VANAIR®
AIR POWER TO GO™

AIR N ARC® I300

ALL-IN-ONE Power Systems®

WELDER • GENERATOR • AIR COMPRESSOR
BATTERY BOOSTER • HYDRAULIC PUMP

OPERATION MANUAL & PARTS LIST

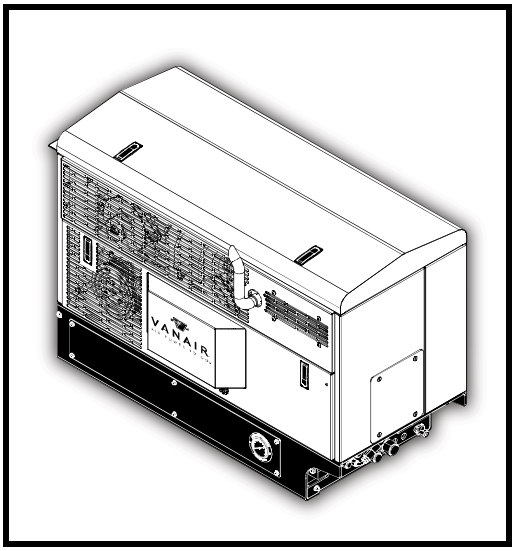
NOTE

This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy.
Vanair Manufacturing, Inc. reserves the right to make design change modifications or improvements without prior notification.

NOTE

Use only Vanair Vanguard™ Premium Synthetic 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!

KEEP THE MANUAL WITH THE VEHICLE



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

NOTE

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

Always inform Vanair Manufacturing, Inc., before beginning any changes to the Air N Arc system.

VANAIR®
AIR POWER TO GO™

P/N: 090045-OP_r2

Effective Date:
SEP-2014

AIR N ARC®
ALL-IN-ONE POWER-SYSTEMS®

RELIANT™ SERIES

POWERFLEX™ SERIES

PRO SERIES

CONTRACTOR SERIES

VIPER™ SERIES

FST™ SERIES

VANAIR VANTAGE WARRANTY

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

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

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

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

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

1. Lifetime Warranty Parts – 3 Years Labor
   - Rotary Screw Air Compressor Air End
2. 6 Years Parts – 3 Years Labor
   - Vanair Super Capacitor (VSC)
3. 3 Years Parts – 1 Year Labor
   - Reciprocating Compressor Air End
   - Generators
   - Welders
4. 2 Years Parts – 1 Year Labor
   - Hydraulic Motors
   - Hydraulic Pumps
5. 1 Year Parts – 1 Year Labor
   - All electronics including, but not limited to:
     - (i) I/O Boards
     - (ii) Modules
     - (iii) Panel Boxes
     - (iv) Instrumentation
     - (v) Clutches
     - (vi) Solenoids
     - (vii) Running Gear/Trailers
     - (viii) Compressor/Hydraulic Coolers, including Fan and Radiator Core

This Limited Warranty shall not apply to:

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

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

In the event of a warranty claim covered by this Limited Warranty, the exclusive remedies shall be, at Vanair's sole discretion: (i) repair; or (ii) replacement; (iii) where authorized in writing by Vanair in appropriate cases, the reasonable cost of repair or replacement at an authorized Vanair service facility ; or (iv) payment of (or credit for) the purchase price (less reasonable depreciation based upon actual use) upon return of the equipment at the warranty claimant's risk and expense. Vanair will pay standard ground freight for any warranty item shipped to and from Vanair or (Vanair designated facility) within the first year of the applicable warranty period. Any additional expedited freight cost is the responsibility of the purchaser.

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

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

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

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

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EFFECTIVE: JAN 8, 2016
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VANAIR®
MOBILE POWER SOLUTIONS™

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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 floor near to the generator mounting location (see ***Figure W-1***).

   The engine and the compressor also have individual serial numbers respectively (see ***Figure W-1***). For engine warranty issues, consult the Engine Operator's Manual for the engine's limited warranty details. For particular compressor unit issues, the compressor serial number may be needed. In any case, engine and/or 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.**

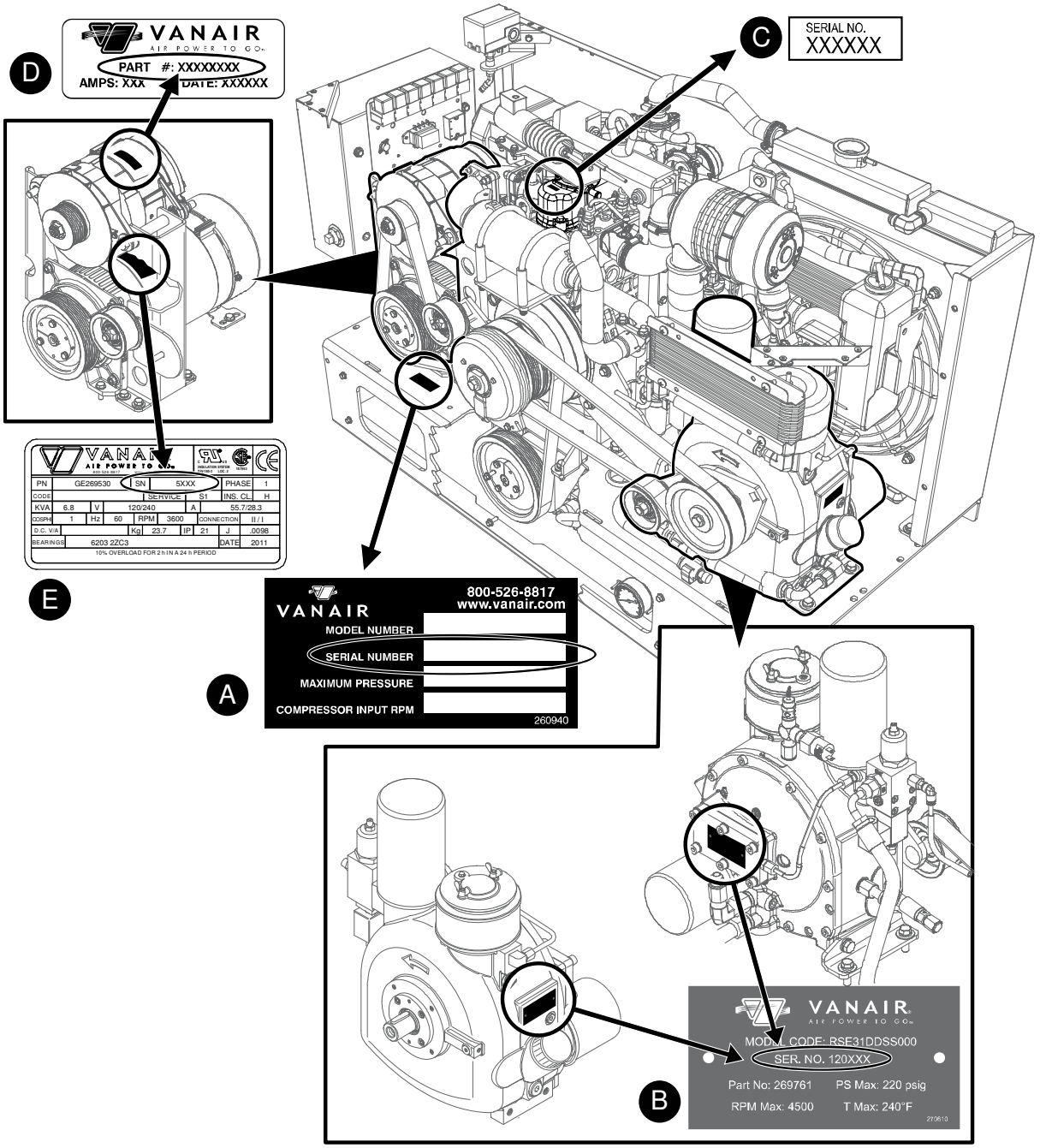
4. **Vanair Service will troubleshoot the problem based on the information provided by the customer, and attempt to return the unit to service as quickly as possible.**

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 Return Material Authorization (RMA) 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 includes



KEY	DESCRIPTION	KEY	DESCRIPTION
A	MACHINE SERIAL PLATE / SERIAL # LOCATION	**C**	ENGINE SERIAL NUMBER TAG
B	COMPRESSOR SERIAL PLATE / SERIAL # LOCATION: Note alternative locations of plate mounting	**D**	WELDER GENERATOR SERIAL TAG
		E	AC GENERATOR SERIAL PLATE / SERIAL # LOCATION

Figure W-1: Machine Serial Number Locations

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 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 Mfg., Inc. 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).

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SECTION 1: SAFETY

1.1 GENERAL INFORMATION

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

⚠ IMPORTANT

It is mandatory that all operators read this manual before operating or servicing the Air N Arc I-300 Series All-In-One Power System. Failure to do so could result in death, bodily injury or damage to equipment.

1.2 ⚠ DANGERS, WARNINGS, CAUTIONS, AND NOTES

Specific safety and operation information given throughout the manual may be presented within a separate bordered frame and header for easy and clear identification. Those issues that regard safety measures are also tagged with the international safety symbol (see ***Section 1.3***), and should always be taken into consideration before performing an operation. Specific definitions of theses bordered instructions are as follows:

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

IMPORTANT

Additional information (or existing information) which must 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.

1.3 INTERNATIONAL SAFETY SYMBOL - ⚠

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

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

1.4 ARC WELDING HAZARDS

1.4.1 ⚠ ELECTRICAL SHOCK CAN KILL

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semi-automatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

DO NOT weld with the electrode holder connected to the negative (-) port, and the work piece connected to the vehicle: Bodily harm and equipment damage may occur.

DO NOT touch live electrical parts.

Wear dry, hole-free insulating gloves and body protection.

Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.

DO NOT use AC output in damp areas, if movement is confined, or if there is a danger of falling.

Additional safety precautions are required when working in electrically hazardous conditions such as in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the work piece or ground.

DO NOT work alone!

Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tag out input power according to OSHA29 CFR1910.147 (see **Section 1.10, Principal Safety Standards**).

Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.

Always verify the supply ground: check and ensure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.

When making input connections, attach proper grounding conductor first and double-check connections.

Frequently inspect input power cord for damage or bare wiring; replace cord immediately if damaged—bare wiring can kill.

Turn off all equipment when not in use.

DO NOT use worn, damaged, undersized, or poorly spliced cables.

DO NOT drape cables over your body.

If earth grounding of the work piece is required, ground it directly with a separate cable.

DO NOT touch electrode if you are in contact with the work, ground, or another electrode from a different machine.

Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.

DO NOT touch electrode holders connected to two welding machines at the same time

since double open-circuit voltage will be present.

Wear a safety harness if working above floor level.

Keep all panels and covers securely in place.

Clamp work cable with good metal-to-metal contact to work piece or work table as near the weld as practical.

Insulate work clamp when not connected to workpiece to prevent contact with any metal object.

DO NOT connect more than one electrode or work cable to any single weld output terminal.

1.4.2 ⚠ FUMES AND GASSES CAN BE HAZARDOUS

Welding produces fumes and gasses. Breathing these fumes and gasses can be hazardous to your health.

Keep your head out of the fumes. **DO NOT** breathe the fumes.

If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gasses.

If ventilation is poor, wear an approved air-supplied respirator.

Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.

Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch person nearby.

Welding fumes and gasses can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.

DO NOT weld in locations near degreasing, cleaning, or spraying operations.

The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.

DO NOT weld on coated metals, such as galvanized, lead, or cadmium-plated steel, unless the coating is removed from the weld area, the area is well-ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

1.4.3 ⚠ BUILD UP OF GAS CAN INJURE OR KILL

Shut off shielding gas supply when not in use.

Always ventilate confined spaces or use approved air-supplied respirator.

1.4.4 ⚠ ENCLOSED SPACES CAN CAUSE A BUILD-UP OF NOXIOUS FUMES AND OVERHEATING

DO NOT use in enclosed spaces where deadly exhaust gasses can build up and machine can overheat, causing fire.

1.4.5 ⚠ ARC RAYS CAN BURN EYES AND SKIN

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching.

(See ANSI Z49.1 and Z87.1 listed in Safety Standards). Wear approved safety glasses with side shields under your helmet.

Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.

Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

1.4.6 ⚠ WELDING CAN CAUSE FIRE AND EXPLOSION

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.

DO NOT weld where flying sparks can strike flammable material.

Protect yourself and others from flying sparks and hot metal.

Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.

Watch for fire, and keep a fire extinguisher nearby.

Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.

DO NOT weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWSF4.1 (See ***Section 1.10, Principal Safety Standards***).

Connect ground cable as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.

DO NOT use welder to thaw frozen pipes.

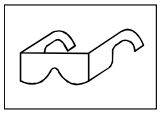
Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, boots, and a cap.

Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.

Follow requirements in OSHA1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.

1.4.7 ⚠ FLYING METAL CAN INJURE EYES



Sparks and flying metal can be caused by welding, chipping, wire brushing, and grinding. As welds cool, they can throw off slag.

Wear approved safety glasses with side shields even under your welding helmet.

1.4.8 ⚠ HOT PARTS CAN CAUSE SEVERE BURNS

DO NOT touch hot parts bare handed.

Allow cooling period before working on equipment.

1.4.9 ⚠ NOISE CAN DAMAGE HEARING

To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

Noise from some processes or equipment can damage hearing. Wear approved ear protection if noise level is high.

1.4.10 ⚠ MAGNETIC FIELDS CAN AFFECT PACEMAKERS

Pacemaker wearers keep away. Wearers should consult their doctor before going near

arc welding, gouging, or spot welding operations.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

1.4.11 ⚠ CYLINDERS CAN EXPLODE IF DAMAGED

Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.

Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.

Keep cylinders away from any welding or other electrical circuits.

Never drape a welding torch over a gas cylinder.

Never allow a welding electrode to touch any cylinder.

Never weld on a pressurized cylinder—explosion will result.

Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.

Turn face away from valve outlet when opening cylinder valve.

Keep protective cap in place over valve except when cylinder is in use or connected for use.

Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.

Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

1.5 ENGINE HAZARDS

⚠ IMPORTANT

Operator must be familiar with all safety precautions listed in the Engine Operator's Manual, in addition to the safety issues listed in this section.

1.5.1 ⚠ BATTERY EXPLOSION CAN BLIND

Always wear a face shield, rubber gloves, and protective clothing when working on a battery.

Stop engine before disconnecting or connecting battery cables or servicing battery.

DO NOT allow tools to cause sparks when working on a battery.

DO NOT use weld mode to charge batteries or jump start vehicles.

Observe correct polarity (+ and –) on batteries.

Disconnect negative (–) cable first and connect it last.

1.5.2 ⚠ FUEL CAN CAUSE FIRE OR EXPLOSION

Stop engine and let it cool down before checking or adding fuel.

Always keep nozzle in contact with tank when fueling.

DO NOT mix gasoline or alcohol with diesel fuel.

DO NOT add fuel while smoking or if unit is near any sparks or open flames.

DO NOT overfill tank—allow room for fuel to expand.

DO NOT spill fuel. If fuel is spilled, clean up before starting engine.

Dispose of rags in a fireproof container.

1.5.3 ⚠ MOVING PARTS CAN CAUSE INJURY

Keep away from fans, belts, and rotors. Keep all doors, panels, covers, and guards closed and securely in place.

Stop engine before installing or connecting unit.

Have only qualified people remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.

Disconnect negative (–) battery cable from battery to prevent accidental starting during servicing.

Keep hands, hair, loose clothing, and tools away from moving parts.

Reinstall doors, panels, covers, or guards when servicing is finished and before starting engine.

Before working on generator, remove spark plugs or injectors to keep engine from kicking back or starting.

Block flywheel so that it will not turn while working on generator components.

1.5.4 ⚠ HOT PARTS CAN CAUSE SEVERE BURNS

DO NOT touch hot parts bare handed.

Allow cooling period before working on equipment.

1.5.5 ⚠ ENGINE EXHAUST GASSES CAN KILL

If used in a closed area, vent engine exhaust outside and away from any building air intakes.

Check the fuel system at a well-ventilated, open space.

1.5.6 ⚠ ENCLOSED SPACES CAN CAUSE A BUILD-UP OF NOXIOUS FUMES AND OVERHEATING

DO NOT use in enclosed spaces where deadly exhaust gasses can build up and machine can overheat, causing fire.

1.5.7 ⚠ BATTERY ACID CAN BURN SKIN AND EYES

DO NOT tip battery.

Replace damaged battery.

Flush eyes and skin immediately with water.

1.5.8 ⚠ ENGINE HEAT CAN CAUSE FIRE

DO NOT locate unit on, over, or near combustible surfaces or flammables.

Keep exhaust and exhaust pipes way from flammables.

1.5.9 ⚠ EXHAUST SPARKS CAN CAUSE FIRE

Use approved engine exhaust spark arrester in required areas — see applicable codes.

1.6 COMPRESSED AIR HAZARDS

1.6.1 ⚠ BREATHING COMPRESSED AIR CAN CAUSE SERIOUS INJURY OR DEATH

DO NOT use compressed air for breathing. Use only for cutting, gouging, and tools.

1.6.2 ⚠ ENCLOSED SPACES CAN CAUSE A BUILD-UP OF NOXIOUS FUMES AND OVERHEATING

DO NOT use in enclosed spaces where deadly exhaust gasses can build up and machine can overheat, causing fire.

1.6.3 ⚠ COMPRESSED AIR CAN CAUSE INJURY

Wear approved safety goggles.

DO NOT direct air stream toward self or others.

1.6.4 ⚠ TRAPPED AIR PRESSURE AND WHIPPING HOSES CAN CAUSE INJURY

Release air pressure from tools and system before servicing, adding or changing attachments, or opening compressor oil drain or oil fill cap.

1.6.5 ⚠ HOT METAL FROM AIR ARC CUTTING AND GOUGING CAN CAUSE FIRE OR EXPLOSION

DO NOT cut or gouge near flammables.

Watch for fire; keep extinguisher nearby.

1.6.6 ⚠ HOT PARTS CAN CAUSE SEVERE BURNS

DO NOT touch hot parts bare handed.

Allow cooling period before working on equipment.

1.6.7 ⚠ READ INSTRUCTIONS

Read Owner's Manual before using or servicing unit.

Stop engine and release air pressure before servicing.

Use only genuine Air N Arc replacement parts.

1.7 HYDRAULIC PUMP HAZARDS

1.7.1 ⚠ CONTENTS UNDER PRESSURE

DO NOT operate the hydraulic system if a leak is present. Serious injury may result.

Hydraulic systems operate under very high-pressure. Hydraulic fluid escaping from a pressurized system can penetrate unprotected body tissue. **DO NOT** inspect for hydraulic leaks with bare hands or other exposed body parts. As a minimum, wear leather gloves prior to inspecting for leaks and use cardboard or wood. If leaks are present, relieve pressure and allow system to cool prior to servicing. If injured by escaping hydraulic oil, contact a physician immediately. Serious complications may arise if not treated immediately. If you have questions regarding inspecting for hydraulic leaks, please contact Vanair® prior to servicing.

1.7.2 ⚠ HEED PRESSURE LIMITS AND RECOMMENDATIONS

Increasing hydraulic pressure beyond the recommendations may result in serious damage to the pump and system or serious personal injury and may void the Vanair Warranty. If you have questions concerning hydraulic pressures or testing procedures, please contact Vanair before attempting the test procedures or making adjustments.

1.7.3 ⚠ HOSE AND TUBING INSPECTION

Hydraulic hoses and tubing must be inspected on a daily basis for leaks, cuts, abrasions, damage and improper clearance along any mounting frame for hidden damage before the unit is put into service. Replace damaged hoses or hoses you suspect are damaged before the system is returned to service! Hoses must be replaced every two years. Failure to properly inspect and maintain the system may result in serious injury.

1.7.4 ⚠ HOSE AND TUBING REPLACEMENT

Use correct hoses, fittings, and adapters with the correct SAE rating when replacing hoses to prevent possible serious injury. Always replace hoses, fittings, and adapters with replacements that have a proper, suitable, working pressure rating. Replacement hoses must be of the correct length and must comply with the hose manufacturer's and Vanair's installation guidelines and recommendations.

Hydraulic hoses have the SAE ratings marked on the hose to assist you in selecting the correct hose. The same manufacturer must supply any replacement hydraulic hoses and fitting assemblies. As an example: Brand "X" hose and brand "Y" fitting will not normally be compatible. No "Twist" is allowed in the hydraulic hoses. "Twist" may result in premature hose failure. This can cause serious injury. Please contact Vanair® for assistance when required.

1.7.5 ⚠ HOT PARTS CAN CAUSE SEVERE BURNS

Hydraulic systems are hot. **DO NOT TOUCH!** Serious personal injury may result from hot oil. When you have completed working on the hydraulic system, thoroughly clean any spilled oil from the equipment. **DO NOT** spill any hydraulic fluids on the ground. Clean any hydraulic fluids from your skin as soon as you have completed maintenance and repairs. Dispose of used oil and system filters as required by law.

1.7.6 ⚠ HYDRAULIC CYLINDERS MAY HOLD A FUNCTION IN POSITION EVEN WHEN THE PUMP IS OFF

Hydraulic cylinders can be holding a function in a certain position when the pump is OFF. An example of this is a function being held in the lift or partial lift position by the cylinders. If a hydraulic line is removed or the hydraulic circuits or controls are being worked on, gravity may allow the function being held in position to drop. All workers and personnel must remain clear of these areas when working on or operating the hydraulic system. Block and secure all devices and functions which apply before beginning work or operation. Failure to comply with this can result in serious injury or death.

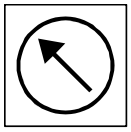
1.7.7 ⚠ HYDRAULIC PIPING REPLACEMENT MUST CONFORM TO SAEJ1065 SPECIFICATIONS

Any hydraulic pipe that is replaced must conform to SAE J1065 specifications. If incorrect hydraulic pipe is installed, the hydraulic system may fail, causing serious injury. Damaged or leaking fittings, pipes or hoses must be replaced before the system is returned to service.

1.7.8 ⚠ DO NOT HEAT HYDRAULIC PIPE

DO NOT heat hydraulic pipe. The carbon content of this steel tube is such that if heated for bending, and either water or air quenched, the pipe may lose its ductility and thereby be subject to failure under high-pressure conditions. Serious injury can result. Damaged or leaking pipes must be replaced before the system is returned to service. Please contact Vanair® if you require assistance or have questions.

1.7.9 ⚠ RELIEVE HYDRAULIC SYSTEM PRESSURE BEFORE REMOVING ANY COMPONENTS FROM THE SYSTEM



All hydraulic pressure must be relieved from the hydraulic system prior to removing any components from the system. To relieve the hydraulic pressure from the hydraulic system, turn off the motor and operate the control panel with the key in the ON position. Failure to comply can result in serious injury. If you have any questions concerning relieving the hydraulic pressure from the system, please contact the Vanair® Service Department.

1.7.10 ⚠ LIFTING COMPONENTS

Hydraulic components can be heavy. Use caution while lifting these components. Serious personal injury can be avoided with proper handling of the components.

Use lifting bail to lift unit and properly installed accessories only.

Lift and support unit only with proper equipment and correct procedures.

If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.

1.7.11 ⚠ HYDRAULIC TEST GAUGES

Please contact Vanair if you require assistance, when performing hydraulic test procedures, use the proper hydraulic gauges. Installing an incorrect test gauge could result in serious injury if the gauge fails. Use properly rated hydraulic hoses to allow the test gauge to be read away from moving parts and functions.

1.7.12 ⚠ SYSTEM MODIFICATION PROHIBITED

A Vanair® pump or pump control must not be modified in any way without authorization from Vanair. Modifications may not comply with safety standards, including ANSI safety standards, and may result in serious personal injury. Please contact Vanair if you require assistance.

1.7.13 ⚠ FALLING UNIT CAN CAUSE INJURY

DO NOT enter under hydraulic supported equipment unless they are fully supported or blocked. Failure to follow this procedure can result in serious injury or death.

1.7.14 ⚠ REPLACE DAMAGED SAFETY DECALS

Any Vanair pump safety decals must be replaced anytime they are damaged, missing, or cannot be read clearly. Failure to have proper decals in place can result in serious injury or death. If machine package requires safety decals, please contact Vanair for replacement safety decals, at no charge.) Refer to **Section 7.14** for proper decal locations.

1.7.15 ⚠ POST-SERVICING OPERATION

Be sure everyone is clear of the area around the hydraulic system before operating after servicing. Remain attentive at all times when operating to check your work until you are completely sure it is safe to return to service. Failure to heed this warning may result in serious personal injury or death.

1.7.16 ⚠ WEAR PROPER PROTECTIVE EQUIPMENT

Wear the proper protective clothing when operating, servicing or maintaining the hydraulic system or the Vanair pump. Wear the correct protective gear, safety glasses, gloves, and safety shoes. Serious injury can result without proper protective gear.

1.7.17 ⚠ KEEP CLEAR OF MOVING PARTS

Make sure to keep hands and feet and other parts of your body clear of revolving or moving parts. Failure to comply can cause serious injury.

1.7.18 ⚠ CONFINE LOOSE CLOTHING AND HAIR; REMOVE WATCHES, RINGS OR JEWELRY DURING OPERATION

DO NOT wear watches, rings, or jewelry while working with electrical and mechanical equipment. These items can be hazardous and can cause serious and painful injuries if they come into contact with electrical wires, moving parts, or hydraulic equipment.

1.8 ADDITIONAL SYMBOLS FOR INSTALLATION, OPERATION AND MAINTENANCE

1.8.1 ⚠ FALLING UNIT CAN CAUSE INJURY

Use lifting bail to lift unit and properly installed accessories only.

Lift and support unit only with proper equipment and correct procedures.

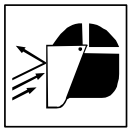
If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.

1.8.2 ⚠ OVERHEATING CAN DAMAGE MOTORS

Turn off or unplug equipment before starting or stopping engine.

DO NOT let low voltage and frequency caused by low engine speed damage electric motors.

1.8.3 ⚠ FLYING SPARKS CAN CAUSE INJURY

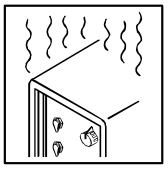


Wear a face shield to protect eyes and face.

Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.

Sparks can cause fires—keep flammables away.

1.8.4 ⚠ OVERUSE CAN CAUSE OVERHEATING

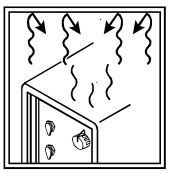


Allow cooling period; follow rated duty cycle.

Reduce current or reduce duty cycle before starting to weld again.

DO NOT block or filter airflow to unit.

1.8.5 ⚠ ENCLOSED SPACES CAN CAUSE A BUILD-UP OF NOXIOUS FUMES AND OVERHEATING



DO NOT use in enclosed spaces where deadly exhaust gasses can build up and machine can overheat, causing fire.

1.8.6 ⚠ TILTING OF TRAILER CAN CAUSE INJURY

Use tongue jack or blocks to support weight.

Properly install unit onto trailer according to instructions supplied with trailer.

1.8.7 ⚠ READ INSTRUCTIONS

Use only genuine Air N Arc replacement parts.

Perform engine and air compressor (if applicable) maintenance and service according to this manual and the engine/air compressor (if applicable) manuals.

1.8.8 ⚠ H. F. RADIATION CAN CAUSE INTERFERENCE

High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.

Have only qualified persons familiar with electronic equipment perform this installation.

The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.

If notified by the FCC about interference, stop using the equipment at once.

Have the installation regularly checked and maintained.

Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

1.8.9 ⚠ ARC WELDING CAN CAUSE INTERFERENCE

Electromagnetic energy can interfere with sensitive electronic equipment such as microprocessors, computers, and computer-driven equipment such as robots.

Ensure all equipment in the welding area is electromagnetically compatible.

To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.

Locate welding operation 100 meters from any sensitive electronic equipment.

Ensure this welding machine is installed and grounded according to this manual.

If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1.9 ⚠ CALIFORNIA PROPOSITION 65 WARNINGS

Welding or cutting equipment produces fumes or gasses which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

For Gasoline Engines: Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

For Diesel Engines: Diesel engine exhaust and some of its constituents are known to

the State of California to cause cancer, birth defects, and other reproductive harm.

1.10 ⚠ PRINCIPAL SAFETY STANDARDS

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website:www.global.ihs.com).

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping, American Welding Society Standard AWSF4.1, from Global Engineering Documents (phone: 1-877-413-5184, web site: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, web site: www.nfpa.org and www.sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102 (phone: 703-412-0900, web site: www.cganet.com).

Code for Safety in Welding and Cutting, CSA StandardW117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (phone: 800-463-6727 or in Toronto 416-747-4044, web site: www.csainternational.org).

Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002 (phone: 212-642-4900, web site: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection

Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (phone: 617-770-3000, web site: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (there are 10 Regional Offices; phone for Region 5, Chicago, is 312-353-2220, web site: www.osha.gov).

1.11 ⚠ EMF INFORMATION

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields Welding current, as it flows through welding cables, will cause electromagnetic fields.

There has been and still is some concern about such fields. However, after examining more than 500 studies spanning seventeen years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee’s judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. **DO NOT** coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as possible.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:

Pacemaker wearers consult your doctor before welding or going near welding operations. If cleared by your doctor, then following the above procedures is recommended.

1.12 ⚠ MACHINE CANOPY ACCESS SAFETY SWITCHES

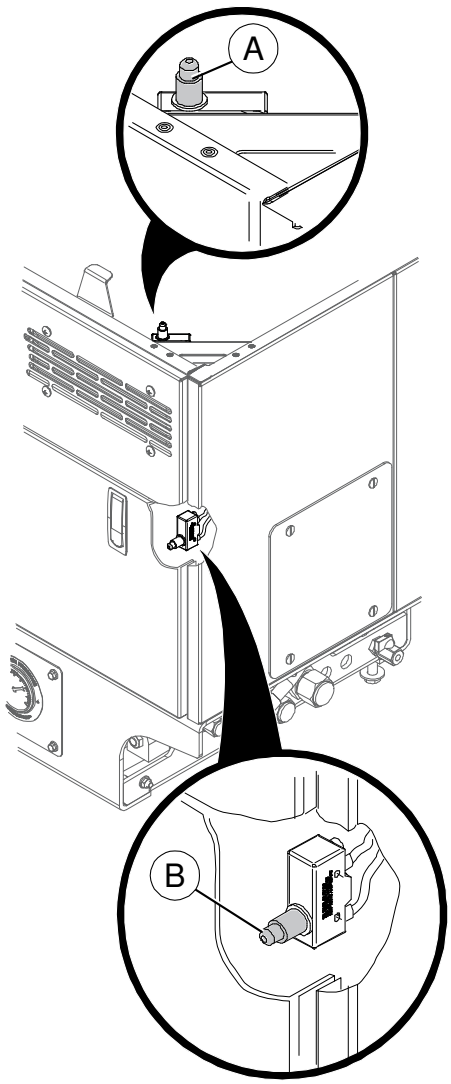
⚠ CAUTION

The machine is not designed to run with the hood open as standard operating procedure. The safety switch bypass is designed to allow for observing machine components in operating condition.

Consult ***Figure 1-1***. The Air N Arc I-300 Series machine package is equipped with two safety switches, which will either shut down, or not allow the machine to start, if access doors are bridged. The **hood safety switch** will not allow the machine to start if the hood is open; the hood must be closed in order to start the machine. However if the engine is running, the switch is bypassed, and the hood may be raised without detriment to the operating state of the machine.

NOTE

If the front access panel is opened prior to operation, the machine will crank, but will not start.
If the front access panel is opened while the machine is running, the machine will shut down.



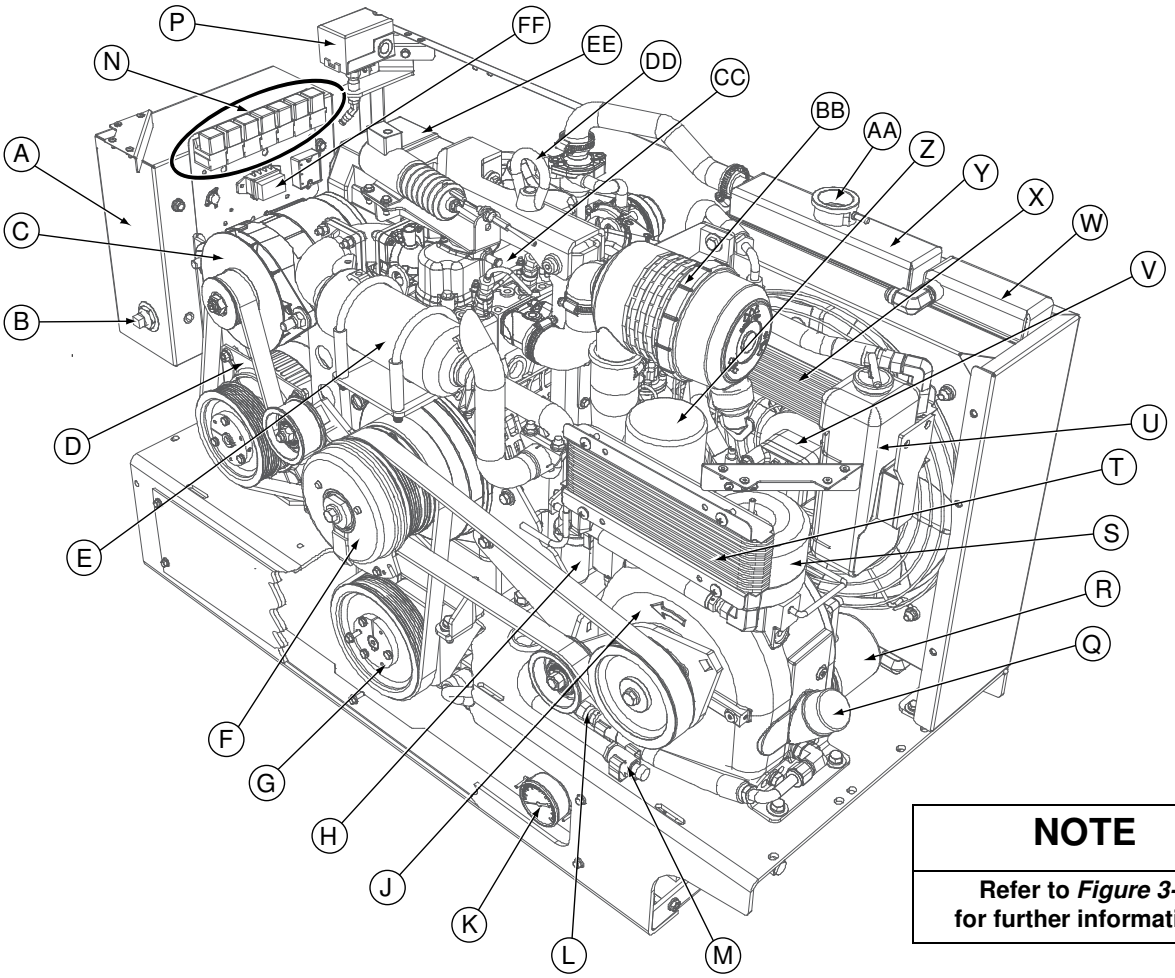
KEY	DESCRIPTION
A	HOOD SAFETY SWITCH
B	ACCESS PANEL SAFETY SWITCH

Figure 1-1: Canopy Access Safety Switch

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 label of the fluid in question.



NOTE

Refer to *Figure 3-2* for further information.

KEY	DESCRIPTION	KEY	DESCRIPTION
A	INSTRUMENT PANEL (May be remotely mounted)	**R**	COMPRESSOR OIL FILTER
B	AIR OUTLET SERVICE PORTS (x 3; one shown)	**S**	COMPRESSOR AIR FILTER
C	WELDER GENERATOR	**T**	ENGINE OIL COOLER
D	AC GENERATOR	**U**	COOLANT RECOVERY TANK
E	MUFFLER	**V**	FAN MOTOR
F	CLUTCH	**W**	COOLER ASSEMBLY: COMPRESSOR RADIATOR
G	HYDRAULIC PISTON PUMP	**X**	FAN HYDRAULIC SYSTEM COOLER
H	FUEL FILTER	**Y**	COOLER ASSEMBLY: ENGINE RADIATOR
J	COMPRESSOR UNIT	**Z**	COMPRESSOR AIR/OIL COALESCER SEPARATOR
K	LOAD SENSE PRESSURE GAUGE (SERVICE)	**AA**	RADIATOR FILL CAP
L	COMPRESSOR OIL DRAIN TUBE & END CAP	**BB**	ENGINE AIR FILTER
M	ENGINE OIL DRAIN & END CAP	**CC**	ENGINE
N	RELAYS	**DD**	LIFTING BAIL
P	PRESSURE SWITCH	**EE**	BATTERY
Q	COMPRESSOR FLUID FILL PORT	**FF**	FUSES (not all fuses are shown)

NOTE: The above figure does not show all major components: For details and part numbers, refer to ***Section 7***.

NOTE: For additional engine components, refer to the Engine Operator's Manual.

Figure 2-1: Most Major Machine Component Locations

SECTION 2: SPECIFICATIONS

TABLE 2A: ENGINE, HYDRAULIC SYSTEM, WELDER, AND GENERATOR SPECIFICATIONS	
SYSTEM INFORMATION	**SPECIFICATION**
Engine:	Diesel 25HP[I] T4F (Tier Four Final)
Engine Oil Capacity:	5.5 Quarts 15W40 (Refer to Engine Operator's Manual for Extreme Conditions)
Engine Idle RPM (No Load):	2650
Engine RPM (No Load):	3650
Hydraulic Fan RPM:	2350
Fuel Consumption:	1.25 GPH at Full Engine Speed/Load 9.6 Hour Runtime
Fuel Type:	Diesel Fuel[II]
Operating Temperature Limits:	0°F to 110°F (-18°C to 43°C); Cold Weather Kit extends temperature range from 0°F to -40°F (-18°C to -40°C)
Hydraulic Pressure Comp Setting:	3025 psi
Hydraulic Pressure Relief Setting:	3300 psi
Standby Pressure @ Tool Port, Work Valve Open - Required Only for Closed Center Machines:	360 Closed Center Machines 240 Open Center Machines
Hyd Flow @ Idle @ 2000 PSI (100-120°F Hyd Temp for All):	8 gpm
Hyd Flow @ Full Speed @ 2000 PSI:	10 gpm
Hyd Flow @ Full Speed @ 0 PSI Hyd:	13 gpm
Rated Welder Output:	300A High Frequency DC/CC, DC/CV; 100% Duty Cycle @ 270 Amps
Welding Leads:	25 or 50 Ft Optional
Welder CC Volts:	60 min
Welder CC Amps:	285 min
Welder CC VDC @ Max Amp:	15
Welder CV Min Volts:	15
Welder CV Max Volts:	40
DC 12 Volt Charge Volts (Idle):	14
DC 12 Volt Boost Volts:	16
DC 24 Volt Charge Volts:	30
AC Generator:	61 Hz (No Load)
AC Generator 120V RH:	118
AC Generator 120V LH:	118
AC Generator 240V:	238

[I] For specification and requirements regarding the Kubota® 25 HP Diesel Engine, refer to the Engine Operator's Manual.

[II] Diesel Fuel Specification Type and Sulfur Content% (ppm) used must be compliant with all applicable emission regulations for the area in which the engine is operated.
Engine manufacturer recommends a fuel sulfur content of less than 0.10% (1000 ppm). For fuels with a high sulfur content 0.50% (5000 ppm) to 1.0% (10000 ppm) a more frequent engine oil and oil filter change schedule is needed (approximately half). **DO NOT USE** fuels with a sulfur content greater than 1.0% (10000 ppm). For additional information on fuel for this engine, consult **Section 4.10 (Extreme Condition Operation)**, and the Engine Operator's Manual.
Not recommended for bio-diesel blends over 5%.

TABLE 2B: SPECIFICATIONS — AIR COMPRESSOR	
COMPRESSOR INFORMATION	**SPECIFICATION**
Compressor Type:	Single Stage, Oil Injected Rotary Screw
Air Compressor Capacity:	40 CFM @ 150 psi
Inlet Control:	Zero (0) No Load / 100% Load
Air Filter:	Pleated Paper, Dry Type
Oil Filter:	Spin-on Type
Oil Capacity/Type:	**New:** 3.5 Quarts / **Service:** 2.5 Quarts [Vanguard™ Premium Synthetic Oil]
Air Tank Capacity:	Four (4) Gallons
Tank Pressure Rating:	200 psi
Safety Relief Valve Setting:	200 psi
Electrical System:	12 VDC
Cooling System:	Air to Oil Heat Exchanger
Instrument Gauges:	Pressure and Hour Meter
Adjustable Air Pressure Control Settings:	**Cut-in Pressure:** 115 psi **Cut-out Pressure @ 40 CFM:** 150 psi
Air Service Outlets:	Two (2) on Control Panel, One (1) on Machine (tank)

TABLE 2C: SPECIFICATIONS -— UNIT WEIGHT AND DIMENSIONS[I]					
Dimensions	**Length**	**Width**	**Height**	**Weight[II] (wet)**	**Weight[II] (dry)**
Overall Package:	47.5"	21"	33"	940 lbs.	910 lbs.
[I] Refer to ***Section 3.2.1*** for additional space requirements, and ***Figure 3-1*** for full dimension drawing.					
[II] Weight listed includes battery and fuel tank, but not instrument panel: Add 25 lbs. to weights above for instrument panel.					

TABLE 2D: GENUINE VANGUARD™ OIL CHARACTERISTICS	
Viscosity:	178 SUS at 100°F (38°C)
Flashpoint:	495°F (257°C)
Pour point:	-49°F (-45°C)
Contains:	Rust and Oxidation Inhibitors
Contains:	Detergents

SECTION 3: INSTALLATION

3.1 AIR N ARC I–300 SERIES ALL-IN-ONE POWER SYSTEM MACHINE PACKAGE RECEIPT/INSPECTION

Upon receipt of the machine package, inspect the exterior of the shipping crate for signs of shipping/transit damage. Any damage should be reported immediately to the shipping company.

NOTE

Before fully unpacking the unit, inspect the component parts, supports and loose-packed parts to ensure that there have been no internal movements of assemblies or components, which may have been damaged during shipment.

Should any damage be discovered during package inspection, contact the shipping company immediately.

NOTE

Contact Vanair® at
(219) 879-5100 / (800) 526-8817
Service Fax: (219) 879-5335
www.vanair.com
to report missing items, incorrect part numbers, or other discrepancies.

3.2 GENERAL OVERVIEW OF INSTALLATION

DISCLAIMER

DO NOT install in any enclosed space without first contacting Vanair.

