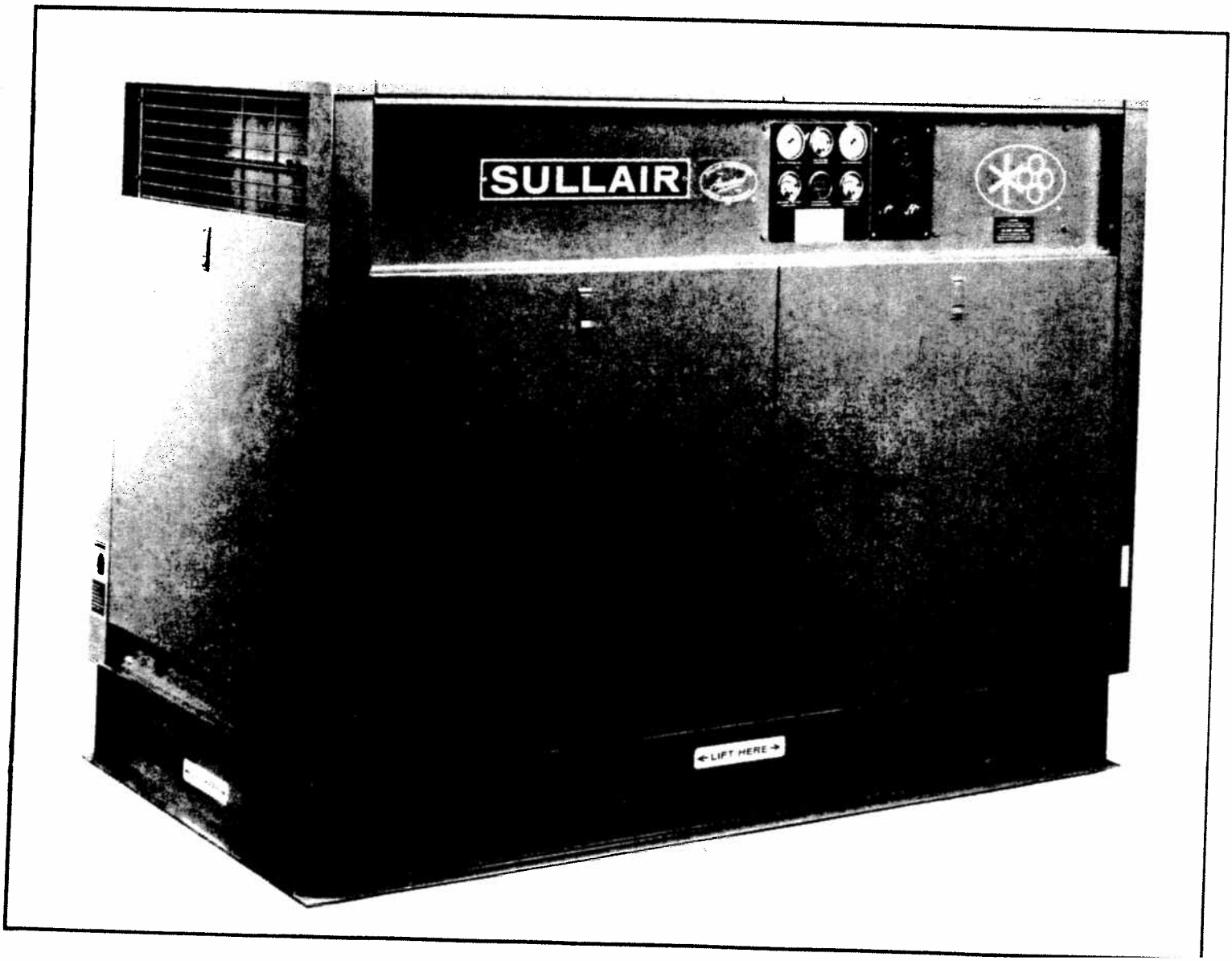
Operators Manual and Parts List

SULLAIR®
COMPRESSOR

Series 12B 40, 50 and 60 hp Standard & 24 KT
Industrial Rotary Screw Air Compressor



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Section 1
DESCRIPTION

1.1 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 5 (Maintenance) to see how surprisingly easy it is to keep your air compressor in top operating condition.

1.2 DESCRIPTION OF COMPONENTS

Refer to Figure 1-1.
The components and assemblies of the air compressors 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, separator and condensate trap, all enclosed in a heavy gauge steel cabinet.

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

On water-cooled models, a shell and tube heat exchanger is mounted inside the compressor compartment. Oil is piped into the four-pass exchanger where compression heat is removed from the oil. Another similiar heat exchanger cools the compressed air.

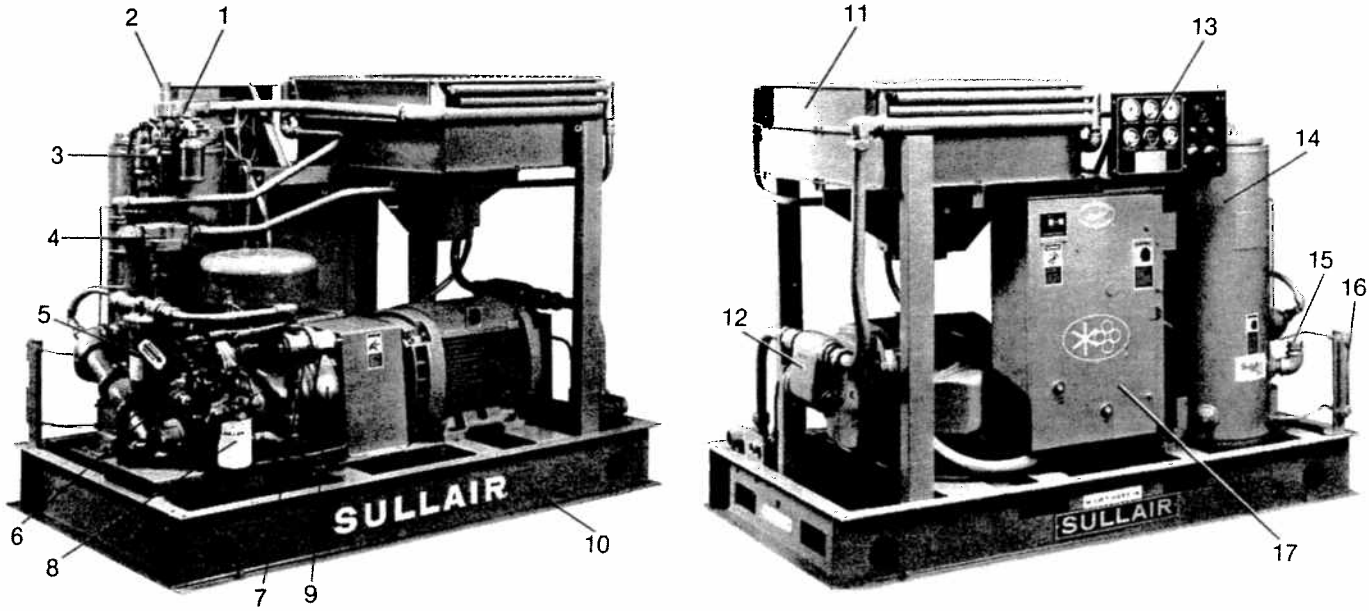
Both air-cooled and water-cooled versions have easily accessible items such as the oil filters and control valves. The inlet air filter is also easily accessible for servicing.

1.3 SULLISCREW® COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

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

Figure 1-1 Sullair Rotary Screw Compressor

1. Blowdown Valve
2. Minimum Pressure/Check Valve
3. Pressure Relief Valve
4. Thermal Valve
5. Main Strainer
6. Sullicon Control
7. Fluid Stop Valve
8. Bearing Filter
9. Compressor Unit
10. Frame
11. Cooler/Aftercooler Assembly
12. Separator And Trap
13. Instrument Panel
14. Receiver/Sump Tank
15. Fluid Fill Cap
16. Fluid Level Sight Glass
17. Control Box



Section 1
DESCRIPTION

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

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

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

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

After the air/fluid mixture has been discharged from the compressor, 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.

1.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 1-2.

The cooling system (air-cooled version) consists of a fan, fan motor, radiator-type aftercooler/oil cooler, full-flow main line filter and extra-fine bearing lube filter, thermal valve, oil stop 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.

Figure 1-2 Compressor Oil Cooling and Lubrication System Diagram

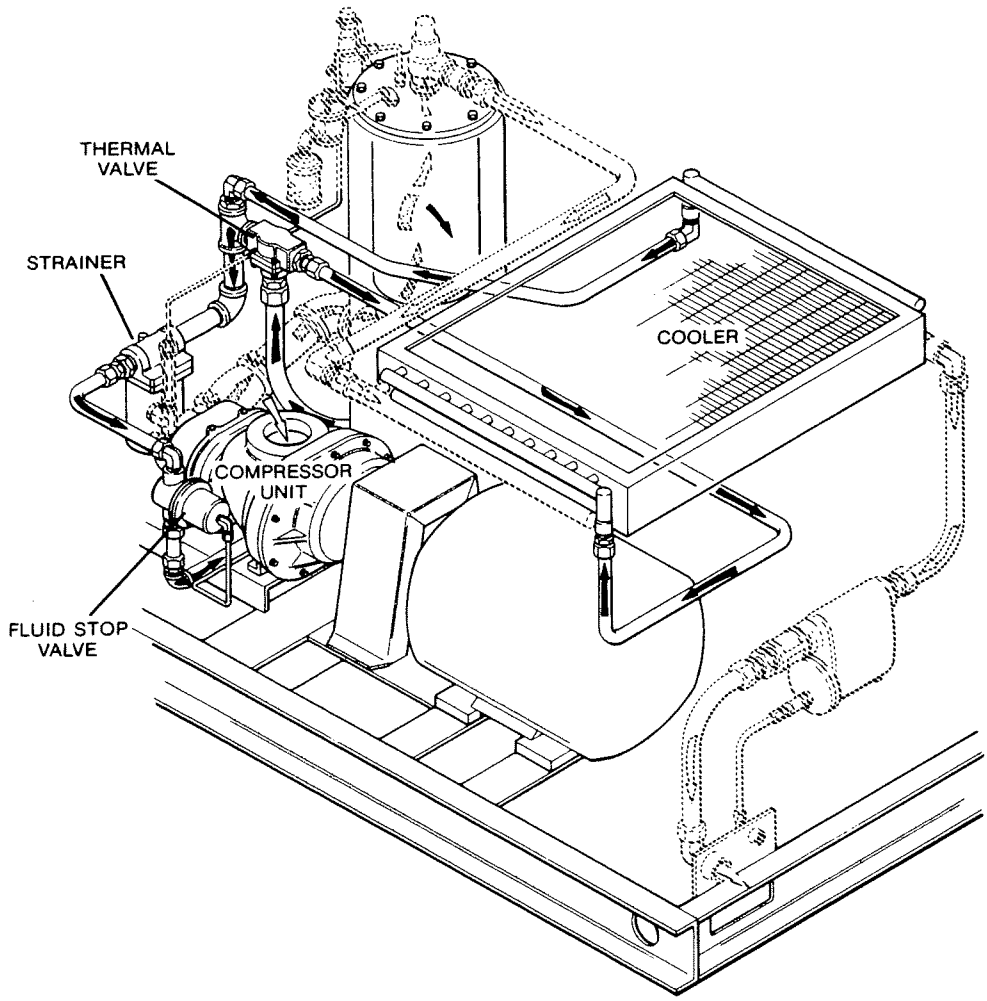
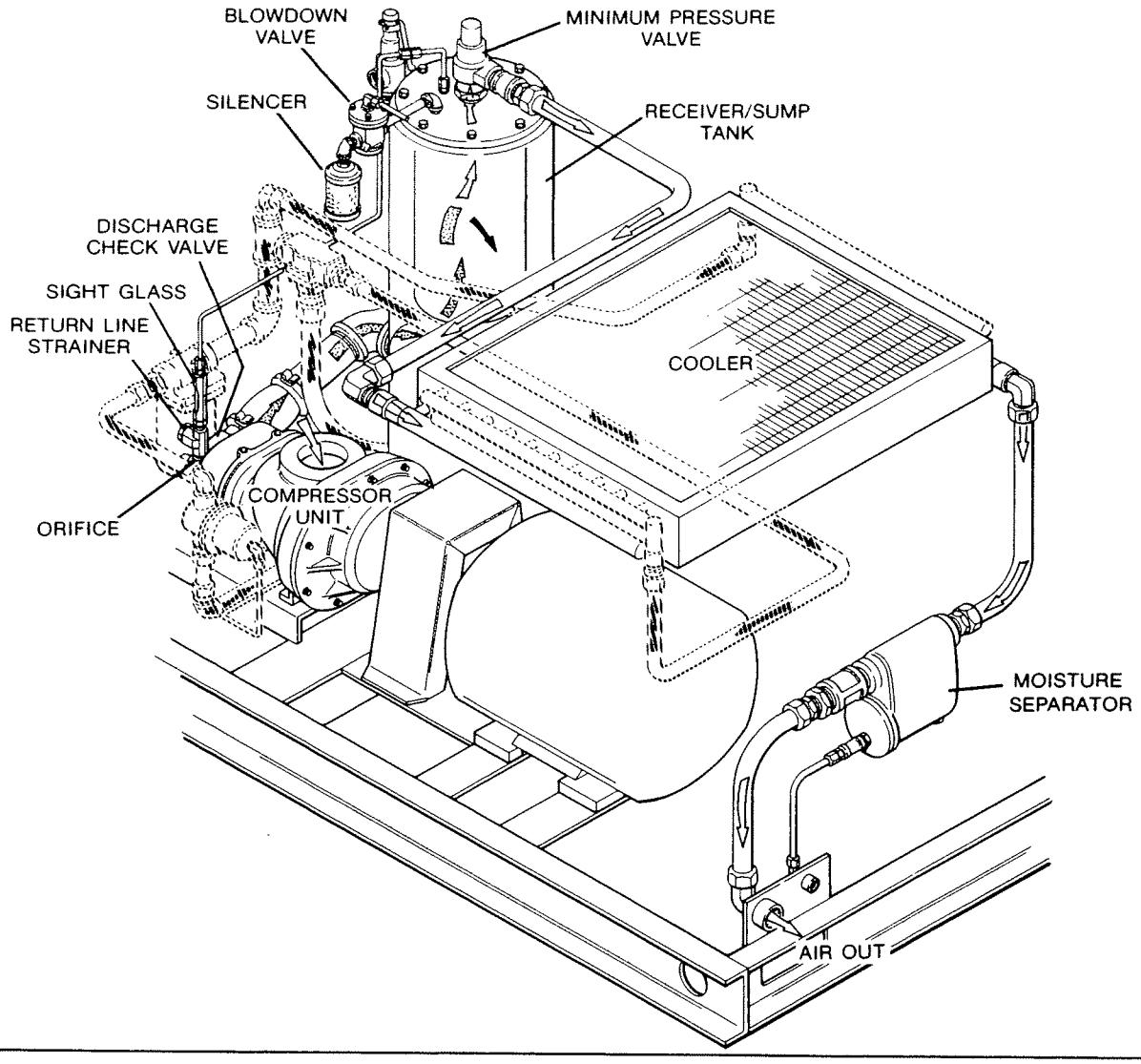


Figure 1-3 Compressor Discharge System Diagram



Fluid flows from the bottom of the receiver/sump to the thermal valve. The thermal valve is fully open when the fluid temperature is below 170°F. (76.7°C). The fluid passes through the thermal valve, the main filter and directly to the compressor unit where it lubricates, cools and seals the rotors and the compression chamber.

As the discharge temperature rises above 170°F. (76.7°C), due to the heat of compression, the thermal valve begins to close and a portion of the fluid then flows through the cooler. From the cooler the fluid flows to the main filter and on to the compressor unit.

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 an extra fine bearing filter, thus assuring properly filtered lubricant for bearing supply.

The bearing filter has a replacement element and an integral pressure by-pass valve. An associated service gauge shows red when the filter needs servicing. This gauge has a pressure setting lower than that of the bypass valve. After the initial 50 hour filter change, the gauge will rarely show red under normal operating conditions.

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

Water-cooled versions of the compressor have a water-flow regulating valve (not shown) which operates to

conserve water during periods of varying load on the compressor. This same valve automatically shuts off the water supply when the compressor is shut down. In addition, water-cooled models have a water pressure switch to prevent operation with inadequate water pressure.

1.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 1-3.
The compressor unit discharges the compressed air/fluid mixture through a discharge check valve into the combination receiver/sump. The discharge check valve prevents air in the receiver from returning to the compression chamber after the machine has been shut down.

The receiver has three main functions:
- Acts as the primary fluid separator
- Serves as the compressor fluid sump
- Houses the final fluid separator element.

The compressed air/fluid mixture enters the receiver and is directed against the far end of the tank. Its direction of movement is changed and its velocity significantly reduced, thus causing the large droplets of fluid to 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 in 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. 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.

The receiver is ASME Code rated at 150 PSIG (1033.5 kPa) working pressure. A minimum pressure valve (located downstream from the separator) assures a minimum receiver pressure of 40 PSIG (275.6 kPa) during all conditions. This pressure is necessary for proper air/fluid separation and to assure proper fluid circulation.

A terminal check valve is incorporated into the minimum pressure 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 140 PSIG (964.6 kPa). A temperature switch will shut down the compressor if the discharge temperature reaches 240 degrees F. (115°C).

All compressor models are equipped with a high pressure shutdown switch to shut down the compressor at 135 PSIG (931 kPa). This prevents the pressrue relief valve from opening under routine conditions, thereby preventing fluid loss through the pressure relief valve.

⚠WARNING

Do not remove caps, plugs, 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 the sump. A sight-glass enables the operator to visually monitor the sump fluid level.

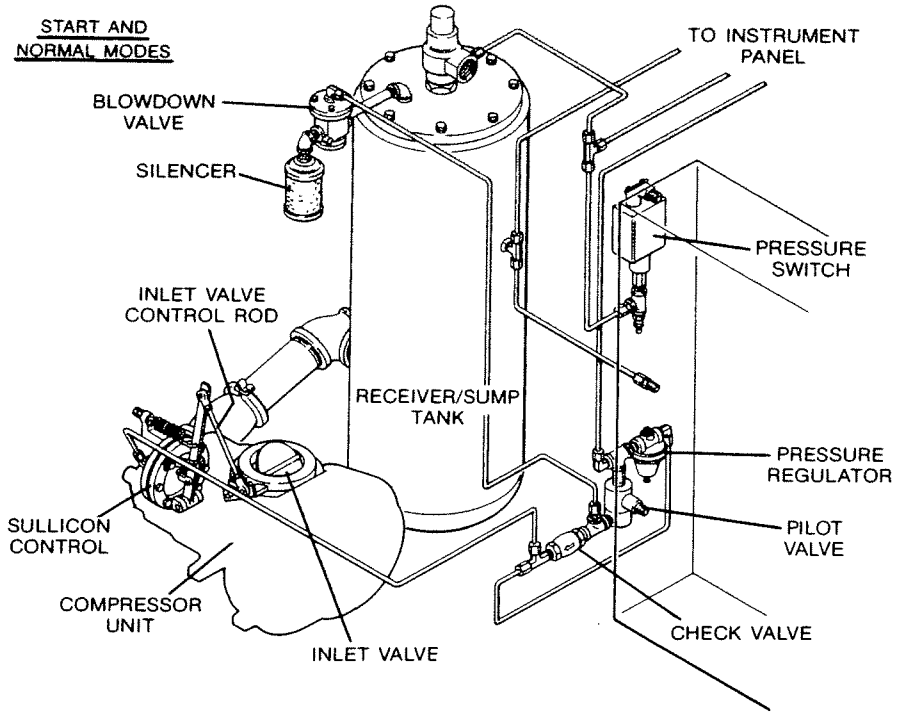
1.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

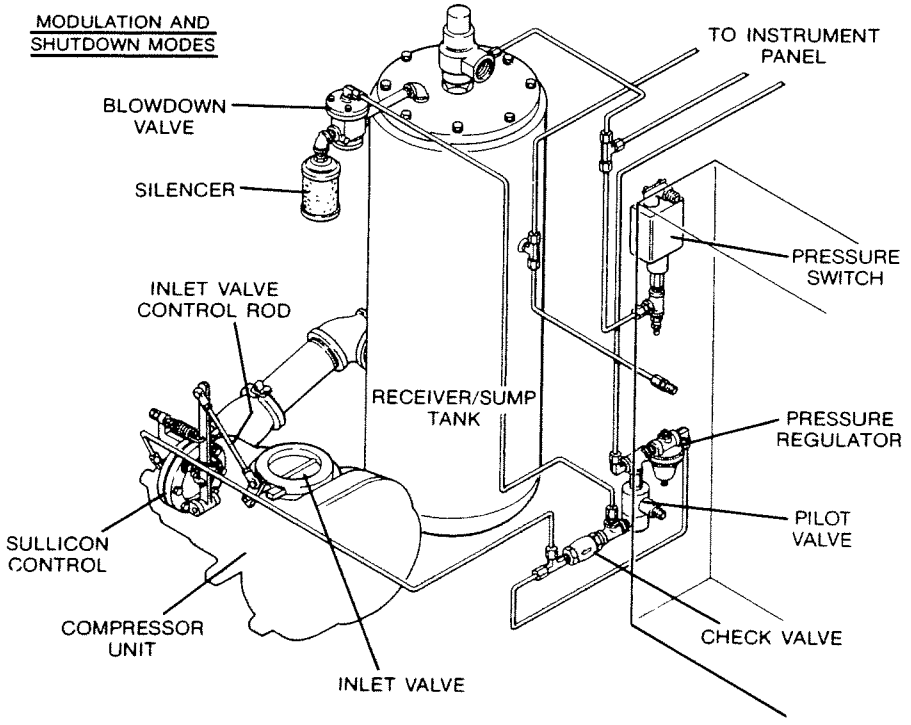
Refer to Figure 1-4.
The purpose of the compressor control system is to regulate the compressor air intake to match the amount of compressed air being used. The Capacity Control system consists of a Sullicon control, a butterfly valve (located on the compressor air inlet), a pressure switch and a pilot valve pressure regulator. The functional description of the control system is described below in four distinct phases of compressor operation. The following descriptive text applies to all 12B Series machines. For explanation purposes this description will apply to a machine with an operating pressure range of 100-110 PSI (689-758 kPa). A machine with any other pressure range would operate in the same manner excepting stated pressures.

START MODE – 0 to 40 PSI (0 to 275.6 kPa)
When the compressor START button is depressed, the pressure will quickly rise from 0 to 40 PSI (0 to 275.6 kPa). During this period both the pressure regulator and the pilot valve are closed and the Sullicon Control is inoperative. the spring on the control holds the butterfly valve 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 40 PSI (275.6 kPa).

NORMAL OPERATING MODE – 40 TO 100 PSI (275.6 TO 689 kPa)
When the compressed air pressure rises above 40 PSI (275.6 kPa), the minimum pressure valve opens and delivers compressed air to the service line. From this point on, the line air pressure is continually monitored by a line pressure gauge. The pressure regulator and the pilot valve remain closed during this phase, keeping the Sullicon control inactive.

Figure 1-4 Control System, Sequence of Operation





Section 1
DESCRIPTION

MODULATING MODE – 100 TO 110 PSI (689 TO 758 kPa)
If less than the rated capacity of compressed air is being used, the service line pressure will rise above 100 PSI (689 kPa). The pressure regulator valve gradually opens, applying air pressure to the diaphragm chamber of the Sullicon control which partially closes the butterfly valve on the compressor air inlet; 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 100-110 PSI (689-758 kPa), 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 butterfly valve. The orifice also bleeds any accumulated moisture from the Sullicon control.

UNLOAD – IN EXCESS OF 110 PSI (758 kPa) 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-type pilot valve. At this time, the pilot valve allows dry sump tank air pressure to be applied directly to the control diaphragm, keeping the butterfly valve closed. Simultaneously, the pilot valve sends a pneumatic signal to the blowdown valve. The blowdown valve opens the sump to the atmosphere, reducing the sump pressure to approximately 40-55 PSI (275.6-379 kPa). 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) of the pressure switch (usually 100 PSI [689 kPa] on low pressure machines and 115 PSI [723 kPa] on high pressure machines, the pressure switch closes, re-energizing the three-way pilot valve and allowing the blowdown valve to close. The re-energized pilot valve again prevents line pressure from reaching the Sullicon control. Should the pressure begin to rise, the pressure regulator will resume its normal function as previously described.

For a machine with varied periods of time when there are no air requirements, a "Dual-Control" option is available. This option allows you to set the machine in an automatic position whereby the machine will shut down when no compressed air requirement is present and restart as compressed air is needed.

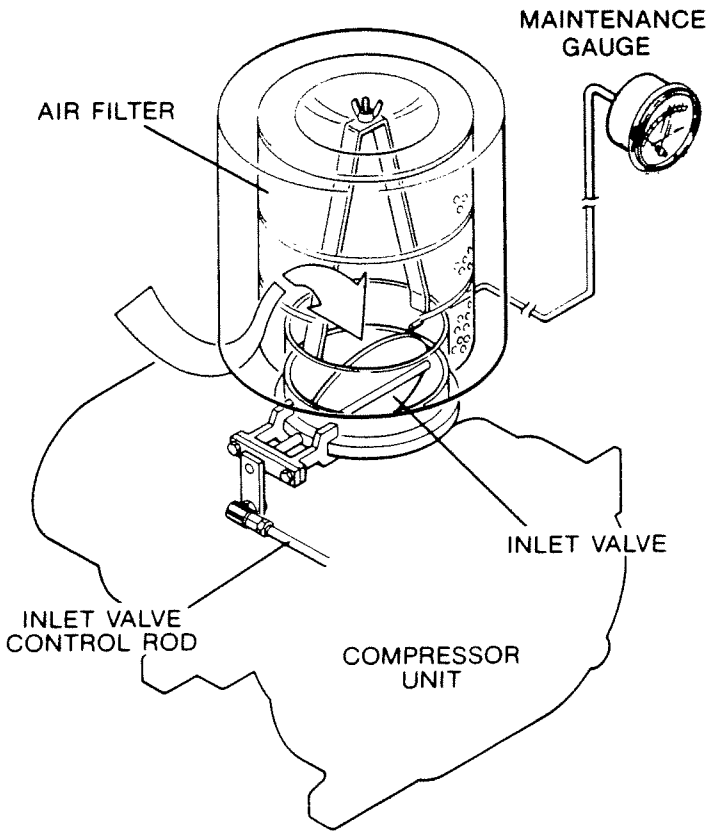
1.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 1-5.
The compressor inlet system consists of a dry-type air filter, a restriction gauge and an air inlet valve.

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

The butterfly-type air inlet valve directly controls the amount of air intake to the compressor in response to the operation of the Sullicon control (par. 1.6).

Figure 1-5 Compressor Air Inlet System

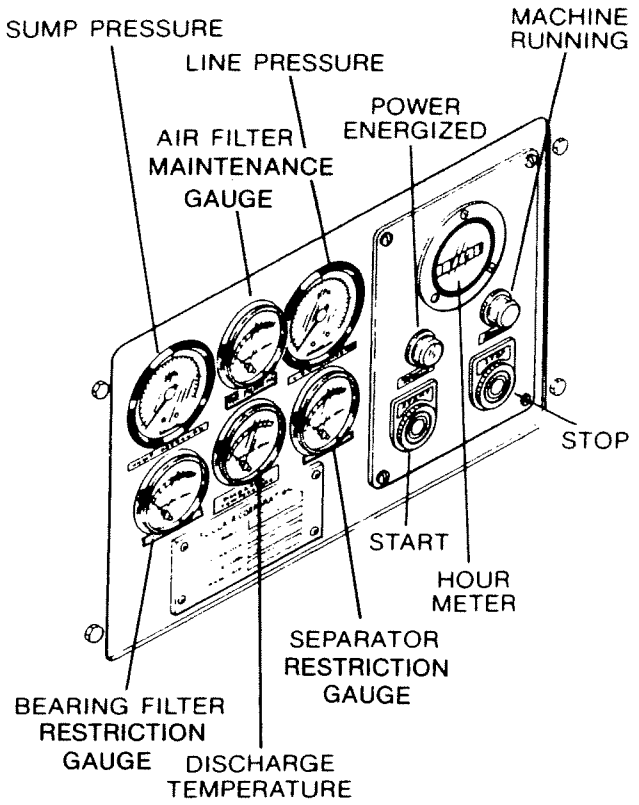


1.8 INSTRUMENT PANEL GROUP, FUNCTIONAL DESCRIPTION

Refer to Figure 1-6 for specific location of parts described. The instrument panel group consists of a panel containing the line pressure, sump pressure and discharge temperature gauges, the air filter, the separator element and the bearing lube filter, restriction gauges, along with START and STOP buttons and an hourmeter.

