SULLAIR®

INDUSTRIAL AIR COMPRESSOR

LS-200S

V-200S

VCC-200S

125-150HP/ 90-110KW

STANDARD AND 24KT

OPERATOR'S MANUAL AND PARTS LIST

KEEP FOR FUTURE REFERENCE

Part Number
02250145-909

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.

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Michigan City, IN 46360

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Section 1
SAFETY

1.1 GENERAL

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.

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 (see back cover).

2.2 DESCRIPTION OF COMPONENTS

Refer to Figure 2-1A (air-cooled) or 2-1B (water-cooled). The components and assemblies of the air compressors are clearly shown. The complete package includes compressor, electric motor, compressor inlet system, compressor discharge system, compressor cooling and lubrication system, capacity control system, and Supervisor control system, all mounted on a heavy gauge steel frame.

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

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

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

2.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

Sullair air compressors feature the Sullair compressor unit, a single-stage, positive displacement, lubricated-type compressor. This unit provides continuous pulse-free air compression to meet your needs. With a Sullair compressor, there is no maintenance or inspection of the internal parts of the compressor unit permitted in accordance with the terms of the warranty.

Sullair 24KT compressors are filled with a fluid which rarely needs to be changed. In the event a change or make-up fluid is required, use only Sullair 24KT fluid.

NOTE

DO NOT mix different types of fluids.

MIXING OF OTHER LUBRICANTS WITHIN THE COMPRESSOR UNIT WILL VOID ALL WARRANTIES.

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

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

- As coolant, it controls the rise of air temperature normally associated with the heat of compression.
- Seals 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 re-injection.

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

2.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

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

NOTE

Standard thermal valve temperature is 175ºF/79ºC (operating temperature of 180ºF/ 82ºC). Thermal valve temperature is 190ºF/88ºC (operating temperature of 195ºF/ 91ºC) for HH, XH and 24KT machines.

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

The pressure in the receiver/sump causes fluid flow

Section 2
DESCRIPTION

Figure 2-1A Sullair Series LS-200S 150HP/ 110KW Rotary Screw Compressor- Air-cooled Version

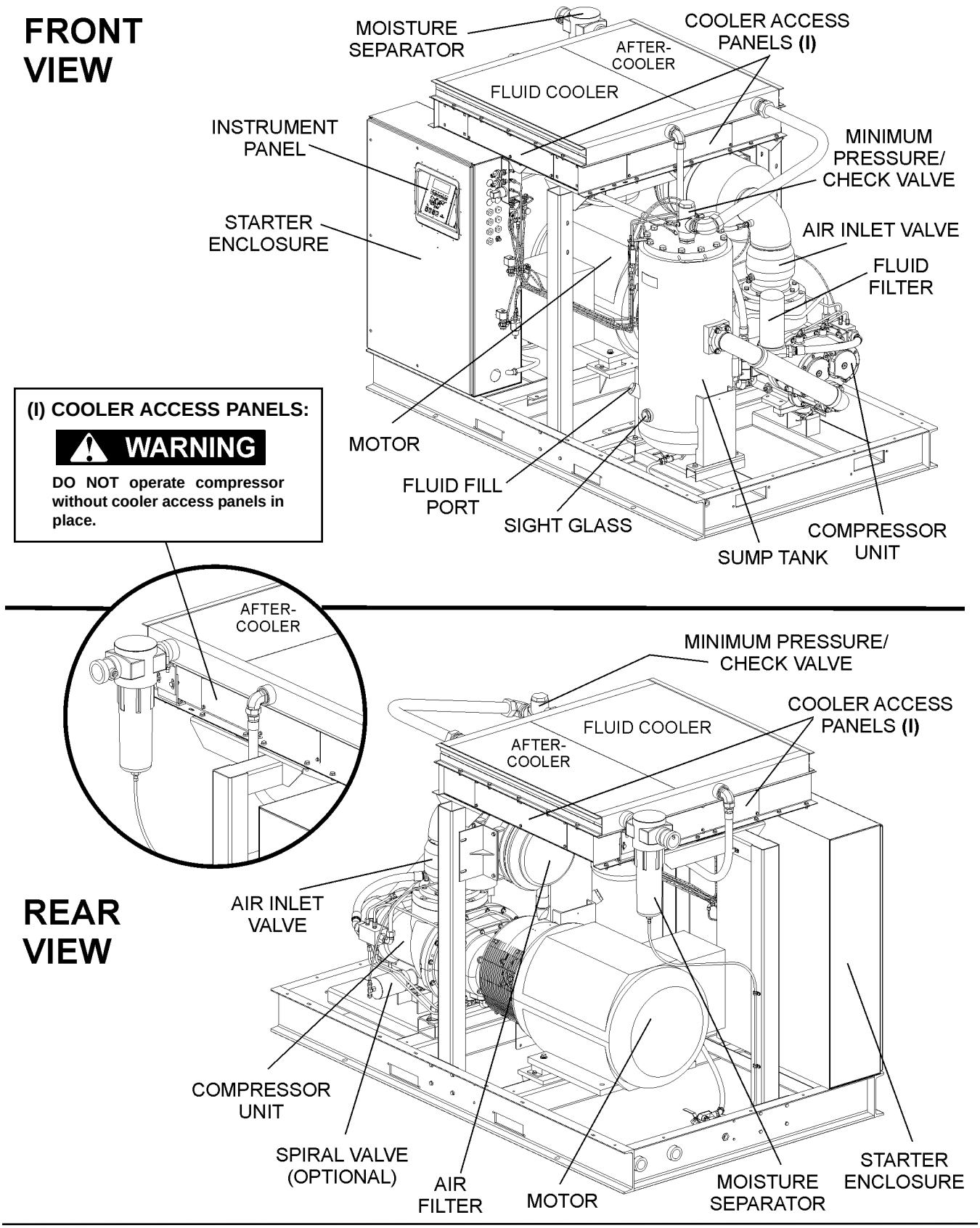
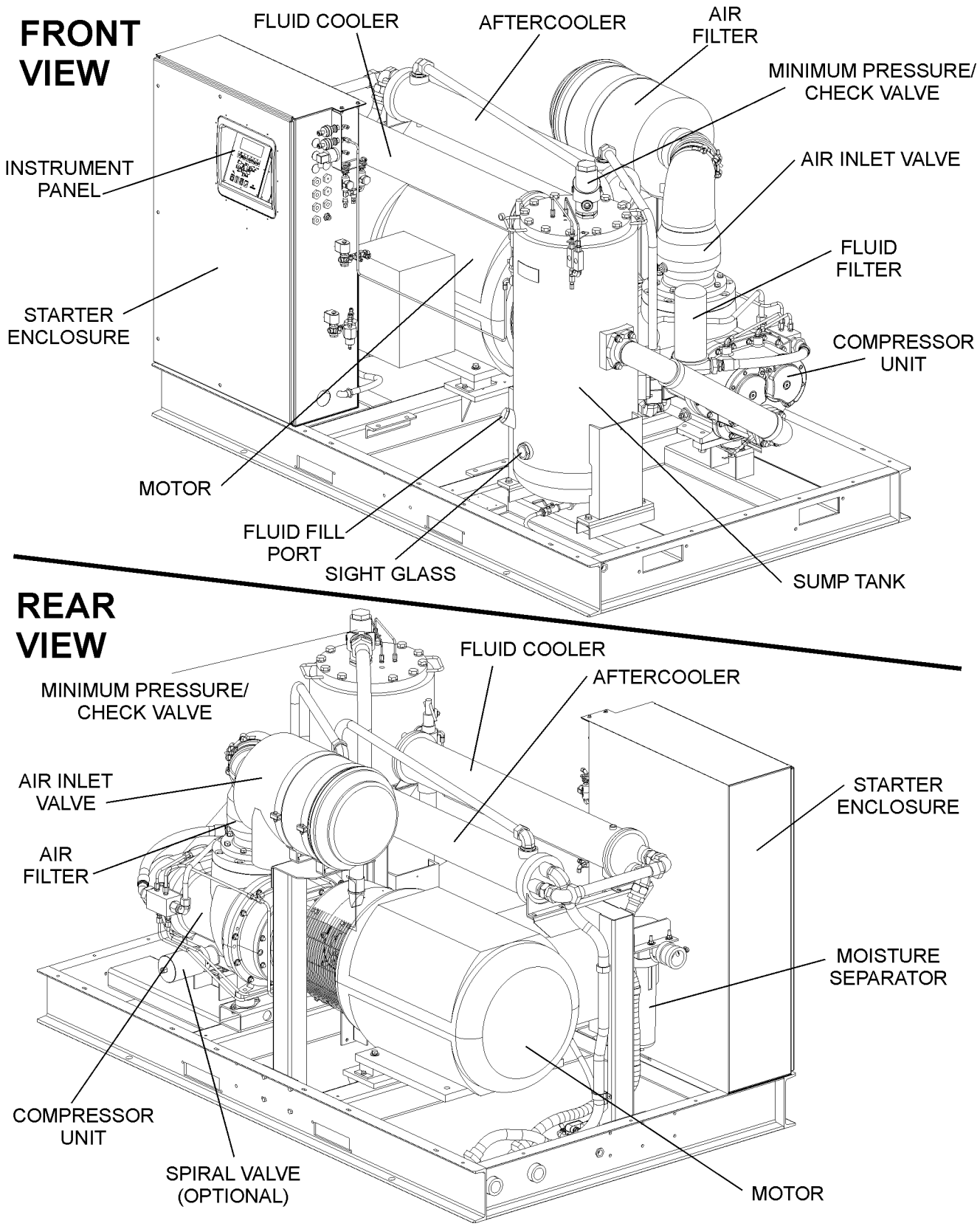


Figure 2-1B Sullair Series LS-200S 150HP/ 110KW Rotary Screw Compressor- Water-cooled Version



by forcing the fluid from the high pressure area of the sump to an area of lower pressure in the compressor unit.

Fluid flows from the bottom of the receiver/sump to the thermal valve. The thermal valve is fully open to the compressor unit when the fluid temperature is below 180ºF (82ºC). The fluid passes through the thermal valve, the main filter and directly to the compressor unit where it lubricates, cools and seals the rotors and the compression chamber.

As the discharge temperature rises above 180ºF (82ºC), due to the heat of compression, the thermal valve begins to close and a portion of the fluid then flows through the cooler. From the cooler, the fluid flows to the main filter and on to the compressor unit.

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

Water-cooled models have a water pressure switch to prevent operation with inadequate water pressure.

2.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-2 and 2-4. The compressor unit discharges the compressed air/fluid mixture into the combination receiver/sump. 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 through a centrifugal baffle. Through centrifugal action and a velocity reduction large droplets of fluid form and fall to the bottom of the receiver/sump. The fractional percentage of fluid remaining in the compressed air collects on the surface of the dual separator elements as the compressed air flows through them. Two return lines (or scavenge tubes) lead from the bottom of each separator element to the low pressure region of the compressor unit. Fluid collecting on the bottom of each separator is returned to the compressor by a pressure difference between the receiver and the compressor inlet. Sight glasses are located in the return lines to observe this fluid flow. There are also orifices (protected by strainers) within the sight glasses to assure proper flow. When the total pressure drop across the elements exceeds 10 psid (0.7 bar), the Supervisor displays a maintenance requirement message.

The receiver is a pressure vessel designed and built to codes administered by appropriate governing bodies. A combination minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 50 psig (3.5 bar) during all conditions. This pressure is necessary for proper air/fluid separation and proper fluid circulation while supplying air to the system. This valve also acts as a check valve preventing compressed air in the service line from bleeding back into the receiver on shutdown and during operation on the compressor in an unloaded condition.

A pressure relief valve (located on the wet side of the separator) is set to open if the sump pressure exceeds 210 psi (14.5 bar). For added safety the Supervisor is programmed to shutdown the package when:

a) A pressure level, above unload setting but below relief valve setting, is reached.

b) A temperature level exceeding 235ºF (113ºC) is reached.

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

LS-200S models are equipped with a high pressure shutdown protection to shut down the compressor at 20 psig (1.4 bar) above rated pressure. This prevents the pressure relief valve from opening under routine conditions, thereby preventing fluid loss through the pressure relief valve. A temperature switch will shut down the compressor if the discharge temperature reaches 235ºF (113ºC).

⚠ WARNING

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

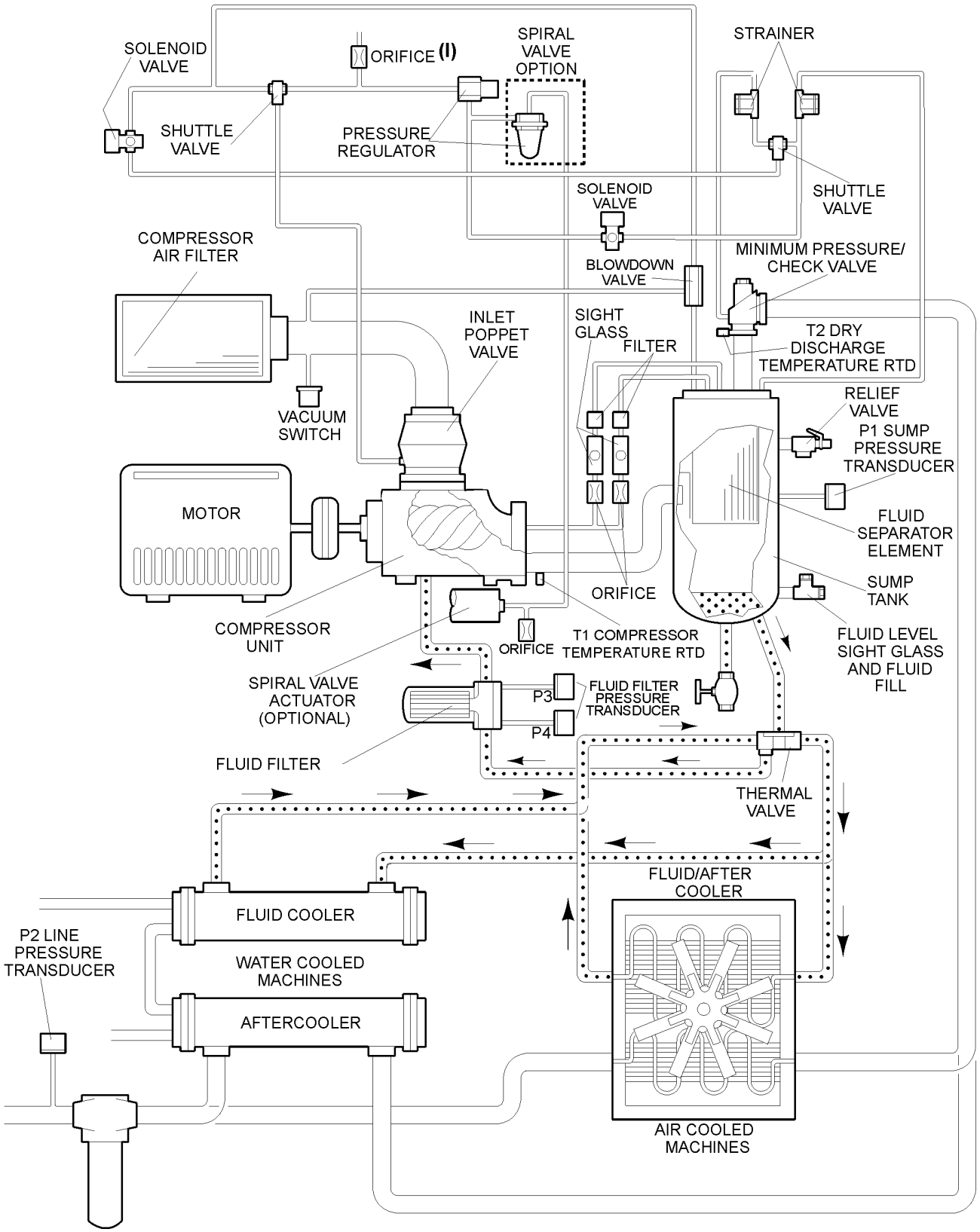
Stop compressor and relieve all internal pressure before doing so.

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

2.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION- SUPERVISOR CONTROLLER™

Refer to Figures 2-5A, 2-5B, 2-5C, 2-5D and 2-5E. The purpose of the compressor Control System is to regulate the amount of air being compressed to

Figure 2-2 Compressor Piping and Instrumentation Diagram



(I) Orifice not used with spiral valve machines.

Figure 2-3 Compressor Cooling and Lubrication System Diagram

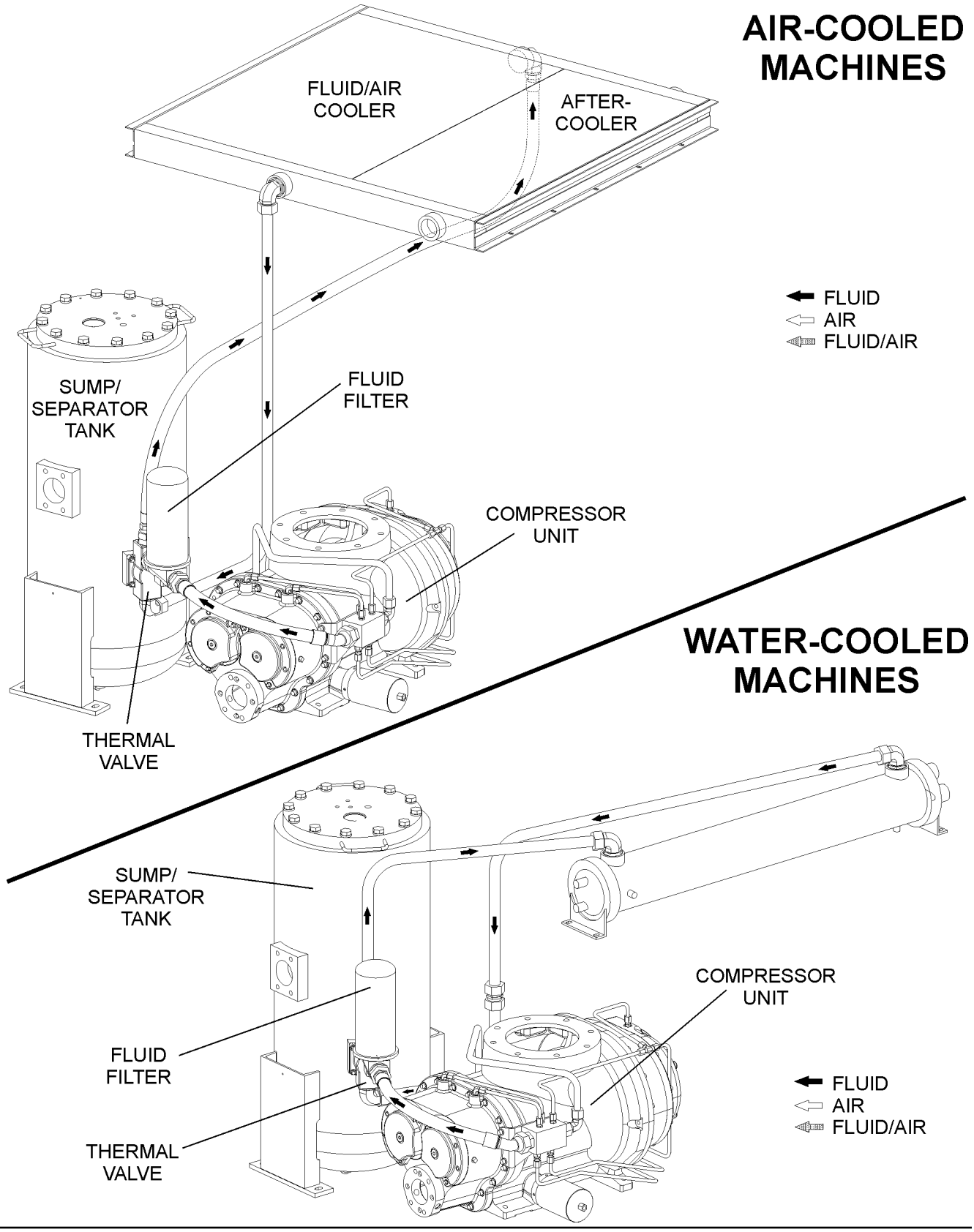


Figure 2-4 Compressor Discharge System Diagram

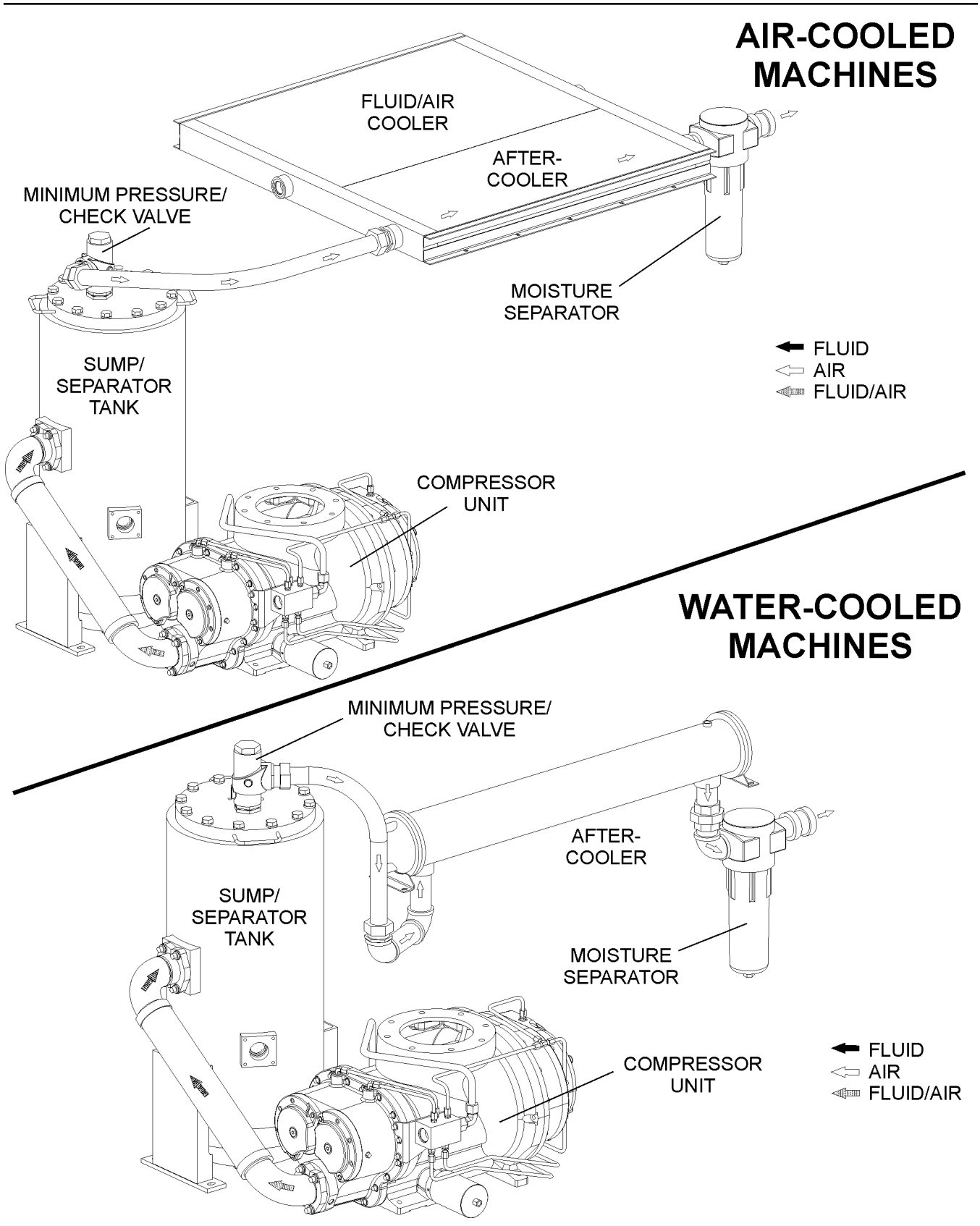
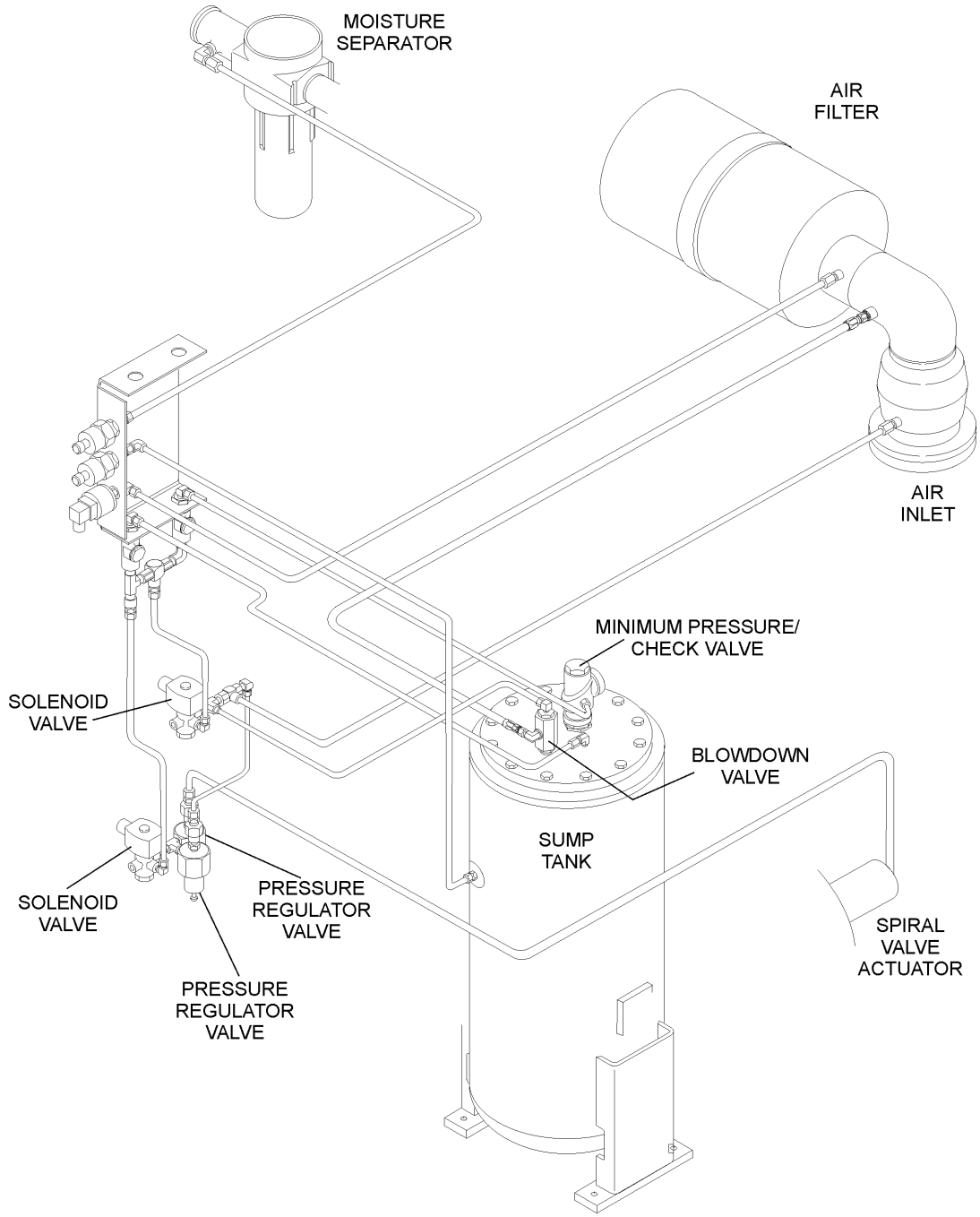


Figure 2-5A Control System Diagram- Overview

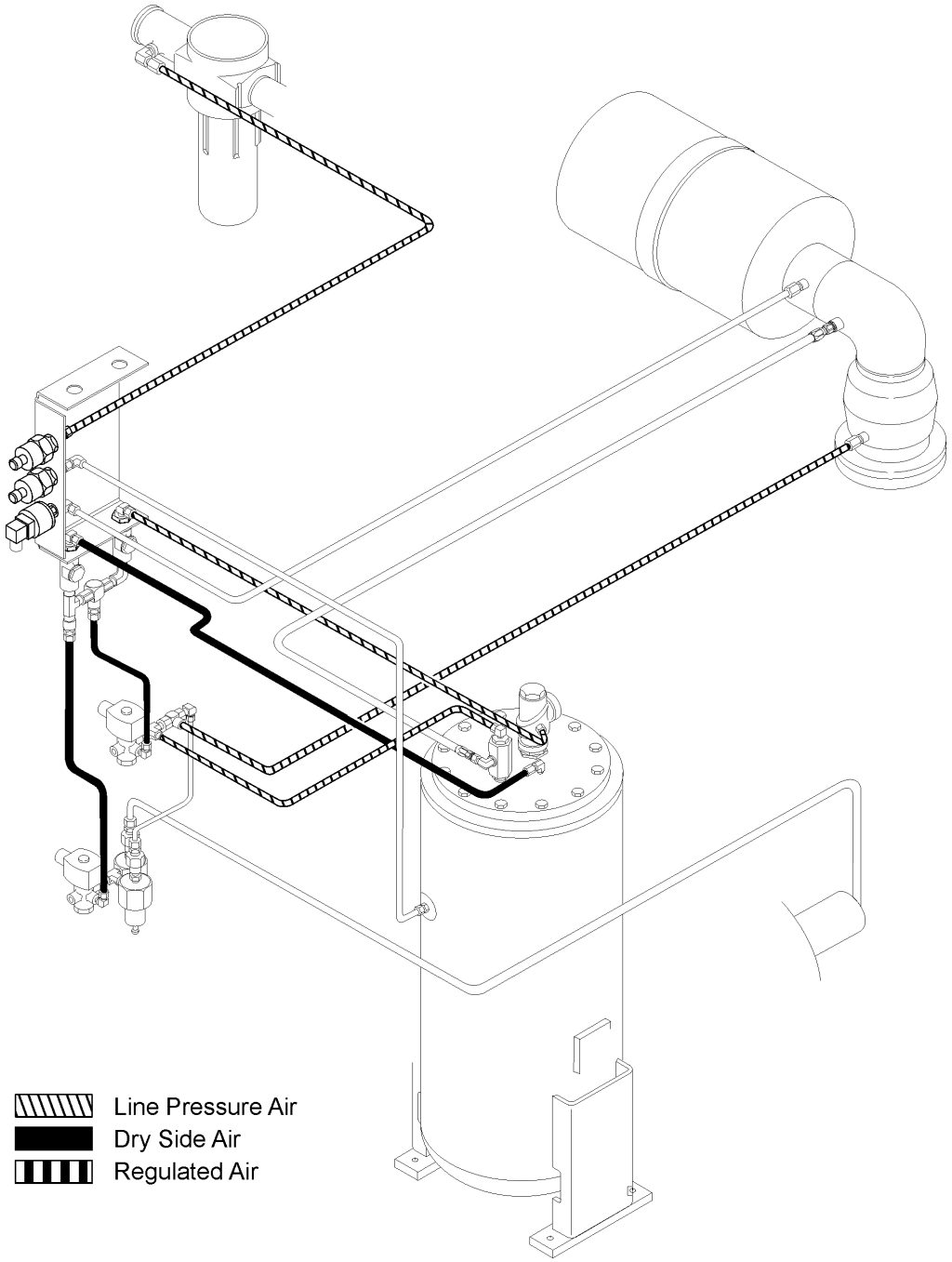


match the amount of compressed air being used. The **Capacity Control System** consists of a **pneumatic inlet valve**, **solenoid valve**, **pressure regulator valves** and a **pressure transducer**. The functional description of the Control System is described below in four distinct phases of operation. The following description text applies to all LS-200S series compressors with the Supervisor Controller. For explanatory purposes, this description will apply to a compressor with an operating range of 100 to 110 psig (6.9 to 7.6 bar). A compressor with any other pressure range would operate in the same manner except stated pressures.

NOTE

Always refer to the machine nameplate for designed operating pressure.

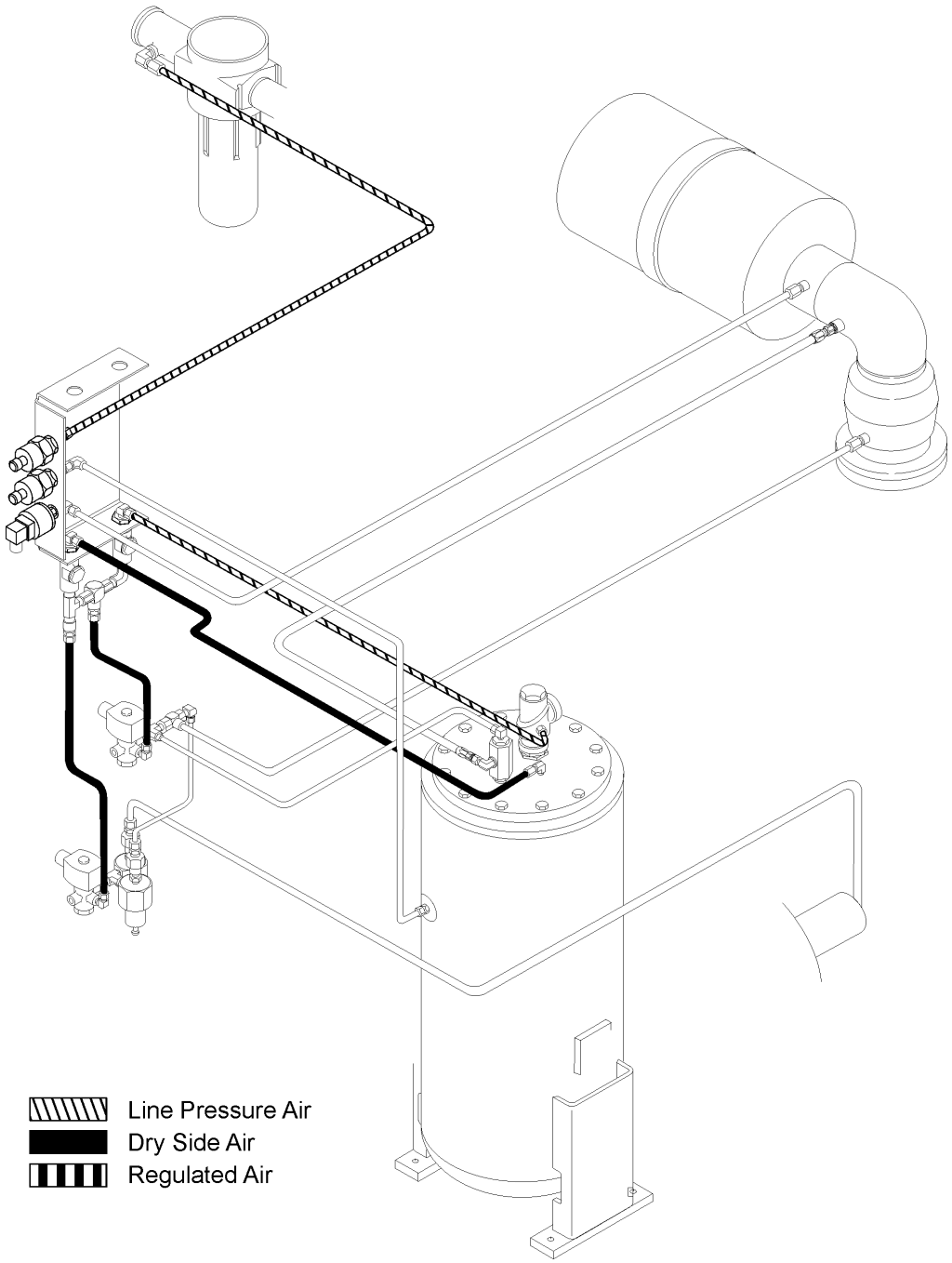
Figure 2-5B Control System Diagram- START



START MODE - 0 TO 50 PSIG (0 TO 3.5 BAR)
Refer to Figures 2-5A and 2-5B. When the compressor I (**START**) pad is depressed, the sump pressure will quickly rise from 0 to 50 psig (0 - 3.4 bar). During this period, both the pressure regulator and the solenoid valve are closed, the inlet valve is fully open and the compressor pumps at full rated capacity. The rising compressor air pressure is isolated from the service line in this phase by the minimum pressure valve set at approximately 50 psig (3.4 bar).

Closed Inlet Start- (Wye-delta or Solid-State starting) applies dry-sump or service air pressure through a solenoid valve to hold the inlet valve closed allowing the compressor to start unloaded. After a preset time (6-10 seconds) the controller will discontinue applying pressure to the inlet valve, and

Figure 2-5C Control System Diagram- FULL LOAD



allow the compressor to continued with the start mode.

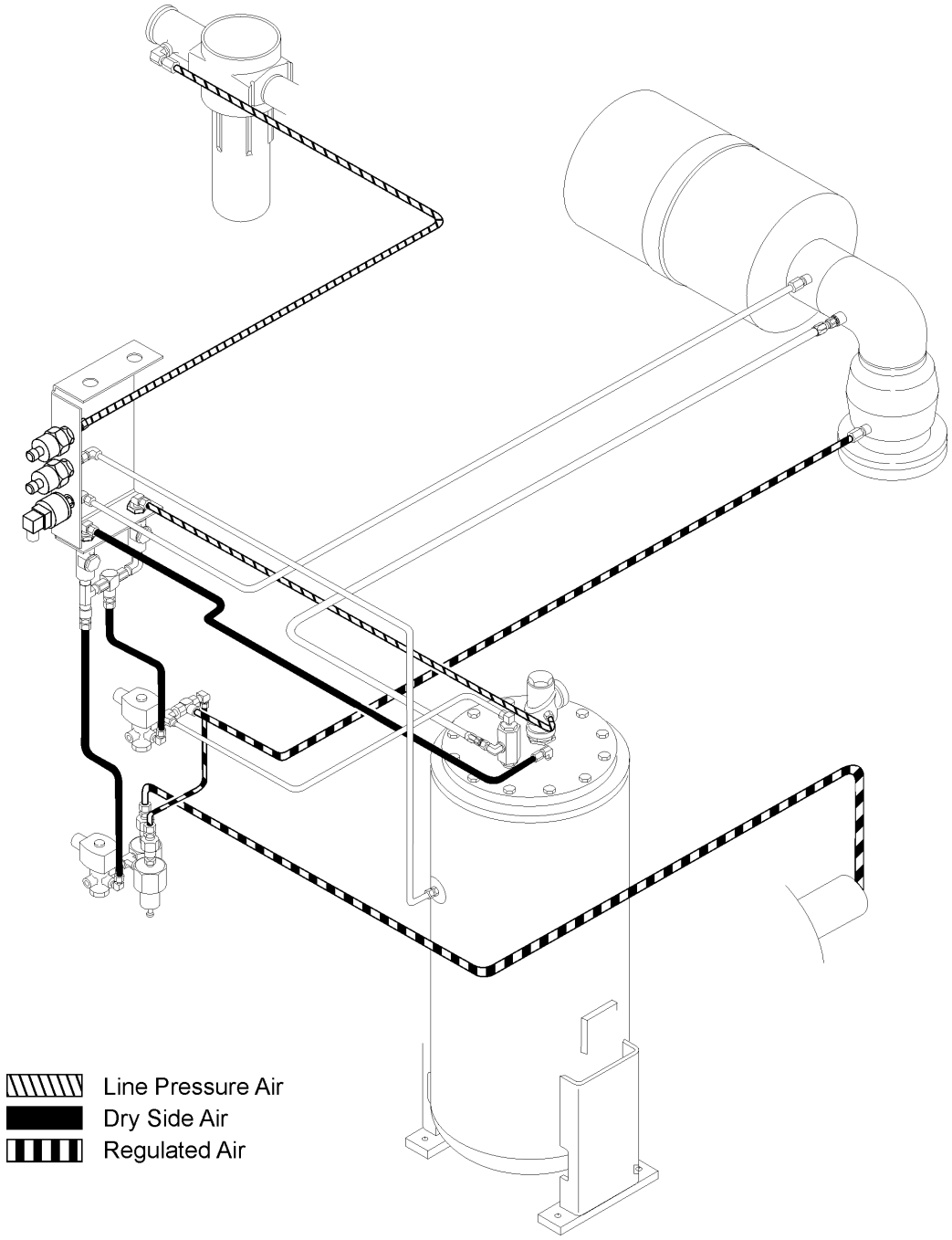
FULL LOAD MODE - 50 TO 100 PSIG (3.4 TO 6.9 BAR)

Refer to Figures 2-5A and 2-5C. When the compressed air pressure rises above 50 psig (3.4 bar), the minimum pressure valve opens allowing compressed air to flow into the service line. From this point on, the line air pressure is continually monitored by the Supervisor. The pressure regulator and the solenoid valve remain closed during this phase. The inlet valve is in the fully open position as long as the compressor is running at 100 psig (6.9 bar) or below.

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

Refer to Figures 2-5A and 2-5D. If less than the rated capacity of compressed air is being used, the

Figure 2-5D Control System Diagram- MODULATION

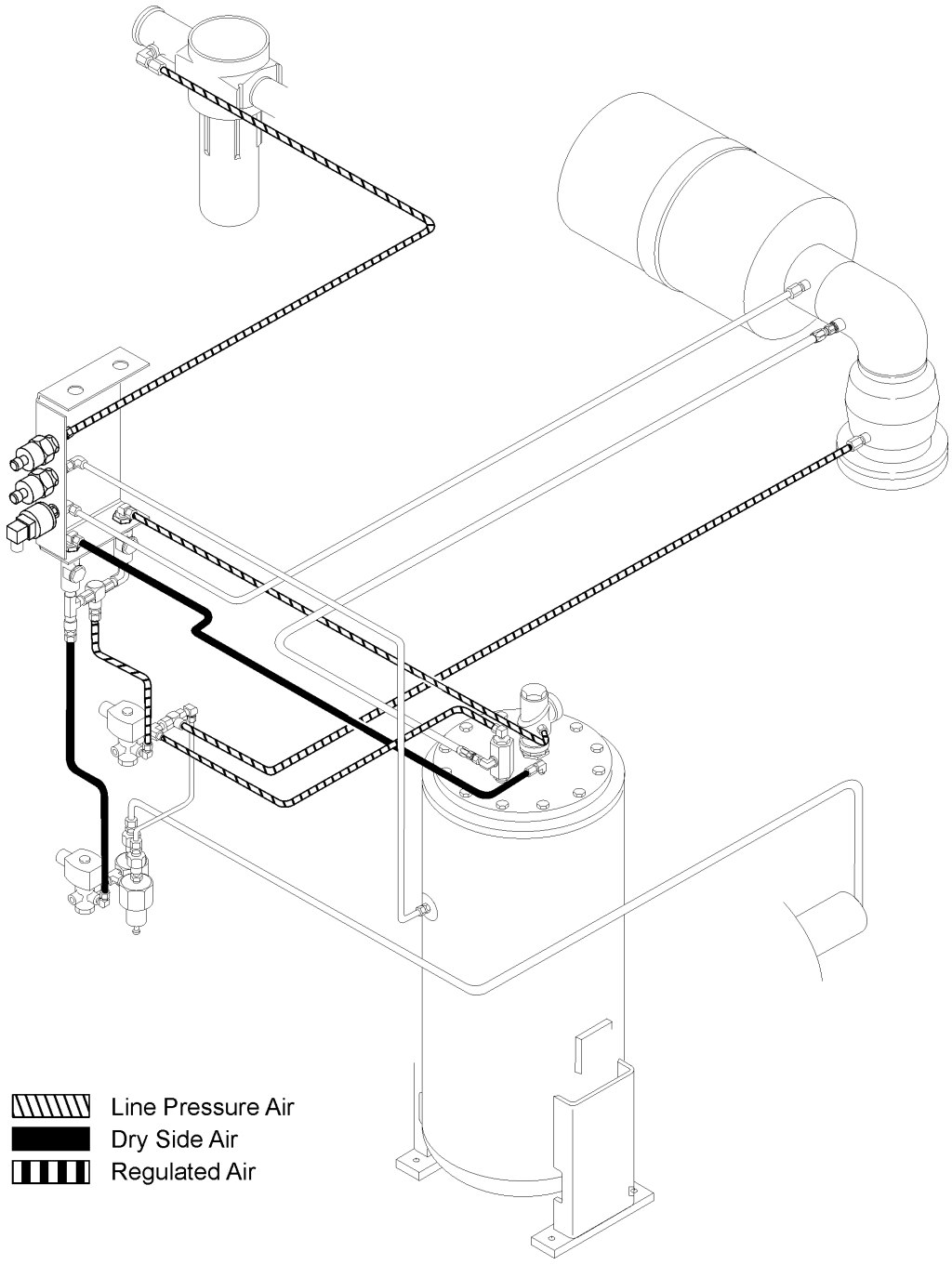


line pressure will rise above 100 psig (6.9 bar), and a pressure regulator starts feeding an air signal to close the inlet poppet valve, throttling the air entering the compressor and thereby reducing the air delivery. The air throttling of the inlet poppet valve system increases proportionately with a rise of line pressure from 101 to 110 psig (7 to 7.6 bar).

MODULATING MODE WITH OPTIONAL SPIRAL VALVE - 100 to 110 PSIG (6.9 TO 7.6 BAR)

Refer to Figures 2-5A and 2-5D. As air demand drops below the rated capacity of the compressor, the line pressure will rise above 100 psig (6.9 bar). As a result, the differential pressure regulator for the spiral valve gradually opens, applying air pressure to the spiral valve actuator. Air pressure at the actuator expands the diaphragm. The rack, in turn, engages with the pinion mounted on the spiral valve shaft assembly. This results in a rotary motion. As the spiral valve rotates, it starts opening the bypass ports gradually. Excess air is then being

Figure 2-5E Control System Diagram- UNLOAD



returned back internally to the suction end of the compressor unit. Now the compressor is fully compressing only that amount of air, which is being used. As air demand keeps dropping further, the spiral valve keeps opening more and more until all the bypass ports are fully open. At this point, the spiral valve has moved into the unload (minimum) position.

The spiral valve provides a modulation range from 100 to 50%. During this period, the pressure rises approximately from 100 to 105 psig (6.9 to 7.2 bar). As the air pressure exceeds 105 psig (7.2 bar), the differential pressure regulator controlling the inlet poppet valve starts opening and forcing the poppet closed, thus throttling inlet air flow to the compressor. The inlet poppet valve provides a modulation range from 50 to 40%. During this period, the pressure rises approximately from 106 to 110 psig (7.3

to 7.6 bar). During this range, the spiral valve remains in the unload position.

UNLOAD MODE - IN EXCESS OF 110 PSIG (7.6 BAR)

Refer to Figures 2-5A and 2-5E. When a relatively small amount or no air is being used, the service line pressure continues to rise. When it exceeds 110 psig (7.6 bar), the Supervisor Control System de-energizes the solenoid valve allowing line air pressure to be supplied directly to close the inlet valve. Simultaneously, the solenoid valve sends a pneumatic signal to the blowdown valve. The blowdown valve opens to the atmosphere, reducing the sump pressure to approximately 15 to 20 psig (1.0 to 1.4 bar). The minimum pressure check valve prevents line pressure from returning to the sump.

When the line pressure drops to the low setting (cut-in pressure; usually 100 psig [6.9 bar] on low pressure ["L"] compressors; 125 psig [8.6 bar] on high pressure ["H"] compressors; 150 psig [10.3 bar] on ["HH"] compressors; and 175 psig [12.0 bar] ["XH"] . Supervisor energizes the solenoid valve and allows the blowdown valve to close. The re-energized solenoid valve again prevents line pressure from reaching the inlet control valve. Should the pressure begin to rise, the pressure regulator will resume its normal function as previously described.

AUTOMATIC OPERATION

For applications with varied periods of time when there are no air requirements, Supervisor's AUTOMATIC mode allows the compressor to shutdown (time delayed) when no compressed air requirement is present and restart as compressed air is needed.

2.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-6. The **Compressor Inlet System** consists of a **dry-type air filter** and an **air inlet valve**.

The poppet-type modulating air inlet valve directly controls the amount of air intake to the compressor in response to the operation of the pressure regulator (see Modulating Mode, Section 2.6). The inlet valve also acts as a check valve, thus preventing reverse rotation when the compressor is shut down.