⚠ WARNING

The lifting bail on the I-300 package is rated to the machine weight only. DO NOT overtax the lifting bail.

⚠ WARNING

Grounding must consist of a minimum two (2) gauge wire between the instrument panel, the machine, and the truck chassis.

⚠ WARNING

ELECTRICAL HAZARD! Be sure the battery is disconnected before starting the installation.

NOTE

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

NOTE

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

NOTE

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

When determining the factors involved with the installation of the Air N Arc I–300 Series machine on a vehicle, use this manual in tandem with the vehicle's own manual to aide in determining how the machine and its functions need to integrate with the vehicle's layout and systems.

Refer to ***Figures 3-1, 3-2 and 3-3 (if applicable)*** for the proper installation and dimensions diagrams, and also the wiring diagrams (see **Sections 7.16 through 7.20**) to assist with machine package installation.

MACHINE LOAD BEARING SURFACE

For particular load-bearing locations, if necessary, additional support may be needed to assure stability of the machine once it is mounted.

IMPORTANT

Mounting surface must be able to bear the weight of the machine.

3.2.1 EXHAUST OUTLET LOCATION

If adding an exhaust extension the supplied short elbow on the exterior of the machine must be removed. The extension needs to be clamped to the smaller diameter elbow inside the machine.

The complete exhaust system inside the truck must be wrapped with a high temp exhaust wrap (Reference Vanair p/n: PR81122).

- Engine exhaust must have provision for exhausting without recirculating engine exhaust back to the cool air intake.
- Exhaust tubing must be made of a flexible pipe with a secure connection at both ends [Vanair EN271695: 1-¼" x 25 ft long HD galvanized flex pipe).

3.2.2 MACHINE CLEARANCE ALLOWANCE

MACHINE VENTILATION

Air N Arc machines are air-cooled and adequate provision for supply of cool air to the engine, compressor and generator is required. Heated exhaust air must have provision for exhausting air without recirculating back to the cool air intake.

IMPORTANT

The minimum vent air opening area for the Air N Arc I-300 series machine is:

330 in^2 cold air in

360 in^2 hot air out

MACHINE PARAMETERS FOR CIRCULATION REQUIREMENTS

Refer to ***Figure 3-1***. Allowances must be made for proper distance surrounding the machine to allow for adequate air circulation in order to cool the package during operation.

IMPORTANT

Cooling allowance dimensions must include six inches [6"] *minimum* at front and back.

Most importantly a fresh, cool and unhindered air supply must be allowed at the air intake side of machine. In addition, clearance space surrounding the machine is needed for purposes of maintenance and control.

When referring to the machine dimensions given in ***Figures 3-1 through 3-3 (if applicable)***, take into account the additional cooling and maintenance space requirements before locating the machine mounting position.

If there is an air gap on the sides of the machine greater than one inch (1") this gap must be baffled to disallow recirculation of hot air back to cool air intake.

ROOF PANEL OPTION

If a roof above the machine is required it must be retractable to allow for proper air circulation.

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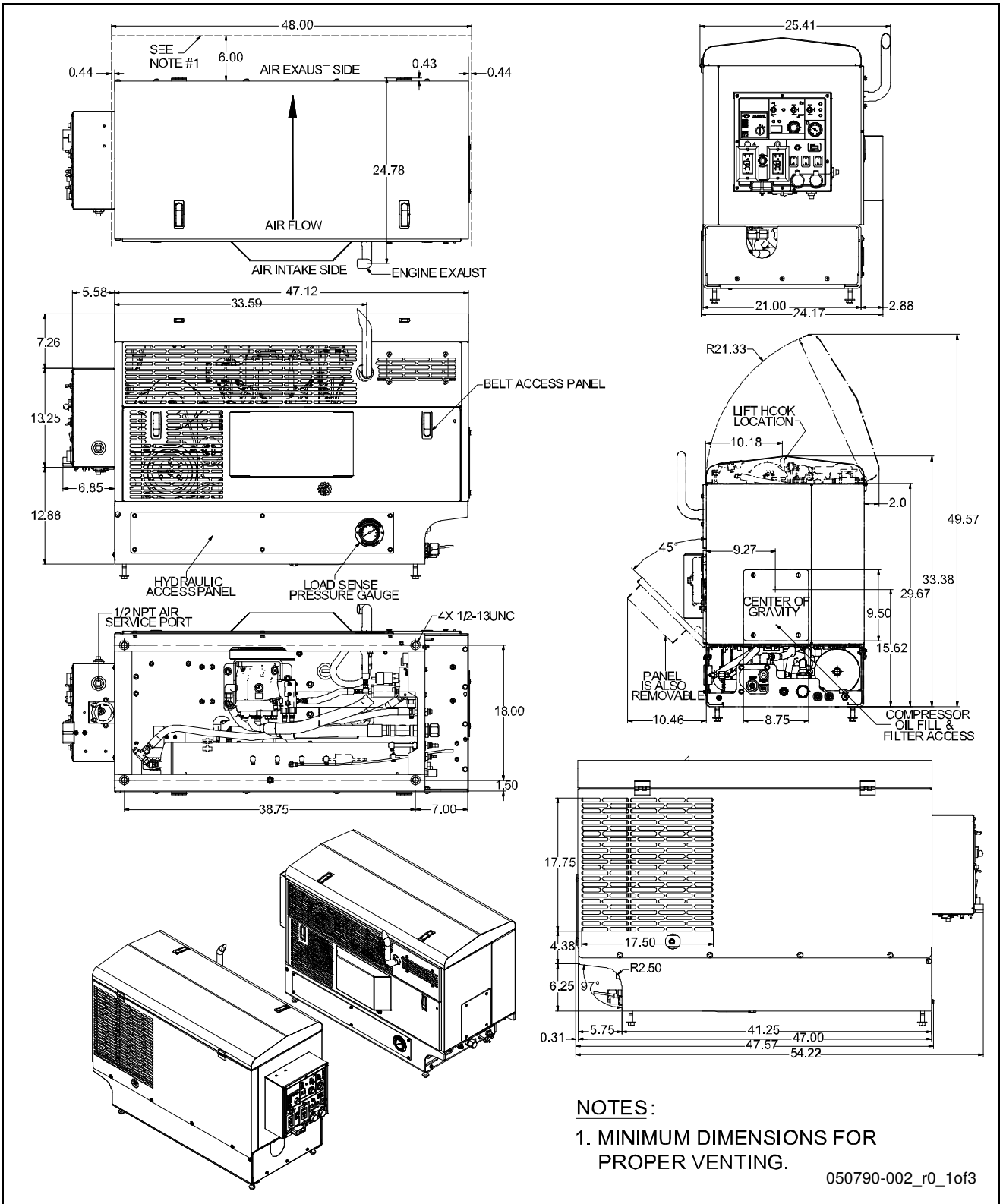

Figure 3-1: Installation and Dimensions Diagram - Part 1 of 2

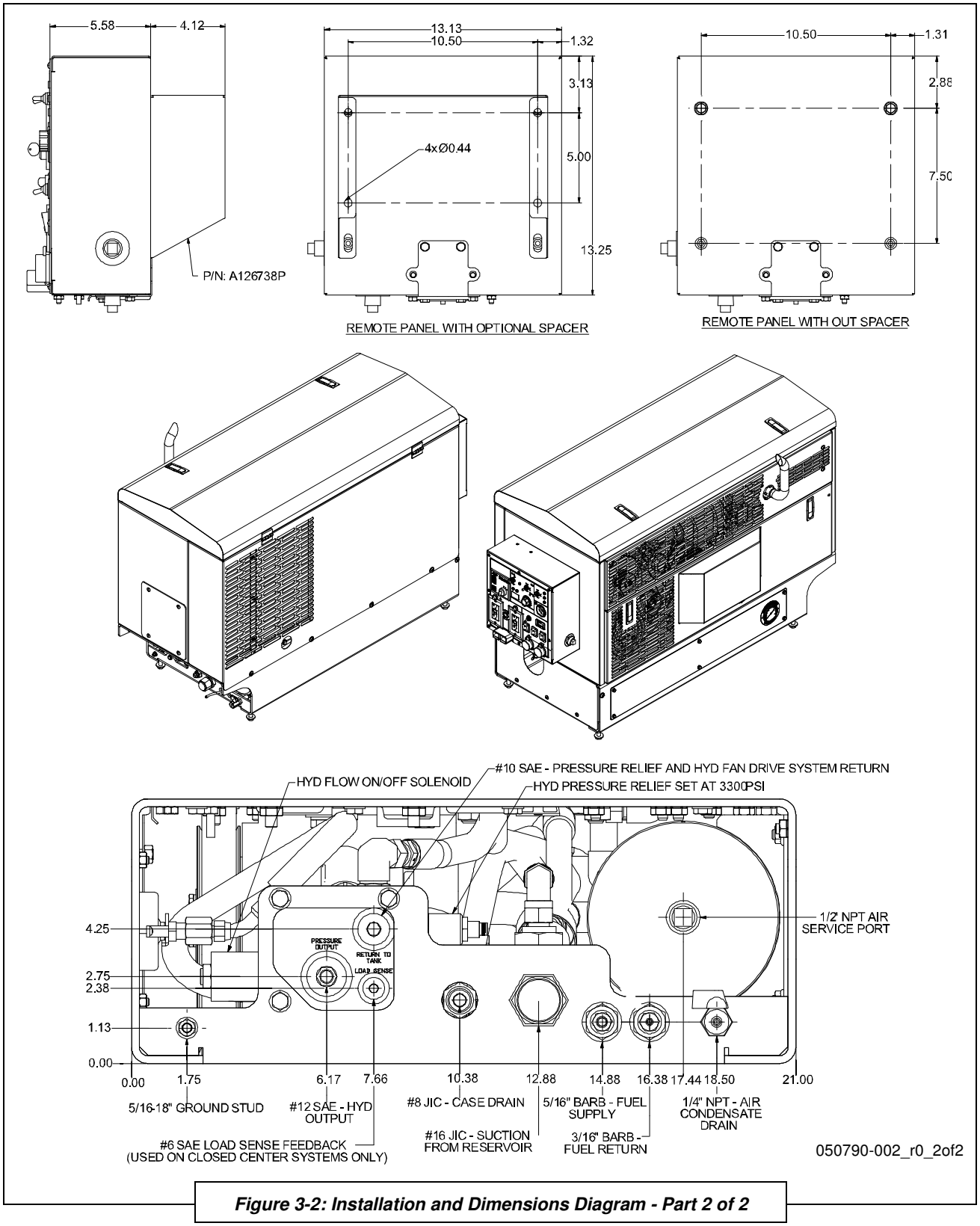

Figure 3-2: Installation and Dimensions Diagram - Part 2 of 2

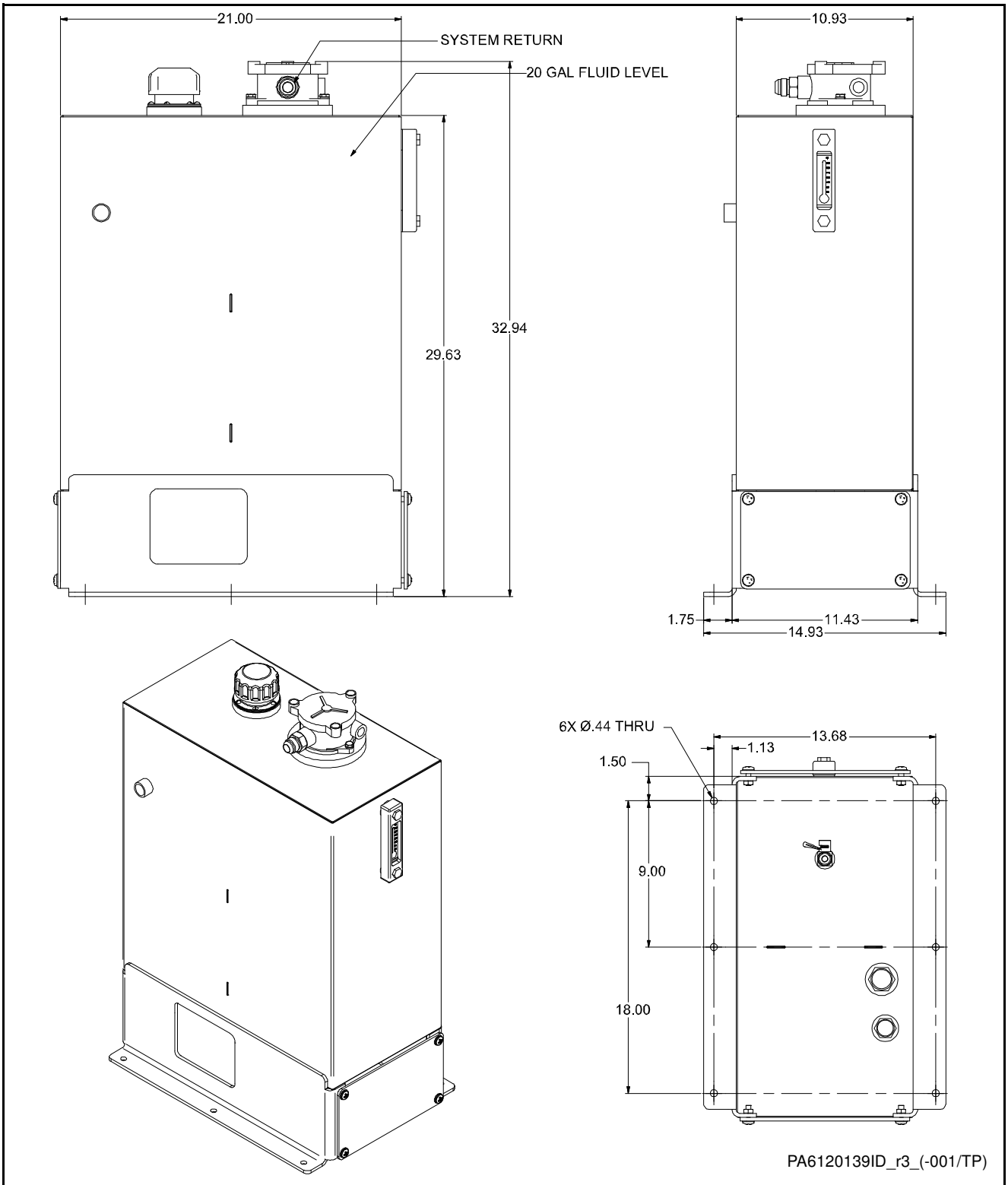

Figure 3-3: Installation and Dimensions Diagram - (Optional) Hydraulic Tank Assembly

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IMPORTANT

If present, roof is required to have a switch so machine will not start with roof down.

The roof switch should be run in parallel with access panel switch (Reference Vanair® p/n: CO81774 [Door switch]).

3.3 MOUNTING THE MACHINE

Refer to ***Figure 3-1***. Once all of the factors listed in **Section 3.2** have been considered, and the machine placement location has been resolved, the machine must be fully unpacked from its crate mounting.

⚠ WARNING

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

⚠ IMPORTANT

Note that improperly-mounted equipment may have the potential to cause harm, and possibly cause damage or undue stress on the equipment.

3.3.1 MACHINE STABILIZATION AND GROUNDING

Machine should be mounted to vehicle using a minimum of four (4) isolators. Isolators absorb vibration. Isolators are available from Vanair®; order bolt down isolator no. PR271935 (quantity of four).

IMPORTANT

Do not permanently bolt machine down until after all instructions given in **Sections 3.3 through 3.7** have been addressed.

Machine frame and instrument panel, each respectively, must be grounded to truck chassis with a minimum 2ga wire (reference Vanair ground strap: 267498).

3.3.2 TRUCK CHASSIS FUEL TANK INSTALLATION

Refer to truck manual for tying into existing fuel system. Vanair service and engineering can also lend assistance in this regard.

IMPORTANT

Make sure pick-up tube does not extend to the bottom of the tank to ensure that unit will never run the truck's fuel tank empty.

Route fuel line so that it never drops below the bottom of the tank.

Diesel engines: Both supply and return lines must be routed.

3.3.3 REMOTE-MOUNTED FUEL TANK INSTALLATION

Refer to **Section 3.4** for pump location information.

The 12V+ wire to power the fuel pump is located in the machine platform and is named "FUEL PUMP". The ground wire can be connected to the truck chassis.

Route fuel line so that it never drops below the bottom of the tank.

Diesel engines: Both supply and return lines must be run.

5/16" Standard fuel line for supply

3/16" Standard fuel line for return

3.3.4 REMOTE-MOUNTED INSTRUMENT PANEL INSTALLATION

If remote-mounting the instrument panel, all pass-throughs in the frame or body should be at minimum, a four inch (4") diameter hole. All openings must have a grommet installed to protect the wiring from sharp edges.

Instrument panel must be grounded to truck chassis with a minimum 2ga wire (reference Vanair ground strap: 267498).

3.3.5 REMOTE-MOUNTED AIR TANK INSTALLATION

If tank is larger than six inches (6") OD it must be ASME rated. It must have a 200 PSI-rated relief valve installed (Vanair supplied; reference Vanair p/n: CO450008).

To determine the location of a remote-mounted air tank, consider the following:

- Air system piping relation to the I-300 Series machine.
- Hindrance to any access, or operation of, other standard or mounted vehicle system(s), including any under deck, or accessible wiring, piping, etc.
- Service output location.

NOTE

When determining the location of the air tank, keep in mind that the tank's drain valve will need to be accessed on a frequent (daily) basis.

NOTE

When adding auxiliary air tank(s), Vanair recommends installing a pressure gauge that is visible to the operator.

To prepare and install the remote air tank follow these guidelines for rotary screw compressor discharge (3/4"):

- Aeroquip hose: GH663-12 or equal (Meets SAE 100R1AT) Synthetic rubber tube with single wire braid.
- Working pressure and temperature: 200 PSI air @ 240°F (similar to TU270453).

3.3.6 COLD WEATHER KIT (OPTION)

The Cold weather kit (option 032770) is designed to pull power from the truck battery so that while you're driving to the job site you can warm up the fluids in the machine.

A 20A fuse is included in the machine but a 12ga (minimum) wire needs to be ran to a 20A switch inside the cab and then to the truck battery.

Reference Vanair Wire diagram: ID270839.

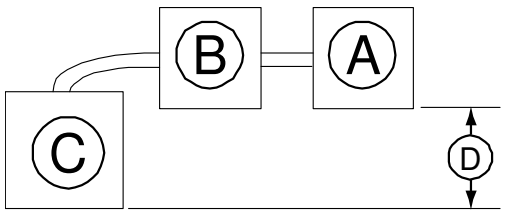
3.4 CONNECTING THE FUEL SYSTEM

To connect to the fuel pump, refer to ***Figure 3-4***, and follow these steps:

IMPORTANT

The Vanair®-supplied fuel pump includes an internal check valve. DO NOT add an external check valve when assembling the fuel pump line connection.

1. Mount the electric fuel pump at the desired location on the service body, keeping it as close to the truck fuel tank as possible. Mount the electric fuel pump a maximum distance of 24 inches from the bottom of the tank.
2. Install the pick-up and return fuel lines.
   - Ensure that the lines do not make contact with sharp edges, moving parts or exhaust heat (consult **Section 7.21, Hose Installation Guide**, for assistance in running hose lines).



KEY	DESCRIPTION
A	FUEL PUMP
B	FUEL FILTER
C	FUEL TANK
D	24" CLEARANCE TO BOTTOM OF FUEL TANK

Figure 3-4: Fuel Pump Clearance

- Units must have a 70 micron fuel filter in line before the pump.

Due to the length involved for the fuel line assembled from the engine to the vehicle-accessed fuel tank, the fuel line may accumulate air. There is a bleed nut located on the engine for the purpose of siphoning off this air. Refer to **Section 3.8, Fuel Line Siphon**, for more information on bleeding the fuel system of air.

3.5 HYDRAULIC SYSTEM OVERVIEW

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

IMPORTANT

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

IMPORTANT

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

Please take into consideration the following:

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

⚠ WARNING

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

⚠ WARNING

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

The hydraulic hoses must be run to the machine. Verify that hoses are hooked up properly to ensure proper flow. Also, verify that the hoses are laid out properly so that no chafing or kinking of the hoses is possible. Refer to **Section 7.21**, Hose Installation Guide, for assistance with proper hose layout and connecting functions.

NOTE

The temperature of the hydraulic oil should not exceed 140°F due to the rating of the Vanair-supplied hydraulic motor.

3.5.1 HYDRAULIC SYSTEM FILTRATION

Vanair recommends using a 10 micron oil filter on the hydraulic oil return line. Flow rating of the filter must be equal to, or greater than, the maximum GPM at which the system will be operated.

IMPORTANT

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

3.5.2 HYDRAULIC OIL RESERVOIR

3.5.2.1 DETERMINING RESERVOIR SIZE

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

3.5.2.2 DETERMINING RESERVOIR SHAPE

The reservoir structure should be tall and narrow rather than shallow and broad (***Figure 3-5***). A tall, narrow tank is recommended because:

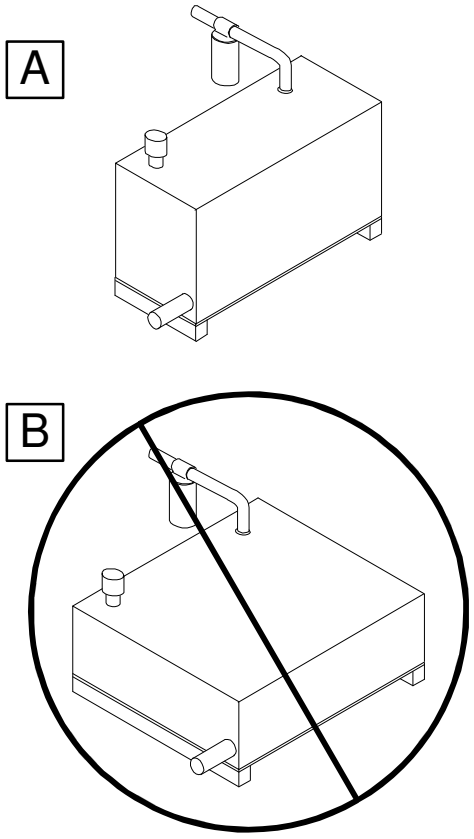
1. The oil level is well above suction line opening, avoiding the possibility of drawing air into the pump due to a

vortex or "whirlpool" effect within the tank during operation flow.

2. Allows for better oil level tolerance level of the system if vehicle operates at an unusual (slightly off level) vehicle angle.
3. To keep return flow well below the surface so it does not break the surface and cause aeration (cavitation) of the oil.

3.5.2.3 MANDATORY RESERVOIR FEATURES

The reservoir should incorporate the following design features:



KEY	DESCRIPTION
A	**PREFERRED SHAPE:** TALL AND NARROW
B	**SHAPE TO AVOID:** BROAD AND SHALLOW

Figure 3-5: Reservoir Design Shape

- In terms of location of the reservoir tank within the hydraulic system, note that the hydraulic pump's inlet line (suction line out *from* the reservoir *to* the pump) should be located near the bottom of the tank, well below the oil level. The suction line should protrude a minimum of two (2") inches into the reservoir to keep it away from potential contaminant surface buildup.
- A baffle or baffles should be included to prevent sloshing, or centrifugal motion of the oil; the goal is to break up direct flow of the oil from the return point to the suction point. This allows for the cooling action contact with the tanks' inner surfaces, and promote separation of any air or contaminants that interact with the flowing oil.

  An ideal baffle design would position several (but not too many) baffles to promote an 'S' shape flow within the reservoir, as viewed from above. The area of the end gaps should be at least twice the area of the suction line diameter.
- A drain port with plug, situated at the lowest point of the reservoir, is needed to assure complete draining. It should be installed using an adaptor or housing which does not protrude above the inner surface of the floor of the tank. It should be visible and accessible for removal, with sufficient space available for catching the waste oil.
- If the return line entrance to the tank is located near the top, it should be extended downward within the tank to minimize foaming and aeration of the circulating oil. This extends oil integrity, which in turn helps to maintain system performance and reliability.
- An inline filter on the return line is needed to protect the system against contaminants being introduced into the oil. The filter should be mounted externally from the reservoir in a location that allows for easy of service access.
- A breather and fill cap is needed at the oil fill port, which needs to be located above the system oil level. The breather cap acts to both filter air that is drawn

into the reservoir as the oil level diminishes, and bleeds air out as the level is regained. This maintains constant atmospheric pressure in the air volume within the reservoir.

- A sight-glass provides a direct visual indication of the oil level without having to open, or otherwise access, the reservoir.

3.5.2.4 RECOMMENDED RESERVOIR OPTIONS

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

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

3.5.2.5 RESERVOIR FEATURES TO AVOID

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

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

3.5.3 RECOMMENDED HYDRAULIC SYSTEM SPECIFICATIONS

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

⚠ WARNING

Do not operate machine without hydraulic system completely assembled.

1. Factory hydraulic settings: 7.5 GPM (low speed), and 12.5 GPM (high speed) @ 100°F.
   - Tested flow at pressure = 9.5 GPM @ 2000 psi
   - Flow controller is optional to reduce flow if necessary. Consult Vanair.
   - Factory set pressure compensator setting 3025 psi (no flow)
   - Factory set load sense pressure is 250 psi for open center systems
   - Factory set load sense pressure is 350 psi for closed center systems
   - Factory set torque limit = 40 NM (Non-adjustable)
2. Hydraulic lines: The following is a minimum requirement and NO quick disconnects may be used. Lines are to be kept as straight and short as possible.
   - Pressure port = #12 SAE = 3/4" hose (located at manifold block)
   - Load sense = #6 SAE = 3/8" hose (Used for closed center system only)
   - Pressure relief/fan drive return = #10 SAE = 5/8" hose (Located at manifold block)

- Case drain = #8 JIC = 1/2" hose (located at end of platform)
- Hydraulic suction = #16 JIC = 1" hose (located at end of platform)

3. Tool circuit: This machine can be used to power tools also. A tee on the pressure output line can divert flow from a crane to a tool circuit.

3.5.4 STANDARDS GUIDELINES

1. Hydraulic pressure relief factory set at 3300 psi.
2. Hydraulic cooling: For light duty cranes an external cooler is not required. For hydraulic tools or higher duty-cycle equipment a hydraulic cooler may be required. There is a 12V wire in the platform labeled "hyd fan" this wire would be used to energize the coil of a relay to power a fan.
3. Hydraulic tank size: 2xGPM = 2x10 = 20 gallons minimum.

- Tank must be located on the same surface or above the machine.

4. Charging truck battery: This machine is designed to charge a truck battery when 12V charge is selected and the machines output is connected to the truck battery. The machine will stay at low speed unless the throttle is turned on. The connection for this output is the yellow Anderson power connector from the instrument panel. Reference Vanair extension cables: MA269945 (2ga battery cable). The Vanair cable includes a 300A fuse located at the battery connection. If the customer is supplying their own battery charge cables they will need to add this fuse.
5. It is recommended that a hydraulic pressure gauge is installed off of the pressure port line and located in an accessible area.
6. Hydraulic oil type recommendation: Standard 32 weight hydraulic oil for ambient temps above 32°F. and ISO 32 synthetic hydraulic oil with a low pour point for temps below 32°F.
7. Crane remote wiring: This machine has been designed to tie to many different crane remotes. Reference wire diagram (refer to **Section 7**) for the connections. The crane remote might have to be cycled off to restart the machine after the controllers engine oil pressure bypass has locked out. See below for the crane remote connection pin explanation.

Pin1 = Ground from our battery if you need it. The machine and the instrument panel need to be grounded to the truck so you might not need this connection. This ground can be helpful if a ground is needed on a relay in the connection harness.

Pin2 = 12V+ input to turn on hydraulics. With a closed center system you should not need to turn on/off hydraulics. You could either run a constant 12V to this pin or just leave the hyd switch on the instrument panel on and not use this connection (preferred).

Pin3 = 12V+ input to turn the machine on. This should be the input from the master switch in the cab. This input has to be run through a relay so the machine can be shut down from the crane remote. Attached is a sample wiring diagram for this, but the hydraulic input will not be needed.

Pin4 = 12V+ input for engine crank. While the crane remote switch is held the engine will crank. TRICK: We have a 15 sec timer to bypass the low engine oil pressure fault. If we have seen 12V+ on pin 3 for longer than 15seconds w/o the machine running the controller will trip and need to be reset to start. To reset the controller just select "engine stop" for a short second and then you can start from the crane remote.

Pin5 = 12V+ input to turn compressor on. We do not force throttle up when compressor is chosen. The I-300 makes 30 CFM at low speed and 40 CFM at high speed.

Pin6 = 12v+ input for high engine speed. This also energizes the AC generator.

Pin7 = The ANA 12V+ battery output. This most likely will not be used in your application. This output is used when not connecting the machine to a crane remote. If not connecting to a crane remote loop a 16ga wire from pin7 to pin3. This loop wire would be a good place to add an e-stop if required.

Pin8 = Engine oil pressure switch ground output. A ground signal will be seen anytime the engine oil pressure is less than 7psi. This signal can be used in a circuit so that the starter on the engine is never engaged when the engine is running.

MANUAL BELT TENSIONS:

- 45 ft-lbs @ compressor
- 70 ft-lbs @ generators/pump
- 25 ft-lbs at fan pump

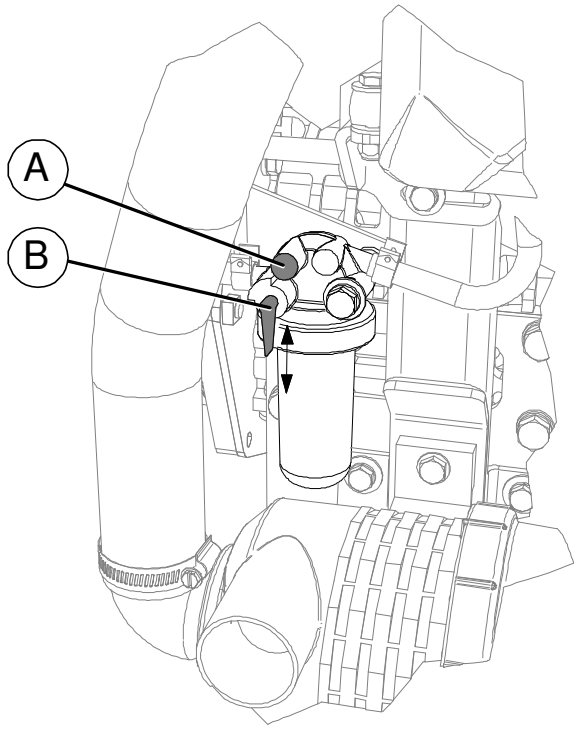
3.6 INSTALLING THE REMOTE CONTROL PANEL

For remote instrument panel mounting, install the remote control panel at the desired location on the service body, and route the control trunk line to the location where the unit will mount. All pass-throughs in the frame or body should be sized to at least a 4" diameter hole. Ensure that all sharp edges that the trunk-line contacts are shielded or grommet-protected, and that there are no excessively sharp bends in the trunk-line. Ensure the trunk line does not come in contact with exhaust parts.

3.7 FUEL LINE SIPHON

Refer to ***Figure 3-6*** for fuel line air bleed screws located on the engine fuel filter head (positioned on engine above the air cleaner). This task is performed at first start up, and also if the machine has remained unused for a period of time greater than one (1) month, or unknown length.

1. Ensure that the fuell shut-off lever is in the vertical position.



KEY	DESCRIPTION
A	BLEEDER SCREW
B	FUEL SHUT-OFF LEVER

Figure 3-6: Fuel Line Air Siphon

2. Open the bleeder screw and attempt to start the engine.
3. Repeat step #2 until fuel starts “bleeding” out from around the screw.
4. Re-tighten bleeder screw.
5. Start the unit and fully test all functions (refer to **Section 4, Operation**). Warm the unit to full operating temperature. After the unit has cooled, check all fluid levels and add as needed.

SECTION 4: OPERATION

4.1 GENERAL INFORMATION

The Air N Arc I-300 All-In-One Power System has a comprehensive array of controls and indicators for each function of the power system. Understanding the correct operational functions of the I-300 Series system will allow the operator to recognize various operational conditions, such as when the machine is functioning optimally, when maintenance is needed, or if there are indications of a malfunction. The information in the Operation Section will help the operator to recognize, distinguish and interpret these symptoms.

⚠ WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system pressure by opening the air tank drain/vent valve, which will vent all pressure to the atmosphere.

Refer to *Figure 4-1*. Open the compressor fill cap SLOWLY (contents under pressure) to make sure all pressure has been relieved.

⚠ CAUTION

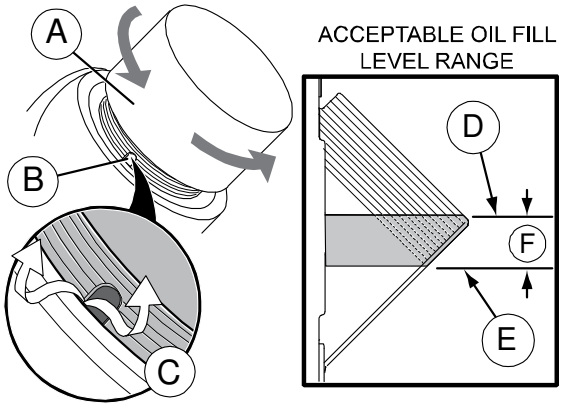
Compressors and engines generate heat and create hot surfaces. Use caution when operating and servicing equipment. Some surfaces and components may be hot.

IMPORTANT

Do not operate machine without hydraulic connections and proper amounts of fluid. Damage to pump will occur.

⚠ DANGER

DO NOT weld with the electrode holder connected to the negative (-) port and the work piece connected to the vehicle. Bodily harm and equipment damage may occur.



KEY	DESCRIPTION
A	RED COMPRESSOR FILL CAP
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap **slightly** to allow bleed vent to relieve pressure
D	HIGH LEVEL MARK (at fill port edge)
E	LOW LEVEL MARK (fill port lowest thread line edge)
F	OPTIMUM OIL LEVEL RANGE

Figure 4-1: Pressure Relief Before Accessing Unit Oil Reservoir

4.2 MACHINE START-UP AND SHUTDOWN PROCEDURE

IMPORTANT

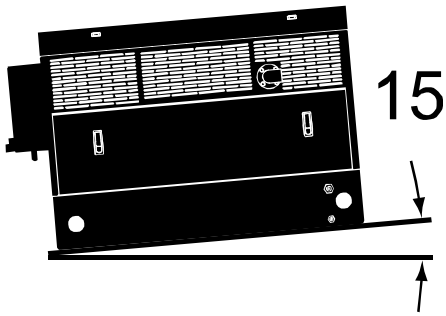
If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

Consult ***Figure 4-2: Instrument Panel Functions*** for operating procedures detailed in this section.

NOTE

Refer to *Section 4.8* for instructions on using the Air N Arc I-300 to start the vehicle should the vehicle battery prove to be too depleted or dead.

IMPORTANT



All machine package maximum operation angles of tilt are fifteen degrees (15°).

4.2.1 START-UP FROM MACHINE

Consult ***Figure 4-2***, and the following steps:

⚠ WARNING

Machine hood and front access panel must be closed before starting. Interlock switches will not allow starting with panels open. After starting, engine hood may be opened, but opening belt access panel will shut down the engine.

1. *If equipped*, turn master power **ON** in truck cab (switch).
2. On the machine panel ensure that the **Welder**, **Generator**, **Hydraulic Pump** and **Compressor** switches are in their **OFF** positions prior to starting.
3. Turn the engine control switch to the **ON** position; wait 3-5 seconds for the fuel pump to prime the system. Depending upon ambient temperature, wait until glow plug light goes out (ten [10] seconds).
4. Continue turning control switch to the **START** position until the engine starts (when the switch is let go, it will revert back to **ON** position).
5. Let engine run at idle for 3-5 minutes to allow for warm up sequence.

4.2.2 START UP FROM REMOTE CRANE

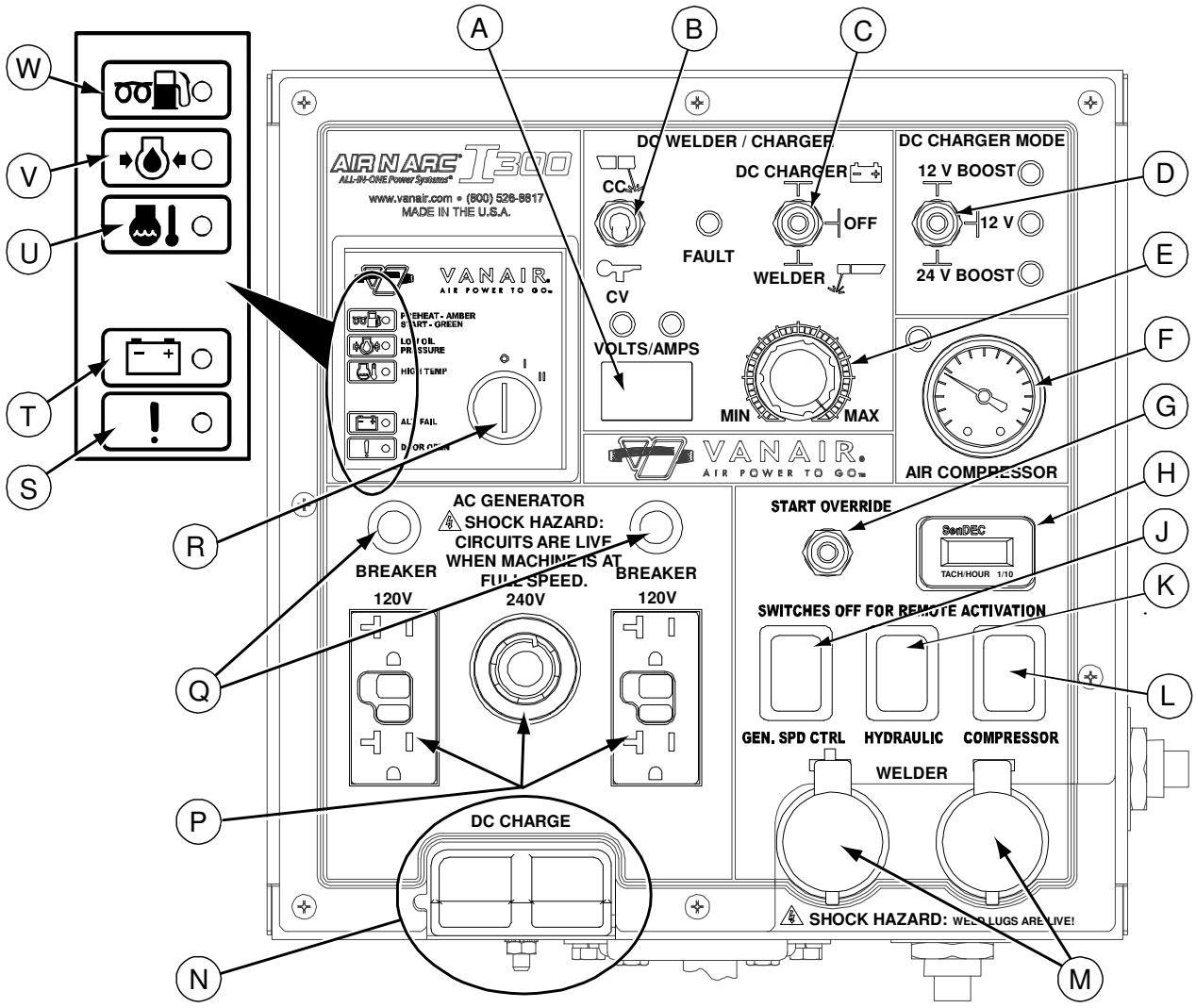
NOTE

Some crane remotes will automatically ramp engine to full speed when compressor is selected. Engine speed can be adjusted using the ENGINE selector. Compressor can be turned off at any time by selecting OFF.

Refer to ***Figure 4-2*** and ***Figure 4-3***.

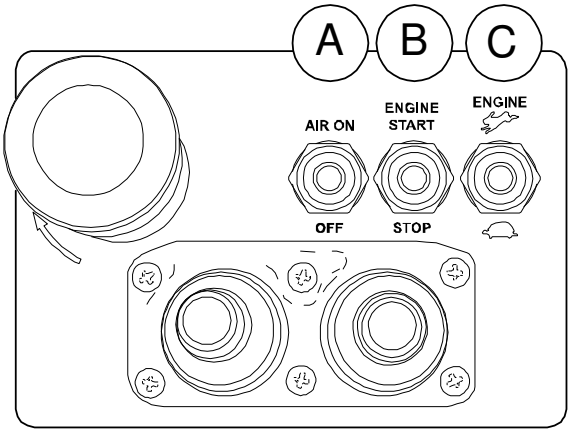
1. *If equipped*, when starting the machine, confirm that the master power switch, located in the vehicle cab, is in the **ON** position.
2. On the machine panel ensure that the **Welder**, **Generator**, **Hydraulic Pump** and **Compressor** switches are in their **OFF** positions.
3. Turn the machine's key switch to **ON** position.
4. Turn crane remote **ON**.
5. Select the **ENGINE START** switch and hold until engine starts.

If engine does not crank and has fault tripped on "LOW OIL PRESSURE", then



KEY	DESCRIPTION	KEY	DESCRIPTION
A	VOLTS/AMPS METER	**M**	WELDER LEAD CONNECTION
B	WELDER CC/CV TOGGLE SWITCH	**N**	BATTERY CABLE RECEPTACLE
C	DC CHARGER/WELDER TOGGLE SWITCH	**P**	AC VOLTAGE OUTLETS
D	DC CHARGER MODE TOGGLE SWITCH	**Q**	CIRCUIT BREAKER OVERLOAD TRIP/RESET BUTTONS
E	VOLTS/AMPS MANUAL ADJUSTMENT DIAL	**R**	ENGINE CONTROL (ON/OFF/START) SWITCH
F	COMPRESSOR AIR PRESSURE GAUGE	**S**	DOOR OPEN INDICATOR LAMP
G	START OVERRIDE SWITCH	**T**	ALTERNATOR FAIL INDICATOR LAMP
H	TACH / HOUR METER	**U**	HIGH TEMPERATURE INDICATOR LAMP
J	GENERATOR/THROTTLE CONTROL ON/OFF SWITCH	**V**	LOW OIL PRESSURE INDICATOR LAMP
K	HYDRAULIC ON/OFF SWITCH	**W**	PREHEAT/START CONDITION (GLOW PLUG) INDICATOR LAMP
L	COMPRESSOR ON/OFF SWITCH		

Figure 4-2: Instrument Panel



KEY	DESCRIPTION
A	AIR ON SWITCH (COMPRESSOR UNIT)
B	ENGINE START SWITCH
C	ENGINE SPEED SWITCH

Figure 4-3: Typical Remote Crane Panel

momentarily select “STOP”. Then try again to start the engine.

