VANAIR®
MOBILE POWER SOLUTIONS®

RELIANT™ RS85-LYM

60-85 CFM HYDRAULIC-DRIVEN ROTARY SCREW AIR COMPRESSOR

OPERATION MANUAL AND PARTS LIST

NOTE

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

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

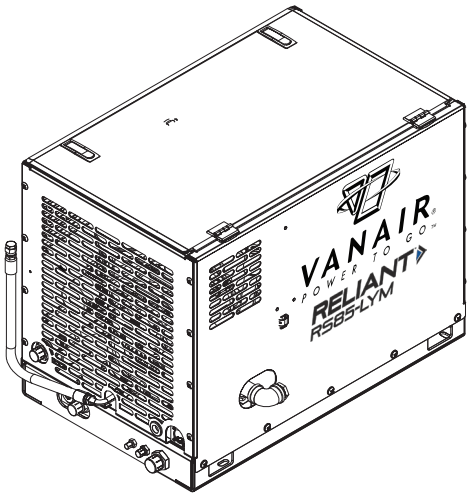
NOTE

Use only Vanair Rotary Screw Compressor Oil and Genuine Vanair Parts. Inspect and replace damaged components before operation. Substituting non-Vanair oil or non-genuine Vanair filter components WILL VOID THE COMPRESSOR WARRANTY!

IMPORTANT

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.



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vanair.com

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

NOTE

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

Contact Vanair Manufacturing, Inc., before beginning any changes to the Reliant RS85-MR Series system.

KEEP THE MANUAL WITH THE VEHICLE

VANAIR®
MOBILE POWER SOLUTIONS®

P/N: 090207-OP_r0

Effective Date: 05/21/2024

AIR N ARC®
ALL-IN-ONE POWER SYSTEMS®

RELIANT™ SERIES

POWERFLEX™ SERIES

PRO SERIES

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VIPER™ SERIES

UTILITY MOUNTS

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

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EFFECTIVE: AUGUST 10, 2020

VANAIR® VANTAGE WARRANTY

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

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

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

Vanair® must be notified in writing within thirty (30) days of any such defect or failure. **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 GUARANTY ARISING BY OPERATION OF LAW. ANY WARRANTY NOT EXPRESSLY PROVIDED HEREIN, IMPLIED WARRANTY, GUARANTY AND ANY REPRESENTATION REGARDING THE PERFORMANCE OF THE EQUIPMENT, AND ANY REMEDY FOR BREACH OF CONTRACT, IN TORT, OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE, OR COURSE OF DEALING ARE EXCLUDED AND DISCLAIMED BY VANAIR®.

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

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

VANAIR®
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WARRANTY CLAIMS PROCEDURE

CLAIMS PROCESS FOR WARRANTED VANAIR® PARTS

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

NOTE

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

PROCEDURE:

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

1. Locate the machine's serial number:

   The machine package serial number plate is located on the drive-side base frame floor, to the left of the compressor drive sheave (see ***Figure W-1***).
2. Have a list of the symptoms/condition/ malfunctions along with any applicable temperature and pressure readings, and also the number of operational hours available:
3. Contact the Vanair Service Department by phone (**1-219-879-5100 ext. 400**) to speak with a Service Technician.
4. Vanair Service will troubleshoot the problem based on the information provided by the customer.
5. If the unit cannot be returned to service, and Vanair determines this matter may be a warranty issue, the Service Technician may assign an **RMA (Return Material Authorization)** number that will used to track and provide for the return of the item to Vanair® for analysis and a final determination as to the item's warranty status.

IMPORTANT

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

6. If the returned item, which in Vanair's judgment is proven to be defective as warranted, then Vanair will issue a credit for the cost of that item to the customer.
7. **Returned parts eligible for warranty must have the RMA number on the packing slip.**

NOTE

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

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

NOTE

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

Vanair Manufacturing strives to continuously improve its customer service. Please forward any questions, comments, or suggestions to:

Vanair Service (844) VAN-SERV
or **(844) 826-7378**
or email us at:
SERVICE@VANAIR.COM

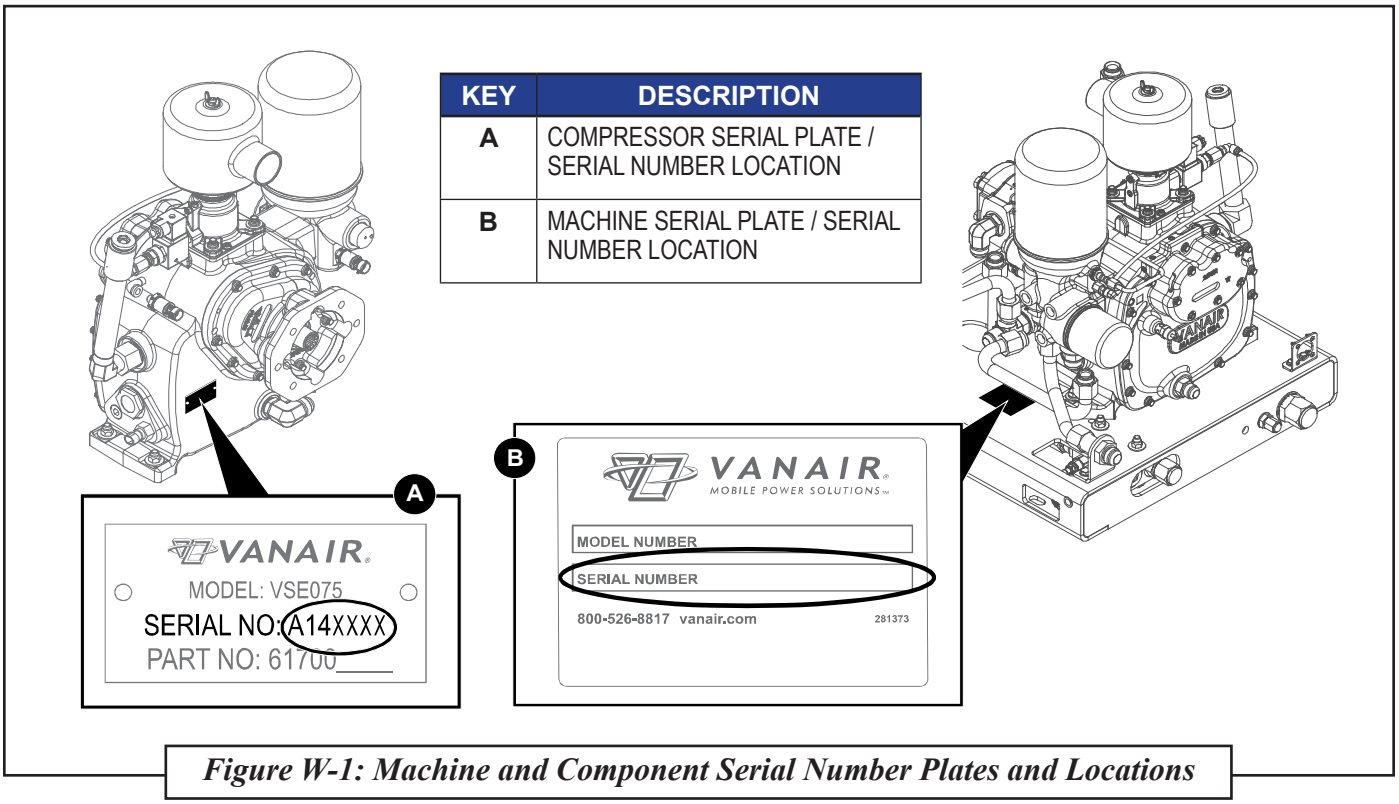

Figure W-1: Machine and Component Serial Number Plates and Locations

TABLE OF CONTENTS

WARRANTY .....

WARRANTY CLAIMS PROCEDURE ..... **WARRANTY - I**

Figure W-1: Machine and Component Serial Number Plates and Locations ..... *WARRANTY - II*

TABLE OF CONTENTS ..... **TOC - I**

SECTION 1: ⚠ SAFETY ..... **1 - 1**

1.1 GENERAL INFORMATION ..... 1 - 1

1.2 ⚠ SUMMARY OF DANGERS, WARNINGS CAUTIONS AND NOTES ..... 1 - 1

1.2.1 ⚠ DANGERS ..... *1 - 1*

1.2.2 ⚠ WARNINGS ..... *1 - 1*

1.2.3 ⚠ CAUTIONS ..... *1 - 2*

1.2.4 ⚠ NOTES ..... *1 - 3*

1.3 ⚠ SAFETY DECALS ..... 1 - 3

1.4 ♻ DISPOSING OF MACHINE FLUIDS ..... 1 - 3

SECTION 2: SPECIFICATIONS ..... **2 - 1**

2.1 GENERAL INTRODUCTION ..... 2 - 1

TABLE 2A: RELIANT RS85-LYM SPECIFICATIONS ..... 2 - 1

TABLE 2B: PRIME LUBRICANT CHARACTERISTICS ..... 2 - 2

TABLE 2C: BOLT AND TORQUE SPECIFICATIONS ..... 2 - 2

Figure 2-1: Machine Main Component Locations ..... *2 - 3*

SECTION 3: INSTALLATION ..... **3 - 1**

3.1 GENERAL INSTRUCTIONS ..... 3 - 1

3.2 DETERMINING THE RELIANT UNIT MOUNTING LOCATION ..... 3 - 1

Continued on next page...

SECTION 3: INSTALLATION (CONTINUED)

3.3 HYDRAULIC SYSTEM OVERVIEW ..... 3 - 2
3.3.1 VENTILATION REQUIREMENTS ..... 3 - 2
3.4 INSTALLATION ..... 3 - 2
3.4.1 MACHINE LOCATION ..... 3 - 2
3.4.2 CLEARANCES ..... 3 - 3
3.4.3 MOUNTING ..... 3 - 3
Figure 3-1: Unit Mounting Types ..... 3 - 3
Figure 3-2: Machine Clearances ..... 3 - 3
3.4.4 SERVICE CONNECTIONS ..... 3 - 4
3.4.5 ELECTRICAL CONNECTIONS ..... 3 - 4
3.4.6 HYDRAULIC SUPPLY CIRCUIT ..... 3 - 4
TABLE 3A: CIRCUIT WIRE INFORMATION TO UNIT ..... 3 - 4
3.4.7 ROUTING ..... 3 - 4
Figure 3-3: Dimension Diagram ..... 3 - 5
Figure 3-4: Location Drawing ..... 3 - 6

SECTION 4: OPERATION ..... 4 - 1

4.1 GENERAL INFORMATION ..... 4 - 1
4.2 MACHINE OPERATION PROCEDURES ..... 4 - 1
4.2.1 INITIAL START-UP PROCEDURE: PRE-CHECKS ..... 4 - 1
TABLE 4A: PURPOSE OF CONTROLS ..... 4 - 1
Figure 4-1: Operation Control Panel ..... 4 - 2
Figure 4-2: Controller Screen Identification and Navigation ..... 4 - 3
4.2.2 OPERATING CONDITIONS ..... 4 - 4
4.2.3 ROUTINE START-UP PROCEDURE ..... 4 - 4
4.2.4.1 PREVENTION OF EMULSIFICATION ..... 4 - 4
4.2.5 ROUTINE SHUT-DOWN PROCEDURE ..... 4 - 4
TABLE 4B: HIGH TEMPERATURE OPERATION ..... 4 - 5
4.2.6 INFREQUENT USE ..... 4 - 5

4.2.7 EXTREME CONDITION OPERATION ..... 4 - 5
4.2.8 HIGH TEMPERATURE OPERATION ..... 4 - 5

SECTION 5: MAINTENANCE ..... 5 - 1
5.1 GENERAL INFORMATION ..... 5 - 1
5.2 MACHINE MAINTENANCE SCHEDULE ..... 5 - 2
5.3 REPLACEMENT PARTS ..... 5 - 2
TABLE 5A: ROUTINE MAINTENANCE SCHEDULE ..... 5 - 3
TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ..... 5 - 3
5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES ..... 5 - 7
5.4.1 SERVICING THE FUSES AND RELAY ..... 5 - 7
5.4.2 SAFETY SHUTDOWN SYSTEMS ..... 5 - 7
5.4.2.1 PRESSURE RELIEF VALVE ..... 5 - 7
5.4.3 LONG TERM STORAGE ..... 5 - 7
Figure 5-1: Instrument Panel Remote ..... 5 - 8

SECTION 6: TROUBLESHOOTING ..... 6 - 1
6.1 GENERAL INFORMATION ..... 6 - 1
Figure 6-1: Machine Serial Plate/Serial Number Location ..... 6 - 1
6.2 TROUBLESHOOTING GUIDE - MACHINE OPERATION ..... 6 - 2
6.3 TROUBLESHOOTING GUIDE - HYDRAULICS ..... 6 - 3

SECTION 7: ILLUSTRATED PARTS LIST ..... 7 - 1
7.1 PARTS ORDERING INFORMATION ..... 7 - 1
Figure 7-1: Machine Serial Plate/Serial Number Location ..... 7 - 1
TABLE 7A: RECOMMENDED SPARE PARTS LIST ..... 7 - 2
NOTES ..... 7 - 3
7.2 COMPRESSOR AND PARTS ASSY (DIGITAL) ..... 7 - 4
7.3 COOLING SYS - COMP & HYD 24V BRLESS MINE APP RS85 ..... 7 - 5
7.3 COOLING SYS - COMP & HYD 24V BRLESS RS85 LW (PARTS) ..... 7 - 6
7.4 MOTOR AND DRIVE PARTS - QUIET VERSION ..... 7 - 7
7.5 INSTRUMENT PANEL ASSEMBLY (DIGITAL) ..... 7 - 8
7.6 FRAME & CANOPY - 1 OF 7 ..... 7 - 9
7.6 FRAME & CANOPY - 1 OF 7 (PARTS) ..... 7 - 10

7.6 FRAME & CANOPY - 2 OF 7 ..... 7 - 11
7.6 FRAME & CANOPY - 3 OF 7 ..... 7 - 11
7.6 FRAME & CANOPY - 4 OF 7 ..... 7 - 11
7.6 FRAME & CANOPY - 5 OF 7 ..... 7 - 12
7.6 FRAME & CANOPY - 6 OF 7 ..... 7 - 12
7.6 FRAME & CANOPY - 7 OF 7 ..... 7 - 13
7.7 CONTROL MANIFOLD - OPEN CENTER ..... 7 - 14
7.8 THERMAL CONTROL ..... 7 - 15
7.9 HYDRAULIC THERMAL CONTROL ..... 7 - 15
7.10 DECAL LOCATIONS - 1 OF 2 ..... 7 - 16
7.10 DECAL LOCATIONS - 2 OF 2 ..... 7 - 17
7.11 HOSE & TUBE ROUTING - RS85-LYM OPEN CTR ..... 7 - 18
7.12 SCHEMATIC - HYDRAULIC FLOW, OPEN CENTER WITH CASE DRAIN ..... 7 - 19
7.13 WIRING DIAGRAM - RS85 ..... 7 - 20
7.14 HOSE INSTALLATION GUIDE ..... 7 - 21
TABLE 7B: MAINTENANCE TRACKING LOG ..... 7 - 22

SECTION 1: ⚠ SAFETY

1.1 ⚠ GENERAL INFORMATION

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

IMPORTANT

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 NOTES

These boxed inserts are placed throughout this 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, or 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 electrical shock.

1.2.2 ⚠ WARNINGS

⚠ WARNING

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

- **DO NOT EVER** use air from this compressor as a source of breathing air. Vanair disclaims any and all liabilities for damage or loss due to fatalities, personal injuries resulting from the use of a Vanair compressor to supply breathing air.
- **DO NOT** perform any modifications to this equipment without prior factory approval.
- **DO NOT** operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel until it is properly repaired or replaced.
- **DO NOT** operate the compressor with any safety by-pass, safety systems disabled or rendered inoperative.
- **DO NOT** operate the equipment while you are under the influence of alcohol or drugs.
- **DO NOT** operate the equipment while you are feeling ill.
- **DO NOT** attempt to service the equipment while it is operating.

Before performing maintenance, or replacing parts, relieve the entire system pressure, after the system has blown down, by opening a service valve which will vent all pressure to the atmosphere. After that, remove any remaining residual pressure by slowly opening the fill cap.

Remove all electrical power.

NOTE
Slowly remove fill cap to vent compressor sump pressure.

- **DO NOT** use the compressor for purposes other than for which it is intended. **High pressure air is capable of causing serious and even fatal injuries.**
- **DO NOT** operate the compressor outside of its specified pressure and speed ratings. (See **Section 2: Specifications** or refer to the equipment data plate.)
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or its parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, or corrosive fumes, or other damaging substance can be ingested by the compressor intakes.
- Keep arms, hands, hair and other body parts, loose clothing and jewelry away from fans, drive shafts, and other moving parts.
- **DO NOT** wear jewelry, unbuttoned cuffs, ties, or loose-fitting clothing when you are working near moving/rotating parts.
- **ALWAYS** confine long hair when working near moving/rotating parts.
- **ALWAYS** Wear proper PPE or 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 and headphones used for listening to audio music or radio programs. These are not a valid substitute for adequate hearing protection and may also cause distraction.
- **DO NOT** operate the compressor with any guards removed or damaged, or other safety devices inoperative.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed-off.

Ensure that hoses connected to service valves are fitted with correctly sized and rated flow limiting devices which comply with applicable codes. Pressurized broken or disconnected hoses can whip, causing injuries or damage.

