SULLAIR

INDUSTRIAL AIR COMPRESSOR

LS-120 & LS-160

V-120 & V-160

40, 50, 60, 75 & 100HP/ 37, 45, 55 & 75KW AIR-COOLED & WATER-COOLED STD & 24KT

OPERATOR'S MANUAL AND PARTS LIST

KEEP FOR FUTURE REFERENCE

Part Number 02250146-044

AIR CARE
SEMINAR TRAINING

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

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

For detailed course outlines, schedule and cost information contact:

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

- Or Write -

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

TABLE OF CONTENTS

OPERATOR IS REQUIRED TO READ ENTIRE INSTRUCTION MANUAL

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

Section 10
ILLUSTRATIONS AND PARTS LIST

TABLE OF CONTENTS

Section 10
ILLUSTRATIONS AND PARTS LIST (CONT.)

NOTES

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 flood-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 to keep your air compressor in top operating condition.

2.2 DESCRIPTION OF COMPONENTS

Refer to Figures 2-1 and 2-2. The components and assemblies of the air compressor are clearly shown. The complete package includes compressor, electric motor, starter, compressor inlet system, compressor discharge system, compressor lubrication and cooling system, capacity control system, instrument panel, aftercooler, a 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.

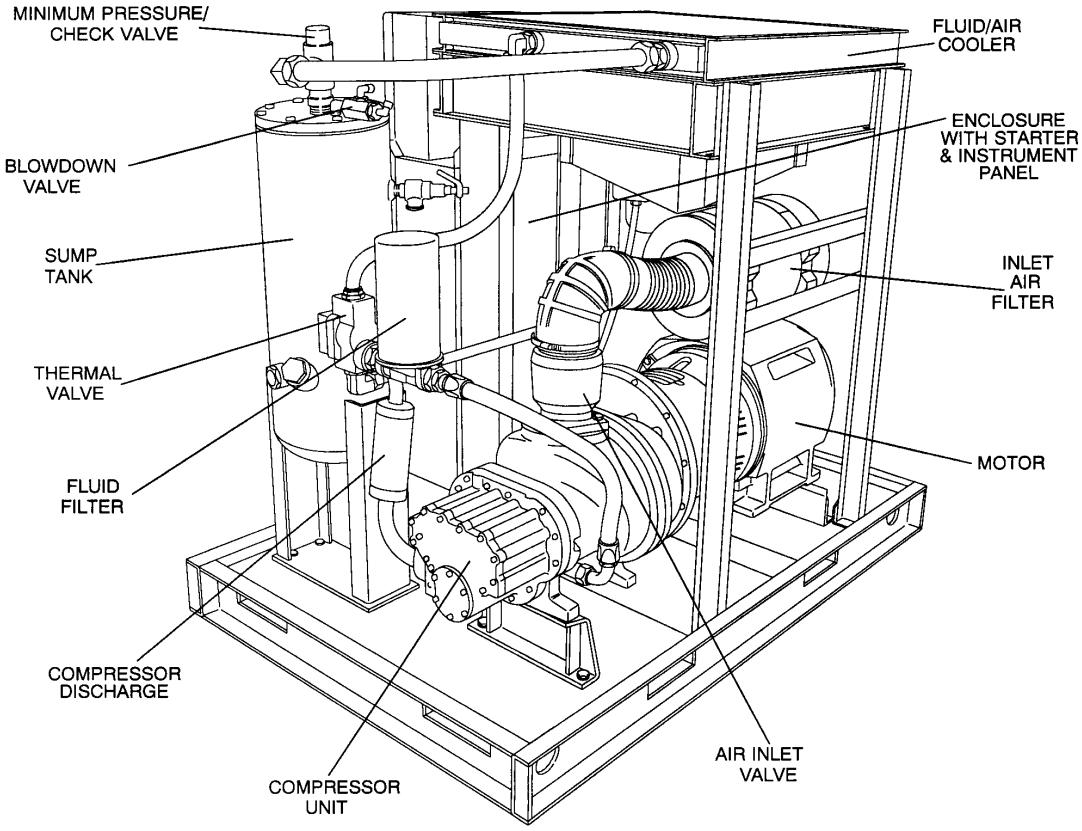
2.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

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

NOTE

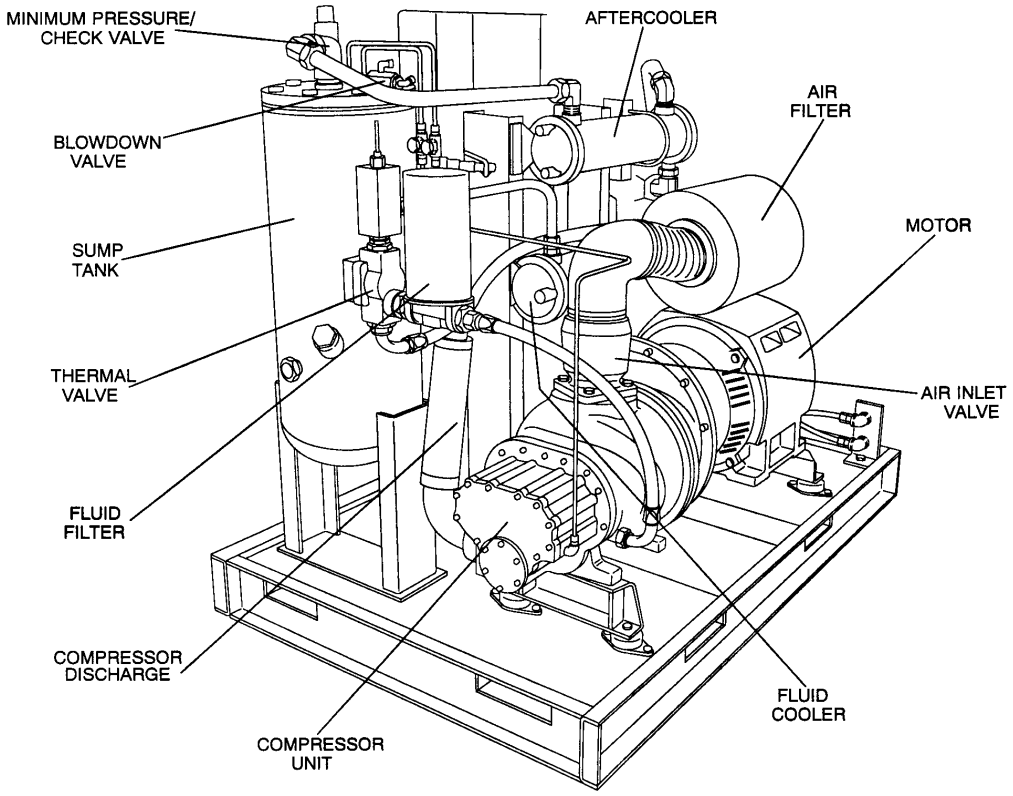
With a Sullair compressor, there is no maintenance or inspection of the internal parts of the compressor unit permitted in accordance with the terms of the warranty.

Figure 2-1 Sullair Rotary Screw Air Compressor - Air-cooled (Typical component layout)



Section 2
DESCRIPTION

Figure 2-2 Sullair Rotary Screw Air Compressor- Water-cooled (Typical component layout)



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

> **⚠ WARNING**
>
> **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 instructions and self-addressed container is to be supplied by your Sullair dealer 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 basic functions:

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

After the air/fluid mixture is discharged from the compressor unit, the fluid is separated from the air. At this time, the air flows through an aftercooler and separator then to your service line while the fluid is being cooled in preparation for reinjection.

2.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-3 and 2-4. The **Cooling and Lubrication System** (air-cooled version) consists of a **fan**, **fan motor**, **radiator-type aftercooler/ fluid cooler**, **full flow fluid filter**, **thermal valve**, and **interconnecting piping and tubing**. For water-cooled models, **two shell and tube heat exchangers** are substituted for the radiator-type cooler listed above. The pressure in the receiver/sump causes fluid flow by forcing the fluid from the high pressure area of the sump to an area of lower pressure in the compressor unit.

Fluid flows from the bottom of the receiver/sump to the thermal valve. The thermal valve is fully open when the fluid temperature is below 170°F (77°C)

[190ºF (88ºC) for 24KT, and rated pressures 150 psig and above]. The fluid passes through the thermal valve, the main filter and directly to the compressor unit where it lubricates, cools and seals the rotors and the compression chamber.

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

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

The fluid filter has a replacement element and an integral pressure bypass valve. A gauge on the instrument panel shows red when the filter needs servicing. This gauge has a pressure setting lower than that of the bypass valve. The gauge should be checked with compressor running at full system pressure.

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 2-3 and 2-4. The compressor unit discharges the compressed air/fluid mixture into the combination receiver/sump.

The receiver has three basic functions:

1. It acts as a primary fluid separator.
2. Serves as the compressor fluid sump.
3. Houses the final fluid separator.

The compressed air/fluid mixture enters the receiver and is directed against the internal baffle. The direction of movement is changed and its velocity significantly reduced, thus causing large droplets of fluid to form and fall to the bottom of the receiver/sump. The fractional percentage of fluid remaining in the compressed air collects on the surface of the separator element as the compressed air flows through the separator. Return lines (or scavenge tubes) lead from the bottom of the separator element to the inlet region of the compressor unit. Fluid collecting on the bottom of the separator is returned to the compressor by a pressure differential between the receiver and the compressor. A visual sight glass is located on the return line to observe this fluid flow. There is also an orifice in each return line (protected by a strainer) to assure proper flow. A secondary separator element with a separate return line, strainer, sight glass and orifice further reduce the fluid carry-over to less than 1 ppm (parts per million). A gauge, located on the instrument panel, shows red if abnormal pressure drop through the separator develops. At this time, separator element replacement is necessary. This gauge must be checked with the compressor running fully loaded.

A minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 50 psig (3.4 bar) during loaded conditions. This pressure is necessary for proper air/fluid separation and proper fluid circulation.

A terminal check valve is incorporated into the minimum pressure/check valve to prevent compressed air in the service line from bleeding back into the receiver on shutdown and during operation of 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 the sump tank rating. A temperature switch will shut down the compressor if the discharge temperature reaches 235°F (113°C).

⚠ WARNING

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

Stop compressor and relieve all internal pressure before doing so.

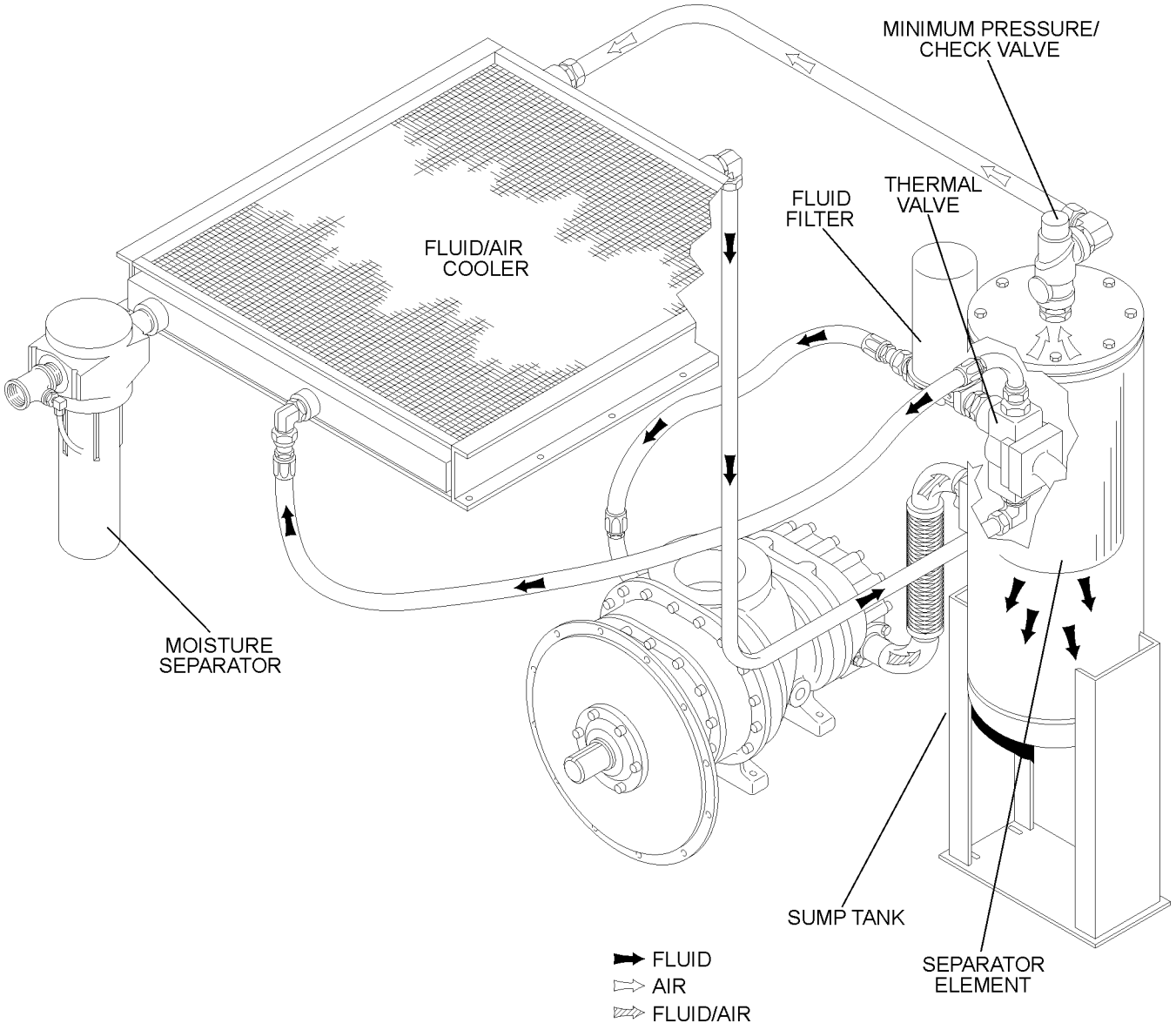
Fluid is added to the sump via a capped fluid filler opening, placed low on the tank to prevent overfilling of the sump. A sight glass enables the operator to visually monitor the sump fluid level.

2.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION- STANDARD ELECTRO-MECHANICAL

Refer to Figures 2-5A, 2-5B and 2-5C. The purpose of the compressor control system is to regulate the compressor air intake to match the amount of compressed air being used. At approximately 10 psig (0.7 bar) air line over-pressure, the control system will automatically blow down the compressor and greatly reduce the unload power consumption.

The **Control System** consists of an **inlet valve**, (located on the compressor air inlet), **blowdown valve**, **solenoid valve**, **pressure switch**, and a **pressure regulator**. The functional descriptions of the Control System are given below in four distinct

Figure 2-3 Compressor Fluid Cooling/ Lubrication and Discharge System- Air-cooled



phases of compressor operation. The following guidelines apply to all 120 and 160 Series compressors. For variable speed drive packages refer to Section 9 for additional control information. For explanatory purposes this description will apply to a compressor with an operating pressure range of 125 to 135 psig (8.6 to 9.3 bar). A compressor with any other pressure range would operate in the same manner except for stated pressures.

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

When the compressor START button is depressed, the sump pressure will quickly rise from 0 to 50 psig (0 to 3.5 bar). During this period both the pressure regulator and the solenoid valve are closed, the inlet valve is fully open due to inlet air flow, 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 (3.5 bar).

NORMAL OPERATING MODE - 50 TO 125 PSIG (3.5 TO 8.6 BAR)

When the pressure air rises above 50 psig (3.5 bar), the minimum pressure/check valve opens and delivers compressed air to the service line. From this point on, the line air pressure is continually monitored by a line pressure gauge and a pressure

Figure 2-4 Compressor Fluid Cooling/ Lubrication and Discharge System- Water-cooled

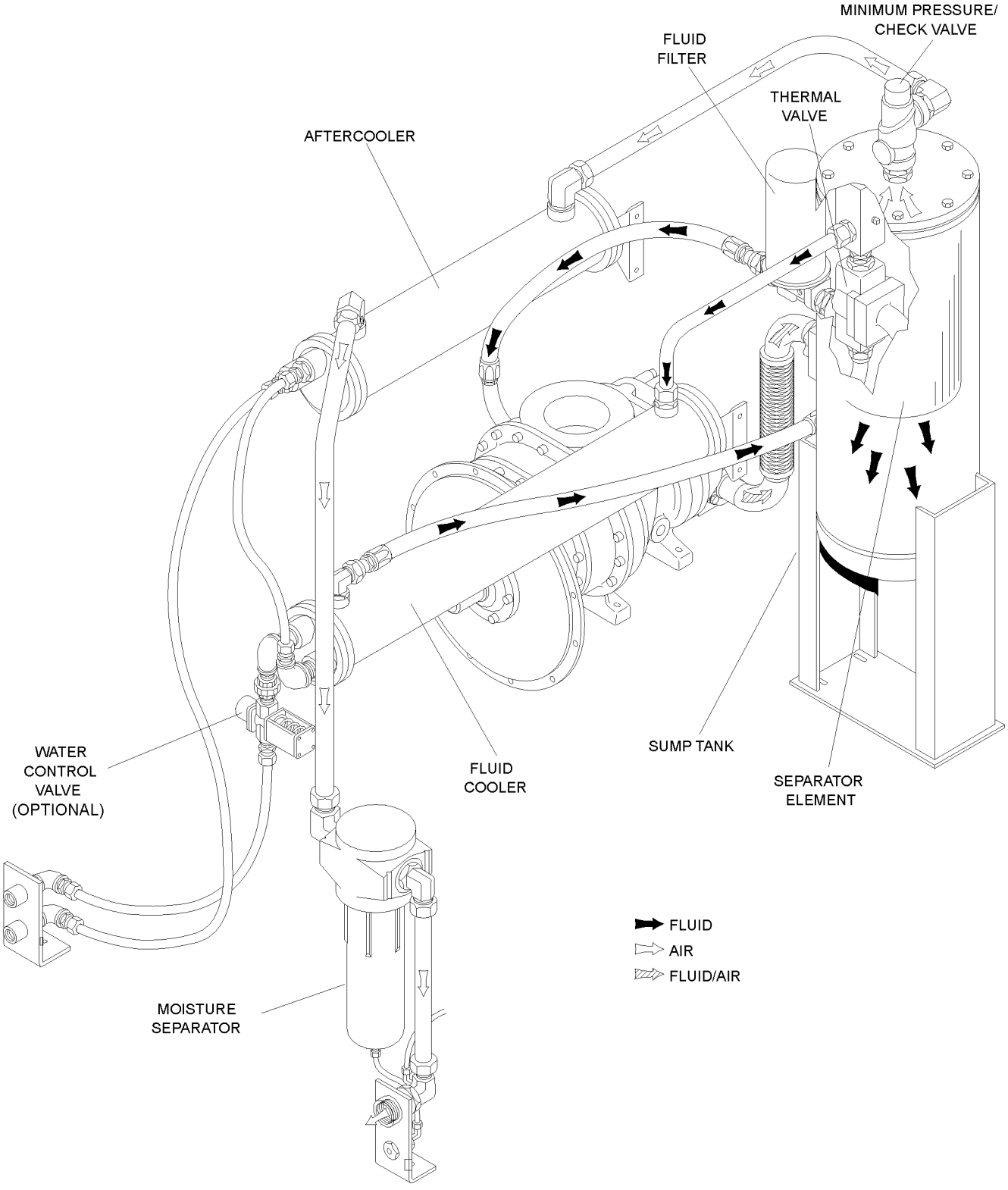


Figure 2-5A Control System- Electro-mechanical

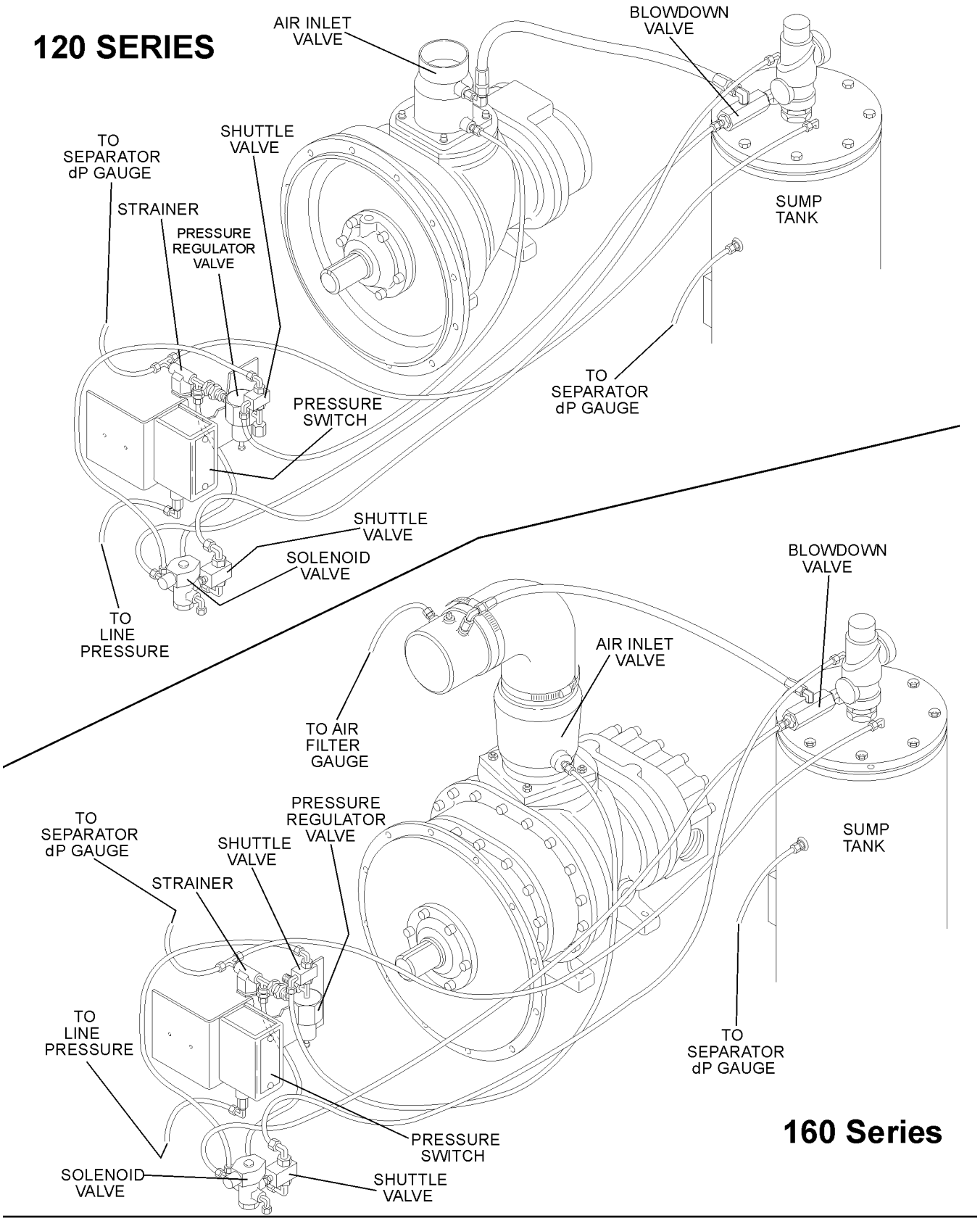
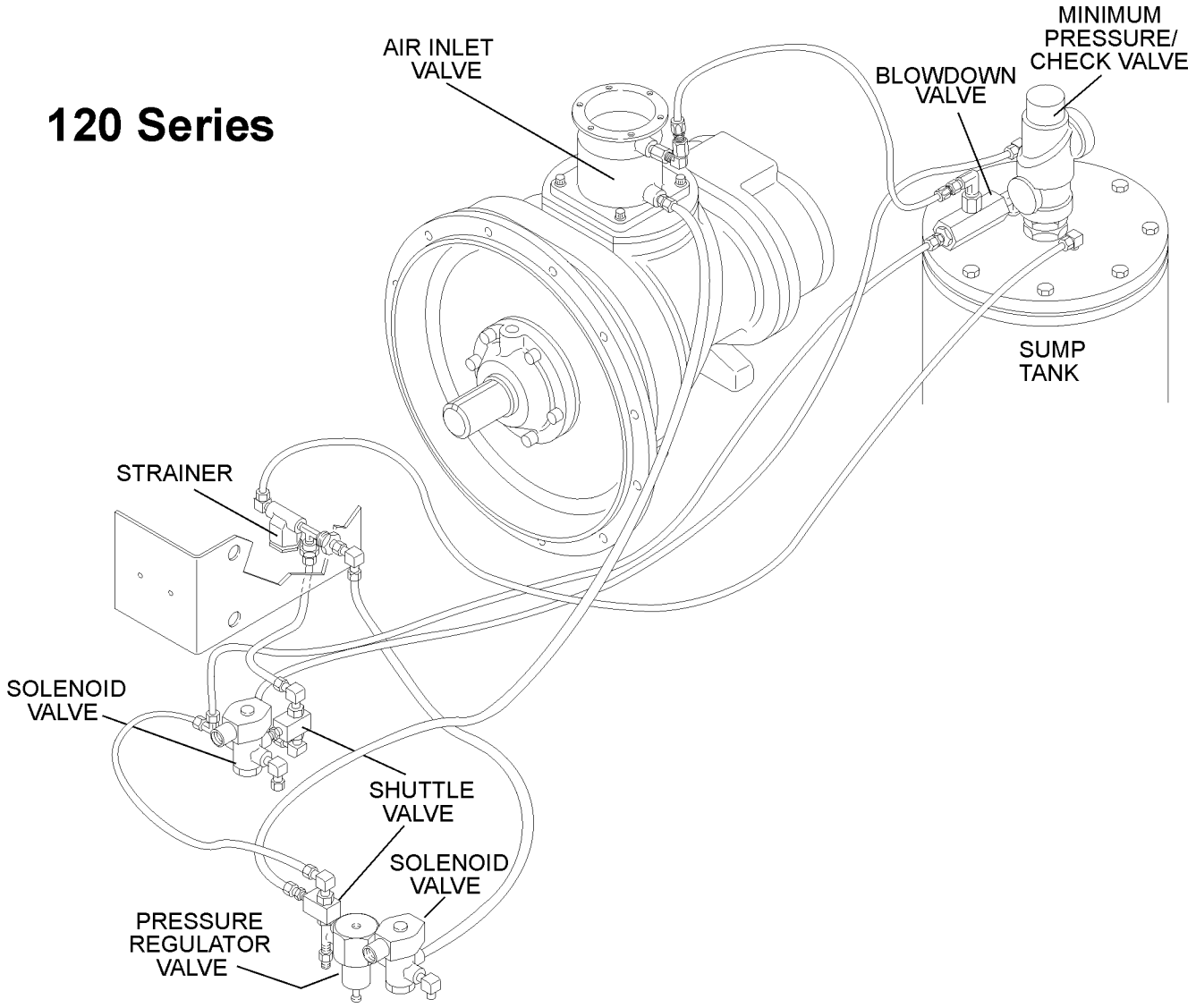


Figure 2-5B Control System- 120 Series with Supervisor Controller



switch usually set at 135 psig (9.3 bar). The pressure regulator and the solenoid valve remain closed during this phase. The inlet valve remains fully open for maximum capacity.

MODULATING MODE - 125 TO 135 PSIG (8.6 TO 9.3 BAR)

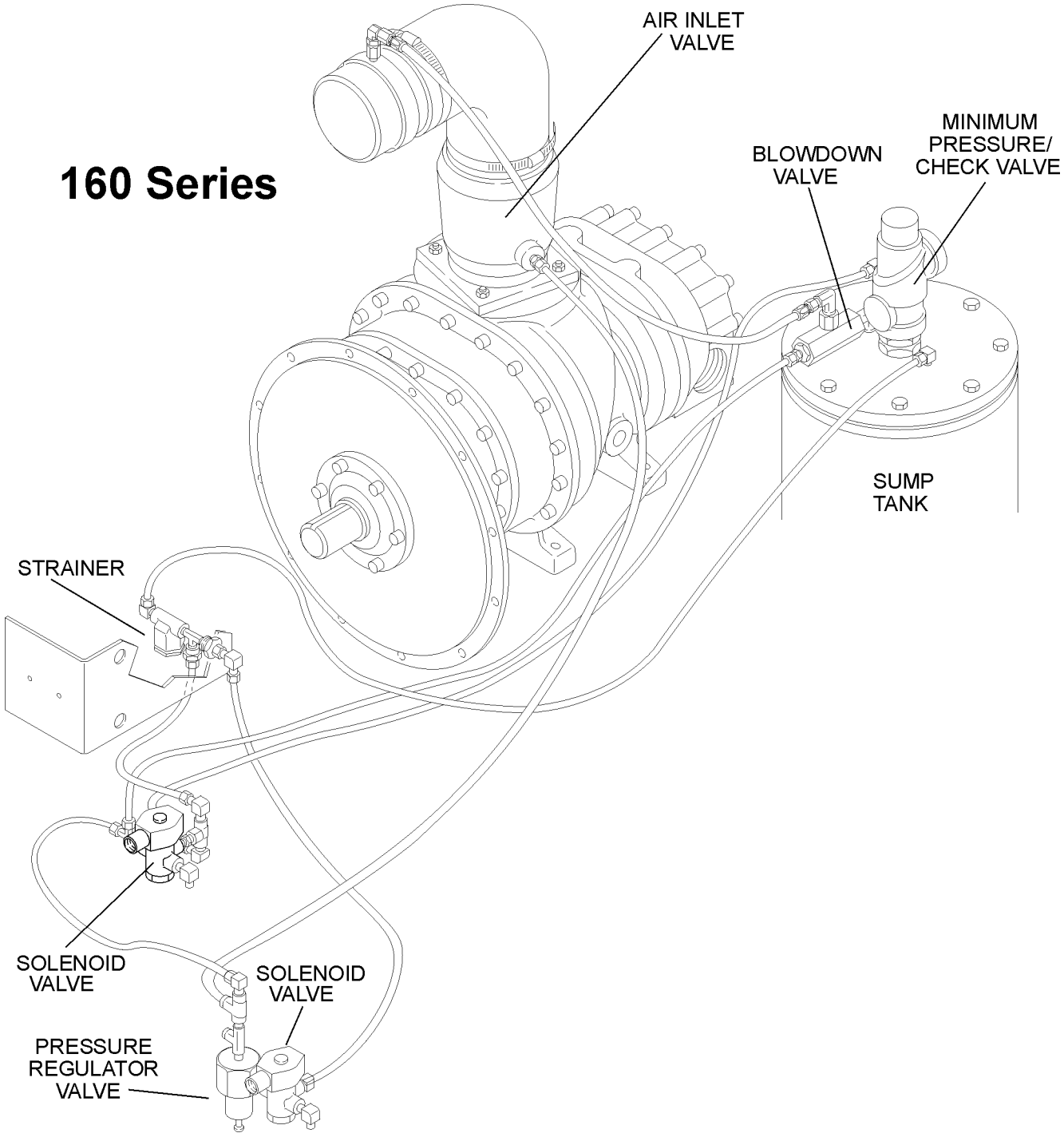
If less than the rated capacity of compressed air is being used, the service line pressure will rise above 125 psig (8.6 bar). The pressure regulator valve gradually opens, applying air pressure through the control line to the inlet valve piston. This causes the inlet valve to partially close reducing the amount of air entering the compressor until it matches the amount of air being used. The control system functions continually in this manner, between the limits of 125 to 135 psig (8.6 to 9.3 bar), in response to varying demands from the service line.

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

UNLOAD - IN EXCESS OF 135 PSIG (9.3 BAR) LINE PRESSURE

When a relatively small amount or no air is being used, the service line pressure rises to the setting (cut-out pressure) of the pressure switch. The pressure switch opens, interrupting the electrical power to the solenoid valve. At this time, the solenoid valve allows dry sump tank air pressure or service air pressure through a shuttle valve to be applied

Figure 2-5C Control System- 160 Series with Supervisor Controller



directly to the inlet valve piston and keep it closed. Simultaneously, the solenoid valve sends a pneumatic signal to the blowdown valve. The blowdown valve opens the sump to the compressor intake reducing the sump pressure to approximately 20 psig (1.4 bar). The check valve in the air service line pressure 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 and 125 psig [8.6 bar] on high pressure [“H”] compressors, 150 psig [10.3

bar] on ["HH"] compressors, 175 psig [12.0 bar] ["XH"]), the pressure switch closes, re-energizing the 3-way solenoid valve and allowing the blowdown valve to close. The re-energized solenoid valve again prevents pressure from reaching the inlet valve. The inlet valve is fully open and the compressor delivers full rated capacity. Should the pressure begin to rise, the pressure regulator will resume its normal function as previously described.

To accommodate varied periods of time when there are not any air requirements, "Dual-Control" is utilized. This feature allows you to set the compressor in an automatic position whereby the compressor will shut down when no compressed air requirement is present and restart as compressed air is needed.

2.7 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION- SUPERVISOR™ CONTROLLER

Refer to Figures 2-5B and 2-5C. The purpose of the compressor control system is to regulate the amount of air being compressed to match the amount of compressed air being used. The **capacity control system** consists of a **solenoid valve**, **regulator valve** and an **inlet valve**. The functional description of the control system is described (as follows) in four distinct phases of operation. The following description text applies to all 120 and 160 Series compressors with optional Supervisor Controller. For variable speed drive packages refer to Section 9 for additional control information. 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.

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

When the compressor "I" (**START**) pad is depressed, the sump pressure will quickly rise from 0 to 50 psig (0 - 3.4 bar). The compressor initially starts unloaded, then switches to full load when full rpm has been achieved. 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).

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

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 Controller. 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 - 100 TO 110 PSIG (6.9 TO 7.6 BAR)

If less than the rated capacity of compressed air is being used, the service line pressure will rise above 100 psig (6.9 bar). The pressure regulator valve gradually opens, directing air pressure to the inlet control valve, reducing air entering the compressor until it matches the amount of air being used. The control system functions continually in this manner between the limits of 100 to 110 psig (6.9 to 7.6 bar) in response to varying demands from the service line.

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

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

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 sump 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 20 psig (1.4 bar). The check valve in the air service line 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 and 125 psig [8.6 bar] on high pressure ["H"] compressors, 150 psig [10.3 bar] on ["HH"] compressors, 175 psig [12.0 bar] ["XH"]) . Supervisor Controller 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 AUTO-

MATIC mode allows the compressor to shutdown (time delayed) when no compressed air requirement is present and restart as compressed air is needed.

2.8 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

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

The restriction gauge (located on the instrument panel), indicates the condition of the air filter by showing red when filter maintenance is required.

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 [Standard Electro-Mechanical] or Section 2.7 [Supervisor Controller]). The inlet valve also acts as a check valve, thus preventing reverse rotation when the compressor is shut down.

⚠ WARNING

"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 systems. 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.

2.9 INSTRUMENT PANEL GROUP, FUNCTIONAL DESCRIPTION- STANDARD ELECTRO-MECHANICAL CONTROLLER

Refer to Figure 2-7 for specific location of parts described. For information on Supervisor Controller panel group, consult the Supervisor Controller Manual.

The **Electro-mechanical Controller Instrument Panel Group** consists of a **panel** containing the **line pressure**, **sump pressure** and **discharge temperature gauges**, the **air filter**, the **separator element** and the **fluid filter restriction gauges**, along with **START "I" and STOP "O" push buttons** and an **hourmeter**.

Refer to Figure 2-7 for locations of the following indicators and controls:

- The **line (terminal) pressure gauge** is connected at the discharge of the package valve and continually monitors the air pressure.
- The **sump pressure gauge** continually monitors the sump pressure at the various load and/or unload conditions.
- The **discharge temperature gauge** monitors the temperature of the air leaving the compressor unit. For both air-cooled and water-cooled compressors the normal reading is approximately 180°F to 205°F (82°C to 96°C).
- The **air filter restriction gauge** monitors the condition of the air intake filter and shows in the red zone (20 to 30" water [51 to 76 cm]) when filter service is required. The compressor must be running fully loaded for an accurate indication.
- The **START "I" pad** turns the compressor on.

Figure 2-6 Air Inlet System

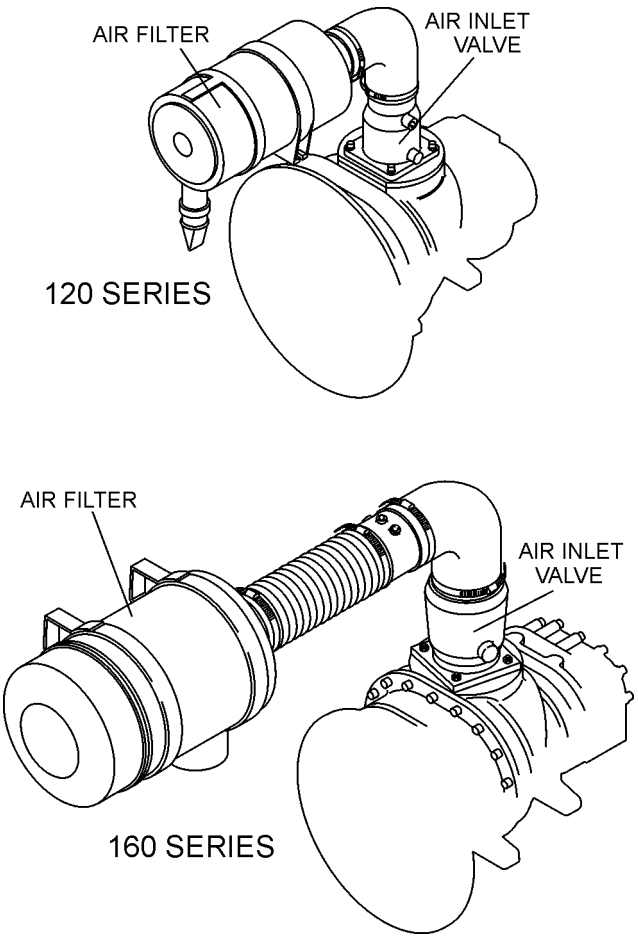
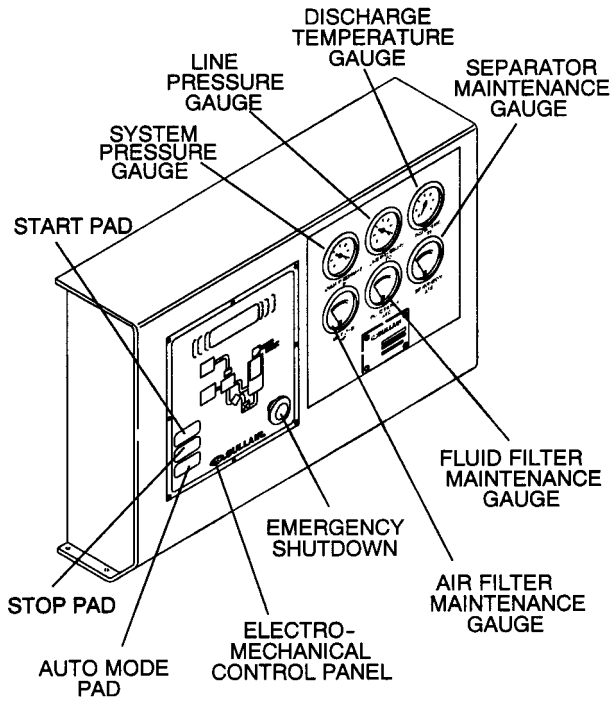


Figure 2-7 Instrument Panel Group (Electro-mechanical)



- The **STOP** "O" pad turns the compressor off.
- The hourmeter records accumulative hours of operation for the compressor and is useful for planning and logging service operations.
- The **POWER ON** ( ) LED on the instrument panel indicates when power to the compressor is supplied.
- The **ON** LED indicates when the compressor is running.
- The **AUTO** "" pad is used to enable automatic control.
- The **separator maintenance gauge** monitors condition of the separator element and shows in the red zone when the element restriction is excessive.
- The **fluid filter maintenance gauge** monitors the condition of the bearing lube filter element and shows in the red zone when the element should be changed.
- The **red light** on the instrument panel indicates when power to the compressor is supplied.
- The **green light** indicates when the compressor is running.
- The **amber light** indicates when the compressor is in AUTO mode.

NOTES

Section 3
SPECIFICATIONS

3.1 TABLE OF SPECIFICATIONS

LS-12 SERIES 50 Hz

MODEL (I)	KW	LENGTH MM	WIDTH MM	HEIGHT(II) MM	WEIGHT KG OPEN/ENCLOSED
H, HH, XH	37	1829	1219	1524	1043/1220
HH, XH	45	1829	1219	1524	1134/1311

LS-12 SERIES 60 Hz

MODEL (I)	HP	LENGTH IN	WIDTH IN	HEIGHT(II) IN	WEIGHT LB OPEN/ENCLOSED
L, H, HH	40	72	48	60	2270/2660
L, H, HH, XH	50	72	48	60	23002690
H, HH, XH	60	72	48	60	2500/2890

LS-16 SERIES 50 Hz

MODEL (I)	KW	LENGTH MM	WIDTH MM	HEIGHT(II) MM	WEIGHT KG OPEN/ENCLOSED
H, HH, XH	45	1829	1219	1588	1220/1442
H, HH, XH	56	1829	1219	1588	1233/1456
L, H	75	1829	1219	1588	1243/1546

LS-16 SERIES 60 Hz

MODEL (I)	HP	LENGTH IN	WIDTH IN	HEIGHT(II) IN	WEIGHT LB OPEN/ENCLOSED
L, H, HH	60	72	48	60	2690/3180
L, H, HH, XH	75	72	48	60	2720/3210
L, H	100	72	48	59.4	2740/3410

NOTE

For latest sound test data, consult Sullair Factory.

(I) Includes standard and 24KT. Rated pressure designations appearing after model number are as follows:

"L"- 100 psig /6.9 bar "H"- 125 psig/8.6 bar

"HH"- 150 psig/10.3 bar "XH"- 175 psig/12 bar

Maximum pressure is rated pressure and 10 psig (0.7 bar).

(II) (Except for 16-100 60Hz models) Height listed is for models without enclosure. Height for enclosed models is 1588 mm/ 62.5 in. Add an additional length of 102 mm/ 4 in. (non-enclosed models) or 229 mm/ 9 in. (enclosed models) for servicing the separator.

COMPRESSOR:	**STANDARD MODELS**
Type:	Rotary Screw
Standard Operating Pressure **(III)**:	100 psig (6.9 bar) (L) 150 psig (10.3 bar) (HH) 125 psig (8.6 bar) (H) 175 psig (12 bar) (XH)
Bearing Type:	Anti-Friction
Ambient Temperature (Max.) **(IV)**:	105°F (41°C)
Cooling:	Pressurized Fluid
Compressor Fluid:	Sullair Sullube
Sump Capacity:	8.0 U.S. gallons (30 liters)
Control:	Electro-Pneumatic Supervisor Controller (optional)

(III) Special compressors are available for operation at higher pressures.

(IV) Special compressors are available for operation in higher ambient temperature.

Section 3
SPECIFICATIONS

MOTOR (V):	STANDARD MODELS
Size:	40, 50, 60, 75 and 100HP/ 37, 45, 56 and 75 KW
Type:	C-Flanged, Open Dripproof, Premium Efficiency Three Phase, 230/460 60 Hz, 380-415(400) 50 Hz 40°C Maximum Ambient Temperature Options Available: 200V and 575V T.E.F.C. Also Available: CE Approved
Starter:	Full Voltage Magnetic, Wye Delta or Solid State Options Available: 200V and 575V 60 Hz, 220 50 Hz
Speed:	
40, 50, 60HP:	1780 RPM (60 Hz) or 1475 RPM (50 Hz)
75HP:	1775 RPM (60 Hz) or 1475 RPM (50 Hz)
100 (“L”)HP:	3560 RPM (60 Hz) or 2945 (50 Hz)
100 (“H”)HP:	1780 RPM (60 Hz) or 2945 (50 Hz)

(V) Multi-frequency and voltage motors are used. The compressors must be used only with the specified electrical frequency and voltage.

3.2 LUBRICATION GUIDE

Refer to Figure 3-1 for fluid fill port location. For best value and longest uninterrupted service, the 120 and 160 Series compressors are factory filled and tested with Sullube lubricant as standard fill.

⚠ WARNING

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

If fluid change is required, follow Lubrication Guide 3.4.

⚠ WARNING

“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 systems. 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.

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

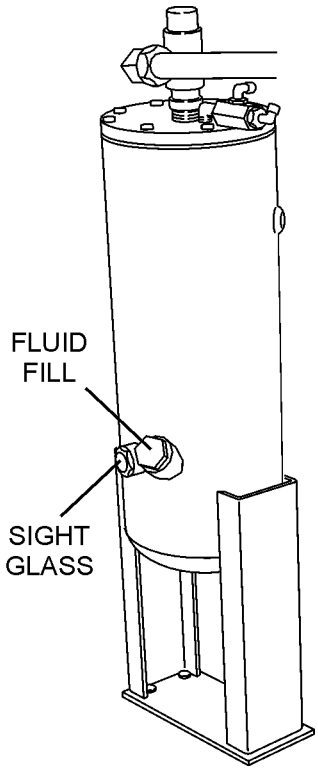
For light-duty high-humidity service where condensed moisture and emulsification (mayonnaise) may occur, the fluid change interval must be reduced to 300 hours maximum. A non-detergent fluid with rust, oxidation and foam inhibitors and good water separation characteristics should be used.

DO NOT MIX DIFFERENT TYPES OF FLUIDS. Contamination of non-detergent mineral fluids with traces of detergent motor fluids may lead to operational problems such as foaming, filter plugging, orifice or line plugging.

NOTE

Flush system when switching lubricant brands.

Figure 3-1 Fluid Fill Location



When ambient conditions exceed those noted or if conditions warrant use of “extended” life lubricants contact Sullair for recommendation.

3.3 APPLICATION GUIDE

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

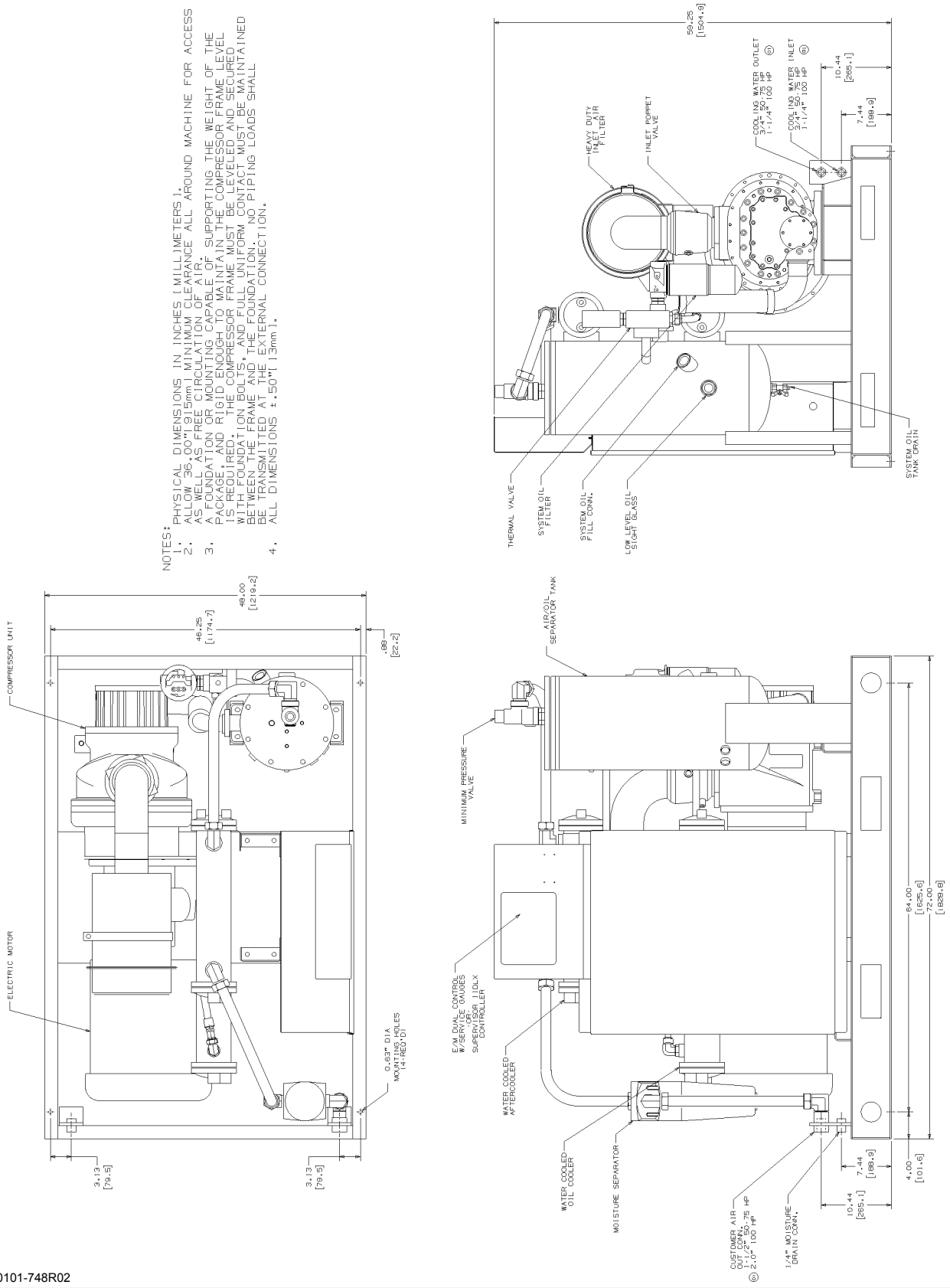
3.4 LUBRICATION CHANGE RECOMMENDATIONS AND MAINTENANCE

LUBRICANT	FLUID CHANGE	FLUID FILTER CHANGE	SEPARATOR CHANGE
Sullube	**A , E**	**G , C**	**A , D**
SRF 1/4000	**B , E**	**G , C**	**B , D**
24KT	**F , E**	**G , C**	**A , D**
CP-4600-32-F	**B , E**	**G , C**	**B , D**

A - 8,000 Hours or once a year.
B - 4,000 Hours or more frequently if conditions so require.
C - When measured pressure loss exceeds 20 psig (1.3 bar).
D - When measured pressure loss exceeds 10 psig (0.7 bar).
E - When required by fluid analysis or known contamination.
F - Does not require replacement during normal service conditions.
G - Every 1000 hours.

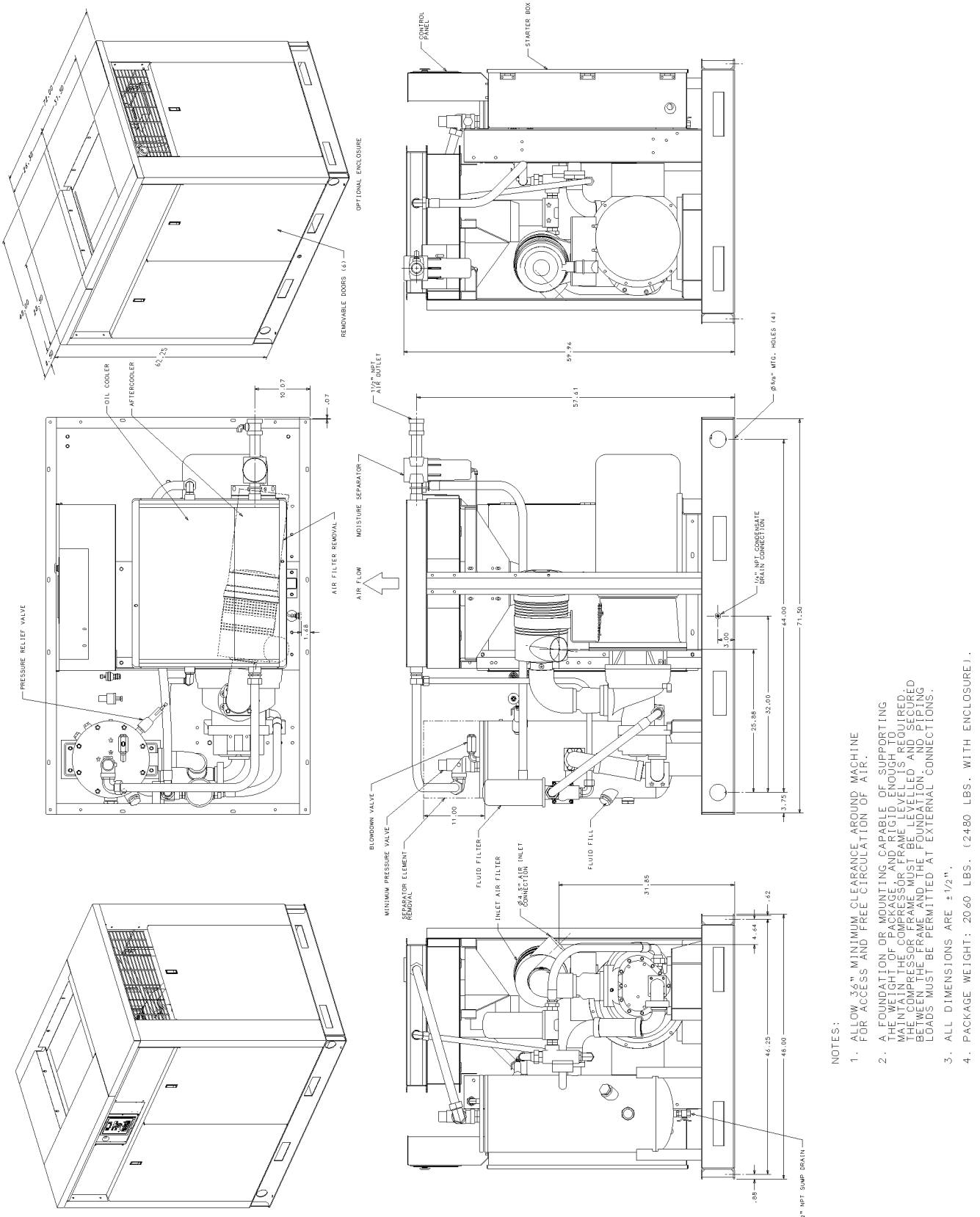
Section 3
SPECIFICATIONS

Figure 3-2 Identification- LS-120 & LS-160 Electro-mechanical Dual Control & Supervisor Controller (Water-cooled)



02250101-748R02

Figure 3-3 Identification- LS-120 Electro-mechanical Dual Control & Supervisor Controller (Air-cooled)



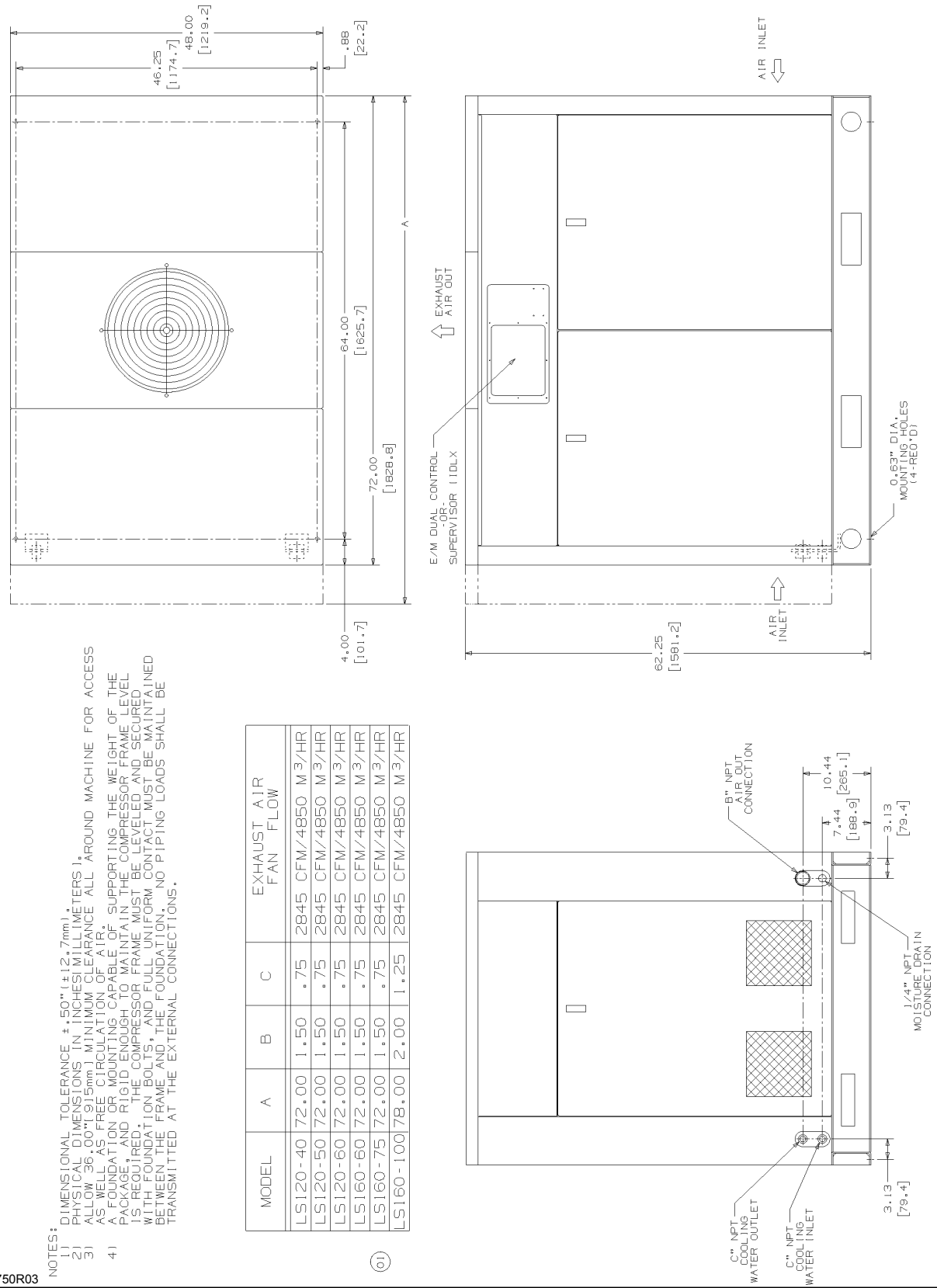
NOTES:

1. ALLOW 36" MINIMUM CLEARANCE AROUND MACHINE FOR ACCESS AND FREE CIRCULATION OF AIR.
2. A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT AND OF ABSORBING VIBRATION IS REQUIRED. MAINTAIN THE COMPRESSOR FRAME LEVELLED AND SECURED. THE COMPRESSOR FRAME MUST BE LEVELLED AND SECURED BETWEEN THE FRAME AND THE FOUNDATION. NO PIPING LOADS MUST BE PERMITTED AT EXTERNAL CONNECTIONS.
3. ALL DIMENSIONS ARE ±1/2".
4. PACKAGE WEIGHT: 2060 LBS. (2480 LBS. WITH ENCLOSURE).

