



VANAIR®
A Lincoln Electric Company

DR 600XP™ ➤
DRILL MODULES

DR 770™ ➤
DRILL MODULES

**600 CFM (250 PSIG) // 770 CFM (150 PSIG) •
1800 RPM • 2100 RPM**

OPERATION MANUAL AND PARTS LIST

NOTE

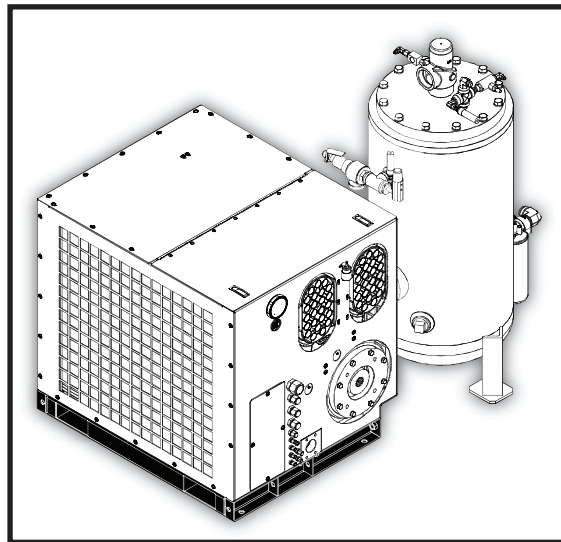
This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy.

Vanair®, a Lincoln Electric Company, reserves the right to make design change modifications or improvements without prior notification.

NOTE

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

**KEEP THE MANUAL
WITH THE VEHICLE
OR EQUIPMENT**



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▲ IMPORTANT



Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual can result in personal injury, and can void the equipment warranty.

NOTE

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

Always inform Vanair® before beginning any changes to the modular drill system.

P/N: 090083-OP_r1

Effective Date:

JUNE 1, 2026

DEV

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DRILL MODULES

SINGLE STAGE

2-STAGE



VANAIR® VANTAGE WARRANTY

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

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

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

For warranty claims received by Vanair® within the applicable warranty periods described below, Vanair® will repair or replace any warranted equipment, parts or components that fail due to defects in material or workmanship or refund the purchase price for the equipment, at Vanair's discretion. **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. 2 Years Warranty Parts
 - Rotary Screw Air Compressor Air End
2. 1 Year Parts – 1 Year Labor
 - All electronics and controls including, but not limited to:
 - I) Modules
 - II) Panel Boxes
 - III) Instrumentation
 - IV) Solenoids
 - V) Sensors
 - VI) Switches
 - Compressor/Hydraulic Coolers, including Fan and Radiator Core Sensors
 - Separator Element

This Limited Warranty shall not apply to:

1. Consumable components, such as shaft seals, filters, capacitors, contactors, relays, brushes or parts that fail due to normal wear and use.

Items furnished by Vanair®, but manufactured by others, such as engines and trade accessories.
2. 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 maintained 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 1st 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 for 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 forth above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

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EFFECTIVE: SEPTEMBER 9, 2022



VANAIR®
A Lincoln Electric Company

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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.

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 inside the machine compartment on the frame (see **Figure W-1**).

The compressor also has an individual serial number respectively (see **Figure W-1**). For particular compressor unit issues, the compressor serial number may be needed. In any case, compressor issues can be confirmed using the machine serial number as found in **Figure W-1**.

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

Note that the above information will also need to be included on the Return Material Authorization Form (per Step #6); this form is necessary for warranty processing if the warranty claim is deemed valid by the service case review.

3. Contact the Vanair® Service Department by phone (1-219-879-5100) to speak with a Service Technician.
4. Vanair® Service will troubleshoot the problem based on the information provided by the

customer, and attempt to return the unit to service as quickly as possible.

5. If the unit cannot be returned to service, and Vanair® determines this matter is a warranty issue, the Service Technician will assign an RMA (Return Material Authorization) number that will provide for the return of the item to Vanair® for analysis and a final determination as to the item's warranty status.

NOTE

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

6. Warranty Claims are solicited via a Service Case Form. This form can be obtained via download from the web site, or requested directly from the Vanair® Service Department:

Once a current form has been obtained, follow the instructions given on the form to fill in the information needed. This form is used for the purpose of soliciting a warranty case. All of the field information except for the bottom section block fields, which include *Disposition of Goods*, *Notifications* and *Additional Notes*, will be required.

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

NOTE

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.

Before sending a warranty part to a customer, Vanair® will need a P.O. or credit card number to

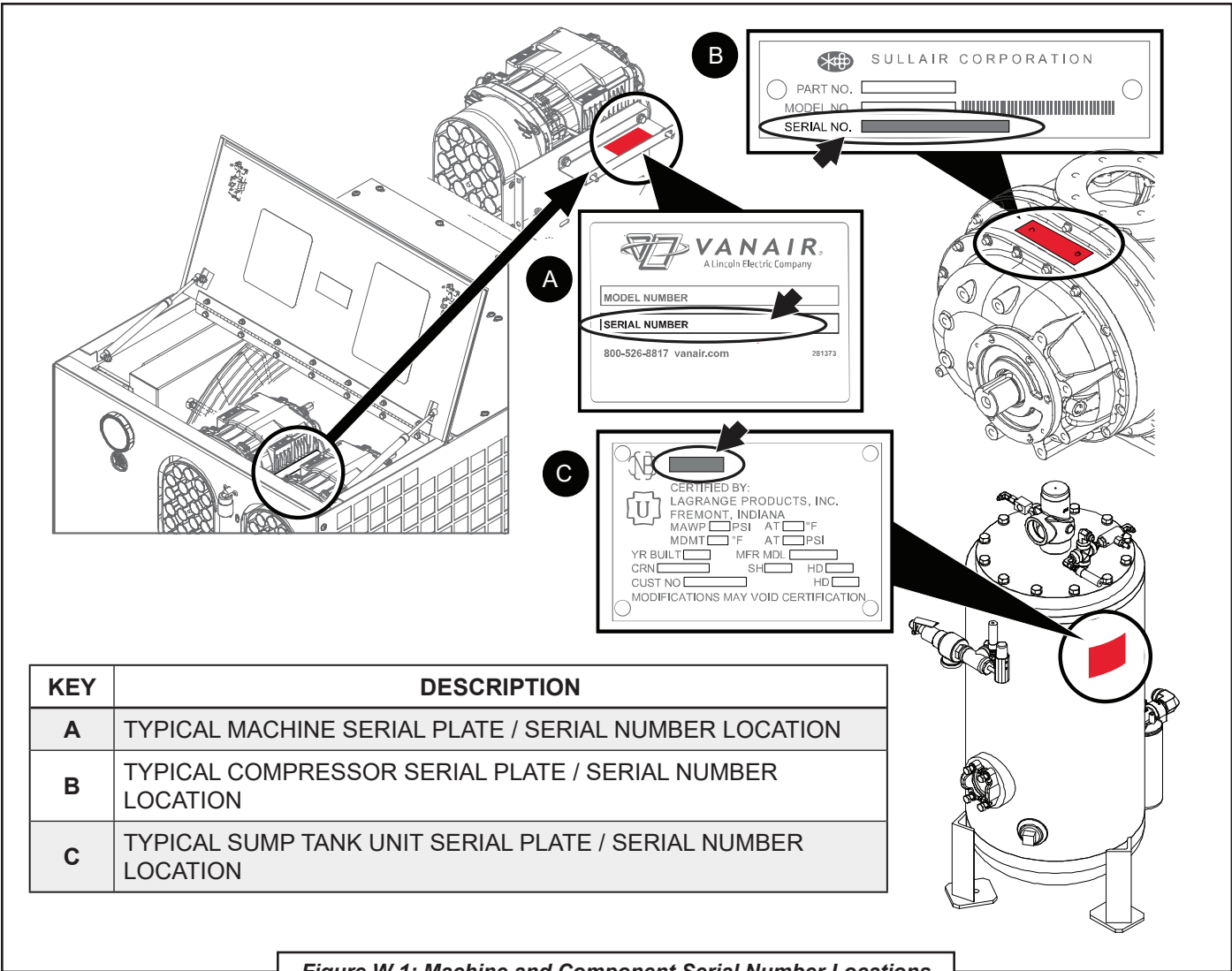


Figure W-1: Machine and Component Serial Number Locations

cover the cost of the part and shipping. After the part is analyzed and deemed to be covered under warranty, Vanair® will issue credit to the customer.

All parts eligible for warranty must have the RMA number on the invoice at the time of purchase.

No items can be returned “freight collect”. Freight costs will be addressed at the time the claim is closed. The customer pays any additional costs for warranty parts delivered through expedited services (i.e., Next Day, Second Day).

VANAIR® WILL NEVER ACCEPT ANY INVOICES FOR PARTS RETURNED: ANY PARTS RETURNED VIA INVOICE WILL BE RETURNED FREIGHT COLLECT: NO PARTS

ARE TO BE RETURNED FREIGHT COLLECT!

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

**Service Toll Free: 1-844-VAN-SERV
1-844-826-7378**

Service Direct: 1-219-879-5100, ext. 400

E-mail: service@vanair.com

SECTION 1: ! SAFETY

1.1 ! GENERAL INFORMATION

Vanair® Drill module compressors are normally utilized as a component part of a system or compressor manufactured by others. It is not possible for Vanair® to foresee all of the various types of applications that our compressors might be utilized in. For this reason, these guidelines cannot be complete, nor can they apply to every installation. However, many apply to most installations. It is important that users become familiar with, and comply with, all of the instructions and precautions of the manufacturer of the completed system or compressor, in order to supplement the guidelines presented here.

Vanair®, a Lincoln Electric Company, designs and manufactures all of its products so they can be operated safely. However, the responsibility for safe operation rests with those who install, use and maintain these products. The following safety precautions are offered as a guide which, if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment.

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



! IMPORTANT	
	It is mandatory that all operators read this manual before operating or servicing the Cap-Start® system. Failure to do so could result in death, bodily injury or damage to equipment.

! DANGER	
	DO NOT OPERATE IN AN ENCLOSED SPACE. Running any combustion engine in an enclosed space will result in Carbon Monoxide (CO) poisoning and may cause overheating, which may result in fire and/or explosion. CO build-up can cause death!
	Overheating can ignite surrounding materials resulting in fire and/or explosion which may cause injury, death and equipment damage.

IMPORTANT
An enclosed space refers to any area partially or fully enclosed by walls, a roof, or other boundaries. These spaces can limit natural ventilation, restrict airflow, trap hazardous gases, and increase the risk of heat build-up, fire, or explosion. It is the responsibility of the installation party to determine and mount Vanair® engine-driven equipment in a way that ensures proper airflow and ventilation for safe operation. Failure to provide proper ventilation and clearances may result in hazardous conditions. Vanair® assumes no responsibility or liability for installations it did not perform.

1.2 ! DANGERS, WARNINGS, CAUTIONS, AND NOTES

! DANGER
Identifies actions or conditions which, if not avoided, will cause death or severe bodily injury.

⚠ WARNING

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

⚠ CAUTION

Identifies actions or conditions which, if not avoided, could cause minor or moderate bodily injury.

IMPORTANT

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

NOTE

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

The air compressor should be operated only by those who have been trained and delegated to do so, and who have read and understand this Operator's Manual. Failure to follow the instructions, procedures and safety precautions in this manual can result in accidents and injuries.

NEVER start the air compressor unless it is safe to do so. **DO NOT** attempt to operate the air compressor with a known unsafe condition. Tag the air compressor and its prime movers starting controls so others who may not know of the unsafe condition will not attempt to operate it until the condition is corrected.

Install, use and operate the air compressor only in full compliance with all pertinent OSHA requirements and/or all pertinent Federal, State, and Local codes or requirements, and with Vanair® instructions.

Inspect for torn, frayed, blistered, or otherwise deteriorated and degraded hoses. Replace as required.

NOTE

Estimated hose life based on a 5-day, 8-hour work week is three years. These conditions exist on an 8-hour shift only. Any other operation of the equipment other than 8-hour shifts would derate the hose life based on hours of operation.

DO NOT modify the compressor except with written factory approval.

1.3 ⚠ PRESSURE RELEASE

- A. Pop pressure relief valve at least weekly to make sure it is not blocked, closed, obstructed or otherwise disabled.
- B. Install an appropriate flow-limiting valve between the compressor service air outlet and the shutoff (throttle) valve, when an air hose exceeding 1/2" (13mm) inside diameter is to be connected to shut-off (throttle) valve, to reduce pressure in case of hose failure, per OSHA Standard 20 CFR 1926.302 (as) (7).
- C. A maximum pressure of 300 PSIG (20.68 BAR) may occur at the service air connection of certain compressors. Select tools, air hoses, pipes, valves, filters, and other fittings accordingly. **DO NOT** exceed manufacturer's rated safe operating pressures for these items.
- D. Open fluid filler cap only when compressor is not running and is not pressurized. Shut down the compressor and bleed the sump (receiver) to zero internal pressure before removing the cap.
- E. Vent all internal pressure prior to opening any line, fitting, hose, valve, drain plug, connection or other component, and before attempting to refill airline anti-icer systems with antifreeze compound.
- F. Keep personnel out of line with and away from the discharge opening of hoses or tools or other points of compressed air discharge.
- G. **DO NOT** use air at pressures higher than 30 PSIG (2.1 BAR) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b) or any

applicable Federal, State and Local codes, standards and regulations.

- H. **DO NOT** engage in horseplay with air hoses as death or serious injury may result.

1.4 FIRE AND EXPLOSION

- A. **DO NOT** permit liquids, including air line anti-icer system antifreeze compound or fluid film to accumulate on bottom covers or on, under or around acoustical material, or on any external or internal surfaces of enclosures. Wipe down using an aqueous industrial cleaner or steam clean as required. If necessary remove acoustical material, clean all surfaces and then replace acoustical material. Any acoustical material with a protective covering that has been torn or punctured should be replaced immediately to prevent accumulation of liquids or fluid film within the material. **DO NOT** use flammable solvents for cleaning purposes.
- B. Keep a suitable fully charged class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the compressor.
- C. Keep oily rags, trash, leaves, litter or other combustibles out of and away from the compressor or any associated enclosures.

1.5 MOVING PARTS

- A. Keep hands, arms and other parts of the body and also clothing away from belts, pulleys and other moving parts.
- B. **DO NOT** attempt to operate the compressor with the fan or other guards removed.
- C. Wear snug-fitting clothing and confine long hair when working around this compressor, especially when exposed to hot or moving parts inside the enclosure.
- D. Keep access doors closed except when making repairs or adjustments, or servicing equipment.
- E. Make sure all personnel are out of and clear of the compressor prior to attempting to start or operate it.

- F. Make adjustments only when the prime mover is shut off. When necessary, make adjustment, then start prime mover to check adjustment. If adjustment is incorrect, shut off prime mover, readjust, then restart prime mover to recheck adjustment.

1.6 HOT SURFACES, SHARP EDGES AND SHARP CORNERS

- A. Avoid bodily contact with hot fluid, hot coolant, hot surfaces and sharp edges and corners.
- B. Keep all parts of the body away from all points of air discharge and away from hot exhaust gases.
- C. Wear personal protective equipment including gloves and head covering when working in, on or around the compressor.
- D. Keep a first aid kit handy. Seek medical assistance promptly in case of injury. **DO NOT** ignore small cuts and burns as they may lead to infection.

1.7 TOXIC AND IRRITATING SUBSTANCES

- A. **DO NOT** use air from this compressor for respiration (breathing) except in full compliance with OSHA Standards 29 CFR 1920 and/or any other Federal, State or Local codes or regulations.

DANGER

Death or serious injury can occur from inhaling compressed air without using proper safety equipment. See OSHA standards and/or any Federal, State or Local codes or regulations on safety equipment.

- B. **DO NOT** use air line anti-icer systems in air lines supplying respirators or other breathing air utilization equipment and **DO NOT** discharge air from these systems into unventilated or other confined areas.

1.8 ELECTRICAL SHOCK

- A. Keep all parts of the body and any hand-held tools or other conductive objects away

from exposed live parts of electrical system. Maintain dry footing, stand on insulating surfaces and **DO NOT** contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system.

- B. Attempt repairs only in clean, dry and well lighted and ventilated areas.

1.9 LIFTING

- A. Lift only in full compliance with OSHA Standards 29 CFR 1910, or any applicable Federal, State and Local codes, standards and regulations.
- B. Inspect lifting equipment and points of attachment for cracked welds and for cracked, bent, corroded or otherwise degraded members and for loose screws or nuts prior to lifting.
- C. Make sure entire lifting, rigging and supporting structure has been inspected, is in good condition and has a rated capacity of at least equal to the gross weight of the load to be lifted.
- D. Make sure lifting hook has a functional safety latch or equivalent, and is fully engaged and latched.
- E. Use guide ropes or equivalent to prevent twisting or swinging.
- F. **DO NOT** attempt to lift in high winds.
- G. Keep all personnel out from under, and away from the compressor whenever it is suspended.
- H. Lift compressor no higher than necessary.
- I. Keep lift operator in constant attendance whenever compressor is suspended.
- J. Set compressor down only on level surfaces capable of supporting its gross weight.

1.10 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 7.15, Decals - Location & Identification**, 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.

1.11 UPFITTERS' OBLIGATIONS

Any modifications or additions made to a vehicle by an upfitter must adhere to all applicable Federal Motor Vehicle Safety Standards (FMVSS), and applicable state regulations to assure the altered vehicle remains safe and meets the same safety requirements as a standard manufactured vehicle.

If unsure about the compliance requirements for specific modifications, vehicle upfitters should consult with the National Highway Traffic Safety Administration (NHTSA) to understand their obligations. www.NHTSA.gov or 1-888-327-4236.

When mounting Vanair® engine-driven equipment the following guidelines must be followed to ensure safe operation and ventilation:

1. Provide Adequate Ventilation:

- Ensure sufficient airflow openings for intake and exhaust to prevent CO build-up and overheating.
- Use louvers, vents, or fans to facilitate proper air exchange.

2. Exhaust Management:

- Route engine exhaust outside of the service body and away from any enclosed areas, vehicle occupants, or flammable materials.
- Use properly rated exhaust piping and ensure there are no leaks.
- Use properly rated heat shields and heat wrap.

3. Temperature Control:

- Install heat shields or insulation where necessary to reduce heat transfer to nearby materials.
- Avoid placing flammable items near

equipment that generates heat.

4. CO Detection:

- Install carbon monoxide detectors in areas where equipment is mounted to provide early warnings of hazardous gas build-up.

5. Regular Inspection:

- Frequently inspect the mounting area for adequate ventilation, proper exhaust routing, and any signs of heat damage or gas leaks.

It is the responsibility of the installation party to determine and mount Vanair® engine-driven equipment in a manner that ensures adequate airflow and ventilation for safe operation. Failure to provide proper ventilation may result in hazardous conditions.

 DANGER	
	DO NOT OPERATE IN AN ENCLOSED SPACE. Running any combustion engine in an enclosed space will result in Carbon Monoxide (CO) poisoning and may cause overheating, which may result in fire and/or explosion. CO build-up can cause death!
	Overheating can ignite surrounding materials resulting in fire and/or explosion which may cause injury, death and equipment damage.

IMPORTANT
An enclosed space refers to any area partially or fully enclosed by walls, a roof, or other boundaries.
These spaces can limit natural ventilation, restrict airflow, trap hazardous gases, and increase the risk of heat build-up, fire, or explosion.
It is the responsibility of the installation party to determine and mount Vanair® engine-driven equipment in a way that ensures proper airflow and ventilation for safe operation. Failure to provide proper ventilation and clearances may result in hazardous conditions.
Vanair® assumes no responsibility or liability for installations it did not perform.

1.12 CALIFORNIA PROPOSITION 65 WARNINGS

 WARNING
Discharge from this machine may cause cancer and/or reproductive harm.

Proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects or other reproductive harm. Exposure to these chemicals may take place when products are acquired or used. Exposure may also occur in homes, workplaces, or other environments in California. By requiring that this information be provided, Proposition 65 enables Californians to make informed decisions about their exposures to these chemicals.

Proposition 65 also prohibits California businesses from knowingly discharging significant amounts of listed chemicals into sources of drinking water.

1.13 DISPOSING OF MACHINE FLUIDS

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

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

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SECTION 2: SPECIFICATIONS

TABLE 2A: DRILL PACKAGE DIMENSIONS

Models 600/250 770/150	MODULE PACKAGE ONLY							
	Length		Width		Height [±]		Weight (dry)	
	in	mm	in	mm	in	mm	lb	kg
	45.38 ± 0.25	1152 ± 6.35	38	965	42 [±]	1066 [±]	1680	762
	SEPARATOR TANK ASSEMBLY							
	Length		Diameter		Height ^{±±}		Weight (dry)	
	in	mm	in	mm	in	mm	lb	kg
	—	—	18	45.7	48.45 ^{±±}	1231 ^{±±}	335	152

[±] Maximum height of module unit with access hood open is 61 inches (1549 mm); this is the minimum clearance allowed to access the inside of the module for maintenance.

^{±±} Full tank assembly height includes lid and high point on lid assembly (top of minimum pressure valve): 48.45 in. (1231 mm). Maximum vertical space need for tank maintenance (separator element clearance) is 53.45 inches (1358 mm).

NOTE: For additional dimension measurements consult **Section 7.13A, Installation Diagram - Module**, and **Section 7.13B, Installation Diagram - Receiver Tank**.

TABLE 2B: POWER REQUIREMENTS (EXCLUDES FAN)

PSIG	BHP (DR 600) [±]	BHP (DR 770) [±]	MAXIMUM TORQUE REQUIRED
BHP Required at 100 PSIG (6.9 bar):	148	185	370 ft.-lb.
BHP Required at 150 PSIG (10.3 bar):	174	217	435 ft.-lb.
BHP Required at 200 PSIG (12.1 bar):	200	—	500 ft.-lb.
BHP Required at 250 PSIG (17.2 bar):	230	—	600 ft.-lb.

[±] The values in this column **do not** include the power for the hydraulic fan. The fan requires 7.1 HP, with a flow of 13.5 GPM @ 1200 PSI.

NOTE: Vanair® recommends 1200 minimum RPM for start-up, warm-up and idle modes. Maximum RPM is shown on the compressor serial nameplate of the drill compressor package.

TABLE 2C: COMPRESSOR SPECIFICATIONS

	600/250	770/150
Type:	Rotary Screw Maximum	Rotary Screw Maximum
Maximum Operating Pressure:	250 PSIG (17.2 BAR)	150 PSIG (10.3 BAR)
Deliver CFM:	607 at 250 PSIG (17.2 BAR)	780 at 150 PSIG (10.3 BAR)
Bearing Type:	Anti-friction	
Cooling:	Pressurized Fluid	
Lubricant:	Vanguard™ Premium Rotary Screw Compressor Oil	
Sump Capacity (Approximation for Operation):	8 Gallons (30.3 liters) [±]	
System Capacity (Approximation for Operation):	10 Gallons (37.9 liters) [±]	

[±] **DO NOT** overfill the tank or system. Determine correct level via the sight glass on the tank, with the machine shut down, on a level surface, and the oil allowed to settle. After a full oil change, run the machine to circulate the oil in the system, and check again to confirm a satisfactory level. Refer to **Section 5, Maintenance**, for service procedure and information on oil and filters/filtration

TABLE 2D: HYDRAULIC FAN SPECIFICATIONS

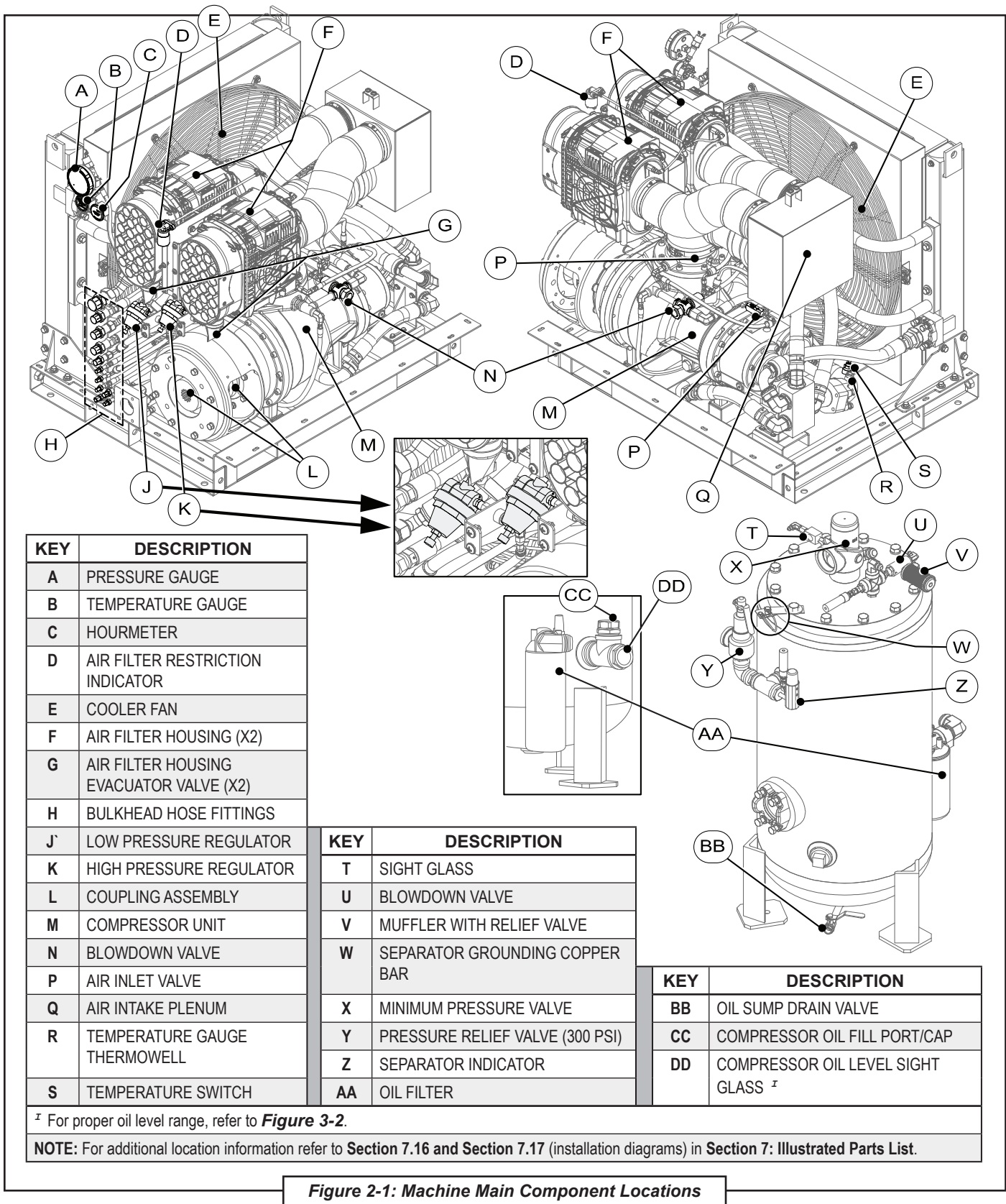
HYDRAULIC FAN:	RPM	GPM @ 1200 PSI (7.1 HP)
	2000	13.5

TABLE 2E: MAXIMUM TORQUE

	DR 600	DR 770
MAX PRESSURE	250 PSI	150 PSI
HP @ 2100 RPM	230 HP	222 HP
TOQUE @ 2100 RPM	575 ft-lb	555 ft-lb
HP @ 1800 RPM	241 HP	220 HP
TORQUE @ 1800 RPM	703 ft-lb	642 ft-lb

TABLE 2F: BOLT AND TORQUE SPECIFICATIONS

TYPE DESCRIPTION:		3 line 	SAE 5 ID marks	6 line 	SAE 8 ID marks	SOCKET HEAD CAP SCREW Allen Head (ID)	
MATERIALS:		Medium - carbon, tempered		Medium - carbon, quenched & tempered		High-carbon, quenched & tempered	
TENSILE STRENGTH (minimum):		120,000 PSI		150,000 PSI		160,000 PSI	
Bolt Diameter	Thread / inch	TORQUE VALUES (ft-lbs)					
		Dry	Oiled	Dry	Oiled	Dry	Oiled
1/4	20	8	6	12	9	14	11
1/4	28	10	17	14	10	16	13
5/16	18	17	13	25	18	29	23
5/16	24	19	14	29	20	33	26
3/8	16	30	23	45	35	49	39
3/8	24	35	25	50	40	54	44
7/16	14	50	35	70	55	76	61
7/16	20	55	40	80	60	85	68
1/2	13	75	55	110	80	113	90
1/2	20	90	65	120	90	126	100
9/16	12	110	80	150	110	163	130
9/16	18	120	90	170	130	181	144
5/8	11	150	110	220	170	230	184
3/4	10	260	200	380	280	400	320
3/4	16	300	220	420	320	440	350
7/8	9	430	320	600	460	640	510
7/8	14	470	360	660	500	700	560
1	8	640	480	900	680	980	780
1	12	710	530	990	740	1060	845



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SECTION 3: INSTALLATION

3.1 GENERAL INFORMATION

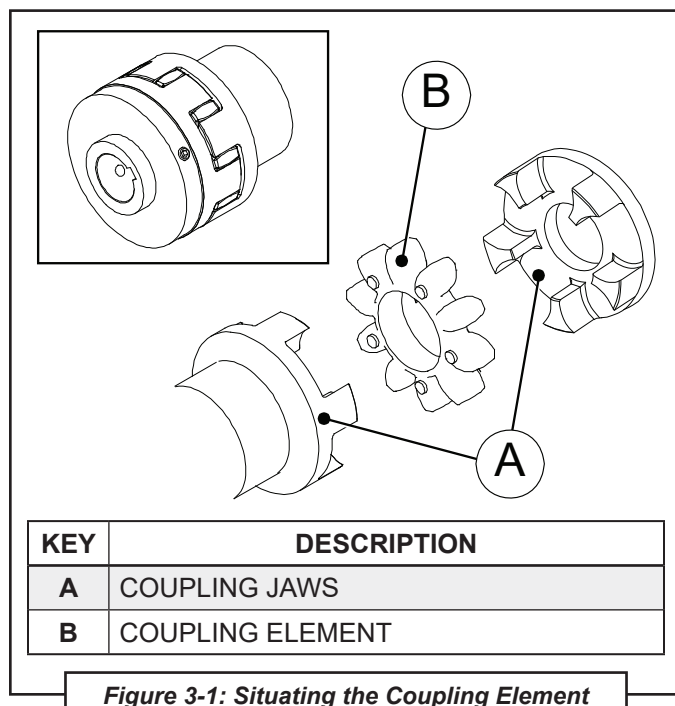
NOTE

The following information is provided for proper installation.

