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**Gas Engine Driven 30 CFM Air
Compressor
Installation, Owner's and Service
Manual
G300003**

www.vmacair.com

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M	ECN: 22-025 Update accessory list with A500245/A520007	MSP	SPT	N/A	MSP	N/A	4 Mar. 2022
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P	ECN: 22-060 Update WHASP fitting	MSP	GJM	N/A	MSP	TPK	28 Jun. 2022

Additional Application Information

- VMAC recommends installing the Cold Climate Kit (P/N: A500044) if this unit will be used in temperatures below 0 °C (32 °F).
- Refer to the Honda GX390 Owner's Manual (VMAC P/N: 1901066) for engine specific information.

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Honda® is a registered trademark of Honda Motor Co., Ltd.

Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation and service procedures and/or for anyone with mechanical trade certification who has the tools and equipment to properly and safely perform the installation or service. Do not attempt installation or service without the appropriate mechanical training, knowledge and experience.

Follow all safety precautions. Any fabrication for correct fit in modified vehicles must follow industry standard "best practices".

Notice

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Safety

Important Safety Notice

The information contained in this manual is based on sound engineering principles, research, extensive field experience and technical information. Information is constantly changing with the addition of new models, assemblies, service techniques and running OEM changes. If a discrepancy is found in this manual, contact VMAC Technical Support prior to initiating or proceeding with installation, service or repair. Current information may clarify the issue. Anyone with knowledge of such discrepancies, who proceeds to perform service and repair, assumes all risks.

Only proven service procedures are recommended. Anyone who departs from the specific instructions provided in this manual must first ensure that their safety and that of others is not being compromised, and that there will be no adverse effects on the operational safety or performance of the equipment.

VMAC will not be held responsible for any liability, consequential damages, injuries, loss or damage to individuals or to equipment as a result of the failure of anyone to properly adhere to the procedures set out in this manual or standard safety practices.

Safety should be the first consideration when performing any service operations. If there are any questions concerning the procedures in this manual, or more information is required, please contact VMAC Technical Support prior to beginning work.

Safety Messages

This manual contains various warnings, cautions and notices that must be observed to reduce the risk of personal injury during installation, service or repair and the possibility that improper installation, service or repair may damage the equipment or render it unsafe.



This symbol is used to call attention to instructions concerning personal safety. Watch for this symbol; it points out important safety precautions, it means, "Attention, become alert! Your personal safety is involved". Read the message that follows and be aware of the possibility of personal injury or death. As it is impossible to warn of every conceivable hazard, common sense and industry standard safety practices must be observed.



This symbol is used to call attention to instructions on a specific procedure that if not followed may damage or reduce the useful life of the compressor or other equipment.



This symbol is used to call attention to additional instructions or special emphasis on a specific procedure.

Safety Precautions



As it is impossible to warn of every possible hazard that may result from operating this system, common sense and industry standard safety practices must be observed.

Read this information before operating the compressor for the first time. Follow the information and procedures in this manual for operation, maintenance and repair. Observe the following items to reduce the chance of personal injury or equipment damage.

Follow all safety precautions for mechanical work. Moving belts and rotating components are an extreme hazard. Stay clear of all moving parts when the system is operating. Only qualified personnel should perform maintenance and repair on system components and only while the system is properly shut down.

Proper service and repair are important to the safety of the service technician and the safe, reliable operation of the equipment. Always use genuine VMAC and/or Honda replacement parts.

The procedures described in this service manual are effective methods of service and repair. Some procedures may require the use of tools specially designed for a specific purpose. Anyone using a replacement part, service procedure or tool must first determine that neither their safety nor the safe operation of the equipment will be compromised by the replacement part, service procedure or tool selected.



Harmful Vapours

Breathing fuel vapours or engine exhaust can expose you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well ventilated area.
- Do not breathe engine exhaust. Internal combustion engines produce carbon monoxide, a poisonous odorless gas which can cause death. Do not start or operate this system in an enclosed area.
- If in an enclosed area, vent the exhaust to the outside and ensure there is adequate access to fresh breathable air.



Burn Hazard

- The engine, exhaust and the compressor system get very hot during operation, contact with the components or the oil can cause serious injury. Allow sufficient time for the system to cool prior to performing service.
- Avoid contact with the engine or compressor components until the system has cooled sufficiently.



Personal Safety

- Do not breathe the compressor air as vaporized oil is a respiratory hazard.
- Do not breathe engine exhaust, internal combustion engines produce carbon monoxide, a poisonous odorless gas which can cause death. Do not start or operate this compressor in an enclosed area.
- Always use the appropriate personal protective equipment, particularly eye and hearing protection when operating air powered equipment.



Fire and Explosion Hazard




- Vaporized oil propelled by high pressure air is an explosive mixture.
- Fire in the compressor can cause an explosion and flame projection. Should this occur, there is potential for serious injury or death.
- Operate the compressor in a well ventilated area free of flammable vapors, dust, or other combustible materials.
- Do not refuel the engine while the system is running or hot.
- Do not refuel the engine in an enclosed space or area with poor ventilation.
- If fuel is spilled, clean the area and wait for it to dry before starting the engine.
- Never place objects against or on top of the compressor.
- Never expose the system to extreme heat.



Lead Acid Battery Hazard

Working near lead acid batteries is dangerous. Batteries may generate sulphuric acid and explosive gases during regular operation. Lead acid batteries may explode if exposed to a spark.

- Follow all safety precautions when jump starting or charging a battery.
- Never attempt to jump start a frozen battery.
- Never overcharge a battery.

	<h3>Compressor Air and Oil Hazard</h3> <ul style="list-style-type: none"> • The compressor system is under sufficient pressure that a leak could force the air/oil mixture through the skin directly into your bloodstream. This could cause serious injury or death. • Ensure the system is completely depressurized before attempting maintenance or repair. • Do not use compressed air to clean off clothing or skin, compressed air can penetrate the skin causing serious injury or death. • Do not move or service the system while it is pressurized or operating. • Components and hoses under pressure could separate suddenly and cause serious injury or death. If equipped, the air receiver tank must be drained prior to servicing the system. • Never adjust or attempt to make any repairs to the system while the engine is running. Components and hoses under pressure could fail and cause serious injury or death.
	<h3>Burst Hazard</h3> <p>This system is designed to generate air pressure up to 150 psi during normal operation (factory default: 135 psi):</p> <ul style="list-style-type: none"> • Serious injury or death may result from an air tank explosion. • Never exceed manufacturer's maximum air pressure rating. • Do not repair components, only replace with approved parts. • Do not tamper with, or disable factory safety equipment.
	<h3>Moving Parts Hazard</h3> <ul style="list-style-type: none"> • Prior to performing service, disconnect the spark plug lead to prevent unexpected engine start. • Do not operate the system without guards in place. If the guards are damaged or missing, replace them before operating the equipment.



General Warnings

- Disconnect the spark plug lead prior to attempting any repair or service.
- Be attentive for unexplained changes in operation parameters and record any changes.
- Check the engine and compressor oil levels and condition prior to starting the system.
- Do not add or change oil while the system is running.
- Use only approved oils.
- Inspect the equipment before every use.
- The compressor may operate anytime the engine is running. Avoid contact with the compressor, hoses, or engine during operation.
- Keep hoses and wiring away from hot, sharp, or moving components.
- Use only approved hoses and replacement parts.
- Do not modify the equipment.
- Do not operate this system unless this manual has been read in its entirety.
- Do not operate this system when fatigued or under the influence of alcohol or drugs.
- Never bypass or disable any of the safety equipment.
- Never adjust or attempt to make any repairs to this system while the engine is running unless expressly instructed to do so.
- Components and hoses under pressure could fail and cause serious injury or death.

Warranty

VMAC Standard Warranty (Limited)

For complete warranty information, including both VMAC Standard Warranty (Limited) and VMAC Lifetime Warranty (Limited) requirements, please refer to our current published warranty located at: www.vmacair.com/warranty



If you do not have access to a computer, please contact us and we will be happy to send you our warranty.

VMAC's warranty is subject to change without notice.

VMAC Lifetime Warranty (Limited)

A VMAC Lifetime Limited Warranty is offered on the base air compressor only and only on UNDERHOOD, Hydraulic Driven, Transmission Mounted, Gas and Diesel Engine Driven Air Compressors, Multifunction Power Systems, and other products as defined by VMAC, provided that (i) the purchaser fully completes and submits a warranty registration form within 3 months of purchase, or 200 hours of operation, whichever occurs first; (ii) services are completed in accordance with the Owner's Manual; (iii) proof of purchase of applicable service kits are made available to VMAC upon request.



The VMAC Lifetime Warranty is applicable to new products shipped on or after 1 October, 2015.

Warranty Registration

The VMAC warranty registration form is located near the back of this manual. This warranty registration form must be completed and sent to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

There are 4 ways the warranty can be registered with VMAC:



www.vmacair.com/warranty



warranty@vmacair.com



(877) 740-3202



VMAC - Vehicle Mounted Air Compressors
1333 Kipp Road, Nanaimo, BC, Canada V9X 1R3

VMAC Warranty Claim Process



VMAC warranty work must be pre-authorized by VMAC. Claims are processed via our dealer network. If you are not a VMAC dealer, please select one to work with via our Dealer Locator: <https://www.vmacair.com/dealer-locator/>.



1. Communicate with VMAC Technical Support at 1-888-241-2289 or tech@vmacair.com to help diagnose/troubleshoot the problem prior to repair. VMAC technical support will require the VMAC System ID, and hours on the compressor.
2. VMAC will provide direction for repair or replacement of the failed components.
3. If requested, failed parts must be returned to VMAC for evaluation.
4. Dealers may login to the VMAC website to view the "VMAC Labour Time Guide" (under "Agreements") to see the allowable warranty labour times.
5. Warranty invoices must include the Service Ticket number, VMAC System ID#, hours on the compressor, and a detailed description of the work performed.
6. VMAC Warranty does not cover consequential damages, overtime charges, mileage, travel time, towing/recovery, cleaning or shop supplies.
7. Dealers submit warranty claims on behalf of the Vehicle Owner/End User affected by the defective part(s). The dealer ensures that all warranty credits are refunded back to the Vehicle Owner/End User who made the initial warranty claim.



In order to qualify for Lifetime Warranty (Limited), the completed warranty registration form must be received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, whichever occurs first.

If the completed warranty registration form has not been received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, the warranty period will be deemed to commence 30 days from the date of shipment from VMAC.

Failure to follow the warranty claim process may result in denial of the warranty claim.

VMAC Product Warranty Policies & Warranty Registration can be found on the VMAC website (see previous page for URL).

General Information

Before Starting

Read this manual as well as the Honda Owner's Manual prior to installing or operating the Gas Engine Driven 30 CFM Air Compressor to ensure familiarity with the components, installation requirements and how to operate the unit.

Open the package, unpack the components and identify them using the included Illustrated Parts List (IPL).

Hose Information

The hoses used in VMAC compressor systems have a specific inner liner that is compatible with VMAC compressor oil. Use of hoses other than those supplied or recommended by VMAC may cause compressor damage and may void your warranty. Please contact VMAC for replacement hoses and further information.

Ordering Parts

To order parts, contact a VMAC dealer. The dealer will ask for the VMAC serial number, part number, description and quantity. Locate the nearest dealer online at www.vmacair.com/dealer-locator or call 1-877-912-6605.



Technical Support

For technical support visit VMAC's Knowledge Base or contact the technical support team.

Knowledge Base: <http://kb.vmacair.com/>

Toll free: 1-(888) 241- 2289

Email: tech@vmacair.com

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Gas Engine Driven 30 CFM Air Compressor Installation Manual

Installation Requirements



Read pages 2 – 10 of this manual prior to installation or operation of the Gas Engine Driven 30 CFM Air Compressor.



The information in this section is very important for proper operation of the compressor. Read these requirements prior to beginning the installation.

When determining a mounting location for the Gas Engine Driven 30 CFM Air Compressor, ensure the following conditions are met (Figure 1):

- The fuel shut off valve is easily accessible (the fuel valve must be shut off when the unit is not in use, including during transport).
- The sight glass, oil drain and filters on the WHASP Tank are easily accessible for service.
- The belt guard is accessible and can be removed for service.
- The engine oil drain, oil fill, fuel fill, and air filter are easily accessible for service (the VMAC Remote Oil Drain accessory can help facilitate servicing the engine and compressor oil P/N: A500043).
- There is adequate access to cool fresh air for optimum engine performance.
- There is sufficient clearance around the unit for good air circulation and effective cooling.
- The unit is mounted in a position where hot air and exhaust will not recirculate back into the system.
- The unit is protected from damage and excessive exposure to the elements.
- The unit is away from heat sources such as engines, exhaust systems or other components that generate heat.
- The unit is not in a location where it will be exposed to high contamination levels, including combustible gases.
- The exhaust is routed to open air and not orientated in a way that will fill with rain.

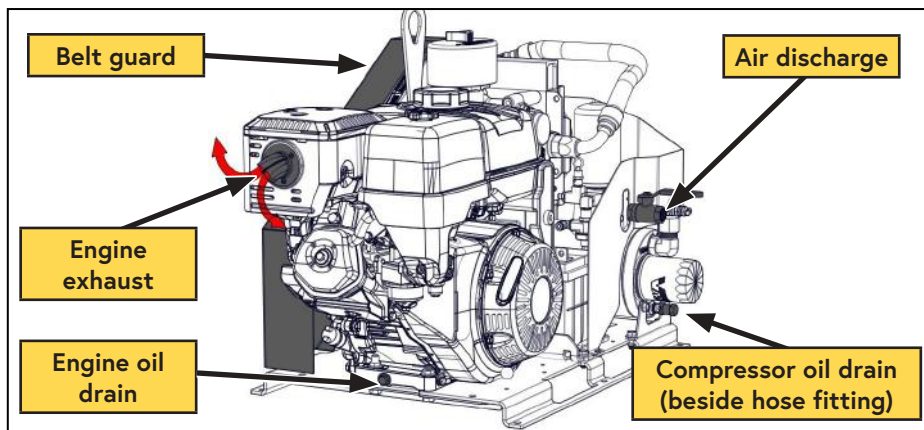


Figure 1 — Installation considerations

Ventilation Requirements



Adequate ventilation is vital for safety as well as proper operation of the engine. Systems without adequate cooling may experience stalling, premature oil deterioration, increased oil consumption, power loss, and reduced life or failure of the engine and/or compressor.

If the compressor overheats, the temperature switch will shut down and disable the engine until the oil temperature drops below 140 °C (284 °F).

During operation, the Gas Engine Driven 30 CFM Air Compressor generates a considerable amount of heat that must be evacuated away from the unit for it to run efficiently. The engine is air cooled and requires an adequate supply of cool fresh air to cool the engine and allow proper fuel combustion.

Ensure there is a minimum of 6 in of clearance between the engine air intake (the recoil starter area) and any other components mounted on the vehicle. The WHASP cooler fan should have a minimum of 12 in of clearance in front of it, however unobstructed venting to open atmosphere is preferred.

The engine exhaust must be vented away from the Gas Engine Driven 30 CFM Air Compressor and toward a safe location (the exhaust tip can be rotated to change the exhaust direction if needed). If mounted in an enclosure (such as the bed of a pickup truck box), the exhaust must be vented outside of the vehicle to prevent the gas engine from ingesting its exhaust and overheating or stalling (Figure 2).



Exhaust and waste heat from the Gas Engine Driven 30 CFM Air Compressor system must be vented away from the system to prevent the gas engine from ingesting its exhaust and stalling.

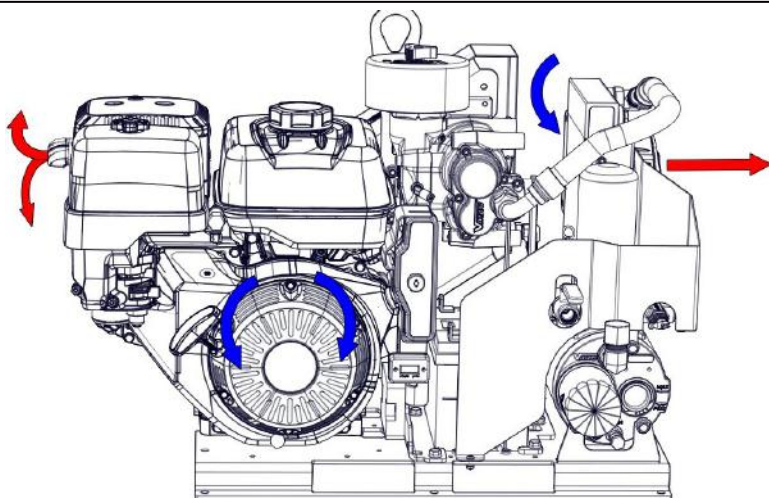


Figure 2 — Airflow diagram

Mounting Locations

Top Mounting

Top mounted is the preferred mounting location. Placing the unit on top of the service body provides the best access to cool fresh air. Maintain a minimum of 6 in between the sides of the Gas Engine Driven 30 CFM Air Compressor and 1 ft in front of the WHASP cooling fan and all other solid objects (Figure 3).



When selecting a top mount location, ensure the fuel shut off valve is easily accessible. The fuel valve must be shut off when the unit is not in use, including during transport.

Enclosed Mounting



Enclosed mounting is not recommended due to the significant heat generated by the unit. As the engine used on the Gas Engine Driven 30 CFM Air Compressor is air cooled, special consideration must be given to ensuring an adequate supply of cool fresh air flows to the engine.

Mounting the Gas Engine Driven 30 CFM Air Compressor in an enclosure will limit access to cool fresh air, restrict the escape of hot air from around the unit and have an adverse effect on cooling, engine performance and reduce the unit's duty cycle. Ensure adequate ventilation is provided for cooling and to evacuate the exhaust. If mounting in an enclosure, VMAC strongly recommends mounting the unit on a pullout drawer and extending the drawer any time the unit is run.

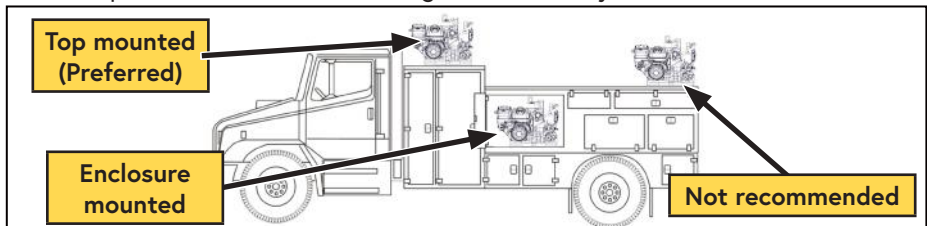


Figure 3 — Mounting locations

While it is not possible to make absolute recommendations regarding ventilation due to the widely differing circumstances that are possible, duty cycle, ambient temperature and enclosure shape are some of the important variables that must be considered.

Minimum considerations for mounting in an enclosure	
Supply cool fresh air to:	Exhaust and heat:
<ul style="list-style-type: none">• Engine air intake.• Compressor air intake.• Compressor cooler	<ul style="list-style-type: none">• Duct the engine exhaust outside of the vehicle / enclosure.• Install an exhaust fan to remove hot air from the enclosure.



Ensure the engine exhaust and hot air generated by the gas engine and WHASP Tank cooler are routed in such a way as to prevent recirculation back into the unit.

Mounting the Compressor

External dimensions with the base plate

- Locate a suitable mounting position for the Gas Engine Driven 30 CFM Air Compressor. Place the unit in its intended location and check for clearances to any other objects (Figure 4).



All dimensions are in inches.

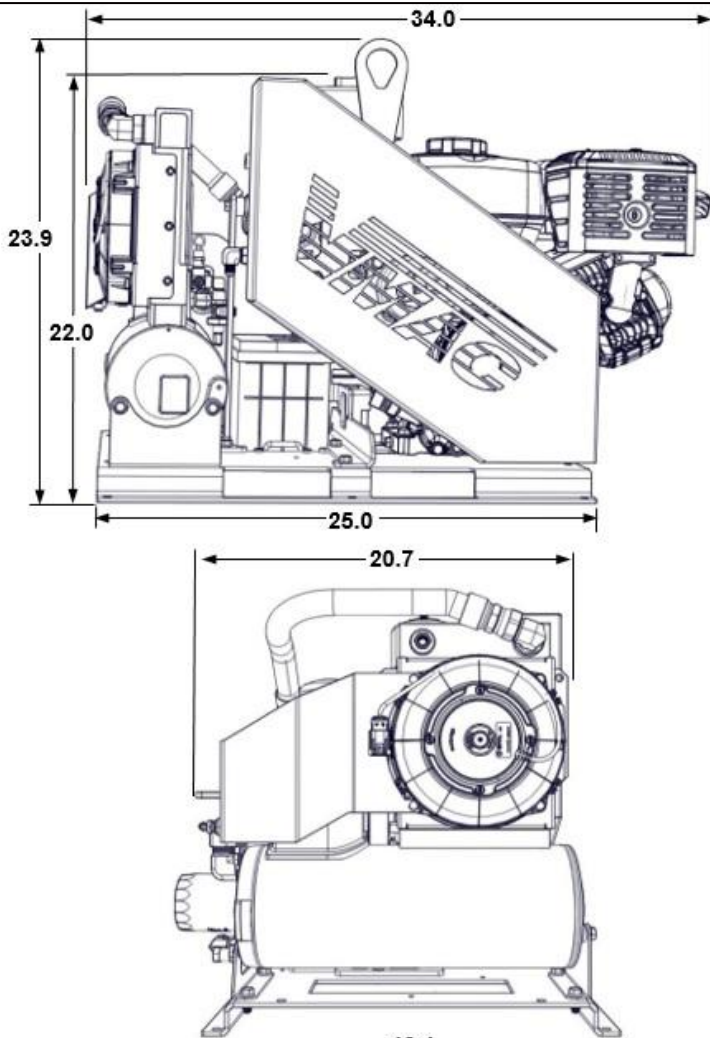


Figure 4 — External dimensions

Mounting the unit

There are 6 holes along the outer flange of the base plate for mounting the Gas Engine Driven 30 CFM Air Compressor (Figure 5).

Drill 6 holes in the surface that the Gas Engine Driven 30 CFM Air Compressor will be mounted to. Use a minimum of (x6) 3/8 in or M10 fasteners. Ensure washers are used in addition to locknuts or Loctite 242 (blue) on the mounting fasteners.

Connect the downstream plumbing to the ball valve outlet.

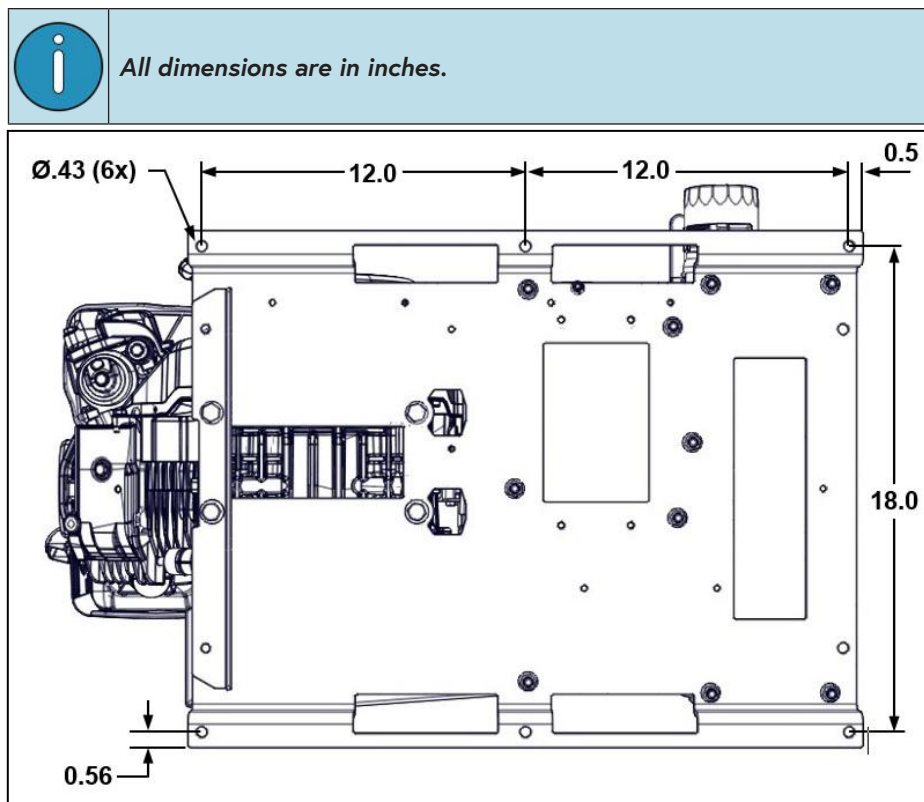


Figure 5 — Base plate mounting configuration



**Gas Engine Driven 30 CFM Air
Compressor
Owner's Manual**

Safety Features



Do not disable or bypass any safety components. Disabling or bypassing safety components could result in equipment damage, injury or death.



Read pages 2 – 10 of this manual prior to installation or operation of the Gas Engine Driven 30 CFM Air Compressor.

Gas Engine Driven 30 CFM Air Compressor Safety Components (Figure 6)

- 200 psi pressure relief valve in the separation manifold.
- Blowdown muffler to discharge system pressure on shut down.
- Temperature switch in compressor.
- 15 A fuse protects the OEM electrical system (located inside the OEM key start enclosure).
- 15 A fuse protects the fan's electrical system (located in the wiring harness next to the battery).

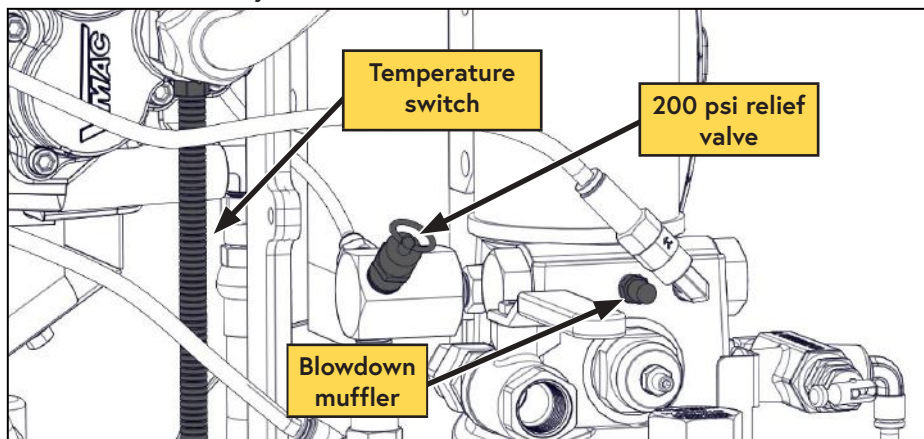


Figure 6 — Safety components (Shroud removed for clarity)

Automatic Overheat Shut Down

If the compressor oil temperature exceeds 140 °C (284 °F), the thermostatic switch will disable the engine. The cooling fan is powered by the battery and will continue to run as needed to cool the compressor.



The engine will not be able to be restarted until the system has cooled and the temperature switch has closed.

Identifying Your System

The System ID will be requested any time that parts are ordered, when calling for technical support or submitting a warranty claim.

The system ID is the preferred method of identifying the system as it serves as a master record of all of the components in the system. The system ID plate is generally found on the belt guard of the Gas Driven Air Compressor (Figure 7).

