



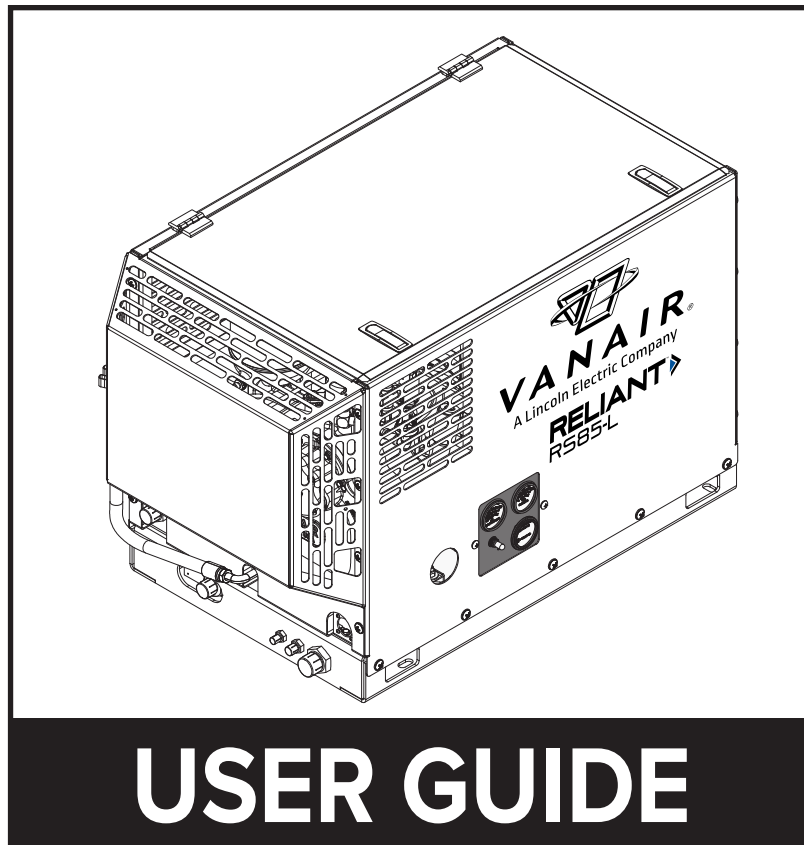
VANAIR®

A Lincoln Electric Company

RELIANT™ ➤ **RS85-L**

**60-85 CFM HYDRAULIC-DRIVEN
ROTARY SCREW AIR COMPRESSOR**

Manual No. 090154-OP_r1



USER GUIDE

OPERATION, SERVICE and PARTS MANUAL
KEEP THE MANUAL WITH THE VEHICLE

Note: Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual will **VOID THE EQUIPMENT WARRANTY**. This publication contains the latest information available at the time of preparation. Every possible effort has been made to ensure its accuracy.

Vanair®, a Lincoln Electric Company reserves the right to make design changes, modifications and/or improvements without prior notification. Making unauthorized modification to the system components **WILL VOID THE WARRANTY!** Always contact Vanair® before making any changes to the Reliant™ RS85-L.

AIR N ARC®
ALL-IN-ONE POWER SYSTEMS®

RELIANT™ SERIES

POWERFLEX™ SERIES

PRO SERIES

CONTRACTOR SERIES

VIPER™ SERIES

UTILITY MOUNTS

**ALL WARRANTY OR
RETURNS MUST BE
PRE-AUTHORIZED PRIOR
TO PERFORMING
ANY WARRANTY WORK.**

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VANAIR.COM

EFFECTIVE: SEPTEMBER 9, 2022



**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®, a Lincoln Electric Company ("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. **All warranty or returns must be pre-authorized in writing prior to performing warranty work.** Call Vanair® for process and forms. 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
 - Solenoids
 - Clutches
 - Running Gear/Trailers
 - 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 GUARANTEE ARISING BY OPERATION OF LAW. ANY WARRANTY NOT EXPRESSLY PROVIDED HEREIN, IMPLIED WARRANTY, GUARANTEE 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.


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A Lincoln Electric Company

Warranty Claims Procedure

Warrantied Vanair® Parts

Owners of Vanair® equipment must follow this process for repair or replacement of warrantied items. Do not return items without prior authorization from the Vanair® Warranty Administrator.

PROCEDURE: Customers needing assistance in troubleshooting a system and/or returning parts, please follow the steps below.

1. Locate the machine's serial number(s).
2. Make a list of the symptoms/condition/malfunctions noticed along with any applicable temperature and pressure readings, and also the number of operational hours if available.
3. Note that the above information is required on the Return Material Authorization Form; necessary for warranty processing if the warranty claim is deemed valid by the service case review.
4. Contact the Vanair® Service Department by phone (1-844-VANSERV or 1-219-879-5100) to speak with a Service Technician.
5. Vanair® Service will troubleshoot the problem based on the information provided by the customer, and attempt to return the unit to service as quickly as possible.
6. If the unit cannot be returned to service, and Vanair® determines this matter is a warranty issue, the Service Technician will provide a case number for the unit. The Warranty Department will then 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.
7. Warranty Claims are solicited via a case number provided by the Vanair® Service Department. Blank Warranty Claim forms can be found on the Vanair® website under the Resources section.
8. All of the field information including the case number, serial number and description of the work performed is required.

! IMPORTANT !

If the part is not returned by the customer to the Vanair® Service Department within 30 days, the RMA becomes void and any claims will be denied.

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.

The RMA number must appear on the outside of the package where it can be seen before being returned.

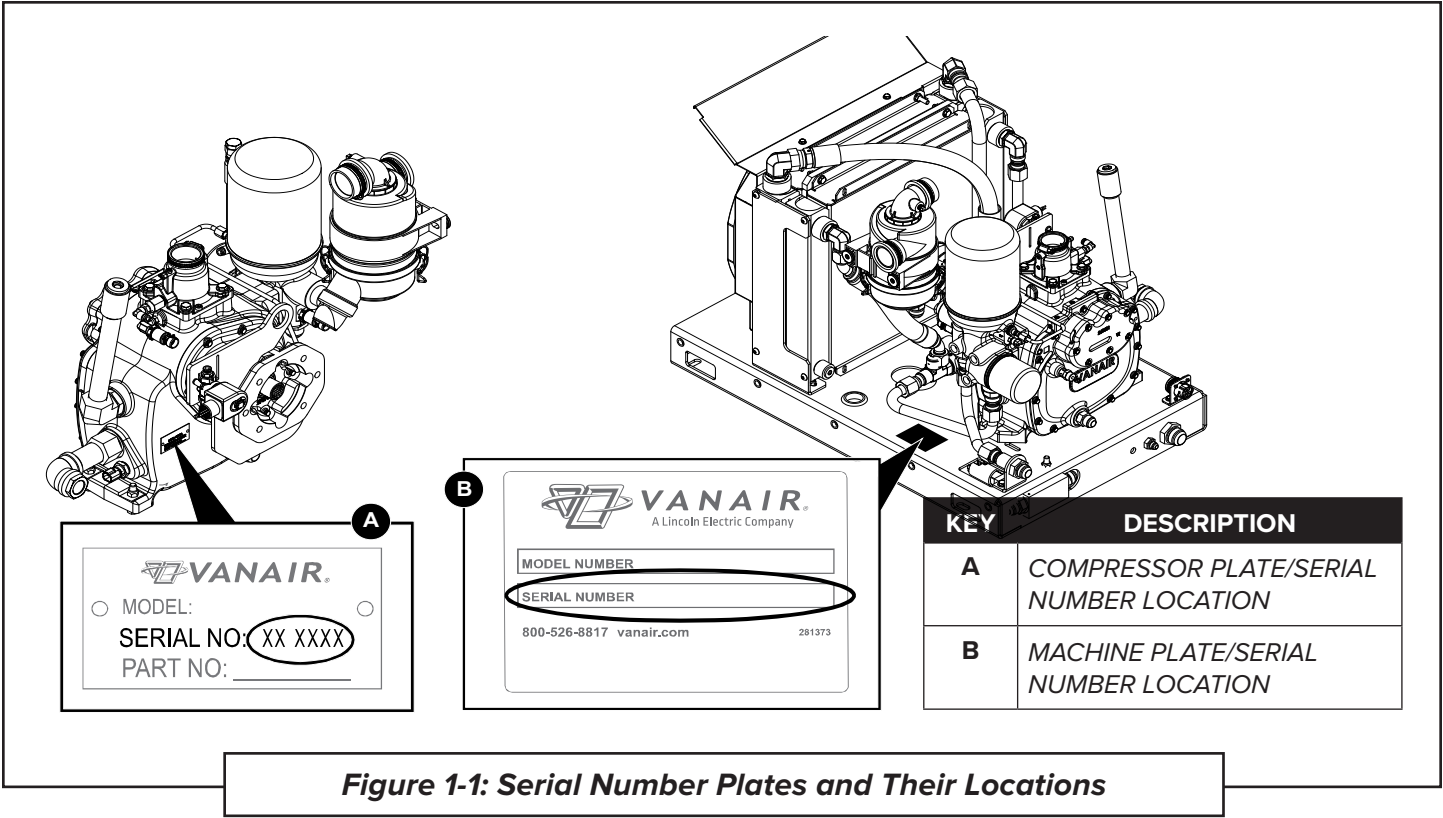


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SECTION 1: Safety

1.1 GENERAL INFORMATION

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

NOTICE

This manual provides the information required to design a hydraulic supply system. It defines the provided connections and hydraulic flow requirements. The design, build, and maintenance of this system is the responsibility of the customer.

Vanair® recommends procuring the services of a qualified professional hydraulic system designer/provider to define the hydraulic drive system to power this Vanair® machine.

1.2 SUMMARY OF DANGERS, WARNINGS, CAUTIONS, AND NOTICES

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

1.2.1 DANGERS

DANGER

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

- 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 electric shock.
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or its parts.

1.2.2 WARNINGS

WARNING

Identifies actions or conditions which, if not avoided, could cause death or severe bodily injury.

- **DO NOT EVER** use air from this compressor as a source of breathable air.
- Vanair® disclaims any and all liabilities for damages, due to fatalities, or personal injury resulting from the use of a Vanair® compressor to supply breathable 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 others until it can be repaired or replaced.
- **DO NOT** operate the compressor with any safety bypass, safety systems disabled or rendered inoperative.
- **DO NOT** operate this equipment while you are under the influence of alcohol, drugs, or medications that may have any affect on your physical capabilities or judgment.
- **DO NOT** operate the equipment while you are feeling ill.
- **DO NOT** operate the compressor with any guards removed or damaged, or with other safety devices disabled.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed-off as overheating may occur.
- **DO NOT** attempt to service the equipment while it is operating!

Before performing maintenance, or replacing parts:

1. Relieve the entire system pressure. After the system has blown down, open the service valve which will vent all pressure to atmosphere. After that, remove any residual compressor pressure by slowly opening the fill cap.
 2. Remove all electrical power.
 - **DO NOT** use the compressor for unintended purposes. High pressure is capable of causing serious, even fatal injuries.
 - **DO NOT** operate the compressor outside of its specific pressure and speed ratings. (See **Section 2: Specifications** or refer to the equipment data plate.)
 - **DO NOT** operate the compressor in areas where flammable, toxic, or corrosive fumes or other harmful substances can be ingested by the compressor's intakes.
 - **DO NOT** wear loose jewelry (e.g. bracelets, necklaces, etc.), unbuttoned cuffs, ties, or loose-fitting clothing when you are working near rotating or moving parts.
 - **ALWAYS** confine long, loose hair when working near rotating or moving parts. Also remove long necklaces, bracelets, lanyards, etc. while operating this equipment.
 - **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.
 - **ALWAYS** wear proper PPE (personal protective equipment) required for the type of work being performed or for the equipment being used: such as gloves, work shoes, eye and hearing protection
 - **NEVER** substitute proper hearing protection with earphones or headphones used for listening to audio music or radio programs. These are not a valid substitute for proper, professional hearing protection and may additionally cause distraction.
- 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.
 - 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 has 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. Any use of this equipment as a booster pump and/or to compress any other gaseous or aerosol substance will void the warranty due to improper use. It can also lead to damage or injuries.
 - Install, operate, and maintain this equipment in full compliance with all applicable OSHA, federal, state, local codes, standards, and MSHA regulations when equipment is used in mining operations.
 - 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.

1.2.3 CAUTIONS

CAUTION

Identifies actions or conditions which may cause minor or moderate injury, or damage to the equipment.

- 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 air in-takes.

- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed for maintenance actions are replaced before applying power to the compressor.
- Avoid touching hot surfaces and components.
- Ensure that electrical wiring, terminals; hoses and fittings are kept in serviceable condition through routine inspections and maintenance. Replace any damaged or worn components.

1.2.4 NOTES/NOTICES

NOTICE

Emphasizes important information that may be helpful, crucial, or required by the user to operate the equipment properly.

Note/Notice 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:

⚠ IMPORTANT

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

⚠ WARNING

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

1.3 INTERNATIONAL WARNING SYMBOL



The international warning symbol (shown at the left) is used on all decals, labels, and signs that concern information pertaining to bodily harm. When present, pay attention very closely, and follow the instructions or indications provided to avoid any possible hazard.

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 7.19**, Decal Locations are located near a component which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

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.

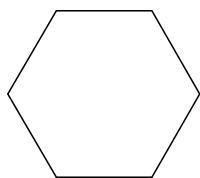
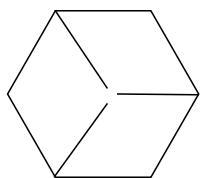
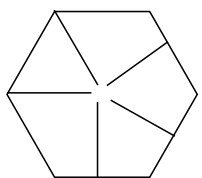
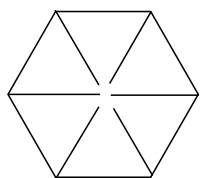
SECTION 2: Specifications

2.1 GENERAL INTRODUCTION

The tables 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: Reliant™ RS85-L Main Component Locations** for general machine component locations. For additional measurement specifications, refer to the full identification assembly drawing **Figure 3-4: Dimension Drawing**.

TABLE 2A: BOLT AND TORQUE SPECIFICATIONS

										SOCKET HEAD CAP SCREW	
SAE Bolt Grade:		2		5		7		8		Socket	
I.D. Marks:		No markings		3 lines		5 lines		6 lines		Allen head	
Material:		Low carbon		Medium-carbon, tempered		Medium-carbon, quenched and tempered		Medium-carbon, quenched and tempered		High-carbon, quenched and tempered	
Tensile Strength (minimum):		74,000 PSI		120,000 PSI		133,000 PSI		150,000 PSI		160,000 PSI	
Bolt Diameter (Inches)	Threads/ Inch	Dry	Oiled	Dry	Oiled	Dry	Oiled	Dry	Oiled	Dry	Oiled
1/4	20	4	3	8	6	10	8	12	9	14	11
5/16	18	9	7	17	13	21	16	25	18	29	23
3/8	16	16	12	30	23	40	30	45	35	49	39
7/16	14	24	17	50	35	60	45	70	55	76	61
1/2	13	38	31	75	55	95	70	110	80	113	90

NOTE: All torque ratings are in units of ft-lbs.

TABLE 2B: PRIME LUBRICANT CHARACTERISTICS

Viscosity:	178 SUS at 100°F (38°C)
Flashpoint:	457°F (236°C)
Pour Point:	-49°F (-45°C)
Contains:	Rust and Oxidation Inhibitors and Detergents

TABLE 2C: RELIANT™ RS85-L SPECIFICATIONS

Capacity (CFM)	60	60	70	70	80	80	85	85
Air Pressure (PSI)	100	150	100	150	100	150	100	125
Compressor (RPM)	1950	1975	2275	2300	2650	2650	2850	2850
Hydraulic Flow (GPM) ¹	14.0	14.2	16.5	16.8	18.5	18.8	19.7	19.9
Hydraulic Pressure (PSI) ¹	2500	2750	2650	2800	2800	3075	2800	2950

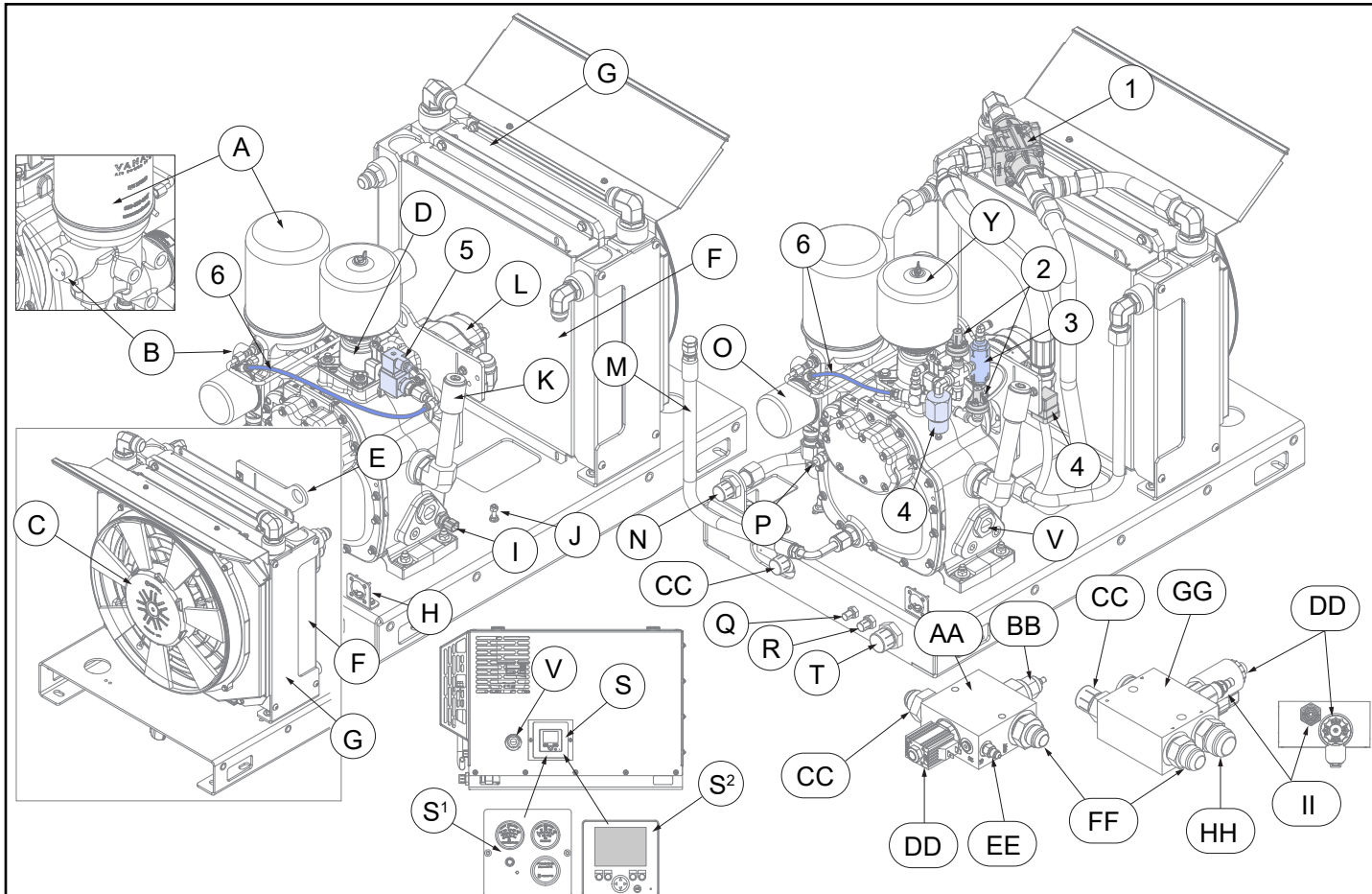
¹ Ratings are approximate and are based on 120°F (48.9°C) hydraulic fluid temperature utilizing ISO 32 oil. Add 400 PSI minimum to hydraulic requirements for hydraulic system continuous pressure ratings. Consult Vanair® for specific details.

NOTE: 85 CFM @ 150 PSI systems may require additional cooling.

HYDRAULIC SYSTEM REQUIREMENTS: All hydraulic ratings and pressures are at the machine and do not take into account the pressure drops of individual hydraulic systems. These pressure drops need to be taken into account and added to the rating of the hydraulic pump and components. Vanair® highly recommends consulting a hydraulic supply expert for specifying the correct hydraulic pump size and type, oil reservoir size, hydraulic cooler, hydraulic pressure relief, and other hydraulic supply components for your application. Please take into consideration the following: The hydraulic flow and pressure requirements of the air compressor, the continuous hydraulic load when the compressor is running, the duty cycle and ambient operating temperatures, and any other hydraulic equipment that may share the same hydraulic supply system (Vanair® recommends a dedicated pump and hydraulic circuit.)

GENERAL SYSTEM INFORMATION		SPECIFICATION	
RATINGS			
Maximum compressor oil temperature:		240°F	
Maximum hydraulic oil temperature:		150°F	
COMPRESSOR			
Type:	Encapsulated, Oil-injected, Rotary Screw		
Compressor oil sump capacity:	5 qts (4.7L)		
Compressor overheating protection:	Shut Down at 240°F		
Air inlet system:	Dry-type, Two Stage Filter		
Drive coupling:	Internal Spline		
Hydraulic motor:	Gear Type		
PACKAGE			
Main frame:	Formed Steel with Bolt-down Provision		
Electrical supply:	12V Standard; 24V Optional		
Electrical connections:	6-pin Deutsch		
Supply Connections (Customer to hook-up Load Sense Line for Closed Center Systems.)	Hydraulic: Oil IN - 3/4 in, 37° JIC		
	Hydraulic: Oil OUT - 1 in, 37° JIC		
	Hydraulic: CASE DRAIN - 3/8 in, 37° JIC		
	Hydraulic: Load Sense 1/4 in. 37° JIC (Closed center machines only)		
	Electrical: 12VDC Positive and Ground (Standard) 24VDC Positive and Ground (Optional)		
	Electrical: High Temp Shutdown		
Temperature Range: (Optional LED electronic display)	-4 TO 150°F (-20 TO 65.5°C)		
Enclosure:	Aluminum with Service Access		
Cooler:	Hydraulic Oil Cooler/Radiator Core, Electric Fan		
Dimensions ^{II} :	37.45" L x 21.23" W x 24.69" H		
Weight (dry):	285 lbs		
^{II} Measurements do not include additional service space requirements needed to allow for cooling circulation and to perform machine maintenance. Refer to “Figure 3-1: Machine Clearances” for these additional space requirements.			

^{II} Measurements do not include additional service space requirements needed to allow for cooling circulation and to perform machine maintenance. Refer to "Figure 3-1: Machine Clearances" for these additional space requirements.



KEY	DESCRIPTION	KEY	DESCRIPTION	KEY	DESCRIPTION
A	AIR/OIL COALESCER (SPIN-ON)	N	SERVICE AIR DISCHARGE	4	REGULATOR
B	MINIMUM PRESSURE VALVE	O	COMPRESSOR OIL FILTER	5	INLET CONTROL/SOLENOID
C	HYDRAULIC COOLER FAN	P	PRESSURE RELIEF VALVE (200 PSI)	6	AIR SIGNAL/CONTROL LINE
D	AIR INLET VALVE	Q	LOAD SENSE LINE	AA	CONTROL MANIFOLD, CLOSED CENTER
E	LIFTING BAIL	R	CASE DRAIN	BB	FLOW REGULATOR
F	COMPRESSOR COOLER ASSEMBLY	S	DISPLAY	CC	HYDRAULIC SUPPLY (IN)
G	HYDRAULIC COOLER ASSEMBLY	S1	ANALOG DISPLAY OPTION	DD	SOLENOID/FLOW REGULATOR
H	DEUTSCH CONNECTOR BRKT	S2	DIGITAL DISPLAY OPTION	EE	LOAD SENSING LINE
I	COMPRESSOR OIL TEMP SENSOR	T	HYDRAULIC RETURN	FF	HYDRAULIC SUPPLY (OUT)
J	ELECTRICAL GROUNDING STUD	U	UNIT SIGHT GLASS	GG	CONTROL MANIFOLD O/CENTER
K	COMPRESSOR OIL FILL PORT	1	THERMAL CONTROL VALVE	HH	HYDRAULIC RETURN TO TANK
L	HYDRAULIC MOTOR	2	PRESSURE SENSING SWITCH(S)	II	HYD PRESSURE RELIEF VALVE
M	COMPRESSOR OIL DRAIN HOSE	3	BLOWDOWN VALVE		

1 DO NOT top off compressor oil at the fill port! Running the compressor with a flooded oil chamber will damage the unit. Use the sight glass [V] to determine the proper oil level: Oil level is optimum at approximately the half-way mark of the sight glass. Refer to "Table 5-A: Routine Replacement Kit Order Information" for oil fill information.

NOTE: For fuse locations, refer to **WIRING DIAGRAM**.

Figure 2-1: Reliant™ RS85-L Main Component Locations

SECTION 3: Installation

3.1 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the Vanair® Reliant™ RS85-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.

Be aware of toxic exhaust gases in the work environment when operating equipment, or vehicles powered by internal combustion engines.

DANGER

DO NOT OPERATE IN AN ENCLOSED SPACE.

Running any combustion engine in an enclosed space may result in Carbon Monoxide (CO) poisoning and may cause overheating, which may result in fire and/or explosion. Carbon monoxide (CO) build-up may cause death! Overheating can ignite surrounding materials resulting in fire and/or explosion which may cause injury, death and equipment damage.

WARNING

Before performing maintenance or repairs, always make sure that all power has been removed and locked out to prevent accidental starting. DO NOT assume when the compressor is in a STOPPED condition that the power is removed.

WARNING

Minimum clearance distances from the machine are required for safe and proper machine operation and maintenance. This applies to installation location and machine operation location.

WARNING

Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other federal, state, and local codes, standards, and regulations. Also comply with MSHA standards when used in mining operations.

NOTICE

Although much of the information given in this installation section is detailed, these guidelines should be considered as reference material only, due to the diverse possibilities of the end user's vehicle year, make, model and the unit model specifications.

3.2 DETERMINING THE MOUNTING LOCATION

When determining the location to mount the Reliant™ RS85-L unit, the following criteria must be taken into consideration.

- The location must allow for the machine dimensions (*Figure 3-4*), and additional space requirement for minimum cooling, access and maintenance.
- The mounting surface must be level and able to accommodate the (4) four mounting bolts of the base frame.

NOTICE

The mounting hole pattern for the bolts and dimensions can be found on the specific machine dimensions drawing (*Figure 3-4*) in this section.

- Choose a mounting surface that is capable of supporting the unit's weight of 285 lbs (129.3 kg).
- The external instrumentation display must be easily visible to the operator.
- For most installations, it is recommended 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 intake side (front) are not obstructed.

CAUTION

DO NOT place the compressor in any location where exhaust fumes, dust or debris are being drawn into the intake.

3.3 HYDRAULIC SYSTEM OVERVIEW

If the compressor is being installed on a truck that already has a functioning hydraulic system, check the specifications for that system to ensure that it meets minimum requirements.

- The hydraulic flow and pressure requirements of the air compressor.
- A continuous hydraulic load requirement is necessary when compressor is running.
- The duty cycle and ambient operating temperatures.
- Must have a hydraulic case drain port at the tank.
- Hydraulic system oil cooling requirement.
- Other hydraulic equipment which may share that same hydraulic supply system (Vanair® recommends a dedicated pump and hydraulic circuit).

NOTICE

This manual provides the information required to design a hydraulic supply system. It defines the provided connections and hydraulic flow requirements. The design, build and maintenance of this system is the responsibility of the customer.

NOTICE

The information in this manual is in regard to a fixed displacement pump. For systems utilizing a variable displacement pump, consult a qualified hydraulic system specialist.

WARNING

Whether installing or performing service on the Reliant™, Follow all applicable safety recommendations as outlined in Section 1: Safety of this manual.

! IMPORTANT !

Vanair® recommends procuring the services of a qualified professional hydraulic system designer/provider to define the hydraulic drive system to power this Vanair® machine.

NOTE

The temperature of the hydraulic oil should not exceed 160°F due to the rating of the Vanair®-supplied hydraulic motor. Hydraulic performance will de-rate at temperatures above 120°F.

NOTE

Hydraulic performance will de-rate at temperatures above 120°F.

NOTE

Vanair® recommends a dedicated pump and hydraulic circuit.

3.3.1 HYDRAULIC PUMP

The hydraulic pump must be rated for 2,900 PSI consistent operation, and 3,300 PSI for pressure spikes. The compressor capacity will depend on hydraulic oil flow.

! IMPORTANT !

The values depicted in Table 3A, are for reference only: Due to the variable relationship between CFM output and hydraulic flow, adjustments should be tested to achieve the desired CFM output in regard to flow, load and system efficiency.

If the compressor is being installed on a truck that already has a functioning hydraulic system, check the specifications for that system to ensure that it meets minimum requirements.

