SULLAIR

INDUSTRIAL AIR COMPRESSOR

LS-100

25, 30 & 40 HP/
18, 22 & 30 KW
STANDARD & 24 KT
AIR-COOLED AND WATER-COOLED

OPERATOR'S MANUAL AND PARTS LIST

KEEP FOR FUTURE REFERENCE

Part Number 02250143-896

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

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ILLUSTRATIONS AND PARTS LIST (CONTINUED)

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 surprisingly easy it is 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 c**ombination 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 Model

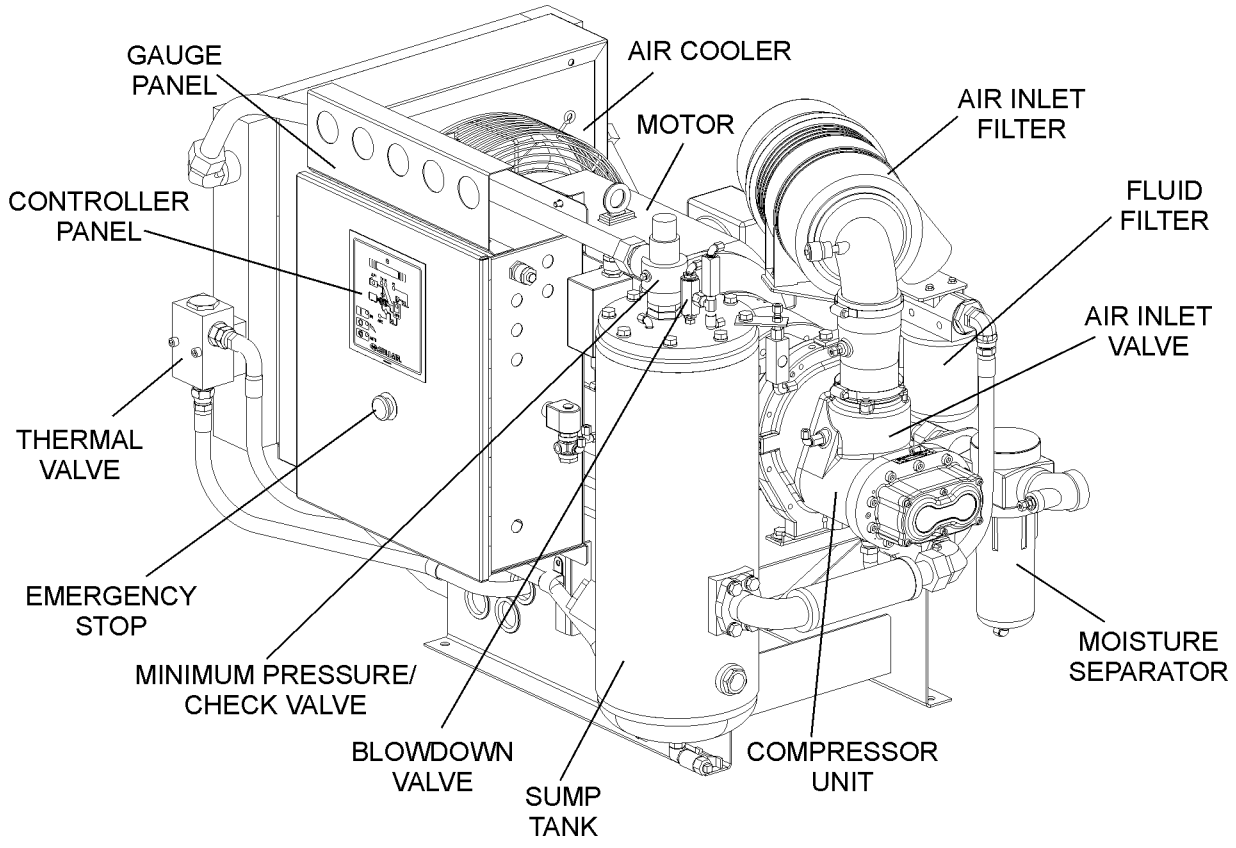

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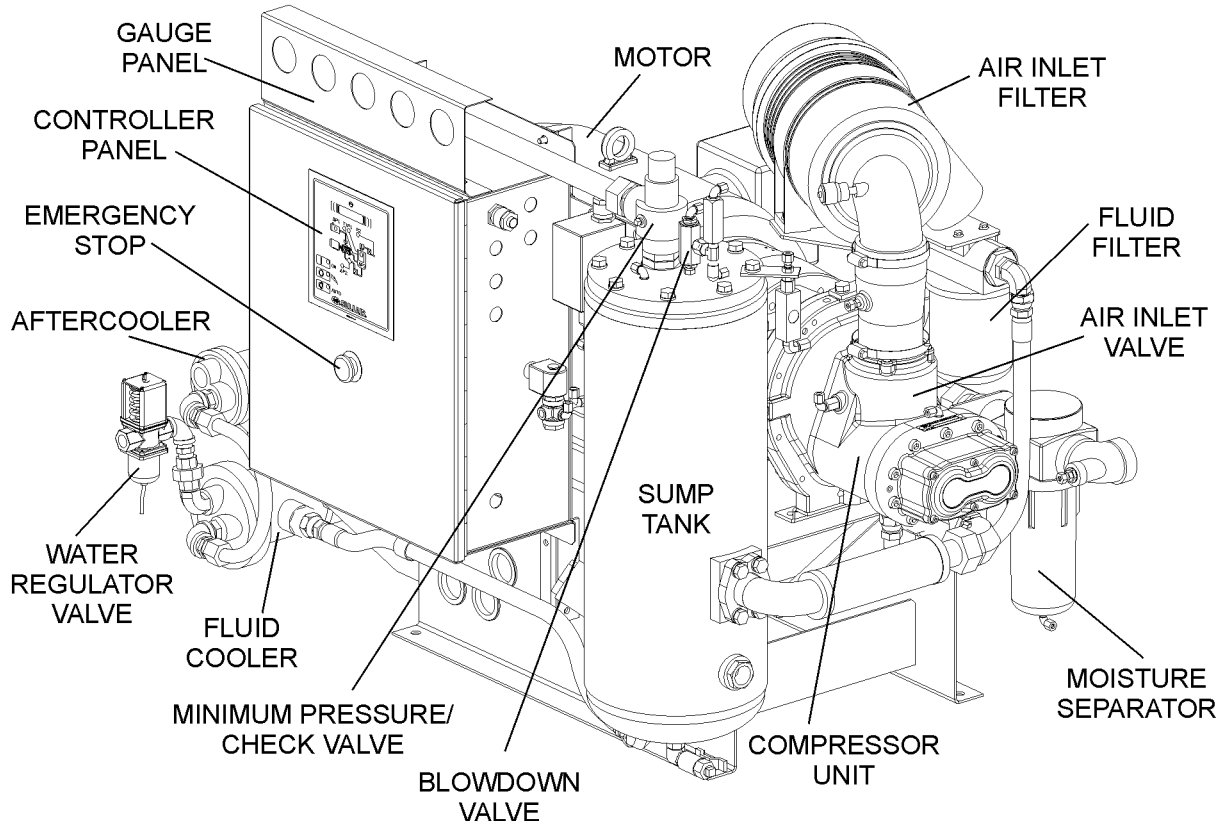
Figure 2-2 Sullair Rotary Screw Air Compressor- Water-cooled Model



The LS-100 Series compressors are factory-filled with Sullube lubricant. For more information on fluid fill, consult Section 3, Specifications.

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 clearance paths between the rotors and the stator and also between the rotors themselves.
3. Acts as a lubricating film between the rotors allowing one rotor to directly drive the other, which is an idler.

After the air/fluid mixture is discharged from the compressor unit, the fluid is separated from the air. At this time, the air flows 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 2-3A and 2-3B. The **Cooling and Lubrication System** (air-cooled version) consists of a **fan**, **double shaft drive motor**, **radiator-type aftercooler** and **fluid cooler**, **full flow fluid filter**, **thermal valve**, and **interconnecting piping** and **tubing**. For water-cooled models, two **shell and tube heat exchangers** and a **water-flow regulating valve** 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 145ºF (63ºC) [165ºF (74ºC) for 24KT]. 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 170ºF (77ºC), 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.

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

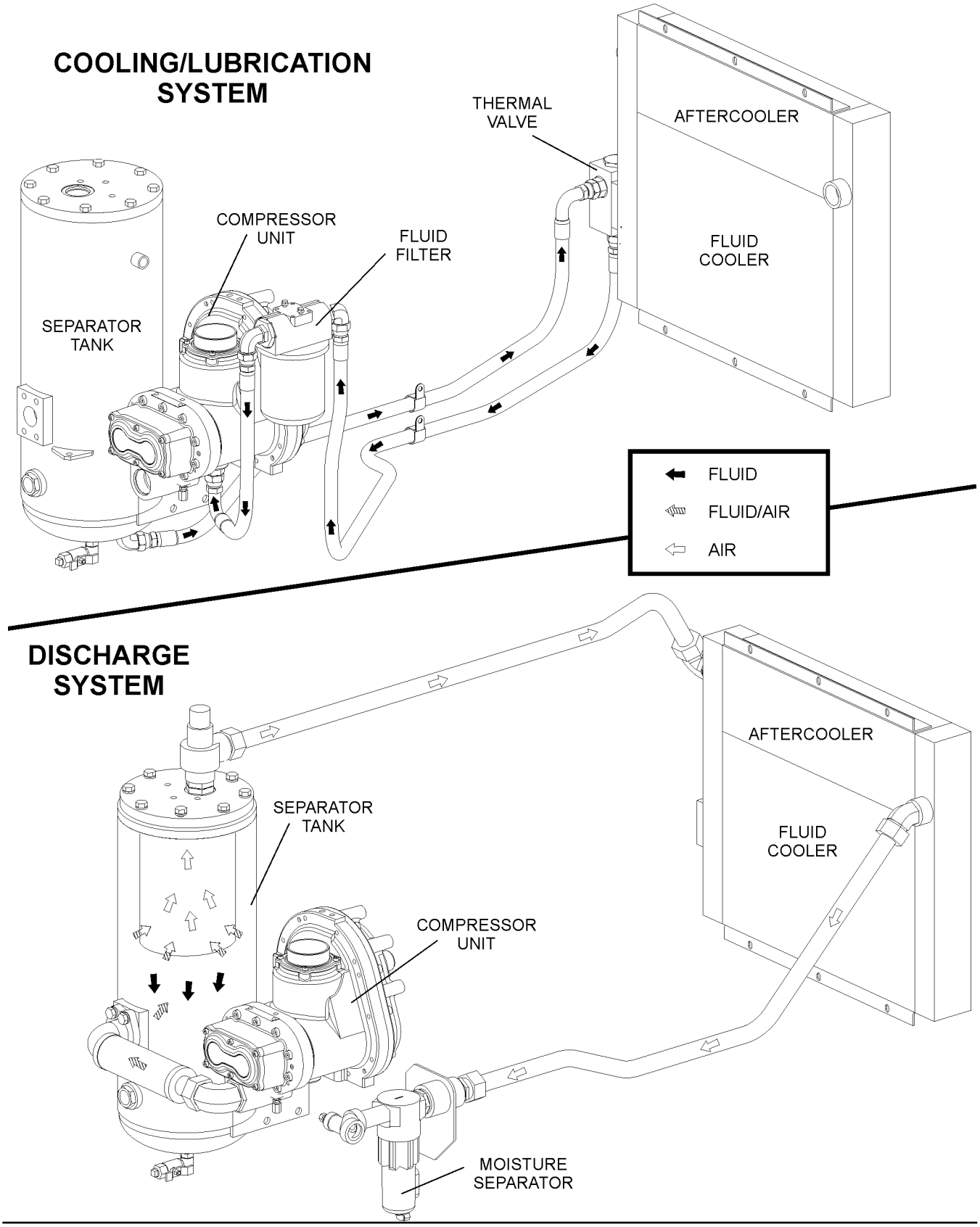
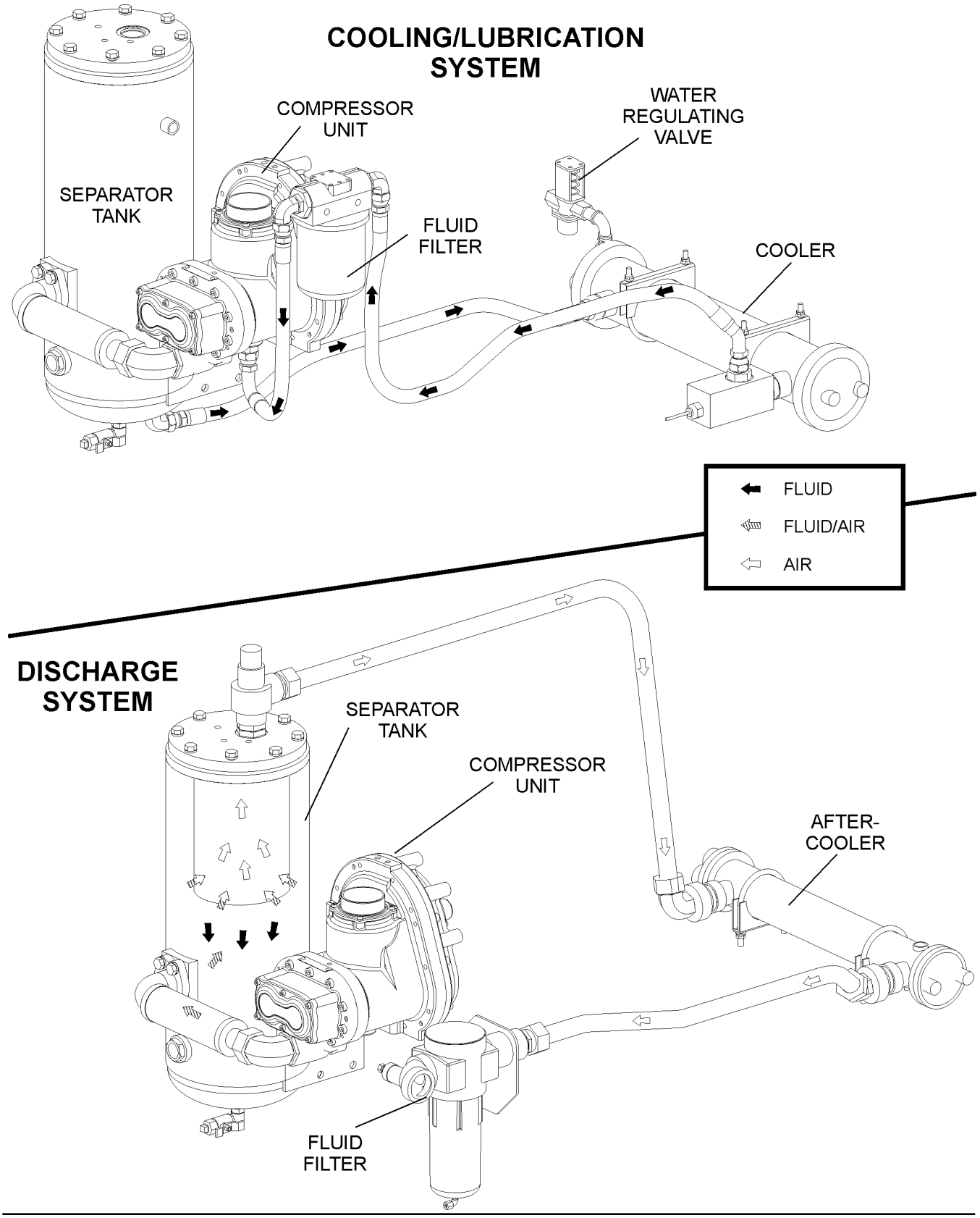


Figure 2-3B Compressor Fluid Cooling/Lubrication and Discharge System- Water-cooled Model



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 versions of the compressor have a water-flow regulating valve, which operates to conserve water during periods of varying load on the compressor and maintains discharge temperature. In addition, water-cooled models have a water pressure switch to prevent operation with inadequate water pressure.

2.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figures 2-3A and 2-3B. 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. A return line (or scavenge tube) leads 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 inlet. A visual sight glass is located on the return line to observe this fluid flow. There is also an orifice in this return line (protected by a strainer) to assure proper flow. This separation will reduce the fluid carry-over to less than 2 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 235ºF (113ºC).

⚠ WARNING

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

Stop compressor and relieve all internal pressure before doing so.

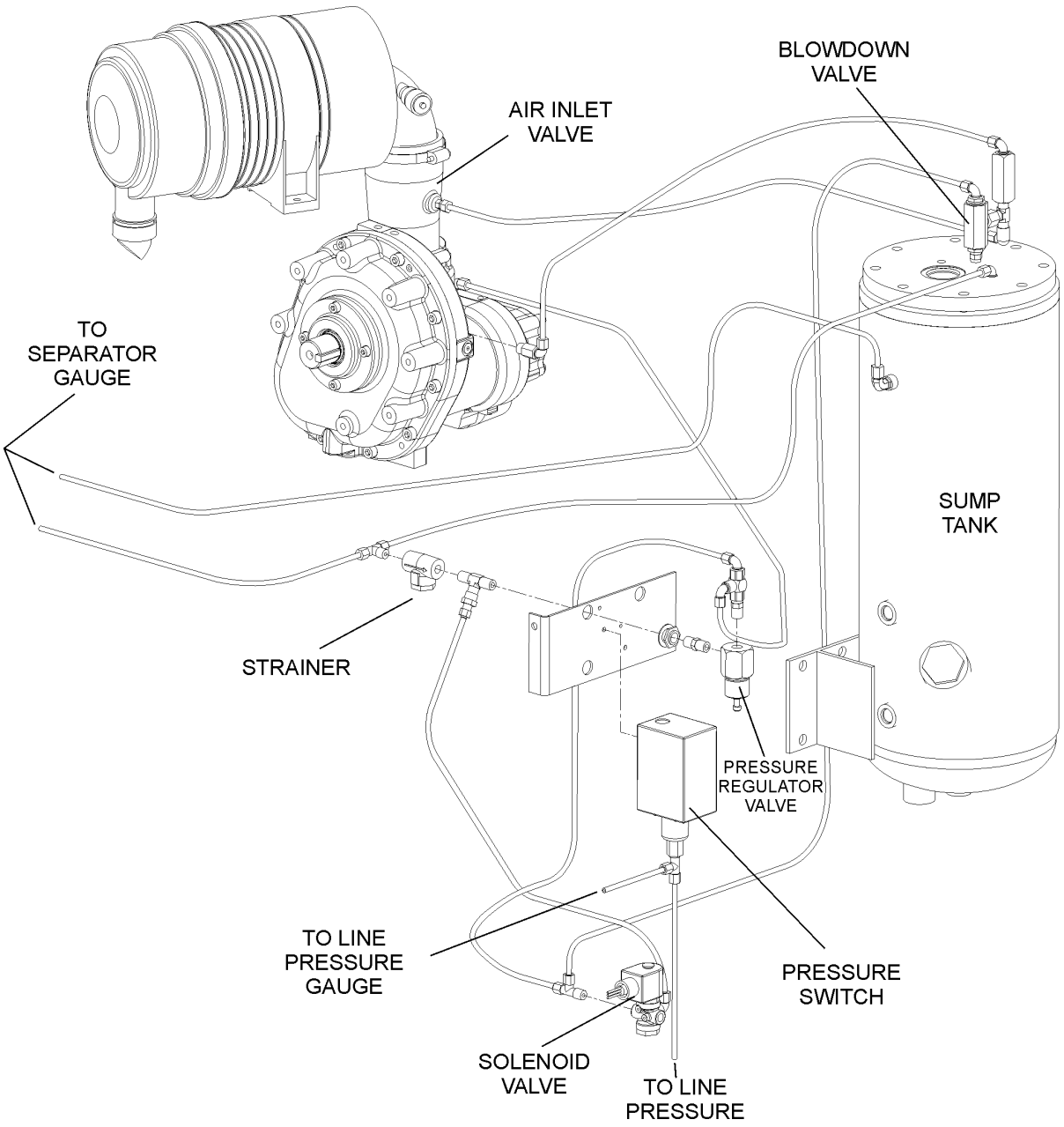
Fluid is added to the sump via a capped fluid filler opening, placed low on the tank to prevent overfilling of the sump. A sight glass enables the operator to visually monitor the sump fluid level.

2.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION- STANDARD ELECTRO-MECHANICAL

Refer to Figure 2-4. 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 phases of compressor operation. The following guidelines apply to all LS-100 Series compressors. 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 excepting stated pressures.

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

Figure 2-4 Control System



bar] on ["HH"] compressors, 175 psig [12.0 bar] ["XH"]. Supervisor II 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.

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 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 (7.9 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 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 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 25 to 27 psig (1.7 to 1.9 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) of the pressure switch (usually 125 psig [8.6 bar]), 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 II

Refer to Figure 2-4. The purpose of the compressor Control System is to regulate the amount of air being compressed to match the amount of compressed air being used. The **Capacity Control System** consists of a **solenoid valve**, **regulator valve** and an **inlet valve**. The functional description of the Control System is described below in four distinct phases of operation. The following description text applies to all LS-100 Series compressors with optional Supervisor II. For explanatory purposes, this description will apply to a compressor with an operating 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 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 125 PSIG (3.4 TO 8.6 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 II. 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 125 psig (8.6 bar) or below.

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, 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 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 control valve. The orifice also bleeds any accumulated moisture from the pressure regulator.

UNLOAD MODE - IN EXCESS OF 135 PSIG (9.3 BAR)

When a relatively small amount or no air is being used, the service line pressure continues to rise. When it exceeds 135 psig (9.3 bar), the Supervisor II 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 25 to 27 psig (1.7 to 1.9 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 II 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

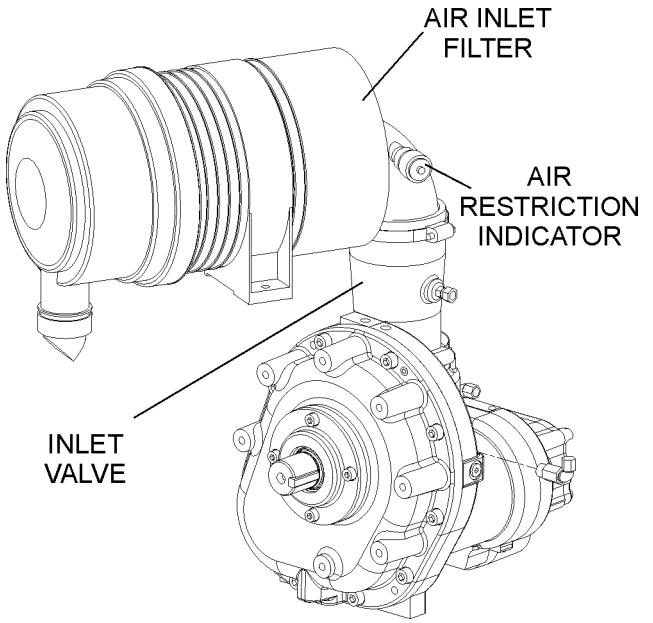
For applications with varied periods of time when there are no air requirements, Supervisor II's AUTOMATIC mode allows the compressor to shut-down (time delayed) when no compressed air requirement is present and restart as compressed air is needed.

2.8 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-5. The **Compressor Inlet System** consists of a **dry-type air filter**, a r**estriction gauge** and an **air inlet valve**.

The restriction gauge indicates the condition of the air filter by showing red when filter maintenance is required.

Figure 2-5 Air Inlet System



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 Elector-Mechanical] or Section 2.7 [Optional Supervisor II]). 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)

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

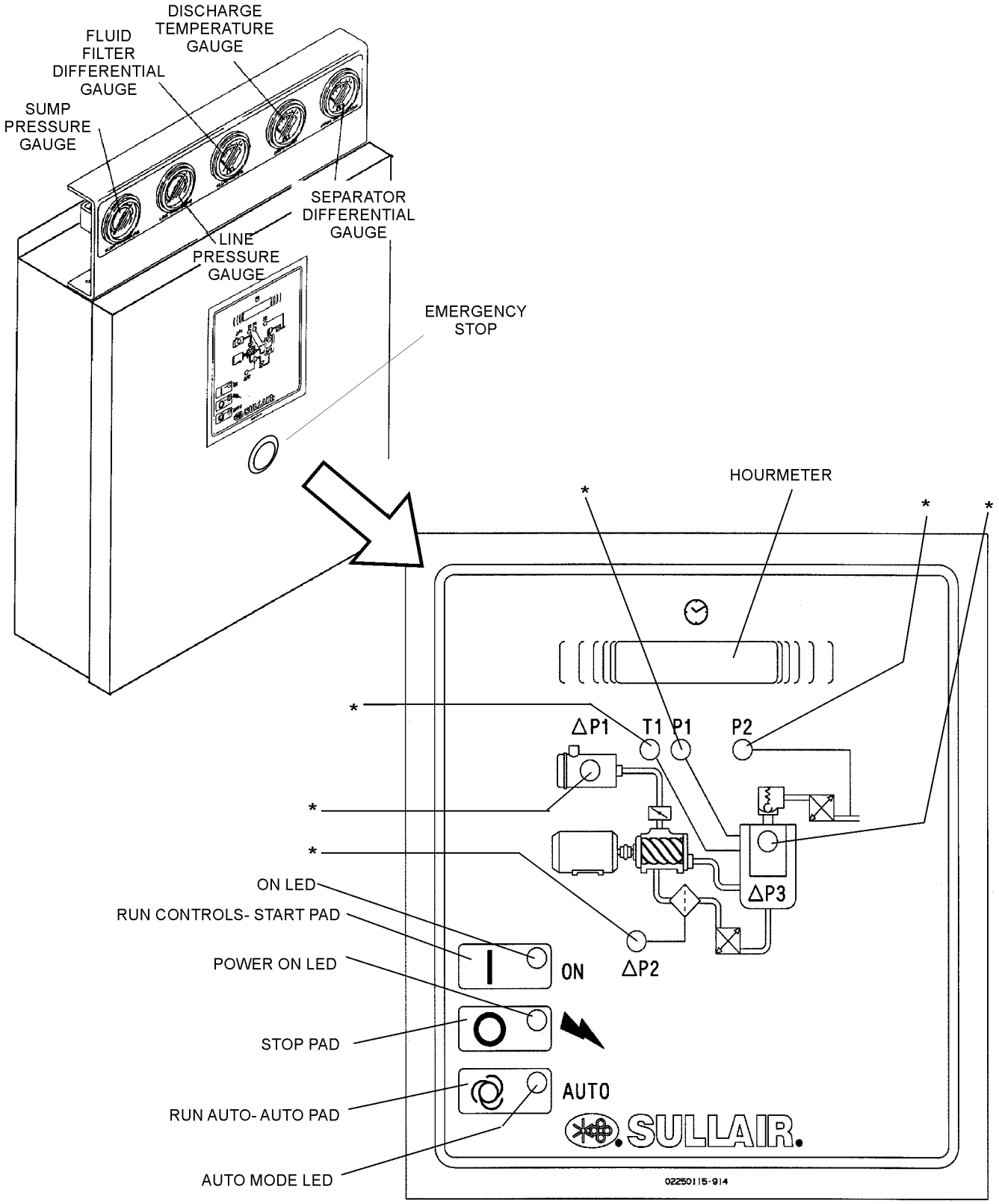
(l) Plastic Pipe Institute, Recommendation B, Adopted January 19, 1972.

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

The electro-mechanical controller responds to signals from traditional pressure switch sensors and provides stop/start, common fault indication, sensor bypass timing, wye-delta transition timing, and facilitates selectable automatic restart after power failure. Two-wire remote Stop/Start input is provided.

Refer to Figure 2-6 for specific location of parts

Figure 2-6 Instrument Panel Group and Controller Panel (Electro-Mechanical)



*Locations of pressure and temperature pick-up points.

described.

- 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 180ºF to 205ºF (82ºC to 96ºC).
- 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 **START "I"** pad turns the compressor on.
- 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.

Section 3
SPECIFICATIONS

3.1 LS-100 SPECIFICATIONS

LS-100 SERIES 60 Hz

MODEL	HP/KW	CAPACITY (ACFM/M^3/MIN)	LENGTH (I) (IN/MM)	WIDTH (IN/MM)	HEIGHT(II) (IN/MM)	WEIGHT (LB/KG)	MOTOR ENCLOSURE
L	25/18	119/3.37	55.2/1397	33.7/856	38.8/986	990/450	ODP
(100 psig/	25/18	119/3.37	60.2/1529	33.7/856	38.8/986	990/450	TEFC
6.9 bar)	30/22	134/3.79	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	134/3.79	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	169/4.79	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	169/4.79	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
H	25/18	106/3.00	55.2/1397	33.7/856	38.8/986	990/450	ODP
(125 psig/	25/18	106/3.00	60.2/1529	33.7/856	38.8/986	990/450	TEFC
8.6 bar)	30/22	127/3.60	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	127/3.60	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	163/4.62	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	163/4.62	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
HH	25/18	95/2.69	55.2/1397	33.7/856	38.8/986	990/450	ODP
(150 psig/	25/18	95/2.63	60.2/1529	33.7/856	38.8/986	990/450	TEFC
10.3 bar)	30/22	111/3.14	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	111/3.14	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	147/4.16	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	147/4.16	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
XH	25/18	85/2.41	55.2/1397	33.7/856	38.8/986	990/450	ODP
(175 psig/	25/18	85/2.41	60.2/1529	33.7/856	38.8/986	990/450	TEFC
10.3 bar)	30/22	103.5/2.93	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	103.5/2.93	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	130/3.68	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	130/3.68	63.4/1610	33.7/856	38.8/986	1140/517	TEFC

LS-100 SERIES 50 Hz

MODEL	HP/KW	CAPACITY (ACFM/M^3/MIN)	LENGTH (I) (IN/MM)	WIDTH (IN/MM)	HEIGHT(II) (IN/MM)	WEIGHT (LB/KG)	MOTOR ENCLOSURE
L	25/18	110/3.11	55.2/1397	33.7/856	38.8/986	990/450	ODP
(100 psig/	25/18	110/3.11	60.2/1529	33.7/856	38.8/986	990/450	TEFC
6.9 bar)	30/22	135/3.82	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	135/3.82	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	167/4.73	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	167/4.73	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
H	25/18	101/2.86	55.2/1397	33.7/856	38.8/986	990/450	ODP
(125 psig/	25/18	101/2.86	60.2/1529	33.7/856	38.8/986	990/450	TEFC
8.6 bar)	30/22	121/3.43	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	121/3.43	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	151/4.28	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	151/4.28	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
HH	25/18	89/2.52	55.2/1397	33.7/856	38.8/986	990/450	ODP
(140 psig/	25/18	89/2.52	60.2/1529	33.7/856	38.8/986	990/450	TEFC
19.7 bar)	30/22	108/3.06	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	108/3.06	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	141/3.99	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	141/3.99	63.4/1610	33.7/856	38.8/986	1140/517	TEFC
XH	25/18	81/2.29	55.2/1397	33.7/856	38.8/986	990/450	ODP
(175 psig/	25/18	81/2.29	60.2/1529	33.7/856	38.8/986	990/450	TEFC
12 bar)	30/22	97/2.75	56.7/1440	33.7/856	38.8/986	1015/460	ODP
	30/22	97/2.75	60.2/1529	33.7/856	38.8/986	1015/460	TEFC
	40/30	126/3.57	58.6/1488	33.7/856	38.8/986	1115/506	ODP
	40/30	126/3.57	63.4/1610	33.7/856	38.8/986	1140/517	TEFC

(Continued on page 16)

(I) For water-cooled (open) model, add 1.5 in/ 38mm to length, and 1 in/ 25 mm to height.

(II) An additional length of 4 in./102mm is needed for servicing the separator; 9 in./229mm for enclosure models.

Section 3
SPECIFICATIONS

LS-100 SERIES (CONTINUED)

ENCL MODEL	HP/KW	CAPACITY (ACFM/M^3/MIN)	LENGTH (I) (IN/MM)	WIDTH (IN/MM)	HEIGHT(II) (IN/MM)	WEIGHT (LB/KG)	MOTOR ENCLOSURE
25-30 HP/	-	-	60.0/1524	36.0/914	42.0/1067	**(III)**	ODP
18-22 KW	-	-	66.0/1676.4	36.0/914	42.0/1067	**(III)**	TEFC
40 HP/ 30 KW	-	-	66.0/1676.4	36.0/914	42.0/1067	**(III)**	ODP/TEFC

(I) For water-cooled (open) model, add 1.5 in/ 38mm to length, and 1 in/ 25 mm to height.

(II) An additional length of 4 in./102mm is needed for servicing the separator; 9 in./229mm for enclosure models.

(III) Add 250 lbs/ 113.4 kgs for the enclosure to the total package weight.

COMPRESSOR:	**STANDARD MODELS**	
Type:	Rotary Screw	
Standard Operating Pressure **(IV)**:	100 psig (6.9 bar) (L)	150 psig (10.3 bar) (HH)
	125 psig (8.6 bar) (H) (XH)	175 psig (12 bar) (XH)
Bearing Type:	Anti-Friction	
Ambient Temperature (Max.) **(V)**:	105ºF (41ºC)	
Cooling:	Pressurized Fluid	
Compressor Fluid:	Sullair Sullube	
Sump Capacity:	3.0 U.S. gallons (11.4 liters)	
Control:	Electro-Pneumatic	
	Supervisor II (optional)	

MOTOR (VI):	**STANDARD MODELS**
Size:	25, 30 and 40HP
Type:	C-Flanged, Open Dripproof, Premium Efficiency
	Three Phase, 230/460 60 Hz, 380/415 50 Hz
	40ºC Maximum Ambient Temperature
	Options Available: 200V and 575V
	T.E.F.C. Also Available: IP54
Starter:	Full Voltage Magnetic or Wye Delta
	Options Available: 200V and 575V
Speed:	60 Hz: 1770 RPM
	50 Hz: 1475 RPM (except 40L, 40H and 40HH = 2950 RPM)
	40L, 40H, 40HH, 40XH: 1475RPM

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

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

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

3.2 LUBRICATION GUIDE- STANDARD

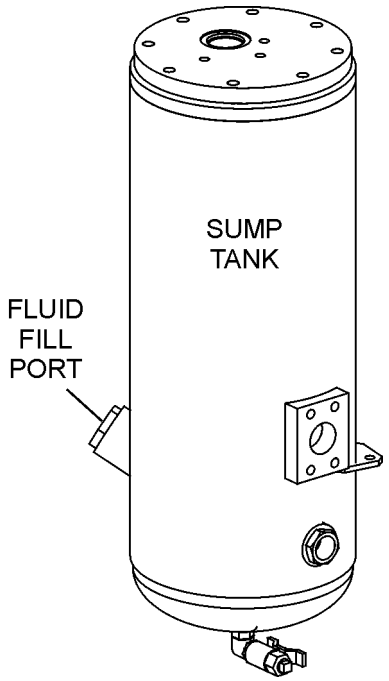
Refer to Figure 3-1 for location of fluid fill port. For best value and longest uninterrupted service, the LS-100 Series compressors are factory filled and tested with Sullube lubricant.