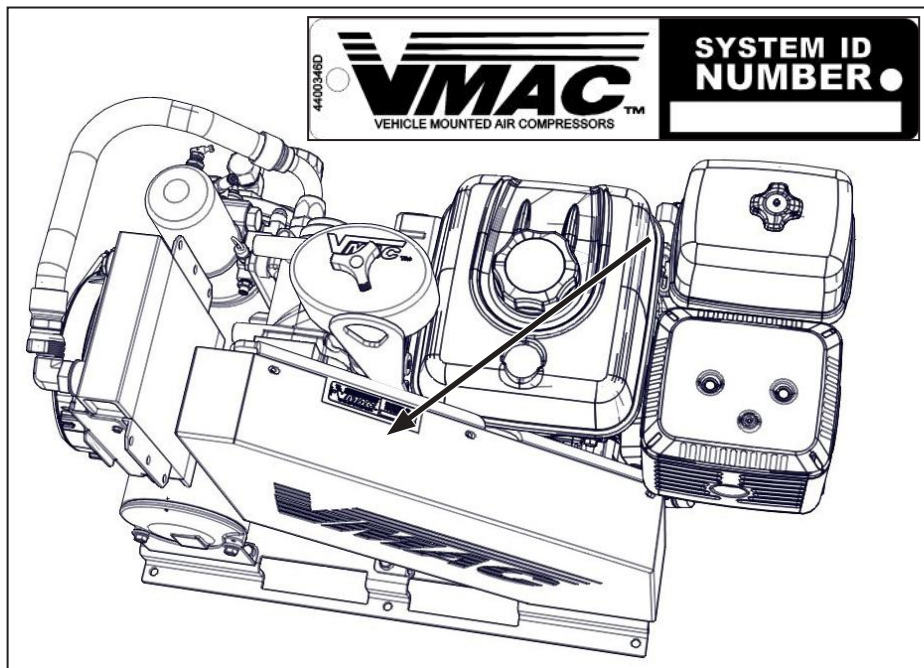


Figure 7 — System ID location

An alternative method of identifying the system is via the compressor serial number which is found on a plate attached to the compressor. This is a less desirable method of identifying the system as it may not link back to the original system if it has been replaced.

System ID breakdown

The system ID provides specific information about the system such as the model, revision, production date and the unique identifier (Figure 8).

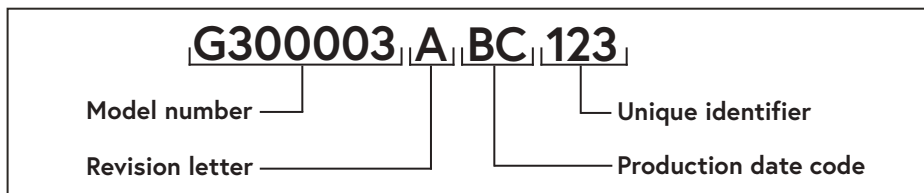


Figure 8 — System ID breakdown

Operating Principles

Air Compression

The Gas Engine Driven 30 CFM Air Compressor uses a VMAC designed and manufactured flooded lobe, rotary screw compressor. The oil filled compressor housing contains 2 rotors. Compression occurs when air (at normal atmospheric pressure) enters a chamber where it is trapped between meshing rotor lobes. Cooled oil is injected into the rotors during compression to lubricate the rotors and bearings, absorb the heat of compression, and seal the rotor lobes to allow for efficient compression. As the rotors rotate, the meshing lobes compress the volume of the trapped air/oil mixture before sending it down the discharge line to be cooled and separated by the Waste Heat Air Separation Package (WHASP) Tank.

Oil Separation and Cooling

The WHASP Tank is a 2 stage air/oil separator and oil cooler. The hot air/oil mixture from the compressor enters the cooler at the top of the WHASP Tank where the mixture is cooled and the majority of the oil separates from the air and settles into the reservoir tank below the cooler (first stage separation). The cooled oil then passes through a high pressure oil filter before being returned to the compressor via the oil return line. The air stream then passes through a coalescing filter where the remaining oil is removed (second stage separation). The oil collected by the coalescing filter is returned to the compressor via the 1/4 in PTFE scavenge tube.

A liquid to air cooler with electric fan maintains the operating temperature which reduces the temperature of the compressed air and increases the system's durability.

Minimum Pressure Check Valve

The WHASP Tank has a built-in minimum pressure check valve (MPCV) to maintain a minimum pressure of approximately 60 psi (414 kPa) in the WHASP Tank, this ensures there is adequate compressor lubrication, cooling, and oil separation in the coalescing filter. Air will not flow out of the WHASP Tank until approximately 60 psi is reached. The MPCV is factory set and requires no adjustment or servicing.



The VMAC WHASP Tank has a built-in check valve. Use of an additional check valve is not required and may cause erratic performance.

Filtration

VMAC rotary screw compressors are designed and machined to exacting tolerances. Foreign particles entering the compressor can damage system components such as seals, bearings, rotors, as well as the inside of the housing, resulting in performance losses and reduced system life.

The system is equipped with a replaceable paper element inlet air filter, spin on high pressure oil filter and a spin on coalescing filter.

These system filters enhance performance and extend component life by reducing damage from dust and other debris. Proper maintenance is required to maintain system performance and extend the system's life.

Compressor Drive, Belt and Tensioning

The compressor is directly driven by a 4 rib belt. Anytime the engine is running the compressor is running. The system has an automatic belt tensioner, manual adjustment is not required.

Pressure Regulation

Pressure regulation is achieved with a combination of an inlet valve regulator, a mechanical unloader valve and a discharge valve. Use a Filter Regulator Lubricator (FRL) to regulate downstream pressure to the tools.

System Pressure Unload

Internal system pressure is controlled via a mechanical unloader valve. When downstream air pressure reaches 135 psi (air pressure to the air tools), the mechanical unloader valve activates and sends a signal to the mechanical discharge valve to open. When open, the mechanical discharge valve sends internal system pressure (pressure inside the compressor and WHASP Tank) to the inlet valve and closes the compressor air intake poppet. Internal air pressure is then vented to a nominal value which reduces the load on the engine. This allows the control system to reduce engine speed which improves fuel efficiency, as well as reducing emissions and wear and tear on the system. When downstream pressure drops below 110 psi, the unloader valve will close and "load" the system, allowing it to build air.

Engine Speed Control

The engine speed is controlled mechanically by a pneumatic throttle which raises and lowers engine rpm according to air demand. Operator input is not required on the throttle lever.

Spark Arrester

The gas engine is supplied with a spark arrester.

For more information regarding the spark arrester, refer to the Honda GX390 Owner's Manual supplied with the system (VMAC P/N: 1901066).

Extreme Climates and Elevation



The Gas Engine Driven 30 CFM Air Compressor has been designed to operate in moderate climates of 0 °C to 40 °C (32 °F to 104 °F) below 3,500 feet. Operating outside of this range may result in performance issues with the engine and compressor.

Cold Environment Operation



The G300003 system is not designed or recommended for use in cold climates (below 0 °C / 32 °F) unless equipped with a VMAC cold climate kit (P/N: A500044).

If equipped with the optional VMAC Cold Climate Kit (P/N: A500044), the cold climate kit must be turned off prior to starting the engine, and must remain off for the duration of engine operation.

Cold Environment Recommendations

- Ensure the following conditions are met before starting the compressor:
- Use the choke in cold environments, or for first start of the engine.
- The system's components must all be at, or above 0 °C (32 °F). Starting the system while any of the components are below 0 °C (32 °F) may result in excessive engine cranking while starting, the engine failing to start, belt slippage, and engine stalling. Use the optional A500044 Cold Climate Kit or store the system indoors and start it while the components are still warm.
- For engine oil recommendations in temperatures below 0 °C (32 °F), refer to the Honda Owner's Manual supplied with the system. Failure to follow the recommendations in the Honda Owner's Manual may result in poor engine performance or engine damage.
- The unloader valve should be manually activated to aid start up; this will reduce the load on the compressor, resulting in less load on the engine during warm up (Figure 9 on page 27).



While the unloader valve is manually opened, the compressor will only produce approximately 40 psi. Once the engine has reached normal operating temperature, close the unloader valve to allow the system to build to full system pressure.



The optional A500044 Cold Climate Kit is a starting aid only. Contact a Honda dealer for recommendations when operating the engine below -15 °C (5 °F).

Hot Environment Operation

Operating the Gas Engine Driven 30 CFM Air Compressor fully loaded for extended periods in temperatures above 40 °C (104 °F) may result in the system shutting down due to the compressor oil overheating. Placing high demand on the engine (e.g. continuous demand at 135 psi) for extended periods can also result in higher than normal engine oil temperatures. To avoid overheating the engine or compressor, VMAC recommends installing an air receiver tank. This will help to reduce the duty cycle of the compressor by allowing it to unload.

The compressor system is protected by a compressor oil temperature switch that opens at 140 °C (284 °F) and shuts down and disables the engine until the compressor oil temperature drops below 139 °C (282 °F). The cooling fan will continue to operate at anytime as it is powered directly from the battery.

If the Gas Engine Driven 30 CFM Air Compressor shuts off due to overheat, allow the system to cool sufficiently before restarting.

For engine oil recommendations in temperatures above 40 °C (104 °F) refer to the Honda GX390 Owner's Manual supplied with the system (VMAC P/N: 1901066). Failure to follow the information supplied in the Honda Owner's Manual may result in poor engine performance or engine damage.

Hot Environment Recommendations



A receiver tank can help prevent overheating issues by lowering the duty cycle of the compressor.

- Ensure there is an adequate supply of cool ambient air to the unit.
- Ensure the exhaust and hot air are able to vent from the system with no restrictions.
- Ensure the WHASP radiator fins and engine recoil starter areas are clear of debris.
- Install an external fan to direct cool air toward the engine and air compressor.
- Ensure the engine and compressor are serviced at correct intervals.

High Altitude operation

The Gas Engine Driven 30 CFM Air Compressor has been designed to operate from 0 to 3,500 feet above sea level.

Operation above 3,500 feet may limit the compressor performance and may cause the engine to stall. For operation between 3,500 and 5,000 feet, lowering the compressor duty cycle is recommended.

For more information regarding high altitude operation refer to the Honda GX390 Owner's Manual (VMAC P/N: 1901066) supplied with the system. Failure to follow the Honda Owner's Manual may result in poor engine performance or engine damage.

System Components and Specifications



The compressor is driven by a belt; any time that the engine is running, the compressor is being driven.

System Components (Front) (Figure 9)

- WHASP Tank
- Rotary screw compressor
- Key start
- Hour meter
- 12 V battery
- Honda GX390 gasoline engine
- Unloader valve
- Discharge valve

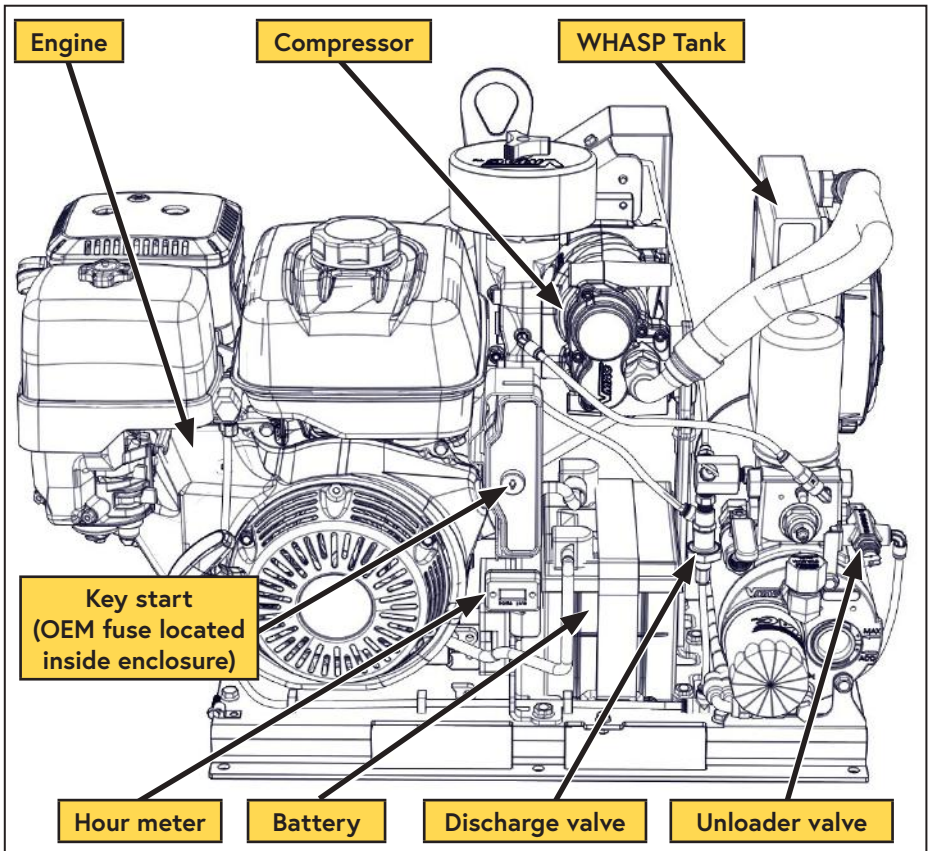


Figure 9 — System overview (shroud removed for clarity)

System Components (Back) (Figure 10)

- Lifting eye
- Belt shroud
- Fuel fill
- Exhaust shroud

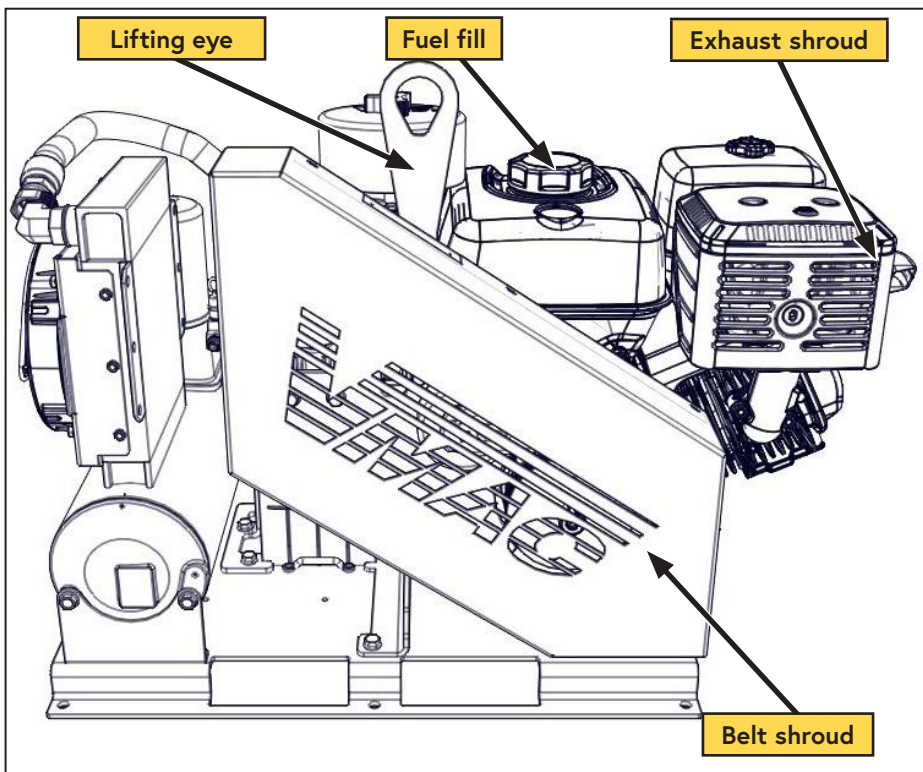


Figure 10 — System overview

System Controls and Features

The Gas Engine Driven 30 CFM Air Compressor includes the following controls and features (Figure 11):

- Electric key start with recoil pull start backup.
- Manual choke.
- Compressor overtemperature switch (shuts down the engine).
- Intelligent throttle which increases or decreases engine rpm based on air demand (reduces fuel consumption when no air is needed).
- Automatic system pressure unload with manual override (when the system is "unloaded", engine speed can be reduced, decreasing engine noise, emissions and wear and tear, while increasing fuel efficiency).
- Hour meter (runs any time the engine is running).
- Automatic blowdown (depressurizes the system when it is shut down).



The electric fan on the WHASP Tank can turn on at any time. This is normal operation.

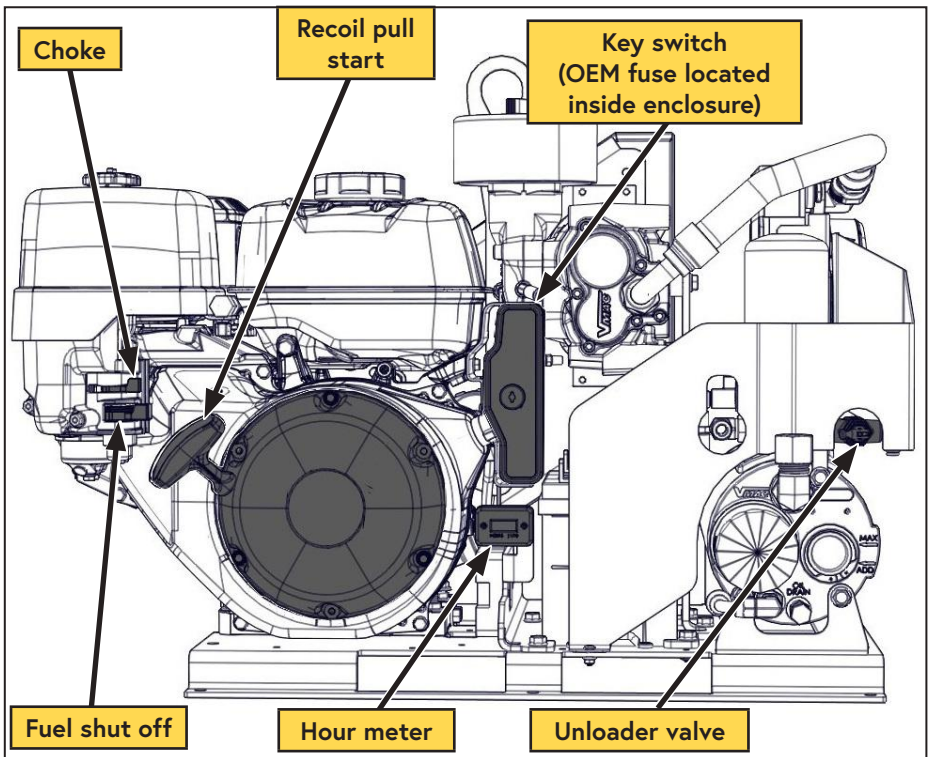


Figure 11 — System controls overview

Before Starting the Gas Engine Driven 30 CFM Air Compressor



Ensure the following has been completed before operating the Gas Engine Driven 30 CFM Air Compressor.

Before Running the Gas Engine Driven 30 CFM Air Compressor:

- Ensure the vehicle the system is mounted to is not parked on grades exceeding 20° as this will affect lubrication and air/oil separation (Figure 12).

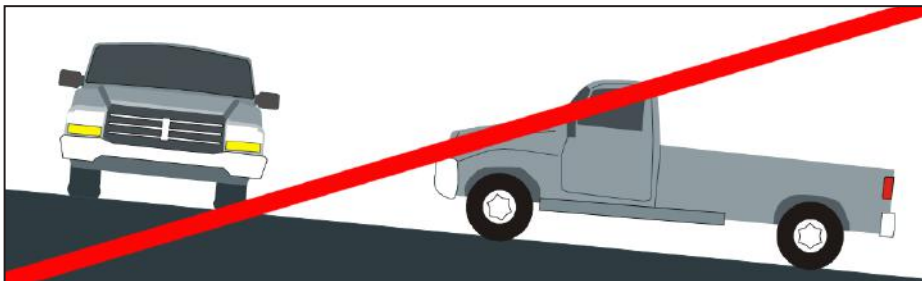


Figure 12 — Do not exceed 20° grade



New VMAC oil is clear and may be difficult to see in the sight glass.

- ☐ Check the compressor oil level and condition (page 51).
- ☐ Inspect the blowdown muffler (page 52).
- ☐ Inspect the Pressure Relief Valve (page 53).
- ☐ Inspect the compressor air filter (page 54).
- ☐ Inspect the engine air filter (See the Honda Owner's Manual).
- ☐ Check the engine oil level and condition (See the Honda Owner's Manual).
- ☐ Check the fuel level.
- ☐ Do a final inspection to ensure that all fasteners and connections are tight.
- ☐ Check that all hoses and wiring is secure and adequately protected.
- ☐ Check for any fluid leaks around the unit.
- ☐ Ensure any pneumatic equipment is securely connected and the discharge ball valve is closed.



If the system has been run, ensure the compressor system has depressurized prior to restarting. The engine will not be able to start if the system is still under pressure.

Starting and Stopping the Engine

What to Expect at Startup

Manually actuating the unloader valve allows air pressure to be vented to a nominal value which reduces the load on the engine. during warm up. Once the system reaches normal operating temperature, manually release the unloader valve, allowing the system to build air pressure.

Normal operating engine rpm:

- When unloader is actuated (during warm up): $2,900 \pm 100$ rpm.
- When building air pressure: $3,500 \pm 100$ rpm (this value can vary due to engine load, as well as environmental conditions).
- Once system has built to full system pressure: $2,400$ rpm ± 100 rpm.

Starting the engine with the key switch



The G300003 is designed to operate at an elevated low idle set point. This is required for optimal engine performance due to compressor loads. This elevated low idle set point requires the choke to be applied during both cold and warm starts. To start the engine (warm or cold), ensure the choke is closed by confirming that the lever is all the way to the left.

Starting the engine with the key switch

- 1) If equipped with the optional VMAC Cold Climate kit, ensure the kit is turned off.
- 2) Close the choke by moving the choke lever all the way to the left (Figure 13).

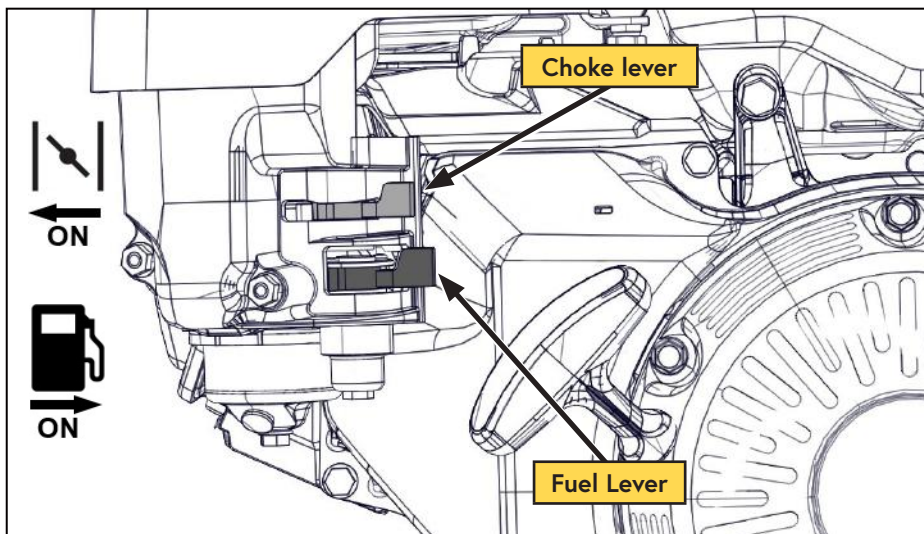


Figure 13 — Fuel and choke levers

- 3) Turn on the fuel by moving the fuel shut off lever all the way to the right (Figure 13).



The unloader valve should be opened to reduce the load on the engine during warm up.

- 4) Actuate the unloader valve by pulling out the handle (Figure 14).

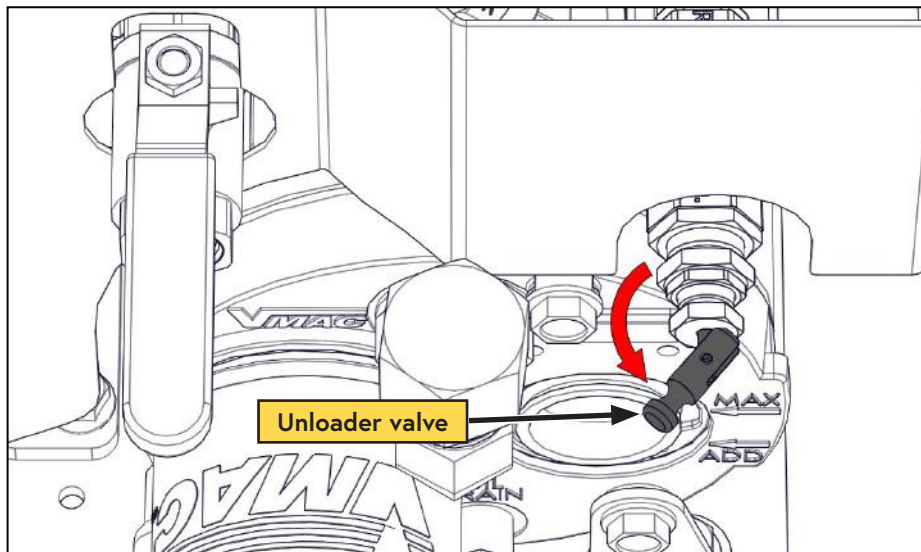


Figure 14 — Unloader valve

- 5) Turn the ignition key switch to the "START" position and hold it there until the engine starts (maximum of 5 seconds) (Figure 15).

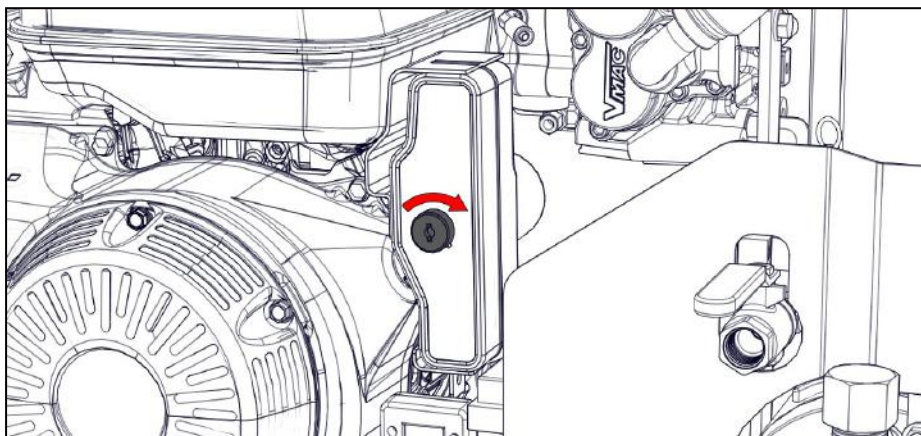


Figure 15 — Key switch



If the engine fails to start within 5 seconds, release the key and wait at least 10 seconds before operating the starter again. Using the starter for more than 5 seconds at a time will overheat the starter motor and may damage it.

- 6) Once the engine is running, gradually open the choke by moving the choke lever to the right as the engine warms up (Figure 16).

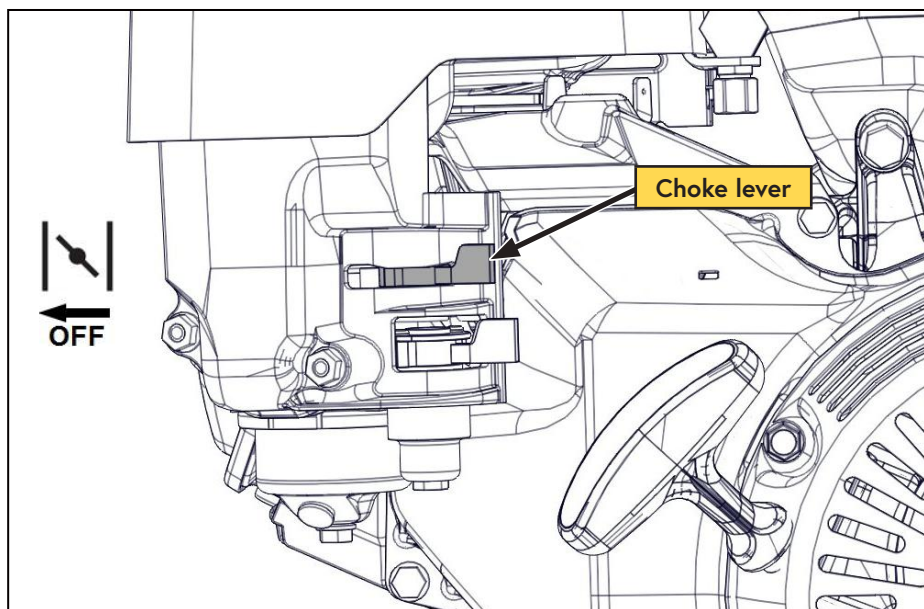


Figure 16 — Choke

- 7) Once the engine has reached normal operating temperature, release the tension on the unloader valve (Figure 17).