02250142-969R01

Section 3
SPECIFICATIONS

Figure 3-4 Identification- LS-120 & LS-160 Electro-mechanical Dual Control & Supervisor Controller with Enclosure (Water-cooled)



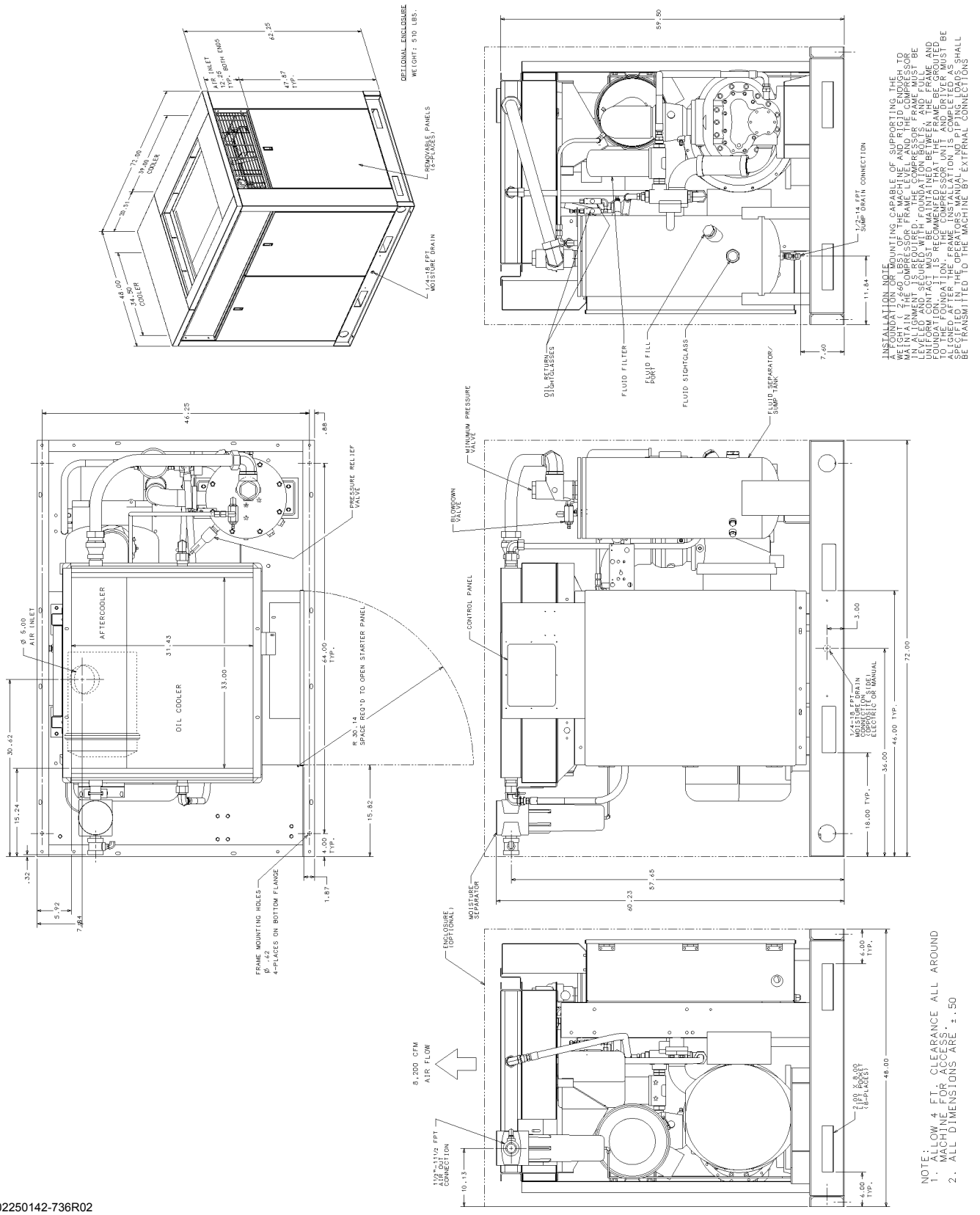
NOTES:
1) DIMENSIONAL TOLERANCE ±.50" (±12.7mm).
2) PHYSICAL DIMENSIONS IN INCHES[MILLIMETERS].
3) ALLOW 36.00"[915mm] MINIMUM CLEARANCE ALL AROUND MACHINE FOR ACCESS AS WELL AS FREE CIRCULATION OF AIR.
4) A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT OF THE PACKAGE, AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL UNIFORM CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND THE FOUNDATION. NO PIPING LOADS SHALL BE TRANSMITTED AT THE EXTERNAL CONNECTIONS.

MODEL	A	B	C	EXHAUST AIR FAN FLOW
LS120-40	72.00	1.50	.75	2845 CFM/4850 M3/HR
LS120-50	72.00	1.50	.75	2845 CFM/4850 M3/HR
LS120-60	72.00	1.50	.75	2845 CFM/4850 M3/HR
LS160-60	72.00	1.50	.75	2845 CFM/4850 M3/HR
LS160-75	72.00	1.50	.75	2845 CFM/4850 M3/HR
LS160-100	78.00	2.00	1.25	2845 CFM/4850 M3/HR

(01)

02250101-750R03

Figure 3-5 Identification- LS-160 Electro-mechanical Dual Control & Supervisor Controller with Enclosure (Air-cooled)



02250142-736R02

NOTES

Section 4
INSTALLATION

4.1 MOUNTING OF COMPRESSOR

A foundation or mounting capable of supporting the weight of the compressor, and rigid enough to maintain the compressor frame level and the compressor in alignment is required. The compressor frame must be leveled, and 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 sufficient unobstructed air flowing in and out to 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.

For water-cooled compressors, it is necessary to check the cooling water supply. The water system must be capable of supplying the flows shown in *Table I- Water Supply Requirements (Water-cooled)*, and must be maintained at all times. These figures apply to a compressor running at full load with an aftercooler. For cooler water or a partially loaded compressor, slightly less water is required.

However, for hotter water the flow requirements are significantly greater.

Table 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 office for assistance in utilizing this heat.

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

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.

⚠ WARNING

"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 systems. 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.

4.4 COUPLING ALIGNMENT CHECK

No coupling alignment is required.

4.5 FLUID LEVEL CHECK

The air compressor is supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation and subsequently during the operation of the compressor. The oil level is checked when the compressor is in **SHUT DOWN MODE (oil level may not be visible when operating)**, and by looking at the sight glass on the sump. If the sump is properly filled, the fluid should be visible in the sight glass. **To be able to see the oil level it may be necessary to start the machine and build the sump pressure up to 10/20 psi and then shut down.** If no oil level is seen in the sight glass, add oil to the center of the glass. Do not overfill in any case. When a complete oil change is performed fill the sump to the maximum allowable fluid level (up to the fill plug).

4.6 ELECTRICAL PREPARATION- STANDARD ELECTRO-MECHANICAL

Interior electrical wiring is performed at the factory. Required customer wiring is minimal, but should be

TABLE 1- WATER SUPPLY REQUIREMENTS (WATER-COOLED) (l)

WATER TEMP. °F (°C)	WATER FLOW GPM (LITERS)				
	40HP	**50HP (37KW)**	**60HP (45KW)**	**75HP (55KW)**	**100HP (75KW)**
70 (21)	5.6	7.0 (26.5)	9.0 (31.6)	10.5 (39.7)	14.0 (52.5)
80 (26.6)	8.4	10.5 (35.7)	11.5 (41.6)	14.0 (51.6)	18.8 (70.9)

(l) Water pressure should be between 25 and 75 psig (1.7 and 5.2 bar).

Section 4
INSTALLATION

TABLE 2- VENTILATION REQUIREMENTS

Cooling Type	Air-Cooled with Aftercooler					Water-Cooled				
Motor HP/KW	40/NA	50/37	60/45	75/55	100/75	40/NA	50/37	60/45	75/55	100/75
Fan Air CFM/	6,000/	6,000/	8,500/	8,500/	8,500/	2,845/	2,845/	2,845/	2,845/	2,845/
M^3/Hr **(I)**	10,200	10,200	14,440	14,440	14,440	4,850	4,850	4,850	4,850	4,850
Ventilating Air/ Heat Rejection										
BTU/Hour	114,500	152,830	183,400	229,250	305,660	10,600	13,300	15,800	19,800	26,000
KCAL/HR	28,800	38,510	46,216	57,770	77,026	2,670	3,350	4,000	5,000	6,550
Cooling Water/ Heat Rejection										
BTU/Hour						114,500	153,000	168,000	210,000	275,000
KCAL/HR						28,800	38,600	42,300	53,000	69,300

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

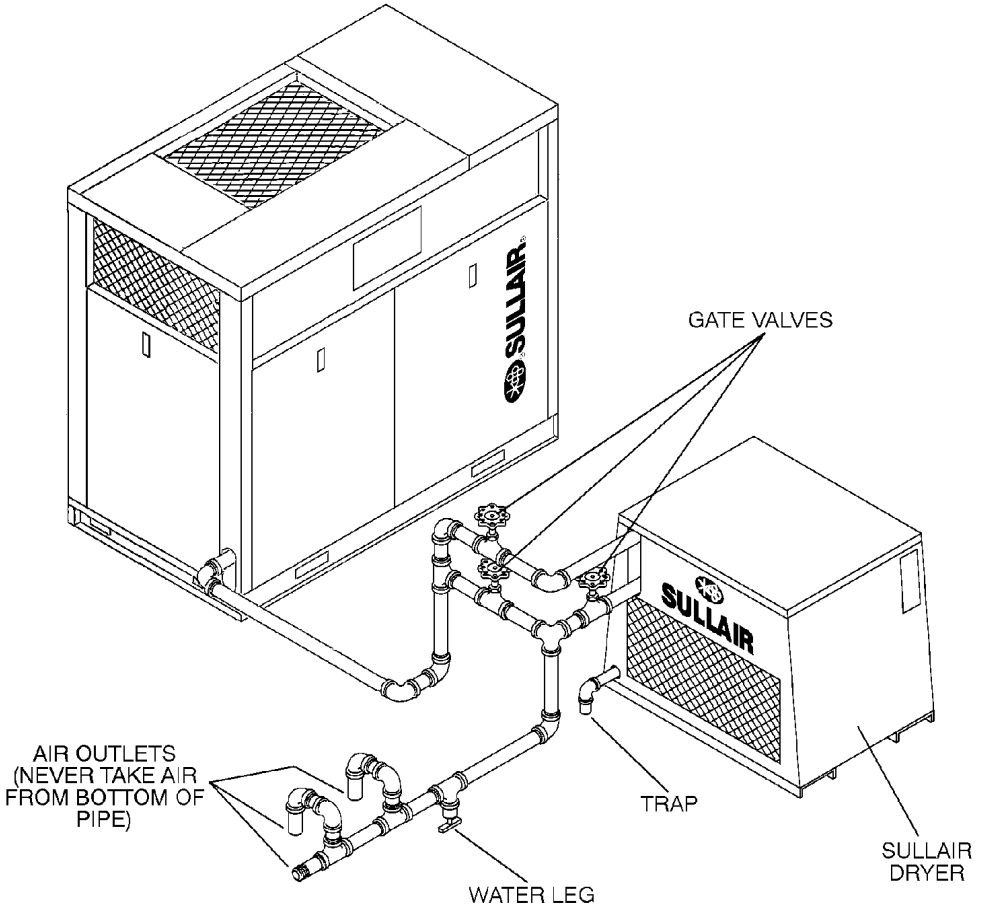
done by a qualified electrician in compliance with OSHA, National Electrical Code, and/or any other applicable State, Federal and local electrical codes concerning isolation switches, fused disconnects, etc. Sullair provides a wiring diagram for use by the installer.

NOTE

Customer must provide electrical supply power disconnect within sight of machine.

A few electrical checks should be made to help

Figure 4-1 Service Air Piping with Aftercooler and Optional Air Dryer (Typical)



assure that the first start-up will be trouble-free.

⚠ WARNING

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

1. Check incoming voltage. Be sure that compressor is wired for the correct incoming voltage.
2. Check starter for correct size, proper overload relay, and heaters.
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 pressing the "I" **(START)** push button and check all protective devices to be sure that they will de-energize the starter coil when tripped.
5. Reconnect the motor leads and jog the motor for a direction of rotation check as explained in Section 4.8.

NOTE

Wiring diagram for standard compressors is supplied on the inside cover of the Control Center. Optional compressor wiring diagrams will vary.

4.7 ELECTRICAL PREPARATION- SUPERVISOR CONTROLLER

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

An electrical check should be made to help assure that the first start-up will be trouble-free.

⚠ DANGER

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

1. Check incoming voltage. Be sure that the incoming voltage is the same voltage that the compressor was wired for.
2. Check starter and overload heater sizes.
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 tripped.
5. Reconnect the three (3) motor leads and jog the motor for a direction of rotation check, as explained in Section 4.9.

4.8 MOTOR ROTATION DIRECTION CHECK- STANDARD ELECTRO-MECHANICAL

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. This can be accomplished by toggling between the "I" **(START)** and "O" **(STOP)** push buttons on the control panel. Verify proper rotation by observing the motor shaft from the end opposite the compressor unit, the shaft should be turning clockwise. If the motor shaft is not turning clockwise, disconnect the power to the starter and exchange any two of the three power input leads, then re-check rotation. A "Direction of Rotation" decal is located on the motor to show proper motor/compressor rotation.

An alternative to this procedure is to monitor the sump pressure gauge when pressing the "I" **(START)** push button. If immediate pressure is shown on the sump pressure gauge when the compressor is started, then the proper motor rotation has been achieved. If no pressure is indicated, press the "O" **(STOP)** push button immediately. This indicates improper motor rotation. Disconnect the power to the starter and exchange any two of the three power input leads. Recheck rotation as outlined above.

4.9 MOTOR ROTATION DIRECTION CHECK - SUPERVISOR CONTROLLER

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

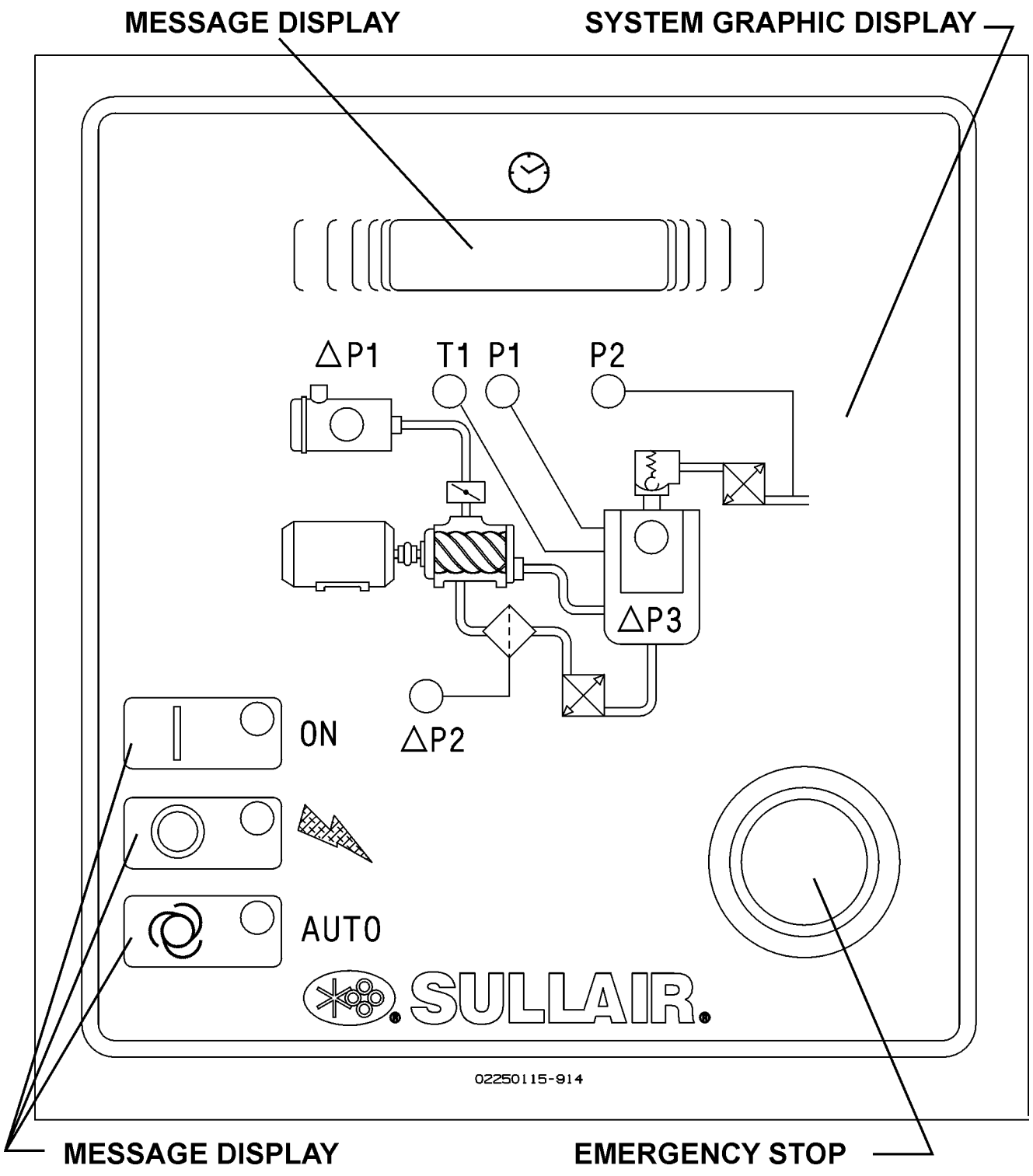
once, quickly and in succession, the "I" **(START)** and "O" **(STOP)** pads. This action will bump start the motor for a very short time. When looking at the motor from the end opposite the compressor unit, the shaft should be turning clockwise. If the reversed rotation is noted, disconnect the power to the starter and exchange any two of the three power input leads, then re-check rotation.

An alternative to this procedure is to set the Supervisor Controller to display P1. Pull out the **EMERGENCY STOP** button and press once, quickly and in succession, the "I" **(START)** and "O" **(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.

NOTES

Section 5
OPERATION- ELECTRO-MECHANICAL

Figure 5-1 Instrument Panel- Electro-mechanical Controller



Section 5
OPERATION- ELECTRO-MECHANICAL

5.1 GENERAL INTRODUCTION- STANDARD ELECTRO-MECHANICAL

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

5.2 PURPOSE OF CONTROLS- STANDARD ELECTRO-MECHANICAL

CONTROL OR INDICATOR	PURPOSE
EMERGENCY STOP SWITCH	Pushing in this switch, found adjacent to the controller, cuts all AC outputs from the latter and de-energizes the starter. A fault message (E STOP) is displayed by the Supervisor Controller until the button is pulled out and the "**O**" pad is depressed.
START "I" PAD	Depress to turn the compressor ON.
STOP "O" PAD	Depress to turn the compressor OFF and reset the common fault circuit.
AUTO " " PAD	To select between continuous (HAND) operation and automatic stop/start (AUTO) operation. Shuts off compressor automatically after the compressor runs unloaded for a specified time (ranging from 3-60 minutes [T1]). Restarts compressor when the pressure switch closes to the load setting. Dual control is enabled by pressing the "AUTO" pad.
HOURMETER	Records cumulative hours of compressor operation; useful for planning and logging service schedules.
LINE PRESSURE GAUGE	Continually monitors service line air pressure. It is located at the discharge of the package.
SUMP PRESSURE GAUGE	Continually monitors receiver/sump pressure at various load and/or unloaded conditions.
DISCHARGE TEMPERATURE GAUGE	Monitors temperature of the air leaving the compressor unit. For both air and water-cooled compressors, the normal reading should be approximately 180°F to 205°F (82°C to 96°C).
AIR FILTER RESTRICTION GAUGE	Indicates when the air filter element change is required. The gauge shows the red zone when drop through the filter is excessive. The compressor must be running full load for an accurate indication.
FLUID FILTER MAINTENANCE GAUGE	Indicates when a fluid filter element change is required. It shows red when the pressure drop through the filter is excessive.
SEPARATOR MAINTENANCE GAUGE	Indicates when separator element change is required. Shows red when the pressure drop through the filter is excessive. The compressor must be running full load for an accurate indication.

Section 5
OPERATION- ELECTRO-MECHANICAL

5.2 PURPOSE OF CONTROLS- STANDARD ELECTRO-MECHANICAL (CONTINUED)

CONTROL OR INDICATOR	PURPOSE
POWER ON (↯) LED	Indicates when the starter is receiving power.
ON LED	Indicates when compressor is in operation:
-SOLID (CONTINUOUS) LIGHT	Indicates that machine is running.
-BLINKING LIGHT	Indicates that machine is in 'standby' mode, and may start at any moment without any more user intervention.
AUTO LED	Indicates when compressor is in auto mode.
SEPARATOR RETURN LINE SIGHT GLASS	Used to indicate fluid flow in the return line. When the compressor is running at full load, fluid flow should be visible in this sight glass. There may be little or no flow when the compressor is running unloaded, but a sluggish flow at full load indicates a need to clean the return line strainer.
THERMAL VALVE	Regulates flow of fluid to and around the cooler. It is designed to maintain a minimum operating temperature of 180°F (82°C); use for fast warm-up on start-up.
MINIMUM PRESSURE/CHECK VALVE	Maintains minimum of 55 psig (3.8 bar) in the compressor sump. Valve piston restricts receiver air discharge from receiver/sump when pressure falls to 55 psig (3.8 bar). Also prevents backflow into the sump during unload conditions and after shutdown.
COMPRESSOR DISCHARGE	Designed to shut the compressor down when the discharge TEMPERATURE SWITCH temperature reaches 235°F (113°C).
WATER PRESSURE SWITCH (water-cooled compressors only)	It prevents operation when water pressure of compressor is inadequate.
PRESSURE RELIEF VALVE	Opens sump pressure to the atmosphere should pressure inside the sump become too high. Operation of this valve indicates that the high pressure switch is either faulty or out of adjustment.
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.
PRESSURE REGULATOR	Allows a pressure signal to reach the air inlet valve to control air delivery according to 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.

5.2 PURPOSE OF CONTROLS- STANDARD ELECTRO-MECHANICAL (CONTINUED)

CONTROL OR INDICATOR	PURPOSE
PRESSURE SWITCH	Senses service line pressure. When line pressure reaches maximum setting the pressure switch signals the pilot valves to unload the compressor.
BLOWDOWN VALVE	Vents sump pressure to the atmosphere during unload conditions and shutdown.

5.3 INITIAL START-UP PROCEDURE

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

1. Read the preceding pages of this manual thoroughly.
2. Be sure that all preparations and checks described in the Installation Section have been made.
3. Crack open the shut off valve to the service line.
4. Start the compressor by pushing the START button.

NOTE

Motor rotation check must have been checked.

5. Check for possible leaks in piping.
6. Slowly close the shut-off valve and check that the setting on the pressure switch is set correctly. If set correctly, the compressor will unload at the desired unload pressure. If adjustments are necessary, see Control System Adjustment in the Maintenance Section 7.8 of this manual.
7. Observe the operating temperature. If the operating temperature exceeds 205°F (96°C), the cooling system or installation environment should be checked.
8. Observe return line sight glass and maintenance indicators.
9. Open shut-off valve to service line.
10. Reinspect the compressor for temperature and leaks the following day.

5.4 SUBSEQUENT START-UP PROCEDURE

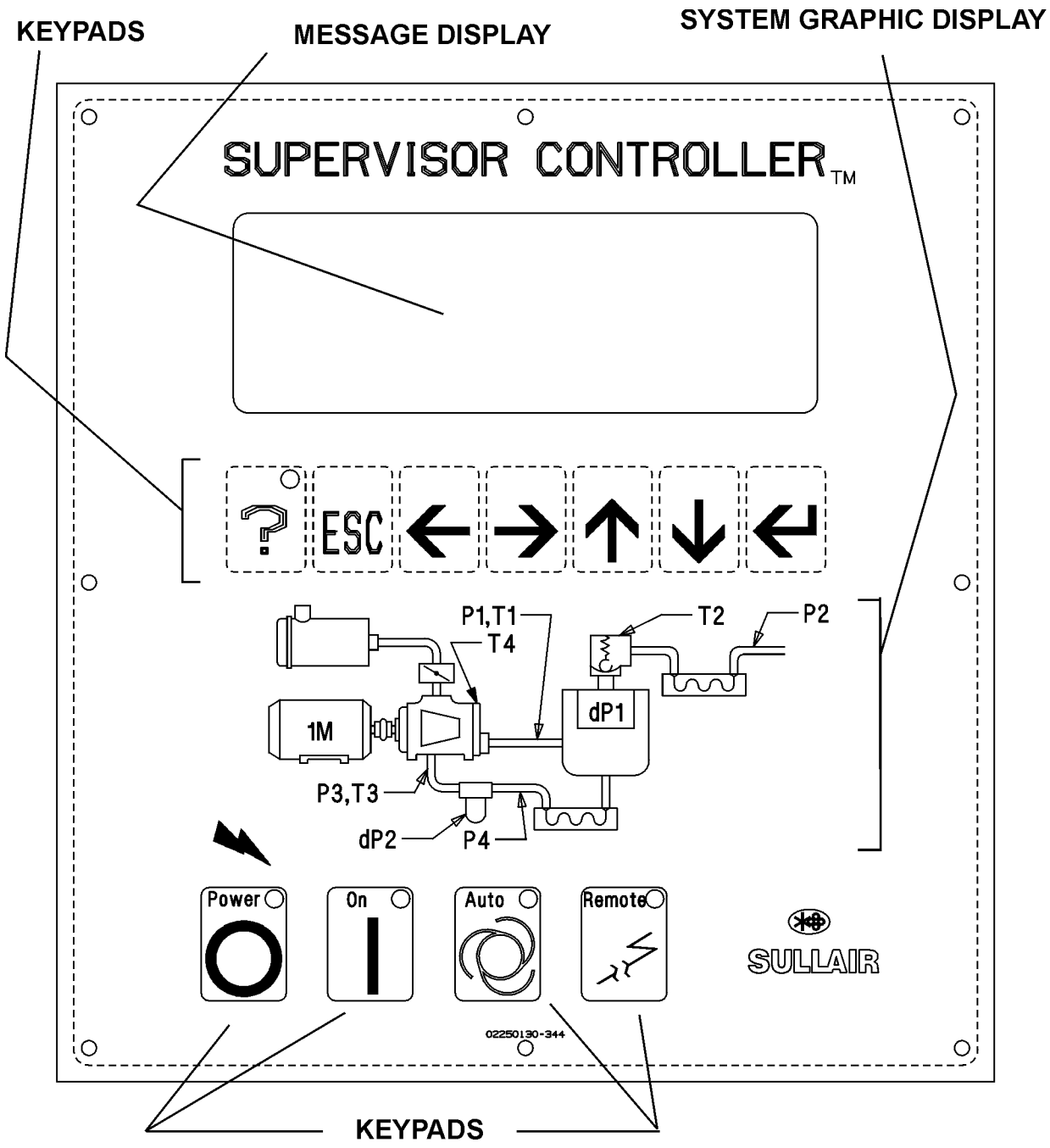
On subsequent start-ups, check that fluid level is visible in the fluid sight glass (refer to Section 4.5) and simply press the START button. When the compressor is running, observe the instrument panel and maintenance indicators.

5.5 SHUTDOWN PROCEDURE

To shut the compressor down, simply press the STOP pad.

Section 6
OPERATION- SUPERVISOR™ CONTROLLER

Figure 6-1 Instrument Panel- Supervisor Controller



NOTE

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

7.1 GENERAL

As you proceed in reading this section, it will be easy to see that the Maintenance Program for the air compressor is quite minimal. The use of the service indicators provided for the fluid filter, air filter and fluid separator, will alert you when service maintenance is required. When the maintenance gauge shows red, maintenance for that specific item is required. See instructions for each item in Section 7.8, Parts Replacement and Adjustment procedures.

NOTE

For general locations of machine components, refer to Figures 2-1, 2-2, 7-10 and 7-11.

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.

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

⚠ 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.

7.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

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

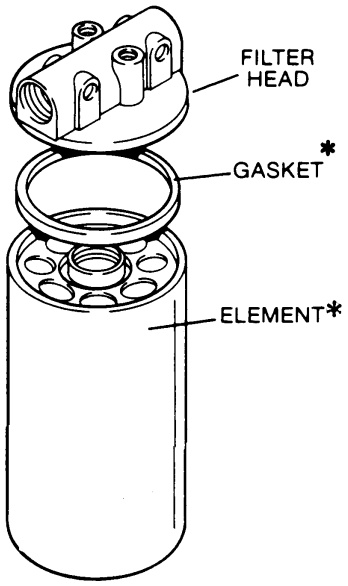
1. Clean the return line strainer. Refer to Control System in Section 10 for strainer location.
2. Clean the return line orifice.

7.4 MAINTENANCE AFTER FIRST 1000 HOURS

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

1. Clean the return line strainer. Refer to Control System in Section 10 for strainer location.
2. Replace the fluid filter element and gasket.

Figure 7-1 Fluid Filter (P/N 02250054-605)



*Repair Kit P/N 250025-526

7.5 FLUID MAINTENANCE

Drain the sump and change the compressor fluid using instructions shown in Sections 3.2, 3.3, and 3.4.

7.6 FILTER MAINTENANCE

Replace your fluid filter element and the gasket under any of the following conditions, whichever occurs first:

1. As indicated by the maintenance gauge.
2. Every third change.

7.7 SEPARATOR MAINTENANCE

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

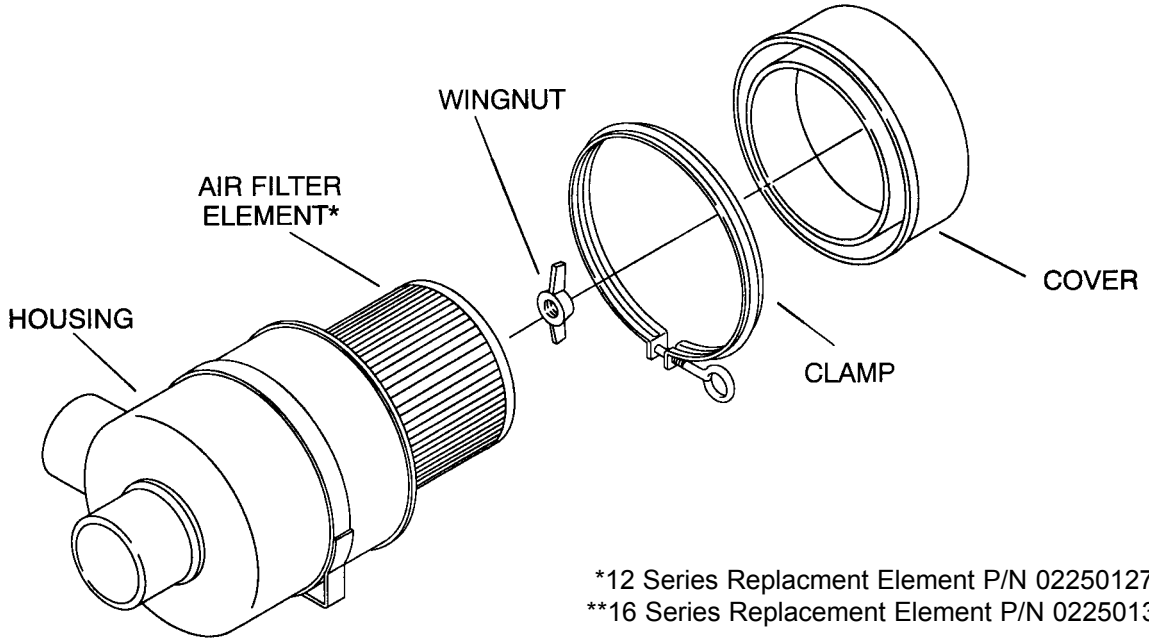
7.8 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

FLUID FILTER MAINTENANCE

Refer to Figure 7-1.

1. Using a strap wrench, remove the old element and gasket.
2. Clean gasket seating surface.
3. Apply a light film of fluid to the new gasket.

Figure 7-2 Air Filter Replacement LS-120 Series (P/N 02250127-683)
LS-160 Series (60-75HP/ 45-55KW) (P/N 02250091-634)



*12 Series Replacment Element P/N 02250127-684
**16 Series Replacement Element P/N 02250131-499

4. Hand tighten new element until new gasket is seated in the gasket groove. Avoid any nicks, cuts or pinches to the gasket.
5. Continue tightening element by hand an additional 1/2 to 3/4 turn.
6. Restart compressor and check for leaks.

⚠ CAUTION

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

AIR FILTER MAINTENANCE

Refer to Figure 7-2 for LS-120, and LS-160 60-75HP/ 45-55KW models, and Figure 7-3 for LS-160 100HP/ 75KW model. Air filter maintenance should be performed when the maintenance gauge shows red with the compressor running full load, or once a year, whichever comes first. If the filter needs to be replaced, order replacement elements. Below you will find procedures on how to replace the air filter elements.

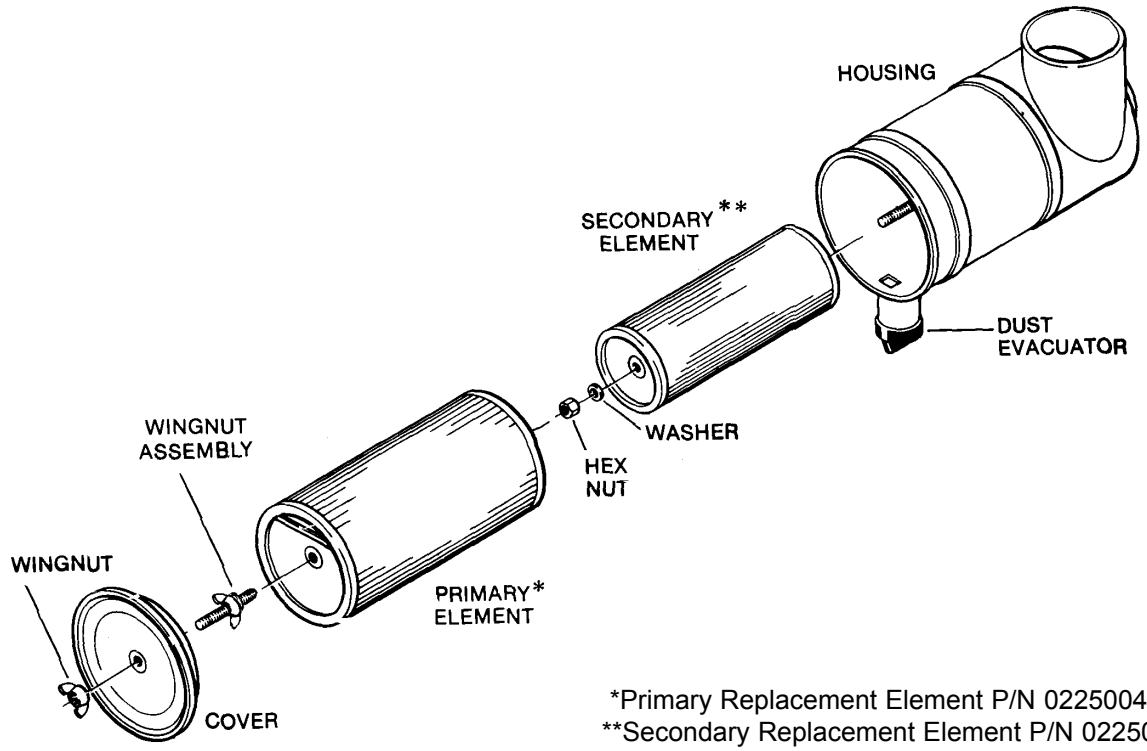
AIR FILTER ELEMENT REPLACEMENT- 120 SERIES AND 160 SERIES (60-75HP/ 45-55KW)

1. Clean exterior of air filter housing.
2. Release tension on cover clamp assembly.
3. Remove air filter element by loosening the wingnut securing the element.
4. Remove element and clean interior of housing using a damp cloth. **DO NOT** blow dirt out with compressed air.
5. At this time replace the element.
6. Reassemble in the reverse order of the disassembly.

AIR FILTER ELEMENT REPLACEMENT- 160 SERIES (100HP/ 75KW)

1. Clean exterior of air filter housing.
2. Unscrew the wing nut securing the cover.
3. Carefully remove the element from the housing.
4. Unscrew the wingnut assembly securing the primary element in place.
5. Remove primary element.
6. Loosen the hex nut, and remove the hex nut and washer securing the secondary element in place.
7. Carefully replace the secondary filter, making sure it rests correctly in position.
8. Replace the hex nut and washer; tighten.
9. Replace the primary element, making sure that it rests correctly in position.
10. Replace the wingnut assembly and tighten to secure primary element in place.

Figure 7-3 Air Filter Replacement LS-160 (100HP/ 75KW) (P/N 02250059-096)



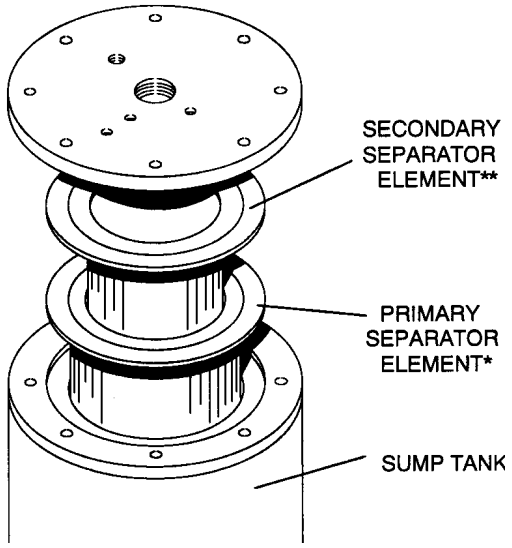
*Primary Replacement Element P/N 02250046-012
**Secondary Replacement Element P/N 02250046-013

11. Replace the cover
12. Secure the cover by tightening the wingnut.

ELEMENT INSPECTION

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

Figure 7-4 Separator Element Replacement



*Replacement Kit for Primary Element P/N 02250100-755
**Replacement Kit for Secondary Element P/N 02250100-756

SEPARATOR ELEMENT REPLACEMENT

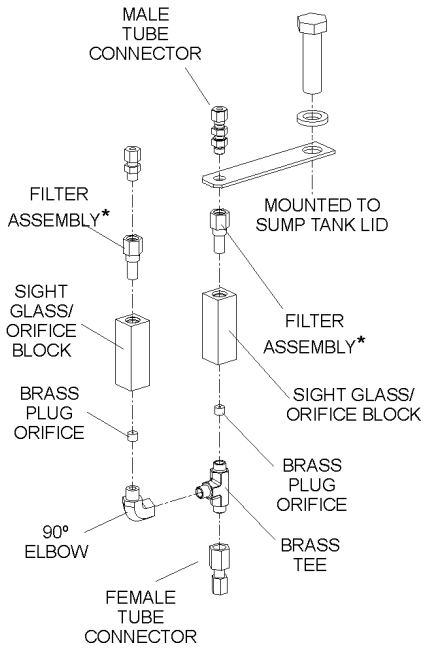
Refer to Figure 7-4. The separator elements must be changed when the maintenance gauge shows red with the compressor running full load, or once a year, whichever occurs first. Follow the procedure explained below for separator element replacement.

NOTE

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

1. Disconnect all piping connected to the sump cover to allow removal (return lines, service lines, etc.).
2. Loosen and remove the eight (8) hex head capscrews (5/8 x 2”) from the cover plate.

Figure 7-5 Oil Return/Sight Glass



*Replacement Filter Assembly P/N 02250117-782

3. Lift the cover plate from the sump.
4. Remove the separator elements.
5. Inspect the receiver/sump tank for rust, dirt, etc.
6. Scrape the old gasket material from the cover and flange on the sump. Be careful not to let the scraps fall in the sump.
7. Reinsert the separator elements into the sump taking care not to dent them against the tank opening.
8. Clean the underside of the receiver/sump tank cover and remove any rust.
9. Replace the cover plate, washers and cap-screws. Torque to 55 ft-lbs. (75 Nm).
10. Reconnect all piping making sure return line tubes extend to the bottom or 1/4" (6mm) above the bottom of the separator element. This will insure proper fluid return flow to the compressor.
12. Clean the return line strainers before restarting the compressor.

OIL RETURN/SIGHT GLASS MAINTENANCE

Refer to Figure 7-5. The oil return/sight glass sub-assembly 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 (both Supervisor and Maintenance) of this manual. 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.

CONTROL SYSTEM ADJUSTMENT

Refer to Figure 7-6. Prior to adjusting the Control System, it is necessary to determine the desired operating pressure range and also the maximum pressure at which your compressor is to operate. The pressure must not exceed the maximum operating pressure which is stamped on the compressor serial number nameplate. The following explanation applies to a typical installation with a desired operating range of 125 to 135 psig (8.6 to 9.3 bar). This information will apply to a compressor with any

Figure 7-6 Pressure Switch (P/N 040694) 50-75 HP/ 30-55 KW

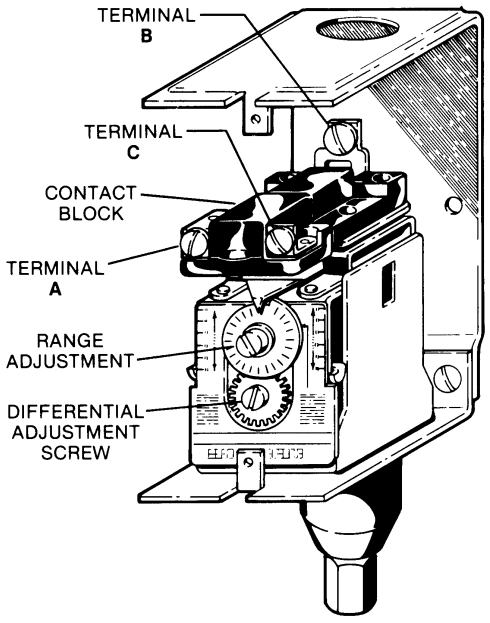
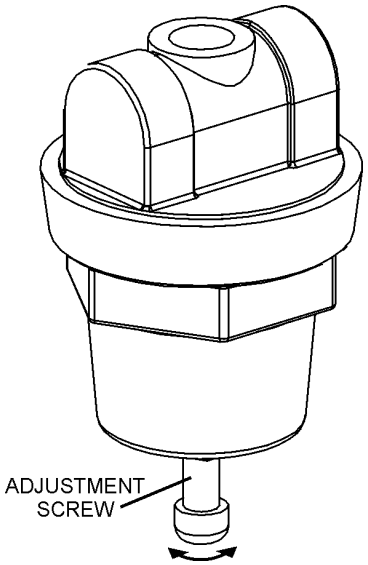


Figure 7-7 Pressure Regulator Adjustment



other operating range except for the stated pressures.

Remove the cover of the pressure switch. With the shut-off valve closed (or slightly cracked open) start the compressor. Observe the line pressure gauge and pressure switch contacts. When the line pressure reaches 135 psig (9.3 bar), the pressure switch contacts should open. If the pressure switch contacts do not open or they open prior to the desired pressure, the pressure switch setting will require adjustment (refer to Figure 7-6).

FOR PRESSURE RANGE ADJUSTMENT:

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

FOR DIFFERENTIAL ADJUSTMENT:

Differential is the difference between the high and low pressure settings. 10 psig (0.7 bar) is typical.

1. Turn the differential adjusting screw to the lower (reset) setting (Figure 7-6). Turning the screw counterclockwise widens the differential by lowering the reset (lower) setting only.
2. When the pressure switch adjustment is complete, the pressure regulator (Figure 7-7) should be adjusted for the pressure at which modulation of air delivery should begin. This point is approximately one (1) psi above the load pressure. In this case that pressure will be 126 psig (8.7 bar). The regulator is adjusted by loosening the jam nut on the end of the cone shaped cover of the pressure regulator. When the jam nut is loose, turn the adjusting screw clockwise to increase or counterclockwise to decrease the setting.
3. To set the regulator, continue closing the service valve until the line pressure reaches 126 psig (8.7 bar). Turn the adjusting screw on the regulator until air just begins to escape from the control air orifice. The regulator is now properly set. After adjustment, line pressure and inlet vacuum should be approximately 126 psig (8.7 bar) and 1.00 in. Hg (2.54 cm Hg) respectively.
4. Next, close the service valve; line pressure will start rising. When line pressure reaches 135 psig (9.3 bar), the inlet valve will be closed to its maximum position. The inlet vacuum at this point will be around 25 in. Hg (63.5 cm Hg). The machine should unload at this point.
5. Open the service valve so the line pressure is 125 psig (8.6 bar). Machine is now set for operation. Recheck the unload pressure by closing of the service valve. Machine should unload via the pressure switch at 135 psig (9.3 bar).

After the control pressures have been adjusted, the “unloaded” sump pressure should be checked. It will be necessary to shut the compressor down, remove the pressure switch cover, and disconnect one of the two lead wires that are connected to the micro-switch (contact block). In order to have a correct reading, the air system to which the compressor is connected must be pressurized to at least 80 psig (5.5 bar). After disconnecting the lead, tape the exposed wire with electrician’s tape to make sure that it does not come in contact with any metallic surface.

DANGER

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

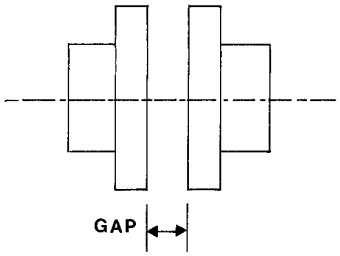
TABLE 7-1: INSTALLATION DATA
SERIES 120 & 160 (40-100HP/ 30-75KW)

Horsepower	Coupling Element	Coupling Hub Gap	Tightening Torque (Wet)
40, 50 (37 KW)	250004-641	1 13/16” (46mm)	55 ft.-lbs. (75Nm)
60, 75, 100 (45, 55, 75 KW)	250018-551	2 1/16” (52mm)	110 ft.-lbs. (149Nm)

With the lead taped, you may start the compressor again. Allow the sump pressure to stabilize.

The sump pressure should read 17 to 23 psig (1.2

Figure 7-8 Drive Coupling "Hub" Gap Check



to 1.6 bar).

Once this is checked, shut the compressor down once again and reconnect the taped lead and replace the pressure switch cover. At this time, start the compressor and cycle the Control System several times and re-check all pressure settings and adjustments.

⚠ DANGER

DO NOT touch the pressure switch, electrical contacts, terminal board or leads with any part of the body or any un--insulated metallic object. Severe electrical shock may occur.

PRESSURE REGULATOR ADJUSTMENT

Refer to Figure 7-7. Start the compressor and adjust the service valve to achieve service air pressure of one (1) psi above load pressure. For example, achieve service air pressure of 126 psi per a load pressure of 125 psi. Turn the adjusting screw on the regulator until air just begins to escape from the control air orifice. The regulator is now properly set.

DRIVE COUPLING INSTALLATION AND MAINTENANCE

Refer to Figures 7-8 and 7-9. For coupling installation and maintenance the tools required will be a measuring scale, one set of standard Allen wrenches, and one set of standard socket wrenches.

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

⚠ DANGER

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

STEP 1 - MOUNT HUBS

Mount the motor hub and the compressor hub on its respective shaft.

STEP 2 - COUPLING HUB GAP CHECK

Position the compressor hub, on the compressor shaft, so that the hub is against
the shaft shoulder and tighten the hub setscrew. Position the motor hub on the motor shaft and let it float.

STEP 3 - INSTALL THE FLEXIBLE ELEMENT

Insert the flexible element between the two hubs. compressed prior to insertion. The element can be compressed by tightening a suitably sized radiator hose clamp around the outer edge of the element as shown in Figure 7-9. Slide the ferry head bolts with lock washers through the holes in the hubs and element. Torque these bolts as shown in *Table 7-1: Installation Data*.

NOTE

DO NOT substitute the ferry head bolts supplied with the coupling.

After tightening the bolts, tighten the set screws and remove the hose clamp from the flexible element. Check the coupling gap as listed in *Table 7-1: Installation Data*, and shown in Figure 7-8. At this time, the coupling is ready for operation.

DRIVE COUPLING DISASSEMBLY AND REMOVAL

Refer to Figure 7-9. Disassembly and removal of the drive coupling is done in the following manner:

1. Place a suitably sized radiator hose clamp over the flexible element as show in Figure 7-9 and tighten sufficiently to compress the rubber.
2. Remove the ferry head bolts from the hubs and element.
3. Rotate the element until the studs clear the hubs.
4. Remove the element from the hubs with the hose clamp still in place.
5. Loosen the shaft setscrews and remove the hubs.

Figure 7-9 Drive Coupling

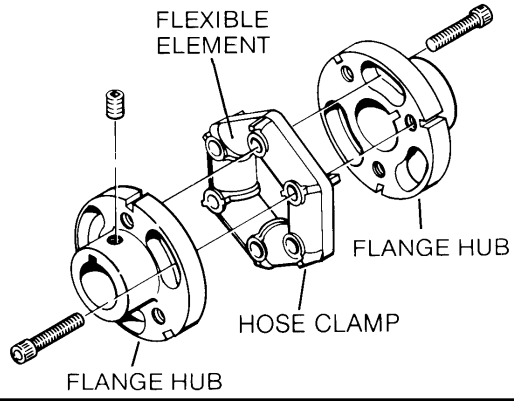


Figure 7-10 Piping and Instrumentation Diagram- Standard

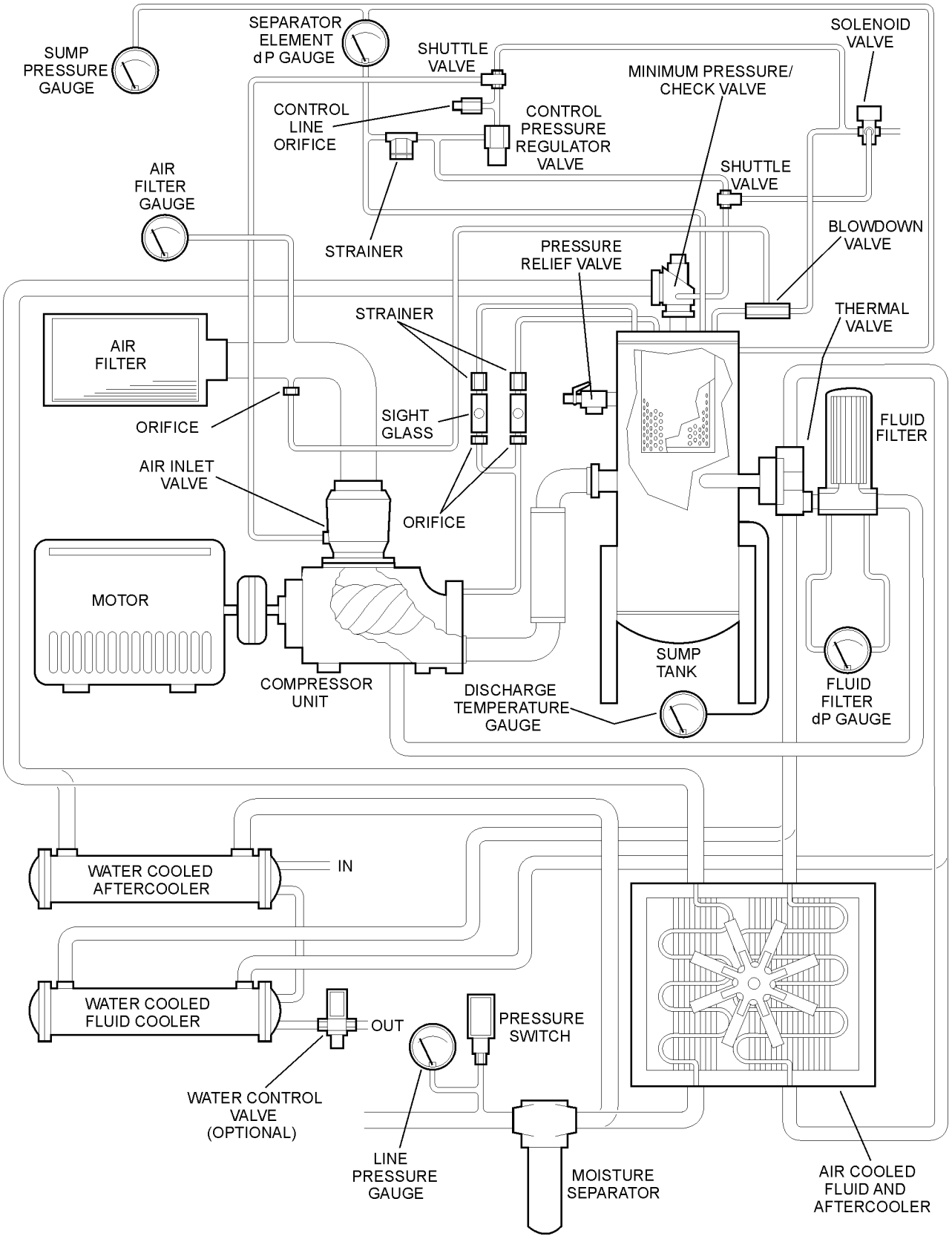
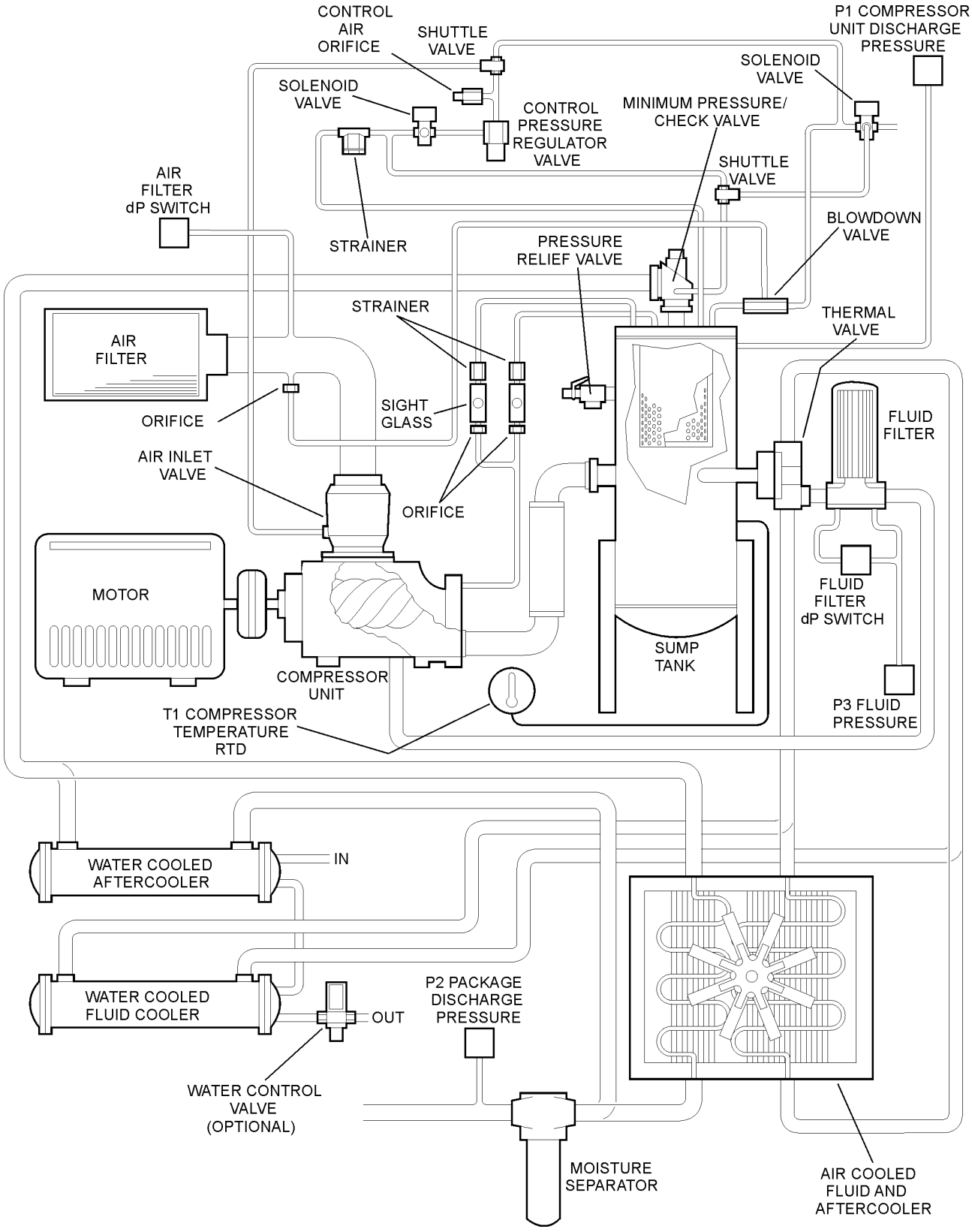


Figure 7-11 Piping and Instrumentation Diagram- Supervisor Controller



Section 8
TROUBLESHOOTING- ELECTRO-MECHANICAL

8.1 TROUBLESHOOTING- STANDARD ELECTRO-MECHANICAL

The information contained in the Standard Electro-Mechanical Troubleshooting chart 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.