⚠ WARNING

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

If, due to availability or other reasons, other fluids are required, follow Lubrication Guide 3.4 below.

Figure 3-1 Fluid Fill Location



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)

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

(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.

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

3.3 LUBRICATION GUIDE- 24KT FLUID

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.

3.4 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.

3.5 LUBRICATION CHANGE RECOMMENDATIONS AND MAINTENANCE

LUBRICANT	FLUID CHANGE	FLUID FILTER CHANGE	SEPARATOR CHANGE
Sullube	A , E	G , C	A , D
Sullair LLL-4	A , E	G , C	A , D
SRF 1/4000	B , E	G , C	B , D
24KT	F , E	G , C	A , D
Sullair 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).

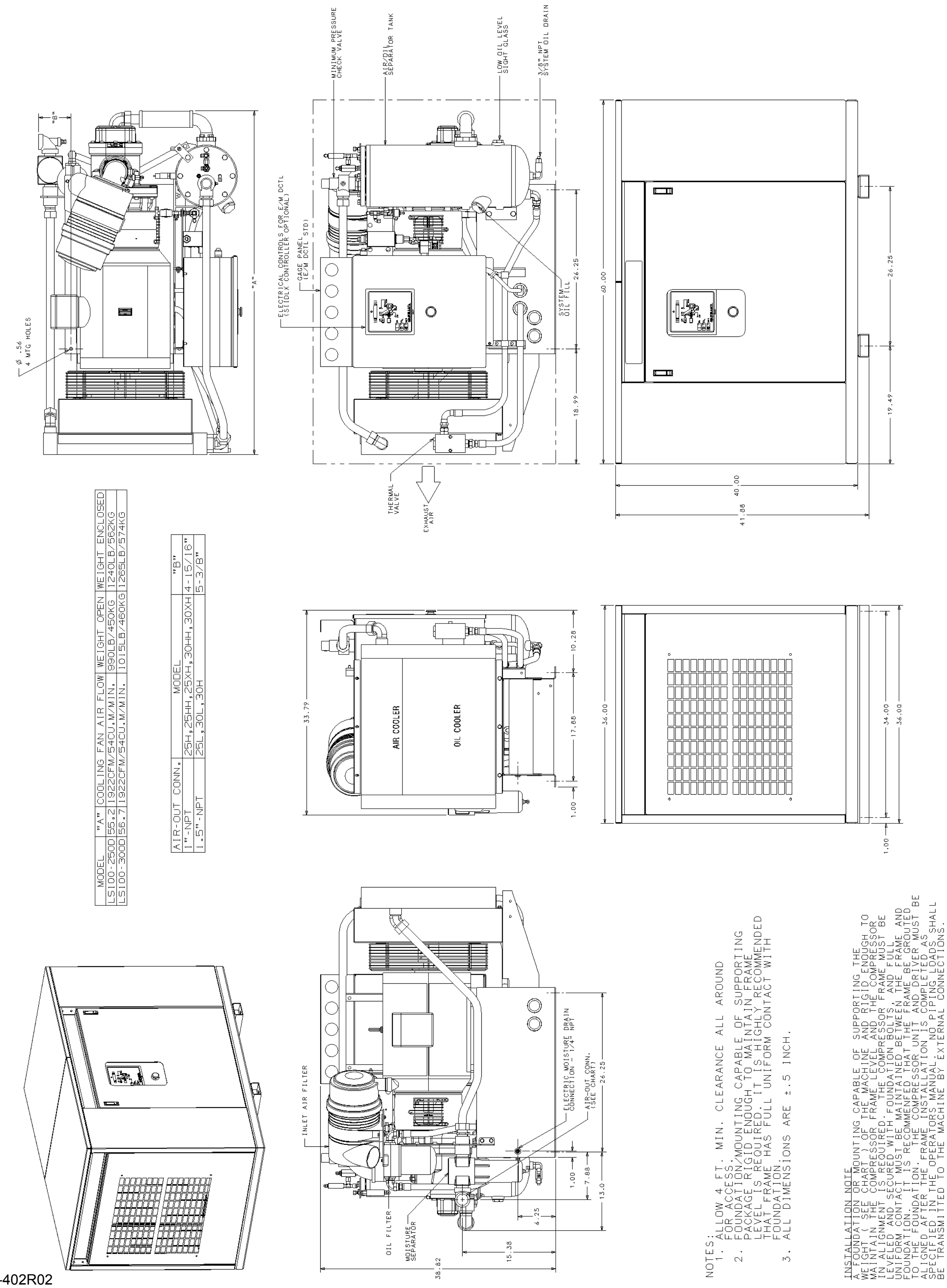
D - When measured pressure loss exceeds 10 psig (0.7 bar).

E - When required by fluid analysis or known contamination.

F - Does not require replacement during normal service conditions.

G - Every 1000 hours.

Figure 3-2 Identification- 25-30HP/ 18-22KW Air-cooled



MODEL	"A"	COOLING FAN AIR FLOW	WEIGHT OPEN	WEIGHT ENCLOSED
LS100-25OD	55.2	1922CFM/54CU.M/MIN.	990LB/450KG	1240LB/562KG
LS100-30OD	56.7	1922CFM/54CU.M/MIN.	1015LB/460KG	1265LB/574KG

AIR-OUT CONN.	MODEL	"B"
1"-NPT	25H,25HH,25XH,30HH,30XH	4-15/16"
1.5"-NPT	25L,30L,30H	5-3/8"

NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS.
2. FOUNDATION/MOUNTING CAPABLE OF SUPPORTING PACKAGE RIGID ENOUGH TO MAINTAIN FRAME LEVEL IS REQUIRED. IT IS HIGHLY RECOMMENDED THAT FRAME HAS FULL UNIFORM CONTACT WITH FOUNDATION.
3. ALL DIMENSIONS ARE ±.5 INCH.

INSTALLATION NOTE
A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT (SEE CHART) 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 RECOMMENFED 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.

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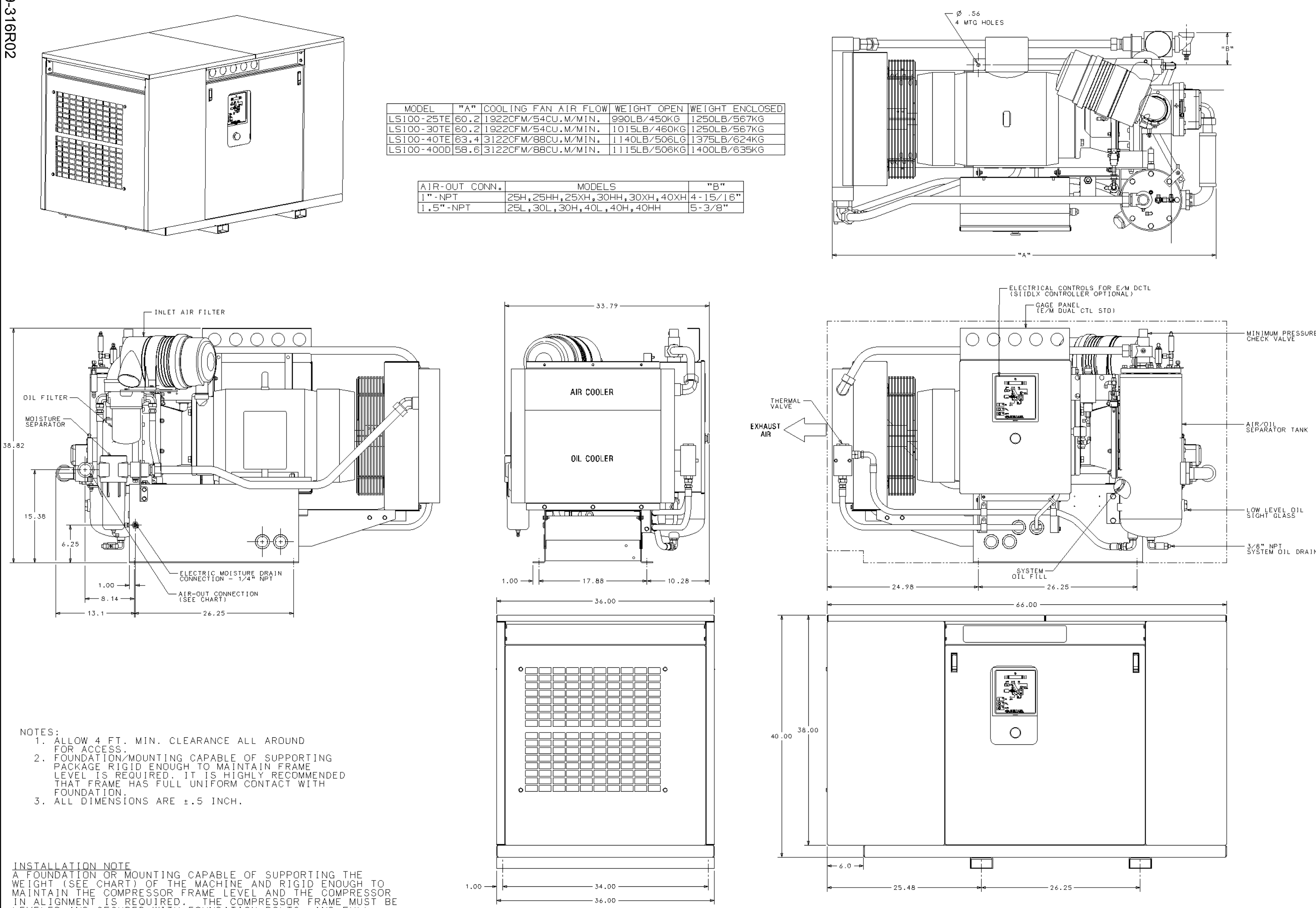
Figure 3-3 Identification- 40HP/ 30KW Air-cooled



MODEL	"A"	COOLING FAN AIR FLOW	WEIGHT OPEN	WEIGHT ENCLOSED
LS100-25TE	60.2	1922CFM/54CU.M/MIN.	990LB/450KG	1250LB/567KG
LS100-30TE	60.2	1922CFM/54CU.M/MIN.	1015LB/460KG	1250LB/567KG
LS100-40TE	63.4	3122CFM/88CU.M/MIN.	1140LB/506LG	1375LB/624KG
LS100-400D	58.6	3122CFM/88CU.M/MIN.	1115LB/506KG	1400LB/635KG

AIR-OUT CONN.	MODELS	"B"
1"-NPT	25H,25HH,25XH,30HH,30XH,40XH	4-15/16"
1.5"-NPT	25L,30L,30H,40L,40H,40HH	5-3/8"

NOTES:
1. ALLOW 4 FT. MIN. CLEARANCE ALL AROUND FOR ACCESS.
2. FOUNDATION/MOUNTING CAPABLE OF SUPPORTING PACKAGE RIGID ENOUGH TO MAINTAIN FRAME LEVEL IS REQUIRED. IT IS HIGHLY RECOMMENDED THAT FRAME HAS FULL UNIFORM CONTACT WITH FOUNDATION.
3. ALL DIMENSIONS ARE ±.5 INCH.

INSTALLATION NOTE

A FOUNDATION OR MOUNTING CAPABLE OF SUPPORTING THE WEIGHT (SEE CHART) 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 RECOMMENFED 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.

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Section 3
SPECIFICATIONS

Figure 3-4 Identification- 25-30HP/ 18-22KW Water-cooled

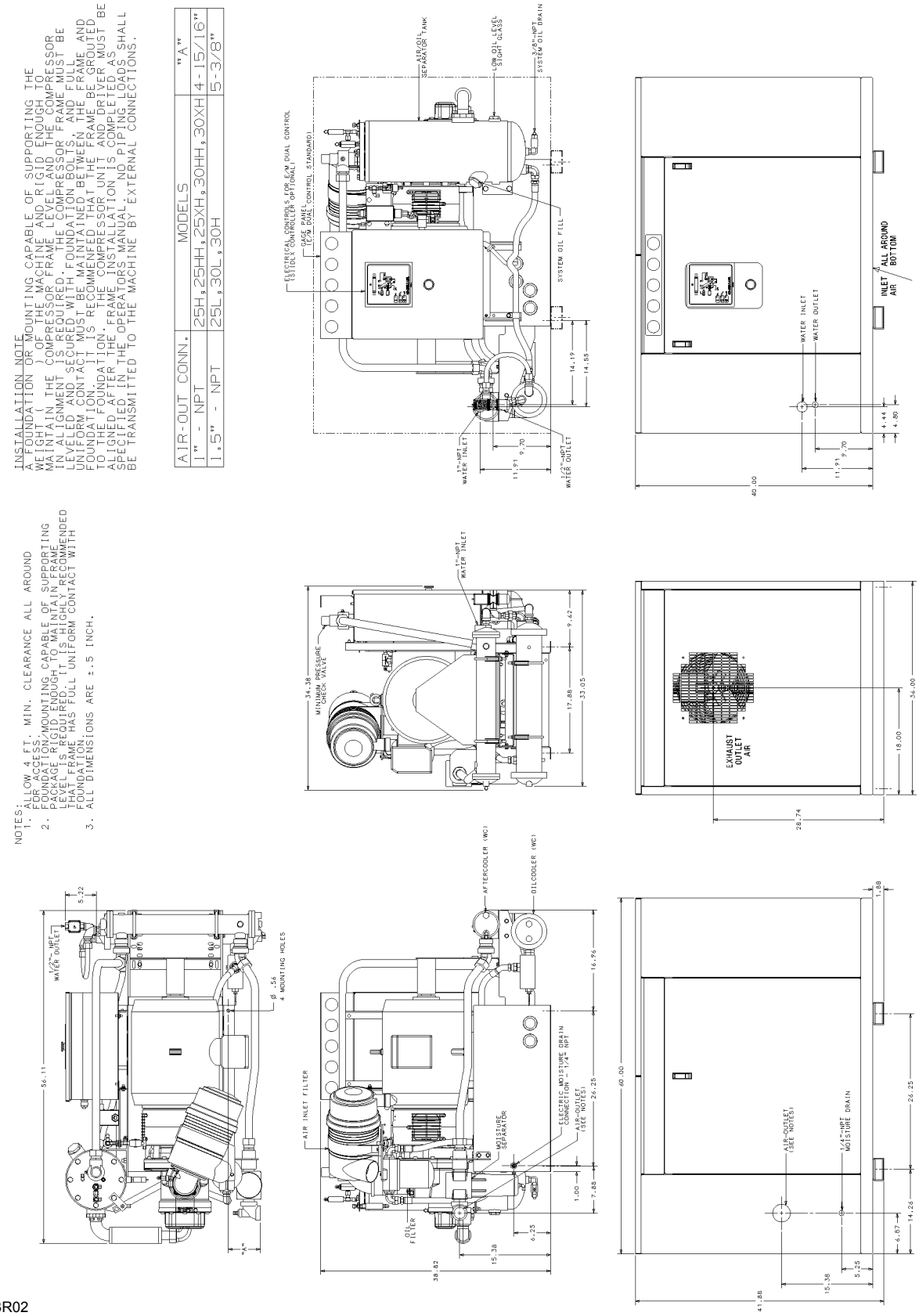
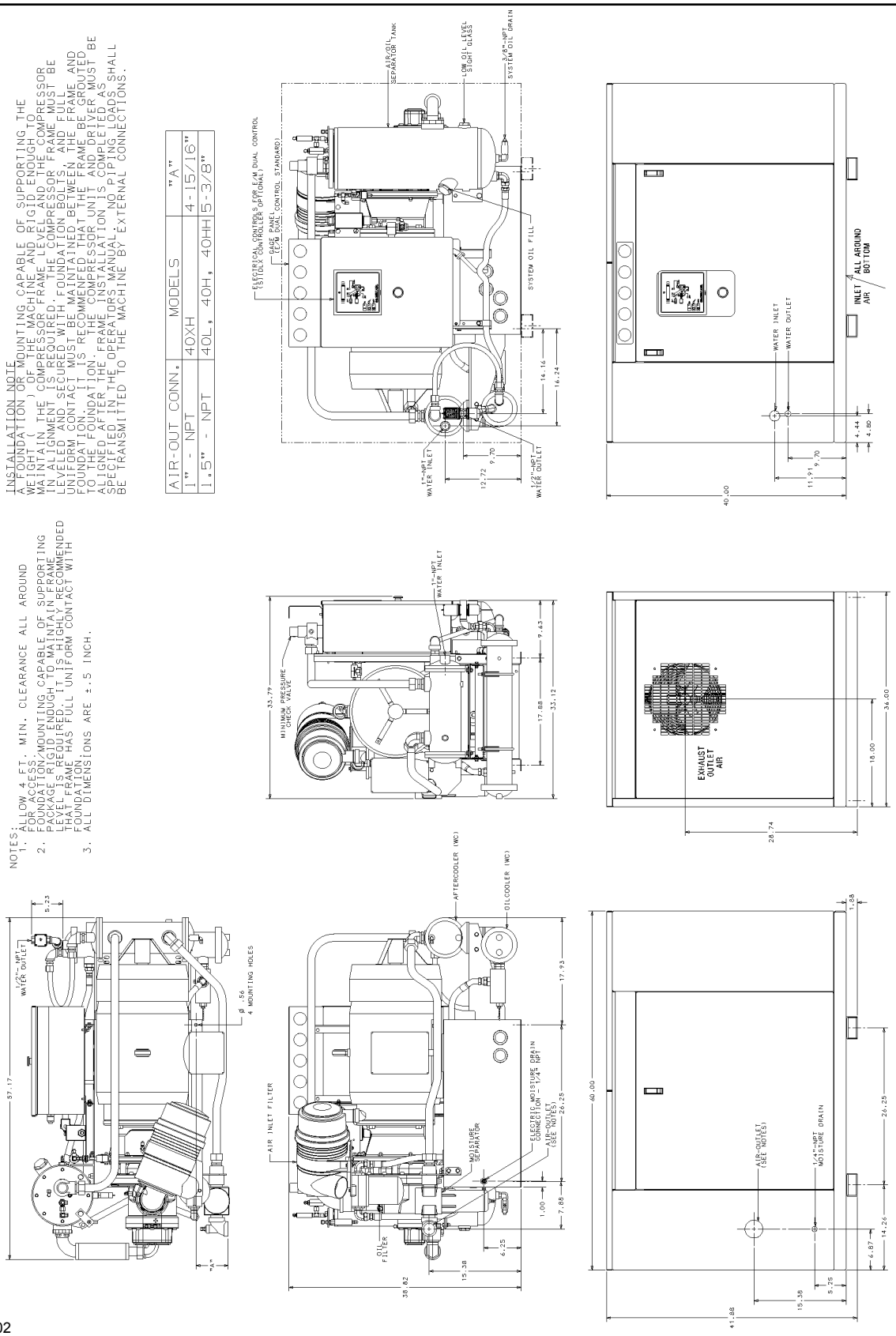


Figure 3-5 Identification- 40HP/ 30KW Water-cooled



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 secured with foundation bolts, and full uniform contact must be maintained between the frame and foundation. No piping loads shall be transmitted to the compressor at the external connections.

4.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit 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 32ºF(0ºC).

TABLE 1- WATER SUPPLY REQUIREMENTS (WATER-COOLED)

WATER TEMP.	WATER FLOW (I) GPM/ LPM		
ºF/ ºC	25HP/ 18KW	30HP/ 22KW	40HP/ 30KW
70/ 21	3.75/ 14.2	4.50 /17.0	5.75/ 21.8
80/ 26.6	5.00/ 18.9	6.00/ 22.7	7.50 /28.4

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

TABLE 2- VENTILATION REQUIREMENTS (I)

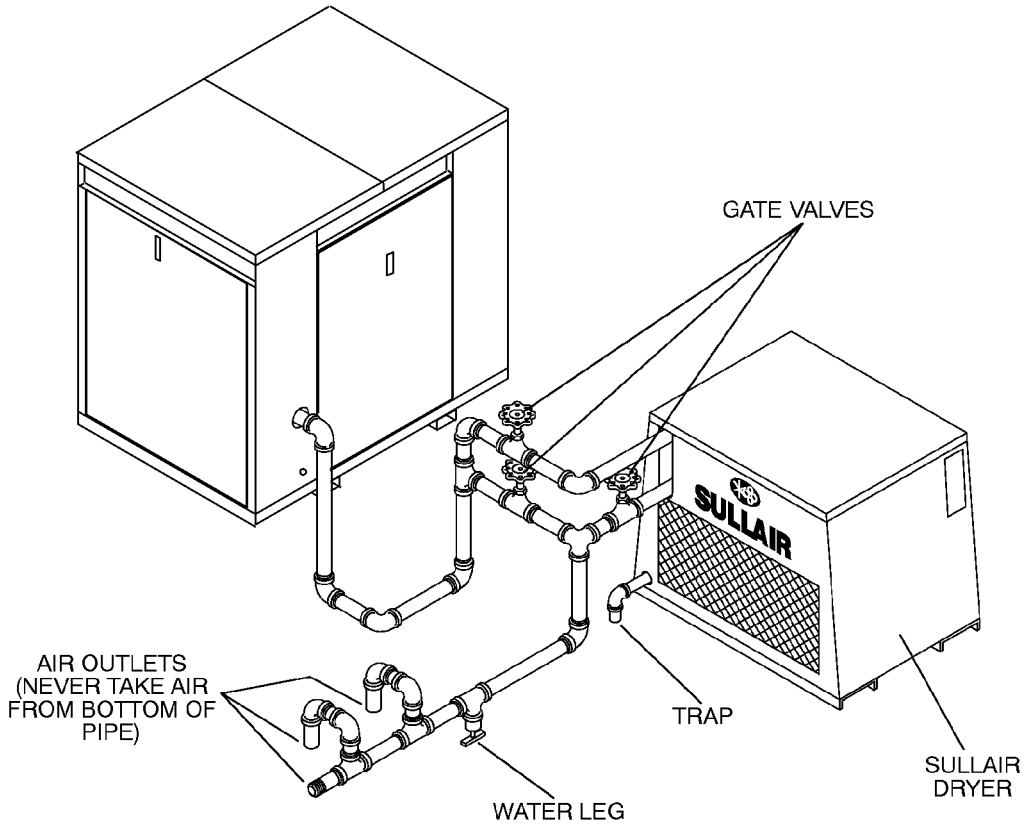
Cooling Type	Air-cooled with Aftercooler			Water-cooled (II)		
Motor HP/KW	25/18	30/22	40/30	25/18	30/22	30/40
Fan Air CFM/ M^3/Hr	1922/3265	1922/3265	3122/5304	720/1220	720/1220	720/1220
Ventilating Air/ Heat Rejection						
BTU/Hour	72504/	87000/	114000/	8500/	10000/	13000/
KCal/Hour	18270	21924	28728	2150	2550	3300
Cooling Water/ Heat Rejection						
BTU/Hour				72504/	87000/	114000/
Kcal/Hour				18270	21924	28728

(I) Values based on: 100% RH, 85ºF/ 29ºC Ambient.

(II) Applies to compressor with canopy only (vent fan).

Section 4
INSTALLATION

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



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)

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

(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 also supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation. The level is checked by looking at the sight glass located near the sump. If the sump is properly filled, fluid should be visible in the sight glass. The maximum fluid level is the level of the filler port.

4.6 ELECTRICAL PREPARATION- STANDARD ELECTRO-MECHANICAL

Interior electrical wiring is performed at the factory. Required customer wiring is minimal, but should be done by a qualified electrician in compliance with OSHA, National Electrical Code, and/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 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" pad, 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 II

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 4.8.

4.8 MOTOR ROTATION DIRECTION CHECK

NOTE

Motor rotation check must be made at compressor start-up. Remove comperssor 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. A "Direction of Rotation" decal is located on the motor to show proper motor/compressor rotation.

An alternative to this procedure is to set the Supervisor II 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

5.1 GENERAL

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

5.2 PURPOSE OF CONTROLS-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 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 continuos (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 trips to the reload 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 on dry side of receiver downstream from check valve.
SUMP PRESSURE GAUGE	Continually monitors receiver/sump pressure at various load and/or unloaded conditions.
DISCHARGE TEMPERATURE GAUGE	Monitors temperature of the air leaving the compressor unit. For both air and water-cooled compressors, the normal reading should be approximately 180ºF to 205ºF (82ºC to 96ºC).
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.
POWER ON " ↯ " LED	Indicates when the starter is receiving power.
ON LED	Indicates when compressor is in operation.

Section 5
OPERATION- ELECTRO-MECHANICAL

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

CONTROL OR INDICATOR	PURPOSE
AUTO LED	Indicates when compressor is in auto mode.
FLUID LEVEL SIGHT GLASS	Monitors fluid level in the sump. The fluid must be visible in the glass. Check the level when the compressor is shut down. Maximum fill level is the level of the fill port, minimizing the risk of overfilling.
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 180ºF (82ºC); 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 TEMPERATURE SWITCH	Designed to shut the compressor down when the discharge temperature reaches 235ºF (113ºC).
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.
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.

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

CONTROL OR INDICATOR	PURPOSE
WATER REGULATING VALVE (water-cooled only)	Regulates the amount of cooling water used to keep the compressor running at a normal operating temperature.
T1 (AUTOMATIC STOP TIMER)	Adjustable from three (3) to 60 minutes. Located on rear of the controller.
T2 (BYPASS TIMER)	Adjustable from zero (0) to 16 seconds. Used to bypass the water pressure switch on startup. Set to zero (0) for no function. Located on rear of controller.
T3 (STAR-DELTA TIMER)	Adjustable from zero (0) to 16 seconds. Transition timer for Wye-delta start. Located on rear of controller.
SW1 (POWER FAILURE RESTART ON/OFF CONTROL)	With switch set to ON, machine will start after power recovery in the run mode selected prior to power failure as long as start permissives allow. Located on rear of controller.

5.3 INITIAL START-UP PROCEDURE- STANDARD ELECTRO-MECHANICAL

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 pressing the START "I" pad.
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 7.7 of this manual.
7. Observe the operating temperature. If the operating temperature exceeds 205ºF (96ºC), 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- STANDARD ELECTRO-MECHANICAL

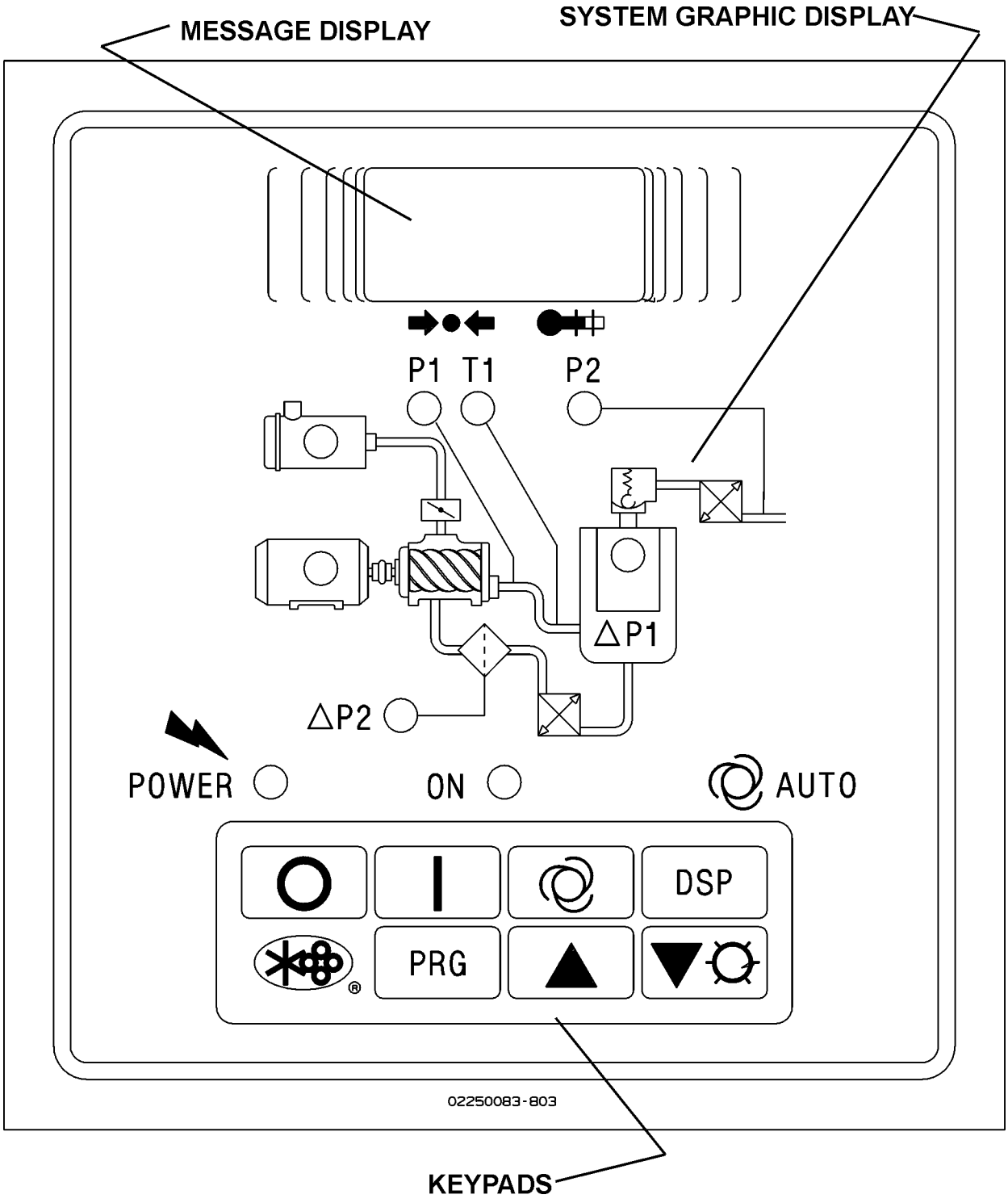
On subsequent start-ups, check that fluid level is visible in the fluid sight glass and simply press the **START "I"** pad. When the compressor is running, observe the instrument panel and maintenance indicators.

5.5 SHUTDOWN PROCEDURE- STANDARD ELECTRO-MECHANICAL

To shut the compressor down, simply press the **STOP "O"** pad.

Section 6
SUPERVISOR II

Figure 6-1 Supervisor II Panel



Section 6
SUPERVISOR II

6.1 INTRODUCTION

Refer to Figure 6-1 for information regarding your compressor with Supervisor II. The Supervisor II has a two line display to show temperature, pressure and status. It has a keypad for operating the compressor, programming the control points and selecting displays. There is a graphic illustration with lamps that light to show the item being displayed. The lamps flash if that component is in an alarm condition.

6.2 KEYPAD

The keypad is used to control the machine as well as display status and change setpoints. Refer to figure 6-1 for following key descriptions.

- **Stop** - Used to put the machine into manual stop. It is also used to clear alarm conditions.

- **Continuous** - Starts machine if no alarm conditions are present. Also used to clear alarm conditions while machine is running.

- **Auto** - Starts machine and selects auto mode if no alarm conditions are present. Also used to clear alarm conditions while machine is running.

- **Display** - Used to display pressures, temperatures and other status information (See section on STATUS DISPLAYS).

- **Logo -** Used for various functions described in later sections.

- **Program** - Used to enter the parameter change mode where control parameters may be displayed and changed (See PARAMETER SETUP).

- **Up arrow** - Used in status displays to change displays and in parameter setup mode to increment a value.

- **Down arrow, lamp test** - Used in status displays to change displays and in parameter setup mode to increment a value. When in the default display the key will light all the lamps for three seconds.

6.3 STATUS DISPLAYS

By default the line pressure (P2) and discharge temperature (T1) are shown on the bottom line of the display, and machine status on the top line.

The following are the various machine status messages that indicate the state of the compressor with LCD graphics listed below:

- **STOP** - Compressor is off.
- **STANDBY** - Compressor is off but armed to start. This state may be entered because of a power up, or the unload timer had expired and stopped the machine. NOTE : The machine may start at any time.
- **STARTING** - Machine is trying to start.
- **OFF LOAD** - Machine is running and off loaded.
- **ON LOAD** - Machine is running and loaded.
- **FULL LD** - Machine is running and fully loaded. This state is only displayed if the machine has a full load valve and under sequence control.
- **RMT STOP** - Compressor is off but armed to start. The machine will start when the remote start contact is closed. **NOTE:** the machine may start at any time.
- **SEQ STOP** - Compressor is off but armed to start. The machine will start when the sequencing conditions meet the criteria to start. **NOTE:** the machine may start at any time.

This default display appears as follows:

Section 6
SUPERVISOR II

```
STOP
110   180
```

If there are alarms active they will alternately be shown with the default display. The machine status will be displayed for two seconds, then the alarms for two seconds each. For example:

```
T1 HI
110   180
```

To view other status press the DSP key. All temperatures and pressures may be displayed as well as other status information. To scroll through the displays press the up arrow or down arrow keys. Up arrow moves to the next display, down arrow the previous display. To return to the default display press the display key.

- Separator differential pressure and the maximum limit. If the limit is exceeded, a separator maintenance warning will be displayed.

```
dP1  4
MAX 10
```

- Sump pressure and line pressure.

```
P1  113
P2  108
```

- Pressure after (P3) oil filter.

```
P3  108
```

- Oil differential pressure and the minimum limit. If the pressure goes below the limit a P3 LOW shutdown will occur. Oil differential (dP3) is defined as P3-P1/2

```
dP3 40
MIN  1
```

- Unit discharge temperature and the maximum limit. If the temperature exceeds the limit a T1 HI shutdown will occur.

```
T1  210
MAX 235
```

- Total hours that the compressor has been running.

```
HRS RUN
001234.0
```

- Total hours that the compressor has been loaded.

```
HRS LOAD
000987.0
```

- Last fault log. This shows the fault on the first line and the run hours when the fault occurred.

```
T1 HI
@1  234
```

- Next to last fault log. This shows the fault on the first line and the run hours when the fault occurred.

```
T1 HI
@2 204
```

6.4 LAMP INDICATORS

Embedded into the front panel schematic of the compressor are several lamps. Pressing the lamp test key will light all the lamps for three seconds. Each LED lamp has the following purpose.

P1 - If lit steady, signifies that P1 is being displayed; if flashing denotes the presence of an alarm.