- **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.
- Keep metal tools, and other conductive objects away from live electrical components.
- Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.
- **DO NOT** assume that because the compressor is in a STOPPED condition that hydraulic power has been removed.
- **Use this compressor only to compress atmospheric air.** 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 regulations.
- When lifting objects, be aware of proper lifting techniques to avoid injury.
- **ALWAYS** read and follow safety related precautions found on containers of hazardous substances.

1.2.3 ⚠ CAUTIONS

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

- Check all safety devices for proper operation on a routine basis.
- Ensure that no tools, rags, or other objects are left on compressor drive systems or near the

intakes.

- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed during maintenance actions are accounted for and 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

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

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

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

1.3 ⚠ 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 7.10, Decal Locations** are located near a component which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

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

1.4 ♻ DISPOSING OF MACHINE FLUIDS

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

Vanair® encourages recycling whenever possible. For additional information, consult the container label of the fluid in question.

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SECTION 2: SPECIFICATIONS

2.1 GENERAL INTRODUCTION

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

Refer to ***Figure 2-1*** for general machine component locations. For additional measurement specifications refer to the full Identification Assembly Drawing (***Figure 3-1***) in **Section 3, Installation**.

TABLE 2A: RELIANT RS85-LYM SPECIFICATIONS

Capacity (CFM)	**80**	**80**	**85**	**85**
Air Pressure (PSI)	100	150	100	125
Compressor (RPM)	2650	2650	2850	2850
Hydraulic Flow (GPM) [I]	18.5	18.8	19.7	19.9
Hydraulic Pressure (PSI) [I]	2800	3075	2800	2950

[I] Ratings are approximate and are based on 120˚F 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 U.S. Quarts (4.7L)
Compressor overheating protection:	Shut Down at 240°F
Air inlet system:	Dry-type, Single Stage Filter
Drive coupling:	Internal Spline
Hydraulic motor:	Gear Type
	Table continued on next page

PACKAGE	
Main frame:	Formed Steel with Bolt-down Provision
Electrical supply:	24V
Electrical connections:	6-pin Deutsch
Supply connections (customer hook-up): (Load sense for closed center)	Hydraulic: Oil In 3/4 in. 37° JIC
	Hydraulic: Oil Out 1 in. 37° JIC
	Hydraulic: Case Drain 3/8 in. 37° JIC
	Electrical: 24V DC Positive and Ground
	Electrical: High Temp Shutdown
Temperature Range: (optional LED electronic display)	-4°F to +150°F (-20°C to +65.5°C)
Enclosure:	Aluminum with Service Access
Cooler:	Hydraulic Oil Cooler/Radiator Core - Electric Fan
Dimensions:	37.45” L x 21.23” W x 24.69” H [II]
Weight (dry):	285 lbs.

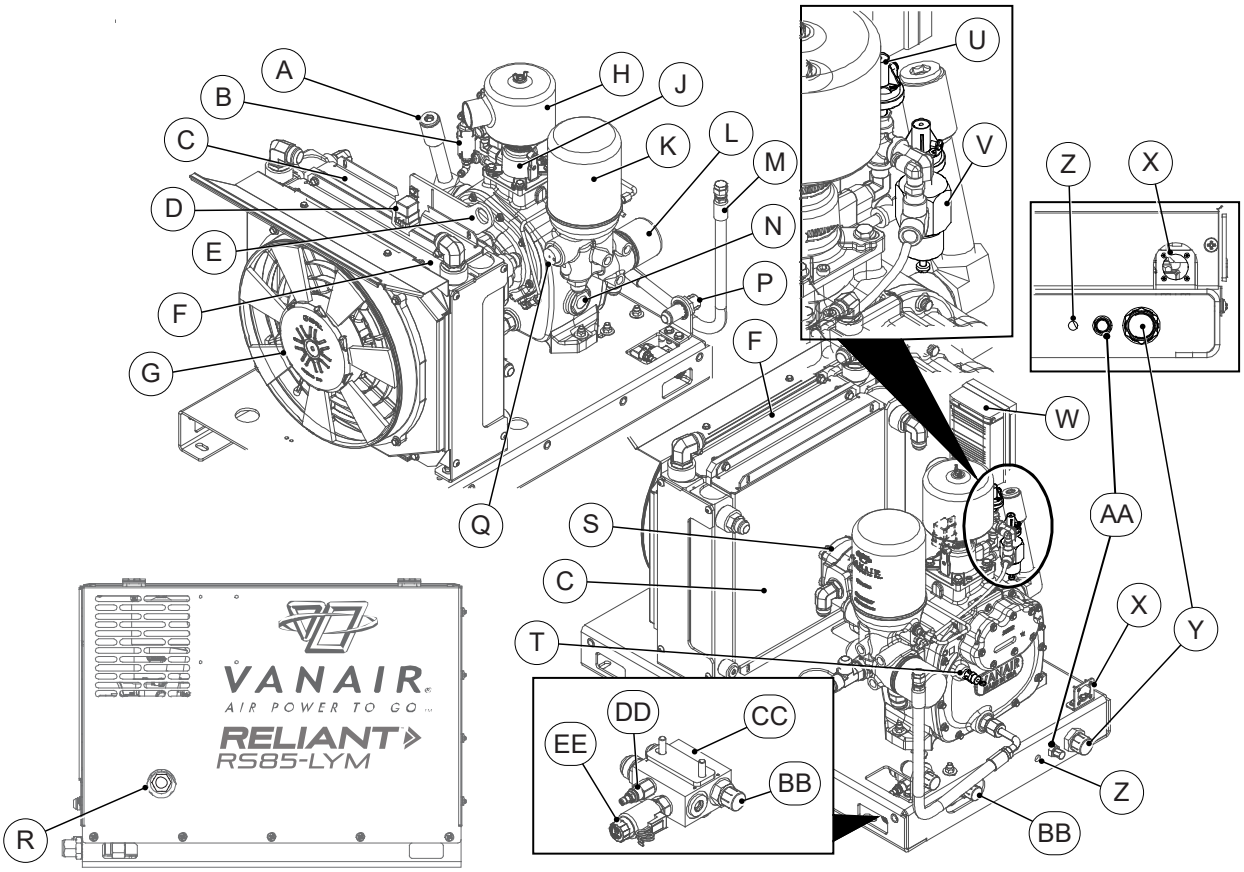
[II] Measurements do not include additional service space requirements needed to allow for cooling circulation and to perform machine maintenance. Refer to ***Figure 3-6A*** or ***3-6B*** in **Section 3, Installation**, for these additional space requirements.

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: BOLT AND TORQUE SPECIFICATIONS

										**SOCKET HEAD CAP SCREW**	
SAE Bolt Grade		**2**		**5**		**7**		**8**			
I.D. Marks:		No markings		3 lines		5 lines		6 lines		Allen head	
Material:		Low carbon		Medium -carbon, tempered		Medium - carbon, quenched & tempered		Medium carbon, quenched & tempered		High-carbon, quenched & tempered	
Tensile Strength (minimum):		74,000 PSI		120,000 PSI		133,000 PSI		150,000 PSI		160,000 PSI	
SAE Bolt Grade		**2**	**2**	**5**	**5**	**7**	**7**	**8**	**8**	Socket	Socket
Bolt Diameter	**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



KEY	DESCRIPTION	KEY	DESCRIPTION	KEY	DESCRIPTION
A	COMPRESSOR OIL FILL PORT [I]	M	COMPRESSOR OIL DRAIN TUBE/CAP	Y	HYDRAULIC RETURN
B	BLOWDOWN VALVE	N	COMPRESSOR OIL LEVEL SIGHT GLASS	Z	LOAD SENSE (Close Center only)
C	COMPRESSOR COOLER ASSEMBLY	P	SERVICE AIR DISCHARGE	AA	CASE DRAIN
D	RELAY	Q	MINIMUM PRESSURE VALVE	BB	HYDRAULIC SUPPLY (IN)
E	LIFTING BAIL	R	COMPRESSOR SIGHT GLASS -CANOPY ACCESS	CC	CONTROL MANIFOLD - OPEN CENTER
F	HYDRAULIC COOLER ASSEMBLY	S	HYDRAULIC MOTOR	DD	PRESSURE RELIEF
G	COOLER FAN ASSEMBLY	T	RELIEF VALVE (200 PSI)	EE	SOLENOID / FLOW REGULATOR
H	COMPRESSOR AIR FILTER HOUSING	U	PRESSURE SWITCH (N.C.; X 2) [III]		
J	AIR INLET VALVE	V	PRESSURE REGULATOR [III]		
K	COMPRESSOR AIR/OIL COALESCER	W	CONTROL MODULE (DIGITAL)		
L	COMPRESSOR OIL FILTER	X	ELECTRICAL (DEUTSCH) CONNECTION		

[I] **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 **[R]** to determine the proper oil level: Oil level is optimum at approximately the half-way mark of the sight glass. Refer to **Table 5A** in **Section 5** for oil fill information.

[II] For instrument panel details refer to **Section 4, Operation**, ***Figure 4-1***.

[III] If applicable to machine design.

NOTE: For fuse locations, refer to **7.13: Wiring Diagram**.

Figure 2-1: Machine Main Component Locations

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SECTION 3: INSTALLATION

3.1 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the Vanair® Reliant RS85-LYM compressor package for operation. Each installation is unique and can be affected by location, ventilation, and other factors such as electrical and hydraulic power supply availability and location.

DISCLAIMER

If machine package is to be mounted within a confined space such as beneath a canopy, the area must be determined to allow for adequate air flow to take place for cooling purposes. Factory must be consulted for assistance in ensuring adequate air flow before mounting the machine.

⚠ WARNING

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

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

⚠ WARNING

Be aware that minimum clearance distances from the machine are required in order for safe and proper machine operation and maintenance. This applies both to installation location, and machine operation location (ergo, operating the machine in an enclosed area, such as a small garage, etc.), where ventilation is restricted or closed off.

Do not install in any enclosed space without first contacting Vanair.

⚠ WARNING

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

NOTE

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

3.2 DETERMINING THE RELIANT UNIT MOUNTING LOCATION

When determining the location to mount the RS85-LYM unit, the following criteria must be taken into consideration:

- The location must allow for the machine dimensions (***Figure 3-6***), and additional space requirements for minimum cooling, access and maintenance (***Figure 3-5***).
- The mounting surface must be level and able to accommodate the four [4] mounting bolts of the base frame.

NOTE

The mounting bolt hole pattern and dimensions data can be found on the specific machine dimension figure (*Figure 3-6A* or *3-6B*) in this section.

- The mounting surface must be able to support the unit's weight (285 lbs).
- The external instrumentation display must be easily visible to the operator.

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

3.3 HYDRAULIC SYSTEM OVERVIEW

IMPORTANT

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.

NOTE

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.

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.

3.3.1 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 good practice guideline.

⚠ 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, whereby the machine is directly exposed to the environmental ambient. Enclosed mounting - refers to machine placement location 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. Refer to ***Figure 3-5*** for clearances.

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 the 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 the air (i.e., a pull-out mounting platform; removable enclosure walls, etc.). **For enclosed-mountings, it is recommended to install a safety switch on the access door that allows for compressor operation only when the door is open.**

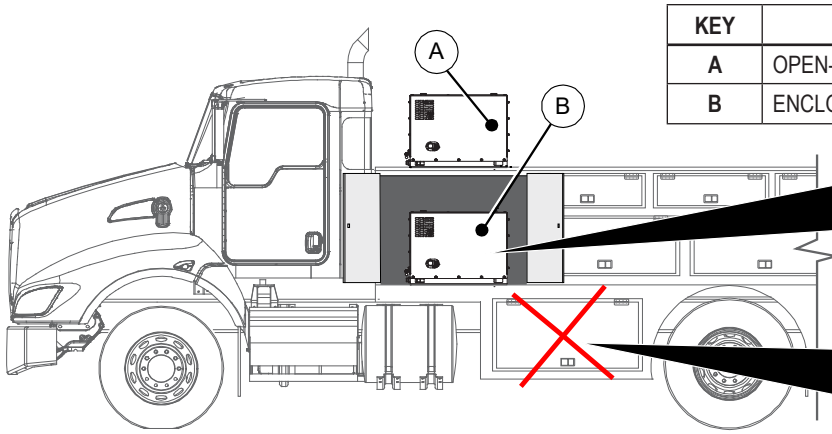
The unit must have the minimum unobstructed clearance given in ***Figure 5-3*** on all sides of the machine for operation.

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 within the enclosed space to displace the heated air.

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 lid/roof latches side of the machine, passes through the cooler and exits through vents in the other end.



KEY	DESCRIPTION
A	OPEN-MOUNTING TYPE LOCATION
B	ENCLOSED-MOUNTING TYPE LOCATION

IMPORTANT

Fresh air ducting with additional ventilation fan to the cooler(s) is required for enclosed unit [**B**] mounting.

IMPORTANT

DO NOT mount the unit below the deck.

Figure 3-1: Unit Mounting Types

IMPORTANT

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

3.4.2 CLEARANCES

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

3.4.3 MOUNTING

Mounting surface or support should be adequate for the weight of the machine (285 lbs.), and should be level for normal operation. Mounting holes are located in the frame footing for four (4) 1/2” hold down bolts.

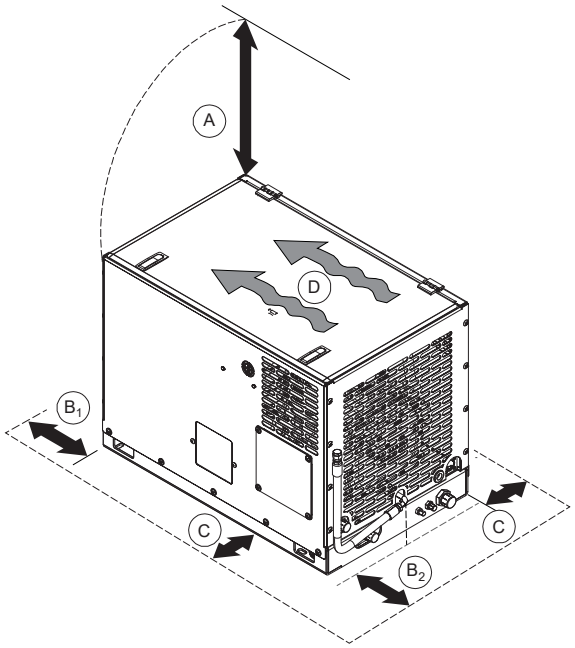


Figure 3-2: Machine Clearances

KEY	DESCRIPTION
A	ROOF PANEL CLEARANCE RADIUS: 20” (minimum)
B_1	LATERAL (AIR-OUT SIDE) WIDTH: 8-10” (minimum)
B_2	LATERAL (AIR-IN SIDE) WIDTH: 6” (minimum)
C	LATERAL LENGTH SIDES: 6” (minimum)
D	COOLING AIR FLOW DIRECTION THROUGH UNIT

3.4.4 SERVICE CONNECTIONS

Refer to ***Figure 3-6 and 3-7***. Service connections are conveniently grouped at the lower rear section of the unit in the base frame.

3.4.5 ELECTRICAL CONNECTIONS

This system is offered with a 24V DC circuit. Refer to **Table 3E**, and **7.13 Wiring Diagram.**

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.

IMPORTANT

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.

TABLE 3E: CIRCUIT WIRE INFORMATION TO UNIT

PIN	WIRE GAUGE	FUNCTION
Pin A	14 ga.	**Machine Activation Circuit Switch**
Pin B	10 ga.	**Constant Positive Battery Voltage**
Pin C	12 ga.	**System Ground**
Pin D	14 ga.	**Auxiliary Circuit Output Signal**
Pin E	14 ga.	**Heater Ground**
Pin F	12 ga.	**Heater Pad Positive Switched**
6-PIN		***Positive Voltage***

NOTE: Wire gauges shown are minimum size for lengths less than 20'

3.4.7 ROUTING

Refer to **7.12 Schematic - Hydraulic Flow** in **Section 7, Illustrated Parts List**. 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.