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-STANDARD ELECTRO-MECHANICAL

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.
	Discharge Temperature Switch Open	Cooling water temperature too high; increase water flow (water-cooled only).

Section 8
TROUBLESHOOTING- ELECTRO-MECHANICAL

8.2 TROUBLESHOOTING GUIDE-STANDARD ELECTRO-MECHANICAL (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
COMPRESSOR SHUTS DOWN WITH AIR DEMAND PRESENT (CONTINUED)	Discharge Temperature Switch Open (Continued)	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).
	Plugged Control Line Strainer	Clean strainer (screen and o-ring replacement kit available).

8.2 TROUBLESHOOTING GUIDE-STANDARD ELECTRO-MECHANICAL (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
LINE PRESSURE RISES ABOVE CUT-OUT PRESSURE SETTING ON PRESSURE SWITCH (CONT.)	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 OPEN 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

9.1 DESCRIPTION OF COMPONENTS

Refer to Figures 2-1 and 2-2. 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 2-5B and 2-5C. 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**, **regulating 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 V-120 and V-160 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 "I" (**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- 100 (6.9 BAR) PSIG TO 106 PSIG (7.3 BAR)

During low demand periods and with the Variable Speed Drive at minimum speed, the line pressure can continue to rise. When the line pressure reaches 101-102 psig (approximately 7 bar), the regulator valve (Figure 7-7) gradually opens, directing air pressure to the inlet control valve piston. This action causes the inlet valve to partially close, thereby reducing the air entering the compressor until it matches the amount of air being used. The control system functions continually in this manner between the limits of > 101 psig (7.0 bar) to 106 psig (7.3 bar), in response to varying flow demand.

The pressure regulator has an orifice which vents a small amount of air to the atmosphere when the pressure regulator controls the inlet valve. The orifice also bleeds any accumulated moisture from the control line. When the discharge pressure rises

above 106 psig (7.3 bar), or alternatively set unload pressure the compressor unloads.

NOTE

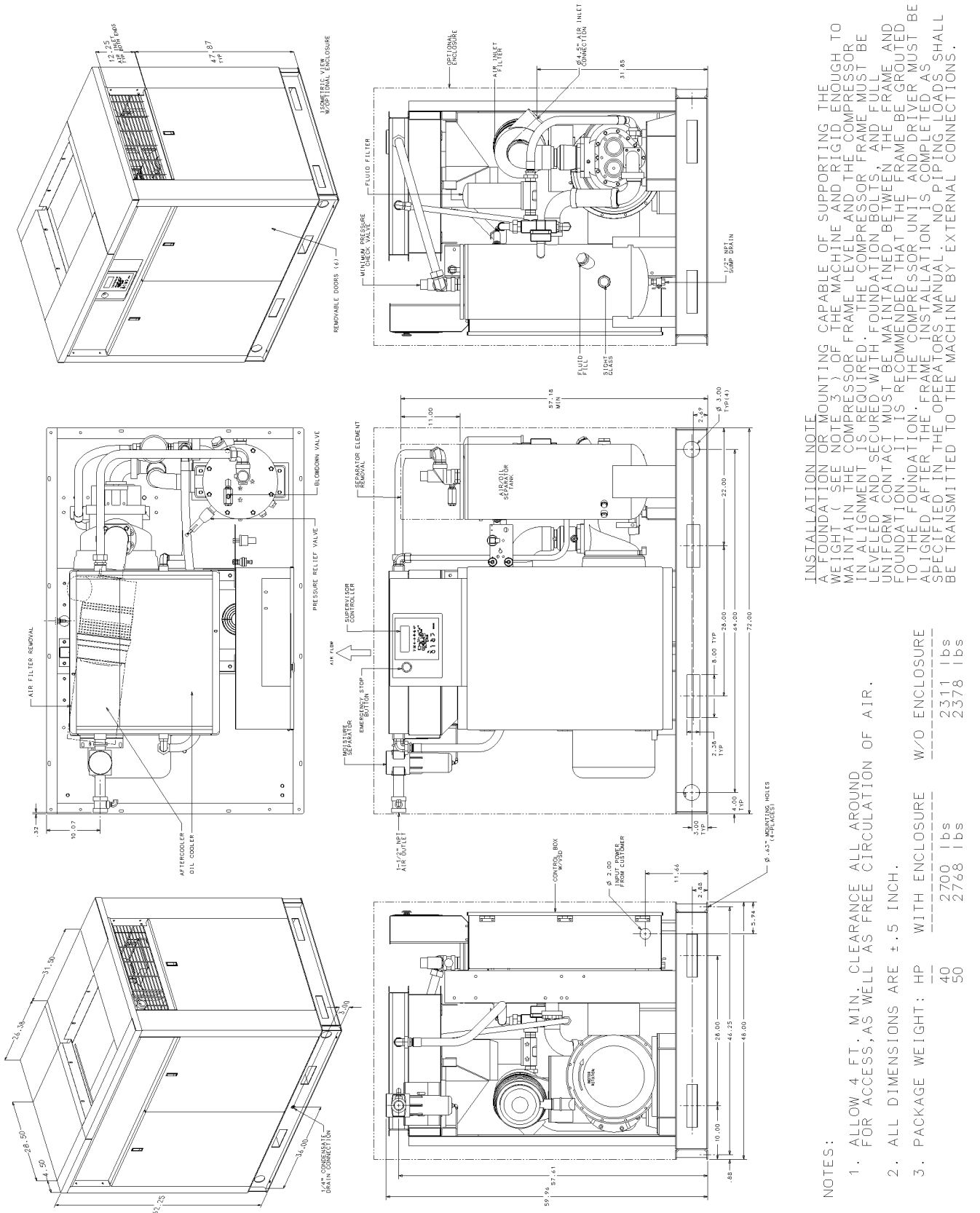
The modulation regulator valve should be set 1.0 - 2.0 psig above the setpoint pressure (applies to non-spiral valve compressors only).

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. The re-energized solenoid valve prevents line pressure from reaching the inlet control valve, thereby allowing it to fully open.

Figure 11-1 Identification- V-120 40-50hp/37kw Air-cooled



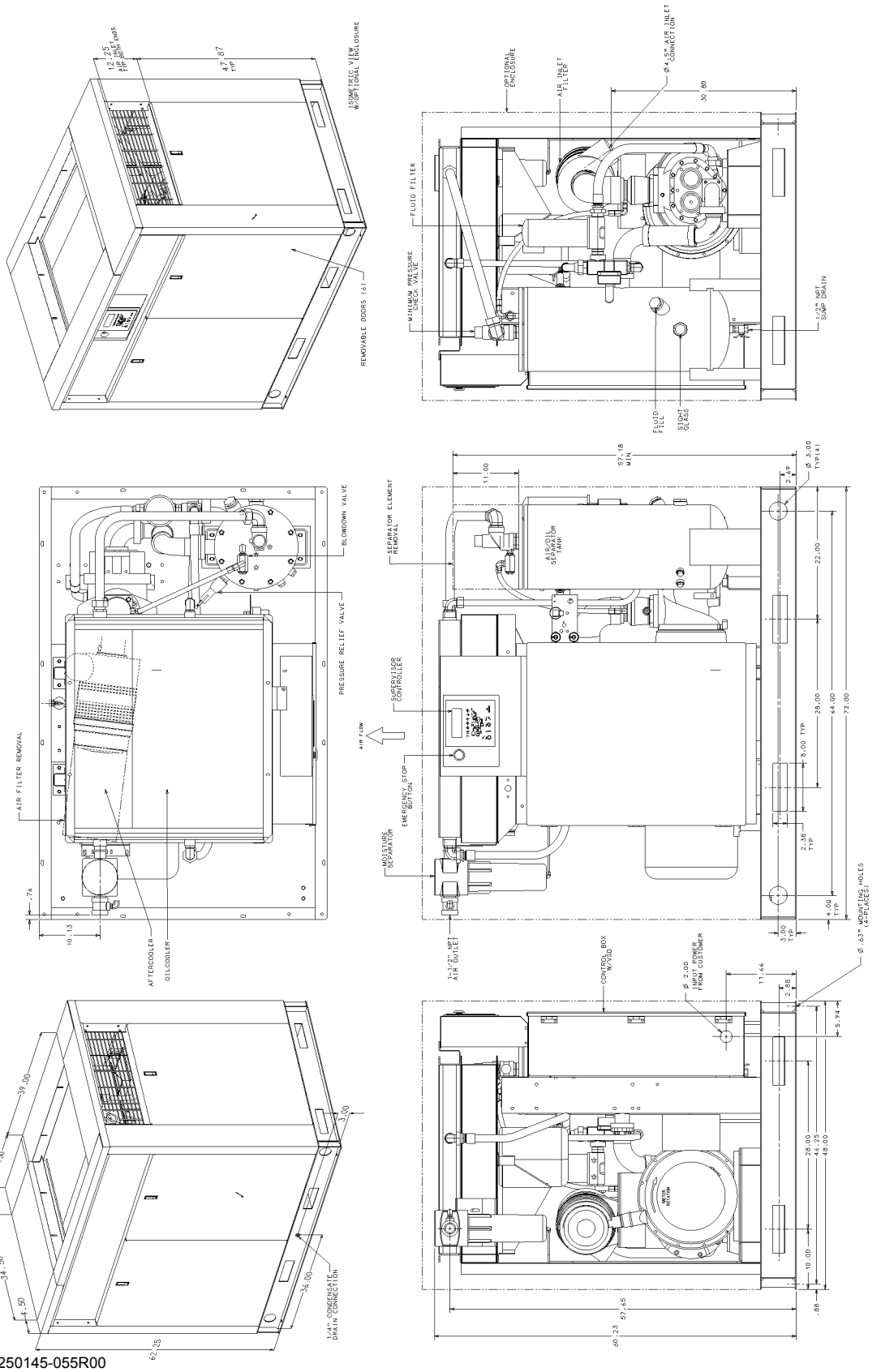
INSTALLATION NOTE
A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT (SEE NOTE 3) OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL AND THE COMPRESSOR IN ALIGNMENT IS REQUIRED. THE COMPRESSOR FRAME MUST BE LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL UNIFORM CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND FOUNDATION. IT IS RECOMMENDED THAT THE FRAME BE GROUTED TO THE FOUNDATION. THE COMPRESSOR UNIT AND DRIVER MUST BE ALIGNED AFTER THE FRAME INSTALLATION IS COMPLETED AS SPECIFIED IN THE OPERATORS MANUAL. NO PIPING LOADS SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.

NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS, AS WELL AS FREE CIRCULATION OF AIR.
2. ALL DIMENSIONS ARE ±.5 INCH.
3. PACKAGE WEIGHT: HP | WITH ENCLOSURE | W/O ENCLOSURE
   40 | 2700 lbs | 2311 lbs
   50 | 2768 lbs | 2378 lbs

02250145-051R00

Section 9
VARIABLE SPEED DRIVE

Figure 11-2 Identification- V-120 60hp/45kw Air-cooled



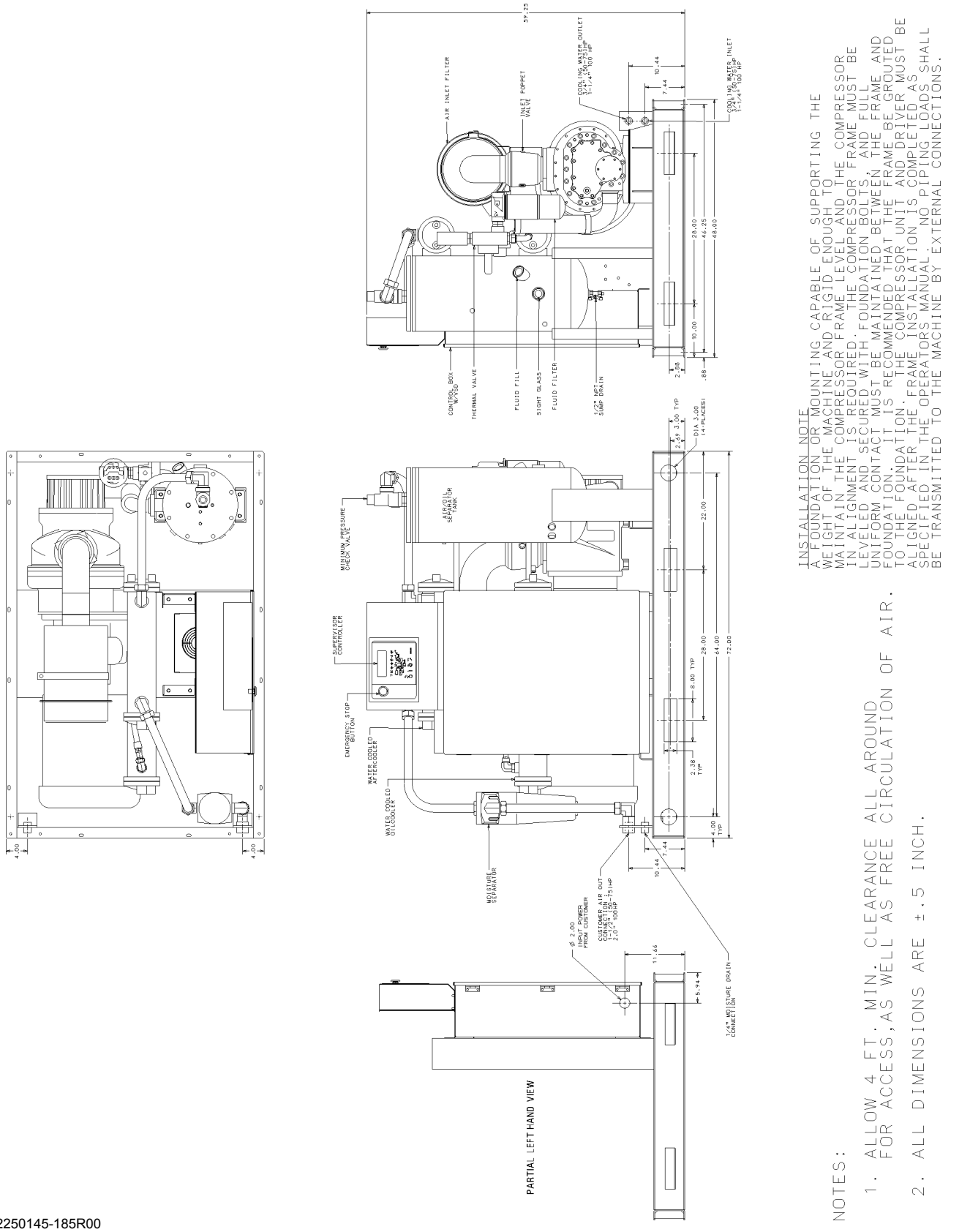
INSTALLATION NOTE
A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT (SEE NOTE 3) OF THE MACHINE AND RIGID ENOUGH TO MAINTAIN THE COMPRESSOR FRAME LEVEL AND THE COMPRESSOR IN ALIGNMENT IS REQUIRED. THE FOUNDATION BOLTS, AND FULL LEVELED AND SECURED WITH FOUNDATION BOLTS, AND FULL FOUNDATION CONTACT MUST BE MAINTAINED BETWEEN THE FRAME AND FOUNDATION. IT IS RECOMMENDED THAT THE FRAME BE GROUTED TO THE FOUNDATION. THE COMPRESSOR UNIT AND DRIVER MUST BE ALIGNED AFTER THE FRAME INSTALLATION IS COMPLETED AS SPECIFIED IN THE OPERATORS MANUAL. NO PIPING LOADS SHALL BE TRANSMITTED TO THE MACHINE BY EXTERNAL CONNECTIONS.

NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS, AS WELL AS FREE CIRCULATION OF AIR.
2. ALL DIMENSIONS ARE ±.5 INCH.
3. PACKAGE WEIGHT:

HP	WITH ENCLOSURE	W/O ENCLOSURE
60	2968 lbs	2578 lbs

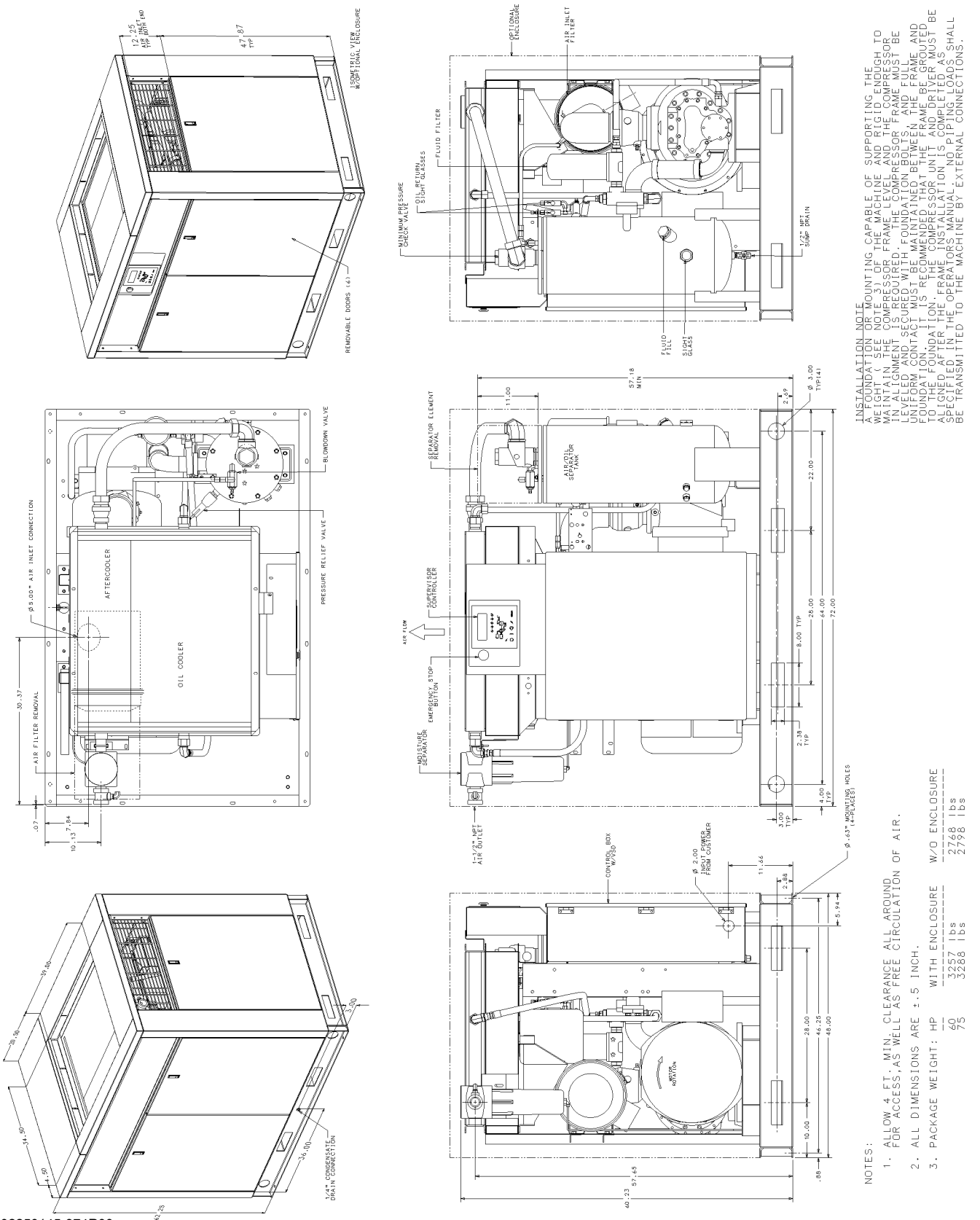
02250145-055R00

Figure 11-3 Identification- V-120 (40-60hp/37-45kw) & V-160 (60-100hp/45-75kw) Water-cooled



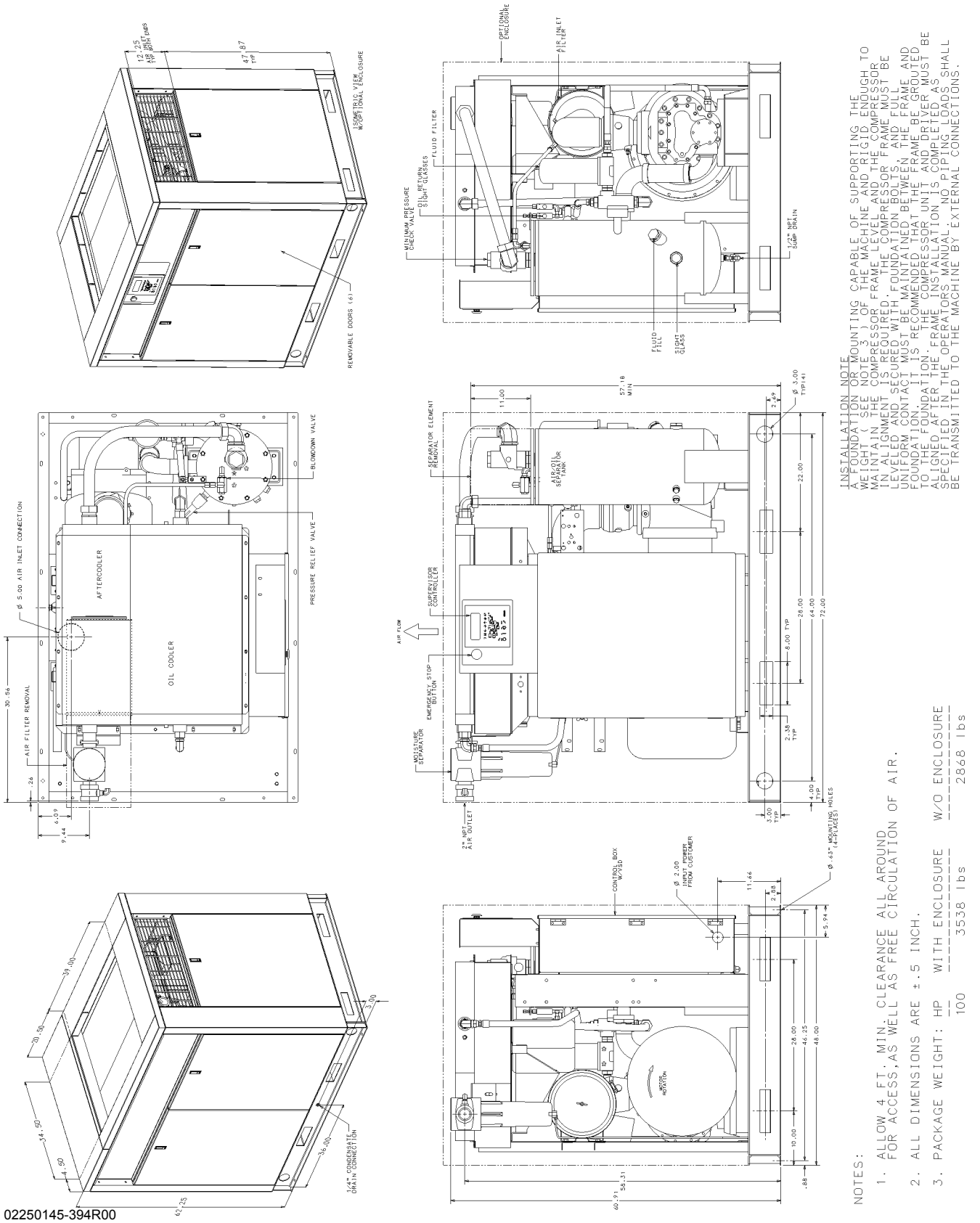
Section 9
VARIABLE SPEED DRIVE

Figure 11-4 Identification- V-160 60-75hp/45-55kw Air-cooled



02250145-374R00

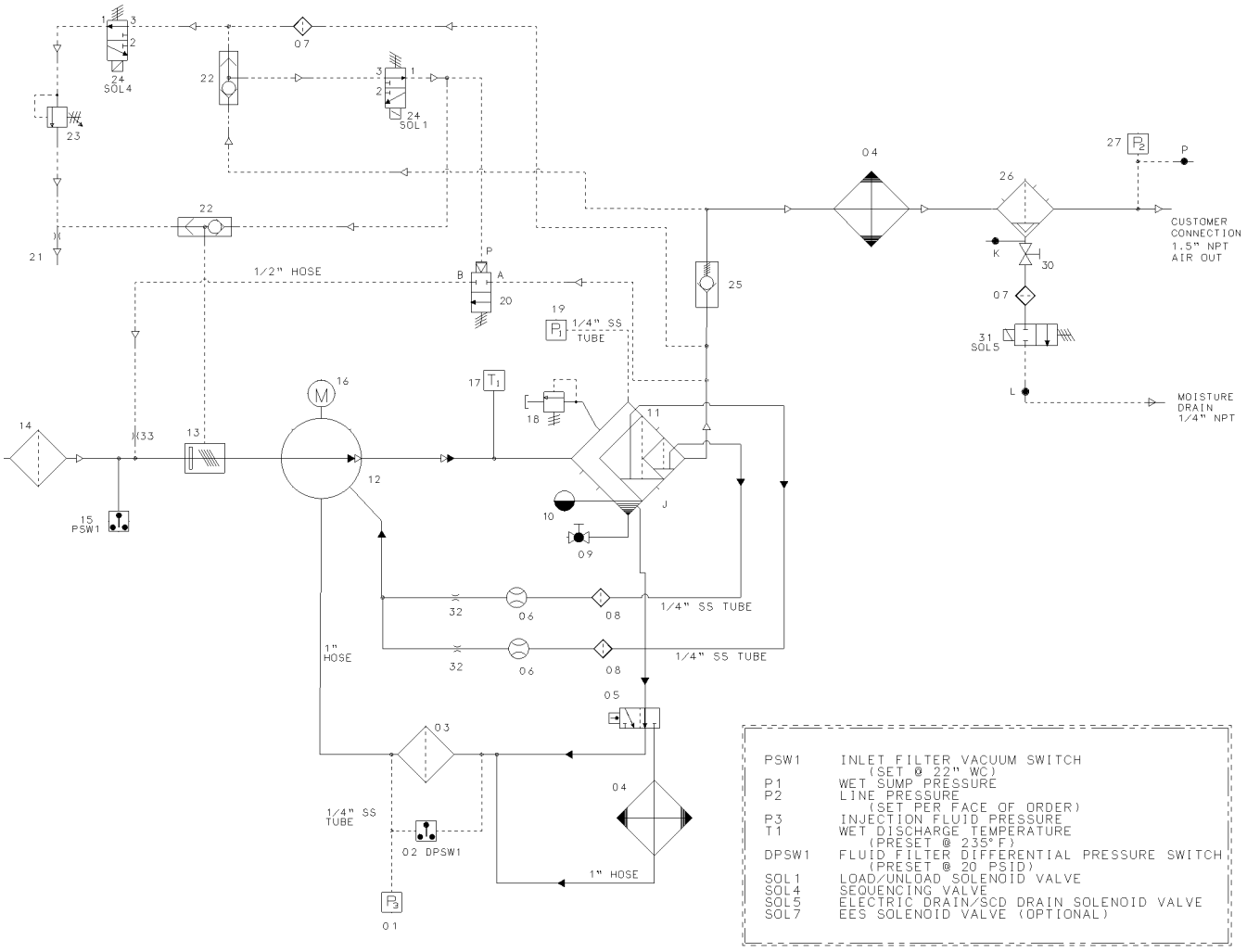
Figure 11-5 Identification- V-160 100hp/75kw Air-cooled



02250145-394R00

Section 9
VARIABLE SPEED DRIVE

Figure 11-6 Piping and Instrumentation- V-120 40-60hp/37-45kw Air-cooled with Supervisor Controller

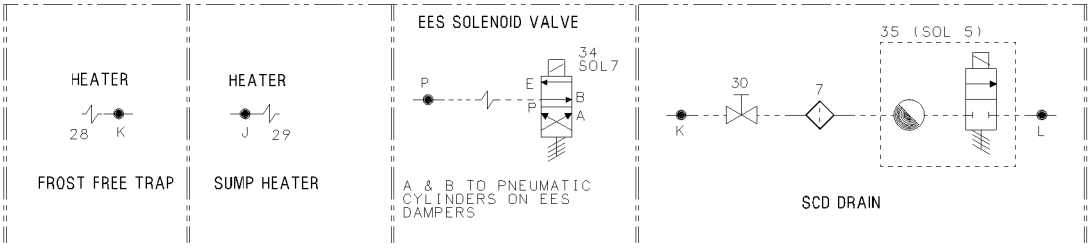


PSW1	INLET FILTER VACUUM SWITCH (SET @ 22" WC)
P1	WET SUMP PRESSURE
P2	LINE PRESSURE (SET PER FACE OF ORDER)
P3	INJECTION FLUID PRESSURE
T1	WET DISCHARGE TEMPERATURE (PRESET @ 235°F)
DPSW1	FLUID FILTER DIFFERENTIAL PRESSURE SWITCH (PRESET @ 20 PSID)
SOL1	LOAD/UNLOAD SOLENOID VALVE
SOL4	SEQUENCING VALVE
SOL5	ELECTRIC DRAIN/SCD DRAIN SOLENOID VALVE
SOL7	EES SOLENOID VALVE (OPTIONAL)

CUSTOMER FURNISHED LINE
WATER LINE (2) (3)
CONTROL LINE (2) (3)
FLUID LINE
AIR/FLUID LINE
TEMP.CONTROL PROBE
AIR LINE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERILA AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CONTROL/MOISTURE DRAIN LINES ARE 1/4" TUBING EXCEPT AS NOTED.
3. OPTIONAL HEAT TRACE IS APPLIED ONLY TO CONTROL AND MOISTURE DRAIN LINES AND USED ONLY WITH STAINLESS STEEL TUBING.
4. PART VARIES BY MODEL.



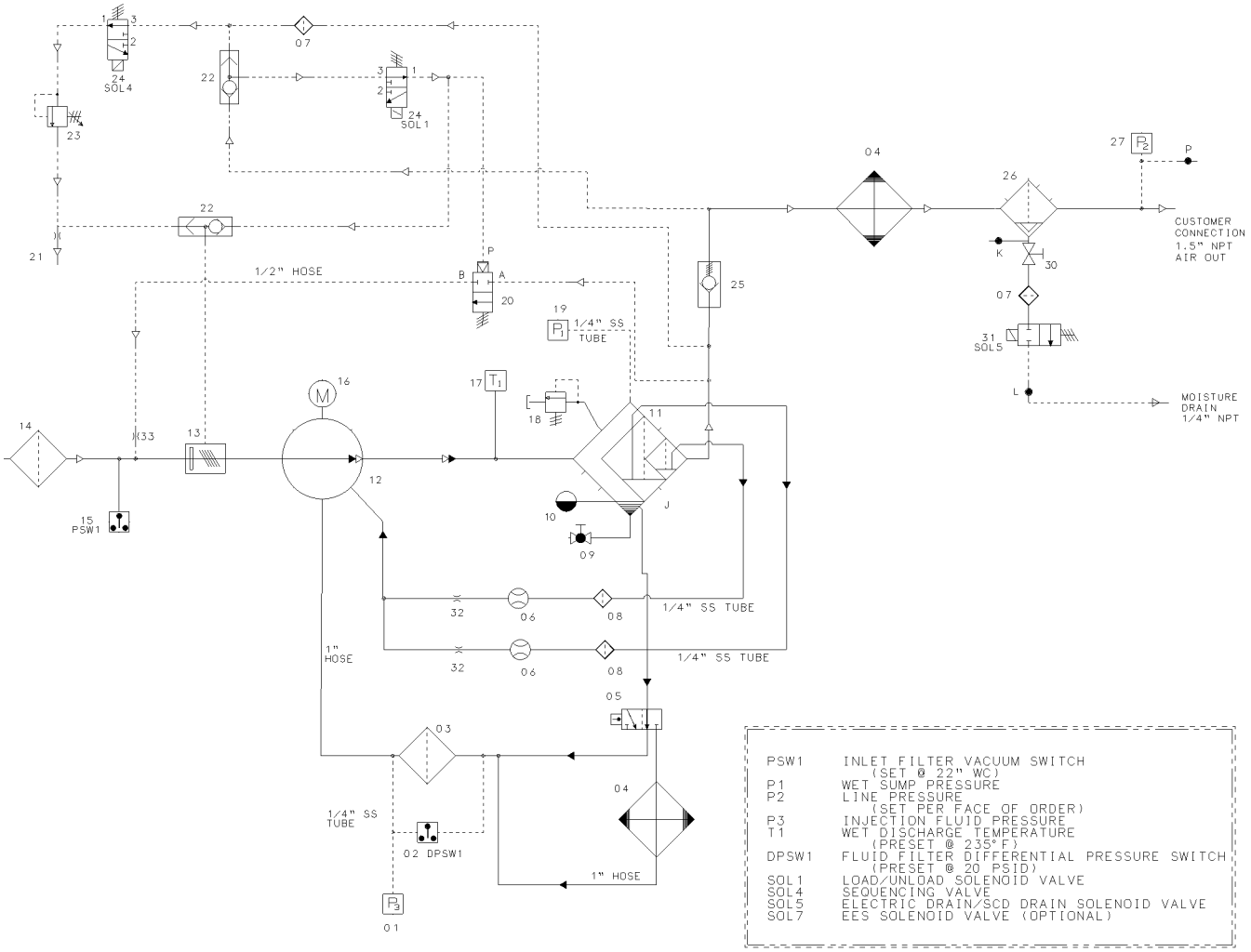
02250145-409R01

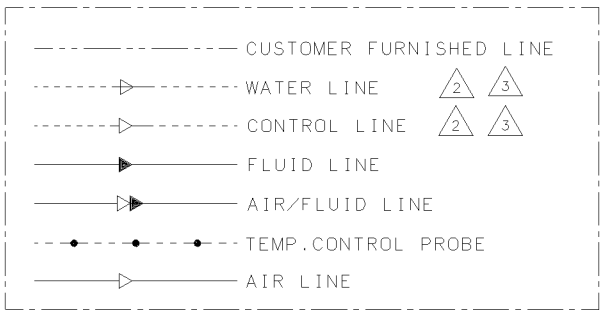
Figure 11-6 Piping and Instrumentation- V-120 40-60hp/37-45kw Air-cooled with Supervisor Controller

	key number	description	part number	quantity
	01	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	02	sw, diff press 20psid 12ft or	02250050-154	1
	03	fltr, fl 1-5/8"SAE str thrd con	02250054-605	1
4	04	cooler, air SAE ports 60hp	02250096-706	1
4	04	cooler, air SAE ports 40hp & 50hp	02250142-507	1
	05	thermal valve element	049542	1
	06	glass, sight sight/orifice blk SAE	02250126-129	2
	07	strainer, v type 1/4"	241771	2
	08	filter, assy genesis	02250117-782	2
	09	valve, ball 3/4 SAE- m x 1/2 npt	02250098-303	1
	10	glass, oil level 1-7/8 SAE	02250097-611	1
	11	tank, sep ls12	02250109-524	1
4	12	compressor	COMP_VAR	1
	13	valve, assy 3" poppet air inlet	02250143-374	1
	14	filter, air 9"(plastic) donaldson	02250127-683	1
	15	sw, vacuum 22"wc n4 - 6 ft cable	02250078-249	1
4	16	motor	various	1
	17	p, rtd 100 ohm platinum 12ft	250039-909	1
	18	valve, rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
	19	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	20	valve, 2-way pneumatic 1/2"npt	02250100-042	1
	21	orifice, .040 x 1/4npt x 1/4mnpt	02250091-395	1
	22	valve, shuttle 1/4" (dbl chk)	408893	2
	23	valve, pressure regulator	02250084-027	1
	24	valve,sol 3wno 1/4 235# n4	02250125-657	2
	25	valve, 1-7/8 SAE min press chk	02250097-598	1
4	26	separator, water 60hp	02250144-633	1
4	26	separator, water 50hp	02250144-635	1
	27	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	28	heater, trap 70watt 120vac	02250087-631	1
	29	heater, sump 12/16 120v	02250103-588	1
	30	valve, ball 1/4"npt	047115	1

(Continued on page 57)

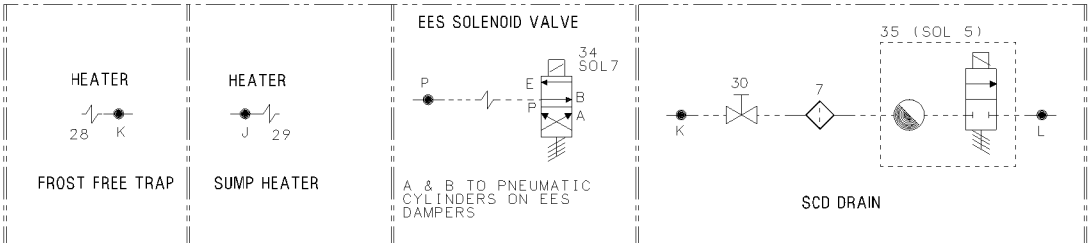
Figure 11-6 Piping and Instrumentation- V-120 40-60hp/37-45kw Air-cooled with Supervisor Controller





NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERILA AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CONTROL/MOISTURE DRAIN LINES ARE 1/4" TUBING EXCEPT AS NOTED.
3. OPTIONAL HEAT TRACE IS APPLIED ONLY TO CONTROL AND MOISTURE DRAIN LINES AND USED ONLY WITH STAINLESS STEEL TUBING.
4. PART VARIES BY MODEL.

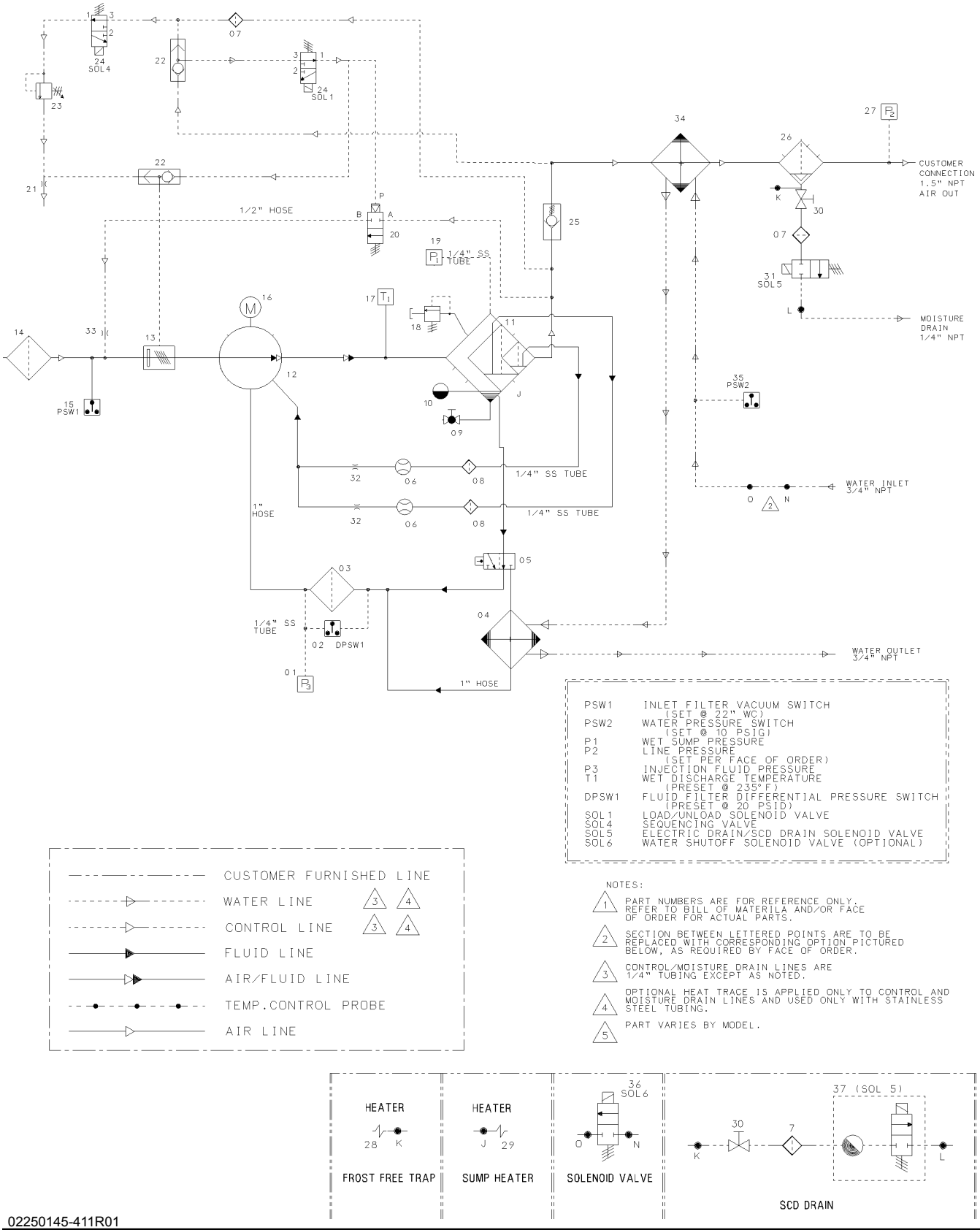


02250145-409R01

Figure 11-6 Piping and Instrumentation- V-120 40-60hp/37-45kw Air-cooled with Supervisor Controller (continued)

key number	***description***	***part number***	***quantity***
31	valve, sol 2wnc 1/4 200# n4	02250125-674	1
32	orifice, plug brass 1/8npt x 1/32"	02250125-774	2
33	orifice, .250 1/4m x 1/4f hex	02250143-403	1
34	valve, sol 4way 1/4 150# n4	02250125-673	1
35	drain, electric condensate scd 200	02250111-686	1

Figure 11-7 Piping and Instrumentation- V-120 40-60hp/37-45kw Water-cooled with Supervisor Controller



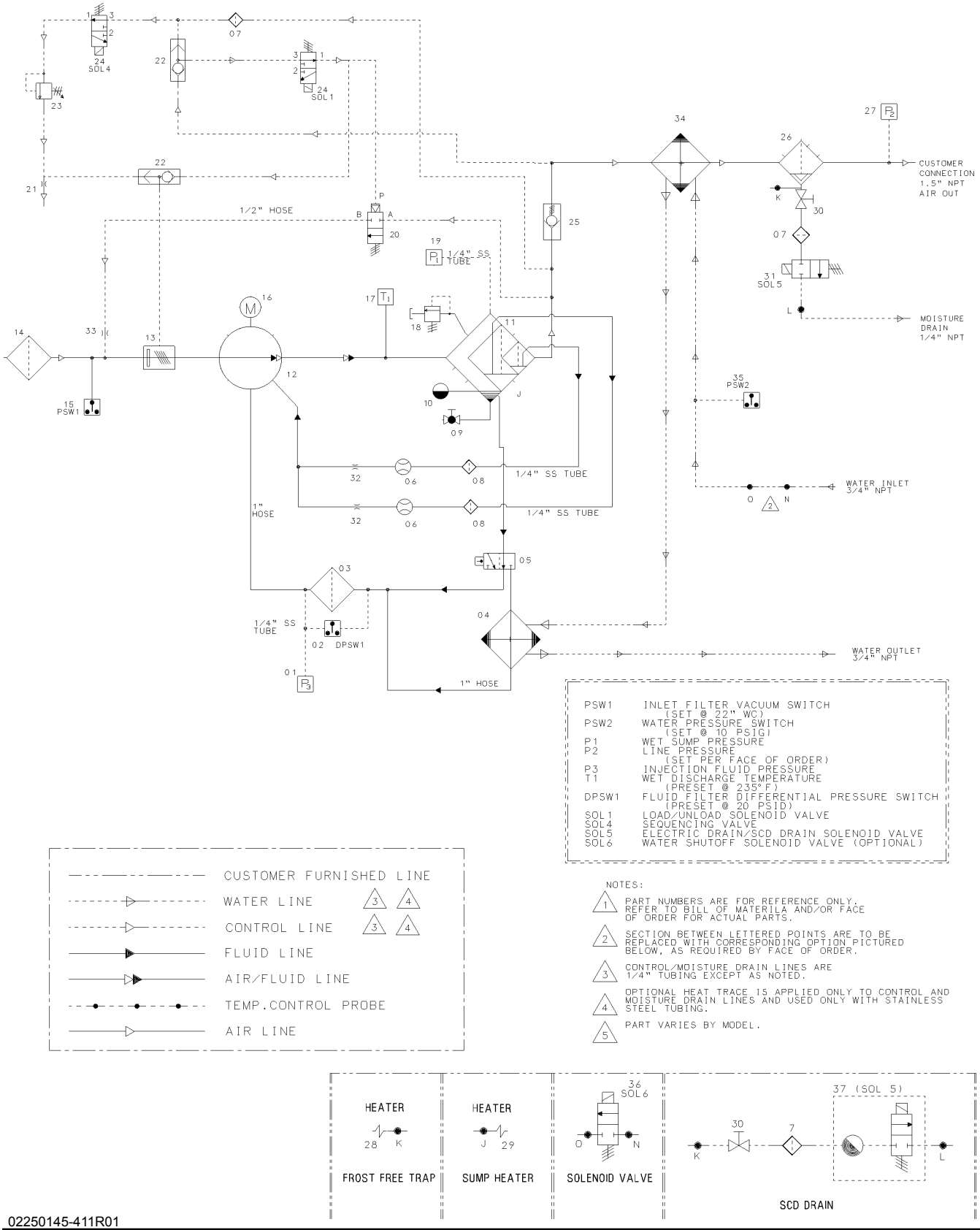
02250145-411R01

Figure 11-7 Piping and Instrumentation- V-120 40-60hp/37-45kw Water-cooled with Supervisor Controller

key number	description	part number	quantity
01	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
02	sw, diff press 20psid 12ft or	02250050-154	1
03	fltr, fl 1-5/8"SAE str thrd con	02250054-605	1
04	clr, oil/water SAE ports	02250094-744	1
05	thermal valve element	049542	1
06	glass, sight sight/orifice blk SAE	02250126-129	2
07	strainer, v type 1/4"	241771	2
08	filter assy genisis	02250117-782	2
09	valve, ball 3/4 SAE- m x 1/2 npt	02250098-303	1
10	glass, oil level 1-7/8 SAE	02250097-611	1
11	tank, sep ls12	02250109-524	1
△5 12	compressor	various	1
13	valve, assy 3" poppet air inlet	02250143-374	1
14	filter, air 9"(plastic) donaldson	02250127-683	1
15	switch, vacuum 22"wc n4 - 6 ft cable	02250078-249	1
△5 16	motor	various	1
17	p, rtd 100 ohm platinum 12ft	250039-909	1
18	valve, rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
19	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
20	valve, 2-way pneumatic 1/2"npt	02250100-042	1
21	orifice, .040 x 1/4npt x 1/4npt	02250091-395	1
22	valve, shuttle 1/4" (dbl chk)	408893	2
23	valve, pressure regulator	02250084-027	1
24	valve, sol 3wno 1/4 235# n4	02250125-657	2
25	valve, 1-7/8 SAE min press chk	02250097-598	1
△5 26	separator, water 60hp	02250145-633	1
△5 26	separator, water 50hp	02250145-635	1
27	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
28	heater, trap 70watt 120vac	02250087-631	1
29	heater, sump 12/16 120v	02250103-588	1
30	valve, ball 1/4"npt	047115	1
31	valve, sol 2wnc m0 1/4 200# n4	02250125-674	1
32	orifice, plug brass 1/8npt x 1/32"	02250125-774	2
33	orifice, .250 1/4m x 1/4f	02250143-403	1

(Continued on page 61)

Figure 11-7 Piping and Instrumentation- V-120 40-60hp/37-45kw Water-cooled with Supervisor Controller

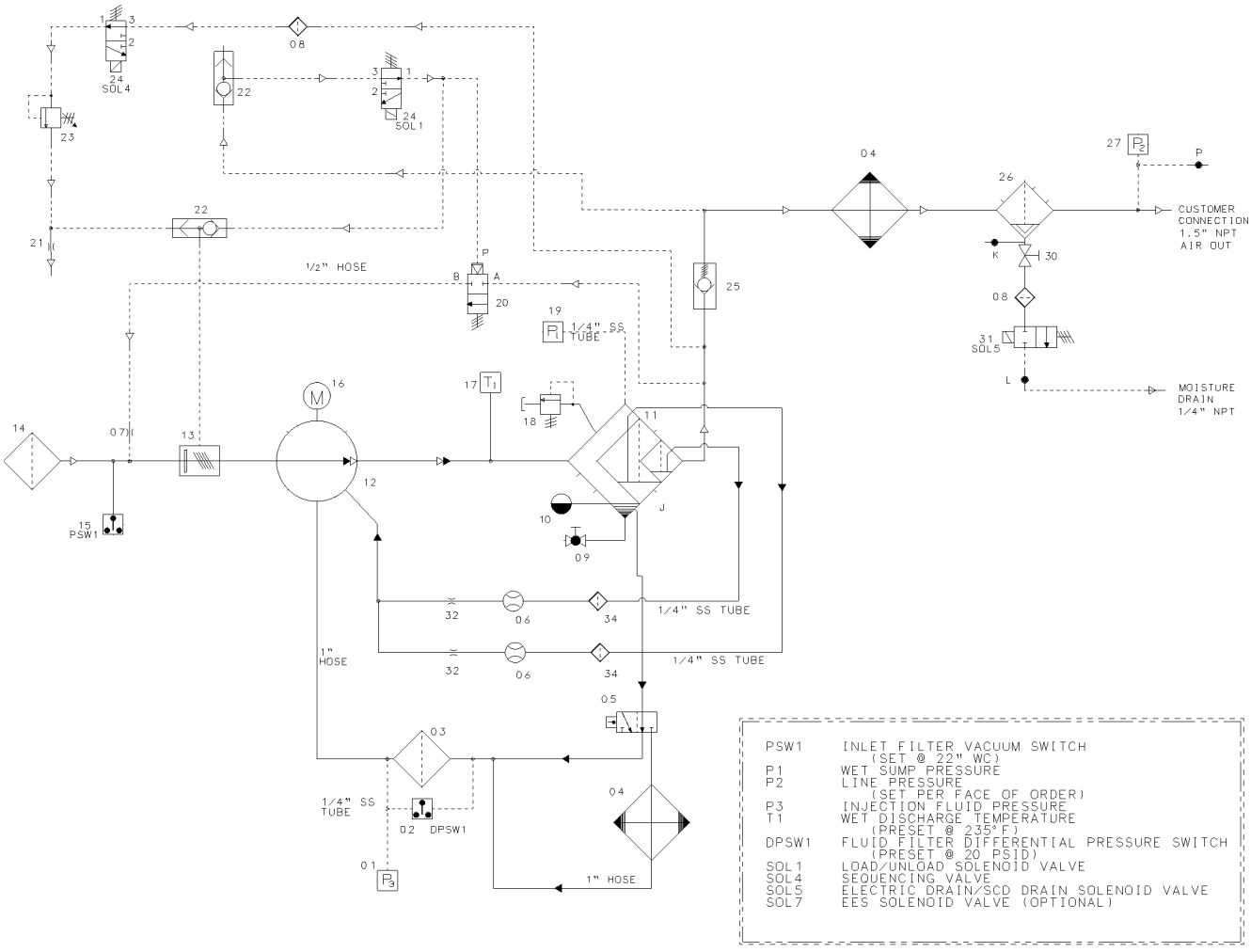


02250145-411R01

Figure 11-7 Piping and Instrumentation- V-120 40-60hp/37-45kw Water-cooled with Supervisor Controller (continued)

	key number	description	part number	quantity
⚠5	34	clr, air/water npt ports 60hp	040680	1
⚠5	34	clr, air/water npt ports 40hp & 50hp	250017-527	1
	35	switch, pressure - low water	250017-992	1
	36	valve, sol 2wnc 3/4" 250# n4	02250125-668	1
	37	drain, electric condensate scd 200	02250111-686	1

Figure 11-8 Piping and Instrumentation- V-160 60-75hp/45-55kw Air-cooled with Supervisor Controller

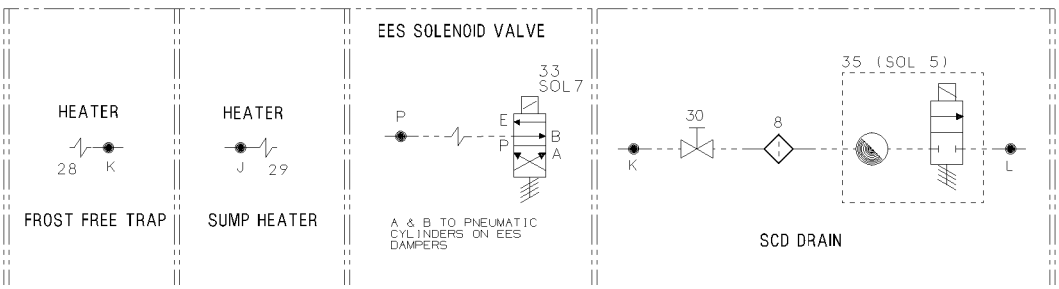


PSW1	INLET FILTER VACUUM SWITCH (SET @ 22" WC)
P1	WET SUMP PRESSURE
P2	LINE PRESSURE (SET PER FACE OF ORDER)
P3	INJECTION FLUID PRESSURE
T1	WET DISCHARGE TEMPERATURE (PRESET @ 235°F)
DPSW1	FLUID FILTER DIFFERENTIAL PRESSURE SWITCH (PRESET @ 20 PSID)
SOL1	LOAD/UNLOAD SOLENOID VALVE
SOL4	SEQUENCING VALVE
SOL5	ELECTRIC DRAIN/SCD DRAIN SOLENOID VALVE
SOL7	EES SOLENOID VALVE (OPTIONAL)

CUSTOMER FURNISHED LINE
WATER LINE (2) (3)
CONTROL LINE (2) (3)
FLUID LINE
AIR/FLUID LINE
TEMP.CONTROL PROBE
AIR LINE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERILA AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CONTROL/MOISTURE DRAIN LINES ARE 1/4" TUBING EXCEPT AS NOTED.
3. OPTIONAL HEAT TRACE IS APPLIED ONLY TO CONTROL AND MOISTURE DRAIN LINES AND USED ONLY WITH STAINLESS STEEL TUBING.
4. PART VARIES BY MODEL.