TABLE 3A: OIL SELECTION GUIDE

EXTREME COLD CLIMATE		COLD CLIMATE		TERMPERATE CLIMATE	
-40 to 32°F		0 to 80°F		32 to 120°F	
No Tank Preheat	Tank and Suction Line Preheat	Open-Mounted	Enclosed-Mounted	Open-Mounted	Enclosed-Mounted
¹	AW 32	AW22 ^{II}	AW 32	AW 32	AW 46

¹ A seasonal hydraulic oil change is recommended to get best component life. Recommended oils include: Summer: When overnight temperatures do not go below 32°F (0°C), use AW 32. Winter: When overnight temperatures are consistently below 32°F (0°C), use Texaco 5606H, PetroCanada Hydrex MV Arctic 15, Shell fluid 41, Mobil Aero HFA, Anderol Royco 78°C.

^{II} When possible, change to AW 32 during summer months.

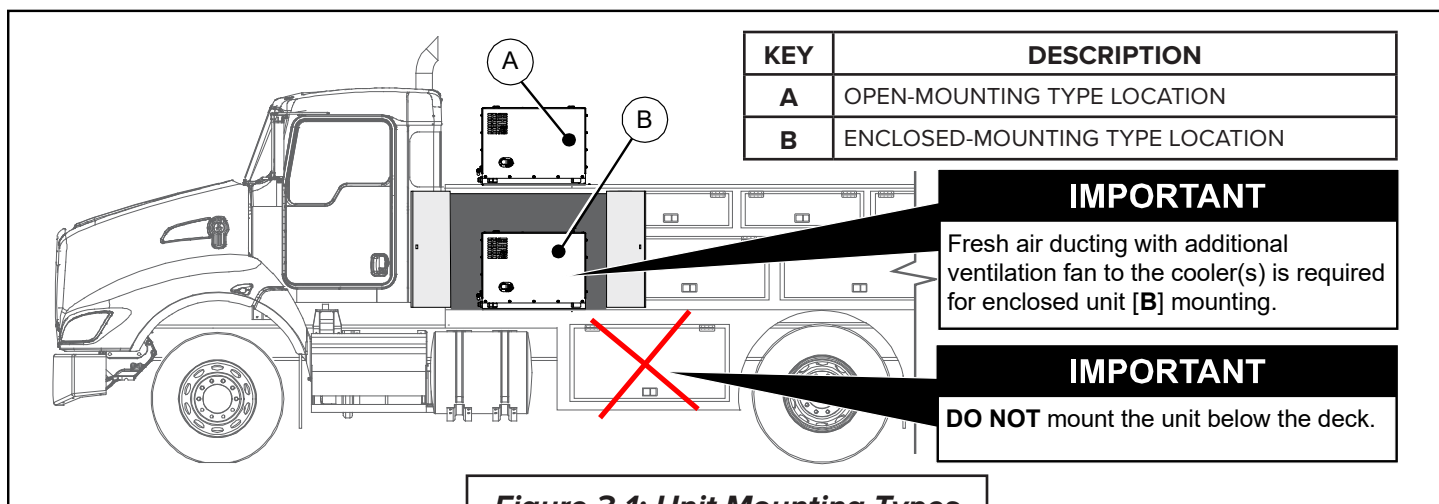


Figure 3-1: Unit Mounting Types

3.3.2 VENTILATION REQUIREMENTS

The variables involved with installing the hydraulic pump system make it impossible to recommend detailed specifics, as each customer is potentially different in regard to vehicle type, customer needs, etc. The following information is therefore given not as absolute instruction, but as a guideline based on good practice.

! IMPORTANT !

Operation of the hydraulic system will generate an amount of heat that will damage system components. For this reason the equipment package must have a proper ventilation system installed.

Machine placement will play an important factor in providing adequate and consistent cooling air for the system operation. In this regard, there are two types of mounting locations to consider, open mounting and enclosed mounting. (**Figure 3-1**).

Open-mounting: refers to machine placement location on the service body, where the machine is directly exposed to the environment.

Enclosed-mounting: refers to machine placement within an enclosure located on the service body.

Open-mounting provides for the best cooling situation, allowing for maximum unrestricted air flow to interact with the heat displacement components. The mounted unit must have minimum unobstructed clearances on all sides of the machine.

The unit must have the minimum unobstructed clearance given in **Figure 3-2**, on all sides of the machine for operation.

Although enclosed mounted units provide a degree of shelter and security. This type of machine location is not recommended, due to its limiting effect on air flow needed to cool an operating system. Should this mounting type be preferred, then provision should be made to maximize the machine's exposure to air (e.g. a pull out mounting platform; removable enclosure walls, etc.)

NOTICE

For enclosed mounting, it is recommended to install a safety switch on the access door that allows for compressor operation only when the door is open.

Ideal ventilation regardless of the type of mounting installation of the unit, needs to provide adequate, unrestricted air flow through the unit. Additionally, the cooler must be exposed to, or provided with (ducted) cool ambient air and an exhaust fan with the enclosed space to displace the heated air.

NOTICE

DO NOT mount the unit below the vehicle deck. The Reliant™ RS85-L must be mounted above deck. (See Figure 3-1)

! IMPORTANT !

DO NOT mount Hydraulic Reservoir in same enclosed space as the machine.
Installing enclosed-mounting type without proper cooling air ducted to coolers is **NOT RECOMMENDED**.

3.3.3 HYDRAULIC LINES

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 (Table 7I Hose Installation Guide)**, for assistance with proper hose layout and connecting functions.

WARNING

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

WARNING

Improperly, or non-connected lines will damage the equipment.

3.3.3.1 HYDRAULIC LINE SIZING

Industrial hydraulic system design guidelines generally call for the following maximum fluid velocities, which are then used to select line sizes for any particular GPM:

In regard to a particular hydraulic system GPM, line sizing selection for maximized fluid velocity is matched via industrial hydraulic system guidelines, that include:

- **Suction @ 4 ft/sec**
- **Return @ 10 ft/sec**
- **Pressure @ 20 ft/sec**

In cases where mobile hydraulics are to be added to a pre-built chassis, the above guidelines are not comprehensive due to the following factors:

- **Extreme start-up temperature variations**
- **Long suction line**
- **Piggy-backing of motor case drain flow onto the main return line.**

Pump failure, caused by cavitation of the circulating fluid; and motor seal breakdown due to excess return line pressure, can occur if proper allowances are not taken for the above factors when determining line sizing.

NOTE

The line size when referencing a hose is in relation to its inside diameter. For cold weather operation below 0°F, the next larger size hose should be used.

3.3.3.2 SUCTION LINE SIZING

Based on the 4 ft/sec fluid velocity condition, choose a suction hose size from **Table 3B**. Up-size the hose, if necessary.

Hose size recommendation for the Reliant™ are:

- Return line size: 1" (one inch)
- Pressure line size: 3/4" (0.75 inch)

TABLE 3B: SIZING FOR SUCTION HOSE

Maximum Operating GPM	Suction Hose Size
8-13	1"
14-15	1-1/4"
16-22	1-1/2"

Based on the 10ft/sec fluid velocity condition.

RETURN LINE SIZING

! IMPORTANT !

Failure to match the correct system return line sizing for the hydraulic system can cause rupture of the hydraulic motor's shaft seal during cold start-ups.

TABLE 3C: RETURN LINE SIZING

Maximum GPM	Return Line Size
8-14	3/4"
15-22	1"

Based on the 20 ft/sec fluid velocity condition.

3.3.3.3 PRESSURE LINE SIZING

TABLE 3D: PRESSURE LINE SIZING

Maximum GPM	Return Line Size
8-12	1/2"
13-18	5/8"
19-22	3/4"

3.3.3.4 PLUMBING THE CASE DRAIN PORT TO TANK

In a *closed-center* system, the case drain port on the bulkhead must be run directly to the tank, before operating the motor. The motor's case drain port location is shown in **Figure 3-2**. The plumbing for the case drain port should be at least the same size as the drain port, in order to keep back pressure low in the motor case.

! IMPORTANT !

Excessive pressure build-up inside the case will blow out the shaft seal. If the case drain is not connected, blocked or incurs pressure above 25 PSI, the shaft seal will fail immediately or within minutes of running, and the entire motor unit will have to be replaced.

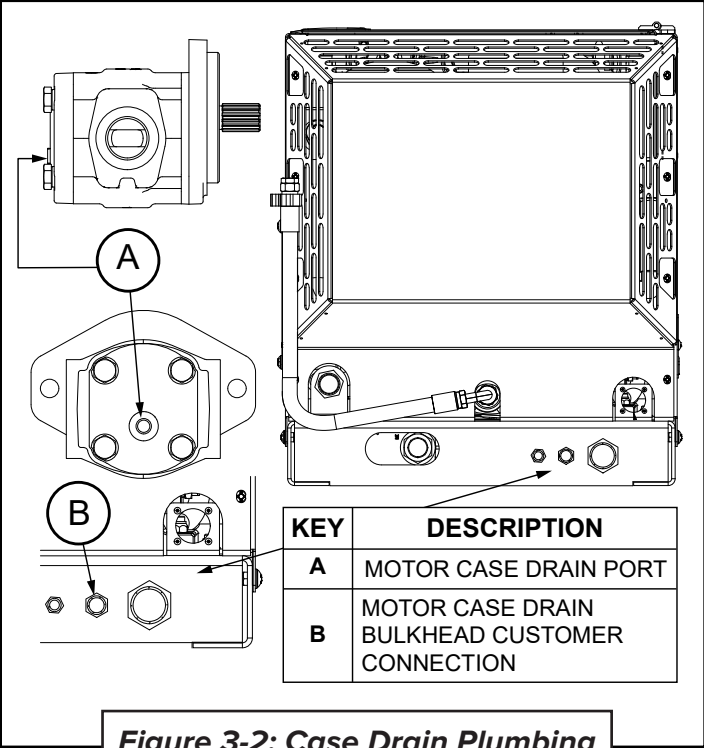


Figure 3-2: Case Drain Plumbing

DO NOT combine the case drain line, nor connect the line to other circuit returns to the tank lines.

The case drain circuit is designed for motor internal leakage **ONLY**, for minimal flow at low pressure.

The motor case line at the tank should be located above the fluid level so entrained air can escape on start-up. This will prevent air from being introduced into the hydraulic system.

3.3.4 HYDRAULIC OIL RESERVOIR

3.3.4.1 DETERMINING RESERVOIR SIZE

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

For the Reliant™ RS85-L, a 35 gallon reservoir is recommended at the minimum.

3.3.4.2 DETERMINING RESERVOIR SHAPE

The reservoir structure should be tall and narrow rather than shallow and broad (**Figure 3-3**). 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.

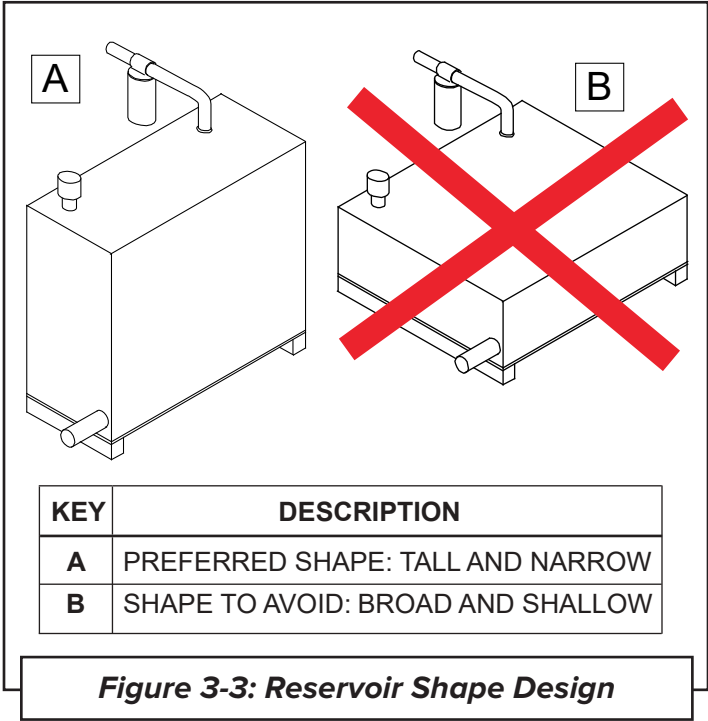
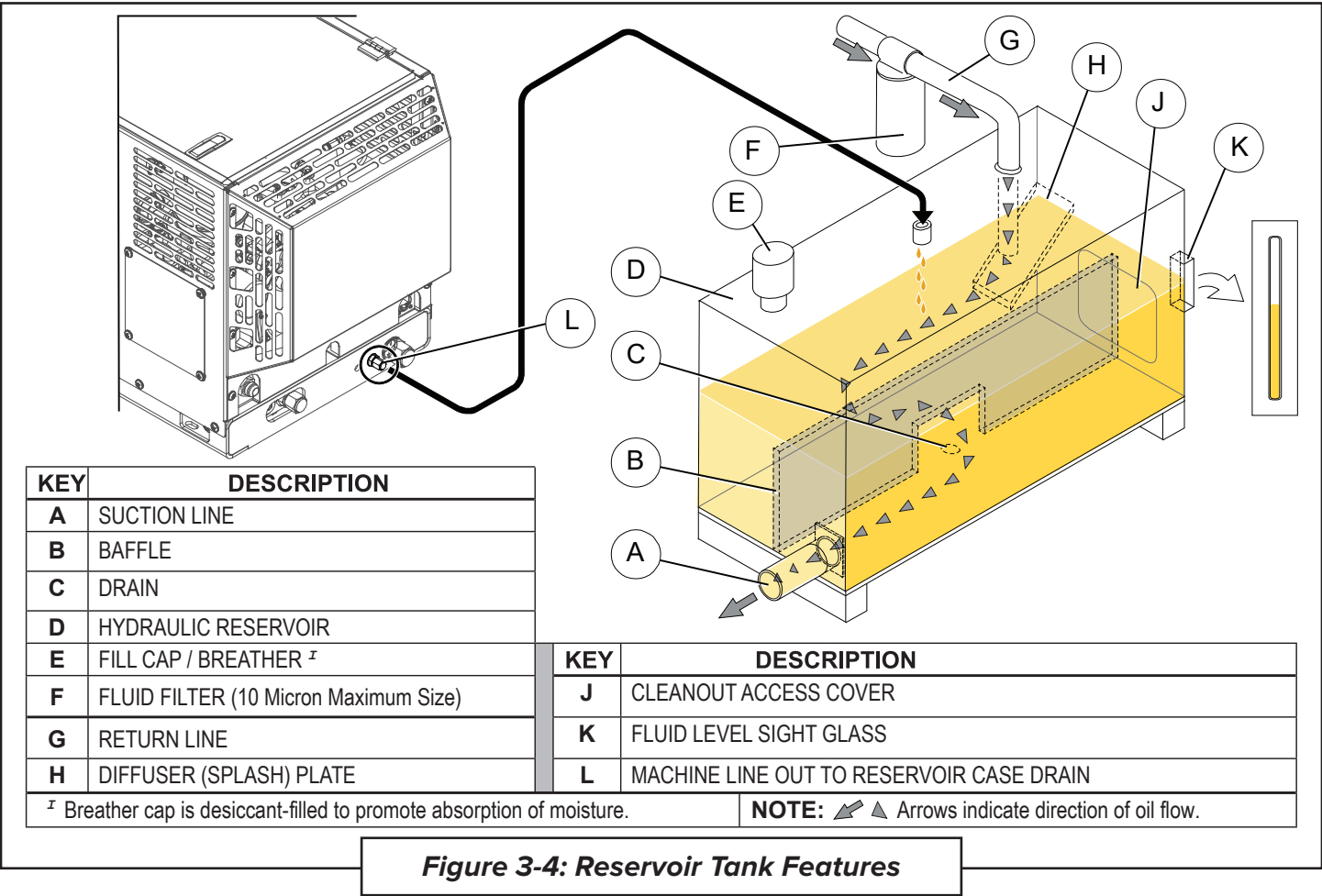


Figure 3-3: Reservoir Shape Design

3.3.4.3 MANDATORY RESERVOIR FEATURES

Refer to **Figure 3-4**. 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 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 aer-ation of the circulating oil. This extends oil integrity, which in turn helps to maintain system performance and reliability.



- An independently-run case drain port to allow for pressure relief on the motor shaft seal. Should motor pressure buildup reach above **25 PSIG**, it may result in blowing out the shaft seal (*refer to Section 3.3.3.5*).
- An inline 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 ease 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.

3.3.5 HYDRAULIC SYSTEM FILTRATION

Vanair recommends using a *10 micron* oil filter 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.

3.3.6 RECOMMENDED 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 adverse cold conditions.

3.3.7 FEATURES TO AVOID

! IMPORTANT !

A suction line screen strainer is not recommended for systems designed for mobile equipment. Such a strainer may promote cavitation (system strain), that, when combined with other deterrents* may hamper the ability of the system to maintain proper circulation. * Possible mobile line deterrents may include: a long suction line, cold startups, non-tracked or infrequent maintenance practices, etc.

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.

3.3.8 RECOMMENDED HYDRAULIC SYSTEM SPECIFICATIONS

Refer to **Figure 3-6A or 3-6B**. A flow controller is optional to reduce flow if necessary. *Consult Vanair® for information.*

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)
- Case drain = #6 JIC = 3/8" hose
- Hydraulic suction = Standard, #16, 1" hose

3.3.9 STANDARDS GUIDELINES

- Hydraulic pressure relief is factory set at 3300 PSI.

3.4 INSTALLATION

3.4.1 MACHINE LOCATION

It is vital to locate the machine so that there is no restriction of cooling air through the enclosure (Refer to **Figure 3-5**). Cooling air enters the enclosure at the right end when facing the instrument panel end of the machine, passes through the cooler and exits through vents in the upper sides and the rear.

! IMPORTANT !

The Reliant™ hydraulic unit must be mounted above deck. DO NOT mount the unit below the vehicle deck.

3.4.2 CLEARANCES

(Refer to **Figure 3-5**.) Ensure that adequate surrounding clearance spaces given in the figure exit around the machine to allow for adequate cooling ventilation through the canopy shroud, for unobstructed service and maintenance access, and to make sure there is a clear view of the control panel.

3.4.3 MOUNTING

Mounting surface or support should be sturdy enough to easily support the full weight of the machine 285 lbs (129.3 kg) and should be level during normal operation. Mounting holes are located in the frame footing for four (4) 1/2 in hold down bolts. (See **Figure 3-5** for dimensions.)

3.4.4 SERVICE CONNECTIONS

Refer to **Figure 3-4**. Service connections are conveniently grouped at the lower rear section.

3.4.5 ELECTRICAL CONNECTIONS

This system is offered with a 24VDC circuit. Refer to **Table 3-B** and **Section 7.13 Wiring Diagram**.

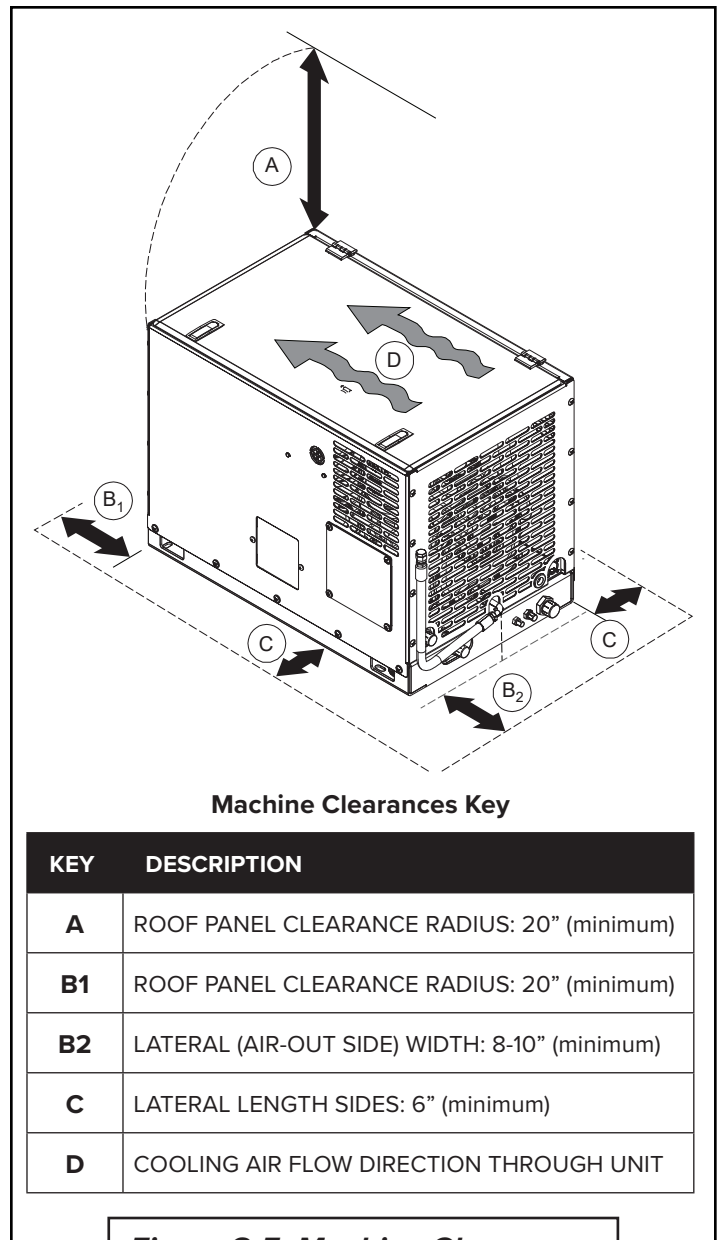


Figure 3-5: Machine Clearances

NOTE

Length and side clearance issues to consider:

Panel/display view and access to the gauges/digital display.

Compressor drain, case drain, load sensing line, compressor supply, and air discharge.

3.4.6 HYDRAULIC SUPPLY CIRCUIT

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.

Vanair® recommends procuring the services of a qualified professional hydraulic system designer/provider to define the hydraulic drive system to power this Vanair® machine.

TABLE 3E: CIRCUIT WIRE INFORMATION

Wire #1 (14 gauge)	Machine Activation Circuit Switch
Wire #2 (12 gauge)	Constant Positive Battery Voltage
Wire #3 (14 gauge)	System Ground
Wire #4 (14 gauge)	Auxiliary Circuit Output Signal
Wire #5 (14 gauge)	Heater Ground
Wire #6 (14 gauge)	Heater Pad Switched
6-PIN	Positive Voltage

3.4.7 ROUTING

Refer to **Section 7.12**. 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 chaffing, corrosion, and consequential loss due to down time.

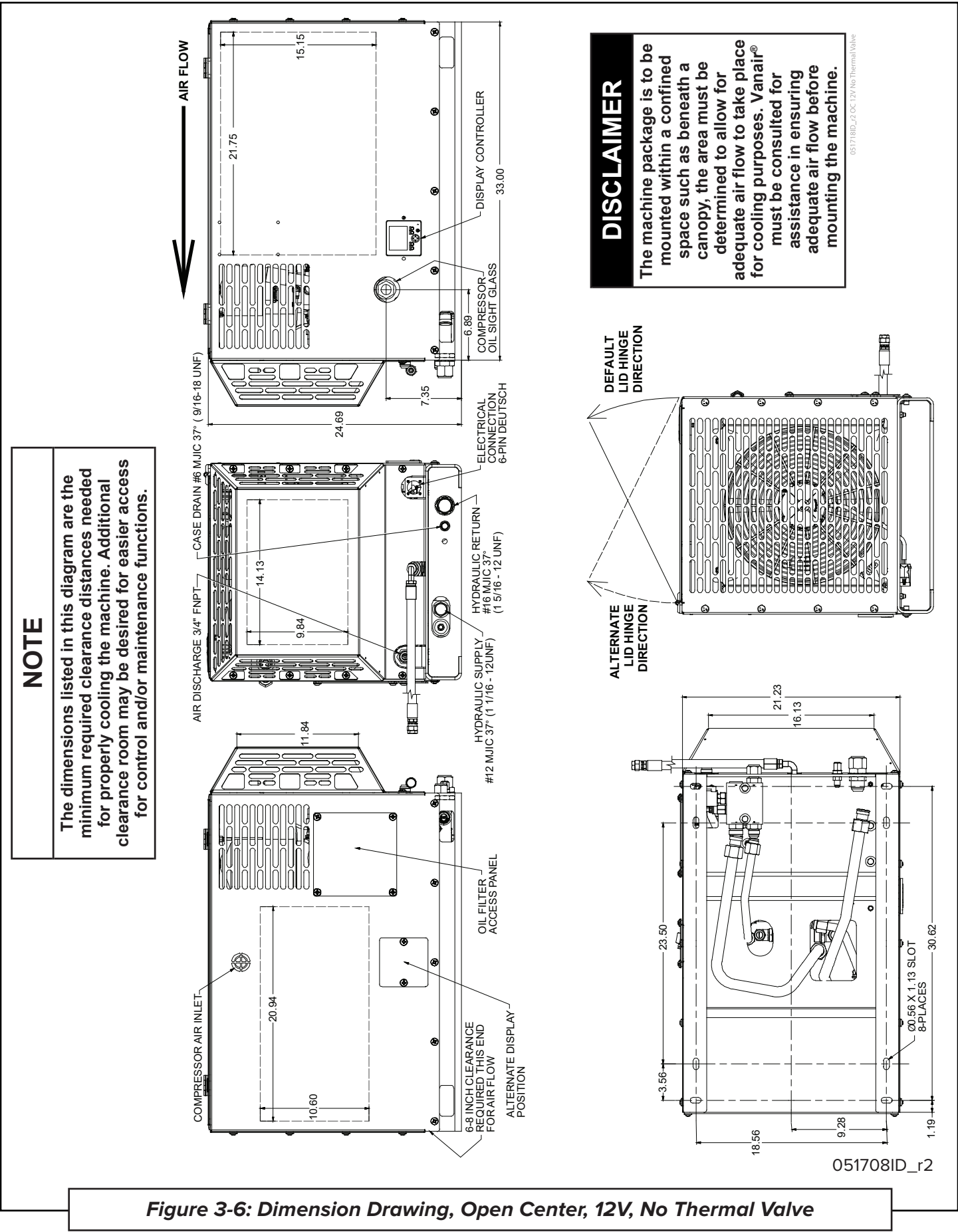
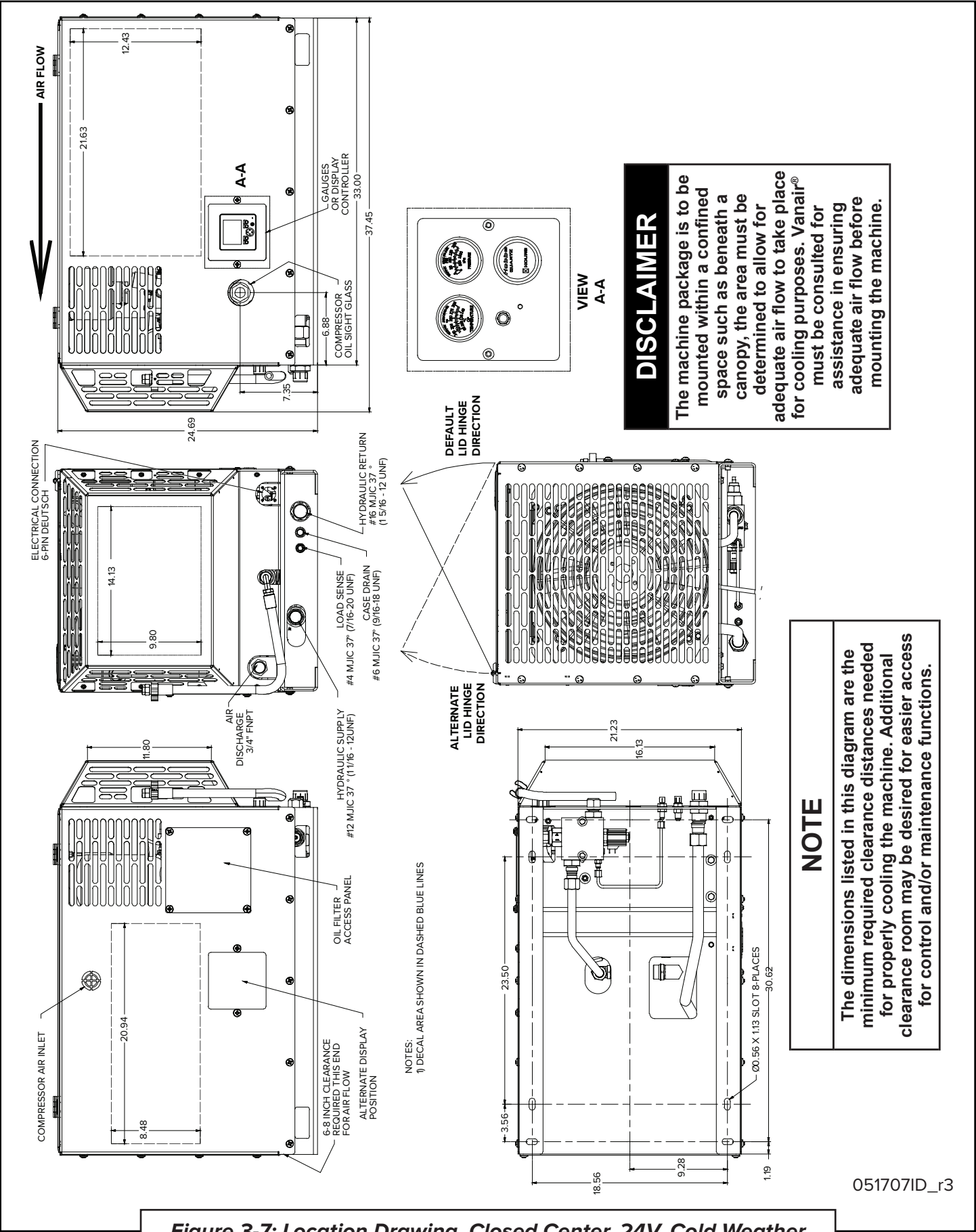


Figure 3-6: Dimension Drawing, Open Center, 12V, No Thermal Valve



SECTION 4: Operation

4.1 GENERAL INFORMATION

WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system of pressure. After the machine has blown down, open a service valve to vent all pressure to the atmosphere. To ensure that any remaining residual system pressure is relieved, slowly remove the fill cap, which will vent any residual pressure to the atmosphere.

