



**VANAIR**<sup>®</sup>  
POWER TO GO™

# RELIANT™ ➤ RC40-L

## HYDRAULIC DRIVE • AIR COMPRESSOR OPERATION MANUAL AND PARTS LIST

### NOTE

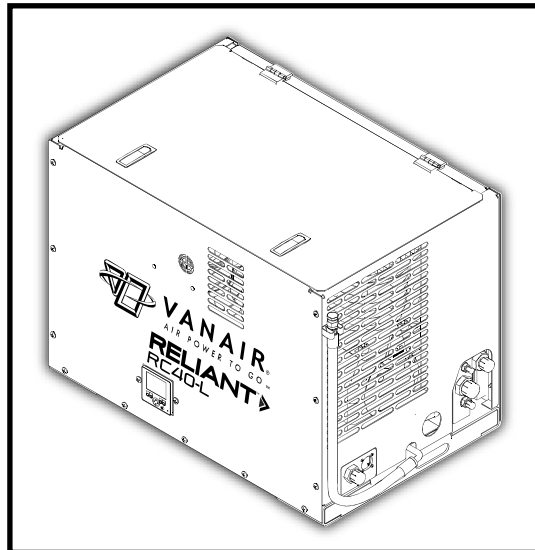
This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy.

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

### NOTE

Use only Vanair Vanguard™ Premium Synthetic Compressor 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!

**KEEP THE MANUAL  
WITH THE VEHICLE**



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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.

### NOTE

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

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



**VANAIR**<sup>®</sup>  
POWER TO GO™

**P/N: 090150\_r0**

Effective Date:

**OCTOBER - 2019**

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090088\_r1

# VANAIR VANTAGE WARRANTY

This limited warranty supersedes all previous Vanair warranties and is exclusive with no other guarantees or warranties expressed or implied.

**LIMITED WARRANTY**—Subject to the expressed terms and conditions set forth below, Vanair Mfg., Inc. ("Vanair"), of Michigan City, Indiana (USA), warrants to the original retail purchaser of new Vanair equipment that such equipment is free from defects in materials and workmanship when shipped by Vanair.

For warranty claims received by Vanair within the applicable warranty periods described below, Vanair will repair or replace any warranted equipment, parts or components that fail due to defects in material or workmanship or refund the purchase price for the equipment, at Vanair's discretion. Vanair is not responsible for time or labor to gain access to the machine to perform work. **WARRANTY WILL BE VOID IF GENUINE VANAIR PARTS AND FLUIDS ARE NOT USED.**

Vanair must be notified in writing within thirty (30) days of any such defect or failure. No warranty work or returns without prior authorization is allowed. Vanair will provide instructions on the warranty claim procedures to be followed.

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

1. Lifetime Warranty Parts – 3 Years Labor
  - Rotary Screw Air Compressor Air End
2. 6 Years Parts – 3 Years Labor
  - Vanair Super Capacitor (VSC)
3. 3 Years Parts – 1 Year Labor
  - Reciprocating Compressor Air End
  - Generators
  - Welders
4. 2 Years Parts – 1 Year Labor
  - Hydraulic Motors
  - Hydraulic Pumps
5. 1 Year Parts – 1 Year Labor
  - All electronics including, but not limited to:
    - I) I/O Boards
    - II) Modules
    - III) Panel Boxes
    - IV) Instrumentation
    - V) Clutches
    - VI) Solenoids
    - VII) Running Gear/Trailers
    - VIII) Compressor/Hydraulic Coolers, including Fan and Radiator Core

This Limited Warranty shall not apply to:

1. Consumable components, such as shaft seals, valves, belts, filters, capacitors, contactors, relays, brushes or parts that fail due to normal wear and use.
2. Items furnished by Vanair, but manufactured by others, such as engines and trade accessories (these items are covered by the manufacturer's warranty, if any).
3. Equipment that has been modified by any party other than Vanair or equipment which has not been used and maintained in accordance with Vanair's specifications.
4. Equipment which has been improperly installed and/or improperly operated, based upon Vanair's specifications for the equipment or industry standards.

5. Equipment installed by non-authorized or third party personnel.

Vanair products are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of industrial equipment.

In the event of a warranty claim covered by this Limited Warranty, the exclusive remedies shall be, at Vanair's sole discretion: (i) repair; or (ii) replacement; (iii) where authorized in writing by Vanair in appropriate cases, the reasonable cost of repair or replacement at an authorized Vanair service facility; or (iv) payment of (or credit for) the purchase price (less reasonable depreciation based upon actual use) upon return of the equipment at the warranty claimant's risk and expense.

Vanair will pay standard ground freight for any warranty item shipped to and from Vanair or (Vanair designated facility) within the first year of the applicable warranty period. Any additional expedited freight cost is the responsibility of the purchaser.

TO THE GREAT EXTENT PERMITTED BY APPLICABLE LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES APPLICABLE TO THE VANAIR EQUIPMENT. IN NO EVENT SHALL VANAIR BECOME LIABLE FOR DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT OR LOST BUSINESS OPPORTUNITY), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. IN NO EVENT SHALL VANAIR BECOME OBLIGATED TO PAY MORE ON ANY WARRANTY CLAIM THAN THE PURCHASE PRICE ACTUALLY PAID BY THE ORIGINAL RETAIL PURCHASER.

THIS LIMITED WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY OR GUARANTY ARISING BY OPERATION OF LAW. ANY WARRANTY NOT EXPRESSLY PROVIDED HEREIN, IMPLIED WARRANTY, GUARANTY AND ANY REPRESENTATION REGARDING THE PERFORMANCE OF THE EQUIPMENT, AND ANY REMEDY FOR BREACH OF CONTRACT, IN TORT, OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE, OR COURSE OF DEALING ARE EXCLUDED AND DISCLAIMED BY VANAIR.

Some states in the United States of America do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, and as such, the above limitations and exclusions may not apply to you. This warranty provides specific legal rights. Other rights may be available to you, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be saved, the limitations and exclusions set out forth above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.



VANAIR®  
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# 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.

**NOTE**

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

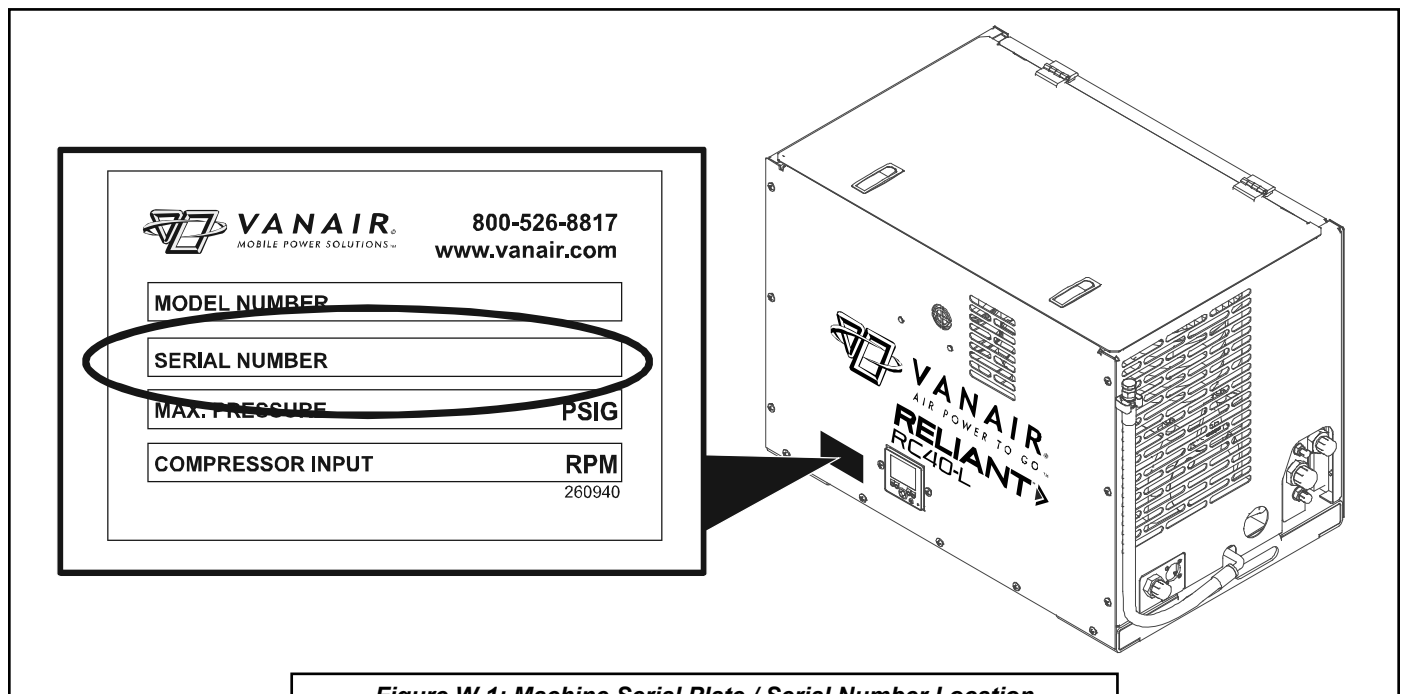
### PROCEDURE:

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 next to the digital instrumentation (or

gauge) panel (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:
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.



**Figure W-1: Machine Serial Plate / Serial Number 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.

- 6. If the returned item, which in Vanair®'s judgment is proven to be defective as warranted, then 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.

**NOTE**

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

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).

**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.

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).

# SECTION 1: SAFETY

## 1.1 GENERAL INFORMATION

The products provided by Vanair® Mfg., Inc. 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.

## 1.2 INTERNATIONAL WARNING SYMBOL




The international warning symbol (shown above) is used on all decals, labels and signs that concern information pertaining to bodily harm. When you see the international warning symbol, pay extremely careful attention, and follow the given instructions or indications to avoid any possible hazard.

## 1.3 DANGERS, WARNINGS, CAUTIONS AND NOTES

These boxes are labeled clearly with the title block listing either Danger, Warning, Caution, or other non-safety issue. They draw attention to specific issues that are pertinent to the safe and correct operation of the machine.


The symbols shown and defined in Section 1: Safety are used throughout this manual and on the machine to call attention to, and identify, possible hazards.

### 1.3.1 DANGERS

 <b>DANGER</b>
<b>Identifies actions or conditions which will cause death, severe injury, or equipment damage or destructive malfunctions.</b>

- 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

 <b>WARNING</b>
<b>Identifies actions or conditions which may cause death, severe injury, or equipment damage or destructive malfunctions.</b>

- **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** operate the compressor with any bypass or other safety systems disconnected or rendered inoperative.
- **DO NOT** operate the equipment while you are under the influence of alcohol or drugs.
- **DO NOT** operate the equipment while you are feeling ill.
- **DO NOT** attempt to service the equipment while it is operating.
- Before performing maintenance, or replacing parts, relieve the entire system pressure, after the system has blown down, by opening a service valve which will vent all pressure to the atmosphere. After that, remove any remaining residual pressure by slowly opening the fill cap. Remove all electrical power.

**NOTE**

**Slowly remove fill cap to vent compressor sump pressure.**

- **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 2: Specifications** or refer to the equipment data plate.)
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or its parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, corrosive fumes, or other damaging substance can be ingested by the compressor intake.
- Keep arms, hands, hair and all other body parts, and clothing away from fans, drive shafts, and other moving parts.
- **DO NOT** wear jewelry, unbuttoned cuffs, ties, or loose-fitting clothing when you are working near moving/rotating parts.
- **ALWAYS** confine long hair when working near moving/rotating parts.
- **NEVER** operate the equipment while wearing a headset to listen to music or the radio.
- Wear personal protective equipment such as gloves, work shoes, and eye and hearing protection as required for the task at hand.
- **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.
- 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 hydraulic 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.
- When lifting objects, be aware of proper lifting techniques to avoid injury.
- **ALWAYS** read and follow safety related precautions found on containers of hazardous substances.

**1.3.3 ▲ CAUTIONS****▲ CAUTION**

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

- 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 ac-

tions 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.

### 1.3.4 ▲ NOTES

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

Note boxes are usually listed to convey and give focus to a distinct piece of information, which is not directly related to a safety issue, but is necessary to understand machine function and operation. Special note referrals in the manual may be contained in a box titled with an IMPORTANT banner, as shown below, and may also contain the WARNING symbol, should the information be linked to a safety issue:

<b>▲ IMPORTANT</b>
<p><b>Additional, CRUCIAL information (or existing information) which should be brought to the attention of operators/maintainers affecting operation, maintenance, or warranty requirements.</b></p>

## 1.4 ▲ SAFETY DECALS

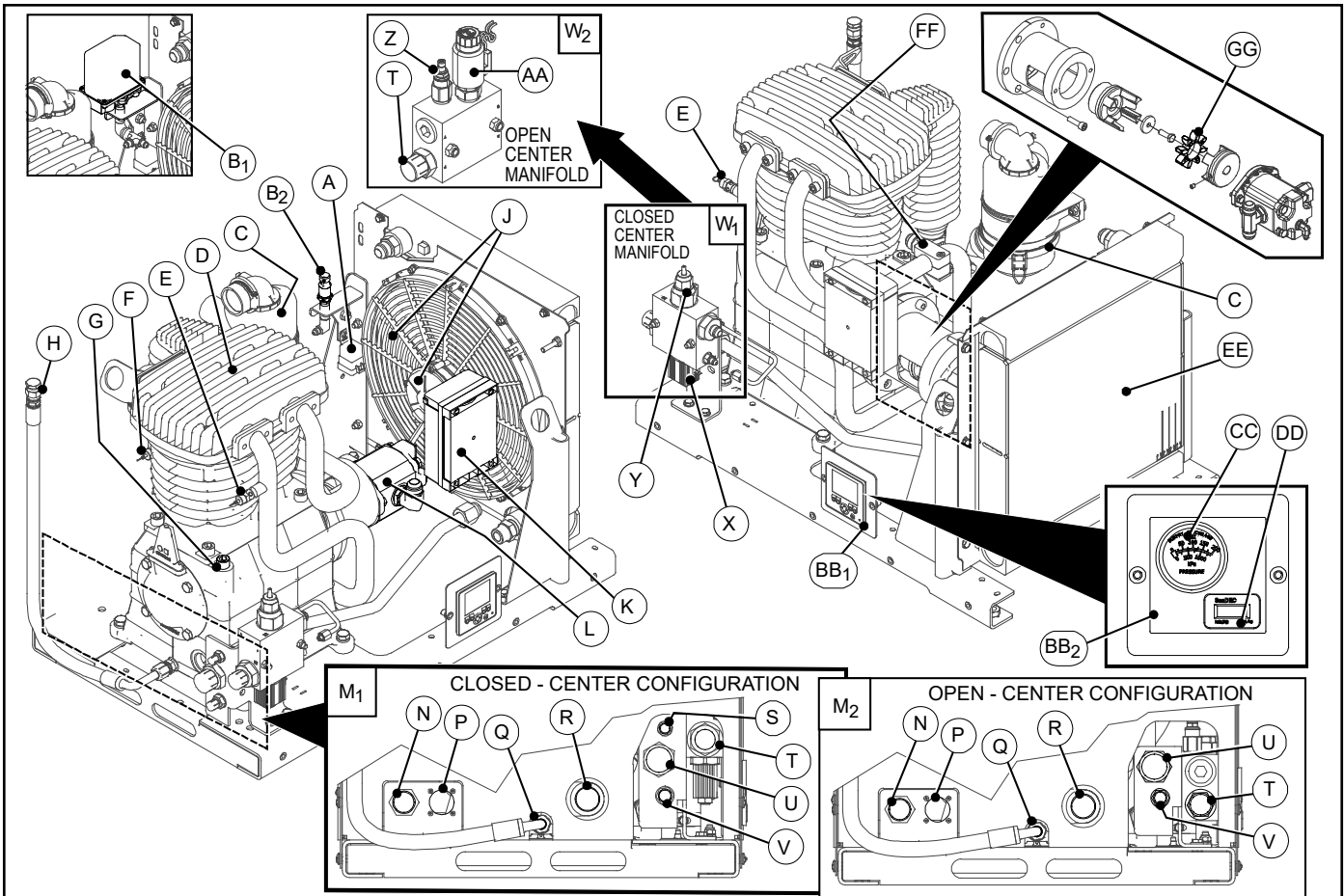
Safety decals are placed onto, or located near, system components that can present a hazard to operators or service personnel. All pertinent decals listed in **Section 7.14, Decal Identification/ Locations**, are located near a component which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

<b>▲ WARNING</b>
<p><b>DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.</b></p>

## 1.5 ♻️ 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 container label of the fluid in question.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	RELAY <sup>‡</sup>	S	LOAD SENSE #4 MJIC 37° (1/4-12 UNF)
B <sub>1</sub>	PRESSURE SWITCH (ANALOG GAUGE MACHINES)	T	HYDRAULIC SUPPLY #12 MJIC 37° (1-1/16-12 UNF)
B <sub>2</sub>	PRESSURE TRANSDUCER (DIGITAL DISPLAY MACHINES)	U	HYDRAULIC RETURN #16 MJIC 37° (1-5/16-12 UNF)
C	COMPRESSOR AIR FILTER HOUSING	V	CASE DRAIN #6 MJIC (9/16-18 UNF)
D	COMPRESSOR UNIT	W <sub>1</sub>	CLOSED CENTER MANIFOLD ASSEMBLY
E	LOW PRESSURE RELIEF VALVE	W <sub>2</sub>	OPEN CENTER MANIFOLD ASSEMBLY
F	HIGH PRESSURE RELIEF VALVE	X	SOLENOID VALVE
G	COMPRESSOR OIL FILL PORT	Y	FLOW REGULATOR
H	COMPRESSOR OIL DRAIN HOSE	Z	RELIEF VALVE
J	COOLER FAN & FAN MOTOR	AA	SOLENOID
K	CONTROLLER	BB <sub>1</sub>	INSTRUMENT PANEL - DIGITAL DISPLAY
L	HYDRAULIC MOTOR	BB <sub>2</sub>	INSTRUMENT PANEL - GAUGE DISPLAY
M <sub>1</sub>	CLOSED CENTER: functional piping & access locations	CC	PRESSURE GAUGE (gauge panel only)
M <sub>2</sub>	OPEN CENTER: functional piping & access locations	DD	HOUR METER (gauge panel only)
N	SERVICE AIR DISCHARGE / CONNECTION MOUNT	EE	HYDRAULIC OIL COOLER
P	DEUTSCH 6-PIN ELECTRICAL CONNECTION	FF	MANIFOLD CHECK VALVE
Q	COMPRESSOR OIL DRAIN (refer to Item H)	GG	SPIDER COUPLING ELEMENT
R	COMPRESSOR OIL SIGHT GLASS		

<sup>‡</sup> Relay size depends upon machine build order. Refer to **Figure 5-7**, Electrical Schematic (**Section 7.21**), and Wiring Diagram (**Section 7.22**), to determine correct relay size.

**Figure 2-1: Machine Main Component Locations**

# SECTION 2: SPECIFICATIONS

## 2.1 GENERAL INTRODUCTION

The tables and figures in this section list the specifications (including operational, output and dimensional) of the overall machine. Contact the Vanair® Service Department if additional specifications are needed that cannot be found in this

manual.

Refer to **Figure 2-1** for general machine component locations. For additional information, including measurement specifications, refer to **Figure 3-1** (machine and identification and dimensions) in **Section 3, Installation**.

<b>TABLE 2A: SPECIFICATIONS</b>								
GENERAL SYSTEM INFORMATION	SPECIFICATION							
CFM Rating @ 100 psi:	30 <sup>i</sup>				40 <sup>ii</sup>			
Air Pressure (psi):	100	125	150	175	100	125	150	175
Hydraulic flow (gpm):	8.25	8.25	8.25	9.0	10	10	10	10
Hydraulic pressure (psig):	2300	2450	2575	2600	2300	2470	2550	2600
<b>NOTE:</b> Compressor adjustment should be set in accordance with rated RPMs.								
<sup>i</sup> 30 CFM = 690 COMPRESSOR RPM								
<sup>ii</sup> 40 CFM = 1100 COMPRESSOR RPM								
<b>COMPRESSOR</b>								
GENERAL SYSTEM INFORMATION	SPECIFICATION							
<b>Type:</b>	Two-stage, two cylinder, reciprocating							
<b>Compressor oil reservoir capacity:</b>	3 quarts							
<b>Air inlet system:</b>	Dry-type filter, single stage							
<b>Drive coupling:</b>	Direct drive, coupled							
<b>Hydraulic motor:</b>	Gear type							
<b>PACKAGE</b>								
<b>Main frame:</b>	Formed powder-coated steel with a bolt-down provision							
<b>Electrical supply:</b>	12V Standard; 24V Optional							
<b>Electrical connections:</b>	6-pin Deutsch							
<b>Enclosure:</b>	Aluminum, powder-coated							
<b>Cooler:</b>	Hydraulic oil cooler/radiator core — electric fan							
<b>Package connections:</b>	Discharge air — 3/4" JIC male							
<b>(Refer to Figures 3-1 and 3-2 in Section 3)</b>	Hydraulic supply — 3/4" 37° JIC male							
	Hydraulic return — 1" 37° JIC male							
	Load sense line (closed center only) — 1/4" 37° JIC male							
	+12VDC or +24VDC (PTO activated)							
	Motor case drain 3/8" 37° JIC male							
<i>Continued on next page</i>								

**TABLE 2A: SPECIFICATIONS**

GENERAL SYSTEM INFORMATION	SPECIFICATION
<b>PACKAGE (continued)</b>	
<b>Dimensions:</b>	Length — 33.70"
	Width — 21.00"
	Height — 24.30"
<b>Weight:</b>	245 lbs.
<b>CONTROLS</b>	
<b>Hydraulic pressure relief:</b>	3400 PSIG
<b>Hydraulic solenoid valve (for automatic load control):</b>	12 or 24V
<b>Air pressure switch (for automatic load control):</b>	Pre-set at factory

**TABLE 2B: CAPSCREW TIGHTENING TORQUE VALUES**

SIZE	GRADE	LUBRICATED
1/4 - 20 UNC	5	6 ft-bs
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 2C: 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 3: INSTALLATION

## 3.1 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.

NOTE
<p>Before fully unpacking the unit, inspect the component parts, supports and loose-packed parts to ensure that there have been no internal movements of assemblies or components, which may have been damaged during shipment.</p> <p>Should any damage be discovered during package inspection, contact the shipping company immediately.</p>

<p><b>VANAIR MANUFACTURING, INC.</b>  <b>(219) 879-5100 / (800) 526-8817</b>  <b>Service (toll free): (844) VAN-SERV</b>  <b>(844) 826-7378</b>  <b>Service Fax: (219) 879-5335</b>  <b>www.vanair.com</b></p>
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## 3.2 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the Reliant RC40-L 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.

DISCLAIMER
<p><b>DO NOT install in any enclosed space without first contacting Vanair.</b></p>

⚠ WARNING
<p>Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.</p>

⚠ WARNING
<p>Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and locked out to prevent accidental start-up.</p> <p><b>DO NOT</b> assume that because the compressor is in a STOPPED condition that power has been removed.</p>

⚠ WARNING
<p><b>DO NOT</b> perform any modifications to this equipment without prior factory approval.</p>

⚠ WARNING
<p><b>DO NOT</b> use plastic pipe, or incorrectly rated piping or hose. Incorrectly rated connection material can fail and cause injury or equipment damage.</p>

⚠ WARNING
<p><b>DO NOT</b> operate the compressor in enclosed or confined spaces where ventilation is restricted or closed off.</p>

NOTE
<p>Install electrical components (circuit breakers, pressure switches, toggle switches, etc.) in locations where exposure to water or moisture will be most minimized.</p>

NOTE
<p>In order to prevent accidental damage to vehicle components (fuel tanks, lines, brake lines, wiring harnesses), note their location before drilling any holes.</p>

### 3.3 DETERMINING THE RC40-L UNIT MOUNTING LOCATION

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

- The mounting surface must be level and able to accommodate the four (4) mounting bolts and isolators of the base frame. Refer to **Figure 3-1** or **Figure 3-2** for layout of mounting hole slots' locations.

**IMPORTANT**

Mounting surface must be able to bear the weight of the machine (245 lbs).

- Mount the machine with a minimum of four (4) mounting locations.
- The location must allow for the machine dimensions, and additional space requirements for minimum cooling, maintenance and access. Refer to **Figure 3-3** to determine the additional minimum space requirement measurements.
- The external gauges/display 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.

**NOTE**

When considering external system layout hoses refer to Section 7.28, Hose Guide for proper routing and mounting practices.

### 3.4 HYDRAULIC SYSTEM OVERVIEW

**IMPORTANT**

Vanair® highly recommends consulting a hydraulic supply expert for specifying the correct hydraulic supply components for vehicle-side integration (including oil reservoir size, hydraulic pressure relief, hose size, etc.) for your application.

**IMPORTANT**

Contaminated hydraulic fluid allowed to enter the pump will cause malfunction of the pump controls. Hydraulic system hoses must be flushed and cleaned prior to being connected to the unit.

Refer to **Figure 3-1** or **Figure 3-2** for hydraulic pump system connections.

Please take into consideration the following:

- The hydraulic flow and pressure requirements of the system.
- A continuous hydraulic load is necessary when compressor is running.
- The duty cycle and ambient operating temperatures.
- Other hydraulic equipment which may share that same hydraulic supply system (Vanair recommends a dedicated pump and hydraulic circuit).

**⚠ WARNING**

Follow all applicable safety recommendations as outlined in Section 1: Safety of this manual.

**⚠ WARNING**

Improperly, or non-connected lines may cause harm, and will damage the equipment.

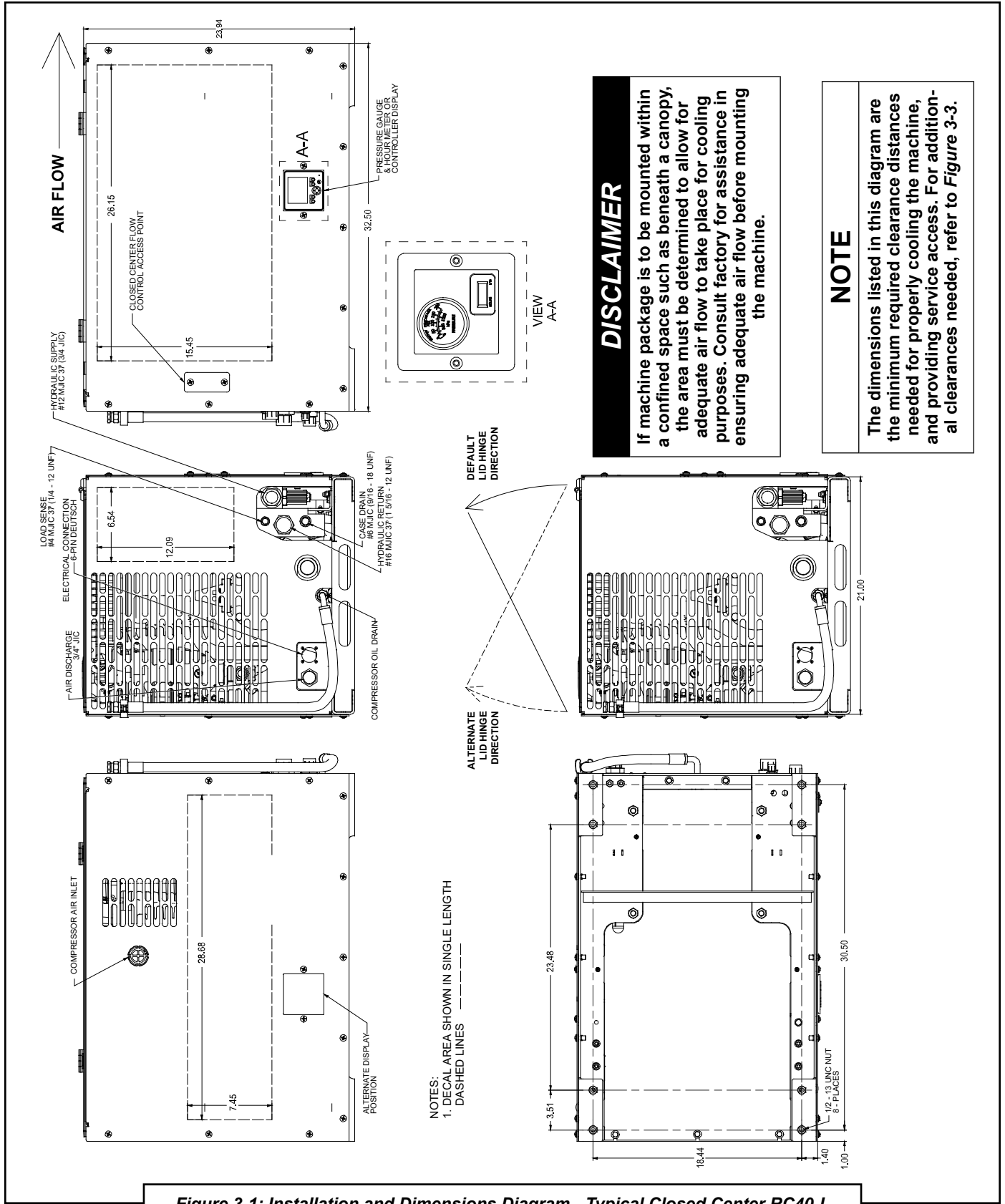
The hydraulic hoses must be run to the machine. Verify that hoses are hooked up properly to ensure proper flow. Also, verify that the hoses are laid out properly so that no chafing or kinking of the hoses is possible. Refer to **Section 7.28, Hose Installation Guide**, for assistance with proper hose layout and connecting functions.

**NOTE**

The temperature of the hydraulic oil should not exceed 160°F due to the rating of the Vanair-supplied hydraulic motor.

