



VANAIR®
AIR POWER TO GO™

PRO 35➤

RECIPROCATING COMPRESSOR OPERATION MANUAL AND PARTS LIST

NOTE

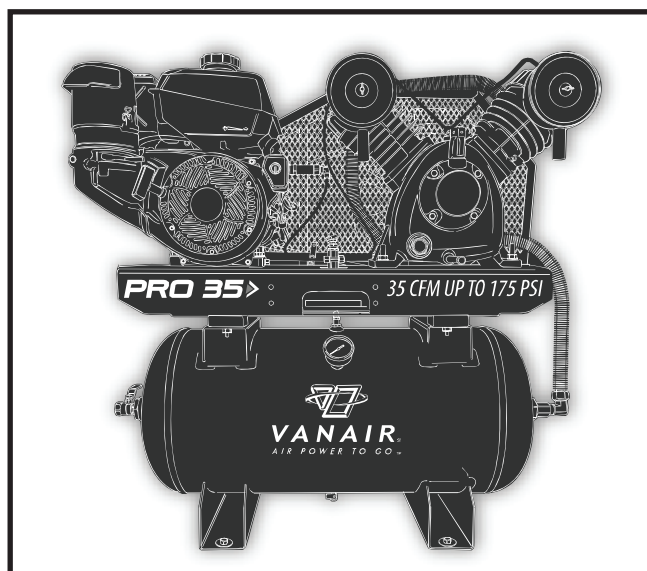
This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy. Vanair Manufacturing, Inc. reserves the right to make design change modifications or improvements without prior notification.

NOTE

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

**KEEP THE MANUAL
WITH THE VEHICLE**

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Read this manual before installing, operating or servicing this

equipment. Failure to comply with the operation and maintenance instructions in this manual will VOID THE EQUIPMENT WARRANTY.

NOTE

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

Always inform Vanair Manufacturing, Inc., before beginning any changes to the Pro Series system.



VANAIR®
AIR POWER TO GO™

P/N: 090161-OP_r1

Effective Date:
FEBRUARY - 2021

AIR N ARC®

ALL-IN-ONE POWER-SYSTEMS®

RELIANT™ SERIES

POWERFLEX™ SERIES

PRO SERIES SERIES

VIPER™ SERIES

**ALL WARRANTY OR
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ANY WARRANTY WORK.**

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EFFECTIVE: JUNE 15, 2020



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

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

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

Vanair must be notified in writing within thirty (30) days of any such defect or failure. **All warranty or returns must be pre-authorized in writing prior to performing warranty work.** Call Vanair for process and forms. Vanair will provide instructions on the warranty claim procedures to be followed.

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

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

This Limited Warranty shall not apply to:

1. Consumable components, such as shaft seals, valves, belts, filters, capacitors, contactors, relays, brushes or parts that fail due to normal wear and use.
2. Items furnished by Vanair, but manufactured by others, such as engines and trade accessories (these items are covered by the manufacturer's warranty, if any).

3. Equipment that has been modified by any party other than Vanair or equipment which has not been used and maintained in accordance with Vanair's specifications.
4. Equipment which has been improperly installed and/or improperly operated, based upon Vanair's specifications for the equipment or industry standards.
5. Equipment installed by non-authorized or third party personnel. Vanair products are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of industrial equipment.

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

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

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

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

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



VANAIR®
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 near to the compressor 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 Operation 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 (1-844-VANSERV or 1-219-879-5100) to speak with a Service Technician.

4. Vanair Service will troubleshoot the prob-

lem 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 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.

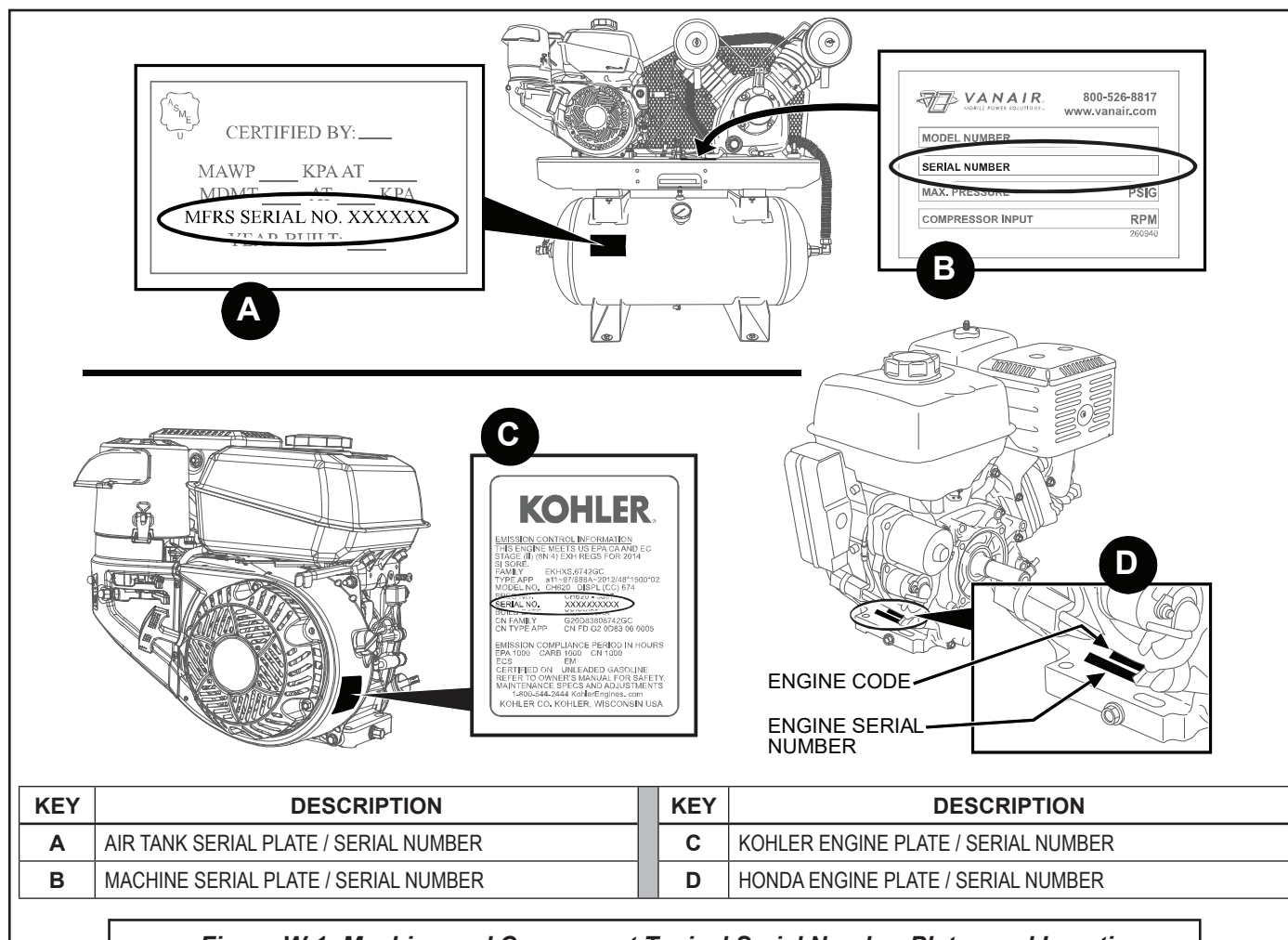


Figure W-1: Machine and Component Typical Serial Number Plates and Locations

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).

IMPORTANT

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

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

Vanair Service FAX: 1-219-879-5335

E-mail: service@vanair.com

SECTION 1: ! SAFETY

1.1 ! GENERAL INFORMATION

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

1.2 ! INTERNATIONAL WARNING SYMBOL



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

1.3 ! DANGERS, WARNINGS, CAUTIONS AND NOTES

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

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

1.3.1 ! DANGERS

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

- Keep tools or other conductive objects away from live electrical parts.
- Never touch electrical wires or components while the machine is operating. They can be sources of electrical shock.

1.3.2 ! WARNINGS

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

- **DO NOT EVER** use this compressor as a breathing air source. Vanair disclaims any and all liabilities for damage or loss due to fatalities, personal injuries resulting from the use of a Vanair compressor to supply breathing air.
- **DO NOT** perform any modifications to this equipment without prior factory approval.
- **DO NOT** operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.
- **DO NOT** operate the compressor with any bypass or other safety systems disconnected or rendered inoperative.
- **DO NOT** operate the equipment while you are under the influence of alcohol or drugs.
- **DO NOT** operate the equipment while you are feeling ill.
- **DO NOT** attempt to service the equipment while it is operating.
- Before performing maintenance, or replacing parts, relieve the entire system pressure, after the system has blown down, by opening a service valve which will vent all pressure to the atmosphere. After that, remove any remaining residual pressure by slowly opening the fill cap. Remove all electrical power.

**NOTE**

Slowly remove fill cap to vent compressor sump pressure.

- **DO NOT** use the compressor for purposes other than for which it is intended. High pressure air can cause serious and even fatal injuries.
- **DO NOT** operate the compressor outside of its specified pressure and speed ratings. (See Section 2: Specifications or refer to the equipment data plate.).
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or its parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, corrosive fumes, or other damaging substance can be ingested by the compressor intakes.
- Keep arms, hands, hair and all other body parts, and clothing away from fans, drive shafts, and other moving parts.
- **DO NOT** wear jewelry, unbuttoned cuffs, ties, or loose-fitting clothing when you are working near moving/rotating parts.
- **ALWAYS** confine long hair when working near moving/rotating parts.
- **NEVER** operate the equipment while wearing a headset to listen to music or the radio.
- Wear personal protective equipment such as gloves, work shoes, and eye and hearing protection as required for the task at hand.
- **DO NOT** operate the compressor with any guards removed or damaged, or other safety devices inoperative.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed off.
- Ensure that hoses connected to service valves are fitted with correctly sized and rated flow limiting devices which comply with applicable codes. Pressurized broken or disconnected hoses can whip, causing injuries or damage.
- **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.

- Keep metal tools, and other conductive objects away from live electrical components.
- Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.
- **DO NOT** assume that because the compressor is in a STOPPED condition that hydraulic power has been removed.
- Use this compressor only to compress atmospheric air. Use of this equipment as a booster pump and/or to compress any other gaseous or aerosol substance constitutes improper use. It can also cause damage or injuries. Such misuse will also void the warranty.
- Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.
- When lifting objects, be aware of proper lifting techniques to avoid injury.
- **ALWAYS** read and follow safety related precautions found on containers of hazardous substances.

1.3.3 ▲ CAUTIONS**▲ CAUTION**

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

- Check all safety devices for proper operation on a routine basis.
- Ensure that no tools, rags, or other objects are left on compressor drive systems or near intakes.
- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed for maintenance actions are replaced before applying power to

the compressor.

- Avoid touching hot surfaces and components.
- Ensure that electrical wiring, terminals; hoses and fittings are kept in serviceable condition through routine inspections and maintenance. Replace any damaged or worn components.

1.3.4 ▲ NOTES

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

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

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

1.4 ▲ SAFETY DECALS

Safety decals are placed onto, or located near, system components that can present a hazard to operators or service personnel. All pertinent decals listed in **Section 7.2, Decal Identification and Locations**, are located near a component which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

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

1.5 ♻️ DISPOSING OF MACHINE FLUIDS

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

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



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SECTION 2: SPECIFICATIONS

2.1 GENERAL INTRODUCTION

The tables and figures in this section list the specifications (including operational, output and dimensional) of the overall machine. Contact the

Vanair® Service Department if additional specifications are needed that cannot be found in this manual.