The Reliant™ RS85-L compressor has a comprehensive array of controls and indicators (See **Figure 1-1** and **Figure 1-2**). Understanding the correct operation of the system will help you to understand and recognize when it is operating optimally. The information in this **Operating Section** will help the operator to recognize and interpret the readings, which will call for service or indicate the beginning of a malfunction.

NOTICE

Before starting the Vanair® Reliant™ RS85-L, read this section thoroughly and familiarize yourself with the controls and indicators, their purpose, location and use.

4.2 MACHINE OPERATION PROCEDURES

4.2.1 INITIAL START-UP PROCEDURE: PRE-CHECKS

Following are step-by-step instructions for the initial start-up of the Reliant™ RS85-L hydraulic system:

1. Ensure the compressor is positioned on a level surface so that the proper amount of oil can be added or drained as needed..
2. Unit should be bolted down.
3. Ensure all hose connections are tight and wiring connections correct and tight.
4. Check the compressor oil level.

TABLE 4A: PURPOSE OF CONTROLS

CONTROL OR INDICATOR	PURPOSE
Discharge Air Pressure (Pressure Gauge)	Continuously monitors service line discharge air pressure. Will activate shutdown if over-pressure occurs.
Discharge Air Temperature (Temperature Gauge)	Continuously monitors oil discharge temperature. Will activate shutdown if over-temperature occurs.
Hour Meter Gauge (Operation Hours)	Indicates accumulated hours of operation for planning and logging service schedules.
Oil Fill/Level Plug	To check/fill compressor oil level.
Minimum Pressure Check Valve	Maintains minimum operating pressure and prevents back flow when unloaded/shutdown.
Pressure Regulator	Controls operating pressure.
Inlet Solenoid Valve	Opens/closes inlet valve in response to pressure regulator.
Air Inlet Valve	Opens/closes in response to air demand and acts as check valve upon unload/shutdown to prevent oil blow back into air filter.
Hydraulic Pressure Relief Valve	Relieves hydraulic pressure to return line in event of hydraulic over-pressure condition.
Hydraulic Solenoid Valve	Responds to ON/OFF switch to direct flow to compressor motor or to return line.
Air Pressure Relief Valve	Opens sump pressure to atmosphere in case of air over-pressure condition.
IFM Controller	Digital unit capable of allowing full operational control of machine functions from a centralized panel and navigation system.

WARNING

Do not rely on air service or hydraulic hoses to hold the module in position.

NOTICE

The compressor oil level check and fill procedure is found in **Table 5A**.

WARNING

Wear personal protective equipment (PPE) such as gloves, work boots, eye and hearing protection as required for the task at hand.

WARNING

DO NOT remove caps, plugs and/or other components when compressor is running or pressurized. Stop compressor and depressurize system. Relieve the entire system pressure by opening the service valve, which will vent all the pressure to the atmosphere.

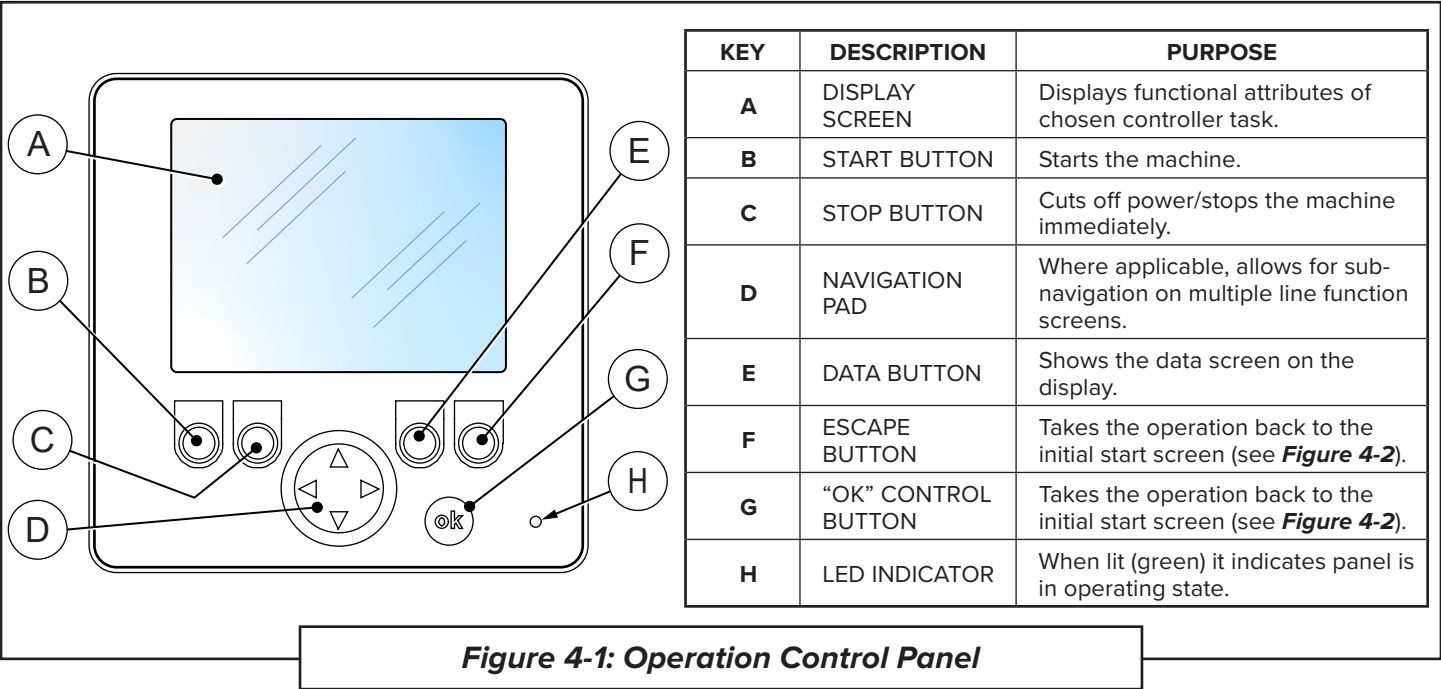
- Ensure hydraulic oil to pump inlet and prime if needed.
- Ensure service valve on compressor is closed.
- Engage hydraulic system (PTO or hydraulic supply) and allow hydraulic oil to circulate back to tank. When solenoid is activated, oil should quickly circulate to the hydraulic motor on the compressor and start producing air.
- Check for any leaks.
- Refer to **Figure 4-1 and 4-2**. Press the “START” button on the controller, and wait for the Main Screen. (Default is the **Pressure Screen**.) Check pressure and temperature screens. Pressure may need adjustment to achieve desired operating pressure.

Refer to **Section 5, Table 5A: ROUTINE MAINTENANCE SCHEDULE**.

- Partly open service valve to load compressor and allow system to warm up. Monitor temperature. Temperature should be between 180-220°F (82-104°C); approximately 100°F over ambient temperature. **NOTE:** May be higher with high ambient conditions.
- Cycle compressor on/off with service valve to ensure operation is working.
- Close the service valve.
- Disengage hydraulic system.
- Allow all air to vent to atmosphere. Check compressor oil level and top off if necessary. Inspect for and correct any leaks; tighten any loose fittings.

4.2.2 OPERATING CONDITIONS

- Operate only in well-ventilated areas.
- Ensure there are no obstructions of cooling air intakes and outlets around the machine
- Do not leave anything on top of the machine. Machine will become hot during use and cooling air must not be restricted.
- Operate machine with the top cover closed.
- Refer to specifications for operating parameters.



4.2.3 ROUTINE START-UP PROCEDURE

NOTICE

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

1. Ensure the compressor is positioned on a level surface so that the oil level can be read accurately and correct amount of oil can be added if required.
2. Close the air service valve.
3. Engage the hydraulic system (PTO or hydraulic supply). This will activate the compressor.
4. Allow machine to warm up for several minutes before operating.

4.2.4 HIGH MOISTURE CONDITION: EMULSIFICATION

A serious condition may occur in operating environments that contain high levels of moisture, where condensation can occur within the rotary screw air compressor oil system, and possibly lead to emulsification of the lubricant. Emulsification occurs when the system's oil absorbs moisture present in the operation system via condensation.

Consult **Section 4.11.4.1, and Table 4-B** for preventative and corrective actions necessary for high moisture ambient environment operation.

If the condition persists, contact Vanair® Service Department (844) VAN-SERV.

4.2.4.1 PREVENTION OF EMULSIFICATION

1. Start the machine normally.
2. Do not immediately engage service air when full load is reached. Allow the system to warm up to 180°F (82.2°C). This initial warm-up period allows the moisture within the system to vaporize.
3. After temperature reaches 180°F (82.2°C), open the service valve and discharge air for approximately ten (10) minutes to purge this vaporized moisture from the system.

4.2.5 SHUTDOWN PROCEDURE

1. Close the service valve.
2. Allow compressor system to unload.
3. Shut off hydraulic power supply.

4.2.6 INFREQUENT USE

In some installations the compressor may not be used regularly. To ensure the compressor is maintained in working order, the compressor should be started and run at least once per month. Follow the procedure outlined in **Section 5.2.3** on a once per month basis.

Be sure to follow all fluid and filter maintenance as outlined in this manual following the recommended change intervals. When the machine is scheduled to be idle for an extended period of time, consult **Section 5.4.3.: Long Term Storage** for more details.

4.2.7 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 intervals stated for normal conditions as shown in **Table 5-B: Routine Maintenance Schedule**.

4.2.8 HIGH TEMPERATURE OPERATION

Consult the information in **Table 4-B** for preventative and/or repair measures. Reduce load duty cycle to less than 60% when operating in environments above 104°F (40°C).

Extra care should be taken to keep the air compressor clean and to not restrict air flow around the unit.

When operating the machine in high temperature area, precautions should be taken to prevent overheating. At the minimum, all vents, including air passage ways around the vents, should be kept free of dirt and debris.

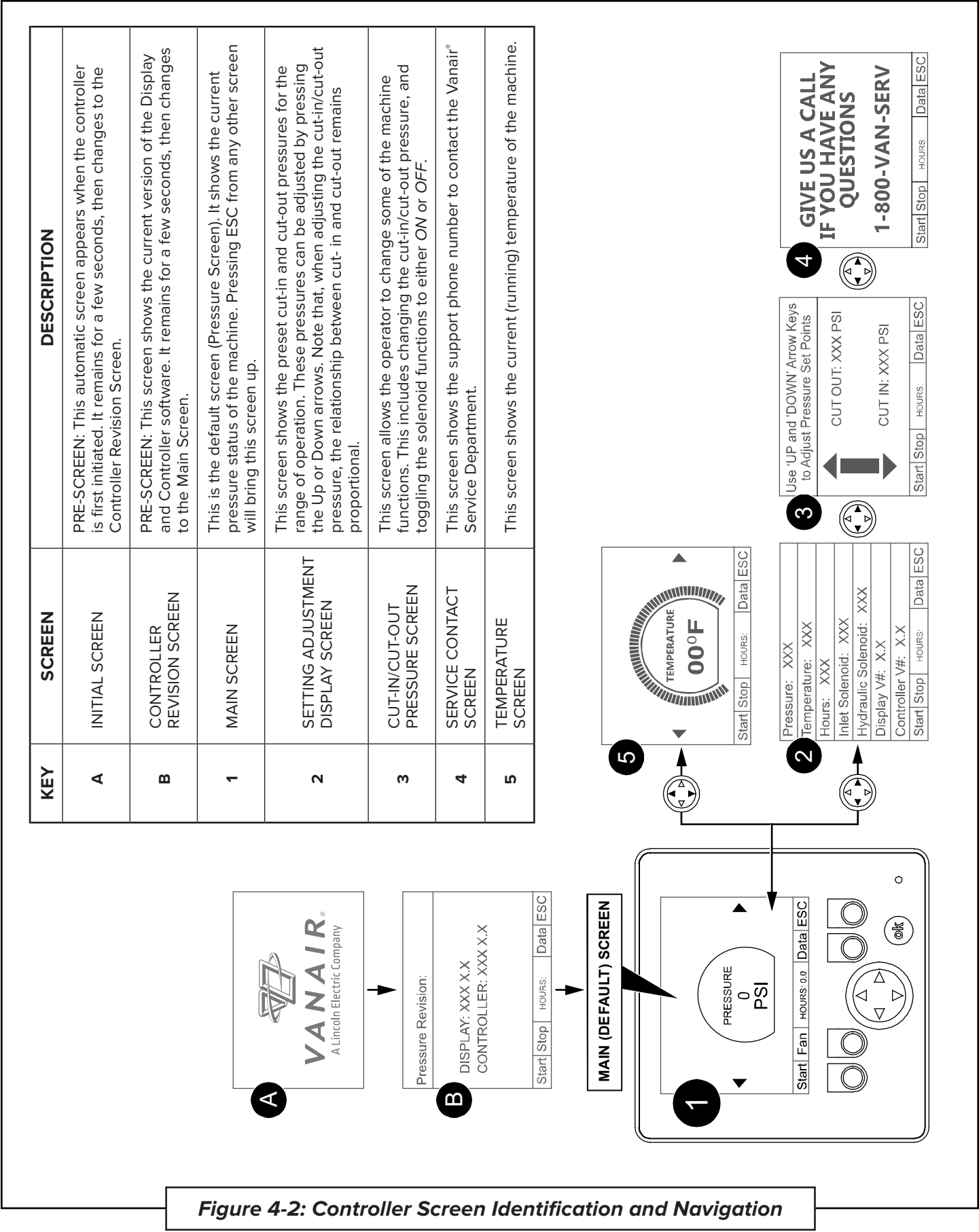


TABLE 4B: HIGH TEMPERATURE OPERATION

SYMPTOM	CAUSE	PREVENTATIVE/CORRECTIVE ACTION
Overheating/high compartment temperatures	High ambient temperatures, confined spaces, soundproof cases and other reasons. Among these the most important factor is the temperature of the intake and cooling air.	• Extra care should be taken to keep the engine and air compressor clean and to not restrict the air flow around the unit. • At the minimum, all coolers, including air passage ways around the coolers, should be free of debris and dirt. The fan is designed to run continuously to assure a constant flow of cooling air. • If high ambient overheating occurs, reduce the duty cycle (operating time). • The operator should be aware that high temperatures can influence compressor performance, which can directly effect some machine function capacity outputs.

SECTION 5: Maintenance

5.1 GENERAL INFORMATION

A good maintenance program is the key to long compressor life. This section contains a program that, when adhered to, should keep the compressor in top operating condition. However, it should be understood that the intervals suggested in the following schedule are for normal operation in a good, clean environment. More frequent inspections, oil and filter changes should be anticipated when operating the equipment under more harsh and dirty environments, including those that are dusty, high ambient temperatures, and extended light load conditions.

NOTICE

It is important to keep in mind that operating the compressor package in a severe environment may require more frequent service intervals than prescribed in the periodic maintenance schedule.

Before starting the compressor system, inspect the machine package for any suspect condition that may cause a safety hazard or hamper operation. Replace damaged components with genuine Vanair® replacement parts.

WARNING

DO NOT remove caps, plugs and/or other components when compressor is running or pressurized. Stop compressor and depressurize system. Relieve the entire system pressure by opening the service valve, which will vent all the pressure to the atmosphere.

WARNING

DO NOT work on any electrical components unless the battery is disconnected.

WARNING

Wear personal protective equipment (PPE) such as gloves, work boots, eye and hearing protection as required for the task at hand.

WARNING

Follow all applicable safety recommendations as outline in *Section 1: Safety*, of this manual.

CAUTION

Compressors and drive motors generate heat during normal use. Use caution when operating or servicing the compressor system. Some surfaces and components may be hot.

CAUTION

Use only original Vanair® equipment filters. Other filters may not have the correct pressure rating and may use a different thread.

5.2 MACHINE MAINTENANCE SCHEDULE

A routine maintenance schedule based on time and/or hours logged, is given in **Table 5-B**. The intervals are determined from the machine's use under typical operating conditions. However the operator must be aware that operating conditions may vary depending on such things as specific customer requirements, environmental temperatures, and cleanliness of the surrounding work area. With this in mind, the specifications given in **Table 5-B** should be used as a guideline instead of a fixed agenda. A safe approach to routine maintenance would be to perform routine maintenance tasks more frequently when under harsher conditions.

NOTICE

It is important that the compressor oil be of the recommended type, inspected and replaced together with the oil and air filters, in accordance with this manual.

DO NOT mix oils of different types. Using replacement parts other than genuine Vanair® replacement parts will VOID the Warranty.

Vanair® provides a routine maintenance parts list in **Table 7-B: Routine Replacement Kit Order Information**. Should a non-routine part need replacement or servicing, use the parts diagram drawings to locate 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.

5.3 REPLACEMENT PARTS

Replacement parts should be purchased through your local Vanair® representative or dealer where the machine was purchased. If for any reason, parts are not available in this manner they may be purchased directly from the Vanair® Service Department.

NOTICE

When ordering new replacement parts, consult **Section 7.1: Parts Ordering Information** and **Table 7-A: Recommended Spare Parts List**.

NOTICE

If additional spare parts are being stored for future use, be certain that they are stored in proper containers that allow for protection against contamination and kept in a clean area of moderate temperature. For information on storing the machine for extended periods of non-use, consult **Section 5.4.4: Long Term Storage**.

5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

Most routine maintenance assistance can be found in the appropriate “Action to Take” column given for a specific routine maintenance item. This section is mainly concerned with non-routine maintenance items and procedures. For assistance with any maintenance procedure needed that is not covered in this manual, please contact the Vanair® Service Department.

DANGER

Adjustments should be made with the compressor switched OFF, since electrical terminals inside the pressure regulator will be exposed.

WARNING

Before performing maintenance: Shut down the machine, relieve all system pressure, allow system to cool down, and lock out all power in accordance with the **Section 1: Safety**. Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

CAUTION

Be aware that the Reliant™ RS85-L System CAN BE STARTED REMOTELY

5.4.1 SERVICING FUSES AND RELAYS

The fuse can be found within the harness line, and the relay is mounted on the unit weight-bearing plate. Vanair® recommends using a fuse removal tool, although pliers can suffice when removing the fuses. Please refer to **Section 7.13: WIRING DIAGRAM** for fuse identification.

NOTICE

If the compressor oil has water contamination, it may be necessary to change the oil and filter more frequently than the interval in **Table 5-B**. If the system is operated in a dirty or dusty environment, it is recommended you check the air filter element weekly.

5.4.2 SAFETY SHUTDOWN SYSTEMS

Protection for over-pressure and/or over-temperature is provided. If either condition should occur, the solenoid valve should activate to divert hydraulic fluid back to the tank and the compressor will stop.

ON DIGITAL PANEL:

- Will show a reset button function to **press and hold**.

ON GAUGE PANEL:

- The fault reset on the instrument panel will pop out and stay out until reset.

NOTICE

If the fault button is tripped, investigate the reason why it tripped before resetting it.

WARNING

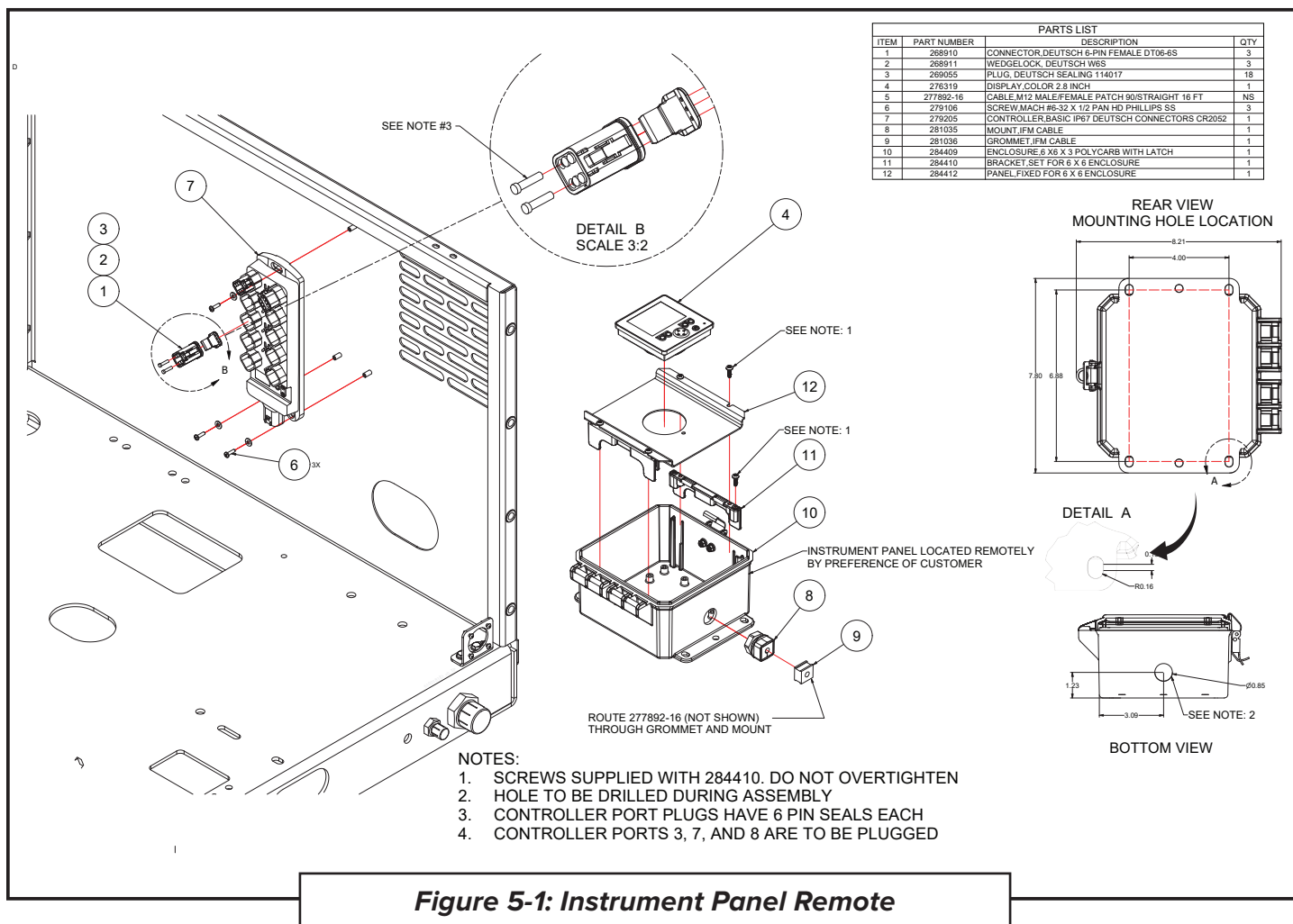
NEVER FORCE the reset button back into position if it keeps tripping, or bypass it in any way in order to allow for machine operation. A tripped reset button indicates a problem that needs to be addressed and resolved before operation can continue.

5.4.3 PRESSURE RELIEF VALVE

Refer to **Figure 2-1: Reliant™ RS85-L Main Component Locations**, callout [R] for relief valve location. Although the pressure relief valve has a reset ring at the cap, **DO NOT** test the pressure relief valve by pulling the ring. To ensure that all the system is fully depressurized, once the system is unloaded, slowly release, then remove fill cap to vent any remaining sump pressure.

5.4.4 LONG TERM STORAGE

Parts can wear out over time. Regardless of the degree of use. If storing the Reliant™ RS85-L unit for long periods of time, depressurize the air tank. Use a tarp or plastic to place over the top of the unit to prevent the accumulation of dust and debris, but leave the bottom open for air circulation. Whenever possible, store in a sheltered area to minimize exposure to the elements.



WARNING

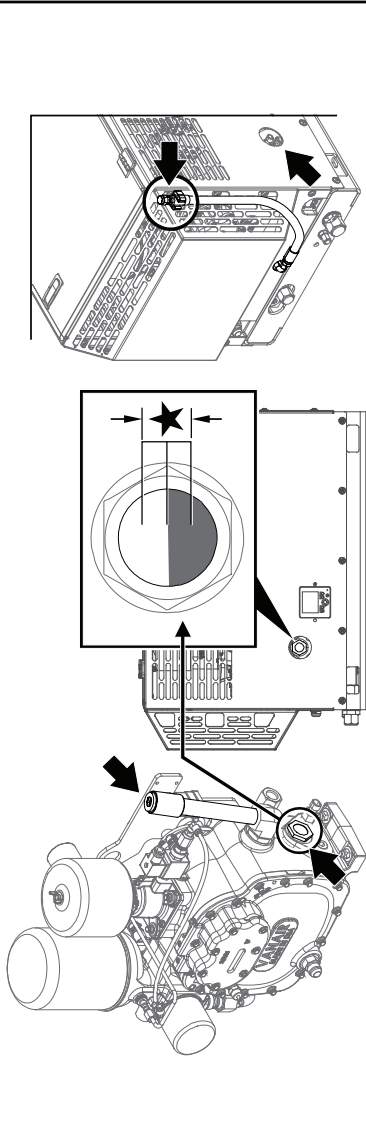
Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per Section 1: Safety. Clearly tag the start-up instrumentation to protect against accidental start-ups during maintenance.

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

	INTERVALS (Refer to foot-note / Table 5B)		
	After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually
⚠ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.			

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION /			
KEY NO.	DESCRIPTION	PART NO.	QTY
1	Initial 50 Hours Service Kit (oil filter, Vanguard™ replacement oil [two gallons])	KIT1212	1
2	Lifetime Warranty Service Kit (oil filter, air filter, separator element, Vanguard™ replacement oil [two gallons])	KIT1221	1
3	Vanguard™ Compressor Oil (one gallon replacement)	264626-1GAL	1
4	Compressor Air Filter Element Replacement	265546-004	1
5	Compressor Oil Filter Element Replacement	266801	1
6	Compressor Separator Element Replacement	273080	1
<i>If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for compressor oil replacement and compressor filter servicing.</i>			
NOTE: Refer to Section 7, Table 7A for full replacement parts listing, including non-routine items, and options.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

KEY	TASK DESCRIPTION	ACTION TO TAKE/REFERENCE		
1	Before starting, check compressor oil level.	■	■	■
2	Check for any leaks or loose bolts.	■	■	■
3	After starting, check pressure gauge for correct operating pressure.	■	■	■
Continued on next page				



REFERENCE:

- Compressor Sight Glass [A]
- Compressor Oil Fill Port [B]
- Compressor Oil Drain Tube [C]

PROCEDURE:

Order Vanguard™ Compressor Oil no. 264626-1 GAL (available in one gallon container). Ensure vehicle is situated on a level surface before checking oil level. Add oil if necessary. Proper oil level is between 1/4 to 3/4 range of the sight glass [A]; ALWAYS use the sight glass to determine oil level of compressor. **DO NOT OVERFILL. DO NOT TOP OFF OIL AT OIL FILL PORT.** Replace oil fill cap and tighten after proper filling is completed. Oil capacity is approximately five (5) quarts for machine.

Tighten if necessary.

Refer to **Section 2: Specifications** for proper operation pressure.

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION /			
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5	Compressor Oil Filter Element Replacement	266801	1
6	Compressor Separator Element Replacement	273080	1

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

NOTE: Refer to Section 7, Table 7A for full replacement parts listing, including non-routine items, and options.