P2 - If lit steady, signifies that P2 is being displayed; if flashing denotes the presence of an alarm.

dP1 - If lit steady, signifies that DP1 is being displayed; if flashing denotes replacement of separator is needed.

dP2 - If lit, indicates replacement of fluid filter is needed.

T1 - If lit steady, signifies that T1 is being displayed; if flashing denotes the presence of an alarm.

INLET FILTER - Same as DP2.

MOTOR - If flashing, indicates the motor overload contact has opened.

POWER ON - Lit if 120VAC power is applied to the Supervisor II.

ON - If lit steady, the compressor is running. If flashing, indicates that the compressor is armed but stopped because of restart timer not expired, remote stop or sequence stop. The compressor may start at any time.

AUTO - If lit steady, the compressor is running and in auto mode. If flashing, indicates that the com-

pressor is armed but stopped because of restart timer not expired, remote stop or sequence stop. The compressor may start at any time.

6.5 OPERATION INTRODUCTION

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

6.6 SUPERVISOR II PARAMETER SETUP

Pressing the program key enters parameter display and edit mode. To move to the next parameter press the program key. To increment a parameter press the up arrow key or logo key. The logo key will increment by 10. To decrement the value press the down arrow key.

The parameters are displayed in the following order:

- **Unload pressure** - The pressure where the machine is unloaded. For example if this parameter is set to 110 psi (7.6 bar) the machine will unload when the line pressure is above 110 psi (7.6 bar).

UNLOAD
110 PSI

- **Load differential** - The pressure differential below the unload pressure where the machine is loaded. For example, if the unload pressure is set to 110 psi (7.6 bar) and the load differential is set to 10 psi (0.7 bar), the machine will load when the line pressure goes below 100 psi (6.9 bar).

LOAD
10 PSI

- **P1 Max** - Maximum sump pressure. An alarm and shut down will occur when the sump pressure rises above this pressure.

P1 MAX
135 PSI

- **Wye to delta transition timer** - For full voltage starters this parameter is set to 0.

WYE DELT
10 SEC

- **Restart time** - Time to wait after power up before starting machine. This parameter is used to keep several machines from starting at the same time after power up, or to delay start until other equipment is started. If disabled the machine will not automatically start after power up.

RST TIME
10 SEC

- **Unload Stop Timer** - If the machine is running in AUTO mode, this parameter specifies the amount of time that the machine will run unloaded before shutting off. If the time is set less than 15 minutes (for example five minutes), there may be times when the machine will run unloaded for more than five minutes. This is because there is another timer that keeps the machine from being started more than four times an hour.

UNLD TIM
15 MIN

- **Language select** - English, German, Spanish, Italian and French may be selected for display language.

LANGUAGE
ENGLISH

- **Units** - English or metric units may be selected.

UNITS
ENGLISH

- **Communications ID #** - This is the network address of a machine. If there is more than one machine connected to the network, each machine must have a unique number.

COM ID #
1

- **Communications baud rate** - This should always be selected to 9600 baud for all sequencing modes. It may be lower for slave or monitoring modes.

Section 6
SUPERVISOR II

BAUDRATE
9600

- **Sequence method** - This parameter sets the method used for optional sequencing. The choices are DISABLED, REMOTE, SLAVE, HOURS, COM ID#. See the Sequencing & Protocol Manual (See Recommended Spare Parts List) for details about these modes.

SEQUENCE
HOURS

- **Drain interval** - The time between actuation of the drain valve.

DRN INTV
10 MIN

- **Drain time** - The amount of time that the drain valve is actuated.

DRN TIM
1 SEC

- **Last Communication Number** - Used only for sequencing, see Sequencing & Protocol Manual for details.

LAST COM
3

- **Lowest Allowable Pressure** - Used only for sequencing, see Sequencing & Protocol Manual for details.

LOWEST
90 PSI

- **Recovery Time** - Used only for sequencing, see Sequencing & Protocol Manual for details.

RECOVER
10 SEC

- **Rotate Time** - Used only for sequencing - units in HOURS, see Sequencing & Protocol Manual for details.

ROTATE
50 HOURS

- **Machine Capacity** - Used only for sequencing - units in CFM (M3/min), see Sequencing & Protocol Manual for details.

CAPACITY
100

- **Sequence Hours** - Used only for sequencing, see Sequencing & Protocol Manual for details.

SEQ HRS
1000

6.7 OPERATING THE COMPRESSOR

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

MANUAL OPERATION MODE

In this mode the compressor will run indefinitely, as long as temperatures and pressure remain within the valid operating ranges, and the motor overload or emergency stop contacts are not tripped. Pressing the "I" will turn on the compressor and put it in manual mode. If the compressor is already running, but in automatic mode, pressing "I" will switch operation to manual. Pressing "I" while already running in manual mode will cause the Supervisor to turn off the common fault relay, if engaged, and clear any maintenance indicators.

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

AUTOMATIC OPERATION MODE

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

If the compressor is already running, but in continuous mode, pressing "" will switch operation to automatic. Pressing "" while already run-

ning in automatic mode will cause the Supervisor to turn off the common fault relay, if engaged, and clear any maintenance indicators.

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

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

P2 > UNLD --> load solenoid turned off

P2 < LOAD --> load solenoid turned on

POWER FAILURE RESTART

If the restart timer (RST TIME parameter) is disabled the compressor will not try to start after a power up. If this time is set to a value, the machine will go into standby after power up. When the line pressure drops below the load setpoint, the restart timer will start timing. When the timer expires the machine will start.

SEQUENCING MODES

The following is a brief description of sequencing modes. For details see the Supervisor II Sequencing & Protocol Manual (See Recommended Spare Parts List).

- **DISABLED** - Responds to status and parameter change messages via the RS485 network but will not respond to start, stop, load or unload messages.
- **REMOTE** - Responds to status and parameter change messages but will not respond to start, stop, load or unload messages. The remote inputs and outputs are enabled (start/stop, load/unload, master/local).
- **SLAVE** - Will respond to all messages, but will not start or load unless commanded to do so by a message. This mode is used to control the machine from a master computer.
- **HOURS** - Sends status message about once a second; starts, loads and unloads machines based on sequencing hours.
- **COM ID #** - Sends status message about once a second; starts, loads and unloads machines based on machine COM ID#.

6.8 PURPOSE OF CONTROLS - SUPERVISOR II

CONTROL OR INDICATOR	PURPOSE
EMERGENCY STOP SWITCH	Pushing in this switch, found adjacent to the Supervisor, cuts all AC outputs from the latter and de-energizes the starter. A fault message (E STOP) is displayed by the Supervisor until the button is pulled out and the "O" pad is depressed.
DISCHARGE TEMPERATURE PROBE-T1	Shuts the compressor down when the compressor discharge temperature exceeds 240ºF (116ºC). Continually monitors air/fluid mixture discharged from the compressor unit.
AIR END DISCHARGE PRESSURE-P1	Shuts the compressor down when the compressor discharge pressure exceeds P1 MAX. Continually monitors the discharge pressure of the compressor unit. Indicates pressure in compressor sump upon start-up to verify rotor motor rotation.
PACKAGE OUTLET PRESSURE-P2	Continually monitors service line pressure. When line (Service Line Pressure) pressure reaches the UNLOAD setting, the Supervisor control signals the solenoid valve to unload the compressor.

Section 6
SUPERVISOR II

6.8 PURPOSE OF CONTROLS - SUPERVISOR II (CONTINUED)

CONTROL OR INDICATOR	PURPOSE
FLUID PRESSURE-P3	Continually monitors injection fluid pressure and shuts down the compressor in the event of low fluid pressure.
FLUID FILTER DIFFERENTIAL SWITCH	Continually monitors fluid filter differential and generates an alarm when the fluid filter needs replacement.
INLET FILTER MAINTENANCE SWITCH	Monitors condition of compressor inlet air filter and indicates when replacement is required.
FLUID LEVEL SIGHT GLASS	Indicates fluid level in the sump. Proper level is not to fall below the center of the sight glass. Check level when compressor is shut down. **DO NOT OVERFILL**.
THERMAL VALVE	Regulates flow of fluid to and around the cooler. Designed to maintain a minimum operating temperature of 180ºF (82ºC); used for fast warm-up on start-up.
MINIMUM PRESSURE/CHECK VALVE	Maintains minimum of 50 psig (3.4 bar) in the compressor sump. Valve piston restricts receiver air discharge from receiver/sump when pressure falls to 50 psig (3.4 bar). Also incorporated in this valve is a terminal check valve which prevents line pressure backflow into the sump during unload conditions and after shutdown.
PRESSURE RELIEF VALVE	Protects compressor by venting compressed air in excess of 200 psig (13.8 bar) to atmosphere.
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.
SOLENOID VALVE	Bypasses the pressure regulator valve causing the inlet valve to close when the compressor reaches maximum operating pressure. Also activates blowdown valve.
WATER REGULATING VALVE (water-cooled only)	Regulates the amount of cooling water used in the cooler to keep the compressor running at a normal operating temperature of 145ºF (63ºC) [165ºF (74ºC) for 24KT].

6.9 SUPERVISOR II OUTPUT RELAYS

RELAY	OPERATION
RUN RELAY (K1)	Contact closure energizes the compressor starter.
*-DELTA (K2)	A timed contact used to provide wye-delta transition time.
UNLOAD/LOAD (K3)	Controls ON LOAD/OFF LOAD operation of the load control solenoid valve.

6.9 SUPERVISOR II OUTPUT RELAYS (CONTINUED)

RELAY	OPERATION
COMMON FAULT (K4)	May be used to provide remote indication of any pre-alarm, maintenance or fault shutdown condition.
DRAIN VALVE (K5)	Controls solenoid valve to provide automatic condensate removal.
FULL LOAD/MODULATE (K6)	Used with optional sequencing feature.

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

6.10 INITIAL START-UP PROCEDURE- SUPERVISOR II

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

1. Read the preceding pages of this manual thoroughly.
2. Jog motor to check for correct rotation of motor (refer to Section 4.8).
3. Be sure that all preparations and checks described in the Installation Section have been made.
4. Open the shut-off valve to the service line.
5. Check for possible leaks in piping.
6. Slowly close the shut-off valve to assure proper nameplate pressure unload setting is correct. The compressor will unload at nameplate pressure. If adjustments are necessary, see Control System Adjustments.
7. Observe the operating temperature. If the operating temperature exceeds 200ºF (93ºC), the cooling system and installation environment should be checked.
8. Open shut-off valve to the service line.
9. Reinspect the compressor for temperature and leaks the following day.

6.11 SUBSEQUENT START-UP PROCEDURE- SUPERVISOR II

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

6.12 SHUTDOWN PROCEDURE- SUPERVISOR II

To shut the compressor down, push "O" pad.

NOTES

Section 7
MAINTENANCE

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 bearing 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.

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 and 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.

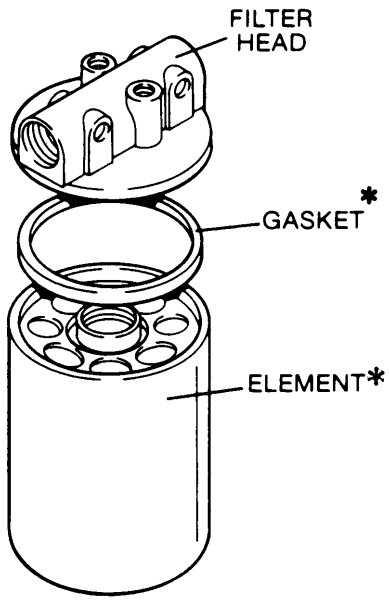
1. Clean the return line strainer (refer to Section *8.15 Discharge System* for location).
2. Clean the return line orifice.

7.4 MAINTENANCE EVERY 1000 HOURS

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

1. Clean the return line strainer (refer to Section *8.15 Discharge System* for location).
2. Replace the fluid filter element and gasket.

Figure 7-1 Fluid Filter (P/N 02250136-535)



*Repair Kit P/N 250025-525

7.5 FLUID MAINTENANCE

Drain the sump and change the compressor fluid using instructions shown in Sections 3.2, 3.3, 3.4 and 3.5.

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 1000 hours.
3. Every 6 months.

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 ELEMENT REPLACEMENT

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.
4. Hand tighten new element until new gasket is seated in the gasket groove. Avoid any nicks,

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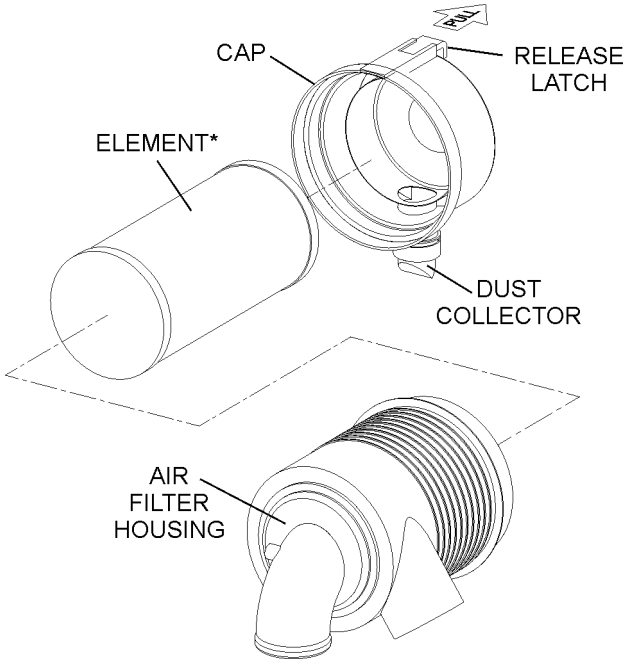
Figure 7-2 Air Filter Replacement 02250140-007



* Replacement Element P/N 02250125-372

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. 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.

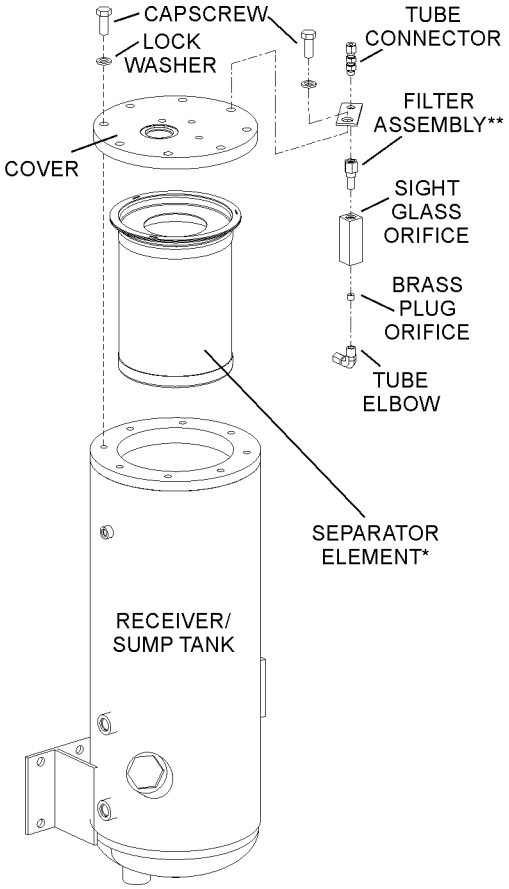
AIR FILTER ELEMENT REPLACEMENT

1. Clean exterior of air filter housing.
2. Pull yellow latch to release end cover.
3. Rotate end-cover counterclockwise and remove.
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.
7. Reset the air filter restriction indicator if equipped (Electro-mechanical models only.)

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 7-3 Separator Element Replacement (P/N 02250121-500)



* Replacement Element P/N 02250137-895
**Replacement Filter P/N 02250117-782

SEPARATOR ELEMENT REPLACEMENT

Refer to Figure 7-3. 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.

1. Relieve all pressure from the sump tank and all compressor lines.
2. Disconnect all piping connected to the sump cover to allow removal (return lines, service lines, etc.).
3. Loosen and remove the eight (8) hex head capscrews (1/2-13 x 1 1/2") from the cover plate.
4. Lift the cover plate from the sump.
5. Remove the separator element.
6. Inspect the receiver/sump tank for rust, dirt, etc.
7. Scrape the old gasket material from the cover and flange on the sump. Be careful not to let the scraps fall in the sump.

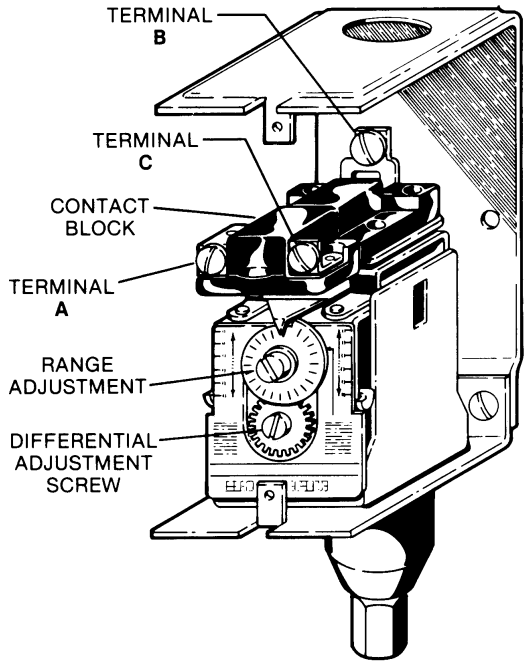
NOTE

USE PROVIDED GASKET(S) ONLY.

DO NOT remove grounding staple(s) from the replacement element's gasket.

DO NOT use any type of gasket eliminator, as it can insulate the staples causing the element not to be properly grounded for operation.

Figure 7-4 Pressure Switch



8. Reinsert the separator element into the sump taking care not to dent the element against the tank opening.
9. Clean the underside of the receiver/sump tank cover and remove any rust.
10. Replace the cover plate, washers and capscrews. Torque to 55 ft-lbs. (75 Nm).
11. 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 assure proper fluid return flow to the compressor.
12. Clean the return line strainers before restarting the compressor.

CONTROL SYSTEM ADJUSTMENT

Refer to Figure 7-4. 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 other operating range excepting 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 7-4).

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. Turning the screw counterclockwise widens the differential by lowering the reset (lower) setting only.
2. When the pressure switch adjustment is com-

Figure 7-5 Drive Coupling "Hub" Gap Check

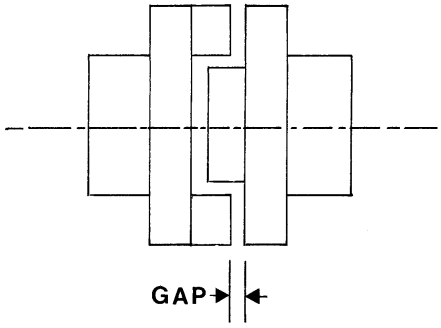


TABLE 1 INSTALLATION DATA
SERIES 10 (25-40HP/ 18-30KW)

Horsepower	Coupling Element	Coupling Hub Gap	Tightening Torque (Wet)
25 & 30 HP/	04567	2 .09-.125 in	55 ft.-lbs
18 & 22 KW		2.4-3.2 mm	(75Nm)
60, 75, 100	250004-638	.09-.125 in	110 ft.-lbs
(45, 55, 75 KW)		2.4-3.2 mm	(149Nm)

plete, the pressure regulator should be adjusted for the pressure at which modulation of air delivery should begin. 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 is 126 psig (8.7 bar). At this point regulator should pass a signal to the inlet valve to start closing it. If the line pressure keeps on rising or if the modulation does not begin, adjust the regulator valve as described above. After adjustment, line pressure should be approximately 126 psig (8.7 bar) and 1.00 in. Hg (2.54 cm Hg.) vacuum below the inlet.
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). 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.

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

The sump pressure should read 23 to 28 psig (1.6 to 1.9 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

Start the compressor and adjust the service valve to maintain service air pressure at three psig above the rated pressure (126 psig for example). 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 Figure 7-5. 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 - COUPLING GUARDS

There are three 5/16" screws from each of the wire

guards located on each side of the unit/motor adaptor for the 25/30 HP (18/22 KW) packages, or the two 3/8" bolt/nut/washer assemblies from the plate guard and adaptor located on the top side.

STEP 2 - MOUNTING HUBS/ELEMENT

The coupling halves have a unique bore for the motor and the air-end. The air-end half is to be located so that the hub is positioned against the shaft shoulder and secured in place by two set-screws. The motor half should remain free floating until the element is in its proper location. The motor half is then positioned within assembly maintaining an axial coupling gap as listed in Figure 7-5. There are two set-screws located on the motor coupling half also. Prior to starting of package, assure the set-screws are secure to eliminate potential movement of the hub.

7.9 TROUBLESHOOTING- STANDARD ELECTRO-MECHANICAL

The information contained in the Standard ElectroMechanical 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.

7.10 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.

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MAINTENANCE

7.10 TROUBLESHOOTING GUIDE- STANDARD ELECTRO-MECHANICAL(CONTINUED)

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

7.10 TROUBLESHOOTING GUIDE- STANDARD ELECTRO-MECHANICAL (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
LINE PRESSURE RISES ABOVE CUT-OUT PRESSURE SETTING ON PRESSURE SWITCH (CONT.)	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).
	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).
	High Pressure Shutdown Switch is Defective or Incorrectly Adjusted	Readjust or replace.
EXCESSIVE COMPRESSOR FLUID CONSUMPTION	Clogged Return Line or Orifice	Clean strainer.
		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 regularly.

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MAINTENANCE

7.11 TROUBLESHOOTING- SUPERVISOR II

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

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

a. Check for loose wiring.

b. Check for damaged piping.

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

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

7.12 TROUBLESHOOTING GUIDE- SUPERVISOR II

SYMPTOM	PROBABLE CAUSE	REMEDY
T1 HI Message	Discharge Temperature Exceeded 225ºF (107ºC) for Pre-Alarm	
	Discharge Temperature Exceeded 235ºF (113ºC) for Shutdown	
	Ambient Temperature Exceeded 105ºF (41ºC)	Improve local ventilation (i.e., remote intake of process and/or cooling air).
	Fluid Level in Sump is Too Low	Check/correct fluid level.
	Thermal Valve Malfunctioned	Check/replace thermal valve.
	Cooler Fins are Dirty (Air-cooled only)	Clean cooler fins.
	Water Flow is Low (Water-cooled Packages Only)	Check cooling water supply (i.e., closed valves).
	Water Temperature is High (Water-Cooled Packages Only)	Increase water flow, lower water temperature.
	Cooler is Plugged (Water-Cooled Packages Only)	Clean tubes and/or shell - if tube plugging persists, provide cleaner water.
T1 FAIL	Temperature RTD Malfunction	Check connections from RTD. If connection is good, replace RTD.
P1 HI Message	Discharge Pressure Exceeded Shutdown Level Because:	
	P1 MAX-3psi (0.2 Bar) Exceeded for Pre-Alarm	
	P1 MAX Exceeded for Shutdown	
	Unloading Device (i.e., Blowdown Valve) Failed to Operate	Check operation of unloading device.
	Pressure Regulator Adjusted Incorrectly	Check operation of pressure regulator.

7.12 TROUBLESHOOTING GUIDE- SUPERVISOR II (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
P1 HI Message (CONTINUED)	Discharge Pressure Exceeded Shutdown Level Because (Cont.):	
	Solenoid Valve Failed to Operate	Check operation of solenoid valve.
	Control Air Signal Leaks	Check tubework feeding control signal for leaks.
	Control Air Signal Filter Clogged	Service filter assembly.
P1, P2, P3 FAIL	Pressure Transducer Malfunction	Check connections from transducer. If connections are good, replace transducer.
P3 LOW	Oil Pressure Falls Below 10 psig (0.7 bar) or Less than 1/2 of P1 while Compressor is Running Because:	
	Oil Filter Clogged	Replace filter element.
	Sump Oil Level Too Low	Replenish oil level.
SEP MNTN Message	Plugged Separator	Replace separator element.
	dP1 > 10 psi (0.7 Bar)	Check P1 & P2 pressure transducers.
COMPRESSOR DOES NOT BUILD FULL DISCHARGE PRESSURE	Air Demand Exceeds Supply	Check air service lines for open valves or leaks.
	Inlet Air Filter Clogged	Check for maintenance message on Supervisor display. Inspect and/or change element.
	Inlet Valve Not Fully Open	Check actuation and position.
	Pressure Sensor and/or Connections at Fault	Check connections from transducer. If adequate, replace transducer.
LINE PRESSURE RISES ABOVE UNLOAD SETTING	Pressure Sensor P2 at Fault	Check connections from transducer. If adequate, replace transducer.
	Unloading Device (i.e., Blowdown Valve) Failed to Operate	Check operation of unloading device.
	Solenoid Valve Failed to Operate	Check operation of solenoid valve.
	Control Air Signal Leaks	Check tubework feeding control signal for leaks.
	Control Air Signal Filter Clogged	Service filter assembly.
EXCESSIVE FLUID CONSUMPTION	Damaged or Improperly Gasketed Separator Element	Inspect separator element and gasket. Replace if damaged.
	Fluid System Leaks	Check tube/pipework for leaks.
	Fluid Level Too High	Drain excess fluid.

Section 7
MAINTENANCE

7.12 TROUBLESHOOTING GUIDE- SUPERVISOR II (CONTINUED)

SYMPTOM	PROBABLE CAUSE	REMEDY
EXCESSIVE FLUID CONSUMPTION (CONTINUED)	Excessive Fluid Foaming	Drain and change fluid.
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 regularly.

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

7.13 CALIBRATION

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

To enter calibration mode, you must press the following keys in sequence while in the default status display mode: "  ", "  ", "DSP", "  ", "PRG". Once in calibration mode, you will see a screen like the following:

CAL	P1
0	97

In the above example, "0" refers to the amount of adjustment (in psi or ºF, "97" refers to the current value of P1).

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

The "DSP" key exits, wiping out changes to the current item, while saving changes to any previous items. The "PRG" key saves the current item and advances to the next. All temperatures and pressures may be calibrated individually.

Figure 7-6 Piping and Instrumentation- Standard

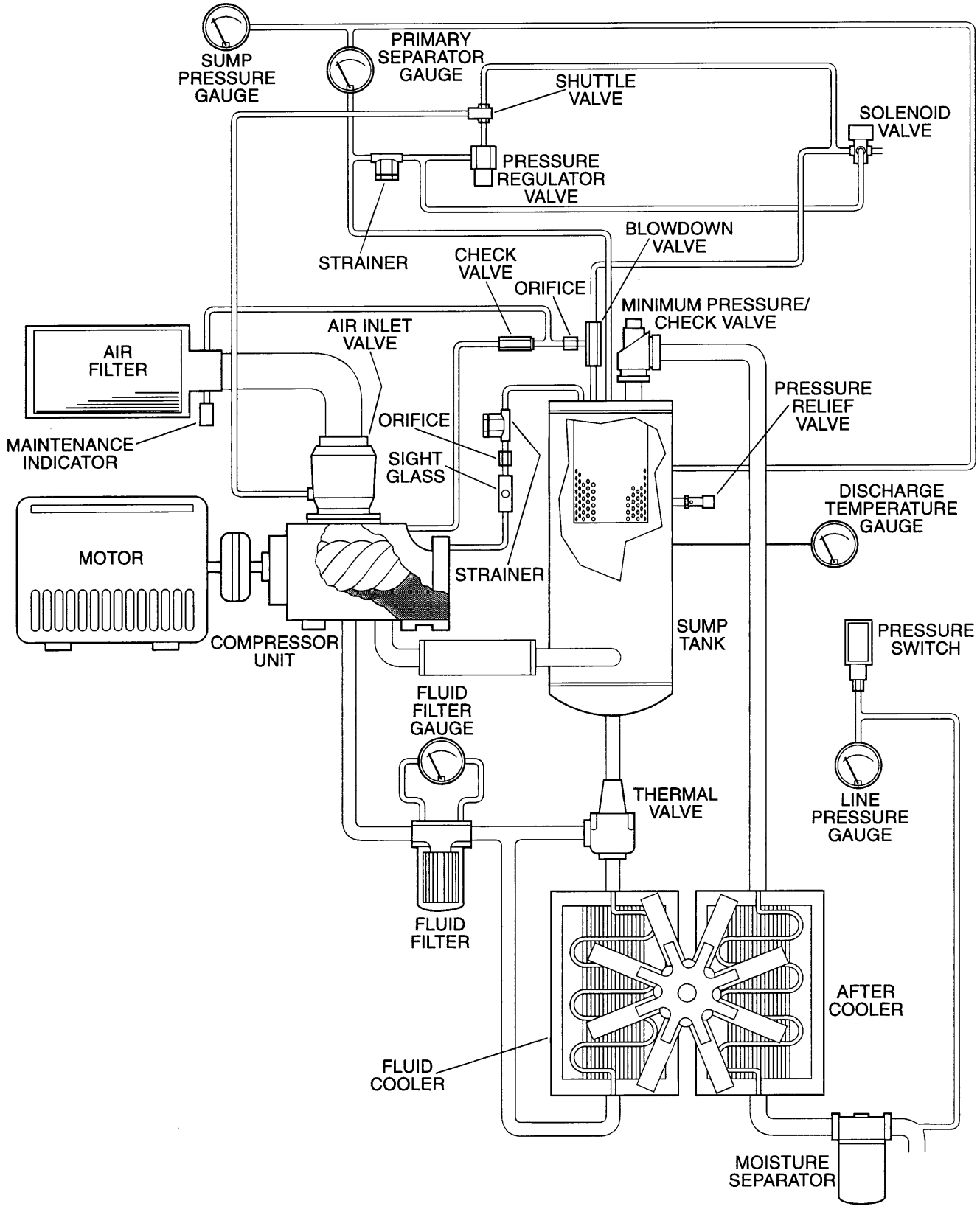
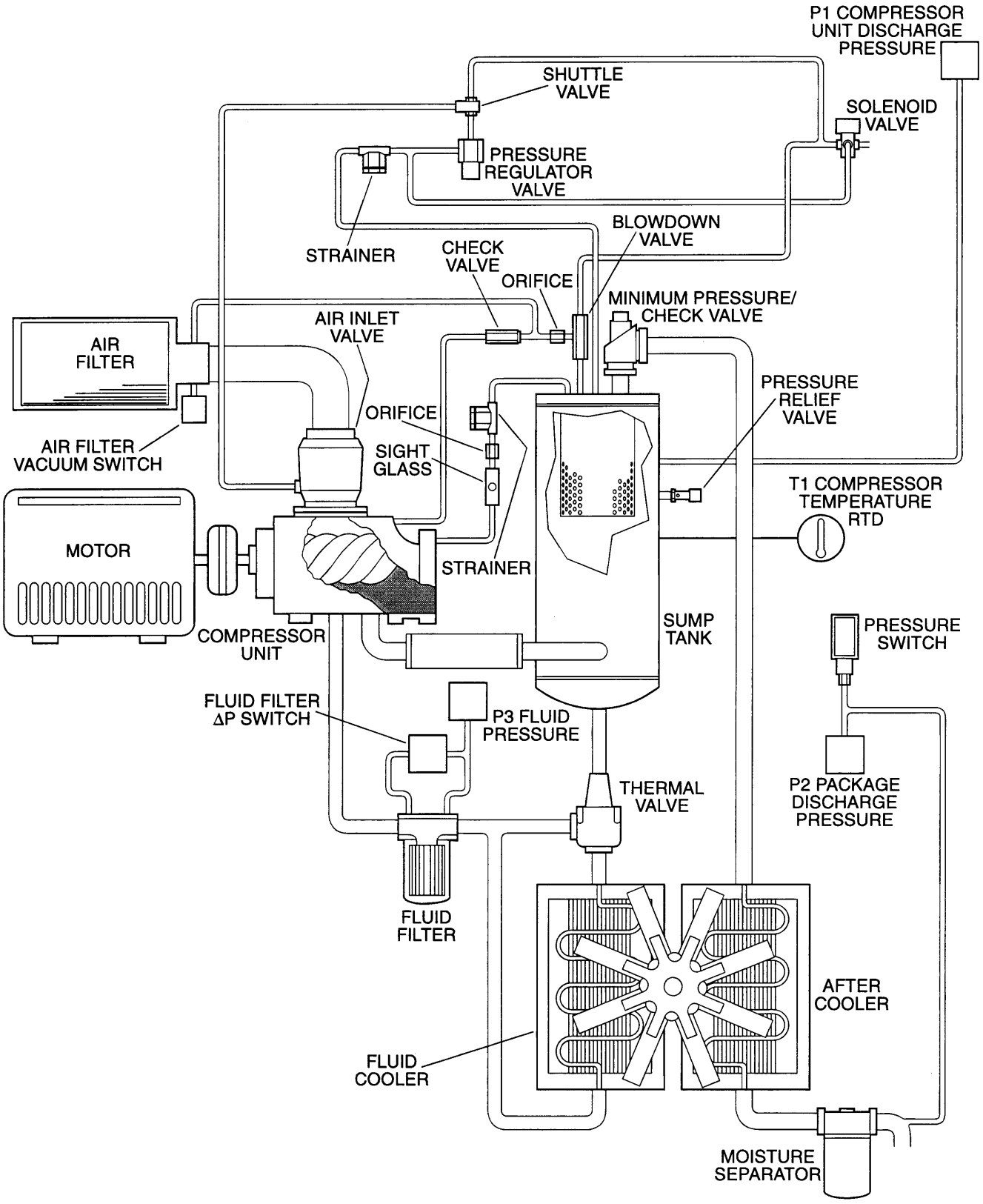


Figure 7-7 Piping and Instrumentation- Supervisor II



Section 8
ILLUSTRATIONS AND PARTS LIST

8.1 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, phone or fax numbers listed 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
Fax: (219) 874-1835
www.sullair.com/parts.shtm

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

8.2 RECOMMENDED SPARE PARTS LIST

DESCRIPTION	KIT NUMBER	QTY
element, compressor fluid filter 02250136-535	**250025-525**	**1**
element, heavy duty air filter 02250140-007	**02250125-372**	**1**
element, primary replacement for separator 02250121-500	**02250137-895**	**1**
kit, repair for air inlet valve	**02250138-090**	**1**
kit, repair for minimum pressure/check valve 02250097-609	**02250110-988**	**1**
kit, repair cap for minimum pressure/check valve 02250097-609	**02250046-397**	**1**
replacement, viton o-ring for minimum pressure/check valve 02250097-609	**826502-123**	**1**
kit, repair piston for minimum pressure/check valve 02250097-609	**02250051-338**	**1**
kit, repair thermal valve 02250078-204 (185ºF)	**02250144-326**	**1**
kit, repair thermal valve 02250092-081 (195ºF) **(I)**	**02250144-327**	**1**
kit, repair for pressure regulator 250017-280	**250019-453**	**1**
kit, repair for blowdown valve 02250049-634 (replace valve)	**02250049-634**	**1**
kit, repair for solenoid valve 02250125-657	**02250125-829**	**1**
kit, replacement for solenoid valve coil 02250125-657	**02250125-861**	**1**
kit, repair for solenoid valve 02250125-674	**02250125-823**	**1**
kit, replacement for solenoid valve coil 02250125-674	**02250125-861**	**1**

