UNDERHOOD™ 40
AIR COMPRESSORS

Installation Manual for VMAC System

V400013

2019 - 2022 Mercedes Sprinter
2019 - 2022 Freightliner Sprinter
3.0 L Diesel

www.vmacair.com

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Document: 1930404
Changes and Revisions

Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
D	ECN: 20-210 Receiver tank requirement	MSP	MRH	N/A	MSP	LPH	18 Dec. 2019
E	ECN: 21-181 Update crank torque instructions	MSP	KRM	N/A	MSP	N/A	22 Oct. 2021
F	ECN: 22-225 integrate interlocks	MSP	KRM	ASE	MSP	LPH	5 Dec. 2022

Additional Application Information

- 2019+ Mercedes Sprinter 3.0 L Diesel.
- 2019+ Freightliner Sprinter 3.0 L Diesel.
- Not compatible with any installed auxiliary kits.

Registered Trademarks

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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

Printed in Canada

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.

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 "Standard" 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

Optional Equipment Compatibility

While VMAC strives to design systems compatible with optional OEM equipment (such as running boards), it is impractical to develop systems that accommodate every OEM and aftermarket option or add-on. Whenever possible, VMAC endeavors to advise of compatibility issues in the "Additional Application Information" section of the manual. Even when specific optional equipment is determined by VMAC to be incompatible, it does not preclude the vehicle upfitter or end user from modifying the optional equipment to make it compatible with the installed VMAC system. VMAC does not warranty or accept responsibility or liability for the fitment, function or safety of any products modified in any way not expressly outlined in the installation manual.

Before Starting

Note and label all parts that are removed from the vehicle as many of the OEM parts will be reused during the installation of the VMAC system.

Read this manual prior to beginning the installation to ensure familiarity with the components and how they will fit on the vehicle. Identify any variations from the application list such as vehicle model, engines, or optional equipment (e.g., dual alternator, active steering assist, etc.).

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

Hose Information

Depending on other installed equipment, it might be necessary to move the air/oil separation tank from its intended location. 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.

Special Tools Required

- Pneumatic fan wrench (Lisle 43300 or equivalent) or a manual fan pulley holder (such as KD3900).
- Pulley Counter Rotation Tool: VMAC part number 5900252 / 5900254, or Mercedes part number A1260.
- Internal and external Torx socket sets.
- Trim Removal Tool (such as Harbor Freight Tools® 67021).
- Torque angle gauge.

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

System Identification, Warranty Registration and Warning Labels

Preparation for installation is very important. Missing a step or an item can cause problems in the installation or damage to components.

☑ ***Check off each item as it is completed so that no steps are missed.***

☐ Review the contents of the system using the illustrated parts list to ensure all components are present and in the correct quantity. If any components are missing, have the system ID ready and call VMAC Technical Support at (888) 241-2289.

The VMAC warranty form must be completed and returned to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

☐ Complete the warranty form. The VMAC warranty form is located at the back of this manual, as well as online at: www.vmacair.com/warranty

The System Identification Plate must be attached to the vehicle at the time of installation. This plate provides information that allows VMAC to assist with parts and repairs.

☐ Mark and drill 2 × 7/64 in holes in the top of the cross member in front of the hood support. Secure the plate with the supplied self-tapping screws (Figure 1).

Figure 1 — System Identification Plate

☐ Install the VMAC belt routing diagram in a suitable location under the hood.

☐ As part of the installation process, ensure that the safety and operational instruction decal is affixed in an obvious location so that it can be seen by vehicle operators. A good spot for this is usually on the inside of the door or on the panel underneath the steering wheel (Figure 2).

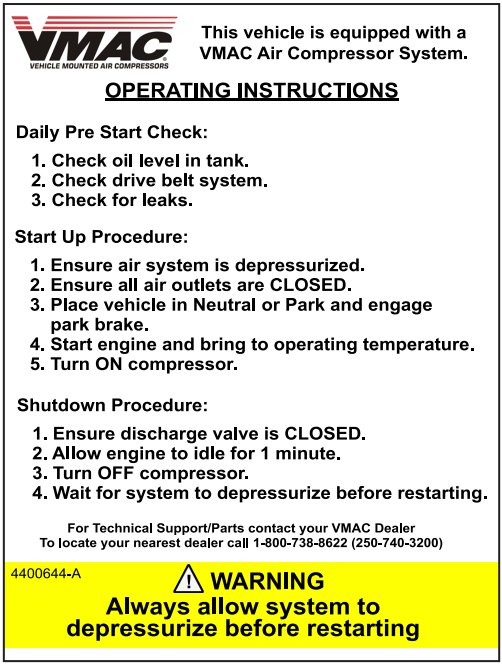


Figure 2 — Operating Instruction label

☐ To alert any technicians that may service the vehicle, affix the servicing caution/contact label in the engine compartment near the hood latch in a visible location (Figure 3).