4.2.3 MACHINE SHUTDOWN

Consult ***Figure 4-2*** and ***Figure 4-3***. To shut the engine off at any time, turn the engine control switch to the **OFF** position. However, this method is best reserved for emergency shutdown situations only. Vanair® recommends that the following procedure be used for routine shutdowns in order to keep the system in optimal condition, and minimimize undue stress that may occur at the next start up session if some of the machine conditions were left in working mode(s) or had auxiliary power draws left intact (such as a tool receptacle left plugged into the generator, etc.).

To prepare the machine for shutdown:

1. Shut off any tools or other items that are drawing power from the generator, hydraulic pump, or compressed air from the air tank.
2. Close all service valves.
3. Unplug any power cords that are plugged into the generator panel.
4. Turn the **Welder**, **Generator**, **Hydraulic Pump** and **Compressor** switches on the control panel to their **OFF** positions.
5. Allow machine to run at idle for 3-5 minutes to allow for a cool down sequence.
6. Turn the **Crane Remote switch**, or **master power switch**, or **Engine Control Switch** to the **OFF** position.

IMPORTANT

After shutting down the machine, ensure all appropriate switches are placed in their OFF positions so the machine can be restarted properly in the future.

NOTE

Refer to both Section 4.10, and the Engine Operator’s Manual for additional information pertaining to engine start-up.

4.3 ENGINE THROTTLE CONTROL FUNCTIONS

The engine speed is controlled by two factors:

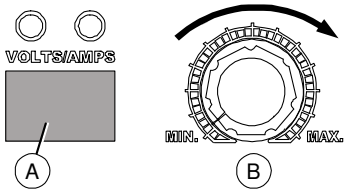
1. The position of the welder switch on the unit control panel, and the use of the welder.
2. The position of the generator switch on the control panel.

IMPORTANT

Any combination of the I-300 Power System output functions (welder, generator, hydraulic pump or compressor) used *simultaneously* will have an adverse affect on engine running at full throttle.

4.4 OPERATING THE WELDER

Consult ***Figure 4-4***. The **variable power dial** adjusts the welder amperage (0 to 300 amps), or voltage (15 to 40 volts) for the desired weld heat. Turning the power dial clockwise increases the amperage or voltage, and turning the power dial counterclockwise decreases the amperage or voltage. The power dial may be adjusted while welding.



KEY	DESCRIPTION
A	DIGITAL READ OUT DISPLAY
B	**RANGE:** 0-300 AMPS 15-40 VOLTS

Figure 4-4: Variable Power Dial Adjustment

4.4.1 WELDER OPERATING PROCEDURE

⚠ WARNING

Before attempting any welding procedure, the operator must be aware of general safety practices, and particularly those pertaining to welding, as found in *Section 1.4* of this manual.

4.4.1.1 CC (CONSTANT CURRENT) MODE

CC (Constant Current) Mode is commonly referred to as - Stick Welding, Arc Welding, or Shielded Metal Arc Welding (SMAW).

1. With the engine shut off, insert the twist lock connections of the work clamp and the electrode holder cables into the welder connection ports on the control panel. For Direct Current Electrode Positive (DCEP), connect the electrode holder to the positive (+) port, and the work clamp to the negative (–) port.

⚠ DANGER

DO NOT weld with the electrode holder connected to the negative (-) port and the work piece connected to the vehicle. Bodily harm and equipment damage may occur.

2. Select the appropriate electrode for the material and process being performed. See **Table 4A: ELECTRODE SPECIFICATIONS** for selecting an electrode.
3. Place the ground clamp on the work piece and insert the appropriate welding rod into the electrode clamp.
4. Start the engine (**See Section 4.2, Machine Start-up and Shutdown Procedure**).
5. On the control panel, place the CC/CV switch in CC mode. Place the DC Charger/Welder switch in welder mode.
6. Adjust the power dial to the appropriate amperage setting for the material and the electrode being used. (See **Table 4A: ELECTRODE SPECIFICATIONS** for electrode amperage ratings). At anytime during welding, the power dial may be adjusted to the desired amperage level.

NOTE

The amps/volts display will read the set value for five (5) seconds when the dial is adjusted, and the actual output value five (5) seconds after the dial has been adjusted.

7. When you strike the electrode against the material being welded, the engine will go to full speed and deliver the selected amperage through the electrode. Welding can now begin.

TABLE 4A: ELECTRODE SPECIFICATIONS		
METAL THICKNESS	**ELECTRODE SIZE**	**WELDING AMPERES**
1/16-1/8	3/32	50-90
1/8-1/4	1/8	90-140
1/4-3/8	5/32	120-180
3/8-1/2	3/16	150-230

TABLE 4B: WELDING ROD TYPE, POLARITY AND FLUX CODES		
DIGIT	**TYPE OF COATING**	**WELDING CURRENT**
10	High cellulose sodium	DC+
11	High cellulose potassium	AC or DC+ or DC-
12	High titania sodium	AC or DC-
13	High titania potassium	AC or DC+
14	Iron powder titania	AC or DC- or DC+
15	Low hydrogen sodium	DC+
16	Low hydrogen potassium	AC or DC+
27	Iron powder iron oxide	AC or DC+ or DC-
18	Iron powder low hydrogen	AC or DC+
20	High iron oxide	AC or DC+ or DC-
22	High iron oxide	AC or DC-
24	Iron powder titania	AC or DC- or DC+
28	Low hydrogen potassium iron powder	AC or DC+

8. After a weld has been completed, and there is no contact between the electrode and the metal for 30 seconds, the engine will return to idle.

What the numbers mean that are used to identify a stick welding electrode:

Using E6010 for an example...

The “E” indicates Electrode because some welding rods are not electrodes. The “60” in 6010 indicates the tensile strength of 60,000 psi.

The last two (2) digits indicate position and polarity along with what type flux. See **Table 4B: WELDING ROD TYPE, POLARITY AND FLUX CODES**.

NOTE

If a longer welding lead is desired, optional 25 and 50 ft. lead segments may be purchased from Vanair® Manufacturing, Inc. for a maximum lead length of 100 ft.

4.4.1.2 CV (CONSTANT VOLTAGE) MODE - USING A VOLTAGE SENSING SUITCASE FEEDER OR SPOOL GUN

CV (Constant Voltage) Mode – commonly referred to as - Wire Welding, MIG welding, or Gas Metal Arc Welding (GMAW).

NOTE

When using a spool gun, an adapter with contactor must be used. Please consult the spool gun manufacturer for appropriate adapter.

1. With the engine shut off, insert the twist lock connection of the ground clamp into the negative (-) welder connection port on the control panel. Insert the power lead segment from the suitcase feeder into the positive (+) welder connection port on the control panel.
2. Place the ground clamp from the suitcase feeder and the ground clamp from the Air N Arc I-300 on the work piece.
3. Start the engine (**See Section 4.2, Machine Start-up and Shutdown Procedure**).
4. On the control panel, place the DC Charger/Welder switch in welder mode. Place the CC/CV switch in CV mode.
5. Adjust the power dial on the Air N Arc I-300 to the appropriate voltage setting for the material being welded. Adjust the power dial on the suitcase feeder for the material being welded. At anytime during welding, the power dial may be adjusted to the desired voltage level.

4.5 OPERATING THE GENERATOR

⚠ WARNING

DO NOT rely on the thermal overload circuit breakers on the generator to protect personnel, power tools, or the generator. The thermal overload circuit breakers on the generator require time to overheat when the generator is operating in an overload condition — they DO NOT provide instant protection against short circuiting or overload conditions. Always use GFCI protected extension cords and power strips when using the generator.

IMPORTANT

The Power System is designed to support a multi-function project. However, if the generator is operating at a high percentage of its rated capacity, and the welder and air compressor are also being used, the resulting drop in engine speed may produce a low voltage condition that will damage the generator and power tools being used.

IMPORTANT

Only plug power cords into the generator receptacles AFTER the engine is running at full speed.
Be careful not to overload the rated capacity of the generator - 6,800 watts (28 amps @ 240V) continuous.

To operate the generator:

1. Start the engine.
2. With the engine warmed up and operating at low idle, turn the generator switch on the control panel to the **ON** position.

Combined output on all generator receptacles is limited to the total rated generator capacity. For example; if 1,500 watts (12.5 amps) is being drawn on the 120V duplex receptacle, only 3,700 watts (15.5 amps) is available at the 240V receptacle. Check the desired power tool, motor or extension cord manufacturer's specifications for general information on the power requirements of common power tools, motors and extension cords in order to confirm power draw limitations.

If the thermal overload circuit breakers on the generator are tripped due to an overload condition, press the white reset buttons on the generator panel to reset the breakers (***Figure 4-5***).

⚠ WARNING

If one of the generator circuit breakers is tripped, the cause of the overload must be determined before the circuit breaker is reset and work is resumed.

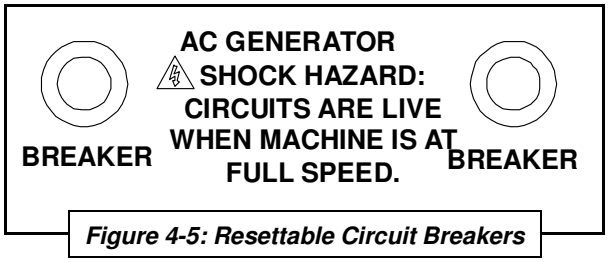


Figure 4-5: Resettable Circuit Breakers

4.6 OPERATING THE COMPRESSOR

NOTE

The Air N Arc I-300 Power System unit features a high pressure, 175 psi air system. Check the maximum air pressure rating on the air tools being used. The operator is responsible for regulating the air pressure when necessary (See *Section 5.4.2, Adjusting the Pressure Setting*).

NOTE

The pressurized air system requires routine maintenance. See *Table 5A, Maintenance Schedule*, in *Section 5* to learn about important maintenance procedures.

NOTE

The moisture drain valve on the air tank may be accessed at any time, including while the machine is in operation.

To operate the air compressor:

1. Start the engine as per ***Section 4.2.1***.
2. With the engine warmed up and operating at low idle, turn the compressor switch on the control panel to the ON position.

At this stage (when the compressor switch is selected, but the generator/throttle control is OFF) output is 30 CFM. However If the compressor switch is selected *and* the generator/throttle control switch is ON, then output is 40 CFM.

When purchasing air tools or planning a project, the rated capacity of the compressor (40 CFM @ 150 psi) will need to be taken into consideration. In regard to air tool compressed air requirements, check the desired power tool manufacturer's specifications.

4.7 OPERATING THE BATTERY BOOSTER/CHARGER

The Vanair® state-of-the-art battery charging module and the optional battery charging cables add further versatility to the I-300 Series Power System. The battery charging system operates off the DC generator, and not the main AC power generator.

⚠ WARNING

DO NOT charge or boost while in Weld Mode. Personal injury or damage may occur.

⚠ WARNING

NEVER disconnect boosting connections or cables while charging /boosting. This will cause a voltage spike on the machine. Failure to follow this warning can result in injury, and/or damage or failure of any or all electronic components, thus voiding the warranty of the machine.

IMPORTANT

Any combination of the I-300 Power System output functions (compressor, generator, welder, hydraulic pump) used *simultaneously* will have an adverse affect on engine running at full throttle.

IMPORTANT

Never leave the machine unattended while charging a battery. Always carefully monitor the charging system while it is in use; the high amperage level that the unit produces can damage the battery being charged, or the other components, if the unit is left connected for an extended period of time.

IMPORTANT

System will not give output without being connected to a battery.

During charging, if the machine begins to cycle between high and low speed, then the battery is fully charged.

4.7.1 CONNECTION - DISCONNECTION SEQUENCE AND OPERATION

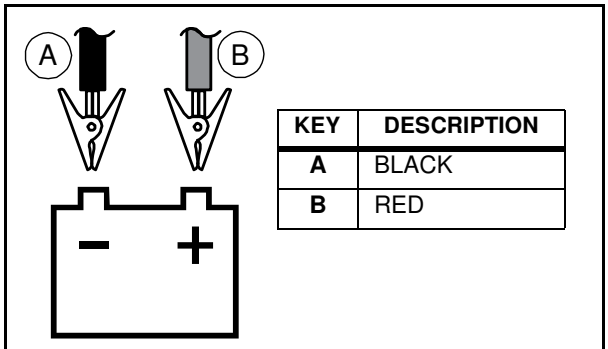
⚠ WARNING

Always wear a face shield when connecting or disconnecting battery charging cables, and always follow the connection and disconnection sequence. Electrical sparks can cause a battery to explode, resulting in serious injury.

IMPORTANT

To prevent damaging voltage spikes, the vehicle battery cables must be disconnected from the battery to be charged in any vehicle equipped with a computer, or any equipment with sensitive electronic components. Failure to follow this warning can result in damage or failure of any or all electronic components of the vehicle.

1. With the engine off, insure that the welder, DC charger switch, and any other engine control switch are in the **OFF** position.
2. Attach the clamps of the battery charge cable to the battery to be charged. RED to the positive terminal, BLACK to the negative terminal (***Figure 4-6***).



KEY	DESCRIPTION
A	BLACK
B	RED

Figure 4-6: Battery Cable Connections

3. Plug the battery charge cables into the battery cable connection.
4. Start the engine and wait for all indicator lights to turn off. Place the DC Welder/Charger selector toggle switch in the DC Charger position, and then the DC Charger Mode switch to the correct position. The battery is being charged. 12V charge will stay at low speed.
5. When selector is in **boost mode** and machine begins to cycle between high and low idle then the battery is fully charged.
6. To disconnect the charging system, place the DC Welder/Charger selector toggle switch to the **OFF** position.
7. Allow engine to idle down, then shut down the engine.
8. Now it is safe to disconnect the clamps from the battery being charged, and the battery cable connection on the front of the machine.

4.8 USING THE START OVERRIDE SWITCH TO JUMP-START THE VEHICLE

If the vehicle battery voltage is too low to start the vehicle, the override switch will allow for the vehicle to be started with the Air N Arc unit.

1. If equipped, confirm that the master power switch (in vehicle cab) is **ON**.
2. Turn key on the I-300 unit and attempt to start.
3. If the I-300 did not start then turn the key switch back to off.
4. Choose “Charge” on the charge/off/ weld switch.
5. Hold the momentary start override switch, and at the same time, turn the key to crank.
6. Once the machine has started, hold the momentary switch until voltage can be read on the display.
7. The truck battery is now being charged and the I-300 unit is available for use.

If the truck battery charging cables were not run during installation then battery boost cables can be used to connect to the truck battery to the charge output.

4.9 OPERATING THE HYDRAULIC PUMP

1. With the engine off, insure that the welder, DC charger switch, and any other engine control switch are in the **OFF** position.
2. The hydraulic pump can be turned on via the switch on the instrument panel or automatically by using the crane remote.

LOW FLOW = LOW SPEED

HIGH FLOW = HIGH SPEED

IMPORTANT

Consult factory for hydraulic tool circuit information.

4.10 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, in the presence of high humidity, or at a high altitude, 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 consult the Engine Operator’s Manual, or visit the engine manufacturer’s web site.

4.10.1 COLD WEATHER OPERATION

NOTE

Refer to the Engine Operator’s Manual for standard oil recommendations.

The I-300 Series All-In-One Power System’s 25HP engine runs on diesel fuel, which can be more difficult to start in cold weather. When the temperature is very low, extra care must be taken regarding fuel and oil changes in their viscosity, freezing of water contained in the piping, or of water adhering on the filter. Diesel fuel may gel at very cold temperatures.

WATER

Water in the fuel can freeze at temperatures below 32°F (0°C), blocking fuel lines. Keep the fuel tank full to prevent condensation from forming inside the tank and lessen the chances of water getting in the fuel line.

At an extremely cold temperature, the viscosity of hydraulic fluid and lubrication oil may increase and the torque of starter may exceed its permissible value, hindering proper starting.

GELLING

Diesel fuel turns into a gel-like consistency at temperatures around 0°F (-18°C): The diesel forms wax crystals when the temperatures drop below 15°F (-9°C). Then, as it gets colder, these wax crystals turn to gel. This thicker substance cannot pass the fuel filter, so the engine may run intermittently, or may not start at all.

At an extremely cold temperature, the viscosity of hydraulic fluid and lubrication oil may increase, and the torque of starter may exceed its permissible value, hindering proper starting. Additional care should be taken under consideration when operating the package in extreme cold weather environments or ambient temperatures.

COLD WEATHER SAFEGUARDS

- Park the vehicle or equipment indoors when not in use.
- Use a block heater or glow plugs.

NOTE

As indicated in the *Section 4.2.1* (start-up), a full interval lapse of ten (10) seconds allows the glow plugs to assist with key ignition start up in cold ambient temperatures.

- After initial start-up, run engine at idle speed for several minutes prior to use.
- Maintain the vehicle's battery; this will make it easier to start a diesel engine in cold weather.
- In below zero temperatures a fuel line de-icer product may need to be used.
- Check the fuel filter regularly to insure that it contains no water.
- Vanguard™ Premium Synthetic Oil is suitable for use from -40°F to 110°F (-40°C to 43°C).
- Drain the moisture from the tank when it is warm from extended operation.
- For additional engine precautions, consult the Engine Operator's Manual.

NOTE

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

NOTE

Vanair® offers a cold weather kit option, installed at the factory, which enables operation at temperatures from 0°F down to -40°F (-18°C to -40°C). Consult Vanair for details.

4.10.2 HIGH TEMPERATURE OPERATION

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 Operator's 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 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.

4.10.3 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, air evacutator valve (on compressor 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.

4.10.4 HIGH ALTITUDE OPERATION

Engine horsepower will decrease by 3.5% for every 1,000 feet over 6,000 feet increase in altitude. At high altitude overall unit performance will deteriorate, and care will need to be taken not to overload the engine.

SECTION 5: MAINTENANCE

5.1 GENERAL INFORMATION

A strict maintenance program is the key to long life for the Air N Arc I-300 Series All-In-One Power System package. Following is a program that, when adhered to, should keep the package in top operating condition. Refer to **Table 5A** in this section for a detailed maintenance routine schedule for specific compressor system components.

⚠ WARNING

Before performing maintenance:

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

⚠ WARNING

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

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

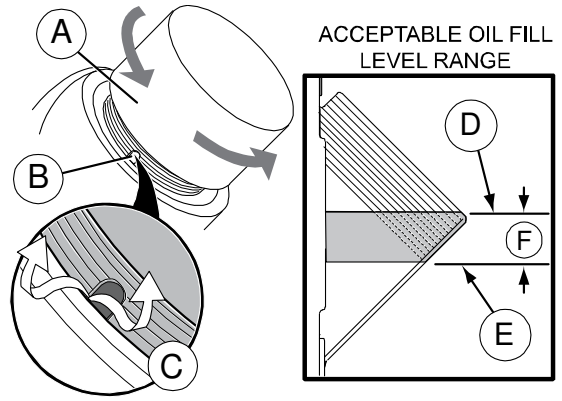
Refer to *Figure 5-1*. Open compressor fill cap SLOWLY (contents under pressure) to make sure all pressure has been relieved.

⚠ WARNING

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

5.2 ROUTINE MAINTENANCE SCHEDULE

Vanair® Manufacturing, Inc. considers the maintenance schedule given in **Table 5A: Maintenance Schedule** to be part of the



KEY	DESCRIPTION
A	RED COMPRESSOR FILL CAP
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap **slightly** to allow bleed vent to relieve pressure
D	HIGH LEVEL MARK (at fill port edge)
E	LOW LEVEL MARK (fill port lowest thread line edge)
F	OPTIMUM OIL LEVEL RANGE

Figure 5-1: Pressure Relief Before Accessing Unit Oil Reservoir

warranty agreement with the customer. This maintenance regimen must be followed in order to protect the warranty of the machine package.

Vanair® Manufacturing, Inc. especially requires that a consistent service regimen be established for engine and compressor oil changes, and engine and compressor air filter servicing. The following schedule is designed so that many of the other maintenance tasks are completed when the engine and compressor air filters are serviced, and the engine oil is changed.

NOTE

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

Note that more frequent intervals may be needed in adverse operating conditions (refer to *Section 4.10, Extreme Condition Operation*).

IMPORTANT

Consult the Engine Operation Manual for further detailed maintenance and interval descriptions in addition to the information given in Table 5A.

⚠ WARNING

Concerning the engine: In addition to the safety measures given in this manual, the operator must also be acquainted with the safety measures given in the Engine Operation Manual.

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

TABLE 5A: MAINTENANCE SCHEDULE

⚠ WARNING

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

INTERVALS

NOTE

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.

System maintenance personnel must be familiar with all Safety regulations set forth in the Safety Section of this manual before performing maintenance on this machine.

KEY	TASK DESCRIPTION	BREAK-IN PERIOD: First 20 Hours of Operation	MAINTENANCE SCHEDULE Hourly or Calendar Period - whichever comes first: After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours	ACTION TO TAKE	REFERENCE
1	Check the coolant recovery tank level	•	•					Add a mixure of 50/50 antifreeze if low. Recovery tank is marked with a FULL and LOW level indicator; proper level is between these lines. Do not overfill recovery tank. For complete coolant change, also refer to the Engine Operator's Manual.	**⚠ WARNING:** Do not remove the radiator cap while coolant is hot. When cool to the touch, rotate cap to the first stop to allow excess pressure to escape. Then remove cap completely. If overheating should occur, escaping pressurized steam may be present from the radiator or recovery tank. Severe burns can result in contact with this steam.
2	Check the air compressor drive belt tension	•	•					Tighten belt if necessary.	Consult ***Section 5.4.3*** for belt tightening and belt replacement procedures.
3	Check engine fuel lines			Every 50 hours of operation				Inspect all fuel lines and connections.	Engine Operation Manual
4	Change engine oil	•		•				Consult the oil change procedure	Engine Operation Manual
5	Change engine oil filter	•		•				Consult the oil filter change procedure	Engine Operation Manual
6	Check engine oil level		•					Consult engine oil level check procedure.	Engine Operation Manual

Continued on next page

TABLE 5A: MAINTENANCE SCHEDULE

⚠ WARNING

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

INTERVALS

MAINTENANCE SCHEDULE
Hourly or Calendar Period - whichever comes first

NOTE

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.

System maintenance personnel must be familiar with all Safety regulations set forth in the Safety Section of this manual before performing maintenance on this machine.

KEY	TASK DESCRIPTION	BREAK-IN PERIOD: First 20 Hours of Operation	After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours	ACTION TO TAKE	REFERENCE
7	Check air tank for water accumulation		•					Drain any water from the air tank. *Note that the 1/8" NPT fitting at the end of the drain valve (**Section 7.12**, key #16) can be piped to a holding tank.* DAILY drain water from air tank entirely.	Note that tank can be drained at any time, including while machine is in operation.
8	Check air compressor oil level		•					Check resting oil level; fill to proper level if low (Refer to ***Figure 5-1***). **⚠ DANGER:** NEVER check the compressor oil level with the compressor running. Hot oil is under pressure and will spray, causing severe burns. When checking compressor oil level, blow down the pressure to zero and allow system oil level to settle before removing the fill cap.	**⚠ WARNING:** Compressor oil can ignite if it comes in contact with very hot surfaces, such as a muffler or exhaust manifold on the engine.
9	Inspect unit for oil leaks or damage		•					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

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TABLE 5A: MAINTENANCE SCHEDULE

⚠ WARNING

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

NOTE

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.

System maintenance personnel must be familiar with all Safety regulations set forth in the Safety Section of this manual before performing maintenance on this machine.

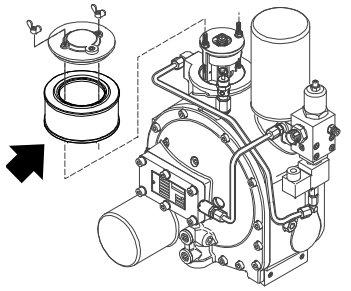
KEY	TASK DESCRIPTION	INTERVALS: BREAK-IN PERIOD — First 20 Hours of Operation	MAINTENANCE SCHEDULE Hourly or Calendar Period - whichever comes first: After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours	ACTION TO TAKE	REFERENCE
10	Inspect cooler fins (both engine and compressor oil coolers) for contamination)		•					Clean or clear as necessary. Use only low pressure air to clean cooler fins; do not use high pressure air nor a pressure washer.	**IMPORTANT:** Do not clean radiator with firm tools such as spatulas or screwdrivers. Such instruments may damage the fins or tubes, and/or cause coolant leaks or decrease cooling performance.
11	Inspect ventilation openings		•					Ensure openings are not blocked or clogged with debris.	
12	Clean and inspect engine air filter		•					Consult the engine air filter procedure.	Engine Operation Manual
13	Clean and inspect compressor air filter *The compressor oil is the key to a long useful life of the air compressor system. Dirt and other foreign matter can be introduced into the compressor system through the air intake. A clean air filter will ensure that the compressor is protected.*		•					Replace if air filter membrane is worn, contains tears or pinholes, or if filter is damaged.	

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TABLE 5A: MAINTENANCE SCHEDULE

⚠ WARNING

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

INTERVALS

BREAK -IN PERIOD

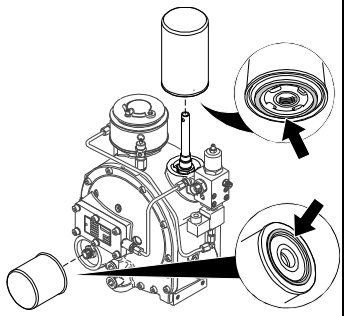
MAINTENANCE SCHEDULE Hourly or Calendar Period - whichever comes first

First 20 Hours of Operation	After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours

NOTE

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.

System maintenance personnel must be familiar with all Safety regulations set forth in the Safety Section of this manual before performing maintenance on this machine.

KEY	TASK DESCRIPTION	First 20 Hours of Operation	After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours	ACTION TO TAKE	REFERENCE
14	Change air compressor oil, oil filter and coalescer element			•				**IMPORTANT:** This procedure should only be performed when the compressor is warm, immediately after operation. Use only Vanguard Premium Synthetic Oil. Oil drain tube connects just beneath oil fill cap (location). Coat surfaces of sealing rings on oil filter and coalescer filter elements with compressor oil before mounting into place. Compressor oil fill is approximately three (3) gallons.	
15	Replace engine air filter			•				Consult the engine air filter procedure.	Engine Operation Manual
16	Inspect the air compressor and generator / hydraulic pump drive belts for wear, damage or excessive cracking				•			Ensure that drive belts are in satisfactory operating condition, and are tensioned adequately.	Consult ***Section 5.4.3*** for belt tightening and belt replacement procedures.
17	Check battery cables and connections				•			Clean and tighten as necessary. Replace any worn cables.	
18	Inspect unit mounting bolts				•			Tighten any loose mounting bolts as necessary.	

Continued on next page

TABLE 5A: MAINTENANCE SCHEDULE

⚠ WARNING

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

NOTE

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.

System maintenance personnel must be familiar with all Safety regulations set forth in the Safety Section of this manual before performing maintenance on this machine.

KEY	TASK DESCRIPTION	INTERVALS: BREAK-IN PERIOD — First 20 Hours of Operation	MAINTENANCE SCHEDULE Hourly or Calendar Period - whichever comes first: After 8 Hours or Daily	Every 100 Hours or One Year	Every 200 Hours	After 300 Hours	After 500 Hours	ACTION TO TAKE	REFERENCE
19	Blow out the DC welding generator and AC generator				•			Use compressed air to clear out generators	NOTE: carry out every 100 hours if operating in dirty environmental conditions.
20	Replace engine fuel filter				•			Consult the fuel filter replacement procedure.	Engine Operation Manual
21	Check compressor cut-in and cut-out pressures					•		Ensure that the cut-in and cut-out pressure settings are correct.	Consult ***Section 5.4.2*** for pressure settings and adjustments, if needed.
22	Check the engine speed					•		Ensure that the engine speed is running at correct interval. Adjust if necessary.	Consult ***Section 5.4.2*** for engine speed adjustment information.
23	Inspect the welding leads and battery charging cables					•		If so equipped, ensure that welding leads are satisfactory for operation (no cracks or advanced wear). Repair or replace as necessary.	
24	Inspect welding electrode clamp and ground clamp					•		Ensure that welding electrode and ground clamps are in satisfactory for operation (no cracks or advanced wear). Repair or replace as necessary.	
25	Replace the air compressor and generator drive belts						•	Replace and re-tension the drive belts.	Consult ***Section 5.4.3*** for belt tightening and belt replacement procedures.
26	Inspect the generators and the belt tensioner						•	Ensure that the belt tensioner bearings are working properly without any rough, noisy or worn indications.	Consult ***Section 5.4.3*** for belt tightening and belt replacement procedures.

5.3 REPLACEMENT PARTS

Replacement parts should be purchased through your local Vanair® representative or where the I-300 Series Power System was purchased. If, for any reason, parts are not available in this manner, they can be purchased through Vanair directly.

NOTE

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

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

NOTE

If additional spare parts are being stored for future use, make certain that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 5.5.2, Long Term Storage*.

5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

⚠ WARNING

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

⚠ WARNING

Before performing maintenance:

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

⚠ WARNING

Do not remove the radiator cap while coolant is hot. When cool to the touch, rotate cap to the first stop to allow excess pressure to escape. Then remove cap completely.
If overheating should occur, escaping pressurized steam may be present from the radiator or recovery tank. Severe burns can result in contact with this steam.

⚠ CAUTION

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

⚠ CAUTION

Compressors and engines generate heat and create hot surfaces. Use caution when operating or servicing equipment. Some surfaces and components may be hot.

IMPORTANT

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

NOTE

It may be necessary to change the compressor oil and oil filter at earlier intervals if the compressor oil has water contamination or if the compressor system is operated in a dirty environment.

NOTE

Refer to the Engine Operator's Manual for detailed maintenance and replacement procedures for the engine.

NOTE

Inspect and replace damaged components before operation with Genuine Vanair® Replacement Parts.

DO NOT mix different compressor fluid types.Use only Vanguard™ Premium Synthetic Compressor Oil.

Substituting non-Vanguard Oil or non-genuine Vanair filter components will void the warranty.

5.4.1 ADJUSTING THE ENGINE SPEED

Consult the Vanair® Service Department for issues relating to adjustment of engine speed.

5.4.2 ADJUSTING THE PRESSURE SETTING

⚠ WARNING

The compressor cut-in/cut-out pressures have been factory-adjusted within the limits of the compressor manufacturer, and should not need to be adjusted. The maximum pressure limit of the compressor is 175 psi. Pressure should never be allowed to go beyond this limit or what has been set by local laws and regulators. This system will disengage the clutch at 185 psi. A 200 psi safety relief valve is located on the air tank to prevent over pressurizing the system.

The **Cut-in pressure** is defined as the pressure in which the compressor starts pumping. Anytime the pressure in the tank falls below this pressure the compressor is allowed to start pumping.

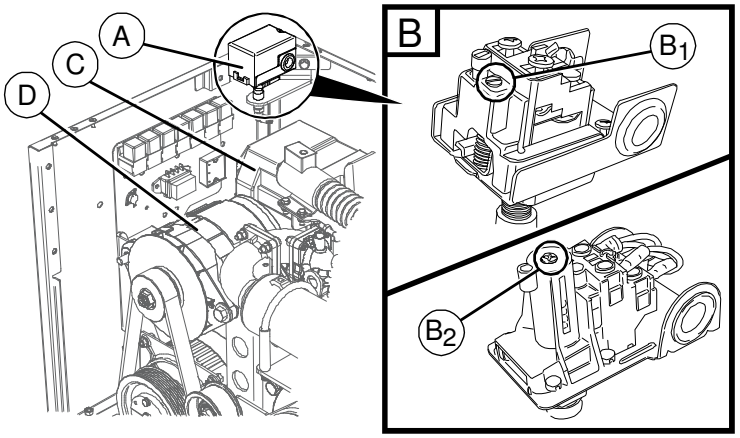
The **Cut-out pressure** is defined as the pressure in which the compressor stops pumping. When the pressure in the air tank rises above this pressure the compressor is signaled to stop pumping.

Although pressure settings are adjusted at the factory before shipping, and should not need to be adjusted, a situation may occur where it is necessary to manually adjust or reset either or both of these settings. For such cases, consult ***Figure 5-2***, and the following procedure:

1. Locate the air pressure control switch [**A**] at the left rear corner of the machine. Remove the cover-retaining screw fastening the cover to the switch, and remove the cover.
2. To adjust the compressor pressure, turn the cut-in pressure adjustment screw [**B**] clockwise to increase the pressure and counterclockwise to lessen the pressure.
3. After making your adjustments, position and re-fasten the cover to the pressure switch body with the cover retaining screw.
4. Close the hood, and cycle the compressor several times to ensure that the correct pressures are set.
5. If additional adjustments are needed, repeat steps #1 through #4 until the correct pressures are set.

5.4.3 RE-TENSIONING AND REPLACING THE SERPENTINE DRIVE BELTS

The compressor and generator are driven by the engine using two belts. The belts will generally not need replacement during the service life of the compressor system. However, you may find that over time they become loose and need to be tightened. The proper tension can be determined by using a tension tester to measure the deflection from a given force.



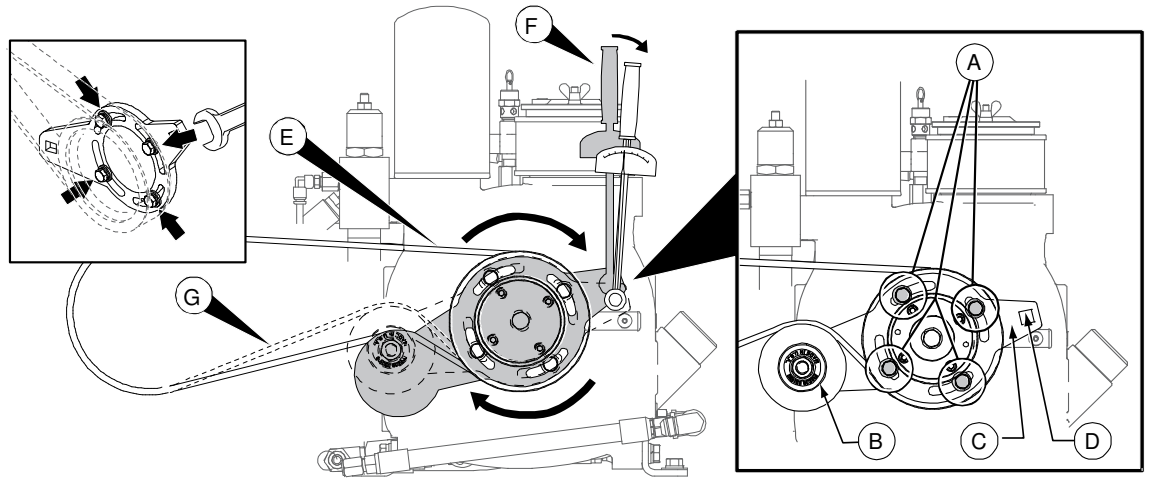
KEY	DESCRIPTION
A	PRESSURE SWITCH
B	COMPRESSOR CUT-IN PRESSURE ADJUSTMENT SCREW
B_1	TYPE “A” SWITCH SCREW LOCATION
B_2	TYPE “B” SWITCH SCREW LOCATION
C	BATTERY (reference)
D	DC WELDER GENERATOR (reference)

Figure 5-2: Pressure Switch Location

5.4.3.1 RE-TENSIONING THE AIR COMPRESSOR SERPENTINE DRIVE BELT

Consult ***Figure 5-3***, and the following procedure.

1. With the machine off and the ignition key removed, open and remove the front panel.
2. Loosen the four tensioner plate bolts [**A**] mounting the tensioner plate [**C**] to the compressor only enough to allow



KEY	DESCRIPTION	KEY	DESCRIPTION
A	TENSIONER PLATE MOUNTING AND ADJUSTMENT BOLTS	E	Loosen bolts **[A]** to allow tensioner plate to pivot manually to achieve new belt-tensioned position.
B	IDLER	F	Pivot plate by applying 40 ft-lbs. torque wrench to tensioning hole.
C	TENSIONER PLATE	G	Belt tension adjustment should be verified using a tension tester.
D	TENSIONING HOLE		

If necessary, order Replacement Compressor Serpentine Belt no. **DR27584** (refer to **Section 5.4.3** for compressor belt replacement). For Generator / Hydraulic Pump Belt replacement refer to **Section 5.4.3.4**.

Figure 5-3: Compressor Serpentine Belt Re-tensioning

tensioner plate to rotate/slide along the grooves in the plate while still in position (**DO NOT** remove).

This allows the idler sheave [**B**] to change position, causing the belt to be loosened or tightened.

3. Use a 1/2" drive torque wrench applied to the square tensioning hole [**D**] to manually rotate the plate/idler about the loosened, but anchored, mounting bolt. Apply torque of 40 ft-lbs.

4. Once a position is achieved that accounts for a satisfactory tension in the belt, torque the four (4) tensioner plate bolts [**A**] to 12 ft-lbs to secure the tensioner into position.

5.4.3.2 REPLACING THE AIR COMPRESSOR SERPENTINE DRIVE BELT

To replace the air compressor serpentine belt consult ***Figures 5-4*** and ***5-5***, and the following procedure:

With the machine off and the ignition key removed, open and remove the access panel.

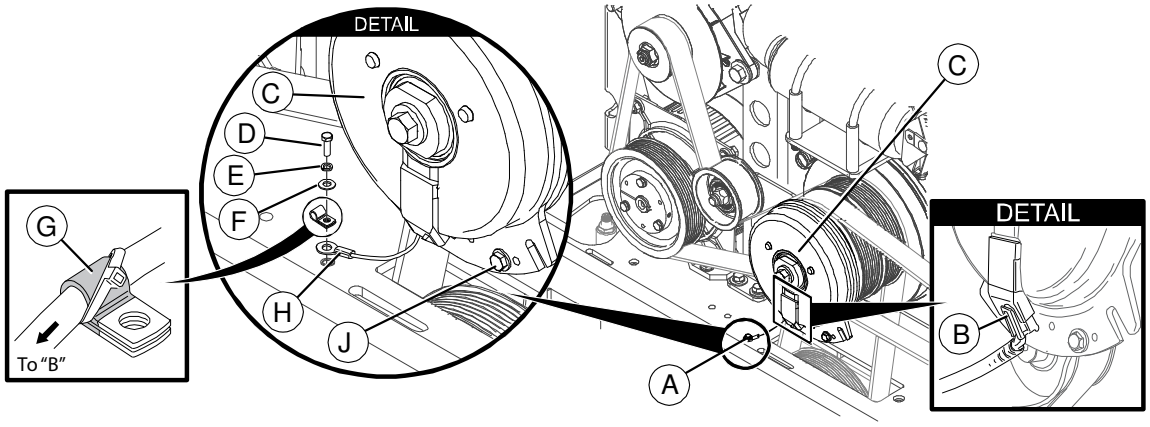
BELT ACCESS AT CLUTCH (*Figure 5-4*)

1. Release the electrical connection wire [**B**] fastened at the front of the clutch plate [**C**]. Note that this wire is also secured at the harness cable clamp [**G**].

NOTE
It is not necessary to remove the zip tie securing the clamp to the wire.

2. Locate the clutch retaining cable ([**H**] in ***Figure 5-4***) secured to the floor of the machine near the clutch apparatus of the engine.

3. Unfasten the clutch retaining cable by removing the retaining cable bolt [**D**], lock washer [**E**], washer [**F**], and harness cable clamp [**G**] securing the

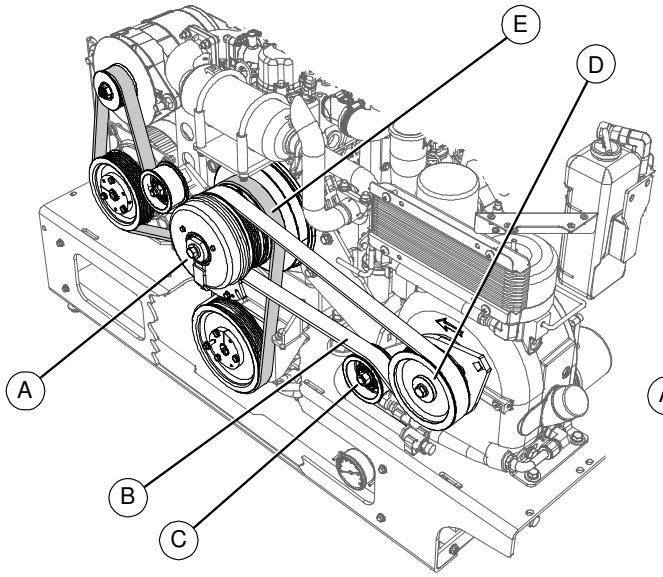


KEY	DESCRIPTION	KEY	DESCRIPTION
A	CLUTCH RETAINING CABLE ASSEMBLY	**F**	WASHER
B	ELECTRICAL HARNESS CABLE CONNECTION AT CLUTCH	**G**	HARNESS CABLE CLAMP[I]
C	CLUTCH	**H**	CLUTCH RETAINING CABLE
D	RETAINING CABLE BOLT	**J**	CABLE CONNECTION HOLE
E	LOCK WASHER		

[I] Electrical connection wire is zip-tied to clamp; it is not necessary to remove this zip-tie when releasing the retaining cable.

Order Compressor Serpentine Belt Replacement no. **DR27584.** For Generator / Hydraulic Pump Belt replacement refer to **Section 5.4.3.4**.

Figure 5-4: Clutch Access for Belt Removal



KEY	DESCRIPTION
A	ENGINE CLUTCH ASSEMBLY
B	AIR COMPRESSOR SERPENTINE BELT[I]
C	COMPRESSOR UNIT IDLER SHEAVE
D	AIR COMPRESSOR DRIVE SHEAVE
E	GENERATOR SERPENTINE BELT (ref)

[I] Compressor drive belt tracks on the *outside* clutch sheave track.

Order Compressor Serpentine Belt Replacement no. **DR27584.** For Generator / Hydraulic Pump Belt replacement refer to **Section 5.4.3.4**.