(Continued on page 52)

(I) 195ºF thermal valve is used on “HH”, “XH” and 24KT (“L” and “H”) machines.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.2 RECOMMENDED SPARE PARTS LIST (CONTINUED)

DESCRIPTION	KIT NUMBER	QTY
kit, repair for shaft seal	**02250049-258**	**1**
kit, repair for 1-1/2” combination separator/trap 02250144-635	**02250144-735**	**1**
kit, repair for 1” combination separator/trap 02250144-636	**02250144-736**	**1**
kit, replacement for Supervisor controller 02250083-301	**02250106-360**	**1**
replacement element(s) for drive coupling	**(II)**	**-**
kit, repair for v-type strainer 241771	**241772**	**1**
manual, Sequencing & Protocol (III)	**02250139-197**	**1**
fluid, SRF 1/4000 (5 gallons)	**250019-662**	**(IV)**
lubricant, Sullube (std.) (5 gallons)	**250022-669**	**(IV)**
lubricant, 24 KT (5 gallons)	**046850-001**	**(IV)**

(II) For maintenance on coupling element for your machine, consult the following table:

HP	MODEL	FREQUENCY	MOTOR FRAME	COUPLING HUB NO. MOTOR	COUPLING HUB NO. COMPRESSOR	ELEMENT
25	ALL	ALL	ALL	**045671**	**045673**	**045672**
30	ALL	60Hz	ALL	**045671**	**045673**	**045672**
30	ALL	50Hz	ALL	**250030-700**	**02250077-075**	**250004-638**
40	ALL	60Hz	ALL	**250004-640**	**250004-639**	**250004-638**
40	L,H,HH	50Hz	ODP	**045671**	**045673**	**045672**
40	L,H,HH	50Hz	TEFC	**250004-640**	**250004-639**	**250004-638**
40	XH	50Hz	ALL	**250004-640**	**250004-639**	**250004-638**

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

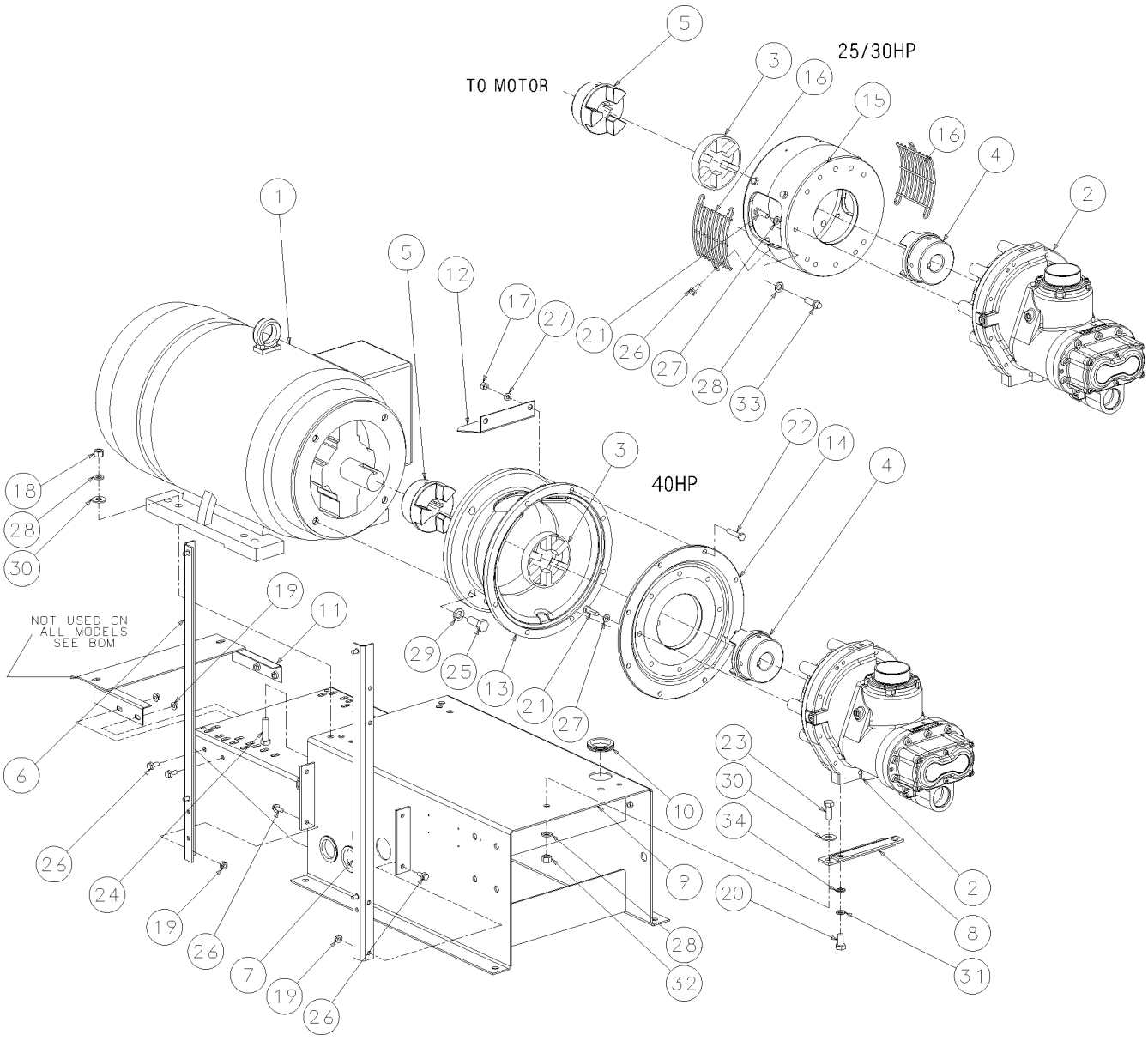
(IV) For proper amount of fluid fill, please consult Lubrication Guide in Section 3, Specifications.

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

NOTES

Section 8
ILLUSTRATIONS AND PARTS LIST

8.3 MOTOR, COMPRESSOR, FRAME AND PARTS



02250139-262R04

8.3 MOTOR, COMPRESSOR, FRAME AND PARTS

key number	*description*	*part number*	*quantity*
1	motor, 25/30/40hp tefc & 40hp odp	-	1
2	compressor & part, dxx102147e **(I)**	-	1
3	element, cplg type l-190 **(II)**	-	1
4	coupling l-190 1-1/2 x 3/8 **(II)**	-	1
5	hub, coupling l-190 1-7/8 x 1/2 **(II)**	-	1
6	support, bracket start box ls-10 l.h.	02250103-969	1
7	support, bracket start box ls-10 r.h.	02250104-194	1
8	support, unit ls10	02250139-286	1
9	frame, assy ls10-25/30/40hp	02250139-868	1
10	grommet, rubber	02250141-414	6
11	plate, mtg frame ext tefc	02250143-521	1
12	plate, motor/compr adapt cover	225980	1
13	adapter, motor compr 10/40	231977	1
14	adapter, sae 5 dxx10 gi ma	250009-542	1
15	adapter, unit to mtr-compr	250038-448	1
16	grille, cplg guard compr/mtr	250040-319	2
17	nut, hex pltd 3/8-16	825206-337	7
18	nut, hex pltd 1/2-13	825208-448	2
19	nut, hex f pltd 5/16-18	825305-283	8
20	capscr, hex 8.8 m12 x 25mm	828012-025	2
21	capscr, hex gr5 3/8-16 x 1 1/4	829106-125	7
22	capscr, hex gr5 3/8-16 x 1 3/4	829106-175	7
23	capscr, hex gr5 1/2-13 x 1 1/4	829108-125	2
24	capscr, hex gr5 1/2-13 x 2	829108-200	2
25	capscr, hex gr5 5/8-11 x 1 1/2	829110-150	4

(Continued on page 57)

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

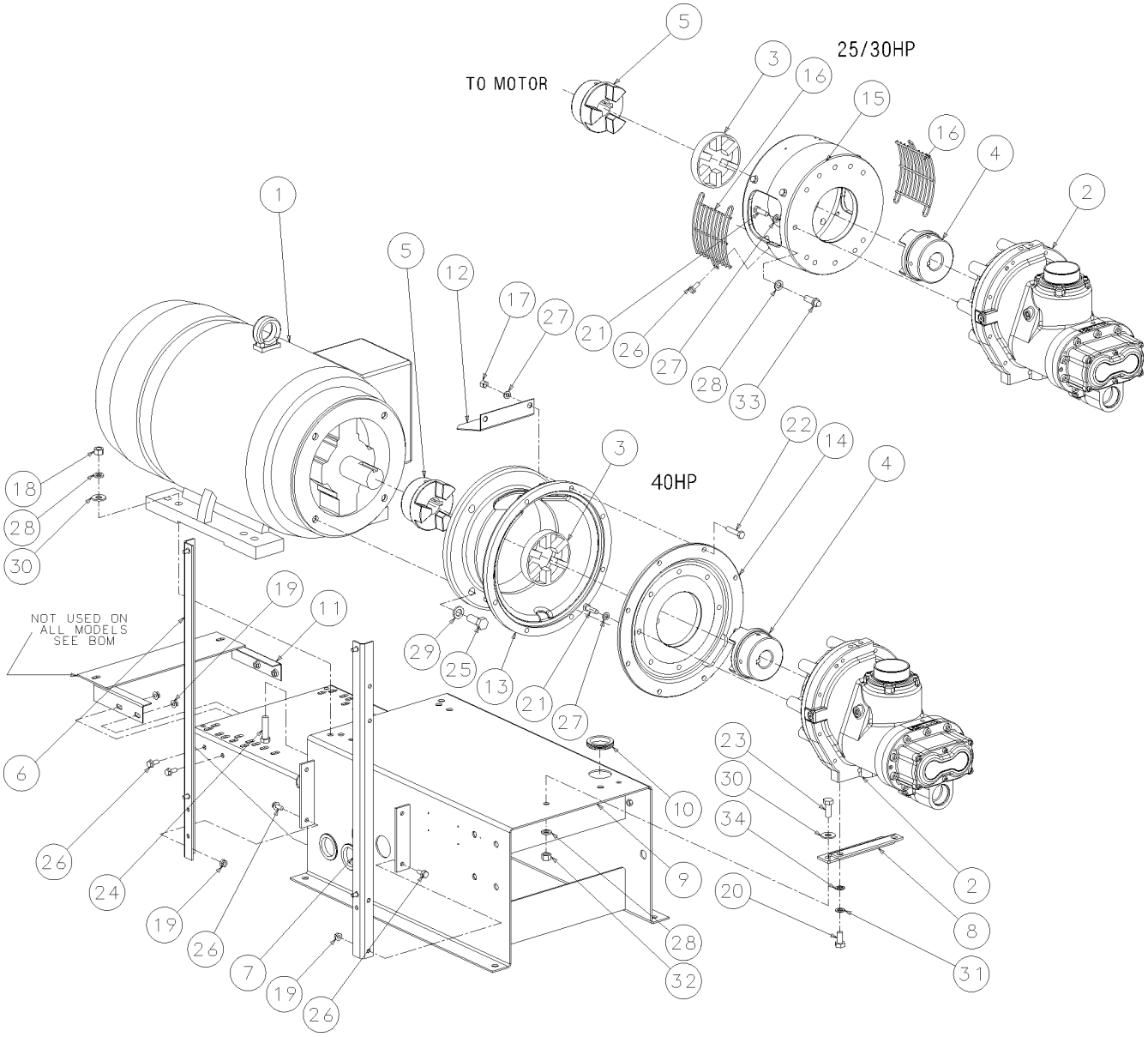
The shaft seal is not considered part of the compressor unit in regard to the two year warranty. The normal Sullair parts warranty applies. For shaft seal repairs, order shaft seal repair kit no. 02250049-258.

(II) For maintenance on drive coupling, consult *Section 8.2, Recommended Spare Parts List*.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.3 MOTOR, COMPRESSOR, FRAME AND PARTS



02250139-262R04

8.3 MOTOR, COMPRESSOR, FRAME AND PARTS (CONTINUED)

key number	*description*	*part number*	*quantity*
26	screw, hex ser washer 5/16-18 x 3/4 **(III)**	829705-075	14
27	washer, spr lock reg pltd 3/8	837806-094	14
28	washer, spr lock reg pltd 1/2 **(IV)**	837808-125	8
29	washer, spr lock reg pltd 5/8	837810-156	4
30	washer, pl-b reg pltd 1/2	838208-112	4
31	washer, spr lock-metric pltd m12	838812-250	2
32	nut, hex 1/2-13 pltd	866508-448	2
33	capscrew, ferry head hd pltd 1/2-13 x 1 1/4	867308-125	4
34	washer, metric hardened 12 x 20	875012-200	2

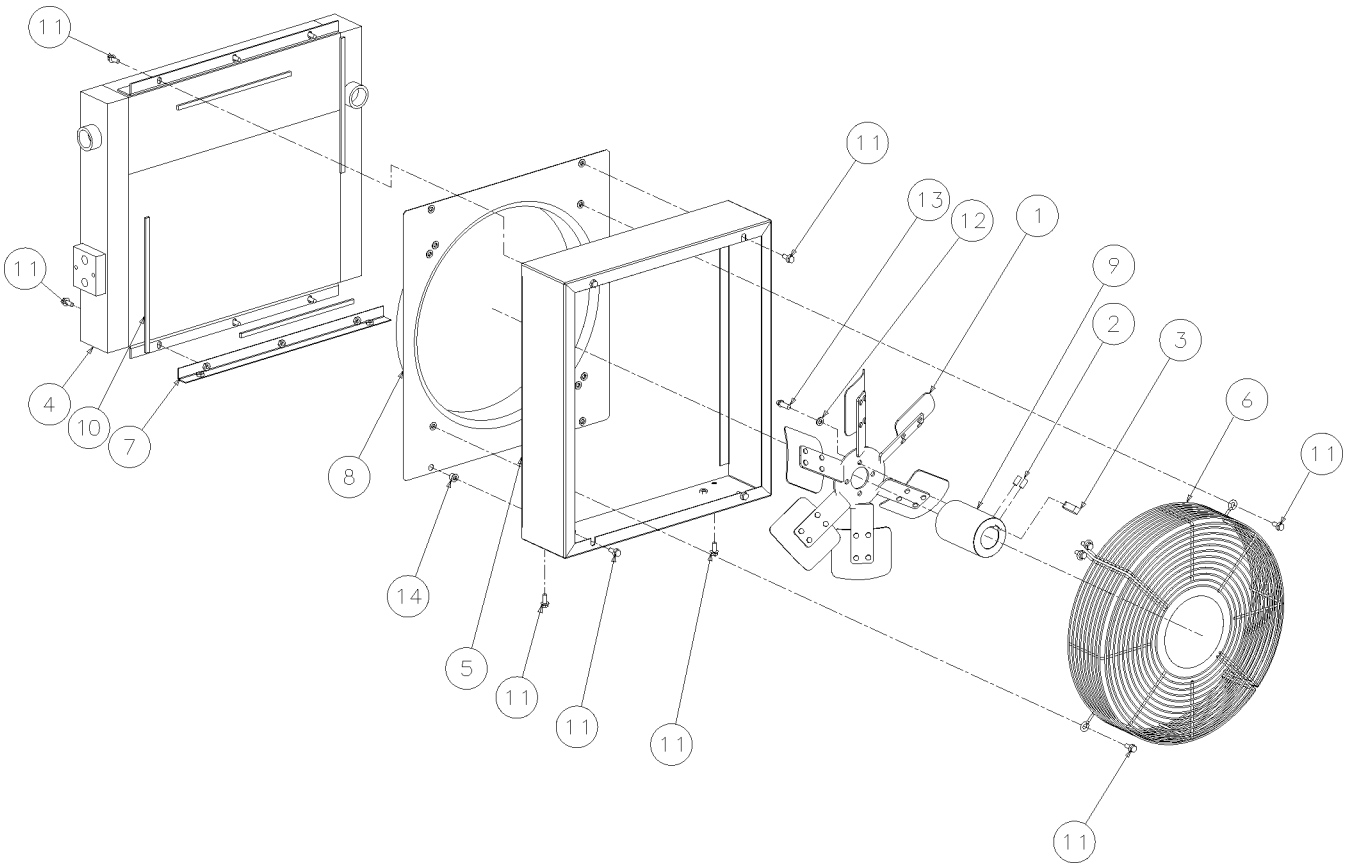
(III) 25/30HP use (14)
40HP TEFC use (8)
40HP ODP use (14)

(IV) 25/30HP use (8)
40HP use (4)

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.4 COOLER ASSEMBLY



02250139-538R02

8.4 COOLER ASSEMBLY

key number	*description*	*part number*	*quantity*
1	fan,18”Ø blower ls-10 **(I)**	-	1
2	set scew, 3/8-16unc	02250122-608	2
3	key,square rounded both ends ls10-	02250123-415	1
4	cooler, comb air/oil	02250140-334	1
5	shroud, fan ls10 std	02250140-412	1
6	guard,fan ls10-25/30/40hp std	02250140-421	2
7	angle,shroud fan base	02250140-442	1
8	venturi,fan 18.5” dia	02250140-519	1
9	hub, fan drive **(I)**	02250143-405	1
10	weatherstrip, 3/16 x 3/8 ft -	250022-436	8
11	screw, hex ser washer 5/16-18 x 3/4	829705-075	18
12	washer, spr lock reg pltd 3/8	837806-094	4
13	capscrew, ferry head hd pltd 3/8-16 x 1	867306-100	4
14	insert, nut 5/16-18 .027-.150	876205-150	10

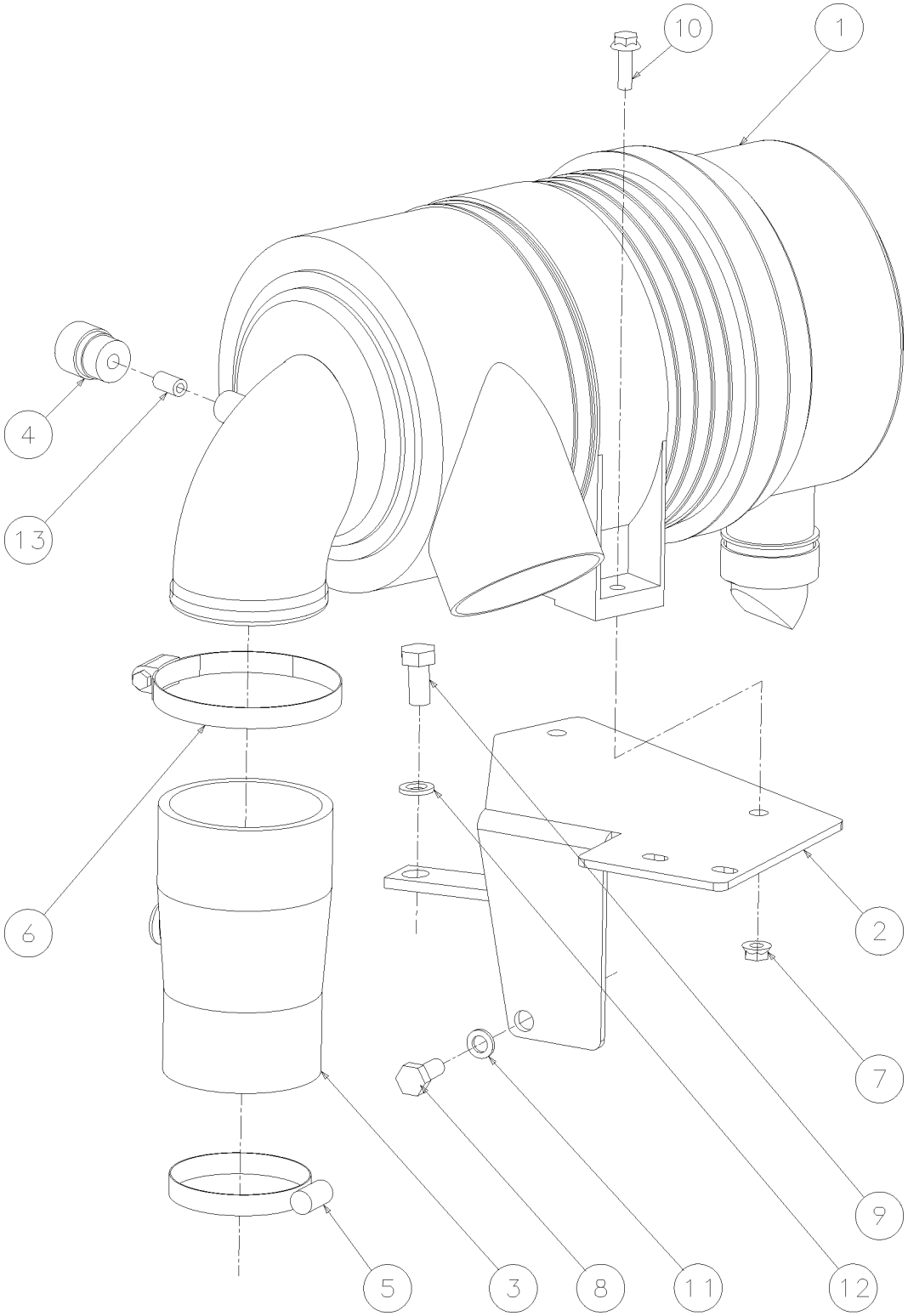
(I) For a breakdown of fan assembly, consult the following table:

HP	MODEL	FREQUENCY	MOTOR FRAME	FAN	FAN HUB
25	ALL	60Hz	ALL	02250141-472	02250143-408
30	ALL	60Hz	ALL	02250141-472	02250143-408
40	ALL	60Hz	ALL	249012	02250142-405
25	ALL	50Hz	ALL	02250141-470	02250143-408
30	ALL	50Hz	ALL	02250141-470	02250143-408
40	L,H,HH	50Hz	ODP	02250141-472	02250143-408
40	L,H,HH	50Hz	TEFC	02250141-472	02250143-407
40	XH	50Hz	ALL	249012	02250143-405

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.5 AIR INLET SYSTEM



02250139-264R02

8.5 AIR INLET SYSTEM

key number	*description*	*part number*	*quantity*
1	filter, air 8” 90deg w/mtg band **(I)**	02250140-007	1
2	support, air filter ls10 std	02250140-451	1
3	adapter, air filter	02250140-590	1
4	indicator, restriction 20” h20 **(II)**	250003-869	1
5	clamp, hose 2-13/16 to 3-3/4”	250018-550	1
6	clamp, hose 4.25/3.31	250031-415	1
7	nut, hex f pltd 5/16-18	825305-283	2
8	capscr, hex 8.8 m10 x 25mm	828010-025	1
9	capscr, hex 8.8 m12 x 25mm	828012-025	1
10	screw, hex ser washer 5/16-18 x 1	829705-100	2
11	washer, spr lock-metric pltd m10	838810-220	1
12	washer, spr lock-metric pltd m12	838812-250	1
13	nipple, pipe-xs plt 1/8 x cl **(II)**	866402-000	1

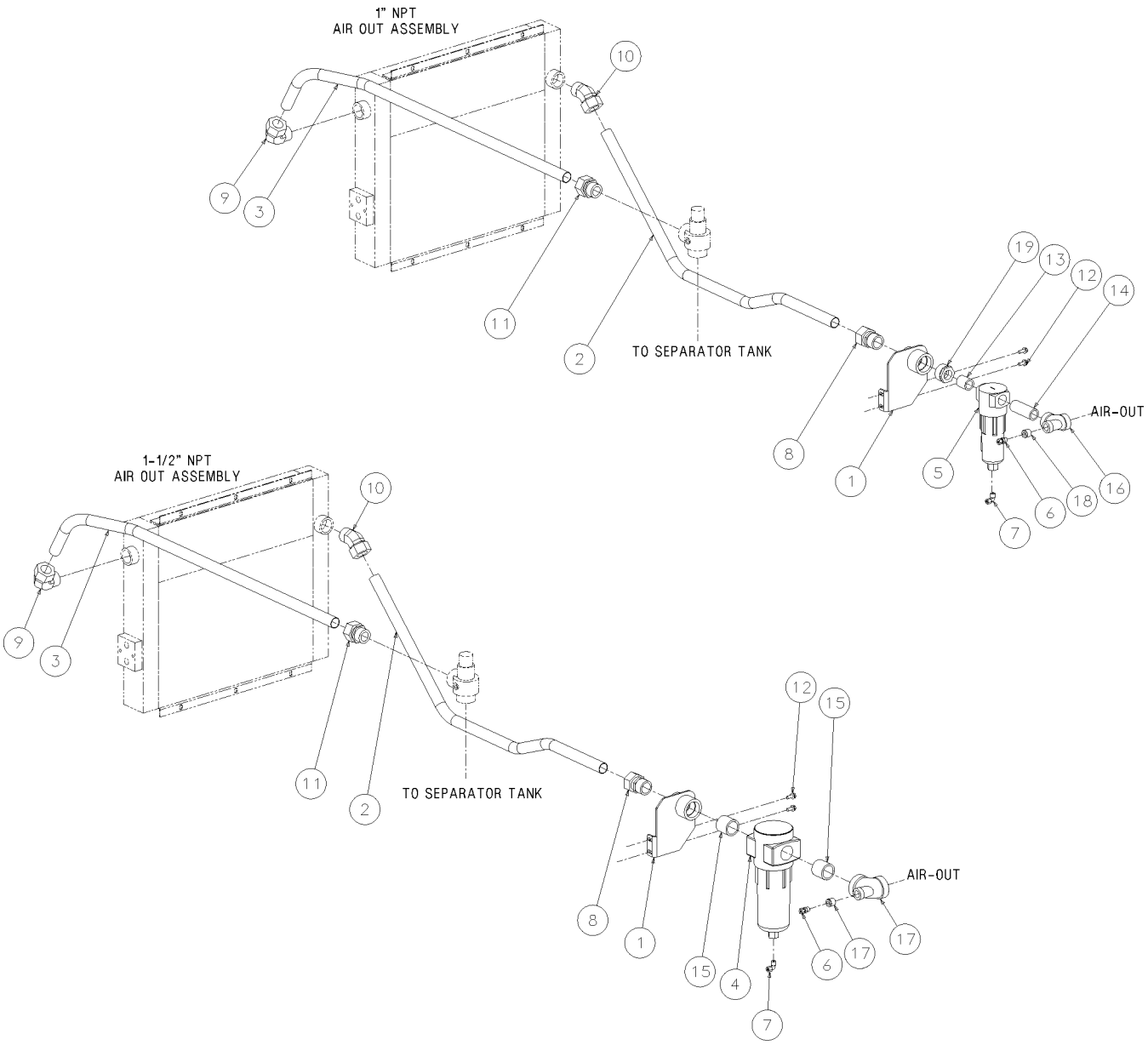
(I) For maintenance on air filter no. 02250140-007, order replacment element no. 02250125-372.

(II) For electro-mechanical controls only.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.6 AIR PIPING- AIR-COOLED



NOTE:

1) SEPARATOR ASSEMBLY AND PART NUMBERS VARY BY MODEL. SEE BOM FOR DETAILS.

02250142-054R04

8.6 AIR PIPING- AIR-COOLED

key number	*description*	*part number*	*quantity*
1	support, water sep ls10	02250141-448	2
2	tube, cooler to moist sep 1-1/4”	02250141-664	2
3	tube, 1-1/4”-mpv to clr a/c	02250142-982	2
4	separator, water d-h 1-1/2” fnpt 1/4” drn **(I)**	02250144-635	2
5	separator, water d-h 1” npt 1/4”drn **(II)**	02250144-636	2
6	connector, 1/4”tube x 1/4”npt	250018-428	4
7	elbow, 1/4” tube x 1/4” npt	250018-430	4
8	connector, tube-m 1 1/4 x 1 1/4	810220-125	2
9	elbow, tube 90 deg m 1 1/4 x 1 1/4	810520-125	2
10	elbow, tube 45m 1 1/4 x 1 1/4	811720-125	2
11	connector, tube str thd 1 1/4 x 1 5/8	811820-163	2
12	screw, hex ser washer 5/16-18 x 3/4	829705-075	4
13	nipple, pipe-xs plt 1 x cl	866416-000	2
14	nipple, pipe-xs plt 1 x 3 1/2	866416-035	2
15	nipple, pipe-xs plt 1 1/2 x cl	866424-000	4
16	tee, reducing pltd 1 x 1/2 x 1	867504-024	2
17	tee, reducing pltd 1 1/2 x 1/2 x 1 1/2	867506-026	2
18	bushing, red hex pltd 1/2 x 1/4	868902-010	2
19	bushing, red hex pltd 1 1/2 x 1	868906-040	2

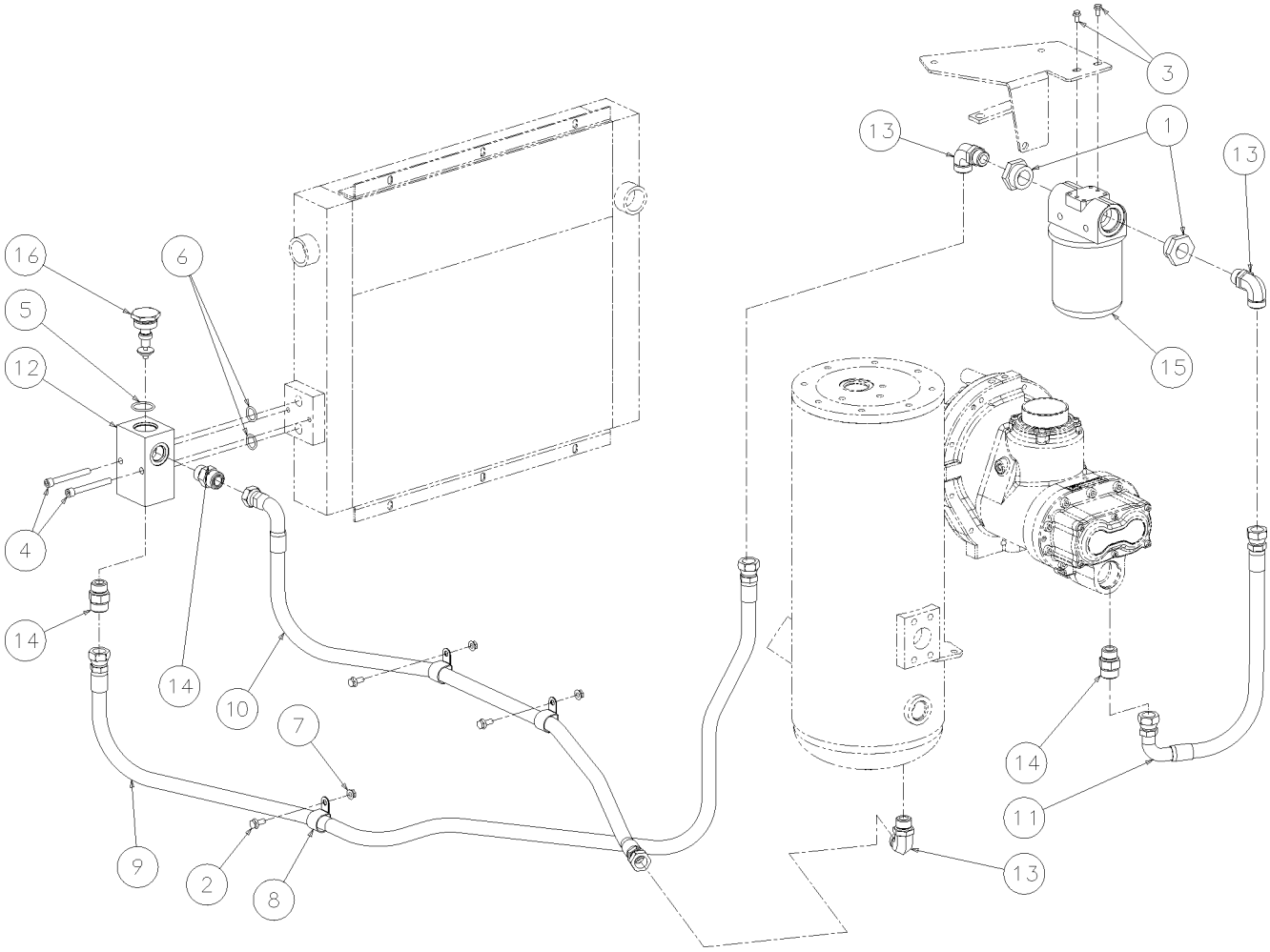
(I) For maintenance on water separator no. 02250144-635, order repair kit no. 02250144-735.

(II) For maintenance on water separator no. 02250144-636, order repair kit no. 02250144-736.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.7 FLUID PIPING- 25, 30 & 40HP/ 18, 22 & 30KW ODP



02250144-274R01

8.7 FLUID PIPING- 25, 30 & 40HP/ 18, 22 & 30KW ODP

key number	*description*	*part number*	*quantity*
1	reducer, str thrd viton 1 1/4 x 3/4	870020-012	2
2	screw, hex ser washer 5/16-18 x 3/4	829705-075	3
3	screw, hex ser washer 1/4-20 x 1/2	829704-050	2
4	capscrew, socket hd 3/8-16 x 3 1/4	828306-325	2
5	o-ring, viton 1 5/16 x 1/8”	826502-219	1
6	o-ring, viton 13/16 x 1/8”	826502-211	2
7	nut, hex f pltd 5/16-18	825305-283	3
8	clamp, tubing 1-1/8” dia	250025-636	3
9	hose, medium pressure orfs f-swvl 1”x 67” ls10ac c	02250143-477	1
10	hose, medium pressure orfc f-swvl 1”x 46” ls10ac s	02250143-476	1
11	hose, medium pressure orfs 1”x 21”	02250141-106	1
12	housing, thrm vlv	02250140-340	1
13	elbow, 90 sae x orfs .75”	02250099-766	3
14	connector, sae x orfs 0.75”	02250099-765	3
15	filter, fluid 1 5/8 sae str thrd co **(I)**	02250136-535	1
16	valve, thermal 185 deg f es11 **(II)**	02250078-204	1
	•valve, thermal 195 deg f es11 **(III)**	02250092-081	1

(I) For maintenance on fluid filter no. 02250136-535, order replacement element no. 250025-525.