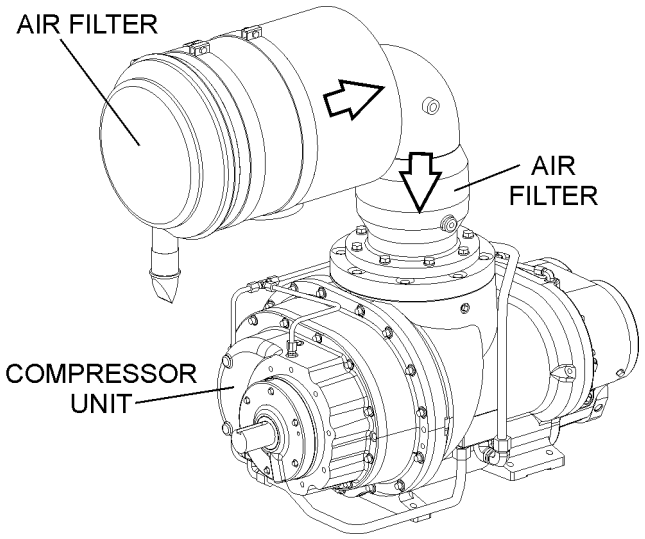
CAUTION

"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." (l)

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

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

Figure 2-6 Air Inlet System



NOTES

Section 3
SPECIFICATIONS

3.1 TABLE OF SPECIFICATIONS

Model Series	Length		Width		Height (I)		Weight (II)	
	in	mm	in	mm	in	mm	lb	kg
LS-200S - 125HP/90KW	100	2540	60	1524	66.5	1690	4660	2114
LS-200S - 150HP/110KW	100	2540	60	1524	66.5	1690	4980	2259

(I) An additional height of 25in/ 63.5cm is needed to service the separator element.

(II) Weight listed is for an open package. Add 590 lbs./268 kg. to weight and 1.5 in./38 mm to height for enclosure package.

NOTE

Noise levels vary with machine and enclosure. For machine dBA output, consult factory with machine serial number.

COMPRESSOR:	
Type:	Positive displacement, fluid-lubricated, twin rotary screws
Configuration:	Single-stage geared integral drive
Bearing Type:	Anti-friction
Lubricant:	Pressurized Sullube
Coolant:	See Sections 3.2, 3.3 and 3.4 on Lubrication
Sump Fluid Capacity:	9 gallons (34 liters)
System Fluid Capacity:	14 gallons (53 liters)
Duty Press:	100-110 psig (6.9-7.6 bar)
Control Type:	Electro-pneumatic
Options:	Higher duty pressures up to 175 psig (12.1 bar), spiral valve, 24KT lubricant

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

MOTOR (50Hz):	
Size:	125-150HP/90-110KW, 1500 RPM
Service:	3 ph, 50 Hz, 400 VAC, 40ºC ambient
Type:	ODP enclosure, NEMA frames 405TSC through 445TSC
Options:	IP23, TEFC enclosure, various voltages

3.2 LUBRICATION GUIDE- STANDARD COMPRESSORS

⚠ WARNING

Before changing or recharging system fluid always relieve all pressure from the sump tank and all compressor lines.

NOTE

Sullair standard compressors are filled with Sullube fluid as factory fill.

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

Refer to Figure 3-1. Sullube fluid should be changed every 8000 hours or once a year, whichever comes first. The fluid should be changed more frequently under severe operating conditions, such as high ambient temperatures coupled with high humidity, or when high particulate level, corrosive gases or strong oxidizing gases are present in the air.

⚠ CAUTION

"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)

PVC piping should not be used with Sullube. 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.

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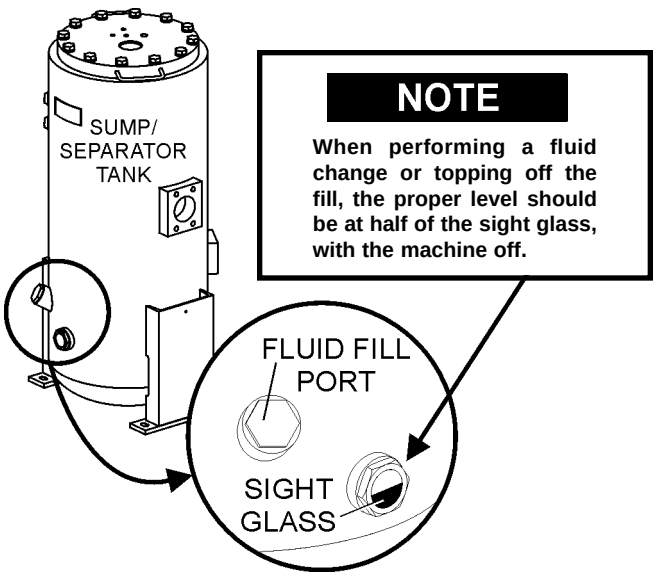
Figure 3-1 Fluid Fill Port



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

Sullair encourages the user to participate in a fluid analysis program with the fluid suppliers. This could result in a fluid change interval differing from that stated in the manual. Contact your Sullair dealer for details.

3.3 LUBRICATION GUIDE- 24KT COMPRESSORS

⚠ WARNING

Before changing or recharging system fluid always relieve all pressure from the sump tank and all compressor lines.

NOTE

DO NOT mix different types of fluids.

MIXING OF OTHER LUBRICANTS WITHIN THE COMPRESSOR UNIT WILL VOID ALL WARRANTIES.

Flush system when switching lubricant brands.

Refer to Figure 3-1. Sullair 24KT compressors are filled with a lubricant which rarely needs to be changed. In the event a change of fluid is required, use only Sullair 24KT fluid.

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

3.4 LUBRICATION GUIDE- OPTIONAL FLUID

⚠ WARNING

Before changing or recharging system fluid always relieve all pressure from the sump tank and all compressor lines.

NOTE

DO NOT mix different types of fluids.

MIXING OF OTHER LUBRICANTS WITHIN THE COMPRESSOR UNIT WILL VOID ALL WARRANTIES.

Flush system when switching lubricant brands.

Refer to Figure 3-1. Sullair compressors may use SRF 1/4000 fluid as an optional factory fill.

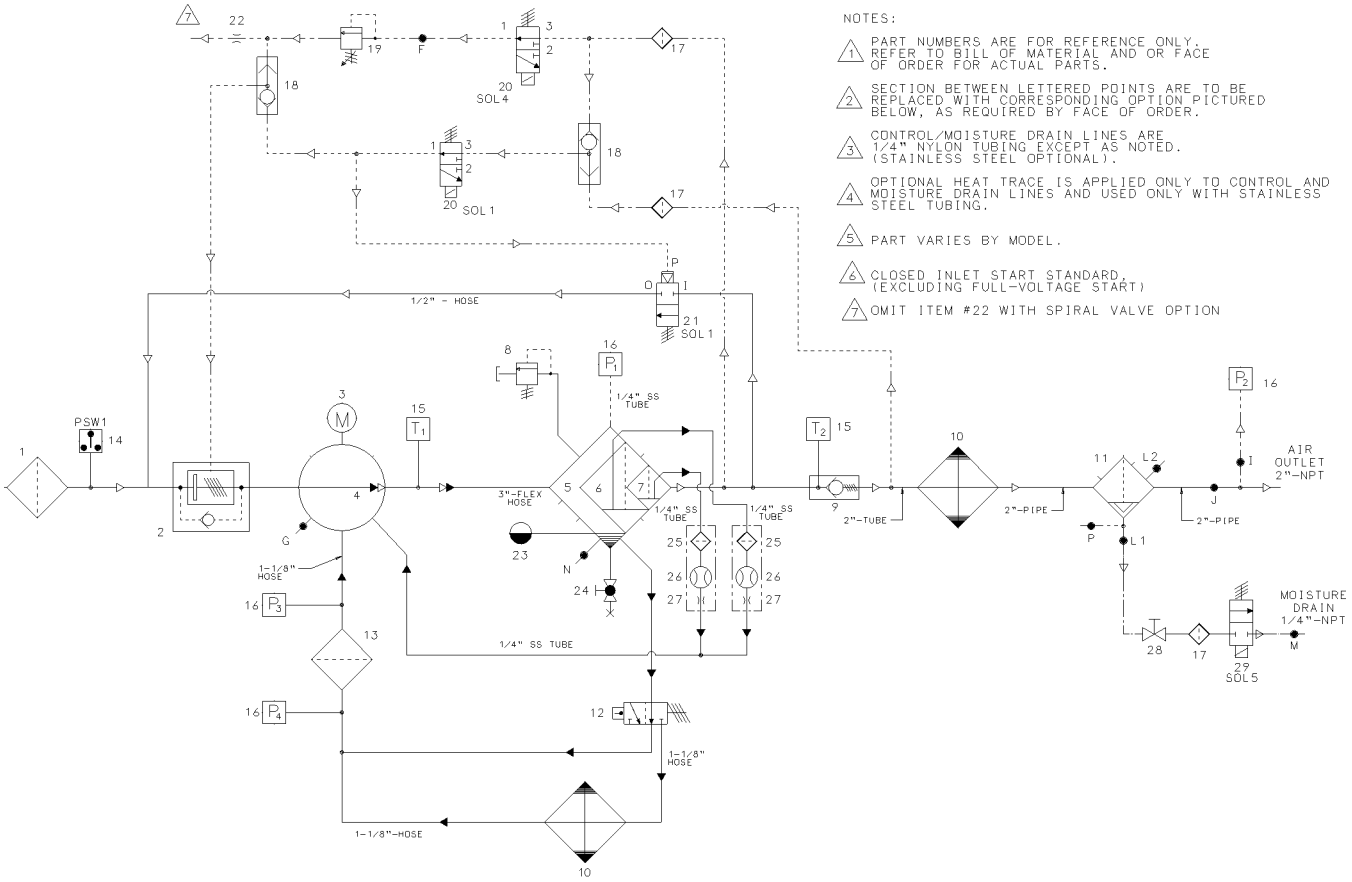
SRF 1/4000 fluid should be changed every 4000 hours or once a year, whichever comes first. The fluid should be changed more frequently under severe operating conditions, such as high ambient temperatures coupled with high humidity, or when high particulate level, corrosive gases or strong oxidizing gases are present in the air.

For extended life synthetic lubricants contact the nearest Sullair representative.

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

NOTES

Figure 3-2A Piping and Instrumentation Diagram- LS-200S/VCC-200S Air-cooled with Supervisor Controller



COMPONENT	DESCRIPTION
P1	WET SUMP PRESSURE
P2	LINE PRESSURE
P3	INJECTION FLUID PRESSURE
P4	HIGH PRESSURE SIDE OF FLUID FILTER
PSW1	INLET FILTER VACUUM SWITCH
SOL1	LOAD/UNLOAD SOLENOID VALVE
SOL4	MEC/SEQUENCING/FULL LOAD SOLENOID VALVE
SOL5	ELECTRIC DRAIN/SCD DRAIN SOLENOID VALVE
SOL7	EES SOLENOID VALVE (OPTIONAL)
T1	WET DISCHARGE TEMPERATURE
T2	DRY DISCHARGE TEMPERATURE

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Figure 3-2A Piping and Instrumentation Diagram- LS-200S/VCC-200S Air-cooled with Supervisor Controller

key number	description	part number	quantity
01	fltr, airassy optimalair 750cfm	02250135-154	1
02	vlv, air inlet 6" 20-100	02250145-632	1
03	motor	-	1
04	compressor unit	-	1
05	tnk, oil sep 18" ls200s std	02250145-545	1
06	element, oil sep 10.63 x 25"lg	250034-085	1
07	sep, air/oil secondary ls20s	02250145-368	1
08	vlv, rlf 1 x 1-1/4 200psig	02250047-679	1
09	vlv, min press 2-1/2" sae	02250129-374	1
10	clr, ac 1-5/8 sae 2"npt ls200s	02250145-556	1
11	sep, wtr d-h 2" fnpt 1/4" drn	02250144-632	1
△5 12	element, thermal valve 175ºf	049542	1
△5 12	element, thermal valve 190ºf	250028-762	1
13	fltr, fl 1-5/8" sae str thrd con	02250054-605	1
14	sw, vac 22"wc n4 6ft cable 5a	02250078-249	1
15	p, rtd 100 ohm platinum 12ft	250039-909	2
16	xdcr, press 0-250psi 1-5vdc n4	02250078-933	4
17	strainer, v-type 300psi x 1/4	241771	3
18	valve, shuttle 1/4" (dbl chk)	408893	2
19	valve, pressure regulator	250017-280	1
20	valve, sol 3wno 1/4" 235# n4	02250125-657	2
21	valve, 2-way pneumatic 1/2"npt	02250100-042	1
△7 22	orifice, .031"	02250132-934	1
23	plug, sight glass 1-7/8" sae	02250097-611	2
24	vlv, ball 3/4"sae-m x 1/2"npt-f	02250098-303	1
25	fltr, assembly genisis filter	02250117-782	2
26	glass, sight/orf blk-sae	02250126-129	2
27	orf, plug brass 1/8"npt x 1/32"	02250125-774	2
28	valve, ball 1/4"npt	047115	1
29	vlv, sol 2wnc mo 1/4 200# n4	02250125-674	1
	SCD DRAIN OPTION:		
40	valve, ball 1/2” npt	047117	1
41	valve, ball 1/4” npt	047115	1
42	drn, electric condensate-SCD400	02250130-866	1
	EES OPTION:		
43	vlv, sol 4 way 1/4 150# N4	02250125-673	1
44	cylinder, pneumatic 7/8, 4”str	241906	2
	SPIRAL VALVE OPTION:		
45	valve, pressure reg	250017-280	1
46	spiral valve	-	1
47	orifice, .031	02250132-934	1
	SUMP HEATER:		
48	htr, sump LS20S 750W 120V	02250118-451	1
	MOISTURE SEPARATOR:		
49	htr, SCD400/500 wrap 50w	02250114-171	1

Figure 3-2B Piping and Instrumentation Diagram- LS-200S/VCC-200S Water-cooled with Supervisor Controller

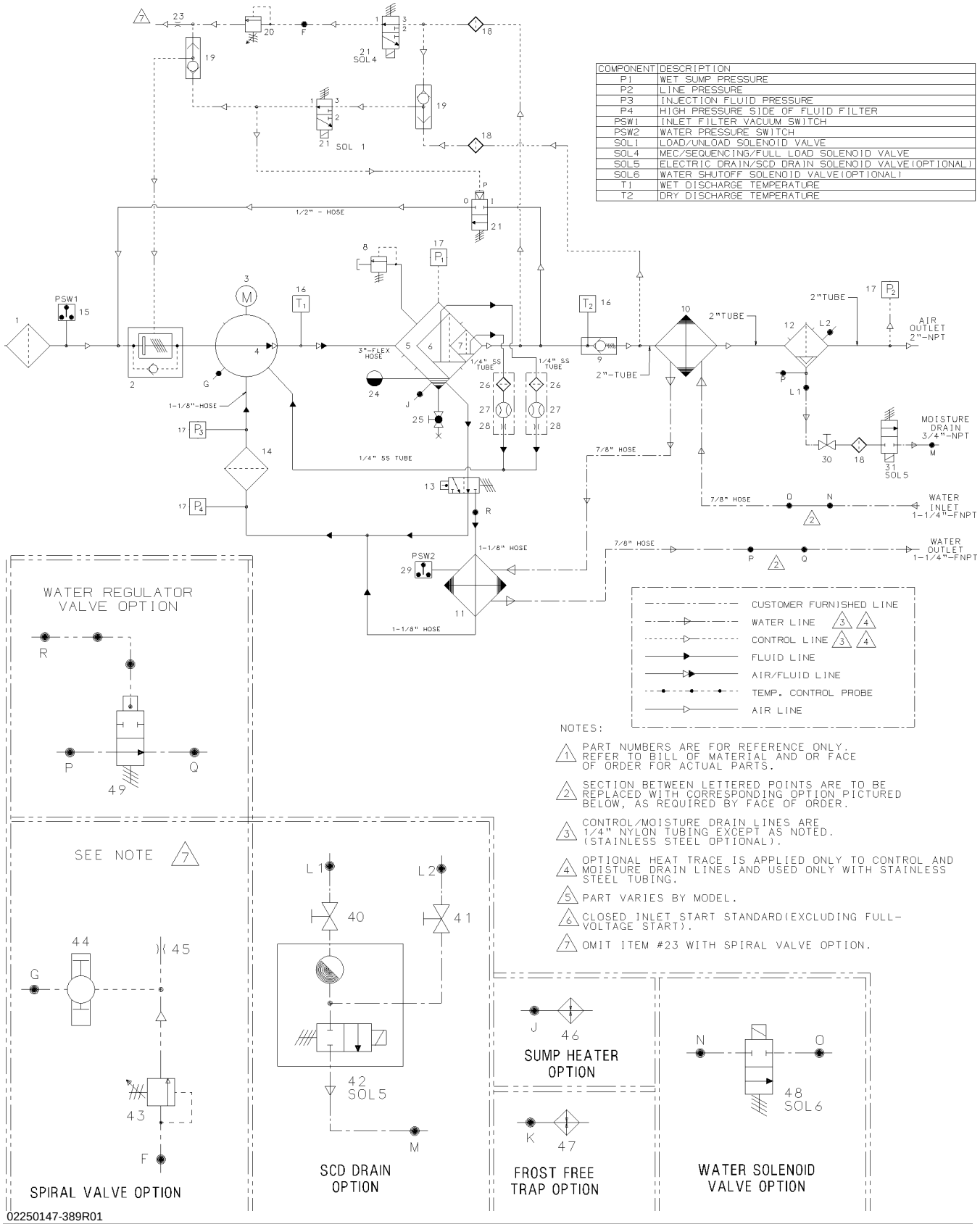
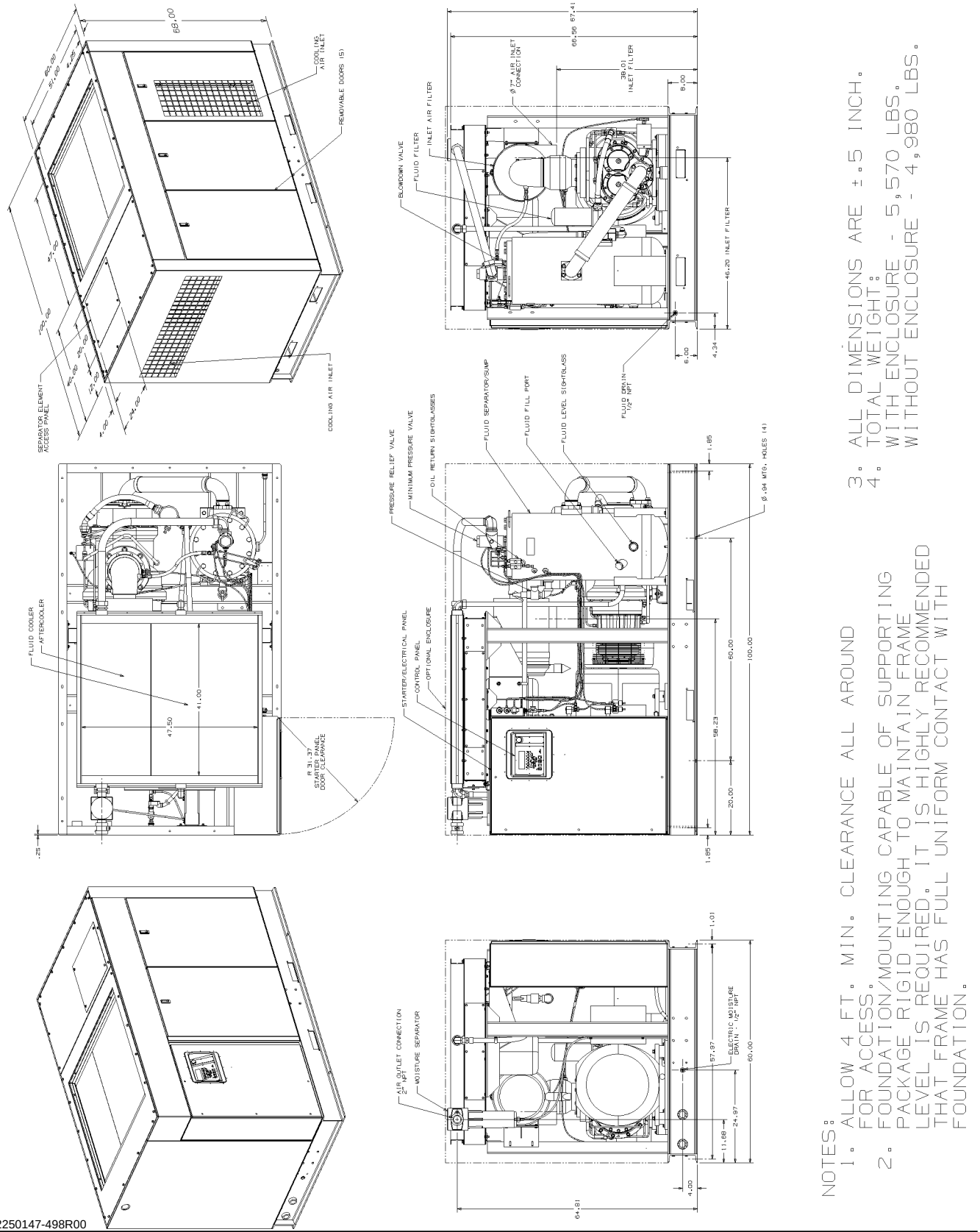


Figure 3-2B Piping and Instrumentation Diagram- LS-200S/VCC-200S Water-cooled with Supervisor Controller

key number	description	part number	quantity
01	fltr, airassy optimalair 750cfm	02250135-154	1
02	vlv, inl 6" pop w/bypass ls200s	02250145-632	1
03	motor	-	1
04	compressor unit	-	1
05	tnk,oil sep 18" ls200s std	02250145-545	1
06	element, oil sep 10.63 x 25"lg	250034-085	1
07	sep, air/oil secondary ls20s	02250145-368	1
08	vlv, rlf 1 x 1-1/4 200psig	02250047-679	1
09	vlv, min press 2-1/2"sae	02250129-374	1
10	aftercooler, wc	043009	1
11	clr, oil w/sae ports ls20s	02250114-977	1
12	sep, wtr d-h 2"fnpt 1/4" drain	02250144-632	1
△5 13	element, thermal valve 175f	049542	1
△5 13	element, thermal valve 190f	250028-762	1
14	fltr, fl 1-5/8"sae str thrd con	02250054-605	1
15	sw, vac 22"wc n4 6ft cable 5a	02250078-249	1
16	p, rtd 100ohm platinum 12ft	250039-909	2
17	xdcr, press 0-250psi 1-5vdc n4	02250078-933	4
18	strainer, v-type 300psi x 1/4	241771	3
19	valve, shuttle 1/4"(dbl chk)	408893	2
20	valve, pressure regulator	250017-280	1
21	vlv, sol 32no 1/4 235# n4	02250125-657	2
22	valve, 2-way pneuctl 1/2"npt	02250100-042	1
△7 23	orifice, .031	02250132-934	1
24	plug, sight glass 1-7/8"sae	02250097-611	2
25	vlv, ball 3/4"sae-m x 1/2"npt-f	02250098-303	1
26	fltr, assembly genisis fltr	02250117-782	2
27	glass, sight/orf blk-sae	02250126-129	2
28	orf, plug brass 1/8"npt x 1/32"	02250125-774	2
29	switch, press no 10psi	250017-992	1
30	valve, ball 1/4"npt	047115	1
31	vlv, sol 2wnc mo 1/4 200# n4	02250125-674	1
	SCD DRAIN OPTION:		
40	valve, ball 1/2” npt	047117	1
41	valve, ball 1/4” npt	047115	1
42	drn, electric condensate-SCD400	02250130-866	1
	SPIRAL VALVE OPTION:		
43	valve, pressure reg	250017-280	1
44	spiral valve	-	1
45	orifice, .031	02250132-934	1
	SUMP HEATER:		
46	htr, sump LS20S 750W 120V	02250118-451	1
	MOISTURE SEPARATOR:		
47	htr, SCD400/500 wrap 50w	02250147-171	1
	WATER SOLENOID VALVE OPTION:		
48	valve, sol 2wync 1-1/4 8210G8	250035-291	1
	WATER REGULATING VALVE OPTION:		
49	valve, water regulating 1-1/4”	049474	1

Section 3
SPECIFICATIONS

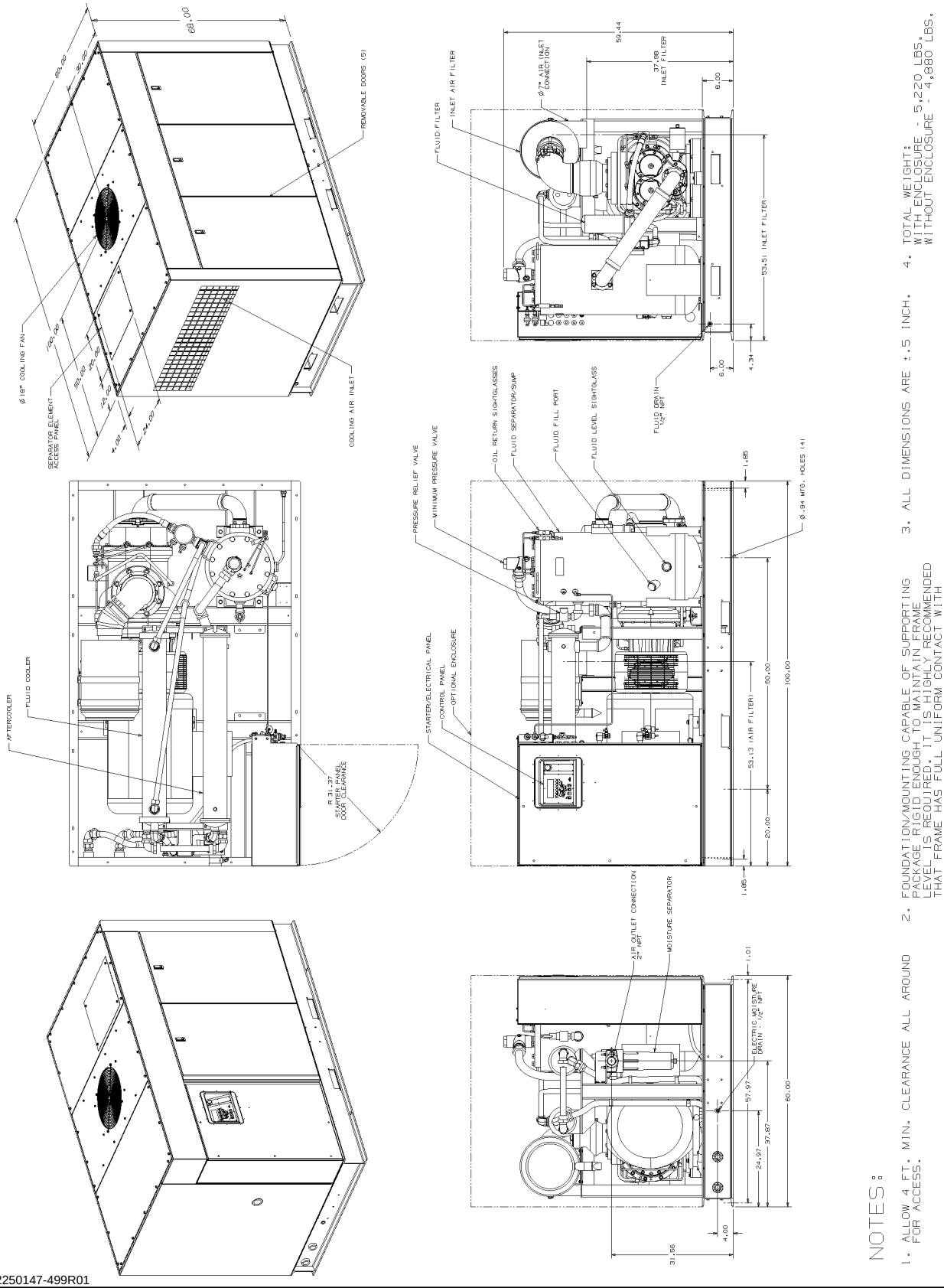
Figure 3-3A Identification- LS-200S/VCC-200S Air-cooled Model



NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS.
2. FOUNDATION/MOUNTING CAPABLE OF SUPPORTING PACKAGE RIGID ENOUGH TO MAINTAIN FRAME LEVEL IS REQUIRED. IT IS HIGHLY RECOMMENDED THAT FRAME HAS FULL UNIFORM CONTACT WITH FOUNDATION.
3. ALL DIMENSIONS ARE ±.5 INCH.
4. TOTAL WEIGHT:
WITH ENCLOSURE - 5,570 LBS.
WITHOUT ENCLOSURE - 4,980 LBS.

02250147-498R00

Figure 3-3B Identification- LS-200S/VCC-200S Water-cooled Model



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NOTES

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 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. No piping loads shall be transmitted to the compressor at the external connections.

4.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit a sufficient unobstructed flow of air through the compressor to keep the operating temperature stable. The minimum distance that the compressor should be from surrounding walls is three (3) feet (1m). To prevent excessive ambient temperature rise, it is imperative to provide adequate ventilation. If ductwork is attached to cooler air discharge, the high static fan option should be selected.

For water-cooled compressors, it is necessary to check the cooling water supply. The water system must be capable of supplying the flows listed in *Table 4-1 Water Supply Flow*.

Table 4-2 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 no additional pressure drop is created across the fan. Consult a Sullair representative for assistance in utilizing this heat.

NOTE

DO NOT install a water-cooled or an air-cooled/aftercooled compressor where it will be exposed to temperatures less than 32ºF/0ºC.

Table 4-1 Water Supply Flow **(I)**

WATER TEMP. ºF/ ºC	WATER FLOW GPM/ LPM	
	125HP/90KW	150HP/110KW
70/ 21	18/ 68	22/ 83
80/ 27	25/ 95	30/ 114

(I) Recommended water pressure range is 25 to 75 psig (1.7 to 5.2 bar).

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 the compressor from the service line if required. Also notice that the service line should be equipped with water legs and condensate drains throughout the system.

CAUTION

"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)

PVC piping should not be used with Sullube. 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.

4.4 COUPLING ALIGNMENT CHECK

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

4.5 FLUID LEVEL CHECK

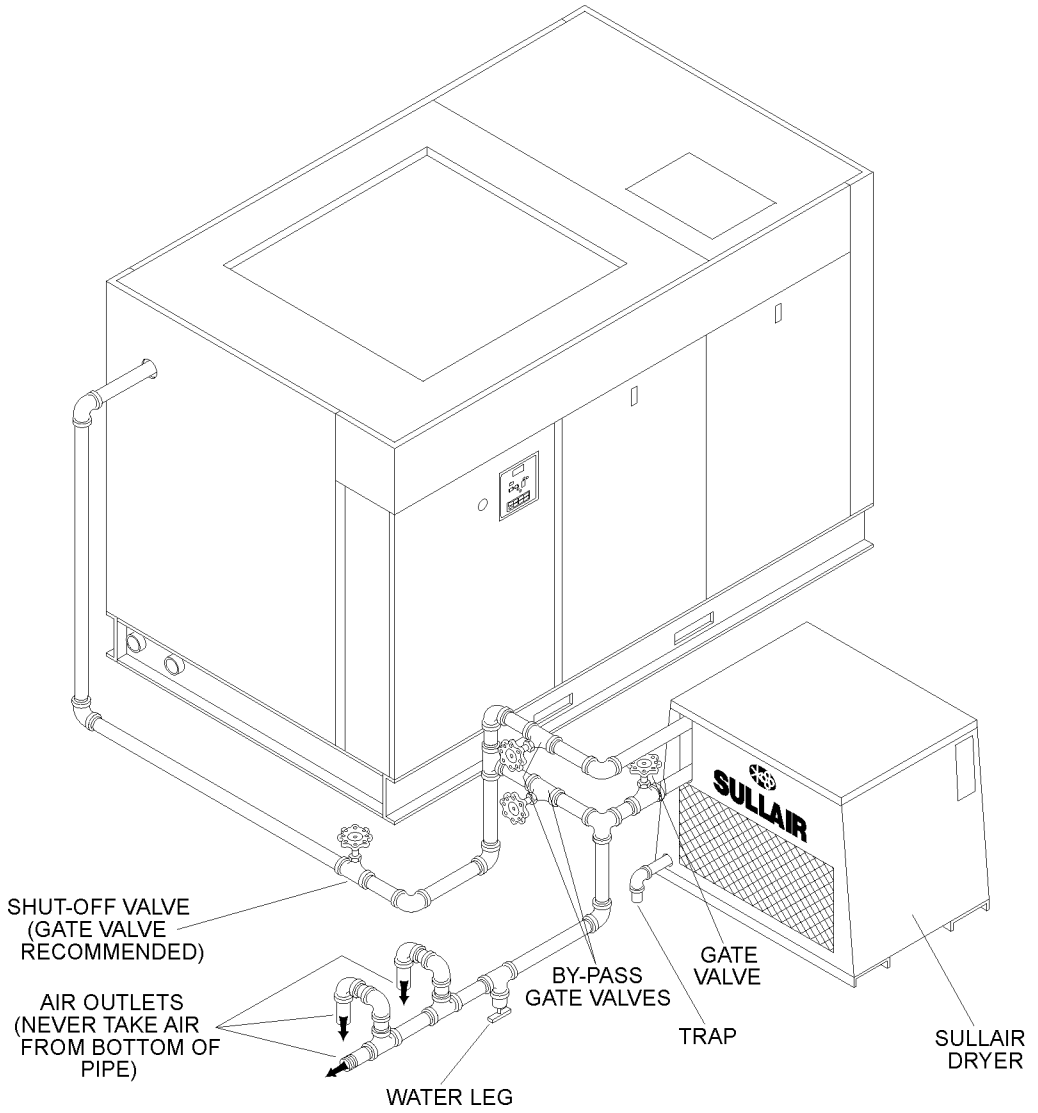
The air compressor is also supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation. The level is checked by looking at the sight glass located near the sump. If

Table 4-2 Ventilation Requirements

Cooling Type	Air-cooled		Water-cooled	
Motor HP	125	150	125	150
Fan Air CFM	16,400	16,400	2,845 **(I)**	2,845 **(I)**
Heat Rejection to ventilating air BTU/min.	6,081	7,527	1,340	1,340
Heat Rejection to water, BTU/min.			6,081	7,527

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

Figure 4-1 Service Air Piping (Typical Installation)



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

⚠ CAUTION

Do not overfill.

4.6 MOTOR ROTATION DIRECTION CHECK

NOTE

Motor rotation check must be made at compressor start-up. Remove compressor panel as needed to view motor rotation.

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

Pull out the EMERGENCY STOP button and press once, quickly and in succession, the ▮ (START) and ◯ (STOP) pads. This action will bump start the motor for a very short time. Verify proper rotation by observing the motor shaft during start-up. The shaft should rotate in the same direction as indicated by the rotation decal located on the motor adapter. If the motor shaft is not turning in the proper direction, disconnect power to the compressor and exchange any two of the three power-input leads, then recheck rotation.

An alternative to this procedure is to set the Supervisor to display P1. Pull out the **EMERGENCY STOP** button and press once, quickly and in succession, the ▮ (**START**) and ◯ (**STOP**) pads. This action will bump start the motor for a very short time. If motor rotation is correct there will

be immediate pressure shown. If no pressure is present, reverse rotation is occurring. Disconnect the power to the starter and exchange any two of the three power input leads. Recheck rotation as outlined above.

4.7 ELECTRICAL PREPARATION

Interior electrical wiring is performed at the factory. Required customer wiring is minimal, but should be done by a qualified electrician in compliance with applicable local electrical codes concerning isolation switches, fuse disconnects, etc. Sullair provides a wiring diagram for use by the installer.

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

⚠ DANGER

Lethal shock hazard inside. Disconnect all power at source before opening or servicing.

1. Check incoming voltage. Be sure that the incoming voltage is the same voltage that the compressor was wired for. Verify that control transformer primary is wired for correct line voltage.
2. Check starter and overload heater sizes (see Electrical Controls Section in Parts Manual).
3. Check all electrical connections for tightness.
4. "DRY RUN" the electrical controls by disconnecting the three (3) motor leads from the starter. Energize the control circuits by pushing the I (**START**) pad and check all protective devices to be sure that they will de-energize the starter coil when activated.
5. Reconnect the three (3) motor leads and jog the motor for a direction of rotation check, as explained in Section 4.6.

NOTES

Section 5
OPERATION

5.1 INTRODUCTION

While Sullair has built into the LS-200S Series package a comprehensive array of controls and indicators to assure its proper operation, the user should recognize and interpret readings which call for service or indicate the onset of a malfunction. Before starting the unit, the user should become familiar with the controls and indicators-their purpose, location, and use.

5.2 PURPOSE OF CONTROLS- INTRODUCTION

Indicators and functions included in the package are listed in the following guide. However, all Supervisor Controller-related functions and indicators are presented in the Supervisor Controller Manual, so please refer to that document for additional information.

5.3 PURPOSE OF CONTROLS- GUIDE

CONTROL	PURPOSE
EMERGENCY STOP SWITCH	Pushing in this switch, found adjacent to the Supervisor, cuts all AC outputs from the latter and de-energizes the starter. A fault message (E STOP) is displayed by the Supervisor until the button is pulled out and the ○ pad is depressed.
THERMAL O/L RESET	Momentarily pushing this button, found on the starter's thermal overload element housing, re-closes the latter's contacts after a current overload takes place. Please be aware that the elements must be allowed to cool sufficiently before resetting.
MODULATING INLET VALVE	Regulates the amount of air allowed to enter the air compressor. This regulation is determined by the amount of air being used at the service line. Also acts as a check valve to prevent reverse compressor rotation at shut down.
SPIRAL VALVE ("V-" and VCC-MODELS ONLY)	Internally bypasses and controls the air flow capacity of the compressor, in order to match air supply to the demand. This device is optional.
PRESSURE REGULATOR	Allows a pressure signal to reach the air inlet valve to control air delivery according to demand.
PRESSURE REGULATOR (WITH OPTIONAL SPIRAL VALVE)	Opens a pressure signal to the spiral valve actuator allowing the spiral valve to regulate air delivery according to air demand.
SOLENOID VALVE	Bypasses the pressure regulator valve causing the inlet valve to close when the compressor reaches maximum operating pressure. Also activates blow-down valve.
MINIMUM PRESSURE/ CHECK VALVE	Maintains minimum of 50 psig (3.5 bar) in the compressor sump. Valve piston restricts receiver air discharge from receiver/ sump when pressure falls to 40 psig (2.8 bar). Also prevents backflow into the sump during unload conditions and after shutdown.
PRESSURE RELIEF VALVE	Vents the sump vessel to atmosphere if the compressed air pressure exceeds 200 psig (13.8 bar). Its operation indicates fault with the Supervisor operation or its programming.
BLOWDOWN VALVE ASSEMBLY	Vents the sump vessel to atmosphere during unloading and shutdown.

Continued...

Section 5
OPERATION

5.3 PURPOSE OF CONTROLS- GUIDE (CONTINUED)

CONTROL	PURPOSE
THERMAL MIXING VALVE	Bypasses fluid flow around the cooler until the fluid reaches a temperature of 180ºF (82ºC). Useful for fast warm-up during start. Maintains a minimum temperature of 180ºF (82ºC) during periods of low load or low ambient temperatures. NOTE: Standard thermal valve temperature is 175ºF/79ºC (operating temperature of 180ºF/ 82ºC). Thermal valve temperature is 190ºF/88ºC (operating temperature of 195ºF/ 91ºC) for HH, XH and 24KT machines.
SUMP SIGHT GLASS	Indicates level of lubricant in the sump. Located on the sump side, it should show half-full (compressor stopped) for proper fluid level.
SEPARATOR RETURN LINE SIGHT GLASSES	Indicate fluid flow in the separator return lines. Large flow should be visible during full load operation; little to no flow during unloaded operation. Sluggish flow during full load operation indicates the need to clean the strainers fitted to the sight glasses.
WATER PRESSURE SWITCH	De-energizes the starter, via the Supervisor, if the water pressure falls below 10 psig (0.7 bar). This switch is not adjustable. Used on water-cooled packages only.
DRAIN VALVES	Lubricant sump drain valve.

5.4 INITIAL START-UP PROCEDURE

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

NOTE

Before initial start up check that fluid is at proper level in the sight glass.

Grease motor per manufacturer's recommendations.

1. Read the preceding pages of this manual thoroughly.
2. Jog motor to check for correct rotation of main motor and fan (refer to Section 4.6).
3. Be sure that all preparations and checks described in the Installation Section have been made.
4. Start the compressor (**manual** mode I, or **AUTO** mode ◯)
5. 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, see Control System Adjustments.
8. Observe the operating temperature. Refer to Section 2.4 for proper operating temperature 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.

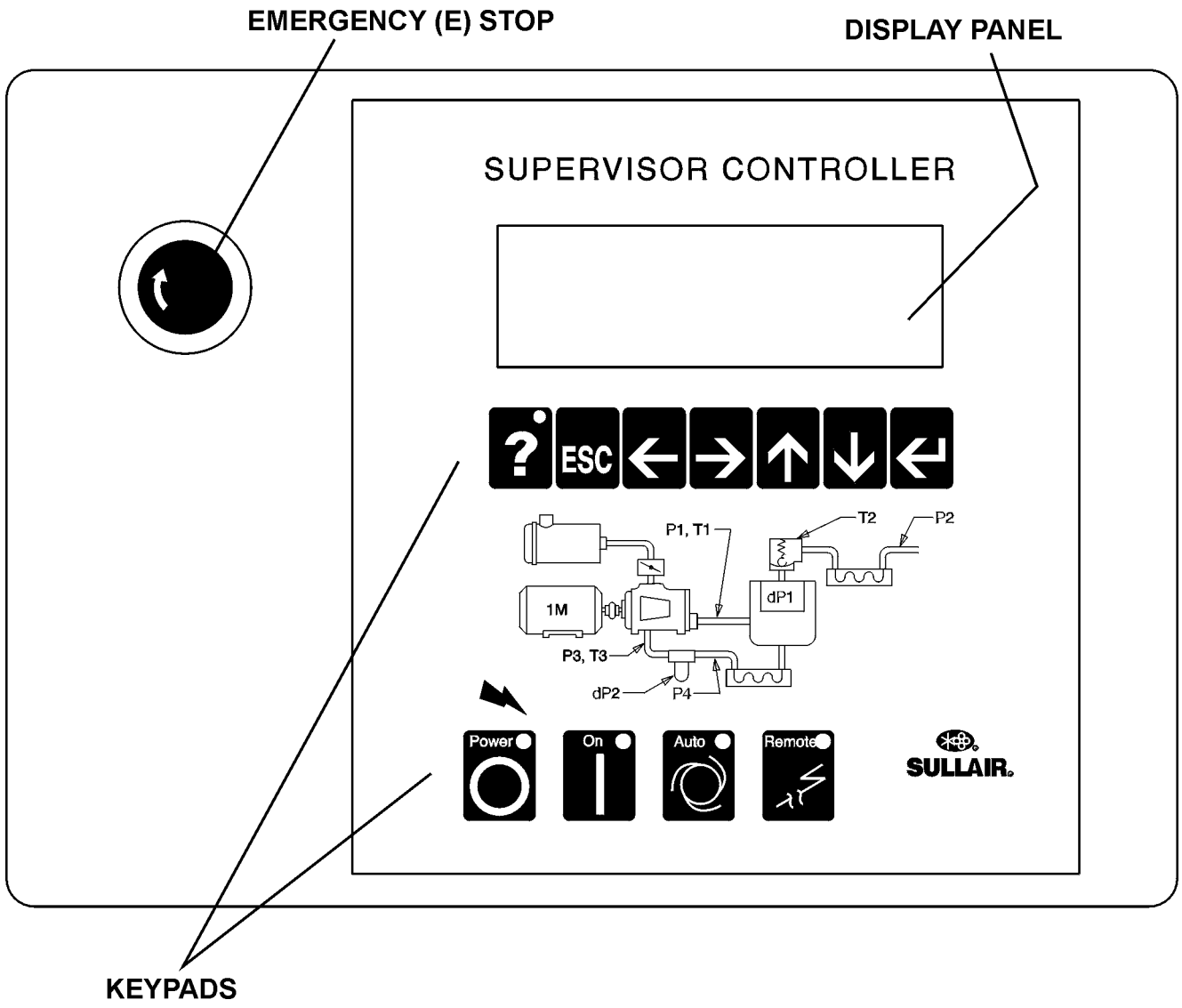
5.5 SUBSEQUENT START-UP PROCEDURE

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

5.6 SHUTDOWN PROCEDURE

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

Figure 6-1 Supervisor Controller™ Control Panel



NOTE

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

NOTES

7.1 GENERAL

As you proceed in reading this section, it will be easy to see that Maintenance Program for the air compressor is quite minimal. The Supervisor 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.

⚠ 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

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

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.).

NOTE

During the initial start-up or servicing of the package, fluid may have to be added to the sump vessel to restore an adequate level.

Frequent fluid additions to maintain said level would be indicative of excessive fluid consumption, and should be investigated - see the Troubleshooting Section 8 of this manual for probable cause and remedy.

7.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

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

1. Clean the return line strainers.
2. Clean the return line orifices.

7.4 MAINTENANCE EVERY 1000 HOURS OF OPERATION

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

7.5 MOTOR BEARINGS

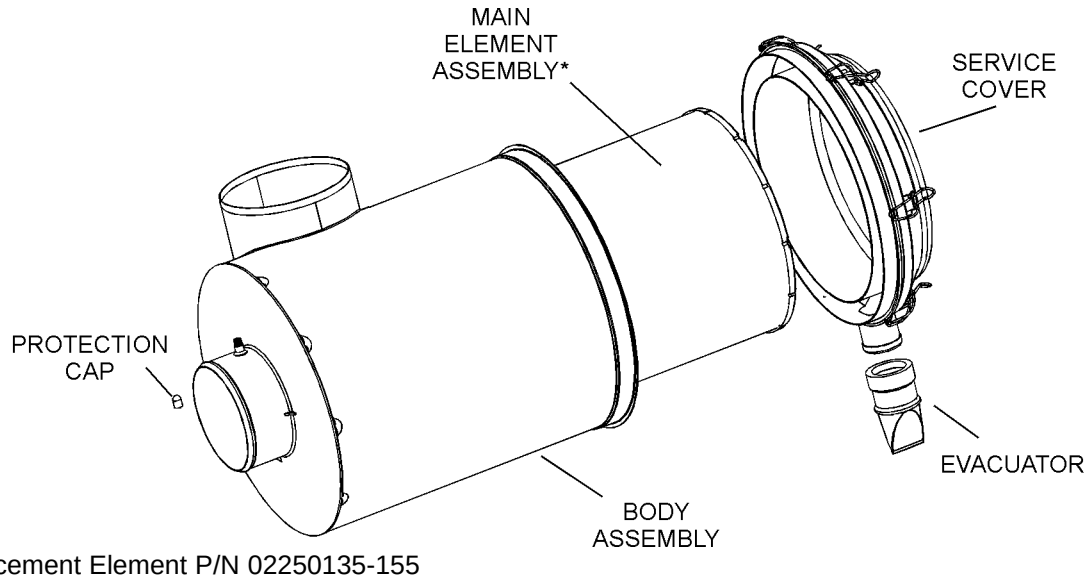
Grease motor per manufacturer's recommendations.

7.6 FLUID MAINTENANCE

Drain the sump and change the compressor fluid per recommendations in *Section 3, Specifications*.

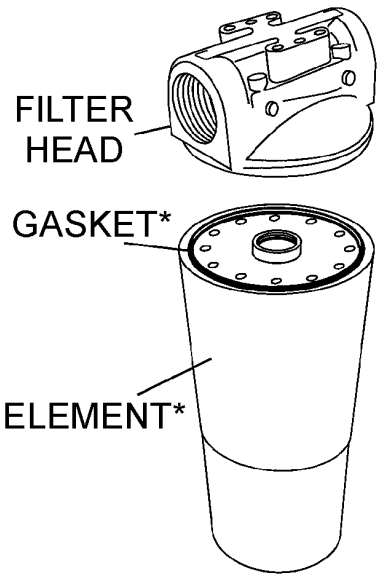
Standard models are filled with Sullube. Sullube

Figure 7-1 Air Filter (P/N 02250135-154)



*Replacement Element P/N 02250135-155

Figure 7-2 Compressor Fluid Filter (P/N 02250054-605)



* Repair Kit P/N 250025-526

should be changed under the following conditions, whichever occur first:

1. Every 1800 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.

7.7 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

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

AIR FILTER MAINTENANCE

Refer to Figure 7-1. Air filter maintenance on air filter no. 02250135-154 should be performed when the Supervisor displays *Air Filter Maint*, or once a year, whichever comes first. If the filter needs to be replaced, order replacement element no. 02250135-155. Consult the following procedures to replace the air filter element.