Refer to Figure 1-3 for functional locations of the following controls and indicators:
- The line (terminal) pressure gauge is connected to the dry side of the receiver downstream from the check valve and continually monitors your air pressure.
- The sump pressure gauge continually monitors the sump pressure at the various load and/or unload conditions.

Figure 1-6 Instrument Panel Group



- 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 170°F. (76.7°C).
- The air filter restriction gauge monitors the condition of the air intake filter and shows in the red zone (20-30" water [51-76 cm]) when filter service is required. (See Figure 1-5)
- The START pushbutton turns the compressor on. (See Figure 1-6).
- The STOP pushbutton turns the compressor off. (See Figure 1-6).
- The hourmeter records accumulative hours of operation for the compressor and is useful for planning and logging service operations (See Figure 1-6).
- The separator maintenance gauge monitors condition of the separator element and shows in the red zone when the element restriction is excessive. This indicator is automatically reset after the element has been changed.
- The bearing filter maintenance gauge monitors the condition of the bearing lube filter element and shows in the red zone when the element should be changed. This indicator is also automatically reset (See Figure 1-2).
- The red light on the instrument panel indicates when power to the compressor is supplied.
- The green light indicates when the machine is running.

Section 2
SPECIFICATIONS

SULLAIR SERIES 12B SPECIFICATIONS

DIMENSIONAL:

Model Series	Length		Width		Height		Weight*	
	in	mm	in	mm	in	mm	lb	kg
12B-40 HP (STD & KT)	**72**	1830	**41**	1040	**54**	1370	**2030**	914
12B-50 HP (STD & KT)	**72**	1830	**41**	1040	**54**	1370	**2080**	936
12B-60 HP (STD & KT)	**72**	1830	**41**	1040	**54**	1370	**2305**	1037

* with enclosure

COMPRESSOR:	**24KT MODELS**	**STANDARD MODELS**
Type	— Rotary Screw —	— Rotary Screw —
Standard Operating Pressure*	— 100 PSI (689 kPa) (L), 115 PSI (792 kPa) (H)	— 100 PSI (689 kPa) (L), 115 PSI (792 kPa) (H)
Bearing Type	— Anti-Friction —	— Anti-Friction —
Ambient Temperature (Max)**	— 105°F — (40°C)	— 105°F — (40°C)
Cooling	— Pressurized Fluid —	— Pressurized Fluid —
Lubricant	— 24KT Coolant Fluid —	D.A. Torque Fluid or Equivalent
Sump Capacity	— 9 Gal. — (34 Liters)	— 9 Gal. — (34 Liters)
Control	— Electro-Pneumatic —	— Electro-Pneumatic —

MOTOR: (60 Cycle Machines)

	24KT MODELS	**STANDARD MODELS**
Size	40-60 HP	40-60 HP
Type	Open Dripproof, 460V, A.C., Three Phase, 60 Cycles, 40°C Maximum Ambient Temperature Options available: 200-230 and 575 volt/ T.E.F.C. also available.	Open Dripproof, 460V, A.C., Three Phase, 60 Cycles, 40°C Maximum Ambient Temperature Options available: 200-230 and 575 volt/ T.E.F.C. also available.
Starter	460V full Voltage Magnetic Options available: 200; 230 and 575 volt.	460V full Voltage Magnetic Options available: 200; 230 and 575 volt.
Speed	1770 RPM	1770 RPM

MOTOR: (50 Cycle Machines)

	24 KT MODELS	**STANDARD MODELS**
Size	40-60 HP	40-60 HP
Type	Open Dripproof, three phase, 50 cycle, A.C., 40°C Max. Ambient Temp. 380/415V	Open Dripproof, three phase, 50 cycle, A.C., 40°C Max. Ambient Temp. 380/415V
Starter	460 full Voltage Magnetic	460 full Voltage Magnetic
Speed	1500 RPM	1500 RPM

* Special machines are available for operating at higher pressures.
** Special machines are available for operation in higher ambient temperatures.

Section 2
SPECIFICATIONS

LUBRICATION GUIDE – STANDARD COMPRESSORS
Compressor oil should conform to the following specifications:

Ambient Temp.	Lubrication
-10°F to +90°F -23°C to +32°C	D-A Torque Fluid or Automatic Transmission Fluid as per Dexron II Spec. or SAE 10W Motor Oil (Detergent) as per MIL L-2104B Spec. (Latest Revision) API, SF, CC, CD
Above 90°F Above 32°C	D-A Torque Fluid or SAE 20W Motor Oil (Detergent) as per MIL L-2104B Spec. (Latest Revision) API, SF, CC, DC

"NORMAL" Oil Change Period — 1000 Hours

APPLICATION GUIDE - STANDARD COMPRESSORS
Sullair Air Compressors are supplied complete with D-A Torque Fluid which is suitable for heavy duty, high temperature conditions. Detergent motor oils SAE 10W Class SE* or Automatic Transmission Fluid (Dexron II or equivalent) can also be used. Any of these oils are suitable under conditions where severe oil oxidation can occur.

*Above 90° use SAE 20W Class SF

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

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

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

Sullair encourages the user to participate in an oil analysis program with the oil suppliers. This could result in an oil change interval differing from that stated in the manual.

D-A Lubricant® Company, Inc. offers an analysis program for users of D-A products. Contact your D-A lubricant supplier or Sullair dealer for details.

LUBRICATION GUIDE – 24 KT COMPRESSORS
Sullair 24KT compressors are filled with a lifetime lubricant which usually never needs to be changed. In the event a change of fluid is required, use only Sullair 24KT fluid. MIXING OF OTHER LUBRICANTS WITHIN THE COMPRESSOR UNIT WILL VOID ALL WARRANTIES!

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

Section 3
INSTALLATION

The following instruction is provided for proper installation.

3.1 LOCATION OF COMPRESSOR

The compressor package may be placed on any level surface able to support its weight. It is not necessary to bolt the unit down unless there is a possibility of externally applied forces or vibration which could disturb the piping or wiring.

3.2 VENTILATION AND COOLING

For air-cooled compressors, select a location to permit sufficient unobstructed air flow in and out of the compressor to keep the operating temperature stable. The minimum distance that the machine should be from surrounding walls is three (3) feet (914mm). To prevent excessive ambient temperature rise, it is imperative to provide adequate ventilation.

For water cooled machines it is necessary to check the cooling water supply. The water system must be capable of supplying the following flows:

WATER TEMP. (0°F)	WATER FLOW (GPM)		
	40	50	60
70	6	7.5	9
80	8	10	12

(water pressure should be between 25 and 75 PSIG)

For water-cooled machines it is necessary to check cooling water supply. The proper water flow should be 8 G.P.M. on 40 H.P. machines and 10 G.P.M. on 50 H.P. machines. These figures apply to 80°F cooling water on a machine running at full load with an aftercooler. For cooler water or a partially loaded machine, slightly less water is required. However for hotter water the flow requirements are significantly greater.

The table below indicates the ventilation requirements necessary to keep the machine running at a normal operating temperature. The fan air requirement is the volume of air which must flow through the machine for proper ventilation. The specified heat rejection requirement is the amount of heat that is radiated by the machine. This heat must be removed to assure a normal operating temperature. With air-cooled machines 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 machine where it will be exposed to temperature less than 32°F.

3.3 SERVICE AIR PIPING

Service air piping should be installed as shown in Figure 3-1. A shut-off valve should be installed to isolate a machine from the service line if required. Also notice that the service line should be equipped with water legs and condensate drains throughout the system.

3.4 COUPLING ALIGNMENT CHECK

In preparation for the factory test, the coupling supplied with your machine is properly aligned for operation. However, due to shipping and handling, it is necessary to re-check the coupling alignment. Refer to coupling alignment procedure explained in the maintenance section of this manual.

3.5 FLUID LEVEL CHECK

Your air compressor is also supplied with the proper amount of fluid. However, it is necessary to check the fluid level at installation. The level is checked by looking at the sight glass located near the sump if the sump is properly filled, the fluid level should fall between the FULL and ADD marks on the side of the sight glass.

3.6 MOTOR ROTATION DIRECTION CHECK

After the electrical wiring has been done, it is necessary to check the direction of the motor rotation. This can be done by jogging the start and stop buttons on the instrument panel. When looking at the motor from the end opposite the compressor unit, the shaft should be turning clockwise. If your motor shaft is not turning clockwise, disconnect the power to the starter and exchange any two of the three power input leads, then re-check rotation. A "Direction of Rotation" decal is located on the coupling guard between the motor and compressor to show proper motor/compressor rotation.

3.7 ELECTRICAL PREPARATION

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

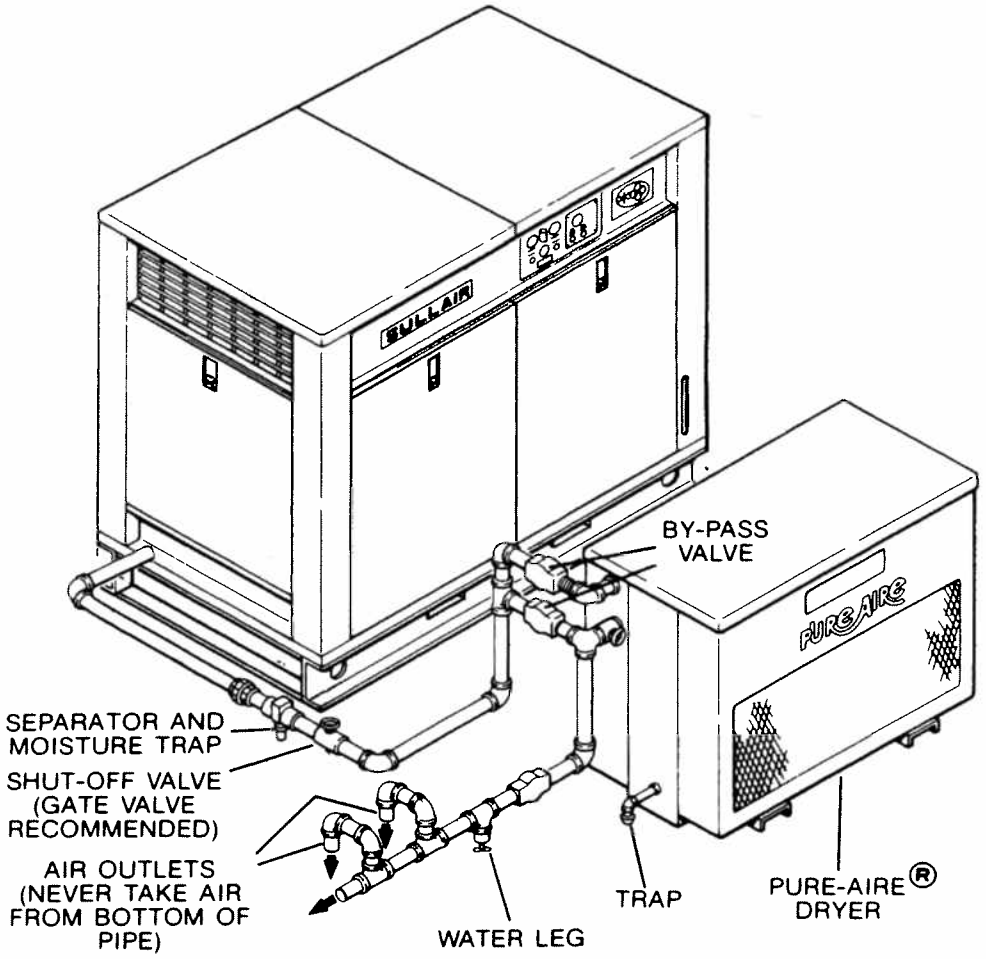
A few electrical checks should be made to help assure that the first start-up will be trouble free.

VENTILATION REQUIREMENTS

Cooling Type	Air-Cooled w/Aftercooler			Water-Cooled		
Motor H.P.	40	50	60	40	50	60
Fan Air C.F.M.*	6,000	6,000	6,000	1,440	1,440	1,440
Heat Rejection B.T.U./Hr.	123,250	153,360	167,910	11,200	13.300	15,130

*Applies to machines with canopy only (vent fan).

Figure 3-1 Service Air Piping with Aftercooler and Optional Air Dryer (Typical)



⚠ DANGER

Lethal shock hazzard 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 machine was wired for.
2. Check starter and overload heater sizes. (See electrical parts in Section 6).
3. Check all electrical connections for tightness.
4. "DRY RUN" the electrical controls by disconnecting the three (3) motor leads from the starter. Energize the control circuits by pushing the start button and check all protective devices to be sure that they will de-energize the starter coil when activated.
5. Reconnect the three (3) motor leads and jog the motor for a direction of rotation check, as explained in Section 3.6.

Section 4
OPERATION

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

4.2 PURPOSE OF CONTROLS

Control or Indicator	*Purpose*
START PUSHBUTTON	Depress to turn the compressor ON.
STOP PUSHBUTTON	Depress to turn the compressor OFF.
HOURMETER	Records accumulative hours of compressor operation; useful for planning and logging service schedules.
LINE PRESSURE GAUGE	Continually monitors service line air presure. 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 air leaving the compressor unit. For both air and water-cooled compressors, the normal reading is approximately 190°-205°F.
BEARING FILTER MAINTENANCE GAUGE	Indicates when a bearing filter element change is required. Shows red when the pressure drop through the filter is excessive.
SEPARATOR MAINTENANCE GAUGE	Indicates when separator element change is required. Shows red when pressure drop through the separator is excessive.
"POWER ON" LIGHT (RED)	Indicates when the starter is receiving power.
"RUNNING" LIGHT (GREEN)	Indicates when machine is in operation.
FLUID LEVEL SIGHT GLASS	Monitors fluid level in the sump. Proper level is to fall between the FULL and ADD marks located on the side of the sight glass. Check the level when the machine is shut down. DO NOT OVER FILL.
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.
FLUID STOP VALVE	Cuts off flow of fluid to compressor unit at machine shutdown, and allows flow of fluid to unit on start-up.
DISCHARGE CHECK VALVE	Cuts off the reverse flow of air/fluid mixture through compressor discharge system at compressor shutdown.
THERMAL VALVE	Regulates flow of fluid to and around the cooler. Designed to maintain a minimum operating temperature (170°F) (76.7°C); used for fast warm-up on start-up.
MINIMUM PRESSURE/CHECK VALVE	Maintains minimum of 40 PSI (275.6 kPa) in compressor sump. Valve piston restricts receiver air discharge from receiver/sump when pressure falls to 40 PSI (275.6 kPa). Also prevents backflow into the sump during unload conditions and after shutdown.

Section 4
OPERATION

4.2 PURPOSE OF CONTROLS (continued)

Control or Indicator	*Purpose*
COMPRESSOR DISCHARGE TEMPERATURE SWITCH	Opens the electrical circuit to shut down the machine when the discharge temperature reaches 240°F (115°C).
HIGH PRESSURE SHUTDOWN SWITCH	An added protective device designed to shut down the machine when the pressure becomes too high. This switch is set for shutdown at approx. 135 PSI (931 kPa).
WATER PRESSURE SWITCH	Prevents operation when water pressure of machine is inadequate.
PRESSURE RELIEF VALVE	Opens sump pressure to the atmosphere should pressure inside the sump become too high. (140 PSI) (964.6 kPa). Operation of this valve indicates that the high pressure switch is either faulty or out of adjustment.
SULLICON CONTROL	Regulates the amount of air allowed to enter the air inlet valve. This regulation is determined by the amount of air being used at the service line.
PRESSURE REGULATOR	Opens a pressure line between the sump and Sullicon Control allowing the Sullicon Control to regulate air delivery according to air demand.
PILOT VALVE	Bypasses the pressure regulator valve causing the Sullicon control to close the inlet valve when the machine reaches maximum operating pressure.
PRESSURE SWITCH	Senses service line pressure. When line pressure reaches maximum setting the pressure switch signals the pilot valve to unload the machine.
BLOWDOWN VALVE	Vents sump pressure to the atmosphere during unload conditions and shutdown.
WATER REGULATING VALVE (Water-cooled only)	Regulates the amount of cooling water used in the cooler to keep the machine running at a normal operating temperature.

4.3 INITIAL START-UP PROCEDURE

The following procedure is to be used to make the initial start-up of the machine:

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 your service line.
4. Start the machine by pushing the start button.
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 machine will unload at your desired unload pressure. If adjustments are necessary, see Control System Adjustments in the Maintenance Section of the manual.
7. Observe the operating temperature. If the operating temperature exceeds 200°F (93.3°C), your cooling system or installation environment should be checked.
8. Observe return line sight glass and maintenance gauges.
9. Open shut-off valve to service line.
10. Reinspect the machine for temperature and leaks the following day.

4.4 SUBSEQUENT START-UP PROCEDURE

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

4.5 SHUTDOWN PROCEDURE

To shut the machine down, simply press the stop button.

Section 5
MAINTENANCE

5.1 GENERAL

As you proceed in reading this Section, it will be easy to see that the Maintenance Program for your Air Compressor is quite minimal. The use of the service indicators provided for the bearing filter, air filter and oil 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 5.6 for Parts Replacement and Adjustment procedures.

5.2 DAILY OPERATION

Prior to starting your machine, it is necessary to check the oil level in the sump. Should the level be low, simply add the necessary amount. If the addition of oil becomes too frequent, a simple problem has developed which is causing this excessive loss. See the Troubleshooting Section (5.8) under excessive oil 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 that particular phase of operation. After the machine has warmed up, it is recommended that a general check on the overall machine and instrument panel be made to assure that the compressor is running properly.

⚠WARNING

Do not remove caps, plugs, or other components when compressor is running or pressurized.

Stop compressor and relieve all internal pressure before doing so.

5.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

After the initial 50 hours of operation a few maintenance requirements are needed to rid the system of any foreign materials which may have accumulated during machine assembly. Perform the following maintenance operations to prevent unnecessary problems:

1. Clean the return line strainer.
2. Clean the return line orifice.
3. Clean the compressor unit gear housing, bearing and shaft seal orifices.

5.4 MAINTENANCE EVERY 1000 HOURS

1. Clean the return line strainer.
2. Lubricate the Sullicon Control linkage.
3. Replace the bearing filter element and clean or replace the main strainer element.
4. **STANDARD MACHINES ONLY!** Drain the sump and change the compressor fluid.

5.5 FILTER MAINTENANCE

Replace your bearing filter and clean or replace your main strainer element under any of the following conditions, whichever occur first:

1. As indicated by the maintenance gauge.
2. Every 1000 hours.
3. Every 6 months.
4. **STANDARD MACHINES ONLY!** Every fluid change.

5.6 SEPARATOR MAINTENANCE

Replace your separator element when your separator maintenance gauge shows red or after one (1) year, whichever comes first. The separator element must be replaced. Do not clean the separator element.

5.7 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

BEARING FILTER ELEMENT REPLACEMENT

Refer to Figure 5-1.

1. Using a strap wrench, remove the old element and gasket.
2. Clean gasket seating surface.
3. Apply a light film of oil to the new gasket.
4. Hand tighten new element until new gasket is seated in the gasket groove.
5. Continue tightening element by hand an additional 1/2 to 3/4 turn.
6. Restart machine 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 substitute elements* **NOT** *be used, due to the fact that such filters may have inadequate or questionable working pressure ratings.*

Figure 5-1 Bearing Filter

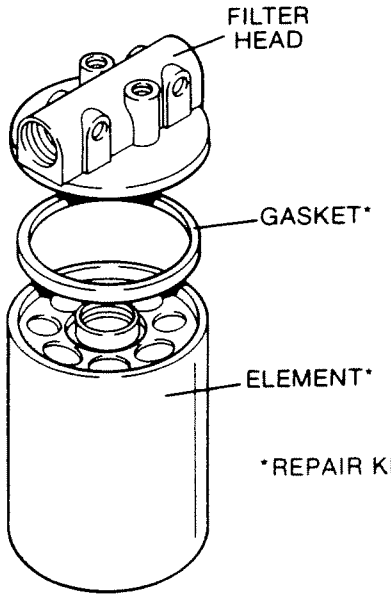
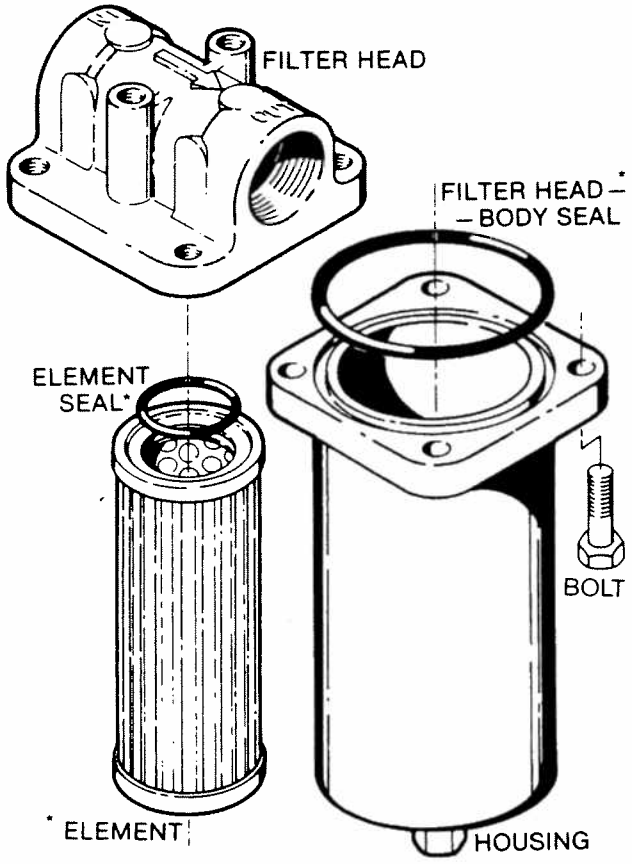


Figure 5-2 Main Strainer



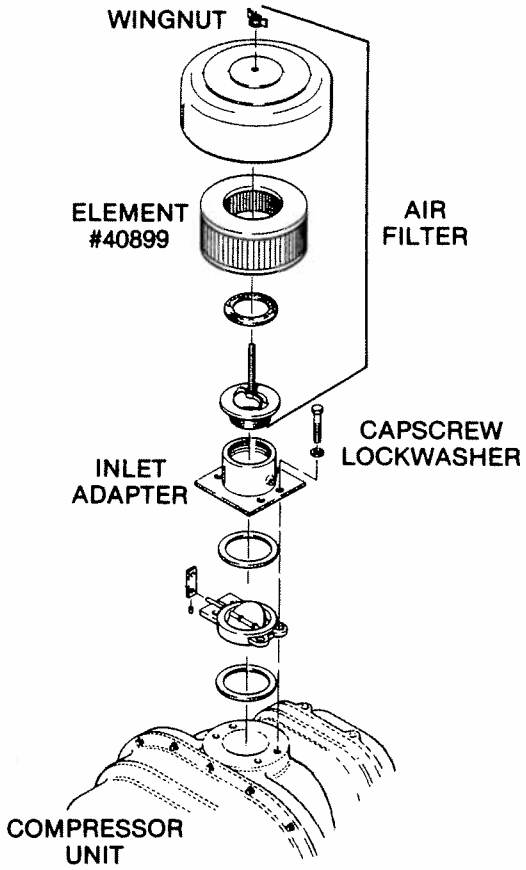
*REPAIR KIT 1158
(SEAL KIT 1175 INCLUDES SEALS ONLY!)

SERVICING MAIN STRAINER
Refer to Figure 5-2.
The strainer is located in the compressor cooling and lubrication system between the receiver/sump and compressor unit. This is a full-flow strainer with a stainless steel element. For servicing of this strainer, order repair kit 1158 or seal kit 1175 for seals only. The procedure for complete service of the main strainer is explained below.

Disassembly
1. Disassemble the strainer housing by removing the 4 capscrews holding the head assembly to the main body.
2. Remove the head assembly and attached element from the main body.
3. Remove the bowl seal from the main body.
4. Dislodge the element from the head assembly and wash thoroughly with: 1) trichloroethylene; 2) Stoddard solvent; or 3) acetone; or replace if uncleanable.
5. Clean the head assembly and housing thoroughly.

Reassembly
1. Lubricate the new bowl seal and reposition in main housing.
2. Reinstall element on to the head assembly.
3. Place head assembly with attached filter back into housing.
4. Retighten the four capscrews.

Figure 5-3 Air Filter Replacement



AIR FILTER MAINTENANCE
Refer to Figure 5-3.
Air filter maintenance should be performed when the maintenance gauge shows red or once a year, whichever comes first. The air filter supplied with your machine has a cleanable type element. If the filter needs to be replaced, order element 40899. Below you will find procedures on how to replace and how to clean the air filter element:

Air Filter Element Replacement
1. Clean exterior of air filter housing.
2. Remove the air filter cover by loosening the wing bolt securing the cover.
3. Remove element and clean interior of housing using a damp cloth. Do not blow dirt out with compressed air.
4. At this time clean or replace the element.
5. Reassemble in the reverse order of the disassembly.

Air Filter Element Cleaning
The air filter element is cleanable by using compressed

air. The maximum amount of times that an element should be cleaned is six (6) times. However, the element should be used no longer than a period of one (1) year without changing.

Prior to cleaning an element, check the element for damage. Damaged elements are to be replaced.

Compressed air shall be used for cleaning purposes except in full compliance with OSHA Std. 29CFR 1910.242(b).

Do not strike the element against any hard surface to dislodge dust. This will damage the sealing surfaces and possibly rupture the element.

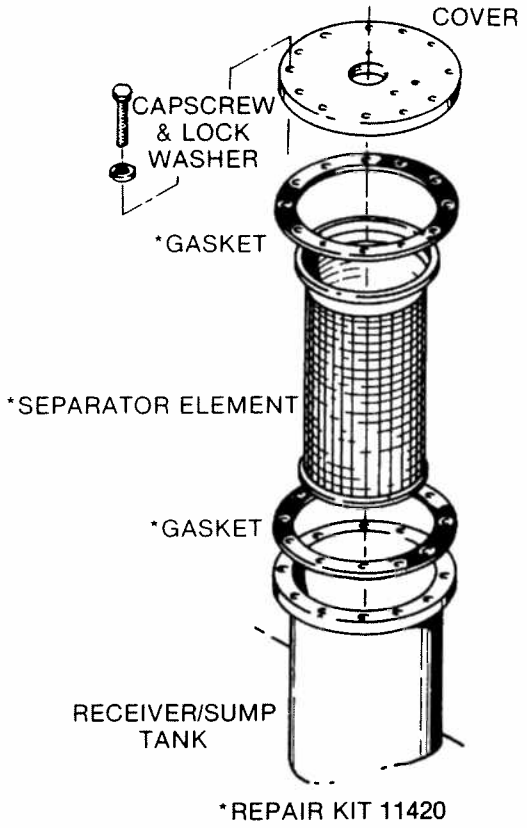
Never "blow" dirt out of the interior of the filter housing. This may introduce dust downstream of the filter. Instead, use a clean damp cloth.

Do not oil the element.

Method 1: Cleaning the Element with Compressor Air. When cleaning the element with compressed air, never let the air pressure exceed 30 PSI (207 kPa). Reverse flush the element by directing the compressed air up and down the pleats in the filter media from the "clean side" of the element. Continue reverse flushing until all dust is removed. Should any oil or greasy dirt remain on the filter surface, the element should then be replaced. When the element is satisfactorily cleaned, inspect thoroughly prior to installation. (See element inspection.)