Figure 3 — Advisory label

Preparing for Installation

Ensure the VMAC Warranty Registration has been filled out and the System Identification Plate and Operating Instruction Label are installed prior to proceeding (Please see page 8 for details).

☐ Disconnect the battery(ies).

☐ Remove the airbox located in the center of the engine bay. Remove the 2 electrical plugs, the hose clamp, airbox elbow and pull the 2 front mounts straight up. Move the assembly out of the way (Figure 4).

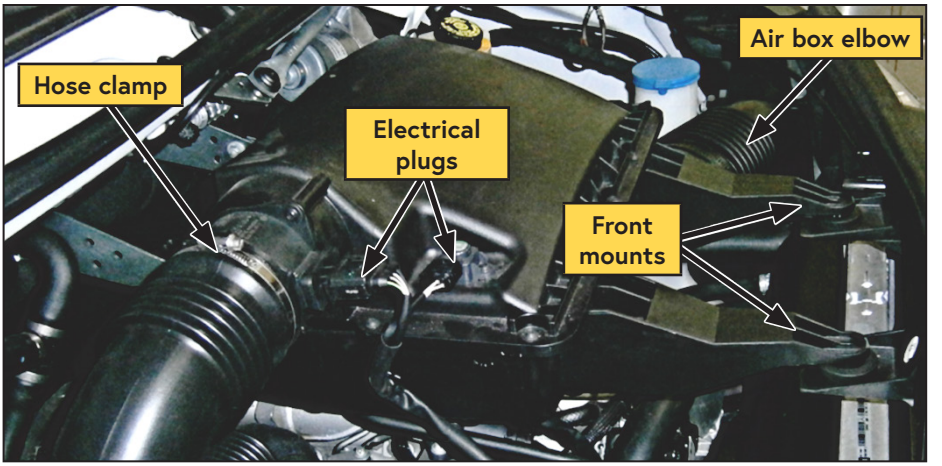


Figure 4 — Remove air box

☐ Disconnect the fan clutch plug and remove the stator fastener using an E11 Torx socket (Figure 5).

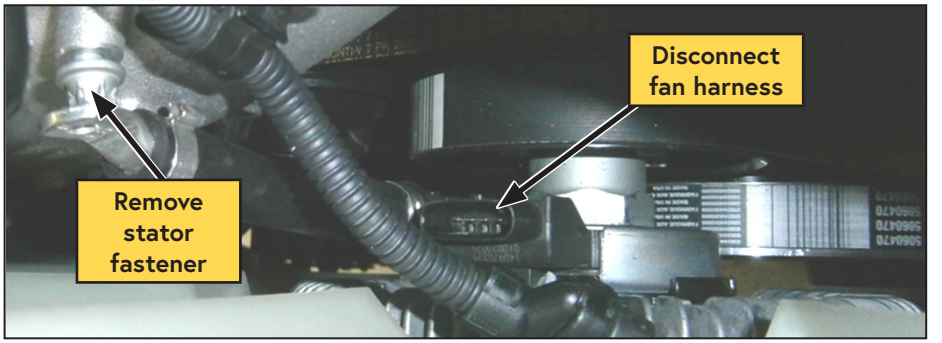


Figure 5 — Disconnect fan clutch

☐ Leave the upper coolant line from the radiator in place during the installation.

☐ Push in the clips on either side of the radiator to release the shroud from the radiator frame. Gently lift up to keep the clips unlocked (Figure 6).

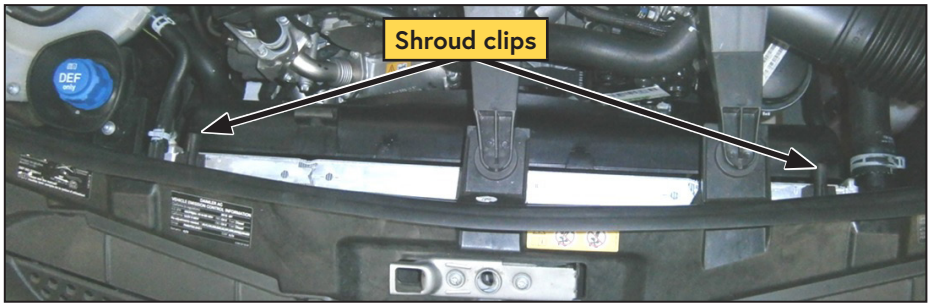


Figure 6 — Shroud clip locations

☐ Loosen the fan nut; the fan has ***reverse thread (left hand thread)*** so it must be rotated clockwise to loosen. A counter rotating tool may be required (Mercedes part # 8930).