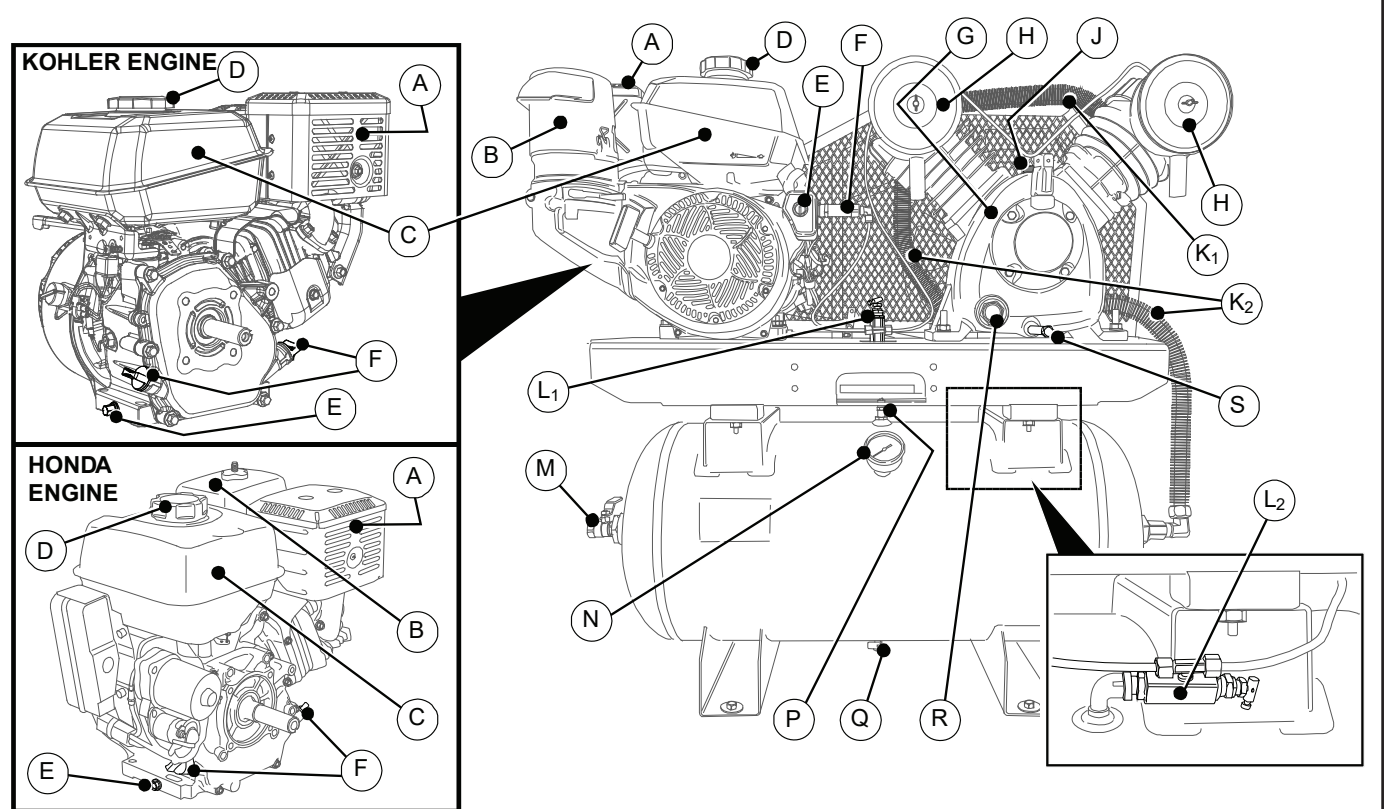
Refer to **Figure 2-1** for general machine component locations.

TABLE 2A: PRO SERIES SPECIFICATIONS

SYSTEM INFORMATION	SPECIFICATION	
	ENGINE - KOHLER CH440	ENGINE - HONDA GX390
Engine:	14HP, Gasoline ⁱ	11.7 HP, Gasoline ^{ix}
Engine Oil Capacity:	1.37 Quarts 10W30	1.16 Quarts 10W30
Fuel Consumption:	1.2 GPH @ 3600 RPM Full Engine Load	1.5 GPH @ 3600 RPM Full Engine Load
Fuel Tank Capacity:	1.9 Gallons (7.6 Quarts)	1.6 Gallons (6.4 Quarts)
Fuel Type:	87 Octane or Higher Unleaded Gasoline ^{ix}	87 Octane or Higher Unleaded Gasoline ^{ix}
Operating Temperature Limits:	-20°F to 110°F	-55°F TO 110°F
COMPRESSOR		
Compressor Type:	Reciprocating, single-stage	
Air Compressor Capacity:	35 CFM @ 100 PSIG	
Pilot Valve:	Factory Setting 150-175 PSI	
Compressor Air Filter (x 3 Assemblies):	Pleated Paper, Dry-Type	
Oil Type/Capacity:	Vanguard™ Reciprocating Oil: Service: 1 Quart ^{iv}	
Air Tank Capacity:	30 Gallon Tank	
Tank Pressure Rating:	200 PSI	
Safety Relief Valve Setting:	200 PSI	
Electrical System:	12 VDC	
Cooling System:	Air-cooled	
Instrument Gauges:	Pressure Gauge	
Adjustable Air Pressure Control Settings:	Cut-in Pressure: 150 PSI / Cut-out Pressure: 175 PSI (Factory Preset); 175 PSI (Maximum Cut-out)	
Air Service Outlet:	3/4" NPT Ball Valve (tank-mount version)	
ⁱ For in-depth specifications and requirements regarding the Kohler® CH440 engine, refer to the Engine Operation Manual.		
^{ix} For in-depth specifications and requirements regarding the Honda GX390 engine, refer to the Engine Operation Manual.		
^{ixx} Ethanol blended fuels, such as E85, are prohibited for use with this engine. DO NOT use ethanol-based fuels.		
^{iv} Always use the sight glass level to verify oil fill; for system oil change, run compressor momentarily to distribute oil, then check level again. Do not overfill compressor.		

TABLE 2B: PRO SERIES WEIGHTS AND DIMENSIONS

PART NO.	DESCRIPTION / BUILD MODEL TYPE	UNIT WEIGHT (lbs.)	SHIPPING WEIGHT (lbs.)	MOUNTING PATTERN	OVERALL DIMENSIONS (in.)
051935	PRO35HMC HONDA 11HP 30 GAL TANK	460	480	20" x 14" WITH 1 11/16" x 1/2" SLOTS	45L x 19W x 43H
051936	PRO35KMC KOHLER 14HP 30 GAL TANK	460	480	20" x 14" WITH 1 11/16" x 1/2" SLOTS	45L x 19W x 43H
051956	PRO35HMC HONDA 11HP SKID PLATFORM	345	375	20" x 9" WITH 1 11/16" x 1/2" SLOTS	45L x 19W x 23H
051957	PRO35KMC KOHLER 14HP SKID PLATFORM	345	375	20" x 9" WITH 1 11/16" x 1/2" SLOTS	45L x 19W x 23H



KEY	DESCRIPTION	KEY	DESCRIPTION
A	ENGINE MUFFLER SHIELD	K ₂	OUTLET PIPE TUBE
B	ENGINE AIR CLEANER	L ₁	PILOT VALVE (POSSIBLE LOCATION 1)
C	ENGINE FUEL TANK	L ₂	PILOT VALVE (POSSIBLE LOCATION 2)
D	FUEL FILL PORT/CAP	M	AIR SERVICE VALVE
E	ENGINE OIL DRAIN PLUG	N	PRESSURE GAUGE
F	DIPSTICK	P	RELIEF VALVE (200 PSI)
G	COMPRESSOR UNIT	Q	AIR TANK MOISTURE DRAIN VALVE
H	COMPRESSOR AIR CLEANER (x2)	R	COMPRESSOR OIL SIGHT GLASS
J	COMPRESSOR OIL FILL PORT/CAP	S	COMPRESSOR OIL DRAIN PORT/CAP
K ₁	COMPRESSOR HEAD EXCHANGE TUBE		

NOTE: Belt drive system not shown due to canopy guard. For drive system information, refer to **Section 5.5**, and **Figure 5-2**.

Figure 2-1: Machine Main Component Locations

SECTION 3: INSTALLATION

3.1 MOUNTING THE MACHINE

Refer to **Figure 3-1**. Once all of the factors listed in **Section 3.3** 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**.

3.2 GENERAL INSTRUCTIONS

Proper care, maintenance and lubrication ensures longevity. The compressor should always be level for proper lubrication. Do not over tighten foot bolts, as excessive vibration may occur. Use only in a clean, dry, and well-ventilated area.

The compressor has heat dissipation fins for proper cooling. Keep the fins and other parts that collect dust clean. Do not place rags or other materials on top of the compressor, as this obstructs cooling and can be a fire hazard.

CAUTION

Engine idle speed may need to be adjusted, even on a brand new unit, to compensate for differences in altitude. Please consult the engine 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 GENERAL OVERVIEW OF INSTALLATION

DISCLAIMER

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

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 (if applicable).

Refer to **Figure 3-3A** or **Figure 3-3B** (at the end of this chapter) for the proper installation measurement specifications.

3.4 BREAK-IN PROCEDURE

There is no break-in requirements for this model.

3.5 BEFORE OPERATING THE COMPRESSOR

CAUTION

Always check the oil level and quality before start-up. Do not add or change oil while the unit is running. Use only Vanair® reciprocating oil.

1. Ensure all nuts and bolts are tightened.
2. Ensure that the quantity of oil is correct.
3. If the intake filters are dirty, clean or replace.

NOTE

Always use Vanair® reciprocating oil (P/N 271856-1QT [two quarts needed]).

4. Check entire unit for damage.
5. Check compressor and engine oil level; fill or add if necessary.
6. Ensure gas tank is filled.

IMPORTANT

Ethanol blended fuels, such as E85, are prohibited for use with the engine. DO NOT use ethanol-based fuels. Consult Section 2 of this manual, and the Engine Operation Manual for acceptable fuel specifications.

7. Read entire engine manual.

3.6 BATTERY CONNECTION INSTRUCTIONS FOR ELECTRIC START ENGINES

⚠ WARNING

A battery can explode and cause serious injury if the correct procedure is not followed!

NOTE

Make sure to follow instructions carefully to avoid a short and possible damage to the starter solenoid and/or battery.

Refer to **Figure 3-1** and the following procedure.

1. The positive (+ / red) battery cable is connected to the starter solenoid's terminal [C].
2. The negative (- / black) battery cable [E] is connected from the negative (-) terminal of the battery to an engine ground connection (mounting bolt, frame bolt, etc.).
3. Connect the other end of the positive (+ / red) battery cable to the battery positive (+) terminal.
4. Connect the other end of the negative (- / black) battery cable to the battery negative (-) terminal.

NOTE

Once connections are completed, coat the thermal connections, including the cable ends, with dielectric grease for insulation and weather protection.

KEY	DESCRIPTION
A	ENGINE
B	STARTER SOLENOID
C	SOLENOID CONNECTION ¹

KEY	DESCRIPTION
D	POSITIVE (+ / RED) BATTERY CABLE
E	NEGATIVE (- / BLACK) BATTERY CABLE
F	12 VOLT BATTERY

¹ Connect starter to positive battery post.