#### 3.4.1 HYDRAULIC SYSTEM FILTRATION

Vanair recommends using a 10 micron oil filter



**Figure 3-1: Installation and Dimensions Diagram - Typical Closed Center RC40-L**

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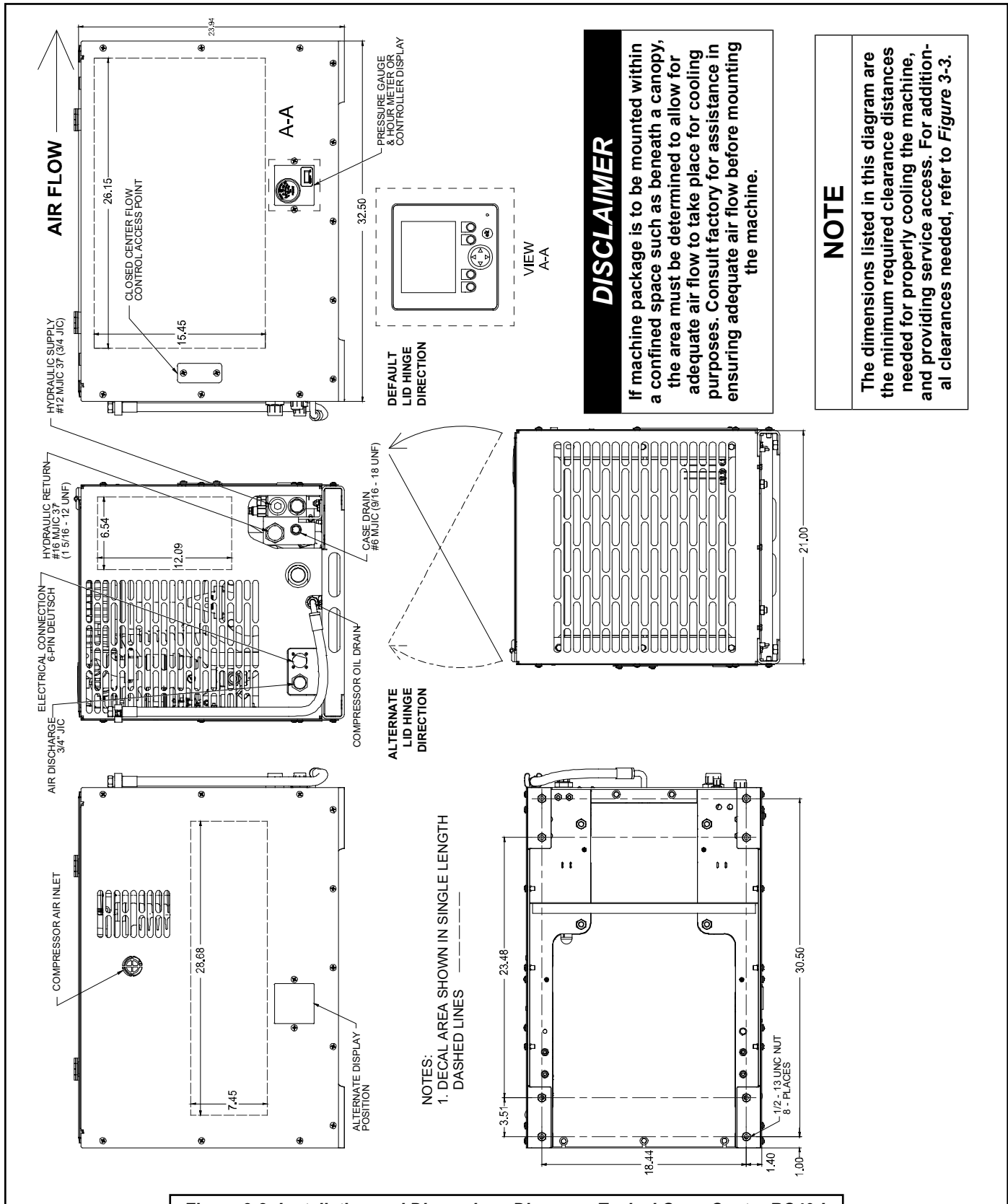
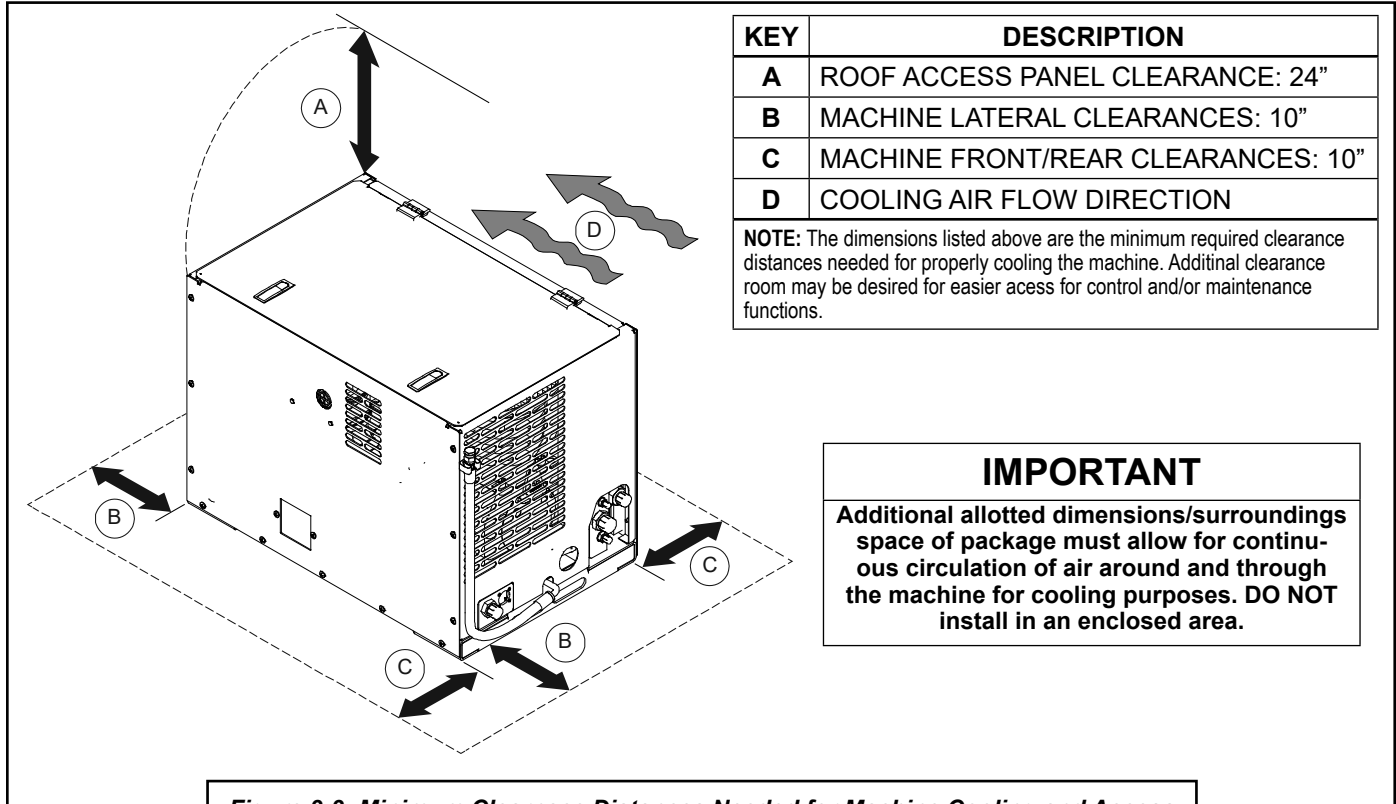


Figure 3-2: Installation and Dimensions Diagram - Typical Open Center RC40-L

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**Figure 3-3: Minimum Clearance Distances Needed for Machine Cooling and Access**

on the hydraulic oil return line. Flow rating of the filter must be equal to, or greater than, the maximum GPM at which the system will be operated.

IMPORTANT

Use only a filter that is specifically intended for hydraulic systems.

### 3.4.2 HYDRAULIC OIL RESERVOIR

#### 3.4.2.1 DETERMINING RESERVOIR SIZE

In a conventional hydraulic system, minimum tank size, in gallons, should be equal to the maximum GPM flow rate, times two (x 2).

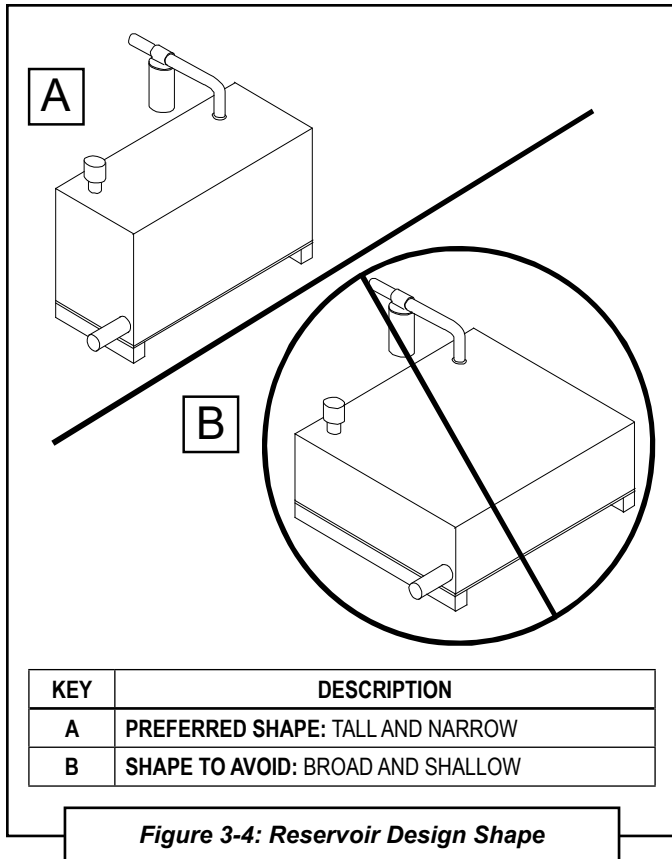
#### 3.4.2.2 DETERMINING RESERVOIR SHAPE

The reservoir structure should be tall and narrow rather than shallow and broad (**Figure 3-4**). A tall, narrow tank is recommended because:

1. The oil level is well above suction line opening, avoiding the possibility of drawing air into the pump due to a vortex or “whirlpool” effect within the tank during operation flow.
2. Allows for better oil level tolerance level of the system if vehicle operates at an unusual (slightly off level) vehicle angle.
3. To keep return flow well below the surface so it does not break the surface and cause aeration (cavitation) of the oil.

#### 3.4.2.3 MANDATORY RESERVOIR FEATURES

- The reservoir should incorporate the following design features:
- In terms of location of the reservoir tank within the hydraulic system, note that the hydraulic pump’s inlet line (suction line out from the reservoir to the pump) should be located near the bottom of the tank, well below the oil level. The suction line should protrude a minimum of two (2”) inches into the reservoir to keep it away from potential contaminant surface buildup.



- A baffle or baffles should be included to prevent sloshing, or centrifugal motion of the oil; the goal is to break up direct flow of the oil from the return point to the suction point. This allows for the cooling action contact with the tanks' inner surfaces, and promote separation of any air or contaminants that interact with the flowing oil.
- An ideal baffle design would position several (but not too many) baffles to promote an 'S' shape flow within the reservoir, as viewed from above. The area of the end gaps should be at least twice the area of the suction line diameter.
- A drain port with plug, situated at the lowest point of the reservoir, is needed to assure complete draining. It should be installed using an adapter or housing which does not protrude above the inner surface of the floor of the tank. It should be visible and accessible for removal, with sufficient space available for catching the waste oil.

- If the return line entrance to the tank is located near the top, it should be extended downward within the tank to minimize foaming and aeration of the circulating oil. This extends oil integrity, which in turn helps to maintain system performance and reliability.
- An in-line filter on the return line is needed to protect the system against contaminants being introduced into the oil. The filter should be mounted externally from the reservoir in a location that allows for easy of service access.
- A breather and fill cap is needed at the oil fill port, which needs to be located above the system oil level. The breather cap acts to both filter air that is drawn into the reservoir as the oil level diminishes, and bleeds air out as the level is regained. This maintains constant atmospheric pressure in the air volume within the reservoir.
- A sight-glass provides a direct visual indication of the oil level without having to open, or otherwise access, the reservoir.

### 3.4.2.4 RECOMMENDED RESERVOIR OPTIONS

Although not essential for an adequately functioning reservoir, the following components will contribute to maximize the hydraulic system's efficiency and maintain a quality operational level.

- Magnetic drain plug: Attracts and concentrates ferrous contaminants at the drain plug source for easier accessibility and removal when cleaning tank interior.
- A temperature gauge: Located in approximation to, or built in to, the sight glass assembly allows for temperature reading at a glance.
- Filler port strainer: Prevents large contaminant particles from blending with system oil when adding new oil.
- Return line diffuser (splash) plate reduces velocity of oil flow before return oil stream merges with the main reservoir oil volume.
- A reservoir heater: For those systems that are exposed to cold climate ambients, having the ability to preheat the hydraulic oil prior to start up will make for easier startups, and reduce the strain of warming up the system under ad-


verse cold conditions.

### 3.4.2.5 RESERVOIR FEATURES TO AVOID

A strainer used to screen the suction line is not recommended for systems designed for mobile equipment use. Having equipment that likely experiences long suction lines, cold startups and non-tracked or infrequent maintenance practices may cause this strainer to potentially promote system strain (cavitation) than prolong fluid integrity through filtration.

A pressurized reservoir is not recommended for vehicles, as its complexity invites too much potential for loss of system reliability if it is not properly maintained.

### 3.4.2.6 RECOMMENDED HYDRAULIC SYSTEM SPECIFICATIONS

 <b>WARNING</b>
<b>Do not operate machine without hydraulic system completely assembled.</b>

Refer to **Figure 3-1** or **Figure 3-2**.

Flow controller is optional to reduce flow if necessary. Consult Vanair®.

#### HYDRAULIC LINES

The following is a minimum requirement and NO quick disconnects may be used. Lines are to be kept as straight and short as possible.

- Pressure port = Standard, #12, 3/4" hose (located at manifold block)
- Load sense = #4 JIC = 1/4" hose (Used for closed center system only)
- Pressure relief/case drain = #6 JIC = 3/8" hose
- Hydraulic suction = Standard, #16, 1" hose

### 3.4.3 STANDARDS GUIDELINES

- Hydraulic pressure relief factory set at 3200 psi.

## 3.5 INSTALLATION

### 3.5.1 MACHINE LOCATION

It is vital to locate the machine so that there is no restriction of cooling air through the enclosure

(Refer to **Figure 3-3**). Cooling air enters through vents in the upper sides and the front, passes through the cooler, and exits the enclosure at the rear (cooler) package end of the machine.


### 3.5.2 CLEARANCES

Refer to **Figure 3-3**. Ensure that adequate surrounding clearance space exists around the machine to allow for adequate cooling ventilation through the canopy shroud, unobstructed service access, and a clear view of the control panel. An approximate recommendation of ten (10) inches clearance, minimum, is needed for proper cooling circulation, plus any additional service access room included where needed.

### 3.5.3 MACHINE STABILIZATION AND GROUNDING

Refer to **Figure 3-5**. Machine should be mounted to vehicle using a minimum of four (4) isolators. Isolators absorb vibration. Isolators are included with the machine.

<b>NOTE</b>
<b>Isolator replacements are available from Vanair®; order bolt down isolator no. 279867 (unit uses four [x 4] isolators).</b>

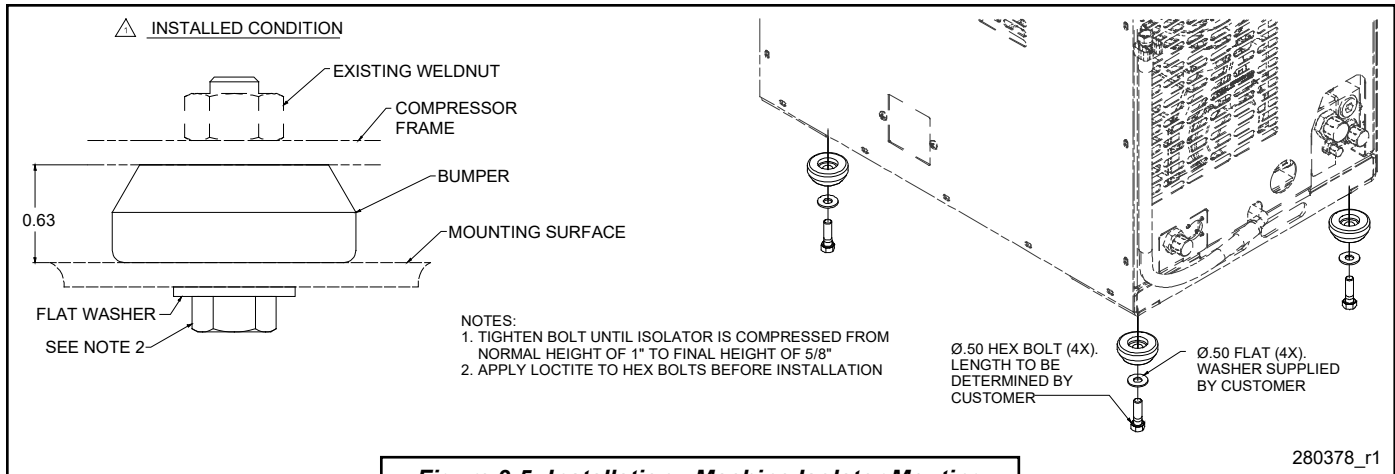
 <b>WARNING</b>
<b>GROUNDING STRAP: If the machine and/or instrument panel respectively are isolated from contacting the chassis (paint fiberglass body, rubber mounts, etc.), then the machine must be grounded to the truck chassis with a minimum two (2) ga wire (reference Vanair ground strap no. 267498).</b>
<b>If the machine is bonded by traditional hard mounting (metal to metal contact with chassis), then the grounding strap is not required.</b>

### 3.5.4 SERVICE CONNECTIONS

Refer to **Figure 3-1** or **Figure 3-2**. Service connections are conveniently grouped at the lower rear section of the unit in the base frame.

### 3.5.5 ELECTRICAL CONNECTIONS

Refer to **Figure 3-1** or **Figure 3-2**. Connect the electrical supply connector, located at the con-



**Figure 3-5: Installation - Machine Isolator Mounting**

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nection port panel end of the unit. This system is offered with 12V DC circuits.

### 3.5.6 HYDRAULIC SUPPLY CIRCUIT

Refer to the proper hydraulic flow schematic drawing (**Sections 7.24 through 7.27**) that matches the machine model build. It is recommended that the compressor unit possesses a separate pump/flow/return hydraulic circuit to other hydraulic equipment. This is to prevent the possibility of pressure/flow drops that may occur if other hydraulically-powered equipment is activated during compressor operation, which may in turn, cause the compressor to stall out. Alternatively, use of a diverter valve will permit hydraulics to power different equipment selectively.

### 3.5.7 ROUTING

Refer to **Figure 3-1** or **Figure 3-2**, and the electrical and wiring diagrams (**Sections 7.22 and 7.23**). Ensure that all supply hoses and electrical wiring are correctly specified, adequately supported, and do not touch or rest on any sharp edges. Wiring should be protected with split loom to prevent corrosion, and consequently, loss due to down time.

### 3.5.8 HYDRAULIC SYSTEM REQUIREMENTS

Refer to **Sections 7.15 through 7.20** for hydraulic system schematic layouts and components. 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).

## 3.6 CONNECTING THE HYDRAULIC SUPPLY AND RETURN

Refer to **Figure 3-1** or **Figure 3-2** for hydraulic supply and return hose location connections and layout routing. Use correctly rated hoses (3000 PSI minimum) to securely connect both supply ( $\frac{3}{4}$ " J.I.C. 37° male) and return connectors (1" J.I.C. 37° male).

### NOTE

**Vanair recommends:**

- **SUPPLY HOSE:**  $\frac{3}{4}$ " J.I.C., 3000 PSI
- **RETURN HOSE:** 1" J.I.C., 500 PSI
- **CASE DRAIN:**  $\frac{3}{8}$ " J.I.C., 500 PSI (load sense  $\frac{1}{4}$ " JIC 3000 PSI; closed-center only)

## 3.7 CONNECTING THE AIR SUPPLY

Refer to **Figure 3-1** or **Figure 3-2** for service



air discharge port location. Connect the service valve. Connect the air discharge line to the 3/4" JIC male connector.

**IMPORTANT**

**Ensure that the air discharge hose is properly rated for high temperature.**

### 3.7.1 AIR RESERVOIR TANK INSTALLATION

The Vanair RC40-L 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 HOISING AND SERVICE VALVE SPECIFICATIONS

- Hose must be flexible; steel-braided reinforcement.

- Rated for high temperature (450°F minimum).
- Pressure-rated for 200 psig (minimum).

#### MOUNTING SPECIFICATIONS

- If air tank is to be permanently mounted, Vanair® recommends a mounting with no less than four (4) mounting/securing points.
- Tank mounted level.
- 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, pet-cock, 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 air tank-side of the service out operation, consult the Vanair Service Department.



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# SECTION 4: OPERATION

## 4.1 GENERAL INFORMATION

The Reliant RC40-L 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.

## 4.2 OPERATING CONDITIONS

1. Operate only in well-ventilated areas.
2. Ensure there are no obstructions of cooling air intakes and outlets around the machine.

IMPORTANT
<b>Be sure to leave sufficient room around the machine for cooling air circulation during operation. There must be a minimum of ten (10) inches for the cooler intake, and ten (10) inches for the sides and rear. Heated air must be able to vent away from the intake.</b>

3. Do not leave anything resting on top of the machine. Hot cooling air will generate high heat and must not be restricted.
4. Operate machine with the top cover closed.
5. Refer to specifications (**Section 2**) for operating parameters.
6. Recommended: **DO NOT** exceed maximum operating angle of 15°.

## 4.3 INITIAL (FIRST-TIME) START-UP

IMPORTANT
<b>If start-up and shut-down procedures are not followed, damage to the system and its components may occur.</b>

NOTE
<b>Flow control needs to be set by the installer for closed center units.</b>

The compressor has been factory-tested and its air and hydraulic valves have been adjusted to their specified operating settings. The crankcase has been factory-filled, but the oil needs to be checked in order to ensure proper level before initial start-up. Note also that the machine needs to be on situated on a level surface before checking the oil level. Refer to **Section 5.4.3 Compressor System Lubrication**, for the correct lubricant type, and sight glass and oil fill locations.

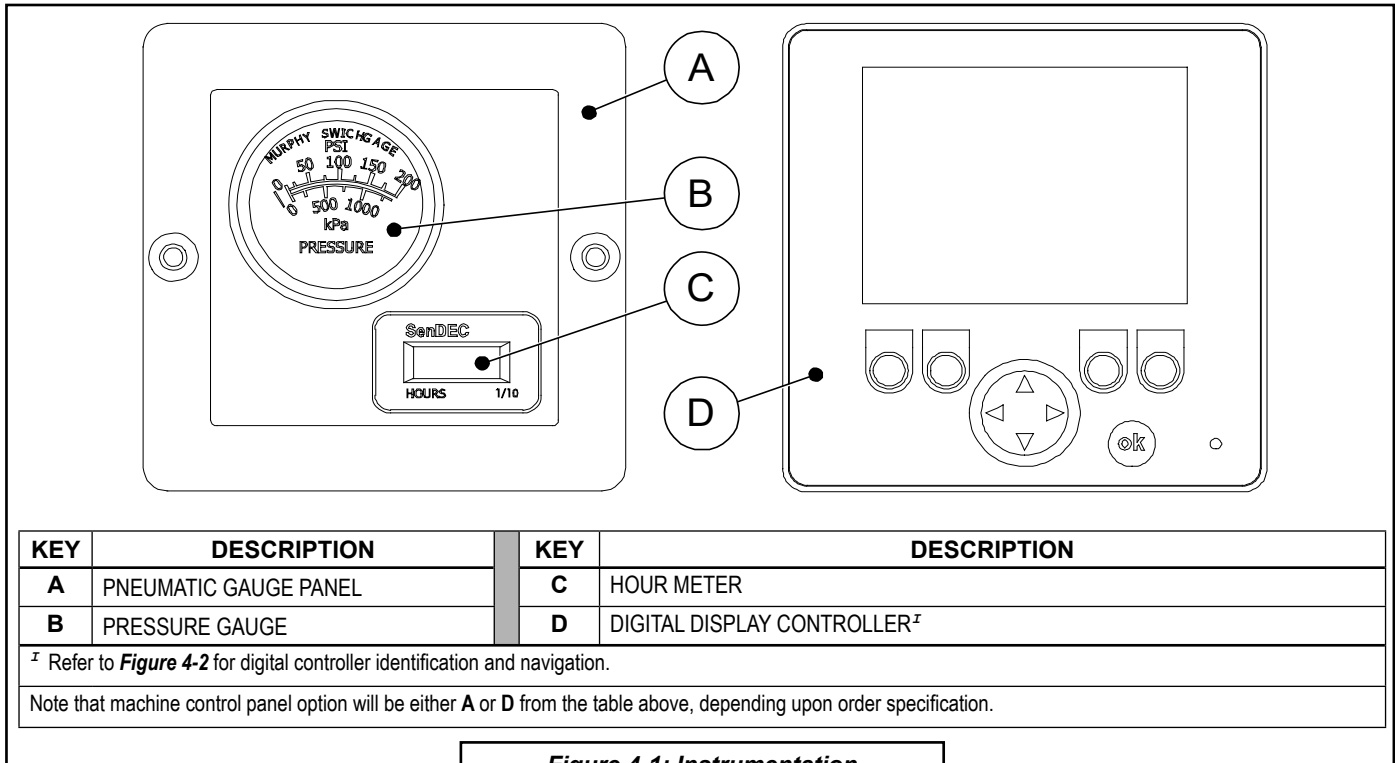
The following steps apply to the first time start-up after the machine installation. Check the oil, as per the previous paragraph. Add oil if necessary. Refer to **Figure 5-2** in **Section 5.4.3.1** for unit check locations, and **Figure 4-1** for instrumentation type, and **Figure 4-2** for Controller Screen information (if applicable).

<b>WARNING</b>
<b>Before engaging machine, make a final check to ensure that no hydraulic ports remain capped. DO NOT start unit with any caps still in place.</b>

1. Ensure all service outlets are closed.
2. Ensure that the PTO ON/OFF switch is in the ON position (fully engaged).
3. Apply hydraulic power.
4. Check for hydraulic supply or return leaks and correct if required.
5. 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 center system, the solenoid valve will be turned to the OFF position, causing the load sense line to adjust the piston pump to pro-



**Figure 4-1: Instrumentation**

vide 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.

6. Move the PTO ON/ OFF switch to the OFF position.

**NOTE**

Ensure that the service valve is closed and compressor has stopped.

**4.3.1 ROUTINE START-UP PROCEDURE**

**IMPORTANT**

If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

Refer to **Figure 5-2** in **Section 5.4.3.1** for unit check locations, and **Figure 4-1** for instrumentation.

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

**NOTE**

Ensure that the service valve is closed and compressor has stopped.

**4.3.2 ROUTINE SHUTDOWN PROCEDURE (FIRST AND ROUTINE)**

**IMPORTANT**

If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

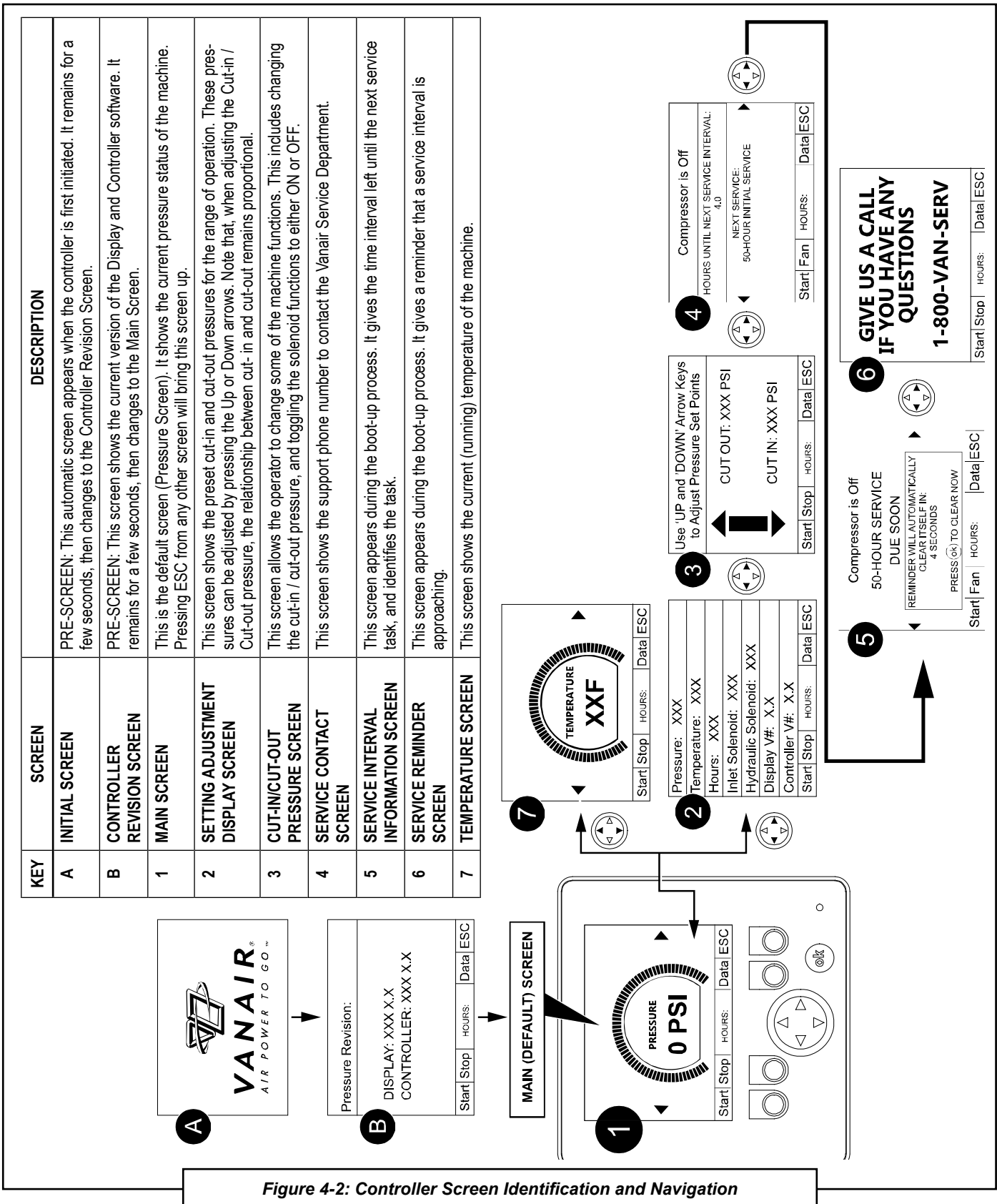
**IMPORTANT**

**Do not stop the engine suddenly! Stop the engine after approximately five (5) minutes of unloaded idling.**

1. Close service valve.
2. Pull pressure gauge drain cable (only on machine with analog gauges)
3. Allow compressor system to unload and cool down for approximately five (5) minutes.
4. Shut off hydraulic power supply.

#### **4.4 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 5, Table 5A, Routine Maintenance Schedule**.




# SECTION 5: MAINTENANCE


## 5.1 GENERAL INFORMATION

The Reliant RC40-L 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.


 <b>WARNING</b>
<b>DO NOT perform any modifications to this equipment without prior factory approval.</b>

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

 <b>WARNING</b>
<p><b>Before performing maintenance:</b></p> <p><b>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.</b></p> <p><b>NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:</b></p> <p><b>Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.</b></p>

 <b>WARNING</b>
<b>DO NOT attempt to service the equipment while it is operating.</b>

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

 <b>WARNING</b>
<b>Keep metal tools, and other conductive objects away from live electrical components.</b>

## 5.2 MACHINE MAINTENANCE SCHEDULE

Refer to **Table 5A: Routine Maintenance Schedule**. A routine maintenance schedule based on time and/or hours logged, is given in **Table 5A**. 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 5A** should be used as a guideline instead of a fixed agenda. A safe approach to routine maintenance would be to perform the given maintenance task more frequently under harsher conditions.

Vanair® provides a routine maintenance parts list in **Section 7, Table 7A**. Should a non-routine part need replacement or servicing, peruse the various parts list illustrations in **Section 7** 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 7.1, Parts Ordering Procedure**, and **Table 7A: Recommended Spare Parts List**.