3.2 LOCATION OF COMPONENTS

The first step in compressor installation is to locate the receiver/sump and compressor package on the mounting surface. It is recommended that the compressor package be mounted on a surface either at the same level or a level higher than that of the receiver/sump. It is not appropriate to mount the compressor package at a lower level than that of the sump, as the sump fluid can drain back into the compressor unit.

However, in a case where this cannot be avoided, please consult the factory. The mounting surface must be level and sufficiently stable so as to support the weight of the components.



3.3 ALIGNMENT AND COUPLING

Refer to **Figure 3-1** for coupling element set up. After locating the compressor package, align the flange with the power source and bolt down. Alignment specifications are supplied with your coupling shaft. Other coupling methods may be used. Consult factory for recommendations and/or approval.

3.4 RECEIVER/SUMP CONNECTIONS

After bolting the compressor package and receiver/sump in place, connect the compressor discharge line to the compressor. It is generally preferred that stainless steel flexhose, or rigid piping with a flexible pipe coupling, be used.

IMPORTANT

All piping and hoses must be rated for minimum 275 PSIG; that is, 25 PSIG above module pressure rating.

Be sure the discharge pipe is adequately restrained on both sides of the flexible coupling, if a flex coupling is used.

Safety chains or straps should be installed across the flexible couplings attaching to the pipe on both sides. The flexible coupling cannot be expected to restrain pipe movement along the axis of the pipe. A hose may be used where rigid pipe is not suitable. The compressor return fluid supply is to be pipe or hose.

After connecting the discharge line, connect the compressor fluid return line and control system pressure lines. These lines must be connected with hoses.

When checking fluid level, the compressor must be shutdown and preferably "cold" (has not been run in a couple of hours or so).

3.5 FLUID LEVEL

Refer to **Figure 3-2**. After making all necessary connections, fluid must be added to the receiver/

sump tank. Add sufficient fluid to bring the fluid level to the center of the fluid sight glass.

The fluid level sight glass is located on the side of the horizontal section of the receiver/sump. **DO NOT OVERFILL.**

NOTE

Before initial start, the compressor unit needs to be primed via the air intake. Refer to Section 4.2, Initial Start-Up, for procedure on priming the compressor unit.

3.6 COMPRESSOR ROTATION DIRECTION CHECK

Before running the compressor, it is necessary to check the direction of rotation of the compressor unit. A direction of rotation arrow has been applied to the compressor package above the flange. The shaft should be rotating in the direction that the arrow is pointing.

⚠ WARNING

Check the direction of rotation by quickly starting and stopping the compressor. **DO NOT** run the compressor unit in a reverse rotation. Operation in reverse will result in extensive compressor unit damage.

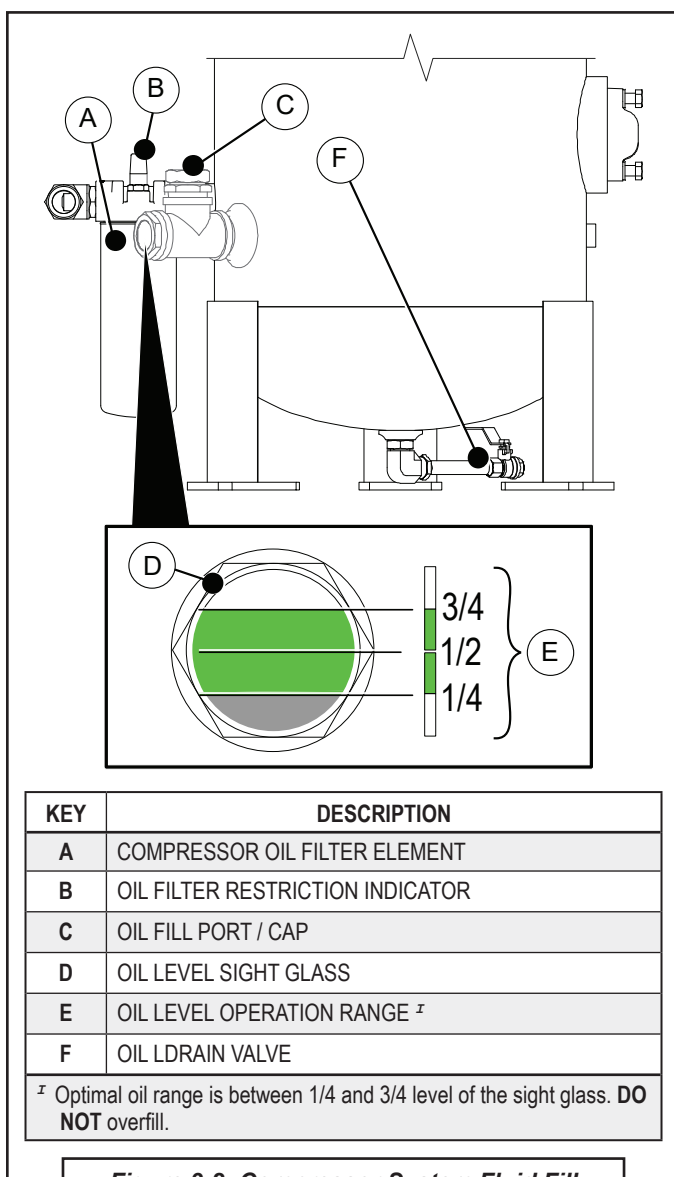


Figure 3-2: Compressor System Fluid Fill

SECTION 4: OPERATION

4.1 GENERAL INFORMATION

While Vanair® has built into this compressor a comprehensive array of controls and indicators to assure you that it is operating properly, you will want to recognize and interpret the reading which will call for service or indicate the beginning of a malfunction. Before starting your Vanair® compressor, read this section thoroughly and familiarize yourself with the controls and indicators - their purpose, location and use.

4.2 INITIAL START-UP PROCEDURE

The following procedure should be used to make the initial start-up of your compressor:

1. Read the preceding pages of the manual thoroughly.
2. Be sure that all preparations and checks described in the Installation section have been made.
3. Refer to **Figure 4-1**. Loosen the clamp securing the hose hump to the inlet valve, and pull the hump from the inlet in order to directly access the inlet valve.
4. Depress the inlet piston and pour approximately one half gallon of Vanguard™ Premium Rotary Screw Compressor Oil into the inlet to prime the unit.
5. Reattach the air inlet hose hump to the inlet valve, and re-secure into place with hose clamp.
6. Crack open the service valve to the service line.

TABLE 4A: PURPOSE OF CONTROLS

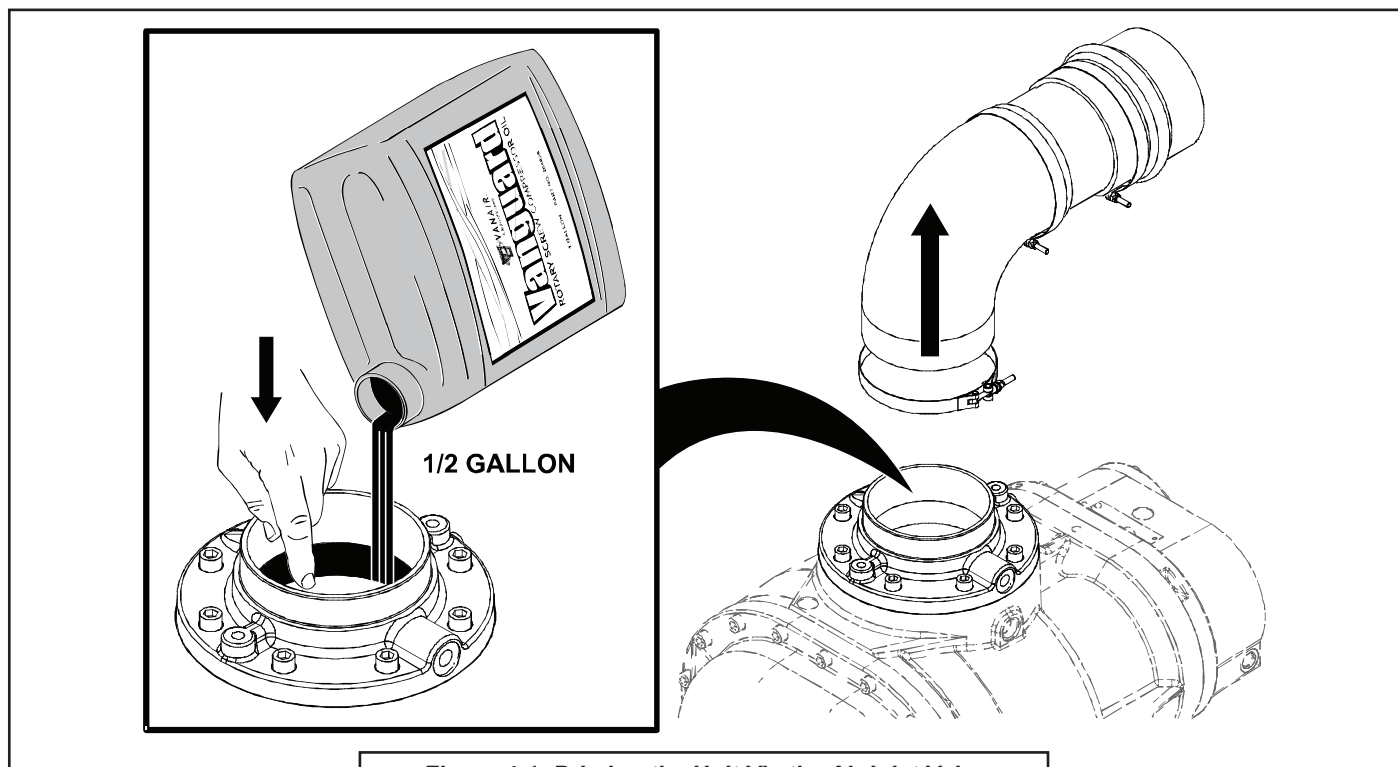
CONTROL OR INDICATOR	PURPOSE
AIR RECEIVER/SUMP PRESSURE GAUGE	Continually monitors receiver/sump pressure at various load and/or unloaded conditions.
COMPRESSOR DISCHARGE TEMPERATURE GAUGE	Monitors temperature of air/fluid leaving the compressor unit. For both air and water cooled compressors, normal reading is approximately 100°F (38°C) over ambient temperature.
SEPARATOR MAINTENANCE INDICATOR	Indicates when separator element change is required. A red signal is indicated when pressure drop through the separator is excessive.
FLUID LEVEL SIGHT GLASS	Monitors fluid level in the receiver/sump. The sight glass is located on the side of the receiver/sump tank. The proper fluid level is halfway of sight glass. Check fluid level when unit is shutdown. DO NOT OVERFILL.
MAIN OIL FILTER RESTRICTION INDICATOR	Indicates required servicing of main fluid filter. Indicator will read in the red zone when pressure drop through filter is excessive.
SEPARATOR FLUID RETURN LINE SIGHT GLASS	Used to indicate flow of fluid going back to the compressor unit from the fluid pick-up in the receiver/sump tank when the compressor is running at full load. Fluid flow should be visible in this sight glass. There may be little or no flow when the compressor is running unloaded. A sluggish flow at full load indicates a need to clean the fluid return line strainer and/or orifice.
THERMAL VALVE	Regulates flow of fluid to and around the cooler. Used for fast warm-up on start-up.
MINIMUM PRESSURE VALVE	Maintains minimum of 50 PSI (3.5 bar) in compressor receiver/sump. Restricts air discharge from receiver/sump when pressure falls below 50 PSI (3.5 bar).

Continued on next page

TABLE 4A: PURPOSE OF CONTROLS

CONTROL OR INDICATOR	PURPOSE
PRESSURE RELIEF VALVE	Opens receiver/sump pressure to the atmosphere should pressure inside the sump become too high.
PRESSURE REGULATOR	Opens a pressure line between the sump and inlet valve, allowing the inlet valve to regulate air delivery according to air demand.
SHUTDOWN BLOWDOWN VALVE	Vents receiver/sump pressure to the atmosphere at shutdown.
RUNNING BLOWDOWN VALVE)	Recirculates excessive pressure to the compressor inlet when receiver/sump pressure exceeds the desired unload pressure.
AIR FILTER RESTRICTION INDICATOR	Indicates required replacement of air filter. Indicator will read in the red zone when air filter replacement is required. Press button on the indicator to re-set.

7. Start the compressor.
8. Check for possible leaks in piping.
9. Slowly close the service valve and check that the setting on the pressure regulator is set correctly. If set correctly, the compressor will unload at your desired pressure.
10. Open the service valve fully. Check to see that the compressor maintains 50 PSI (3.5 bar) minimum pressure.
11. Observe the operating temperature. If the operating temperature exceeds 100°F (38°C) over ambient temperature, the cooling system or installation environment should be checked.
12. Observe the fluid return line sight glass. There should be a flow of air and fluid back to the compressor unit.
13. Open service valve fully and run the compressor unloaded for approximately five

**Figure 4-1: Priming the Unit Via the Air Inlet Valve**

minutes, then shut down the power source.

14. After the initial run, recheck the fluid level and add fluid if necessary. Repair any leaks.
15. Check/confirm proper torque for twelve (12) tank lid bolts: Torque the bolts to 100 to 200 ft.-lbs (140 to 163 Nm).

4.3 SUBSEQUENT START-UP PROCEDURE

On subsequent start-ups, check that the proper level is indicated by the fluid level sight glass, close service valve, and simply start the power source. When the compressor is running, observe the instruments to see that the compressor is functioning properly. Allow a reasonable warm-up period before running at full load.

4.3.1 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.

If the condition persists, consider changing to a different type of lubricant (consult supplier).

Consult the information in Section 4.3.1.1, and Table 4B for preventative and corrective actions necessary to take for high moisture ambient environment operation.

4.3.1.1 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 to 180°F (82°C). This warm-up period allows the moisture within the system to vaporize.

3. After temperature reaches 180°F (82°C), open service valve and discharge air for approximately ten (10) minutes to purge the system of moisture vapor.

4.4 SHUTDOWN PROCEDURE

To shut the compressor down, close the service valve to your service line and run the compressor unloaded for approximately five minutes prior to shutting down the power source. On dual pressure compressors, switch selector to the "low" pressure position and allow system pressure to bleed off to the low setting before shutting down the compressor.

4.5 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 4.3.1.1 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 5.6, Storage and Intermittent Use for long idle preparation.

4.6 EXTREME CONDITION MACHINE APPLICATIONS

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.

For additional information concerning extreme operating conditions and steps to take to optimize machine performance, refer to Section 6.2, Extreme Condition Operation, in Section 6, Troubleshooting.

TABLE 4B: HIGH MOISTURE CONDITION OPERATION

Symptom	Cause	Prevention / Corrective Action
Emulsification of oil in compressor system: - Compressor oil is milky white in color - Compressor oil is broken down and lacks lubricity. - Compressor oil may develop solid chunks or clumps	Operating the compressor system for short periods of time: - Short cycling prevents the temperature of the oil from attaining a high enough temperature capable of vaporizing the moisture droplets. Operating the compressor system unloaded without air flow from the service line for long periods of time: - This can keep the oil temperature from getting hot enough to vaporize the moisture droplets, preventing the moisture from being able to escape the system. Additionally, there is no path for the moisture to escape the system. The air filter is saturated with water: - This forces moisture to be ingested by the compressor. Any of the above causes will be exacerbated in especially humid environments.	RECOMMENDED CHANGES: If the problem is not corrected by standard operating practices and regular preventative maintenance, consider the following: - Raise the average temperature of the compressor oil. - Change the operating procedure to allow for the compressor oil temperature to reach 180 °F (82°C) before discharging any air. If the compressor isn't discharging any air, it's not ingesting any potentially humid air. It will build pressure upon initial startup, but then it will run closed and allow it to heat up. REPAIR/MAINTENANCE: Refer to Section 5 of the Operation Manual for inspection, cleaning, and repair instructions. - Once the compressor oil becomes emulsified, it must be replaced along with the oil filter. Depending on the severity, other parts might also need to be replaced. - Check that the separator element is in good, working condition. - Check that the scavenge line is working properly. If the system is badly contaminated, Vanair® recommends a lube flush that will help clean out any remaining contamination throughout the system. Consult Vanair® Service Department for lube flush instructions. PREVENTION: Before starting a cold system, carefully crack the oil drain valve and allow approximately a cup of discharge fluid to drain for the purpose of relieving any condensed water that may have accumulated in the system. Ensure that the valve is shut completely before starting.

SECTION 5: MAINTENANCE

5.1 GENERAL INFORMATION

⚠ 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.

Always wear personal protective equipment such as gloves, work shoes, and eye and hearing protection as required for the task at hand.

⚠ WARNING

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

⚠ CAUTION

Always wear personal protective equipment such as gloves, work shoes, eye, and hearing protection as required for the task at hand.

⚠ 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.

IMPORTANT

It is important that the compressor oil be of the recommended type (Vanguard™ Premium Rotary Screw Compressor Oil), and that it is inspected and replaced with the same oil, in accordance with this manual.

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

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.

IMPORTANT

Do not mix oils of different types.

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.

Vanair®, a Lincoln Electric Company

10896 West 300 North

Michigan City, IN 46360

Toll Free: (800) 526-8817

Telephone: (219) 879-5100

Service (toll free): (844) VAN-SERV

(844) 826-7378

vanair.com

NOTE

If additional spare parts are being stored for future use, make certain that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading.

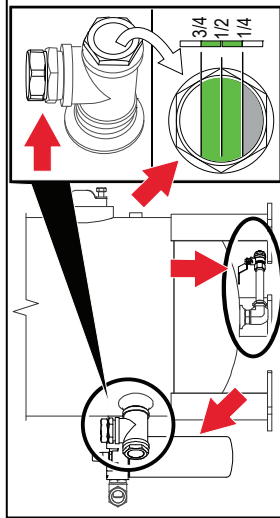
TABLE 5A: ROUTINE MAINTENANCE SCHEDULE				TABLE 5B: ROUTINE MAINTENANCE REPLACEMENT KITS - COMPRESSOR		
KEY	TASK DESCRIPTION	INTERVALS			ACTION TO TAKE / REFERENCE	REFERENCE:
		After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually		
▲ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance. IMPORTANT Before starting a cold system, carefully crack the drain valve and allow approximately a cup of discharge fluid to drain for the purpose of relieving any condensed water that may have accumulated in the system. Ensure that valve is shut completely before starting.			IMPORTANT If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing. Use only original Vanair® equipment filters. Other filters may not have correct pressure rating or may have different thread. For maintenance procedures, consult Section 5.4.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			
1	Before starting, check compressor oil level. NOTE Proper oil level shows at the midway point of the sight glass. Ensure vehicle is situated on a level surface before checking oil level.					• (Reference) Compressor Oil Filter [▲]. • Compressor Oil Fill Port/Cap [▲]. • (Reference) Compressor Oil Drain [▲]. • Compressor Oil Level Sight Glass [▲]. ***** z Acceptable oil level is between 1/4 and 3/4 range of the sight glass (shown green).
2	Check for any leaks or loose bolts.				PROCEDURE: Add oil if necessary (Refer to Section 5.4.1 for instructions).	
3	After starting, check pressure gauge for correct operating pressure.				PROCEDURE: Tighten if necessary.	
4	Check for leaks.				PROCEDURE: Refer to Section 6, Troubleshooting for pressure indication remedies.	
					PROCEDURE: 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.	
Continued on next page						

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

	INTERVALS		
	Hourly or Calendar Period - whichever comes first (Refer to IMPORTANT note in Table 5B)	After 8 Hours or Daily	After Initial 50 Hours or After 500 Hours or Annually
▲ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. Always clearly tag the start-ups instrumentation against accidental system start-ups during maintenance.			
IMPORTANT Before starting a cold system, carefully crack the drain valve and allow approximately a cup of discharge fluid to drain for the purpose of relieving any condensed water that may have accumulated in the system. Ensure that valve is shut completely before starting.			

TABLE 5B: ROUTINE MAINTENANCE REPLACEMENT KITS - COMPRESSOR		
KEY NO.	DESCRIPTION	QTY
KIT1254	Kit, Compressor Air Filter	1
KIT1224	Kit, Compressor Oil Change	1
KIT1255	Kit, Compressor Full Service	1
NOTE: Refer to Section 7, Table 7A for kit content item identification, and additional replacement parts items.		
IMPORTANT: If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing.		
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.		

IMPORTANT

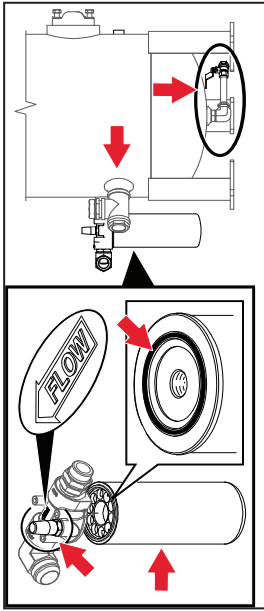
If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing.

Use only original Vanair® equipment filters. Other filters may not have correct pressure rating or may have different thread. For maintenance procedures, consult Section 5.4.

ACTION TO TAKE / REFERENCE

KEY TASK DESCRIPTION

5	Change oil filter element.			
---	----------------------------	--	--	--



REFERENCE:

- (Reference) Compressor Oil Maintenance Indicator [▲].
- Compressor Oil Filter [▲].
- Compressor Oil Filter Element Seal [▲].
- Compressor Oil Fill Port/Sight Glass Assembly [▲].

• (Reference) Compressor Oil Drain [▲].

+++++

^x Refer to Key no. 1 in this table for compressor oil fill maintenance and proper oil level range.

^{xx} Coat element sealing gasket with layer of machine oil before mounting for an air-tight seal.

PROCEDURE:

Remove filter element with a filter wrench. Prime replacement filter element by filling with compressor system oil before assembling to filter head. If filter head has been removed, ensure that the FLOW direction arrow points away from sump. Discard replaced filter under proper authoritative guidelines.

NOTE

Always replace the oil and oil filter element at the same change interval (Refer to Section 5.4.2 for instructions).

Continued on next page

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

	INTERVALS		
	Hourly or Calendar Period - whichever comes first (Refer to IMPORTANT note in Table 5B)	After 8 Hours or Daily	After Initial 50 Hours or After 500 Hours or Annually
▲ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.			
IMPORTANT Before starting a cold system, carefully crack the drain valve and allow approximately a cup of discharge fluid to drain for the purpose of relieving any condensed water that may have accumulated in the system. Ensure that valve is shut completely before starting.			

TABLE 5B: ROUTINE MAINTENANCE REPLACEMENT KITS - COMPRESSOR		
KEY NO.	DESCRIPTION	QTY
KIT1254	Kit, Compressor Air Filter	1
KIT1224	Kit, Compressor Oil Change	1
KIT1255	Kit, Compressor Full Service	1
NOTE: Refer to Section 7, Table 7A for kit content item identification, and additional replacement parts items.		
IMPORTANT: If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing.		
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.		

IMPORTANT

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

Use only original Vanair® equipment filters. Other filters may not have correct pressure rating or may have different thread. For maintenance procedures, consult Section 5.4.

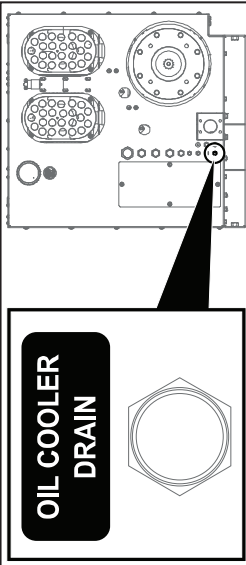
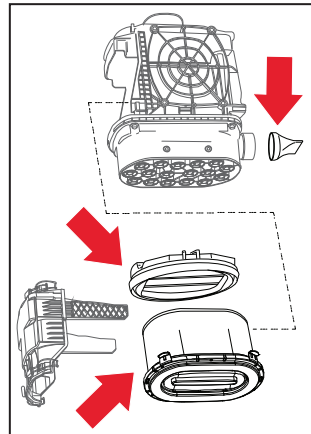
KEY	TASK DESCRIPTION	ACTION TO TAKE / REFERENCE		
6	Compressor oil change.	PROCEDURE: Refer to Section 5.4.2 for instructions. Drain and refill air/oil compressor sump tank, replace oil filter element, and also the separator element if required (see key no. 9 of this table for interval). For full system drain also drain the oil cooler (location shown at left).	 OIL COOLER DRAIN	PROCEDURE: Refer to Section 5.4.2 for instructions. Drain and refill air/oil compressor sump tank, replace oil filter element, and also the separator element if required (see key no. 9 of this table for interval). For full system drain also drain the oil cooler (location shown at left).
7	Inspect intake air filter.	REFERENCE: - Compressor Primary Air Filter Element [▲]. - Compressor Secondary Air Filter Element [▲]. - Air Filter Housing Evacuator Valve [▲]. PROCEDURE: Change if necessary (Refer to Section 5.4.3 for instructions). When an air filter needs replacement, it is recommended to service both air filter assemblies at the same time, to maintain even air intake draw.		REFERENCE: - Compressor Primary Air Filter Element [▲]. - Compressor Secondary Air Filter Element [▲]. - Air Filter Housing Evacuator Valve [▲]. PROCEDURE: Change if necessary (Refer to Section 5.4.3 for instructions). When an air filter needs replacement, it is recommended to service both air filter assemblies at the same time, to maintain even air intake draw.
* Refer to compressor oil container to verify specification. Standard Vanguard™ HP High Performance Rotary Screw Compressor Oil is replaced every 1000 hours, and (optional) Vanguard™ HP High Performance Rotary Screw Compressor Oil is replaced every 2000 hours. If changing oil types, an entire system oil change procedure is required before adding new oil. DO NOT mix oil types.				
Continued on next page				

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

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

IMPORTANT

Before starting a cold system, carefully crack the drain valve and allow approximately a cup of discharge fluid to drain for the purpose of relieving any condensed water that may have accumulated in the system. Ensure that valve is shut completely before starting.

TABLE 5B: ROUTINE MAINTENANCE REPLACEMENT KITS - COMPRESSOR			
KEY NO.	DESCRIPTION	QTY	
KIT1254	Kit, Compressor Air Filter	1	
KIT1224	Kit, Compressor Oil Change	1	
KIT1255	Kit, Compressor Full Service	1	

NOTE: Refer to Section 7, Table 7A for kit content item identification, and additional replacement parts items.

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

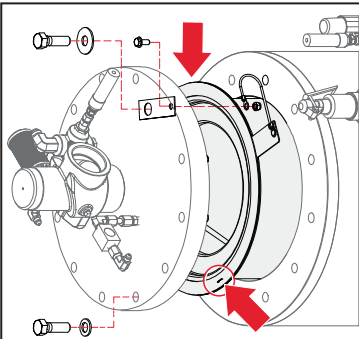
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

IMPORTANT

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

Use only original Vanair® equipment filters. Other filters may not have correct pressure rating or may have different thread. For maintenance procedures, consult Section 5.4.

ACTION TO TAKE / REFERENCE**KEY TASK DESCRIPTION**

8	Replace separator element.	 REFERENCE: • Separator Element [↖].[‡] • Separator Element Gasket Staple(s) (one shown) [↗]. IMPORTANT [‡] DO NOT remove staples from new element gasket. Staples are present for continuity. PROCEDURE: Refer to Section 5.4.4 for instructions.	
9	Inspect exterior of oil cooler.	PROCEDURE: Clear away debris; clean if necessary, taking care not to damage cooler.	

