RC40 Vanair

Air Compressor

Air system overview

Maintainer Corp. of Iowa installs air systems per the customer's requirements. They range from small gas powered air compressors to large hydraulic driven rotary screw air compressors.

Maintainer Corp. of Iowa designs and installs most hydraulic systems that run the air compressors. The systems are designed using the air compressor manufacturer's specifications for each unit. Horsepower requirements, R.P.M. and duty cycle are the determining factors when designing the systems.

The air system components are matched to the air compressor output. The air hose size, air storage capacity, **F**ilter – **L**ubricator – **R**egulator and hose reel are matched to the air compressor output.

The hydraulic system used on the air compressor may be an open or closed center hydraulic system. A solenoid valve and oil flow control valve control the hydraulic flow to the hydraulic motor. An electric pressure switch controls the solenoid valve. The pressure switch will energize the solenoid valve when the air system lowers to a set pressure. This pressure is approximately 120 P.S.I. The pressure switch will de-energize the solenoid valve when the air system reaches a higher set pressure. This pressure is approximately 150 P.S.I.

The air reservoir tank is equipped with a 165 P.S.I. pop off valve to prevent the tank from over pressurizing. There is a drain in the tank. The tank should be drained at the end of each shift. The air is directed out of the air tank to air system components.

How to set the Van Air RC 40 Compressor

Start by making sure the main hydraulic system pressures are at correct settings. Have the truck running, the hydraulic system engaged, and the system at normal operating temperature.

The compressor's rpm's are factory set at 840 to 865 RPM (Do not exceed 865 RPM). Begin by letting the air compressor run for fifteen minutes to warm up while venting to the atmosphere. Now stop venting the air and let pressure build up to check at what PSI the compressor shuts off. You will get the PSI reading from the FLR (Filter-Lubricator-Regulator) gauge that is in-line with the air reel. To adjust the pressure settings, access the pressure switch through the removable service panel. Remove the cover from the pressure switch and adjust by turning the screw between the four terminals. Turning in will increase pressure and turning out will decrease pressure. The small adjuster will affect the differential level only. Set the shut-off pressure at 150psi. The start-up pressure will normally be set 30psi lower.

Note: The Max air pressure of the system is 165psi.
Set Max RPM with 0-60psi with air venting to atmosphere.

Hydraulic motor requirements: 14 GPM @ 1700 PSI

Maintenance tips:
Change the oil once a year or 500 hours.
Change the oil more often under harsher conditions.
Van Air recommends Synthetic 10W-30 or 5W-30 or Van Air Kit 1091

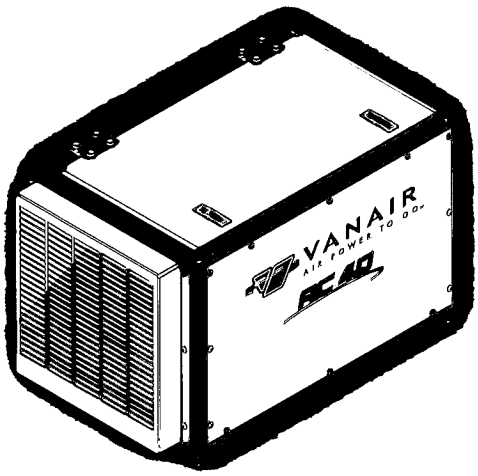
VANAIR®

AIR POWER TO GO™

RC40

40 CFM/100 PSIG HYDRAULIC CLOSED OR OPEN CIRCULATION RECIPROCATING COMPRESSOR

INSTALLATION, OPERATION, MAINTENANCE AND PARTS MANUAL



NOTE

Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual WILL VOID THE EQUIPMENT WARRANTY.

KEEP THE MANUAL WITH THE VEHICLE

NOTE

Making unauthorized modifications to the compressor or system components WILL VOID THE WARRANTY!

Always inform Vanair Manufacturing, Inc., before beginning any changes to the RC40 system.

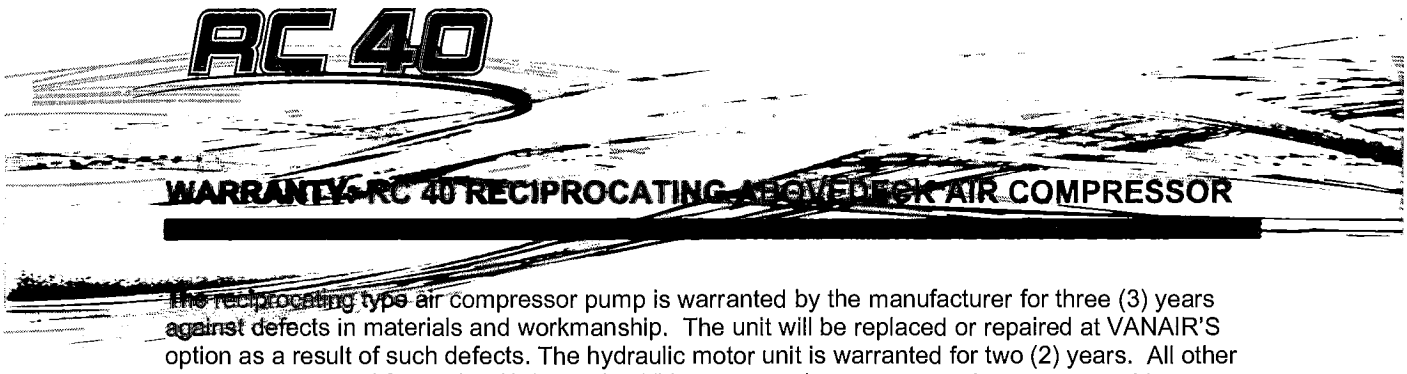
Vanair Manufacturing, Inc.
10896 West 300 North
Michigan City, IN 46360
Phone: (219) 879-5100
(800) 526-8817

Service Fax: (219) 879-5335
Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800
www.vanair.com

NOTE

Use only Vanair™ Premium Synthetic Oil and Genuine Vanair Parts. Inspect and replace damaged components before operation. Substituting non-Vanair™ Oil or non-genuine Vanair filter components WILL VOID THE COMPRESSOR WARRANTY!

P/N 090037-OP_r0
Effective Date: 10/12



WARRANTY - RC 40 RECIPROCATING ABOVE DECK AIR COMPRESSOR

The reciprocating type air compressor pump is warranted by the manufacturer for three (3) years against defects in materials and workmanship. The unit will be replaced or repaired at VANAIR'S option as a result of such defects. The hydraulic motor unit is warranted for two (2) years. All other parts are warranted for twelve (12) months. This warranty does not cover damage caused by accident, misuse or negligence. If the compressor pump is disassembled the warranty is void. Any disassembly of major components must be approved by Vanair to avoid voiding of warranty. Any and all such claims for warranty consideration must be coordinated **prior** to work being performed through the Warranty-Service Department at the address below. Please do **not** return parts without prior authorization.

Warranty is limited to the supply of replacement parts failing within the warranty period. Credit for labor required to refit replacement parts is NOT included. All warranted parts are to be shipped PREPAID to VANAIR. Replacement parts will be shipped back to the customer by VANAIR via ground shipment. Cost to expedite delivery of replacement parts will be incurred by customer. Factory installed units will also include warranty on the installation for one year.

Warranty will commence upon receipt of the Warranty Registration Card. If the Warranty Registration Card is not received within six (6) months, then warranty commencement date shall be thirty (30) days from the date of shipment from VANAIR. Records of warranty adherence are the responsibility of end user.

This statement of warranty is expressly in lieu of and disclaims all other express warranties, implied warranties of merchantability and fitness for a particular purpose and all other implied warranties which extend beyond the description on the face hereof. In no event shall Vanair be responsible for special, indirect, incidental, consequential or punitive damages of any kind, including without limitation, lost profits or other monetary loss, whether or not any such matters or causes are within Vanair's control or due to negligence or other fault of Vanair, its agents, affiliates, employees or representatives.

This warranty shall be void and VANAIR shall have no responsibility to repair, replace or repay the purchase price of defective or damaged parts resulting from the use of or repair of replacement parts or fluids not of VANAIR'S manufacture or from buyer's failure to store, install, maintain and operate the compressor according to the recommendations contained in the Manual.

All claims under the Warranty shall be made by contacting VANAIR Warranty-Service Department.

10896 W 300 North • Michigan City, IN 46360

TEL: (800) 526-8817 • FAX: (219) 879-5800 • PARTS FAX: (219) 879-5340 • vanair.com

Effective June 2011

Register Your Warranty Online at www.vanair.com
(800) 526-8817, ext. 400 • Fax: (219) 879-5800
10896 W 300 North • Michigan City, IN 46360

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SECTION 6: MAINTENANCE (CONTINUED)

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SECTION 8: ILLUSTRATED PARTS LIST..... 71

WARRANTY CLAIMS PROCEDURE

CLAIMS PROCESS FOR WARRANTED VANAIR® PARTS

This process must be used by owners of Vanair® equipment in situations where a warranted item needs repair or replacement under the terms of the purchase warranty. Do not return items to Vanair without prior authorization from the Vanair Warranty Administrator.

PROCEDURE:

When a customer needs assistance in troubleshooting a system and/or returning parts, follow the steps below.

1. **Locate the machine's serial number:**

   The machine package serial number plate is located on the drive-side base frame floor, to the left of the compressor drive sheave (see ***Figure W-1***).

2. **Have a list of the symptoms/condition/malfunctions along with any applicable temperature and pressure readings, and also the number of operational hours available:**

NOTE
The unit's serial number is important to determine the proper configuration of the machine.

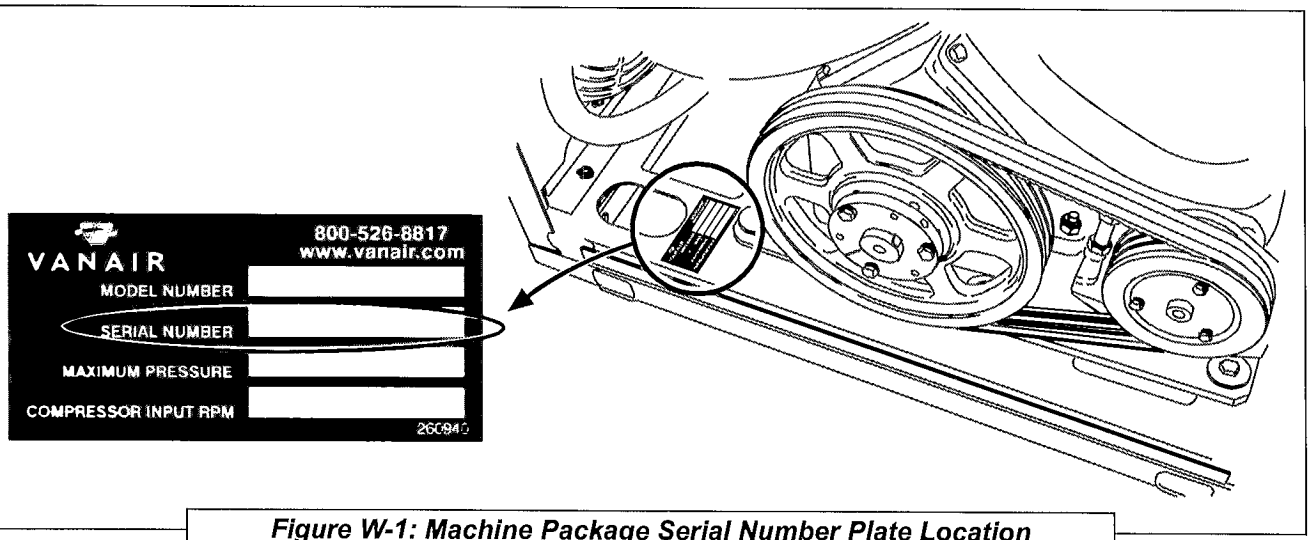


Figure W-1: Machine Package Serial Number Plate Location

IMPORTANT

Customers have 30 days after the RMA number is issued to return the item. If the part is not returned within this period, the RMA is void and any claims will be denied.

NOTE

The RMA number must be placed on the outside of the package being returned.

NOTE

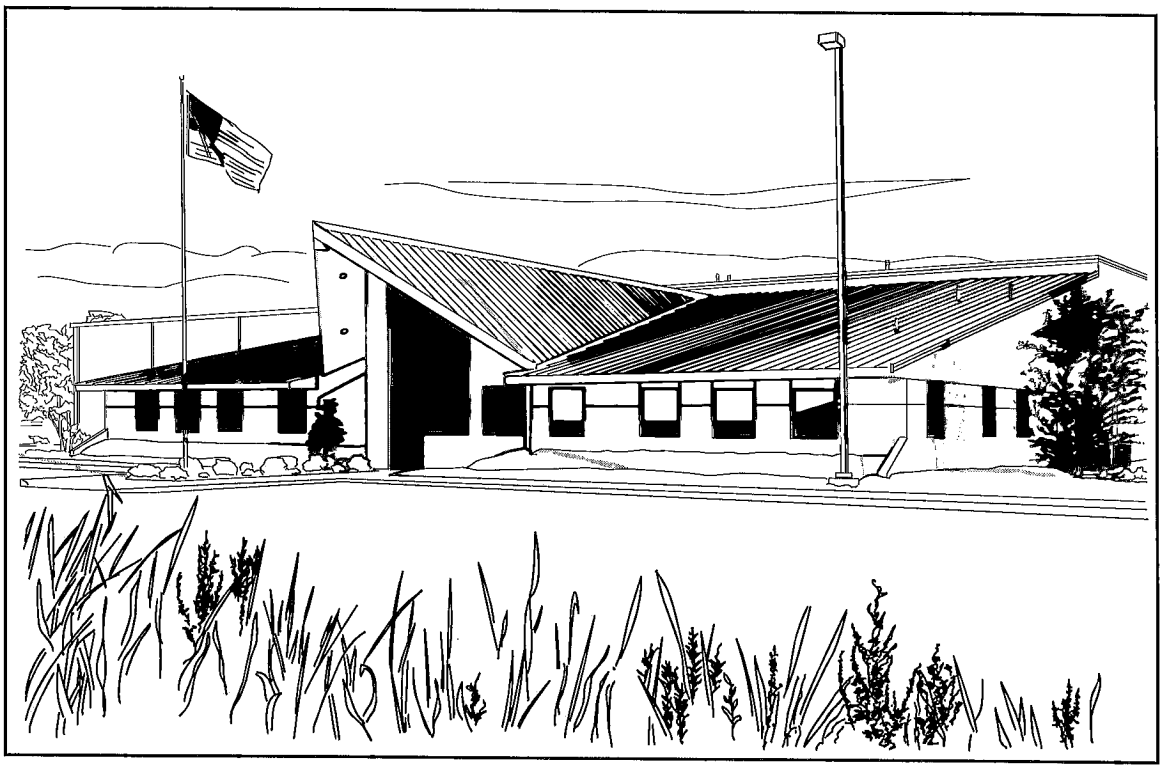
All labor claims or invoices must be approved by the Vanair Warranty Administrator prior to starting repair work along with the cost of the repair. All paper work associated with the returned item and warranty repair cost must reference the RMA number issued against the part, and be forwarded to Vanair within 30 days of the completion of work.

3. **Contact the Vanair Service Department by phone (1-219-879-5100 ext. 400) to speak with a Service Technician.**
4. **Vanair Service will troubleshoot the problem based on the information provided by the customer.**
5. **If the unit cannot be returned to service, and Vanair determines this matter may be a warranty issue, the Service Technician may assign an RMA (Return Material Authorization) number that will provide for the return of the item to Vanair® for analysis and a final determination as to the item's warranty status.**
6. **If the returned item, which in Vanair's judgment is proven to be defective as warranted, than Vanair will issue a credit for the cost of that item to the customer.**
7. **Returned parts eligible for warranty must have the RMA number on the packing slip.**

   No items can be returned "freight collect". The customer pays any additional costs for warranty parts delivered through expedited services (i.e., Next Day, Second day).

   Vanair Manufacturing strives to continuously improve its customer service. Please forward any questions, comments, or suggestions to Vanair Service (219-879-5100 ext. 400) or e-mail us (service@vanair.com).

INTRODUCTION



EXPERIENCE THE VANAIR® ADVANTAGE!

Since 1972, Vanair Manufacturing, Inc. has grown from a small subsidiary of Sullair Corporation® to the world's largest manufacturer of vehicle-mounted air compressors today. Vanair pioneered the use of transmission Power Take-Off (PTO) to power rotary screw air compressors, and continues to be the driving innovative force in this segment of the industry. Vanair offers air compressor products ranging from 20 to 900 CFM using various drive methods, allowing for installations for most vehicle applications. Vanair's brand new state of the art facility is driven by a highly-qualified and skilled workforce. Our professional engineering staff uses detailed 3D modeling technology to provide custom engineered solutions for complex and demanding customer applications. With their experienced service personnel, Vanair is able to

provide its customers prompt and comprehensive technical support.

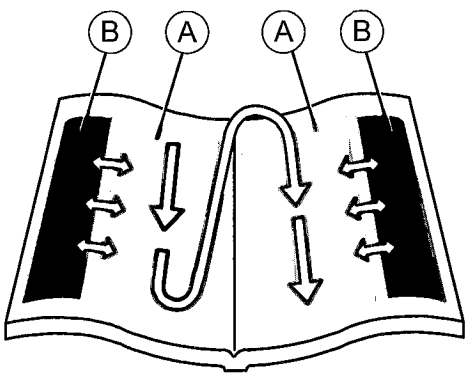
This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy. However, Vanair® Manufacturing, Inc. takes no responsibility for errors or consequential damages caused by reliance on the information contained herein.

Vanair Manufacturing, Inc. reserves the right to make design change modifications or improvements without prior notification.

A NOTE ON MANUAL LAYOUT NAVIGATION

Refer to ***Figure M-1***. This manual is presented in a two-column per page sequence. As shown in the figure, the inner columns represent the machine application data in a continuous page-by-page flow. The outer columns are reserved for auxiliary information relating to the specific data put forth in the inner column. This auxiliary data can, for example, be a relative warning or note detail. It will support the concept which is listed nearby in the inner column.

Sometimes, if an illustration is too large to fit in the outer column, or if a large table matrix is present, it may occupy the two-column space of a page. In such cases the inner column will always be continued on the next available page after the illustration.



KEY	DESCRIPTION
A	**INNER PAGE COLUMNS:** Main text flow of information layout represents the main body of machine applications divided into sections and sub-sections.
B	**OUTER PAGE COLUMNS:** Contain auxiliary information such as notes, warnings, and small illustrations. This information is related, and will be located in proximity, to the main, inner page column application.

Figure M-1: Manual Layout Navigation

SECTION 1: SAFETY

1.1 GENERAL INFORMATION

The products provided by Vanair® are designed and manufactured for safe operation and maintenance. But it is ultimately the responsibility of the users and maintainers for safe use of this equipment. Part of this responsibility is to read and be familiar with the contents of this manual before operation or performing maintenance actions.

System Component Group	Manual Section
GENERAL DESCRIPTION	**1.1**
DANGERS, WARNINGS, CAUTIONS AND NOTES	**1.2**
SUMMARY OF DANGERS, WARNINGS, CAUTIONS AND NOTES	**1.3**
DANGERS	1.3.1
WARNINGS	1.3.2
CAUTIONS	1.3.3
SAFETY DECALS	1.3.4
DISPOSING OF MACHINE FLUIDS	1.4

1.2 ⚠ DANGERS, WARNINGS, CAUTIONS AND NOTES

See information boxes at right column.

1.3 ⚠ SUMMARY OF DANGERS, WARNINGS, CAUTIONS AND NOTES

These boxed inserts are placed throughout this manual in the sections where they apply. This subsection is a general summary of their contents.

⚠ IMPORTANT

Read this manual before operating or servicing the RC40 Air Compressor System. Failure to do so could result in damaged equipment, bodily injury, or death.

⚠ DANGER

Identifies actions or conditions which will cause death, severe injury, or equipment damage or destructive malfunctions.

⚠ WARNING

Identifies actions or conditions which can cause death, severe injury, or equipment damage or destructive malfunctions.

⚠ CAUTION

Identifies actions or conditions which will or can cause injuries, equipment damage or malfunctions.

NOTE

Additional information (or existing information) which should be brought to the attention of operators/maintainers affecting safety, operation, maintenance, or warranty requirements.

1.3.1 ⚠ DANGERS

- Keep tools or other conductive objects away from live electrical parts.
- Never touch electrical wires or components while the machine is operating. They can be sources of electrical shock.

1.3.2 ⚠ WARNINGS

- **DO NOT** ever use this compressor as a breathing air source. Vanair® disclaims any and all liabilities for damage or loss due to fatalities, personal injuries resulting from the use of a Vanair compressor to supply breathing air.
- **DO NOT** perform any modifications to this equipment without prior factory approval.
- **DO NOT** operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.
- **DO NOT** attempt to service the equipment while it is operating.
- **DO NOT** use the compressor for purposes other than for which it is intended. High pressure air can cause serious and even fatal injuries.
- **DO NOT** operate the compressor outside of its specified pressure and speed ratings. (See **Section 3, Specifications** or refer to the equipment data plate.)
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or it parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, or corrosive fumes, or other damaging substance can be ingested by the compressor intakes.
- **DO NOT** operate the compressor with any by-pass or other safety systems disconnected or rendered inoperative.
- Keep arms, hands, hair and other body parts, and loose clothing away from fans, drive shafts, and other moving parts.
- **DO NOT** operate the compressor with any guards removed or damaged, or other safety devices inoperative.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed-off.
- **DO NOT** install shut-off valves between the compressor and the compressor receiver tank (sump).

- Ensure that hoses connected to service valves are fitted with correctly sized and rated flow limiting devices which comply with applicable codes. Pressurized broken or disconnected hoses can whip causing injuries or damage.
- **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.
- Keep metal tools, and other conductive objects away from live electrical components.
- Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.
- **DO NOT** assume that because the compressor is in a STOPPED condition that power has been removed.
- Use this compressor only to compress atmospheric air. Use of this equipment as a booster pump and/or to compress any other gaseous or aerosol substance constitutes improper use. It can also cause damage or injuries. Such misuse will also void the warranty.
- Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.
- Before performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

1.3.3 ⚠ CAUTIONS

- Check all safety devices for proper operation on a routine basis.
- Ensure that no tools, rags, or other objects are left on compressor drive systems or near intakes.
- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed for maintenance actions are replaced before applying power to the compressor.
- Avoid touching hot surfaces and components.
- Ensure that electrical wiring, terminals; hoses and fittings are kept in serviceable condition through routine inspections and maintenance. Replace any damaged or worn components.
- Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. DO NOT wear jewelry,

loose clothing; and long hair should be restrained with headband or safety hat.

1.3.4 ⚠ *SAFETY DECALS*

Safety decals are placed onto, or located near, system components that can present a hazard to operators or service personnel. All pertinent decals listed in **Section 8.13, Decal Locations** are located near a component, which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

⚠ WARNING
DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.

1.4 ♻ DISPOSING OF MACHINE FLUIDS

Always dispose of machine fluids under the guidance of all applicable local, regional and/or federal law.

Vanair® encourages recycling when allowed. For additional information, consult the fluid container label.

SECTION 2: DESCRIPTION

2.1 GENERAL DESCRIPTION

The RC40 unit is designed for heavy-duty performance, optimal power consumption, and for use in areas where installation space is limited.

This type of compressor increases the pressure of the supply air by reducing its volume. This equipment operates by taking in successive volumes of air, in repeated cycles, that is confined in an enclosed space, a sealed chamber, which then compresses this air mass to a higher pressure.

The reciprocating air compressor accomplishes this by using pistons to compress the air inside a set of cylinders, which confine the air mass. As the pistons move into the cylinders, the area containing the air mass decreases and the pressure increases.

The enclosure is constructed of powder-coated, galvanneal sheet steel to protect the unit. It is designed so that daily inspections can be accomplished without removing any panels. However, the panels can be removed easily for more extensive maintenance and repairs.

The unit's steel frame is also powder-coated and has bolt holes for securing it to a vehicle body mounting platform or base.

The component descriptions are presented in this section as follows:

System Component Group	Manual Section
GENERAL DESCRIPTION	**2.1**
COMPONENT DESCRIPTIONS	**2.2**
COMPRESSOR PUMP	2.2.1
COOLING SYSTEM	2.2.2
ELECTRICAL SYSTEM	2.2.3
AIR CONTROL SYSTEM	2.2.4

Continued on next page

⚠ WARNING

Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and locked out to prevent accidental application.

DO NOT assume that because the compressor is in a STOPPED condition that power has been removed.

⚠ WARNING

DO NOT attempt to service the equipment while it is operating.

NOTE

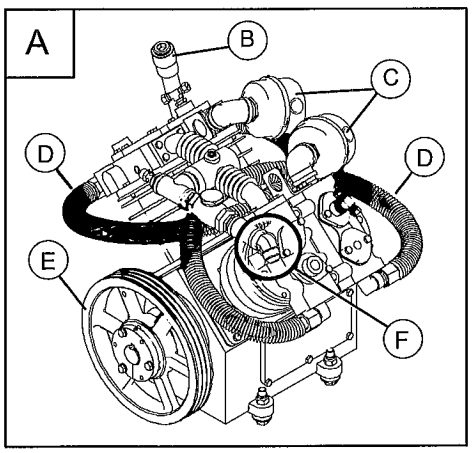
The purpose of this section is to provide descriptions of key machine components and systems, and their functions. For detailed information on servicing the compressor, consult *Section 6, Maintenance.*

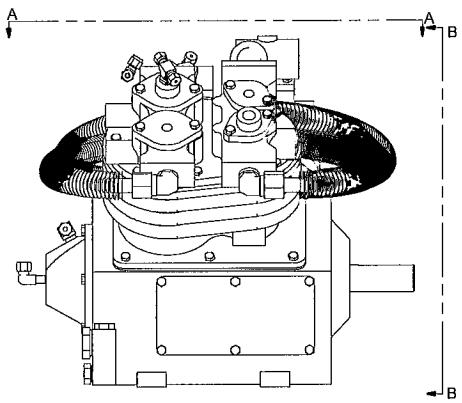
System Component Group	Manual Section
AIR PRESSURE RELIEF VALVES	2.2.5
HYDRAULIC CONTROL SYSTEM	2.2.6
MAIN FRAME AND ENCLOSURE	2.2.7

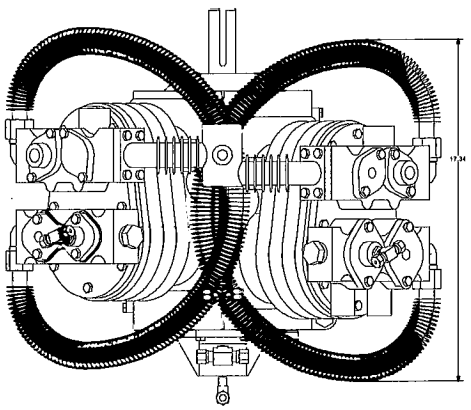
2.2 COMPONENT DESCRIPTIONS

2.2.1 COMPRESSOR PUMP

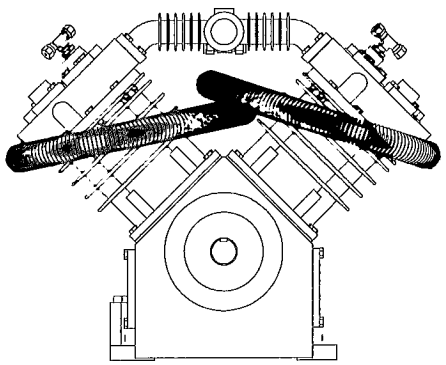
Refer to ***Figure 2-1***. The RC40 contains a two-stage, four cylinder splash-lubricated unit powered by a gear-type aluminum hydraulic motor through V-belts and a pulley.







VIEW A-A



VIEW B-B

KEY	DESCRIPTION	KEY	DESCRIPTION
A	RC40 RECIPROCATING COMPRESSOR	D	INTERCOOLERS (x 2)
B	OIL FILL PORT	E	COMPRESSOR DRIVE SHEAVE (PULLEY)
C	COMPRESSOR AIR FILTER HOUSINGS (x 2)	F	SERVICE AIR OUT (TO SERVICE PORT)

Figure 2-1: Reciprocating Compressor Unit Views

Air is drawn in through dual oversized, dry-type air filters that are located on the compressor pump to provide easy access and long service life.

2.2.2 COOLING SYSTEM

Refer to ***Figure 2-2***. The compressor cooling system consists of a hydraulic oil cooler and a 12V or 24V DC electric fan. It maintains a constant cooling air flow through the unit to ensure that it does not exceed its specified operating temperature limits.

Oil flows through the radiator type hydraulic cooler as long as the hydraulic system is supplying oil to the compressor, providing continuous cooling of the hydraulic circuit.

The fan is mounted at the unit's rear and draws air through the package, directly cooling the compressor, and providing cooling air for the oil cooler. The fan operates continuously anytime power is applied.

2.2.3 ELECTRICAL SYSTEM

Refer to ***Figure 2-3***. The control system's automatic START/STOP feature is controlled by air tank pressure, and also a manual ON/OFF (if equipped). Air pressure is available up to 175 psig. Instrumentation gauges for system pressure and operation hour accumulation are located on the outside panel.

2.2.4 AIR CONTROL SYSTEM

When the compressor is ON, the control system automatically starts and stops in order to maintain the receiver tank pressure.

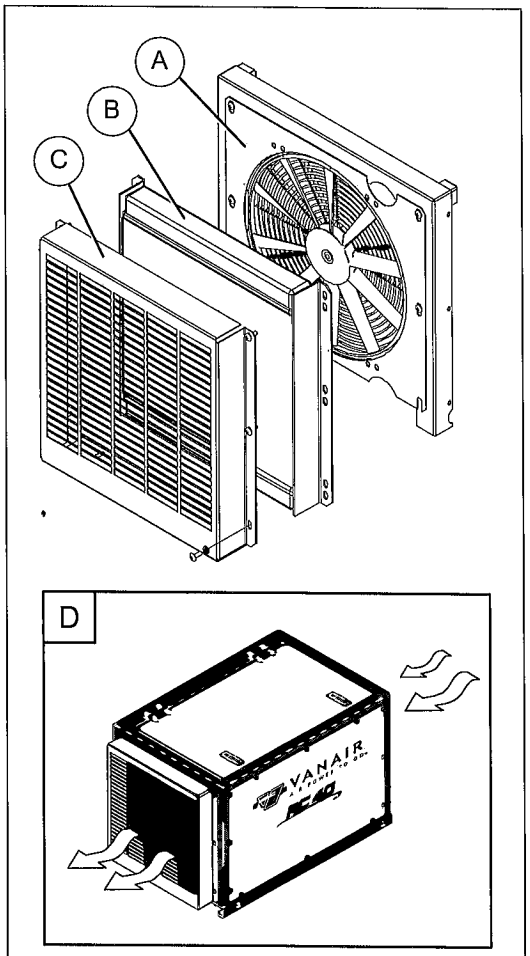
IMPORTANT

The compressor should not be operated at pressure settings above factory setting.

An unloader valve relieves pressure in the cylinders when the unit is unloaded.

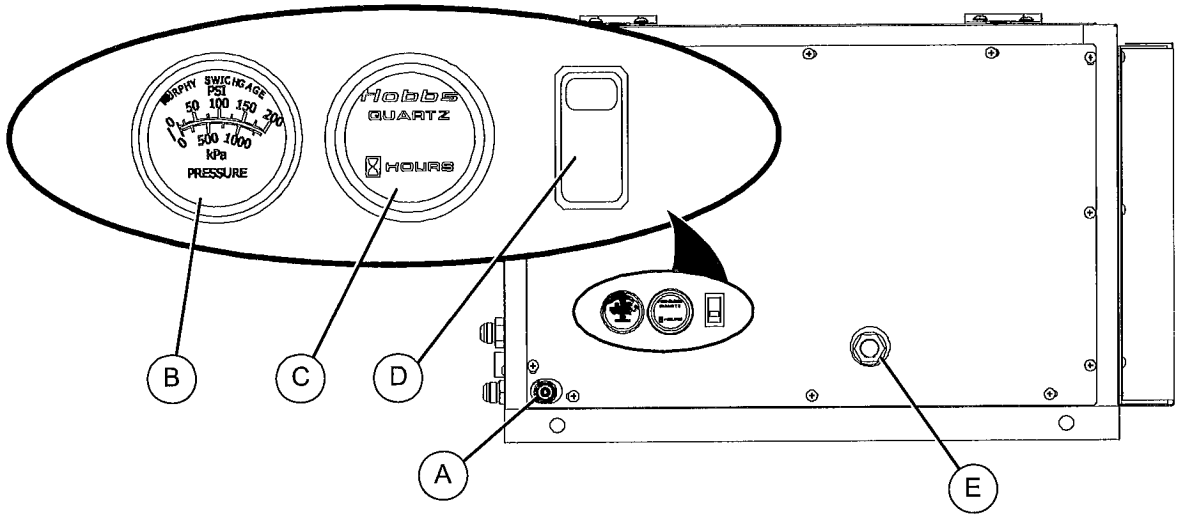
2.2.5 AIR PRESSURE RELIEF VALVES

See ***Figure 2-4***. There are three pressure relief valves located on the compressor unit assembly: one each on the cylinder heads (low pressure), and one on the service assembly piping (high pressure). These spring-backed, normally closed valves serve as safety devices that protect against over-pressurization. As the pressure begins to approach 70 psig for each of the head unloader valves, its relief valve will crack open to slowly relieve



KEY	DESCRIPTION
A	COOLER FAN & MOTOR ASSEMBLY
B	OIL COOLER
C	COOLER PANEL
D	DIRECTION OF COOLING AIR FLOW

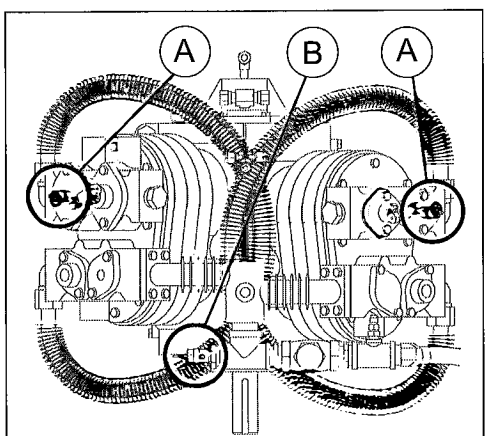
Figure 2-2: Cooler Assembly



KEY	DESCRIPTION	KEY	DESCRIPTION
A	RELIEF VALVE ADJUSTMENT[I]	D	ON/OFF TOGGLE SWITCH (OPTIONAL)
B	PRESSURE GAUGE	E	OIL LEVEL SIGHT GLASS
C	HOUR METER		

[I] The pressure relief valve is set at the factory. **DO NOT** adjust the pressure relief valve; consult the Vanair® Service Department for pressure relief resets.

Figure 2-3: Instrumentation Locations



KEY	DESCRIPTION
A	RELIEF VALVE (x 2) - low pressure
B	RELIEF VALVE - high pressure

Figure 2-4: Pressure Relief Valves

pressure. This siphoning action serves to vent excessive pressure level build-up of air to atmosphere in real time operation sequence. The valve located at the service assembly piping regulates pressure in the same way, bleeding off excessive air pressure over 200 psig.

Refer to ***Section 7: Troubleshooting***, for a failed pressure relief valve.

2.2.6 HYDRAULIC CONTROL SYSTEM

The hydraulic motor is used to power the compressor unit. If the hydraulic flow and pressure is supplied to maintain the rated compressor rpm, there should be many hours of trouble-free use in conjunction with the compressor.

The compressor unit has a built-in hydraulic manifold which has a directional control valve (solenoid) and a pressure relief valve (see **Section 8.9** [12V] or **8.11** [24V]).

The hydraulic pressure relief valve protects against an over-pressure condition by diverting the oil to the return line if such a condition occurs.

2.2.7 MAIN FRAME AND ENCLOSURE

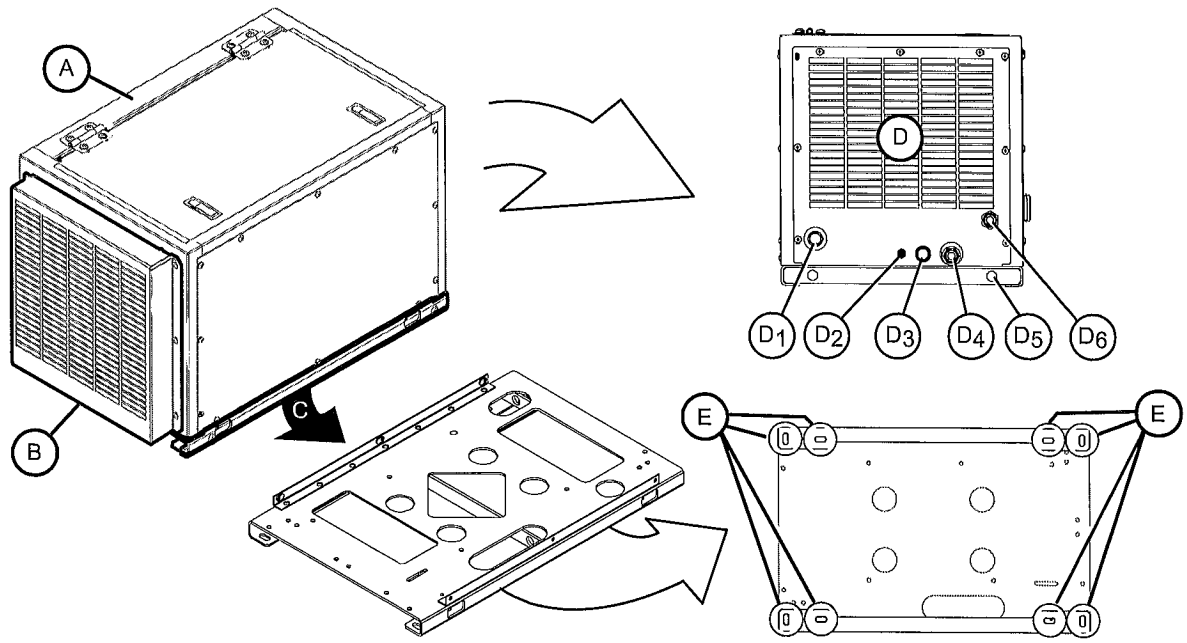
Refer to ***Figure 2-5***. The steel main frame is provided with bolt down holes.

⚠ WARNING

DO NOT operate machine with the roof panel open or removed.

The enclosure panels, which are attached to the main frame and frame supports, are made from galvanneal steel and are powder coated to provide a durable finish. The top panel is hinged for easy access to oil fill and other routine maintenance items.