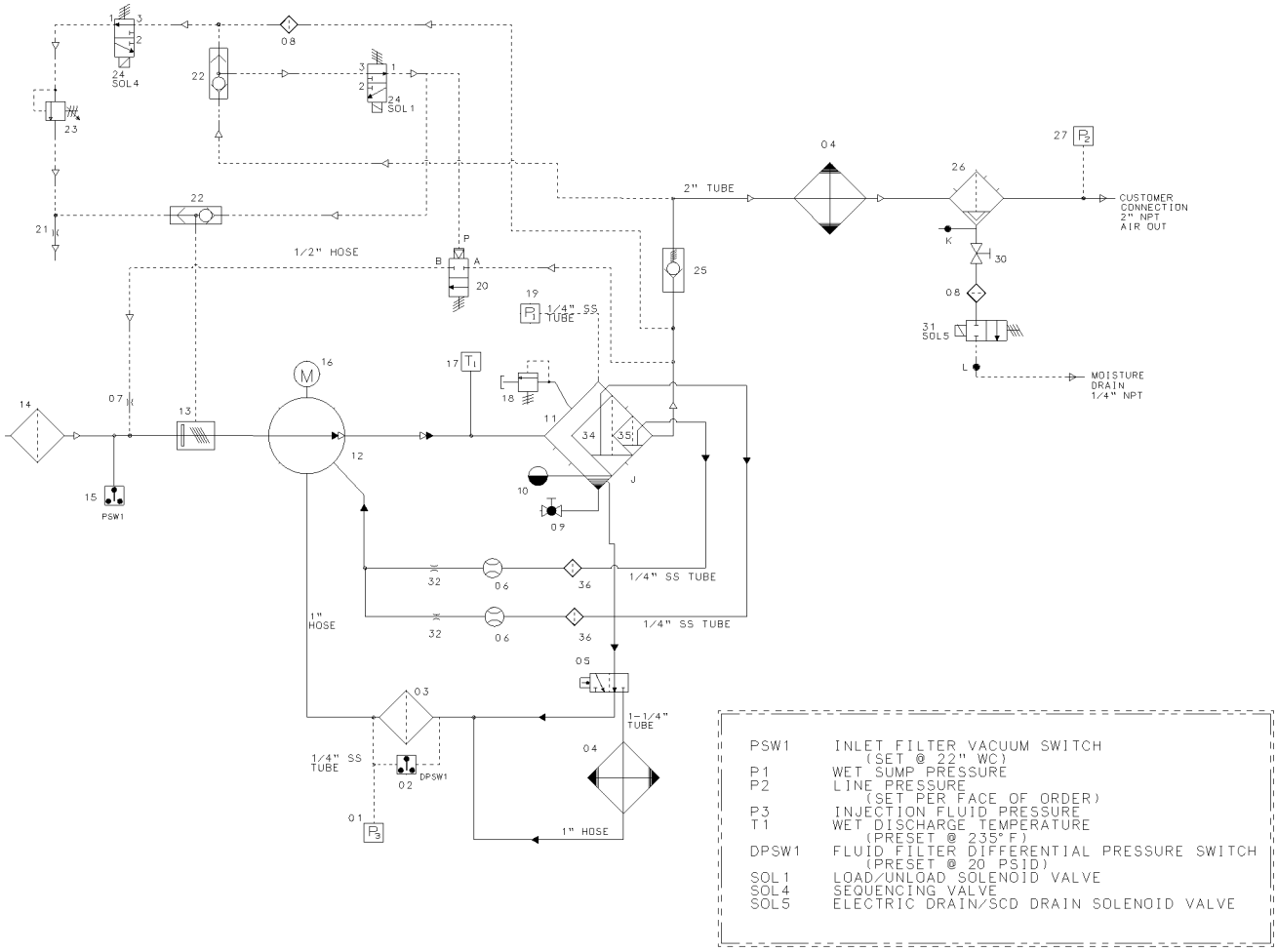
02250145-410R01

Figure 11-8 Piping and Instrumentation- V-160 60-75hp/45-55kw Air-cooled with Supervisor Controller

key number	description	part number	quantity
01	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
02	sw, diff press 20psid 12ft or	02250050-154	1
03	fltr, fl 1-5/8"SAE str thrd con	02250054-605	1
04	clr, air SAE ports	02250096-706	1
05	thermal valve element	049542	1
06	glass, sight-24kt 1/4(in-line)	02250126-129	2
07	orifice, .250 x <q1!4>m x <q1!4>f hex	02250143-403	1
08	strainer, v-type 300psix1/4	241771	2
09	valve, ball 3/4 SAE- m x 1/2 npt	02250098-303	1
10	glass, oil level 1-7/8 SAE	02250097-611	1
11	tank, sep ls/16	02250110-502	1
△4 12	compressor	various	1
13	valve, air inlet 4"	02250143-377	1
14	fltr, inl air hd	02250091-634	1
15	sw, vacuum 22"wc n4 - 6 ft cable	02250078-249	1
△4 16	motor	various	1
17	p, rtd 100 ohm platinum 12ft	250039-909	1
18	valve, rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
19	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
20	valve, 2-way pneumatic 1/2"npt	02250100-042	1
21	orifice, .040 1/4 fnpt x 1/4 mnpt	02250091-395	1
22	valve, shuttle 1/4" (dbl chk)	408893	2
23	valve, pressure regulator	250017-280	1
24	valve, sol 3w n.o. 1/4"	02250125-657	2
25	valve, 2-1/2" SAE min press chk	02250109-817	1
26	separator, water	02250144-613	1
27	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
28	heater, trap 70watt 120vac	02250087-631	1
29	heater, sump 12/16 120v	02250103-588	1
30	valve, ball 1/4"npt	047115	1
31	valve, sol 1/4" 2-way nc 200#	02250125-674	1
32	orifice, oil return .03	02250125-774	2
33	valve, sol 4w 1/4"	02250125-673	1
34	filter, assy genesis	02250117-782	2
35	drain, electric condensate scd-400	02250130-866	1

Section 9
VARIABLE SPEED DRIVE

Figure 11-9 Piping and Instrumentation- V-160 100hp/75kw Air-cooled with Supervisor Controller

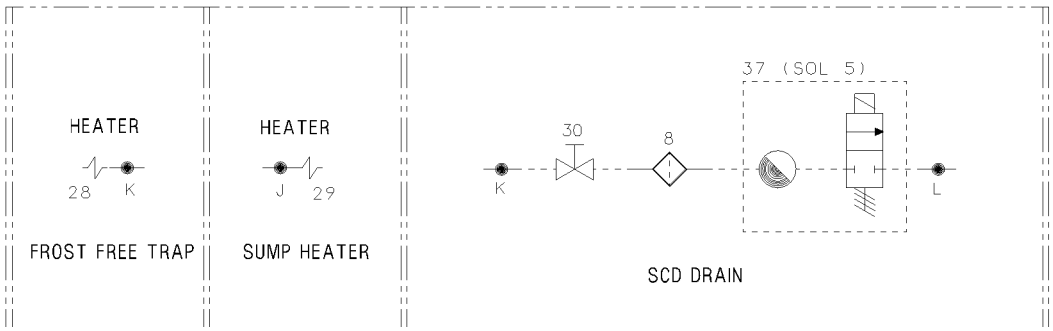


PSW1	INLET FILTER VACUUM SWITCH (SET @ 22" WC)
P1	WET SUMP PRESSURE
P2	LINE PRESSURE (SET PER FACE OF ORDER)
P3	INJECTION FLUID PRESSURE
T1	WET DISCHARGE TEMPERATURE (PRESET @ 235°F)
DPSW1	FLUID FILTER DIFFERENTIAL PRESSURE SWITCH (PRESET @ 20 PSID)
SOL1	LOAD/UNLOAD SOLENOID VALVE
SOL4	SEQUENCING VALVE
SOL5	ELECTRIC DRAIN/SCD DRAIN SOLENOID VALVE

CUSTOMER FURNISHED LINE
WATER LINE (2) (3)
CONTROL LINE (2) (3)
FLUID LINE
AIR/FLUID LINE
TEMP.CONTROL PROBE
AIR LINE

NOTES:

1. PART NUMBERS ARE FOR REFERENCE ONLY. REFER TO BILL OF MATERILA AND/OR FACE OF ORDER FOR ACTUAL PARTS.
2. CONTROL/MOISTURE DRAIN LINES ARE 1/4" TUBING EXCEPT AS NOTED.
3. OPTIONAL HEAT TRACE IS APPLIED ONLY TO CONTROL AND MOISTURE DRAIN LINES AND USED ONLY WITH STAINLESS STEEL TUBING.
4. PART VARIES BY MODEL.

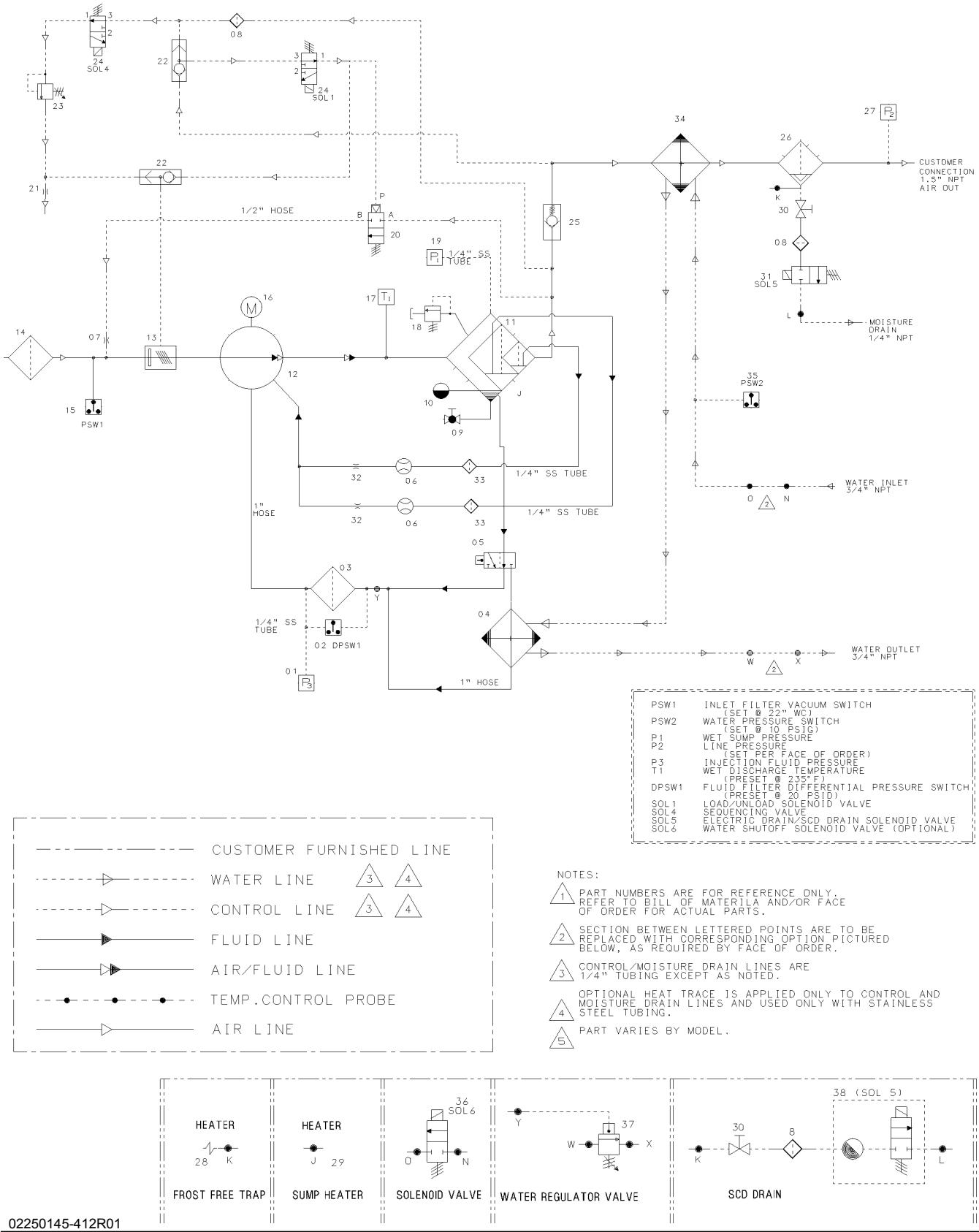


02250145-413R01

Figure 11-9 Piping and Instrumentation- V-160 100hp/75kw Air-cooled with Supervisor Controller

	key number	description	part number	quantity
	01	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	02	sw, diff press 20psid 12ft or	02250050-154	1
	03	fltr, fl 1-5/8"SAE str thrd con	02250054-605	1
	04	clr, air SAE ports	02250053-915	1
	05	thermal valve assembly	various	1
	06	glass, sight-24kt 1/4(in-line)	02250126-129	2
	07	orifice, .250 1/4m x 1/4f hex	02250143-403	1
	08	strainer, v-type 300psix1/4	241771	2
	09	valve, ball 3/4 SAE- m x 1/2 npt	02250098-303	1
	10	glass, oil level 1-7/8 SAE	02250097-611	1
	11	tank, sep ls16-100	02250110-502	1
4	12	compressor	various	1
	13	valve, air inlet 4"	02250143-377	1
	14	fltr, inl air hd 12"	02250059-096	1
	15	sw, vacuum 22"wc n4 - 6 ft cable	02250078-249	1
4	16	motor	various	1
	17	p, rtd 100 ohm platinum 12ft	250039-909	1
	18	valve, rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
	19	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	20	valve, 2-way pneumatic 1/2"npt	250030-276	1
	21	orifice, .040 1/4 fnpt x 1/4 mnpt	02250091-395	1
	22	valve, shuttle 1/4" (dbl chk)	408893	2
	23	valve, pressure regulator	250017-280	1
	24	valve, sol 3w n.o. 1/4"	02250125-657	2
	25	valve, 2-1/2 SAE min press chk	02250109-817	1
	26	separator, water	02250144-632	1
	27	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
	28	heater, trap 50watt 120v spcl	02250094-222	1
	29	heater, sump 12/16 120v	02250094-223	1
	30	valve, ball 1/4"npt	047115	1
	31	valve, sol 1/4" 2-way nc 200#	02250125-674	1
	32	orifice, oil return .03	02250125-774	2
	34	element, sep air/oil primary	02250100-753	1
	35	element, sep air/oil secondary	02250100-754	1
	36	filter, assy genesis	02250117-782	2
	37	drain, electric condensate scd400	02250130-866	1

Figure 11-10 Piping and Instrumentation- V-160 60-75hp/45-55kw Water-cooled with Supervisor Controller

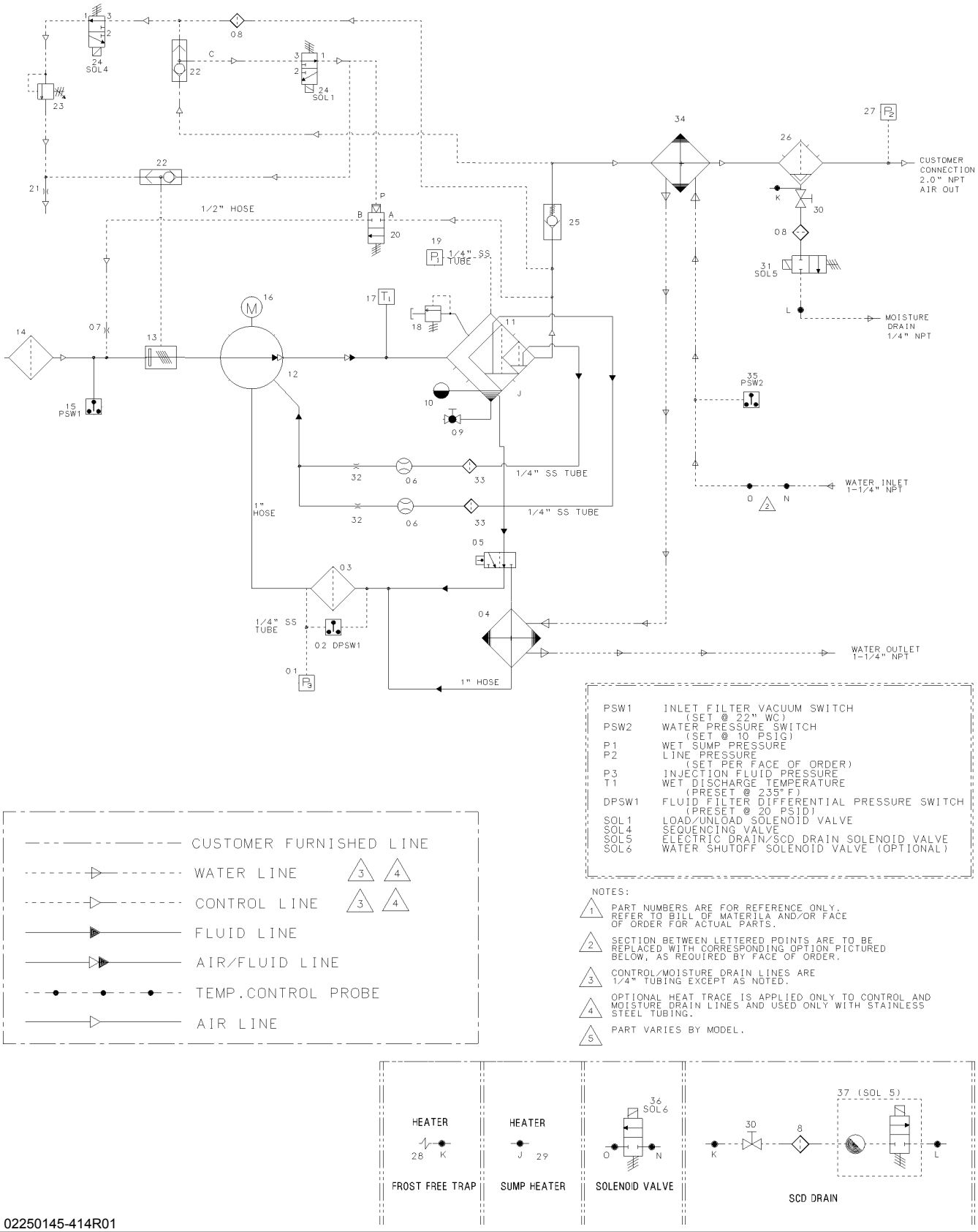


02250145-412R01

Figure 11-10 Piping and Instrumentation- V-160 60-75hp/45-55kw Water-cooled with Supervisor Controller

key number	description	part number	quantity
01	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
02	sw, diff press 20psid 12ft or	02250050-154	1
03	fltr, fl 1-5/8"SAE str thrd con	02250091-634	1
04	clr, oil/water SAE ports	02250094-744	1
05	thermal valve element	049542	1
06	glass, sight-24kt 1/4(in-line)	02250126-129	2
07	orifice, .250 1/4m x 1/4f hex	02250143-403	1
08	strainer, v-type 300psix1/4	241771	2
09	valve, ball 3/4 SAE- m x 1/2 npt	02250098-303	1
10	glass, oil level 1-7/8 SAE	02250097-611	1
11	tank, sep ls16	02250110-502	1
5 12	compressor	various	1
13	valve, air inlet 4"	02250143-377	1
14	fltr, inl air hd	02250091-634	1
15	sw, vacuum 22"wc n4 - 6 ft cable	02250078-249	1
5 16	motor	various	1
17	p, rtd 100 ohm platinum 12ft	250039-909	1
18	valve rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
19	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
20	valve, 2-way pneumatic 1/2"npt	02250100-042	1
21	orifice, .040 1/4 fnpt x 1/4 mnpt	02250091-395	1
22	valve, shuttle 1/4" (dbl chk)	408893	2
23	valve, pressure regulator	250017-280	1
24	valve, sol 3w n.o. 1/4"	02250125-657	2
25	valve, 2-1/2" SAE min press chk	02250109-817	1
26	separator, water	02250144-633	1
27	xdcr, press 0-250psi 1-5vdc n4	02250078-933	1
28	heater, trap 70watt 120vac	02250087-631	1
29	heater, sump 12/16 120v	02250103-588	1
30	valve, ball 1/4"npt	047115	1
31	valve, sol 1/4" 2-way nc 200#	02250125-674	1
32	orifice, oil return .03	02250125-774	2
33	filter, assy genesis	02250117-782	2
34	clr, air/water npt ports	040680	1
35	switch, pressure - low water	250017-992	1
36	valve, solenoid - shut off	02250125-668	1
37	valve, water regulator 3/4" 160-230f	047398	1
38	drain, electric condensate scd-400	02250130-866	1

Figure 11-11 Piping and Instrumentation- V-160 100hp/75kw Water-cooled with Supervisor Controller



02250145-414R01

Figure 11-11 Piping and Instrumentation- V-160 100hp/75kw Water-cooled with Supervisor Controller

key number	description	part number	quantity
01	xdcr,press 0-250psi 1-5vdc n4	02250078-933	1
02	sw,diff press 20psid 12ft or	02250050-154	1
03	fltr,fl 1-5/8"SAE str thrd con	02250091-634	1
04	clr, oil/water SAE ports	02250120-863	1
05	thermal valve element	049542	1
06	glass, sight-24kt 1/4(in-line)	02250126-129	2
07	orifice, .250 1/4m x 1/4f hex	02250143-403	1
08	strainer, v-type 300psix1/4	241771	2
09	valve,ball 3/4 SAE- m x 1/2 npt	02250098-303	1
10	glass, oil level 1-7/8 SAE	02250097-611	1
11	tank, sep ls16	02250110-502	1
△5 12	compressor	various	1
13	valve, air inlet 4"	02250143-377	1
14	fltr,inl air hd	02250091-634	1
15	sw,vacuum 22"wc n4 - 6 ft cable	02250078-249	1
△5 16	motor	various	1
17	p, rtd 100 ohm platinum 12ft	250039-909	1
18	valve,rlf 3/4" 200# 550scfm w/tefl	02250097-349	1
19	xdcr,press 0-250psi 1-5vdc n4	02250078-933	1
20	valve,2-way pneumatic 1/2"npt	02250100-042	1
21	orifice,.040 1/4 fnpt x 1/4 mnpt	02250091-395	1
22	valve, shuttle 1/4" (dbl chk)	408893	2
23	valve, pressure regulator	250017-280	1
24	valve, sol 3w n.o. 1/4"	02250125-657	2
25	valve, 2-1/2" SAE min press chk	02250109-817	1
26	separator, water	02250144-632	1
27	xdcr,press 0-250psi 1-5vdc n4	02250078-933	1
28	heater, trap 70watt 120vac	02250087-631	1
29	heater, sump 12/16 120v	02250103-588	1
30	valve, ball 1/4"npt	047115	1
31	valve, sol 1/4" 2-way nc 200#	02250125-674	1
32	orifice, oil return .03	02250125-774	2
33	filter, assy genesis	02250117-782	2
34	clr, air/water npt ports	043008	1
35	switch, pressure - low water	250017-992	1
36	valve, solenoid - shut off	02250125-668	1
37	drain,electric condensate scd400	02250130-866	1

NOTES

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 addresses, fax 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
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
element, compressor fluid filter 02250054-605 (40-75HP/ 37-55KW)	**250025-526**	**1**
element, heavy duty air filter 02250127-683 (120 Series)	**02250127-684**	**1**
element, heavy duty air filter 02250091-634 (160 Series 60-75HP/ 45-55KW)	**02250131-499**	**1**
element, primary heavy duty air filter 02250059-096 (160 Series 100HP/ 75KW)	**02250046-012**	**1**
element, secondary heavy duty air filter 02250059-096 (160 Series 100HP/ 75KW)	**02250046-013**	**1**
element, primary replacement for separator 02250100-753	**02250100-755**	**1**
element, secondary replacement for separator 02250100-754	**02250100-756**	**1**
kit repair for minimum pressure valve 02250109-817	**250018-456**	**1**
•kit, cap for minimum pressure valve 02250109-817	**02250044-355**	**1**
•kit, o-ring for minimum pressure valve 02250109-817	**02250048-365**	**1**
•kit, piston for minimum pressure valve 02250109-817	**02250051-336**	**1**
kit, repair for minimum pressure/check valve 02250097-598	**02250110-727**	**1**
•kit, cap for minimum pressure/check valve 02250097-598	**02250046-396**	**1**
•kit, o-ring for minimum pressure/check valve 02250097-598	**02250048-363**	**1**
•kit, piston for minimum pressure/check valve 02250097-598	**02250051-337**	**1**

(Continued on page 72)

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.2 RECOMMENDED SPARE PARTS LIST (CONTINUED)

DESCRIPTION	KIT NUMBER	QTY
kit, repair for thermal valve 049542 **(I)**	**02250105-553**	**1**
kit, repair for thermal valve 250028-762 **(II)**	**02250112-709**	**1**
kit, repair for pressure regulator 02250084-027 (120 Series)	**250019-453**	**1**
kit, repair for pressure regulator 250017-280 (160 Series)	**250019-453**	**1**
kit, repair for blowdown valve 02250100-042	**02250100-042**	**1**
kit, repair for solenoid valve 02250125-657	**02250125-829**	**1**
•kit, replacement for solenoid valve coil 02250125-657	**02250125-861**	**1**
kit, repair inlet valve 02250143-374 (120 Series)	**250031-438**	**1**
kit, repair inlet check valve assembly (120 Series)	**02250143-380**	**1**
kit, repair inlet valve 02250143-377 (160 Series)	**250029-249**	**1**
kit, repair inlet check valve assembly (160 Series)	**02250143-381**	**1**
kit, repair for v-type strainer 241771	**241772**	**1**
kit, repair for shaft seal (120 Series)	**02250050-363**	**1**
kit, repair for shaft seal (160 Series)	**02250050-364**	**1**
kit, repair for shaft seal installation	**602542-001**	**1**
filter, scavenge line 02250117-782	**02250117-782**	**2**
kit, element, replacement for separator/trap 02250144-635 (40, 50HP/ 37KW)	**02250144-735**	**1**
kit, repair for moisture separator 02250144-633 (60-75HP/ 45-55KW)	**02250144-732**	**1**
kit, repair for moisture separator 02250144-632 (100HP/ 75KW)	**02250144-732**	**1**
manual, Sequencing & Protocol **(III)**	**consult factory**	**1**
fluid, SRF 1/4000 (5 gal/ 19 liter)	**250019-662**	**(IV)**
lubricant, Sullube (Std.) (5 gal/ 19 liter)	**250022-669**	**(IV)**
lubricant, 24 KT (5 gal/ 19 liter)	**02250051-053**	**(IV)**
lubricant, Sullube (Std.) (5 gal/ 19 liter)	**250022-669**	**(IV)**
lubricant, Food Grade CP-4600-32-F (5 gal/ 19 liter)	**250029-008**	**(IV)**

(I) Used on standard compressors, and compressors < 150 psi/ 10.3 bar.

(II) Used on all 24KT and high pressure compressors ≥ 150 psi/ 10.3 bar.

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

(IV) For proper amount of fluid fill, please consult Lubrication Guide in Section 3, Specifications.

⚠ CAUTION

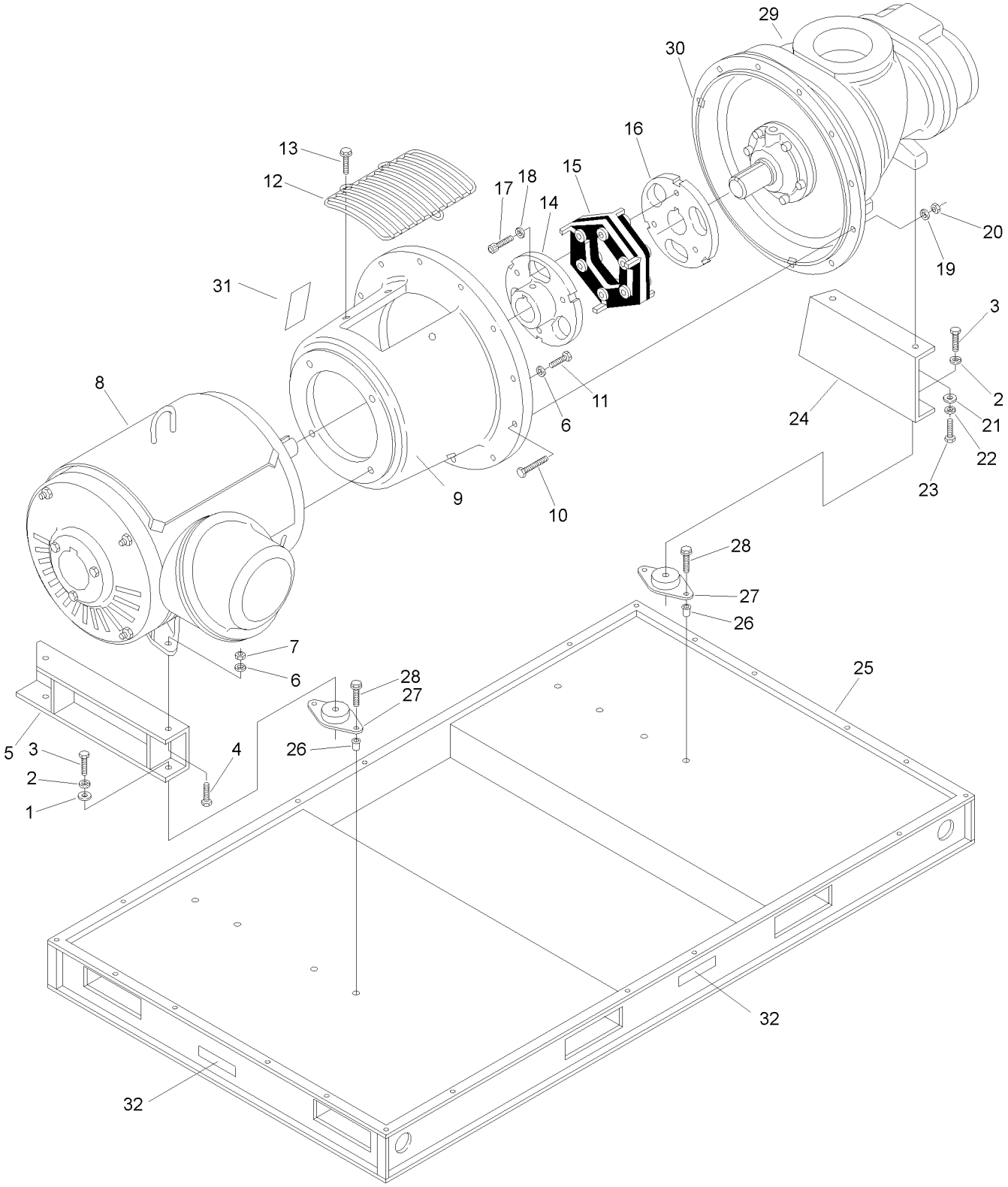
Mixing of other lubricants within the comperssor uit will void all warranties.

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

NOTES

Section 10
ILLUSTRATIONS AND PARTS LIST

10.3 MOTOR, FRAME, COMPRESSOR AND PARTS LS-120 (40-60HP/ 37-45KW)



10.3 MOTOR, FRAME, COMPRESSOR AND PARTS LS-120 (40-60HP/ 37-45KW)

key number	*description*	*part number*	*quantity*
1	washer, reg pltd 5/8"	838210-112	4
	•washer, reg pltd 1/2" **(I)**	838208-112	4
2	washer, springlock 5/8"	837810-156	4
	•washer, springlock 1/2" **(I)**	837808-125	4
3	capscrew, hex GR5 5/8-11x 1 1/4"	829110-125	4
	•capscrew, hex GR5 1/2"-13 x 1 1/4" **(I)**	829108-125	4
4	capscrew, hex GR5 5/8-11x 1 1/4"	829110-125	2
5	support, motor (40, 50HP/ 37KW)	250017-490	1
	support, motor (60HP/ 45KW)	250018-536	1
	•support, motor (40, 50HP/ 37KW) **(I)**	02250051-099	1
	•support, motor (60HP/ 45KW) **(I)**	02250073-416	1
6	washer, springlock 5/8"	837810-156	6
7	nut, hex 5/8"-11	866510-559	2
8	motor (40, 50HP/ 37KW)	consult factory	1
	•motor (60HP/ 45KW)	consult factory	1
9	adapter, compressor/motor	250014-882	1
10	capscrew, hex GR5 3/8"-16 x 2 1/4"	829106-225	10
11	capscrew, hex GR5 5/8"-11 x 1 1/2"	829110-150	4
12	guard, coupling	250018-412	1
13	screw, hex ser washer 5/16" x 3/4"	829705-075	3
14	hub, coupling 1 7/8" x 1/2" (40, 50HP/ 37KW)	250018-005	1
	•hub, coupling (60HP/ 45KW)	250018-008	1
15	element, coupling (40, 50HP/ 37KW)	250004-641	1
	•element, coupling (60HP/ 45KW)	250018-551	1
16	hub, coupling 1 3/4" x 3/8"	250004-642	1
	•hub, coupling (60HP)	250018-006	1
17	capscrew, ferry hd 1/2"-13 x 2 1/2" (40, 50HP/ 37KW)	867308-250	6
	•capscrew, ferry hd 5/8"-11 x 2 3/4" (60HP/ 45KW)	867310-275	6
18	washer, springlock 1/2" (40, 50HP/ 37KW)	837808-125	6
	•washer, springlock 5/8" (60HP/ 45KW)	837810-156	6
19	washer, springlock 3/8"	837806-094	10
20	nut, hex 3/8"-16	866506-337	10

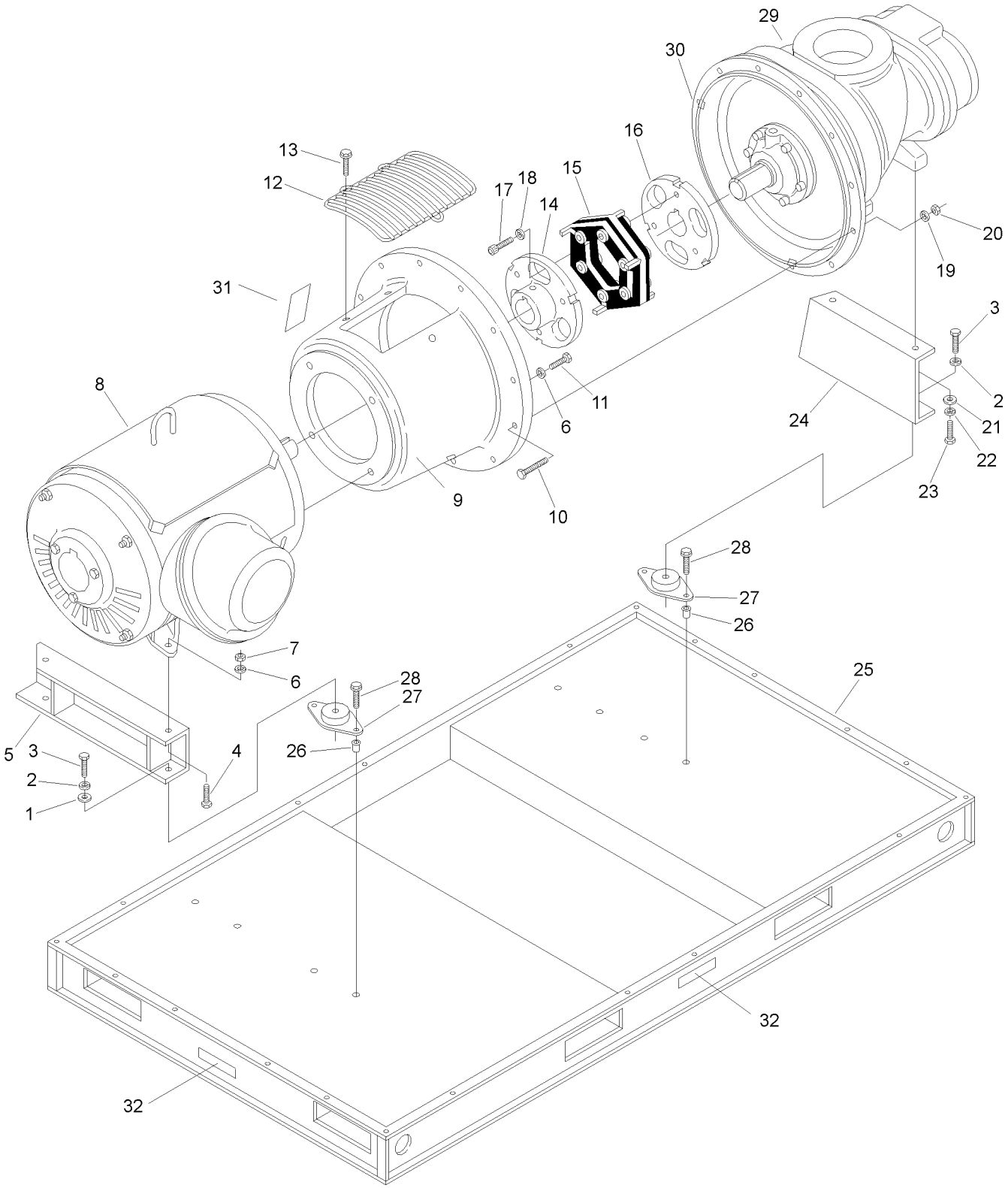
(Continued on page 77)

(I) Used on compressors with vibration mounts.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.3 MOTOR, FRAME, COMPRESSOR AND PARTS LS-120 (40-60HP/ 37-45KW)



10.3 MOTOR, FRAME, COMPRESSOR AND PARTS LS-120 (40-60HP/ 37-45KW) (CONTINUED)

key number	*description*	*part number*	*quantity*
21	washer, reg 1/2"	838208-112	2
22	washer, springlock 1/2"	837808-125	2
23	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	2
24	support, compressor	250017-489	1
	•support, compressor **(I)**	02250051-047	1
25	frame, main	02250142-585	1
26	•insert, 5/16" **(I)**	02250043-765	8
27	•mount, vibration **(I)**	02250045-677	4
28	•screw, hex ser washer 5/16" x 3/4" **(I)**	829705-075	8
29	unit, compressor **(II)**	consult factory	1
30	adapter, SAE 3 dxx12	250016-605	1
31	decal, sign, warning sever fan	046855	1
32	decal, fork lifting	241814	4

(I) Used on compressors with vibration mounts.

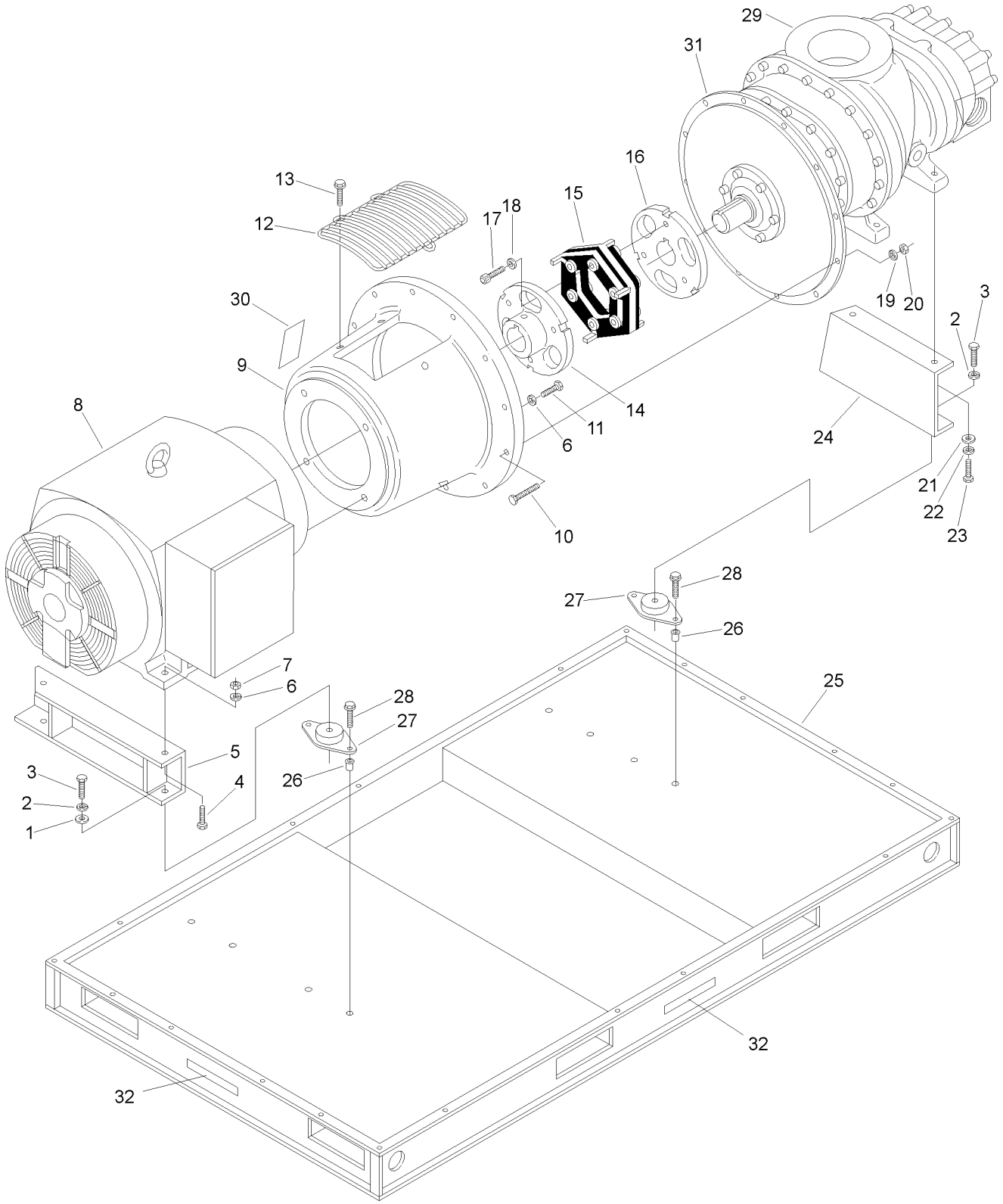
(II) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

The shaft seal is not considered part of the compressor unit in regard to the two year warranty, but the normal Sullair parts warranty applies. For shaft seal repairs order repair kit no. 02250050-363.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.4 MOTOR, FRAME, COMPRESSOR AND PARTS LS-160 (60-100HP/ 45-75KW)



10.4 MOTOR, FRAME, COMPRESSOR AND PARTS LS-160 (60-100HP/ 45-75KW)

key number	*description*	*part number*	*quantity*
1	washer, reg 5/8"	838210-112	4
	•washer, reg 1/2" **(I)**	838208-112	4
2	washer, springlock 5/8"	837810-156	4
	•washer, springlock 1/2" **(I)**	837808-125	4
3	capscrew, hex GR5 5/8"-11 x 1 1/4"	829110-125	4
	Scapscrew, hex GR5 1/2"-13 x 1 1/4" **(I)**	829108-125	4
4	capscrew, hex GR5 5/8"-11 x 1 1/4"	829110-125	2
5	support, motor (75HP/ 55KW)	250017-492	1
	•support, 2-pole motor (100HP/ 75KW)	02250110-041	1
	•support, motor **(I)**	02250045-776	1
6	washer, springlock 5/8"	837810-156	6
7	nut, hex 5/8"	866510-559	2
8	motor, 60HP/ 45KW	consult factory	1
	•motor, 75HP/ 55KW	consult factory	1
	•motor, 100HP 75KW	consult factory	1
9	adapter, motor/comp (75-100HP/ 56-75KW)	250014-883	1
10	capscrew, hex GR5 3/8"-16 x 2 1/4"	829106-225	12
11	capscrew, hex GR5 5/8"-11 x 1 1/2"	829110-150	4
12	guard, coupling	250018-412	1
13	screw, hex ser washer 5/16" x 3/4"	829705-075	3
14	hub, coupling 1 7/8" x 1/2" (75-100HP/ 56-75KW)	250018-006	1
15	element, coupling (75-100HP/ 56-75KW)	250018-551	1
16	hub, coupling (75-100HP/ 56-75KW)	250018-007	1
17	capscrew, ferry hd 5/8"-11 x 2 3/4"	867310-275	6
18	washer, springlock 5/8"	837810-156	6
19	washer, springlock 3/8"	837806-094	12
20	nut, hex 3/8"-16	866506-337	12
21	washer, reg 1/2"	838208-112	2
22	washer, springlock 1/2"	837808-125	2
23	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	2

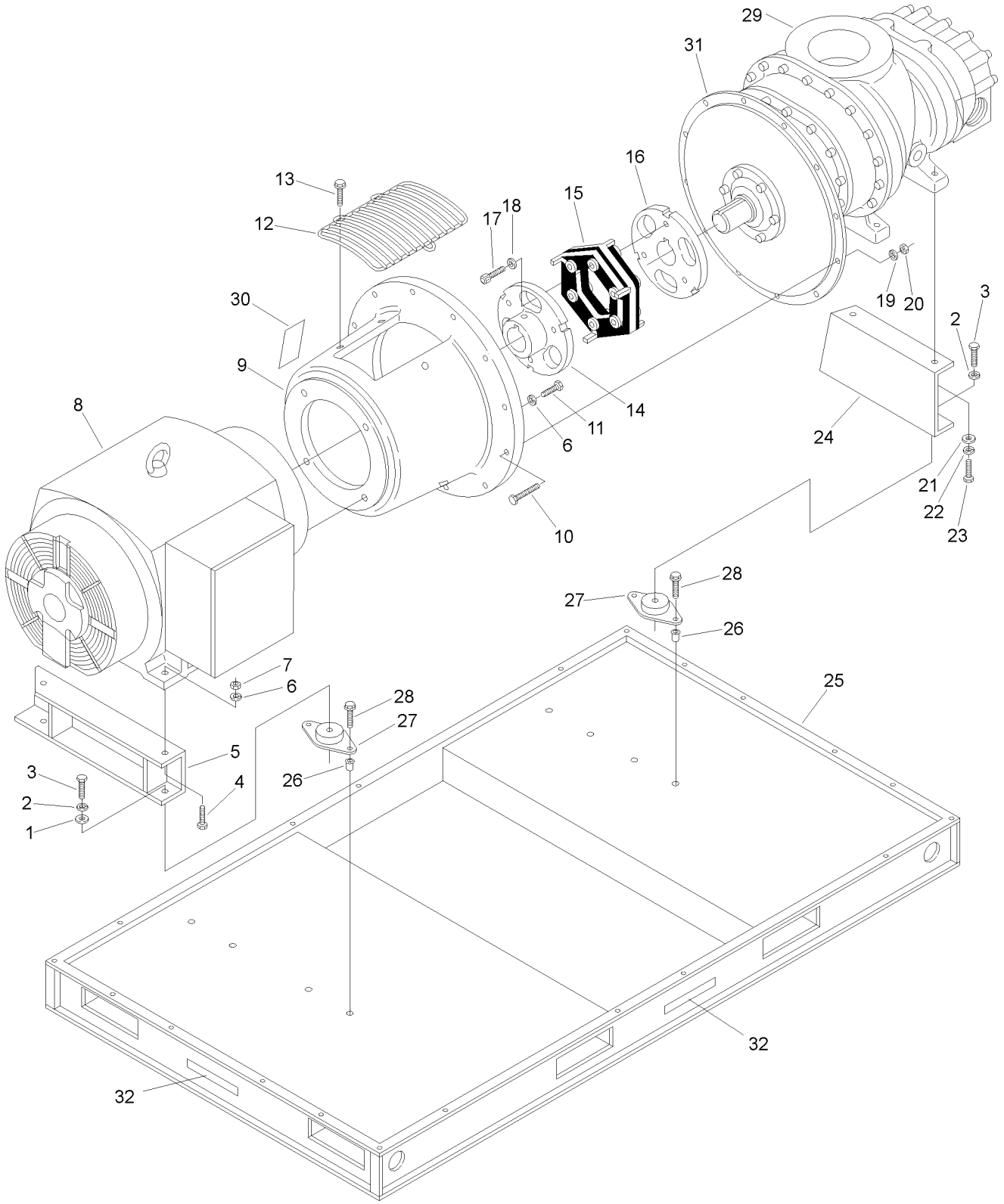
(Continued on page 81)

(I) Used on compressors with vibration mounts.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.4 MOTOR, FRAME, COMPRESSOR AND PARTS LS-160 (60-100HP/ 45-75KW)



10.4 MOTOR, FRAME, COMPRESSOR AND PARTS LS-160 (60-100HP/ 45-75KW)

key number	*description*	*part number*	*quantity*
24	support, comp (75-100HP/ 56-75KW)	250017-491	1
	•support, comp **(I)**	02250045-799	1
25	frame, main	02250142-585	1
26	insert, 5/16" **(I)**	02250043-765	8
27	mount, vibration **(I)**	02250045-677	4
28	screw, hex ser washer 5/16" x 3/4" **(I)**	829705-075	8
29	unit, compressor **(II)**	consult factory	1
30	sign, warning sever fan	049855	1
31	adapter, SAE 2 DXX 16	250016-611	1
32	decal, fork lifting	241814	4

(I) Used on compressors with vibration mounts.

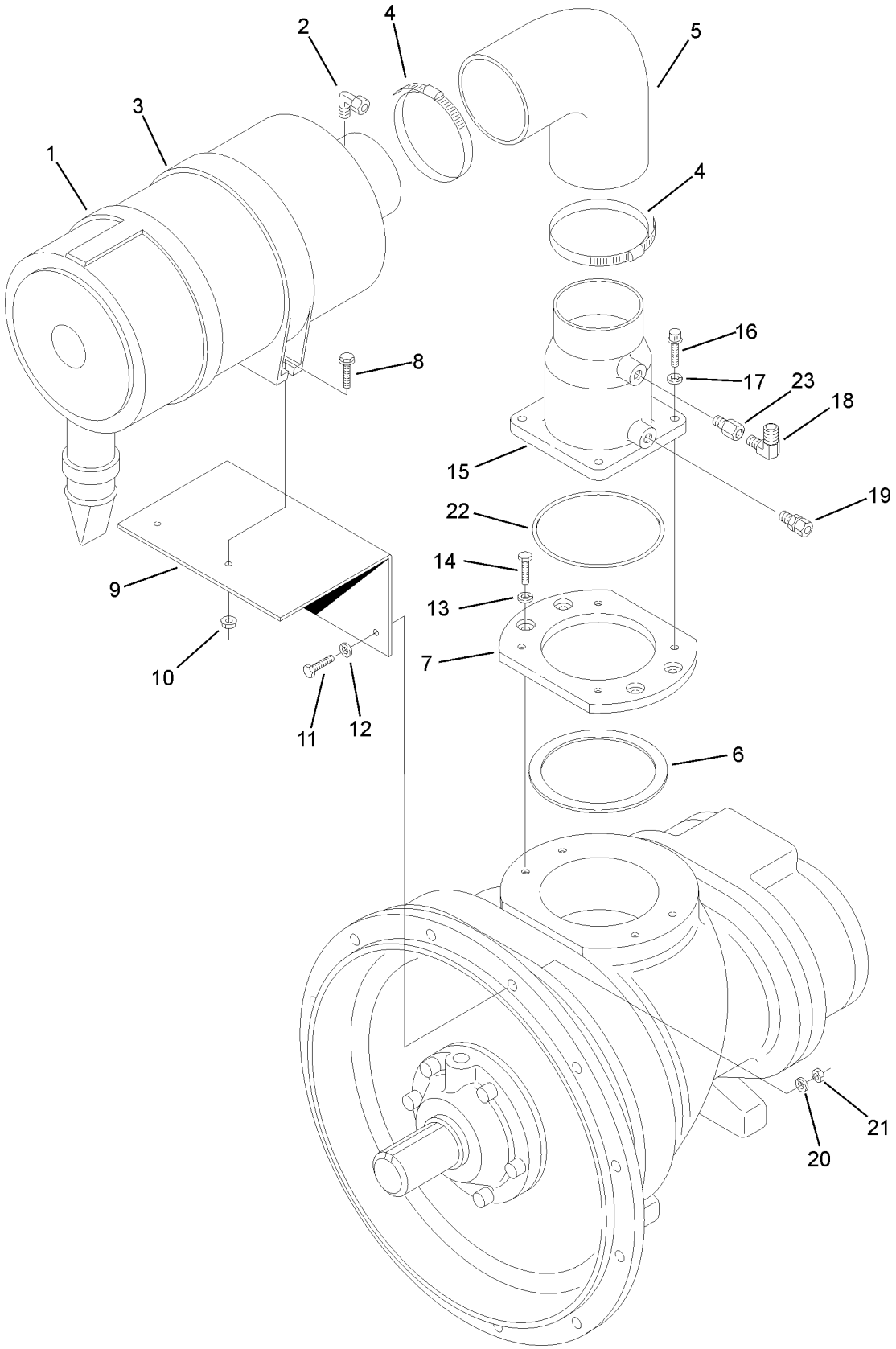
(II) There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

The shaft seal is not considered part of the compressor unit in regard to the two year warranty, but the normal Sullair parts warranty applies. For shaft seal repairs order repair kit no. 02250050-364.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.5 AIR INLET SYSTEM LS-120



10.5 AIR INLET SYSTEM LS-120

key number	*description*	*part number*	*quantity*
1	filter, air 9" **(I)**	02250127-683	1
2	elbow, tube-M 1/4" x 1/8"	250018-429	1
3	band, 9" air filter	049104	1
4	clamp, hose	040642	2
5	elbow, rubber 90º 4"	040550	1
6	gasket, 5 1/4" od **(II)**	040708	1
7	spacer, air connection valve	250022-950	1
8	screw, hex ser washer 5/16" x 3/4"	829705-075	2
9	support, filter	02250098-419	1
10	nut, hex flgd 5/16"-18	825305-283	2
11	capscrew, hex GR5 3/8"-16 x 2 1/2"	829106-250	2
12	washer, reg pltd 3/8"	838206-071	2
13	washer, springlock 5/8"	837810-156	4
14	capscrew, hex GR5 5/8"-11 x 1 1/4"	829110-125	4
15	valve, 3" poppet inlet **(III)**	02250143-374	1
16	capscrew, hex GR5 5/8"-11 x 1 1/2"	829110-150	4
17	washer, springlock 5/8"	837810-156	4
18	elbow, 37º fl 90º m 1/2 X 1/4	860208-025	1
19	connector, tube-M 1/4"T x 1/4"P	250018-428	1
20	washer, springlock 3/8"	837806-094	2
21	nut, hex 3/8"-16	866506-337	2
22	o-ring, viton 3 1/2" x 1/8"	826502-238	1
23	orifice, .25 x 1/4”m x 1/4”f	02250143-403	1

(I) For maintenance on air filter no. 02250127-683, order replacement element no. 02250127-684.

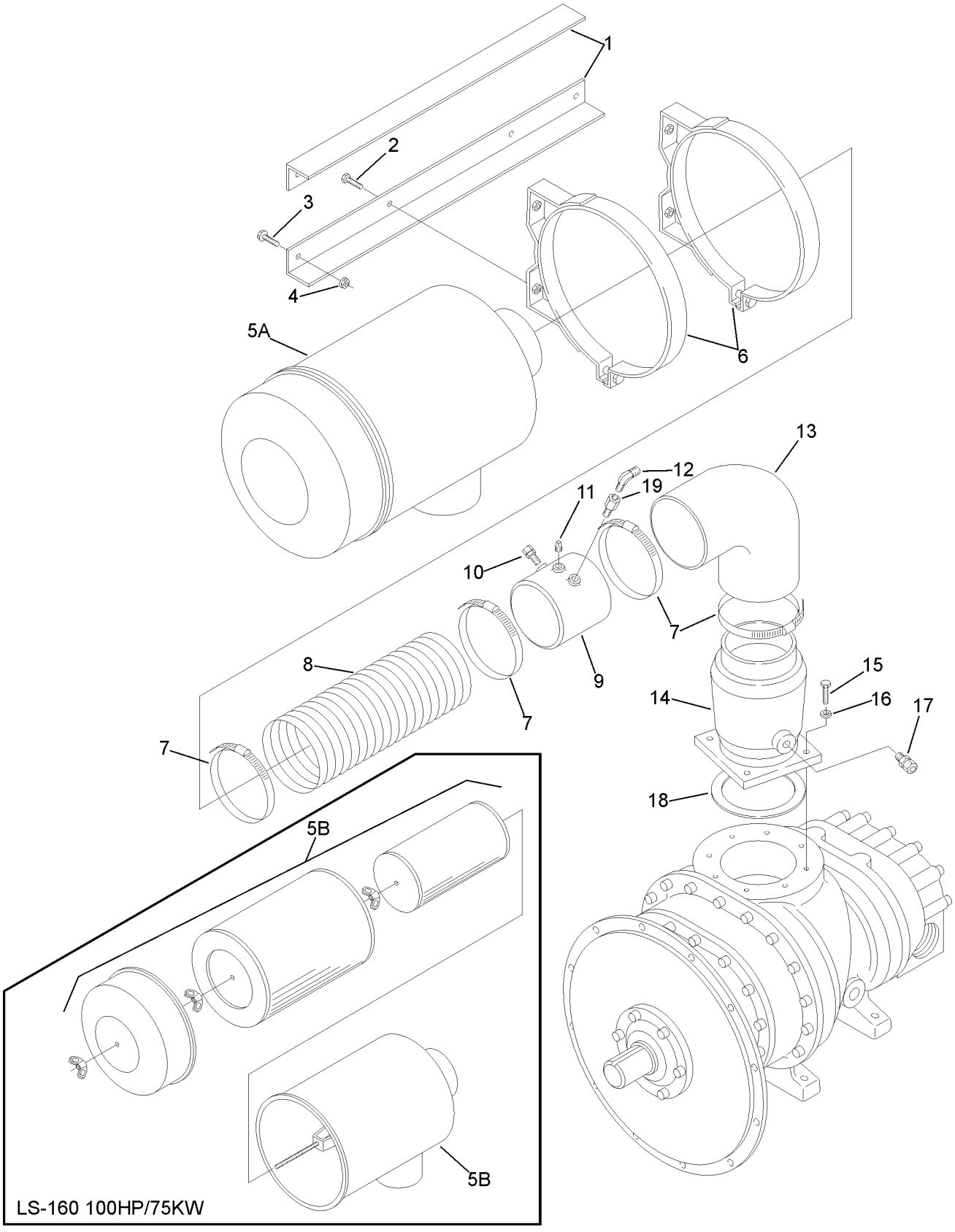
(II) For maintenance on air inlet, coat gasket no. 040708 with Loctite® 5900 or equivalent type of sealing agent before reassembly.

(III) For maintenance on inlet poppet valve no. 02250143-374, order repair kit no. 250031-438. For maintenance on inlet check valve, order repair kit no. 02250143-380.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.6 AIR INLET SYSTEM LS-160 (AIR-COOLED)



10.6 AIR INLET SYSTEM LS-160 (AIR-COOLED)

key number	*description*	*part number*	*quantity*
1	support, air filter	02250098-457	2
2	screw, hex ser washer 3/8" x 1"	829706-100	4
3	screw, hex ser washer 5/16" x 3/4"	829705-075	4
4	nut, hex flgd 5/16"-18	825305-283	4
5A	filter, air inlet (60& 75HP/ 45 & 55KW) **(I)**	02250091-634	1
5B	filter, air inlet (100HP/ 75KW) **(II)**	02250059-096	1
6	band, mounting 12"	040081	2
7	clamp, hose 6"	408153	4
8	hose, flexible 5"	02250093-920	1
9	tube, air inlet w/ connectors	02250126-730	1
10	connector, tube-M 1/4" x 1/8"	250018-427	1
11	plug, pipe 1/8"	807800-005	1
12	elbow, 37ºfl 90ºm 1/2 X 1/4	860208-025	1
13	elbow, rubber 90º 5"	02250061-835	1
14	valve, air inlet 4" **(III)**	02250143-377	1
15	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	4
16	washer, springlock 1/2"	837808-125	4
17	connector, tube-M 1/4"T x 1/4"P	250018-428	1
18	gasket, 5 1/4" OD **(IV)**	040708	1
19	orifice, .25” x 1/4”m x 1/4”f	02250143-403	1

(I) For maintenance on air filter no. 02250091-634, order replacement element no. 02250131-499.

(II) For maintenance on air filter no. 02250059-096, order primary replacement element no. 02250046-012, and secondary replacement element no. 02250046-013.