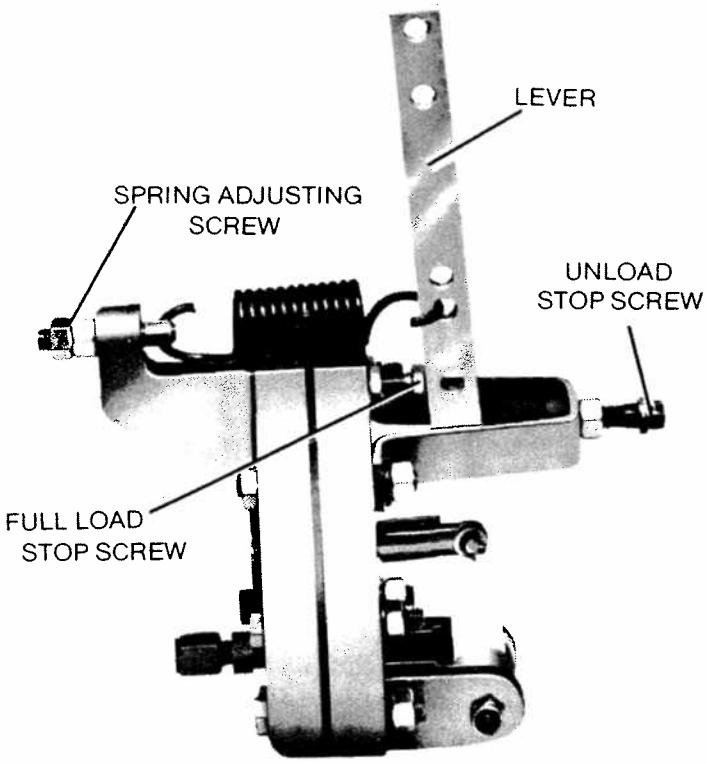
Element Inspection
1. Place a bright light inside the element to inspect for damage or leak holes. Concentrated light will shine through the element and disclose any holes.
2. Inspect all gaskets and gasket contact surfaces of the housing. Should faulty gaskets be evident, correct the condition immediately.
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, if necessary, all air inlet connections prior to resuming operation.

Figure 5-4 Separator Element Replacement



SEPARATOR REPLACEMENT
Refer to Figure 5-4.
The separator must be changed when the maintenance gauge shows red, or once a year, whichever occurs first. Order separator element repair kit 11420. Follow the procedure explained below for separator 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 8 hex head capscrews (5/8" x 2") from the cover plate.
4. Lift the cover plate from the sump.
5. Remove the separator element.
6. Scrape the old gasket material from the cover and flange on the sump being careful not to let the scraps fall in the sump.
7. Inspect the receiver/sump tank for rust, dirt, etc..
8. Install the new gaskets (Part #45636); one on the sump tank and one on top of the element. Make sure gaskets have grounding staples.
9. Reinsert the separator element (Part #41290) into the sump taking care not to dent it against the tank opening.
10. Clean the underside of the receiver/sump tank cover and remove any rust. Paint surface with an epoxy paint.
11. Replace the cover plate, washers and capscrews. Torque to 55 ft. lbs.
12. Reconnect all piping making sure the return line tube extends to the bottom or 1/4" above the bottom of the separator element. This will assure proper fluid return flow to the compressor.
13. Clean the return line strainer before restarting the machine.

Figure 5-5 Sullicon Control



REPAIR KIT 11579

CONTROL SYSTEM ADJUSTMENT
Refer to Figures 5-5 and 5-6.
Prior to adjusting the control system, it is necessary to determine the desired operating pressure range and also the maximum pressure at which your machine is to operate. (This pressure must not exceed the maximum operating pressure which is stamped on the machine serial number nameplate). The following explanation applies to a typical installation with a desired operating range of 100-110 PSI (689 to 758 kPa). This information will apply to a machine with any other operating range excepting the stated pressures.

Remove the appropriate panels and covers to the pressure switch, pilot valve, and pressure regulator. With the shut off valve closed (or slightly cracked open) start the machine. Observe the line pressure gauge and pressure switch contacts. When the line pressure reaches the desired pressure, 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 5-6.)

⚠ DANGER

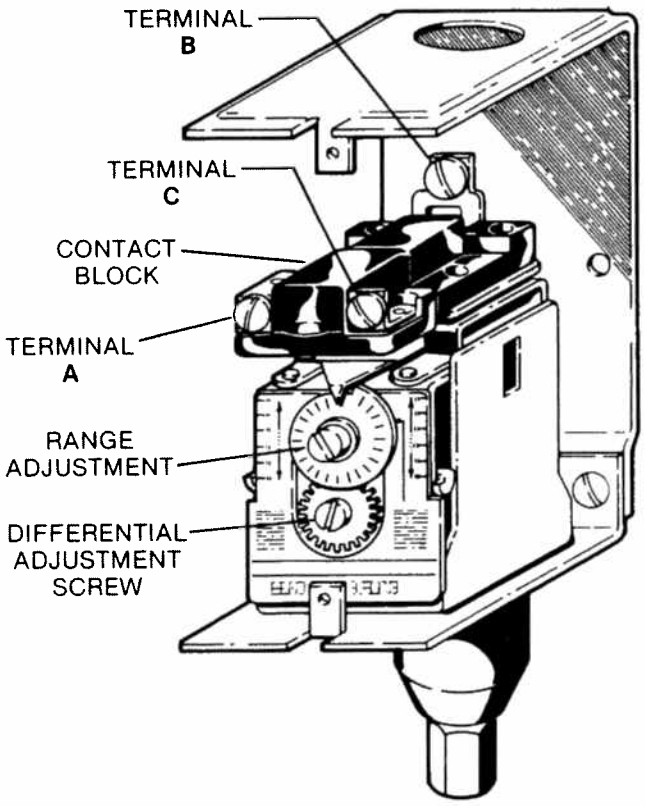
DO NOT touch the electrical contacts, terminal or leads with any metallic object. Severe electrical shock may occur.

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 setting equally.

For Differential Adjustment:
Differential is the difference between the high and low pressure settings (10 PSI 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.

When the pressure switch adjustment is complete, the pressure regulator should be adjusted for the pressure at which modulation of air delivery should begin. In this case, that pressure will be 100 PSI (689 kPa). The regulator is adjusted by loosening the jam nut on the end of the cone shaped cover of the pressure regulator. (Refer to Figure 5-15 for the location.) When the jam nut is loose, turn the adjusting screw clockwise to increase or counterclockwise to decrease the setting.

Figure 5-6 Allen Bradley® Pressure Switch 40694



Above 100 PSI (689 kPa), the regulator should allow pressure to flow into the control chamber of the Sullicon Control. The Sullicon Control lever should start to move at this time.

Cycle the control system several times and recheck all pressure settings.

MINIMUM PRESSURE VALVE MAINTENANCE
Refer to Figure 5-7.
Minimum pressure valve maintenance is quite minimal. The only part which normally requires replacement is the seal ring on the piston. To replace this ring, order repair kit no. 1177 and follow the procedure explained below:
1. Unscrew the minimum pressure valve from the receiver cover.
2. Remove hexagonal retaining cover from the main body.
3. Remove the flat washer and heavy spring from the main body.
4. Tap the piston assembly (with a screwdriver) from the bottom of the main body and remove. The seal ring will now be seen easily.
5. Remove the seal ring and discard.
6. Clean piston assembly and valve thoroughly.
7. Replace seal ring (826502-123) and coat the piston and seal with Parker Super "O" ring seal or an equivalent quality grease.

Figure 5-7 Minimum Pressure/Check Valve

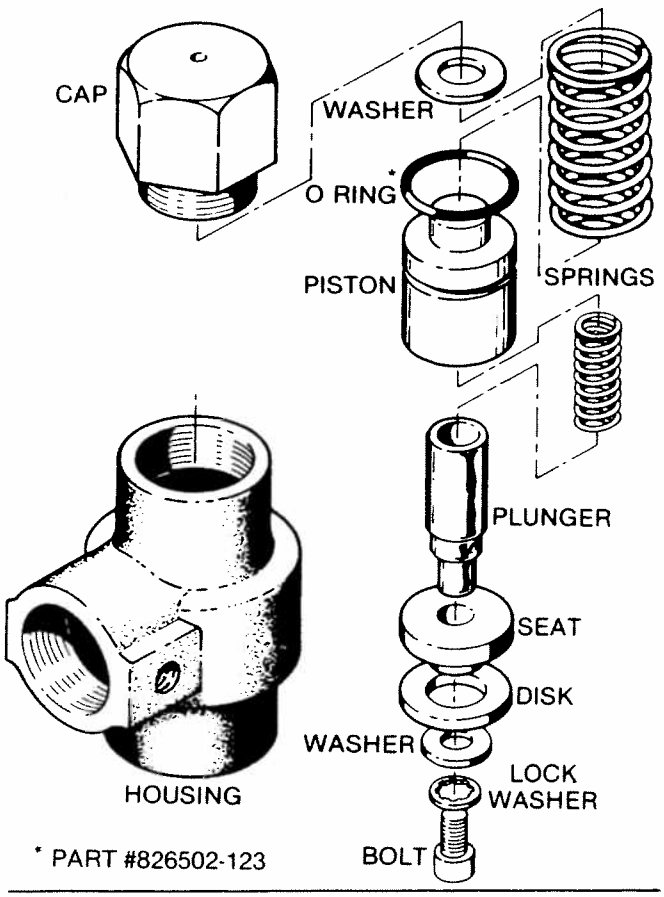
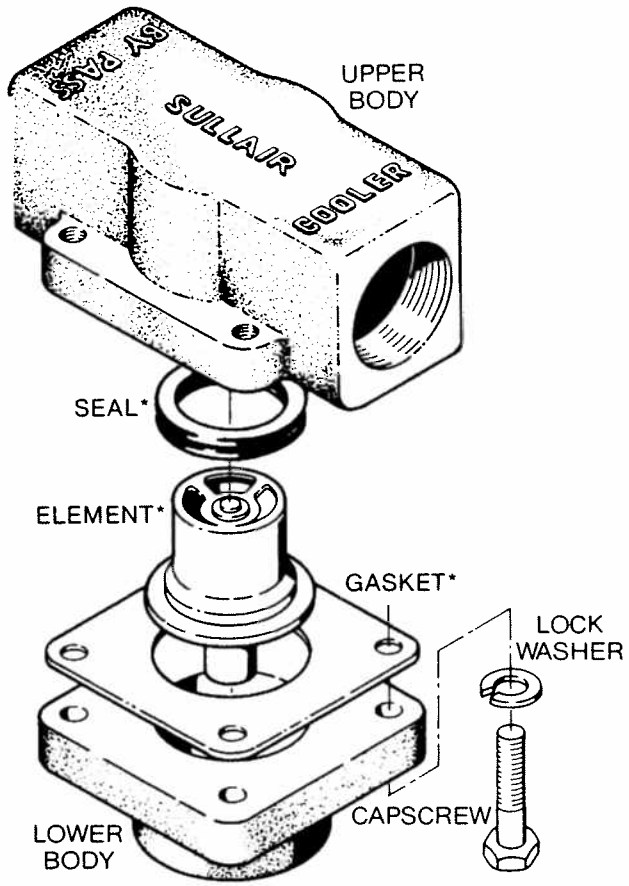


Figure 5-8 Thermal Valve



8. Reset piston assembly into the main body and reposition spring and flat washer.
9. Replace retaining cover.
10. Reattach valve to receiver cover and reconnect all piping.

THERMAL VALVE MAINTENANCE
Refer to Figure 5-8.
For thermal valve maintenance, order the following Sullair Parts: 1 quad ring (46425), 1 gasket (49812), and (if necessary) thermal element (49542). Follow the procedure explained below for installation.

Disassembly
1. Remove the appropriate piping from the thermal valve before starting disassembly.
2. Remove the four (4) capscrews holding the housing together and separate the upper housing from the lower housing.
3. Remove the gasket from between the housings.
4. Pull firmly on the thermal element and remove.

Section 5
MAINTENANCE

NOTE

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

5. Remove the quad ring from the lower housing and discard.

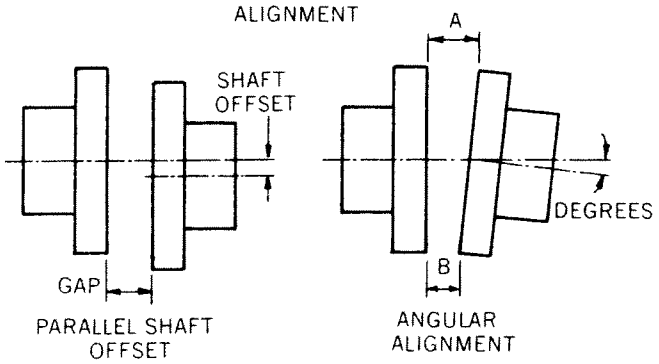
Reassembly
1. Grease and replace the quad ring in the center of the lower housing.
2. Reinsert the thermal element pushing down until the brass ring is flush with the surface of the lower housing.
3. Position a new gasket on the lower housing making sure holes are properly aligned.
4. Place the upper housing on the lower housing and retighten the capscrews.
5. Replace all piping connected to the thermal valve.

DRIVE COUPLING INSTALLATION AND ALIGNMENT FOR 40 OR 50 HP MACHINE
Refer to Figures 5-9, 5-10 and 5-11.
For coupling installation and alignment, the tools required will be one set of standard allen wrenches and a dial indicator. If a dial indicator is not available, an alternate method of checking the alignment may be used as a secondary or less desirable technique. This method of checking is done by careful use of a square or metal straight edge feeler gauge and a set of inside calipers (see Figure 5-11). Those specifications in Table 1 which are designated in inches are provided for this method.

⚠DANGER

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

Figure 5-9. Drive Coupling Alignment



STEP 1 MOUNT HUBS – Mount the motor hub and the compressor hub on their respective shafts after carefully inspecting the hub bores and shafts for dirt and burrs. It is also necessary to check for a proper key fit. Place the keys in the position being sure that the end of the key is flush with the end of the shaft. Secure the compressor hub on the shaft with setscrews. Place the element between the hubs and push the motor hub to engage the element. After engaging the element, set the motor hub for proper gap as specified in Table 1 and secure the motor hub with a setscrew. When the hub gap is properly set, you will be able to move the element in a slight back and forth motion (unless the coupling is extremely out of alignment).

STEP 2 ANGULAR ALIGNMENT – Clean oil and dirt from the hubs in preparation for angular alignment. Position the dial indicator on the hubs as shown in Figure 5-11. Rotate both hubs equally to check alignment.

TABLE 1
INSTALLATION DATA – Series 12 Couplings 40/50 HP

Coupling Gap ±.03	Max Operating Misalignment		
	Parallel Offset	Angular	
Inches	Inches	Degrees	Inches*
1.16	.008	.25	.010

* Angular misalignment in inches equals maximum A minus minimum B as shown in Figure 5-9. Do not exceed values in Table above.

Angular alignment is indicated by the difference in indicator readings or by the difference in caliper measurements (X) (A – B = X) See Figure 5-11.

Vertical angular alignment is achieved by placing shims under the front or rear motor feet while horizontal angular alignment is achieved by sliding the motor sideways.

STEP 3 PARALLEL OFFSET ALIGNMENT – Reposition the dial indicator as shown in Figure 5-11. Rotate both hubs equally to check for misalignment. Parallel offset alignment is equal to 1/2 the difference in indicator readings 180° apart or the gap between the hub and straight edge when the alternate method is used.

Vertical parallel offset is corrected by the addition or removal of equal amounts of shims under the motor feet while horizontal parallel offset is corrected by sliding the motor sideways.

DRIVE COUPLING INSTALLATION AND ALIGNMENT FOR 60 H.P.
Refer to Figures 5-9, 5-11, and 5-12.
For coupling installation and alignment, the tools required will be a straight edge, a measuring scale, one set of feeler gauges, one set of standard allen wrenches, and one set of standard socket wrenches.

The first step in coupling installation is assembling the taper lock bushings to each hub. Proceed according to the following instructions for assembly of the bushings and hubs:

Figure 5-10 Drive Coupling 40 AND 50 H.P.

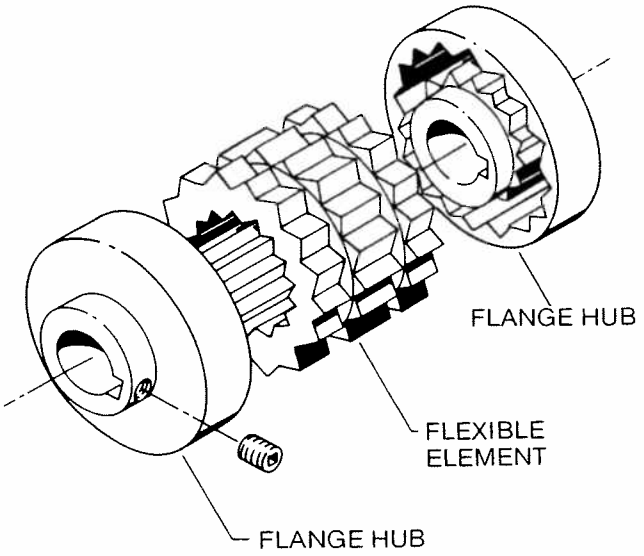
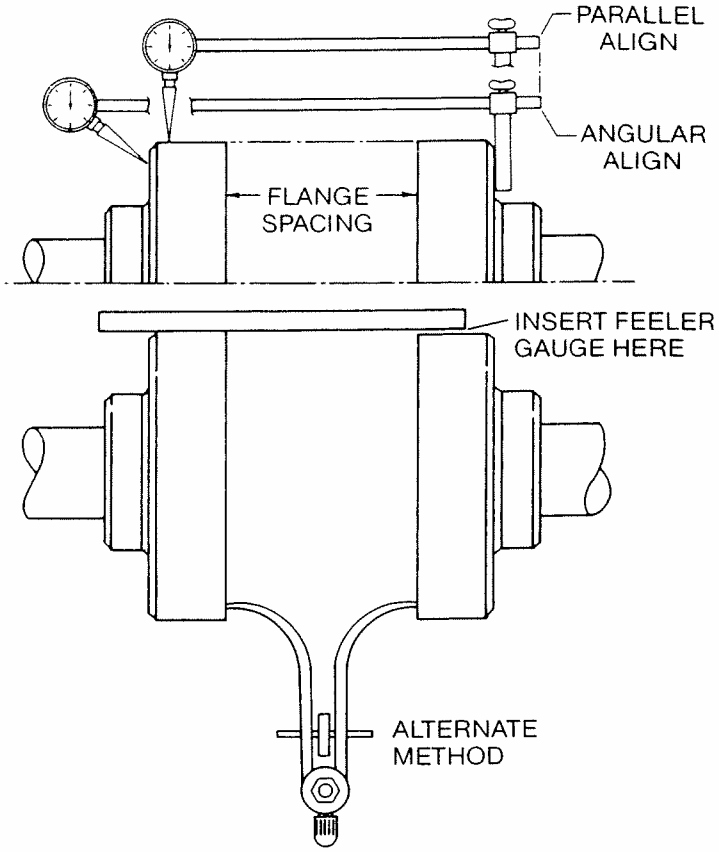


Figure 5-11 Drive Coupling Alignment Methods



⚠WARNING

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

1. Clean the shafts, bores, keys and keyseats. Be sure the keys fit properly—file if necessary.
2. Place the bushing in the hub and match the half holes of the bushing with the half holes of the hub.
3. Oil the threads and points on the setscrews. Place the setscrews in the holes loosely.
4. Be sure the bushing is in the hub loosely and then slip the assembly onto the shaft.
5. Tighten the setscrews alternately and evenly until they are pulled up securely. (Torque to 410 in.-lbs.)
6. Hammer against the large end of the bushing, using sleeve or block to avoid damage. Turn set screws slightly. Repeat this procedure until the screws will no longer turn. (Do not exceed 410 in.-lbs.)

Removal of Bushing

1. Remove the 4 setscrews and oil the threads and points.
2. Insert the setscrews on the opposite side of the bushing. Tighten the screws evenly until the bushing is loose. If the bushing does not loosen immediately, tap on the hub with a rubber or brass hammer.

For installation and alignment of the Thomas® Rexnord elastomer coupling, follow the steps explained below.

Refer to Figure 5-12.

STEP 1 Mount the hubs—Flush mount each hub on its respective shaft.

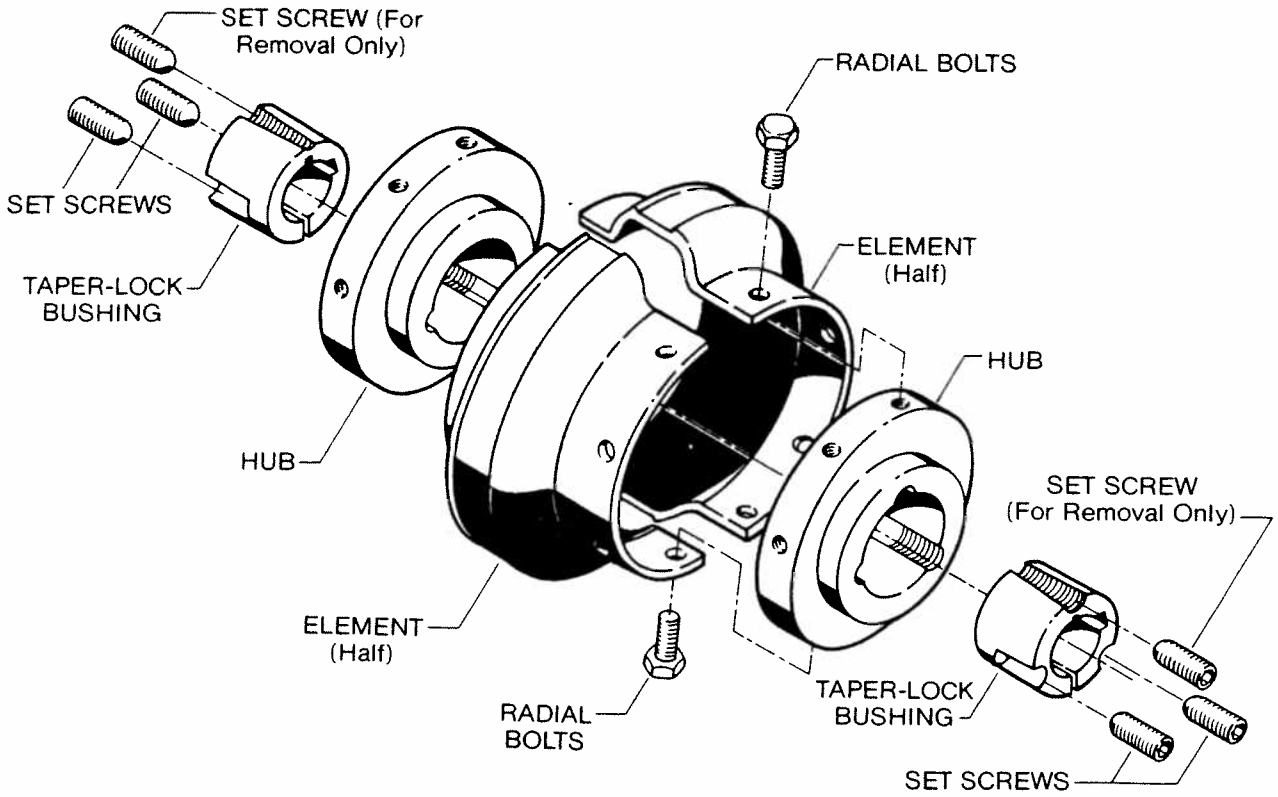
TABLE 2
INSTALLATION DATE—Series 12 Couplings 60 H.P.

Cap Screw Tightening Torque lb-in.	Coupling Gap ± .030 Inches	Max Operating Misalignment Parallel Offset Inches	Angular Degrees	Angular Inches*
		T.I.R.		
370	1.50	.005	.5	.005

* Angular misalignment in inches equals maximum A minus minimum B as shown in Figure 5-11. Do not exceed values in table above.

STEP 2 Offset alignment—Position equipment for coupling gap (approx. 2.125" [53.98mm]). Align the shafts so that a straight edge will rest squarely (or within the

Figure 5-12 Drive Coupling 60 H.P.



offset limits specified in Table 2) on both flanges and at a point 90° away. Vertical offset alignment is adjusted by the addition or removal of motor mounting shims. Loosen motor mounting bolts and slide the motor sideways to correct the horizontal offset.

STEP 3 Gap and angular alignment – Align shafts within the angular limits and to the coupling gap specified in Table 2. To determine angular misalignment in inches, measure the maximum space between flanges and the minimum space 180° away, then subtract. To adjust the horizontal angular alignment, loosen the motor mounting bolts and adjust the motor position until the angular alignment is within tolerance. NOTE: DO NOT upset the offset alignment or hub gap when adjusting motor position. Tighten the mounting bolts and recheck offset and angular alignment (within the limits specified in Table 2). If the vertical angular alignment is not within the specified tolerence, shim the front or rear of the motor separately to correct. Recheck the vertical offset.

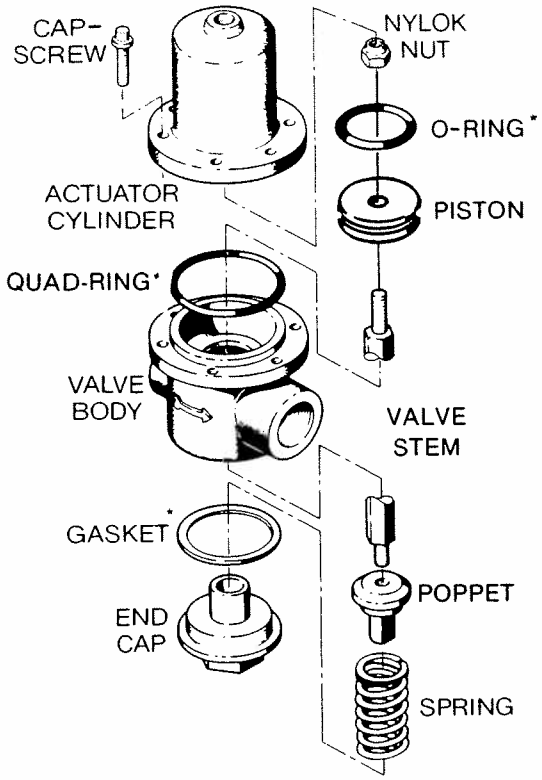
STEP 4 Placement of the urethane flexible element – Position each urethane element half on the previously aligned hubs and tighten the 8 radial bolts to 370 in.-lbs. After completing the alignment, start the machine and watch for excessive vibration. If excessive vibration occurs, this indicates a misalignment possibility. Stop the machine and recheck all alignment specifications.

FLUID STOP VALVE MAINTENACE
Refer to Figure 5-13.
When servicing valve no. 16741, order repair kit no. 1684.

The following instructions are in accordance with repair kit no. 1684.
1. Remove the capscrews securing the cylinder to the valve body and remove the cylinder. Inspect for scratches, scuffing, etc..
2. Disassemble the o-ring from the piston.
3. Discard the old o-ring. Replace the o-ring with the new one provided in the kit.
4. Remove and replace the valve body o-ring and reassemble the cylinder to the valve body.

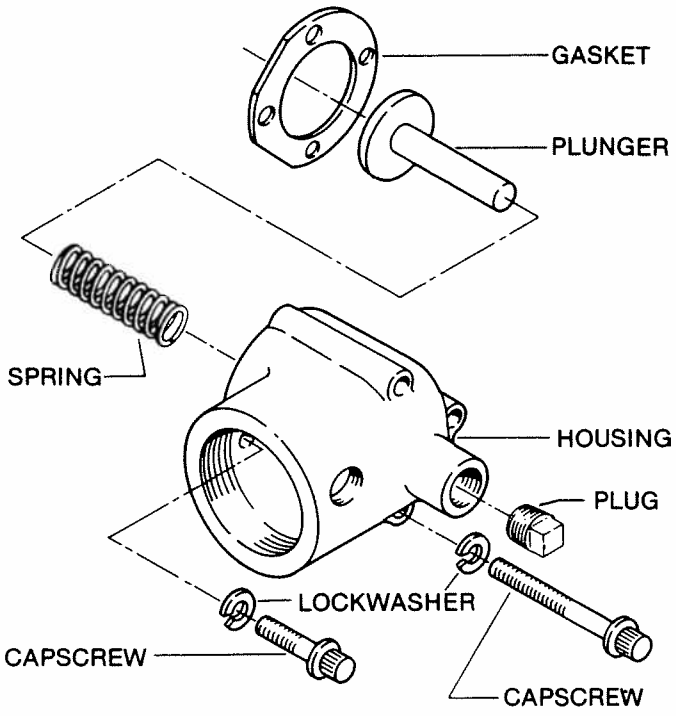
DISCHARGE CHECK VALVE REMOVAL
Refer to Figure 5-14.
The discharge valve is removed from the compressor unit as follows:
1. Disassemble the flexmaster coupling on the discharge piping from the compressor unit to the sump.
2. There are four (4) mounting bolts which hold the housing to the compressor unit. Three are exposed and the fourth is concealed behind the temperature gauge. Remove all four bolts. The fourth bolt is removed by disconnecting the electrical leads to the probe and removing the probe. Using a 3/8" drive 12 point socket, remove the fourth bolt.