The main enclosure housing provides overall protection for the various unit assemblies. The cooler assembly enclosure [**B**], is located on the opposite side from the connection port panel of the package [**D**]. The service air outlet [$\mathbf{D_1}$], compressor drain hose [$\mathbf{D_5}$], 4-pin connection



KEY	DESCRIPTION	KEY	DESCRIPTION
A	MAIN ENCLOSURE	D_3	ELECTRICAL CONNECTION (4-pin)
B	COOLER ASSEMBLY ENCLOSURE	D_4	HYDRAULIC SUPPLY
C	MAIN FRAME	D_5	COMPRESSOR OIL DRAIN
D	CONNECTION-SIDE PANEL	D_6	HYDRAULIC RETURN
D_1	SERVICE AIR OUT	E	FRAME: MOUNTING HOLE SLOTS
D_2	LOAD SENSE, IF EQUIPPED (CLOSED LOOP SYSTEM)		

[I] Use a minimum of four (4) mounting holes.

Figure 2-5: Main Frame, Mounting and Enclosure

[D_3] and hydraulic hose line connections [D_4 and D_6] are found on the connection port panel.

Compressor oil level can be checked from the outside of the enclosure (***Figure 2-3***, [**E**]), and filled via a fill port located at the inside left rear corner facing from the (opened) hinged-access roof panel (consult **Section 6.4.3, Compressor System Lubrication** for oil check/ change information).

Safety and Information decals are appropriately located on the machine. Please read and understand all the information contained thereon. For decal locations and information, refer to **Section 8.13**.

⚠ WARNING

DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.

SECTION 3: SPECIFICATIONS

TABLE 3A - SPECIFICATIONS

GENERAL SYSTEM INFORMATION	SPECIFICATION							
RATINGS								
CFM Rating @ 100 psi:	30 [I]				40 [II]			
Air Pressure (psi):	100	125	150	175	100	125	150	175
Hydraulic flow (gpm):	9.5	9.5	9.5	9.5	12	12	12	12
Hydraulic pressure (psig):	1775	1875	2100	2200	1950	2070	2175	2275

[I] 30 CFM = 690 COMPRESSOR RPM

[II] 40 RPM = 865 COMPRESSOR RPM

NOTE

COMPRESSOR ADJUSTMENT SHOULD BE SET IN ACCORDANCE WITH RATED RPMs.

COMPRESSOR	
Type:	Two-stage, four cylinder, reciprocating
Compressor oil reservoir capacity:	3 quarts
Air inlet system:	Twin dry-type, single stage
Drive coupling:	Belt drive
Hydraulic motor:	Gear type
PACKAGE	
Main frame:	Formed powder-coated steel with a bolt-down provision
Electrical supply:	12V Standard; 24V Optional
Electrical connections:	Weatherpack
Enclosure:	Galvanneal sheet steel, powder-coated
Cooler:	Hydraulic oil cooler/radiator core — electric fan

Continued on next page

TABLE 3A - SPECIFICATIONS (CONTINUED)	
GENERAL SYSTEM INFORMATION	**SPECIFICATION**
PACKAGE (continued)	
Package connections:	Discharge air — 3/4" NPT female
	Hydraulic supply — 3/4" 37° JIC male
	Hydraulic return — " 37° JIC male
	Load sense line (closed loop only) — 1/4" 37° JIC male
	Electrical +12VDC 15A or +24VDC 10A
	+12VDC 5A or +f24VDC 5A (PTO activated)
Dimensions:	Length — 34.87"
	Width — 22.00"
	Height — 21.75"
Weight:	400 lbs.
CONTROLS	
Manual control switch:	ON/OFF (optional)
Hydraulic pressure relief	3000 psig
Hydraulic solenoid valve (for automatic load control)	12 or 24V
Air pressure switch (for automatic load control)	

TABLE 3B - CAPSCREW TIGHTENING TORQUE VALUES		
SIZE	**GRADE**	**LUBRICATED**
1/4 - 20 UNC	5	6 ft•lbs
5/16 - 18 UNC	5	13 ft•lbs
3/8 - 16 UNC	5	23 ft•lbs
1/2 - 13 UNC	5	55 ft•lbs
3/4 - 10 UNC	5	200 ft•lbs

TABLE 3C - COMPRESSOR TORQUE VALUES			
BOLTS SIZE	**GRADE**	**TORQUE (ft.-lb.)**	**POSITION**
1/4-20	5	8	Side Plate Bolts
1/4-28	8	11.76	HP Valve Nut
3/8-16	5	26	Cylinder to Base Bolts
3/8-24	8	33.8	Connecting Rod Bolts
5/16-18	5	17	Head to Cylinder
	5	10	LP & HP Valve Hold Down Covers
	5	17	End Cover/Discharge Manifold Bolts
5/16-24	8	21.3	LP Valve Nut

SECTION 4: INSTALLATION

4.1 MACHINE PACKAGE RECEIPT/ INSPECTION

Upon receipt of the machine package, inspect the exterior of the shipping crate for signs of shipping/transit damage. Any damage should be reported immediately to the shipping company. Open the lid and inspect the component parts and supports to ensure that there has been no internal movements of assemblies or components which may have caused damage. To install the RC40 compressor system, refer to the following sections:

⚠ WARNING

Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.

4.2 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the RC40 compressor package for operation. Each installation is unique and can be affected by location, ventilation, and other factors such as electrical and hydraulic power supply availability and location.

⚠ WARNING

Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and locked out to prevent accidental application.

DO NOT assume that because the compressor is in a STOPPED condition that power has been removed.

System Component Group	Manual Section
MACHINE PACKAGE RECEIPT/INSPECTION	4.1
GENERAL INSTRUCTIONS	4.2
DETERMINING THE RC40 UNIT MOUNTING LOCATION	4.3
CONNECTING THE ELECTRICAL SUPPLY	4.4
HYDRAULIC SYSTEM REQUIREMENTS	4.5
CONNECTING THE HYDRAULIC SUPPLY AND RETURN	4.6
CONNECTING THE AIR SUPPLY	4.7

⚠ WARNING

DO NOT perform any modifications to this equipment without prior factory approval.

⚠ WARNING

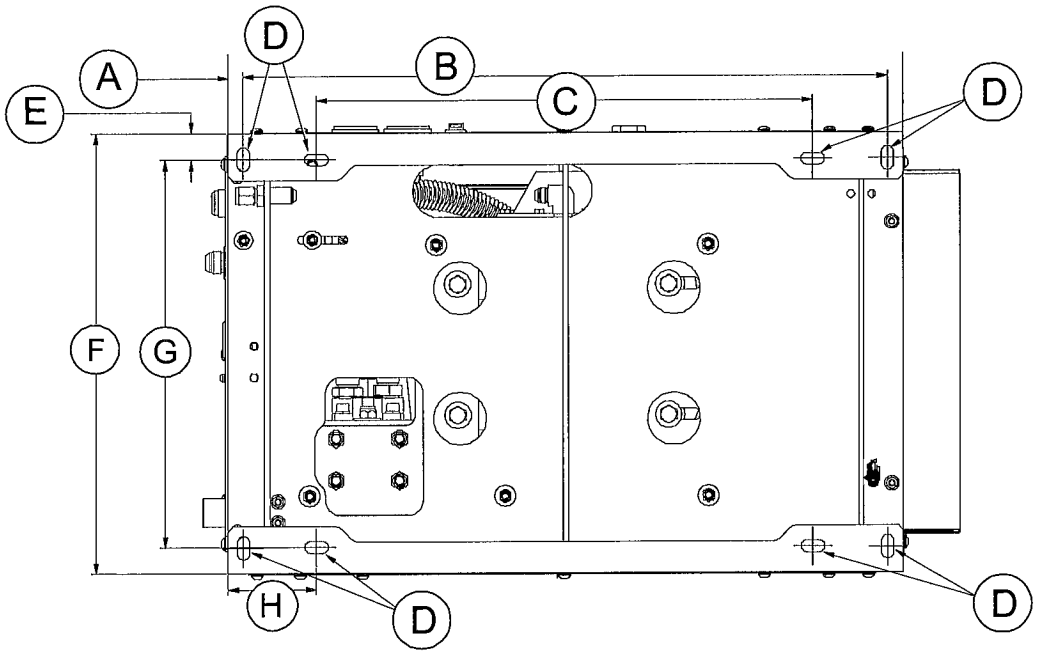
DO NOT use plastic pipe, or incorrectly rated piping or hose. Incorrectly rated connection material can fail and cause injury or equipment damage.

4.3 DETERMINING THE RC40 UNIT MOUNTING LOCATION

When determining the location to mount the RC40 unit, the following criteria must be taken into consideration:

⚠ WARNING

DO NOT operate the compressor in enclosed or confined spaces where ventilation is restricted or closed off.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	0.75 inches	E	1.25 inches
B	30.5 inches	F	21 inches
C	23.5 inches	G	18.5 inches
D	MOUNTING SLOT Ø0.56 X 1.25 inches (x 8)	H	4.19 inches

NOTE: For additional machine measurements, consult ***Figure 4-2 and 4-3.***

Figure 4-1: Base Frame Mounting and Hole Locations

- The mounting surface must be level and able to accommodate the four [4] mounting bolts of the base frame. Refer to ***Figure 4-1***.
- The mounting surface must be able to support the unit's weight (400 lbs.). Mount the machine with a minumum of four (4) mounting slots.
- The location must allow for the machine dimensions (***Figure 4-2 and 4-3***), and additional space requirements for minimum cooling, maintenance and access. Refer to ***Figure 4-4*** to determine the additional minimum space requirement measurements.
- The external gauges must be easily visible to the operator.

It is recommended, for most installations, to mount the compressor on the driver's side of the vehicle. The unit should be situated in such a manner that the fan (rear) and hydraulic cooler (front) are not obstructed. Do not place the compressor in any location where it can ingest exhaust fumes, dust or debris.

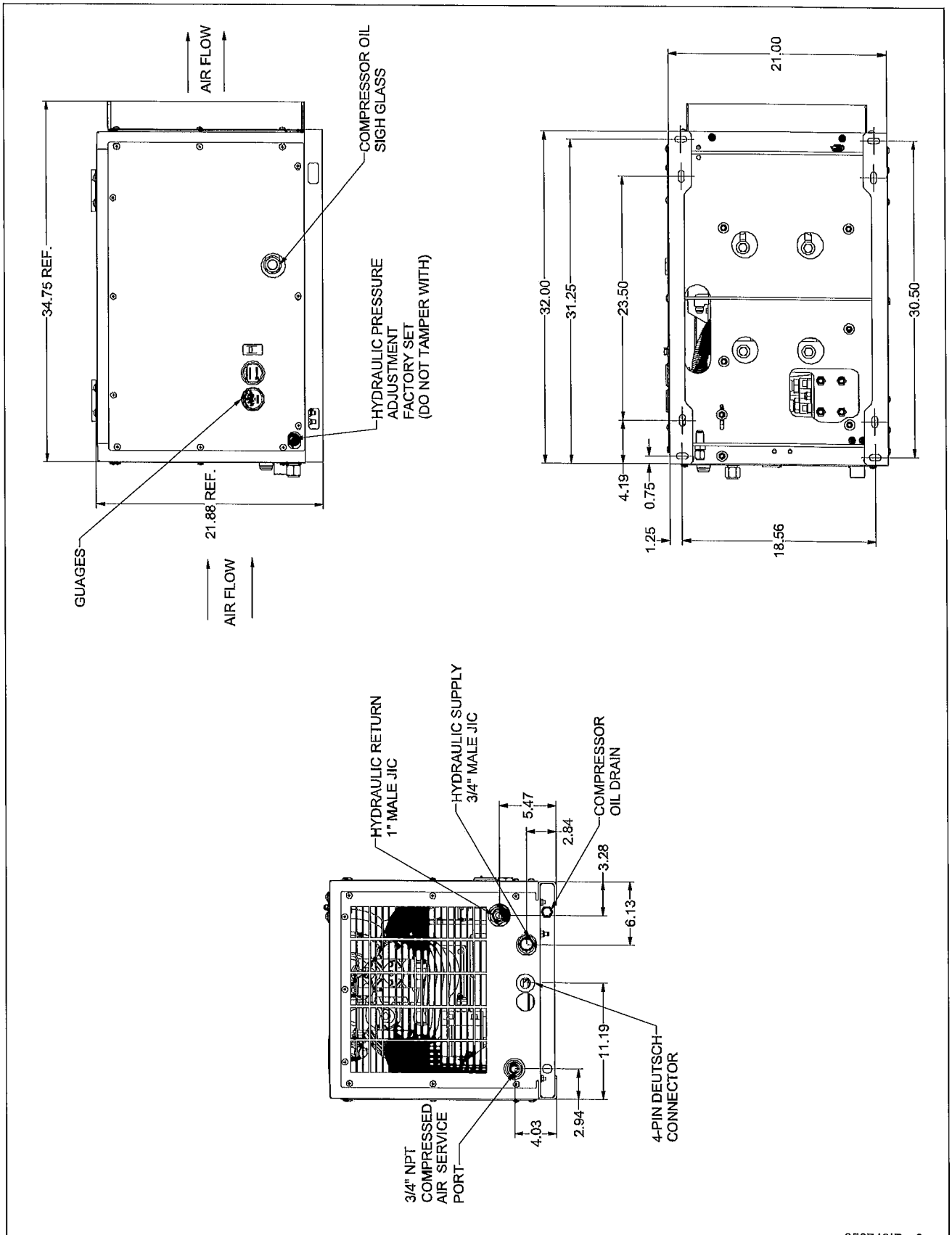


Figure 4-2: RC40 Open Loop Dimensions

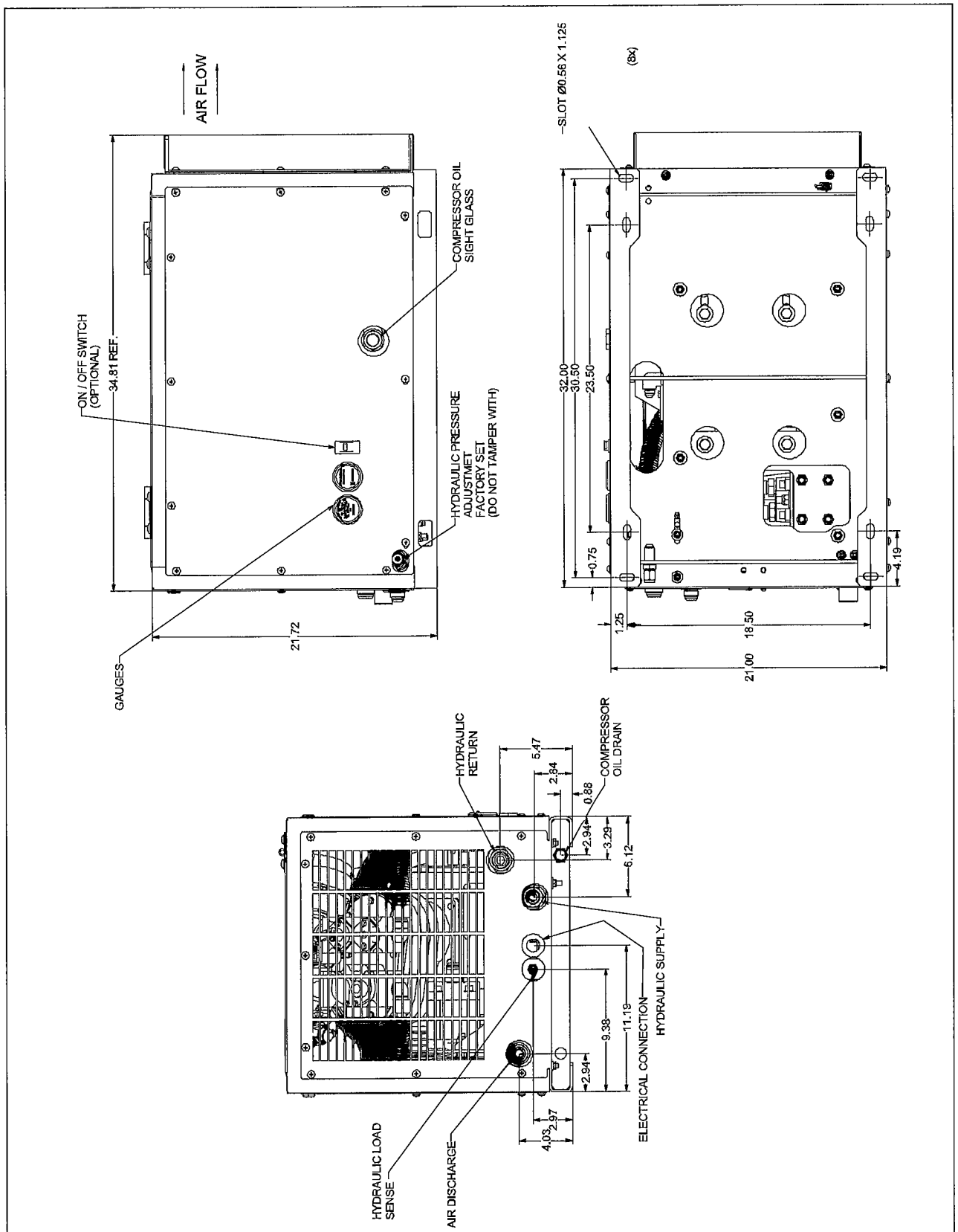
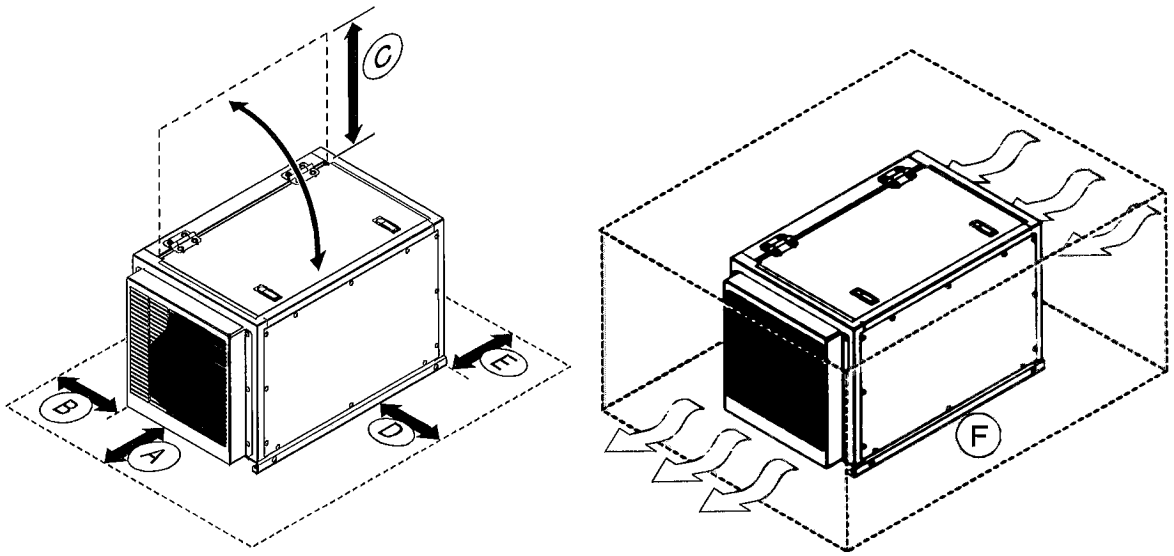


Figure 4-3: RC40 Closed Loop Dimensions



KEY	DESCRIPTION	KEY	DESCRIPTION
A	COOLER: 10 inches	D	ROOF PANEL ACCESS SIDE: 10 inches
B	INSTRUMENTATION SIDE: 10 inches	E	HOSE AND CONNECTION SIDE: 10 inches
C	ROOF PANEL ACCESS DOOR: 24 inches for hinged door clearance and/or maintenance	F	Additional allotted dimensional/surrounding space (measurements **A** through **E**) of package *must* allow for continuous circulation of air around and through the machine for cooling purposes. **DO NOT** install in an enclosed area.

NOTE: The dimensions listed above are the minimum required clearance distances needed for properly cooling the machine. Additional clearance room may be desired for easier access for control and/or maintenance functions.

Figure 4-4: Minimum Clearance Distances Needed for Machine Cooling and Access

4.4 CONNECTING THE ELECTRICAL SUPPLY

Refer to ***Figures 4-2, 4-3, 4-5*** and ***4-6***. Connect the electrical supply connector, located at the connection port panel end of the unit.

4.5 HYDRAULIC SYSTEM REQUIREMENTS

Refer to ***Figures 4-7*** and ***4-8*** for hydraulic system schematic. The following requirements should be taken into consideration before installing the hydraulic system:

- The hydraulic flow and pressure requirements of the air compressor.
- A continuous hydraulic load is necessary when the compressor is running.

- The duty cycle and ambient operating temperatures.
- Other hydraulic equipment which may share the same hydraulic supply system (Vanair® recommends a dedicated pump and hydraulic circuit).

4.6 CONNECTING THE HYDRAULIC SUPPLY AND RETURN

Refer to ***Figures 4-7*** and ***4-8*** for hydraulic supply and return hose location connections and layout routing. Use correctly rated hoses (3000 psi minimum) to securely connect both supply (3/4" J.I.C. 37° male) and return connectors (1" J.I.C. 37° male).

NOTE
Vanair recommends 3/4" supply and 1" return hose.

4.7 CONNECTING THE AIR SUPPLY

System Component Group	Manual Section
Connecting the Air Supply	**4.7**
Air Reservoir Tank Installation	4.7.1

Refer to ***Figures 4-2*** for service air discharge port location. Connect the service valve. Connect the discharge line to the ¾" NPT female connector.

4.7.1 AIR RESERVOIR TANK INSTALLATION

The RC40 air compression system will require the additional installation of an air tank/receiver, to be incorporated downstream of the unit's service air output. This tank will serve as a reservoir for accumulated air pressure, allowing for constant pressure availability for direct service needs. Vanair recommends the following criteria when determining the design of the receiver tank installation:

TANK SPECIFICATIONS

- 30 gallon minimum capacity (recommended).
- ASME-rated and compliant to applicable standards (200 psig minimum).
- Supplied with an adequately-rated relief valve.
- Supplied with moisture drain.

CONNECTION HOSING AND SERVICE VALVE SPECIFICATIONS

- Hose must be flexible; steel-braided enforcement.
- Rated for high temperature (450°F minimum).
- Pressure-rated for 200 psig (minimum).

MOUNTING SPECIFICATIONS

- If tank is to be permanently mounted, Vanair® recommends a mounting with no less than four (4) mounting/securing points.
- Tank mounted levelly.
- Service air out port of tank readily accessible, or piped/hosed for such availability.
- Drain is readily available, or piped/hosed for such availability.
- Tank drain function must have auto-drain, petcock, or valve that allows for tank to be purged of moisture while tank is pressurized/system is running.

The above listed features should serve as a minimum checklist of what to include when installing the reservoir portion of the compression system. However, if additional assistance is needed for designing the reservoir tank-side of the service out operation, consult the Vanair Service Department.

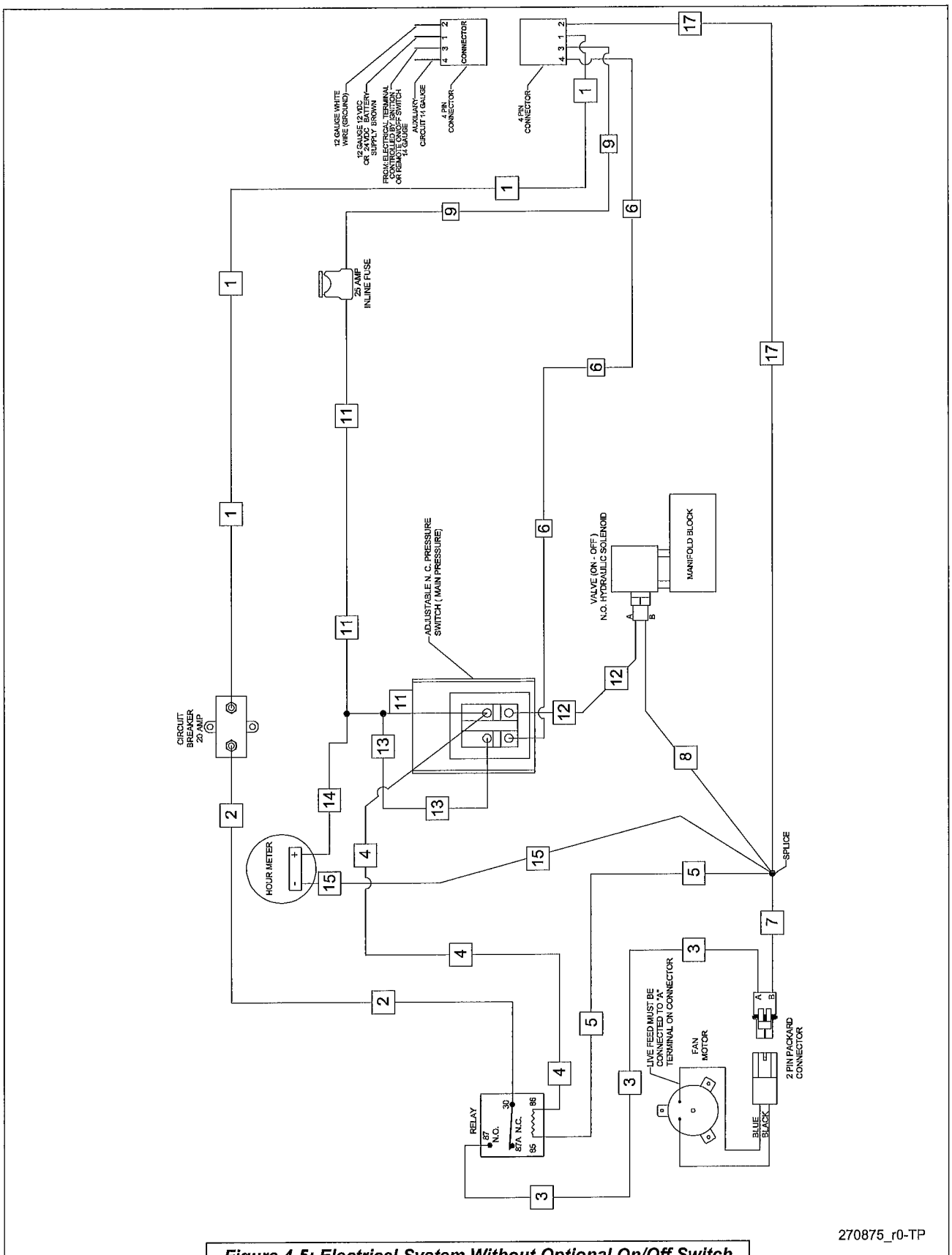


Figure 4-5: Electrical System Without Optional On/Off Switch

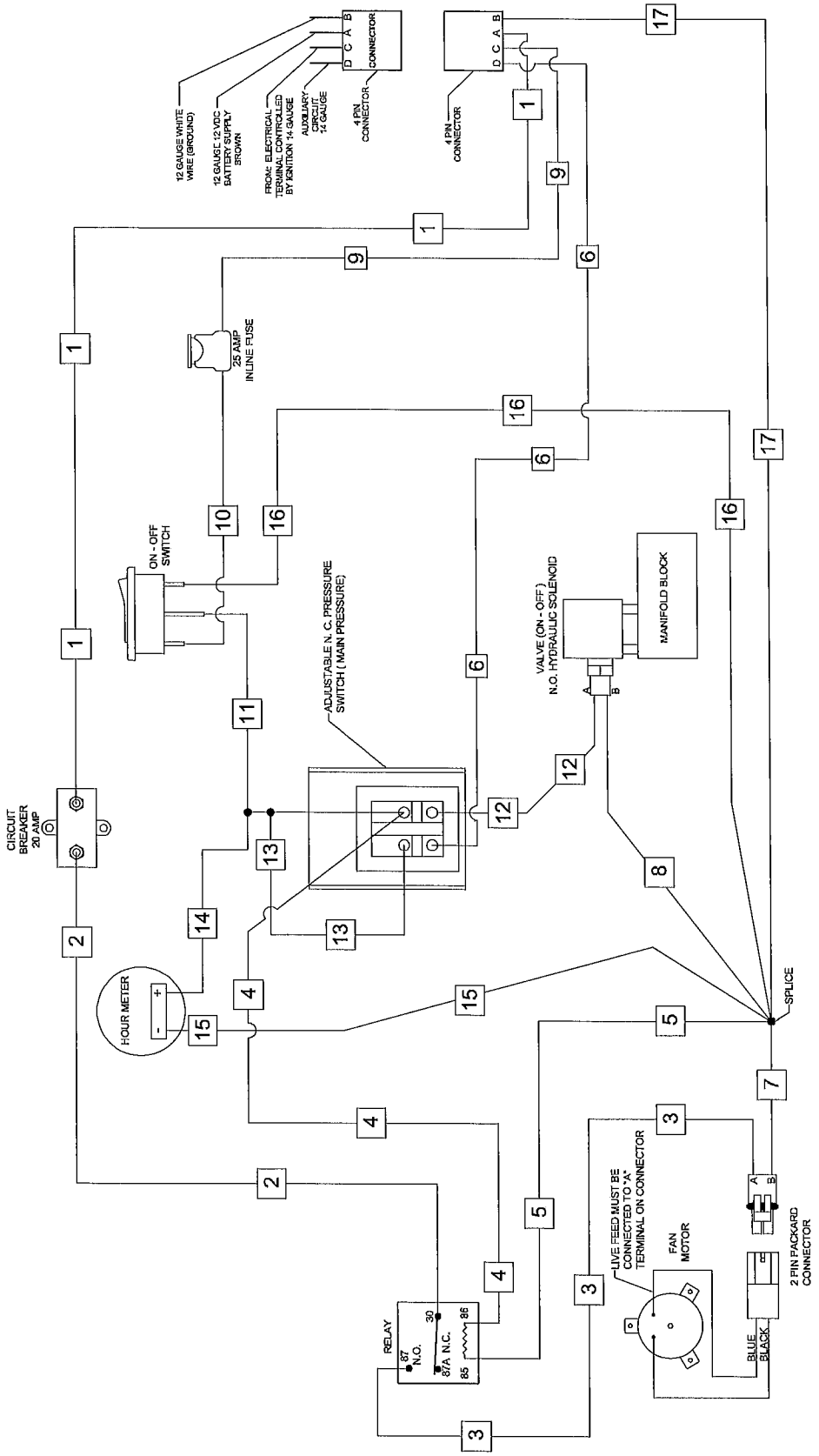


Figure 4-6: Electrical System With Optional On/Off Switch

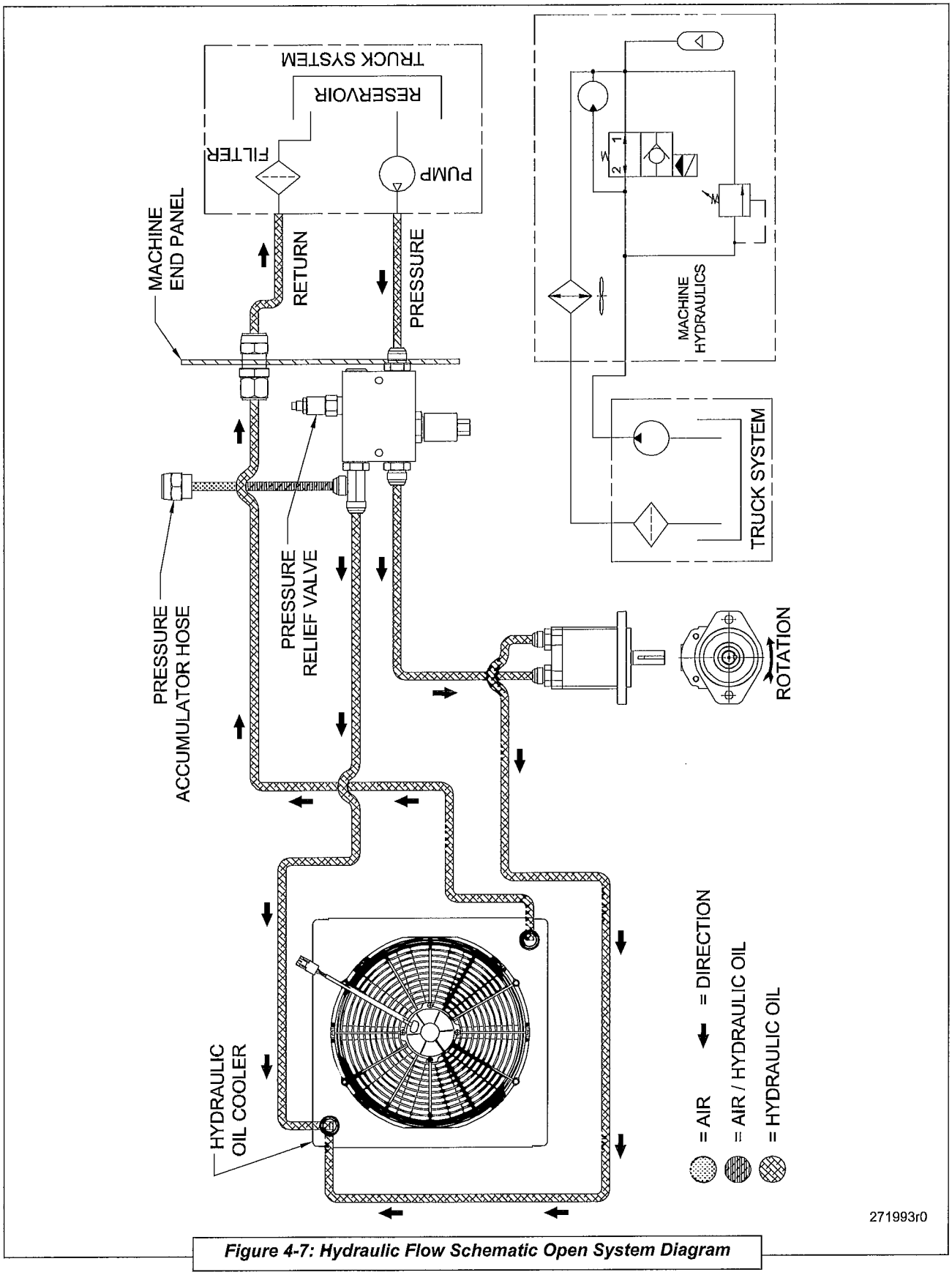


Figure 4-7: Hydraulic Flow Schematic Open System Diagram

VANAIR. AIR POWER TO GO

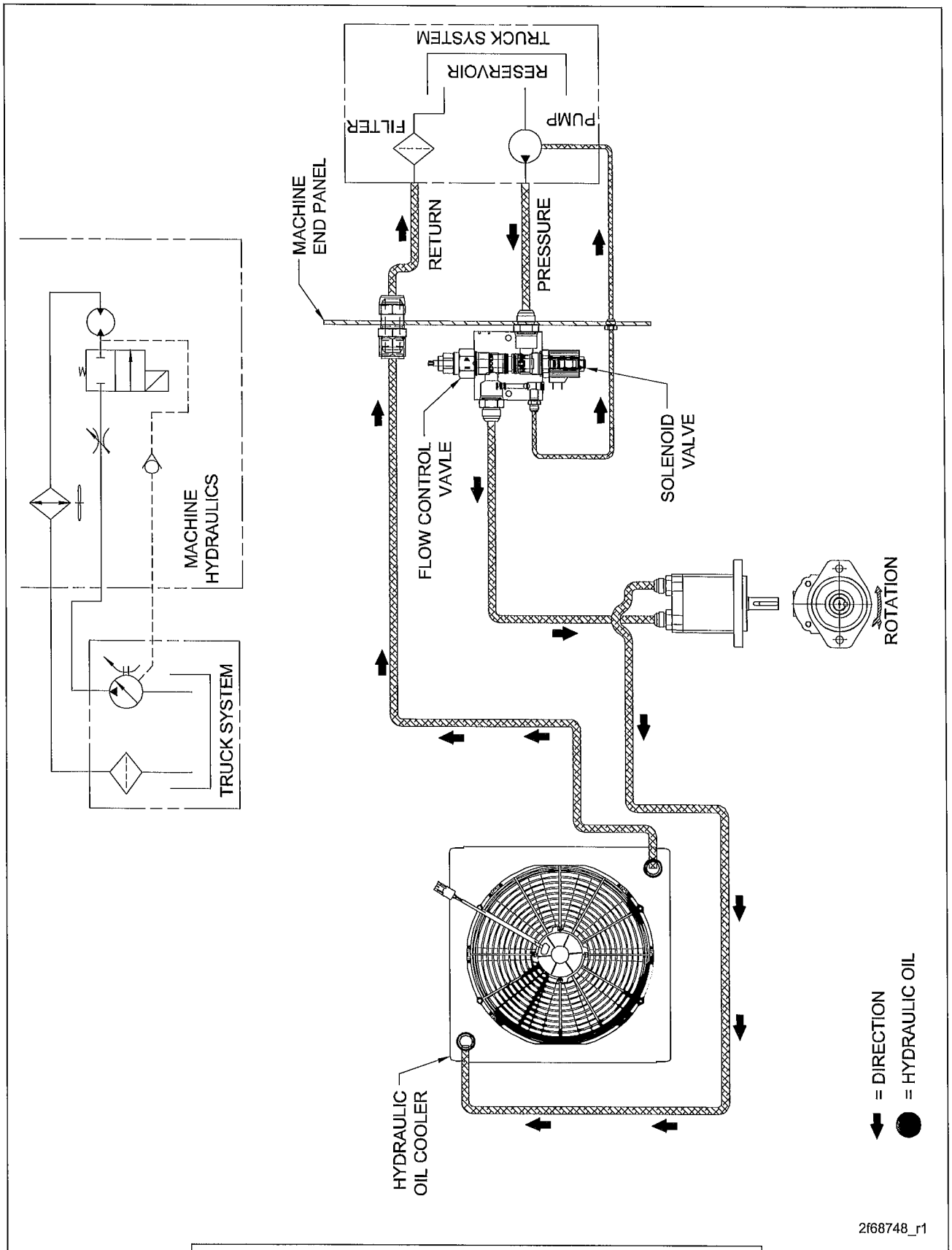


Figure 4-8: Hydraulic Flow Schematic Closed System Diagram

SECTION 5: OPERATION

5.1 GENERAL INFORMATION

The RC40 Hydraulic compressor has a comprehensive array of controls and indicators. Understanding the correct operation of the system will help you to understand and recognize when it is operating optimally. The information in the Operation Section will help the operator to recognize and interpret the readings, which will call for service or indicate the beginning of a malfunction.