If using a pneumatic fan removal tool, the nut size is 36mm. Alternatively a 1-7/16" wrench and Mercedes fan tool (Part number 906589004000) can be used.

☐ Remove the fan and shroud at the same time, through the top of the engine compartment. Manipulate the assembly to get it past the upper coolant line.

☐ Store the fan in a vertical position to prevent damage to the viscous clutch.

☐ Install cardboard (or similar protection) over the radiator core to prevent damage to the fins when installing components.

☐ Use a 27 mm socket and a counter rotating tool (VMAC P/N# 5900252 / 5900254 or Mercedes P/N A1260) to remove the center fastener from the crank pulley.

☐ Remove the washer from the OEM crank pulley bolt.

Installing the Pulley

- ***Prior to installing the VMAC pulley, scrape any clearcoat from the mating surface of the crank pulley and ensure any surface rust or dirt inside the OEM pulley has been removed.***
- ***Do not use an impact tool to tighten pulley bolt. Use a torque wrench and follow the recommended torque values.***
- ***Do not remove the OEM stretch belt. The VMAC crank pulley may have to be removed during stretch belt service.***

Remove and discard the OEM washer from the OEM Crank Pulley bolt. The VMAC washer must be used.

☐ Remove and discard the OEM washer from the OEM Crank Pulley bolt.

☐ Scrape the clear coat (or any corrosion) from the inside front face of the crank pulley hub and ensure the surface is clean.

☐ Insert the VMAC pulley into the OEM crank pulley and rotate the VMAC pulley counterclockwise until the tabs seat inside the spokes of the OEM pulley.

☐ Install the OEM fastener with the supplied washer (Figure 7).

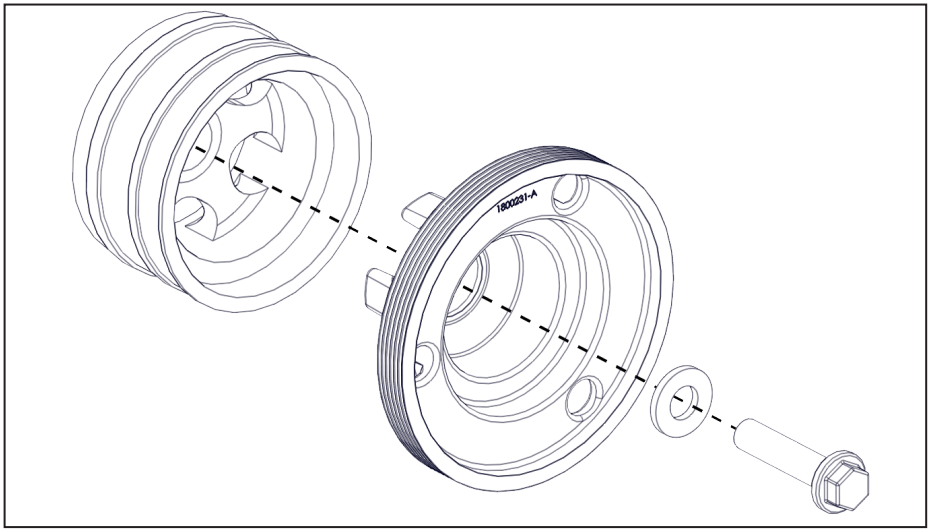


Figure 7 — Crank pulley installation

☐ Use a counter rotating tool (VMAC P/N# 5900252 / 5900254 or Mercedes P/N# A1260) to stop the pulley from rotating, and torque the main fastener to 155 ft•lb (210 N•m).

☐ Using a torque angle gauge, torque the main fastener 180°.

Installing the Compressor

Apply Loctite 242 (blue) to all engine mounted fasteners.

☐ Remove the idler and tensioner from the VMAC main bracket (Figure 8).