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

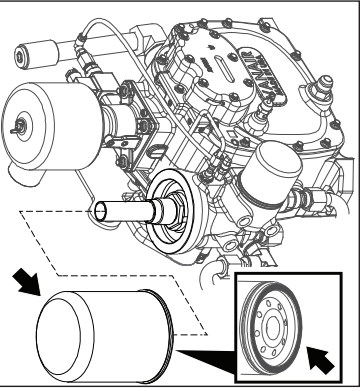
KEY	TASK DESCRIPTION	INTERVALS (Refer to foot-note/ Table 5B)	ACTION TO TAKE/REFERENCE
4	Check for leaks.	After 8 Hours or Daily After Initial 50 Hours After 500 Hours or Annually	Visually note any leaks or evidence of leaks around the compressor unit and hose connections. Tighten any loose connection point where needed. Repair or replace any damaged part. ⚠ WARNING When tightening hoses or fittings make sure unit is shut off. ⚠ WARNING Never use hand to check for leaks.
5	Change oil and filter element.		REFERENCE: • Compressor Oil Filter [↕] • Oil Filter Seal [↗] • Compressor Sight Glass [↗] • Compressor Oil Drain Tube [↖] • Compressor Oil Fill Port [↘] • Refer to Key #1 for oilfill replacement. Oil capacity is approximately five (5) quarts for machine.

Continued on next page

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION /				
KEY NO.	DESCRIPTION	PART NO.	QTY	
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4	Compressor Air Filter Element Replacement	265546-004	1	
5	Compressor Oil Filter Element Replacement	266801	1	
6	Compressor Separator Element Replacement	273080	1	
'If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for compressor oil replacement and compressor filter servicing.				
NOTE: Refer to Section 7, Table 7A for full replacement parts listing, including non-routine items, and options.				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.				
KEY	TASK DESCRIPTION	ACTION TO TAKE/REFERENCE		
5	Change oil and filter element. (continued)	After 8 Hours or Daily	■	...Continued from previous page. PART REPLACEMENT: Order Initial 50 Hours Kit (includes oil filter and two gallons of Vanguard™ replacement compressor oil) No.KIT1212, or refer to Table 5B for individual order parts. Always replace the oil and oil filter element at the same change interval. For full service assistance, also refer to key #1 and key #8 in this Table.
		After Initial 50 Hours	■	
		After 500 Hours or Annually	■	
6	Inspect intake air filter.	After 8 Hours or Daily	■	REFERENCE: Compressor Air Filter Element [➤] PART REPLACEMENT: Order Air Filter Element Replacement no. 265546-004. PROCEDURE: Unscrew and remove the wingnut and washer securing the air filter housing to the base stem. Lift the air filter element off of the base and inspect the filter material for pinholes or tears (note that this is easier when a light is used to illuminate the filter surface from the inside), along with the top and bottom for any damage or wear. Replace the element if it shows any damage or wear, even if the inspection occurs before the recommended replacement interval.
		After Initial 50 Hours	■	
		After 500 Hours or Annually	■	

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION /			
KEY NO.	DESCRIPTION	PART NO.	QTY
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6	Compressor Separator Element Replacement	273080	1
If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for compressor oil replacement and compressor filter servicing.			
NOTE: Refer to Section 7, Table 7A for full replacement parts listing, including non-routine items, and options.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			
KEY	TASK DESCRIPTION	ACTION TO TAKE/REFERENCE	
7	Replace separator element.		REFERENCE: Compressor Separator Filter Element [↖] Filter Element Seal Ring [↗] PART REPLACEMENT: Order Lifetime Warranty Service Kit No. KIT1221 (includes oil filter, separator filter and two gallons of Vanguard™ replacement compressor oil), or refer to Table 5B for individual order part(s). For full service assistance, also refer to key #1 and key #5 in this Table.
8	Inspect exterior of front-mounted oil cooler.	Clean if necessary.	Continued on next page



10896 West 300 North
Michigan City, IN 46360

Telephone: (800) 526-8817
(219) 879-5100

Service: (844) VAN-SERV or
(844) 826-7378

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Figure 5-2: Vanair® Contact Information

SECTION 6: Troubleshooting

6.5 GENERAL INFORMATION

The information contained in this section has been compiled from field report data and factory experience. It contains symptoms and usual causes for the most common types of problems that may occur. However, **DO NOT** assume that these are the only problems that can occur. All available data should be systematically analyzed before undertaking any repairs or component replacement procedures.

A detailed visual inspection is worth performing for almost all problems, and may avoid unnecessary additional damage to the 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 hoses and tubes.
3. Check for parts damaged by heat or an electrical short circuit, usually noticeable by discoloration or a burnt color.

Questions - consult your nearest Vanair® representative or the Vanair® Service Department.

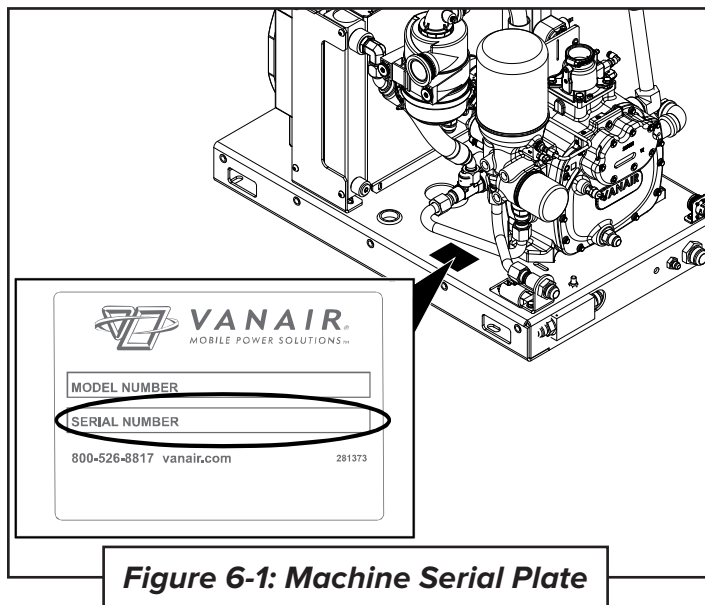


Figure 6-1: Machine Serial Plate

WARNING

DO NOT operate the compressor, or any of its systems, if there is a known unsafe condition.

Disable the equipment by disconnecting it from the system's power supply.

BE AWARE THAT THE RELIANT™ RS85-L SYSTEM CAN BE STARTED REMOTELY.

Install a lock-out tag for others to identify the equipment as inoperable to prevent accidental use of unsafe systems.

WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system of pressure. After the machine has blown down, open a service valve to vent all pressure to the atmosphere.

To ensure that any remaining residual system pressure is relieved, slowly remove the fill cap, which will vent any residual pressure to the atmosphere.



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Figure 6-2: Vanair® Contact Information

TABLE 6A: TROUBLESHOOTING GUIDE - MACHINE OPERATION

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not build up pressure	Air demand is too great	Check service lines for leaks or open valves; Too much air demand
	Dirty air filter	Check the filter and clean or change element if required
	Defective pressure transducer	Replace pressure transducer
	Motor does not turn	Check hydraulic flow and pressure and adjust if necessary
	Service valve wide open	Close service valve
	Solenoid valve stuck	Replace solenoid valve
	Inlet valve stuck	Free or replace inlet valve; Order rebuild kit if necessary
	Leak at connections or air line	Check air line connections or damage to air line; Fix or replace
Compressor over-pressures	Defective pressure transducer	Replace pressure transducer; Contact factory service department
	Inlet valve stuck open	Free or replace valve
	Solenoid valve not energized or faulty	Check for power; Replace if necessary
	Plugged/damaged coalescer	Replace coalescer
Insufficient air delivery/ Air demand too great	Plugged air filter	Replace air filter
	Plugged/damaged coalescer	Replace coalescer element
	Hydraulic motor speed too low	Check hydraulic flow and pressure settings and adjust if necessary
	Inlet valve stuck	Free or replace inlet valve; Order rebuild kit if necessary
	Minimum pressure/check valve malfunctioning	Rebuild or replace check valve
Oil carryover	Oil level too high	Drain to proper level
	Plugged oil scavenge line	Contact the Vanair® Service Department
	Discharge pressure too low	Check minimum pressure valve and adjust; Replace if necessary
	Defective coalescer	Replace coalescer element
	Compressor overspeed	Adjust hydraulic flow to maintain compressor RPM speed
Compressor overheating	Restricted cooling air flow	Reposition machine to assure proper air flow; Clean/clear cooler fins
	Fan not operating	Check ground connection and ensure proper connection
		Check circuit breaker
		Check for electrical short in wires
		Check fan motor
	Plugged oil filter	Replace oil filter
	Contaminated/plugged cooler core	Remove and clean cooler core; Consult Vanair® Service Department for recommended flushing procedure
	Pressure set too high	Contact Vanair® Service Department
	Unit running too fast	Check hydraulic flow and pressure and adjust if necessary
	Faulty thermal valve	Replace thermal valve
Compressor fails to start	No power	Check fuse/breaker/relays; Check for loose/broken wires
	Defective hydraulic system	Check GPM's and pressure to machine
	Faulty hydraulic motor	Check for 12V (If present and GPM's correct, replace)
	Faulty hydraulic solenoid	Check for proper GPM at inlet of motor
System retains pressure after shutdown	Solenoid valve stuck	There should be <i>NO</i> power to solenoid valve
	Faulty blowdown valve	Replace blowdown valve
	Leak back from air line	Check minimum pressure check valve for leaks

Continued on next page

TABLE 6A: TROUBLESHOOTING GUIDE - MACHINE OPERATION

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor stalls	Insufficient hydraulic system pressure flow. This can occur if another hydraulically driven component is used off same hydraulic pump system. Activating the secondary component may drop hydraulic supply system pressure/flow and leave insufficient pressure/flow for compressor.	NOTE: Even a momentary drop in supply hydraulic supply pressure/flow may initiate compressor; Blowdown to commence; Check setting on supply pressure system relief valve; Check to ensure adequate pressure/flow; Check if other systems are activated off same supply.
	Pressure relief valve set too low	Contact Vanair® service department
	Faulty relief valve/seals	Remove and check seals or fit new valve cartridge
	Air pressure set too high for hydraulic system	Adjust pressure setting to reduce air pressure
	Leak in solenoid valve cartridge (directional flow control valve) on manifold	Remove and check seals or fit new valve cartridge
	Check over-pressure or over-temperature	Adjust if necessary

TABLE 6B: TROUBLESHOOTING GUIDE - HYDRAULIC DRIVE SYSTEM

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
EXCESSIVE NOISE		
Motor is too noisy	Coupling is misaligned	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
EXCESSIVE HEAT		
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 200 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 200 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 200 PSI difference between valve settings)
	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

Continued on next page

TABLE 6B: TROUBLESHOOTING GUIDE - HYDRAULIC DRIVE SYSTEM

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
INCORRECT FLOW CONDITION		
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 worn or damaged	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
INCORRECT PRESSURE CONDITION		
Pressure is absent	No flow	Refer to information in the “No existing flow at motor” column under INCORRECT FLOW CONDITION in this guide
Pressure is low	Pressure relief path is open diverting oil	Refer to information in the “No existing flow at motor” 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
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 is out of adjustment	Adjust; Rebuild or replace if necessary
<i>Continued on next page</i>		

TABLE 6B: TROUBLESHOOTING GUIDE - HYDRAULIC DRIVE SYSTEM

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
FAULTY OPERATION		
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: Machine Serial Plate** for location of machine package serial plate. Consult **Table 7A: Recommended Spare Parts List** on the next page for a listing of replacement parts.

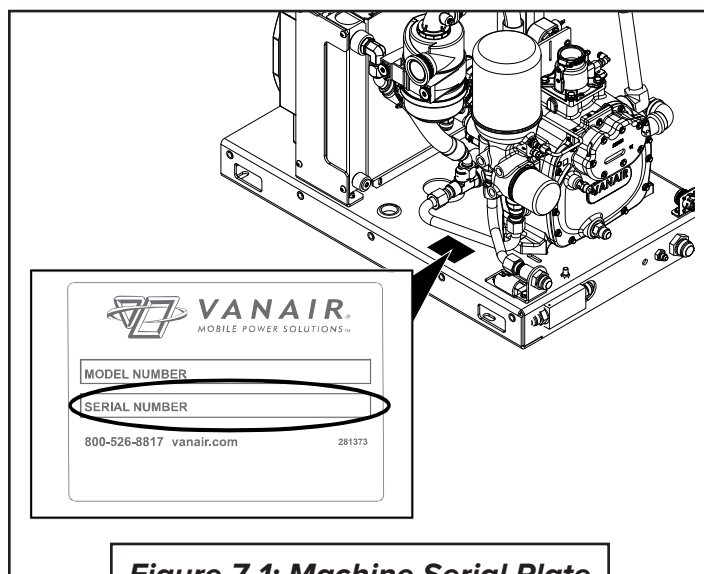


Figure 7-1: Machine Serial Plate



10896 West 300 North
Michigan City, IN 46360

Telephone: (800) 526-8817
(219) 879-5100

Service: (844) VAN-SERV or
(844) 826-7378

vanair.com

NOTICE

If spare parts are being stored for future use, ensure they are stored in proper containers that allow for protection against contamination. Store parts in a clean area with the temperature maintained within 40°F - 85°F (4°C - 29°C). For information on storing the machine package for periods of non-use, consult **Section 5.4.3: Long Term Storage**.

TABLE 7A: ROUTINE MAINTENANCE SCHEDULE AND KITS

KEY NO.	DESCRIPTION	PART ORDER NO.	QTY	KEY NO.	DESCRIPTION	PART ORDER NO.	QTY
ROUTINE/SCHEDULED MAINTENANCE ITEMS							
1	Oil, Compressor Vanair® Vanguard™ (gallon) ^{ix}	264626-1GAL	-	2	Element, Air/Oil Spin-on Separator	273080	1
MAINTENANCE SERVICE KITS							
3	Kit, Lifetime Warranty (compressor) ^{ix}	KIT1221	1	8	Kit, Tube and Hose (open center no thermal valve) ^v	279251	1
4	Kit, Initial 50 Hour Service (compressor) ^{ixx}	KIT1212	1	9	Kit, Tube and Hose (open center with thermal valve) ^v	279252	1
5	Kit, Air Inlet Replacement	273396	1	10	Kit, Tube and Hose (closed center no thermal valve) ^v	279253	1
6	Kit, Minimum Pressure / Discharge Check Valve (rebuild)	271079	1	11	Kit, Tube and Hose (closed center with thermal valve) ^v	279254	1
7	Kit, Compressor Shaft Seal	^{ixv}	1				
INDIVIDUAL MAINTENANCE ITEMS							
12	Fuse, Jcase 30A, Low Profile Push-in (for 12V machines)	279301	1	15	Relay, NO/NC Weatherproof 20A (24V)	265182	1
13	Fuse, Jcase 10/20A (for 24V machines)	265182	1	16	Valve, Thermal Replacement (Compressor)	273480	1
14	Fuse, 10A (red) ^{vz}	263173	1	17	Valve, Thermal Replacement Bypass (Hydraulic System)	274255	1
15	Relay, NO/NC Weatherproof with Bracket and Resistor (12V)	260246	1				
NOTES							
^{ix} Compressor oil capacity at oil change is approximately five (5) U.S. quarts. Oil is sold in gallon containers. DO NOT top off or overfill; refer to Key #1 in Table 5A, Routine Maintenance Schedule for information.				^{ixv} For compressor shaft seal replacement kit please contact the Vanair® Service Department.			
^{ixx} Lifetime Warranty Kit (no. KIT1221) consists of: Vanair® Vanguard™ compressor oil no. 264626-1GAL (note quantity of two [2] gallons); air filter replacement no. 265546-004 ; oil filter replacement element no. 266801 .				^v Tube and Hose Kit replacement parts do not include any hose and/or tube component for the hydraulic side (tank assembly) of the drive system, as these parts are acquired during system installation. Refer to Sections 7.20 through 7.28 for hose routing assistance.			
^{ixxv} Initial 50 Hour Service Kit (no. KIT1212) consists of: Vanair® Vanguard™ compressor oil no. 264626-1GAL (note quantity of two [2] gallons); and oil filter replacement element no. 266801 .				^{vz} Some standard components, such as fuses, may be obtained quicker and more economically from local sources such as an auto supply store, etc.			
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 5.4.3: Long Term Storage**.

NOTES



TABLE 7B: COMPRESSOR AND PARTS ASSEMBY LIST, 12V DIGITAL

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ORIFICE, .062 1/8M X 1/8F NPT	040127	1	22	VALVE, MIN PRESS INTERNAL PARTS VMI80	271079	1
2	SIGHTGLASS, O-RING TMBD 1 5/16"	250097-610	1	23	VALVE, INLET 85/150 ADHD 12V	271701	1
3	CONNECTOR, #10 MSAE x #10 MJIC	260387-109	1	24	O-RING, VITON 1/16 DIA X 1.176 ID	272689	1
4	CONNECTOR, #10 MSAE x #12 MJIC	260387-111	2	25	MANIFOLD, AIR/OIL VMI80	272920	1
5	CONNECTOR, O-RING 1-3/16 x 3/4 JIC PARKER	260387-143	1	26	SEPARATOR, AIR/OIL SPIN ON 106CFM	273080	1
6	ELBOW, 90 DEG #4 MJIC x #4 MSAE	260403-101	1	27	ADAPTER, AIR/OIL SEPARATOR M42 X M39	273081	1
7	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	28	CAPSCREW, HX SOC 5/16-18 X 3	273239	3
8	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	1	29	TUBE, SCAVANGE 0.25 VANAIR® COMPRESSOR	274385	1
9	TUBING, PLASTIC 1/4 WHITE	261322	3 ft	30	TRANSDUCER, PRESS 1/8NPT 200PSI -40 to 125 C	278283	2
10	ADAPTER, FEMALE PIPE x BSPP 1/4	263748-004	1	31	HOSE, OIL DRAIN RS85	279028	1
11	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1	32	SENSOR, TEMP RTD PT500	281208	1
12	FILTER, AIR UNDERHOOD	265546	1	33	ELBOW, PIPE STREET 1/8	801115-005	1
13	CLAMP, HOSE #28	265560	1	34	PLUG, PIPE 1/2	807800-020	1
14	FILTER, OIL 6" TANK	266801	1	35	NIPPLE, PIPE GALV 3/4 x 5	823112-050	1
15	ADAPTER, 3/4 NPT TO 1 1/16 SAE O-RING	267483	1	36	NUT, HEX LOCKING 3/8-16	825506-198	3
16	PLUG, PIPE 1/2 NPT HOLLOW HEX	267942	1	37	O-RING, VITON 1.130 O.D x 0.924 I.D x 0.103 (#119)	826502-119	2
17	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1	38	CAPSCREW, HEX GR8 3/8-16 x 1.75	829406-175	3
18	PLUG, SAE O-RING HOLLOW HEX #16	268081-010	1	39	SCREW, SER WASH 5/16-18 x 1	829705-100	4
19	ELBOW, 90 DEG #16 MSAEx 3/4 FNPT	269071-009	1	40	WASHER, FLAT 3/8	838206-071	6
20	CONNECTOR, OIL FILTER VANAIR® ENCAPS	270037	1	41	AIREND ASSY, VRS-E85 ALGDSP347	6170008	1
21	ORIFICE, STRAINER 0.030 #6 MSAE X #4 MJIC	271054	1				

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

Ref: 6180031D_r7
7.2 COMPRESSOR AND PARTS ASSEMBLY - 12V (DIGITAL)

7.3 COMPRESSOR AND PARTS ASSEMBLY, 12V ANALOG

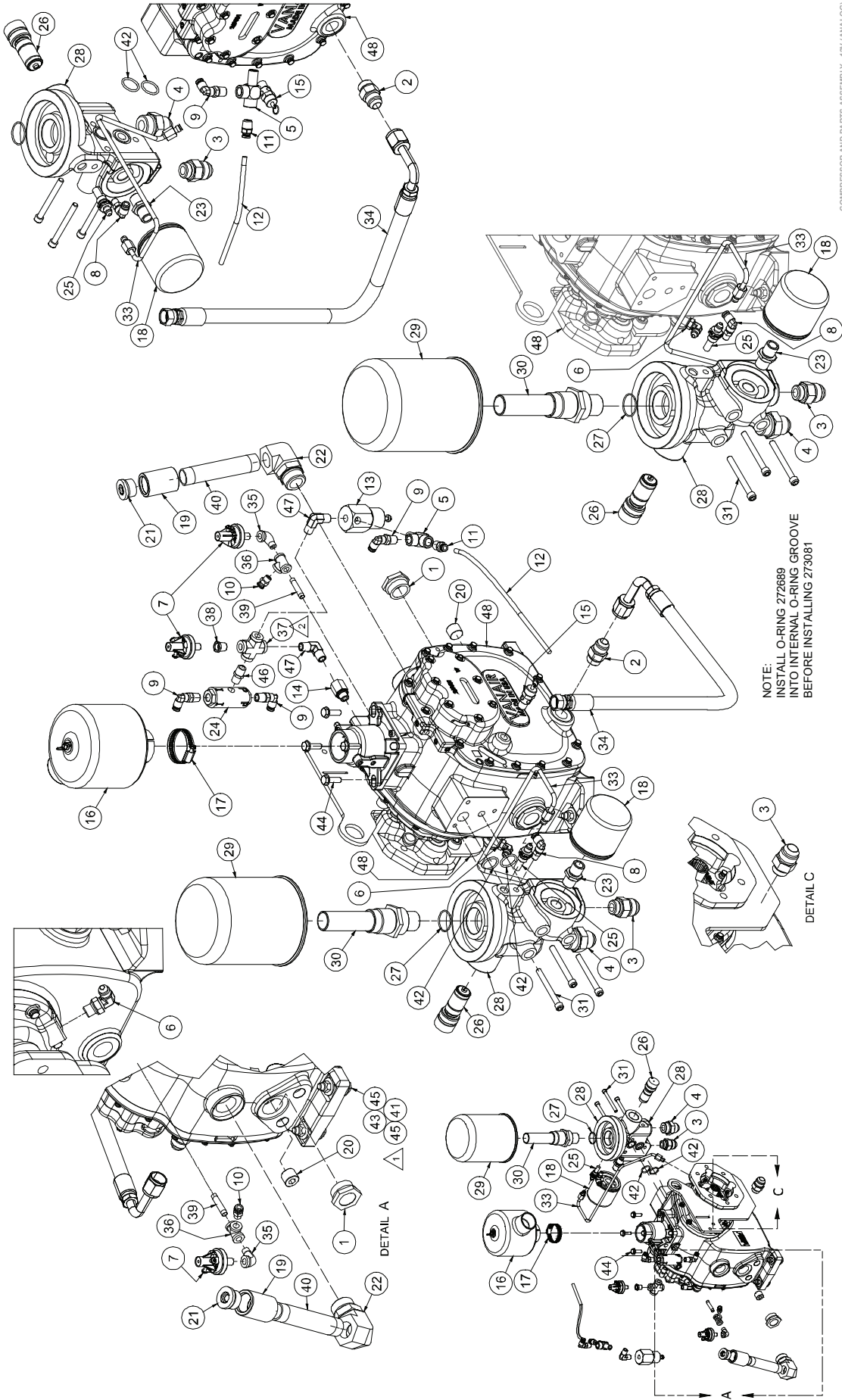


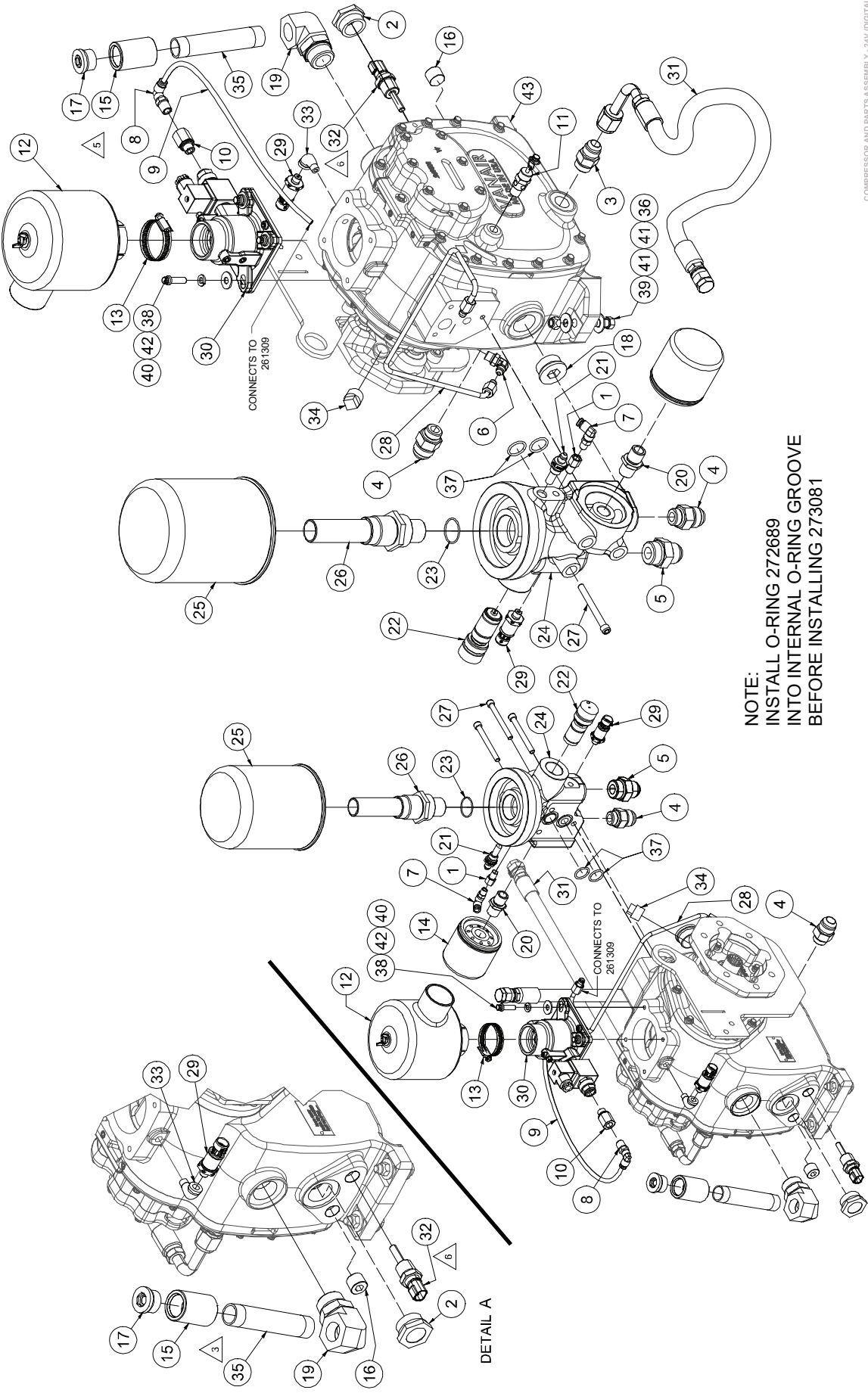
TABLE 7C: COMPRESSOR AND PARTS ASSEMBY LIST, 12V ANALOG

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	SIGHT GLASS, O-RING TMBD 1 5/16"	250097-610	2	25	ORIFICE, STRAINER 0.030 #6 MSAE X #4 MJIC	271054	1
2	CONNECTOR, #10 MSAE x #10 MJIC	260387-109	1	26	VALVE, MIN PRESS INTERNAL PARTS VM180	271079	1
3	CONNECTOR, #10 MSAE x #12 MJIC	260387-111	2	27	O-RING, VITON 1/16 DIA X 1.176 ID	272689	1
4	CONNECTOR, O-RING 1-3/16 x 3/4 JIC PARKER	260387-143	1	28	MANIFOLD, AIR/OIL VM180	272920	1
5	TEE, MALE STREET 1/4 x 1/4 x 1/4	260402-102	1	29	SEPARATOR, AIR/OIL SPIN ON 106CFM	273080	1
6	ELBOW, 90 DEG #4 MJIC x #4 MSAE	260403-101	1	30	ADAPTER, AIR/OIL SEPARATOR M42 X M39	273081	1
7	SWITCH, PRESSURE N.C. 10 PSI HOBBS	260818	2	31	CAPSCREW, HX SOC 5/16-18 X 3	273239	3
8	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	32	VALVE INLET, 1.5" VMC RH38	273396	1
9	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	3	33	TUBE, SCAVANGE 0.25 VANAIR® COMPRESSOR	274385	1
10	CONNECTOR, 1/8P x 1/4T PUSH ON	261316	1	34	HOSE, OIL DRAIN RS85	279028	1
11	CONNECTOR, 1/4T X 1/4P PUSHON	261317	1	35	ELBOW, PIPE STREET 1/8	801115-005	1
12	TUBING, PLASTIC 1/4 WHITE	261322	3 ft	36	TEE, PIPE GALV 1/8	804415-005	1
13	VALVE, REGULATOR, 6:1	262047	1	37	CROSS, PIPE 1/4 INCH STEEL	807300-010	1
14	ADAPTER, FEMALE PIPE x BSPP 1/4	263748-004	1	38	BUSHING, RED STEEL 1/4 x 1/8	807600-005	1
15	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1	39	NIPPLE, PIPE GALV 1/8 x 1.5	823102-015	1
16	FILTER, AIR UNDERHOOD	265546	1	40	NIPPLE, PIPE GALV 3/4 x 5	823112-050	1
17	CLAMP, HOSE #28	265560	1	41	NUT, HEX LOCKING 3/8-16	825506-198	3
18	FILTER, OIL 6" TANK	266801	1	42	O-RING, VITON 1.130 O.D x 0.924 I.D x 0.103 (#119)	826502-119	2
19	ADAPTER, 3/4 NPT TO 1 1/16 SAE O-RING	267483	1	43	CAPSCREW, HEX GR8 3/8-16 x 1.75	829406-175	3
20	PLUG, PIPE 1/2 NPT HOLLOW HEX	267942	1	44	SCREW, SER WASH 5/16-18 x 1	829705-100	4
21	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1	45	WASHER, FLAT 3/8	838206-071	6
22	ELBOW, 90 DEG #16 MSAEx 3/4 FNPT	269071-009	1	46	NIPPLE, PIPE HEX 1/4 x 1/4	860404-025	1
23	CONNECTOR, OIL FILTER VANAIR® ENCAPS	270037	1	47	ELBOW, PIPE 1/4M x 1/4M	860504-025	2
24	VALVE, BLOWDOWN 1/4 PISTON	270807	1	48	AIREND ASSY, VRS-E85 ALGDSP347	6170008	1