### NOTE

Follow the prescribed periodic maintenance (PM) schedule as recommended. Perform the required PM schedule at recommended intervals. Failure to follow this prescribed periodic maintenance at the recommended intervals will impair the package safety, performance characteristics, shorten the package's life, and will negatively affect the warranty coverage of the package.

Please take a moment to become acquainted with the following service schedule. For assistance in obtaining routine maintenance or replacement parts, consult **Section 7.1, Parts Ordering Procedure**, and **Table 7A: Recommended Spare Parts List**.

## 5.3 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 (toll free): (844) VAN-SERV

(844) 826-7378

Service Fax: (219) 879-5335

Parts Fax: (219) 879-5340

Sales Fax: (219) 879-5800

[www.vanair.com](http://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 5.7, Long Term Storage.

**TABLE 5A: ROUTINE MAINTENANCE SCHEDULE**

		MAINTENANCE INTERVALS			TABLE 5B: ROUTINE REPLACEMENT PARTS KITS *			
		Hourly or Calendar Period - whichever comes first	Weekly Maintenance	Every 500 Hours or Annually	KEY #	DESCRIPTION	ORDER #	QTY
<p><b>▲ WARNING</b></p> <p>Before performing maintenance:</p> <p>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.</p> <p><b>NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:</b></p> <p>Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.</p>	Daily Maintenance	■	■	■	1	Kit, Compressor Service - Initial 50 Hours <sup>xx</sup>	KIT1091	1
	Weekly Maintenance	■	■	■	2	Kit, Compressor Lifetime Warranty Service - 500 Hours <sup>xx</sup>	KIT1388	1
<p>* If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing.</p> <p><sup>xx</sup> For detailed kit content descriptions refer to Section 7, Table 7A. Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.</p> <p><b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b></p>	Annual	■	■	■				
<b>KEY TASK DESCRIPTION</b>		<b>ACTION TO TAKE</b>			<b>REFERENCE:</b>			
1	Before starting, check compressor crankcase oil level.	■	■	■	<ul style="list-style-type: none"> <li>Compressor Oil Fill Port [▲]</li> <li>Oil Drain Hose [▲]</li> <li>Oil Drain Hose Anchor Clip [▲]</li> <li>Compressor Sight Glass &amp; Acceptable Oil Range (1/4 - 3/4 of sight glass) [▲]</li> </ul>			
2	Check for any loose bolts and/or loose connections.	■	■	■	<p><b>PROCEDURE:</b></p> <p>Ensure vehicle is situated on a level surface before checking oil level. Add oil if necessary. Refer to Section 5.4.3.</p> <p>Tighten if necessary.</p>			
	Check for leaks.	■	■	■	<p>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.</p>			
4	Inspect and clean the air discharge system.	■	■	■	<p>Check/drain air reservoir daily, or more frequently, depending on working environment conditions.</p>			
5	After starting, check pressure gauge for correct operating pressure.	■	■	■	<p>Refer to Section 2, and Section 5.4.2.</p>			
6	Clean dust and foreign matter from the compressor oil cooler core.	■	■	■	<p>Consult Section 5.4.5 for procedure on cleaning the cooler core (external and internal).</p>			
					<b>Continued on Next Page</b>			

**TABLE 5A: ROUTINE MAINTENANCE SCHEDULE**

MAINTENANCE INTERVALS Hourly or Calendar Period - whichever comes first		TABLE 5B: ROUTINE REPLACEMENT PARTS KITS *			
		KEY #	DESCRIPTION	ORDER #	QTY
Hourly	Calendar	1	Kit, Compressor Service - Initial 50 Hours <sup>xx</sup>	KIT1091	1
Weekly	Calendar	2	Kit, Compressor Lifetime Warranty Service - 500 Hours <sup>xx</sup>	KIT1388	1
<p>* If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing.</p> <p><sup>xx</sup> For detailed kit content descriptions refer to <b>Section 7, Table 7A</b>. Also Refer to <b>Section 7, Table 7A</b> for full replacement parts listing, including separate components, non-routine items, and options.</p> <p><b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b></p>					
TASK DESCRIPTION		ACTION TO TAKE			
7	Remove, inspect, and clear air intake filter if necessary <sup>i</sup> .	■	■	■	■
<p><b>REFERENCE:</b></p> <ul style="list-style-type: none"> <li>• Air Filter Element [▲]</li> <li>• Dust Evacuator Valve [▶]</li> <li>• Air Filter Housing Cover [▲]</li> </ul> <p><b>PROCEDURE:</b> Consult <b>Section 5.4.4</b> for procedure on how to inspect and/or change the air intake filter.</p>					
8	Inspect and clean the compressor valves.				<sup>xx</sup>
9	Change the compressor crankcase oil.	■			
10	Check the hoses for damage or other signs of deterioration.	■			
11	Check the wiring for damage or deterioration and ensure that connections are secure.	■			
<p><sup>i</sup> Air filters inspection performed weekly (change if needed); air filters change interval is yearly, or sooner depending upon inspection.</p> <p><sup>xx</sup> Valves should be removed from the cylinder heads every 500 hours or annually (whichever comes first) and examined for cleanliness and carbon formation (build-up).</p>					

## 5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

**⚠ WARNING**

Follow all applicable safety recommendations as outlined in Section 1: Safety of this manual.

**⚠ 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 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.

### 5.4.1 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 *Figure 5-1* and the proper panel removal sub-section listed below to remove the desired panel.

**⚠ WARNING**

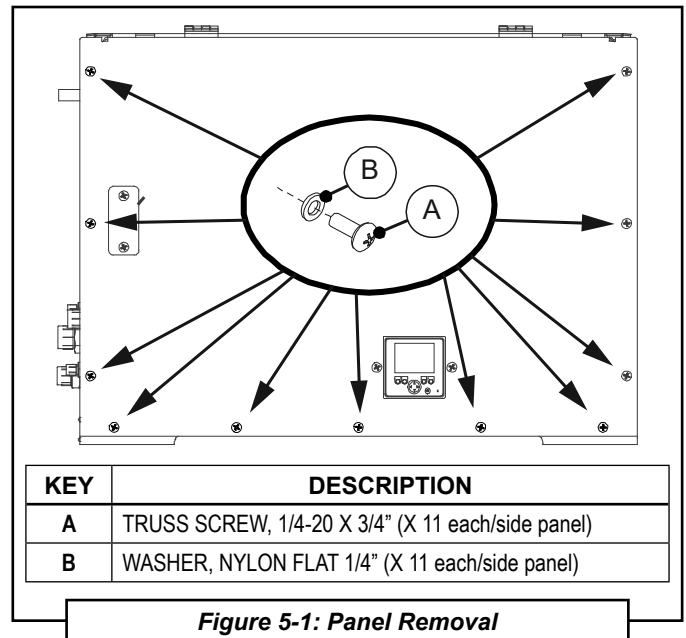
**Before performing maintenance:**  
 Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

**NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:**

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

#### 5.4.1.1 REMOVING LONG-SIDE PANELS FOR MAINTENANCE ACCESS

Consult *Figure 5-1* and the following procedures to remove a side panel for maintenance access.



1. With a #2 bit Phillips head screwdriver remove the eleven (11) 1/4-20 x 3/4" truss screws [A] and the eleven (11) 1/4" nylon flat washers [B] from the panel side to be accessed.
2. Remove panel from the frame and set aside.
3. Retain screws and washers for re-assembly.

### 5.4.1.2 REPLACING LONG-SIDE PANELS

Refer to **Figure 5-1** and the following procedure:

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 #2 bit Phillips head screwdriver, loosely replace the eleven (11) 1/4" nylon flat washers [B], and the eleven (11) 1/4-20 x 3/4" truss screws [A] sets.
3. Tighten the screws into position.

### 5.4.2 CHECKING PRESSURE READING

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 2: Specifications**.

#### NOTE

If equipped with an LED display, ensure that the pressure reading is NOT randomly changing numbers, but is increasing steadily, with the pressure increase in the air tank.

### 5.4.3 COMPRESSOR SYSTEM LUBRICATION

#### NOTE

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

The compressor is fully charged at the factory with Vanair Reciprocating Compressor Oil. This section gives details on checking and changing the compressor oil.

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

### 5.4.3.1 CHECKING THE OIL LEVEL

Refer to **Figure 5-2**. 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.

#### 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.

### 5.4.3.2 CHANGING THE COMPRESSOR OIL

#### ⚠ 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 unit 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.

Refer to **Figure 5-2** and the following procedure:

1. Place a container (of at least three [3] quarts capacity) below the level of the compressor unit, within reach of the drain hose end [A].
2. Disengage the oil drain hose spout from hose drain securing clamp.
3. Using 13/16" wrench remove plug from the end of the hose.

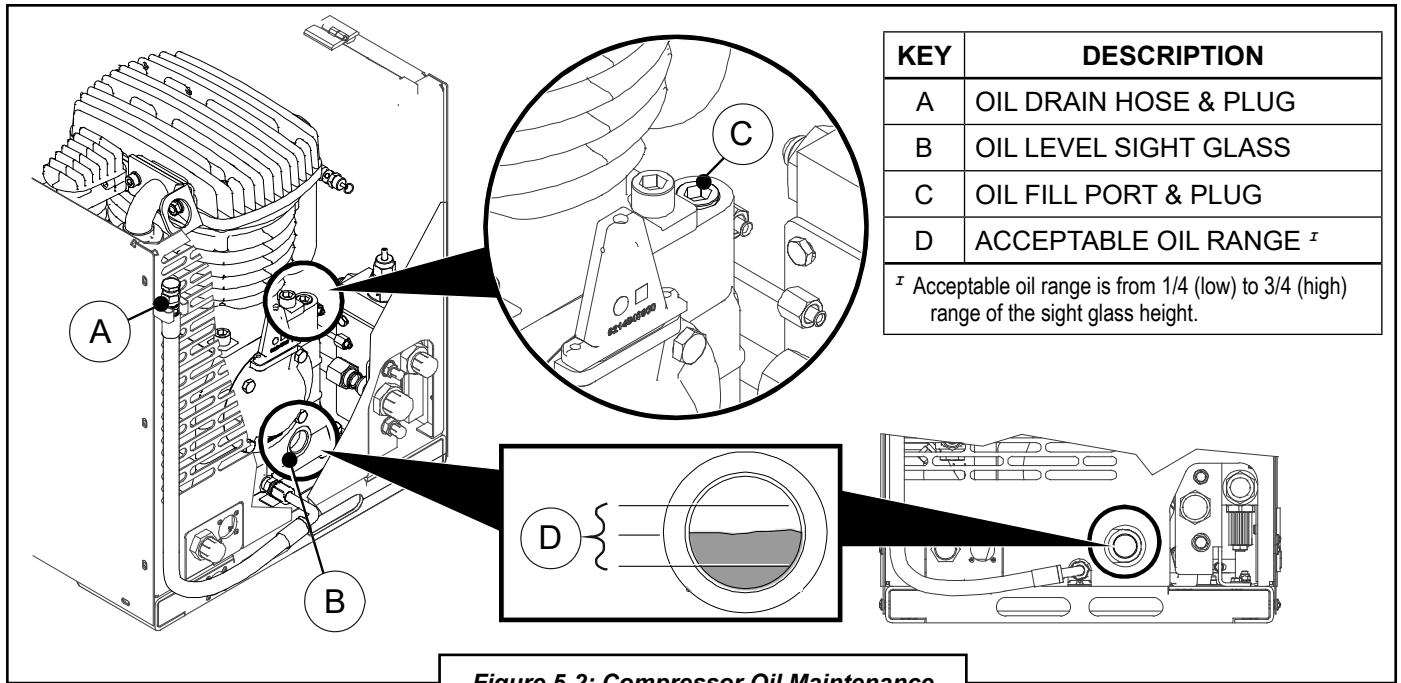


Figure 5-2: Compressor Oil Maintenance

4. Thoroughly drain the existing oil into the container.
5. Replace the hose plug on the end of the drain hose and tighten.
6. At the oil fill port [C], remove the port plug with a 15/16" wrench, then fill crankcase with a full charge of Vanair® reciprocating oil to the proper level indicated by the sight glass reading [B], to an acceptable level [D]. **DO NOT OVERFILL.**
7. Replace plug on the oil fill port [C], and tighten.

**⚠ WARNING**

**NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:**

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

**IMPORTANT**

Plugged air filters can cause high oil consumption and reduced delivery quantity! Change the filter more often when running in dusty conditions.

### 5.4.4 AIR FILTER MAINTENANCE

Depending on the degree of contamination of the air taken in, regularly and carefully inspect the air filter on (at least) a weekly basis. The air filter elements should be replaced approximately every 500 operating hours or sooner, depending upon inspection.

**⚠ 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 unit to cool before removing any panel.

#### 5.4.4.1 INSPECTING THE AIR FILTER

The compressor air filter is accessible via the hinged roof panel. To check and/or replace the air filter, refer to **Figure 5-3** and the following procedure:

1. With the machine off, locate the air filter assembly, which is mounted on the inside of the front panel.

**NOTE**

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

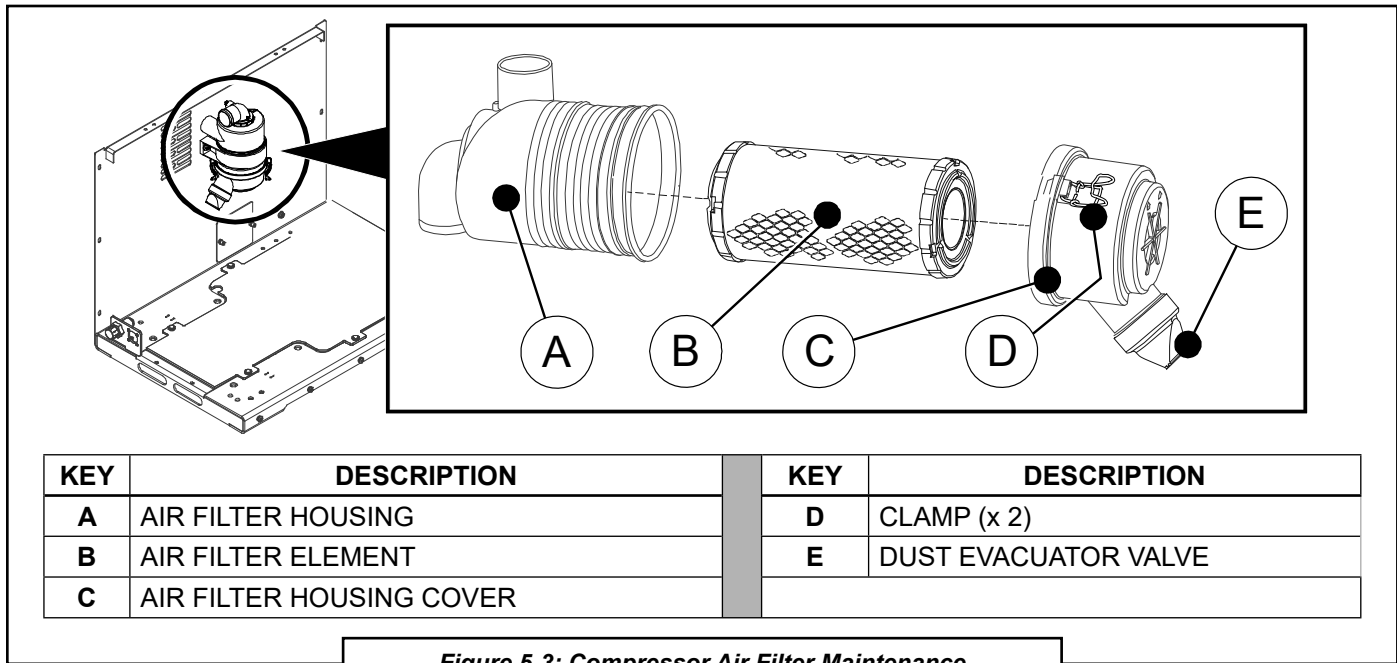


Figure 5-3: Compressor Air Filter Maintenance

- The housing cover is secured to the base with two clamps [D]. Dis-engage each clamp.
- Grasp the cover [C]; remove it by pulling it away from the housing [A].
- Remove the air filter [B] by pulling it outward to disengage it from its seating ring.
- Visually and carefully inspect the air filter element, including between the pleats, for soiling, damage, signs of wear and/or tears in the filter material. If the element is intact, replace the element for further use. If damaged, **DO NOT** reuse the air filter element; replace with new filter element.

#### 5.4.4.2 REPLACING THE AIR FILTER ELEMENT

The air filter element is replaced either at the routine scheduled interval (refer to **Table 5A: Routine Maintenance Schedule**), or if it has failed the inspection process laid forth in **Section 5.4.4.1**. When it is time to replace the air filter element, order replacement element **no. 276688-002** (also available within kit **no. KIT1388**). Once obtained, refer to **Figure 5-3** and the following procedure to service the air filter.

- Review the safety guidelines in **Section 5.4.4**; then follow steps #1 through #4 given

in **Section 5.4.4.1**, to remove the air filter element.

- Seat the new (or cleaned) air filter [B] in position snugly onto the mount at the base of the air filter housing [A].
- Replace the end cover [C] into position over the air filter base [A], and secure into place by engaging the two clamps [D].
- Dispose of the worn air filter within the guidelines of all applicable local, regional and/or federal laws.

#### 5.4.5 COOLER CORE MAINTENANCE

Refer to **Figure 5-4**. 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-L package operates safely within the temperature limits described in **Section 2, Specifications** of this manual.

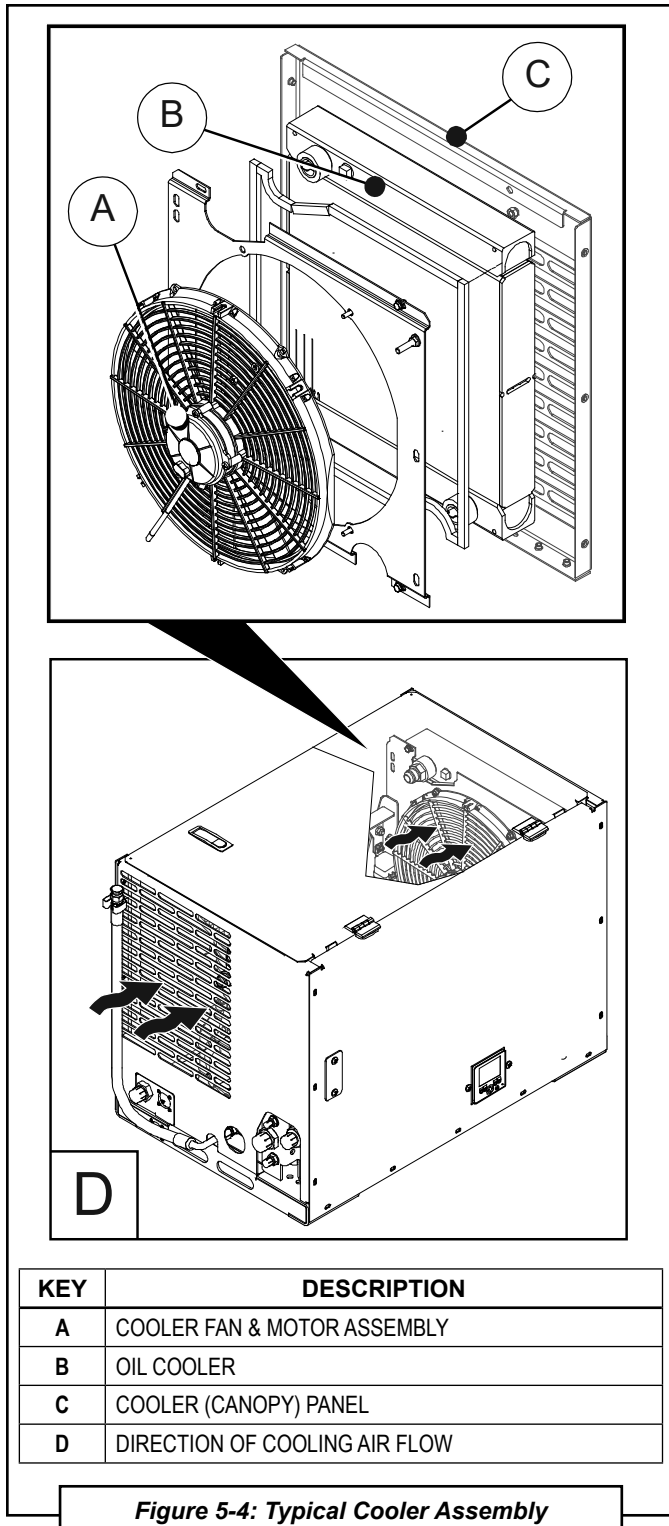


Figure 5-4: Typical Cooler Assembly

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.

If the cooler has become internally clogged, it may need to be flushed or replaced. Consult the Vanair® Service Department.

### 5.4.6 COUPLING ALIGNMENT

There is no need to adjust the compressor unit/hydraulic motor alignment; Alignment is achieved via the motor-to-unit adapter. In the case where the drive coupling element needs to be serviced (refer to **Section 5.4.7**), alignment is automatically achieved by securing the motor to the unit via the motor adapter.

However, in the case where the coupling element needed to be replaced, or if the alignment is such that there is excessive machine vibration, etc., there is a hub alignment check that should be performed once that maintenance has been accomplished. Refer to **Section 5.4.7.3** for drive coupling hub alignment check procedure.

### 5.4.7 REPLACING THE DRIVE COUPLING

#### ⚠ WARNING

**Before performing maintenance:**

**Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.**

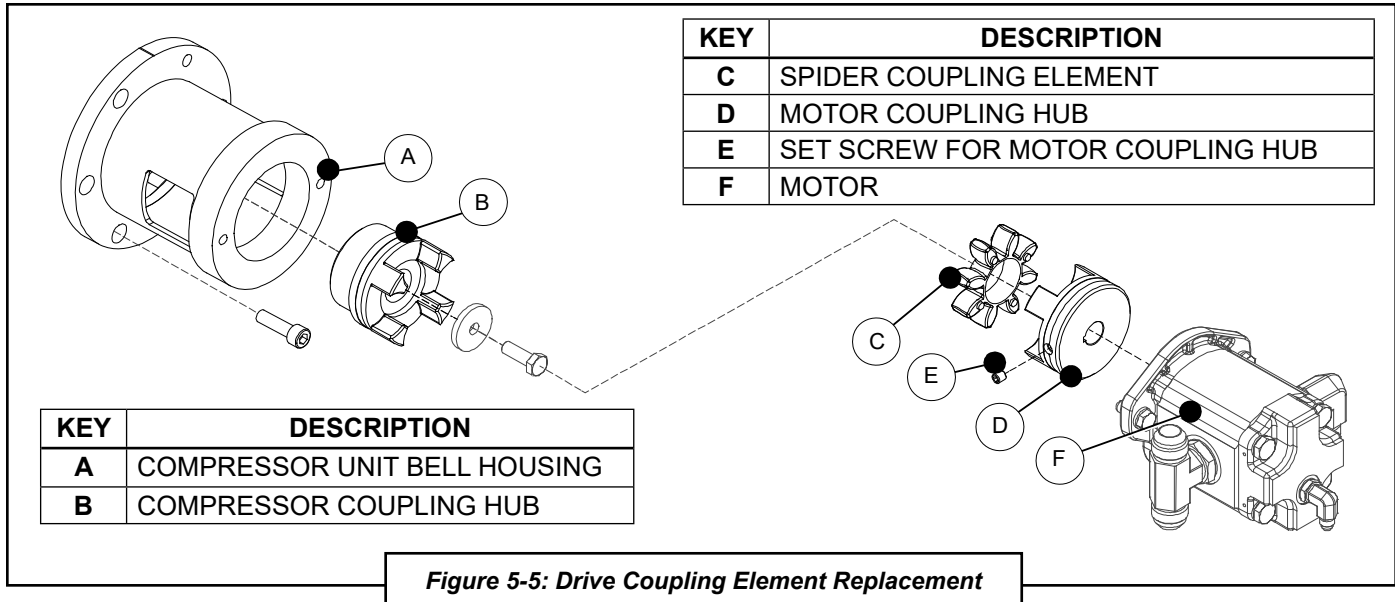
**NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:**

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

With proper care of the machine, the drive coupling should normally last indefinitely. However, it may become worn or the element may rupture and need to be replaced. To replace the drive coupling element, order replacement **no. 277609-006**, and follow the procedure below.

#### IMPORTANT

**It is important to remember that the drive coupling contains wear elements that will eventually fail. Operator must ensure that the assembly is enclosed to avoid injury in case of a failure.**



**Figure 5-5: Drive Coupling Element Replacement**

**NOTE**

Alignment checks should not be necessary, as the machine is factory-set. However, when performing a coupling element replacement, proper sizing and offset measurements must be properly set and checked to avoid damage to machine and/or coupling.

TOOLS REQUIRED	
TORQUE WRENCH	ALLEN SOCKETS
MEDIUM STRENGTH REMOVABLE LOCTITE®	CALIPERS / FEELER GAUGES
ALIGNMENT TOOLS (i.e, straight edge, dial indicator, shims, etc).	

### 5.4.7.1 REPLACING THE DRIVE COUPLING ELEMENT

Refer to **Figure 5-5**.

1. Remove the two (2) 10mm capscrews and lock washers that secure the motor to the motor mount (use 17mm wrench).
2. Carefully extract the motor from the mount, pulling directly outward; this will separate the coupling assembly.
3. Remove the spider coupling element.
4. Carefully wipe the coupling halves with a clean cloth, and place the new element into position on the compressor coupling half.

5. Re-insert the motor with the motor-side coupling half to mate with the coupling element and compressor coupling half. Note that the motor coupling may need to be rotated slightly by hand to achieve coupling and element alignment.
6. Re-install the two (2) 10mm capscrews and lock washer sets to secure the motor to the motor mount.
7. Before torquing the bolts, perform an alignment check on the hubs (refer to **Section 5.4.7.3**).

### 5.4.7.2 COUPLING ASSEMBLY

The following method is used for a full re-installation of a drive coupling system. For performing an element change only, refer to **Section 5.4.7.1**.

1. Install and mate coupling hub bore with driving shaft. Hub should be installed with the hub body toward the driving unit (see **Figure 5-5** for typical mounting component arrangement).
2. Position hub on mating shaft. Ideal hub position is with the pocket face of the hub flush with the end of mating shaft. Overhung hubs should have a minimum shaft engagement equal to the hub bore diameter.
3. With hub properly positioned, torque clamping fastener to recommended seating torque.

The manufacturer recommends using medium strength removable Loctite for bore & key way setscrew (see **Figure 5-6** for proper bore & key way setscrew seating torques).

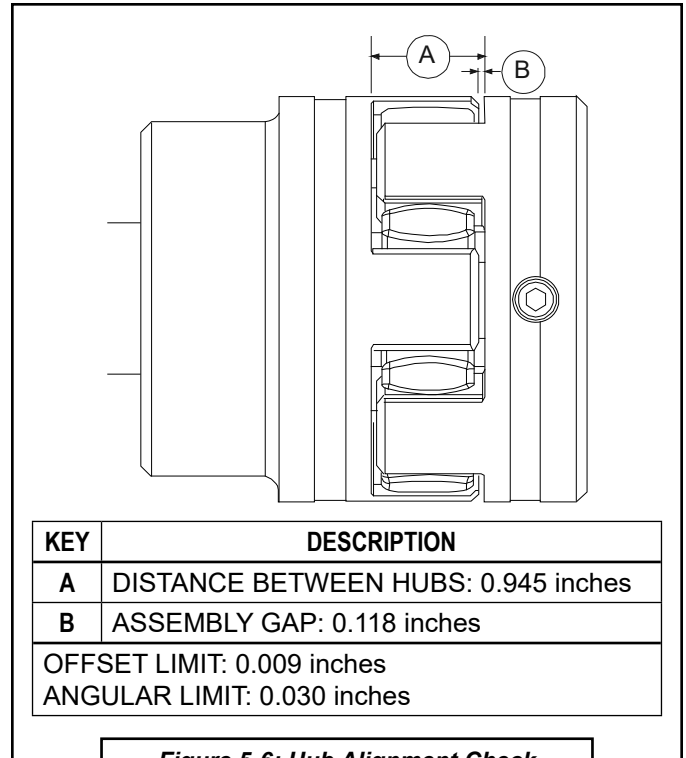
4. Repeat steps #2 and #3 for the driven shaft hub.
5. Move driven and driving equipment together until proper distance between hubs is achieved (assembly gap can be used as reference when unable to measure distance between hubs. See **Figure 5-6** for proper distance between hubs and assembly gap).
6. Ensure driven unit is aligned to driving unit, within couplings allowable misalignment.

**ANGULAR ALIGNMENT**

Measure the assembly gap between hubs in (4) locations 90° apart the measurement range should not exceed the angular limit listed in **Figure 5-6**.

**PARALLEL ALIGNMENT**

Place a straight edge square on the outer diameter of both hubs in (4) locations 90° apart; the maximum gap should not exceed the offset limit listed in **Figure 5-6**.



**Figure 5-6: Hub Alignment Check**

- If further assistance is needed please contact the Vanair® Service Department.

**5.4.7.3 HUB ALIGNMENT CHECK**

To ensure alignment, refer to **Figure 5-6** and the following procedure:

1. Place a straight edge square on the outer diameter of both halves in locations 90° apart. The maximum gap should not exceed the offset limit as given in **Figure 5-6**.
2. Once this gap is satisfactory, torque set-screws to 14 ft-lbs (19.0 Nm).

**5.4.7.4 COUPLING MAINTENANCE**

Perform the checks and tasks listed below to keep the RC40-L coupling in proper working order.

- Keep coupling components free of dust and dirt.
- Make sure that the coupling is not in contact with any non-rotating surfaces.
- Verify application data and review torque specifications, mis-alignment and service factors.

**5.4.8 CHECKING HOSES AND WIRING**

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 5.4.1, Removing Panels for Machine Maintenance Access** to remove the drive assembly access side panel.

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,

**⚠ IMPORTANT**

Hubs that are modified or machined by the customer are not covered under the standard warranty terms. Any modifications to instructions and/or coupling characteristics may result in a premature failure.

If modifications are made by the customer, it is recommended that the customer adheres to Vanair's machining standards to ensure proper operation.

which can allow hoses and wires to become exposed to some hazards within the enclosure. Verify that no hoses or wires are near 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.

## 5.5 SERVICING THE SYSTEM FUSE

**⚠ DANGER**

The system fuse 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.