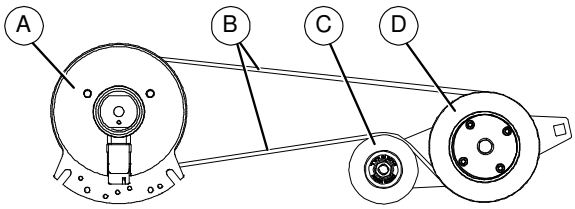


Figure 5-5: Compressor Serpentine Belt Positioning

cable to the floor. The harness cable does not have to be removed from the clamp. Retain parts for reassembly.

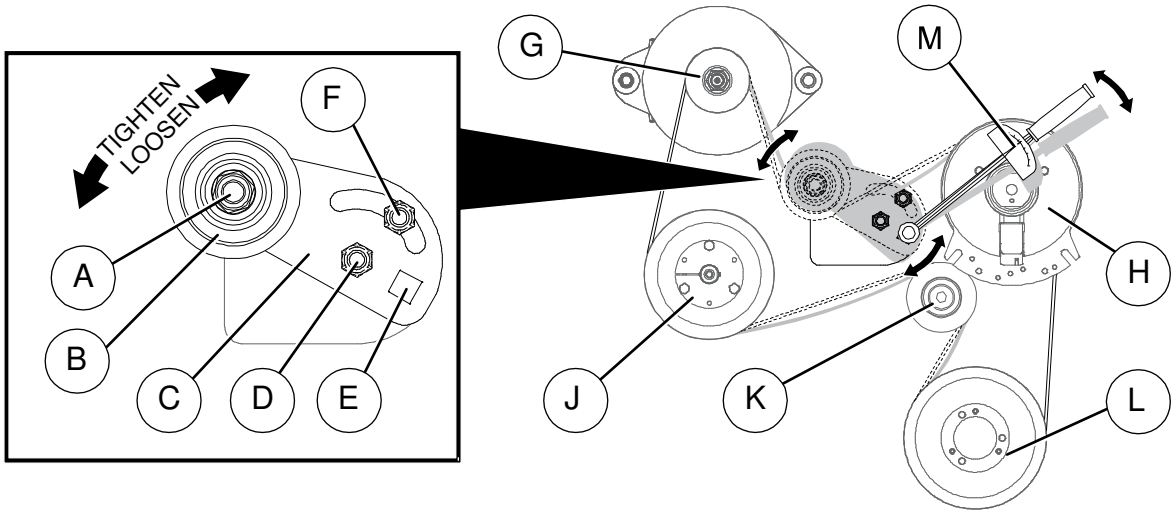
COMPRESSOR DRIVE BELT REMOVAL AND REPLACEMENT

1. Loosen the compressor belt as instructed in steps #1 and #2 in **Section 5.4.3.1**. When belt is loose enough to clear the sheave(s) remove the belt.
2. Position and route a new air compressor serpentine belt [**B**] onto the proper driver tracks as shown in ***Figure 5-5***, making sure that it goes on the *outside* driver of the double sheave track of the engine clutch assembly, closest to the face plate of the clutch. Also note that the textured side of the drive belt goes on the inside of the belt for traction with the drive pulleys.
3. (***Figure 5-4***) Reposition the clutch retaining cable [**H**], harness cable clamp (with harness wire intact) [**G**], washer [**F**], lock washer [**E**] and retaining cable bolt [**D**] into proper anchoring hole in the frame base. Tighten the bolt securely.

5.4.3.3 RE-TENSIONING THE GENERATOR / HYDRAULIC PUMP SERPENTINE DRIVE BELT

To re-tension the generator / hydraulic pump serpentine belt, consult ***Figure 5-6*** and the following procedure:

1. With the machine off and the ignition key removed, open and remove the front panel.
2. Locate the generator tensioner plate [**C**]. Using a 3/4” socket wrench, loosen, but do not remove, the tensioner adjustment/set bolt [**F**] and anchor bolt [**D**] to allow the tensioner plate to pivot.
3. Place a torque wrench fitting into the anchor hole [**E**], and adjust the plate to a reading of 65 ft-lbs.
4. Without relieving pressure on the torque wrench, tighten the adjustment/ set bolt [**F**] and anchor bolt [**D**] to fasten the tensioner plate into the proper torqued position. Remove the torque wrench.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	UPPER IDLER SHEAVE BOLT	**G**	DC GENERATOR SHEAVE
B	UPPER IDLER SHEAVE	**H**	ENGINE CLUTCH ASSEMBLY
C	TENSIONER PLATE (FOR UPPER IDLER)	**J**	AC GENERATOR SHEAVE
D	TENSIONER PLATE ANCHOR BOLT	**K**	LOWER IDLER SHEAVE
E	ANCHOR HOLE FOR TORQUE WRENCH	**L**	HYDRAULIC PUMP SHEAVE
F	TENSIONER PLATE ADJUSTMENT/SET BOLT	**M**	TORQUE WRENCH (ADJUSTMENT) [I]

[I] Pivot plate by applying torque wrench to tensioning hole. Torque to 65 ft-lbs.

Figure 5-6: Generator Belt Re-Tensioning

5.4.3.4 REPLACING THE GENERATOR/ HYDRAULIC PUMP SERPENTINE DRIVE BELT

To replace the generator / hydraulic pump serpentine belt, the compressor drive belt must first be removed. Consult ***Figures 5-4*** (for clutch access to belts), ***Figure 5-7***, and the following procedure:

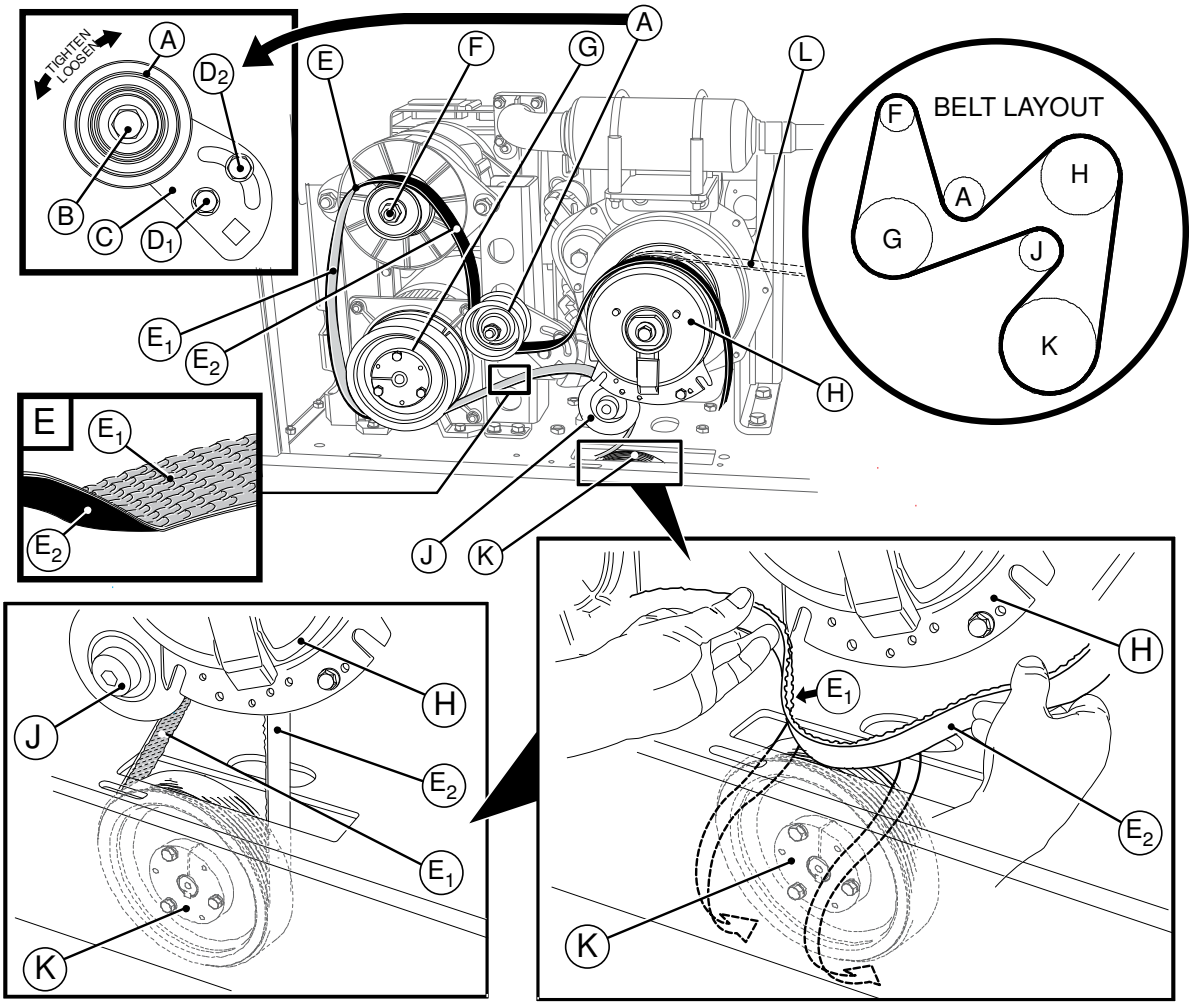
1. With the machine off and the ignition key removed, open and remove the front access panel.
2. To access the drive belts from the clutch pulleys, refer to the steps in **Section 5.4.3.2** under **"Belt Access at Clutch"**.

Once the clutch assembly path is free from the retaining cable and harness wire connection, the belts can be accessed for removal.

The compressor drive belt must first be removed in order to access the generator/ hydraulic drive belt. Refer to **Section 5.4.3.2** for compressor serpentine belt removal. Once the compressor drive belt is removed, the worn generator serpentine belt can be replaced. Refer to ***Figure 5-7*** and the following steps:

1. Using a 3/4" socket wrench, loosen bolt [$\mathbf{D_2}$] enough to allow pivoting of tensioner plate [**C**] to relieve enough tension on the upper idler sheave in order to remove the generator/ hydraulic pump belt; remove belt.
2. Position and route the new generator serpentine belt as shown in ***Figure 5-7***.

   Ensure that the traction side of the drive belt [$\mathbf{E_1}$] runs on the *inside* to directly contact the *drive* pulleys [**F**, **G**, **H**, and **K**] that run the generators



KEY	DESCRIPTION	KEY	DESCRIPTION
A	UPPER IDLER SHEAVE	**E_2**	DRIVE BELT: SMOOTH-SIDE (shown black)
B	UPPER IDLER SHEAVE BOLT	**F**	WELDER GENERATOR DRIVE PULLEY
C	UPPER IDLER TENSIONER PLATE	**G**	AC GENERATOR PULLEY
D	UPPER IDLER FASTENER & ADJUSTMENT BOLTS	**H**	CLUTCH SHEAVE (FRONT): Compressor Drive STUB SAHFT SHEAVE (REAR): Generator / Hydarulic Pump Drive
D_1	TENSIONER PLATE ANCHOR BOLT		
D_2	TENSIONER PLATE ADJUSTMENT BOLT	**J**	LOWER IDLER SHEAVE
E	DRIVE BELT	**K**	GENERATOR / HYDRAULIC PUMP SHEAVE
E_1	DRIVE BELT: TRACTION-SIDE (shown gray)	**L**	COMPRESSOR DRIVE BELT (reference) [I]

[I] Compressor drive belt must be removed before maintenance can be performed on the generator/hydraulic pump drive belt. Refer to **Section 5.4.3.2** for instructions on removing the compressor drive belt, for purpose of gaining generator / hydraulic belt access.

Order Generator / Hydraulic Pump Serpentine Belt Replacement no. **DR272436.** For Compressor Serpentine Belt replacement, refer to **Section 5.4.3.2**.

Figure 5-7: Generator / Hydraulic Pump Serpentine Belt Replacement Positioning

and hydraulic pump. Also note that the drive belt tracks on the inside of the clutch assembly [**H**] (closest to the engine).

3. Replace the compressor serpentine drive belt (refer to **Section 5.4.3.2**).

At this point the belts will need to be checked for proper tension. Consult **Section 5.4.3.3** on how to re-tension the generator serpentine belt, and **Section 5.4.3.1** to re-tension the compressor serpentine belt.

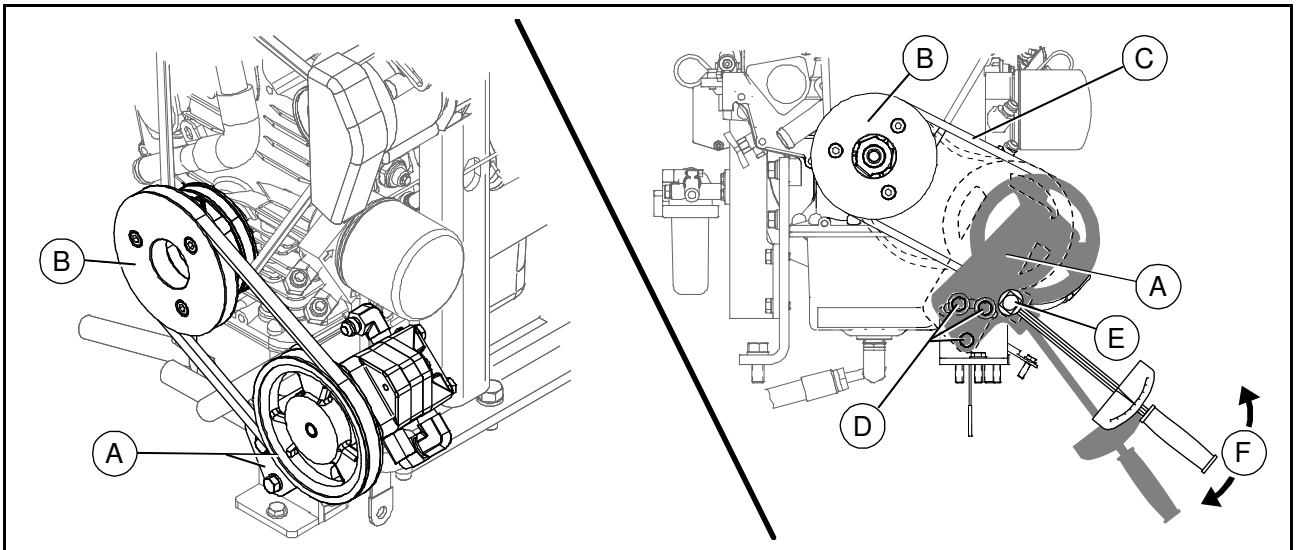
NOTE
Vanair® recommends that the air compressor and generator/ hydraulic pump drive belts both be changed at the same time even if only one of the belts is in need of being changed.

5.4.3.5 RE-TENSIONING THE ENGINE COOLING SYSTEM HYDRAULIC PUMP DRIVE BELT

The hydraulic pump can only be accessed when the machine's rear canopy is removed.

Once the panels are removed, consult ***Figure 5-8***, and the following procedure:

1. Make certain that the machine is off and the ignition key removed.
2. Loosen, but do not remove, the three (3) tensioner plate bolts [**D**] mounting the tensioner plate/pump sheave [**A**] in place. Loosen only enough to allow tensioner plate to pivot along the grooves in the plate while still remaining in position.
3. Use a 1/2" drive torque wrench applied to the square tensioning hole [**E**] to manually rotate the plate/pump sheave about the loosened, but anchored, mounting bolt (bottom bolt). Apply torque of 51 in-lbs. as per **Table 5B: Measuring Belt Deflection** for the proper tension measurement.
4. Once a position is achieved that accounts for a satisfactory tension in the belt, torque the three (3) tensioner plate bolts [**D**] to 12 ft-lbs. (16.3 Nm) to secure the tensioner into position.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	TENSIONER PLATE & HYDRAULIC PUMP SHEAVE	**D**	TENSIONER PLATE MOUNTING BOLTS
B	ENGINE SHEAVE	**E**	TENSIONING HOLE (square hole on tensioner plate)
C	ENGINE HYDRAULIC PUMP DRIVE BELT	**F**	TORQUE WRENCH (for proper belt tensioning)

Figure 5-8: Engine Hydraulic Pump Belt Re-tensioning

TABLE 5B: MEASURING BELT DEFLECTION (All measurements given are estimations)	
SPAN LENGTH (in)	DEFLECTION DISTANCE (in)
17.91	0.25

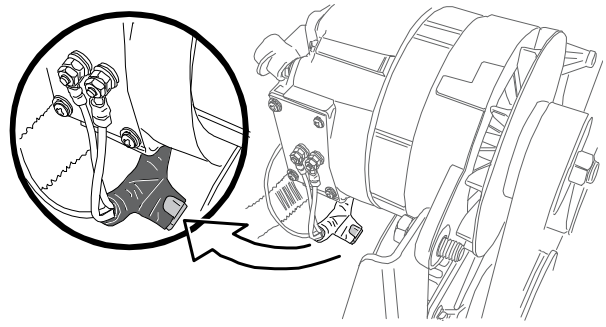
DEFLECTION FORCE (lbs)			
ALL RIBS		TORQUE TO IN-LB TENSION	
RE-TENSION	NEW INSTALL	RE-TENSION	NEW INSTALL
12.000	18.5	53	81

5.4.4 SERVICING THE SYSTEM FUSES AND CIRCUIT BREAKERS

Consult ***Figure 5-9*** for the location of the DC welder generator fuse, and ***Figure 5-10*** to determine the location of the engine and generator breakers. ***Figure 5-11*** gives the locations of the Power System fuses.

⚠ DANGER

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



Order 15A Replacement Fuse **no. 265909.**

Figure 5-9: DC Welder Generator Fuse Location

⚠ WARNING

Before performing maintenance:

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

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

NOTE

Replacement fuses can sometimes be found at local vendor carriers, such as automobile supply stores, hardware stores, etc.

5.5 STORAGE AND INTERMITTENT USE

5.5.1 INTERMITTENT USE

If the unit is not used very regularly always treat the fuel with a fuel stabilizer.

Check all belts and hoses for signs of deterioration such as visible surface cracks, stiffness or discoloration.

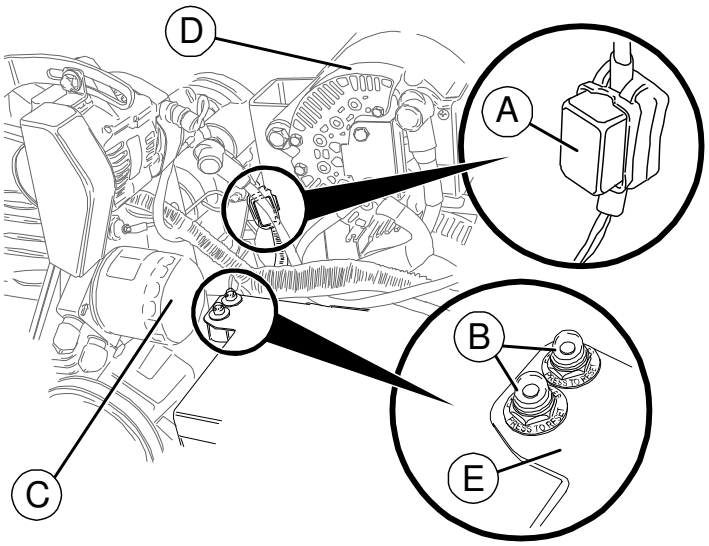
5.5.2 LONG TERM STORAGE

Disconnect the battery cable that is connected to the positive (+) side of the battery.

Depressurize the air tank and open the drain valve on the tank.

If fuel tank present, fill the fuel tank with fuel and fuel stabilizer to prevent moisture build-up in the tank, and start up to cycle fuel stabilizer throughout engine before storing.

After fuel stabilizer has been cycled, cover the unit with a tarp or plastic to prevent the accumulation of dust, but leave the bottom open for air circulation.



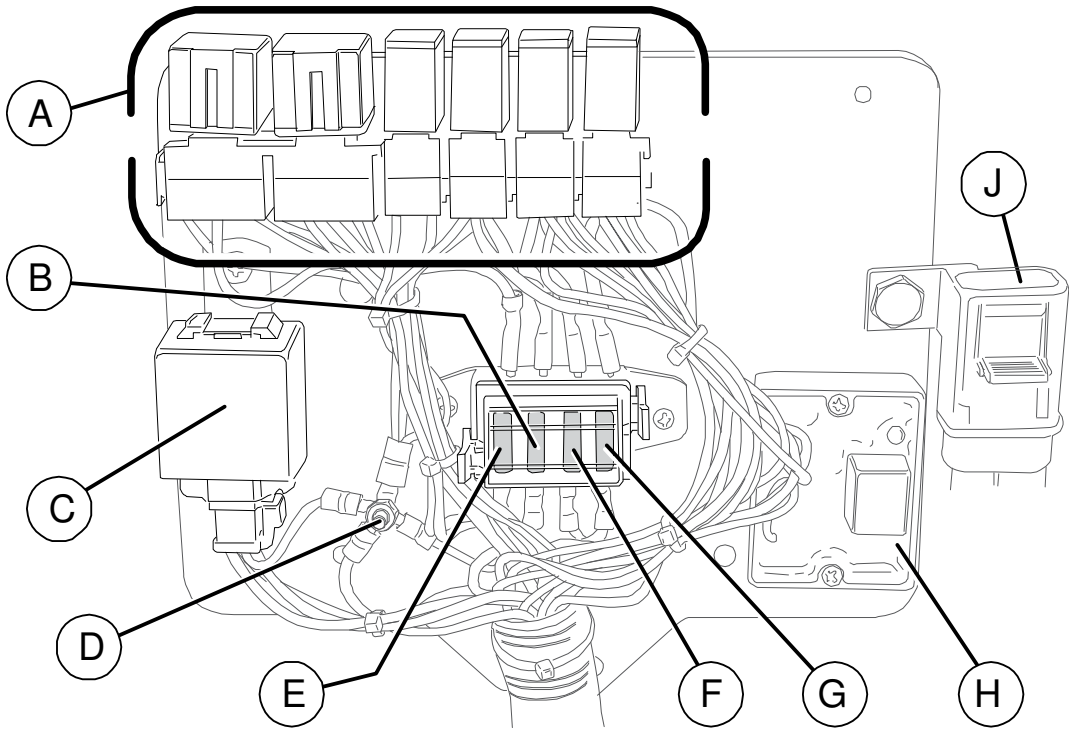
KEY	DESCRIPTION
A	ENGINE CIRCUIT BREAKER, 50A - AUTO RESET
B	GENERATOR CIRCUIT BREAKERS, 25A (x 2)[I]
C	ENGINE OIL FILTER
D	DC GENERATOR
E	BATTERY BRACKET

[I] Location/orientation reference. Replacement breaker covers (boots) also available.

NOTE

There are also two (2) 20A circuit breakers located on the instrument panel. Refer to Section 7.7, item #29.

Figure 5-10 Engine and Generator Breakers



KEY	DESCRIPTION	KEY	DESCRIPTION
A	RELAYS	F	10 AMP FUSE - COMPRESSOR
B	15 AMP FUSE - ENGINE START	G	10 AMP FUSE - INSTRUMENT PANEL
C	ENGINE SHUTDOWN TIMER RELAY	H	COMPRESSOR CLUTCH TIMER
D	GROUND STUD	J	20 AMP FUSE -COLD WEATHER OPTION ONLY
E	10 AMP FUSE - THROTTLE		

Figure 5-11: Power System Fuse Locations

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SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

The information contained in this section has been compiled from years' worth of information gathered from the field. It contains symptoms and usual causes for the most common types of problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repairs or component replacement.

A visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the machine. The procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts, should be performed first. Adherence to a routine maintenance regimen will minimize the occurrence of many common problems. Refer to **Table 5A: Maintenance Schedule**, for a typical maintenance regimen program.

Although Vanair® strives to anticipate situations that may occur during the operation life of the machine package, the **Troubleshooting Guide** may not cover all possible situations. Be aware that additional troubleshooting information may be found in other sources such as the Engine Operation Manual and the Generator Operation Manual. Should the situation remain unresolved after exhausting available sources, contact the Vanair Service Department at:

Phone: 800-526-8817 (toll free)

Phone: 219-879-5100, ext. 400

Fax: 219-879-5335

NOTE

When contacting the Vanair Service Department, please have machine serial number on hand to quickly expedite service. See *Figures W-1* in the *Warranty Details Section* for machine, and specific engine, compressor and generator serial plate locations.

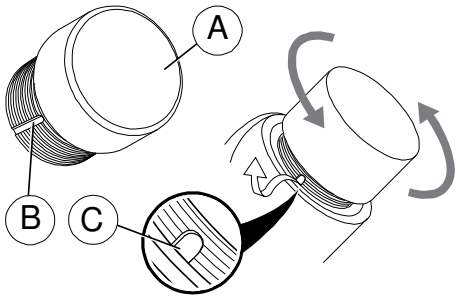
⚠ WARNING

DO NOT operate any of the Air N Arc I-300 Series' functions if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel to prevent accidental application.

⚠ WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system pressure by opening the air tank drain/vent valve, which will vent all pressure to the atmosphere.

Refer to *Figure 6-1*. Open fill cap SLOWLY (contents under pressure) to make sure all pressure has been relieved.



KEY	DESCRIPTION
A	COMPRESSOR FILL CAP (red)
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap **slightly** to allow bleed vent to relieve pressure

Figure 6-1: Pressure Relief

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
	ENGINE	
Engine will not crank	Faulty battery connection.	Check for proper battery connections and battery charge.
	Engine fuse blown	Check engine fuse: See ***Section 5.4.4, Servicing the System Fuses and Circuit Breakers***, and/or consult the Engine Operation Manual.
	Possible starter and/or solenoid problem	Replace if defective.
	Possible seized engine	Consult the Vanair® Service Department.
	Hood switch malfunction	Replace if defective
	Machine hood shutdown safety switch prevents start-up of engine	Close hood panel or check if roof switch is faulty. See ***Section 1.12, Machine Canopy Access Safety Switches***.
	Low or dead battery voltage	Recharge or replace battery.
	Poor grounding	Check and confirm ground connection.
Engine will not start	Low fuel and/or oil supply	Check fuel gauge. Check engine oil level. Replenish as necessary. Consult the Engine Operation Manual for additional information on engine maintenance.
	Pinched fuel line	Replace or reroute if necessary.
	Plugged fuel filter(s)	Replace if necessary. Refer to the Engine Operation Manual.
	Low battery voltage	Recharge or replace if necessary.
		Loose connections—tighten connections.
		Dirty connections—clean connections.
	Plugged engine air filter	Replace engine air filter. Refer to Engine Operation Manual.
	Defective oil pressure switch	Check continuity, and replace if necessary.
	Defective engine temperature switch	Check continuity, and replace if necessary.
	Poor ground connection	Check and clean/renew connection.
	Glow plugs not engaging	Check fuse, wiring, and Engine Operation Manual.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Engine will not start (continued)	Fuel solenoid	Call Vanair Service Department.
Improper Control Operation: Engine does not speed up	Throttle solenoid cable improperly set	Call Vanair Service Department.
	Operating pressure too high	Adjust to proper pressure setting. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Fuel filter partly plugged	Replace fuel filter. Refer to the Engine Operation Manual.
		Auxiliary fuel pump may be needed for remote fuel tank. Refer to **Section 3, Installation**.
	Pressure switch faulty	Replace pressure switch.
Defective Throttle Control Relay	Solenoid not actuating	Inspect; replace if necessary.
Improper Control Operation: Engine does not slow down	Leak in control line	Check for leaks; replace line if necessary.
	Pressure switch out of adjustment	Adjust to proper pressure setting. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Generator switch left on	Turn generator switch off.
	Pressure switch faulty	Replace pressure switch.
	Throttle solenoid stuck	Free governor and lubricate if necessary. Refer to Engine Operation Manual.
Engine overheats	Low oil level	Check engine oil level. Consult the Engine Operation Manual for additional information on engine maintenance.
	Engine coolant level low	Check coolant level; add if necessary.
	Located too close to obstruction	Move further from obstruction.
	Engine oil filter plugged	Replace engine oil filter. Refer to Engine Operation Manual.
	Engine oil radiator plugged	Clear debris/dirt from cooler core/flush shroud.
	Restricted cooling air in or out	Clear debris/dirt from engine radiator.
	Faulty hydraulic fan pump / motor	Repair hydraulic fan pump / motor.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Engine overheats (continued)	Fault with engine cooling system	Consult Engine Operation Manual.
Engine stops during operation	belt access panel switch faulty	Close access panel.
		Check switch.
	Low oil level	Check engine oil level. Consult the Engine Operation Manual for additional information on engine maintenance.
	High engine temperature	Let engine cool. Check for engine coolant level. Refer to *Engine Overheats* fault.
	Engine shutdown switch activated	Confirm that access door is properly in place. Replace faulty engine shutdown switch; see ***Section 1.12, Machine Canopy Access Safety Switches***.
	Excessive hydraulic pressure overload	Check hydraulic pressure.
	Low Fuel	Check and refill fuel tank if necessary.
	Plugged air filter	Check and replace air filter element if necessary.
Gradual loss of engine power	Contaminated fuel	Draw and replace fuel supply.
	Engine air filter contaminated	Check engine air filter. Replace if necessary (refer to the Engine Operation Manual).
	Fuel filter(s) contaminated	Check fuel filters. Refer to the Engine Operation Manual.
	Low fuel level	Add fuel.
	Overload	Reduce load; check load use, and reduce.
	Engine not warmed up	Allow engine to warm up.
COMPRESSOR		
Compressor overheats This condition will cause a compressor shutdown and compressor fault light to turn on. Before restarting the compressor, determine the cause for overheating.	Low compressor oil level	Check oil level and refill to proper level if necessary (ensure machine is parked on a level surface).

For additional information concerning an engine problem, consult the Engine Operation Manual.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor overheats (cont.) This condition will cause a compressor shutdown and compressor fault light to turn on. Before restarting the compressor, determine the cause for overheating.	Obstructed fluid cooler	Clear debris/dirt from cooler core/flush shroud.
	Obstructed cooler fins	Clear/clean if required.
	Insufficient air flow over cooler	Check for obstructions (frame, body, etc.) to cooling air flow.
	Defective temperature switch	Check switch; replace if necessary.
	Compressor oil filter plugged	Replace compressor oil filter. Also consult **Section 5, Table 5A** for additional periodic oil filter system maintenance.
	Input rpm too high	Adjust to proper setting; refer to ***Section 5.4.1, Adjusting the Engine Speed***, and the Engine Operation Manual.
	Fan not operating	Low compressor oil; check oil level and refill to proper level if necessary (ensure machine is parked on a level surface).
		Hydraulic oil low; check hydraulic oil reservoir level; fill as necessary.
		Belt slip on hydraulic pump. Refer to the hydraulic pump sub-sections in ***Section 5.4.3, Re-tensioning and Replacing the Serpentine Drive Belts***.
	Faulty pump motor	Check / isolate cause; replace if necessary.
Compressor shuts down with air demand present	Compressor temperature switch opening	Check compressor oil level. Replenish if necessary.
	Restricted cooling air intake	Reposition machine.
	Fan not operating	Refer to Corrective Action under “fan not operating”, under ‘*compressor overheats*’ category above.
	Compressor oil filter plugged	Replace compressor oil filter. Also consult **Section 5, Table 5A** for additional periodic oil filter system maintenance.
	Clutch faulty	Inspect; replace if necessary.
	Plugged or restricted cooler core	Flush cooler. Consult the Vanair® Service Department for assistance in cleaning/ flushing the cooler core.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor shuts down with air demand present (continued)	Contaminated cooler fins	Clean cooler fins.
Compressor will not build up pressure	Low compressor oil level	Check oil level and refill to proper level if necessary (ensure machine is parked on a level surface).
	Air demand too high	Check for leaks and take corrective action.
	Air demand too high (continued)	Check air tools for wear, damage, or malfunctions. Replace or repair.
	Compressor capacity too low to accommodate demand	Substitute larger capacity compressor system.
	Compressor air filter plugged	Check compressor air filter. Replace if necessary.
	Pressure switch out of adjustment	Reset pressure switch. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Defective pressure switch	Replace pressure switch.
	Belt(s) slipping	Re-situate and adjust belt tension, or replace belt if necessary. Consult ***Section 5.4.3, Re-tensioning and Replacing the Serpentine Belts***.
	Service valve is open	Close service valve.
	Pressure gauge is malfunctioning	Check pressure gauge function/control line routing: adjust, repair or replace as necessary.
		Check for proper operation with an auxiliary air source. Replace if necessary.
	Inlet solenoid valve fails to open	Repair/replace inlet valve.
	Inlet valve frozen shut	Repair/replace inlet valve.
	Clutch faulty	Inspect; replace if necessary.
	Broken or loose belt	Re-tension or replace belt.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor system over-pressures This condition will cause a compressor shutdown, and a fault light will turn on. Before restarting the compressor, determine the cause of the over-pressure. May also cause the relief valve to open.	Pressure switch setting too high	Reset pressure switch. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Pressure switch malfunction	Check for operation/damage: repair or replace.
	Unload solenoid valve defective	Replace solenoid valve.
	Leak in air control line	Check for leaks and take corrective action.
	Restriction in control line	Clean if soiled; if ice is present, clear and remove.
	Damaged/kinked control line	Check line for damage (wear, kinks, etc.). Re-route, re-tie or replace if necessary (refer to **Section 7.20, Hose Installation Guide** for assistance in running or checking hose lines).
	Control line connections are not properly seated/poor connection quality	Check lines for proper seating/ensure line ends have been cut cleanly and are square. • Refer to **Section 7.20, Hose Installation Guide** for assistance in running or checking hose lines. • **DO NOT** use wire cutters: use a loom cutting tool or a clean, sharp razor blade.
	Inlet valve piston is stuck in down position.	Check for proper operation with an auxiliary air source—replace or rebuild inlet valve.
	Compressor shaft seal is leaking	Replace shaft seal with available kit.
	Plugged coalescer	Replace coalescer.
No service air output (See also *Compressor will not build up pressure*)	If equipped, OSHA valve/velocity fuse, not functioning properly	Reset or replace OSHA valve.
	Clogged compressor air filter	Check compressor air filter; replace if necessary
	Solenoid valve sending continuous signal to inlet valve	Rebuild or replace solenoid valve if defective.
	Incorrect compressor speed	Adjust speed. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
No service air output (See also *Compressor will not build up pressure*) (continued)	Minimum pressure/check valve is malfunctioning	Rebuild or replace check valve.
	Belt not tensioned properly	Check belt tension; replace belt(s) if necessary. Refer to ***Section 5.4.3*** for belt maintenance or replacement procedures.
Compressor stalls	Pressure switch setting too high	Adjust pressure switch setting. Refer to ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Speed is set too low	Check to see if compressor goes to high speed.
System operating pressure below specified minimum	Air demand too high	Check air tools for wear, damage, or malfunctions. Replace or repair.
	Compressor capacity too low to accommodate demand	Substitute larger capacity compressor system.
	System leaks or is damaged	Inspect for leaks. Repair and/or replace damaged parts as necessary.
	Pressure switch set too low/ malfunction	Adjust pressure switch setting. ***Section 5.4.2, Adjusting the Pressure Setting***. Replace if switch continues to deviate from setting.
	Input rpm too low	Adjust to proper setting.
	Contaminated inlet valve	Remove valve and clean piston. Order inlet valve repair kit if necessary.
	Inlet solenoid valve fails to open	Repair/replace inlet valve.
	Inlet valve frozen shut	Repair/replace inlet valve.
Excess amount of oil in air discharge	Machine not on level surface	Move machine to level surface.
	Compressor oil level too high	The correct oil level is between the bottom of the oil port threads (low level) to the top lip of the port's threads (high level) (refer to ***Figure 5-1***). Drain excess oil to correct level.
	Scavenger system not operating	Inspect scavenger line for obstructions or leaks. Replace if necessary.
	Coaleser element plugged or damaged	Replace the coalescer element.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Excessive moisture in the compressed air	Moisture accumulating in air tank	Drain water from air tank.
	Emulsified or contaminated compressor oil	Change oil; refer also to **Section 6.3.1**.
WELDER		
Welder and battery charger behave erratically	Connection cables or receptacles are soiled/contaminated	Check for twisted cables and/or soiled/ contaminated or loose receptacle connections.
		Untwist and/or straighten out any suspected cable tensions. Carefully wipe off any contaminants to receptacle connectors before re-connecting. Replace any worn or damaged cables or receptacles. Contact Vanair® Service Department if behavior persists.
	Welding function is not drawing enough operating power	If running more than one function simultaneously, turn off competing function.
No welder output	Fuse at welder field blown	Replace the welder field fuse. Refer to ***Section 5.4.4, Servicing the System Fuses and Circuit Breakers***
	Main cable loose connection	All Anderson (weld cable) connection plugs on machine and instrument panel.
	Broken or loose belt	Re-tension or replace belt.
No welder output in CC mode	Bad ground connect	Make sure of connection. Clean welding surface.
	Faulty electrical circuit	Check electrical circuit.
	Broken or loose belt	Re-tension or replace belt.
GENERATOR		
No AC generator output	Serpentine belt damaged or not tensioned properly	Re-situate and adjust belt tension, or replace belt if necessary. Consult ***Section 5.4.3, Re-tensioning and Replacing the Serpentine Belts***. Order replacement belt.
	Faulty AC generator relay	Check; replace if necessary.
	Faulty capacitor	Check; replace if necessary.
	Circuit breaker / GFCI tripped	Replace/reset breakers.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

Use Section 7, Illustrated Parts List, to visually identify and confirm any part number that may need to be replaced.

Fault/Malfunction	Possible Cause	Corrective Action
Low AC voltage	Engine speed too low for demand	Adjust speed control. Consult ***Section 5.4.1, Adjusting the Engine Speed***, and the Engine Operation Manual.
	Weak, faulty or incorrect capacitor	Check; replace if necessary.
	Serpentine belt damaged or not tensioned properly	Re-situate and adjust belt tension, or replace belt if necessary. Consult ***Section 5.4.3, Re-tensioning and Replacing the Serpentine Belts***.
High AC voltage	Engine speed too high for demand	Adjust speed control. Consult ***Section 5.4.1, Adjusting the Engine Speed***, and the Engine Operation Manual.
BATTERY BOOST		
No voltage shows when select charge or boost	Hooked to battery with less than (<) 2.5 volts; battery voltage inadequate. Battery must be sized/charged greater than 2.5 volts (> 2.5V).	Check battery voltage; battery must be at properly-sized/charged battery. Replace if necessary.

6.3 EXTREME CONDITION OPERATION

When operating in extreme cold or hot conditions, in the presence of high humidity, or at a high altitude, extra attention should be given to any indication that could lead to a serious problem. Engine power and compressor air output will be reduced at high altitude or hot ambient temperatures.

Machine review and maintenance check schedules should be more frequent than the normal suggestions given in the ***Maintenance Schedule Tables (*****Table 5.3A**, and **Table 5.3B** in **Section 5*****)***.

Become acquainted with the situation-adjusted operation approaches given in this section before operating the power system package in any type of extreme ambient condition. For additional operation information consult the Engine Operator's Manual, or visit the engine manufacturer's web site given in that manual.

6.3.1 HIGH MOISTURE CONDITION: EMULSIFICATION OF OIL IN ROTARY SCREW COMPRESSOR SYSTEMS

Consult the information in **Table 6.3A** for preventative and/or repair measures. If machine is operating in a high moisture environment, water contamination may persists after following the regular preventative maintenance schedule and standard operating procedures.

TABLE 6.3A 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 thermal valve is faulty and activating the cooling fan too soon:** • This prevents the oil from attaining a high enough temperature capable of vaporizing the moisture droplets. **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 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 Operator's Manual for inspection, cleaning, and repair instructions. 1. 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. 2. Check that the separator element is in good, working condition. 3. 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. Check the moisture drain frequently on the air tank reservoir, to alleviate moisture build-up.

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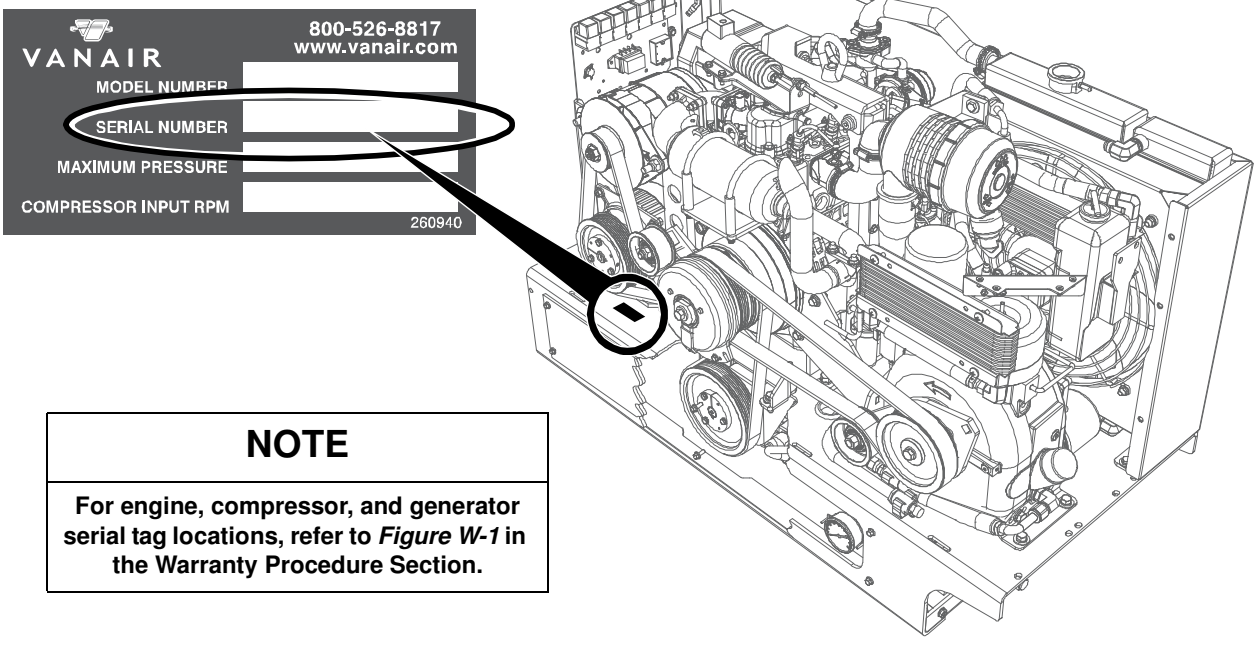
SECTION 7: ILLUSTRATED PARTS LIST

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



NOTE

For engine, compressor, and generator serial tag locations, refer to *Figure W-1* in the Warranty Procedure Section.