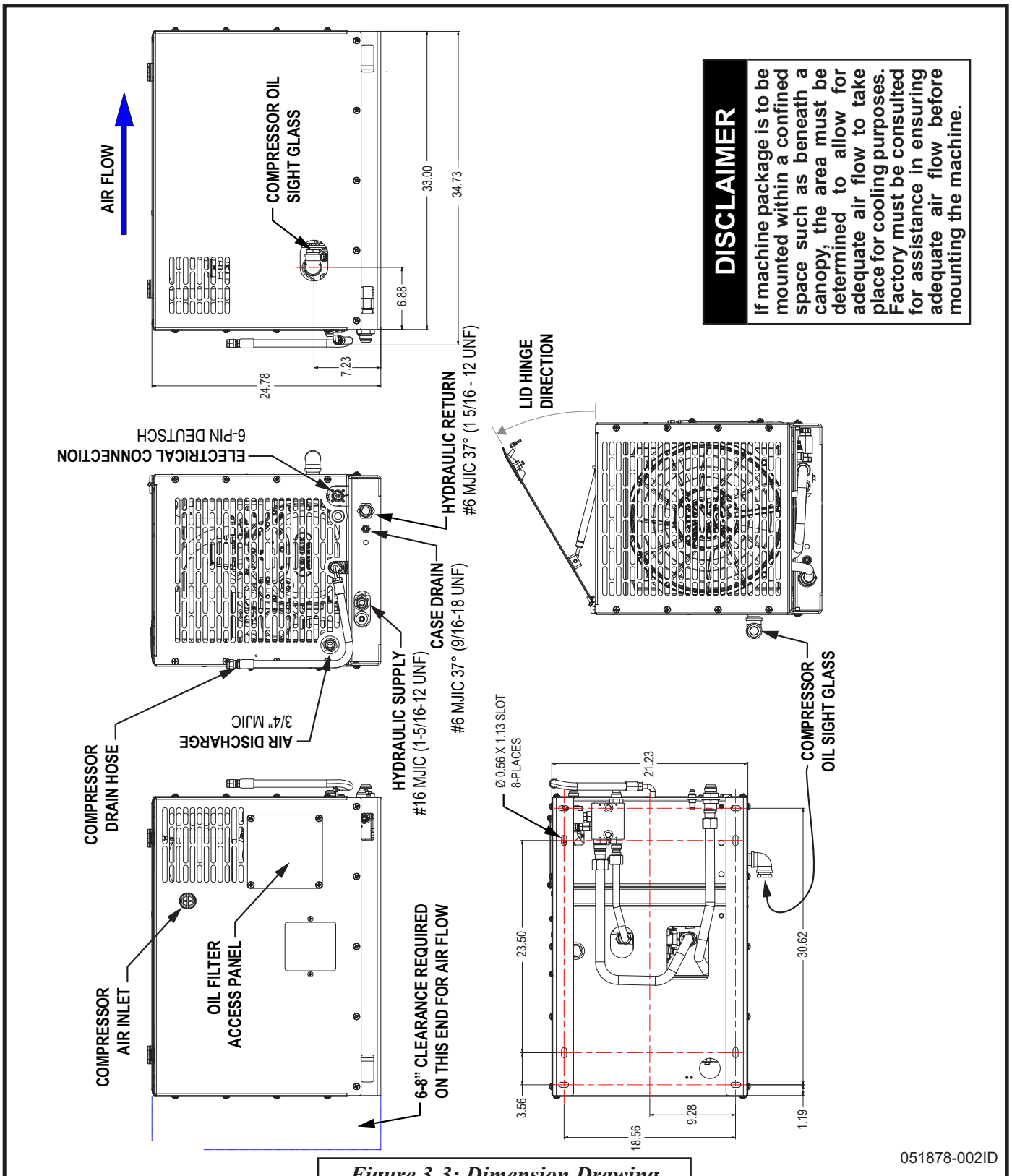


Figure 3-3: Dimension Drawing

DISCLAIMER

If machine package is to be mounted within a confined space such as beneath a canopy, the area must be determined to allow for adequate air flow to take place for cooling purposes. Factory must be consulted for assistance in ensuring adequate air flow before mounting the machine.

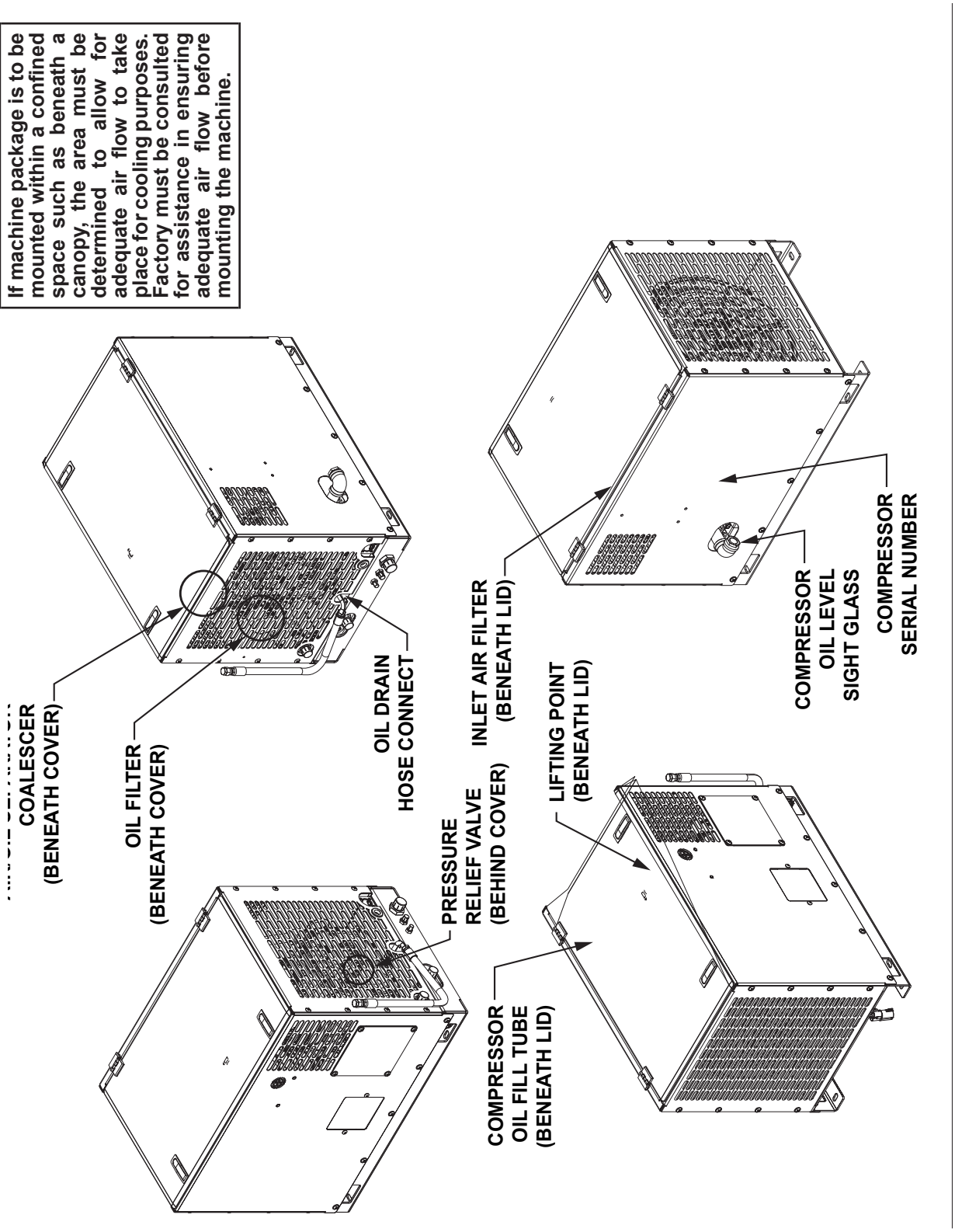


Figure 3-4: Location Drawing

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 the residual pressure to the atmosphere.

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

⚠ IMPORTANT

Before starting the Vanair Reliant Hydraulic compressor, 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 RS85-LYM hydraulic compressor system:

1. Ensure the compressor is positioned on a level surface so that the proper amounts of oil can be added, if required.
2. Unit should be bolted down.

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.

3. Ensure all hose connections are tight and wiring connections correct and tight.
4. Check compressor oil level.

NOTE

The compressor oil level check and fill procedure is found in Table 5A, Key #1, in Section 5, Maintenance.

Add or drain if necessary to accomplish the recommended compressor oil level.

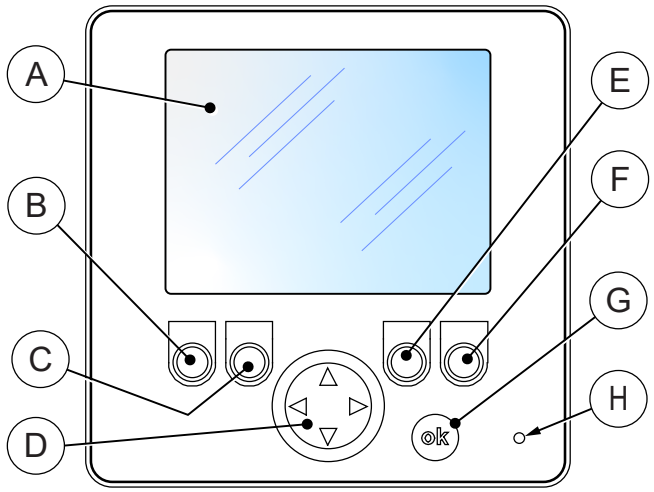
⚠ WARNING

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

⚠ WARNING

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

5. Ensure hydraulic oil to pump inlet, and prime if necessary.
6. Ensure service valve on compressor is closed.
7. 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.
8. Check for leaks.
9. Refer to ***Figures 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**.
10. Partly open service valve to load compressor and allow to warm up. Monitor temperature; The ideal operating temperature should be between 180°F (82°C) and 220°F (104°C); approximately 100 degrees over ambient temperature. **NOTE:** May be higher in high ambient conditions.
11. Cycle compressor on/off with service valve to ensure operation is working.
12. Close service valve.
13. Disengage hydraulic system.



KEY	DESCRIPTION	PURPOSE
A	DISPLAY SCREEN	Displays functional attributes of chosen controller task.
B	START BUTTON	Starts the machine.
C	STOP BUTTON	Cuts off power / stops the machine immediately.
D	NAVIGATION PAD	Where applicable, allows for sub- navigation on multiple line function screens.
E	DATA BUTTON	Shows the Data screen on the display.
F	ESCAPE BUTTON	Takes the operation back to the initial start screen (see **Figure 4-2**).
G	"OK" CONTROL BUTTON	Takes the operation back to the initial start screen (see **Figure 4-2**).
H	LED INDICATOR	When lit (green) indicates panel is in operating state.

Figure 4-1: Operation Control Panel

KEY	SCREEN	DESCRIPTION
A	INITIAL SCREEN	PRE-SCREEN: This automatic screen appears when the controller is first initiated. It remains for a few seconds, then changes to the Controller Revision Screen.
B	CONTROLLER REVISION SCREEN	PRE-SCREEN: This screen shows the current version of the Display and Controller software. It remains for a few seconds, then changes to the Main Screen.
1	MAIN SCREEN	This is the default screen (Pressure Screen). It shows the current pressure status of the machine. Pressing ESC from any other screen will bring this screen up.
2	SETTING ADJUSTMENT DISPLAY SCREEN	This screen shows the preset cut-in and cut-out pressures for the range of operation. These pressures can be adjusted by pressing the Up or Down arrows. Note that, when adjusting the Cut-in /Cut-out pressure, the relationship between cut- in and cut-out remains proportional.
3	CUT-IN/CUT-OUT PRESSURE SCREEN	This screen allows the operator to change some of the machine functions. This includes changing the cut-in / cut-out pressure, and toggling the solenoid functions to either ON or OFF.
4	SERVICE CONTACT SCREEN	This screen shows the support phone number to contact the Vanair Service Department.
5	TEMPERATURE SCREEN	This screen shows the current (running) temperature of the machine.

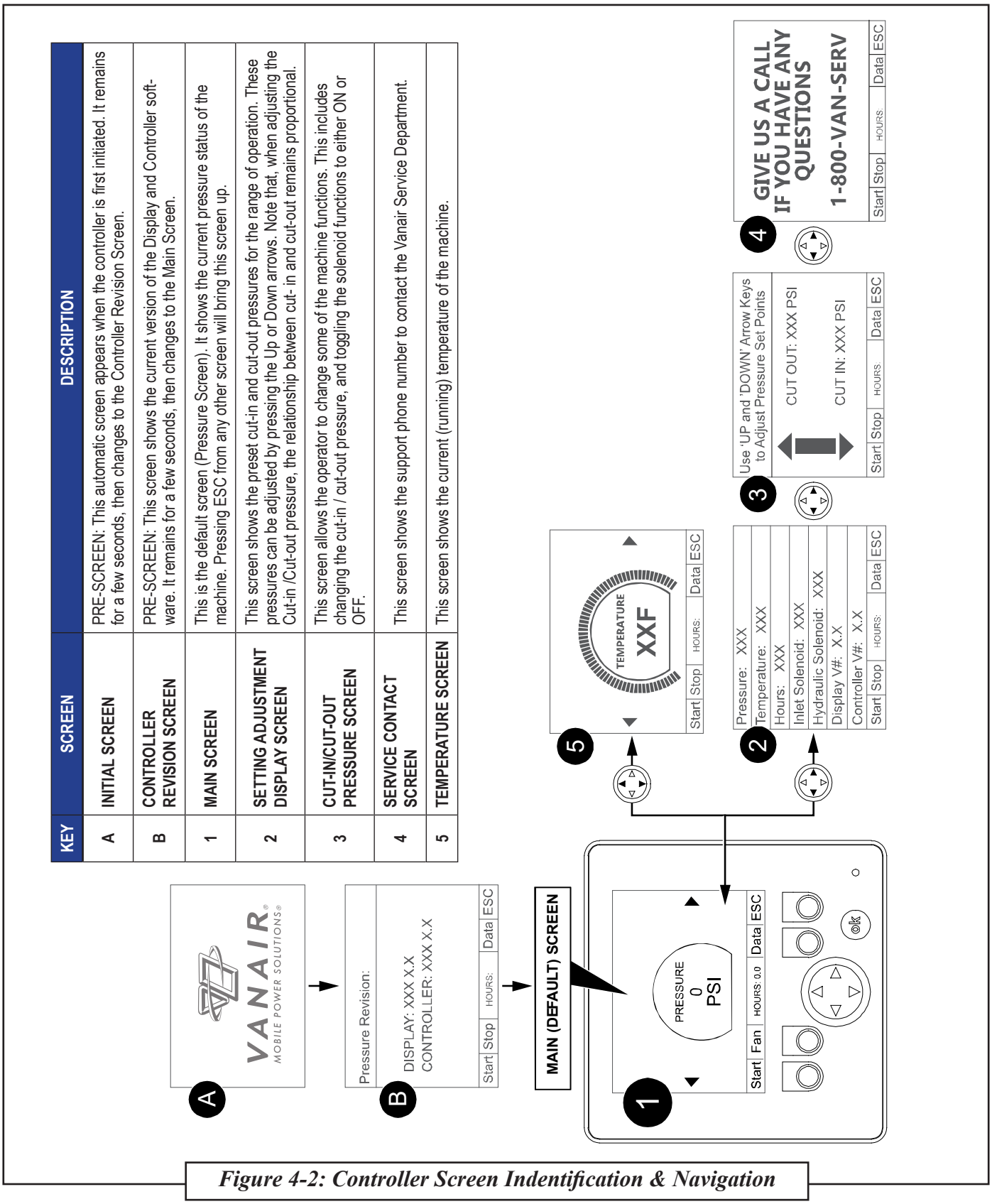


Figure 4-2: Controller Screen Indentification & Navigation

14. 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

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

IMPORTANT

Be sure to leave sufficient room around the machine for cooling air circulation during operation (refer to *Figure 3-5 for* measurements). Heated air must be able to vent away from the air intake.

3. Do not leave anything resting on top of the machine. Hot cooling air will generate high heat and must not be restricted.
4. Operate machine with the top cover closed.
5. Refer to specifications for operating parameters.

4.2.3 ROUTINE START-UP PROCEDURE

IMPORTANT

If 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 proper amounts 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 OF OIL IN ROTARY SCREW COMPRESSOR SYSTEMS

A serious condition may occur in operating environments that contain high levels of moisture, whereby condensation can occur within the 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 the information in Section **4.2.4.1**, and **Table 4A** for preventative and corrective actions necessary for high moisture ambient environment operation.

If the condition persists, contact Vanair's Service Department (219) 879-5100.

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 first warm up to180°F. This warm-up period allows the moisture within the system to vaporize.
3. After temperature reaches 180°F, open service valve and discharge air for approximately ten (10) minutes to purge the system of moisture vapor.

4.2.5 ROUTINE SHUTDOWN PROCEDURE

IMPORTANT

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

IMPORTANT

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

1. Close service valve.
2. Allow compressor system to unload and cool down for approximately five (5) minutes.
3. Shut off hydraulic power supply.

TABLE 4B: HIGH TEMPERATURE OPERATION		
SYMPTOM	**CAUSE**	**PREVENTION / 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. The operator should be aware that high temperatures can influence compressor performance, which can directly effect some machine function capacity outputs.

4.2.6 INFREQUENT USE

In some installations the compressor may not be regularly used. In order to ensure the compressor system is maintained in working order, the compressor should be started and run at least once per month. Follow the procedure outlined in **Section 4.2.4.1** 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. In cases whereby the machine is scheduled to be idle for long periods of time, consult ***Section 5.4.3, Long Term Storage*** for long idle preparation.

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 normal suggestions given in **Section 5**, **Table 5A: Routine Maintenance Schedule**.

4.2.8 HIGH TEMPERATURE OPERATION

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

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

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

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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 these intervals are for normal operation in a good clean environment. More frequent inspections, oil changes and general maintenance should be carried out in dusty environments, high ambient temperatures or extended light load conditions.

Follow the prescribed periodic maintenance schedules given in this section as recommended. Failure to follow the prescribed periodic maintenance at the recommended intervals will impair the package safety, performance characteristics, shorten the package's life, and will negatively affect the warranty coverage of the package.

NOTE

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

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

⚠ WARNING

Wear personal protective equipment such as gloves, work boots, and 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 prior to performing any maintenance: 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 the residual pressure to the atmosphere.

⚠ WARNING

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

⚠ WARNING

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

⚠ CAUTION

Compressors and drive motors generate heat and create hot surfaces. 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 correct pressure rating or may have different thread.

⚠ CAUTION

Use only original Vanair equipment filters. Other filters may not have correct pressure rating or may have different thread.

