02250112-531. NOTE: See footnote **(IV)** below.

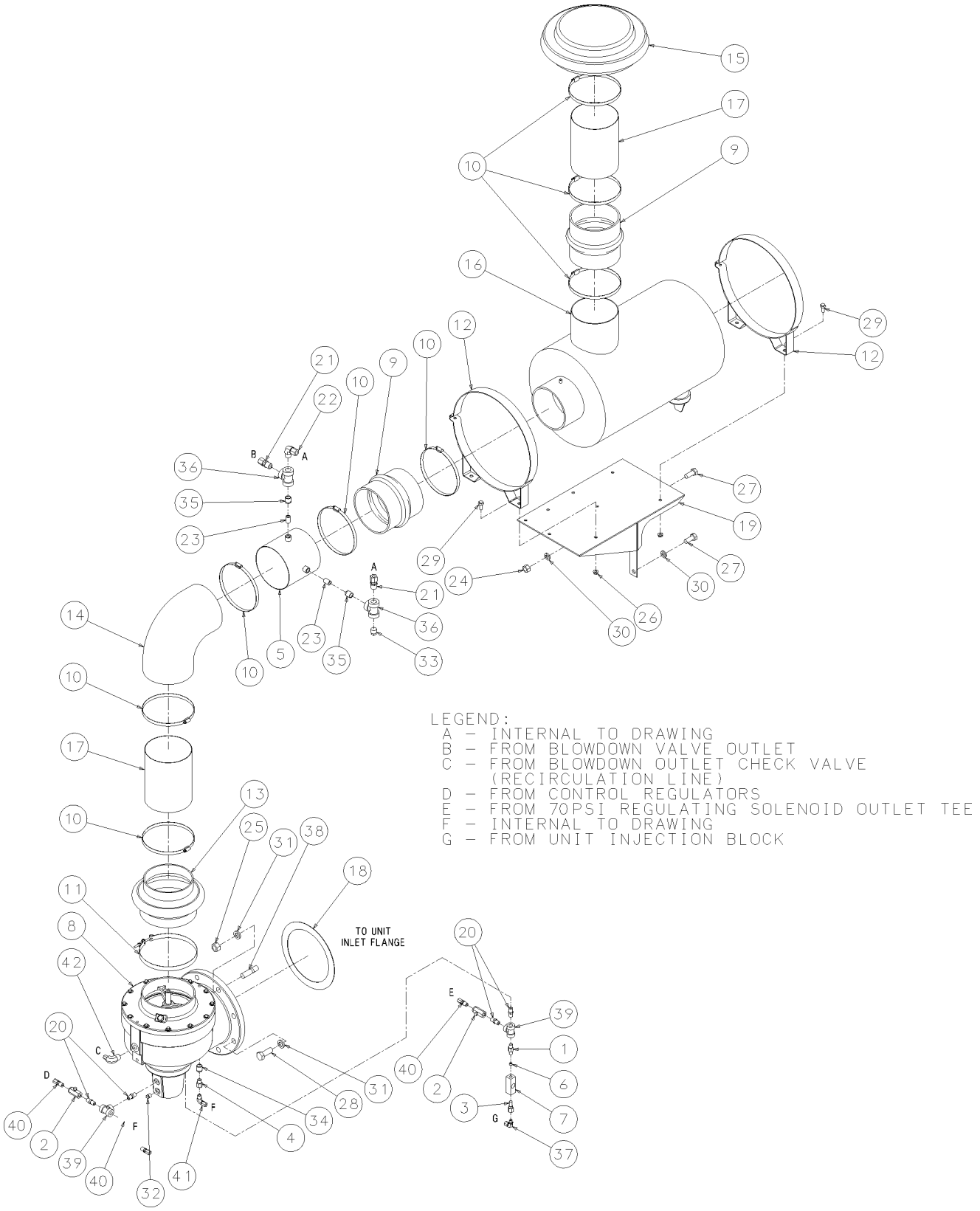
(III) For maintenance on air filter no. 048456, order primary replacement element no. 02250135-150 and secondary replacement element no. 048463.

(IV) When performing maintenance on inlet valve, if required, order gasket no. 240621-013.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.5 AIR INLET SYSTEM WITH OIL INJECTION VALVE



02250142-581R00

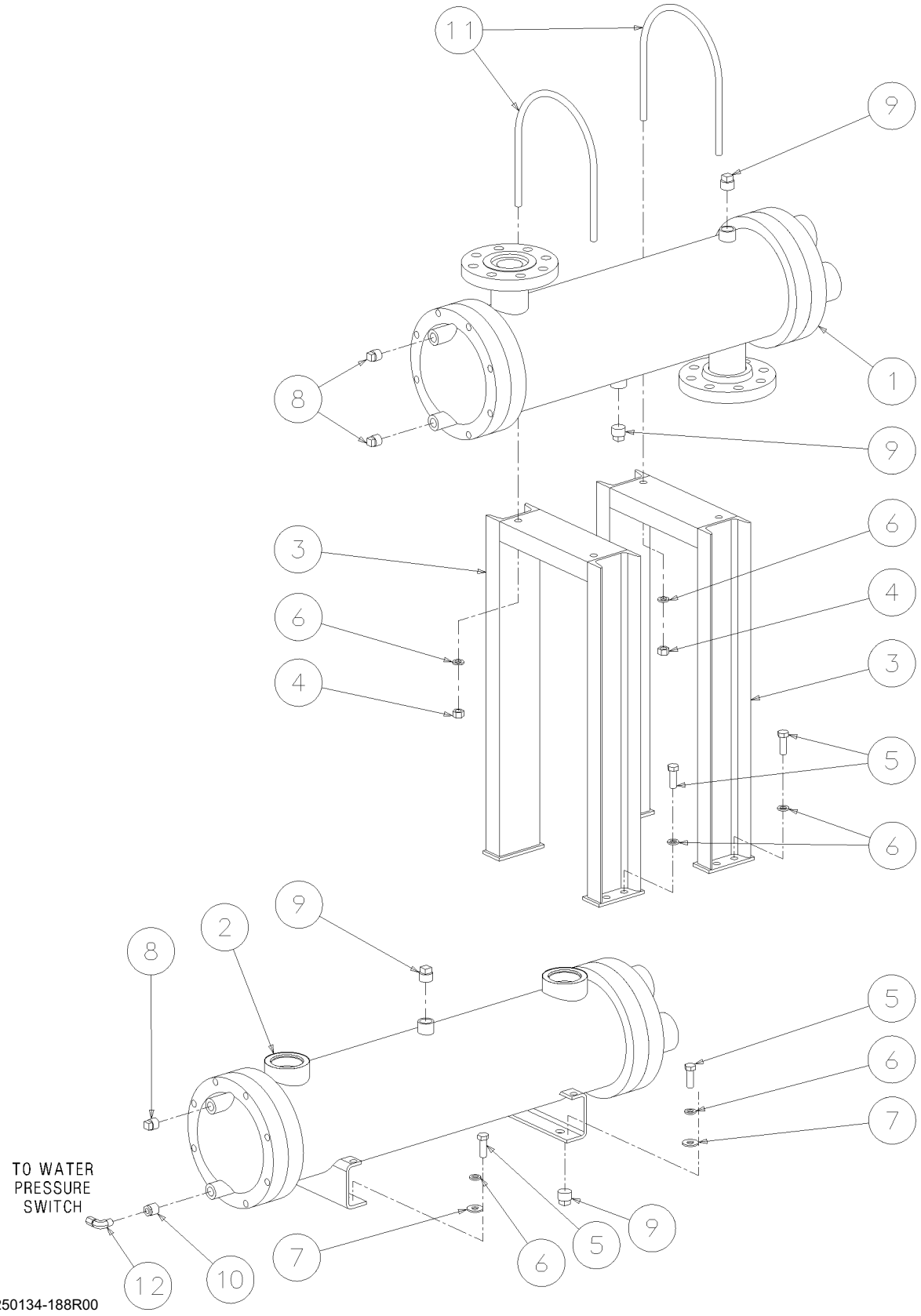
9.5 AIR INLET SYSTEM WITH OIL INJECTION VALVE (CONTINUED)

key number	description	*part* number	quantity
26	nut, hex f pltd 3/8-16	825306-347	4
27	capscrew, hex gr5 5/8-11 x 1 1/2	829110-150	2
28	capscrew, hex gr5 3/4-10 x 2	829112-200	6
29	screw, hex ser washer 3/8-16 x 1	829706-100	4
30	washer, spr lock reg pltd 5/8	837810-156	2
31	washer, spr lock reg pltd 3/4	837812-188	8
32	plug, pipe 1/4” 3000# stl plt	866900-010	1
33	plug, pipe 1/2” 3000# stl plt	866900-020	2
34	bushing, red pltd 1/2 x 1/4	867102-010	1
35	bushing, red pltd 1/2 x 3/8	867102-015	2
36	tee, pipe pltd 1/2	868430-020	2
37	elbow, tb-m str thd ss 1/4 x 7/16	870804-044	1
38	stud, threaded 3/4-10 x 3 plt	873812-030	2
39	tee, pipe 300# 1/4 ss	876730-010	2
40	connector, tube-m 1/4 x 1/4 ss	876804-025	3
41	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
42	elbow, tube 90 deg m 1/4 x 1/2 ss	877004-050	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.6 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW WATER-COOLED



02250134-188R00

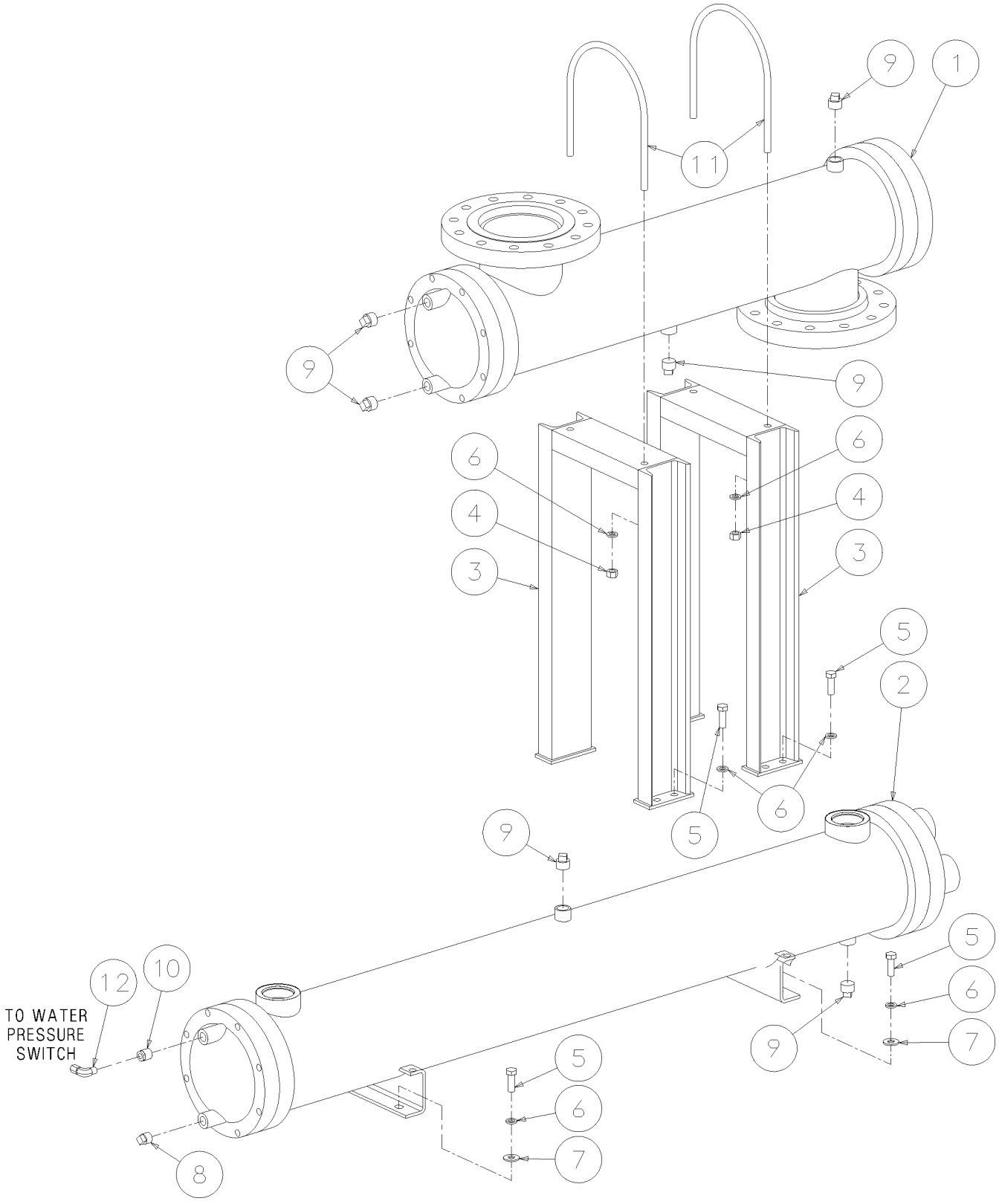
9.6 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW WATER-COOLED

key number	*description*	*part number*	*quantity*
1	aftercooler, air/wtr 08030 400# 400hp	02250139-059	1
2	cooler, oil/wtr 08036 400# 400hp	02250139-060	1
3	support, cooler ls20ts aftclr 350#	02250139-203	2
4	nut, hex pltd 1/2-13	825208-448	4
5	capscr, hex gr5 1/2-13 x 1 1/2	829108-150	12
6	washer, spr lock reg pltd 1/2	837808-125	16
7	washer, pl-b reg pltd 1/2	838208-112	4
8	plug, pipe 1/2” 3000# stl plt	866900-020	3
9	plug, pipe 3/4” 3000# stl plt	866900-030	4
10	bushing, red pltd 1/2 x 1/4	867102-010	1
11	u-bolt,1/2” x 8” pipe pltd	868308-800	2
12	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.7 FLUID COOLING SYSTEM- 500-600HP/373-447KW WATER-COOLED



02250139-110R00

9.7 FLUID COOLING SYSTEM- 500-600HP/373-447KW WATER-COOLED

key number	description	*part* number	quantity
1	cooler, air/wtr 08042 400# 600hp	02250139-061	1
2	cooler, oil/wtr 08066 400# 600hp	02250139-062	1
3	support, cooler ls20ts aftclr 350#	02250139-203	2
4	nut, hex pltd 1/2-13	825208-448	4
5	capscrew, hex gr5 1/2-13 x 1 1/2	829108-150	12
6	washer, spr lock reg pltd 1/2	837808-125	16
7	washer, pl-b reg pltd 1/2	838208-112	4
8	plug, pipe 1/2” 3000# stl plt	866900-020	1
9	plug, pipe 3/4” 3000# stl plt	866900-030	6
10	bushing, red pltd 1/2 x 1/4	867102-010	1
11	u-bolt, 1/2” x 8” pipe pltd	868308-800	2
12	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

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

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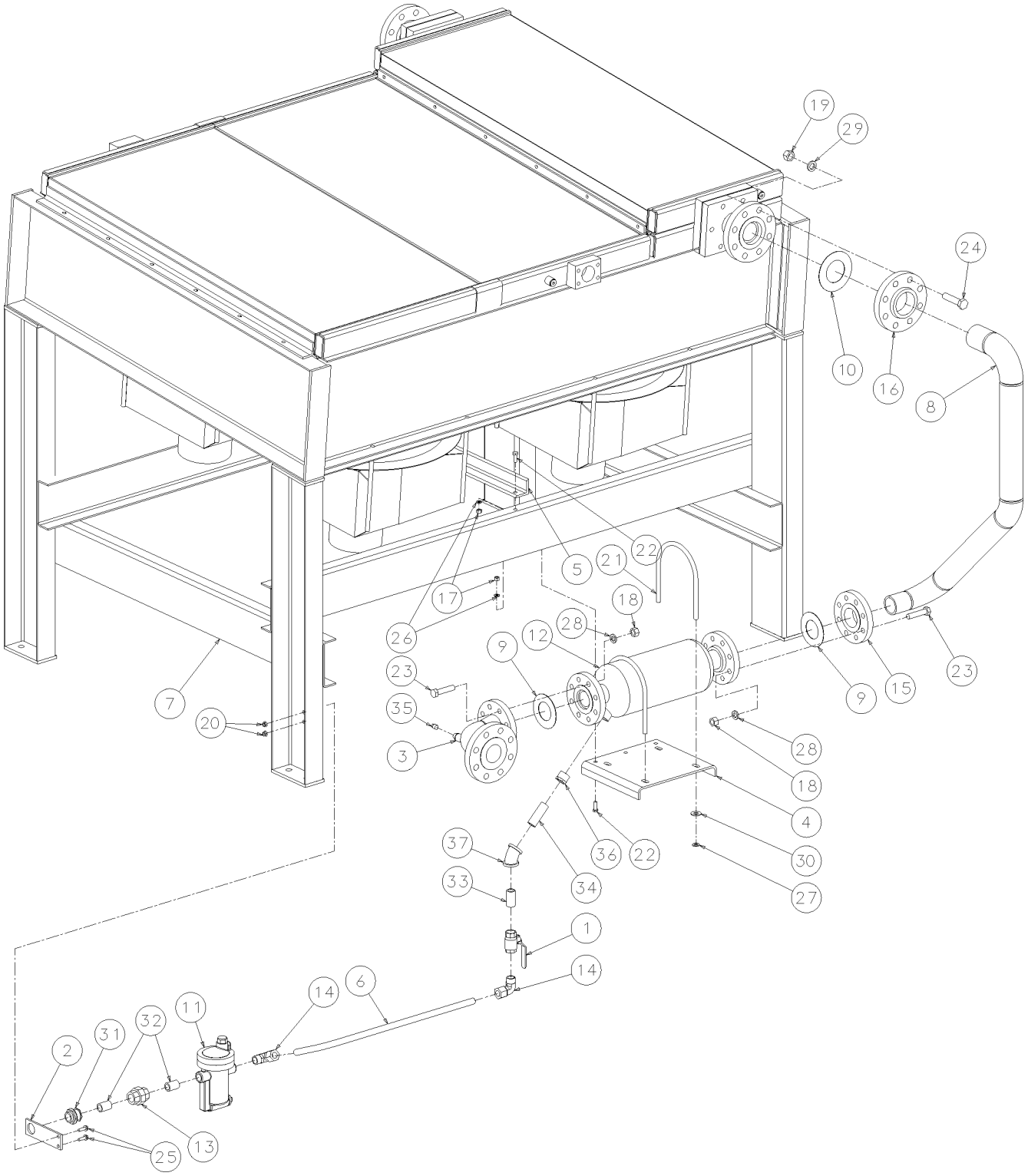
ILLUSTRATIONS AND PARTS LIST

9.8 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW AIR-COOLED REMOTE



02250150-108R01

9.8 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW AIR-COOLED REMOTE

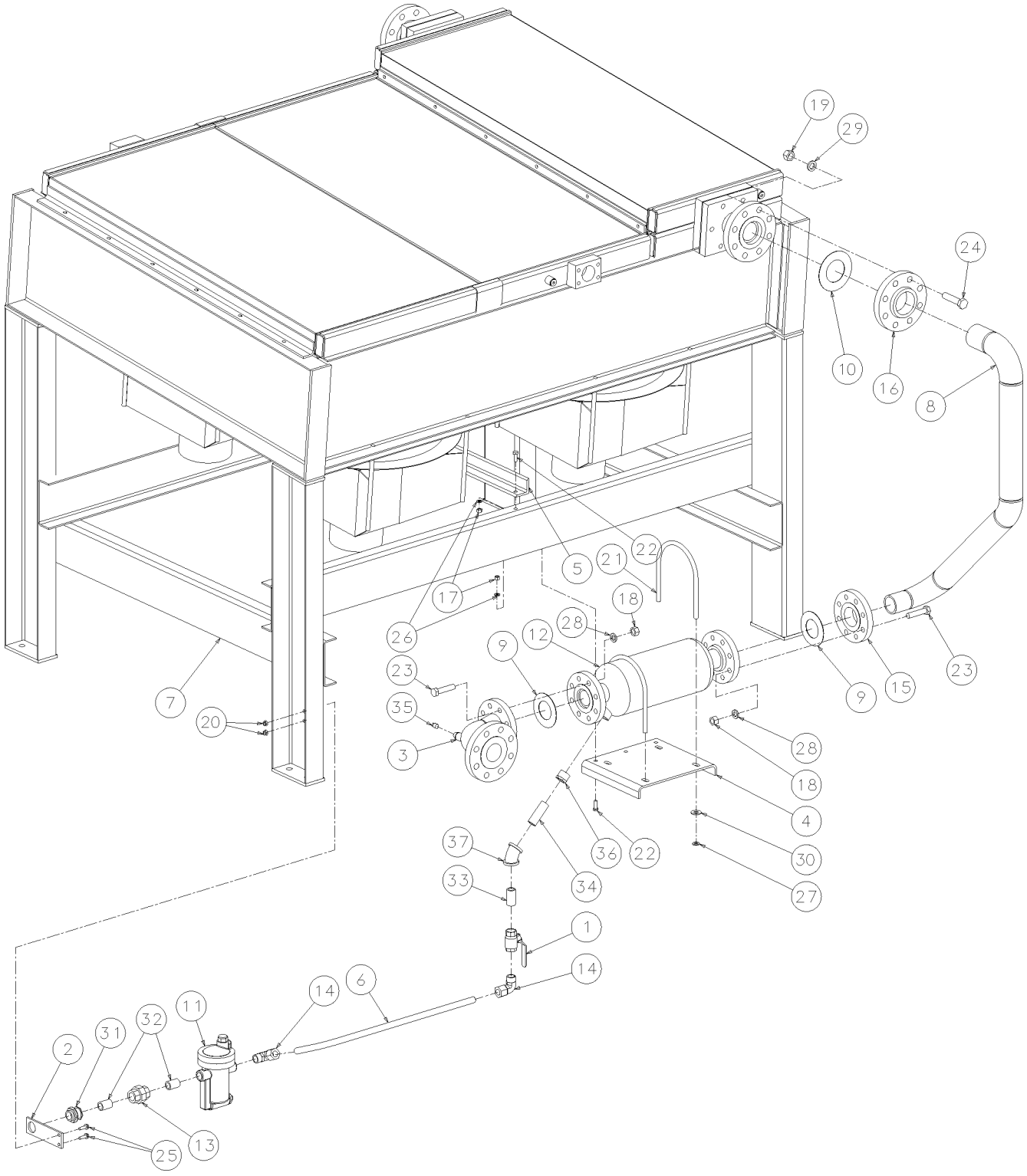
key number	description	*part* number	quantity
1	valve, ball 3/4” npt apollo	02250117-792	1
2	support, 3/4” cust conn mdrn ls20t	02250137-659	1
3	elbow, red 2-1/2 x 2 300#	02250139-598	1
4	plate, mounting moistsep ls20ts ac	02250148-518	1
5	angle, support clr/msep ls20ts rmt	02250148-521	1
6	tube, msep/mdrn ls20ts ac	02250148-523	1
7	cooler, pack ls20ts 450hp ac rmte	02250150-106	1
8	pipe assembly, clr/msep ls20ts ac	02250155-422	1
9	gasket, asa flange 300# 2”	240620-006	2
10	gasket, asa flange 300# 2-1/2”	240620-007	1
11	trap, auto 3/4”npt 400# max	250006-639	1
12	separator, water 2”w-a 31l	406746	1
13	union, pipe-brs seat 3/4 300#	805730-030	1
14	elbow, tube 90 deg m 3/4 x 3/4	810512-075	2
15	flange, slp-on 2” 300#	820230-032	1
16	flange, slp-on 2 1/2” 300#	820230-040	1
17	nut, hex pltd 3/8-16	825206-337	5
18	nut, hex pltd 5/8-11	825210-559	16
19	nut, hex pltd 3/4-10	825212-665	8
20	nut, hex f pltd 5/16-18	825305-283	2
21	u-bolt, 1/2” x 6” pipe	829008-600	2
22	capscrew, hex gr5 3/8-16 x 1	829106-100	5
23	capscrew, hex gr5 5/8-11 x 2 3/4	829110-275	16
24	capscrew, hex gr5 3/4-10 x 3 1/4	829112-325	8
25	screw, hex ser washer 5/16-18 x 1	829705-100	2
26	washer, spr lock reg pltd 3/8	837806-094	5
27	washer, spr lock reg pltd 1/2	837808-125	4
28	washer, spr lock reg pltd 5/8	837810-156	16
29	washer, spr lock reg pltd 3/4	837812-188	8
30	washer, pl-b reg pltd 1/2	838208-112	4
31	bulkhead, pipe 3/4” npt	841500-012	1
32	nipple, pipe-xs plt 3/4 x 1 1/2	866412-015	2

Continued on page 57

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.8 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW AIR-COOLED REMOTE



02250150-108R01

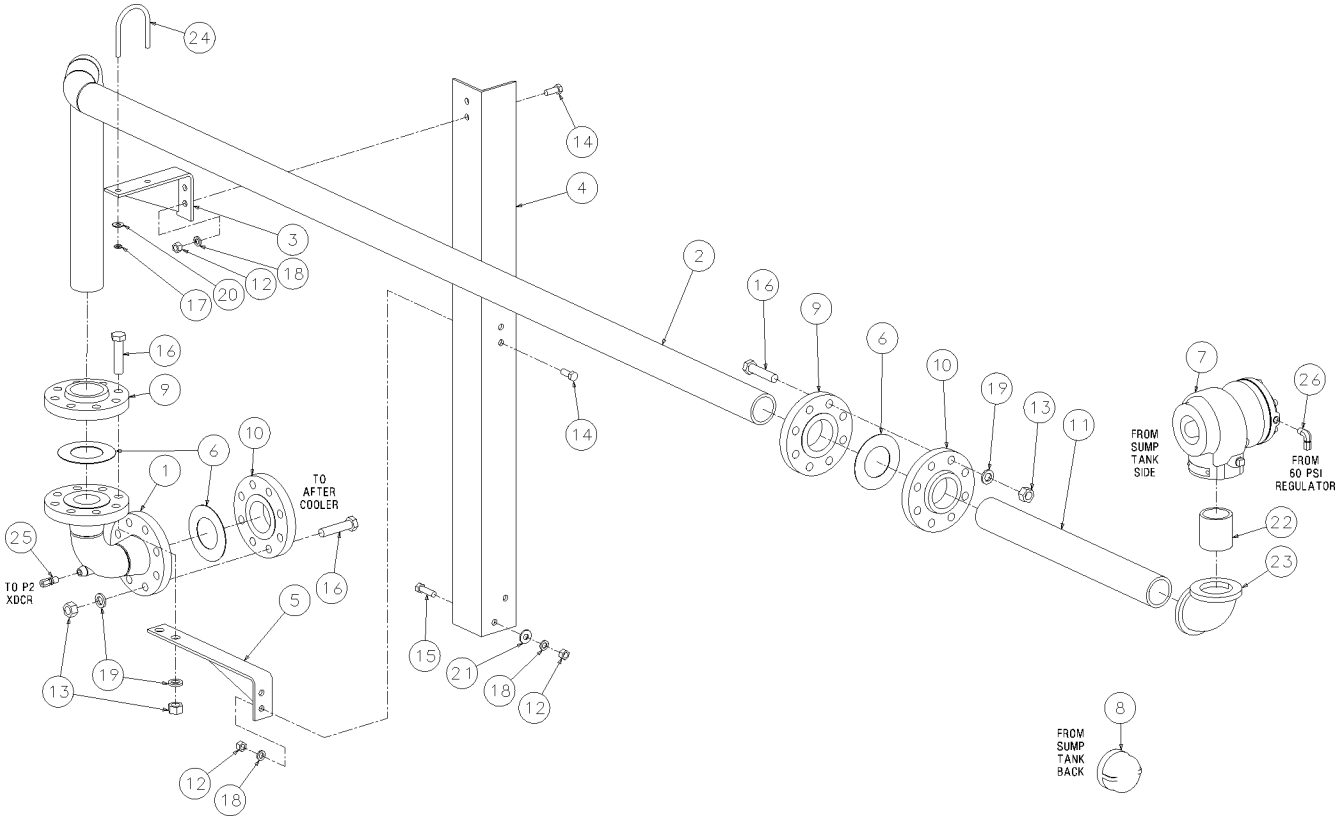
9.8 FLUID COOLING SYSTEM- 300-450HP/ 224-336KW AIR-COOLED REMOTE (CONTNIUED)

key number	description	*part* number	quantity
33	nipple, pipe-xs plt 3/4 x 2	866412-020	1
34	nipple, pipe-xs plt 3/4 x 3	866412-030	1
35	plug, pipe 1/4” 3000# stl plt	866900-010	1
36	bushing, red pltd 1 x 3/4	867104-030	1
37	elbow, pipe 45 deg 300# plt 3/4”	869430-030	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.9 AIR PIPING SYSTEM- 300-450/224-336KW AIR-COOLED



02250147-357R01

9.9 AIR PIPING SYSTEM- 300-450/224-336KW AIR-COOLED

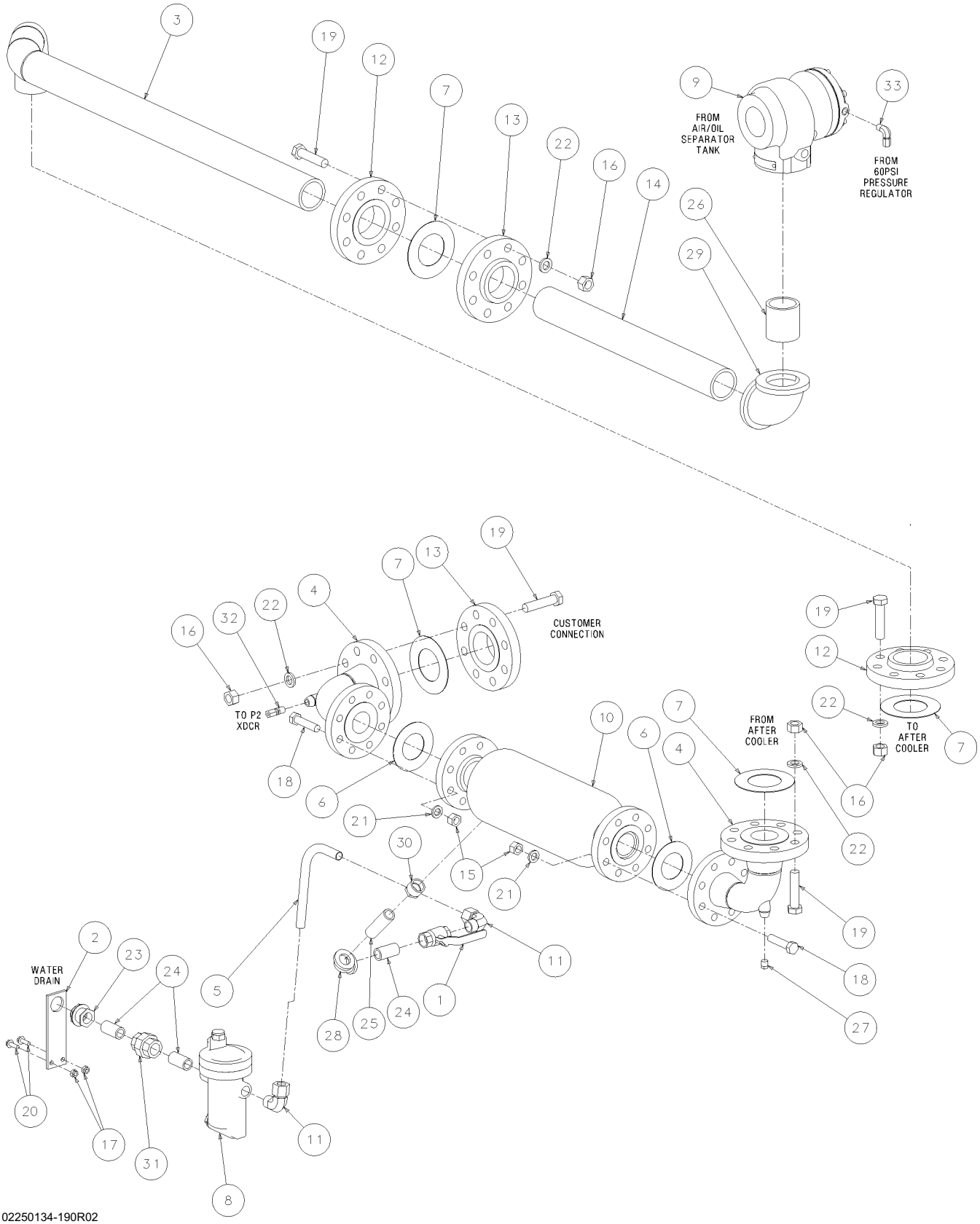
key number	description	*part* number	quantity
1	tee, welded 2-1/2fx1/4”nx2-1/2f	02250147-368	1
2	pipe, assembly ls20ts flg/out 2-1/2	02250147-369	1
3	angle, support ls20ts ac outlet pipe	02250147-461	1
4	support, upright-piping ls20ts ac	02250147-462	1
5	angle, support ls20ts outlet elb ac	02250147-760	1
6	gasket, asa flange 300# 2-1/2”	240620-007	3
7	sub assembly, vlv min press/chk asm(2.5”) **(I)**	250031-852	1
8	cap, pipe 2 1/2 300#	806130-100	1
9	flange, slp-on 2 1/2” 300#	820230-040	2
10	flange, thrd 2 1/2” 300# rf	820330-040	2
11	nipple, pipe-xs 2 1/2 x 24	822240-240	1
12	nut, hex pltd 1/2-13	825208-448	6
13	nut, hex pltd 3/4-10	825212-665	24
14	capscrew, hex gr5 1/2-13 x 1 1/4	829108-125	4
15	capscrew, hex gr5 1/2-13 x 1 3/4	829108-175	2
16	capscrew, hex gr5 3/4-10 x 3 1/4	829112-325	24
17	washer, spr lock reg pltd 3/8	837806-094	2
18	washer, spr lock reg pltd 1/2	837808-125	6
19	washer, spr lock reg pltd 3/4	837812-188	24
20	washer, pl-b reg pltd 3/8	838206-071	2
21	washer, pl-b reg pltd 1/2	838208-112	2
22	nipple, pipe-xs plt 2 1/2 x 3	866440-030	1
23	elbow, pipe 90 deg 300# plt 2 1/2”	867030-100	1
24	u-bolt, 3/8 x 2 1/2 pipe pltd	868306-250	1
25	connector, tube-m 1/4 x 1/4 ss	876804-025	1
26	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

(I) For maintenance on minimum pressure check valve assembly no. 250031-852, order repair kit no. 02250044-196.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.10 AIR PIPING SYSTEM- 300-450HP/224-336KW WATER-COOLED



9.10 AIR PIPING SYSTEM- 300-450HP/224-336KW WATER-COOLED

key number	description	*part* number	quantity
1	valve, ball 3/4” npt apollo	02250117-792	1
2	support, 3/4” cust conn mdrn ls20t	02250137-659	1
3	pipe, assembly ls20ts flg/clr 2-1/2	02250139-210	1
4	elbow, red 2-1/2 x 2 300#	02250139-598	2
5	tube, moistdr ls20ts wc	02250139-607	1
6	gasket, asa flange 300# 2”	240620-006	2
7	gasket, asa flange 300# 2-1/2”	240620-007	4
8	trap, auto 3/4”npt 400# max	250006-639	1
9	valve, sa, vlv min press/chk asm 2.5” **(I)**	250031-852	1
10	separator, water 2”w-a 31l	406746	1
11	elbow, tube 90 deg m 3/4 x 3/4	810512-075	2
12	flange, slp-on 2 1/2” 300#	820230-040	2
13	flange, thrd 2 1/2” 300# rf	820330-040	2
14	nipple, pipe-xs 2 1/2 x 24	822240-240	1
15	nut, hex pltd 5/8-11	825210-559	16
16	nut, hex pltd 3/4-10	825212-665	32
17	nut, hex f pltd 5/16-18	825305-283	2
18	capscrew, hex gr5 5/8-11 x 2 3/4	829110-275	16
19	capscrew, hex gr5 3/4-10 x 3 1/4	829112-325	32
20	screw, hex ser washer 5/16-18 x 1	829705-100	2
21	washer, spr lock reg pltd 5/8	837810-156	16
22	washer, spr lock reg pltd 3/4	837812-188	32
23	bulkhead, pipe 3/4” npt	841500-012	1
24	nipple, pipe-xs plt 3/4 x 2	866412-020	3
25	nipple, pipe-xs plt 3/4 x 3 1/2	866412-035	1
26	nipple, pipe-xs plt 2 1/2 x 3	866440-030	1
27	plug, pipe 1/4” 3000# stl plt	866900-010	1
28	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
29	elbow, pipe 90 deg 300# plt 2 1/2”	867030-100	1
30	bushing, red pltd 1 x 3/4	867104-030	1
31	union, pipe-brs seat 3/4 gal 300#	873530-030	1
32	connector, tube-m 1/4 x 1/4 ss	876804-025	1
33	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

(I) For maintenance on minimum pressure check valve assembly no. 250031-852, order repair kit no. 02250044-196.