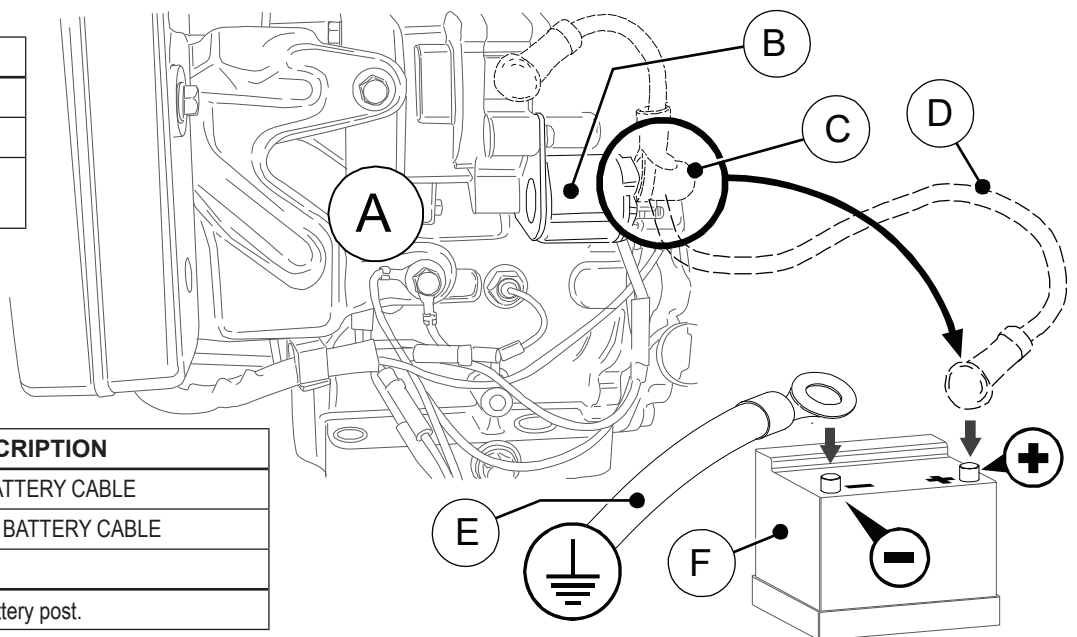
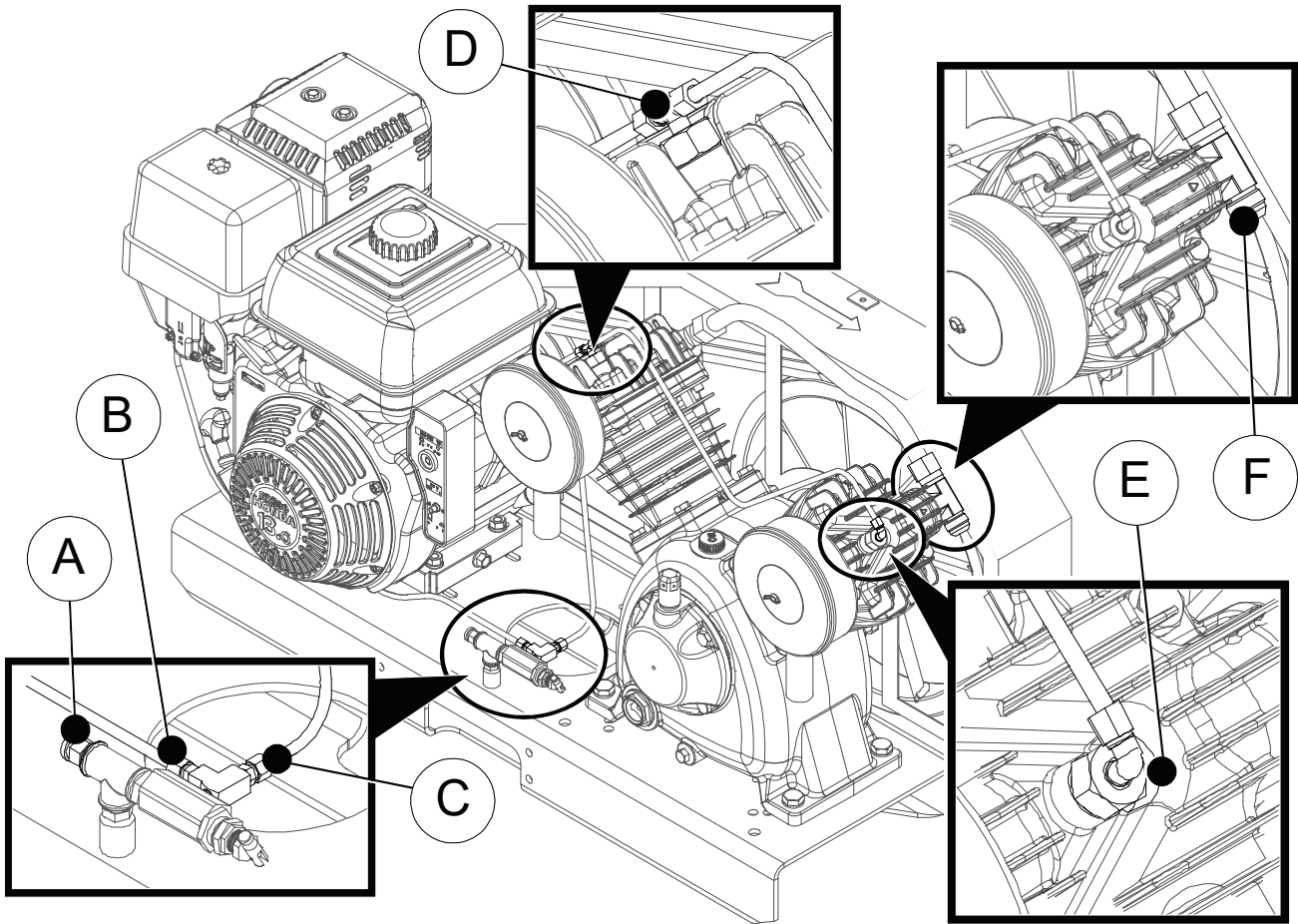


Figure 3-1: Battery Connection for Electric Start Engines



KEY	DESCRIPTION	KEY	DESCRIPTION
A	FROM AIR RESERVOIR TANK (ART) [±]	D	HEAD UNLOADER
B	TO ENGINE THROTTLE CONTROL	E	HEAD UNLOADER
C	TO HEAD UNLOADER "D"	F	CUSTOMER CONNECTION FOR SERVICE AIR ^{±±}

[±] Pilot pressure to be plumbed directly from air tank reservoir (ART) on the downstream side of any check valve that is between the compressor and air reservoir tank. Pilot pressure to come directly from air reservoir tank. Pilot pressure must be plumbed in after any check valve that is between the compressor and air tank reservoir.

^{±±} Customer connection: 3/4" 37° male JIC fitting.

Figure 3-2: Additional Pro Series Plumbing

3.7 CONNECTING THE AIR
 SUPPLY (skid units only)

Refer to **Figure 3-2** for service air discharge port location. Connect the service valve. Connect the air discharge line to the 3/4" JIC male connector.

IMPORTANT

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

3.7.1 AIR RESERVOIR TANK
 INSTALLATION (skid units only)

The Vanair Pro Series air compression system will require the additional installation of an air tank/receiver, to be incorporated downstream of the unit's service air output. This tank will serve as a reservoir for accumulated air pressure, allowing for constant pressure availability for direct service needs. Vanair recommends the following



criteria when determining the design of the receiver tank installation:

TANK SPECIFICATIONS

- 30 gallon minimum capacity (recommended).
- ASME-rated and compliant to applicable standards (200 PSIG minimum).
- Supplied with an adequately-rated relief valve.
- Supplied with moisture drain.

CONNECTION HOISING AND SERVICE VALVE SPECIFICATIONS

- Hose must be flexible; steel-braided reinforcement.
- Rated for high temperature (450°F minimum).
- Pressure-rated for 200 PSIG (minimum).

MOUNTING SPECIFICATIONS

- If air tank is to be permanently mounted, Vanair® recommends a mounting with no less than four (4) mounting/securing points.
- Tank mounted level.
- Service air out port of tank readily accessible, or piped/hosed for such availability.
- Drain is readily available, or piped/hosed for such availability.
- Tank drain function must have auto-drain, petcock, or valve that allows for tank to be purged of moisture while tank is pressurized/system is running.

The above listed features should serve as a minimum checklist of what to include when installing the reservoir portion of the compression system. However, if additional assistance is needed for designing the air tank-side of the service out operation, consult the Vanair Service Department.

3.8 STARTING THE ENGINE

⚠ CAUTION

Extra care should be taken to avoid personal injuries with automatically controlled compressors.

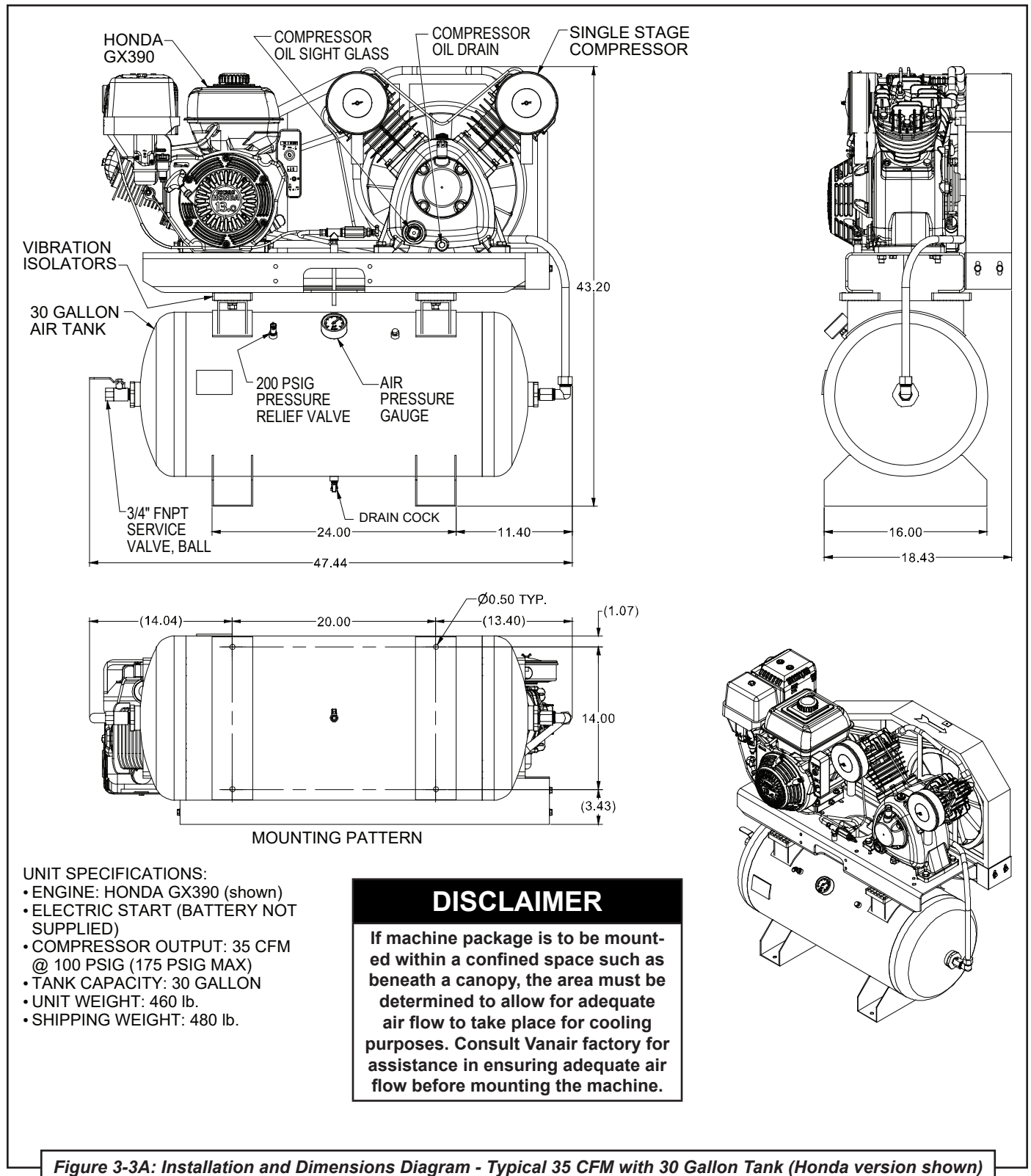
Move lever to the ON position. If engine is cold, move choke lever to the CLOSED position. If engine is warm, leave choke lever in OPEN position.