Figure 5-13 Fluid Stop Valve 16741



*REPAIR KIT #1684

Figure 5-14 Discharge Check Valve

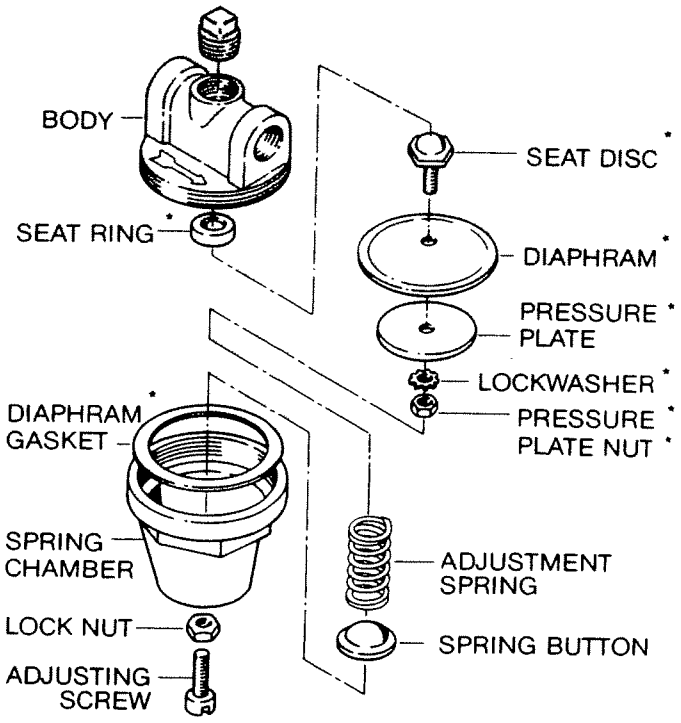


3. Firmly tap the discharge valve housing with a brass or rubber hammer to break the gasket seal between the housing and flanged adapter.
4. Should, scoreing, polishing or wear be evident change the plunger and spring.
5. Always clean the gasket surfaces and replace the gasket when reinstalling the discharge valve.

PRESSURE REGULATOR VALVE MAINTENANCE
Refer to Figure 5-15.
Pressure Regulator Maintenance normally requires the replacement of the internal diaphragm. Use repair kit No. 41742 and follow the procedure below for proper installation.
1. Loosen the locknut and turn the adjusting screw counterclockwise until the inner spring tension is relieved. The adjusting screw should turn freely when the spring tension is relieved.
2. Remove the spring chamber from the body to allow access to internal parts.
3. Next, remove the spring button and the spring. The dampener will stay inside the spring as it is removed. Leave the dampener inside the spring as there is no need to remove it.
4. After removing the spring, remove the gasket stop and brass gasket.
5. At this time, remove the pressure plate nut and disassemble the pressure plate, diaphragm, diaphragm gasket (rubberized asbestos), seat disc and seat gasket.
6. Remove and discard the seat ring.
7. The next step is to reassemble the regulator using the new parts provided in your repair kit.
8. Reassemble the diaphragm, pressure plate, gasket, seat disc, and seat disc gasket and tighten the nut. All of these parts with the exception of pressure plate are provided in the repair kit.
9. Replace the seat ring with the new seat ring provided.
10. Replace the existing brass gasket and diaphragm gasket stop.
11. Next, place these parts in their proper place on the body and replace the spring as it was prior to disassembly.
12. Place the spring button over the spring as shown.
13. With all parts in order replace the spring chamber and tighten.
14. Tighten the adjusting screw until tension is realized.
15. At this time, refer to Control System Adjustment Procedure to readjust the control regulator.

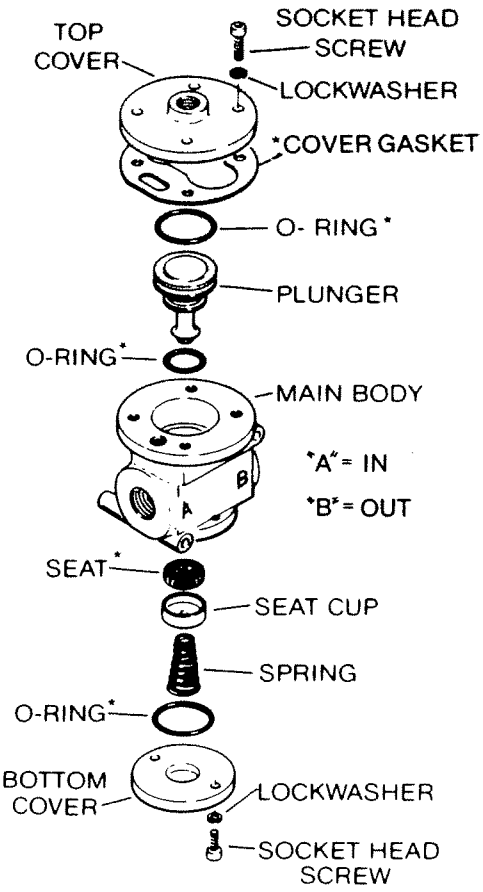
BLOWDOWN VALVE MAINTENANCE
Refer to Figure 5-16. Blowdown Valve Maintenance is limited to replacement of the internal diaphragm. Using Replacement Diaphragm Kit No. 46782 follow the instructions below for proper installation:

Figure 5-15 Pressure Regulator 406929



*REPAIR KIT 41742

Figure 5-16 Blowdown Valve 44912



*REPAIR KIT 46782

1. Remove the four screws which hold the assembly together.
2. Pull the top cover away from the body.
3. Remove the old gasket and O-ring and replace with the new ones.
4. Align the top cover with the body, replace the four screws and tighten.

FLEXMASTER® COUPLING MAINTENANCE
Refer to Figure 5-17.
Flexmaster® coupling maintenance normally requires the replacement of the 2 gasket rings on the coupling. Select appropriate gasket rings from Table 3 and follow the procedure below for proper installation.

PIPE END PREPARATION
1. Deburr and clean the pipe ends.
2. The pipe ends should be free of all deep scratches, gouges, dents, etc. A special finish is not required.

JOINT INSTALLATION
1. Install the retainer (1), gasket (2), and sleeve on one side of the pipe as shown in Step 1.
2. Install the remaining retainer (4) and gasket (5) on the other pipe end.
3. Position the retainer (4) and gasket to proper pipe insertion depth ("D") as shown in Table 1.
4. Slide the sleeve (3) to the gasket (5) and move gasket (2) and retainer (1) into position as shown in Step 2. The pipe *must be* inserted to the proper depth ("D") into both gaskets.

COUPLER INSTALLATION
1. Install both V couplings as shown in Step 3, encompassing the retainer, gasket and sleeve. DO NOT tighten either coupling until the entire joint has been assembled.
2. Tighten the nuts to the torque valves shown in Table 2. RECOMMENDED ASSEMBLY TORQUE MUST BE MAINTAINED. Retightening of the coupler will be necessary if leakage occurs.

SPECIAL NOTES
1. Assembly of the gaskets can be made easier by dipping the gaskets in water or the oil to be sealed. Do not use other rubber lubricants.
2. Flexmaster joints are not intended to support end loads caused by internal pressure or other forces causing pipe separation.

Figure 5-17 Flexmaster® Coupling

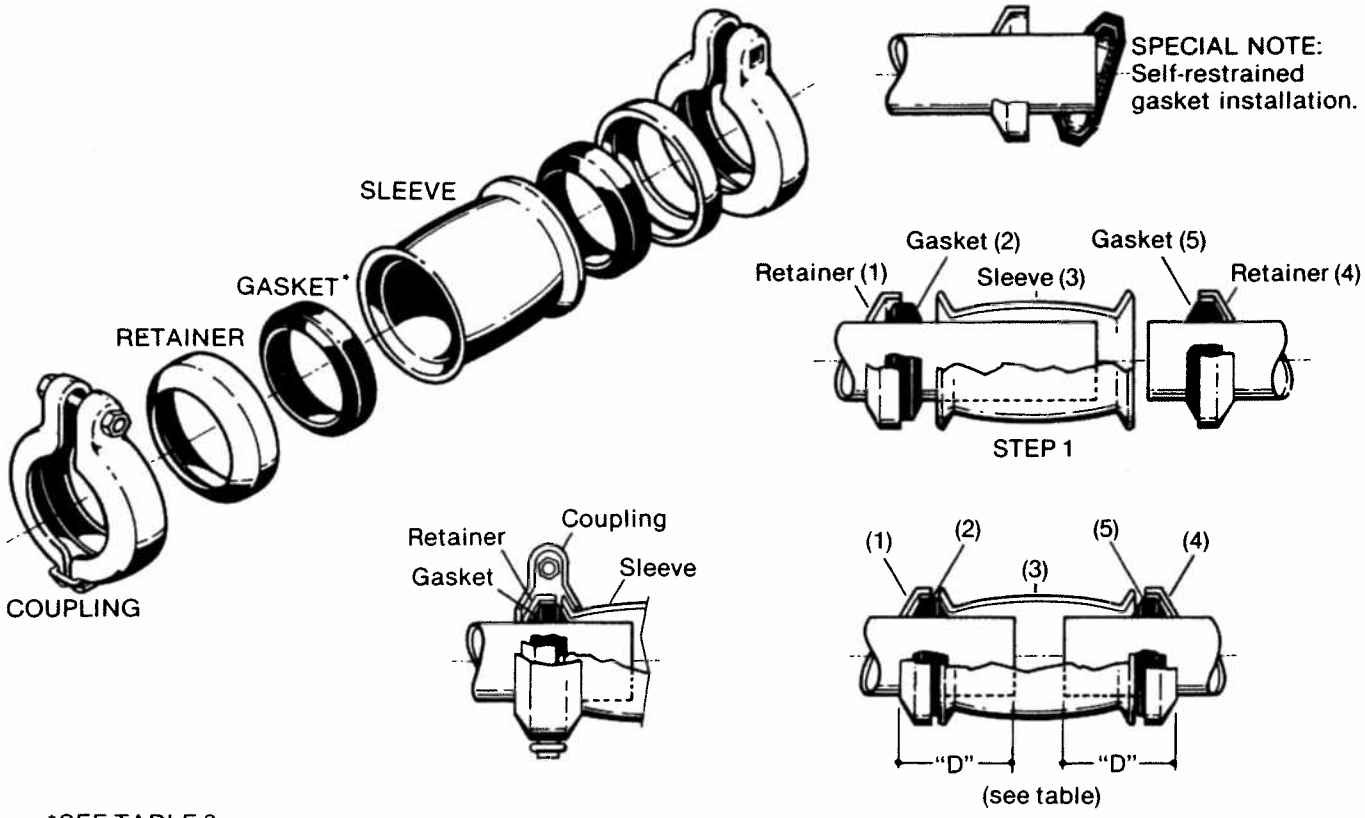


TABLE 1 INSERTION DEPTH

PIPE SIZE	"D" Min.	"D" Max.
2 1/2"	1.68"	2.38"
63.5mm	42.7mm	62.5mm

TABLE 2 ASSEMBLY TORQUE*

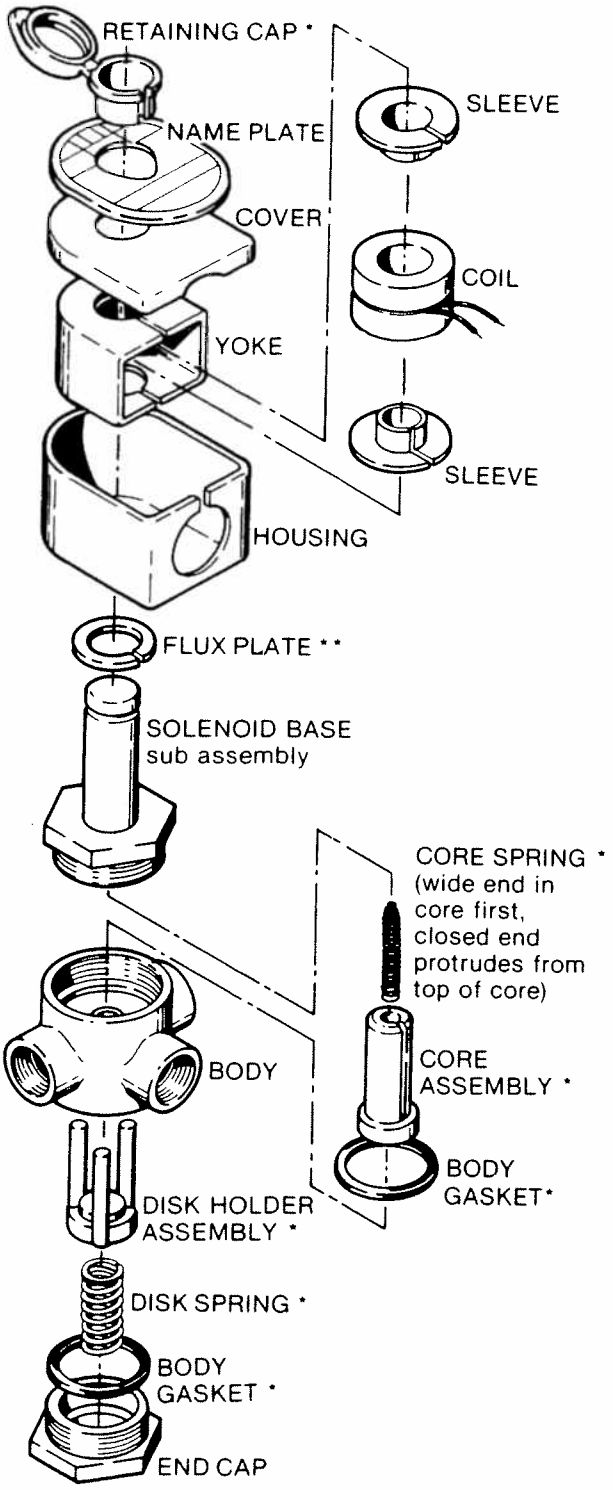
Size	
2 1/2" (63.5mm)	180-200 in.-lbs. (20.27-22.52Nm)

* Tighten as shown in chart or a minimum of 1/16" (1.5mm) clearance between coupling lugs, whichever comes first.

TABLE 3 GASKET RING SELECTION

Size	Part Number Standard	Part Number 24KT
2 1/2"	40649	46989

Figure 5-18 Pilot Valve



* REPAIR KIT 42246

PILOT VALVE MAINTENANCE
Refer to Figure 5-18.
Pilot valve maintenance is quite minimal but a periodic cleaning is desirable. The time between cleanings will vary depending on operating conditions. In general, if the voltage to the coils is correct, sluggish valve operation or excessive leakage will indicate that cleaning is required. If parts replacement is required, order repair kit no. 42246 and follow the procedure explained below:

⚠WARNING

Turn off all power, relieve line pressure, and disconnect coil lead wires to the valve before making repairs.

It is not necessary to remove the valve from the pipe line for repairs.

Disassembly and Reassembly
1. Remove the retaining cap and slip the entire solenoid off the solenoid base subassembly.
2. Unscrew the solenoid base assembly. Remove the core assembly, core spring and body gasket.
3. Next, remove the end cap, body gasket, disc spring, and disc holder assembly.
4. All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with kit 42246 for best results.
5. Reassemble in reverse order of disassembly.

Coil Replacement
1. Remove the retaining cap, nameplate and cover.
2. Slip the yoke containing the coil and sleeves off the solenoid base sub-assembly.
3. Reassemble in reverse order of disassembly.

5.8 TROUBLESHOOTING

The information contained in the troubleshooting chart has been compiled from data gathered from field service reports and factory experience. It contains symptoms and common causes for the service problems described, however, DO NOT assume that these are the only problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repairs or components replacement operations.

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

a. Check for loose wiring.
b. Check for damaged piping.
c. Check for parts damaged by heat or high electrical power. Usually apparent by discoloration or burned odor.

Should your problem persist after making the recommended checks listed above, consult your nearest Sullair office or the Sullair Corporation Service Department.

Section 5
MAINTENANCE

TROUBLESHOOTING

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
1. Machine will not start.	1. Main disconnect switch open. a. Close switch. 2. Line fuse blown. Replace fuse. 3. Control transformer fuse blown. a. Replace fuse. 4. Motor starter overloads tripped. a. Reset. Should trouble persist, check whether motor starter contacts are functioning properly. 5. Low incoming line voltage. a. Check voltage. Should voltage check low, consult your power company.
2. Machine shuts down with air demand present.	1. Loss of control voltage. a. Reset. If trouble persists, check that line pressure does not exceed max. operating pressure of your machine (specified on nameplate). 2. Low incoming voltage. a. Consult power company. 3. Excessive operating pressure. a. Defect in pressure switch: check pressure at which contact points open. b. Separator requires maintenance: check maintenance indicator under full load conditions. c. High pressure shutdown switch is adjusted too low: readjust to 135 PSIG. d. Defective pilot valve: pilot valve should cause control lever to move to unload stop when the pressure switch contacts open. Repair if defective. e. Defective Blowdown valve: blowdown valve should exhaust sump pressure to 40-55 PSI when maximum operating pressure is reached. Repair if defective. 4. Discharge temperature switch open. a. Cooling water temperature too high: increase water flow (water-cooled only). b. Cooling water flow insufficient: check water lines and valves (water-cooled only). c. Cooler plugged: clean tubes. If plugging persists, install water conditioner (water-cooled only). d. Cooling air flow restricted: clean cooler and check for proper ventilation. e. Ambient temperature is too high: provide sufficient ventilation. f. Low fluid level: add fluid. g. Clogged filter: change the fluid filter element and change the bearing filter element if maintenance indicator shows red. h. Thermal valve not functioning properly: replace element (air-cooled only). i. Water-flow regulating valve not functioning properly: change (water-cooled only). j. Defective discharge temperature switch. Check for a short or open circuit to probe and correct wiring.

Section 5
MAINTENANCE

TROUBLESHOOTING

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
3. Machine will not build up full discharge pressure.	1. Air demand too great. a. Check service lines for leak or open valves. 2. Dirty air filter. a. Check filter indicator and change or clean element if required. 3. Pressure Regulator out of adjustment. a. Adjust regulator according to control adjustment instructions in the Maintenance Section. 4. Defective Pressure Regulator. a. Check diaphragms and replace if necessary (kit available).
4. Line pressure rises above cut-out pressure setting on pressure switch.	1. Leak in control system causing loss of pressure signals. a. Check for leaks. 2. Defective pressure switch. a. Check that diaphragm and contacts are functioning properly and are not damaged. Replace if necessary. 3. Defective Pilot Valve. a. Check that Sullicon Control lever is moved to unload stop when the Pressure Switch contacts open. Repair or replace if necessary (kit available). 4. Defective Blowdown Valve. a. Check that sump pressure is exhausted to the atmosphere when the pressure switch contacts open or repair or replace if necessary (kit available). 5. High Pressure Shutdown is defective or adjustment is incorrect. a. Re-adjust or replace.
5. Excessive fluid consumption.	1. Clogged return line strainer or orifice: a. Clean strainer (screen and o-ring replacement kit available). b. Clean orifice. 2. Separator element damaged or not functioning properly. a. Change separator. 3. Leak in lubrication system. a. Check all pipes, connections and components. 4. Excess fluid foaming, drain and change. 5. Fluid level too high.
6. Pressure Relief valve opens repeatedly.	1. High pressure shutdown switch is defective or out of adjustment (135 PSIG): Re-adjust below pressure relief valve setting (140 PSIG) or replace. 2. Defective Pressure Relief Valve: Replace Pressure Relief Valve 3. Also check separator differential (plugged).

– NOTES –

Section 6
ILLUSTRATIONS AND PARTS LIST

PROCEDURE FOR ORDERING PARTS

Parts should be ordered from the nearest Sullair Distributor or the Distributor from whom the machine was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address below.

When ordering parts always indicate the **Serial Number** of the machine. This can be obtained from the Bill of Lading for the machine or from the Serial Number Plate located on the instrument panel.

SULLAIR CORPORATION
3700 East Michigan Boulevard
Michigan City, Indiana 46360

Telephone (219) 879-5451
Telex: 258318

6.1 RECOMMENDED SPARE PARTS LIST

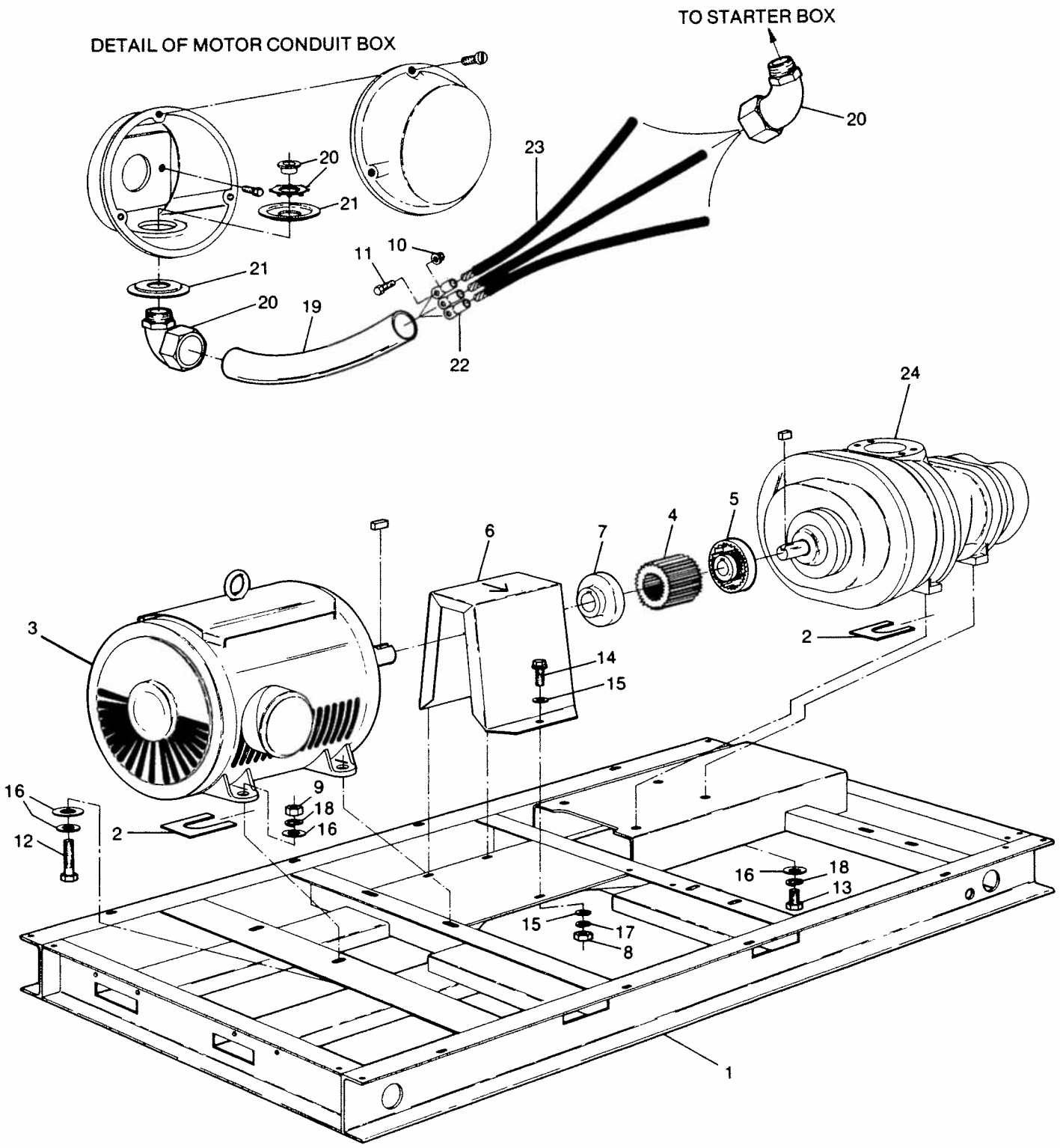
DESCRIPTION	*PART NO. STANDARD*	*24KT*	*QTY.*
Repair Kit, Shaft Seal	CONSULT FACTORY		1
Element, Air Filter	40899	40899	1
Repair Kit, Blowdown Valve	46782	46782	1
Quad Ring, Thermal Valve	46425	46425	1
Element, Thermal Valve	49542	49542	1
Gasket, Thermal Valve	49812	49812	1
Repair Kit, Main Strainer	1158	1158	1
Seal Kit, Main Strainer	1175	1175	1
Repair Kit, Fluid Stop Valve	1684	1684	1
Element, Bearing Filter	408107	408107	1
Repair Kit, Sullicon Control	11579	11579	1
Repair Kit, Pressure Regulator	41742	41742	1
Element, Heavy-duty Air Filter (Optional)	49301	49301	1
O-Ring, Oil Fill Cap	826502-221	826502-221	1
Gasket, Flexmaster® Coupling	40649	46989	2
Repair Kit, Separator Element	11420	11420	1
Repair Kit, Return Line Strainer	1884A	1884A	1
Repair Kit, Pilot Valve	42246	42246	1
Seal Ring Kit, Minimum Pressure/Check Valve	1177	1177	1
24KT Fluid	—	46850	5 Gal.
Oil, DA Torque Fluid	49405	—	5 Gal.

WHEN ORDERING PARTS ALWAYS INDICATE SERIAL NUMBER OF MACHINE.

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.2 MOTOR, FRAME, COMPRESSOR, AND PARTS 40 and 50 HP



6.2 MOTOR, FRAME, COMPRESSOR, AND PARTS 40 AND 50 HP

key number	*description*	*part number*	*quantity*
1	frame	14589	1
2	shim set	20293	2
3	motor (40 HP)	40611	1
	motor (50 HP)	40850	1
4	element, coupling	42607	1
5	hub, coupling compressor	44682	1
6	guard, coupling	223692	1
7	hub, coupling motor	241402	1
8	nut, hex 3/8"-16	824206-337	3
9	nut, hex 1/2"-13	824208-448	4
10	nut, hex ser wash 5/16"-18	825305-283	3
11	capscrew, hex 5/16"-18 x 1/2" Gr.5	828605-050	3
12	capscrew, hex 1/2"-13 x 2" Gr.8	828208-200	4
13	capscrew, hex 1/2"-13 x 1/2" Gr.8	828208-150	4
14	capscrew, hex 3/8"-16 x 1 1/4" Gr.2	828606-125	3
15	washer, plain 3/8"	837206-071	6
16	washer, plain 1/2"	837208-112	24
17	washer, springlock 3/8"	837506-094	3
18	washer, springlock 1/2"	837508-125	8
19	conduit, 1 1/4"	846215-125	2'
20	elbow, conduit 90° 1 1/4"	846600-125	2
21	washer, conduit red. 2" x 1 1/4"	847008-050	2
	washer, conduit red. 3" x 1 1/4"	847012-050	2
22	lug, burndy #6-1/4"	849104-006	3
23	wire, thin #6 blk	850410-006	12'
24	compressor unit*	—	1

* It is Sullair's policy not to sell or replace repair parts on the compressor unit. There is an exchange program whereby a reconditioned 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 distributor or the Sullair Corporation.