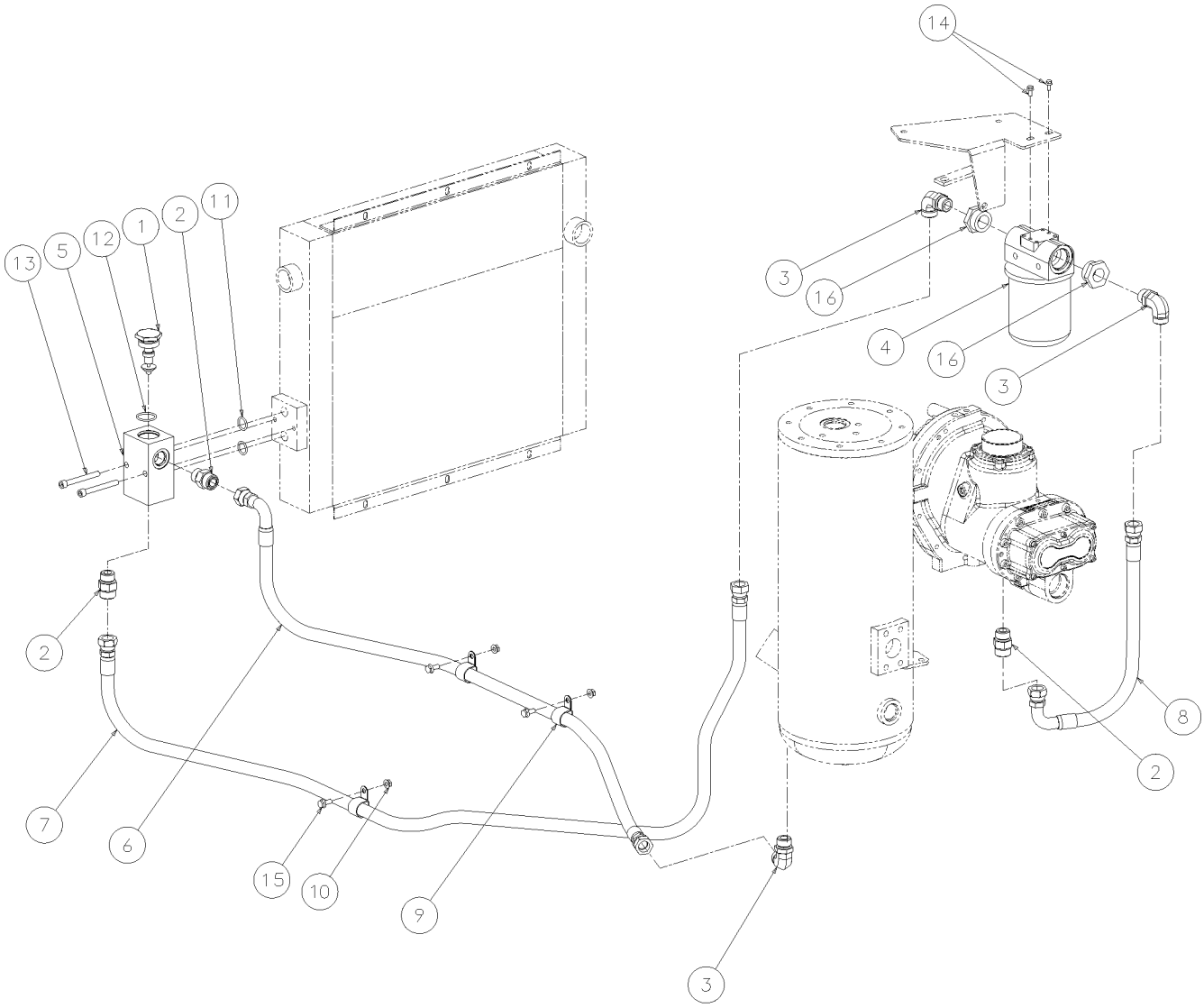
(II) For maintenance on (185ºF) thermal valve no. 02250078-204, order repair kit no. 02250144-326.

(III) For maintenance on (195ºF) thermal valve no. 02250092-081, order repair kit no. 02250144-327. **NOTE:** 195ºF thermal valve is used on “HH”, “XH” and 24KT (“L” and “H”) machines.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.8 FLUID PIPING- 25, 30 & 40HP/ 18, 22 & 30KW TEFC



NOTES:

1) HOSE PART NUMBERS VARY BY MACHINE MODEL.
REFER TO BOM FOR ACTUAL PART NUMBERS USED.

02250139-265R03

8.8 FLUID PIPING- 25, 30 & 40HP/ 18, 22 & 30KW TEFC

key number	*description*	*part number*	*quantity*
1	valve, thermal 185 deg f es11**(I)**	02250078-204	1
	•valve, thermal 195 deg f es11 **(II)**	02250092-081	1
2	connector, sae x orfs 0.75”	02250099-765	3
3	elbow, 90 sae x orfs .75”	02250099-766	3
4	filter, fluid 1-5/8 sae **(III)**	02250136-535	1
5	housing, thrm vlv	02250140-340	1
6	hose, medium pressure orfs 1”x 53”	02250141-104	1
7	hose, medium pressure orfs 1”x 76”	02250141-105	1
8	hose, medium pressure orfs 1”x 21”	02250141-106	1
9	clamp, tubing 1-1/8” dia	250025-636	3
10	nut, hex f pltd 5/16-18	825305-283	3
11	o-ring, viton 13/16 x 1/8”	826502-211	2
12	o-ring, viton 1 5/16 x 1/8”	826502-219	1
13	capscrew, socket hd 3/8-16 x 3 1/4	828306-325	2
14	screw, hex ser washer 1/4-20 x 1/2	829704-050	2
15	screw, hex ser washer 5/16-18 x 3/4	829705-075	3
16	reducer, str thrd viton 1 1/4 x 3/4	870020-012	2

(I) For maintenance on (185ºF) thermal valve no. 02250078-204, order repair kit no. 02250144-326.

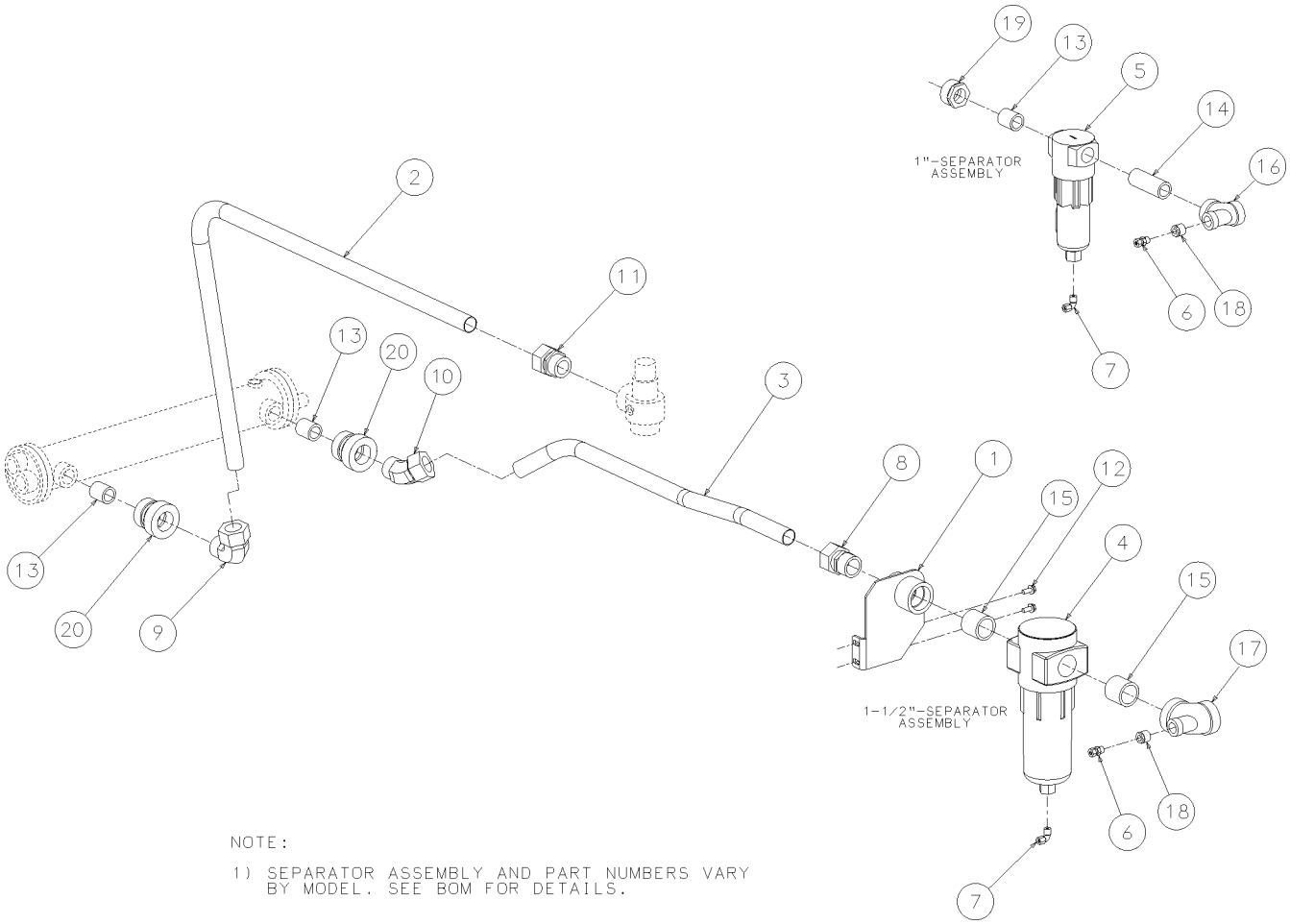
(II) For maintenance on (195ºF) thermal valve no. 02250092-081, order repair kit no. 02250144-327. **NOTE:** 195ºF thermal valve is used on “HH”, “XH” and 24KT (“L” and “H”) machines.

(III) For maintenance on fluid filter no. 02250136-535, order replacement element no. 250025-525.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.9 AIR PIPING- WATER-COOLED



02250142-175R02

8.9 AIR PIPING- WATER-COOLED

key number	*description*	*part number*	*quantity*
1	support, water sep ls10	02250141-448	1
2	tube, mpv to clr ls10-25/30 w/c	02250141-673	1
3	tube, cooler to moist sep ls10-25 w/c	02250141-674	1
4	separator, water d-h 1-1/2” fnpt 1/4” drn **(I)**	02250144-635	1
5	separator, water d-h 1” npt 1/4”drn **(II)**	02250144-636	1
6	connector, 1/4”tube x 1/4”npt	250018-428	2
7	elbow, 1/4” tube x 1/4” npt	250018-430	2
8	connector, tube-m 1 1/4 x 1 1/4	810220-125	1
9	elbow, tube 90 deg m 1 1/4 x 1 1/4	810520-125	1
10	elbow, tube 45m 1 1/4 x 1 1/4	811720-125	1
11	connector, tube str thd 1 1/4 x 1 5/8	811820-163	1
12	screw, hex ser washer 5/16-18 x 3/4	829705-075	2
13	nipple, pipe-xs plt 1 x cl	866416-000	3
14	nipple, pipe-xs plt 1 x 3 1/2	866416-035	1
15	nipple, pipe-xs plt 1 1/2 x cl	866424-000	2
16	tee, reducing pltd 1 x 1/2 x 1	867504-024	1
17	tee, reducing pltd 1 1/2 x 1/2 x 1 1/2	867506-026	1
18	bushing, red hex pltd 1/2 x 1/4	868902-010	2
19	bushing, red hex pltd 1 1/2 x 1	868906-040	1
20	coupling, red 1 1/4x1 300# plt	873210-008	2

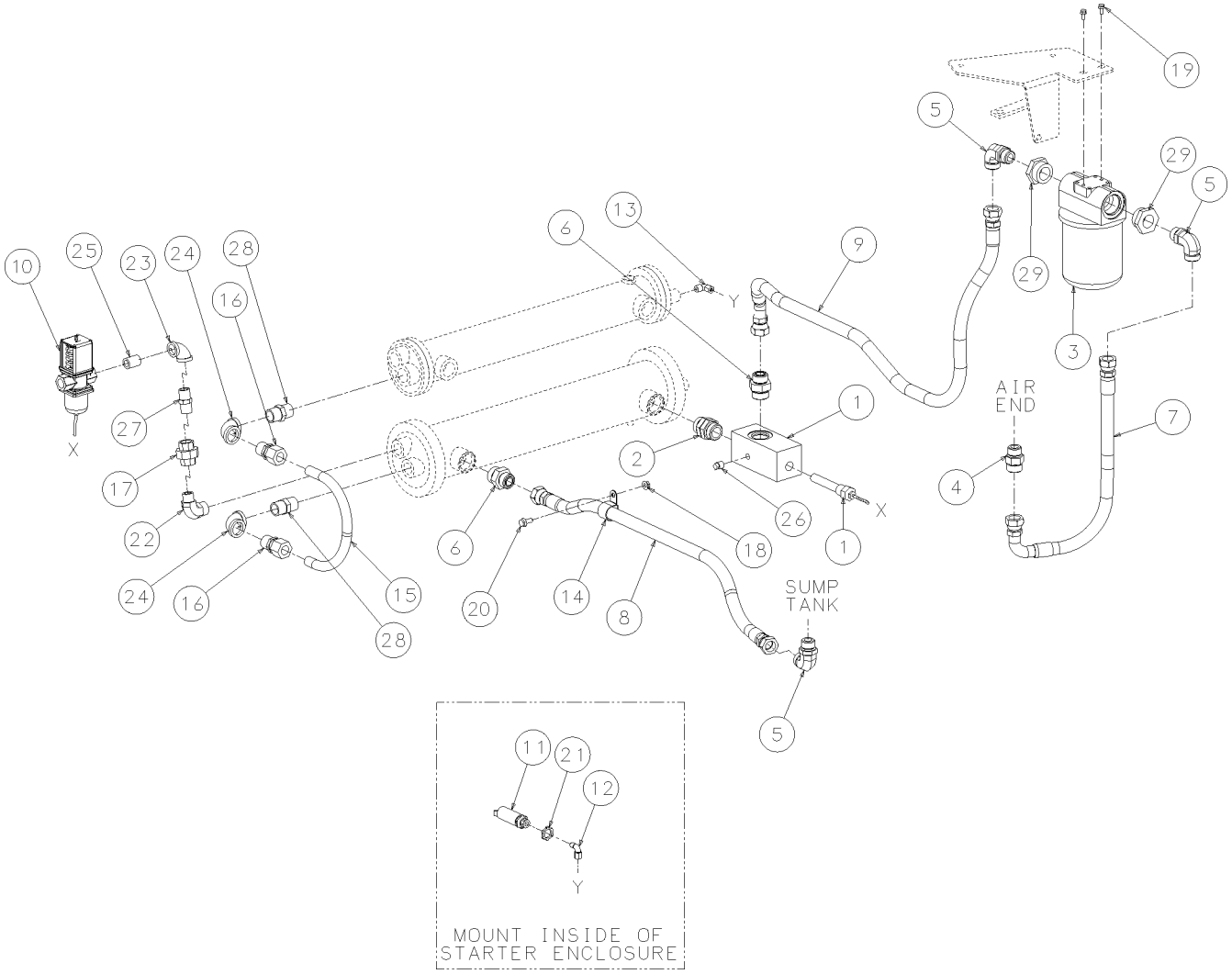
(I) For maintenance on water separator no. 02250144-635, order repair kit no. 02250144-735.

(II) For maintenance on water separator no. 02250144-636, order repair kit no. 02250144-736.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.10 WATER PIPING



02250142-173R02

8.10 WATER PIPING

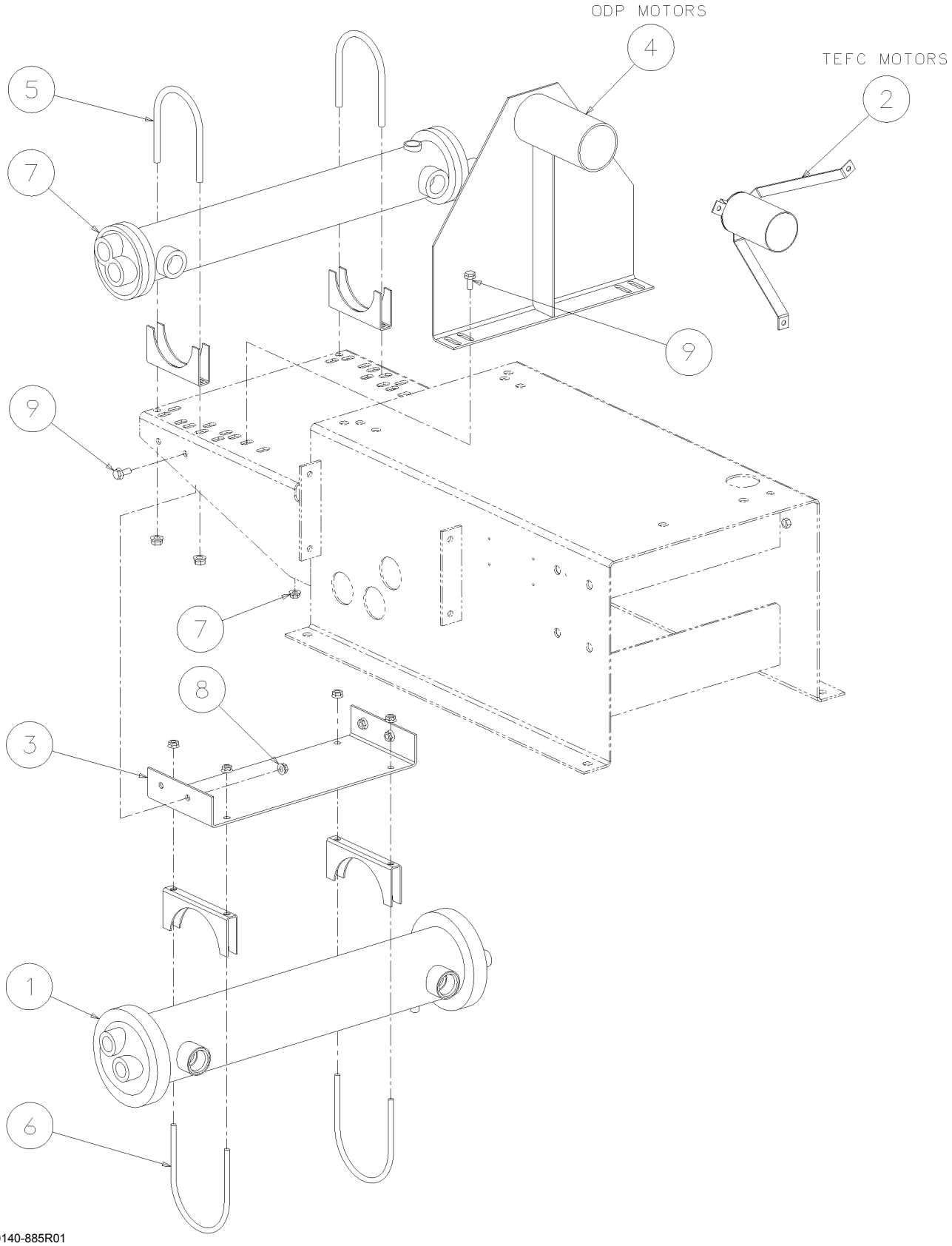
key number	*description*	*part number*	*quantity*
1	tee, sae/npt oil return	02250085-979	1
2	adapter, sae 1 5/16 x 1 5/16-12	02250086-022	1
3	filter, fluid 1 5/8 sae str thrd co **(I)**	02250136-535	1
4	connector, sae x orfs 0.75”	02250099-765	1
5	elbow, 90 sae x orfs .75”	02250099-766	3
6	connector, sae x orfs .75”	02250135-568	2
7	hose, medium pressure orfs 1”x 18”	02250141-106	1
8	hose, medium pressure orfs 1” x 36”	02250141-407	1
9	hose, medium pressure orfs 1”x 47	02250141-408	1
10	valve, water regulator 1/2”	041265	1
11	switch, pressure n.o. 10 psi	250017-992	1
12	elbow, 90 1/4”tube x 1/8”npt	250018-429	1
13	elbow, 1/4” tube x 1/4” npt	250018-430	1
14	clamp, tubing 1-1/8” dia	250025-636	1
15	tubing, nylon 3/4”	250039-353	1
16	connector, male plastic tubing 3/4 x 3/4	250039-357	2
17	union, pipe galv 1/2	802315-020	1
18	nut, hex f pltd 5/16-18	825305-283	1
19	screw, hex ser washer 1/4-20 x 1/2	829704-050	2
20	screw, hex ser washer 5/16-18 x 3/4	829705-075	1
21	locknut, conduit 1/2	847200-050	1
22	elbow, pipe-90m 3/4 x 1/2	860512-050	1
23	elbow, pipe 90 deg plt 1/2”	866215-020	1
24	elbow, pipe 90 deg plt 3/4”	866215-030	2
25	nipple, pipe-xs plt 1/2 x cl	866408-000	1
26	plug, pipe 1/4” 3000# stl plt	866900-010	1
27	nipple, pipe-hx pltd 1/2 x 1/2	868508-050	1
28	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	2
29	reducer, str thrd viton 1 1/4 x 3/4	870020-012	2

(I) For maintenance on fluid filter no. 02250136-535, order replacement element no. 250025-525.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.11 COOLING AND LUBRICATION SYSTEM- COOLERS (WATER-COOLED)



02250140-885R01

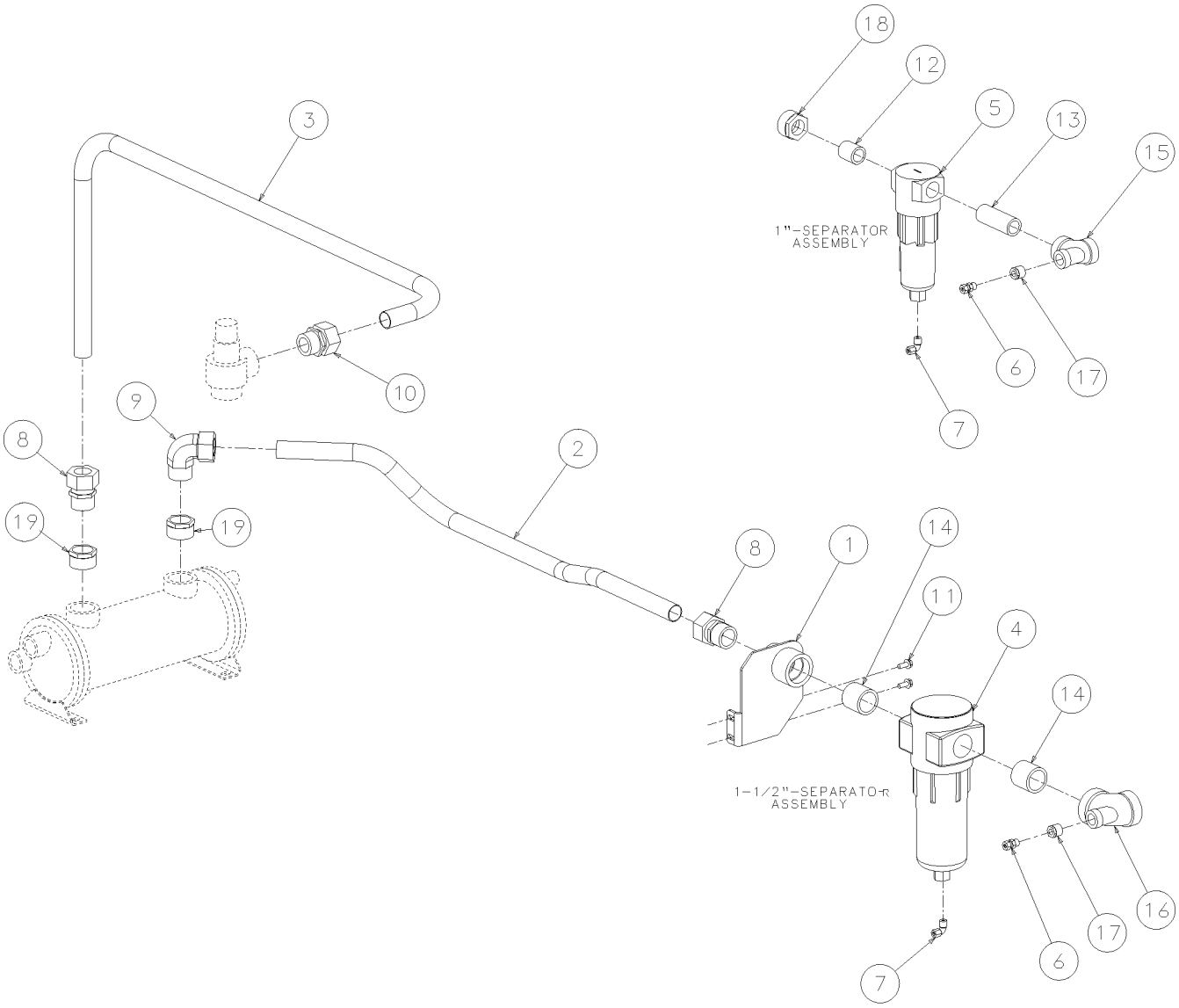
8.11 COOLING AND LUBRICATION SYSTEM- COOLERS (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	cooler, heat exchanger	02250110-238	1
2	cover, assy motor shaft tefc	02250110-925	1
3	support, oil cooler ls10 w/c	02250141-143	1
4	support, bracket shaft cover odp ls10wclf	02250141-634	1
5	clamp,exhaust 3-1/2”	040284	2
6	clamp, exhaust 4-1/2”	041983	2
7	aftercooler, heat exchanger 3 x 24	043096	1
8	nut, hex f pltd 5/16-18	825305-283	6
9	screw, hex ser washer 5/16-18 x 3/4	829705-075	6

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.12 AIR PIPING- 40HP/ 33KW WATER-COOLED



NOTE:

1) SEPARATOR ASSEMBLY AND PART NUMBERS VARY BY MODEL. SEE BOM FOR DETAILS.

02250142-176R02

8.12 AIR PIPING- 40HP/ 33KW WATER-COOLED

key number	*description*	*part number*	*quantity*
1	support, water sep ls10	02250141-448	1
2	tube, cooler to moist sep ls10-40 w/c	02250141-517	1
3	tube, mpv to crl w/c ls10-40	02250141-670	1
4	separator, water d-h 1-1/2” fnpt 1/4” drn **(I)**	02250144-635	1
5	separator, water d-h 1” npt 1/4”drn **(II)**	02250144-636	1
6	connector,1/4”tube x 1/4”npt	250018-428	2
7	elbow, 1/4” tube x 1/4” npt	250018-430	2
8	connector, tube-m 1 1/4 x 1 1/4	810220-125	2
9	elbow, tube 90 deg m 1 1/4 x 1 1/4	810520-125	1
10	connector, tube str thd 1 1/4 x 1 5/8	811820-163	1
11	screw, hex ser washer 5/16-18 x 3/4	829705-075	2
12	nipple, pipe-xs plt 1 x cl	866416-000	1
13	nipple, pipe-xs plt 1 x 3 1/2	866416-035	1
14	nipple, pipe-xs plt 1 1/2 x cl	866424-000	2
15	tee, reducing pltd 1 x 1/2 x 1	867504-024	1
16	tee, reducing pltd 1 1/2 x 1/2 x 1 1/2	867506-026	1
17	bushing, red hex pltd 1/2 x 1/4	868902-010	2
18	bushing, red hex pltd 1 1/2 x 1	868906-040	1
19	bushing, red hex pltd 1 1/2 x 1 1/4	868906-050	2

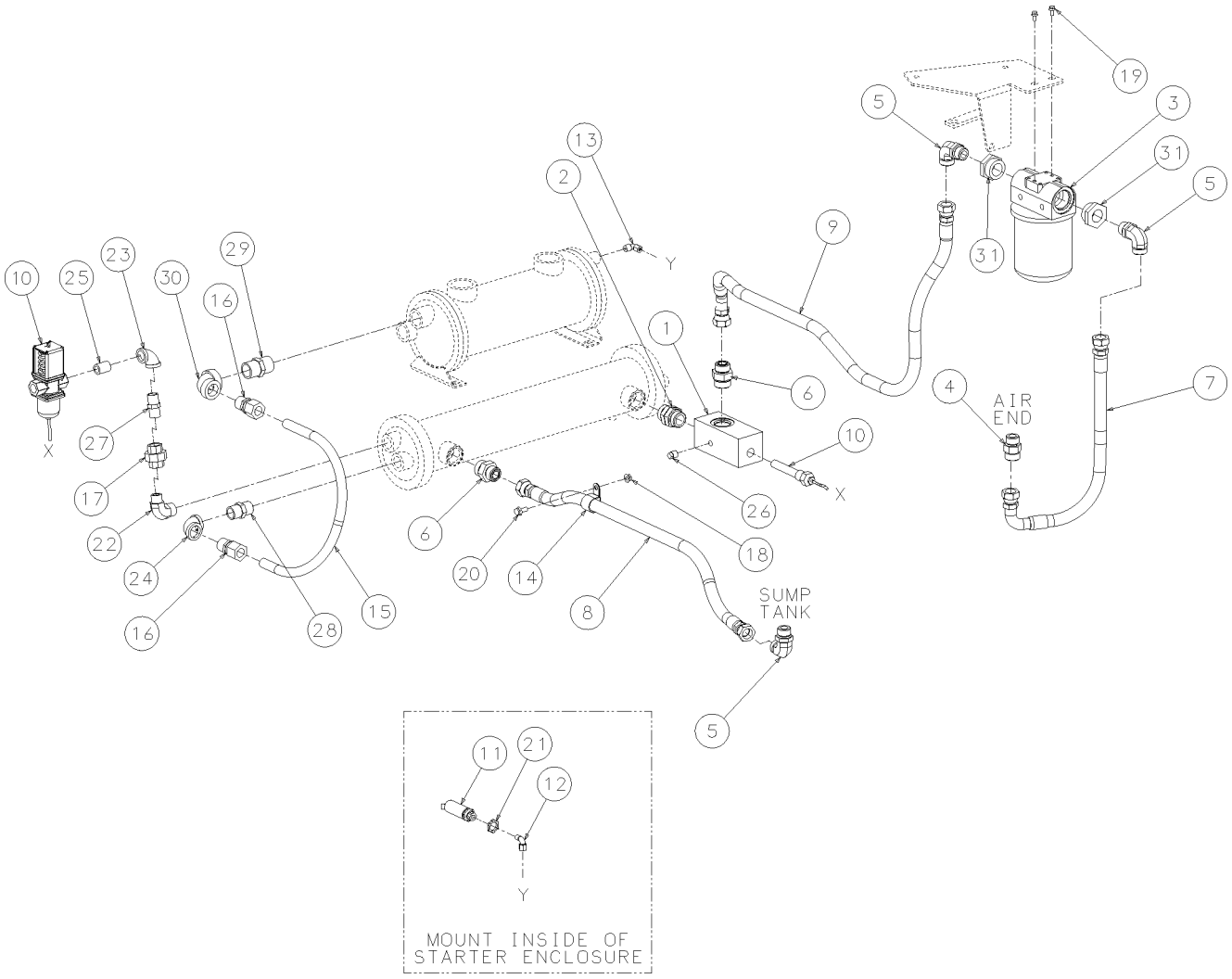
(I) For maintenance on water separator no. 02250144-635, order repair kit no. 02250144-735.