Turn engine switch to ON position.

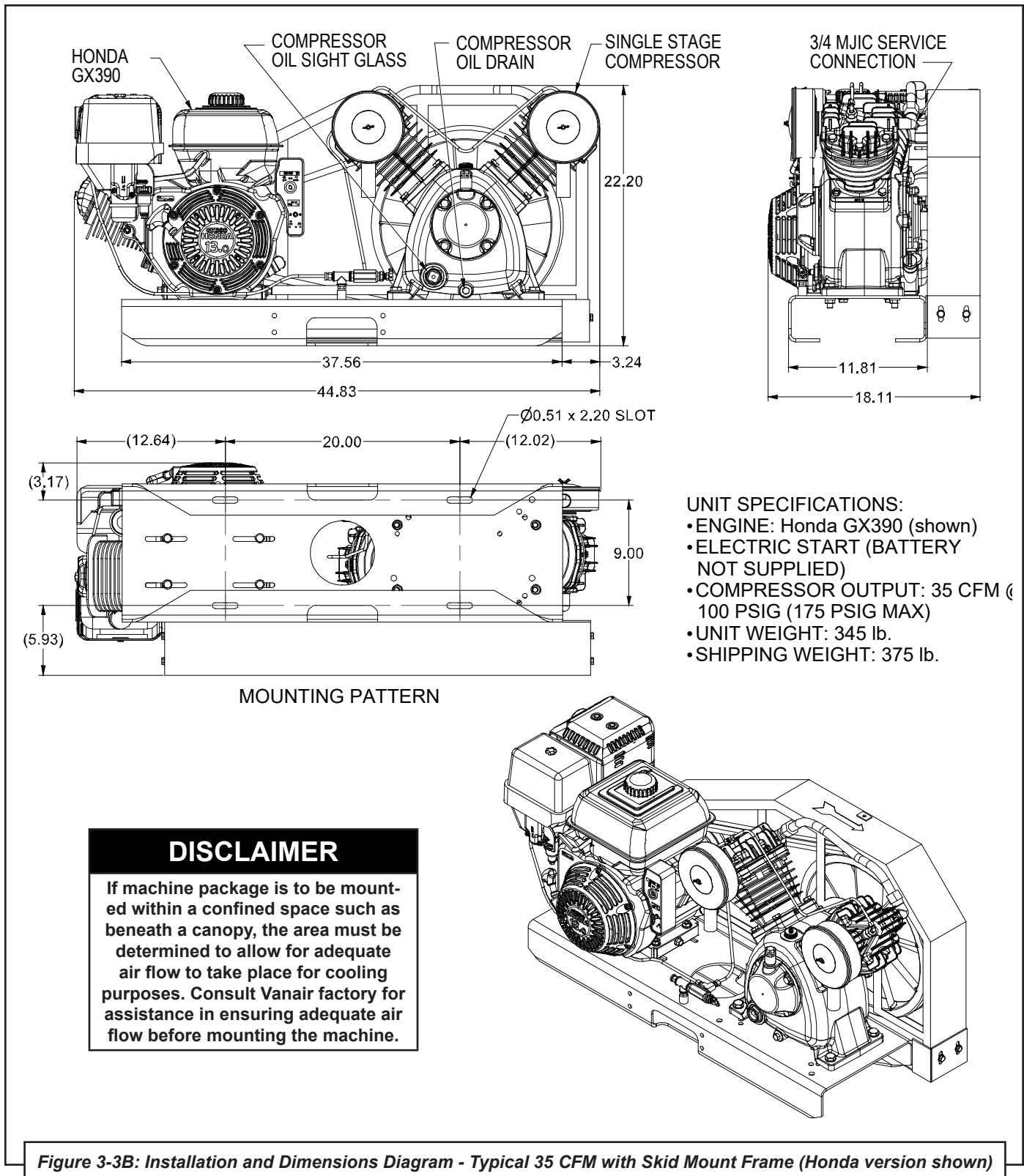
Pull starter grip lightly until you feel resistance, then pull briskly. Return starter grip gently - engine should start. If not, repeat process.

Once the engine starts running, slowly move the choke lever to the OPEN position.

With the engine running properly, the compressor fills the air receiver with compressed air. When maximum pressure (set by the pilot valve control) is reached, the engine and compressor will slow down to idle speed and will return to full RPM when the cut-in pressure is reached. The unit will continue to cycle automatically until turned off.



051935ID_r2



051956ID_r1

SECTION 4: OPERATION

4.1 GENERAL INSTRUCTIONS

The Pro Series System has a comprehensive array of controls and indicators for each function of the power system. Understanding the correct operation of the system will help you to understand and recognize when the system is operating optimally. The information in the Operation Section will help the operator to recognize and interpret the readings, which will call for service or indicate the beginning of a malfunction.

IMPORTANT



Before starting the Pro Series machine, read this section thoroughly and familiarize yourself with the controls and indicators - their purpose, location and use.

⚠ WARNING

Whether operating or performing service on the Pro Series, always follow all applicable safety recommendations as outlined in *Section 1: Safety* of this manual.

⚠ CAUTION

Engine idle speed may need to be adjusted, even on a brand new unit, to compensate for differences in altitude. Please consult the engine manual.

⚠ WARNING

Oil and moisture residue must be drained from the air receiver daily or after each use. Accumulations of oil residue in the receiver can be ignited by embers of carbon created by the heat of compression causing an explosion, damage to property and injury to personnel.

4.2 OPERATING THE COMPRESSOR

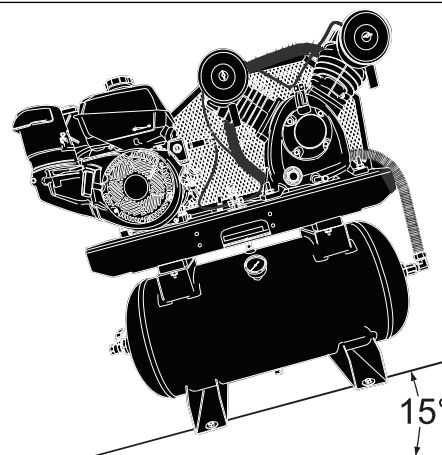
⚠ WARNING

Do not open a manual tank drain valve on any air tank containing more than 30 PSIG of air pressure!

⚠ CAUTION

Always check the oil level and quality before start-up. **DO NOT** add or change oil while the unit is running. Use only Vanair® reciprocating oil.

IMPORTANT



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

1. Ensure all nuts and bolts are tightened.
2. Ensure that the quantity of oil is correct.
3. If the intake filters are dirty, clean or replace.

NOTE

Always use Vanair® reciprocating oil (P/N 271856-1QT [two quarts needed]). Mixing oil types will **VOID THE WARRANTY!**



4. Check entire unit for damage.
5. Check compressor and engine oil level; fill or add if necessary.
6. Ensure gas tank is filled.

IMPORTANT

DO NOT use E85 gasoline.

7. Read entire engine manual.

4.3 ENGINE START-UP AND SHUTDOWN

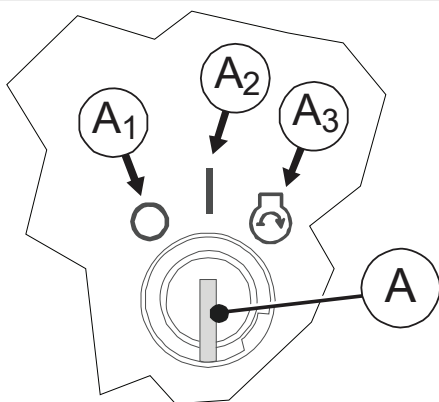
4.3.1 ENGINE START-UP

Refer to **Figure 4-1** and the following procedure.

NOTE

Air compressor will start automatically with machine start-up.

1. Turn the engine control switch from the OFF position to the ON position.
2. Continue turning control switch to the START position.
3. Once the engine starts running, slowly move the choke lever to the OPEN position.
4. Let engine run at idle for 3-5 minutes to allow for warm up sequence.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	ELECTRIC ENGINE KEY START	A ₂	ON
A ₁	OFF	A ₃	START

Figure 4-1: Instrumentation

4.3.2 ENGINE SHUTDOWN

Consult **Figure 4-1**. 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*.

CAUTION

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

4.4 ENGINE THROTTLE CONTROL FUNCTION

Consult **Table 4A: Engine Throttle Control Function Conditions** to understand how the engine speed relates to the demand(s) of the machine system's output functions.

4.4.1 START PROCEDURE

Refer to **Figure 4-2** and the following procedure:

WARNING

DO NOT operate gasoline engine units in an enclosed area.

1. Release any remaining tank pressure by slowly opening the manual drain valve.
2. Turn on the engine gasoline supply.
3. Put the choke in the "ON" position.
4. Close the service valve and put unloader lever in the "unload" (A) position for Honda engine-driven models.
5. Start the engine, release the choke, and allow the engine to warm up for two to three minutes.

TABLE 4A: ENGINE THROTTLE CONTROL FUNCTION CONDITIONS

Air Pressure	Engine Speed Condition Result
Tank Pressure Below (<) 150 PSI or Set Pressure [†]	Engine runs at full throttle.
Tank Pressure Above (>) 150 PSI or Set Pressure [†]	Engine runs at idle speed (2000 RPM), ready for application.
[†] Factory set pressure: 150 PSI = ON / 175 PSI = OFF	

6. Return the unloader lever to the “load” (B) position for Honda engine-driven models, as shown below for the manual head unloader.

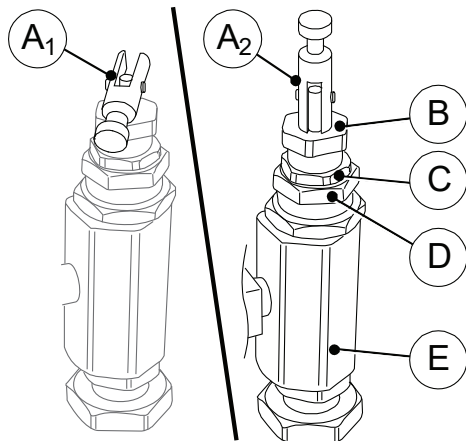
NOTE

Turn the gasoline supply off before shutting down the compressor.

4.5 OPERATING THE AIR COMPRESSOR

The air compressor on the Pro Series machine is a continuous-run compressor. This means that the compressor continues to turn at all times, even when it is not building pressure in the air storage tank. The compressor is controlled by a pilot valve that provides an air pressure signal to the compressor head unloader valves.

When the air tank pressure builds to 175 PSI, a spring loaded valve in the pilot valve opens, providing an air pressure signal to the head unloader valves of the compressor. This causes the air in the compressor to vent to the atmosphere.



KEY	DESCRIPTION
A ₁	PILOT VALVE MANUAL SWITCH OFF POSITION
A ₂	PILOT VALVE MANUAL SWITCH ON POSITION
B	CUT- IN/CUT- OUT PRESSURE ADJUSTMENT SCREW
C	LOCKNUT
D	PRESSURE DIFFERENTIAL NUT
E	VALVE BODY
NOTE: Pilot valve part number CO67609 is factory-preset at 150-175 PSI.	