AIR FILTER ELEMENT REMOVAL

1. Clean exterior of air filter housing.
2. Release the three retaining clamps and remove the end cap.
3. Remove element and clean interior of housing using a damp cloth.

NOTE

DO NOT blow dirt out of housing with compressed air.

ELEMENT REPLACEMENT

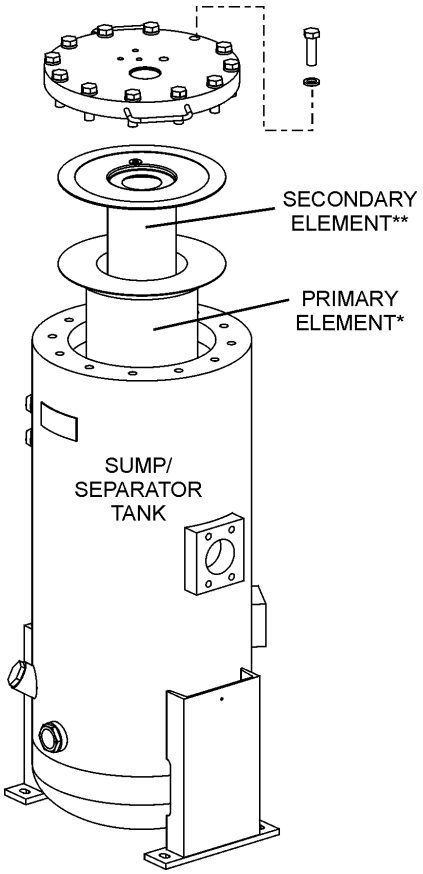
1. Element replacement is performed by reversing the removal instructions. Make sure that the element is fully seated into the housing.

FLUID FILTER MAINTENANCE

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

- When corresponding maintenance message is displayed by the Supervisor - this corresponds to a pressure loss condition across

Figure 7-3 Separator Element Replacement



* Replacement Element P/N 250034-085 (primary)
** Replacement Element P/N 02250145-897 (secondary)

the units of 20 psig (1.4 bar).

- Every 1000 hours.
- Every 6 months.
- Every fluid charge change- **STANDARD MACHINES ONLY**.

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

1. Using a strap wrench, remove the old element and gasket.
2. Clean the gasket seating surfaces.
3. Apply a light film of fresh fluid to the new gasket and hand tighten new element until gasket contacts the seat.
4. Continue tightening element an additional 1/2 to 3/4 turn.
5. Restart package and check for leaks.

SEPARATOR ELEMENT MAINTENANCE

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

WARNING

Relieve all pressure from the sump tank and all compressor lines.

1. Disconnect all pipe work connected to the sump cover.
2. Loosen and remove the twelve (12) hex head capscrews (3/4" x 3") from the cover plate.
3. Using the lift handles, lift the cover plate from the sump.
4. Remove the two (2) nested separator elements.
5. Scrape the old gasket material from the cover and sump flange - avoid dropping any scraps into the sump.
6. Inspect the sump vessel for rust, dirt, etc.
8. Reinsert the separator element, with gasket attached, into the sump, taking care not to dent the former against the tank opening.

NOTE

DO NOT remove grounding staples from the gaskets. DO NOT use any type of gasket eliminator.

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 sections of this and the Supervisor Controller manuals. The maintenance on an oil return/sight glass is mainly concerned with the condition of the filter assembly. Order filter assembly no. 02250117-782, and use the following instructions as a guide.

NOTE

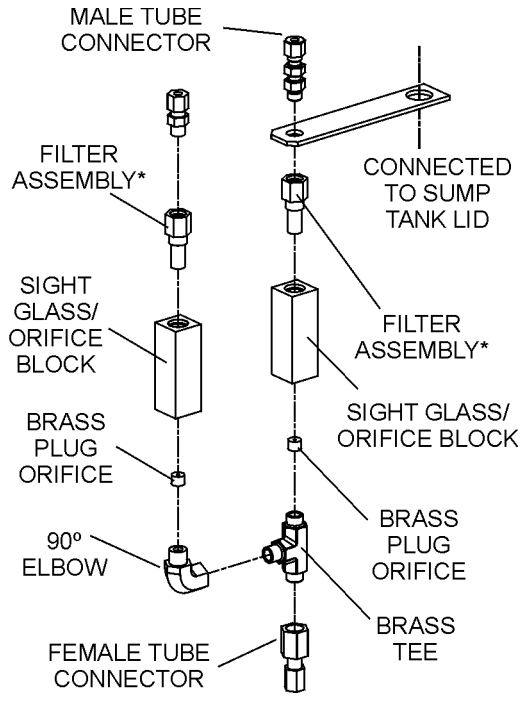
Always performing maintenance on both oil return/sight glasses at the same time.

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.

PRESSURE REGULATOR ADJUSTMENT

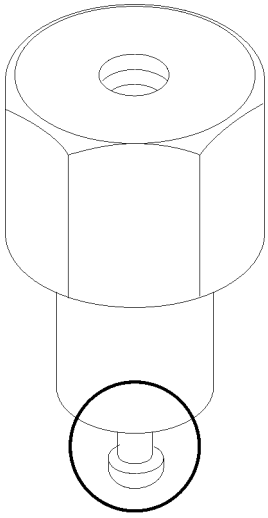
Start the compressor and adjust the service valve to maintain service air pressure approximately at five

Figure 7-4 Oil Return/ Sight Glass



*Replacement Filter P/N 02250117-782

Figure 7-5 Regulator Adjustment



(5) psi over rated pressure. Turn the inlet valve regulator adjusting screw until air just begins to escape from the control air orifice (located at the bottom of the regulator; refer to Figure 7-5). Lock the adjusting screw in place with the locknut. The regulator is now properly set.

COMPRESSORS WITH OPTIONAL SPIRAL VALVE

Start the compressor and adjust the service valve to maintain service air pressure approximately at five (5) psi over rated pressure. Turn the inlet valve regulator adjusting screw until air just begins to escape from the control air orifice (located at the bottom of the regulator.). Lock the adjusting screw in place with the locknut.

Readjust the service valve to maintain service air pressure approximately one (1) psi over rated pressure. Turn the spiral valve regulator adjusting screw until air just begins to escape from the control air orifice (located at the bottom of the regulator.). Lock the adjusting screw in place with the locknut. The regulators are now properly set.

SHAFT COUPLING MAINTENANCE

Refer to Figure 7-6. The compressor unit and motor are rigidly connected via a rigid adapter piece, thus the shafts are maintained in proper alignment at assembly. For reference only, the allowable angular and parallel shaft misalignments are presented in Figure 7-7. The only component requiring regular inspection or servicing is the coupling flexible element, which may be accessed as follows:

DANGER

Disconnect all power at source before attempting maintenance or adjustments. Follow lockout procedures (See Safety Section).

INSPECTION/REMOVAL OF FLEXIBLE ELEMENT

1. Loosen fasteners securing wireform guard to the distance piece and remove to allow access to the coupling assembly.
2. Loosen and remove all capscrews securing each flexible element half to the shaft hubs.
3. Inspect each element body for signs of tears or

Figure 7-6 Drive Coupling

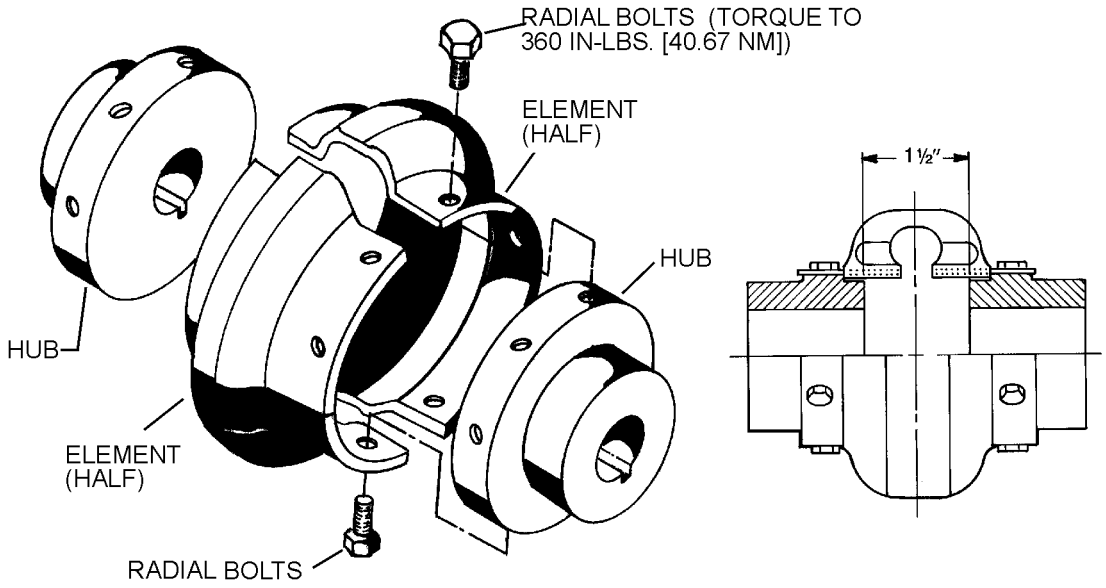


Figure 7-7 Drive Coupling Alignment **(I)**

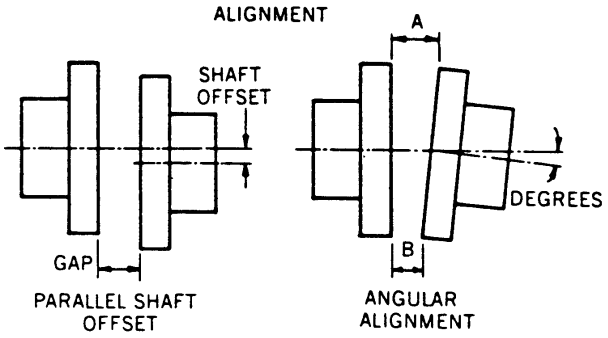


TABLE 7-1 INSTALLATION DATA

Tightening Torque in.-lbs.	Coupling Gap +0.30 in./7.6mm	Max. Operating Misalignment Coupling Parallel Offset T.I.R. (II)	Capscrew Angular degrees	Capscrew Angular in./mm (II)
360	1.50	.005	.5	.005
40.7Nm	38mm	.127mm	.5	.127mm

(I) Alignment data is shown for reference only. The C-face motor mounting arrangement does not require adjustment for coupling alignment.

(II) Angular mis-alignment in inches equals maximum A minus minimum B. **DO NOT** exceed values in *Table 7-1 Installation Data*.

separation away from the metal flanges - if any faults are found, elements must be replaced and Sullair contacted for further assistance.

4. Reassemble in reverse order. Capscrews must be re-torqued to 30 ft.-lbs. (40.7Nm) (dry). Please note that capscrews have self-locking patches good for two re-uses, but the application of a thread-locking adhesive increases this number.

NOTE

DO NOT lubricate capscrew threads.

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

NOTES

Section 8
TROUBLESHOOTING

8.1 TROUBLESHOOTING - INTRODUCTION

The information contained in the Troubleshooting Guide has been compiled from field report data and factory experience. 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 a problem should be systematically analyzed before undertaking any repairs or component replacement procedures.

In addition to the Troubleshooting Guide, consult the Supervisor Controller manual for additional troubleshooting guidelines pertaining to the Supervisor Controller.

A detailed visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the compressor. Always remember to:

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

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

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.
COMPRESSOR SHUTS DOWN WITH AIR DEMAND PRESENT	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	Defect in line pressure switch; check pressure at which contact points open.
		Separator requires maintenance; check maintenance indicator under full load conditions.
		High pressure shutdown switch is defective; replace.
		Defective valve; regulator valve should cause inlet valve to close when the pressure switch contacts open. Repair if defective.
		Defective blowdown valve; blowdown valve should exhaust sump pressure to 10 to 15 psig (0.7 to 1.0 bar) when maximum operating pressure is reached. Repair if defective.

Continued...

Section 8
TROUBLESHOOTING

8.2 TROUBLESHOOTING GUIDE (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR SHUTS DOWN WITH AIR DEMAND PRESENT (CONTINUED)	Discharge Temperature Switch Open	Cooling water temperature too high; increase water flow (water-cooled only).
		Cooling water flow insufficient; check water lines and valves (water-cooled only).
		Cooler plugged; clean tubes. If plugging persists, install water conditioner (water-cooled only).
		Cooling air flow restricted; clean cooler and check for proper ventilation.
		Ambient temperature is too high; provide sufficient ventilation.
		Low fluid level; add fluid.
		Clogged filter; change the fluid filter element and change the bearing filter element if maintenance indicator shows red.
		Thermal valve not functioning properly; replace element.
		Water flow regulating valve not functioning properly; change (water-cooled only).
		Defective discharge temperature switch; check for a short or open circuit to probe and correct wiring.
COMPRESSOR WILL NOT BUILD FULL DISCHARGE PRESSURE	Air Demand is Too Great	Check service lines for leaks or open valves up.
	Dirty Air Filter	Check the filter indicator and inspect and/or change element if required.
	Pressure Regulator Out of Adjustment	Adjust regulator according to control adjustment instructions in the Maintenance section.
	Defective Pressure Regulator	Check diaphragm and replace if necessary (kit availble).
LINE PRESSURE RISES ABOVE CUT-OUT PRESSURE SETTING ON PRESSURE SWITCH	Leak in Control System Causing Loss of Pressure Signals	Check for leaks.
	Defective Pressure Switch	Check that diaphragm and contacts are not damaged. Replace if necessary.
	Defective Regulator Valve	Check that air bleeds from control orifice when the pressure switch contacts open. Readjust; Repair or replace it if necessary (kit available).

Continued...

8.2 TROUBLESHOOTING GUIDE (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
LINE PRESSURE RISES ABOVE CUT-OUT PRESSURE SETTING ON PRESSURE SWITCH (CONT.)	Plugged Control Line Strainer	Clean strainer (screen and o-ring replacement kit available).
	Defective Blowdown Valve	Check that sump pressure is exhausted to the atmosphere when the pressure switch contacts open. Repair or replace if necessary (kit available).
EXCESSIVE COMPRESSOR FLUID CONSUMPTION	Clogged Return Line or Orifice	Clean strainer (screen and o-ring replacement kit available).
		Clean orifice.
	Separator Element Damaged or Not Functioning Properly	Change separator.
	Leak in the Lubrication System	Check all pipes, connections and components.
	Excess Fluid Foaming	Drain and change.
	Fluid Level Too High	Drain and change.
PRESSURE RELIEF VALVE OPENS REPEATEDLY	Defective Pressure Relief Valve	Replace.
	Plugged Separator	Check separator differential.
LIQUID WATER IN COMPRESSED AIR LINES	Water Vapor Condensation from Cooling and Compression Occurs Naturally	Remove the water vapor from compressed air prior to distribution through the air system. Check operation of aftercooler and moisture separator. Install a compressed air dryer sized for the flow and dryness level required. (Note: Filters may also be required to remove particulates, liquid oil aerosols or for oil vapor removal. Change cartridges as recommended by the filter manufacturer). Check all drain traps routinely to insure their proper operation. Maintain them regulary.

NOTES

Section 9
VARIABLE SPEED DRIVE APPLICATIONS

9.1 DESCRIPTION OF COMPONENTS

Refer to Figures 9-1A, 9-1B, 9-1C and 9-1D. The components and assemblies of the air compressor are clearly shown. The complete package includes **compressor**, **electric motor**, **variable speed drive, Supervisor™ Controller**, **compressor inlet system**, **compressor discharge system**, **compressor lubrication and cooling system**, **capacity control system**, **instrument panel**, **aftercooler**, and **combination separator and trap**, all mounted on a heavy gauge steel frame.

On air-cooled models, a fan draws air over the motor and forces it out through the combined aftercooler and fluid cooler thereby removing the compression heat from the compressed air and the cooling fluid.

On water-cooled models, a shell and tube heat exchanger is mounted on the compressor frame. Fluid is piped into the heat exchanger where compression heat is removed from the fluid. Another similar heat exchanger cools the compressed air.

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

9.2 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-5A, 2-5B, 2-5C, 2-5D and 2-5E. The purpose of the compressor control system is to regulate the amount of the air being compressed to match the amount of compressed air being used. The **Capacity Control System** consist of **variable speed drive**, **solenoid valve** and the **inlet valve**. The functional description of the control system is described below in six distinct phases of operation. The following description text applies to V200S series variable speed drive compressors with Supervisor Controller. **Depending on the model, the compressor can be operated at a setpoint pressure from 60 to 175 psig (4.1 to 12.1 bar). Refer to the nameplate for operating pressure range. The Supervisor Controller will automatically set the frequency range based on the selected pressure.** For explanatory purposes, this description will apply to a compressor with an operating pressure of 100 psig (6.9 bar). A compressor with any other pressure range would operate in the same manner except stated pressures.

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

When the Supervisor Controller | (**START**) button is depressed, the VSD ramps the motor to full speed and the sump pressure will quickly rise from 0 to 50 psig (0-3.4 bar). During this period, both the regulator and solenoid valves are closed, the inlet valve is fully open and the air-end delivers full capacity to the sump tank. The rising compressor air pressure is isolated from the service line in this phase by the minimum pressure valve set at approximately 50 psig (3.4 bar).

FULL LOAD MODE- 50 TO 100 PSIG (3.4 TO 6.9 BAR)

When the compressed air pressure rises over 50 psig (3.4 bar) the minimum pressure valve opens allowing compressed air to flow into the service line. From this point on the line pressure is continually monitored by the Supervisor Controller, which controls the variable speed drive. The pressure regulator and solenoid valve remain closed with the inlet valve fully open running at 100 psig (6.9 bar) or below.

VARIABLE SPEED DRIVE PART LOAD CONTROL

If less than rated capacity of compressed air is being used, the service line pressure will rise above 100 psig (6.9 bar). Consequently, the Variable Speed Drive will begin to decelerate the motor, thereby reducing the output capacity to match demand. The drive will continuously adjust the motor speed (accelerate or decelerate) to maintain a line pressure of 100 psig (6.9 bar). In this mode the VSD will operate within the appropriate frequency range determined by the Supervisor Controller.

MODULATING MODE WITH SPIRAL VALVE:

As demand decreases, the variable speed drive reduces motor speed to maintain the set point pressure. When the speed approaches the minimum setting, a solenoid valve opens feeding air pressure to the spiral valve actuator. This in turn expands the diaphragm and engages the pinion mounted on the spiral valve shaft assembly, resulting in a rotary motion and full opening of the spiral valve, effectively reducing the rotor length by 50%. Excess air will be returned back internally to the suction side of the compressor unit. In this mode, the VSD will modulate the motor speed within a specified range to maintain the set point pressure as follows:

Increasing demand condition:

If demand increases, the VSD increases the motor speed until the set point pressure is achieved. If set point pressure is not achieved while at maximum speed, the controller will close the spiral valve, thereby eliminating internal air bypass.

Consequently, the VSD will regulate the motor speed to achieve the set point pressure.

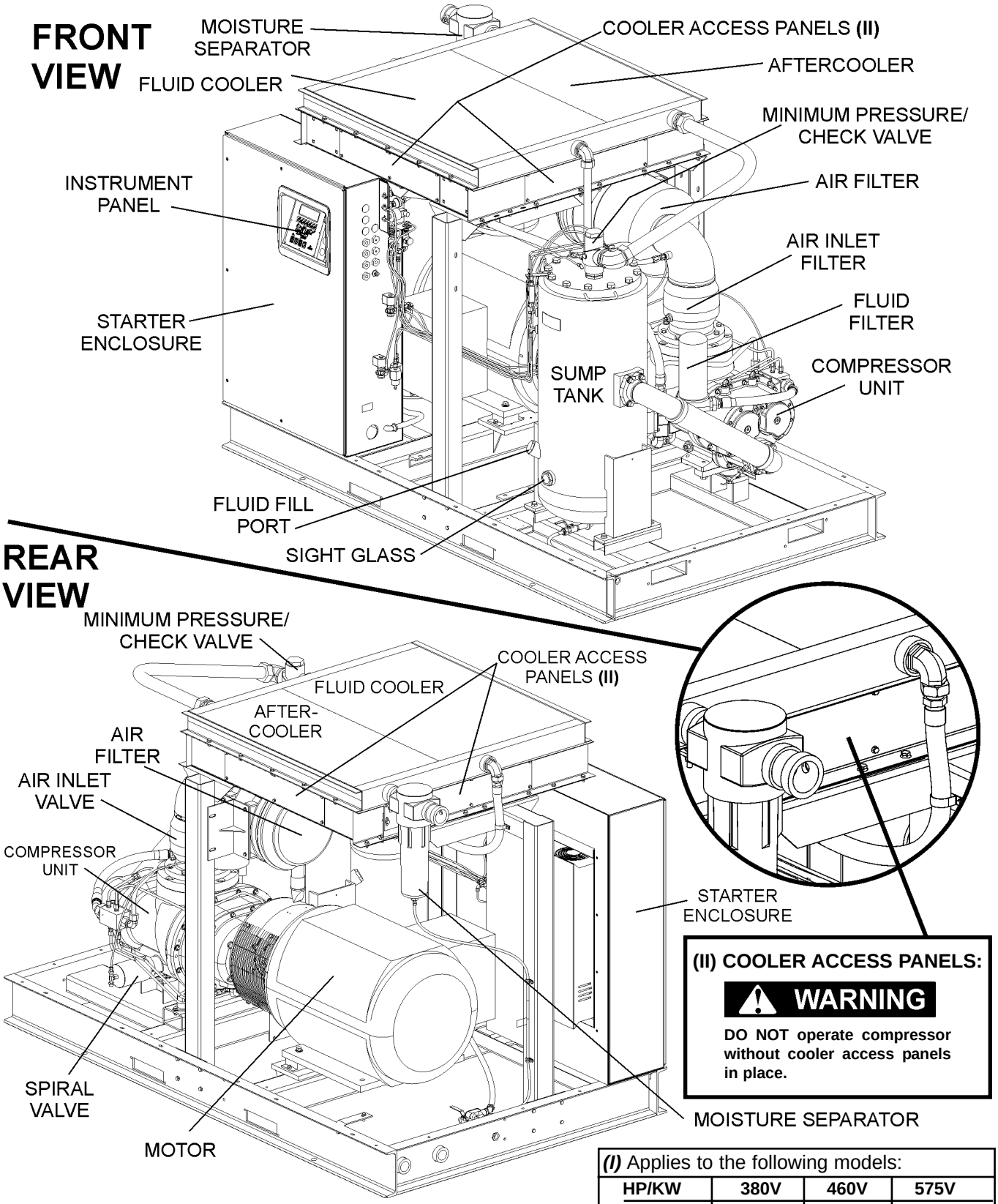
Decreasing demand condition:
While the spiral valve is open, if demand continues to decrease the VSD will reduce the motor speed until the set point pressure is achieved. This action will continue until the minimum speed is reached. While at minimum speed, if the system pressure reaches 106 psig (7.3 bar), or alternatively set unload pressure, the compressor unloads, or turns off.

UNLOAD MODE- IN EXCESS OF 106 PSIG (7.3 BAR)
When a relatively small amount or no air is being used, the service line pressure continues to rise. When it exceeds 106 psig (7.3 bar), or alternatively set unload pressure, the Supervisor control system de-energizes the solenoid valve allowing sump air pressure to be supplied directly to close the inlet valve. Simultaneously, the solenoid valve sends a pneumatic signal to the blow down valve. The blow-down valve opens to the atmosphere, reducing the sump pressure. The check valve in the air service line prevents line pressure from returning to the sump. The compressor will shut down after the unload time setting expires if programmed (the default setting is zero [0] seconds for an immediate shutdown upon unload).

When the line pressure drops to the low setting pressure of 100 psig (6.9 bar) The Supervisor Controller starts the motor and energizes the solenoid valve which closes the blow down valve.

AUTOMATIC OPERATION
For VSD applications, the Supervisor Controller should be set in the “Automatic” mode. This mode allows the compressor to shutdown when no compressed air requirement is present and restarts when compressed air is needed.

*Figure 9-1A Sullair V-200S Rotary Screw Air Compressor- Air-cooled **(I)** (typical component layout)*



(II) COOLER ACCESS PANELS:

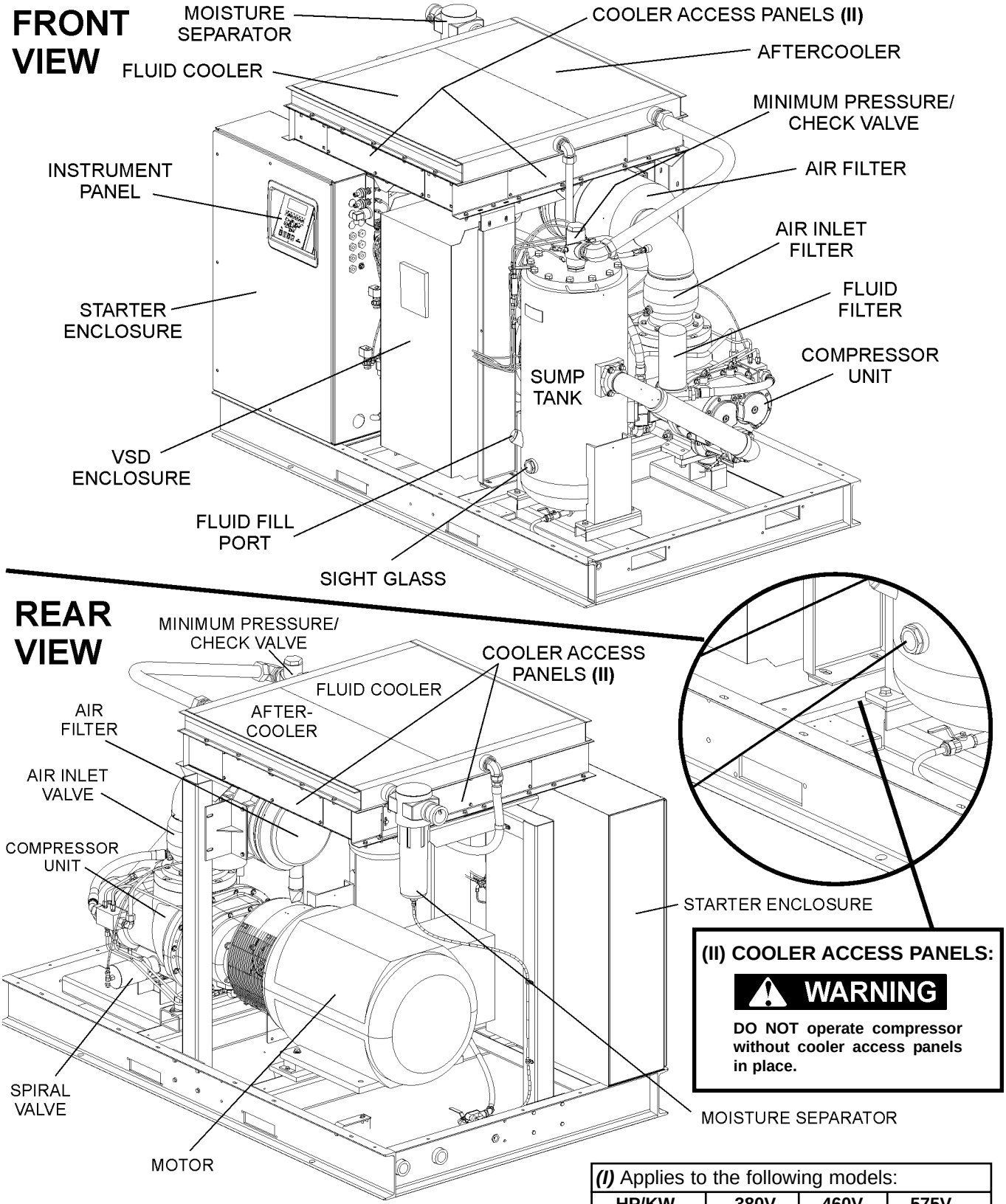
⚠ WARNING

DO NOT operate compressor without cooler access panels in place.

(I) Applies to the following models:			
HP/KW	**380V**	**460V**	**575V**
125/93	X	X	
150/112		X	

Section 9
VARIABLE SPEED DRIVE APPLICATIONS

*Figure 9-1B Sullair V-200S Rotary Screw Air Compressor- Air-cooled **(I)** (typical component layout)*



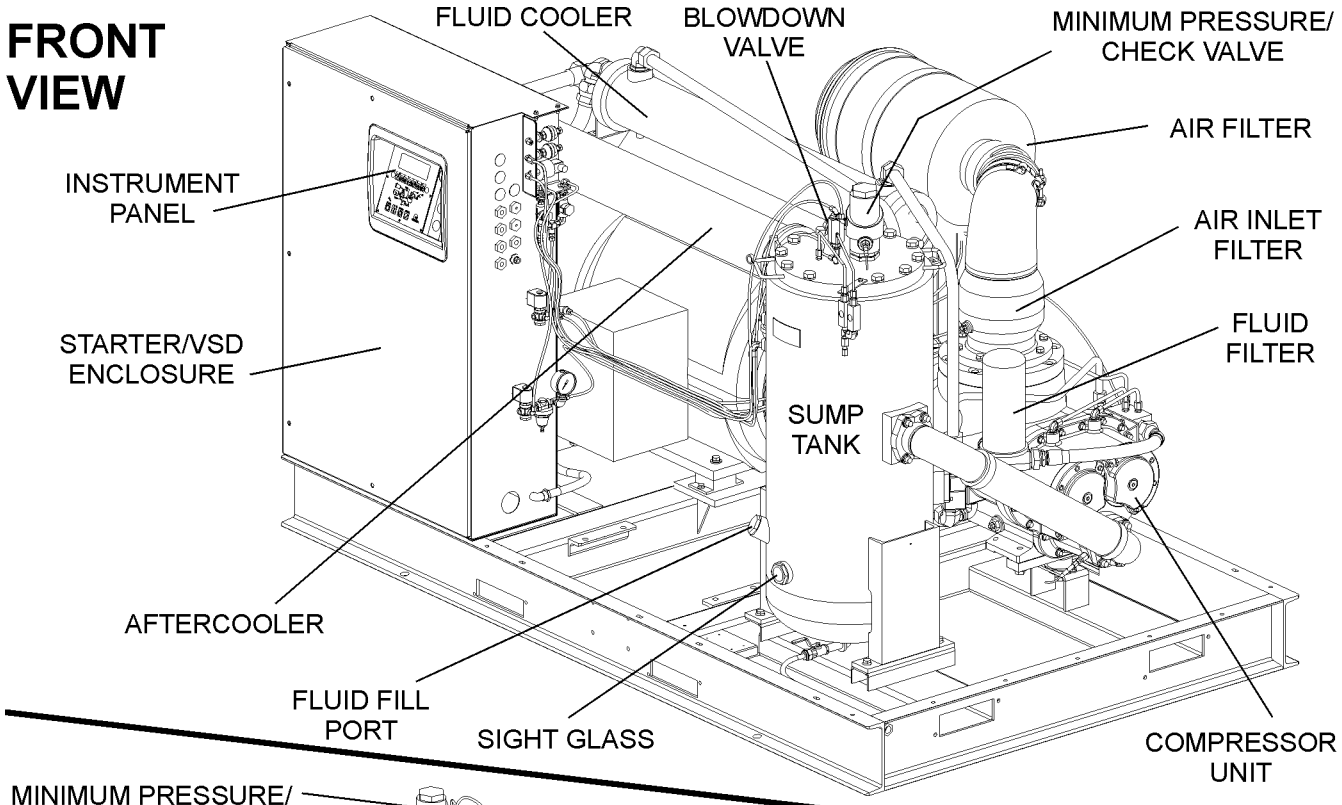
(II) COOLER ACCESS PANELS:

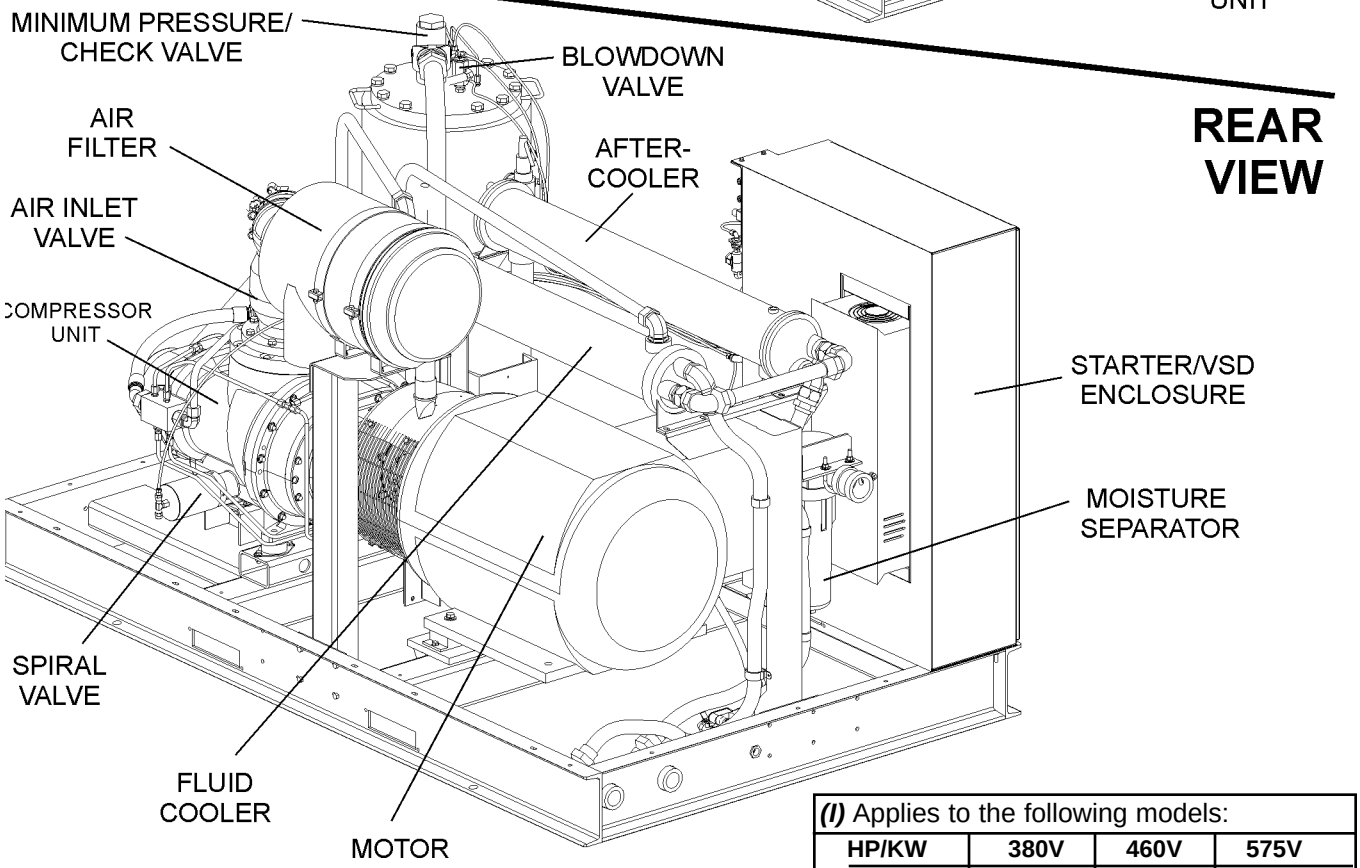
⚠ WARNING

DO NOT operate compressor without cooler access panels in place.

(I) Applies to the following models:			
HP/KW	**380V**	**460V**	**575V**
125/93			X
150/112	X		X

*Figure 9-1C Sullair V-200S Rotary Screw Air Compressor- Water-cooled **(I)** (typical component layout)*

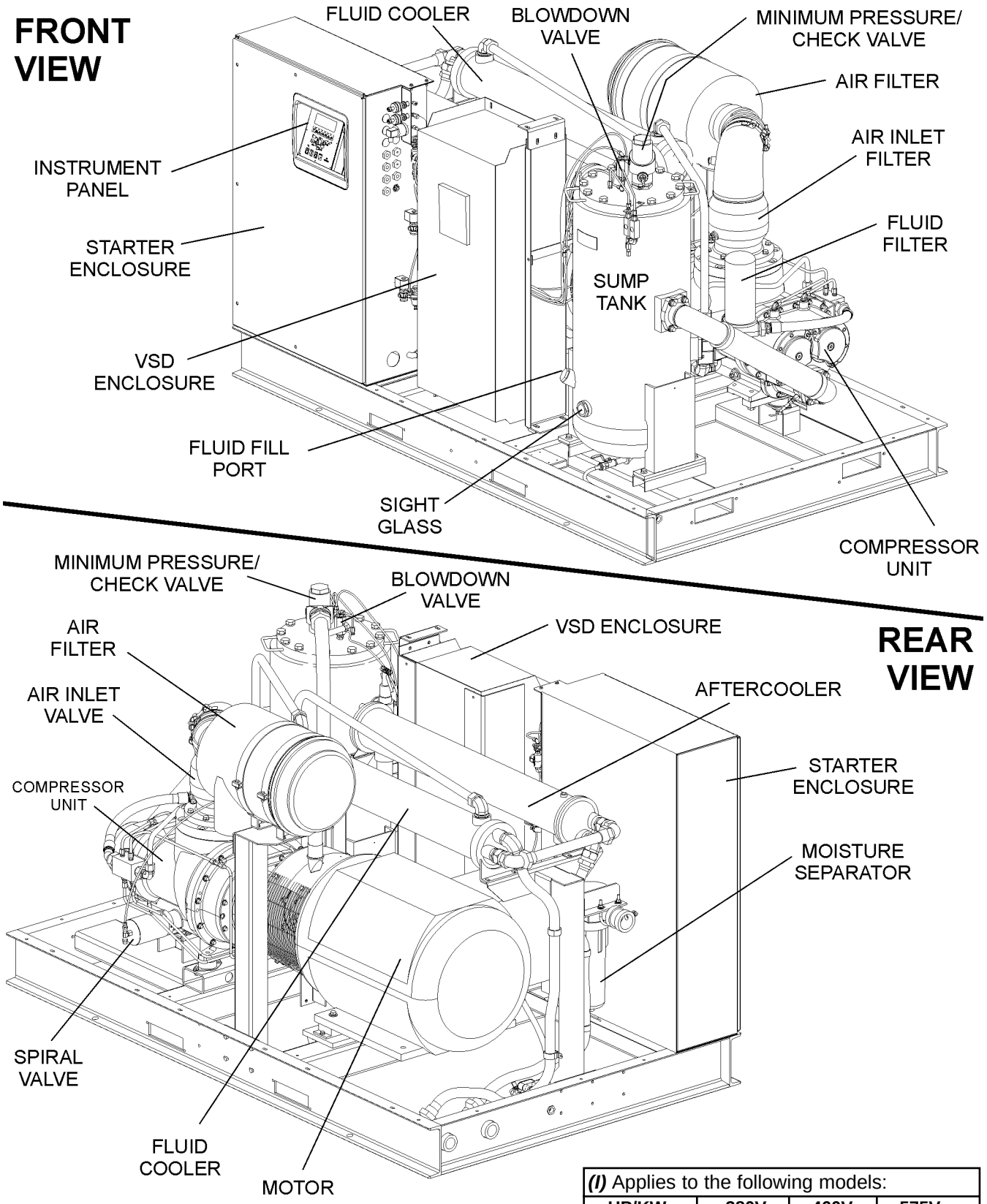




(I) Applies to the following models:			
HP/KW	**380V**	**460V**	**575V**
125/93	X	X	
150/112		X	

Section 9
VARIABLE SPEED DRIVE APPLICATIONS

*Figure 9-1D Sullair V-200S Rotary Screw Air Compressor- Water-cooled **(I)** (typical component layout)*

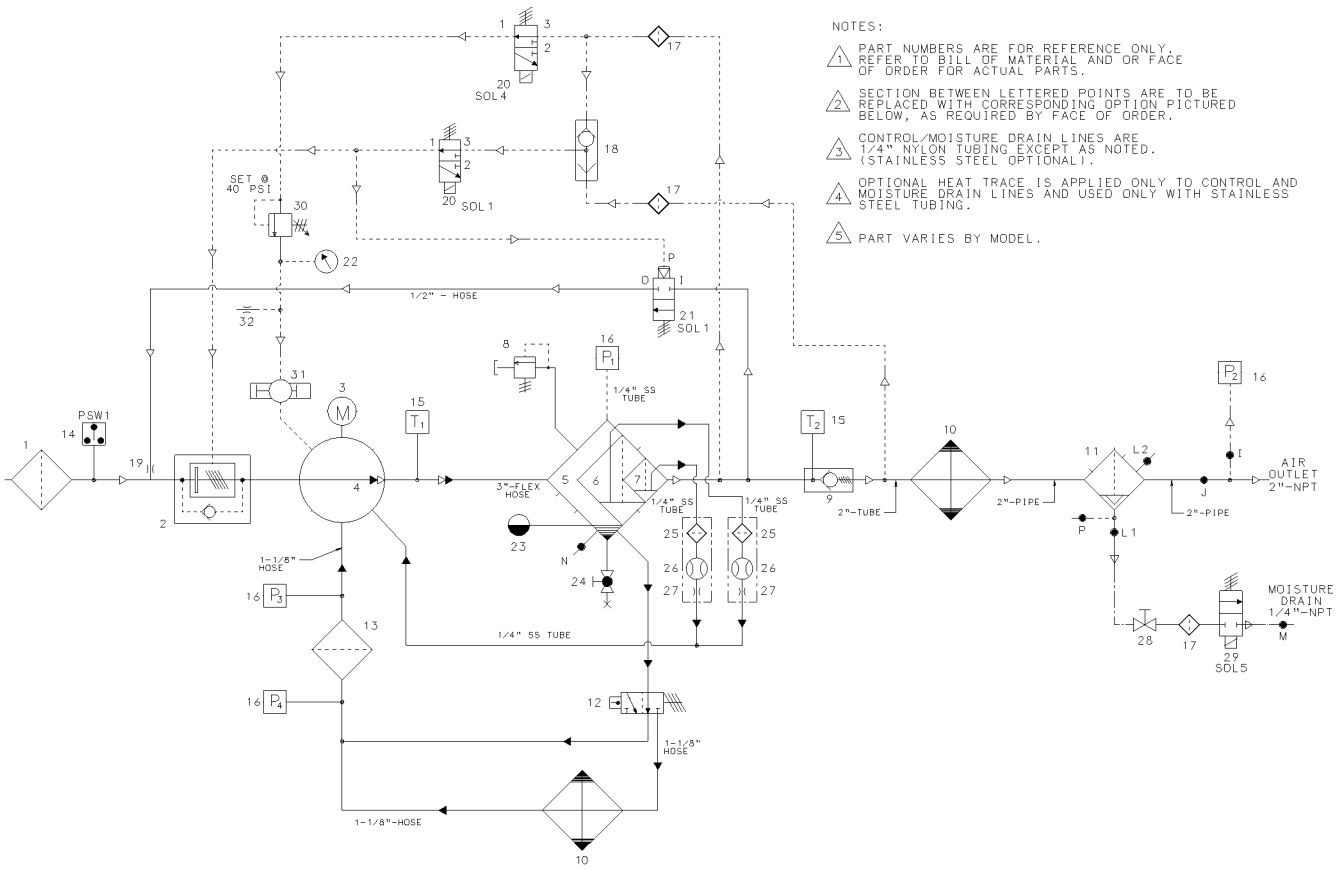


(I) Applies to the following models:			
HP/KW	**380V**	**460V**	**575V**
125/93			X
150/112	X		X

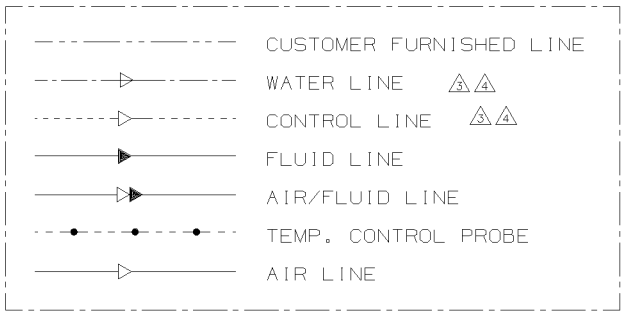
NOTES

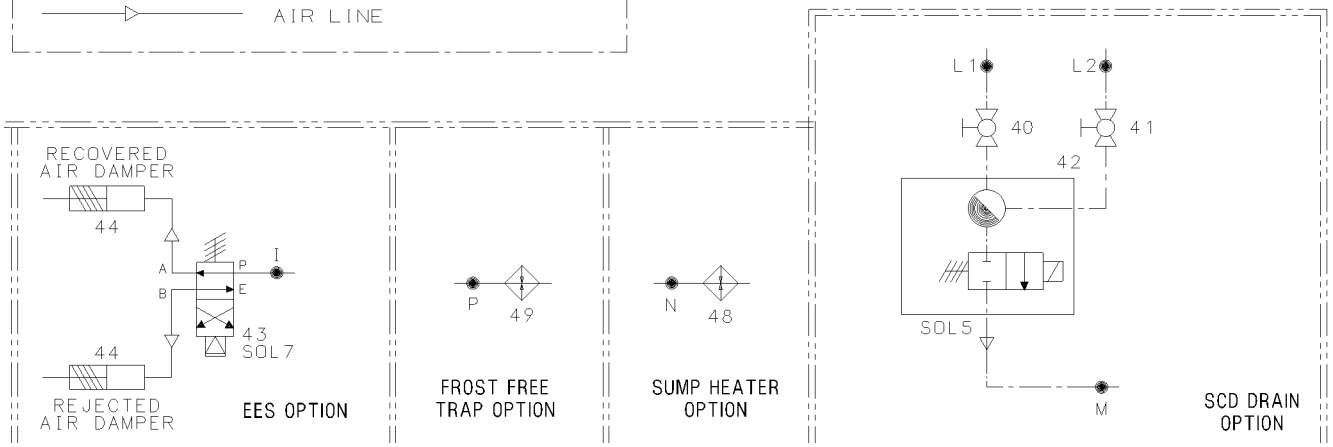
Section 9
VARIABLE SPEED DRIVE APPLICATIONS

Figure 9-2A Piping and Instrumentation Diagram- V-200S Air-cooled



COMPONENT	DESCRIPTION
P1	WET SUMP PRESSURE
P2	LINE PRESSURE
P3	INJECTION FLUID PRESSURE
P4	HIGH PRESSURE SIDE OF FLUID FILTER
PSW1	INLET FILTER VACUUM SWITCH
SOL1	LOAD/UNLOAD SOLENOID VALVE
SOL4	MEC/SEQUENCING/FULL LOAD SOLENOID VALVE
SOL5	ELECTRIC DRAIN/SCD DRAIN SOLENOID VALVE
SOL7	EES SOLENOID VALVE (OPTIONAL)
T1	WET DISCHARGE TEMPERATURE
T2	DRY DISCHARGE TEMPERATURE