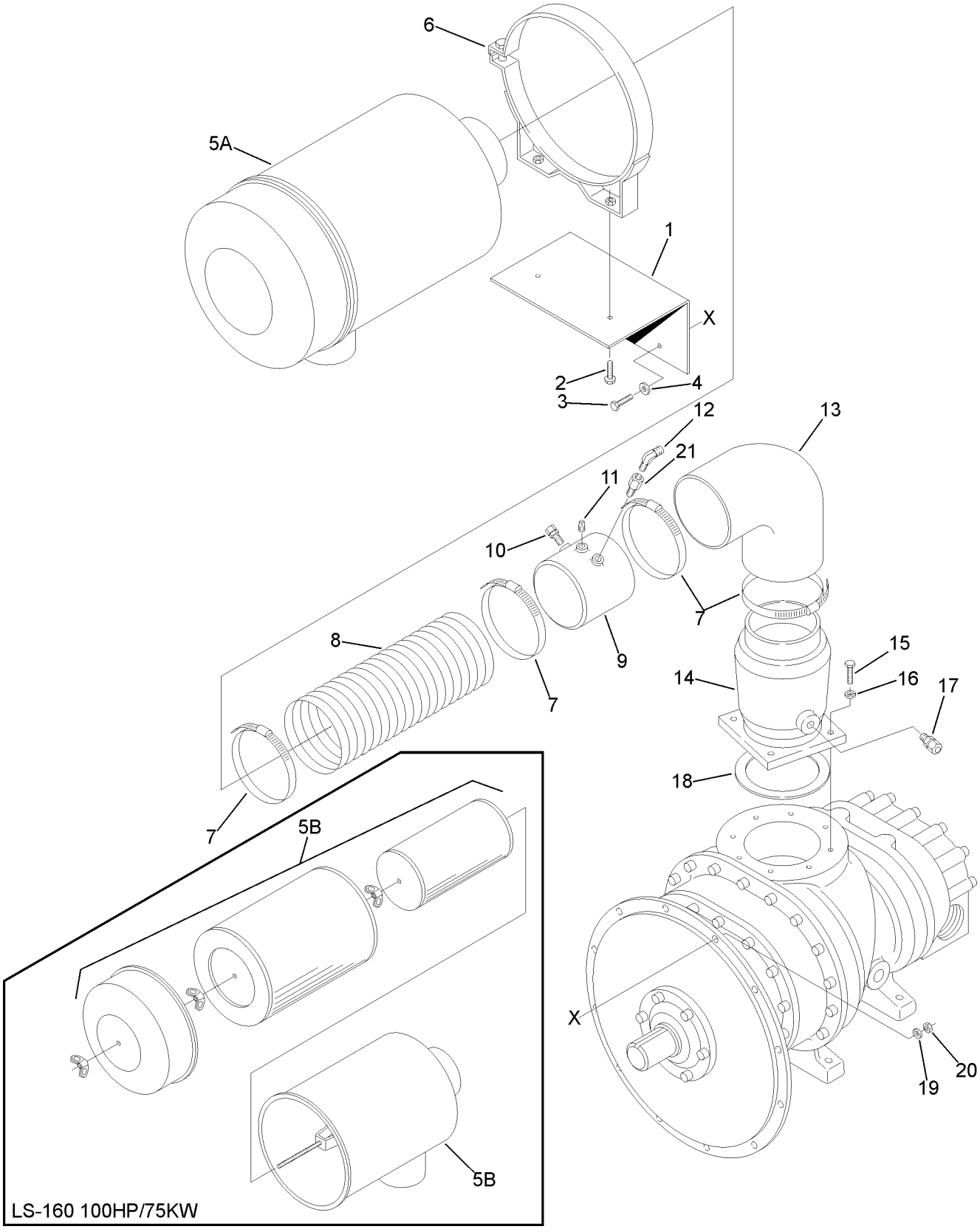
(III) For maintenance on air inlet valve no. 02250143-377, order repair kit no. 250029-249. For maintenance on inlet check valve, order repair kit no. 02250143-381.

(IV) For maintenance on air inlet, coat gasket no. 040708 with Loctite® 5900 or equivalent type of sealing agent before reassembly.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.7 AIR INLET SYSTEM LS-160 (WATER-COOLED)



10.7 AIR INLET SYSTEM LS-160 (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	support, air filter	02250106-704	1
2	screw, hex ser washer 3/8" x 1"	829706-100	2
3	capscrew, hex GR5 3/8"-16 x 2 1/2"	829106-250	2
4	washer, reg 3/8"	838206-071	2
5A	filter, air inlet (60& 75HP/ 45 & 55KW) **(I)**	02250091-634	1
5B	filter, air inlet (100HP/ 75KW) **(II)**	02250059-096	1
6	band, mounting 12"	040081	1
7	clamp, hose 6"	408153	3
8	hose, flexible 5"	02250093-920	1
9	tube, air inlet w/ connectors	02250126-730	1
10	connector, tube-M 1/4" x 1/8"	250018-427	1
11	plug, pipe 1/8"	807800-005	1
12	elbow, 37ºfl 90ºm 1/2” x 1/4”	860208-025	1
13	elbow, rubber 90º 5"	02250061-835	1
14	valve, air inlet 4" **(III)**	02250143-377	1
15	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	4
16	washer, springlock 1/2"	837808-125	4
17	connector, tube-M 1/4"T x 1/4"P	250018-428	1
18	gasket, 5 1/4" OD **(IV)**	040708	1
19	washer, springlock 3/8"	837806-094	2
20	nut, hex 3/8"	825206-337	2
21	orifice, .25 x 1/4”m x 1/4”f	02250143-403	1

(I) For maintenance on air filter no. 02250091-634, order replacement element no. 02250131-499.

(II) For maintenance on air filter no. 02250059-096, order primary replacement element no. 02250046-012, and secondary replacement element no. 02250046-013.

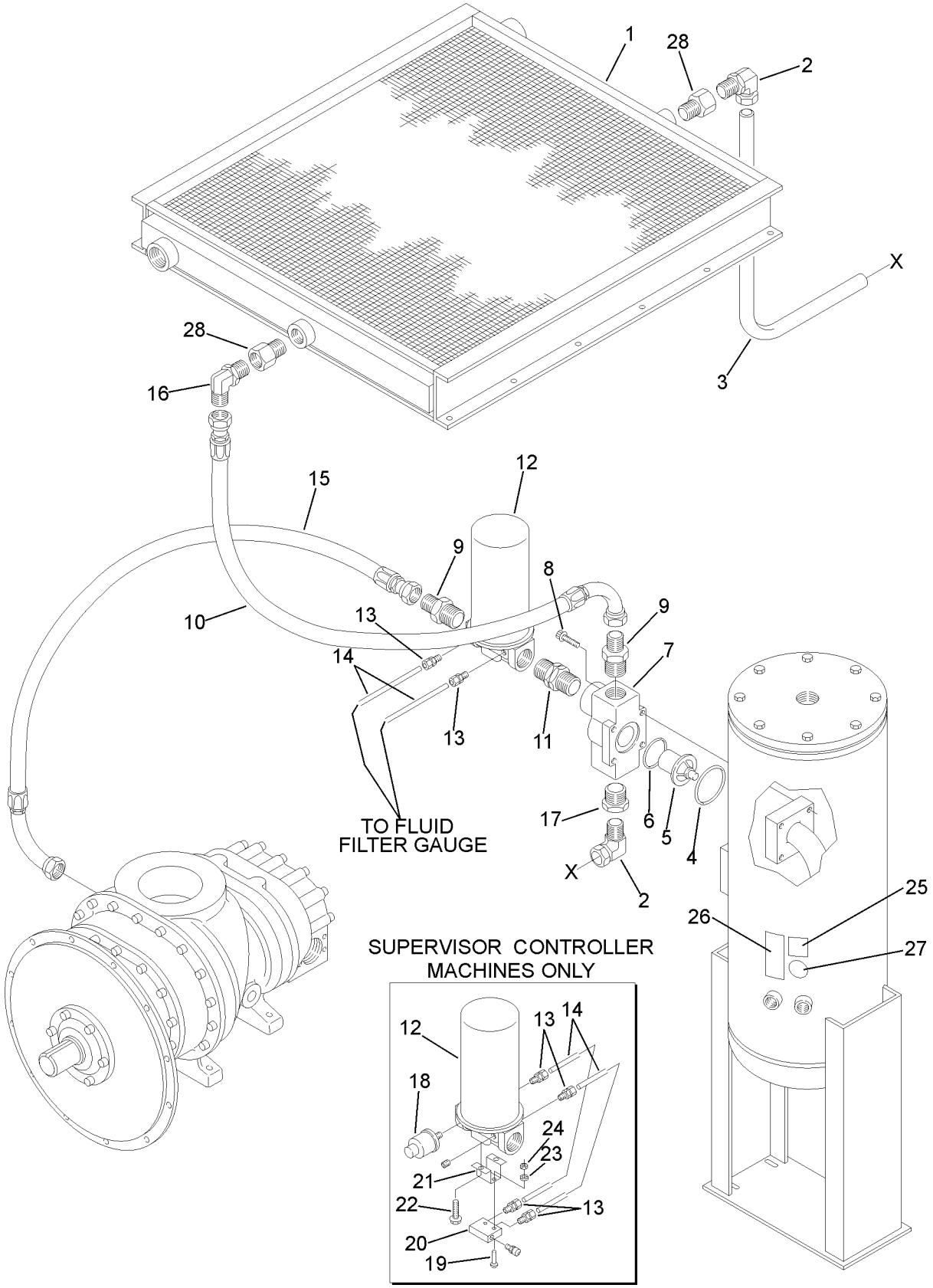
(III) For maintenance on air inlet valve no. 02250143-377, order repair kit no. 250029-249.

(IV) For maintenance on air inlet, coat gasket no. 040708 with Loctite® 5900 or equivalent type of sealing agent before reassembly.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.8 COOLING AND LUBRICATION SYSTEM (AIR-COOLED)



10.8 COOLING AND LUBRICATION SYSTEM (AIR-COOLED)

key number	*description*	*part number*	*quantity*
1	cooler, fluid/after (40, 50HP/ 37KW)	02250096-705	1
	•cooler, fluid/after (60-75HP/ 45-55KW)	02250096-706	1
	•cooler, fluid/after (100HP/ 75KW)	02250053-915	1
2	elbow, tube 1" x 1 5/16"	811616-131	2
	•elbow, tube (100HP/ 75KW)	811620-162	2
3	tube, thermal valve to cooler (40, 50HP/ 37KW)	02250115-266	1
	•tube, thermal valve to cooler (60-75HP/ 45-55KW)	02250142-591	1
	•tube, thermal valve to cooler (100HP/ 75KW)	02250142-609	1
4	o-ring, viton 2 1/2"	826502-144	1
5	element, thermal valve 175º **(I)**	049542	1
	•element, thermal valve 190º **(II)**	250028-762	1
6	seal, U-cup viton	02250101-372	1
7	housing, thermal valve	02250092-929	1
8	capscrew, ferry hd 3/8"-16 x 1 1/2"	867306-150	4
9	connector, SAE 1" x 1.25"	02250093-806	2
10	hose, swivel end 1" x 79"	02250135-589	1
11	adapter, SAE 1 5/8" x 1 5/8"	02250055-015	1
12	filter, fluid 1 5/8" **(III)**	02250054-605	1
13	connector, tube-M 1/4" x 1/8" (E/M)	250139-024	2
	•connector, tube-M 1/4" x 1/8"(Supervisor Controller)	250139-024	4
14	tubing, stainless steel 1/4" (E/M)	841215-004	14.5 ft
	•tubing, stainless steel 1/4" (Supervisor Controller)	841215-004	0.9 ft
15	hose, swivel end 1" x 35"	02250098-622	1
16	elbow, SAE 1" 90º (50-75HP/ 37-55KW)	02250087-070	1
	•elbow, SAE 1 1/4” x 1” 90º (100HP/ 75KW)	02250093-804	1
17	reducer, hex 1 1/4" x 1" (50-75HP/ 37-55KW)	870020-016	1
18	transducer, pressure 0-250	02250078-933	1
19	screw, machine rd hd #8-32 x 1"	831601-100	2
20	switch, differential pressure	02250050-154	1
21	support, differential pressure switch	02250050-500	1

(Continued on page 91)

(I) For maintenance on thermal valve (< 150 psi/ 10.3 bar), order repair kit no. 02250105-553.

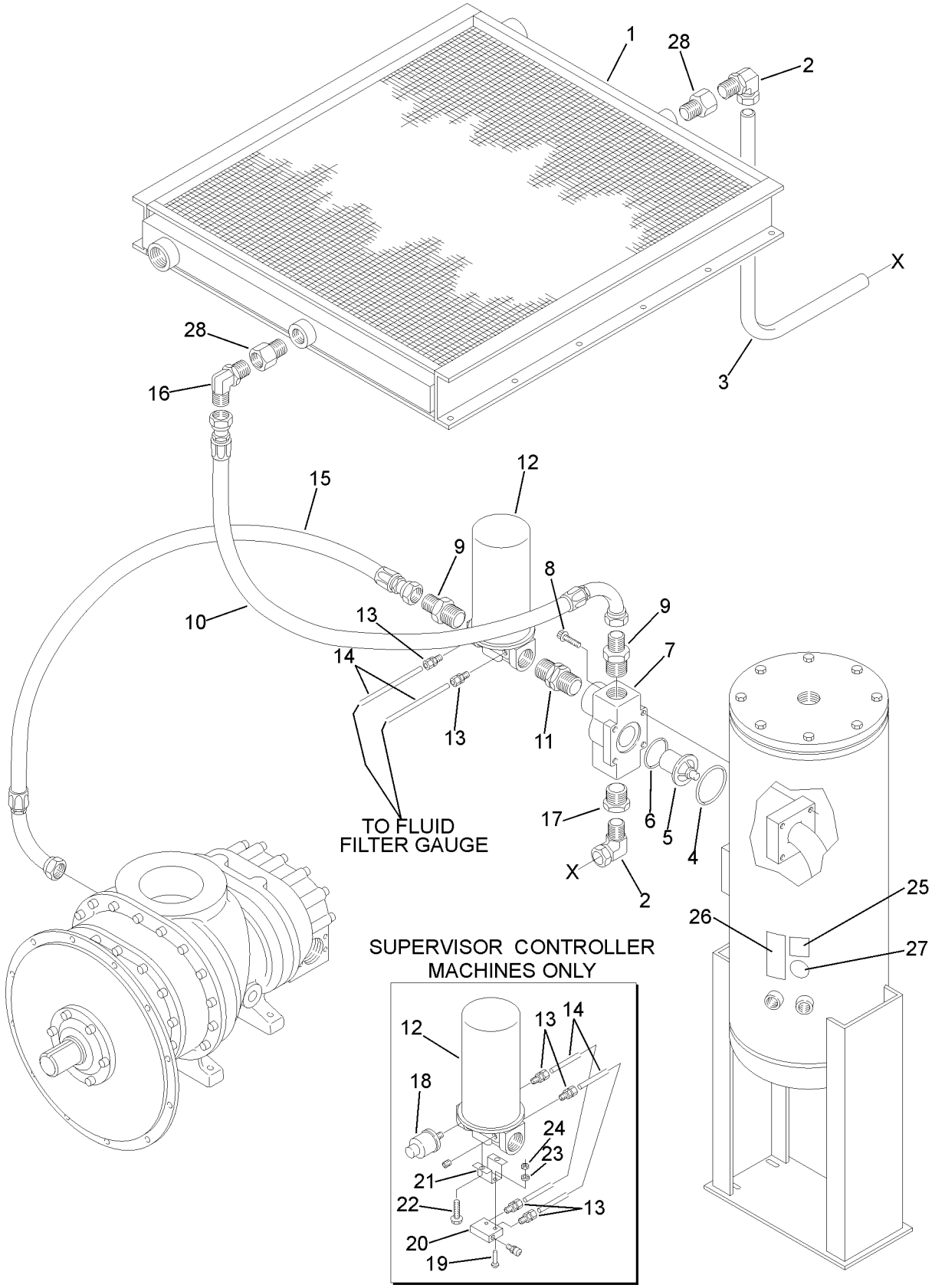
(II) For maintenance on thermal valve (≥ 150 psi/ 10.3 bar), order repair kit no. 02250112-709.

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

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.8 COOLING AND LUBRICATION SYSTEM (AIR-COOLED)



10.8 COOLING AND LUBRICATION SYSTEM (AIR-COOLED) (CONTINUED)

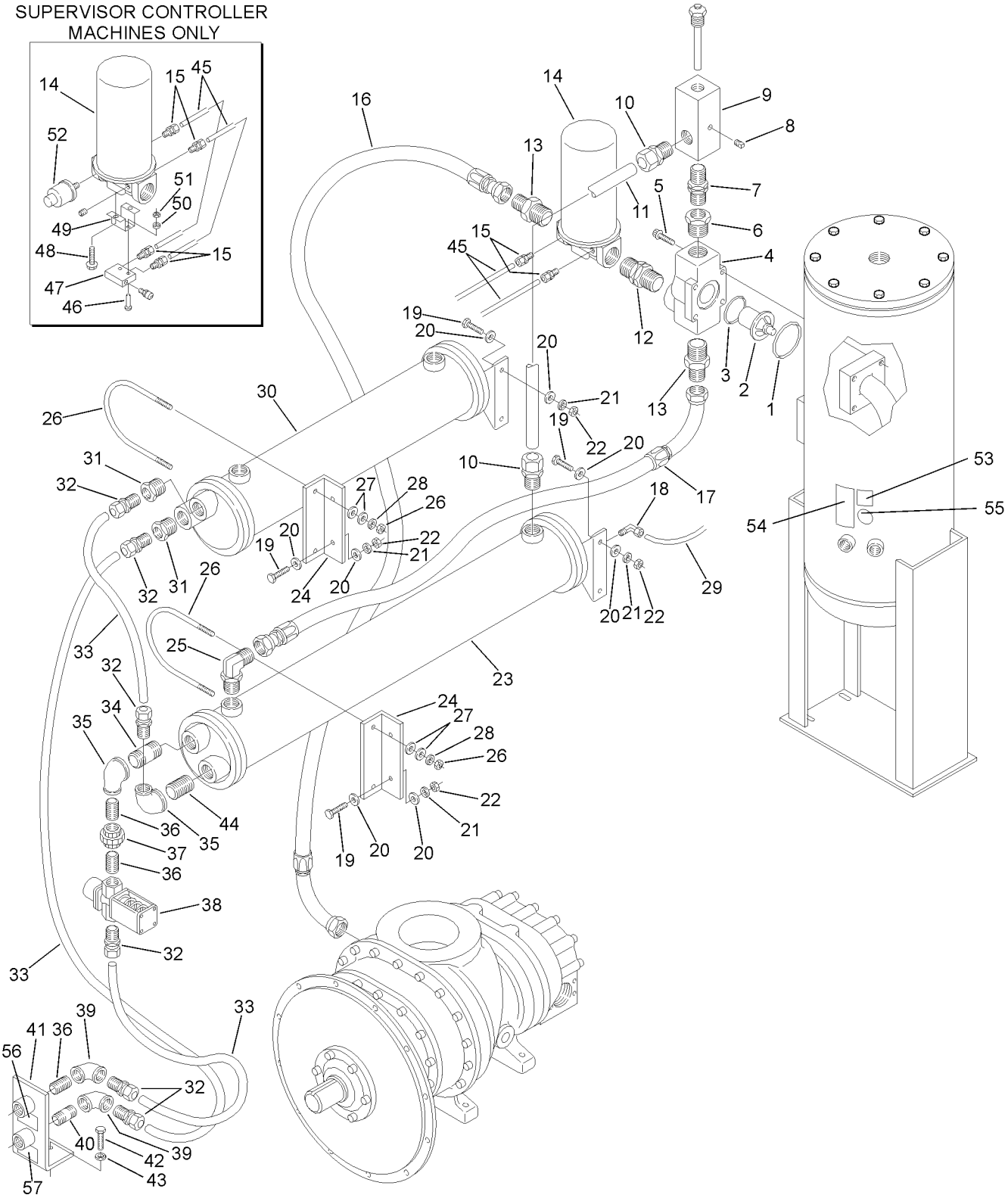
key number	*description*	*part number*	*quantity*
22	screw, hex ser washer 5/16" x 1/2"	829705-050	2
23	washer, springlock #10	837802-047	2
24	nut, hex plated #8 x 32	825201-130	2
25	decal, warning mixing fluids	02250110-891	1
26	decal, warning compressor fluid fill cap	049685	1
27	decal, Sullube **(III)**	02250069-389	1
28	reducer, 1 7/8" x 1 5/8" (100HP/ 75KW)	870024-020	2

(III) Sullube is the standard fill for LS-120 and LS-160 air compressors. If your compressor has an optional fill, consult Section *10.32, Decal Group* (key numbers 20A-20D) for matching fluid decal part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED)



10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	o-ring, viton 2-1/2" x 3/32"	826502-144	1
2	element, thermal valve 175-deg **(I)**	049542	1
	•element, thermal valve 190-deg **(II)**	250028-762	1
3	seal, u-cup viton	02250101-372	1
4	housing, thermal valve	02250092-929	1
5	capscrew, ferry hd pltd 3/8"-16 x 1-1/2"	867306-150	4
6	reducer, hex 1-1/4" x 1" SAE	870020-016	1
7	adapter, SAE 1-5/16" x 1-5/16"	02250086-022	1
8	plug, pipe 1/4" 3000# plated	866900-010	1
9	tee, SAE/npt-oil return	02250085-979	1
10	connector, tube strt thrd 1 x 1-5/16"	811816-131	2
11	tube, thermal valve - heat exchanger	02250105-498	1
12	adapter, SAE 1-5/8"-12 x 1-5/8"-12	02250055-015	1
13	connector, SAE x orfs 1" x 1-5/16"	02250093-806	2
14	filter, fluid 1-5/8" SAE strt thread **(III)**	02250054-605	1
15	connector, tube-m 1/4" x 1/8" s.s. (E-M DC)	250139-024	2
	•connector, tube-m 1/4" x 1/8" s.s. (Supervisor Controller)	250139-024	4
16	hose, mp orfs f-swvl end 1 x 35"	02250098-622	1
17	hose, mp orfs f-swvl end 1 x 60"	02250105-496	1
18	elbow, tube-m 1/4" x 3/8"	250018-530	1
19	capscrew, hex gr5 3/8"-16 x 1-1/4" plated	829106-125	8
20	washer, pl-b reg plated 3/8"	837806-094	16
21	washer, springlock reg plated 3/8"	837806-094	8
22	nut, hex plated 3/8" - 16	825206-337	8
23	•clr, oil/water 5" x 36" 1-5/16"SAE	02250094-744	1
24	bracket, cooler 6" (40, 50HP/ 37KW)	250019-027	1
	•bracket, cooler 6" (60-75HP/ 45-55KW)	250019-027	2
25	elbow, 90-deg SAE x orfs 1"	02250087-070	1

(Continued on page 95)

(I) For maintenance on thermal valve (< 150 psi/ 10.3 bar), order repair kit no. 02250105-553.

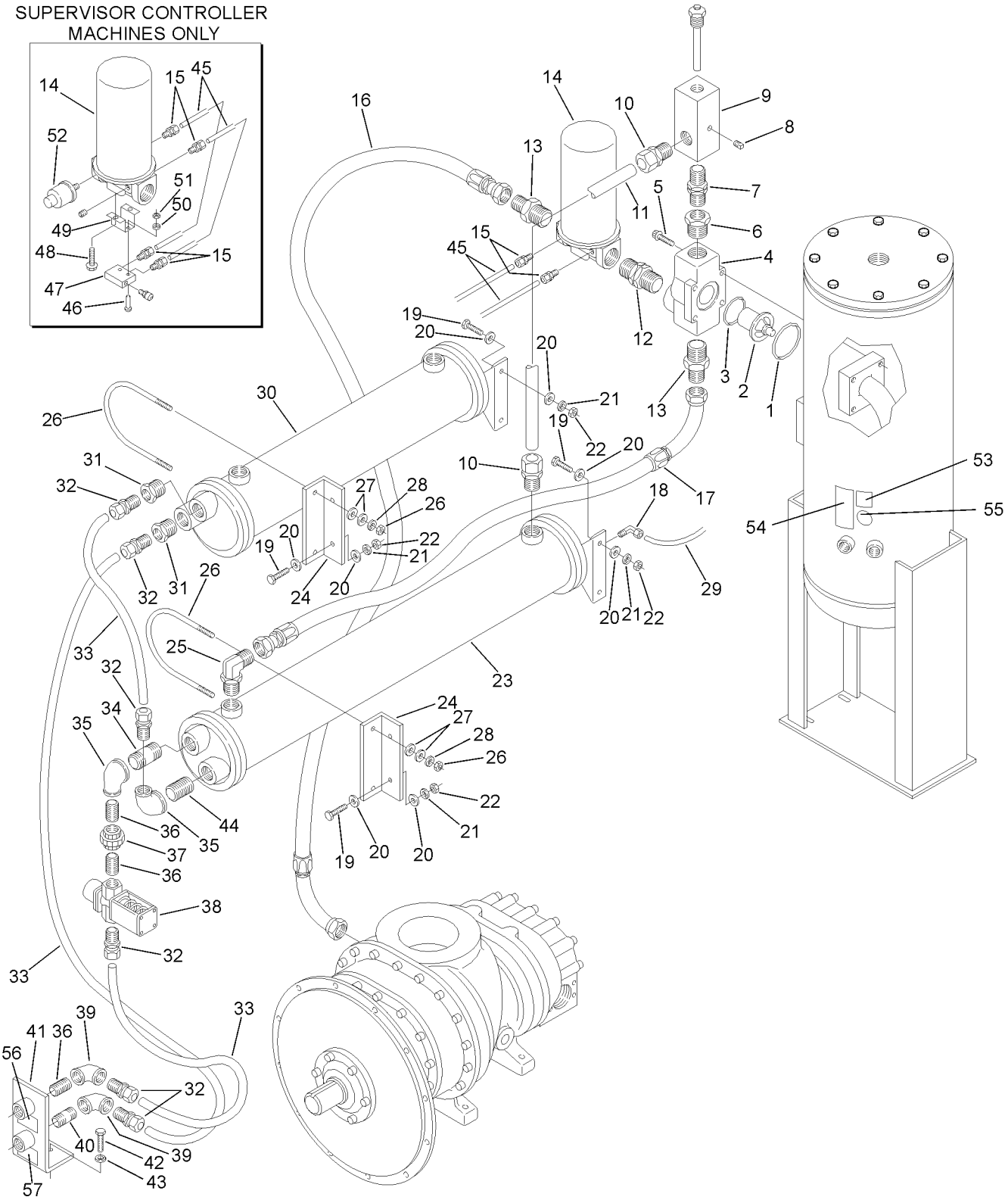
(II) For maintenance on thermal valve (≥ 150 psi/ 10.3 bar), order repair kit no. 02250112-709.

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

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED)



10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
26	clamp, exhaust 5" (40, 50HP/ 37KW)	043364	1
	•clamp, exhaust 5" (60-75HP/ 45-55KW)	043364	2
27	washer, pl-b reg plated 1/2" (40, 50HP/ 37KW)	838208-112	4
	•washer, pl-b reg plated 1/2" (60HP/ 45KW)	838208-112	8
28	washer, springlock reg plated 1/2" (40, 50HP/ 37KW)	837808-125	2
	•washer, springlock reg plated 1/2"		
29	tubing, nylon 1/4" black	02250054-861	4
30	heat exchanger, air/water 5" x 17" (40, 50HP/ 37KW)	250017-527	1
	•heat exchanger, air/water 5" x 24" (60HP/ 45KW)	040680	1
31	bushing, reducing 1" x 3/4" steel plated	867104-030	2
32	connector, plastic tube 3/4" x 3/4"	250039-357	6
33	tubing, thermoplastic 3/4" (40, 50HP/ 37KW)	250039-353	10.2 ft
	•tubing, thermoplastic 3/4" (60HP/ 45KW)	250039-353	9
34	nipple, pipe 1" x 3-1/2" plated	866316-035	1
35	elbow, reducing 1" x 3/4" 150# plated	869204-030	2
36	nipple, pipe xs 3/4" x close plated **(IV)**	866412-000	3
37	union, pipe brass seat 3/4" 300# plated **(IV)**	868030-030	1
38	valve, water regulating 3/4" 160-230F **(IV)**	047398	1
39	elbow, pipe 90-deg 3/4" 150# plated	866215-030	2
40	nipple, pipe 3/4" x 2" plated	866312-020	1
41	bracket, water connection 3/4"npt	250017-234	1
42	capscrew, hex gr5 1/2"-13 x 1-1/4"	829108-125	1
43	washer, springlock reg plated 1/2"	837808-125	1
44	nipple, pipe xs 1" x close plated	866416-000	1
45	tubing, stainless steel 1/4" (E/M DC)	841115-004	14.5 ft
	•tubing, stainless steel 1/4" (Supervisor Controller)	841515-004	.75 ft
46	screw, mach-rd #10-24 x 1"	831602-100	2
47	switch, pressure differential	02250050-154	1
48	screw, hex ser washer 5/16" x 1/2"	829705-050	2
49	bracket, support diff press switch	02250050-500	1
50	washer, springlock reg plated #10	837802-047	2
51	nut, hex plated #10-24	825202-130	2

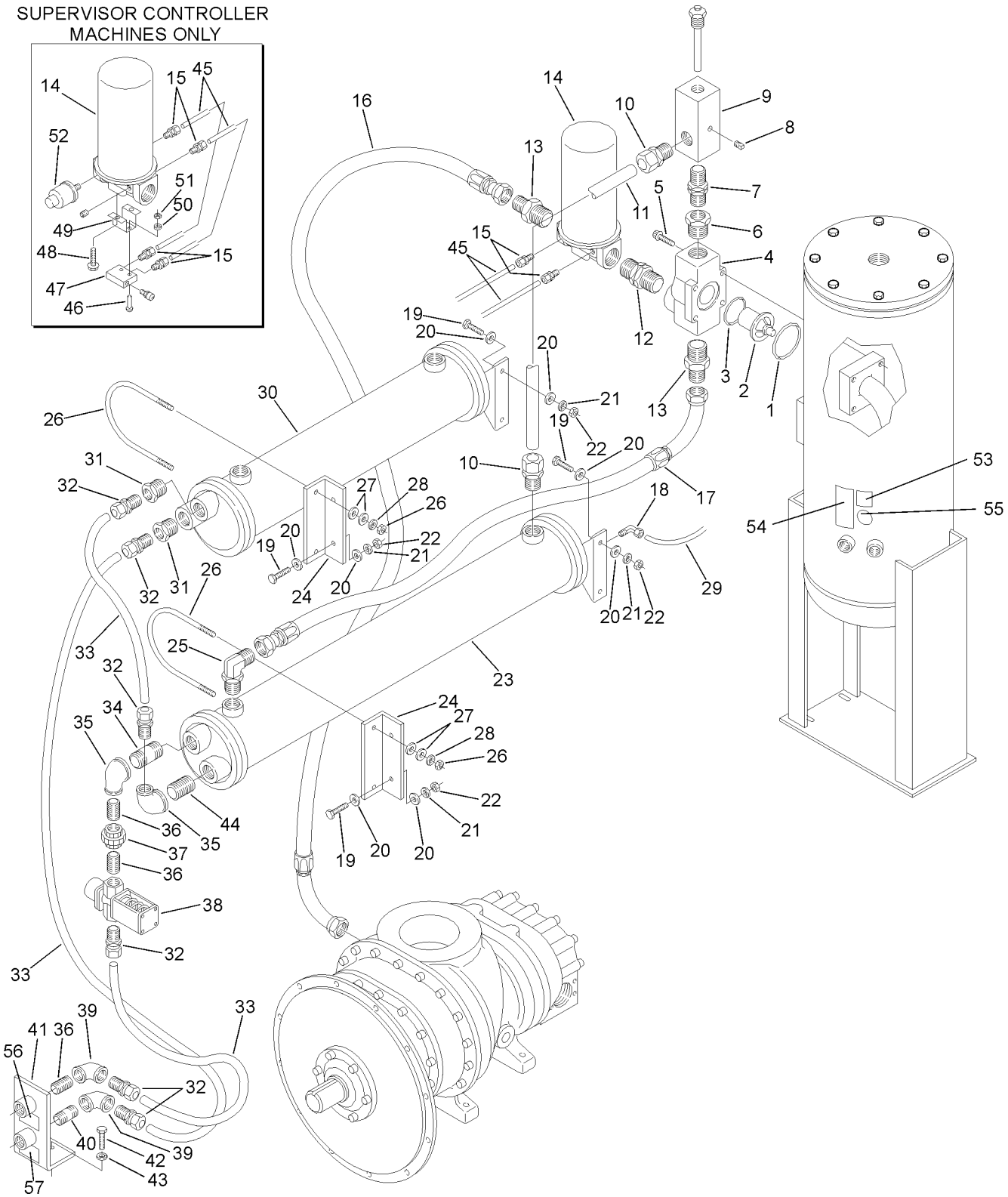
(Continued on page 97)

(IV) This item is an optional part. It used for machines that utilize optional water regulating valve no. 047398.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED)



10.9 COOLING AND LUBRICATION SYSTEM LS-120 (WATER-COOLED) (CONTINUED)

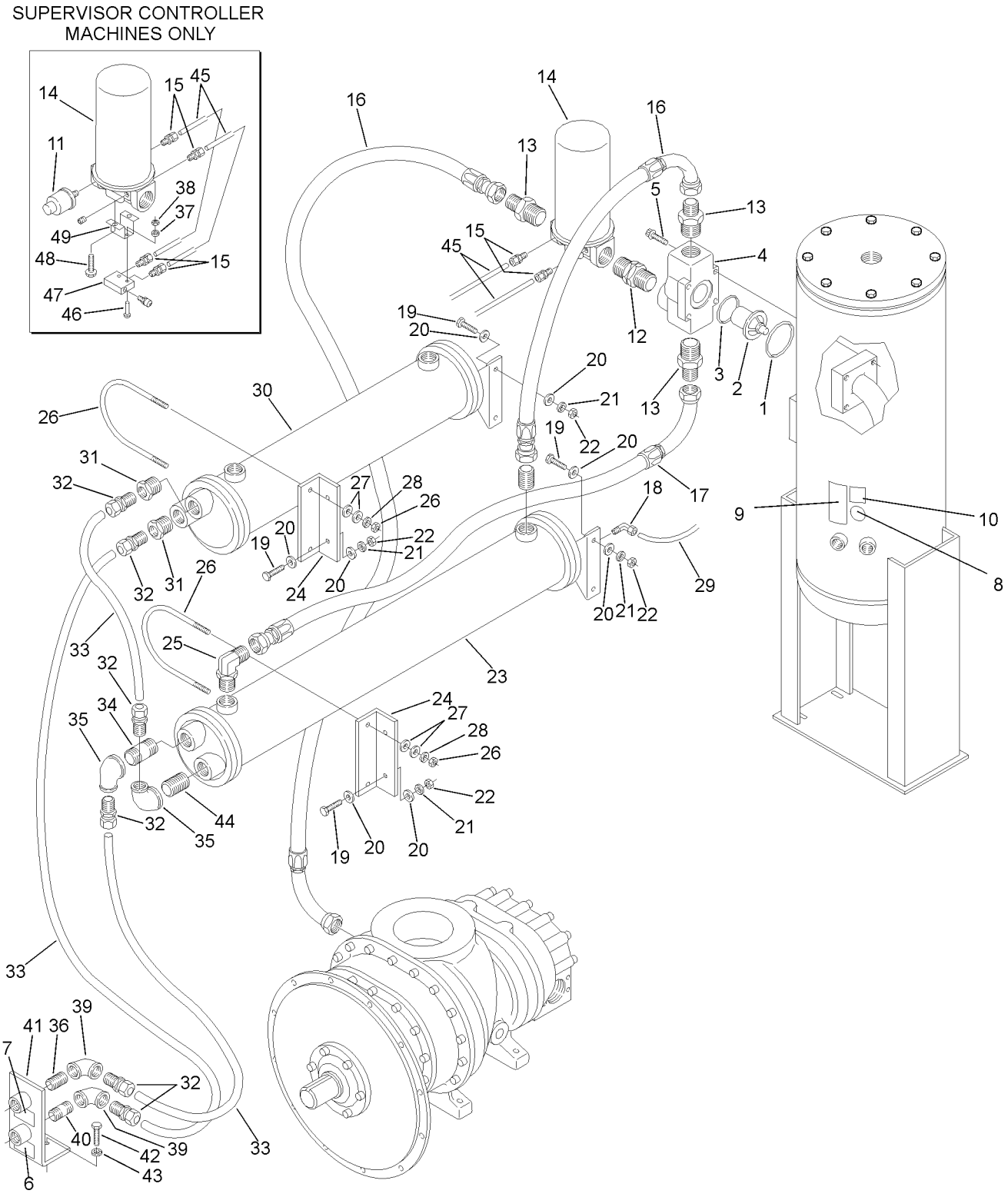
key number	*description*	*part number*	*quantity*
52	transducer, pressure 0-250psi n4	02250078-933	1
53	decal, warning mixing fluids	02250110-891	1
54	sign, warning compressor fluid fill cap	049685	1
55	decal, fluid Sullube **(V)**	02250069-389	1
56	decal, "water out"	250019-108	1
57	decal, "water in"	250019-107	1

(V) Sullube is the standard fill for LS-120 and LS-160 air compressors. If your compressor has an optional fill, consult Section *10.32, Decal Group* (key numbers 20A-20D) for matching fluid decal part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.10 COOLING AND LUBRICATION SYSTEM LS-160 (WATER-COOLED)



10.10 COOLING AND LUBRICATION SYSTEM LS-160 (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	o-ring, viton 2-1/2" x 3/32"	826502-144	1
2	element, thermal valve 175-deg **(I)**	049542	1
	•element, thermal valve 190-deg **(II)**	250028-762	1
3	seal, u-cup viton	02250101-372	1
4	housing, thermal valve	02250092-929	1
5	capscrew, ferry hd pltd 3/8"-16 x 1-1/2"	867306150	4
6	decal, "water out"	250019-108	1
7	decal, "water in"	250019-107	1
8	decal, compressor fluid Sullube **(III)**	02250069-389	1
9	decal, warning compressor fluid fill cap	049685	1
10	decal, warning mixing fluids	02250110-891	1
11	transducer, pressure 0-250 psi n 4	02250078-933	1
12	adapter, SAE 1-5/8"-12 x 1-5/8"-12	02250055-015	1
13	connector, SAE x orfs 1" x 1-5/16"	02250093-806	2
14	filter, fluid 1-5/8" SAE strt thread **(IV)**	02250054-605	1
15	connector, tube-m 1/4" x 1/8" s.s. (E/M DC)	250139-024	2
	•connector, tube-m 1/4" x 1/8" s.s. (Supervisor Controller)	250139-024	4
16	hose, mp orfs f-swvl end 1 x 35"	02250098-622	1
17	hose, mp orfs f-swvl end 1 x 60"	02250105-496	1
18	elbow, tube-m 1/4" x 3/8"	250018-530	1
19	capscrew, hex gr5 3/8"-16 x 1-1/4" plated	829106-125	8
20	washer, pl-b reg plated 3/8"	837806-094	16
21	washer, springlock reg plated 3/8"	837806-094	8
22	nut, hex plated 3/8" - 16	825206-337	8
23	clr, oil/water 5" x 36" 1-5/16"SAE (60-75HP/ 45-55KW)	02250094-744	1
	•clr, oil/water 5" x 36" 1-5/16"SAE (100HP/ 75KW)	02250120-863	1
24	bracket, cooler 6" (60-75HP/ 45-55KW)	250019-027	2
25	elbow, 90-deg SAE x orfs 1"	02250087-070	1

(Continued on page 101)

(I) For maintenance on thermal valve (< 150 psi/ 10.3 bar), order repair kit no. 02250105-553.

(II) For maintenance on thermal valve (≥ 150 psi/ 10.3 bar), order repair kit no. 02250112-709.

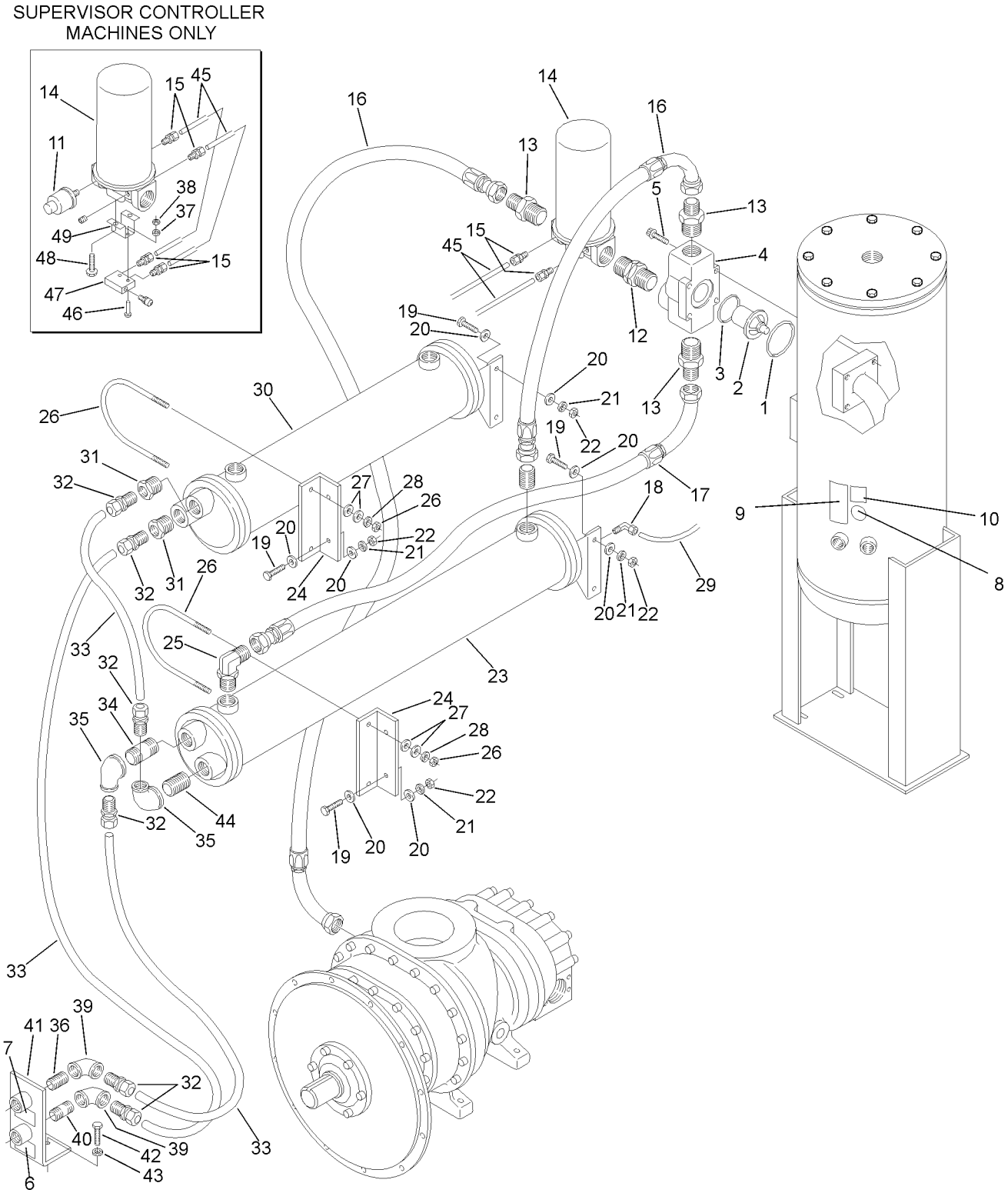
(III) Sullube is the standard fill for LS-120 and LS-160 air compressors. If your compressor has an optional fill, consult Section *10.32, Decal Group* (key numbers 20A-20D) for matching fluid decal part number.

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

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.10 COOLING AND LUBRICATION SYSTEM LS-160 (WATER-COOLED)



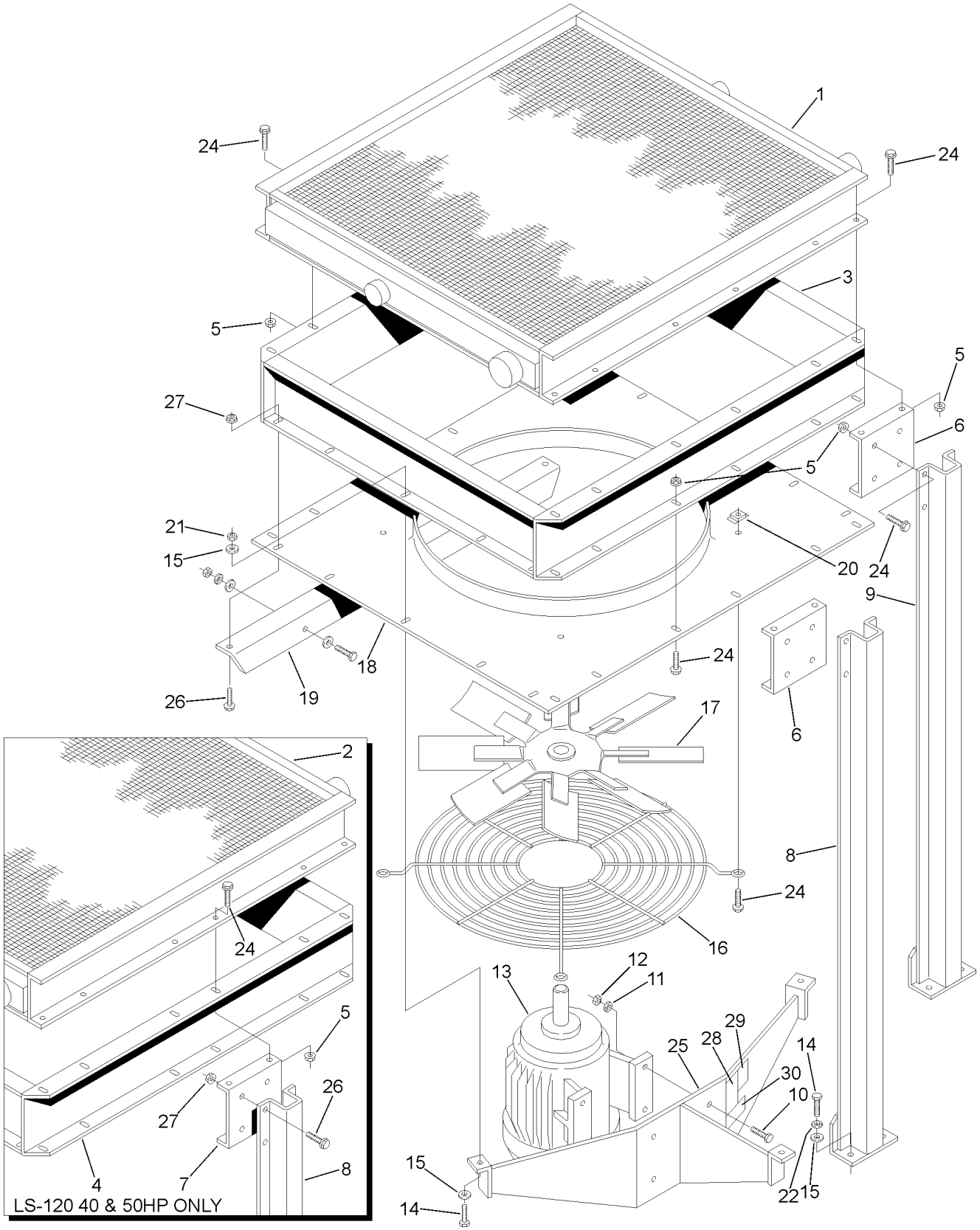
10.10 COOLING AND LUBRICATION SYSTEM LS-160 (WATER-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
26	clamp, exhaust 5"	043364	2
27	washer, pl-b reg plated 1/2"	838208-112	8
28	washer, springlock reg plated 1/2"	837808-125	4
29	tubing, nylon 1/4" black	02250054-861	4
30	heat exchanger, air/water 5" x 24" (60-75HP/ 45-55KW)	040680	1
	•heat exchanger, air/water 6" x 36" (100HP/ 75KW)	043008	1
31	bushing, reducing 1" x 3/4" steel plated	867104-030	2
32	connector, plastic tube 3/4" x 3/4"	250039-357	6
33	tubing, thermoplastic 3/4"	250039-353	9
34	nipple, pipe 1" x 3-1/2" plated	866316-035	1
35	elbow, reducing 1" x 3/4" 150# plated	869204-030	2
36	nipple, pipe xs 3/4" x close plated	866412-000	3
37	union, pipe brass seat 3/4" 300# plated	868030-030	1
38	valve, water regulating 3/4" 160-230F	047398	1
39	elbow, pipe 90-deg 3/4" 150# plated	866215-030	2
40	nipple, pipe 3/4" x 2" plated	866312-020	1
41	bracket, water connection 3/4"npt	250017-234	1
42	capscrew, hex gr5 1/2"-13 x 1-1/4"	829108-125	1
43	washer, springlock reg plated 1/2"	837808-125	1
44	nipple, pipe xs 1" x close plated	866416-000	1
45	tubing, stainless steel 1/4" (E/M DC)	841515-004	14.5 ft
	•tubing, stainless steel 1/4" (Supervisor Controller)	841515-004	0.75 ft
46	screw, mach-rd #10-24 x 1"	831602-100	2
47	switch, pressure differential	02250050-154	1
48	screw, hex ser washer 5/16" x 1/2"	829705-050	2
49	bracket, support diff press switch	02250050-500	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.11 COOLER ASSEMBLY (AIR-COOLED)



10.11 COOLER ASSEMBLY (AIR-COOLED)

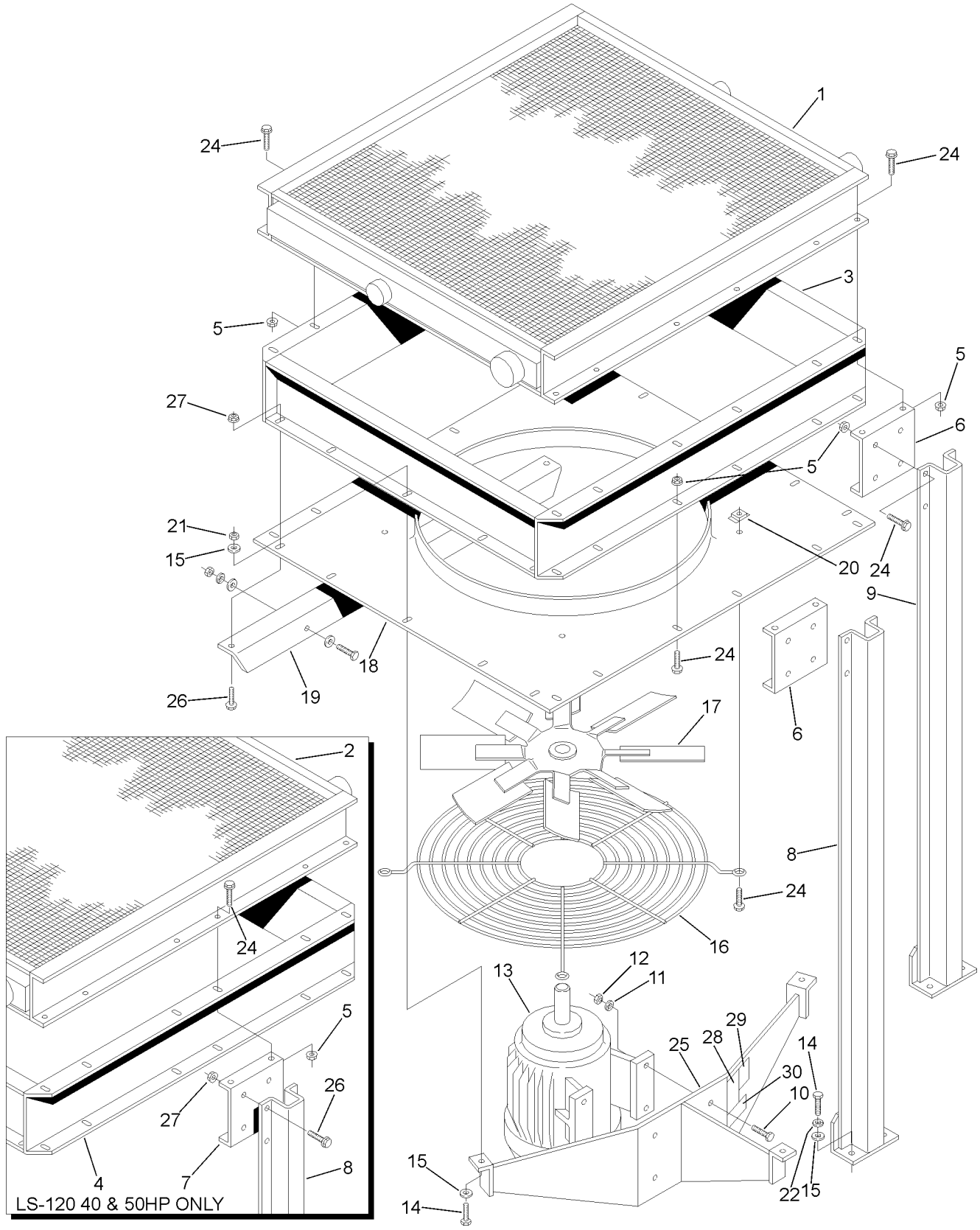
key number	*description*	*part number*	*quantity*
1	cooler, fluid/aftercooler (60-75HP/ 45-55KW)	02250096-706	1
	cooler, fluid/aftercooler (100HP/ 75KW)	02250053-915	1
2	cooler, fluid/aftercooler (40, 50HP/ 37KW)	02250142-507	1
3	adapter, venturi (60-75HP/ 45-55KW)	250017-270	1
	•adapter, venturi (100HP/ 75KW)	02250142-635	1
4	adapter, venturi (40, 50HP/ 37KW)	250017-271	1
5	nut, hex flanged plated 5/16"-18 (60-75HP/ 45-55KW)	825305-283	37
	•nut, hex flanged plated 5/16"-18 (40, 50HP/ 37KW)	825305-283	19
6	bracket, rear cooler support (60-75HP/ 45-55KW)	02250142-587	2
7	bracket, rear cooler support (40, 50HP/ 37KW)	250018-114	1
8	support, cooler 54 1/2"	250017-630	1
9	support, cooler 51 1/4"	250017-631	1
10	capscrew, hex GR5 3/8"-18 x 1" (60-75HP/ 45-55KW)	829106-100	4
	•capscrew, hex GR5 5/16"-18 x 1" (40, 50HP/ 37KW)	829105-100	4
11	washer, pl-b reg plated 5/16" (40, 50HP/ 37KW)	838205-071	4
12	nut, hex locking plated 3/8"-16 (60-75HP/ 45-55KW)	825506-198	4
	•nut, hex locking 5/16"-18 (40, 50HP/ 37KW)	825505-166	4
13	motor, electric-fan 3HP (60-100HP/ 45-75KW)	consult factory	1
	•motor, electric-fan 2HP (40, 50HP/ 37KW)	consult factory	1
14	capscrew, hex GR5 3/8"-16 x 1"	829106-100	10
	•capscrew, hex GR5 3/8"-16 x 1"	829106-100	8
15	washer, pl-b reg plated 3/8"	838206-071	15
	•washer, pl-b reg plated 3/8"	838206-071	13
16	guard, fan 26" (60-75HP/ 45-55KW)	241079	1
	•guard, fan 24" (40, 50HP/ 37KW)	241501	1
	•guard, fan 26" (100HP/ 75KW)	250006-220	1
17	fan, cooling 24" (60-75HP/ 45-55KW)	049971	1
	•fan, cooling 22" (40, 50HP/ 37KW)	241390	1
	•fan, cooling 26" (100HP/ 75KW)	241908	1
18	panel, venturi-cooling fan 24" (60-75HP/45-55KW)	250017-495	1
	•panel, venturi-cooling fan 22" (40, 50HP/ 37KW)	250017-494	1
	•panel, venturi-cooling fan 26" (100HP/ 75KW)	250018-183	1

(Continued on page 105)

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.11 COOLER ASSEMBLY (AIR-COOLED)