Continued on next page

10	Replace scavange return line orifice/strainer	Refer to the NOTE in the Task Description column. NOTE Perform scavange line maintenance during every Separator Element change procedure, unless immediate obstruction is visible in the sight glass.	REFERENCE: • Scavange Line Orifice/Strainer [↖].[‡] • Scavange Line Sight Glass [↗]. • Scavange Tube [↘].[‡] +++++ [‡] When removing scavange tube, take proper care to lift upward until the tube clears the lid. DO NOT bend the scavange tube. Continued on next page...
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TABLE 5A: ROUTINE MAINTENANCE SCHEDULE			TABLE 5B: ROUTINE MAINTENANCE REPLACEMENT KITS - COMPRESSOR		
KEY	TASK DESCRIPTION	INTERVALS	KEY NO.	DESCRIPTION	QTY
			KIT1254	Kit, Compressor Air Filter	1
			KIT1224	Kit, Compressor Oil Change	1
			KIT1255	Kit, Compressor Full Service	1
			NOTE: Refer to Section 7, Table 7A for kit content item identification, and additional replacement parts items.		
			IMPORTANT: If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing.		
			PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.		
			IMPORTANT		
			If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil change, and engine and compressor filter servicing.		
			Use only original Vanair® equipment filters. Other filters may not have correct pressure rating or may have different thread. For maintenance procedures, consult Section 5.4.		
KEY			ACTION TO TAKE / REFERENCE		
10	Replace scavenge return line orifice/strainer	After 8 Hours or After Initial 50 Hours After 500 Hours or Annually	...Continued from previous page		
	NOTE	Refer to the NOTE in the Task Description column.	PART REPLACEMENT:		
	Perform scavenge line maintenance during every Separator Element change procedure, unless immediate obstruction is visible in the sight glass.		Order orifice/strainer replacement no. 269788. For full replacement procedure, refer to Section 5.5.1, Scavenge Line Maintenance, found in Section 5, Maintenance. Note that when installing the filter orifice, the arrow points away from the sump.		

5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

⚠ DANGER

Adjustments should be made with compressor switched OFF since electrical terminals inside pressure switch will be exposed, and opening the canopy exposes the belt drive system.

⚠ 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.

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.

5.4.1 COMPRESSOR OIL MAINTENANCE

Having the proper amount of oil in the compressor system is essential to prolonging the equipment's useful life. Checking the compressor oil is the most important service to perform on the Vanair® Drill package. The compressor is fully charged at the factory with Vanguard™ Premium Rotary Screw Compressor Oil.

⚠ WARNING

The result of poorly maintained lubrication and/or filters may produce hazardous conditions resulting in overheating, which could cause machine shutdown. Damage to equipment and serious bodily harm may result..

5.4.4.1 ADDING OR CHANGING THE COMPRESSOR OIL

Consult **Figures 5-1** and **5-2**, and the following procedure to check the compressor oil.

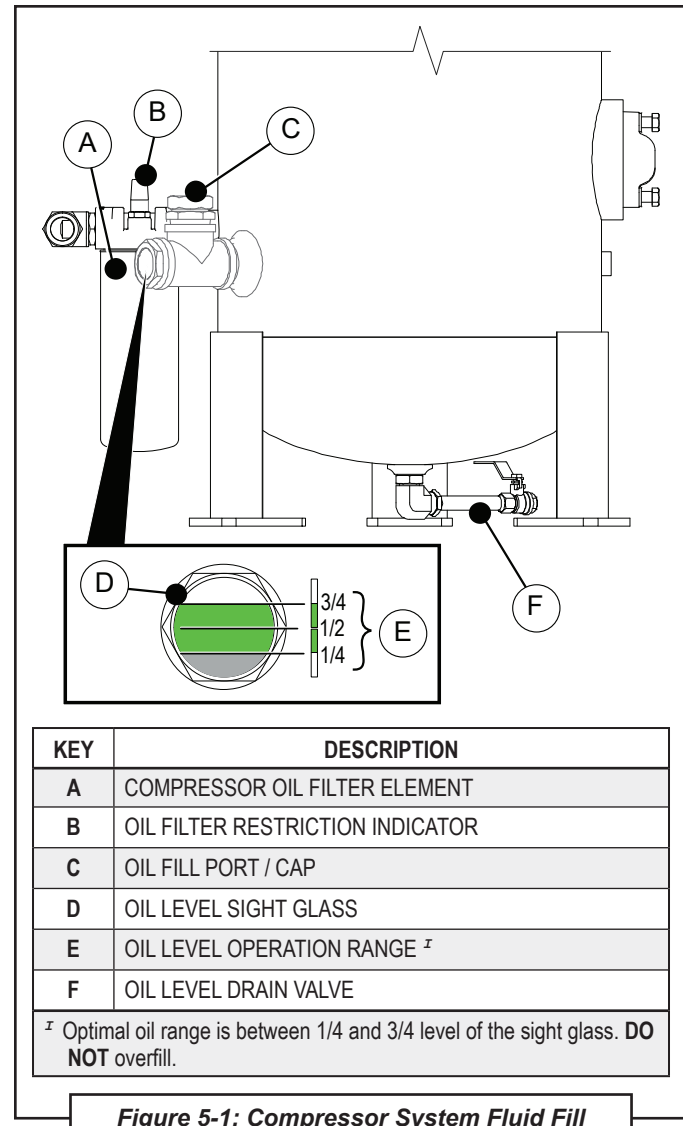


Figure 5-1: Compressor System Fluid Fill

⚠ 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.

Oil fill should be checked in accordance with the schedule given in **Table 5A**, or more frequently depending upon operating conditions. Oil is checked with the vehicle situated on a level surface, and the system turned off.

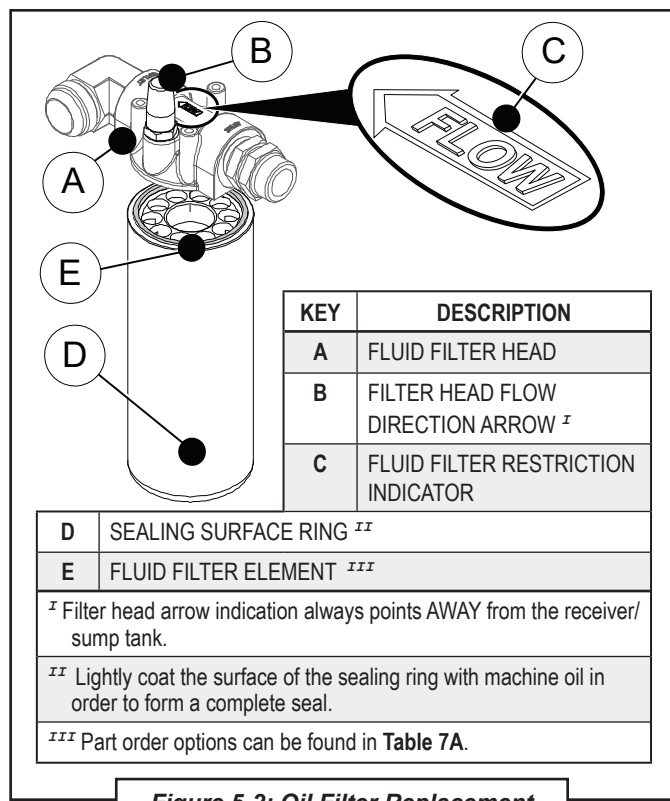


Figure 5-2: Oil Filter Replacement

IMPORTANT

Emphasized additional information (or existing **DO NOT** mix different types of compressor oil—mixing oil will void the warranty! Use **ONLY** genuine Vanair® Premium Vanguard™ Oil.

1. Locate the oil fill port on the sump tank (Figure 5-1).
2. Check the oil level in regard to the level line on the sight glass: correct level is at the line approximately midway through the glass.

IF ADDING OIL...

- 3A. Remove the port plug.
- 4A. Carefully add lubricant, monitoring the oil level, and allowing time for oil to level out. Refer to Figure 5-1 for correct operation oil fill levels.
- 5A. Once level is satisfactory, replace the port plug and tighten.

IF CHANGING OIL...

When an oil change is due or needed, the oil filter will also need to be changed at the same

time. Refer to Section 5.4.2 for instructions on a complete oil change.

- 3B. Place a vessel, or a funnel extension to a vessel, capable of containing at least eight (8) gallons of oil below the oil drain (Figure 5-1 [F]) to catch the oil as it discharges.
- 4B. Unscrew the oil drain plug (or open the valve, if present) [F] and allow the oil to completely drain from the compressor unit into the catch vessel.
- 5B. Once the oil has all drained, replace and tighten the oil drain plug (or open the valve, if present) [F].
- 6B. Recheck the oil level per steps #1 and #2 above to ensure that level is satisfactory. Add additional amount if low, but **DO NOT OVERFILL**.

5.4.2 PERFORMING AN OIL FILTER CHANGE

Refer to Figure 5-2. The compressor oil filter is a spin-on, throw away type.

⚠ 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.

IMPORTANT

Always change the oil when changing the oil filter element.

5.4.2.1 REMOVING THE OIL FILTER

1. Drain oil from compressor unit per instructions given in Section 5.4.1.1.
2. Remove used filter element [E] using strap wrench, if necessary, by turning counter-clockwise. Discard as appropriate and in accordance with any pertinent regulations.
3. Clean the filter head's [A] connection surface with a lint-free wipe or cloth.

5.4.2.2 REPLACING THE OIL FILTER

- 1. Apply a light film of oil to the seal surface [D] on the new filter element.
- 2. With the seal facing upward, pour approximately one (1) cup of machine fill (Vanguard™) oil into the element for priming.
- 3. Situate the element onto the fluid filter head [A] and turn clockwise by hand until seal makes contact, then turn an additional 3/4 turn by hand.
- 4. Refer to **Section 5.4.4.1**, and replace the system oil.
- 5. Run compressor and test for leaks.

5.4.3 SERVICING THE COMPRESSOR AIR FILTERS

⚠ 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.

Refer to **Figure 5-3**. For correct filtration, use only original Vanair® equipment filters.

The diagram illustrates the components for air filter element replacements. On the left, a cyclone precleaner/housing cover (A) is shown with a filter element (B) being inserted. A secondary filter element (C) is also shown. On the right, the cyclone precleaner/housing (D) is shown with a dust evacuator/collector valve cap (E) being attached. A red dashed box highlights the filter elements (B and C) and the housing (D).

KEY	DESCRIPTION	KEY	DESCRIPTION
A	CYCLONE PRECLEANER / HOUSING COVER	D	CYCLONE PRECLEANER / HOUSING
B	FILTER ELEMENT (one per filter housing [x 2]) ^x	E	DUST EVACUATOR/COLLECTOR VALVE CAP
C	SECONDARY FILTER ELEMENT (one per filter housing [x 2])		

^x Part order options can be found in **Table 7A**.

NOTE: When performing maintenance, maintain both filters at the same time, including filter replacements.

Figure 5-3: Air Filter Element Replacements

IMPORTANT

Always change both air filter cleaners when changing the oil filter element.

5.4.3.1 CLEANING THE DUST COLLECTOR

Refer to **Figure 5-4**. Before removing the air filter elements, pull the dust collector cap from the bottom of the air filter housing and empty any accumulated dust or dirt. Replace the dust collector cap.

5.4.3.2 CLEANING THE CYCLONE PRE-CLEANER

Should the cyclone pre-cleaner become clogged or blocked with dust intake, remove the cover and clear the cyclone passages using either compressed air, or by washing out.

5.4.3.3 REMOVING THE AIR FILTER ELEMENTS

1. Release the clips holding the pre-cleaner cover onto the housing.
2. Remove the cover to access the air filter elements.
3. Remove primary element.
4. Remove secondary element.

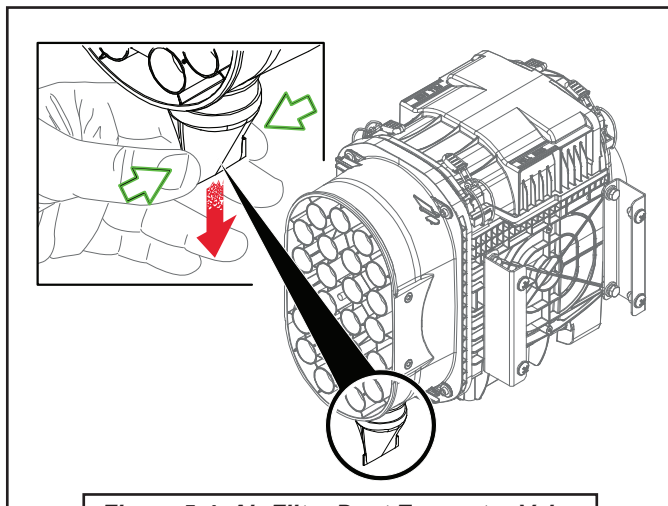


Figure 5-4: Air Filter Dust Evacuator Valve

5.4.3.4 REPLACING THE AIR FILTERS

Refer to **Figures 5-3** and **5-4**, and the following procedure:

1. Evacuate the dust evacuator valve, as shown in **Figure 5-4**.
2. Clean air filter housing cover and remove any dirt inside filter housing, taking extreme care that no dust or dirt particles reach the air intake of the compressor.
3. Fit the new secondary element in position at the base of the filter housing, taking care not to damage the element.

NOTE

Always replace both the primary and secondary elements at the same time should either filter need changing.

4. Fit the new primary element in place over the safety element, taking care not to handle or damage the filter fins.
5. Replace the filter cover and reset the clamps onto the filter body.

5.4.4 AIR/OIL SEPARATOR REPLACEMENT

⚠ 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.

Refer to **Figures 5-5** and **5-6**, and the following procedure. Consult **Table 5A** for routine change intervals. Follow the procedure below for separator element replacement.

The separator element nestles within the receiver tank. To access the element all of the tubing assembly attached to the cover, along with the cover itself, must be removed.

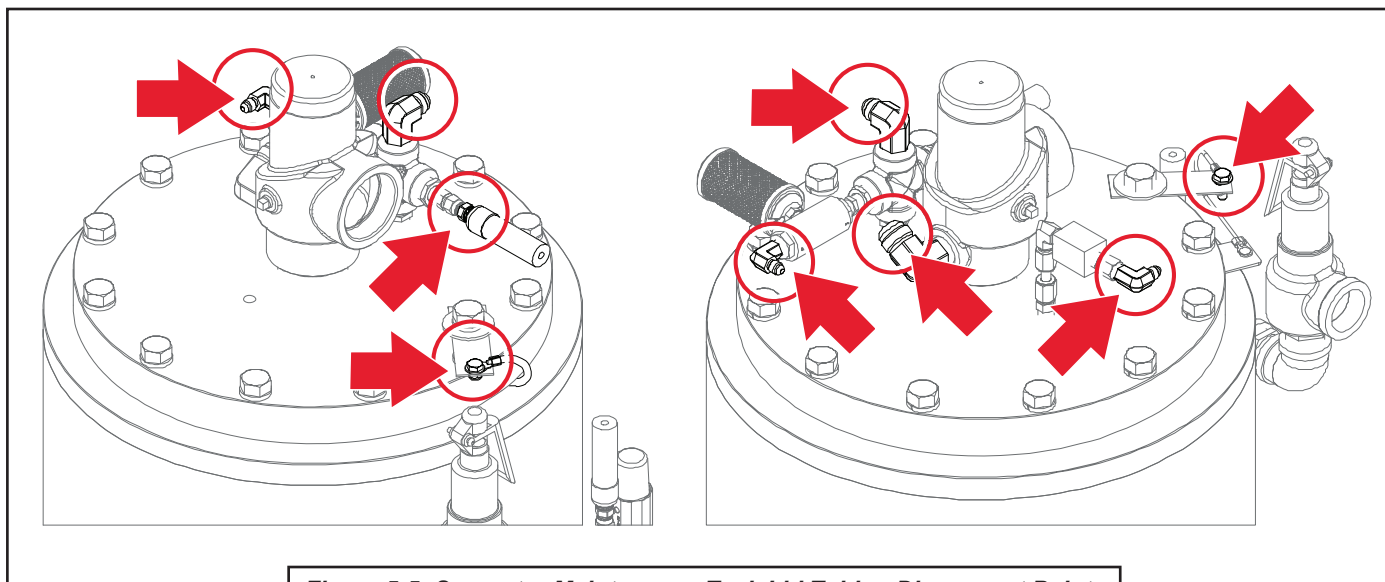


Figure 5-5: Separator Maintenance Tank Lid Tubing Disconnect Points

5.4.4.1 REMOVING THE SEPARATOR ELEMENT

1. Disconnect the tubing to all assemblies located on receiver tank lid, as shown in **Figure 5-5**.
2. Remove the screw and nut that attach the separator grounding wire to the copper grounding bar.
3. Refer to **Figure 5-6**. Remove the twelve (12) capscrews sealing the tank lid. Be certain to retain the copper grounding bar.
4. Being careful not to damage any of the assemblies attached to the cover, remove the cover from the receiver tank.
5. Remove the separator element.
6. Scrape any residual gasket material from the cover and flange of the sump, being mindful not to let any of the material fall into the tank.
7. Inspect the separator tank for rust, dirt, etc.; clean dirt as needed with a clean, damp cloth. Remove any rust spots, taking care not to scar the surface.
8. Set the new separator element, with gasket attached, into place within the tank setting, taking care not to dent it against the tank opening.

IMPORTANT

DO NOT remove staples from coalescer element gasket. Staples maintain grounding continuity.

9. Check between separator element flange and tank for continuity after torquing bolts. **DO NOT** use anti-seize compound on gaskets.
10. Reposition the cover over receiver tank, and align the holes.
11. Set the twelve (12) bolts into position finger-tight, then gradually tighten in a crisscross pattern in four to five steps. Place the copper grounding bar under the head of one of the capscrews closest to the ground tab of the separator. Always tighten the bolts alternately at opposite sides of the cover—never tighten bolts adjacent to each other. Torque the bolts to 100 to 200 ft.-lbs (140 to 163 Nm).
12. Use the capscrew and nut to reattach the grounding wire to the copper grounding bar.
13. Clean the fluid return line strainer and clear the orifice (**Figure 5-5**).
14. Reconnect all piping. The fluid return line should extend to the bottom of the separator element, or no more than 1/2" (13mm) up from the bottom. This will assure the proper fluid return flow.

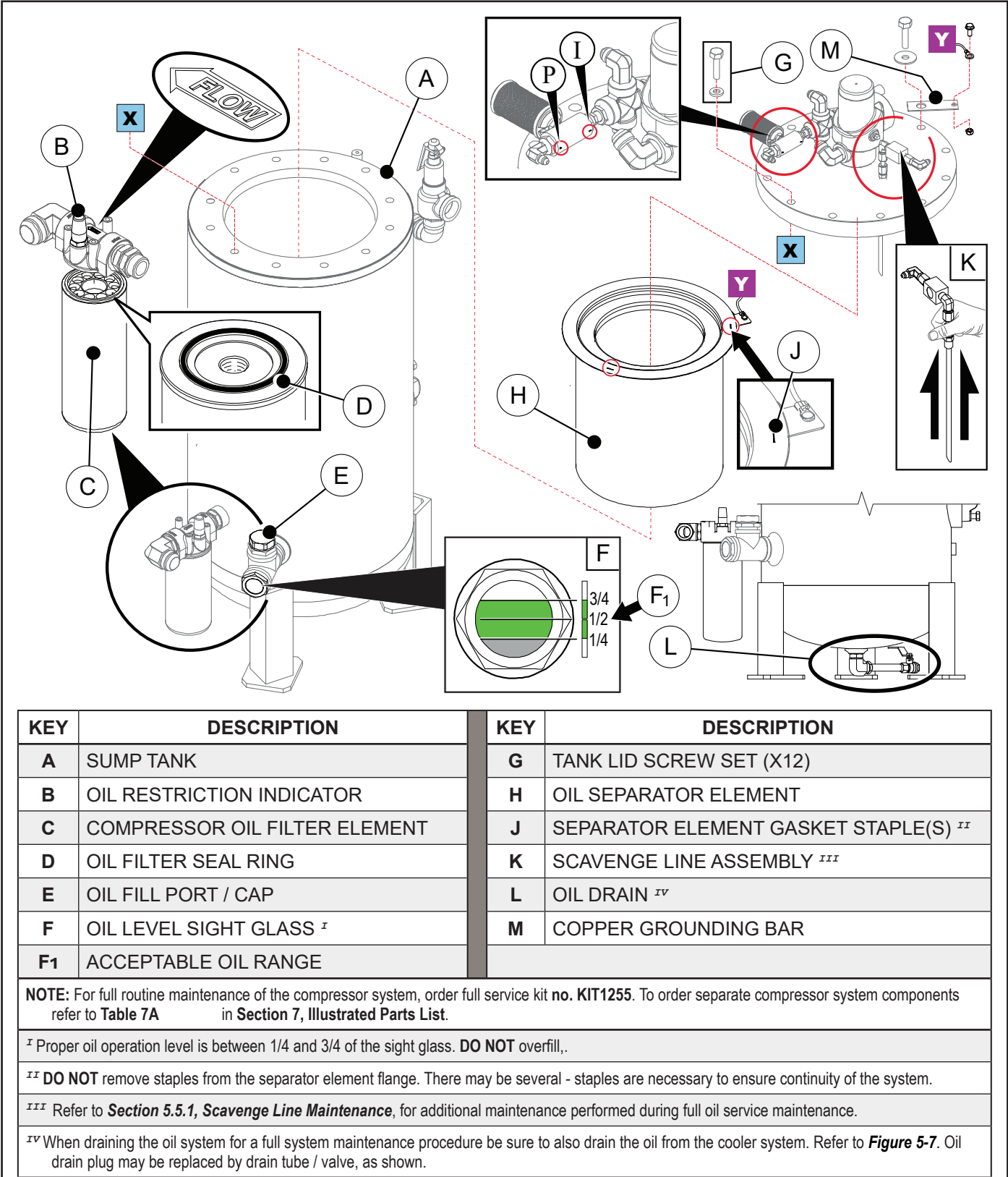


Figure 5-6: Compressor Full Oil Service Maintenance

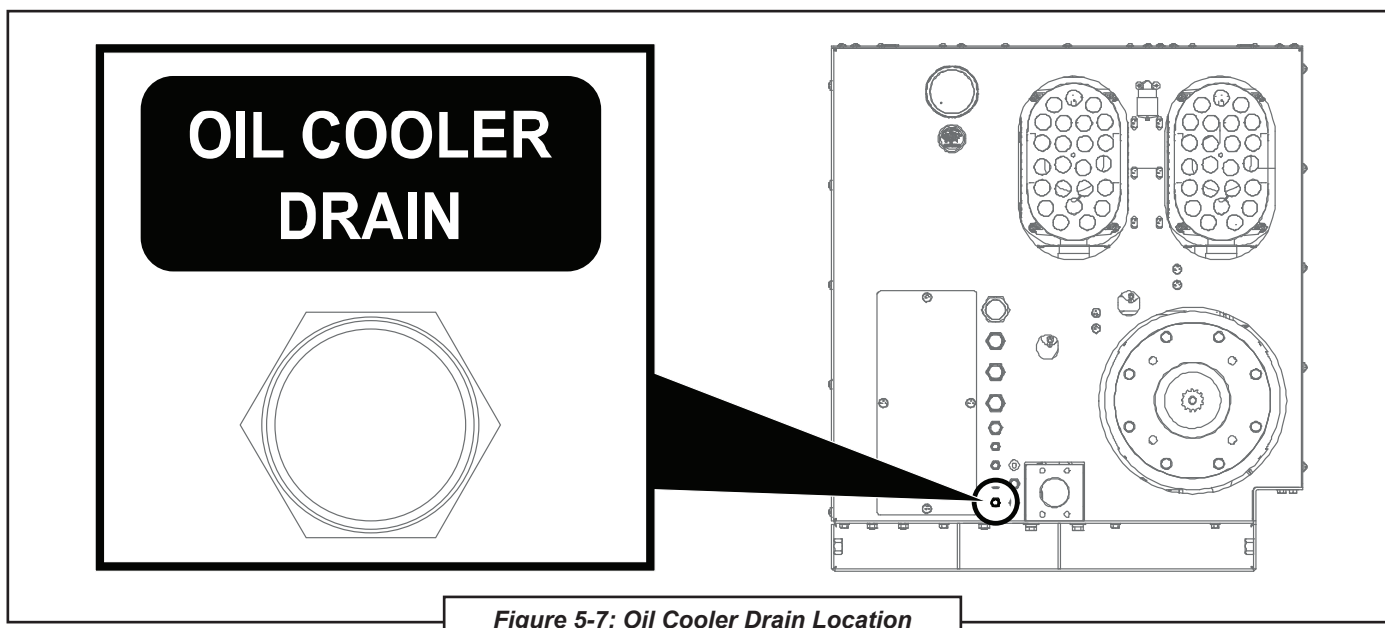


Figure 5-7: Oil Cooler Drain Location

15. Discard worn element as appropriate and in accordance with any pertinent regulations.

IMPORTANT

After performing a service operation on the separator element, perform these additional two steps:

1. Perform a short, post-maintenance run, then recheck the fluid level and add fluid if necessary. Repair any leaks.
2. Recheck/confirm proper torque for the twelve (12) tank lid bolts, as listed in Step #11.

5.4.4.2 SEPARATOR TANK CONTINUITY CHECK

Refer to **Figure 5-8** and the following procedure to ensure that the sump tank has continuity.

To test for continuity between the sump lid and the sump body, use a multimeter [A] in the following way:

1. Touch/place the negative jack tip [B₁] of the multimeter on the edge of the nested coalesce element.
2. Touch/place the positive jack tip [B₂] of the multimeter to the surface of the tank.

The multimeter should ensure that continuity is

valid. If there is no continuity, carefully remove the element, check that the nesting surface of the tank seating, and sealing surfaces, including the gasket staple(s) are clean of debris.

Reset the lid, and recheck the continuity.

5.4.5 PRESSURE REGULATOR SETTING AND ADJUSTMENT GUIDE

⚠ WARNING

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

The air pressure regulator is a mechanical device that regulates air pressure to a definitive PSI when set.

5.4.5.1 SETTING AIR PRESSURE REGULATOR(S)

Refer to **Figure 5-9** and the following procedure to set the pressure regulators. An air pressure regulator is a mechanical device that regulates air pressure to a definitive PSI value when set. Both the low pressure and high pressure regulator will use the same procedure for adjustment.

STEP 1: PREPARATION

1. Inspect regulator cylinder(s): low pressure [A], or high pressure [B], to ensure they are mounted to their brackets securely.

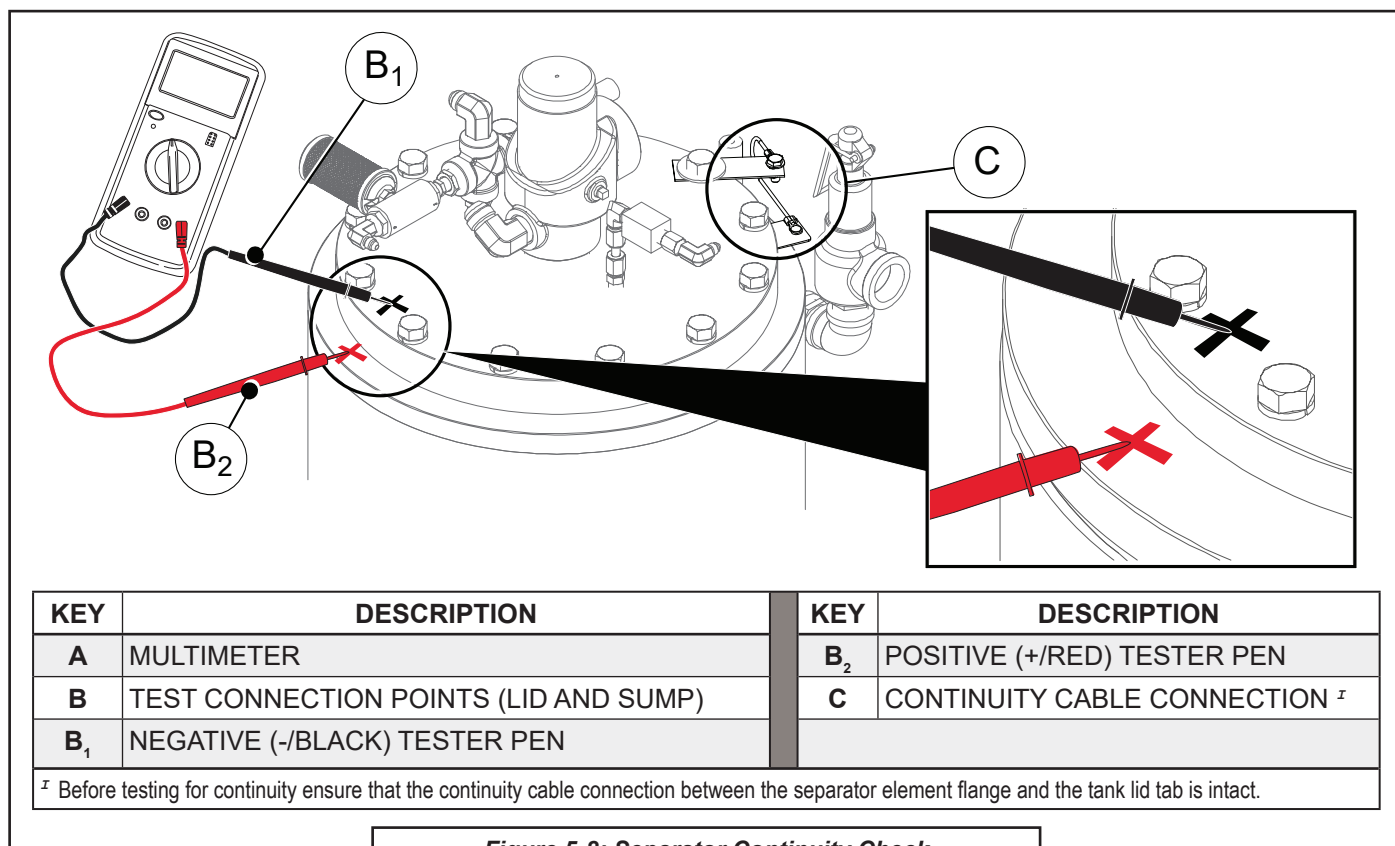
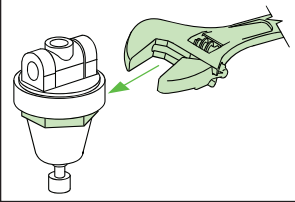


Figure 5-8: Separator Continuity Check

2. Ensure compressor system is charged with oil in system, and properly lubricated.
3. Ensure all service valves are closed.
4. Engage compressor.