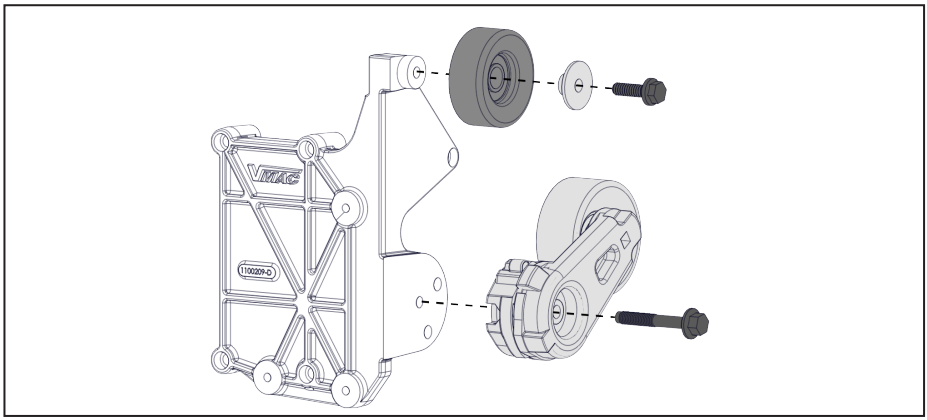


Figure 8 — VMAC main bracket assembly

☐ The VMAC main bracket is secured to the engine via 5 threaded holes on the engine oil pan (4 threaded holes on the side and 1 threaded hole at the front) (Figure 9).

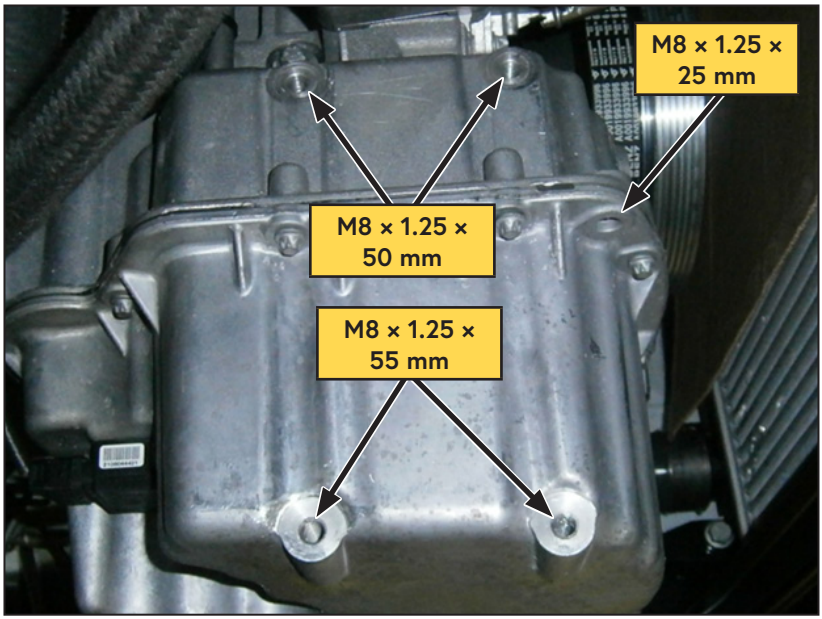


Figure 9 — VMAC Main bracket mount location

☐ Apply Loctite 242 (blue) to the 5 supplied fasteners and install the VMAC main bracket onto the engine (Figure 10).

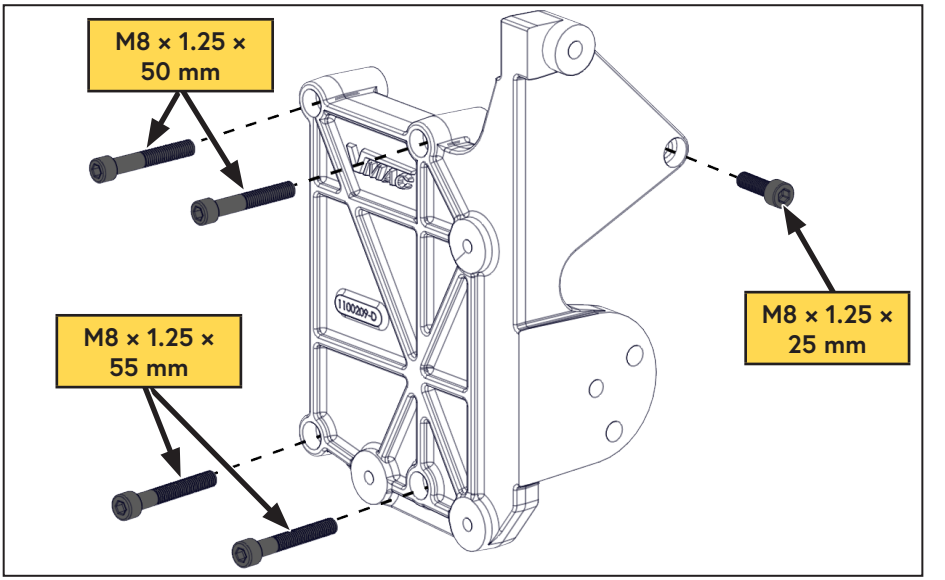


Figure 10 — Main bracket mounting fasteners

☐ Apply Loctite 242 (blue) and install the idler, idler spacer and tensioner onto the main bracket. Torque the fasteners to specification (Figure 11).