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

TABLE 7A: RECOMMENDED SPARE PARTS LIST [I]

	KEY NO.	ORDER PART NUMBER	DESCRIPTION	QTY
ROUTINE/SCHEDULED MAINTENANCE ITEMS	1	**264626-1GAL**	Vanguard™ Premium Oil [II]	1 gal
	2	**KIT1153**	Compressor Maintenance Kit (contains part items #1, 3, 4 & 5)	1
	3	**264469**	Element, Compressor Air Filter	1
	4	**264471**	Element, Compressor Oil Filter	1
	5	**264470**	Element, Compressor Air/Fluid Separator Spin-on Style Coalescer	1
	6	**KIT1154**	Engine Maintenance Kit (contains part items #7, 8 and 9)	1
	7	**270764**	Element, Engine Air Filter	1
	8	**EN38480**	Filter, Engine Oil Filter	1
	9	**RC77662**	Filter, Engine Fuel	1
NON-ROUTINE/SCHEDULED MAINTENANCE ITEMS	10	**264154-102**	Kit, Air Inlet Valve Rebuild	1
	11	**270766**	Kit, Compressor Shaft Seal Rebuild	1
	12	**270765**	Kit, Minimum Pressure / Check Valve Rebuild	1
	13	**DR27584**	Belt, Serpentine Compressor	1
	14	**DR272436**	Belt, Hydraulic Pump Drive and Generators	1
	15	**EN270451-007**	Belt, Engine Alternator and Water Pump Drive	1
	16	**DR270393**	Belt, Engine (Only) Drive Outside Circumference	1
	17	**267306**	Breaker, Circuit 50A	1
	18	**CO270786**	Breaker, 25A	2
	19	**PR81817**	Boot, 25A Breaker	2
	20	**263173**	Fuse, 10 Amp	3
	21	**265909**	Fuse, 15 Amp	1
	22	**270501**	Relay, 40A	9
	23	**EL274682**	Relay, 30A	1
	24	**264325**	Switch, 240°F NC	1
	25	**HY270358**	Motor, Hydraulic (Fan)	1
	26	**CO62617**	Breaker, Circuit 20A	2
	27	**CO79106**	Gauge, Hour Meter	1
	28	**CO89649**	Gauge, Air, Dry	1
	29	**PR270548**	Boot, Breaker 3/8" (for 20A instrument panel breakers)	2
	30	**HY270357**	Pump, Hydraulic (Fan)	1
	31	**TU274395**	Kit, Hose and Fittings	1

[I] For guidance on routine maintenance, refer to **Table 5A: Maintenance Schedule Table** in **Section 5, Maintenance**, and the Engine Operation Manual.

[II] For fluid fill amounts, refer to **Section 2, Specifications**.

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

IMPORTANT

The listing in the recommended spare parts list table 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 5A become damaged or inoperable, use the various sub-sections in Section 5 to best locate and identify the damaged part(s).

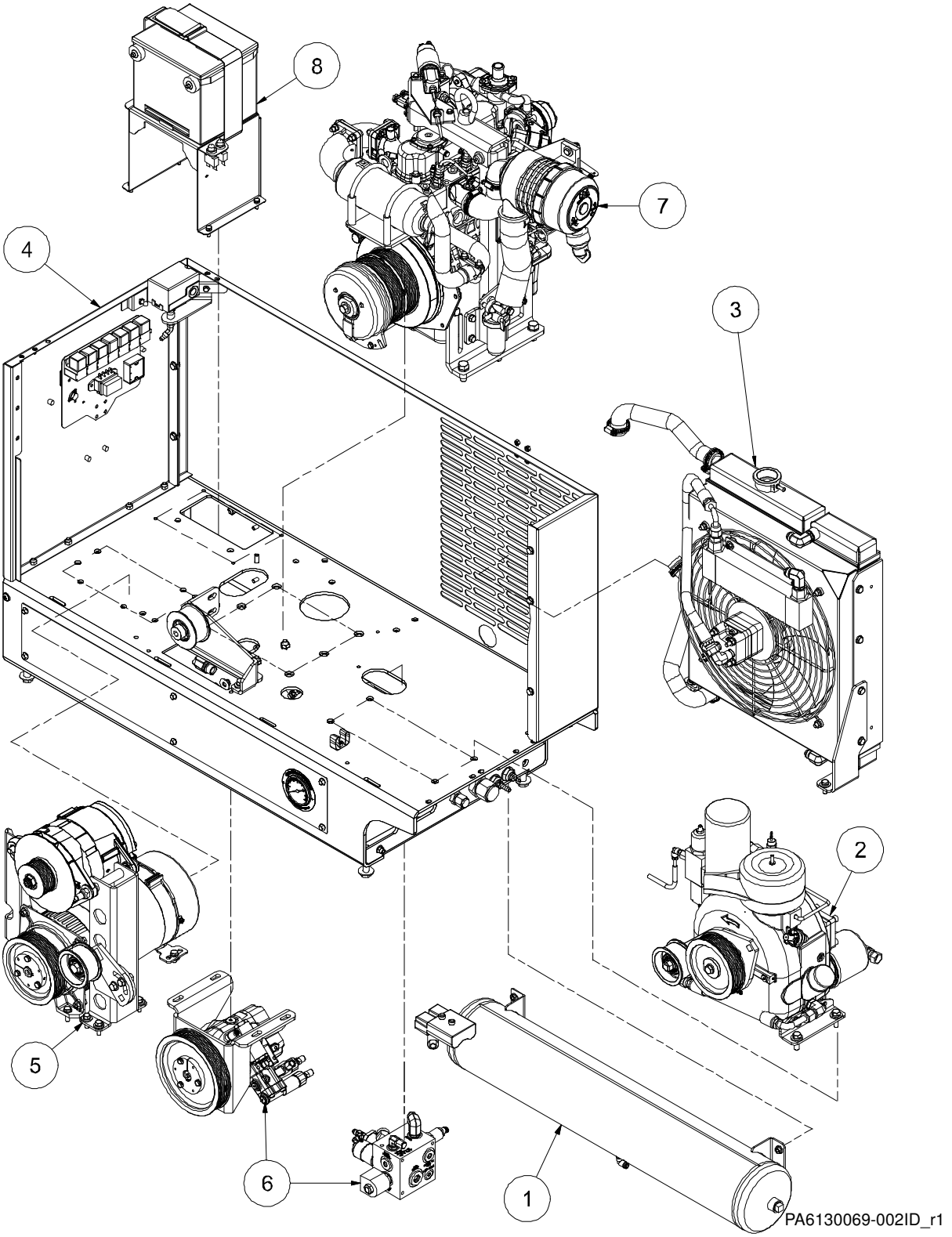
IMPORTANT

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 5.5.2, Long Term Storage*.

IMPORTANT

Use only approved Vanair® Vanguard™ Premium Synthetic 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!

7.2 AIR N ARC I-300 SYSTEMS ASSEMBLIES



7.2 AIR N ARC I-300 SYSTEMS ASSEMBLIES

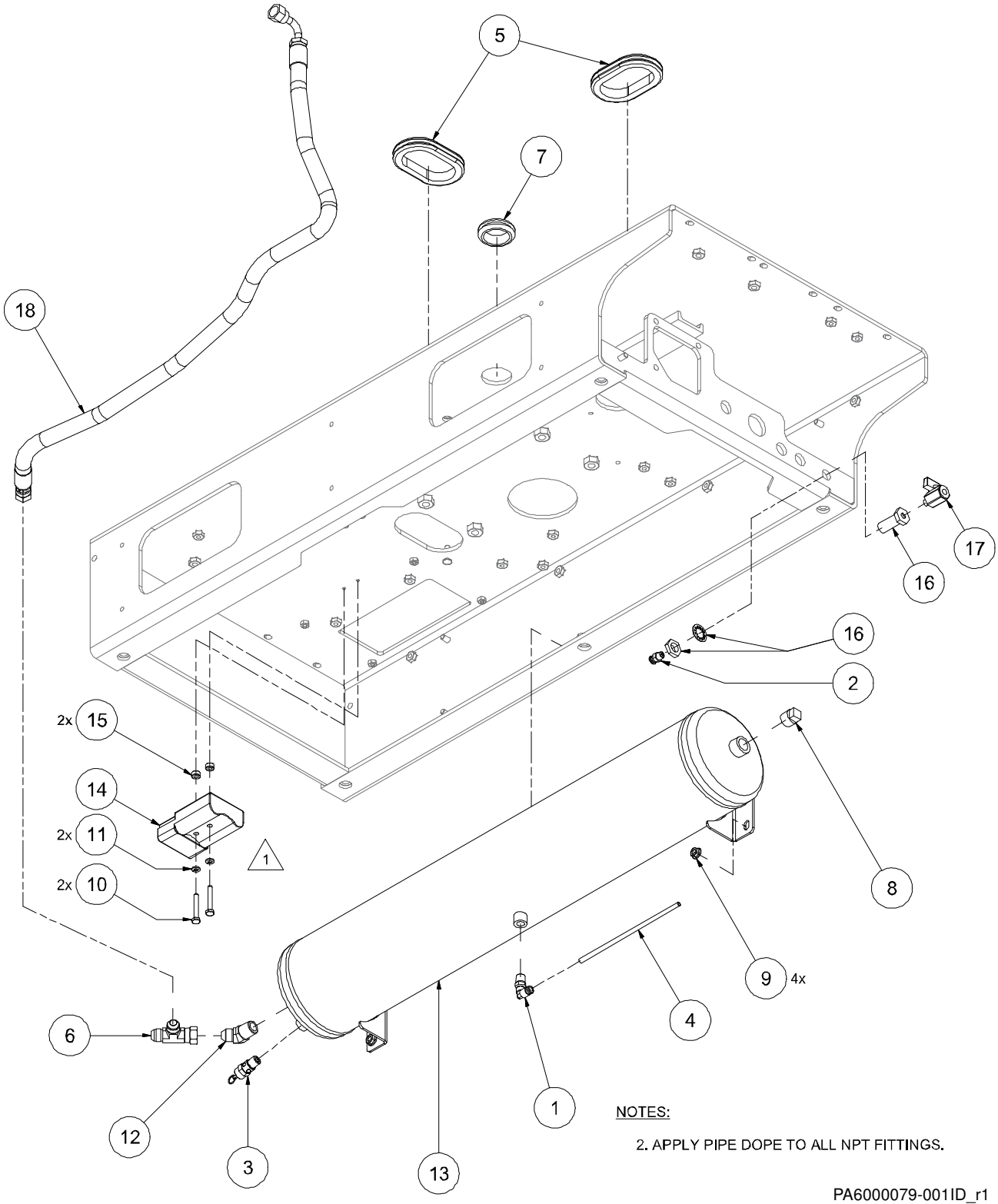
ITEM	DESCRIPTION	PART NUMBER	QTY	REFERENCE SECTION [I]
1	ID, AIR STORAGE ASSEMBLY	PA6000079-001ID	1	*7.3*
2	ID, COMPRESSOR & PARTS	PA6010123-002ID	1	*7.4*
3	ID, COOLER ASSEMBLY	PA6020024ID	1	*7.5*
4	ID, FRAME & CANOPY	PA6030062-001ID	1	*7.6*
5	ID, GENERATORS AND PARTS	PA6050012ID	1	*7.8*
6	ID, HYDRAULIC PISTON PUMP ASSY	PA6100036-002ID	1	*7.9*
7	ID, ENGINE & DRIVE PARTS	PA6100056ID	1	*7.10*
8	ID, ELECTRICAL SYSTEM	PA6120136-002ID	1	*7.11*
9	ID, FUEL ASSY, WITHOUT FUEL TANK	PA6140012ID	1	*7.14*
10	ID, INSTRUMENT PANEL [II]	PA6040047ID	1	*7.7*
11	ID, MANIFOLD ASSEMBLY [II]	HY274394	1	*7.12*
12	ID, HYDRAULIC TANK ASSEMBLY [II]	PA6120139ID	1	*7.13*
13	DECAL LOCATIONS [II]	-	-	*7.15*

[I] For a detailed breakdown of the item number assembly, refer to the section listing in this column, for this manual.

[II] Assembly not shown on **Section 7.2** graphic: refer to sub-section location under REFERENCE SECTION column.

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

7.3 AIR STORAGE ASSEMBLY



NOTES:

2. APPLY PIPE DOPE TO ALL NPT FITTINGS.

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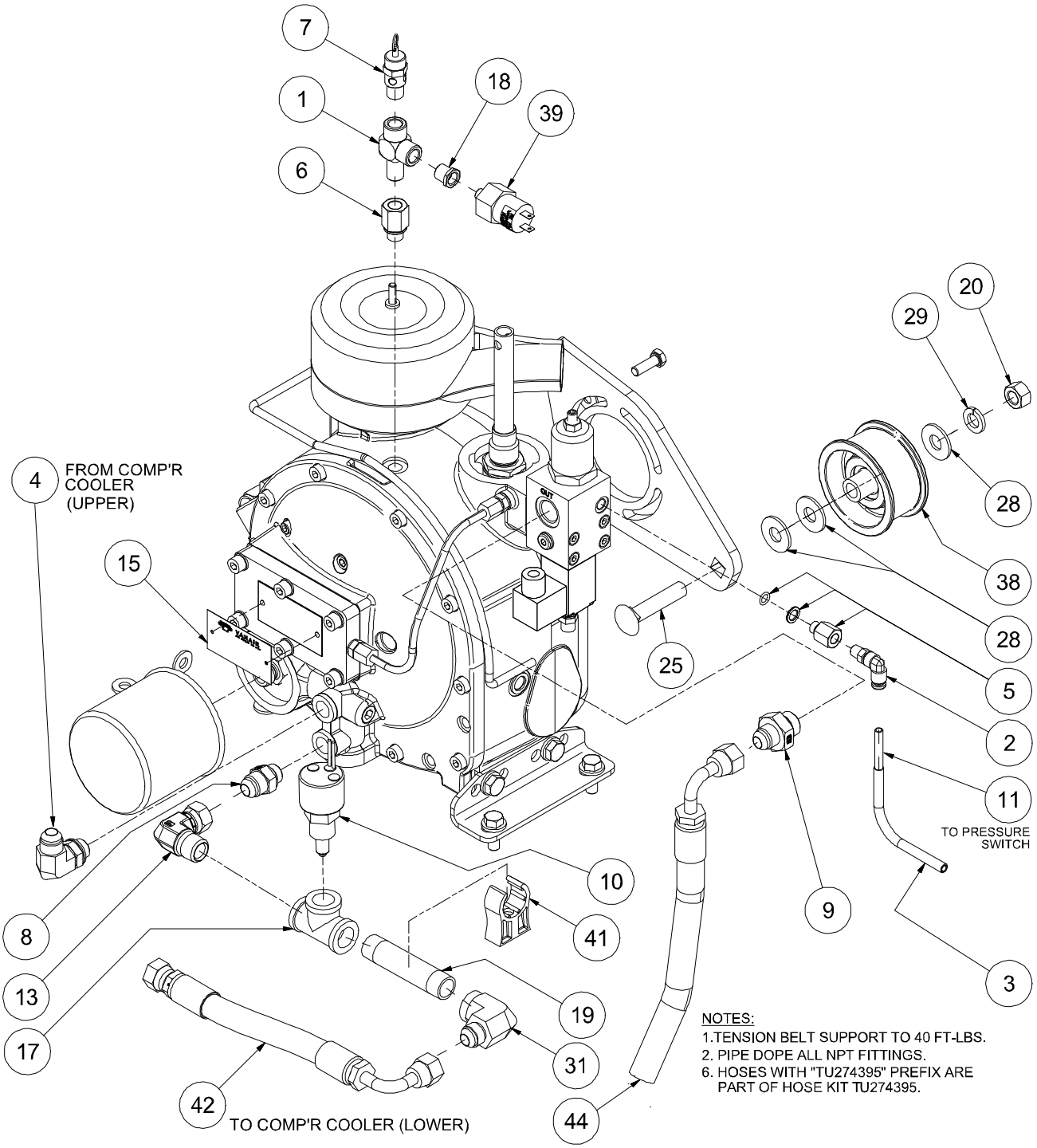
7.3 AIR STORAGE ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	1
2	CONNECTOR, 1/8P x 1/4T PUSH ON	261316	1
3	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1
4	TUBING, 1/4DIA., NYLON, 230 PSI X 3.5 FT	264480	1
5	TRIM-LOK, 1/4 GROOVE	268080	2 ft
6	TEE,RUN SWIVEL 1/2	268769-004	1
7	GROMMET,RUBBER 1 3/4X2 1/8X1/4	269302	1
8	PLUG, PIPE 1/2	807800-020	1
9	NUT, HEX FLANGE 5/16-18	825305-283	4
10	CAPSCREW, HEX GR5 1/4-20 x 1.75	829104-175	2
11	WASHER, LOCK 1/4	838504-062	2
12	ELBOW, 45 DEG. 1/2 MPT x #8 MJIC	860008-050	1
13	TANK,AIR ACCUMULATOR 4 GAL	A1269633	1
14	HOUSING, CONNECTOR, 350 AMP, GRAY	EL52049	1
15	SPACER, NYLON, 1/2 OD x 1/4 ID	FA29036	2
16	PIPE BRASS, BULKHEAD 1/8 NPT	FI54337	1
17	VALVE, BALL MINI, 1/8NPT M/F,	FI95272	1
18	HOSE, COMPRESSOR TO AIR TANK	TU273020-025	1

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

7.4 COMPRESSOR AND PARTS ASSEMBLY (1 OF 2)



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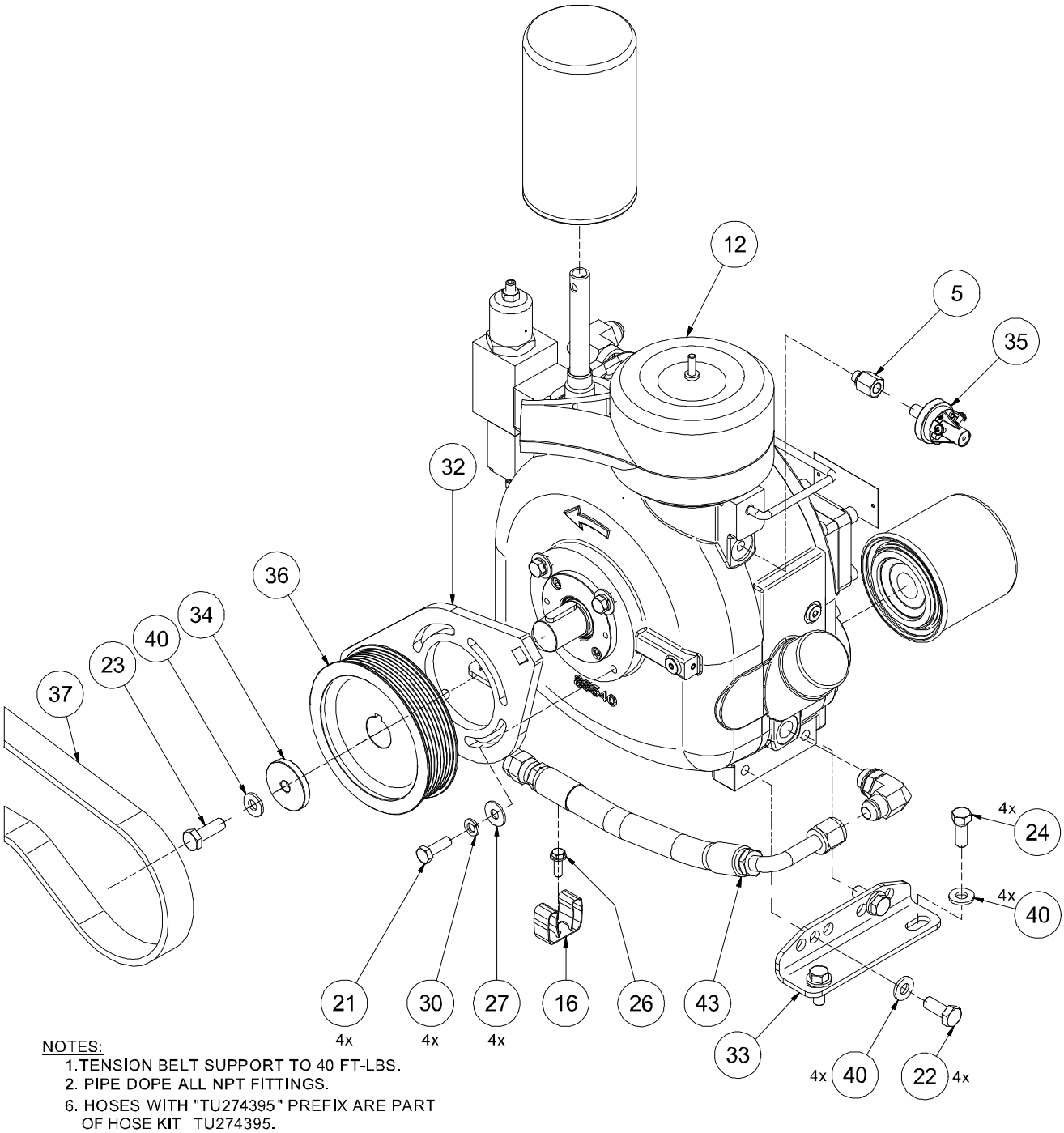
7.4 COMPRESSOR AND PARTS ASSEMBLY (1 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	TEE, MALE STREET 1/4 x 1/4 x 1/4	260402-102	1	23	CAPSCREW, HEX 10MM 1.5 X 30MM	828010-030	1
2	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	24	CAPSCREW, HEX GR8 3/8 X 1	829406-100	4
3	LOOM,FLEX-GARD 1/4 ID X 3 FT	262751	3 ft	25	BOLT, CARRIAGE 1/2-13UNC X 2-1/2" LG.	829508-250	1
4	ELBOW,90 DEG. 1/2 MJIC X 3/8 MBSPP ADJ	263747-021	2	26	SCREW, SER WASH 1/4-20 x 0.75	829704-075	1
5	ADAPTER, FEMALE PIPE x BSPP 1/8	263748-001	2	27	WASHER, FLAT 5/16	838205-071	4
6	ADAPTER,FEMALE PIPE x BSPP 1/4	263748-004	1	28	WASHER, FLAT 1/2	838208-112	3
7	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1	29	WASHER, LOCK 1/2	838508-125	1
8	ADAPTER, M-JIC 1/2 x BSPP 3/8	264312-007	1	30	WASHER, LOCK METRIC M8	838808-200	4
9	ADAPTER, MJIC x MBSPP 1/2 x 1/2	264312-008	1	31	ELBOW,37FL/90F 1/2X1/2	860308-050	1
10	SWITCH,TEMP 240 DEG F NC NASON	264325	1	32	TENSIONER, AIR END	A1270372	1
11	TUBING, 1/4DIA., NYLON, 230 PSI X 3 FT	264480	3 ft	33	BRACKET, COMPRESSOR MTG	A1270373	2
12	OIL, VANGUARD 3.5 QUARTS	264626	0.88 gal	34	WASHER, SHEAVE COMPRESSOR	A1270884	1
13	ELBOW,1/2MPT X 1/2FJIC SWVL 90	268929-008	1	35	SWITCH, PRESSURE N.C. 35 PSI	CO274534	1
14	COMPR & PART VANAIR 31 EMC, 12VDC STD SHAFT	269761	1	36	SHEAVE, COMPRESSOR "8-GROOVE"	DR270371	1
15	TAG, COMPR VANAIR 31	270610	1	37	BELT, SERPENTINE, 8 RIB X 53.75" LG	DR27584	1
16	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1	38	IDLER, 1.375 WIDTH, 3 3/8DIA	DR46584	1
17	TEE, PIPE GALV 1/2	804415-020	1	39	SWITCH, PRESSURE N.C. 185 PSI	EL270002	1
18	BUSHING, RED STEEL 1/4 x 1/8	807600-005	1	40	WASHER, 3/8ID X 13/16OD	FA49463	9
19	NIPPLE, PIPE GALV 1/2 x 3-1/2 LG.	823108-035	1	41	CLIP, DRAIN HOSE HOLDER, 3/4	HA270218	1
20	NUT, HEX 1/2-13	825208-448	1	42	COMPRESSOR TO OIL COOLER, LOWER	TU274395-001	1
21	CAPSCREW,HEX M8-1.25 x 25mm	828008-025	4	43	COMPRESSOR OIL DRAIN	TU274395-002	1
22	CAPSCREW, HEX 10MM 1.5 X 25MM	828010-025	4	44	COMPRESSOR TO AIR TANK	TU274395-003	1

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

7.4 COMPRESSOR AND PARTS ASSEMBLY (2 OF 2)



NOTES:
1. TENSION BELT SUPPORT TO 40 FT-LBS.
2. PIPE DOPE ALL NPT FITTINGS.
6. HOSES WITH "TU274395" PREFIX ARE PART OF HOSE KIT TU274395.

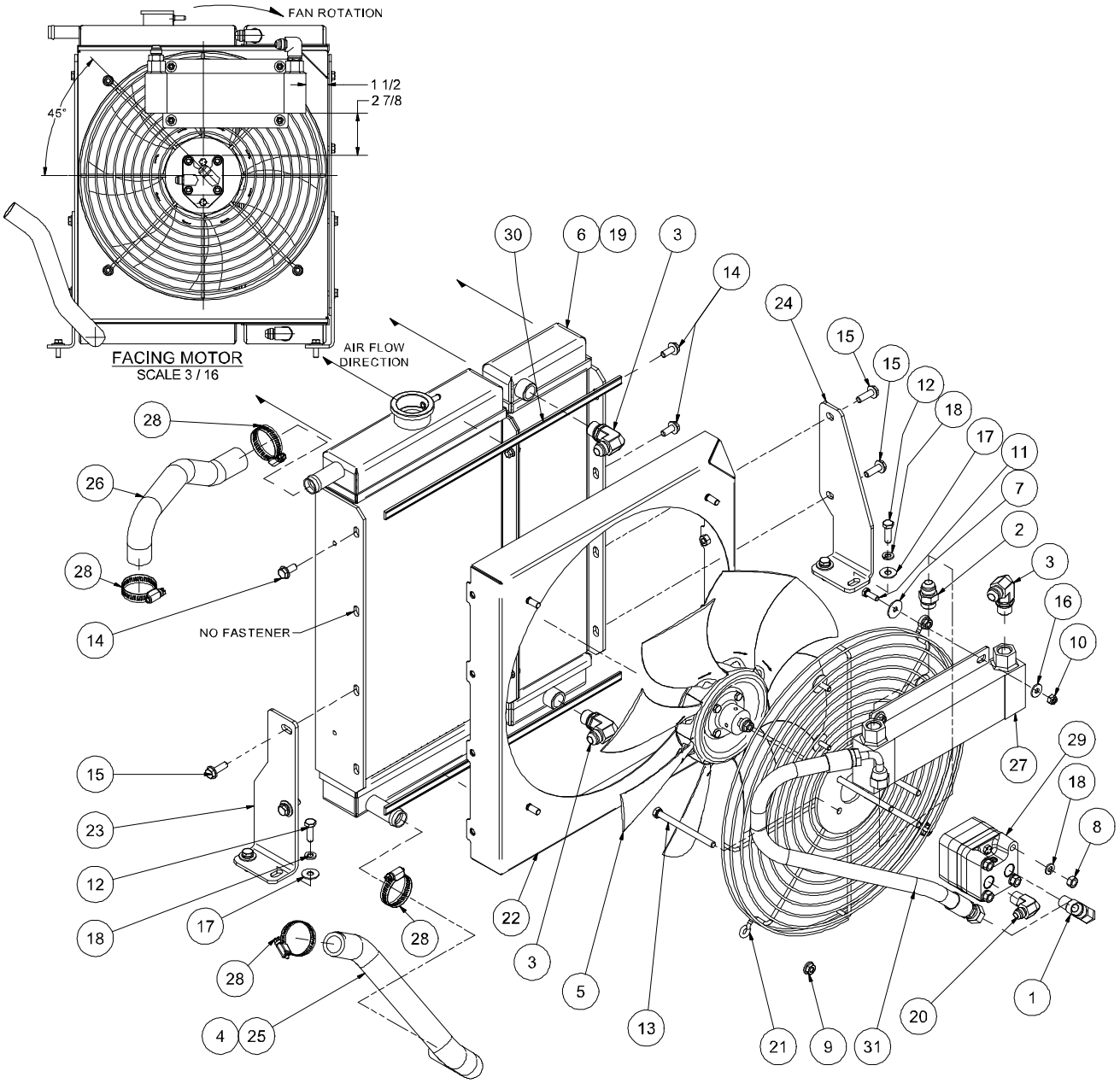
PA6010123-002ID_r0 (1 of 2) (TP)

7.4 COMPRESSOR AND PARTS ASSEMBLY (2 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	TEE, MALE STREET 1/4 x 1/4 x 1/4	260402-102	1	23	CAPSCREW, HEX 10MM 1.5 X 30MM	828010-030	1
2	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	24	CAPSCREW, HEX GR8 3/8 X 1	829406-100	4
3	LOOM,FLEX-GARD 1/4 ID X 3 FT	262751	3 ft	25	BOLT, CARRIAGE 1/2-13UNC X 2-1/2" LG.	829508-250	1
4	ELBOW,90 DEG. 1/2 MJIC X 3/8 MBSPP ADJ	263747-021	2	26	SCREW, SER WASH 1/4-20 x 0.75	829704-075	1
5	ADAPTER, FEMALE PIPE x BSPP 1/8	263748-001	2	27	WASHER, FLAT 5/16	838205-071	4
6	ADAPTER,FEMALE PIPE x BSPP 1/4	263748-004	1	28	WASHER, FLAT 1/2	838208-112	3
7	VALVE, RELIEF 200 PSI 1/4 NPT MALE	264232	1	29	WASHER, LOCK 1/2	838508-125	1
8	ADAPTER, M-JIC 1/2 x BSPP 3/8	264312-007	1	30	WASHER, LOCK METRIC M8	838808-200	4
9	ADAPTER, MJIC x MBSPP 1/2 x 1/2	264312-008	1	31	ELBOW,37FL/90F 1/2X1/2	860308-050	1
10	SWITCH,TEMP 240 DEG F NC NASON	264325	1	32	TENSIONER, AIR END	A1270372	1
11	TUBING, 1/4DIA., NYLON, 230 PSI X 3 FT	264480	3 ft	33	BRACKET, COMPRESSOR MTG	A1270373	2
12	OIL, VANGUARD 3.5 QUARTS	264626	0.88 gal	34	WASHER, SHEAVE COMPRESSOR	A1270884	1
13	ELBOW,1/2MPT X 1/2FJIC SWVL 90	268929-008	1	35	SWITCH, PRESSURE N.C. 35 PSI	CO274534	1
14	COMPR & PART VANAIR 31 EMC, 12VDC STD SHAFT	269761	1	36	SHEAVE, COMPRESSOR "8-GROOVE"	DR270371	1
15	TAG, COMPR VANAIR 31	270610	1	37	BELT, SERPENTINE, 8 RIB X 53.75" LG	DR27584	1
16	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1	38	IDLER, 1.375 WIDTH, 3 3/8DIA	DR46584	1
17	TEE, PIPE GALV 1/2	804415-020	1	39	SWITCH, PRESSURE N.C. 185 PSI	EL270002	1
18	BUSHING, RED STEEL 1/4 x 1/8	807600-005	1	40	WASHER, 3/8ID X 13/16OD	FA49463	9
19	NIPPLE, PIPE GALV 1/2 x 3-1/2 LG.	823108-035	1	41	CLIP, DRAIN HOSE HOLDER, 3/4	HA270218	1
20	NUT, HEX 1/2-13	825208-448	1	42	COMPRESSOR TO OIL COOLER, LOWER	TU274395-001	1
21	CAPSCREW,HEX M8-1.25 x 25mm	828008-025	4	43	COMPRESSOR OIL DRAIN	TU274395-002	1
22	CAPSCREW, HEX 10MM 1.5 X 25MM	828010-025	4	44	COMPRESSOR TO AIR TANK	TU274395-003	1

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

7.5 COOLING SYSTEM



NOTES:
1. PIPE DOPE ALL NPT FITTINGS.

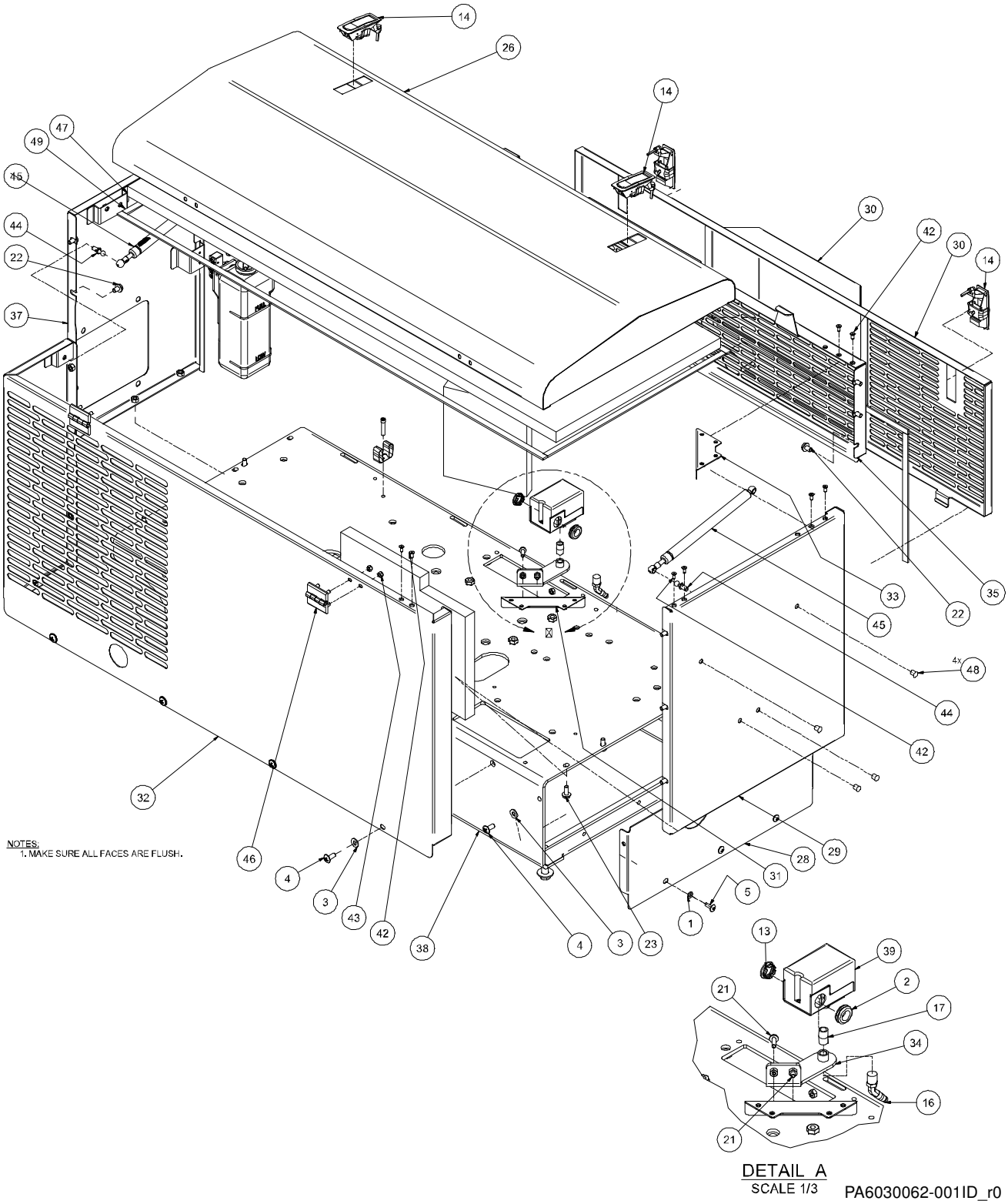
PA6020024ID_r11

7.5 COOLING SYSTEM

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW,90 DEG 3/8P X 1/2J LONG	044832-007	1	17	WASHER, FLAT 5/16	838205-071	5
2	CONNECTOR, #8 MSAE x #8 MJIC	260387-107	1	18	WASHER, LOCK 5/16	838505-078	9
3	ELBOW,90 DEG #8 MJICx#8 MSAE	260403-104	3	19	ANTI FREEZE,GAL 50/50 MIX	844400-001	1
4	SLEEVE, HOSE NYLON 17" LG	270286	1	20	ELBOW, 37FL/90M #06 x 3/8	860206-038	1
5	FAN, COOLER, 16 DIA, 8 BLADE	270366	1	21	GUARD, COOLER	A1270356	1
6	RADIATOR,ENG & COMPR CLR	270374	1	22	SHROUD, COOLER	A1270375	1
7	WASHER,FENDER 1/4 x 1	270714	4	23	BRACKET, COOLER LH	A1270382	1
8	NUT, HEX 5/16-18	825205-273	4	24	BRACKET, COOLER RH	A1270383	1
9	NUT, HEX FLANGE 5/16-18	825305-283	4	25	HOSE, RADIATOR 7/8" ID X 17" LG	EN271127	1
10	NUT, HEX LOCKING 1/4-20	825504-145	4	26	HOSE, RAD 7/8" ID X 12-1/2" LG	EN271127	1
11	CAPSCREW,HEX GR5 1/4-20X 3/4	829104-075	4	27	COOLER, OIL, 12 PLATE, SAE PORTS	EN37997-01	1
12	CAPSCREW,HEX GR5 5/16-18 x 1	829105-100	4	28	CLAMP, HOSE, #20, 1.75DIA.	FA47720	4
13	CAPSCREW, HEX GR5 5/16-18 x 4	829105-400	4	29	MOTOR, HYD BI-ROT	HY270358	1
14	SCREW, SER WASH 5/16-18 x 0.75	829705-075	3	30	GASKET, SEAL AND TRIM, EXTRUDE 17-1/4" LG.	PR35734	2
15	SCREW, SER WASH 5/16-18 x 1	829705-100	4	31	HOSE, MOTOR TO COOLER	TU273020-013	1
16	WASHER, FLAT 1/4	838204-071	4				

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

7.6 FRAME AND CANOPY ASSEMBLY (1 OF 2)

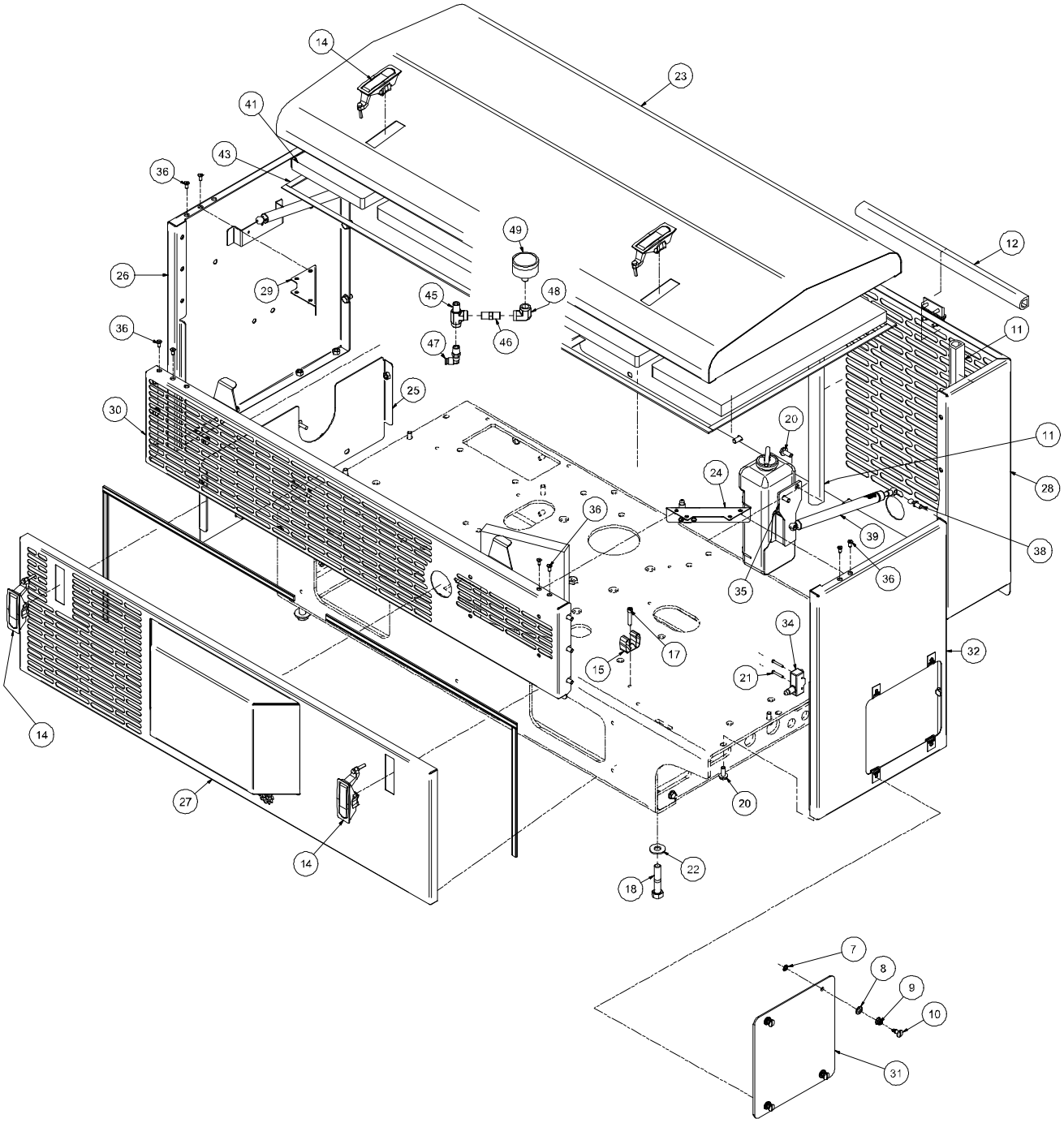


7.6 FRAME AND CANOPY ASSEMBLY (1 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	3	26	CANOPY, HOOD	A1269763	1
2	GROMMET, RUBBER 5/8 x 7/8x 1/8	262905	1	27	SUPPORT, CROSS BRACE	A1269797	1
3	WASHER, NYLON 5/16-18	262943	6	28	COVER, BASE WITH CUTOUT	A1269980	1
4	SCREW,TRUSS HD 5/16-18x3/ 4 SS	262945	6	29	CANOPY, SIDE RH	A1270361	1
5	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	3	30	CANOPY, FRONT LOWER	A1270363	1
6	CLIP, SOUTHCO #85	263959-010	4	31	SUPPORT, CROSS BRACE	A1270459	1
7	RETAINER, SOUTHCO #85	263959-011	4	32	CANOPY, BACK	A1270866	1
8	WASHER, SOUTHCO #85	263959-012	4	33	SUPPORT, CROSS BRACE LESS FUEL	A1271451	1
9	SPRING, SOUTHCO #85	263959-013	4	34	BRACKET, ADJ. PRESSURE SWITCH	A1271657	1
10	STUD, SOUTHCO #85 FLAT HEAD	263959-014	4	35	CANOPY, FRONT UPPER	A1272411	1
11	SEAL,RUBBER "D" TRIM-LOK 1" X 1" X 21-3/16" LG	264138	2	36	PANEL, ACCESS COMPR OIL FILTER/FILL	A1273055	1
12	SEAL,RUBBER "D" TRIM-LOK 1" X 1" X 17-15/16" LG	264138	1	37	CANOPY, SIDE LH W/ ACCESS	A1273056	1
13	SEAL, KNOCKOUT 1/2"	264443	1	38	PLATFORM, I	A1273058	1
14	LATCH, SENTRY PANEL	267124	4	39	SWITCH, PRESSURE ADJUSTABLE 50-175 PSI	CO271659	1
15	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1	40	SWITCH, HOOD SAFETY NO/ NC 15A-125V. AC	CO81774	2
16	45 DEG, PTC SWIVEL, MALE	272423	1	41	TANK, 1 GAL RECOVERY, COOLANT	EN45487	1
17	NIPPLE, PIPE XS CLOSE 1/4	822204-000	1	42	CAPSCREW,S.H.FLAT #10-24 X 1/2	FA269805	12
18	NUT, HEX FLANGE 5/16-18	825305-283	1	43	NUT, LOCK, M6 X 1.0 PITCH	FA55272	9
19	CAPSCREW, S.H. 1/4-20 x 1 1/4	828304-125	1	44	STUD, BALL, .39DIA. X .55LG.	FA58724	4
20	CAPSCREW, HEX GR8 1/2-13 x 2.5	829408-250	4	45	GAS SPRING, 6 STROKE, 20#	HA72205	2
21	SCREW,SER WASH 1/4-20X 3/ 4	829704-075	2	46	HINGE, 2" X 2", BLACK	HA88014	2
22	SCREW, SER WASH 5/16-18 x 0.5	829705-050	12	47	KIT, 1" ACOUSTICAL FOAM INSULATION	PR270450	1
23	SCREW, SER WASH 5/16-18 X 0.75	829705-075	10	48	PLUG, HOLE 3/8 DIA, WH	PR272560	4
24	SCREW, MACHINE #6-32 X 1	831600-100	4	49	GASKET, SEAL AND TRIM (16 FT TOTAL)	PR35734	1
25	WASHER, FLAT 1/2	838208-112	4				