IMPORTANT

It is important that the compressor oil be of a recommended type and that it is 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.

5.2 MACHINE MAINTENANCE SCHEDULE

Refer to **Table 5A: Routine Maintenance Schedule**. A routine maintenance schedule based on time and/or hours logged, is given in **Table 5A**. The intervals are determined from machine usage under typical operation conditions. However, the operator must be aware that operating conditions will vary depending on such things as specific customer requirements, environmental temperatures and cleanliness of the ambient air. With this in mind, the specifications given in **Table 5A** should be used as a guideline instead of a fixed agenda. A safe approach to routine maintenance would be to perform the given maintenance task more frequently under harsher conditions.

Vanair® provides a routine maintenance parts list in **Section 7, Table 7A**. Should a non-routine part need replacement or servicing, peruse the various parts list illustrations in **Section 7** to help determine the exact part and part number in question. Our parts and service departments are ready to assist in identifying and/or replacing non-routine parts.

5.3 REPLACEMENT PARTS

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

NOTE

For assistance when ordering new replacement parts, consult Section 7.1, Parts Ordering Procedure, and Table 7A: Recommended Spare Parts List.

NOTE

If additional spare parts are being stored for future use, make certain that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 5.4.3*, Long Term Storage.

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10896 West 300 N.
Michigan City, IN 46360

Telephone: (800) 526-8817 (219) 879-5100
Service: (844) VAN-SERV or (844) 826-7378

Service Fax: (219) 879-5335
Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800

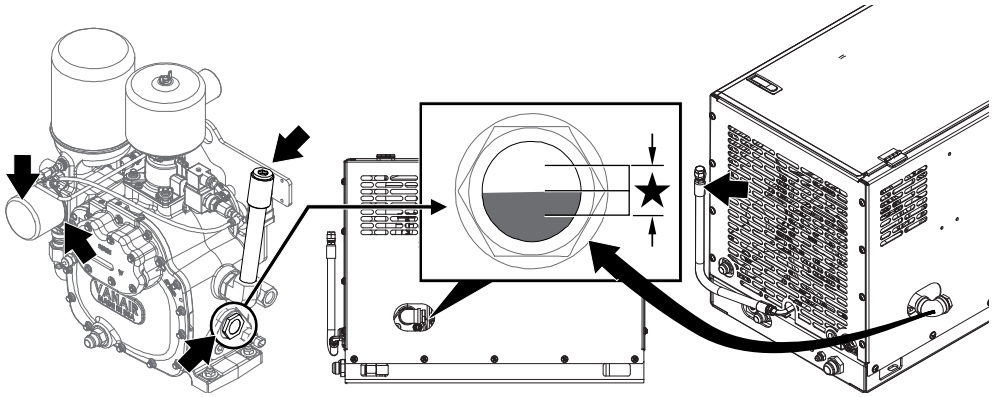
vanair.com

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ WARNING

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

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

KEY	TASK DESCRIPTION	INTERVALS (Refer to footnote [I] Table 5B) After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
1	Before starting, check compressor oil level.	■	■	■	 **REFERENCE:** • Compressor Sight Glass [↗] • Compressor Oil Fill Port [↙] • Compressor Oil Drain Tube [←] • Oil Filter Seal [↖] • Compressor Oil Fill Port [↙]
2	Check for any leaks or loose bolts.	■	■	■	Tighten if necessary.
3	After starting, check pressure gauge for correct operating pressure.	■	■	■	Refer to **Section 2, Specifications** for proper operation pressure.

Continued on next page

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Initial 50 Hours Service Kit (oil filter, Vanguard™ replacement oil [two gallons])	KIT1212	1
2	500 hr. 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.

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.

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ WARNING

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

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

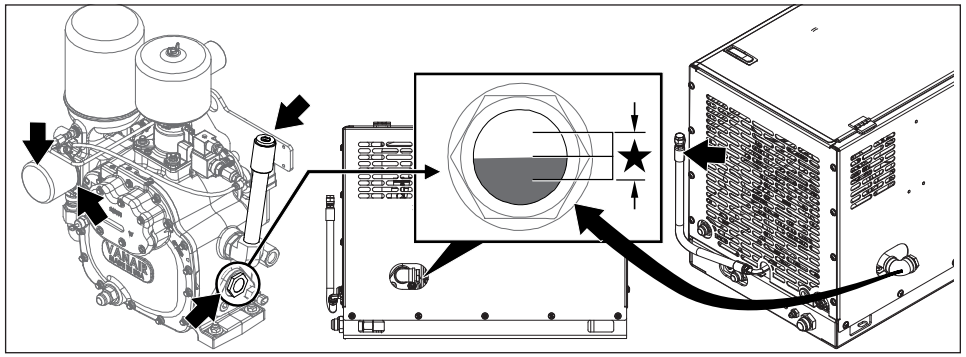
KEY	TASK DESCRIPTION	INTERVALS (Refer to footnote [I] Table 5B) After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
4	Check for leaks.	■	■	■	Visually note any leaks or evidence of leaks around the compressor unit and hose connections. Tighten any loose connection point where needed. Repair or replace any damaged part. **⚠ WARNING** **When tightening hoses or fittings make sure unit is shut off.** **⚠ WARNING** **High pressure leaks can cause serious injuries! Never use hands or body parts to check for leaks!**
5	Change oil and filter element		■	■	 **REFERENCE:** • Compressor Oil Filter [↓] • Compressor Sight Glass [↗] • Compressor Oil Drain Tube [←] • Oil Filter Seal [↖] • Compressor Oil Fill Port [↙] • Refer to key #1 for oil fill replacement. Oil capacity is approximately five [5] quarts for machine. ***...Continued on next page.***

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Initial 50 Hours Service Kit (oil filter, Vanguard™ replacement oil [two gallons])	KIT1212	1
2	500 hr. 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.

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.

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TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ WARNING

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

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

KEY	TASK DESCRIPTION	INTERVALS (Refer to footnote [I] Table 5B) After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
5	Change oil and filter element (continued)		■	■	***...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 #5** in this Table. **PROCEDURE:** Order Vanguard Compressor Oil **no. 264626-1GAL** (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 [★]; **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.

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Initial 50 Hours Service Kit (oil filter, Vanguard™ replacement oil [two gallons])	**KIT1212**	1
2	500 hr. 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.

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.

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ WARNING

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

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

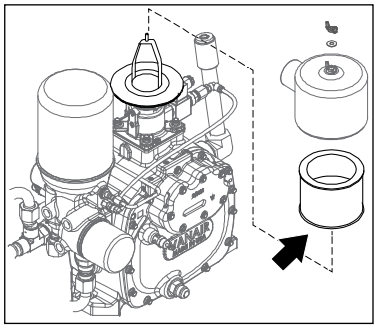
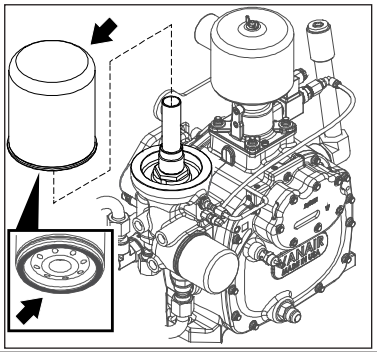
TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Initial 50 Hours Service Kit (oil filter, Vanguard™ replacement oil [two gallons])	KIT1212	1
2	500 hr. 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.

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 footnote [I] Table 5B) After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
6	Inspect intake air filter.		■	■	 **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.
					Continued on next page
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.

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 procedure needed beyond what is presented in this manual, please contact the Vanair® Service Department.

⚠ DANGER

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

NOTE

It may be necessary to change the compressor fluid and fluid filter more frequently if the compressor fluid has water contamination, or if the compressor system is operated in a dirty environment.

⚠ WARNING

Before performing maintenance:

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

Take care to avoid hot surface contact!

5.4.1 SERVICING THE FUSES AND RELAY

The fuse can be found within the harness line, and the relay is mounted on the unit weight-bearning plate. Vanair recommends using a fuse removal tool, though pliers will suffice when removing the fuses. Please refer to **7.13 Wiring Diagram - RS85** on page 7-20, for fuse identification.

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, and...

ON DIGITAL PANEL:

- Will show a reset button fuction to press and hold.

ON GAUGE PANEL:

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

IMPORTANT

Reason for shutdown should be investigated before pressing reset.

⚠ WARNING

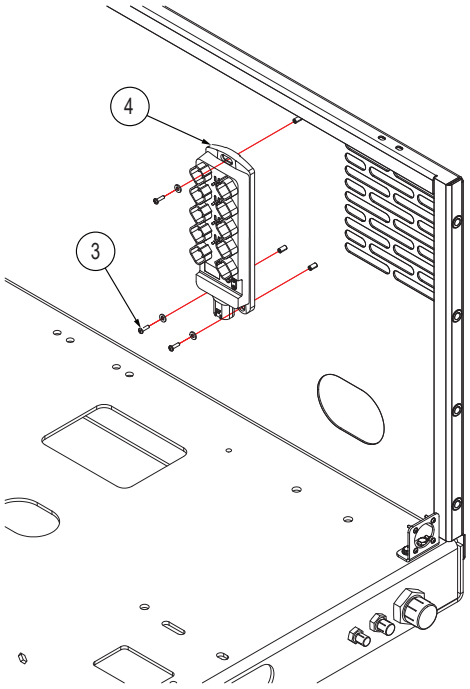
NEVER FORCE the reset button back into position, or hinder it in any way, in order to allow for machine operation. A tripped reset button indicates a problem that should be addressed and resolved before operation can continue.

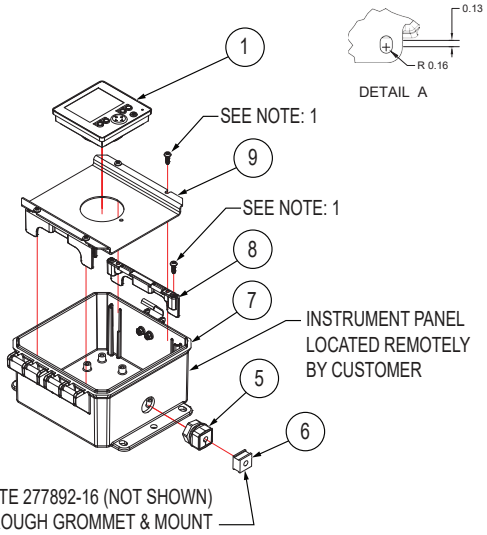
5.4.2.1 PRESSURE RELIEF VALVE

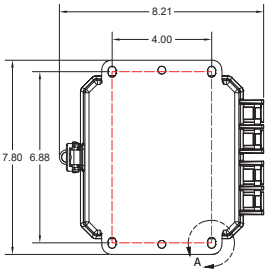
Refer to ***Figure 2-1, callout [T]*** for relief valve location. Although the pressure relief valve has a reset ring at the cap, **DO NOT** test the pressure relief valve by pulling on the reset ring. To ensure that all the system is fully de-pressurized, once the system is unloaded slowly crack, then remove fill cap to vent any remaining sump pressure.

5.4.3 LONG TERM STORAGE

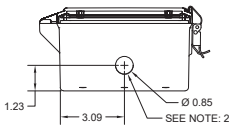
Parts can wear out over time, regardless of the degree of usage. If storing the Reliant unit for long periods of time, depressurize the air tank and open the drain valve on the tank. Cover with a tarp or plastic to prevent the accumulation of dust, but leave the bottom open for air circulation. Whenever possible, store in a sheltered area to minimize exposure to the elements.







REAR VIEW
MOUNTING HOLE LOCATION



BOTTOM VIEW

NOTES:
1. Screws supplied with 284410. Do NOT overtighten.
2. Hole to be drilled during assembly.

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY
1	276319	DISPLAY,COLOR 2.8 INCH	1
2	277892-16	CABLE,M12 MALE/FEMALE PATCH 90/STRAIGHT 16 FT	NS
3	279106	SCREW,MACH #6-32 X 1/2 PAN HD PHILLIPS SS	3
4	279205	CONTROLLER,BASIC IP67 DEUTSCH CONNECTORS CR2052	1
5	281035	MOUNT,IFM CABLE	1
6	281036	GROMMET,IFM CABLE	1
7	284409	ENCLOSURE,6 X6 X 3 POLYCARB WITH LATCH	1
8	284410	BRACKET,SET FOR 6 X 6 ENCLOSURE	1
9	284412	PANEL,FIXED FOR 6 X 6 ENCLOSURE	1

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Figure 5-1: Instrument Panel Remote

SECTION 6: TROUBLESHOOTING

6.1 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 may occur. All available data concerning the trouble 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 piping.
3. Check for parts damaged by heat or an electrical short circuit, usually noticeable by discoloration or a burnt odor.

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

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Telephone: (800) 526-8817 (219) 879-5100
Service: (844) VAN-SERV or (844) 826-7378

Service Fax: (219) 879-5335
Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800

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⚠ WARNING

DO NOT operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Install a lock-out tag to identify the equipment as inoperable to other personnel to prevent accidental application.

⚠ 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 the residual pressure to the atmosphere.

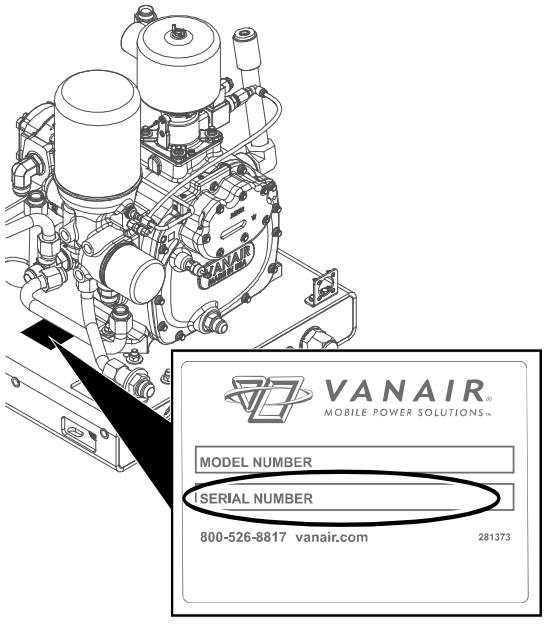

Figure 6-1 Machine Serial Plate / Serial Number Location

6.2 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 in 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 coalescer	Replace coalescer.
Insufficient air delivery / Air demand too great	Plugged air filter	Replace air filter.
	Plugged coalescer	Replace coalescer element.
	Motor speed too low	Check hydraulic flow and pressure 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 overfull	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.
	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 short in wires.
		Check fan motor.
	Plugged oil filter	Replace oil filter.
	Contaminated cooler core	Remove and clean cooler core. Consult service department for recommended flushing procedure.
	Pressure set too high	Contact factory service department.
	Unit running too fast	Check hydraulic flow and pressure and adjust if necessary.
	Faulty thermal valve	Replace thermal valve.
	Oil level too low	Check level; replenish as necessary.

Continued on next page

6.2 TROUBLESHOOTING GUIDE - MACHINE OPERATION

MALFUNCTION/ FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor fails to start	No power	Check fuse/breaker/relays; Check for loose/broken wires
	Defective hydraulic ystem	Check GPM's & 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.	Should be no power to solenoid valve.
	Faulty blowdown	Replace
	Leak back from air line	Check minimum pressure valve for leaks.
Compressor stalls	Insufficient hydraulic system pressure flow. This can occur if another hydraulically activated component is used off same pump system. Activating the secondary component may drop hydraulic supply system pressure/flow and leave insufficient 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 factory service department.
	Faulty relief valve.	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.

6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
HYDRAULIC DRIVE SYSTEM: EXCESSIVE NOISE		
Motor is too noisy	Coupling is mis-aligned	Align unit and check condition of seals, bearings and coupling.
	Motor and/or coupling is/are worn or damaged	Regard any or all of the following: Tighten leaking connections; fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir); bleed air from system; replace pump shaft seal (and shaft if worn at seal journal).
Relief valve too noisy	Valve setting is set too low or too close to another valve setting	Install pressure gauge and adjust to correct pressure.
	Worn poppet and/or seat	Overhaul or replace poppet and/or seat.
HYDRAULIC DRIVE SYSTEM: 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.

6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
		Continued on next page
HYDRAULIC DRIVE SYSTEM: EXCESSIVE HEAT (CONTINUED)		
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).
	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.
HYDRAULIC DRIVE SYSTEM: 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 is/are worn	Overhaul or replace item as noted.
Flow is excessive	Flow control is set too high (Closed Center System [CCS])	Adjust as necessary.
	Pump drive motor RPM is incorrect	Replace with correct unit. Adjust vehicle RPM.
	Replacement pump is not properly sized	Replace with correct unit.
HYDRAULIC DRIVE SYSTEM: INCORRECT PRESSURE CONDITION		
Pressure is absent	No flow	Refer to information in the “No Existing Flow” column under INCORRECT FLOW CONDITION in this guide

6.3 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
		Continued on next page
HYDRAULIC DRIVE SYSTEM: INCORRECT PRESSURE CONDITION (CONTINUED)		
Pressure is low	Pressure relief path is present	Refer to information in the “No Existing Flow” and the “Flow is Low” columns under INCORRECT FLOW CONDITION in this guide
	Pressure relief valve is set too low	Adjust pressure relief valve. Rebuild or replace if necessary.
	Pressure relief valve is damaged or inoperable	Rebuild or replace pressure valve.
	Pump or motor is damaged or inoperable	Overhaul or replace as necessary.
Pressure is erratic	Air is present in fluid	Tighten leaking connections, fill reservoir to proper level, and bleed air from system.
	Relief valve is worn or inoperable	Rebuild or replace valve.
	Fluid is contaminated	Check system fluid and filters; replace if necessary.
	Pump or motor is worn	Overhaul or replace as necessary.
Pressure is excessive	Pressure relief valve out of adjustment	Adjust; Rebuild or replace if necessary.
HYDRAULIC DRIVE SYSTEM: 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.