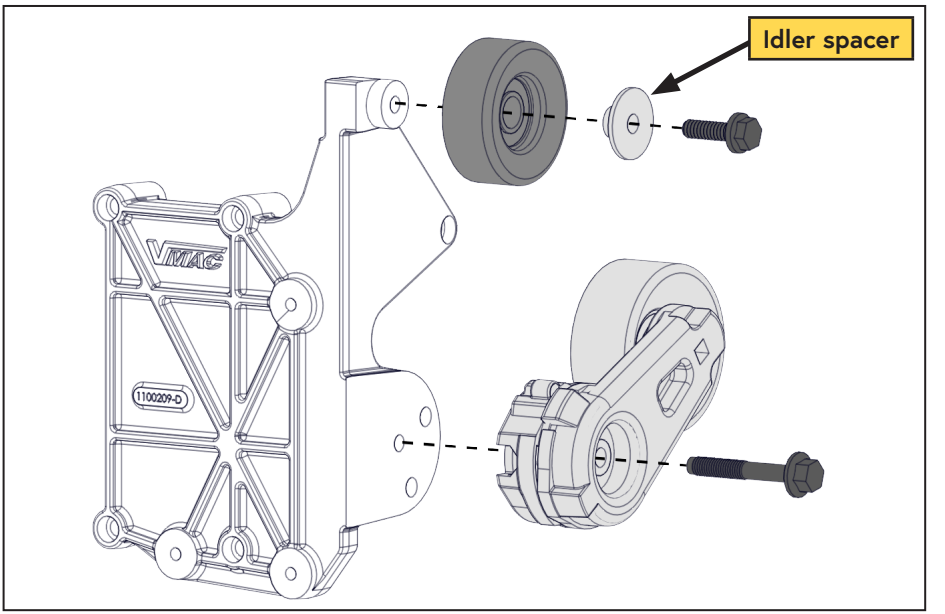


Figure 11 — Install idler, idler spacer and tensioner

☐ Slide the pressure sensor assembly into the P-clip and mount it to the bracket using the supplied M6 × 1.0 × 14 mm bolt, and M6 nut (Figure 12).

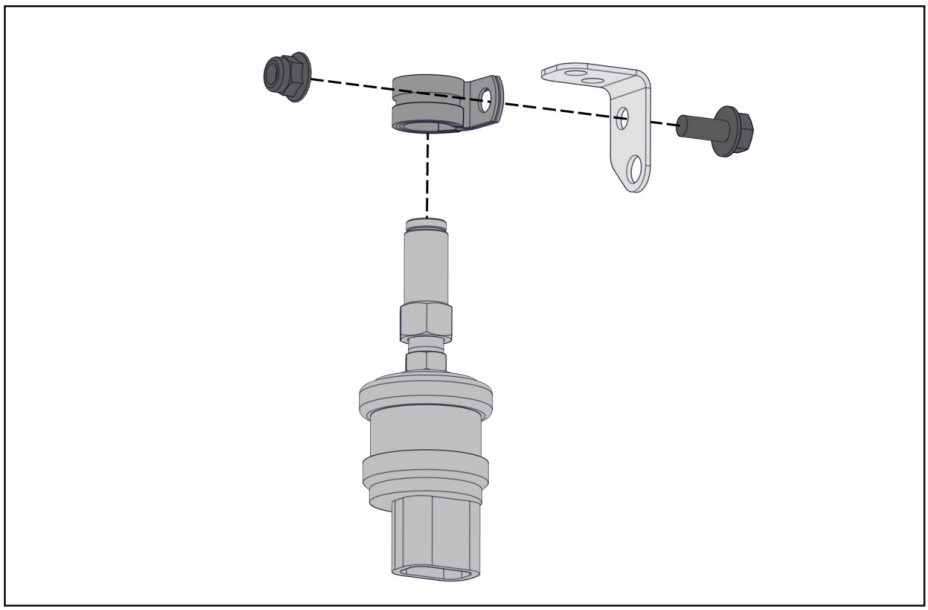


Figure 12 — Assemble pressure switch

☐ Apply Loctite 242 (blue) and mount the compressor onto the bracket using the ×3 supplied fasteners (Figure 13).