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

Section 9
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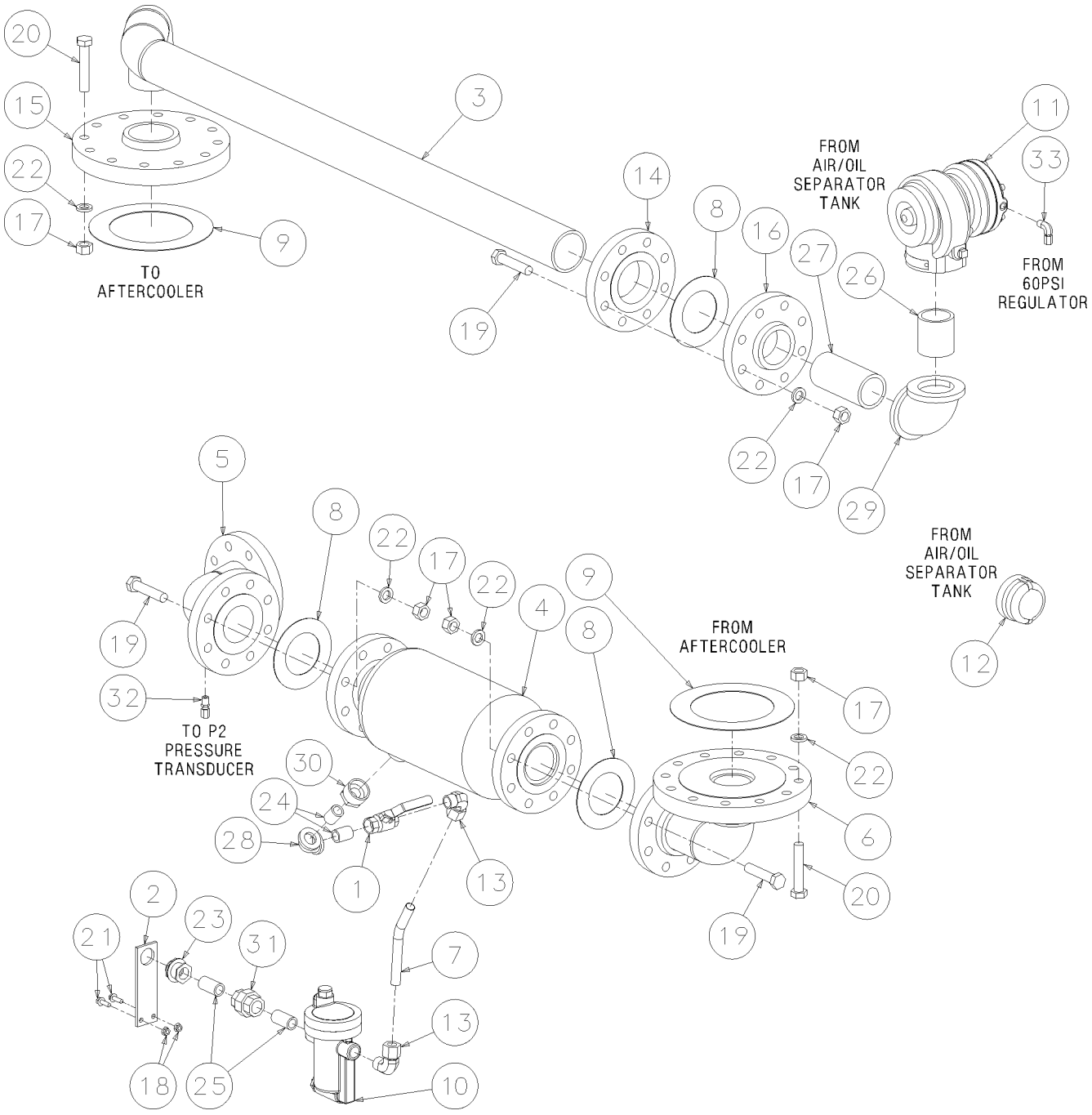
9.11 AIR PIPING SYSTEM- AIR PIPING 500-600HP/373-447KW WATER-COOLED



02250139-584R01

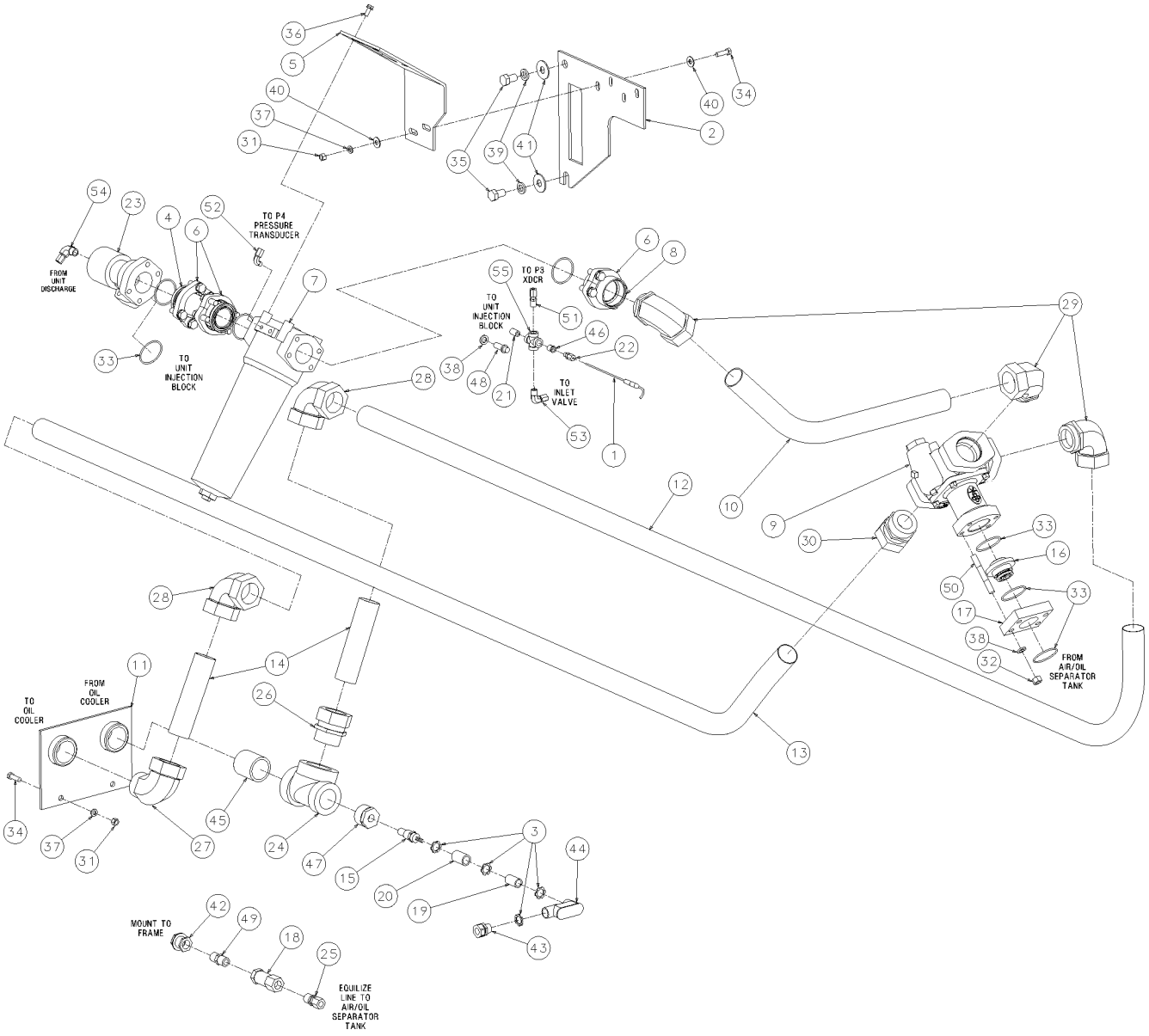
9.11 AIR PIPING SYSTEM- AIR PIPING 500-600HP/373-447KW WATER-COOLED

key number	description	*part* number	quantity
1	valve, ball 3/4” npt apollo	02250117-792	1
2	support, 3/4” cust conn mdrn ls20t	02250137-659	1
3	pipe, assembly ls20ts flg/clr 3” wc	02250152-453	1
4	separator, water 3”-300#flg horz	02250153-014	1
5	elbow, flanged 90 3” 300# w/1/4”port	02250153-019	1
6	elbow, weld red aftclr out-ls20ts	02250153-346	1
7	tube, mdrn ls20ts-500/600w	02250153-466	1
8	gasket, asa flange 300# 3”	240620-008	3
9	gasket, asa flange 300# 6”	240620-012	2
10	trap, auto 3/4”npt 400# max	250006-639	1
11	sub assembly, vlv min press/chk asm(2.5”) **(I)**	250031-852	1
12	cap, pipe 2 1/2 300#	806130-100	1
13	elbow, tube 90 deg m 3/4 x 3/4	810512-075	2
14	flange, slp-on 3” 300#	820230-048	1
15	flange, slp-on red 3x12 1/2”	820612-125	1
16	flange, thrd red 2 1/2 x 8 1/4”	820710-082	1
17	nut, hex pltd 3/4-10	825212-665	48
18	nut, hex f pltd 5/16-18	825305-283	2
19	capscrew, hex gr5 3/4-10 x 3 1/2	829112-350	24
20	capscrew, hex gr5 3/4-10 x 4	829112-400	24
21	screw, hex ser washer 5/16-18 x 1	829705-100	2
22	washer, spr lock reg pltd 3/4	837812-188	48
23	bulkhead, pipe 3/4” npt	841500-012	1
24	nipple, pipe-xs plt 3/4 x cl	866412-000	2
25	nipple, pipe-xs plt 3/4 x 2	866412-020	2
26	nipple, pipe-xs plt 2 1/2 x 3	866440-030	1
27	nipple, pipe-xs plt 2 1/2 x 6	866440-060	1
28	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
29	elbow, pipe 90 deg 300# plt 2 1/2”	867030-100	1
30	bushing, red pltd 1 1/2 x 3/4	867106-030	1
31	union, pipe-brs seat 3/4 gal 300#	873530-030	1
32	connector, tube-m 1/4 x 1/4 ss	876804-025	1
33	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

(I) For maintenance on minimum pressure check valve assembly no. 250031-852, order repair kit no. 02250044-196.

Section 9
ILLUSTRATIONS AND PARTS LIST

9.12 FLUID PIPING SYSTEM- 300-450/224-336KW AIR-COOLED



02250147-358R02

9.12 FLUID PIPING SYSTEM- 300-450/224-336KW AIR-COOLED

key number	description	*part* number	quantity
1	probe, rtd 100 ohm plat 6”x 20ft **(I)**	02250058-087	1
2	mounting, bracket oil filter 20/12	02250061-327	1
3	locknut, n4 conduit sealing	02250071-362	4
4	tube, oil stop valve adapter	02250075-105	1
5	mt, filter 80cn full flow	02250075-158	1
6	flange, kit sae splt 2” - viton	02250099-415	3
7	filter, oil assy parker **(II)**	02250111-592	1
8	flange, adapter 2”face/2-1/2”sae	02250139-129	1
9	valve, thermal 220f 2-1/2”sae asy **(III)**	02250139-130	1
10	tube, thrmvlv/flt ls20ts wc	02250139-605	1
11	support, water conn - 2”npt ls20ts	02250140-588	1
12	tube, in/thrmvlv ls20ts rmt ac	02250147-426	1
13	tube, out/thrmvlv ls20ts rmt ac	02250147-428	1
14	tube, elb/elb ls20ts rmt ac	02250147-430	2
15	switch, temperature n.o. 150f 1/2”npt	02250147-880	1
16	valve, check 2” sae insert **(IV)**	02250148-367	1
17	adapter, sae block-2” ls20ts	02250155-077	1
18	valve, check 1/2”	042694	1
19	nipple, conduit 1/2 x 1.5”	250007-169	1
20	coupling, conduit rigid	250007-179	1
21	nipple, pipe-xs 316s 1/4 x cl	250019-142	1
22	fitting, compress adj	250028-635	1
23	valve, oil stop 2” sae code 61 **(V)**	250041-069	1
24	tee, reducing 300# 2 x 1 1/2 x 2	806708-068	1
25	connector, tube-m 1/2 x 1/2	810208-050	1
26	connector, tube-m 2 x 2	810232-200	1

Continued on page 67

(I) For maintenance on rtd probe no. 0225058-087, order replacement probe no. 02250058-087.

(II) For maintenance on oil filter no. 02250111-592, order replacement element no. 250031-850.

(III) For maintenance on thermal valve no. 02250139-130, order repair kit no. 02250139-865.

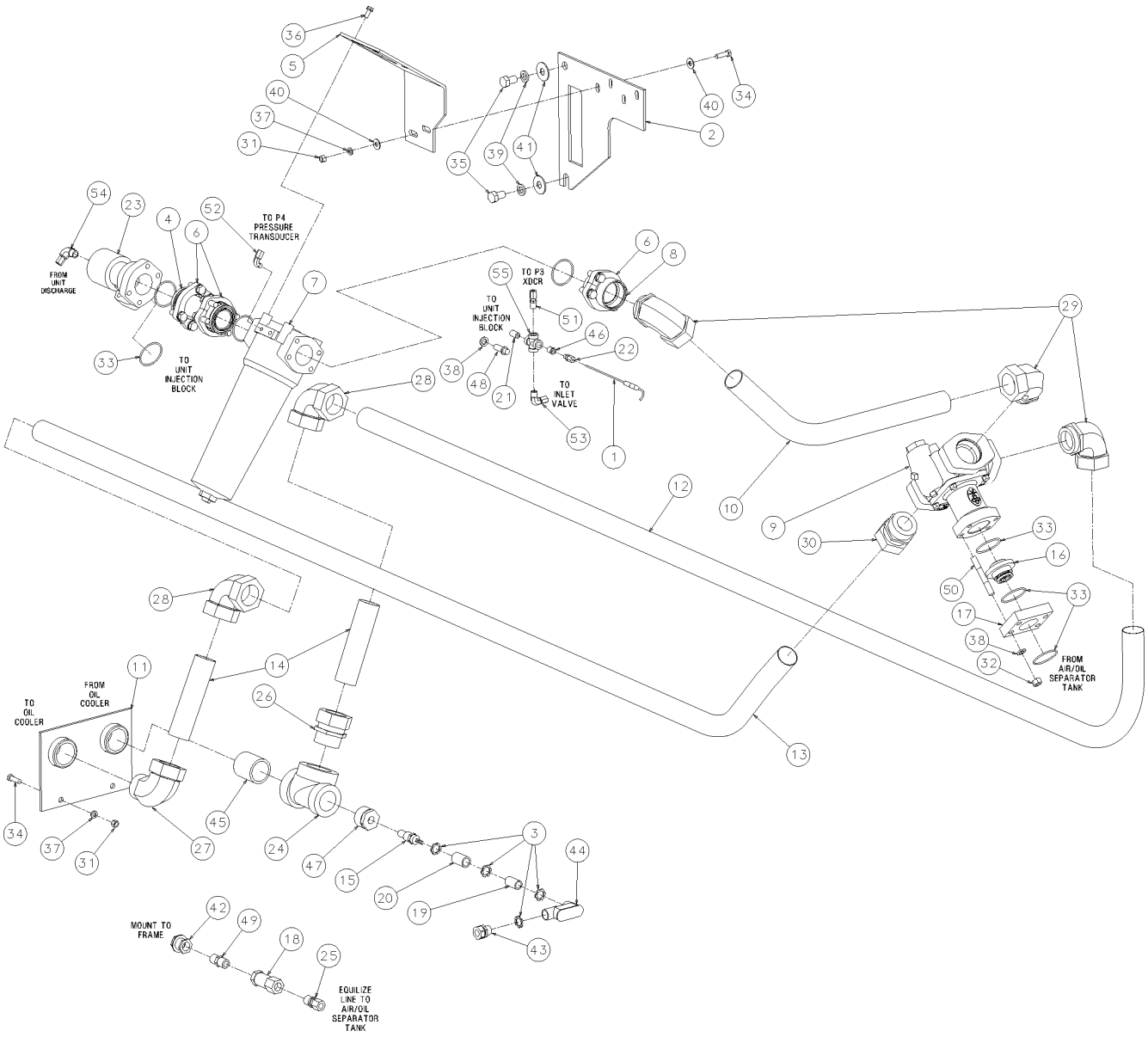
(IV) For maintenance on check valve no. 02250148-367, order replacement valve no. 02250148-367.

(V) For maintenance on oil stop valve no. 250041-069, order repair kit no. 02250051-747.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.12 FLUID PIPING SYSTEM- 300-450/224-336KW AIR-COOLED



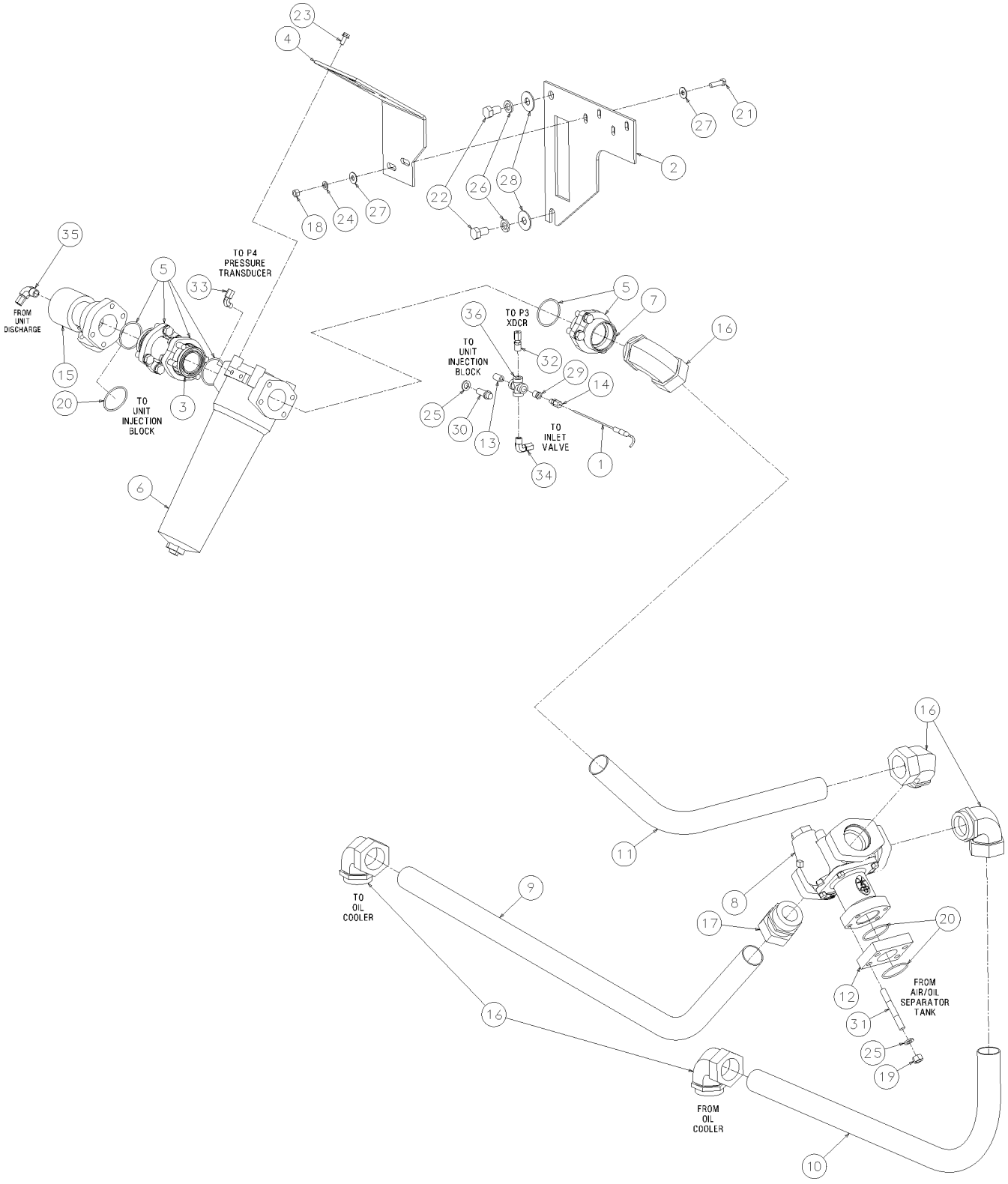
9.12 FLUID PIPING SYSTEM- 300-450/224-336KW AIR-COOLED (CONTINUED)

key number	description	*part* number	quantity
27	elbow, tube 90 deg m 2 x 2	810532-200	1
28	elbow, tube union 2	811232-200	2
29	elbow, tube str thrd 2 x 2 1/2	811632-250	3
30	connector, tube str thd 2 x 2 1/2	811832-250	1
31	nut, hex pltd 3/8-16	825206-337	4
32	nut, hex pltd 1/2-13	825208-448	4
33	o-ring, viton 2 1/4 x 1/8”	826502-228	4
34	capscrew, hex gr5 3/8-16 x 1 1/4	829106-125	4
35	capscrew, hex gr5 5/8-11 x 1	829110-100	2
36	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
37	washer, spr lock reg pltd 3/8	837806-094	4
38	washer, spr lock reg pltd 1/2	837808-125	8
39	washer, spr lock reg pltd 5/8	837810-156	2
40	washer, pl-b reg pltd 3/8	838206-071	4
41	washer, pl-b reg pltd 5/8	838210-112	2
42	bulkhead, pipe 1/2” npt	841500-008	1
43	connector, straight lq-tite 1/2	846400-050	1
44	elbow, entrance 1/2	847715-050	1
45	nipple, pipe-xs plt 2 x 2 1/2	866432-025	1
46	bushing, red pltd 1/4 x 1/8	867100-005	1
47	bushing, red pltd 1 1/2 x 1/2	867106-020	1
48	capscrew, ferry head hd pltd 1/2-13 x 1 1/4	867308-125	4
49	nipple, pipe-hx pltd 1/2 x 1/2	868508-050	1
50	stud, threaded 1/2-13 x 4 plt	873808-040	4
51	connector, tube-m 1/4 x 1/4 ss	876804-025	1
52	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	1
53	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
54	elbow, tube 90 deg m 1/4 x 3/8 ss	877004-038	1
55	cross, pipe 1/4” 2000# ss	879000-010	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.13 FLUID PIPING SYSTEM- 300-450/224-336KW WATER-COOLED



02250156-431R00

9.13 FLUID PIPING SYSTEM- 300-450/224-336KW WATER-COOLED

key number	description	*part* number	quantity
1	probe, rtd 100 ohm plat 6”x 20ft **(I)**	02250058-087	1
2	mounting, bracket oil filter 20/12	02250061-327	1
3	tube, oil stop valve adapter	02250075-105	1
4	mt, filter 80cn full flow	02250075-158	1
5	flange, kit sae splt 2” - viton	02250099-415	3
6	filter, oil assy parker **(II)**	02250111-592	1
7	flange, adapter 2”face/2-1/2”sae	02250139-129	1
8	valve, thermal 220f 2-1/2”sae asy **(III)**	02250139-130	1
9	tube, thrmvlv/clr ls20ts wc	02250139-601	1
10	tube, clr/thrmvlv ls20ts wc	02250139-603	1
11	tube, thrmvlv/flt ls20ts wc	02250139-605	1
12	adapter, sae block-2” ls20ts	02250155-077	1
13	nipple, pipe-xs 316s 1/4 x cl	250019-142	1
14	fitting, compress adj	250028-635	1
15	valve, oil stop 2” sae code 61 **(IV)**	250041-069	1
16	elbow, tube str thrd 2 x 2 1/2	811632-250	5
17	connector, tube str thd 2 x 2 1/2	811832-250	1
18	nut, hex pltd 3/8-16	825206-337	2
19	nut, hex pltd 1/2-13	825208-448	4
20	o-ring, viton 2 1/4 x 1/8”	826502-228	4
21	capscrew, hex gr5 3/8-16 x 1 1/4	829106-125	2
22	capscrew, hex gr5 5/8-11 x 1	829110-100	2
23	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
24	washer, spr lock reg pltd 3/8	837806-094	2
25	washer, spr lock reg pltd 1/2	837808-125	8
26	washer, spr lock reg pltd 5/8	837810-156	2
27	washer, pl-b reg pltd 3/8	838206-071	4
28	washer, pl-b reg pltd 5/8	838210-112	2

Continued on page 71

(I) For maintenance on rtd probe no. 0225058-087, order replacement probe no. 02250058-087.

(II) For maintenance on fluid filter no. 02250111-592, order replacement element no. 250031-850.

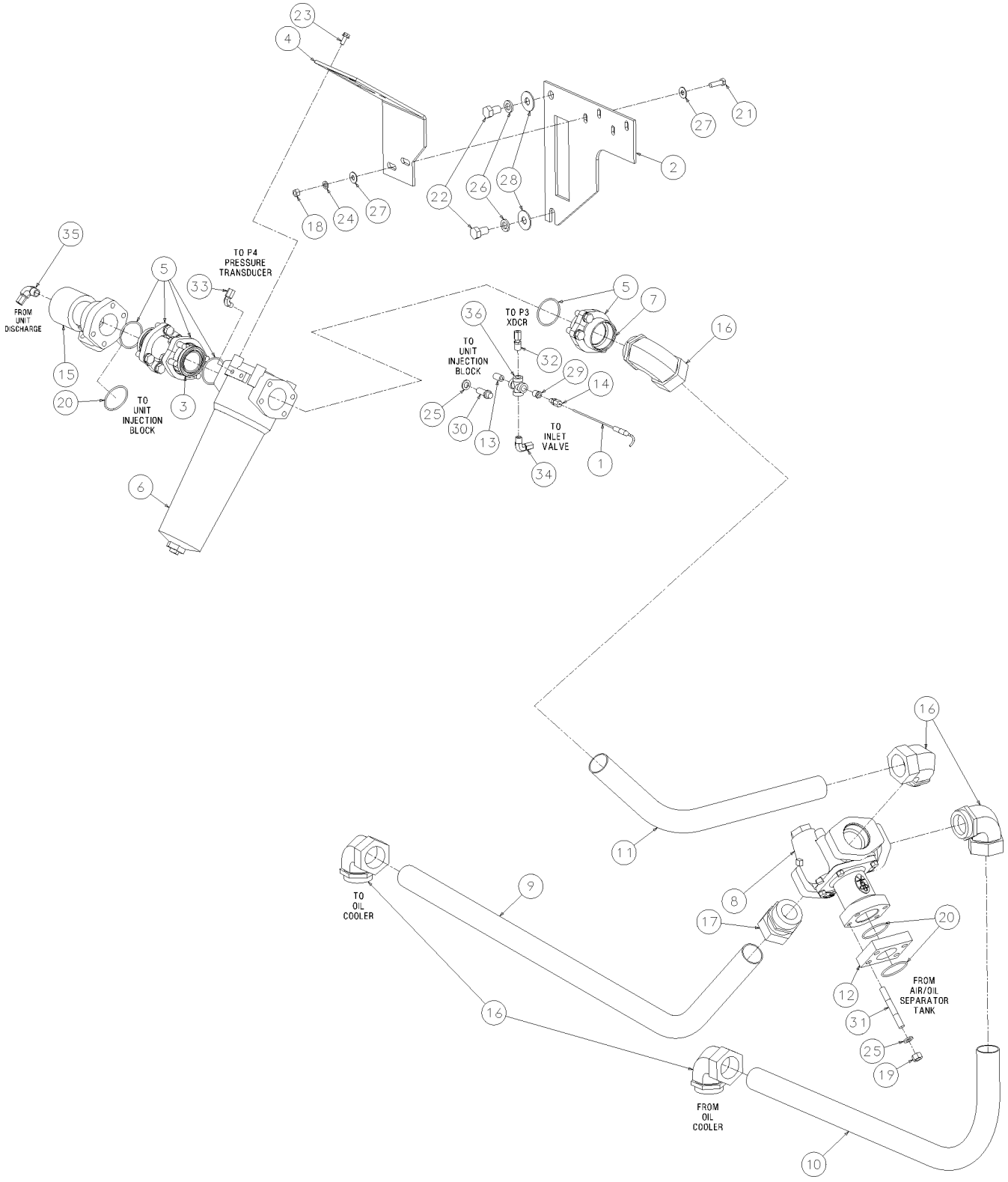
(III) For maintenance on thermal valve no. 02250139-130, order repair kit no. 02250139-865.