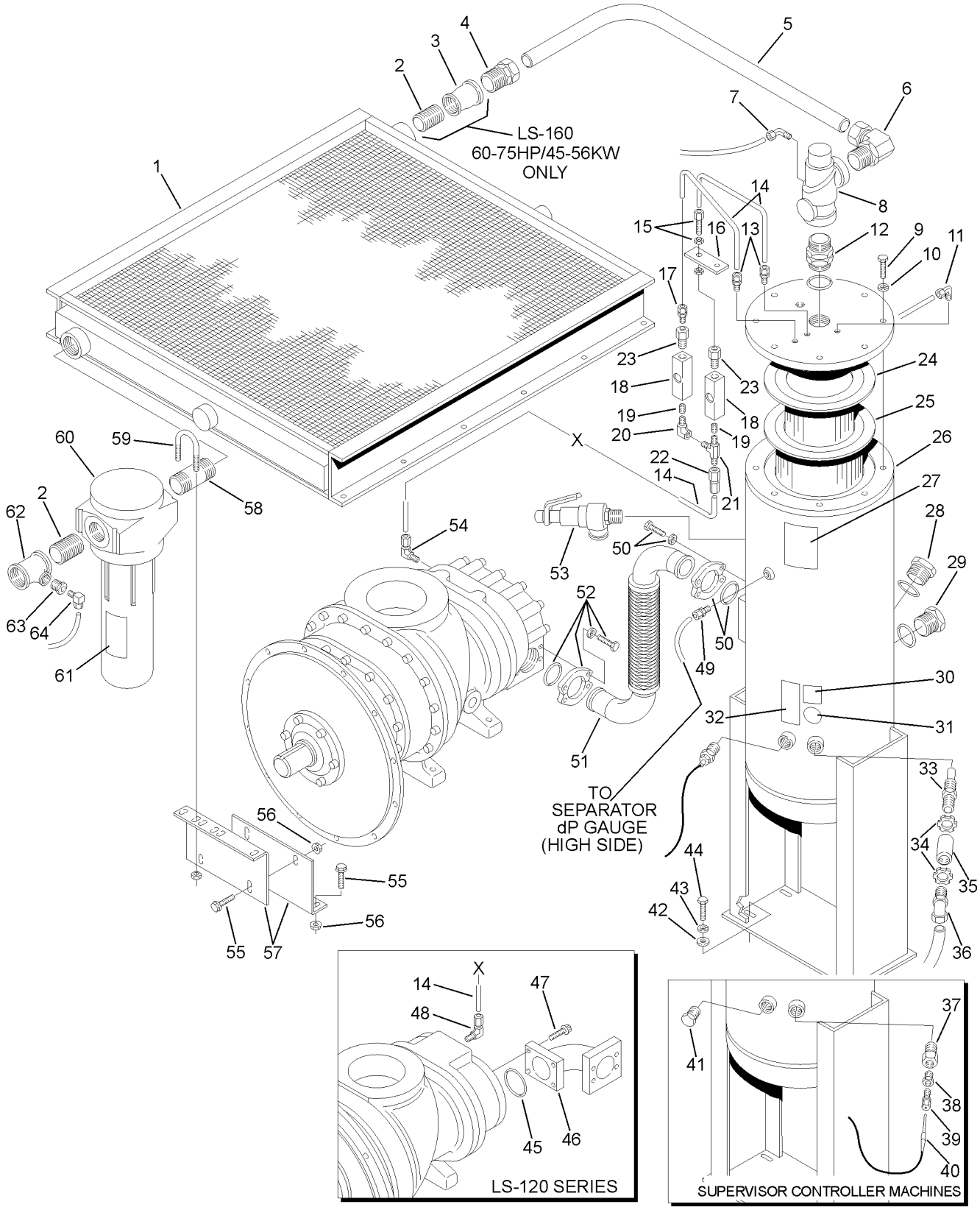
10.11 COOLER ASSEMBLY (AIR-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
19	angle, cooler assembly support (60-75HP/ 45-55KW)	02250142-588	1
	•angle, cooler assembly support (40, 50HP/ 37KW)	250018-121	1
20	nut, retainer 5/16"-18	861405-092	4
21	nut, hex locking 3/8"-16	825506-198	3
22	washer, springlock 3/8" (60-75HP/ 45-55KW)	837806-094	7
	•washer, springlock 3/8" (40, 50HP/ 37KW)	837806-094	13
23	nut, hex plated 3/8"-16	825206-337	2
24	screw, hex flanged plated 5/16"-18 x 3/4" (60-100HP/ 45-75KW)	829705-075	39
	•screw, hex flanged plated 5/16"-18 x 3/4" (40, 50HP/ 37KW)	829705-075	23
25	support, fan motor (60-75HP/ 45-55KW)	250017-502	1
	•support, fan motor (40, 50HP/ 37KW)	250017-499	1
26	screw, hex flanged plated 3/8"-16 x 3/4" (60-75HP/ 45-55KW)	829706-075	2
	•screw, hex flanged plated 3/8"-16 x 3/4" (40, 50HP/ 37KW)	829706-075	6
27	nut, hex flanged plated 3/8"-16 (60-75HP/ 45-55KW)	825306-347	2
	•nut, hex flanged plated 3/8"-16 (40, 50HP/ 37KW)	825306-347	6
28	sign, warning sever fan	049855	1
29	sign, warning sever fan port	049965	1
30	decal, rotation	250021-564	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)



10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)

key number	*description*	*part number*	*quantity*
1	cooler, fluid aftercooler (LS-120)	02250142-507	1
	•cooler, fluid aftercooler (LS-160 60-75HP/45-55KW)	02250096-706	1
	•cooler, fluid aftercooler (100HP/ 75KW)	02250053-915	1
2	nipple, pipe 1 1/2" x close	866424-000	1
3	coupling, reducing 2" x 1 1/2"	879416-012	1
4	connector, tube-M 1 1/2" x 1 1/2" (LS-120)	810224-150	1
	•connector, tube-M 2" x 2" (LS-160)	810232-200	1
5	tube, MPV to cooler (LS-160)	02250142-608	1
	•tube, MPV to cooler (LS-120)	02250098-477	1
6	elbow, tube 1 1/2" (LS-120)	811624-188	1
	•elbow, tube 2" (LS-160)	811632-250	1
7	elbow, tube-M 1/4" x 1/8"	250018-429	1
8	valve, minimum pressure (LS-120) **(I)**	02250097-598	1
	•valve, minimum pressure (LS-160) **(II)**	02250109-817	1
9	capscrew, hex GR8 5/8"-11 x 2"	828210-200	8
10	washer, springlock 5/8"	837510-156	8
11	elbow, tube-M 1/4" x 1/4"	250018-430	4
12	adapter, SAE 1 7/8" x 1 7/8" (LS-120)	02250055-014	1
	•adapter, SAE 2 1/2" x 2" (LS-160)	02250110-661	1
13	connector, flex 1/4" x 1/4"	020169	2
14	tubing, 1/4" stainless steel	841215-004	14.5
15	connector, tube male bulkhead, 1/4"	02250101-490	1
16	bracket, mounting support	02250101-192	1
17	connector, tube-M str thd 1/4" x 7/16"	811804-044	1
18	sight glass	046559	2
19	orifice	02250125-774	2
20	elbow, 1/4"F x 1/4"M	860704-025	1
21	tee, M 1/4" x 1/4" x 1/4"	869825-025	1
22	connector, tube-F 1/4" x 1/4"	810104-025	1

(Continued on page 109)

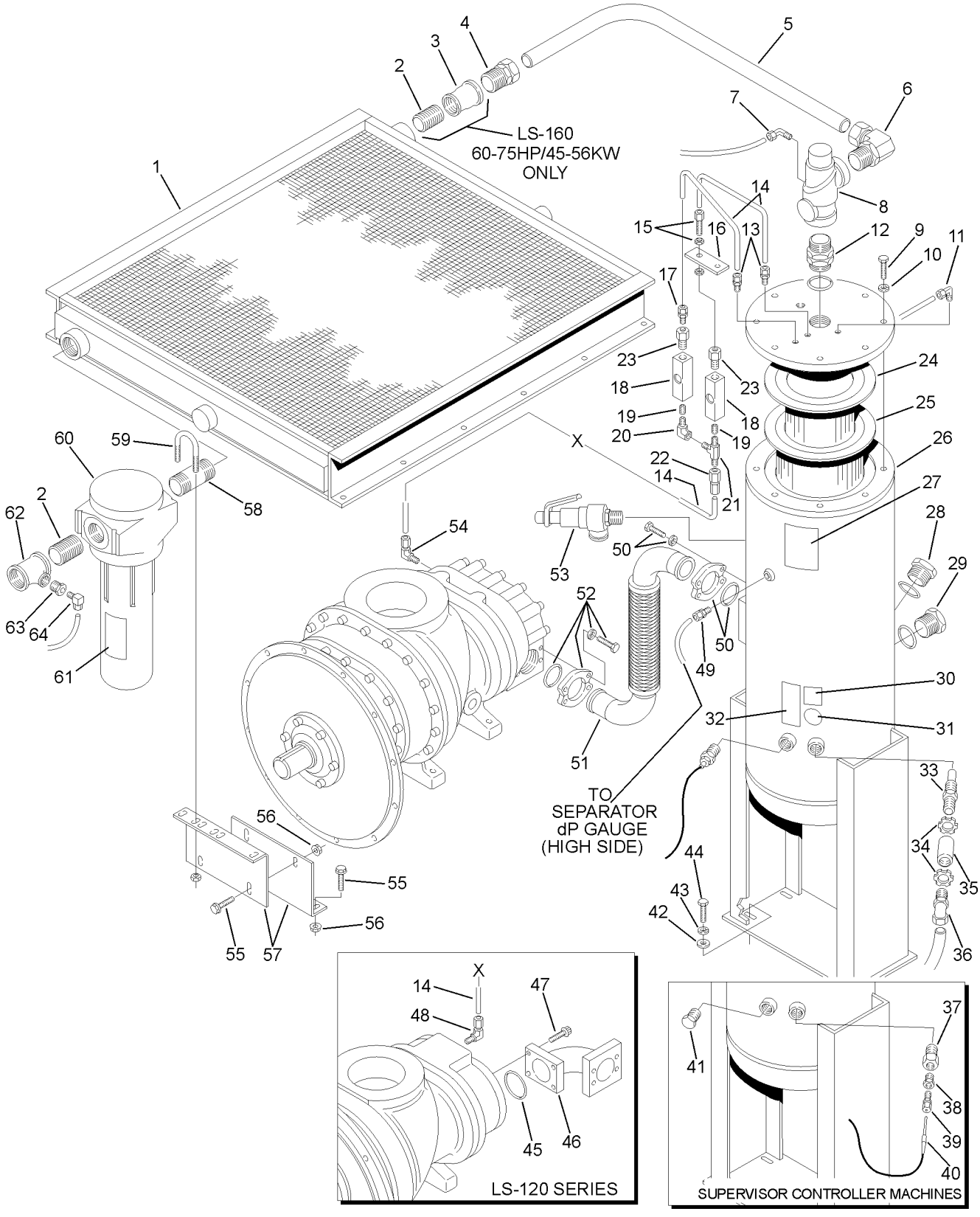
(I) For maintenance on minimum pressure valve no. 02250097-598, order repair kit no. 02250110-727, cap kit no. 02250046-396, o-ring kit no. 02250048-363, and piston kit no. 02250051-337.

(II) For maintenance on minimum pressure valve no. 02250109-817, order repair kit no. 250018-456, cap kit no. 02250044-355, o-ring kit no. 02250048-365, and piston kit no. 02250051-336.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)



10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
23	filter, assy genesis **(III)**	02250117-782	2
24	separator, air/fluid secondary **(IV)**	02250100-754	1
25	separator, air/fluid primary **(I)**	02250100-753	1
26	tank, separator 14" (40, 50HP/ 37KW)	02250109-524	1
	•tank, separator 14" (60-100HP/75KW)	02250110-502	1
27	decal, maintenance kit LS120/160	02250144-505	1
28	plug, o-ring 1 1/4"	040029	1
29	plug, sight glass 1 7/8"	02250097-611	1
30	decal, warning mixing fluids	02250110-891	1
31	decal, compressor fluid Sullube **(VI)**	02250069-389	1
32	decal, warning compressor fluid fill cap	049685	1
33	switch, temp 240° 3/4" SAE	02250100-095	1
34	locknut, conduit 1/2"	847200-050	2
35	coupling, conduit 1/2"	250007-179	1
36	elbow, conduit 1/2"	846600-050	1
37	adapter, SAE x NPT 1/2" x 1/4"	811504-025	1
38	bushing, reducing 1/4" x 1/8" stl plated	867100-005	1
39	fitting, compression adjustable	250028-635	1
40	probe, RTD discharge temp	250039-909	1
41	plug, straight thrd 3/4"-16 SAE viton	250042-623	1
42	washer, reg 1/2"	838208-112	4
43	washer, springlock 1/2"	837808-125	4
44	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	4
45	o-ring, viton 2 1/2" x 1/8"	826502-230	1

(Continued on page 111)

(III) For maintenance on genesis filter assembly no. 02250117-782, order replacemenet filter no. 02250117-782 (note quantity of two).

(IV) For maintenance on air/fluid separator no. 02250100-754, order secondary replacement element no. 02250100-756.

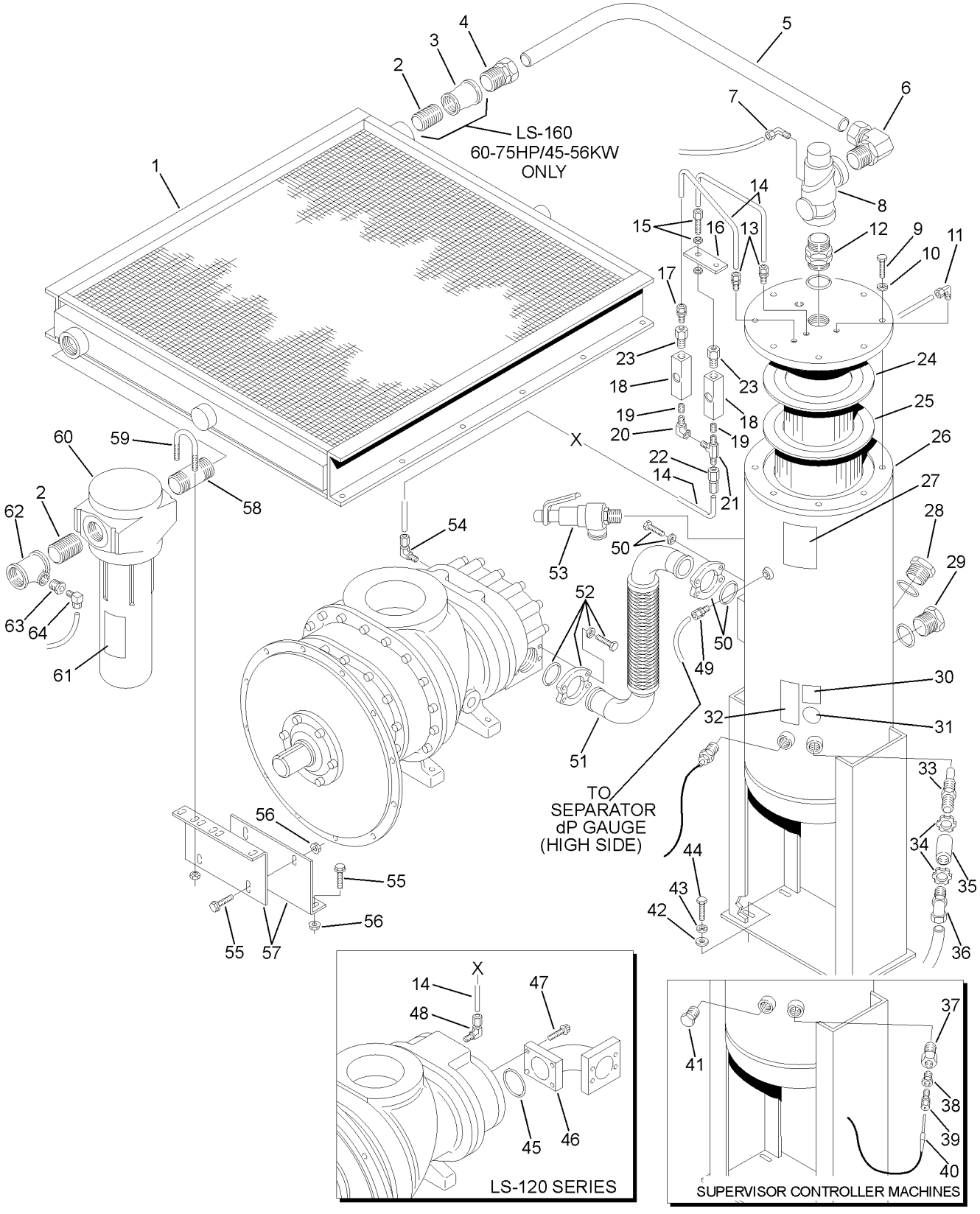
(V) For maintenance on air/fluid separator no. 02250100-753, order primary replacement element no. 02250100-755.

(VI) Sullube is the standard fill for LS-120 and LS-160 air compressors. If your compressor has an optional fill, consult Section *10.32, Decal Group* (key numbers 20A-20D) for matching fluid decal part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED)



10.12 COMPRESSOR DISCHARGE SYSTEM (AIR-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
46	adapter, discharge	02250097-526	1
47	capscrew, ferry hd 3/8"-16 x 2 1/4"	828406-225	4
48	elbow, tube-M 1/4" x 1/4" SS	250211-005	1
49	connector, tube-SAE 1/4" x 7/16"	870906-025	1
50	flange, split 2" kit	02250099-415	1
	•o-ring	826502-228	1
51	tube, flexible	02250110-538	1
52	flange, split 2 1/2" kit	02250099-416	1
	•o-ring	826502-232	1
53	valve, relief 3/4" (50-75HP/ 37-55KW)	02250110-968	1
	•valve, relief 3/4" (100HP/ 75KW)	02250097-349	1
54	elbow, tube-M 1/4" x 1/8" SS	250211-013	1
55	screw, hex ser washer 5/16"-18 x 1"	829705-100	4
56	nut, hex flange 5/16"-18	825305-283	4
57	support, water separator	02250142-589	2
58	nipple, pipe 1 1/2" x 3 1/2"	866324-035	1
59	U-bolt, 1/4" x 1 1/2" pipe	868304-150	1
60	separator, moisture (40, 50HP) **(VII)**	02250144-635	1
	•separator, moisture (60-75HP/ 45-75KW) **(VIII)**	02250144-633	1
	•separator, moisture (100HP/ 75KW) **(IX)**	02250144-632	1
61	decal, water drain	250022-810	1
62	tee, reducing 1 1/2" x 1 1/2" x 1/2"	867506-062	1
63	bushing, reducing hex 1/2” x 1/4”	868902-010	1
64	elbow, tube 1/4” tube x 1/4 npt	250018-430	1

(VII) For maintenance on moisture separator no. 02250144-635, order auto-drain repair kit no. 02250144-735.

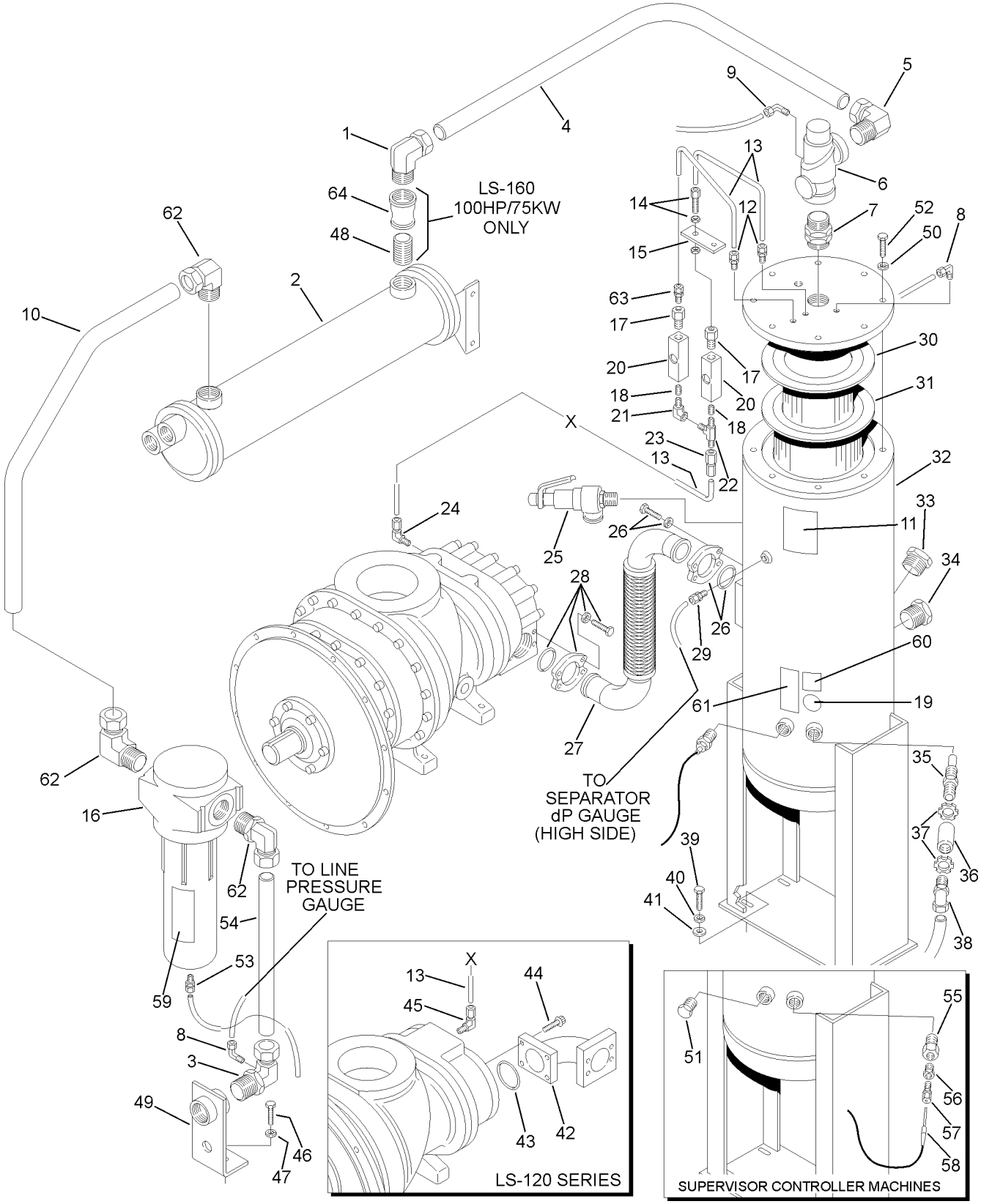
(VIII) For maintenance on moisture separator no. 02250144-633, order auto-drain repair kit no. 02250144-732.

(IX) For maintenance on moisture separator no. 0225144-632, order auto-drain repair kit no. 02250144-732.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)



10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	elbow, tube-M 1 1/2" x 1 1/2" (LS-120)	810524-150	1
	•elbow, tube-M 2” x 2” (LS-160)	810532-200	1
2	heat exchange (40, 50HP/ 37KW)	250017-527	1
	•heat exchange (60-75HP/ 45-55KW)	040680	1
	•heat exchange (100HP/ 75KW)	043008	1
3	elbow, tube-M 1 1/2" x 1 1/2" w/ 1/4" tap		
	(50-75HP/37-55KW)	02250099-810	1
	•elbow, tube-M (100HP/ 75KW)	022500110-165	1
4	tube, MPV to cooler (40, 50HP/ 37KW)	02250105-698	1
	•tube, MPV to cooler (60-75HP/ 45-55KW)	02250143-514	1
	•tube, MPV to cooler (100HP/ 75KW)	02250046-584	1
5	elbow, tube SAE1 1/2" x 1 7/8" (LS-120)	811615-150	1
	•elbow, tube SAE 2” x 2” (LS-160)	811632-250	1
6	valve, minimum pressure (LS-120) **(I)**	02250097-598	1
	•valve, minimum pressure (LS-160) **(II)**	02250109-817	1
7	adapter, SAE 1 7/8" x 1 7/8" (LS-120)	02250055-014	1
	•adapter, SAE 2 1/2" x 2" (LS-160)	02250110-661	1
8	elbow, tube-M 1/4" x 1/4"	250018-430	3
9	elbow, tube-M 1/4" x 1/8"	250018-429	1
10	tube, cooler to moisture separator (50-75HP/ 37-55KW)	02250105-700	1
	•tube, clr to moisture sep (100HP/ 75KW)	02250046-585	1
11	decal, maintenance kit LS120/160	02250144-505	1
12	connector, flex 1/4" x 1/4"	020169	2
13	tubing, 1/4" stainless steel	841215-004	14.5 ft
14	connector, tube male bulkhead, 1/4"	02250101-490	1
15	bracket, mounting support	02250101-192	1

(Continued on page 115)

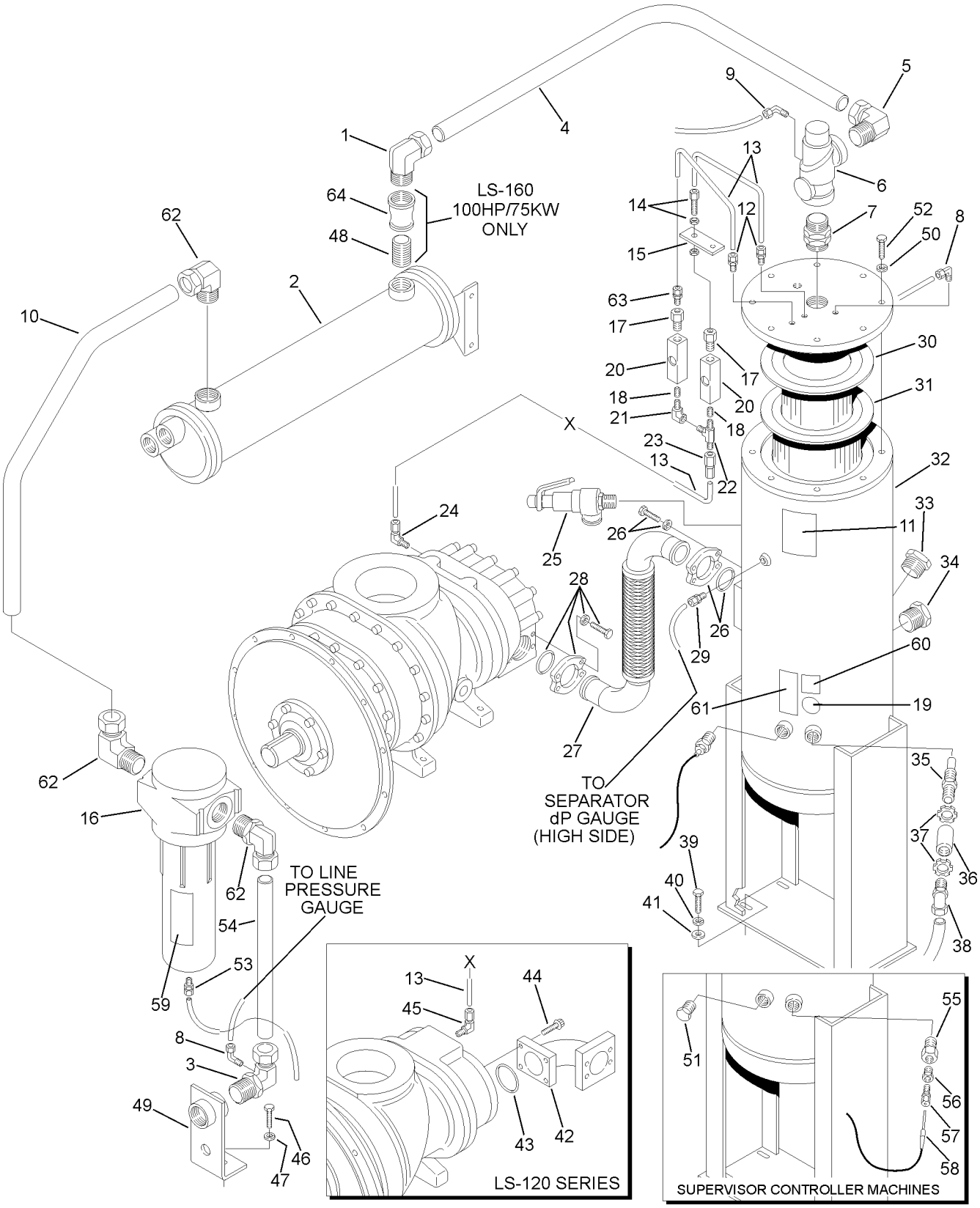
(I) For maintenance on minimum pressure/check valve no. 02250097-598, order repair kit no. 02250110-727, cap kit no. 02250046-396, o-ring kit no. 02250048-363, and piston kit no. 02250051-337.

(II) For maintenance on minimum pressure valve no. 02250109-817, order repair kit no. 250018-456, cap kit no. 02250044-355, o-ring kit no. 02250048-365, and piston kit no. 02250051-336.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)



10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
16	separator, moisture (40, 50HP/ 37KW) **(III)**	02250144-635	1
	•separator, moisture (60-75HP/ 45-75KW) **(IV)**	02250144-633	1
	•separator, moisture (100HP/ 75KW) **(V)**	02250144-632	1
17	filter, assembly genesis **(VI)**	02250117-782	2
18	orifice	02250125-774	2
19	decal, compressor fluid Sullube **(VII)**	02250069-389	1
20	sight glass	046559	2
21	elbow, 1/4"F x 1/4"M	860704-025	1
22	tee, M 1/4" x 1/4" x 1/4"	869825-025	1
23	connector, tube-F 1/4" x 1/4" SS	250139-044	1
24	elbow, tube-M 1/4" x 1/8" SS	250211-013	1
25	valve, relief 3/4"	02250097-349	1
26	flange, split 2" kit	02250099-415	1
27	tube, flexible	02250097-827	1
28	flange, split 2 1/2" kit	02250099-416	1
29	connector, tube-SAE 1/4" x 7/16"	870906-025	1
30	separator, air/fluid secondary **(VIII)**	02250100-754	1
31	separator, air/fluid primary **(IX)**	02250100-753	1
32	tank, separator 14" (50-75HP/ 37-55KW)	02250109-524	1
	•tank, separator 14" (100HP/ 75KW)	02250110-502	1
33	plug, o-ring 1 1/4"	040029	1

(Continued on page 117)

(III) For maintenance on moisture separator no. 02250144-635, order auto-drain repair kit no. 02250144-735.

(IV) For maintenance on moisture separator no. 02250144-633, order auto-drain repair kit no. 02250144-732.

(V) For maintenance on moisture separator no. 0225144-632, order auto-drain repair kit no. 02250144-732.

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

(VII) Sullube is the standard fill for LS-120 and LS-160 air compressors. If your compressor has an optional fill, consult Section *10.32, Decal Group* (key numbers 20A-20D) for matching fluid decal part number.

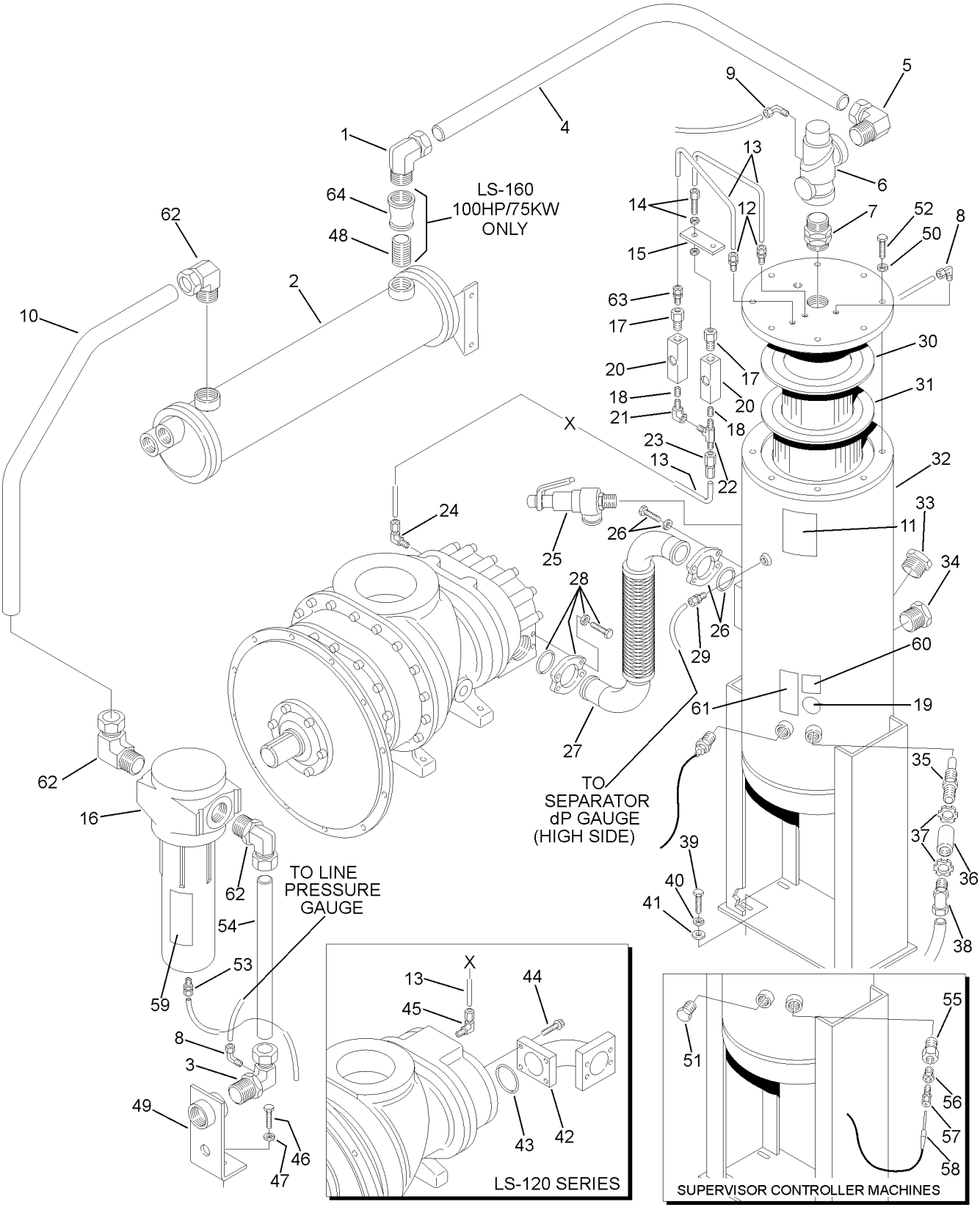
(VIII) For maintenance on air/fluid separator no. 02250100-754, order replacement element no. 02250100-756.

(IX) For maintenance on air/fluid separator no. 02250100-753, order replacement element no. 02250100-755.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED)



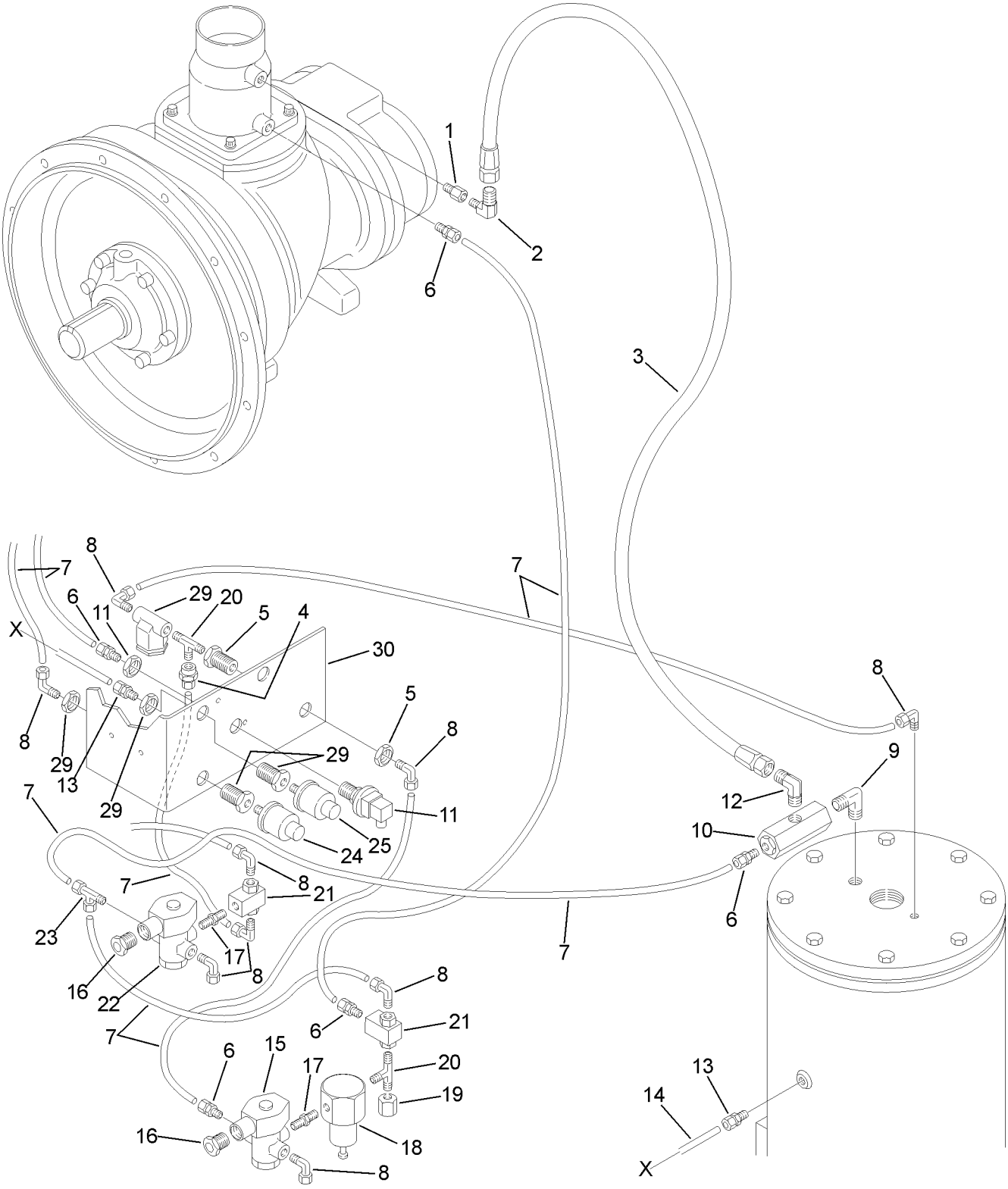
10.13 COMPRESSOR DISCHARGE SYSTEM (WATER-COOLED) (CONTINUED)

key number	*description*	*part number*	*quantity*
34	plug, sight glass 1 7/8"	02250097-611	1
35	switch, temp 240º 3/4" SAE	02250100-095	1
36	coupling, conduit 1/2"	250007-179	1
37	locknut, conduit 1/2"	847200-050	1
38	elbow, conduit 1/2"	846600-050	1
39	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	4
40	washer, springlock 1/2"	837808-125	4
41	washer, reg 1/2"	838208-112	4
42	adapter, discharge	02250097-526	1
43	o-ring, viton 2 1/2" x 1/8"	826502-230	1
44	capscrew, ferry hd 3/8"-16 x 2 1/4"	828406-225	4
45	elbow, tube-M 1/4" x 1/4" SS	250211-005	1
46	capscrew, hex GR5 1/2"-13 x 1 1/2"	829108-150	1
47	washer, springlock 1/2"	837808-125	1
48	nipple, pipe 1 1/2” x close	866924-000	1
49	support, air connect/cndnst drn (50-75HP/ 37-55KW)	02250098-148	1
	•support, air connect/condensate drain (100HP/ 75KW)	02250110-185	1
50	washer, springlock 5/8"	837510-156	8
51	plug, straight thread 3/4"-16 SAE viton	250042-623	1
52	capscrew, hex GR8 5/8"-11 x 2"	828210-200	8
53	connector, tube-M 1/4" x 1/8"	250018-429	1
54	tube, sep air connect 1 1/2" (50-75HP/ 37-55KW)	02250098-227	1
	•tube, separator air connection 2" (100HP/ 75KW)	02250045-594	1
55	adapter, SAE x NPT 1/2" x 1/4"	811504-025	1
56	bushing, reducing 1/4" x 1/8" steel plated	867100-005	1
57	fitting, compression adjustable	250028-635	1
58	probe, RTD discharge temp	250039-909	1
59	decal, water drain	250022-810	1
60	decal, warning mixing fluids	02250110-891	1
61	decal, warning compressor fluid fill cap	049685	1
62	elbow, tube-M 1 1/2” x 1 1/2” (50-75HP/ 37-55KW)	810524-150	3
	•elbow, tube-M 2” x 2” (100HP/ 75KW)	810532-200	3
63	conn, tube-M str thd 1/4 x 7/16	811804-044	1
64	coupling, reducing 2” x 1 1/2”	879416-012	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.14 CONTROL SYSTEM- LS-120 SUPERVISOR CONTROLLER



10.14 CONTROL SYSTEM- LS-120 SUPERVISOR CONTROLLER

key number	*description*	*part number*	*quantity*
1	oirifice, .25 x 1/4”m x 1/4”f	02250143-403	1
2	elbow, 37º fl 90º m 1/2” x 1/4”	860208-025	1
3	hose, med pressure .5” x 32”	249608-008	1
4	connector, tube-F 1/4" x 1/4"	250041-084	2
5	bulkhead, pipe 1/4"	841500-004	3
6	connector, tube 1/4"T x 1/4"P	250018-428	1
7	tubing, nylon .25"	02250054-861	31 ft.
8	elbow, tube 1/4"T x 1/4"P	250018-430	7
9	elbow, pipe 90º M 1/2" x 1/2"	860508-050	1
10	valve, 2-way blowdown 1/2" **(I)**	02250100-042	1
11	switch, vacuum	02250078-249	1
12	elbow, 37º fl 1/2” x 1/2”	860208-050	1
13	connector, tube-SAE 1/4" x 7/16"	870906-025	2
14	tubing, stainless steel 1/4"	841215-004	4
15	valve, solenoid **(II)**	02250125-657	2
16	nipple, chase conduit 1/2"	847815-050	1
17	nipple, pipe hex 1/4" x 1/4"	868504-025	2
18	valve, pressure regulator **(III)**	02250084-027	1
19	orifice	02250101-414	1
20	tee, male pipe 1/4"	869825-025	2
21	valve, shuttle 1/4"	408893	2
22	support, bracket press switch	02250084-823	1
23	tee, male run 1/4"T x 1/4"P	250038-059	1
24	transducer, pressure	02250078-933	2
25	strainer, v-type **(IV)**	241771	1

(I) For maintenance on blowdown valve no. 02250100-042, order replacement valve no. 02250100-042.

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

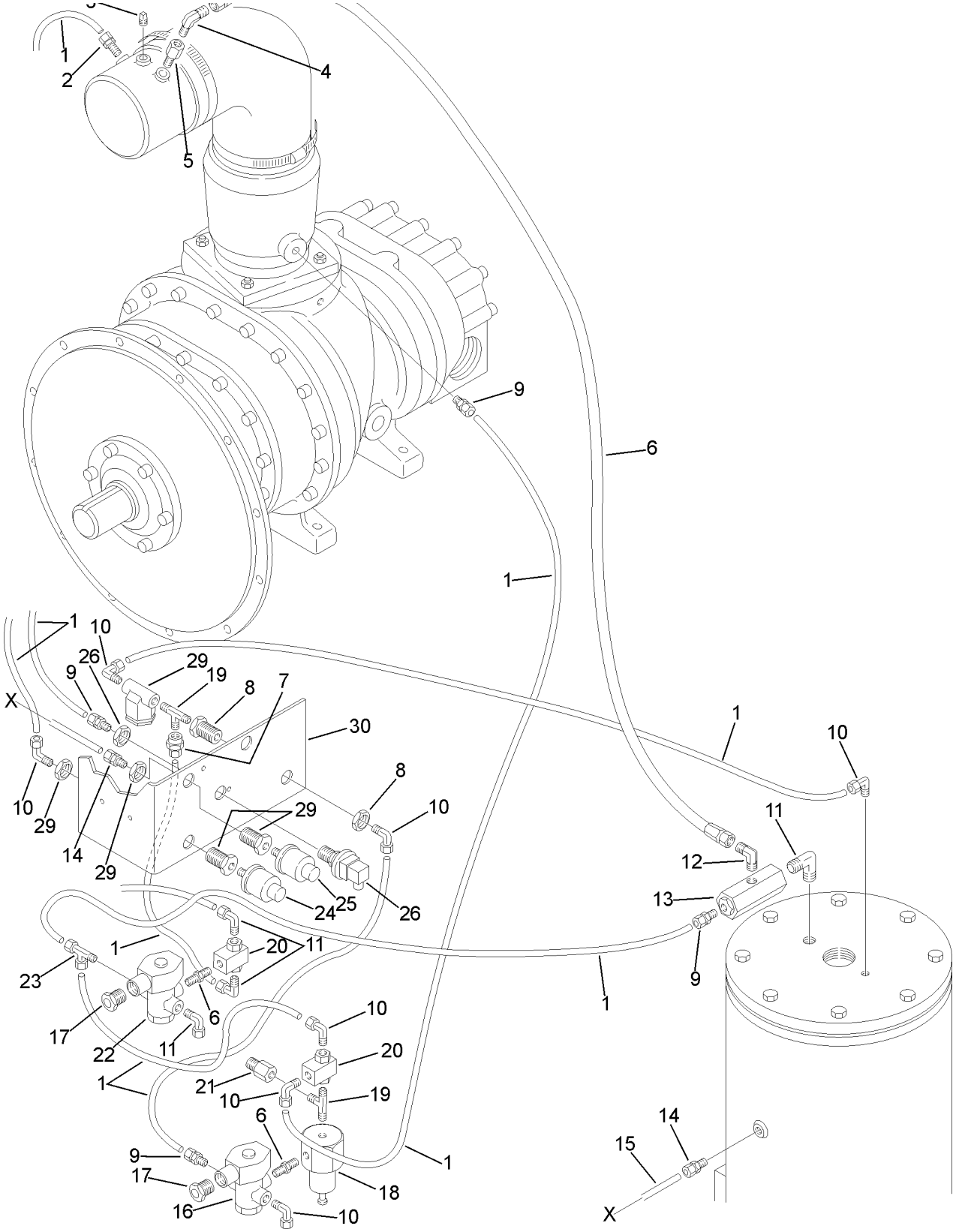
(III) For maintenance on pressure regulator valve no. 02250084-027, order repair kit no. 250019-453.

(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

10.15 CONTROL SYSTEM- LS-120 ELECTRO-MECHANICAL



10.15 CONTROL SYSTEM- LS-120 ELECTRO-MECHANICAL

key number	*description*	*part number*	*quantity*
1	oirifice, .25 x 1/4”m x 1/4”f	02250143-403	1
2	elbow, 37º fl 90º m 1/2” x 1/4”	860208-025	1
3	hose, med pressure .5” x 32”	249608-008	1
4	tee, male 1/4"T x 1/4"P	250028-582	1
5	strainer, v-type **(I)**	241771	1
6	connector, tube 1/4"T x 1/4"P	250018-428	1
7	tubing, nylon .25"	02250054-861	31 ft
8	elbow, tube 1/4"T x 1/4"P	250018-430	7
9	elbow, pipe 90º M 1/2" x 1/2"	860508-050	1
10	valve, 2-way blowdown 1/2" **(II)**	02250100-042	1
11	elbow, 37º fl 1/2” x 1/2”	860208-050	1
12	washer, springlock #10	838502-047	2
13	connector, tube-SAE 1/4" x 7/16"	870906-025	2
14	tubing, stainless steel 1/4"	841215-004	4
15	valve, solenoid **(III)**	02250125-657	1
16	nipple, chase conduit 1/2"	847815-050	1
17	tee, male run 1/4"T x 1/4"P	250038-059	1
18	nipple, pipe hex 1/4" x 1/4"	868504-025	3
19	valve, shuttle 1/4"	408893	2
20	switch, pressure <=140PSI	040694	1
	•switch, pressure >=140PSI	407778	1
21	screw, machine rd head #10-32 x 1/2"	831602-050	2
22	orifice (not shown)	02250101-414	1
23	tee, male pipe 1/4"	869825-025	2
24	valve, pressure regulator **(IV)**	02250084-027	1
25	bulkhead, pipe 1/4"	841500-004	1
26	support, bracket press switch	02250084-823	1
27	connector, tube-F 1/4" x 1/4"	250041-084	1
28	nut, hex #10	825202-130	2

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

(II) For maintenance on blowdown valve no. 02250100-042, order replacement valve no. 02250100-042.

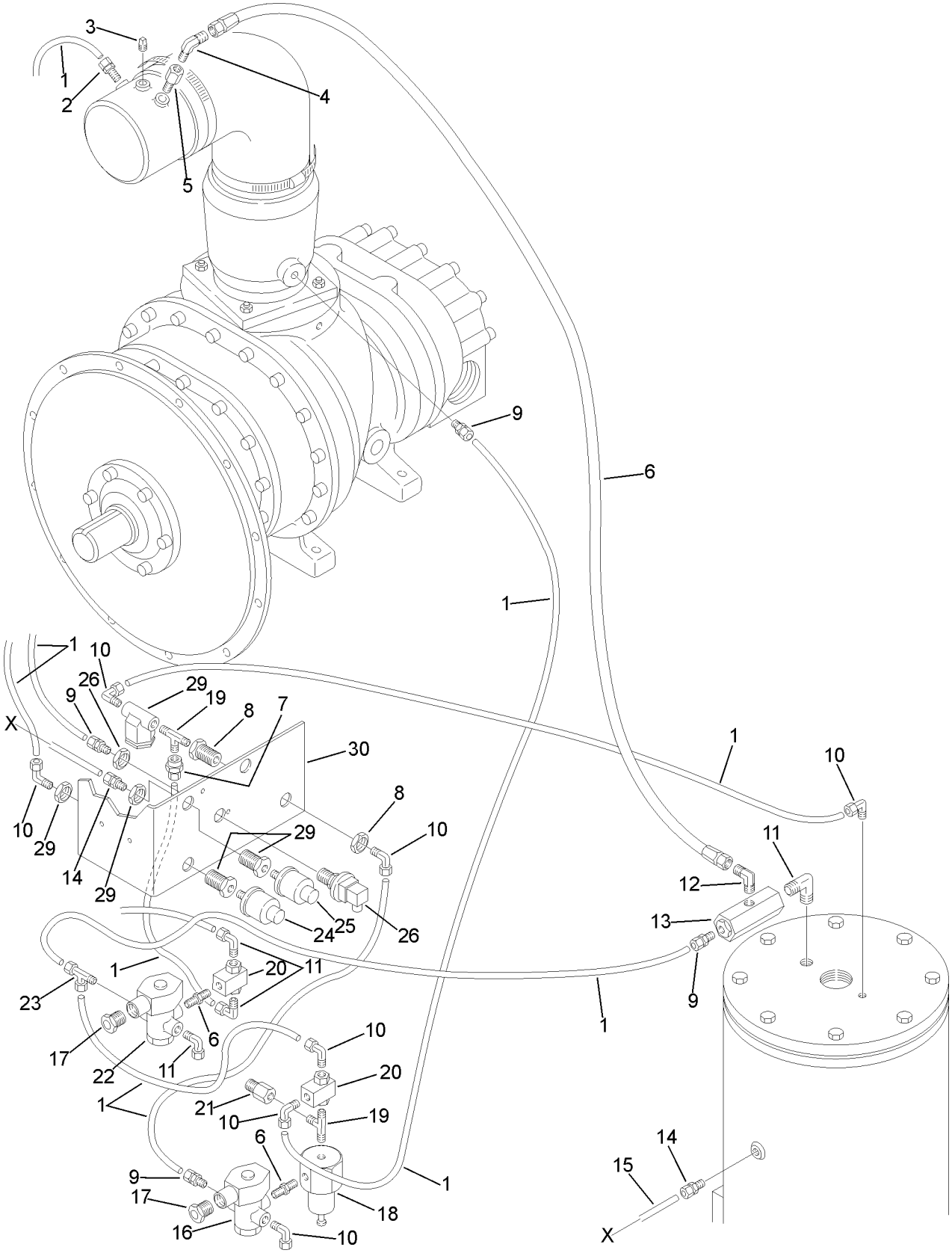
(III) For maintenance on solenoid valve no. 02250125-657, order repair kit no. 02250125-829, and replacement coil no. 02250125-861.

(IV) For maintenance on pressure regulator valve no. 02250084-027, order repair kit no. 250019-453.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.16 CONTROL SYSTEM- LS-160 SUPERVISOR CONTROLLER



10.16 CONTROL SYSTEM- LS-160 SUPERVISOR CONTROLLER

key number	*description*	*part number*	*quantity*
1	tubing, nylon .25"	02250054-861	31 ft
2	connector, 1/4"T x 1/8"P	250018-427	1
3	plug, pipe 1/8"	807800-005	1
4	elbow, 37º fl 1/4” x 1/2”	860208-025	1
5	oirifice, .25 x 1/4”m x 1/4”f	02250143-403	1
6	hose, med pressure .5”	249608-005	1
7	connector, tube-F 1/4" x 1/4"	250041-084	1
8	bulkhead, pipe 1/4"	841500-004	3
9	connector, tube 1/4"T x 1/4"P	250018-428	1
10	elbow, tube 1/4"T x 1/4"P	250018-430	7
11	elbow, pipe 90ºM 1/2" x 1/2"	860508-050	1
12	elbow, 37º fl 1/2” x 1/2”	860208-050	1
13	valve, 2-way blowdown 1/2" **(I)**	02250100-042	1
14	connector, tube-SAE 1/4" x 7/16"	870906-025	1
15	tubing, stainless steel 1/4"	841215-004	4
16	valve, solenoid **(II)**	02250125-657	2
17	nipple, chase conduit 1/2"	847815-050	1
18	valve, pressure regulator **(III)**	250017-280	1
19	tee, male pipe 1/4"	869825-025	2
20	valve, shuttle 1/4"	408893	2
21	orifice	02250091-395	1
22	support, bracket press switch	02250084-823	1
23	tee, male run 1/4"T x 1/4"P	250038-059	1
24	transducer, pressure	02250078-933	2
25	strainer, v-type **(IV)**	241771	1
26	switch, vacuum	02250078-249	1

(I) For maintenance on blowdown valve no. 02250100-042, order replacement valve no. 02250100-042.

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

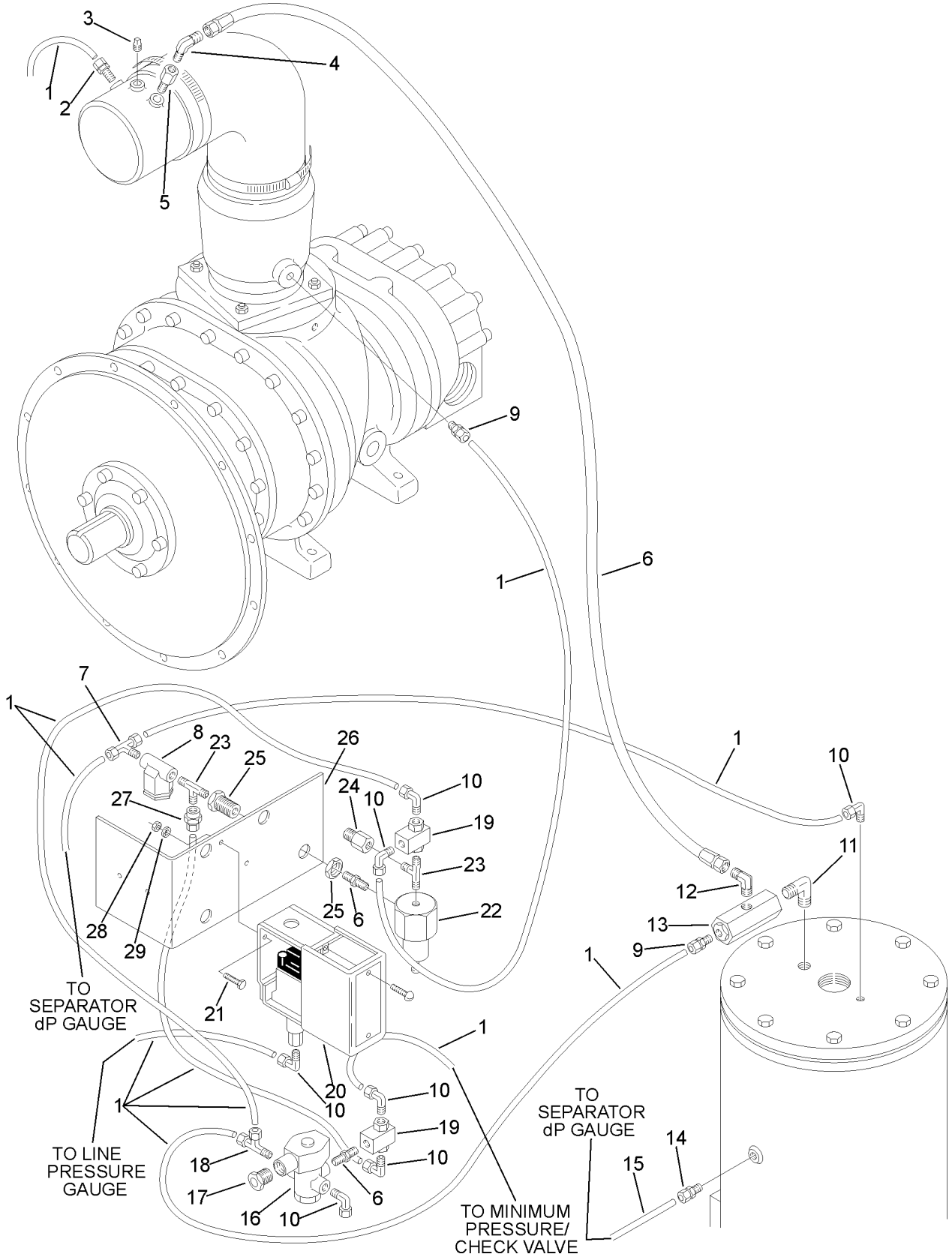
(III) For maintenance on pressure regulator valve no. 250017-280, order repair kit no. 250019-453.

(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 CONTROL SYSTEM- LS-160 ELECTRO-MECHANICAL



10.17 CONTROL SYSTEM- LS-160 ELECTRO-MECHANICAL

key number	*description*	*part number*	*quantity*
1	tubing, nylon .25"	02250054-861	31 ft.
2	connector, 1/4"T x 1/8"P	250018-427	1
3	plug, pipe 1/8"	807800-005	1
4	elbow, 37º fl 1/4” x 1/2”	860208-025	1
5	oirifice, .25 x 1/4”m x 1/4”f	02250143-403	1
6	hose, med pressure .5” x 24”	249608-005	1
7	tee, male 1/4"T x 1/4"P	250028-582	1
8	strainer, v-type **(I)**	241771	1
9	connector, tube 1/4"T x 1/4"P	250018-428	1
10	elbow, tube 1/4"T x 1/4"P	250018-430	7
11	elbow, pipe 90ºM 1/2" x 1/2"	860508-050	1
12	elbow, 37º fl 1/2” x 1/2”	860208-050	1
13	valve, 2-way blowdown 1/2" **(II)**	02250100-042	1
14	connector, tube-SAE 1/4" x 7/16"	870906-025	1
15	tubing, stainless steel 1/4"	841215-004	4
16	valve, solenoid **(III)**	02250125-657	2
17	nipple, chase conduit 1/2"	847815-050	1
18	tee, male run 1/4"T x 1/4"P	250038-059	1
19	valve, shuttle 1/4"	408893	2
20	switch, pressure <=140PSI	040694	1
	•switch, pressure >=140PSI	407778	1
21	screw, machine rd head #10-32 x 1/2"	831602-050	2
22	valve, pressure regulator **(IV)**	250017-280	1
23	tee, male pipe 1/4"	869825-025	2
24	orifice	02250091-395	1
25	bulkhead, pipe 1/4"	841500-004	1
26	support, bracket press switch	02250084-823	1
27	connector, tube-F 1/4" x 1/4"	250041-084	1
28	nut, hex #10	825202-130	2
29	washer, springlock #10	838502-047	2

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

(II) For maintenance on blowdown valve no. 02250100-042, order replacement valve no. 02250100-042.