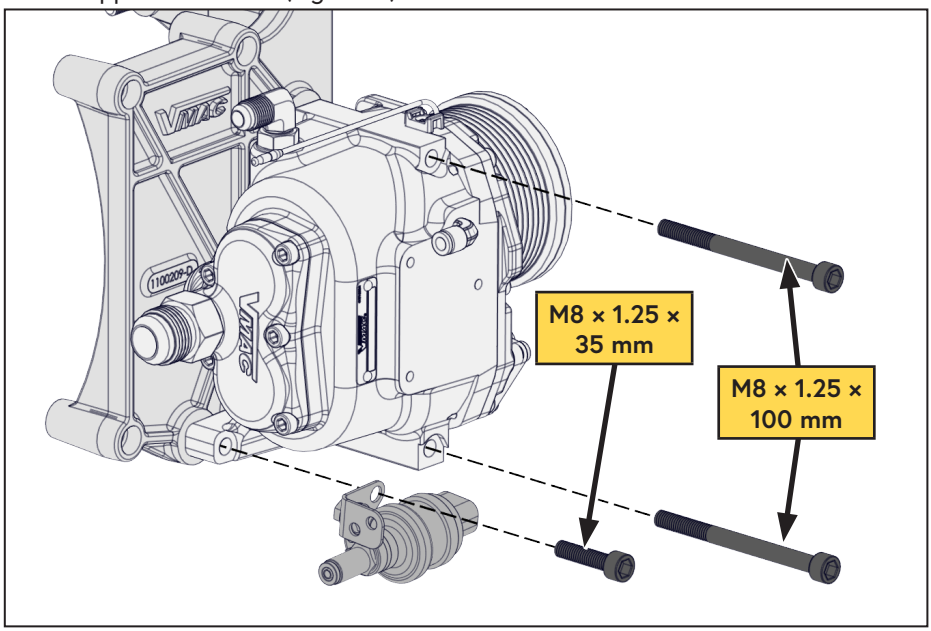


Figure 13 — Mount compressor

☐ Install the VMAC compressor belt (Figure 14).

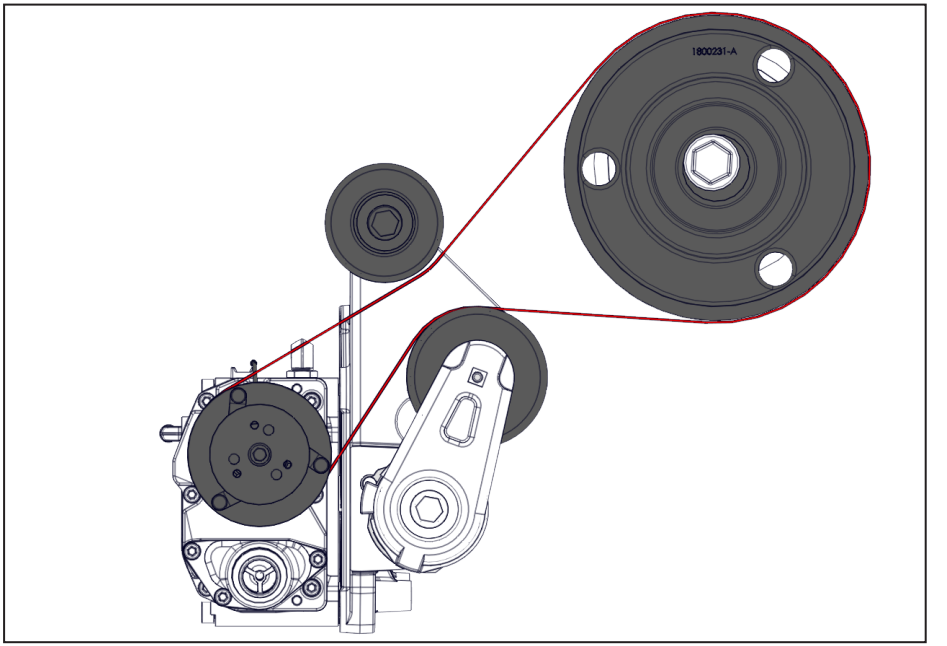


Figure 14 — VMAC belt routing

☐ Ensure the 6 rib belt is centered on the 8 rib compressor clutch. One clutch rib should be visible on each side of the belt (Figure 15).