⚠ WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

System Component or Component Group	Manual Section
GENERAL INFORMATION	5.1
OPERATING CONDITIONS	5.2
FIRST TIME START-UP	5.3
SHUTDOWN (FIRST TIME AND ROUTINE)	5.4
ROUTINE START-UP	5.5
EXTREME OPERATING CONDITIONS	5.6

NOTE

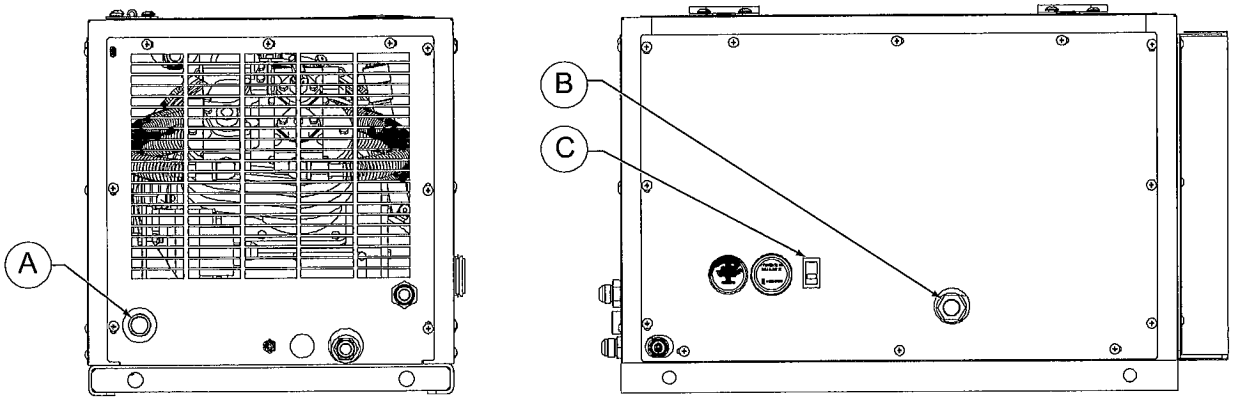
Before starting the RC40 compressor, read this section thoroughly and familiarize yourself with the controls and indicators - their purpose, location and use.

5.2 OPERATING CONDITIONS

- Operate only in well-ventilated areas.
- Ensure there are no obstructions of cooling air intakes and outlets around the machine.
- Do not leave anything resting on top of the machine. Hot cooling air will generate high heat and must not be restricted.
- Be sure to leave sufficient room around the machine for cooling air circulation. There must be a minimum of 10 (ten) inches for the cooler intake, and 10 (ten) inches for the sides and rear. Heated air must be able to vent away from the intake.
- Operate machine with the top cover closed, and all panels secured in place.
- Refer to specifications for operating parameters.
- Recommended: **DO NOT** exceed maximum capacity angle of 15°

NOTE

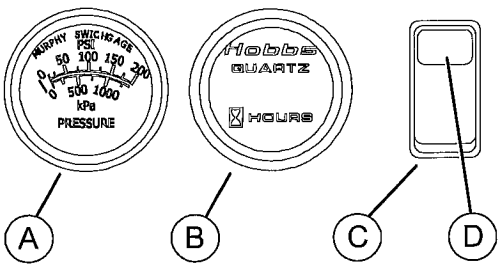
The vehicle should be on a level surface to ensure that the sight glass reading is accurate. Refer to *Section 6.4.3.1, Checking the Oil Level* for procedure on checking the oil.



KEY	DESCRIPTION
A	SERVICE AIR DISCHARGE PORT: Output to service valve
B	COMPRESSOR OIL SIGHT GLASS: Level should be mid-point mark of glass, with the machine off, and the oil settled.
C	ROCKER ON/OFF SWITCH: LED-side of switch lights when depressed (ON): Refer to ***Figure 5-2*** for additional rocker switch information.

Figure 5-1: Operation Check Locations

5.3 FIRST TIME START-UP



KEY	DESCRIPTION
A	PRESSURE GAUGE
B	HOUR METER
C	ON/OFF ROCKER SWITCH[I]
D	LED "ON" LAMP (amber)

[I] For models that do not contain an ON/OFF panel switch (optional for closed system), this panel access port contains an inset panel sealing plate.

Figure 5-2: Instrumentation

The compressor has been factory-tested and its air and hydraulic valves have been adjusted to their specified operating settings. Its crankcase has also been filled, but check the oil level before initial start-up. (Refer **Section 6.4.3 Lubricants**, for the correct lubricant type.)

The following steps apply to the first time start-up after the machine installation. Before attempting to start the unit, make sure that the machine (vehicle) is on a level surface, and check the sight glass to ensure that the oil level is within the acceptable range. Add oil if necessary. Refer to ***Figure 5-1*** for unit check locations and ***Figure 5-2*** for instrumentation. See **Section 6.4.3 Lubricants**, for the correct oil type, sight glass location and level range depiction.

1.) Ensure the ON/OFF switch is in the OFF position.
2.) Ensure all service outlets are closed.
3.) Apply hydraulic power.
4.) Check for hydraulic supply or return leaks and correct if required.
5.) Move the ON/OFF switch to the ON position to start the compressor.
6.) Allow air pressure to build up in the receiver tank.

The compressor is now operating automatically. It will continue to pump until the pressure reaches the factory set-point (100-175 psig). At this point the compressor unit will switch off and the hydraulic flow will be redirected back to the supply tank; any air in the compressor will be vented to the atmosphere. The accumulated pressure in the receiver tank is maintained by the check valve fitted to the compressor outlet connection.

For a closed loop system, the solenoid valve will be turned to the OFF position, causing the load sense line to adjust the piston pump to provide less or no flow to prevent Dead Heading Hydraulic Pressure.

When a demand is applied to the unit, the receiver tank pressure drops until it reaches the low pressure set-point. The compressor then automatically restarts and repeats this cycle in response to service demands and receiver tank pressure.

5.4 SHUTDOWN (FIRST TIME AND ROUTINE)

1.) Close all service valves.
2.) Move the compressor switch to the OFF position.
3.) Disengage the hydraulic supply.

5.5 ROUTINE START-UP

1.) Check the compressor oil level. Refer to ***Section 6.4.3.1, Oil Level Check*** for procedure on checking the oil.
2.) Close all service valves.
3.) Set the compressor toggle switch to OFF.
4.) Engage the hydraulic supply.
5.) Set the compressor toggle switch to ON.

5.6 EXTREME CONDITION OPERATION

When operating in extreme hot or cold conditions, extra attention should be given to any indications that could lead to a serious problem. Machine review and maintenance check schedules should be more frequent than the normal suggestions given in **Section 6, Table 6A, Route Maintenance Schedule**.

SECTION 6: MAINTENANCE

6.1 GENERAL INFORMATION

The RC40 requires routine maintenance to ensure its proper functioning and that its operational life is not prematurely shortened. This section contains general maintenance instructions for normal operating conditions. However, these maintenance actions should be performed more frequently in excessively dusty environments, or where the equipment will be exposed to extreme temperature variations.

⚠ WARNING

DO NOT perform any modifications to this equipment without prior factory approval.

System Component Group	Manual Section
GENERAL	6.1
MACHINE MAINTENANCE SCHEDULE	6.2
REPLACEMENT PARTS	6.3
PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES	6.4
LONG TERM STORAGE	6.5

6.2 MACHINE MAINTENANCE SCHEDULE

Refer to **Table 6A: Routine Maintenance Schedule**. A routine maintenance schedule based on time and/or hours logged, is given in **Table 6A**. The intervals are determined from machine usage under typical operation conditions. However, the operator must be aware that operating conditions will vary depending on such things as specific customer requirements, environmental temperatures and cleanliness of the ambient air. With this in mind, the specifications given in **Table 6A** should be used as a guideline instead of a fixed agenda. A safe approach to routine maintenance would be to perform the given

⚠ WARNING

Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

⚠ WARNING

DO NOT attempt to service the equipment while it is operating.

⚠ WARNING

DO NOT touch electrical wires, wire harnesses, terminals, or other components when power is applied to the compressor unit.

⚠ WARNING

Keep metal tools, and other conductive objects away from live electrical components.

TABLE 6A: ROUTINE MAINTENANCE SCHEDULE

⚠ WARNING

Before performing maintenance:
Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.
NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:
Always clearly tag the start-up instrumentation against accidental system. start-ups during maintenance.

NOTES:

If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for compressor oil change, and compressor filter servicing.

For routine, as well as non-routine, maintenance procedures, consult the section title listing table in *Section 6.4* to locate specific maintenance components.

KEY	TASK DESCRIPTION	MAINTENANCE INTERVALS Hourly or Calendar Period - whichever comes first: Daily Maintenance	Weekly Maintenance	Every 500 Hours or Annually	ACTION TO TAKE
1	**Before starting**, check compressor crankcase oil level.	•	•	•	Ensure vehicle is situated on a level surface before checking oil level. Add oil if necessary. Refer to ***Section 6.4.3***.
2	Check for any loose bolts and/or loose connections.	•	•	•	Tighten if necessary.
3	Check drive belt for tension.	•	•	•	If necessary, consult ***Section 6.4.9*** for procedure on tightening the drive belts.
4	Check for leaks.	•	•	•	Visually note any leaks or evidence of leaks around the compressor unit and hose connections. Tighten any loose connection point where needed. Repair or replace any damaged part.
5	Inspect and clean the air discharge system.	•	•	•	Check/drain air reservoir daily, or more frequently, depending on working environment conditions.
6	**After starting,** check pressure gauge for correct operating pressure.	•	•	•	Refer to **Section 3, Table 3A**, and ***Section 6.4.2***.
7	Clean dust and foreign matter from the compressor oil cooler core.		•	•	Consult ***Section 6.4.5*** for procedure on cleaning the cooler core (external and internal).
8	Remove, inspect, and clear air intake filters if necessary [I].		•	•	Consult ***Section 6.4.4*** for procedure on how to inspect and/or change the air intake filters.
9	Inspect and clean the compressor valves.		*II*		Consult ***Section 6.4.6*** for maintenance procedure for the compressor valves.
10	Change the compressor crankcase oil.			•	Consult ***Section 6.4.3*** for procedure on changing the crankcase oil.
11	Check the hoses for damage or other signs of deterioration.			•	Consult **Section 8.16** for assistance with hose replacement.
12	Check the wiring for damage or deterioration and ensure that connections are secure.			•	Refer to ***Figure 4-5*** (Electrical System Wiring Diagram) for wire system route connections.

[I] Air filters inspection performed weekly (change if needed); air filters change interval is yearly, or sooner depending upon inspection.

[II] Valves should be removed from the cylinder heads every 500 hours or annually (whichever comes first) and examined for cleanliness and carbon formation (bulid-up).

maintenance task more frequently under harsher conditions.

Vanair® provides a routine maintenance parts list in **Section 8**, **Table 8A**. Should a non-routine part need replacement or servicing, peruse the various parts list illustrations in **Section 8** to help determine the exact part and part number in question. Our parts and service departments are ready to assist in identifying and/or replacing non-routine parts.

For assistance in obtaining routine maintenance or replacement parts, consult ***Section 8.1, Parts Ordering Procedure***, and **Table 8A: Recommended Spare Parts List.**

6.3 REPLACEMENT PARTS

Replacement parts should be purchased through your local Vanair representative or where the compressor system was purchased. If, for any reason, parts are not available in this manner, they can be purchased through Vanair directly.

Vanair Manufacturing, Inc.

10896 West 300 North
Michigan City, IN 46360
Phone: (219) 879-5100
(800) 526-8817
Service Fax: (219) 879-5335
Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800
www.vanair.com

NOTE

If additional spare parts are being stored for future use, make certain that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 6.5, Long Term Storage*.

⚠ WARNING

DO NOT use tools, hoses, or equipment that have maximum ratings below that of this compressor.

⚠ WARNING

DO NOT use flammable solvents or cleaners for cleaning the compressor or its parts.

NOTE

Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. DO NOT wear jewelry, loose clothing; and long hair should be restrained with headband or safety hat.

NOTE

Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.

NOTE

When using compressed air to clean the components, the nozzle pressure should not exceed 15 psig.

6.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

6.4.1 REMOVING PANELS FOR MACHINE MAINTENANCE ACCESS

Although most of the routine maintenance procedures can be accessed from either outside of the compressor package or via the top roof access panel, some procedures will require the temporary removal of one or both side panels in order to freely service the maintenance item. Consult **Table 6B**, ***Figure 6-1*** and the proper panel removal sub-section listed below to remove the desired panel.

NOTE

Vanair® recommends removing both side housing panels to facilitate full access to the compressor, if needed.

System Component Group	Manual Section
Removing Panels for Machine Maintenance Access	**6.4.1**
Opening and Closing the Roof Panel	6.4.1.1
Removing and Replacing a Side Panel	6.4.1.2

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

6.4.1.1 OPENING AND CLOSING THE ROOF PANEL

Most of the routine maintenance tasks can be performed through access to the unit via the hinged roof panel. The panel is held in place by two pull bar latches, which set into the latch casing. To release the pull bars, refer to ***Figure 6-1*** and the following steps:

⚠ WARNING

DO NOT operate machine with the roof panel open or removed.

RELEASING THE ROOF PANEL

1. Each latch contains a securing button at the top part of the latch. Press on the button ❶ for each latch to release the pull bar handles [**G**].
2. Grasp the released pull bars ❷ and lift upward to disengage the roof panel.

TABLE 6B: ACCESS PANEL REMOVAL

PANEL	REMOVE FOR MAINTENANCE OF:
TOP (ROOF) PANEL [A][I]	Compressor Air Filters, (Safety) Relief Valves, Compressor Head Valves
DRIVE ASSEMBLY ACCESS PANEL [B][I]	Drive Belts, Compressor Finned Intercooler Tubes (Left- and Right-sides), Compressor Head Valves, Compressor Piston Ring Replacement, Compressor Overhaul, Hose Maintenance
INSTRUMENTATION-SIDE PANEL [C][I]	Compressor Finned Intercooler Tubes (Left- and Right-sides), Circuit Breaker, Compressor Head Valves, Compressor Piston Ring Replacement, Compressor Centrifugal Unloader, Compressor Overhaul, Hose Maintenance

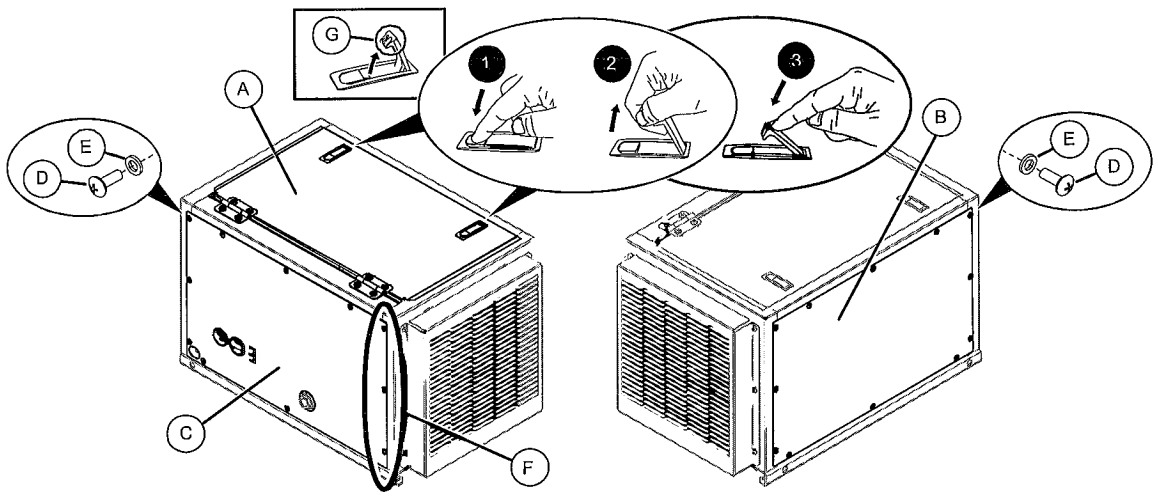
[I] Additional panels may need to be removed for easier/complete access to maintenance item.

⚠ WARNING

Before removing any access panel for maintenance:
Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.



KEY	DESCRIPTION		KEY	DESCRIPTION
A	TOP (ROOF) PANEL[I]		F	STABILIZING SCREWS[II]
B	DRIVE ASSEMBLY ACCESS PANEL		G	LATCH/PULL BAR HANDLE
C	INSTRUMENTATION-SIDE PANEL		1	Press the button located over the embedded pull bar to release each latch pull bar handle.
D	TRUSS SCREW, 1/4-20 x 3/4	x 12 per each side panel	2	Once released, grasp **both** pull bars and lift roof panel upward to disengage the roof panel.
E	WASHER, NYLON FLAT 1/4"		3	**To reset:** with the roof panel lowered into place, push downward on the top of each pull bar until the bar clicks/locks into the seated position of the latch.

[I] For instructions on *completely* removing the roof panel, consult **Appendix A.1**.

[II] Remove these screw and washer sets last; used to hold panel in place while disengaging the harness wires from the hour meter, and disconnecting the pressure gauge assembly tubing.

Figure 6-1: Main Access Panels for Maintenance Removal

SECURING THE ROOF PANEL

1. Replace the roof panel into the closed position.
2. Once the roof panel is seated properly, press down on the pull bars ❸ to reset them into position in the latches. When the handles click into position, the roof panel is secured.

6.4.1.2 REMOVING AND REPLACING A SIDE PANEL

To determine which side panel must be removed for a particular routine maintenance function, refer to **Table 6B: Access Panel Removal.** Consult ***Figure 6-1*** and the following procedures.

DRIVE ASSEMBLY ACCESS PANEL

DRIVE ASSEMBLY ACCESS PANEL ([B]) REMOVAL:

1. With a Phillips head screwdriver remove the twelve (12) 1/4-20 truss screws [**D**] and the twelve (12) 1/4" nylon flat washers [**E**] from the drive assembly access panel [**B**].
2. Remove panel from the frame and set aside.
3. Retain screws and washers for re-assembly.

DRIVE ASSEMBLY ACCESS PANEL ([B]) REPLACEMENT:

1. Align the mounting holes in the drive assembly access panel to the mounting holes on the drive assembly side of the machine.
2. With a Phillips head screwdriver, loosely replace the twelve (12) 1/4" nylon flat washers [**E**], and the twelve (12) 1/4-20 truss screws [**D**] sets.
3. Tighten the screws into position.

INSTRUMENTATION-SIDE ACCESS PANEL

INSTRUMENTATION-SIDE PANEL REMOVAL— *Figure 6-1 [C]*:

1. With a Phillips head screwdriver remove all of the the 1/4-20 truss screws [**D**] and 1/4" nylon flat washers [**E**], *except* for the three screw sets on the right side, as indicated by [**F**], from the instrumentation-side panel [**C**].

   Refer to ***Figure 6-2*** for steps #2 through #4.

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

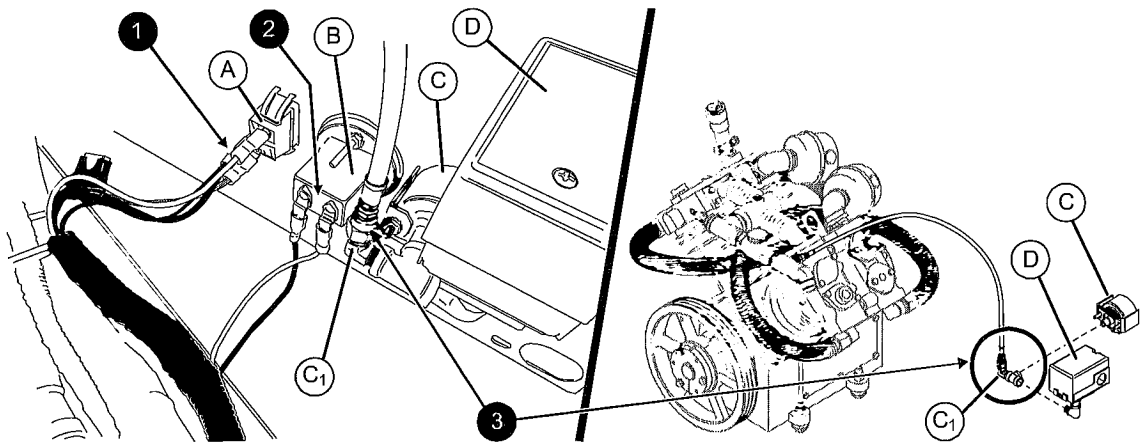
NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

2. Disconnect the three (3) wire connectors from the rocker switch ❶.
3. Disconnect the two (2) wire connectors from the hour meter ❷.
4. Disconnect the tubing from the elbow on the pressure gauge assembly ❸.
5. Remove the three (3) remaining sets of 1/4-20 truss screws [**D**] and 1/4" nylon flat washers [**E**], as indicated by [**F**] in ***Figure 6-1***, to free the instrument-side panel.
6. Place or lean the instrument-side panel in a safe place while maintenance is being performed, taking care not to put any undo stress on the pressure gauge assembly.

INSTRUMENTATION-SIDE PANEL REPLACEMENT—*Figure 6-1 [C]*:

1. Carefully re-set the instrumentation-side panel into position so that the twelve (12) panel mounting holes align to the instrumentation-side mounting holes of the machine.



KEY	DESCRIPTION		KEY	INSTRUCTION
A	ON/OFF ROCKER SWITCH (connection-side)	Refer to...	1	Remove the three (3) wire connectors from the rocker switch.
B	HOUR METER (connection-side)	Refer to...	2	Remove the two (2) wire connectors from the hour meter.
C	PRESSURE GAUGE (connection-side) (C_1 = pressure gauge assembly elbow [ref.])	Refer to...	3	Remove the tubing from the elbow on the pressure gauge assembly.
D	PRESSURE SWITCH (reference)			

Figure 6-2: Disconnections for Removal of Instrumentation-Side Panel

2. Place a 1/4-20 truss screw [**D**] and 1/4" nylon flat washer [**E**] each into the three mounting holes on the right side (facing) of the panel, as indicated by [**F**] in ***Figure 6-1***, and hand-tighten.

   Refer to *Figure 6-3* for step #3.

3. Reconnect the three (3) designated wires from the wiring harness to their proper connections on the rocker switch, as shown in [**A**]: White wire [$\mathbf{A_1}$] to top tab connector, black wire [$\mathbf{A_2}$] to middle tab connector, and red wire [$\mathbf{A_3}$] to bottom tab connector.

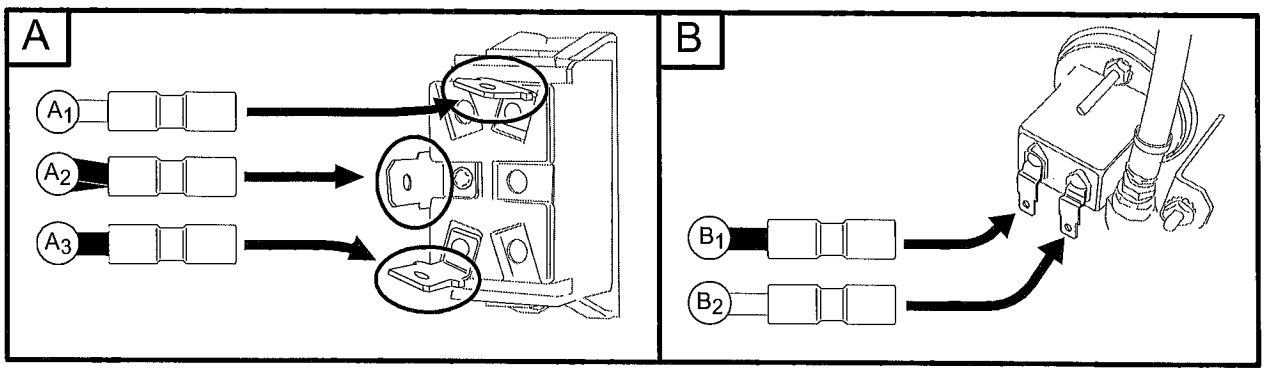
4. Reconnect the two (2) designated wires from the wiring harness to their proper connections on the two (2) hour meter [**B**] connections: The designated black wire [$\mathbf{B_1}$] connects to the left side; the designated white wire [$\mathbf{B_2}$] to the right, as shown in ***Figure 6-3***.

   Refer to *Figure 6-2* for step #4.

5. Reconnect the tubing from the elbow on the pressure gauge assembly (refer to ***Figure 6-2***, items **C** and $\mathbf{C_1}$).

   Refer to *Figure 6-1* for steps #5 and #6.

6. Loosely replace the remaining sets of 1/4-20 truss screws [**D**] and 1/4" nylon flat washers



KEY	DESCRIPTION
A	ON/OFF ROCKER SWITCH RE-CONNECTION
A_1	White Wire (ON/OFF Switch Designated)
A_2	Black Wire (ON/OFF Switch Designated)
A_3	Red Wire

KEY	INSTRUCTION
B	HOUR METER RE-CONNECTION
B_1	Black Wire (Hour Meter Designated)
B_2	White Wire (Hour Meter Designated)

Figure 6-3: Instrument Panel Wire Reconnections

[**E**] into the remaining mounting holes of the instrumentation-side panel.

7. Tighten *all* panel truss screws, in sequence, to secure.

6.4.2 CHECKING PRESSURE GAUGE

Perform a visual inspection each time the compressor is started to ensure that the pressure gauge is operating normally. Allow the compressor to warm up, and verify that the pressure gauge is within its recommended range. Such inspections will minimize the possibility of damage or an unsafe condition from occurring. Refer to **Section 3: Specifications**.

6.4.3 COMPRESSOR SYSTEM LUBRICATION

The compressor is fully charged at the factory with a synthetic based lubricant. This section gives details on checking and changing the compressor oil.

System Component Group	Manual Section
Compressor System Lubrication	**6.4.3**
Oil Level Check	6.4.3.1
Changing the Compressor Oil	6.4.3.2

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

⚠ IMPORTANT

To maintain warranty, Vanair® compressor oil must be used. DO NOT substitute compressor oil.

⚠ CAUTION

DO NOT mix oil types, weights, or brands. Mixing oil types can cause equipment damage or failure.

NOTE

Dispose of discarded oil within the guidelines of all applicable local, regional and/or federal laws.

The compressor oil level sight glass is accessible from the outside of the canopy.

NOTE

When inspecting the oil level, ensure that the oil fill sight glass does not contain any cracks or pits.

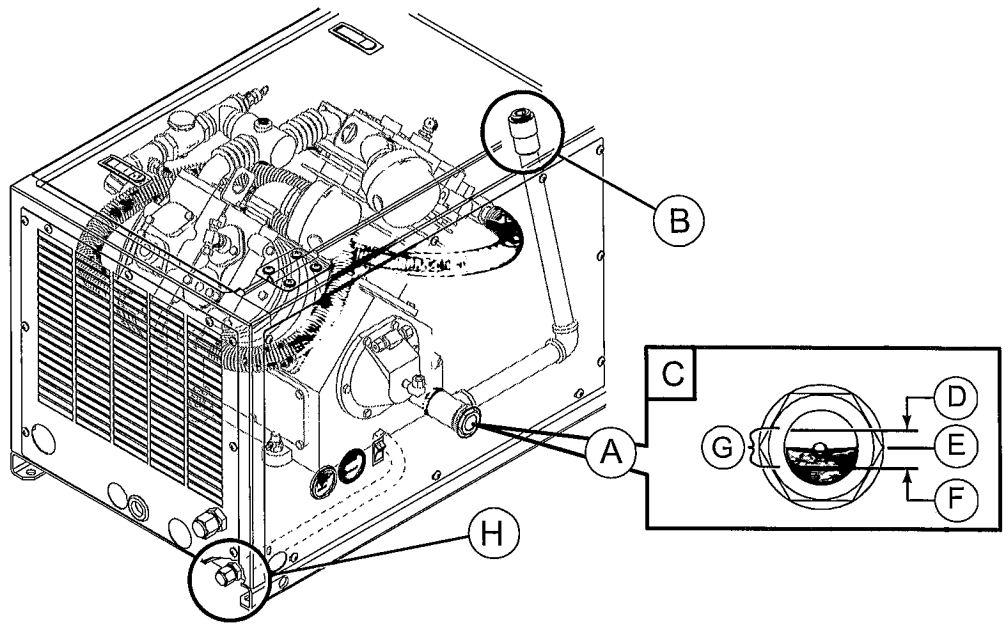
6.4.3.1 CHECKING THE OIL LEVEL

Refer to ***Figure 6-4***. Check oil level daily (preferred), or at least every week, and top off, if necessary. To ensure a proper oil level the compressor unit must be located on a level surface. Oil is filled via the fill port [**B**]. If low, fill the oil level until the sight glass is 1/4 to 3/4 full. **DO NOT** overfill.

6.4.3.2 CHANGING THE COMPRESSOR OIL

The compressor oil fill port is accessible from the top of the unit. To access the oil fill port, disengage the hinged roof panel per **Section 6.4.1.1, Opening and Closing the Roof Panel.**

Refer to ***Figure 6-4*** and the following procedure:



KEY	DESCRIPTION	KEY	DESCRIPTION
A	SIGHT GLASS	E	1/2 FULL
B	COMPRESSOR OIL FILL PORT	F	1/4 FULL
C	SIGHT GLASS LEVEL READING	G	OPTIMAL OIL LEVEL RANGE
D	3/4 FULL	H	COMPRESSOR OIL DRAIN

For oil maintenance, order replacement oil no. **KIT 1091** (sold in one [1] gallon containers).

Figure 6-4: Compressor Oil Fill and Oil Change

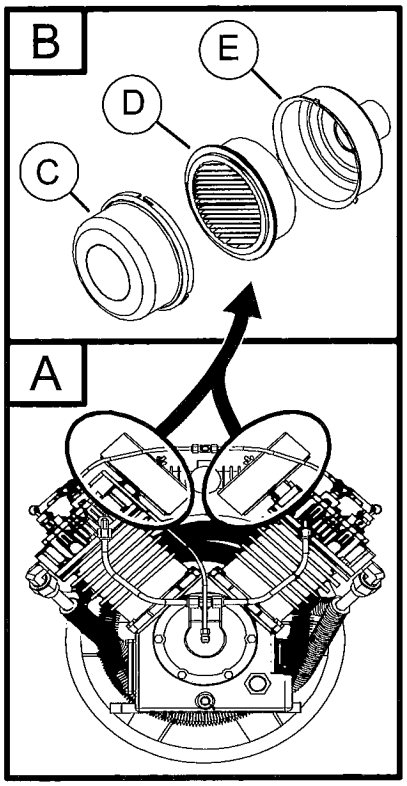
1. Place an open container (of at least three [3] quarts capacity) below the level of the compressor unit, within reach of the drain hose end [**H**] after it is disconnected from the hose clamp [**J**].
2. Disengage the oil drain hose cap [**K**] from the oil drain fill port [**B**] using a 3/4" male hex socket wrench.
3. Disengage the oil drain hose [**H**] from the hose clamp [**J**].
4. Remove the hose cap [**K**] from the end of the drain hose.
5. Thoroughly drain the existing oil into the container.
6. Replace the hose cap on the end of the drain hose and tighten.

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.



KEY	DESCRIPTION
A	COMPRESSOR UNIT
B	AIR FILTER ASSEMBLY
C	AIR FILTER COVER
D	AIR FILTER ELEMENT[I]
E	AIR FILTER BASE

[I] For maintenance on air filters order replacement filter elements kit no. **KIT 1090**.

NOTE: kit contains two (2) element filters. When a filter elment needs to be changed, always change both filters at the same time regardless of either elment's condition.

Figure 6-5: Compressor Air Filter Check/Replacement

NOTE

Always check both air filters when performing maintenance; if needed. To maintain a balance of suction, replace both filters at the same time.

7. At the oil fill port [**B**], fill crankcase with a full charge of Vanair reciprocating oil to the proper level indicated by the sight glass reading [**C**].
8. Replace the 3/4" hex socket plug on the oil fill port [**B**], and tighten.

6.4.4 AIR FILTER MAINTENANCE

Depending on the degree of contamination of the air taken in, regularly and carefully inspect the air filters on (at least) a weekly basis. The air filter elements should be replaced approximately every 500 operating hours or sooner, depending upon inspection. Plugged suction filters can cause high oil consumption and reduced delivery quantity! Change the filter more often when running in dusty conditions.

NOTE

If one of the air filters is in need of replacement, replace both air filters at the same time.

System Component Group	Manual Section
Air Filter Maintenance	**6.4.4**
Inspecting the Air Filter(s)	6.4.4.1
Replacing the Air Filter(s)	6.4.4.2

The compressor air filters are accessible from the top of the unit. To disengage the hinged roof panel, consult **Section 6.4.1.1, Opening and Closing the Roof Panel.**

To check and/or replace the air filter, refer to ***Figure 6-5***, and the following procedure:

6.4.4.1 INSPECTING THE AIR FILTER(S)

1. With the machine off and the ignition key removed, locate both of the air filter assemblies [**B**] on the compressor unit [**A**].

NOTE

Wipe off any soil or debris from the filter cover(s) and base(s) before accessing the air filter element(s).

2. Grasp the end cover [**C**], and push down (towards the compressor), while at the same

time twisting the cover counterclockwise until the cap slots move past the base mounting posts, freeing the cap.

3. Remove the air filter [**D**].
4. Visually and carefully inspect the air filter element, including between the pleats, for soiling, damage and/or signs of wear. If the element is intact, replace the element for further use. **DO NOT** replace the air filter element on the unit if it is damaged. Replace with new air filter element.

6.4.4.2 REPLACING THE AIR FILTER(S)

1. Seat the new (or cleaned) air filter [**D**] in position on the air filter base [**E**].
2. Place the end cover [**C**] in position over the air filter base [**E**].
3. Turn the end cap clockwise until it encounters the air filter base mounting posts; push down on the cap (toward the compressor), while turning the end cap past the mounting posts to secure the cap in position.
4. Dispose of worn air filters within the guidelines of all applicable local, regional and/or federal laws.

6.4.5 CHECKING COOLER CORE

Refer to ***Figure 6-6***. Periodically leaves, paper, or other debris can get wedged into the vents on the side panels of the enclosure. The cooler core within the enclosure can trap foreign matter that passes through the vents as well. Opening the roof panel and checking that the cooler is clean and free from debris will ensure that the RC40 hydraulic package operates safely within the temperature limits described in **Section 3, Specifications** of this manual.

Should the core become clogged, you can use low pressure compressed air to blow through the fins from the inside of the canopy to clean it out. You may need to remove the fan from the shroud in order to reach parts of the core. **DO NOT** use high pressure air or a pressure washer.

⚠ WARNING

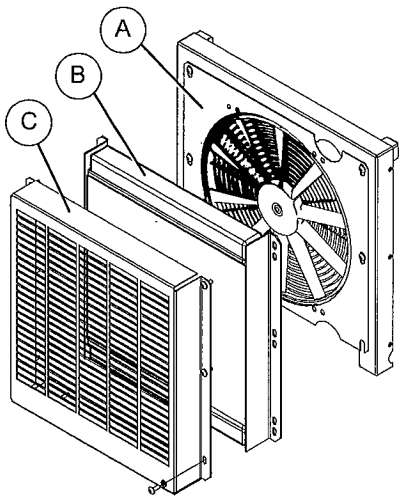
Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

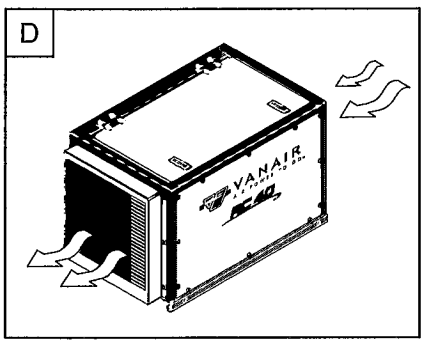
NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

NOTE

When using compressed air to clean the components, the nozzle pressure should not exceed 15 psig.





KEY	DESCRIPTION
A	COOLER FAN & MOTOR ASSEMBLY
B	OIL COOLER
C	COOLER PANEL
D	DIRECTION OF COOLING AIR FLOW

Figure 6-6: Oil Cooler

NOTE

DO NOT attempt to service reed valves. Replace with new plate assemblies when required.

6.4.6 COMPRESSOR VALVE MAINTENANCE

Valves are generally considered to be maintenance items and require care by the user. They are the most important part of the compressor, and the importance of proper care and maintenance cannot be over-emphasized.

System Component Group	Manual Section
Compressor Valve Maintenance	**6.4.6**
Installation	6.4.6.1
Lubrication	6.4.6.2
Service	6.4.6.3

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

⚠ DANGER

Valves must be reinstalled in original position. Incorrect valve replacement may result in overpressure of the cylinder head resulting in catastrophic failure, injury or death. Valve gaskets should be replaced each time valves are serviced.

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

Refer to ***Figure 6-7***. If compressor fails to pump air or seems slow in filling up tank, the valves may need to be cleaned.

IMPORTANT

All valves should be removed from the cylinder head every two (2) or three (3) months of operation and examined for cleanliness and carbon formation (build-up).

1. Disconnect unit from power source.
2. Remove valves; for detailed compressor disassembly instructions, refer to ***Section 6.4.13, Disassembling the Compressor.***
3. Clean thoroughly, using compressed air and a soft wire brush.

NOTE

Clean with safety solvent and dry off with compressed air. Depending on what is found at this inspection, the next inspection should not be more than four (4) to six (6) months later. These two inspections will guide you in scheduling periodic cleaning times which will pay off many times over in providing trouble-free service and reduced down time.