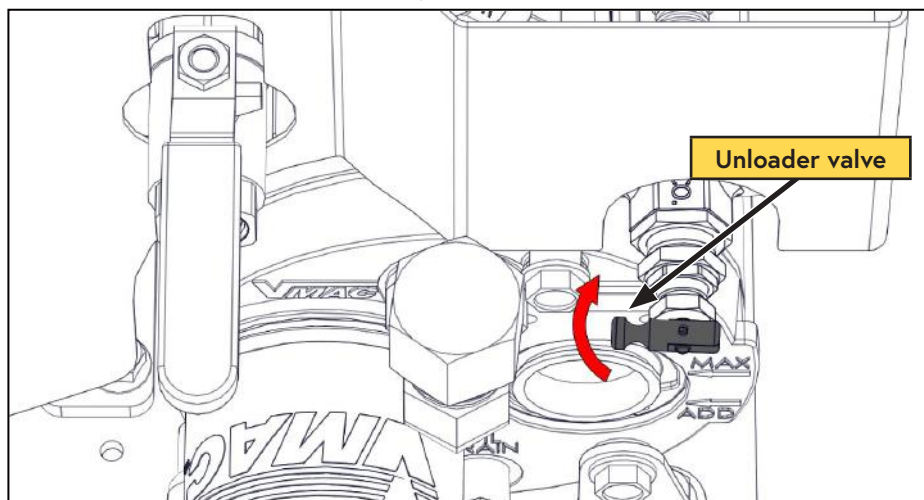



Figure 17 — Unloader valve



While the unloader valve is actuated the system will only build to 40 psi. Once the engine has warmed up, close the unloader valve to allow the system to build to full system pressure.

Starting the engine with the recoil starter (pull cord)



The G300003 is designed to operate at an elevated low idle set point. This is required for optimal engine performance due to compressor loads. This elevated low idle set point requires the choke to be applied during both cold and warm starts. To start the engine (warm or cold), ensure the choke is closed by confirming that the lever is all the way to the left.

- 1) If equipped with the optional VMAC Cold Climate kit, ensure the kit is turned off.
- 2) Turn the ignition key switch to the "ON" position.

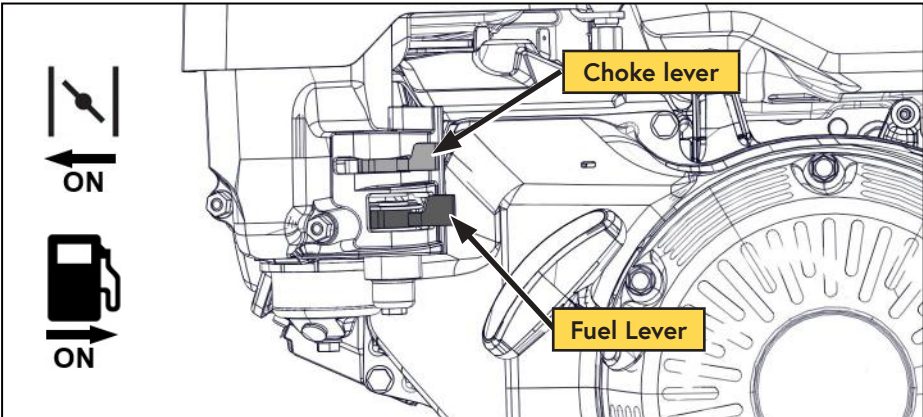



Figure 18 — Fuel and choke levers

- 3) Close the choke by moving the choke lever all the way to the left (Figure 18).
- 4) Turn on the fuel by moving the fuel shut off lever all the way to the right (Figure 18).



The unloader valve should be opened to reduce the load on the engine during warm up.

- 5) Actuate the unloader valve by pulling out the handle (Figure 19).

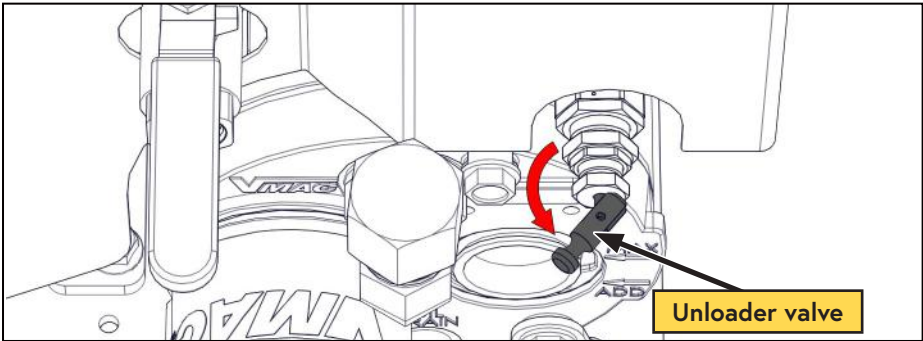


Figure 19 — Unloader valve

- 6) Pull the starter grip lightly until resistance is felt, then pull briskly in the direction of the arrow. Return the starter grip gently to prevent damage to the starter (Figure 20).

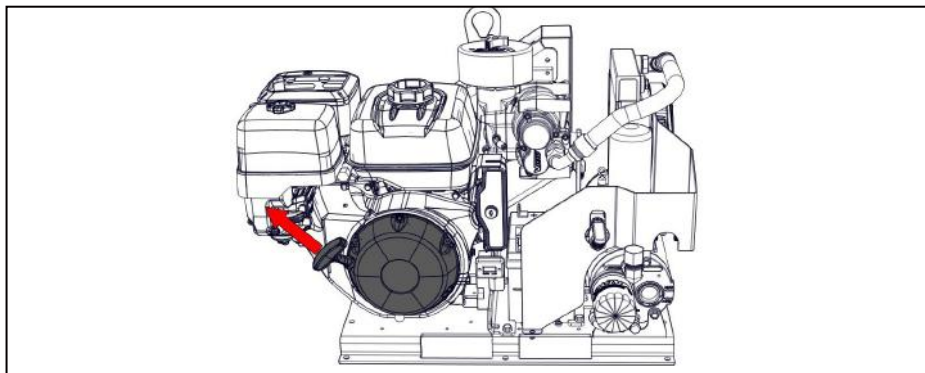


Figure 20 — Key switch

- 7) Once the engine is running, gradually open the choke by moving the choke lever to the right as the engine warms up (Figure 21).

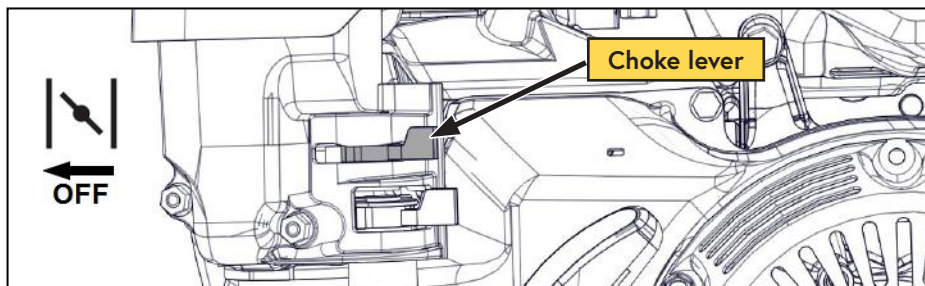


Figure 21 — Choke

- 8) Once the engine has reached normal operating temperature, release the tension on the unloader valve (Figure 22).

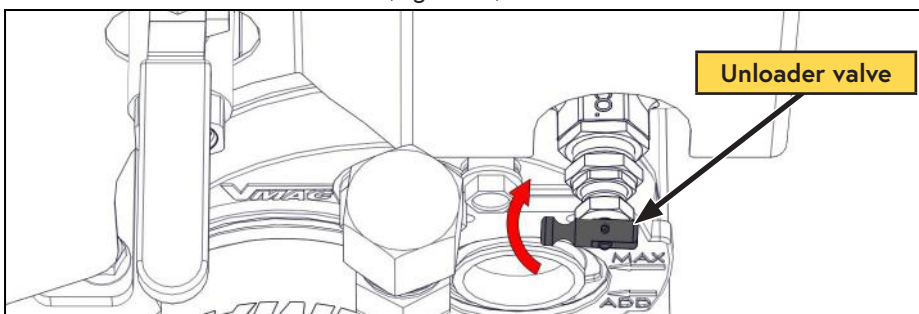




Figure 22 — Unloader valve



While the unloader valve is actuated the system will only build to 40 psi. Once the engine has warmed up, close the unloader valve to allow the system to build to full system pressure.

Stopping the engine

	<p><i>The engine may experience a backfire if it is shut off while the engine speed is above idle and the compressor is building air pressure. This is normal and is caused by the load on the engine during shut down. Ensure the engine is at idle prior to shutting it off.</i></p>
	<p><i>The exhaust system is equipped with a spark arrester.</i></p>

To properly shut down the engine:

- 1) Stop air use and close the air discharge valve.
- 2) Ensure the system has built to full system pressure (factory setting 135 psi) and the compressor is "unloaded".
- 3) Allow the engine to run at low idle for at least 10 seconds.
- 4) Turn the key to the "OFF" position.
- 5) Move the fuel shut off valve all the way to the left to shut off the fuel (Figure 23)

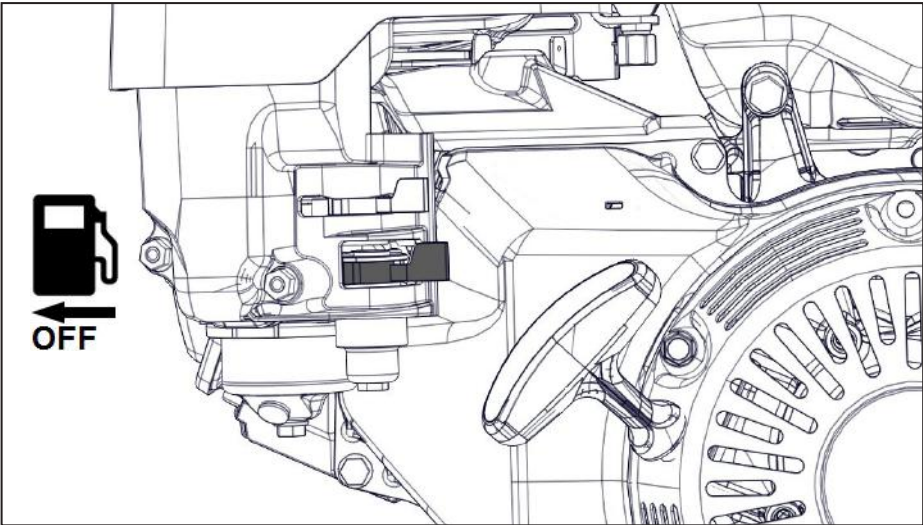




Figure 23 — Shut off fuel

	<p><i>Improper shut down may cause compressor oil to discharge from the compressor air filter.</i></p>
	<p><i>Ensure the fuel shut off valve is closed (all the way to the left) when the unit is not being run or before moving to a different site. Failure to do this may allow fuel to overfill the carburetor float bowl and flow into the engine's cylinder and/or crank case causing the engine to hydraulically lock.</i></p>

Recommended Accessories

While the compressor system will function without the following accessories, VMAC strongly recommends their use for optimal performance.

Receiver Tank

A receiver tank reduces the duty cycle of the compressor, and can help the Gas Engine Driven 30 CFM Air Compressor run tools with higher cfm requirements. It can also provide a buffer so that tools can be used immediately upon system start up.

For information on installing an air receiver tank see the "Air Receiver Tank" section of this manual on page 38.

Air receiver tanks are available for purchase through VMAC. See the "Accessory Products from VMAC" section of this manual on page 41 for more information.

Pressure Gauge

While not critical to system performance, a pressure gauge is important for fine tuning the system and simplifies any potential troubleshooting.

Install a 200 psi pressure gauge downstream of the air discharge valve.

Pressure Regulator and/or Lubricator or FRL

The compressor can produce air pressures up to approximately 135 psi (930 kPa). It is the responsibility of the user to know the pressure and air flow requirements of the tools powered by the air compressor system.

An appropriate air pressure regulator and lubricator can be installed downstream of the air discharge valve. Failure to regulate the air pressure may cause damage to the tool.

FRL's are available for purchase through VMAC. See the "Accessory Products from VMAC" section of this manual on page 41 for more information.

External Fuel Supply / Shut Off Valve



The use of any type of external fuel supply (e.g. gravity tank) or remote fuel shut off valves are not recommended or supported by VMAC.

Contact a Honda Engine dealer for information regarding external fuel supply or remote shut off valves.

Air Receiver Tank



Pressure in the air receiver tank will not be relieved when the compressor system blows down. This is normal operation. Prior to performing any service work on the system, discharge any stored air in the air receiver tank.



The WHASP Tank has a built-in check valve. Use of an additional check valve is not required and may cause erratic performance.



If an air receiver tank will be used with this system, the following installation procedure must be used to prevent damage to the system.



When connecting a large capacity receiver tank, users may experience situations where the system does not unload after reaching 135 psi (See the "System Pressure Unload" section on page 24 for more information). If this happens, the regulator on the inlet valve may need to be adjusted. See page 70 for instructions.

An air receiver tank provides a buffer as it gives the compressor time to react by increasing the engine speed and producing air before the tool stalls. It also has the advantage of lowering the duty cycle of the compressor system.

The VMAC compressor system automatically depressurizes when it is shut-down. The WHASP Tank has a built-in check valve which prevents the compressed air and any moisture in receiver tank from traveling back into the WHASP Tank.

Installation of an additional one-way check valve will cause erratic performance (Figure 24).

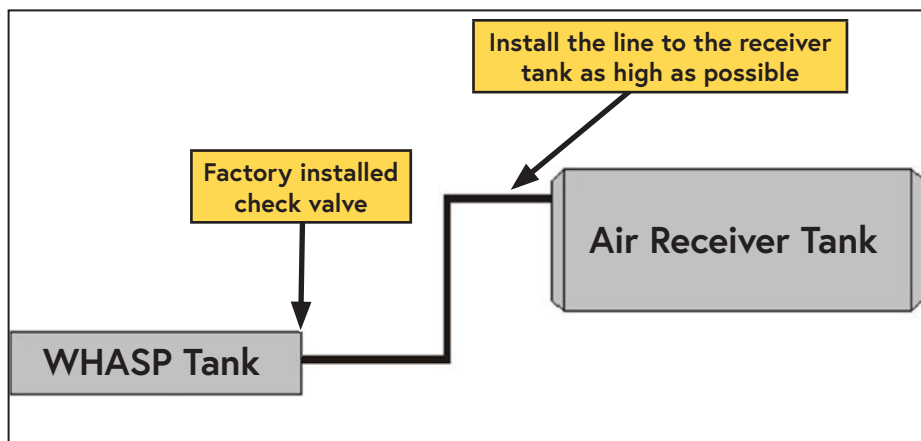


Figure 24 — Air receiver tank

Setup, Performance Testing and Adjustments

This system has been adjusted at the factory for general operation. System operation can be tested using the tools that will be operated by the system or by using the VMAC Test Tool (A700052) with the 30 cfm (1/8 in) orifice in the outlet to simulate tool use (Figure 25).

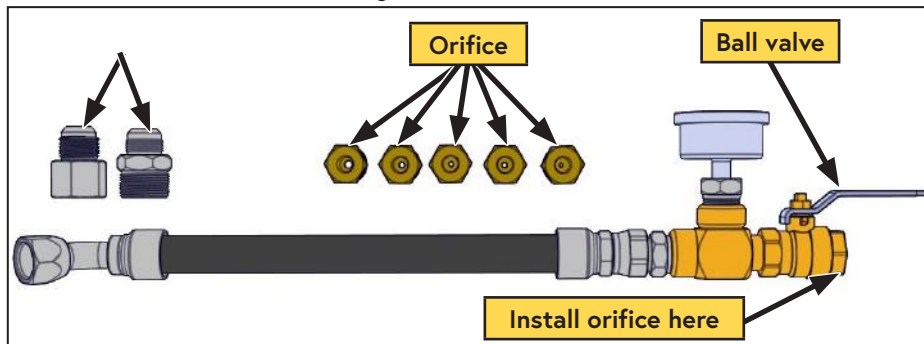


Figure 25 — A700052 VMAC Air Test Tool



Ensure there are no leaks in the test tool. The system may not idle down or unload if there are leaks in the lines or fittings.



Disconnect all downstream equipment (hose reels, etc.) and remove the ball valve from the compressor discharge. Connect the test tool directly to the discharge fitting on the WHASP Tank.

- ☐ Install the VMAC test tool at the system outlet with the 30 cfm (1/8 in) orifice.
- ☐ Ensure that the ball valve on the test tool is closed.
- ☐ Start the compressor system and allow the engine to run until it is at operating temperature.
- ☐ Ensure the tension on the unloader valve is released to allow the compressor to build to full pressure.
- ☐ Observe the pressure gauge, it should indicate approximately 135 psi (factory setting).
- ☐ Slowly open the ball valve on the test tool and observe the operation. The engine speed should increase when the pressure drops to 110 psi (25 psi below system pressure).
- ☐ With the ball valve fully open, the pressure should stabilize at approximately 100 psi (this simulates a tool operating at 30 cfm).
- ☐ Close the ball valve to allow the system pressure to rise.
- ☐ Once testing is complete, follow the normal shut off procedure.

Engine rpm Adjustment



Adjusting the engine speed is not an approved procedure. Any damage or performance issues caused by unauthorized engine rpm adjustment will not be covered under warranty. Lowering the engine rpm will decrease the cfm output and will cause the engine to stall, while increasing the engine rpm may damage the engine

The engine "low idle" and "high idle" screws are set at the factory and do not require adjustment. The throttle actuator will automatically raise and lower the engine speed dependent upon air demand.

Accessory Products from VMAC

Compressor Service Kits



200 Hour or 6 Month Service Kit -

Part number: A700219

Includes 4 L VMAC high performance compressor oil, oil filter, air filter, and next service due decal.

400 Hour or 1-Year Service Kit -

Part number: A700220

Includes 4 L VMAC high performance compressor oil, oil filter, air filter, spin-on oil separator, safety valve, muffler, and next service due decal.

Honda Engine Service Kit



Part number: A500045

300 hour Honda engine tune-up kit includes 2 L 10W30 oil, dual element air filter and spark plug. Using OEM service products will extend the life of the system.

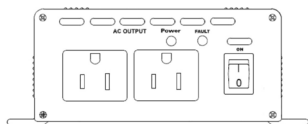
Cold Climate Kit



Part number: A500044; A520004 (factory installed)

Cold climate heater package for operating the Gas Engine Driven 30 CFM Air Compressor in cold climates; proven at temperatures of -30 °C (-22 °F); (x2) 120 V AC Heaters; requires 600 W total power.

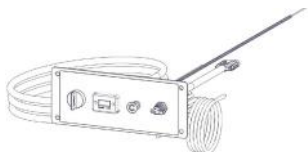
800 W Power Inverter



Part number: A500181

800 W, 12 V power inverter; required to power the Gas Engine Driven 30 CFM Air Compressor Cold Climate Kit.

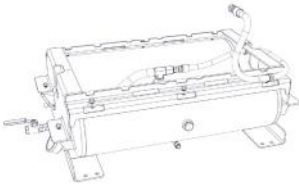
Remote Control Panel



Part number: A500042

Remote control panel with a 10 ft (304.8 cm) extension for key switch, hour meter, choke and unloader valve.

Dual 6 Gallon Low Profile Air Receiver Tanks

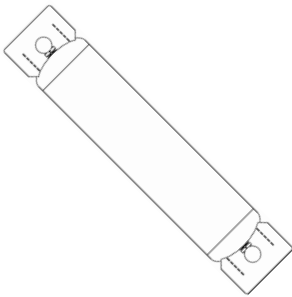


Part number: A500245; (A520007 factory installed)

Dual 6 gallon air receiver tanks with mounting frame; includes 200 psi pressure gauge, hose, ball valve and drain valves.

- Max pressure: up to 150 psi.
 - Dimensions: 34.5 in (87.63 cm) L x 21.25 in (53.98 cm) W x 11.25 in (28.58 cm) H.
 - Weight: 176.25 lb (75.95 kg).
-

6 Gallon Air Receiver Wing Tank



Part number: A300060

Air receiver tanks are used for lowering compressor duty cycle and removing water from compressed air; recommended for optimum operation of all VMAC Gas Driven, Diesel Driven, Hydraulic, and UNDERHOOD30 air compressors. Manufactured to FMVSS 121 standard; includes fittings, 150 psi pressure relief valve, and tank drain.

- Max pressure: up to 150 psi
 - Dimensions: 32 in (81.3 cm) L x 8 in (20.3 cm) D
 - Weight: 23 lb (10.4 kg)
-

10 Gallon Air Receiver Tank w/ Mounting Feet

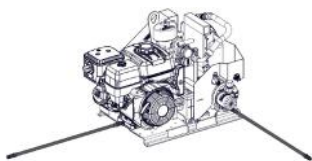


Part number: A300047

Air receiver tanks are used for lowering compressor duty cycle and removing water from compressed air. Recommended for optimum operation of VMAC Hydraulic Air Compressors, VMAC Diesel Driven Air Compressors, UNDERHOOD40, UNDERHOOD70 – Green Series Air Compressors, and VMAC Multifunction Power Systems, which include standby mode; ASME certified; includes fittings, 200 psi pressure relief valve, tank drain, and 200 psi pressure gauge.

- Max pressure: up to 200 psi.
 - Dimensions: 30 in (76.2 cm) L x 10 in (25.4 cm) D.
 - Weight: 33 lb (15 kg).
-

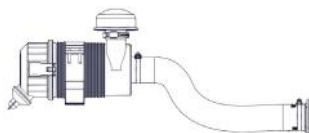
Remote Oil Drain



Part number: A500043

(x2) 3 ft (91.5 cm) remote drain hoses to allow the engine and compressor oil to be easily drained away from the engine.

Heavy Duty Compressor Air Filter



Heavy Duty Air Filter w/ Rain Cap

Part number: A700136

Heavy duty compressor air filter for moderate dust environments.

Heavy Duty Air Filter w/ Pre-cyclonic Filter

Part number: A700138

Heavy duty compressor air filter for moderate and heavy dust environments.

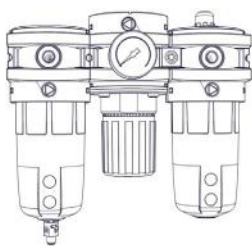
1/2 in x 50 ft Hose Reel



Part number: A700007

Spring-loaded 1/2 in x 50 ft hose reel; steel construction; full flow shaft and swivel for maximum performance.

Filter Regulator Lubricator (FRL) — 70cfm



Part number: A700151

Extends the life of air tools; filter removes contaminants from the compressed air, adjustable regulator can reduce air pressure going to tools, lubricator adds atomized tool oil to the air stream to lubricate air tools (Tool oil not included).

- Max air flow: up to 70 cfm / 150 psi.
- Port size: 3/4 in NPT inlet and outlet.

General Maintenance Information

Routine Maintenance

In order to maintain the VMAC warranty, VMAC's maintenance schedule must be followed. Only genuine VMAC parts can be used to maintain the system.

The compressor system does not contain reed valves or other easily fouled, fatigue prone components. With proper maintenance, the likelihood of premature failure or component replacement can be drastically reduced.

The most critical aspect of maintenance is proper air filtration and clean oil. If any particles enter the compressor, they can score the rotors and contaminate the roller bearings in the compressor. Any contamination will cause rapid and severe damage to components.



The Gas Engine Driven 30 CFM Air Compressor must be run a minimum of once every 30 days for at least 30 minutes to prevent impact damage and premature bearing failure in the compressor due to vibration from the vehicle. Regularly running the system will also help to vaporise and exhaust any water that has condensed and accumulated in the WHASP Tank.



Refer to the Honda Owner's Manual for detailed information related to the Honda GX390 maintenance schedule.

Torque Specifications

All fasteners must be torqued to specifications. Use manufacturers' torque values for OEM fasteners.

The torque values supplied in Table 1 are intended for VMAC supplied components, or for use as a guide in the absence of a torque value provided by an OEM.



Apply Loctite 242 (blue) to all fasteners (except nylon lock nuts) unless otherwise stated.

Torque values are with Loctite applied unless otherwise specified.

Standard Grade 8 National Coarse Thread								
Size (in)	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
Foot pounds (ft•lb)	9	18	35	55	80	110	170	280
Newton meter (N•m)	12	24	47	74	108	149	230	379

Standard Grade 8 National Fine Thread					
Size (in)	3/8	7/16	1/2	5/8	3/4
Foot pounds (ft•lb)	40	60	90	180	320
Newton meter (N•m)	54	81	122	244	434

Metric Class 10.9						
Size (mm)	M6	M8	M10	M12	M14	M16
Foot pounds (ft•lb)	4.5	19	41	69	104	174
Newton meter (N•m)	6	25	55	93	141	236

Table 1 — Torque Table

Installation Manuals and Illustrated Parts Lists (IPL)

The installation manual and illustrated parts list are an invaluable resource for when inspecting, diagnosing or repairing the system. The installation manuals and IPL's are available free of charge from VMAC.

VMAC Installation Manuals

<https://www.vmacair.com/support/manuals/>



VMAC IPLs

<https://www.vmacair.com/support/ipl/>



Maintenance and Repair Safety



Prior to performing any service, ensure the vehicle transmission in "PARK" with the parking brake applied and the wheels chocked (if applicable).



It is impossible to warn of all the possible hazards that may result from operating, servicing, or repairing this system. Wear all appropriate Personal Protective Equipment and follow all industry standard safety practices.



Confirm that the system is depressurized and has cooled prior to performing any service work.



Never use flammable solvents to clean any components. If a flammable solvent has been used, rinse the component thoroughly with water and dry it before reinstalling it to prevent the possibility of explosion.



Use only genuine VMAC parts to maintain the system. Genuine VMAC parts are designed to work with the high pressure and heat generated by the compressor. Substituting genuine VMAC parts may void the warranty and could cause equipment damage, injury, or death.



This information is intended for people with mechanical trade certification who have the tools and equipment to properly and safely perform the service or repair. Do not attempt to service or repair this system without the appropriate mechanical training, knowledge and experience.

Follow all safety precautions and industry standard "best practices".

Safety Check List

- ☐ Open the ball valve or connect an air tool to the system to ensure all the stored air is released (Figure 26).

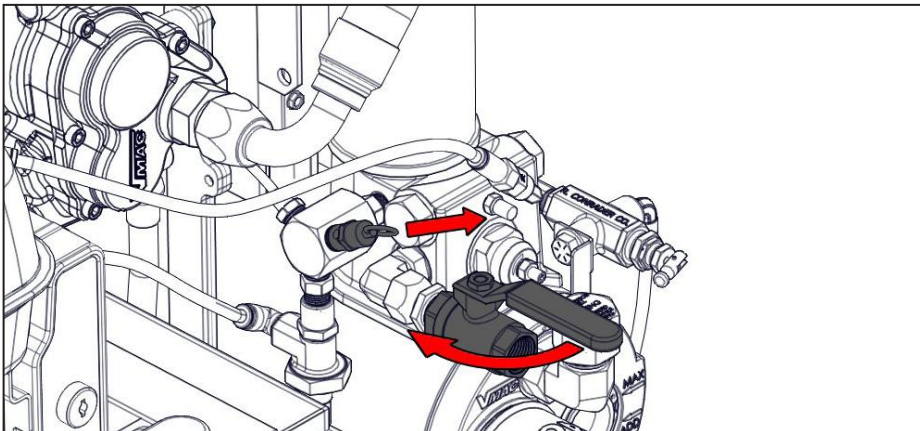


Figure 26 — Pressure relief valve (shroud removed for clarity)

- ☐ Gently pull up on the ring on the pressure relief valve to confirm the system is depressurized (Figure 26).