STEP 2: ADJUSTMENT

⚠ CAUTION



Ensure that the regulator assembly does not loosen from its position while the pressure is being adjusted. If necessary - use a large wrench to stabilize the body while adjusting.

1. Use a wrench to loosen retaining nut [F] on regulator (Step #2 in the figure).
2. With the retaining nut loose, loosen adjustment screw (counter-clockwise) to decrease pressure or tighten screw (clockwise) to increase pressure (1/4 turn

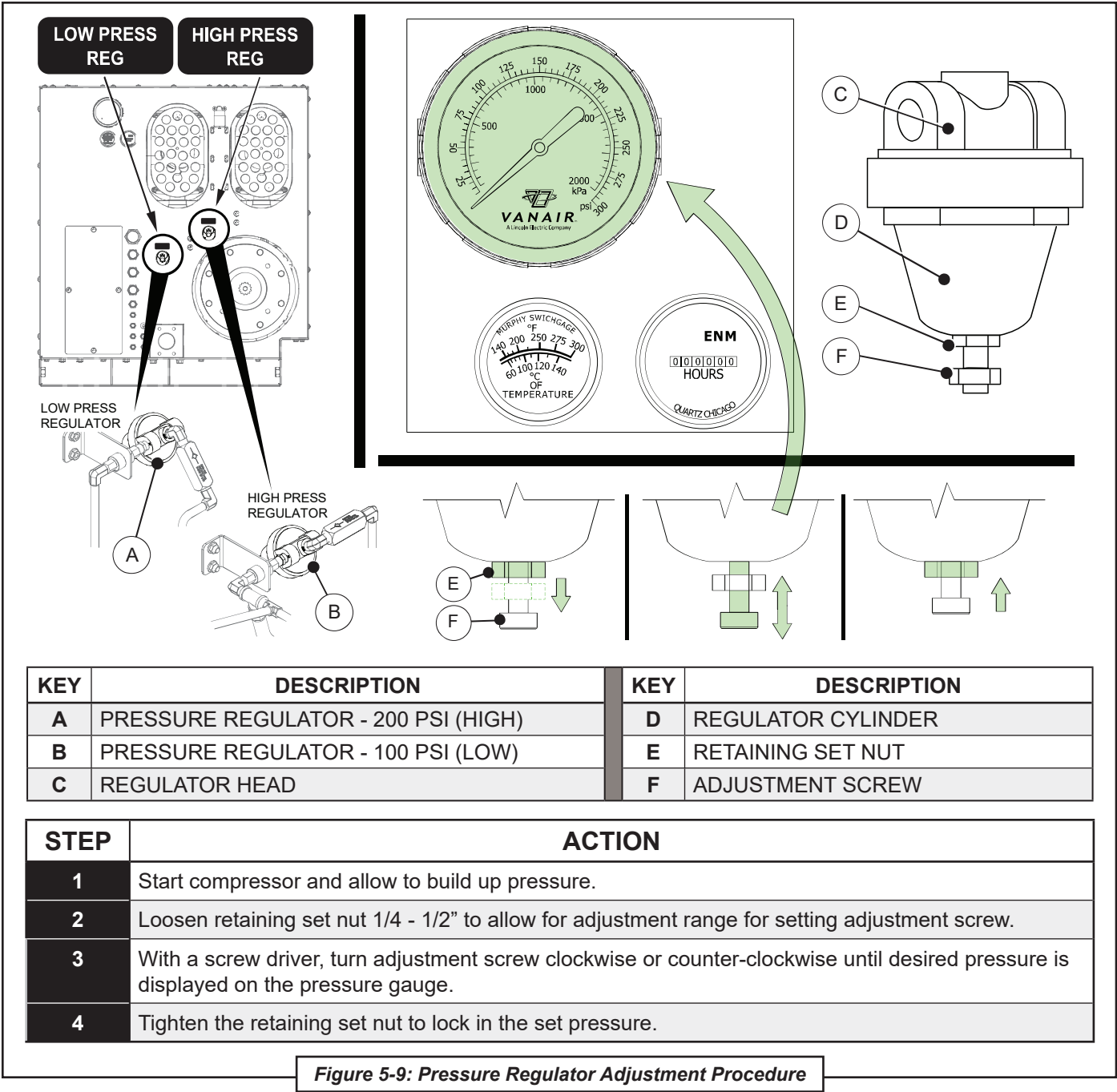
approx. 5 PSI - refer to Step #3 in Figure 5-9).

NOTE

Table 5C - PRESSURE SETPOINTS represents regulator setpoint pressure values, while compressor is warmed to operating temperature (and all service valves closed).

3. Once regulators are adjusted per specification, tighten the set nut until snug (refer to Step #4 in Figure 5-9).
4. Re-check pressure after tightening nut.

TABLE 5C - PRESSURE SETPOINTS	
PRESSURE (PSI)	REGULATOR SETPOINT PRESSURE (PSI)
100	115
125	135
150	160
175	185
200	210



5.4.6 NON-ROUTINE MAINTENANCE ITEMS

Should non-routine maintenance items such as pressure regulator control valves, pilot valve, blowdown valve, minimum pressure/check valve, thermal valve or coupling need maintenance or replacement, first consult **Table 7B** in **Section 7, Illustrated Parts List**. If the part needed is not

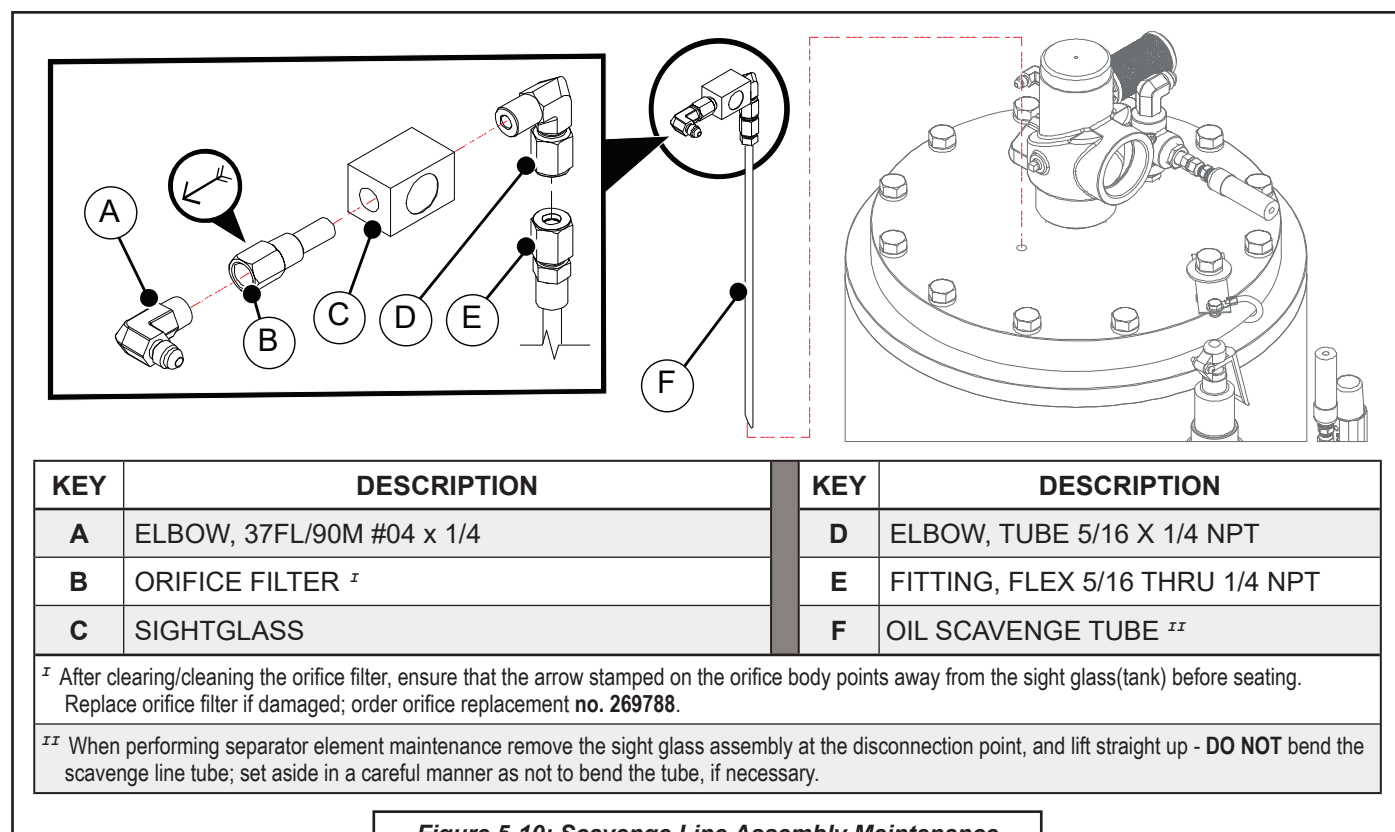
located on this table, consult the Vanair® Service Department.

5.4.7 SCAVENGE LINE MAINTENANCE

Refer to **Figure 5-10** and the following procedures.

SIGHT GLASS CHECK

Check the function of the scavenge line at the sight glass [C]. There should be a perceptible



oil/air flow visible in the sight glass with the compressor running. The filter screen is also visible in the sight glass, and so can be checked visibly for clogging. If flow is not detected or the filter appears to be plugged, proceed as follows:

SIGHT GLASS MAINTENANCE

Refer to **Figure 5-10** and the following procedure.

1. Shut off the vehicle's engine and relieve all compressor pressure.
2. Disconnect the scavenge line assembly from the connection tube at the top elbow [A] and bottom fitting [E].
3. Lift the assembly upwards until the scavenge tube clears the tank lid.

IMPORTANT

Take caution when removing the scavenge line from the tank. **DO NOT** bend or damage the scavenge line.

Set aside, if necessary, whereby the tube is not compromised or damaged, until it is ready to be replaced back to the tank lid.

4. Remove the strainer/orifice [B] and clean the strainer screen with solvent. Check to ensure that the orifice is not plugged. If there is any damage to the strainer screen, replace the strainer/orifice (replacement part **no. 269788**).
5. Clean out the sight glass chamber.
6. Re-assemble in reverse order of disassembly; use pipe dope on the threads if the strainer/orifice has been replaced.
7. After all tank maintenance is finished, restart the vehicle and check the compressor system for leaks.

5.5 STORAGE AND INTERMITTENT USE

5.5.1 INTERMITTENT USE

If the unit is not used very regularly check all hoses for signs of deterioration such as visible surface cracks, stiffness or discoloration.

NOTE

In order to ensure that the compressor is maintained in working order during prolonged periods of non-use, refer to *Section 5.5.1, Infrequent Use* for steps to take to avoid the condition of oil emulsification.

NOTE

If compressor unit has been idle for a long period of time, it may need to be primed before initializing a start-up. Refer to Section 4.2, Initial Start-up Procedure and *Figure 4-1 (Priming the Unit Via the Air Inlet Valve)*.

5.5.2 LONG TERM STORAGE

Blow down system; depressurize tank.

1. Drain receiver tank.
2. Drain oil cooler (*Figure 5-7*).

SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

The information contained in the Troubleshooting Guide has been compiled from field report data and factory experience. It contains symptoms and usual causes for the described problems. 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 compressor.

1. Check for loose fitting.
2. Check for damaged piping
3. Check for parts damaged by heat or an electrical short circuit, usually apparent by discoloration or a burnt odor.
4. Should your problem persist after making the recommended check, consult your nearest Vanair® representative or the Vanair® Service

Department.

Vanair®, a Lincoln Electric Company

10896 West 300 North

Michigan City, IN 46360

Toll Free: (800) 526-8817

Telephone: (219) 879-5100

Service (toll free): (844) VAN-SERV

(844) 826-7378

vanair.com

NOTE

When contacting the Vanair® Service Department, please have machine serial number on hand to quickly expedite service (refer to *Figure 6-1*).

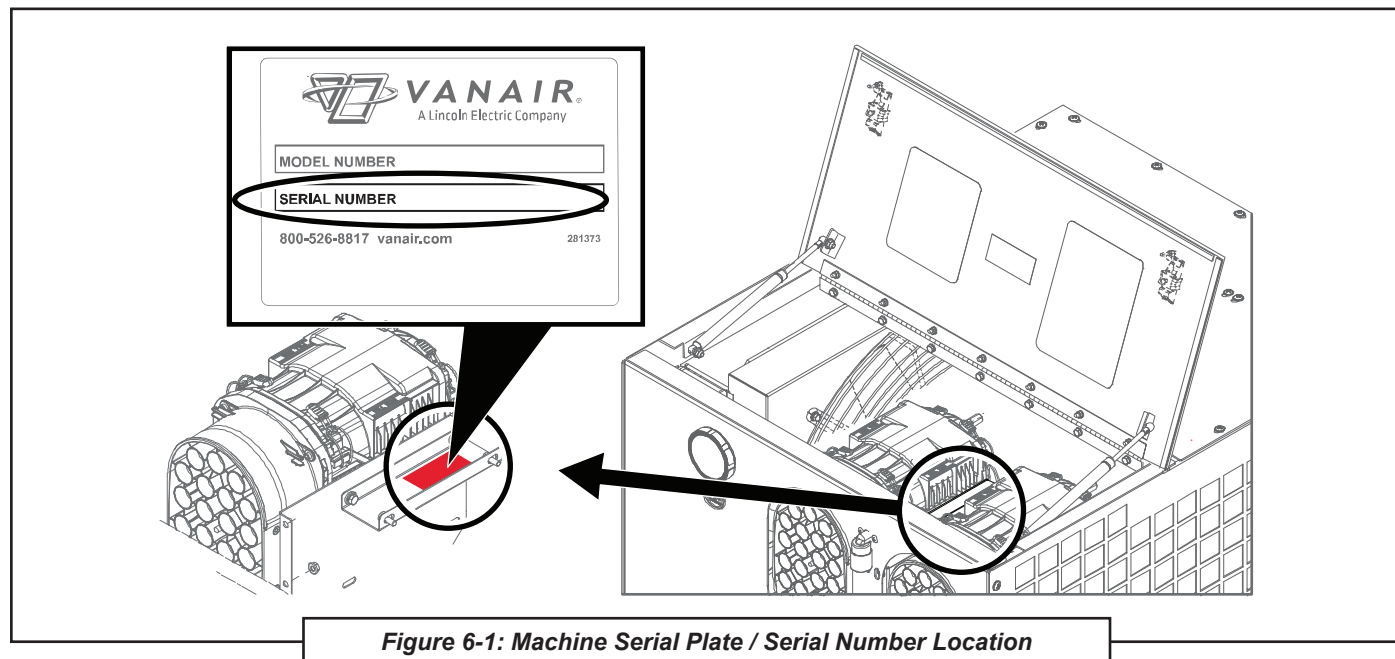


Figure 6-1: Machine Serial Plate / Serial Number Location

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR SHUTS DOWN WITH AIR DEMAND PRESENT	Compressor Discharge Temperature Switch is Open	Cooling air flow is insufficient; clean cooler and check for proper ventilation. Low fluid sump level; add fluid. Dirty fluid; change fluid. Clogged fluid filter; change element. The temperature regulating valve is not functioning properly. Defective discharge temperature switch; check for a short or open circuit to the engine ignition coil. Should this check out normal, it would be possible that the temperature switch is defective.
	Compressor Discharge Temperature Switch is Open	Hydraulic cooling fan not operating, check hydraulic circuit.
COMPRESSOR WILL NOT BUILD UP PRESSURE	Air Demand is Too Great	Check demand service lines for leaks or open valves.
	Dirty Air Filter	Check the filter indicator and change element if required.
	Pressure Regulator Out of Adjustment	Adjust regulator according to control adjustment instructions in the Maintenance section.
	Defective Pressure Regulator	Check diaphragm and replace if necessary (kit available).
	Defective Minimum Pressure Valve	Check that piston is moving freely.
	Inlet Valve not Opening	Check inlet valve for smooth operation. Check bleed orifice on inlet cylinder rod side for blockage.
IMPROPER UNLOADING WITH AN EXCESSIVE PRESSURE BUILD-UP CAUSING PRESSURE RELIEF VALVE TO OPEN	Pressure Regulating Valve is Set Too High	Readjust.
	Leak in the Control System Causing Loss of Pressure Signal	Check control line. Defective pressure regulating valve; repair valve (kit available).
	Restriction in the Control System	Check all control lines and components. Ice and other contaminants could cause restrictions.
	Defective Pressure Relief Valve	Replace pressure relief valve.
INSUFFICIENT AIR DELIVERY	Plugged Air Filter	Clear or replace.
	Plugged Air/Fluid Separator	Replace separator element and also change compressor fluid and fluid filter at this time.
	Inlet Valve Not Fully Open	Check inlet valve operation.
	Defective Pressure Regulator	Adjust or repair.
	Power Source Speed Too Low	Readjust engine speed.
EXCESSIVE COMPRESSOR FLUID CONSUMPTION	Clogged Return Line	Clear line.
	Separator Element Damaged or Not Functioning Properly	Change separator element.
	Leak in the Lubrication System	Check all pipes, connections and components.
Continued on next page		

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
EXCESSIVE COMPRESSOR FLUID CONSUMPTION (continued)	Defective Blowdown Valve Diaphragm	Replace diaphragm.
COMPRESSOR OVERHEATING	Dirty Fluid Cooler Core	Clean core thoroughly.
	Faulty Thermostat in Thermal Valve	Change thermostat element.
	Plugged Fluid Cooler Tubes (Internal)	Clean tubes thoroughly.
	Low Sump Fluid Level	Fill to proper level.
	Plugged Compressor Fluid Filter	Change element.
	Plugged Fluid Return Line	Clean orifice.
	Hydraulic Motor on Compressor Oil Cooler Not Operating Properly	Check hydraulic circuit for leaks. Make sure motor has sufficient hydraulic flow (13.5 GPM @ 1200 PSI).

6.3 EXTREME CONDITION OPERATION

When operating in extreme cold or hot conditions, ranging from 0°F to 110°F (-18°C to 43°C); 0°F to -40°F [-18°C to -40°C] with cold weather kit activated; at a high altitude; or in the presence of high humidity, additional attention should be given to any indication that could lead to a serious problem. If the ambient temperature varies largely, the environment is dusty, or the engine is operated at a high altitude, the engine performance is directly or indirectly influenced.

Machine review and maintenance check schedules should be more frequent than the normal suggestions given in **Section 5, Table 5A: Maintenance Schedule**.

Become familiar with the alternative operation approaches given in this section before operating the power system package in any type of extreme ambient condition. For additional operation information, if applicable, consult the Engine Operation Manual, or visit the engine manufacturer's web site.

6.3.1 COLD WEATHER OPERATION

NOTE

DO NOT use compressor for short periods of time. Compressor must run at operating temperature or moisture will build up in tank.

NOTE

If applicable, refer to the Engine Operation Manual for standard oil recommendations.

NOTE

For additional cold weather protection, a block heater is available from Vanair®.

6.3.2 HIGH TEMPERATURE OPERATION

Refer to **Table 6A**. High compartment temperatures can be caused by high ambient temperatures, small engine room, soundproof cases and other reasons. Among these the most important factor is the temperature of the intake and cooling air. 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 engine and air compressor clean and to not restrict the air flow around the unit. Consult the Engine Operation Manual for fuel, lubrication oil and cooling requirements under extreme temperatures.

When operating the machine in high temperature areas, precautions should be taken to prevent overheating. At the minimum, all coolers, including air passage ways around the coolers, should be free of debris and dirt. The fan, driven by its own hydraulic motor, is designed to run continuously

TABLE 6A - HIGH TEMPERATURE OPERATION

Symptom	Cause	Prevention / Corrective Action
Overheating/high compartment temperatures Diminished engine performance	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 clean and to not restrict the air flow around the unit. Consult the Engine Operation Manual for fuel, lubrication oil and cooling requirements under extreme temperatures. At the minimum, all coolers, including air passage ways around the coolers, should be free of debris and dirt. The fan, driven by the engine, is designed to run continuously to assure a constant flow of cooling air. The operator should be aware that high temperatures can influence engine performance, which can directly effect some machine function capacity outputs.

to assure a constant flow of cooling air.

The operator should be aware that high temperatures can influence engine performance, which can directly effect some machine function capacity outputs.

6.3.3 HIGH DUST CONTENT OPERATION

When the machine is to be used in continuously dusty environments, special care must be taken with the engine's air cleaner and radiator, the compressor air filter and cooler assembly, and the hydraulic fan. The intake air must be cleaned with the air cleaner. Lowering of the radiator cooling capacity due to clogging dust must be prevented. If intake air resistance becomes higher, this will result in reduced output. In order to maintain air-tight seals at the joining sections of the intake system component parts, and thus to prevent foreign matter from entering, it is necessary to ensure the security of the air intake system to prevent the component parts from being damaged. This can be accomplished by performing more frequent monitoring of the

air filters, dust evacuator valve (on engine air filter), and radiator coolers and their immediate surroundings when operating in areas that contain a high dust content.

If the package is not being used for an extended period of time, an additional precaution, such as covering the machine with a tarp, will help to keep the inside of the machine free of dust particle accumulation.

6.3.4 HIGH MOISTURE CONDITION OPERATION

If machine is operating in a high moisture environment, water contamination may persist after following the regular preventative maintenance schedule and standard operating procedures. Consult **Section 4.3.1, High Moisture Condition: Emulsification of Oil in Rotary Screw Compressor Systems** in **Section 3: Installation**, for operation and preventative measures to take in this type of environment.

SECTION 7: ILLUSTRATED PARTS LIST

7.1 PARTS ORDERING PROCEDURE

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

When ordering parts, always indicate the Serial Number of the machine package. This can be obtained from the Bill of Lading for the machine package, or from the compressor unit 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®, a Lincoln Electric Company
10896 West 300 North
Michigan City, IN 46360
Toll Free: (800) 526-8817
Telephone: (219) 879-5100
Service (toll free): (844) VAN-SERV
(844) 826-7378
vanair.com

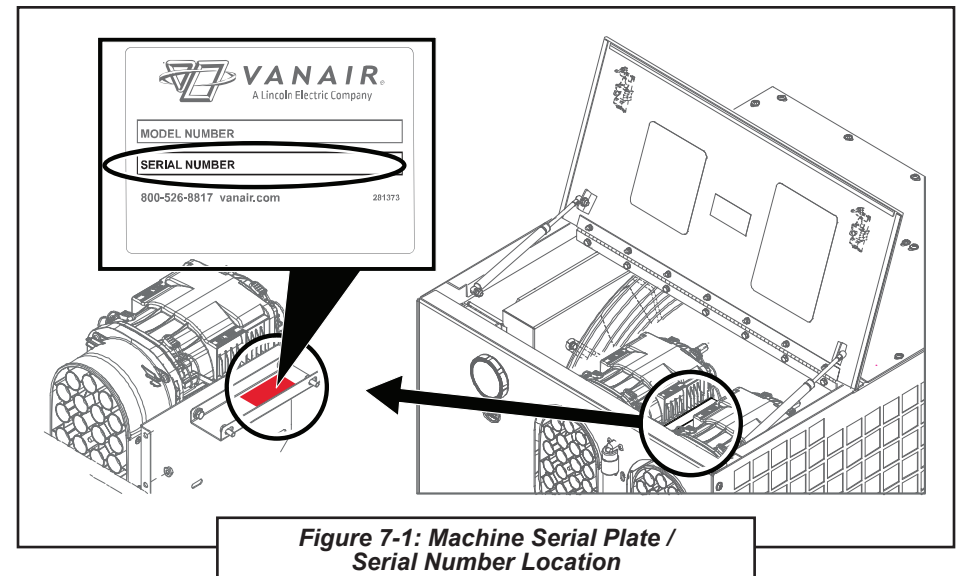


TABLE 7A: RECOMMENDED SPARE PARTS LIST – ROUTINE MAINTENANCE KITS AND COMPONENT ITEMS

	KIT CONTENTS			SEPARATELY ORDERED ITEM PART NUMBER
	AIR FILTER	OIL CHANGE	COMPLETE	
KIT ORDER PART NUMBER:	KIT 1254	KIT 1224	KIT 1255	
Vanguard Premium Oil (sold in four-gallon packs) ^{I & II}		■	■	264626-4PACK
Air Filter - Primary Replacement Element	■		■	275225
Air Filter - Secondary Replacement Element	■		■	275226
Oil Filter		■	■	272130
Element - Air / Oil Separator			■	283687
^I Use only Vanair® Vanguard™ Premium Rotary Screw Compressor Oil and Genuine Vanair® Parts. Inspect and replace damaged components before operation. Substituting non-Vanguard™ Oil or non-genuine Vanair® filter components WILL VOID THE COMPRESSOR WARRANTY!				
^{II} Oil packs are sold in increments of four, one gallon containers. There are two packs included with each appropriate kit, making a total of eight gallons per kit. For fluid fill amounts, refer to Section 2, Specifications .				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.				

TABLE 7B: RECOMMENDED SPARE PARTS LIST - NON ROUTINE MAINTENANCE

KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	Replacement Thermostat	272098	1
2	Repair Kit for Blowdown Valve no. 275237	275248	1
3	Repair Kit for Minimum Pressure/Check Valve no. 271084	272378	1
4	Replacement Orifice/Strainer for Return Line	269788	1
5	Repair Kit for Regulator Valve no. 406929	<i>III</i>	2
6	Compressor Shaft Seal Replacement Kit	<i>III</i>	1
7	Tool Kit for Seal Replacement	<i>III</i>	1
^{III} For correct replacement part number of this part, please consult the Vanair® Parts Department.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

IMPORTANT

Tables 7A and 7B listings 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 or 7B become damaged or inoperable, use the various sub-sections in Section 7 to best locate and identify the damaged part(s).

IMPORTANT

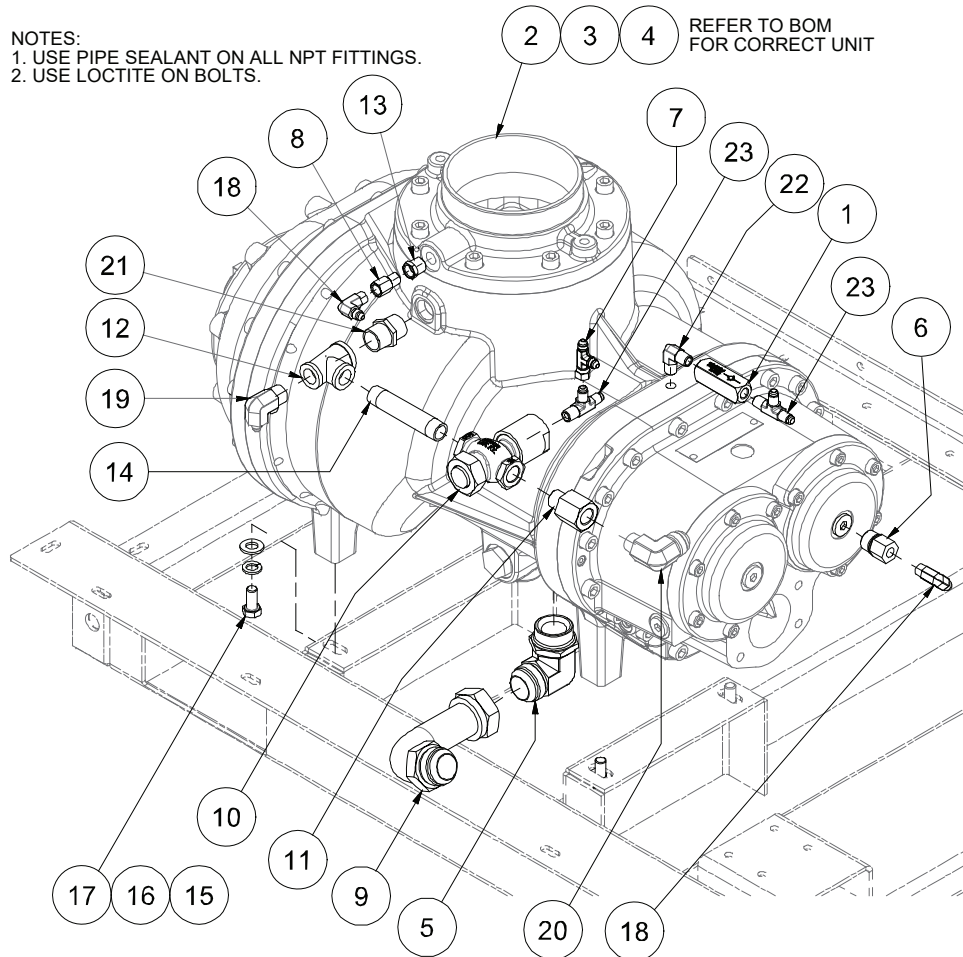
If additional spare parts are being stored for future use, ensure that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 5.7.2, Long Term Storage*.