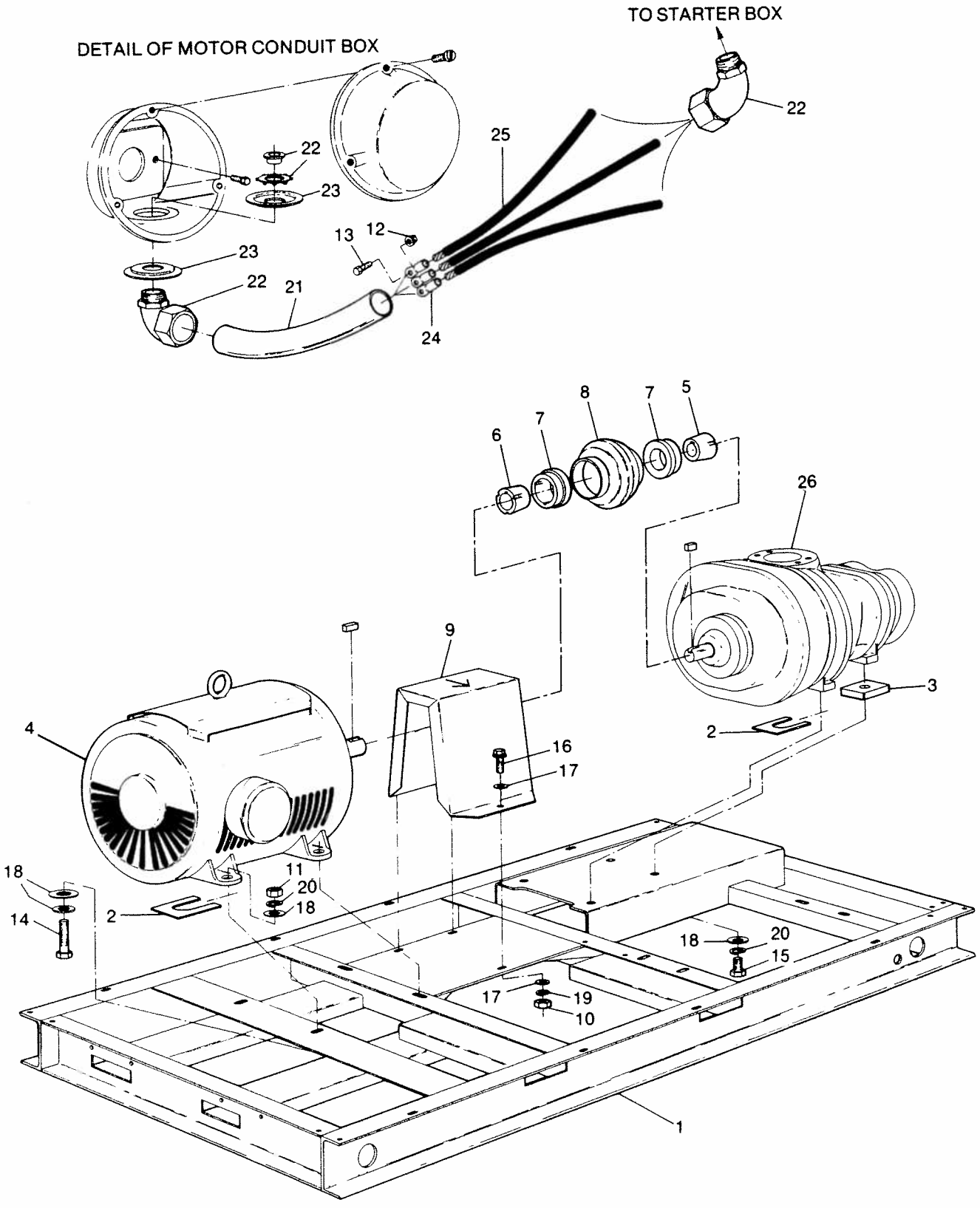
The shaft seal is not considered part of the compressor unit in regard to the 2 year warranty. The normal Sullair parts warranty applies. Consult the factory for the correct shaft seal kit for your compressor unit.

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.3 MOTOR, FRAME, COMPRESSOR, AND PARTS 60 HP



6.3 MOTOR, FRAME, COMPRESSOR, AND PARTS 60 HP

key number	*description*	*part number*	*quantity*
1	frame	14589	1
2	shim set	20293	2
3	bar 1" x 2" x 3"	40632	4
4	motor (60 HP)	40860	1
5	bushing, taper	46332	1
6	bushing, taper	46431	1
7	hub, coupling	49795	2
8	element, coupling	49796	1
9	guard, coupling	223692	1
10	nut hex,3/8"-16	824206-337	3
11	nut hex, 1/2"-13	824208-448	4
12	nut hex ser wash, 5/16"-18	825305-283	3
13	capscrew, hex 5/16"-18 x 1/2" Gr.5	828605-050	3
14	capscrew, hex 1/2"-13 x 1 1/2" Gr.8	828208-150	4
15	capscrew, hex 1/2"-13 x 3" Gr.8	828208-300	4
16	capscrew, hex 3/8"-16 x 1 1/4" Gr.5	828606-125	3
17	washer, plain 3/8"	837206-071	6
18	washer, plain 1/2"	837208-112	24
19	washer, springlock 3/8"	837506-094	3
20	washer, springlock 1/2"	837508-125	8
21	conduit, 1 1/4"	846215-125	3'
22	elbow, conduit 90° 1 1/4"	846600-125	2
23	washer, conduit red. 2" x 1 1/4"	847008-050	2
	washer, conduit red. 3" x 1 1/4"	847012-050	2
24	lug burndy #6-1/4"	849104-006	3
25	wire, thin #6 blk	850410-006	12'
26	compressor unit*		1

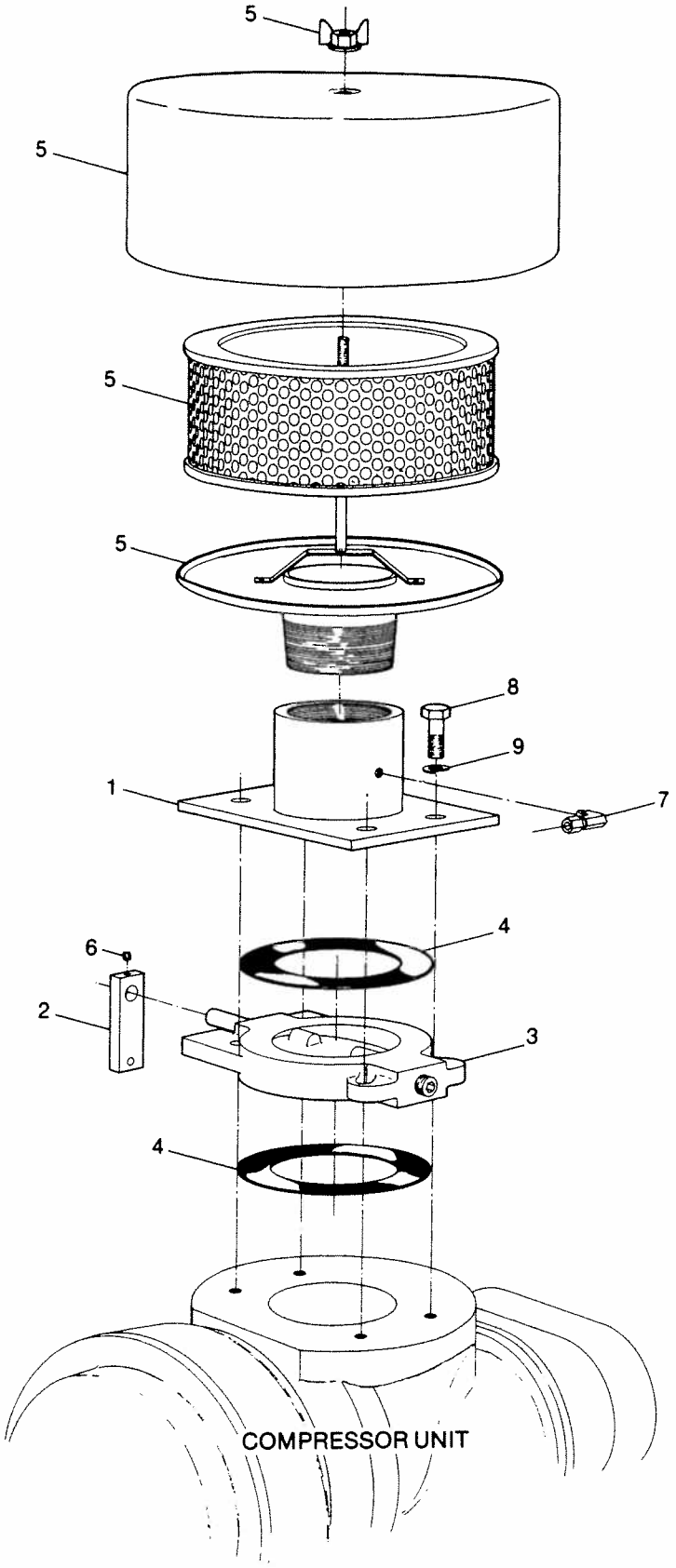
* It is Sullair's policy not to sell or replace repair parts on the compressor unit. There is an exchange program whereby a reconditioned compressor unit can be obtained from Sulliar distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sulliar distributor or the Sullair Corporation.

The shaft seal is not considered part of the compressor unit in regard to the 2 year warranty. The normal Sulliar parts warranty applies. Consult the factory for the correct shaft seal kit for your compressor unit.

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

Section 6
ILLUSTRATIONS AND PARTS LIST

FIGURE 6.4 AIR INLET SYSTEM



6.4 AIR INLET SYSTEM

key number	*description*	*part number*	*quantity*
1	adaptor, air inlet	14083	1
2	lever, inlet valve	20687	1
3	valve, butterfly 4"	40640	1
4	gasket, inlet	40708	2
5	filter assy, air inlet*	49543	1
6	screw, set sq. hd 5/16" x 3/4"-18	408383	1
7	elbow, tube 1/4"t x 1/8" p	810504-012	1
8	capscrew, hex 1/2" x 2 1/2" Gr.5	828608-250	4
9	washer, springlock- 1/2"	837508-125	4

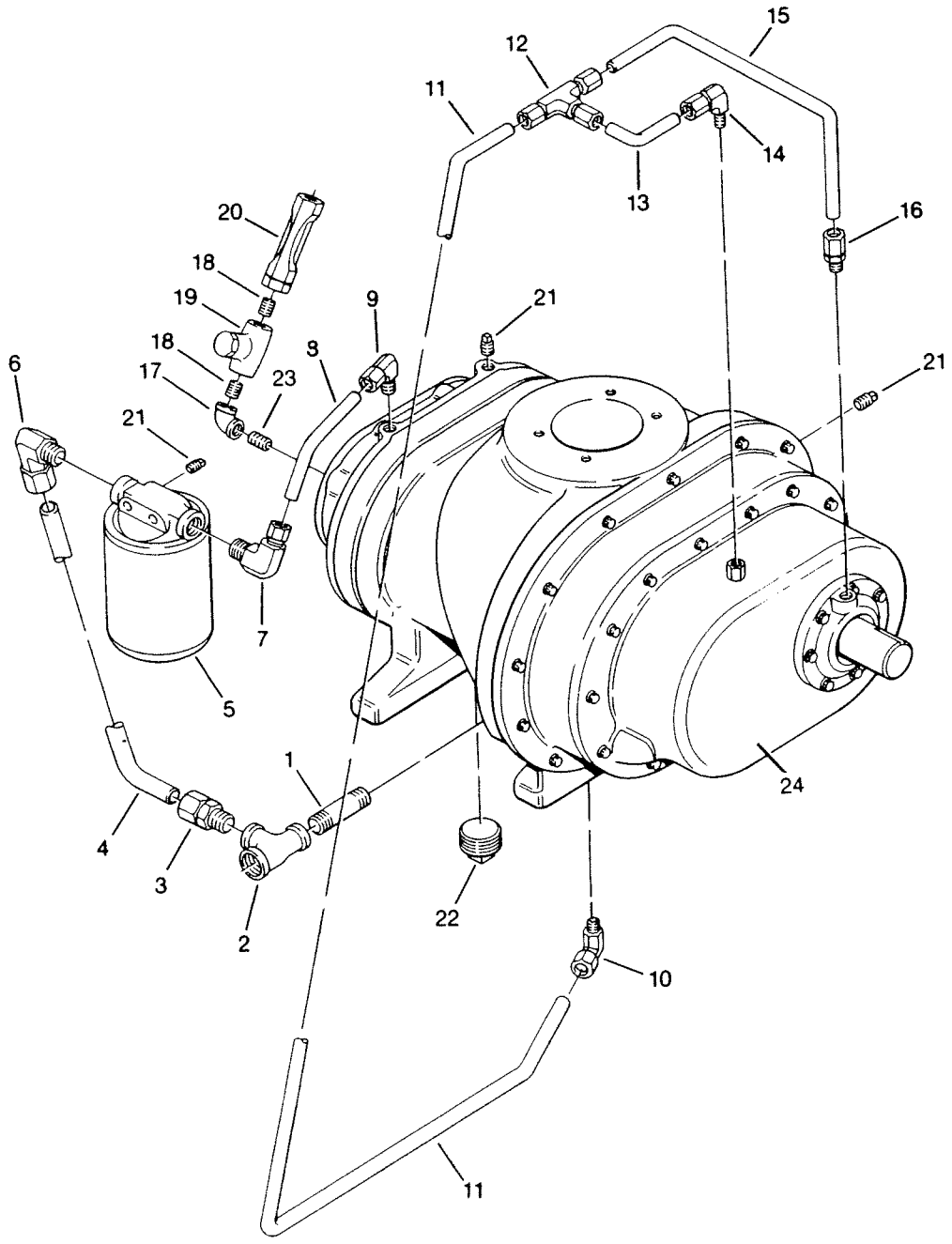
* For maintenance on air filter No. 49543, order replacement element No. 40899.

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.5 COMPRESSOR UNIT TUBING – SERIES 12B



6.5 COMPRESSOR UNIT TUBING – Series 12B

key number	*description*	*part number*	*quantity*
1	nipple, pipe 3/4" x 3"	822112-030	1
2	tee, reducing 1" x 3/4" x 3/4"	802204-033	1
3	connector, tube 3/4" x 3/4"	810212-075	1
4	tube, filter inlet	221157	1
5	filter, bearing*	408106	1
6	elbow, tube 3/4" x 3/4"	810512-075	1
7	elbow, tube 1/2" x 3/4"	818508-075	1
8	tube, outlet bearing	233439	1
9	elbow, tube 1/2" x 1/4"	810508-025	1
10	elbow, tube 3/8" x 1/4"	810506-025	1
11	tube, gear spray supply	233440	1
12	tee, tube 3/8"	811406-038	1
13	tube, 12/16" E	221152	1
14	elbow, tube 3/8" x 1/8"	810506-012	1
15	tube, oil seal	221151	1
16	connector, tube 3/8" x 1/4"	810206-025	1
17	elbow, 90° 1/4"	801515-010	1
18	nipple, pipe 1/4" x close	822104-000	3
19	strainer, V-type**	241771	1
20	glass, sight	46559	1
21	plug, pipe 1/4" steel	807800-010	3
22	plug, pipe	807800-040	1
23	orifice	28831	1
24	compressor unit	–	1

* For maintenance on bearing filter 408106, order replacement element 408107.

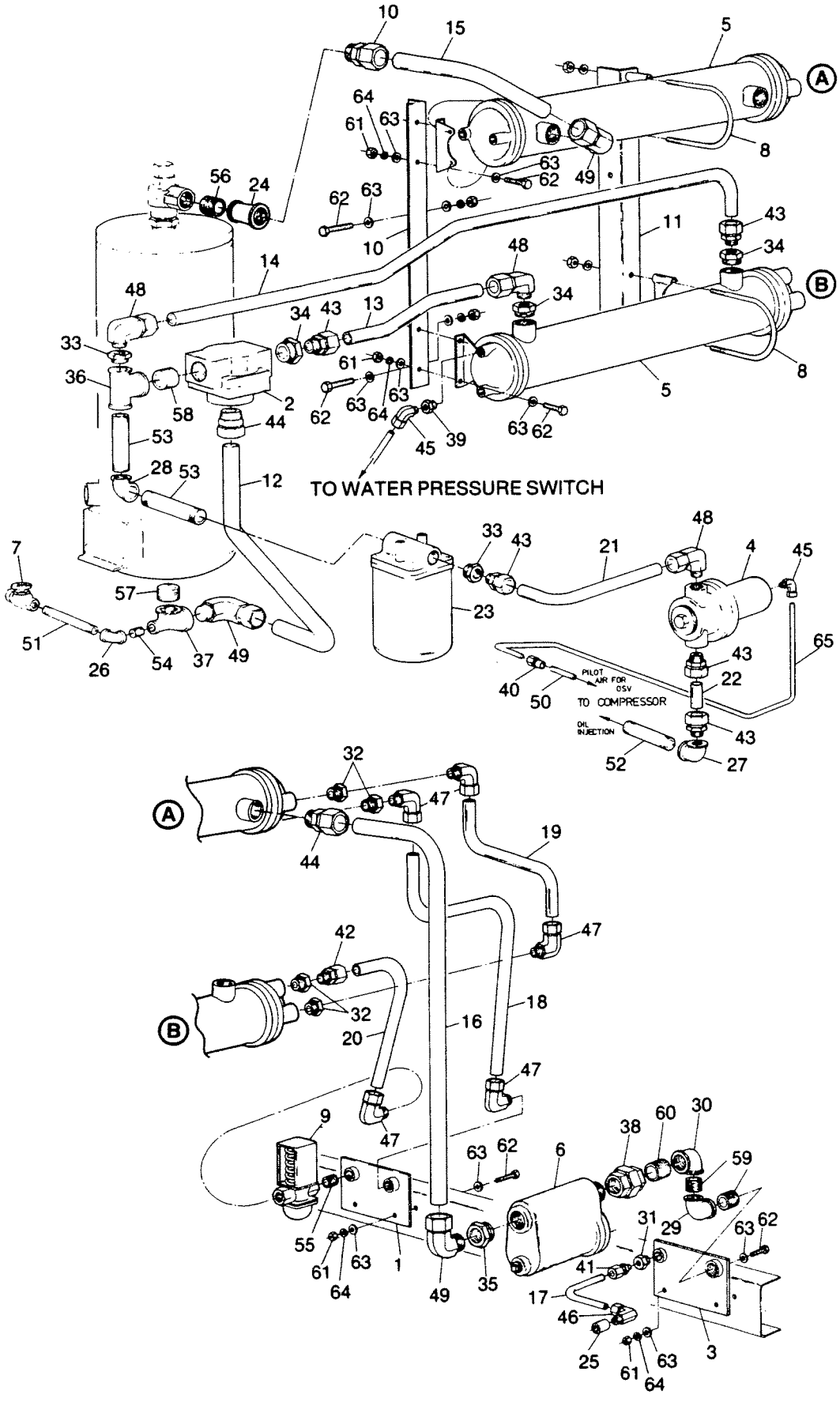
**For maintenance on return line strainer 241771, order repair Kit 1078.

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.6 COMPRESSOR COOLING AND LUBRICATION SYSTEM – WATER-COOLED



6.6 COMPRESSOR COOLING AND LUBRICATION SYSTEM – WATER-COOLED

key number	*description*	*part number*	*quantity*
1	bracket, water connection	14301	1
2	valve, thermal*	14512	1
3	bracket, air and cond. drain	14646	1
4	valve, fluid stop**	16741	1
5	heat exchanger	40680	2
6	separator/trap 2"	40847	1
7	valve, globe 1/2"	41007	1
8	clamp, exhaust 5"	43364	2
9	valve, water regulator	47398	1
10	angle, cooler support r.h.	223846	1
11	angle, cooler support l.h.	223847	1
12	tube, sump/thermal valve 1 1/2" o.d.	224258	1
13	tube, thermal valve/cooler 1" o.d.	224381	1
14	tube, cooler/thermal bp 1" o.d.	224382	1
15	tube, mpv and cv/aftercooler 1 1/2" o.d.	224383	1
16	tube, aftercooler/separator 1 1/2" o.d.	224384	1
17	tube, cond trap/drain 1/2" o.d.	224385	1
18	tube, water in/aftercooler 3/4" o.d.	224386	1
19	tube, cooler/cooler 3/4" o.d.	224387	1
20	tube, cooler/water reg. valve 3/4" o.d.	224388	1
21	tube, filter/stop 1" o.d.	232879	1
22	tube, stop/inject 1" o.d.	232880	1
23	strainer, filter 1 1/4" npt***	242311	1
24	coupling, reducing 1 1/2" x 1 1/4"	408988	1
25	coupling 1/2"	801215-020	1
26	elbow, pipe 90° 1/2"	801515-020	1
27	elbow, pipe 90° 1"	801515-040	1
28	elbow, pipe 90° 1 1/4"	801515-050	1
29	elbow, pipe 90° 1 1/2"	801515-060	1

* For maintenance on thermal valve No. 14512, order replacement element No. 49542, and gasket No. 49812.

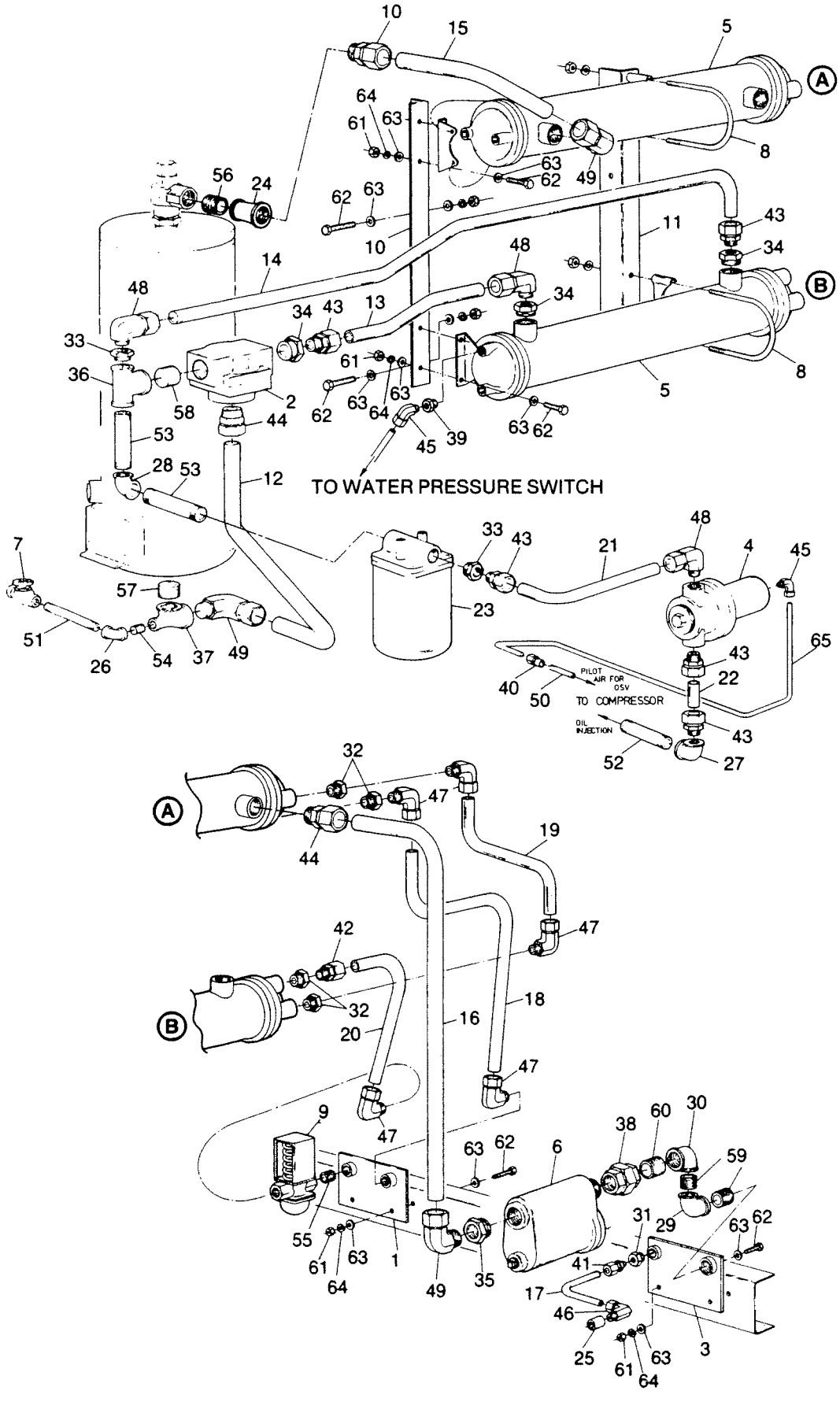
** For maintenance on fluid stop valve No. 16741, order repair kit No. 1684.

*** For maintenance on main filter No. 242311, order replacement element No. 242314, housing seal No. 242313, element seal No. 242312, or element and housing seal repair kit No. 1158, or replacement seal kit No. 1175.