NOTE

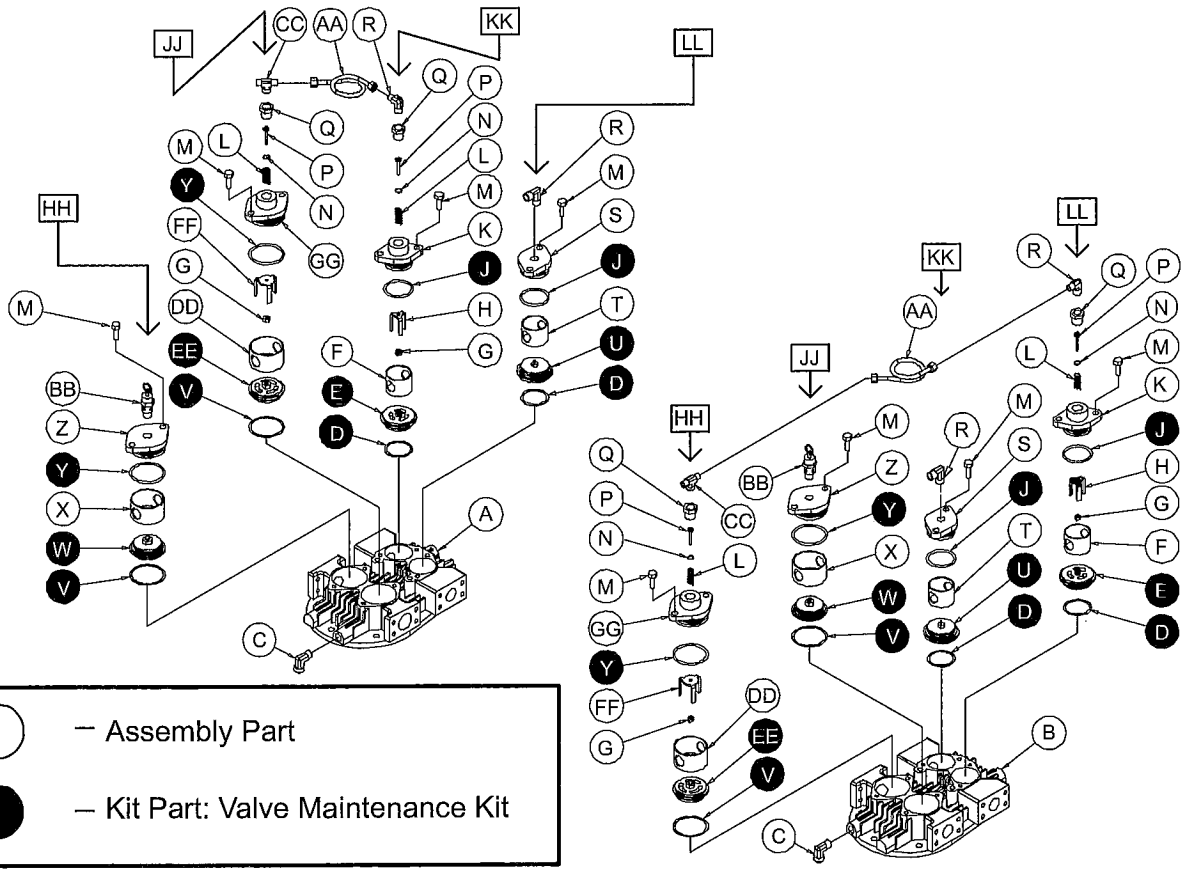
Valve gaskets should be replaced each time valves are removed from pump. Replace springs, discs and seats when worn or damaged.

4. After cleaning, exceptional care must be taken that all parts are replaced in *exactly* the same position, and all joints must be tight or the compressor will not function properly.
5. When all valves are replaced and connections are tight, close hand valve at tank outlet for final test.

NOTE

When performing valve maintenance, always replace machine parts with new kit parts regardless of part condition.

The four compressor valves should be inspected and cleaned every six months, after 500 hours of operation, or anytime the cylinder head is disassembled. The valves should also be inspected anytime there is a decrease in air flow or pressure output that is not the result of other causes. Install new gaskets anytime the valves are inspected, cleaned, or replaced, or, when the cylinder heads are disassembled.



KEY	DESCRIPTION	QTY	KEY	DESCRIPTION	QTY
A	Cylinder Head Left	1	U[I]	Valve Assembly, HP Discharge	2
B	Cylinder Head Right	1	V[I]	Valve Gasket LP	4
C	Elbow, Breather Connector	2	W[I]	Valve Assembly LP Discharge	2
D[I]	Valve Gasket HP	4	X	Cage LP Discharge	2
E[I]	Valve Assembly, HP Inlet	2	Y[I]	O Ring, L.P. Cover	2
F	Cage HP Inlet	2	Z	Hold Down Cover HP Discharge	2
G	Locknut	4	AA	Unloader Tube	2
H	Fingers HP	2	BB	Safety Valve	2
J[I]	O Ring HP Cover	4	CC	Tube Tee 1/4 X 1/4 X 1/4 NPT	2
K	Hold Down Cover HP Inlet	2	DD	Cage LP Inlet	2
L	Spring LP	4	EE[I]	Valve Assembly, LP Inlet	2
M	Capscrew Hold Down 5/16-18x3/4	16	FF	Fingers LP	2
N	O Ring Plunger	4	GG	Hold Down Cover, LP Inlet	2
P	Plunger	4	HH	LP Discharge Valve	2
Q	3/8 NPTX1/4 NPT bushing	4	JJ	LP Inlet Valve	2
R	Tube Elbow	4	KK	HP Inlet Valve	2
S	Hold Down Cover HP Discharge Left	2	LL	HP Discharge Valve	2
T	Cage HP Discharge	2			

[I] This replacement part is found in the maintenance kit; for maintenance on valves, order maintenance kit no. **KIT 1087**.

Figure 6-7: Compressor Head Valve Unloader Maintenance

Damaged valves can cause compressor damage and malfunctions. Contact Vanair for valve replacement kits.

6.4.6.1 INSTALLATION

Refer to ***Figure 6-7*** and the following procedure:

1. Place valve gaskets [**D**] & [**V**]; valves [**U**],[**E**], [**W**] and [**EE**]; and cages [**T**], [**F**], [**X**] and [**DD**] into head in sequence as shown. Install "O" ring [**N**] on plunger [**P**] and assemble with spring [**L**] into inlet hold-down cover [**GG**] and [**K**] (refer to **Section 6.4.6.2** for part lubrication).
2. Assemble fingers [**H**] and [**FF**] and locknut [**G**] to complete assembly.
3. Install hold-down cover assemblies with "O" rings [**J**] and [**Y**] using cap screws [**M**]. Tighten evenly to a torque of 10 foot-lbs. Connect unloader tube [**AA**] to tube elbow [**R**] and tube tee [**CC**]. Connect tubing from pilot valve to tube tee [**CC**].

6.4.6.2 LUBRICATION

When assembling plunger, [**P**] and "O" ring [**N**] to hold-down cover [**GG**] and [**K**], coat "O" ring with silicon grease to facilitate assembly.

6.4.6.3 SERVICE

Dirt in unloader line or defective pilot valve could hold valve open allowing unloading fingers to keep inlet valves open. Sometimes tapping the pilot valve will allow pilot valve to resume normal operation. If not, remove, clean or replace. Also broken "O" ring [**N**] may cause erratic operation. Refer to **unloader pilot operation NOTE** and **Section *6.4.6, Compressor Valve Maintenance*** description for details.

6.4.7 CENTRIFUGAL UNLOADER INSTALLATION

IMPORTANT

Required, precise adjustments are needed to perform maintenance on the centrifugal unloader. Vaniar suggests contacting the Service Department for assistance when performing this procedure.

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

IMPORTANT

Required, precise adjustments are needed to perform maintenance on the centrifugal unloader. Vaniar suggests contacting the Service Department for assistance when performing this procedure.

NOTE

UNLOADER PILOT OPERATION:
The inlet valve unloaders are designed to provide CONSTANT PRESSURE CONTROL by holding open the inlet valves in both cylinders. When the air supply exceeds the demand and the discharge pressure rises above the maximum required, the pilot valve (not shown) admits air at discharge pressure to a plunger in each unloader, holding the inlet valve discs off their seats. Thus the air drawn into the cylinders is freely discharged without being compressed. When the pressure has dropped to the desired minimum, the pilot valve closes, allowing the inlet valves to seat and compression to be resumed.

panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

Refer to ***Figure 6-8***. The centrifugal unloader weight retainer assembly [**E**, **F**, **G**, **H** and **J**] may be assembled to the crankshaft in either of two methods:

The preferred method is to mount the assembly to the crankshaft when crankshaft is removed from base during assembly of pump.

The second method is used when only the centrifugal unloader is to be dismantled, and only the end cover [**L**] is removed. Then centrifugal unloader weight retainer assembly [**E**, **F**, **G**, **H** and **J**] may be assembled when crankshaft is in base.

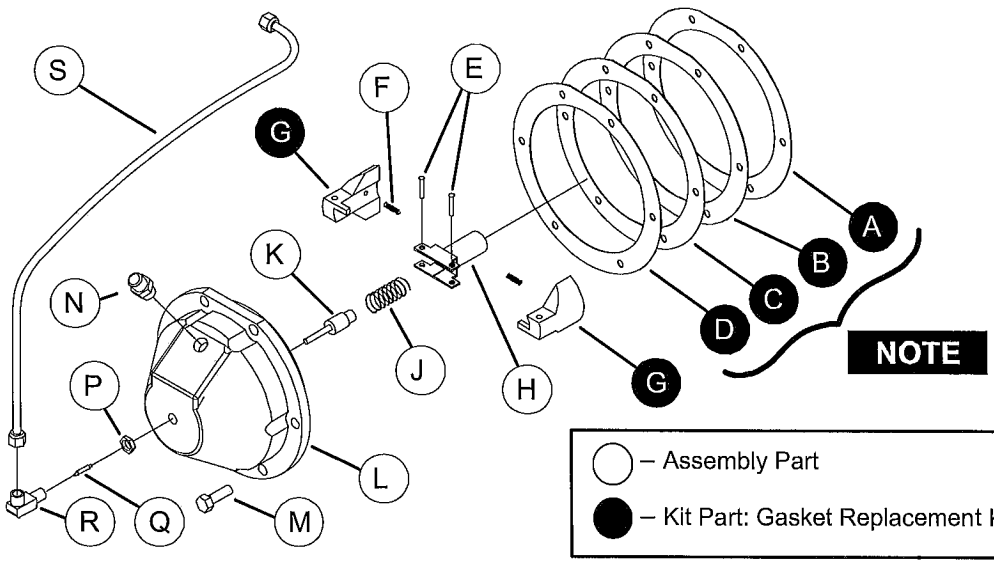
1. Assemble assembly into tapped hole in crankshaft (L. H. Threads). Apply wrench to weight retainer to tighten snugly. Do not bend wings of weight retainer.
2. Assemble end cover [**L**] end cover gaskets [**A**, **B**, **C** and **D**] to pump base with capscrews [**M**]. Check end play of crankshaft in accordance with **Section 6.4.13.1, Paragraph A**.
3. Insert plunger [**K**] into valve elbow assembly [**P**, **Q** and **R**] and screw into end cover until part of valve [**Q**] can be seen when looking into tube opening of elbow [**R**]. Do not screw elbow into end cover too far or unloader will not operate properly.
4. Secure valve elbow assembly in position by tightening jam nut [**P**].
5. Connect unloader tube [**S**] to elbow in high pressure discharge hold-down cover and valve elbow [**R**].
6. Connect breather tube to elbow in head and to straight connector [**N**] in end cover.

NOTE: When assembling unloader unit, coat plunger [**K**] and rivets [**E**] with good grade of machine oil.

Leakage of air out through the unloader valve elbow opening, after the unit has been shut off for a time, is an indication of a check valve leak and should be corrected by repair or replacement.

6.4.8 PISTON RING MAINTENANCE

To maximize the accessible work space needed for compressor unit maintenance, both side panels



KEY	DESCRIPTION	QTY	KEY	DESCRIPTION	QTY
A[I]	END COVER GASKET .005	2	K	PLUNGER	1
B[I]	END COVER GASKET .006	1	L	END COVER	1
C[I]	END COVER GASKET .003	2	M	END COVER CAPSCREW 5/16-18X1	6
D[I]	END COVER GASKET .0015	2	N	BREATHER CONNECTOR	1
E	RIVET	2	P	LOCKNUT	1
F	BUMPER SPRING	2	Q	UNLOADING TUBE	1
G[I]	WEIGHT UNLOADER	2	R	ELBOW VALVE & UNLOADER	1
H	HOLDER UNLOADER	1	S	UNLOADING TUBE	1
J	SPRING	1			

[I] For information on replacement gaskets for the centrifugal unloader, refer to **Section 6.4.11, Gasket Replacement Maintenance**, and **Section 8.15, Compressor Gasket Replacement KIT 1088 - Piece Parts**. For gasket replacement kit order gasket kit no. **KIT 1088**.

NOTE Gaskets **A** through **D** also serve as shims; various combinations of gaskets may be needed, depending on the correct dimension needed for proper unload operation.

Figure 6-8: Centrifugal Unloader Maintenance

(drive assembly access panel and instrumentation panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

Refer to *Figures 6-9, 6-10, 6-11* and ***Section 6.4.13, Disassembling the Compressor*** when performing piston ring maintenance.

There are two compression rings and one oil control ring per piston. The compression rings are beveled on their inside diameters, and must be installed with the bevel on top of the piston ring groove.

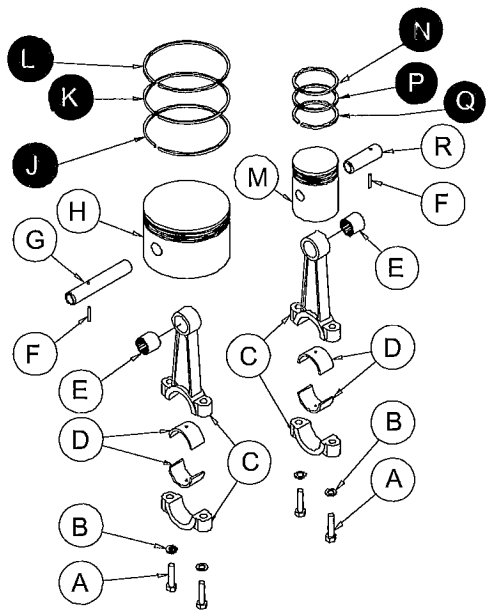
The oil control ring has an expander that should be placed behind the ring. To ensure that oil blow-by is

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

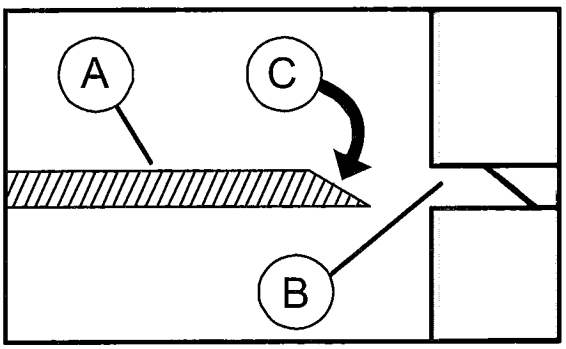
Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.



KEY	DESCRIPTION	QTY
A	ROD CAPSCREW	8
B	ROD LOCK WASHER	8
C	CONNECTING ROD	4
D	BEARING INSERT	4
E	NEEDLE BEARING WRIST PIN LP & HP	4
F	ROLL PIN	4
G	WRIST PIN LP	2
H	PISTON LP	2
J[I]	OIL CONTROL RING LP	2
K[I]	BOTTOM COMPRESSION RING LP	2
L[I]	TOP COMPRESSION RING LP	2
M	PISTON HP	2
N[I]	TOP COMPRESSION RING HP	2
P[I]	BOTTOM COMPRESSION RING HP	2
Q[I]	OIL CONTROL RING HP	2
R	WRIST PIN HP	2

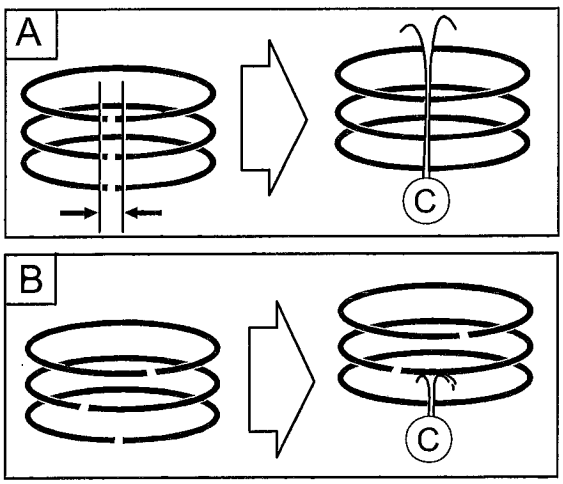
[I] This replacement part is found in the maintenance kit; for maintenance on piston rings, order kit no. **1089**.

Figure 6-9: Piston Ring Maintenance



KEY	DESCRIPTION
A	COMPRESSION RING - INSIDE EDGE BEVEL
B	PISTON RING GROOVE
C	Bevel positioned on top, facing upwards

Figure 6-10: Compression Ring Bevel Position



KEY	DESCRIPTION
A	GAP-ALIGNED RING GAPS: May allow oil blow back
B	STAGGARED RING GAPS: Deter/minimize oil blow back
C	OIL BLOW BACK DIRECTION

Figure 6-11: Staggered Piston Ring

minimized, the piston ring gap on each ring is staggered one from the other.

6.4.9 RE-ADJUSTING OR REPLACING THE COMPRESSOR DRIVE BELTS

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

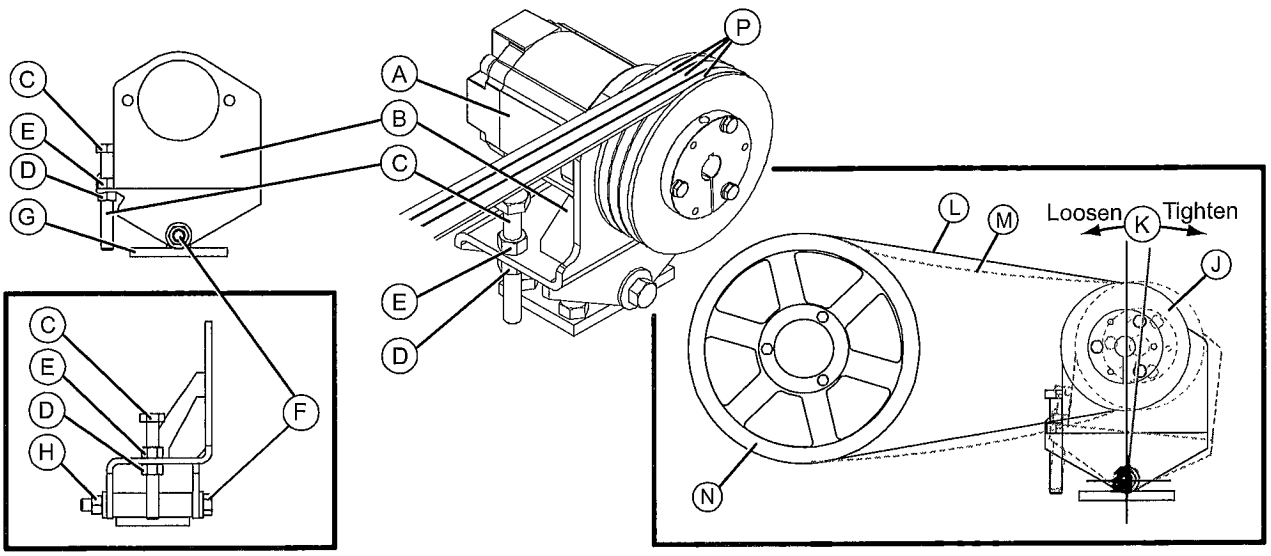
To access the package for drive belt maintenance, the drive assembly access panel must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the drive assembly access side panel.

NOTE

For worn or damaged belts: Always replace all the drive belts at the same time, regardless of any single belt's condition.

To readjust or replace the compressor drive belts, refer to ***Figures 6-12*** and ***6-13***. The belts are slackened by pivoting the hydraulic motor assembly's bracket, which temporarily repositions the hydraulic motor sheave enough to allow removal and replacement of the belt. Note that the compressor sheave remains stationary.

1. Loosen the horizontal tap bolt nut [**F**]. Loosen enough to allow movement, but **DO NOT** remove the tap bolt.
2. Loosen the adjustment/locking nut [**E**].
3. Loosen the vertical tap bolt [**C**] to allow for the hydraulic motor bracket [**B**] to pivot the motor assembly angle [**K**] toward the compressor unit, which causes the belt to slack.
4. Remove the belts when enough slack allows for them to slip off of the compressor sheave [**N**].
5. Re-thread the new drive belts into place over the compressor sheave [**N**] and motor drive sheave [**J**].
6. Adjust the vertical tap bolt [**C**] to tighten the belts by pivoting the hydraulic motor bracket



KEY	DESCRIPTION	KEY	DESCRIPTION
A	HYDRAULIC MOTOR	H	HORIZONTAL TAP BOLT NUT
B	HYDRAULIC MOTOR BRACKET	J	MOTOR DRIVE SHEAVE
C	VERTICAL TAP BOLT (anchor and adjustment)	K	BRACKET PIVOT ANGLE [I]
D	WELD NUT	L	BELT UNDER TENSION
E	ADJUSTMENT/LOCKING NUT	M	LOOSENED BELT [II]
F	HORIZONTAL TAP BOLT (anchor and adjustment)	N	COMPRESSOR SHEAVE (remains stationary)
G	BASE PLATE OF HYDRAULIC MOTOR BRACKET	P	BELT SET (x3 belts)

For maintenance on drive belts, order replacement belt no. **266727** (quantity of three [3]).

[I] Allows for slackening or tightening of the drive belt.

[II] Belt is loosened due to pivoting of hydraulic motor bracket [**B**] toward the compressor unit. Pivot only enough to remove/replace the belt.

Figure 6-12: Removing Drive Belt

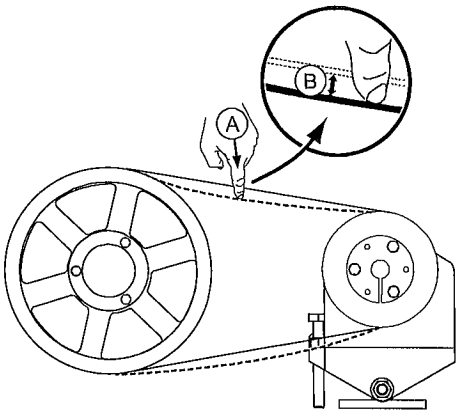
[**B**] away from the compressor unit [angle **K**], which causes tension in the belt.

NOTE

BELT TENSION DEFLECTION DATA

Refer to *Figure 6-13. Applied force* at center of belt span is seven (7) lbs. for a new belt, or five (5) lbs. for a conditioned belt.
***Deflection* factor is 0.15 inches for both new and conditioned belts.**

7. When the belt has been adjusted to proper tension, tighten the adjustment/locking nut [**E**].
8. Hold horizontal tap bolt nut [**H**] in place with a wrench while tightening the horizontal tap bolt [**F**] to secure the motor bracket in place.
9. Recheck the belt tension, and adjust as necessary until proper tightness is achieved. Check the belt tension routinely, as new belts may need to undergo a breaking-in period of adjustment.



KEY	DESCRIPTION
A	**Applied Force[I]:** New Belt: 7.0 lbs Conditioned Belt: 5.0 lbs
B	**Deflection[I]:** 0.15 in. (for New and Used Belts)

[I] Specifications given pertain to each belt separately.

Figure 6-13: Drive Belt Tension Deflection

6.4.10 DRIVE SHEAVE (PULLEY) ALIGNMENT

System Component Group	Manual Section
Drive Sheave (Pulley) Alignment	**6.4.10**
Testing Pulley Alignment	6.4.10.1
Adjusting the Motor Pulley for Alignment	6.4.10.2

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

To access the package for drive belt maintenance, the drive assembly access panel must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the drive assembly access side panel.

Refer to ***Figures 6-14*** through ***6-16***, and the following procedure:

Pulley alignment is set at factory and should not need to be adjusted. If it becomes necessary to adjust the pulley alignment, an alignment test may be performed with a straight edge, such as a yard stick, that is long enough to overlap both the compressor and motor drive sheaves. Adjustments are made via positioning of the hydraulic motor (bracket). **Note**

that the compressor pulley always remains stationary during adjustment.

6.4.10.1 TESTING PULLEY ALIGNMENT

In order to confirm that the pulleys are in alignment, several measurements must be taken to get an accurate account. For measurement point locations refer to ***Figure 6-14***; for tolerance measurements refer to ***Figure 6-15***.

1. Place the straight edge *flush* against both the face of the compressor pulley, and the face of the hydraulic motor pulley, just *above* the mounting screws. Make sure the straight edge overlaps both sheaves as much as possible.

Ideally the straight edge should be flush to both the compressor drive pulley and the hydraulic motor pulley. However, a tolerance of no more than a 1/16 inch clearance is acceptable at either side between the motor pulley face and the straight edge, depending on the direction (toward compressor, or toward cooler) of the skew (see ***Figure 6-15***).

2. Place the straight edge *flush* against both the face of the compressor pulley, and the face of the hydraulic motor pulley, just *below* the mounting screws. Make sure the straight edge overlaps both sheaves as much as possible.

The tolerance check should be within the 1/16" acceptable range.

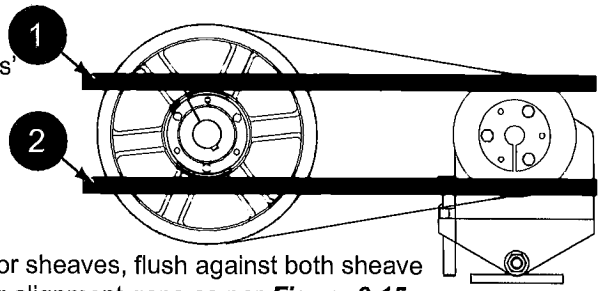
6.4.10.2 ADJUSTING THE MOTOR PULLEY FOR ALIGNMENT

The motor pulley is positioned, in regard to being aligned with the compressor pulley, by lateral adjustment of the hydraulic motor's base bracket. Before attempting to adjust the motor bracket to align the motor pulley, the drive belts should first be removed in order to relieve any tension while aligning the motor sheave. Consult ***Section*** to remove the drive belts.

Refer to ***Figures 6-14*** through ***6-16***. In order to adjust the motor pulley, the hydraulic motor bracket must be loosened enough to allow the motor to be moved laterally into alignment.

1. Refer to ***Figure 6-16***: Loosen, but do not remove, one or two of the four (4) mounting bolt sets (capscrews [**C**] and hex locking nuts [**D**]),

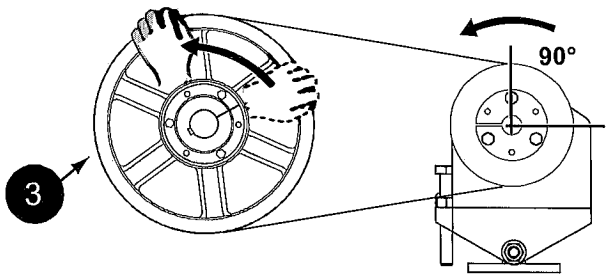
STEP #1:
Place a straight edge, long enough to span over both the compressor and motor sheaves, flush against both sheaves' face surfaces, just *above* the mounting screws. Measure for sheave alignment gaps as per ***Figure 6-15***. Measurements should falls within the allowable 1/16" limitation range.



STEP #2:
Place the straight edge over both the compressor and motor sheaves, flush against both sheave face surfaces, but *below* the mounting screws. Measure for alignment gaps as per ***Figure 6-15***.

Adjust the motor sheave lateral position (refer to **Section 6.4.10.2**) until both top and bottom measurements taken in **Step #1** and **Step #2** are within the acceptable tolerance range given in ***Figure 6-15***. Tighten the motor base frame bolt(s), but do not torque yet.

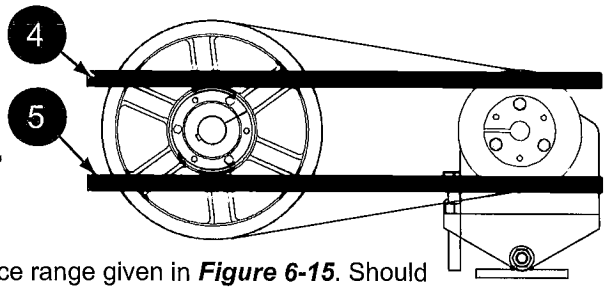
STEP #3:
Once alignment tolerance has been confirmed for **Step #1** and **Step #2**, rotate the sheaves 90° in order to take a second set of measurements.



STEP #4:
Take a new measurement as given in **Step #1**.

STEP #5:
Take a new measurement as given in **Step #2**.

STEP #6:
If measurements are within tolerlances, torque the 1/2-13" motor base frame bolts (x 4) to 80 ft-lbs.



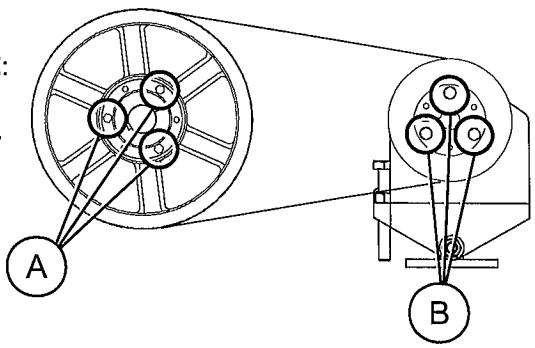
IF SHEAVES ARE OUT OF TOLERANCE RANGE:
Sheaves in correct alignment should be within the tolerance range given in ***Figure 6-15***. Should the second measurements taken in **Steps #4** and **#5** not yield correct tolerance ranges, there may be an alignment issue with the mounting hubs and/or bushings for either or both sheaves. Refer to **Step #7**.

STEP #7 (if necessary):
Loosen and reset the mounting bolts for the bushings of both sheaves, torquing the bolts to specifications given below (**NOTE**: Before resetting the bushings, remove *all* belt tension):

A: For compressor bushing torque 5/16-18 bolts to 180 in-lbs.

B: For motor bushing torque 1/4-20 bolts to 108 in-lbs.

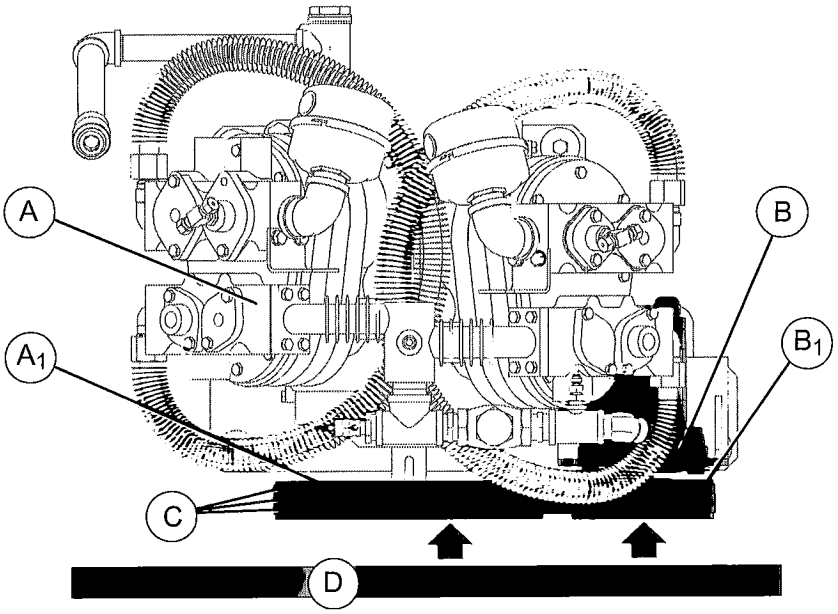
Once the sheaves have been re-set and torqued, repeat **Steps #1** through **#5** to confirm alignment at all check points.



NOTE

Should the process given in Step #7 not yield correct measurements after all bushing resets and sheave alignment steps have been performed, contact the Vanair® Service Department.

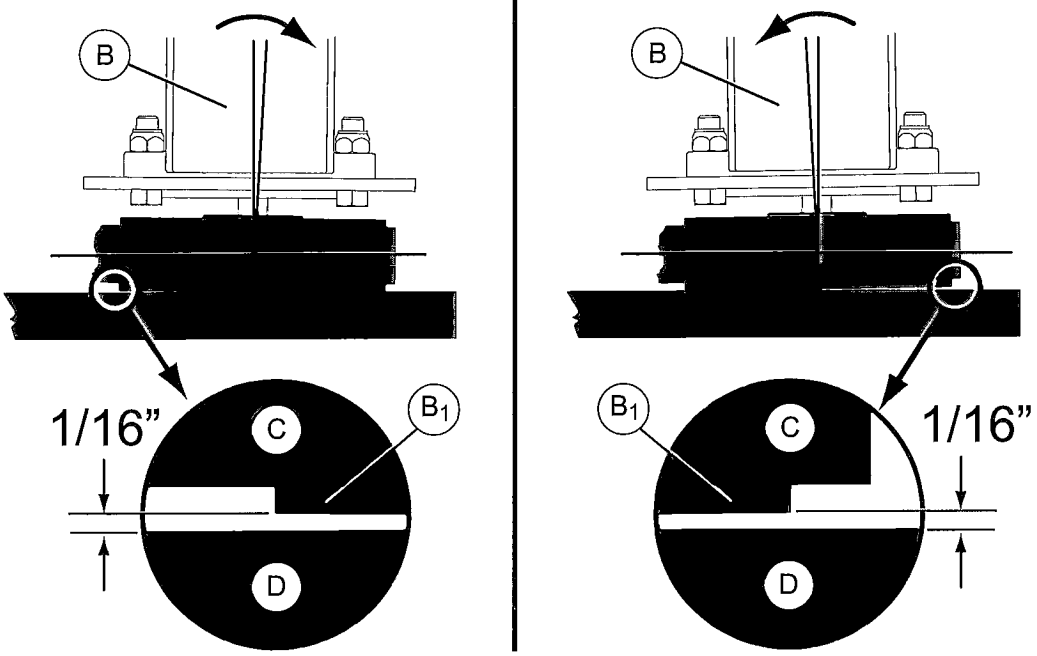
Figure 6-14: Drive Sheave (Pulley) Alignment Tolerance Check Measurement Points



With straight edge flush against both compressor and motor sheaves...

ALLOWABLE TOLERANCE CLEARANCES

SKEWED MOTOR: *COMPRESSOR/INNER-SIDE* CORNER OF MOTOR SHEAVE CLEARANCE ...or... SKEWED MOTOR: *OUTER-SIDE* CORNER OF MOTOR SHEAVE CLEARANCE



KEY	DESCRIPTION	KEY	DESCRIPTION
A	COMPRESSOR	B_1	HYDRAULIC MOTOR DRIVE SHEAVE (PULLEY)
A_1	COMPRESSOR DRIVE SHEAVE (PULLEY)	C	DRIVE BELT SET (x 3 separate belts)
B	HYDRAULIC MOTOR	D	STRAIGHT EDGE

Figure 6-15: Drive Sheave (Pulley) Alignment Check

fastening the hydraulic motor bracket to the frame.

NOTE

It should not be necessary to fully loosen all of the hydraulic motor bracket's mounting bolts. Loosening one or two of the mounting bolts should be enough to allow for the bracket to be adjusted.

The bracket should be just loose enough to allow for a rubber-headed mallet to move the bracket by applying short taps.

NOTE

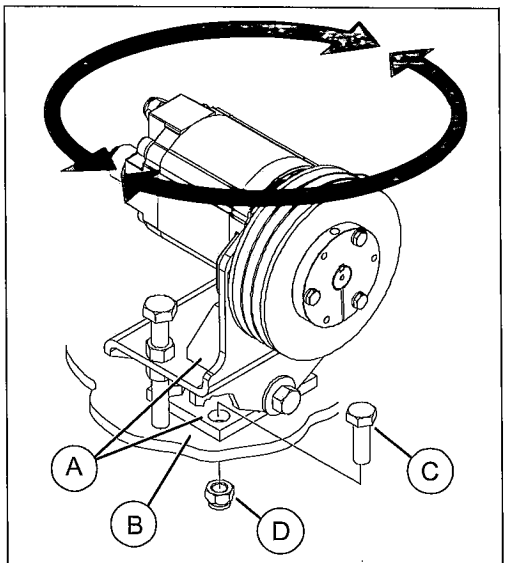
If using a rubber mallet to position the motor bracket, take care to strike the bracket face and not the sheave during adjustment.

2. Follow the steps and referrals given in ***Figures 6-14*** and ***6-15*** to determine if the drive sheaves are aligned within the operating tolerance range of 1/16".
3. Adjust the motor bracket position in slight increments, taking frequent tolerance measurements with the straight edge until the the alignment is within the acceptable range.
4. Once the bracket is positioned within range of all checks performed in ***Figure 6-14***, carefully tighten the motor bracket bolts that were loosened in step #1 to the proper torque (refer to **Table 3B** for torque specifications).
5. Replace the belts as per ***Section 6.4.9***, to achieve the correct belt tension.

IMPORTANT

DO NOT over-tension the belts.

Be aware that it may be necessary to repeat and check both belt tensions and pulley alignment several times before drive is properly set.



KEY	DESCRIPTION
A	HYDRAULIC MOTOR BRACKET
B	FRAME (MOUNTING SURFACE)
C	CAPSCREW (MOUNTING BOLT) (x 4)
D	HEX LOCKING NUT (x 4)

Figure 6-16: Hydraulic Motor Pulley Alignment - Lateral Adjustment

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

6.4.11 GASKET REPLACEMENT MAINTENANCE

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

A gasket replacement kit (KIT 1088) is offered for maintenance on the compressor gasket set groups. Gasket replacement set locations consists of the following:

- Cylinder head/manifold (x 2; left and right sides).
- Cylinder head base (x 2; left and right sides).
- Crankcase side plates (x 2; left and right sides).
- Crankcase end cover (see note below).
- Low pressure inlet valves (x 4; two per each head).
- Low pressure discharge valves (x 4; two per each head).
- High pressure inlet valves (x 4; two per each head).
- High pressure discharge valves (x 4; two per each head).

NOTE

End cover gaskets or shims are furnished in three thicknesses, and the proper combination must be selected so that crankshaft can be "spun" in the bearings without "end play".

In order to replace gasket sets follow the steps, where applicable from ***Section 6.4.13, Disassembling the Compressor***, to access the gaskets that need to be replaced. For a full exploded-view assembly diagram of the gasket replacement kit parts' locations, refer to **Section 8.15, Compressor Gasket Replacement KIT 1088 - Piece Parts.** In addition, refer to **Section *6.4.7, Centrifugal Unloader Installation*** for assistance with the centrifugal unloader assembly.

6.4.12 PRESSURE SWITCH MAINTENANCE

Refer to ***Figure 6-17***. The pressure switch is pre-adjusted at the factory. Its cover is sealed with a tamper-proof coating. **Do not** remove this protective sealing.

IMPORTANT

Because of the risks involved with manually re-adjusting the pressure switch settings, the switch cover contains a tamper-proof seal, and should not be breached for any reason. Breach of the seal will VOID the warranty.

The pressure switch should never be used to manually-adjust the pressure settings, as injury or damage to the machine may result. If a problem concerning pressure levels exists, consult the troubleshooting section of this manual. Should the problem persist, contact the Vanair service department for assistance.