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

7.6 FRAME AND CANOPY ASSEMBLY (2 OF 2)



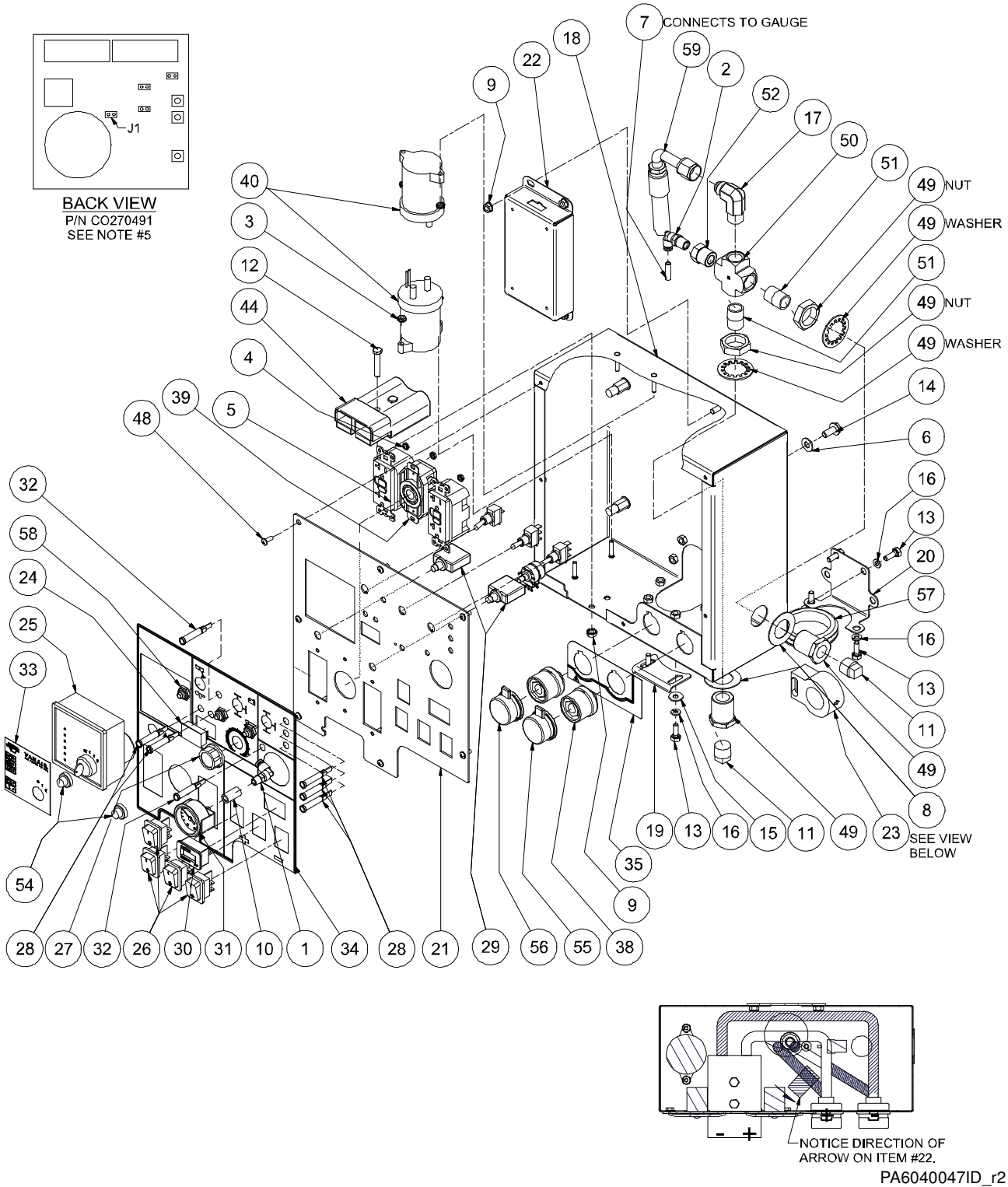
PA6030103ID_r0 (2 of 2)

7.6 FRAME AND CANOPY ASSEMBLY (2 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	262704	3	26	CANOPY, SIDE RH	A1270361	1
2	GROMMET, RUBBER 5/8 x 7/8 x 1/8	262905	1	27	CANOPY, FRONT LOWER	A1270363	1
3	WASHER, NYLON 5/16-18	262943	6	28	CANOPY, BACK	A1270866	1
4	SCREW,TRUSS HD 5/16-18x 3/4 SS	262945	6	29	SUPPORT, CROSS BRACE LESS FUEL	A1271451	1
5	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	3	30	CANOPY, FRONT UPPER	A1272411	1
6	CLIP	263959-010	4	31	PANEL, ACCESS COMPR OIL FILTER/FILL	A1273055	1
7	RETAINER	263959-011	4	32	CANOPY, SIDE LH W/ ACCESS	A1273056	1
8	WASHER	263959-012	4	33	SWITCH,PRESSURE ADJUSTABLE 50-175 PSI	CO271659	1
9	SPRING	263959-013	4	34	SWITCH, HOOD SAFETY NO/ NC 15A-125V. AC	CO81774	2
10	STUD, SOUTHCO #85 FLAT HEAD	263959-014	4	35	TANK, 1 GAL RECOVERY, COOLANT	EN45487	1
11	SEAL,RUBBER "D" TRIM-LOK 1" X 1" X 21-3/16" LG	264138	2	36	CAPSCREW,S.H.FLAT #10-24 X 1/2	FA269805	12
12	SEAL,RUBBER "D" TRIM-LOK 1" X 1" X 17-15/16" LG	264138	1	37	NUT, LOCK, M6 X 1.0 PITCH	FA55272	9
13	SEAL, KNOCKOUT 1/2"	264443	1	38	STUD, BALL, .39DIA. X .55LG.	FA58724	4
14	LATCH, SENTRY PANEL	267124	4	39	GAS SPRING, 6 STROKE, 20#	HA72205	2
15	CLIP, TOOL ZINC 3/4 TO 1-1/8	272059	1	40	HINGE, 2" X 2", BLACK	HA88014	2
16	NUT, HEX FLANGE 5/16-18	825305-283	1	41	KIT, 1" ACOUSTICAL FOAM INSULATION	PR270450	1
17	CAPSCREW, S.H. 1/4-20 x 1 1/4	828304-125	1	42	PLUG, HOLE 3/8 DIA, WH	PR272560	4
18	CAPSCREW, HEX GR8 1/2-13 x 2.5	829408-250	4	43	GASKET, SEAL AND TRIM (16 FT TOTAL)	PR35734	1
19	SCREW, SER WASH 5/16-18 x 0.5	829705-050	12	44	SUPPORT,CROSS BRACE	A1274626	1
20	SCREW, SER WASH 5/16-18 X 0.75	829705-075	10	45	TEE, MALE STREET 1/4 x 1/4 x 1/4	260402-102	1
21	SCREW, MACHINE #6-32 X 1	831600-100	4	46	NIPPLE. HEX PIPE BRASS 1/4 NPT	262541	1
22	WASHER, FLAT 1/2	838208-112	4	47	ELBOW, 90 deg. PUSH ON 1/4T x 1/4P	261310	1
23	CANOPY, HOOD	A1269763	1				
24	SUPPORT, CROSS BRACE	A1269797	1	48	ELBOW, PIPE STEEL 1/4	860604-025	1
25	COVER, BASE WITH CUTOUT	A1269980	1	49	GAUGE, AIR DRY 0-200 PSI	CO47028	1

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

7.7 INSTRUMENT PANEL



PA6040047ID_r2

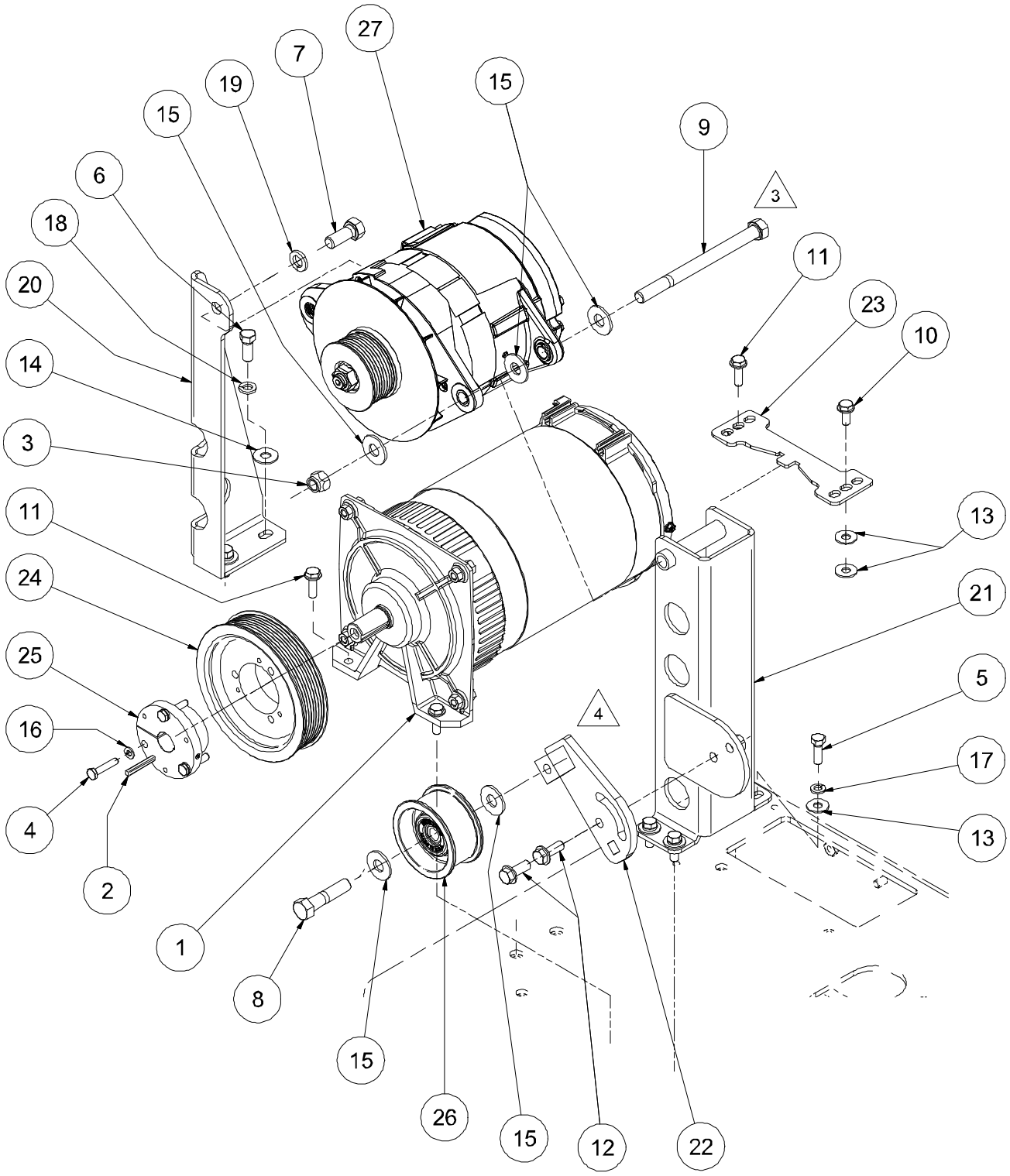
7.7 INSTRUMENT PANEL

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 1/4T x 1/8P PUSH-ON	261309	1	31	GAUGE, AIR, DRY, 0-200 PSI	CO89649	1
2	ELBOW, 90 DEG. PUSH ON 1/4T x 1/4P	261310	1	32	LAMP, INDICATOR, LED, RED	CO89659	2
3	NUT, HEX #10-32 KEPS	261595-032	4	33	DECAL, CNTRL, ENG. START/STOP	DL270508	1
4	NUT, HEX #6-32 KEPS	261595-632	6	34	DECAL, FACEPLATE	DL272406	1
5	RECEPTACLE, 120V/20A GFCI	262392	2	35	DECAL, CNTRL PNL, WELDER	DL272786	1
6	WASHER, NYLON 5/16-18	262943	2	36	CABLE, CHARGE JUMPER	EA272452	1
7	TUBING, 1/4DIA., NYLON, 230 PSI X 1.25 FT	264480	1	37	HARNESS, CHARGE JUMPER	EA272453	1
8	WASHER, FLAT REDUCING 3/4 x 1 ELECT.	267994	2	38	RECEPTACLE, PNL 350 AMP	EL269932	2
9	NUT, LOCK W/TOOTH LOCKWASHER, 1/4-20	270970	6	39	RECEPTACLE, 240V/30A TURNLOC	EL270148	1
10	COUPLING, PIPE 1/8	806230-005	1	40	RELAY, 500 AMP 12V COIL NO	EL270483	2
11	PLUG, PIPE 1/2	807800-020	2	41	HARNESS, WIRE INST PNL LIGHTS	EP269871	1
12	CAPSCREW, HEX GR5 1/4-20 X 1 1/2 LG.	829104-150	2	42	HARNESS, WIRE INST PNL SWITCH	EP269872	1
13	CAPSCREW, HEX GR8 1/4-20 X 3/4 LG	829404-075	6	43	HARNESS, WELD CABLE, MACH TO PNL	EP270170	1
14	SCREW, SER WASH 5/16-18 x 0.75	829705-075	2	44	HARNESS, WELD CABLE JUMPER	EP270171	1
15	WASHER, FLAT 1/4	838204-071	2	45	HARNESS, A/C PNL TO MACHINE	EP270230	1
16	WASHER, LOCK 1/4	838504-062	6	46	HARNESS, WIRE INST. PNL DISPLAY	EP270315	1
17	ELBOW, 37FL/90M #08 x 1/2	860208-050	1	47	HARNESS, WIRE INST PNL	EP272404	1
18	PNL, CNTRL BACK	A1269489	1	48	SCREW, PHILLIPS PAN HEAD #10-32 X 1/2" LG. SS	FA33542	7
19	CLAMP, CNTRL PNL CABLE	A1269491	1	49	PIPE BRASS, BULKHEAD 1/2 NPT	FI23542	2
20	COVER, CNTRL PNL CABLES	A1269492	1	50	PIPE BRASS, CROSS, 1/2 NPT.	FI25405	1
21	FACEPLATE, CNTRL PNL	A1272405	1	51	NIPPLE, PIPE XS CLOSE 1/2, BRASS	FI34220	2
22	MODULE, WELD CNTRL SYS ASSY	CO269598	1	52	BUSHING, PIPE BRASS 1/4 x 1/2	FI75068	1
23	SENSOR, HALL EFFECT WELD CNTRLS	CO269900	1	53	CABLE, BATTERY EXTENSION, MACHINE	MA269944	1
24	PNLMETER, VOLTAGE, LED	CO270314	1	54	BOOT, CIRCUIT BREAKER 3/8	PR270548	2
25	CNTRL, ENG. START/STOP	CO270491	1	55	CAP, RUBBER TETHERED 1-3/8 BLACK	PR272373	1
26	SWITCH, ROCKER 12V DPST CLEAR LIGHT	CO272343	4				
27	KNOB, PLASTIC, 1.3 DIA., 1/4 SHAFT	CO59489	1	56	CAP, RUBBER TETHERED 1-3/8 RED	PR272390	1
28	LAMP, INDICATOR, LED, GREEN	CO59966	5	57	GROMMET, BLACK RUBBER, 2.25ID	PR74492	1
29	CIRCUIT BREAKER, 20 AMP	CO62617	2	58	SWITCH BOOT, TOGGLE, WEATHER PROOF	PR77230	3
30	TACHOMETER, HOUR, 12V SINGLE	CO79106	1	59	HOSE, AIR TANK TO PNL	TU270453-006	1

NOTE: Pipe dope all NPT fittings.

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

7.8 GENERATORS AND PARTS



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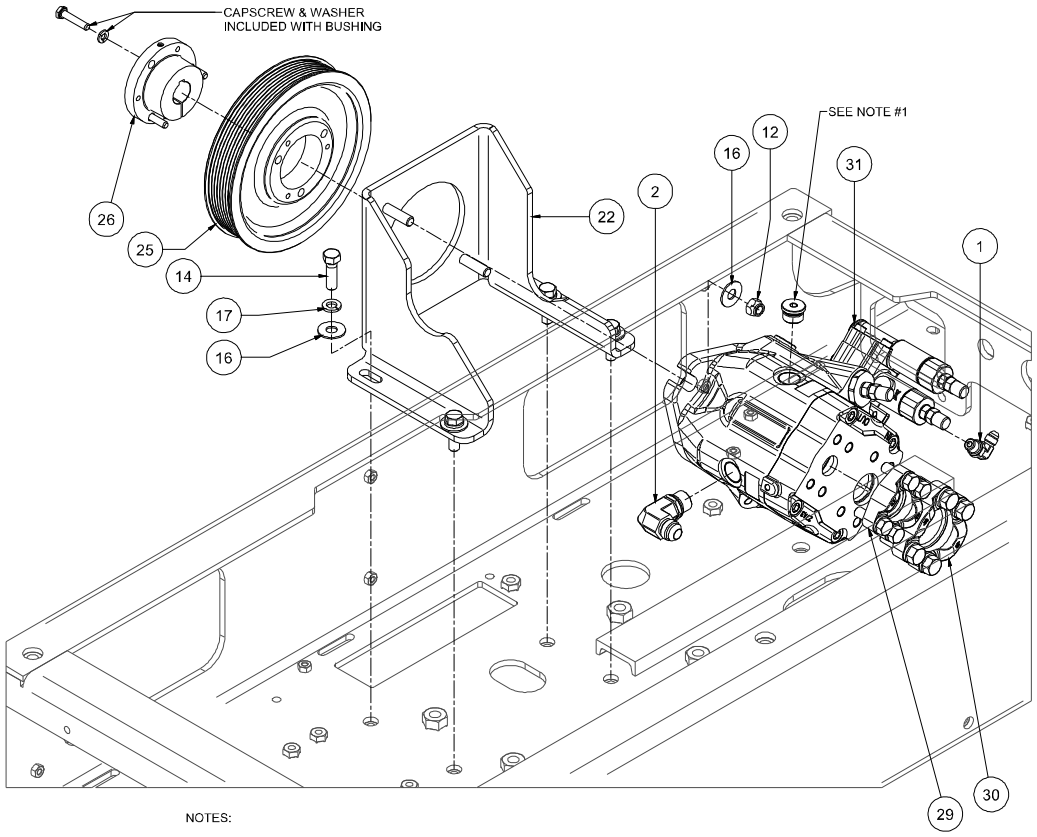
7.8 GENERATORS AND PARTS

ITEM	DESCRIPTION	PART NUMBER	QTY
1	GENERATOR, AC, 6.8KW	269530	1
2	KEY, SQUARE 3/16 x 3/16 x 1.5	821103-150	1
3	NUT, HEX LOCKING 1/2-13	825508-262	1
4	CAPSCREW, HEX GR5 1/4-20 X 1 1/4	829104-125	3
5	CAPSCREW, HEX GR8 5/16-18 X 1.0 LG.	829405-100	4
6	CAPSCREW, HEX GR8 3/8-16 X 1.0 LG.	829406-100	2
7	CAPSCREW, HEX GR8 1/2-13 x 1.25	829408-125	1
8	CAPSCREW, HEX GR8 1/2-13 x 2.25	829408-225	1
9	CAPSCREW, HEX GR8 1/2-13 x 6.5	829408-650	1
10	SCREW, SER WASH 5/16-18 x 0.75	829705-075	1
11	SCREW, SER WASH 5/16-18 x 1	829705-100	3
12	SCREW, SER WASH 3/8-16 x 1	829706-100	2
13	WASHER, FLAT 5/16	838205-071	8
14	WASHER, FLAT 3/8	838206-071	2
15	WASHER, FLAT 1/2	838208-112	5
16	WASHER, LOCK 1/4	838504-062	3
17	WASHER, LOCK 5/16	838505-078	4
18	WASHER, LOCK 3/8	838506-094	2
19	WASHER, LOCK 1/2	838508-125	1
20	BRACKET, WELD GENERATOR	A1269734	1
21	BRACKET, WELD GENERATOR SUPPORT	A1270388	1
22	TENSIONER, GENERATOR'S	A1272076	1
23	MOUNT, REAR GENERATOR	A15865P	1
24	SHEAVE, SERPENTINE, 8 GROOVE	A15891Z	1
25	BUSHING, SDS, QD, 7/8DIA.	DR41395Z	1
26	IDLER, 1.375 WIDTH, 3 3/8DIA	DR46584	1
27	WELDER, GENERATOR 300 AMP	GE270045	1

NOTE: Pipe dope all NPT fittings.

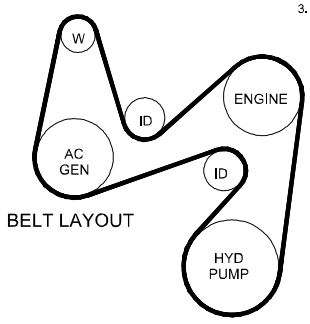
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

7.9 HYDRAULIC PUMP ASSEMBLY (1 OF 2)



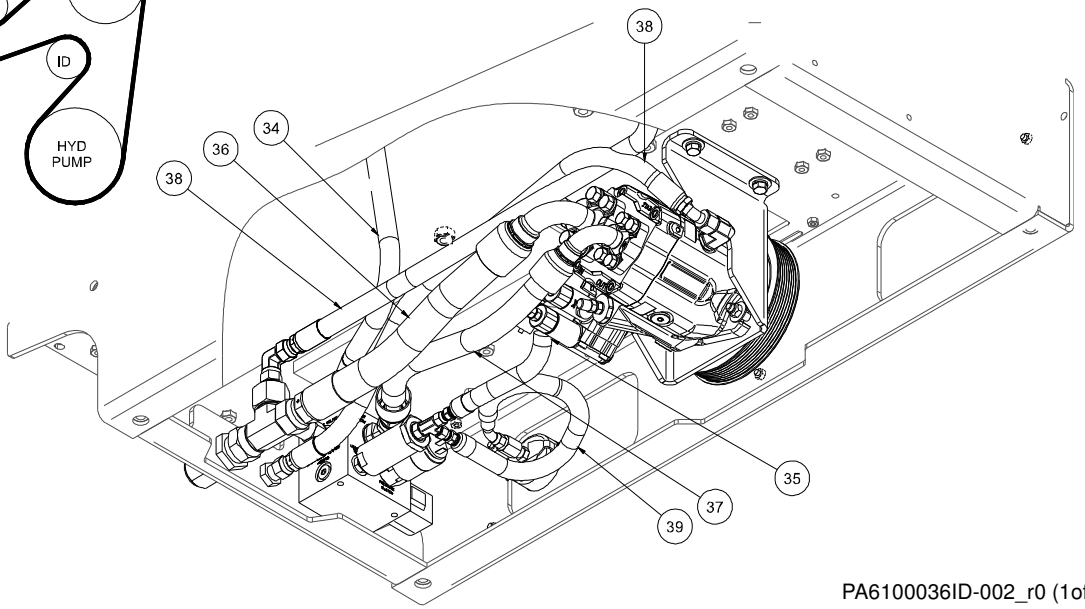
NOTES:

2. ALL HOSES ARE PART OF HOSE KIT TU274395.
3. APPLY LOCTITE 562 THREAD SEALANT TO ALL MALE NPT THREADS.



BELT LAYOUT

REFERENCE HOSE ROUTING



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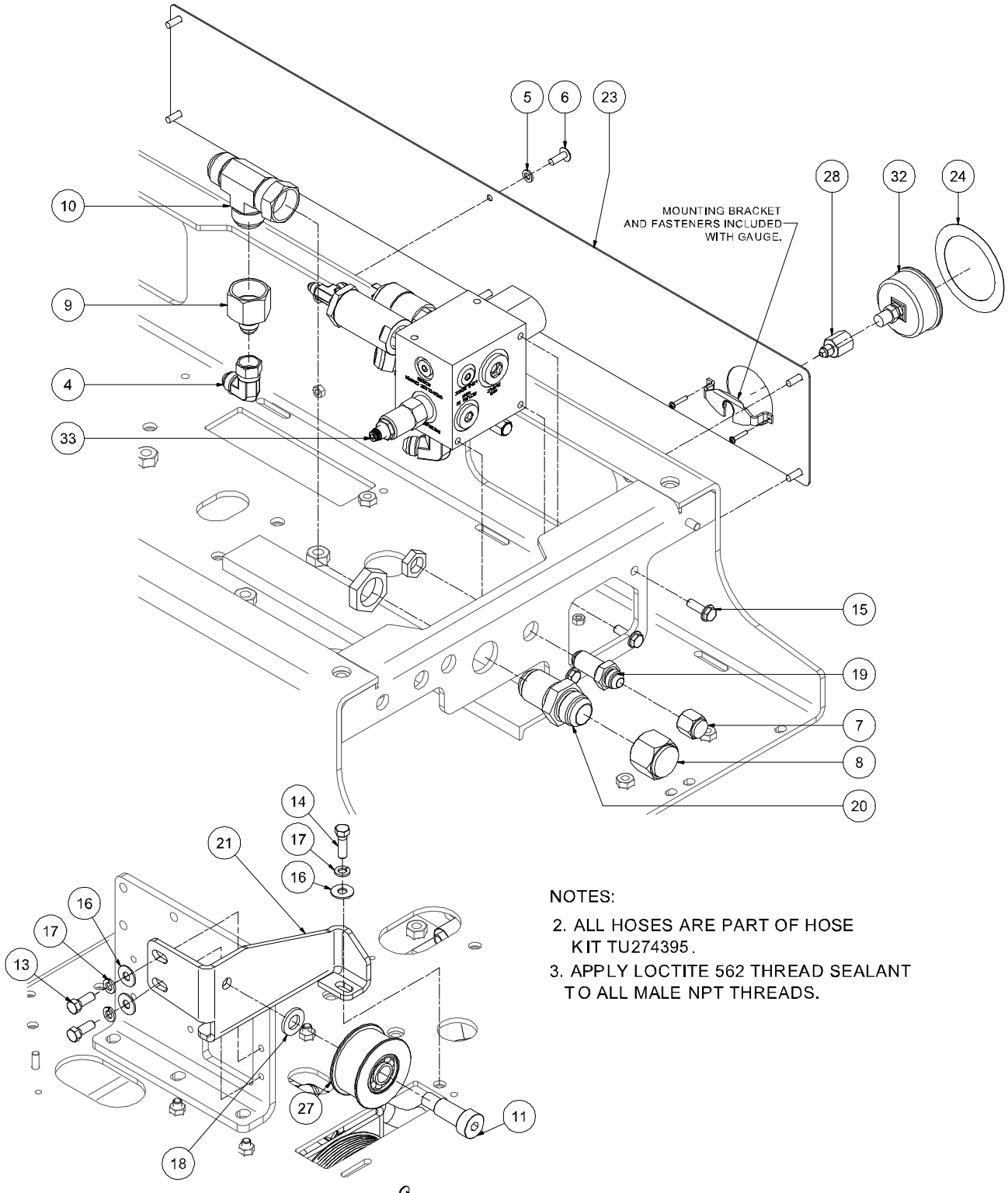
7.9 HYDRAULIC PUMP ASSEMBLY (1 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #4 MJIC x #4 MSAE	260403-101	1	21	BRACKET, IDLER	A1271709	1
2	ELBOW, 90 DEG #8 MJIC x #8 MSAE	260403-104	1	22	SUPPORT,17CC HYD PUMP	A1273151	1
3	OIL, HYDRAULIC AW32	260658-010	2 qt	23	PANEL, COVER PLATFORM	A1273259	1
4	ELBOW, 90 DEG. SWIVEL #8 FJIC x #8 MJIC	261842-006	1	24	DECAL, LOAD SENSE	DL273347	1
5	WASHER, NYLON FLAT 1/4	262704	6	25	SHEAVE, SERPENTINE, 8 GROOVE, 6.99 P.D.	DR269898	1
6	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	6	26	BUSHING,QD STYLE SDS 7/8 BORE X 1/4 KEYWAY	DR271744	1
7	CAP, FEMALE JIC 3/4-16 #8	264322-003	1	27	IDLER 3 OD X 1-3/8 FLAT FACE.	DR272187	1
8	CAP, FEMALE JIC 1 5/16-12 #16	264322-006	1	28	ADAPTER,1/4 FNPT X 1/4 JIC	FI273339	1
9	ADAPTER,#16 FJIC X #8 MJIC	265008-020	1	29	FLANGE, SPLIT SAE 3/4 CODE 61 KIT	FI273521	1
10	TEE,RUN SWIVEL #16	268769-008	1	30	FLANGE, SPLIT SAE 1-1/4 CODE 61 KIT	FI273522	1
11	BOLT, SHOULDER 20mm X 40mm LONG	272133	1	31	PUMP, HYD PISTON 17CC CASAPPA MVP LH	HY273183	1
12	NUT, HEX LOCKING 3/8-16	825506-198	2	32	GAUGE, HYD PRESSURE 5000 PSI PNL MTG	HY273301	1
13	CAPSCREW, HEX GR8 3/8-16 x 1	829406-100	2	33	ID, HYDRAULIC MANIFOLD ASSY	PA6120225ID	1
14	CAPSCREW ,HEX GR8 3/8-16 x 1.25	829406-125	5	34	HOSE, FAN RETURN	TU274395-006	1
15	SCREW, SER WASH 5/16-18 x 1	829705-100	3	35	HOSE, LOAD SENSE	TU274395-009	1
16	WASHER, FLAT 3/8	838206-071	11	36	HOSE, PUMP SUCTION	TU274395-010	1
17	WASHER, LOCK 3/8	838506-094	7	37	HOSE, PUMP PRESSURE	TU274395-011	1
18	WASHER, FLAT METRIC M16	838916-330	1	38	HOSE, FAN PUMP SUCTION / CASE DRAIN	TU274395-014	2
19	BULKHEAD, MJIC x MJIC #8	862108-050	1	39	HOSE, LOAD SENSE PRESSURE GAUGE	TU274395-016	1
20	BULKHEAD, MJIC x MJIC #16	862116-100	1				

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

7.9 HYDRAULIC PUMP ASSEMBLY (2 OF 2)



NOTES:

2. ALL HOSES ARE PART OF HOSE KIT TU274395.
3. APPLY LOCTITE 562 THREAD SEALANT TO ALL MALE NPT THREADS.

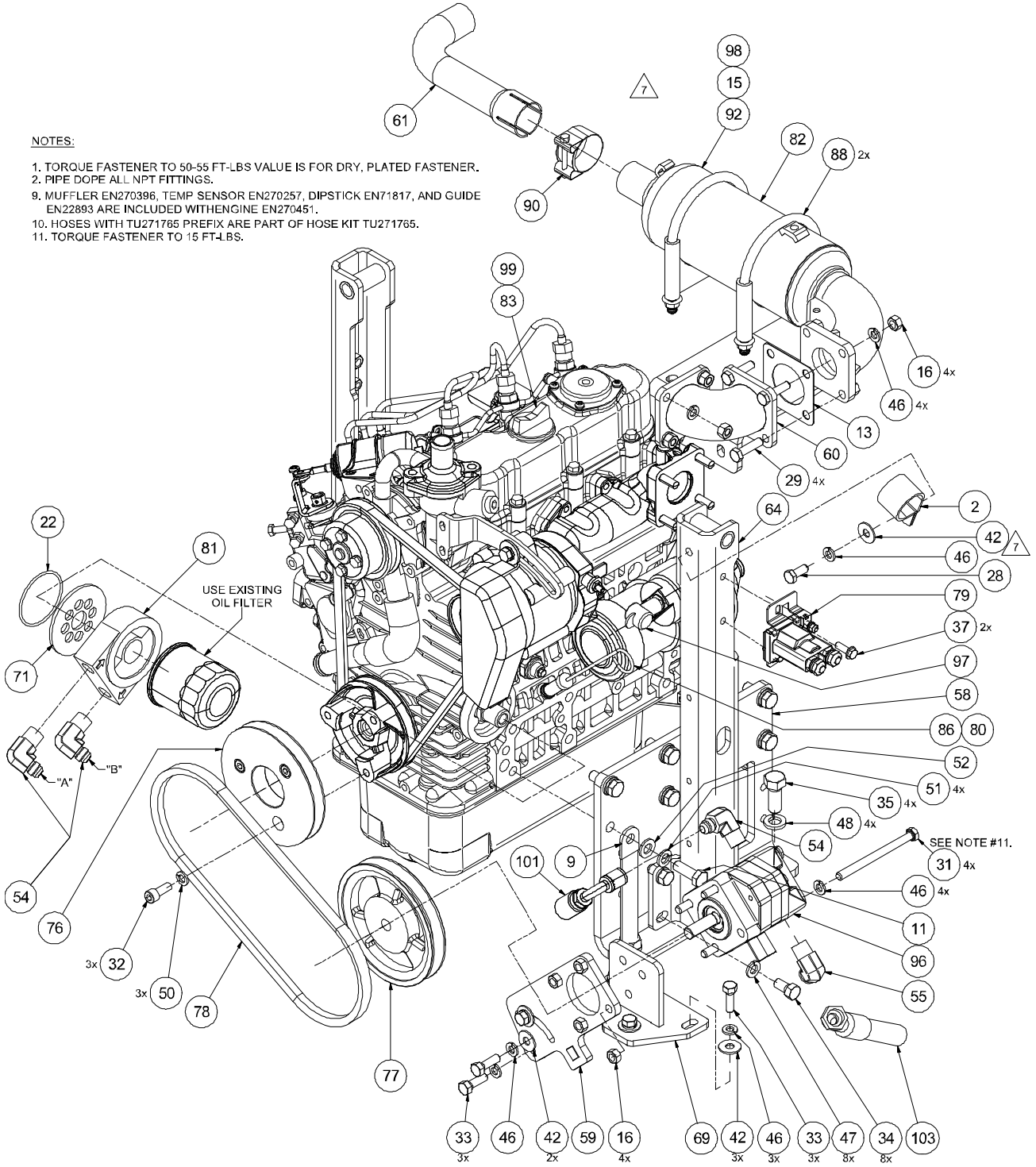
PA6100036ID-001_r0 (2of2)

7.9 HYDRAULIC PUMP ASSEMBLY (1 OF 2)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #4 MJIC x #4 MSAE	260403-101	1	21	BRACKET, IDLER	A1271709	1
2	ELBOW, 90 DEG #8 MJIC x #8 MSAE	260403-104	1	22	SUPPORT,17CC HYD PUMP	A1273151	1
3	OIL, HYDRAULIC AW32	260658-010	2 qt	23	PANEL, COVER PLATFORM	A1273259	1
4	ELBOW, 90 DEG. SWIVEL #8 FJIC x #8 MJIC	261842-006	1	24	DECAL, LOAD SENSE	DL273347	1
5	WASHER, NYLON FLAT 1/4	262704	6	25	SHEAVE, SERPENTINE, 8 GROOVE, 6.99 P.D.	DR269898	1
6	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	6	26	BUSHING,QD STYLE SDS 7/8 BORE X 1/4 KEYWAY	DR271744	1
7	CAP, FEMALE JIC 3/4-16 #8	264322-003	1	27	IDLER 3 OD X 1-3/8 FLAT FACE.	DR272187	1
8	CAP, FEMALE JIC 1 5/16-12 #16	264322-006	1	28	ADAPTER,1/4 FNPT X 1/4 JIC	FI273339	1
9	ADAPTER,#16 FJIC X #8 MJIC	265008-020	1	29	FLANGE, SPLIT SAE 3/4 CODE 61 KIT	FI273521	1
10	TEE,RUN SWIVEL #16	268769-008	1	30	FLANGE, SPLIT SAE 1-1/4 CODE 61 KIT	FI273522	1
11	BOLT, SHOULDER 20mm X 40mm LONG	272133	1	31	PUMP, HYD PISTON 17CC CASAPPA MVP LH	HY273183	1
12	NUT, HEX LOCKING 3/8-16	825506-198	2	32	GAUGE, HYD PRESSURE 5000 PSI PNL MTG	HY273301	1
13	CAPSCREW, HEX GR8 3/8-16 x 1	829406-100	2	33	ID, HYDRAULIC MANIFOLD ASSY	PA6120225ID	1
14	CAPSCREW ,HEX GR8 3/8-16 x 1.25	829406-125	5	34	HOSE, FAN RETURN	TU274395-006	1
15	SCREW, SER WASH 5/16-18 x 1	829705-100	3	35	HOSE, LOAD SENSE	TU274395-009	1
16	WASHER, FLAT 3/8	838206-071	11	36	HOSE, PUMP SUCTION	TU274395-010	1
17	WASHER, LOCK 3/8	838506-094	7	37	HOSE, PUMP PRESSURE	TU274395-011	1
18	WASHER, FLAT METRIC M16	838916-330	1	38	HOSE, FAN PUMP SUCTION / CASE DRAIN	TU274395-014	2
19	BULKHEAD, MJIC x MJIC #8	862108-050	1	39	HOSE, LOAD SENSE PRESSURE GAUGE	TU274395-016	1
20	BULKHEAD, MJIC x MJIC #16	862116-100	1				

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

7.10 ENGINE AND DRIVE PARTS (1 OF 3)



PA6100056ID_r7 (1 of 3) (TP)