Do not use the pressure relief valve as a means of depressurizing the compressor system. Doing so will prematurely wear the internal spring or the seat, preventing the valve from maintaining normal system pressure.

- ☐ Remove the shroud, there are 3 fasteners that secure it to the base and WHASP Tank (Figure 27).

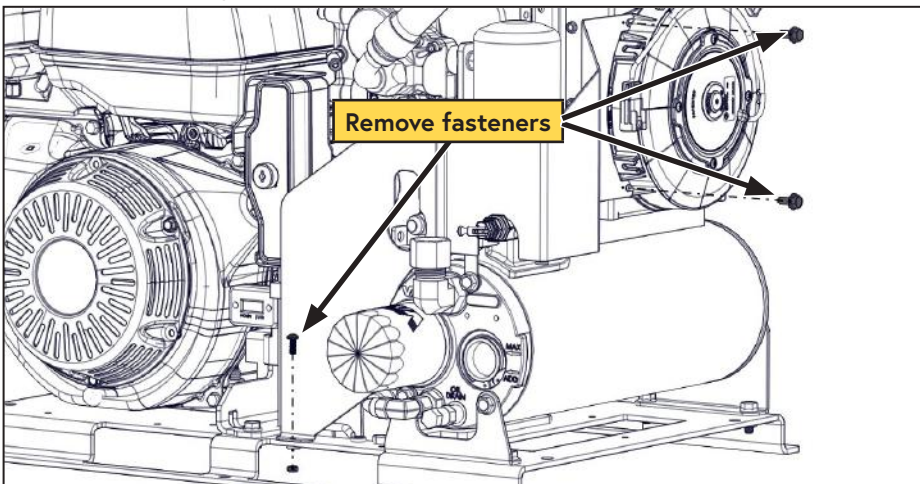


Figure 27 — Remove shroud

- ☐ Disconnect the negative battery terminal (Figure 28).

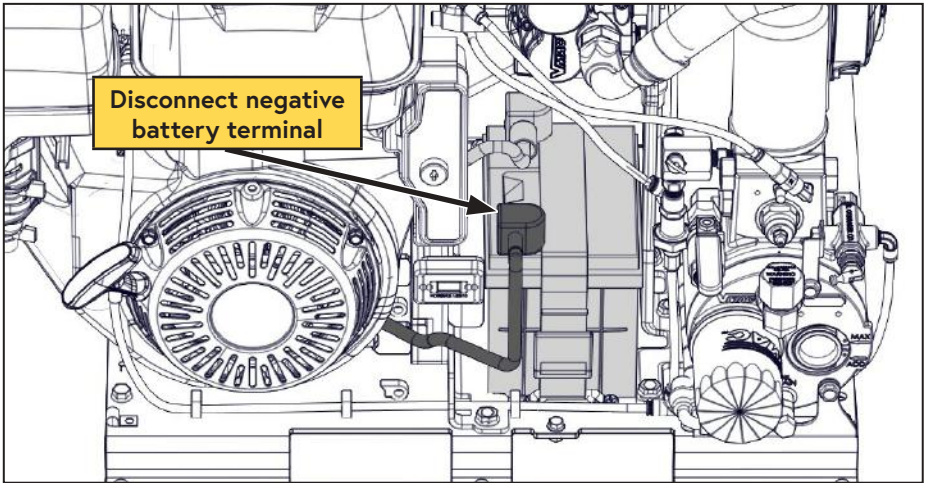


Figure 28 — Negative battery terminal

- ☐ Disconnect the spark plug wire (Figure 29).

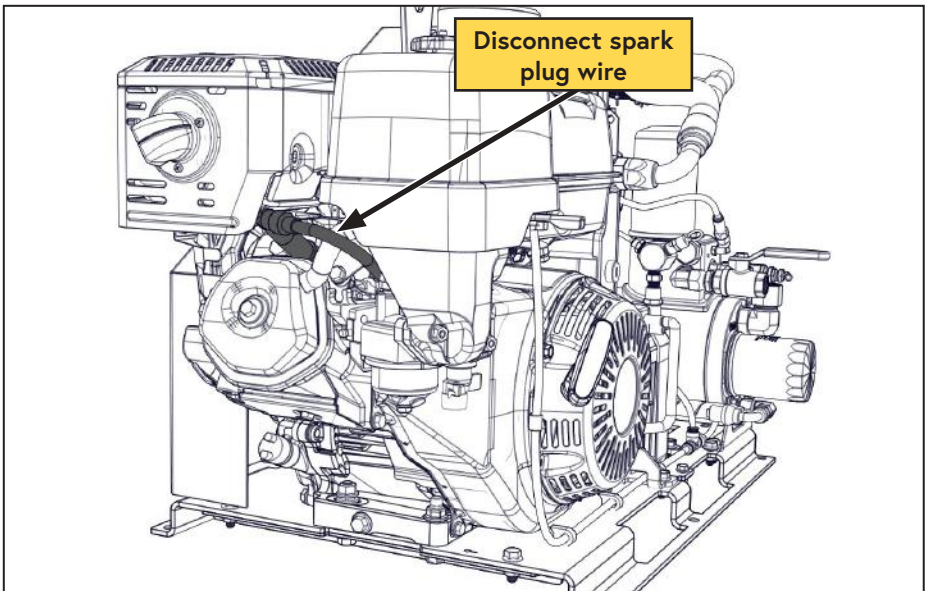


Figure 29 — Spark plug wire

Maintenance Schedule



In order to maintain the warranty on the Gas Engine Driven 30 CFM Air Compressor, use only genuine VMAC and/or Honda replacement parts to service the system.



Refer to the Honda Owner's Manual for the engine maintenance schedule and instructions.

To ensure proper performance and long service life, the following maintenance schedule must be adhered to.

The hours indicated below are those displayed on the hour meter. Service should be performed at whichever interval occurs first.

Check the Illustrated Parts List for replacement part numbers or contact VMAC for more information.

Every 6 months or 200 hours (Service Kit P/N: A700219)

- | | |
|---|--|
| <ul style="list-style-type: none"> • Change compressor oil. • Change compressor oil filter. | <ul style="list-style-type: none"> • Change compressor air filter. • Inspect pressure relief valve |
|---|--|

Every 12 months or 400 hours (Service Kit P/N: A700220)

- | | |
|--|--|
| <ul style="list-style-type: none"> • Change compressor oil. • Change compressor oil filter. • Change compressor air filter. | <ul style="list-style-type: none"> • Change compressor air filter. • Inspect pressure relief valve • Change blowdown muffler. |
|--|--|



Shorter service intervals are required if the equipment is used in dusty or extreme working conditions.

Components	Part Number	Interval	Extreme Conditions
Air filter	3600037	200 hours / 6 months	100 hours
Compressor oil (4 L)	A700094	200 hours / 6 months	100 hours
Oil filter	9200039	200 hours / 6 months	100 hours
Coalescing filter	3600088	400 hours / 1 year	200 hours

Table 2 — Service intervals

200 Hour / 6 Month Service Kit P/N: A700219			400 Hour / 1 Year Service Kit P/N: A700220		
QTY	Part #	Description	QTY	Part #	Description
1	3600037	Air filter	1	3600037	Air filter
1	9200039	Oil filter	1	9200039	Oil filter
1	A700094	VMAC High performance oil (4 L)	1	A700094	VMAC High performance oil (4 L)
			1	3600088	Spin on coalescing filter
			1	3600054	Valve, safety, 200 psi
			1	4500104	Muffler, Sintered Exhaust, 1/8

Table 3 — Service kit contents

Regular Inspection Instructions



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



The VMAC supplied and approved compressor oil must be used in this system. Failure to use this special oil will result in damage to the compressor and will void warranty.

Do not overfill the system. Overfilling the system with oil can flood the sight glass window and make the system appear empty.

Inspecting and Adding Compressor Oil

- ☐ Ensure the vehicle is parked on level ground and that the compressor system is depressurized and cool to the touch.
- ☐ Check the oil level in the sight glass and ensure that it is between the "MAX" arrow and the "ADD" arrow.

If the level is below the "ADD" arrow*:

- ☐ *Remove the fill cap on the tank (above the sight glass).
- ☐ *Using a funnel, pour oil into the fill fitting until the oil level in the sight glass reaches the "MAX" arrow.
- ☐ *Replace the fill cap and tighten securely.

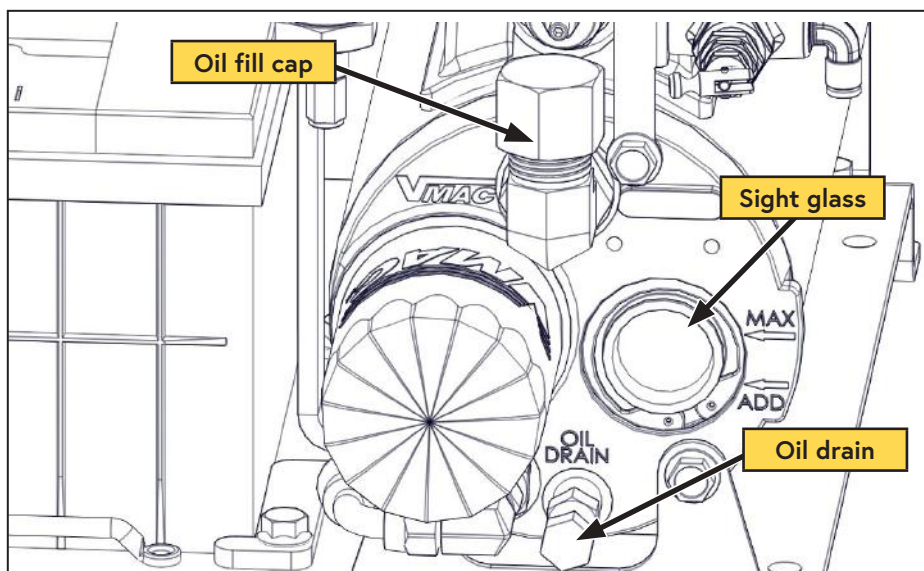


Figure 30 — Inspecting the oil

Inspecting and Replacing the Blowdown Muffler



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

The Blowdown Muffler is a regular service item and must be replaced every 400 hours or 1 year, whichever interval occurs first.

Visually inspect the blowdown muffler for evidence of corrosion or loss of functionality. Ensure the muffler allows the blowdown to pressurize the system. To test the blowdown system and muffler:

- ☐ Turn the system on and allow it reach full system pressure (factory setting 135 psi).
- ☐ Turn the ignition key switch to "OFF".
- ☐ Listen for the pressurized air to blowdown through the muffler on the WHASP Tank. Blowdown should be completed in approximately 20 seconds.
- ☐ If the muffler is showing signs of blockage, contact a local VMAC dealer for a replacement.



A replacement blowdown muffler is included with the VMAC 400 hour service kit.

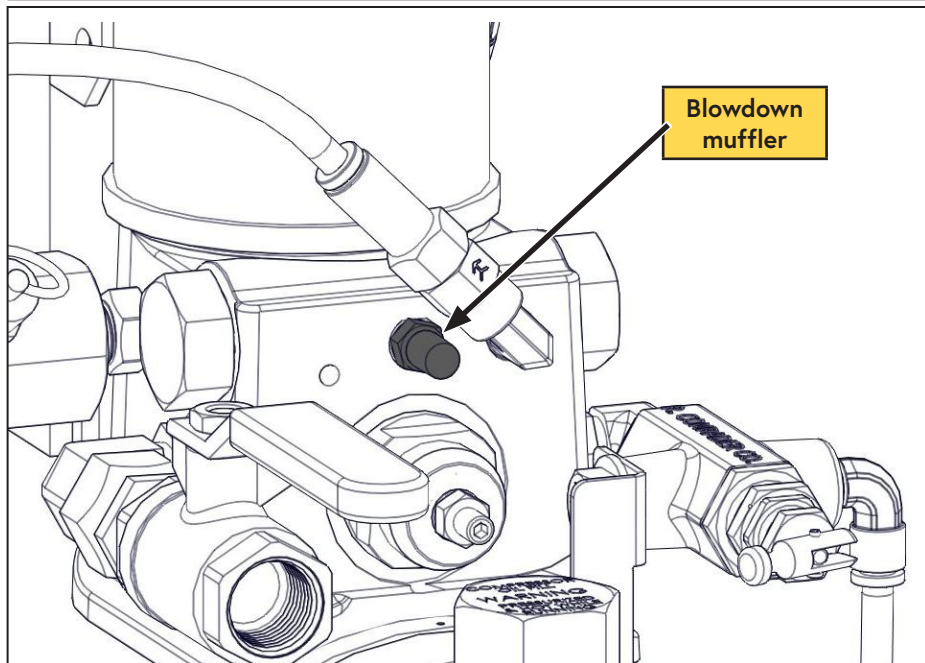


Figure 31 — Blowdown muffler (Shroud removed for clarity)

Inspecting and Replacing the Pressure Relief Valve



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



Do not use the pressure relief valve as a means of depressurizing the compressor system. Doing so will prematurely wear the internal spring or the seat, preventing the valve from maintaining normal system pressure.

The Pressure Relief Valve is a regular service item, and must be replaced every 400 hours or 1 year, whichever interval occurs first.

Inspect the pressure relief valve for signs of corrosion or loss of functionality. To test the pressure relief valve functionality:

- ☐ Visually inspect the valve and ensure it is not corroded and that the vent holes are not plugged.
- ☐ Turn the system on and allow it reach full system pressure (factory setting 135 psi).
- ☐ Ensure that air does not leak out of the valve. Air leaking from the pressure relief valve when system pressure is at or below 135 psi indicates that the spring in the valve is worn and the valve must be replaced.
- ☐ If the pressure relief valve is showing loss of functionality, contact a local VMAC dealer for a replacement.



A replacement pressure relief valve is included with the VMAC 400 hour service kit.

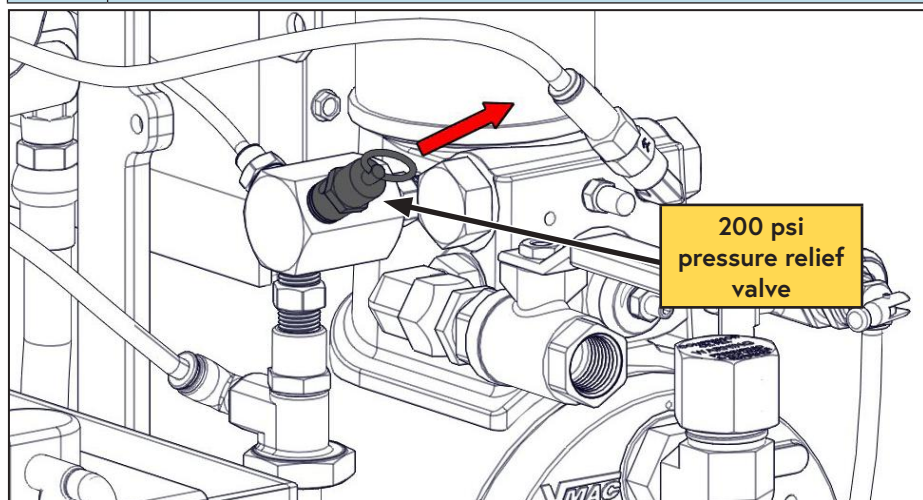


Figure 32 — Pressure relief valve (Shroud removed for clarity)

Inspecting and Replacing the Air Filter



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- ☐ Clean loose debris from the area around the compressor and the filter cover to prevent contaminants entering the compressor.
- ☐ Remove the filter cover retainer knob, the air filter cover and the air filter element.
- ☐ Immediately cover the compressor opening with tape or with a clean cloth to prevent contamination. Do not use compressed air or perform any other tasks around the compressor until the filter and cover have been replaced.
- ☐ Clean the inside of the filter cover with a clean, dry cloth. Do not use flammable solvents to clean the inside of the cover.
- ☐ Remove the cloth or tape covering the inlet and install a new air filter. Ensure the filter fits over the "step" on the filter plate.
- ☐ Replace the cover and secure it with the filter cover retainer knob. Do not overtighten.

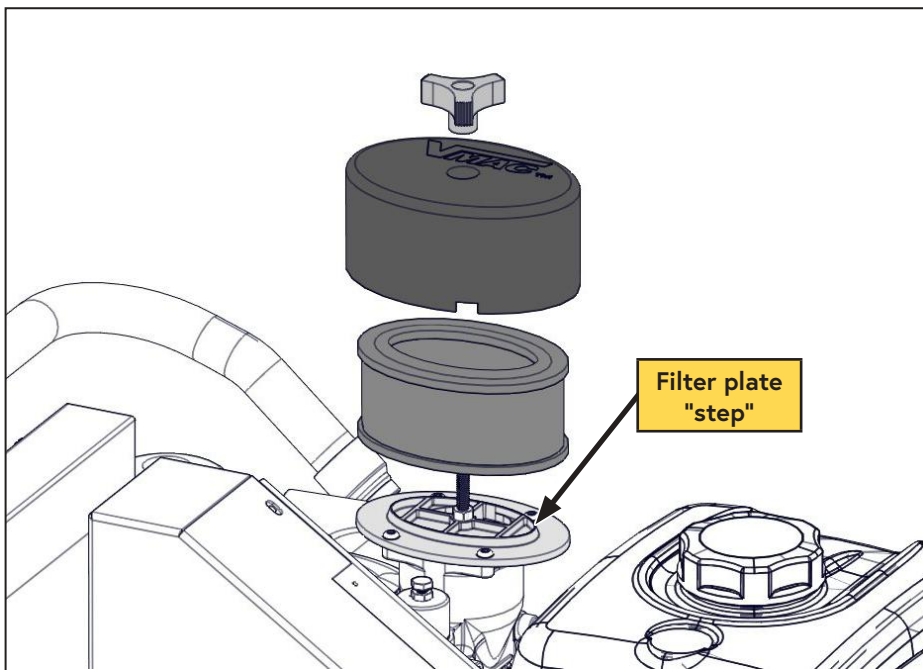



Figure 33 — Compressor air filter and cover

Inspecting and Replacing the Drive Belt



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

Check the drive belt for evidence of glazing, cracks, missing or damaged ribs or damage to the belt edges and surface. If the drive belt is damaged, install a new drive belt.

Inspect both pulleys and the idler for damage. If any of the components show cracks, chipping, impact damage or any other indications of physical damage, replace the component.

If the damage indicates possible misalignment, check the pulley alignment. If the pulleys are not properly aligned, check all fasteners to ensure that they are properly torqued and that there are no loose or worn components.

- ☐ Remove the 5 fasteners from the belt guard and remove the belt guard.
- ☐ Using a 3/8 in drive, remove tension from the drive belt and discard it.
- ☐ Install the new drive belt.
- ☐ Tension the new drive belt.
- ☐ Apply Loctite 242 (blue) to the 5 fasteners and reinstall the belt guard.

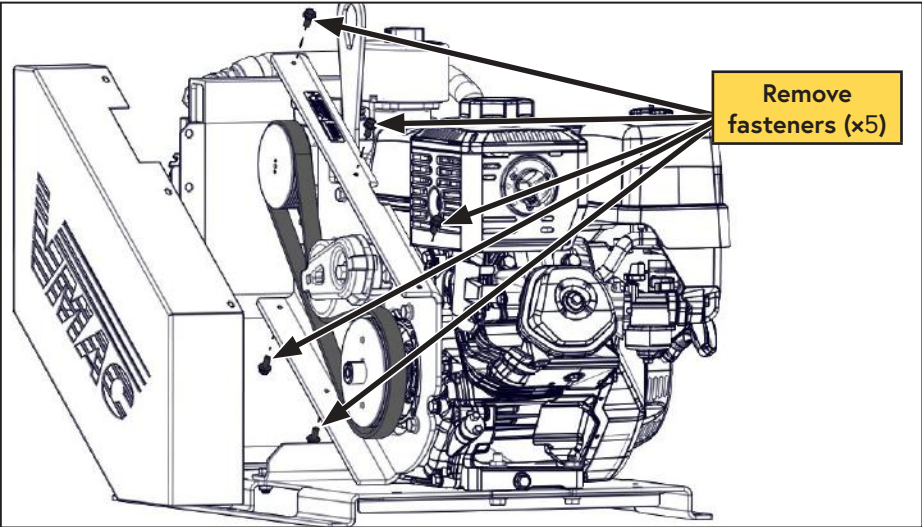


Figure 34 — Inspecting the drive belt

Description	Part #
Belt (Gates part number K040438)	1620365
Tensioner (Ford part number 7C3Z-6B209-D)	3300036

Table 4 — Belt part numbers and tension

Inspecting and Replacing the PTFE Tubes and Push-To-Connect Fittings



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

The scavenge, pressure control and throttle control tubes are made of Polytetrafluoroethylene (PTFE) and are within specification to work with VMAC compressor oil and to withstand the high pressure and operating temperatures generated by the compressor. Standard air brake hose is not a suitable replacement.

- ☐ PTFE Tubing must be cut to length using the proper tubing cutter. Side cutters and other tools tend to leave sharp edges and crush the tubing.
- ☐ To properly insert the PTFE into the push-to-connect fitting, lubricate the tube, push it firmly into the fitting until it has fully seated, then slide the collet back along the tube to lock it into place,
- ☐ Ensure the tube does not have any play to prevent the O-ring from wearing.



Lubricate the tube and firmly push it into the fitting so that the tube fully seats in the fitting. Slide the collet out, away from the body of the fitting to lock the tubing in place. Ensure the tube does not have any 'play' to prevent the O-ring from wearing.

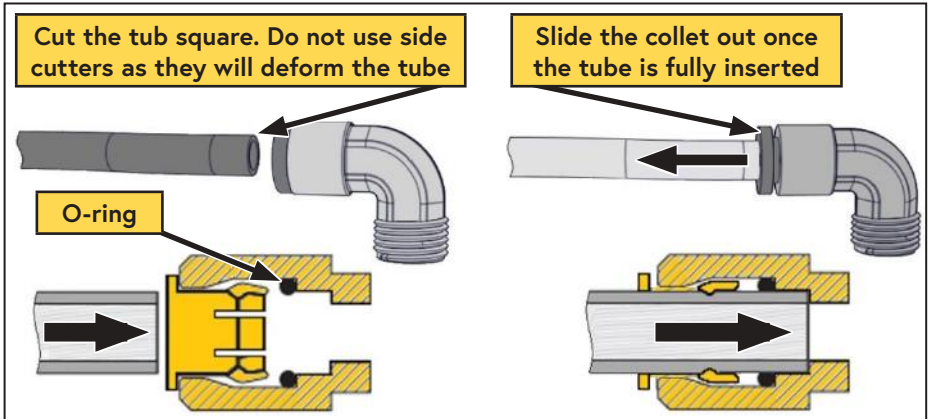


Figure 35 — Push-to-connect fittings

200 Hour / 6 Month Service



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



Do not use compressed air or perform any other tasks around the air filter and cover until both are replaced. Never clean the filter element with compressed air as this may allow contaminants to enter the compressor system. Always replace the air filter element during this service.



Do not overfill the system. Overfilling the system with oil can flood the sight glass window and make the system appear empty.

- ☐ Inspect the blowdown muffler (page 52).
- ☐ Inspect the pressure relief valve (page 53).
- ☐ Replace the air filter (page 54).
- ☐ Inspect the drive belt (page 55).
- ☐ Clean the area around the WHASP Tank and the oil filter to prevent contamination.



Dependant upon the mounting location of the Gas Engine Driven 30 CFM Air Compressor, the Remote Oil Drain Kit (P/N: A500043) may help facilitate draining the compressor oil.

- ☐ Remove the oil drain plug and drain the oil into a container with a capacity of at least 4 L (1 USG) (Figure 36).

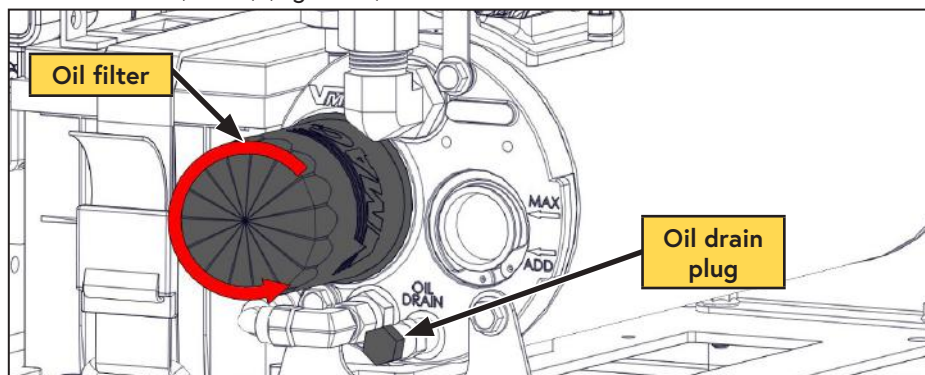


Figure 36 — Compressor oil filter

- ☐ Inspect the Viton O-ring on the oil drain plug for damage, hardness or defects and replace if necessary.
- ☐ Install and tighten the oil drain plug.
- ☐ Remove the oil filter (Figure 36).

- ☐ Ensure the threaded nipple did not unscrew with the oil filter.

If the nipple came out with the oil filter, remove it from the filter, being careful to avoid damaging the threads*:

- ☐ *To reinstall the nipple, thoroughly clean the threads and apply Loctite 242 (blue) to the end with the short threads and replace it in the AOST (Figure 37).
- ☐ Clean the gasket sealing surface on the front of the tank and inspect it for damage. The surface must be free of old gasket material and smooth to ensure a good seal. (Figure 37).

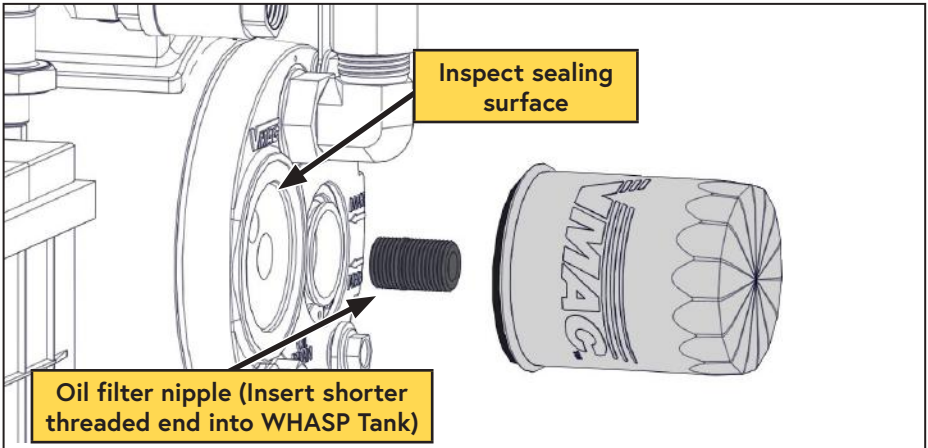


Figure 37 — Compressor oil filter

- ☐ Apply a thin coat of compressor oil to the rubber gasket on the oil filter.
- ☐ Spin the filter onto the threaded nipple until the gasket contacts the sealing surface on the tank, then tighten the filter an additional 3/4 to 1 turn to seat the gasket.
- ☐ Remove the filler cap on the WHASP Tank. Fill the WHASP Tank with VMAC compressor oil until it reaches the "MAX" mark. The air compressor system holds approximately 4 L (1 USG) of oil (Figure 38).