6.4.13 DISASSEMBLING THE COMPRESSOR

⚠ WARNING

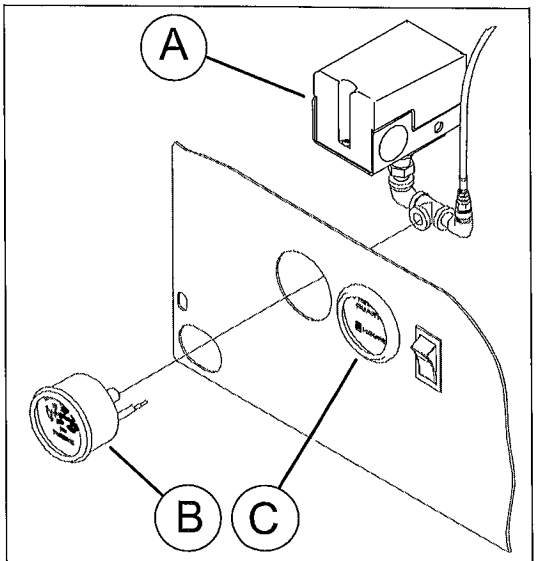
Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

NOTE

Before dismantling the compressor for overhauling it is advisable to obtain a set of valve parts, piston rings and gaskets, in addition to other required parts. Consult *Table 8A: Recommended Spare Parts List* to obtain ordering information.



KEY	DESCRIPTION
A	PRESSURE SWITCH
B	PRESSURE GAUGE (reference)
C	HOUR METER (reference)

Figure 6-17: Pressure Switch Location

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

Refer to **Section 8.14, Compressor Overhaul KIT 1089 - Piece Parts**, for the full compressor overhaul maintenance piece part assembly. When performing internal maintenance and/or repairs on the compressor unit, refer to **Section 8.2, Compressor Unit Assembly** for a full, visual breakdown of parts.

A. Refer to ***Section 6.4.9***. Loosen motor bracket and remove belts. Drain oil from crankcase (**Section 6.4.3.2**).

B. Remove compressor sheave bushing and sheave from the drive shaft. Remove key. File edges of key way smooth to remove sharp edges which could cut oil seal during removal.

C. Remove the finned tubes from the cylinder head (***Section 6.4.16***). Remove air inlet filter assemblies from heads.

D. Remove cylinder heads from cylinders by removing cap screws (***Section 6.4.6***).

E. Before removing cylinder mark top of pistons nearest drive sheave, so that they can be reinstalled in same position. Remove cylinder by removing bolts. Cylinder can be removed easily by twisting slightly back and forth while pulling upward. Care should be taken that connecting rod and piston does not become damaged from striking metal when cylinder is removed. The condition of cylinder, pistons, rings and bearing fits can then be checked.

F. Refer to ***Section 6.4.7***. Remove end cover and slide crank shaft with connecting rods, pistons, etc. out of base being careful not to damage the oil feeder ring. Place pulley end of crankshaft in a soft jaw vice to prevent damage.

G. Refer to ***Section 6.4.8***. To remove pistons: Remove roll pins by driving them into the wrist pins. Push out wrist pins. Remove roll pins from wrist pins.

H. When removing connecting rods see that rods and caps are kept in matched sets, noting the position with reference to the crankshaft of the identification marks on one side of each so that the connecting rod can be replaced in the same position it originally occupied.

I. Drive oil seal out of base (only if replacement is necessary) with evenly spaced blows from inside.

J. Refer to ***Section 6.4.6***. To dismantle head, remove low pressure hold-down covers and high pressure hold-down covers by removing cap screws. Lift out low pressure cages and high pressure cages. Low pressure valves and high pressure valves can be lifted out as well as the low pressure seat gasket (***Figure 6-7***, [**V**]), and high pressure seat gasket (***Figure 6-7***, [**D**]).

K. Refer to ***Section 6.4.6***. To dismantle valves, place valve in a soft jaw vise and remove center screw. Valves are now free to take apart. Clean all parts thoroughly. Valve plates and seats must be smooth and flat; they can sometimes be resurfaced by rubbing on fine emery cloth held on a smooth surface.

IMPORTANT

Badly worn parts including springs, which lose tension after considerable use should be replaced.

6.4.13.1 FITTING AND REASSEMBLING

Clean all parts thoroughly before assembling. Refer to **Table 6C: Compressor Torque Values** for proper torque specifications for assembling parts.

A. Crankshaft — Base

Be sure base is free of all metal chips and dirt. Insert crankshaft and oil feeder ring only into base. Assemble end cover and tighten end cover bolts evenly. End cover gaskets or shims are furnished in three thicknesses, and the proper combination must be selected so that crankshaft can be "spun" in the bearings without "end play". Also see that oil feeder ring turns freely within the guide lugs in the base. Then remove crankshaft. For additional guidance, refer to ***Section 6.4.7***.

B. Piston — Cylinder

Check fit before assembling pistons to connecting rods. Pistons without rings should slide through the cylinder of their own weight and holding the skirt of the piston with the two thumbs there should be no appreciable side motion at any point of piston travel. Scored cylinders or pistons should be replaced. For additional guidance, refer to ***Section 6.4.8***.

C. Wrist Pins should be "tap" fitted by hammer. See that roll pin holes are in line.

D. Wrist Pin — Needle Bearing

Fit so that piston can be "rocked" with three fingers: the thumb on one side and index and middle fingers on the other. The piston should not rock of its own weight. Drive roll pin into wrist pin when piston and wrist pin holes are in line and piston is assembled to connecting rod. For additional guidance, refer to ***Section 6.4.8***.

If replacement of a needle bearing ever becomes necessary, be sure to press in the new bearing so that the small hole through casting lines up with oil hole in rod. Wrist pin should also be replaced.

E. Connecting Rod — Crankshaft

Tap cap, when insert bearings are assembled to rod and cap to make sure bearing is making contact and tighten rod bolts with lock washers in place to prevent loosening (torque to 25 foot-pounds). The combined piston and connecting rod should turn slowly on the crankshaft of their own weight if bearing adjustment incorrect. It will be noted that ends of the inserts extend slightly above the parting line of the rod and cap and under no circumstance should these ends of the inserts be filed. For additional guidance, refer to ***Section 6.4.8***.

TABLE 6C: COMPRESSOR TORQUE VALUES

BOLT SIZE	GRADE	TORQUE (ft.-lb.)	POSITION
1/4-20	5	8	Side Plate Bolts
1/4-28	8	11.76	HP Valve Nut
3/8-16	5	26	Cylinder to Base Bolts
38-24	8	33.8	Connecting Rod Bolts
5/16-18	5	17	Head to Cylinder
	5	10	LP/HP Valve Hold Down Covers
	5	17	End Cover Bolts
5/16-25	8	21.3	LP Valve Nut

F. Reinstall crankshaft with pistons and connecting rods attached being careful not to damage oil feeder ring when fitting within base lugs and being sure there are no burrs or dirt on the pulley end of the crankshaft that might cut the oil seal.

G. If oil seal is to be replaced slide over the crankshaft and press into place in the base, the lip or seal side toward the crankcase. Do not hammer directly on the seal.

H. Replace valve parts in sequence indicated in **Section 8.2, Compressor Unit Assembly,** being careful not to force any parts together when tightening this center screw and locknut (torque to 28 foot-pounds). After assembly depress valve plate to insure that the valve works freely.

I. Head Assembly — Refer to ***Section 6.4.6***.

Install seat gaskets valve assemblies, cages, "O" rings, hold down covers and cap-screws.

Tighten cap screws evenly so as not to break corners of hold down covers (torque to 10 foot-pounds). Assemble head to cylinder (Torque to 10 foot-pounds).

J. Install key and pulley after cylinder head and finned tubes are connected.

K. Turn pulley over by hand several times to insure that no interference of any kind exists.

6.4.14 CHECKING HOSES AND WIRING

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation panel) must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the side panels.

NOTE

For maintenance kit details on hoses, refer to *Section 8.16, Hydraulic Hose System.*

Hoses and wires are routed away from potential pinch points, heat sources, and other hazards. However, when service is performed on a machine, it can become necessary to cut zip ties or remove hose clamps, which can allow hoses and wires to become exposed to some hazards within the enclosure. Ver-

ify that no hoses or wires are near belts, exhaust, fan blades, sharp edges, or other pinch points.

Hoses and wires should perform for the service life of the product. Occasionally, a plug or hose end may work itself loose over time. Check all the hose fittings to see that there is no visible leakage.

6.4.15 SERVICING THE SYSTEM FUSE AND CIRCUIT BREAKER

To access the machine area where the fuse and/or circuit breaker are located, the instrumentation panel must be removed. Consult **Section 6.4.1.2, Removing and Replacing a Side Panel** to remove the instrumentation-side panel.

Consult ***Figure 6-18*** for the locations of the fuse and circuit breaker. Vanair® recommends using a fuse removal tool, though pliers will suffice, when removing the fuse.

⚠ WARNING

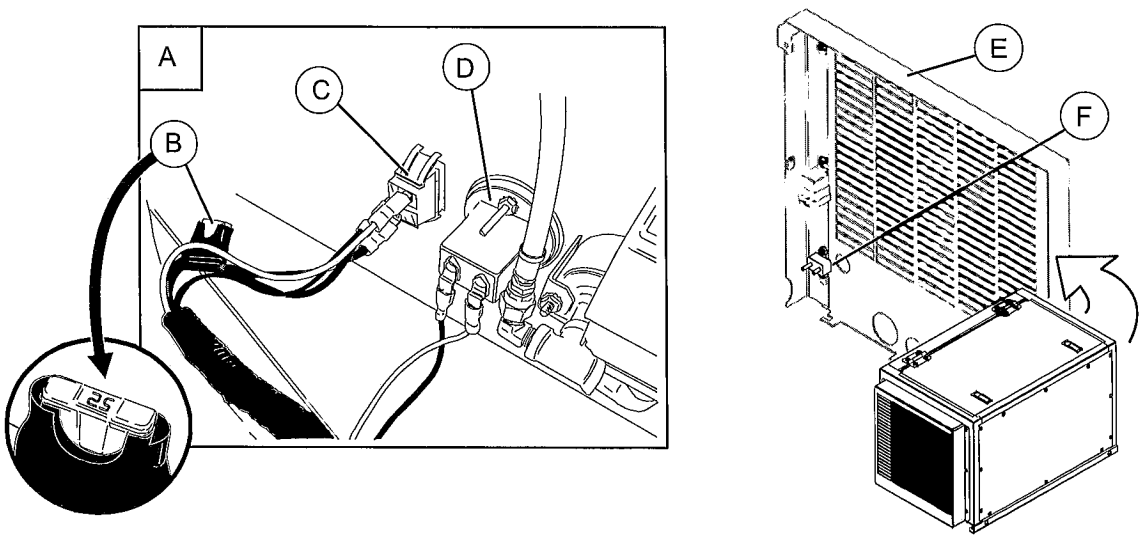
Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

⚠ DANGER

Fuses will need to be replaced if blown when tripped. When changing a fuse, or dealing directly with any function of the electrical system maintenance, always be aware of the safety warnings given in *Section 1, Safety.*



KEY	DESCRIPTION	KEY	DESCRIPTION
A	INSTRUMENT PANEL - Inside View	D	HOUR METER (Reference)
B	FUSE; 25A (12V), 15A (24V) [I]	E	FRONT (Hydraulic Utility-Side) SIDE PANEL - Inside View
C	ROCKER ON/OFF SWITCH	F	CIRCUIT BREAKER, 20A with STUDS[II]

[I] For fuse replacement: 12V - order 25A fuse no. **264316**; 24V - order 15A fuse no. **265909**.

[II] For circuit breaker replacment: 12V - order 20A circuit breaker with studs no. **260034**; 24V - order 10A circuit breaker with studs no. **262214-001**.

Figure 6-18: Fuse and Circuit Breaker

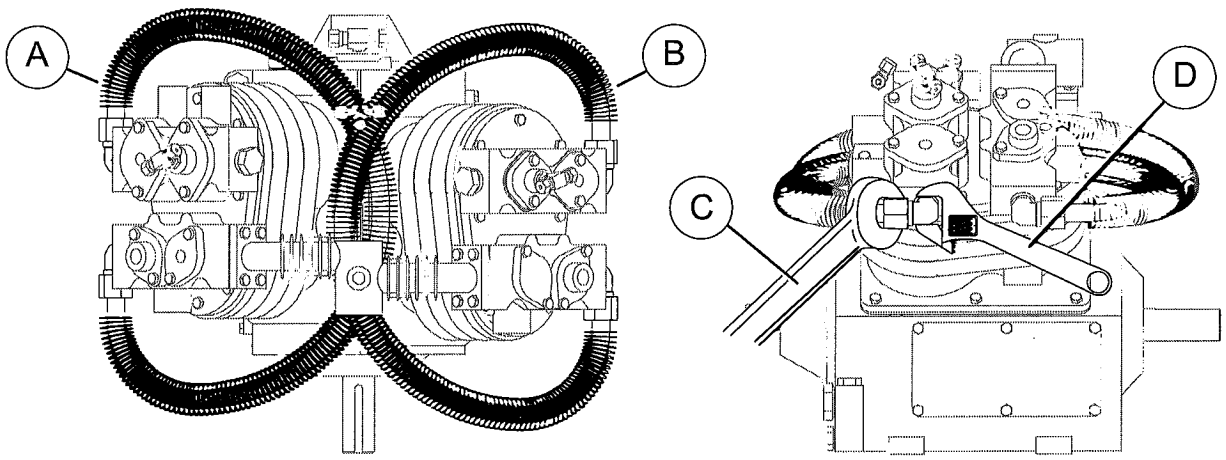
6.4.16 REPLACING THE INTERCOOLER FINNED TUBES

Refer to ***Figure 6-19***. The intercooler tubes (left and right, respectively) may need to be replaced if their fins become damaged. Damaged fins may hinder the intercooler tubes' ability to cool the compressed air. When replacing an intercooler tube:

- Never apply pressure to the finned-portions of the tubes, as they are fragile and subject to damage.
- If additional leverage is desired to loosen or tighten an intercooler tube connection, use and additional wrench **[D]**, placed on the connecting elbow, to stabilize the tube while loosening or fastening the tube end.
- When fitting a new intercooler tube into place, use minimal bending to alleviate stress on the fins.

6.4.17 PRESSURE (SAFETY) RELIEF VALVES

Refer to ***Figure 6-20***. Although the pressure (safety) relief valves have a reset ring at the cap, **DO NOT** test the valves by pulling on their reset rings. The



KEY	DESCRIPTION	KEY	DESCRIPTION
A	INTERCOOLER - RH[I]	C	TORQUING WRENCH - Use to loosen or tighten intercooler connection
B	INTERCOOLER - LH[I]	D	STABILIZING WRENCH - Position on elbow to relieve twisting pressure on intercooler during assembly/dis-assembly.

[I] For maintenance on intercoolers, order replacements coolers no. **266993-001** (for both left and right).

Figure 6-19: Intercooler Maintenance

pressure relief valves require no safety testing; should one prove faulty per indications given in the **Troubleshooting Guide** (**Section 7.2**), replace the valve.

NOTE
If valves vent *excessively* more than once, replace valve.

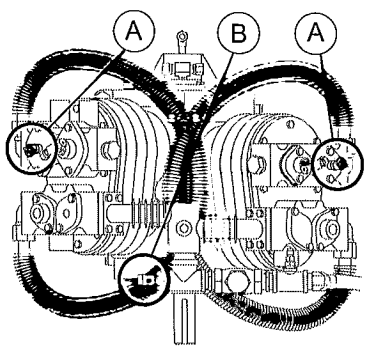
6.5 LONG TERM STORAGE

Parts can wear out over time, regardless of the degree of usage. If storing the RC40 unit for long periods of time, prepare the unit by doing the following:

- Depressurize the air tank and open the drain valve on the tank.
- Cover with a waterproof secured tarp or plastic sheet to prevent the accumulation of dust, but leave the bottom open for air circulation. The covering should allow for easy removal for in-storage maintenance.
- Whenever possible, store in a sheltered area to minimize exposure to the elements.
- While in storage, every two (2) to three (3) months rotate the compressor and motor by hand to prevent flat spots on the bearings that will lead to premature failure.

At the end of the storage period, follow the uncrating, general, and start-up procedures. If the unit has been stored for more than eighteen (18) months, the Vanair Service Department should be consulted before restarting the compressor.

NOTE
Vanair does not recommend outside storage.



KEY	DESCRIPTION
A	SAFETY RELIEF VALVE - low pressure[I]
B	SAFETY RELIEF VALVE - high pressure[II]

[I] For maintenance on high pressure valves, order replacement valve no. **266993-058** (qty of two).

[II] For maintenance on 200 psi-rated valves, order replacement valve no. **264232**.

Figure 6-20: Pressure (Safety) Relief Valves

SECTION 7: TROUBLESHOOTING

7.1 GENERAL INFORMATION

This troubleshooting guide has been compiled from operational and test data. It lists malfunctions/fault conditions, possible causes, and suggested corrective actions for the most common types of problems that may occur. 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 component replacement procedures. While it is intended to be comprehensive, operators and maintainers can encounter malfunctions or problems not listed in this table.

A detailed visual inspection is worth performing for almost all problems, and may avoid unnecessary additional damage to the machine. The procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts, should be performed first. Always remember to:

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

Should the problem persist after making the recommended check, consult your nearest Vanair® representative or the Vanair Mfg., Inc. Service Department.

⚠ WARNING

DO NOT operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.

⚠ WARNING

Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

Vanair Mfg., Inc.
10896 West 300 North
Michigan City, IN 46360
(219) 879-5100
(800) 526-8817
Service Fax: (219) 879-5335
Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800
www.vanair.com

7.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Low air pressure (continued)	Blown head gasket	Replace (***Section 6.4.6***).
Abnormal pressure fluctuations	Air line leak	Inspect and replace hose or tighten connections.
Abnormal pressure fluctuations (continued)	Pressure switch incorrectly set	May need to be replaced or reset; consult Service Department for reset instructions.
	Pressure switch faulty	Replace; consult Service Department for reset instructions.
	Hydraulic supply problems	Refer to *Compressor runs slow* section of this table.
Pressure relief valve(s) open continuously	Defective air pressure gauge	Replace gauge (**Section 8.4**).
	Damaged, worn, or leaking valve	Replace valve (***Section 6.4.17***).
	Pressure switch set too high	May need to be replaced or reset; consult Service Department for reset instructions.
Compressor cycles too frequently	Air line leak	Inspect and replace hose or tighten connections.
	Pressure switch differential setting is too small	May need to be replaced or reset; consult Service Department for reset instructions.
	Pressure switch faulty	Replace; consult Service Department for reset instructions.
	Excessive moisture in receiver tank	Drain tank; check/drain on more frequent interval to prevent moisture build-up.
	Discharge air valve leaking	Replace.
	Pressure switch faulty (if it does not remove power from the solenoid valve)	Replace; consult Service Department for reset instructions.

Continued on next page

7.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not shut OFF or unload	Solenoid valve does not operate (no power to solenoid valve)	Replace solenoid valve (**Section 8.9 [12V]**, or **Section 8.11 [24V]**).
	Air line leak	Inspect and replace hose or tighten connections.
Oil in discharge air	Air intake restricted	Change air filters (***Section 6.4.4***).
	Compressor crankshaft overfilled	Drain to correct level.
	Compressor crankcase has oil with the wrong viscosity	Drain crankcase and refill with the correct oil (***Section 6.4.3***).
Oil in discharge air (continued)	Restricted crankcase breather	Clean or replace breather.
	Worn piston rings	Replace rings (***Section 6.4.8***).
	Piston rings incorrectly installed	Reinstall ensuring that they are installed according to the directions in this manual (***Section 6.4.8***).
	Worn or scored cylinder	Replace cylinder and rings (***Section 6.4.8***).
Knocking sound	Crankcase oil level low	Add oil to the correct level (***Section 6.4.3***).
	Soiled or defective check valve	Clean or replace.
	Worn piston ring	Replace piston and pin (***Section 6.4.8***).
	Worn main bearing	Replace bearings and/or shaft.
	Worn connecting rod	Replace connecting rod (***Section 6.4.8***).
	Excessive crackshaft end movement	Replace crank shaft bearings.
	Piston contacting piston plate	Inspect, repair, replace valves and piston (***Section 6.4.8***).

SECTION 8: ILLUSTRATED PARTS LIST

8.1 PARTS ORDERING PROCEDURE

Part orders should be placed through the distributor from whom the unit was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address or phone numbers below.

When ordering parts always indicate the **Serial Number** of the machine package. This can be obtained form the Bill of Lading for the machine package, or from the compressor unit serial number plate. See ***Figure 8-1*** for location of machine package serial plate. Consult **Table 8A: Recommended Spare Parts List** on the next page for a listing of replacement parts.

Vanair Mfg., Inc.
10896 West 300 North
Michigan City, IN 46360
(219) 879-5100
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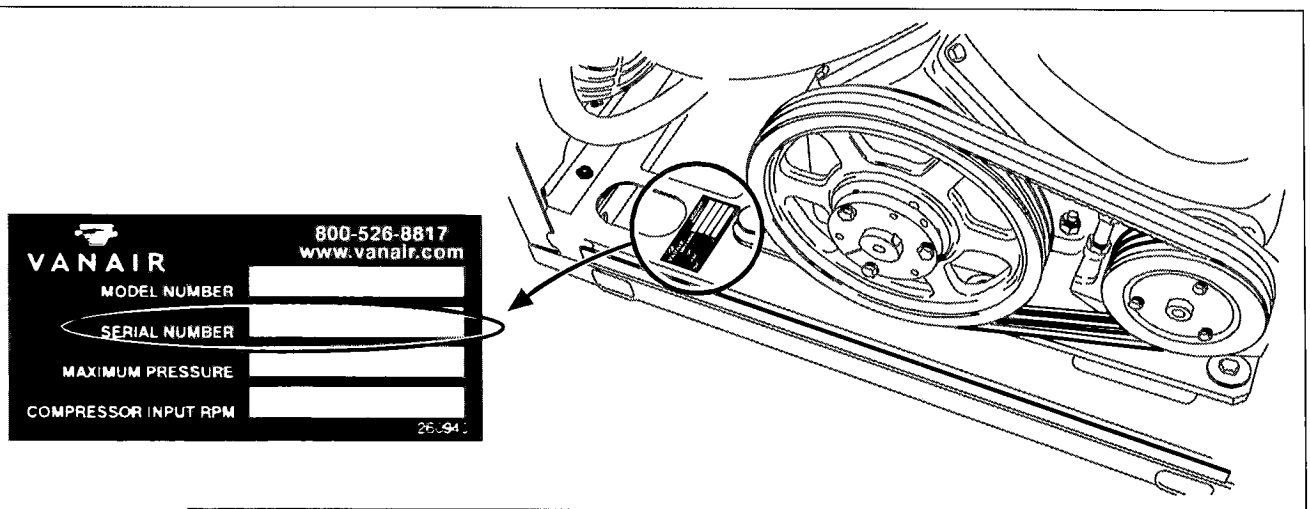


Figure 8-1: Machine Package Serial Number Plate Location

TABLE 8A: RECOMMENDED SPARE PARTS LIST

KEY NO.	PART NUMBER	DESCRIPTION	QTY	IDENTIFICATION REFERENCE	
				SECTION	KEY NO.
ROUTINE/SCHEDULED MAINTENANCE ITEMS					
1	KIT1090	Filter, Air Intake Receiver Compressor	2	Section 6.4.4, *Figure 6-5*	D
2	266727	Belt, Drive Cogged 3V x 450	3	Section 6.4.9, *Figure 6-12, etc.*	M
3	KIT1091	Oil, Reciprocating Compressor (see **NOTE** below)	1 gal.	Section 6, *Figure 6-4*	-
NON-ROUTINE/NON-SCHEDULED MAINTENANCE ITEMS					
4	KIT1086	Kit, Compressor Ring Repair	1	Section 6.4.8, *Figure 6-9*	various
5	KIT1087	Kit, Compressor Valve	1	Section 6.4.6, *Figure 6-7*	various
6	KIT1088	Kit, Compressor Gasket Replacement	1	Section 8.15	various
7	KIT1089	Kit, Compressor Overhaul Repair	1	Section 8.14	various
8	266993-089	Intercooler, Finned Tubed - Right	1	Section 6.4.16, *Figure 6-19*	A
9	266993-040	Intercooler, Finned Tubed - Left	1	Section 6.4.16, *Figure 6-19*	B
10	271936	Kit, Hydraulic Hose	1	Section 8.16	various
11	264316	Fuse, 25A Replacement	1	Section 6, *Figure 6-18*	B
12	265909	Fuse, 15A Replacement	1	Section 6, *Figure 6-18*	B
13	260034	Breaker, Circuit 20A with Studs (12VAC)	1	Section 6, *Figure 6-18*	C
14	262214-001	Breaker, Circuit 10A with studs (24VAC)	1	Section 6, *Figure 6-18*	C
15	266993-058	Valve, Relief (low pressure)	2	Section 6.4.17, *Figure 6-20*	A
16	264232	Valve, Relief (high pressure)		Section 6.4.17, *Figure 6-20*	B

NOTE: When ordering parts, always indicate the machine serial number, which can be found on the serial plate (see ***Figure 8-1***).

IMPORTANT

The above table listing contains items that require maintenance on a routine basis, and also those parts that may require maintenance over the course of the compressor package's performance schedule. Although this recommended list is pro-offered as a comprehensive guide to replacement parts, damage may occur to the machine beyond the scope of this listing.
Should any part of the compressor package that is not listed in Table 8A become damaged or inoperable, use the various sub-sections in Section 8 to best locate and identify the damaged part(s).

IMPORTANT

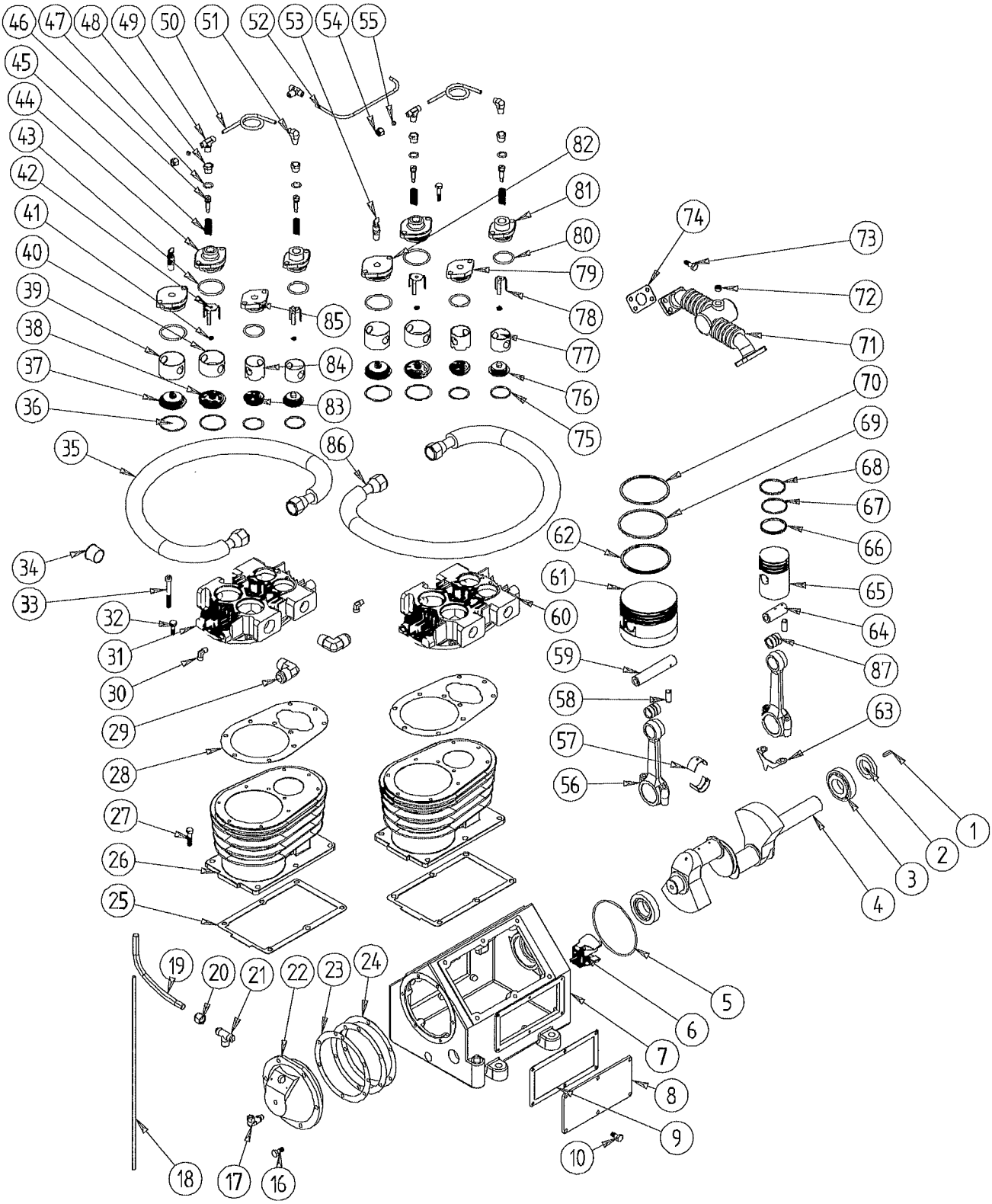
If additional spare parts are being stored for future use, ensure that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 6.5, Long Term Storage.*

IMPORTANT

Use only approved oil and genuine Vanair® parts. Inspect damaged components before operation. Substituting non-approved oil will void the compressor warranty.

TABLE 8B: MAINTENANCE TRACKING LOG		
DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED

8.2 COMPRESSOR UNIT ASSEMBLY



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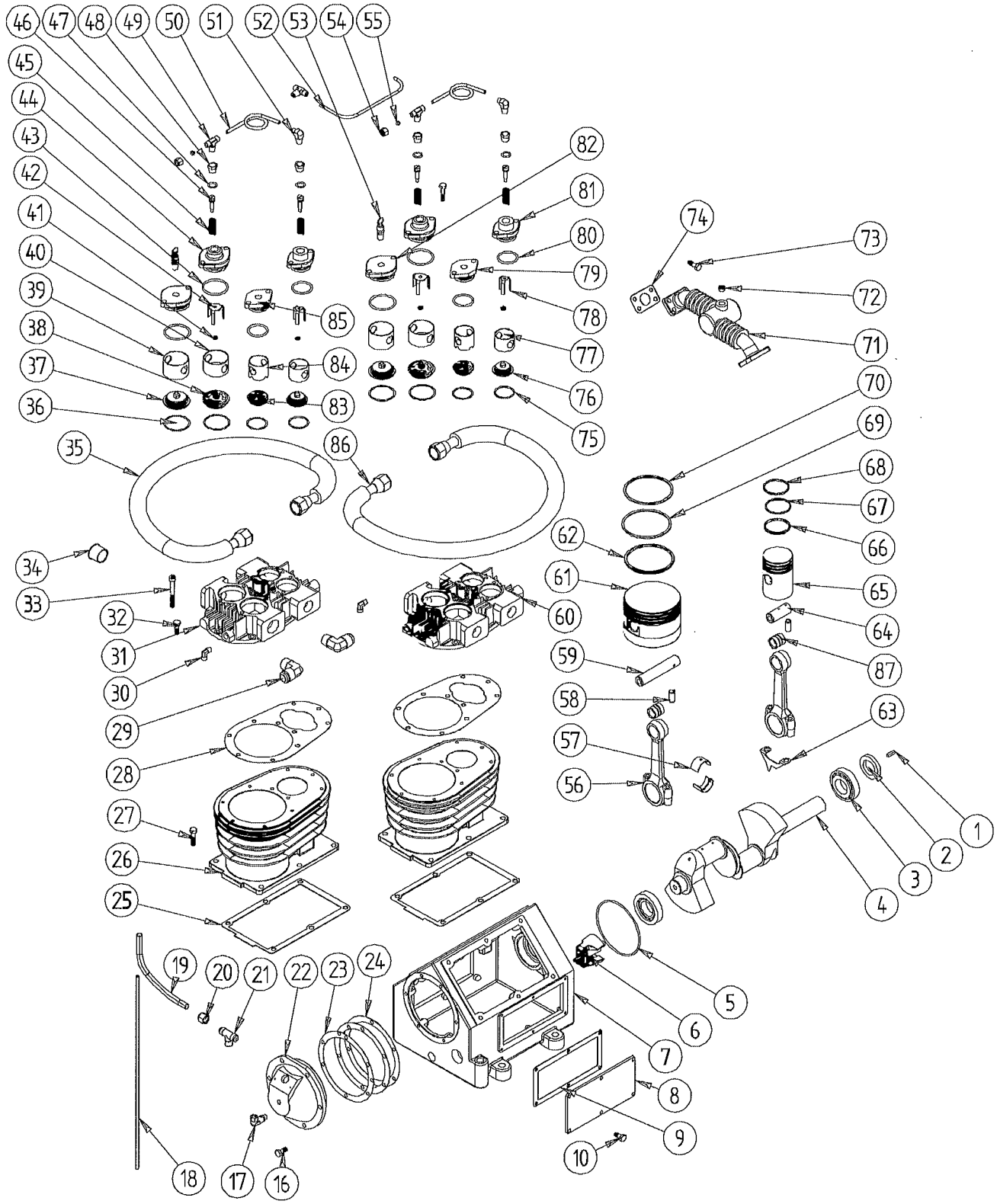
8.2 COMPRESSOR UNIT ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY
1	KEY 8X8	266993-005	1
2	OIL SEAL	266993-006	1
3	BEARING	266993-007	2
4	CRANKSHAFT	266993-008	1
5	OIL FEEDER RING	266993-009	1
6	C.U. ASSY	266993-010	2
7	CRANKCASE	266993-011	1
8	SIDE COVER	266993-012	2
9	SIDE COVER GASKET	266993-013	2
10	SIDE COVER CAPSCREW	266993-014	12
16	END COVER CAPSCREW	266993-022	6
17	C.U. VALVE ASSY	266993-023	1
18	UNLOADING TUBE	266993-024	1
19	BREATHER TUBE	266993-025	2
20	TIGHTEN NUT-END COVER	266993-026	4
21	TEE, BREATHER CONNECTOR	266993-027	1
22	END COVER	266993-028	1
23	GASKET-END COVER	266993-029	1
24a	ADJUSTING GSKT-END CVR	266993-030	MANY
24b	ADJUSTING GSKT-END CVR	266993-031	MANY
25	GASKET-CRANKCASE	266993-032	2
26	CYLINDER	266993-033	2
27	SPINLOCK CAPSCREW	266993-034	12
28	GASKET, CYLINDER HEAD	266993-035	2
29	ELBOW, AFTERCOOLER	266993-003	4
30	ELBOW, AFTERCOOLER	266993-036	2
31	CYLINDER HEAD (LEFT)	266993-037	1
32	SOCKET HEAD CAPSCREW	266993-038	16
33	SOCKET HEAD CAPSCREW	266993-039	4
34	PLUG FOR PORT OF AIR FLTR	N/A	2

Continued on page 77

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.2 COMPRESSOR UNIT ASSEMBLY (CONTINUED)



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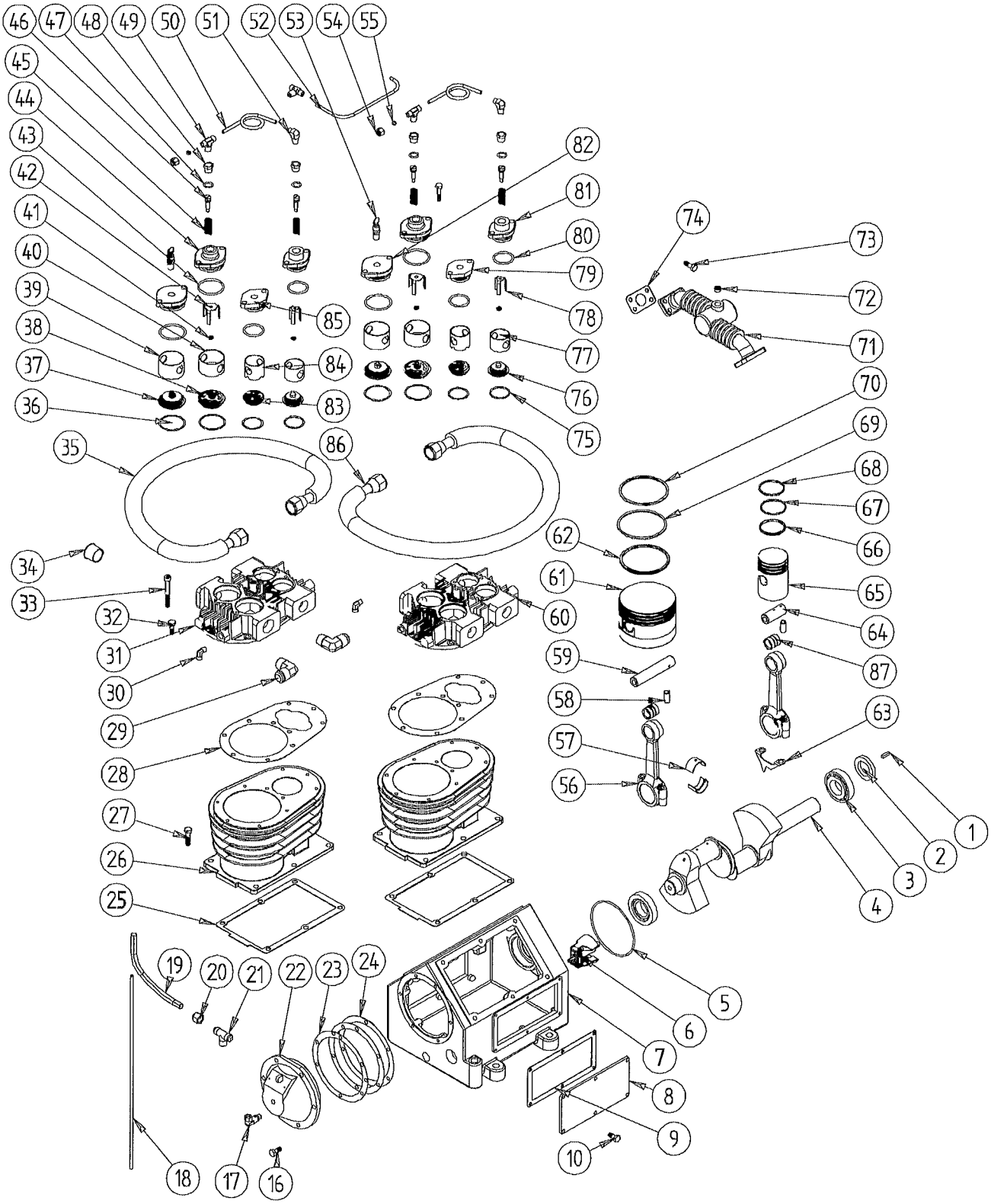
8.2 COMPRESSOR UNIT ASSEMBLY (CONTINUED)