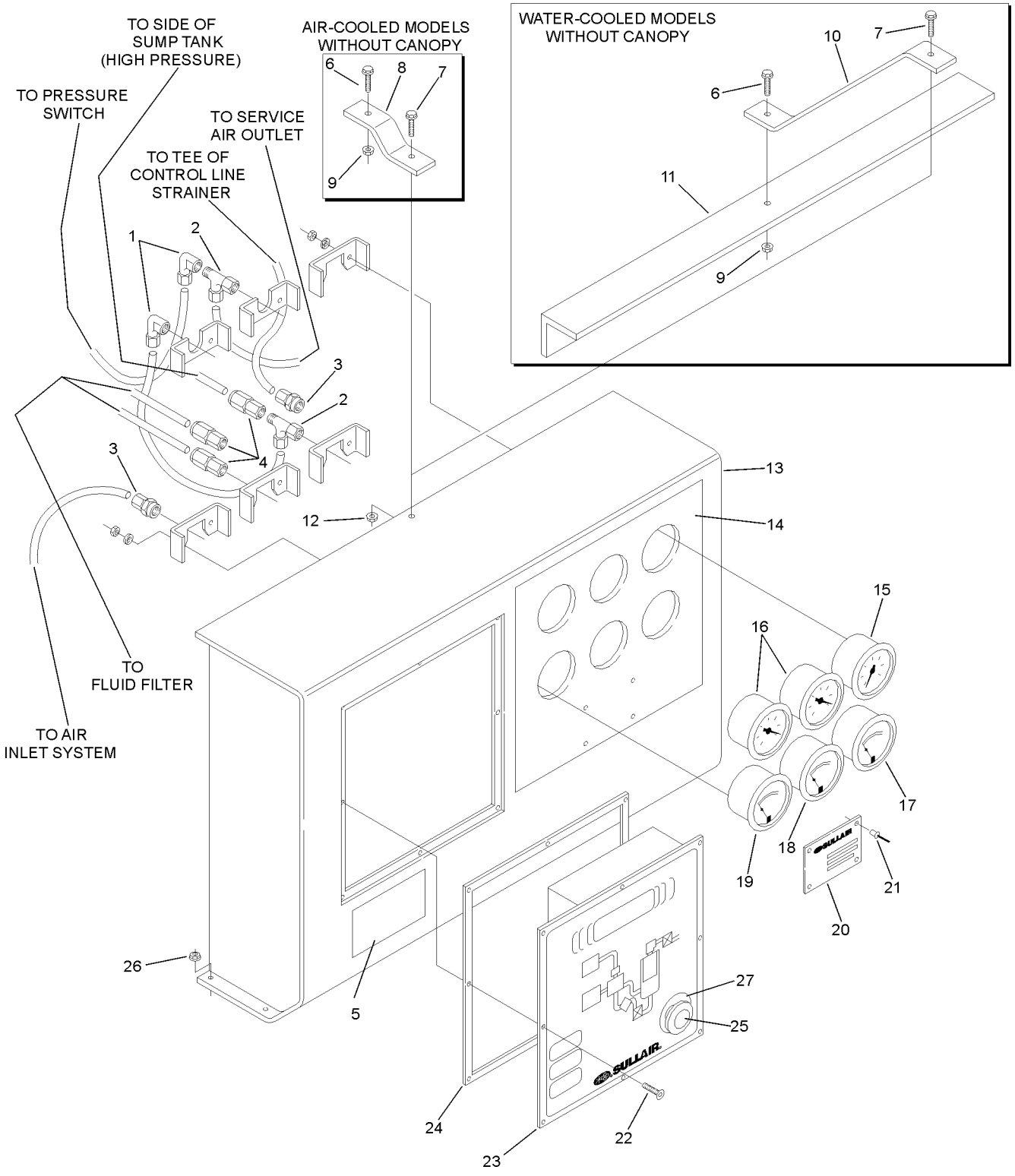
(III) For maintenance on solenoid valve no. 02250125-657, order repair kit no. 02250125-829, and replacement coil no. 02250125-861.

(IV) For maintenance on 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

10.18 INSTRUMENT PANEL- ELECTRO-MECHANICAL



10.18 INSTRUMENT PANEL- ELECTRO-MECHANICAL

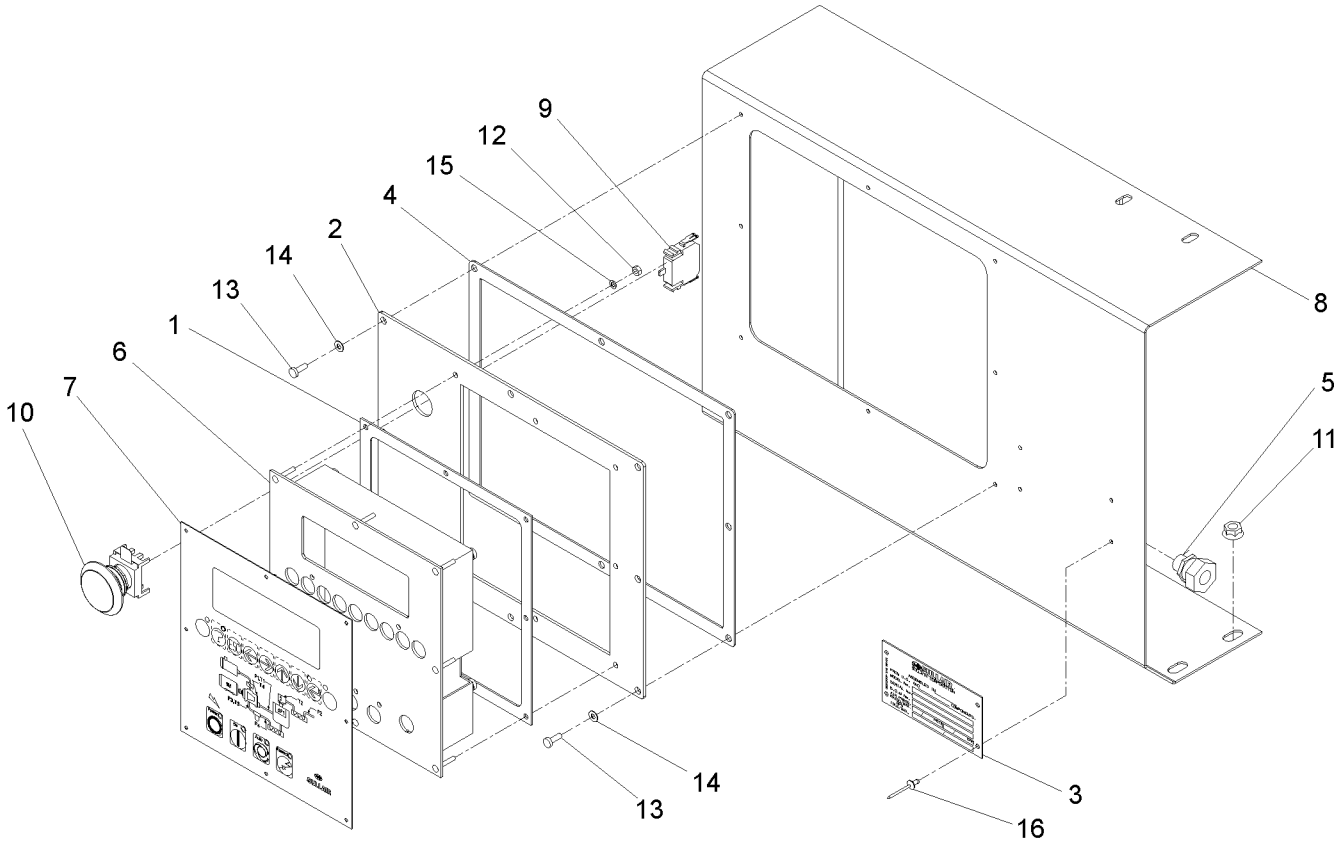
key number	*description*	*part number*	*quantity*
1	elbow, 90º 1/4"T x 1/8"P	250041-286	2
2	tee, adaptor 1/4"T x 1/8"M x 1/8"F	869704-012	2
3	connector, tube-F 1/4" x 1/8"	250021-379	2
4	connector, tube-F 1/4"T x 1/8"P	250139-050	3
5	decal, warning auto start **(I)**	041065	1
6	screw, hex ser washer 5/16" x 3/4"	829705-075	1
7	screw, hex ser washer 1/4" x 3/4"	829704-075	1
8	support, instrument panel (40, 50HP/ 37KW)	02250112-641	1
	•support, instrument panel (60-75HP/ 45-55KW)	02250142-586	1
	•support, instrument panel (100HP/ 75KW)	02250142-670	1
9	nut, hex washer 5/16"	825305-283	1
10	support, instrument panel	02250044-405	1
11	angle, instrument panel	02250044-407	1
12	nut, hex washer 1/4"	825304-236	1
13	panel, instrument	02250125-351	1
14	decal, instrument panel	02250051-301	1
15	gauge, temperature 100º-250º	02250100-096	1
16	gauge, pressure 0-230#	250005-185	2
17	gauge, differential pressure 0-30PSI	250003-799	1
18	gauge, differential pressure 0-15PSI	250003-798	1
19	gauge, vacuum 0-30" water	250003-797	1
20	plate, serial number	02250059-318	1
21	rivet, pop 1/8" x 1/2"	843102-050	4
22	screw	874404-014	8
23	controller E/M	02250119-824	1
24	gasket, panel supervisor	02250048-822	1
25	switch, push button - red	02250085-504	1
26	nut, hex washer 5/16"	825305-283	4
27	nameplate, yellow ring	02250081-473	1
28	harness, wiring (domestic) (not shown)	02250120-461	1
29	harness, wiring (European) (not shown)	02250120-462	1

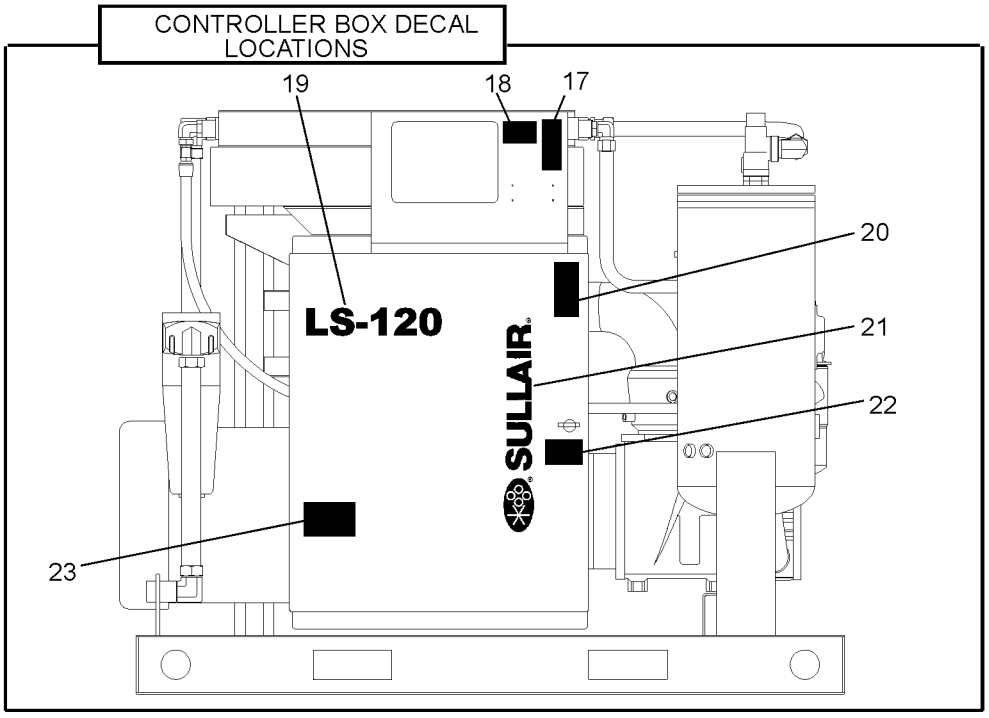
(I) For additional controller box decal locations for electro-mechanical controllers, consult Section *10.19, Instrument Panel- Supervisor Controller* (decal part numbers 17-23).

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.19 INSTRUMENT PANEL- SUPERVISOR CONTROLLER





02250138-633R00

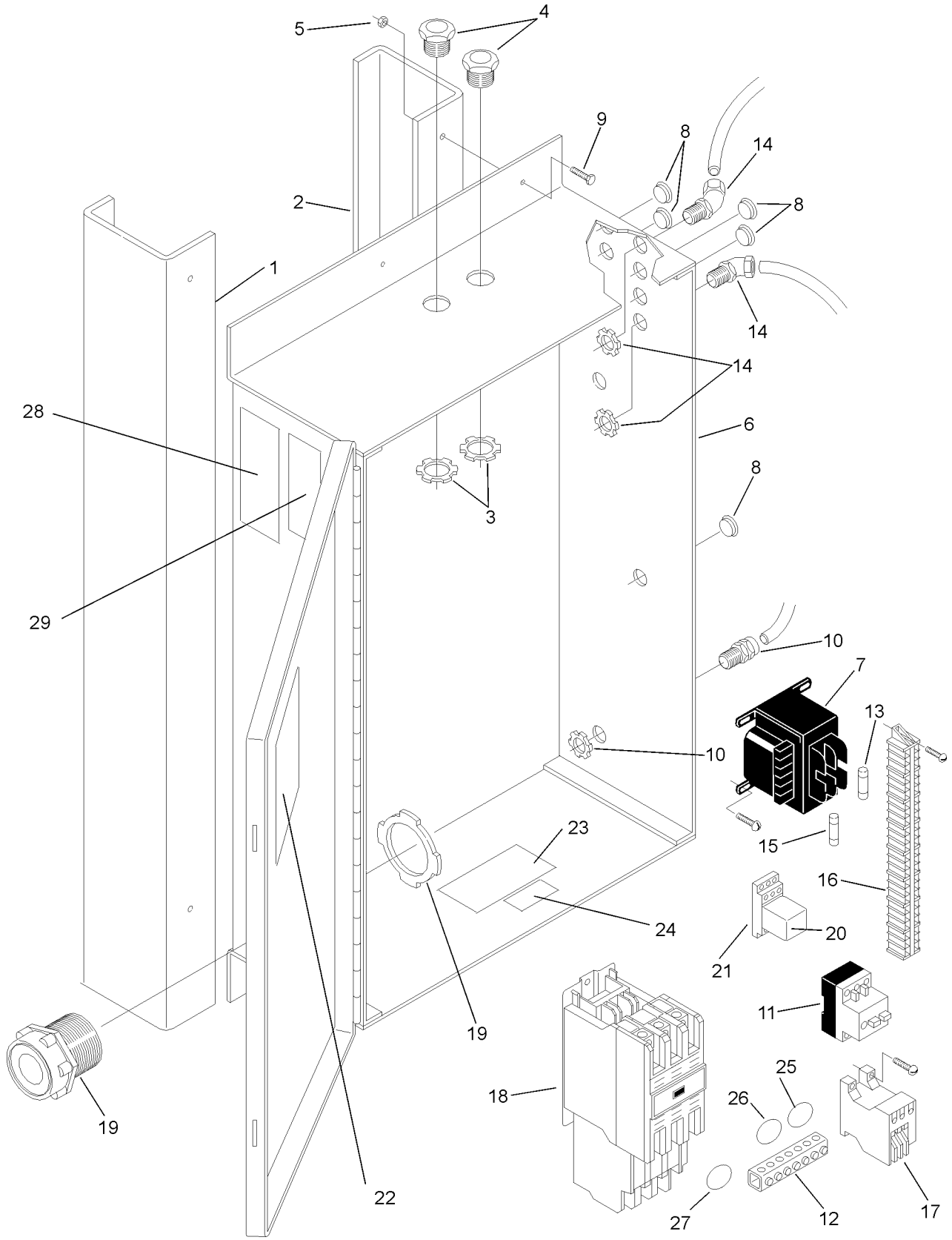
10.19 INSTRUMENT PANEL- SUPERVISOR CONTROLLER

key number	*description*	*part number*	*quantity*
1	gasket, panel Supervisor II	02250048-822	1
2	panel, cover Supervisor II	02250054-854	1
3	nameplate, Sullair serial number	02250059-318	1
4	gasket, ctl pnl Supervisor II	02250071-093	1
5	grip, cord n4 .250-.375 x 1/2”	02250071-381	1
6	control, Supervisor display mod	02250119-330	1
7	decal, Supervisor front	02250130-344	1
8	panel, instrument Supervisor	02250134-463	1
9	block, contact 1nc	250027-125	1
10	switch, per red push/pull e22	250028-588	1
11	nut, hex f pltd 5/16-18	825305-283	4
12	nut, hex metric m4 x .7	825904-070	8
13	screw, tc-f pan #8-32 x 1/2	835601-050	8
14	washer, lock ext tooth #8	838401-023	8
15	washer, spr lock-metric pltd m4	838804-090	8
16	rivet, pop 1/8 x 3/8	843102-038	4
17	decal, warning auto start	250017-903	1
18	decal, warning auto start	041065	1
19	decal, LS-120	02250144-155	1
	•decal, LS-160 (not shown)	02250144-157	1
20	sign, danger electrocution	049850	1
21	decal, Sullair 2 1/2" x 20"	02250059-054	1
22	decal, electrocution hazard intnl/glbl	02250077-472	1
23	decal, ISO 9001	02250057-624	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.20 ELECTRICAL BOX- ELECTRO-MECHANICAL



10.20 ELECTRICAL BOX- ELECTRO-MECHANICAL

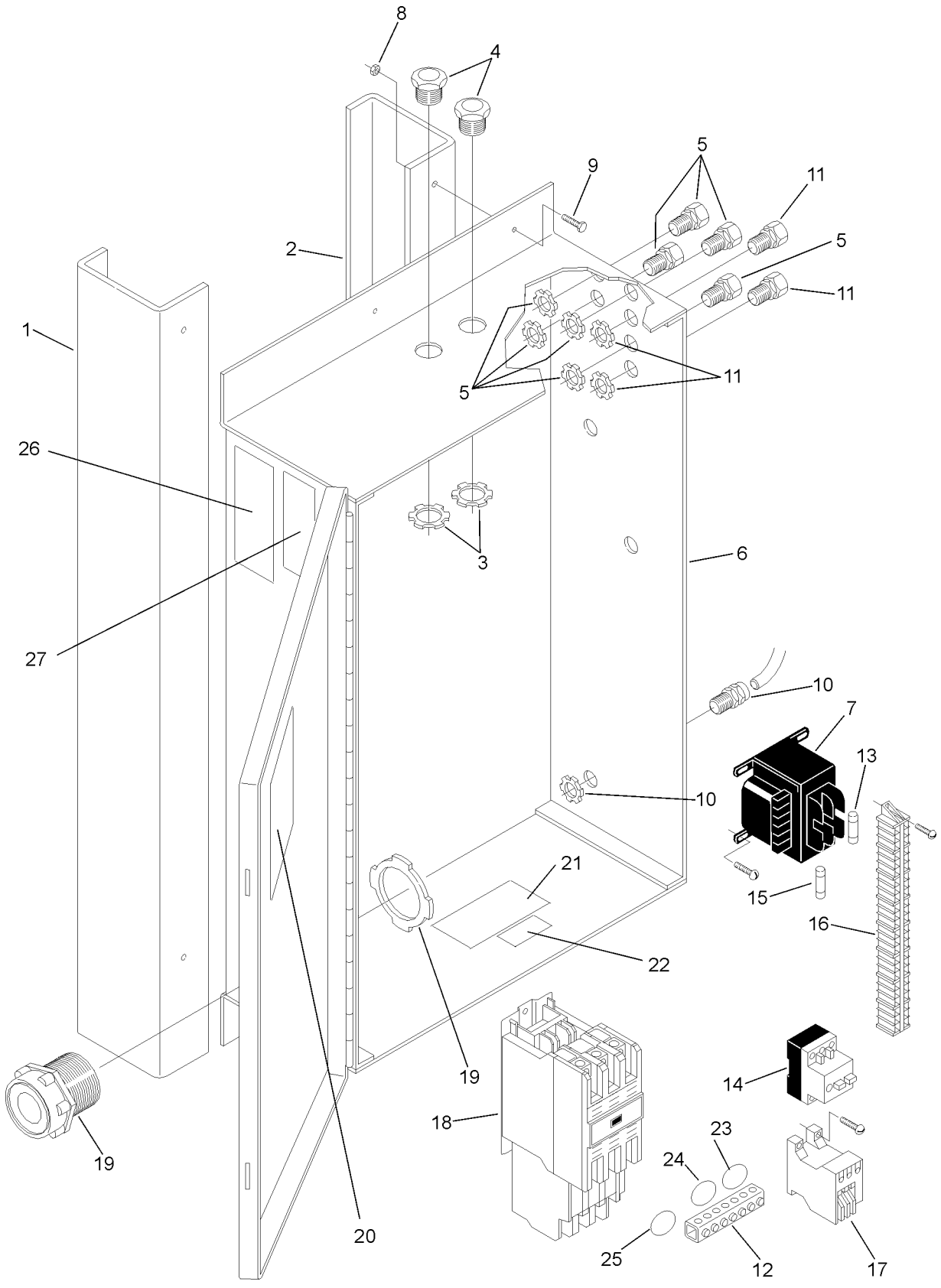
key number	*description*	*part number*	*quantity*
1	support, starter LH	250017-978	1
2	support, starter RH	250017-977	1
3	locknut, conduit 1"	847200-100	2
4	nipple, chase 1" conduit	847815-100	2
5	nut, hex plated 3/8"-16	825306-337	4
6	starter, assy	consult factory	1
7	transformer, 250VA univ W/FH	02250083-188	1
8	plug, hole 1"	409918-004	1
9	capscrew, hex ser washer 3/8"-16 x 1"	829706-100	4
10	grip, cord	250018-497	2
11	protector, motor	consult factory	1
12	block, ground	02250101-721	1
13	fuse, kldr 2.50	250026-646	1
14	elbow, 45º Lq-tite	846500-050	2
15	fuse, KTK 2.0A	250019-756	1
16	block, terminal KT3	250041-102	1
17	contactor, AC 3P 18A 120V coil	250025-703	1
18	starter	consult factory	1
19	grip, cord	consult factory	2
20	relay	045496	1
21	socket	045497	1
22	decal, warning ground fault	049852	1
23	decal, danger high voltage	042218	1
24	decal, V 460/3/60 international **(I)**	02250069-399	1
25	decal, protective earth ground	02250075-045	1
26	decal, PE designation	02250075-540	1
27	decal, earth ground	02250075-046	2
28	sign, warning "food grade" lube	250003-144	1
29	sign, danger air breathing	250027-935	1

(I) Voltage decals may vary in accordance with machine voltage. For additional voltage decal part numbers, consult Section *10.32, Decal Group* (key numbers 7A-7E) for matching voltage decal part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.21 ELECTRICAL BOX- SUPERVISOR CONTROLLER



10.21 ELECTRICAL BOX- SUPERVISOR CONTROLLER

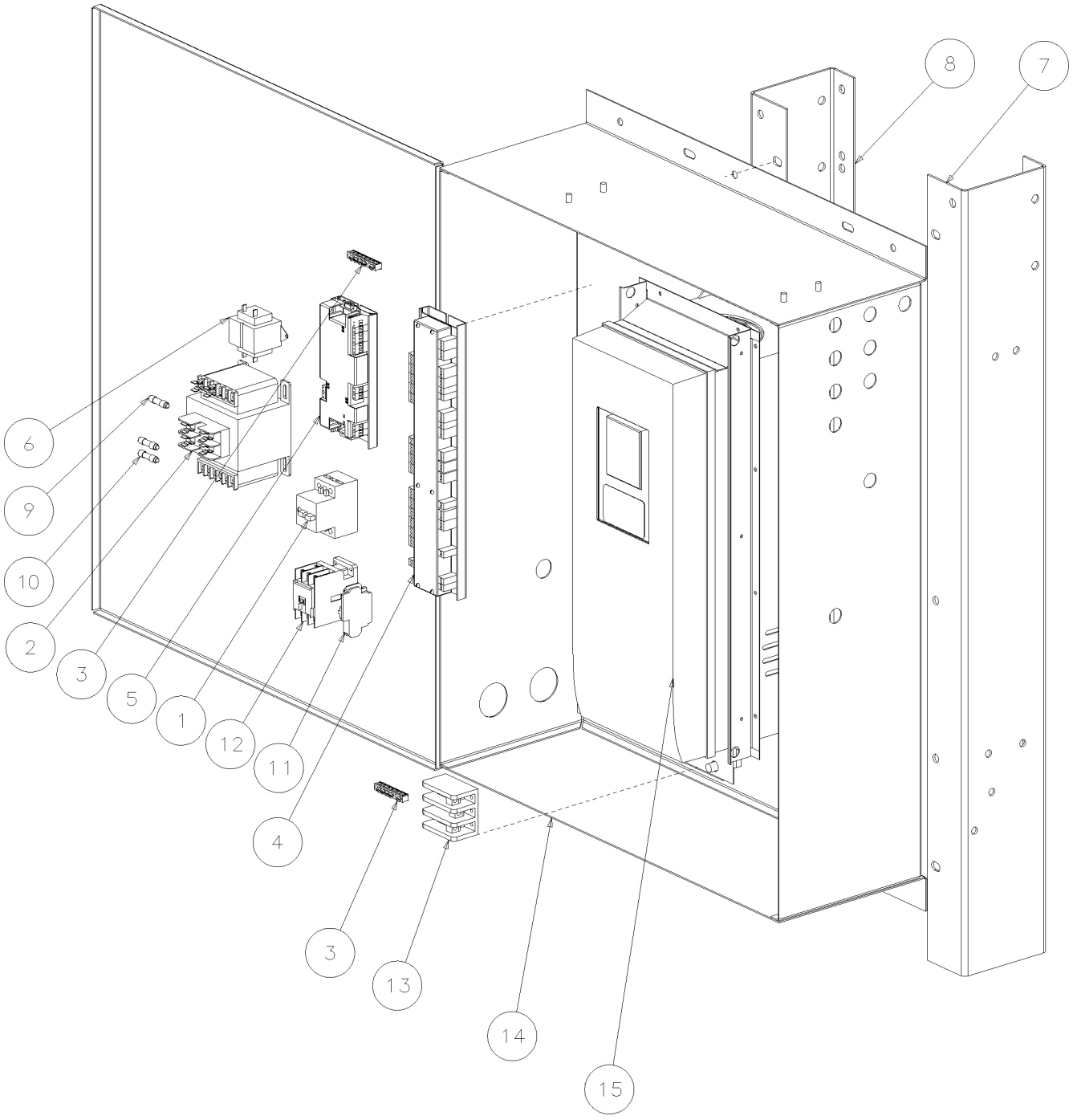
key number	*description*	*part number*	*quantity*
1	support, starter LH	250017-978	1
2	support, starter RH	250017-977	1
3	locknut, conduit 1"	847200-100	2
4	nipple, chase 1" conduit	847815-100	2
5	grip, cord	02250071-380	4
6	starter, assy	consult factory	1
7	transformer, 250VA univ W/FH	02250083-188	1
8	nut, hex plated 3/8"-16	825306-337	4
9	capscrew, hex ser washer 3/8"-16 x 1"	829706-100	4
10	grip, cord	250018-497	2
11	grip, cord	02250071-379	2
12	block, ground	02250101-721	1
13	fuse, kldr 2.50	250026-646	1
14	protector, motor	consult factory	1
15	fuse, KTK 2.0A	250019-756	
16	block, terminal KT3	250041-102	1
17	contactor, AC 3P 18A 120V coil	250025-703	1
18	starter	consult factory	1
19	grip, cord	consult factory	2
20	decal, warning ground fault	049852	1
21	decal, danger high voltage	042218	1
22	decal, V 460/3/60 international **(I)**	02250069-399	1
23	decal, protective earth ground	02250075-045	1
24	decal, PE designation	02250075-540	1
25	decal, earth ground	02250075-046	2
26	sign, warning "food grade" lube	250003-144	1
27	sign, danger air breathing	250027-935	1

(I) Voltage decals may vary in accordance with machine voltage. For additional voltage decal part numbers, consult Section *10.32, Decal Group* (key numbers 7A-7E) for matching voltage decal part number.

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.22 ELECTRICAL BOX- SUPERVISOR CONTROLLER- VSD NON-CE



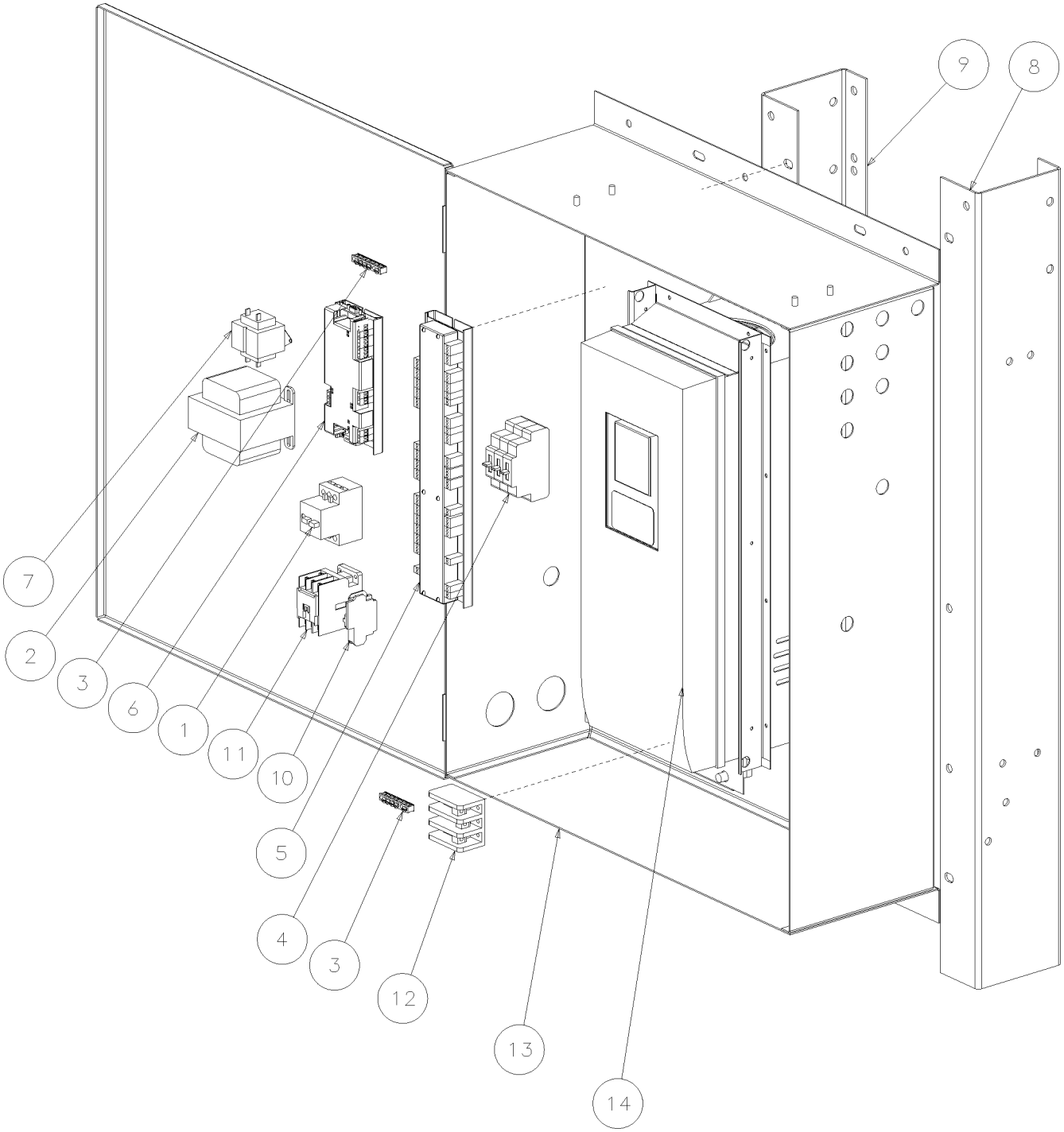
10.22 ELECTRICAL BOX- SUPERVISOR CONTROLLER- VSD NON-CE

key number	*description*	*part number*	*quantity*
1	start, man mot prot 1.0 - 1.6	02250056-880	1
2	xfrmr, pt 150va univ w/pri fh	02250083-186	1
3	bar, ground 5 post c/h	02250101-721	2
4	ctl, Supervisor III mod	02250119-331	1
5	ctl, Supervisor III comm module	02250128-157	1
6	xfmr, pt 50va 120-24 50/60	02250135-283	1
7	support, starter rh	250017-977	1
8	support, starter lh	250017-978	1
9	fuse, imitron ktk-r 2.00	250019-756	1
10	fuse, limitron ktk-r 2.50	250019-757	2
11	contact, aux 1 no	250023-370	1
12	contactor, AC 3p 18a 120v	250025-703	1
13	block, power distribution	consult factory	1
14	starter, assy	consult factory	1
15	drive, VSD	consult factory	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.23 ELECTRICAL BOX- SUPERVISOR CONTROLLER- VSD CE



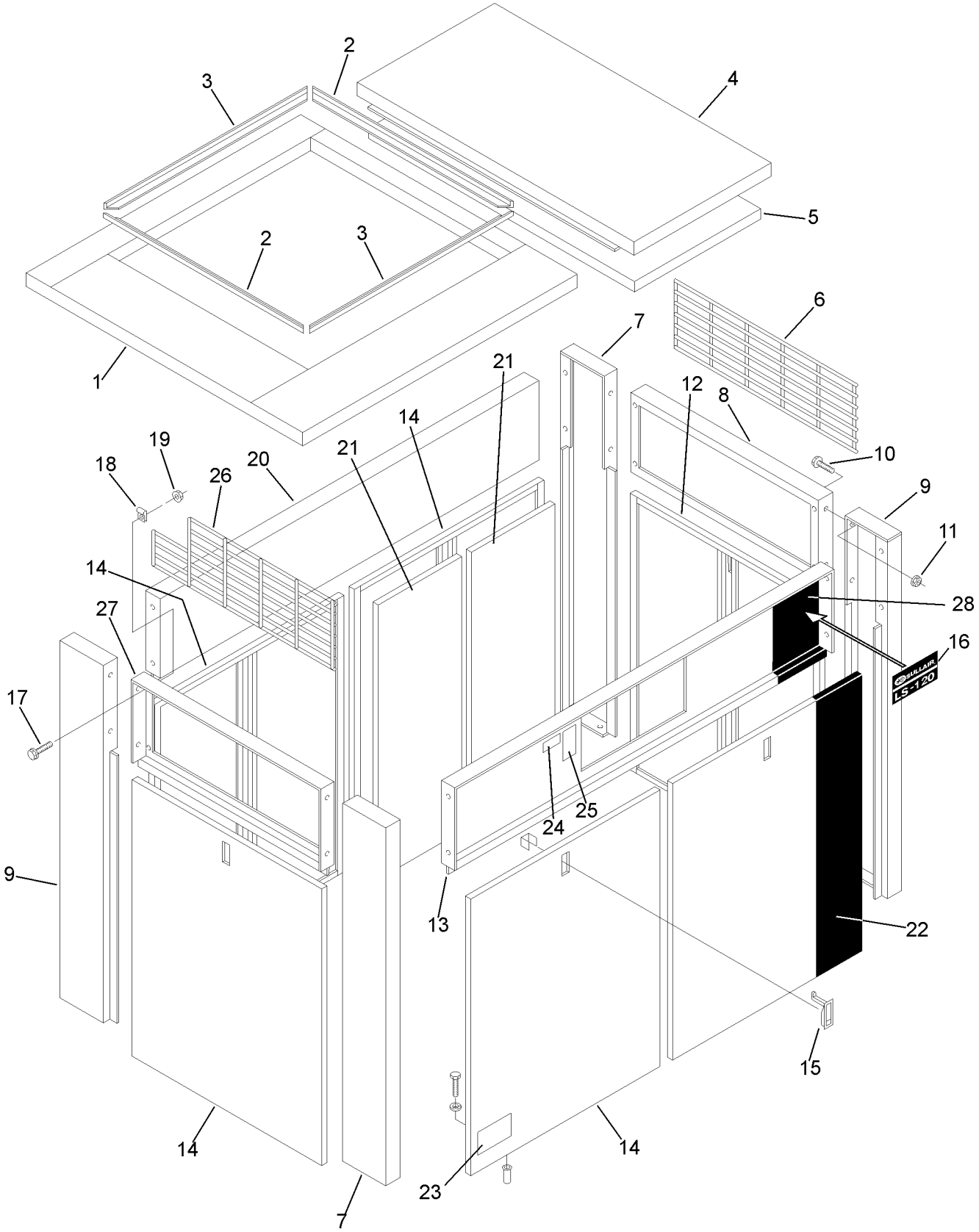
10.23 ELECTRICAL BOX- SUPERVISOR CONTROLLER- VSD CE

key number	*description*	*part number*	*quantity*
1	start, man mot prot 1.0 - 1.6	02250056-880	1
2	xfrmr, pt 150va univ w/o pri fh	02250083-185	1
3	bar, ground 5 post c/h	02250101-721	2
4	cb, 2.0 a ctl 1p high-inrush	02250131-179	3
5	ctl, Supervisor III mod	02250119-331	1
6	ctl, Supervisor III comm module	02250128-157	1
7	xfmr, pt 50va 120-24 50/60	02250135-283	1
8	support, starter rh	250017-977	1
9	support, starter lh	250017-978	1
10	contact, aux 1 no	250023-370	1
11	contactor, AC 3p 18a 120v	250025-703	1
12	block, power distribution	consult factory	1
13	starter, assy	consult factory	1
14	drive, VSD	consult factory	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.24 CANOPY- AIR-COOLED LS-120 & LS-160 (40-75HP/ 37-55KW)



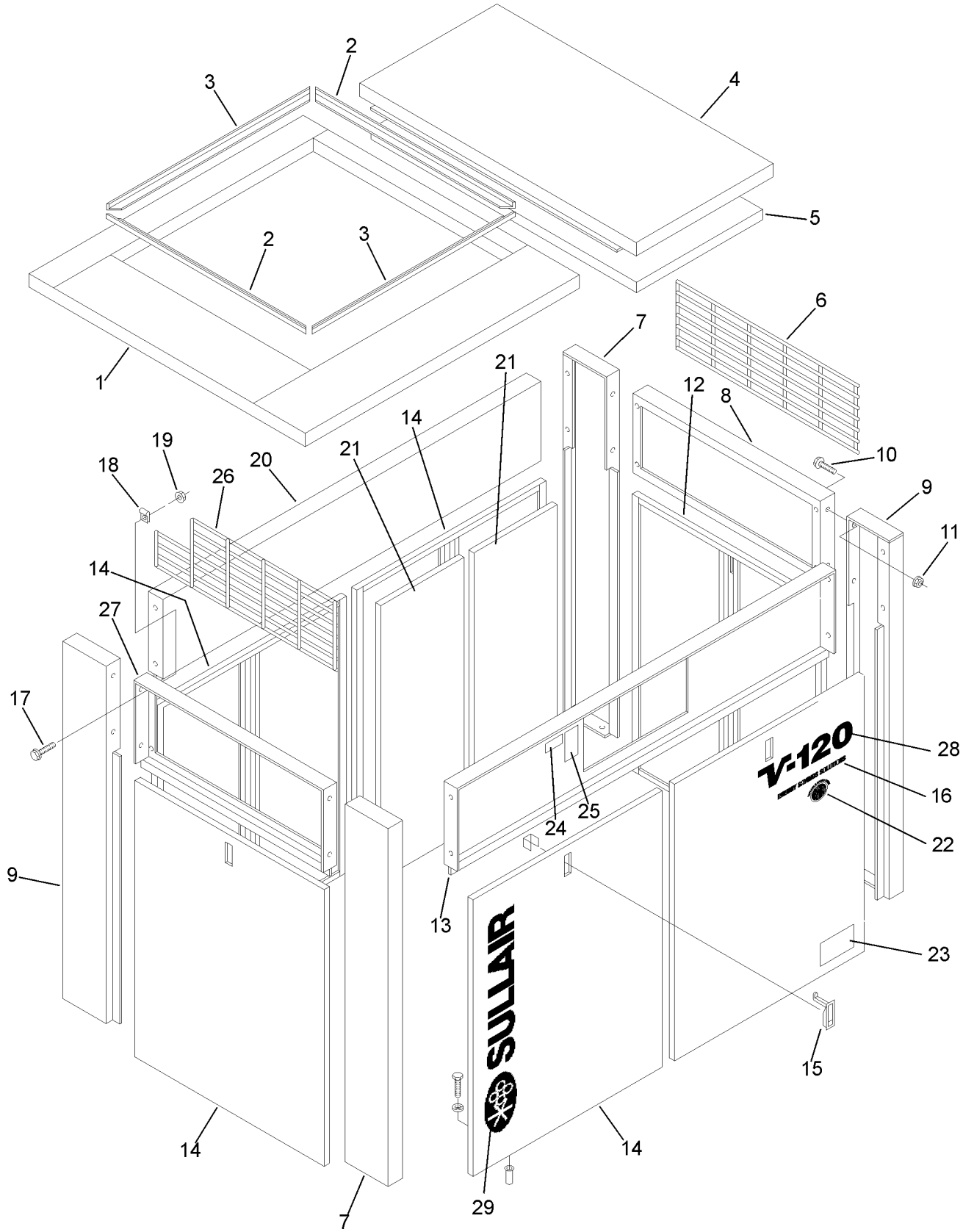
10.24 CANOPY- AIR-COOLED LS-120 & LS-160 (40-75HP/ 37-55KW)

key number	*description*	*part number*	*quantity*
1	frame, roof (40, 50HP/37KW)	250018-268	1
	•frame, roof (60-100HP/45-75KW)	02250142-593	1
2	angle, seal (40, 50HP/37KW)	250018-291	2
	•angle, seal (60-100HP/45-75KW)	02250142-712	2
3	angle, seal (40, 50HP/37KW)	250018-291	2
	•angle, seal (60-100HP/45-75KW)	02250142-714	2
4	panel, access roof (40, 50HP/37KW)	250017-309	1
	•panel, access roof (60-100HP/45-75KW)	02250142-594	1
5	panel, fiberglass (40, 50HP/37KW)	250020-012	1
6	grille, enclosure end	250018-667	1
7	panel, corner - left hand	02250142-669	2
8	panel, end	250018-646	1
9	panel, corner - right hand	250018-609	2
10	screw, hex serrated washer 5/16"-18	829705-075	40
11	nut, hex flanged 5/16"	825305-283	20
12	panel, access side special	250021-260	1
13	panel, front side	02250099-223	1
14	panel, acess side	250017-310	4
15	latch, adjustable trigger lock	049764	6
16	decal, LS-120 with stripe and logo	02250144-126	1
	•decal, LS-160 with stripe and logo (not shown)	02250144-128	1
17	capscrew, hex 1/4"-20	829104-100	16
18	clamp, wire	043194	16
19	nut, hex 1/4"	824204-226	16
20	panel, back side	250017-312	1
21	panel, fiberglass door	250020-015	12
22	decal, black 12” x 43.5”	02250144-131	1
23	decal, ISO 9001	02250057-624	1
24	decal, warning auto start	041065	1
25	decal, warning auto start	250017-903	1
26	grille, air outlet end	02250142-592	1
27	panel, end	02250142-664	1
28	decal, black 12” x 14”	02250144-130	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.25 CANOPY- AIR-COOLED V-120 & V-160 (40-75HP/ 37-55KW)



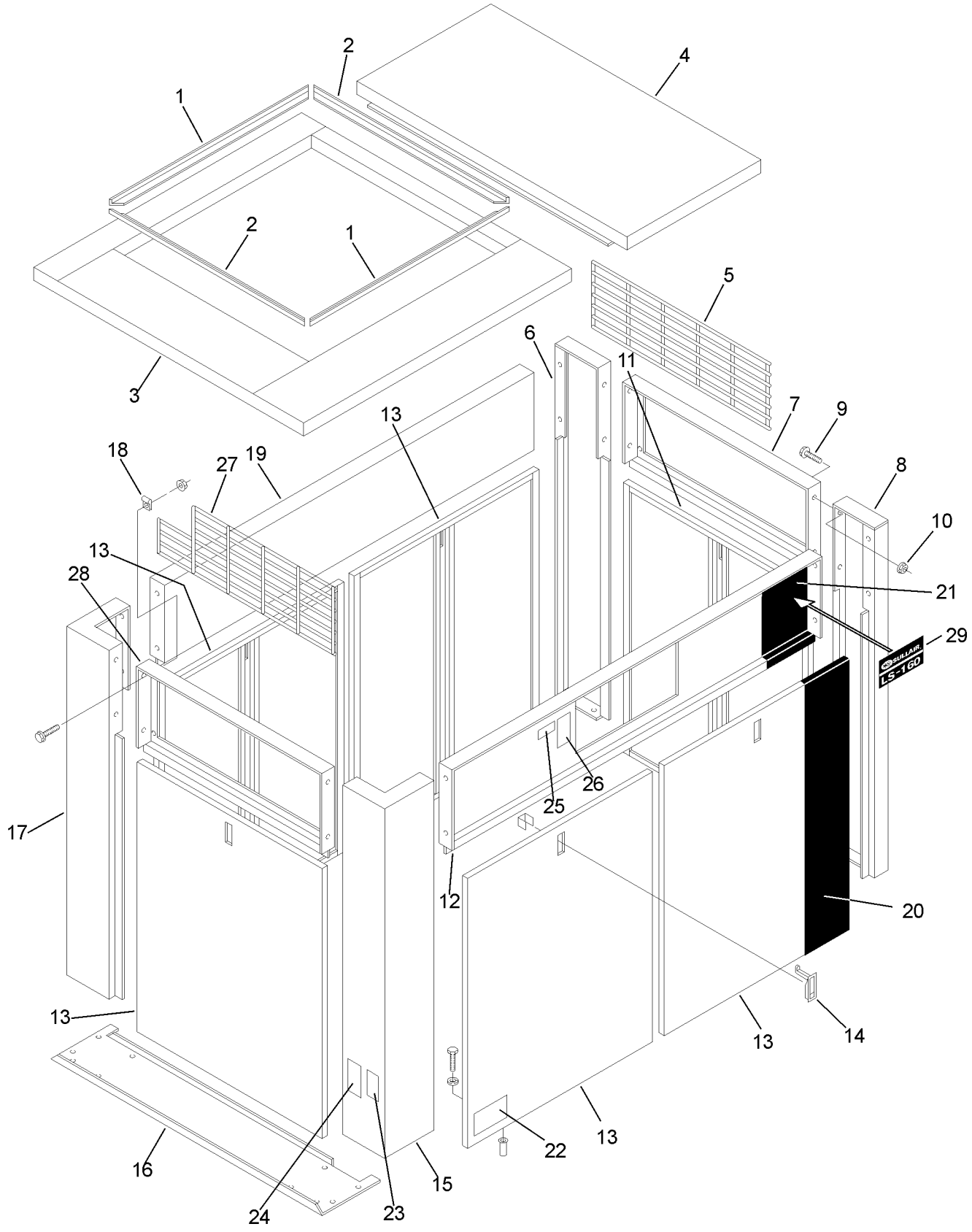
10.25 CANOPY- AIR-COOLED V-120 & V-160 (40-75HP/ 37-55KW)

key number	*description*	*part number*	*quantity*
1	frame, roof (40, 50HP/37KW)	250018-268	1
	•frame, roof (60-100HP/45-75KW)	02250142-593	1
2	angle, seal (40, 50HP/37KW)	250018-291	2
	•angle, seal (60-100HP/45-75KW)	02250142-712	2
3	angle, seal (40, 50HP/37KW)	250018-291	2
	•angle, seal (60-100HP/45-75KW)	02250142-714	2
4	panel, access roof (40, 50HP/37KW)	250017-309	1
	•panel, access roof (60-100HP/45-75KW)	02250142-594	1
5	panel, fiberglass (40, 50HP/37KW)	250020-012	1
6	grille, enclosure end	250018-667	1
7	panel, corner - left hand	02250142-669	2
8	panel, end	250018-646	1
9	panel, corner - right hand	250018-609	2
10	screw, hex serrated washer 5/16"-18	829705-075	40
11	nut, hex flanged 5/16"	825305-283	20
12	panel, access side special	250021-260	1
13	panel, front side	02250099-223	1
14	panel, acess side	250017-310	4
15	latch, adjustable trigger lock	049764	6
16	decal, energy savings solution	02250146-267	1
17	capscrew, hex 1/4"-20	829104-100	16
18	clamp, wire	043194	16
19	nut, hex 1/4"	824204-226	16
20	panel, back side	250017-312	1
21	panel, fiberglass door	250020-015	12
22	decal, VSD supply matches demand	02250146-359	1
23	decal, ISO 9001	02250057-624	1
24	decal, warning auto start	041065	1
25	decal, warning auto start	250017-903	1
26	grille, air outlet end	02250142-592	1
27	panel, end	02250142-664	1
28	decal, V-120	02250145-930	1
	•decal, V-160 (not shown)	02250145-999	1
29	decal, Sulliar 4” x 32”	02250059-060	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.26 CANOPY- AIR-COOLED LS-160 (75-100HP/ 55-75KW) WITH TEFC MOTOR



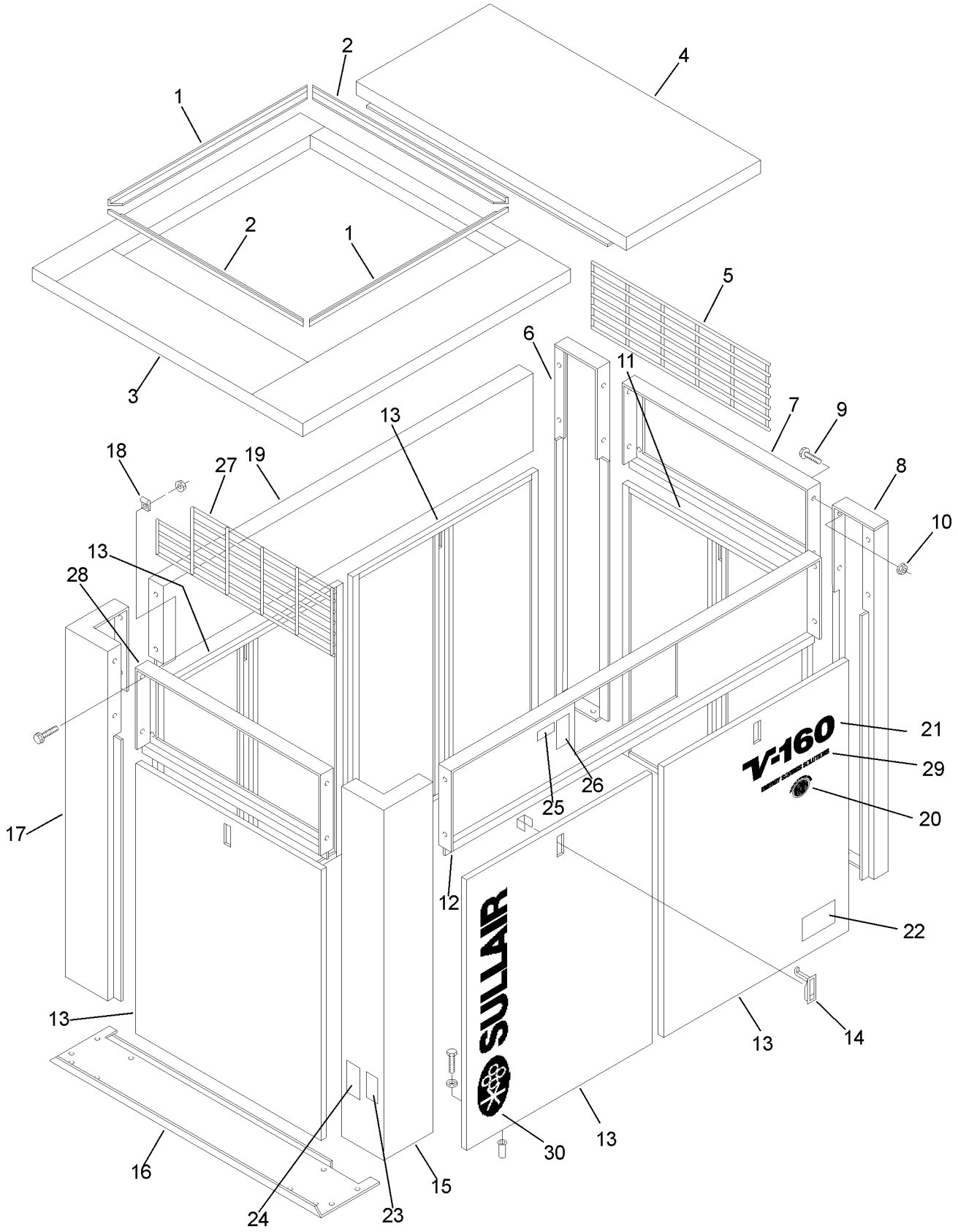
10.26 CANOPY- AIR-COOLED LS-160 (75-100HP/ 55-75KW) WITH TEFC MOTOR

key number	*description*	*part number*	*quantity*
1	angle, seal	02250142-714	2
2	angle, seal	02250142-712	2
3	frame, roof	02250142-985	1
4	roof, panel assy	02250142-695	1
5	grille, enclosure end	250018-667	1
6	panel, corner LH	02250142-669	1
7	panel, end	250018-646	1
8	panel, corner RH	250018-609	1
9	screw, hex ser washer 5/16" x 3/4"	829705-075	40
10	nut, hex flgd 5/16"-18	825305-283	16
11	door, w/ fluid level	250026-024	1
12	panel, front side	02250099-462	1
13	door, assy	250026-023	5
14	latch, adjustable trigger	049764	6
15	panel, corner extended RH	02250142-993	1
16	panel, sill	02250111-440	1
17	panel, corner extended LH	02250111-442	1
18	clamp, wire	043194	16
19	panel, back side	250017-312	1
20	decal, black 12” x 43.5”	02250144-131	1
21	decal, black 12” x 14”	02250144-130	1
22	decal, ISO 9001	02250057-624	1
23	sign, danger air breathing	250027-935	1
24	sign, warning "food grade" lube	250003-144	1
25	decal, warning auto start	041065	1
26	decal, warning auto start	250017-903	1
27	grille, air outlet end	02250142-592	1
28	panel, end	02250142-664	1
29	decal, LS-160 with stripe and logo	02250144-128	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.27 CANOPY- AIR-COOLED V-160 (75-100HP/ 55-75KW) WITH TEFC MOTOR



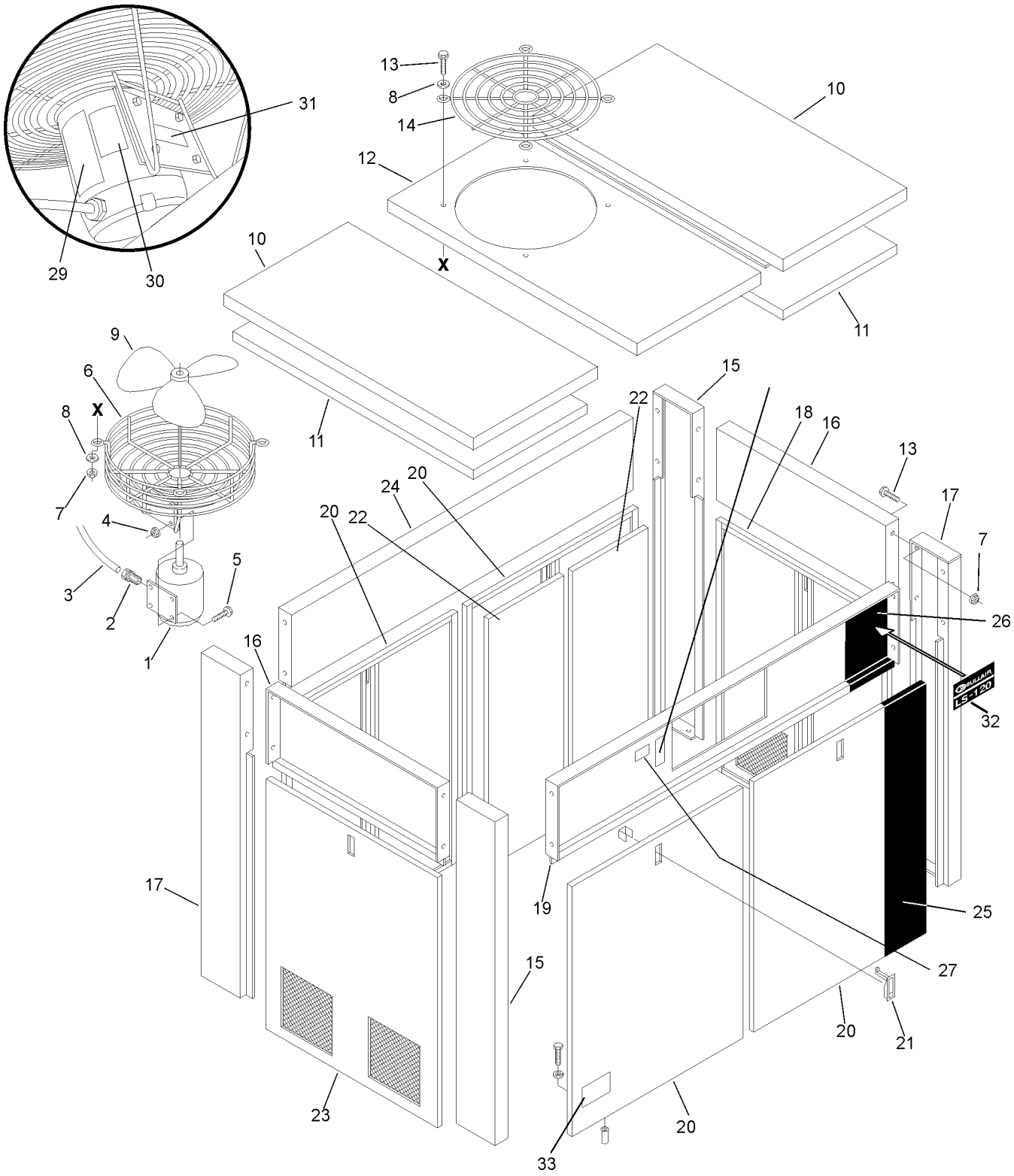
10.27 CANOPY- AIR-COOLED V-160 (75-100HP/ 55-75KW) WITH TEFC MOTOR

key number	*description*	*part number*	*quantity*
1	angle, seal	02250142-714	2
2	angle, seal	02250142-712	2
3	frame, roof	02250142-985	1
4	roof, panel assy	02250142-695	1
5	grille, enclosure end	250018-667	1
6	panel, corner LH	02250142-669	1
7	panel, end	250018-646	1
8	panel, corner RH	250018-609	1
9	screw, hex ser washer 5/16" x 3/4"	829705-075	40
10	nut, hex flgd 5/16"-18	825305-283	16
11	door, w/ fluid level	250026-024	1
12	panel, front side	02250099-462	1
13	door, assy	250026-023	5
14	latch, adjustable trigger	049764	6
15	panel, corner extended RH	02250142-993	1
16	panel, sill	02250111-440	1
17	panel, corner extended LH	02250111-442	1
18	clamp, wire	043194	16
19	panel, back side	250017-312	1
20	decal, VSD supply matches demand	02250146-359	1
21	decal, V-160	02250145-999	1
22	decal, ISO 9001	02250057-624	1
23	sign, danger air breathing	250027-935	1
24	sign, warning "food grade" lube	250003-144	1
25	decal, warning auto start	041065	1
26	decal, warning auto start	250017-903	1
27	grille, air outlet end	02250142-592	1
28	panel, end	02250142-664	1
29	decal, engery savings solutions	02250146-267	1
30	decal, Sullair 4” x 32”	02250059-060	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.28 CANOPY- WATER-COOLED LS-120 & LS-160 (40-75HP/ 37-55KW)