**⚠ WARNING**

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

**⚠ WARNING**

**NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:**

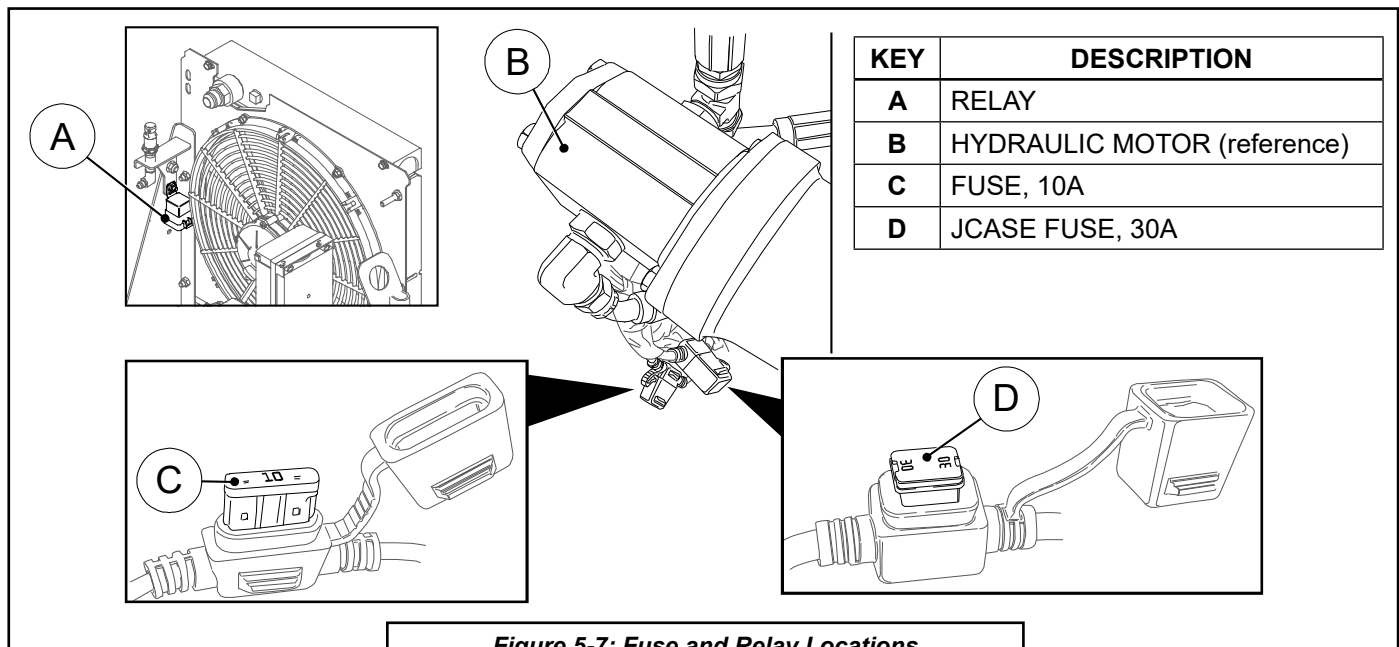
**Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.**

To access the machine area where the fuse is located, the long-side canopy panel may be removed for easier access if needed. Consult **Section 5.4.1, Removing Panels for Machine Maintenance Access** to remove the drive assembly-side access side panel.

Consult **Figure 5-7** for the locations of the fuse. Vanair® recommends using a fuse removal tool, though pliers will suffice, when removing the fuse.

## 5.6 PRESSURE (SAFETY) RELIEF VALVES

Refer to **Figure 5-8**. 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 pressure relief valves require no safety testing. Should one prove faulty per indications given in the **Troubleshooting Guide (Section 6.2)**, replace the valve.



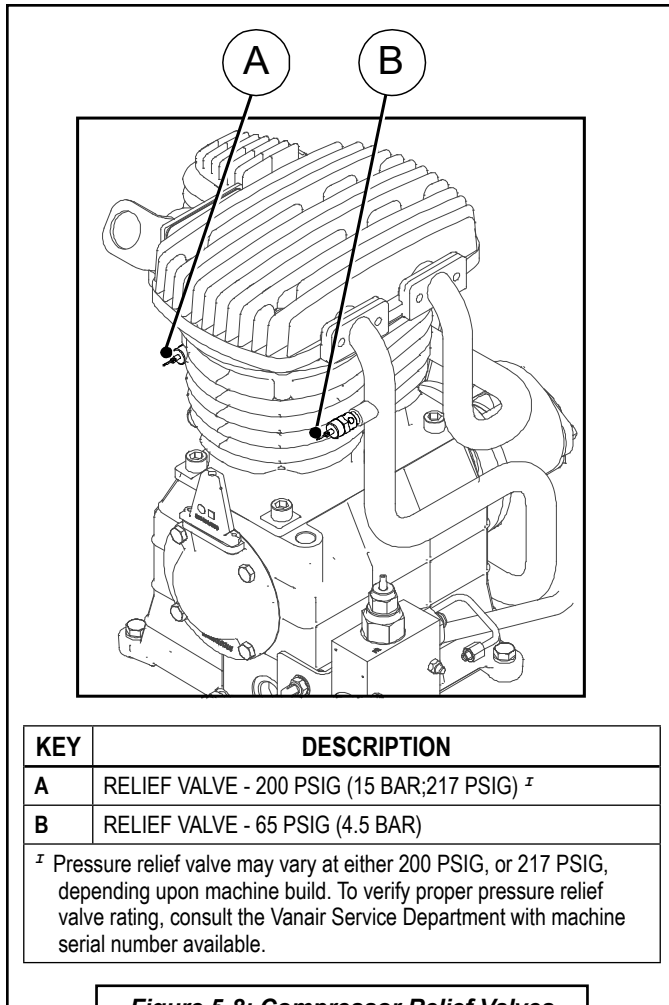
**Figure 5-7: Fuse and Relay Locations**

## 5.7 LONG TERM STORAGE

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

- De-pressurize 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 un-packing, 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.



**Figure 5-8: Compressor Relief Valves**

**NOTE**

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

**NOTE**

**Vanair does not recommend outside storage.**



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# SECTION 6: TROUBLESHOOTING

## 6.1 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**

**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:**

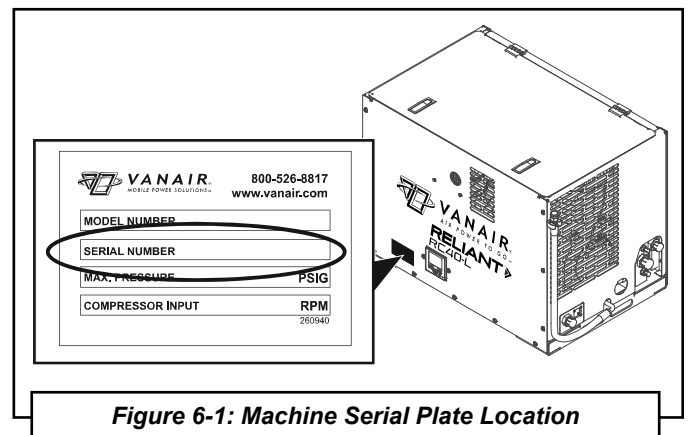
**Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.**

**NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:**

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

**Vanair Manufacturing, Inc.**

10896 West 300 North  
Michigan City, IN 46360  
Phone: (219) 879-5100  
(800) 526-8817  
Service (toll free): (844) VAN-SERV  
(844) 826-7378  
Service Fax: (219) 879-5335  
Parts Fax: (219) 879-5340  
Sales Fax: (219) 879-5800  
[www.vanair.com](http://www.vanair.com)



*Figure 6-1: Machine Serial Plate Location*

## 6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not start	PTO/hydraulics not engaged	Ensure hydraulics engaged.
	Compressor switch OFF	Turn switch ON.
	Fuse or fuses blown	Check and replace fuse if necessary ( <b>Section 5.5</b> ).
	Compressor pressure switch stuck	Replace; consult Service Department for reset instructions.
	Host vehicle diverter valve not operating	Check power and ground/replace valve.
	Hydraulic motor stalled	Switch OFF and attempt to turn the motor by hand to restart—replace if this fails.
	No hydraulic GPM or pressure	Check hydraulic circuit.
	Hydraulic relief valve set too low	Check with pressure gauge and reset.
	Power unit speed is too low	Check and correct.
	Hydraulic line obstructed	Check hoses for kinks, crimping, or damage.
	Low hydraulic oil level	Check and refill.
	Faulty relay <sup>‡</sup>	Check for presence of power - if present, replace relay.
Compressor runs slow	Hose/connection leaks	Check for leaks or damage/repair ( <b>Section 7.15</b> through <b>Section 7.20</b> , and the electrical wiring diagrams, <b>Section 7.22</b> and <b>7.23</b> ).
	Low hydraulic flow/pressure	Check and reset. Refer to <b>Sections 7.11</b> and <b>7.12</b> for flow regulator location and replacement information.
	Hydraulic motor or pump worn	Replace.
	Low hydraulic oil level	Check and refill.
	Hydraulic relief valve set too low	Check and reset.
	Hydraulic oil line restriction	Check for blockages, kinks, or other obstructions.
Compressor runs hot	Cooling fan not operating	Check/power ground to fan motor (electrical and wiring diagrams <b>Section 7.22</b> and <b>7.23</b> )
	Insufficient ventilation	Relocate unit for better ventilation/circulation.
	Low compressor oil level	Refill to correct level ( <b>Section 5.4.3</b> ).
	Soiled compressor cylinder cooling fins	Clean.
	Soiled air intake filters	Replace air filter element ( <b>Section 5.4.4</b> ).
	Faulty compressor valves	Inspect and replace.
Low output air	Air filters soiled or plugged	Replace air filter element ( <b>Section 5.4.4</b> ).
	Air line leak	Inspect and replace hose or tighten connections.
	Discharge valve stuck	Remove and clean, or replace.
	Faulty compressor valves	Inspect and replace.
	Compressor RPM too slow	Check hydraulic circuit.
	Safety/relief valve leak	Replace valve.
<sup>‡</sup> Compressor will not turn on if fan relay is not functioning/tripped. A restart should reset, but if not, the component (fuse or relay) that may need to be replaced. Refer to <b>Sections 7.7</b> and <b>7.8</b> for relay location and part confirmations,		
<b>Continued on next page</b>		



<b>6.2 TROUBLESHOOTING GUIDE</b>		
<b>MALFUNCTION/FAULT</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
Low air pressure	Air filters soiled/plugged	Replace air filter element ( <b>Section 5.4.4</b> ).
	Pressure switch setting too low	May need to be replaced or reset; consult Service Department for reset instructions.
	Air line leak	Inspect and replace hose or tighten connections.
	Air consumption exceeds capacity	Check applied demand on supply air.
	Faulty compressor valves	Inspect and replace.
	Defective air pressure switch / transducer	Refer to <b>Figure 2-1</b> , <b>Section 5.4.2</b> , and <b>Section 7.7</b> or <b>Section 7.8</b> . Replace if necessary.
	Discharge valve soiled or stuck	Remove and clear, or replace.
	Blown head gasket	Replace.
Abnormal pressure fluctuations	Air line leak	Inspect and replace hose or tighten connections.
	Pressure switch incorrectly set	May need to be replaced or reset; consult Service Department for reset instructions.
	Pressure switch or transducer faulty	Replace; consult Service Department for reset instructions.
	Hydraulic supply problems	Refer to <i>Compressor runs slow</i> section of this table.
Pressure relief valve(s) open continuously	Defective air pressure gauge	Refer to <b>Section 5.4.2</b> and <b>Section 7.5</b> . Replace if necessary.
	Damaged, worn, or leaking valve	Replace valve.
	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 or transducer 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 hydraulic solenoid stays engaged)	Replace; consult Service Department for reset instructions.
Compressor will not shut OFF or unload	Hydraulic solenoid valve does not operate (no power to solenoid valve)	Replace solenoid valve; refer to <b>Sections 7.10</b> , <b>7.11</b> or <b>Section 7.12</b> .
	Air line leak	Inspect and replace hose or tighten connections.
Oil in discharge air	Air intake restricted	Replace air filter element ( <b>Section 5.4.4</b> ).
	Compressor crankshaft overfilled	Drain to correct level.
	Compressor crankcase has oil with the wrong viscosity	Drain crankcase and refill with the correct oil ( <b>Section 5.4.3.2</b> ).
<b>Continued on next page</b>		

## 6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Oil in discharge air (continued)	Restricted crankcase breather	Clean or replace breather.
	Worn piston rings	Replace rings.
	Piston rings incorrectly installed	Reinstall.
	Worn or scored cylinder	Replace cylinder and rings.
Knocking sound from compressor	Crankcase oil level low	Check; refill to correct level ( <b>Section 5.4.3</b> ).
	Worn main bearing	Replace bearings and/or shaft.
	Worn connecting rod	Replace connecting rod.
	Excessive crank case end movement	Replace crank shaft bearings.
	Piston contacting piston plate	Inspect, repair, replace valves and piston.
	Worn piston wrist pin	Replace piston and pin.

## 6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
<b>HYDRAULIC DRIVE SYSTEM: EXCESSIVE NOISE</b>		
Motor is too noisy	Coupling is mis-aligned	Align unit and check condition of seals, bearings and coupling.
	Motor and/or coupling is/are worn or damaged	Regard any or all of the following: Tighten leaking connections; fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir); bleed air from system; replace pump shaft seal (and shaft if worn at seal journal).
Relief valve too noisy	Valve setting is set too low or too close to another valve setting	Install pressure gauge and adjust to correct pressure.
	Worn poppet and/or seat	Overhaul or replace poppet and/or seat.
<b>HYDRAULIC DRIVE SYSTEM: EXCESSIVE HEAT</b>		
Motor is heated	Fluid is heated	Refer to information under "Fluid is heated" heading below.
	Relief or unloading valve is set too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	Motor is worn or damaged	Overhaul or replace motor.
Relief valve is heated	Fluid is heated	Refer to information under "Fluid is heated" heading below.
	Valve is set incorrectly	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	Valve is worn or damaged	Rebuild or replace valve.
Fluid is heated	System pressure is too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	System pressure is too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
<b>Continued on next page</b>		



### 6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
<b>HYDRAULIC DRIVE SYSTEM: EXCESSIVE HEAT (CONTINUED)</b>		
Fluid is heated (continued)	Fluid is fouled or quantity too low	Change filters and also system fluid if improper viscosity; fill reservoir to proper level.
	Fluid viscosity is not correct	Change filters and also system fluid if improper viscosity; fill reservoir to proper level.
	Fluid cooling system is faulty	Clean cooler and/or cooler strainer; replace cooler control valve; repair or replace cooler.
	Pump, valve, motor, cylinder or other component is/are worn	Overhaul or replace item as noted.
<b>HYDRAULIC DRIVE SYSTEM: INCORRECT FLOW CONDITION</b>		
No existing flow at motor	Motor not receiving fluid	Regard any or all of the following: Replace dirty filters; clean clogged inlet line; clean or replace reservoir breather vent; fill reservoir to proper level; overhaul or replace supercharge pump.
	Entire flow passing over relief valve	Adjust as necessary.
	Pump is damaged	Check for damaged pump or pump drive—replace as necessary, and align coupling.
	Pump is assembled improperly	Overhaul or replace pump.
Flow is low	Flow control is set too low (Closed Center System [CCS])	Adjust as necessary.
	Relief valve is set too low	Adjust as necessary.
	Partial flow passing over relief	Adjust as necessary.
	External leak in the system exists	Locate and tighten leaking connections.
	Pump drive motor RPM is incorrect	Replace with correct unit.
	Pump, valve, motor is/are worn	Overhaul or replace item as noted.
Flow is excessive	Flow control is set too high (Closed Center System [CCS])	Adjust as necessary.
	Pump drive motor RPM is incorrect	Replace with correct unit. Adjust vehicle RPM.
	Replacement pump is not properly sized	Replace with correct unit.
<b>HYDRAULIC DRIVE SYSTEM: INCORRECT PRESSURE CONDITION</b>		
Pressure is absent	No flow	Refer to information in the “No Existing Flow” column under INCORRECT FLOW CONDITION in this guide
Pressure is low	Pressure relief path is present	Refer to information in the “No Existing Flow” and the “Flow is Low” columns under INCORRECT FLOW CONDITION in this guide
	Pressure relief valve is set too low	Adjust pressure relief valve. Rebuild or replace if necessary.
	Pressure relief valve is damaged or inoperable	Rebuild or replace pressure valve.
	Pump or motor is damaged or inoperable	Overhaul or replace as necessary.
<i>Continued on next page</i>		

## 6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
<b>HYDRAULIC DRIVE SYSTEM: INCORRECT PRESSURE CONDITION (CONTINUED)</b>		
Pressure is erratic	Air is present in fluid	Tighten leaking connections, fill reservoir to proper level, and bleed air from system.
	Relief valve is worn or inoperable	Rebuild or replace valve.
	Fluid is contaminated	Check system fluid and filters; replace if necessary.
	Pump or motor is worn	Overhaul or replace as necessary.
Pressure is excessive	Pressure relief valve out of adjustment	Adjust; Rebuild or replace if necessary.
<b>HYDRAULIC DRIVE SYSTEM: FAULTY OPERATION</b>		
Hydraulic Flow Is Present But Motor Does Not Rotate	Mechanically bound	Locate the bind, and repair.
	Command signal solenoid is absent	Contact the Vanair® Service Department.
	Solenoid valve is inoperative	Replace valve.
	Motor is worn or damaged	Overhaul or replace motor.
Hydraulic Flow Is Present But Motor Rotates Slowly	Low system flow	Refer to information under INCORRECT FLOW CONDITION in this guide.
	Viscosity of fluid too high	Fluid may be too cold; allow system to warm up.
		Fluid may be fouled; change system fluid to correct viscosity fluid.
	Relief valve is out of adjustment or malfunctioning	Adjust, repair or replace.
Solenoid valve sticks	Repair or replace.	
Hydraulic Motor Moves Erratically	Pressure is erratic	Refer to information under INCORRECT PRESSURE in this guide.
	Air is present in fluid	Refer to information under EXCESSIVE NOISE in this guide.
	Command signal is erratic	Repair command console or connection wire(s).
	Relief valve is out of adjustment or malfunctioning	Adjust, repair or replace.
	Solenoid valve sticks	Clean and adjust; replace if necessary. Check system fluid and filters; replace if necessary.
	Cylinder or motor is worn or damaged	Overhaul or replace cylinder or motor.
Hydraulic Motor Rotates Excessively	Flow is excessive	Refer to information under INCORRECT FLOW CONDITION in this guide.

# SECTION 7: ILLUSTRATED PARTS LIST

## 7.1 PARTS ORDERING INFORMATION

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 from the Bill of Lading for the machine package, or from the unit's serial number plate. See **Figure 7-1** for location of machine package serial plate. **Consult Table 7A: Recommended Spare Parts List** on the next page for a listing of replacement parts.

### Vanair Manufacturing, Inc.

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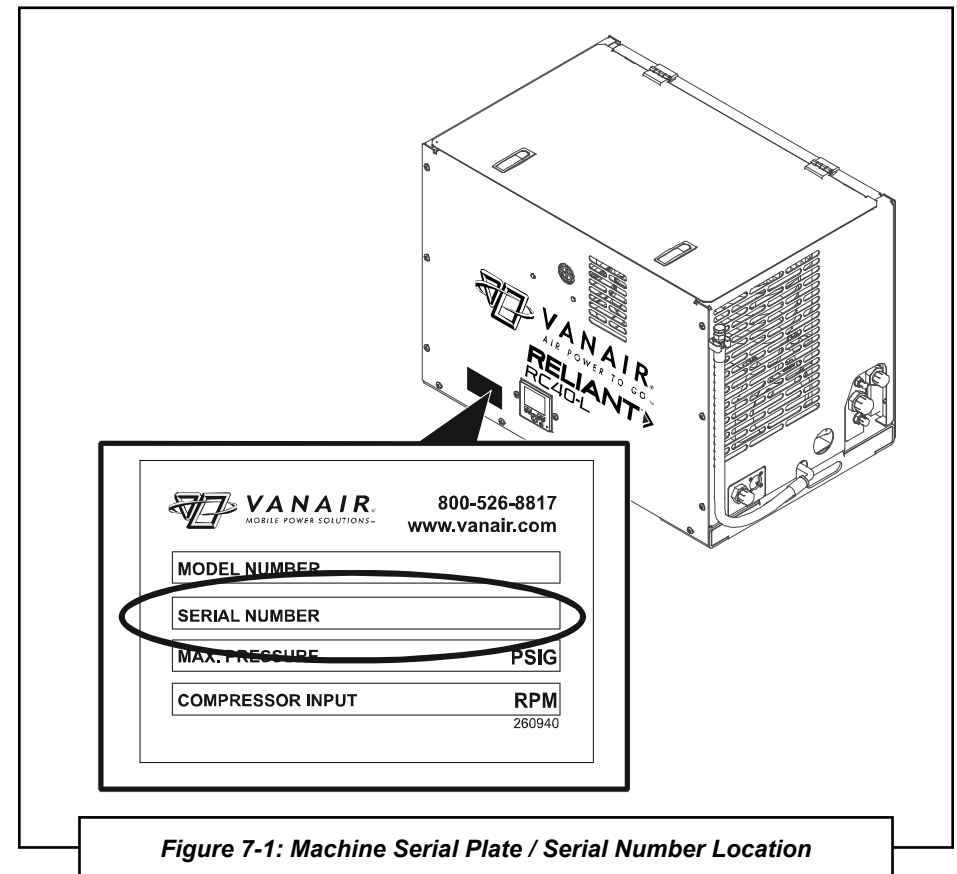


Figure 7-1: Machine Serial Plate / Serial Number Location

**TABLE 7A: RECOMMENDED SPARE PARTS LIST**

KEY NO.	DESCRIPTION	ORDER NO.	QTY	KEY NO.	DESCRIPTION	ORDER NO.	QTY
1	Kit, Compressor Service - Initial 50 Hours <sup>i</sup>	<b>KIT1091</b>	1	10	Fuse, JCASE 30 Amp	<b>279301</b>	1
2	Kit, Compressor Lifetime Warranty Service - 500 Hours <sup>ii</sup>	<b>KIT1388</b>	1	11	Valve, Relief (65 PSI; low pressure)	<b>280221</b>	1
3	Filter, Air Intake Receiver Compressor Element <sup>iii</sup>	<b>276688-002</b>	1	12	Valve, Relief (200 PSI; high pressure)	<b>264232</b>	1
4	Oil, Compressor Reciprocating <sup>iv</sup>	<b>271856-1GAL</b>	1	13	Element, Drive Coupling Replacement	<b>277609-006</b>	1
5	Piston, Compressor	<b>280011</b>	1	14	Valve, Solenoid Replacement	<sup>vi</sup>	1
6	Valve, Compressor	<b>280012</b>	1	15	Replacement, Manifold Pressure Relief	<sup>vii</sup>	
7	Gasket Set, Compressor	<b>280013</b>	1	16	Regulator, Flow Replacement	<sup>viii</sup>	1
8	Hose, Replacement(s)	<sup>v</sup>	1	17	Bumper, Rubber (Mounting Isolator)	<b>279867</b>	4
9	Fuse, ATO 10 Amp Red	<b>263173</b>	1				

<sup>i</sup> Compressor Service Kit no. **KIT1091** contains one gallon container of Vanair Reciprocating Oil no. **271856-1GAL**.

<sup>ii</sup> Compressor Service Kit no. **KIT1388** contains one gallon container of Vanair Reciprocating Oil no. **271856-1GAL**, and primary air filter element replacement no. **276688-002**.

<sup>iii</sup> To replace the entire air filter housing, order air filter replacement no. **276688**, which includes the air filter housing and primary air filter element replacement no. **276688-002**.

<sup>iv</sup> Use only Vanair® Reciprocating 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!**

<sup>v</sup> If a hose needs to be replaced, refer to **Sections 7.15** through **7.20** for hose identification and part order numbers.

<sup>vi</sup> Refer to **Section 7.10**, **7.11** or **7.12** for solenoid valve (manifold) identification and order information.

<sup>vii</sup> Refer to **Section 7.10** for pressure relief valve (open center manifold) replacement.

<sup>viii</sup> Refer to **Section 7.11** or **7.12** for flow regulator (closed center manifold) replacement.

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

### 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 7A become damaged or inoperable, use the various sub-sections in Section 7 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 5.7.2, Long Term Storage**.

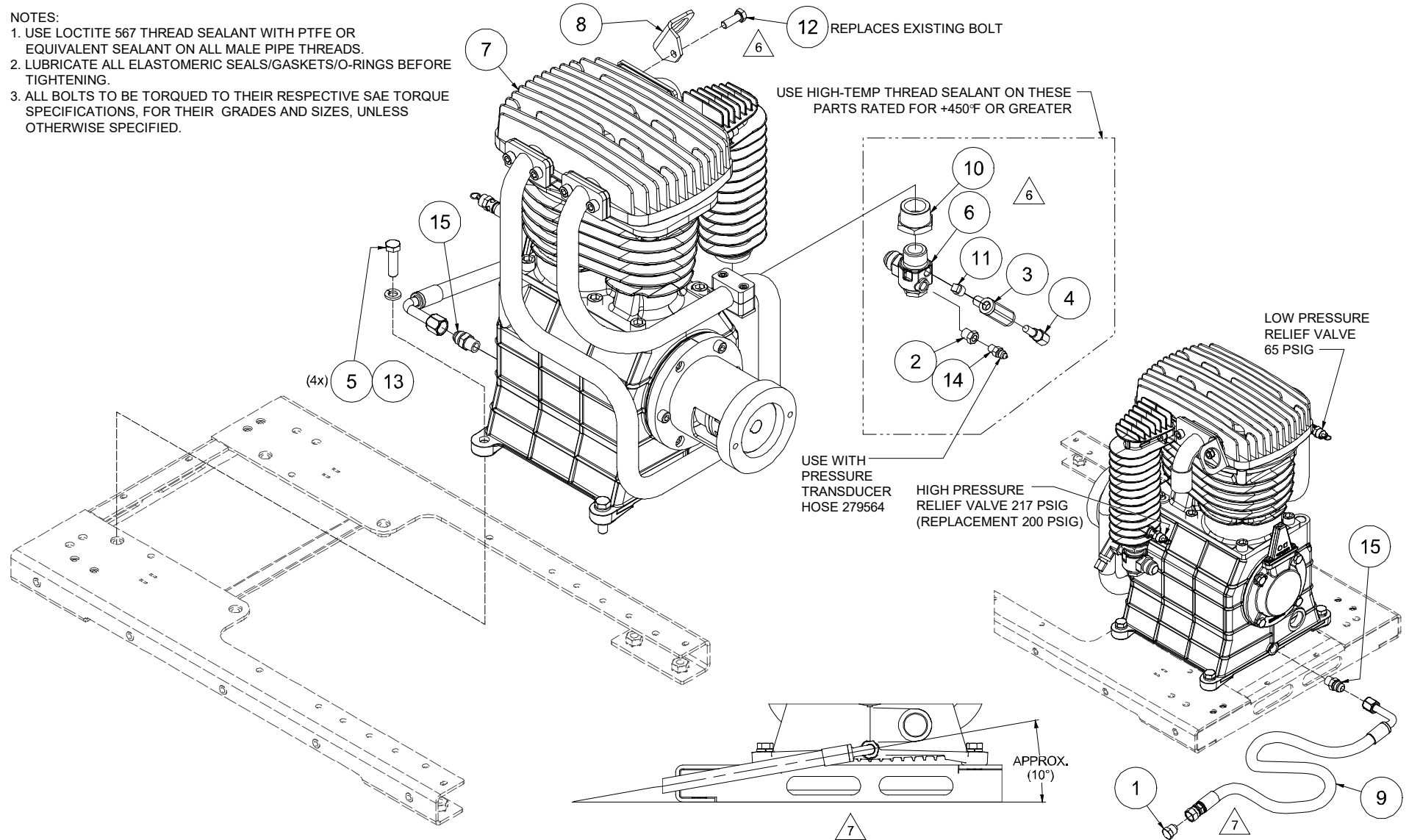


**NOTES**

## 7.2 COMPRESSOR AND PARTS

NOTES:

1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

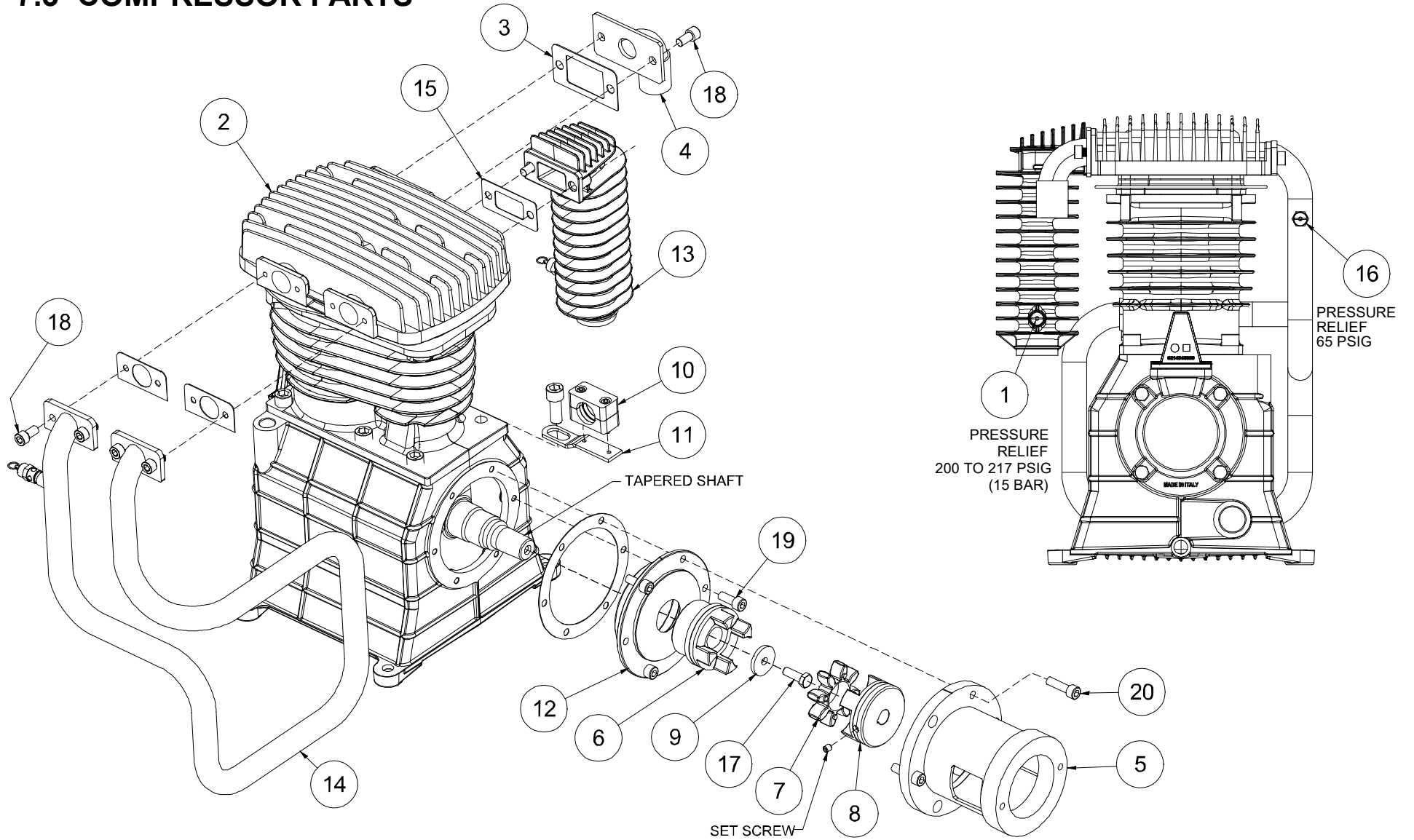


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<b>7.2 COMPRESSOR AND PARTS</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	PLUG, MALE 37 JIC 08	266214	1
2	ORIFICE, .63 HEX x 1/8F x 1/4M x 0.031	268714	1
3	TEE, 1/4" NPT MALE BRANCH	268925-004	1
4	ORIFICE, FILTER .032 DIA., 1/4 FPT X 1/4 MPT	273364	1
5	WASHER, LOCK 1/2 GRADE 8	274827-125	4
6	VALVE, CHECK MANIFOLD 60CFM 450F	274958	1
7	COMPRESSOR, PARTS RC40 DD AL	277609	1
8	EYE, LIFTING RC40 COMPRESSOR	278491	1
9	HOSE, COMPRESSOR OIL DRAIN RC40 DD	278547	1
10	BUSHING, RED STEEL 1 1/4 x 1	807605-040	1
11	PLUG, PIPE 1/4	807800-010	1
12	CAPSCREW, HEX 10mm 1.5 x 30	828010-030	1
13	CAPSCREW, HEX GR5 1/2-13 x 1.75	829108-175	4
14	CONNECTOR, 37FL/MPT #04 x 1/8	860104-012	1
15	CONNECTOR, 37FL/MPT #08 x 3/8	860108-038	1
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.3 COMPRESSOR PARTS