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.6 COMPRESSOR COOLING AND LUBRICATION SYSTEM – WATER-COOLED



6.6 COMPRESSOR COOLING AND LUBRICATION SYSTEM – WATER-COOLED (continued)

key number	*description*	*part number*	*quantity*
30	elbow, red. 2" x 1 1/2"	801608-060	1
31	bushing, red. 3/4" x 1/2"	802103-020	1
32	bushing, red. 1" x 3/4"	802104-030	4
33	bushing, red. 1 1/4" x 1"	802105-040	2
34	bushing, red. 1 1/2" x 1"	802106-040	3
35	bushing, red. 2" x 1 1/2"	802108-060	1
36	tee, red. 1 1/4" x 1 1/4" x 1 1/2"	802205-056	1
37	tee, red. 1 1/2" x 1/2" x 1 1/2"	802206-026	1
38	union, pipe brass seat 2"	802515-080	1
39	bushing, red. 3/8" x 1/4"	807601-010	1
40	connector, tube-f 1/4" x 1/8"	810104-012	1
41	connector, tube-m 1/2" x 1/2"	810208-050	1
42	connector, tube-m 3/4" x 3/4"	810212-075	1
43	connector, tube-m 1" x 1"	810216-100	5
44	connector, tube-m 1 1/2" x 1 1/2"	810224-150	2
45	elbow, tube-m 1/4" x 1/4"	810504-025	2
46	elbow, tube-m 1/2" x 1/2"	810508-050	1
47	elbow, tube-m 3/4" x 3/4"	810512-075	5
48	elbow, tube-m 1" x 1"	810516-100	3
49	elbow, tube-m 1 1/2" x 1 1/2"	810524-150	3
50	nipple, pipe 1/8" x 2"	822102-020	1
51	nipple, pipe 1/2" x 5"	822108-050	1
52	nipple, pipe 1" x 4"	822116-040	1
53	nipple, pipe 1 1/4" x 5"	822120-050	2
54	nipple, pipe xs 1/2" x 1 1/2"	822208-015	1
55	nipple, pipe xs 3/4" x close	822212-000	1
56	nipple, pipe xs 1 1/4" x close	822220-000	1
57	nipple, pipe xs 1 1/2" x close	822224-000	1
58	nipple, pipe xs 1 1/2" x 2"	822224-020	1
59	nipple, pipe xs 1 1/2" x 2 1/2"	822224-025	2
60	nipple, pipe xs 2" x 3 1/2"	822232-035	1
61	nut, hex 3/8"-16	824206-337	12
62	capscrew, hex 3/8"-16 x 1" Gr.5	828606-100	12
63	washer, plain 3/8"	837206-071	24
64	washer, springlock 3/8"	837506-094	12
65	tubing, steel 1/4"	841115-004	4'

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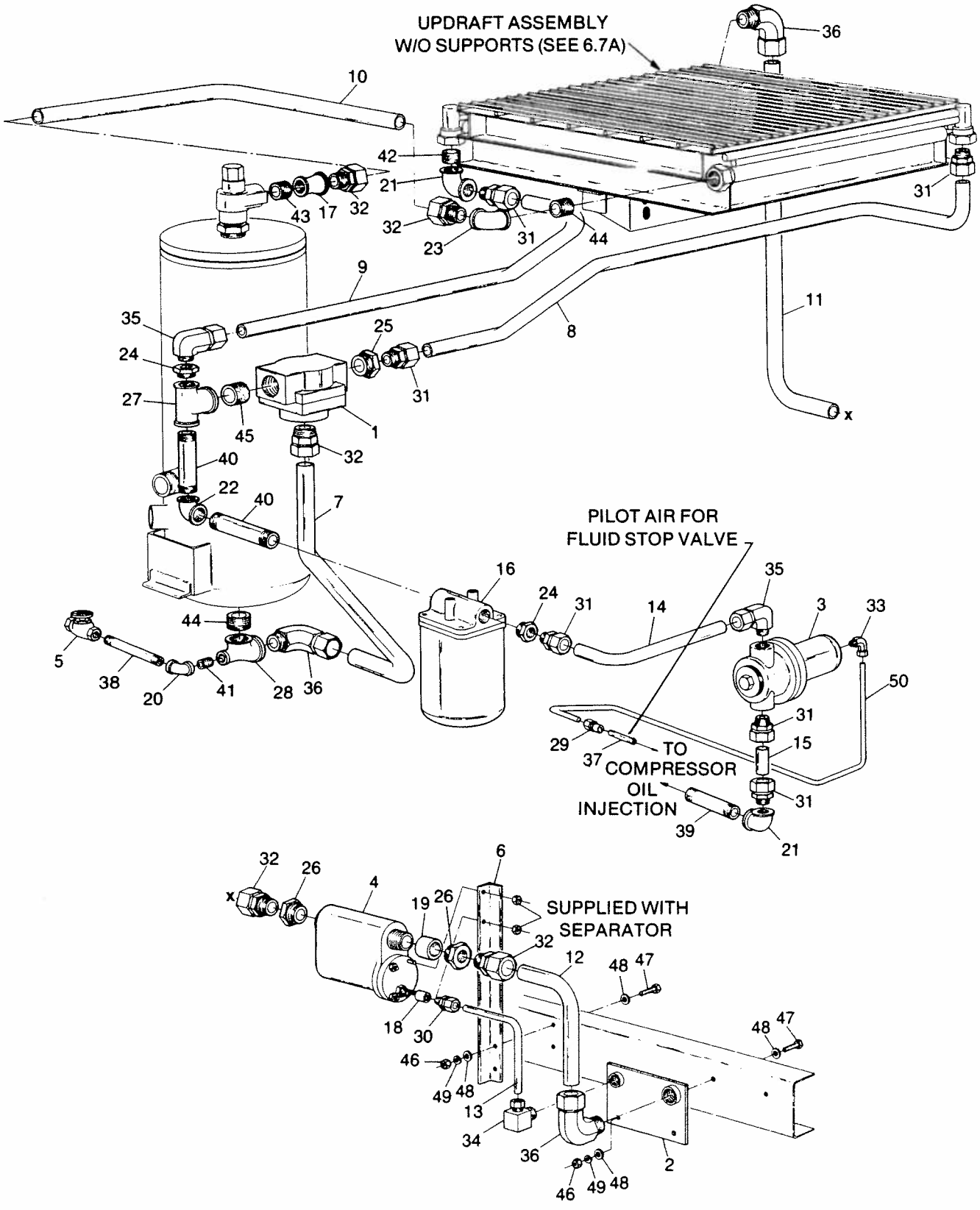
ILLUSTRATIONS AND PARTS LIST

FIGURE 6.7 COMPRESSOR COOLING AND LUBRICATION SYSTEM – AIR COOLED



6.7 COMPRESSOR COOLING AND LUBRICATION SYSTEM – AIR COOLED

key number	*description*	*part number*	*quantity*
1	valve, thermal*	14512	1
2	bracket, air and cond. drain	14646	1
3	valve, fluid stop 1"**	16741	1
4	separator/trap-njm 2"	40847	1
5	valve, globe 1/2"	41007	1
6	bracket, separator support	224256	1
7	tube, sump to thermal valve	224258	1
8	tube, thermal valve to cooler	224259	1
9	tube, cooler to thermal bp	224260	1
10	tube, mpv and cv to aftercooler	224261	1
11	tube, aftercooler to separator	224262	1
12	tube, separator to air connect	224263	1
13	tube, separator to drain	224264	1
14	tube, filter to stop	232879	1
15	tube, stop to inject	232880	1
16	filter, main***	242311	1
17	coupling, reducing 1 1/2' x 1 1/4"	408988	1
18	coupling, pipe 1/2"	801215-020	1
19	coupling, pipe 2"	801215-080	1
20	elbow, pipe 90° 1/2"	801515-020	1
21	elbow, pipe 90° 1"	801515-040	2
22	elbow, pipe 90° 1 1/4"	801515-050	1
23	elbow, pipe 90° 1 1/2"	801515-060	1
24	bushing, red. 1 1/4" x 1	802105-040	2
25	bushing, red. 1 1/2" x 1	802106-040	1
26	bushing, red. 2 x 1 1/2"	802108-060	2
27	tee, red. 1 1/4" x 1 1/4" x 1 1/2"	802205-056	1
28	tee, red. 1 1/2" x 1/2" 1 1/2"	802206-026	1
29	connector, tube-f 1/4" x 1/8"	810104-012	1
30	connector, tube-m 1/2" x 1/2"	810208-050	1
31	connector, tube-m 1" x 1"	810216-100	6
32	connector, tube-m 1 1/2" x 1 1/2"	810224-150	5
33	elbow, tube-m 1/4" x 1/4"	810504-025	1

* For maintenance on thermal valve No. 14512, order replacement element No. 49542, and gasket No. 49812.

** For maintenance on fluid stop valve No. 16741, order repair kit No. 1684.

*** For maintenance on main filter No. 242311, order replacement element No. 242314, housing seal No. 242313, element seal No. 242312, or element and housing seal repair kit No. 1158, or replacement seal kit No. 1175.

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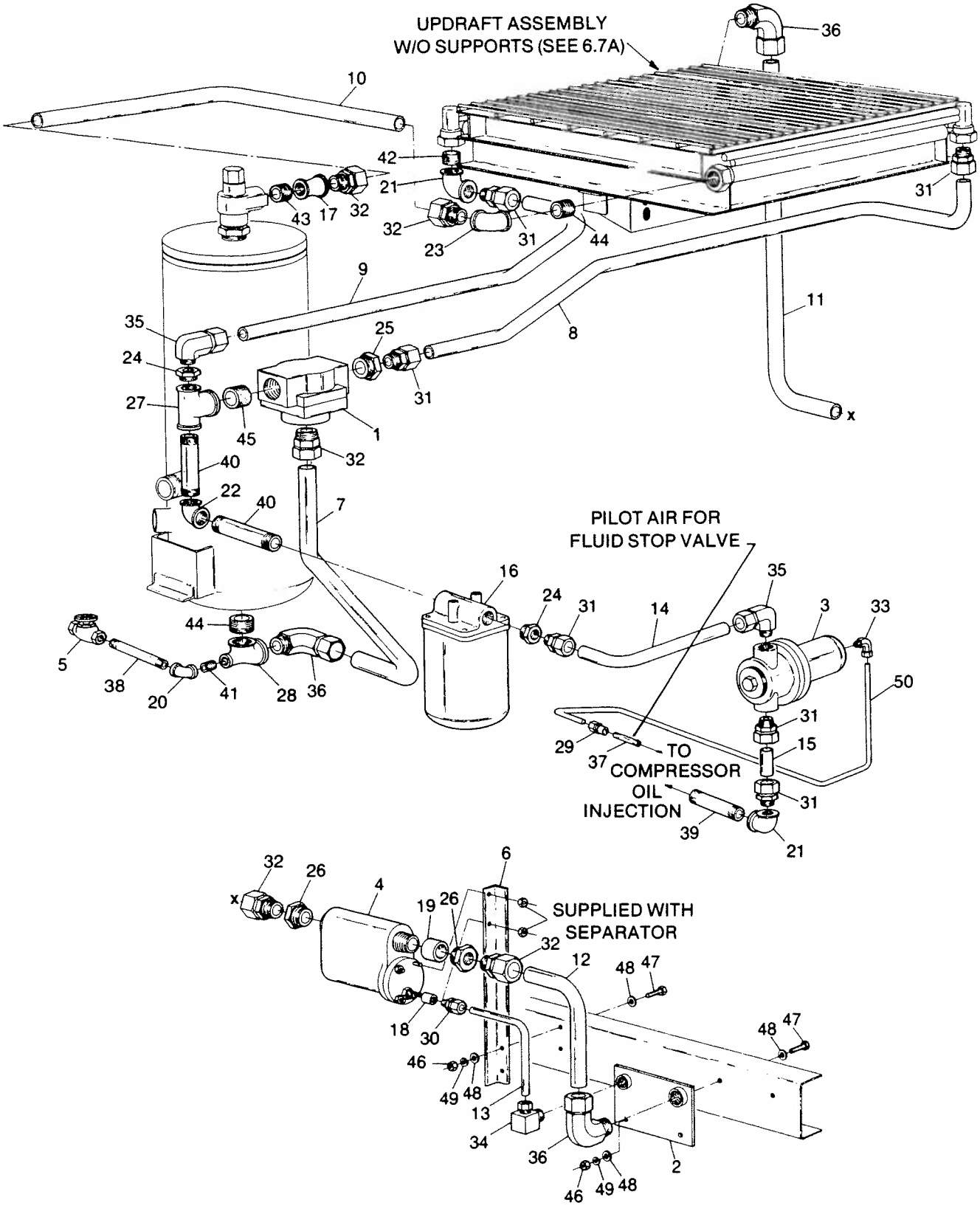
FIGURE 6.7 COMPRESSOR COOLING AND LUBRICATION SYSTEM – AIR COOLED



6.7 COMPRESSOR COOLING AND LUBRICATION SYSTEM – AIR COOLED (continued)

key number	*description*	*part number*	*quantity*
34	elbow, tube-m 1/2" x 3/4"	810508-075	1
35	elbow, tube-m 1" x 1"	810516-100	1
36	elbow, tube-m 1 1/2" x 1 1/2"	810524-150	3
37	nipple, pipe 1/8" x 2"	822102-020	1
38	nipple, pipe 1/2" x 5"	822108-050	1
39	nipple, pipe 1" x 4"	822116-040	1
40	nipple, pipe 1 1/4" x 5"	822120-050	2
41	nipple, pipe xs 1/2" x 1 1/2"	822208-015	1
42	nipple, pipe xs 1" x close	822216-000	1
43	nipple, pipe xs 1 1/4" x close	822220-000	1
44	nipple, pipe xs 1 1/2" x close	822224-000	2
45	nipple, pipe xs 1 1/2" x 2"	822224-020	1
46	nut, hex 3/8"	824206-337	4
47	capscrew 3/8" x 1 1/4" Gr.5	828606-125	4
48	washer, flat 3/8"	837206-071	8
49	washer, lock 3/8"	837506-094	4
50	tubing, steel 1/4"	840115-004	4'

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

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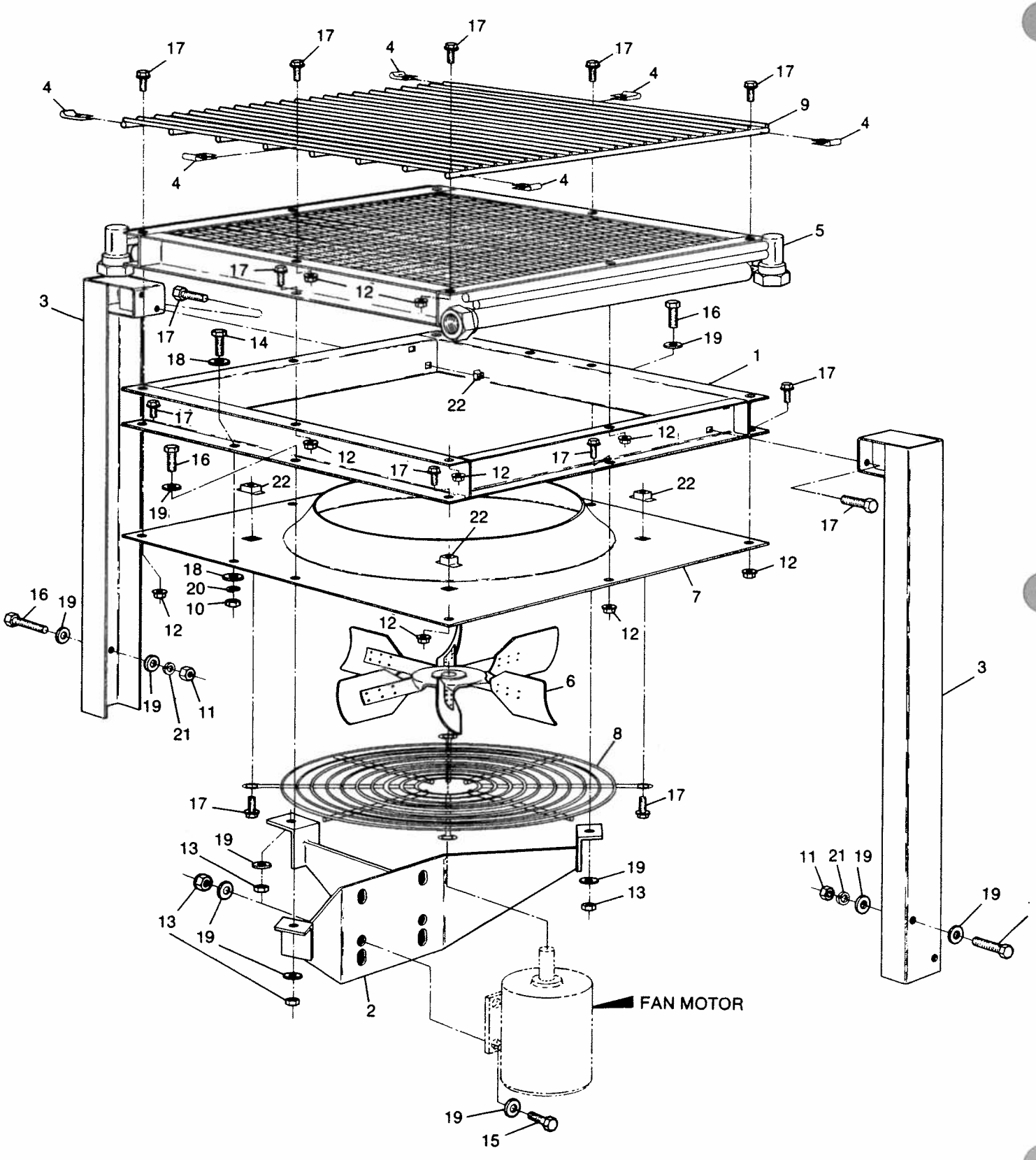
FIGURE 6.7a AIR COOLED COOLER ASSEMBLY



6.7a AIR COOLED COOLER ASSEMBLY

key number	*description*	*part number*	*quantity*
1	adaptor, Venturi to cooler	14612	1
2	support, fan motor	14613	1
3	support, cooler	14647	2
4	clamp, speed 1/4"	43357	1
5	cooler, air/oil combination	241384	1
6	fan, 22" diameter	241390	1
7	panel, Venturi 22"	241419	1
8	guard, fan 24" diameter	241501	1
9	guard, cooler	241507	1
10	nut, hex 5/16"	824205-273	1
11	nut, hex 3/8"	824206-337	4
12	nut, hex ser wash 5/16"	825305-283	19
13	nut, Nyloc 3/8"	825506-198	7
14	capscrew 5/16" x 1 1/4" Gr.5	828605-125	1
15	capscrew 3/8" x 1 Gr.5	828606-100	4
16	capscrew 3/8" x 1 1/4" Gr.5	828606-125	7
17	screw, hex ser wash 5/16" x 3/4"	829705-075	27
18	washer, flat 5/16"	837205-071	2
19	washer, flat 3/8"	837206-071	22
20	washer, lock 5/16"	837505-078	1
21	washer, lock 3/8"	837506-094	4
22	nut, retainer 5/16"	861405-092	8

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

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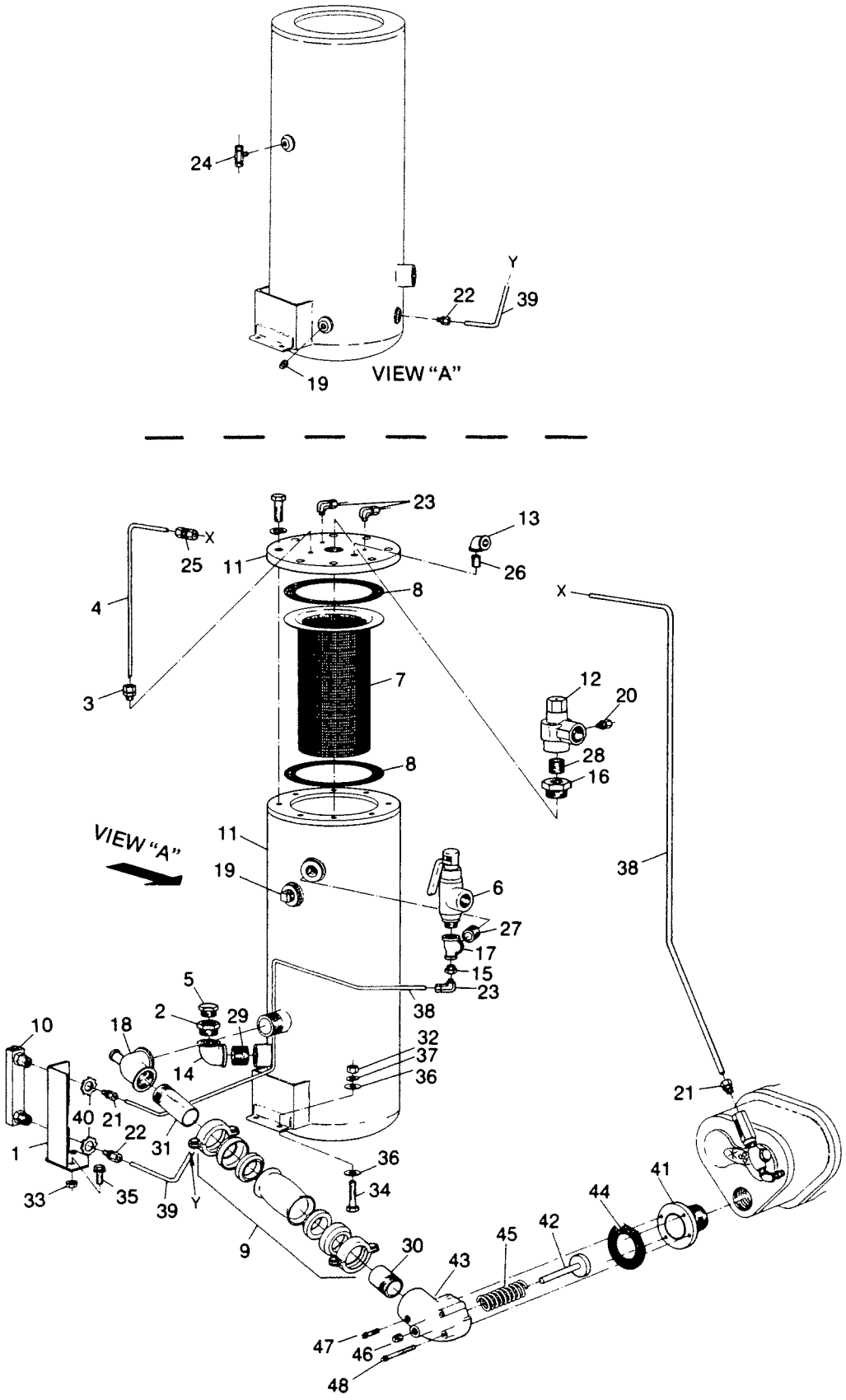
ILLUSTRATIONS AND PARTS LIST

FIGURE 6.8 COMPRESSOR DISCHARGE SYSTEM



6.8 COMPRESSOR DISCHARGE SYSTEM

key number	*description*	*part number*	*quantity*
1	support, fluid gauge	14618	1
2	adaptor, fill	20044	1
3	connector, flex 1/4"t x 1/4"p	20169	1
4	tube, return 1/4" x 28"	21790	1
5	plug, fill sae 1 1/4"	40029	1
6	valve, pressure relief 1"	40871	1
7	element, separator*	41290	1
8	gasket, separator 1/16" x 9" x 10"	45636	2
9	coupling, Flexmaster	45638	1
10	gauge, fluid level sight	46558	1
11	tank, receiver/separator	241245	1
12	valve, minimum pressure**	241581	1
13	elbow, pipe 1/2" 90°	801515-020	1
14	elbow, pipe 1 1/2" 90°	801515-060	1
15	bushing, red. 1/2" x 1/4"	802102-010	1
16	bushing red. 1 1/2" x 1 1/4"	802106-050	1
17	tee, red. 1" x 1/2" x 1"	802204-024	1
18	tee, red. 2 1/2" x 1/2" x 2 1/2"	802210-020	1
19	plug, pipe 1"	807800-040	2
20	connector, tube-m 1/4" x 1/8"	810204-012	1
21	connector, tube-m 1/4" x 1/4"	810204-025	2
22	connector, tube-m 5/16" x 1/4"	810205-025	2
23	elbow, tube-m 1/4" x 1/4"	810504-025	3
24	tee, tube-m branch 1/4" x 1/4"	810804-025	1
25	union, tube hex 1/4"	811304-025	1
26	nipple, pipe xs 1/2" x 1 1/2"	822208-015	1
27	nipple, pipe xs 1" x close	822216-000	1
28	nipple, pipe xs 1 1/4" x close	822220-000	1
29	nipple, pipe xs 1 1/2" x close	822224-000	1
30	nipple, pipe half 2 1/2" x 4"	822840-040	1
31	nipple, pipe half 2 1/2" x 8"	822840-080	1
32	nut, hex 1/2"-13	824208-448	4
33	nut, hex ser wash 5/16"-18	825305-283	2
34	caspcrew, hex 1/2"-13 x 1 1/2" Gr.5	828608-150	4
35	screw, hex ser wash 5/16" x 3/4"	829705-075	2
36	washer, plain 1/2"	837208-112	8

* For maintenance on separator element No. 41290, order element kit No. 11420.

** For maintenance on minimum pressure valve No. 241581, order repair kit No. 1177.

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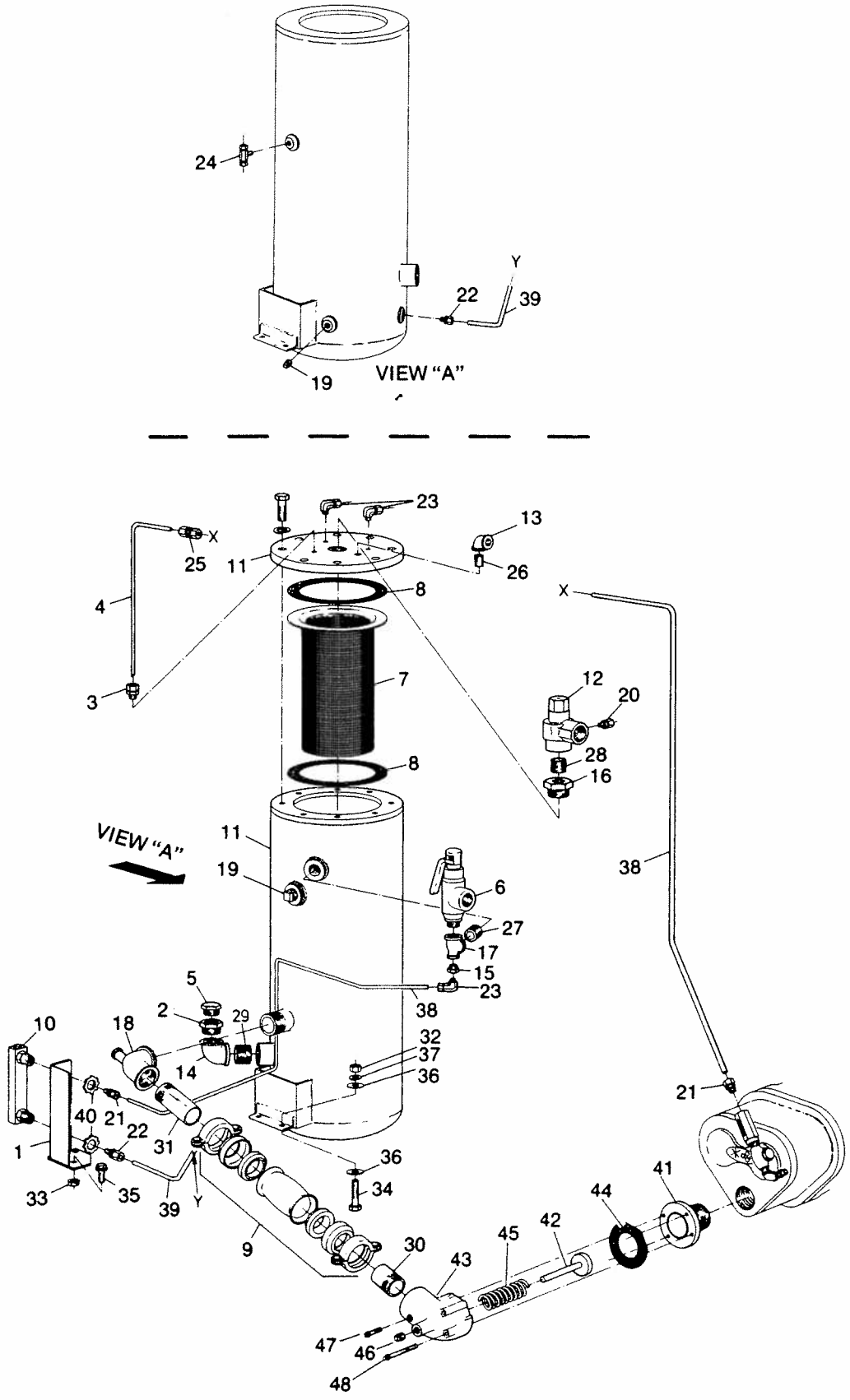
FIGURE 6.8 COMPRESSOR DISCHARGE SYSTEM



6.8 COMPRESSOR DISCHARGE SYSTEM (continued)

key number	*description*	*part number*	*quantity*
37	washer, springlock 1/2"	837508-125	4
38	tubing, steel 1/4"	840115-004	8'
39	tubing, steel 5/16"	841115-005	1'
40	conduit locknuts 1/2"	847200-050	2
41	adaptor, discharge	12883	1
42	valve assembly, discharge	13549	1
43	housing assembly, discharge	13605	1
44	gasket, discharge valve	40541	1
45	spring, discharge valve	40668	1
46	plug, pipe 1/2"	807800-020	1
47	capscrew, ferry 3/8"-16 x 1"	828406-100	1
48	capscrew, ferry 3/8"-16 x 3 1/4"	828406-325	3