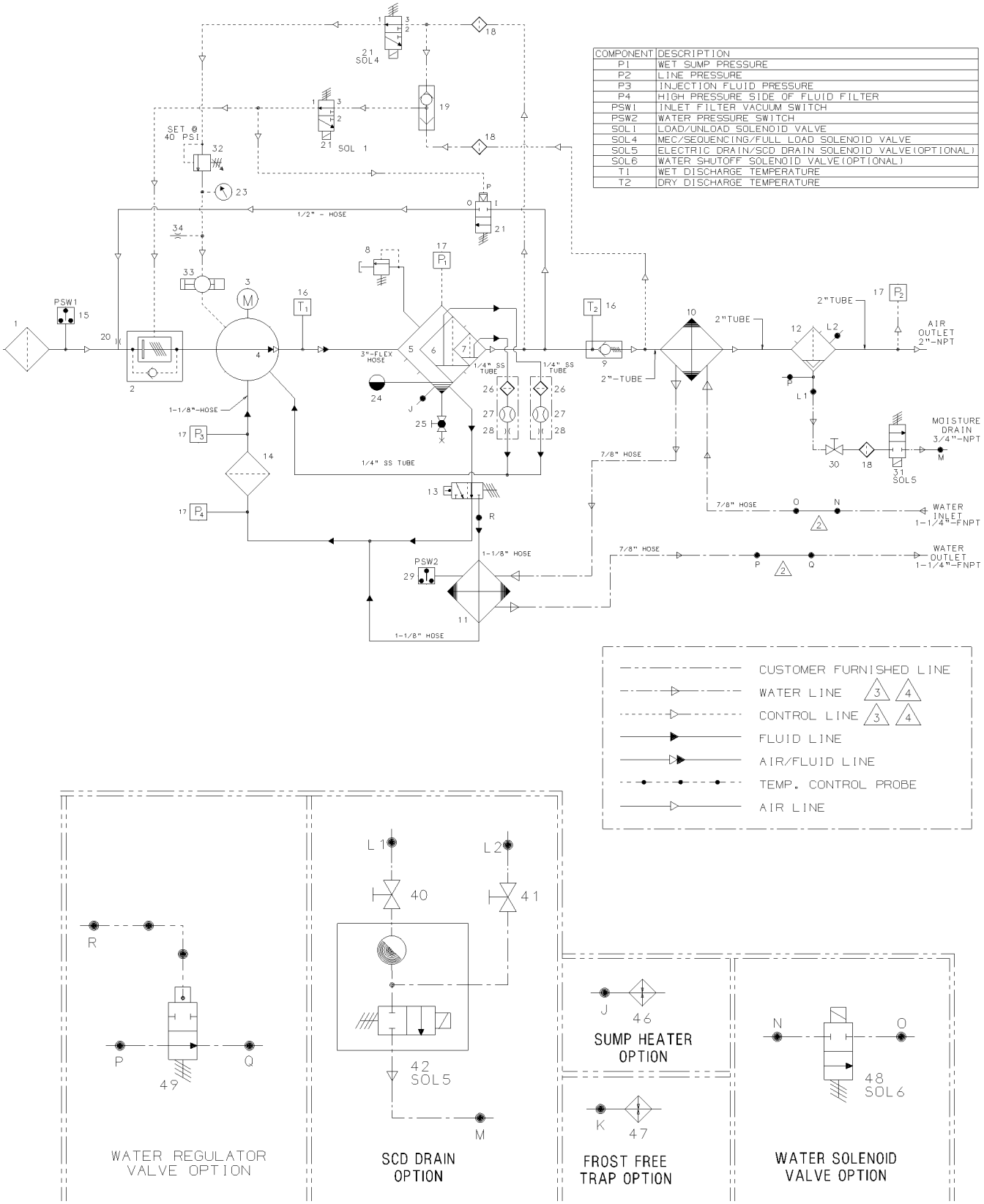


02250147-635R01

Figure 9-2A Piping and Instrumentation Diagram- V-200S Air-cooled

key number	description	part number	quantity
01	fltr, airassy optimalair 750cfm	02250135-154	1
02	vlv, air inlet 6” 20-100	02250145-632	1
03	motor	-	1
04	compressor unit	-	1
05	tnk, oil sep 18” ls200s std	02250145-545	1
06	element, oil sep 10.63 x 25”lg	250034-085	1
07	sep,air/oil secondary ls20s	02250145-368	1
08	vlv, rlf 1 x 1-1/4 200psig	02250047-679	1
09	vlv, min press 2-1/2” sae	02250129-374	1
10	clr, ac 1-5/8 sae 2”npt ls200s	02250145-556	1
11	sep, wtr d-h 2” fnpt 1/4” drn	02250144-632	1
5 12	element, thermal valve 175< deg>f	049542	1
5 12	element, thermal valve 190< deg>f	250028-762	1
13	fltr, fl 1-5/8” sae str thrd con	02250054-605	1
14	sw, vac 22”wc n4 6ft cable 5a	02250078-249	1
15	p, rtd 100 ohm platinum 12ft	250039-909	2
16	xdcr, press 0-250psi 1-5vdc n4	02250078-933	4
17	strainer, v-type 300psi x 1/4	241771	3
18	valve, shuttle 1/4” (dbl chk)	408893	1
19	orifice, .25-dia 1/2”-npt	234125-250	1
20	valve, sol 3wno 1/4” 235# n4	02250125-657	2
21	valve, 2-way pneumatic 1/2”npt	02250100-042	1
22	gauge, air press 2-1/2” 0-200psi	02250117-009	1
23	plug, sight glass 1-7/8” sae	02250097-611	2
24	vlv, ball 3/4”sae-m x 1/2”npt-f	02250098-303	1
25	fltr, assembly genisis filter	02250117-782	2
26	glass, sight/orf blk-sae	02250126-129	2
27	orf, plug brass 1/8”npt x 1/32”	02250125-774	2
28	valve, ball 1/4”npt	047115	1
29	vlv, sol 2wnc mo 1/4 200# n4	02250125-674	1
30	valve, pressure reg 1/4”-npt 2-150#	02250046-568	1
31	spiral valve		1
32	orifice, .031	02250132-934	1
	SCD DRAIN OPTION:		
40	valve, ball 1/2” npt	047117	1
41	valve, ball 1/4” npt	047115	1
42	drn, electric condensate-SCD400	02250130-866	1
	EES OPTION:		
43	vlv, sol 4 way 1/4 150# N4	02250125-673	1
44	cylinder, pneumatic 7/8, 4”str	241906	2
	SUMP HEATER OPTION:		
48	htr, sump LS20S 750W 120V	02250118-451	1
	MOISTURE SEPARATOR OPTION:		
49	htr, SCD400/500 wrap 50w	02250114-171	1

Figure 9-2B Piping and Instrumentation Diagram- V-200S Water-cooled

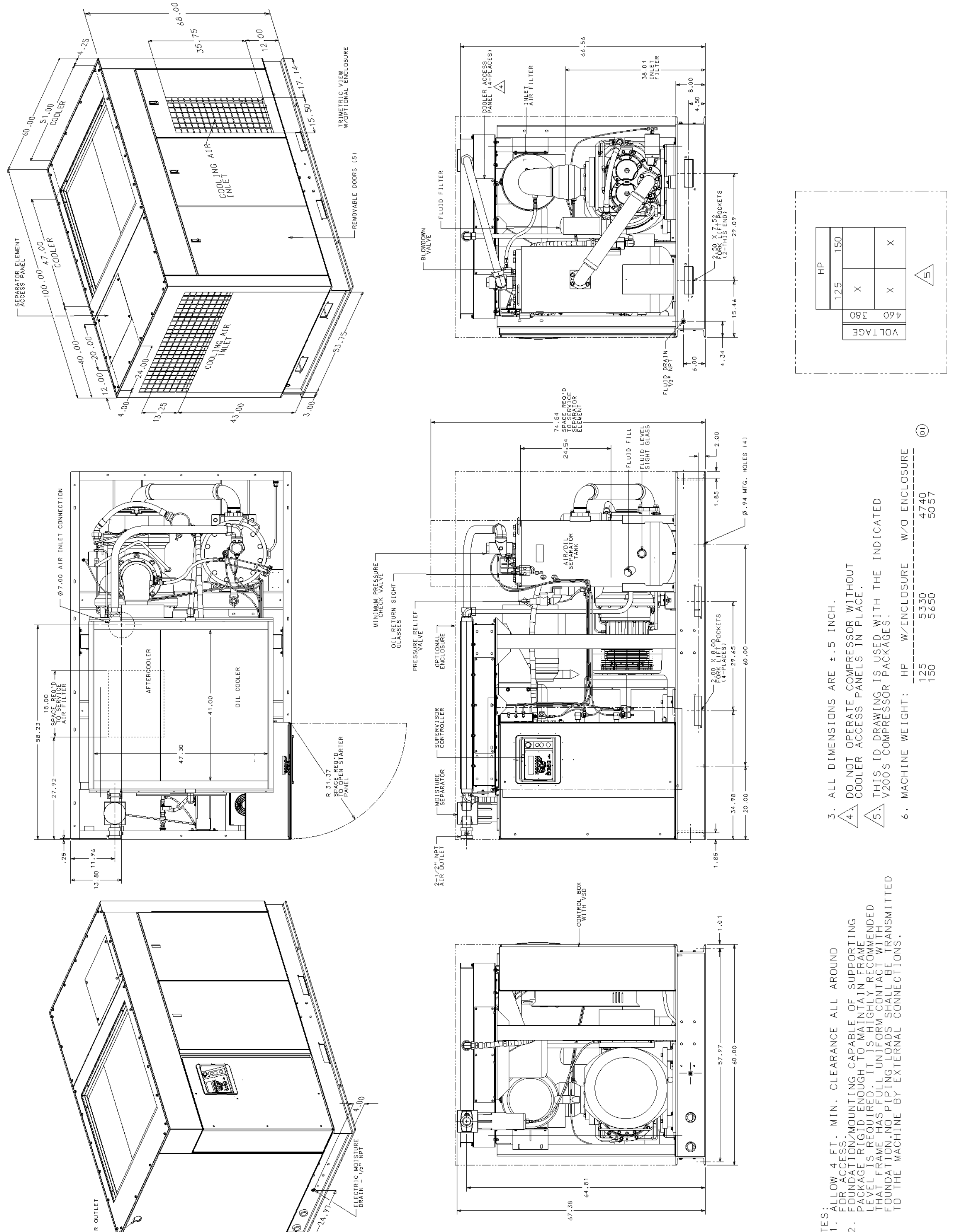


02250147-636R01

Figure 9-2B Piping and Instrumentation Diagram- V-200S Water-cooled

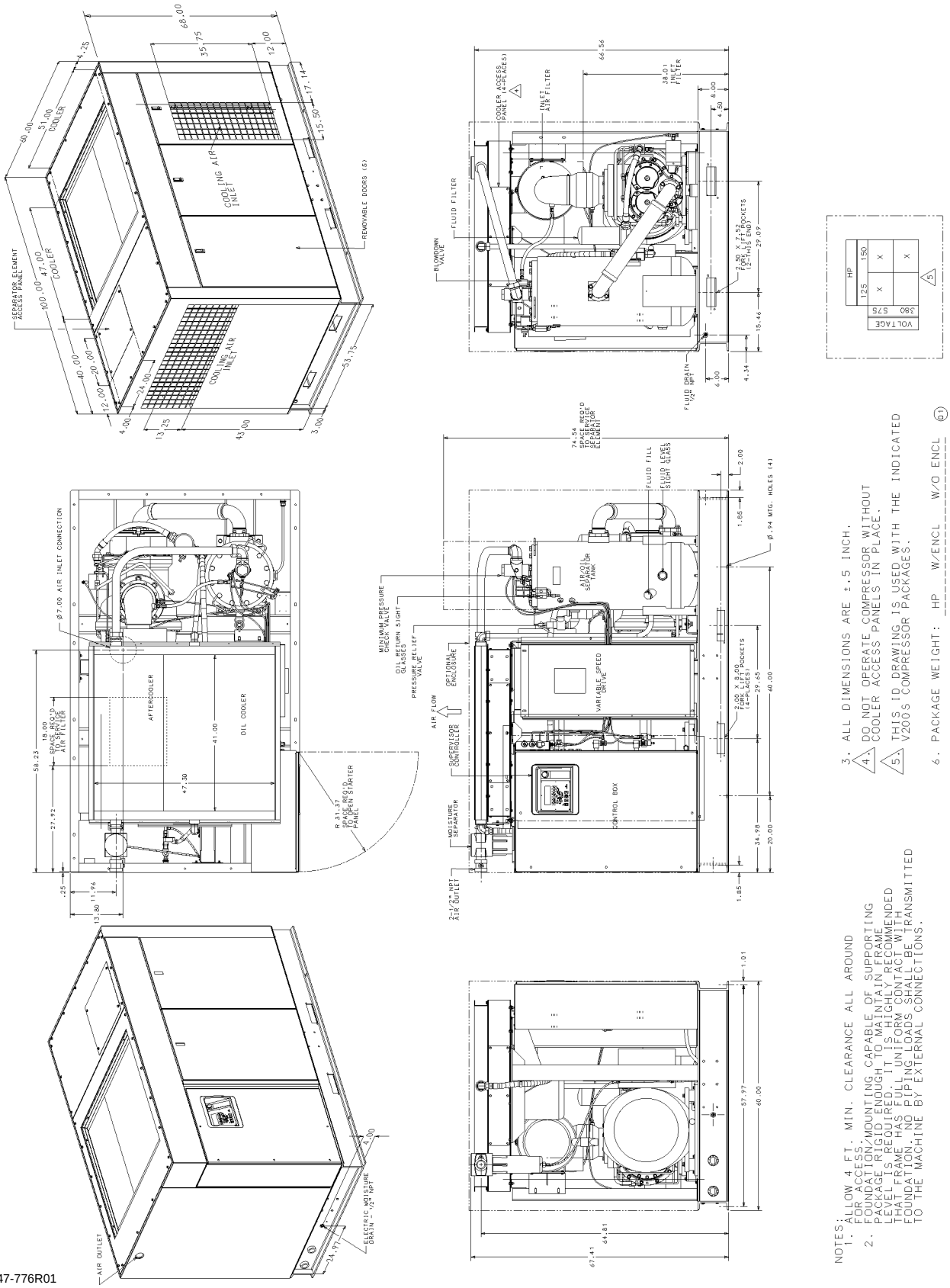
key number	description	part number	quantity
01	fltr, airassy optimalair 750cfm	02250135-154	1
02	vlv, inl 6” pop w/bypass ls200s	02250145-632	1
03	motor	-	1
04	compressor unit	-	1
05	tnk,oil sep 18” ls200s std	02250145-545	1
06	element, oil sep 10.63 x 25”lg	250034-085	1
07	sep, air/oil secondary ls20s	02250145-368	1
08	vlv, rlf 1 x 1-1/4 200psig	02250047-679	1
09	vlv, min press 2-1/2”sae	02250129-374	1
10	aftercooler, wc	043009	1
11	clr, oil w/sae ports ls20s	02250114-977	1
12	sep, wtr d-h 2”fnpt 1/4” drain	02250144-632	1
△5 13	element, thermal valve 175f	049542	1
△5 13	element, thermal valve 190f	250028-762	1
14	fltr, fl 1-5/8”sae str thrd con	02250054-605	1
15	sw, vac 22”wc n4 6ft cable 5a	02250078-249	1
16	p, rtd 100ohm platinum 12ft	250039-909	2
17	xdcr, press 0-250psi 1-5vdc n4	02250078-933	4
18	strainer, v-type 300psi x 1/4	241771	3
19	valve, shuttle 1/4”(dbl chk)	408893	1
20	orifice, .25-dia 1/2”-npt	234125-250	1
21	vlv, sol 32no 1/4 235# n4	02250125-657	2
22	valve, 2-way pneuctl 1/2”npt	02250100-042	1
23	gauge, air press 2-1/2” 0-200psi	02250117-009	1
24	plug, sight glass 1-7/8”sae	02250097-611	2
25	vlv, ball 3/4”sae-m x 1/2”npt-f	02250098-303	1
26	fltr, assembly genisis fltr	02250117-782	2
27	glass,sight/orf blk-sae	02250126-129	2
28	orf, plug brass 1/8”npt x 1/32”	02250125-774	2
29	switch,press no 10psi	250017-992	1
30	valve,ball 1/4”npt	047115	1
31	vlv, sol 2wnc mo 1/4 200# n4	02250125-674	1
32	valve, pressure reg 1/4”-npt 2-150#	02250046-568	1
33	spiral valve	-	1
34	orifice, .031	02250132-934	1
	SCD DRAIN OPTION:		
40	valve, ball 1/2” npt	047117	1
41	valve, ball 1/4” npt	047115	1
42	drn, electric condensate-SCD400	02250130-866	1
	SUMP HEATER OPTION:		
46	htr, sump LS20S 750W 120V	02250118-451	1
	MOISTURE SEPARATOR OPTION:		
47	htr, SCD400/500 wrap 50w	02250114-171	1
	WATER SOLENOID VALVE OPTION:		
48	valve, sol 2wnc 1-1/4 8210g8	250035-291	1
	REGULATING VALVE OPTION:		
49	valve, water regulating 1-1/4”	049474	1

Figure 9-3A Identification- V-200S 125/150H Air-cooled 460V with Optional Enclosure



02250147-777R02

Figure 9-3B Identification- V-200S 125/150H Air-cooled 380/575V+ with Optional Enclosure



NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS.
2. FOUNDATION/MOUNTING CAPABLE OF SUPPORTING PACKAGE RIGID ENOUGH TO MAINTAIN FRAME LEVEL IS REQUIRED. IT IS HIGHLY RECOMMENDED THAT FRAME HAS FULL UNIFORM CONTACT WITH FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.
3. ALL DIMENSIONS ARE ±.5 INCH.
4. DO NOT OPERATE COMPRESSOR WITHOUT COOLER ACCESS PANELS IN PLACE.
5. THIS ID DRAWING IS USED WITH THE INDICATED V200S COMPRESSOR PACKAGES.
6. PACKAGE WEIGHT:

HP	W/ENCL	W/O ENCL
125	5524	4934
150	5840	5250

02250147-776R01

Section 9
VARIABLE SPEED DRIVE APPLICATIONS

Figure 9-3C Identification- V-200S Water-cooled 125/150H 460V with Optional Enclosure

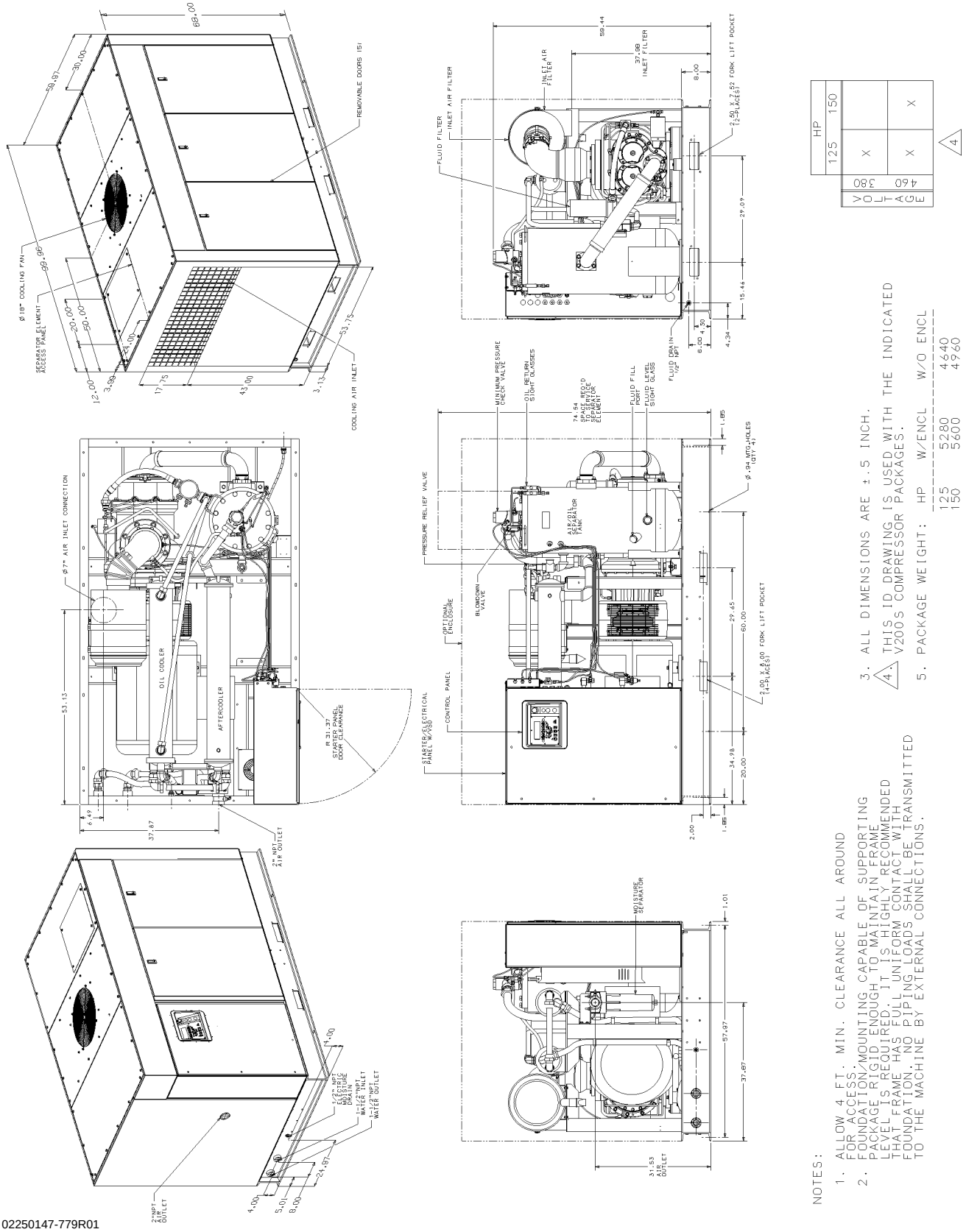
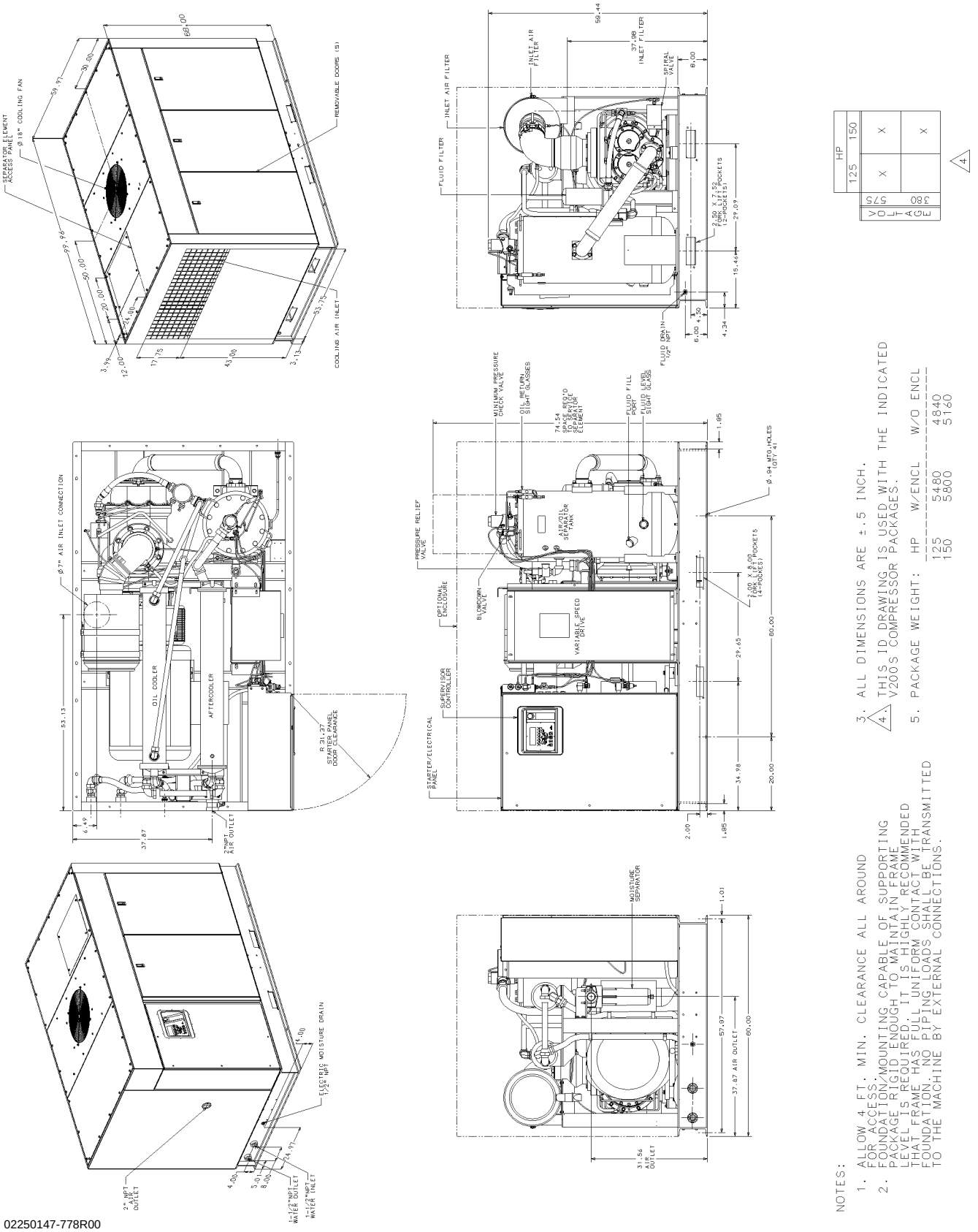


Figure 9-3D Identification- V-200S Water-cooled 125/150H 380/575V+ with Optional Enclosure



HP	VOLTAGE 380	VOLTAGE 575
125	X	
150		X

NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS.
2. FOUNDATION/MOUNTING CAPABLE OF SUPPORTING PACKAGE RIGID ENOUGH TO MAINTAIN FRAME LEVEL IS REQUIRED. IT IS HIGHLY RECOMMENDED THAT FRAME HAS FULL UNIFORM CONTACT WITH FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.
3. ALL DIMENSIONS ARE ±.5 INCH.
4. THIS ID DRAWING IS USED WITH THE INDICATED V200S COMPRESSOR PACKAGES.
5. PACKAGE WEIGHT:

HP	W/ENCL	W/O ENCL
125	5480	4840
150	5800	5160

02250147-778R00

NOTES

Section 10
ILLUSTRATIONS AND PARTS LIST

10.1 PROCEDURE FOR ORDERING PARTS

Parts should be ordered from the nearest Sullair Representative or the Representative from whom the compressor was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address or phone numbers below.When ordering parts always indicate the Serial Number of the compressor. This can be obtained from the Bill of Lading for the compressor or from the Serial Number Plate located on the compressor.

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

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

PARTS DEPARTMENT
1-888-SULLAIR (U.S.A. Only)
Fax: (219) 874-1835
www.sullair.com

SERVICE DEPARTMENT
1-888-775-1604
Fax: (219) 874-1205
www.sullaircompressors.com

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

10.2 RECOMMENDED SPARE PARTS LIST

DESCRIPTION	KIT NUMBER	QTY
repair kit heavy duty filter element no. 02250135-154	**02250135-155**	**1**
repair kit primary separator element w/gaskets	**250034-085**	**1**
•repair kit secondary separator	**02250145-897**	**1**
element for thermal valve no. 046542 (175ºF/79ºC)	**02250105-553**	**1**
element for thermal valve no. 250028-762 (190ºF/88ºC)	**02250112-709**	**1**
repair kit for solenoid valve no. 02250125-657	**02250125-829**	**1**
replacement coil for solenoid valve no. 02250125-657	**02250125-861**	**1**
repair kit for solenoid valve no. 02250125-674	**02250125-823**	**1**
replacement coil for solenoid valve no. 02250125-674	**02250125-861**	**1**
repair kit for fluid filter no. 02250054-605	**250025-526**	**1**
repair kit for inlet valve no. 02250145-632	**02250053-273**	**1**
repair kit for pressure regulator no. 250017-280 **(I)**	**250019-453**	**1**
repair kit for control line strainer no. 241771	**241772**	**1**
filter, scavenge line no. 02250117-782	**02250117-782**	**2**
repair kit for compressor shaft seal	**02250057-037**	**1**
tool kit for seal replacement	**02250078-694**	**1**
repair kit for minimum pressure/check valve no. 02250129-374	**250018-456**	**1**

Continued on page 64

(I) Two regulators are used with spiral valve model.

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

10.2 RECOMMENDED SPARE PARTS LIST (CONTINUED)

DESCRIPTION	KIT NUMBER	QTY
repair kit for reducing regulator valve 02250046-568	**02250055-911**	**1**
repair kit for blowdown valve no. 02250100-042	**02250142-132**	**1**
manual, Sequencing & Protocol	**consult factory**	**1**

FLUIDS:

NOTE

Sullair standard compressors are filled with Sullube fluid as factory fill.
Mixing of other lubricants within the compressor unit will void all warranties.

lubricant, Sullube (5 gallon/ 19 liter container) **(II)**	**250022-669**	**(III)**
lubricant, 24KT (5 gallon/ 19 liter container) **(IV)**	**02250051-153**	**(III)**
lubricant, SRF 1/400 (5 gallon/ 19 liter container)**(V)**	**02250019-662**	**(III)**

(II) Sullube lubricant is also available in 55 gallon/ 208 liter drum no. 250022-670.

(III) Sump capacity is 14 gallons/ 53 liters.

(IV) 24KT lubricant is also available in 55 gallon/ 208 liter drum no. 02250051-150.

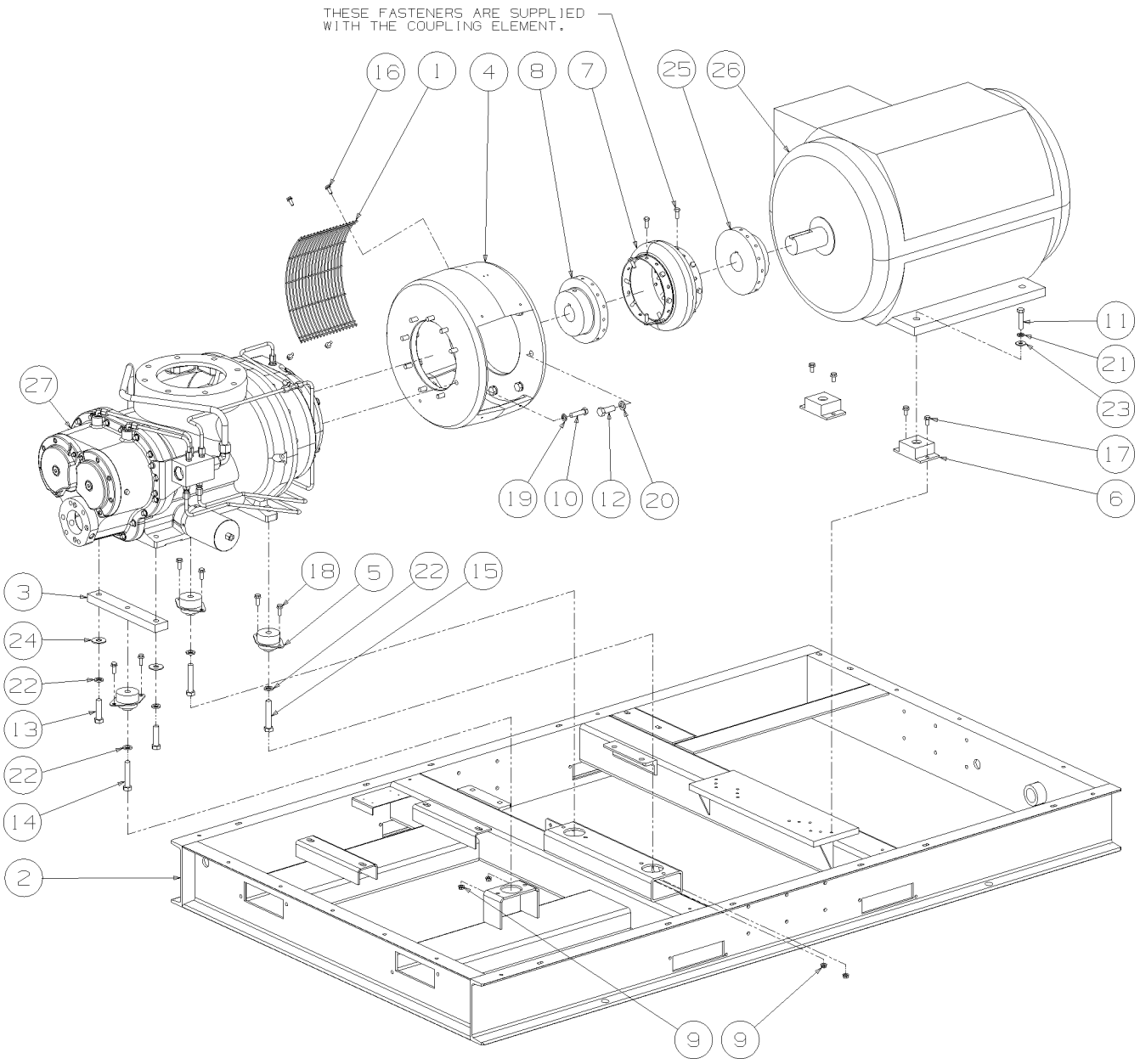
(V) SRF 1/4000 lubricant is also available in 55 gallon/ 208 liter drum no. 250019-663.

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

NOTES

Section 10
ILLUSTRATIONS AND PARTS LIST

10.3 MOTOR, COMPRESSOR AND FRAME



02250146-424R00

10.3 MOTOR, COMPRESSOR AND FRAME

key number	*description*	*part number*	*quantity*
1	guard, cplg	02250050-131	2
2	frame, assy ls200s	02250145-743	1
3	support, unit	250042-454	1
4	adapter, compr/mtr ls-20s 444-445 tsc	250042-487	1
5	isolator, vibration compr. - dxr20	250042-541	3
6	isolator, vibration 670-15	250042-757	2
7	element, coupling e50	406631	1
8	hub, coupling rex e-50 2”dia	407985	1
9	nut, hex f pltd 3/8-16	825306-347	6
10	capscr, hex gr5 1/2-13 x 2	829108-200	9
11	capscr, hex gr5 1/2-13 x 2 1/4	829108-225	2
12	capscr, hex gr5 5/8-11 x 1 3/4	829110-175	8
13	capscr, hex gr5 5/8-11 x 2 1/2	829110-250	2
14	capscr, hex gr5 5/8-11 x 3 1/4	829110-325	1
15	capscr, hex gr5 5/8-11 x 3 1/2	829110-350	2
16	screw, hex ser washer 5/16-18 x 3/4	829705-075	8
17	screw, hex ser washer 3/8-16 x 3/4	829706-075	4
18	screw, hex ser washer 3/8-16 x 1	829706-100	6
19	washer, spr lock 1/2	837508-125	9
20	washer, spr lock 5/8	837510-156	8
21	washer, spr lock reg pltd 1/2	837808-125	2
22	washer, spr lock reg pltd 5/8	837810-156	5
23	washer, pl-b reg pltd 1/2	838208-112	2
24	washer, pl-b reg pltd 5/8	838210-112	2
25	hub, coupling **(I)**	-	1
26	motor **(I)**	-	1
27	compressor unit **(I) (II)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

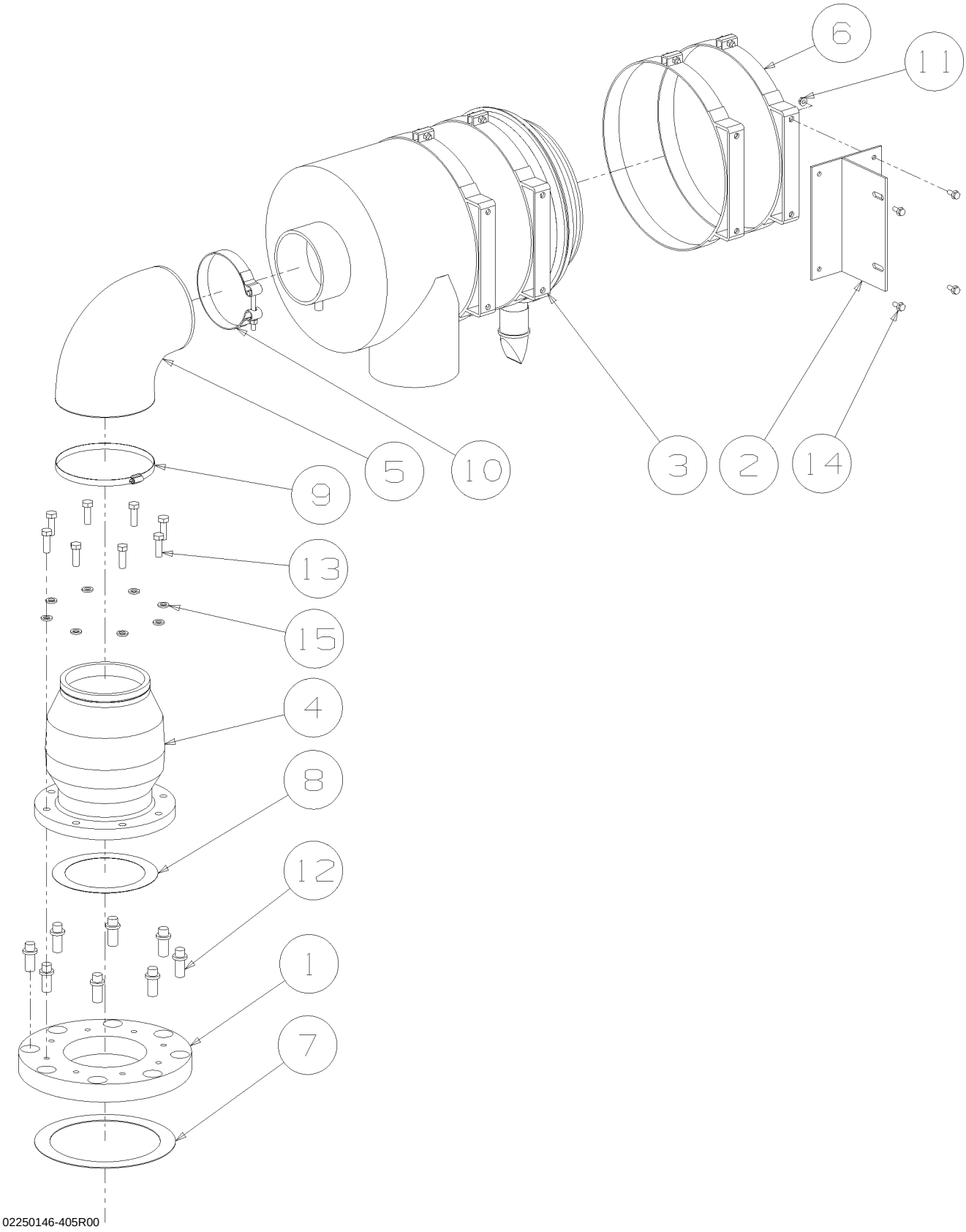
(II) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

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 shaft seal repair kit no. 02250057-037, and seal replacement tool kit no. 02250078-694.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.4 AIR INLET SYSTEM- AIR-COOLED



02250146-405R00

10.4 AIR INLET SYSTEM- AIR-COOLED

key number	*description*	*part number*	*quantity*
1	adapter, air inl ls20 dir drv	02250065-044	1
2	support, air filt ls20s/ls25 ac	02250126-596	1
3	filter, air 15” dia **(I)**	02250135-154	1
4	valve, inlet 6” w/bypass **(II) (III)**	02250145-632	1
5	elbow, rub 90 7 x 6 ls200s	02250145-672	1
6	band, mtg 15” air filter ls200s	02250146-413	2
7	gasket, 8 5/8 x 11 x 1/16	040422	1
8	gasket, 1/32 x 6 1/4idx8 1/4od **(III)**	040696	1
9	clamp, hose 7”	041992	1
10	clamp, t-bolt ss band 6.00”id	242000	1
11	nut, hex f pltd 5/16-18	825305-283	4
12	capscrew, ferry head hd 3/4-10 x 1 1/2	828412-150	8
13	capscr, hex gr5 1/2-13 x 1 1/2	828608-150	8
14	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
15	washer, spr lock 1/2	837508-125	8

(I) For maintenance on air filter no. 02250135-154, order replacement element no. 02250135-155.

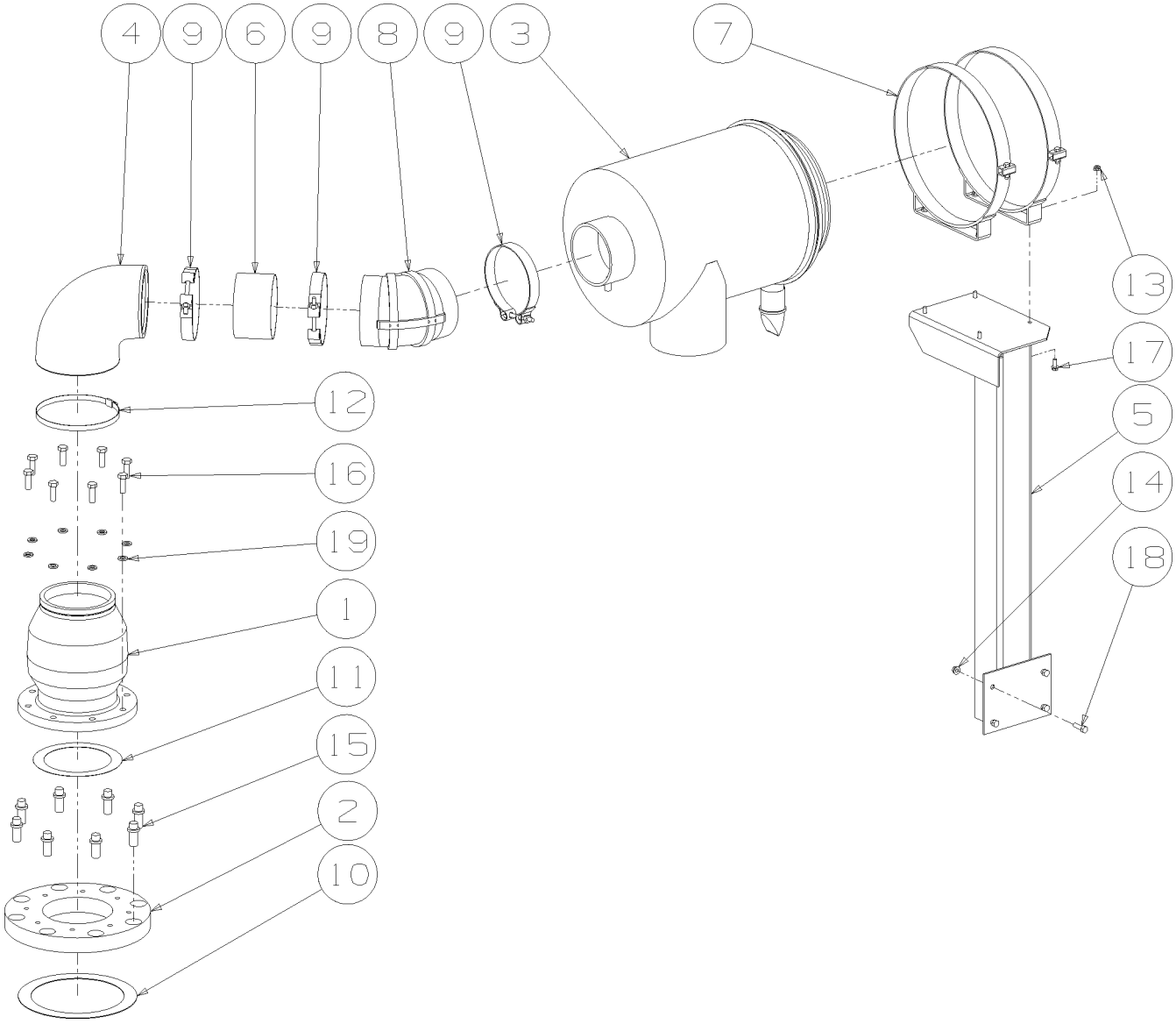
(II) For maintenance on inlet valve no. 02250145-632, order repair kit no. 02250053-273.

(III) When performing maintenance on the inlet valve assembly, if required, order gasket no. 040696.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.5 AIR INLET SYSTEM- WATER-COOLED



02250146-406R01

10.5 AIR INLET SYSTEM- WATER-COOLED

key number	*description*	*part number*	*quantity*
1	valve, inlet 6” pop w/ bypass **(I) (II)**	02250145-632	1
2	adapter, air inl ls20 dir drv	02250065-044	1
3	filter, air 15” dia **(III)**	02250135-154	1
4	elbow, rub 90 7 x 6 ls200s	02250145-672	1
5	support, air flt ls200s wc	02250145-711	1
6	tube, alum 6” od x 3.50” lg 16 ga	02250145-712	1
7	band, mtg 15” air filter ls200s	02250146-413	2
8	elbow, rubber 6” id x 45 deg	040303	1
9	clamp, t-bolt ss band 6.75”id	040305	3
10	gasket, 8 5/8 x 11 x 1/16	040422	1
11	gasket, 1/32 x 6 1/4idx8 1/4od	040696	1
12	clamp, hose 7”	041992	1
13	nut, hex f pltd 5/16-18	825305-283	4
14	nut, hex f pltd 3/8-16	825306-347	4
15	capscrew, ferry head hd 3/4-10 x 1 1/2	828412-150	8
16	capscr, hex gr5 1/2-13 x 1 1/2	828608-150	8
17	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
18	screw, hex ser washer 3/8-16 x 1 1/4	829706-125	4
19	washer, spr lock 1/2	837508-125	8

(I) For maintenance on air linlet valve no. 02250060-988, order repair kit no. 02250053-273.

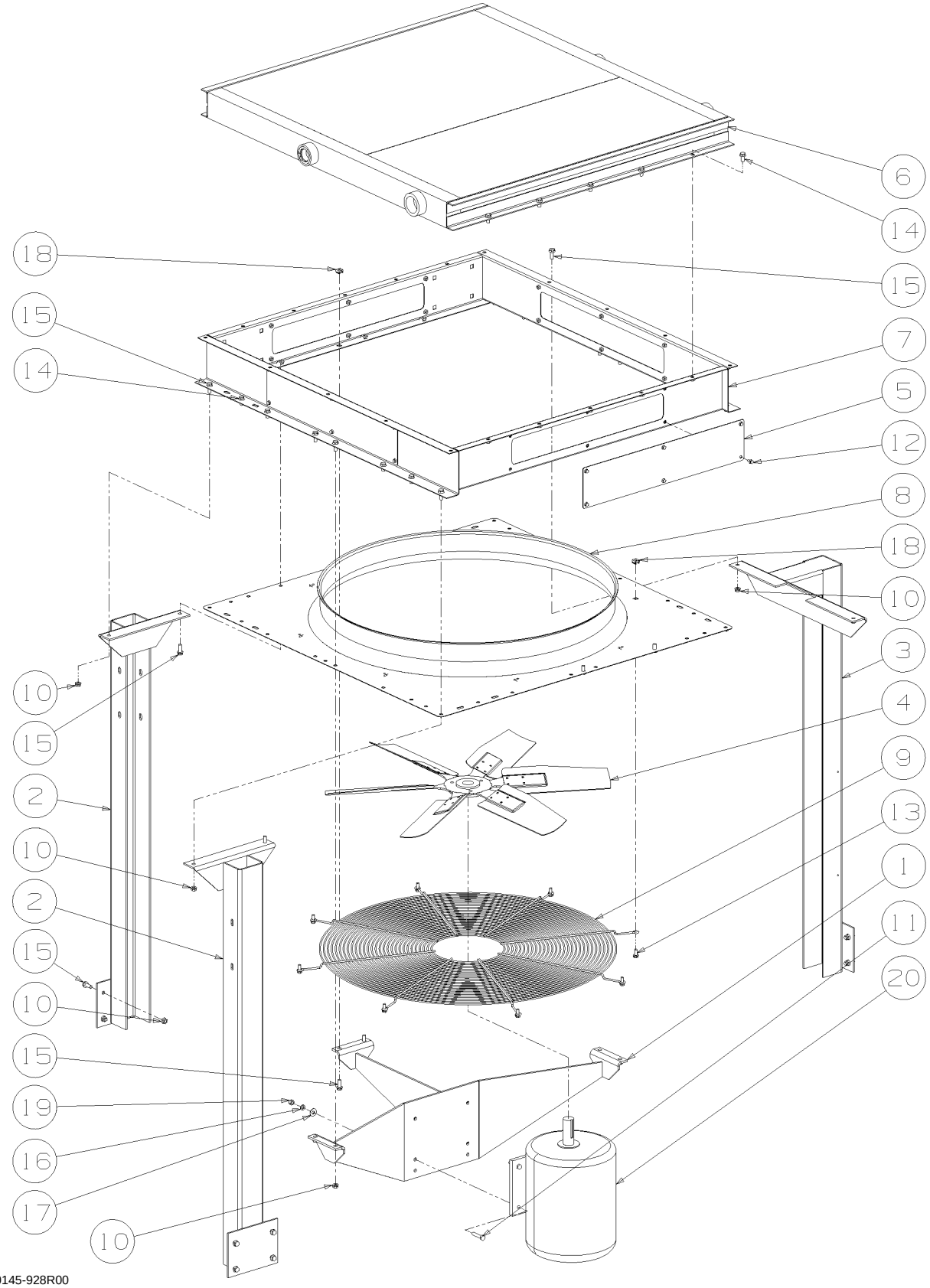
(II) When performing maintenance on the inlet valve assembly, if required, order gasket no. 040696.