Figure 4-2: Pilot Valve

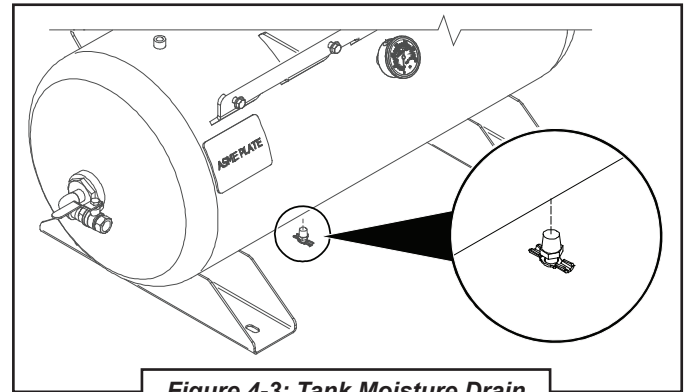


Figure 4-3: Tank Moisture Drain

When the air tank pressure falls below 150 PSI, the pilot valve will close, stopping the air signal to the unload valves, allowing the compressor to start pumping air to the tank.

NOTE

The leading cause of component failure of the air control system is moisture. Air tanks must be drained daily as a minimum to eliminate condensation.

A lever on the top of the pilot valve will allow the operator to manually stop the compression of air by the compressor during initial engine start-up or if operation does not require the use of compressed air (**Figure 4-2**). Since the head unloader valves require air pressure to operate, there must be a minimum of 10 psi in the air tank to allow the valves to operate properly.

When purchasing air tools or planning a project, the rated capacity of the compressor (20 CFM @ 100 psi) will need to be taken into consideration. Check the desired power tool manufacturer's specifications to ensure that the tool capacity is within range of the compressor's operating scope.

4.6 DRAINING THE AIR TANK

NOTE

The following instructions are for a tank-mounted model. However, even though the air tank used with a skid-mounted model may vary in design, the tank drain should be relatively easy to locate, somewhere along the underside of the tank.

Refer to **Figure 4-3** and the following procedure:

IMPORTANT

A tank subjected to freezing temperatures may contain ice. Store the compressor in a heated area before attempting to drain moisture from the tank.

1. Disconnect the spark plug cable from the spark plug.
2. Reduce the air pressure in the tank to 30 PSIG by opening the service valve carefully and slowly.
3. Slowly open the drain valve and allow the moisture and air moisture to drain from the tank.
4. Once the moisture has been completely drained, close the drain valve.

NOTE

Vanair recommends that the air tank be inspected yearly for rust and worn spots internally. Refer to federal, state or provincial, or local codes for mandatory air tank maintenance information.

4.7 EXTREME CONDITION OPERATION

When operating in extreme hot or cold conditions, extra attention should be given to any indications that could lead to a serious problem. Machine review and maintenance check schedules should be more frequent than the normal suggestions given in **Section 5.3, Maintenance Schedule Table**.

Become familiar with the alternative operation procedures given in this section before operating the Pro Series in any type of extreme ambient conditions.

4.7.1 COLD WEATHER OPERATION

Additional care should be taken under consideration when operating the package in extreme cold weather environments or ambient temperatures.

Run machine with no load at idle speed to warm up the machine. Refer to **Figure 4-2, [A₂]**.

4.7.1.1 ENGINE OPERATION

NOTE

Ethanol blended fuels, such as E85, are prohibited for use with the engine. **DO NOT** use ethanol-based fuels. Consult Section 2 of this manual, and the Engine Owner's Manual for acceptable fuel specifications.

NOTE

For additional information on engine operation, consult the Engine Owner's Manual.

The standard recommendation of 10W-30 engine oil is suitable for temperatures down to -5°F. If temperatures are consistently below 30°F, it is recommended that 5W-30 oil be used. If temperatures are below -25°F, a high-performance, fully synthetic oil, such as AMSOIL 5W-30 should be used, which is suitable to temperatures of -55°F.

In below zero temperatures, a fuel line deicer product may need to be used.

Drain the moisture from the tank when it is warm from extended operation.

4.7.2 HIGH TEMPERATURE OPERATION

The standard recommendation of 10W-30 engine oil is suitable for operation in temperatures up to 110°F.

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

4.7.3 HIGH ALTITUDE OPERATION

Engine horsepower will decrease by 3.5% for every 1,000 ft. increase in altitude. At high altitude overall unit performance will deteriorate, and care will need to be taken not to overload the engine by using more than one function of the unit.

SECTION 5: MAINTENANCE

5.1 GENERAL

Before performing any maintenance or adjustments to your air compressor, the following safety precautions should be taken:

1. Turn engine OFF; remove key.
2. Drain air receiver and air lines of any air pressure.

DANGER

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

WARNING

Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental activation.
DO NOT assume that because the compressor is in a STOPPED condition that power has been removed.

WARNING

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

WARNING

DO NOT use tools, hoses, or equipment that have maximum ratings below that of this compressor.

WARNING

REMOVE power when performing maintenance or repair actions.

WARNING

Keep metal tools, and other conductive objects away from live electrical components.

WARNING

Before performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

NOTE

Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.

NOTE

Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. **DO NOT** wear jewelry, loose clothing; and long hair should be restrained with headband or safety hat.

5.2 FILLING COMPRESSOR WITH OIL

Refer to **Table 5A: Maintenance Schedule and Procedure Table, key #2**, to determine proper oil level of the sight glass. Should oil need to be added, follow the instructions below:

1. Ensure that the machine is situated on a level surface when determining a proper oil level check.
2. Remove the oil filler plug [A].
3. Slowly pour the proper oil into the pump crankcase.

IMPORTANT

Although the optimum oil level is at the middle of the sight glass, do not over fill the oil over 3/4 of the sight glass; if the level is at or below 1/4 of the sight glass, add the proper amount.

TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ^z							
KEY NO.	DESCRIPTION	PART NO.	QTY	KEY NO.	DESCRIPTION	PART NO.	QTY
1	Kit, Engine 100 Hour Service	KIT1291	1	3	Motor oil (10W-30 / quart)	274439	2
2	Kit, Engine 200 Hour Service	KIT1119	1	4	Vanguard Reciprocating Compressor Oil	271856-1GAL	1
^z If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing.							
^{zz} For detailed kit content descriptions refer to Section 7, Table 7A. Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.							
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

MAINTENANCE SCHEDULE Hourly or Calendar Period - whichever comes first ^z				ACTION TO TAKE
BREAK-IN PERIOD	After 8 Hours or Daily			
	After 50 Hours or Weekly			
	Every 100 Hours or Monthly			
Every 300 Hours or Quarterly				
First 20 Hours of Operation	■			
Check belts' tension (initial check)	■			
Check compressor oil level	■			

KEY	TASK DESCRIPTION
1	Check belts' tension (initial check)
2	Check compressor oil level

WARNING

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

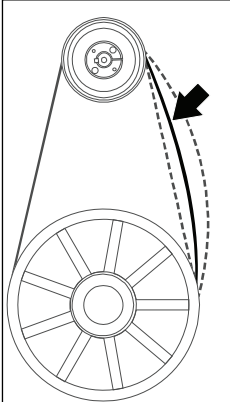
For lock-out/tag-out disconnect the positive (+) battery cable.

IMPORTANT

The routine scheduled maintenance tasks listed here are for the compressor unit only. Consult the Engine Operation Manual for additional routine tasks for the engine.

PROCEDURE:

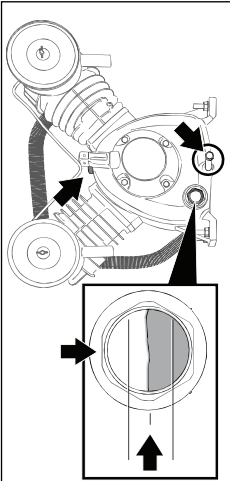
Observe the lag in the drive belts when the machine is at rest. Proper belt position should have a slight bow to the tension, as shown in the figure [↗]. Should the belts need adjustment or replacement, refer to Section 5.6, Installing New Belts, and Figure 5-2.



REFERENCE:

- Compressor Oil Level Sight Glass [↘]
- Compressor Oil Fill Port [↗]
- Compressor Oil Drain Port [↗]
- Compressor Oil Level [↗] ^z

^z Ideal oil level is at the half-way point (middle) of the sight glass. However, Do not fill over the 3/4 full mark, and add oil if the level is below the 1/4 mark of the glass.



PROCEDURE:

With the machine situated on a level service, observe the level of the oil in the sight glass [↗]. Should the level be too low (below 1/4 full), add oil. **DO NOT** over fill the compressor (beyond 3/4 capacity/level of the sight glass). **DO NOT** mix oil types.

Continued on next page...

TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ¹				
KEY NO.	DESCRIPTION	PART NO.	QTY	KEY NO.
1	Kit, Engine 100 Hour Service	KIT1291	1	3
2	Kit, Engine 200 Hour Service	KIT1119	1	4
¹ If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing. ² For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.				
KEY	TASK DESCRIPTION	BREAK-IN PERIOD	MAINTENANCE SCHEDULE	ACTION TO TAKE
⚠ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. For lock-out/tag-out disconnect the positive (+) battery cable.				
IMPORTANT The routine scheduled maintenance tasks listed here are for the compressor unit only. Consult the Engine Operation Manual for additional routine tasks for the engine.				
3	Drain condensate moisture from air tank after each use	First 20 Hours of Operation	After 8 Hours or Daily After 50 Hours or Weekly Every 100 Hours or Monthly Every 300 Hours or Quarterly	REFERENCE: • Air Tank Condensate Drain [➡] PROCEDURE: Drain the moisture from the tank when it is warm from extended operation. Refer to Section 4.6, Draining The Air Tank , for further information.
4	Check for unusual noise or vibration			PROCEDURE: Determine if the noise is internal or external; ensure that all loose joints, fittings and/or fastenings are tight. Consult the Troubleshooting Section in the this manual, and the Engine Operation Manual.
5	Ensure all nuts and bolts are tightened			PROCEDURE: Loose nuts and bolts may cause stress and vibration of the machine. Check that all nuts and bolts are tight, and tighten when appropriate.
6	Clean dust/foreign matter from cylinder heads, motor, fan blades intercooler and air receiver			PROCEDURE: Wipe with a clean cloth; do not use flammable solvents. Use extra care when cleaning the intercoolers; do not bend the cooling fins.
Continued on next page...				

TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ^x				
KEY NO.	DESCRIPTION	PART NO.	QTY	KEY NO.
1	Kit, Engine 100 Hour Service	KIT1291	1	3
2	Kit, Engine 200 Hour Service	KIT1119	1	4
^x If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing. ^{xx} For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.				
KEY	TASK DESCRIPTION	BREAK-IN PERIOD	MAINTENANCE SCHEDULE	ACTION TO TAKE
		First 20 Hours of Operation	After 8 Hours or Daily	
			After 50 Hours or Weekly	
			Every 100 Hours or Monthly	
			Every 300 Hours or Quarterly	
			Hourly or Calendar Period - whichever comes first ^x	
⚠ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. For lock-out/tag-out disconnect the positive (+) battery cable.				
IMPORTANT The routine scheduled maintenance tasks listed here are for the compressor unit only. Consult the Engine Operation Manual for additional routine tasks for the engine.				
7	Check compressor air filter /replace worn filter if necessary		■	REFERENCE: • Compressor Air Filter Element (x 2) [➡] PROCEDURE: Remove the wingnut from the air filter housing, and pull the cover outward and away from the housing body. Pull the filter out and check for excessive dirt, holes. If element contains excessive dirt accumulation, or tears or holes in the filter fabric, replace the filter. If filter is being replaced, replace BOTH filters at the same time, regardless of the condition of the second filter.
8	Inspect unit for leaks		■	PROCEDURE: Inspect the area around the unit for oil spots, etc., that would indicate the presence of a leak. Check for any loose connections and tighten. If a part leak is evident, replace the part.
9	Tighten joins if leaks are observed		■	
10	Check belt tensions (after initial check at first 20 hours)		■	PROCEDURE: Observe the lag in the drive belts when the machine is at rest. Proper belt position should have a slight bow to the tension, as shown in the figure [➡]. Should the belts need adjustment or replacement, refer to Section 5.6, Installing New Belts , and Figure 5-2 .
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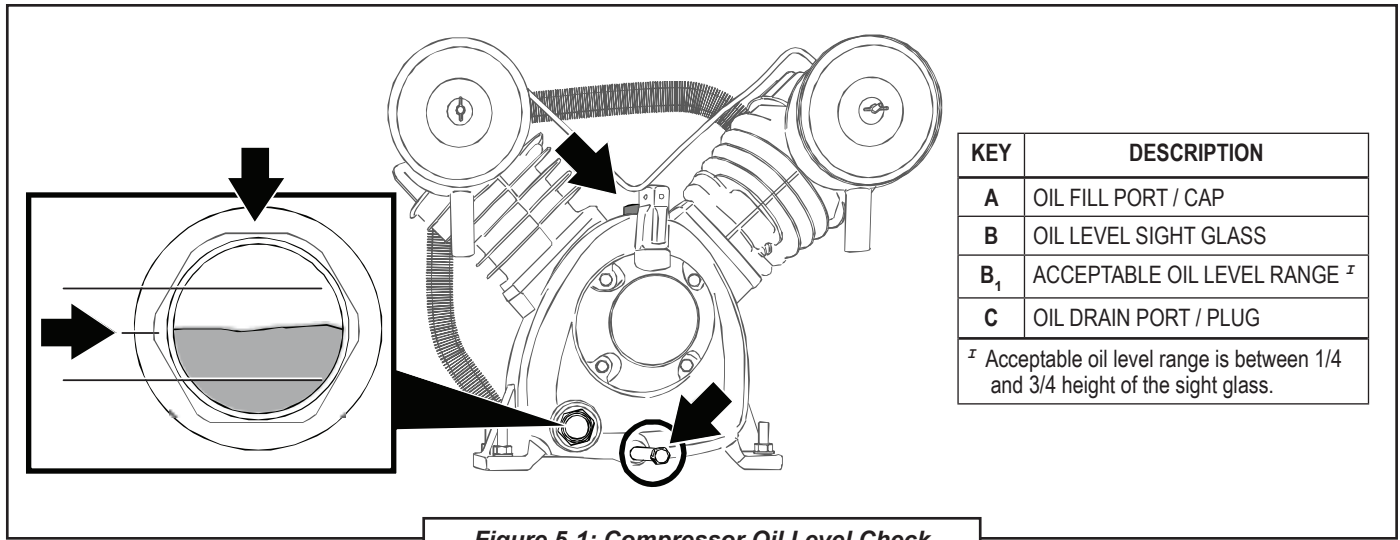
TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ¹				
KEY NO.	DESCRIPTION	PART NO.	QTY	KEY NO.
1	Kit, Engine 100 Hour Service	KIT1291	1	3
2	Kit, Engine 200 Hour Service	KIT1119	1	4
¹ If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing. ² For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options. PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.				
KEY	TASK DESCRIPTION	BREAK-IN PERIOD	MAINTENANCE SCHEDULE	ACTION TO TAKE
⚠ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. For lock-out/tag-out disconnect the positive (+) battery cable.				
IMPORTANT The routine scheduled maintenance tasks listed here are for the compressor unit only. Consult the Engine Operation Manual for additional routine tasks for the engine.				
11	Inspect and change air filters if necessary	First 20 Hours of Operation	After 8 Hours or Daily After 50 Hours or Weekly Every 100 Hours or Monthly Every 300 Hours or Quarterly	REFERENCE: • Compressor Air Filter Element (x 2) [▲]
12	Inspect air receiver for corrosion or other damage		■	PROCEDURE: Remove the wingnut from the air filter housing, and pull the cover outward and away from the housing body. Pull the filter out and check for excessive dirt, holes. If element contains excessive dirt accumulation, or tears or holes in the filter fabric, replace the filter. If filter is being replaced, replace BOTH filters at the same time, regardless of the condition of the second filter. Clean or clear as needed.
13	Change Compressor Oil		■	REFERENCE: • Compressor Oil Level Sight Glass [▼] • Compressor Oil Fill Port [▲] • Compressor Oil Drain Port [▲] • Compressor Oil Level [▲] ¹ ¹ Ideal oil level is at the half-way point (middle) of the sight glass. However, Do not fill over the 3/4 full mark, and add oil if the level is below the 1/4 mark of the glass. PROCEDURE: With the machine situated on a level service, observe the level of the oil in the sight glass [▲]. Should the level be too low (below 1/4 full), add oil. DO NOT over fill the compressor (beyond 3/4 capacity/level of the sight glass). DO NOT mix oil types.

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TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE

TABLE 5A: MAINTENANCE SCHEDULE AND PROCEDURE TABLE																
KEY	TASK DESCRIPTION	BREAK-IN PERIOD	MAINTENANCE SCHEDULE		TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION ¹											
			Hourly or Calendar Period - whichever comes first ²		KEY NO.	DESCRIPTION	PART NO.	QTY	KEY NO.	DESCRIPTION	PART NO.	QTY				
14	Replace air filter (more often if compressor is used near paint spraying, or in dusty environments)	First 20 Hours of Operation	After 8 Hours or Daily	After 50 Hours or Weekly	Every 100 Hours or Monthly	Every 300 Hours or Quarterly	1	Kit, Engine 100 Hour Service	KIT1291	1	3	Motor oil (10W-30 / quart)	274439	2		
							2	Kit, Engine 200 Hour Service	KIT1119	1	4	Vanguard Reciprocating Compressor Oil	271856-1GAL	1		
¹ If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing.																
² For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.																
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.																
ACTION TO TAKE																
TASK DESCRIPTION							REFERENCE: • Compressor Air Filter Element (x 2) [↗]									
14		Replace air filter (more often if compressor is used near paint spraying, or in dusty environments)					PROCEDURE: Remove the wingnut from the air filter housing, and pull the cover outward and away from the housing body. Pull the filter out and check for excessive dirt, holes. If element contains excessive dirt accumulation, or tears or holes in the filter fabric, replace the filter. If filter is being replaced, replace BOTH filters at the same time, regardless of the condition of the second filter.									



5.3 ENGINE LUBRICATION

Check Engine Operation Manual for lubrication and maintenance requirements.

5.4 OIL CHANGE

Initial oil change is due at 100 hours.

1. Remove the oil drain plug. Allow oil to drain completely from unit.
2. Replace the oil drain plug.
3. Refill with the recommended oil to the proper level.

5.5 CHECKING BELT TENSION

Adjust belt(s) so that when pressure is applied at the center, there is approximately 1/2" slack. (Refer to **Figure 5-2: Belt Tension**).

If the belt is installed too tightly, the engine might be overloaded. This will cause the engine to over-heat. If the belt is installed too loosely, it will slip and excessive wear and vibration will occur.

5.6 INSTALLING NEW BELTS

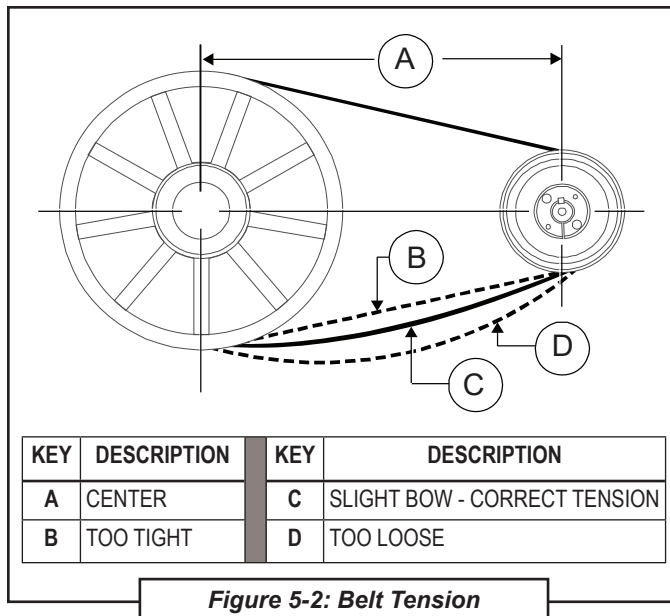
IMPORTANT

When one belt needs to be replaced, replace both V-belts at the same time, regardless of the second belt's condition.

IMPORTANT

Frontal alignment should not be necessary during belt replacement. However, if the alignment should become skewed so that it hampers operation, consult the Vanair Service Department.

1. Turn engine OFF; remove key.
2. Remove belt guard.
3. Loosen motor bolts and slide motor toward compressor head just enough to allow old belt to be removed.
4. Install proper replacement belt.
5. Slide motor away from compressor head to provide recommended tension as shown in **Figure 5-2**.
6. Align belt, using a straight edge ruler against pulley's edge.
7. Fasten motor bolts.
8. Ensure motor and compressor pulleys are secure.
9. Re-install belt guard and reconnect power supply.
10. Belt tension should be checked after 20 hours of operation. Check tension monthly thereafter.



5.7 DAILY MAINTENANCE

IMPORTANT

The routine scheduled maintenance tasks listed here are for the compressor unit only. Consult the Engine Operation Manual for additional routine tasks for the engine.

1. Check oil level.

⚠ CAUTION

DO NOT mix oil types, weights, or brands. Mixing oil types can cause equipment damage or failure.

2. Drain condensation from air receiver after each use.

3. Check for any unusual noise or vibration.
4. Be sure all nuts and bolts are tightened.

5.8 WEEKLY MAINTENANCE

1. Turn off power. Clean dust and foreign matter from cylinder head, motor, fan blades inter-cooler and air receiver.

NOTE

When using compressed air to clean the components, the nozzle pressure should not exceed 15 PSIG.

2. Check air filter; replace if necessary.
 - Worn filters should be replaced.
3. Check V-belts for wear.
4. Inspect unit for leaks.
5. Tighten joints if leaks are observed.
6. Check belt tensions (after initial check at first 20 hours).

5.9 MONTHLY MAINTENANCE

1. Check that compressor pulley and motor sheave are aligned and securely fastened.
2. Inspect and change air filters, if necessary.

5.10 QUARTERLY OR 300 HOURS (WHICHEVER COMES FIRST) MAINTENANCE

1. Inspect the air receiver for corrosion or other damage.

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.

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. Should the situation remain unresolved after exhausting available sources, contact the Vanair Service Department at:

Toll Free: (800) 526-8817
Phone: (219) 879-5100
Service: (844) VAN-SERV
(844) 826-7378
Service Fax: (219) 879-5335

⚠ WARNING

DO NOT operate any of the Pro 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 performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

NOTE

When contacting the Vanair Service Department, please have machine serial number on hand to quickly expedite service. See Figure 6-1 for machine serial plate location.