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

Ref: 6180042ID_r2
COMPRESSOR AND PARTS ASSEMBLY - 12V (ANALOG)

7.4 COMPRESSOR AND PARTS ASSEMBLY 24V DIGITAL



COMPRESSOR AND PARTS ASSEMBLY - 24V (DIGITAL)
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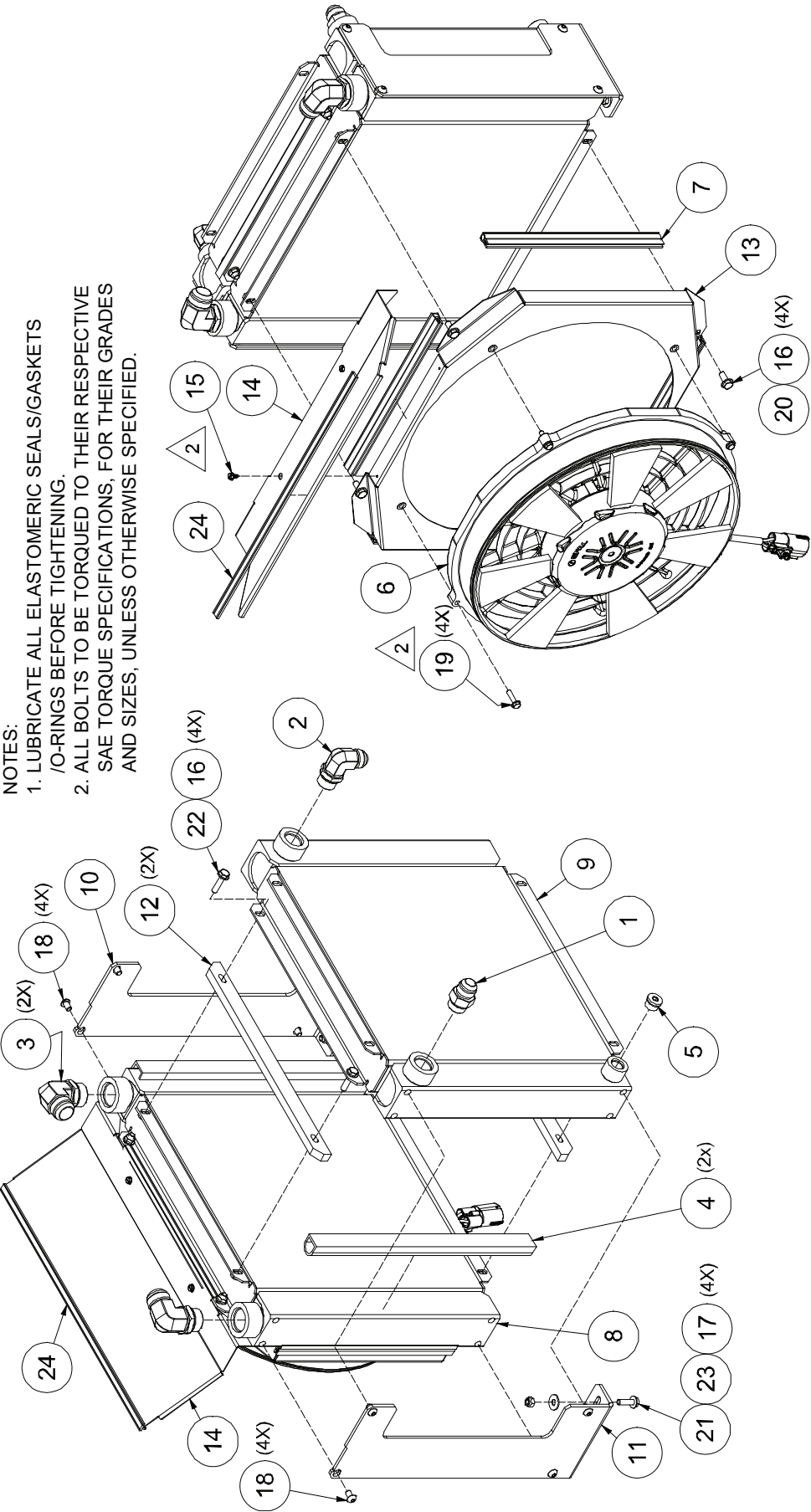
TABLE 7D: COMPRESSOR AND PARTS ASSEMBY LIST, 24V DIGITAL

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ORIFICE, .062 1/8M X 1/8F NPT	040127	1	23	O-RING, VITON 1/16 DIA X 1.176 ID	272689	1
2	SIGHTGLASS, O-RING TMBD 1 5/16"	250097-610	1	24	MANIFOLD, AIR/OIL VM180	272920	1
3	CONNECTOR, #10 MSAE x #10 MJIC	260387-109	1	25	SEPARATOR, AIR/OIL SPIN ON 106CFM	273080	1
4	CONNECTOR, #10 MSAE x #12 MJIC	260387-111	2	26	ADAPTER, AIR/OIL SEPARATOR M42 X M39	273081	1
5	CONNECTOR, O-RING 1-3/16 x 3/4 JIC PARKER	260387-143	1	27	CAPSCREW, HX SOC 5/16-18 X 3	273239	3
6	ELBOW, 90 DEG #4 MJIC x #4 MSAE	260403-101	1	28	TUBE, SCAVANGE 0.25 VANAIR® COMPRESSOR	274385	1
7	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	29	TRANSDUCER, PRESS 1/8NPT 200PSI -40 to 125 C	278283	2
8	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	1	30	VALVE, INLET INTAKE 85/150 ADHD 24V	278688	1
9	TUBING, PLASTIC 1/4 WHITE	261322	3 ft	31	HOSE, OIL DRAIN RS85L	279028	2
10	ADAPTER, FEMALE PIPE x BSPP 1/4	263748-004	1	32	SENSOR, TEMP RTD PT500	281208	1
11	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1	33	ELBOW, PIPE STREET 1/8	801115-005	1
12	FILTER, AIR UNDERHOOD	265546	1	34	PLUG, PIPE 1/2	807800-020	1
13	CLAMP, HOSE #28	265560	1	35	NIPPLE, PIPE GALV 3/4 x 5	823112-050	1
14	FILTER, OIL 6" TANK	266801	1	36	NUT, HEX LOCKING 3/8-16	825506-198	3
15	ADAPTER, 3/4 NPT TO 1 1/16 SAE O-RING	267483	1	37	O-RING, VITON 1.130 O.D x 0.924 I.D x 0.103 (#119)	826502-119	2
16	PLUG, PIPE 1/2 NPT HOLLOW HEX	267942	1	38	CAPSCREW, FERRY HD 5/16-18 X 1	828405-100	4
17	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1	39	CAPSCREW, HEX GR8 3/8-16 x 1.75	829406-175	3
18	PLUG, SAE O-RING HOLLOW HEX #16	268081-010	1	40	WASHER, FLAT 5/16	838205-071	4
19	ELBOW, 90 DEG #16 MSAEx 3/4 FNPT	269071-009	1	41	WASHER, FLAT 3/8	838206-071	6
20	CONNECTOR, OIL FILTER VANAIR® ENCAPS	270037	1	42	WASHER, LOCK 5/16	838505-078	4
21	ORIFICE, STRAINER 0.030 #6 MSAE X #4 MJIC	271054	1	43	AIREND ASSY, VRS-E85 ALGDSP347	6170008	1
22	VALVE, MIN PRESS INTERNAL PARTS VM180	271079	1				

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

Ref: 6180021ID_r6
COMPRESSOR AND PARTS ASSEMBLY - 24V (DIGITAL)

7.5 COOLING SYSTEM, COMPRESSOR/HYDRAULIC FLUID, 12V BRUSHLESS FAN



COOLING SYSTEM, COMPRESSOR/HYDRAULIC FLUID, 12V BRUSHLESS FAN
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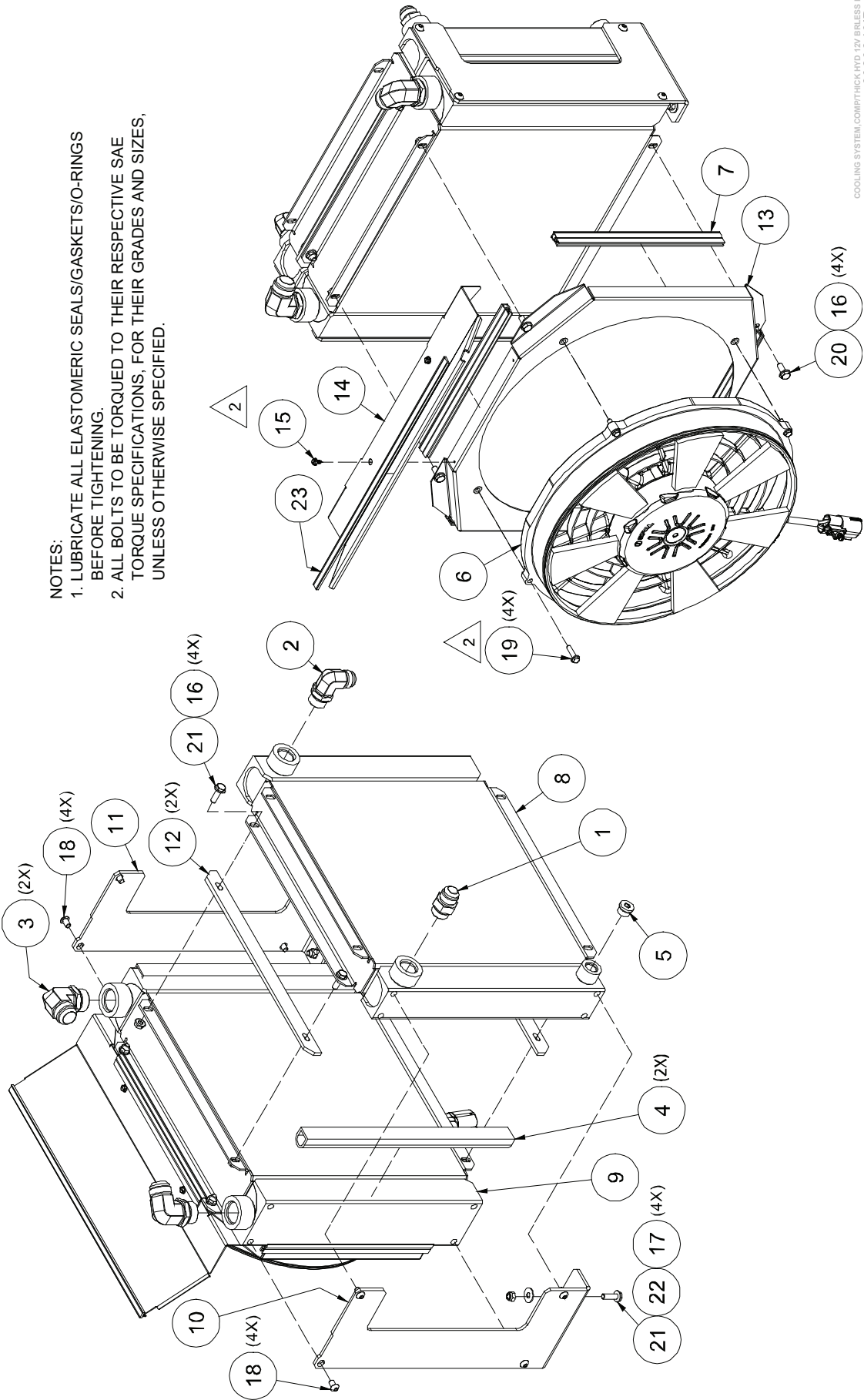
TABLE 7E: COOLING SYSTEM, COMPRESSOR/HYDRAULIC FLUID, 12V BRUSHLESS FAN

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
3	ELBOW, 90 DEG #16 MJIC x #16 MSAE	260403-108	2
4	SEAL, RUBBER "D" TRIM-LOK	264138	2.6 ft
5	PLUG, SAE O-RING HOLLOW HEX #8	268081-006	1
6	FAN AND MOTOR ASSY, BRUSHLESS 300W (RS85-L)	279485	1
7	TRIM-LOK, 1/8 GROOVE W/ BULB	279712	3.5 ft
8	CORE, COOLER HYDRAULIC RS85-L	279718	1
9	CORE, COOLER COMPRESSOR RS85-L	279719	1
10	BRACKET, MOUNTING R.H. RS85-L	279720	1
11	BRACKET, MOUNTING L.H. RS85-L	279721	1
12	BLOCK, COOLER SPACER (.5 THK)	279737	2
13	SHROUD, COOLING FAN RS85-L	279807	1
14	BAFFLE, COOLER / FAN GUARD RS85-L	280052	1
15	SCREW, #10 X 1/2 SELF TAP	280900	2
16	NUT, HEX FLANGE 5/16-18	825305-283	8
17	NUT, HEX LOCKING 5/16-18	825505-166	4
18	CAPSCREW, S.H. 5/16-18X1/2 ZINC PLT.	828305-050	8
19	SCREW, SER WASH 1/4-20 x 1	829704-100	4
20	SCREW, SER WASH 5/16-18 x 0.75	829705-075	4
21	SCREW, SER WASH 5/16-18 x 1	829705-100	4
22	SCREW, SER WASH 5/16-18 x 1.25	829705-125	4
23	WASHER, FLAT 5/16	838205-071	4
24	GASKET, SEAL AND TRIM	PR35734	1.583 ft

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

Ref: 6020244ID_r2
COOLING SYSTEM - COMP & 12V BRUSHLESS FAN

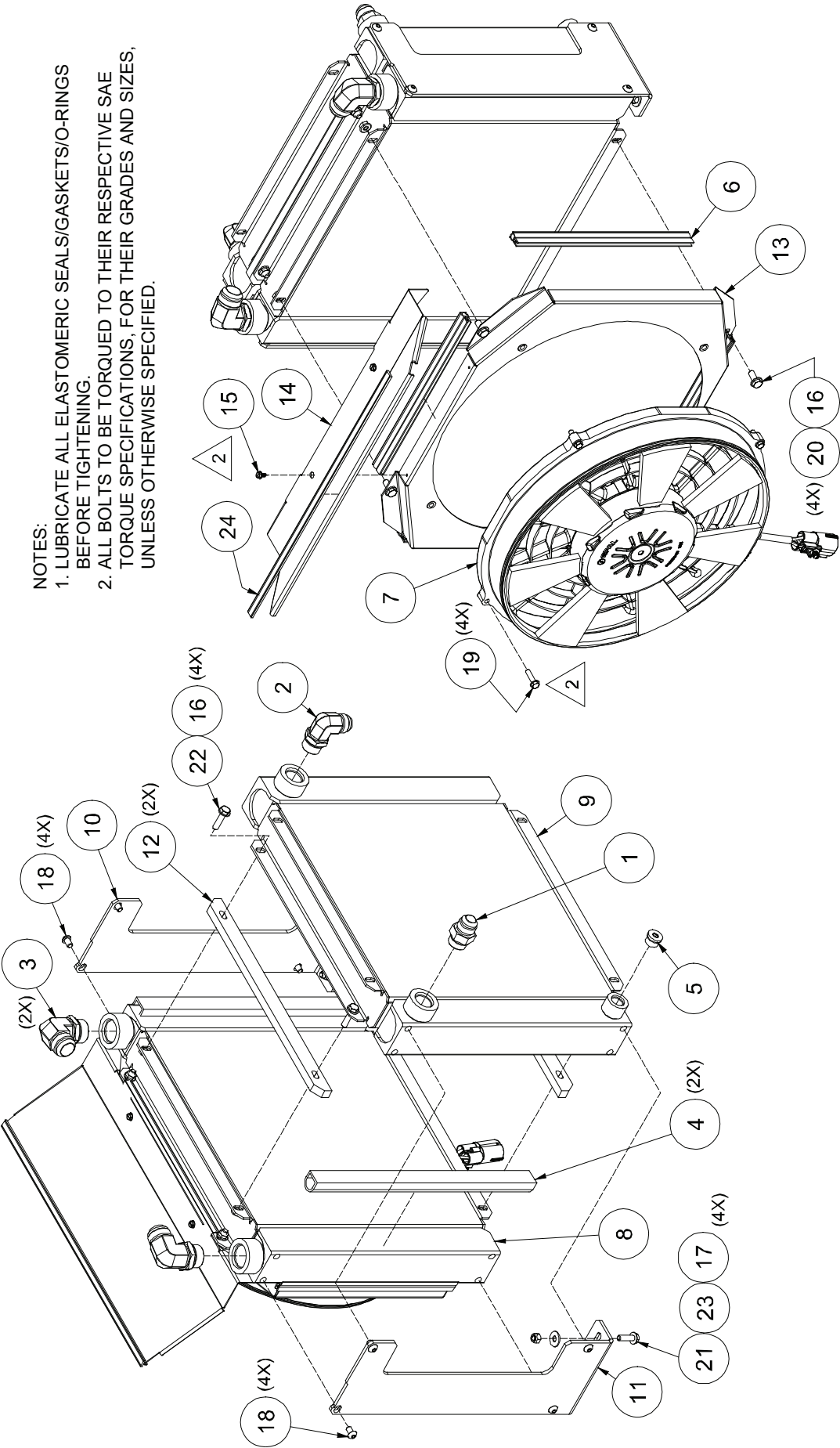
7.6 COOLING SYSTEM, THICK HYDRAULIC CORE, 12V BRUSHLESS FAN



- 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.

TABLE 7F: COOLING SYSTEM, THICK HYDRAULIC CORE, 12V BRUSHLESS FAN			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
3	ELBOW, 90 DEG #16 MJIC x #16 MSAE	260403-108	2
4	SEAL, RUBBER "D" TRIM-LOK	264138	2.6 ft
5	PLUG, SAE O-RING HOLLOW HEX #8	268081-006	1
6	FAN & MOTOR ASSY, BRUSHLESS 300W (RS85L)	279485	1
7	TRIM-LOK, 1/8 GROOVE W/ BULB	279712	3.5 ft
8	CORE, COOLER COMPRESSOR RS85L	279719	1
9	CORE, COOLER HYDRAULIC THK RS85L	279724	1
10	BRACKET, MOUNTING L.H. THK COOLER RS85L	279725	1
11	BRACKET, MOUNTING R.H. THK COOLER RS85L	279726	1
12	BLOCK, COOLER SPACER (.25 THK)	279749	2
13	SHROUD, COOLING FAN RS85L	279807	1
14	BAFFLE, COOLER / FAN GUARD RS85L THK. CORE	280053	1
15	SCREW, #10 X 1/2 SELF TAP	280900	2
16	NUT, HEX FLANGE 5/16-18	825305-283	8
17	NUT, HEX LOCKING 5/16-18	825505-166	4
18	CAPSCREW, S.H. 5/16-18X1/2 ZINC PLT.	828305-050	8
19	SCREW, SER WASH 1/4-20 x 1	829704-100	4
20	SCREW, SER WASH 5/16-18 x 0.75	829705-075	4
21	SCREW, SER WASH 5/16-18 x 1	829705-100	8
22	WASHER, FLAT 5/16	838205-071	4
23	GASKET, SEAL AND TRIM	PR35734	1.583 ft
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			6020246ID_r2

7.7 COOLING SYSTEM, COMPRESSOR/HYDRAULIC, 24V BRUSHLESS FAN



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.

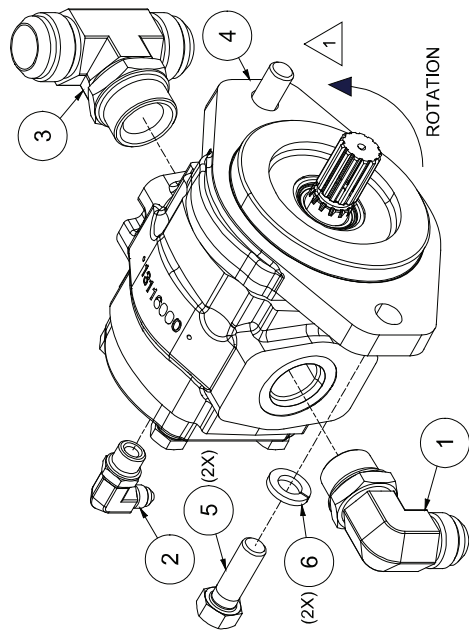
TABLE 7G: COOLING SYSTEM, COMPRESSOR/HYDRAULIC, 24V BRUSHLESS FAN

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
3	ELBOW, 90 DEG #16 MJIC x #16 MSAE	260403-108	2
4	SEAL, RUBBER "D" TRIM-LOK	264138	2.6 ft
5	PLUG, SAE O-RING HOLLOW HEX #8	268081-006	1
6	TRIM-LOK, 1/8 GROOVE W/ BULB	279712	3.5 ft
7	FAN & MOTOR ASSY, BRUSHLESS 300W 24V (RS85L)	279715	1
8	CORE, COOLER HYDRAULIC RS85L	279718	1
9	CORE, COOLER COMPRESSOR RS85L	279719	1
10	BRACKET, MOUNTING R.H. RS85L	279720	1
11	BRACKET, MOUNTING L.H. RS85L	279721	1
12	BLOCK, COOLER SPACER (.5 THK)	279737	2
13	SHROUD, COOLING FAN RS85L	279807	1
14	BAFFLE, COOLER / FAN GUARD RS85L	280052	1
15	SCREW, #10 X 1/2 SELF TAP	280900	2
16	NUT, HEX FLANGE 5/16-18	825305-283	8
17	NUT, HEX LOCKING 5/16-18	825505-166	4
18	CAPSCREW, S.H. 5/16-18X1/2 ZINC PLT.	828305-050	8
19	SCREW, SER WASH 1/4-20 x 1	829704-100	4
20	SCREW, SER WASH 5/16-18 x 0.75	829705-075	4
21	SCREW, SER WASH 5/16-18 x 1	829705-100	4
22	SCREW, SER WASH 5/16-18 x 1.25	829705-125	4
23	WASHER, FLAT 5/16	838205-071	4
24	GASKET, SEAL AND TRIM	PR35734	1.583 ft

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

Ref: 6020245ID_r2
COOLING SYSTEM COMP/HYD 24V BRUSHLESS FAN

7.8 HYDRAULIC MOTOR ASSEMBLY OC



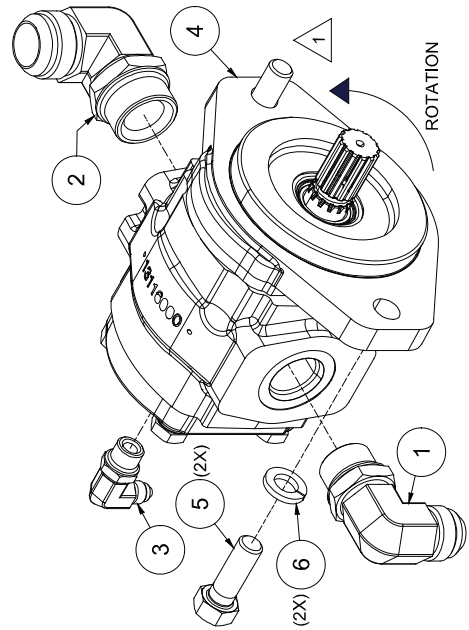
ASSEMBLY DRAWING STANDARD NOTES:

- 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.

6100237ID_r1
MOTOR AND DRIVE PARTS OPEN LETTER

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
2	ELBOW, 90 DEG #4 MJIC x #6 MSAE	260403-122	1
3	TEE, JIC/JIC/SAE #16	263749-007	1
4	MOTOR, HYD	276735	1
5	CAPSCREW, HEX GR8 1/2-13 x 1.5	829408-150	2
6	WASHER, LOCK 1/2	838508-125	2

7.9 HYDRAULIC MOTOR ASSEMBLY CC



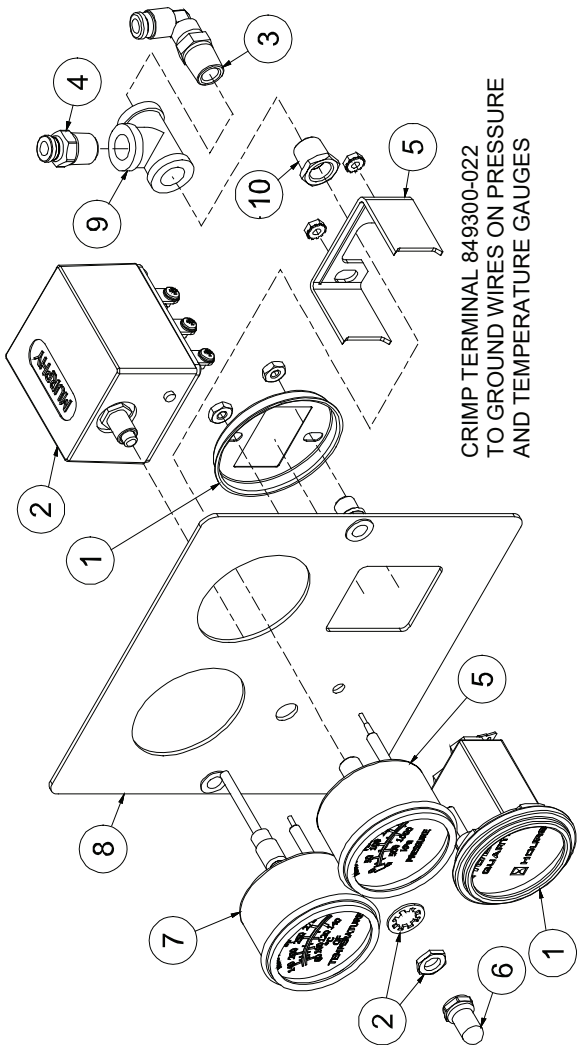
ASSEMBLY DRAWING STANDARD NOTES:

- 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.