(II) For maintenance on water separator no. 02250144-636, order repair kit no. 02250144-736.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.13 WATER PIPING- 40HP/ 30KW WATER-COOLED



02250142-174R02

8.13 WATER PIPING- 40HP/ 30KW WATER-COOLED

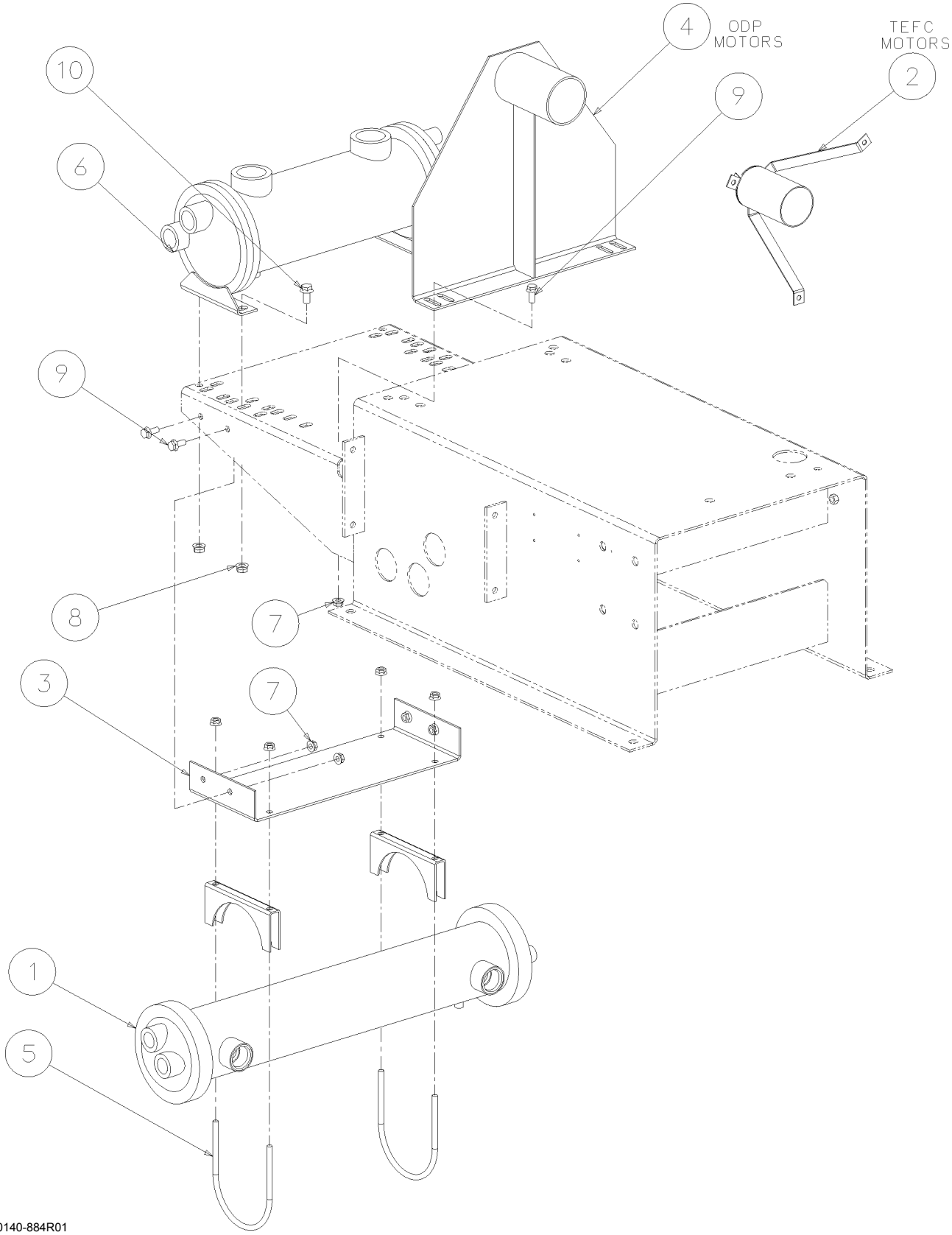
key number	*description*	*part number*	*quantity*
1	tee, sae/npt oil return	02250085-979	1
2	adapter, sae 1 5/16 x 1 5/16-12	02250086-022	1
3	filter, fluid 1 5/8 sae str thrd co **(I)**	02250136-535	1
4	connector, sae x orfs 0.75”	02250099-765	1
5	elbow, 90 sae x orfs .75”	02250099-766	3
6	connector,sae x orfs .75”	02250135-568	2
7	hose, medium pressure orfs 1”x 18”	02250141-106	1
8	hose, medium pressure orfs 1” x 36”	02250141-407	1
9	hose, medium pressure orfs 1”x 47	02250141-408	1
10	valve, water regulator 1/2”	041265	1
11	switch, pressure n.o. 10 psi	250017-992	1
12	elbow, 90 1/4”tube x 1/8”npt	250018-429	1
13	elbow, 1/4” tube x 1/4” npt	250018-430	1
14	clamp, tubing 1-1/8” dia	250025-636	1
15	tubing, nylon 3/4”	250039-353	1
16	connector, male plastic tubing 3/4x3/4	250039-357	2
17	union, pipe galv 1/2	802315-020	1
18	nut, hex f pltd 5/16-18	825305-283	1
19	screw, hex ser washer 1/4-20 x 1/2	829704-050	2
20	screw, hex ser washer 5/16-18 x 3/4	829705-075	1
21	locknut, conduit 1/2	847200-050	1
22	elbow, pipe-90m 3/4 x 1/2	860512-050	1
23	elbow, pipe 90 deg plt 1/2”	866215-020	1
24	elbow, pipe 90 deg plt 3/4”	866215-030	1
25	nipple, pipe-xs plt 1/2 x cl	866408-000	1
26	plug, pipe 1/4” 3000# stl plt	866900-010	1
27	nipple, pipe-hx pltd 1/2 x 1/2	868508-050	1
28	nipple, pipe-hx pltd 3/4 x 3/4	868512-075	1
29	nipple, pipe-hx pltd 1 x 1	868516-100	1
30	elbow, red 1 x 3/4 150# plt	869204-030	1
31	reducer, str thrd viton 1 1/4 x 3/4	870020-012	2

(I) For maintenance on fluid filter no. 02250136-535, order replacement element no. 250025-525.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.14 COOLING AND LUBRICATION SYSTEM- 40HP/ 30KW COOLERS (WATER-COOLED)



02250140-884R01

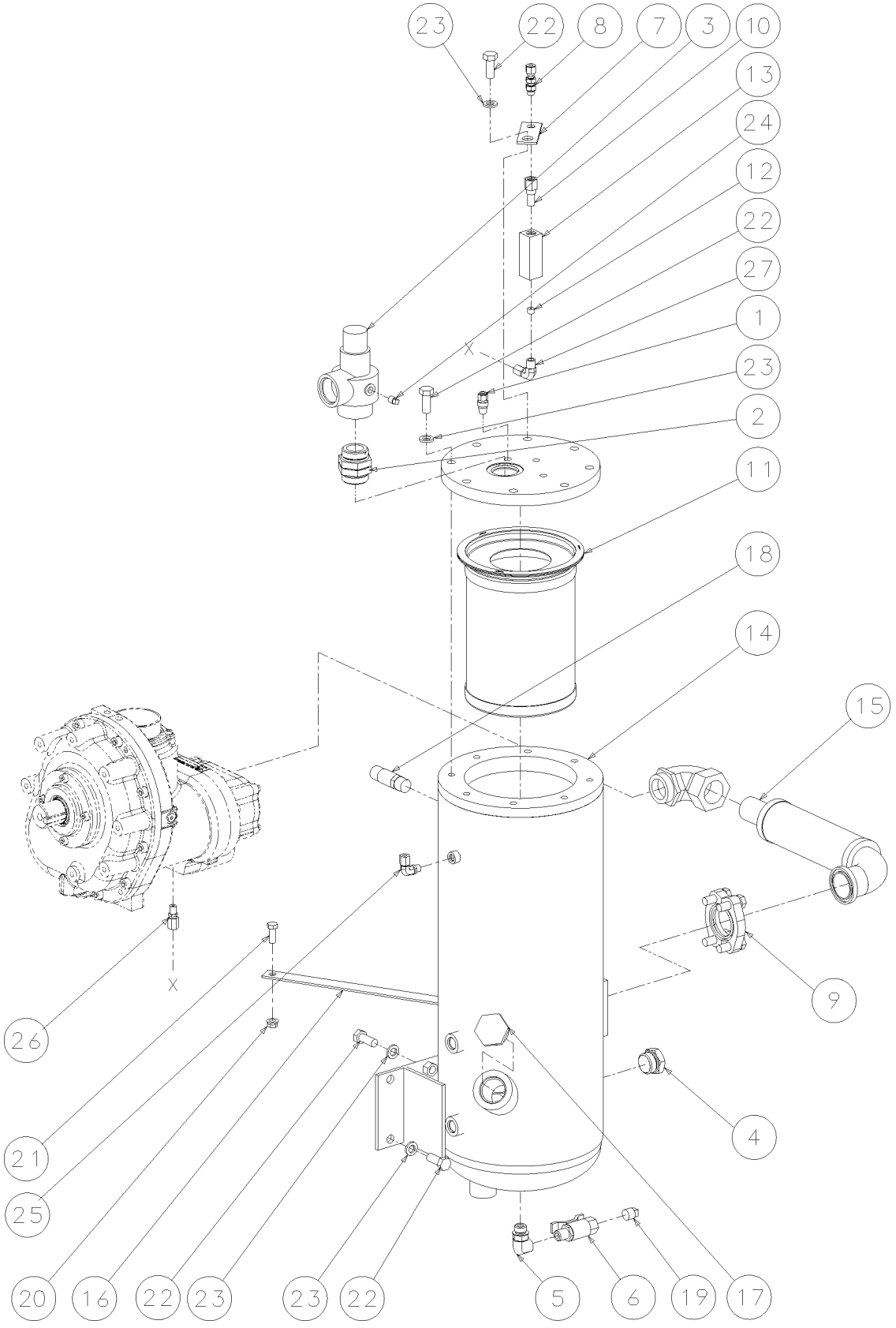
8.14 COOLING AND LUBRICATION SYSTEM- 40HP/ 30KW COOLERS (WATER-COOLED)

key number	*description*	*part number*	*quantity*
1	cooler, heat exchanger	02250110-238	1
2	cover, assy motor shaft tefc	02250110-925	1
3	support, oil cooler LS10 w/c	02250141-143	1
4	support, bracket shaft cover odp LS10wclf	02250141-634	1
5	clamp, exhaust 4-1/2”	041983	2
6	cooler, aftrclr 1-1/2”-npt	043062	1
7	nut, hex f pltd 5/16-18	825305-283	10
8	nut, hex f pltd 3/8-16	825306-347	4
9	screw, hex ser washer 5/16-18 x 3/4	829705-075	6
10	screw, hex ser washer 3/8-16 x 3/4	829706-075	4

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.15 DISCHARGE SYSTEM



02250139-263R03

8.15 DISCHARGE SYSTEM

key number	*description*	*part number*	*quantity*
1	connector, flex 1/4t x 1/4p	020169	1
2	adapter, sae 1 5/8-12 x 1 5/8-12	02250055-015	1
3	valve, min pressure check 1 5/8”sae - **(I)**	02250097-609	1
4	plug, sight glass 1 5/16” sae	02250097-610	1
5	elbow, 90 deg 3/4 sae x 3/8 nptf	02250100-093	1
6	valve, ball 3/8 m x 3/8 f nptf	02250100-094	1
7	support, bracket oil return ls12/16	02250101-192	1
8	connector, tube male bhd 1/4 x sae	02250101-490	1
9	flange, kit sae splt 1.5” - viton	02250103-536	1
10	filter, assembly genisis filter **(II)**	02250117-782	1
11	element, sep/pri formed **(III)**	02250121-500	1
12	orifice, plug brass 1/8”npt x 1/32”	02250125-774	1
13	sightglass, orf block sae	02250126-129	1
14	tank, separator ls10 leak-free	02250139-253	1
15	joint, expansion ls10 std	02250140-482	1
16	support, tank brace ls10	02250143-011	1
17	plug, o-ring boss sae 1 1/4	040029	1
18	valve, pressure relief 200 psig	250006-938	1
19	plug, pipe 3/8” 3000# stl	807800-015	1
20	nut, hex f pltd 3/8-16	825306-347	2
21	capscr, hex gr8 3/8-16 x 1	827906-100	2
22	capscr, hex gr5 1/2-13 x 1 1/4	829108-125	12
23	washer, spr lock reg pltd 1/2	837808-125	12
24	plug, pipe 1/8” 3000# stl plt	866900-005	1
25	elbow, tb-m str thd ss 1/4 x 7/16	870804-044	1
26	connector, tube-m 1/4 x 1/8 ss	876804-012	1
27	elbow, tube 90 deg m 1/4 x 1/4 ss	877004-025	1

(I) For maintenance on minimum pressure check valve no. 02250097-609, order the following:

kit, repair for minimum pressure/check valve 02250097-609	**02250110-988**	**1**
kit, repair cap for minimum pressure/check valve 02250097-609	**02250046-397**	**1**
kit, repair o-ring for minimum pressure/check valve 02250097-609	**02250048-362**	**1**
kit, repair piston for minimum pressure/check valve 02250097-609	**02250051-338**	**1**

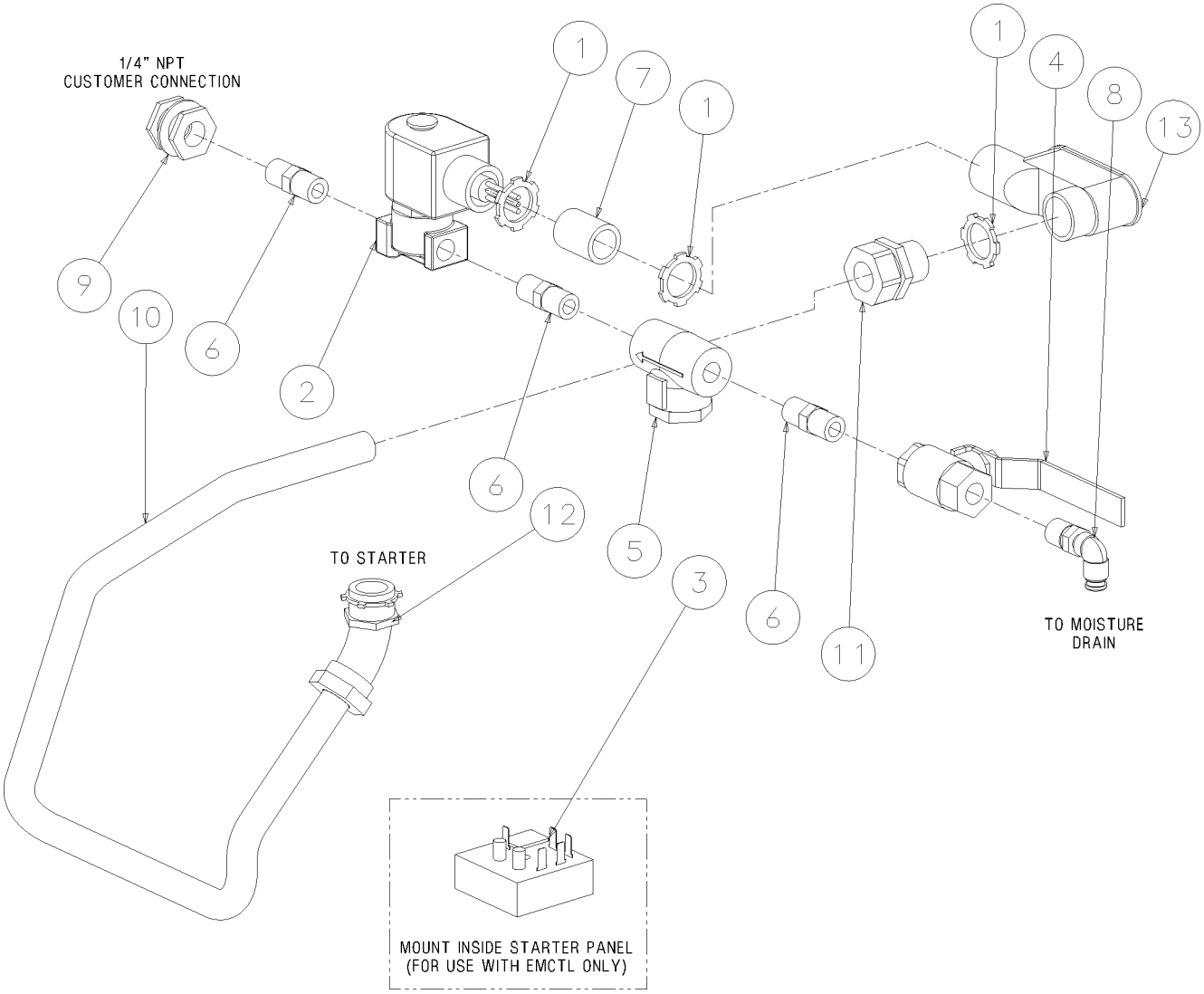
(II) For maintenance on genensis filter asembly, order replacement filter no. 02250117-782.

(III) For maintenance on separator element no. 02250121-500, order replacement element no. 02250137-895.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.16 ELECTRIC DRAIN ASSEMBLY



02250144-680R01

8.16 ELECTRIC DRAIN ASSEMBLY

key number	*description*	*part number*	*quantity*
1	locknut, n4 conduit sealing	02250071-362	3
2	valve, solenoid 2wnc mo 1/4 200# n4 **(I)**	02250124-674	1
3	timer, rep cyc 120vac	02250144-630	1
4	valve, ball 1/4” npt	047115	1
5	strainer, v-type 300psix1/4 **(II)**	241771	1
6	nipple, brass hex 1/4”-npt	249537	3
7	nipple, conduit 1/2 x 1.125”	250007-168	1
8	elbow, 90deg m swvl 1/4t x 1/4 npt	250025-850	1
9	bulkhead, pipe 1/4” npt	841500-004	1
10	conduit, cas flex 1/2”	846315-050	3
11	connector, straight lq-tite 1/2	846400-050	1
12	elbow, 45deg lq-tite 1/2	846500-050	1
13	elbow, entrance 1/2	847715-050	1

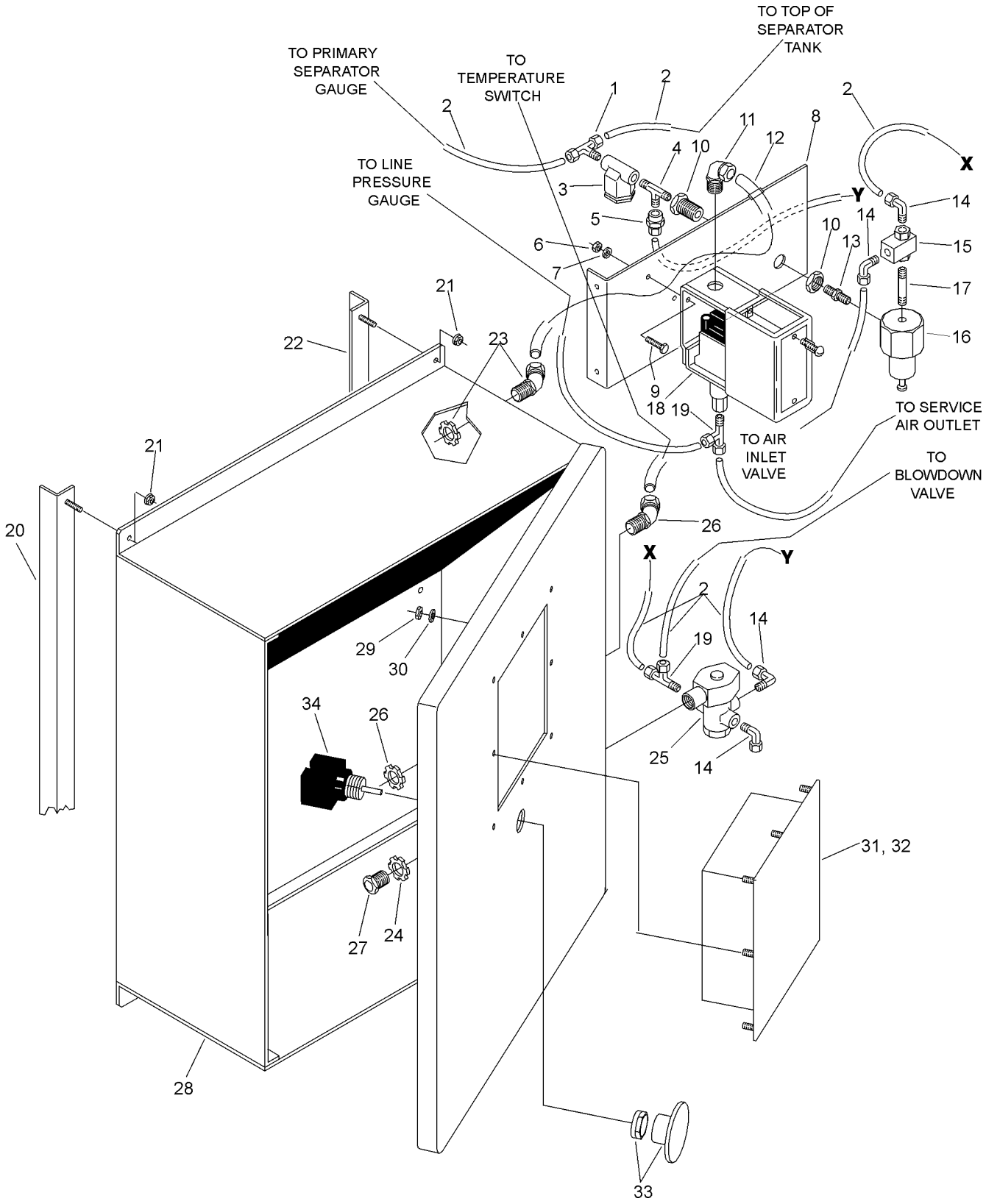
(I) For maintenance on solenoid valve no. 02250125-674, order repair kit no. 02250125-823, and replacement coil no. 02250125-861.

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

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.17 CONTROL SYSTEM AND ELECTRICAL PARTS



8.17 CONTROL SYSTEM AND ELECTRICAL PARTS

key number	*description*	*part number*	*quantity*
1	tee, tube 1/4" male branch	250028-582	1
2	tubing, nylon 1/4" black	0225054-861	-
3	strainer, v-type 300 psi x 1/4" npt **(I)**	241771	1
4	tee, pipe 1/4" male npt	869825-025	1
5	connector, 1/4" tube x 1/4" female npt	250041-084	1
6	nut, hex plated #10-24	825202-130	2
7	washer, springlock reg plated #10	837802-047	2
8	support, bracket pneumatic cntrls	02250104-420	1
9	screw, machine-round #10-24 x 1/2"	831602-050	2
10	bulkhead, pipe 1/4" npt	841500-025	1
11	elbow, 90º conduit 1/4	846600-050	1
12	conduit, csa flex 1/2"	846315-050	0.4 ft
13	nipple, ipe 1/4" hex	868504-025	1
14	elbow, 1/4" tube x 1/4" npt	250018-430	4
15	valve, shuttle 1/4" npt	408893	1
16	valve, pressure regulator **(II)**	250017-280	1
17	nipple, brass hex 1/4”	249537	1
18	switch, pressure (<= 140 psi/ 9.7 bar) (N12)	040694	1
	•switch, pressure (<= 140 psi/ 9.7 bar) (N4)	042570	1
	•switch, pressure (< 140 psi/ 9.7 bar) (N12)	407778	1
	•switch, pressure (< 140 psi/ 9.7 bar) (N4)	410108	1
19	tee, tube 1/4" male run	250038-059	2
20	support, bracket strtr box ls 10 lh	02250106-969	1
21	nut, hex flanged plated 5/16"-18	825305-283	4
22	support, bracket strtr box ls 10 rh	02250104-194	1
23	elbow, 45º conduit 1/2"	846500-050	1
24	locknut, conduit seal N4 1/2"	02250071-362	1
25	valve, solenoid 1/4" 3-way (<= 140 psi/ 9.7 bar) **(III)**	02250125-657	1
26	elbow, 45º conduit1/2"	846500-050	1

(Continued on page 87)

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

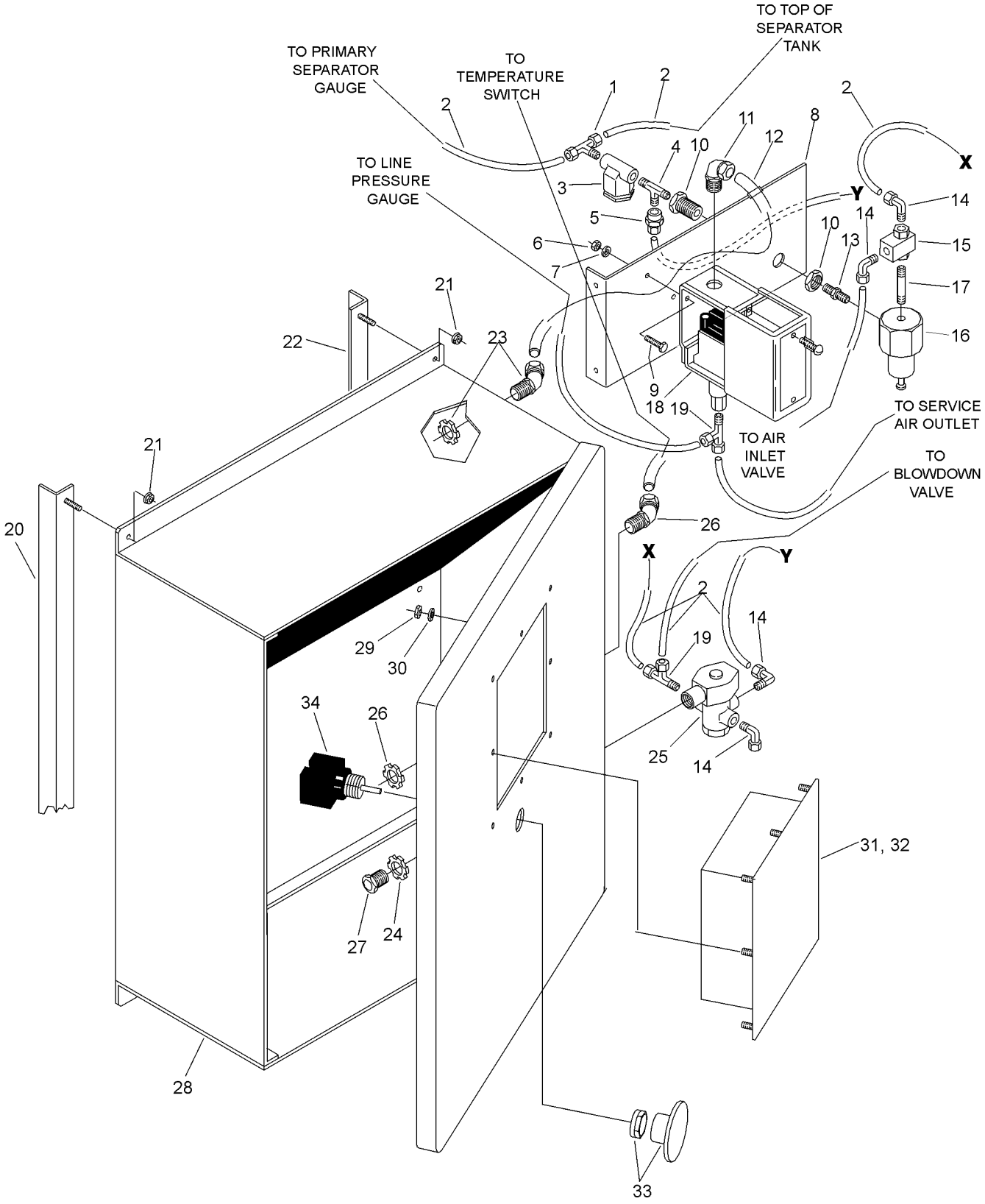
(II) For maintenance on pressure regulator valve no. 250017-280, order repair kit no. 250019-453.

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

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.17 CONTROL SYSTEM AND ELECTRICAL PARTS



8.17 CONTROL SYSTEM AND ELECTRICAL PARTS (CONTINUED)

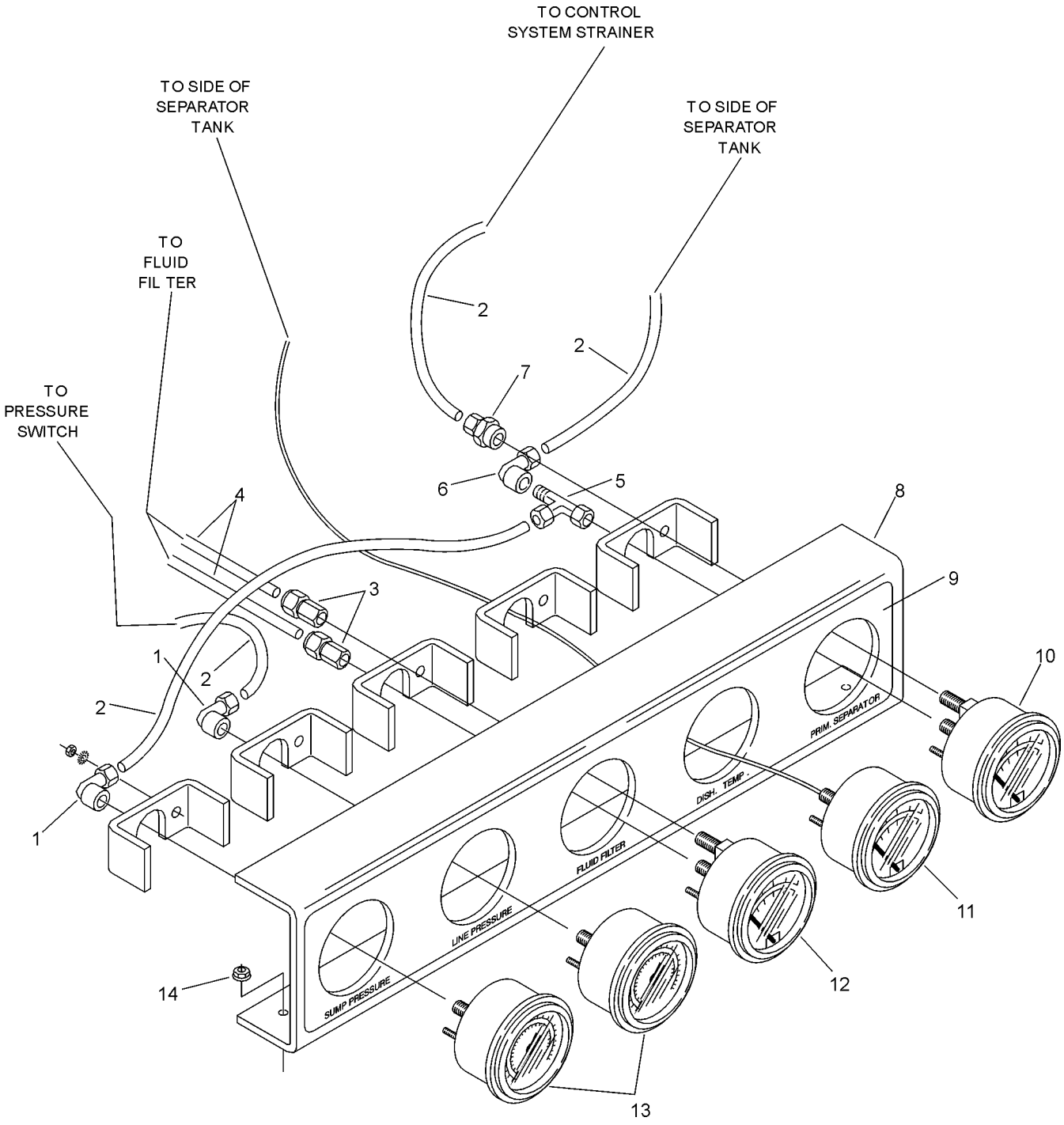
key number	*description*	*part number*	*quantity*
27	nipple, chase 1/2"	847815-050	1
28	box, electrical strt LS10	consult factory	1
30	washer, springlock m4	838804-090	8
31	gasket, panel Supervisor II	02250048-822	1
32	controller, electro-mechanical	02250106-694	1
	•controller, Supervisor II dlx **(IV)**	02250083-801	1
33	switch, emergency shut-off	02250085-504	1

(IV) For repair on Supervisor controller no. 02250083-301, order replacement kit no. 02250106-360.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.18 INSTRUMENT PANEL



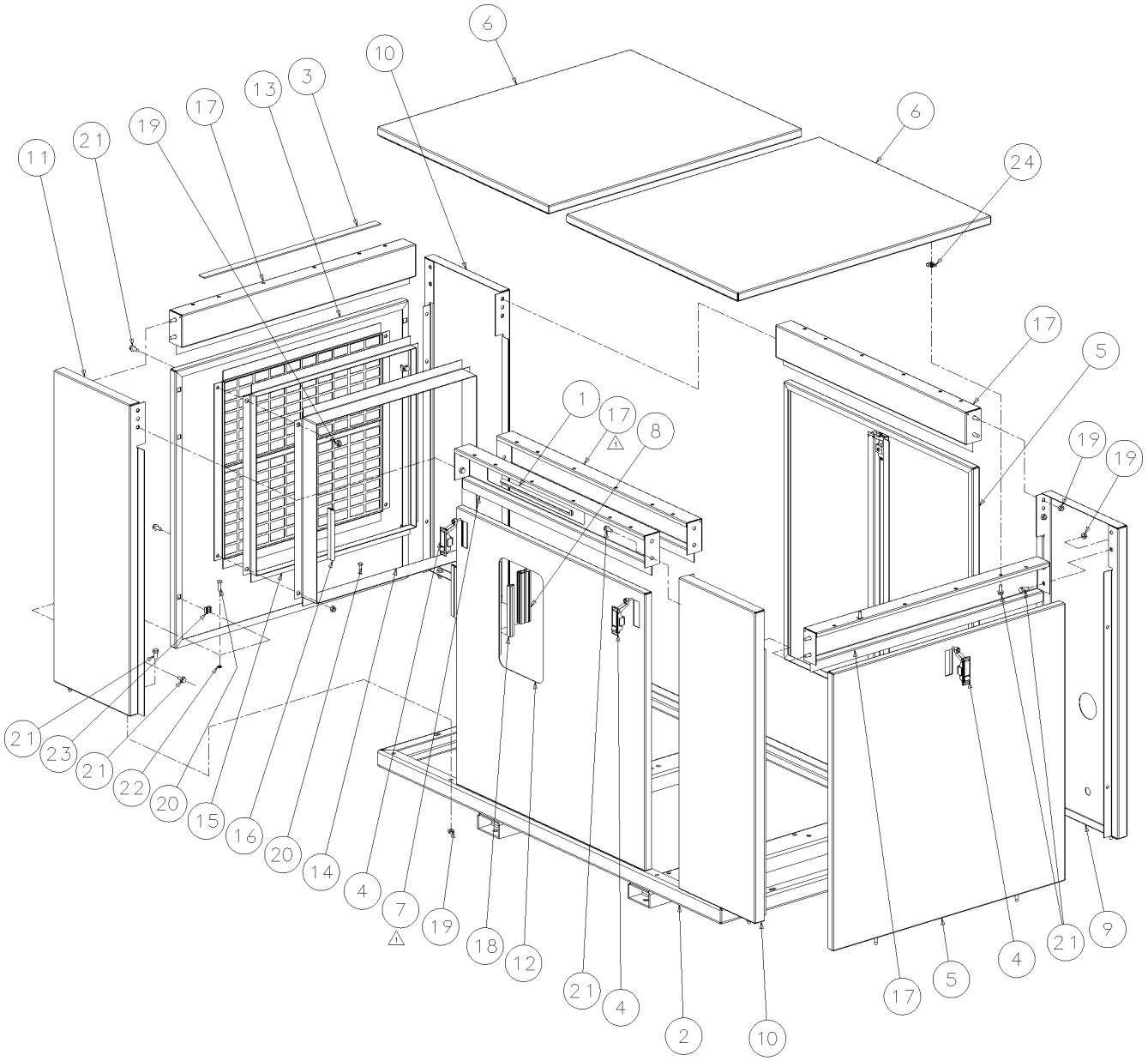
8.18 INSTRUMENT PANEL

key number	*description*	*part number*	*quantity*
1	elbow, 90º 1/4"t x 1/8" female npt	250041-286	2
2	tubing, nylon 1/4" black	02250054-861	-
3	connector, tube-f 1/4"t x 1/8"p stainless steel	250139-050	2
4	tubing, stainless steel 1/4" 20ga	841215-004	-
5	tee, adaptor 1/4"t x 1/8"m x 1/8"f	869704-012	1
6	elbow, tube-f 1/4"t x 1/8"p stainless steel	250211-030	1
7	connector, female 1/4"t x 1/8"npt	250021-379	1
8	panel, mounting gauge e/mdc	02250104-355	1
9	decal, instrument panel 10 series universal	02250060-034	1
10	gauge, differential pressure 0-30psi	250003-799	1
11	gauge, temperature 100º-250ºF-3/4" SAE	02250100-096	1
12	gauge, differential pressure 0-15psi	250003-798	1
13	gauge, pressure 2" dia 0-230#	250005-185	2
14	nut, hex flanged plated 5/16"-18	825305-283	2

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.19 ENCLOSURE- 25-30HP/ 18-22KW AIR-COOLED (ODP)



NOTE: ⚠1 FOR SUPERVISOR OPERATION,USE (4) 224585.
FOR E/M OPERATION,USE (1) 02250104-191
AND (3) 224585.