(III) For maintenance on air filter no. 02250135-154, order replacement element no. 02250135-155.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.6 FLUID COOLING SYSTEM- LS-200S & VCC-200S AIR-COOLED



02250145-928R00

10.6 FLUID COOLING SYSTEM- LS-200S & VCC-200S AIR-COOLED

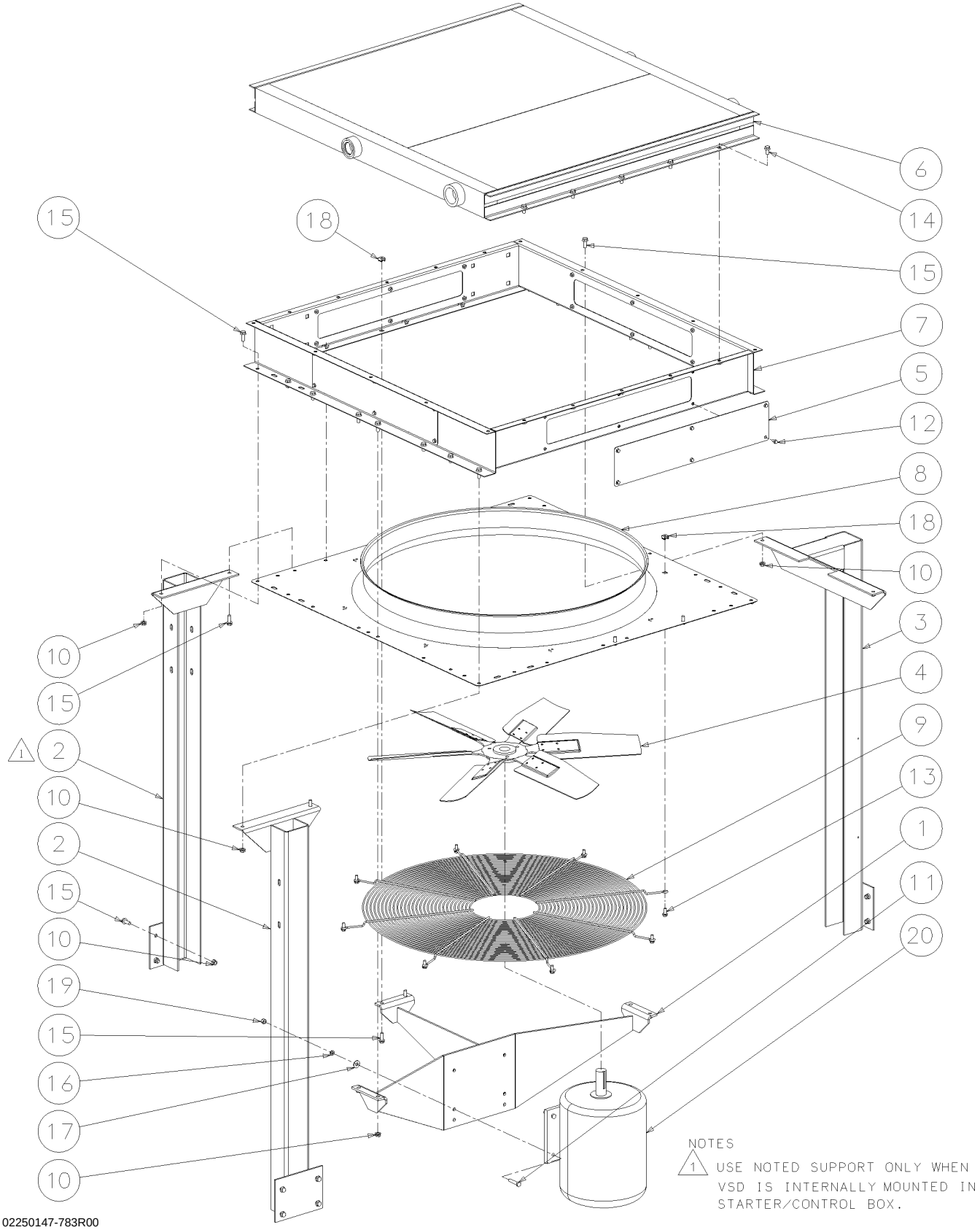
key number	*description*	*part number*	*quantity*
1	support, fan mtr(213t&215t)	015641	1
2	support, ac cooler assy	02250043-287	2
3	support, cooler ac mtr end	02250115-733	1
4	fan, 36” dia **(I)**	-	1
5	cover, access venturi	02250127-774	4
6	cooler, ac 1-5/8 sae 2”npt	02250145-556	1
7	adapter, venturi panel ls200s	02250145-716	1
8	panel, venturi 36”	245579	1
9	guard, fan 38”dia(2 halves=1pc)	248744	1
10	nut, hex f pltd 3/8-16	825306-347	38
11	capscr, hex gr5 3/8-16 x 1 3/4	829106-175	4
12	screw, hex ser washer 1/4-20 x 1/2	829704-050	24
13	screw, hex ser washer 5/16-18 x 3/4	829705-075	8
14	screw, hex ser washer 3/8-16 x 3/4	829706-075	21
15	screw, hex ser washer 3/8-16 x 1	829706-100	24
16	washer, spr lock reg pltd 3/8	837806-094	4
17	washer, pl-b reg pltd 3/8	838206-071	4
18	nut, retainer 5/16-18 .092	861405-092	15
19	nut, hex 3/8-16 pltd	866506-337	5
20	fan motor **(I)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.7 FLUID COOLING SYSTEM- V-200S AIR-COOLED



02250147-783R00

10.7 FLUID COOLING SYSTEM- V-200S AIR-COOLED

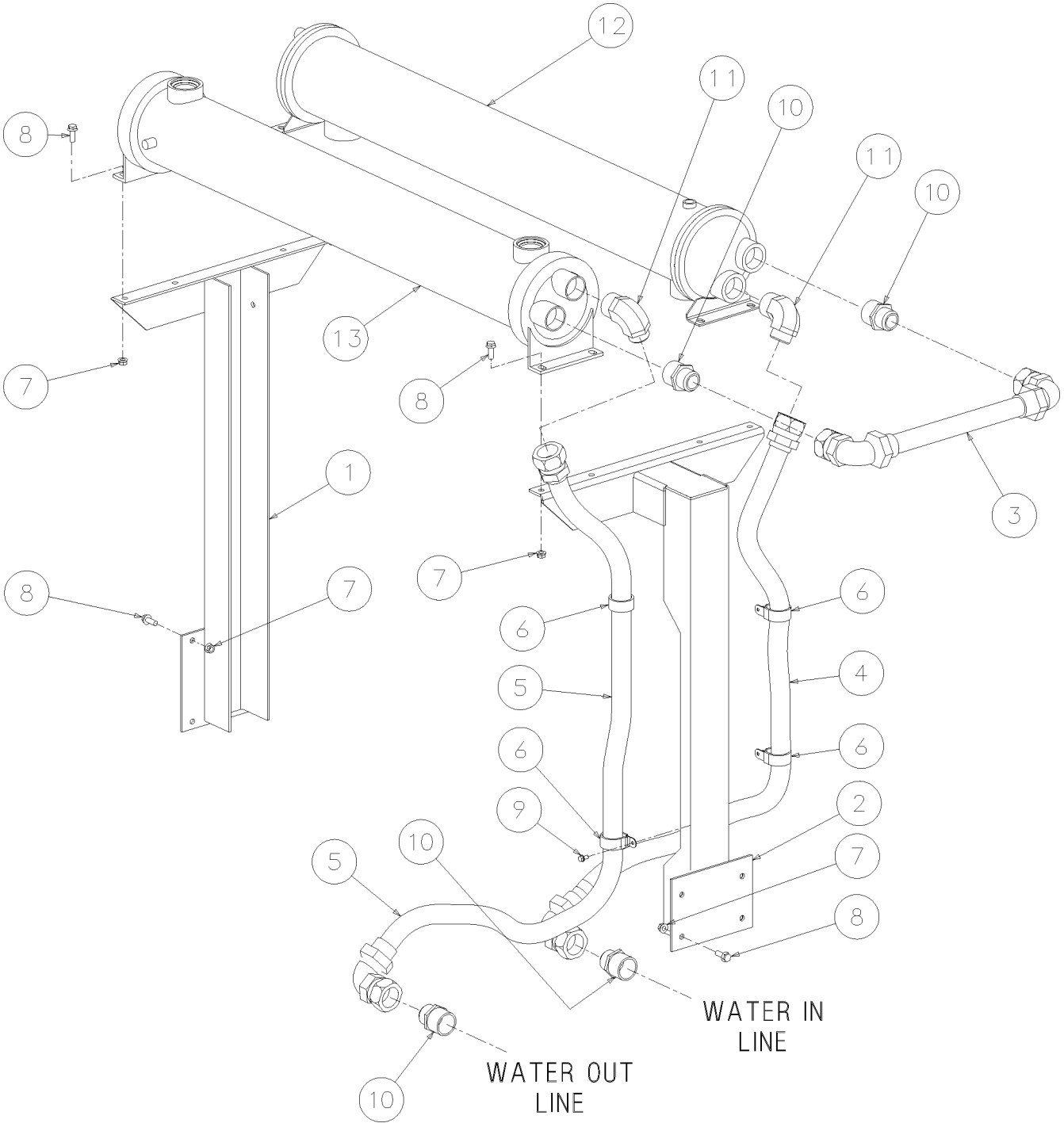
key number	*description*	*part number*	*quantity*
1	support, fan mtr(213t&215t)	015641	1
2	support, ac cooler assy	02250043-287	2
3	support, cooler ac mtr end	02250115-733	1
4	fan, 36" dia **(I)**	-	1
5	cover, access venturi	02250127-774	4
6	cooler,ac 1-5/8 sae 2"npt	02250145-556	1
7	adapter, venturi panel ls200s	02250145-716	1
8	panel, venturi 36"	245579	1
9	guard, fan 38"dia(2 halves=1pc)	248744	1
10	nut, hex f pltd 3/8-16	825306-347	38
11	capscr, hex gr5 3/8-16 x 1 3/4	829106-175	4
12	screw, hex ser washer 1/4-20 x 1/2	829704-050	24
13	screw, hex ser washer 5/16-18 x 3/4	829705-075	8
14	screw, hex ser washer 3/8-16 x 3/4	829706-075	21
15	screw, hex ser washer 3/8-16 x 1	829706-100	24
16	washer, spr lock reg pltd 3/8	837806-094	4
17	washer, pl-b reg pltd 3/8	838206-071	4
18	nut, retainer 5/16-18 .092	861405-092	15
19	nut, hex 3/8-16 pltd	866506-337	5
20	fan motor **(I)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.8 FLUID COOLING SYSTEM- WATER-COOLED



02250146-548R00

10.8 FLUID COOLING SYSTEM- WATER-COOLED

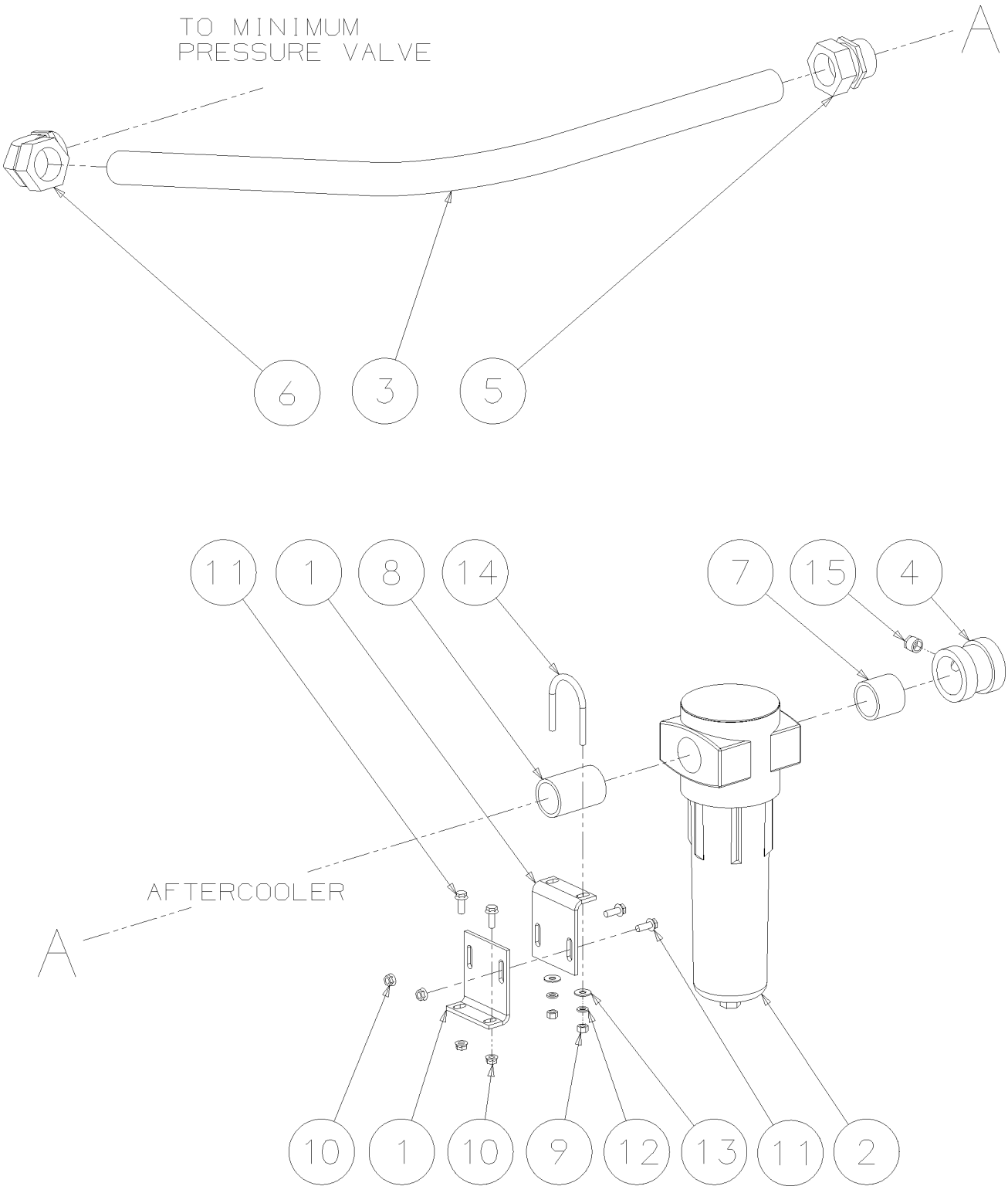
key number	*description*	*part number*	*quantity*
1	support, clr sep end ls20s	02250051-862	1
2	support, cooler wc mtr end	02250115-734	1
3	hose, hydraulic parkrimp 1-1/4 x 22	02250146-535	1
4	hose, hydraulic parkrimp 1-1/4 x 64	02250146-545	1
5	hose, hydraulic parkrimp 1-1/4" x 73	02250146-546	1
6	clamp, tube rubr ctd 1-5/8"	250025-639	4
7	nut, hex f pltd 3/8-16	825306-347	16
8	screw, hex ser washer 3/8-16 x 1	829706-100	16
9	screw, self-drill 1/4 x 1/2	834504-050	4
10	connector,37 fl/mpt pltd 1 1/4 x 1 1/2	860120-150	4
11	elbow, 37fl 90m 1 1/4 x 1 1/2	860220-150	2
12	aftercooler **(I)**	-	1
13	cooler **(I)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.9 AIR PIPING SYSTEM- AIR-COOLED



02250146-421R00

10.9 AIR PIPING SYSTEM- AIR-COOLED

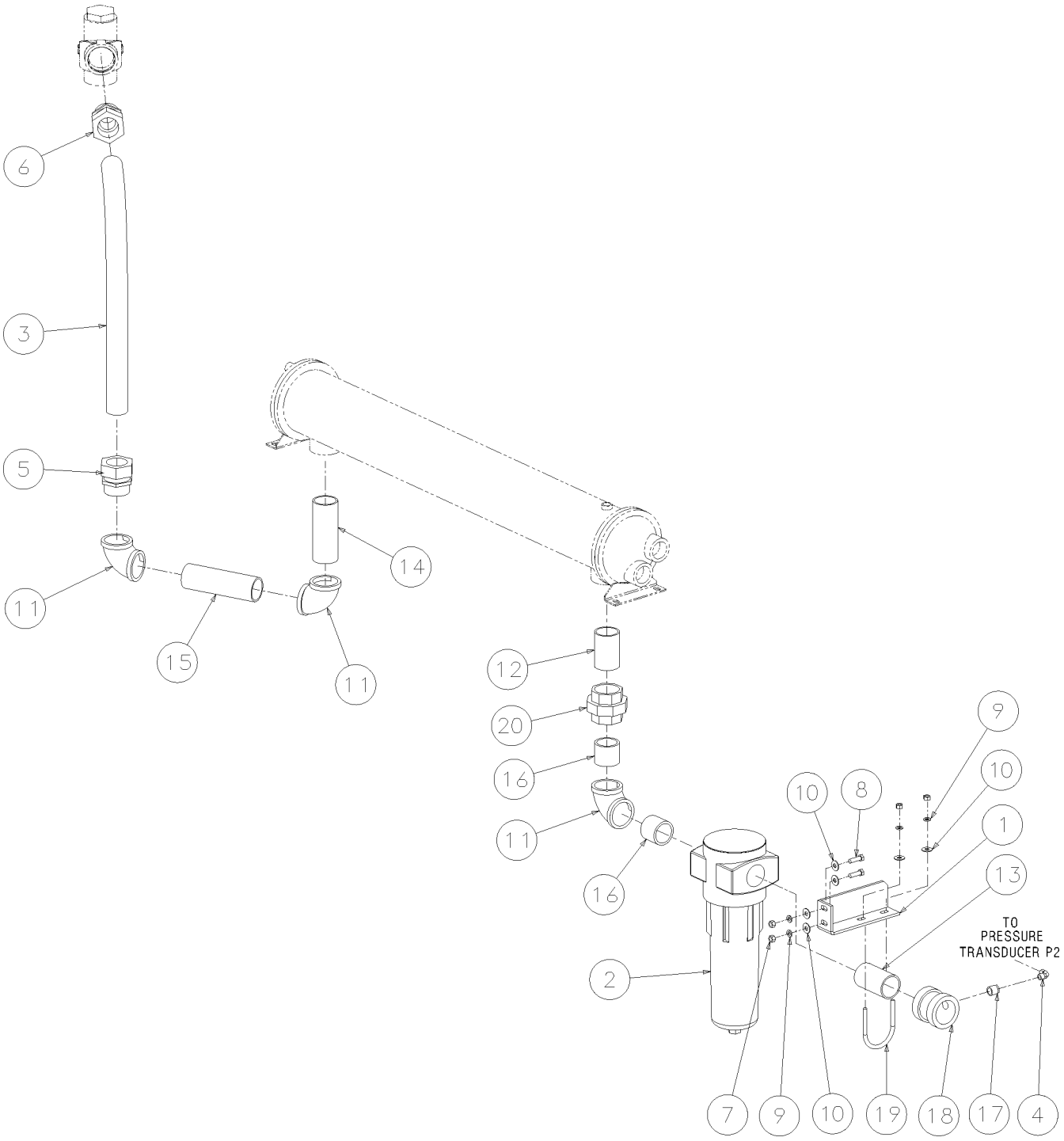
key number	*description*	*part number*	*quantity*
1	support, wtr sep mtd on clr	02250119-770	2
2	separator, water d-h 2” npt 1/4”drn **(I)**	02250144-632	1
3	tube, 2” mpv to afterclr ls200s	02250145-864	1
4	tee, red 2 x 2 x 1/2" pltT	867508-082	1
5	connector, tube-m 2 x 2	810232-200	1
6	elbow, tube str thrd 2 x 2 1/2	811632-250	1
7	nipple, pipe-xs 2 x cl plt	866432-000	1
8	nipple, pipe-xs 2 x 3 1/2 sch 40 plt	866332-035	1
9	nut, hex pltd 3/8-16	825206-337	2
10	nut, hex f pltd 3/8-16	825306-347	4
11	screw, hex ser washer 3/8-16 x 1	829706-100	4
12	washer, spr lock reg pltd 3/8	837806-094	2
13	washer, pl-b reg pltd 3/8	838206-071	2
14	u-bolt, 3/8” x 2” pipe pltd	868306-200	1
15	bushing, red hex pltd 1/2 x 1/4	868902-010	1

(I) For maintenance on water separator no. 02250144-632, order repair kit no. 02250144-732.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.10 AIR PIPING SYSTEM- WATER-COOLED



02250146-283R00

10.10 AIR PIPING SYSTEM- WATER-COOLED

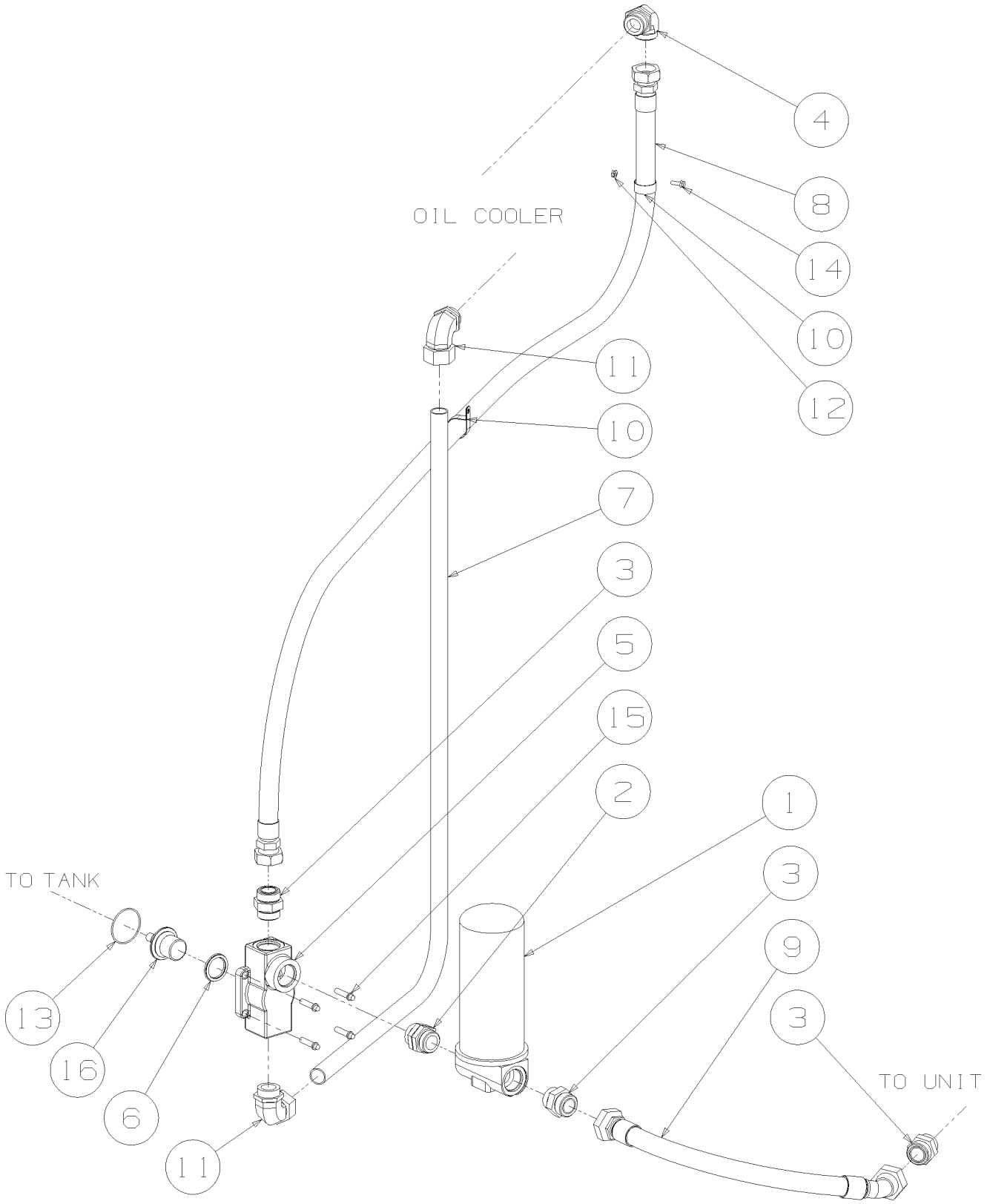
key number	*description*	*part number*	*quantity*
1	support, wtr sep ls20s wc	02250115-692	1
2	separator, water d-h 2" npt 1/4"drn **(I)**	02250144-632	1
3	tube, 2" mpv/aftclr ls200s wc	02250145-674	1
4	elbow, 90 1/4t pls x 1/4 npt m	250018-430	1
5	connector, tube-m 2 x 2	810232-200	1
6	connector, tube str thd 2 x 2 1/2	811832-250	1
7	nut, hex pltd 3/8-16	825206-337	2
8	capscr, hex gr5 3/8-16 x 1 1/4	829106-125	2
9	washer, spr lock reg pltd 3/8	837806-094	4
10	washer, pl-b reg pltd 3/8	838206-071	6
11	elbow, pipe 90 deg plt 2"	866215-080	3
12	nipple, pipe pltd 2 x 3 1/2	866332-035	1
13	nipple, pipe pltd 2 x 4	866332-040	1
14	nipple, pipe pltd 2 x 6	866332-060	1
15	nipple, pipe pltd 2 x 7 1/2	866332-075	1
16	nipple, pipe-xs plt 2 x cl	866432-000	2
17	bushing, red pltd 1/2 x 1/4	867102-010	1
18	tee, reducing pltd 2 x 2 x 1/2	867508-082	1
19	u-bolt, 3/8 x 2 1/2 pipe pltd	868306-250	1
20	union, pipe-brs seat 2 150#	871615-080	1

(I) For maintenance on water separator no. 02250144-632, order repair kit no. 02250144-732.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.11 FLUID PIPING SYSTEM- AIR-COOLED



02250146-442R01

10.11 FLUID PIPING SYSTEM- AIR-COOLED

key number	*description*	*part number*	*quantity*
1	filter, fluid 1 5/8”sae str thrd con **(I)**	02250054-605	1
2	adapter, sae 1 5/8-12 x 1 5/8-12	02250055-015	11
3	connector, sae x orfs 1.25”	02250087-068	03
4	elbow, 90 sae x orfs 1.25”	02250087-071	1
5	housing, therm vlv 1 5/8” conn w/ extra	02250092-929	1
6	seal, u-cup therm vlv **(II)**	02250101-372	1
7	tube, thermal valve - cooler ls200s	02250145-660	1
8	hose, lp f-orfs 1.25 x 97”	02250146-005	1
9	hose, lp f-orfs 1.125 x 25”	02250147-317	1
10	clamp, hose 1-1/8” i.d.	408300-007	2
11	elbow, tube str thrd 1 1/4 x 1 5/8	811620-162	2
12	nut, hex f pltd 1/4-20	825304-236	1
13	o-ring, viton 2 1/2 x 3/32” **(II)**	826502-144	1
14	screw, hex ser washer 1/4-20 x 3/4	829704-075	1
15	capscrew, ferry head hd pltd 3/8-16 x 1 1/2	867306-150	4
16	element, thermal vlv (175ºF/79ºC) **(II)**	049542	1
	•element, thermal vlv (190ºF/88ºC) **(II)**	250028-762	1

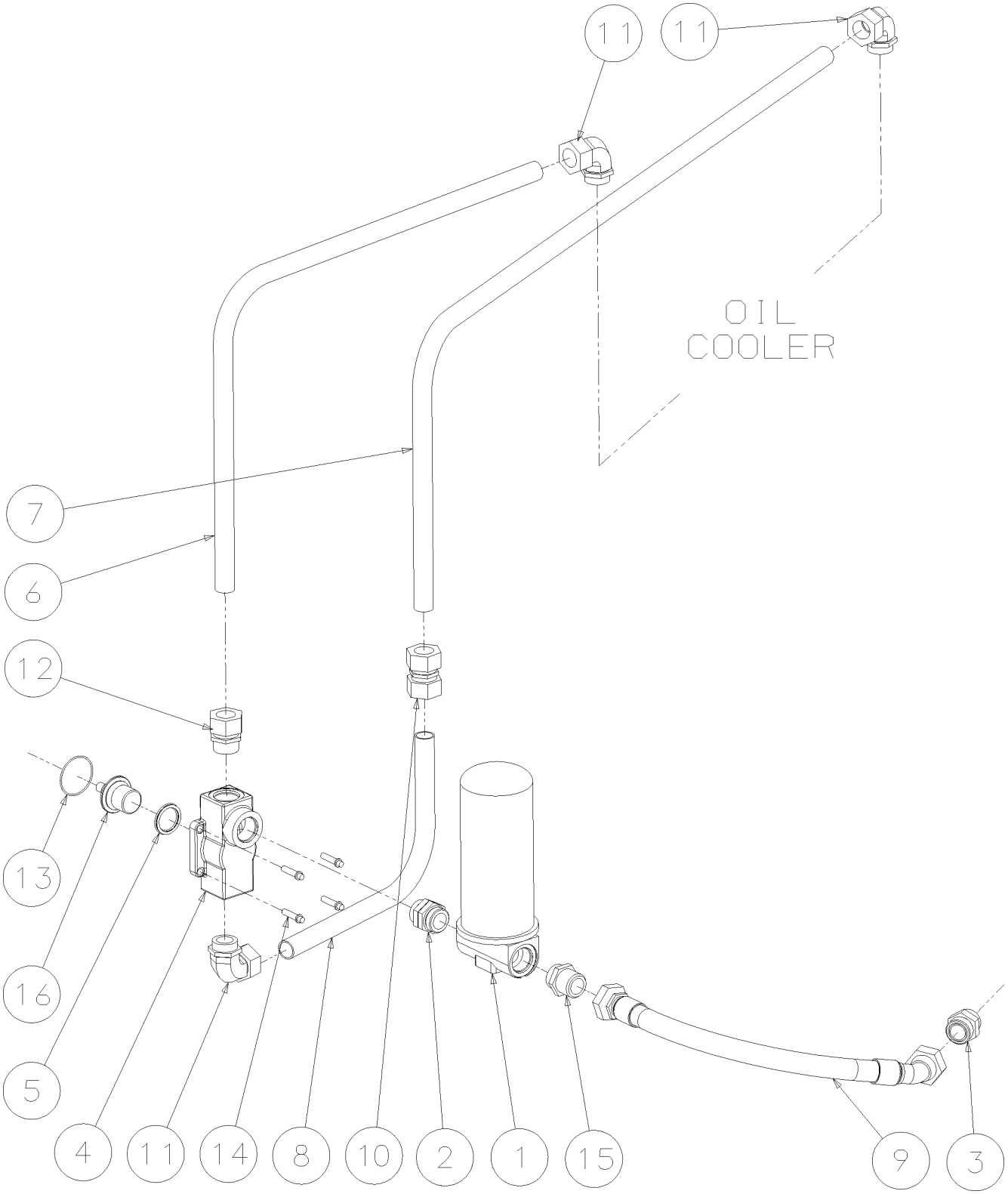
(I) For maintenance on fluid filter no. 02250054-605, order replacement element no. 250025-526.

(II) For maintenance on thermal valve no. 049542 (175ºF/79ºC), order repair kit no. 02250105-553. For maintenance on thermal valve no. 250028-762, (190ºF/88ºC), order repair kit no. 02250112-709.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.12 FLUID PIPING SYSTEM- WATER-COOLED



02250146-443R00

10.12 FLUID PIPING SYSTEM- WATER-COOLED

key number	*description*	*part number*	*quantity*
1	filter, fluid 1 5/8”sae str thrd con **(I)**	02250054-605	1
2	adapter, sae 1 5/8-12 x 1 5/8-12	02250055-015	11
3	connector, sae x orfs 1.25”	02250087-068	1
4	housing, therm vlv 1 5/8” conn w/ extra	02250092-929	1
5	seal, u-cup therm vlv **(II)**	02250101-372	1
6	tube, 1-1/4” byp/clr in ls200s	02250145-675	1
7	tube, 1-1/4” ls200s wc clr/in	02250145-676	1
8	tube, 1-1/4” ls200s wc byp/un	02250145-677	1
9	hose, lp f-orfs 1.125 x 25”	02250147-317	1
10	union, tube hex 1 1/4”	811320-125	1
11	elbow, tube str thrd 1 1/4 x 1 5/8	811620-162	3
12	connector, tube str thd 1 1/4 x 1 5/8	811820-163	1
13	o-ring, viton 2 1/2 x 3/32” **(II)**	826502-144	1
14	capscrew, ferry head hd pltd 3/8-16 x 1 1/2	867306-150	4
15	connector, straight x jic 1 5/8 x 1 5/8	870120-020	1
16	element, thermal vlv (175ºF/79ºC) **(II)**	049542	1
	•element, thermal vlv (190ºF/88ºC) **(II)**	250028-762	1

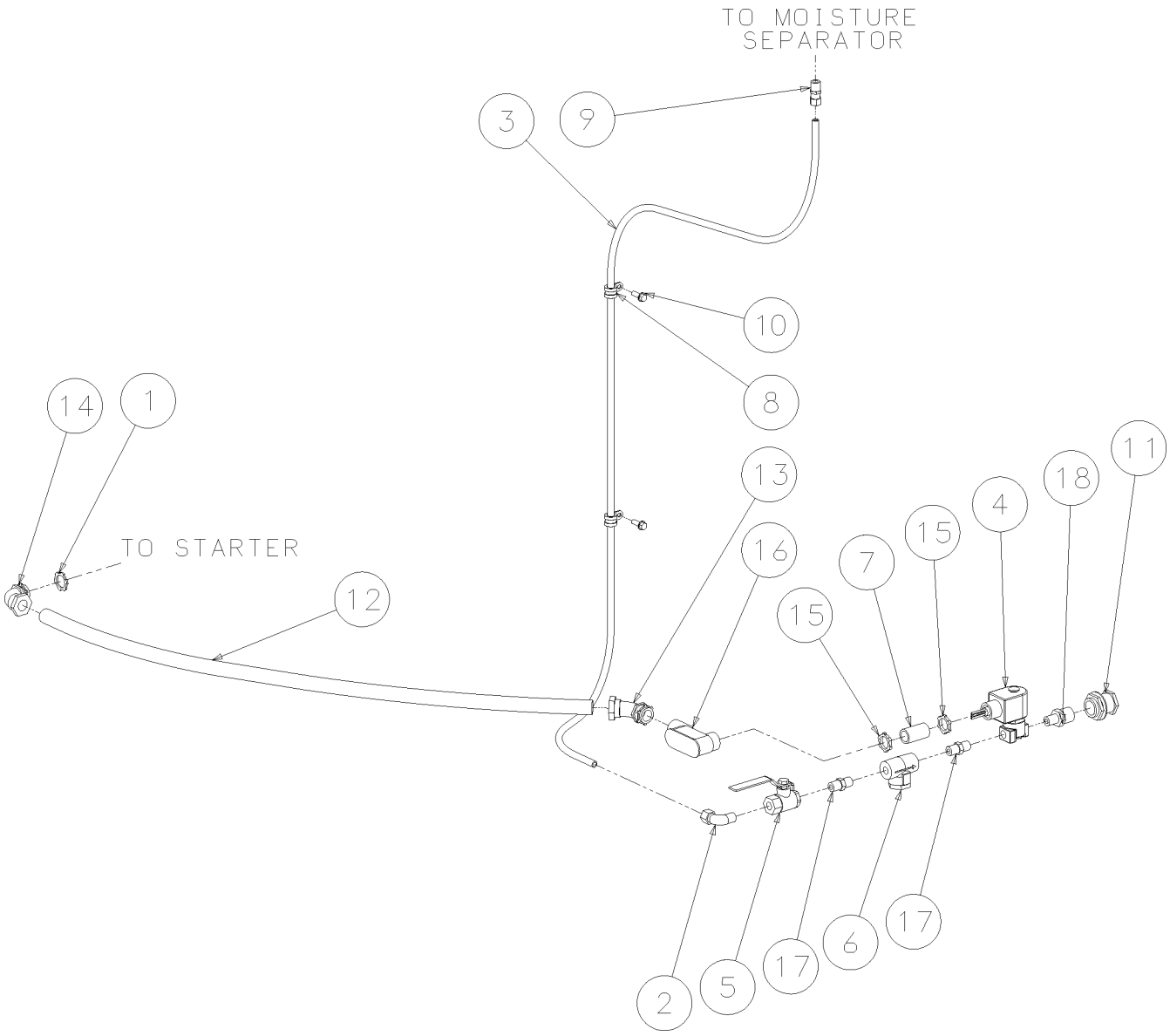
(I) For maintenance on fluid filter no. 02250054-605, order replacement element no. 250025-526.

(II) For maintenance on thermal valve no. 049542 (175ºF/79ºC), order repair kit no. 02250105-553. For maintenance on thermal valve no. 250028-762, (190ºF/88ºC), order repair kit no. 02250112-709.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.13 MOISTURE DRAIN- AIR-COOLED



02250146-552R00

10.13 MOISTURE DRAIN- AIR-COOLED

key number	*description*	*part number*	*quantity*
1	locknut, n4 conduit sealing	02250071-362	1
2	elbow, 90 3/8”tube x 1/4”npt m	02250099-626	1
3	tube, nylon 3/8” od	02250099-630	6
4	valve, solenoid 2wnc mo 1/4 200# n4 **(I)**	02250125-674	1
5	valve, ball 1/4” npt	047115	1
6	strainer, v-type 300psix1/4 **(II)**	241771	1
7	nipple, conduit 1/2 x 1.5”	250007-169	1
8	clamp, tube 1/2”	250025-633	2
9	connector, tube-m 3/8 x 1/4	813606-250	1
10	screw, self-drill 1/4 x 3/4	834504-075	2
11	bulkhead, pipe 1/2” npt	841500-008	1
12	conduit, csa flex 1/2”	846315-050	6
13	elbow, 45deg lq-tite 1/2	846500-050	1
14	elbow, 90deg lq-tite 1/2	846600-050	1
15	locknut, conduit 1/2	847200-050	2
16	elbow, entrance 1/2	847715-050	1
17	nipple, pipe-hx pltd 1/4 x 1/4	868504-025	2
18	nipple, pipe-hx pltd 1/2 x 1/4	868508-025	1

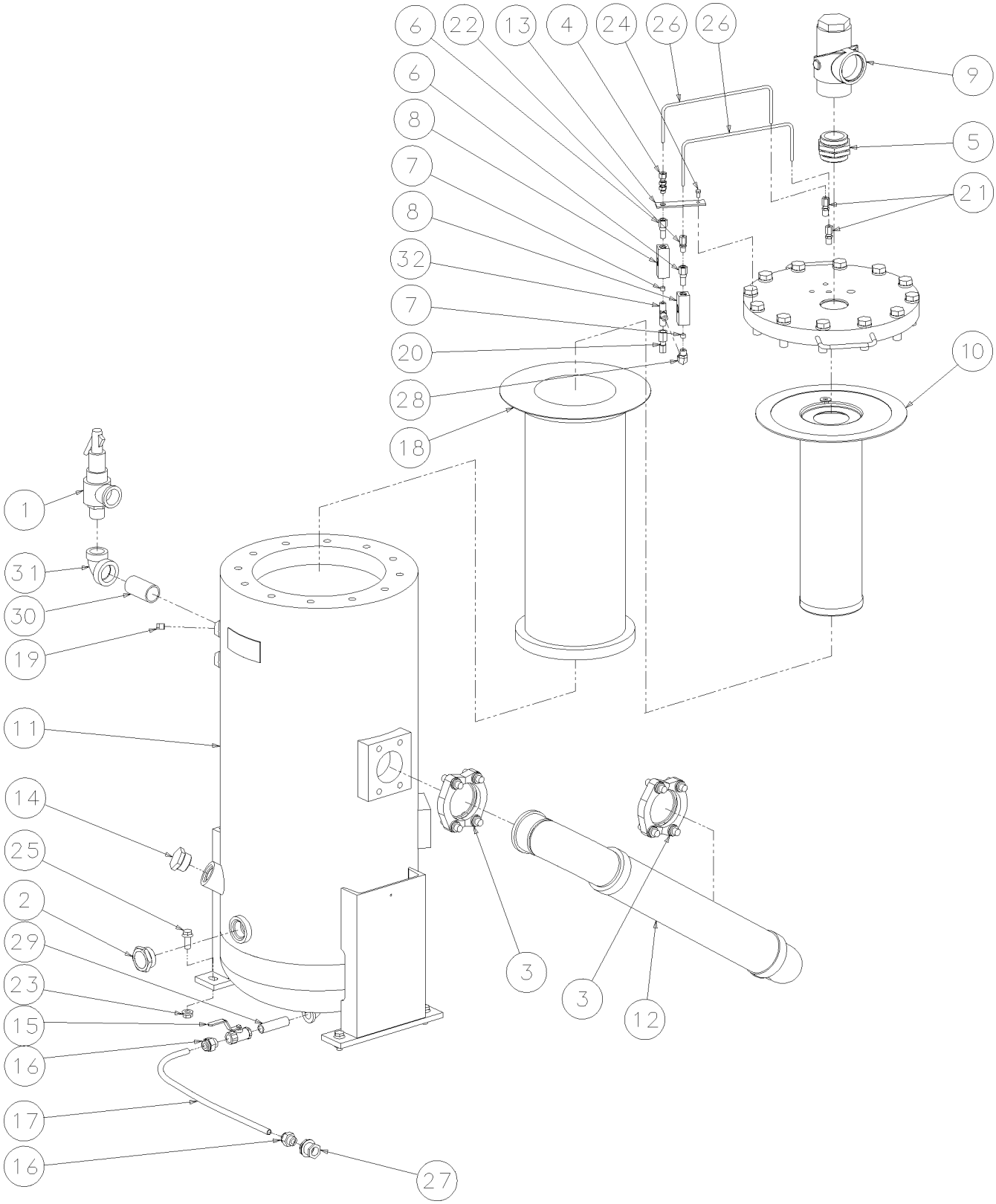
(I) For maintenance on solenoid valve no. 02250125-674, order repair kit no. 02250125-823, and replacement coil no. 0250125-861.

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

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.14 SUMP AND PARTS



02250146-489R01

10.14 SUMP AND PARTS

key number	*description*	*part number*	*quantity*
1	valve, relief 1"npt x 1 1/4"fnpt 200	02250047-679	1
2	plug, sight glass 1-7/8" sae	02250097-611	1
3	flange, kit sae splt 3" - viton	02250100-926	2
4	connector, tube male bhd 1/4 x sae	02250101-490	1
5	adapter, sae 2-1/2-12 x 2-1/2-12	02250110-661	1
6	filter, asembly genisis filter **(I)**	02250117-782	2
7	orifice, plug brass 1/8"npt x 1/32"	02250125-774	2
8	sightglass, orf block sae	02250126-129	2
9	valve, min pressure 2-1/2"-sae **(II)**	02250129-374	1
10	separator, air oil secondary ls200s **(III)**	02250145-368	1
11	tank, oil separator 18" ls200s std	02250145-545	1
12	joint, expansion ls200s	02250145-625	1
13	support, oil return ls200s	02250146-294	1
14	plug, o-ring boss sae 1 1/4	040029	1
15	valve, ball 1/2"npt	047117	1
16	connector, tube-strt 1/2mnpt x1/2"t	250024-695	2
17	tubing, 1/2" nylon flex	250030-855	2
18	element, oil sep 10.63 x 25"lg **(III)**	250034-085	1
19	plug, pipe 1/4" 3000# stl	807800-010	1
20	connector, tube-f 1/4 x 1/4	810104-025	1
21	connector, tube-m 1/4 x 1/4	810204-025	2
22	connector, tube str thd 1/4 x 7/16	811804-044	1
23	nut, hex f pltd 1/2-13	825308-458	4
24	capscr, hex gr5 1/4-20 x 1/2	829104-050	1
25	screw, hex ser washer 1/2-13 x 1 1/4	829708-125	4
26	tubing, stainless steel 1/4"	841215-004	4
27	bulkhead, pipe 1/2" npt	841500-008	1
28	elbow, pipe 90m/f 1/4 x 1/4	860704-025	1
29	nipple, pipe pltd 1/2 x 3	866308-030	1

Continued on page 91

(I) For maintenance on scavenge line filter no. 02250117-782, order replacemenet filter no. 02250117-782.

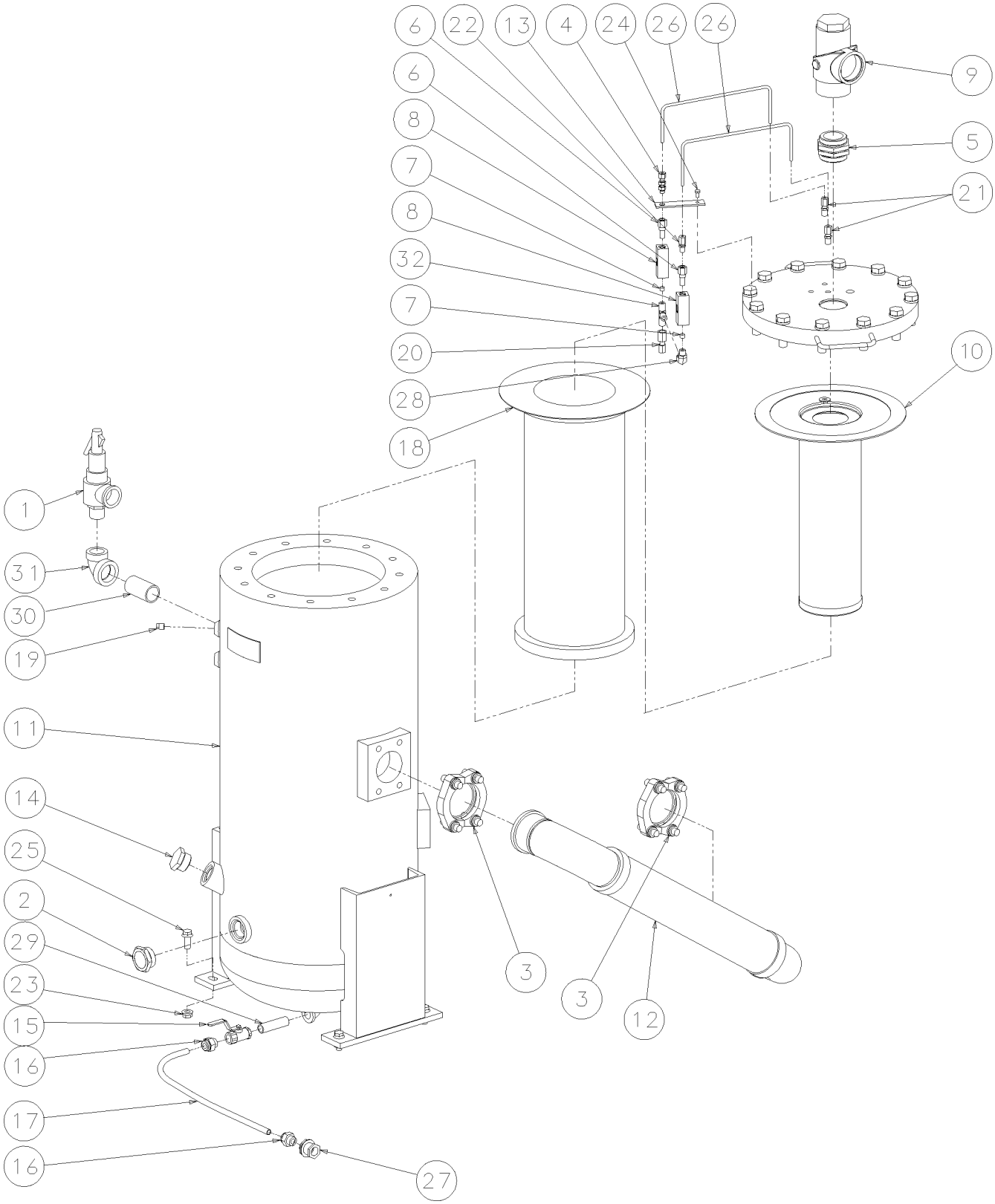
(II) For maintenance on minimum pressure/check valve no. 02250129-374, order repair kit no. 250018-456.