ITEM	DESCRIPTION	PART NUMBER	QTY
35	FINNED TUBE INTERCOOLER (LEFT)	266993-040	1
36	COPPER GASKET L.P. VALVE	266993-041	4
37	DISCHARGE VALVE L.P.	266993-042	2
38	INLET VALVE L.P.	266993-043	2
39	CAGE, L.P. DISCHARGE	266993-044	2
40	CAGE, L.P. INLET	266993-045	2
41	LOCKNUT	266993-046	4
42	FINGER, L.P.	266993-047	2
43	O-RING L.P. COVER	266993-048	4
44	HOLD DOWN COVER L.P.	266993-049	2
45	UNLOADER SPRING INLET VLV	266993-050	4
46	PLUNGER INLET UNLOADER	266993-051	4
47	O-RING PLUNGER	266993-052	4
48	BUSHING 3/8'NPT x 1/4NPT	266993-053	4
49	TEE FITTING	266993-054	3
50	UNLOADER TUBE	266993-055	2
51	TUBE ELBOW	266993-056	2
52	UNLOADER TUBE	266993-057	1
53	SAFETY VALVE L.P. DISCHRG	266993-058	2
54	NUT	266993-059	9
55	COMPRESSOR RING	266993-060	9
56	CONNECTING ROD	266993-061	4
57	BEARING INSERT	266993-062	4 SETS
58	ROLL PIN	266993-063	4
59	WRIST PIN L.P.	266993-064	2
60	CYLINDER HEAD (RIGHT)	266993-065	1
61	PISTON L.P.	266993-066	2
62	OIL CONTROL RING L.P.	266933-067	2
63	OIL DIPPER	266993-068	2
64	WRIST PIN H.P.	266993-069	2

Continued on page 79

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.2 COMPRESSOR UNIT ASSEMBLY (CONTINUED)



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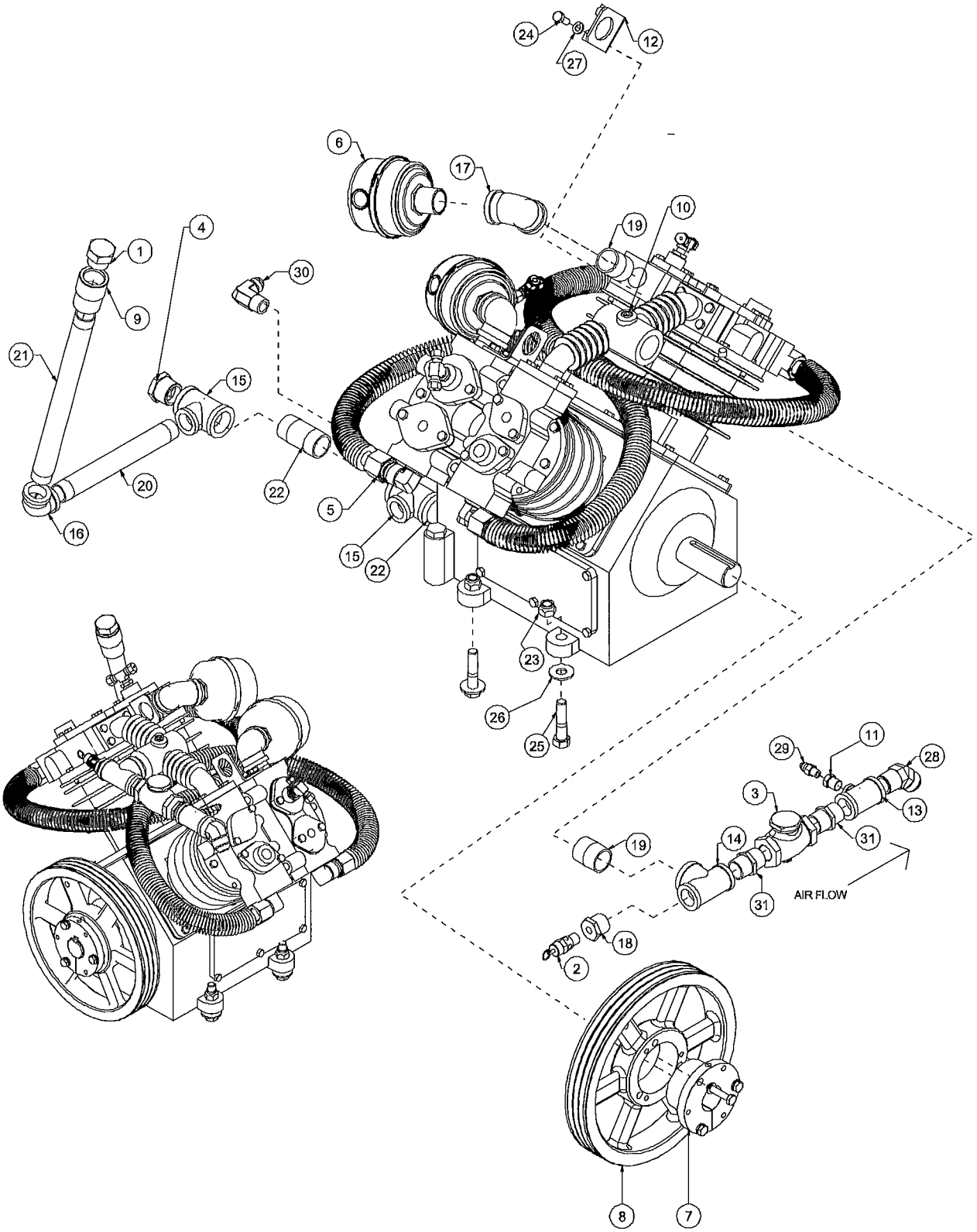
8.2 COMPRESSOR UNIT ASSEMBLY (CONTINUED)

ITEM	DESCRIPTION	PART NUMBER	QTY
65	PISTON H.P.	266993-070	2
66	OIL CONTROL RING H.P.	266993-071	2
67	BOTTOM COMPRESSION RING H.P.	266993-072	2
68	TOP COMPRESSION RING H.P.	266993-073	2
69	BOTTOM COMPRESSION RING L.P.	266993-074	2
70	TOP COMPRESSION RING L.P.	266993-075	2
71	AFTERCOOLER	266993-020	1
72	PLUG, PIPE 1/4 NPT HOLLOW HEX	267845	1
73	CAPSCREW, AFTERCOOLER	266993-077	8
74	GASKET, AFTERCOOLER	266993-021	2
75	COPPER GASKET	266993-078	4
76	VALVE ASSY H.P. INLET	266993-079	2
77	CAGE, H.P. INLET	266993-080	2
78	FINGER, H.P. INLET	266993-081	2
79	HOLD DOWN COVER H.P. DISCHARGE (LEFT)	266933-082	1
80	O-RING H.P. HOLD COVER	266993-083	4
81	HOLD DOWN, COVER H.P. INLET	266993-084	2
82	HOLD DOWN, COVER L.P. DISCHRG	266993-085	2
83	DISCHARGE VALVE H.P.	266993-086	2
84	CAGE, H.P. DISCHARGE	266993-087	2
85	HOLD DOWN COVER H.P. DISCHARGE (RIGHT)	266993-088	2
86	FINNED TUBE INTERCOOLER (RIGHT)	266993-089	1
87	NEEDLE BEARING	266993-090	4

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.3 COMPRESSOR AND FRAME ASSEMBLY



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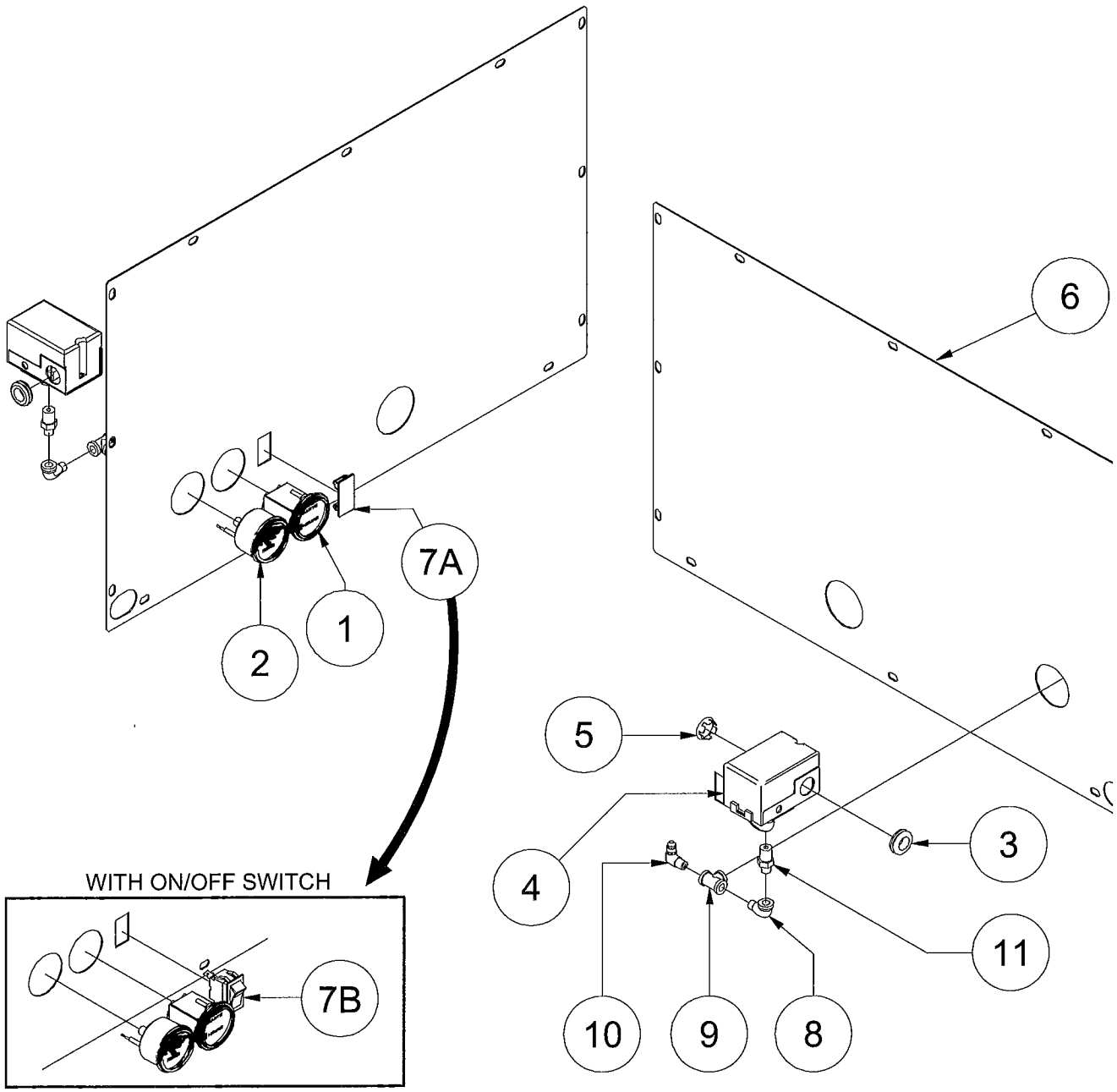
8.3 COMPRESSOR AND FRAME ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY
1	PLUG, MALE O-RING 3/4"	263740	1
2	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1
3	VALVE, CHECK 3/4 BRASS	264246	1
4	GLASS, SIGHT 1" WITH BALL	266353	1
5	COMPRESSOR, RECIPROCATING 40CFM LP452	266993	1
6	FILTER, AIR INTAKE RECIP COMPR 25CFM	267273	2
7	BUSHING, SPLIT TAPER SKX1-3/8	267309	1
8	SHEAVE, DRIVEN 3-3V106	267311	1
9	ADAPTER, 3/4 NPT TO 1 1/16 SAE O-RING	267483	1
10	PLUG, PIPE SOCKET 1/4 NPT	267845	1
11	ORIFICE, .63 HEX x 1/8F x 1/4M x 0.031	268714	1
12	BRACKET, UNIT LIFTING RC 40	269379	2
13	TEE, PIPE GALV 3/4 x 3/4 x 1/4	802903-031	1
14	TEE, PIPE GALV 3/4 x 3/4 x 1	802903-034	1
15	TEE, PIE GALV 1 x 1 x 3/4	802904-043	2
16	ELBOW, PIPE GALV 90 DEG. 3/4	803515-030	1
17	ELBOW, PIPE 90 DEG. 1"	803515-040	2
18	BUSHING, PIPE GALV 3/4 x 1/4	804103-010	1
19	NIPPLE, PIPE XS 1" CLOSE	822216-000	3
20	NIPPLE, PIPE GALV 3/4 x 8.00" LG	823112-080	1
21	NIPPLE, PIPE GALV 3/4 x 12.00" LG	823112-120	1
22	NIPPLE, PIPE GALV 1 x 2 1/2	823116-025	2
23	NUT, HEX LOCKING 1/2-13 GR 8	825508-262	4
24	CAPSCREW, HEX GR 8 5/16-18 x 3/4	829405-075	4
25	CAPSCREW, HEX GR8 1/2-13 x 2.25 LG	829408-225	4
26	WASHER, FLAT 1/2 (7/16)	838208-112	4
27	WASHER, LOCK 5/16	838505-078	4
28	ELBOW, 45 DEG. 3/4 MPT x #12 MJIC	860012-075	1
29	CONNECTOR, 37FL/MPT #04 x 1/8	860104-012	1
30	ELBOW, 37FL/90M #08 x 1/2	860208-050	1
31	NIPPLE, PIPE HEX 3/4 x 3/4	860412-075	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.4 INSTRUMENT PANEL - WITH/WITHOUT ON/OFF SWITCH



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8.4 INSTRUMENT PANEL - WITH/WITHOUT ON/OFF SWITCH

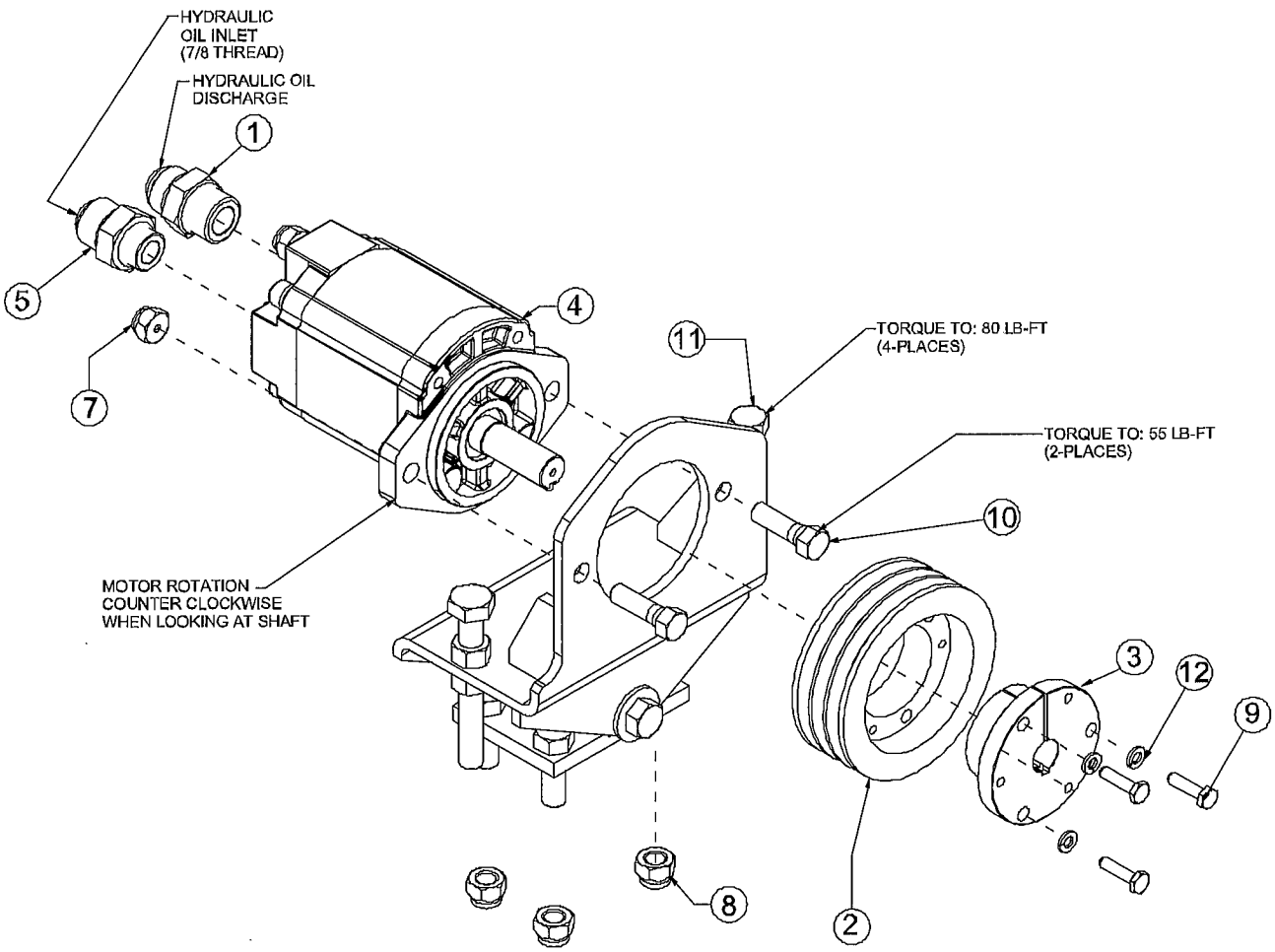
ITEM	DESCRIPTION	PART NUMBER	QTY
1	GAUGE, HOUR METER	040035	1
2	GAUGE, PRESSURE	261974	1
3	GROMMET, RUBBER 5/8 x 7/8 x 1/8	262905	1
4	SWITCH, PRESSURE ADJUSTABLE	263850	1
5	SEAL, KNOCKOUT 1/2"	264443	1
6	PANEL, CANOPY L.H. RC-40 PLAIN	268268	1
7A	COVER, ROCKER SWITCH[I]	269640	1
7B	SWITCH, ROCKER SPST RED PILOT[II]	264712	1
8	ELBOW, PIPE STREET 1/8	801115-005	1
9	TEE, PIPE GALV 1/8	804415-005	1
10	ELBOW, 37FL/90M #04 x 1/8	860204-012	1
11	NIPPLE, HEX RED 1/4 x 1/8	861604-012	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

[I] Used for machine built without ON/OFF rocker switch on panel.

[II] Used for machine built with ON/OFF rocker switch on panel.

8.5 MOTOR AND DRIVE PARTS



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8.5 MOTOR AND DRIVE PARTS

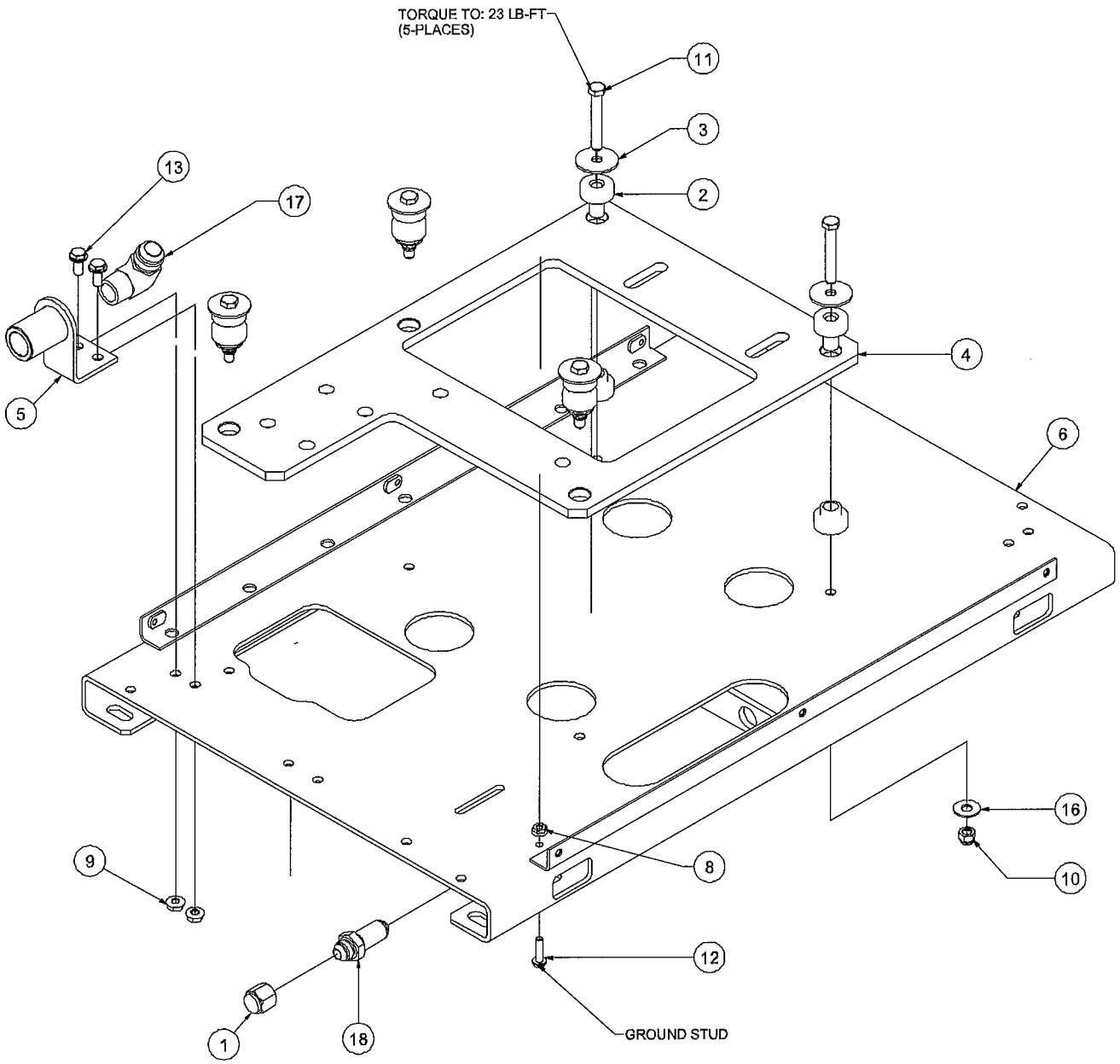
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	1
2	SHEAVE, 3 GROOVE 4.50 OD	264716	1
3	BUSHING, SPLIT TAPER SDS 3/4 0.75	267308	1
4	MTR, HDRLC EXTND SHAFT PLM 20.20	271075	1
5	CONECTR, 7/8-14 SAE O RING x 3/4 JIC 37 DEG	271134	1
6	BRACKET, MOTOR MNT	271797	1
7	NUT, HEX LOCKING 7/16-14	825507-223	2
8	NUT, HEX LOCKING 1/2-13 GR 8	825508-262	4
9	CAPSCREW, HEX RG5 1/4-20 x 1.00 LG	829104-100	3
10	CAPSCREW, HEX GR8 7/16-14 x 1.5	829407-150	2
11	CAPSCREW, HEX GR8 1/2-13 x 1.50 LG	829408-150	4
12	WASHER, LOCK 1/4	838504-062	3 II

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

I Motor shaft seal replacement requires precise tooling for set up. If the motor shaft seal needs to be replaced, please contact the Vanair Service Department.

II With bushing

8.6 FRAME AND PARTS



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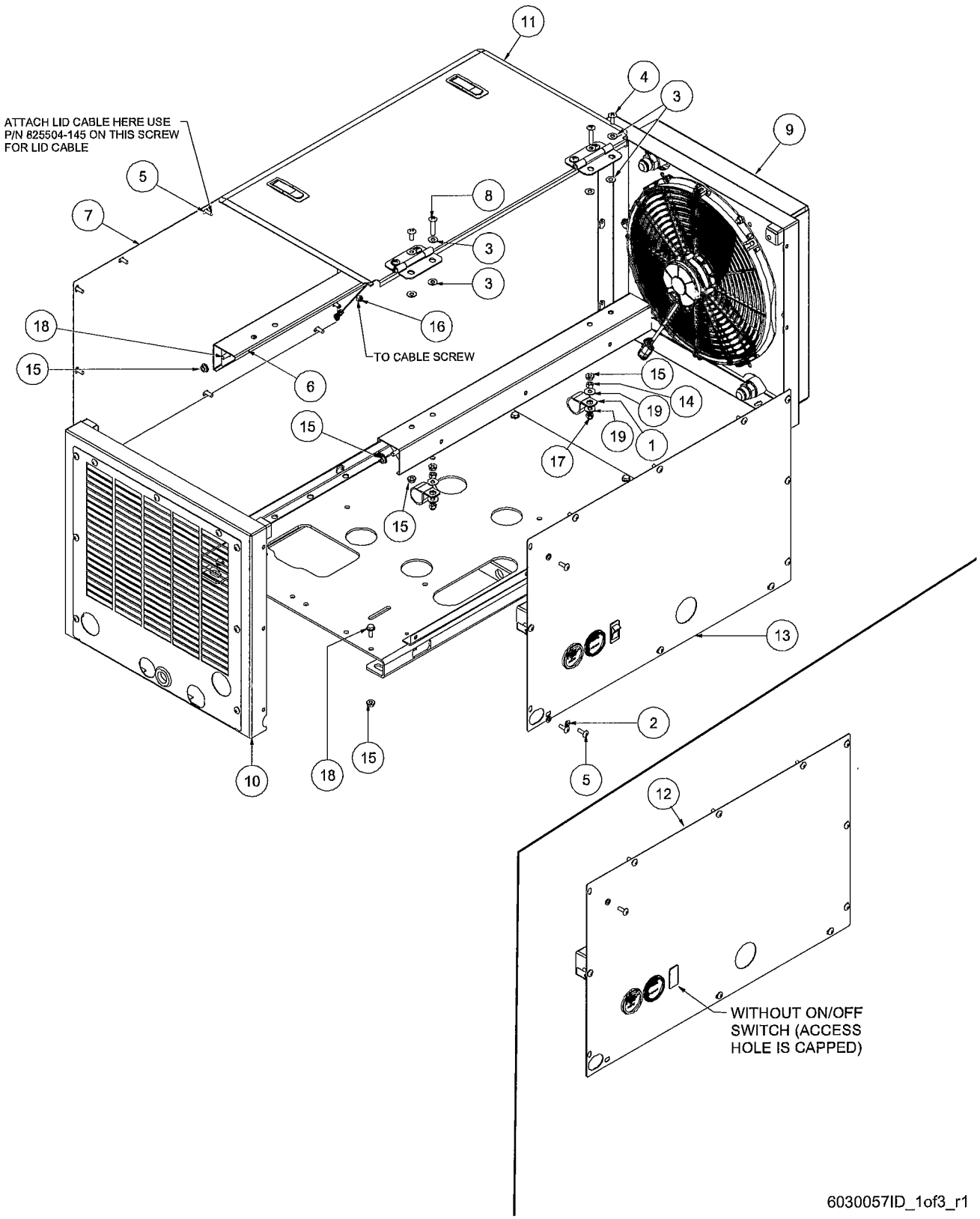
8.6 FRAME AND PARTS

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CAP, FEMALE JIC 3/4-16 #8	264322-003	1
2	MOUNT, RUBBER 130# AXIAL (GREEN)	265330	5
3	WASHER, SNUBBING RUBBER MOUNT	265332	5
4	BASE, COMPR UNIT MNT RECIP RC40	267531	1
5	BRACKET, SERV AIR ASSY RC40	267980	1
6	FRAME, RC40 MULTI MNT PATTERN	271749	1
8	NUT, HEX FLANGE 1/4-20	825304-236	1
9	NUT, HEX FLANGE 5/16-18	825305-283	2
10	NUT, HEX LOCKING 3/8-16 GR 8	825506-198	5
11	CAPSCREW, HEX GR5 3/8-16 x 2.5	829106-250	5
12	SCREW, SER WASH 1/4-20 x 1	829704-100	1
13	SCREW, SER WAS 5/16-18 x 3/4	829705-075	2
15	WASHER, LOCK INTERNAL 3/4"	837412-005	1
16	WASHER, FLAT 3/8 (5/16)	838206-071	5
17	ELBOW, 37FL/90M #12 x 3/4	860212-075	1
18	BULKHEAD, MJIC x MJIC #8	862108-050	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.7 CANOPY AND PARTS (PART 1 OF 3)



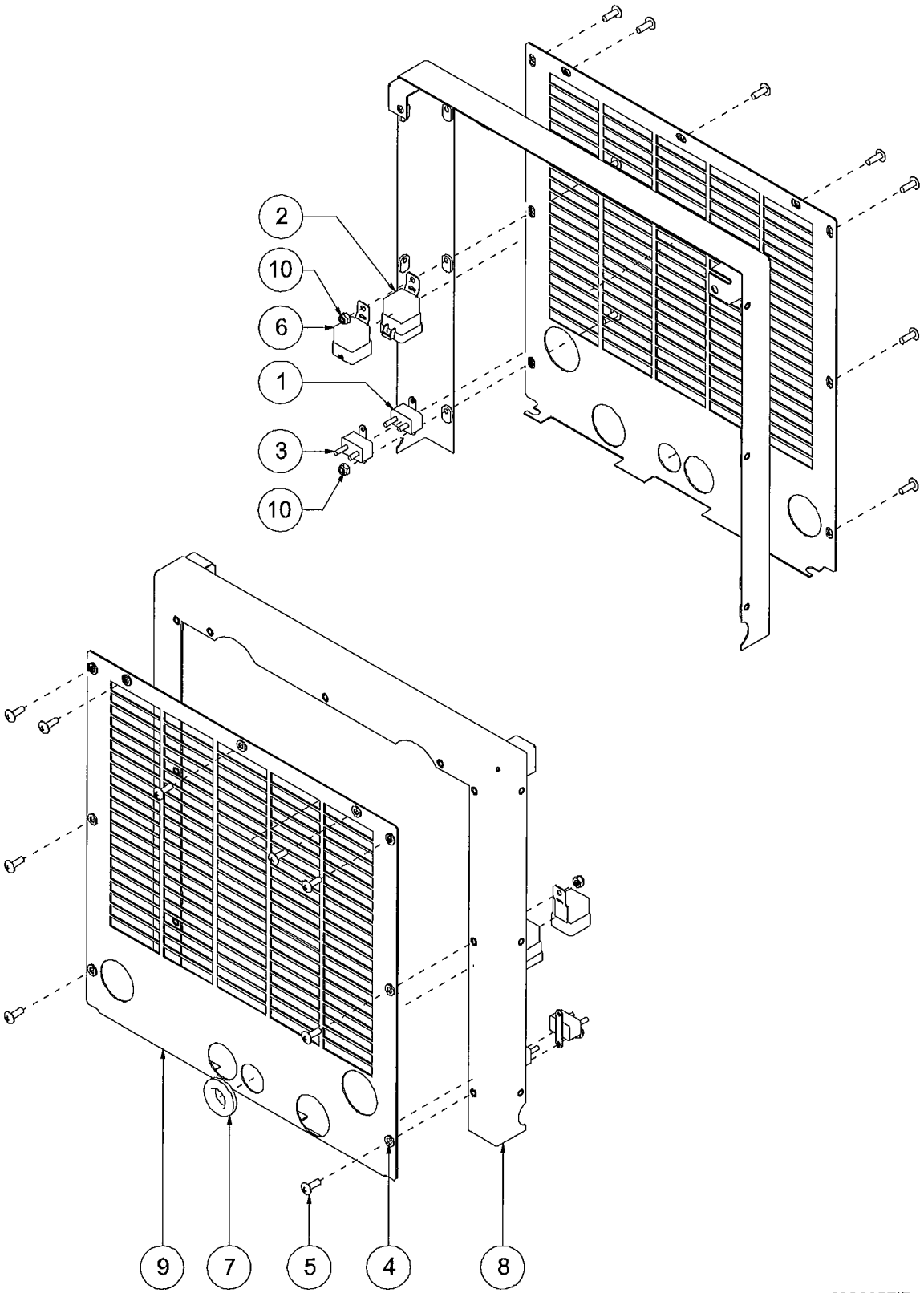
8.7 CANOPY AND PARTS (PART 1 OF 3)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CLAMP, HOSE SUPPORT 1.25 ID	261546	2
2	WASHER, NYLON FLAT 1/4	262704	24
3	WASHER, NYLON 5/16-18	262943	8
4	SCREW, TRUSS HD 5/16-18x3/4 SS	262945	2
5	SCREW, TRUSS HD 1/4-20 x 3/4	262953	24
6	SUPPORT, CNPY LONG SIDE RC40	268049	2
7	PANEL, CANOPY RC-40 R.H. PLAIN	268269	1
8	SCREW, TRUSS HD 5/16-18 x 1 1/2 SS	271962	2
9	ID, COOLING HYD OIL SYS RC40	6020049ID	1
10	ID, PANEL FRNT ASSY RC40	6030057ID-003	1
11	ID, ROOF PANEL ASSY RC40	6030057ID-004	1
12	ID, INSTRUMENT PANEL RC40 LESS ON/OFF [I]	6040045ID	1
13	ID, INSTRUMENT PANEL RC40 WITH ON/OFF [I]	6040046ID	1
14	NUT, HEX 5/16-18	825205-273	2
15	NUT, HEX FLANGE 5/16-18	825305-283	4
16	NUT, HEX LOCKING 1/4-20	825504-145	1
17	NUT, HEX LOCKING 5/16-18	825505-166	2
18	SCREW, SER WASH 5/16-18 x 3/4	829705-075	8
19	WASHER, FLAT 5/16	838205-071	4

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

[I] Panel used depends on specific machine feature—check machine to determine proper panel assembly part number (with or without the ON/OFF switch, as per key #'s 12 and 13 above).