02250142-076R04

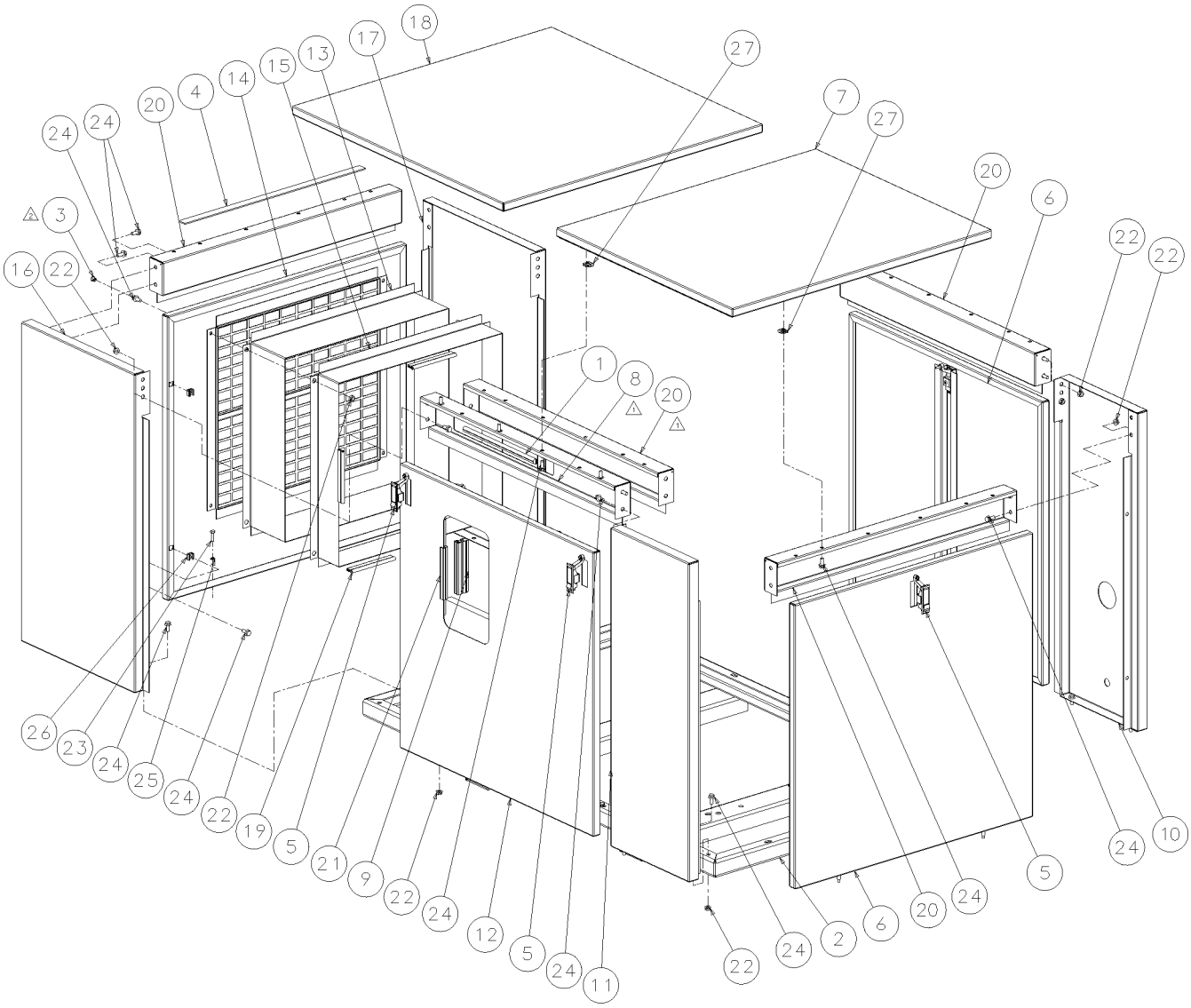
8.19 ENCLOSURE- 25-30HP/ 18-22KW AIR-COOLED (ODP)

key number	*description*	*part number*	*quantity*
1	seal, door extruded sponge	013978	4 ft.
2	frame, enclosure assy.	014790	1
3	strip, weather 1” x 1/8” foam	02250058-345	55 ft.
4	lch. adj. trigger-lock blk es	02250094-632	4
5	panel, access door 33” x 33”	02250100-067	2
6	panel, assembly roof 36” x 30” 10ser	02250103-206	2
7	panel, instrument e/m ls-10 l.f. canopy	02250104-191	1
8	seal, dust ls100 encl	02250105-900	4
9	panel, encl right rear ls10	02250141-499	1
10	panel, enclosure-rh w/insulation	02250141-734	2
11	panel, enclosure - lh w/insulation	02250141-735	1
12	panel, access ls10lf e/m siidlx w/insulat	02250141-737	1
13	panel, enclosure ls10ac cooler end	02250141-767	1
14	shroud, clr cnpy ls10-25hp odp	02250143-886	1
15	shroud, clr cnpy ls10-30hp odp	02250144-098	1
16	gasket, trim - canopy shrd edge ls10	02250144-124	8
17	panel, enclosure center sect.	224585	4
18	trim, canopy edge 7.5/10hp	250034-157	4
19	nut, hex f pltd 5/16-18	825305-283	28
20	capscr, hex gr5 1/4-20 x 1	829104-100	2
21	screw, hex ser washer 5/16-18 x 3/4	829705-075	44
22	washer, spr lock reg pltd 1/4	837804-062	2
23	nut, retainer 5/16-18 .092	861405-092	4
24	nut, retainer u 5/16-18 .140	861505-140	12

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.20 ENCLOSURE- 25-30HP/ 18-22KW (TEFC); 40HP/ 30KW (ODP and TEFC) AIR-COOLED



NOTE: ⚠1 FOR SUPERVISOR OPERATION,USE (4) 224585.
FOR E/M OPERATION,USE (1) 02250104-191
AND (3) 224585.

⚠2 PART NUMBER 02250047-198 USED WITH 40HP TEFC
APPLICATION ONLY.

02250142-092R03

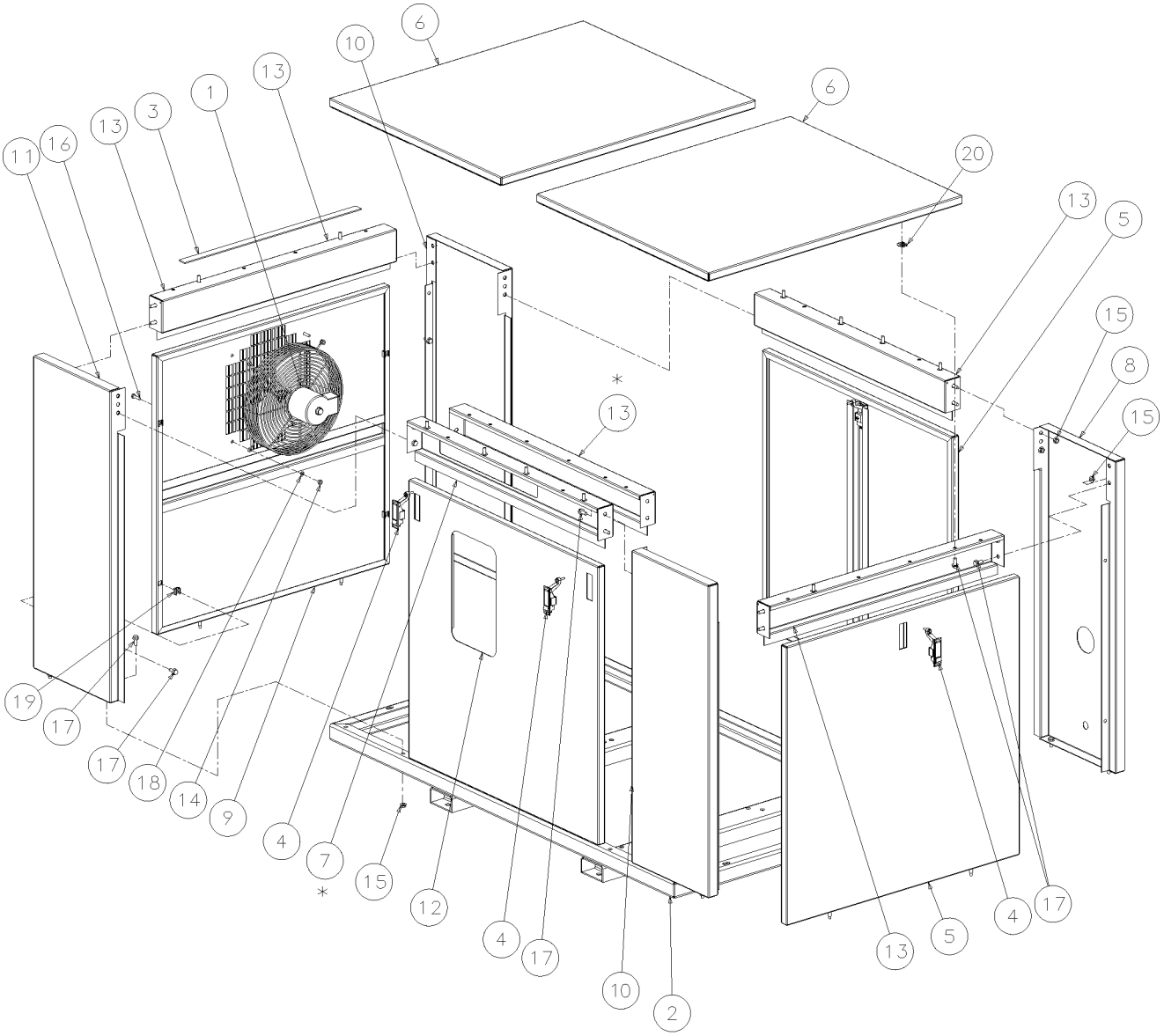
8.20 ENCLOSURE- 25-30HP/ 18-22KW (TEFC); 40HP/ 30KW (ODP and TEFC) AIR-COOLED

key number	*description*	*part number*	*quantity*
1	seal, door extruded sponge	013978	4 ft.
2	frame, enclosure assy.	014790	1
3	plug, plastic .437”dia.black	02250047-198	4
4	strip, weather 1” x 1/8” foam	02250058-345	55 ft.
5	lch. adj. trigger-lock blk es	02250094-632	4
6	panel, access door 33” x 33”	02250100-067	2
7	panel, assembly roof 36” x 30” 10ser	02250103-206	1
8	panel, instrument e/m ls-10 l.f. canopy	02250104-191	1
9	seal, dust ls100 encl	02250105-900	4
10	panel, encl right rear ls10	02250141-499	1
11	panel, enclosure-rh w/insulation	02250141-734	1
12	panel, access ls10lf e/m siidlx w/insulat	02250141-737	1
13	shroud, clr cnpy ls10 - 40hp odp	02250141-764	1
14	panel, enclosure ls10ac cooler end	02250141-767	1
15	shroud, clr cnpy ls10-25/30hp te	02250141-985	1
16	panel, enclosure left front ls10-40hp	02250142-994	1
17	panel, enclosure left front ls10-40hp	02250142-995	1
18	panel, roof 36 x 37.25 ls10-40hp	02250142-996	1
19	gasket, trim - canopy shrd edge ls10	02250144-124	8
20	panel, enclosure center sect.	224585	4
21	trim, canopy edge 7.5/10hp	250034-157	4
22	nut, hex f pltd 5/16-18	825305-283	28
23	capscr, hex gr5 1/4-20 x 1	829104-100	2
24	screw, hex ser washer 5/16-18 x 3/4	829705-075	44
25	washer, spr lock reg pltd 1/4	837804-062	2
26	nut, retainer 5/16-18 .092	861405-092	4
27	nut, retainer u 5/16-18 .140	861505-140	12

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.21 ENCLOSURE- WATER-COOLED



NOTE:
* FOR S2 OPERATION,224585 QTY WILL BE (4).
FOR EM OPERATION,USE (1) 02250104-191
AND (3) 224585.

02250139-357R02

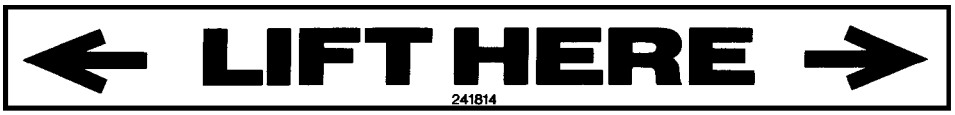
8.21 ENCLOSURE- WATER-COOLED

key number	*description*	*part number*	*quantity*
1	fan, enclosure 10s wc	-	1
2	frame, enclosure assy.	014790	1
3	strip, weather 1” x 1/8” foam	02250058-345	55 ft.
4	lch. adj. trigger-lock blk es	02250094-632	4
5	panel, access door 33” x 33”	02250100-067	2
6	panel, assembly roof 36” x 30” 10ser	02250103-206	2
7	panel, instrument e/m ls-10 l.f. canopy	02250104-191	1
8	panel, encl right rear ls10	02250141-499	1
9	panel, access end 10-25/30/40hpwc w/insul	02250141-732	1
10	panel, enclosure-rh w/insulation	02250141-734	2
11	panel, enclosure - lh w/insulation	02250141-735	1
12	panel, access ls10lf e/m siidlx w/insulat	02250141-737	1
13	panel, enclosure center sect.	224585	4
14	nut, hex pltd 1/4-20	825204-226	4
15	nut, hex f pltd 5/16-18	825305-283	24
16	capscr, hex gr5 1/4-20 x 1	829104-100	6
17	screw, hex ser washer 5/16-18 x 3/4	829705-075	40
18	washer, spr lock reg pltd 1/4	837804-062	6
19	nut, retainer 5/16-18 .092	861405-092	4
20	nut, retainer u 5/16-18 .140	861505-140	12

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.22 DECAL GROUP



2

1

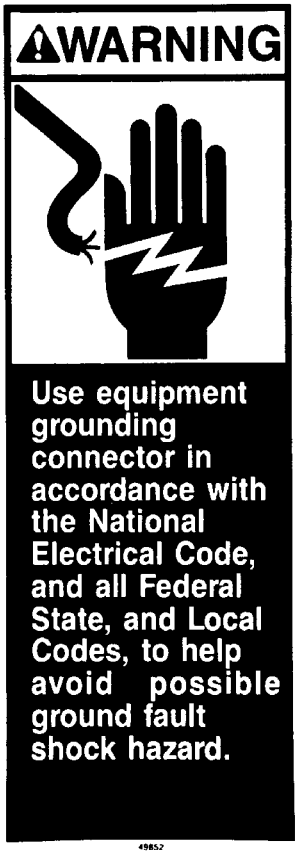
3

250038-457

1 CR	1 TR	LINE PRESS	INLET
2 CR	2 TR	DISCH PRESS	T1
3 CR	3 TR	WATER PRESS	T2
4 CR	4 TR	SEPARATOR	T3
5 CR	1 M	SPIRAL VALVE	T4
6 CR	2 M	INLET VALVE	T5
1 FU	3 M	CIS VALVE	T6
2 FU	4 M	OIL PRESS	T3
3 FU	HCR	OIL FILTER	T4

4

9



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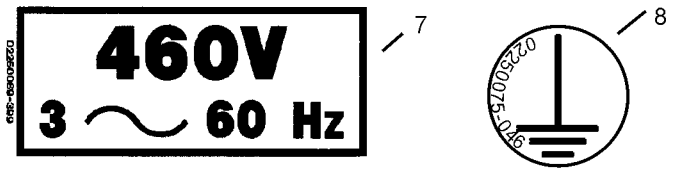

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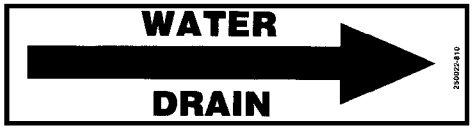

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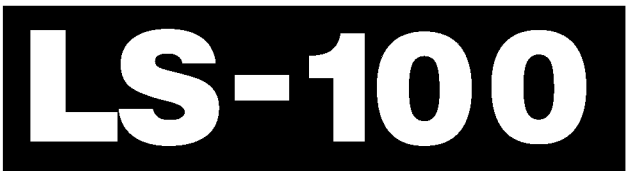


8.22 DECAL GROUP

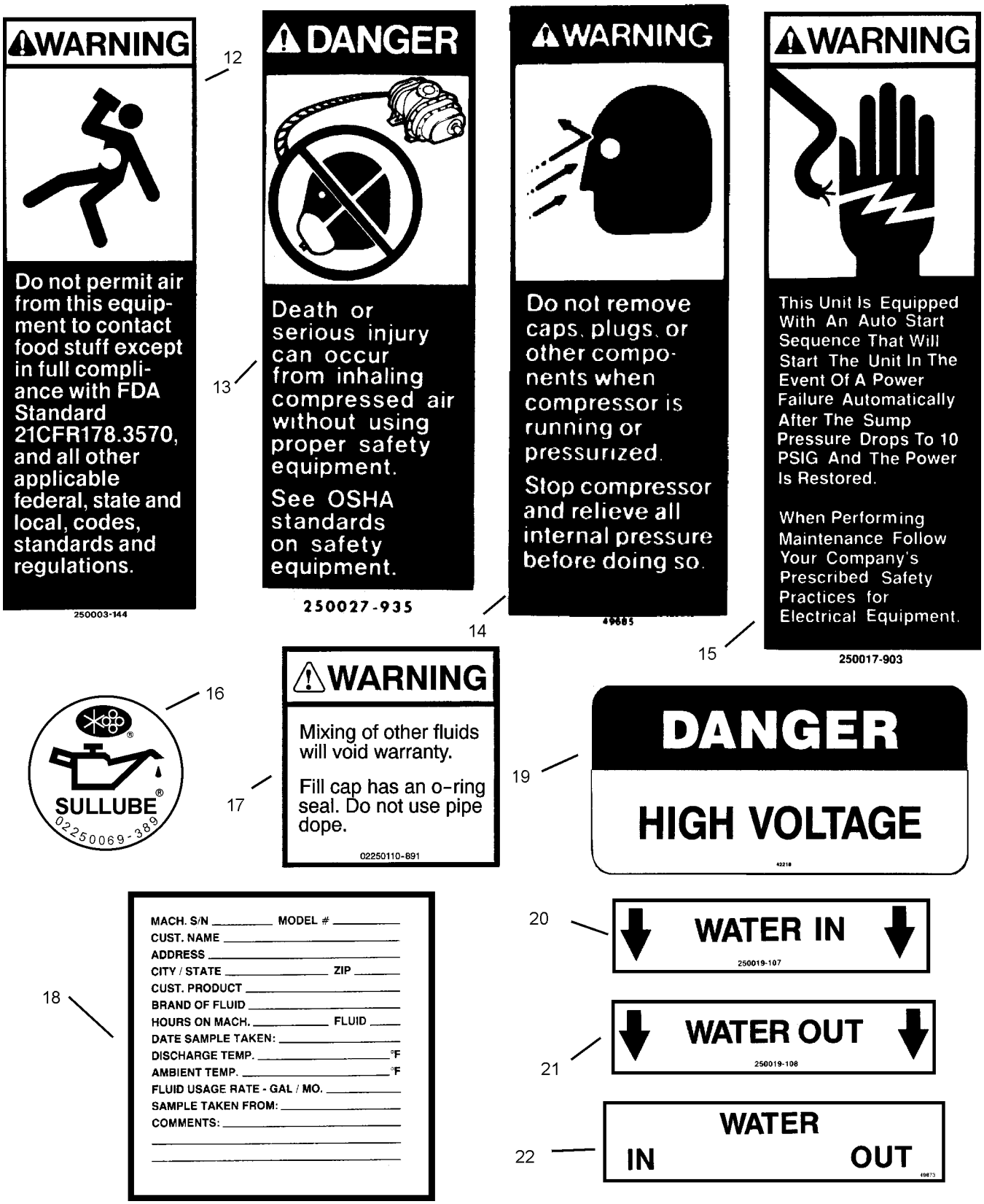
key number	*description*	*part number*	*quantity*
1	decal, fork lifting	241814	4
2	decal, electrical component	250038-457	1
3	sign, warning sever fan	049855	2
4	sign, warning sever fan port	049965	1
5	sign, danger electrocution	049850	1
6	decal, warning auto start	041065	1
7	decal, 460 voltage international **(I)**	02250069-399	1
8	decal, earth ground	02250075-046	1
	•decal, protective earth ground (not shown)	02250075-045	1
	•decal, PE designation (not shown)	02250075-540	1
9	decal, warning ground fault	049852	1
10	decal, water drain	250022-810	1
11	decal, LS-100	02250144-223	1

(Continued on page 99)

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.22 DECAL GROUP



8.22 DECAL GROUP (CONTINUED)

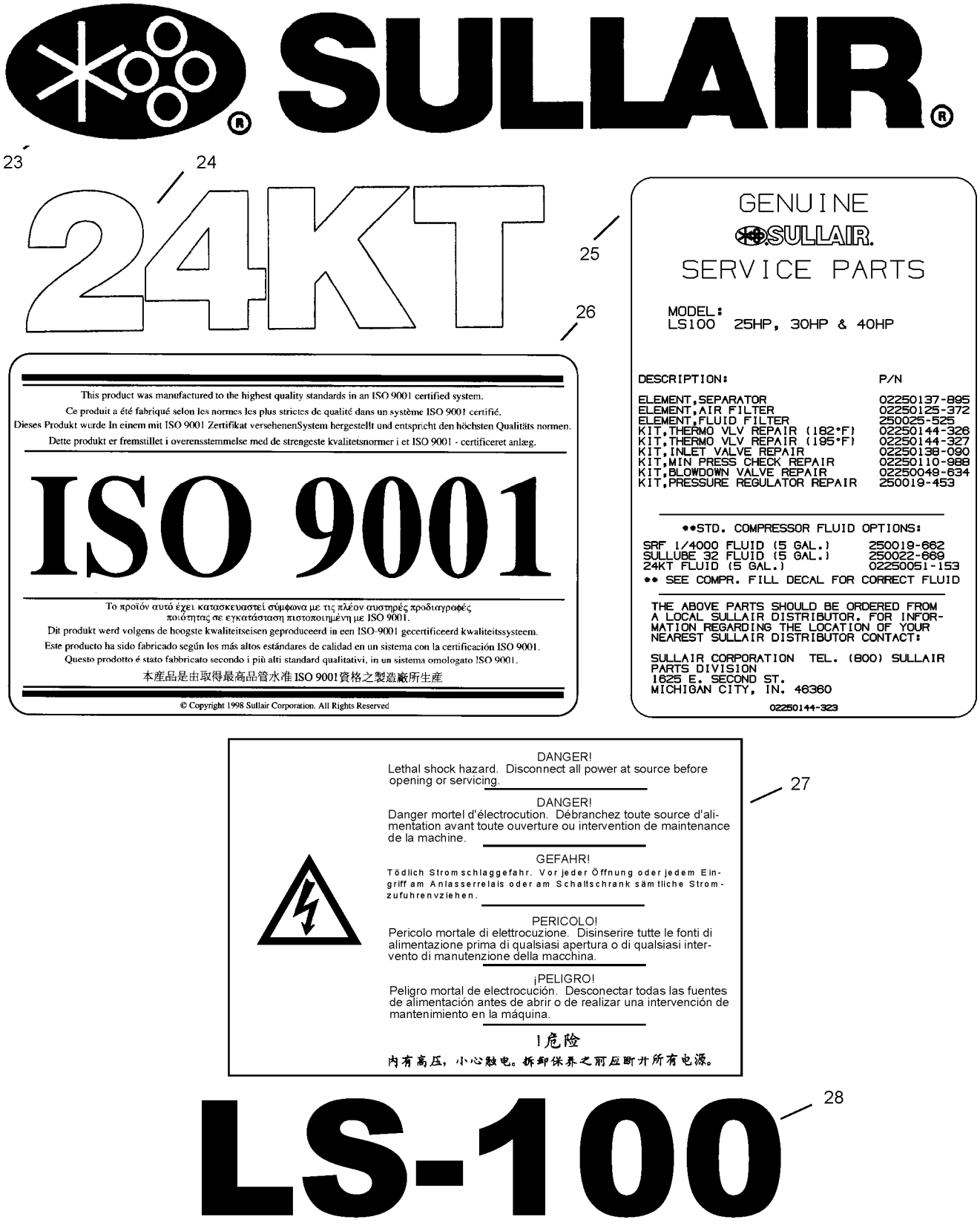
key number	*description*	*part number*	*quantity*
12	sign, warning "food grade" lube	250003-144	1
13	sign, danger air breathing	250027-935	1
14	sign, warning compressor fluid fill cap	049685	1
15	decal, warning auto start	250017-903	1
16	decal, fluid Sullube	02250069-389	1
	•decal, fluid 24KT (not shown)	02250069-395	1
	•decal, fluid SRF 1/4000 (not shown)	02250069-391	1
17	decal, warning mixing fluids	02250110-891	1
18	decal, fluid sample	250022-675	1
19	decal, danger high voltage	042218	1
20	decal, "water in"	250019-107	1
21	decal, "water out"	250019-108	1
22	decal, water inlet/outlet	049873	1

(Continued on page 101)

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.22 DECAL GROUP



8.22 DECAL GROUP (CONTINUED)

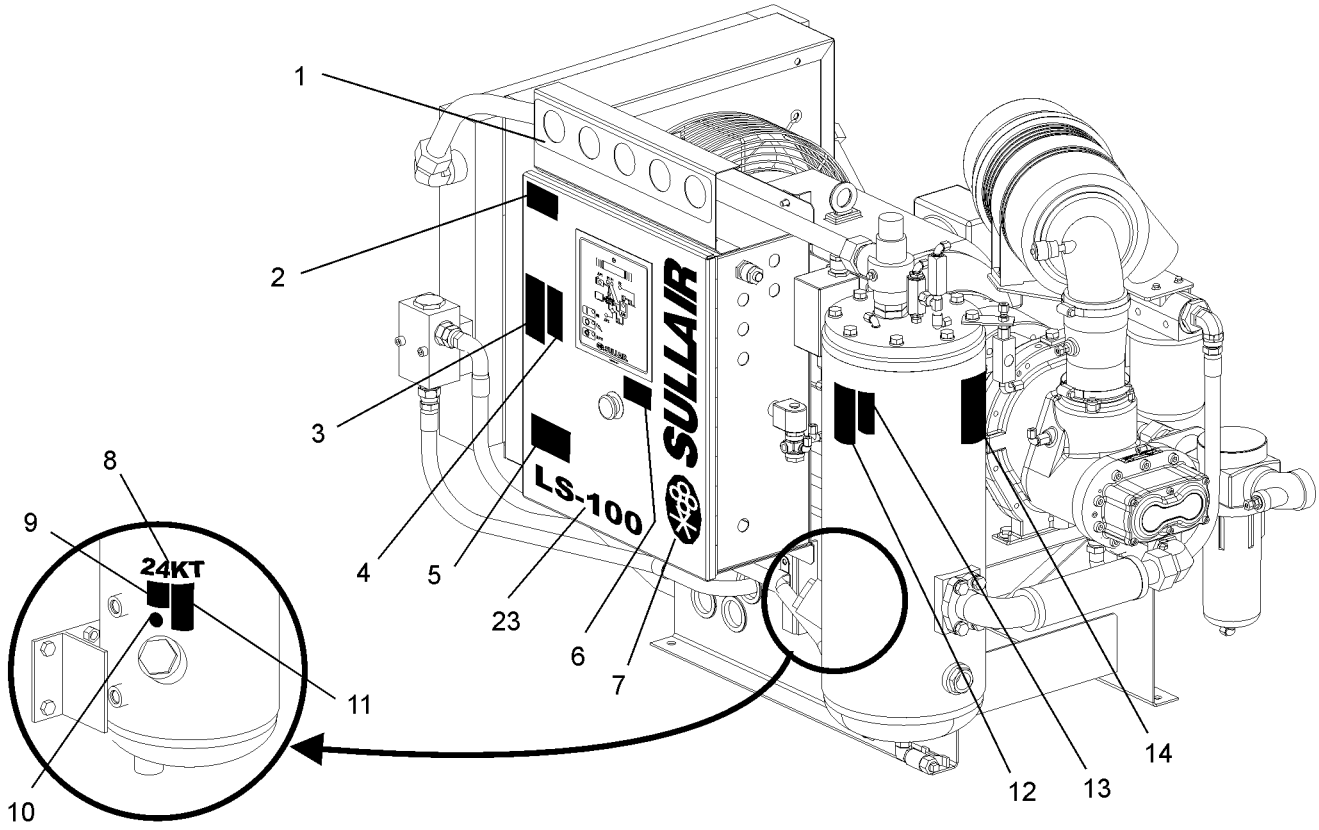
key number	*description*	*part number*	*quantity*
23	decal, Sullair	02250059-054	2
24	decal, 24 KT	02250061-016	1
25	decal, maintenance kit LS-100	02250144-323	1
26	decal, ISO 9001	02250057-624	1
27	decal, electrocution hazard international	02250077-472	1
28	decal, LS-100 2.5" high	02250144-228	1
29	plate, rotation arrow (not shown)	02250057-737	1
30	decal, instrument pnl universal (not shown)	02250051-301	1
31	decal, instument pnl universal	02250051-303	1
32	decal, instrument pnl universal-dual cntrl (not shown)	02250059-410	1
33	decal, instrument pnl 10 Series universal **(I)**	02250060-034	1
34	label, Supervisor II info univ dlx (not shown)	02250071-152	1

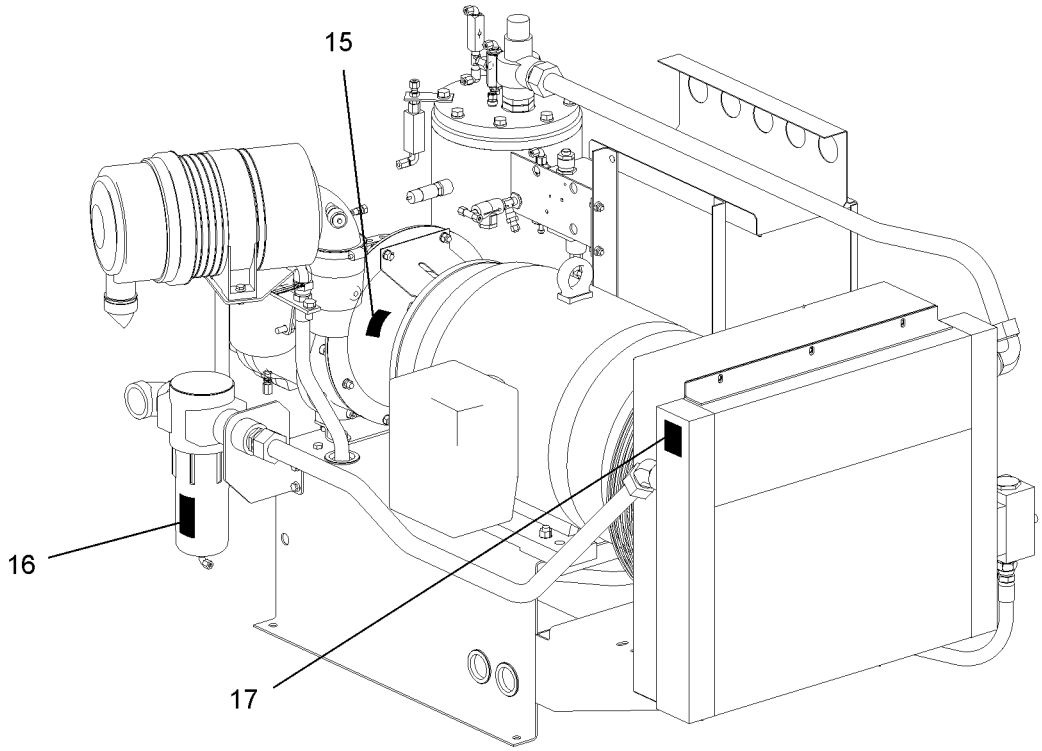
(I) For a view and location of this decal, see *Section 8.18, Instrument Panel*.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.23 DECAL LOCATIONS





8.23 DECAL LOCATIONS

key number	*description*	*part number*	*quantity*
1	decal, instrument pnl 10 Series universal **(I)**	02250060-034	1
2	decal, electrocution hazard international	02250077-472	1
3	decal, warning auto start	250017-903	1
4	sign, danger electrocution	049850	1
5	decal, ISO 9001	02250057-624	1
6	decal, warning auto start	041065	1
7	decal, Sullair	02250059-054	1
8	decal, 24 KT **(II)**	02250061-016	1
9	decal, warning mixing fluids	02250110-891	1
10	decal, fluid Sullube	02250069-389	1
	•decal, fluid 24KT	02250069-395	1
	•decal, fluid SRF 1/4000	02250069-391	1
11	sign, warning compressor fluid fill cap	049685	1
12	sign, warning "food grade" lube	250003-144	1
13	sign, danger air breathing	250027-935	1
14	decal, maintenance kit LS-100	02250144-323	1
15	sign, warning sever fan	049855	2
16	decal, water drain	250022-810	1
17	sign, warning sever fan port	049965	1

(Continued on page 105)

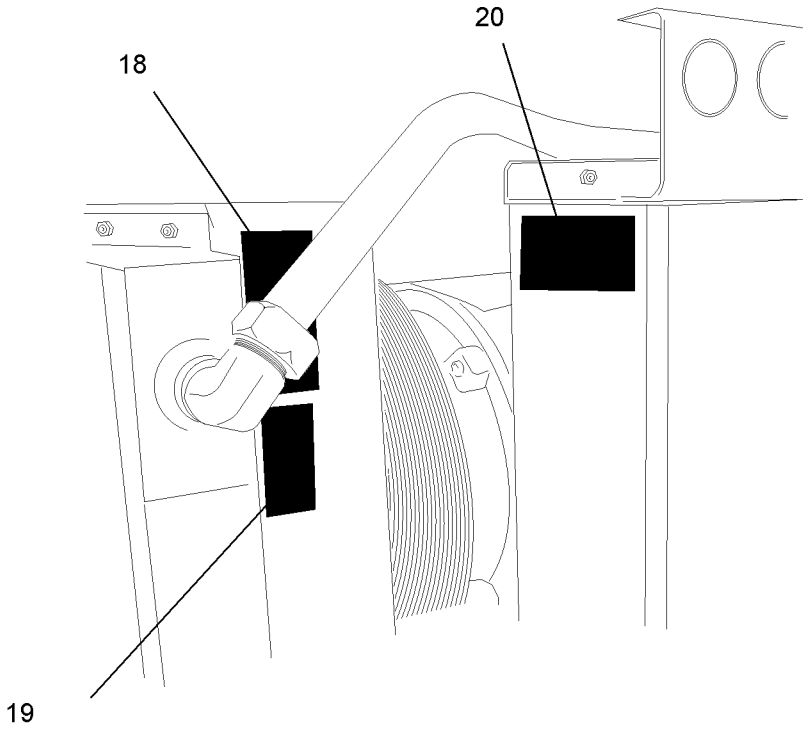
(I) For a view and location of this decal, see *Section 8.18, Instrument Panel*.