(III) For maintenance on separator, order primary replacement element (with gaskets) no. 250034-085, and secondary repair kit no. 02250145-897.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.14 SUMP AND PARTS



02250146-489R01

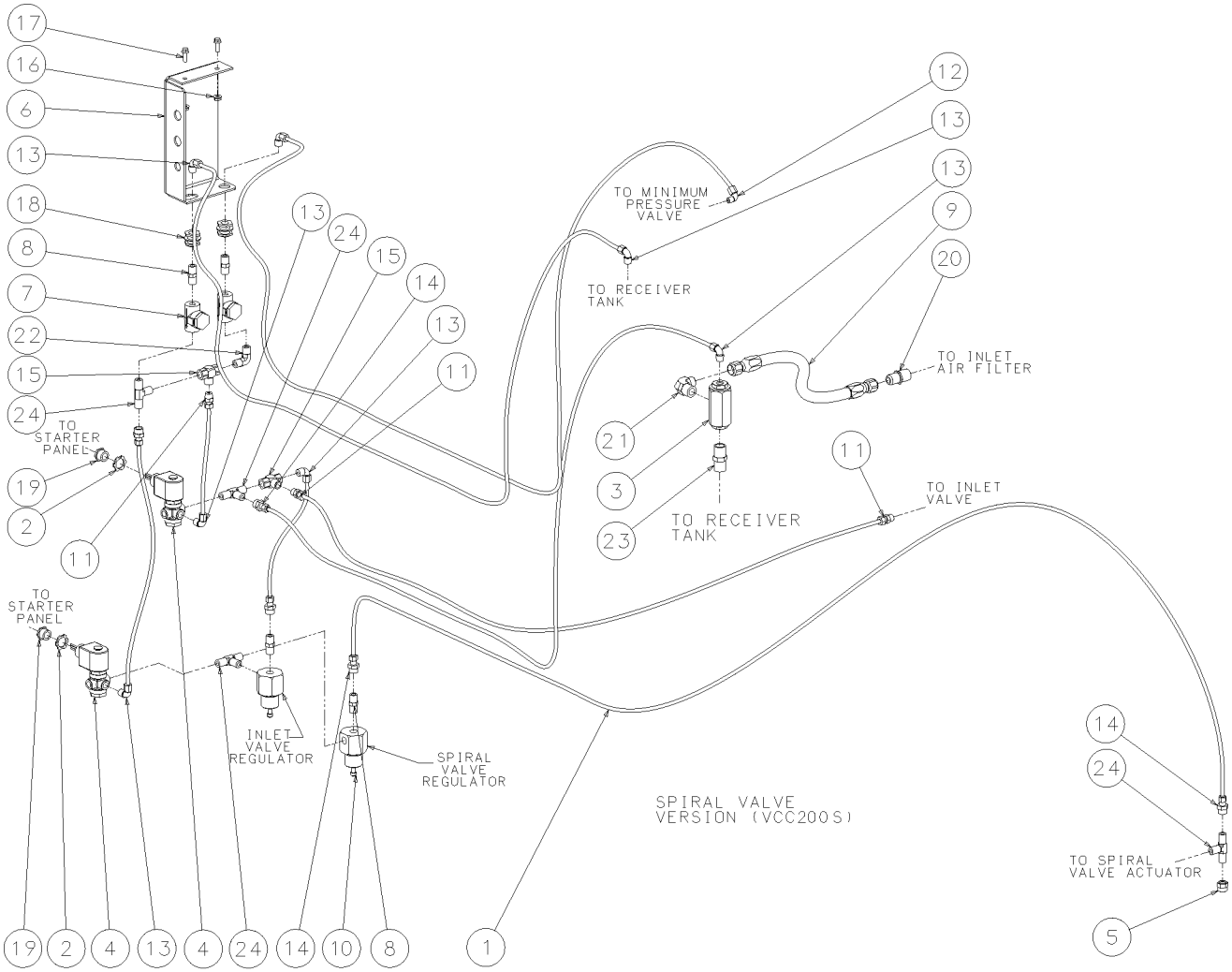
10.14 SUMP AND PARTS (CONTINUED)

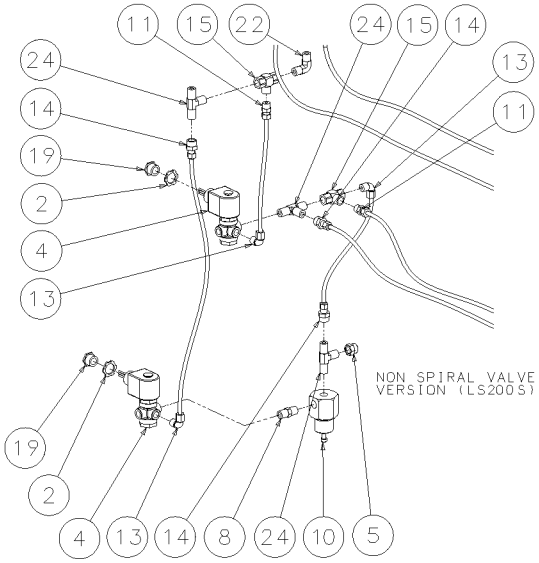
key number	*description*	*part number*	*quantity*
30	nipple, pipe pltd 1 1/4 x 3	866320-030	1
31	elbow, red 1 1/4 x 1 150# plt	869205-040	1
32	tee, male pipe brass 1/4	869825-025	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.15 PNEUMATIC CONTROLS- LS-200S & VCC-200S





02250146-362R01

10.15 PNEUMATIC CONTROLS- LS-200S & VCC-200S

key number	*description*	*part number*	*quantity*
1	tube, nyl 1/4” blk	02250054-861	1
2	locknut, n4 conduit sealing	02250071-362	2
3	valve, 1/2 bldwn 1.8:1 250 psig **(I)**	02250100-042	1
4	valve, solenoid 3wno 1/4 235# n4 **(II)**	02250125-657	2
5	orifice, cap .031” x 1/4” npt	02250132-934	2
6	support, brkt strainer ls200s	02250146-346	1
7	strainer, v-type 300psix1/4 **(III)**	241771	2
8	nipple, brass hex 1/4”-npt	249537	5
9	hose, med press .50 x 24”	249608-005	1
10	valve, pressure regulator **(IV)**	250017-280	3
11	connector, 1/4”tube x 1/4”npt	250018-428	3
12	elbow, 90 1/4”tube x 1/8”npt	250018-429	1
13	elbow, 1/4” tube x 1/4” npt	250018-430	7
14	connector, straight 1/4t plsx 1/4npt f	250041-084	6
15	valve, shuttle 1/4” npt (dbl chk)	408893	2
16	nut, hex f pltd 1/4-20	825304-236	2
17	screw, hex ser washer 1/4-20 x 3/4	829704-075	2
18	bulkhead, pipe 1/4” npt	841500-004	2
19	nipple, chase cond 1/2	847815-050	2
20	connector, 37 fl/mpt pltd 1/2 x 1/2	860108-050	1
21	elbow, 37fl 90m 1/2 x 1/2	860208-050	1
22	elbow, pipe-90m 1/4 x 1/4	860504-025	1
23	nipple, pipe-hx pltd 1/2 x 1/2	868508-050	1
24	tee, male pipe brass 1/4	869825-025	5

(I) For maintenance on blowdown valve no. 02250100-042, order repair kit no. 02250142-132.

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

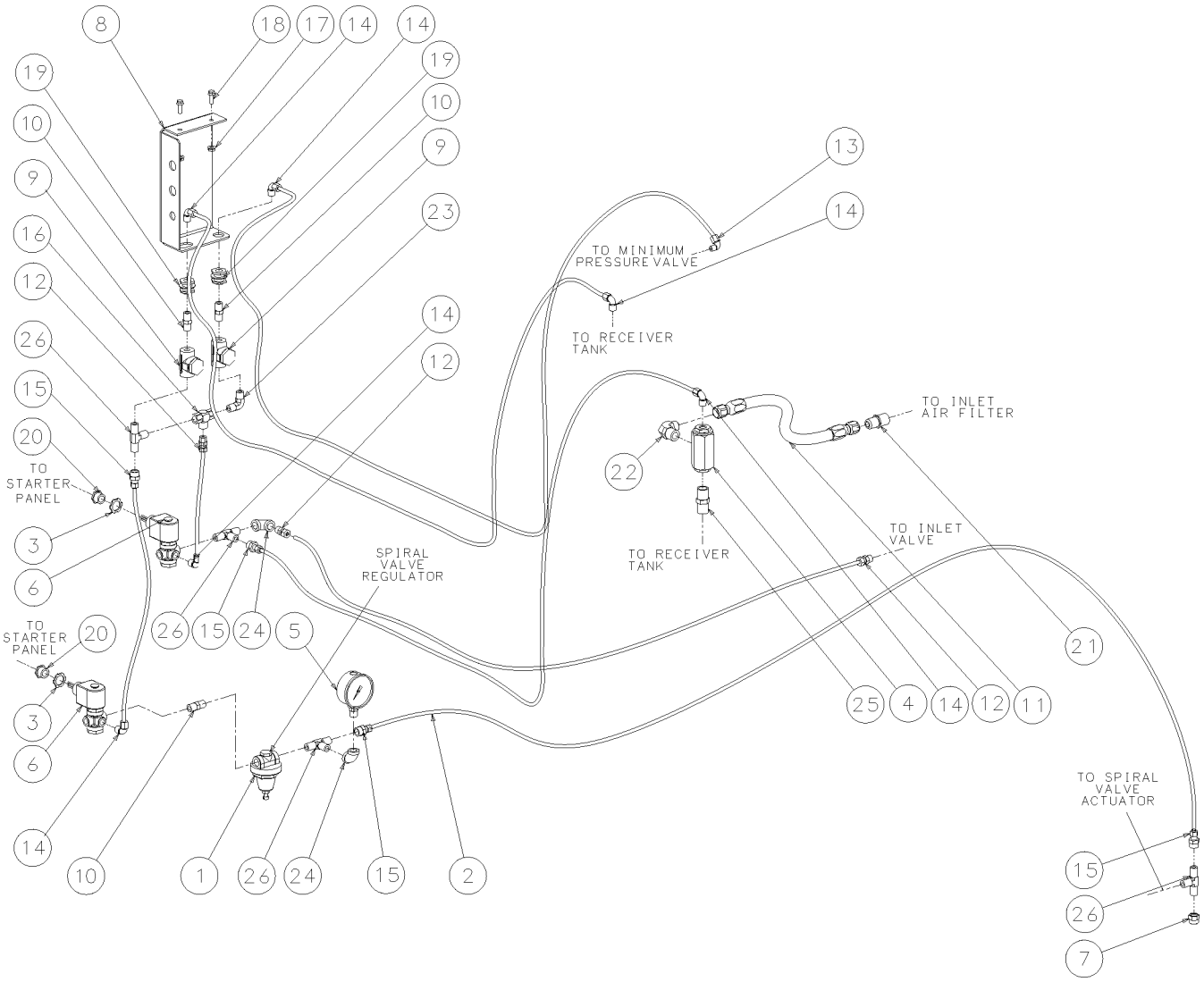
(III) For maintenance on strainer no. 241771, order repair kit no. 241772.

(IV) For maintenance on pressure regulator valve no. 250017-280, order repair kit no. 250019-453.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.16 PNEUMATIC CONTROLS- V-200S



02250148-036R01

10.16 PNEUMATIC CONTROLS- V-200S

key number	*description*	*part number*	*quantity*
1	regulator, reducing 1/4 npt **(I)**	02250046-568	1
2	tube, nyl .25od x 040w blk	02250054-861	1
3	locknut, n4 conduit sealing	02250071-362	2
4	valve, 1/2 bldwn 1.8:1 250 psig **(II)**	02250100-042	1
5	gage, air press 2 1/2” 0-200 psi	02250117-009	1
6	valve, solenoid 3wno 1/4 235# n4 **(III)**	02250125-657	2
7	orifice, cap .031” x 1/4” npt	02250132-934	1
8	support, brkt strainer ls200s	02250146-346	1
9	strainer, v-type 300psix1/4 **(IV)**	241771	2
10	nipple, brass hex 1/4”-npt	249537	3
11	hose, med press .50 x 24”	249608-005	1
12	connector,1/4”tube x 1/4”npt	250018-428	3
13	elbow, 90 1/4”tube x 1/8”npt	250018-429	1
14	elbow, 1/4” tube x 1/4” npt	250018-430	6
15	connector, straight 1/4t plsx 1/4npt f	250041-084	4
16	valve, shuttle 1/4” npt (dbl chk)	408893	1
17	nut, hex f pltd 1/4-20	825304-236	2
18	screw, hex ser washer 1/4-20 x 3/4	829704-075	2
19	bulkhead, pipe 1/4” npt	841500-004	2
20	nipple, chase cond 1/2	847815-050	2
21	connector, 37 fl/mpt pltd 1/2 x 1/2	860108-050	1
22	elbow, 37fl 90m 1/2 x 1/2	860208-050	1
23	elbow, pipe-90m 1/4 x 1/4	860504-025	1
24	elbow, pipe 90 deg plt 1/4”	866215-010	2
25	nipple, pipe-hx pltd 1/2 x 1/2	868508-050	1
26	tee, male pipe brass 1/4	869825-025	4

(I) For maintenance on reducing regulator valve no. 02250046-568, order repair kit no. 02250055-911.

(II) For maintenance on blowdown valve no. 02250100-042, order repair kit no. 02250142-132.

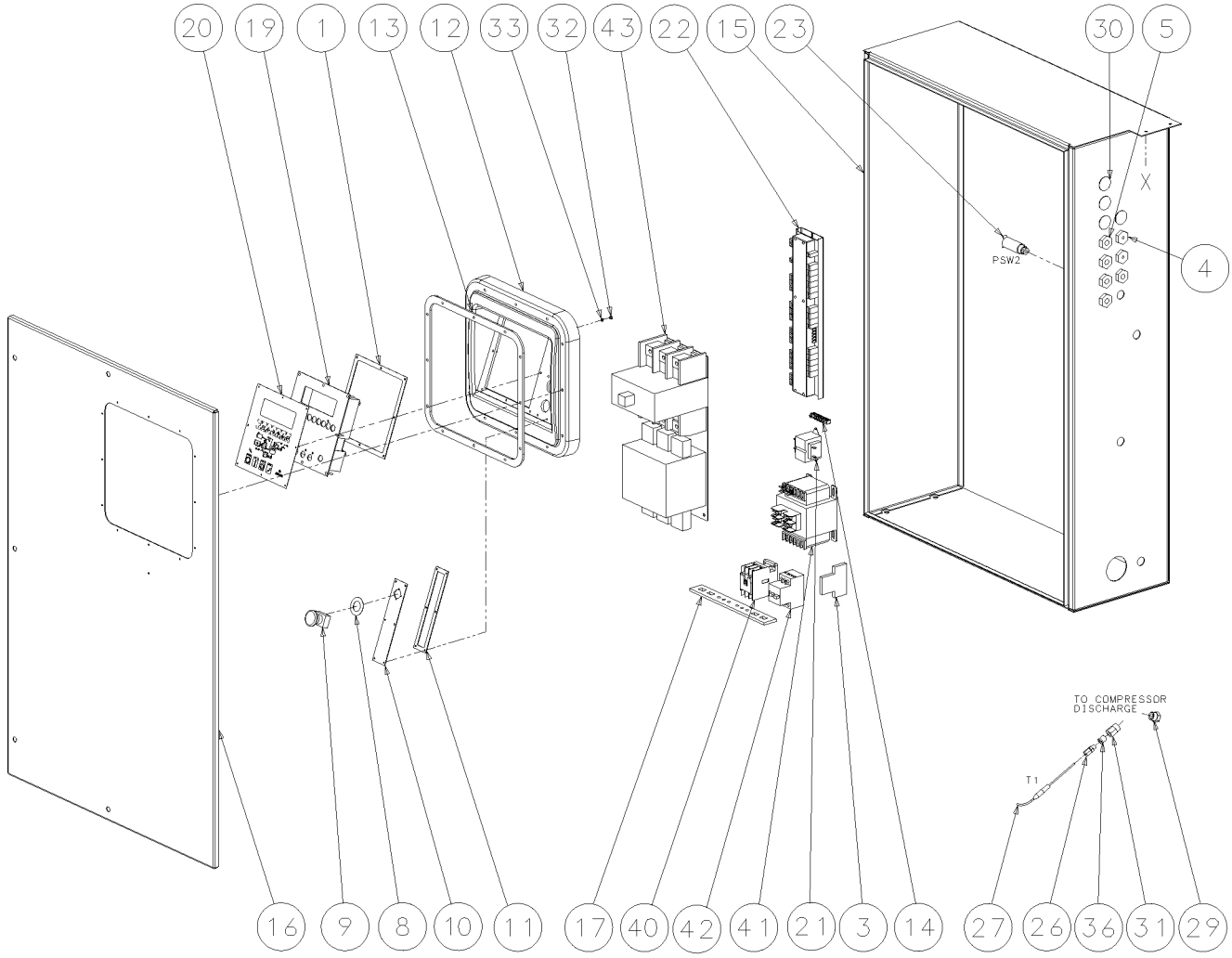
(III) For maintenance on solenoid valve no. 02250125-657, order repair kit no. 02250125-829, and replacement coil no. 02250125-861.

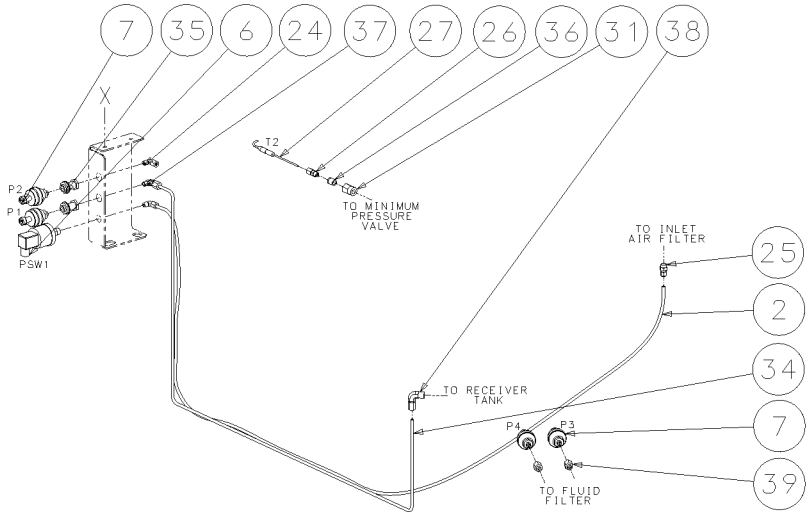
(IV) For maintenance on strainer no. 241771, order repair kit no. 241772.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.17 ELECTRICAL CONTROLS- LS-200S & VCC-200S





02250147-615R01

10.17 ELECTRICAL CONTROLS- LS-200S & VCC-200S

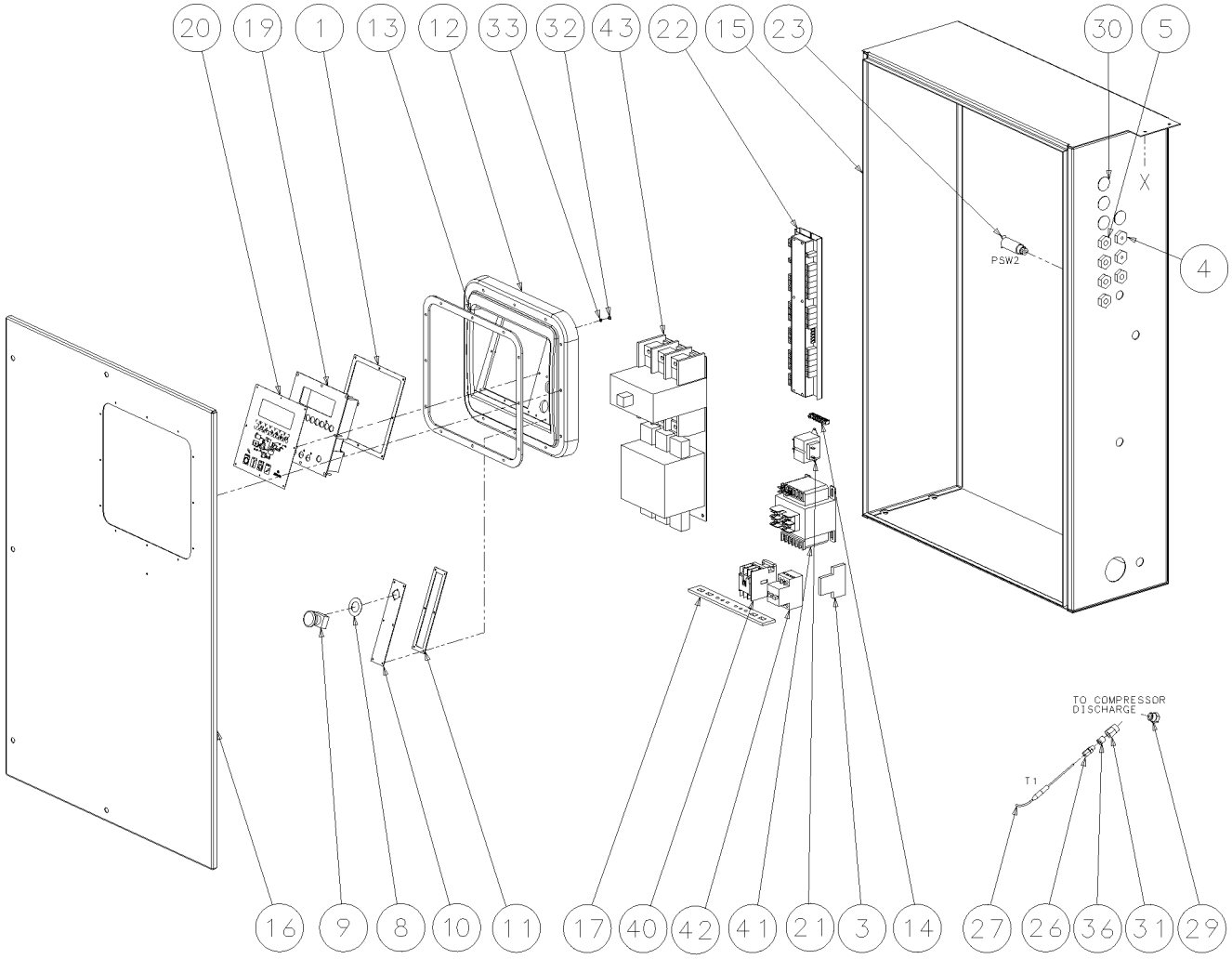
key number	*description*	*part number*	*quantity*
1	gasket, panel supervisor ii	02250048-822	1
2	tube, nyl 1/4” blk	02250054-861	1
3	block, aux contac 1no-1nc mot/prot	02250057-765	1
4	grip, cord n4 .125-.187 x 1/2”	02250071-379	2
5	grip, cord n4 .250-.375 x 1/2”	02250071-381	5
6	switch, vacuum 22”wc n4 6ft cable 5a	02250078-249	1
7	transducer, pressure 0-25psi 1-5vdc n4	02250078-933	4
8	nameplate, e-stop 45mm yellow	02250081-473	1
9	switch, push-button operator e22 40m	02250085-504	1
10	plate, es11 aux pnl w/o dryer	02250086-265	1
11	gasket, es11 aux ctl pnl w/bezel	02250086-269	1
12	panel, central box bezel es-11	02250089-302	1
13	gasket, es ctl pnl	02250090-872	1
14	bar, ground 5 post cutler hammer	02250101-721	1
15	specification, encl 48x32x12.5	02250108-859	1
16	door, enclosure	02250109-465	1
17	bar, gnd bus cop 11.25 x 1.5 x .25	02250110-334	1
18	decal, ls/ts super ii front	02250116-245	1
19	control, supervisor iii display mod	02250119-330	1
20	decal, supervisor front	02250130-344	1
21	transformer, control 50va 120-24 50/60	02250135-283	1
22	control,supervisor io mod ver.2	02250141-089	1
23	switch, pressure n.o. 10 psi	250017-992	1
24	elbow, 90 1/4”tube x 1/8”npt	250018-429	2
25	connector, straight 1/4t pls 1/8 npt f	250021-379	1
26	fitting, compress adj	250028-635	2
27	probe, rtd 100 ohm plat 3.5”x 12ft	250039-909	2
28	control, supervisor ii deluxe	250042-023	1
29	plug, straight thread 3/4-16 viton	250042-623	1
30	plug, hole n4 1/2” cond	409918-002	4
31	adapter, female pipe 1/2 x 1/4	811504-025	2
32	nut,hex metric m4 x .7	825904-070	8
33	washer, spr lock-metric pltd m4	838804-090	8

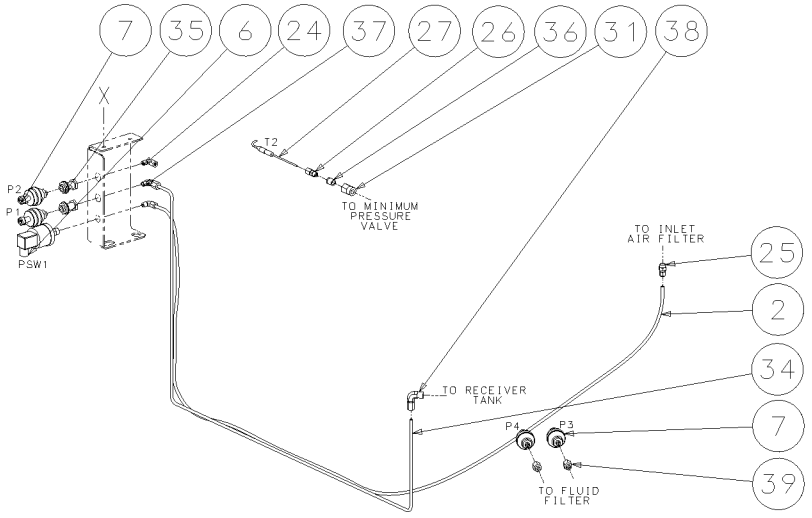
Continued on page 99

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.17 ELECTRICAL CONTROLS- LS-200S & VCC-200S





02250147-615R01

10.17 ELECTRICAL CONTROLS- LS-200S & VCC-200S (CONTINUED)

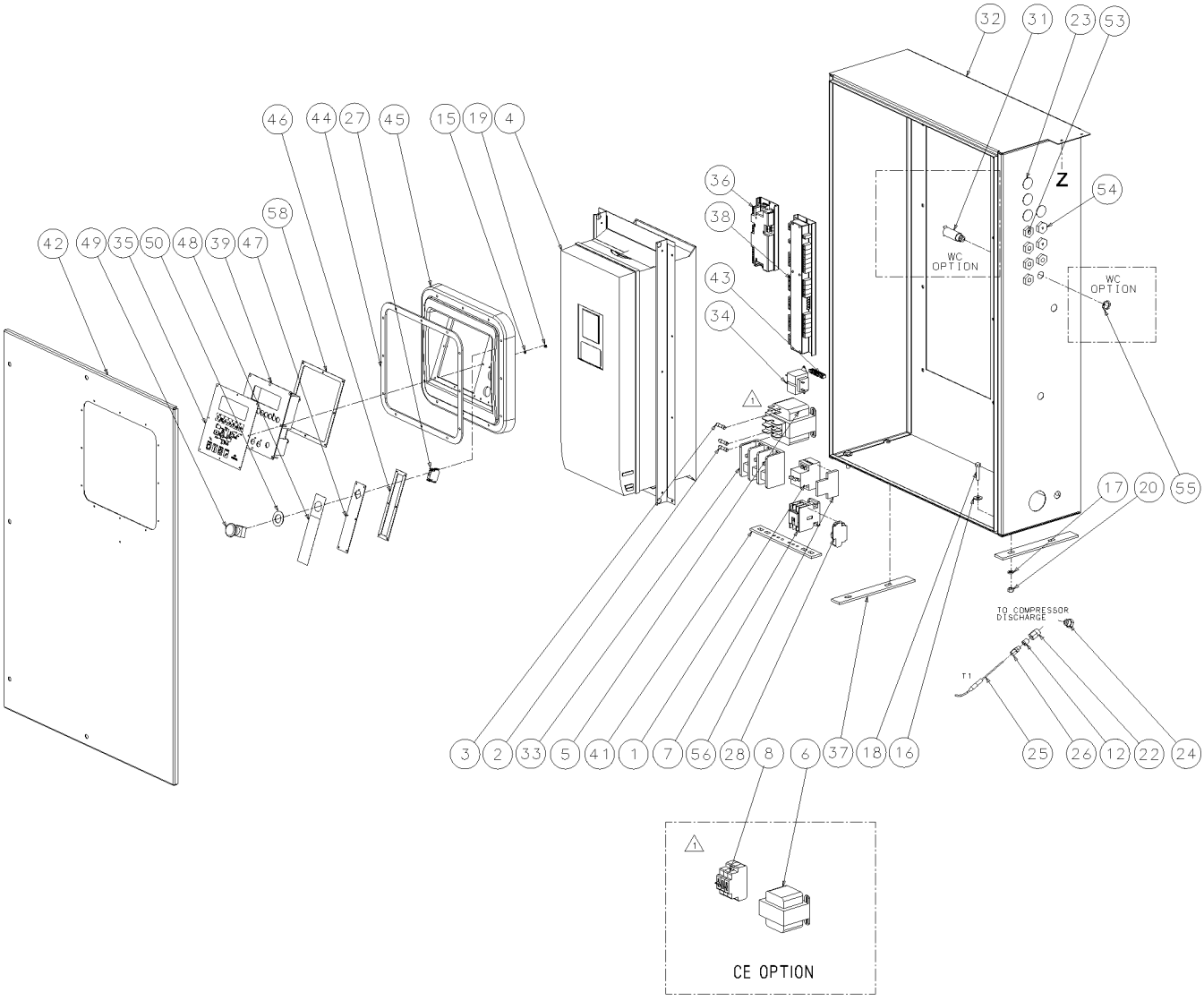
key number	*description*	*part number*	*quantity*
34	tubing, ss 1/4”	841215-004	1
35	bulkhead, pipe 1/8” npt	841500-002	2
36	bushing,red pltd 1/4 x 1/8	867100-005	2
37	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	1
38	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
39	adapter,expand 1/8-27f x 1/8-27m	879302-002	2
40	contactor, ac 3p chf **(I)**	-	1
41	transformer, control univ w/pri fh **(I)**	-	1
42	starter,man mtr prot **(I)**	-	1
43	starter, 3p chf opn **(I)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

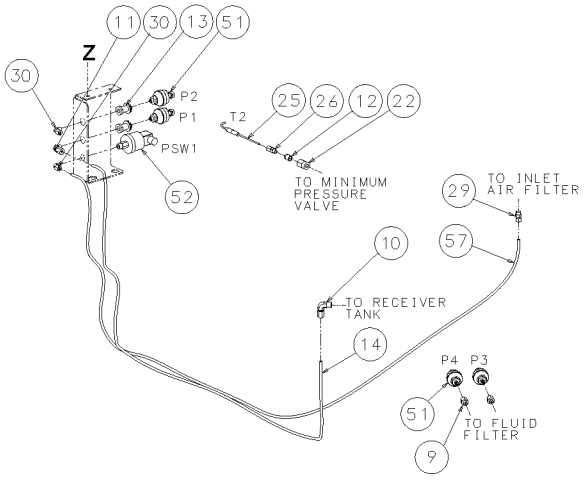
10.18 ELECTRICAL CONTROLS- V-200S



NOTE

1 REPLACE ITEM #55,#57 AND #58 WITH ITEM #52 AND #54 WHEN OPERATING WITH THE "CE" OPTION.

VOLTAGE	HP 125	HP 150
380	X	
460	X	X



02250147-782R01

10.18 ELECTRICAL CONTROLS- V-200S

key number	*description*	*part number*	*quantity*
1	starter, man mtr prot ab **(I)**	-	1
2	fuse, kldr **(I)**	-	2
3	fuse, limitron ktk-r **(I)**	-	1
4	cutler hammer vsd **(I)**	-	1
5	transformer, control univ.volt(fused) **(I)**	-	1
6	transformer, control univ.volt (cb) **(I)**	-	1
7	contactor, ac 3p 120v chf **(I)**	-	1
8	breaker, circtl high inrush **(I)**	-	3
9	adapter, expand 1/8-27f x 1/8-27m	879302-002	2
10	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
11	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	1
12	bushing, red pltd 1/4 x 1/8	867100-005	2
13	bulkhead, pipe 1/8” npt	841500-002	2
14	tubing, stnls stl 1/4” 20ga	841215-004	1
15	washer, spr lock-metric pltd m4	838804-090	8
16	washer, pl-b reg pltd 3/8	838206-071	4
17	washer, spr lock reg pltd 3/8	837806-094	4
18	capscr, hex gr5 3/8-16 x 1 3/4	829106-175	4
19	nut, hex metric m4 x .7	825904-070	8
20	nut, hex pltd 3/8-16	825206-337	4
21	nut, wing pltd #10-24	824815-002	36
22	adapter, female pipe 1/2 x 1/4	811504-025	3
23	plug, hole n4 1/2” cond	409918-002	4
24	plug, straight thread 3/4-16 viton	250042-623	1
25	probe, rtd 100 ohm plat 3.5”x 12ft	250039-909	3
26	fitting, compress adj	250028-635	2
27	block, contact 1nc	250027-125	1
28	contact, aux 1 no	250023-370	1
29	connector, straight 1/4t pls 1/8 npt f	250021-379	1
30	elbow, 90 1/4”tube x 1/8”npt	250018-429	2
31	switch, pressure n.o. 10 psi	250017-992	1

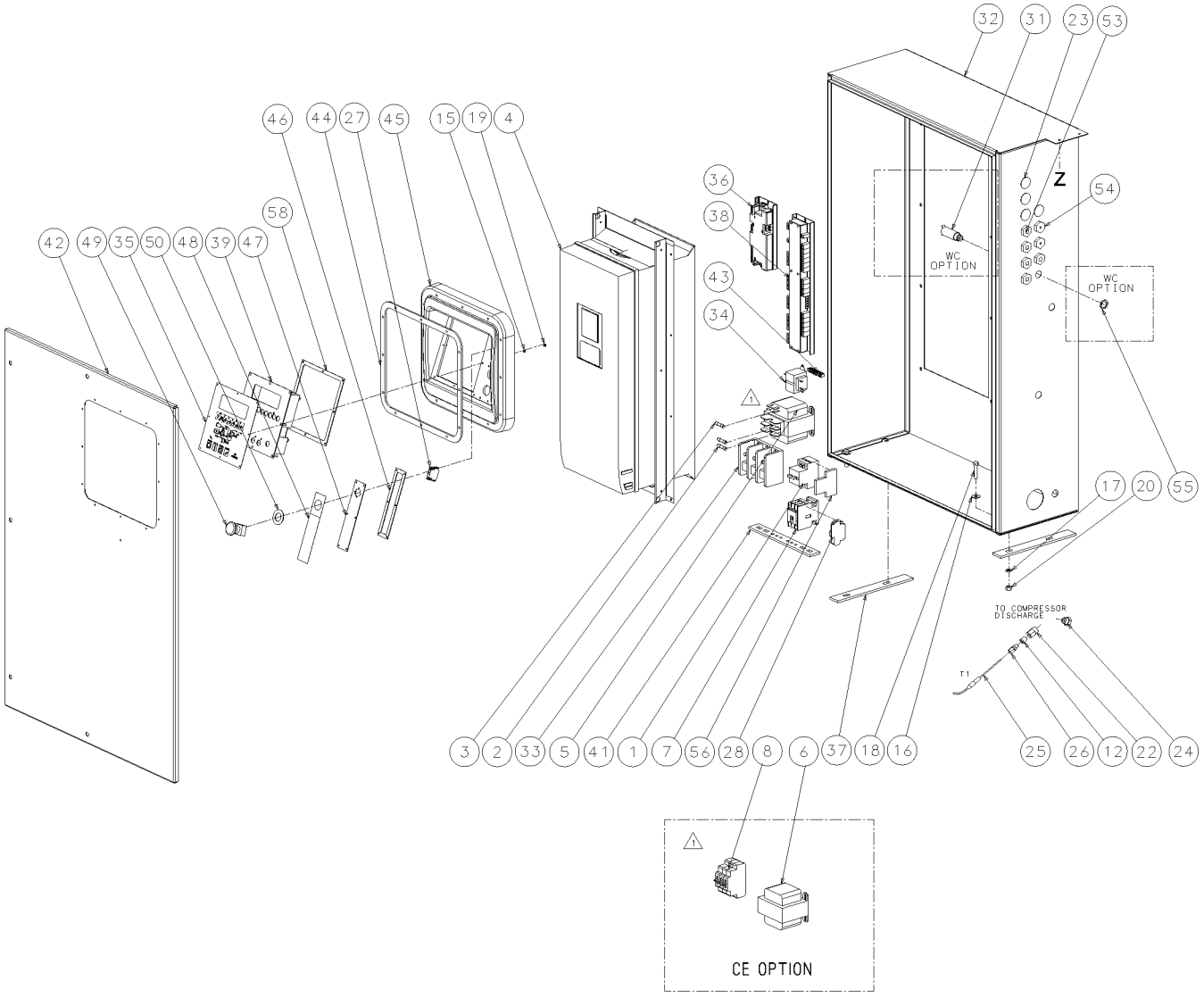
Continued on page 103

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

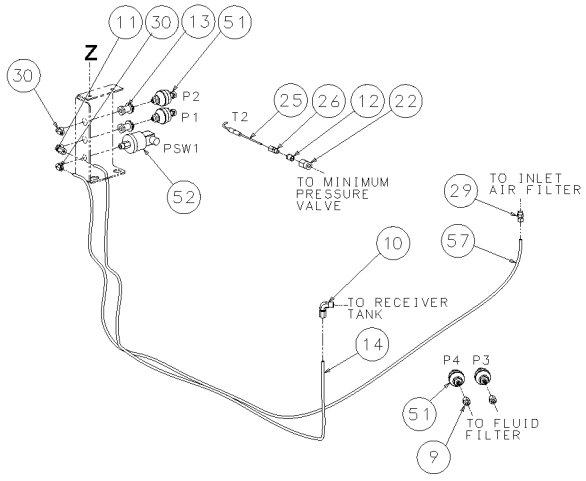
10.18 ELECTRICAL CONTROLS- V-200S



NOTE

1 REPLACE ITEM #55,#57 AND #58 WITH ITEM #52 AND #54 WHEN OPERATING WITH THE "CE" OPTION.

VOLTAGE	HP 125	HP 150
380	X	
460	X	X



02250147-782R01

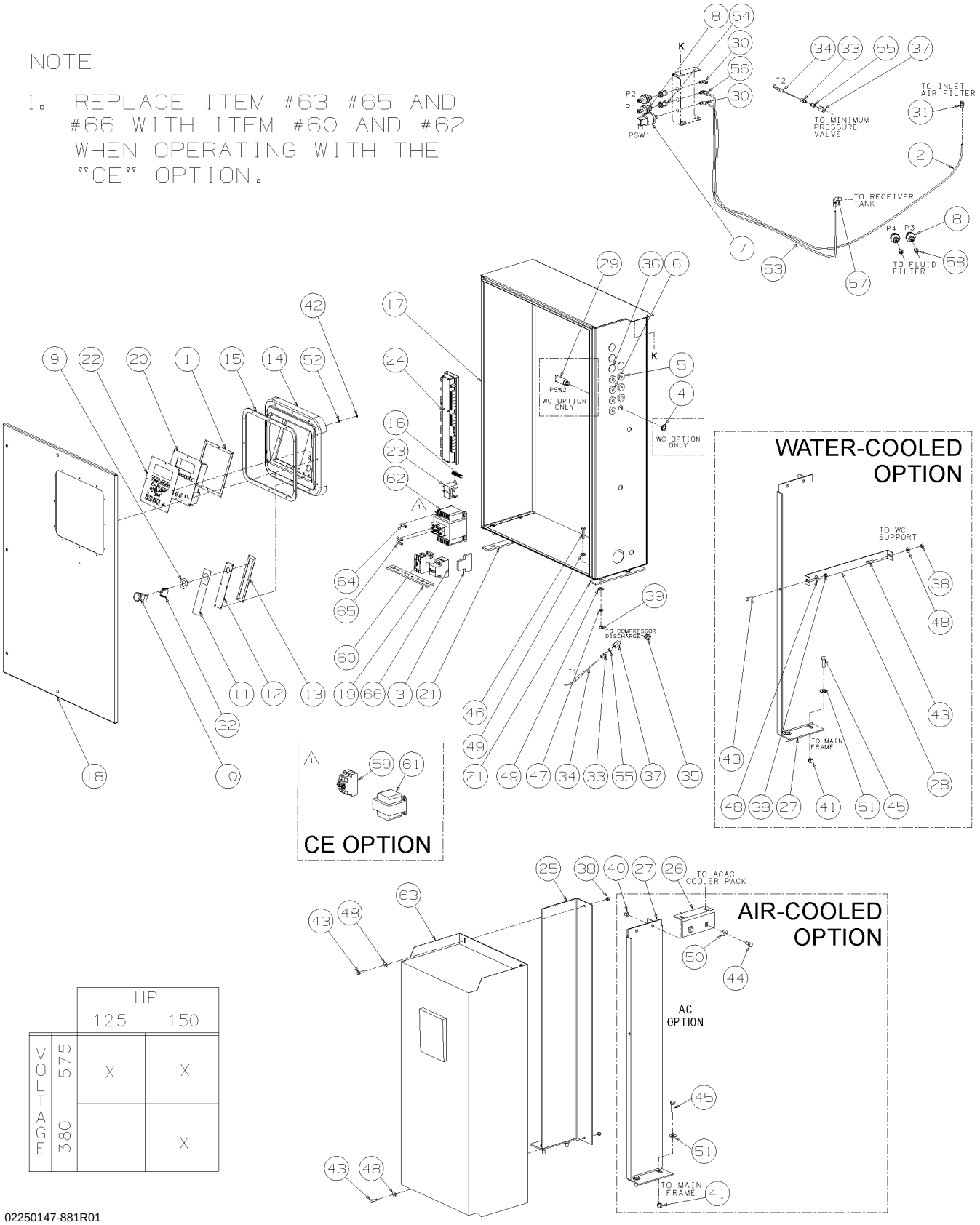
10.18 ELECTRICAL CONTROLS- V-200S (CONTINUED)

key number	*description*	*part number*	*quantity*
32	specification, encl vsd c-h s3 12.5” x 32 x 48	02250145-708	1
33	block, pwr distr 600a	02250145-194	1
34	transformer, control 50va 120-24 50/60	02250135-283	1
35	decal, supervisor front	02250130-344	1
36	control, supervisor iii comm module	02250128-157	1
37	support, str box ls20s ac	02250127-380	2
38	control, supervisor iii io mod	02250119-331	1
39	control, supervisor iii display mod	02250119-330	1
40	breaker, cir2.0a ctl 1p high inrush	02250116-503	3
41	bar, gnd bus cop 11.25 x 1.5 x .25	02250110-334	1
42	door, enclosure	02250109-465	1
43	bar, ground 5 post cutler hammer	02250101-721	1
44	gasket, es ctl pnl	02250090-872	1
45	panel, central box bezel es-11	02250089-302	1
46	gasket, es11 aux ctl pnl w/bezel	02250086-269	1
47	plate, es11 aux pnl w/o dryer	02250086-265	1
48	decal, es11 aux s2 w/o dryer	02250086-259	1
49	switch, push-button operator e22 40mm	02250085-504	1
50	nameplate, e-stop 45mm yellow	02250081-473	2
51	transducer, pressure 0-25psi 1-5vdc n4	02250078-933	4
52	switch, vacuum 22”wc n4 6ft cable 5a	02250078-249	1
53	grip, cord n4 .250-.375 x 1/2”	02250071-381	5
54	grip, cord n4 .125-.187 x 1/2”	02250071-379	2
55	locknut, n4 conduit sealing	02250071-362	1
56	block, aux contac 1no-1nc mot/prot	02250057-765	1
57	tube, nyl .25od x 040w blk	02250054-861	1
58	gasket, panel supervisor ii	02250048-822	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.19 ELECTRICAL CONTROLS- V-200S EXTERNALLY-MOUNTED



VOLTAGE	HP 125	HP 150
575	X	X
380		X

02250147-881R01

10.19 ELECTRICAL CONTROLS- V-200S EXTERNALLY-MOUNTED

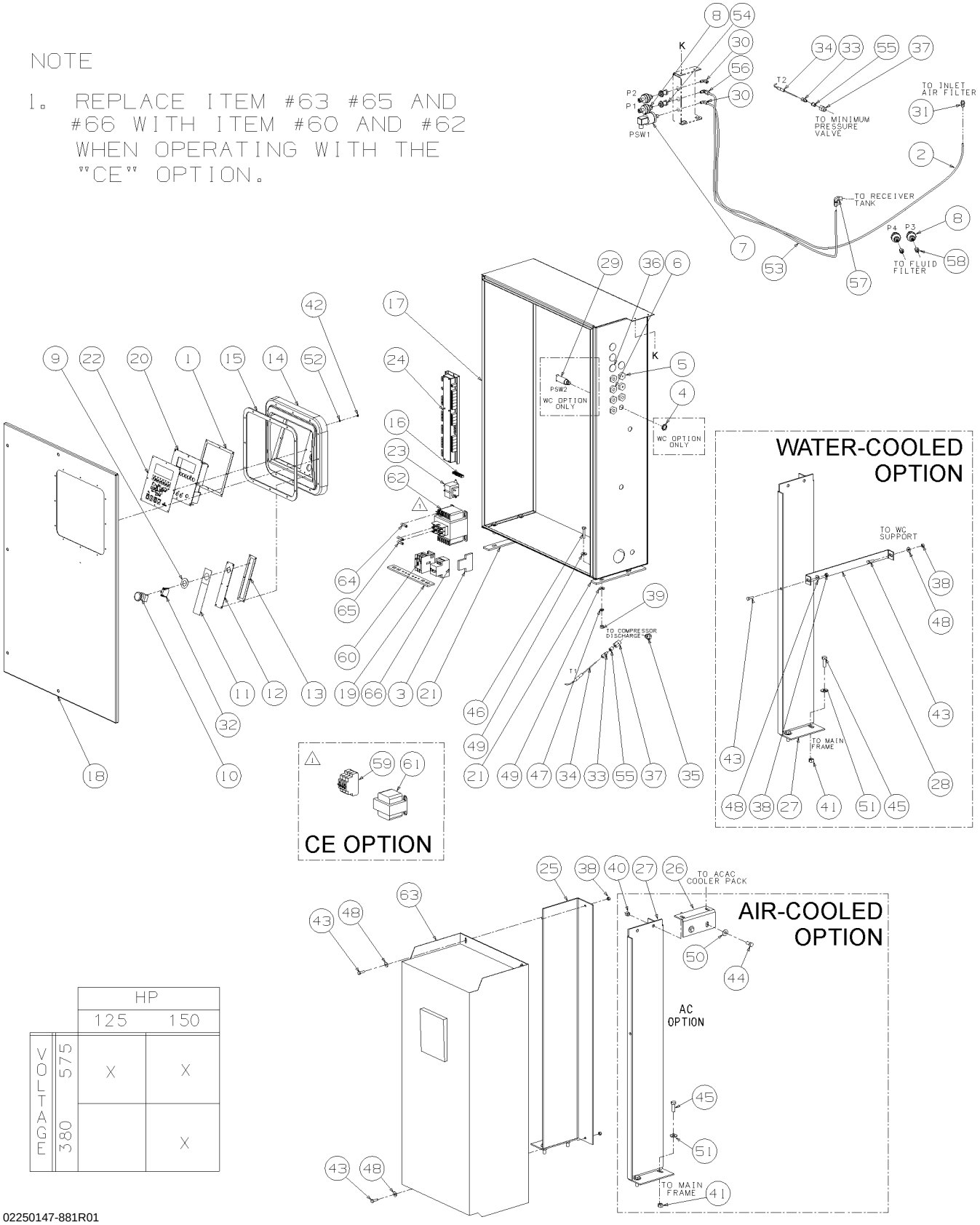
key number	*description*	*part number*	*quantity*
1	gasket, panel supervisor ii	02250048-822	1
2	tube, nyl .25od x 040w blk	02250054-861	1
3	block, aux contac 1no-1nc mot/prot	02250057-765	1
4	locknut, n4 conduit sealing	02250071-362	1
5	grip, cord n4 .125-.187 x 1/2”	02250071-379	2
6	grip, cord n4 .250-.375 x 1/2”	02250071-381	5
7	switch, vacuum 22”wc n4 6ft cable 5a	02250078-249	1
8	transducer, pressure 0-25psi 1-5vdc n4	02250078-933	4
9	nameplate, e-stop 45mm yellow	02250081-473	1
10	switch, push-button operator e22 40mm	02250085-504	1
11	decal, es11 aux s2 w/o dryer	02250086-259	1
12	plate, es11 aux pnl w/o dryer	02250086-265	1
13	gasket, es11 aux ctl pnl w/bezel	02250086-269	1
14	panel, central box bezel es-11	02250089-302	1
15	gasket, es ctl pnl	02250090-872	1
16	bar, ground 5 post cutler hammer	02250101-721	1
17	specification, encl 48x32x12.5	02250108-859	1
18	door, enclosure	02250109-465	1
19	bar, gnd bus cop 11.25 x 1.5 x .25	02250110-334	1
20	control, supervisor iii display mod	02250119-330	1
21	support, str box ls20s ac	02250127-380	2
22	decal, supervisor front	02250130-344	1
23	transformer, control 50va 120-24 50/60	02250135-283	1
24	control, supervisor io mod ver.2	02250141-089	1
25	support, vsd l.h. c-h	02250145-487	1
26	support, aftercooler vsd v-200s ac	02250145-501	1
27	support, vsd r.h. c-h	02250145-528	1
28	support, vsd c-h ls20s w/c	02250145-533	1
29	switch, pressure n.o. 10 psi	250017-992	1
30	elbow, 90 1/4”tube x 1/8”npt	250018-429	2
31	connector, straight 1/4t pls 1/8 npt f	250021-379	1
32	block, contact 1nc	250027-125	1
33	fitting, compress adj	250028-635	2