7.10 ENGINE AND DRIVE PARTS (1 OF 3)

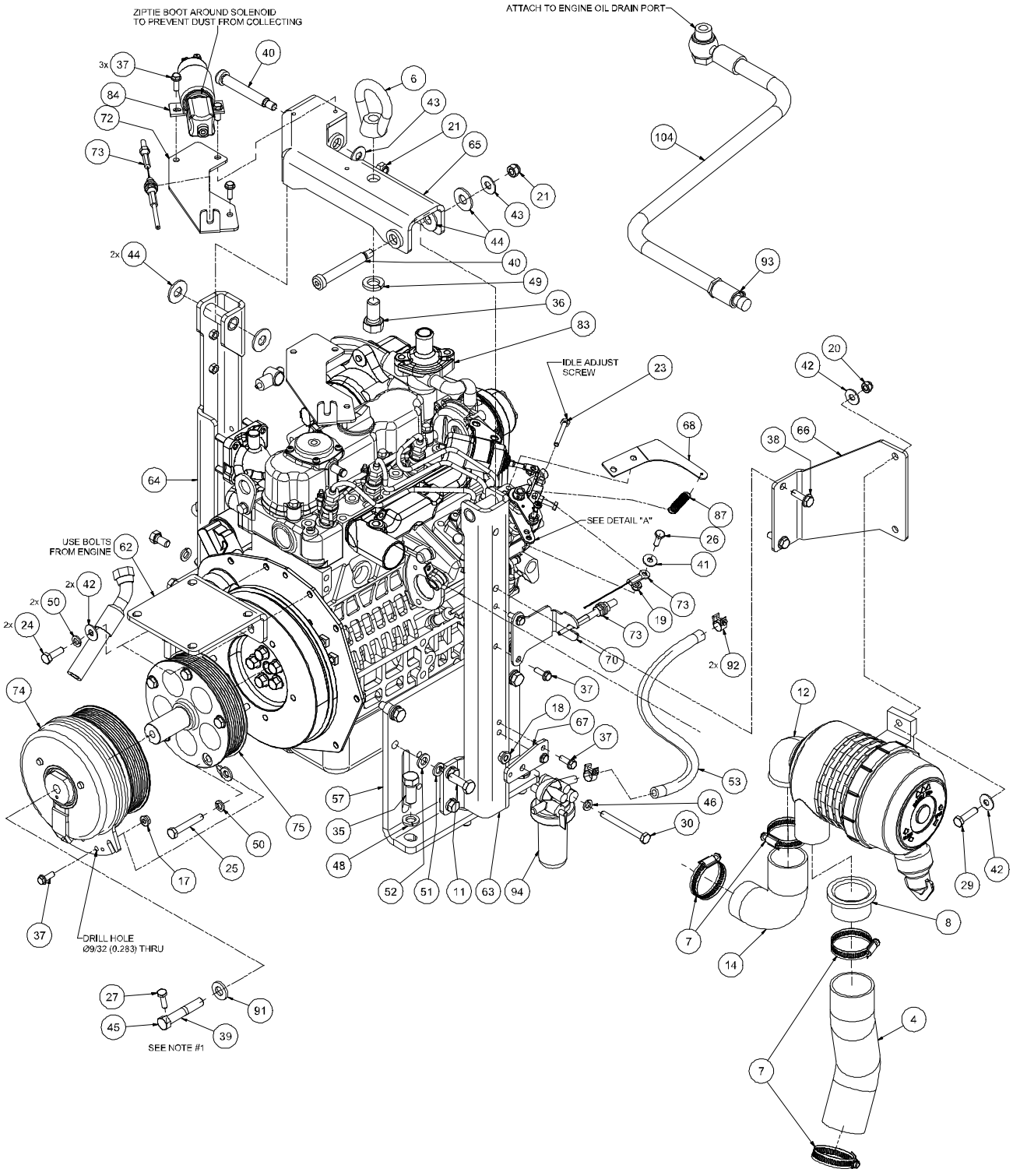
ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #6 MJIC x #8 MSAE	260403-123	2	36	CAPSCREW, HEX GR8 5/16-18 X 1	829405-100	6	71	BRACKET,CABLE MOUNT	A1271107	1
2	CLAMP, HOSE 3/16 - 5/16 HOSE	260864	2	37	CAPSCREW, HEX GR8 1/2-13 x 1.25	829408-125	6	72	PLATE SEAL OIL ADAPTER	A1273383	1
3	CLAMP, HOSE SUPPORT 1.25 ID	261546	1	38	CAPSCREW, HEX GR8 5/8-11 x 1.25	829410-125	1	73	BRACKET, THROTTLE SOLENOID	A1274065	1
4	WASHER, NYLON FLAT 1/4	262704	4	39	SCREW, SER WASH 1/4-20 x 0.75	829704-075	10	74	CABLE, THROTTLE CONTROL ANA 300 DIESEL	CO271105	1
5	HOSE, FLEX 2" I.D. (FT)	262705	1.7 5 ft	40	SCREW, SER WASH 5/16-18 x 1	829705-100	2	75	CLUTCH, CMS 5.8 P.D. 8 GRV SHEAVE	DR269574	1
6	CLAMP,EXHAUST 1 1/4 REV.0	262906	1	41	CAPSCREW, HEX GR8 7/16-20UNF x 2.5	829807-250	1	76	SHEAVE, STUB SHAFT 8 GROOVE	DR270365	1
7	CLAMP, EXHAUST 1 1/2	262906-150	1	42	SCREW,MACH SHOULDER 1/2 X 3 LG	830508-300	2	77	SHEAVE, ENGINE, "A" GROOVE	DR270377	1
8	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	4	43	WASHER, FLAT 1/4	838204-071	1	78	SHEAVE, A SINGLE GROOVE	DR270378	1
9	EYENUT, 5/8-11	264113	1	44	WASHER, FLAT 5/16	838205-071	12	79	BELT, DRIVE "A" SECTION X 31.0 OUTSIDE	DR270393	1
10	CLAMP, HOSE #28	265560	4	45	WASHER, FLAT 3/8	838206-071	2	80	BUSHING, 1/2 OD	DR270397	1
11	ADAPTER, AIR FILTER RUBBER	267312	1	46	WASHER, FLAT 1/2	838208-112	4	81	RELAY, NO 80A 12VDC COIL	EL273807	1
12	STRAP, GROUND 8" w/ 3/8 HOLES	267498	1	47	WASHER, LOCK 1/4	838504-062	1	82	GUIDE, DIP STICK	EN22893	1
13	CAPSCREW, HEX 10MM 1.25 x 30MM GR10.9	269438	12	48	WASHER, LOCK 5/16	838505-078	24	83	ADAPTER, OIL FILTER, SANDWICH	EN24145	1
14	FILTER, AIR 6" MANN-HML 90DEG	269660	1	49	WASHER, LOCK 1/2	838508-125	6	84	EXHAUST, KUBOTA	EN270396	1
15	GASKET, MUFFLER REPLCMT KUBOTA D902	269961	1	50	WASHER, LOCK 5/8	838510-156	1	85	ENGINE DIESEL, 25 HP, HZ SHAFT	EN270451	1
16	HOSE, FLEX 1-3/4" I.D. (FT)	270698	0.7 5 ft	51	WASHER, LOCK METRIC M8	838808-200	10	86	SOLENOID, THROTTLE DH902	EN273865	1
17	BLANKET, EXH SYS WRAP 300D [I]	PR81122	1	52	WASHER, LOCK METRIC M10	838810-220	12	87	COOLER, OIL, 12 PLATE, SAE PORTS	EN37997-01	1
18	NUT, HEX 5/16-18	825205-273	8	53	WASHER, FLAT METRIC M10	838910-220	12	88	DIP STICK, OIL	EN71817	1
19	NUT, HEX FLANGE 1/4-20	825304-236	5	54	HOSE, FUEL LINE 5/16 (FT)	842315-031	1	89	SPRING, 7/16DIA. X .030 X 1 7/8" LG	EN75074	1
20	NUT, HEX FLANGE 5/16-18	825305-283	1	55	ELBOW, 37FL/90M #06 x 3/8	860206-038	3	90	U-BOLT,3/8-16 X 3 1/2 WD X 5 1/16	FA270399	2
21	NUT, HEX LOCKING 1/4-20	825504-145	1	56	ELBOW, 37FL/90M #08 x 3/8	860208-038	1	91	WASHER, 1/2ID X 1OD, 2 PIECE (NORD-LOCK)	FA37629	1
22	NUT, HEX LOCKING 5/16-18	825505-166	2	57	CABLE, ASSEMBLY, CLUTCH 9.0 LG.	A1269740-002	1	92	SHIPPED WITH ENGINE	FUEL FILTER	1
23	NUT, HEX LOCKING 3/8-16	825506-198	2	58	BRACKET, ENGINE RH	A1270367	1	93	TIES, THERMAL, STAINLESS STEEL	HA42205	5
24	O-RING, VITON 2 3/16 x 3/32	826502-139	1	59	BRACKET, ENGINE LH	A1270368	1				
25	CAPSCREW,HEX 6MM X 40MM	828006-040	1	60	BRACKET, PUMP	A1270376	1	94	PUMP, HYD CWDE W/ RELIEF VALVE	HY270357	1
26	CAPSCREW, HEX M8 1.25 x 25mm	828008-025	2	61	ELBOW, EXHAUST	A1270384	1	95	ELBOW, 90 DEG, METRIC 22 X 1.5	HY83058	1
27	CAPSCREW, HEX 8mm 1.25 x 50	828008-050	5	62	ELBOW, EXHAUST OUT	A1270385	1	96	BOOT, TERMINAL, 10 GAUGE, RED	PR44522	1
28	CAPSCREW,HEX GR5 1/4-20 X 3/4	829104-075	1	63	BRACKET, EXHAUST	A1270387	1	97	BLANKET, EXHAUST [II]	274555	1
29	CAPSCREW,HEX GR5 1/4-20 X 1	829104-100	1	64	SUPPORT, MACHINE RH	A1270390	1	98	OIL, MOTOR 15W-40, (QT)	SE271475	5.5 qt
30	CAPSCREW,HEX GR5 5/16-18 X 3/4	829105-075	1	65	SUPPORT, MACHINE LH	A1270391	1	99	TUBE, EXHAUST 1.25 DIA	TU270889-01	1
31	CAPSCREW,HEX GR5 5/16-18X1 1/4	829105-125	6	66	BRACKET, LIFTING BAR	A1270392	1	100	HOSE, ENGINE DRAIN	TU271765-007	1
32	CAPSCREW, HEX GR5 5/16-18 x 3	829105-300	1	67	BRACKET, AIR FILTER SUPPORT	A1270394	1	101	HOSE, PUMP TO MOTOR	TU271765-011	1
33	CAPSCREW, HEX GR5 5/16-18 x 4	829105-400	4	68	BRACKET, FUEL FILTER	A1270395	1	102	HOSE, TO/FROM COOLER, ENGINE	TU271765-014	2
34	CAPSCREW, S.H. M8x1.25 x 20mm	829308-020	3	69	BRACKET, THROTTLE SPRING, KUBOTA	A1270578	1	103	HOSE, PUMP SUCTION (COOLER)	TU271765-016	1
35	CAPSCREW,HEX GR8 5/16-18 x 3/4	829405-075	8	70	BRACKET, PUMP LOWER	A1270865	1				

[I] This item (key #17) specific to Bill of Material no. PA6100056-002ID only.

[II] This item (key #97) specific to Bill of Material no. PA6100056ID only.

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

7.10 ENGINE AND DRIVE PARTS (2 OF 3) (CONTINUED)



PA6100056ID_r7 (2 of 3) (TP)

7.10 ENGINE AND DRIVE PARTS (2 OF 3) (CONTINUED)

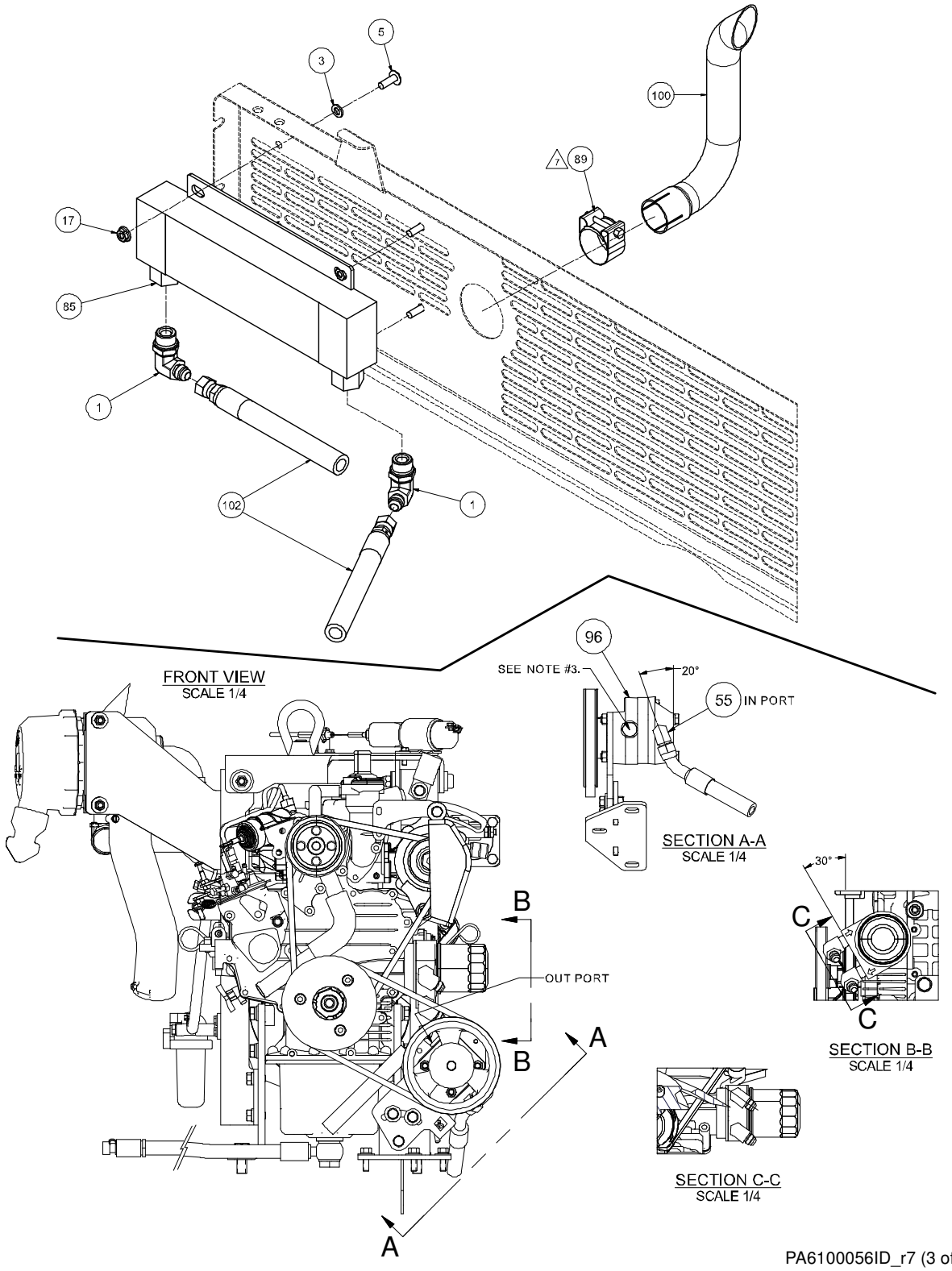
ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #6 MJIC x #8 MSAE	260403-123	2
2	CLAMP, HOSE 3/16 - 5/16 HOSE	260864	2
3	CLAMP, HOSE SUPPORT 1.25 ID	261546	1
4	WASHER, NYLON FLAT 1/4	262704	4
5	HOSE, FLEX 2" I.D. (FT)	262705	1.7 5 ft
6	CLAMP,EXHAUST 1 1/4 REV.0	262906	1
7	CLAMP, EXHAUST 1 1/2	262906-150	1
8	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	4
9	EYENUT, 5/8-11	264113	1
10	CLAMP, HOSE #28	265560	4
11	ADAPTER, AIR FILTER RUBBER	267312	1
12	STRAP, GROUND 8" w/ 3/8 HOLES	267498	1
13	CAPSCREW, HEX 10MM 1.25 x 30MM GR10.9	269438	12
14	FILTER, AIR 6" MANN-HML 90DEG	269660	1
15	GASKET, MUFFLER REPLCMT KUBOTA D902	269961	1
16	HOSE, FLEX 1-3/4" I.D. (FT)	270698	0.7 5 ft
17	BLANKET, EXH SYS WRAP 300D [I]	PR81122	1
18	NUT, HEX 5/16-18	825205-273	8
19	NUT, HEX FLANGE 1/4-20	825304-236	5
20	NUT, HEX FLANGE 5/16-18	825305-283	1
21	NUT, HEX LOCKING 1/4-20	825504-145	1
22	NUT, HEX LOCKING 5/16-18	825505-166	2
23	NUT, HEX LOCKING 3/8-16	825506-198	2
24	O-RING, VITON 2 3/16 x 3/32	826502-139	1
25	CAPSCREW,HEX 6MM X 40MM	828006-040	1
26	CAPSCREW, HEX M8 1.25 x 25mm	828008-025	2
27	CAPSCREW, HEX 8mm 1.25 x 50	828008-050	5
28	CAPSCREW,HEX GR5 1/4-20 X 3/4	829104-075	1
29	CAPSCREW,HEX GR5 1/4-20 X 1	829104-100	1
30	CAPSCREW,HEX GR5 5/16-18 X 3/4	829105-075	1
31	CAPSCREW,HEX GR5 5/16-18X1 1/4	829105-125	6
32	CAPSCREW, HEX GR5 5/16-18 x 3	829105-300	1
33	CAPSCREW, HEX GR5 5/16-18 x 4	829105-400	4
34	CAPSCREW, S.H. M8x1.25 x 20mm	829308-020	3
35	CAPSCREW,HEX GR8 5/16-18 x 3/4	829405-075	8
36	CAPSCREW, HEX GR8 5/16-18 X 1	829405-100	6
37	CAPSCREW, HEX GR8 1/2-13 x 1.25	829408-125	6
38	CAPSCREW, HEX GR8 5/8-11 x 1.25	829410-125	1
39	SCREW, SER WASH 1/4-20 x 0.75	829704-075	10
40	SCREW, SER WASH 5/16-18 x 1	829705-100	2
41	CAPSCREW, HEX GR8 7/16-20UNF x 2.5	829807-250	1
42	SCREW,MACH SHOULDER 1/2 X 3 LG	830508-300	2
43	WASHER, FLAT 1/4	838204-071	1
44	WASHER, FLAT 5/16	838205-071	12
45	WASHER, FLAT 3/8	838206-071	2
46	WASHER, FLAT 1/2	838208-112	4
47	WASHER, LOCK 1/4	838504-062	1
48	WASHER, LOCK 5/16	838505-078	24
49	WASHER, LOCK 1/2	838508-125	6
50	WASHER, LOCK 5/8	838510-156	1
51	WASHER, LOCK METRIC M8	838808-200	10
52	WASHER, LOCK METRIC M10	838810-220	12
53	WASHER, FLAT METRIC M10	838910-220	12
54	HOSE, FUEL LINE 5/16 (FT)	842315-031	1
55	ELBOW, 37FL/90M #06 x 3/8	860206-038	3
56	ELBOW, 37FL/90M #08 x 3/8	860208-038	1
57	CABLE, ASSEMBLY, CLUTCH 9.0 LG.	A1269740-002	1
58	BRACKET, ENGINE RH	A1270367	1
59	BRACKET, ENGINE LH	A1270368	1
60	BRACKET, PUMP	A1270376	1
61	ELBOW, EXHAUST	A1270384	1
62	ELBOW, EXHAUST OUT	A1270385	1
63	BRACKET, EXHAUST	A1270387	1
64	SUPPORT, MACHINE RH	A1270390	1
65	SUPPORT, MACHINE LH	A1270391	1
66	BRACKET, LIFTING BAR	A1270392	1
67	BRACKET, AIR FILTER SUPPORT	A1270394	1
68	BRACKET, FUEL FILTER	A1270395	1
69	BRACKET, THROTTLE SPRING, KUBOTA	A1270578	1
70	BRACKET, PUMP LOWER	A1270865	1
71	BRACKET,CABLE MOUNT	A1271107	1
72	PLATE SEAL OIL ADAPTER	A1273383	1
73	BRACKET, THROTTLE SOLENOID	A1274065	1
74	CABLE, THROTTLE CONTROL ANA 300 DIESEL	CO271105	1
75	CLUTCH, CMS 5.8 P.D. 8 GRV SHEAVE	DR269574	1
76	SHEAVE, STUB SHAFT 8 GROOVE	DR270365	1
77	SHEAVE, ENGINE, "A" GROOVE	DR270377	1
78	SHEAVE, A SINGLE GROOVE	DR270378	1
79	BELT, DRIVE "A" SECTION X 31.0 OUTSIDE	DR270393	1
80	BUSHING, 1/2 OD	DR270397	1
81	RELAY, NO 80A 12VDC COIL	EL273807	1
82	GUIDE, DIP STICK	EN22893	1
83	ADAPTER, OIL FILTER, SANDWICH	EN24145	1
84	EXHAUST, KUBOTA	EN270396	1
85	ENGINE DIESEL, 25 HP, HZ SHAFT	EN270451	1
86	SOLENOID, THROTTLE DH902	EN273865	1
87	COOLER, OIL, 12 PLATE, SAE PORTS	EN37997-01	1
88	DIP STICK, OIL	EN71817	1
89	SPRING, 7/16DIA. X .030 X 1 7/8" LG	EN75074	1
90	U-BOLT,3/8-16 X 3 1/2 WD X 5 1/16	FA270399	2
91	WASHER, 1/2ID X 1OD, 2 PIECE (NORD-LOCK)	FA37629	1
92	SHIPPED WITH ENGINE	FUEL FILTER	1
93	TIES, THERMAL, STAINLESS STEEL	HA42205	5
94	PUMP, HYD CWDE W/ RELIEF VALVE	HY270357	1
95	ELBOW, 90 DEG, METRIC 22 X 1.5	HY83058	1
96	BOOT, TERMINAL, 10 GAUGE, RED	PR44522	1
97	BLANKET, EXHAUST [II]	274555	1
98	OIL, MOTOR 15W-40, (QT)	SE271475	5.5 qt
99	TUBE, EXHAUST 1.25 DIA	TU270889-01	1
100	HOSE, ENGINE DRAIN	TU271765-007	1
101	HOSE, PUMP TO MOTOR	TU271765-011	1
102	HOSE, TO/FROM COOLER, ENGINE	TU271765-014	2
103	HOSE, PUMP SUCTION (COOLER)	TU271765-016	1

[I] This item (key #17) specific to Bill of Material no. PA6100056-002ID only.

[II] This item (key #97) specific to Bill of Material no. PA6100056ID only.

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

7.10 ENGINE AND DRIVE PARTS (3 OF 3) (CONTINUED)



PA6100056ID_r7 (3 of 3) (TP)

7.10 ENGINE AND DRIVE PARTS (3 OF 3) (CONTINUED)

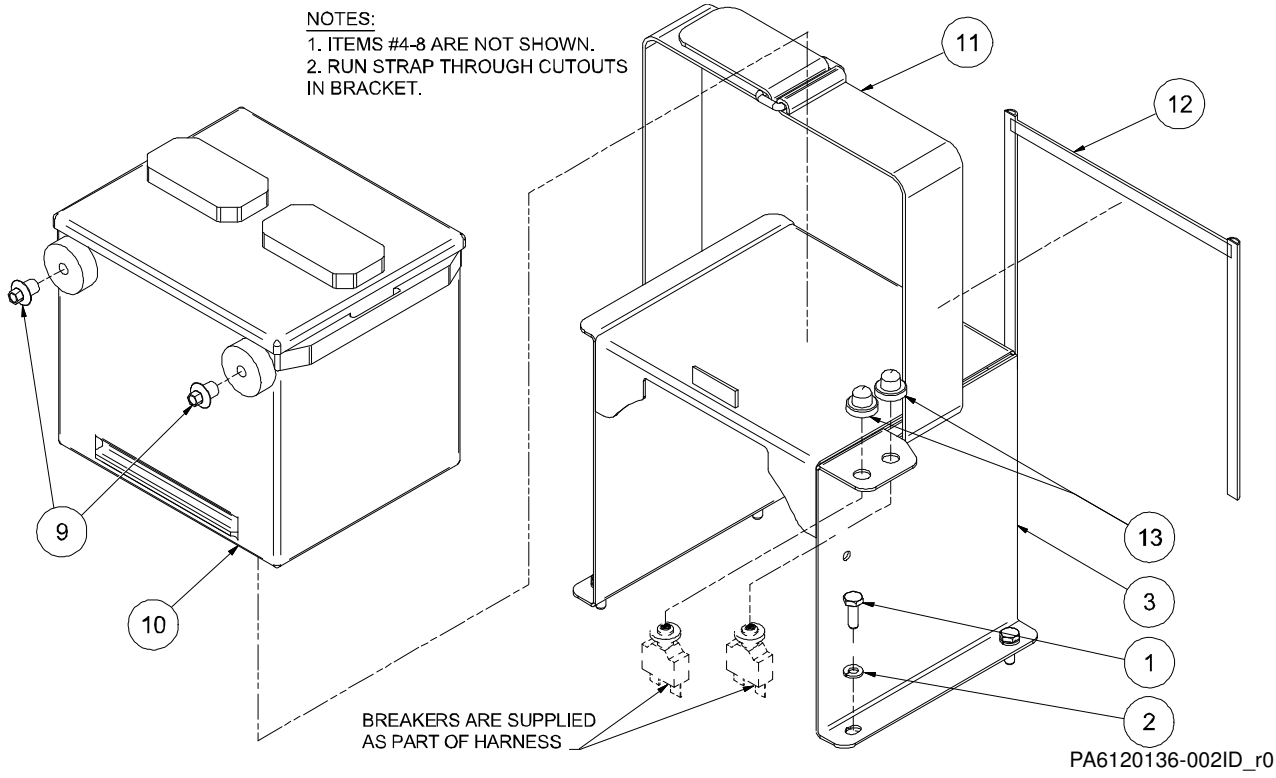
ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #6 MJIC x #8 MSAE	260403-123	2
2	CLAMP, HOSE 3/16 - 5/16 HOSE	260864	2
3	CLAMP, HOSE SUPPORT 1.25 ID	261546	1
4	WASHER, NYLON FLAT 1/4	262704	4
5	HOSE, FLEX 2" I.D. (FT)	262705	1.7 5 ft
6	CLAMP,EXHAUST 1 1/4 REV.0	262906	1
7	CLAMP, EXHAUST 1 1/2	262906-150	1
8	SCREW,TRUSS HD 1/4-20UNC X 3/4LG S.S.	262953	4
9	EYENUT, 5/8-11	264113	1
10	CLAMP, HOSE #28	265560	4
11	ADAPTER, AIR FILTER RUBBER	267312	1
12	STRAP, GROUND 8" w/ 3/8 HOLES	267498	1
13	CAPSCREW, HEX 10MM 1.25 x 30MM GR10.9	269438	12
14	FILTER, AIR 6" MANN-HML 90DEG	269660	1
15	GASKET, MUFFLER REPLCMT KUBOTA D902	269961	1
16	HOSE, FLEX 1-3/4" I.D. (FT)	270698	0.7 5 ft
17	BLANKET, EXH SYS WRAP 300D [I]	PR81122	1
18	NUT, HEX 5/16-18	825205-273	8
19	NUT, HEX FLANGE 1/4-20	825304-236	5
20	NUT, HEX FLANGE 5/16-18	825305-283	1
21	NUT, HEX LOCKING 1/4-20	825504-145	1
22	NUT, HEX LOCKING 5/16-18	825505-166	2
23	NUT, HEX LOCKING 3/8-16	825506-198	2
24	O-RING, VITON 2 3/16 x 3/32	826502-139	1
25	CAPSCREW,HEX 6MM X 40MM	828006-040	1
26	CAPSCREW, HEX M8 1.25 x 25mm	828008-025	2
27	CAPSCREW, HEX 8mm 1.25 x 50	828008-050	5
28	CAPSCREW,HEX GR5 1/4-20 X 3/4	829104-075	1
29	CAPSCREW,HEX GR5 1/4-20 X 1	829104-100	1
30	CAPSCREW,HEX GR5 5/16-18 X 3/4	829105-075	1
31	CAPSCREW,HEX GR5 5/16-18X1 1/4	829105-125	6
32	CAPSCREW, HEX GR5 5/16-18 x 3	829105-300	1
33	CAPSCREW, HEX GR5 5/16-18 x 4	829105-400	4
34	CAPSCREW, S.H. M8x1.25 x 20mm	829308-020	3
35	CAPSCREW,HEX GR8 5/16-18 x 3/4	829405-075	8
36	CAPSCREW, HEX GR8 5/16-18 X 1	829405-100	6
37	CAPSCREW, HEX GR8 1/2-13 x 1.25	829408-125	6
38	CAPSCREW, HEX GR8 5/8-11 x 1.25	829410-125	1
39	SCREW, SER WASH 1/4-20 x 0.75	829704-075	10
40	SCREW, SER WASH 5/16-18 x 1	829705-100	2
41	CAPSCREW, HEX GR8 7/16-20UNF x 2.5	829807-250	1
42	SCREW,MACH SHOULDER 1/2 X 3 LG	830508-300	2
43	WASHER, FLAT 1/4	838204-071	1
44	WASHER, FLAT 5/16	838205-071	12
45	WASHER, FLAT 3/8	838206-071	2
46	WASHER, FLAT 1/2	838208-112	4
47	WASHER, LOCK 1/4	838504-062	1
48	WASHER, LOCK 5/16	838505-078	24
49	WASHER, LOCK 1/2	838508-125	6
50	WASHER, LOCK 5/8	838510-156	1
51	WASHER, LOCK METRIC M8	838808-200	10
52	WASHER, LOCK METRIC M10	838810-220	12
53	WASHER, FLAT METRIC M10	838910-220	12
54	HOSE, FUEL LINE 5/16 (FT)	842315-031	1
55	ELBOW, 37FL/90M #06 x 3/8	860206-038	3
56	ELBOW, 37FL/90M #08 x 3/8	860208-038	1
57	CABLE, ASSEMBLY, CLUTCH 9.0 LG.	A1269740-002	1
58	BRACKET, ENGINE RH	A1270367	1
59	BRACKET, ENGINE LH	A1270368	1
60	BRACKET, PUMP	A1270376	1
61	ELBOW, EXHAUST	A1270384	1
62	ELBOW, EXHAUST OUT	A1270385	1
63	BRACKET, EXHAUST	A1270387	1
64	SUPPORT, MACHINE RH	A1270390	1
65	SUPPORT, MACHINE LH	A1270391	1
66	BRACKET, LIFTING BAR	A1270392	1
67	BRACKET, AIR FILTER SUPPORT	A1270394	1
68	BRACKET, FUEL FILTER	A1270395	1
69	BRACKET, THROTTLE SPRING, KUBOTA	A1270578	1
70	BRACKET, PUMP LOWER	A1270865	1
71	BRACKET,CABLE MOUNT	A1271107	1
72	PLATE SEAL OIL ADAPTER	A1273383	1
73	BRACKET, THROTTLE SOLENOID	A1274065	1
74	CABLE, THROTTLE CONTROL ANA 300 DIESEL	CO271105	1
75	CLUTCH, CMS 5.8 P.D. 8 GRV SHEAVE	DR269574	1
76	SHEAVE, STUB SHAFT 8 GROOVE	DR270365	1
77	SHEAVE, ENGINE, "A" GROOVE	DR270377	1
78	SHEAVE, A SINGLE GROOVE	DR270378	1
79	BELT, DRIVE "A" SECTION X 31.0 OUTSIDE	DR270393	1
80	BUSHING, 1/2 OD	DR270397	1
81	RELAY, NO 80A 12VDC COIL	EL273807	1
82	GUIDE, DIP STICK	EN22893	1
83	ADAPTER, OIL FILTER, SANDWICH	EN24145	1
84	EXHAUST, KUBOTA	EN270396	1
85	ENGINE DIESEL, 25 HP, HZ SHAFT	EN270451	1
86	SOLENOID, THROTTLE DH902	EN273865	1
87	COOLER, OIL, 12 PLATE, SAE PORTS	EN37997-01	1
88	DIP STICK, OIL	EN71817	1
89	SPRING, 7/16DIA. X .030 X 1 7/8" LG	EN75074	1
90	U-BOLT,3/8-16 X 3 1/2 WD X 5 1/16	FA270399	2
91	WASHER, 1/2ID X 1OD, 2 PIECE (NORD-LOCK)	FA37629	1
92	SHIPPED WITH ENGINE	FUEL FILTER	1
93	TIES, THERMAL, STAINLESS STEEL	HA42205	5
94	PUMP, HYD CWDE W/ RELIEF VALVE	HY270357	1
95	ELBOW, 90 DEG, METRIC 22 X 1.5	HY83058	1
96	BOOT, TERMINAL, 10 GAUGE, RED	PR44522	1
97	BLANKET, EXHAUST [II]	274555	1
98	OIL, MOTOR 15W-40, (QT)	SE271475	5.5 qt
99	TUBE, EXHAUST 1.25 DIA	TU270889-01	1
100	HOSE, ENGINE DRAIN	TU271765-007	1
101	HOSE, PUMP TO MOTOR	TU271765-011	1
102	HOSE, TO/FROM COOLER, ENGINE	TU271765-014	2
103	HOSE, PUMP SUCTION (COOLER)	TU271765-016	1

[I] This item (key #17) specific to Bill of Material no. PA6100056-002ID only.

[II] This item (key #97) specific to Bill of Material no. PA6100056ID only.

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

7.11 ELECTRICAL SYSTEM



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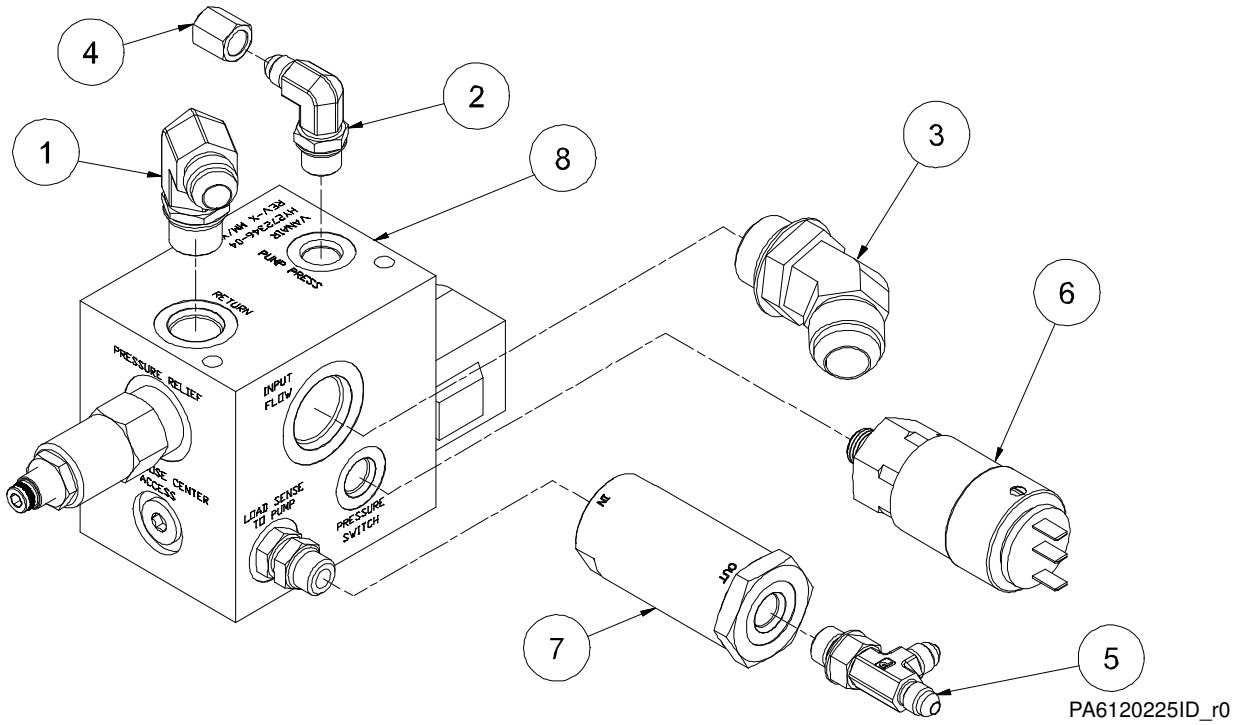
7.12 MANIFOLD ASSEMBLY



PA6120225ID_r0

7.11 ELECTRICAL SYSTEM

ITEM	DESCRIPTION	PART NUMBER	QTY
1	CAPSCREW,HEX GR5 1/4-20X 3/4	829104-075	4
2	WASHER, LOCK 1/4	838504-062	4
3	BRACKET, BATTERY	A1270389	1
4	HARNESS, WIRE WELDER [I]	EP269873	1
5	HARNESS, WIRE GENERATOR [I]	EP269874	1
6	CABLE, BATTERY, POSITIVE [I]	EP274022	1
7	CABLE, BATTERY, NEGATIVE [I]	EP274023	2
8	HARNESS, WIRE MAIN [I]	EP274396	1
9	BOLT, BATTERY TERMINAL	FA274031	2
10	BATTERY, 12V 300D/I300D	MA274011	1
11	STRAP, BATTERY RETAINING	PR274027	1
12	GASKET, ADHESIVE BACK, D SHAPE 7-3/4 LG.	PR81501	3
13	BOOT, BREAKER, PANEL MOUNT	PR81817	2

[I] Items #4 through #8 are not shown.

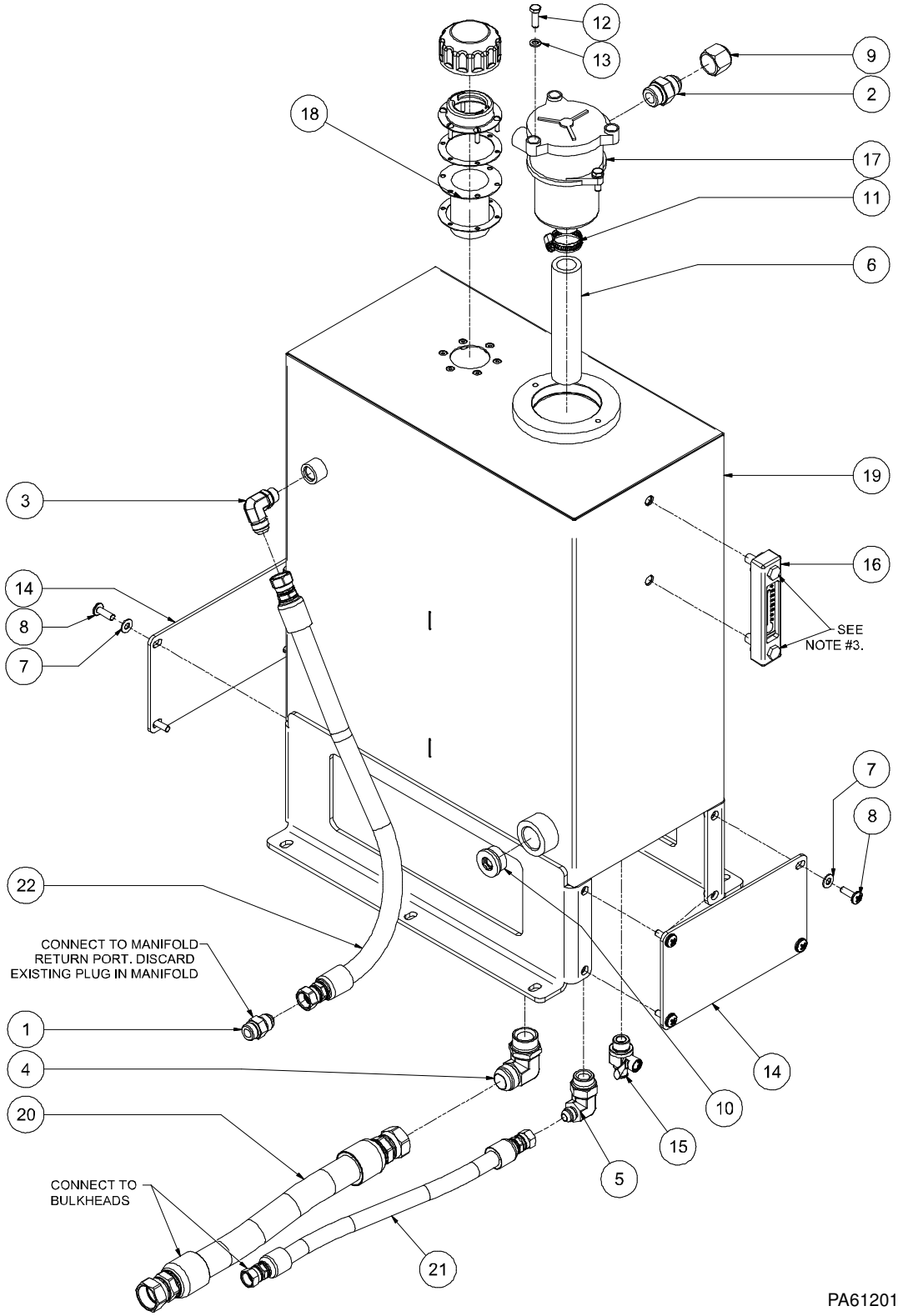
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

7.12 MANIFOLD ASSEMBLY

ITEM	DESCRIPTION	PART NUMBER	QTY
1	ELBOW, 90 DEG #8 MJIC x #8 MSAE	260403-104	1
2	ELBOW, 90 DEG #4 MJIC x #6 MSAE	260403-122	1
3	ELBOW, 45 DEG 3/4 MJIC x 3/4 MSAE	264276-013	1
4	CAP, FEMALE JIC #4	264322-001	1
5	TEE, RUN #6 MSAE x #4 JIC x #4 JIC	269792-002	1
6	SWITCH,ADJ PRESSURE 5000PSI SET AT 1400PSI	EL273977	1
7	FILTER, HYD. 3000 PSI 25 MICRON	HY273367	1
8	ASSY, HYD MANIFOLD W/SOL & OPT FC PORT	HY274394	1

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

7.13 HYDRAULIC TANK ASSEMBLY



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7.13 HYDRAULIC TANK ASSEMBLY

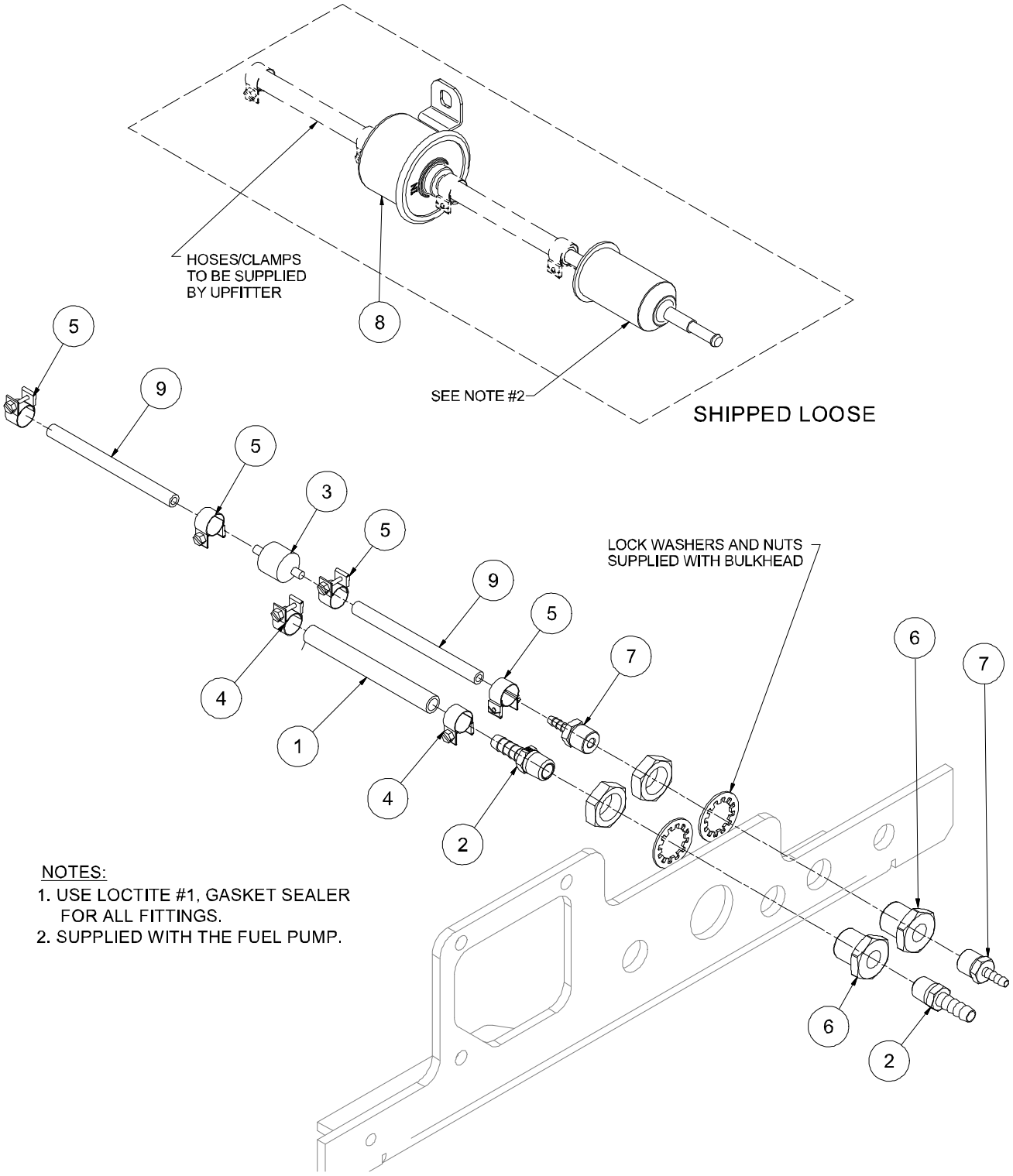
ITEM	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #10 MSAE x #10 MJIC	260387-109	1
2	CONNECTOR, #12 MSAE x #12 MJIC	260387-112	1
3	ELBOW, 90 DEG #10 MJIC x #8 MSAE	260403-105	1
4	ELBOW, 90 DEG #16 MJIC x #16 MSAE	260403-108	1
5	ELBOW, 90 DEG #8 MJIC x #12 MSAE	260403-115	1
6	HOSE, M-PRESS 1 INCH X BULK 6D5 6D4 42A2	261094	7.000 in
7	WASHER, NYLON 5/16-18	262943	8
8	SCREW, TRUSS HD 5/16-18 x 1 SS	263280	8
9	CAP, FEMALE JIC 1 1/16-12 #12	264322-005	1
10	PLUG, SAE O-RING HOLLOW HEX #16	268081-010	1
11	CLAMP, HOSE SUPPORT 1-1/4 .O406 BOLT	269955	1
12	CAPSCREW,HEX GR5 5/16-18 x 1	829105-100	2
13	WASHER, LOCK 5/16	838505-078	2
14	COVER, HYDRAULIC TANK	A1272493	2
15	VALVE, EZ OIL DRAIN 3/4"-16 UNF 5/8"ID	FI273743	1
16	INDICATOR, HYDRO LEVEL AND TEMP	HY272471	1
17	FILTER, HYD. RETURN	HY272485	1
18	FILLER / BREATHER 3um, 6" LONG	HY272492	1
19	TANK, HYDRAULIC 20GAL	HY274734	1
20	HOSE, #16 SUCTION	TU274733-001	1
21	HOSE, #8 CASE DRAIN	TU274733-002	1
22	HOSE, #10 RELIEF RETURN	TU274733-003	1

NOTE #3: Tightening torque: 88 in-lbs.