(IV) For maintenance on oil stop valve no. 250041-069, order repair kit no. 02250051-747.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.13 FLUID PIPING SYSTEM- 300-450/224-336KW WATER-COOLED



02250156-431R00

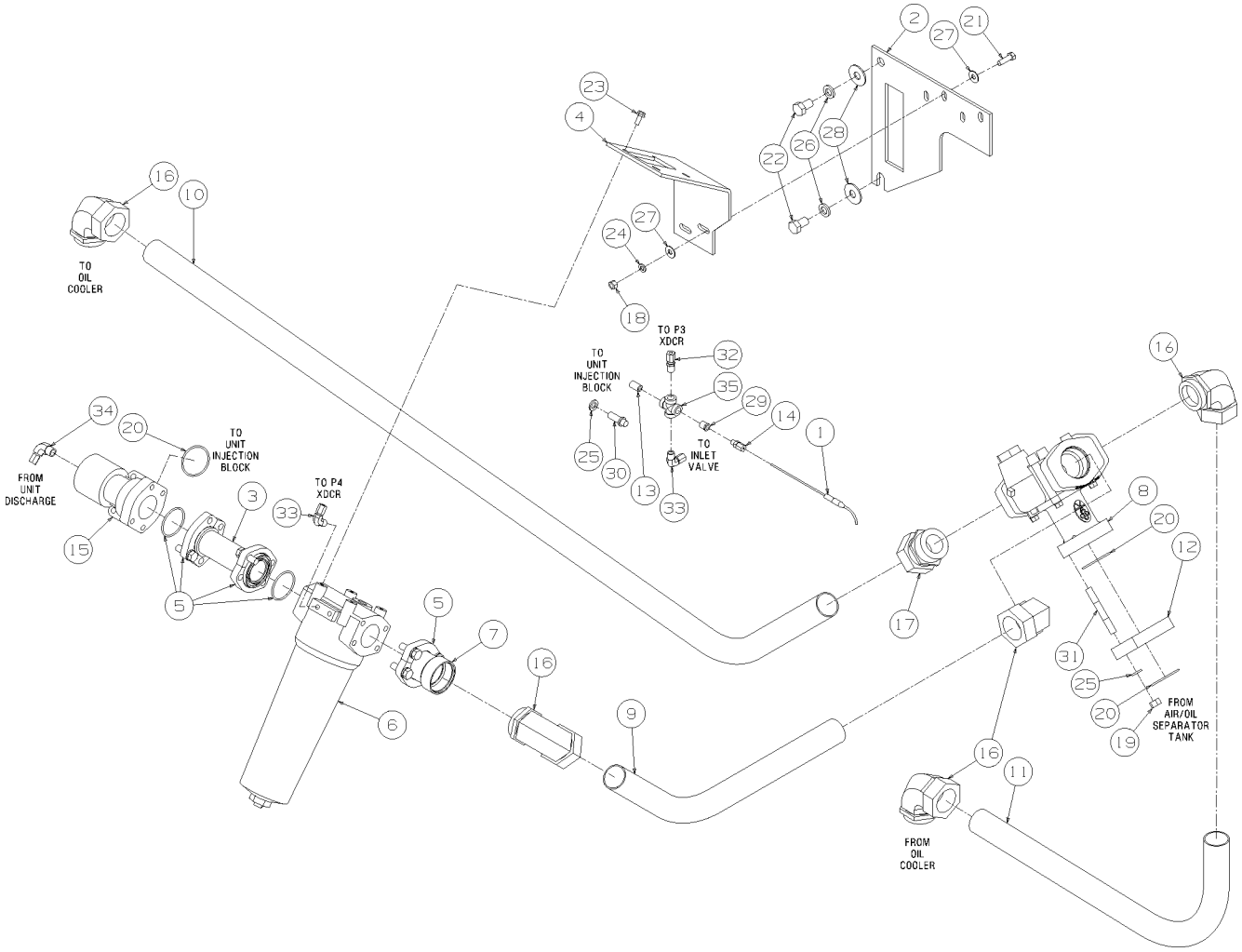
9.13 FLUID PIPING SYSTEM- 300-450/224-336KW WATER-COOLED (CONTINUED)

key number	description	*part* number	quantity
29	bushing, red pltd 1/4 x 1/8	867100-005	1
30	capscrew, ferry head hd pltd 1/2-13 x 1 1/4	867308-125	4
31	stud, threaded 1/2-13 x 4 plt	873808-040	4
32	connector, tube-m 1/4 x 1/4 ss	876804-025	1
33	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	1
34	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
35	elbow, tube 90 deg m 1/4 x 3/8 ss	877004-038	1
36	cross, pipe 1/4” 2000# ss	879000-010	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.14 FLUID PIPING SYSTEM- 500-600/373-447KW WATER-COOLED



02250139-585R01

9.14 FLUID PIPING SYSTEM- 500-600/373-447KW WATER-COOLED

key number	description	*part* number	quantity
1	probe, rtd 100 ohm plat 6”x 20ft **(I)**	02250058-087	1
2	mounting, bracket oil filter 20/12	02250061-327	1
3	tube, oil stop valve adapter	02250075-105	1
4	mt, filter 80cn full flow	02250075-158	1
5	flange, kit sae splt 2” - viton	02250099-415	3
6	filter, oil assy parker **(II)**	02250111-592	1
7	flange, adapter 2”face/2-1/2”sae	02250139-129	1
8	valve, thermal 220f 2-1/2”sae asy **(III)**	02250139-130	1
9	tube, thrmvlv/flt ls20ts wc	02250139-605	1
10	tube, clr/thrmvlv ls20ts wc	02250152-564	1
11	tube, thrmvlv/clr ls20ts wc	02250152-566	1
12	adapter, sae block-2” ls20ts	02250155-077	1
13	nipple, pipe-xs 316s 1/4 x cl	250019-142	1
14	fitting, compress adj	250028-635	1
15	valve, oil stop 2” sae code 6 **(IV)**	250041-069	1
16	elbow, tube str thrd 2 x 2 1/2	811632-250	5
17	connector, tube str thd 2 x 2 1/2	811832-250	1
18	nut, hex pltd 3/8-16	825206-337	2
19	nut, hex pltd 1/2-13	825208-448	4
20	o-ring, viton 2 1/4 x 1/8”	826502-228	3
21	capscrew, hex gr5 3/8-16 x 1 1/4	829106-125	2
22	capscrew, hex gr5 5/8-11 x 1	829110-100	2
23	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
24	washer, spr lock reg pltd 3/8	837806-094	2
25	washer, spr lock reg pltd 1/2	837808-125	8
26	washer, spr lock reg pltd 5/8	837810-156	2
27	washer, pl-b reg pltd 3/8	838206-071	4

Continued on page 75

(I) For maintenance on rtd probe no. 0225058-087, order replacement probe no. 02250058-087.

(II) For maintenance on fluid filter no. 02250111-592, order replacement element no. 250031-850.

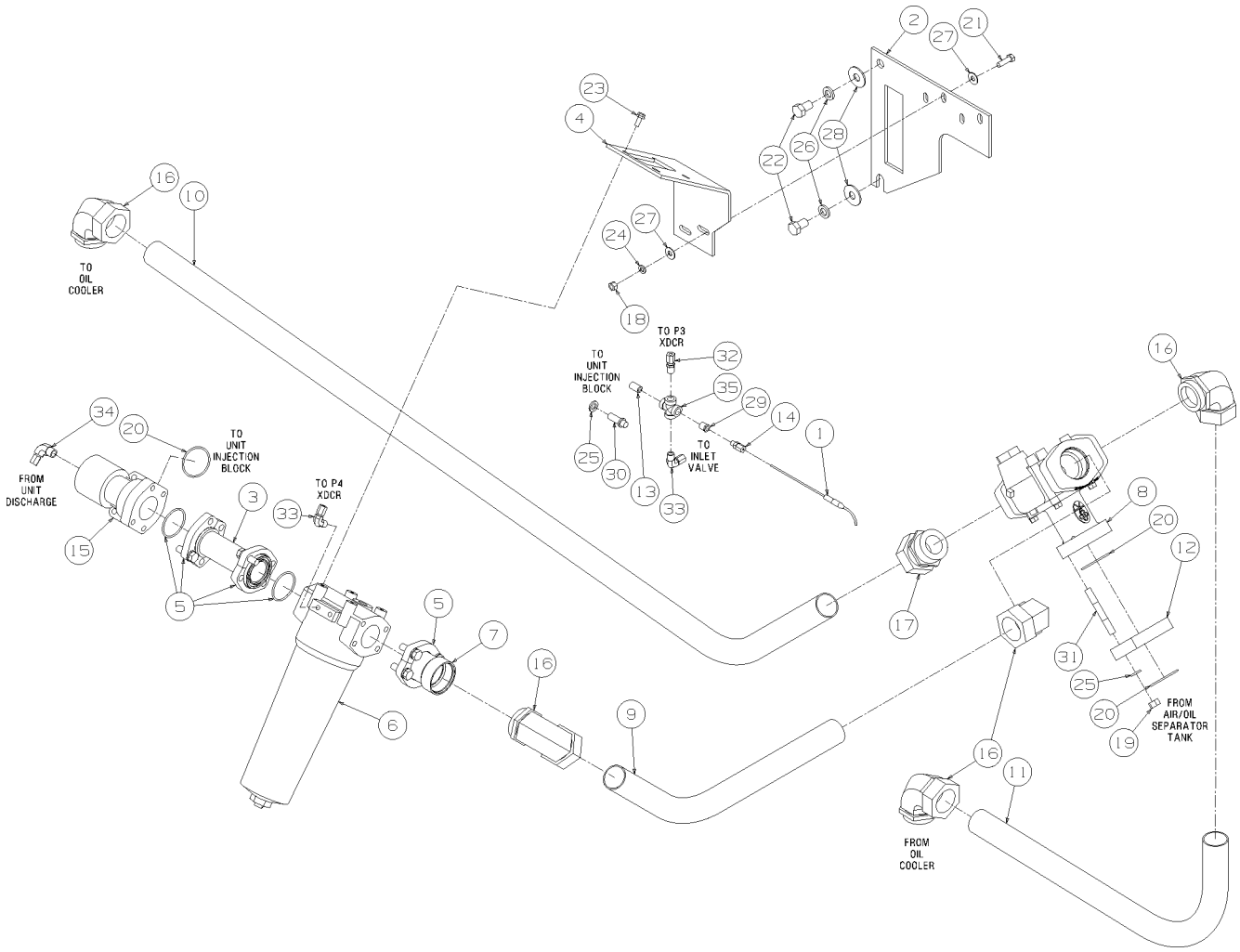
(III) For maintenance on thermal valve no. 02250139-130, order repair kit no. 02250139-865.

(IV) For maintenance on oil stop valve no. 250041-069, order repair kit no. 02250051-747.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.14 FLUID PIPING SYSTEM- 500-600/373-447KW WATER-COOLED



02250139-585R01

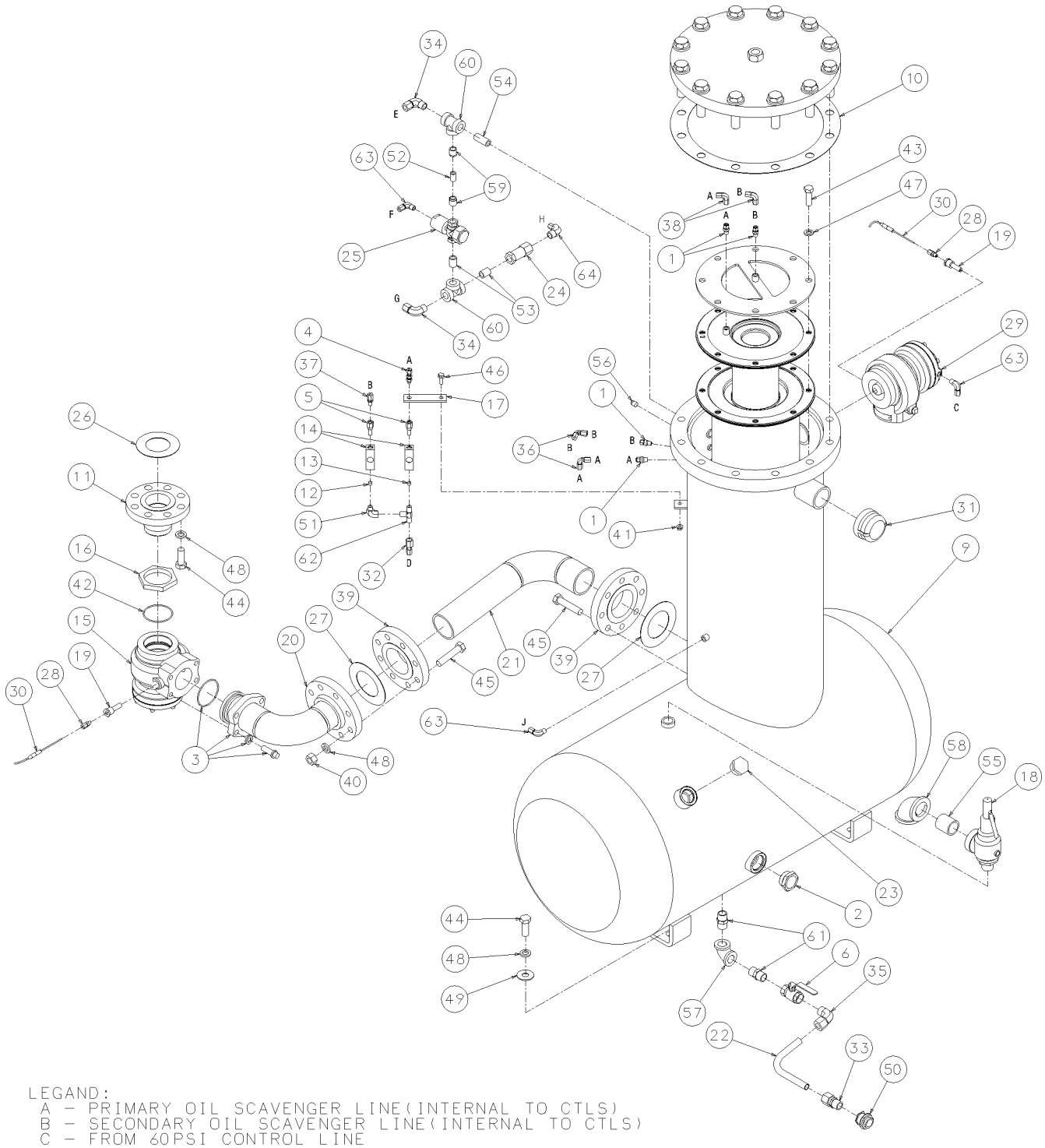
9.14 FLUID PIPING SYSTEM- 500-600/373-447KW WATER-COOLED (CONTINUED)

key number	description	*part* number	quantity
28	washer, pl-b reg pltd 5/8	838210-112	2
29	bushing, red pltd 1/4 x 1/8	867100-005	1
30	capscrew, ferry head hd pltd 1/2-13 x 1 1/4	867308-125	4
31	stud, threaded 1/2-13 x 4 plt	873808-040	4
32	connector, tube-m 1/4 x 1/4 ss	876804-025	1
33	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	2
34	elbow, tube 90 deg m 1/4 x 3/8 ss	877004-038	1
35	cross, pipe 1/4” 2000# ss	879000-010	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW



02250138-950R01

9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW

key number	description	*part* number	quantity
1	connector, flex 1/4t x 1/4p	020169	4
2	plug, sight glass 1-7/8” sae	02250097-611	1
3	flange, kit sae splt 3” - viton	02250100-926	1
4	connector, tube male bhd 1/4 x sae	02250101-490	1
5	filter, assembly genisis filter **(I)**	02250117-782	2
6	valve, ball 3/4” npt apollo	02250117-792	1
7	element, sep/pri ls20ts 500# **(II)**	02250119-666	1
8	element, sep/sec ls20ts 500# **(II)**	02250119-667	1
9	tank, air/oil 24” t-tnk 400psig	02250119-805	1
10	gasket, sep ls20ts 16” flange **(III)**	02250121-188	1
11	adapter, discharge vlv m85 ddh204 hp	02250124-030	1
12	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
13	orifice, plug brass 1/8”npt x 3/32”	02250125-776	1
14	sightglass, orf block sae	02250126-129	2
15	valve, assy 3”x m85 **(IV)**	02250127-507	1
16	nut, hex m85-2 6h	02250130-997	1
17	plate, scav line assy - ls20t	02250132-464	1
18	valve, relief 1” npt 400psi	02250137-688	1
19	sleeve, rtd 1/2”npt ls20t disch	02250138-457	2
20	pipe, discharge assy ls20ts 350#	02250139-146	1
21	pipe, discharge assy ls20ts 350#	02250139-246	1
22	tube, sump drain ls20ts	02250139-622	1
23	plug, o-ring boss sae 1 1/4	040029	1

Continued on page 79

(I) For maintenance on assembly filter no. 02250117-782, order replacement assembly no. 02250117-782.

(II) For separator maintenance, order primary element replacement kit no. 02250122-833, and secondary element replacement kit no. 02250122-832. **NOTE:** Replacement cover gasket (no. 0220121-188) is included with primary element replacement kit.

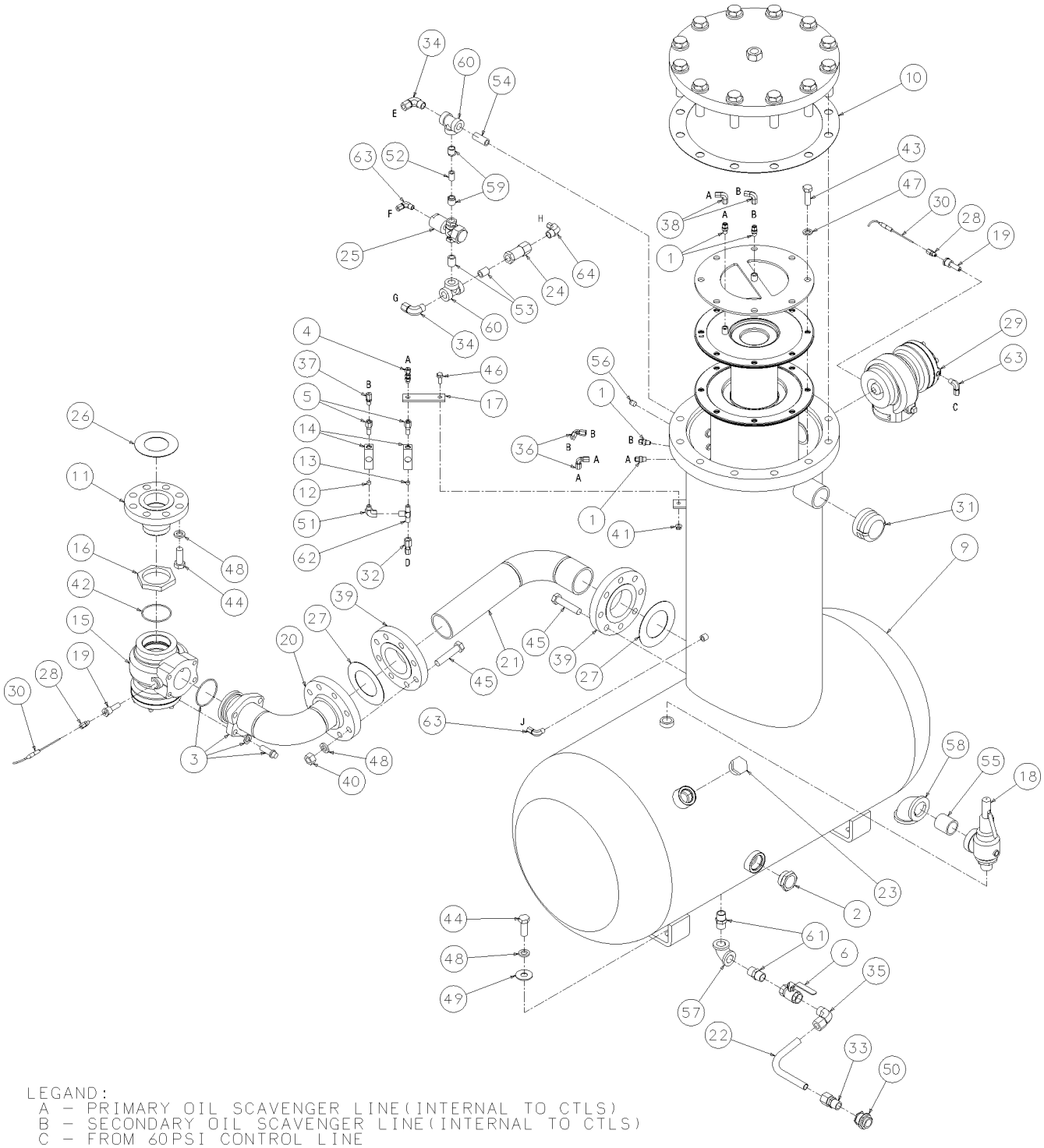
(III) Separator cover gasket must be replaced if the sump lid needs to come off, whether for maintenance or not. Whereas a replacement gasket comes with the primary element replacement kit, gasket no. 02250121-188 can be ordered separately for non-maintenence occasions.

(IV) For maintenance on assembly valve no. 02250127-507, order repair kit no. 606208-001.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW



02250138-950R01

9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW (CONTINUED)

key number	description	*part* number	quantity
24	valve, check 1/2”	042694	1
25	valve, pneu (nc) 500# rn bdv **(V)**	045116	1
26	gasket, asa flange 300# 2-1/2”	240620-007	1
27	gasket, asa flange 300# 3”	240620-008	2
28	fitting, compress adj	250028-635	2
29	sub assembly, vlv min press/chk asm(2.5”) **(VI)**	250031-852	1
30	probe, rtd 100 ohm plat 3.5”x 12ft **(VII)**	250039-909	2
31	cap, pipe 2 1/2 300#	806130-100	1
32	connector, tube-f 1/4 x 1/4	810104-025	1
33	connector, tube-m 3/4 x 3/4	810212-075	1
34	elbow, tube 90 deg m 1/2 x 1/2	810508-050	2
35	elbow, tube 90 deg m 3/4 x 3/4	810512-075	1
36	elbow, tube union 1/4	811204-025	2
37	connector, tube str thd 1/4 x 7/16	811804-044	1
38	elbow, tube union 1/4	812704-025	2
39	flange, slp-on 3” 300#	820230-048	2
40	nut, hex pltd 3/4-10	825212-665	16
41	nut, hex f pltd 3/8-16	825306-347	1
42	o-ring, viton 3 1/4 x 1/8”	826502-236	1
43	capscrew, hex gr5 5/8-11 x 2	829110-200	8
44	capscrew, hex gr5 3/4-10 x 2	829112-200	12
45	capscrew, hex gr5 3/4-10 x 3 1/2	829112-350	16
46	screw, hex ser washer 3/8-16 x 1	829706-100	1
47	washer, spr lock reg pltd 5/8	837810-156	8
48	washer, spr lock reg pltd 3/4	837812-188	28
49	washer, pl-b reg pltd 3/4	838212-112	4
50	bulkhead, pipe 3/4” npt	841500-012	1
51	elbow, pipe 90m/f 1/4 x 1/4	860704-025	1

Continued on page 81

(V) For maintenance on pneumatic valve no. 045116, order repair kit no. 047524.

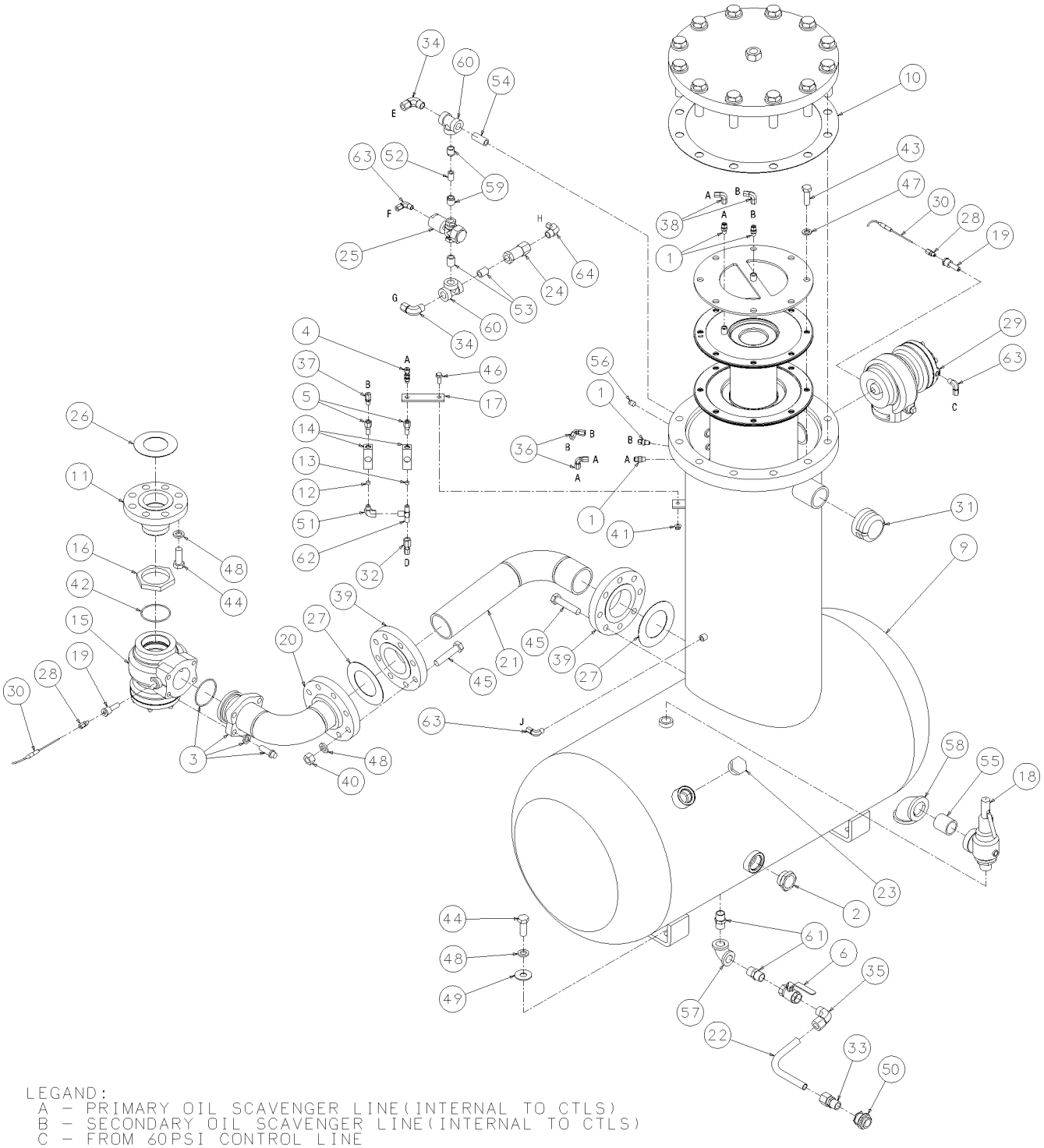
(VI) For maintenance on minimum pressure check valve sub-assembly no. 250031-852, order repair kit no. 02250044-196.

(VII) For maintenance on rtd probe no. 250039-909, order replacement probe no. 250039-909 (qty of 2).

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW



LEGAND:
A – PRIMARY OIL SCAVENGER LINE(INTERNAL TO CTLS)
B – SECONDARY OIL SCAVENGER LINE(INTERNAL TO CTLS)
C – FROM 60PSI CONTROL LINE
D – TO UNIT SECOND STAGE
E – TO CONTROL LINE FILTER
F – FROM BLOWDOWN SOLENOID VALVE
G – TO INLET TUBE
H – TO INLET POPPET VALVE
J – TO P1 TRANSDUCER

02250138-950R01

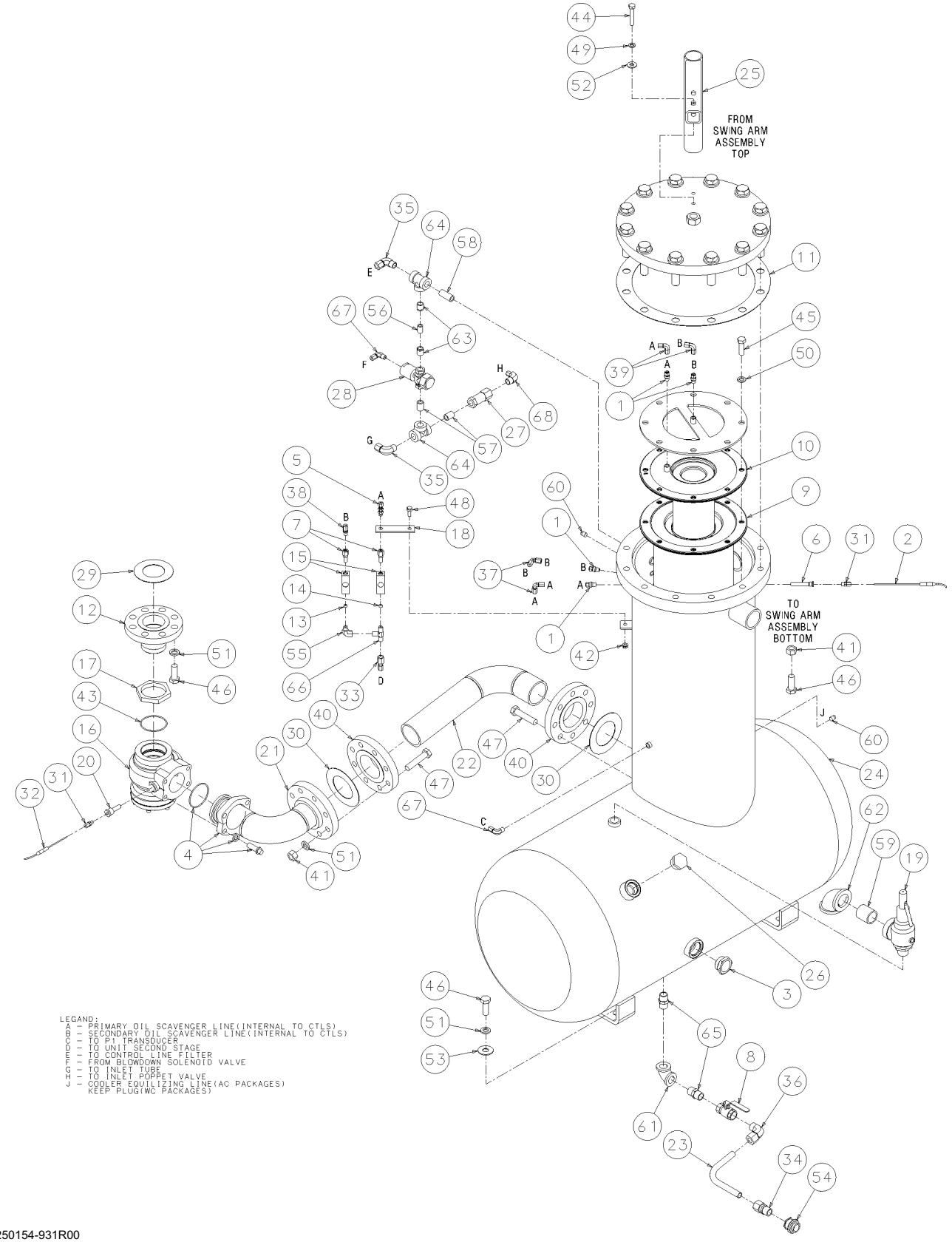
9.15 DISCHARGE SYSTEM - 300-450HP/224-336KW (CONTINUED)

key number	description	*part* number	quantity
52	nipple, pipe-xs plt 3/8 x cl	866406-000	1
53	nipple, pipe-xs plt 1/2 x cl	866408-000	2
54	nipple, pipe-xs plt 1/2 x 2	866408-020	1
55	nipple, pipe-xs plt 1 1/2 x 2	866424-020	1
56	plug, pipe 1/4” 3000# stl plt	866900-010	1
57	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
58	elbow, pipe 90 deg 300# plt 1 1/2”	867030-060	1
59	bushing, red pltd 1/2 x 3/8	867102-015	2
60	tee, pipe pltd 1/2	868430-020	2
61	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	2
62	tee, male pipe brass 1/4	869825-025	1
63	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	3
64	elbow, tube 90 deg m 1/4 x 1/2 ss	877004-050	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID



02250154-931R00

9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID

key number	description	*part* number	quantity
1	connector, flex 1/4t x 1/4p	020169	4
2	probe, rtd 100 ohm plat 6”x 20ft **(I)**	02250058-087	1
3	plug, sight glass 1-7/8” sae	02250097-611	1
4	flange, kit sae splt 3” - viton	02250100-926	1
5	connector, tube male bhd 1/4 x sae	02250101-490	1
6	sleeve, rtd ls20-100 out housing	02250116-089	1
7	filter, assembly genisis filter **(II)**	02250117-782	2
8	valve, ball 3/4” npt apollo	02250117-792	1
9	element, sep/pri ls20ts 500# **(III)**	02250119-666	1
10	element, sep/sec ls20ts 500# **(III)**	02250119-667	1
11	gasket, sep ls20ts 16” flange **(IV)**	02250121-188	1
12	adapter, discharge vlv m85 ddh204 hp	02250124-030	1
13	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
14	orifice, plug brass 1/8”npt x 3/32”	02250125-776	1
15	sightglass, orf block sae	02250126-129	2
16	valve, assy 3”x m85 **(V)**	02250127-507	1
17	nut, hex m85-2 6h	02250130-997	1
18	plate, scav line assy - ls20t	02250132-464	1
19	valve, relief 1” npt 400psi	02250137-688	1
20	sleeve, rtd 1/2”npt ls20t disch	02250138-457	1
21	pipe, discharge assy ls20ts 350#	02250139-146	1

Continued on page 85

(I) For maintenance on rtd probe no. 0225058-087, order replacement probe no. 02250058-087.