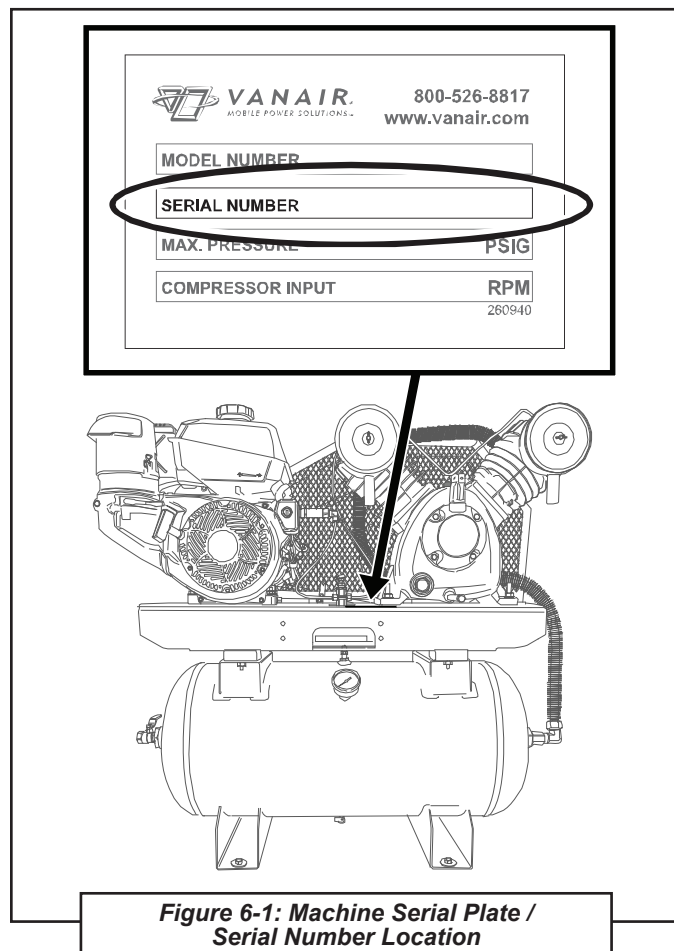


Figure 6-1: Machine Serial Plate / Serial Number Location

6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not start	Please refer to Manufacturer's manual (included)	Please refer to engine manual (included)
Low pressure	Safety valve leaks	Replace safety valve
	Drain cock open	Close drain cock
	Loose tubes or fittings	Tighten fittings
	Dirty or plugged air filter	Clean or replace, as necessary
	Defective unloader valve	Replace unloader valve
Compressor overheats	Clogged inlet filter	Clean or replace, as necessary
	Dirty compressor, head, cylinder, or intercooler	Clean with compressed air
	Operating pressure too high	Reduce operating pressure
	Low oil or incorrect oil being used	Drain and replace
	Compressor cycle too long - proper cycle is 50-60% on Stop/Start operation and 75-80% on continuous operation	Allow for longer rest between cycles
Compressor loads and unloads or stops and starts excessively	Leaks in air system	Replace worn components as necessary
	Worn or loose drive belts	Tighten V-belts or replace
	Pilot valve or pressure switch differential adjusted too close	Make necessary adjustments
	Defective compressor valves	Replace valves
	Compressor too small for intended use	
Insufficient output Low discharge pressure	Clogged inlet filter	Clean or replace, as necessary
	Leaks in air lines, air valves, fittings, etc.	Replace worn components as necessary
	Drive belts slipping	Tension V-belts
	Drain valve left open	Close drain valve
	Defective pressure gauge	Replace pressure gauge
	Compressor incorrectly sized	
	Leaking head gasket	Replace head gasket
	Dirty or plugged inter cooler tubes	Remove and clean inter cooler tubes
	Unloader pilot or pressure switch adjusted too low, or defective	Make necessary adjustments
	Worn or defective compressor valves	Replace worn parts
	Worn piston, worn out rings	Replace worn parts
	Restrictive check valve	Clean check valve and replace if necessary
Motor stalls	Compressor over pressure	Clogged fuel filter; replace filter.
	Faulty fuel pump (if applicable)	Replace pump
	Worn or faulty spark plug	Replace spark plug
<i>Continued on next page</i>		

6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Water in crankcase Oil Breaking up Oil gets dirty Rusty valves or cylinder	Cycle too short; compressor does not operate long enough to vaporize condensed moisture during compression	Allow for a longer operating cycle
	Inlet filter not protected against weather	Provide adequate protection against extreme weather conditions
	System pressure leaking back through check valve when compressor is stopped	Check / replace check valve if necessary
	Wrong oil being used	Drain and replace with proper oil
Excessive vibration	Loose compressor or engine mounts	Tighten components
	Wrong oil being used	Drain and replace with proper oil
	Loose flywheel, drive pulley or drive belts	Tighten loose components and check belts
	Worn rods, wrist pin or main bearings	Check and replace worn parts
Compressor knocks	Compressor valves loose or broken	Check and replace worn or broken valves
	Inspect check valve; it may knock at low pressures	Remove and clean check valve
	Worn rods, wrist pin or main bearings	Check and replace worn parts
Compressor uses too much oil	Clogged inlet filter	Clean inlet filter or replace if necessary
	Wrong oil being used; wrong viscosity	Drain and replace oil
	Oil level too high	Fill compressor with oil to proper level
	Crankcase breather valve malfunction	Replace crankcase breather
	Compressor runs unloaded too long	Increase load or stop compressor when not needed (check for air/leaks)
	Worn piston rings	Replace piston rings
	Piston rings not seated	See instruction below [‡]
Compressor over pressure	Faulty unloader	Replace
	Leak in control system	Check control lines; replace as necessary
	Defective or improper installation of valves	Replace or re-install
[‡] Allow 100 hours of normal operation for new rings to seat. Drain oil and refill with non-detergent ISO 68 oil or other approved oils		



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SECTION 7: ORDERING PARTS AND OTHER INFORMATION

7.1 PARTS ORDERING INFORMATION

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

When ordering parts always indicate the Serial Number of the machine package. This can be obtained from the Bill of Lading for the machine package, or from the unit's serial number plate. See **Figure 7-1** for location of machine package serial plate. **Consult Table 7A: Recommended Spare Parts List** on the next page for a listing of replacement parts.

Vanair Manufacturing, Inc.

10896 West 300 North

Michigan City, IN 46360

Telephone (toll free): (800) 526-8817

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

(844) 826-7378

Telephone: (219) 879-5100

Service Fax: (219) 879-5335

Parts Fax: (219) 879-5340

Sales Fax: (219) 879-5800

www.vanair.com

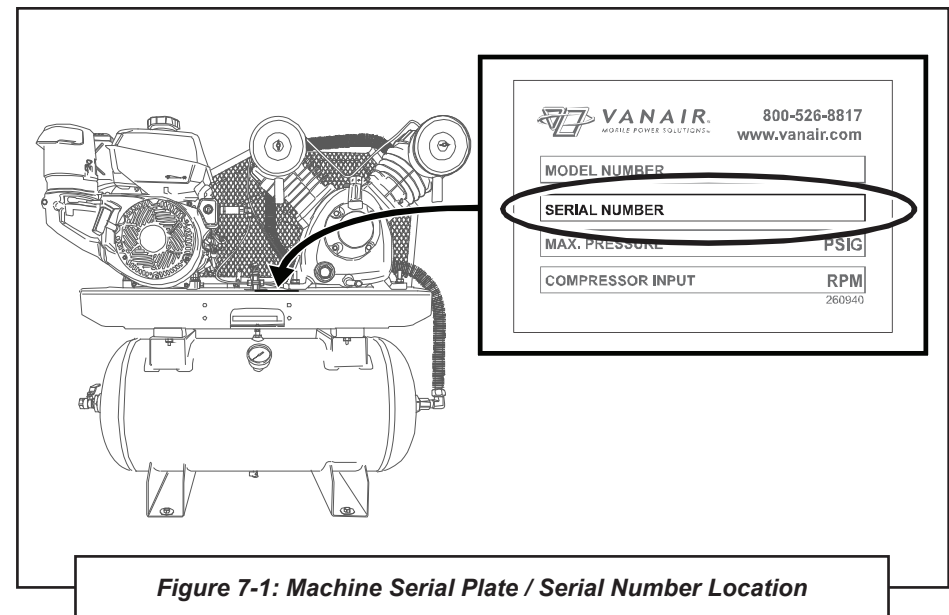


TABLE 7A: RECOMMENDED SPARE PARTS LIST

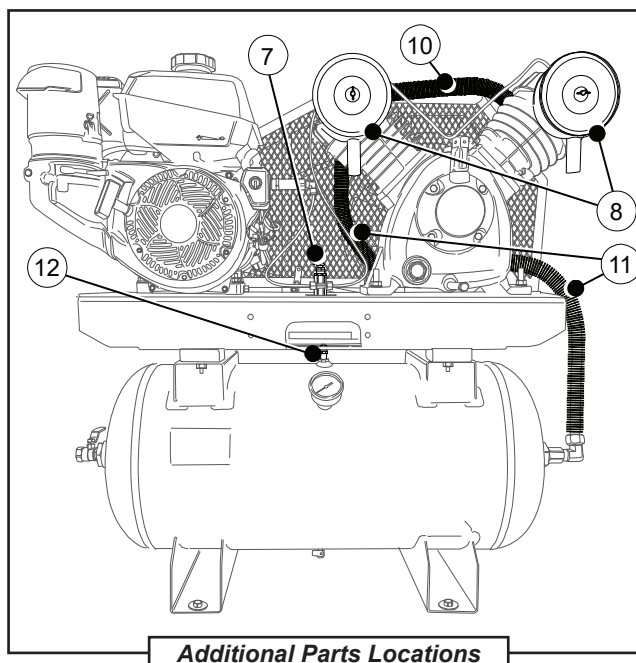
KEY NO.	DESCRIPTION	PART ORDER NO.	QTY	KEY NO.	DESCRIPTION	PART ORDER NO.	QTY
ROUTINE/SCHEDULED MAINTENANCE SERVICE KITS AND ITEMS							
1	KIT, SERVICE COMPRESSOR ^I	KIT1441	1	3	KIT, KOHLER ENGINE SERVICE ^{II}	KIT1446	1
2	OIL, VANAIR RECIPROCATING COMPRESSOR (quart container)	271856-1QT	2	4	KIT, HONDA ENGINE SERVICE ^{III}	KIT1447	1
ADDITIONAL KITS AND PARTS							
5	KIT, COMPRESSOR CONNECTING ROD	KIT1436	1	10	TUBE, COMPRESSOR HEAD EXCHANGE PRO35M	280728-043	1
6	KIT, COMPRESSOR VALVE PLATE ASSEMBLY	KIT1437	2	11	TUBE, DISCHARGE	280741	1
7	VALVE, PILOT 150-175 PSI 1/4 NPT	CO67609	1	12	VALVE, RELIEF 1/4 NPT MALE 200 PSI	264232	1
8	KIT, COMPRESSOR AIR INTAKE FILTER ASSEMBLY	KIT1438	2	13	HOSE, ASSY PRO35 SKID MOUNT DISCHARGE HIGH TEMP	281126	1
9	TUBING, NYLON 4MM X 6MM BLACK	280739	1				
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.							