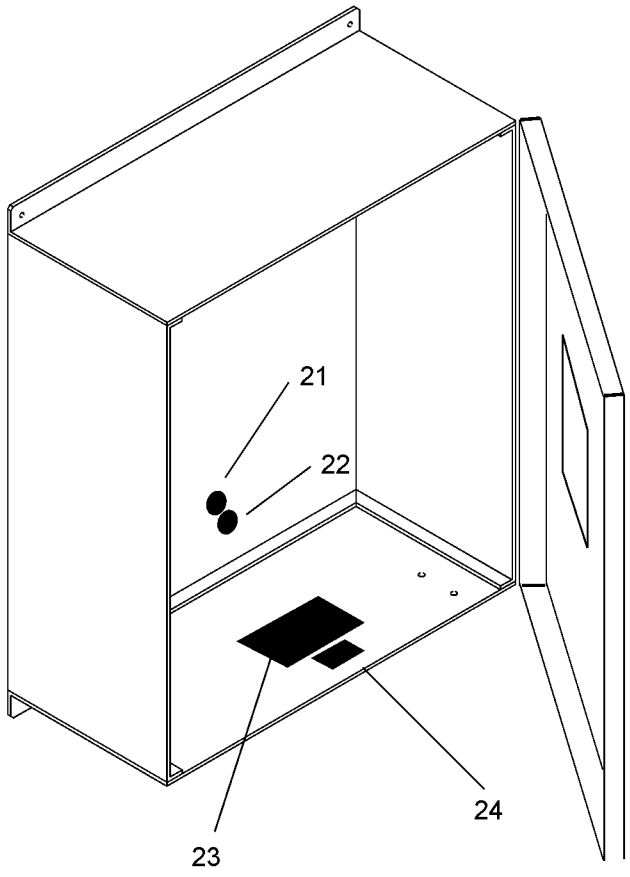
(II) Decal used when applicable with 24KT fluid only.

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

Section 8
ILLUSTRATIONS AND PARTS LIST

8.23 DECAL LOCATIONS





8.23 DECAL LOCATIONS (CONTINUED)

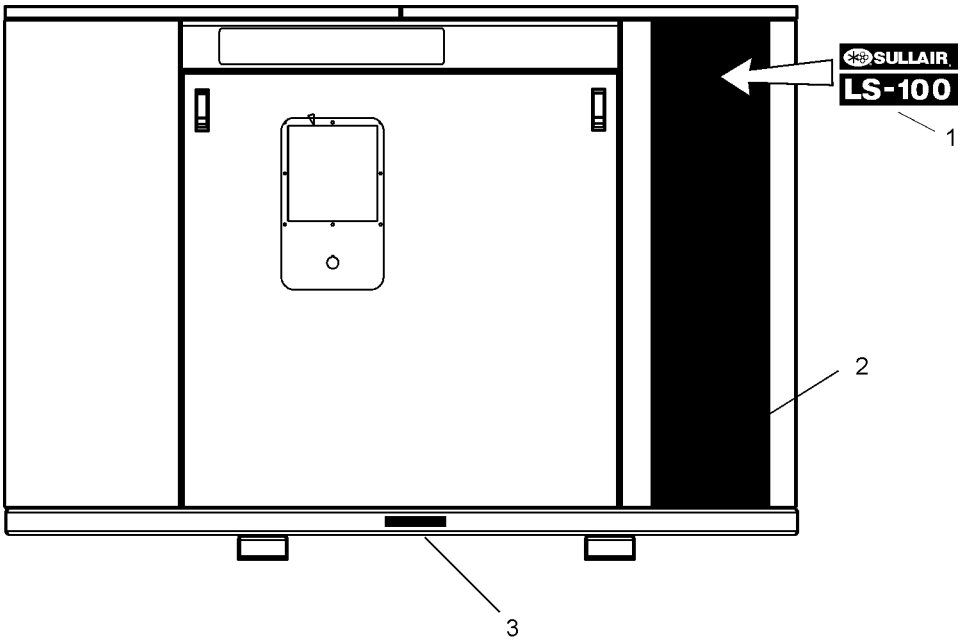
key number	*description*	*part number*	*quantity*
18	sign, warning sever fan	049855	2
19	sign, warning sever fan port	049965	1
20	decal, instument pnl universal	02250051-303	1
21	decal, protective earth ground	02250075-045	1
22	decal, PE designation	02250075-540	1
23	decal, danger hi voltage	042218	1
24	decal, 460 voltage international **(III)**	02250069-399	1

(III) Compressor voltage may vary. Consult factory with machine serial number.

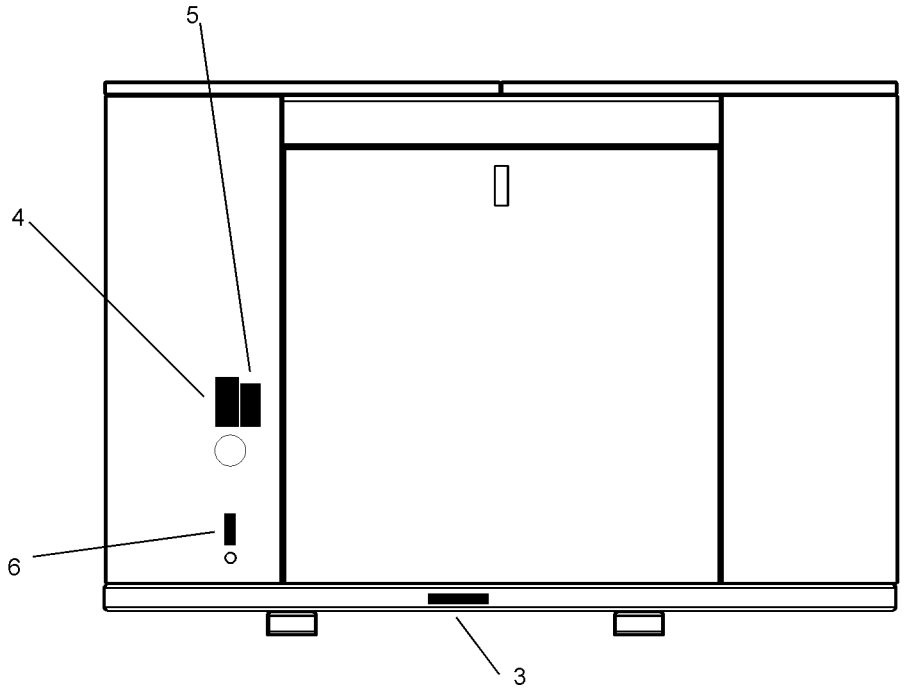
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE THE SERIAL NUMBER OF COMPRESSOR

Section 8
ILLUSTRATIONS AND PARTS LIST

8.24 DECAL LOCATIONS- ENCLOSURE



FRONT VIEW



REAR VIEW

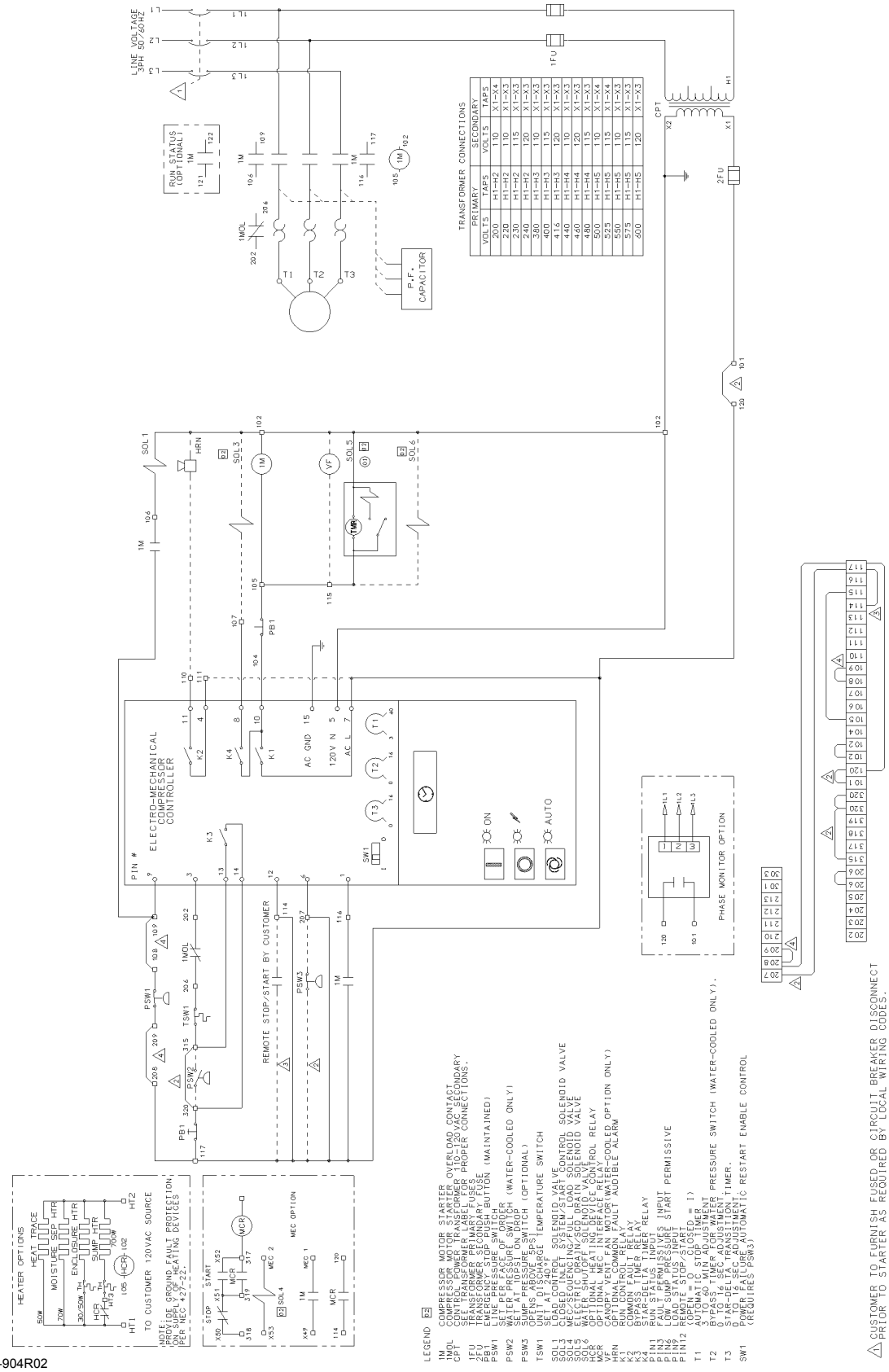
8.24 DECAL LOCATIONS- ENCLOSURE

key number	*description*	*part number*	*quantity*
1	decal, LS-100 with stripe and logo	02250144-223	1
2	decal, black 12 x 36.75”	02250144-254	1
3	decal, fork lifting	241814	2
4	sign, warning "food grade" lube	250003-144	1
5	sign, danger air breathing	250027-935	1
6	decal, water drain	250022-810	1

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

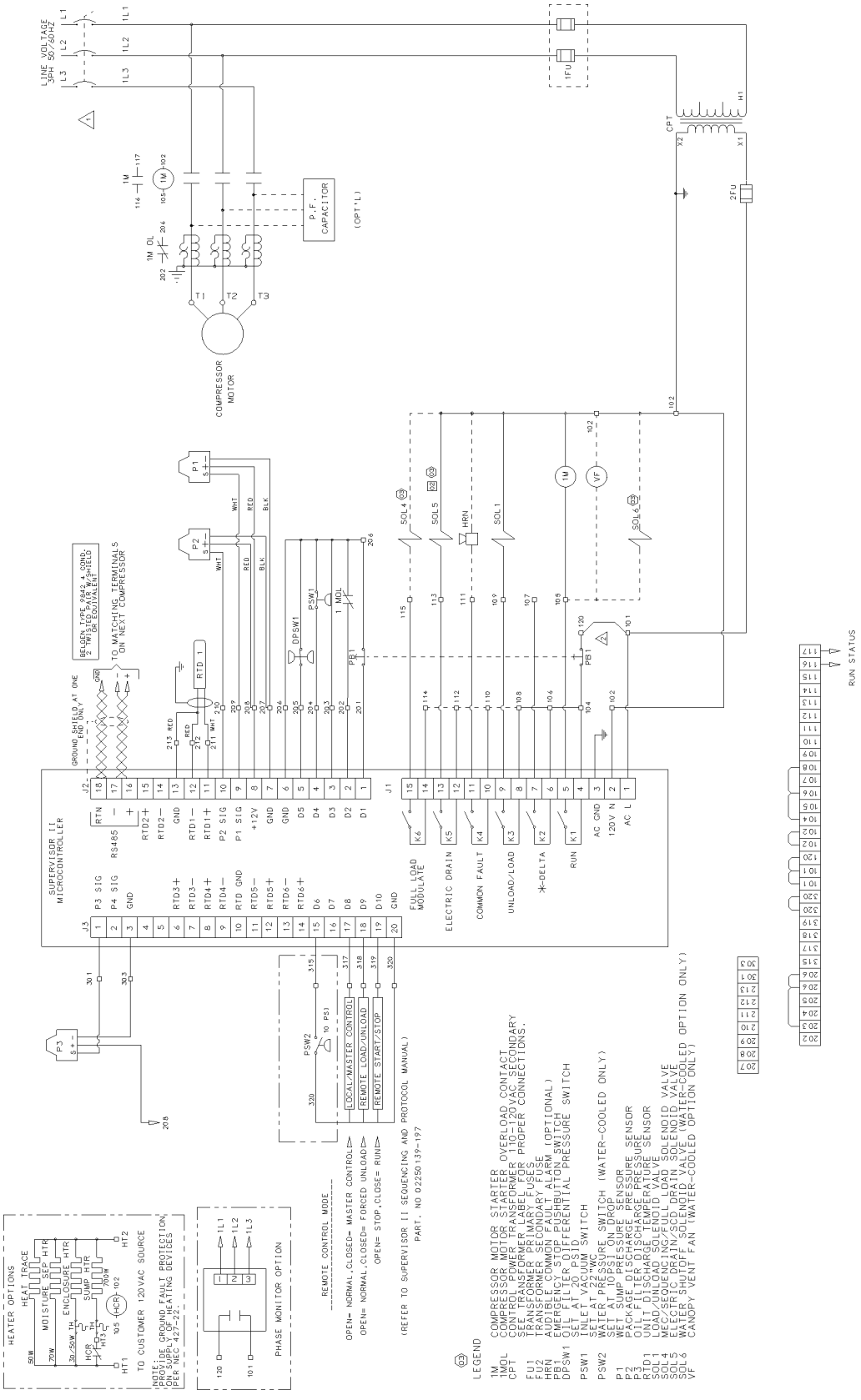
Section 8
ILLUSTRATIONS AND PARTS LIST

8.25 WIRING DIAGRAM- ELECTRO-MECHANICAL FULL VOLTAGE



02250143-904R02

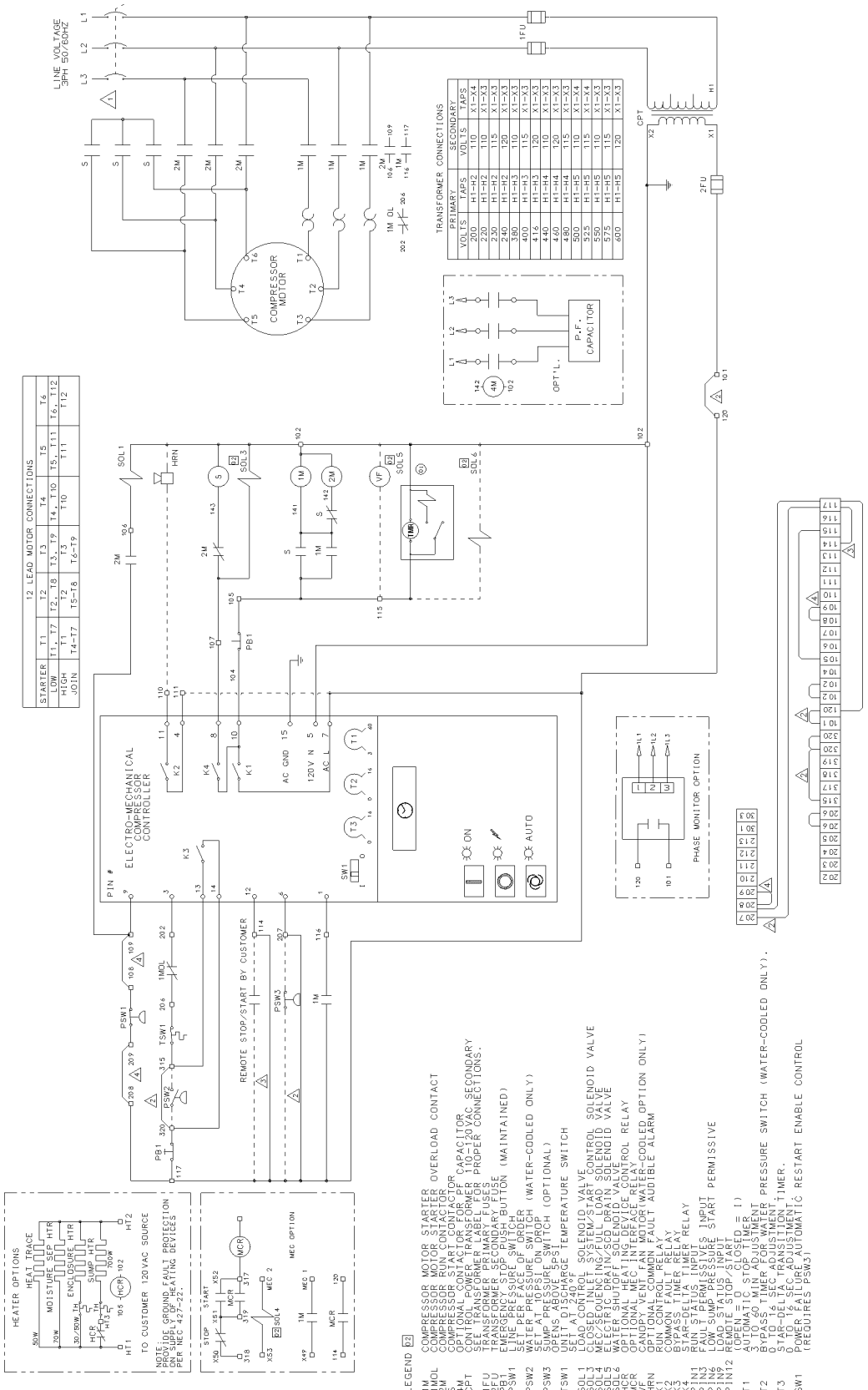
8.26 WIRING DIAGRAM- SUPERVISOR DELUXE FULL VOLTAGE



02250143-900R03

Section 8
ILLUSTRATIONS AND PARTS LIST

8.27 WIRING DIAGRAM- ELECTRO-MECHANICAL WYE-DELTA



LEGEND [2]

1M COMPRESSOR MOTOR STARTER
1MOL COMPRESSOR MOTOR STARTER OVERLOAD CONTACT
2M COMPRESSOR RUN CONTACTOR
4M COMPRESSOR START CONTACTOR
CPT CONTROL POWER TRANSFORMER 110-120VAC SECONDARY
SEE TRANSFORMER LABEL FOR PROPER CONNECTIONS.
1FU TRANSFORMER PRIMARY FUSES
2FU TRANSFORMER SECONDARY FUSE
PB1 EMERGENCY STOP PUSH BUTTON (MAINTAINED)
PSW1 LINE PRESSURE SWITCH
SET AT 195PSI
PSW2 WATER REGULATING SWITCH ORDER (WATER-COOLED ONLY)
SET AT 105PSI ON DROP
PSW3 SUMP PRESSURE SWITCH (OPTIONAL)
TSW1 ASSEMBLY DISCHARGE TEMPERATURE SWITCH
SET AT 240°F
SOL1 LOAD CONTROL SOLENOID VALVE
SOL3 UNLOAD/FULL START CONTROL SOLENOID VALVE
SOL5 MECHANICAL DRAIN/SCD DRAIN SOLENOID VALVE
SOL6 WATER SHUTOFF SOLENOID VALVE
MCR MOTOR CONTACTOR CONTROL RELAY
OPTIONAL MEC LIMIT PRESSURE ONLY RELAY
HRN CANOPY VENT FAN MOTOR(WATER-COOLED OPTION ONLY)
OPTIONAL COMMON FAULT AUDIBLE ALARM
K1 COMMON FAULT RELAY
K2 BYPASS TIMER RELAY
K3 START-DELTA TIMER RELAY
K4 UNLOAD/FULL START CONTROL RELAY
PINJ1 FAULT PERMISSIVE INPUT
PINJ5 LOW SUMP PRESSURE START PERMISSIVE
PINJ6 LOAD STATUS INPUT
PINJ12 REMOTE STOP/START (OPEN = 0 CLOSED = 1)
T1 AUTOMATIC STOP TIMER
0 TO 60 MIN ADJUSTMENT
SETS LENGTH OF TIME PRESSURE SWITCH (WATER-COOLED ONLY).
T2 3YPASS TIMER
0 TO 16 SEC ADJUSTMENT.
T3 START-DELTA TRANSITION TIMER.
0 TO 16 SEC ADJUSTMENT.
SW1 POWER, LOCAL/REMOTE, AUTOMATIC RESTART ENABLE CONTROL
(REQUIRES PSW3)

⚠1 CUSTOMER TO FURNISH FUSED OR CIRCUIT BREAKER DISCONNECT PRIOR TO STARTER AS REQUIRED BY LOCAL WIRING CODES.

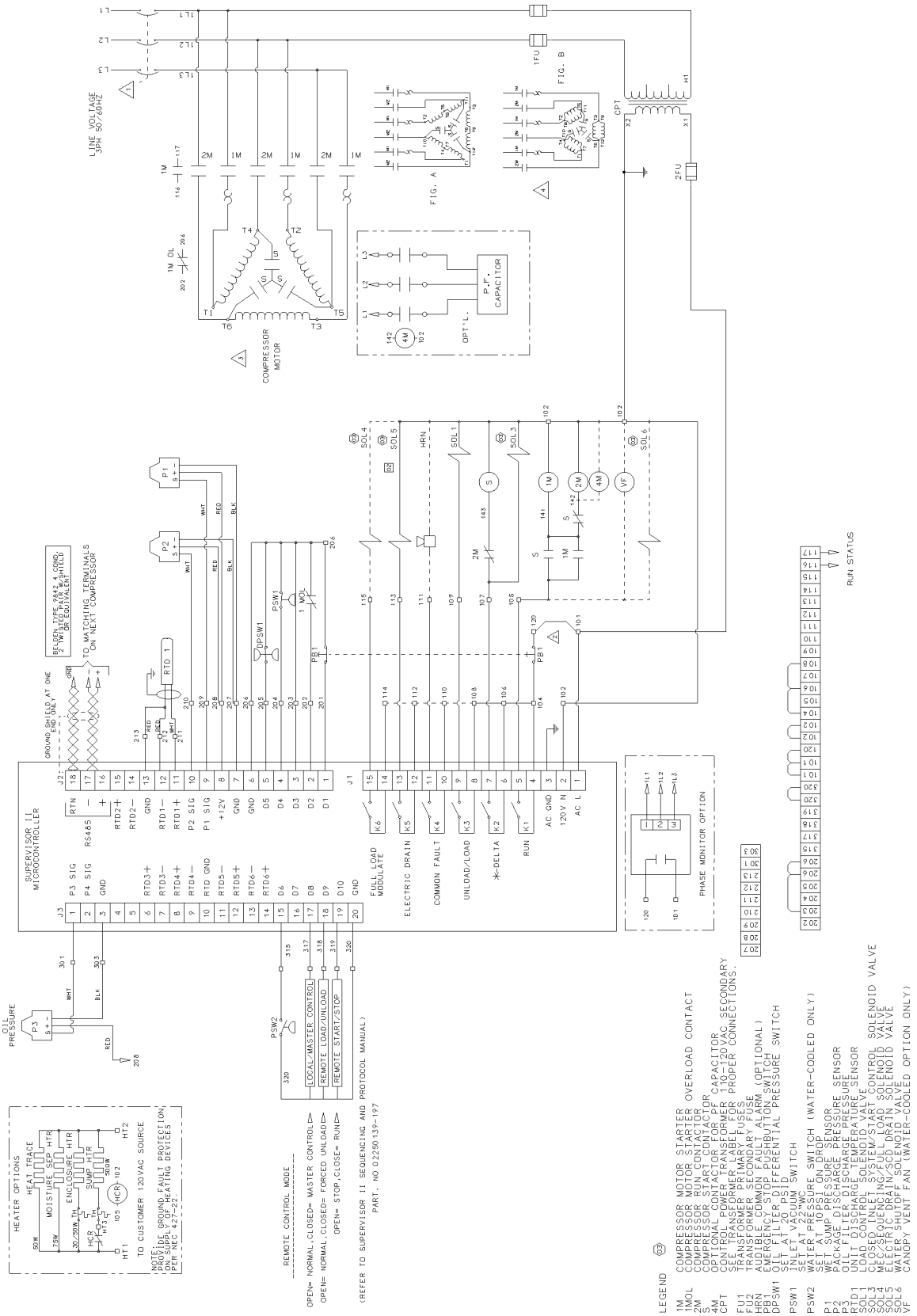
⚠2 REMOVE JUMPER TO ADD OPTIONS.

⚠3 REMOVE JUMPER 117-114 WHEN CONNECTING FOR REMOTE STOP/START

⚠4 REMOVE JUMPERS 109-108 AND 209-208 FOR CONNECTION TO BASE/LOAD SEQUENCE CONTROL; 108 109
COMPRESSOR TERMINAL = 208 209
BASE/LOAD CONTROL = 116 117 118 119

02250143-903R02

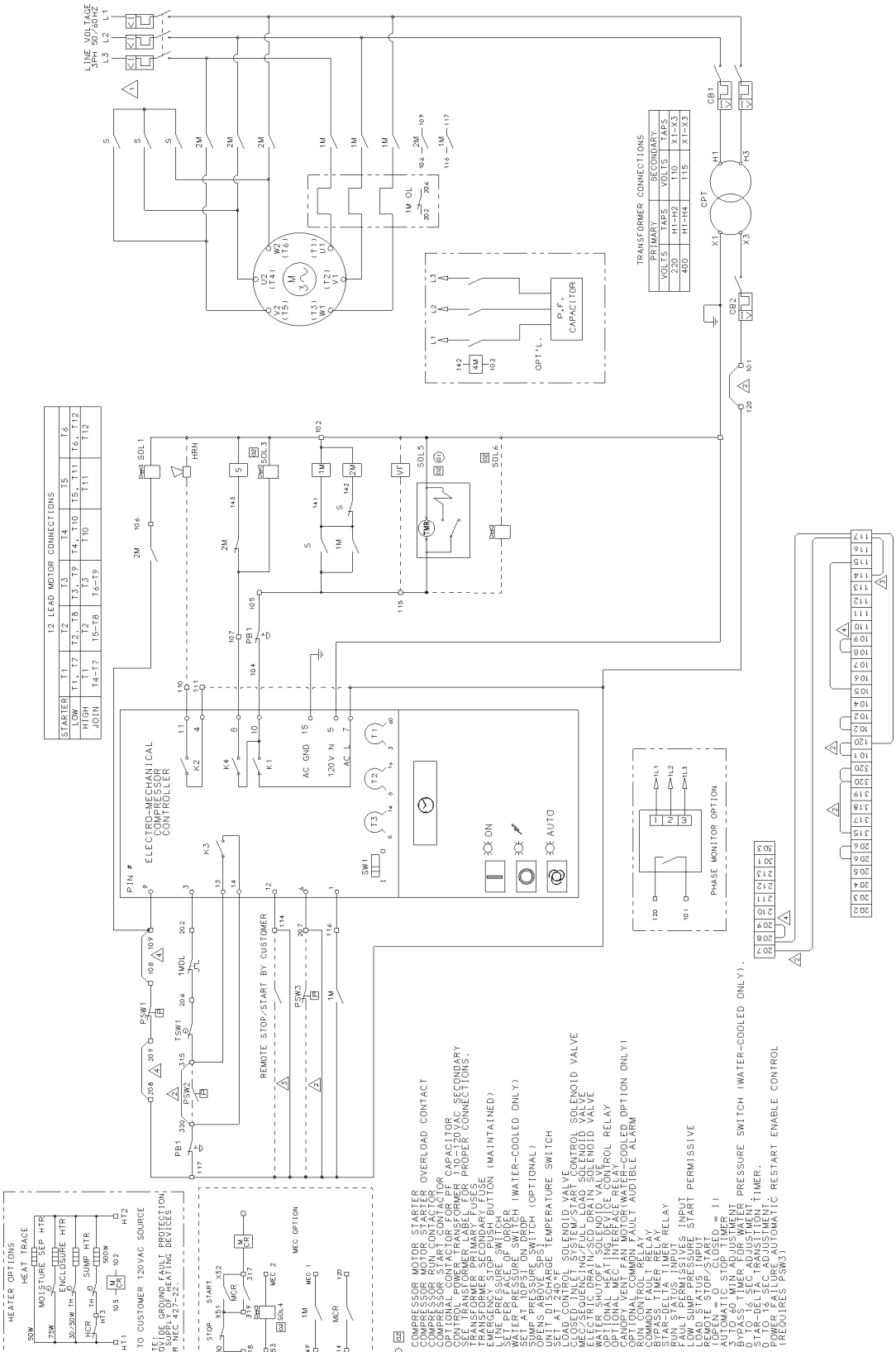
8.28 WIRING DIAGRAM- SUPERVISOR DELUXE WYE-DELTA



02250143-901R03

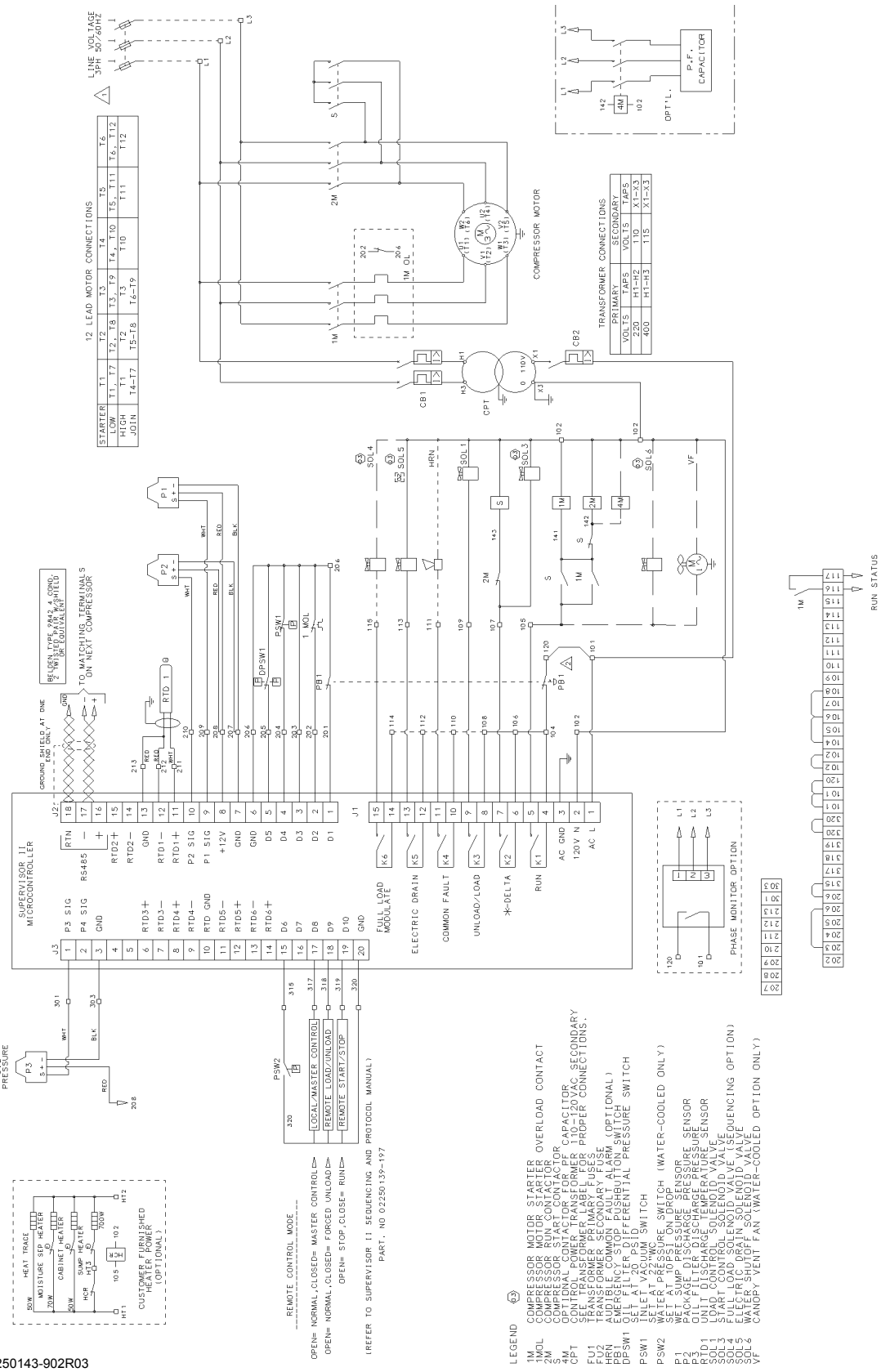
Section 8
ILLUSTRATIONS AND PARTS LIST

8.29 WIRING DIAGRAM- ELECTRO-MECHANICAL WYE-DELTA EUROPE



02250143-905R02

8.30 WIRING DIAGRAM- ELECTRO-MECHANICAL SUPERVISOR DELUXE FULL VOLTAGE



02250143-902R03

NOTES

NOTES

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