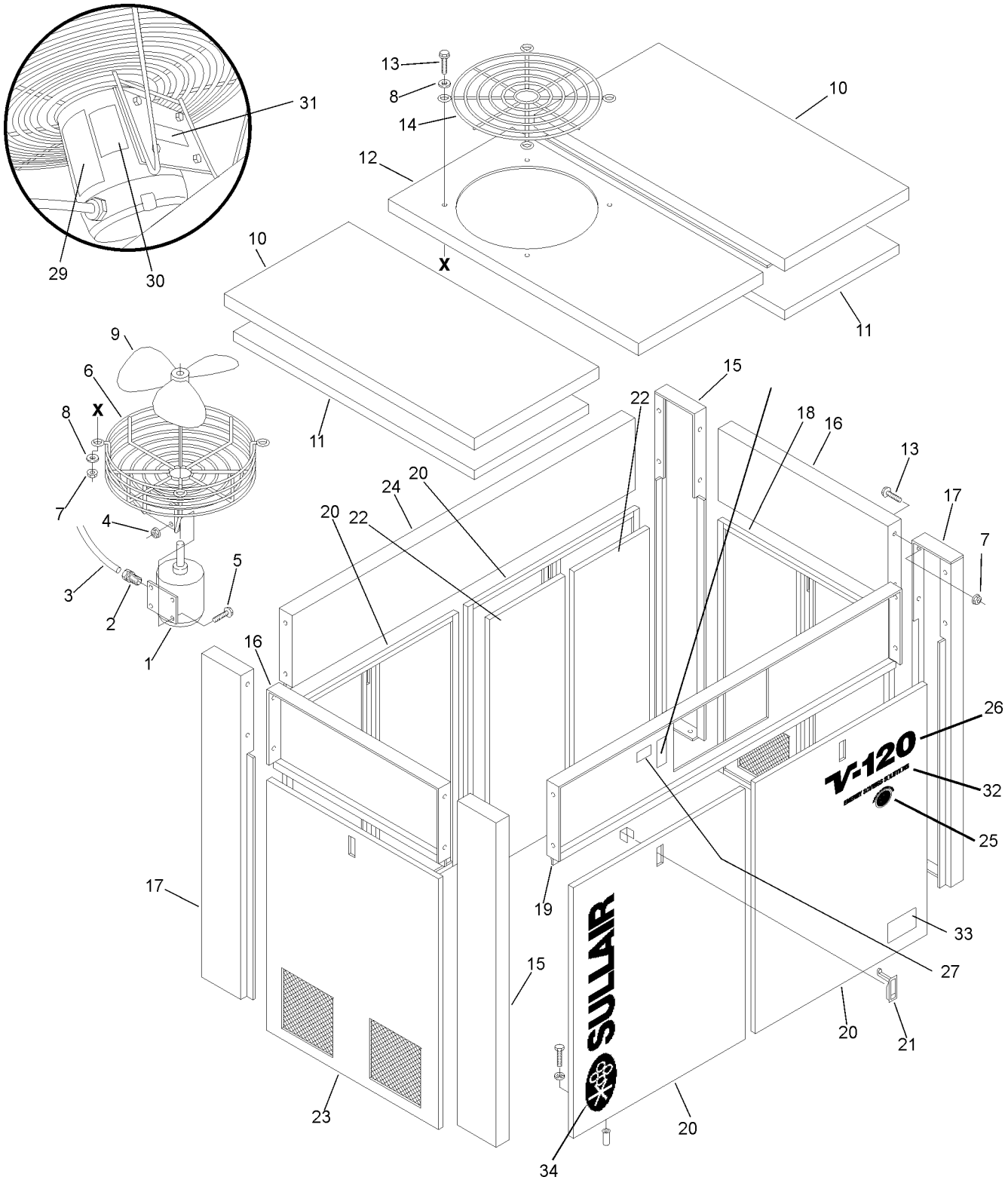
10.28 CANOPY- WATER-COOLED LS-120 & LS-160 (40-75HP/ 37-55KW)

key number	*description*	*part number*	*quantity*
1	motor, .25HP (230, 460V)	250000-031	1
2	grip, cord 1/2"	250021-321	1
3	wire, neoprene #16-4	850604-016	8
4	nut, hex flanged 5/16"	825305-283	4
5	screw, hex serrated washer 5/16" x 3/4"	829705-075	4
6	guard, exhaust fan	410179	1
7	nut, hex flange 5/16"	825305-283	4
8	washer, plain 5/16"	838205-071	8
9	fan, vent 18"	410358	1
10	panel, access roof	250017-309	2
11	panel, fiberglass roof	250020-012	2
12	panel, access roof	250017-308	1
13	screw, hex serrated washer 5/16" x 3/4"	829705-075	4
14	guard, fan 20"	241137	1
15	panel, corner - left hand	02250142-669	2
16	panel, enclosure end	250018-647	2
17	panel, corner - right hand	250018-609	2
18	panel, access side special	250034-296	1
19	panel, front side	02250099-223	1
20	panel, access side	250017-310	4
21	latch, adjustable trigger lock	049764	6
22	panel, fiberglass door	250020-015	12
23	panel, access side	250034-297	1
24	panel, back side	250017-312	1
25	decal, black 12” x 43.5”	02250144-131	1
26	decal, black 12” x 14”	02250144-130	1
27	decal, warning auto start	041065	1
28	decal, warning auto start	250017-903	1
29	sign, warning sever fan	049855	1
30	sign, warning sever fan	049965	1
31	decal, rotation	250021-564	1
32	decal, LS-120	02250144-126	1
	•decal, LS-160 (not shown)	02250144-128	1
33	decal, ISO 9001	02250057-624	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.29 CANOPY- WATER-COOLED V-120 & V-160 (40-75HP/ 37-55KW)



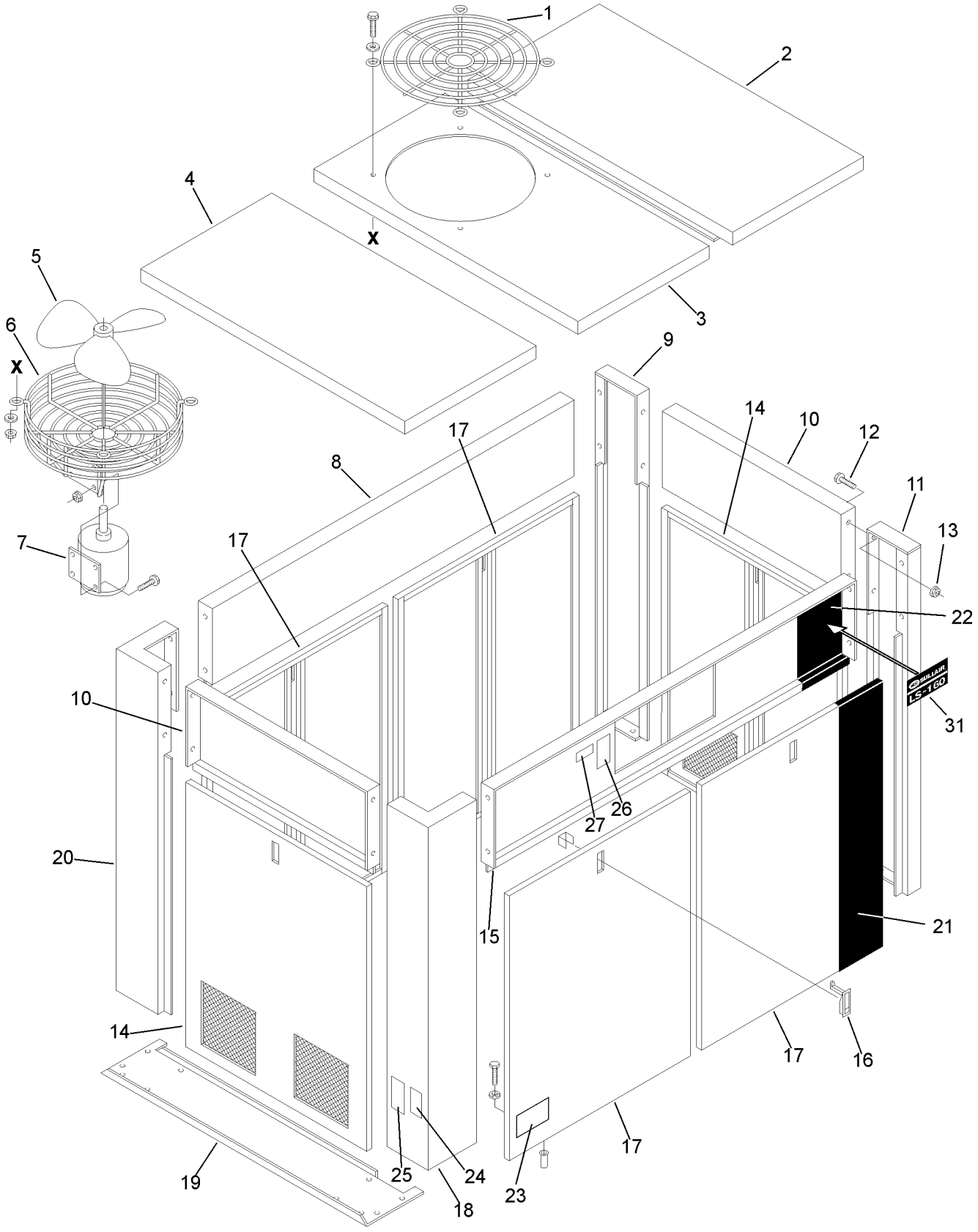
10.29 CANOPY- WATER-COOLED V-120 & V-160 (40-75HP/ 37-55KW)

key number	*description*	*part number*	*quantity*
1	motor, .25HP (230, 460V)	250000-031	1
2	grip, cord 1/2"	250021-321	1
3	wire, neoprene #16-4	850604-016	8
4	nut, hex flanged 5/16"	825305-283	4
5	screw, hex serrated washer 5/16" x 3/4"	829705-075	4
6	guard, exhaust fan	410179	1
7	nut, hex flange 5/16"	825305-283	4
8	washer, plain 5/16"	838205-071	8
9	fan, vent 18"	410358	1
10	panel, access roof	250017-309	2
11	panel, fiberglass roof	250020-012	2
12	panel, access roof	250017-308	1
13	screw, hex serrated washer 5/16" x 3/4"	829705-075	4
14	guard, fan 20"	241137	1
15	panel, corner - left hand	02250142-669	2
16	panel, enclosure end	250018-647	2
17	panel, corner - right hand	250018-609	2
18	panel, access side special	250034-296	1
19	panel, front side	02250099-223	1
20	panel, access side	250017-310	4
21	latch, adjustable trigger lock	049764	6
22	panel, fiberglass door	250020-015	12
23	panel, access side	250034-297	1
24	panel, back side	250017-312	1
25	decal, VSD supply matches demand	02250146-359	1
26	decal, V-120	02250145-930	1
	•decal, V-160 (not shown)	02250145-999	1
27	decal, warning auto start	041065	1
28	decal, warning auto start	250017-903	1
29	sign, warning sever fan	049855	1
30	sign, warning sever fan	049965	1
31	decal, rotation	250021-564	1
32	decal, engery savings solutions	02250146-267	1
33	decal, ISO 9001	02250057-624	1
30	decal, Sullair 4” x 32”	02250059-060	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.30 CANOPY- WATER-COOLED LS-160 (100HP/75KW)



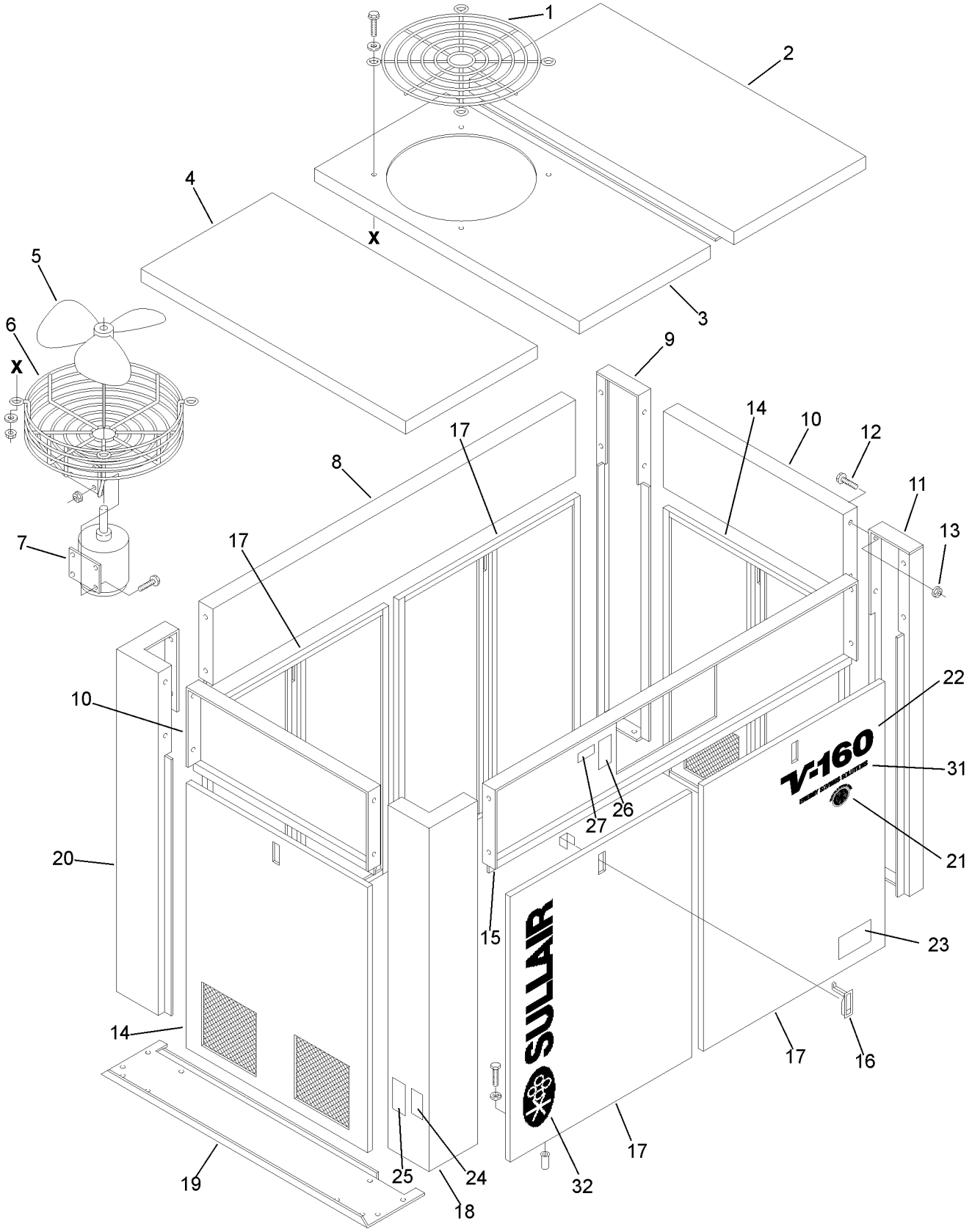
10.30 CANOPY- WATER-COOLED LS-160 (100HP/75KW)

key number	*description*	*part number*	*quantity*
1	guard, fan 20" upper	241137	1
2	roof, panel assy	250026-022	1
3	panel, access roof	250017-308	1
4	roof, panel assy	02250123-534	1
5	fan, 18"	410358	1
6	guard, fan 20" lower	410179	1
7	motor	consult factory	1
8	panel, back side	250017-312	1
9	panel, corner LH	02250142-669	1
10	panel, enclosure end	250018-647	2
11	panel, corner RH	250018-609	2
12	screw, hex ser washer 5/16" x 3/4"	829705-075	36
13	nut, hex flanged 5/16"-18	825305-283	28
14	door, assy	250034-320	1
15	panel, enclosure front side	02250099-462	1
16	latch, adjust trigger	049764	6
17	door, assy	250026-023	4
18	panel, corner extended RH	02250142-993	1
19	panel, sill	02250111-440	1
20	panel, corner extended LH	02250111-442	1
21	decal, black 12” x 43.5”	02250144-131	1
22	decal, black 12” x 14”	02250144-130	1
23	decal, ISO 9001	02250057-624	1
24	sign, danger air breathing	250027-935	1
25	sign, warning "food grade" lube	250003-144	1
26	decal, warning auto start	250017-903	1
27	decal, warning auto start	041065	1
28	sign, warning sever fan	049855	1
29	sign, warning sever fan	049965	1
30	decal, rotation	250021-564	1
31	decal, LS-160 with stripe and logo	02250144-128	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.31 CANOPY- WATER-COOLED V-160 (100HP/75KW)



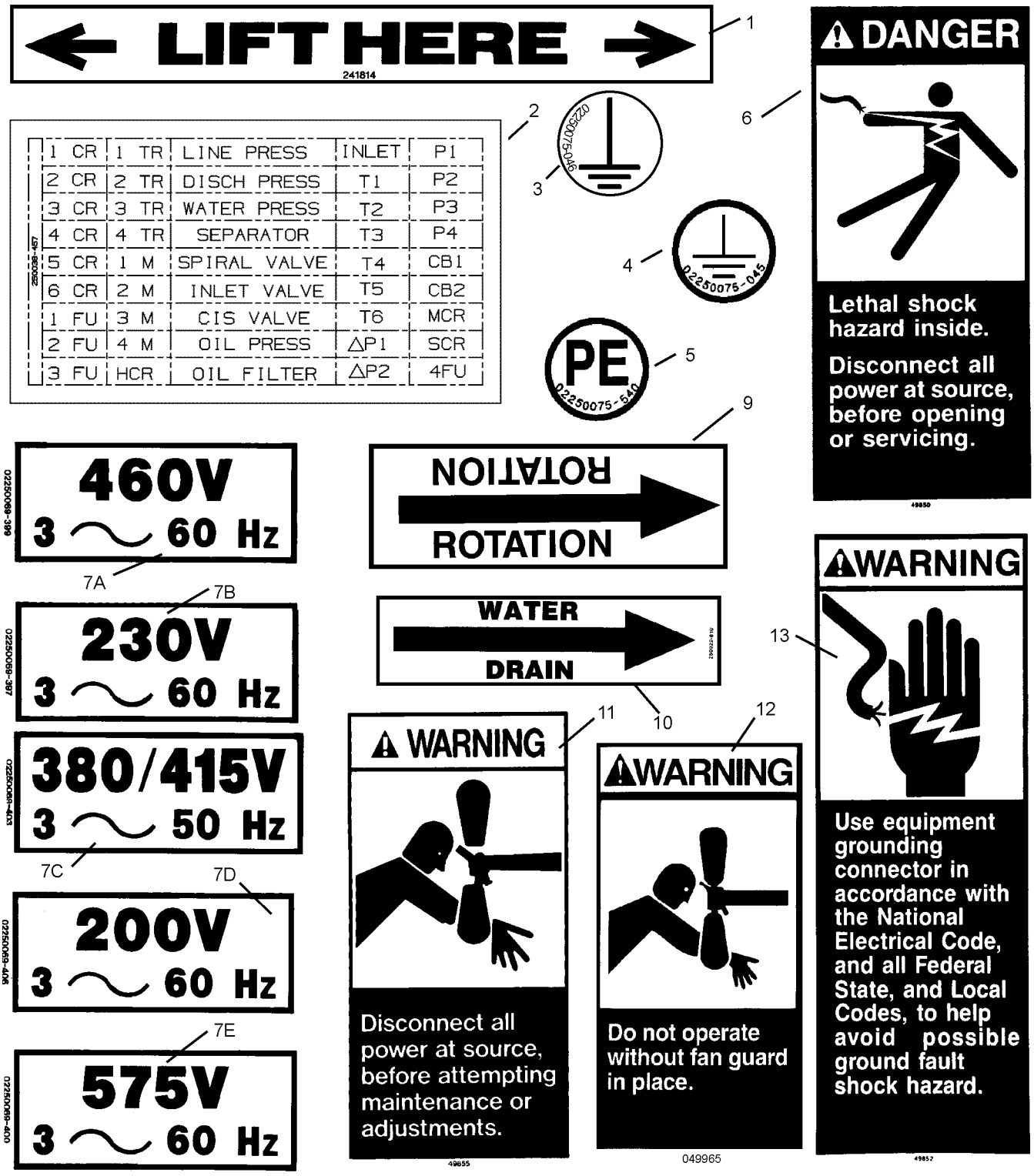
10.31 CANOPY- WATER-COOLED V-160 (100HP/75KW)

key number	*description*	*part number*	*quantity*
1	guard, fan 20" upper	241137	1
2	roof, panel assy	250026-022	1
3	panel, access roof	250017-308	1
4	roof, panel assy	02250123-534	1
5	fan, 18"	410358	1
6	guard, fan 20" lower	410179	1
7	motor	consult factory	1
8	panel, back side	250017-312	1
9	panel, corner LH	02250142-669	1
10	panel, enclosure end	250018-647	2
11	panel, corner RH	250018-609	2
12	screw, hex ser washer 5/16" x 3/4"	829705-075	36
13	nut, hex flanged 5/16"-18	825305-283	28
14	door, assy	250034-320	1
15	panel, enclosure front side	02250099-462	1
16	latch, adjust trigger	049764	6
17	door, assy	250026-023	4
18	panel, corner extended RH	02250142-993	1
19	panel, sill	02250111-440	1
20	panel, corner extended LH	02250111-442	1
21	decal, VSD supply matches demand	02250146-359	1
22	decal, V-160	02250145-999	1
23	decal, ISO 9001	02250057-624	1
24	sign, danger air breathing	250027-935	1
25	sign, warning "food grade" lube	250003-144	1
26	decal, warning auto start	250017-903	1
27	decal, warning auto start	041065	1
28	sign, warning sever fan	049855	1
29	sign, warning sever fan	049965	1
30	decal, rotation	250021-564	1
31	decal, engery savings solutions	02250146-267	1
32	decal, Sullair 4” x 32”	02250059-060	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.32 DECAL GROUP



10.32 DECAL GROUP

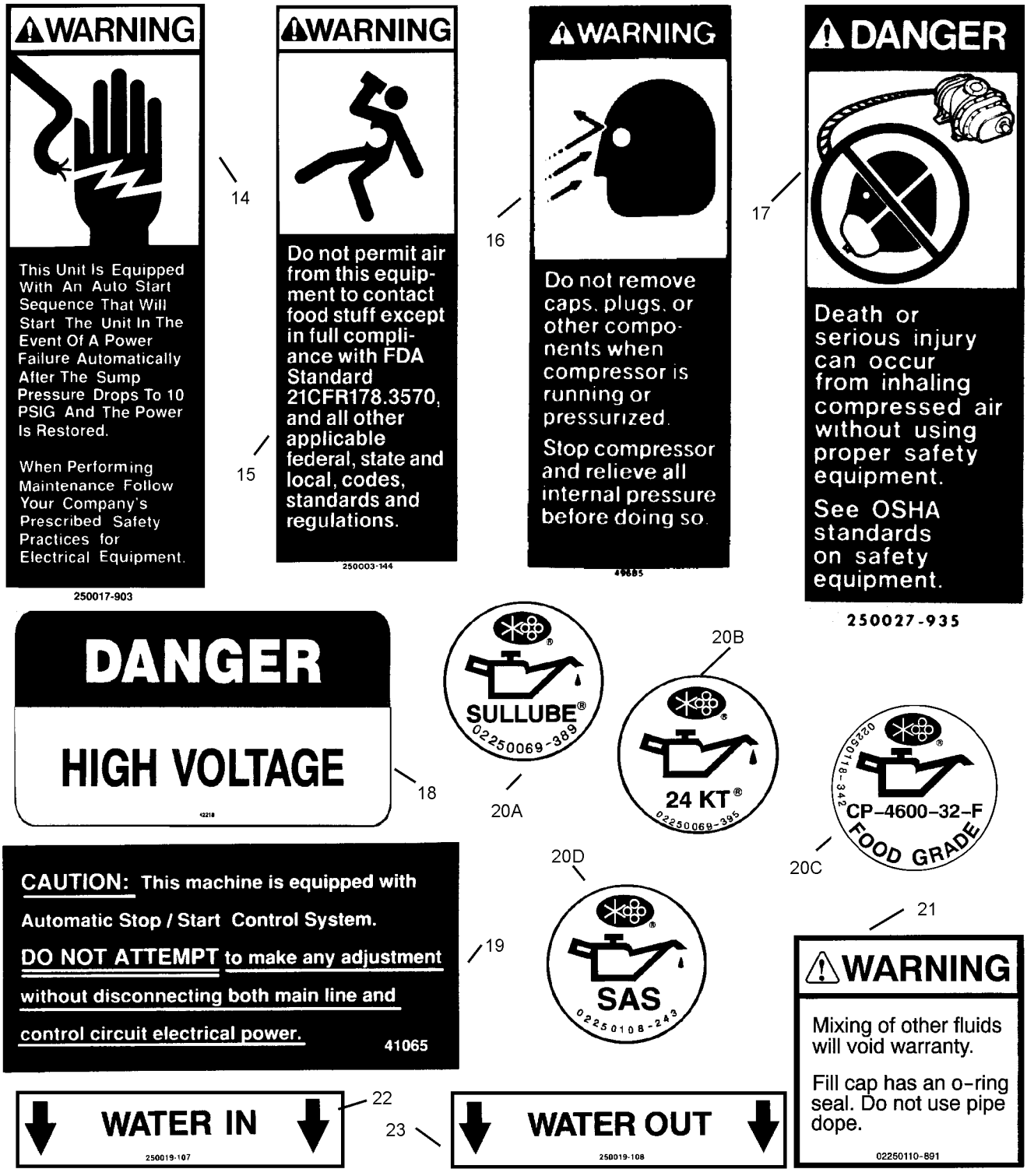
key number	*description*	*part number*	*quantity*
1	decal, fork lifting	241814	4
2	decal, electrical component	250038-457	1
3	decal, earth ground	02250075-046	2
4	decal, protective earth ground	02250075-045	1
5	decal, PE designation	02250075-540	1
6	sign, danger electrocution	049850	1
7A	decal, V 460/3/60 international	02250069-399	1
7B	decal, V 230/3/60 international	02250069-397	1
7C	decal, V 380-415/3/50 international	02250069-403	1
7D	decal, V 200/3/60 international	02250069-406	1
7E	decal, V 575/3/60 international	02250069-400	1
8	decal, Sullair 2 1/2" x 20"	02250059-054	1
	•decal, Sullair 4" x 32"	02250059-060	1
9	decal, rotation	250021-564	1
10	decal, water drain	250022-810	1
11	sign, warning sever fan	049855	2
12	sign, warning sever fan port	049965	1
13	decal, warning ground fault	049852	1

(Continued on page 157)

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.32 DECAL GROUP



10.32 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
14	decal, warning auto start	250017-903	1
15	sign, warning “food grade" lube	250003-144	1
16	sign, warning compressor fluid fill cap	049685	1
17	sign, danger air breathing	250027-935	1
18	decal, danger high voltage	042218	1
19	decal, warning auto start	041065	1
20A	decal, fluid Sullube	02250069-389	1
20B	decal, fluid 24KT	02250069-395	1
20C	decal, fluid CP-4600-32-F	02250118-342	1
20D	decal, fluid SAS	02250108-243	1
21	decal, warning mixing fluids	02250110-891	1
22	decal, "water in"	250019-107	1
23	decal, "water out"	250019-108	1

(Continued on page 159)

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.32 DECAL GROUP

24

MACH. S/N _____ MODEL # _____
CUST. NAME _____
ADDRESS _____
CITY / STATE _____ ZIP _____
CUST. PRODUCT _____
BRAND OF FLUID _____
HOURS ON MACH. _____ FLUID _____
DATE SAMPLE TAKEN: _____
DISCHARGE TEMP. _____ °F
AMBIENT TEMP. _____ °F
FLUID USAGE RATE - GAL / MO. _____
SAMPLE TAKEN FROM: _____
COMMENTS: _____

25

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

DANGER!
Danger mortel d'électrocution. Débranchez toute source d'alimentation avant toute ouverture ou intervention de maintenance de la machine.

GEFAHR!
Tödlich Stromschlaggefahr. Vor jeder Öffnung oder jedem Eingriff am Anlasserrelais oder am Schaltschrank sämtliche Stromzufuhrenvziehen.

PERICOLO!
Pericolo mortale di elettrocuzione. Disinserire tutte le fonti di alimentazione prima di qualsiasi apertura o di qualsiasi intervento di manutenzione della macchina.

¡PELIGRO!
Peligro mortal de electrocución. Desconectar todas las fuentes de alimentación antes de abrir o de realizar una intervención de mantenimiento en la máquina.

!危险
内有高压，小心触电。拆卸保养之前应断开所有电源。

02250077-472

26

GENUINE
SULLAIR.
SERVICE PARTS

MODEL:
LS120 40HP, 50HP, 60HP
LS160 60HP, 75HP & 100HP

DESCRIPTION:	P/N
ELEMENT,SEPARATOR PRIMARY	02250100-755
ELEMENT,SEPARATOR SECONDARY	02250100-756
ELEMENT,AIR FILTER (LS12)	02250127-684
ELEMENT,AIR FILTER (LS16) 60 & 75 HP	02250131-499
ELEMENT AIR FILTER (LS16) 100 HP PRIMARY	02250046-012
100 HP SECONDARY	02250046-013
ELEMENT,FLUID FILTER	250025-526
KIT,THERMO VLV REPAIR (175°F)	02250105-553
KIT,THERMO VLV REPAIR (190°F)	02250112-709
KIT,INLET VALVE REPAIR (LS12)	250031-438
KIT,INLET VALVE REPAIR (LS16)	250029-249
KIT,MIN PRESS CHECK REPAIR	0225010-727
KIT,MIN PRESS CHECK RPR (100HP)	250018-456
KIT,FLUID RETURN LINE STRAINER	0225017-782
KIT,PRESSURE REGULATOR REPAIR	250019-453

**STD. COMPRESSOR FLUID OPTIONS:

SRF 1/4000 FLUID (5 GAL.)	250019-662
SULLUBE 32 FLUID (5 GAL.)	250022-669
24KT FLUID (5 GAL.)	02250051-153

** SEE COMPR. FILL DECAL FOR CORRECT FLUID

THE ABOVE PARTS SHOULD BE ORDERED FROM A LOCAL SULLAIR DISTRIBUTOR. FOR INFORMATION REGARDING THE LOCATION OF YOUR NEAREST SULLAIR DISTRIBUTOR CONTACT:

SULLAIR CORPORATION TEL. (800) SULLAIR
PARTS DIVISION
1625 E. SECOND ST.
MICHIGAN CITY, IN. 46360

02250144-505

27

This product was manufactured to the highest quality standards in an ISO 9001 certified quality system.

Ce produit a été fabriqué dans un système de qualité certifié ISO 9001 selon les normes de qualité les plus sévères.

Dieses Produkt wurde nach höchsten Qualitätsanforderungen in einem Qualitätssystem gefertigt, welches eine Zertifizierung nach ISO 9001 besitzt.

ISO 9001

Questo prodotto viene realizzato conformemente ad altissimi standard di qualità in un impianto di produzione certificato ISO 9001.

Este producto fue fabricado según los más altos estándares de calidad en una planta con certificación ISO 9001.

本產品是根據 ISO 9001 質量認證體系的最高質量標準製造的。

28

24KT

31

SULLAIR

LS-120

29

LS-120

30

LS-160

10.32 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
24	decal, fluid sample	250022-675	1
25	decal, electrocution hazard intnl/glbl	02250077-472	1
26	decal, maintenance kit LS120/160	02250144-505	1
27	decal, ISO 9001	02250057-624	1
28	decal, 24KT 2.5" x 4"	02250061-016	1
29	decal, LS-120	02250144-155	1
30	decal, LS-160	02250144-157	1
31	decal, LS-120 w/ stripe and logo	02250144-126	1
	•decal, LS-160 w/ stripe and logo (not shown)	02250144-128	1

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

Section 10
ILLUSTRATIONS AND PARTS LIST

10.32 DECAL GROUP

32

V-120

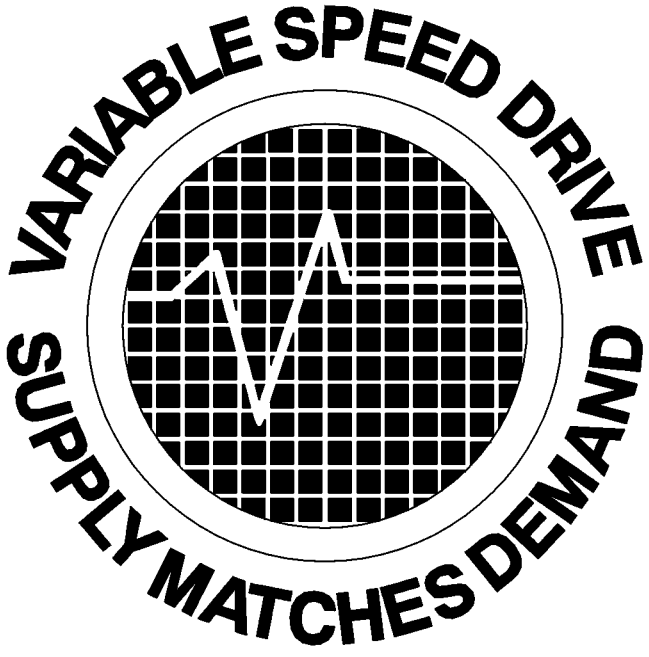
33

V-160

ENERGY SAVINGS SOLUTIONS

34

35



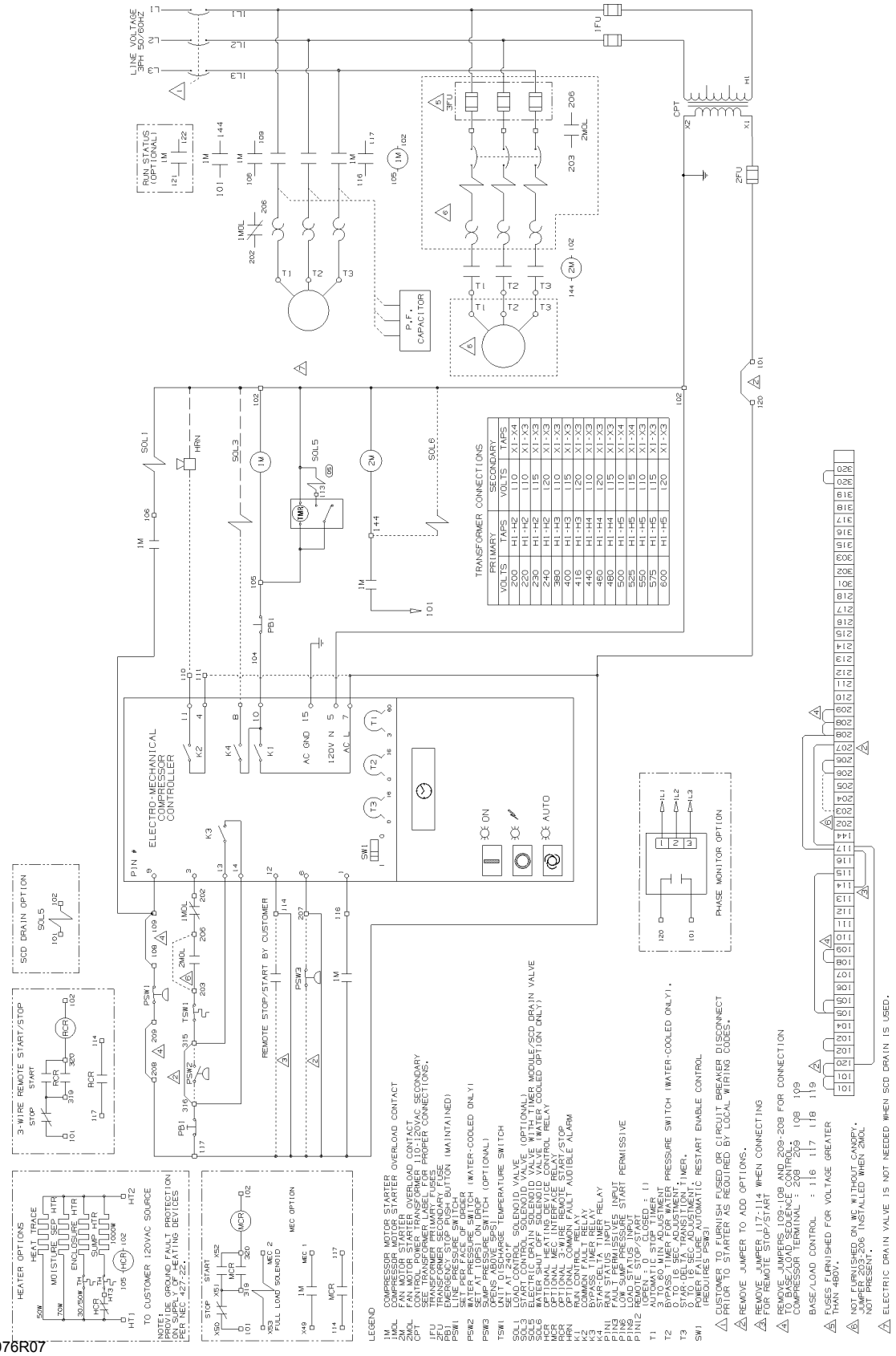
10.32 DECAL GROUP (CONTINUED)

key number	*description*	*part number*	*quantity*
32	decal, V-120	02250145-930	1
33	decal, V-160	02250145-999	1
34	decal, engery savings solutions	02250146-267	1
35	decal, VSD supply matches demand	02250146-359	1
36	decal, instrument pnl universal (not shown)	02250051-301	1
37	decal, instument pnl universal (not shown)	02250051-303	1
38	decal, instrument pnl universal-dual cntrl (not shown)	02250059-410	1

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

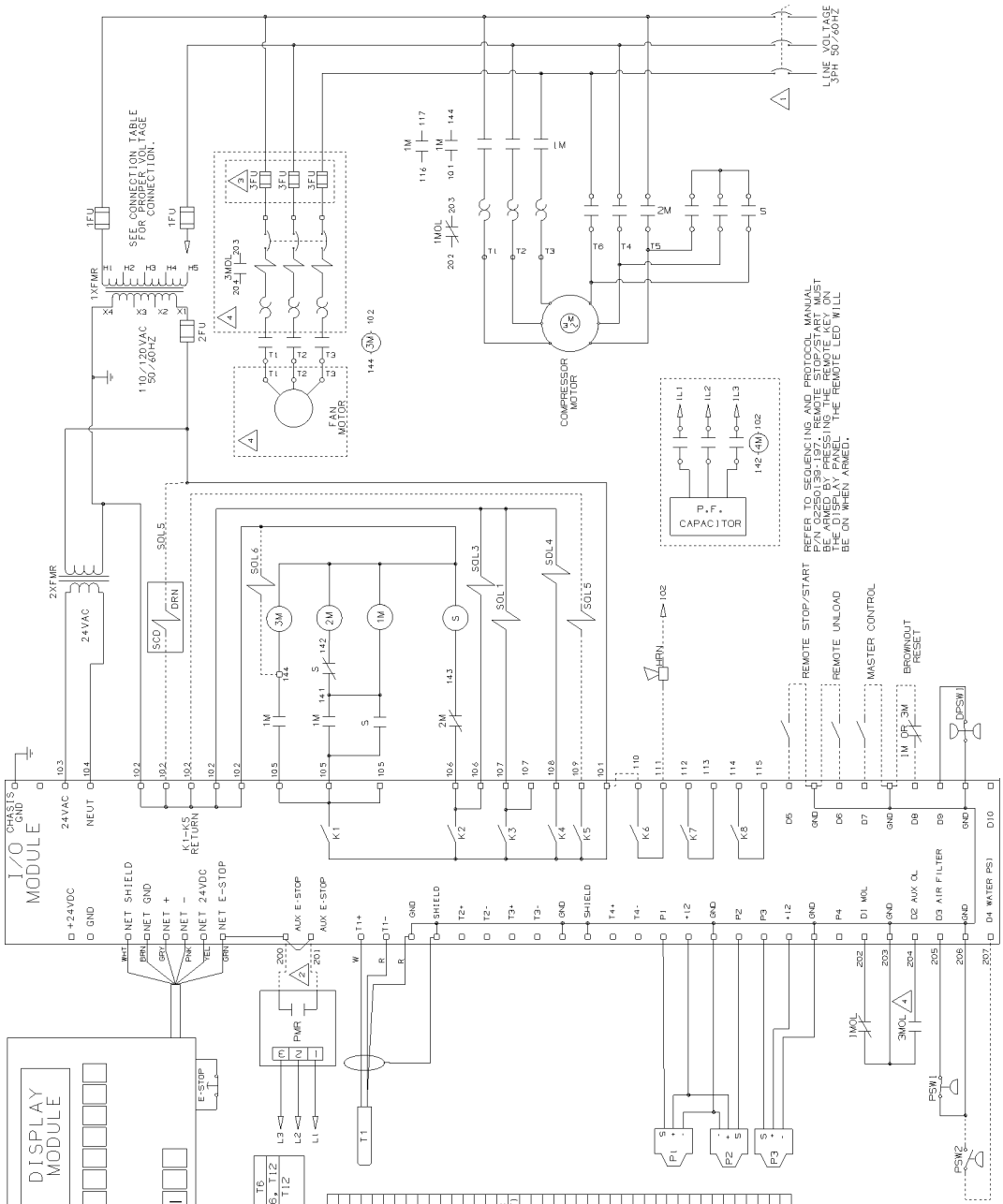
Section 10
ILLUSTRATIONS AND PARTS LIST

10.33 WIRING DIAGRAM- LS-120 & LS160 ELECTRO-MECHANICAL FULL VOLTAGE



02250129-076R07

10.34 WIRING DIAGRAM- LS-120 & LS160 SUPERVISOR CONTROLLER WYE-DELTA



TRANSFORMER CONNECTIONS

PRIMARY VOLTS	PRIMARY TAPS	SECONDARY VOLTS	SECONDARY TAPS
200	H1-H2	110	X1-X4
220	H1-H2	110	X1-X3
230	H1-H2	115	X1-X3
240	H1-H2	120	X1-X3
380	H1-H3	110	X1-X3
400	H1-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

12 LEAD MOTOR CONNECTIONS

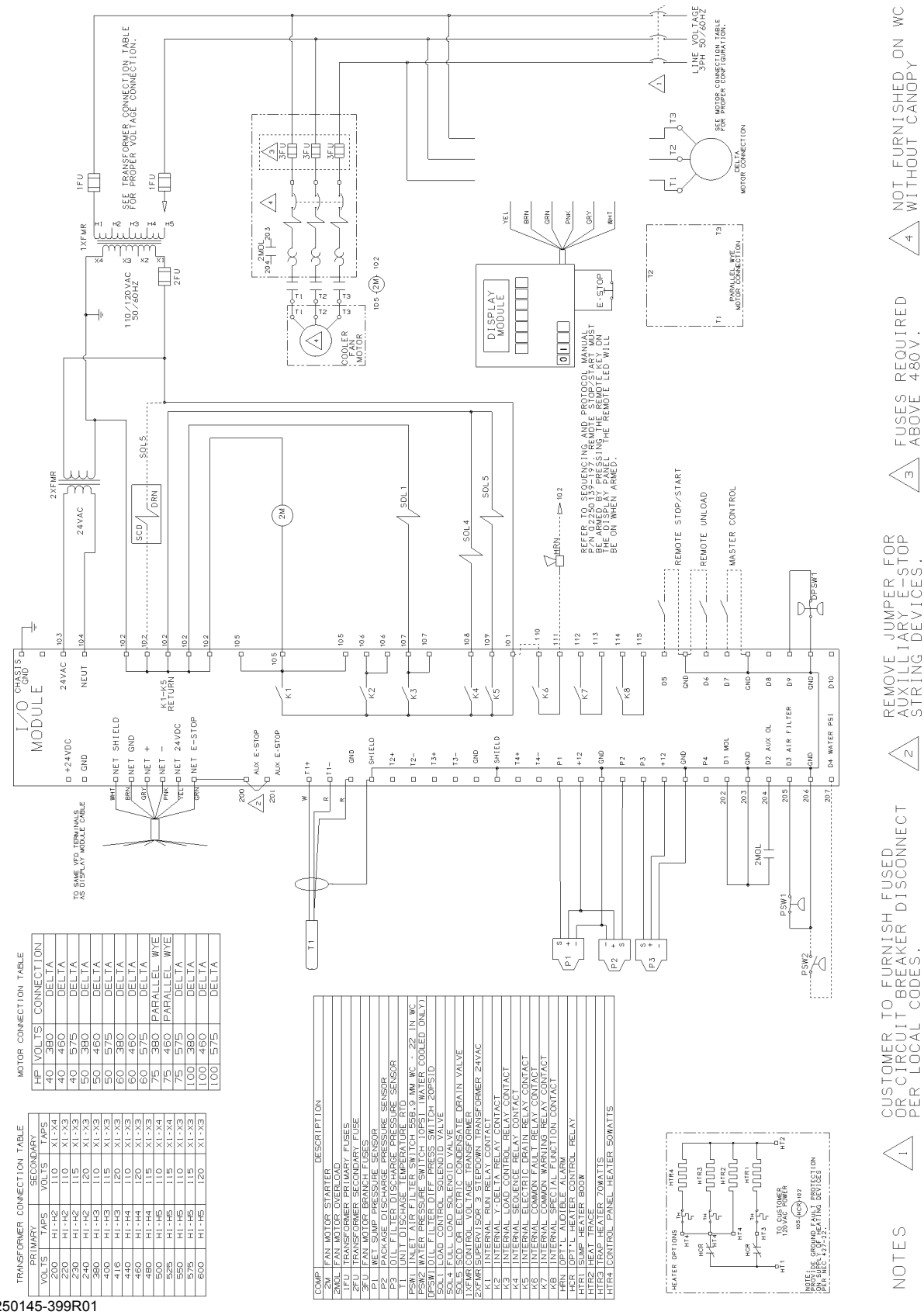
STARTER	T1	T2	T3	T4	T5	T6
LOW	T1, T7	T2, T8	T3, T9	T4, T10	T5, T11	T6, T12
HIGH	T1	T2	T3	T10	T11	T12
JOIN	T4-T7	T5-T8	T6-T9			

COMP	DESCRIPTION
1MOL	COMPRESSOR OVERLOAD
1M	WYE-DELTA STARTER CONTACTOR
2M	WYE-DELTA RUN CONTACTOR
S	WYE-DELTA START CONTACTOR
3M	FAN MOTOR STARTER
3MOL	FAN MOTOR OVERLOAD
4M	CONTACTOR FOR PF CAPACITOR OPTION
1FU	TRANSFORMER PRIMARY FUSES
2FU	TRANSFORMER SECONDARY FUSE
3FU	FAN MOTOR PRIMARY FUSES
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
T1	UNIT DISCHAGE TEMPERATURE RTD
PSW1	INLET AIR FILTER SWITCH 5569.9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH (OPST (WATER COOLED ONLY)
DPSW	DIFFERENTIAL PRESSURE SWITCH 20PSID
SOL1	LOAD CONTROL SOLENOID VALVE
SOL3	START CONTROL SOLENOID VALVE
SOL4	SEQUENCING SOLENOID VALVE
SOL5	SCD OR ELECTRIC CONDENSATE DRAIN VALVE (OPT*L)
SOL6	WATER SHUTOFF SOLENOID VALVE (OPT*L1)
1XFMR	CONTROL VOLTAGE TRANSFORMER
2XFMR	SUPERVISOR PLUS STEP CONTRACTOR 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	OPT*L POWER MONITOR RELAY CONTACT
PWR	OPT*L AUDIBLE ALARM
PF CAP	POWER FACTOR CORRECTION CAPACITOR (OPT*L)
HTR	OPT*L HEATER CONTROL RELAY
HTR1	SUMP HEATER 80OW
HTR2	HEAT TRACE
HTR3	CONTROL PANEL HEATER 70WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

02250134-817R05

Section 10
ILLUSTRATIONS AND PARTS LIST

10.35 WIRING DIAGRAM- V-120 & V-160 SUPERVISOR CONTROLLER



TRANSFORMER CONNECTION TABLE

PRIMARY VOLTS	PRIMARY TAPS	SECONDARY VOLTS	SECONDARY TAPS
200	H1-H2	110	X1-X4
220	H1-H2	110	X1-X3
230	H1-H2	115	X1-X3
240	H1-H2	120	X1-X3
380	H1-H3	110	X1-X3
400	H1-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

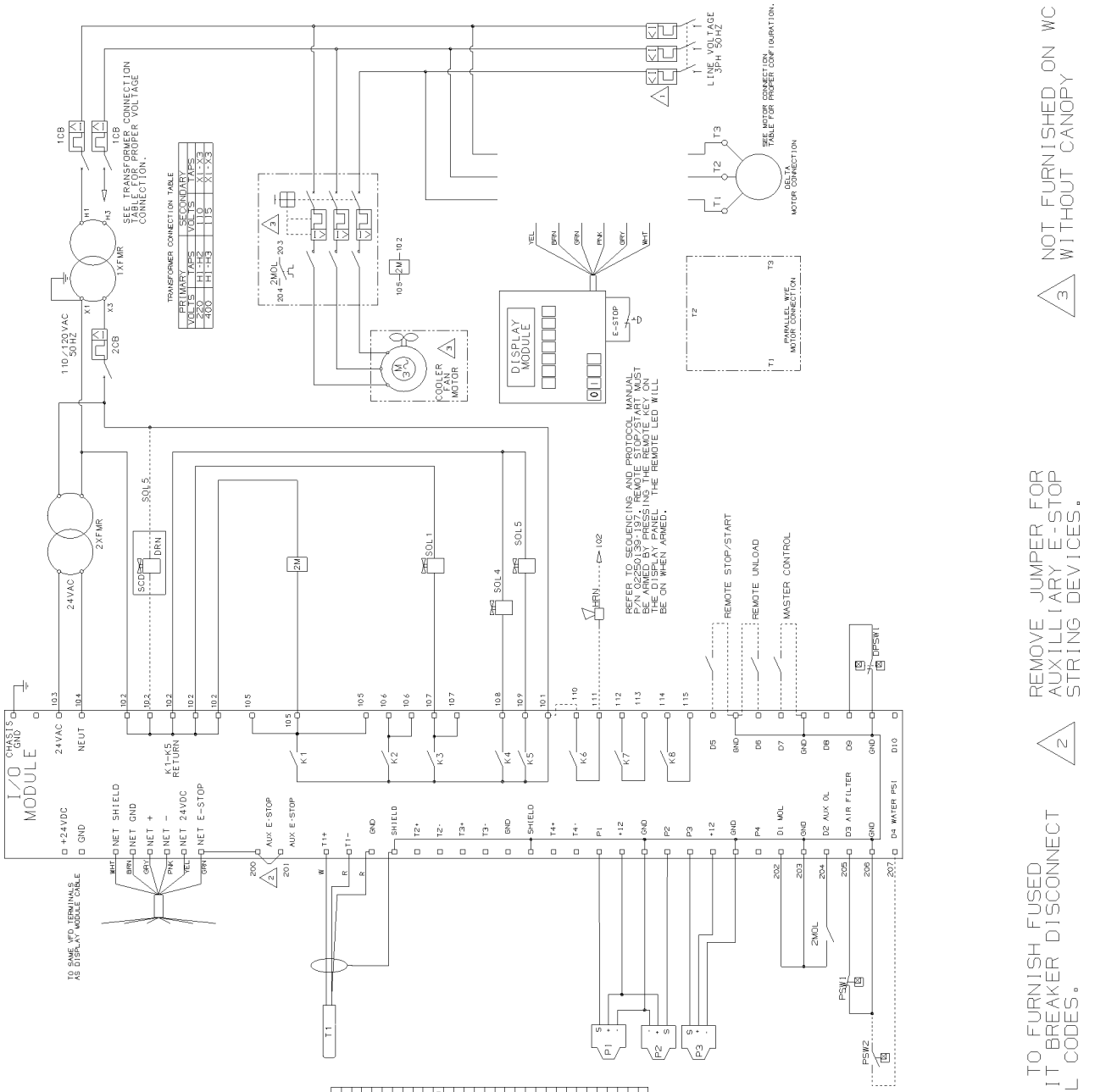
MOTOR CONNECTION TABLE

HP	VOLTS	CONNECTION
40	380	DELTA
40	460	DELTA
40	575	DELTA
50	380	DELTA
50	460	DELTA
50	575	DELTA
60	380	DELTA
60	460	DELTA
60	575	DELTA
75	380	PARALLEL WYE
75	460	PARALLEL WYE
75	575	DELTA
100	380	DELTA
100	460	DELTA
100	575	DELTA

COMP	DESCRIPTION
2M	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	UNIT DISCHARGE TEMPERATURE RTD SENSOR
T1	UNIT DISCHARGE TEMPERATURE RTD SENSOR
PSW1	INLET AIR FILTER SWITCH 558.9 MM WC - 22 IN WC
PSW2	WATER PRESSURE SWITCH 10PSI (WATER COOLED ONLY)
DPSW1	OIL FILTER DIFF PRESS SWITCH 20PSID
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	FULL LOAD SOLENOID VALVE
SOL5	SOLENOID CONTROLLED MOISTURE DRAIN VALVE
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 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 BOOM
HTR2	HEAT TRACE
HTR3	CONTROL PANEL HEATER 50WATTS
HTR4	CONTROL PANEL HEATER 50WATTS

02250145-399R01

10.36 WIRING DIAGRAM- V-120 & V-160 SUPERVISOR CONTROLLER CE



MOTOR CONNECTION TABLE		
HP	VOLTS	CONNECTION
40	380	DELTA
50	380	DELTA
60	380	DELTA
75	380	PARALLEL WYE
100	380	DELTA

COMP	DESCRIPTION
2M	FAN MOTOR STARTER
2MOL	FAN MOTOR OVERLOAD
1CB	MAIN POWER DISCONNECT CIRCUIT BREAKERS
2CB	TRANSFORMER SECONDARY CIRCUIT BREAKER
P1	WET SUMP PRESSURE SENSOR
P2	PACKAGE DISCHARGE PRESSURE SENSOR
P3	OIL FILTER DISCHARGE PRESSURE SENSOR
T1	UNIT DISCHAGE TEMPERATURE RTD
PSW1	INLET AIR FILTER SWITCH 5984.9 MM WC - 22 IN WC
PSW2	OIL FILTER DIFFERENTIAL PRESS. SWITCH 20PSID
SOL1	LOAD CONTROL SOLENOID VALVE
SOL4	FULL LOAD SOLENOID VALVE
SOL5	SCD OR ELECTRIC CONDENSATE DRAIN VALVE
1XFMR	CONTROL VOLTAGE TRANSFORMER
2XFMR	SUPERVISOR 3 STEPDOWN TRANSFORMER 24VAC
K1	INTERNAL RUN RELAY CONTACT
K2	INTERNAL UNLOAD 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 ALARM FUNCTION CONTACT
HTR	OPT'L HEATER CONTROL RELAY
HTR1	SUMP HEATER 800W
HTR2	HEAT TRACE
HTR3	TRAP HEATER 70WATTS
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. NOT FURNISHED ON WC WITHOUT CANOPY

02250145-400R01

WORLDWIDE SALES AND SERVICE

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 EUROPE, S.A.
Zone Des Granges BP 82
42602 Montbrison Cedex, France
Telephone: 33-477968470
Fax: 33-477968499
www.sullaireurope.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
Fax: (219) 874-1205
www.sullaircompressors.com

Printed in the U.S.A.

Specifications Subject To
Change Without Prior Notice
E03EP
DEV