ROUTINE KIT CONTENTS

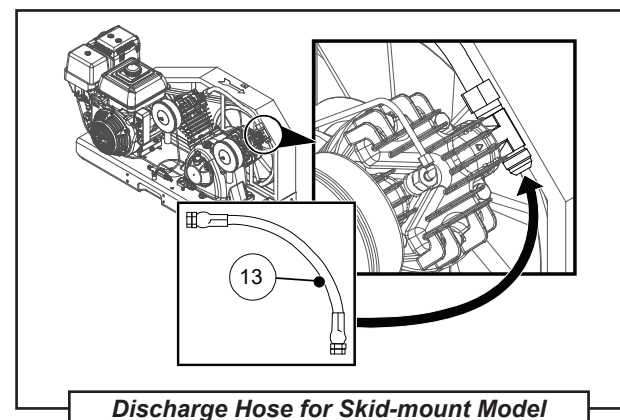
^I Compressor Service Kit no. KIT1441		
Description	Vanair P/N	QTY
Vanair Reciprocating Compressor Oil	271856-1QT	2
Compressor Air Filter Element PRO35M *	280728-040	2
* Always replace both air filter elements at the same time, regardless of the condition of the second filter.		

^{II} Kohler CH1440 Engine Full Service Kit no. KIT1446		
Description	Vanair P/N	QTY
Kohler Motor Oil	274439	1
Air Filter Element	EN270163-02	1
Pre-Cleaner Air Filter	EN270163-03	1
Spark Plug RFI Kohler CH440	EN270163-04	1

^{III} Honda GX270/GX390 Engine Service Kit no. KIT1447		
Description	Vanair P/N	QTY
Spark Plug, Honda NGK	272316	1
Filter, Air Element Honda	272317	1
Filter, Air Pre-element (Honda)	272318	1
Oil, Motor Honda 10W-30	276041	1



Additional Parts Locations





IMPORTANT

Table 7A's listings contain items that require maintenance on a routine basis, and also those parts that may require maintenance over the course of the compressor package's performance schedule. Although this recommended list is pro-offered as a comprehensive guide to replacement parts, damage may occur to the machine beyond the scope of this listing.

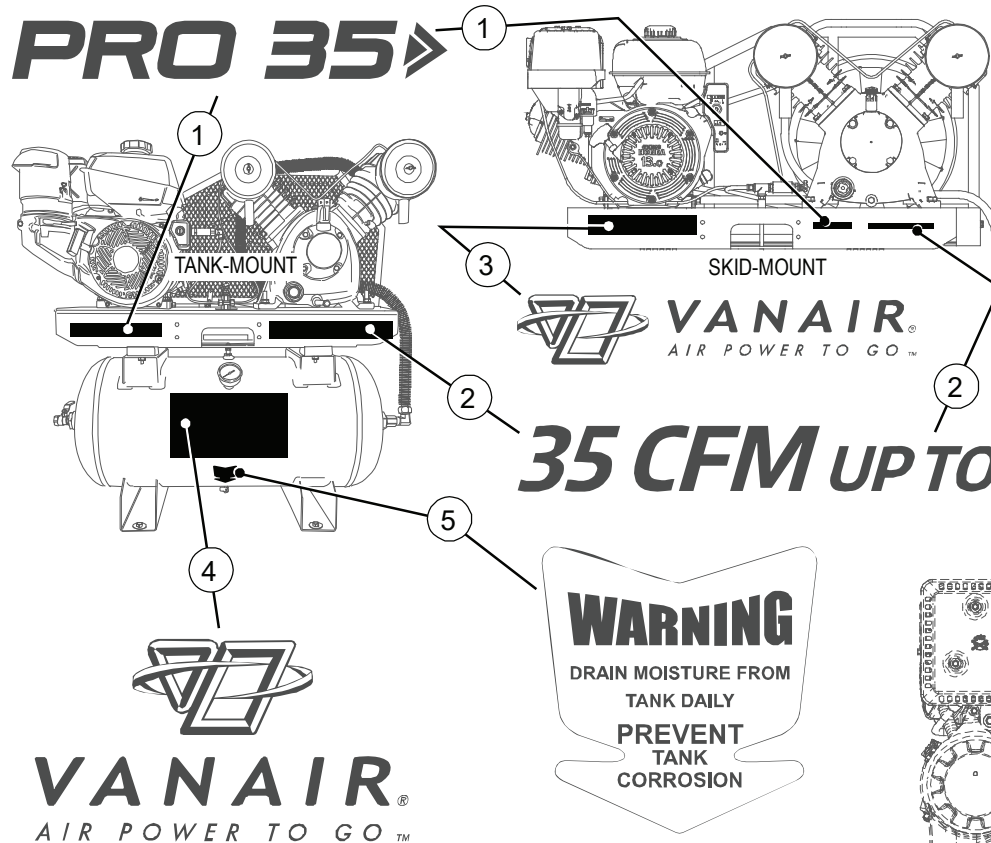
Should any part of the compressor package that is not listed in Table 7A become damaged or inoperable, use the various sub-sections in Section 7 to best locate and identify the damaged part(s).

IMPORTANT

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

NOTES

7.2 DECALS - IDENTIFICATION AND LOCATIONS



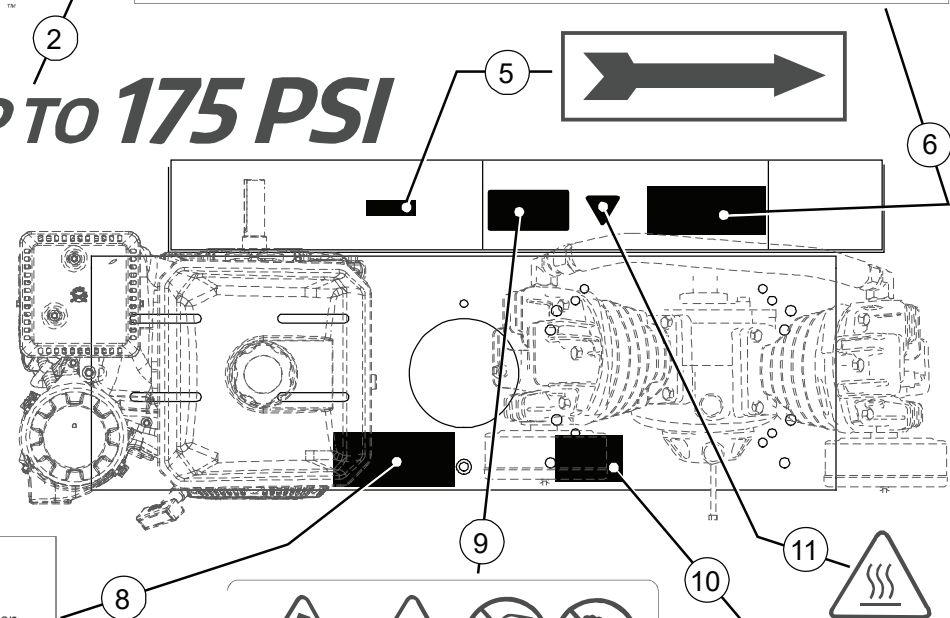
⚠ WARNING
Failure to read and understand all instructions before operating compressor may result in personal injury and/or property damage.

! Safety Precautions
Warning: Unit operates automatically. Disconnect unit from power source prior to servicing. Operate unit in dry, cool and well-ventilated areas only. Inspect compressor components and accessories for looseness, damage and excessive wear. Repair/replace defective items before using. Wear eye and hearing protection. Never allow children or visitors in work area.

🔥 Flammable / Combustible Precautions
Before spraying liquids or abrasive media ensure work area is properly ventilated. Use an approved mask/respirator and protective clothing. Avoid spraying flammable material near open flame or ignition sources. Locate unit at least 20 feet away from spraying area and all other flammable materials. Do not smoke when spraying flammable materials.

⚡ Pressure Precautions
Always adjust pressure regulator to conform to the requirements of the air tool being used. Never exceed the maximum pressure of the tool. Never remove or adjust the safety valve. Do not attempt to repair worn or damaged tank.

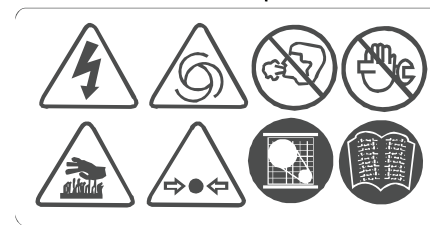
⚡ Electric Shock Precautions
During installation, follow local and national electrical codes. Before servicing, disconnect compressor from power source. Unit must be grounded. Do not use with extension cord or grounding adapters to prevent electric shock, power loss or severe motor damage. Have all wiring performed by a licensed electrician. Improper wiring may result in overheating, short circuiting or explosion.



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

MAINTENANCE INSTRUCTIONS
CAUTION ALWAYS TURN OFF POWER BEFORE SERVICING
The following basic maintenance will ensure long trouble free operation. For complete instructions refer to the manufacturer's operating manual.

DAILY	WEEKLY	MONTHLY	EVERY 3 MONTHS
1. Check oil level before each use. 2. Drain the air receiver of condensate. 3. Check for air leaks.	1. Remove air filter element and clean or replace as required. 2. Check belt tension and adjust if necessary. 3. Verify cut out/in pressure for correct operation.	1. Inspect non-return valve. Purge, clean or replace as required. NOTE: Ensure air receiver is empty for this operation. 2. Manually test safety valve.	1. Change oil. 2. Tighten cylinder head bolts to correct torque (see operating manual). 3. Clean and check valve assembly/replace gaskets/valves if worn or damaged.



VAN AIR
800-526-4817
www.vanair.com

MODEL NUMBER _____
SERIAL NUMBER _____
MAX. PRESSURE _____ PSIG
COMPRESSOR INPUT _____ RPM

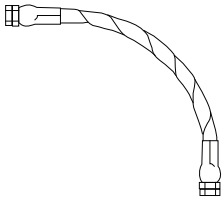
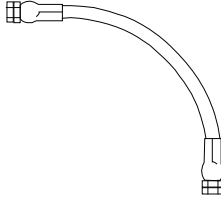
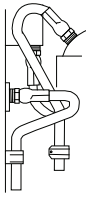
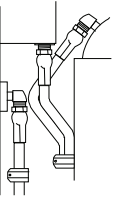
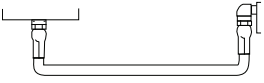
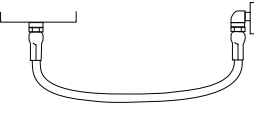
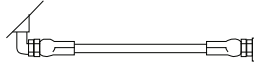
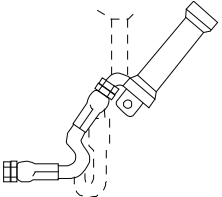
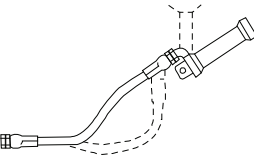
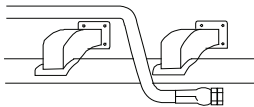
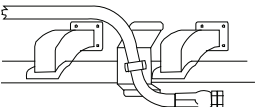
**7.2 DECALS - IDENTIFICATION AND LOCATIONS**

ITEM	DESCRIPTION	PART NUMBER	QTY
1	DECAL, PRO 35 LOGO	277638-D	1
2	DECAL, PRO 35 BADGE	277639-B	1
3	DECAL, LOGO,VANAIR HORIZONTAL - AIR POWER TO GO	275038-D	1
4	DECAL, LOGO,VANAIR STACK - AIR POWER TO GO	275039-D	1
5	DECAL, WARNING DRAIN TANK DAILY	I	1
6	DECAL, DIRECTION OF ROTATION	I	1
7	DECAL, WARNING PRECAUTIONS	I	1
8	DECAL, MAINTENANCE INSTRUCTIONS	I	1
9	DECAL, WARNING VARIOUS	I	1
10	PLATE, MACHINE SERIAL NUMBER	I	1
11	TAG, WARNING HOT SURFACE	I	1

¹ For decal reorder number, consult the Vanair Parts Department.

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

7.3 HOSE INSTALLATION GUIDE

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

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