NOTE#4: Hoses go through opening in bottom of tank.

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

7.14 FUEL ASSEMBLY - WITHOUT FUEL TANK



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7.14 FUEL ASSEMBLY - WITHOUT FUEL TANK

ITEM	DESCRIPTION	PART NUMBER	QTY
1	HOSE,FUEL LINE 5/16"	842315-031	2.5 ft
2	HOSEBARB,1/4MNPT X 5/16 BRASS	870005-025	2
3	VALVE, CHECK INLINE 3/16 TUBING	CO273306	1
4	CLAMP, HOSE, T-BOLT STYLE, 13mm SS	FA38355	2
5	CLAMP, HOSE, T-BOLT STYLE, 10M	FA91153	4
6	PIPE BRASS, BULKHEAD 1/4 NPT	FI45068	2
7	PUSH - ON, MALE ADAPTER, 1/4 MALE X 3/16 PUSH	FI92363	2
8	FUEL PUMP, 12V SOLID STATE, 3-5 PSI	MA57870	1
9	HOSE, 3/16DIA. HT, FUEL	TU28641	3.4 ft

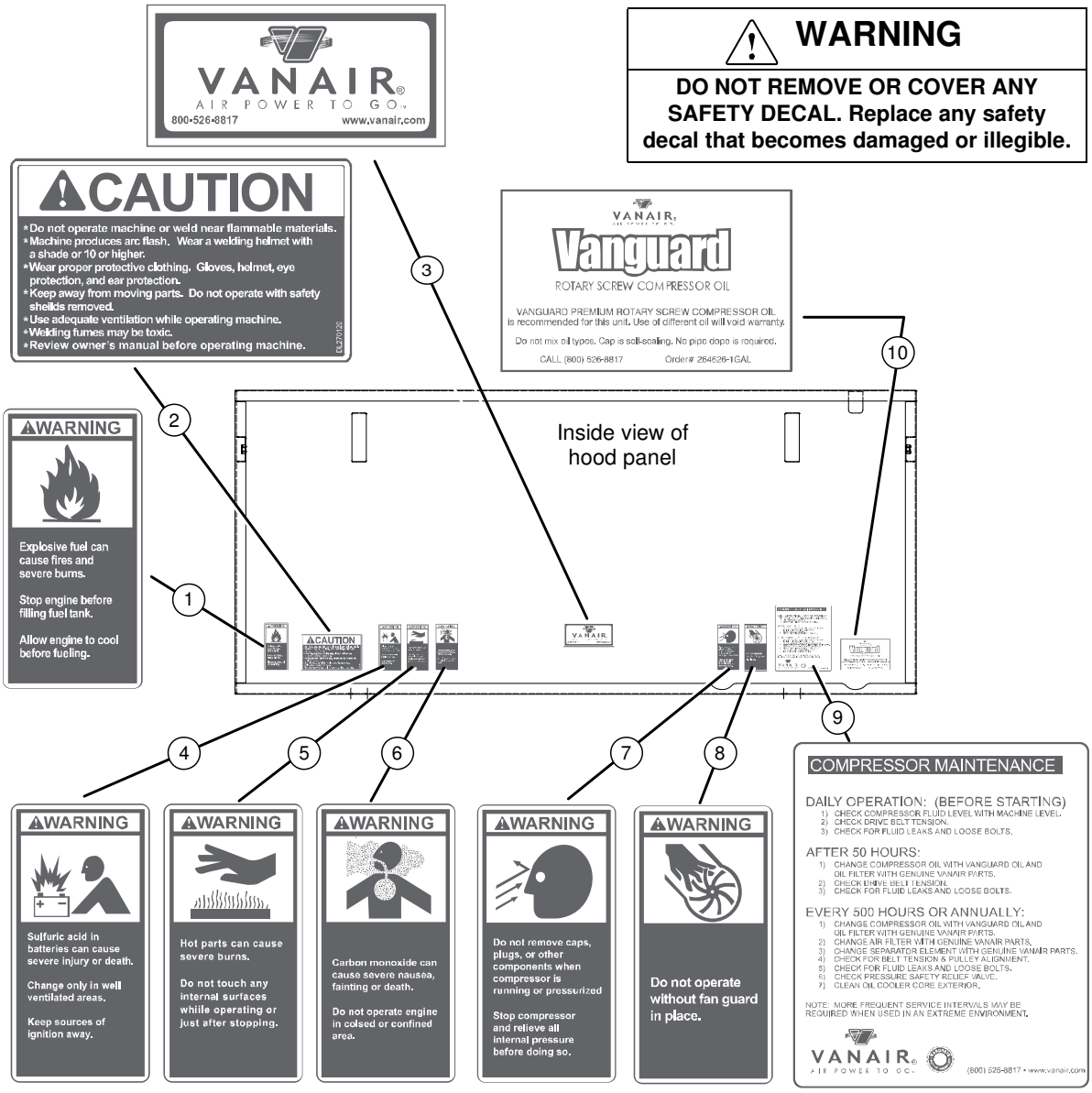
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

7.15 DECAL AND PLATE LOCATIONS (1 OF 4)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1[I]	DECAL, EXPLOSIVE FUEL	264377	1	6[I]	DECAL, CARBON MONOXIDE	264376	1
2	DECAL, CAUTION	DL270120	1	7[I]	DECAL, CAP AND PLUG REMOVAL	264383	1
3[I]	DECAL, VANAIR	265605	1	8[I]	DECAL, FAN GUARD	264378	1
4[I]	DECAL, SULFURIC ACID	264375	1	9[I]	DECAL, COMPRESSOR MAINTENANCE	263388	1
5[I]	DECAL, HOT PARTS	264372	1	10[I]	DECAL, VANGUARD COMPRESSOR OIL	254626-1GAL	1

[I] This decal is included with decal sheet no. 263453.

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

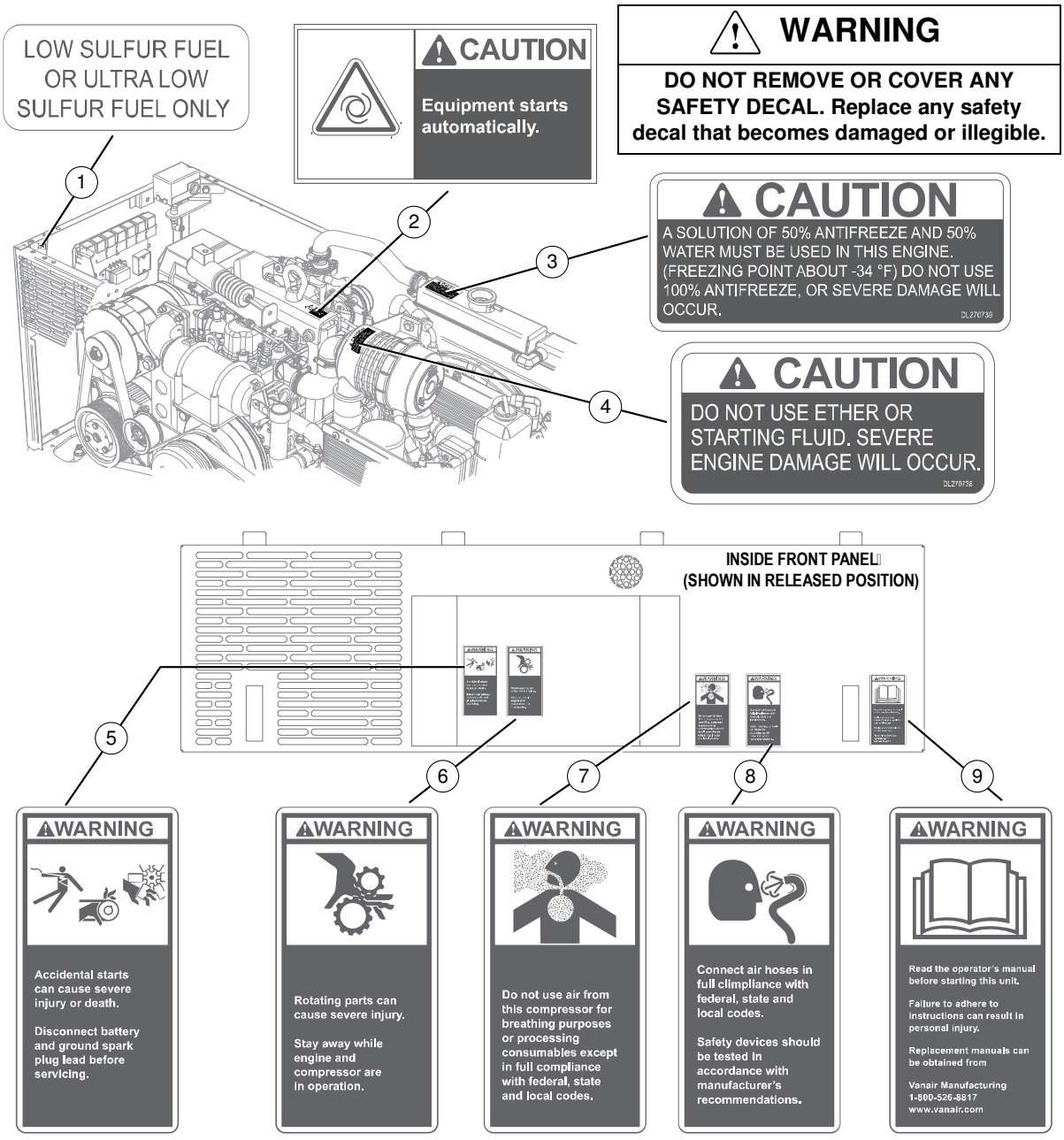


7.15 DECAL AND PLATE LOCATIONS (2 OF 4)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, LOW SULFUR FUEL DIESEL	270802	1	5[I]	DECAL, ACCIDENTAL STARTS	264373	1
2	DECAL, CAUTION AUTO START	272041	1	6[I]	DECAL, ROTATING PARTS	264374	1
3	DECAL, 50/50 MIX RADIATOR	DL270739	1	7[I]	DECAL, BREATHING AIR	361886	1
4	DECAL, NO STARTING FLUID DIESEL	DL270738	1	8[I]	DECAL, AIR HOSE	261885	1
				9[I]	DECAL, READ MAUAL	27424	1

[I] This decal is included with decal sheet no. 263453.

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



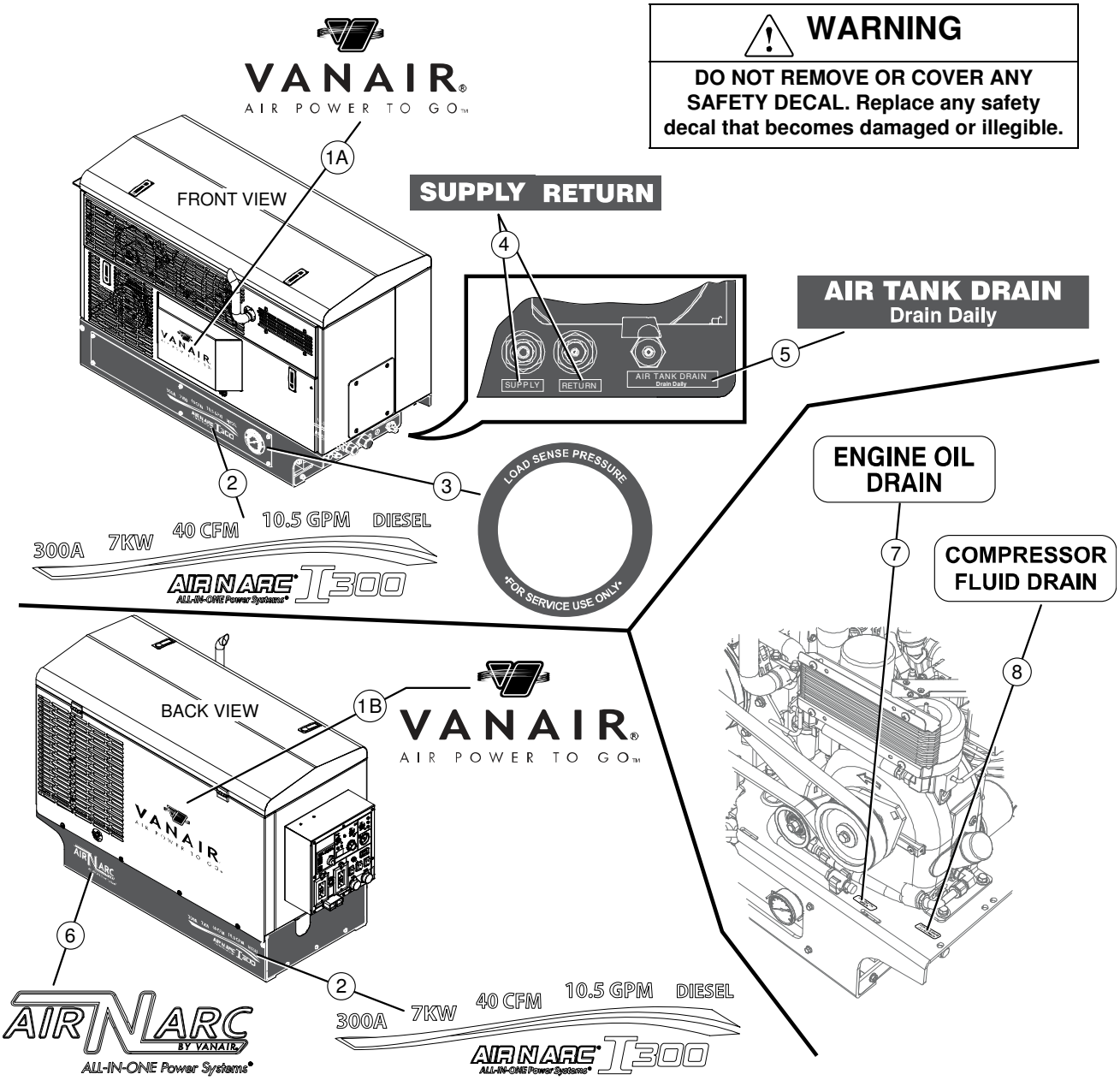
7.15 DECAL AND PLATE LOCATIONS (3 OF 4)

ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
1A	DECAL, VANAIR FRONT PANEL	DL270724	1	5	DECAL, AIR TANK DRAIN	DL269676	1
1B	DECAL, VANAIR REAR PANEL 17”	DL272548	1	6	DECAL, ANA BY VANAIR, WHITE	DL269706	1
2	DECAL, ANA I300 PERFORMANCE	DL272419	2	7	DECAL, ENGINE OIL DRAIN	II	1
3	DECAL, LOAD PRESSURE SENSE	DL273347	1	8	DECAL, COMPRESSOR FLUID DRAIN	II	1
4	DECAL, SUPPLY / RETURN	DL272078	1				

I Both the “supply” and “return” decals are grouped under one part number.

II This decal is included with decal sheet no. 263453.

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



7.15 DECAL AND PLATE LOCATIONS (4 OF 4)

ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, VANAIR LOGO	DL270724	1
2	DECAL, ANA I300D PERFORMANCE, BLACK	DL272420	1
3	DECAL, WELD DANGER [I]	DL273637	2

[I] The weld danger decal group consists of a smaller decal (placed on instrument panel [regardless of mounted or remote-mounted]), and a larger (though identical) decal, which is shipped loose. Vanair recommends locating the placement of the larger weld decal in a place that adequately covers the following criteria:

- Mounting position is located within one foot from the contact point of operation of the decal's instruction.
- Mounting position is clearly visible and unhindered.
- Mounting surface is flat and able to accommodate full decal contact; mounting surface affords full adhesion (aka, no non-stick or porous surface contact).

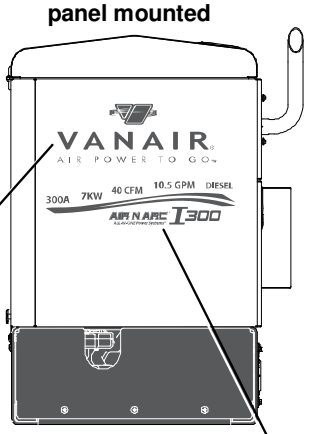
NOTE: For machine serial plate and number location, see ***Figure 7-1.***

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

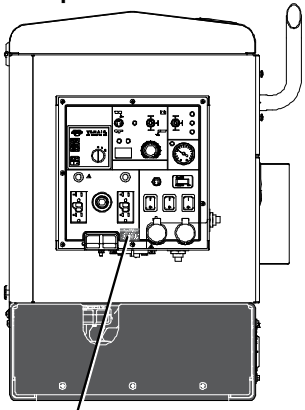
WARNING

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

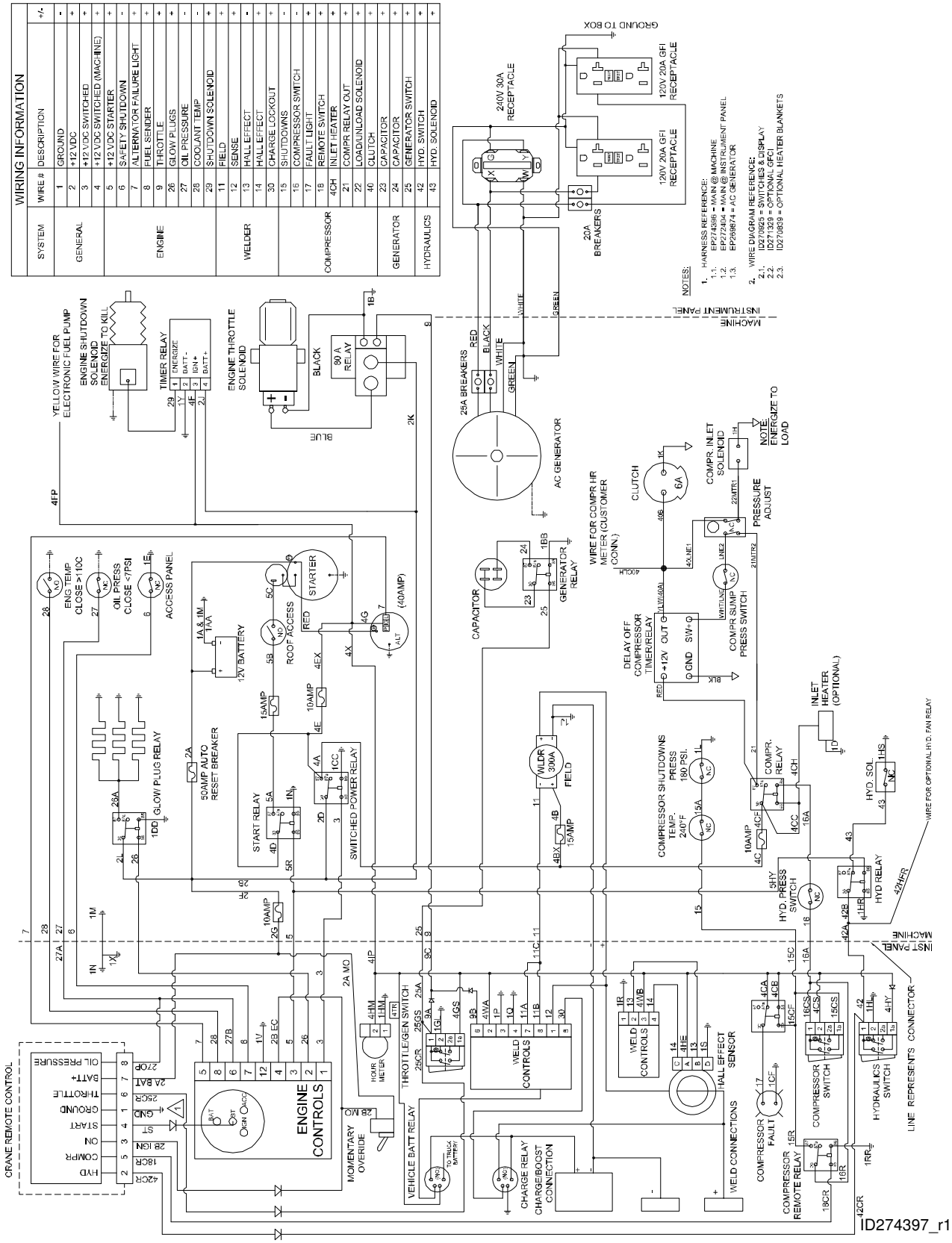
SIDE VIEW: without instrument panel mounted



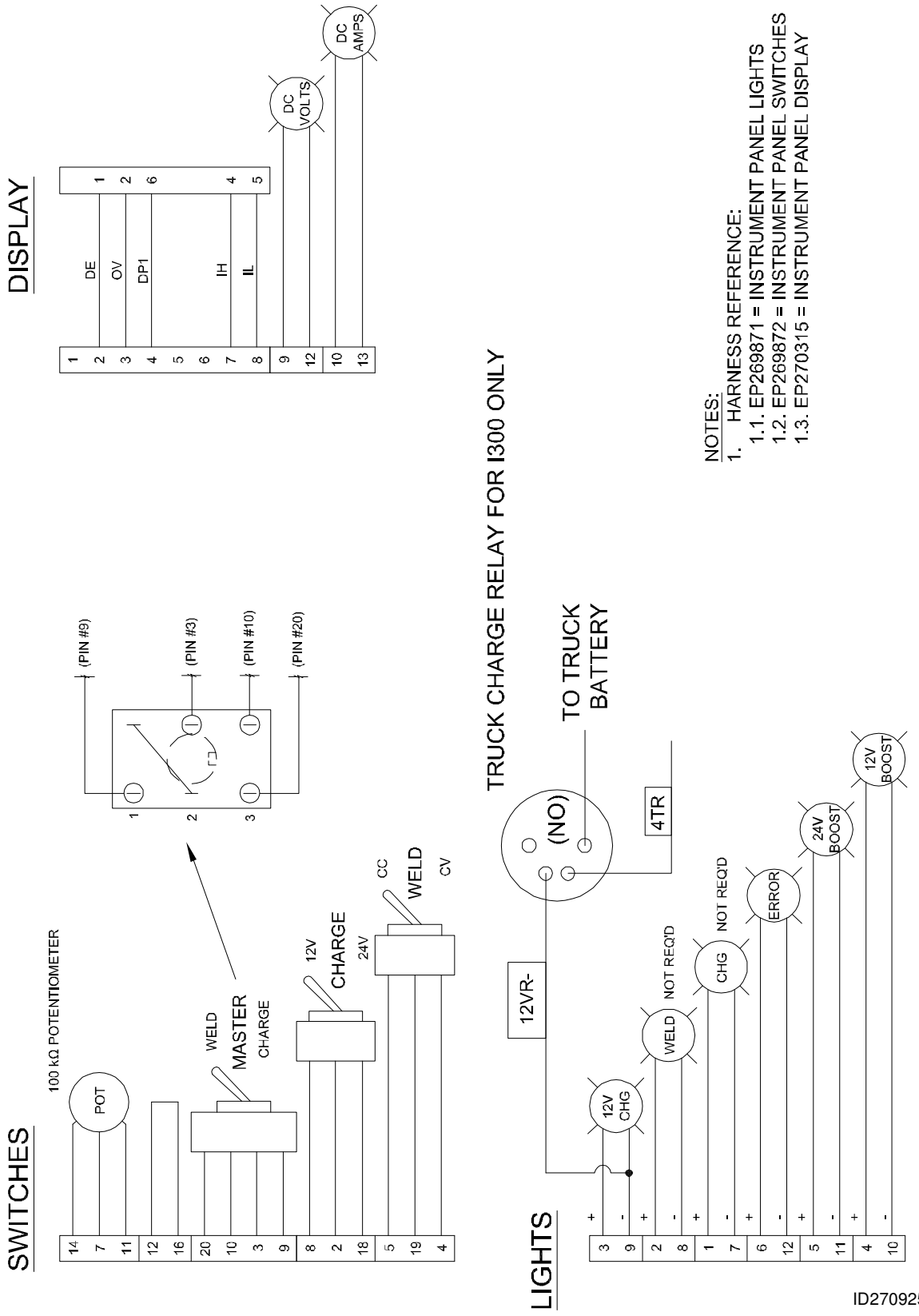
SIDE VIEW: with instrument panel mounted



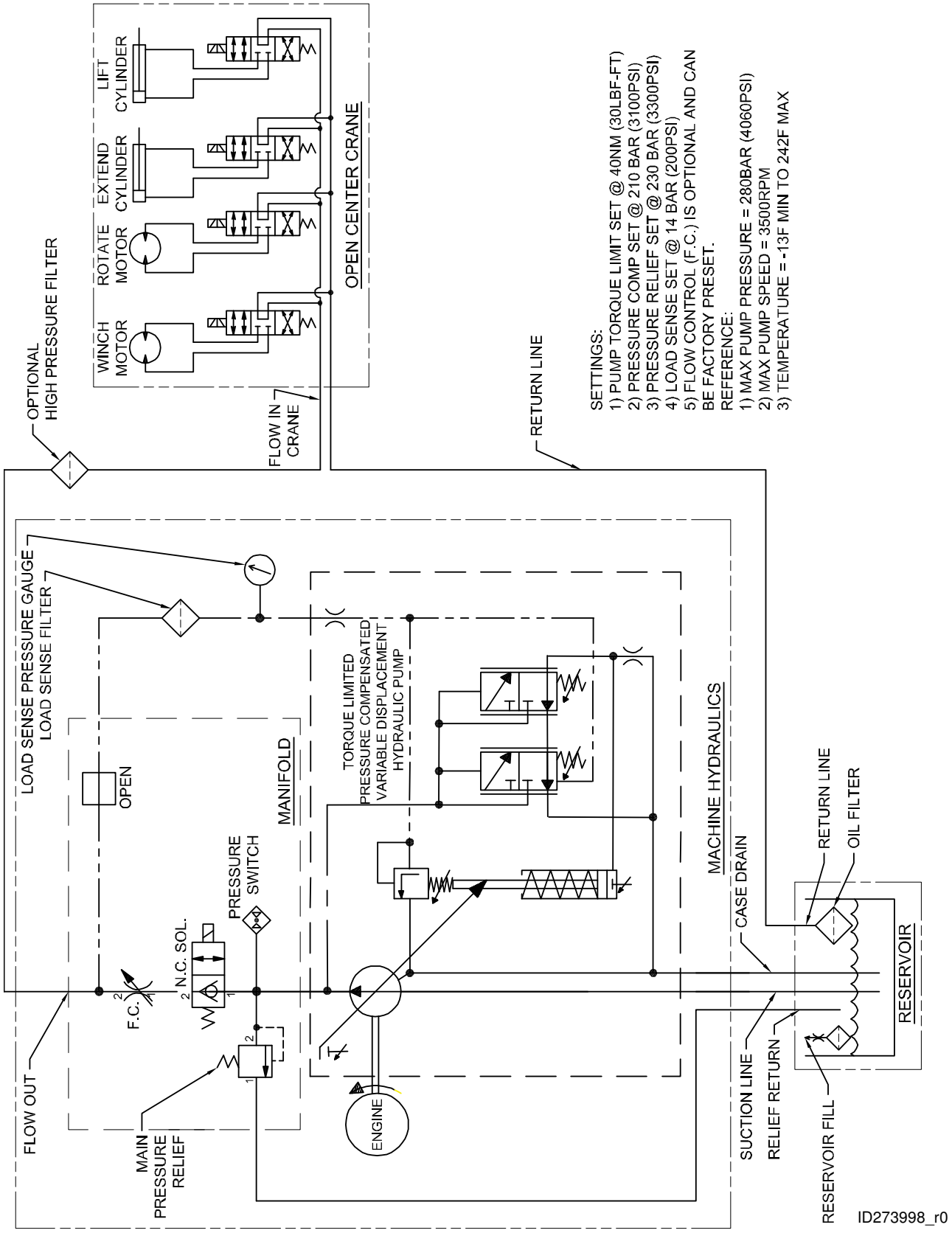
7.16 WIRING DIAGRAM - AIR N ARC I-300 SERIES



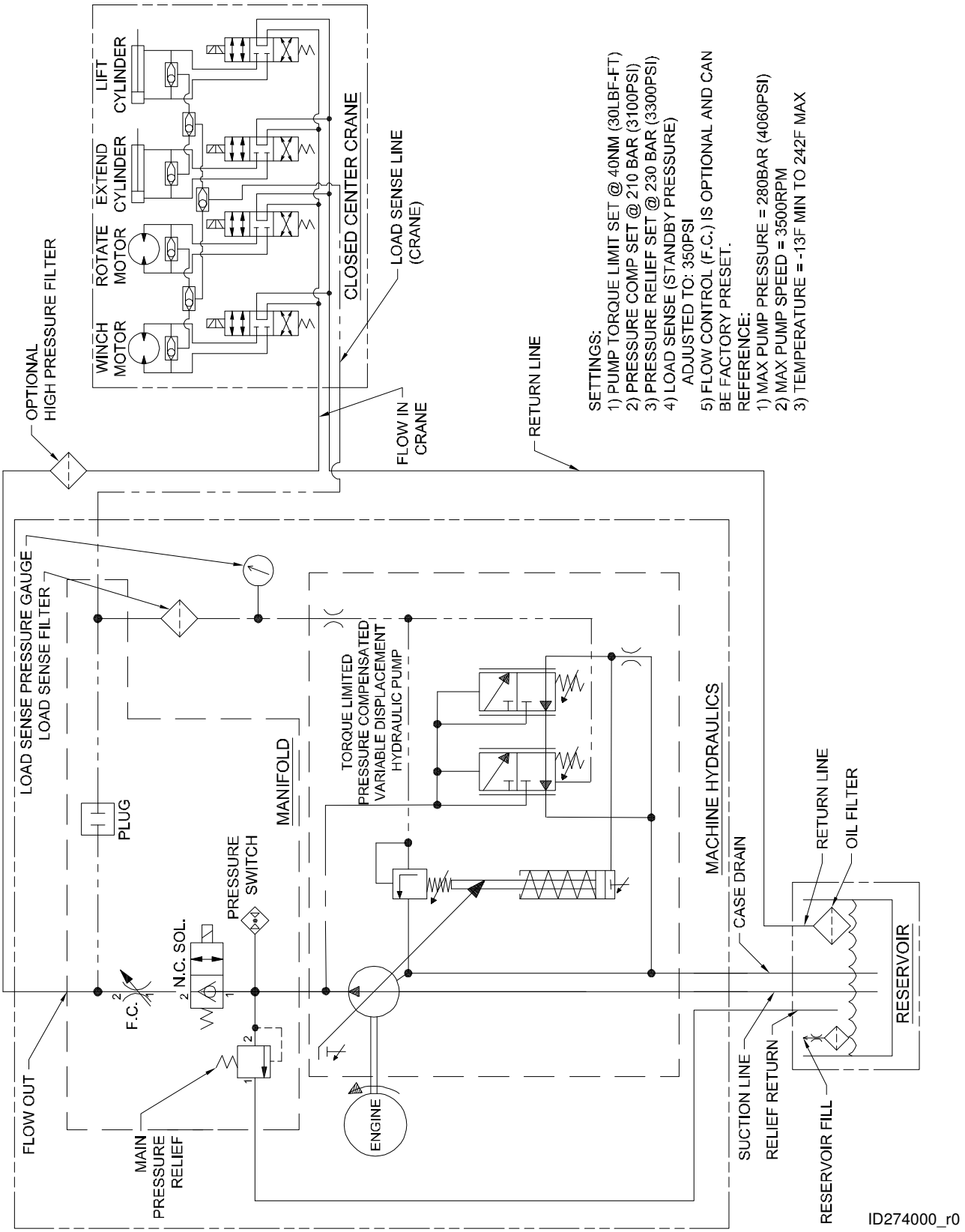
7.17 WIRING DIAGRAM - SWITCHES AND LIGHTS



7.18 SCHEMATIC DIAGRAM - HYDRO CRANE, O.C., NO TOOL

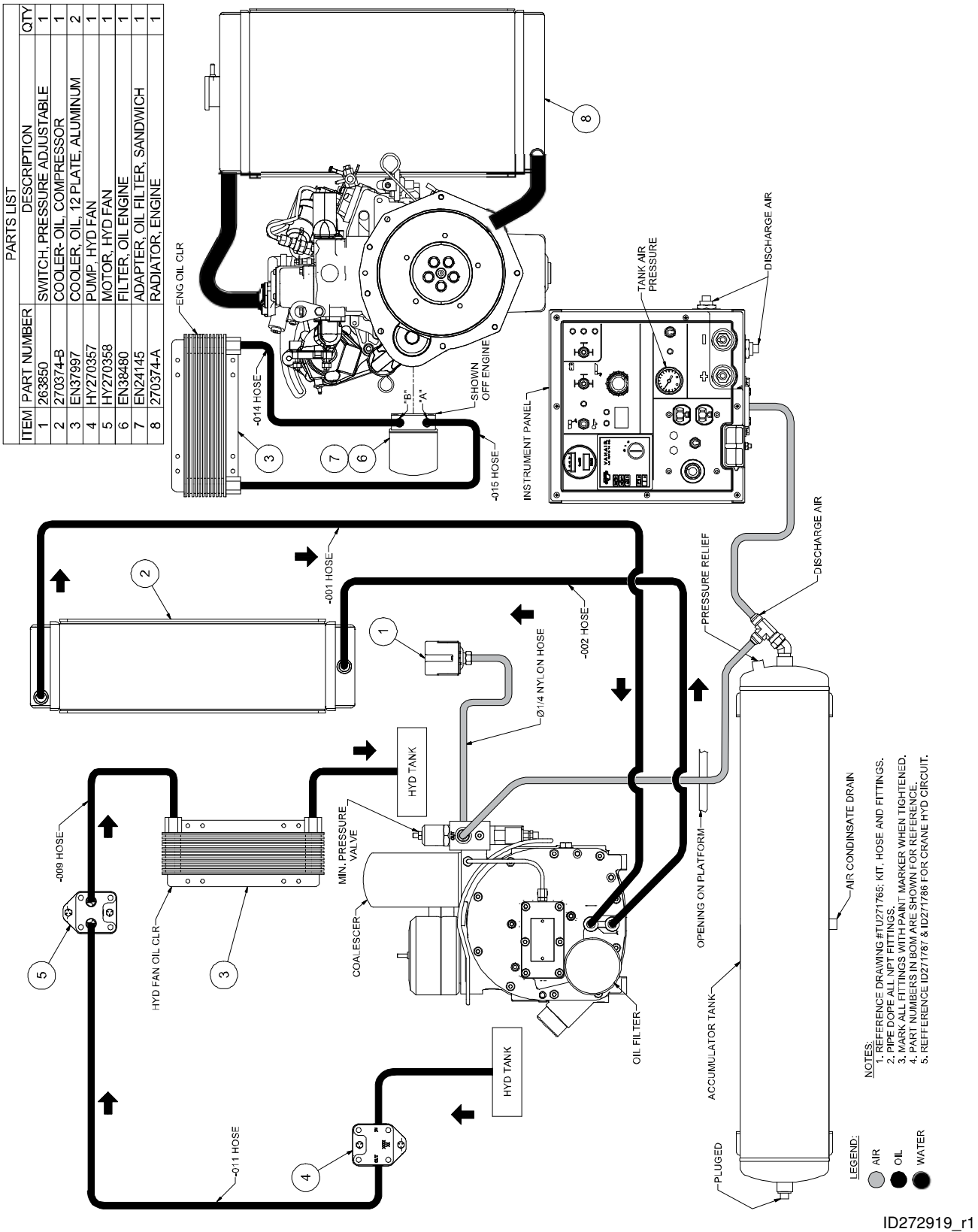


7.19 SCHEMATIC DIAGRAM - HYDRO C.C. CRANE, NO TOOL



7.20 SCHEMATIC DIAGRAM - COMPRESSOR FLOW

PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	263850	SWITCH, PRESSURE ADJUSTABLE	1
2	270374-B	COOLER- OIL, COMPRESSOR	1
3	EN37997	COOLER, OIL, 12 PLATE, ALUMINUM	2
4	HY270357	PUMP, HYD FAN	1
5	HY270358	MOTOR, HYD FAN	1
6	EN38480	FILTER, OIL ENGINE	1
7	EN24145	ADAPTER, OIL FILTER, SANDWICH	1
8	270374-A	RADIATOR, ENGINE	1



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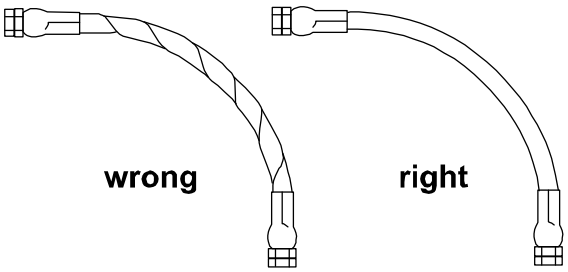
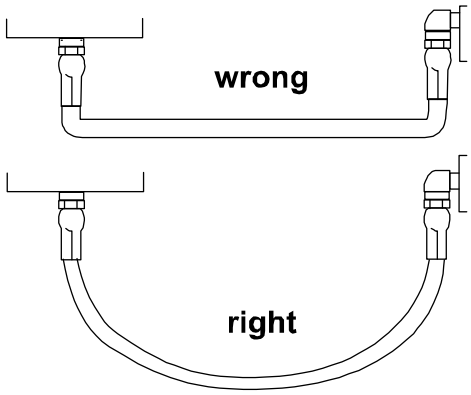
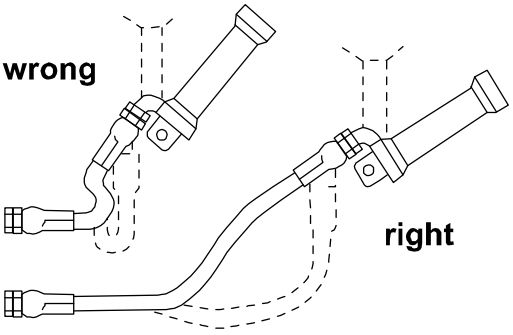
7.21 HOSE INSTALLATION GUIDE



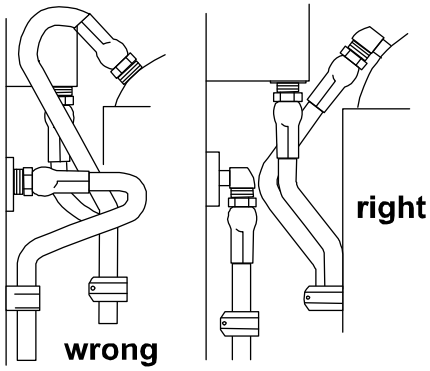
1. Hose is weakened when installed in twisted position. Pressure in twisted hose tends to loosen fitting connections. Design so that machine motion produces bending rather than twisting.



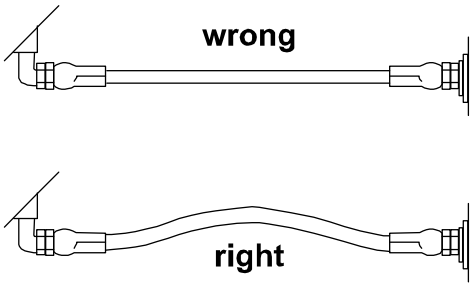
2. Ample bend radius should be provided to avoid collapsing of line and restriction of flow.



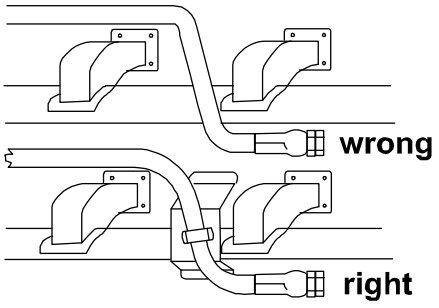
3. Exceeding minimum bend radius will greatly reduce hose assembly life.



4. Use elbows or other adapters as necessary to eliminate excess hose length and to insure neater installation for easier maintenance.



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.



6. When properly routing, use clamps to secure the hose in its proper position.

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