(II) For maintenance on assembly filter no. 02250117-782, order replacement assembly no. 02250117-782.

(III) For separator maintenance, order primary element replacement kit no. 02250122-833, and secondary element replacement kit no. 02250122-832. **NOTE:** Replacement cover gasket (no. 0220121-188) is included with primary element replacement kit.

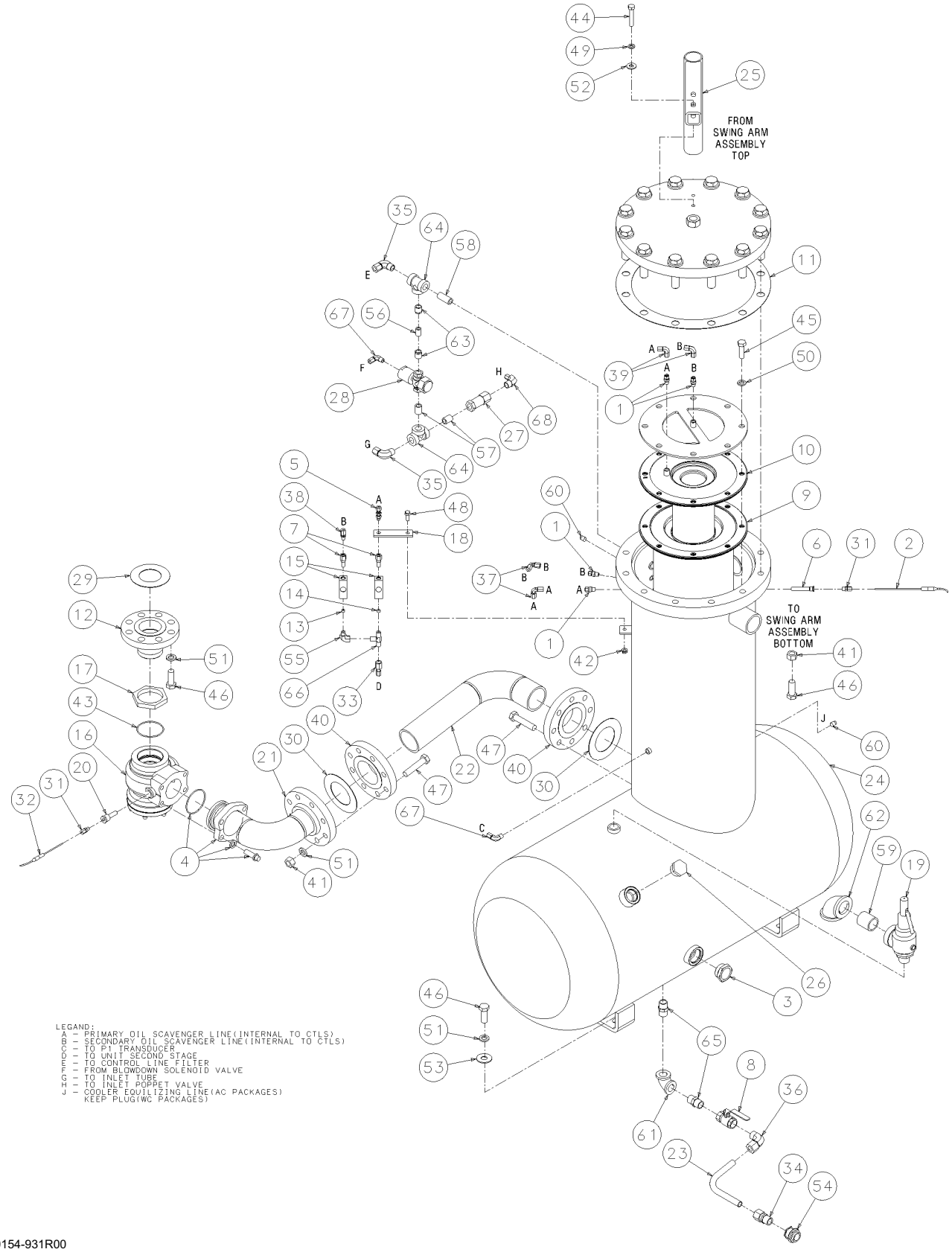
(IV) Separator cover gasket must be replaced if the sump lid needs to come off, whether for maintenance or not. Whereas a replacement gasket comes with the primary element replacement kit, gasket no. 02250121-188 can be ordered separately for non-maintenence occasions.

(V) For maintenance on assembly valve no. 02250127-507, order repair kit no. 606208-001.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID



02250154-931R00

9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID (CONTINUED)

key number	description	*part* number	quantity
22	pipe, discharge assy ls20ts 350#	02250139-246	1
23	tube, sump drain ls20ts	02250139-622	1
24	tank, air-oil ls20ts 400#	02250154-918	1
25	boom, tank lid - ls20ts	02250155-104	1
26	plug, o-ring boss sae 1 1/4	040029	1
27	valve, check 1/2”	042694	1
28	valve, pneu (nc) 500# rn bdv **(VI)**	045116	1
29	gasket, asa flange 300# 2-1/2”	240620-007	1
30	gasket, asa flange 300# 3”	240620-008	2
31	fitting, compress adj	250028-635	2
32	probe, rtd 100 ohm plat 3.5”x 12ft **(VII)**	250039-909	1
33	connector, tube-f 1/4 x 1/4	810104-025	1
34	connector, tube-m 3/4 x 3/4	810212-075	1
35	elbow, tube 90 deg m 1/2 x 1/2	810508-050	2
36	elbow, tube 90 deg m 3/4 x 3/4	810512-075	1
37	elbow, tube union 1/4	811204-025	2
38	connector, tube str thd 1/4 x 7/16	811804-044	1
39	elbow, tube union 1/4	812704-025	2
40	flange, slp-on 3” 300#	820230-048	2
41	nut, hex pltd 3/4-10	825212-665	17
42	nut, hex f pltd 3/8-16	825306-347	1
43	o-ring, viton 3 1/4 x 1/8”	826502-236	1
44	capscrew, hex gr5 1/2-13 x 2 3/4	829108-275	2
45	capscrew, hex gr5 5/8-11 x 2	829110-200	8
46	capscrew, hex gr5 3/4-10 x 2	829112-200	13
47	capscrew, hex gr5 3/4-10 x 3 1/2	829112-350	16
48	screw, hex ser washer 3/8-16 x 1	829706-100	1
49	washer, spr lock reg pltd 1/2	837808-125	2
50	washer, spr lock reg pltd 5/8	837810-156	8

Continued on page 87

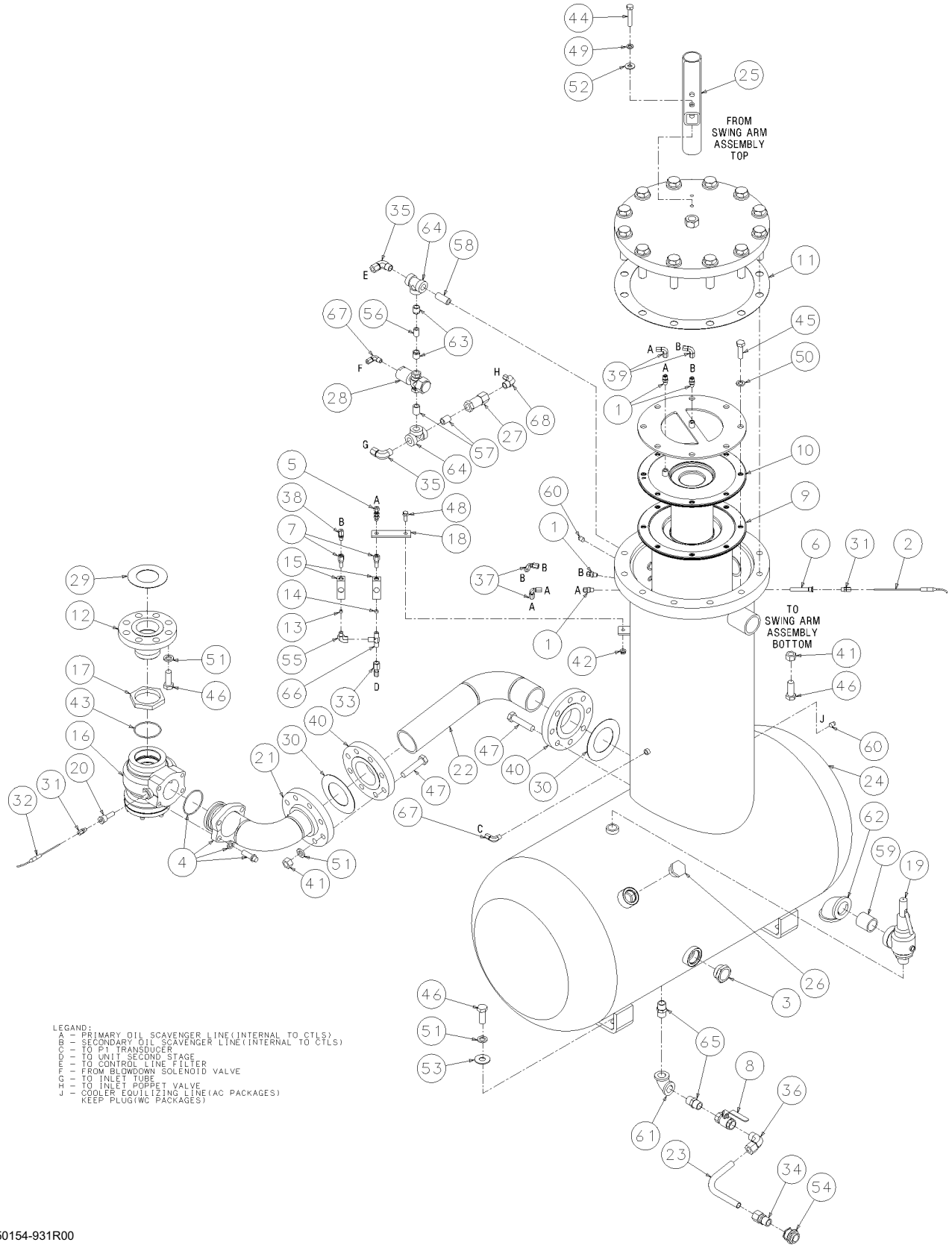
(VI) For maintenance on pneumatic valve no. 045116, order repair kit no. 047524.

(VII) For maintenance on rtd probe no. 250039-909, order replacement probe no. 250039-909 (qty of 2).

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID



02250154-931R00

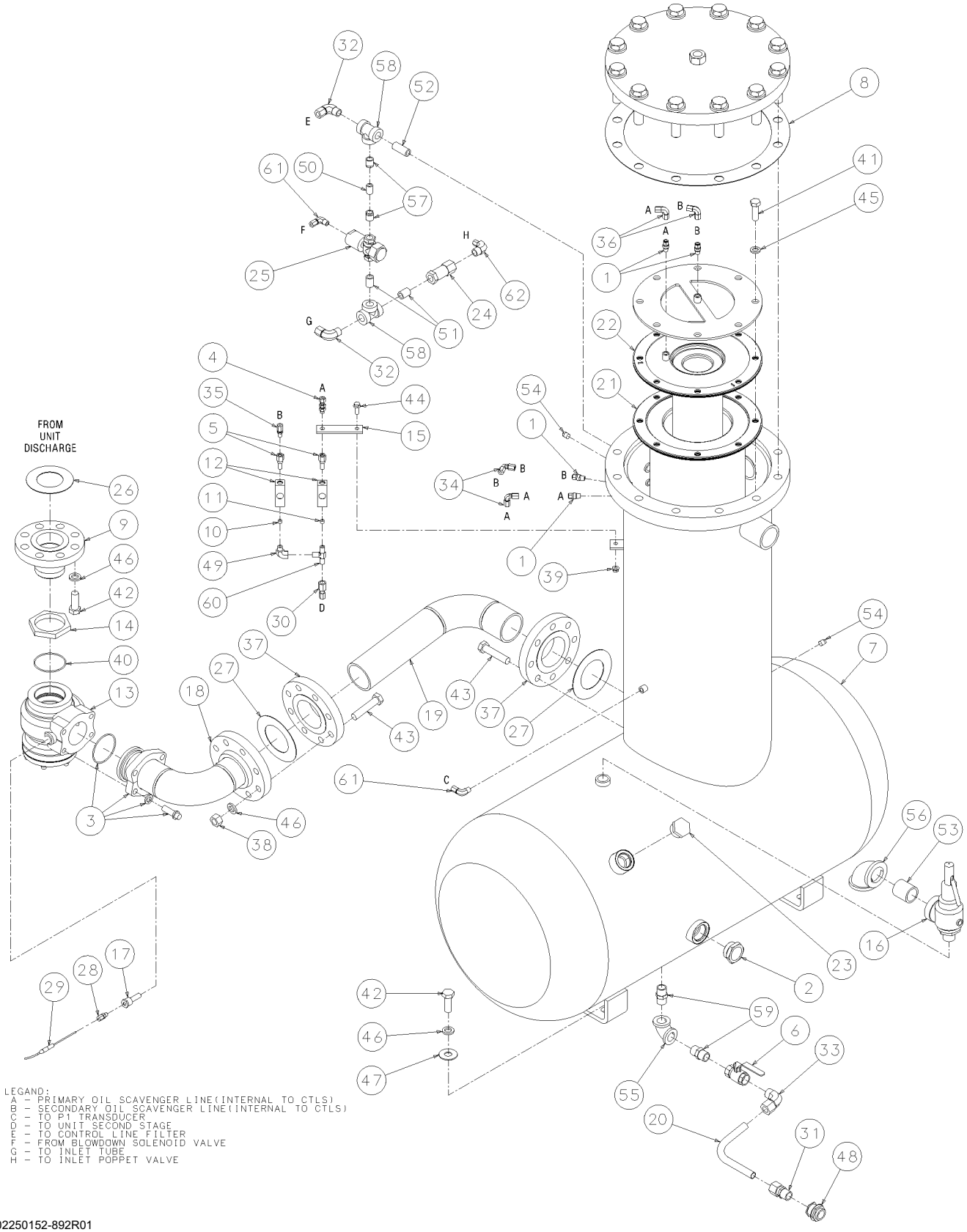
9.16 DISCHARGE SYSTEM - 300-450HP/224-336KW WITH SWING LID (CONTINUED)

key number	description	*part* number	quantity
51	washer, spr lock reg pltd 3/4	837812-188	28
52	washer, pl-b reg pltd 1/2	838208-112	2
53	washer, pl-b reg pltd 3/4	838212-112	4
54	bulkhead, pipe 3/4” npt	841500-012	1
55	elbow, pipe 90m/f 1/4 x 1/4	860704-025	1
56	nipple, pipe-xs plt 3/8 x cl	866406-000	1
57	nipple, pipe-xs plt 1/2 x cl	866408-000	2
58	nipple, pipe-xs plt 1/2 x 2	866408-020	1
59	nipple, pipe-xs plt 1 1/2 x 2	866424-020	1
60	plug, pipe 1/4” 3000# stl plt	866900-010	2
61	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
62	elbow, pipe 90 deg 300# plt 1 1/2”	867030-060	1
63	bushing, red pltd 1/2 x 3/8	867102-015	2
64	tee, pipe pltd 1/2	868430-020	2
65	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	2
66	tee, male pipe brass 1/4	869825-025	1
67	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	2
68	elbow, tube 90 deg m 1/4 x 1/2 ss	877004-050	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.17 DISCHARGE SYSTEM - 500-600HP/373-447KW



02250152-892R01

9.17 DISCHARGE SYSTEM - 500-600HP/373-447KW

key number	description	*part* number	quantity
1	connector, flex 1/4t x 1/4p	020169	4
2	plug, sight glass 1-7/8” sae	02250097-611	1
3	flange, kit sae splt 3” - viton	02250100-926	1
4	connector, tube male bhd 1/4 x sae	02250101-490	1
5	filter, assembly genisis filter **(I)**	02250117-782	2
6	valve, ball 3/4” npt apollo	02250117-792	1
7	tank, air/oil 24” t-tnk 400psig	02250119-805	1
8	gasket, sep ls20ts 16” flange	02250121-188	1
9	adapter, discharge vlv m85 ddh204 hp	02250124-030	1
10	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
11	orifice, plug brass 1/8”npt x 3/32”	02250125-776	1
12	sightglass, orf block sae	02250126-129	2
13	valve, assy 3”x m85 **(II)**	02250127-507	1
14	nut, hex m85-2 6h	02250130-997	1
15	plate, scav line assy - ls20t	02250132-464	1
16	valve, relief 1” npt 400psi	02250137-688	1
17	sleeve, rtd 1/2”npt ls20t disch	02250138-457	1
18	pipe, discharge assy ls20ts 350#	02250139-146	1
19	pipe, discharge assy ls20ts 350#	02250139-246	1
20	tube, sump drain ls20ts	02250139-622	1
21	element, sep/pri ls20ts-500/600 **(III)**	02250152-893	1
22	element, sep/sec ls20ts-500/600 **(III)**	02250152-894	1
23	plug, o-ring boss sae 1 1/4	040029	1
24	valve, check 1/2”	042694	1
25	valve, pneu (nc) 500# rn bdv **(IV)**	045116	1
26	gasket, asa flange 300# 2-1/2”	240620-007	1
27	gasket, asa flange 300# 3”	240620-008	2

Continued on page 91

(I) For maintenance on assembly filter no. 02250117-782, order replacement assembly no. 02250117-782.

(II) For maintenance on assembly valve no. 02250127-507, order repair kit no. 606208-001.

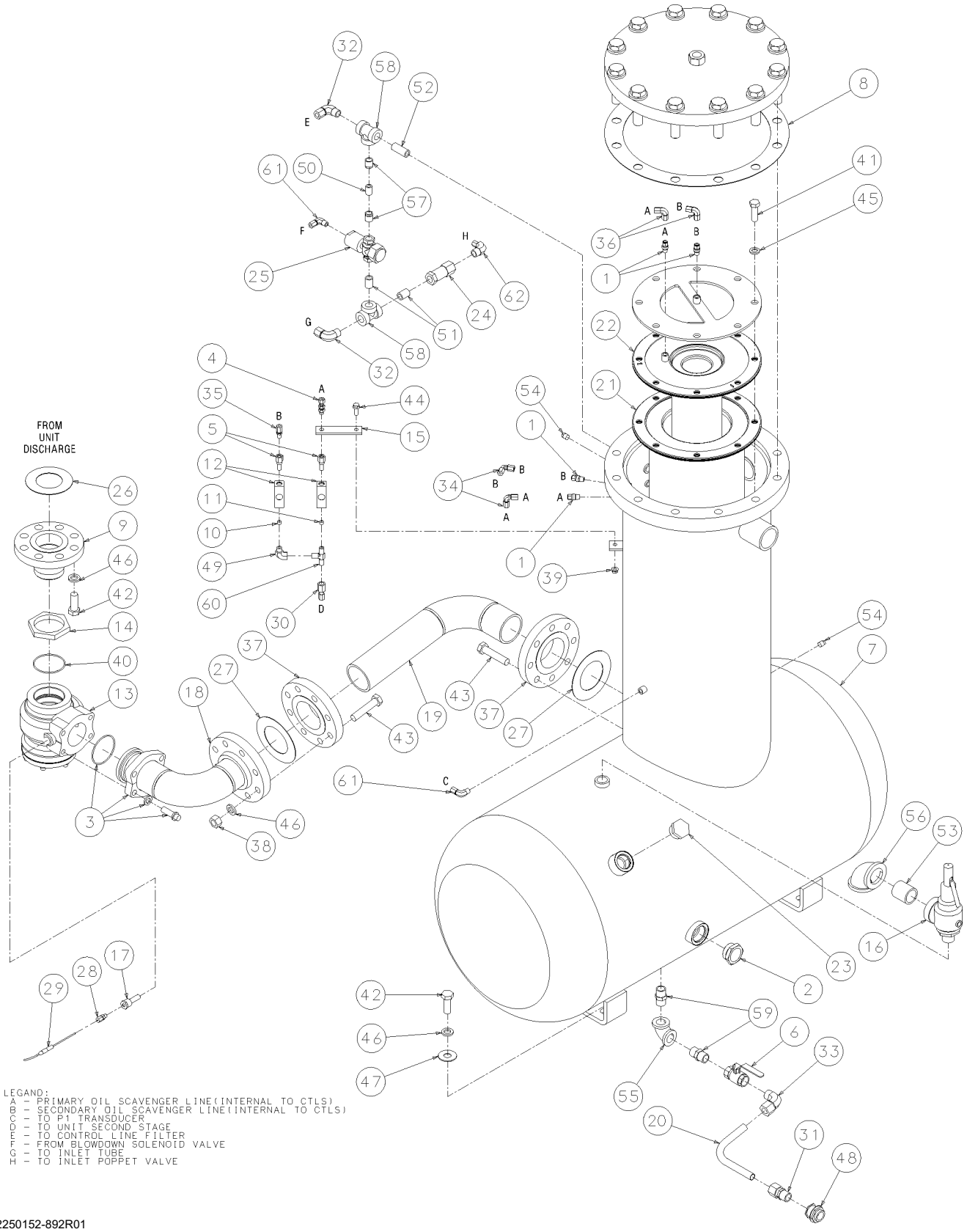
(III) For separator maintenance, order primary element replacement kit no. 02250158-170, and secondary element replacement kit no. 02250152-901. **NOTE:** Replacement cover gasket (no. 0220121-188) is included with primary element replacement kit.

(IV) For maintenance on pneumatic valve no. 045116, order repair kit no. 047524.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.17 DISCHARGE SYSTEM - 500-600HP/373-447KW



02250152-892R01

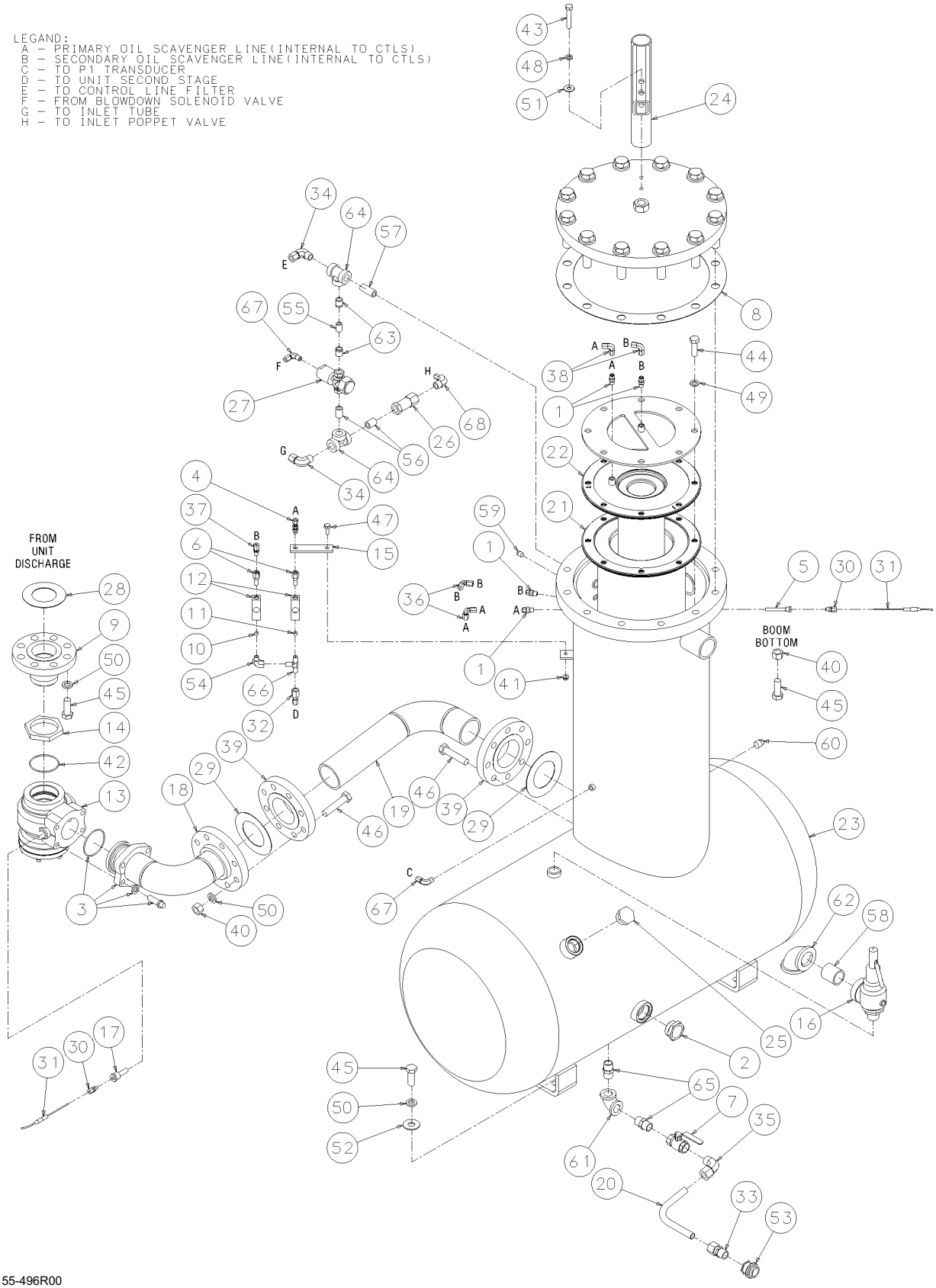
9.17 DISCHARGE SYSTEM - 500-600HP/373-447KW (CONTINUED)

key number	description	*part* number	quantity
28	fitting, compress adj	250028-635	1
29	probe, rtd 100 ohm plat 3.5”x 12ft **(V)**	250039-909	1
30	connector, tube-f 1/4 x 1/4	810104-025	1
31	connector, tube-m 3/4 x 3/4	810212-075	1
32	elbow, tube 90 deg m 1/2 x 1/2	810508-050	2
33	elbow, tube 90 deg m 3/4 x 3/4	810512-075	1
34	elbow, tube union 1/4	811204-025	2
35	connector, tube str thd 1/4 x 7/16	811804-044	1
36	elbow, tube union 1/4	812704-025	2
37	flange, slp-on 3” 300#	820230-048	2
38	nut, hex pltd 3/4-10	825212-665	16
39	nut, hex f pltd 3/8-16	825306-347	1
40	o-ring, viton 3 1/4 x 1/8”	826502-236	1
41	capscrew, hex gr5 5/8-11 x 2	829110-200	8
42	capscrew, hex gr5 3/4-10 x 2	829112-200	12
43	capscrew, hex gr5 3/4-10 x 3 1/2	829112-350	16
44	screw, hex ser washer 3/8-16 x 1	829706-100	1
45	washer, spr lock reg pltd 5/8	837810-156	8
46	washer, spr lock reg pltd 3/4	837812-188	28
47	washer, pl-b reg pltd 3/4	838212-112	4
48	bulkhead, pipe 3/4” npt	841500-012	1
49	elbow, pipe 90m/f 1/4 x 1/4	860704-025	1
50	nipple, pipe-xs plt 3/8 x cl	866406-000	1
51	nipple, pipe-xs plt 1/2 x cl	866408-000	2
52	nipple, pipe-xs plt 1/2 x 2	866408-020	1
53	nipple, pipe-xs plt 1 1/2 x 2	866424-020	1
54	plug, pipe 1/4” 3000# stl plt	866900-010	2
55	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
56	elbow, pipe 90 deg 300# plt 1 1/2”	867030-060	1
57	bushing, red pltd 1/2 x 3/8	867102-015	2
58	tee, pipe pltd 1/2	868430-020	2
59	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	2
60	tee, male pipe brass 1/4	869825-025	1
61	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	2
62	elbow, tube 90 deg m 1/4 x 1/2 ss	877004-050	1

(V) For maintenance on rtd probe no. 250039-909, order replacement probe no. 250039-909 (qty of 2).

Section 9
ILLUSTRATIONS AND PARTS LIST

9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID



02250155-496R00

9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID

key number	description	*part* number	quantity
1	connector, flex 1/4t x 1/4p	020169	4
2	plug, sight glass 1-7/8” sae	02250097-611	1
3	flange, kit sae splt 3” - viton	02250100-926	1
4	connector, tube male bhd 1/4 x sae	02250101-490	1
5	sleeve, rtd ls20-100 out housing	02250116-089	1
6	filter, assembly genisis filter **(I)**	02250117-782	2
7	valve, ball 3/4” npt apollo	02250117-792	1
8	gasket, sep ls20ts 16” flange **(II)**	02250121-188	1
9	adapter, discharge vlv m85 ddh204 hp	02250124-030	1
10	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
11	orifice, plug brass 1/8”npt x 3/32”	02250125-776	1
12	sightglass, orf block sae	02250126-129	2
13	valve, assy 3”x m85 **(III)**	02250127-507	1
14	nut, hex m85-2 6h	02250130-997	1
15	plate, scav line assy - ls20t	02250132-464	1
16	valve, relief 1” npt 400psi	02250137-688	1
17	sleeve, rtd 1/2”npt ls20t disch	02250138-457	1
18	pipe, discharge assy ls20ts 350#	02250139-146	1
19	pipe, discharge assy ls20ts 350#	02250139-246	1
20	tube, sump drain ls20ts	02250139-622	1
21	element, sep/pri ls20ts-500/600 **(IV)**	02250152-893	1
22	element, sep/sec ls20ts-500/600 **(IV)**	02250152-894	1
23	tank, air-oil ls20ts 400#	02250154-918	1
24	boom, tank lid - ls20ts	02250155-104	1

Continued on page 95

(I) For maintenance on assembly filter no. 02250117-782, order replacement assembly no. 02250117-782.

(II) Separator cover gasket must be replaced if the sump lid needs to come off, whether for maintenance or not. Whereas a replacement gasket comes with the primary element replacement kit, gasket no. 02250121-188 can be ordered separately for non-maintenence occasions.