Continued on page 107

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.19 ELECTRICAL CONTROLS- V-200S EXTERNALLY-MOUNTED



02250147-881R01

10.19 ELECTRICAL CONTROLS- V-200S EXTERNALLY-MOUNTED (CONTINUED)

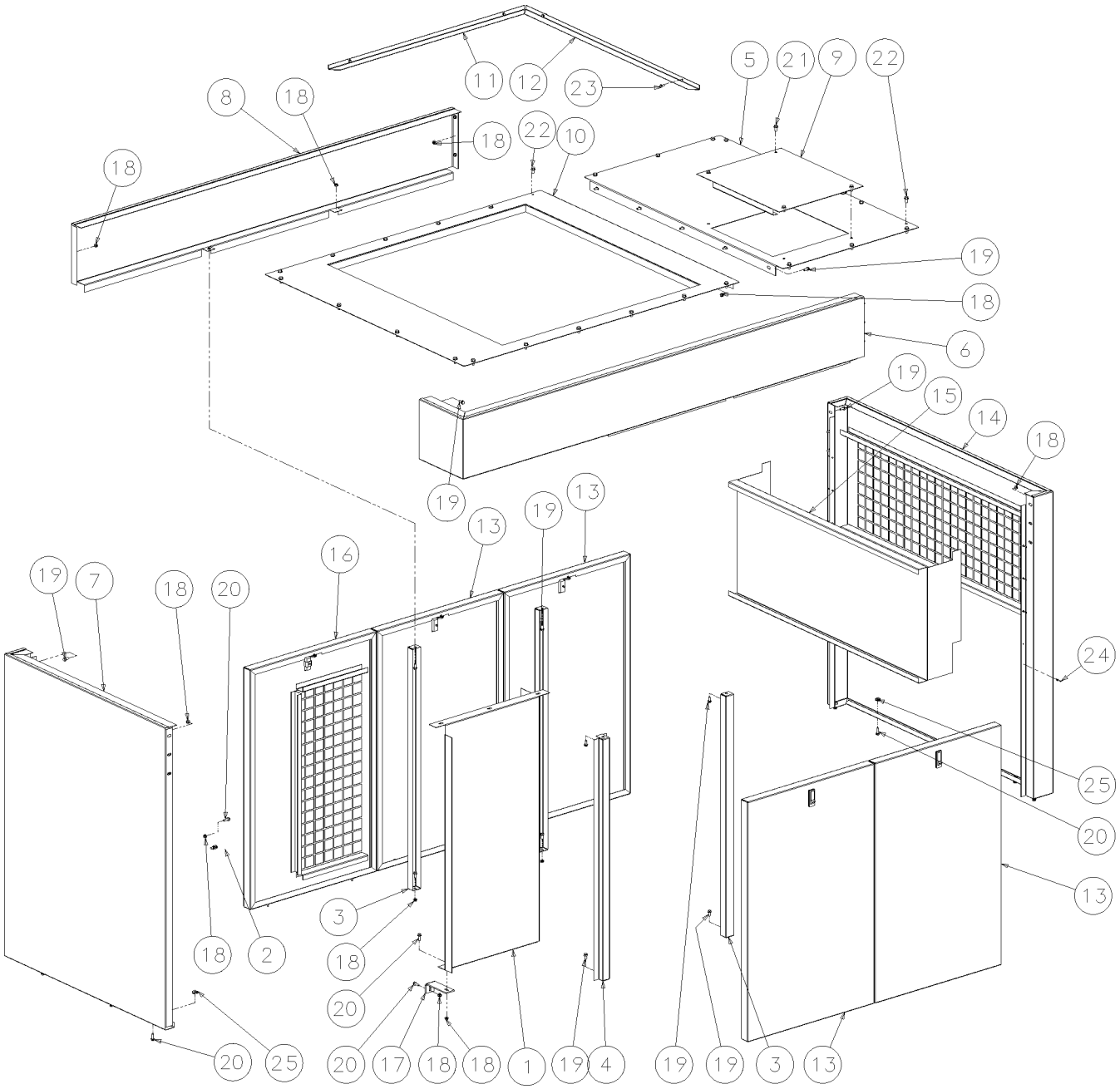
key number	*description*	*part number*	*quantity*
34	probe, rtd 100 ohm plat 3.5”x 12ft	250039-909	2
35	plug, straight thread 3/4-16 viton	250042-623	1
36	plug, hole n4 1/2” cond	409918-002	4
37	adapter, female pipe 1/2 x 1/4	811504-025	2
38	nut, hex pltd 5/16-18	825205-273	6
39	nut, hex pltd 3/8-16	825206-337	4
40	nut, hex pltd 7/16-14	825207-385	2
41	nut, hex pltd 1/2-13	825208-448	4
42	nut, hex metric m4 x .7	825904-070	8
43	capscr, hex gr5 5/16-18 x 1	828605-100	6
44	capscr, hex gr5 7/16-14 x 1	828607-100	2
45	capscr, hex gr5 1/2-13 x 1 1/2	828608-150	4
46	capscr, hex gr5 3/8-16 x 1 3/4	829106-175	4
47	washer, spr lock reg pltd 3/8	837806-094	4
48	washer, pl-b reg pltd 5/16	838205-071	6
49	washer, pl-b reg pltd 3/8	838206-071	8
50	washer, pl-b reg pltd 7/16	838207-071	2
51	washer, pl-b reg pltd 1/2	838208-112	4
52	washer, spr lock-metric pltd m4	838804-090	8
53	tubing, stnls stl 1/4” 20ga	841215-004	1
54	bulkhead, pipe 1/8” npt	841500-002	2
55	bushing, red pltd 1/4 x 1/8	867100-005	2
56	elbow, tube 90 deg m 1/4 x 1/8 ss	877004-012	1
57	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1
58	adapter, expand 1/8-27f x 1/8-27m	879302-002	2
59	breaker, circtl high inrush **(I)**	-	3
60	contactor, ac 3p 120v chf **(I)**	-	1
61	transformer, control univ.volt (cb) **(I)**	-	1
62	transformer, control univ.volt (fused) **(I)**	-	1
63	cutler hammer vsd **(I)**	-	1
64	fuse, limitron ktk-r **(I)**	-	1
65	fuse, kldr **(I)**	-	2
66	starter, man mtr prot ab **(I)**	-	1

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.20 ENCLOSURE- AIR-COOLED



02250146-584R02

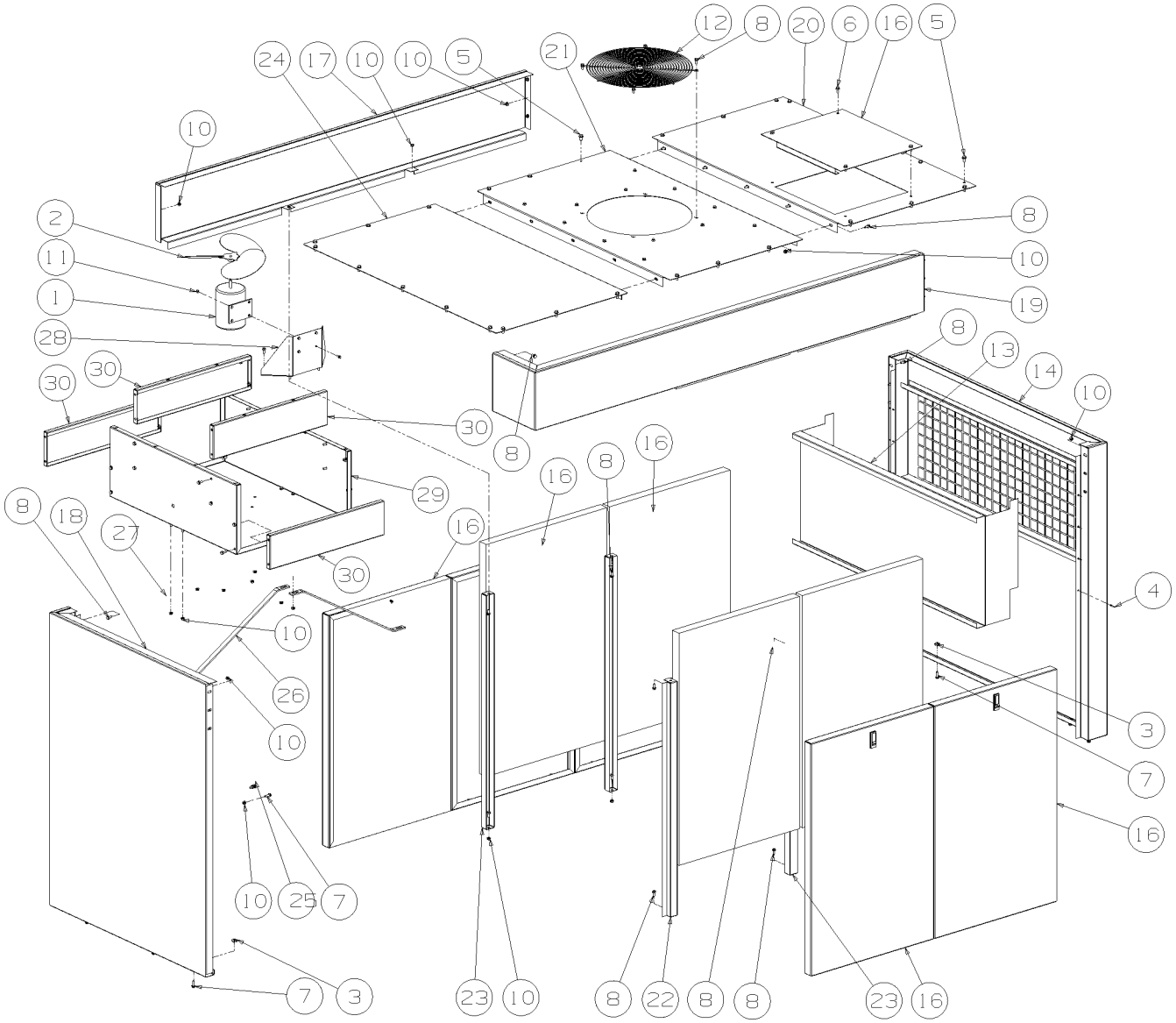
10.20 ENCLOSURE- AIR-COOLED

key number	*description*	*part number*	*quantity*
1	baffle, air inlet mtr end	02250049-469	1
2	support, bracket end panel ls20s	02250078-690	1
3	panel, support canopy doors ls20s	02250116-311	3
4	panel, side member	02250116-312	1
5	panel, roof w/cutout	02250118-544	1
6	panel, str corner ls20s	02250119-167	1
7	panel, motor end ls20s	02250119-168	1
8	panel, canopy ls200s top mtr/compr s	02250119-224	1
9	cover, separator acs pnl 600-1050	02250142-362	1
10	panel, roof ls200s ac	02250145-637	1
11	angle, cooler seal 46.5” ls200s	02250145-639	2
12	angle, cooler seal 50.5” ls200s	02250145-640	2
13	door, assy LS-200S access door	02250146-377	4
14	panel, encl unit end ls200s	02250146-581	1
15	baffle, air inlet compr end ls200s	02250147-463	1
16	door assy, air in ls200s w/ins	02250147-478	1
17	nut, hex f pltd 5/16-18	825305-283	27
18	screw, hex ser washer 5/16-18 x 3/4	829705-075	25
19	screw, hex ser washer 5/16-18 x 1	829705-100	11
20	screw, hex ser washer 3/8-16 x 3/4	829706-075	4
21	screw, tc-hex 3/8-16 x 3/4	834206-075	27
22	screw, self-drill 1/4 x 3/4	834504-075	8
23	rivet, pop 3/16 x 3/8	843103-038	12
24	nut, retainer 5/16-18 .092	861405-092	9

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.21 ENCLOSURE- WATER-COOLED



02250146-585R00

10.21 ENCLOSURE- WATER-COOLED

key number	*description*	*part number*	*quantity*
1	motor, various **(I)**	-	1
2	fan, various **(I)**	-	1
3	nut, retainer 5/16-18 .092	861405-092	29
4	rivet, pop 3/16 x 3/8	843103-038	8
5	screw, tc-hex 3/8-16 x 3/4	834206-075	28
6	screw, hex ser washer 3/8-16 x 3/4	829706-075	4
7	screw, hex ser washer 5/16-18 x 1	829705-100	11
8	screw, hex ser washer 5/16-18 x 3/4	829705-075	74
9	screw, hex ser washer 1/4-20 x 3/4	829704-075	4
10	nut, hex f pltd 5/16-18	825305-283	56
11	nut, hex f pltd 1/4-20	825304-236	4
12	guard, fan 20” diameter	241137	1
13	baffle, air inlet compr end ls200s	02250147-463	1
14	panel, encl unit end ls200s	02250146-581	1
15	door, assy LS-200S access door	02250146-377	5
16	cover, separator acs pnl 600-1050	02250142-362	1
17	panel, canopy ls200s top mtr/compr side	02250119-224	1
18	panel, motor end ls20s	02250119-168	1
19	panel, str corner ls20s	02250119-167	1
20	panel, roof w/cutout	02250118-544	1
21	panel, roof ls20s wc	02250116-417	1
22	panel, side member	02250116-312	1
23	panel, support canopy doors ls20s	02250116-311	3
24	panel, canopy end ac/wc	02250116-309	1
25	support, bracket end panel ls20s	02250078-690	1
26	support, enclosure ls200s wc	02250077-590	2
27	channel, support encl ls200s wc	02250044-855	1
28	support, motor encl ls200s wc	02250044-854	1
29	housing, baffle	02250044-817	1
30	panel, baffle ls200s encl wc	02250044-816	4

(I) This part may vary per machine design. Consult factory with machine serial number to determine the proper part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10 .22 DECAL GROUP

10 .22 DECAL GROUP

key number	*description*	*part number*	*quantity*
1	sign, warning sever - fan	049855	2
2	sign, warning sever-fan port	049965	2
3	sign, warning “compressor fluid fill cap”	049685	1
4	decal, water in	250019-107	1
5	decal, water out	250019-108	1
6	decal, water inlet-outlet	049873	1
7	decal, water drain	250022-810	1
8	decal, rotation	250021-286	1
9	decal, danger breath air	250027-935	1
10	sign, warning hot surfaces	407408	3
11	decal, voltage 460/3/60 international **(I)**	02250069-399	1
	•decal, voltage 400/3/50 international (not shown) **(I)**	02250069-405	1
	•decal, voltage 575/3/60 international (not shown) **(I)**	02250069-400	1
12	decal, rotation	250021-564	1
13	decal, auto start	041065	1
14A	decal, protective earth ground	02250075-045	2
14B	decal, earth ground international	02250075-046	1
15	sign, danger electrocution	049850	1
16	decal, warning mixing fluids	02250110-891	1
17	decal, actuator valve positioning	250029-784	1
18	decal, Sullair logo	02250059-060	2

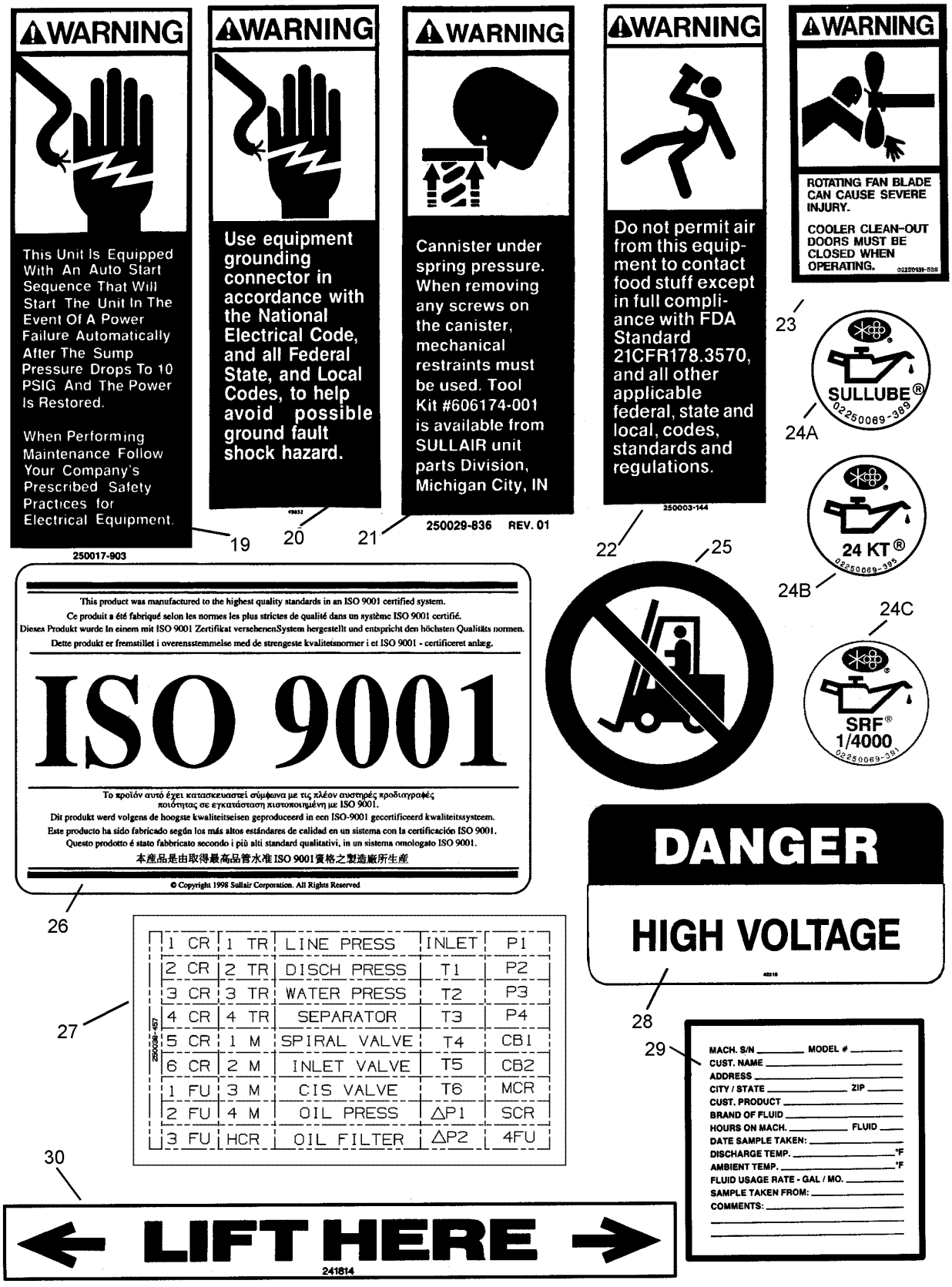
Continued on page 115

(I) Voltage may vary in accordance with your machine requirements. To confirm proper decal, consult factory with serial number of compressor.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10 .22 DECAL GROUP



10 .22 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
19	decal, warning auto start	250017-903	1
20	sign, warning ground fault	049852	1
21	decal, warning actuator	250029-836	1
22	sign, warning “food grade” lube	250003-144	1
23	sign, warning sever fan door closed	02250131-539	4
24A	decal, fluid Sullube **(II)**	02250069-389	1
24B	decal, fluid 24KT **(II)**	02250069-395	1
24C	decal, fluid SRF 1/4000 **(II)**	02250069-391	1
25	decal, do not forklift- international	02250108-615	1
26	decal, ISO 9001	02250057-624	1
27	decal, electrical component ID	250038-457	1
28	decal, danger high voltage	042218	1
29	decal, fluid sample	250025-675	1
30	decal, fork lifting	241814	4

Continued on page 117

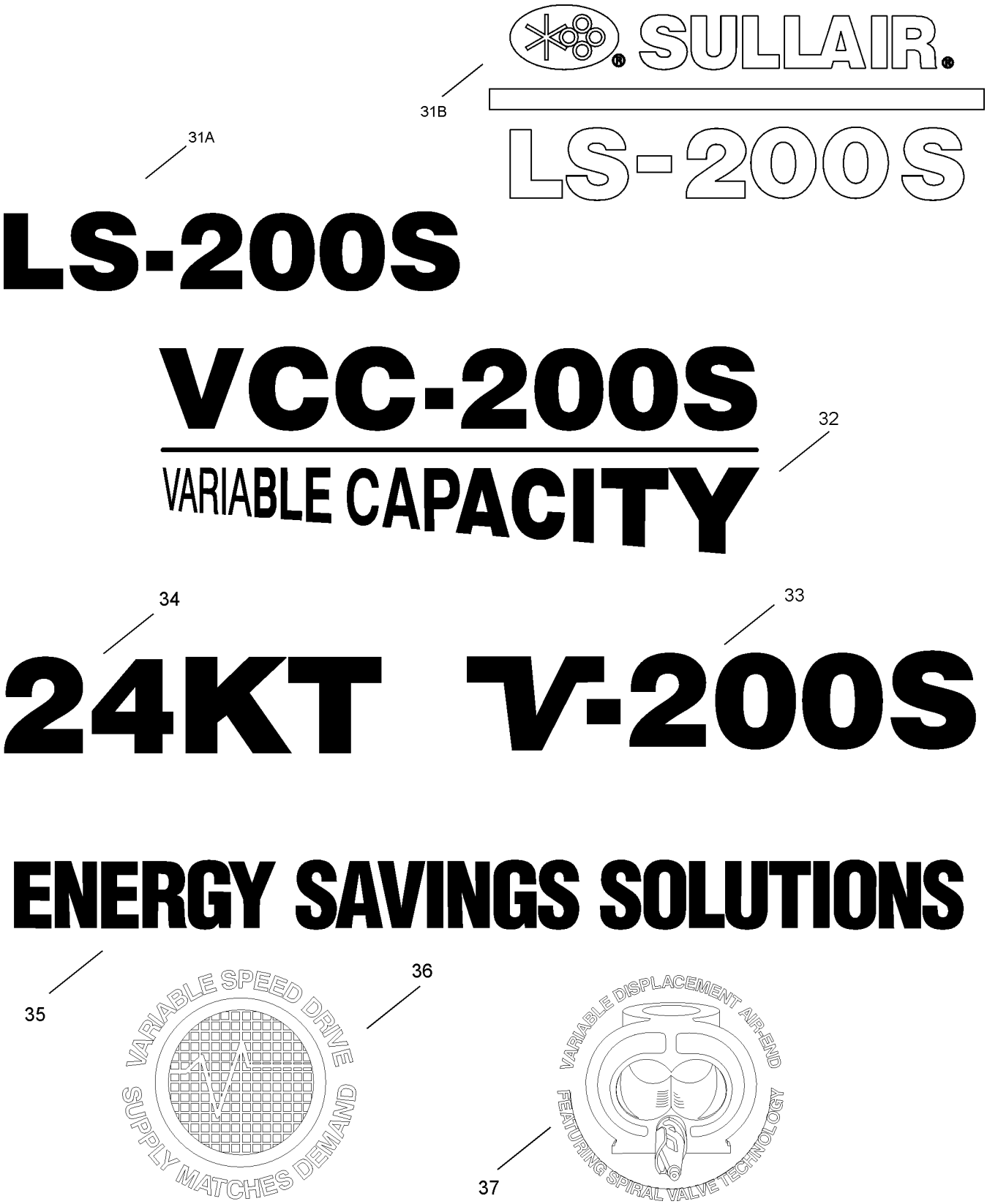
(II) Fluid fill may vary in accordance with machine requirements. To confirm the proper fill for your compressor, consult Sullair Factory.

NOTE

DO NOT MIX FLUIDS. Mixing of other lubricants within the compressor unit will void all warranties.

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

10 .22 DECAL GROUP



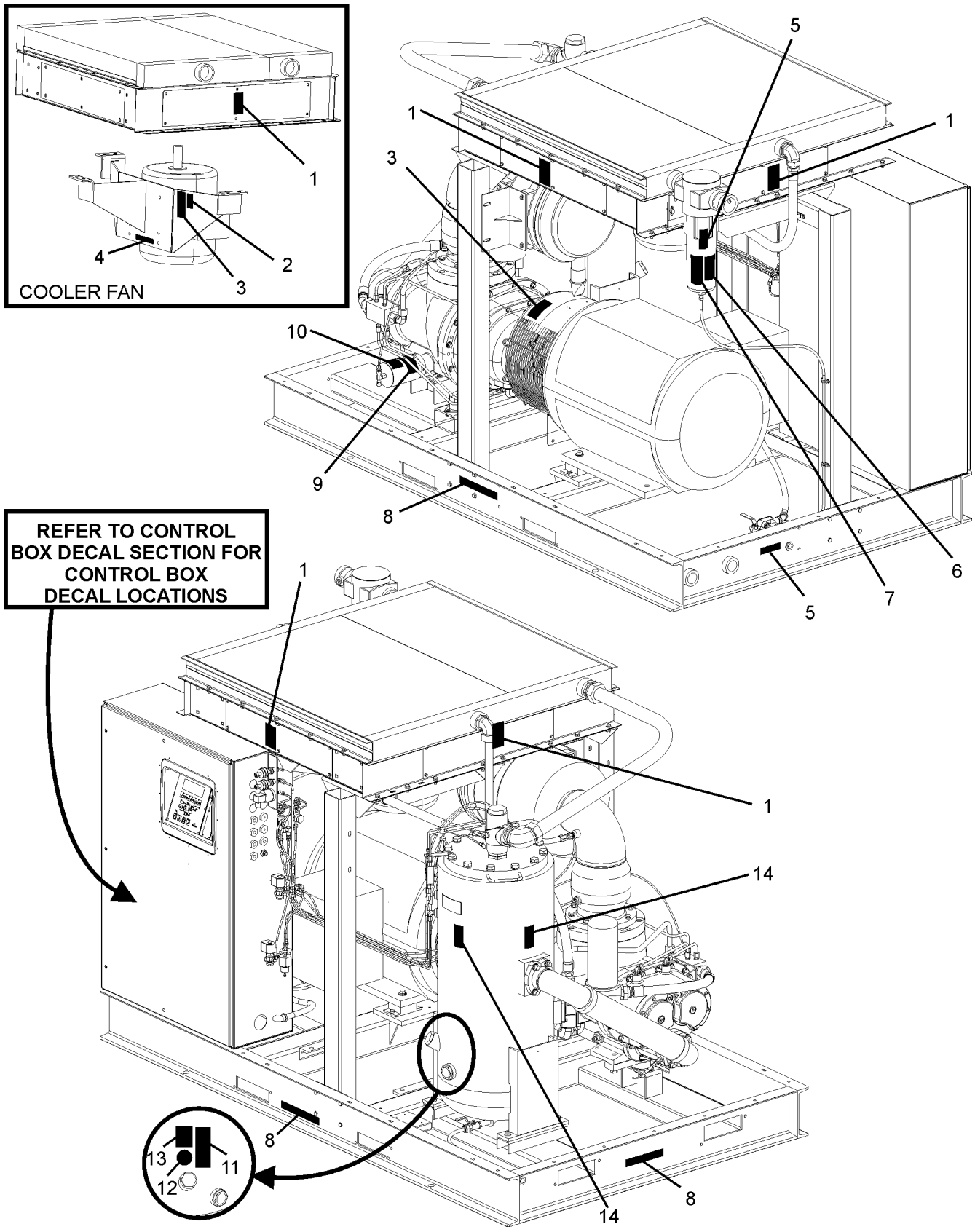
10 .22 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
31A	decal, LS-200S open 2-1/2"	02250146-023	1
31B	decal, LS-200S encl Sullair & stripe	02250146-025	1
32	decal, VCC-200S encl 3-1/2”	02250146-021	1
	•decal, VCC-200S open 2-1/2”	0250146-020	1
33	decal, V-200S blk 3.5” encl	02250146-037	1
	•decal, V-200S blk 2.5” open	02250146-036	1
34	decal, 24KT (blk) 1.75” x 4” ht (encl)	02250061-022	1
	•decal, 24KT (blk) 1.75” x 3” ht (open)	02250061-024	1
35	decal, energy savings solutions	02250146-267	1
36	decal, VSD supply matches demand	02250146-359	1
37	decal, variable displacement	02250146-268	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.23 DECAL LOCATIONS- OPEN AIR-COOLED (INCLUDING V-200S 460V)



10.23 DECAL LOCATIONS- OPEN AIR-COOLED (INCLUDING V-200S 460V)

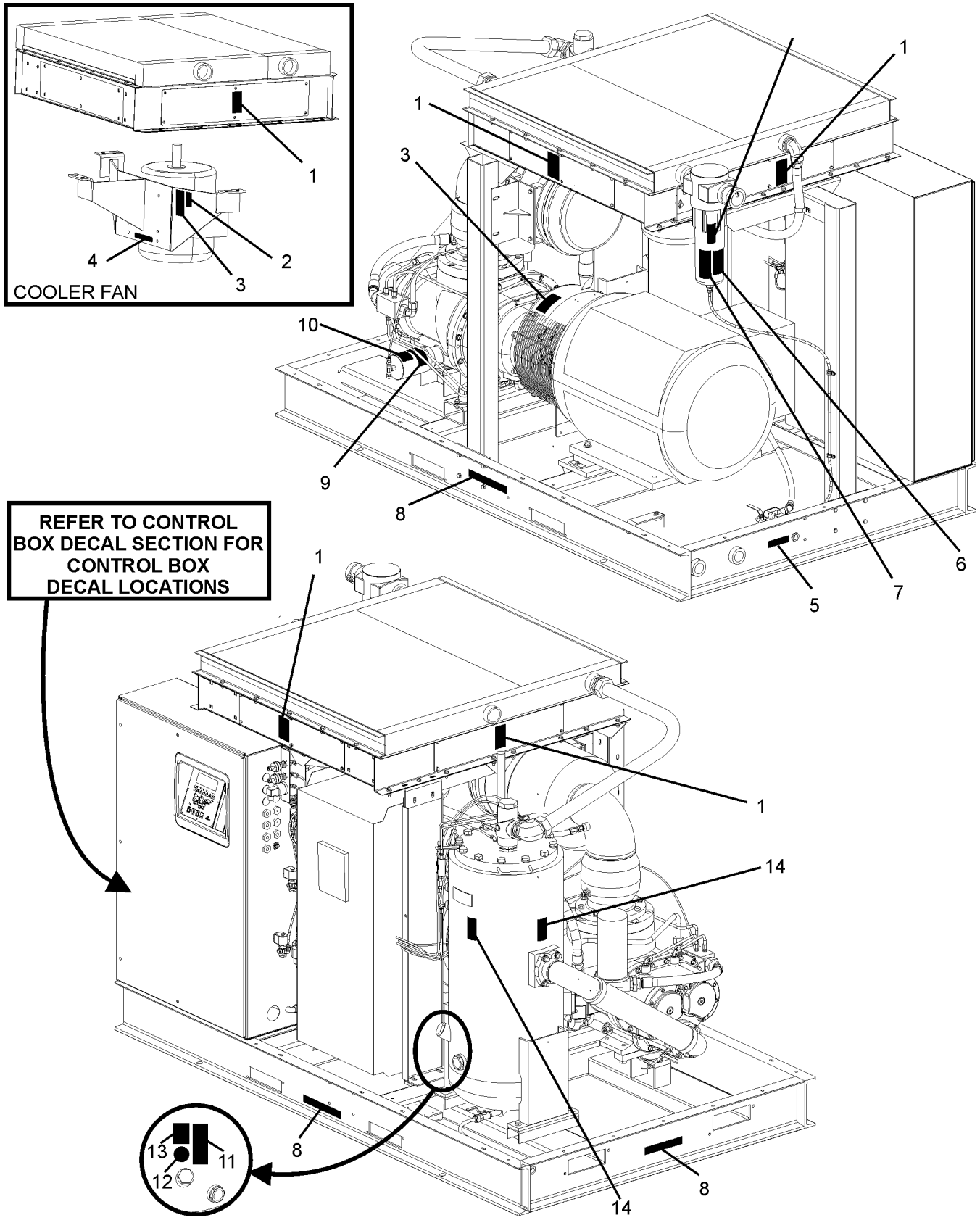
key number	*description*	*part number*	*quantity*
1	sign, warning sever fan door closed	02250131-539	4
2	sign, warning sever-fan port	049965	2
3	sign, warning sever - fan	049855	2
4	decal, rotation	250021-564	1
5	decal, water drain	250022-810	1
6	decal, danger breath air	250027-935	1
7	sign, warning “food grade” lube	250003-144	1
8	decal, fork lifting	241814	4
9	decal, warning actuator	250029-836	1
10	decal, actuator valve positioning	250029-784	1
11	sign, warning “compressor fluid fill cap”	049685	1
12	decal, fluid Sullube **(I)**	02250069-389	1
13	decal, warning mixing fluids	02250110-891	1
14	sign, warning hot surfaces	407408	2

(I) This decal part number may vary in accordance with machine requirements. To confirm the proper decal number for your machine, consult Sullair Factory.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.24 DECAL LOCATIONS- V-200S OPEN AIR-COOLED (380/575V+)



10.24 DECAL LOCATIONS- V-200S OPEN AIR-COOLED (380/575V+)

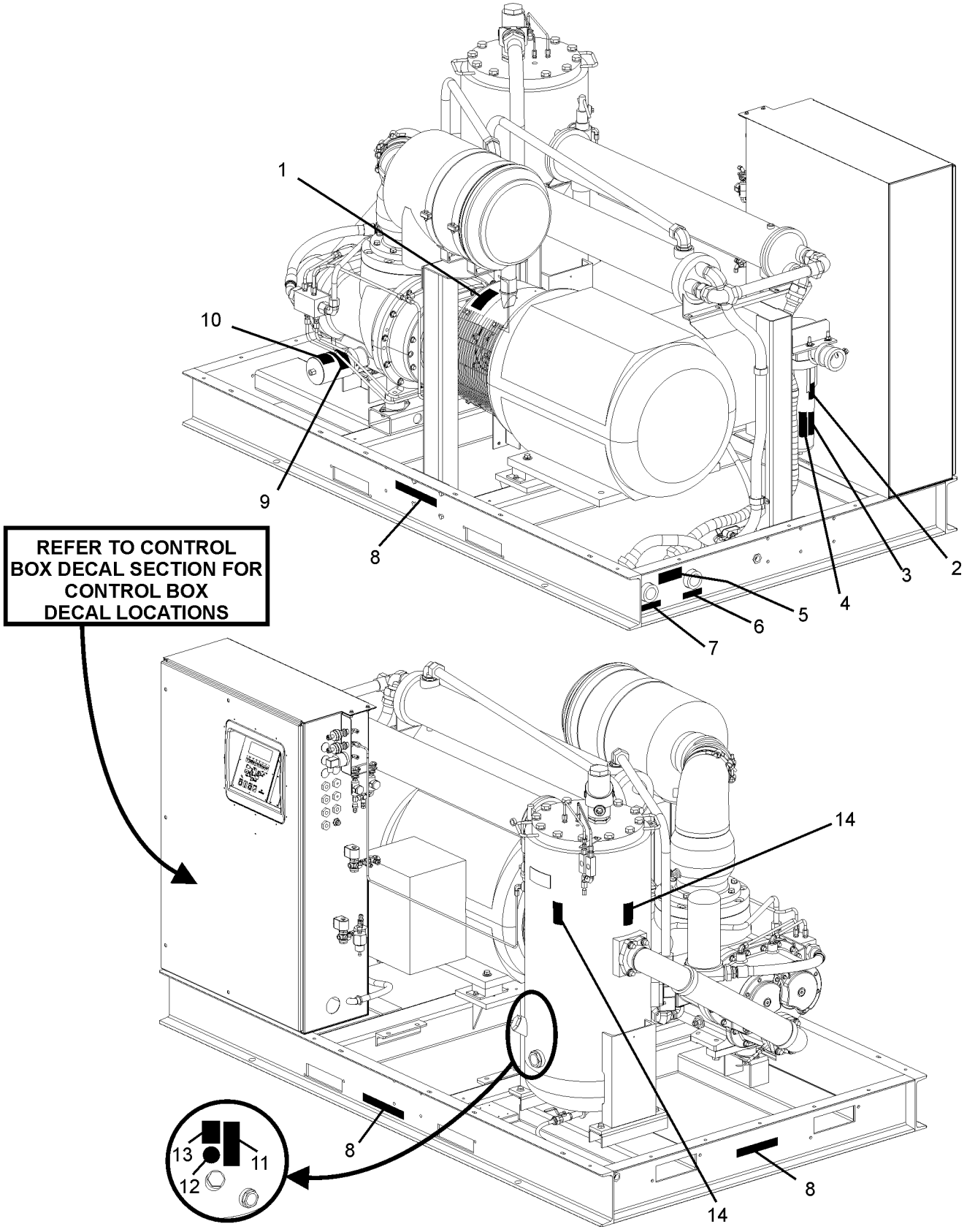
key number	*description*	*part number*	*quantity*
1	sign, warning sever fan door closed	02250131-539	4
2	sign, warning sever-fan port	049965	2
3	sign, warning sever - fan	049855	2
4	decal, rotation	250021-564	1
5	decal, water drain	250022-810	1
6	decal, danger breath air	250027-935	1
7	sign, warning “food grade” lube	250003-144	1
8	decal, fork lifting	241814	4
9	decal, warning actuator	250029-836	1
10	decal, actuator valve positioning	250029-784	1
11	sign, warning “compressor fluid fill cap”	049685	1
12	decal, fluid Sullube **(I)**	02250069-389	1
13	decal, warning mixing fluids	02250110-891	1
14	sign, warning hot surfaces	407408	2

(I) This decal part number may vary in accordance with machine requirements. To confirm the proper decal number for your machine, consult Sullair Factory.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.25 DECAL LOCATIONS- OPEN WATER-COOLED (INCLUDING V-200S 460V)



10.25 DECAL LOCATIONS- OPEN WATER-COOLED (INCLUDING V-200S 460V)

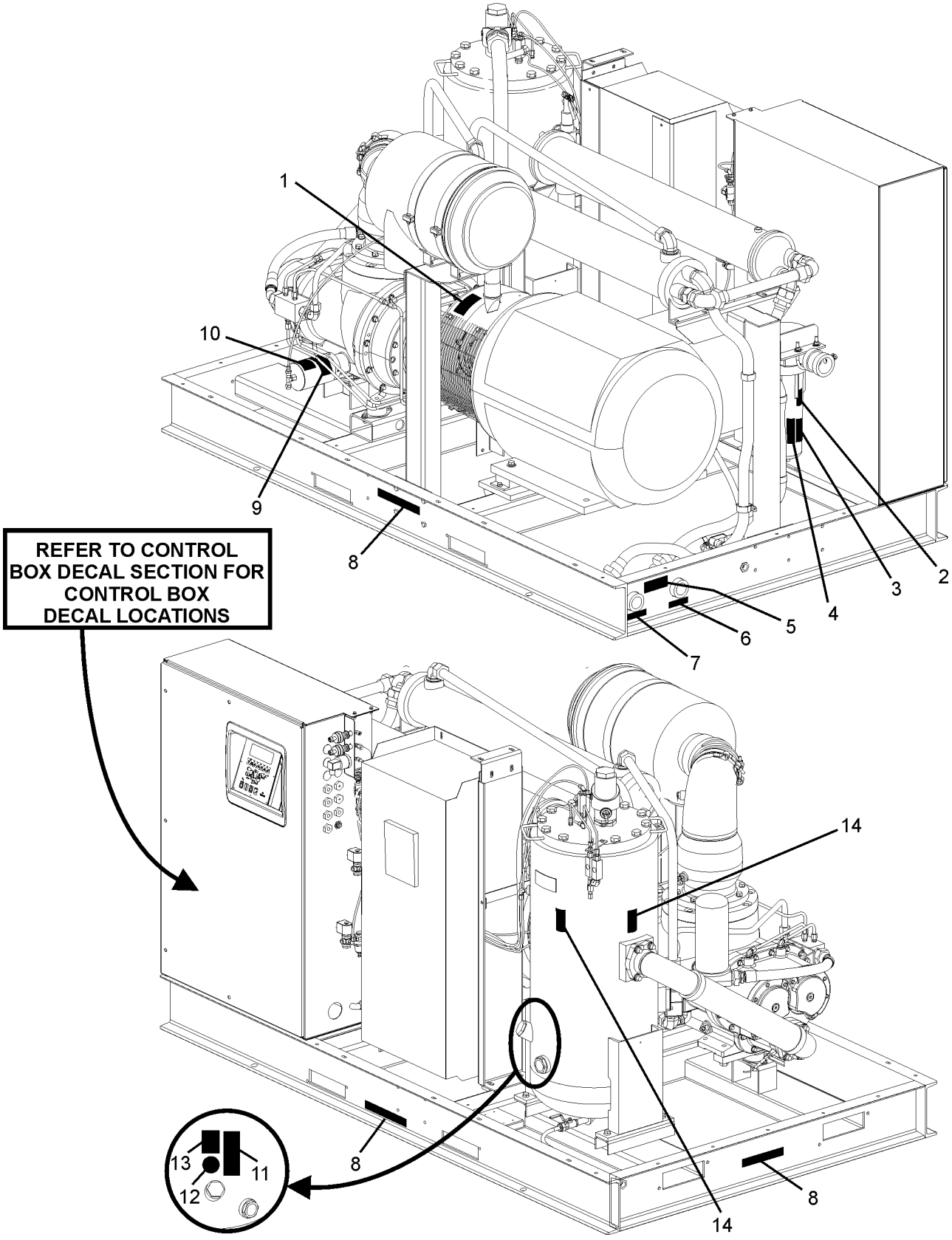
key number	*description*	*part number*	*quantity*
1	sign, warning sever - fan	049855	2
2	decal, water drain	250022-810	1
3	decal, danger breath air	250027-935	1
4	sign, warning “food grade” lube	250003-144	1
5	decal, water inlet-outlet	049873	1
6	decal, water out	250019-108	1
7	decal, water in	250019-107	1
8	decal, fork lifting	241814	4
9	decal, warning actuator	250029-836	1
10	decal, actuator valve positioning	250029-784	1
11	sign, warning “compressor fluid fill cap”	049685	1
12	decal, fluid Sullube **(I)**	02250069-389	1
13	decal, warning mixing fluids	02250110-891	1
14	sign, warning hot surfaces	407408	2

(I) This decal part number may vary in accordance with machine requirements. To confirm the proper decal number for your machine, consult Sullair Factory.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.26 DECAL LOCATIONS- V-200S OPEN WATER-COOLED (380/575V+)



10.26 DECAL LOCATIONS- V-200S OPEN WATER-COOLED (380/575V+)

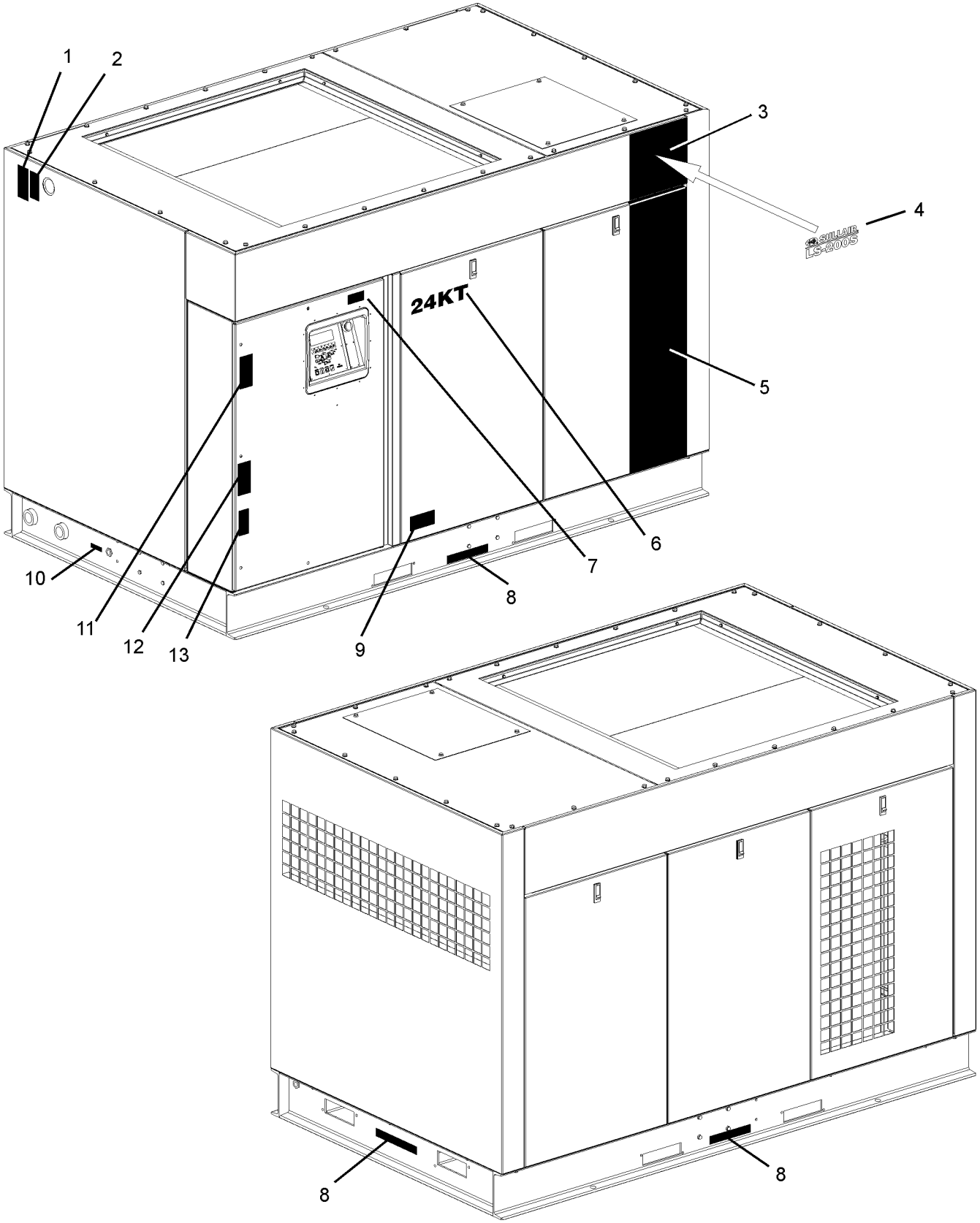
key number	*description*	*part number*	*quantity*
1	sign, warning sever - fan	049855	2
2	decal, water drain	250022-810	1
3	decal, danger breath air	250027-935	1
4	sign, warning “food grade” lube	250003-144	1
5	decal, water inlet-outlet	049873	1
6	decal, water out	250019-108	1
7	decal, water in	250019-107	1
8	decal, fork lifting	241814	4
9	decal, warning actuator	250029-836	1
10	decal, actuator valve positioning	250029-784	1
11	sign, warning “compressor fluid fill cap”	049685	1
12	decal, fluid Sullube **(I)**	02250069-389	1
13	decal, warning mixing fluids	02250110-891	1
14	sign, warning hot surfaces	407408	2

(I) This decal part number may vary in accordance with machine requirements. To confirm the proper decal number for your machine, consult Sullair Factory.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.27 DECAL LOCATIONS- LS-200S ENCLOSED AIR-COOLED