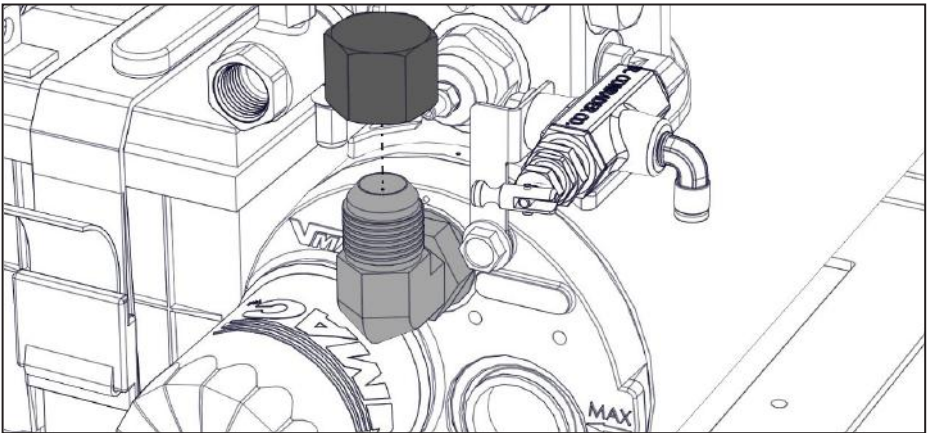


Figure 38 — Compressor oil fill

- ☐ Check the oil level at the sight glass on the front of the WHASP Tank. Continue adding oil until the level is correct.
- ☐ Reinstall the fill cap.
- ☐ Start the engine and check for oil leaks.
- ☐ Allow the system to build to pressure (factory setting 135 psi) and for the engine speed to decrease to base idle.
- ☐ Turn off the engine.
- ☐ Once the system has sat for 5 minutes, check the oil level through the sight glass. The level must be between the "MIN" and "MAX" level indicators.
- ☐ Verify there are no oil leaks.

400 Hour / 1 year Service



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



Do not use compressed air or perform any other tasks around the air filter and cover until both are replaced. Never clean the filter element with compressed air as this may allow contaminants to enter the compressor system. Always replace the air filter element during this service.



Do not overfill the system. Overfilling the system with oil can flood the sight glass window and make the system appear empty.

- ☐ Apply thread sealant and replace the blowdown muffler (page 52).
- ☐ Apply thread sealant and replace the pressure relief valve (page 53).
- ☐ Replace the air filter (page 54).
- ☐ Inspect the drive belt (page 55).
- ☐ Clean the area around the WHASP Tank and the oil filter to prevent contamination.



Dependant upon the mounting location of the Gas Engine Driven 30 CFM Air Compressor, the Remote Oil Drain Kit (P/N: A500043) may help facilitate draining the compressor oil.

- ☐ Remove the oil drain plug and drain the oil into a container with a capacity of at least 4 L (1 USG) (Figure 39).

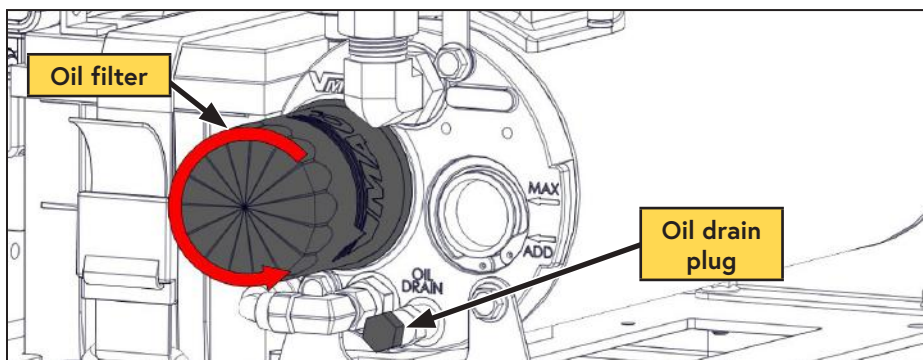


Figure 39 — Compressor oil filter

- ☐ Inspect the Viton O-ring on the oil drain plug for damage, hardness or defects and replace if necessary.
- ☐ Install and tighten the oil drain plug.
- ☐ Remove the oil filter (Figure 39).

- ☐ Ensure the threaded nipple did not unscrew with the oil filter.

If the nipple came out with the oil filter, remove it from the filter, being careful to avoid damaging the threads.

- ☐ *To reinstall the nipple, thoroughly clean the threads and apply Loctite 242 (blue) to the end with the short threads and replace it in the AOST (Figure 40).
- ☐ Clean the gasket sealing surface on the front of the tank and inspect it for damage. The surface must be free of old gasket material and smooth to ensure a good seal. (Figure 40).

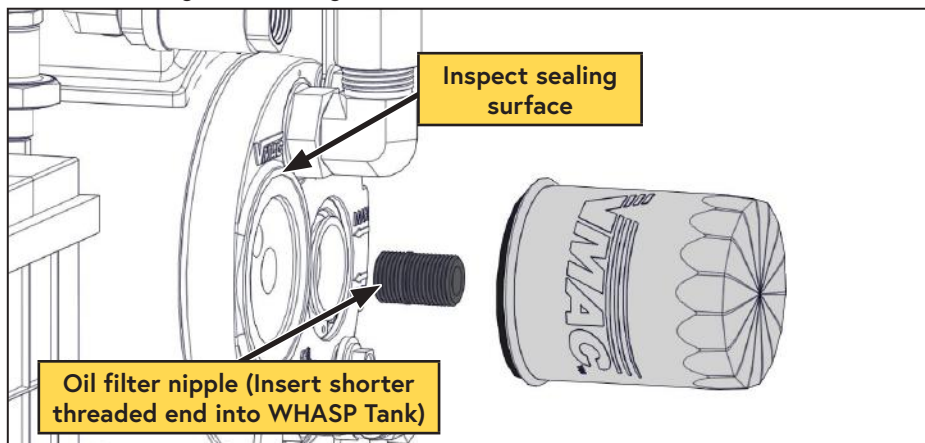


Figure 40 — Compressor oil filter

- ☐ Apply a thin coat of compressor oil to the rubber gasket on the oil filter.
- ☐ Spin the filter onto the threaded nipple until the gasket contacts the sealing surface on the tank, then tighten the filter an additional 3/4 to 1 turn to seat the gasket.
- ☐ Remove the filler cap on the WHASP Tank. Fill the WHASP Tank with VMAC compressor oil until it reaches the "MAX" mark. The air compressor system holds approximately 4 L (1 USG) of oil (Figure 41).

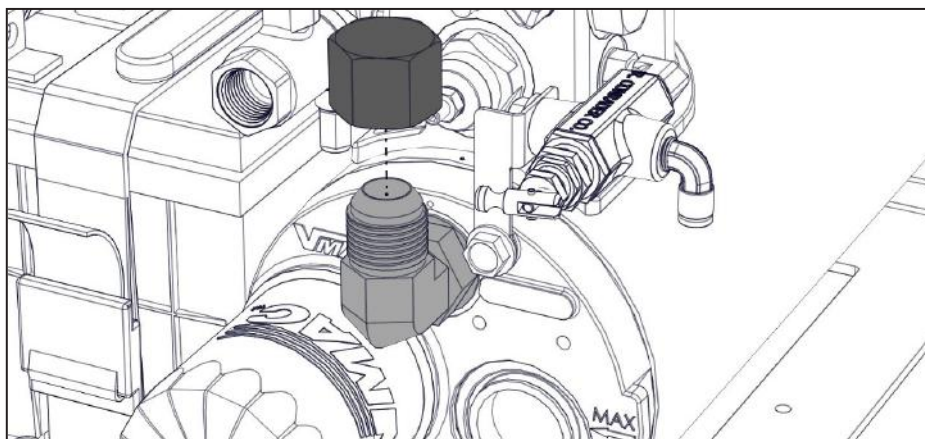


Figure 41 — Compressor oil fill

- ☐ Check the oil level at the sight glass on the front of the WHASP Tank. Continue adding oil until the level is correct.
- ☐ Reinstall the fill cap.
- ☐ Clean the WHASP Tank around the coalescing filter to prevent contamination.
- ☐ Remove the spin on coalescing filter by turning it counterclockwise (Figure 42).
- ☐ Clean the gasket sealing surface and inspect it for damage. The surface must be free of old gasket material and smooth to ensure a good seal (Figure 42).
- ☐ Apply a thin coat of compressor oil to the rubber gasket on the new coalescing filter.
- ☐ Spin the new filter onto the threaded nipple until the gasket contacts the sealing surface on the tank, then tighten the filter an additional 3/4 to 1 turn to seat the gasket.

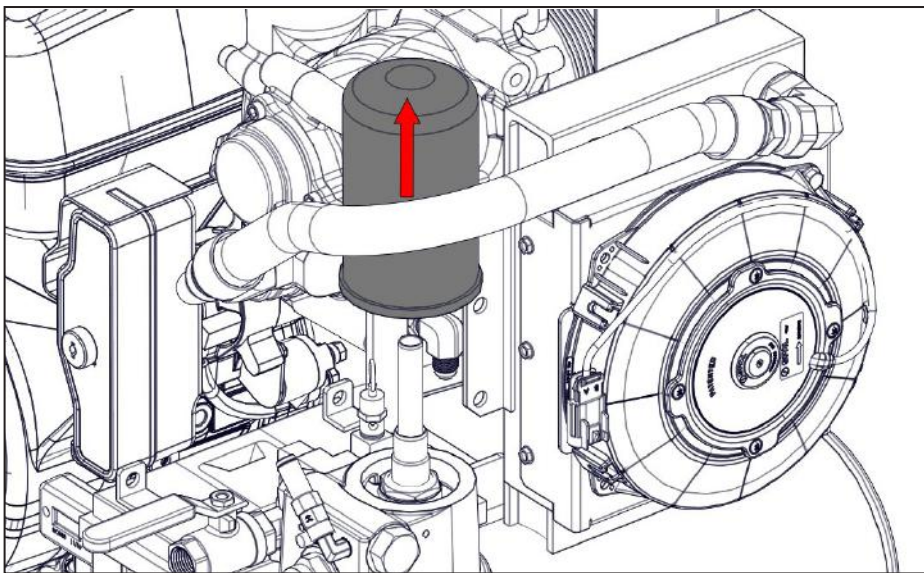


Figure 42 — Coalescing filter

- ☐ Start the engine and check for oil leaks.
- ☐ Allow the system to build to pressure (factory setting 135 psi) and for the engine speed to decrease to base idle.
- ☐ Turn off the engine.
- ☐ Once the system has sat for 5 minutes, check the oil level through the sight glass. The level must be between the "MIN" and "MAX" level indicators.
- ☐ Verify there are no oil leaks.

Engine Maintenance and Warranty Information

The VMAC Gas Engine Driven 30 CFM Air Compressor uses the Honda GX390 engine. For engine service intervals and instructions, refer to the Honda Owner's Manual supplied with the system (VMAC P/N: 1901066).

Failure to follow the instructions in the Honda Owner's Manual could result in poor engine performance, engine damage and may void the Honda engine warranty.

For all Honda engine maintenance or warranty questions, contact a local Honda Power Equipment dealer.

In Canada:

<https://powerequipment.honda.ca/where-to-buy>



In the United States

<http://engines.honda.com/dealer-locator>



Diagnostics and Trouble Shooting



*This information is intended for people with mechanical trade certification who have the tools and equipment to properly and safely perform the service or repair. Do not attempt to service or repair this system without the appropriate mechanical training, knowledge and experience.
Follow all safety precautions and industry standard "best practices".*



*Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47).
Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.*



For the following tests, isolate the Gas Engine Driven 30 CFM Air Compressor from all downstream (customer supplied) equipment.



If the Gas Engine Driven 30 CFM Air Compressor is still within the warranty period, contact VMAC prior to commencing any diagnostics or repairs.

Problem diagnosis should follow sound, recognized practices. Quick and accurate diagnosis of problems should involve the following:

- Follow industry standard safety practices.
- Accurately identifying the problem by operating the system.
- Determining the possible causes for the problem by understanding how the system operates.
- Isolating the potential causes by accurate testing using the correct and recognized procedures.
- Performing proper repairs using the correct procedures and the recommended replacement parts.
- Performing proper post repair testing to ensure that the repairs were effective.
- Electrical testing should be performed according to the processes described in the troubleshooting charts and in conjunction with any documentation provided by VMAC.

Symptom	Possible Cause	Corrective Action
Compressor building above set pressure (Verified by pressure gauge) or pressure relief valve venting at 200 psi.	Pressure control tube plugged or frozen.	Remove and clear the tube.
	Defective inlet or poppet O-ring.	Replace O-ring.
	Defective inlet valve.	Replace inlet assembly.
	Plugged or restricted pressure control tube	Replace components as needed.
	Unloader valve out of adjustment or failed.	Replace unloader valve.

Symptom	Possible Cause	Corrective Action
Compressor will not build to set pressure (Verified by pressure gauge).	Defective downstream equipment (Filter Regulator Lubricator, fittings, hose reel.	Replace as required with suitable components.
	Unloader valve manually activated.	Manually disengage unloader valve.
	Excessive leakage through blowdown muffler.	Replace blowdown shuttle valve.
	Plugged or dirty compressor air filter.	Replace air filter.
	Drive belt slipping.	Check belt.
	Leaks in air lines.	Replace components as needed.
	Pressure relief valve leaking.	Replace pressure relief valve.
	Inlet valve regulator set too low.	Adjust inlet valve regulator. See page 70.

Symptom	Possible Cause	Corrective Action
Engine Stalls.	Low fuel in engine.	Add fuel to engine.
	Contaminated fuel.	Clean fuel tank and carburetor and fill with clean fuel.
	Compressor pressure set too high.	Lower compressor air pressure to approx. 135 psi. Ensure unloader activates (rpm decreases).
	Starting compressor under pressure.	Ensure system is depressurizing on shut down.
	Operating at too high of an elevation.	See section on elevation on page 25.
	Low engine oil.	Add oil to engine.
	Spark plug gap.	Replace spark plug.
	Spark arrester clogged.	Clean or replace the spark arrester.
	Mounted in enclosure.	See enclosure mounting parameters on page 15.

Symptom	Possible Cause	Corrective Action
Excessive vibration.	Loose fasteners.	Torque fasteners, use appropriate thread locking compound.
	Belt or pulley worn.	Replace components as needed.

Symptom	Possible Cause	Corrective Action
Excessive oil in the air stream.	Clogged scavenge tube or fitting.	Clean or replace.
	Coalescing separator failure.	Replace coalescing filter.
	Compressor oil overfilled.	Check oil level with equipment on level ground.
	Operating angle more than 15° from horizontal.	Reduce operating angle.
	Incorrect start up / shut down procedures.	Observe start up / shut down procedures detailed in this manual.

Symptom	Possible Cause	Corrective Action
Compressor overheat.	Low compressor oil level.	Check oil level with equipment on level ground.
	Wrong compressor oil used.	Flush and replace with VMAC approved compressor oil.
	Oil condition.	Service compressor.
	Plugged compressor oil filter.	Replace oil filter.
	WHASP Cooler not functioning or plugged.	Clean or replace the WHASP Tank
	WHASP Cooling fan not functioning.	Repair or replace.
	High ambient temperatures.	Reduce duty cycle.
	Oil temperature switch failure.	Replace if defective.
	Restricted oil lines.	Check for kinked or pinched lines.
	Mounted in enclosure.	See enclosure mounting parameters on page 15.

Symptom	Possible Cause	Corrective Action
Engine will not crank.	Battery discharged.	Charge or replace battery. Use recoil pull start.
	Fuel shut off lever left on during transport, fuel flooded crank case and cylinder.	Remove spark plug. Use recoil starter to drain cylinder. Change oil and filter.

Symptom	Possible Cause	Corrective Action
Engine rpm does not decrease.	Throttle tube frozen, plugged or obstructed.	Clean or replace tube.
	Throttle actuator failure.	Replace actuator.
	Discharge valve failure.	Replace discharge valve.
	Inlet regulator pressure set too close to unloader valve pressure setting.	Follow the inlet regulator adjusting steps on page 70.

Symptom	Possible Cause	Corrective Action
Engine rpm does not increase.	Unloader valve manually activated.	Manually disengage unloader valve.
	Inlet valve regulator pressure set too low.	Adjust inlet valve regulator to increase pressure.
	Discharge valve failure.	Replace discharge valve.
	Throttle actuator failure.	Replace actuator.

Symptom	Possible Cause	Corrective Action
Engine overheat.	High ambient temperatures.	Reduce duty cycle.
	Low engine oil level.	Check engine oil level with equipment on level ground.
	Cooling intake plugged.	Correct problem.
	Insufficient ventilation.	Correct problem.
	Spark arrester fouled.	Clean spark arrester.
	Mounted in enclosure.	See enclosure mounting parameters on page 15.

Symptom	Possible Cause	Corrective Action
Blowdown does not function.	Scavenge tube frozen, plugged or obstructed	Clean or replace tube.
	Blowdown muffler plugged or obstructed.	Replace muffler.
	Blowdown valve failure.	Replace blowdown valve assembly.

Symptom	Possible Cause	Corrective Action
Oil comes out of the blowdown muffler.	Operating angle more than 15° from horizontal.	Reduce operating angle.
	Compressor oil overfilled	Check oil level with equipment on level ground.
	Faulty blowdown shuttle valve.	Replace blowdown shuttle valve.
	Blowdown valve failure.	Replace blowdown valve assembly.

Symptom	Possible Cause	Corrective Action
Engine will not start.	Fuel lever off.	Turn fuel lever on.
	Starting with pressure in the compressor.	Check blowdown function.
	Compressor temperature too high.	Diagnose and repair.
	Compressor temperature switch faulty.	Replace switch.
	Low engine oil.	Add oil to engine.
	Low fuel in engine.	Add fuel to engine.
	Spark plug gap.	Replace spark plug.
	Engine air intake restricted.	Remove restriction / replace air filter.
	Engine exhaust system plugged or restricted.	Clean or replace exhaust / spark arrester.
	Fuel bowl / filter plugged or restricted.	Clean or replace.
	Battery discharged.	Charge or replace battery.
	Starter failure.	Replace starter or use recoil pull start.
Symptom	Possible Cause	Corrective Action
Pressure relief valve venting below 200 psi.	Defective pressure relief valve.	Replace pressure relief valve.
Symptom	Possible Cause	Corrective Action
Air leaking from small hole in inlet valve regulator cap.	This is normal and as per design.	None required.

Table 5 — Trouble shooting table

Diagnostic Tools

VMAC Air Test Tool (P/N: A700052)

To properly diagnose VMAC's Gas Engine Driven 30 CFM Air Compressor, a VMAC Air Test Tool (P/N: A700052), or equivalent, is required (Figure 43).

For testing and diagnosis, install the 30 cfm (1/8 in) orifice.

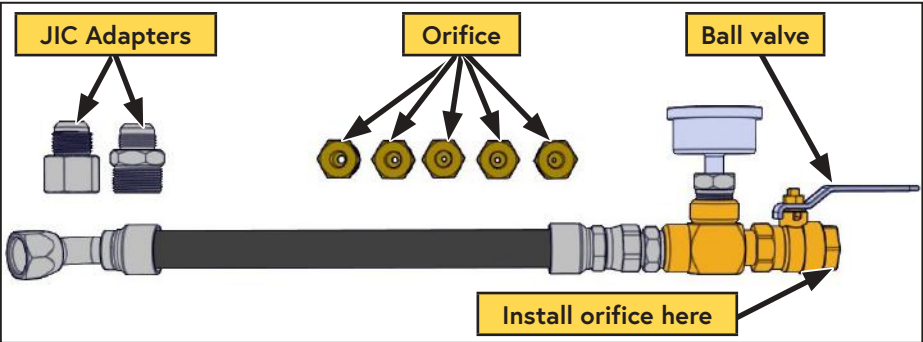


Figure 43 — A700052 VMAC Air Test Tool

PTFE Test Tool

A PTFE test tool can be constructed and used to test the unloader valve and throttle actuator function (Figure 44, Table 6).

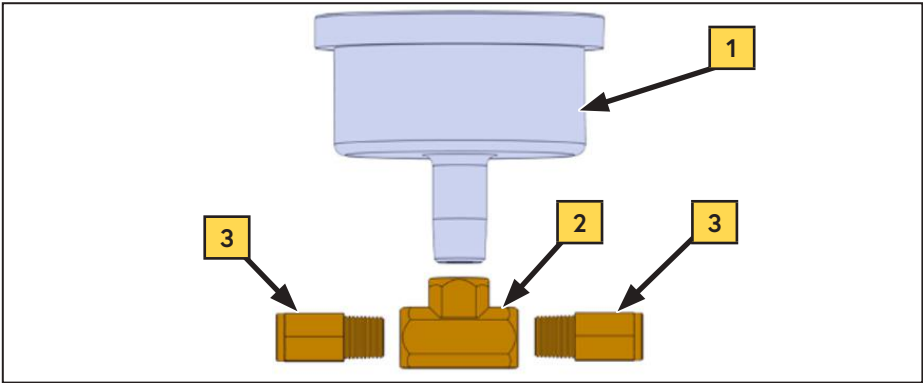


Figure 44 — PTFE Test Tool

Item	Description	Quantity
1	200 psi Gauge	1
2	T-fitting	1
3	1/4 in Push-to-connect fittings	2

Table 6 — PTFE Test Tool

System Adjustments

The Gas Driven 30 CFM Air Compressor is tuned at the factory for optimum performance and should not require further adjustment.

This information is provided to assist operators in returning the system to factory specifications in the event that it has been field adjusted and/or no longer performs as intended.

When tuned correctly, the Gas Driven 30 CFM Air Compressor will operate at high rpm until the unit has built to full system pressure (135 psi) and then will "unload" and reduce engine speed to base idle.

In order for the system to "unload" and reduce engine speed, both the inlet pressure regulator, and the unloader valve must be adjusted to the correct values.



Prior to making any adjustments, run the system for a minimum of 3 minutes or until the WHASP Tank fan turns on, as all adjustments must be made while the system at operating temperature.



Prior to adjusting the unloader valve, the inlet pressure regulator must be set to 140 psi.

Adjusting the Inlet Pressure Regulator



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- ☐ Disconnect the PTFE tube connected to the unloader valve.
- ☐ Remove the push-to-connect fitting from the unloader valve and plug the valve using a 1/4 in NPT plug (Figure 45).

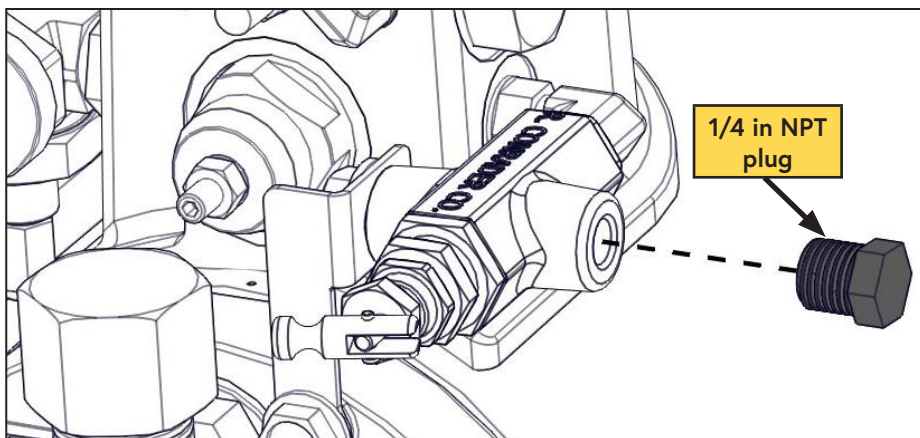


Figure 45 — Plug unloader valve

- ☐ Connect the VMAC Air Test Tool (P/N: A700052) to the discharge fitting of the WHASP Tank.
- ☐ With the ball valve on the test tool closed, run the system and note the maximum pressure achieved (factory default is 140 psi).
- ☐ Shut the system down and discharge any stored air.

If the inlet pressure regulator is not adjusted to 140 psi:



The following steps require working on the system while it is at normal operating temperature, special care must be taken to prevent injury from burns as the surfaces of the unit are hot!

- ☐ Make a locating mark on the pressure adjusting bolt to assist in making adjustments.
- ☐ Loosen the locknut on the regulator (Figure 46).

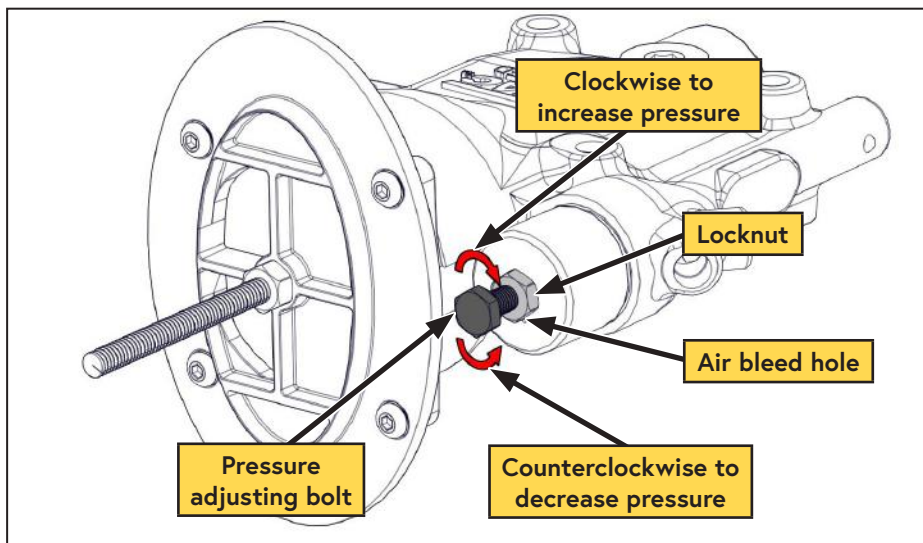


Figure 46 — Adjusting the inlet pressure regulator



Each 1/4 rotation of the adjusting bolt is equivalent to approximately 6 – 7 psi.

- ☐ Rotate the pressure adjusting bolt as required to set the regulated pressure to 140 psi. (Figure 46).
- ☐ Tighten the locknut.
- ☐ Test the system.

Once the inlet regulator is adjusted correctly:

- ☐ Remove the 1/4 in NPT plug from the unloader valve and install the push-to-connect fitting (Figure 45).
- ☐ Connect the PTFE tube to the unloader valve.

Adjusting the Unloader Valve



The following steps require working on the system while it is at normal operating temperature, special care must be taken to prevent injury from burns as the surfaces of the unit are hot!



Prior to adjusting the unloader valve, the inlet pressure regulator must be set to 140 psi (see page 70).



Make very small adjustments (1/8 turn or less) to the unloader valve as it is very sensitive.

- ☐ Ensure the inlet pressure regulator is set to 140 psi.
- ☐ Make a locating mark on both the "Pressure Adjustment Locknut" and the "Pressure Adjustment Screw" (Figure 47).