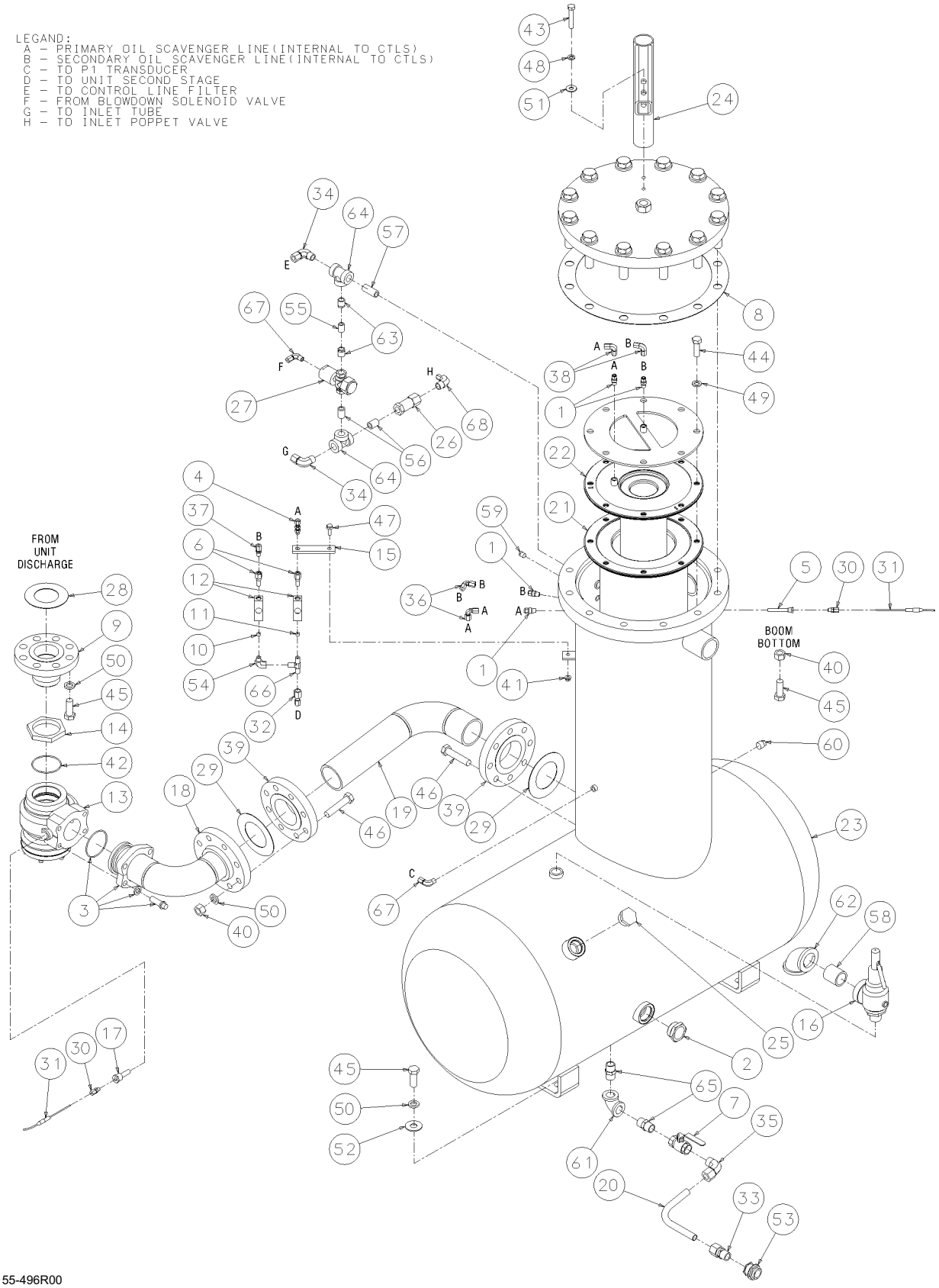
(III) For maintenance on assembly valve no. 02250127-507, order repair kit no. 606208-001.

(IV) For separator maintenance, order primary element replacement kit no. 02250158-170, and secondary element replacement kit no. 02250152-901. **NOTE:** Replacement cover gasket (no. 0220121-188) is included with primary element replacement kit.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID



02250155-496R00

9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID (CONTINUED)

key number	description	*part* number	quantity
25	plug, o-ring boss sae 1 1/4	040029	1
26	valve, check 1/2”	042694	1
27	valve, pneu (nc) 500# rn bdv **(V)**	045116	1
28	gasket, asa flange 300# 2-1/2”	240620-007	1
29	gasket, asa flange 300# 3”	240620-008	2
30	fitting, compress adj	250028-635	2
31	probe, rtd 100 ohm plat 3.5”x 12ft **(VI)**	250039-909	2
32	connector, tube-f 1/4 x 1/4	810104-025	1
33	connector, tube-m 3/4 x 3/4	810212-075	1
34	elbow, tube 90 deg m 1/2 x 1/2	810508-050	2
35	elbow, tube 90 deg m 3/4 x 3/4	810512-075	1
36	elbow, tube union 1/4	811204-025	2
37	connector, tube str thd 1/4 x 7/16	811804-044	1
38	elbow, tube union 1/4	812704-025	2
39	flange, slp-on 3” 300#	820230-048	2
40	nut, hex pltd 3/4-10	825212-665	17
41	nut, hex f pltd 3/8-16	825306-347	1
42	o-ring, viton 3 1/4 x 1/8”	826502-236	1
43	capscrew, hex gr5 1/2-13 x 2 3/4	829108-275	2
44	capscrew, hex gr5 5/8-11 x 2	829110-200	8
45	capscrew, hex gr5 3/4-10 x 2	829112-200	13
46	capscrew, hex gr5 3/4-10 x 3 1/2	829112-350	16
47	screw, hex ser washer 3/8-16 x 1	829706-100	1
48	washer, spr lock reg pltd 1/2	837808-125	2
49	washer, spr lock reg pltd 5/8	837810-156	8
50	washer, spr lock reg pltd 3/4	837812-188	28
51	washer, pl-b reg pltd 1/2	838208-112	2
52	washer, pl-b reg pltd 3/4	838212-112	4
53	bulkhead, pipe 3/4” npt	841500-012	1
54	elbow, pipe 90m/f 1/4 x 1/4	860704-025	1

Continued on page 97

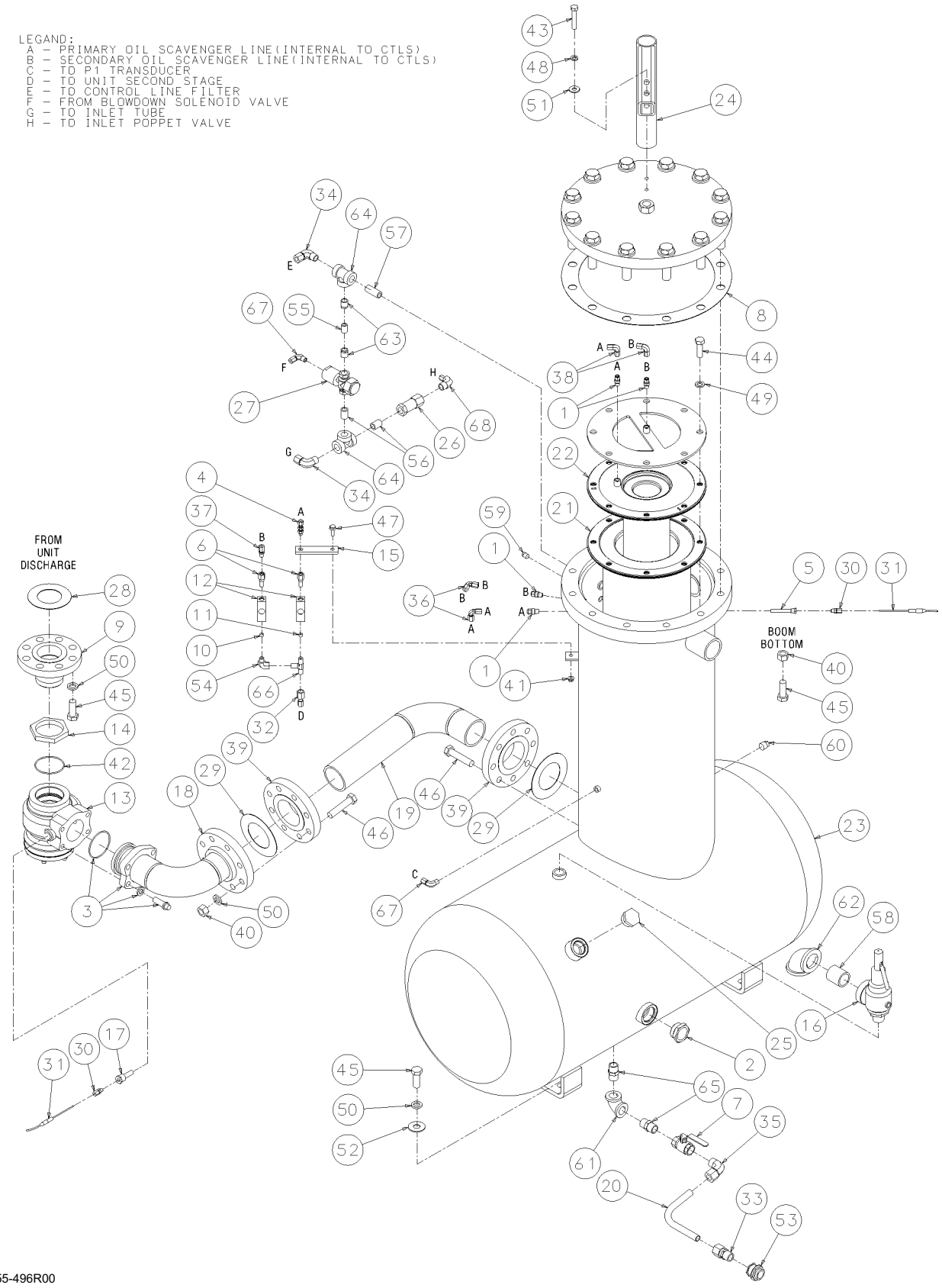
(V) For maintenance on pneumatic valve no. 045116, order repair kit no. 047524.

(VI) For maintenance on rtd probe no. 250039-909, order replacement probe no. 250039-909 (qty of 2).

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID



02250155-496R00

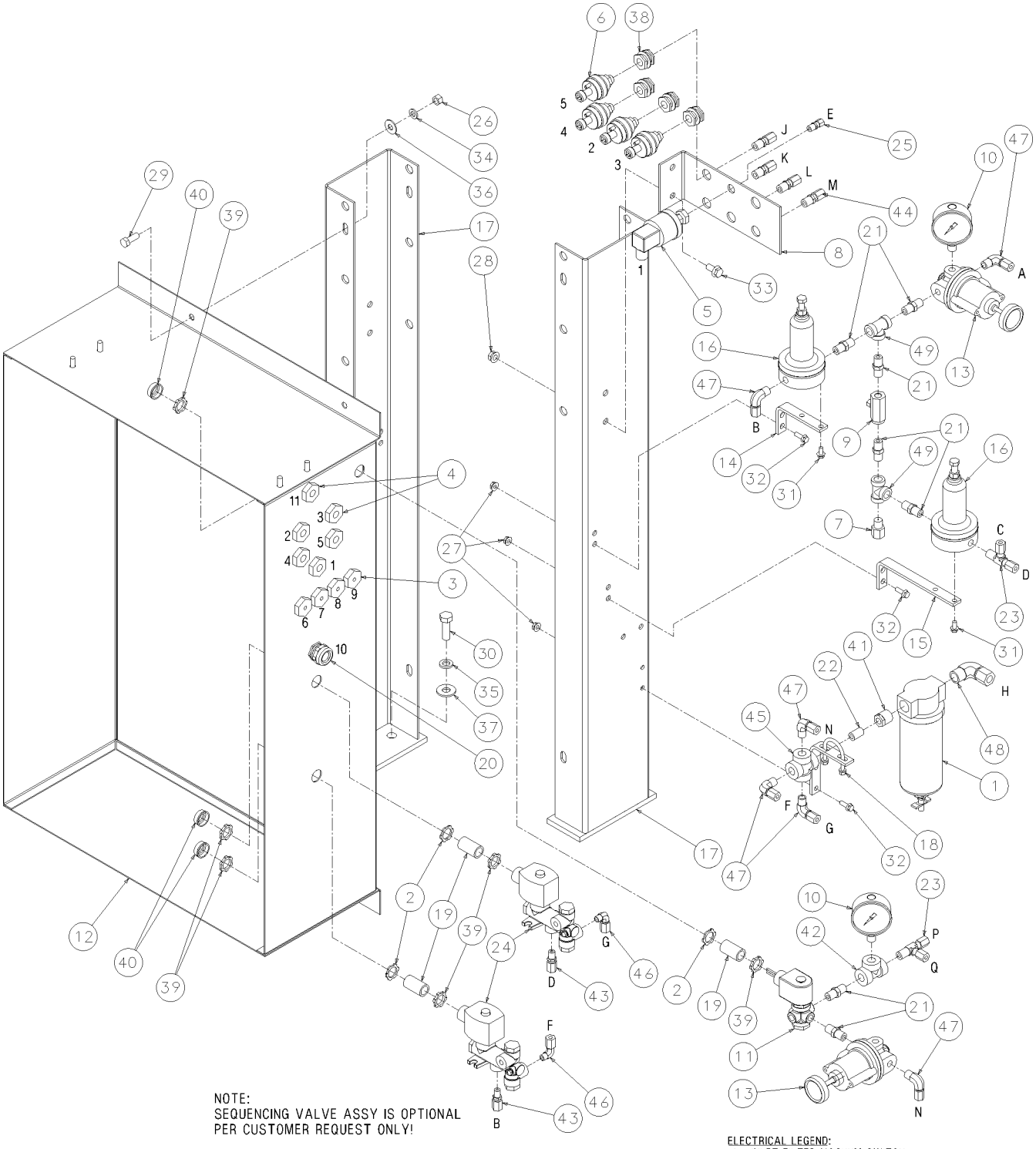
9.18 DISCHARGE SYSTEM- 500-600HP/373-447KW WITH SWING LID (CONTINUED)

key number	description	*part* number	quantity
55	nipple, pipe-xs plt 3/8 x cl	866406-000	1
56	nipple, pipe-xs plt 1/2 x cl	866408-000	2
57	nipple, pipe-xs plt 1/2 x 2	866408-020	1
58	nipple, pipe-xs plt 1 1/2 x 2	866424-020	1
59	plug, pipe 1/4” 3000# stl plt	866900-010	1
60	plug, pipe 1/2” 3000# stl plt	866900-020	1
61	elbow, pipe 90 deg 300# plt 3/4”	867030-030	1
62	elbow, pipe 90 deg 300# plt 1 1/2”	867030-060	1
63	bushing, red pltd 1/2 x 3/8	867102-015	2
64	tee, pipe pltd 1/2	868430-020	2
65	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	2
66	tee, male pipe brass 1/4	869825-025	1
67	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	2
68	elbow, tube 90 deg m 1/4 x 1/2 ss	877004-050	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.19 CONTROL/START SYSTEM



CONTROL TUBING LEGEND:

A - INLET POPPET VALVE: BOTTOM
B - INTERNAL TO CONTROLS
C - BLOWDOWN VALVE: PILOT
D - INTERNAL TO CONTROLS
E - INLET AIR FILTER
F - INTERNAL TO CONTROLS
G - INTERNAL TO CONTROLS
H - DRY SIDE: AIR/OIL SEPARATOR TANK
J - HIGH OIL PRESSURE: OIL FILTER INLET
K - LOW OIL PRESSURE: UNIT INJECTION BLOCK
L - HIGH SUMP/WET SIDE: AIR/OIL SEPARATOR TANK
M - MOISTURE SEPARATOR OUTLET
N - INTERNAL TO CONTROLS
P - TO INLET POPPET VALVE: BACK
Q - TO MINIMUM PRESSURE VALVE PILOT

ELECTRICAL LEGEND:

1 - INLET FILTER VACUUM SWITCH
2 - P1: SUMP PRESSURE TRANSDUCER
3 - P2: LINE PRESSURE TRANSDUCER
4 - P3: UNIT INJECTION PRESSURE TRANSDUCER
5 - P4: FILTER INJECTION PRESSURE TRANSDUCER
6 - T1 RTD: UNIT DISCHARGE TEMPERATURE
7 - T2 RTD: DRY SIDE SUMP TEMPERATURE
8 - T3 RTD: UNIT INJECTION OIL TEMPERATURE
9 - T4 RTD: UNIT INTERSTAGE TEMPERATURE
10 - AIR COOLED PACKAGE: FAN MOTOR
(WATER COOLED PACKAGE: WATER PRESSURE SWITCH)
11 - SUPERVISOR CONTROLLER

02250146-367R00

9.19 CONTROL/START SYSTEM

key number	*description*	*part number*	*quantity*
1	filter, coalescing 425 psi @ 265deg **(I)**	02250058-442	1
2	locknut, n4 conduit sealing	02250071-362	3
3	grip, cord n4 .125-.187 x 1/2”	02250071-379	4
4	grip, cord n4 .250-.375 x 1/2”	02250071-381	6
5	switch, vacuum 22”wc n4 6ft cable 5a	02250078-249	1
6	transducer, pressure 0-500psi 1-5vdc n4	02250085-652	4
7	orifice, .040 1/4fnpt x 1/4mnpt	02250091-395	1
8	support, pressure transducer n4	02250102-631	1
9	valve, check 1/4”nptf viton seat	02250110-557	1
10	gauge, air press 2 1/2” 0-200 psi	02250117-009	2
11	valve, solenoid 3wno 1/4 235# n4 **(II)**	02250125-657	1
12	enclosure, 36 x 24 x 10 n4	02250138-813	1
13	valve, pressure reducing 1/4” vit 2-150# **(III)**	02250139-030	2
14	support, bracket vlv assy ls20t 575#	02250139-081	1
15	support, bracket vlv assy ls20t 575#	02250139-082	1
16	valve, pressure regulator 1/4” 100-400#adj **(IV)**	02250140-060	2
17	support, start&clr ls16t/ls20t	02250146-302	2
18	bracket, pipe”l”1/8”-1”pipe-dc	044831	1
19	nipple, conduit 1/2 x 1.5”	250007-169	3
20	grip, cord so 12/4 st 1/2”	250018-495	1
21	nipple, hx tbe 316s 1/4”	250018-760	7
22	nipple, pipe-xs 316s 1/4 x cl	250019-142	1
23	tee, 1/4”t x m-rn 316ss	250041-911	2
24	valve, sol 3wno 1/8 8300 **(V)**	407390	2
25	connector, tube-m 1/4 x 1/8	813604-125	1

Continued on page 101

(I) For maintenance on filter no. 02250058-442, order replacement element no. 02250058-441.

(II) For maintenance on solenoid valve no. 022500125-657, order repair kit no. 02250125-829, and replacement coil no. 02250125-861.

(III) For maintenance on pressure reducing valve no. 02250139-030, order repair kit no. 02250139-037**.**

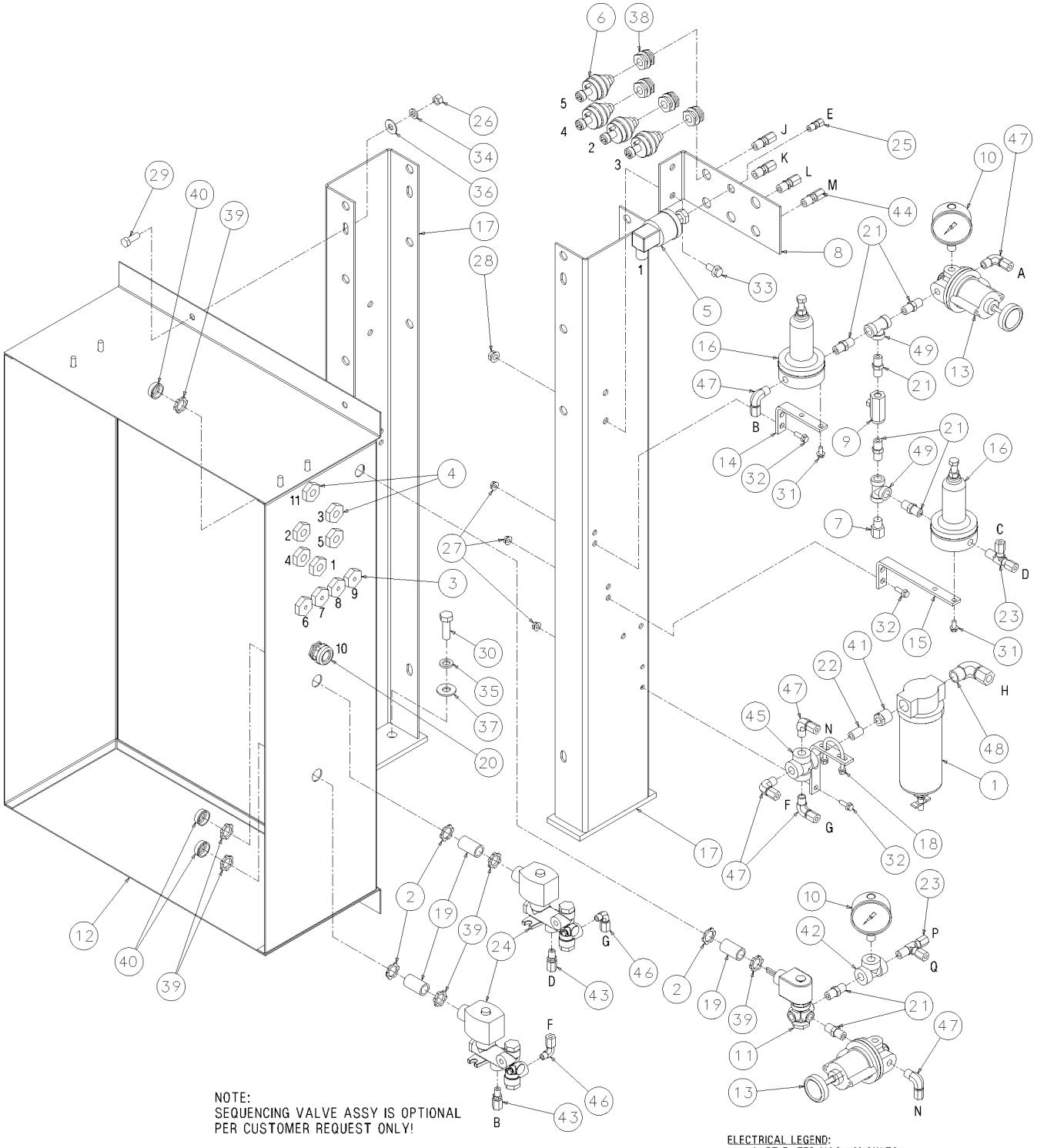
(IV) For maintenance on pressure regulator valve no. 02250140-060, order repair kit no. 02250145-667.

(V) For maintenance on solenoid valve no. 407390, order repair kit no. 02250053-830, and replacement coil no. 250031-431.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.19 CONTROL/START SYSTEM



NOTE:
SEQUENCING VALVE ASSY IS OPTIONAL
PER CUSTOMER REQUEST ONLY!

CONTROL TUBING LEGEND:

A - INLET POPPET VALVE: BOTTOM
B - INTERNAL TO CONTROLS
C - BLOWDOWN VALVE: PILOT
D - INTERNAL TO CONTROLS
E - INLET AIR FILTER
F - INTERNAL TO CONTROLS
G - INTERNAL TO CONTROLS
H - DRY SIDE: AIR/OIL SEPARATOR TANK
J - HIGH OIL PRESSURE: OIL FILTER INLET
K - LOW OIL PRESSURE: UNIT INJECTION BLOCK
L - HIGH SUMP/WET SIDE: AIR/OIL SEPARATOR TANK
M - MOISTURE SEPARATOR OUTLET
N - INTERNAL TO CONTROLS
P - TO INLET POPPET VALVE: BACK
Q - TO MINIMUM PRESSURE VALVE PILOT

ELECTRICAL LEGEND:

1 - INLET FILTER VACUUM SWITCH
2 - P1: SUMP PRESSURE TRANSDUCER
3 - P2: LINE PRESSURE TRANSDUCER
4 - P3: UNIT INJECTION PRESSURE TRANSDUCER
5 - P4: FILTER INJECTION PRESSURE TRANSDUCER
6 - T1 RTD: UNIT DISCHARGE TEMPERATURE
7 - T2 RTD: DRY SIDE SUMP TEMPERATURE
8 - T3 RTD: UNIT INJECTION OIL TEMPERATURE
9 - T4 RTD: UNIT INTERSTAGE TEMPERATURE
10 - AIR COOLED PACKAGE: FAN MOTOR
(WATER COOLED PACKAGE: WATER PRESSURE SWITCH)
11 - SUPERVISOR CONTROLLER

02250146-367R00

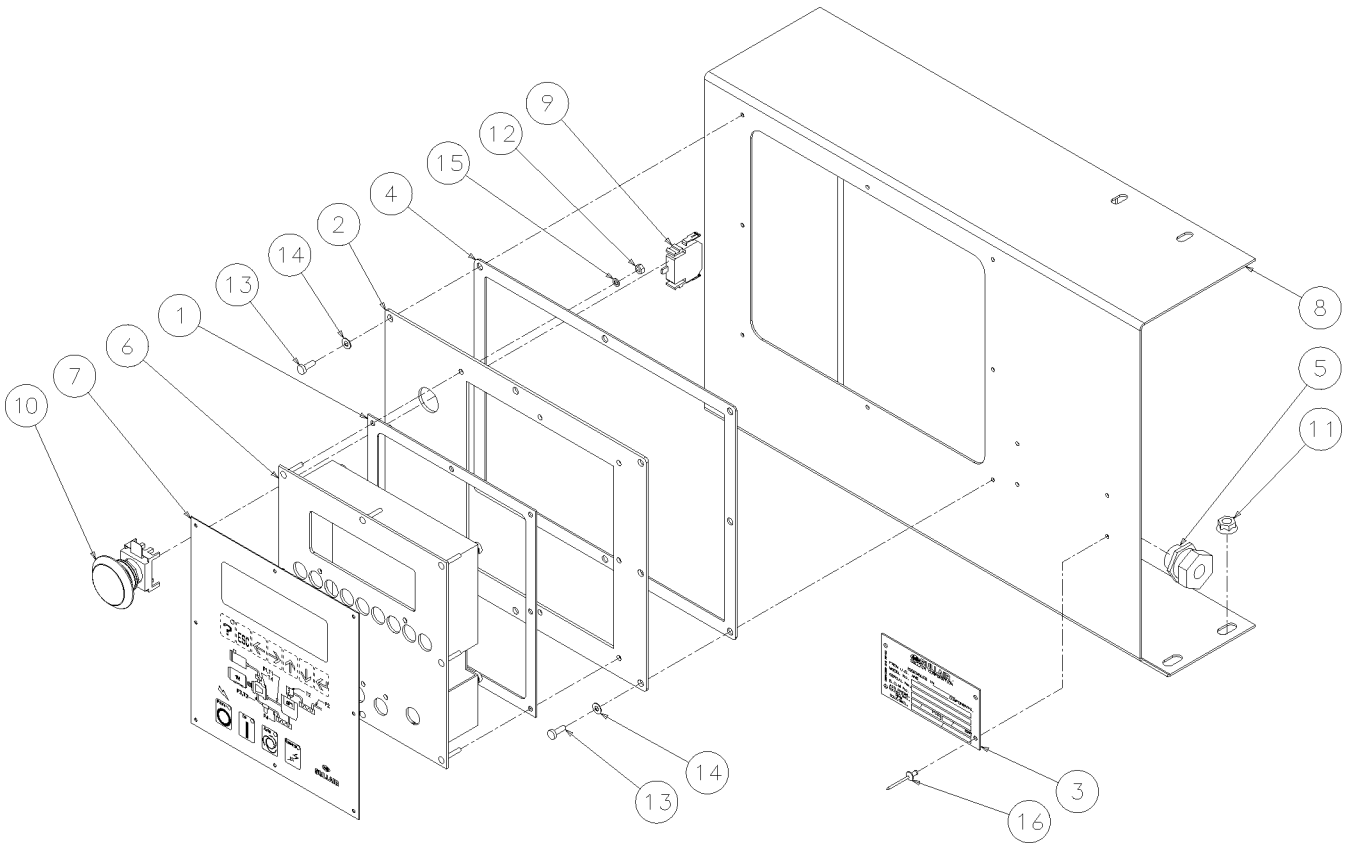
9.19 CONTROL/START SYSTEM (CONTINUED)

key number	*description*	*part number*	*quantity*
26	nut, hex pltd 3/8-16	825206-337	4
27	nut, hex f pltd 1/4-20	825304-236	6
28	nut, hex f pltd 3/8-16	825306-347	2
29	capscrew, hex gr5 3/8-16 x 1	829106-100	4
30	capscrew, hex gr5 1/2-13 x 1 1/2	829108-150	4
31	screw, hex ser washer 1/4-20 x 1/2	829704-050	4
32	screw, hex ser washer 1/4-20 x 3/4	829704-075	6
33	screw, hex ser washer 3/8-16 x 3/4	829706-075	2
34	washer, spr lock reg pltd 3/8	837806-094	4
35	washer, spr lock reg pltd 1/2	837808-125	4
36	washer, pl-b reg pltd 3/8	838206-071	4
37	washer, pl-b reg pltd 1/2	838208-112	4
38	bulkhead, pipe 1/4” npt	841500-004	4
39	locknut, conduit 1/2	847200-050	6
40	bushing, conduit plastic 1/2	848815-050	3
41	bushing, red pltd 1/2 x 1/4	867102-010	1
42	tee, pipe 300# 1/4 ss	876730-010	1
43	connector, tube-m 1/4 x 1/8 ss	876804-012	2
44	connector, tube-m 1/4 x 1/4 ss	876804-025	4
45	cross, pipe 1/4” 300# ss	876930-010	1
46	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	2
47	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	6
48	elbow, tube 90 deg m 1/2 x 1/2 ss	877008-050	1
49	tee, pipe 1/4” 2000# ss	878900-010	2

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.20 CONTROL PANEL



02250138-633R00

9.20 CONTROL PANEL

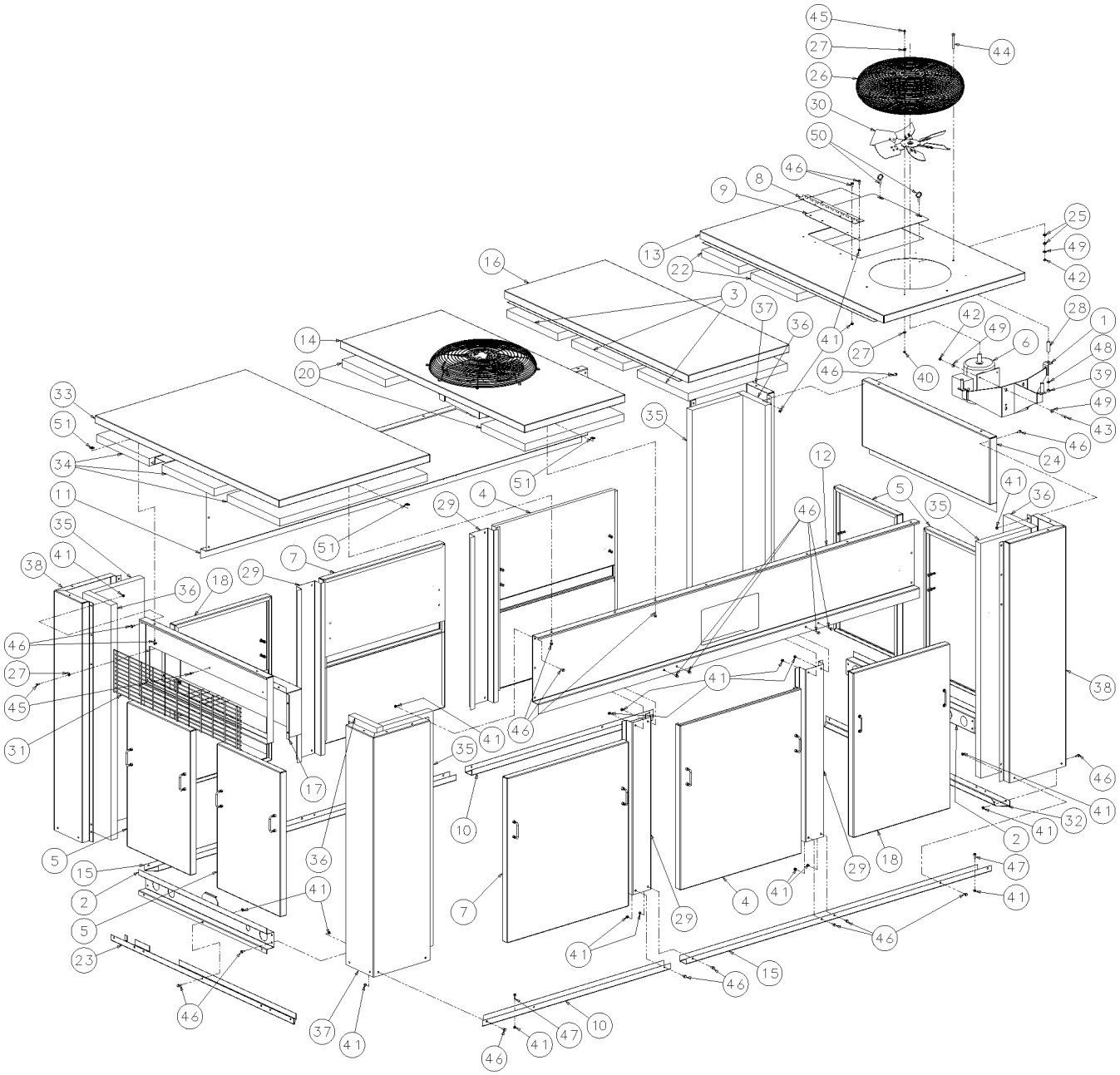
key number	*description*	*part number*	*quantity*
1	gasket, panel supervisor ii	02250048-822	1
2	panel, cover supervisor ii	02250054-854	1
3	nameplate, sullair serial number	02250059-318	1
4	gasket, ctl pnl super ii	02250071-093	1
5	grip, cord n4 .250-.375 x 1/2”	02250071-381	1
6	control, supervisor iii display mod	02250119-330	1
7	decal, supervisor front	02250130-344	1
8	panel, instrument supervisor	02250134-463	1
9	block,contact 1nc 00	250027-125	1
10	switch, per red push/pull e22	250028-588	1
11	nut, hex f pltd 5/16-18	825305-283	4
12	nut, hex metric m4 x .7	825904-070	8
13	screw, tc-f pan #8-32 x 1/2	835601-050	8
14	washer, lock ext tooth #8	838401-023	8
15	washer, spr lock-metric pltd m4	838804-090	8
16	rivet, pop 1/8 x 3/8	843102-038	4

(I) For detail of Supervisor Controller panel decal, see Figure 5-1, Supervisor Controller Panel in Section 5, Supervisor Controller.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.21 ENCLOSURE



NOTE:

1. WEATHERSTRIP SULLAIR P/N 02250058-345 TO BE USED ON UNDERSIDE OF ROOF PANELS, BOTTOM SILLS, AND AROUND DOORS. REFER TO BOM FOR ACTUAL QTY.