8.7 CANOPY AND PARTS (PART 2 OF 3)



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VANAIR. AIR POWER TO GO

8.7 CANOPY AND PARTS (PART 2 OF 3)

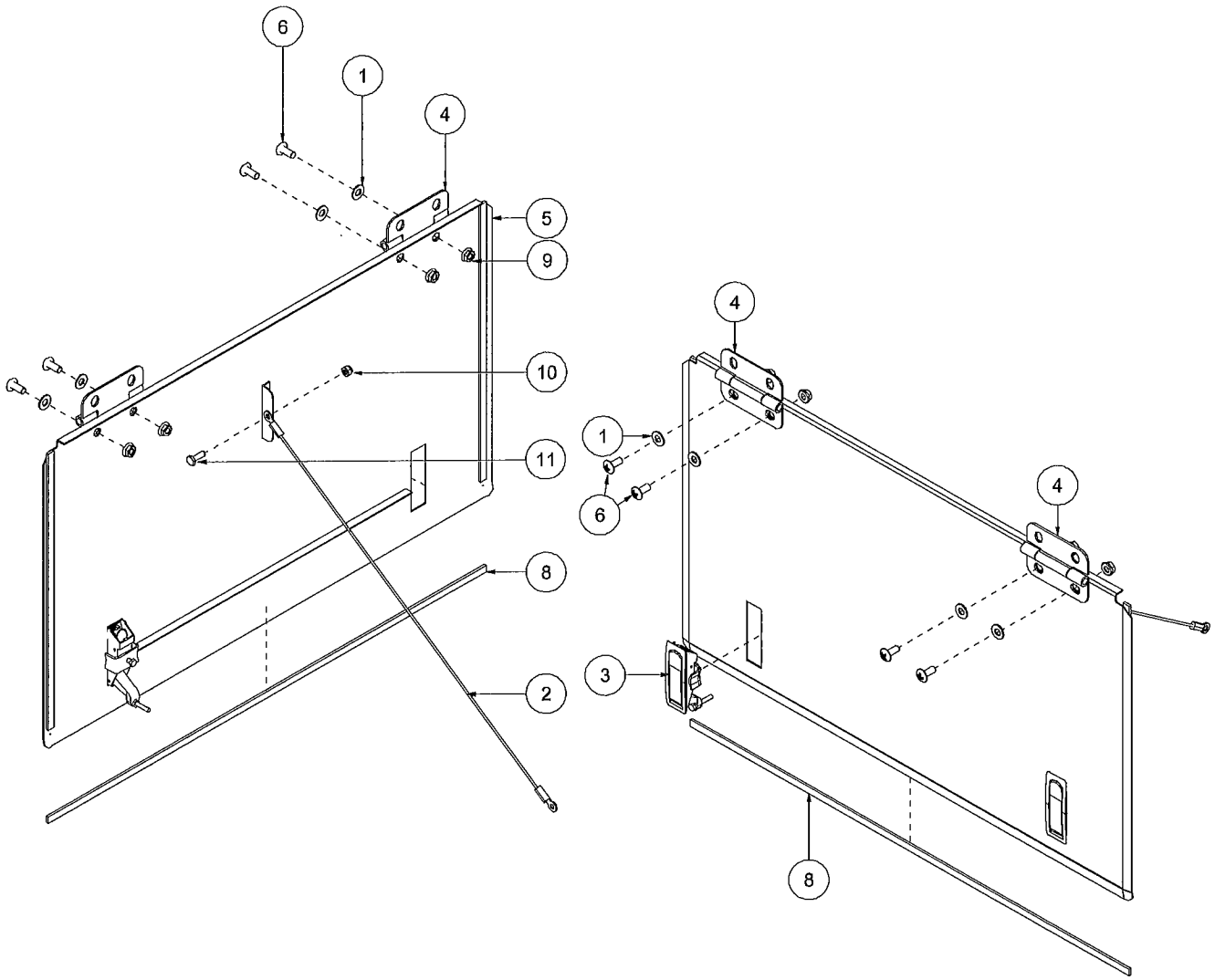
ITEM	DESCRIPTION	PART NUMBER	QTY
1	BREAKER, CIRCUIT w/ STUDS 20A	260034	1 [I]
2	RELAY, NO/NC WEATHERPROOF w/RESISTOR	260246	1 [I]
3	BREAKER, CIRCUIT w/STUDS 10A 24V	262214-001	1 [II]
4	WASHER, NYLON FLAT 1/4	262704	9
5	SCREW, TRUSS HD 1/4-20 UNC x 34 LG S.S.	262953	9
6	RELAY, NC/NO WEATHERPROOF 24V	265182	1 [II]
7	GROMMET, RUBBER 1 x 1 3/32 x 3/32	265879	1
8	SUPPORT, CANOPY SQUARE RC40 FRONT & REAR	268048	1
9	PANEL, FRONT END RC40 12 GPM	272269	1
10	NUT, HEX LOCKING 1/4-20	825504-145	2

[I] Use for 12V

[II] Use for 24V

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.7 CANOPY AND PARTS (PART 3 OF 3)



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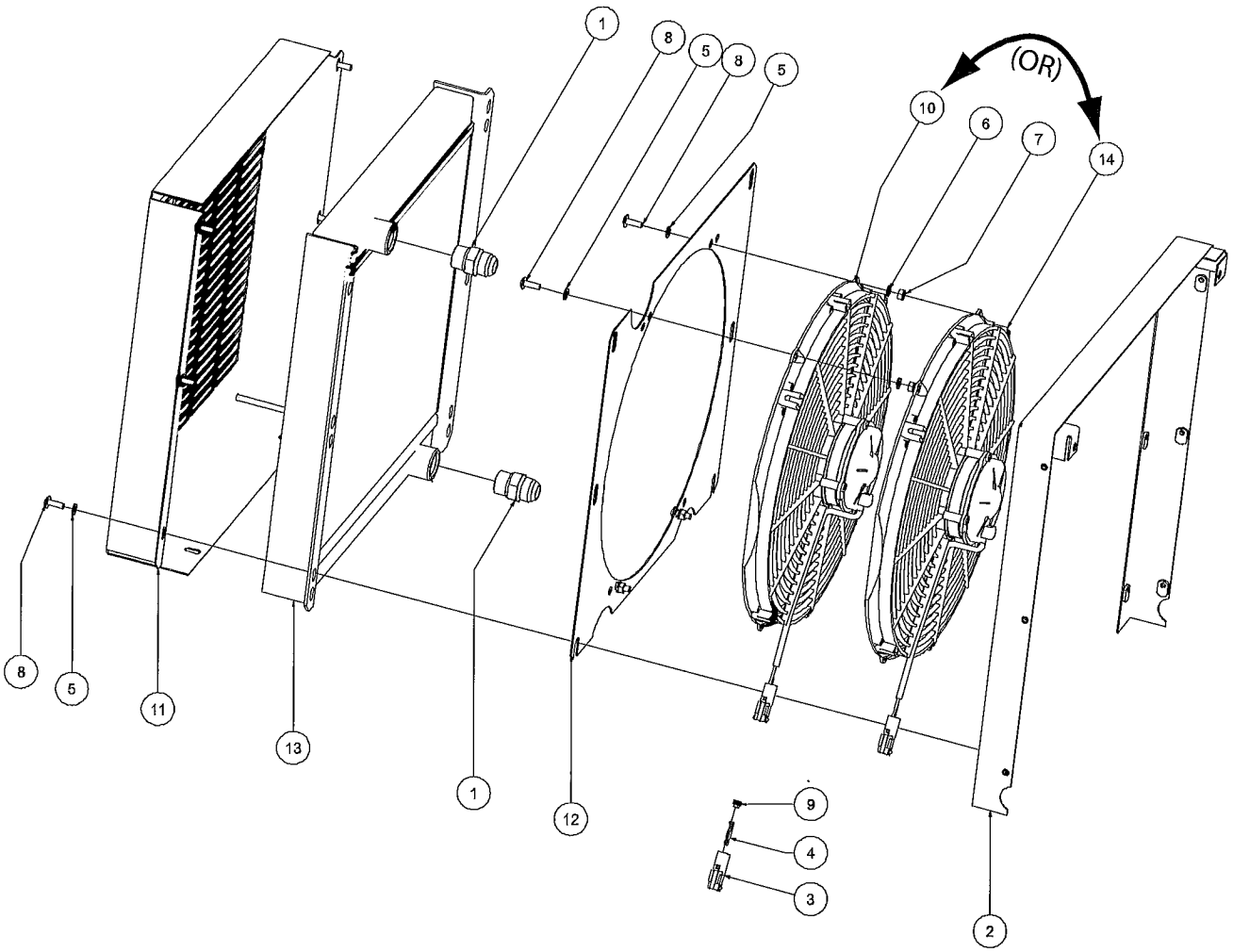
8.7 CANOPY AND PARTS (PART 3 OF 3)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON 5/16-18	262943	4
2	CABLE, ASSEMBLY CANOPY	262997	1
3	LATCH, SENTRY PANEL	267124	2
4	HINGE, RECP COMPRS ROOF PNL	267217	2
5	PANEL, ROOF RC 40 NARROW	267867	1
6	SCREW, TRUSS HD 5/16-18 x 3/4 SS	262945	4
7	TAPE, VINYL FOAM 1/8 x 3/8 CUT TO LENGTH	267940A	2
8	TAPE, VINYL FOAM 1/8 x 3/8 CUT TO LENGTH	267940B	1
9	NUT, HEX FLANGE 5/16-18	825305-283	4
10	NUT, HEX LOCKING 1/4-20	825504-145	1
11	CAPSCREW, HEX GR5 1/4-20 x 0.75	829104-075	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

I Panel used depends on specific machine feature—check machine to determine proper panel assembly part number (with or without the ON/OFF switch, as per key #'s 12 and 13 above).

8.8 OIL COOLING SYSTEM (12 AND 24V)



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VANAIR. AIR POWER TO GO.

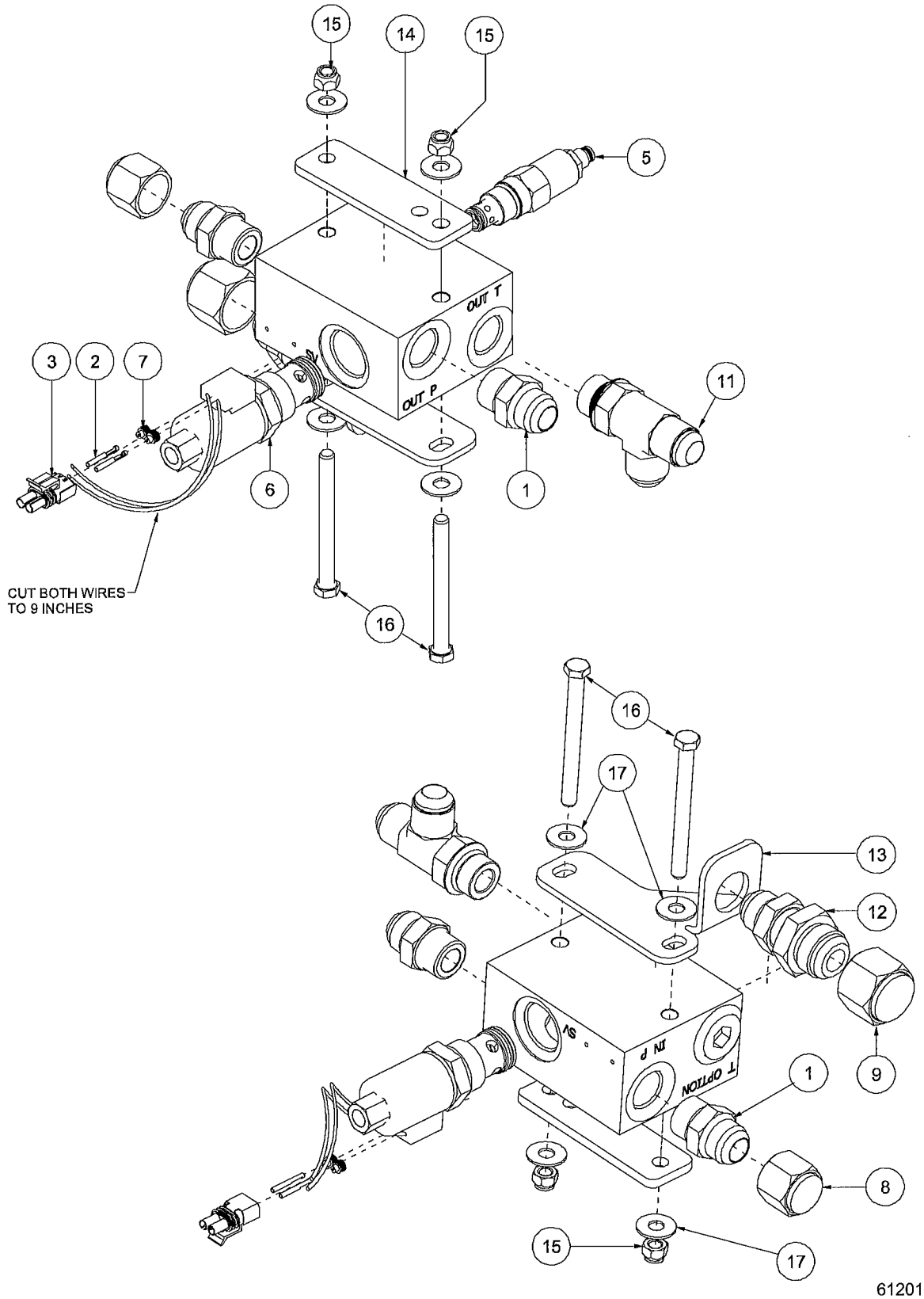
8.8 OIL COOLING SYSTEM (12 AND 24V)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	2
2	SUPPORT, CANOPY SQRE RC40 FRONT & REAR	268048	1
3	CONNECTOR, MALE	262425-002	1
4	TERMINAL, MALE	262426	2
5	WASHER, NYLON FLAT 1/4	262704	10
6	WASHER, LOCK 1/4 STAINLESS	262951	4
7	NUT, HEX 1/4-20 STAINLESS	262952	4
8	SCREW, TRUSS HD 1/4-20x3/4 SS	262953	10
9	SEAL, CABLE GREEN 16-14 GA	264183	2
10	FAN AND MOTOR ASSY. PUSHER 12V[I]	264856-008	1
11	PANEL, CANOPY FAN SIDE RC40-2	269384	1
12	PANEL, FAN SHROUD RC40 - 2	269385	1
13	COOLER, OIL RC40 2.00 CORE SINGLE PASS	269563	1
14	FAN & MOTOR ASSY., 125/185 24V[I]	265057	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

[I] Use #10 for 12V; #14 for 24V.

8.9 CONTROL MANIFOLD FOR 12V (OPEN LOOP)

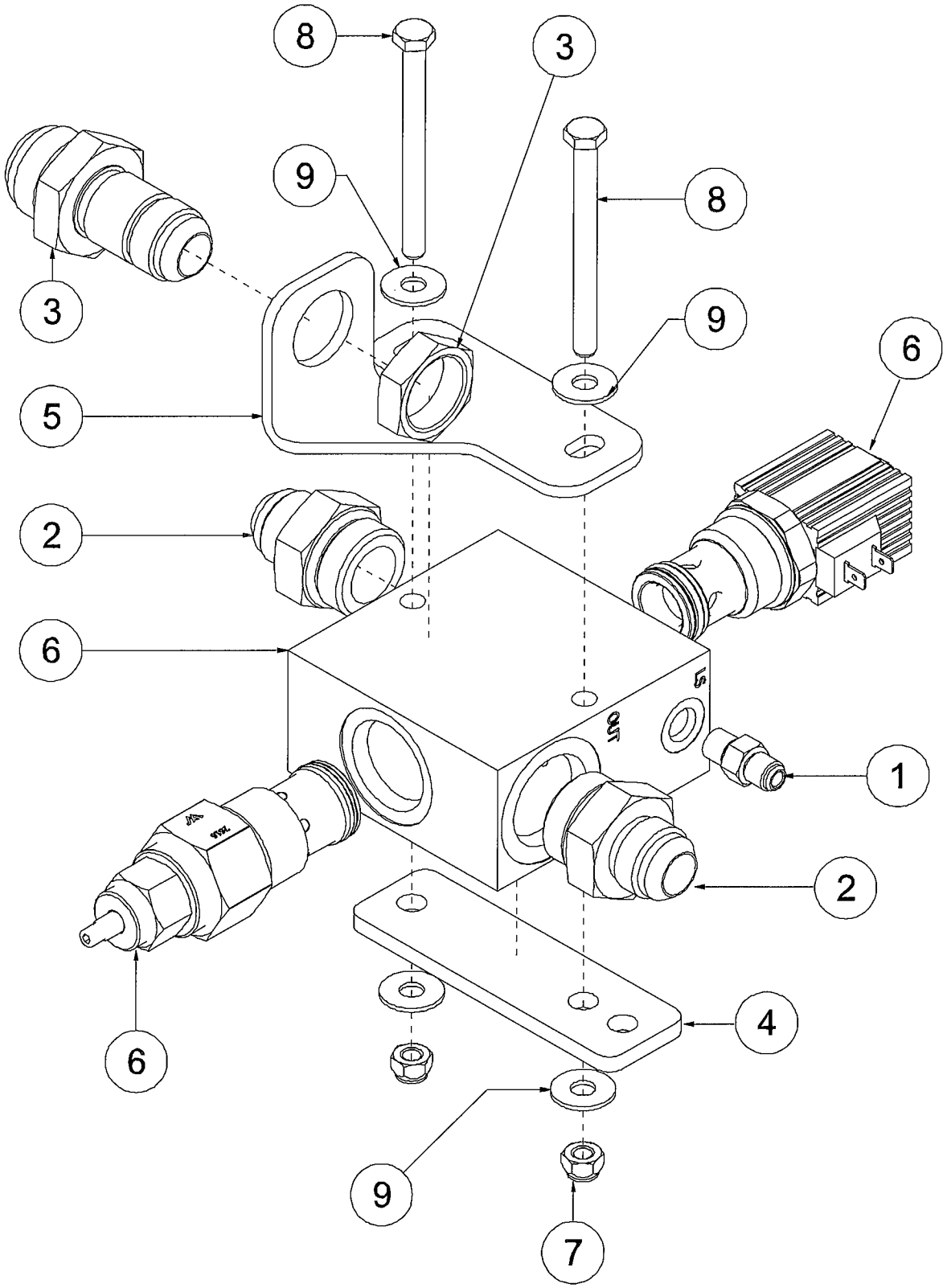


8.9 CONTROL MANIFOLD FOR 12V (OPEN LOOP)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	2
2	TERMINAL, FEMALE	262425	2
3	CONNECTOR, FEMALE	262425-001	1
4	MANIFOLD, HYDRAULIC SOLENOID	263878	1
5	VALVE, PRESSURE RELIEF	263878-003	1
6	VALVE, SOLENOID WITH 12V. COIL	263878-004	1
7	SEAL, CABLE GREEN 16-14 GA	264183	2
8	CAP, FEMALE JIC 1 1/16-12 #12	264322-005	1
9	CAP, FEMALE JIC 1 5/16-12 #16	264322-006	1
10	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1
11	TEE, 37 MJIC, 37MJIC. O-RING RUN 3/4	268591	1
12	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
13	SUPPORT, OIL RETURN HOSE RC40	271122	1
14	FLAT, SHIM HYDRAULIC MANIFOLD	271836	1
15	NUT, HEX LOCKING 3/8-16	825506-198	2
16	CAPSCREW, HEX GR5 3/8-16X 4	829106-400	2
17	WASHER, FLAT 3/8	838206-071	4

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.10 CONTROL MANIFOLD FOR 12V (CLOSED LOOP)



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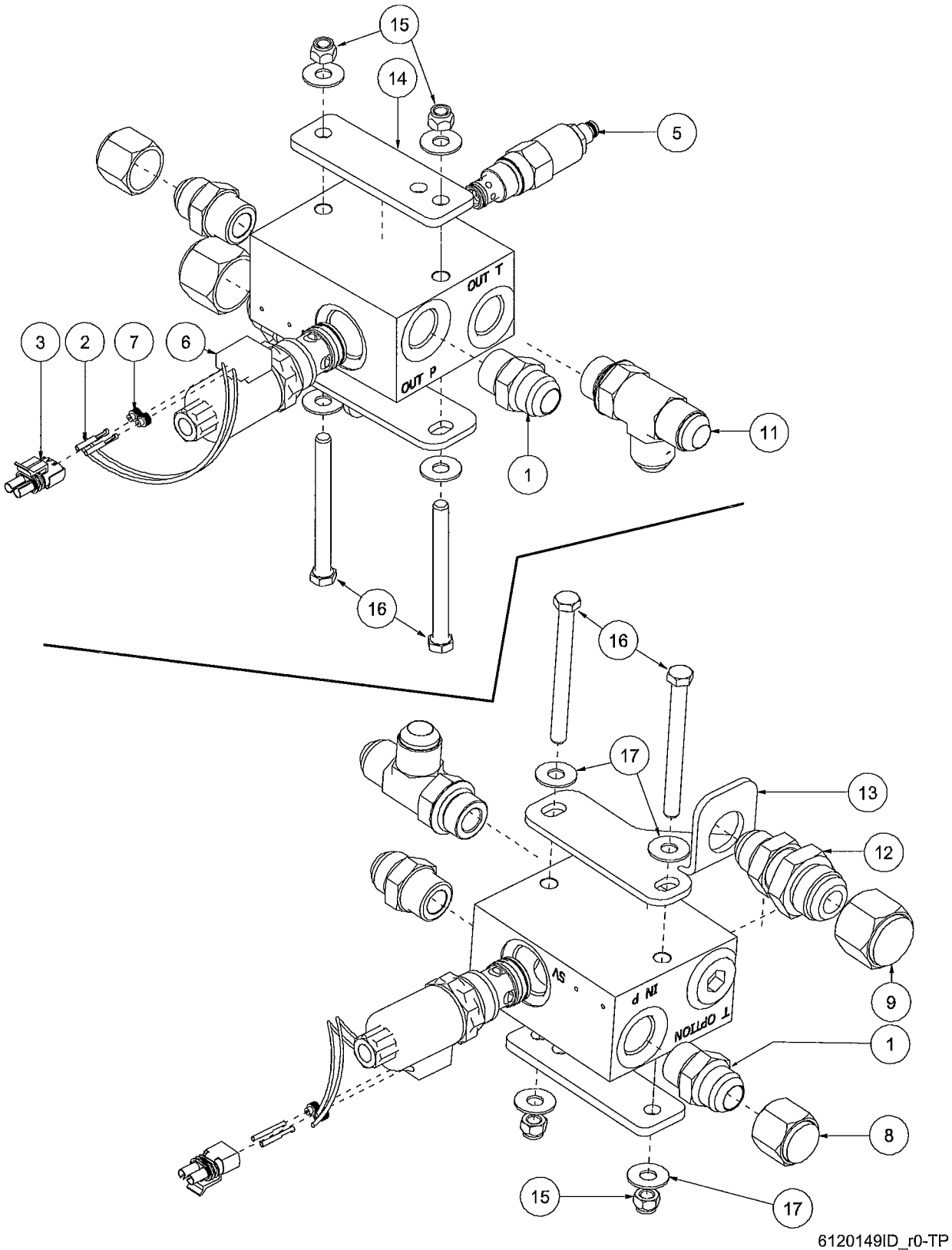
VANAIR
AIR POWER TO GO

8.10 CONTROL MANIFOLD FOR 12V (CLOSED LOOP)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
4	FLAT, SHIM HYDRAULIC MANIFOLD	271836	1
5	SUPPORT, OIL RETURN HOSE RC40 CLOSED LOOP	272358	1
6	VALVE, HYD ASSY CLOSED LOOP	272722	1
7	NUT, HEX LOCKING 5/16-18	825505-166	2
8	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
9	WASHER, FLAT 5/16	838205-071	4

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.11 CONTROL MANIFOLD FOR 24V (OPEN LOOP)



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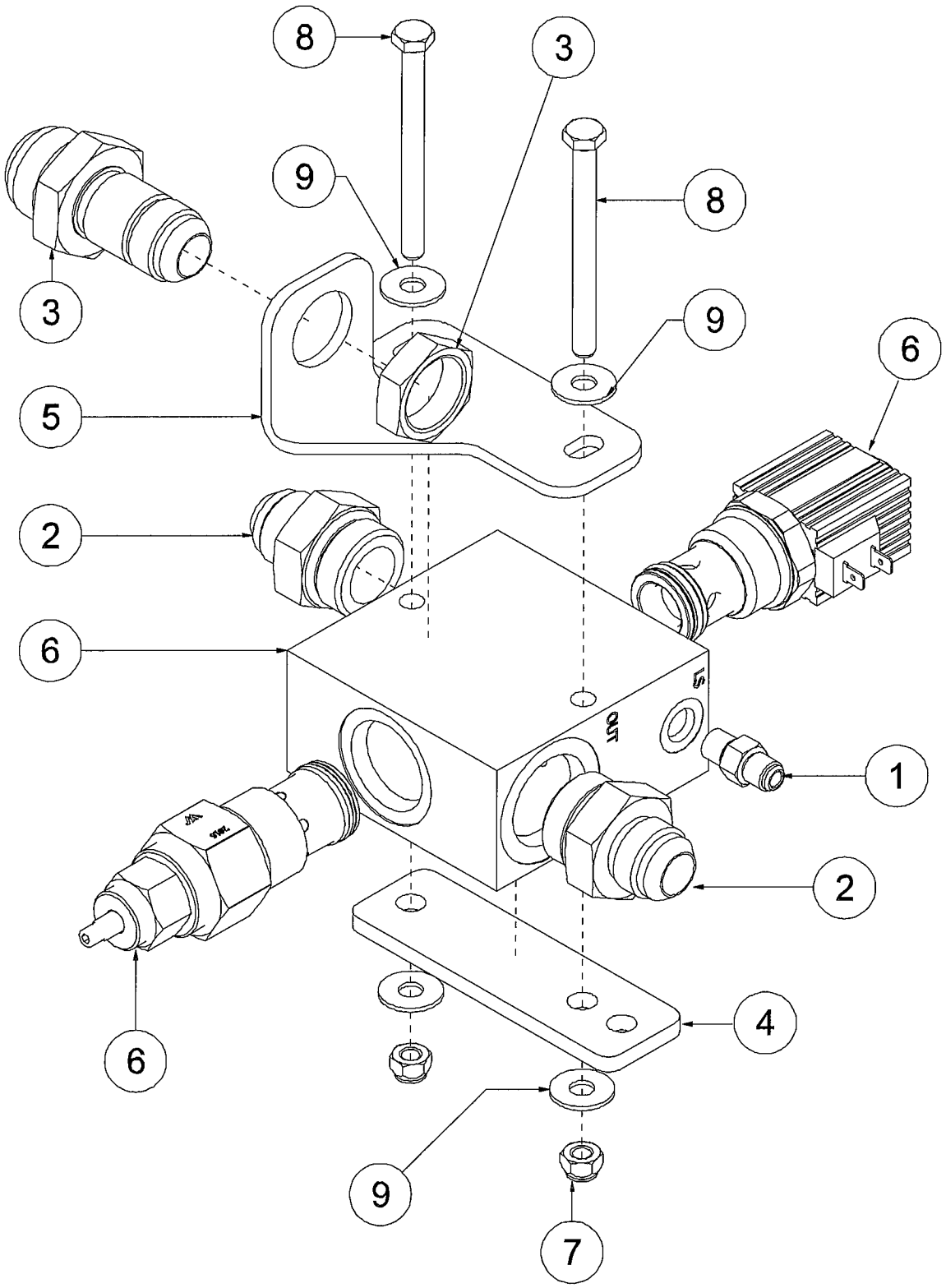
VANAIR
AIR POWER TO GO

8.11 CONTROL MANIFOLD FOR 24V (OPEN LOOP)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	2
2	TERMINAL, FEMALE	262425	2
3	CONNECTOR, FEMALE	262425-001	1
4	MANIFOLD, HYDRAULIC SOLENOID	263878	1
5	VALVE, PRESSURE RELIEF	263878-003	1
6	VALVE, SOLENOID w/ 24V COIL	263878-007	1
7	SEAL, CABLE GREEN 16-14 GA	264183	2
8	CAP, FEMALE JIC 1 1/16-12 #12	264322-005	1
9	CAP, FEMALE JIC 1 5/16-12 #16	264322-006	1
10	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1
11	TEE, 37 MJIC, 37MJIC. O-RING RUN 3/4	268591	1
12	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
13	SUPPORT, OIL RETURN HOSE RC40	271122	1
14	FLAT, SHIM HYDRAULIC MANIFOLD	271836	1
15	NUT, HEX LOCKING 3/8-16	825506-198	2
16	CAPSCREW, HEX GR5 3/8-16X 4	829106-400	2
17	WASHER, FLAT 3/8	838206-071	4

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.12 CONTROL MANIFOLD FOR 24V (CLOSED LOOP)



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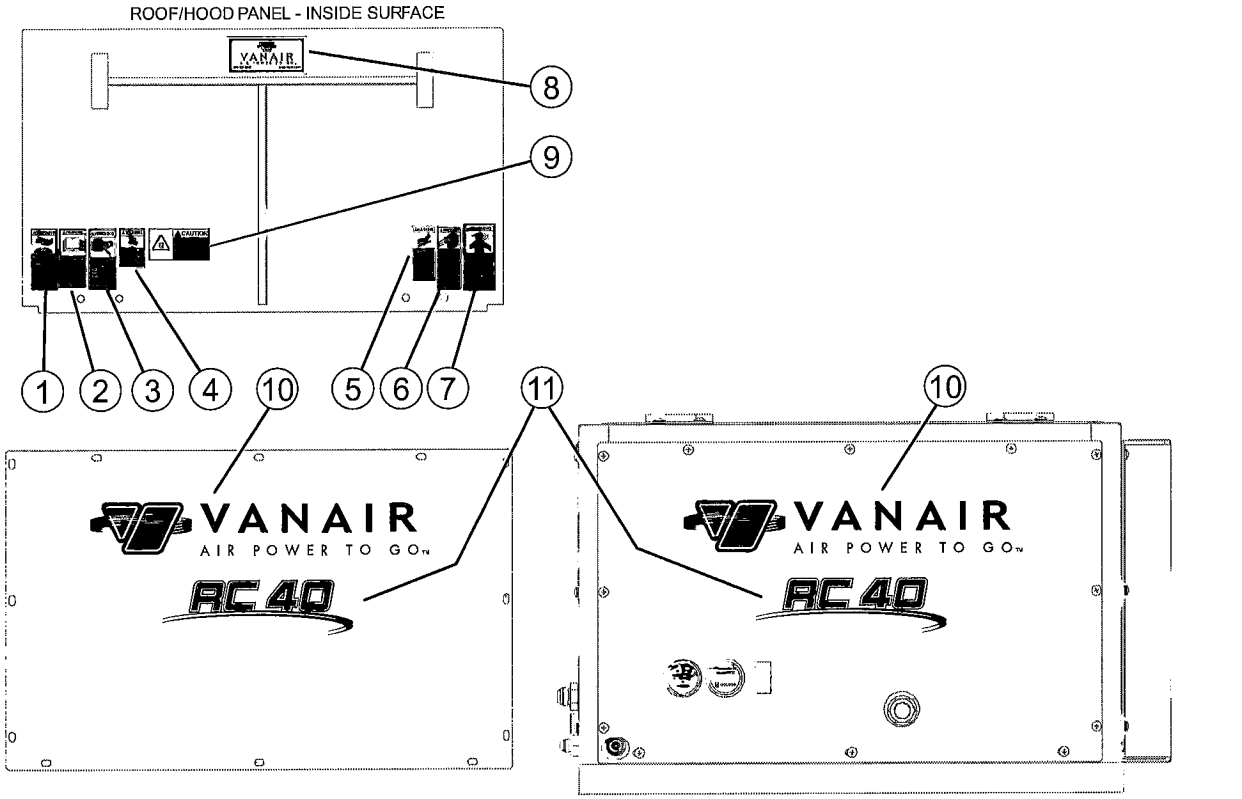
VANAIR
AIR POWER TO GO

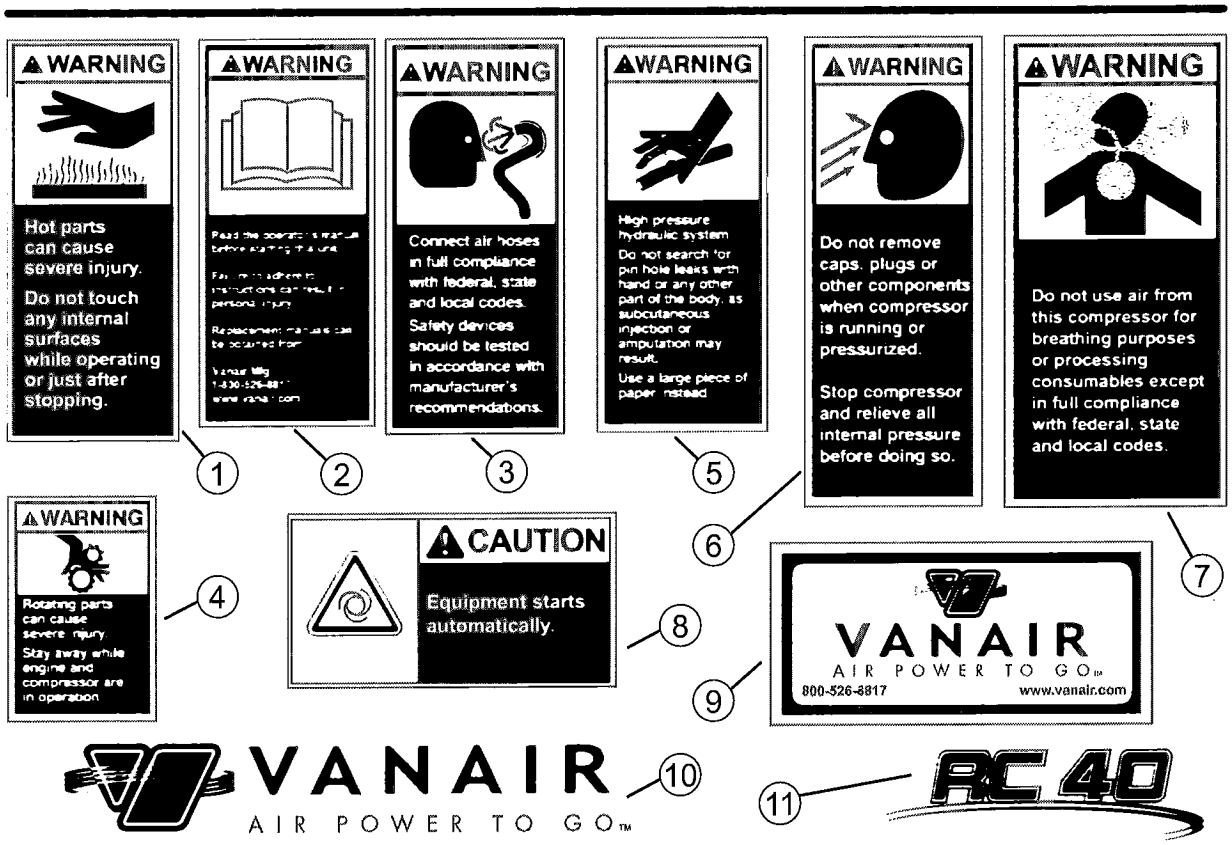
8.12 CONTROL MANIFOLD FOR 24V (CLOSED LOOP)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
4	FLAT, SHIM HYDRAULIC MANIFOLD	271836	1
5	SUPPORT, OIL RETURN HOSE RC40 CLOSED LOOP	272358	1
6	***Contact Vanair for this part number.***		1
7	NUT, HEX LOCKING 5/16-18	825505-166	2
8	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
9	WASHER, FLAT 5/16	838205-071	4
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
4	FLAT, SHIM HYDRAULIC MANIFOLD	271836	1
5	SUPPORT, OIL RETURN HOSE RC40 CLOSED LOOP	272358	1
6	VALVE, HYD ASSY CLOSED LOOP	272722	1
7	NUT, HEX LOCKING 5/16-18	825505-166	2
8	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
9	WASHER, FLAT 5/16	838205-071	4

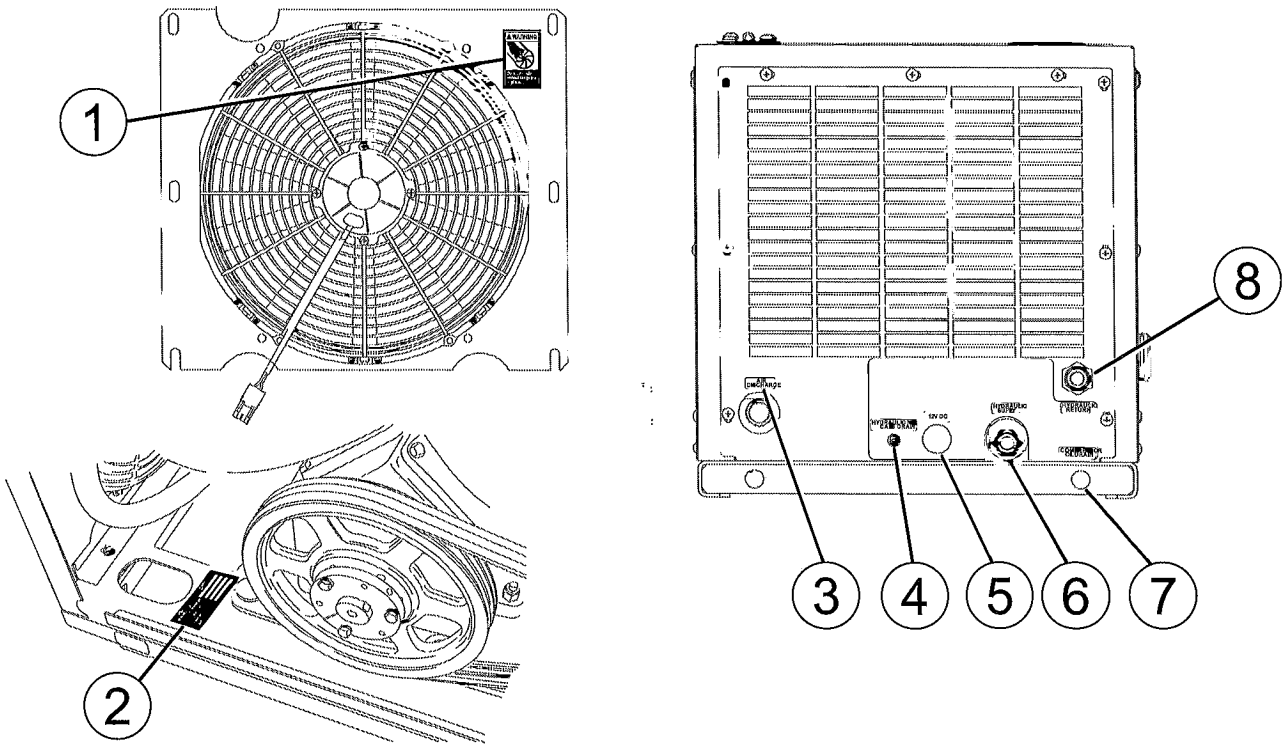
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.13 DECAL LOCATIONS (PART 1 OF 2)





8.13 DECAL LOCATIONS (PART 2 OF 2)



3 — AIR DISCHARGE

4 — HYDRAULIC MOTOR CASE DRAIN

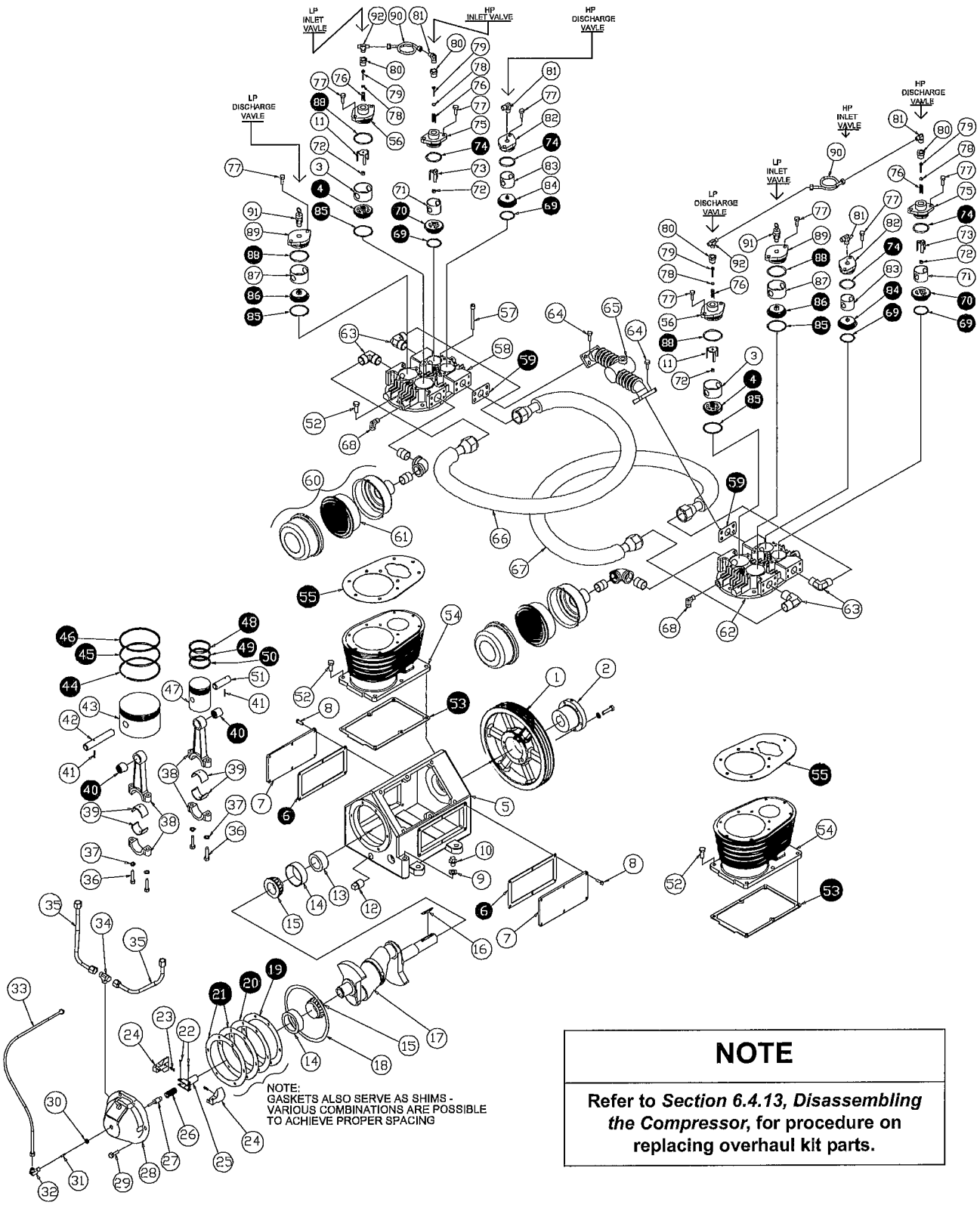
5 — 12V DC

6 — HYDRAULIC SUPPLY

7 — COMPRESSOR OIL DRAIN

8 — HYDRAULIC RETURN

8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS



NOTE

Refer to *Section 6.4.13, Disassembling the Compressor*, for procedure on replacing overhaul kit parts.