NOTES

7.2 COMPRESSOR AND PARTS - 600/250 & 770/150

NOTES:

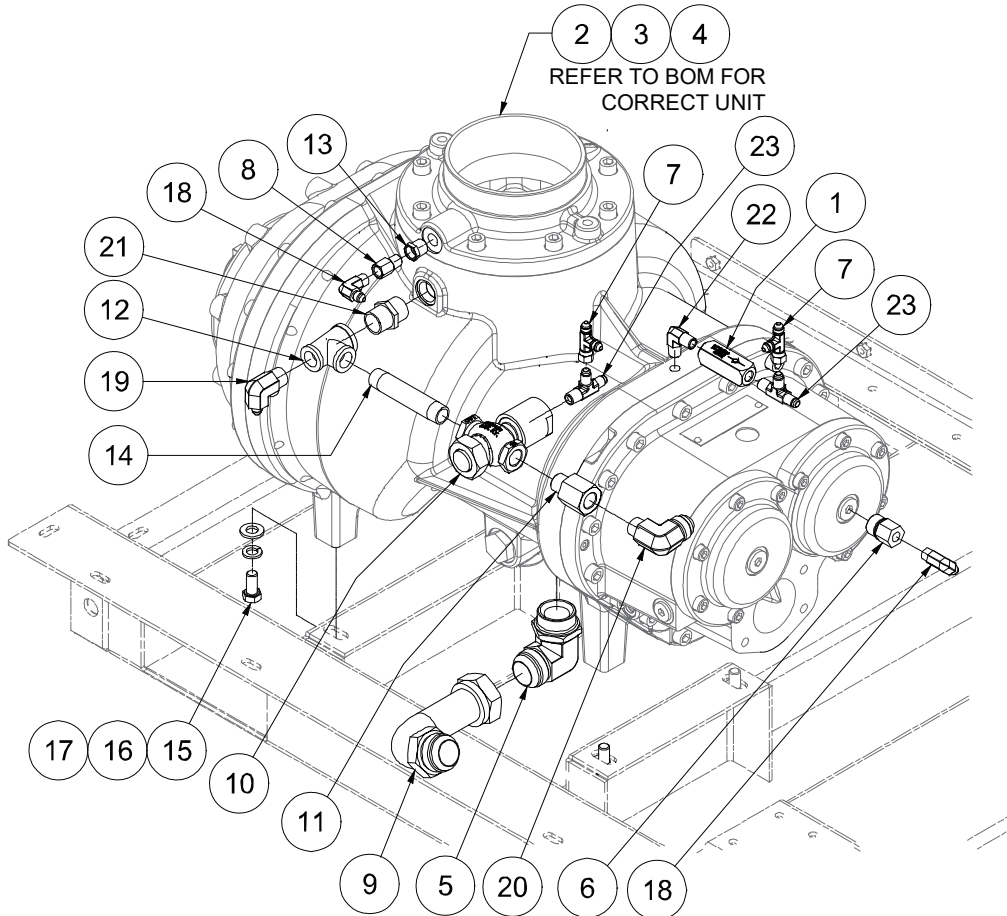
1. USE PIPE SEALANT ON ALL NPT FITTINGS.
2. USE LOCTITE ON BOLTS.



ITEM	DESCRIPTION	PART NUMBER	QTY
1	VALVE, CHECK 1/4 NPT 2000 PSI	02250115-272	1
2	COMPR&PART DX182182A186S55AD	250216-501	1
3	COMPR&PART, DX182182A215S55ADV	1000-3484	1
4	COMPR&PART DX182182A 226555ADV	250245-373	1
5	ELBOW, 90 DEG #20 MJIC x #20 MSAE	260403-110	1
6	ADAPTER, #10 MSAE O-RING x 1/4 FNPT	263868-015	1
7	TEE, RUN SWIVEL 1/4	268769-001	1
8	ORIFICE, .093 DIA.	274234	1
9	TUBE, OIL INJECTION	275556	1
10	VALVE, BLWDWN 10: 1 1/2NPT VITON	276360	1
11	ORIFICE, 1/2 MNPT X 1/2 FNPT 0.187	276384	1
12	TEE, PIPE GALV 3/4 x 1/2 x 1/2	802903-022	1
13	BUSHING, RED STEEL 3/8 x 1/4	807601-010	1
14	NIPPLE, PIPE XS BLACK 1/2 x 4	822208-040	1
15	CAPSCREW, HEX METRIC GR 8.8 M12 X 1.75 X 21MM	828012-025	4
16	WASHER, LOCK METRIC M12	838812-250	4
17	WASHER, FLAT METRIC M12	838912-270	4
18	ELBOW, 37FL/90M #04 x 1/4	860204-025	2
19	ELBOW, 37FL/90M #04 x 1/2	860204-050	1
20	ELBOW, 37FL/90M #12 x 1/2	860212-050	1
21	NIPPLE, PIPE HEX 3/4 x 3/4	860412-075	1
22	ELBOW, PIPE 1/4M x 1/4M	860504-025	1
23	TEE, 37FL/MALE RUN 1/4 x 1/4 x 1/4	861804-025	2

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

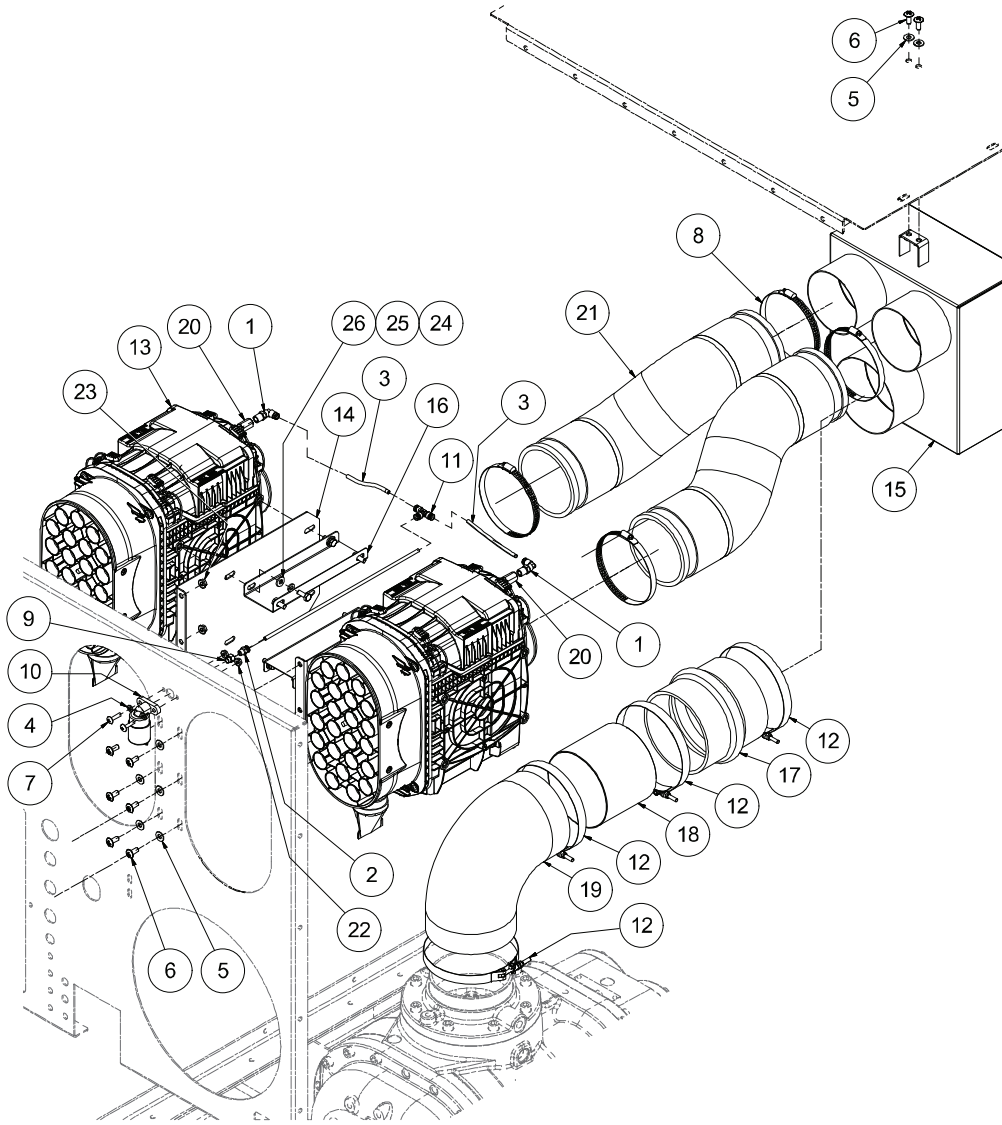
7.3 COMPRESSOR AND PARTS - 770/150



NOTES:
1. USE PIPE SEALANT ON ALL NPT FITTINGS.
2. USE LOCTITE ON BOLTS.

ITEM	DESCRIPTION	PART NUMBER	QTY
1	VALVE, CHECK 1/4 NPT 2000 PSI	02250115-272	1
2	NOT APPLICABLE	—	—
3	COMPR&PART, DX182182A261S55ADV	250244-254	1
4	NOT APPLICABLE	—	—
5	ELBOW, 90 DEG #20 MJIC x #20 MSAE	260403-110	1
6	ADAPTER, #10 MSAE O-RING x 1/4 FNPT	263868-015	1
7	TEE, RUN SWIVEL 1/4	268769-001	2
8	ORIFICE, .093 DIA.	274234	1
9	TUBE, OIL INJECTION	275556	1
10	VALVE, BLWDWN 10: 1 1/2NPT VITON	276360	1
11	ORIFICE, 1/2 MNPT X 1/2 FNPT 0.187	276384	1
12	TEE, PIPE GALV 3/4 x 1/2 x 1/2	802903-022	1
13	BUSHING, RED STEEL 3/8 x 1/4	807601-010	1
14	NIPPLE, PIPE XS BLACK 1/2 x 4	822208-040	1
15	CAPSCREW, HEX METRIC GR 8.8 M12 X 1.75 X 21MM	828012-025	4
16	WASHER, LOCK METRIC M12	838812-250	4
17	WASHER, FLAT METRIC M12	838912-270	4
18	ELBOW, 37FL/90M #04 x 1/4	860204-025	2
19	ELBOW, 37FL/90M #04 x 1/2	860204-050	1
20	ELBOW, 37FL/90M #12 x 1/2	860212-050	1
21	NIPPLE, PIPE HEX 3/4 x 3/4	860412-075	1
22	ELBOW, PIPE 1/4M x 1/4M	860504-025	1
23	TEE, 37FL/MALE RUN 1/4 x 1/4 x 1/4	861804-025	2
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

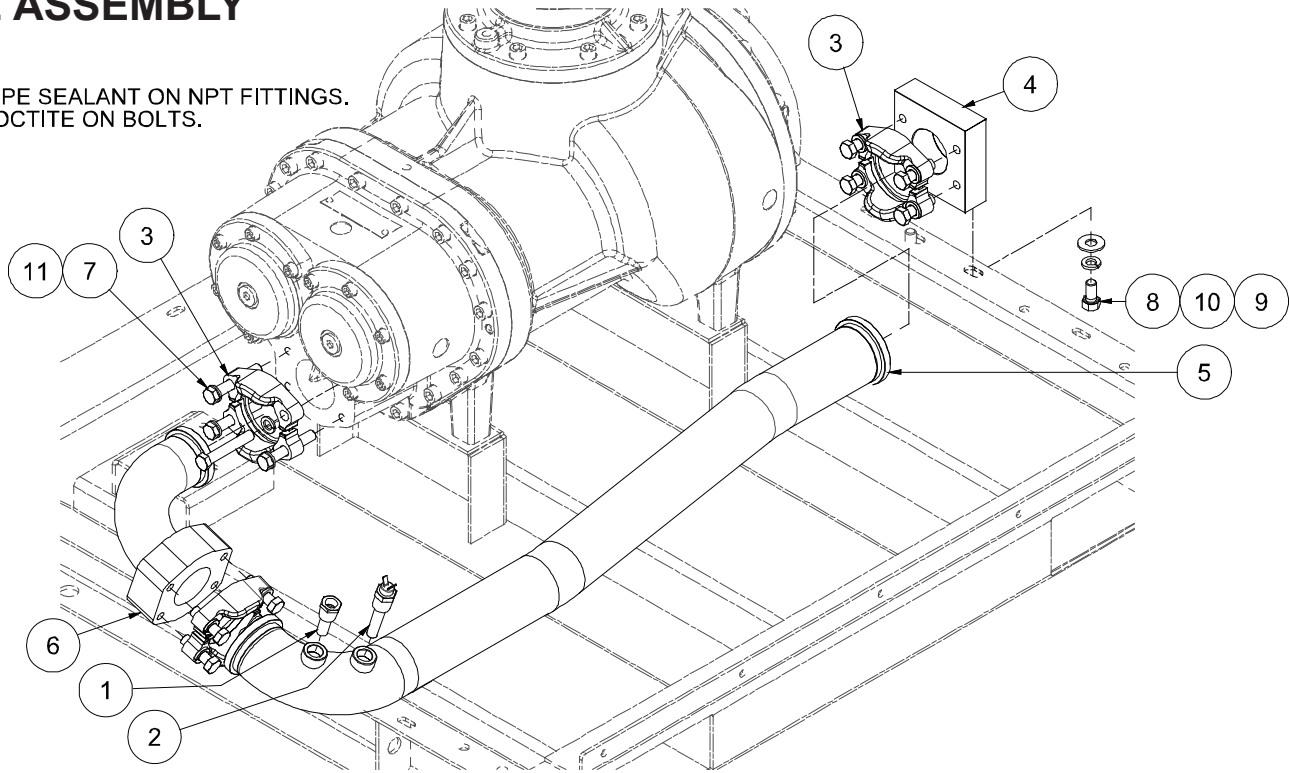
7.4 AIR FILTERS AND PARTS



ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	2
2	CONNECTOR, 1/8P x 1/4T PUSH ON	261316	1
3	TUBING, PLASTIC 1/4 WHITE	261322	3
4	WASHER, NYLON FLAT 1/4	262704	2
5	WASHER, NYLON 5/16-18	262943	8
6	SCREW, TRUSS HD 5/16-18x3/4 SS	262945	8
7	SCREW, TRUSS HD 1/4-20 x 3/4	262953-100	2
8	CLAMP, HOSE SAE #96	266288	4
9	ADAPTER, F-PIPE X M-METRIC 1/8 X M10	269589-001	1
10	INDICATOR, AIR FILTER RESTRICTION 65MBAR	274382	1
11	TEE, 1/4 X 1/4 X 1/4 PUSH ON	274581	1
12	CLAMP, HOSE T-BOLT 7" DIA	274628	4
13	FILTER, AIR	275004	2
14	BRACKET, AIR FILTER MOUNTING	275005	2
15	PLENUM, AIR INTAKE	275007	1
16	BRACKET, CENTER SUPPORT AIR FILTER MNTG	275099	2
17	HOSE, HUMP 6 INCH ID	275115	1
18	TUBE, ALUMINUM 6 OD X 5 LG AIR INTAKE	275116	1
19	ELBOW, 90 DEG RUBBER 6 INCH ID	275117	1
20	ADAPTER, FEMALE M10X1 X 1/4 FNPT	275507	2
21	HOSE, AIR INTAKE	276117	2
22	NUT, HEX FLANGE 1/4-20	825304-236	2
23	NUT, HEX FLANGE 5/16-18	825305-283	6
24	CAPSCREW, HEX 8mm 1.25 x 20	828008-20	8
25	WASHER, LOCK METRIC M8	838808-200	8
26	WASHER, FLAT METRIC M8	838908-180	8
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.5 DISCHARGE ASSEMBLY

NOTES:
1. USE PIPE SEALANT ON NPT FITTINGS.
2. USE LOCTITE ON BOLTS.



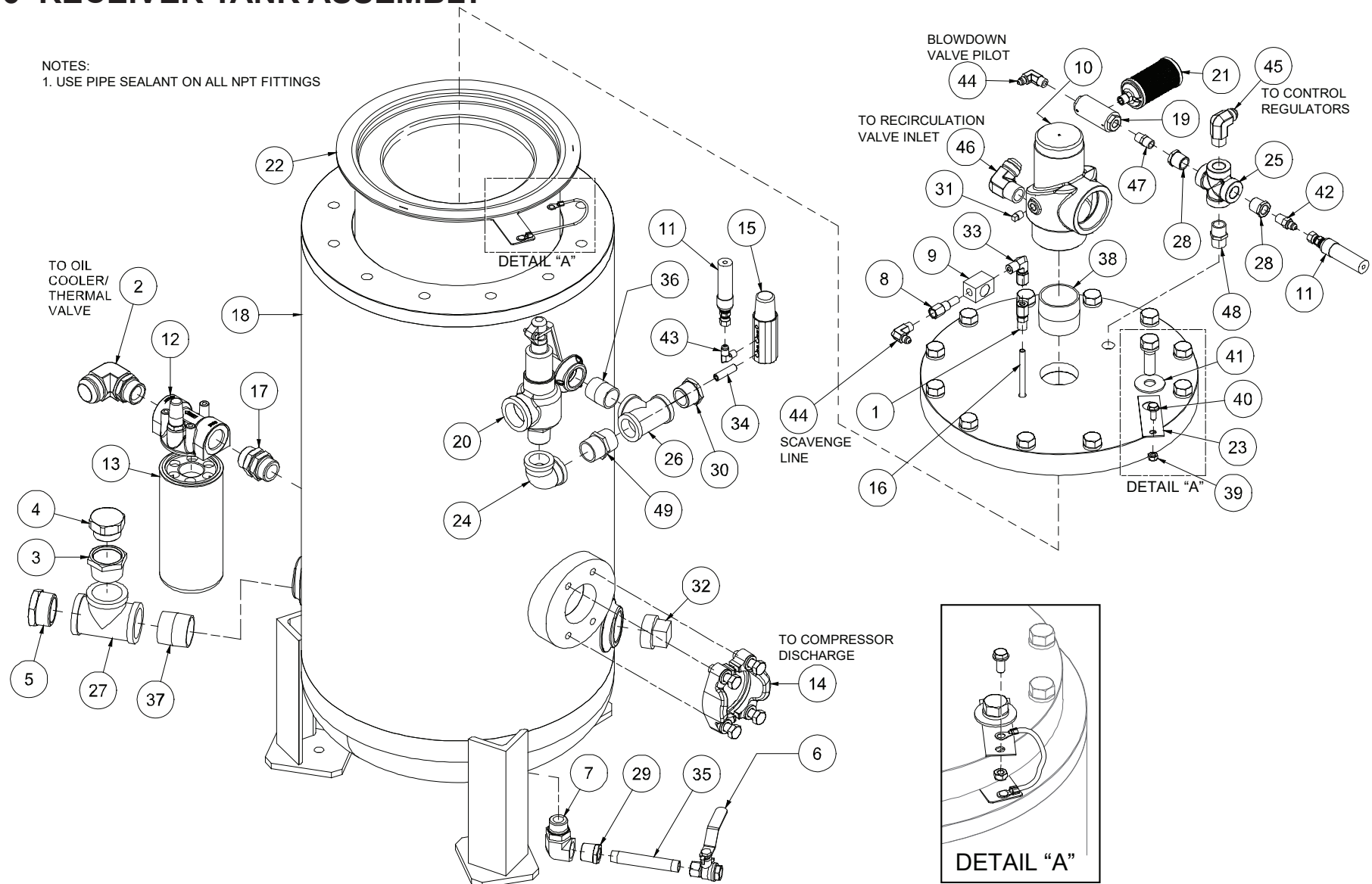
ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	THERMOWELL, TEMP. GAUGE	263745	1	7	CAPSCREW, HEX 12mm 1.75 x 75	828012-075	4
2	SWITCH, TEMPERATURE 240 DEG F VAN DC	272095	1	8	CAPSCREW, HEX GR8 1/2-13 x 1	829408-100	2
3	FLANGE, KIT SAE SPLIT 2.50 WITH VITON O-RING	272286	3	9	WASHER, FLAT 1/2	838208-112	2
4	BLOCK, COMPRESSOR DISCHARGE	274148	1	10	WASHER, LOCK 1/2	838508-125	2
5	HOSE, DISCHARGE 2.50 CODE 61 SS FLEX	274971	1	11	WASHER, LOCK METRIC M12	838812-250	4
6	ELBOW, PIPE DISCHARGE 2.50 CODE 61	274972	1				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

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7.6 RECEIVER TANK ASSEMBLY

NOTES:

1. USE PIPE SEALANT ON ALL NPT FITTINGS



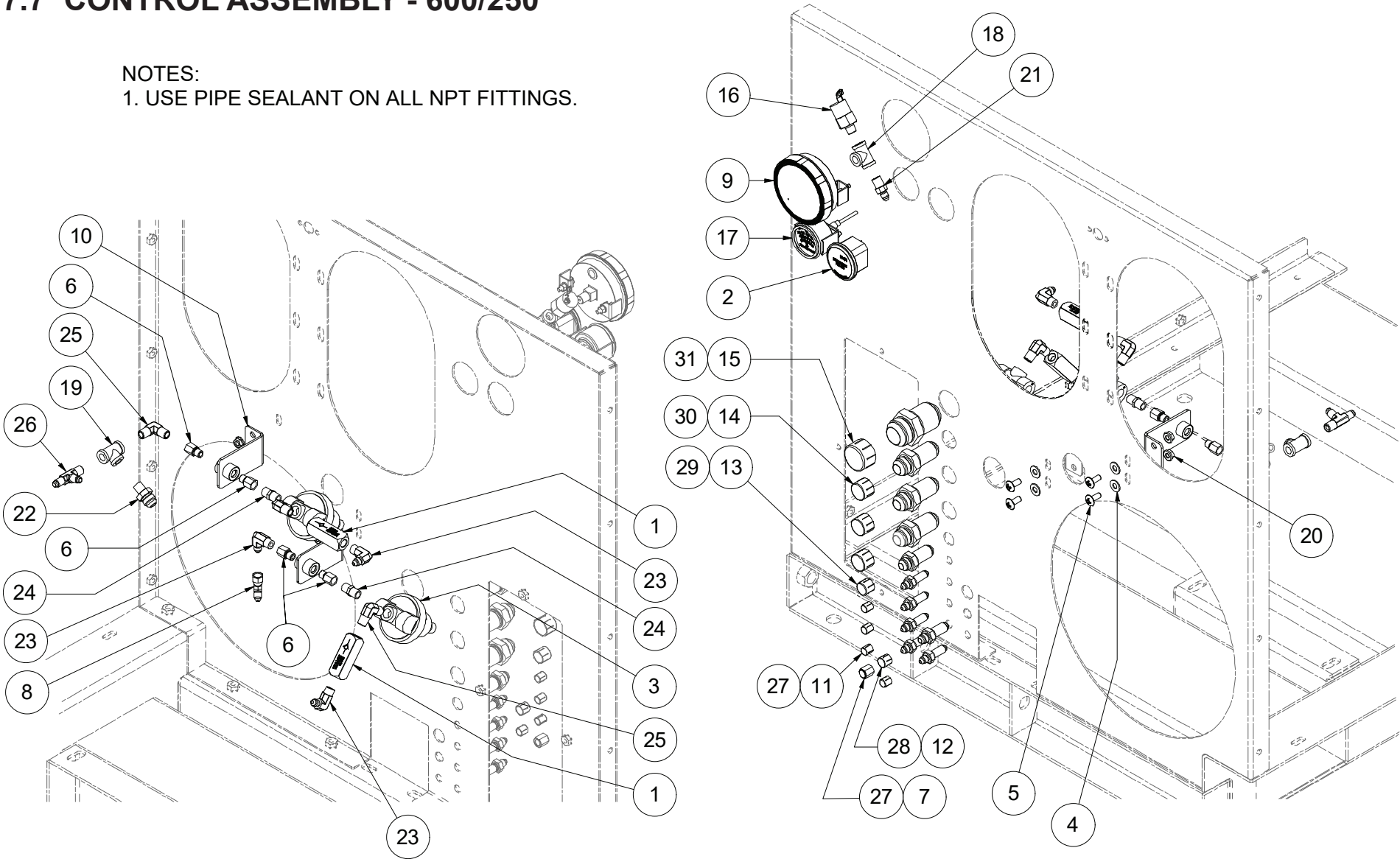
7.6 RECEIVER TANK ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	FITTING, FLEX 5/16 THRU 1/4 NPT SCVNGR LINE	02250137-595	1	26	TEE, PIPE 300# 1 BLK	806630-040	1
2	ELBOW, 90 DEG #20 MJIC x #16 MSAE	260403-109	1	27	TEE, PIPE 300# 1 1/2 BLK	806630-060	1
3	ADAPTER, FILL	261975	1	28	BUSHING, RED STEEL 1/2 x 1/4	807602-010	2
4	PLUG, O-RING 1-1/4	261981	1	29	BUSHING, RED STEEL 3/4 x 3/8	807603-015	1
5	GLASS, SIGHT OIL LEVEL 1-1/2	261984	1	30	BUSHING, RED STEEL 1 x 1/8	807604-005	1
6	VALVE, SERVICE 3/8 FxF	264746	1	31	PLUG, PIPE 1/8	807800-005	1
7	ELBOW, 90 DEG. #12 MSAE x 3/4 FNPT	269071-007	1	32	PLUG, PIPE 1 1/2	807800-060	1
8	ORIFICE, FILTER .047 DIA., 1/4 FPT X 1/4 MPT	269788	1	33	ELBOW, TUBE 5/16 X 1/4 NPT	810505-025	1
9	SIGHTGLASS, 1/4 FPT	269789	1	34	NIPPLE, PIPE 300# 1/8 x 1.50 LG	822102-015	1
10	VALVE, MIN. PRESSURE 2" 275 PSIG	271084	1	35	NIPPLE, PIPE XS BLACK 3/8 x 4	822206-040	1
11	HOSE, ASSY 0.25 x 15.00 LG SWIVEL ENDS	271913	1	36	NIPPLE, PIPE XS CLOSE 1	822216-000	1
12	HEAD, OIL FILTER SAE PRS 435	272129	1	37	NIPPLE, PIPE XS CLOSE 1 1/2	822224-000	1
13	FILTER, OIL VAN DC 435/100	272130	1	38	NIPPLE, PIPE XS CLOSE 2	822232-000	1
14	FLANGE, KIT SAE SPLIT 2.50 WITH VITON O-RING	272286	1	39	NUT, HEX LOCKING 5/16-18	825505-166	1
15	INDICATOR, DELTA - P 10 PSI VAN DC 435/200	272311	1	40	SCREW, SER WASH 5/16-18 x 0.75	829705-075	1
16	TUBE, SCAVENGER LINE VAN DC 435/200 0.31 DIA.	272312	1	41	WASHER, FLAT 5/8	838210-112	1
17	CONNECTOR, #16 MSAE x #16 MSAE	272873-016	1	42	CONNECTOR, 37FL/MPT #04 x 1/4	860104-025	1
18	TANK, RECEIVER 18.00 300 PSIG	274907	1	43	ELBOW, 37 FL/90M 1/4 x 1/8	860204-012	1
19	VALVE, BLOWDOWN 1/4 PISTON 350 PSI	275237	1	44	ELBOW, 37FL/90M #04 x 1/4	860204-025	2
20	VALVE, PRESSURE RELIEF 300 PSI 1" NPT	275241	1	45	ELBOW, 37FL/90M #08 x 1/2	860208-050	1
21	MUFFLER, WITH RELIEF VALVE 1/4 NPT MALE	278748	1	46	ELBOW, 37FL/90M #12 x 3/4	860212-075	1
22	ELEMENT, SEPARATOR 600/250 W/EXT GROUND	283687	1	47	NIPPLE, PIPE HEX 1/4 x 1/4	860404-025	1
23	BAR, COPPER GROUNDING SEPARATOR ELEMENT	283711	1	48	NIPPLE, PIPE HEX 1/2 x 1/2	860408-050	1
24	ELBOW, PIPE BLK 90 DEG 1	801515-040	1	49	NIPPLE, PIPE HEX 1 x 1	860416-100	1
25	CROSS, PIPE 1/2 300# GALV	806330-020	1				

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

7.7 CONTROL ASSEMBLY - 600/250

NOTES:
1. USE PIPE SEALANT ON ALL NPT FITTINGS.