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

VANAIR MANUFACTURING, INC.

10896 West 300 N.
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Parts Fax: (219) 879-5340
Sales Fax: (219) 879-5800

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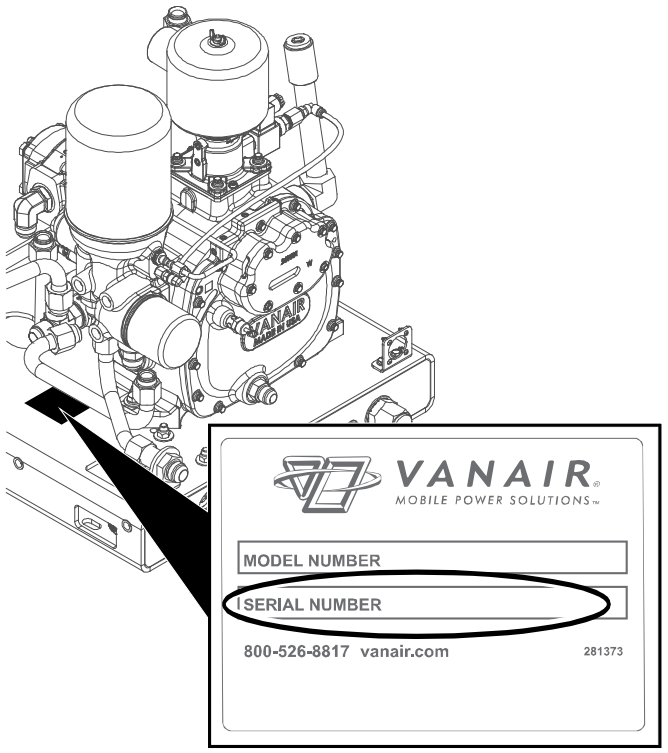


Figure 7-1: Machine Serial Plate / Serial Number Location

TABLE 7A: RECOMMENDED SPARE PARTS LIST

KEY NO.	DESCRIPTION	PART ORDER NO.	QTY	KEY NO.	DESCRIPTION	PART ORDER NO.	QTY
ROUTINE/SCHEDULED MAINTENANCE ITEMS							
1	Oil, Compressor Vanair® Vanguard™ (gallon) [I]	**264626-1GAL**	1	**2**	Element, Air/Oil Spin-on Separator	**273080**	1
MAINTENANCE SERVICE KITS							
3	Kit, 500 hr. (compressor) [II]	**KIT1221**	1	**6**	Kit, Minimum Pressure / Discharge Check Valve (rebuild)	**271079**	1
4	Kit, Initial 50 Hour Service (compressor) [III]	**KIT1212**	1	**7**	Kit, Compressor Shaft Seal	**KIT1259**	1
5	Kit, Air Inlet Replacement	**273396**	1	**8**	N/A		
INDIVIDUAL MAINTENANCE ITEMS							
9	Fuse, 3A	**279689**	1	**12**	Relay, NO/NC Weatherproof 20A (24V)	**265182**	1
10	Fuse, Jcase 10/20A (for 24V machines)	**279300**	1	**13**	Valve, Thermal Replacement (Compressor)	**273480**	1
11	Fuse, 10A (red) [VI]	**EL41538**	1	**14**	Valve, Thermal Replacement By-pass (Hydraulic System)	**274255**	1

NOTES

[I] 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.

[II] 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** and seperator element **no. 273080**.

[III] 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**.

[IV] For compressor shaft seal replacement kit please contact the Vanair Service Department.

[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 **Section 7.11** for hose routing assistance.

[VI] 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.

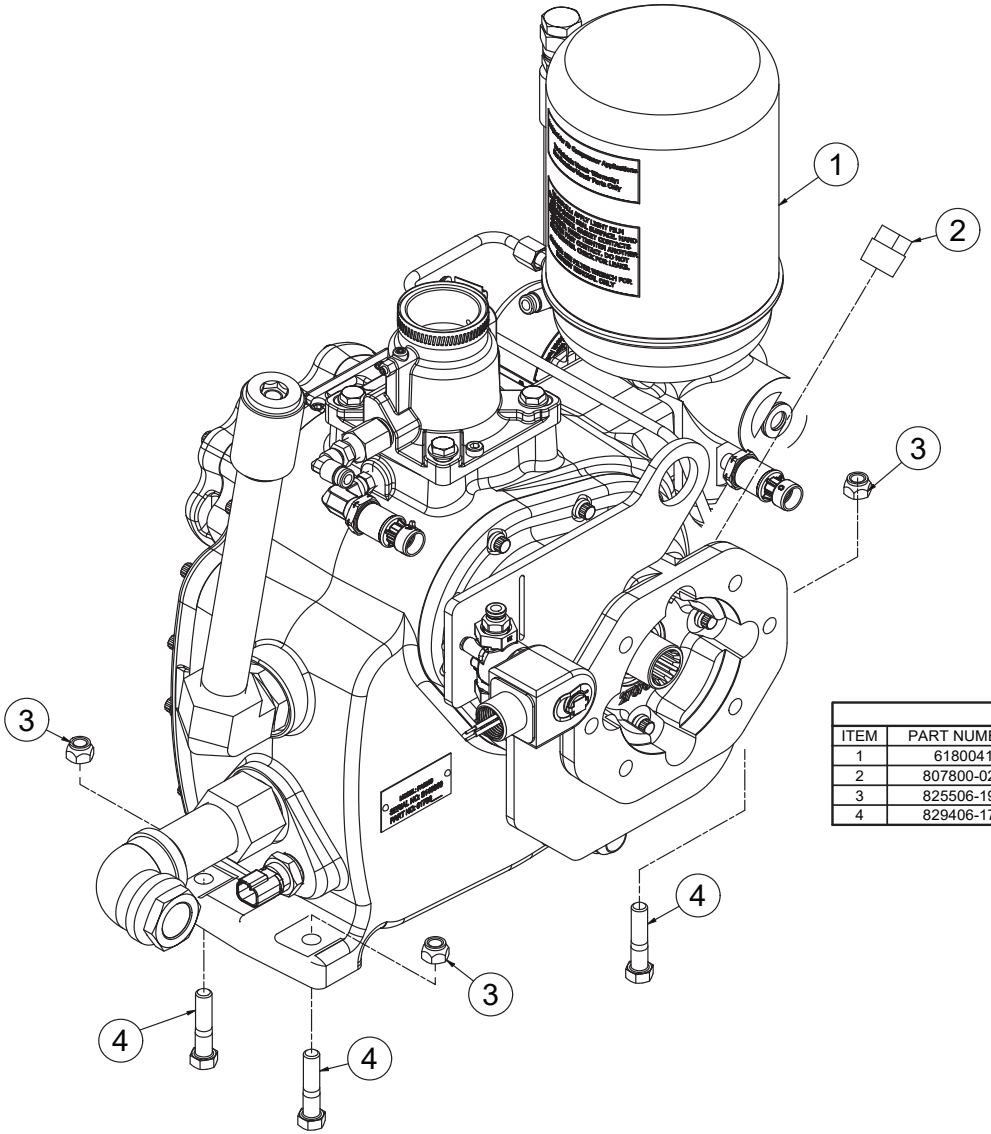
Should any part of the compressor package that is not listed in **Table 7A** become damaged or inoperable, use the various sub-sections in **Section 7** to best locate and identify the damaged part(s).

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 with a moderate temperature reading. For information on storing the machine package for periods of non-use, consult **Section 5.4.3, Long Term Storage**.

NOTES

7.2 COMPRESSOR AND PARTS ASSEMBLY (DIGITAL)



PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	
1	6180041	ID,AIREND & ATT, VRS-E85 ALPNGDSP347 LESS YLW MTL	
2	807800-020	PLUG, PIPE 1/2	
3	825506-198	NUT, HEX LOCKING 3/8-16	
4	829406-175	CAPSCREW, HEX GR 8 3/8-16 x 1 3/4	

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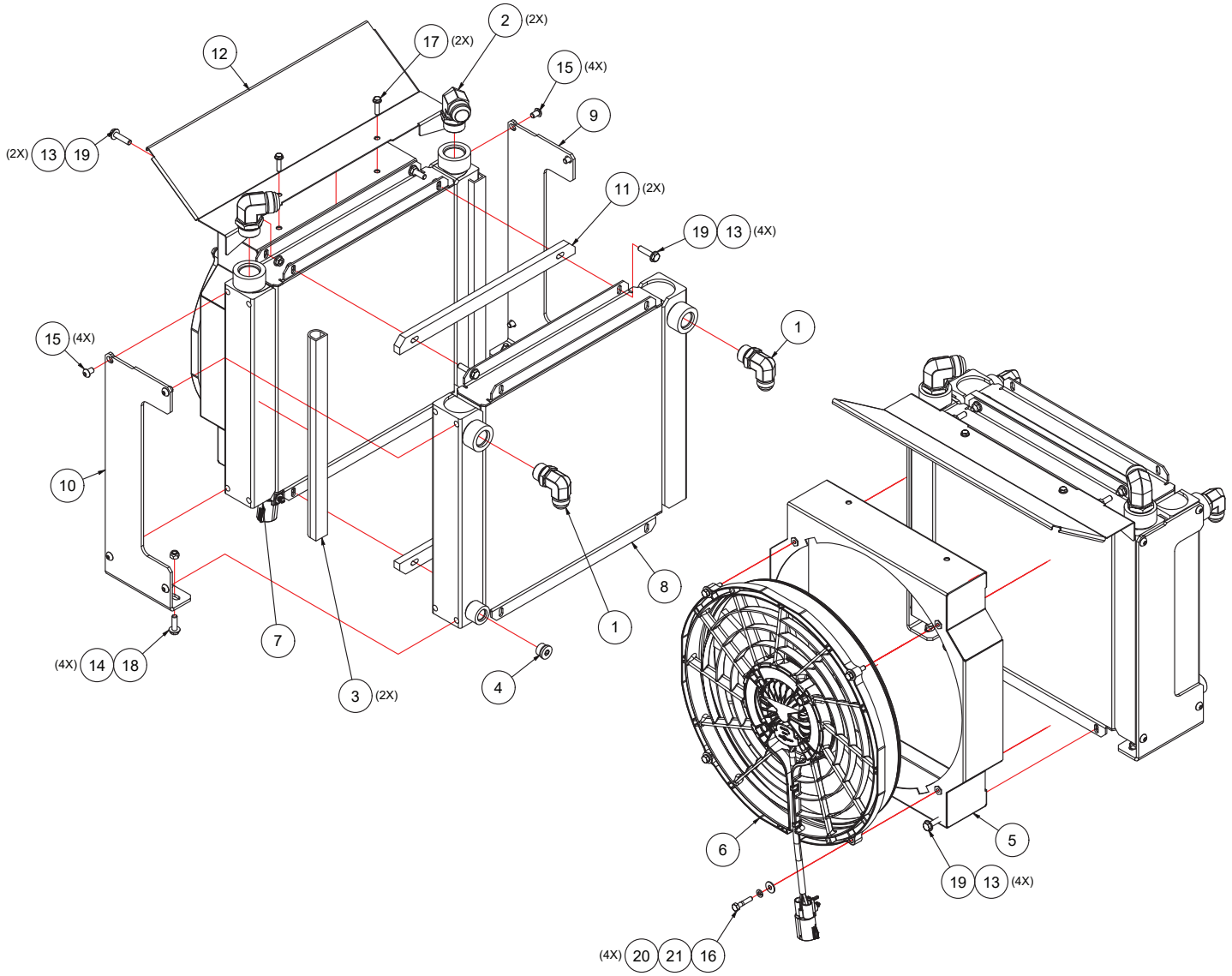
7.3 COOLING SYSTEM - COMP & HYD 24V BRUSHLESS MINE APP RS85-LYM



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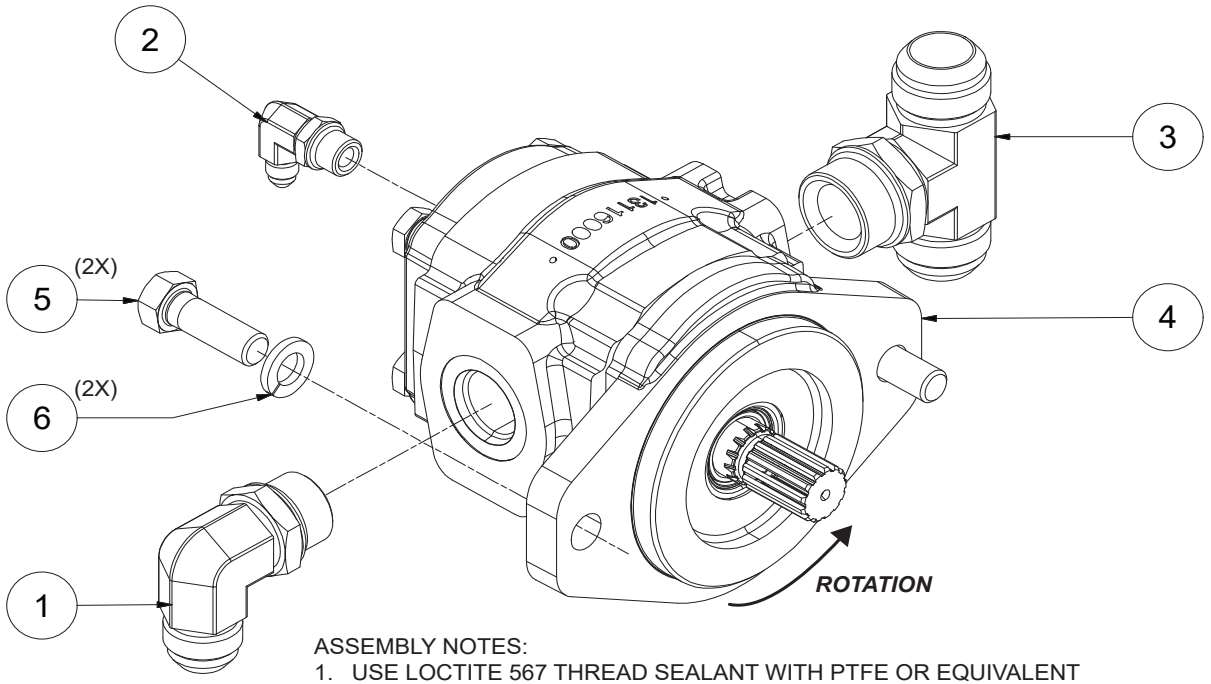
7.3 COOLING SYSTEM - COMP & HYD 24V BRUSHLESS MINE APP RS85-LYM (PARTS LIST)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	2
2	ELBOW, 90 DEG #16 MJIC x #16 MSAE	260403-108	2
3	SEAL, RUBBER “D” TRIM-LOK	264138	2.6 FT
4	PLUG, SAE O-RING HOLLOW HEX #8	268081-006	1
5	SHROUD, COOLING FAN RS85-LW	279486	1
6	FAN & MOTOR ASSY, BRUSHLESS 300W 24V (RS85)	279715	1
7	CORE, COOLER COMPRESSOR RS85	279718	1
8	CORE, COOLER, COMPRESSOR RS85	279719	1
9	BRACKET, MOUNTING R.H. RS85	279720	1
10	RACKET, MOUNTING L.H. RS85	279721	1
11	BLOCK, COOLER SPACER (.5 THK)	279737	2
12	BAFFLE, COOLER / FAN GUARD RS85 LW	280052	1
13	NUT, HEX FLANGE 5/16-18	825505-283	8
14	NUT, HEX LOCKING 5/16-18	825505-166	4
15	CAPSCREW. S.H. 5/16-18 x 1/2 ZINC PLT	828305-050	8
16	CAPSCREW, HEX GR8 1/4-20 x 1.25	829404-125	4
17	SCREW, SER WASH 1/4-20 x 1	829704-100	2
18	SCREW, SER WASH 5/16-18 x 1	829704-100	4
19	SCREW, SER WASH 5/16-18 x 1.25	829705-125	8
20	WASHER, FLAT 1/4	838204-071	4
21	WASHER, LOCK 1/4	838504-062	4

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

7.4 MOTOR AND DRIVE PARTS - QUIET VERSION



ASSEMBLY NOTES:
1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. LUBRICATE ALL SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPEC PER GRADE AND SIZE.

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.			