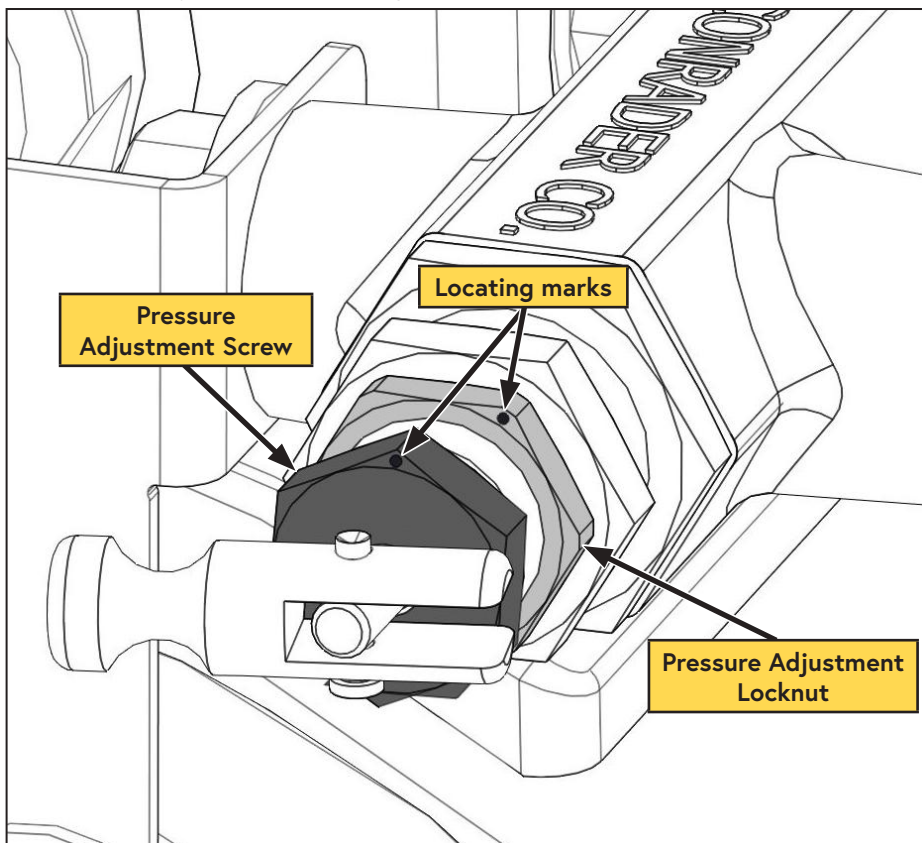


Figure 47 — Adjusting the Unloader Valve



The unloader valve is sensitive to very small adjustments.

To prevent inadvertently rotating the "Pressure Adjustment Screw", hold the "Pressure Adjustment Screw" securely when tightening loosening or tightening the "Pressure Adjustment Locknut"

- ☐ While securely holding the "Pressure Adjustment Screw", loosen the "Pressure Adjustment Locknut" (Figure 48).

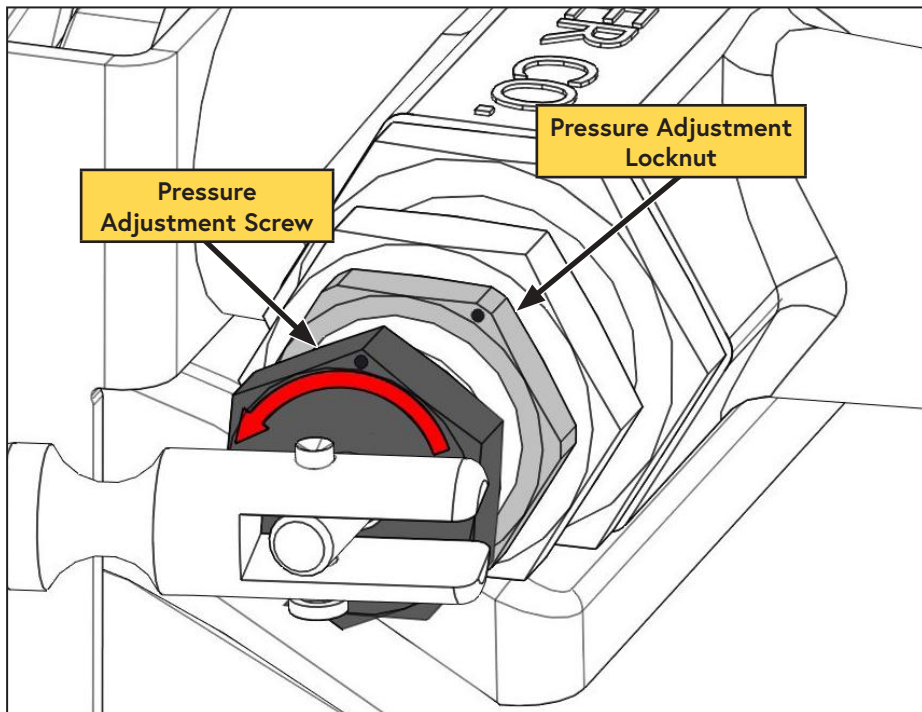


Figure 48 — Adjusting the Unloader Valve



Each 1/8 rotation of the "Pressure Adjustment Screw" is equivalent to approximately 5 psi.

- ☐ Rotate the "Pressure Adjustment Screw" counterclockwise in 1/8 turn increments.
- ☐ While securely holding the "Pressure Adjustment Screw", tighten the "Pressure Adjustment Locknut".
- ☐ Test the system and repeat the steps above (if necessary) until the system unloads at 135 psi.

Compressor Regulation and Throttle Actuator Testing

Throttle Control

VMAC configures the Honda engine throttle to be wide open in its neutral state (0 psi). Engine rpm is controlled via the throttle actuator which is operated by air pressure from the unloader valve.

Once air pressure at the ball valve and unloader valve ("downstream pressure") reaches 135 psi, the throttle actuator closes the throttle, reducing engine speed to idle. "Downstream pressure" opens the discharge valve diaphragm, via the 1/4 in PTFE tube, and allows air pressure to close the inlet valve poppet: (Figure 49, Figure 50, Figure 51).

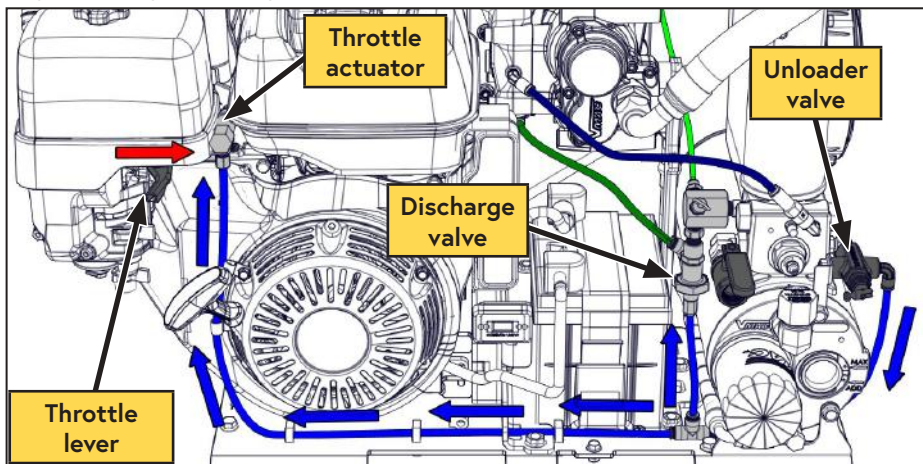


Figure 49 — Throttle operation

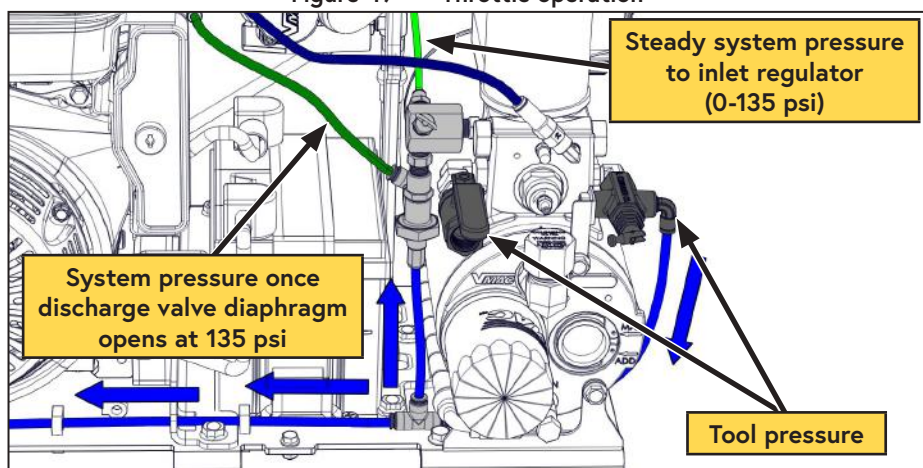


Figure 50 — Throttle operation

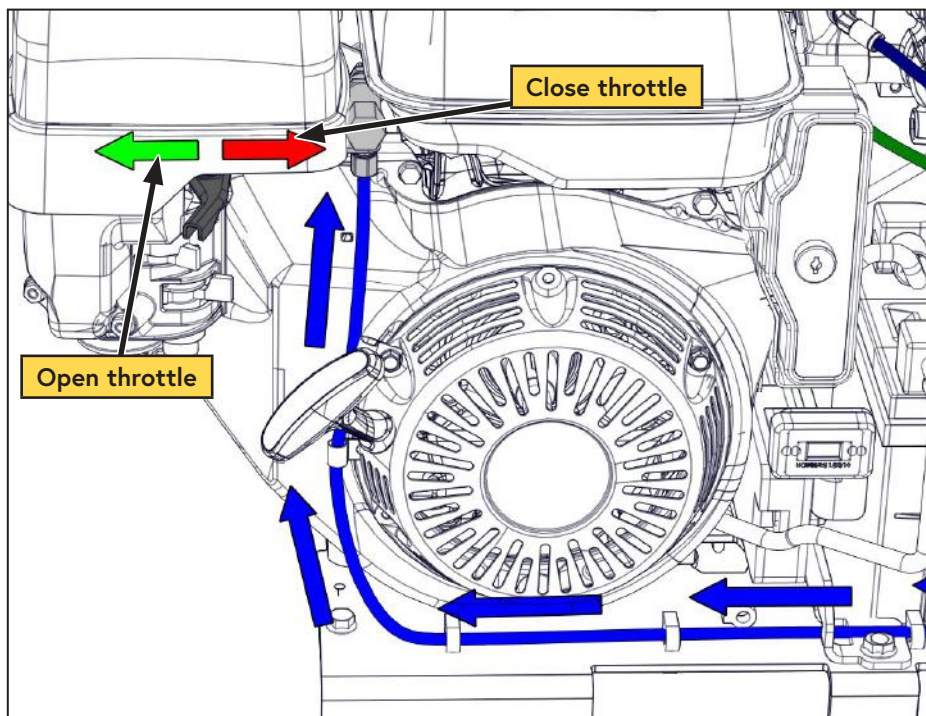


Figure 51 — Throttle actuator

Throttle Tube

A 1/4 in PTFE tube (shown in "blue") connects the discharge valve and unloader valve to the throttle actuator via a 1/4 in PTFE union (Figure 52).

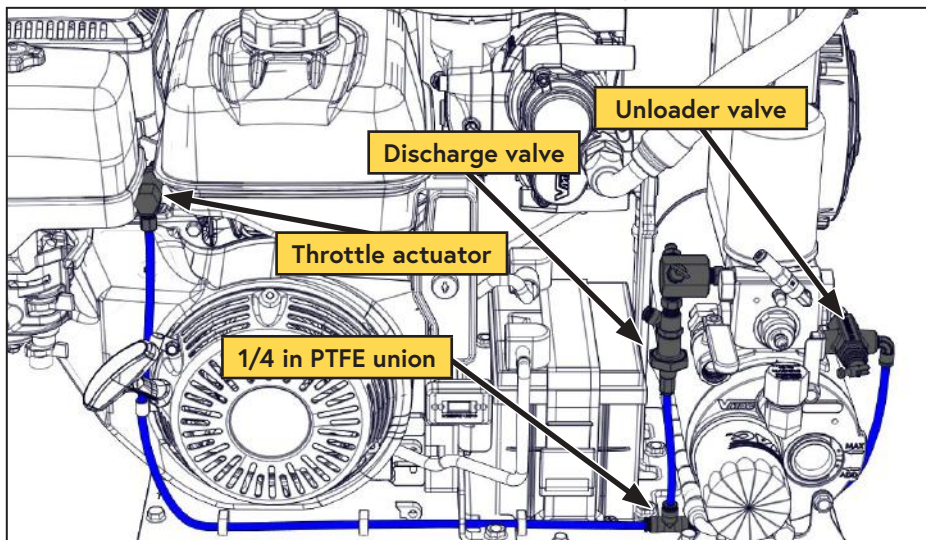


Figure 52 — Throttle actuator tube

Scavenge Tube

A 1/4 in PTFE tube (shown in blue) connects the WHASP Tank to the compressor inlet valve. Vacuum from the compressor pulls the separated oil from the coalescing filter, recirculating the oil in the system (Figure 53).

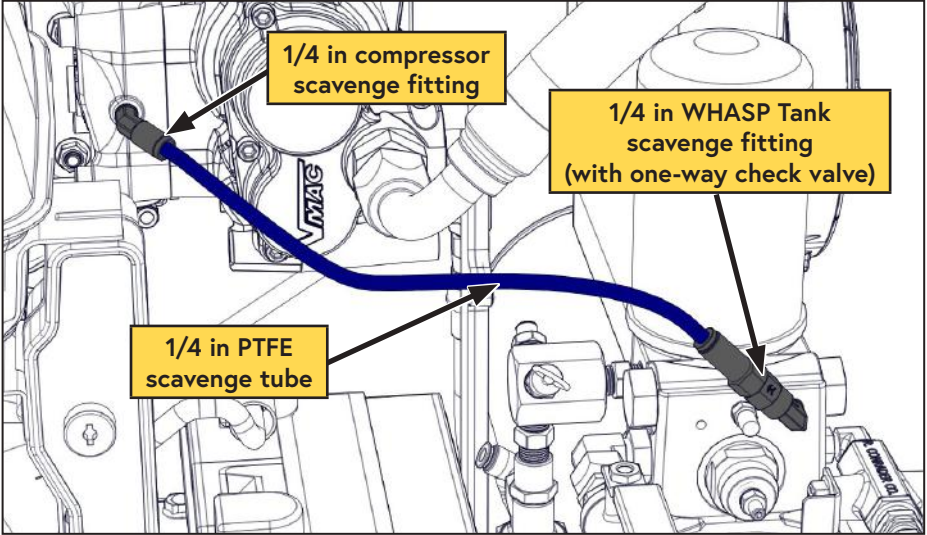


Figure 53 — Scavenge tube

Pressure Control Tubes

A 1/4 in PTFE tube (shown in green) connects the discharge valve to the lower fitting on the compressor inlet valve. This provides the system air pressure (factory setting 135 psi) to operate the inlet poppet valve (Figure 54).

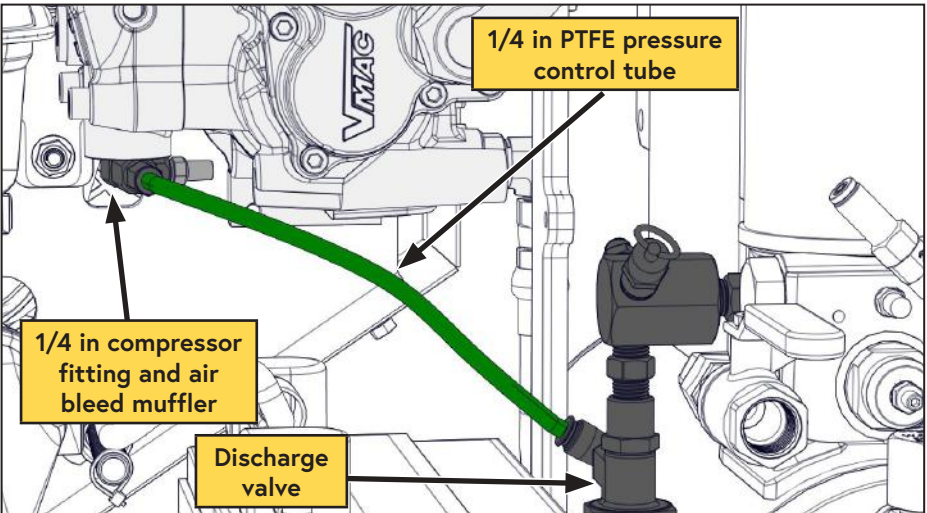


Figure 54 — 1/4 in Pressure control tube
(Key switch module removed for clarity)

A 3/16 in PTFE tube (shown in green) connects the discharge valve to the topmost fitting on the side of the compressor inlet valve. This provides the system air pressure (factory setting 135 psi) to operate the inlet valve regulator which works in tandem with the discharge valve (Figure 55).

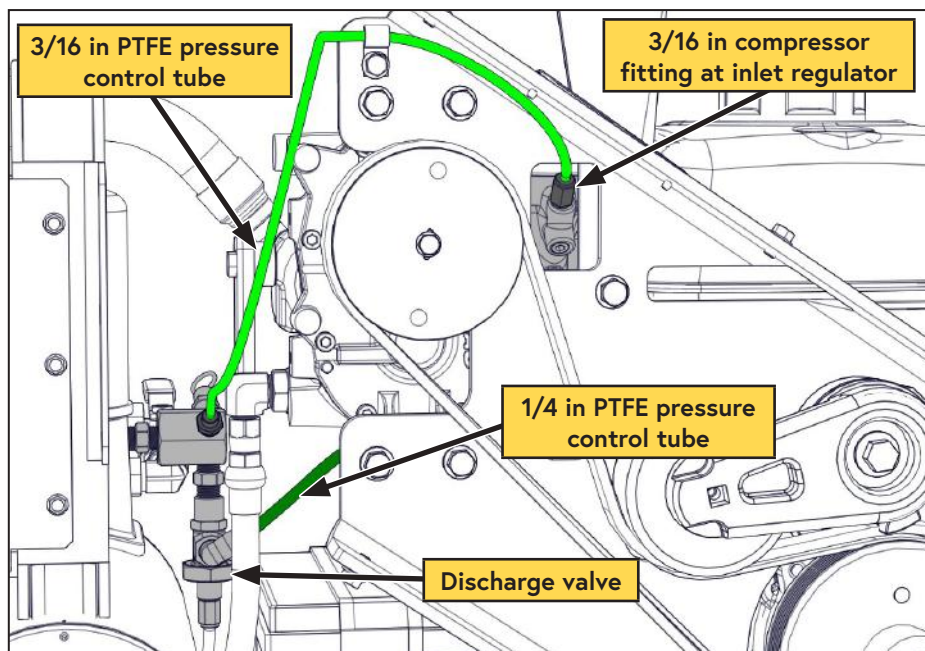


Figure 55 — 3/16 in Pressure control tube
(Belt guard removed for clarity)

Throttle Control Testing



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

The air pressure (inlet valve) and engine rpm (throttle actuator) are controlled by the unloader valve. As air pressure from the unloader valve increases, it forces the throttle actuator to reduce engine rpm. Once the system has built to full system pressure (135 psi) the force from the unloader valve will move the throttle to base idle.

While the system is building air pressure, the PTFE test tool gauge will indicate 0 psi and the throttle will be wide open. Once downstream pressure reaches 135 psi it will actuate the unloader valve which opens the discharge valve. The PTFE test tool gauge will indicate 135 psi and air pressure from the discharge valve will force the throttle closed. When downstream pressure drops below 110 psi the discharge valve will close (the PTFE test tool gauge will indicate 0 psi) and allow the throttle to return to its neutral state of wide open.



The following testing is for systems set at factory pressure (135 psi).

With the system off and depressurized:

- ☐ Remove the WHASP Tank shroud.
- ☐ Remove the ball valve fitting to accommodate the test tool.
- ☐ Install a test tool on the system outlet (Figure 56).
- ☐ Install the PTFE test tool (Figure 44 and Table 6 on page 69) on the 1/4 in throttle tube (Figure 56).

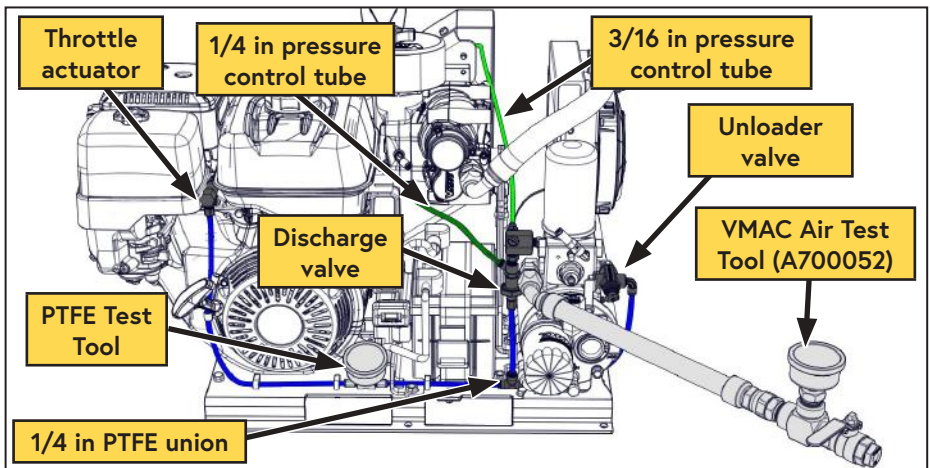


Figure 56 — Test equipment installed
(Scavenge tube not shown)

Compressor Connections

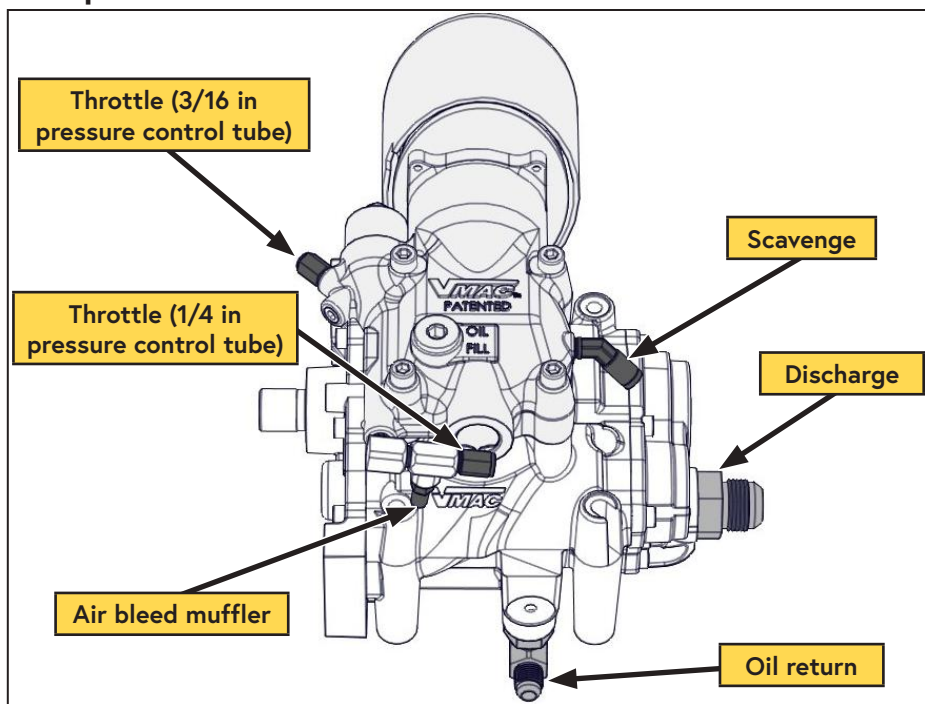


Figure 57 — Compressor connections

Start the engine, and monitor both pressure gauges:


1. As the pressure indicated on the VMAC test tool gauge reaches 135 psi, the gauge connected to the 1/4 in PTFE tube should indicate 135 psi. If the pressure on the gauge connected to the 1/4 in PTFE tube does not increase, confirm the manual unloader valve has not been adjusted. If the unloader valve has not been adjusted the discharge valve needs to be replaced.
2. As the pressure indicated on the PTFE Test Tool gauge connected to the 1/4 in PTFE tube reaches 135 psi, the throttle actuator rod should move to the right and the engine rpm should decrease. If the throttle actuator rod does not move, diagnose or replace the throttle actuator.
3. When the system pressure indicated on the VMAC test tool reaches 135 psi, the pressure indicated on the gauge connected to the 1/4 in PTFE should hold steady at 135 psi. If the pressure does not hold, check for air leaks or a defective throttle actuator.
4. Slowly open the test tool ball valve. The pressure on both gauges should drop at approximately the same rate until pressure at the discharge valve reaches 110 psi. Once the discharge valve pressure drops to 110 psi, the discharge valve will close and the PTFE test tool gauge will indicate 0 psi. If the pressures do not drop at the same rate, the discharge valve may be plugged.

VMAC - Vehicle Mounted Air Compressors

VMAC Technical Support: 888-241-2289

VMAC Knowledge Base: kb.vmacair.com

Poppet Valve



If the inlet or poppet O-ring is damaged or missing, the compressor may over pressurize and may cause a compressor oil leak.

Air pressure generated by the compressor is controlled mechanically via the inlet valve poppet.

When the inlet valve poppet is open, the compressor will build air pressure (Figure 58).

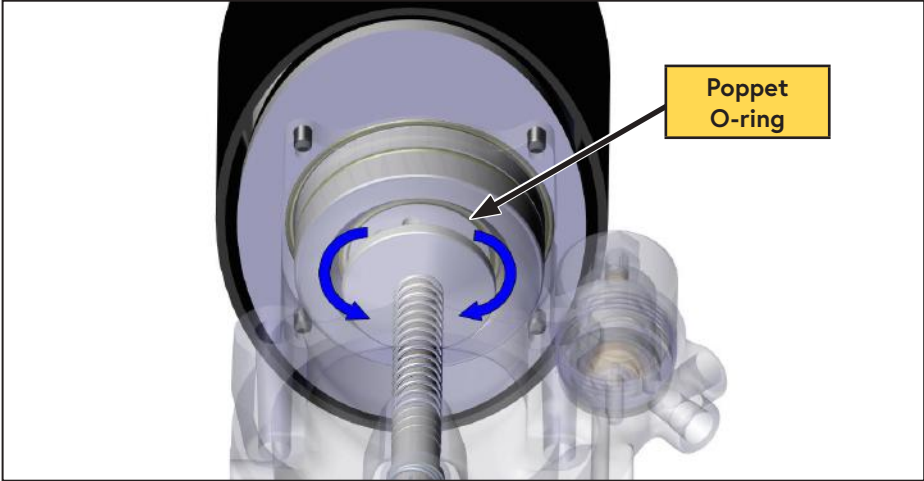


Figure 58 — Inlet valve poppet open

When the inlet valve poppet is closed, the compressor will not build air pressure (Figure 59).