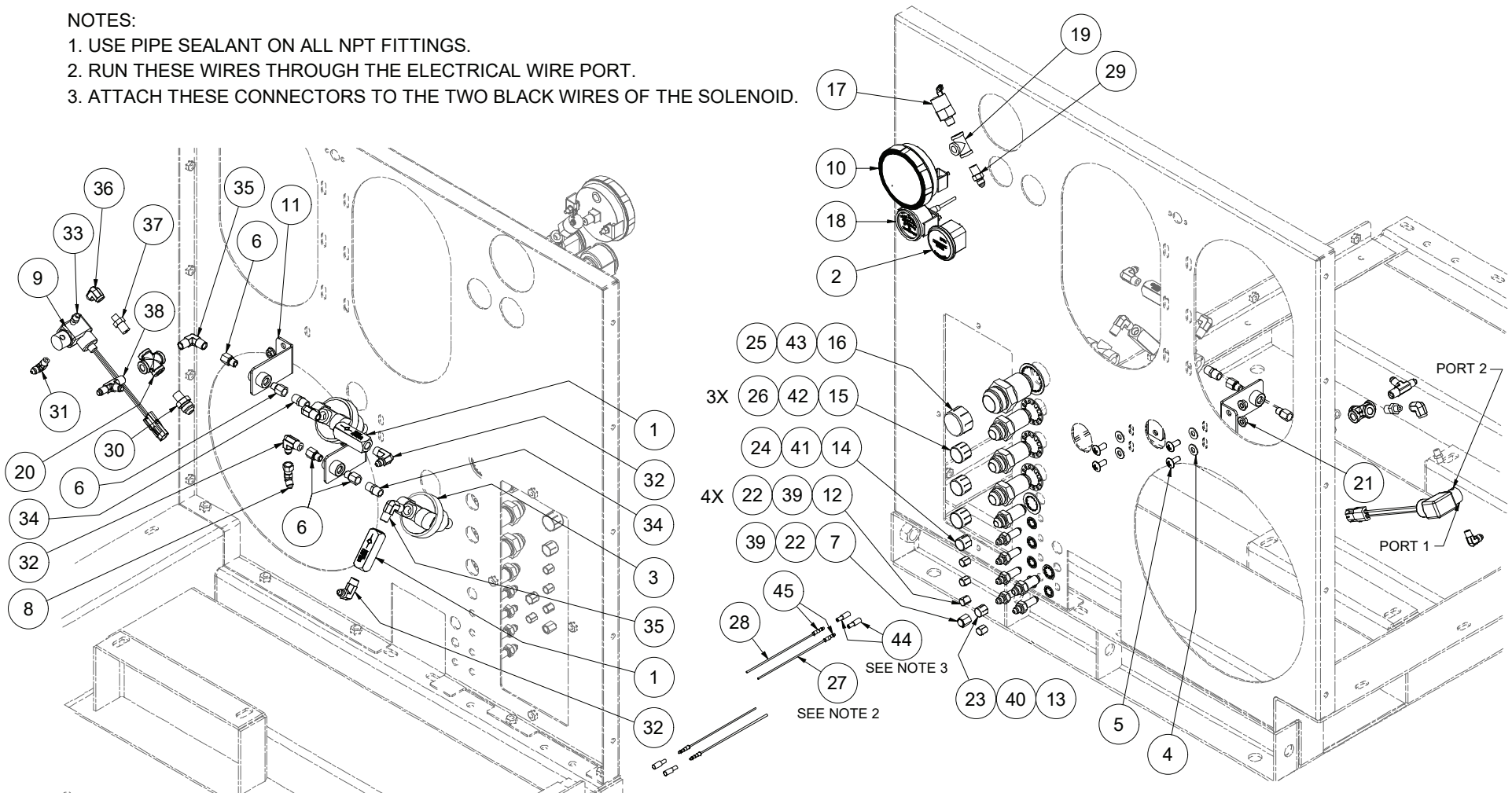


7.7 CONTROL ASSEMBLY - 600/250								
ITEM	DESCRIPTION	PART NUMBER	QTY		ITEM	DESCRIPTION	PART NUMBER	QTY
1	VALVE, CHECK 1/4 NPT 2000 PSI	02250115-272	2		17	GAUGE, TEMP. MURPHY	407652	1
2	GAUGE, HOUR METER	040035	1		18	TEE, PIPE GALV 1/4	804415-010	1
3	VALVE, REGULATOR 275 PSIG	045099	2		19	TEE, PIPE 300# 1/4 BLK	806630-010	1
4	WASHER, NYLON 5/16-18	262943	4		20	NUT, HEX FLANGE 5/16-18	825305-283	4
5	SCREW, TRUSS HD 5/16-18x3/4 SS	262945	4		21	CONNECTOR, 37FL/MPT #04 x 1/4	860104-025	1
6	ADAPTER, #4 MSAE O-RING x 1/4 FNPT	263868-005	4		22	CONNECTOR, 37FL/MPT #08 x 1/4	860108-025	1
7	CAP, FEMALE JIC #4	264322-001	1		23	ELBOW, 37FL/90M #04 x 1/4	860204-025	3
8	ELBOW, 45 #4MJIC X #4FJIC	267822	1		24	NIPPLE, PIPE HEX 1/4 x 1/4	860404-025	2
9	GAUGE, PRESSURE LIQUID FILLED 0-300 PSI	272387	1		25	ELBOW, PIPE 1/4M x 1/4M	860504-025	3
10	BRACKET, REGULATOR MOUNTING	275161	2		26	TEE, 37FL/MALE RUN 1/4 x 1/4 x 1/4	861804-025	1
11	CAP, FEMALE JIC SHIPPING #4 7/16-20	279109-001	4		27	BULKHEAD, MJIC x MJIC #4	862104-025	5
12	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1		28	BULKHEAD, MJIC x MJIC #6	862106-038	1
13	CAP, FEMALE JIC SHIPPING #8 3/4-16	279109-003	1		29	BULKHEAD, MJIC x MJIC #8	862108-050	1
14	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	3		30	BULKHEAD, MJIC x MJIC #12	862112-075	3
15	CAP, FEMALE JIC SHIPPING #20 1 5/8-12	279109-007	1		31	BULKHEAD, MJIC x MJIC #20	862120-125	1
16	SWITCH, PRESSURE 20 PSI N.O. 600 PSI MAX	279422	1					
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.								

7.8 CONTROL ASSEMBLY - 770/150

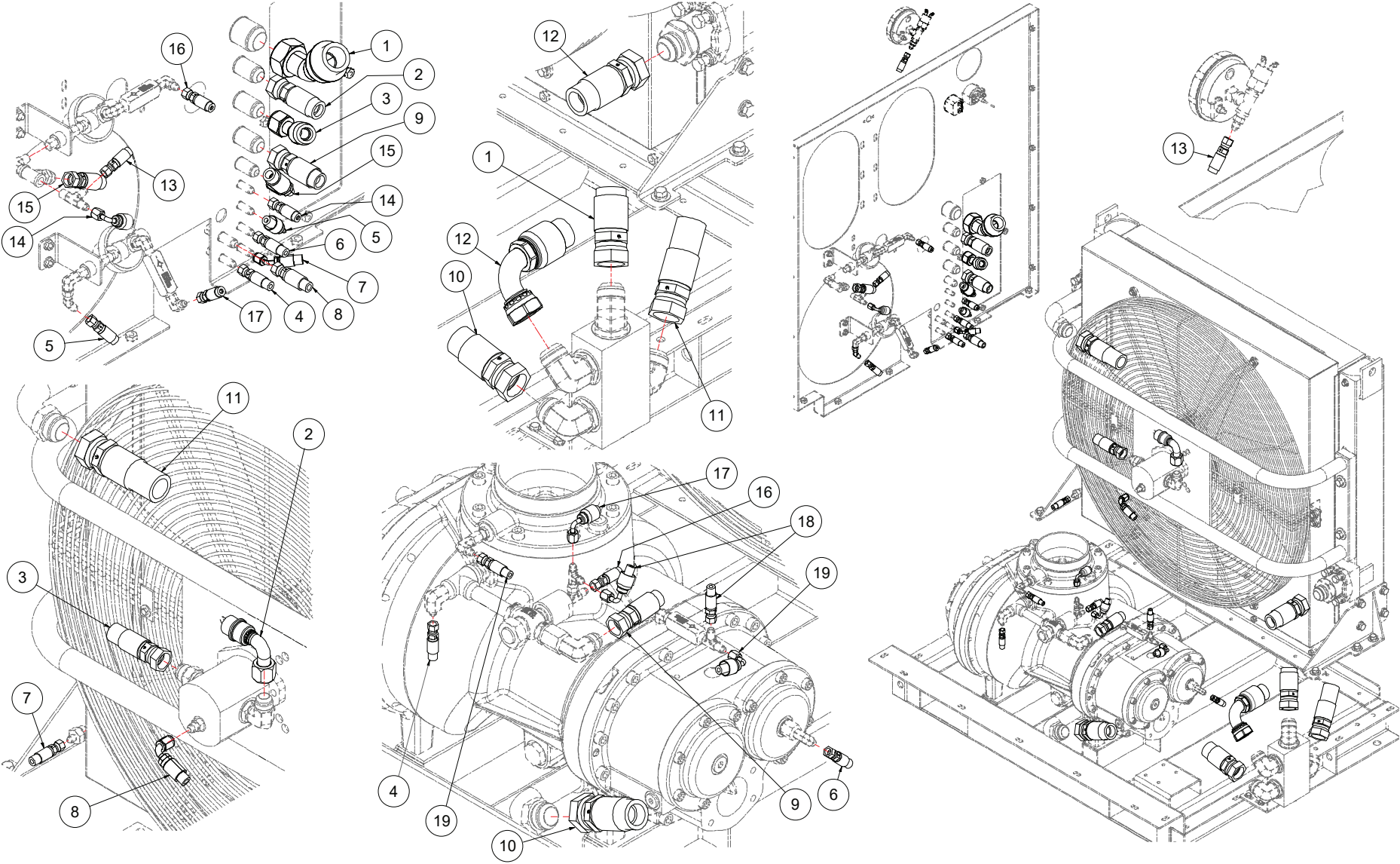
NOTES:

1. USE PIPE SEALANT ON ALL NPT FITTINGS.
2. RUN THESE WIRES THROUGH THE ELECTRICAL WIRE PORT.
3. ATTACH THESE CONNECTORS TO THE TWO BLACK WIRES OF THE SOLENOID.



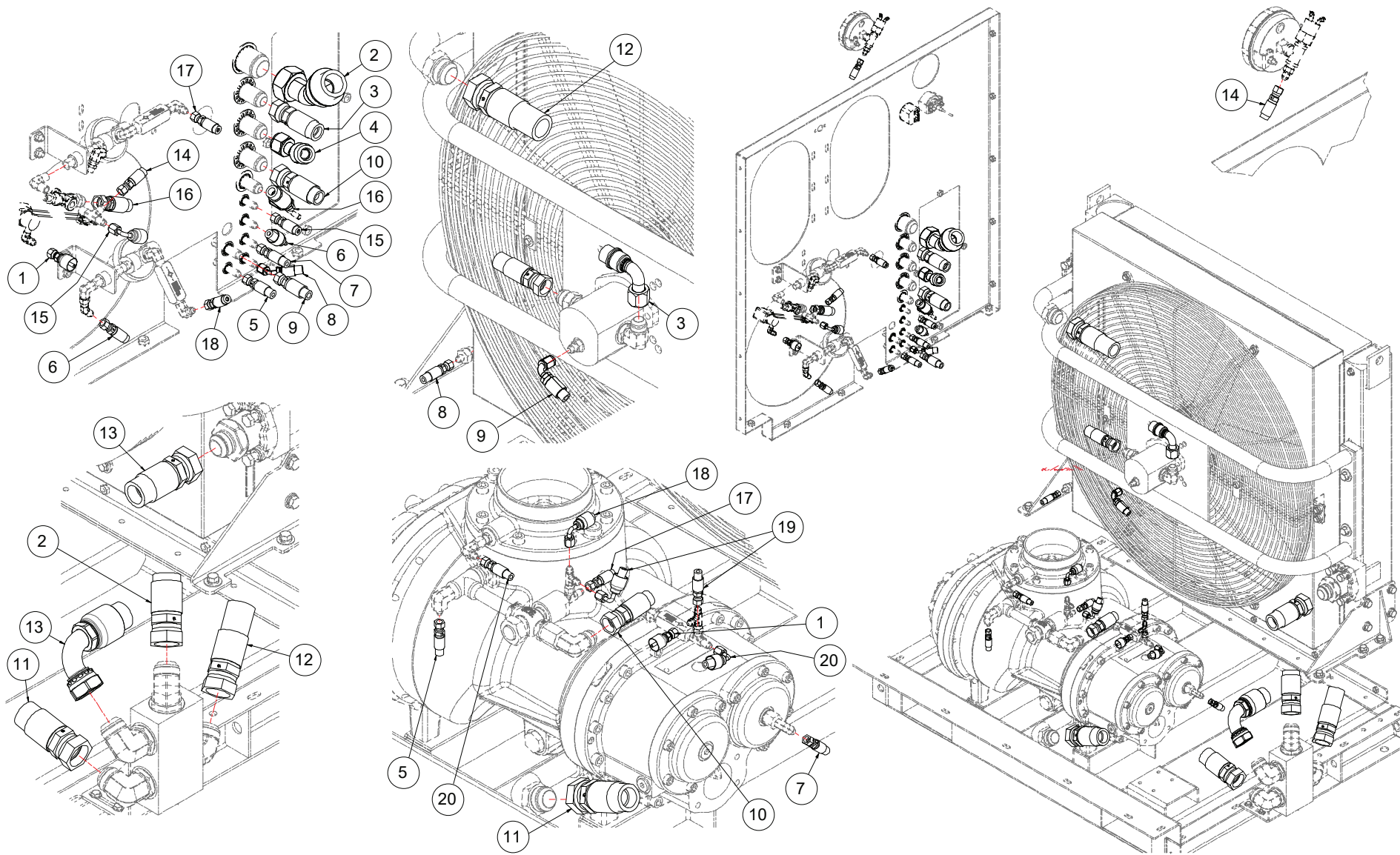
7.8 CONTROL ASSEMBLY - 770/150							
ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	VALVE, CHECK 1/4 NPT 2000 PSI	02250115-272	2	24	WASHER, INTERNAL TOOTH 3/4 INCH	837412-055	1
2	GAUGE, HOUR METER	040035	1	25	WASHER, LOCK INTERNAL TOOTH 1 5/8 INCH	837426-062	1
3	VALVE, REGULATOR 275 PSIG	045099	2	26	WASHER, INTERNAL TOOTH 1 1/8	838418-065	3
4	WASHER, NYLON 5/16-18	262943	4	27	WIRE, 16 GA BLACK (FT)	850210-016	6
5	SCREW, TRUSS HD 5/16-18x3/4 SS	262945	4	28	WIRE, 16 GA RED (FT)	850212-016	6
6	ADAPTER, #4 MSAE O-RING x 1/4 FNPT	263868-005	4	29	CONNECTOR, 37FL/MPT #04 x 1/4	860104-025	1
7	CAP, FEMALE JIC #4	264322-001	1	30	CONNECTOR, 37FL/MPT #08 x 1/4	860108-025	1
8	ELBOW, 45 #4MJIC X #4FJIC	267822	1	31	ELBOW, 37FL/90M #04 x 1/8	860204-012	1
9	VALVE, SOL NC 1/8" MALE CONNECTOR	269167	1	32	ELBOW, 37FL/90M #04 x 1/4	860204-025	3
10	GAUGE, PRESSURE LIQUID FILLED 0-300 PSI	272387	1	33	NIPPLE, PIPE HEX 1/8 x 1/8	860404-012	1
11	BRACKET, REGULATOR MOUNTING	275161	2	34	NIPPLE, PIPE HEX 1/4 x 1/4	860404-025	2
12	CAP, FEMALE JIC SHIPPING #4 7/16-20	279109-001	4	35	ELBOW, PIPE 1/4M x 1/4M	860504-025	3
13	CAP, FEMALE JIC SHIPPING #6 9/16-18	279109-002	1	36	ELBOW, PIPE STEEL 1/8	860602-012	1
14	CAP, FEMALE JIC SHIPPING #8 3/4-16	279109-003	1	37	NIPPLE, HEX RED 1/4 x 1/8	861604-012	1
15	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	279109-005	3	38	TEE, 37FL/MALE RUN 1/4 x 1/4 x 1/4	861804-025	1
16	CAP, FEMALE JIC SHIPPING #20 1 5/8-12	279109-007	1	39	BULKHEAD, MJIC x MJIC #4	862104-025	5
17	SWITCH, PRESSURE 20 PSI N.O. 600 PSI MAX	279422	1	40	BULKHEAD, MJIC x MJIC #6	862106-038	1
18	GAUGE, TEMP. MURPHY	407652	1	41	BULKHEAD, MJIC x MJIC #8	862108-050	1
19	TEE, PIPE GALV 1/4	804415-010	1	42	BULKHEAD, MJIC x MJIC #12	862112-075	3
20	CROSS, PIPE 1/4" 300 GALV STL	806330-010	1	43	BULKHEAD, MJIC x MJIC #20	862120-125	1
21	NUT, HEX FLANGE 5/16-18	825305-283	4	44	TERMINAL, BULLET, FEMALE .156 14-16 GAUGE, INSULATED	EL35442	2
22	WASHER, LOCK INTERNAL TOOTH 7/16 INCH	837407-040	5	45	TERMINAL, BULLET, MALE (.156) 14-16 GAUGE, INSULATED	EL71619	2
23	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	837409-045	1				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

7.9 HOSE & FITTING ASSEMBLY - 600/250 & 770/150



7.9 HOSE & FITTING ASSEMBLY - 600/250 & 770/150			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	HOSE, OIL FILTER TO THERMAL VALVE	275164	1
2	HOSE, HYD MOTOR RETURN	275165	1
3	HOSE, HYD MOTOR SUPPLY	275166	1
4	HOSE, BLOWDOWN LINE	275168	1
5	HOSE, 3 WAY SELECTOR VLV RETURN	275170	1
6	HOSE, SCAVENGE LINE	275171	1
7	HOSE, OIL COOLER DRAIN	275172	1
8	HOSE, HYD CASE DRAIN	275173	1
9	HOSE, RECIRC VALVE SUPPLY	275177	1
10	HOSE, OIL INJECTION	275178	1
11	HOSE, OIL COOLER RETURN	275179	1
12	HOSE, OIL COOLER SUPPLY	275180	1
13	HOSE, PRESSURE GAUGE	275181	1
14	HOSE, 3 WAY SELECTOR VLV SUPPLY	275182	1
15	HOSE, REGULATOR PRESSURE LINE	275599	1
16	HOSE, HIGH PRESS REG TO RECIRC VLV PILOT	275601	1
17	HOSE, LOW PRESS REG TO RCRC VLV PILOT	275602	1
18	HOSE, RECIRC VLV PILOT TO INLET VLV	276746	3
19	HOSE, INLET BLEED	276747	3
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.10 HOSE & FITTING ASSEMBLY



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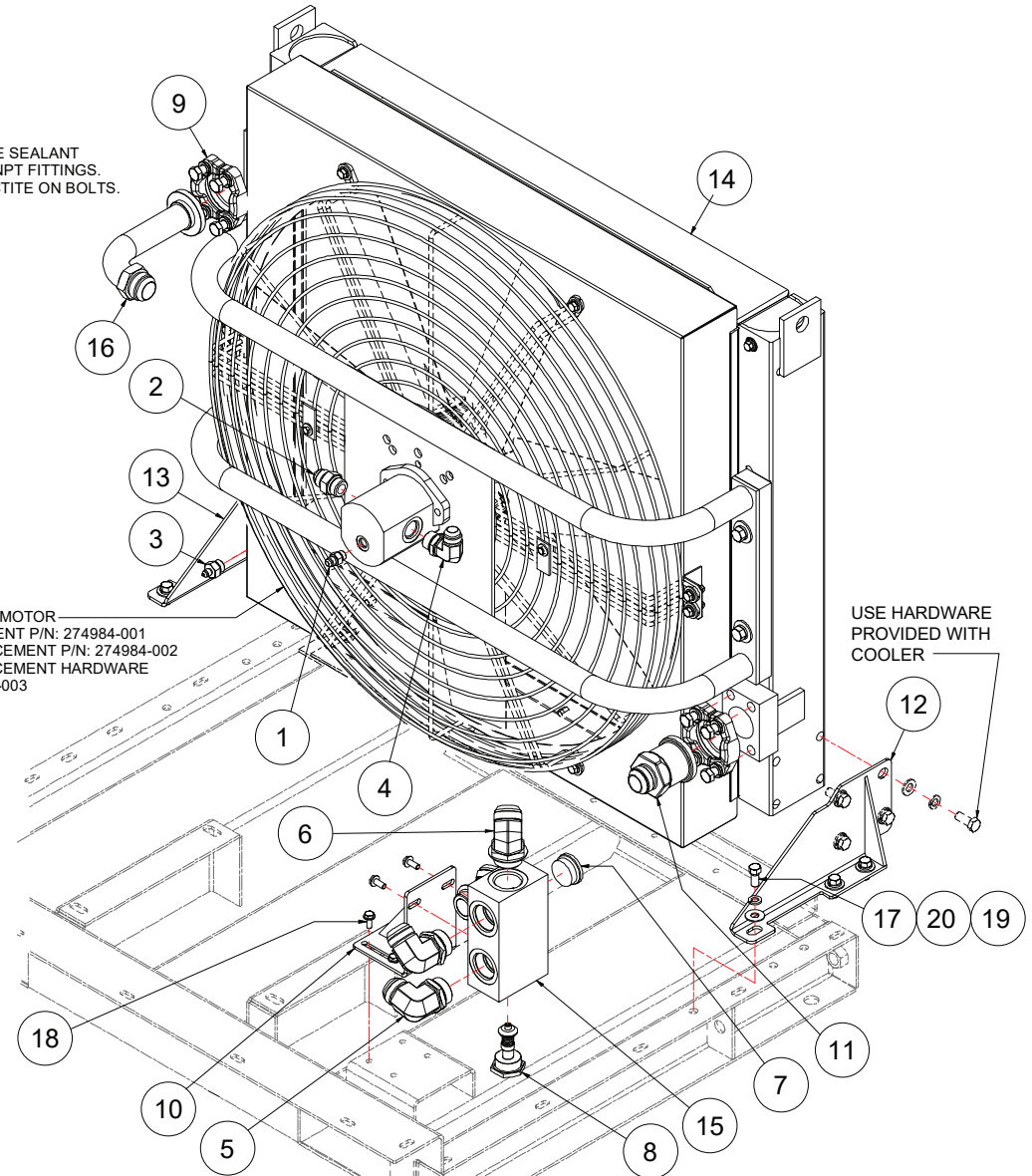
7.10 HOSE & FITTING ASSEMBLY			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	HOSE, ASSY 0.25 X 36.00	271915	1
2	HOSE, OIL FILTER TO THERMAL VALVE	275164	1
3	HOSE, HYD MOTOR RETURN	275165	1
4	HOSE, HYD MOTOR SUPPLY	275166	1
5	HOSE, BLOWDOWN LINE	275168	1
6	HOSE, 3 WAY SELECTOR VLV RETURN	275170	1
7	HOSE, SCAVENGE LINE	275171	1
8	HOSE, OIL COOLER DRAIN	275172	1
9	HOSE, HYD CASE DRAIN	275173	1
10	HOSE, RECIRC VALVE SUPPLY	275177	1
11	HOSE, OIL INJECTION	275178	1
12	HOSE, OIL COOLER RETURN	275179	1
13	HOSE, OIL COOLER SUPPLY	275180	1
14	HOSE, PRESSURE GAUGE	275181	1
15	HOSE, 3 WAY SELECTOR VLV SUPPLY	275182	1
16	HOSE, REGULATOR PRESSURE LINE	275599	1
17	HOSE, HIGH PRESS REG TO RECIRC VLV PILOT	275601	1
18	HOSE, LOW PRESS REG TO RCRC VLV PILOT	275602	1
19	HOSE, RECIRC VLV PILOT TO INLET VLV	276746	3
20	HOSE, INLET BLEED	276747	3
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.11 OIL COOLER AND PARTS

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #6 MSAE x #6 MJIC	260387-105	1
2	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
3	CONNECTOR, #8 MSAE x #4 MJIC	260387-127	1
4	ELBOW, 90 DEG #12 MJIC x #12 MSAE	260403-107	1
5	ELBOW, 90 DEG #20 MJIC x #20 MSAE	260403-110	2
6	ELBOW, 45 DEG #20 MJIC x #20 MSAE	264276-018	2
7	PLUG, SAE O-RING HOLLOW HEX #20	268081-011	1
8	THERMOSTAT, 150 - 160 DEG VAN DC	272098	1
9	FLANGE, KIT SAE SPLIT 2.00 WITH VITON O-RING	272285	2
10	BRACKET, THERMAL VALVE MOUNTING	274160	1
11	ADAPTER, #20 MJIC X #32 CODE 61 FLANGE	274330-016	1
12	BRACKET, RIGHT COOLER MOUNTING	274962	1
13	BRACKET, LEFT COOLER MOUNTING	274963	1
14	OIL COOLER ASSEMBLY	274984	1
15	MANIFOLD, THERMOVALVE SAE #20 PORTS	275096	1
16	TUBE, OIL COOLER TO THERMAL VALVE	275557	1
17	CAPSCREW, HEX GR8 7/16-14 x 1	829407-100	6
18	SCREW, SER WASH 5/16-18 x 0.75	829705-075	6
19	WASHER, FLAT 7/16	838207-071	6
20	WASHER, LOCK 7/16	838507-109	6
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

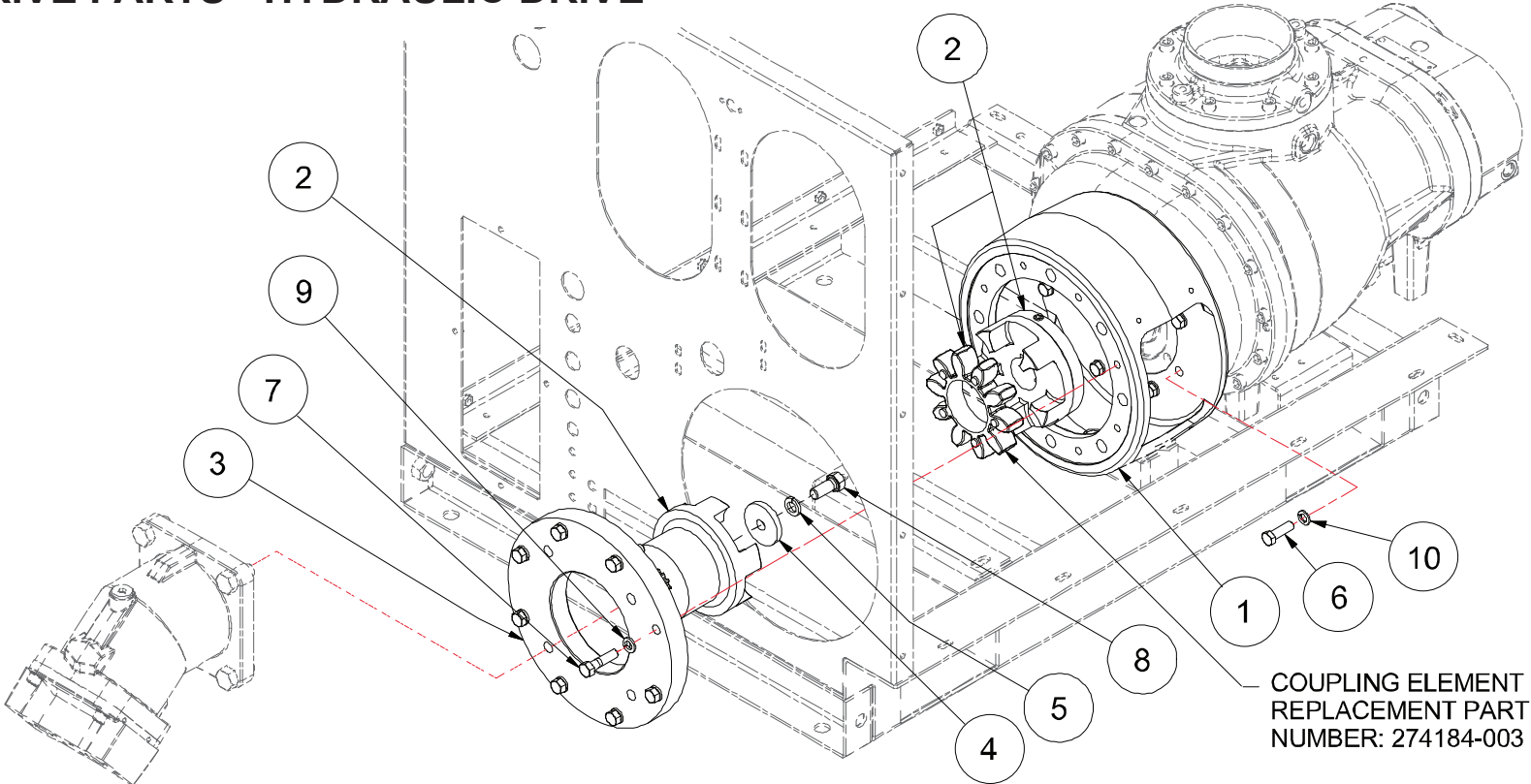
NOTES:
 1. USE PIPE SEALANT ON ALL NPT FITTINGS.
 2. USE LOCTITE ON BOLTS.