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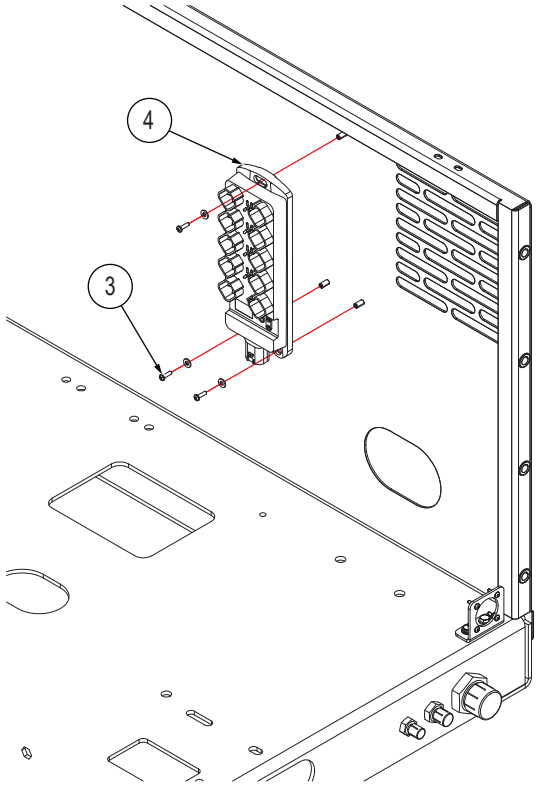
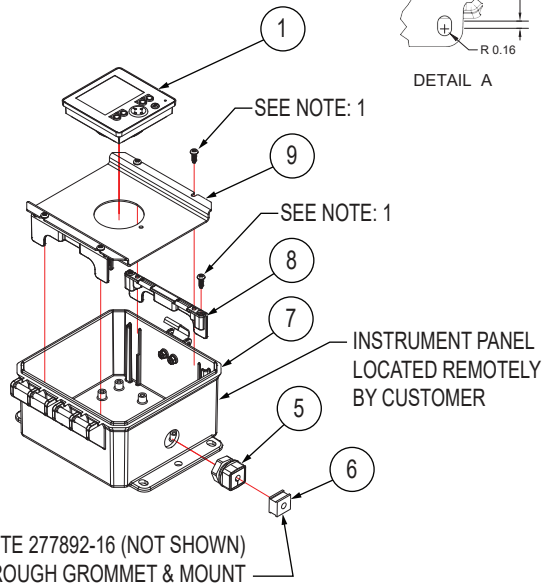
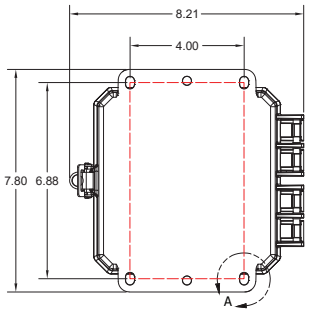
7.5 INSTRUMENT PANEL ASSEMBLY (DIGITAL)

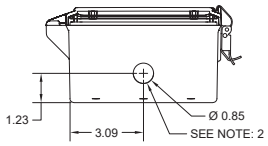




DETAIL A



REAR VIEW
MOUNTING HOLE LOCATION



BOTTOM VIEW

NOTES:
1. Screws supplied with 284410. Do NOT overtighten.
2. Hole to be drilled during assembly.

PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	276319	DISPLAY,COLOR 2.8 INCH	1
2	277892-16	CABLE,M12 MALE/FEMALE PATCH 90/STRAIGHT 16 FT	NS
3	279106	SCREW,MACH #6-32 X 1/2 PAN HD PHILLIPS SS	3
4	279205	CONTROLLER,BASIC IP67 DEUTSCH CONNECTORS CR2052	1
5	281035	MOUNT,IFM CABLE	1
6	281036	GROMMET,IFM CABLE	1
7	284409	ENCLOSURE,6 X6 X 3 POLYCARB WITH LATCH	1
8	284410	BRACKET,SET FOR 6 X 6 ENCLOSURE	1
9	284412	PANEL,FIXED FOR 6 X 6 ENCLOSURE	1

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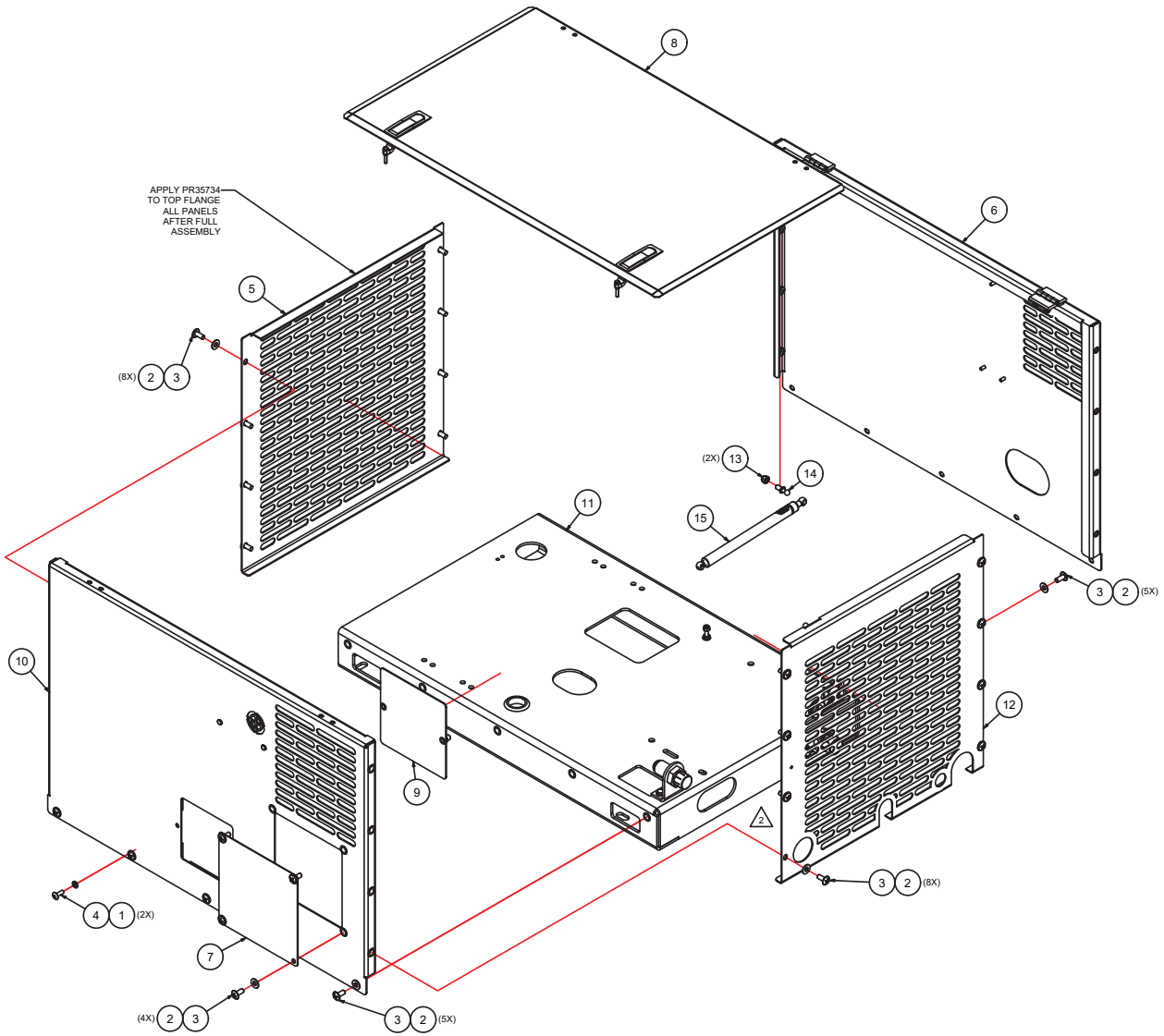
7.6 FRAME & CANOPY - 1 OF 7



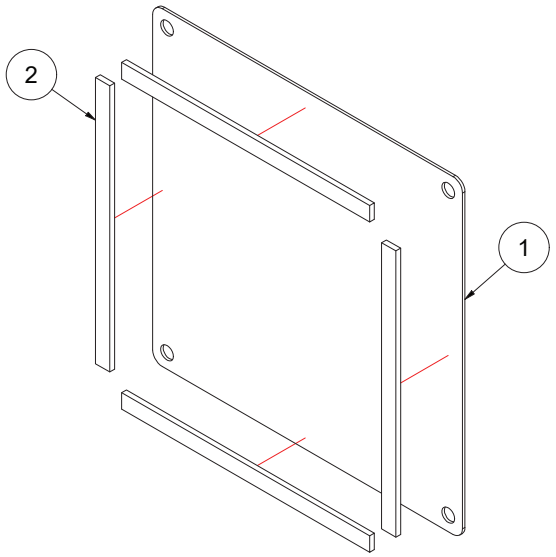
6030198ID_r2 (p1)

7.6 FRAME & CANOPY - (PARTS LIST)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	2
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	1
5	PANEL, COOLER SIDE RS85 LW	279157	1
6	PANEL,FRONT SIDE	6030198ID-A	1
7	DOOR, ACCESS	6030198ID-B	1
8	PANEL, ROOF RELIANT RS60-85	6030198ID-C	1
9	DOOR, ACCESS	6030198ID-D	1
10	PANEL, BACK SIDE RS85-LW	6030198ID-E	1
11	ID, FRAME NEW ABOVE DECK HYD DRIVE	6030198ID-F	1
12	PANEL, COMPRESSOR SIDE RS85-LW	6030198ID-G	1
13	NUT, HEX LOCKING 5/16-18	825505-166	1
14	STUD, BALL, .39DIA. X .55LG.	FA58724	1
15	GAS SPRING, 6-STROKE, 10#	277909	1

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

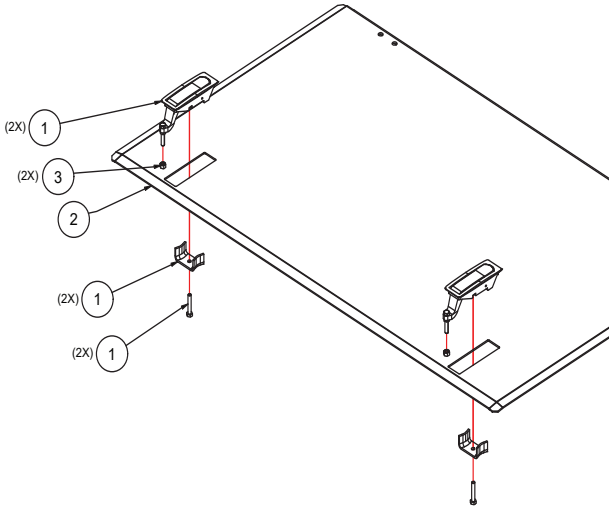
7.6 FRAME & CANOPY - 2 OF 7



ITEM	DESCRIPTION	PART NUMBER	QTY
1	COVER, ACCESS RS85 LW	278769	1
2	TAPE, VINYL FOAM 4508 1/8x3/8 BLACK	PR35734	2.25 ft
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

6030198ID_r2 (p2)

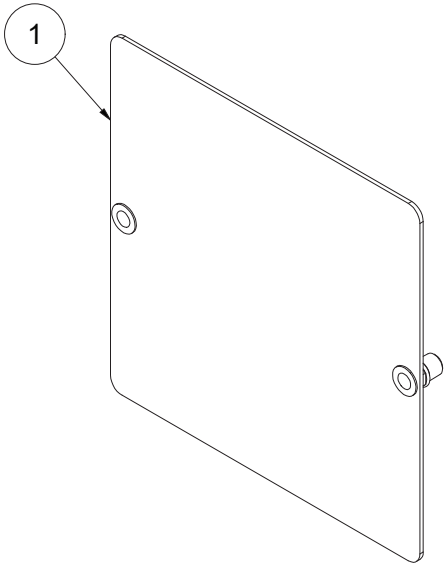
7.6 FRAME & CANOPY - 3 OF 7



ITEM	DESCRIPTION	PART NUMBER	QTY
1	LATCH, SENTRY PANEL	267124	2
2	PANEL, ROOF RS85 LW	279183	1
3	NUT, HEX METRIC 5mm x 0.8	825905-080	2
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

6030198ID_r2 (p2)

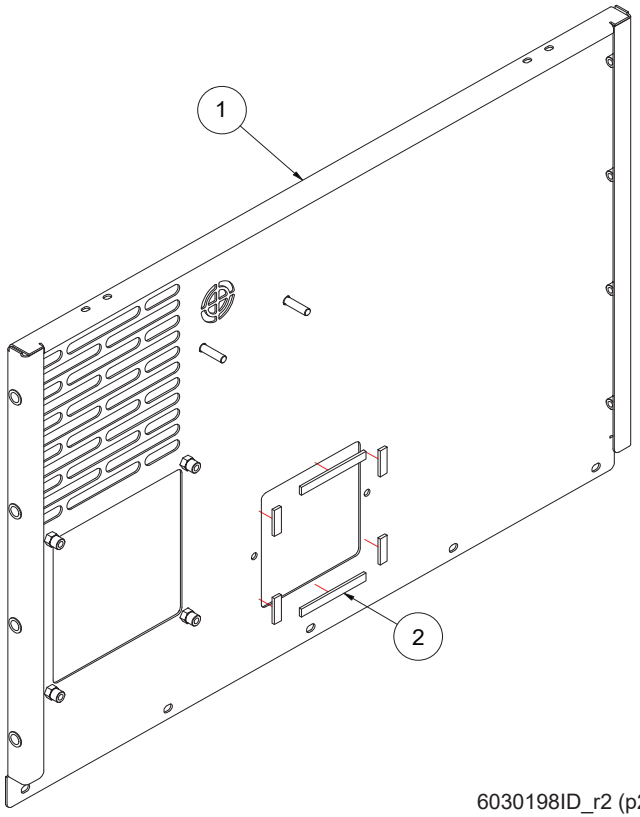
7.6 FRAME & CANOPY - 4 OF 7



ITEM	DESCRIPTION	PART NUMBER	QTY
1	PANEL, GAUGE RS85-LW BLANK	279529	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

6030181ID-D_r2

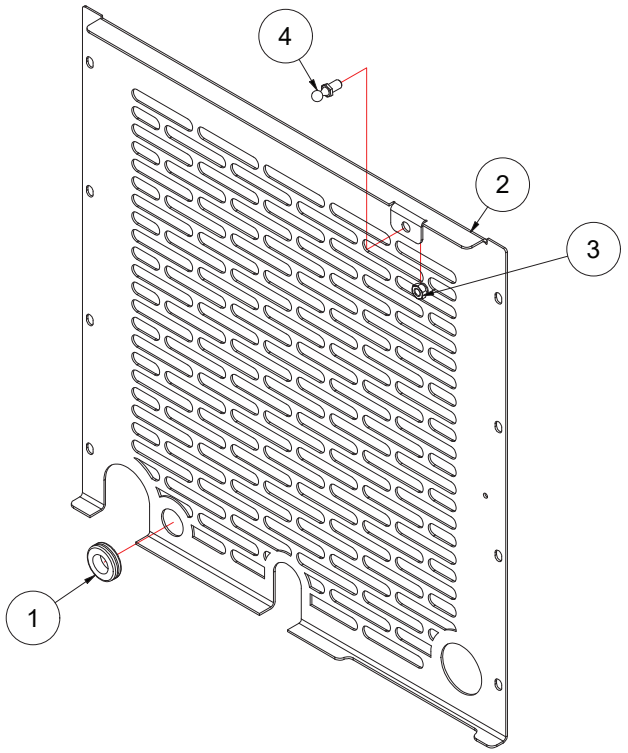
7.6 FRAME & CANOPY - 5 OF 7



6030198ID_r2 (p2)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	PANEL, BACK SIDE RS85-LW MINE APP	280466	1
2	TAPE, VINYL FOAM 4508 1/8x3/8 BLACK	PR35734	6
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.6 FRAME & CANOPY - 6 OF 7



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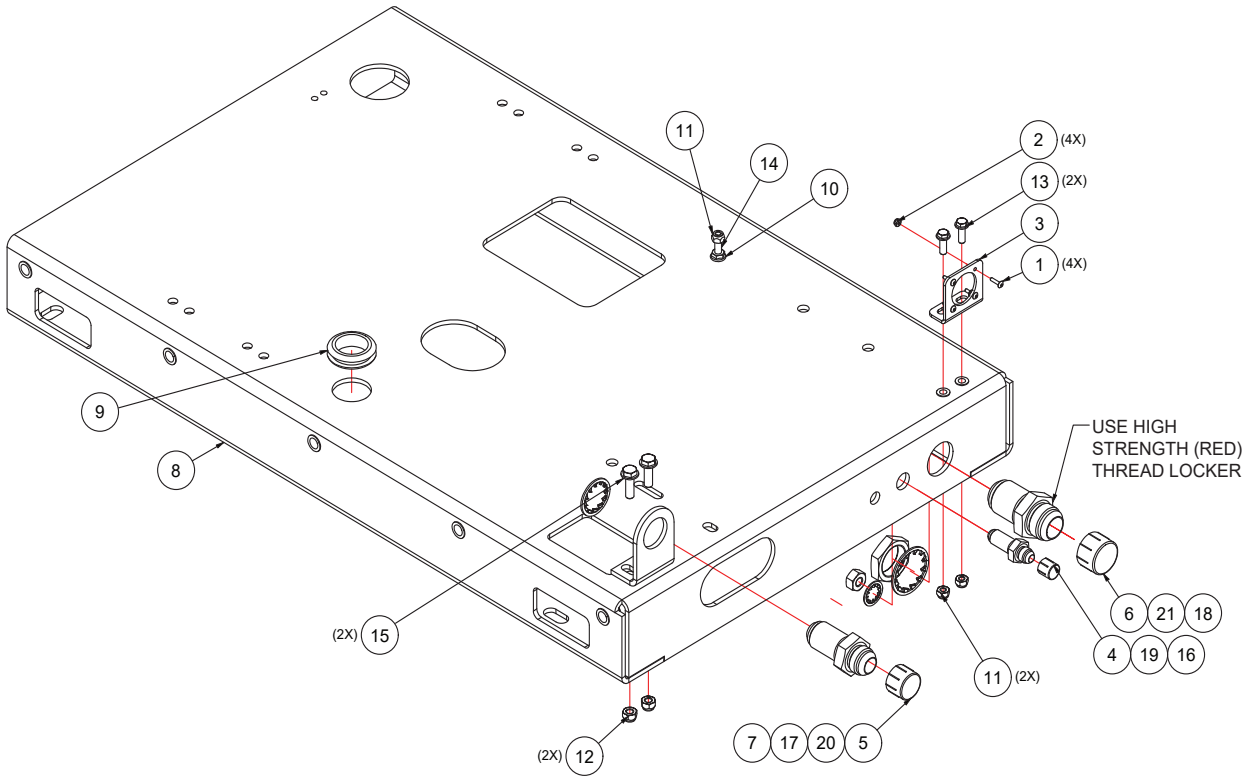
ITEM	DESCRIPTION	PART NUMBER	QTY
1	GROMMET, RUBBER .75ID x 1.06GD x 1.38OD	275077	1
2	PANEL, COMPRESSOR SIDE RS85 MINE	280340	1
3	NUT, HEX LOCKING 5/16-18	825505-166	1
4	STUD, BALL, .39DIA x .55LG	FA58724	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