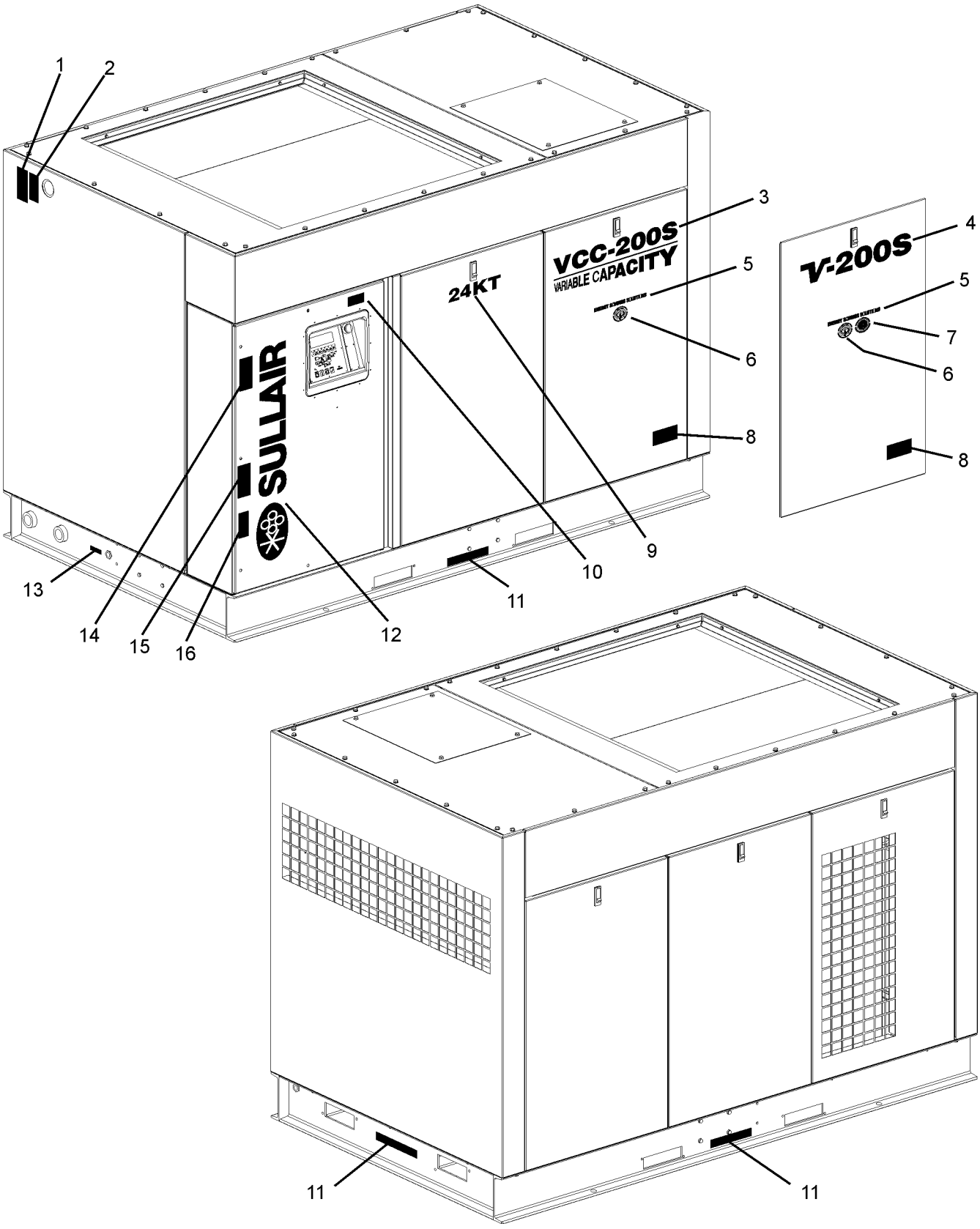
10.27 DECAL LOCATIONS- LS-200S ENCLOSED AIR-COOLED

key number	*description*	*part number*	*quantity*
1	sign, warning “food grade” lube	250003-144	1
2	decal, danger breath air	250027-935	1
3	decal, black 12” x 14”	02250144-239	1
4	decal, LS-200S encl Sullair & stripe	02250146-025	1
5	decal, black stripe 12” x 50”	02250146-041	1
6	decal, 24KT (blk) 1.75” x 4” ht (encl)	02250061-022	1
7	decal, warning auto start	041065	1
8	decal, fork lifting	241814	4
9	decal, ISO 9001	02250057-624	1
10	decal, water drain	250022-810	1
11	sign, danger electrocution	049850	1
12	decal, warning auto start	250017-903	1
13	sign, warning sever - fan	049855	2

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.28 DECAL LOCATIONS- V-200S & VCC-200S ENCLOSED AIR-COOLED



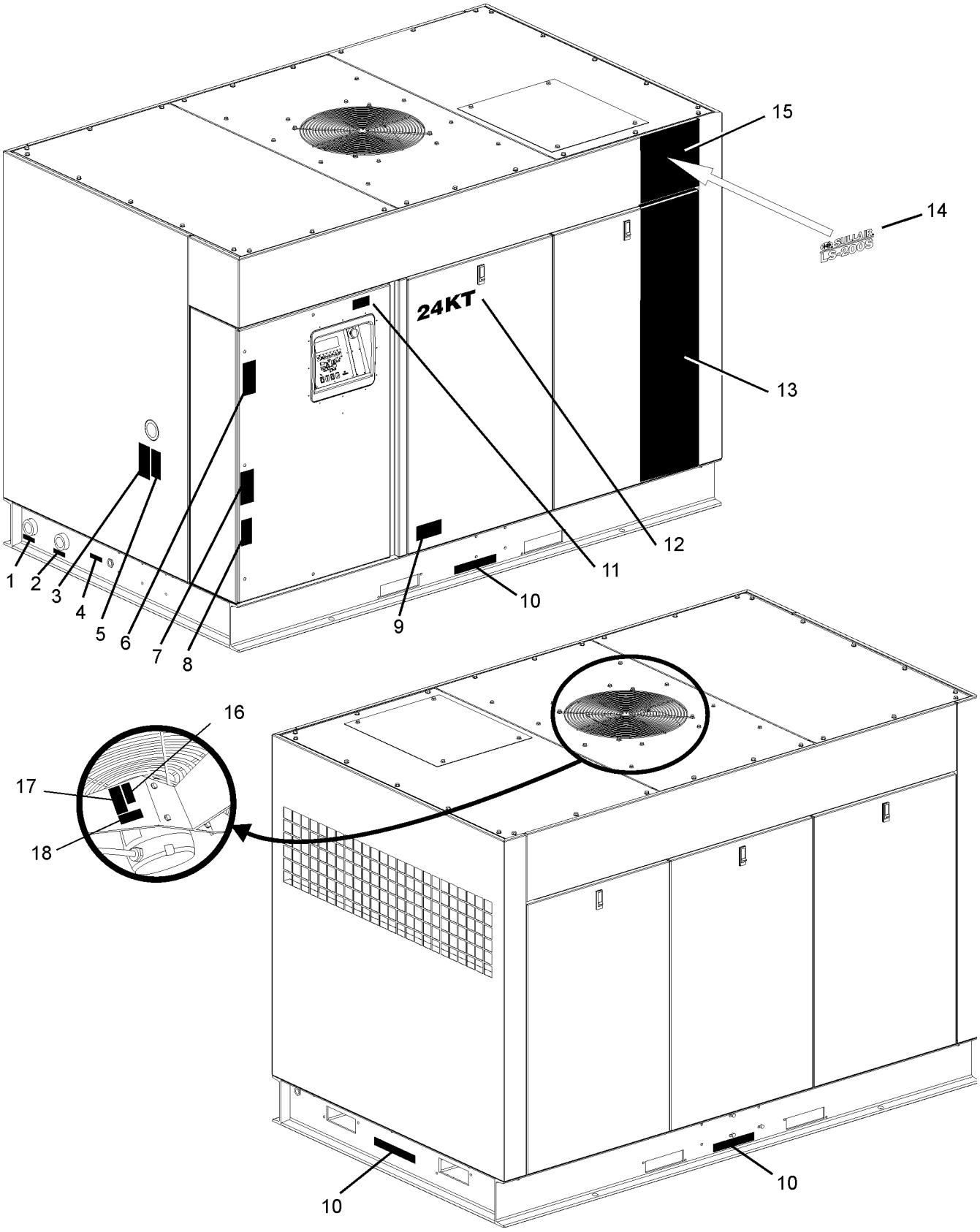
10.28 DECAL LOCATIONS- V-200S & VCC-200S ENCLOSED AIR-COOLED

key number	*description*	*part number*	*quantity*
1	sign, warning “food grade” lube	250003-144	1
2	decal, danger breath air	250027-935	1
3	decal, V-200S black 3.5” encl	02250146-037	1
4	decal, VCC-200S black 3-1/2” encl	02250146-021	1
5	decal, energy savings solutions	02250146-267	1
6	decal, variable displacement	02250146-268	1
7	decal, VSD supply matches demand	02250146-359	1
8	decal, ISO 9001	02250057-624	1
9	decal, 24KT (blk) 1.75” x 4” ht (encl)	02250061-022	1
10	decal, warning auto start	041065	1
11	decal, fork lifting	241814	4
12	decal, Sullair 4.5 x 36 black	02250057-603	1
13	decal, water drain	250022-810	1
14	sign, danger electrocution	049850	1
15	decal, warning auto start	250017-903	1
16	sign, warning sever - fan	049855	2

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.29 DECAL LOCATIONS- LS-200S ENCLOSED WATER-COOLED



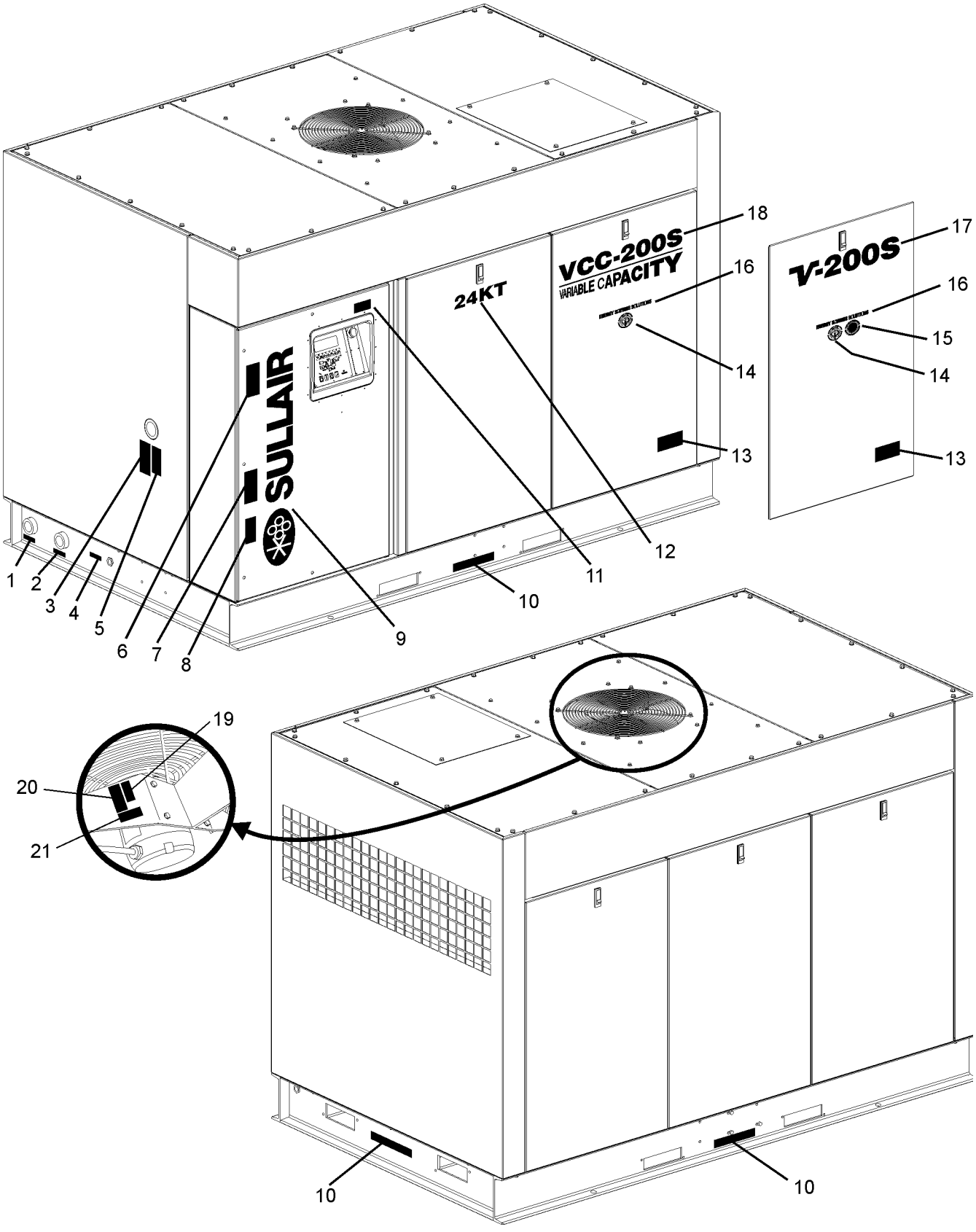
10.29 DECAL LOCATIONS- LS-200S ENCLOSED WATER-COOLED

key number	*description*	*part number*	*quantity*
1	decal, water in	250019-107	1
2	decal, water out	250019-108	1
3	sign, warning “food grade” lube	250003-144	1
4	decal, water drain	250022-810	1
5	decal, danger breath air	250027-935	1
6	sign, danger electrocution	049850	1
7	decal, warning auto start	250017-903	1
8	sign, warning sever - fan	049855	2
9	decal, ISO 9001	02250057-624	1
10	decal, fork lifting	241814	4
11	decal, warning auto start	041065	1
12	decal, 24KT (blk) 1.75” x 4” ht (encl)	02250061-022	1
13	decal, black stripe 12” x 50”	02250146-041	1
14	decal, LS-200S encl Sullair & stripe	02250146-025	1
15	decal, black 12” x 14”	02250144-239	1
16	sign, warning sever-fan port	049965	2
17	sign, warning sever - fan	049855	2
18	decal, rotation	250021-564	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.30 DECAL LOCATIONS- V-200S & VCC-200S ENCLOSED WATER-COOLED



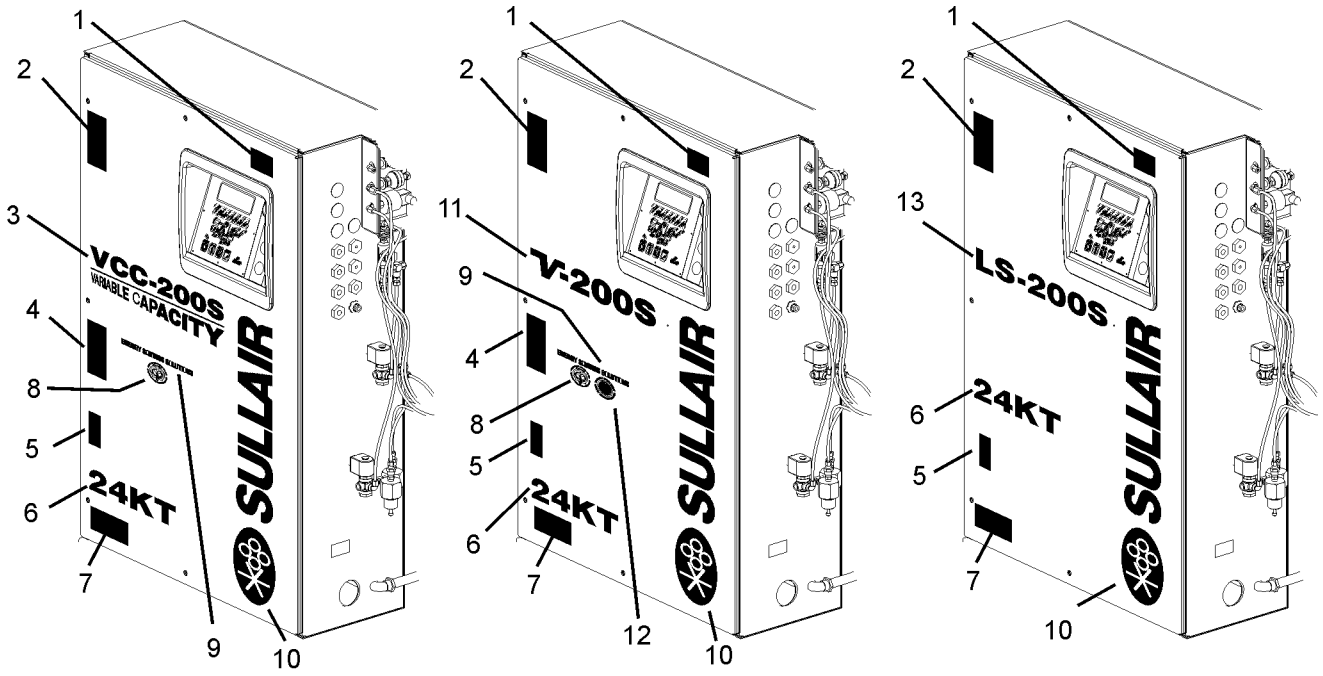
10.30 DECAL LOCATIONS- V-200S & VCC-200S ENCLOSED WATER-COOLED

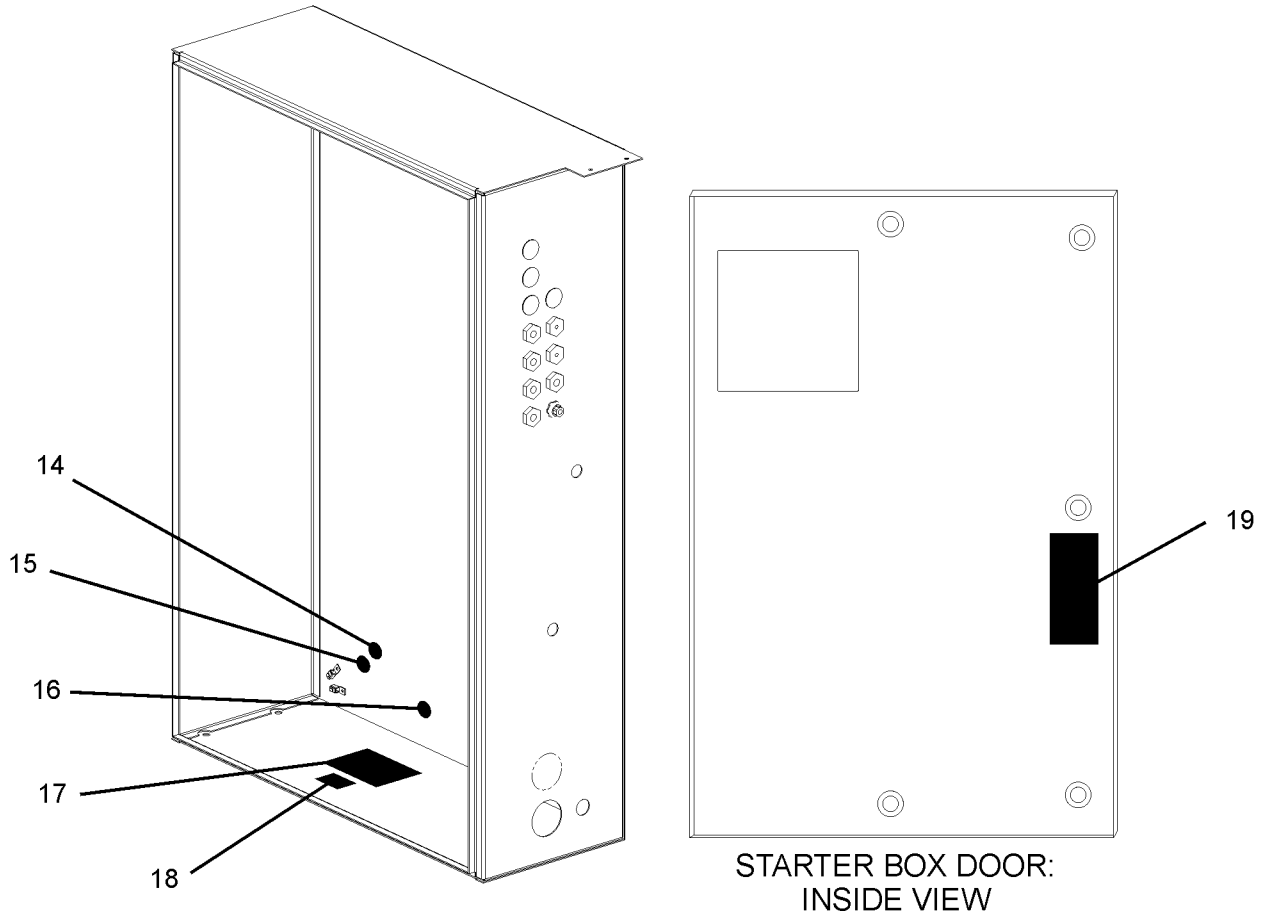
key number	*description*	*part number*	*quantity*
1	decal, water in	250019-107	1
2	decal, water out	250019-108	1
3	sign, warning “food grade” lube	250003-144	1
4	decal, water drain	250022-810	1
5	decal, danger breath air	250027-935	1
6	sign, danger electrocution	049850	1
7	decal, warning auto start	250017-903	1
8	sign, warning sever - fan	049855	2
9	decal, Sullair 4.5 x 36 black	02250057-603	1
10	decal, fork lifting	241814	4
11	decal, warning auto start	041065	1
12	decal, 24KT (blk) 1.75” x 4” ht (encl)	02250061-022	1
13	decal, ISO 9001	02250057-624	1
14	decal, variable displacement	02250146-268	1
15	decal, VSD supply matches demand	02250146-359	1
16	decal, energy savings solutions	02250146-267	1
17	decal, V-200S black 3.5” encl	02250146-037	1
18	decal, VCC-200S black 3-1/2” encl	02250146-021	1
19	sign, warning sever-fan port	049965	2
20	sign, warning sever - fan	049855	2
21	decal, rotation	250021-564	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.31 DECAL LOCATIONS- CONTROL BOX ENCLOSURE





STARTER BOX DOOR:
INSIDE VIEW

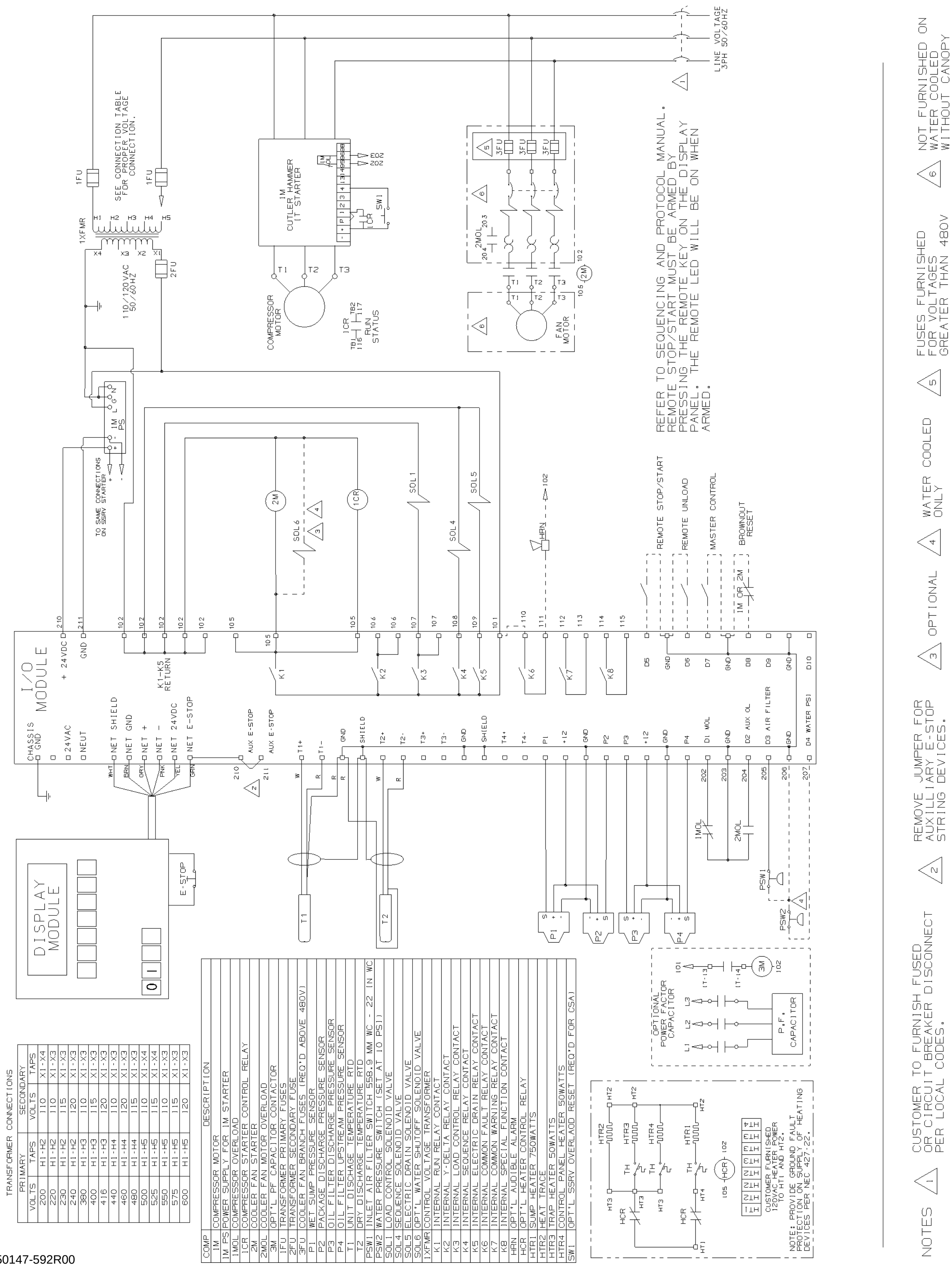
10.31 DECAL LOCATIONS- CONTROL BOX ENCLOSURE

key number	*description*	*part number*	*quantity*
1	decal, warning auto start	041065	1
2	sign, danger electrocution	049850	1
3	decal, VCC-200S black 3-1/2” encl	02250146-021	1
4	decal, warning auto start	250017-903	1
5	sign, warning sever - fan	049855	2
6	decal, 24KT (blk) 1.75” x 3” ht (open)	02250061-024	1
7	decal, ISO 9001	02250057-624	1
8	decal, variable displacement	02250146-268	1
9	decal, energy savings solutions	02250146-267	1
10	decal, Sullair 3.5 x 28 black	02250059-058	1
11	decal, V-200S black 2.5” open	02250146-036	1
12	decal, VSD supply matches demand	02250146-359	1
13	decal, LS-200S black 2.5” (open)	02250146-022	1
14	decal, PE designation	02250075-540	1
15	decal, earth ground	02250075-046	1
16	decal, protective earth ground	02250075-045	1
17	decal, danger high voltage	042218	1
18	decal, voltage international **(I)**	-	1
19	sign, warning ground fault	049852	1

(I) This decal part number may vary in accordance with machine requirements. To confirm the proper decal number for your machine, consult Sullair Factory.

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

10.32 WIRING DIAGRAM- LS-200S & VCC200S WITH SUPERVISOR CONTROLLER



TRANSFORMER CONNECTIONS

PRIMARY		SECONDARY	
VOLTS	TAPS	VOLTS	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-H3	115	X1-X3
416	H1-H3	120	X1-X3
440	H1-H4	110	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
1M PS	POWER SUPPLY FOR 1M STARTER
1MOL	COMPRESSOR OVERLOAD
1CR	COMPRESSOR STARTER CONTROL RELAY
2M	COOLER FAN STARTER
2MOL	COOLER FAN MOTOR OVERLOAD
3M	OPT'L PF CAPACITOR CONTACTOR
1FU	TRANSFORMER PRIMARY FUSES
2FU	TRANSFORMER SECONDARY FUSE
3FU	COOLER FAN BRANCH FUSES (REQ'D ABOVE 480V)
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
P4	OIL FILTER UPSTREAM PRESSURE SENSOR
T1	UNIT DISCHAGE TEMPERATURE RTD
T2	DRY DISCHARGE TEMPERATURE RTD
PSW1	INLET AIR FILTER SWITCH 558.9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH (SET AT 10 PSI)
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	SEQUENCE SOLENOID VALVE
SOL5	ELECTRIC DRAIN SOLENOID VALVE
SOL6	OPT'L WATER SHUTOFF SOLENOID VALVE
1XFMR	CONTROL VOLTAGE TRANSFORMER
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL Y-DELTA 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
HRN	OPT'L AUDIBLE ALARM
HCR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 750WATTS
HTR2	HEAT TRACE
HTR3	TRAP HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS
SW1	OPT'L SSRV OVERLAOD RESET (REQ'D FOR CSA)

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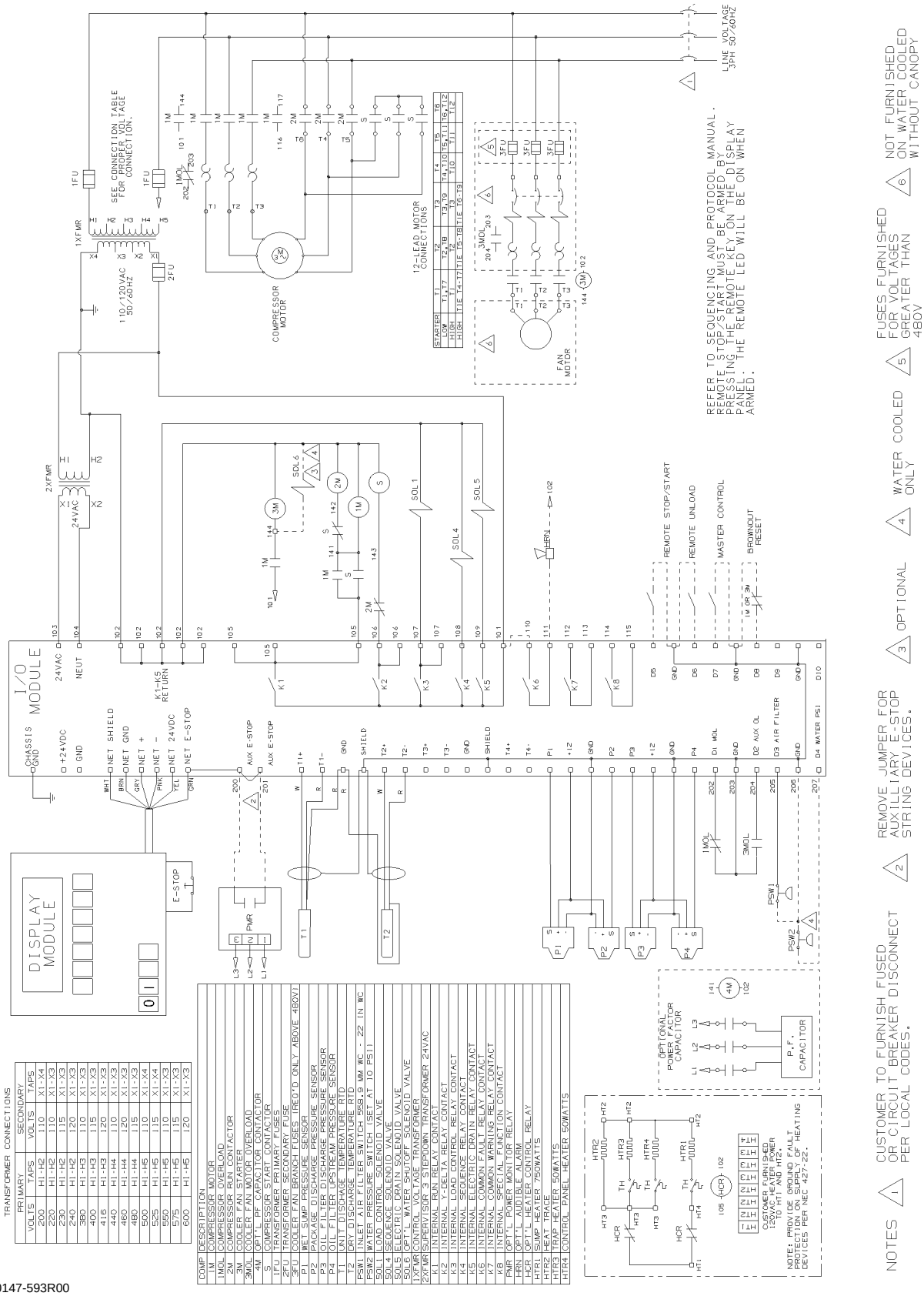
10.33 WIRING DIAGRAM- LS-200S & VCC200S WYE-DELTA WITH SUPERVISOR CONTROLLER



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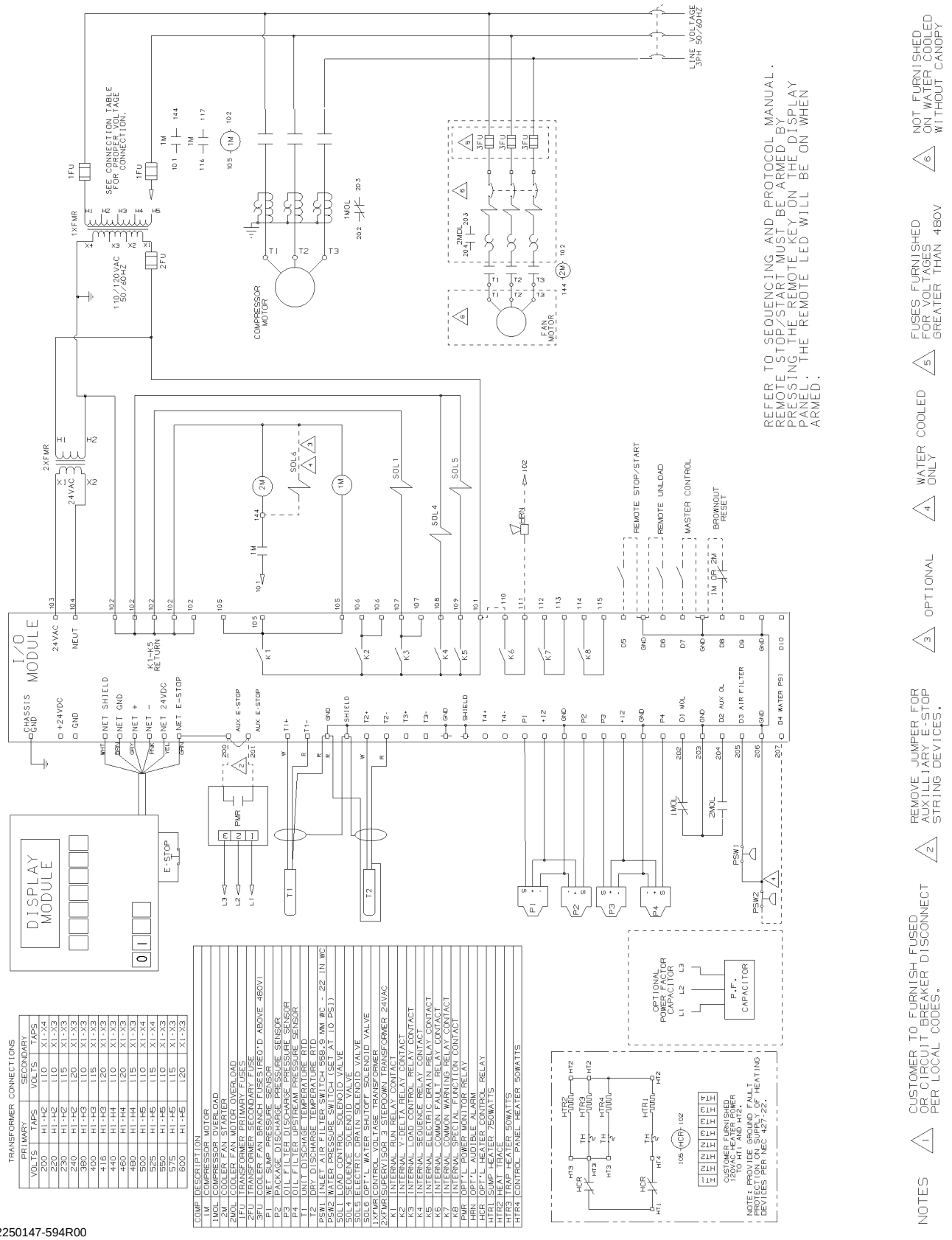
Section 10
ILLUSTRATIONS AND PARTS LIST

10.34 WIRING DIAGRAM- LS-200S & VCC200S FULL VOLTAGE WITH SUPERVISOR CONTROLLER



TRANSFORMER CONNECTIONS

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

COMP	DESCRIPTION
1M	COMPRESSOR MOTOR
1MOL	COMPRESSOR OVERLOAD
2M	COOLER FAN STARTER
2MOL	COOLER FAN MOTOR OVERLOAD
1FU	TRANSFORMER PRIMARY FUSES
2FU	COOLER TRANSFORMER FUSES
3FU	COOLER FAN BRANCH FUSES (REQ'D ABOVE 480V)
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
P4	OIL FILTER UPSTREAM PRESSURE SENSOR
T1	UNIT DISCHARGE TEMPERATURE RTD
T2	DRY DISCHARGE TEMPERATURE RTD
PSW1	INTERNAL FILTER SWITCH (SET AT 9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH (SET AT 10 PSI)
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	SEQUENCE SOLENOID VALVE
SOL5	ELECTRIC DRAIN SOLENOID VALVE
SOL6	OPT'L WATER SHUTOFF SOLENOID VALVE
1XFMR	CONTROL VOLTAGE TRANSFORMER
2XFMR	SUPERVISOR POWER TRANSFORMER 24VAC
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL Y-DELTA 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
PWR	OPT'L POWER MONITOR RELAY
HRN	OPT'L AUDIBLE ALARM
HCR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 750WATTS
HTR2	HEAT TRACE 50WATTS
HTR3	TANK HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

NOTES

1. CUSTOMER TO FURNISH FUSED OR CIRCUIT BREAKER DISCONNECT PER LOCAL CODES.
2. REMOVE JUMPER FOR AUXILLIARY E-STOP STRING DEVICES.
3. OPTIONAL
4. WATER COOLED ONLY
5. FUSES FURNISHED FOR VOLTAGES GREATER THAN 480V
6. NOT FURNISHED ON WATER COOLED WITHOUT CANOPY

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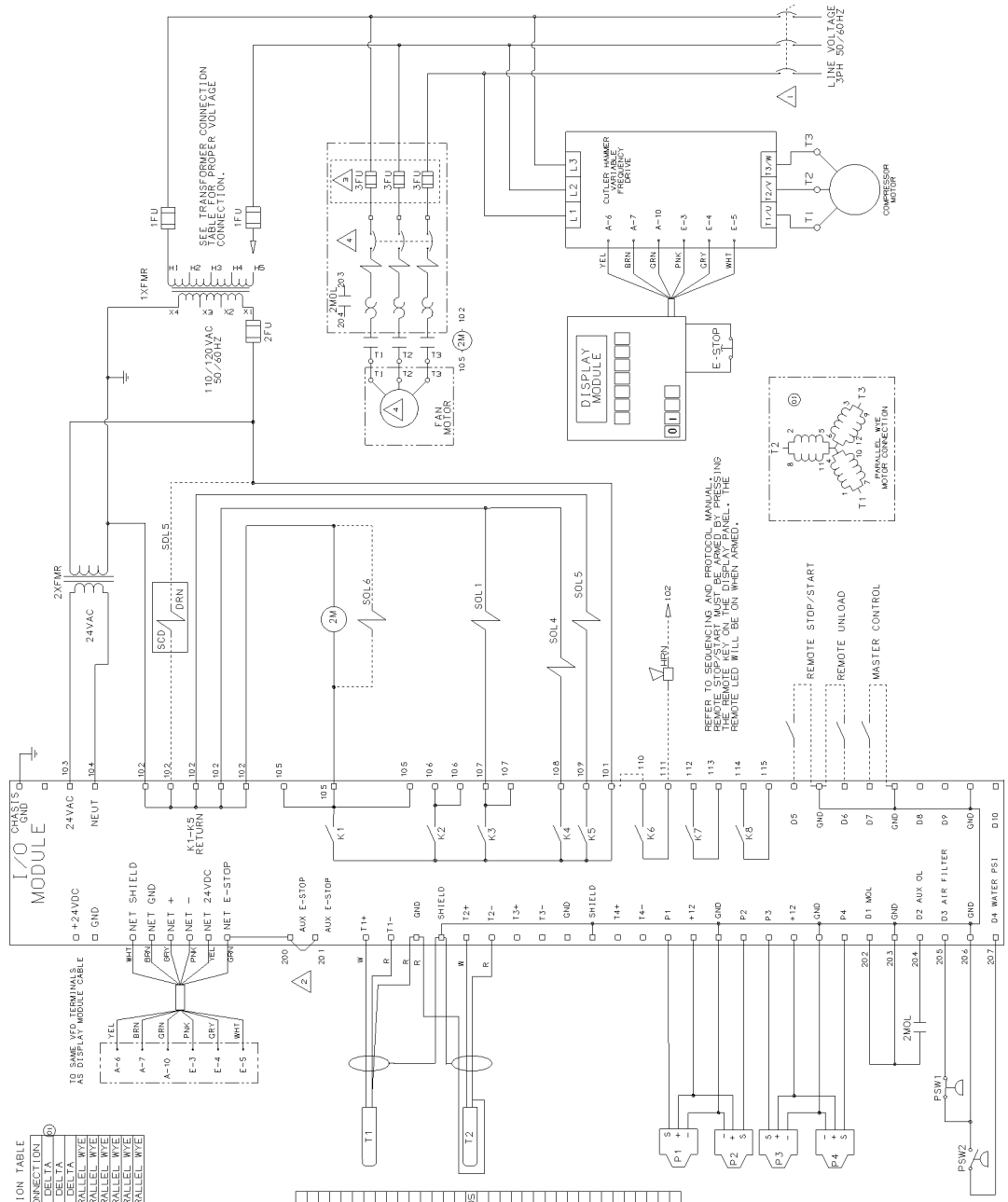
10.35 WIRING DIAGRAM- V-200S WITH SUPERVISOR CONTROLLER



COMP	DESCRIPTION
1M	FAN MOTOR STARTER
2MOL	FAN MOTOR OVERLOAD
1FU	TRANSFORMER PRIMARY FUSES
2FU	TRANSFORMER SECONDARY FUSE
3FU	FAN MOTOR BRANCH FUSES
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
P4	OIL FILTER INLET PRESSURE SENSOR
T1	UNIT DISCHARGE TEMPERATURE RTD
T2	DRY DISCHARGE TEMPERATURE RTD
PSW1	INLET AIR FILTER SWITCH 558.9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH 10PSI WATER COOLED ONLY
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	FULL LOAD SOLENOID VALVE-SPIRAL CTL VLV - V200S
SOL5	BLOW DOWN SOLENOID VALVE-SPIRAL CTL VLV - V200S
SOL6	WATER SHUTOFF SOLENOID VALVE (OPTIONAL) (OPT L1)
1XFMR	CONTROL VOLTAGE TRANSFORMER
2XFMR	SUPERVISOR 3 STEPDOWN TRANSFORMER 24VAC
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL Y-DELTA RELAY CONTACT
K3	INTERNAL LOAD CONTROL RELAY CONTACT
K4	INTERNAL SEQUENCE DRAIN RELAY CONTACT
K5	INTERNAL SEQUENCE LOAD RELAY CONTACT
K6	INTERNAL COMMON FAULT RELAY CONTACT
K7	INTERNAL COMMON WARNING RELAY CONTACT
K8	INTERNAL SPECIAL FUNCTION CONTACT
HRN	OPT'L AUDIBLE ALARM
HCR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 2000WATTS
HTR2	HEAT TRAP HEATER 50WATTS
HTR3	TRAP HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

MOTOR CONNECTION TABLE

HP	VOLTS	CONNECTION
100	380	DELTA
100	460	DELTA
100	575	DELTA
125	380	PARALLEL WYE
125	460	PARALLEL WYE
125	575	PARALLEL WYE
150	380	PARALLEL WYE
150	460	PARALLEL WYE
150	575	PARALLEL WYE

TRANSFORMER CONNECTION TABLE

PRIMARY		SECONDARY	
VOLTS	TAPS	VOLTS	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-H3	115	X1-X3
416	H1-H3	120	X1-X3
440	H1-H4	110	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

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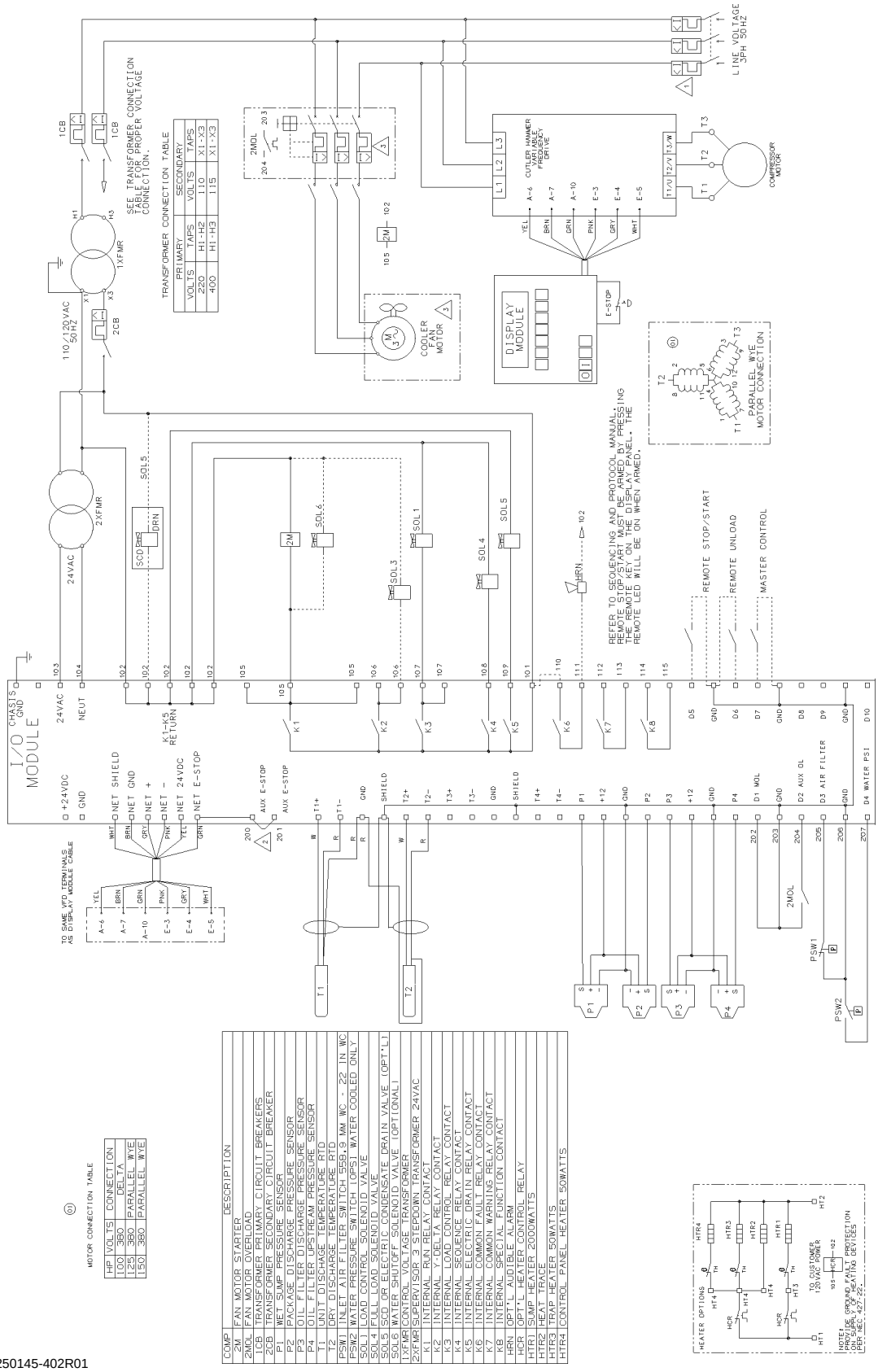
Section 10
ILLUSTRATIONS AND PARTS LIST

10.36 WIRING DIAGRAM- V-200S CE WITH SUPERVISOR CONTROLLER



COMP	DESCRIPTION
2M	FAN MOTOR STARTER
2MOL	FAN MOTOR OVERLOAD
1CB	TRANSFORMER PRIMARY CIRCUIT BREAKERS
2CB	TRANSFORMER SECONDARY CIRCUIT BREAKER
2SD	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
P4	OIL FILTER UPSTREAM PRESSURE SENSOR
T1	UNIT DISCHAGE TEMPERATURE RTD
T2	DRY DISCHARGE TEMPERATURE RTD
PSW1	INLET AIR FILTER SWITCH 559.9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH 10PSI WATER COOLED ONLY
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	FULL LOAD SOLENOID VALVE
SOL5	SCD OR ELECTRIC CONDENSATE DRAIN VALVE (OPT'L)
SOL6	MAIN VOLTAGE SOLENOID VALVE (OPTIONAL)
2XFMR	SUPERVISOR 3 STEPDOWN TRANSFORMER 24VAC
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL Y-DELTA 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
HRN	OPT'L AUDIBLE ALARM
HCR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 2000WATTS
HTR2	HEAT TRACE 2000WATTS
HTR3	TRAP HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

02250145-402R01

NOTES

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