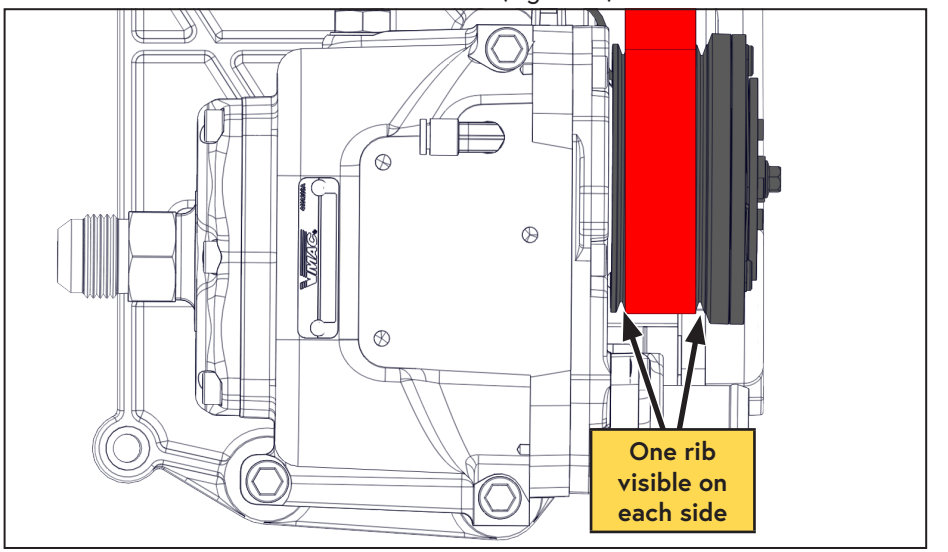


Figure 15 — Align belt on clutch

☐ Remove the shipping pin in the tensioner to tension to the belt. Verify the belt is properly seated on all of the pulleys.

Do not over tighten the debris shield fasteners.

☐ Apply Loctite 242 (blue) to the 3 supplied fasteners and install the debris shield onto the compressor (Figure 16).

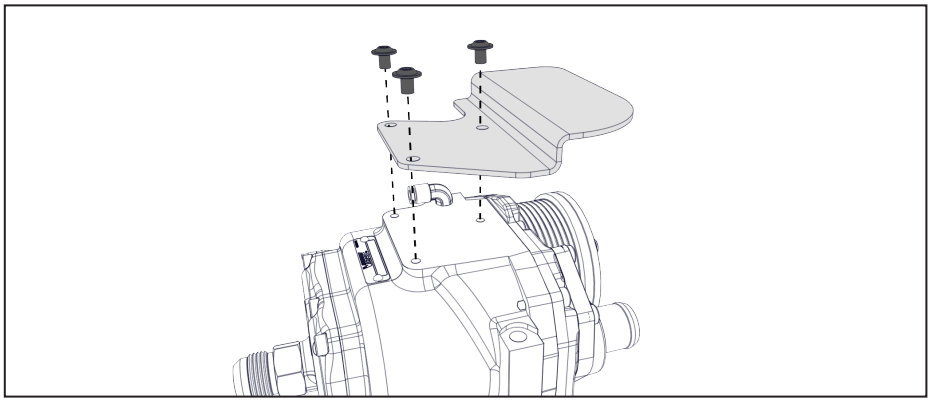


Figure 16 — Install compressor shield

Due to variations in cab configuration, it may be necessary to bend the air filter bracket in order for it to clear the cabin air filter box (Figure 17).

☐ Install the compressor air filter bracket behind the radiator overflow bottle. Use the supplied M8 × 18 mm fasteners with lock nuts in the 2 existing holes located toward the engine below the cab air filter box (Figure 17).