VANAIR. AIR POWER TO GO.

8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS

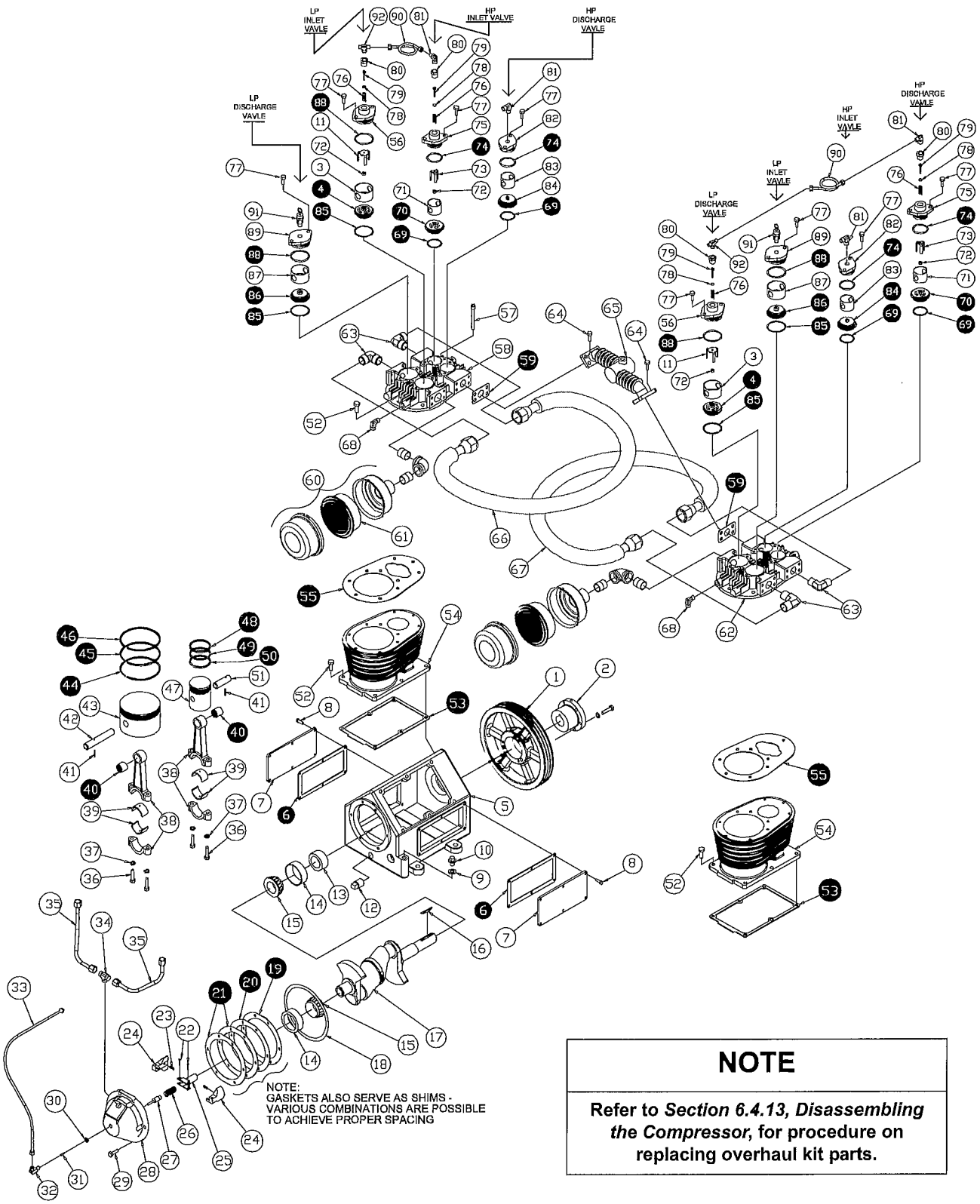
ITEM	DESCRIPTION	PART NUMBER	QTY
1	SHEAVE, DRIVEN	267311	1
2	BUSHING, SPLIT TAPER 1-3/8	267309	1
3	CAGE LP INLET	266993-045	2
4[I]	VALVE ASSEMBLY, LP INLET	266993-043	2
5	BASE & CUP ASSEMBLY	266993-011	1
6[I]	GASKET, SIDE PLATE	266993-013	2
7	SIDE PLATE	266993-012	2
8	CAPSCREW, SIDE PLATE 1/4-20 x 5/8	266993-014	12
9	OIL FILLER PLUG GASKET	266993-015	1
10	OIL FILLER PLUG	266993-016	1
11	FINGERS LP	266993-047	2
12	OIL DRAIN PLUG 3/8" NPT		1
13	SEAL OIL	266993-006	1
14	CONE BEARING		2
15	BEARING	266993-007	2
16	KEY, 8 X 8	266993-005	1
17	CRANKSHAFT	266993-008	1
18	OIL FEEDER RING	266993-009	1
19[I]	GASKET, END COVER 0.381		5
20[I]	GASKET, END COVER 0.1524		5
21[I]	GASKET, END COVER 0.127		5
22	RIVET		2
23	BUMPER SPRING		2
24a	WEIGHT		2
24b	HOLDER UNLOADER		1
25	SPRING		1
26	PLUNGER		1
27	END COVER	266993-029	1
28	CAPSCREW, END COVER 5/16 - 18 x 1	266993-022	1
29	LOCKNUT, END COVER		1
30	AIR VALVE		1
31	ELBOW VALVE & UNLOADER		1

Continued on page 109

[I] Denotes maintenance kit no. **73744209** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS (CONTINUED)



NOTE

Refer to *Section 6.4.13, Disassembling the Compressor*, for procedure on replacing overhaul kit parts.

VANAIR AIR POWER TO GO

8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS (CONTINUED)

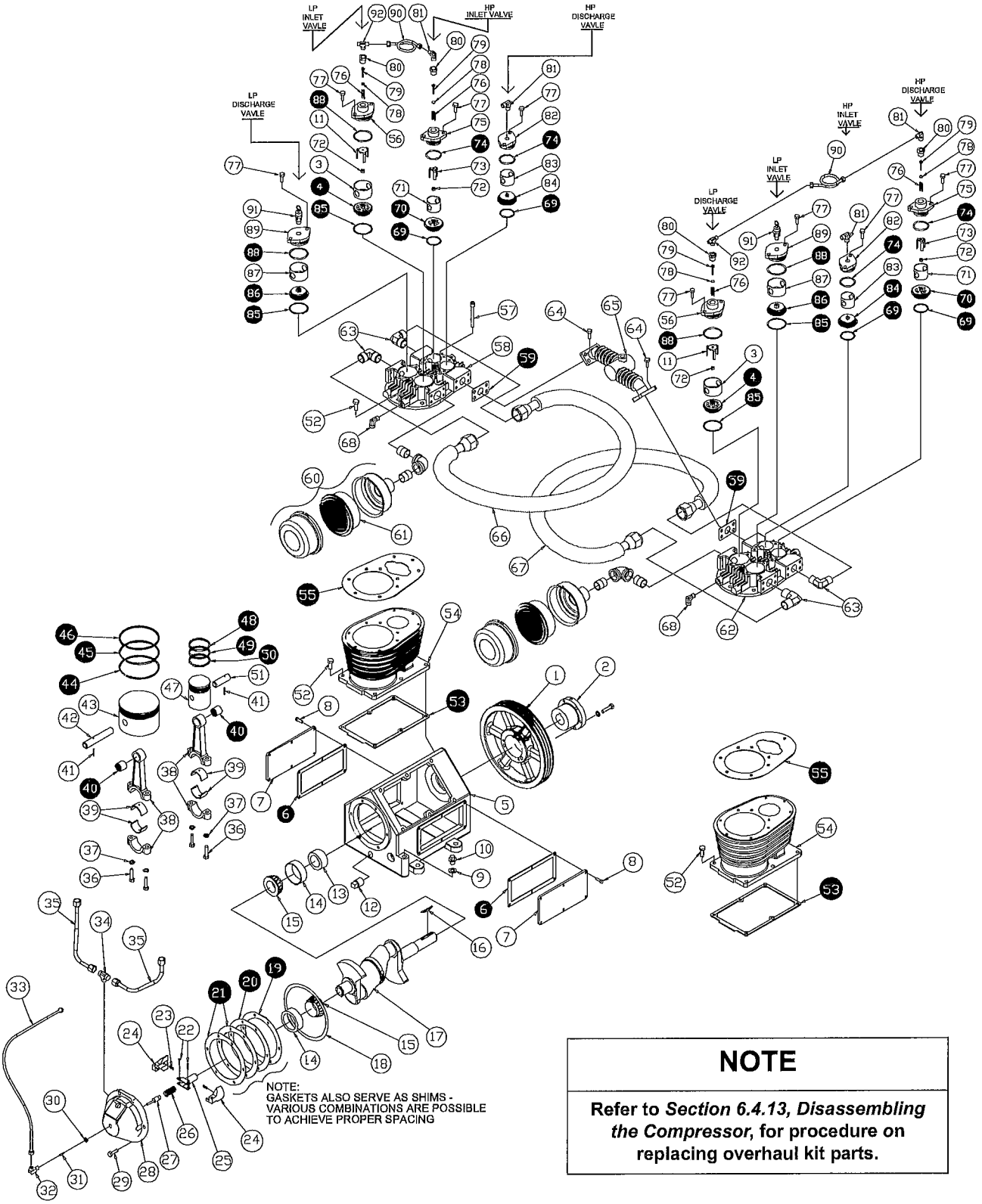
ITEM	DESCRIPTION	PART NUMBER	QTY
32	C.U. VALVE ASSY	266993-023	1
33	UNLOADING TUBE 5/16	266993-	1
34	TEE, BREATHER CONNECTOR	266993-	1
35	BREATHER TUBE	266993-	2
36	ROD CAPSCREW		8
37	ROD LOCK WASHER		8
38	CONNECTING ROD	266993-061	4
39	BEARING INSERT	266993-062	4
40[I]	NEEDLE BEARING WRISTPIN LP & HP	266993-090	4
41	ROLL PIN	266993-063	4
42	WRIST PIN LP	266993-064	2
43	PISTON LP	266993-066	2
44[I]	OIL CONTROL RING LP	266993-067	2
45[I]	BOTTOM COMPRESSION RING, LP	266993-074	2
46[I]	TOP COMPRESSION RING, LP	266993-075	2
47	PISTON HP	266993-070	2
48[I]	TOP COMPRESSION RING, HP	266993-073	2
49[I]	BOTTOM COMPRESSION RING, HP	266993-072	2
50[I]	OIL CONTROL RING HP	266993-071	2
51	WRIST PIN HP	266993-069	2
52	SOCKET HEAD CAPSCREW 5/16 -18 x 1	266993-034	16
53[I]	GASKET, BASE	266993-032	2
54	CYLINDER	266993-033	2
55[I]	GASKET CYLINDER HEAD	266993-035	2
56	HOLD DOWN COVER, LP INLET	266993-049	2
57	SOCKET HEAD CAPSCREW 5/16-18 x 3	266993-039	4
58	CYLINDER HEAD LEFT	266993-037	1
59[I]	GASKET - DISCHARGE MANIFOLD	266993-021	2
60	FILTER	267273	2
61	FILTER ELEMENT	KIT1090	2
62	CYLINDER HEAD RIGHT	266993-065	1
63	ELBOW 90, INTERCOOL CONNECTOR	266993-003	2

Continued on page 111

[I] Denotes maintenance kit no. **73744209** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS (CONTINUED)



NOTE

Refer to *Section 6.4.13, Disassembling the Compressor*, for procedure on replacing overhaul kit parts.

VANAIR. AIR POWER TO GO.

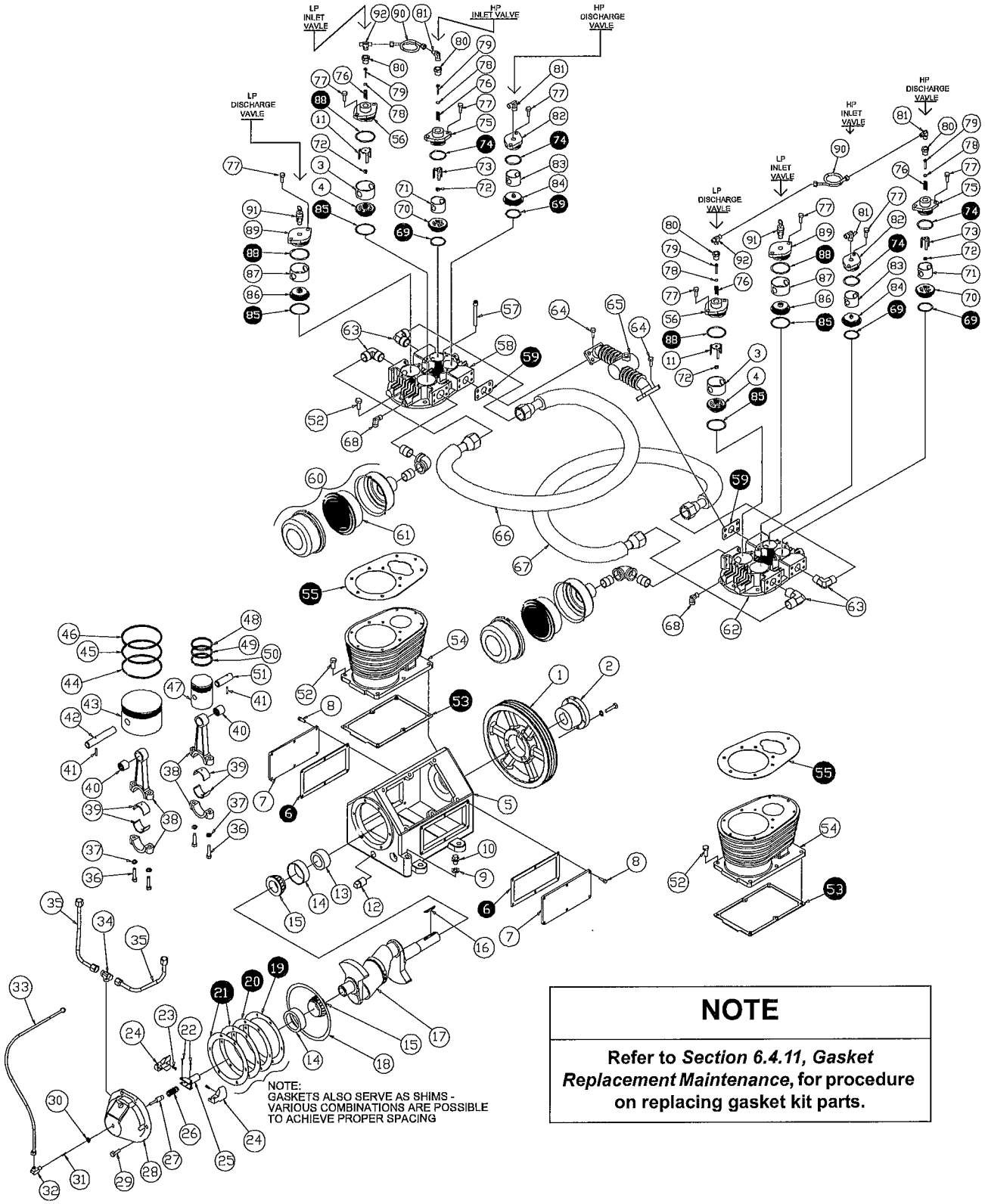
8.14 COMPRESSOR OVERHAUL KIT1089 - PIECE PARTS (CONTINUED)

ITEM	DESCRIPTION	PART NUMBER	QTY
64	CAPSCREW MANIFOLD 5/16 -18 X 7/8	266993-077	8
65	MANIFOLD DISCHARGE	266993-020	1
66	INTERCOOLER LH	266993-040	1
67	INTERCOOLER RH	266993-089	1
68	ELBOW, BREATHER CONNECTOR	266993-036	2
69[I]	VALVE GASKET HP	266993-078	4
70[I]	VALVE ASSEMBLY, HP INLET	266993-079	2
71	CAGE HP INLET	266993-080	2
72	LOCKNUT	266993-046	4
73	FINGERS HP	266993-081	2
74	O RING HP COVER	266993-083	4
75	HOLD DOWN COVER HP INLET	266993-084	2
76	SPRING LP	266993-050	4
77	CAPSCREW HOLD DOWN 5/16 -18 X 3/4		16
78	O RING PLUNGER	266993-052	4
79	PLUNGER	266993-051	4
80	3/8 NPT x 1/4 NPT BUSHING	266993-053	4
81	TUBE ELBOW	266993-056	4
82	HOLD DOWN COVER HP DISCHARGE LEFT	266993-082	2
83	CAGE HP DISCHARGE	266993-087	2
84[I]	VALVE ASSEMBLY, HP DISCHARGE	266993-086	2
85[I]	VALVE GASKET LP	266993-041	4
86[I]	VALVE ASSEMBLY, LP DISCHARGE	266993-042	2
87	CAGE LP DISCHARGE	266993-044	2
88[I]	O RING, L.P. COVER	266993-048	2
89	HOLD DOWN COVER HP DISCHARGE	266993-049	2
90	UNLOADER TUBE	266993-055	2
91	SAFETY VALVE	266993-058	2
92	TUBE TEE 1/4 x 1/4 x 1/4 NPT	266993-054	2

[I] Denotes maintenance kit no. **73744209** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS



NOTE

Refer to *Section 6.4.11, Gasket Replacement Maintenance*, for procedure on replacing gasket kit parts.

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8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS

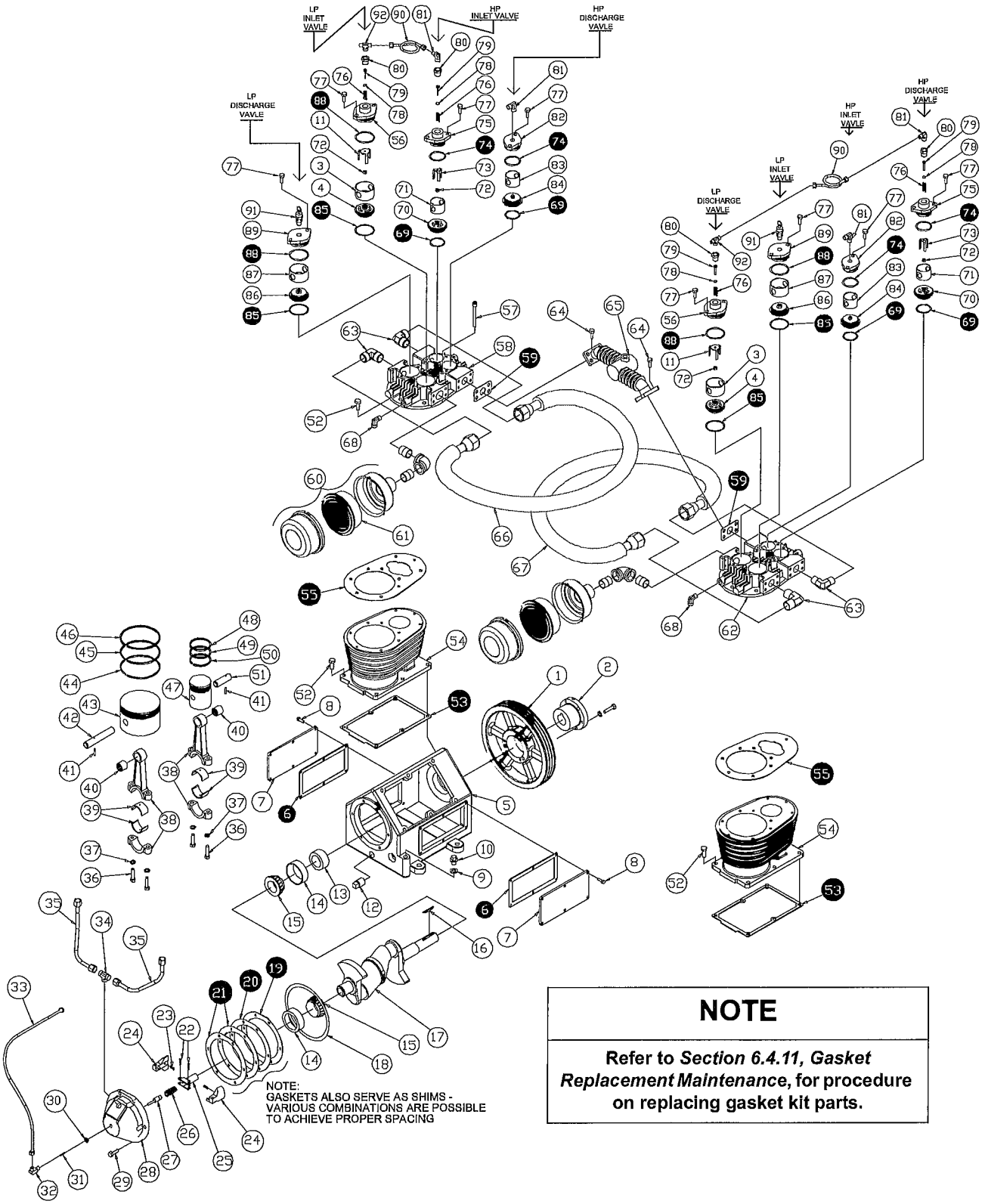
ITEM	DESCRIPTION	PART NUMBER	QTY
1	SHEAVE, DRIVEN	267311	1
2	BUSHING, SPLIT TAPER 1-3/8	267309	1
3	CAGE, LP INLET	266993-045	2
4	VALVE ASSEMBLY, LP INLET	266993-043	2
5	BASE & CUP ASSEMBLY	266993-011	1
6[I]	GASKET, SIDE PLATE	266993-013	2
7	SIDE PLATE	266993-012	2
8	CAPSCREW, SIDE PLATE 1/4-20X5/8	266993-014	12
9	OIL FILLER PLUG GASKET	266993-015	1
10	OIL FILLER PLUG	266993-016	1
11	FINGERS LP	266993-047	2
12	OIL DRAIN PLUG 3/8" NPT		1
13	SEAL, OIL	266993-006	1
14	CONE BEARING		2
15	BEARING	266993-007	2
16	KEY, 8 X 8	266993-005	1
17	CRANKSHAFT	266993-008	1
18	OIL FEEDER RING	266993-009	1
19[I]	GASKET, END COVER 0.381		5
20[I]	GASKET, END COVER 0.1524		5
21[I]	GASKET, END COVER 0.127		5
22	RIVET		2
23	BUMPER SPRING		2
24a	WEIGHT		2
24b	HOLDER UNLOADER		1
25	SPRING		1
26	PLUNGER		1
27	END COVER	266993-029	1
28	CAPSCREW, END COVER 5/16 - 18X 1	266993-022	1
29	LOCKNUT, END COVER		1
30	AIR VALVE		1
31	ELBOW VALVE & UNLOADER		1

Continued on page 115

[I] Denotes maintenance kit no. **73744208** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS (CONTINUED)



NOTE

Refer to *Section 6.4.11, Gasket Replacement Maintenance*, for procedure on replacing gasket kit parts.

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8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS (CONTINUED)

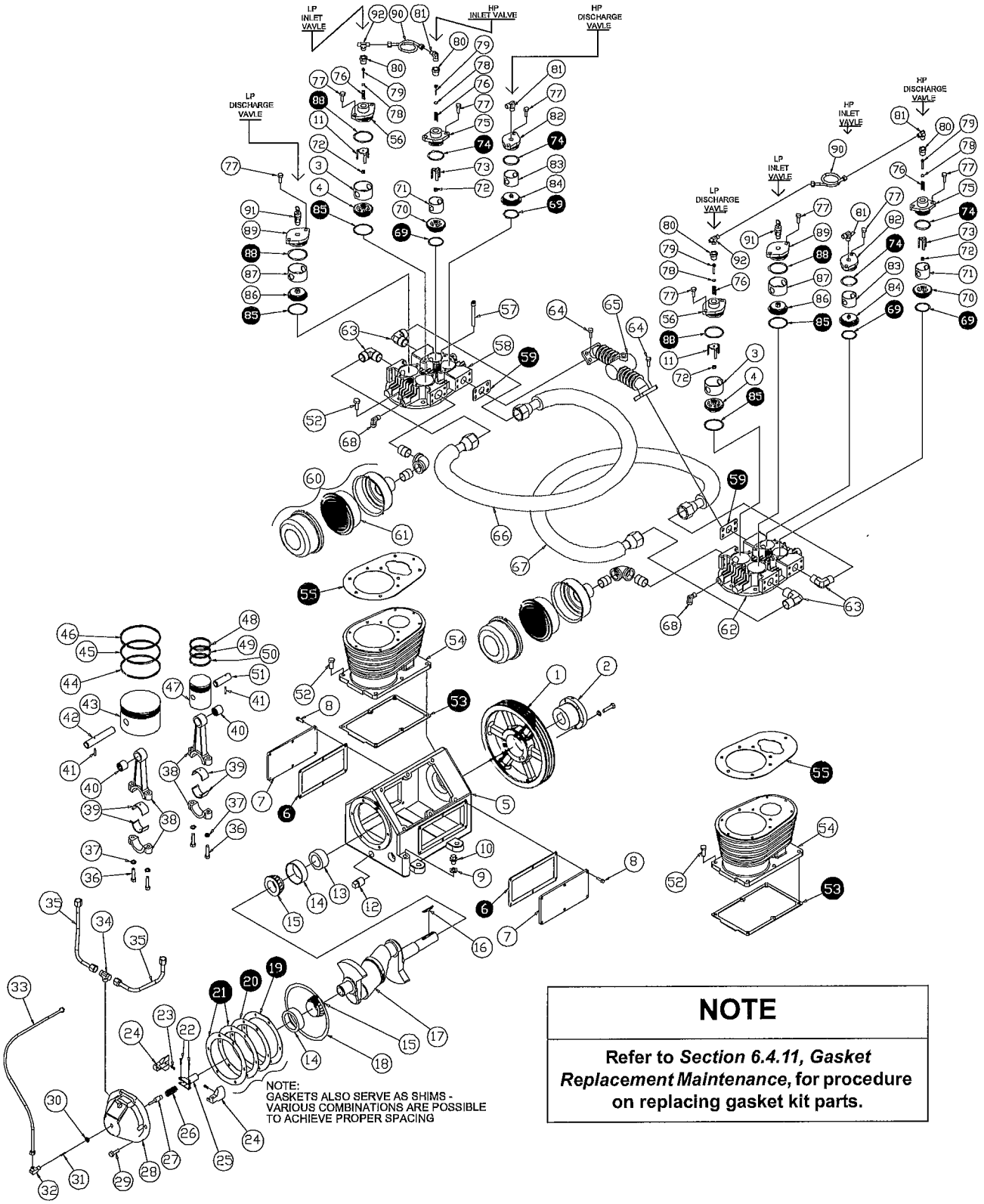
ITEM	DESCRIPTION	PART NUMBER	QTY
32	C.U. VALVE ASSY	266993-023	1
33	UNLOADING TUBE 5/16	266993-	1
34	TEE, BREATHER CONNECTOR	266993-	1
35	BREATHER TUBE	266993-	2
36	ROD CAPSCREW		8
37	ROD LOCK WASHER		8
38	CONNECTING ROD	266993-061	4
39	BEARING INSERT	266993-062	4
40	NEEDLE BEARING WRISTPIN LP & HP	266993-090	4
41	ROLL PIN	266993-063	4
42	WRIST PIN LP	266993-064	2
43	PISTON LP	266993-066	2
44	OIL CONTROL RING LP	266993-067	2
45	BOTTOM COMPRESSION RING, LP	266993-074	2
46	TOP COMPRESSION RING, LP	266993-075	2
47	PISTON HP	266993-070	2
48	TOP COMPRESSION RING, HP	266993-073	2
49	BOTTOM COMPRESSION RING, HP	266993-072	2
50	OIL CONTROL RING HP	266993-071	2
51	WRIST PIN HP	266993-069	2
52	SOCKET HEAD CAPSCREW 5/16 -18 x 1	266993-034	16
53[I]	GASKET, BASE	266993-032	2
54	CYLINDER	266993-033	2
55[I]	GASKET CYLINDER HEAD	266993-035	2
56	HOLD DOWN COVER, LP INLET	266993-049	2
57	SOCKET HEAD CAPSCREW 5/16-18 x 3	266993-039	4
58	CYLINDER HEAD LEFT	266993-037	1
59[I]	GASKET -DISCHARGE MANIFOLD	266993-021	2
60	FILTER	267273	2
61	FILTER ELEMENT	KIT1090	2
62	CYLINDER HEAD RIGHT	266993-065	1
63	ELBOW 90, INTERCOOL CONNECTOR	266993-003	2

Continued on page 117

[I] Denotes maintenance kit no. **73744208** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS (CONTINUED)



NOTE

Refer to *Section 6.4.11, Gasket Replacement Maintenance*, for procedure on replacing gasket kit parts.

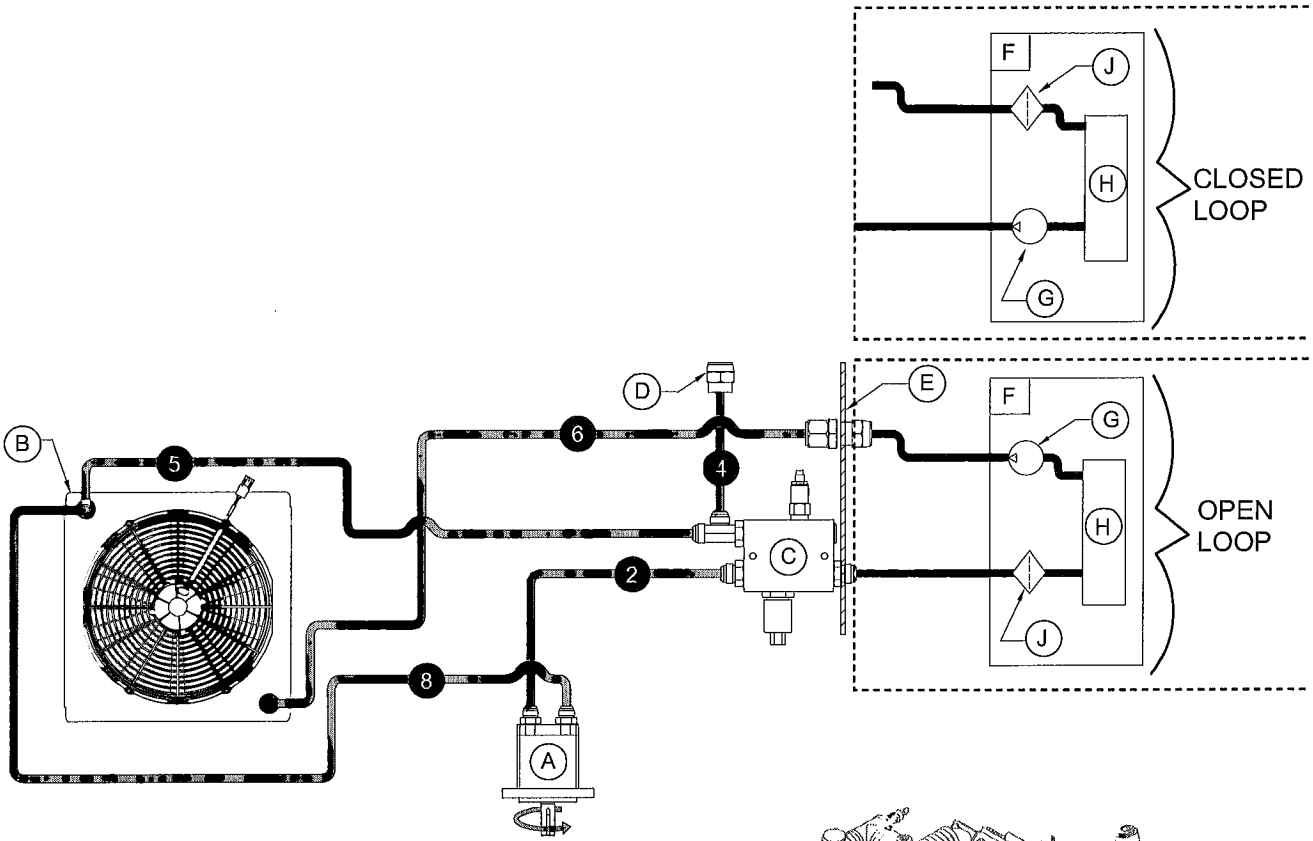
8.15 COMPRESSOR GASKET REPLACEMENT KIT1088-PIECE PARTS (CONTINUED)

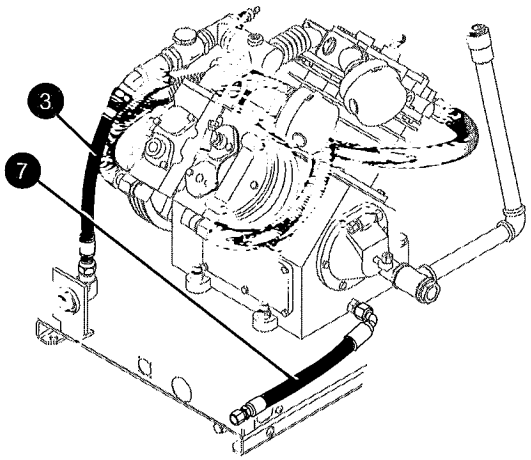
ITEM	DESCRIPTION	PART NUMBER	QTY
64	CAPSCREW MANIFOLD 5/16 -18 x 7/8	266993-077	8
65	MANIFOLD DISCHARGE	266993-020	1
66	INTERCOOLER LH	266993-040	1
67	INTERCOOLER RH	266993-089	1
68	ELBOW, BREATHER CONNECTOR	266993-036	2
69[I]	VALVE GASKET HP	266993-078	4
70	VALVE ASSEMBLY, HP INLET	266993-079	2
71	CAGE HP INLET	266993-080	2
72	LOCKNUT	266993-046	4
73	FINGERS HP	266993-081	2
74	O RING HP COVER	266993-083	4
75	HOLD DOWN COVER HP INLET	266993-084	2
76	SPRING LP	266993-050	4
77	CAPSCREW HOLD DOWN 5/16 -18 x 3/4		16
78	O RING PLUNGER	266993-052	4
79	PLUNGER	266993-051	4
80	3/8 NPT x 1/4 NPT BUSHING	266993-053	4
81	TUBE ELBOW	266993-056	4
82	HOLD DOWN COVER HP DISCHARGE LEFT	266993-082	2
83	CAGE HP DISCHARGE	266993-087	2
84	VALVE ASSEMBLY, HP DISCHARGE	266993-086	2
85[I]	VALVE GASKET LP	266993-041	4
86	VALVE ASSEMBLY, LP DISCHARGE	266993-042	2
87	CAGE LP DISCHARGE	266993-044	2
88[I]	O RING, L.P. COVER	266993-048	2
89	HOLD DOWN COVER HP DISCHARGE	266993-049	2
90	UNLOADER TUBE	266993-055	2
91	SAFETY VALVE	266993-058	2
92	TUBE TEE 1/4 x 1/4 x 1/4 NPT	266993-054	2

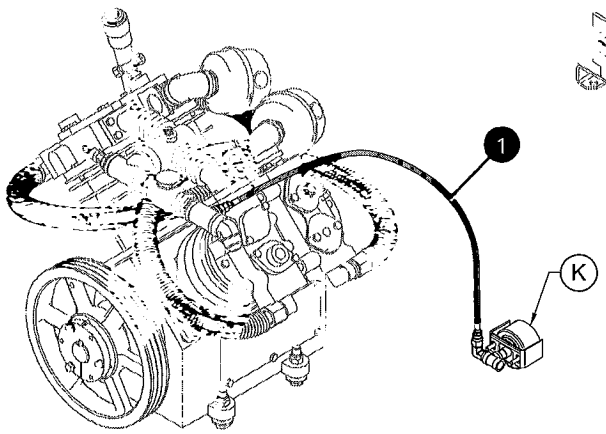
[I]Denotes maintenance kit no. **73744208** part piece.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

8.16 HYDRAULIC HOSE SYSTEM







NOTE

Hydraulic Hose Kit no. 271936:

Concerning the hydraulic hose kit—customer should be aware that the kit contains system hoses pertaining to the compressor-side of the hydraulic set up only. It is the customer's responsibility to maintenance the vehicle-side hoses of the hydraulic system.

8.16 HYDRAULIC HOSE SYSTEM

8.16A HYDRAULIC SYSTEM COMPONENTS			
KEY	DESCRIPTION	KEY	DESCRIPTION
A	HYDRAULIC MOTOR	F	VEHICLE-SIDE OF HYDRAULIC SYSTEM:
B	HYDRAULIC OIL COOLER	G	HYDRAULIC PUMP
C	MANIFOLD	H	HYDRAULIC OIL RESERVOIR
D	PRESSURE ACCUMULATOR HOSE	J	HYDRAULIC OIL RESERVOIR FILTER
E	MACHINE END PANEL	K	PRESSURE GAUGE

8.16B HYDRAULIC SYSTEM HOSE IDENTIFICATION (hose kit no. 271936)					
KEY	DESCRIPTION	HOSE ID #	KEY	DESCRIPTION	HOSE ID #
1	Hose, 0.25 x 27.0 lrg pilot pressure gauge	267437	5	Hose, 3/4 x 48.0 lg oil cooler to manifold	269546
2	Hose, 3/4 x 10-1/4 hydraulic motor	267640	6	Hose, 3/4 x 31.5 strt x 45°elbow	269547
3	Hose, 5/8 x 17.00 disch to ser vlv Teflon braided	267643	7	Hose, 1/4 x 13.0 strt x 90° elbow	269548
4	Hose, 3/4 x 46.0 pressure accumulator	271955	8	Hose, 3/4 x 52.00 motor to cooler	271937

IMPORTANT

Customer is responsible for hoses on the *vehicle-side* of the hydraulic system, including set-up and maintenance. Customer should be aware of, and make arrangements for, any vehicle-side hose maintenance or replacements, as these hoses are not included with the IMT kit.

Note also that any oil filter(s) used on vehicle-side of hydraulic system are not included with the kit.

⚠ WARNING

DO NOT use plastic pipe, or incorrectly rated piping or hose. Incorrectly rated connection material can fail and cause injury or equipment damage.

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