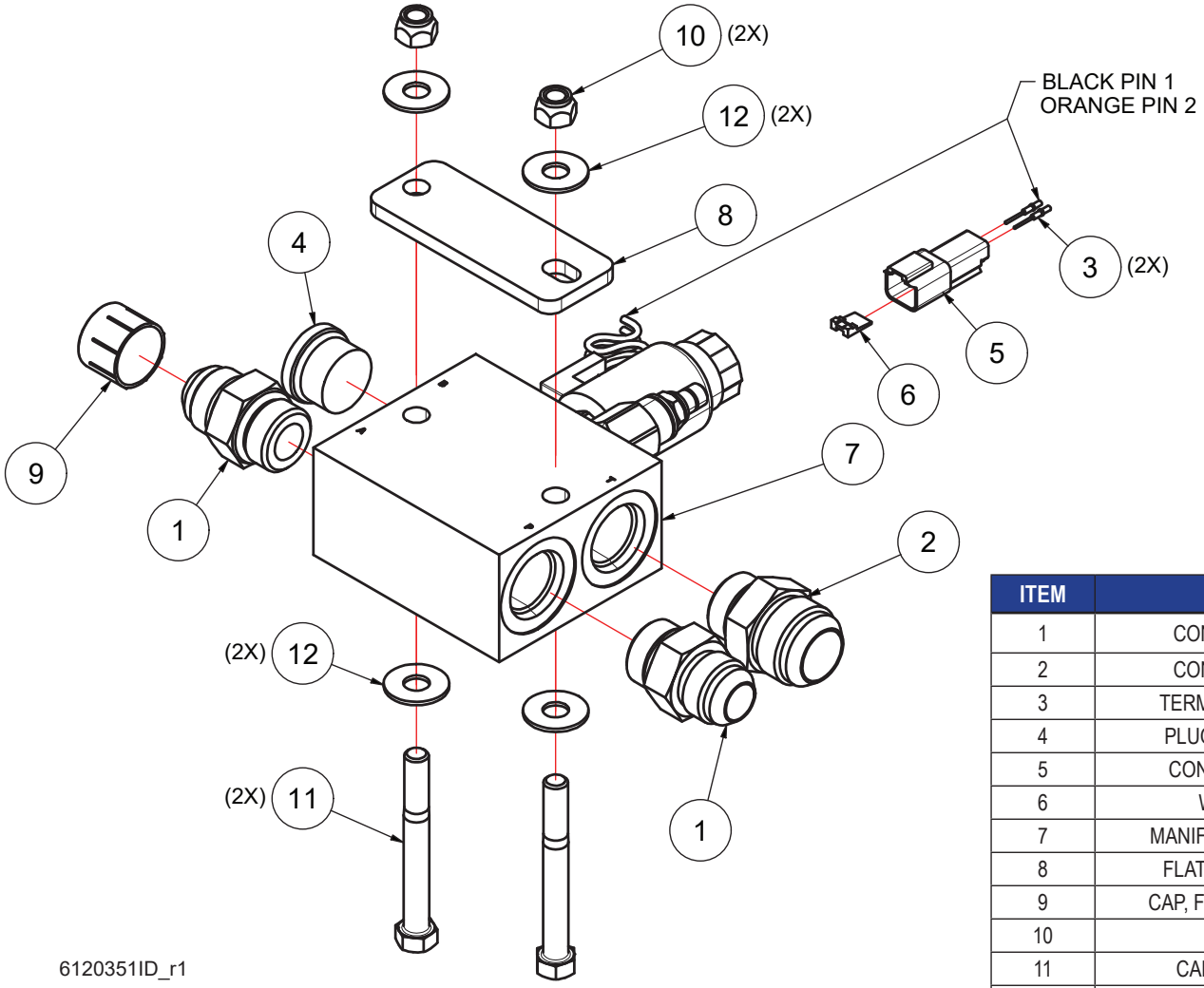
7.6 FRAME & CANOPY - 7 OF 7

ITEM	DESCRIPTION	PART NUMBER	QTY
1	SCREW, TRUSS #4-40 X 1/2	271839	4
2	NUT, HEX LOCKING #4-40 UNC	271840	4
3	BRACKET, 6 PIN CONNECTOR	278370	1
4	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1
5	CAP, FEMALE JIC SHIPPING #12 1-1/16-12	279109-005	1
6	CAP, FEMALE JIC SHIPPING #16 1-5/16-12	279109-006	1
7	BRACKET, AIR DISCHARGE RC40 RS85LW	279306	1
8	FRAME, RS85-LW	279531	1
9	GROMMET, RUBBER 1-1/4 x 1-7/8 OD x 1/4	280462	1
10	NUT, HEX FLANGE 1/4-20	825304-236	1
11	NUT, HEX LOCKING 1/4-20	825504-145	3
12	NUT, HEX LOCKING 5/16-18	825505-166	2
13	SCREW, SER WASH 1/4-20 x 0.75	829704-075	2
14	SCREW, SER WASH 1/4-20 x 1	829704-100	1
15	SCREW, SER WASH 5/16-18 x 1	829705-100	2
16	WASHER, LOCK INTERNAL TOOTH 9/16 IN	837409-045	1
17	WASHER, INTERNAL TOOTH 1 INCH	837414-100	1
18	WASHER, LOCK INT TOOTH 1 3/8"	838422-065	1
19	BULKHEAD, MJIC x MJIC #6	862106-038	1
20	BULKHEAD, MJIC x MJIC #12	862112-075	1
21	BULKHEAD, MJIC x MJIC #16	862116-100	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			



6030198ID_r2 (p3)

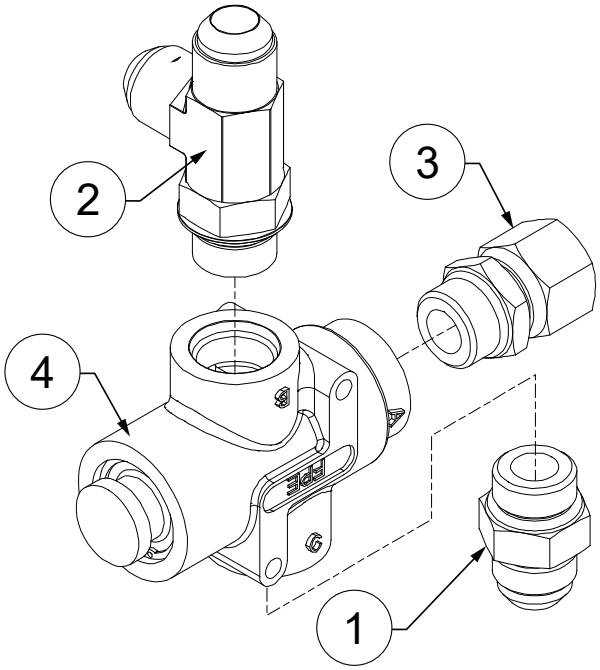
7.7 CONTROL MANIFOLD - OPEN CENTER



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 24V	277875	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

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

7.8 THERMAL CONTROL



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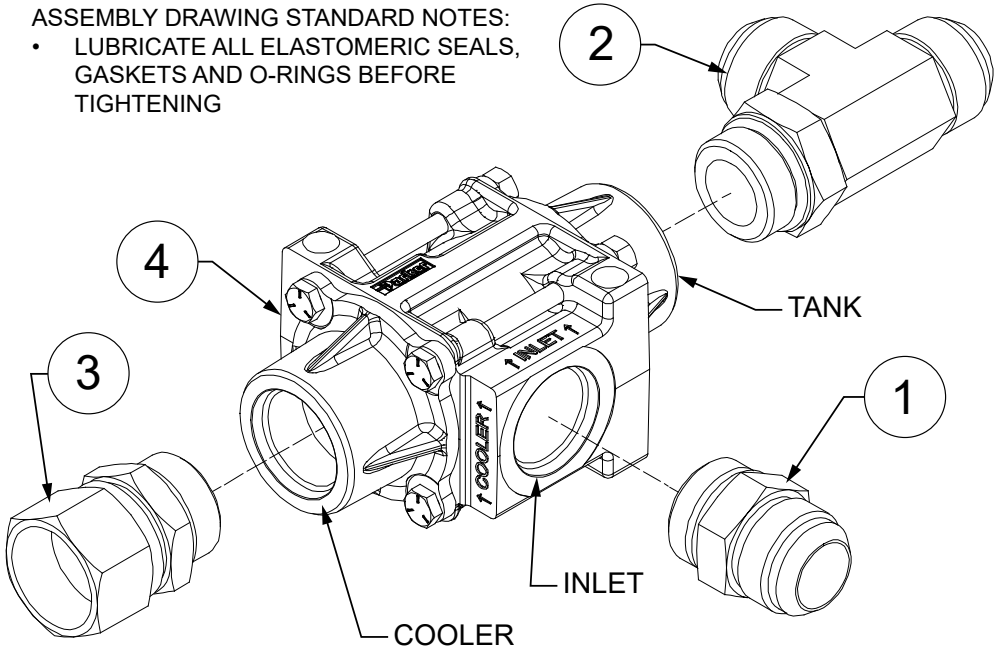
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
2	TEE, 37 MJIC, 37MJIC. O-RING RUN 3/4	268591	1
3	ADAPTER, 3/4 FJIC SWIVEL X #12 MSAE	270440-013	1
4	VALVE, THERMAL 180 DEGREE ALUM BODY 3/4" SAE FPE	273480	1

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

7.9 HYDRAULIC THERMAL CONTROL

ASSEMBLY DRAWING STANDARD NOTES:

- LUBRICATE ALL ELASTOMERIC SEALS, GASKETS AND O-RINGS BEFORE TIGHTENING



6120349ID_r2

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.

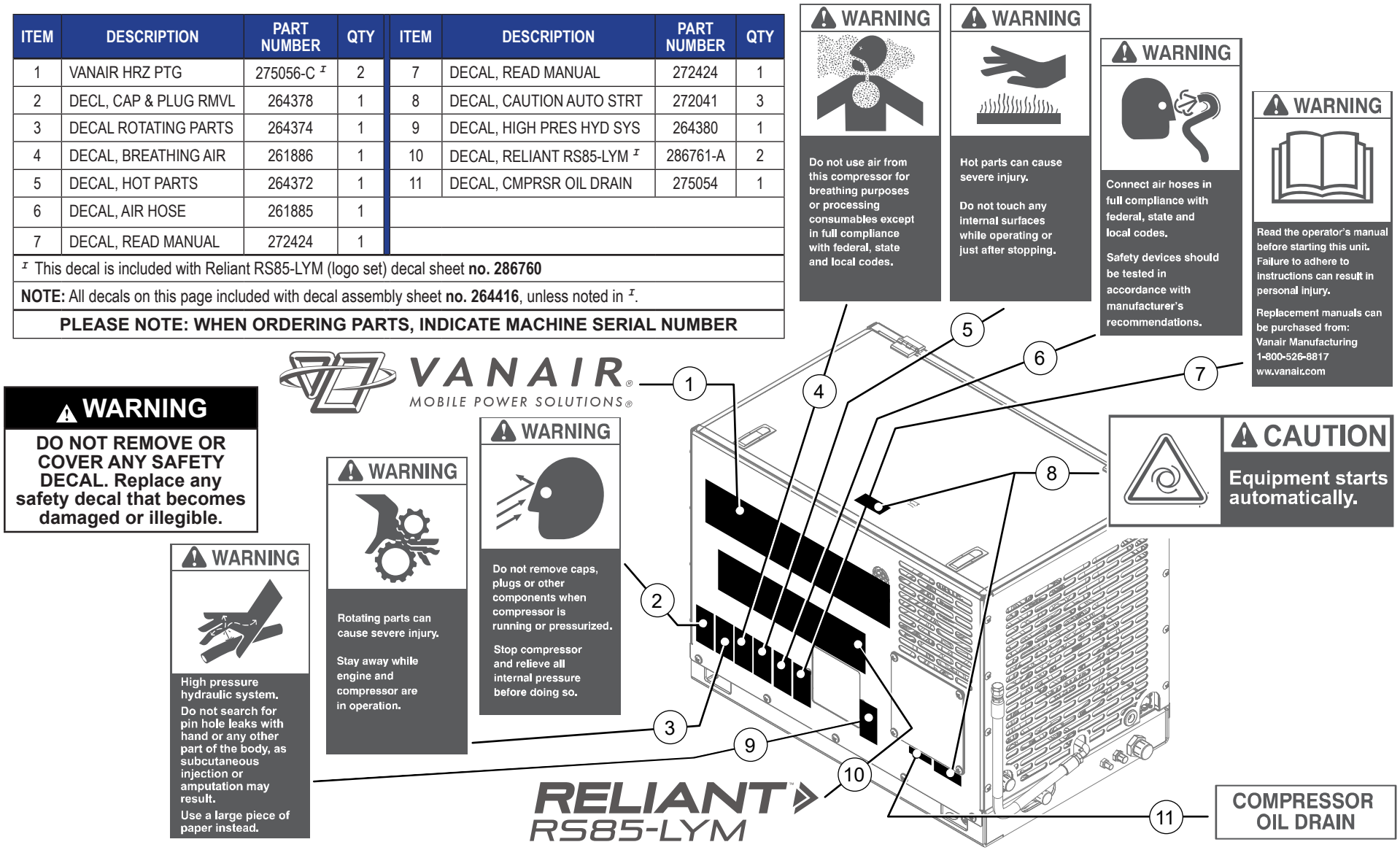
7.10 DECAL LOCATIONS - 1 OF 2

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	VANAIR HRZ PTG	275056-C [I]	2	7	DECAL, READ MANUAL	272424	1
2	DECL, CAP & PLUG RMVL	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-LYM [I]	286761-A	2
5	DECAL, HOT PARTS	264372	1	11	DECAL, CMPRSR OIL DRAIN	275054	1
6	DECAL, AIR HOSE	261885	1				
7	DECAL, READ MANUAL	272424	1				

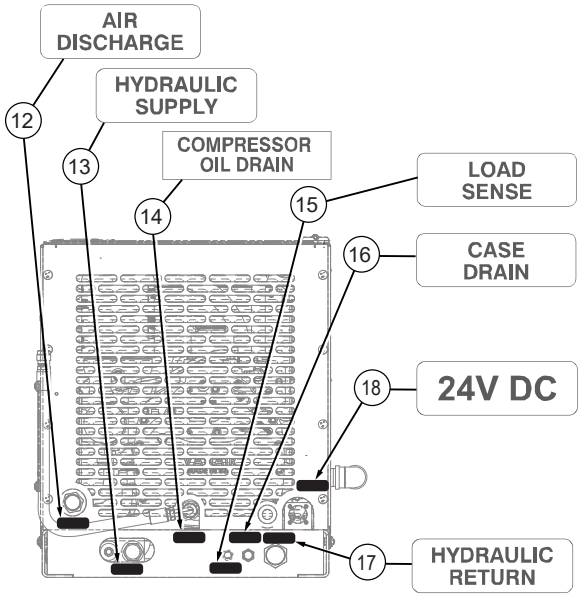
[I] This decal is included with Reliant RS85-LYM (logo set) decal sheet **no. 286760**

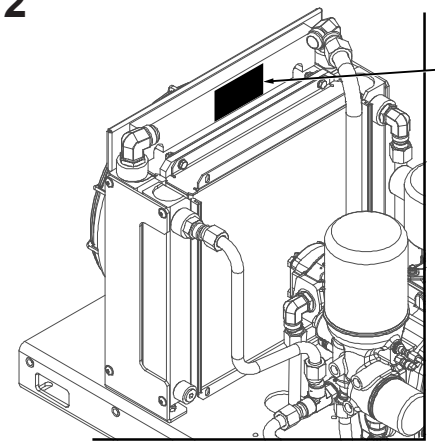
NOTE: All decals on this page included with decal assembly sheet **no. 264416**, unless noted in [I].