02250139-119R01

9.21 ENCLOSURE

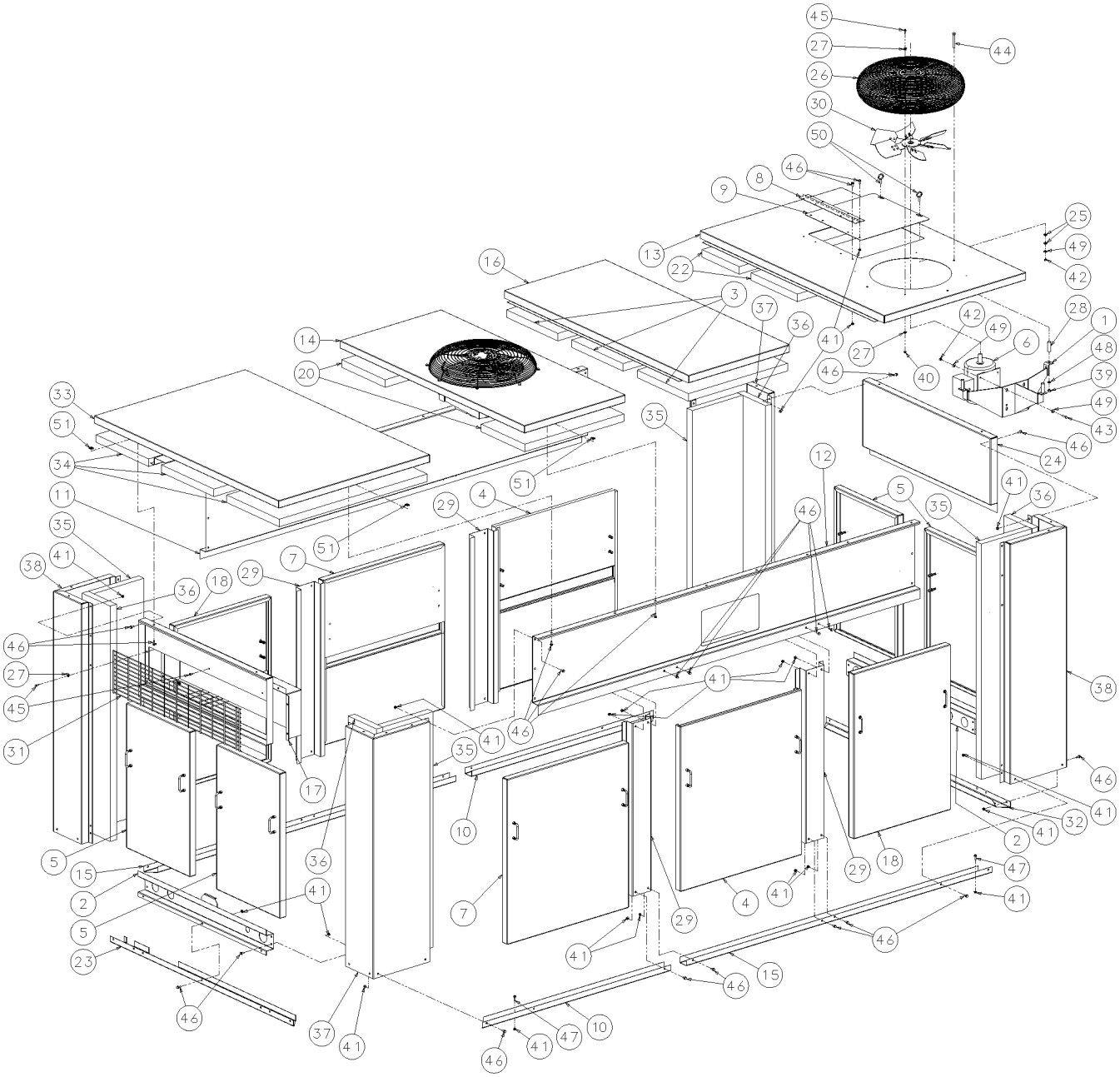
key number	*description*	*part number*	*quantity*
1	support, fan motor	014613	2
2	channel, assy air/wtr conn.	019603	2
3	panel, fiberglass 31.5 x 20 x 2	02250069-737	3
4	panel, assembly side 20/25 encl w/yd	02250103-203	2
5	panel, assembly end 20/25 enclosure	02250103-205	4
6	motor, .75hp 230/460/60 6p tepe	02250108-374	2
7	panel, assembly side 20/25 enclosure	02250116-349	2
8	hinge, door	02250125-402	1
9	door, can-ts20 elem roof access	02250132-711	1
10	channel, btm sill ls20ts-300/600	02250139-327	2
11	panel, upper encl rear ls20ts	02250139-328	1
12	panel, upper encl front ls20ts-400	02250139-329	1
13	panel, roof /w hatch ls20ts-300/600	02250139-344	1
14	panel, roof cent /w fan ls20ts	02250139-346	1
15	channel, btm sill ls20ts-300/600	02250139-479	2
16	panel, roof center ls20ts	02250139-497	1
17	panel, baf-end ls20ts	02250139-503	1
18	panel, assembly side ls20ts encl	02250139-545	2
19	panel,end-upr w/baffle ls20ts	02250139-565	1
20	panel, fiberglass 17.0 x 31.5 x 2	02250139-644	2
21	panel, fiberglass 14.5 x 44.25 x 2	02250139-645	1
22	panel, fiberglass 16.0 x 18.0 x 2	02250139-646	1
23	channel, bottom sill - ls20ts	02250142-817	1
24	panel, end-upr encl ls20ts blank	02250144-369	1
25	grommet, rubber	040125	4
26	guard, fan 24”	041765	2
27	clamp, wire	043194	20
28	spacer, fan support	227267	6
29	support member, 20-25 encl	231516	4
30	fan, 20”	245748	2
31	grille, enclosure end	249651	1
32	channel, btm sill ts20&ls25s encl	250022-772	1

Continued on page 107

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.21 ENCLOSURE



NOTE:

1. WEATHERSTRIP SULLAIR P/N 02250058-345 TO BE USED ON UNDERSIDE OF ROOF PANELS, BOTTOM SILLS, AND AROUND DOORS. REFER TO BOM FOR ACTUAL QTY.

02250139-119R01

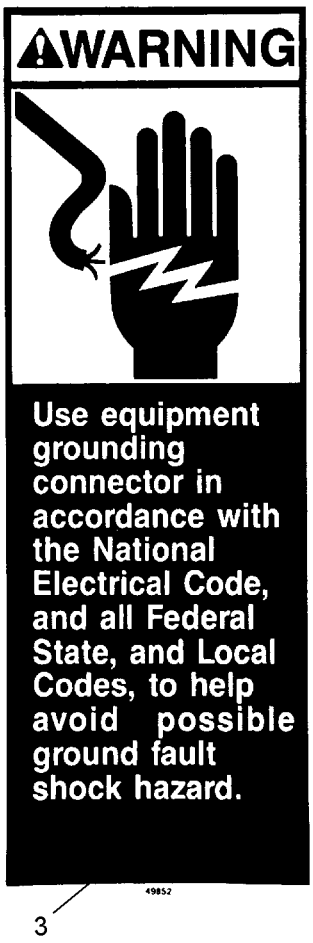
9.21 ENCLOSURE (CONTINUED)

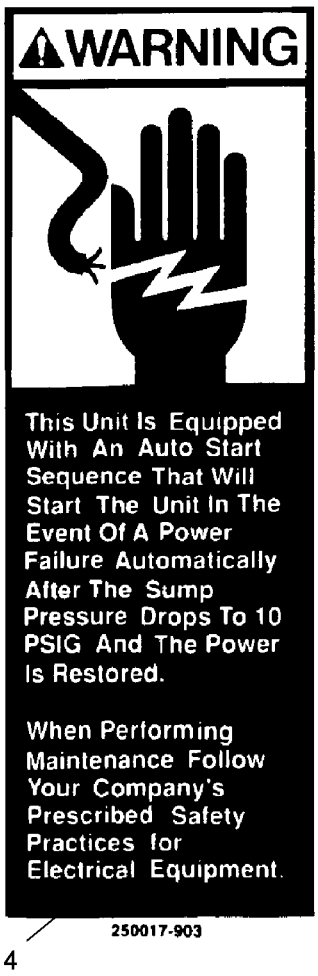
key number	*description*	*part number*	*quantity*
33	panel, roof encl 20/16	250028-574	1
34	panel, fiberglass 20.5 x 47 x 2	250029-247	3
35	panel, fiberglass 16 x 62.5 x 2	250041-256	4
36	panel, fiberglass 11 x 62.5 x 2	250041-257	4
37	panel, corner encl upper lh	250042-879	2
38	panel, corner encl upper rh	250042-880	2
39	nut, hex pltd 7/16-14	825207-385	6
40	nut, hex f pltd 1/4-20	825304-236	8
41	nut, hex f pltd 5/16-18	825305-283	88
42	nut, hex locking 5/16-18	825505-166	10
43	capscrew, hex gr5 5/16-18 x 1 1/4	829105-125	8
44	capscrew, hex gr5 7/16-14 x 3 1/2	829107-350	6
45	screw, hex ser washer 1/4-20 x 3/4	829704-075	15
46	screw, hex ser washer 5/16-18 x 3/4	829705-075	94
47	screw, hex ser washer 5/16-18 x 1	829705-100	18
48	washer, spr lock reg pltd 7/16	837807-112	6
49	washer, pl-b reg pltd 5/16	838205-071	18
50	eyebolt, 5/16-18 x 1 1/8” pltd	839105-112	2
51	nut, retainer u 5/16-18 .140	861505-140	24

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.22 DECAL GROUP





9.22 DECAL GROUP

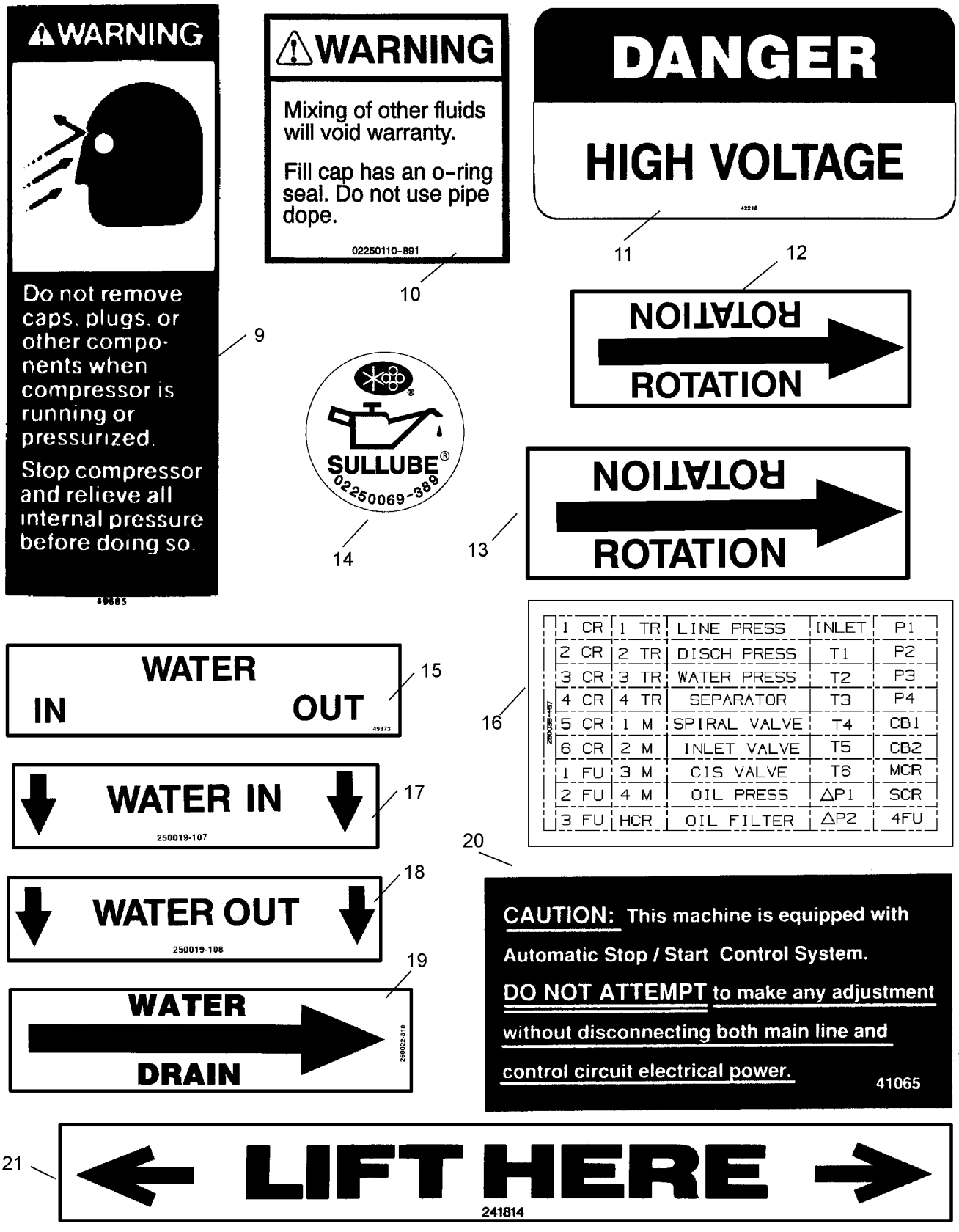
key number	*description*	*part number*	*quantity*
1	sign, air breathing (danger)	250027-935	1
2	sign, warning “food grade” lube	250003-144	1
3	sign, warning ground fault	049852	1
4	decal, warning auto start	250017-903	1
5	sign, danger electrocution	049850	1
6	sign, warning hot surfaces	407408	3
7	sign, warning sever - fan	049855	2
8	sign, warning sever-fan port	049965	2

Continued on page 111

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.22 DECAL GROUP



1 CR	1 TR	LINE PRESS	INLET	P1
2 CR	2 TR	DISCH PRESS	T1	P2
3 CR	3 TR	WATER PRESS	T2	P3
4 CR	4 TR	SEPARATOR	T3	P4
5 CR	1 M	SPIRAL VALVE	T4	CB1
6 CR	2 M	INLET VALVE	T5	CB2
1 FU	3 M	CIS VALVE	T6	MCR
2 FU	4 M	OIL PRESS	ΔP1	SCR
3 FU	HCR	OIL FILTER	ΔP2	4FU

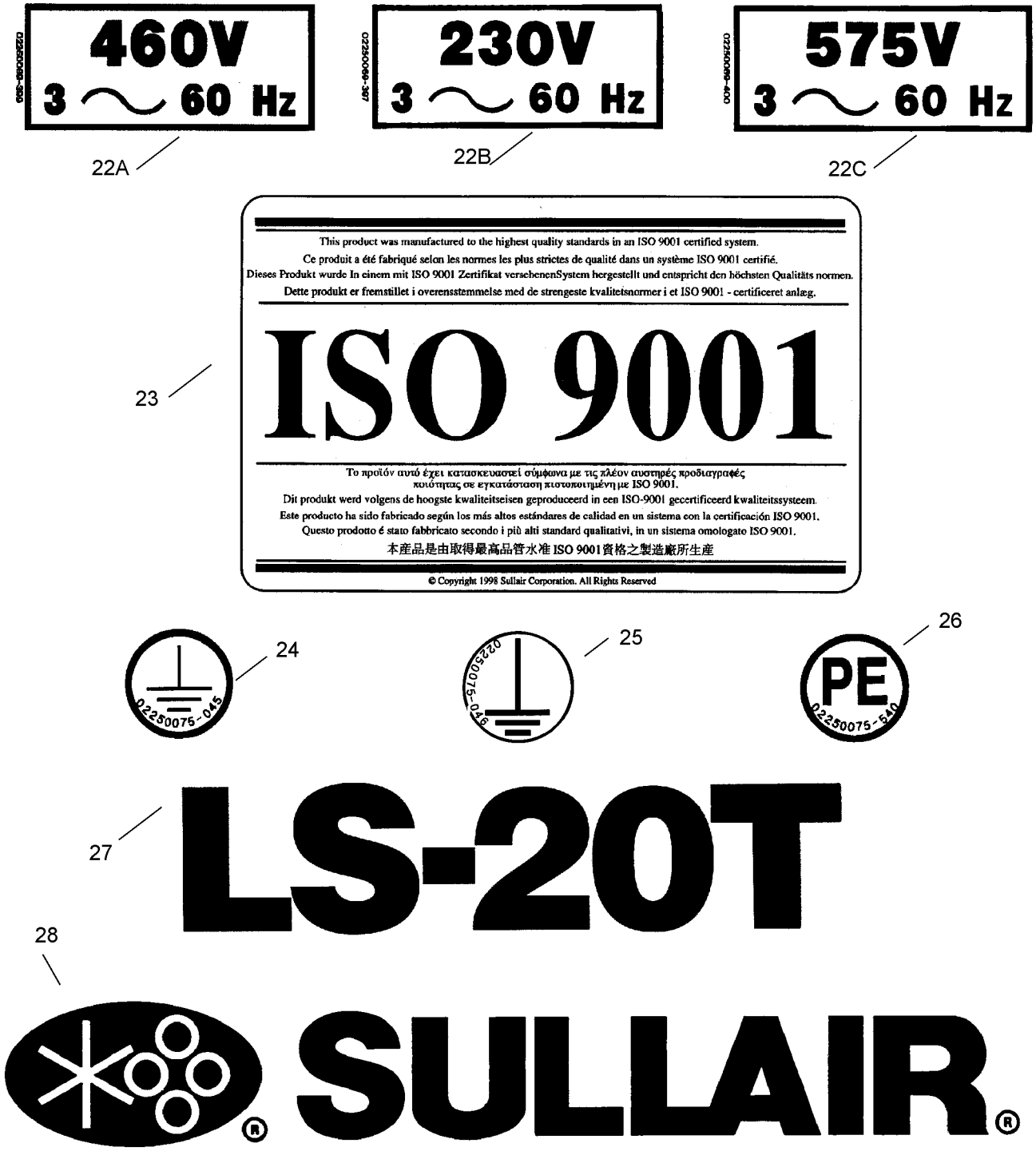
9.22 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
9	sign, warning “compressor fluid fill cap”	049685	1
10	decal, warning mixing fluids	02250110-891	1
11	decal, danger high voltage	042218	1
12	decal, rotation	250021-286	1
13	decal, rotation	250021-564	1
14	decal, fluid Sullube	02250069-389	1
15	decal, water inlet-outlet	049873	1
16	decal, electrical component ID	250038-457	1
17	decal, water in	250019-107	1
18	decal, water out	250019-108	1
19	decal, water drain	250022-810	1
20	decal, autostart	041065	1
21	decal, fork lifting	241814	4

Continued on page 113

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

Section 9
ILLUSTRATIONS AND PARTS LIST
9.22 DECAL GROUP



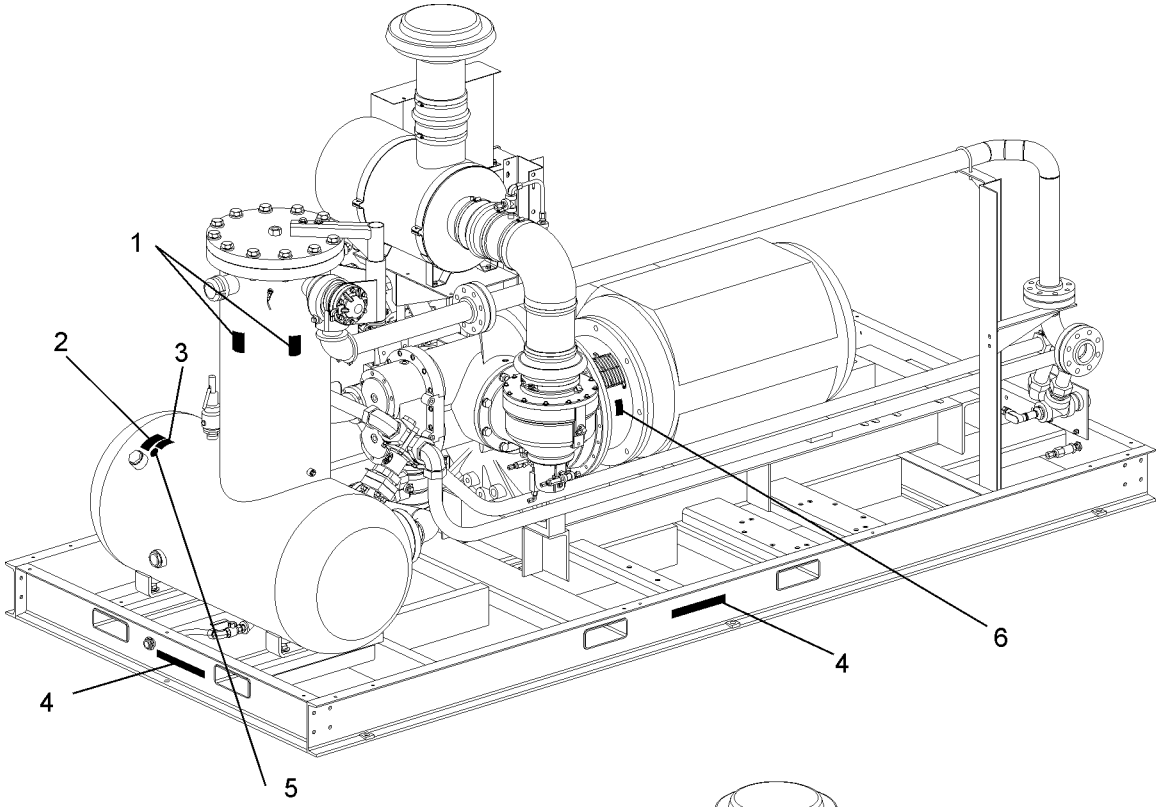
9.22 DECAL GROUP (CONTINUED)

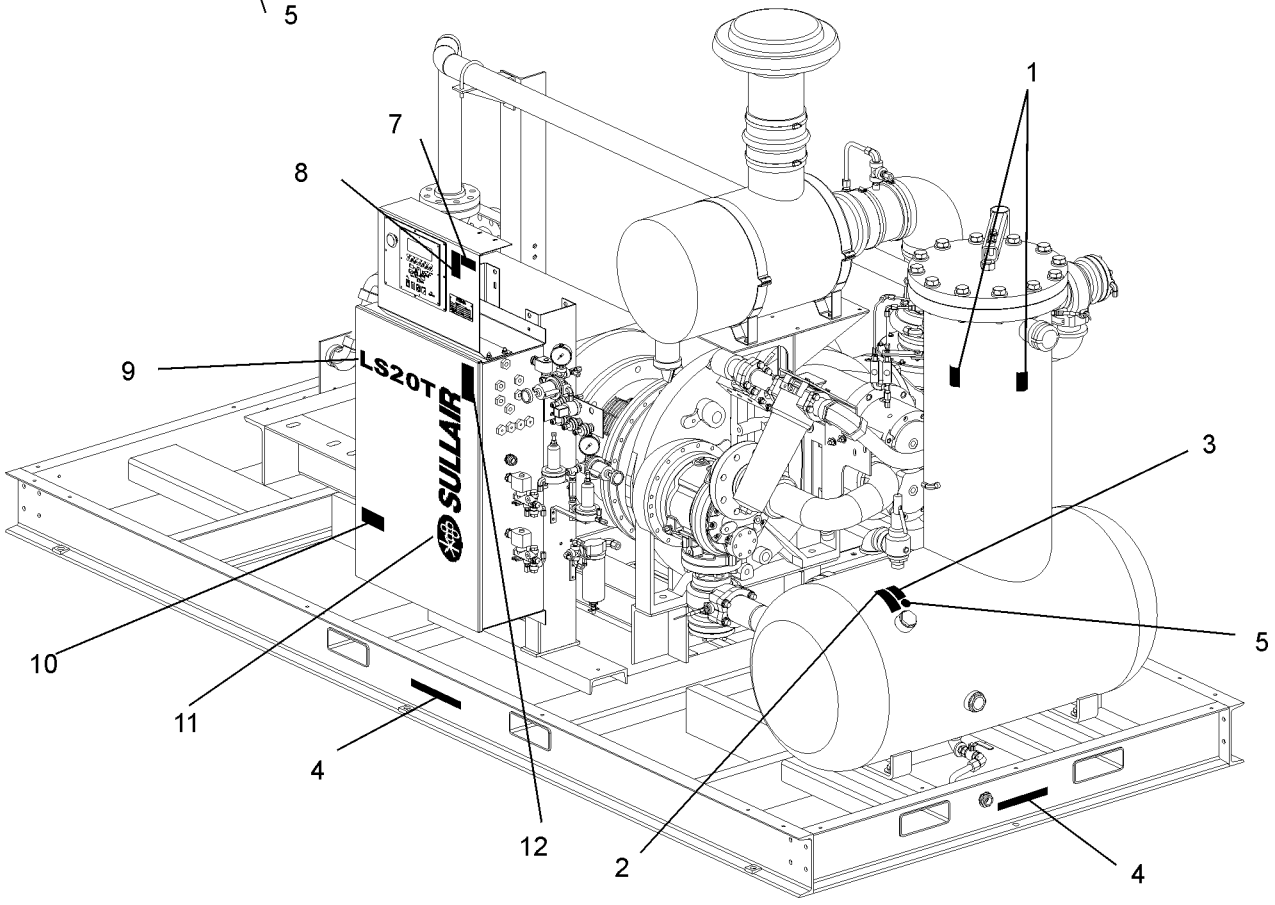
key number	*description*	*part number*	*quantity*
22A	decal, V 460/3/60 international	02250069-399	1
22B	decal, V 230/3/60 international	02250069-397	1
22C	decal, V 575/3/60 international	02250069-400	1
23	decal, ISO 9001	02250057-624	1
24	decal, protective earth ground	02250075-045	1
25	decal, earth ground	02250075-046	1
26	decal, PE designation	02250075-540	1
27	decal, LS20T black 4” ht.	02250071-287	1
28	decal, Sullair logo 4 x 32” black	02250059-060	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.23 DECAL LOCATIONS- OPEN AIR-COOLED





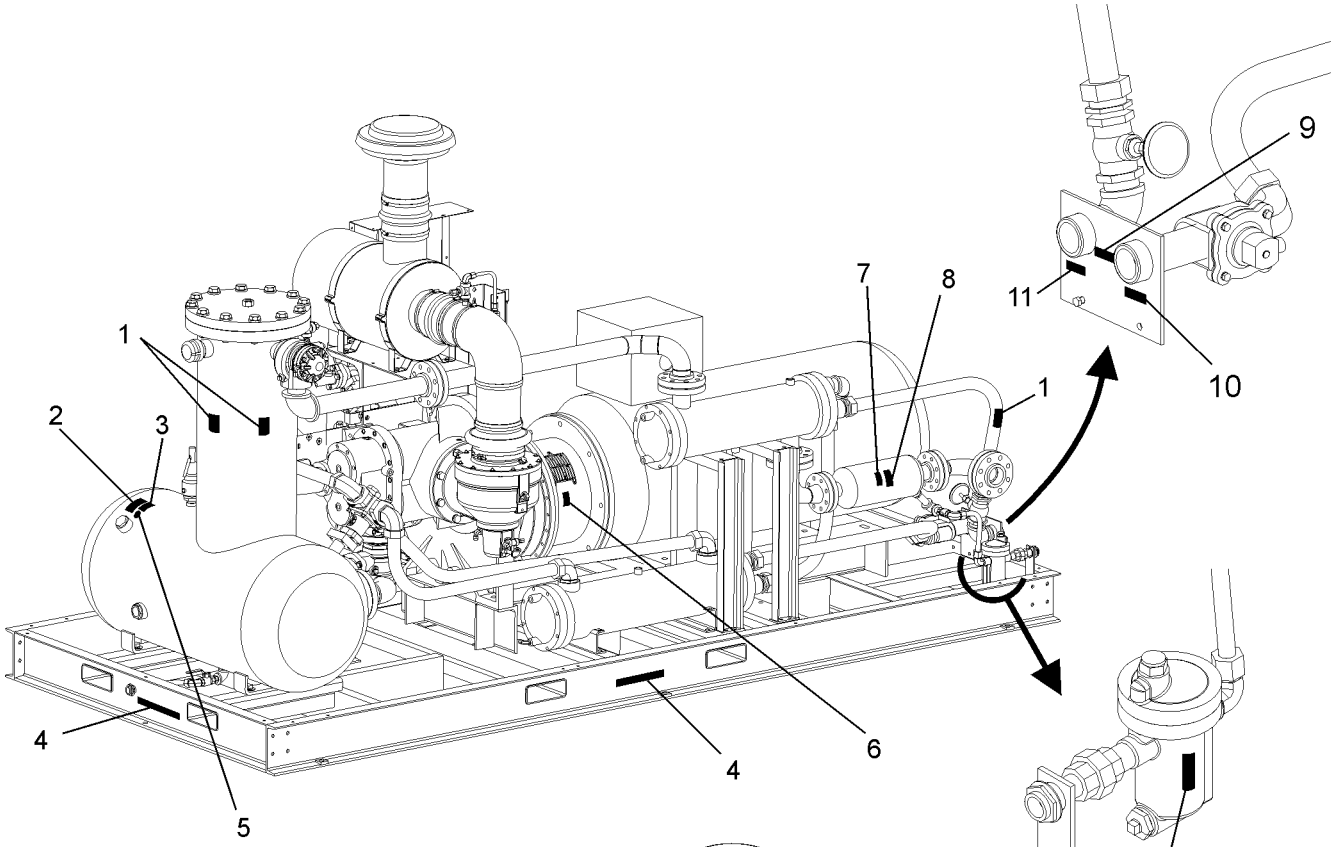
9.23 DECAL LOCATIONS- OPEN AIR-COOLED

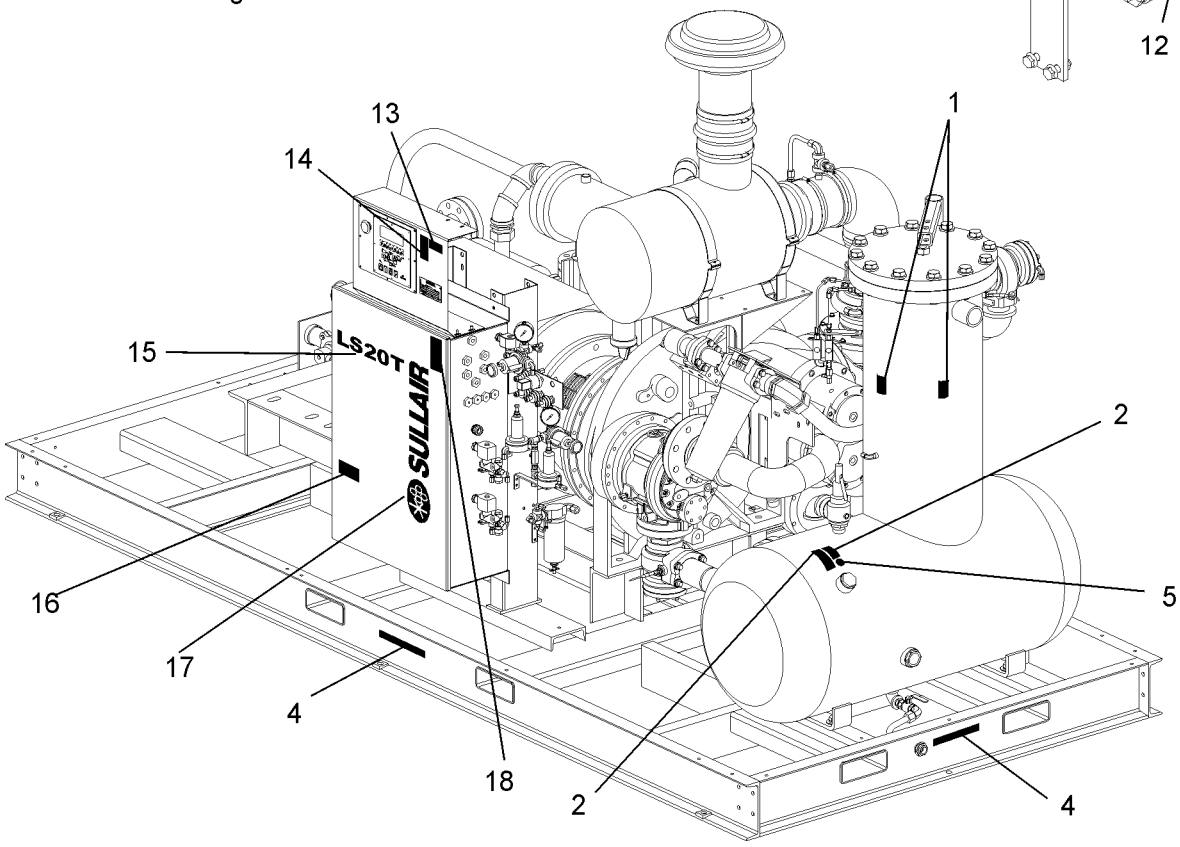
key number	*description*	*part number*	*quantity*
1	sign, warning hot surfaces	407408	3
2	sign, warning “compressor fluid fill cap”	049685	1
3	decal, warning mixing fluids	02250110-891	1
4	decal, fork lifting	241814	4
5	decal, fluid Sullube	02250069-389	1
6	sign, warning sever-fan port	049965	2
7	decal, autostart	041065	1
8	decal, warning auto start	250017-903	1
9	decal, LS20T black 4” ht.	02250071-287	1
10	decal, ISO 9001	02250057-624	1
11	decal, Sullair logo 4 x 32” black	02250059-060	1
12	sign, danger electrocution	049850	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.24 DECAL LOCATIONS- OPEN WATER-COOLED