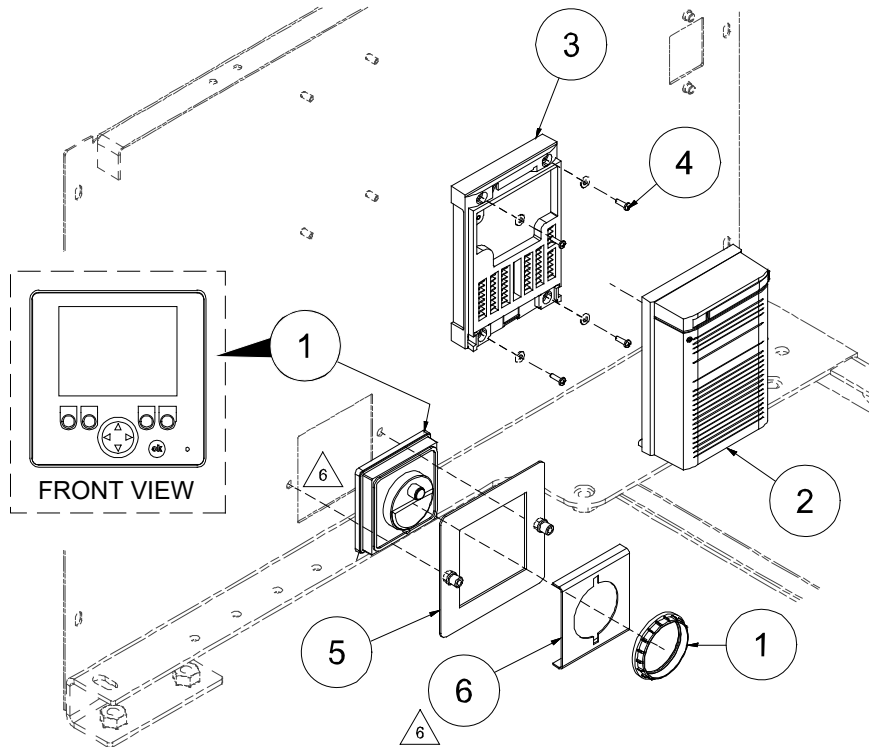
### 7.3 COMPRESSOR PARTS

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	VALVE, RELIEF 200 PSI 1/4 NPT MALE (VANAIR REPLACEMENT) <sup>‡</sup>	264232	1	11	BRACKET, CLAMPING BLOCK	277609-010	1
2	COMPRESSOR, TWO-STAGE PISTON 40 CFM-175PSI	277609-001	1	12	HOUSING, BEARING FRONT	277609-011	1
3	GASKET, ATLAS COPCO NS59 AIR INLET	277609-002	1	13	AFTERCOOLER, DISCHARGE	277609-012	1
4	ADAPTER, AIR IINLET ATLAS COPCO N559	277609-003	1	14	TUBE, MID-STAGE COOLING	277609-013	1
5	HOUSING, BELL HYD MOTOR TO COMPRESSOR RC40	277609-004	1	15	GASKET, DISCHARGE AFTERCOOLER	277609-014	1
6	HUB, COUPLING COMPRESSOR RC40 DD	277609-005	1	16	VALVE, RELIEF 65 PSI 1/4 NPT MALE	280221	1
7	SPIDER, COUPLING RC40 DD	277609-006	1	17	CAPSCREW, HEX 10mm 1.5 x 30	828010-030	1
8	HUB, COUPLING MOTOR RC40 DD	277609-007	1	18	CAPSCREW, S.H. M10 1.5 X 20MM	829310-020	6
9	WASHER, HUB RETAINER	277609-008	1	19	CAPSCREW, S.H. M10x1.5 x 25mm	829310-025	3
10	BLOCK, CLAMPING PIPE	277609-009	1	20	CAPSCREW, S.H. M10x1.5 x 35MM	829310-035	3

<sup>‡</sup> Pressure relief valve may vary at either 200 PSIG, or 217 PSIG, depending upon machine build. To verify proper pressure relief valve rating, consult the Vanair Service Department with machine serial number available.

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

### 7.4 DISPLAY AND CONTROLLER



ITEM	DESCRIPTION	PART NUMBER	QTY
1	DISPLAY, COLOR 2.8 INCH	276319	1
2	COVER, BASIC CONTROLLER	277666	1
3	CONTROLLER, BASIC 12 IN/8 OUT/2 CAN	278395	1
4	SCREW, MACH #6-32 X 1/2 PAN HD PHILLIPS SS	279106	4
5	PANEL, GAUGE RC40-L ELECTRONIC	279492	1
6	PANEL, GAUGE RC40-L ELECTRONIC REAR	279513	1

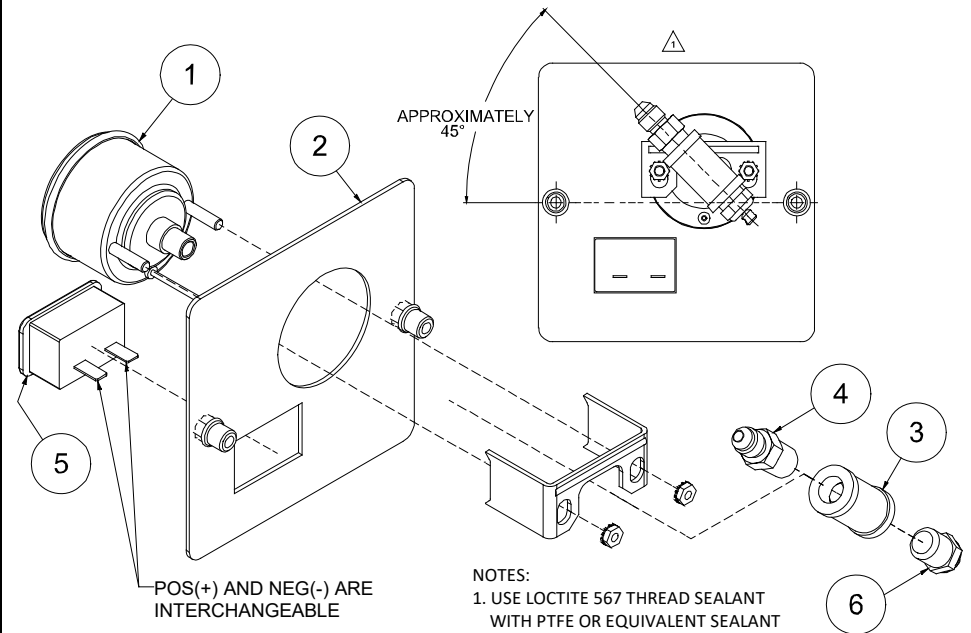
**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

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### 7.5 DISPLAY AND GAUGE ASSEMBLY (MECHANICAL CONTROL)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	GAUGE, AIR PRESSURE w/ SWITCH	261974	1
2	PANEL, GAUGE RC40-L MECHANICAL	279491	1
3	TEE, PIPE GALV 1/4 x 1/4 x 1/8	802901-010	1
4	CONNECTOR, 37FL/MPT #04 x 1/4	860104-025	1
5	METER, PANEL HOUR AC/DC	CO79106	1
6	DRAIN, CABLE-PULL 1/4"NPT	FI273017	1

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

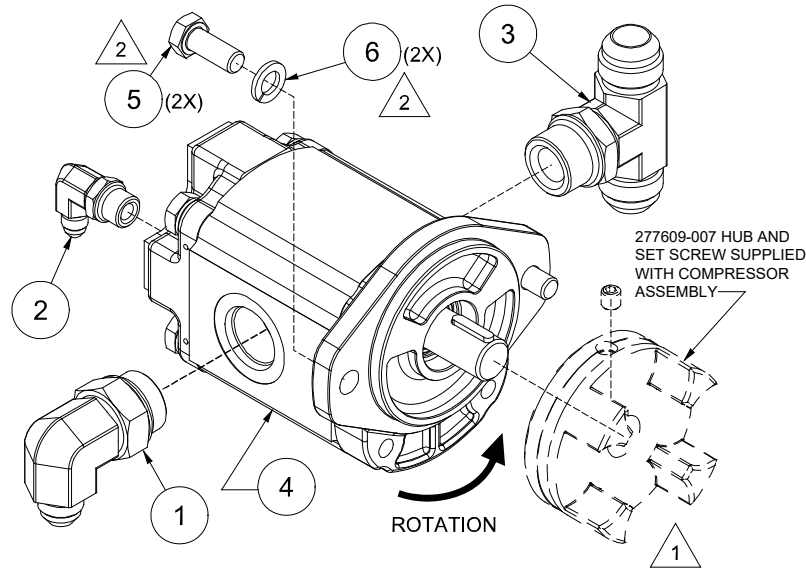


POS(+) AND NEG(-) ARE INTERCHANGEABLE

NOTES:  
1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.

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### 7.6A MOTOR AND DRIVE PARTS (OPEN CENTER)



ASSEMBLY DRAWING STANDARD NOTES:

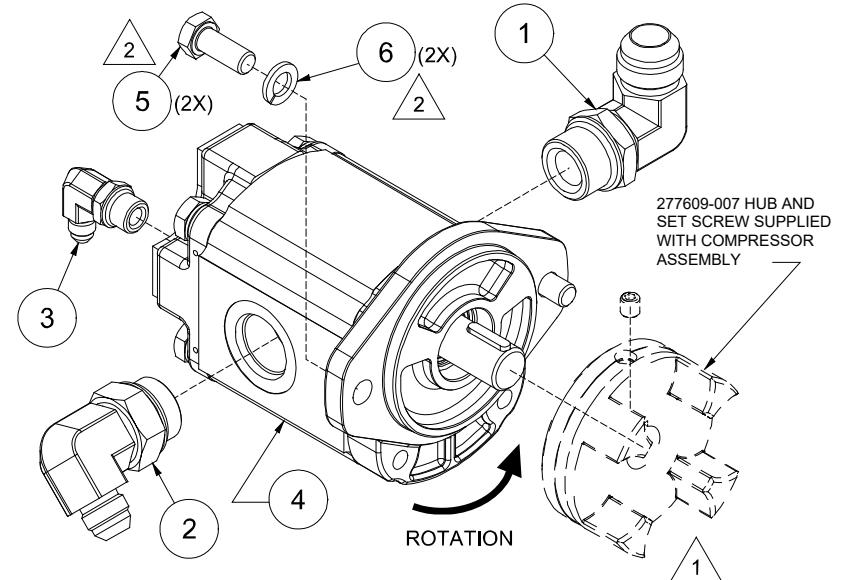
1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #8 MJIC x #12 MSAE	260403-115	1
2	ELBOW, 90 DEG #4 MJIC x #6 MSAE	260403-122	1
3	TEE, JIC/JIC/SAE #12	263749-006	1
4	MOTOR, HYDRAULIC 32CC 3/4 SHAFT	278945	1
5	CAPSCREW, HEX 10mm 1.5 x 25	828010-025	2
6	WASHER, LOCK METRIC M10	838810-220	2

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

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### 7.6B MOTOR AND DRIVE PARTS (CLOSED CENTER)



ASSEMBLY DRAWING STANDARD NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
2	ELBOW, 90 DEG #8 MJIC x #12 MSAE	260403-115	1
3	ELBOW, 90 DEG #4 MJIC x #6 MSAE	260403-122	1
4	MOTOR, HYDRAULIC 32CC 3/4 SHAFT	278945	1
5	CAPSCREW, HEX 10mm 1.5 x 25	828010-025	2
6	WASHER, LOCK METRIC M10	838810-220	2

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

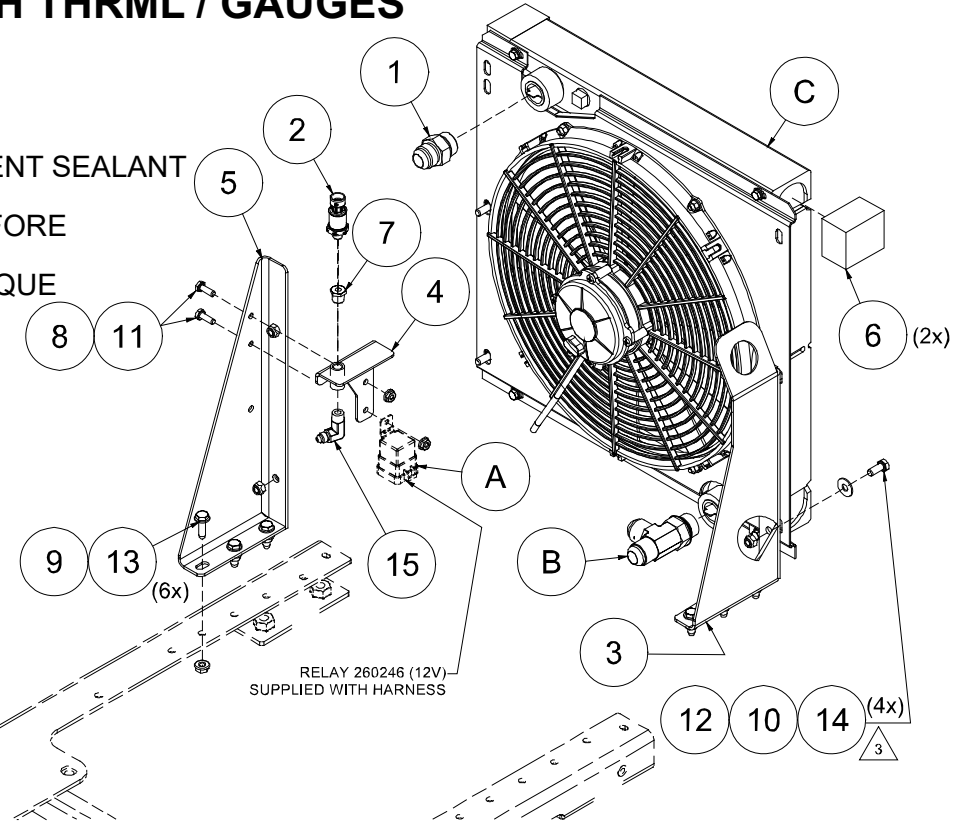
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## 7.7 HYDRAULIC COOLER & PARTS - 12V WITH THRML / GAUGES

6020235 12V W/THRML SHOWN

**NOTES:**

1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
4. ITEM 279808-007 IS PART OF THE 279808 KIT CALLED OUT ON FRAME & CANOPY DRAWING.



TABULATED ASSEMBLIES

PART NUMBER	DESCRIPTION	ITEM A	DESCRIPTION	ITEM B	DESCRIPTION	ITEM C	DESCRIPTION
6020235	HYDRAULIC COOLER & PARTS, RC40-L 12V W/THRML	260246 (REF) <sup>‡</sup>	RELAY, NO/NC WEATHERPROOF 12V w/BKT. & RESISTOR	268591	TEE, MJIC,MJIC,ORNG RUN 3/4	277194	COOLER, OIL ASSY RC40 RELIANT
6020236	HYDRAULIC COOLER & PARTS, RC40-L 24V W/THRML	265182	RELAY, NO/NC 24V WEATHER-PROOF 20 AMP	268591	TEE, MJIC,MJIC,ORNG RUN 3/4	277441	COOLER, OIL ASSY RC40 RELIANT 24V
6020237	HYDRAULIC COOLER & PARTS, RC40-L 12V	260246 (REF) <sup>‡</sup>	RELAY, NO/NC WEATHERPROOF 12V w/BKT. & RESISTOR	260387-112	CONNECTOR, O-RING 3/4 x 3/4 JIC	277194	COOLER, OIL ASSY RC40 RELIANT
6020238	HYDRAULIC COOLER & PARTS, RC40-L 24V	265182	RELAY, NO/NC 24V WEATHER-PROOF 20 AMP	260387-112	CONNECTOR, O-RING 3/4 x 3/4 JIC	277441	COOLER, OIL ASSY RC40 RELIANT 24V

<sup>‡</sup> 260246 always (ref) on cooling assembly. 260246 is supplied with harness.

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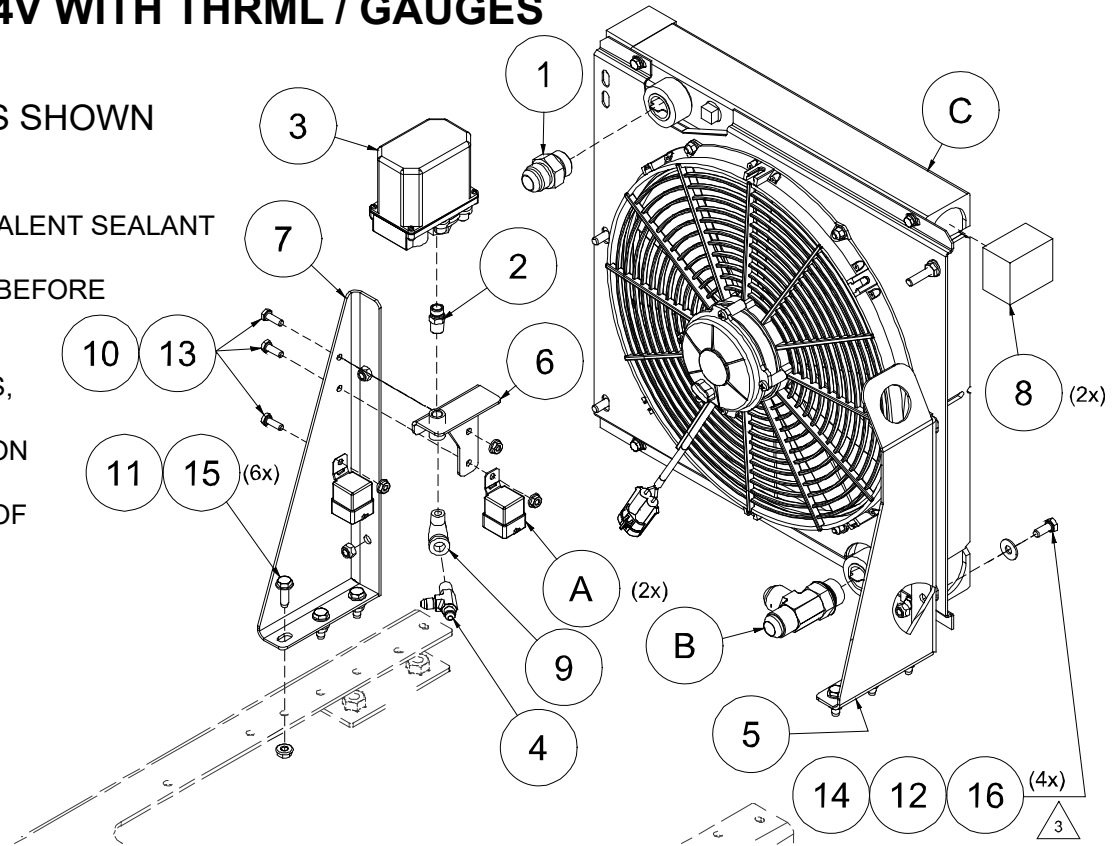
<b>7.7 HYDRAULIC COOLER &amp; PARTS - 12V WITH THRML / GAUGES</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	TRANSDUCER, PRESS 1/8NPT 200PSI -40 to 125 C	278283	1
3	BRACKET, COOLER MOUNTING RIGHT RC40-L	279488	1
4	BRACKET, SENSOR MOUNTING RC40-L	279489	1
5	BRACKET, COOLER MOUNTING LEFT RC40-L	279504	1
6	KIT, ACOUSTICAL INSULATION RC40-L	279808-007	2
7	BUSHING, PIPE BRASS 1/4 x 1/8	804100-005BRS	1
8	NUT, HEX FLANGE 1/4-20	825304-236	2
9	NUT, HEX FLANGE 5/16-18	825305-283	6
10	NUT, HEX LOCKING 5/16-18	825505-166	4
11	CAPSCREW, HEX GR5 1/4-20 x 0.75	829104-075	2
12	CAPSCREW, HEX GR5 5/16-18 x 0.75	829105-075	4
13	SCREW, SER WASH 5/16-18 x 1	829705-100	6
14	WASHER, FLAT 5/16	838205-071	4
15	ELBOW, 37FL/90M #04 x 1/4	860204-025	1
A	TABULATED ASSEMBLIES LIST (See page 7-10)	SEE ITEM (A)	1
B	TABULATED ASSEMBLIES LIST (See page 7-10)	SEE ITEM (B)	1
C	TABULATED ASSEMBLIES LIST (See page 7-10)	SEE ITEM (C)	1
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

## 7.8 HYDRAULIC COOLER & PARTS - 24V WITH THRML / GAUGES

6020240 24V W/THRML/GAUGES SHOWN

**NOTES:**

1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
4. ITEM 279808-007 IS PART OF THE 279808 KIT CALLED OUT ON FRAME & CANOPY DRAWING.
5. SLIDE COOLER MOUNTING BRACKETS TOWARD BOTTOM OF COOLER BEFORE TIGHTENING NOTED FASTENERS.



**TABULATED ASSEMBLIES**

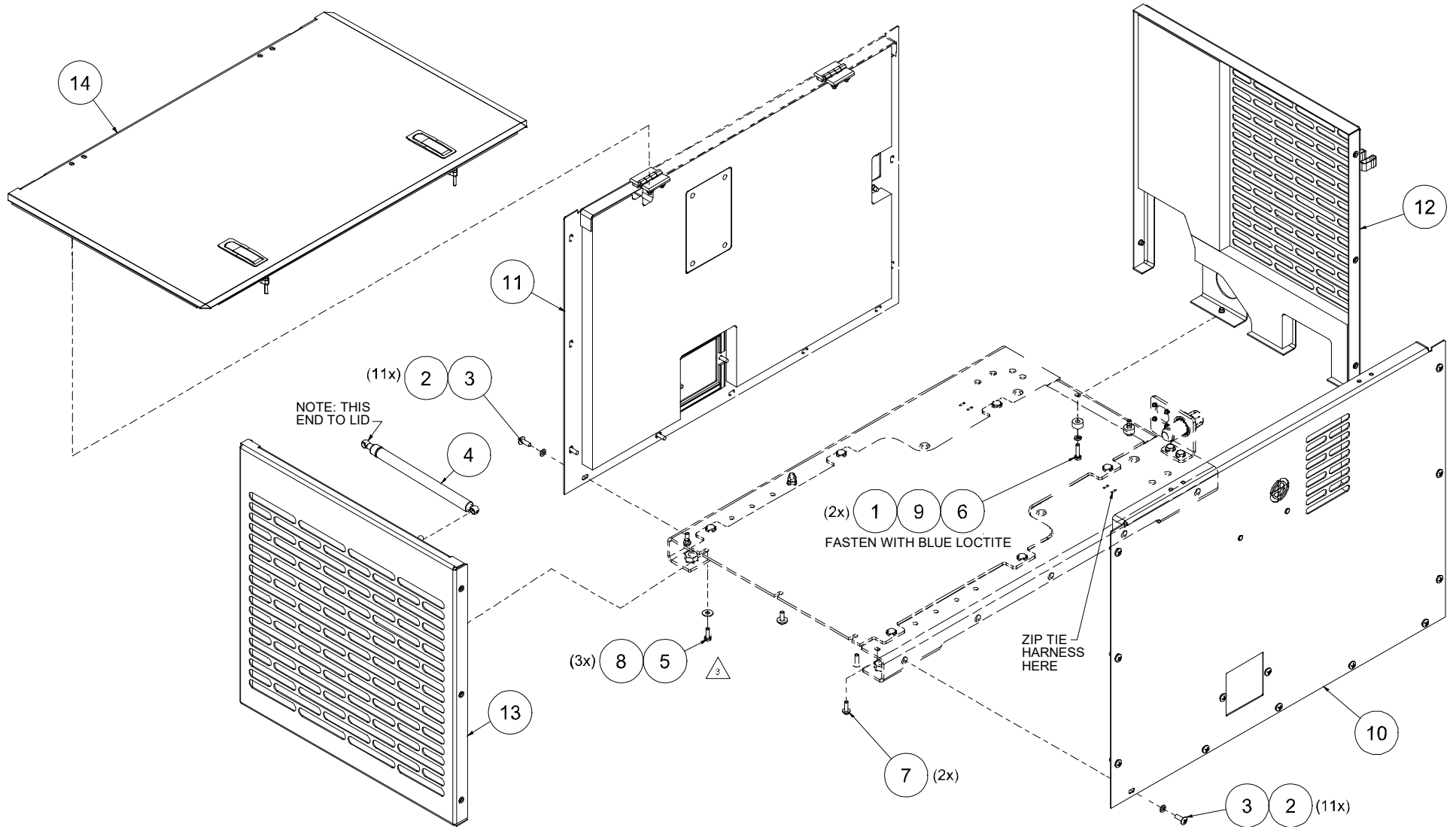
PART NUMBER	DESCRIPTION	ITEM A	DESCRIPTION	ITEM B	DESCRIPTION	ITEM C	DESCRIPTION
6020239	HYD CLR & PRTS, RC40-L 12V W/THRML/GAUGES	260246 (REF) <sup>‡</sup>	RELAY, NO/NC WHTRPRF 12V w/BKT. & RSTR	268591	TEE, MJIC,MJIC,ORNG RUN 3/4	277194	CLR, OIL ASSY RC40 RELIANT
6020240	HYD CLR & PRTS, RC40-L 24V W/THRML/GAUGES	265182	RELAY, NO/NC 24V WHTRPRF 20 AMP	268591	TEE, MJIC,MJIC,ORNG RUN 3/4	277441	CLR, OIL ASSY RC40 RELIANT 24V
6020241	HYD CLR & PRTS, RC40-L 12V W/GAUGES	260246 (REF) <sup>‡</sup>	RELAY, NO/NC WHTRPRF 12V w/BKT. & RSTR	260387-112	CONNECTOR,O-RING 3/4 x 3/4 JIC	277194	CLR, OIL ASSY RC40 RELIANT
6020242	HYD CLR & PRTS, RC40-L 24V W/GAUGES	265182	RELAY, NO/NC 24V WHTRPRF 20 AMP	260387-112	CONNECTOR,O-RING 3/4 x 3/4 JIC	277441	CLR, OIL ASSY RC40 RELIANT 24V

<sup>‡</sup> 260246 always (ref) on cooling assembly. 260246 is supplied with harness.