6100238ID_r1
MOTOR AND DRIVE PARTS OPEN LETTER

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
2	ELBOW, 90 DEG #4 MJIC x #6 MSAE	260403-122	1
3	TEE, JIC/JIC/SAE #16	263749-007	1
4	MOTOR, HYD CASAPPA PHM20.25 13 TOOTH SPLINE	276735	1
5	CAPSCREW, HEX GR8 1/2-13 x 1.5	829408-150	2
6	WASHER, LOCK 1/2	838508-125	2
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.10 DISPLAY AND CONTROLLER ASSEMBLY (ANALOG)



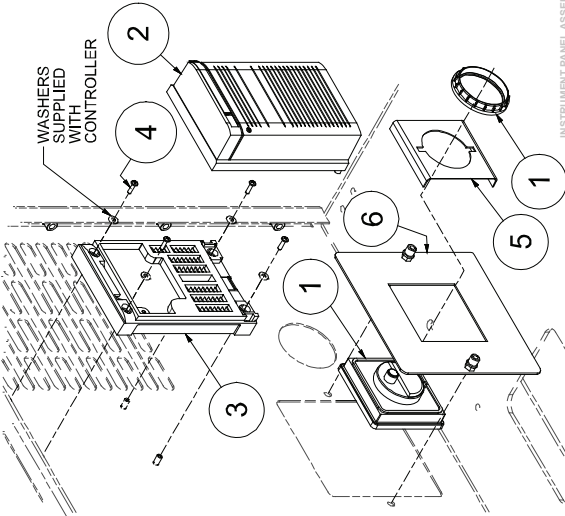
ITEM	DESCRIPTION	PART NUMBER	QTY
1	GAUGE, HOUR METER	040035	1
2	SWITCH, HIGH TEMP. SHUTDOWN	260625	1
3	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	1
4	CONNECTOR, 1/4T X 1/4P PUSHON	261317	1
5	GAUGE, AIR PRESSURE w/ SWITCH	261974	1
6	BOOT, RUBBER RESET SWITCH	262589	1
7	GAUGE, TEMP. MURPHY 6 1/2	266740	1
8	PANEL, GAUGE RS85-LW MECHANICAL	279483	1
9	TEE, PIPE GALV 1/4	804415-010	1
10	BUSHING, RED STEEL 1/4 x 1/8	807600-005	1
11	TERMINAL, RING #8 X 22-18 GA	849300-022	2

DISPLAY & CONTROLLER ASSEMBLY (ANALOG)
6040193ID_r1

7.11 DISPLAY AND CONTROLLER ASSEMBLY (DIGITAL)

ITEM	DESCRIPTION	PART NO.	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 REAR	279513	1
6	PANEL, GAUGE RS85L ELECTRONIC	279528	1

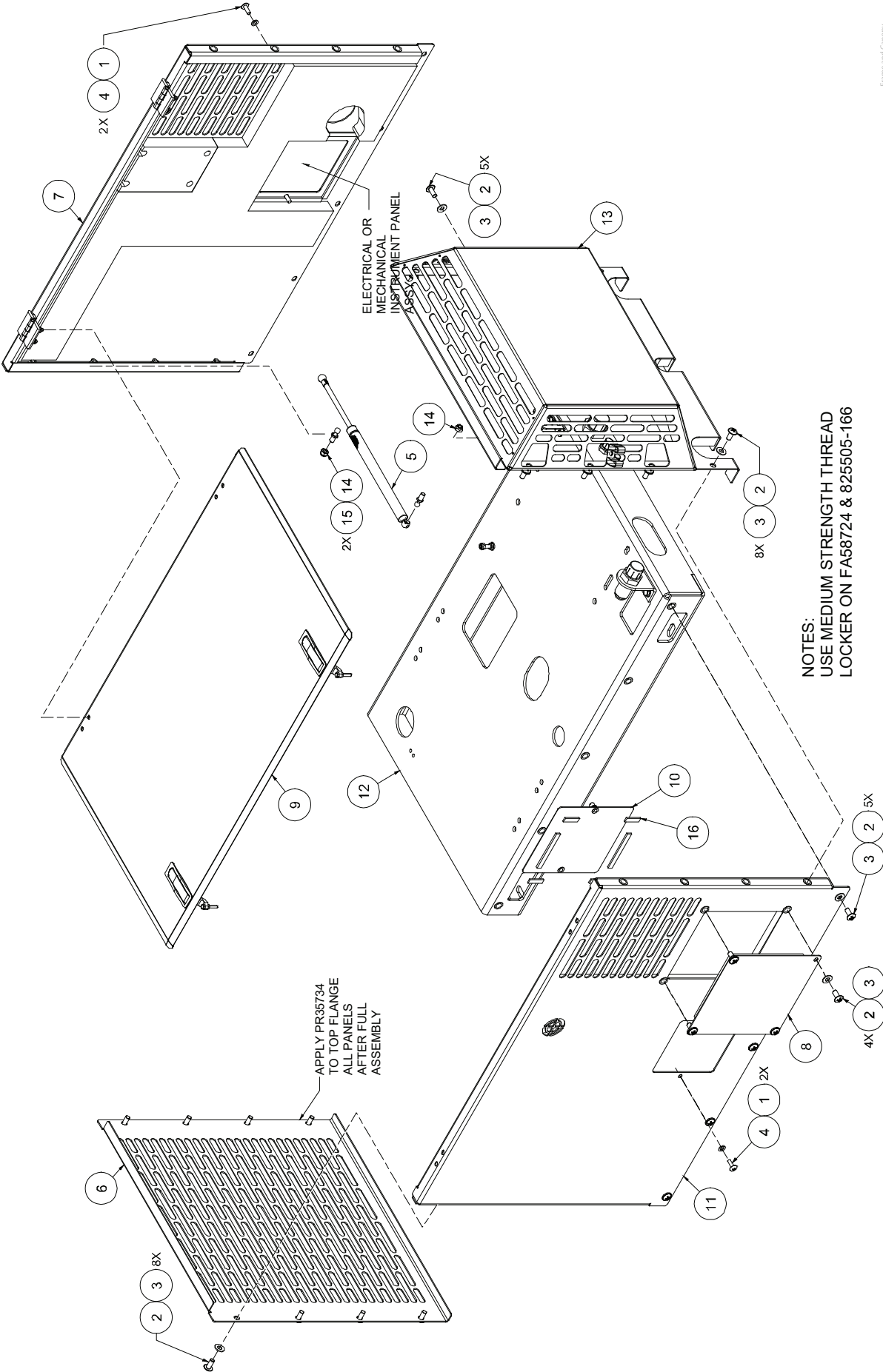
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



INSTRUMENT PANEL ASSEMBLY (DIGITAL)
6040194ID_r0

7.12 FRAME AND CANOPY PRIMARY ASSEMBLY

58 - Illustrated Parts List



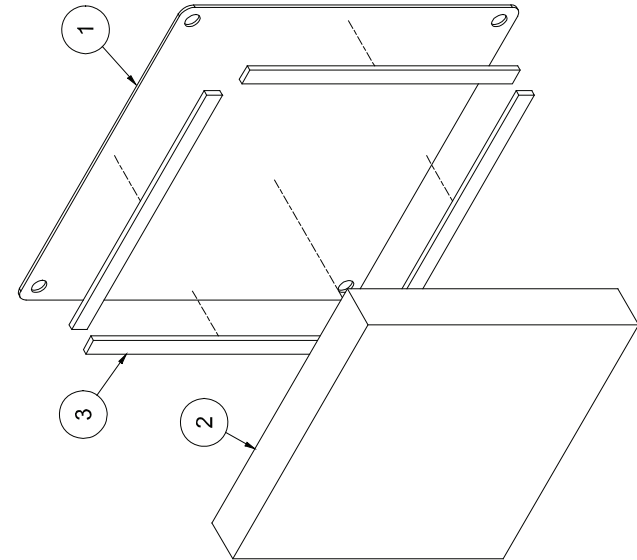
6030181ID-A_r2

TABLE 7H: FRAME AND CANOPY PRIMARY ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	4
2	WASHER, NYLON 5/16-18	262943	30
3	SCREW, TRUSS HD 5/16-18x3/4 SS	262945	30
4	SCREW, TRUSS HD 1/4-20x3/4	262953	4
5	GAS SPRING, 6 STROKE, 20#	277909	1
6	PANEL, COOLER SIDE RS85L	279157	1
7	PANEL, FRONT SIDE	6030181ID-A	1
8	DOOR, ACCESS	6030181ID-B	1
9	PANEL, ROOF RELIANT RS85L	6030181ID-C	1
10	DOOR, ACCESS	6030181ID-D	1
11	PANEL, BACK SIDE RS85L	6030181ID-E	1
12	FRAME NEW ABOVE DECK HYD DRIVE	6030181ID-F	1
13	PANEL, COMPRESSOR SIDE RS85L	6030181ID-G	1
14	NUT, HEX LOCKING 5/16-18	825505-166	2
15	STUD, BALL, .39DIA. X .55LG.	FA58724	2
16	TAPE, VINYL FOAM 4508 1/8x3/8 BLACK	PR35734	6
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			Ref: 6030181ID-A_I2 Canopy and Frame Assembly

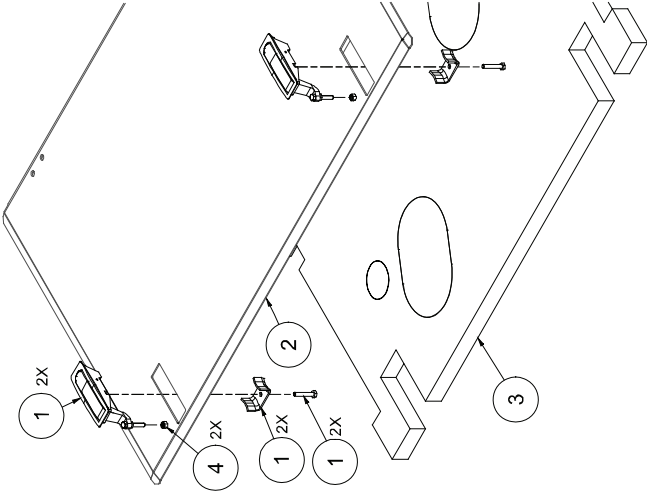
7.13 FRAME AND CANOPY GROUPS 2,3, AND 4

60 - Illustrated Parts List



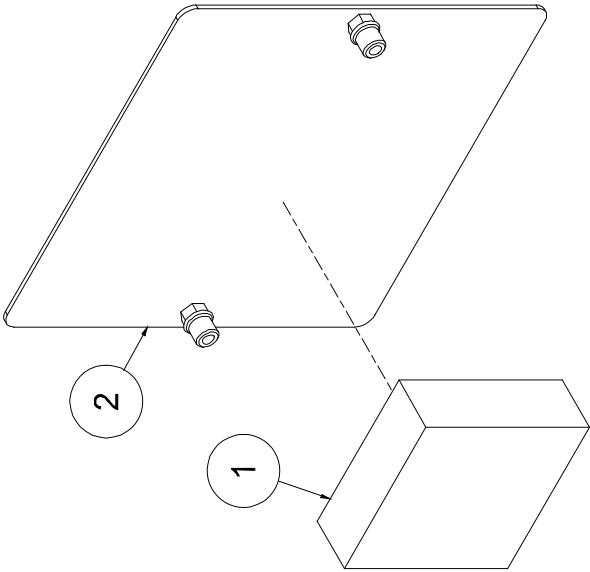
ITEM	DESCRIPTION	PART NUMBER	QTY
1	COVER, ACCESS RS85L	278769	1
2	ACOUSTICAL INSULATION RS85L	279642-004	1
3	TAPE, VINYL FOAM 4508 1/8x3/8 BLACK	PR35734	2.25 ft

6030181ID-B_r2



ITEM	DESCRIPTION	PART NUMBER	QTY
1	LATCH, SENTRY PANEL	267124	2
2	PANEL, ROOF RS85 L	279183	1
3	ACOUSTICAL INSULATION RS85L	279642-003	1
4	NUT, HEX METRIC 5mm x 0.8	825905-080	2

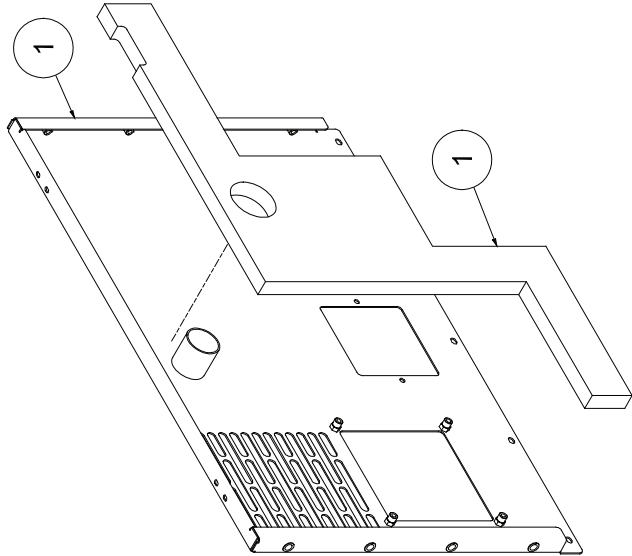
6030181ID-C_r2



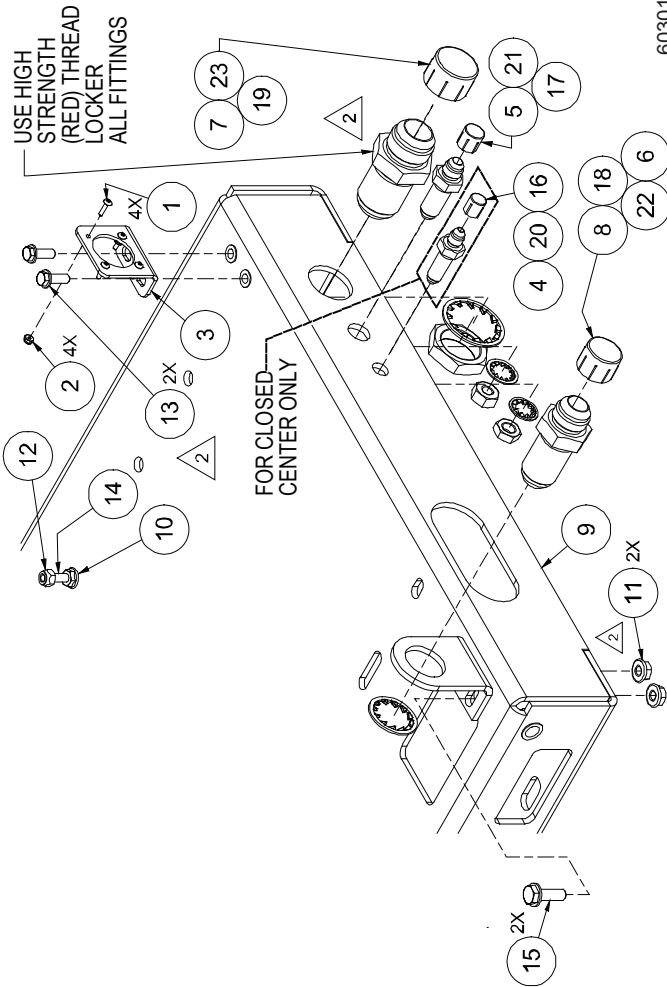
ITEM	DESCRIPTION	PART NUMBER	QTY
1	ACOUSTICAL INSULATION RS85L	279642-005	1
2	PANEL, GAUGE RS85-L BLANK	279529	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

6030181ID-D_r2

7.14 FRAME AND CANOPY GROUPS 5 AND 6



6030181ID-E_r2		
ITEM	DESCRIPTION	QTY
1	PANEL, BACK SIDE RS85-L	1
2	ACOUSTICAL INSULATION	1



6030181ID-F_r2

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	SCREW, TRUSS #4-40 X 1/2	271839	4	13	SCREW, SER WASH 1/4-20 x 0.75	829704-075	2
2	NUT, HEX LOCKING #4-40 UNC	271840	4	14	SCREW, SER WASH 1/4-20 x 1	829704-100	1
3	BRACKET, 6 PIN CONNECTOR	278370	1	15	SCREW, SER WASH 5/16-18 x 1	829705-100	2
4	CAP, FEMALE JIC SHIPPING #4 7/16-20	279109-001	1	16	WASHER, INTERNAL TOOTH 1/2 IN	837408-050	1
5	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1	17	WASHER, LOCK INTERNAL TOOTH 9/16 IN	837409-045	1
6	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1	18	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
7	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	279109-006	1	19	WASHER, LOCK INT TOOTH 1 3/8"	838422-065	1
8	BRACKET, AIR DISCHARGE RC40 RS85L	279306	1	20	BULKHEAD, MJIC x MJIC #4	862104-025	1
9	FRAME, RS85-L	279531	1	21	BULKHEAD, MJIC x MJIC #6	862106-038	1
10	NUT, HEX FLANGE 1/4-20	825304-236	1	22	BULKHEAD, MJIC x MJIC #12	862112-075	1
11	NUT, HEX FLANGE 5/16-18	825305-283	2	23	BULKHEAD, MJIC x MJIC #16	862116-100	1
12	NUT, HEX LOCKING 1/4-20	825504-145	1				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

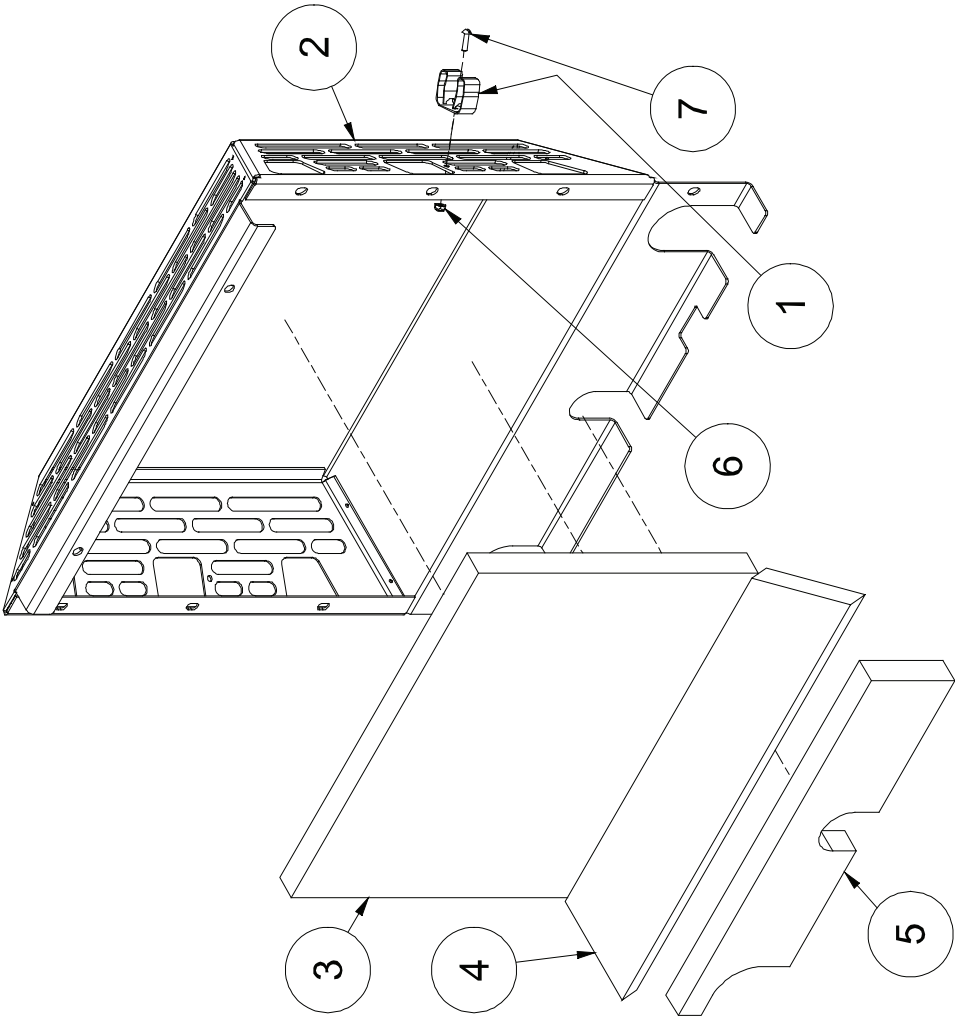
7.15 FRAME AND CANOPY GROUP 7

62 - Illustrated Parts List

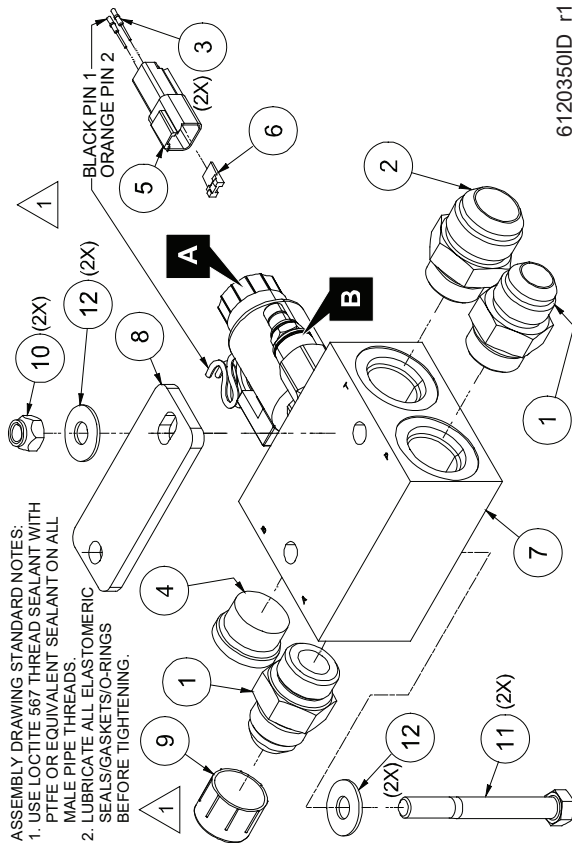
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1
2	PANEL, COMPRESSOR SIDE RS85-L	279158	1
3	ACOUSTICAL INSULATION RS85-L	279642-007	1
4	ACOUSTICAL INSULATION RS85-L	279642-008	1
5	ACOUSTICAL INSULATION RS85-L	279642-009	1
6	NUT, HEX LOCKING #8-32	825501-070	1
7	SCREW, ROUND HEAD #8-32 X 0.625	831601-062	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

RS85-L FRAME AND CANOPY GROUP 7

6030181ID-F_r2



7.16 CONTROL MANIFOLD 12V OC

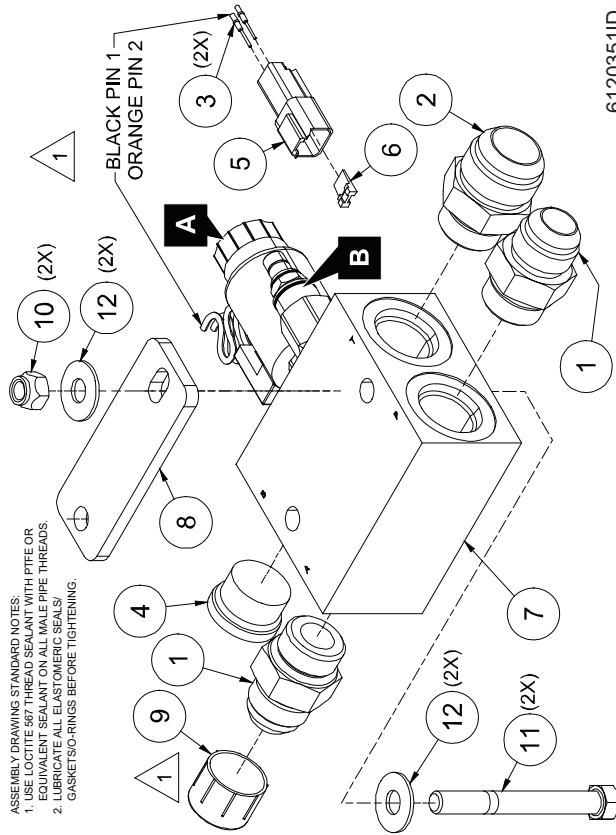


61203501D_r1

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	2
2	CONNECTOR, #12 MSAE x #16 MJIC	260387-113	1
3	TERMINAL, DEUTSCH #0460-215-16141	262919	2
4	PLUG, SAE O-RING HOLLOW HEX #12	268081-008	1
5	CONNECTOR, 2 PIN MALE DEUTSCH	268904	1
6	WEDGELOCK, DEUTSCH W2P	268905	1
7	MANIFOLD, HYDRAULIC SOFT SHIFT	277819	1
8	FLAT, SHIM HYDRAULIC MANIFOLD AL	278797	1
9	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
10	NUT, HEX LOCKING 3/8-16	825506-198	2
11	CAPSCREW, HEX GR8 3/8-16 x 3.25	829406-325	2
12	WASHER, FLAT 3/8	838206-071	4
A	Solenoid: For solenoid replacement, consult the Vanair® Service Department.		
B	Pressure Relief: For pressure relief replacement, consult the Vanair® Service Department.		

CONTROL MANIFOLD 12V OPEN CENTER

7.17 CONTROL MANIFOLD 24V OC



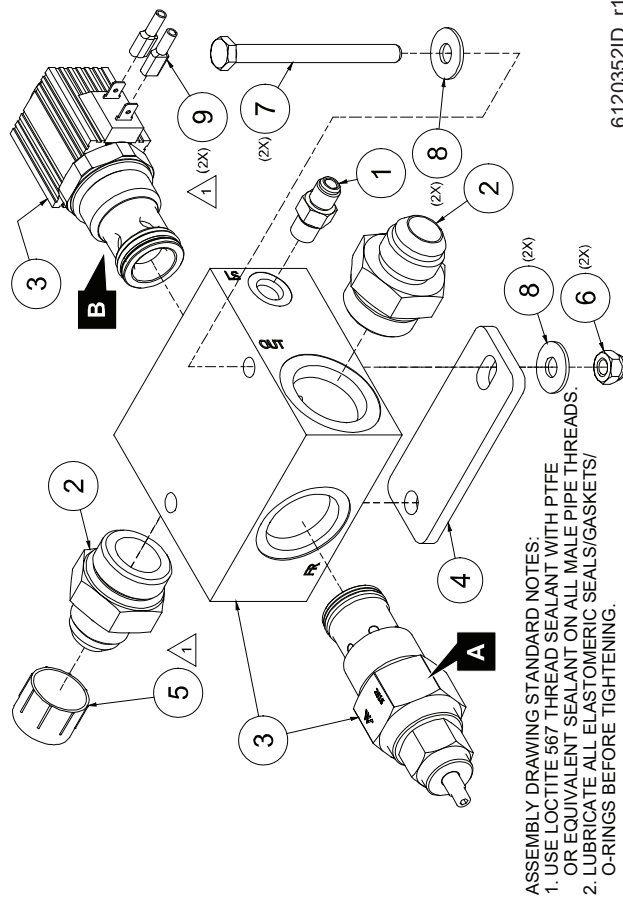
61203511D_r1

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	VALVE, HYD ASSY CLOSE CENTER 24V	277854	1
4	FLAT, SHIM HYDRAULIC MANIFOLD AL	278797	1
5	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
6	NUT, HEX LOCKING 5/16-18	825505-166	2
7	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
8	WASHER, FLAT 5/16	838205-071	4
9	FEMALE DISCONNECT	849516-250	2
A	Solenoid: For solenoid replacement, consult the Vanair® Service Department.		
B	Pressure Relief: For pressure relief replacement, consult the Vanair® Service Department.		

CONTROL MANIFOLD 24V OPEN CENTER

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

7.18 CONTROL MANIFOLD, 12V CC

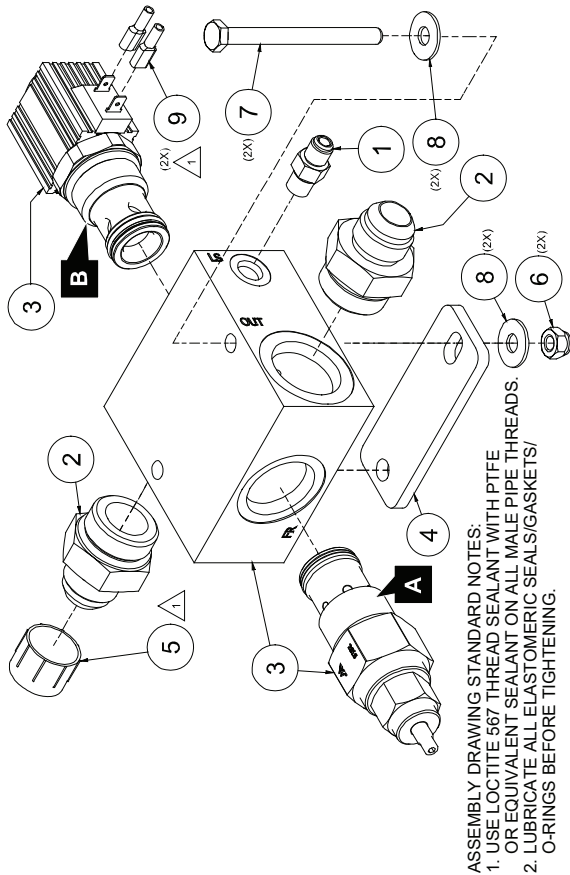


6120352ID_r1

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	VALVE, HYDRAULIC ASSY MAINT RC40, RS85-L	267617	1
4	FLAT, SHIM HYDRAULIC MANIFOLD AL	278797	1
5	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
6	NUT, HEX LOCKING 5/16-18	825505-166	2
7	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
8	WASHER, FLAT 5/16	838205-071	4
9	FEMALE DISCONNECT	849516-250	2
A	Flow Regulator: For Flow regulator replacement, consult the Vanair® Service Department.		
B	Solenoid: For solenoid replacement, consult the Vanair® Service Department.		