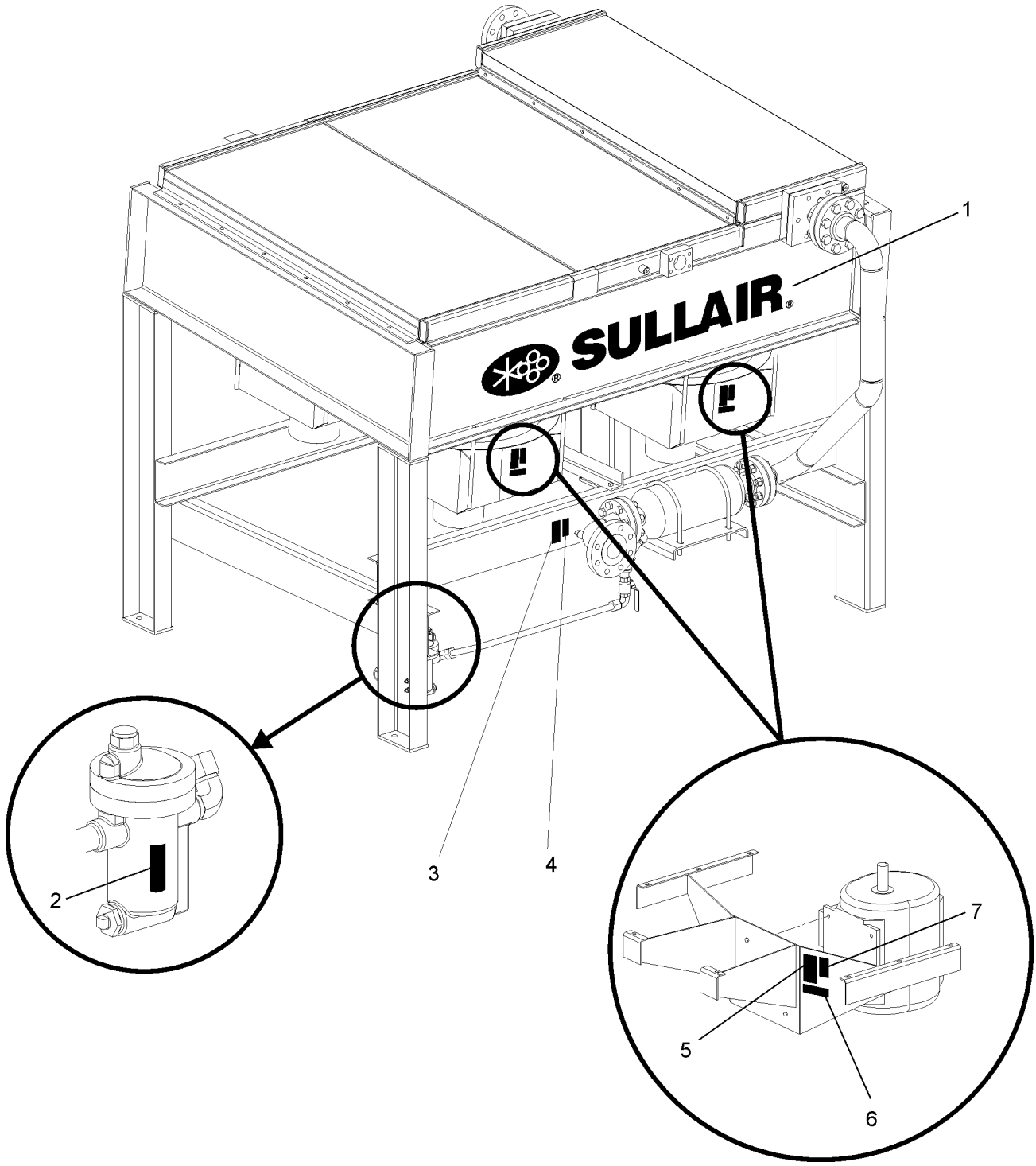
9.24 DECAL LOCATIONS- OPEN WATER-COOLED

key number	*description*	*part number*	*quantity*
1	sign, warning hot surfaces	407408	4
2	sign, warning “compressor fluid fill cap”	049685	1
3	decal, warning mixing fluids	02250110-891	1
4	decal, fork lifting	241814	4
5	decal, fluid Sullube	02250069-389	1
6	sign, warning sever-fan port	049965	2
7	sign, air breathing (danger)	250027-935	1
8	sign, warning “food grade” lube	250003-144	1
9	decal, water inlet-outlet	049873	1
10	decal, water out	250019-108	1
11	decal, water in	250019-107	1
12	decal, water drain	250022-810	1
13	decal, autostart	041065	1
14	decal, warning auto start	250017-903	1
15	decal, LS20T black 4” ht.	02250071-287	1
16	decal, ISO 9001	02250057-624	1
17	decal, Sullair logo 4 x 32” black	02250059-060	1
18	sign, danger electrocution	049850	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.25 DECAL LOCATIONS- REMOTE COOLER



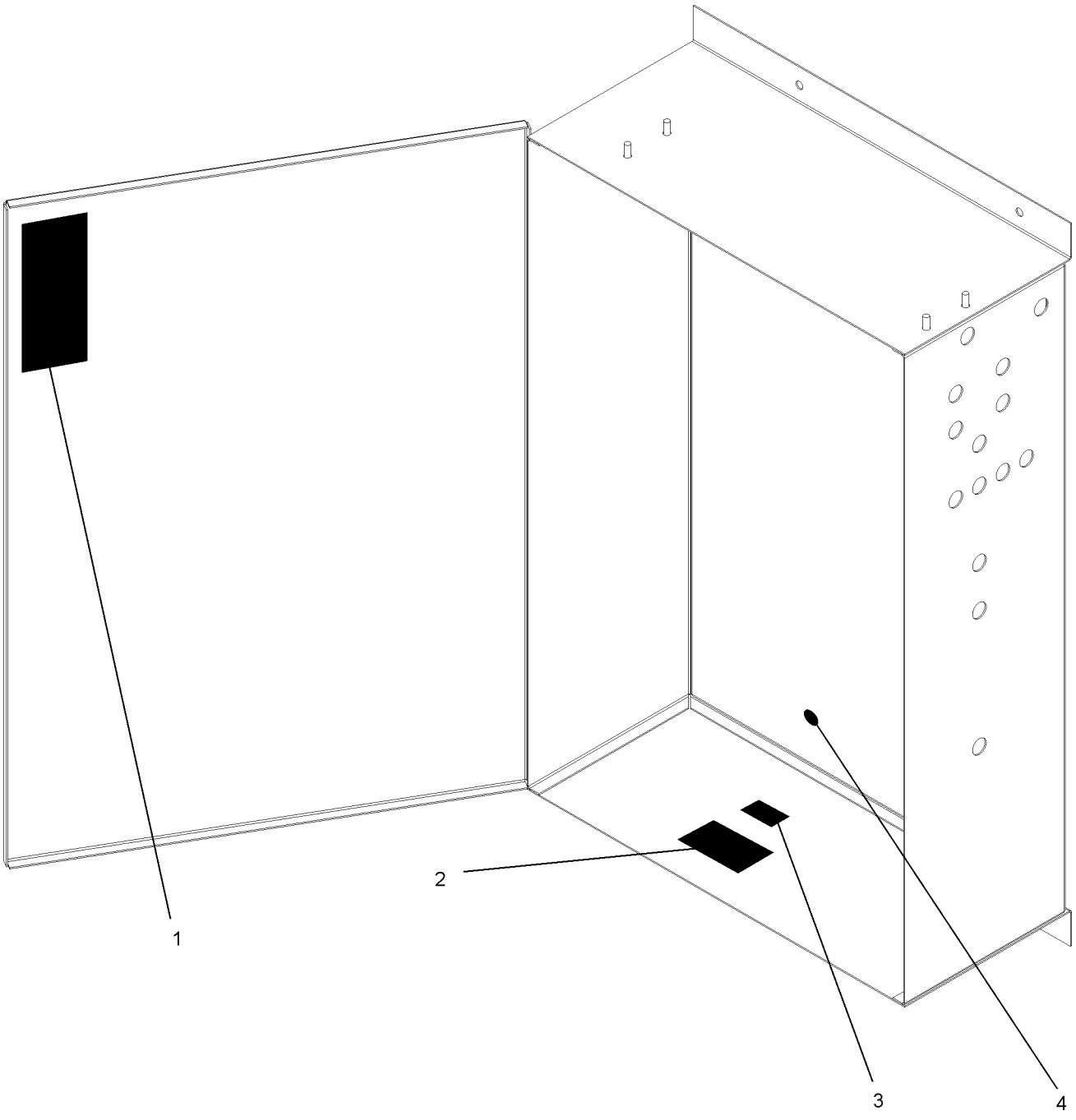
9.25 DECAL LOCATIONS- REMOTE COOLER

key number	*description*	*part number*	*quantity*
1	decal, Sullair logo 4 x 32” black	02250059-060	2
2	decal, water drain	250022-810	1
3	sign, warning “food grade” lube	250003-144	1
4	sign, air breathing (danger)	250027-935	1
5	sign, warning sever - fan	049855	4
6	decal, rotation	250021-564	4
7	sign, warning sever-fan port	049965	4

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.26 DECAL LOCATIONS- CONTROL BOX



9.26 DECAL LOCATIONS- CONTROL BOX

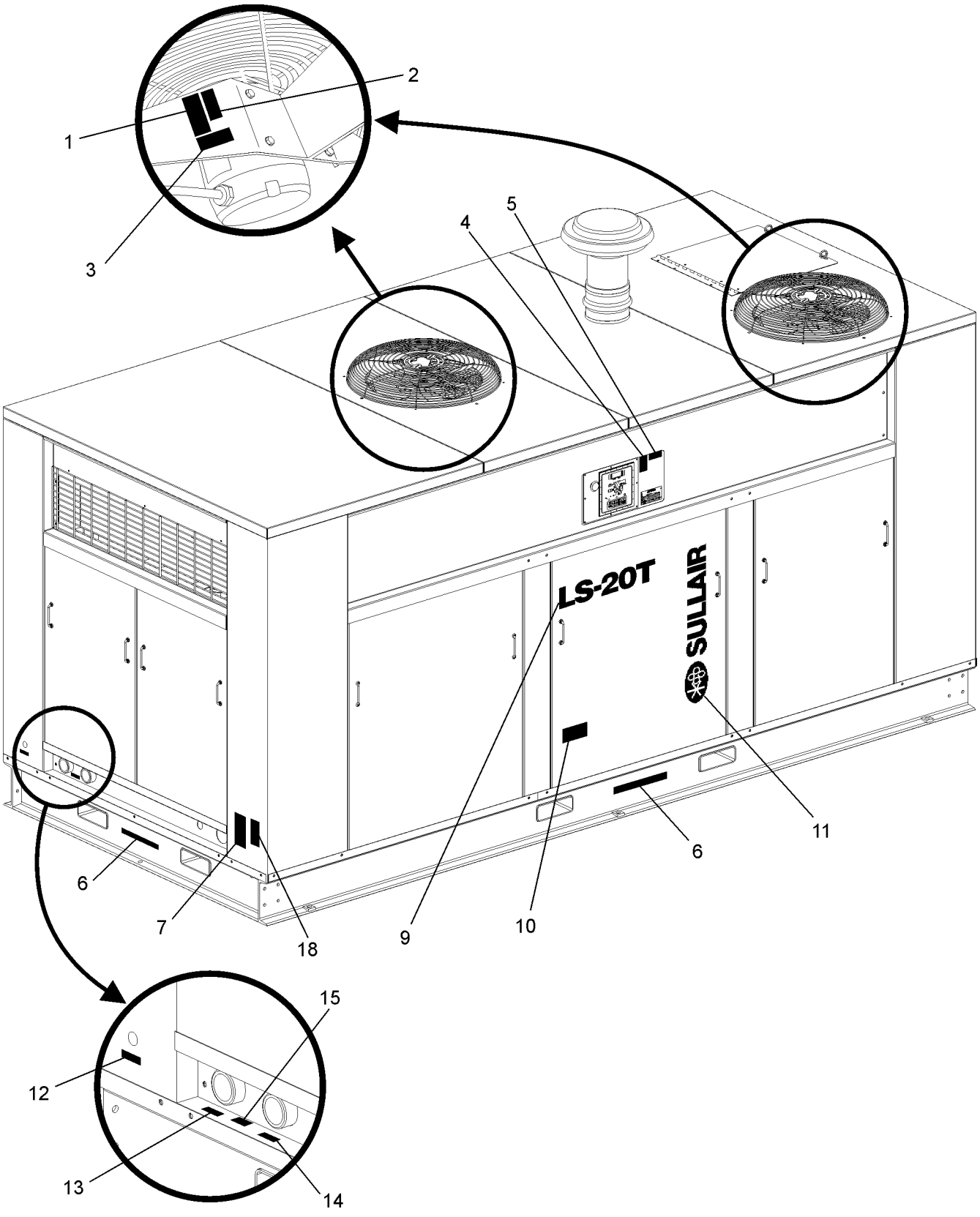
key number	*description*	*part number*	*quantity*
1	sign, warning ground fault	049852	1
2	decal, danger high voltage	042218	1
3	decal, V 460/3/60 international **(I)**	02250069-399	1
4	decal, earth ground	02250075-046	1

(I) Due to custom voltage requests, voltage decal may vary. For positive identification of machine voltage decal, consult Sullair Factory with serial number of compressor.

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.27 ENCLOSURE DECALS



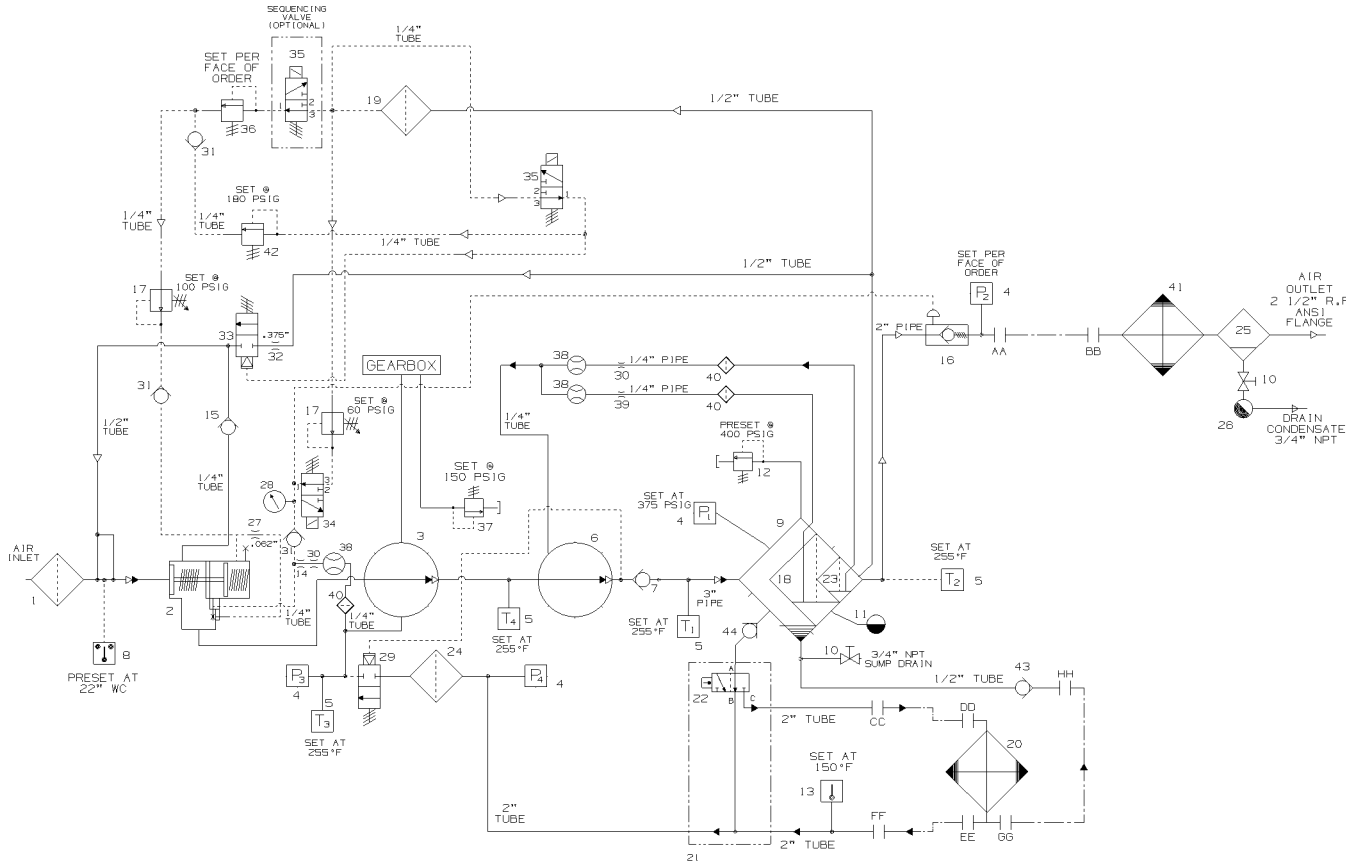
9.27 ENCLOSURE DECALS

key number	*description*	*part number*	*quantity*
1	sign, warning “compressor fluid fill cap”	049685	2
2	sign, warning sever-fan port	049965	2
3	decal, rotation	250021-564	2
4	decal, warning auto start	250017-903	1
5	decal, autostart	041065	1
6	decal, fork lifting	241814	4
7	sign, warning “food grade” lube	250003-144	1
8	sign, air breathing (danger)	250027-935	1
9	decal, LS-16T black 4” ht.	02250071-282	1
10	decal, ISO 9001	02250057-624	1
11	decal, Sullair logo 4 x 32” black	02250059-060	1
12	decal, water drain	250022-810	1
13	decal, water in	250019-107	1
14	decal, water inlet-outlet	049873	1
15	decal, water out	250019-108	1

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

Section 9
ILLUSTRATIONS AND PARTS LIST

9.28 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS- 300-450HP / 224-336KW AIR-COOLED



CUSTOMER FURNISHED LINE
WATER LINE
CONTROL LINE
FLUID LINE
AIR/FLUID LINE
TEMP. CONTROL PROBE

FIELD CONNECTION LEGAND:
AA -- 2-1/2" R.F. 300# ANSI FLANGE(PACKAGE OUTLET)
BB -- 2-1/2" R.F. 300# ANSI FLANGE(AFTERCOOLER INLET)
CC -- 2"NPT(PACKAGE OUTLET OIL PLATE)
DD -- 2-1/2"-12 SAE CODE 61 FLANGE(OIL COOLER INLET)
EE -- 2-1/2"-12 SAE CODE 61 FLANGE(OIL COOLER OUTLET)
FF -- 2"NPT(PACKAGE INLET OIL PLATE)
GG -- 3/4"-16 SAE EQUILIZING PORT(OIL COOLER OUTLET HEADER PORT)
HH -- 1/2"NPT EQUILIZING PORT(PACKAGE FRAME PORT)

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY, REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CUSTOMER TO SUPPLY PIPE/TUBE/HOSE BETWEEN COMPRESSOR PACKAGE AND COOLER(REFER TO FIELD CONNECTION LEGAND FOR PORT SIZINGS).
3. ITEMS #20 & #41 PART OF COOLER PACK ASSEMBLY 02250150-106.

02250154-925R00

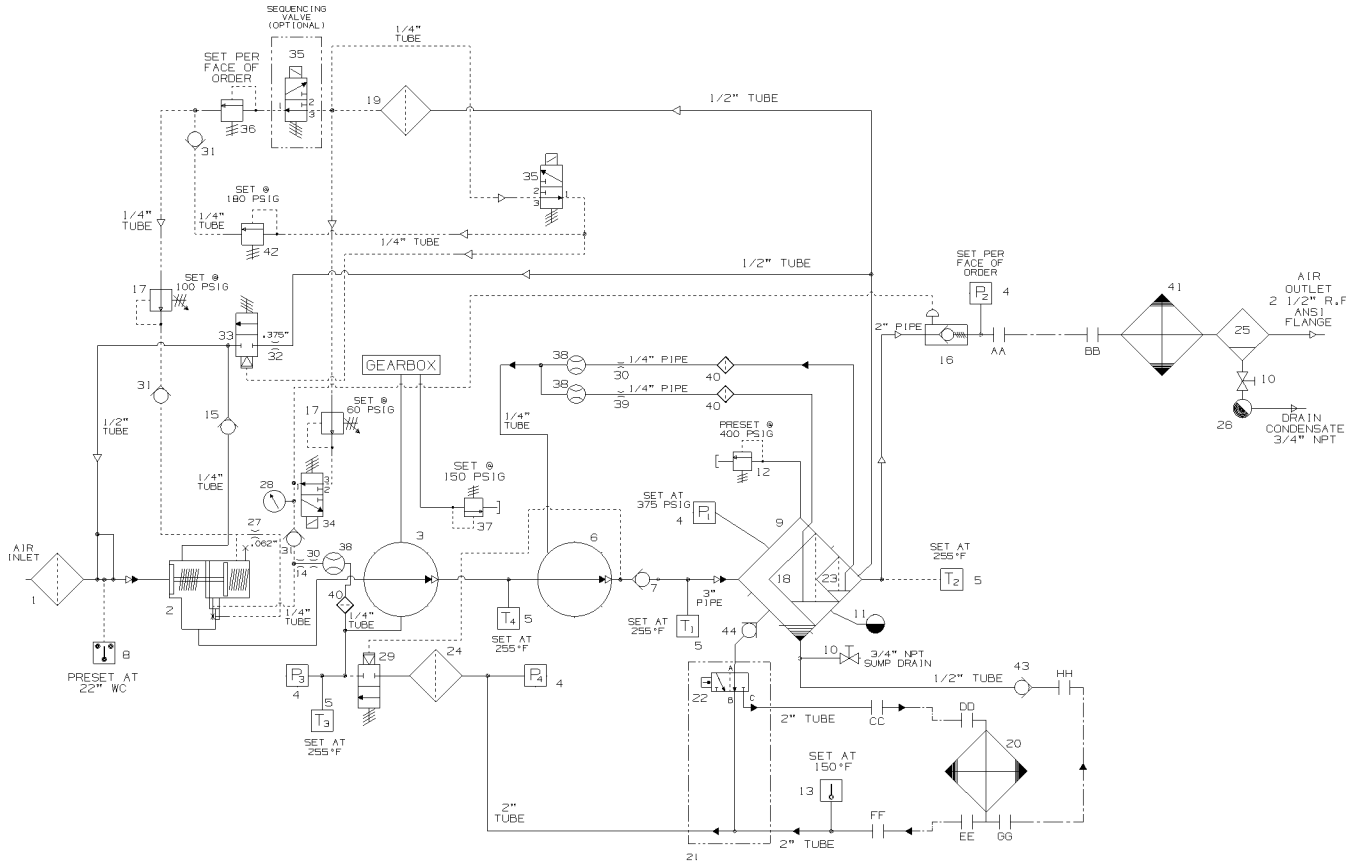
9.28 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS- 300-450HP / 224-336KW AIR-COOLED

key number	*description*	*part number*	*quantity*
1	filter, air	48456	1
2	valve, poppet	02250140-758	1
3	compressor, h.p. unit	-	1
4	xdcr, press 0-500* 1-5vdc n4	02250155-645	4
5	p, rtd 100 ohm	02250085-087	4
6	compressor, h.p. stage	-	1
7	valve, discharge check	02250127-507	1
8	sw, vac 22"wc n4 6' cable	02250078-249	1
9	tank, sump w/swing lid	02250154-918	1
10	valve, ball 3/4" npt	02250117-792	2
11	glass, sight	02250097-611	1
12	valve, relief-400 psi	02250137-688	1
13	switch, temp -fan control	02250147-880	1
14	orf, .032" 1/4m x 1/4m	02250101-191	1
15	valve, check 1/2"	42694	1
16	valve, minimum pressure	250031-852	1
17	regulator, down stream	02250139-030	2
18	element, separator primary	02250119-666	1
19	fltr, coalescing 425*	02250058-442	1
20	cooler, oil	02250155-366	1
21	valve, thermal assy	02250139- 130	1
22	element, thermal vlv 2300 f	02250139 -864	1
23	element, separator secondary	02250119-667	1
24	filter, bearing oil	02250111-592	1
25	separator, water	406746	1
26	trap, drain	250006-639	1
27	orifice, .062" 1/4"m x 1/4"f	02250118-585	1
28	gauge, pressure	022501 17- 009	1
29	valve, oil stop	250041 -069	1
30	orifice, 0.032"	02250125-774	2
31	valve, check	02250110-557	3
32	restrictor, pipe. 375" dia.	866406-000	1
33	valve, running blowdown n.c.	45116	1
34	valve, solenoid 3-way n.o.	02250125-657	1
35	valve, solenoid 3-way n.o.	407390	2
36	regulator, back pressure	02250140-060	1
37	valve, relief gearbox-150psi	40647	1
38	glass, sight	02250126-129	3
39	orifice, 3/32"	02250125-776	1

Continued on page 127

Section 9
ILLUSTRATIONS AND PARTS LIST

9.28 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS- 300-450HP / 224-336KW AIR-COOLED



CUSTOMER FURNISHED LINE
WATER LINE
CONTROL LINE
FLUID LINE
AIR/FLUID LINE
TEMP. CONTROL PROBE

FIELD CONNECTION LEGAND:
AA -- 2-1/2" R.F. 300# ANSI FLANGE(PACKAGE OUTLET)
BB -- 2-1/2" R.F. 300# ANSI FLANGE(AFTERCOOLER INLET)
CC -- 2"NPT(PACKAGE OUTLET OIL PLATE)
DD -- 2-1/2"-12 SAE CODE 61 FLANGE(OIL COOLER INLET)
EE -- 2-1/2"-12 SAE CODE 61 FLANGE(OIL COOLER OUTLET)
FF -- 2"NPT(PACKAGE INLET OIL PLATE)
GG -- 3/4"-16 SAE EQUILIZING PORT(OIL COOLER OUTLET HEADER PORT)
HH -- 1/2"NPT EQUILIZING PORT(PACKAGE FRAME PORT)

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CUSTOMER TO SUPPLY PIPE/TUBE/HOSE BETWEEN COMPRESSOR PACKAGE AND COOLER(REFER TO FIELD CONNECTION LEGAND FOR PORT SIZINGS).
3. ITEMS #20 & #41 PART OF COOLER PACK ASSEMBLY 02250150-106.

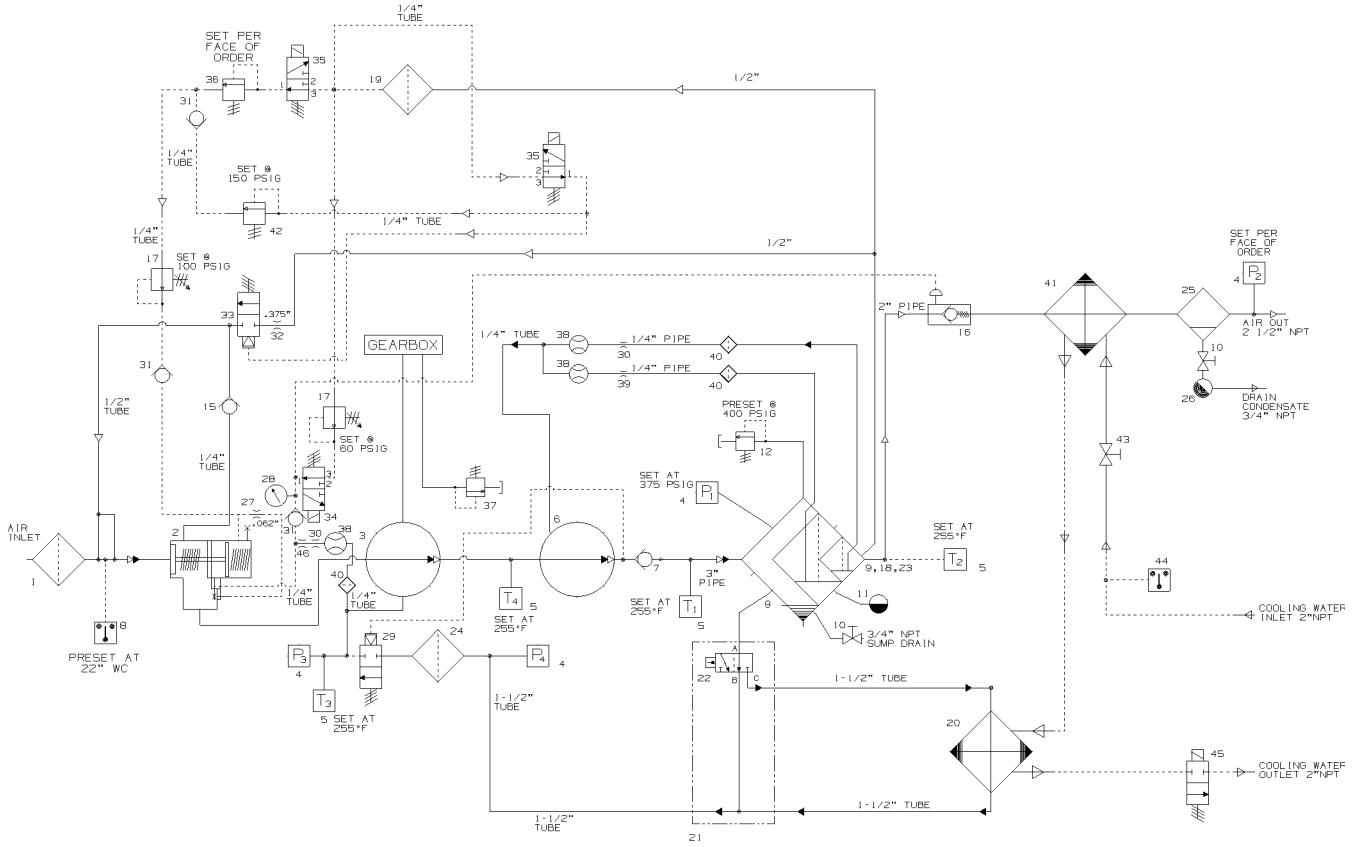
02250154-925R00

9.28 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS- 300-450HP / 224-336KW AIR-COOLED (CONTINUED)

key number	*description*	*part number*	*quantity*
40	strainer, oil return	02250117-782	3
41	aftercooler, air	02250150-109	1
42	valve, pressure regulator	02250140-060	1
43	valve, check 1/2"	42694	1
44	valve, check sae insert	02250148 -367	1

Section 9
ILLUSTRATIONS AND PARTS LIST

9.29 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 300-450HP / 224-336 KW WATER-COOLED



CUSTOMER FURNISHED LINE

WATER LINE

CONTROL LINE

FLUID LINE

AIR/FLUID LINE

TEMP. CONTROL PROBE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.