• HYDRAULIC MOTOR REPLACEMENT P/N: 274984-001
 • FAN REPLACEMENT P/N: 274984-002
 • FAN REPLACEMENT HARDWARE P/N: 274984-003



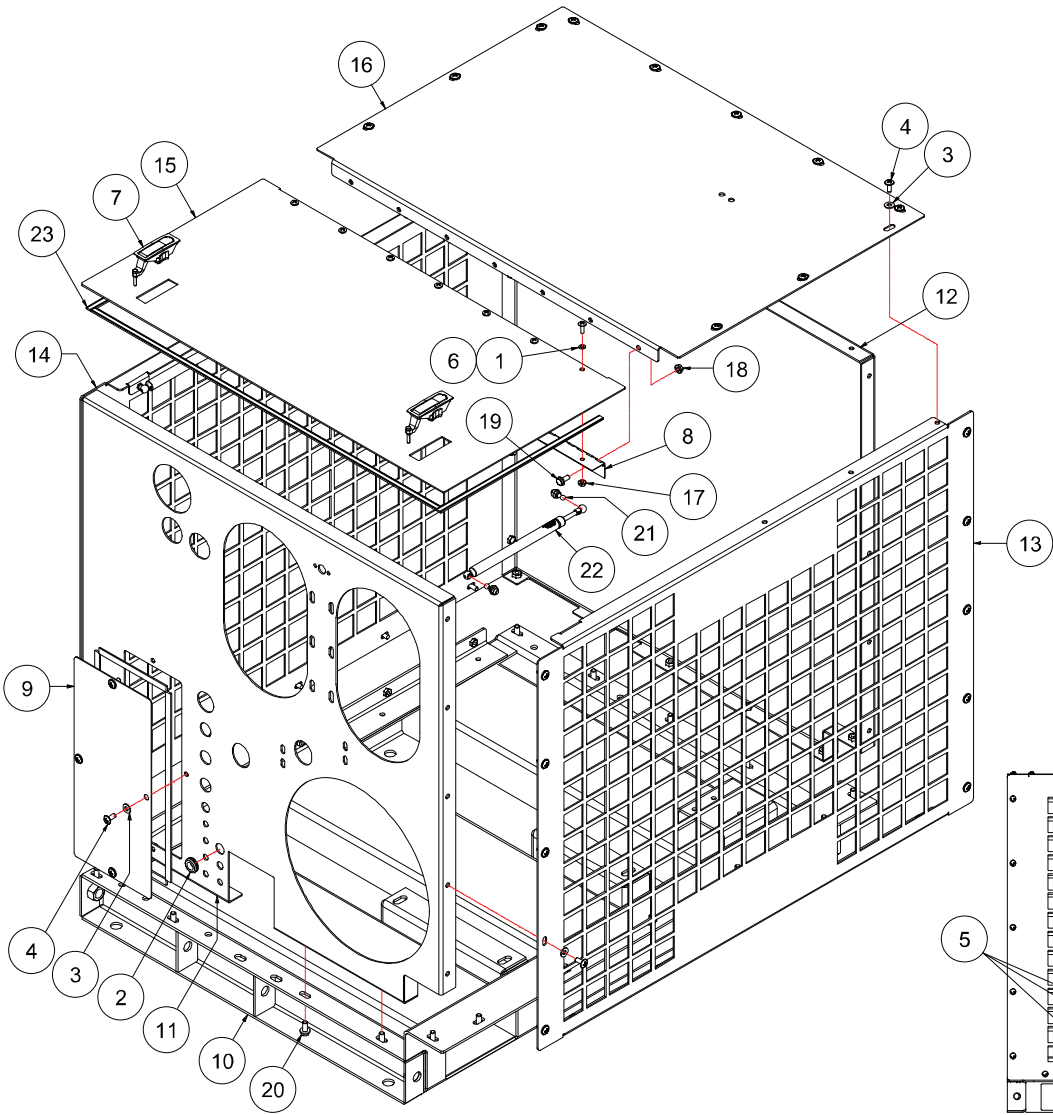
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7.12 DRIVE PARTS - HYDRAULIC DRIVE



ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	HOUSING, MOTOR ADAPTER 16 SERIES	250151-630	1	6	CAPSCREW, HEX 12MM 1.75 X 40MM	828012-040	8
2	COUPLING, FLEXIBLE JAW	274184	1	7	CAPSCREW, HEX GR8 1/2-13 X 2.00	829408-200	8
3	ADAPTER, C FACE TO D FACE	274187	1	8	CAPSCREW, HEX GR8 5/8-11 x 1.5	829410-150	1
4	WASHER, 2.5" OD X .625" ID X .375" THICK	274823	1	9	WASHER, LOCK 1/2	838508-125	8
5	WASHER, LOCK 5/8 GRADE 8	274827-156	1	10	WASHER, LOCK METRIC M12	838812-250	8
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

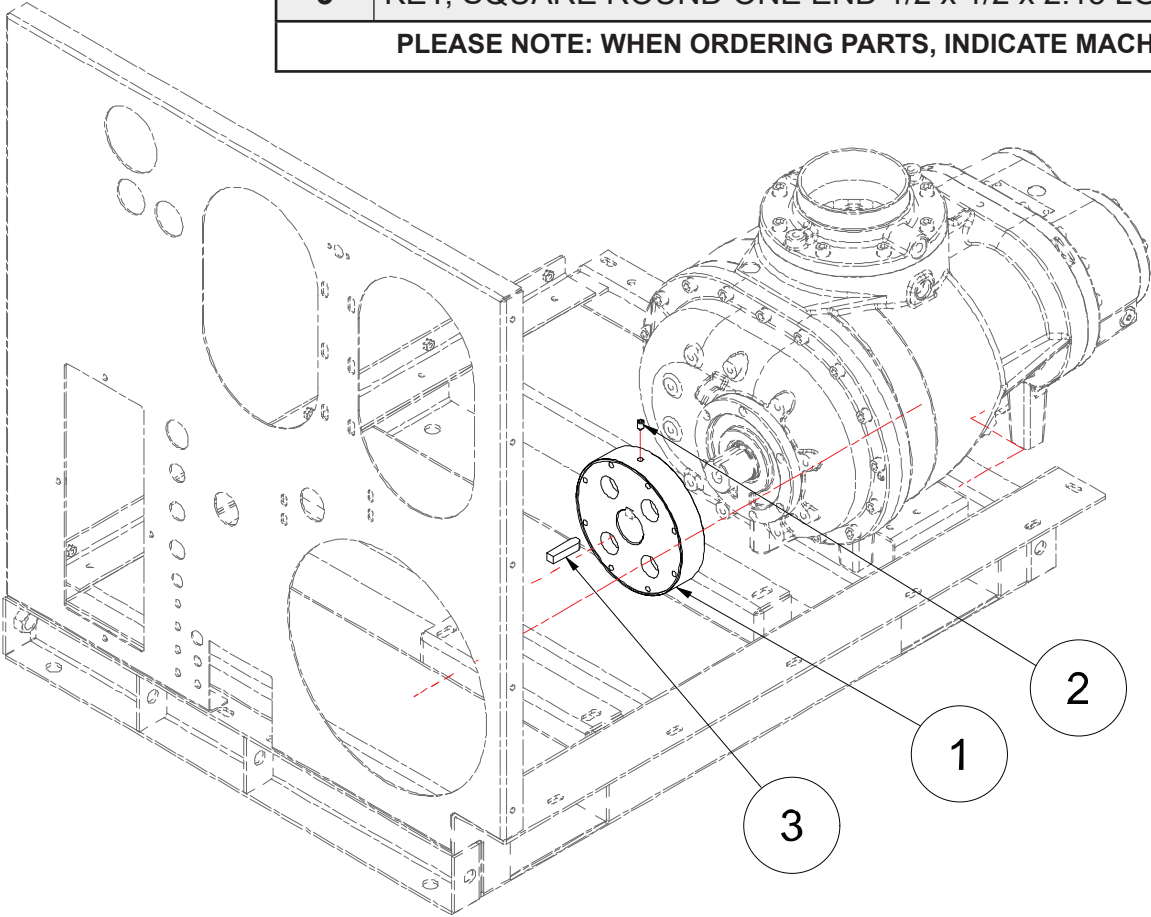
7.13 FRAME AND CANOPY PARTS



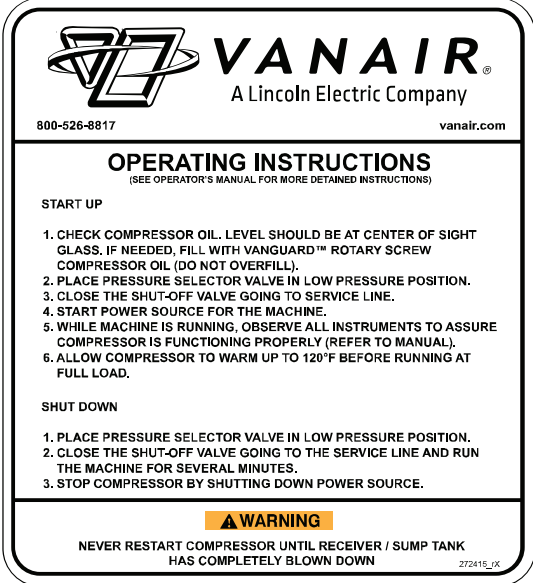
ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	7
2	GROMMET, RUBBER 5/8 x 7/8x 1/8	262905	1
3	WASHER, NYLON 5/16-18	262943	40
4	SCREW,TRUSS HD 5/16-18x3/4 SS	262945	37
5	SCREW, TRUSS HD 5/16-18 x 1/2 SS	262945-050	3
6	SCREW, TRUSS 1/4-20 X 3/4 SS	262953	7
7	LATCH, SENTRY PANEL	267124	2
8	HINGE, CANOPY ROOF	271766-003	1
9	PANEL, BULKHEAD ACCESS	274171	1
10	FRAME, ASSEMBLY	274964	1
11	PANEL, FRONT DUAL AIR FILTER	274967	1
12	PANEL, BACK	274968	1
13	PANEL, LEFT	274969	1
14	PANEL, RIGHT	274970	1
15	PANEL, ROOF ACCESS	274976	1
16	PANEL, ROOF	275014	1
17	NUT, HEX FLANGE 1/4-20	825304-236	7
18	NUT, HEX FLANGE 5/16-18	825305-283	11
19	SCREW, SER WASH 5/16-18 x 0.75	829705-075	7
20	SCREW, SER WASH 3/8-16 x 0.75	829706-075	16
21	STUD, BALL, .39DIA. X .55LG.	FA58724	4
22	GAS SPRING, 6 STROKE, 20#	HA72205	2
23	GASKET, SEAL AND TRIM	PR35734	9.8 ft
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.14 DRIVE PARTS - 600/250 WITH DRIVE HUB

ITEM	DESCRIPTION	PART NUMBER	QTY
1	HUB, DRIVE 1710 FLANGE/1.94 SHAFT	282371	1
2	SCREW, SET 3/8-16 x 1/2	832206-050	1
3	KEY, SQUARE ROUND ONE END 1/2 x 1/2 x 2.13 LG	278111	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			



7.15 DECALS - LOCATION & IDENTIFICATION (1 OF 3): LABELS AND INSTRUCTIONS



VAN AIR
A Lincoln Electric Company
800-526-8817 vanair.com

OPERATING INSTRUCTIONS
(SEE OPERATOR'S MANUAL FOR MORE DETAILED INSTRUCTIONS)

START UP

1. CHECK COMPRESSOR OIL. LEVEL SHOULD BE AT CENTER OF SIGHT GLASS, IF NEEDED, FILL WITH VANGUARD™ ROTARY SCREW COMPRESSOR OIL (DO NOT OVERFILL).
2. PLACE PRESSURE SELECTOR VALVE IN LOW PRESSURE POSITION.
3. CLOSE THE SHUT-OFF VALVE GOING TO SERVICE LINE.
4. START POWER SOURCE FOR THE MACHINE.
5. WHILE MACHINE IS RUNNING, OBSERVE ALL INSTRUMENTS TO ASSURE COMPRESSOR IS FUNCTIONING PROPERLY (REFER TO MANUAL).
6. ALLOW COMPRESSOR TO WARM UP TO 120°F BEFORE RUNNING AT FULL LOAD.

SHUT DOWN

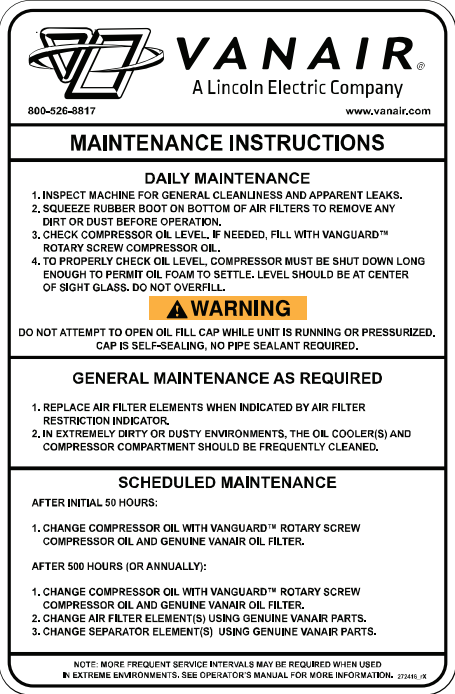
1. PLACE PRESSURE SELECTOR VALVE IN LOW PRESSURE POSITION.
2. CLOSE THE SHUT-OFF VALVE GOING TO THE SERVICE LINE AND RUN THE MACHINE FOR SEVERAL MINUTES.
3. STOP COMPRESSOR BY SHUTTING DOWN POWER SOURCE.

⚠ WARNING
NEVER RESTART COMPRESSOR UNTIL RECEIVER / SUMP TANK HAS COMPLETELY BLOWN DOWN

272415_1X

COMMON REPLACEMENT PART NUMBERS

AIR FILTER PRIMARY ELEMENT - 275225
AIR FILTER SECONDARY ELEMENT - 275226
SEPARATOR ELEMENT - 272209
OIL FILTER - 272130
AIR FILTER MAINTENANCE KIT - KIT1254
OIL CHANGE MAINTENANCE KIT - KIT 1224
COMPLETE MAINTENANCE KIT - KIT 1255



VAN AIR
A Lincoln Electric Company
800-526-8817 www.vanair.com

MAINTENANCE INSTRUCTIONS

DAILY MAINTENANCE

1. INSPECT MACHINE FOR GENERAL CLEANLINESS AND APPARENT LEAKS.
2. SQUEEZE RUBBER BOOT ON BOTTOM OF AIR FILTERS TO REMOVE ANY DIRT OR DUST BEFORE OPERATION.
3. CHECK COMPRESSOR OIL LEVEL. IF NEEDED, FILL WITH VANGUARD™ ROTARY SCREW COMPRESSOR OIL.
4. TO PROPERLY CHECK OIL LEVEL, COMPRESSOR MUST BE SHUT DOWN LONG ENOUGH TO PERMIT OIL FOAM TO SETTLE. LEVEL SHOULD BE AT CENTER OF SIGHT GLASS. DO NOT OVERFILL.

⚠ WARNING
DO NOT ATTEMPT TO OPEN OIL FILL CAP WHILE UNIT IS RUNNING OR PRESSURIZED. CAP IS SELF-SEALING, NO PIPE SEALANT REQUIRED.

GENERAL MAINTENANCE AS REQUIRED

1. REPLACE AIR FILTER ELEMENTS WHEN INDICATED BY AIR FILTER RESTRICTION INDICATOR.
2. IN EXTREMELY DIRTY OR DUSTY ENVIRONMENTS, THE OIL COOLER(S) AND COMPRESSOR COMPARTMENT SHOULD BE FREQUENTLY CLEANED.

SCHEDULED MAINTENANCE

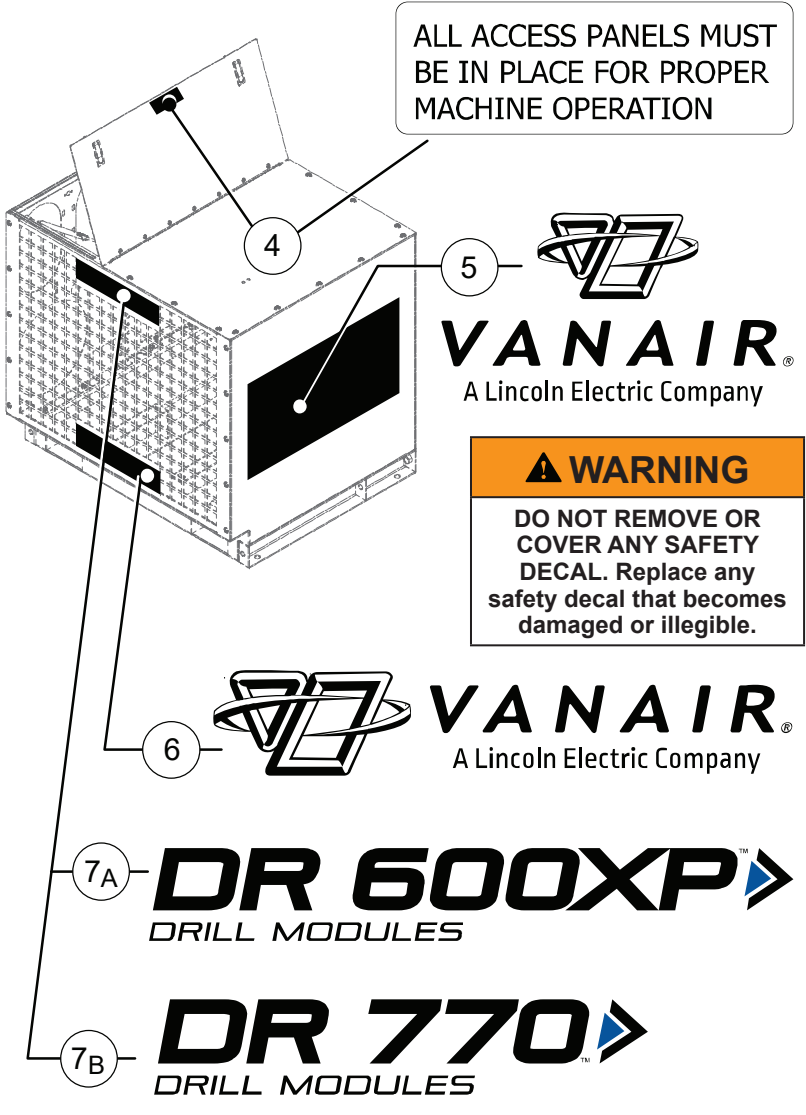
AFTER INITIAL 50 HOURS:

1. CHANGE COMPRESSOR OIL WITH VANGUARD™ ROTARY SCREW COMPRESSOR OIL AND GENUINE VAN AIR OIL FILTER.

AFTER 500 HOURS (OR ANNUALLY):

1. CHANGE COMPRESSOR OIL WITH VANGUARD™ ROTARY SCREW COMPRESSOR OIL AND GENUINE VAN AIR OIL FILTER.
2. CHANGE AIR FILTER ELEMENT(S) USING GENUINE VAN AIR PARTS.
3. CHANGE SEPARATOR ELEMENT(S) USING GENUINE VAN AIR PARTS.

NOTE: MORE FREQUENT SERVICE INTERVALS MAY BE REQUIRED WHEN USED IN EXTREME ENVIRONMENTS. SEE OPERATOR'S MANUAL FOR MORE INFORMATION. 272415_1X



ALL ACCESS PANELS MUST BE IN PLACE FOR PROPER MACHINE OPERATION

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

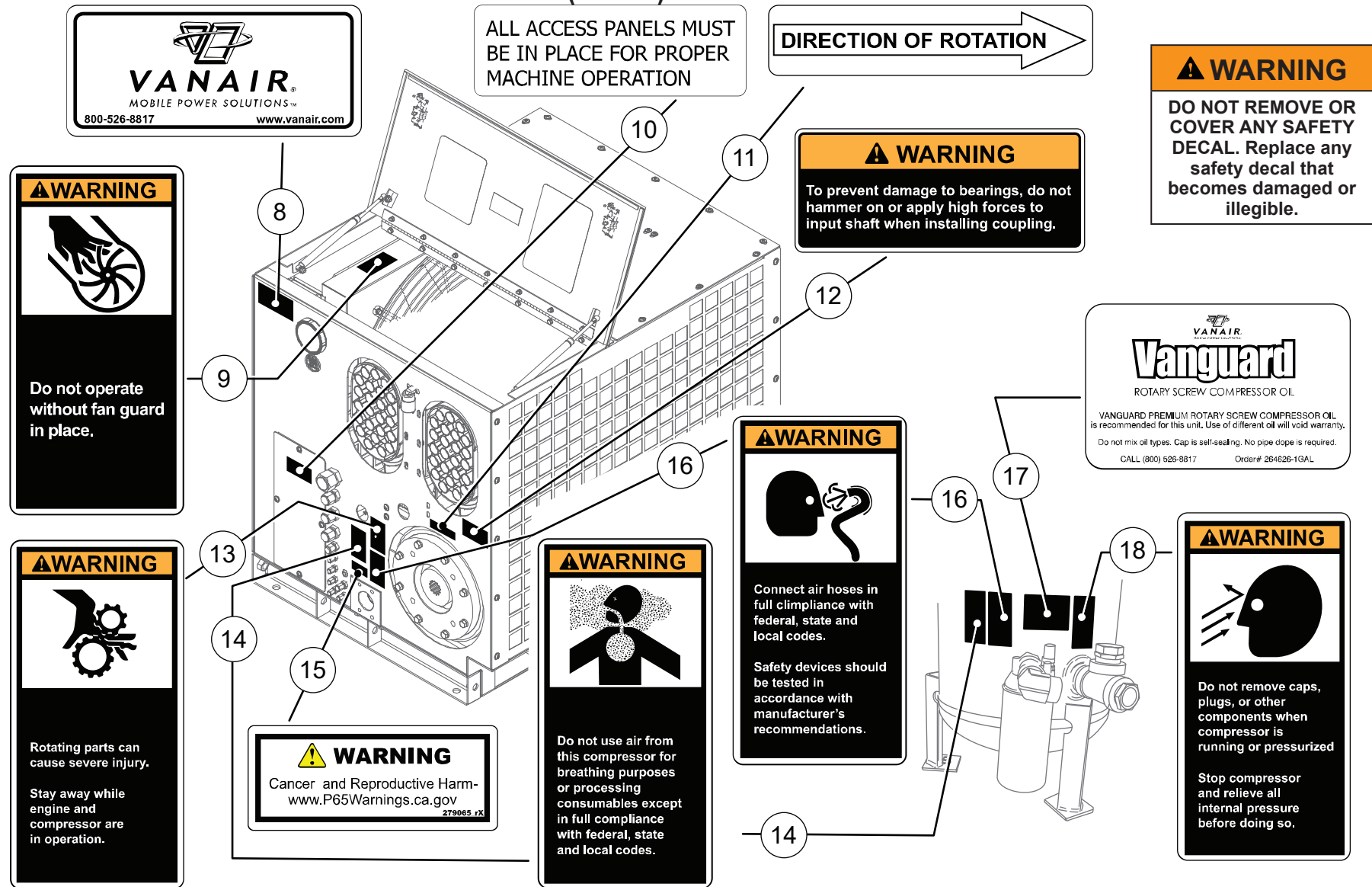
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A Lincoln Electric Company

7A DR 600XP
DRILL MODULES

7B DR 770
DRILL MODULES

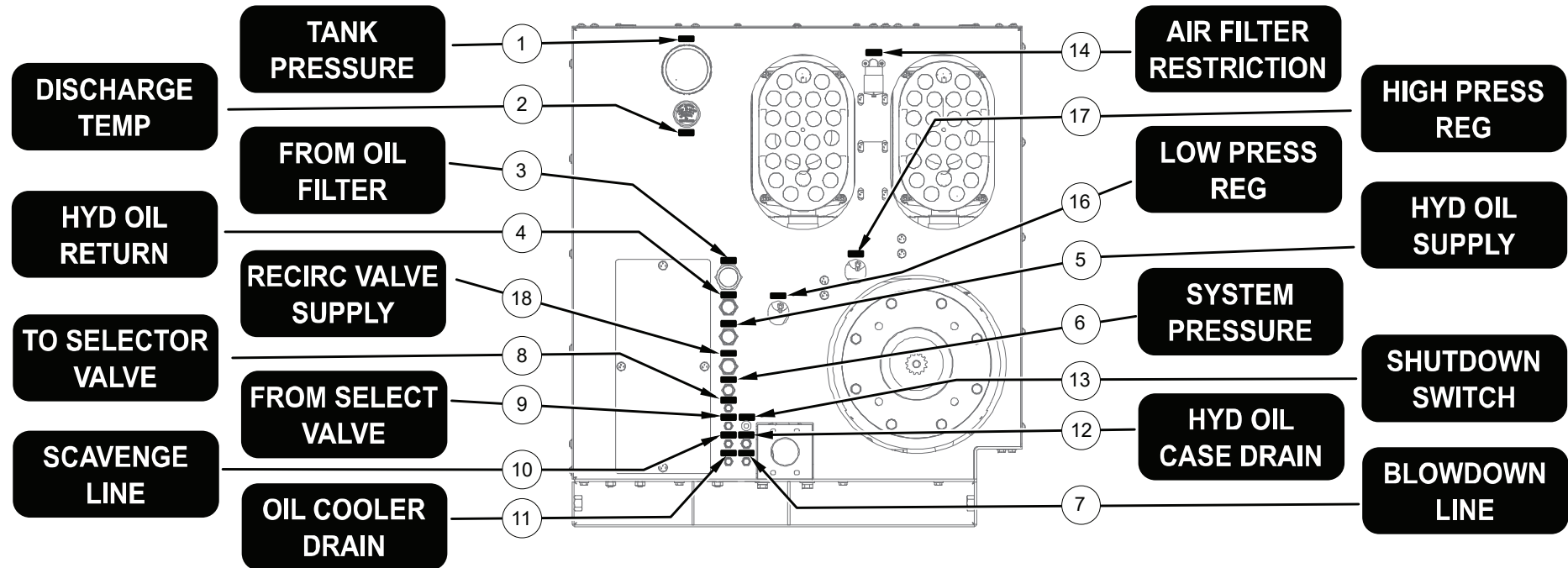
7.15 DECALS - LOCATION & IDENTIFICATION (1 OF 3): LABELS AND INSTRUCTIONS			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, OPERATING INST [‡]	272415	1
2	DECAL, REPLACEMENT PART NUMBERS	275202	1
3	DECAL, MAINTENANCE INST [‡]	272416	1
4	DECAL, ACCESS PANEL IN PLACE	250011-613	1
5	DECAL, VANAIR LOGO STACKED	275217	1
6	DECAL, VANAIR LOGO 16.00 HORIZONTAL BLK	275922	1
7	DECAL, LOGO DR600XP	275109	1
[‡] This decal is included with decal kit no. 276938.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.15 DECALS - LOCATION & IDENTIFICATION (2 OF 3): SAFETY & ADDITIONAL INSTRUCTION



7.15 DECALS - LOCATION & IDENTIFICATION (2 OF 3): SAFETY & ADDITIONAL INSTRUCTION			
ITEM	DESCRIPTION	PART NUMBER	QTY
8	DECAL,VANAIR 4 1/2 X 2	265605	1
9	DECAL, FAN GUARD ¹	264383	1
10	DECAL, ACCESS PANEL IN PLACE ¹	250011-613	2
11	DECAL, DIRECTION OF ROTATION ¹	275953	1
12	DECAL, PREVENT DAMAGE TO BEARINGS ¹	272538	1
13	DECAL, ROTATING PARTS ¹	264374	1
14	DECAL,WARNING AIR ¹	261886	2
15	DECAL, WARN-CANCER,REPRO,HARM	279065	1
16	DECAL, AIR HOSE ¹	261885	2
17	DECAL, VANGUARD ROTARY SCREW OIL	272501	1
18	DECAL, DO NOT REMOVE CAPS ¹	264378	1
¹ This decal is included with decal kit no. 276938.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.15 DECALS - LOCATION & IDENTIFICATION (3 OF 3): LABEL KIT

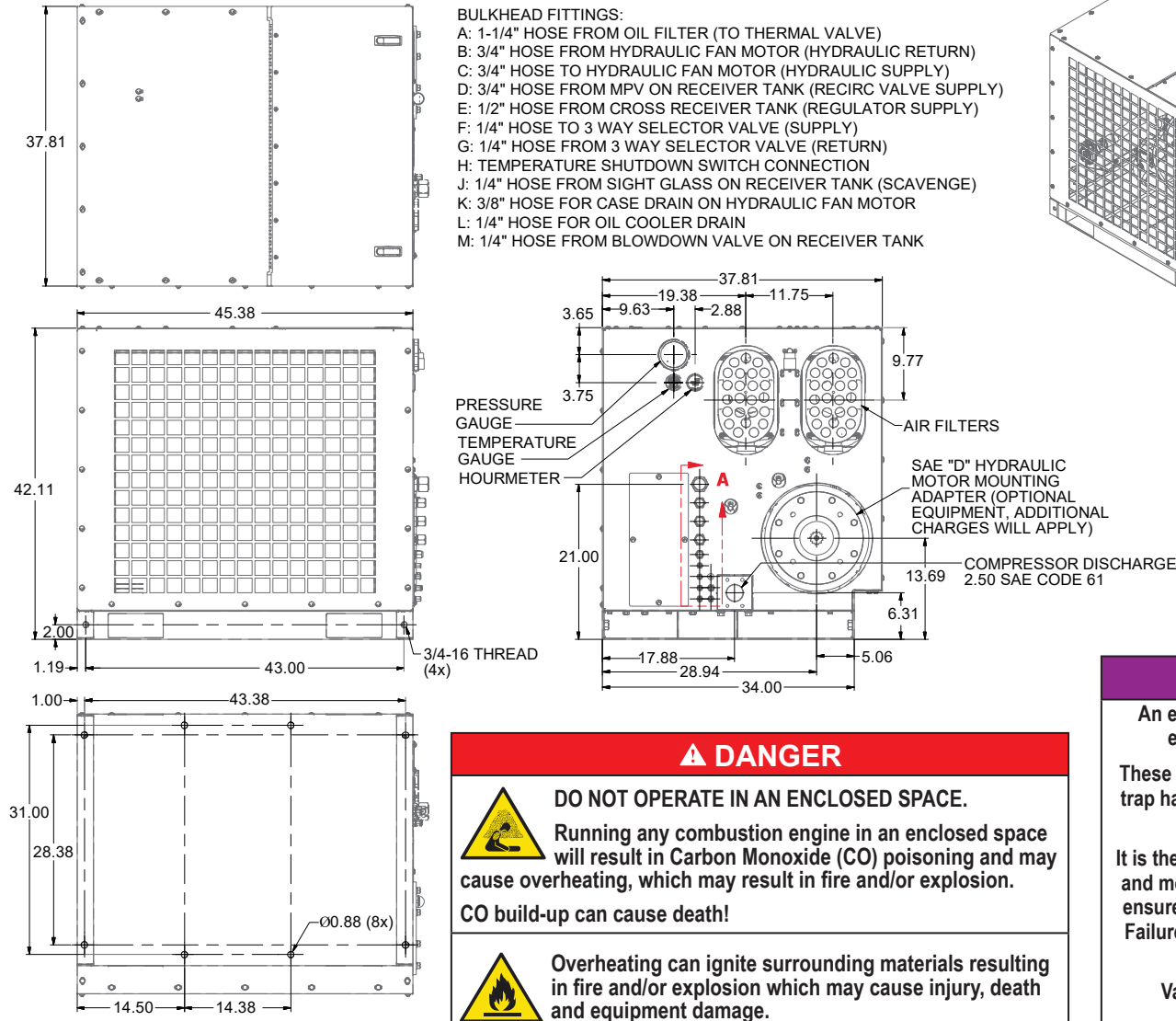


ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, LABEL PRESSURE GAUGE	275196-001	1	7	DECAL, BLOWDOWN LINE	275196-007	1	13	DECAL, SHUTDOWN SWITCH	275196-013	1
2	DECAL, LABEL TEMP GAUGE	275196-002	1	8	DECAL, SELECTOR VALVE (HIGH)	275196-008	1	14	DECAL, FILTER RESTRICTION	275196-014	1
3	DECAL, OIL FROM FILTER	275196-003	1	9	DECAL, SELECTOR VALVE (LOW)	275196-009	1	15	DECAL, NEEDLE VALVE SUPPLY	275196-015	1
4	DECAL, HYD OIL RETURN	275196-004	1	10	DECAL, SCAVENGE LINE	275196-010	1	16	DECAL, LOW PRESS REG	275196-016	1
5	DECAL, HYD OIL SUPPLY	275196-005	1	11	DECAL, OIL COOLER DRAIN	275196-011	1	17	DECAL, HIGH PRESS REG	275196-017	1
6	DECAL, REGULATOR PRESSURE	275196-006	1	12	DECAL, HYD CASE DRAIN	275196-012	1	18	DECAL, RECIRC VALVE SUPPLY	275196-018	1

NOTE: All "275196-XXX" designated part number labels are included within label kit no. 275196, which in turn is part of full decal sheet no. 276938.