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

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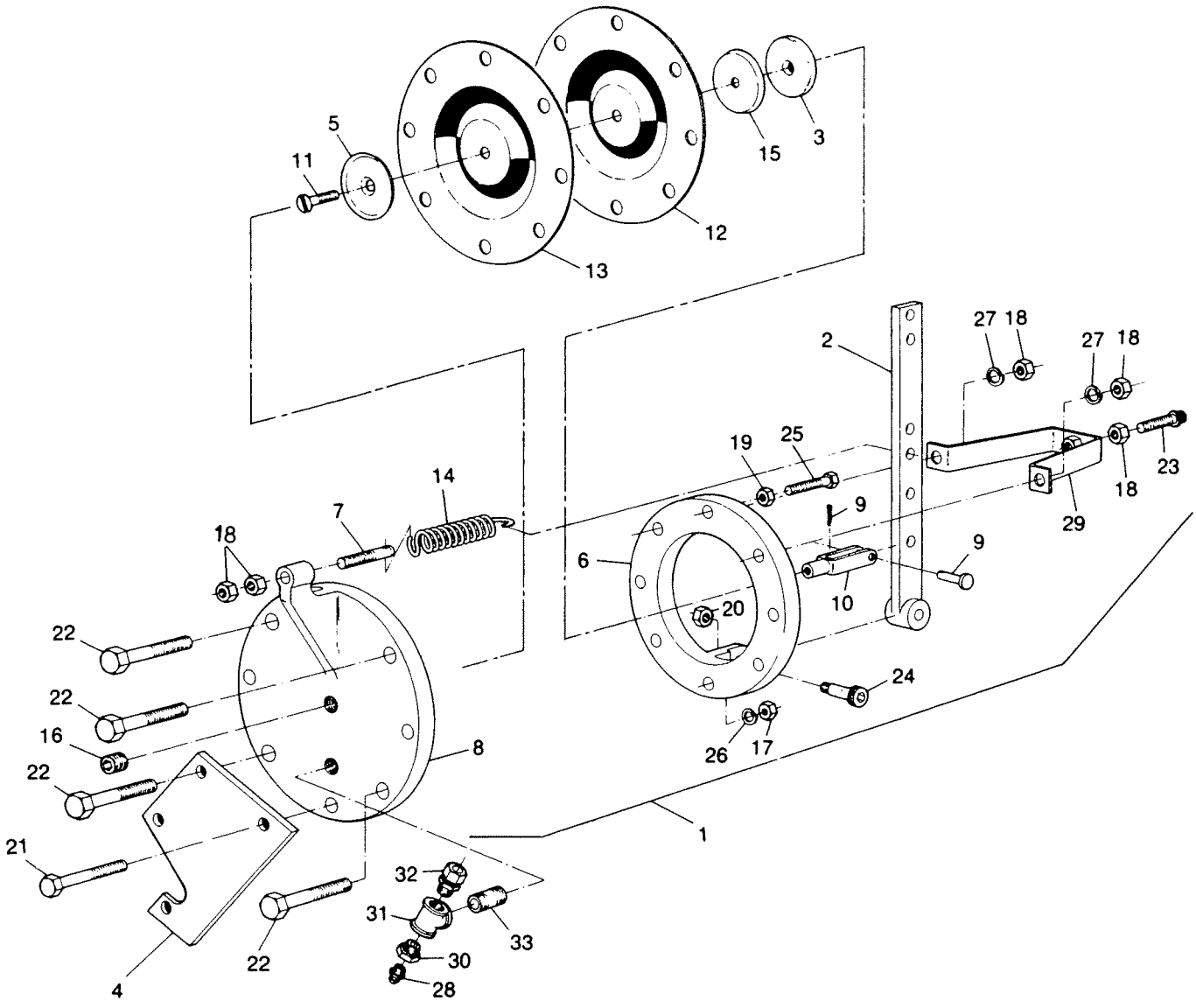
FIGURE 6.9 CAPACITY CONTROL SYSTEM



6.9 CAPACITY CONTROL SYSTEM

key number	*description*	*part number*	*quantity*
1	Sullicon control*	11682	1
	(includes items 2 thru 27)		
2	• lever, control	11084	1
3	• plunger	20094	1
4	• bracket, control arm stop	20864	1
5	• washer, backup	21172	1
6	• body, control	21635	1
7	• screw, spring adjusting	21636	1
8	• cover, control	21654	1
9	• pin, yoke 1/4"	40065	1
10	• yoke	40138	1
11	• screw, fh 1/4"-28 nf x 3/4"	41264	1
12	• diaphragm external	41269	1
13	• diaphragm internal	41270	1
14	• spring, control	41273	1
15	• seal, cup	42538	1
16	• plug, pipe 1/4"	807800-010	1
17	• nut, hex 5/16"-18	824205-273	3
18	• nut, hex 3/8"-16	824206-337	7
19	• nut, hex jam 5/16"-24	824605-195	1
20	• nut, hex lock 5/16"-18	825505-166	1
21	• capscrew, hex Gr.5 5/16"-18 x 2 1/2"	828605-250	3
22	• capscrew, hex Gr.5 3/8"-16 x 2 1/2"	828605-250	4
23	• capscrew, ferry head 3/8" x 2"	828406-200	1
24	• screw, machine shoulder 3/8" x 2"	830506-200	1
25	• screw, machine hex 5/16"-24 x 2"	831105-200	1
26	• washer, springlock 5/16"	837505-078	3
27	• washer, springlock 3/8"	837506-094	4
28	valve, moisture drain	41111	1
29	bracket, control mount	223681	1
30	bushing, 1/4" x 1/8"	804100-005	1
31	tee, pipe 1/4"	804415-010	1
32	connector, tube-m 1/4" x 1/4"	810204-025	1
33	nipple, pipe xs 1/4" x 1 1/2"	823204-015	1

* For maintenance on Sullicon control No. 11682, order repair kit No. 11579.

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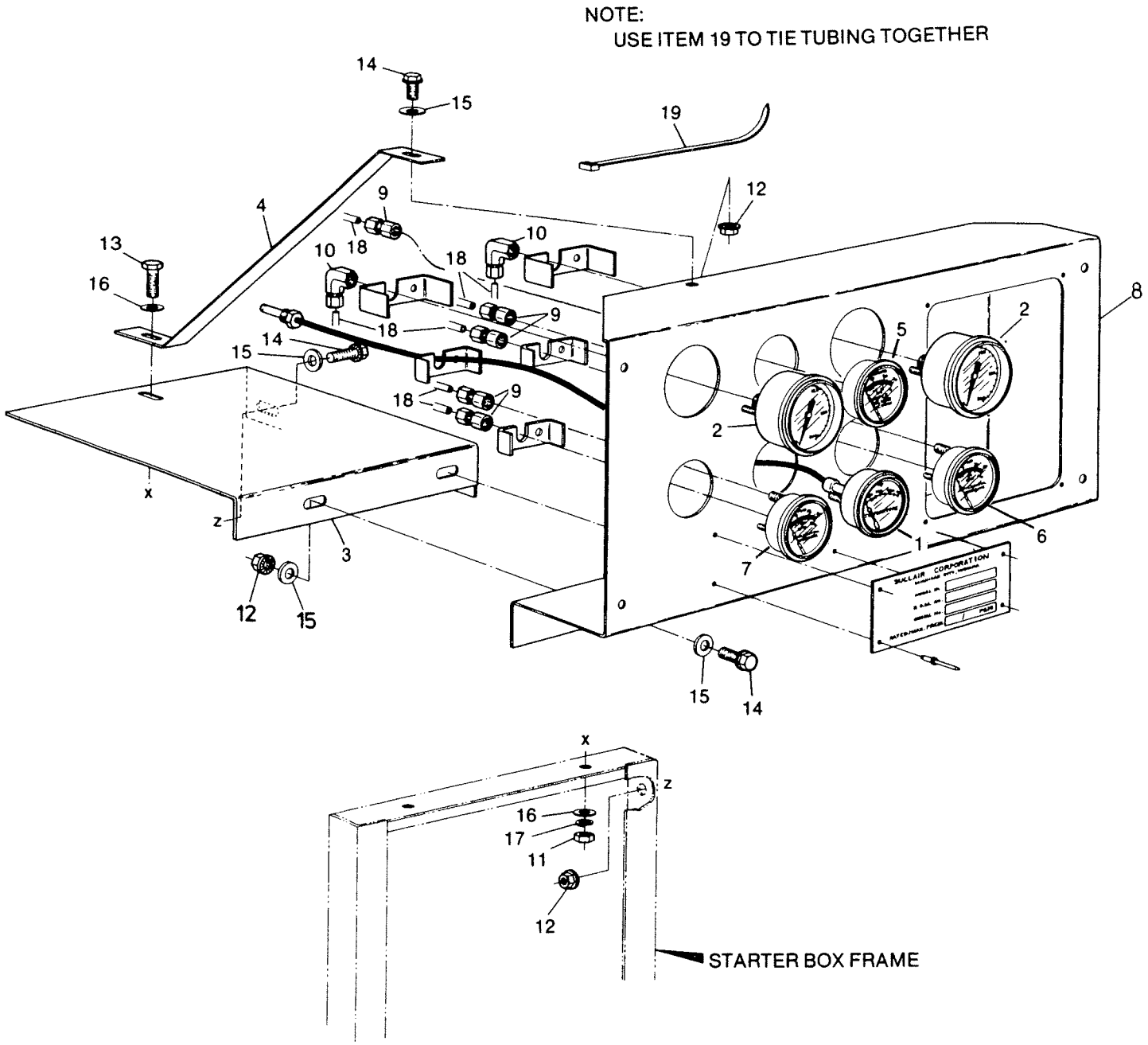
FIGURE 6.10 INSTRUMENT PANEL AND PARTS



6.10 INSTRUMENT PANEL AND PARTS

key number	*description*	*part number*	*quantity*
1	gauge, temperature	42582	1
2	gauge, pressure	49544	2
3	angle, support	223759	1
4	brace, instrument panel	223760	1
5	gauge, air filter maintenance	250003-797	1
6	gauge, separator maintenance	250003-798	1
7	gauge, bearing filter maintenance	250003-799	1
8	panel, instrument	250003-874	1
9	connector, tube-f 1/4" x 1/8'	810104-012	1
10	elbow, tube-f 1/4" x 1/4"	810404-025	2
11	nut, 3/8"	824206-337	1
12	nut, hex ser wash 5/16"	825305-283	4
13	capscrew, 3/8" x 1 1/4" Gr.5	828606-125	1
14	screw, hex ser wash 5/16" x 3/4"	829705-075	4
15	washer, flat 5/16"	837205-071	6
16	washer, flat 3/8"	837206-071	2
17	washer, lock 3/8"	837506-094	1
18	tubing, steel 1/4"	840115-004	23'
19	tie wraps	843200-025	2

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

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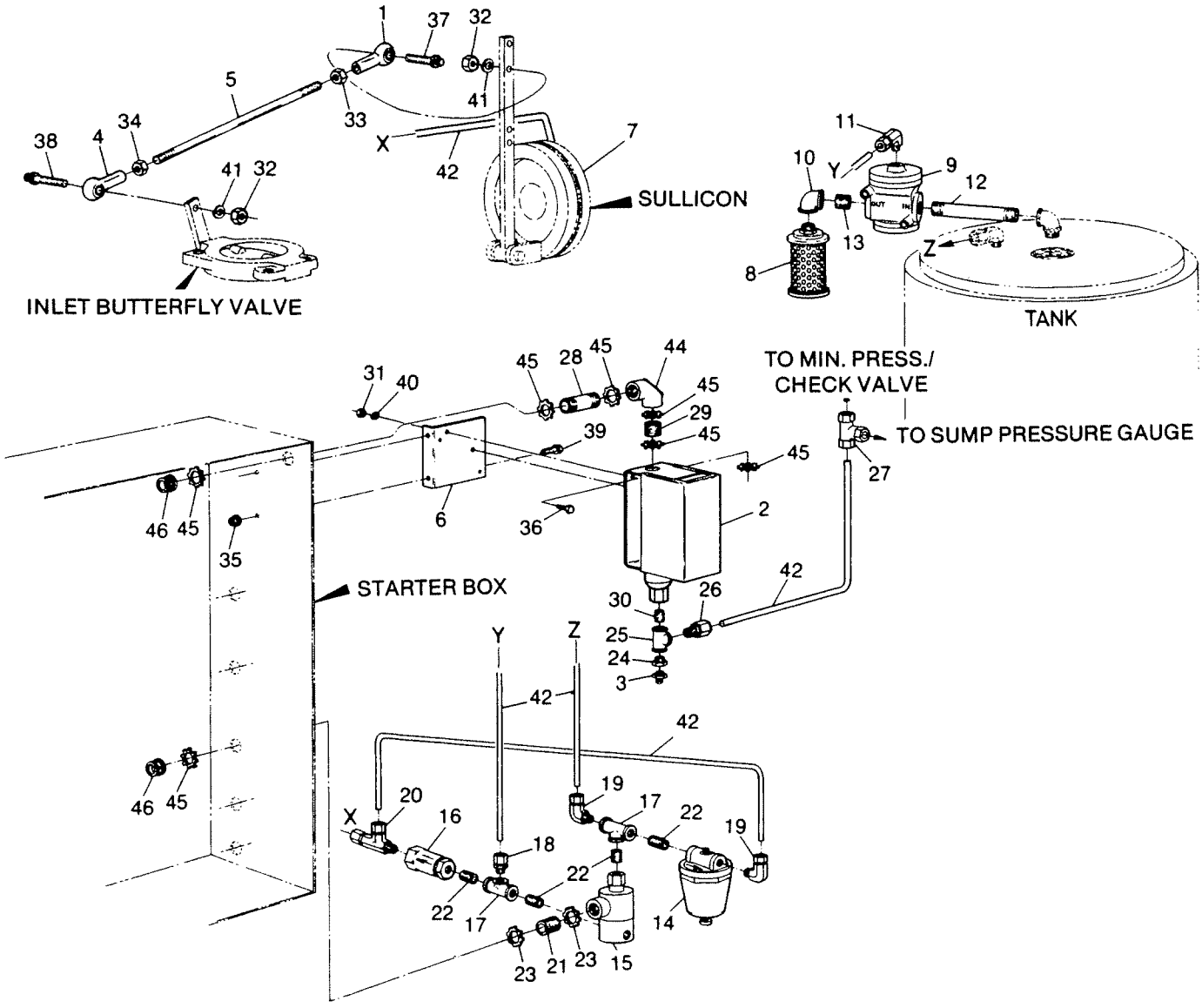
FIGURE 6.11 ELECTRO-PNEUMATIC CONTROL SYSTEM



6.11 ELECTRO-PNEUMATIC CONTROL SYSTEM

key number	*description*	*part number*	*quantity*
1	rod end, spherical r.h. 5/16"	40136	1
2	switch, pressure	40694	1
3	valve, moisture drain	41111	1
4	rod end, spherical l.h. 5/16"	42004	1
5	rod, control	250002-552	1
6	angle, pressure switch	230452	1
7	Sullicon control assembly	250000-512	1
8	silencer, compressed air 1/2"	41006	1
9	valve, blowdown 1/2"*	44912	1
10	elbow, pipe 90° 1/2"	801515-020	1
11	elbow, tube-m 1/4" x 1/4"	810504-025	1
12	nipple, pipe xs 1/2" x 4 1/2"	822108-000	1
13	nipple, pipe xs 1/2" x close	822208-045	1
14	valve, regulator**	41517	1
15	valve, solenoid 3-way*** (Skinner®)	49827	1
	valve, solenoid 3-way ****(ASCO ®)	40528	1
16	valve, check	49905	1
17	tee, pipe 1/4"	804415-010	2
18	connector, tube-m 1/4" x 1/4"	810204-025	1
19	elbow, tube-m 1/4" x 1/4"	810504-025	2
20	tee, tube-m run 1/4" x 1/4"	810904-025	1
21	nipple, pipe xs 1/2" x close	822208-000	1
22	nipple, pipe xs 1/4" x close	823204-000	4
23	locknut, conduit 1/2"	847200-050	2
24	bushing, red. 1/4" x 1/8"	804100-005	1
25	tee, pipe 1/4"	804415-010	1
26	connector, tube-m 1/4" x 1/4"	810204-025	1
27	tee, tube union 1/4"	811404-025	1
28	nipple, pipe 1/2" x 2"	822108-020	1
29	nipple, pipe xs 1/2" x close	822208-000	1
30	nipple, pipe galv xs 1/4" x close	823204-000	1
31	nut, hex 1/4"-20	824204-226	2
32	nut, hex 5/16"-18	824205-273	2

* For maintenance on blowdown valve No. 44912, order repair kit No. 46782.

** For maintenance on regulator valve No. 41517, order repair kit No. 41742.

*** For maintenance on solenoid valve No. 49827, order repair kit No. 1128.

**** For maintenance on solenoid valve No. 40528, order repair kit No. 42246.

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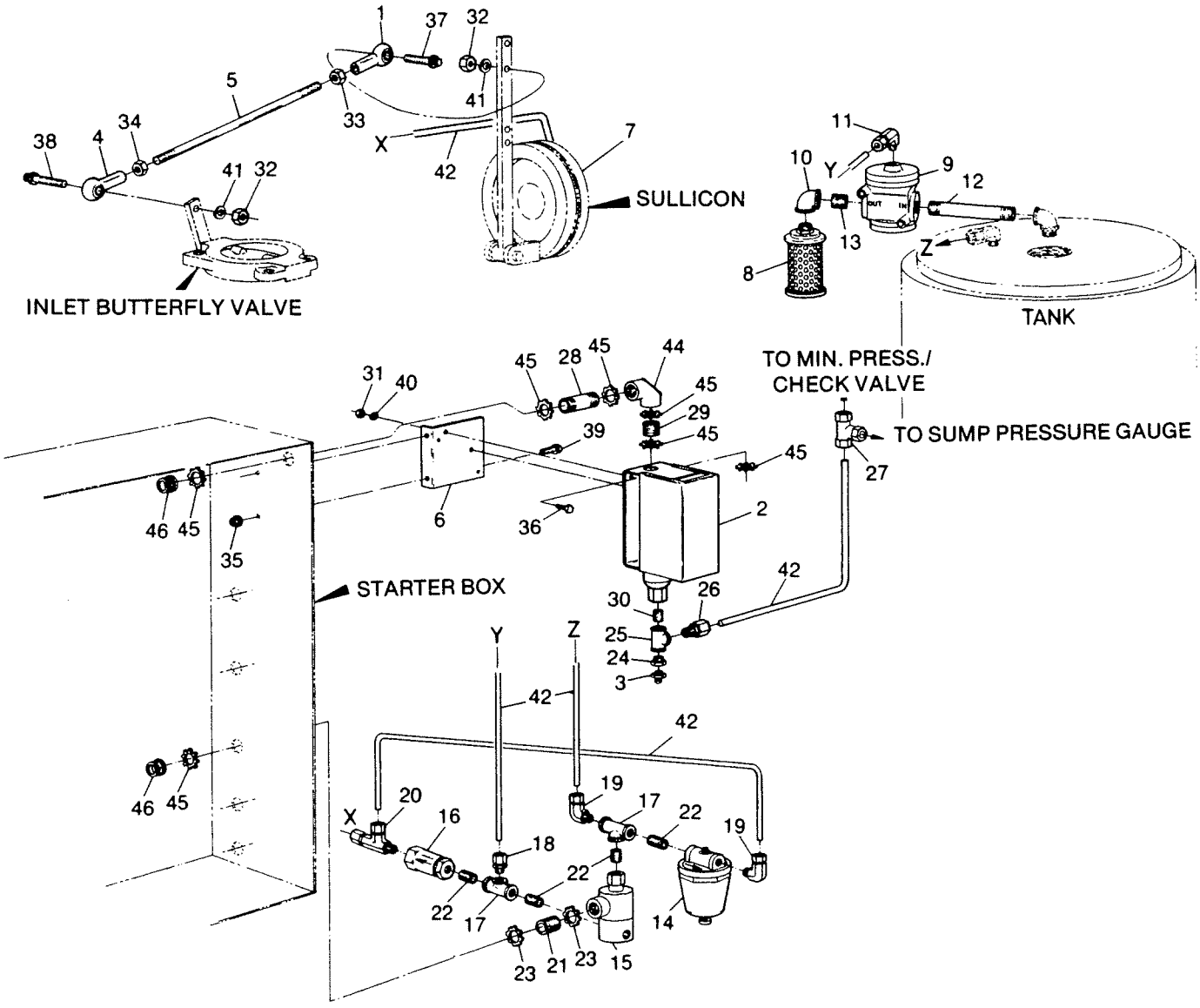
FIGURE 6.11 ELECTRO-PNEUMATIC CONTROL SYSTEM



6.11 ELECTRO-PNEUMATIC CONTROL SYSTEM (continued)

key number	*description*	*part number*	*quantity*
33	nut, hex jam 5/16" r.h.	824605-195	1
34	nut, hex jam 5/16" l.h.	824705-195	1
35	nut, hex ser wash 5/16"-18	825305-283	2
36	capscrew, hex 1/4" x 1/2" Gr.2	828104-050	2
37	capscrew, ferry head 5/16" x 1 1/4"	828405-125	1
38	capscrew, ferry head 5/16" x 1 1/2"	828405-150	1
39	screw, hex ser wash 5/16" x 3/4"	829705-075	2
40	washer, lock 1/4"	837504-062	2
41	washer, lock 5/16"	837505-078	2

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

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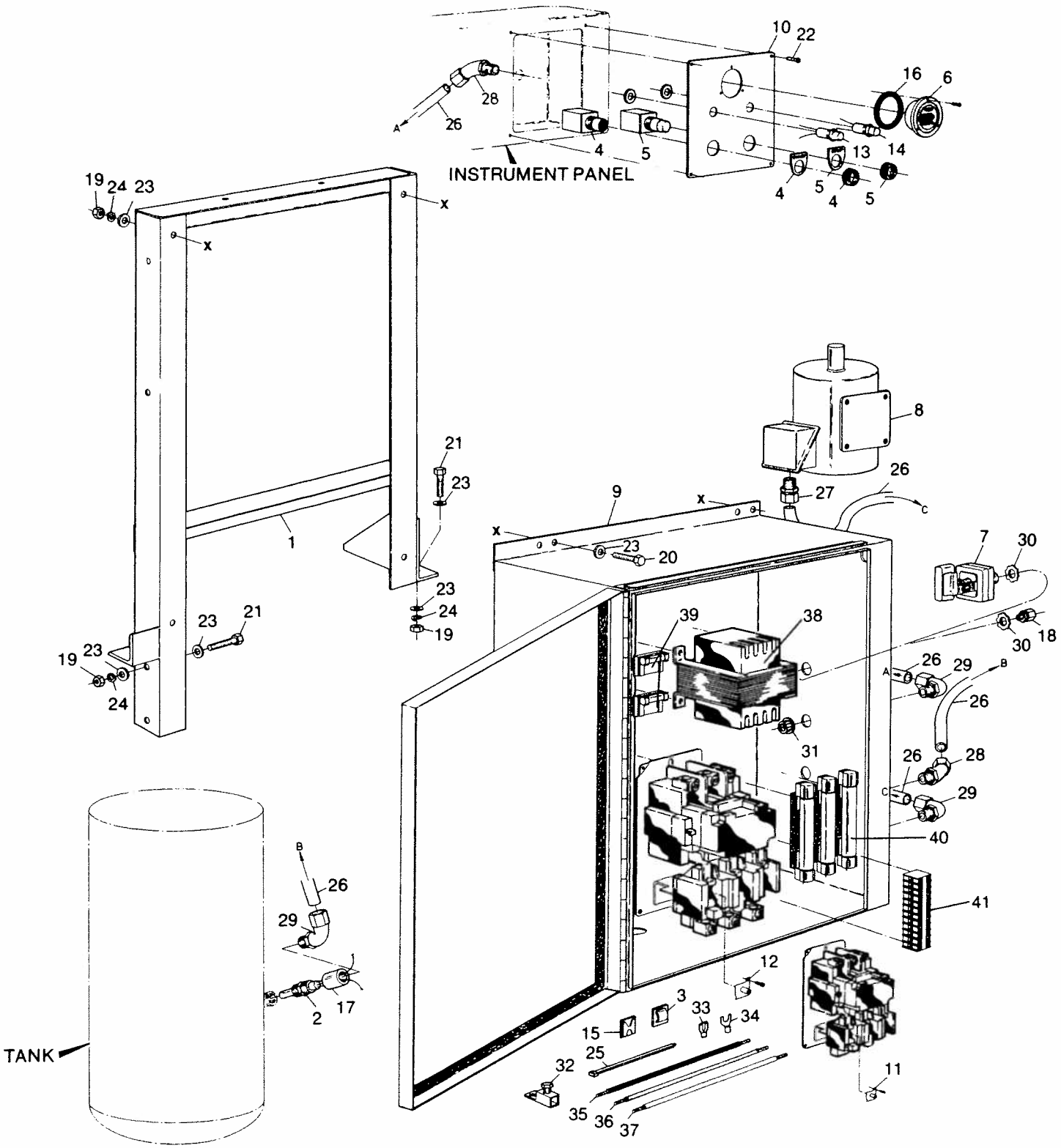
FIGURE 6.12 AIR-COOLED ELECTRIC CONTROL BOX ASSEMBLY



6.12 AIR-COOLED ELECTRIC CONTROL BOX ASSEMBLY

key number	*description*	*part number*	*quantity*
1	support, starter	14616	1
2	switch, temp 240° nc	40588	1
3	clip, plastic	41632	2
4	button, push-start	41967	1
5	button, push-stop	42235	1
6	hourmeter 2 1/2" 120v 60 hz	42988	1
7	switch, press. 10-250# spdt open	46344	1
8	motor, 2hp 230/460-60	50557	1
9	starter, N3 MFV NC N12	52451-001 (40HP)	1
	starter, N3 MFV NC N12	52451-001 (50HP)	1
	starter, N4 MFV NC N12	52404 (60HP)	1
10	panel, electrical	223758	1
11	heater, fan	241777	3
12	heater, motor	245754 (40 HP)	3
		241303 (50 HP)	3
		241304 (60 HP)	3
13	light, pilot red	250000-103	1
14	light, pilot green	250000-104	1
15	plate, ty-rap mounting	409796	2
16	gasket, hourmeter	410353	1
17	coupling 1/2"	801215-020	1
18	connector tube 1/4" x 1/4"	810204-025	1
19	nut, hex 3/8"-16	824206-337	8
20	capscrew, 3/8"-16 x 1 1/4" Gr.5	828606-125	4
21	capscrew, 3/8'-16 x 1 1/2" Gr.5	828606-150	4
22	screw, tapping #10-24 x 1/2"	835702-050	4
23	washer, flat 3/8"	837206-071	16
24	washer, lock 3/8"	837506-094	8
25	tie wrap	843200-025	6
26	conduit, liquid-tite 1/2"	846215-050	10'
27	connector start, liquid-tite 1/2"	846400-050	1
28	elbow 45°, liquid-tite 1/2"	846500-050	2
29	elbow 90°, liquid-tite 1/2"	846600-050	3
30	locknut, conduit 1/2"	847200-050	2
31	bushing, plastic 1/2"	848815-050	2
32	lug, 4-1/0	849215-025	1
33	disconnect 16-14 gage	849516-205	4
34	terminal, spade #6 x 14-16 gage	849600-014	4

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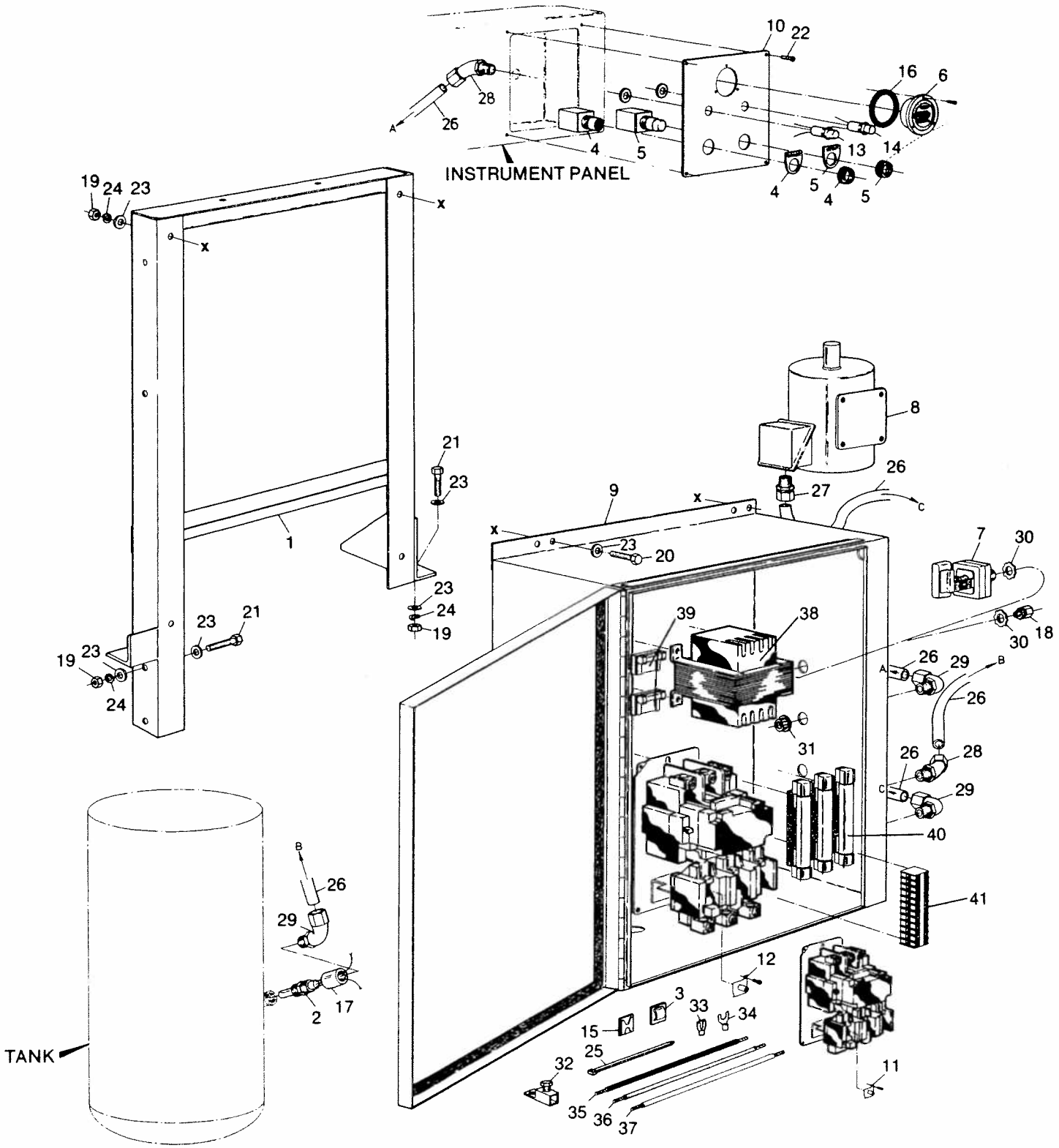
ILLUSTRATIONS AND PARTS LIST