02250158-059R00

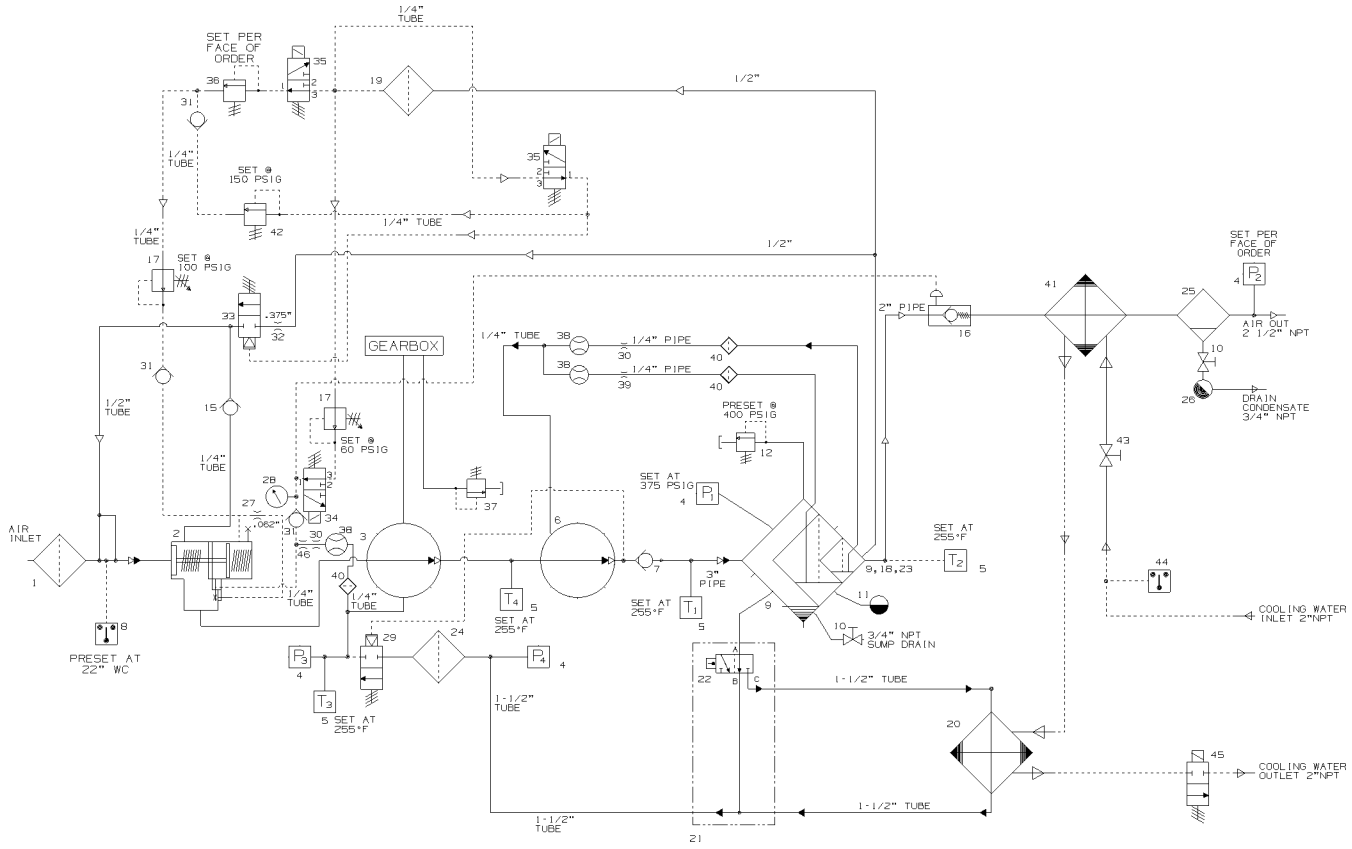
9.29 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 300-450HP / 224-336 KW WATER-COOLED

key number	*description*	*part number*	*quantity*
1	filter, air	048456	1
2	valve, poppet	02250140-758	1
3	compressor, h.p. unit		1
4	xdcr, press 0-500# 1-5vdc n4	02250085-652	4
5	p, rtd 100 ohm	250039-909	4
6	compressor, h.p. stage		1
7	valve, discharge check	02250116-467	1
8	sw, vac 22”wc n4 6’ cable	02250078-249	1
9	tank, sump	02250154-918	1
10	valve, ball 3/4” npt	02250117-792	2
11	glass, sight	02250097-611	1
12	valve, relief-400 psi	02250137-688	1
13	switch, high discharge pressure	245753	1
14	gauge, sump pressure	048061	1
15	valve, check 1/2”	042694	1
16	valve, minimum pressure	250031-852	1
17	regulator, down stream	02250139-030	2
18	element, separator primary	02250119-666	1
19	fltr, coalescing 425#	02250058-442	1
20	cooler, oil	02250139-060	1
21	valve, thermal assy	02250139-130	1
22	element, thermal vlv 230 degf	02250139-864	1
23	element, seperator secondary	02250119-667	1
24	filter, bearing oil	02250111-592	1
25	separator, water	406746	1
26	trap, drain	250006-639	1
27	orifice, .062” 1/4”m x 1/4”f	02250118-585	1
28	gauge, pressure	02250117-009	1
29	valve, oil stop	250041-069	1
30	orifice, 0.032”	02250125-774	2
31	valve, check	02250110-557	3
32	restrictor, pipe .375” dia	866406-000	1
33	valve, running blowdown n.c.	045116	1
34	valve, solenoid 3-way n.o.	02250125-657	1
35	valve, solenoid 3-way n.o.	407390	2
36	regulator, back pressure	02250146-060	1
37	valve, relief gearbox-150psi	040647	1
38	glass, sight	02250126-129	3

Continued on page 131

Section 9
ILLUSTRATIONS AND PARTS LIST

9.29 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 300-450HP / 224-336 KW WATER-COOLED



CUSTOMER FURNISHED LINE

WATER LINE

CONTROL LINE

FLUID LINE

AIR/FLUID LINE

TEMP. CONTROL PROBE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.

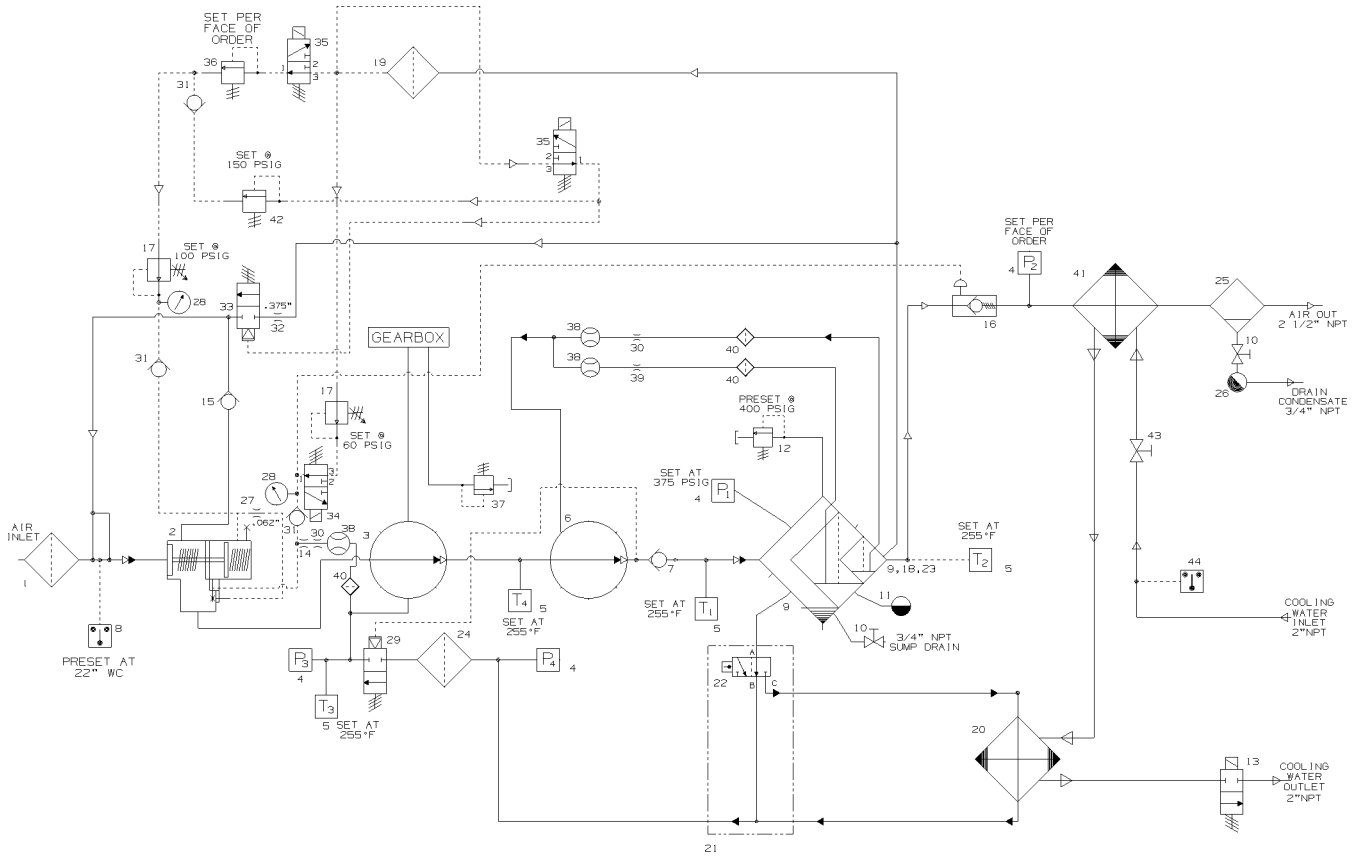
02250158-059R00

9.29 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 300-450HP / 224-336 KW WATER-COOLED (CONTINUED)

key number	*description*	*part number*	*quantity*
39	orifice, 3/32”	02250125-776	1
40	strainer, oil return	02250117-782	3
41	aftercooler, air	02250139-059	1
42	valve, pressure regulator	02250146-060	1
43	valve, globe 2”	042281	1
44	switch, press no 10 psi	250017-992	1
45	valve, solenoid 2way nc	408994	1
46	orf, .032” 1/4m x 1/4m	02250101-191	1

Section 9
ILLUSTRATIONS AND PARTS LIST

9.30 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 500-600HP / 373-447KW WATER-COOLED



CUSTOMER FURNISHED LINE

WATER LINE

CONTROL LINE

FLUID LINE

AIR/FLUID LINE

TEMP. CONTROL PROBE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY, REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.

02250157-908R00

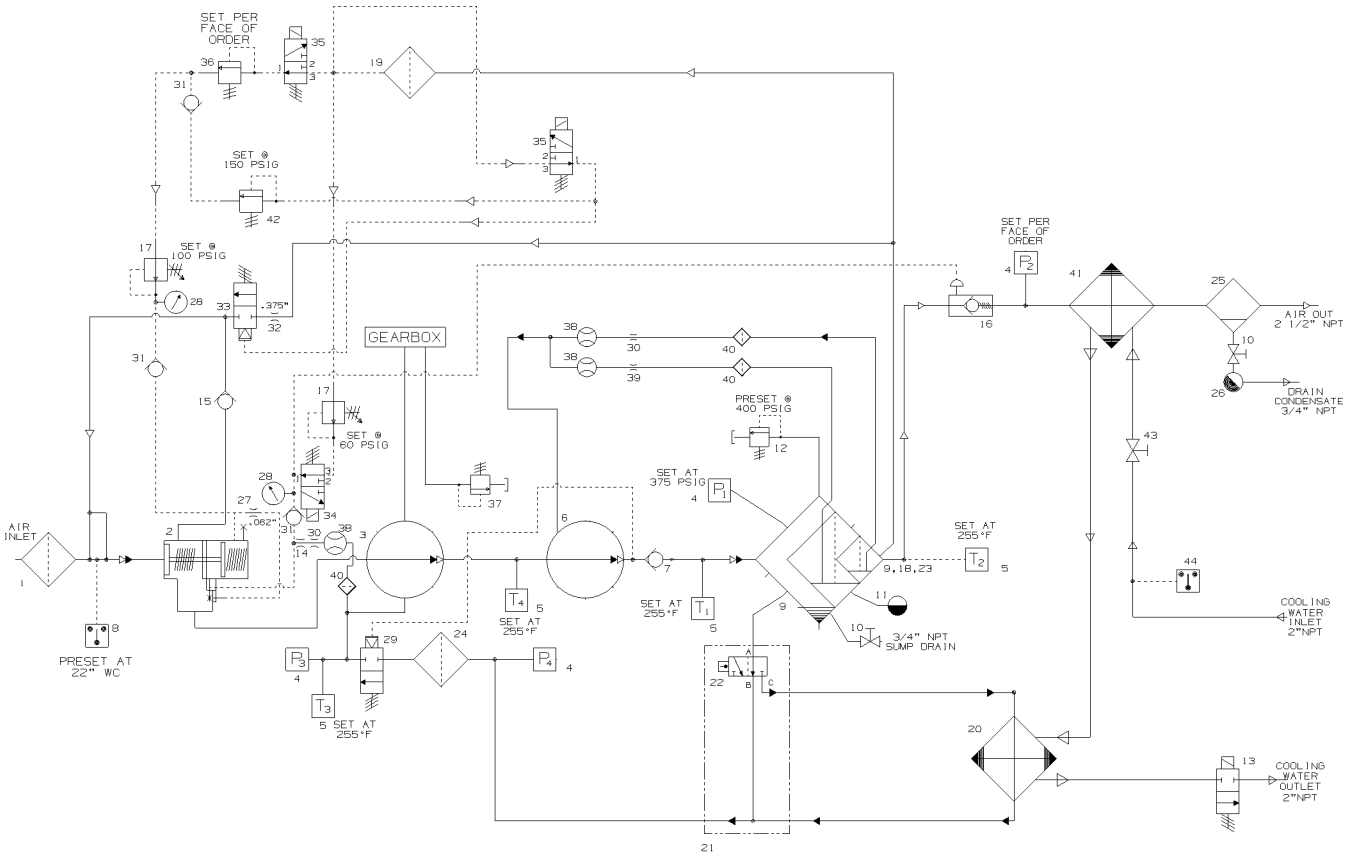
9.30 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 500-600HP / 373-447KW WATER-COOLED

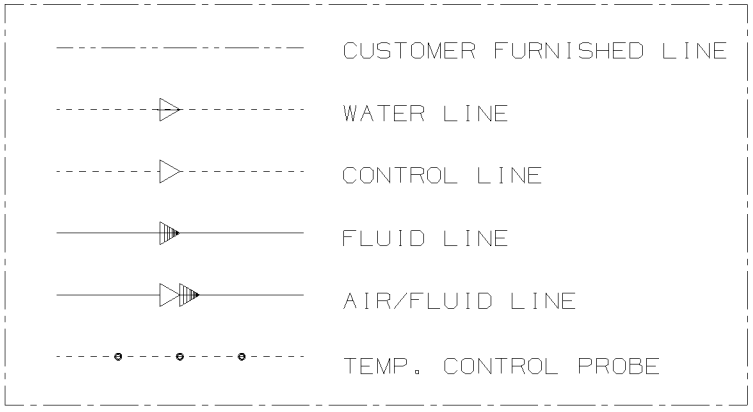
key number	*description*	*part number*	*quantity*
1	filter, air	48456	1
2	valve, poppet	02250140-758	1
3	compressor, h.p. unit	-	1
4	xdcr, press 0-500# 1-5vdc n4	02250085-652	4
5	p, rtd 100 ohm	250039-909	4
6	compressor, h.p. stage	-	1
7	valve, discharge check	02250127-507	1
8	sw, vac 22'ywc n4 6 y cable	02250078 -249	1
9	tank, sump	02250154-918	1
10	valve, ball 3/4'y npt	02250117-792	2
11	glass, sight	02250097-611	1
12	valve, relief-400 psi	02250137-688	1
13	valve, solenoid 2way nc	408994	1
14	orf, .032" 1/4m x 1/4m	02250101-191	1
15	valve, check 1/2yy	42694	1
16	valve, minimum pressure	250031-852	1
17	regulator, down stream	02250139-030	2
18	element, separator primary	02250152-893	1
19	fltr, coalescing 425#	02250058-442	1
20	cooler, oil	02250139-062	1
21	valve, thermal assy	02250139-130	1
22	element, thermal vlv 230°f	02250139-864	1
23	element, separator secondary	02250152-894	1
24	filter, bearing oil	02250111-592	1
25	separator, water	02250153-014	1
26	trap, drain	250006-639	1
27	orifice, .062" 1/4yym x 1/4y'f	02250118-585	1
28	gauge, pressure	02250117-009	2
29	valve, oil stop	250041-069	1
30	orifice, o. 032yy	02250125-774	2
31	valve, check	02250110-557	3
32	restrictor, pipe. 375yy dia	866406-000	1
33	valve, running blowdown n.c.	45116	1
34	valve, solenoid 3-way n.o.	02250125-657	1
35	valve, solenoid 3-way n.o.	407390	2
36	valve, pressure regulator	02250140-060	1
37	valve, relief gearbox-150psi	40647	1
38	glass, sight	02250126-129	3
39	orifice, 3/32yy	02250125- 776	1

Continued on page 135

Section 9
ILLUSTRATIONS AND PARTS LIST

9.30 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 500-600HP / 373-447KW WATER-COOLED





NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY, REFER TO BILL OF MATERIAL AND/OR FACE OF ORDER FOR ACTUAL PARTS.

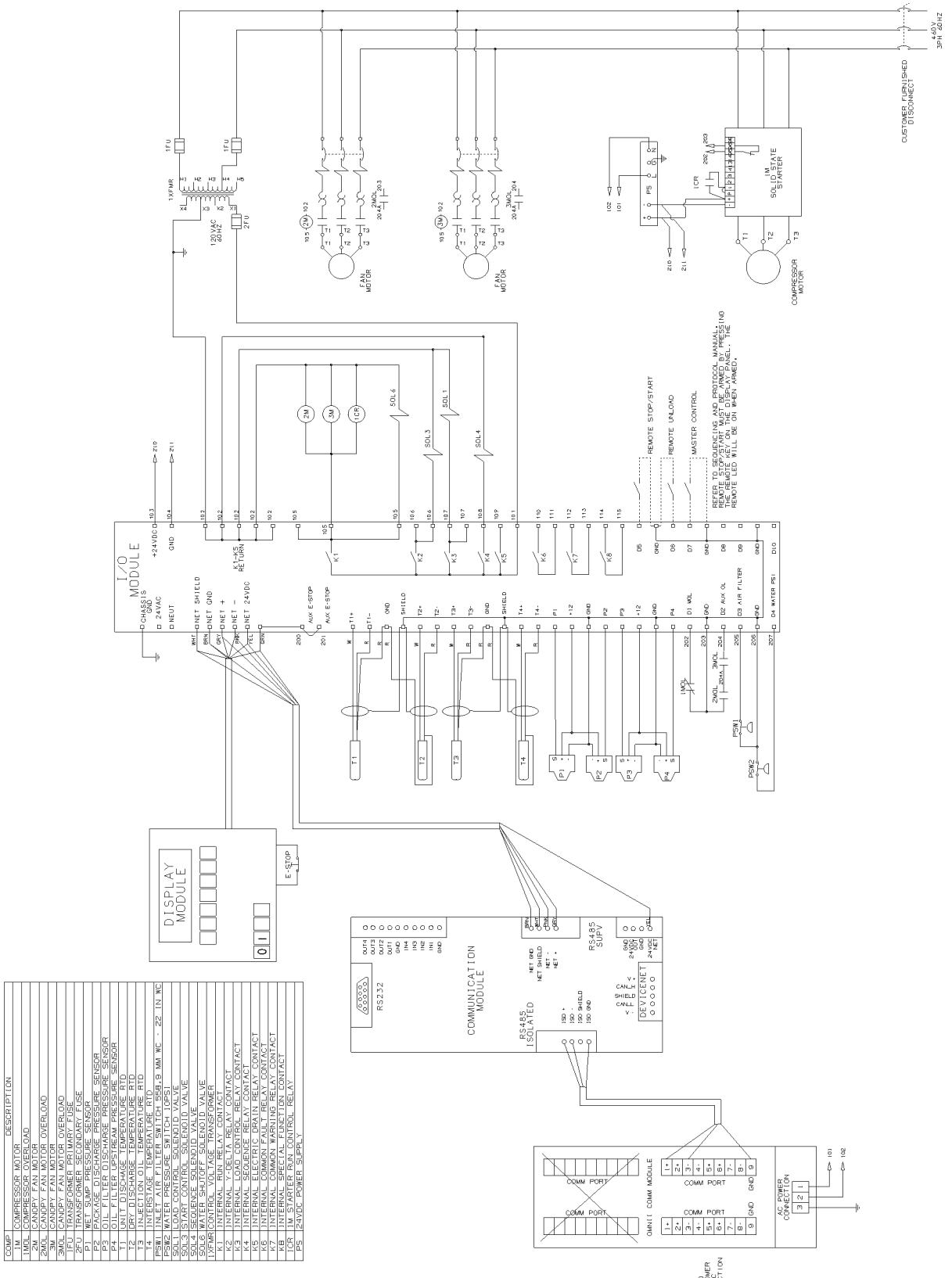
02250157-908R00

9.30 PIPING AND INSTRUMENTATION DIAGRAM- LS20TS 500-600HP / 373-447KW WATER-COOLED (CONTINUED)

key number	*description*	*part number*	*quantity*
40	strainer, oil return	02250117-782	3
41	aftercooler, air	02250139-061	1
42	valve, pressure regulator	02250140-060	1
43	valve, globe 2yy	42281	1
44	switch, press no 10 psi	250017-992	1

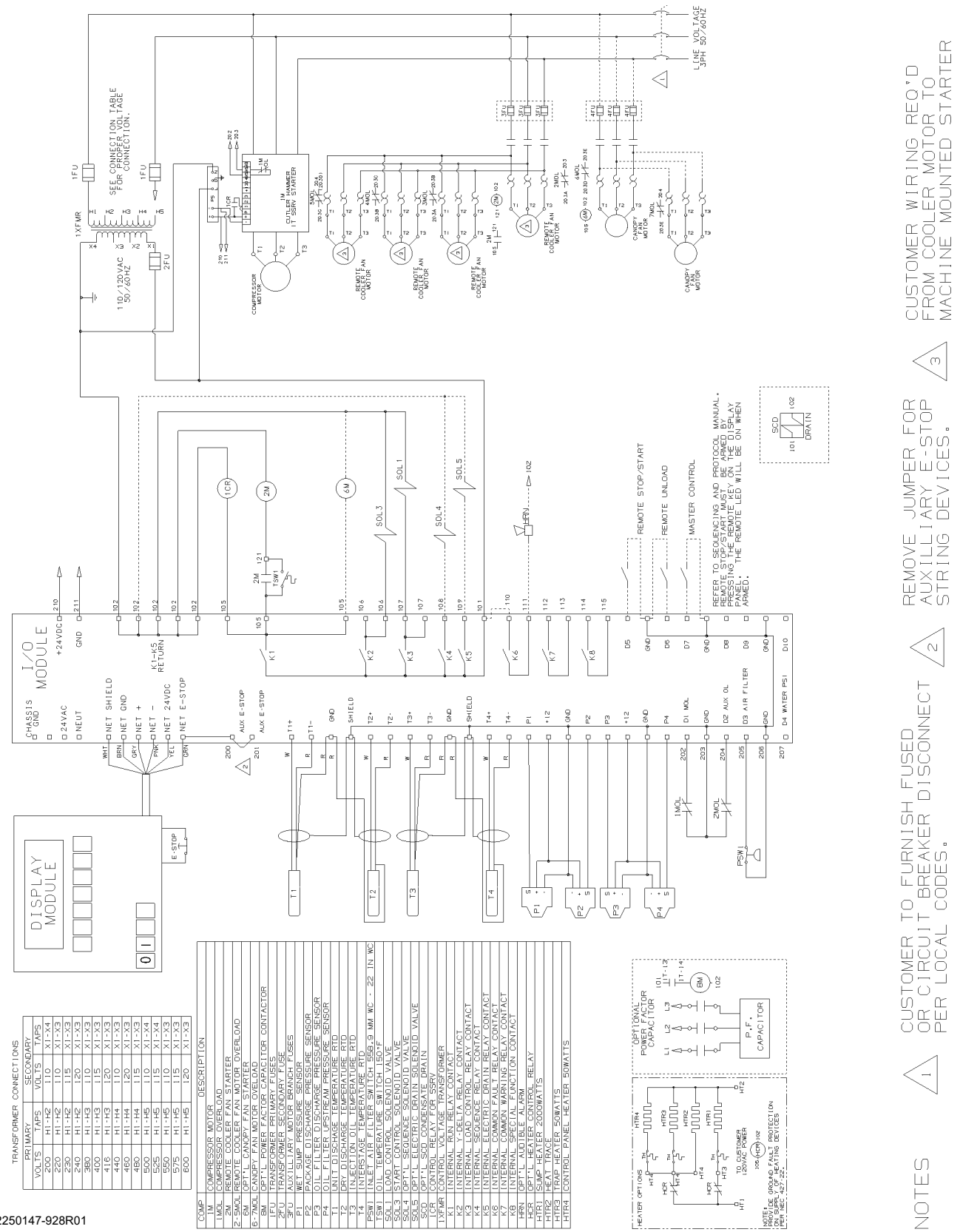
Section 9
ILLUSTRATIONS AND PARTS LIST

9.31 WIRING DIAGRAM- LS20TS WATER-COOLED SOLID STATE STARTER WITH SUPERVISOR CONTROLLER



02250152-582R01

9.32 WIRING DIAGRAM- LS20TS AIR-COOLED SOLID STATE REMOTE COOLER PACK WITH SUPERVISOR CONTROLLER



TRANSFORMER CONNECTIONS

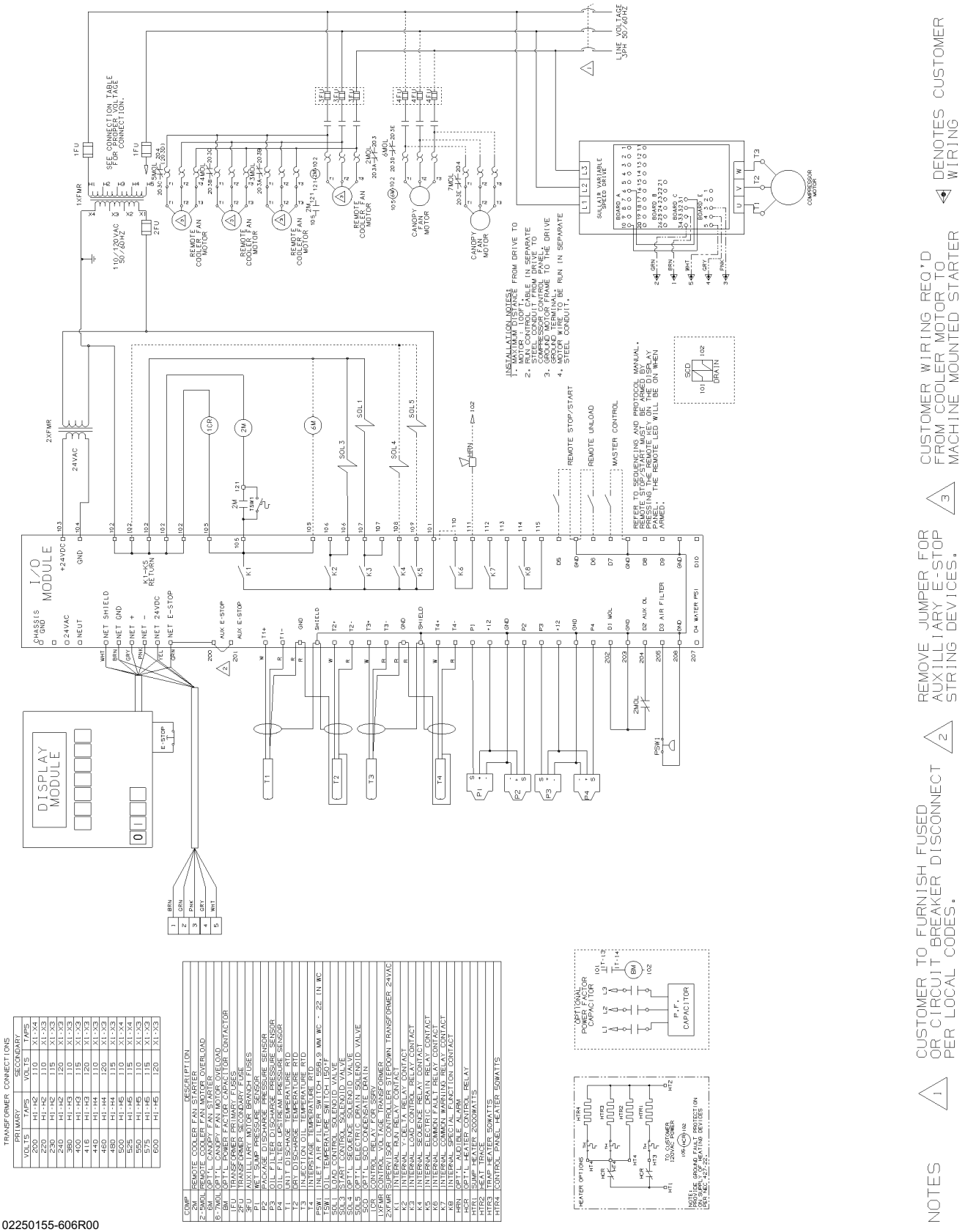
PRIMARY VOLTS	PRIMARY TAPS	SECONDARY VOLTS	SECONDARY TAPS
200	H1-H2	110	X1-X4
220	H1-H2	110	X1-X3
230	H1-H2	115	X1-X3
240	H1-H2	120	X1-X3
380	H1-H3	110	X1-X3
400	H1-H4	110	X1-X3
416	H1-H3	120	X1-X3
440	H1-H4	120	X1-X3
460	H1-H4	120	X1-X3
480	H1-H4	115	X1-X3
500	H1-H5	110	X1-X4
525	H1-H5	115	X1-X4
550	H1-H5	110	X1-X3
575	H1-H5	115	X1-X3
600	H1-H5	120	X1-X3

COMP	DESCRIPTION
1M	COMPRESSOR MOTOR
1MOL	COMPRESSOR OVERLOAD
2M	REMOTE COOLER FAN STARTER
2-5MOL	REMOTE COOLER FAN MOTOR OVERLOAD
6M	OPT'L CANOPY FAN STARTER
6-7MOL	CANOPY FAN MOTOR OVELOAD
8M	TRANSFORMER PRIMARY CAPACITOR CONTACTOR
1FU	TRANSFORMER PRIMARY FUSES
2FU	TRANSFORMER SECONDARY FUSE
3FU	AUXILIARY MOTOR BRANCH FUSES
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
P4	UNIT DISCHARGE TEMPERATURE SENSOR
T1	INJECTION OIL TEMPERATURE RTD
T2	DRY DISCHARGE TEMPERATURE RTD
T3	INTERSTAGE TEMPERATURE RTD
T4	INLET AIR FILTER SWITCH 558.9 MM WC - 22 IN WC
PSW1	OIL TEMPERATURE SWITCH 150°F
TSW1	LOAD CONTROL SOLENOID VALVE
SOL3	START UNLOAD SOLENOID VALVE
SOL4	OPT'L SEQUENCE SOLENOID VALVE
SOL5	OPT'L ELECTRIC DRAIN SOLENOID VALVE
SCD	OPT'L SCD CONDENSATE DRAIN
1CR	CONTROL RELAY FOR SSRV
1XFMR	CONTROL VOLTAGE TRANSFORMER
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL LOAD RELAY CONTACT
K3	INTERNAL LOAD CONTROL RELAY CONTACT
K4	INTERNAL SEQUENCE RELAY CONTACT
K5	INTERNAL ELECTRIC DRAIN RELAY CONTACT
K6	INTERNAL COMMON FAULT RELAY CONTACT
K7	INTERNAL COMMON WARNING RELAY CONTACT
K8	INTERNAL SPECIAL FUNCTION CONTACT
HCR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 2000WATTS
HTR2	HEAT TRACE
HTR3	TRAP HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

02250147-928R01

Section 9
ILLUSTRATIONS AND PARTS LIST

9.33 WIRING DIAGRAM- LS20TS VFD REMOTE COOLER PACK WITH SUPERVISOR CONTROLLER



NOTES

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