CONTROL MANIFOLD - 12V CLOSED CENTER

7.19 CONTROL MANIFOLD, 24V CC

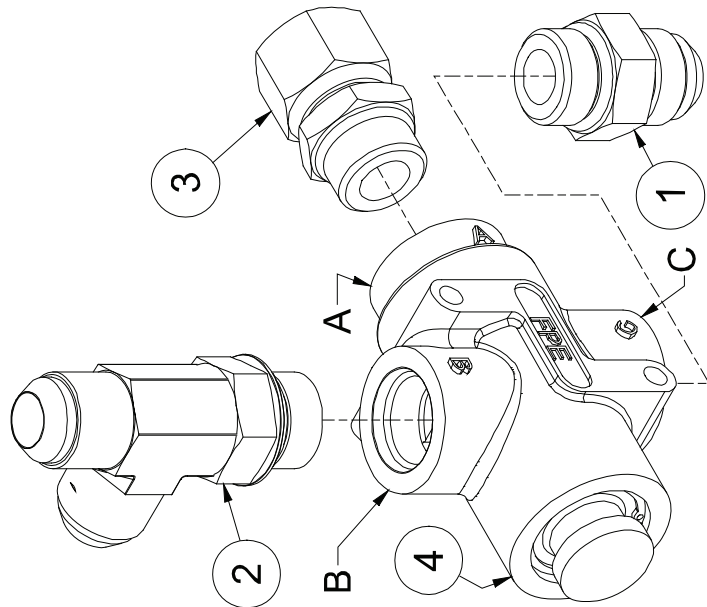


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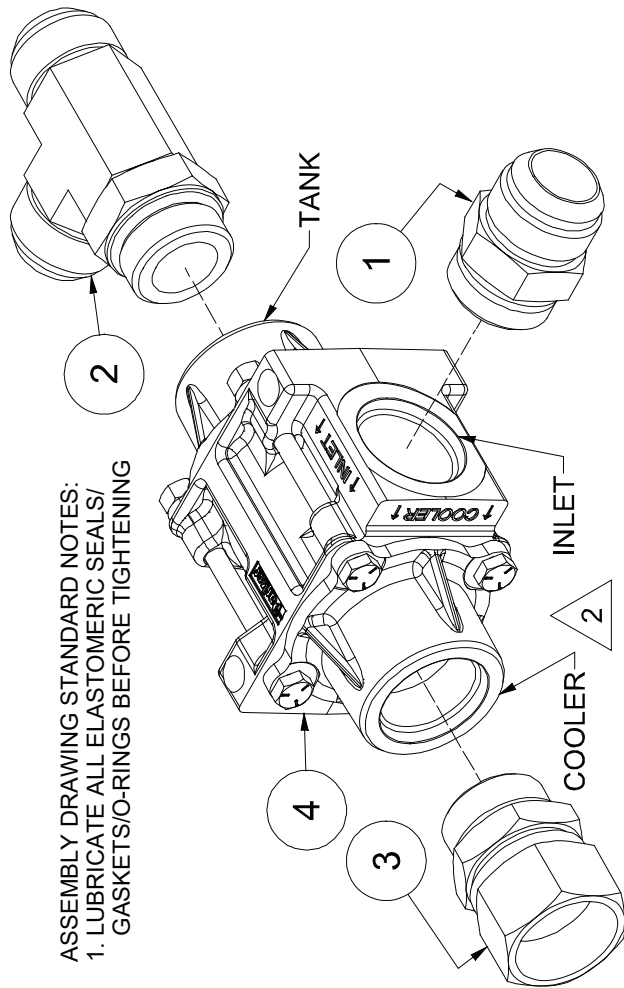
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, O-RING 1/4 SAE x 1/4 JIC	260387-103	1
2	CONNECTOR, #16 MSAE x #12 MJIC	260387-119	2
3	VALVE, HYD ASSY CLOSE CENTER 24V	277854	1
4	FLAT, SHIM HYDRAULIC MANIFOLD AL	278797	1
5	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	1
6	NUT, HEX LOCKING 5/16-18	825505-166	2
7	CAPSCREW, HEX GR5 5/16-18 x 3.5	829105-350	2
8	WASHER, FLAT 5/16	838205-071	4
9	FEMALE DISCONNECT	849516-250	2
A	Flow Regulator: For flow regulator replacement, consult the Vanair® Service Department.		
B	Solenoid: For solenoid replacement, consult the Vanair® Service Department.		

CONTROL MANIFOLD - 24V CLOSED CENTER

7.20 THERMAL CONTROLLER



7.21 HYDRAULIC THERMAL CONTROLLER



ASSEMBLY DRAWING STANDARD NOTES:
1. LUBRICATE ALL ELASTOMERIC SEALS/
GASKETS/O-RINGS BEFORE TIGHTENING

6120349ID_r2

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	TEE, 37 MJIC, 37MJIC, O-RING RUN 3/4	268591	1
3	ADAPTER, 3/4 FJIC SWIVEL X #12 MSAE	270440-013	1
4	VALVE, THERMAL 180 DEGREE ALUM BODY 3/4" SAE FPE	273480	1

THERMAL CONTROL

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #16 MSAE x #16 MJIC	260387-101	1
2	TEE, RUN #16 M SAE x #16 MJIC	269792-008	1
3	ADAPTER, #16 FJIC SWIVEL x #16 MSAE O-RING	270440-016	1
4	VALVE, THERMAL BYPASS 1" SAE 50PSI 100 DEG	274255	1

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

HYDRAULIC THERMAL CONTROL

7.22 RELIANT™ RS85-L DECAL SHEET 1 OF 2

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	VANAIR® HRZ PTG [‡]	275038-C	2	7	DECAL, READ MANUAL	272424	1
2	DECAL, CAP/PLUG RIMVL	264378	1	8	DECAL, CAUTION AUTO STRT	272041	3
3	DECAL, ROTATING PARTS	264374	1	9	DECAL, HIGH PRES HYD SYS	264380	1
4	DECAL, BREATHING AIR	261886	1	10	DECAL, RELIANT™ RS85-L [‡]	280916-A	2
5	DECAL, HOT PARTS	264372	1	11	DECAL, CMPSR OIL DRAIN	275054	1
6	DECAL, AIR HOSE	261885	1	12	DECAL, VANAIR® STACKED [‡]	275039-C	2
7	DECAL, READ MANUAL	272424	1				

[‡] This decal is included with Reliant™ (logo set) decal sheet no. 279463

NOTE: All decals on this page included with decal assembly sheet no. 264416, unless noted in [‡].

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

WARNING



Do not use air from this compressor for breathing purposes or processing consumables except in full compliance with federal, state and local codes.

WARNING



Hot parts can cause severe injury. Do not touch any internal surfaces while operating or just after stopping.

WARNING



Connect air hoses in full compliance with federal, state and local codes. Safety devices should be tested in accordance with manufacturer's recommendations.

WARNING



Read the operator's manual before starting this unit. Failure to adhere to instructions can result in personal injury. Replacement manuals can be purchased from: Vanair Manufacturing 1-800-526-8817 www.vanair.com



WARNING

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

CAUTION



Equipment starts automatically.

WARNING



Do not remove caps, plugs or other components when compressor is running or pressurized. Stop compressor and relieve all internal pressure before doing so.

WARNING

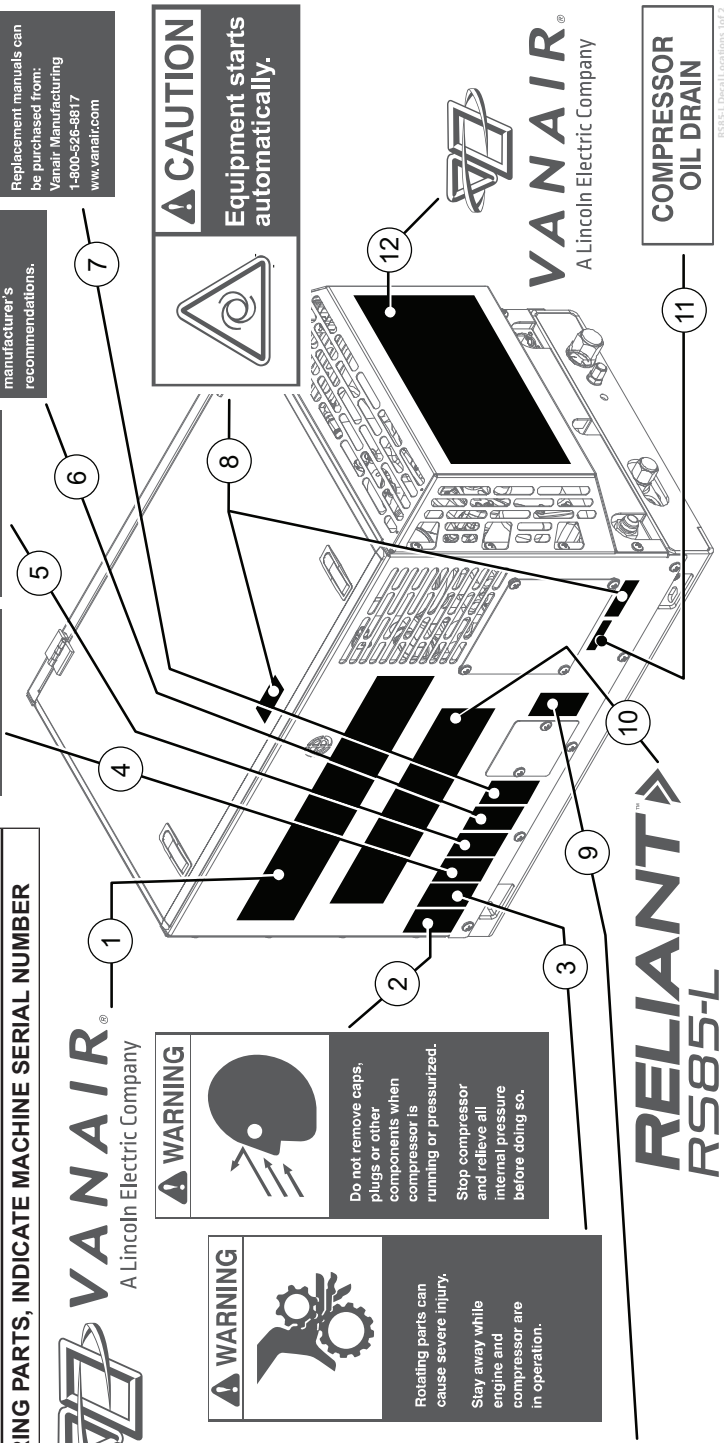


Rotating parts can cause severe injury. Stay away while engine and compressor are in operation.

WARNING



High pressure hydraulic system. Do not search for pin hole leaks with hand or any other part of the body, as subcutaneous injection or amputation may result. Use a large piece of paper instead.



VANAIR®
A Lincoln Electric Company

RELIANT™
RS85-L

COMPRESSOR OIL DRAIN

RS85-L Decal Assembly Sheet 1 of 2



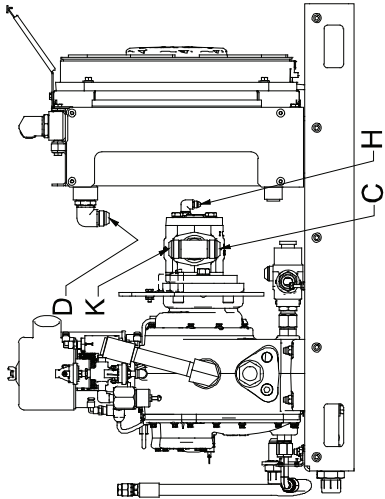
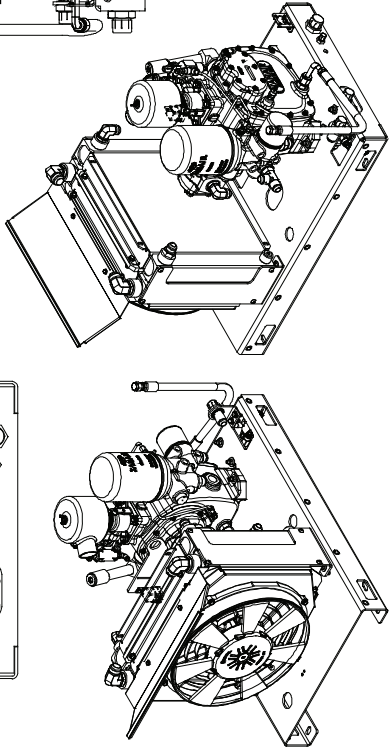
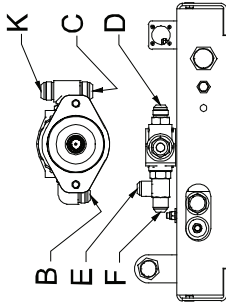
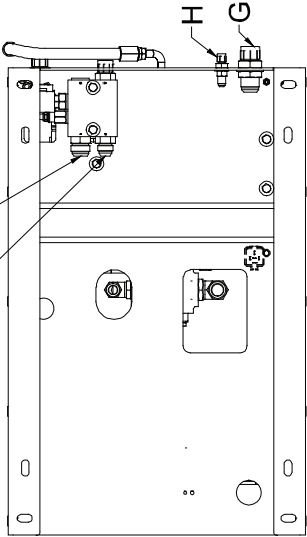
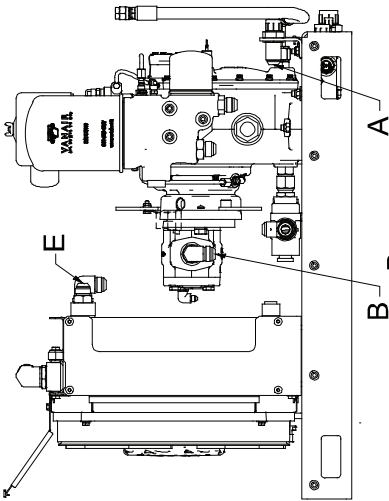
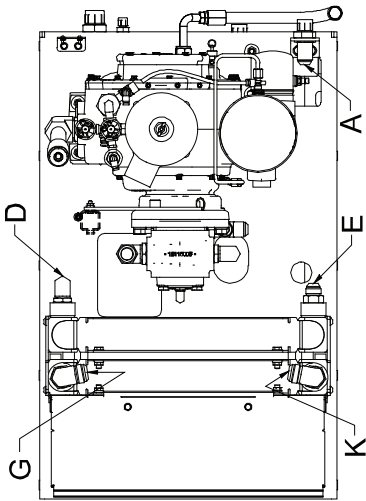
7.24 HOSE/TUBE ROUTING, OC, 12V ANALOG GAUGES

68 - Illustrated Parts List

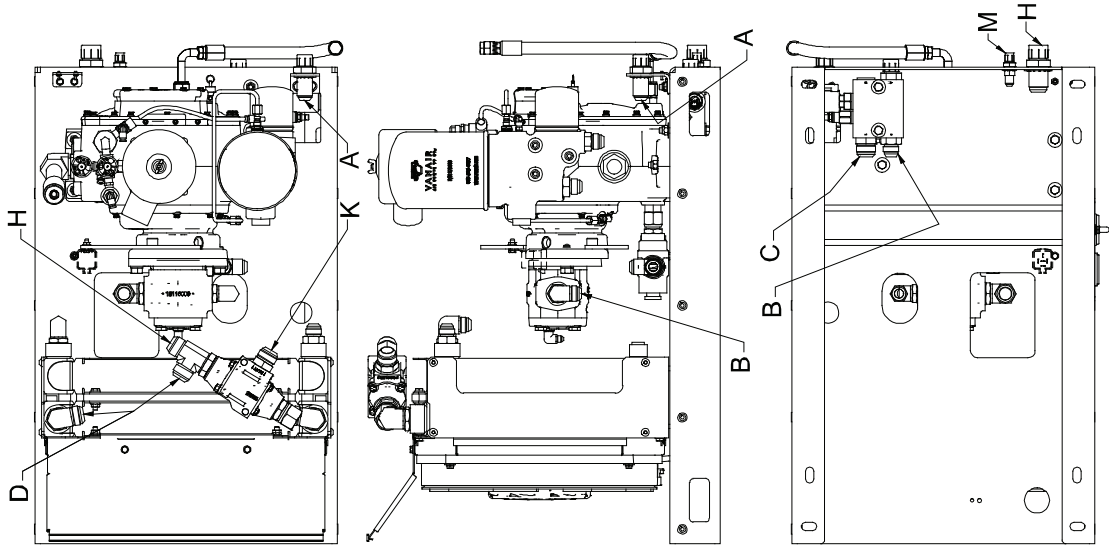
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278829	TUBE, CMPR TO SVC AIR OUTLET 3/4 IN RS85-L	1	A	A
2	278830	TUBE, HYD OPEN CTR MNFD TO MOTOR 3/4 IN RS85-L	1	B	B
3	278831	TUBE, HYDR OPEN CTR MNFD RTN TO MTR RTN 1 IN RS85-L	1	C	C
4	279161	TUBE, CMPR THRML VLV TO COOLER 3/4 IN RS85-L	1	D	D
5	279162	TUBE, CMPR COOLER OUT TO THRML VLV 3/4 IN RS85-L	1	E	E
6	279163	TUBE, CMPR THRML VLV TO FILTER 3/4 IN RS85-L	1	F	F
7	279165	TUBE, HYDR COOLER TO RTN BULKHEAD 1 IN RS85-L	1	G	G
8	279092	HOSE, HYDRAULIC MOTOR CASE DRAIN 1/4 IN RS85-L	1	H	H
9	279164	HOSE, HYDR MTR RTN TO COOLER INLET 1 IN RS85-L	1	K	K
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.					

HOSE AND TUBE ROUTING, OPEN CENTER, 12V ANALOG GAUGES

6130197ID_r1



7.25 HOSE/TUBE ROUTING, OC, 12V, COLD WEATHER, ANALOG GAUGES



ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278829	TUBE, CMPR TO SVC AIR OUTLET 3/4 IN RS85-L	1	A	A
2	278830	TUBE, HYD OPEN CTR MNFD TO MOTOR 3/4 IN RS85-L	1	B	B
3	278831	TUBE, HYDR OPEN CTR MNFD RTN TO MTR RTN 1 IN RS85-L	1	C	C
4	278839	TUBE, HYD CLR OUT TO BYPASS TEE 1 IN RS85-L	1	D	D
5	279161	TUBE, CMPR THRM VLV TO COOLER 3/4 IN RS85-L	1	E	E
6	279162	TUBE, CMPR COOLER OUT TO THRM VLV 3/4 IN RS85-L	1	F	F
7	279163	TUBE, CMPR THRM VLV TO FILTER 3/4 IN RS85-L	1	G	G
8	279167	TUBE, HYDR BYPASS TEE TO RTN BULKHD 1 IN RS85-L	1	H	H
9	278837	HOSE, HYDR MOTOR TO THRM VLV INLET 1 IN RS85-L	1	K	K
10	279092	HOSE, HYDRAULIC MOTOR CASE DRAIN 1/4 IN RS85-L	1	M	M

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

HOSE AND TUBE ROUTING, OPEN CENTER, 12V, COLD WEATHER, ANALOG GAUGES
6130198ID_r1

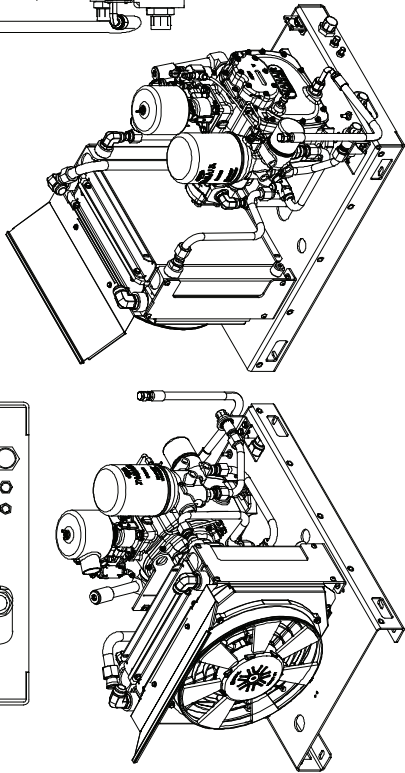
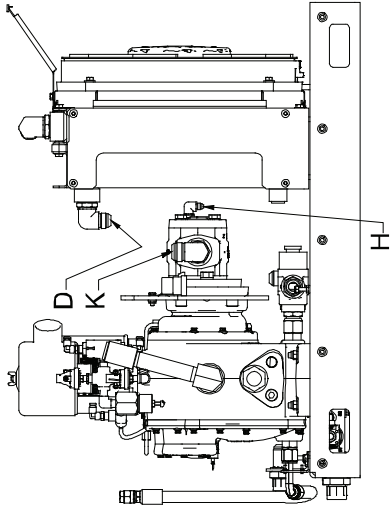
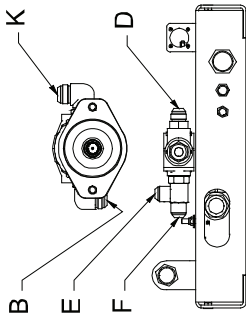
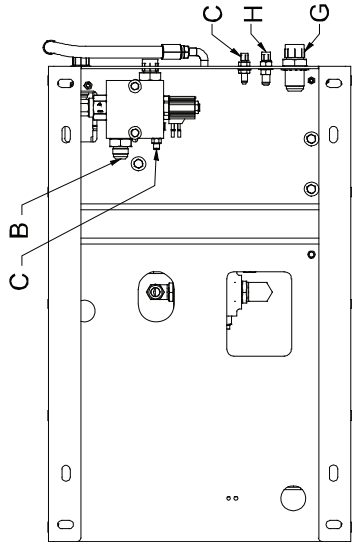
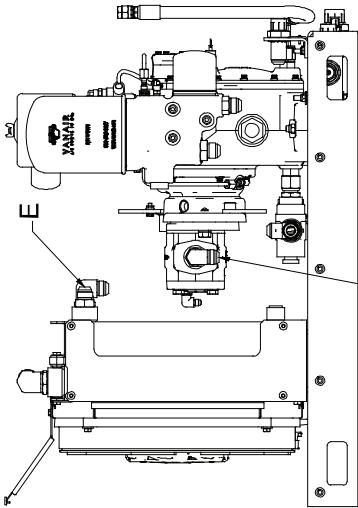
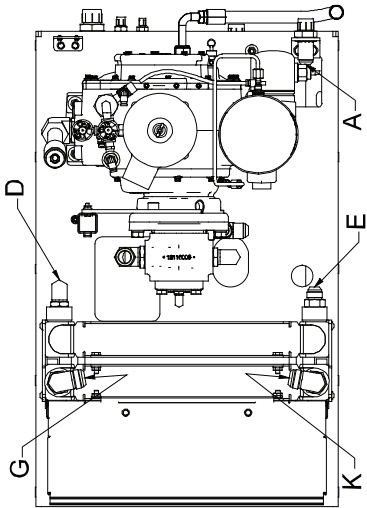
7.26 HOSE/TUBE ROUTING, CC, 12V, ANALOG GAUGES

70 - Illustrated Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278829	TUBE, CMPR TO SVC AIR OUTLET 3/4 IN RS85-L	1	A	A
2	278832	TUBE, HYD CLSD CTR MNFD TO MOTOR 3/4 IN RS85-L	1	B	B
3	279093	TUBE, HYD MNFLD TO LOADSENSE 1/4 IN RS85-L	1	C	C
4	279161	TUBE, CMPR THRM VLV TO COOLER 3/4 IN RS85-L	1	D	D
5	279162	TUBE, CMPR COOLER OUT TO THRM VLV 3/4 IN RS85-L	1	E	E
6	279163	TUBE, CMPR THRM VLV TO FILTER 3/4 IN RS85-L	1	F	F
7	279165	TUBE, HYDR COOLER TO RTN BULKHEAD 1 IN RS85-L	1	G	G
8	279092	HOSE, HYDRAULIC MOTOR CASE DRAIN 1/4 IN RS85-L	1	H	H
9	279164	HOSE, HYDR MTR OUT TO COOLER 1 IN RS85-L	1	K	K

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

HOSE AND TUBE ROUTING CLOSED CENTER TYP ANALOG GAUGES
6130201ID_r1

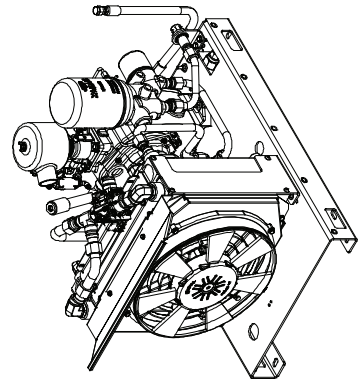
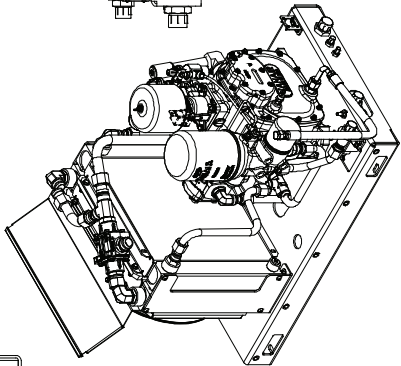
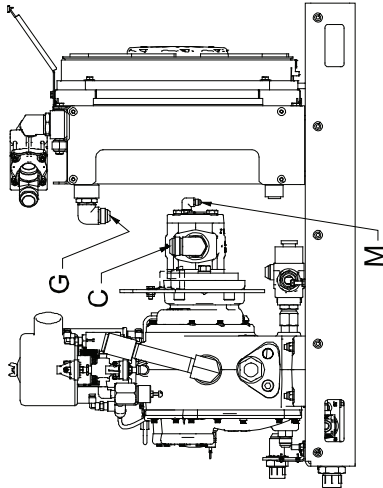
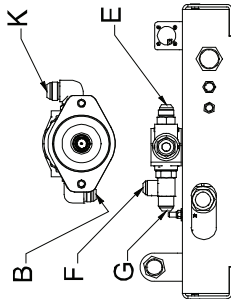
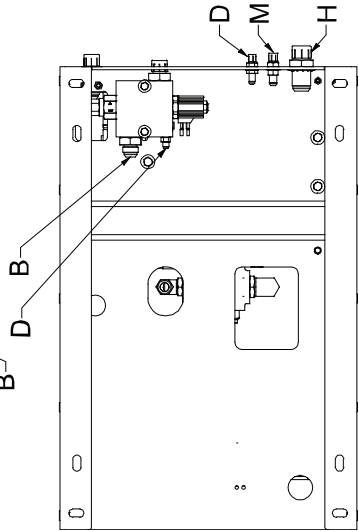
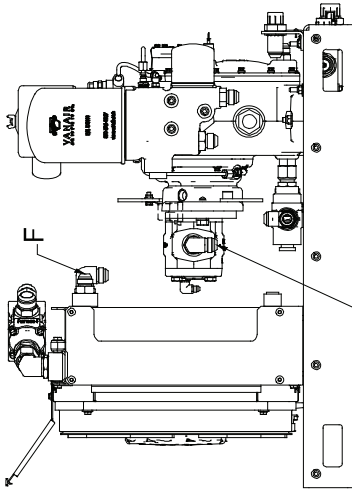
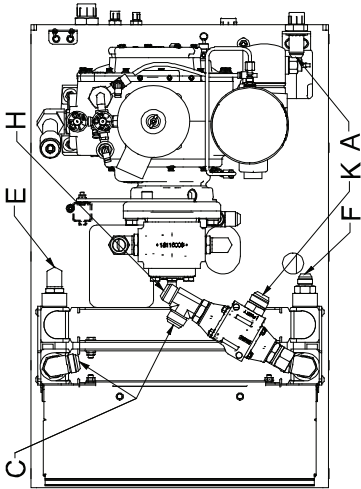


7.27 HOSE/TUBE ROUTING, OC, 12V, AUTO CRANE, NO THERMAL VALVE

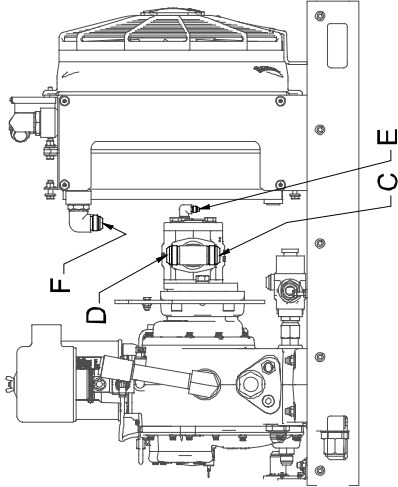
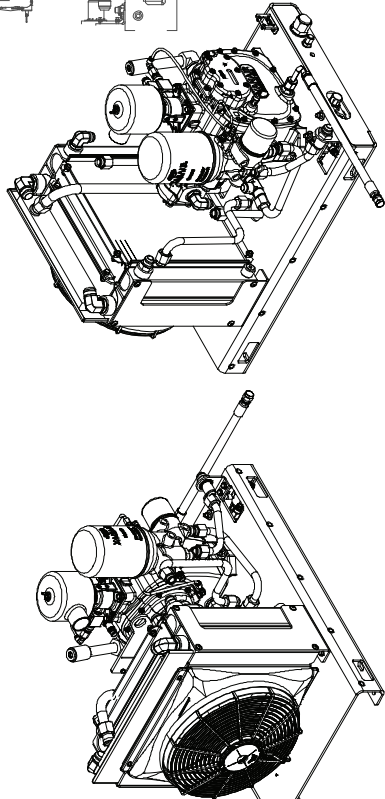
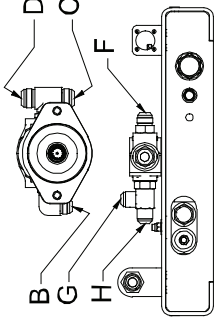
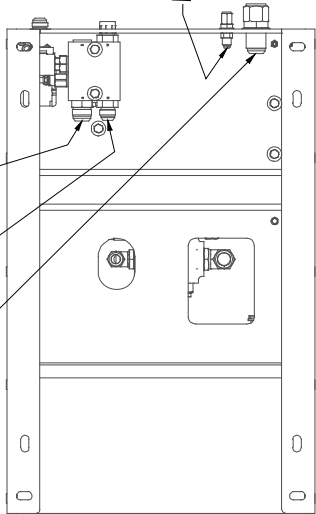
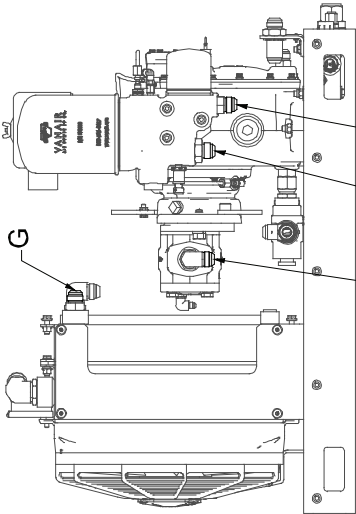
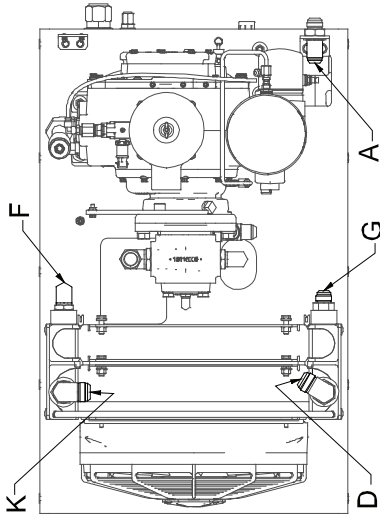
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278829	TUBE, CMPR TO SVC AIR OUTLET 3/4 IN RS85-L	1	A	A
2	278832	TUBE, HYD CLSD CTR MNFD TO MOTOR 3/4 IN RS85-L	1	B	B
3	278839	TUBE, HYD CLR OUT TO BYPASS TEE 1 IN RS85-L	1	C	C
4	279093	TUBE, HYD MNFLD TO BULKHEAD 1/4 IN RS85-L	1	D	D
5	279161	TUBE, CMPR THRM VLV TO COOLER 3/4 IN RS85-L	1	E	E
6	279162	TUBE, CMPR COOLER OUT TO THRM VLV 3/4 IN RS85-L	1	F	F
7	279163	TUBE, CMPR THRM VLV TO FILTER 3/4 IN RS85-L	1	G	G
8	279167	TUBE, HYDR BYPASS TEE TO RTN BULKHD 1 IN RS85-L	1	H	H
9	278837	HOSE, HYDR MOTOR TO THRM VLV INLET 1 IN RS85-L	1	K	K
10	279092	HOSE, HYDRAULIC MOTOR CASE DRAIN 1/4 IN RS85-L	1	M	M
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.					