<b>7.8 HYDRAULIC COOLER &amp; PARTS - 24V WITH THRML / GAUGES</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	ADAPTER, #4 MBSPP X 1/4 MNPT	272824-004	1
3	SWITCH, PRESSURE NO/NC ADJUSTABLE MAX 362PSI EATON	275820	1
4	TEE, JIC#4 x JIC#4 x 1/4 NPT	279416	1
5	BRACKET, COOLER MOUNTING RIGHT RC40-L	279488	1
6	BRACKET, SENSOR MOUNTING RC40-L	279489	1
7	BRACKET, COOLER MOUNTING LEFT RC40-L	279504	1
8	KIT, ACOUSTICAL INSULATION RC40-L	279808-007	2
9	ELBOW, PIPE STREET 1/4	801115-010	1
10	NUT, HEX FLANGE 1/4-20	825304-236	3
11	NUT, HEX FLANGE 5/16-18	825305-283	6
12	NUT, HEX LOCKING 5/16-18	825505-166	4
13	CAPSCREW, HEX GR5 1/4-20 x 0.75	829104-075	3
14	CAPSCREW, HEX GR5 5/16-18 x 0.75	829105-075	4
15	SCREW, SER WASH 5/16-18 x 1	829705-100	6
16	WASHER, FLAT 5/16	838205-071	4
A	TABULATED ASSEMBLIES LIST (See page 7-12)	SEE ITEM (A)	2
B	TABULATED ASSEMBLIES LIST (See page 7-12)	SEE ITEM (B)	1
C	TABULATED ASSEMBLIES LIST (See page 7-12)	SEE ITEM (C)	1
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.9 FRAME AND CANOPY - 1 OF 3 (ASSEMBLY PART A)

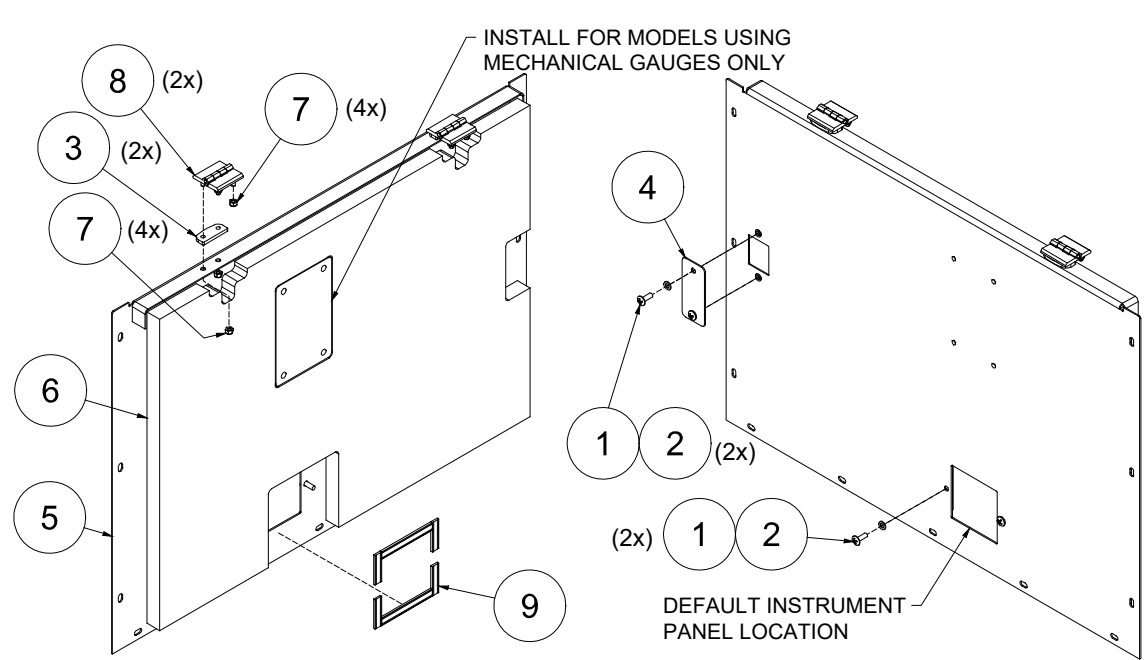
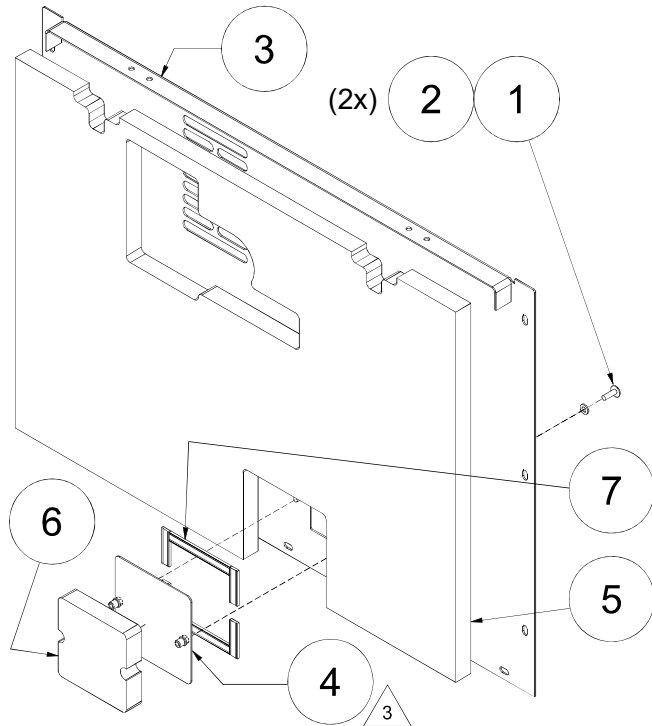


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<b>7.9 FRAME AND CANOPY - 1 OF 3 (ASSEMBLY PART A)</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	SPACER, .313ID X 0.75OD X 0.375L	680-357	2
2	WASHER, NYLON FLAT 1/4	262704	22
3	SCREW, TRUSS 1/4-20 X 3/4 SS	262953	22
4	GAS SPRING, 6 STROKE, 20#	277909	1
5	CAPSCREW, HEX GR5 1/4-20 x 0.75	829104-075	3
6	CAPSCREW, HEX GR5 1/4-20 x 1	829104-100	2
7	SCREW, SER WASH 1/4-20 x 0.75	829704-075	2
8	WASHER, FLAT 1/4	838204-071	3
9	WASHER, LOCK 1/4	838504-062	2
10	ID, CANOPY ASSY RC40-L	6030180ID-B	1
11	ID, CANOPY ASSY RC40-L	6030180ID-C	1
12	ID, CANOPY ASSY RC40-L	6030180ID-D	1
13	ID, CANOPY ASSY RC40-L	6030180ID-E	1
14	ID, CANOPY ASSY RC40-L	6030180ID-F	1
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.9 FRAME AND CANOPY - 2 OF 3 (ASSEMBLY PARTS B - C)



ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	2
2	SCREW, TRUSS 1/4-20 X 3/4 SS	262953	2
3	PANEL, FRONT SIDE RC40-L	279476	1
4	PANEL, GAUGE RC40-L BLANK	279493	1
5	KIT, ACOUSTICAL INSULATION RC40-L	279808-002	1
6	KIT, ACOUSTICAL INSULATION RC40-L	279808-004	1
7	GASKET, SEAL AND TRIM	PR35734	1.333 ft

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

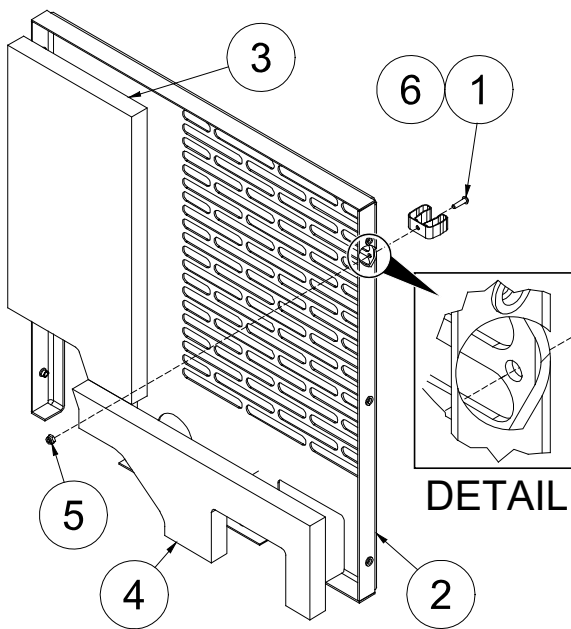
ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	4
2	SCREW, TRUSS 1/4-20 X 3/4 SS	262953	4
3	SPACER, HINGE 277866	279032	2
4	PANEL, HYDRAULIC MANIFOLD SERVICE RC40-L	279308	1
5	PANEL, BACK SIDE RC40-L	279477	1
6	KIT, ACOUSTICAL INSULATION RC40-L	279808-001	1
7	NUT, LOCK, M6 X 1.0 PITCH	FA55272	8
8	HINGE, 2" X 2", BLACK	HA88014	2
9	GASKET, SEAL AND TRIM	PR35734	1.333 ft

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

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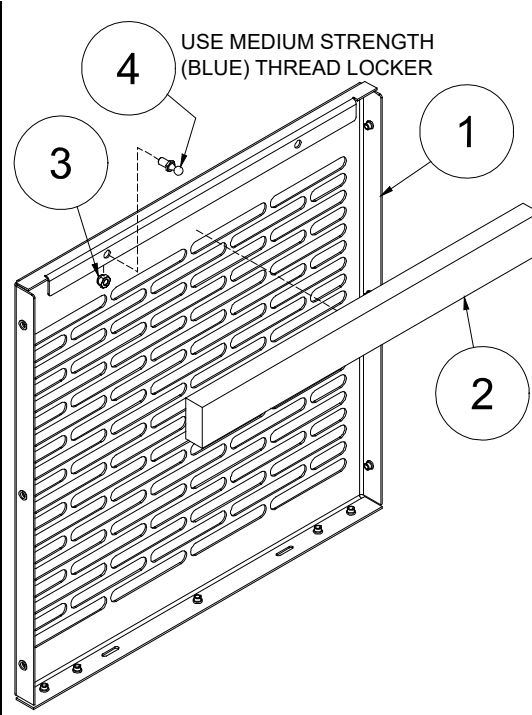
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### 7.9 FRAME AND CANOPY - 3 OF 3 (ASSEMBLY PARTS D - F)



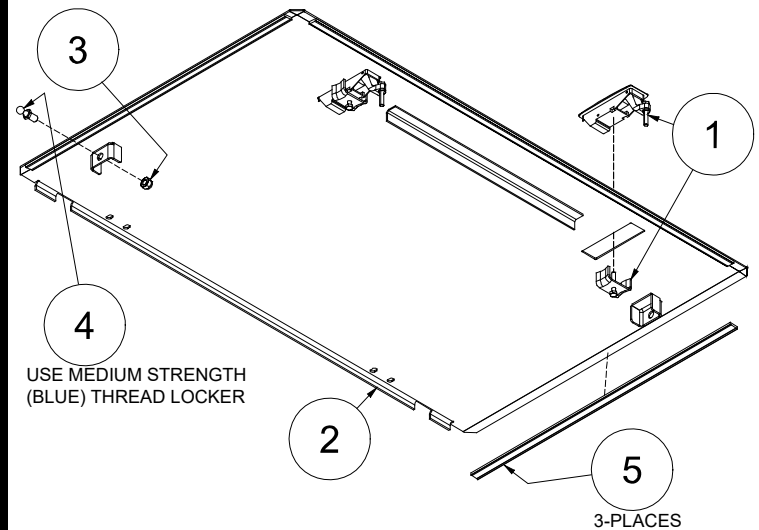
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1
2	PANEL, COMP SIDE RC40-L	279474	1
3	KIT, ACOUSTICAL INSULATION RC40-L	279808-003	1
4	KIT, ACOUSTICAL INSULATION RC40-L	279808-006	1
5	NUT, HEX LOCKING #10-24	825502-083	1
6	SCREW, MACHINE #10-24 X 3/4	831602-075	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

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ITEM	DESCRIPTION	PART NUMBER	QTY
1	PANEL, COOLER SIDE RC40-L	279475	1
2	KIT, ACOUSTICAL INSULATION RC40-L	279808-005	1
3	NUT, HEX LOCKING 5/16-18 UNC	825505-166	1
4	STUD, BALL, .39DIA. X .55LG.	FA58724	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

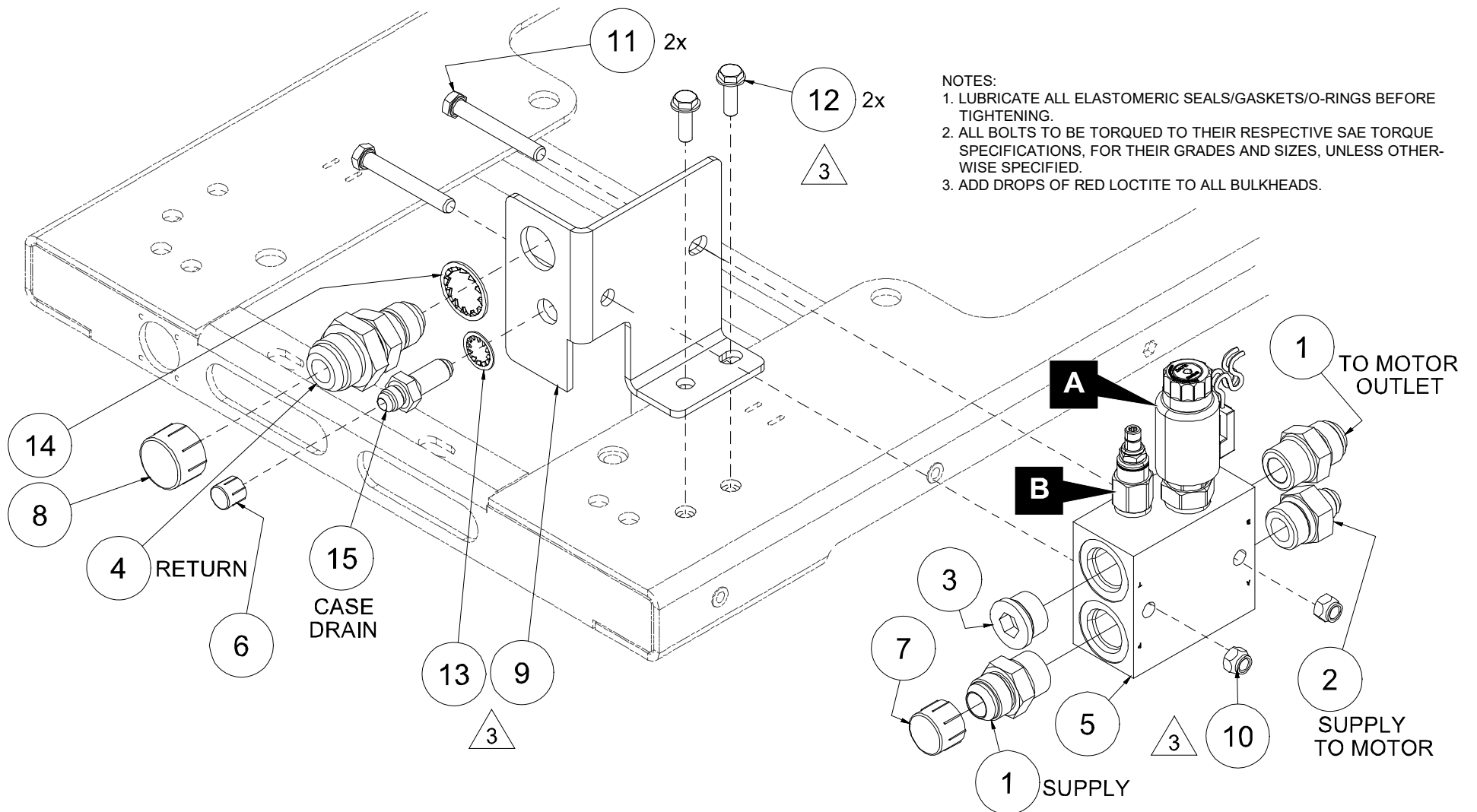
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ITEM	DESCRIPTION	PART NUMBER	QTY
1	LATCH, SENTRY PANEL	267124	2
2	PANEL, ROOF RC40-L DD AL	278393	1
3	NUT, HEX LOCKING 5/16-18 UNC	825505-166	1
4	STUD, BALL, .39DIA. X .55LG.	FA58724	1
5	GASKET, SEAL AND TRIM	PR35734	5.417 ft
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

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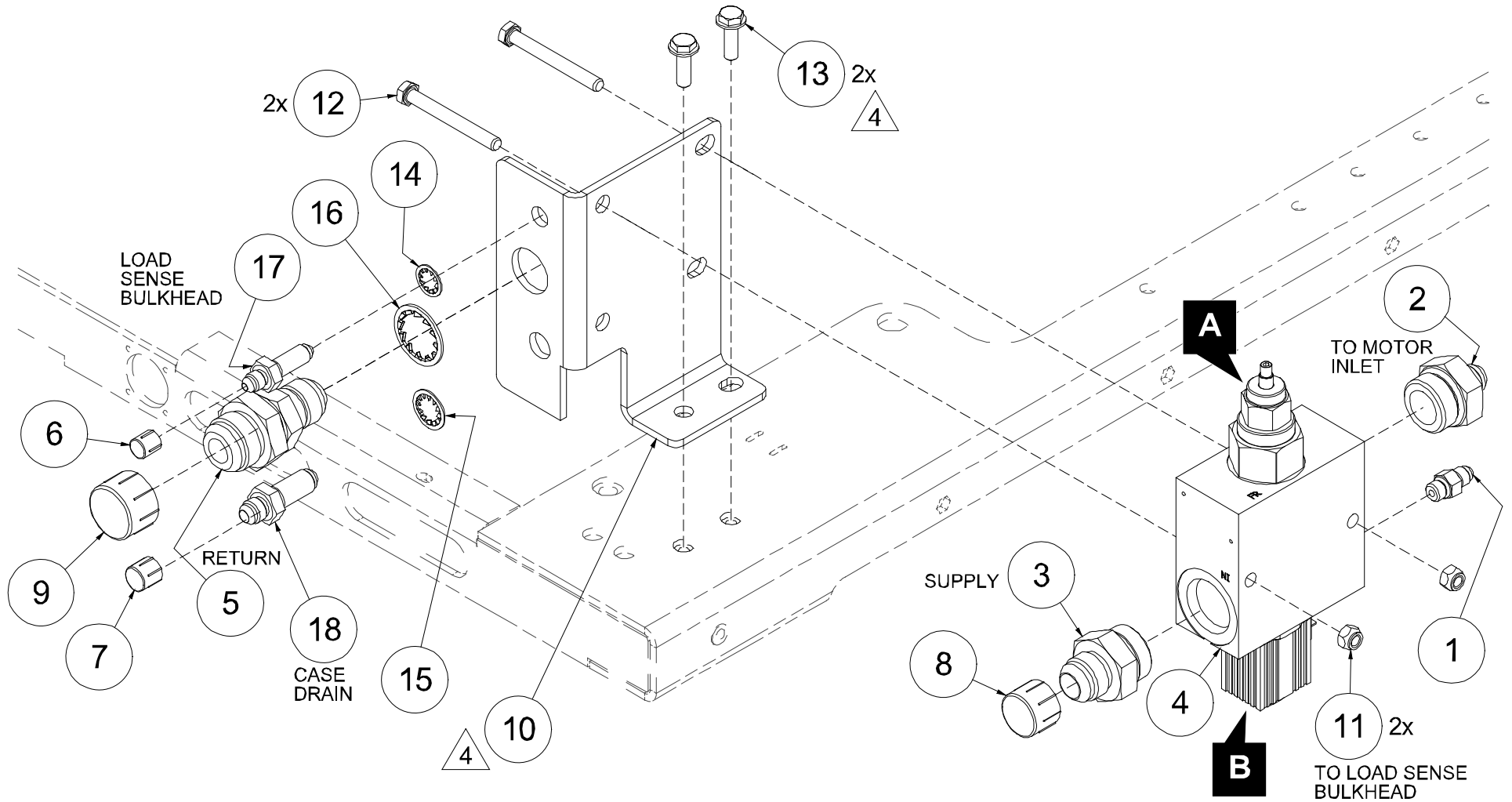
### 7.10 HYDRAULIC MANIFOLD ASSEMBLY - 12VDC OPEN CENTER (STANDARD & COLD WEATHER)





<b>7.10 HYDRAULIC MANIFOLD ASSEMBLY - 12VDC OPEN CENTER (STANDARD &amp; COLD WEATHER)</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	2
2	CONNECTOR, #12 MSAE x #8 MJIC	260387-132	1
3	PLUG, SAE O-RING #12	268081-008	1
4	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
5	MANIFOLD, HYDRAULIC SOFT SHIFT	277819	1
6	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1
7	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
8	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	279109-006	1
9	BRACKET, HYD OIL OP CTR MNFLD RC40-L	279468	1
10	NUT, HEX LOCKING 3/8-16	825506-198	2
11	CAPSCREW, HEX GR5 3/8-16 x 2.75	829106-275	2
12	SCREW, SER WASH 5/16-18 x 1	829705-100	2
13	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	837409-045	1
14	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
15	BULKHEAD, MJIC x MJIC #6	862106-038	1
<b>A</b>	Solenoid: For solenoid replacement, consult the Vanair Service Department.		
<b>B</b>	Pressure Relief: For pressure relief replacement, consult the Vanair Service Department.		
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.11 HYDRAULIC MANIFOLD ASSEMBLY - CLOSED CENTER 12V (STANDARD & COLD WEATHER)

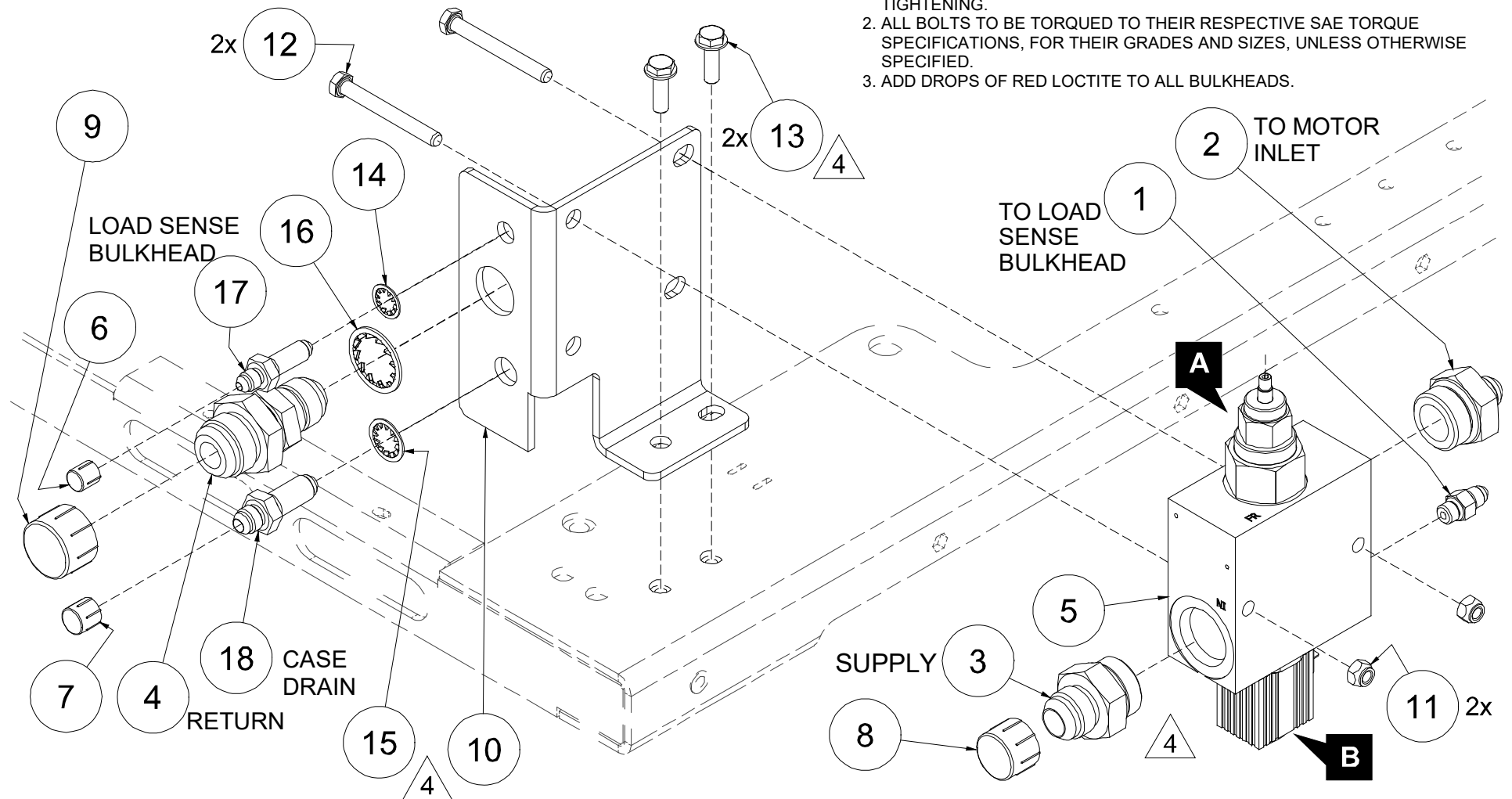


<b>7.11 HYDRAULIC MANIFOLD ASSEMBLY - CLOSED CENTER 12V (STANDARD &amp; COLD WEATHER)</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, #4 MSAE x #4 MJIC	260387-103	1
2	CONNECTOR, #16 MSAE x #8 MJIC	260387-118	1
3	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	1
4	VALVE, HYDRAULI ASSY MAINT RC40	267617	1
5	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
6	CAP, FEMALE JIC SHIPPING #4 7/16-20	279109-001	1
7	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1
8	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
9	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	279109-006	1
10	BRACKET, HYD OIL CLSD CTR MNFLD RC40-L	279469	1
11	NUT, HEX LOCKING 5/16-18	825505-166	2
12	CAPSCREW, HEX GR5 5/16-18 x 2.75	829105-275	2
13	SCREW, SER WASH 5/16-18 x 1	829705-100	2
14	WASHER, LOCK INTERNAL TOOTH 7/16 INCH	837407-040	1
15	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	837409-045	1
16	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
17	BULKHEAD, MJIC x MJIC #4	862104-025	1
18	BULKHEAD, MJIC x MJIC #6	862106-038	1
<b>A</b>	Flow Regulator: For flow regulator replacement, consult the Vanair Service Department.		
<b>B</b>	Solenoid: For solenoid replacement, consult the Vanair Service Department.		
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.12 HYDRAULIC MANIFOLD ASSEMBLY - CLOSED CENTER 24V (STANDARD & COLD WEATHER)

NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
3. ADD DROPS OF RED LOCTITE TO ALL BULKHEADS.





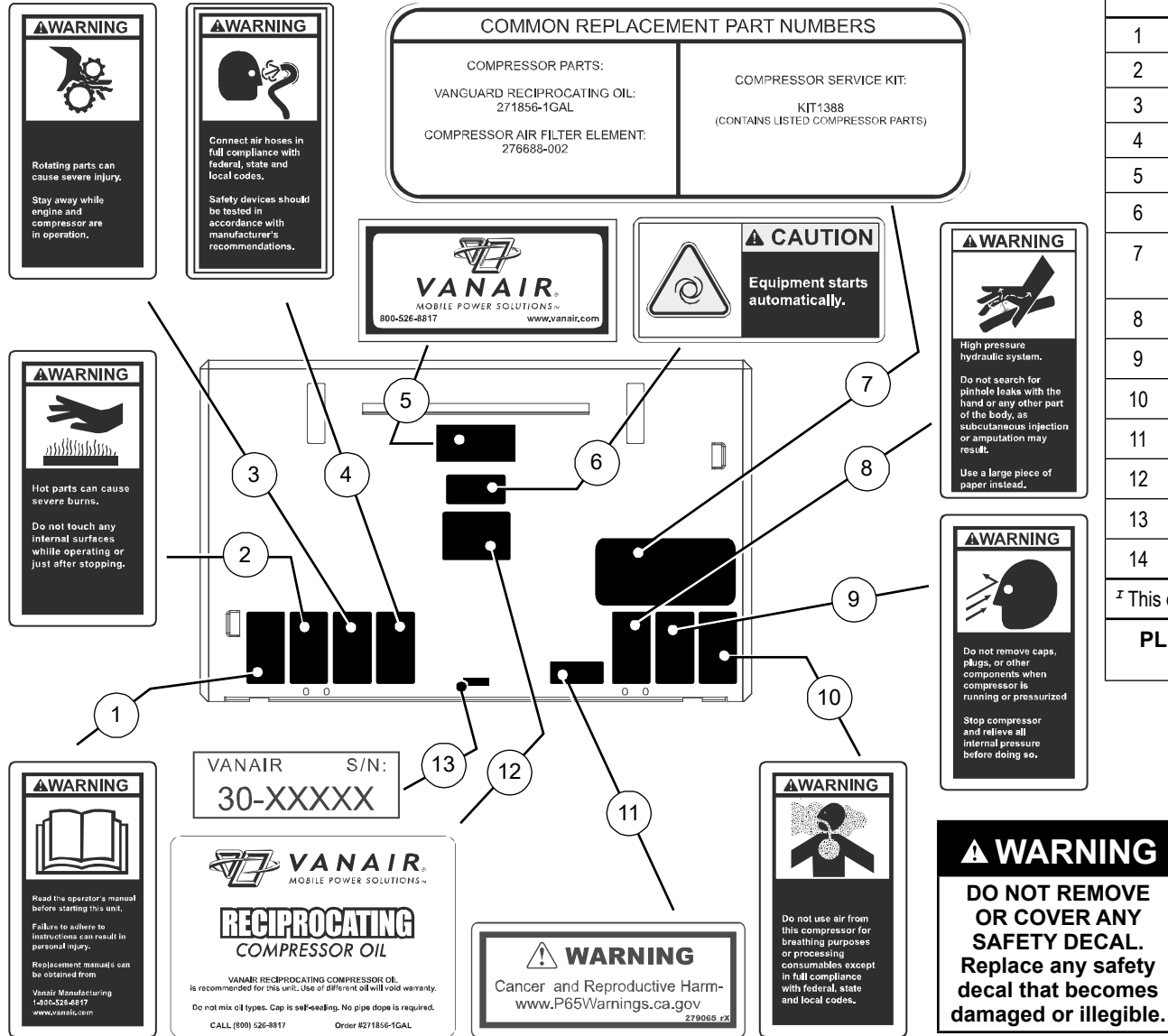
<b>7.12 HYDRAULIC MANIFOLD ASSEMBLY - CLOSED CENTER 24V (STANDARD &amp; COLD WEATHER)</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, #4 MSAE x #4 MJIC	260387-103	1
2	CONNECTOR, #16 MSAE x #8 MJIC	260387-118	1
3	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	1
4	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
5	VALVE, HYD ASSY CLOSE CENTER 24V	277854	1
6	CAP, FEMALE JIC SHIPPING #4 7/16-20	279109-001	1
7	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1
8	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
9	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	279109-006	1
10	BRACKET, HYD OIL CLSD CTR MNFLD RC40-L	279469	1
11	NUT, HEX LOCKING 5/16-18	825505-166	2
12	CAPSCREW, HEX GR5 5/16-18 x 2.75	829105-275	2
13	SCREW, SER WASH 5/16-18 x 1	829705-100	2
14	WASHER, LOCK INTERNAL TOOTH 7/16 INCH	837407-040	1
15	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	837409-045	1
16	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
17	BULKHEAD, MJIC x MJIC #4	862104-025	1
18	BULKHEAD, MJIC x MJIC #6	862106-038	1
<b>A</b>	Flow Regulator: For flow regulator replacement, consult the Vanair Service Department.		
<b>B</b>	Solenoid: For solenoid replacement, consult the Vanair Service Department.		
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			





<b>7.13 HYDRAULIC MANIFOLD ASSEMBLY - 24VDC CLOSED CENTER (STANDARD &amp; COLD WEATHER)</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QTY</b>
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	260387-112	2
2	CONNECTOR, #12 MSAE x #8 MJIC	260387-132	1
3	PLUG, SAE O-RING #12	268081-008	1
4	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	269751	1
5	MANIFOLD, HYDRAULIC SOFT SHIFT 24V	277875	1
6	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1
7	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
8	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	279109-006	1
9	BRACKET, HYD OIL OP CTR MNFLD RC40-L	279468	1
10	NUT, HEX LOCKING 3/8-16	825506-198	2
11	CAPSCREW, HEX GR5 3/8-16 x 2.75	829106-275	2
12	SCREW, SER WASH 5/16-18 x 1	829705-100	2
13	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	837409-045	1
14	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
15	BULKHEAD, MJIC x MJIC #6	862106-038	1
<b>A</b>	Solenoid: For solenoid replacement, consult the Vanair Service Department.		
<b>B</b>	Pressure Relief: For pressure relief replacement, consult the Vanair Service Department.		
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

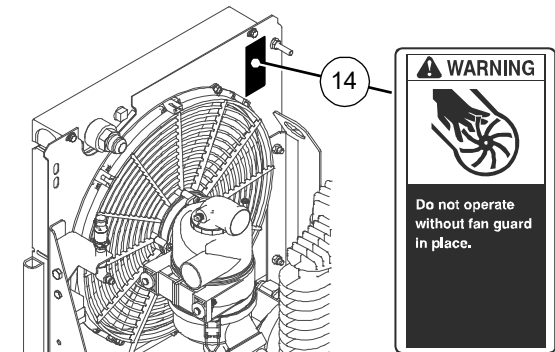
### 7.14 DECAL IDENTIFICATION/LOCATIONS - 1 OF 3



ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, READ MANUAL †	272424	1
2	DECAL, HOT PARTS †	264372	1
3	DECAL, ROTATING PARTS †	264374	1
4	DECAL, CONNECT AIR HOSE †	261885	1
5	DECAL, VANAIR †	265605	1
6	DECAL, CAUTION AUTO START †	272041	1
7	DECAL, REPLACEMENT PART NUMBERS RC40-L	279461	1
8	DECAL, HYDRAULIC HIGH PRESSURE †	264380	1
9	DECAL, DO NOT REMOVE CAPS †	264378	1
10	DECAL, DO NOT USE AIR †	261886	1
11	DECAL, WARN-CANCER REPRO,HARM †	279065	1
12	DECAL, VANAIR RECIPROCATING OIL †	272502	1
13	TAG, SERIAL NUMBER	-	1
14	DECAL, DO NOT REMOVE GUARD	264383	1

† This decal is included with decal safety sheet no. 264416.