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

7.16 INSTALLATION DIAGRAM - MODULE UNIT



IMPORTANT

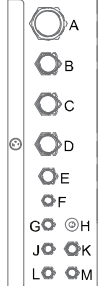
An enclosed space refers to any area partially or fully enclosed by walls, a roof, or other boundaries.

These spaces can limit natural ventilation, restrict airflow, trap hazardous gases, and increase the risk of heat build-up, fire, or explosion.

It is the responsibility of the installation party to determine and mount Vanair® engine-driven equipment in a way that ensures proper airflow and ventilation for safe operation. Failure to provide proper ventilation and clearances may result in hazardous conditions.

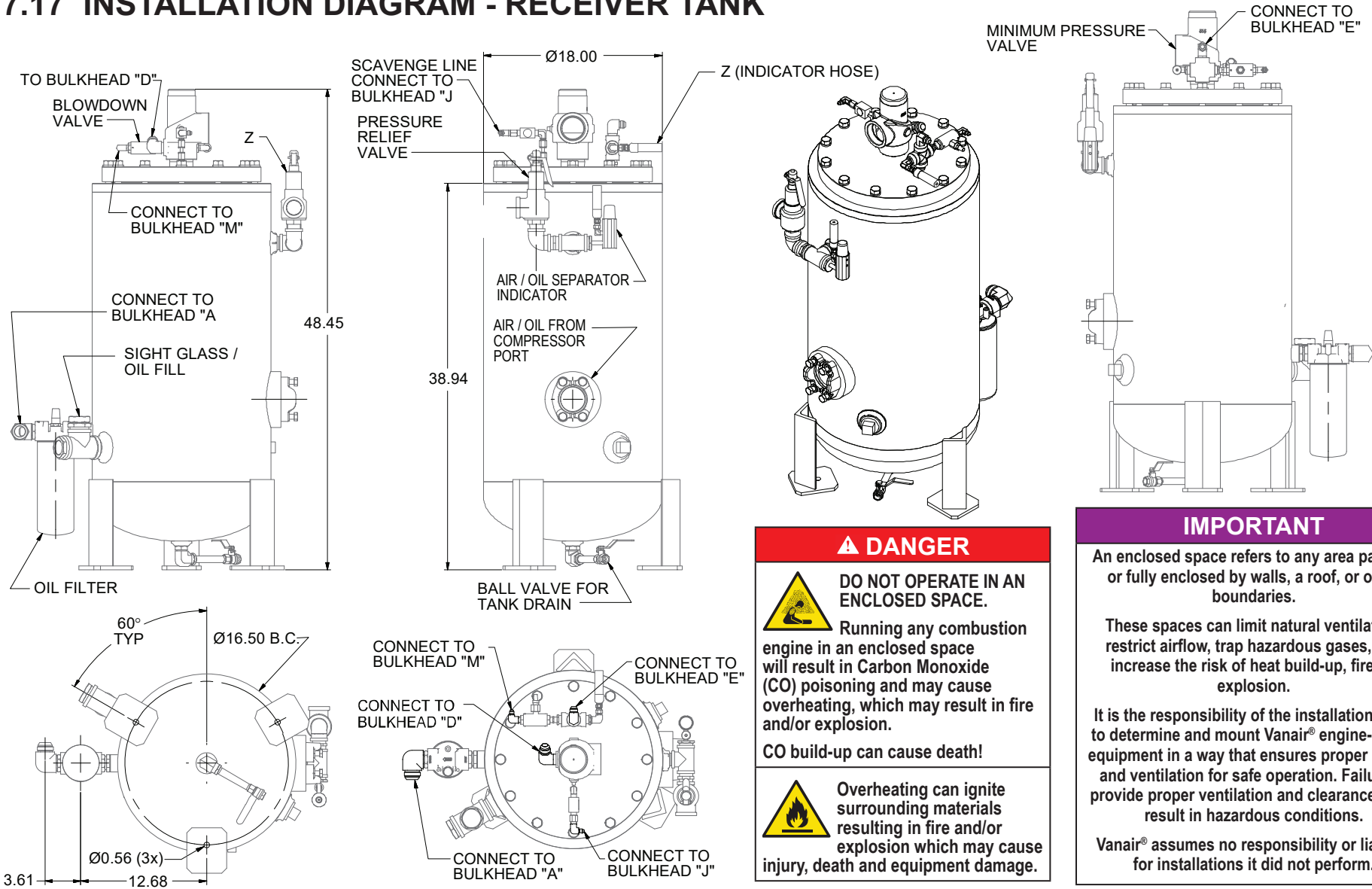
Vanair® assumes no responsibility or liability for installations it did not perform.

DETAIL A
SCALE 1/5



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7.17 INSTALLATION DIAGRAM - RECEIVER TANK



⚠ DANGER



DO NOT OPERATE IN AN ENCLOSED SPACE.

Running any combustion engine in an enclosed space will result in Carbon Monoxide (CO) poisoning and may cause overheating, which may result in fire and/or explosion.

CO build-up can cause death!



Overheating can ignite surrounding materials resulting in fire and/or explosion which may cause injury, death and equipment damage.

IMPORTANT

An enclosed space refers to any area partially or fully enclosed by walls, a roof, or other boundaries.

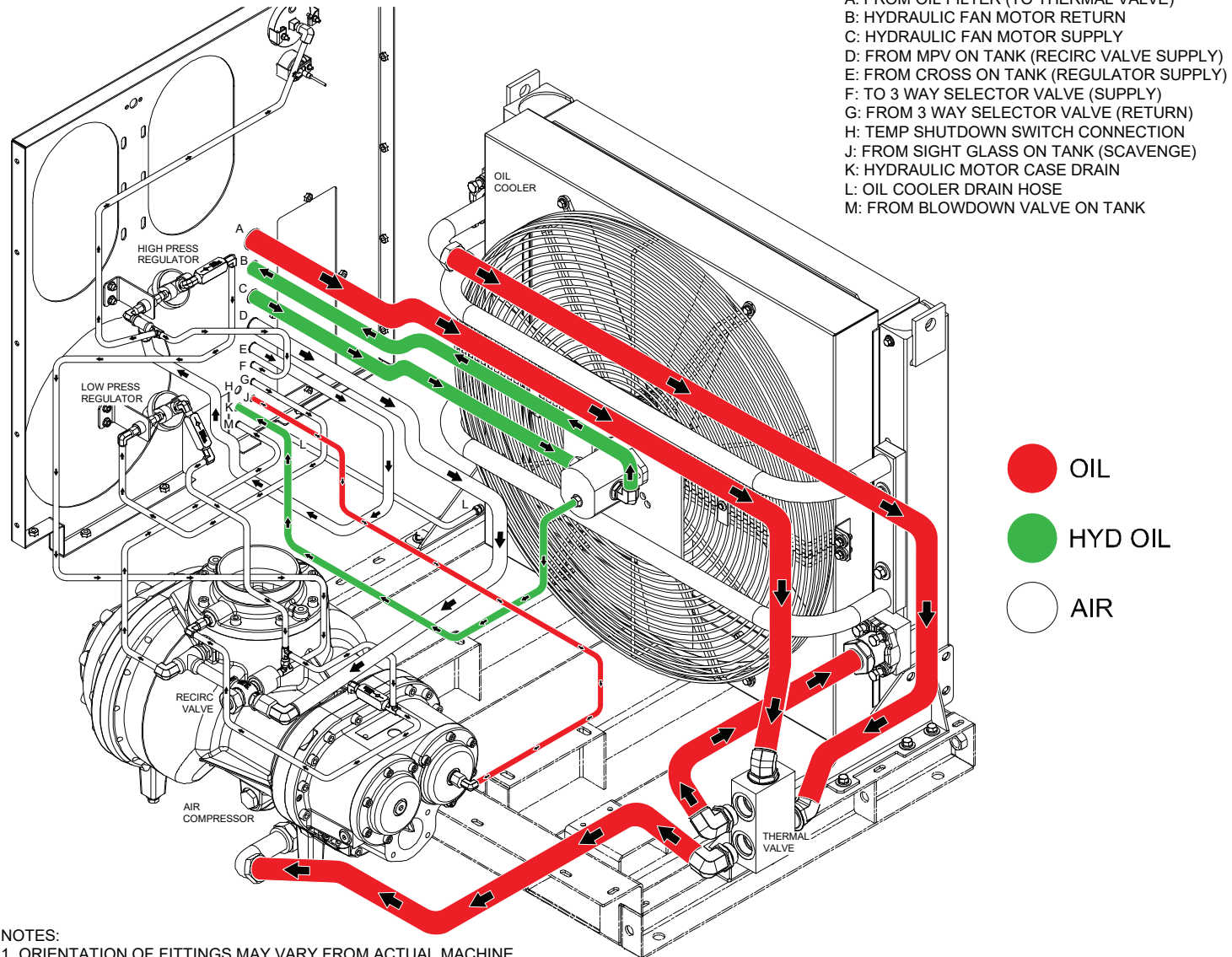
These spaces can limit natural ventilation, restrict airflow, trap hazardous gases, and increase the risk of heat build-up, fire, or explosion.

It is the responsibility of the installation party to determine and mount Vanair® engine-driven equipment in a way that ensures proper airflow and ventilation for safe operation. Failure to provide proper ventilation and clearances may result in hazardous conditions.

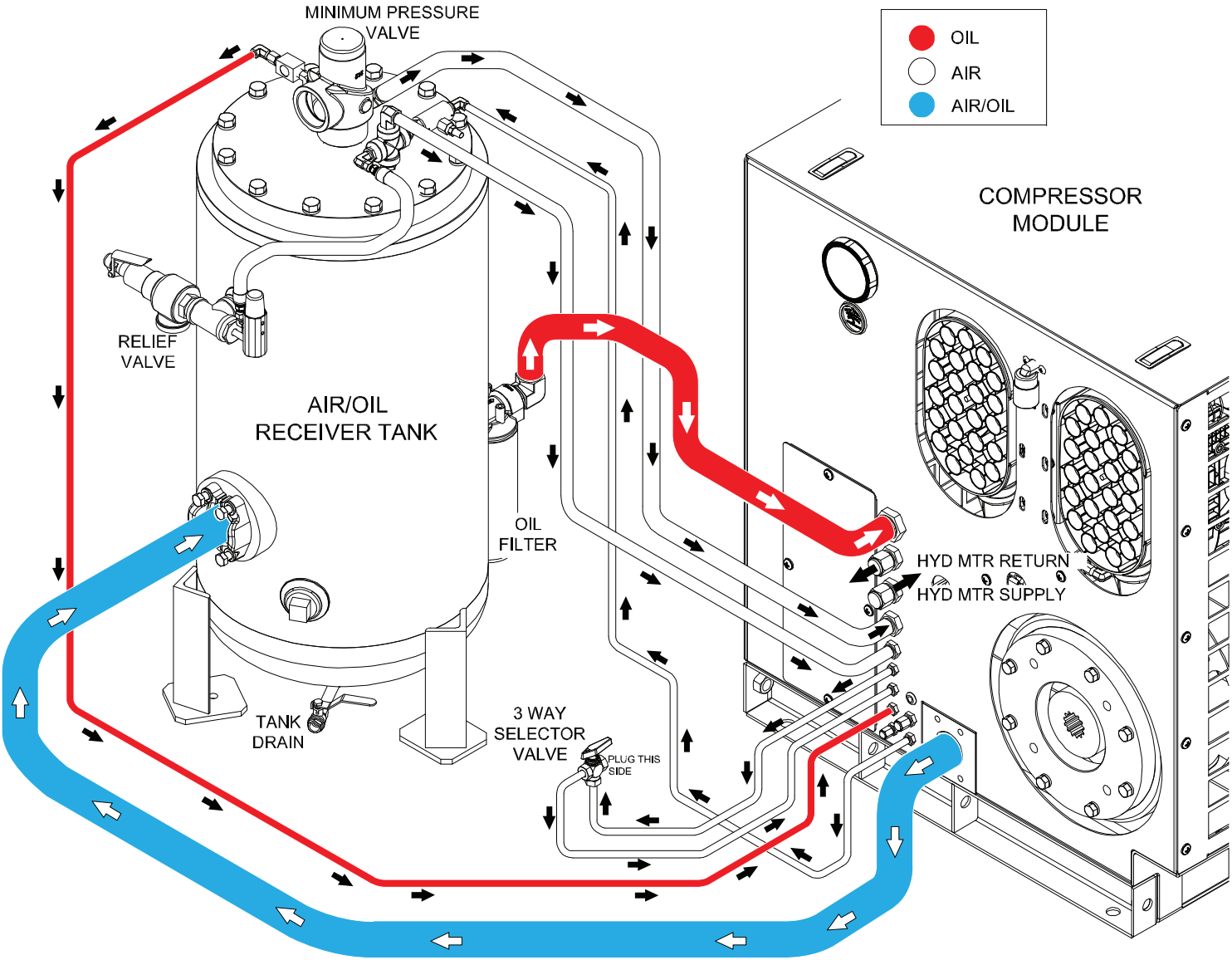
Vanair® assumes no responsibility or liability for installations it did not perform.

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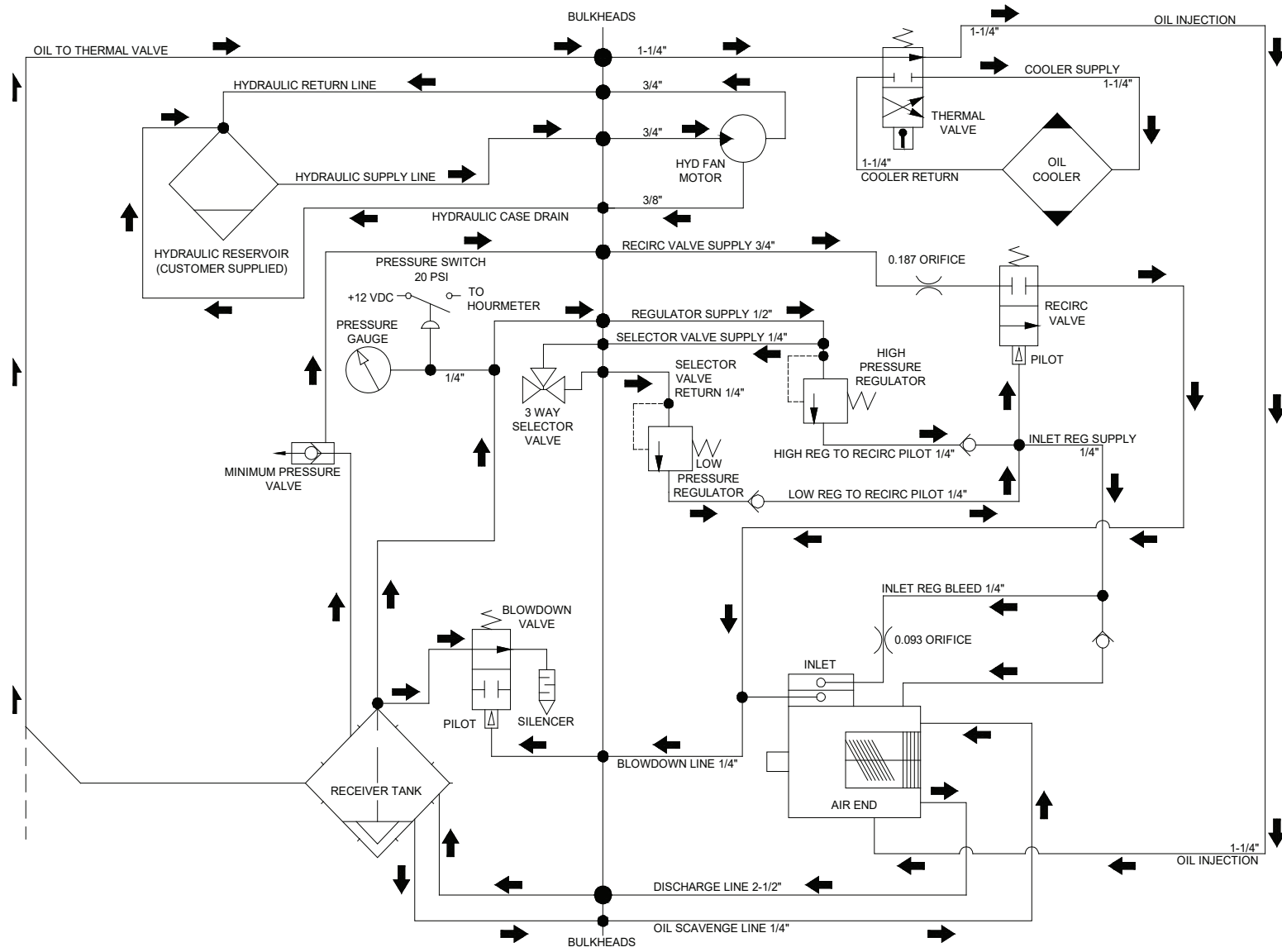
7.18 SCHEMATIC FLOW DIAGRAM - MODULE UNIT



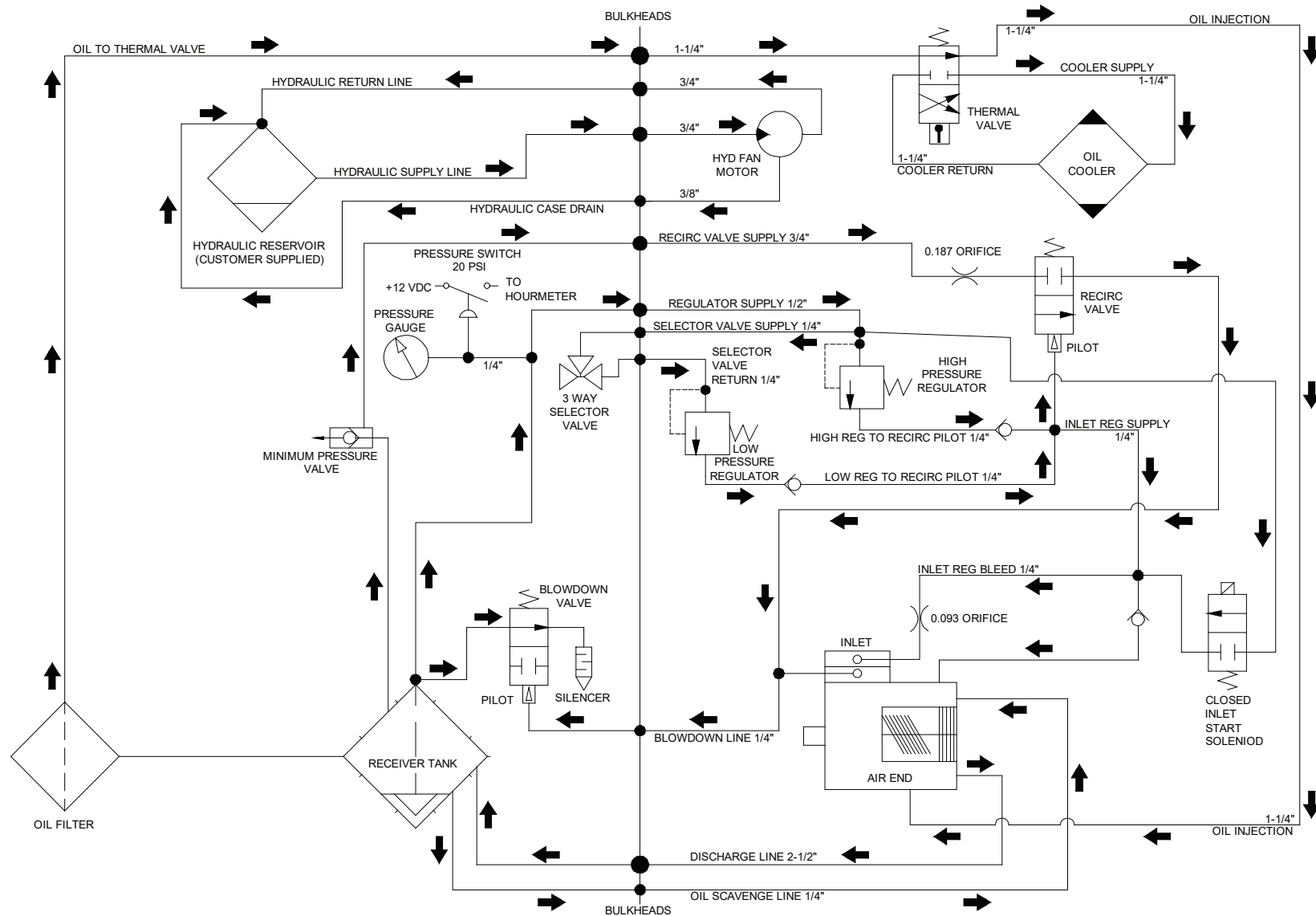
7.19 SCHEMATIC FLOW DIAGRAM - MODULE UNIT



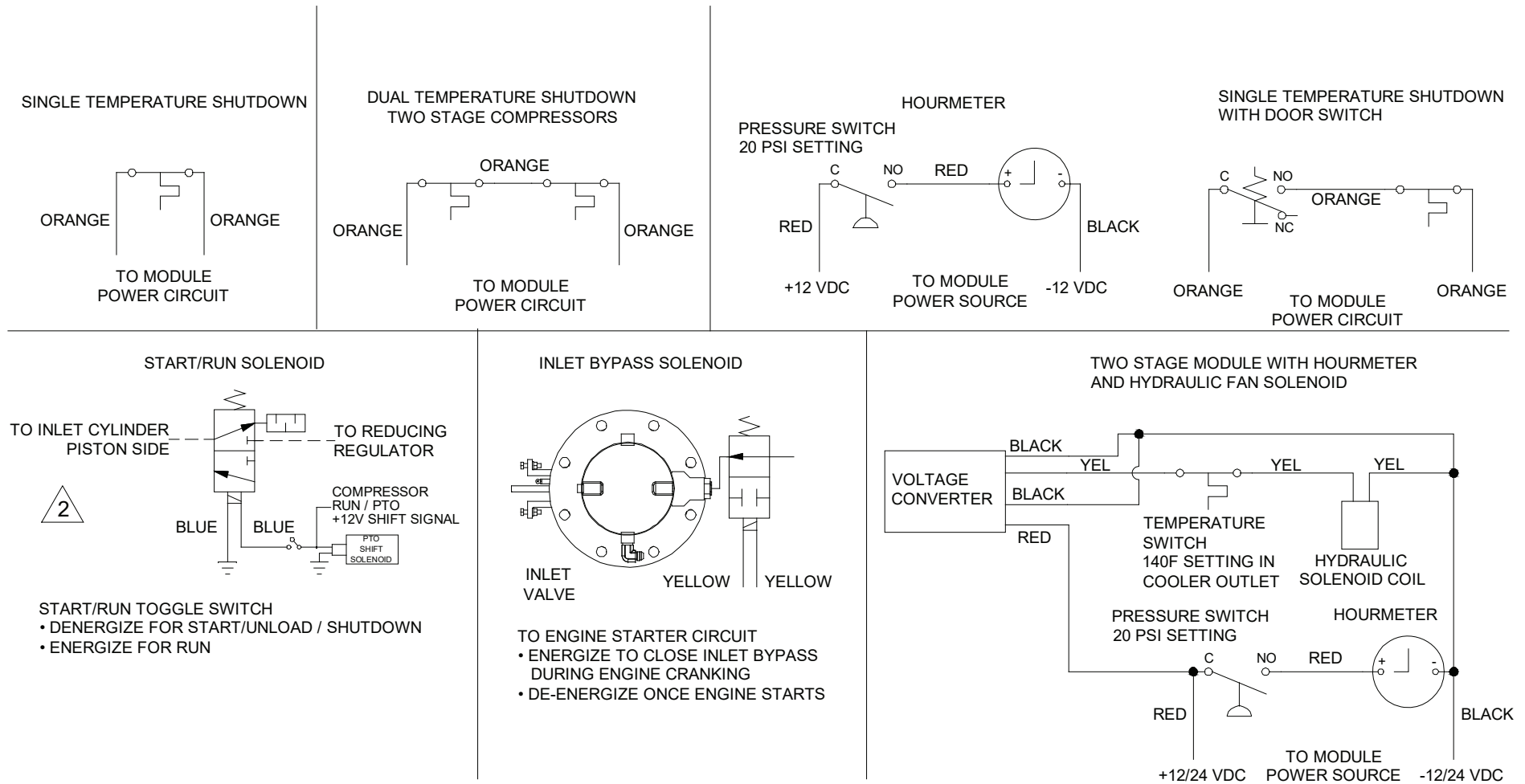
7.20 SCHEMATIC DIAGRAM - FLOW 600/250 MODULE

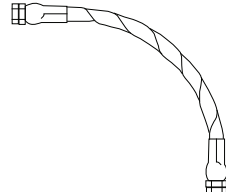
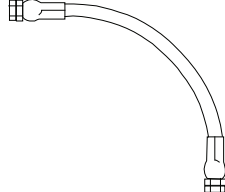
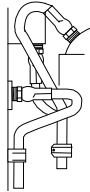
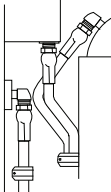
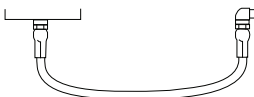
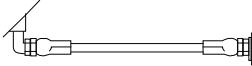
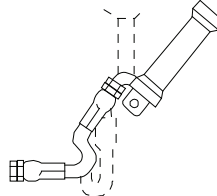
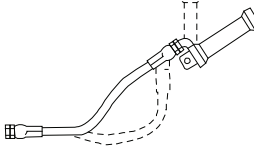
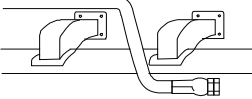
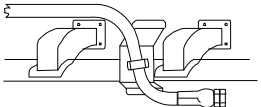


7.21 SCHEMATIC DIAGRAM - FLOW 700/150 MODULE



7.22 WIRING DIAGRAM - MODULES



7.23 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.		

[illegible]

TABLE 7C: MAINTENANCE TRACKING LOG (CONTINUED)

[illegible]

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