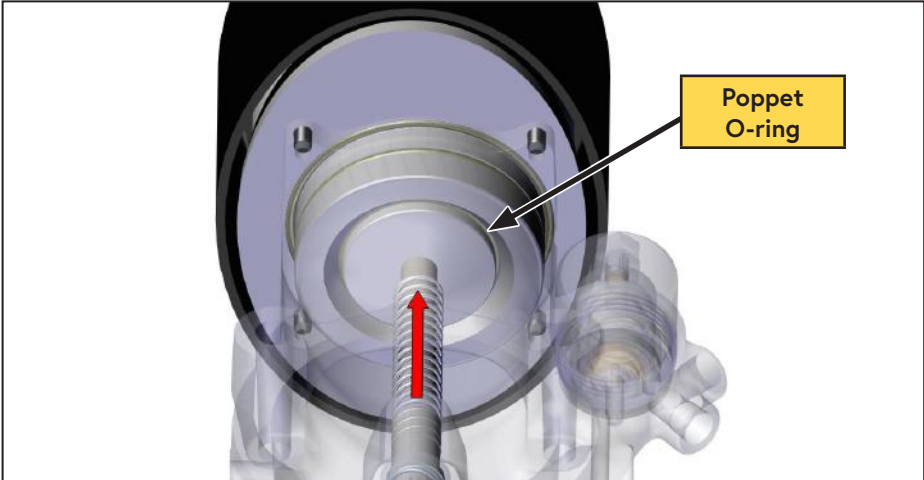


Figure 59 — Inlet valve poppet closed

Electrical Components and Testing

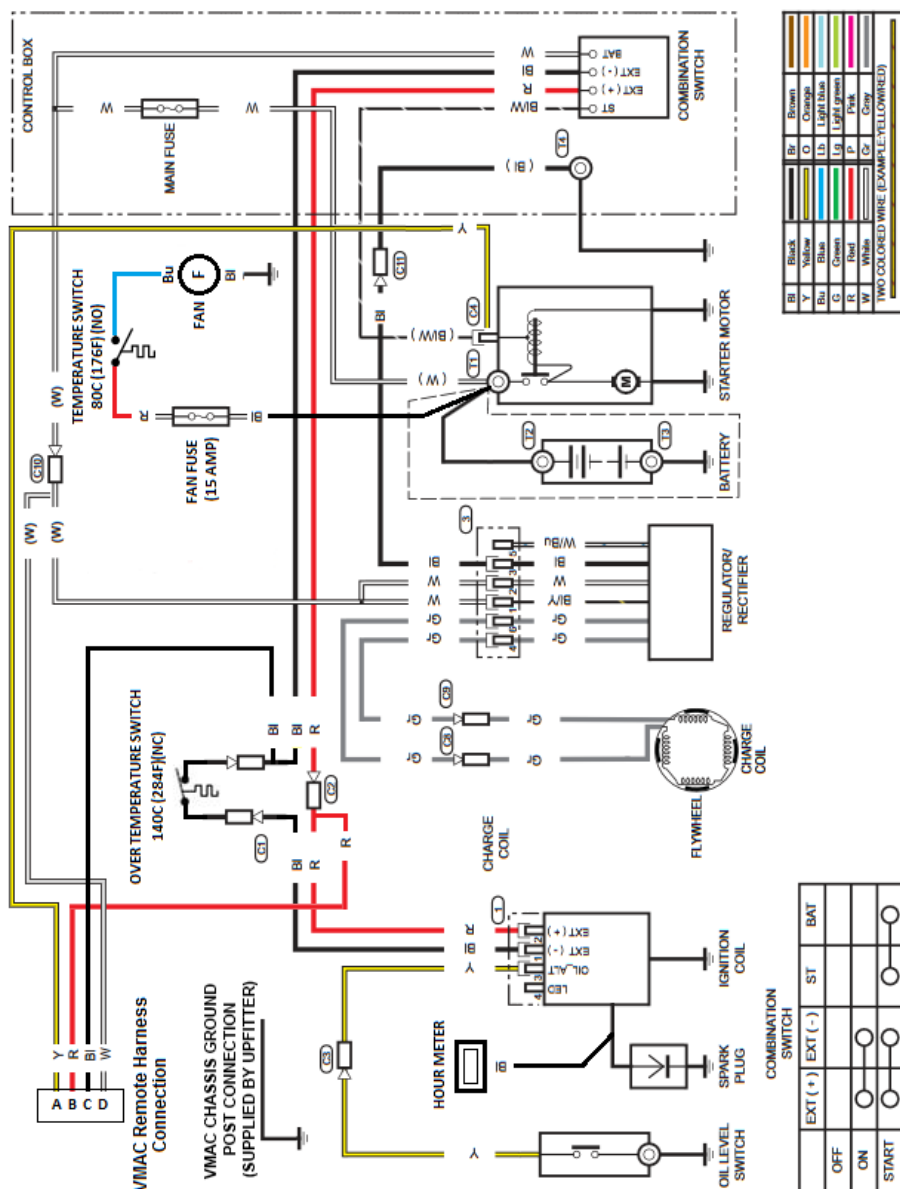


Figure 60 — VMAC electrical harness schematic

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Electrical components

- Fan and compressor temperature switches.
- Fan switch.
- Electric fan.
- Key switch.
- Hour meter.
- Starter.

Fuses



A 15 A fuse protects the OEM electrical system and a separate 15 A fuse protects the WHASP cooling fan. If the fuse blows repeatedly, there is an electrical problem that must be resolved.

Installation of a higher amperage fuse may damage components and will void the warranty.

A 15 A fuse protects the Gas Engine Driven 30 CFM Air Compressor's fan electrical system. The fuse holder is located in the wiring harness next to the battery.

A 15 A fuse protects the OEM electrical system. This fuse is located inside the OEM ignition key enclosure.

WHASP Cooling Fan (Figure 61)

The cooling fan on the WHASP Tank will run any time the WHASP fan temperature switch detects temperatures above 80 °C (176 °F).

Testing

- ☐ Use a "jumper" to supply 12 V to pin "A" of the fan plug and a ground to pin "B" of the plug to confirm the fan runs when power is supplied.

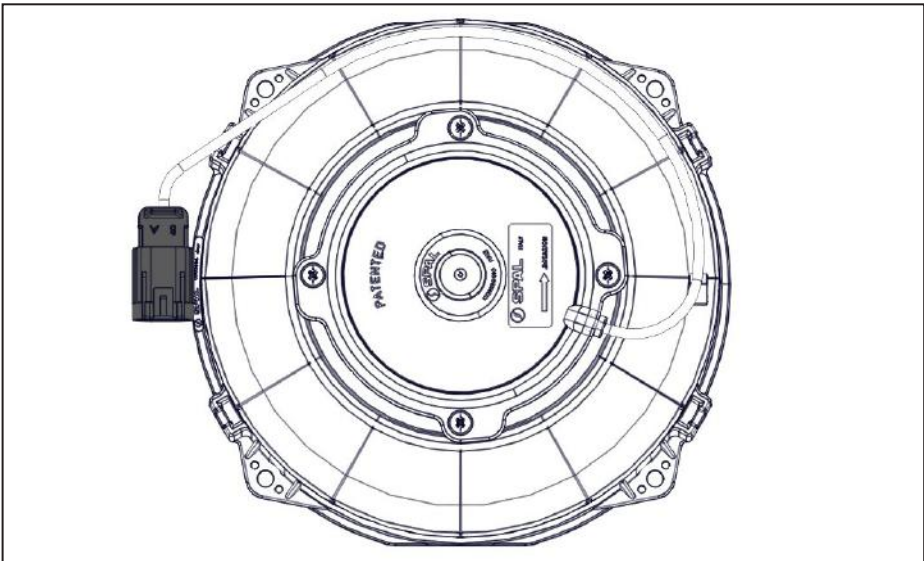


Figure 61 — WHASP Tank cooling fan

Fan Temperature Switch

The Gas Engine Driven 30 CFM Air Compressor's cooling fan temperature switch is normally open and closes at 80 °C (176 °F) turning on the fan. The temperature switch is located in the top of the WHASP Tank cooler (Figure 62).

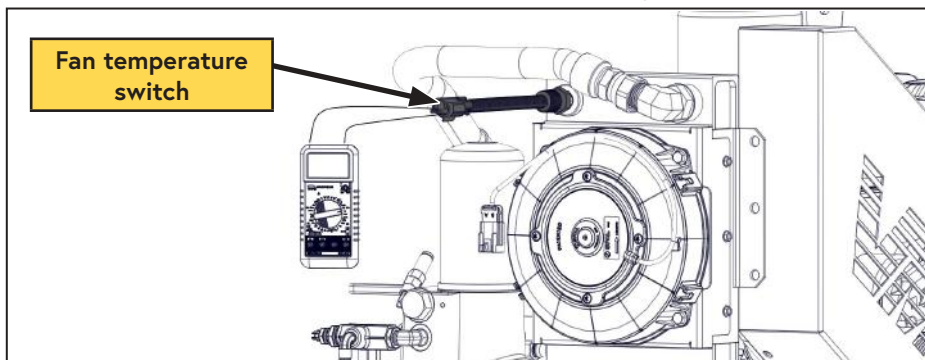


Figure 62 — Fan temperature switch location

Testing

- ☐ Connect a multimeter to the harness and direct a heat gun onto the temperature switch for a few minutes. Once the switch reaches 80 °C (176 °F), resistance on the switch should drop to 0 Ω.

Compressor Temperature Switch

If the compressor's oil temperature exceeds 140 °C (284 °F), the thermostatic switch located in the compressor discharge cap will disable the engine ignition system. The cooling fan will continue to run until the temperature at the switch drops below 139 °C (282 °F) (Figure 63).

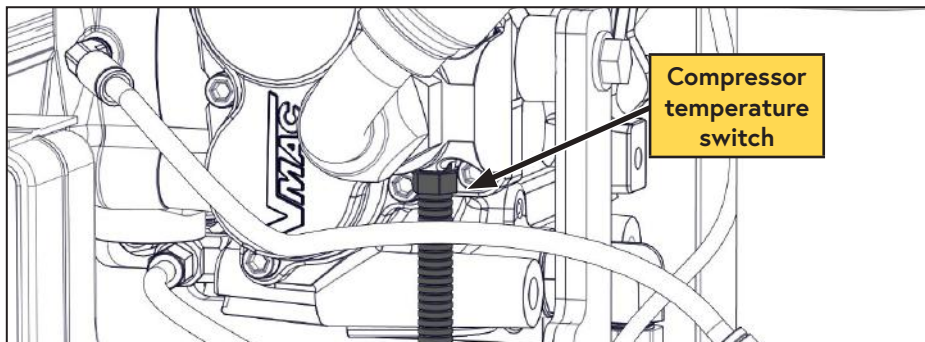


Figure 63 — Compressor temperature switch location



The engine will not run until the compressor system has cooled enough that the temperature switch closes.

Testing

- ☐ Use a multimeter to measure the resistance through the switch. The resistance should be 0 Ω when the system is cold.

VMAC - Vehicle Mounted Air Compressors

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Component Repair / Replacement



The information in this chapter is intended for people with mechanical trade certification who have the tools and equipment to properly and safely perform the service. Do not attempt this installation without the appropriate mechanical training, knowledge and experience.

Follow all safety precautions and industry standard "best practices".



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



Use Loctite 242 (blue) on all fasteners unless otherwise directed.

Battery Replacement

Remove the shroud and disconnect the negative battery cable.

Undo the battery hold down strap (Figure 64).

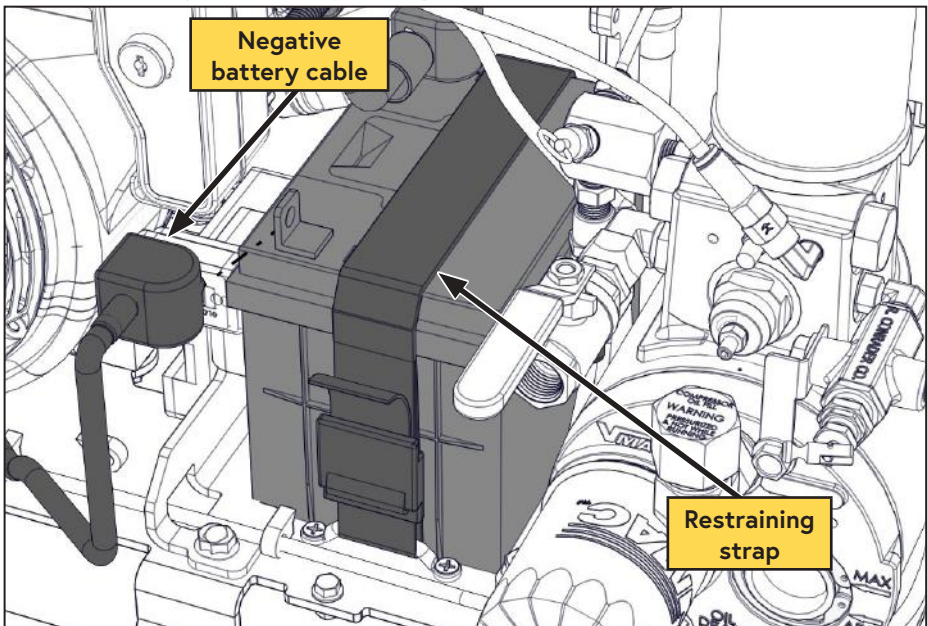


Figure 64 — Battery hold down

- ☐ Pull the battery out of the front of the unit, once it is clear, disconnect the positive battery terminal (Figure 65).

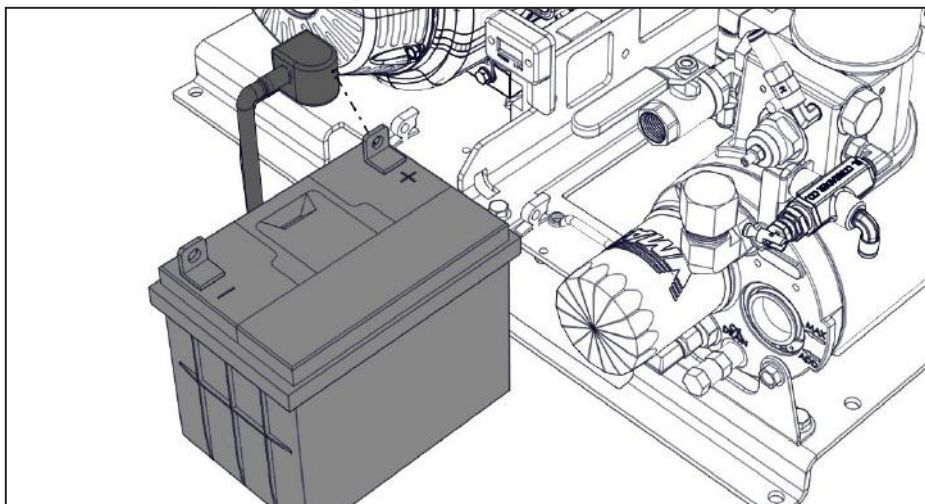


Figure 65 — Battery removal

- ☐ Install the battery in the reverse order.

Compressor Replacement



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- ☐ Remove the (x5) fasteners from the belt guard and remove the belt guard (Figure 66).

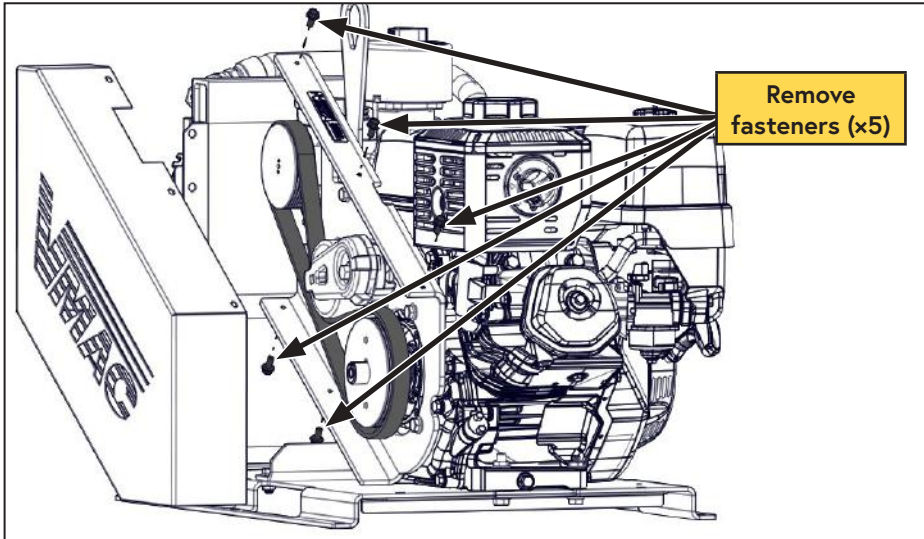


Figure 66 — Inspecting the drive belt

- ☐ Using a 3/8 in drive, remove tension from the drive belt.
- ☐ Remove the belt and set it aside for later.
- ☐ Disconnect the 3/4 in hose from the rear of the compressor.
- ☐ Disconnect the 1/2 in hose from the side of the compressor.
- ☐ Disconnect the 3 PTFE tubes from the compressor.



After disconnecting the hoses and PTFE tubes, plug the ends to prevent contaminants from entering the system.

- Remove the bolt from the side of the compressor (Figure 67).

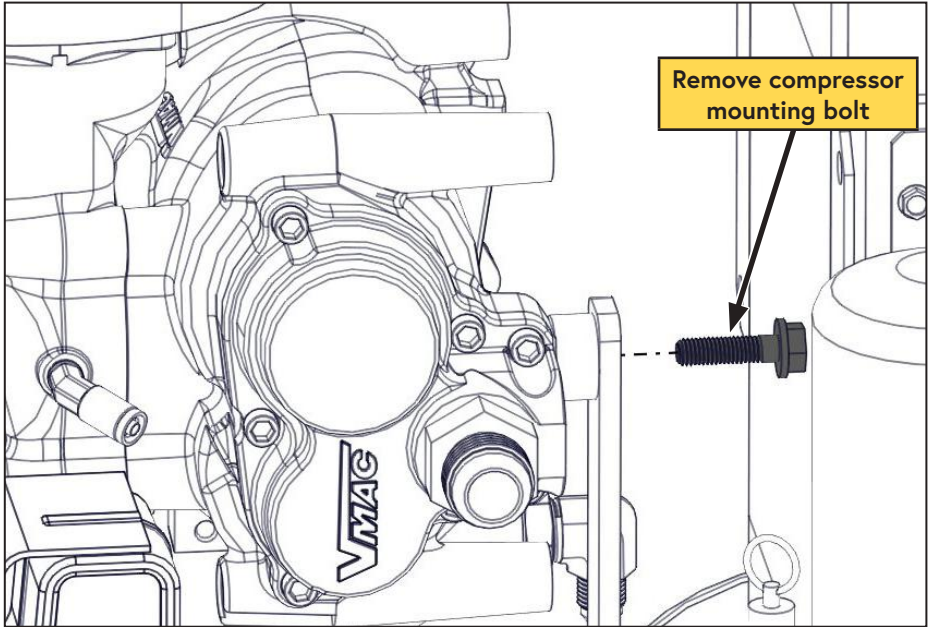


Figure 67 — Remove compressor

- Remove the (x4) bolts securing the compressor to the belt guard (Figure 68).

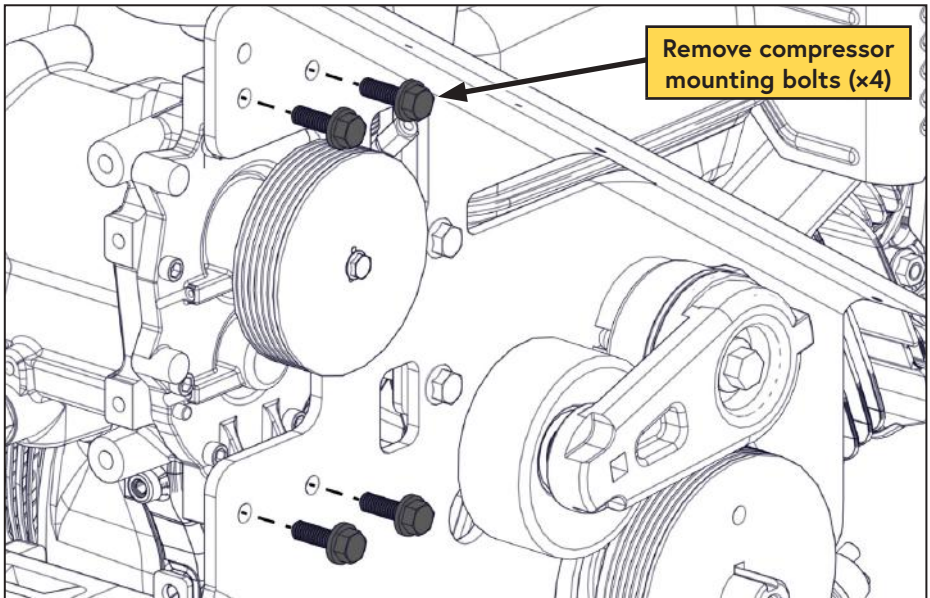


Figure 68 — Remove compressor

- ☐ Lift the compressor up and away from the belt guard to remove it (Figure 69).

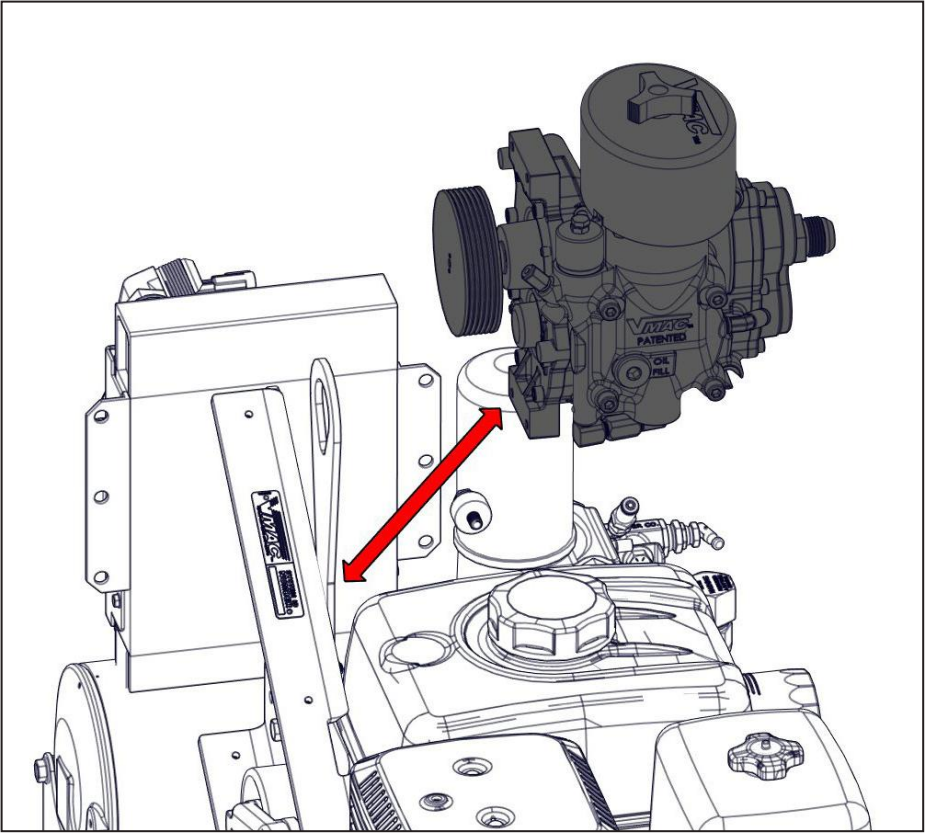


Figure 69 — Remove compressor

- ☐ Install the compressor in the reverse order.



Do not remove the compressor pulley when reinstalling the compressor.

Inlet Valve Replacement



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.



The compressor inlet valve uses 2 different length bolts. The longer bolts are 55 mm long and the shorter ones are 50 mm long. Ensure the bolts are installed in the correct position.

Installing the inlet bolts in the wrong location could severely damage the compressor (Figure 70).

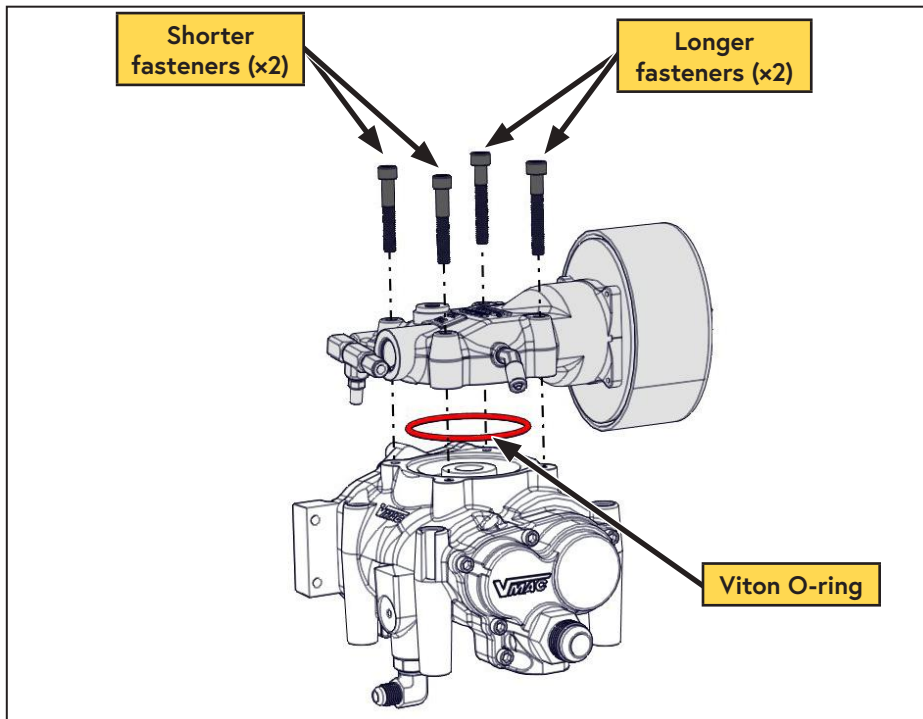


Figure 70 — Inlet valve fasteners

- ☐ Follow the instructions to remove the compressor (starting on page 86).
- ☐ Place the compressor on a bench.
- ☐ Remove the 4 socket head bolts securing the inlet valve to the compressor.
- ☐ Ensure the O-ring is not defective or damaged.
- ☐ Install the inlet valve in the reverse order.



Loctite is not required on the inlet valve bolts.

WHASP Cooling Fan Replacement



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- ☐ Disconnect the electrical connector on the fan.
- ☐ Remove the 4 bolts securing the fan to the WHASP Tank.
- ☐ Apply *Loctite 425 (low strength adhesive)* and install the new fan with the (x4) bolts.
- ☐ Reconnect the fan electrical connector.
- ☐ Test the system.

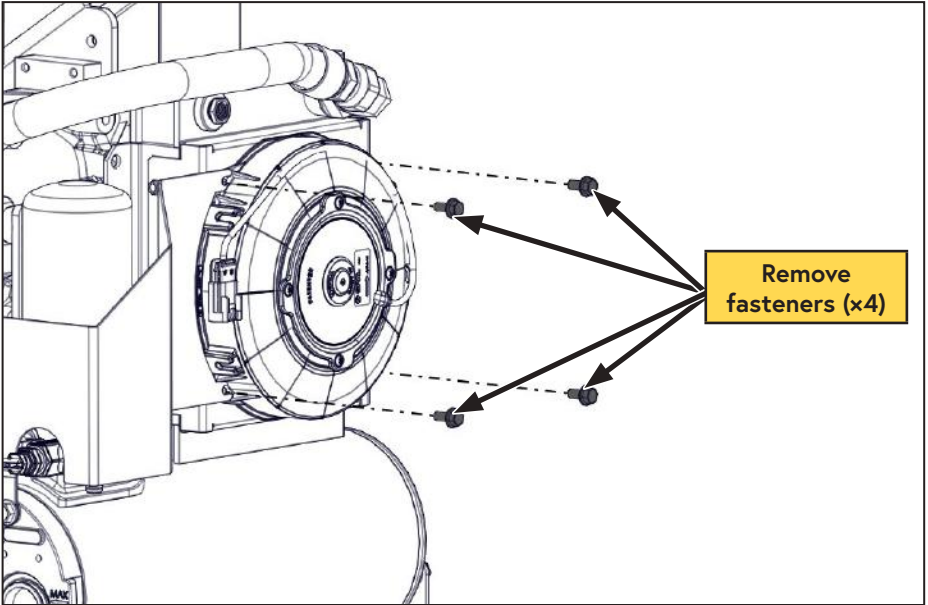


Figure 71 — Remove WHASP Fan

Fan Temperature Switch Replacement



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

Fan Temperature Switch Replacement (Figure 72)

- ☐ Disconnect the fan temperature switch from the harness.
- ☐ Remove the fan temperature switch from the cooler on the WHASP Tank.
- ☐ Apply Loctite 567 (thread sealant) to the new fan temperature switch and install it into the WHASP Tank cooler.
- ☐ Connect the fan temperature switch to the harness.