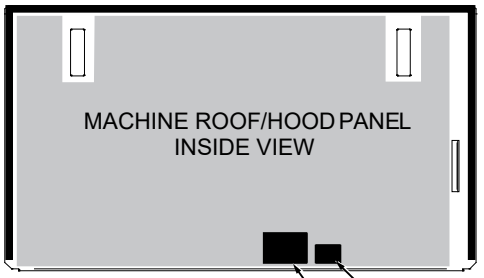
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER

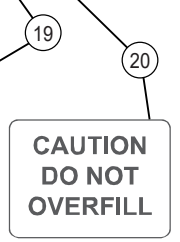


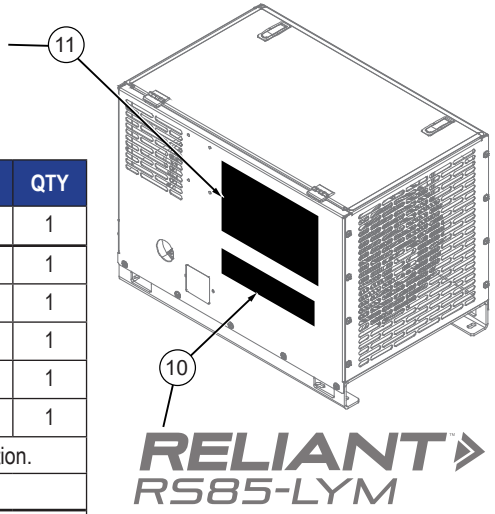
7.10 DECAL LOCATIONS - 2 OF 2











ITEM	DESCRIPTION	PART NUMBER	QTY
10	DECAL, RELIANT RS85-LYM	286761-A [I]	2
11	DECAL, VANAIR STACKED	275057-C [I]	
12	DECAL, AIR DISCHARGE	275973 [II]	1
13	DECAL, HYD SUPPLY	275971 [II]	1
14	DECAL, COMPR OIL DRAIN	275054 [II]	1
15	DECAL, LOAD SENSE [III]	269642 [II]	1

ITEM	DESCRIPTION	PART NUMBER	QTY
16	DECAL, CASE DRAIN	276941 [II]	1
17	DECAL, HYD RETURN	275972 [II]	1
18	DECAL, 24V DC	275975 [II]	1
19	DECAL, VANGUARD COMPRESSOR OIL	272501 [II]	1
20	DECAL, CAUTION, DO NOT OVERFILL	275981 [II]	1
21	DECAL, FAN GUARD	2643 83 [II]	1

NOTE: Voltage decal will be 24V, for this machine build configuration.

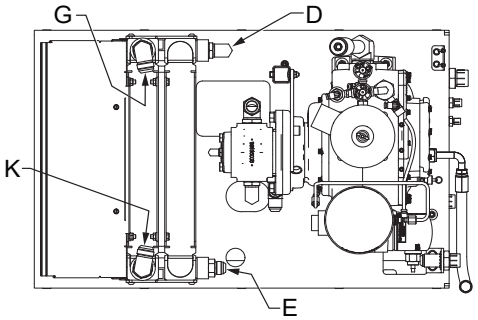
[III] This decal is only used on closed center machine build configuration.

[II] This decal is included with decal assembly sheet **no. 264416**.

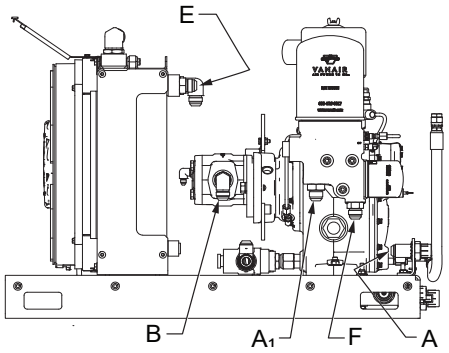
[I] This decal included with RS85-LYM decal sheet no. **286760**

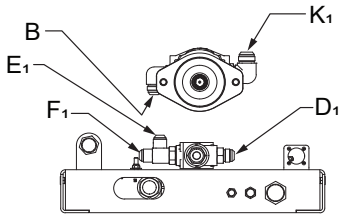
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

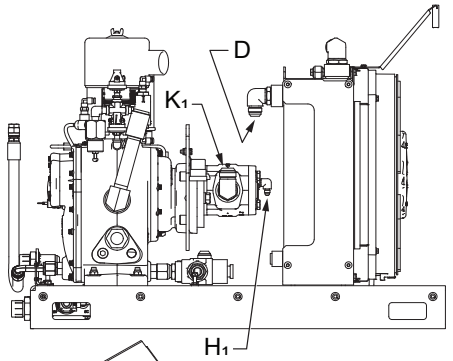
7.11 HOSE AND TUBE ROUTING - RS85-LYM OPEN CTR LED DISPLAY ANALOG GAUGES

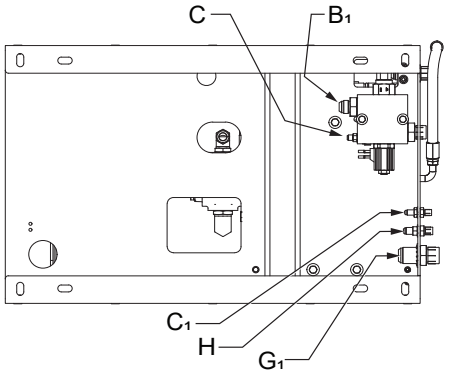


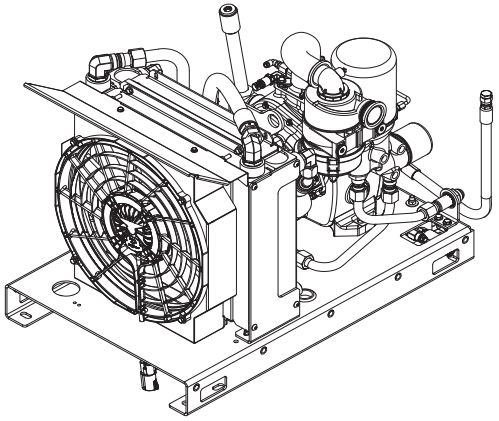
HOSE AND TUBE ROUTING INSTRUCTIONS					
ITEM	PART NUMBER	DESCRIPTION	QTY	START	EN
1	278829	TUBE,CMPR TO SVC AIR OUTLET 3/4 IN RS85 LW	1	A	A_1
2	278832	TUBE,HYD CLSD CTR MNFD TO MOTOR 3/4 IN RS85 LW	1	B	B_1
3	279093	TUBE,HYD MNFLD TO LOADSENSE 1/4 IN RS85 LW	1	C	C_1
4	279161	TUBE,CMPR THRML VLV TO COOLER 3/4 IN RS85 LW	1	D	D_1
5	279162	TUBE,CMPR COOLER OUT TO THRML VLV 3/4 IN RS85 LW	1	E	E_1
6	279163	TUBE,CMPR THRML VLV TO FILTER 3/4 IN RS85 LW	1	F	F_1
7	279165	TUBE,HYDR COOLER TO RTN BULKHEAD 1 IN RS85 LW	1	G	G_1
8	279092	HOSE,HYDRAULIC MOTOR CASE DRAIN 1/4 IN RS85 LW	1	H	H_1
9	279164	HOSE,HYDR MTR OUT TO COOLER 1 IN RS85 LW	1	K	K_1

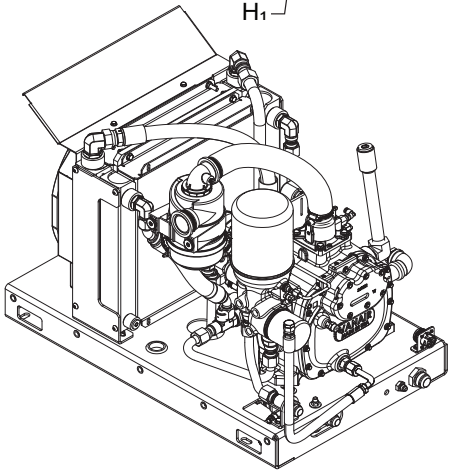






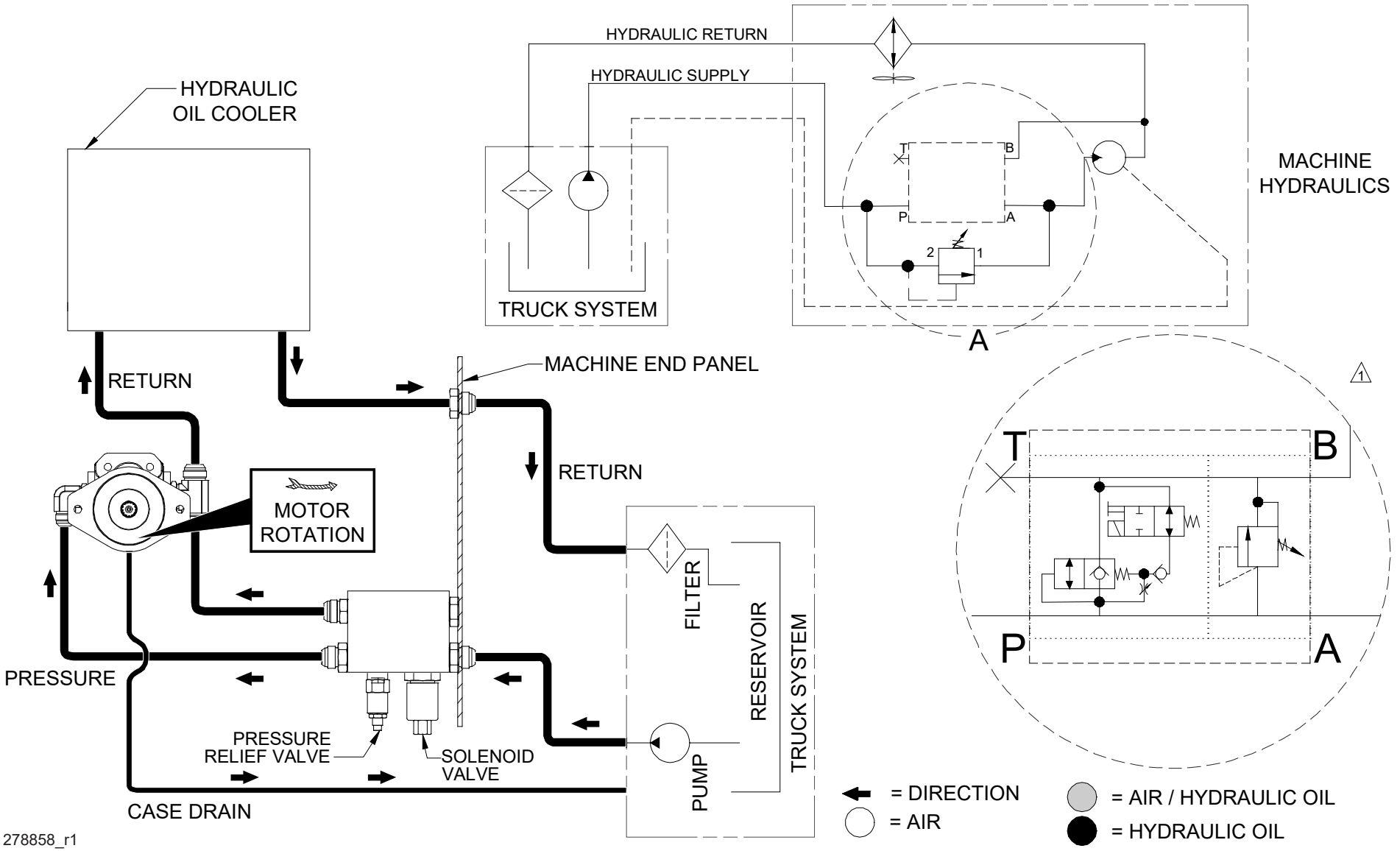






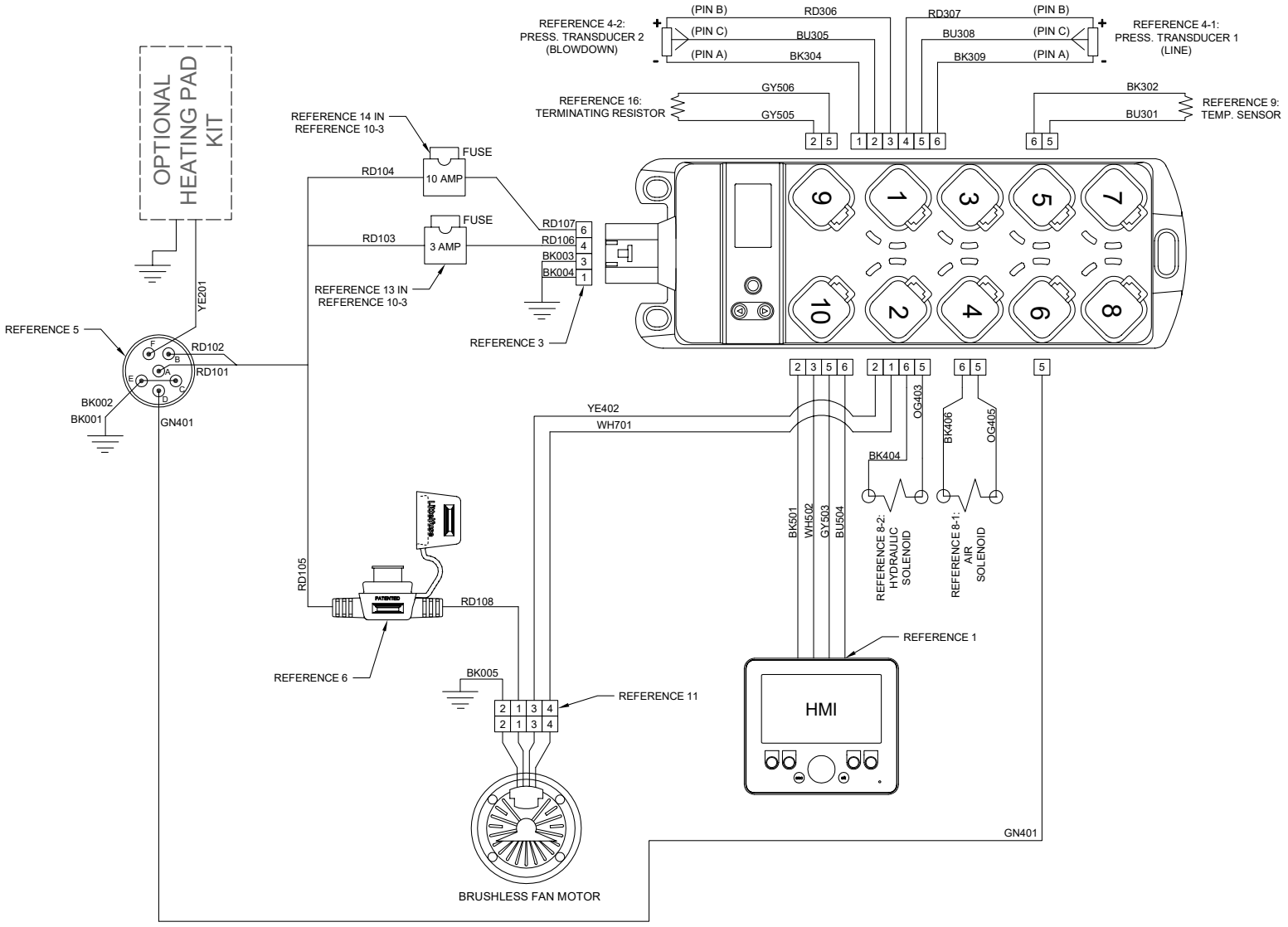
6130201ID_r2 (p2)

7.12 SCHEMATIC - HYDRAULIC FLOW, OPEN CENTER WITH CASE DRAIN



278858_r1

7.13 WIRING DIAGRAM - RS85-LYM



279221_r0
Harness Reference: 279220_r2

7.14 HOSE INSTALLATION GUIDE

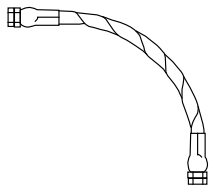
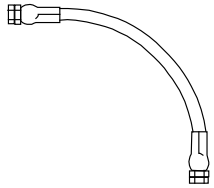
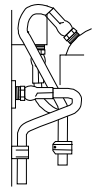
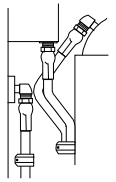
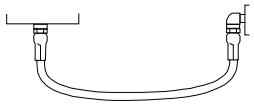
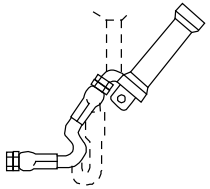
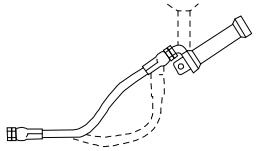
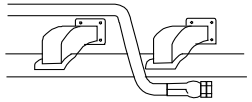
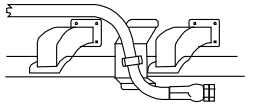
HOSE LAYOUT CONSIDERATION	WRONG	RIGHT	HOSE LAYOUT CONSIDERATION	WRONG	RIGHT
1. Hose is weakened when installed in twisted position. Pressure in twisted hose tends to loosen fitting connections. Design so that machine motion produces bending rather than twisting.			4. Use elbows or other adapters as necessary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

TABLE 7B: MAINTENANCE TRACKING LOG

DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED

TABLE 7B: MAINTENANCE TRACKING LOG

DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED

TABLE 7B: MAINTENANCE TRACKING LOG

DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED

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