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



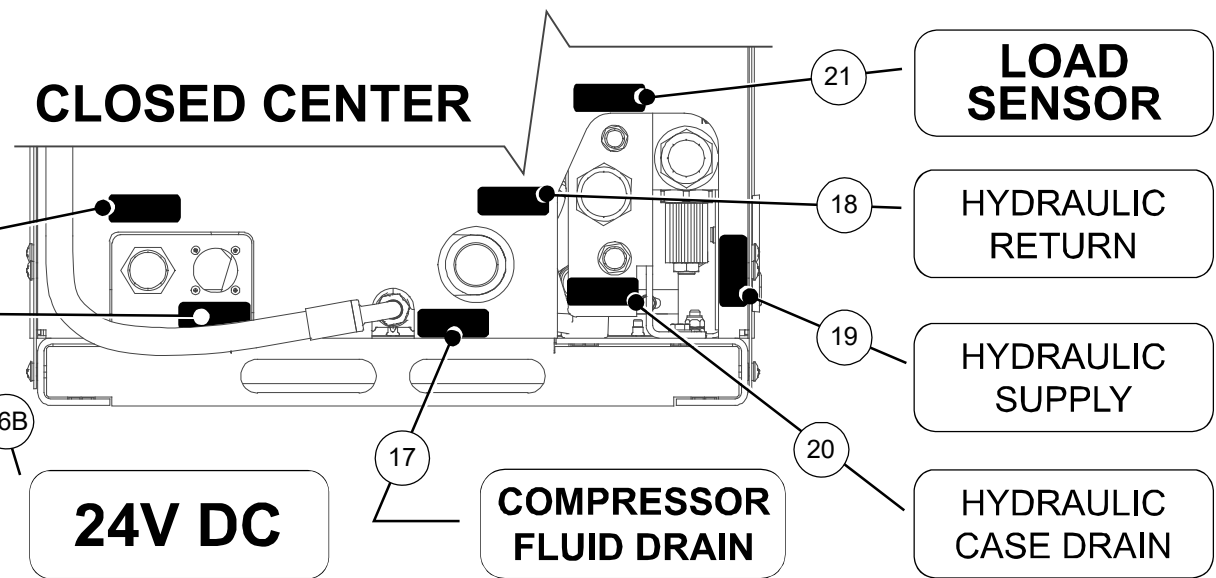
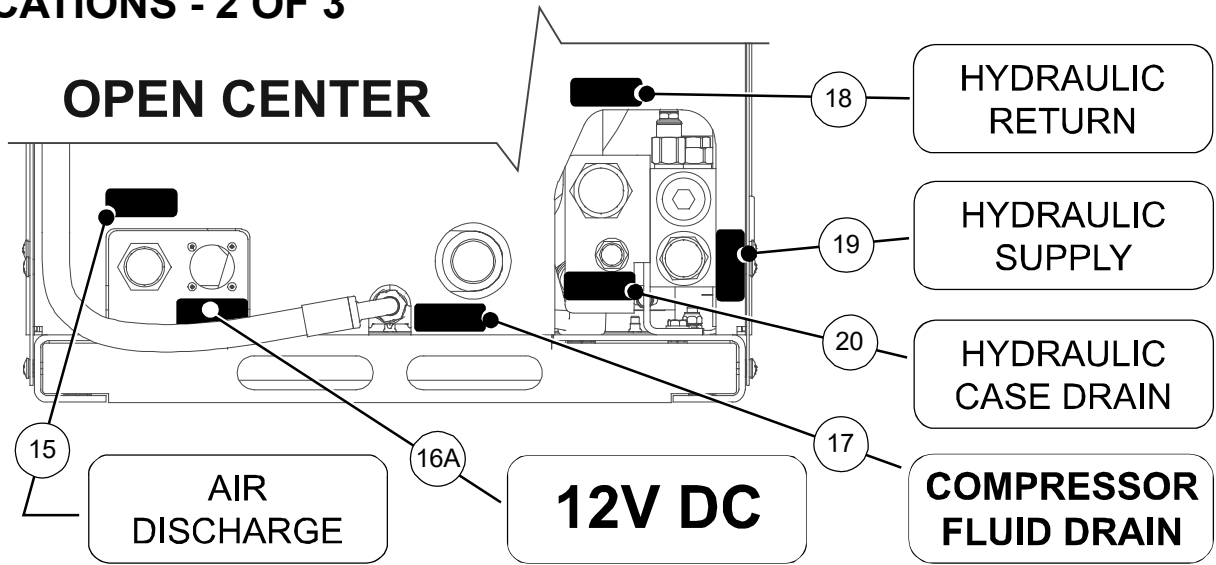
### 7.14 DECAL IDENTIFICATION/LOCATIONS - 2 OF 3

ITEM	DESCRIPTION	PART NUMBER	QTY
15	DECAL, AIR DISCHARGE <sup>I</sup>	275973	1
16A	DECAL, 12VDC <sup>I&amp;II</sup>	279974	1
16B	DECAL, 24VDC <sup>I&amp;II</sup>	275975	1
17	DECAL, COMPRESSOR FLUID DRAIN <sup>I</sup>	275054	1
18	DECAL, HYDRAULIC RETURN <sup>I</sup>	275972	1
19	DECAL, HYDRAULIC SUPPLY <sup>I</sup>	275971	1
20	DECAL, HYDRAULIC CASE DRAIN <sup>I</sup>	276941	1
21	DECAL, LOAD SENSOR <sup>I</sup>	276942	1

<sup>I</sup> This decal is included with decal safety sheet no. 264416.

<sup>II</sup> Machines with 24VDC voltage utilize the 24VDC decal.

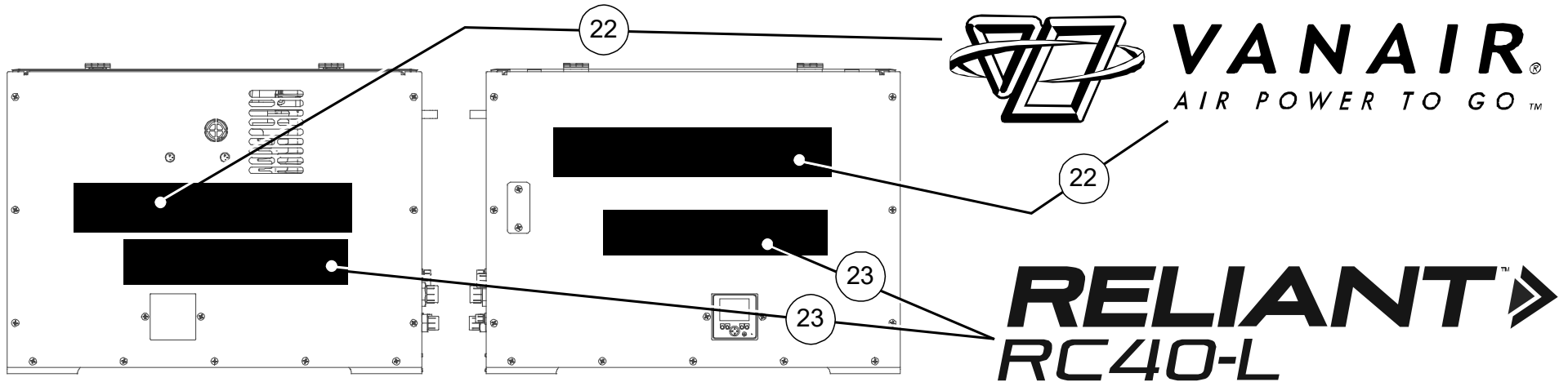
**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



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



7.14 DECAL IDENTIFICATION/LOCATIONS - 3 OF 3



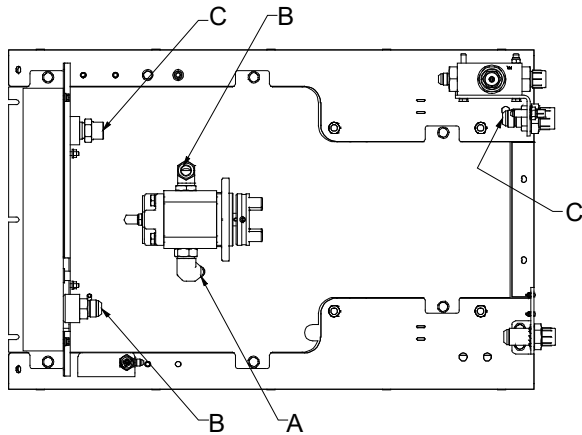
ITEM	DESCRIPTION	PART NUMBER	QTY
22	DECAL, VANAIR LOGO 23" X 4" <sup>1</sup>	275038-C	2
23	DECAL, RC40-L 16" X 3.2" <sup>1</sup>	279432-A	2

<sup>1</sup> This decal is included with decal sheet no. 279433.

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

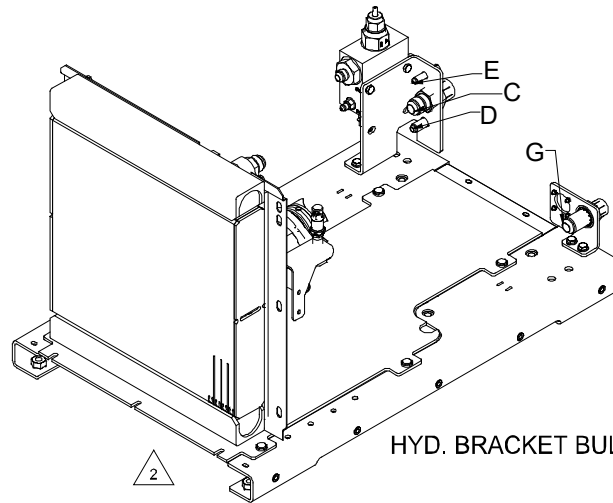
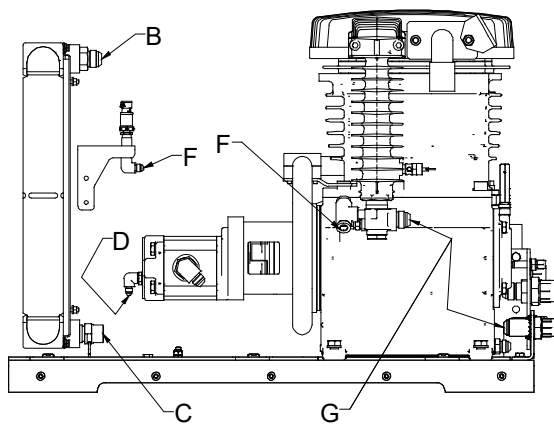
**⚠ WARNING**  
 DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.

### 7.15 HOSE AND TUBE ROUTING - RC40-L, CLOSED CENTER 12V, NO THERMAL

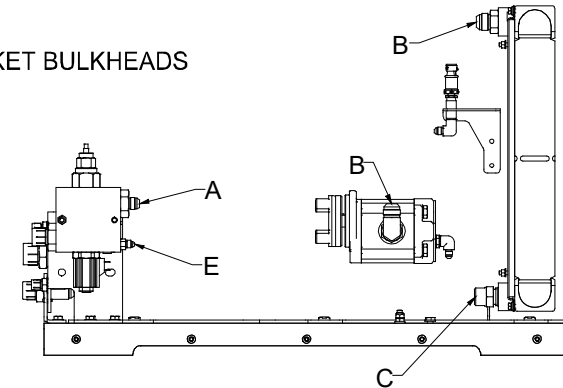
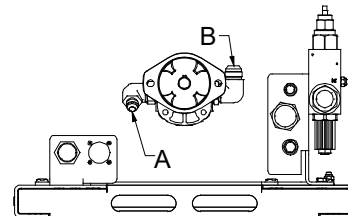


ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278544	HOSE, HYDRAULIC MOTOR TO COOLER RC40 DD	1	B	B
3	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	C	C
3	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	D	D
5	279379	TUBE, HYDR CLSD CTR MNFD LOAD-SENSE 1/4 IN RC40-L	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAUGE TO PRESS LINE RC40-L	1	F	F
7	279591	TUBE, AIR DISCHARGE RC40-L	1	G	G

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

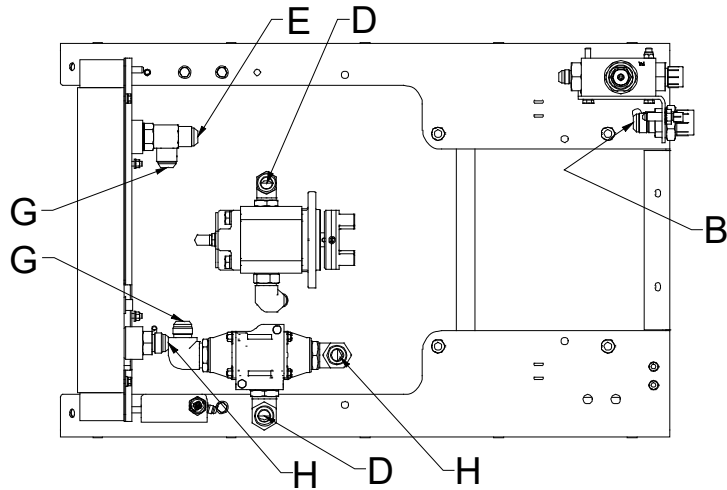


HYD. BRACKET BULKHEADS



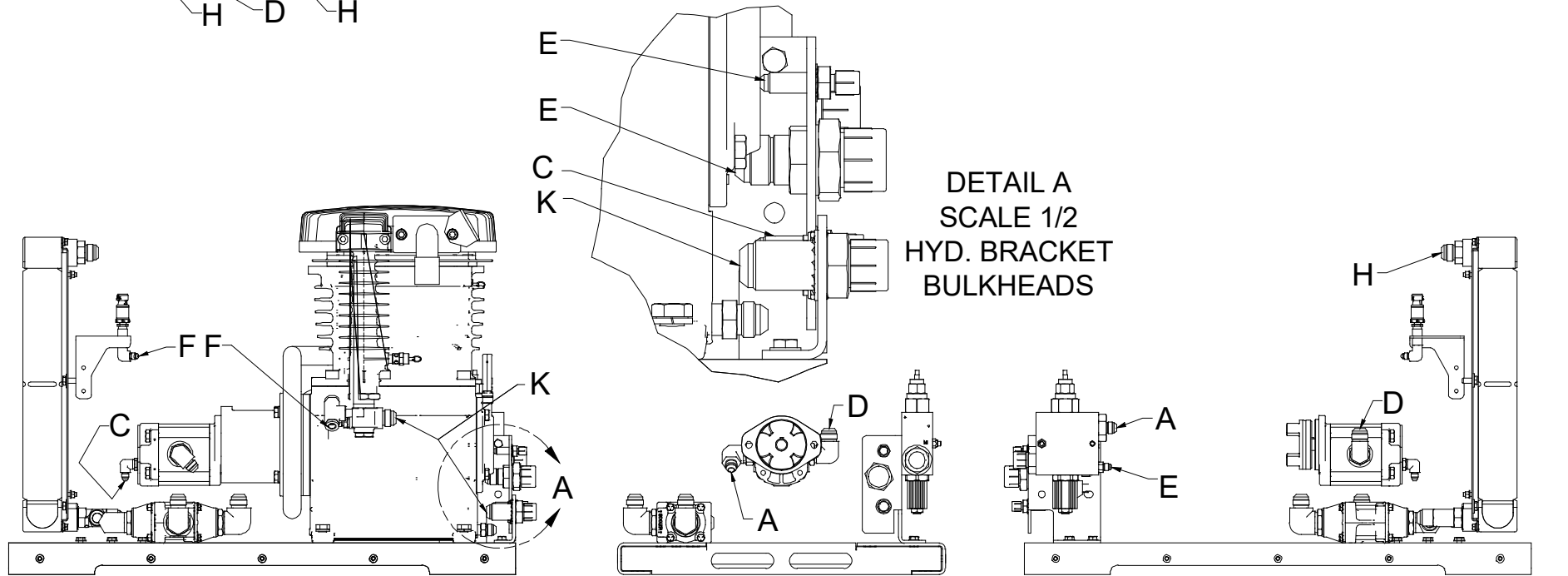
61301711D\_r2

### 7.16 HOSE AND TUBE ROUTING - RC40-L, CLOSED CENTER 12V/24V, WITH THERMAL



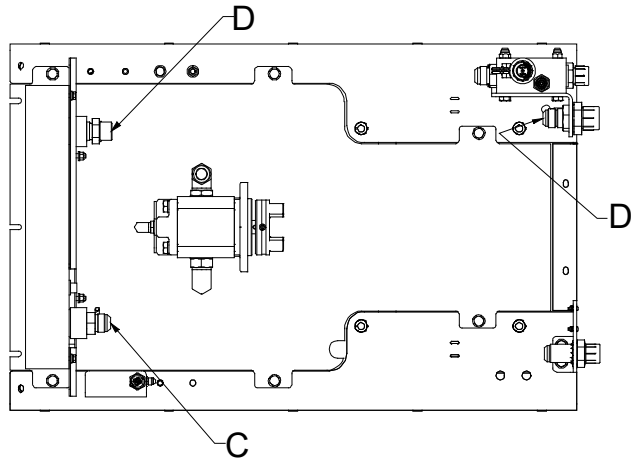
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	B	B
3	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	C	C
4	279368	HOSE, HYDR MOTOR TO THRM VLV 3/4 IN RC40-L	1	D	D
5	279379	TUBE, HYDR CLSD MNFD LOAD-SENSE 1/4 IN RC40-L	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAGE TO PRESS LINE RC40-L	1	F	F
7	279570	TUBE, HYDR THRM VLV TO CLR INLET 3/4 IN RC40-L	1	G	G
8	279571	TUBE, CLR OUTLET (TEE) TO HYDR THRM VLV 3/4 IN RC40-L	1	H	H
9	279591	TUBE, AIR DISCHARGE RC40-L	1	K	K

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



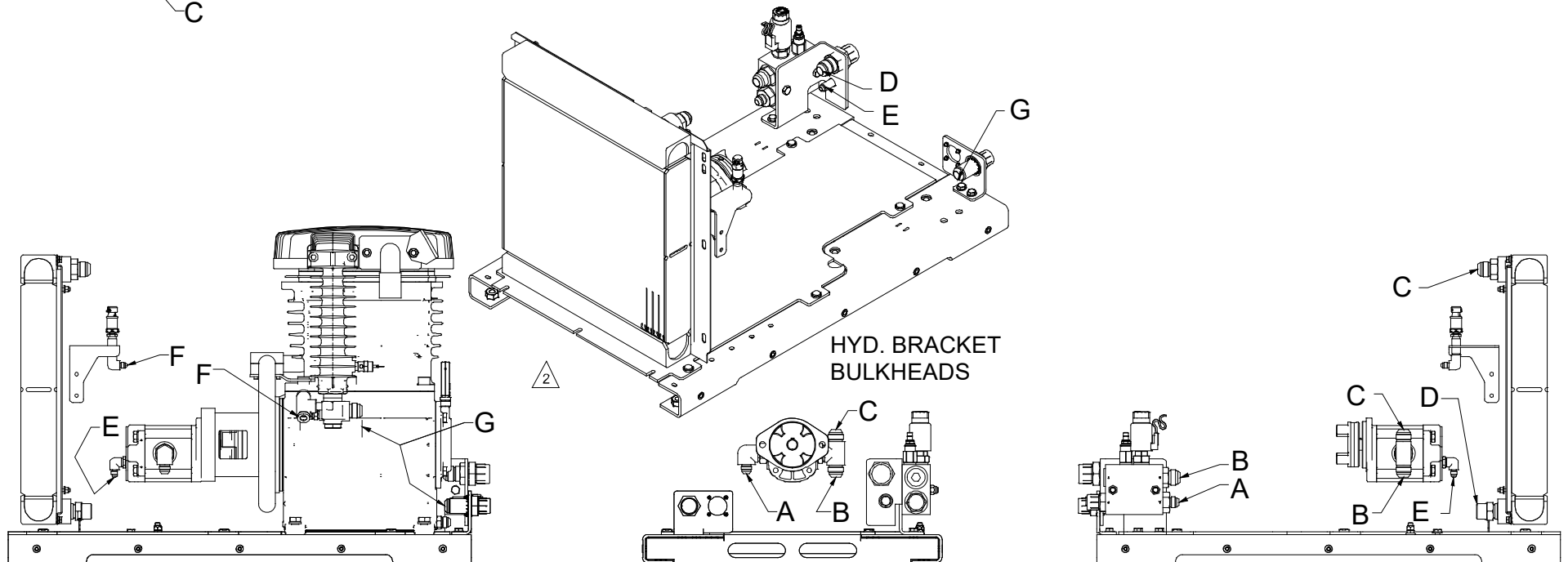
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### 7.17 HOSE AND TUBE ROUTING - RC40-L, OPEN CENTER 12V/24V, NO THERMAL



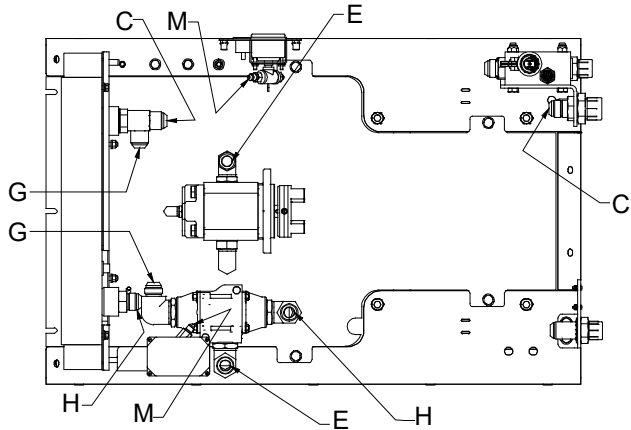
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278543	HOSE, HYDRAULIC MANF TO MOTOR OUT RC40 DD	1	B	B
3	278544	HOSE, HYDRAULIC MOTOR TO COOLER RC40 DD	1	C	C
4	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	D	D
3	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAUGE TO PRESS LINE RC40-L	1	F	F
7	279591	TUBE, AIR DISCHARGE RC40-L	1	G	G

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



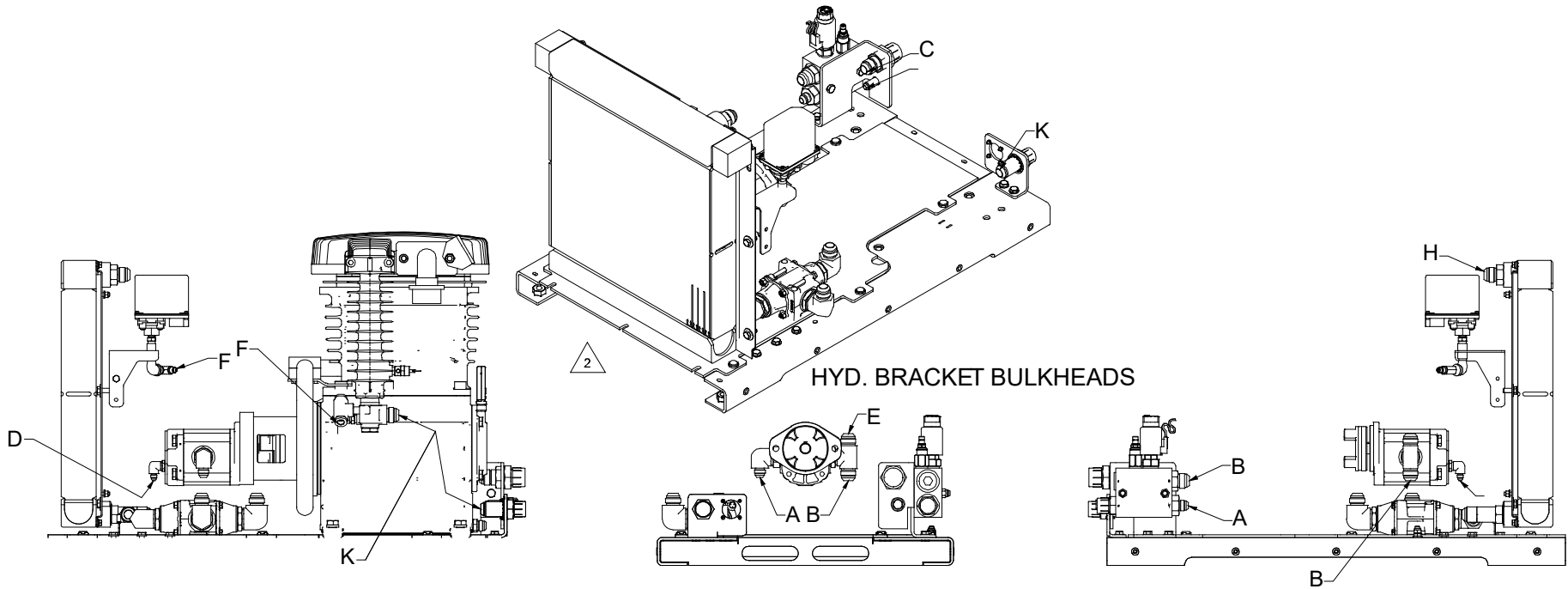
6130169ID\_r2

### 7.18 HOSE AND TUBE ROUTING - RC40-L, OPEN CENTER 12V/24V, THERMAL & GAUGES

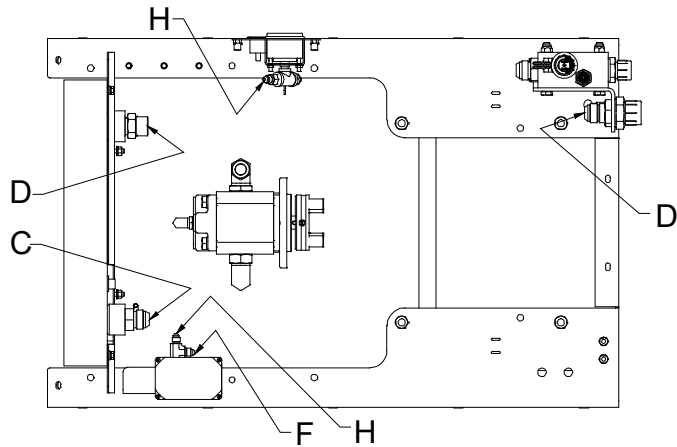


ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278543	HOSE, HYDRAULIC MANF TO MOTOR OUT RC40 DD	1	B	B
3	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	C	C
3	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	D	D
5	279368	HOSE, HYDR MOTOR TO THERM VLV 3/4 IN RC40L	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAGE TO PRESS LIN RC40-L	1	F	F
7	279570	TUBE, HYDR THRML VLV TO CLR INLET 3/4 IN RC40-L	1	G	G
8	279571	TUBE, CLR INLET (TEE) TO HYDR THRML VLV 3/4 IN RC40-L	1	H	H
9	279591	TUBE, AIR DISCHARGE RC40-L	1	K	K
10	279602	HOSE, ASSY 1/4 ID PRESS SW TO PRESS GAUGE RC40-L	1	M	M

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**

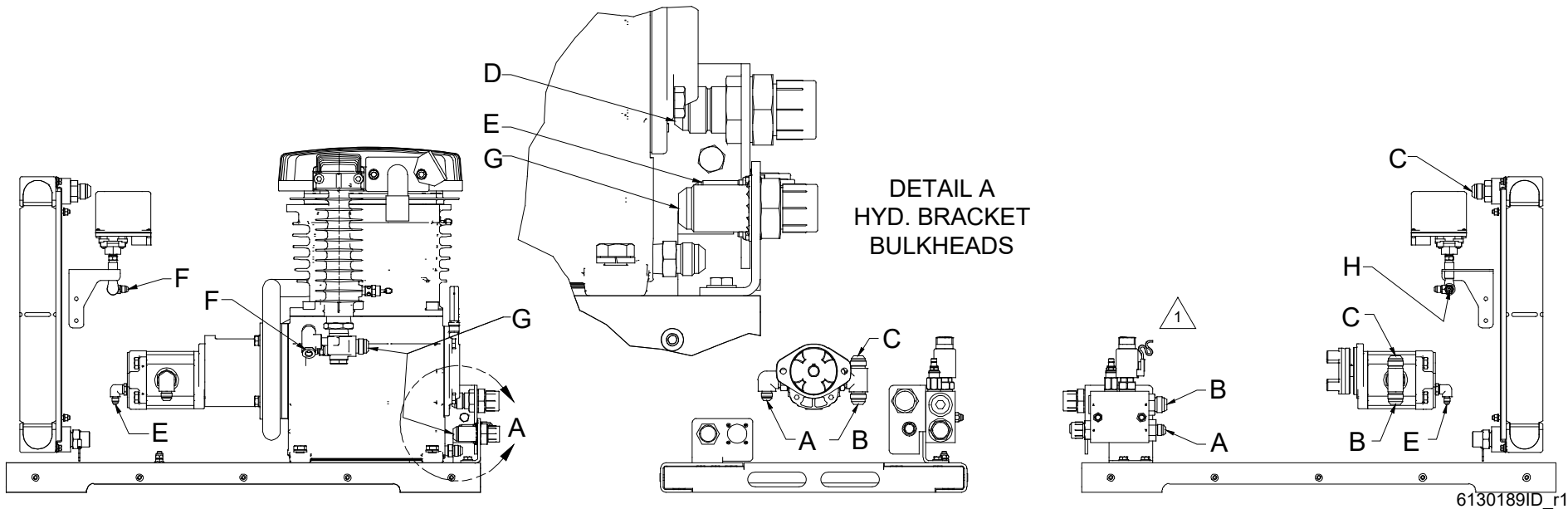


### 7.19 HOSE AND TUBE ROUTING - RC40-L, OPEN CENTER 12V/24V, NO THERMAL & GAUGES



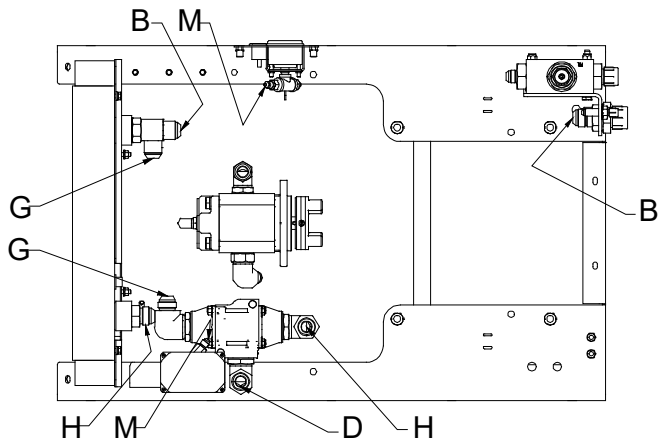
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278543	HOSE, HYDRAULIC MANF TO MOTOR OUT RC40 DD	1	B	B
3	278544	HOSE, HYDRAULIC MOTOR TO COOLER RC40 DD	1	C	C
4	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	D	D
5	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAGE TO PRESS LINE RC40-L	1	F	F
7	279591	TUBE, AIR DISCHARGE RC40-L	1	G	G
8	279602	HOSE, ASSY 1/4 ID PRESS SW TO PRESS GAUGE RC40-L	1	H	H