HOSE AND TUBE ROUTING OPEN CENTER, 12V, AUTO CRANE, NO THERMAL VALVE

6130202ID_r1



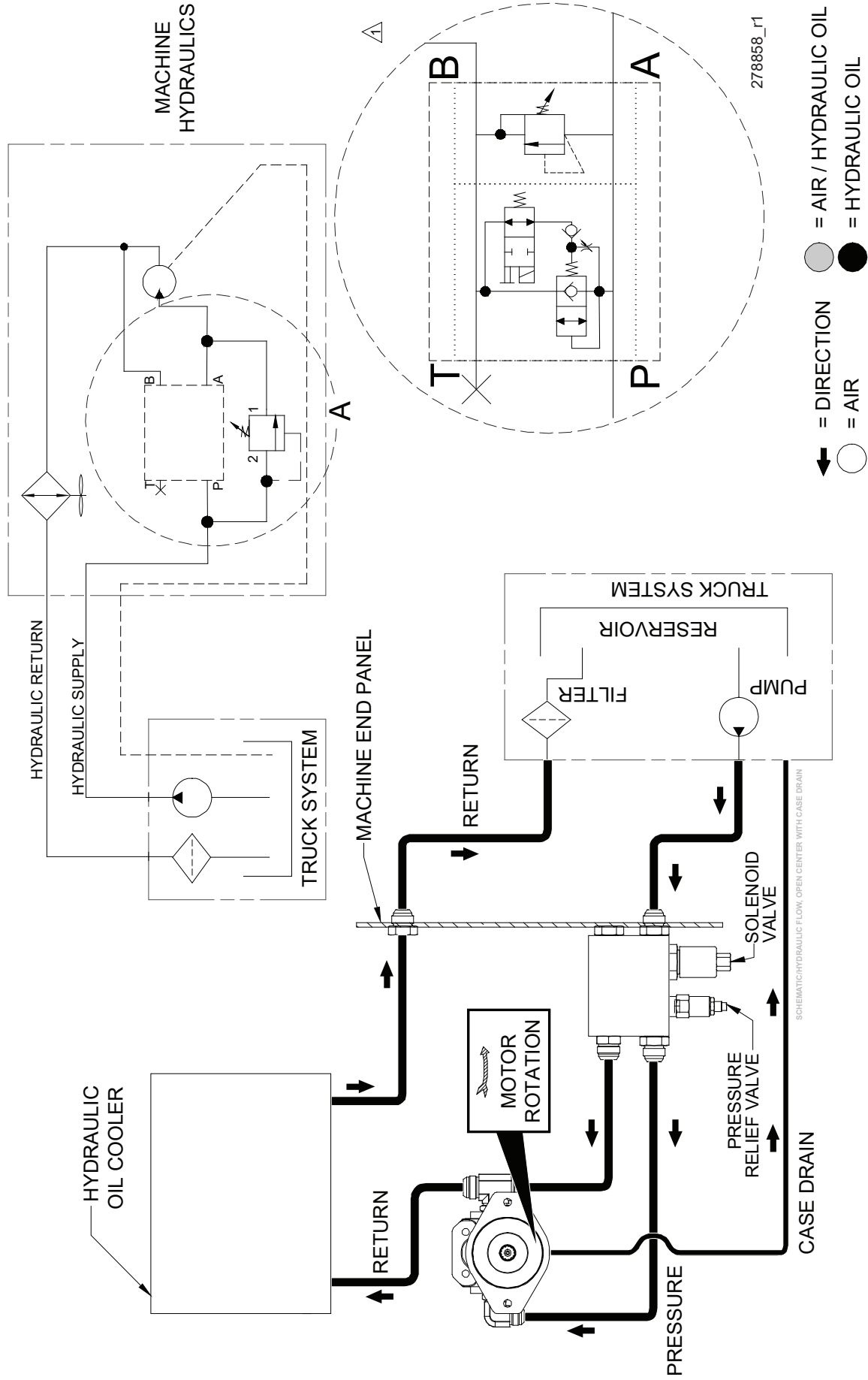
7.28 HOSE/TUBE ROUTING, OC, 12V, AUTO CRANE, NO THERMAL VALVE



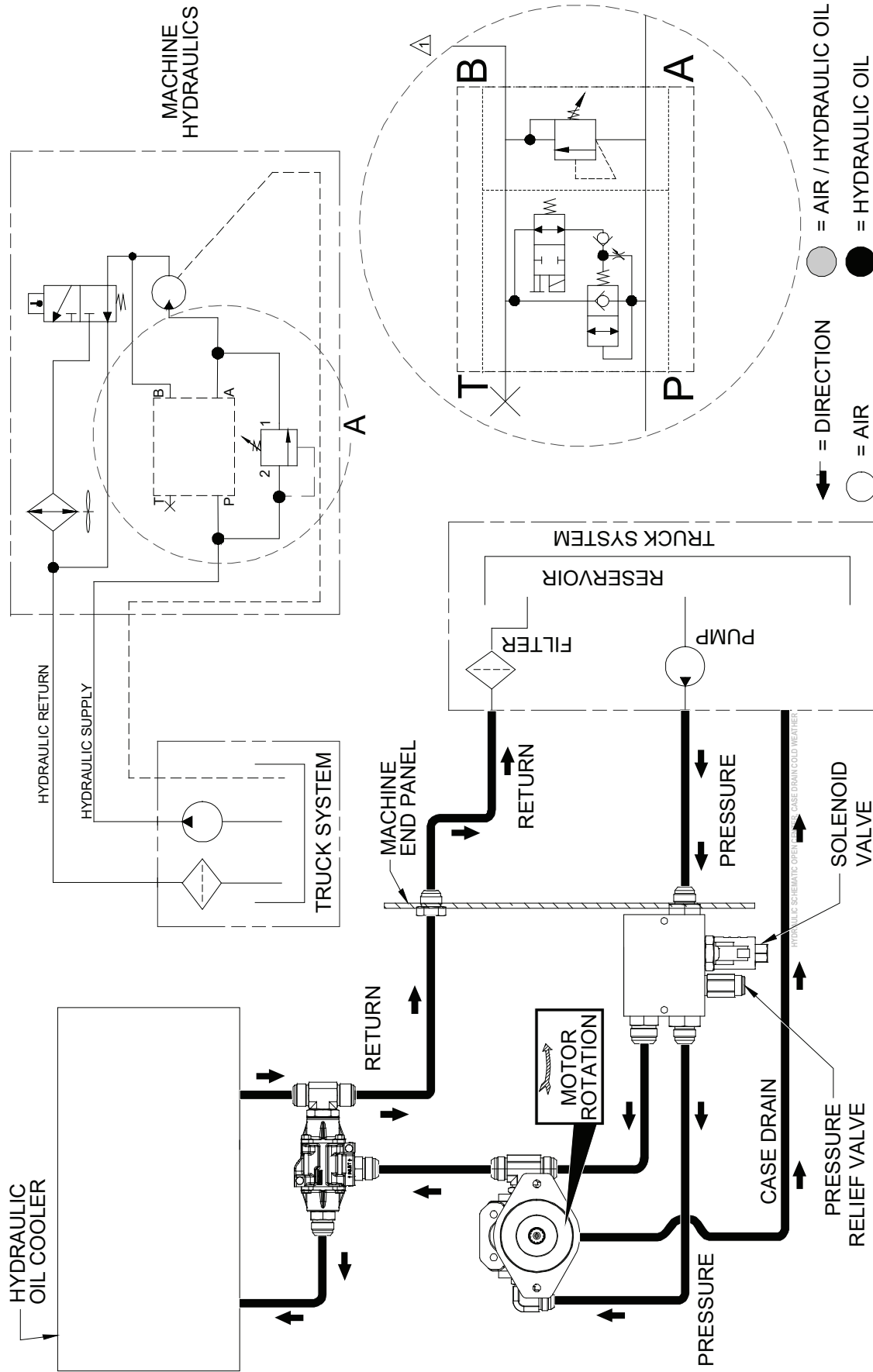
ITEM	PART NUMBER	DESCRIPTION	QTY	START	END
1	278829	TUBE, CMPR TO SVC AIR OUTLET 3/4 IN RS85-L	1	A	A
2	278830	TUBE, HYD OPEN CTR MNFD TO MOTOR 3/4 IN RS85-L	1	B	B
3	278831	TUBE, HYDR OPEN CTR MNFD RTN TO MTR RTN 1 IN RS85-L	1	C	C
4	279164	HOSE, HYDR MOTOR OUT TO COOLER 1 IN RS85-L	1	D	D
5	279092	HOSE, HYDR MOTOR CASE DRAIN 1/4 IN RS85-L	1	E	E
6	279161	TUBE, CMPR THRL VLV TO COOLER 3/4 IN RS85-L	1	F	F
7	279162	TUBE, CMPR COOLER OUT TO THRL VLV 3/4 IN RS85-L	1	G	G
8	279163	TUBE, CMPR THRL VLV TO FILTER 3/4 IN RS85-L	1	H	H
9	279166	TUBE, HYDR COOLER TO RTN BULKHEAD 1 IN AUTO-CRANE RS85-L	1	K	K
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.					

HOSE AND TUBE ROUTING, OPEN CENTER, 12V, NO THERMAL VALVE
6130167ID_r3

7.29 HYDRAULIC SCHEMATIC, OC WITH CASE DRAIN



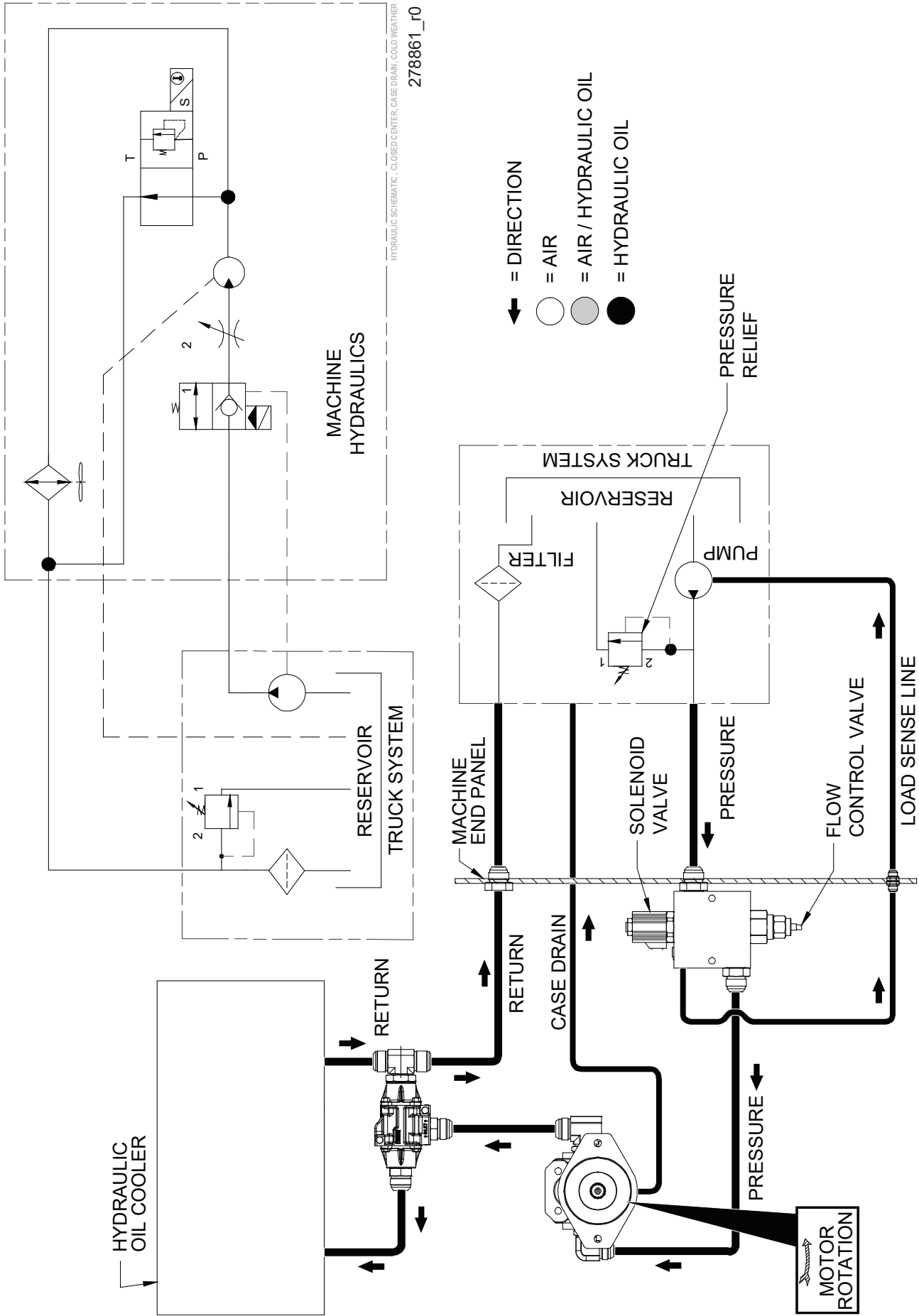
7.30 HYDRAULIC SCHEMATIC, OC, CASE DRAIN, COLD WEATHER



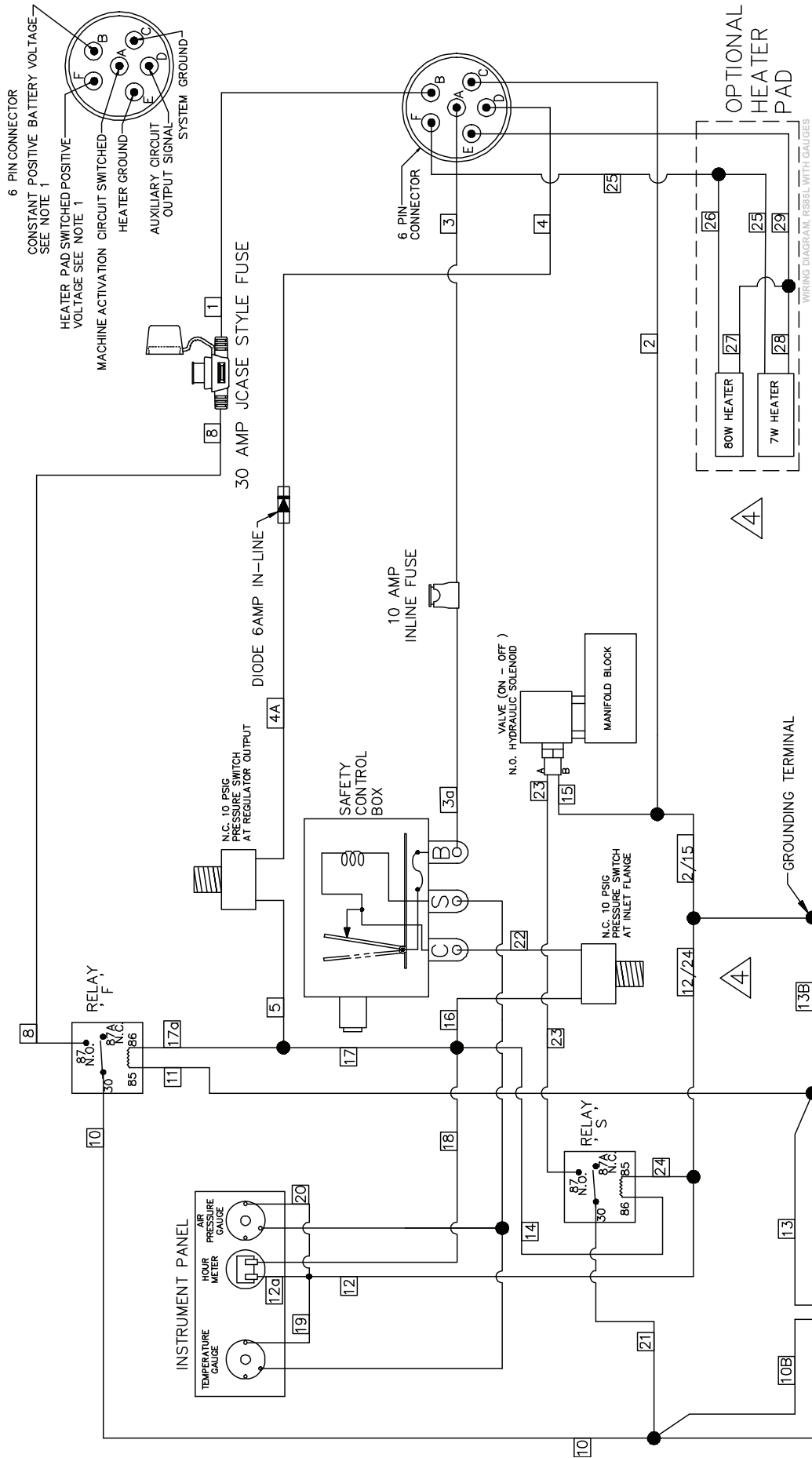
278859_r1



7.32 HYDRAULIC SCHEMATIC, CC, CASE DRAIN, COLD WEATHER



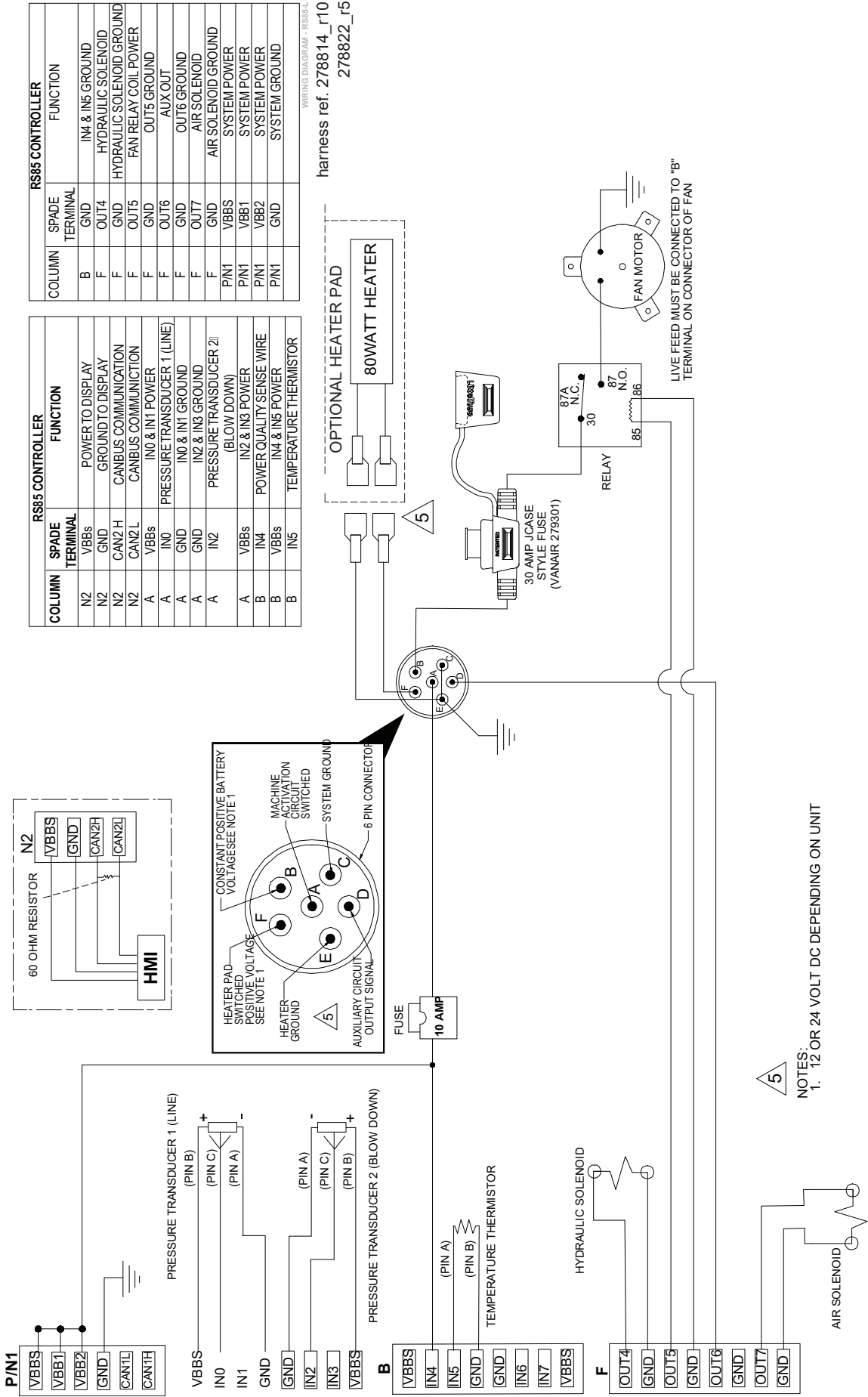
7.33 WIRING DIAGRAM WITH GAUGES



NOTES:
1. 12 OR 24 VOLT DC DEPENDING ON UNIT

279762_r4
harness ref. 278814_r10

7.34 WIRING DIAGRAM RELIANT™ RS85-L



WIRING DIAGRAM - RS85-L
harness ref. 278814_r10
278822_r5

NOTES:
1. 12 OR 24 VOLT DC DEPENDING ON UNIT

7.35 HYDRAULIC SCHEMATIC/SOFT SHIFT MANIFOLD DRAWING

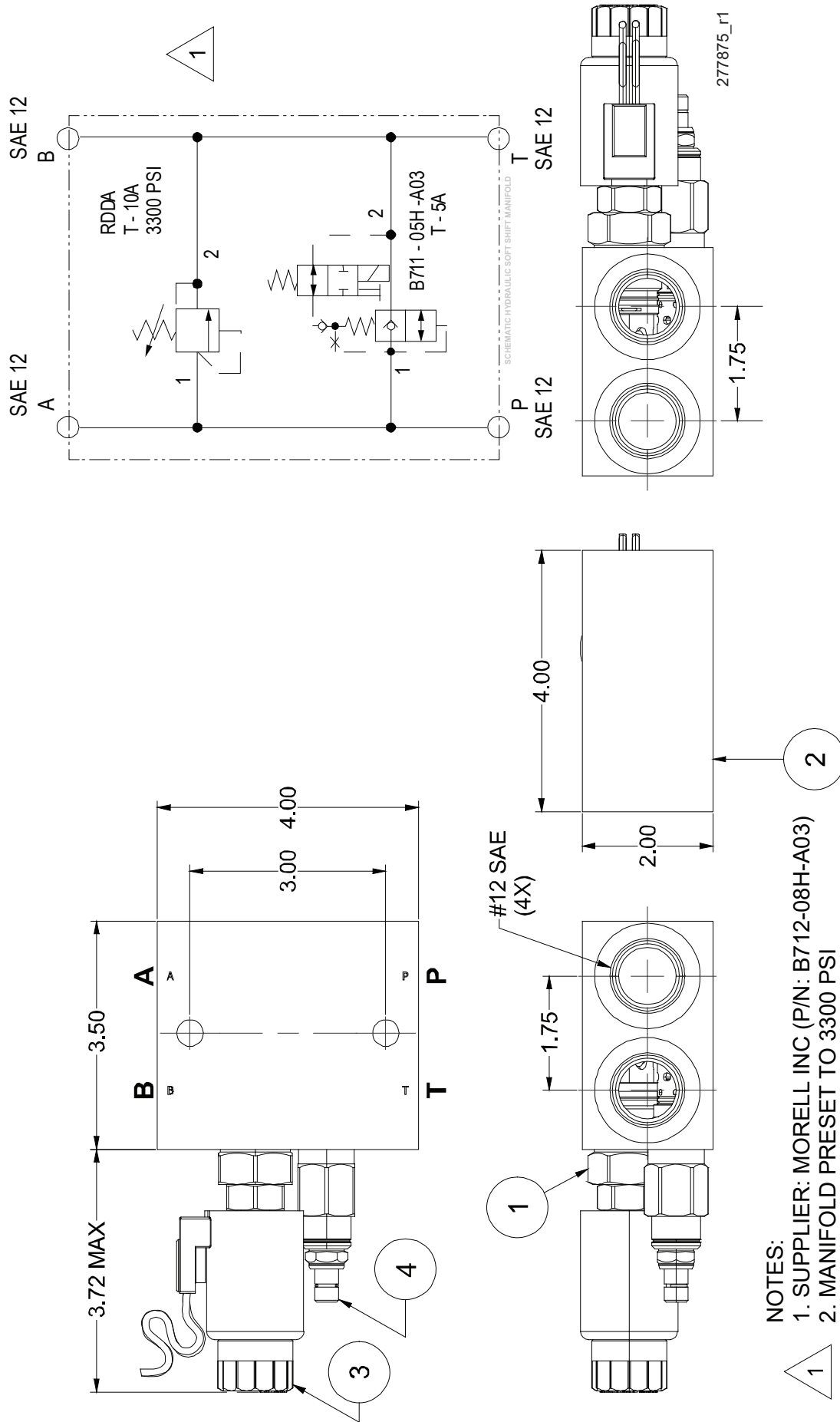


TABLE 7J: ROUTINE REPLACEMENT KIT ORDER INFORMATION

[illegible]

TABLE 7J: ROUTINE REPLACEMENT KIT ORDER INFORMATION

[illegible]

NOTES:



VANAIR

A Lincoln Electric Company

10896 West 300 North
Michigan City, IN 46360

Telephone: (800) 526-8817
(219) 879-5100

Service: (844) VAN-SERV or
(844) 826-7378

vanair.com

090154-OP_r1 RELIANT RS85-L (August 15, 2026)