FIGURE 6.12 AIR-COOLED ELECTRIC CONTROL BOX ASSEMBLY



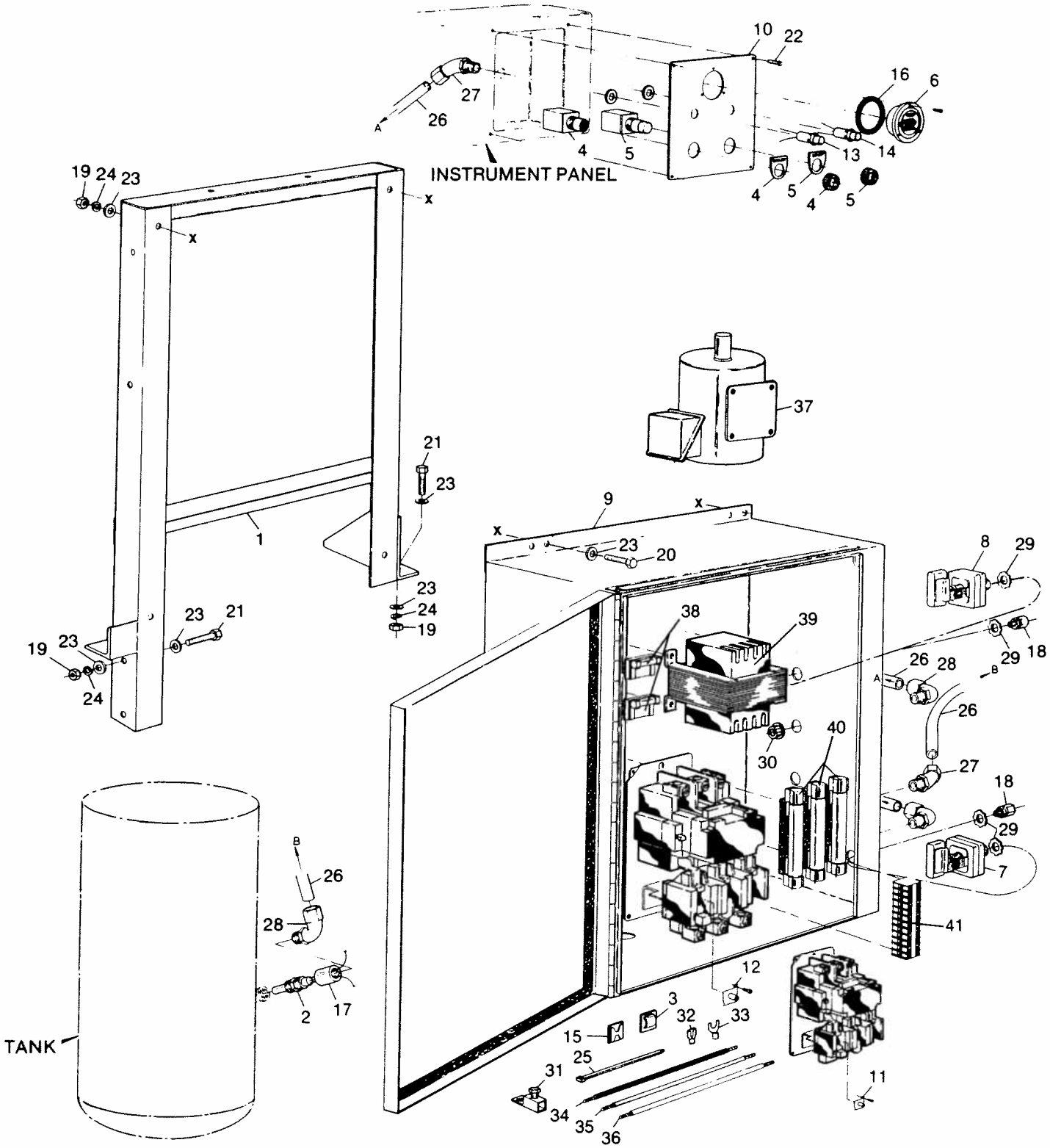
6.12 AIR-COOLED ELECTRIC CONTROL BOX ASSEMBLY (continued)

key number	*description*	*part number*	*quantity*
35	wire 14 gage blk	850210-014	18
36	wire 14 gage red	850212-014	30
37	wire 14 gage wht	850219-014	6
38	transformer (200va)	250002-568	1
	transformer (350va)	250002-569	1
39	fuse	241647	2
	holder, fuse	41147	2
40	fuse, frs 2 8/10	250004-178	3
	fuse, frs 3 1/2	250004-179	3
	fuse, frs 7	250004-183	3
	fuse, frs 8	409050	3
	holder, fuse	41158	1
41	block, terminal and track	41493	10
	SUB-PARTS FOR 250000-103 LIGHT		
1	lens, red	043384	1
2	gasket, lens	241809	1
3	lamp, 120V (120 PSB)	043386	1
4	holder, lamp	043383	1
5	gasket, lampholder	241808	1
	SUB-PARTS FOR 250000-104 LIGHT		
1	lens, green	043385	1
2	gasket, lens	241809	1
3	lamp, 120V (120 PSB)	043386	1
4	holder, lamp	043383	1
5	gasket, lampholder	241808	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.13 WATER-COOLED ELECTRIC CONTROL BOX ASSEMBLY



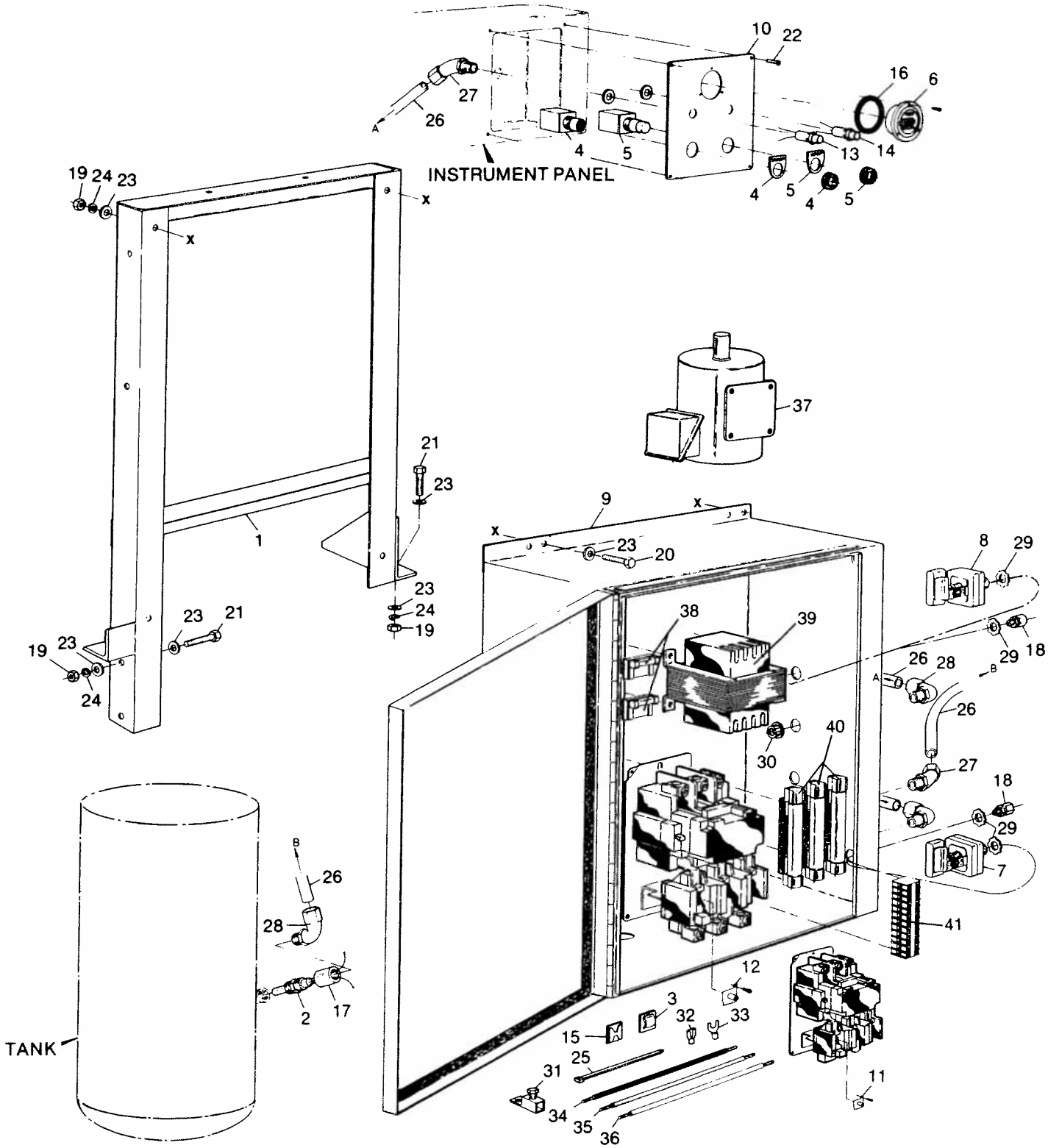
6.13 WATER-COOLED ELECTRIC CONTROL BOX ASSEMBLY

key number	*description*	*part number*	*quantity*
1	support, starter	14616	1
2	switch, temp 240° nc	40588	1
3	clip, plastic	41632	2
4	button, push-start	41967	1
5	button, push-stop	42235	1
6	hourmeter 2 1/2" 120V 60 hz	42988	1
7	switch, pressure	43428	1
8	switch, pressure 10-250 #spdt open	46344	1
9	starter, N3 MFC NC N12	52451-001 (40 hp)	1
	starter, N3 MFV NC N12	52451-001 (50 hp)	1
	starter, N4 MFV NC N12	52404 (60 hp)	1
10	panel, electrical	223758	1
11	heater, fan	241777	3
12	heater, motor	245754 (40 hp)	3
		241303 (50 hp)	3
		241304 (60 hp)	3
13	light, pilot red	250000-103	1
14	light, pilot green	250000-104	1
15	plate, ty-rap mounting	409796	2
16	gasket, hourmeter	410353	1
17	coupling 1/2"	801215-020	1
18	connector tube 1/4" x 1/4"	810204-025	1
19	nut, hex 3/8"-16	824206-337	8
20	capscrew, 3/8"-16 x 1 1/4" Gr.5	828606-125	4
21	capscrew, 3/8"-16 x 1 1/2" Gr.5	828606-150	4
22	screw, tapping #10-24 x 1/2"	835702-050	4
23	washer, flat 3/8"	837206-071	16
24	washer, lock 3/8"	837506-094	8
25	tie wrap	843200-025	6
26	conduit liquid-tite 1/2"	846215-050	10'
27	elbow 45° liquid-tite 1/2"	846500-050	2
28	elbow 90° liquid-tite 1/2"	846600-050	3
29	locknut, conduit 1/2"	847200-050	4
30	bushing, plastic 1/2	848815-050	2
31	lug 4-1/0	849215-025	1
32	disconnect, 16-14 gage	849516-205	4
33	terminal, spade #6 x 14-16 gage	849600-014	4
34	wire 14 gage blk	850210-014	18

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.13 WATER-COOLED ELECTRIC CONTROL BOX ASSEMBLY



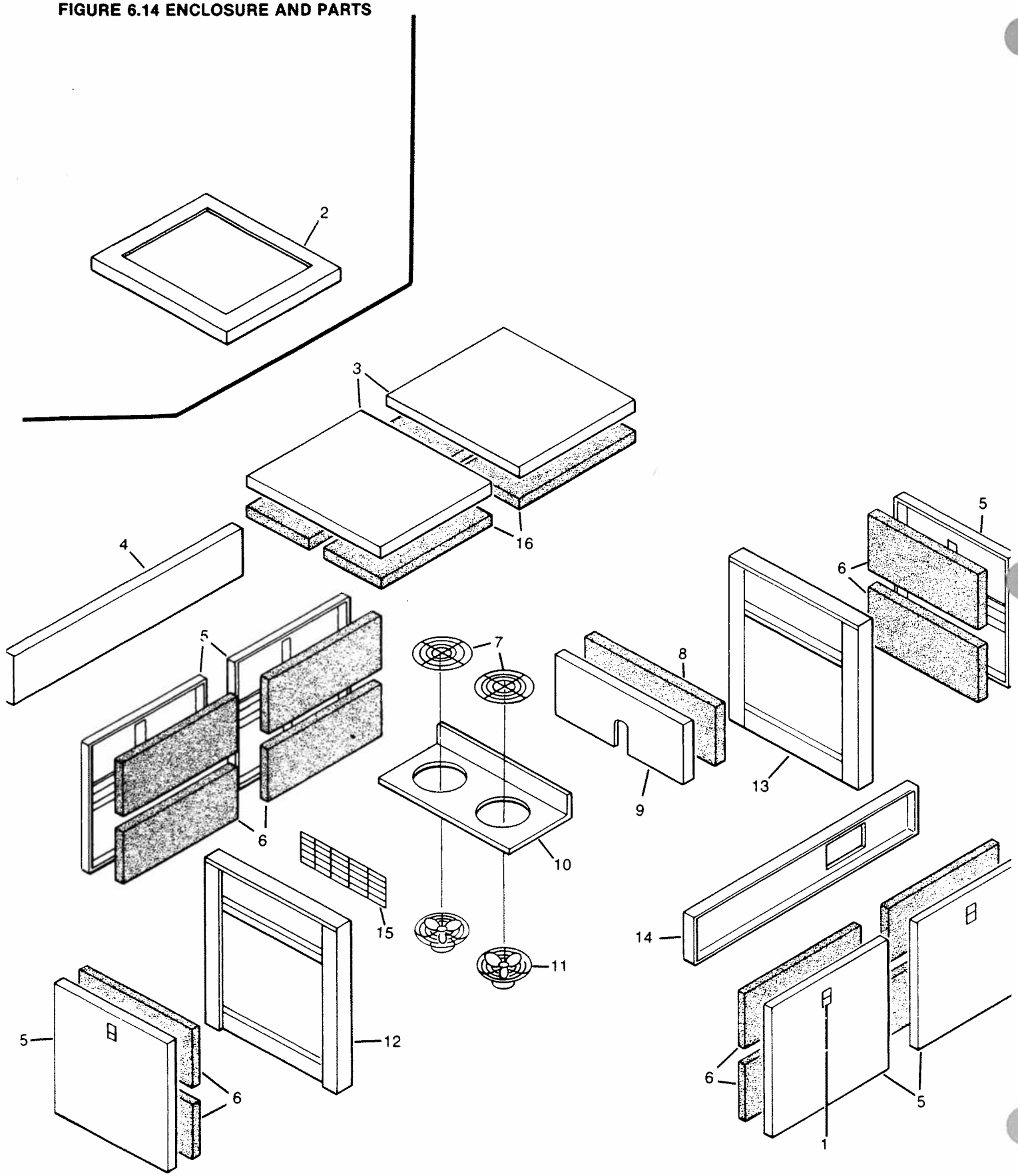
6.13 WATER-COOLED ELECTRIC CONTROL BOX ASSEMBLY (continued)

key number	*description*	*part number*	*quantity*
35	wire 14 gage red	850212-014	30
36	wire 14 gage wht	850219-014	6
37	motor, 1/4 hp (200v)	250004-084	1
	motor, 1/4 hp (230v)	250004-086	1
	motor, 1/4 hp (460v)	250004-031	1
	motor, 1/4 hp (575v)	250004-085	1
38	fuse	241647	2
	holder, fuse	41147	2
39	transformer (200va)	250002-568	1
	transformer (350va)	250002-569	1
40	fuse, frs 1 4/10 (200v)	250004-177	3
	fuse, frs 1 4/10 (230v)	250004-176	3
	fuse, frs 8/10 (460v)	250004-175	3
	fuse, frs 6/10 (575v)	250004-174	3
	holder, fuse	41158	1
41	block, terminal and track	41493	10
	SUB-PARTS FOR 250000-103 LIGHT		
1	lens, red	043384	1
2	gasket, lens	241809	1
3	lamp, 120V (120 psb)	043386	1
4	holder, lamp	043383	1
5	gasket, lampholder	241808	1
	SUB-PARTS FOR 250000-104 LIGHT		
1	lens, green	043385	1
2	gasket, lens	241809	1
3	lamp, 120V (120 psb)	043386	1
4	holder, lamp	043383	1
5	gasket, lampholder	241808	1

Section 6

ILLUSTRATIONS AND PARTS LIST

FIGURE 6.14 ENCLOSURE AND PARTS

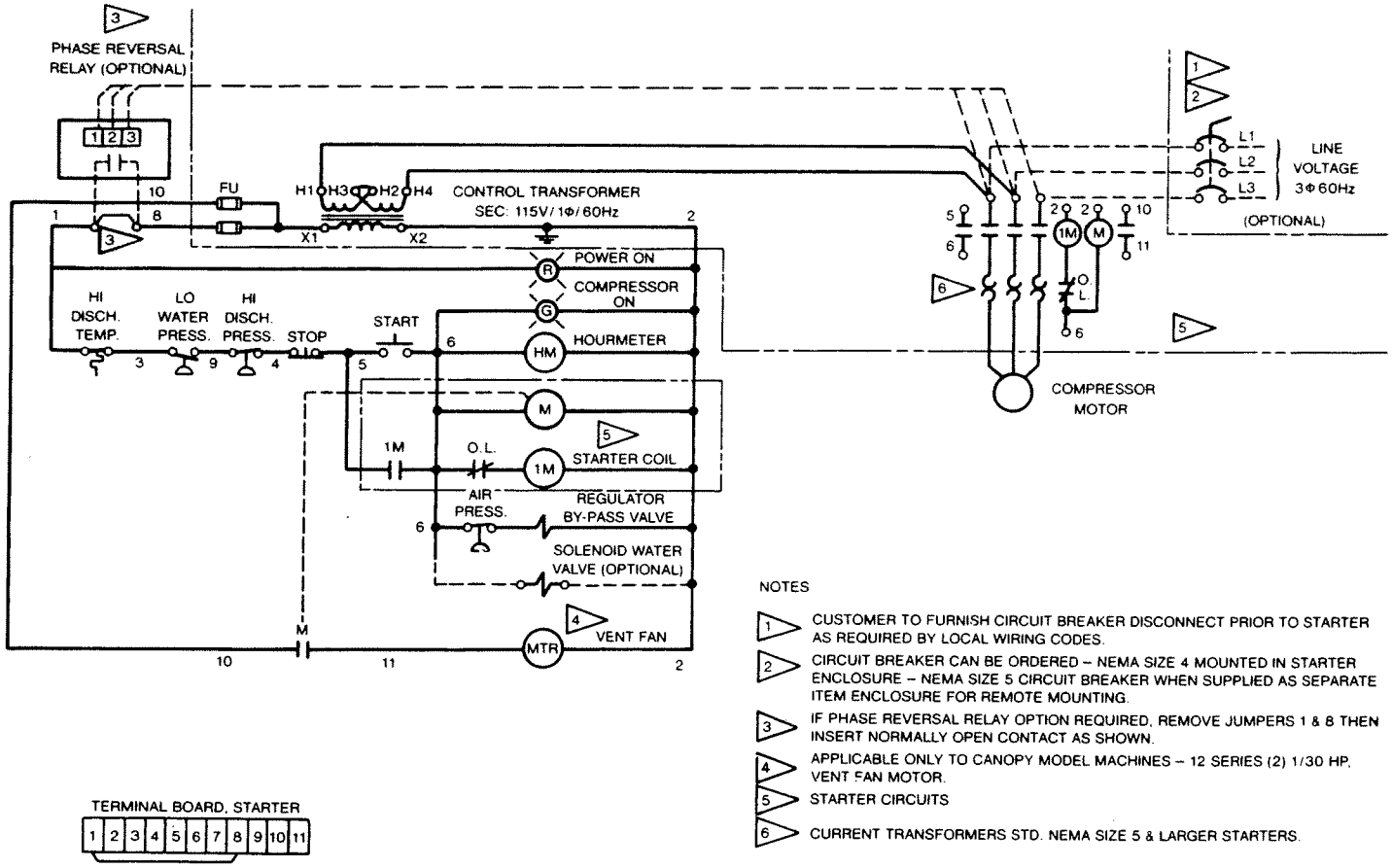


6.14 ENCLOSURE AND PARTS

key number	*description*	*air-cooled part no.*	*water-cooled part no.*	*a/c quantity*	*w/c quantity*
1	latch trigger lock	49764	49764	6	6
2	panel, roof	14622		1	1
3	panel, top access	14621	14621	1	2
4	panel, enclosure back	223717	223717	1	1
5	panel, side access	14620	14620	6	6
6	panel, fiberglass 15 1/4" x 32 1/2"	49889-005	49889-005	12	12
7	guard, fan 14"	—	241579	—	2
8	panel, fiberglass 23 1/2" x 35 3/4"	49889-007	49889-007	1	1
9	panel, baffle	14639	14639	1	1
10	panel, baffle	223812	223812	1	1
11	fan	—	241580	—	2
12	panel, enclosure end	14752	14752	1	1
13	panel, enclosure end	14626	14626	1	1
14	panel, enclosure front	223716	223716	1	1
15	grille, enclosure end	241964	241964	2	2
16	panel, fiberglass 19 1/4" x 32 1/2"	49889-006	49889-006	2	4

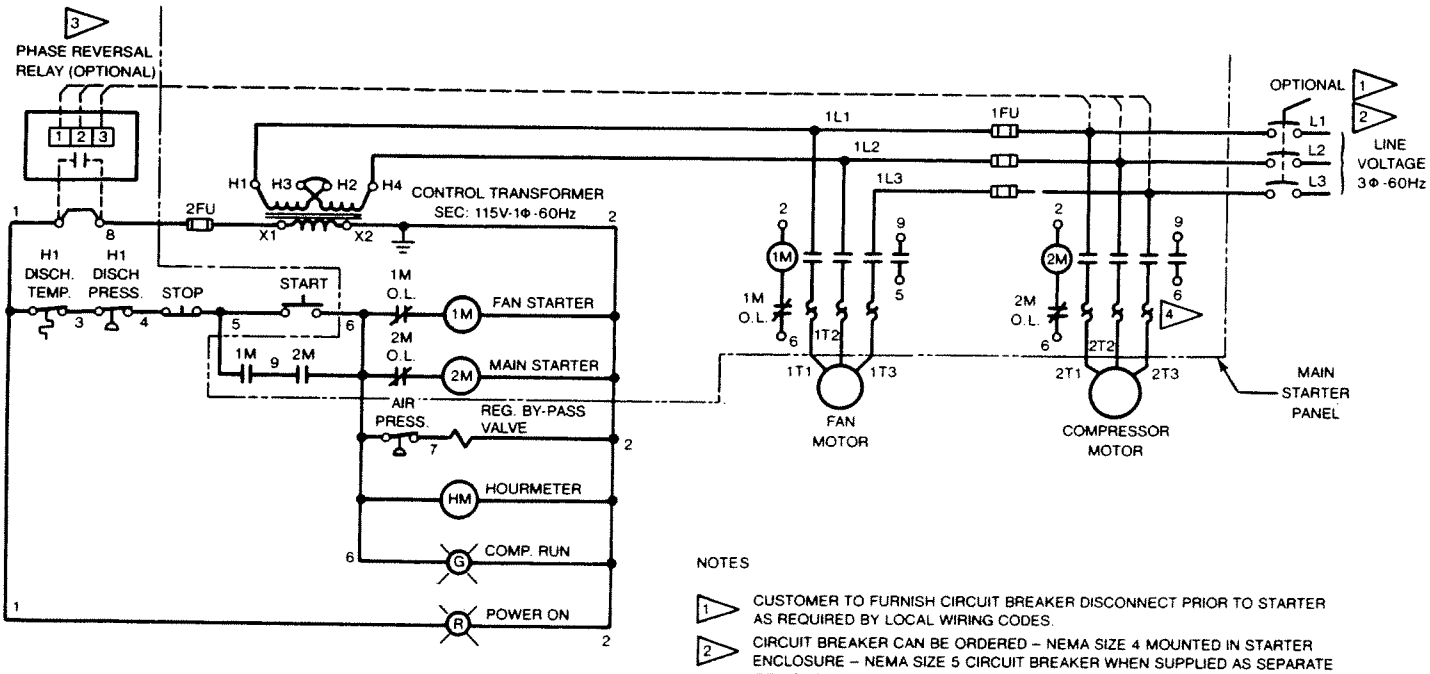
WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

FIGURE 6.15 ELECTRICAL SCHEMATIC



NOTES

1. CUSTOMER TO FURNISH CIRCUIT BREAKER DISCONNECT PRIOR TO STARTER AS REQUIRED BY LOCAL WIRING CODES.
2. CIRCUIT BREAKER CAN BE ORDERED – NEMA SIZE 4 MOUNTED IN STARTER ENCLOSURE – NEMA SIZE 5 CIRCUIT BREAKER WHEN SUPPLIED AS SEPARATE ITEM ENCLOSURE FOR REMOTE MOUNTING.
3. IF PHASE REVERSAL RELAY OPTION REQUIRED, REMOVE JUMPERS 1 & 8 THEN INSERT NORMALLY OPEN CONTACT AS SHOWN.
4. APPLICABLE ONLY TO CANOPY MODEL MACHINES – 12 SERIES (2) 1/30 HP. VENT FAN MOTOR.
5. STARTER CIRCUITS
6. CURRENT TRANSFORMERS STD. NEMA SIZE 5 & LARGER STARTERS.



NOTES

1. CUSTOMER TO FURNISH CIRCUIT BREAKER DISCONNECT PRIOR TO STARTER AS REQUIRED BY LOCAL WIRING CODES.
2. CIRCUIT BREAKER CAN BE ORDERED – NEMA SIZE 4 MOUNTED IN STARTER ENCLOSURE – NEMA SIZE 5 CIRCUIT BREAKER WHEN SUPPLIED AS SEPARATE ITEM ENCLOSURE FOR REMOTE MOUNTING.
3. IF PHASE REVERSAL RELAY OPTION REQUIRED, REMOVE JUMPER 1 & 8 THEN INSERT NORMALLY OPEN CONTACT AS SHOWN.
4. CURRENT TRANSFORMERS ARE STANDARD ON NEMA SIZE 5 AND LARGER STARTERS.

Worldwide Sales and Service

SULLAIR CORPORATION
3700 East Michigan Blvd., Michigan City, Indiana 46360
Phone: (219) 879-5451 Telex: 258318

Part Number

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