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



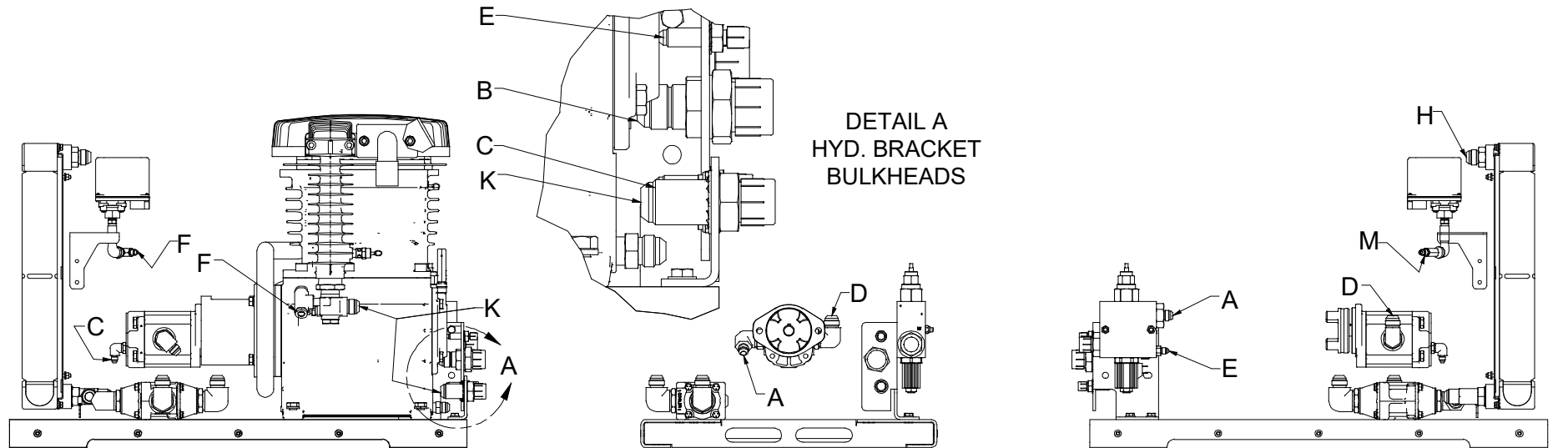
6130189ID\_r1

## 7.20 HOSE AND TUBE ROUTING - RC40-L, CLOSED CENTER 12V/24V, THERMAL & GAUGES



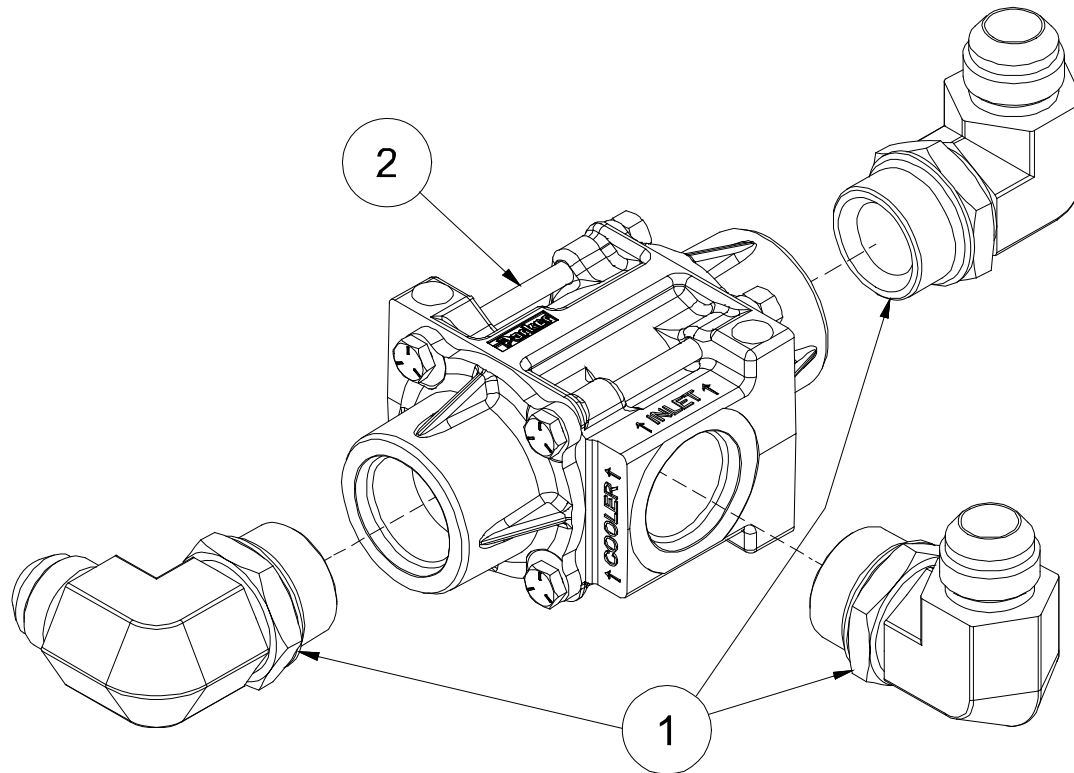
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278542	HOSE, HYDRAULIC MOTOR IN RC40 DD	1	A	A
2	278545	HOSE, HYDRAULIC COOLER OUT RC40-L	1	B	B
3	278546	HOSE, HYDRAULIC MOTOR CASE DRAIN RC40 DD	1	C	C
4	279368	HOSE, HYDR MOTOR TO THRM VLV 3/4 IN RC40-L	1	D	D
5	279379	TUBE, HYDR CLSD CTR MNFD LOAD-SENSE 1/4 IN RC40-L	1	E	E
6	279564	HOSE, ASSY 1/4 ID PILOT PRESS GAGE TO PRESS LINE RC40-L	1	F	F
7	279570	TUBE, HYDR THRML VLV TO CLR INLET 3/4 IN RC40-L	1	G	G
8	279571	TUBE, CLR OUTLET (TEE) TO HYDR THRML VLV 3/4 IN RC40-L	1	H	H
9	279591	TUBE, AIR DISCHARGE RC40-L	1	K	K
10	279602	HOSE, ASSY 1/4 ID PRESS SW TO PRESS GAGE RC40-L	1	M	M

**PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.**



6130192ID\_r1

## 7.21 HYDRAULIC THERMAL VALVE ASSEMBLY

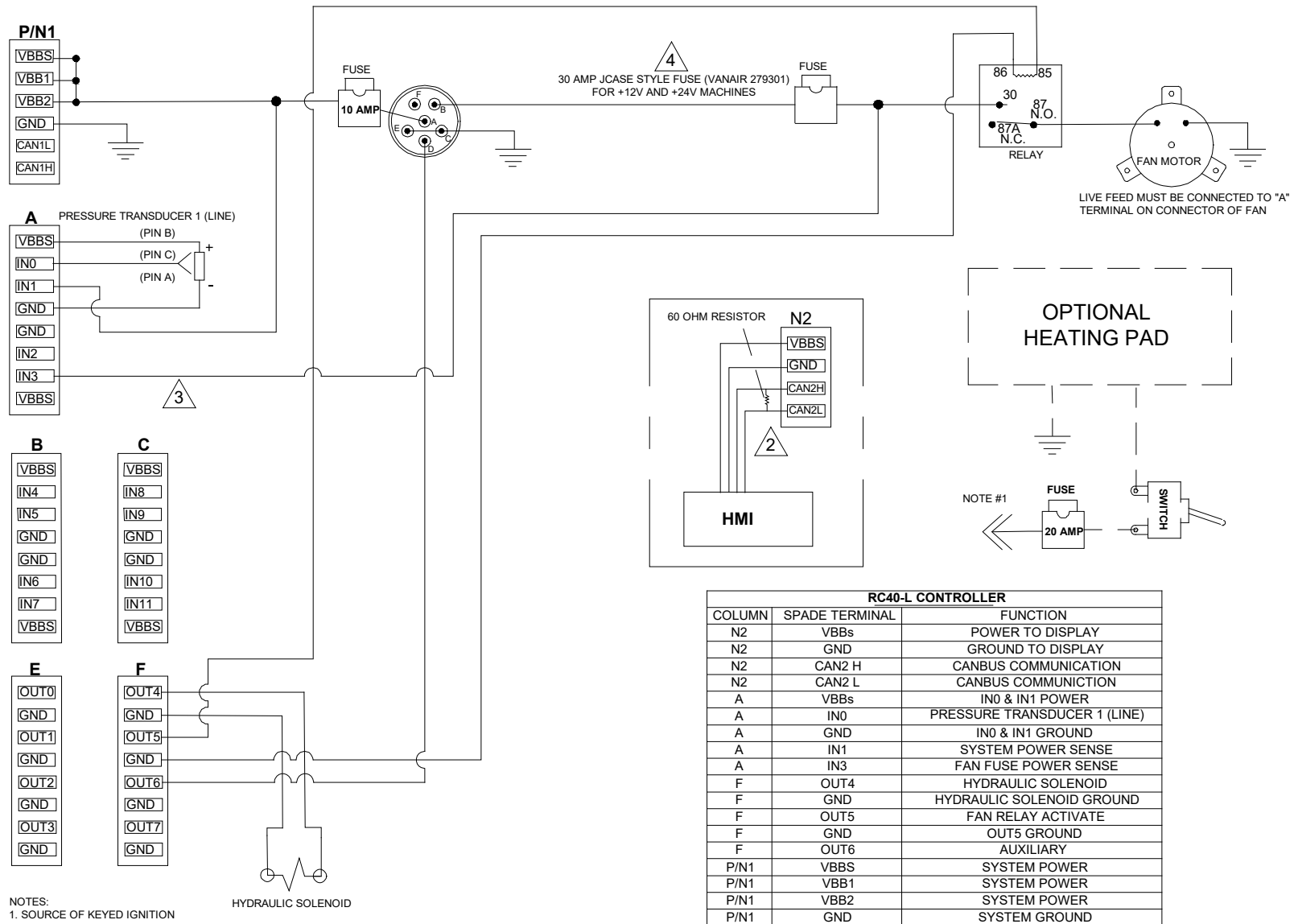


ASSEMBLY DRAWING STANDARD NOTES:

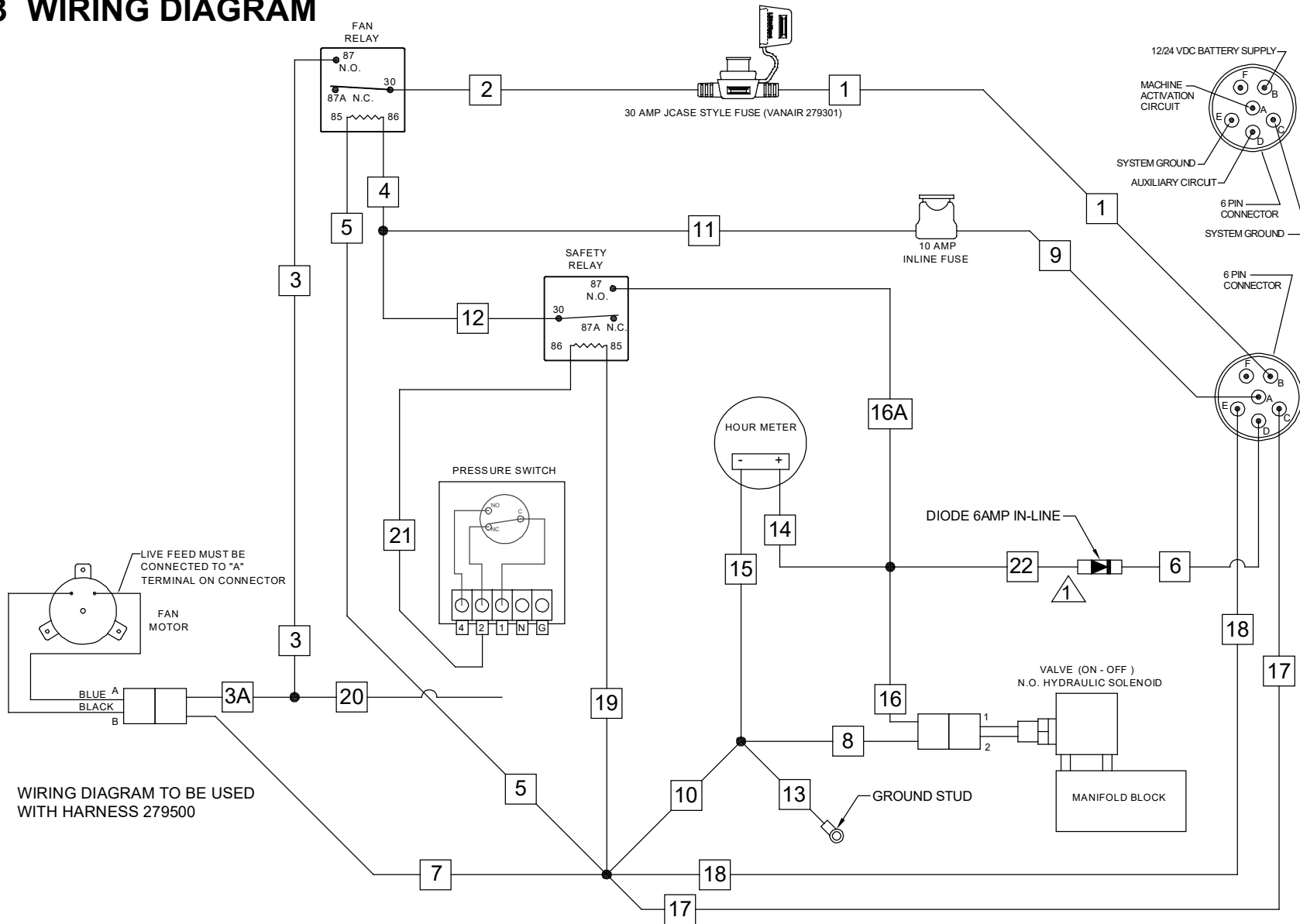
1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/  
O-RINGS BEFORE TIGHTENING.

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #16 MSAE	260403-116	3
2	VALVE, THERMAL BYPASS 1" SAE 50PSI 100 DEG	274255	1
<b>PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.</b>			

### 7.22 ELECTRICAL SCHEMATIC

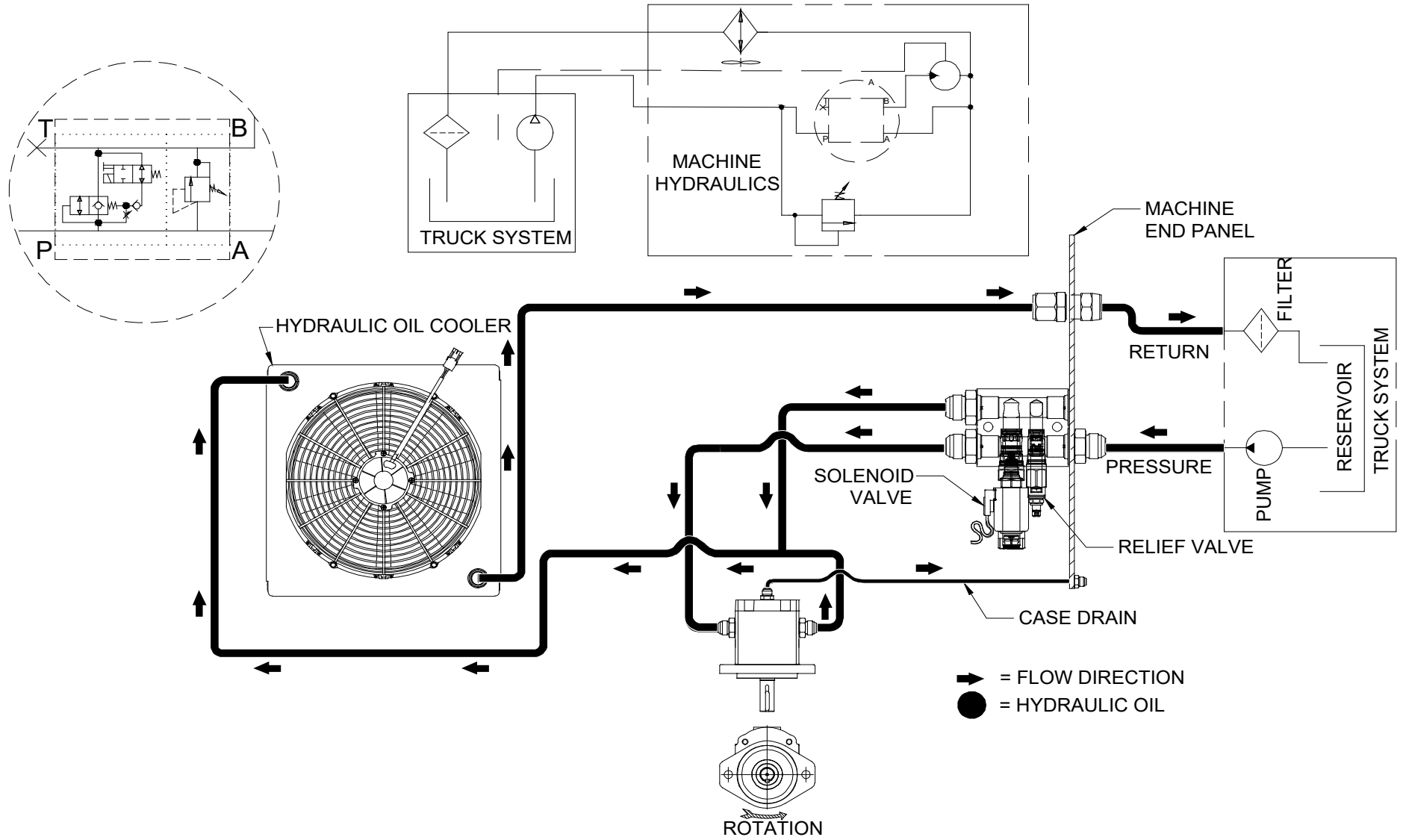


### 7.23 WIRING DIAGRAM

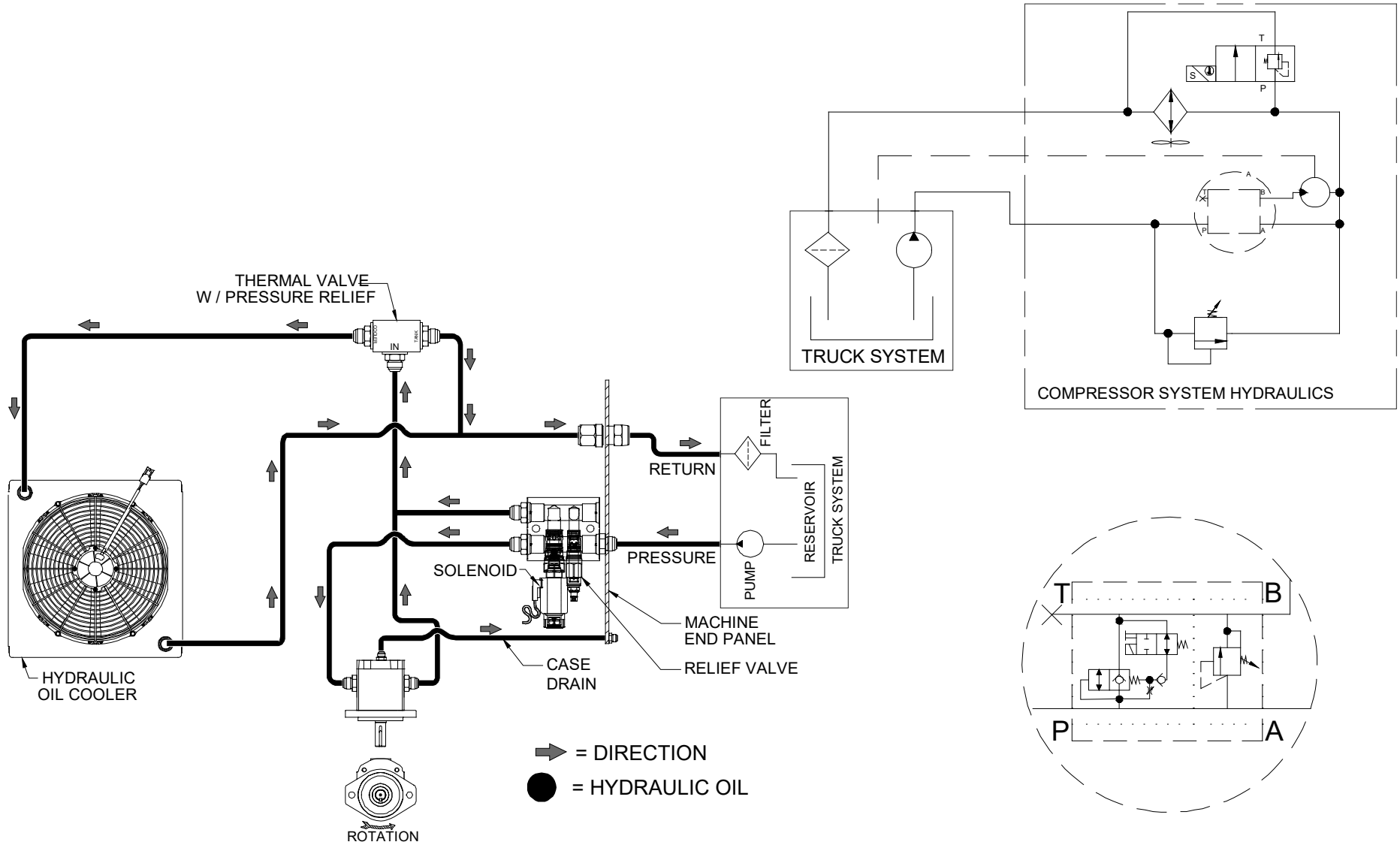


WIRING DIAGRAM TO BE USED WITH HARNESS 279500

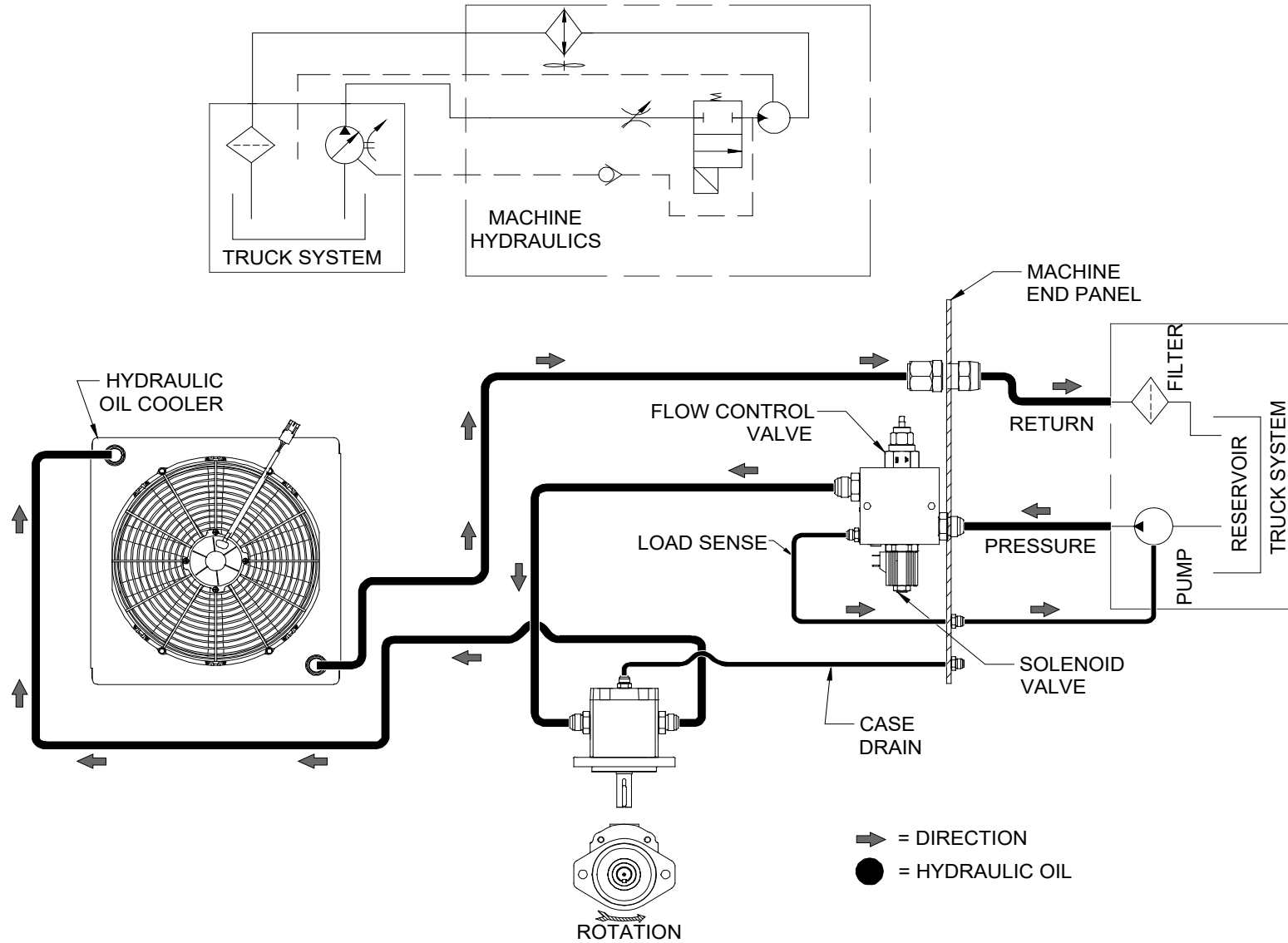
### 7.24 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - OPEN CENTER



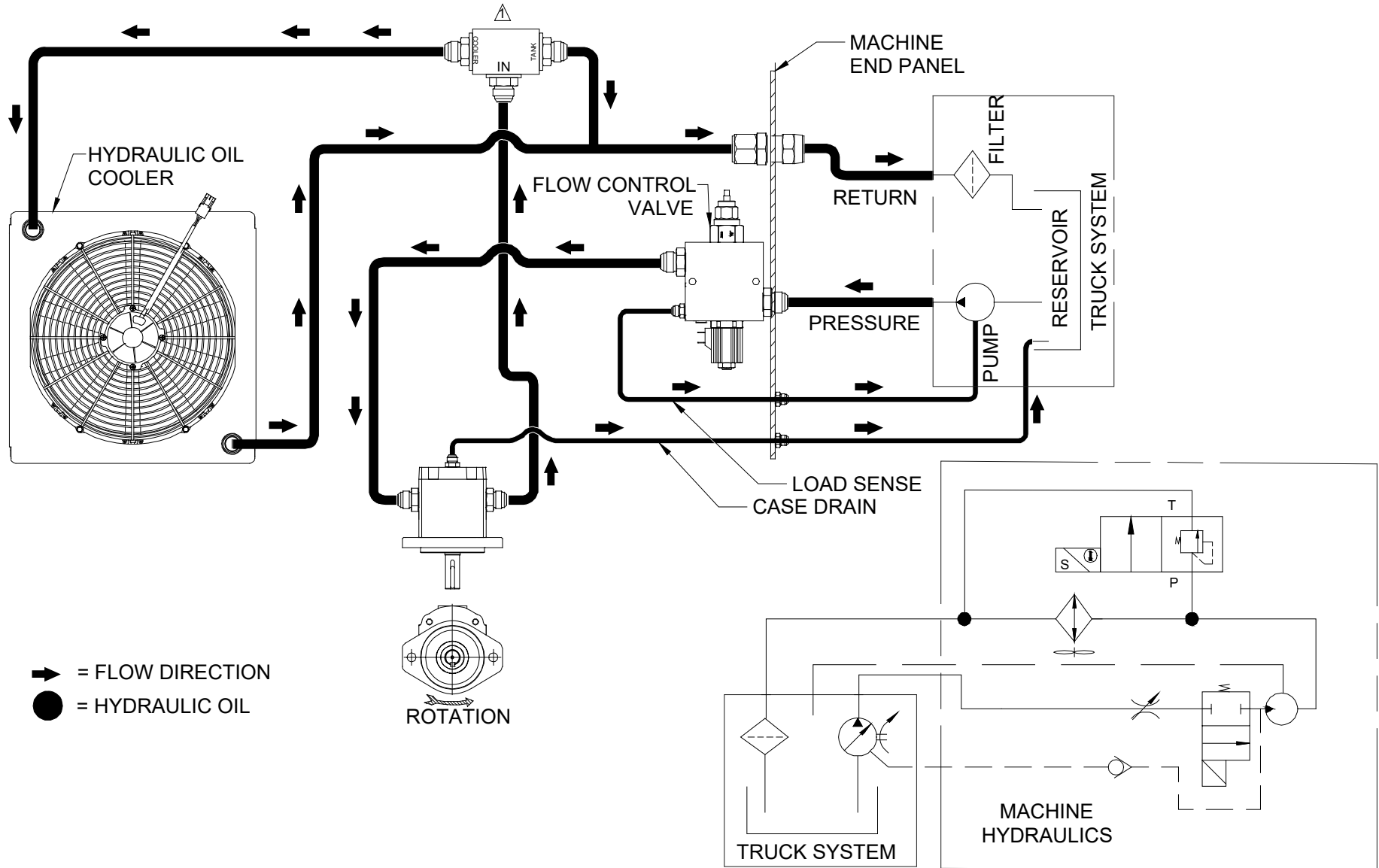
### 7.25 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - OPEN CENTER, WITH THERMAL VALVE



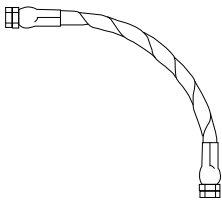
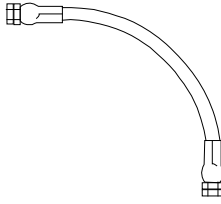
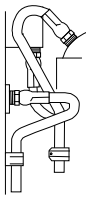
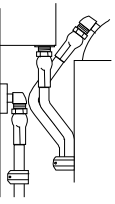


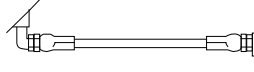

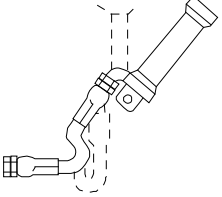
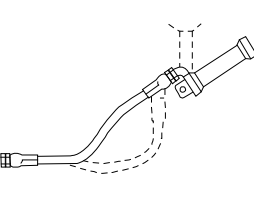
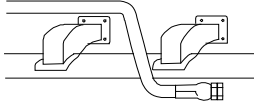
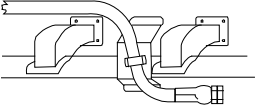
### 7.26 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - CLOSED CENTER



### 7.27 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - CLOSED CENTER, WITH THERMAL VALVE



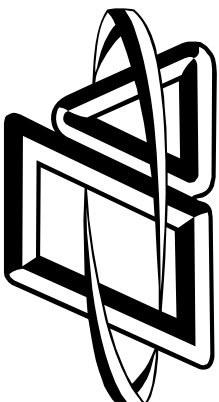
279090\_r2

<b>7.28 HOSE INSTALLATION GUIDE</b>					
<b>HOSE LAYOUT CONSIDERATION</b>	<b>WRONG</b>	<b>RIGHT</b>	<b>HOSE LAYOUT CONSIDERATION</b>	<b>WRONG</b>	<b>RIGHT</b>
1. Hose is weakened when installed in twisted position. Pressure in twisted hose tends to loosen fitting connections. Design so that machine motion produces bending rather than twisting.			4. Use elbows or other adapters as necessary to eliminate excess hose length and to insure neater installation for easier maintenance.		
2. Ample bend radius should be provided to avoid collapsing of line and restriction of flow.			5. When hose assembly is installed in a flexing application, remember that metal hose fittings are not part of the flexible portion. Allow ample free length for flexing.		
3. Exceeding minimum bend radius will greatly reduce hose assembly life.			6. When properly routing, use clamps to secure the hose in its proper position.		



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# VANAIR®

POWER TO GO™

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[www.vanair.com](http://www.vanair.com)

Printed in the U.S.A.

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051727	051728	051729	051730
051787	051788	051789	051790
051791	051792	051793	051794