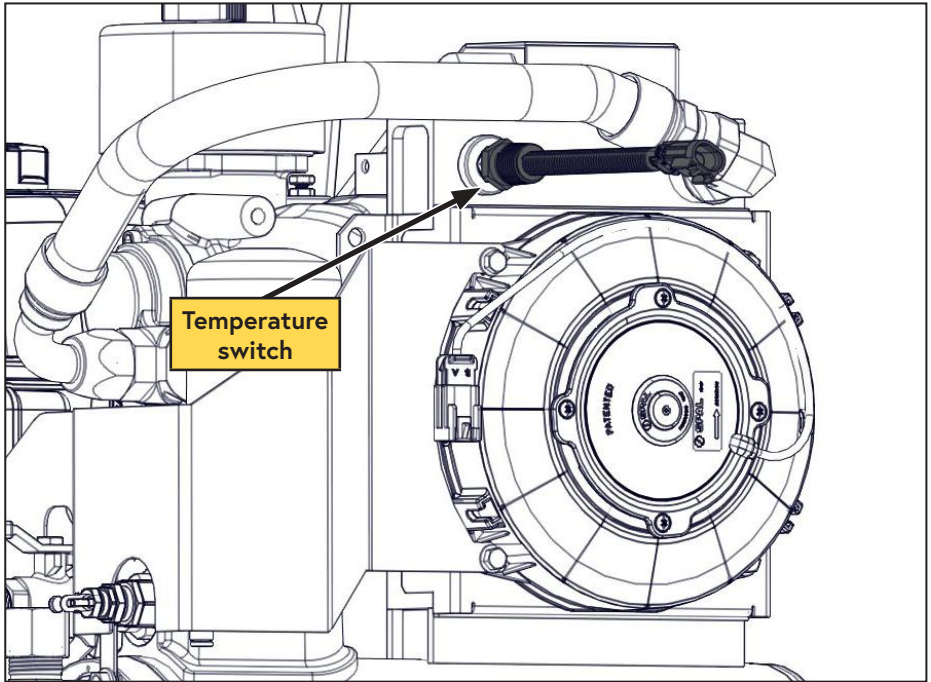


Figure 72 — Fan temperature switch removal

Compressor Temperature Switch Replacement (Figure 73)

- ☐ Remove the WHASP Tank shroud.
- ☐ Disconnect the compressor temperature switch from the harness.
- ☐ Remove the compressor temperature switch from the compressor discharge cap.
- ☐ Apply Loctite 567 (thread sealant) to the new temperature switch and install it into the WHASP Tank cooler.
- ☐ Connect the compressor temperature switch to the harness.
- ☐ Reinstall the WHASP Tank shroud.

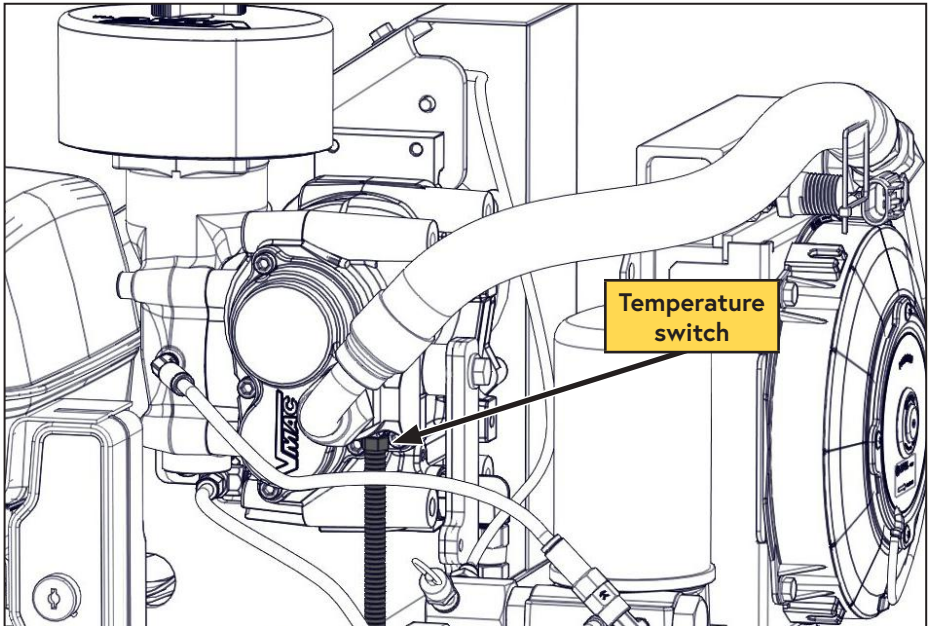


Figure 73 — Compressor temperature switch removal

WHASP Tank Replacement



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 47). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- ☐ Remove the WHASP Tank shroud.
- ☐ Remove the battery.
- ☐ Drain the compressor oil from the WHASP Tank (Figure 74).
- ☐ Disconnect the 3/4 in and 1/2 in hoses from the WHASP Tank.
- ☐ Disconnect the PTFE tubes from the WHASP Tank.
- ☐ Disconnect the electrical connectors from the fan and compressor temperature switches.
- ☐ Remove the (x4) fasteners from the bottom of the WHASP Tank mounting brackets.
- ☐ Remove the WHASP Tank.

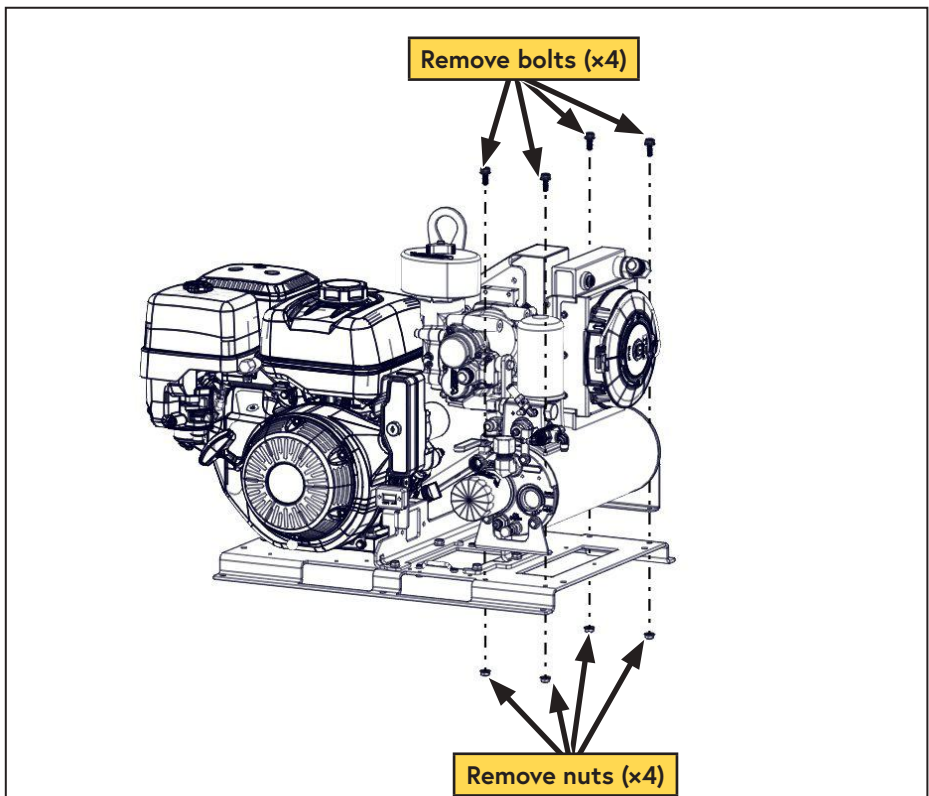
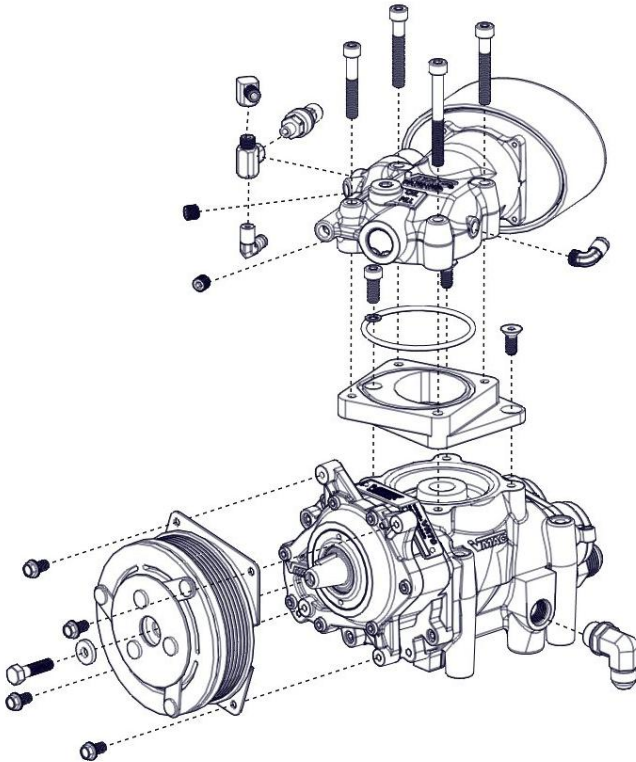


Figure 74 — Remove WHASP Tank

- ☐ Install the WHASP Tank in the reverse order.



Gas Engine Driven 30 CFM Air Compressor Illustrated Parts List (IPL)

Illustrated Parts List



Drawings are not to scale.

1. Kit Pack List (Figure 75 on page 100)

ITEM	QTY	PART #	DESCRIPTION
1	1	1200993	MOUNT, PLATE
2	1	9500345	ENGINE, GAS, HONDA GX390
3	1	4800782	ASSEMBLY, THROTTLE, PNEUMATIC
4	1	3501330	BATTERY, GROUP U1
5	1	1200995	PLATE, ENGINE
6	1	P190004	ASSEMBLY, COMPRESSOR
7	1	1800251	PULLEY, CRANK, HONDA G30
8	1	3200532	PAD, TENSIONER
9	1	3300036	TENSIONER 7C3Z-6B209-D
10	1	9240014	TANK, WHASP W/ UNLOADER, ASSEMBLED
11	1	1200997	BRACE, TOP
12	4	1510528	BOLT, HHCS NC G8 FL LK, 3/8 X 1
13	4	1520591	BOLT, HHCS, M8-1.25 X 25, G10.9 FL PL
14	14	1520627	BOLT, HHCS, FL, PL, M8 X 1.25 X 20
15	14	1560515	NUT, M8 X 1.25 FL PL
16	1	1200996	BRACKET, LIFTING
17	2	1520629	BOLT, HHCS, GR10.9, PL, FL, M10 X 1.5 X 16
18	1	1200994	BRACKET, ENGINE PLATE
19	1	3501371	HOUR METER
20	1	1200999	BRACKET, SHROUD
21	1	1200859	GUARD, BELT
22	2	5800150	FOOTMAN LOOP, STEEL, 1.5" STRAP
23	4	1520643	BOLT, HHCS, G8.8 FL, M10 X 1.50 X 50
24	5	1560512	NUT, FLANGE PL, M10 X 1.5
25	1	1520605	BOLT, HHCS, M8-1.25 X 30, FL PL
26	1	1400424	SPACER
27	2	1560517	NUT, NYLOCK SS, M3
28	2	1500710	SCREW, SHCS, M3 X 14
29	9	1500711	CLIP, 1/4 ID, ROUTING

ITEM	QTY	PART #	DESCRIPTION
30	1	1200998	BRACE, BOTTOM
31	1	1772019	HOSE, CRIMPED, 3/4" X 19"
32	1	1520590	BOLT, HHCS, M6X1.0X14 FL PL
33	7	1560516	NUT, M6 X 1.0 FL PL
34	2	1520625	BOLT, HHCS, FL, M6 X 1.0 X 25
35	2	1570514	WASHER, FLAT, ALUM, #6
36	4	1500667	SCREW, FLAT PHILLIPS, SS, M6X1X16
37	1	3550936	CABLE, BATTERY, NEGATIVE
38	1	3550979	CABLE, BATTERY, POSITIVE
39	1	1812017	HOSE, CRIMPED, 3/8" X 17"
40	6	1520646	BOLT, HHCS G10.9, M6 X 1 X 10 FL PL
41	2	2200189	CLAMP, INSULATED, 3/8"
42	1	5800151	BATTERY STRAP, 1.5"X 54"
43	1	1400450	SPACER, CRANK PULLEY, HONDA G30
44	1	1530544	BOLT, FLHD SCKT, PL, NF, 3/8 X 1
45	1	4900167	FTG, STR, #8FJIC-1/2"MNPT
46	1	3600159	VALVE, BALL, NPT-NPT, 1/2-1/2
47	1	1620365	BELT, K040438
48	A/R	5400396	LOCTITE, 242, BLUE
49	A/R	5400579	LOCTITE,567,THREADSEALANT,HIGH TEMP
50	10	1700584	SPIRAL WRAP, 1" OD, BLACK
51	3.1L	5240233	OIL, COMPRESSOR
52	1.1L	5400330	OIL, ENGINE 10W30
53	1	5000218	FITTING, UNION TEE, 1/4" POLY
54	27.75	1700570	TUBE, TEFLON, PTFE,1/4"OD
55	25.75	1700581	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
56	21.2	1700571	TUBE, TEFLON,PTFE, 3/16"OD X 1/8"ID
57	1	4400346	LABEL, SYSTEM ID PLATE
58	2	1500651	RIVET 1/8",GRIP RANGE-0.188"-0.250"
59	1	4401141	LABEL, WARNING, REFUELING
60	1	4400964	LABEL, SPECIALTY, WARNING
61	1	4401277	LABEL, G30
62	1	4401278	LABEL, OPERATING INSTR, G30
63	1	3550975	HARNESS, GAS DRIVE
64	1	3550976	HARNESS, FAN, GAS DRIVE
65	1	1500729	SCREW, PH, PHILLIPS, M5 X 16, NYLO

ITEM	QTY	PART #	DESCRIPTION
66	2	1570521	WASHER, SPRING LOCK, NYLON, M5
67	1	1570522	WASHER, CUP SLEEVE, #10
68	1	1570488	WASHER, NYLON, 3/16
69	1	1570520	WASHER, EXT SERRATED LOCK, M10
70	3	1570519	WASHER, EXT SERRATED LOCK, M8
71	1	4401376	LABEL, FUEL SHUT OFF
72	19	1700581	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
73	2@13.0	1700570	TUBE, TEFLON, PTFE,1/4"OD
74	2@11.0	1700581	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
75	5	1700570	TUBE, TEFLON, PTFE,1/4"OD
76	3	1700581	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
77	10.5	1700570	TUBE, TEFLON, PTFE,1/4"OD
78	8.5	1700581	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
79	1	1570484	WASHER, FLAT, SS, M5



****Items 48, 49, 51, 52, 54 – 56, 63, 64, 72 – 78 not shown in Figure 75 on page 100.***



2. Compressor Assembly, P190004 (Figure 76)

ITEM	QTY.	PART #	DESCRIPTION
1	1	P190005	ASSEMBLY, COMPRESSOR, GEARLESS
2	1	9200570	ASSEMBLY, INLET VALVE
3	1	4900174	FTG, 90, #8MORB-#6MJIC, VITON
4	1	5830004	O-RING, VITON, 3 1/8 ID X 1/8
5	1	5000158	ELBOW,BRASS 45 DEG NPT-POLY 1/8-1/4
6	2	1540530	BOLT,SHCS,M8 X 1.25 X 55, G12.9 PLT
7	2	1540550	BOLT,SHCS,M8 X 1.25 X 50, G12.9 PLT
8	1	5000090	ELBOW, BRASS, EXTR'D 90 STREET, 1/8
9	1	5000121	TEE, STREET, EXTRUDED, 1/8
10	1	5000012	CONNECTOR, BRASS NPT-POLY, 1/8 - 1/4
11	1	3600185	ASSEMBLY, MUFFLER RESTRICTION
12	1	4300076	PIPE FTG, PLUG SKT HEAD, 1/8
13	1	5000162	CONNECT,BRASS NPT-POLY,3/16-1/8 NPT
14	1	4800812	ASSEMBLY,4 RIB PULLEY, G30
15	1	1520626	BOLT,HHCS,PL,G10.9,FL, M6-1.0 X 30
16	1	3550974	ASSEMBLY, SWITCH, THERMAL, 140C

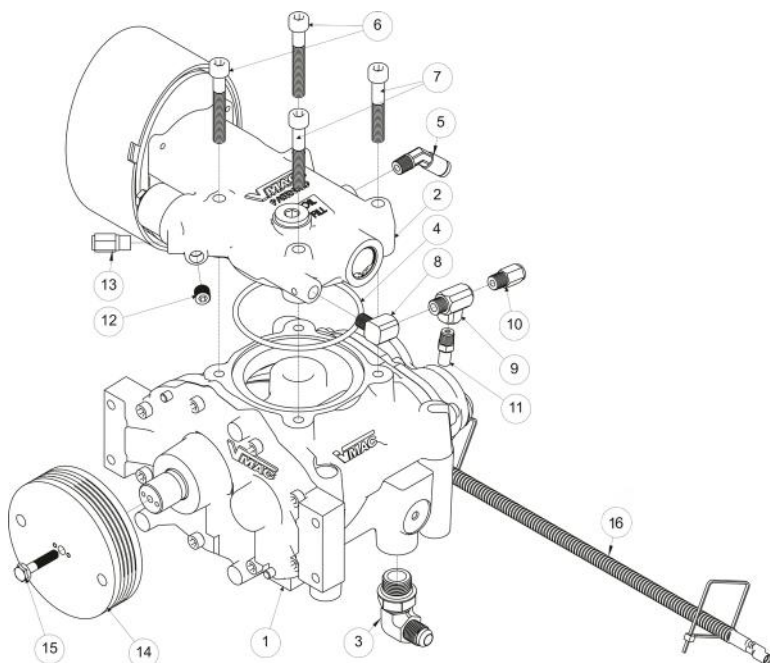


Figure 76 — Compressor Assembly (P190004)

3. Inlet Valve Sub Components, 9200570 (Figure 77)

Item #	Part #	Qty	Description
1	A700137	1	ACCESSORY PACK, REGULATOR ASSEMBLY
2	4900045	1	PLUG
3	5830002	1	O-RING, VITON, 2 3/8 ID X 3/32
4	5830160	1	O-RING, 40D SIL., 1 3/8 ID X 3/16
5	A700049	1	FILTER KIT ASSEMBLY
5.1	1500077	4	SCREW, BUTTON HEAD, 10 - 32 X 3/8
5.2	1500519	1	ROD, THREADED, 1/4 X 2.62
5.3	1500676	1	KNOB, PLASTIC, 1/4-20
5.4	1550221	1	NUT, HEX NC PL, 1/4, GR8
5.5	3200205	1	PLATE, INNER FILTER
5.6	3600037	1	ELEMENT, FILTER, PAPER
5.7	3600066	1	COVER, AIR FILTER, PLASTIC
5.8	5830070	1	O-RING, VITON, 2 9/16 ID X 3/32

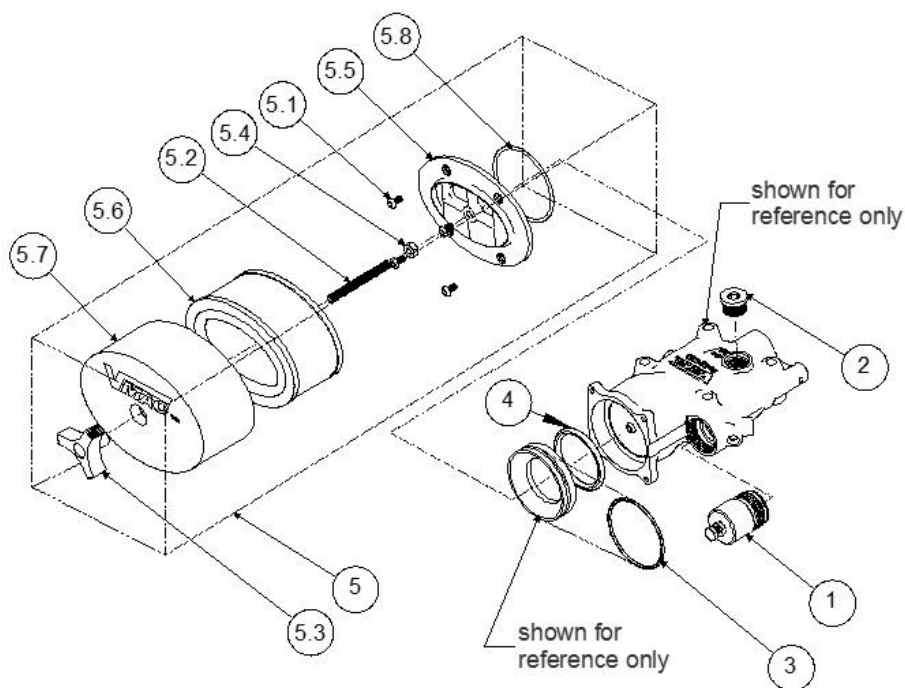


Figure 77 — Inlet Valve Sub Components

4. WHASP Tank, 9240014 (Figure 78 on page 104)

Item #	Part #	Qty	Description
1	3600054	1	VALVE, SAFETY 200 PSI
2	5000201	1	CONNECTOR,BRASS, NPT-POLY, 1/4-3/16
3	1200847	1	PLATE, MOUNT, BOLT ON
4	3200568	1	MANIFOLD, 3 WAY, 1/4 NPT
5	4900202	2	FTG, STR, 1/4"MNPT-1/4"MNPT
6	5000204	1	ELBOW, 90, BRASS NPT-POLY, 1/4-1/4
7	3600178	1	VALVE, DISCHARGE, D4
8	5000012	1	CONNECTOR, BRASS NPT-POLY, 1/8-1/4
9	4900002	1	FTG, 90, #8MORB-#8MJIC
10	4500104	1	MUFFLER, SINTERED EXHAUST, 1/8"
11	3600171	1	VALVE, MODIFIED (3600167)
12	1520601	4	BOLT, HHCS FL PL, M8 X 1.25 X 12
13	1200852	1	PLATE, MOUNT, FILTER END
14	3200533	1	TUBE, OIL DRAIN
15	4900175	1	FTG, STR, #6MJIC-#8MORB, VITON
16	4900117	1	FTG, 90, #6FJIC-#6MJIC
17	4900035	1	NIPPLE, 3/4 - 16
18	4900106	1	PLUG, #5ORB, EXTERNAL HEX, VITON
19	9200039	1	OIL FILTER, VR 3.250 SHORT
20	4900260	2	FTG, 90, #12MORB-#12MJIC, VITON
21	A700061	1	PYREX WINDOW KIT
22	4900164	1	CAP, #12JIC, MOD
23	1500704	1	SCREW, CAP, HEX, 3/8-16 X 1/2
24	1570044	1	WASHER, ALLOY PL SAE, 3/8
25	1200903	1	BRACKET, UNLOADER
26	5000020	1	ELBOW, BRASS NPT-POLY, 1/8-1/4
27	3600213	1	VALVE, UNLOADER, 135-110PSI, RCT
28	5000140	1	ELBOW, BRASS,FORGED, 90DEG,1/8 PIPE
29	3600123	1	VALVE, CHECK, 1/8 NPT
30	5000212	1	CONNECTOR,BRASS, FNPT-POLY, 1/8-1/4
31	4900236	1	FTG, 90, #4MORB-1/4"MNPT, VITON
32	3600166	1	FITTING, NIPPLE, FILTER
33	6000719	1	SHROUD, FAN, WHASP TANK
34	1500691	6	SCREW, SELF TAPPING, #10-16 X 1/2
35	3550958	1	FAN, PULLER, 7.5", GT280

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Item #	Part #	Qty	Description
36	3600088	1	OIL SEPARATOR, SPIN-ON
37	3550977	1	ASSEMBLY, SWITCH, THERMAL, 80C
38	5000047	1	BUSHING, BRASS, 3/8 X 1/4
39	1520590	4	BOLT, HHCS, M6 X 1.0 X 14 FL PL
40	1520570	1	BOLT, HHCS FL LK PL, M8 X 1.25 X 16
41	1570519	1	WASHER, EXT SERRATED LOCK, M8



**Item 32 includes O-ring.*

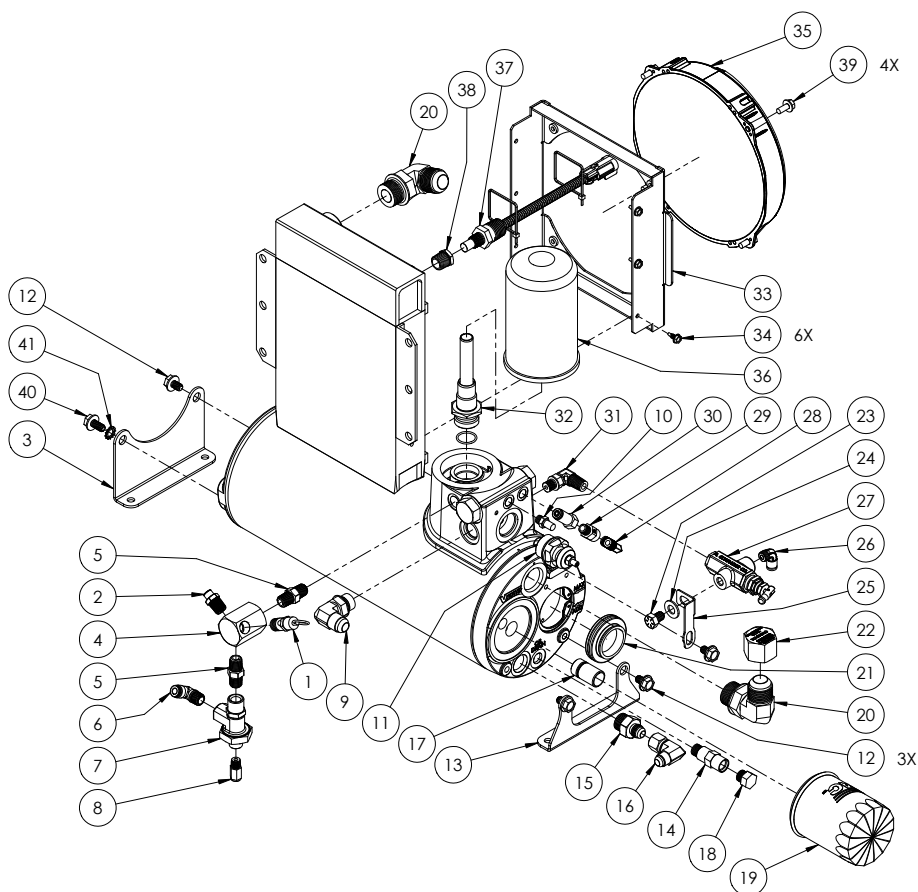


Figure 78 — WHASP Tank

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Warranty Registration

This form must be fully completed and returned to VMAC at the time the vehicle is put into service. Warranty may be void if this form is not received by VMAC within 3 months of receiving the vehicle, or 200 hours of operation, whichever occurs first.



VMAC's Warranty policy and registration can be viewed online at:

www.vmacair.com/warranty

Product Information

System Identification Number: G _____

Owner / End User Information

Company Name: _____

City: _____ State / Province: _____

Phone: (____) ____-_____

Email Address: _____

Date vehicle was put into service: ____/____/____
Day Month Year

Installer Information

Installer Company Name: _____

City: _____ State / Province: _____

Submitted by

Name: _____ Phone: (____) ____-_____

Email: _____

Vehicle Information (Optional)

Unit: _____ Year: _____

Make: _____ Model: _____

Vehicle Identification Number: _____

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