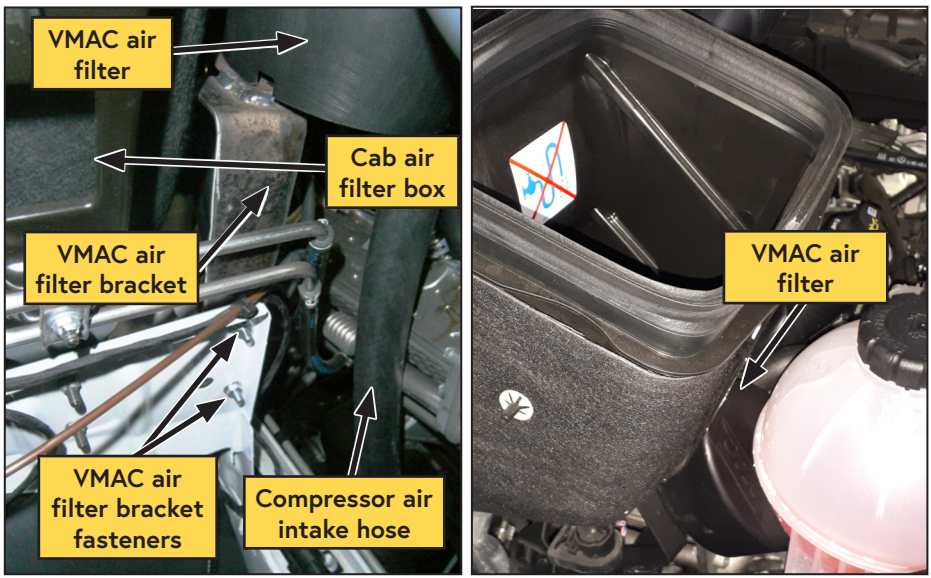


Figure 17 — Install compressor air filter bracket

- ☐ Route the compressor air intake hose from the bottom of the VMAC air filter, down between the engine and the frame, to the compressor (Figure 17).
- ☐ Secure the air intake hose to the air filter and compressor using the supplied gear clamps.
- ☐ Reinstall the fan and shroud onto the engine, ensuring the radiator shroud tabs click into place.
- ☐ Reconnect the fan harness (Figure 18).

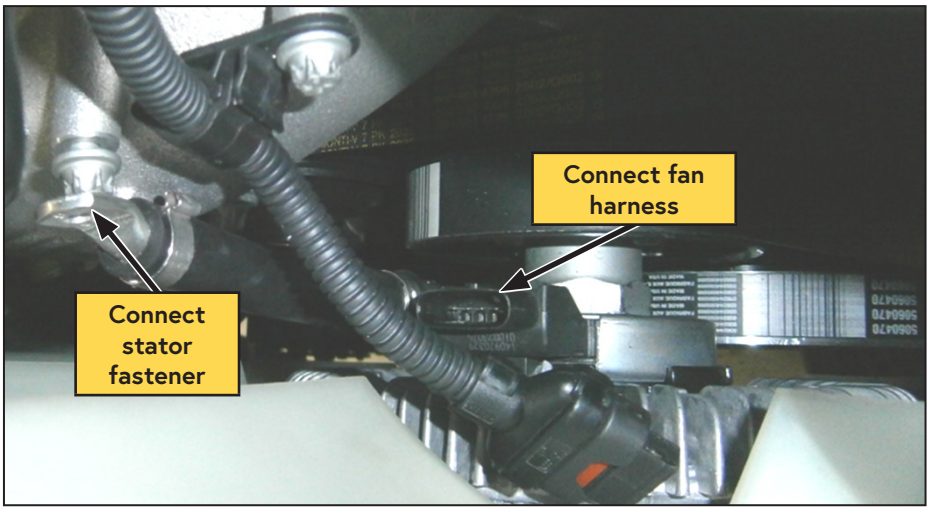


Figure 18 — Disconnect fan clutch

- ☐ Reconnect the stator to the engine (Figure 18).
- ☐ Reinstall the air box, including the related hoses and electrical connectors (Figure 19).

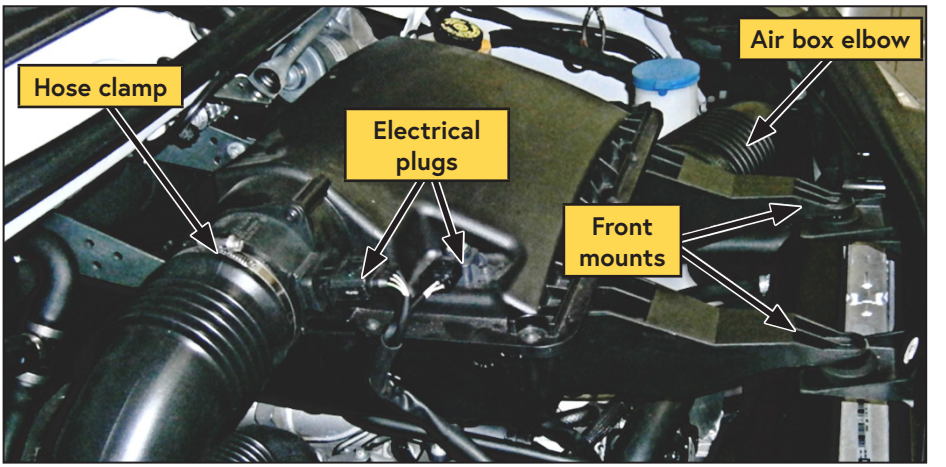


Figure 19 — Remove air box

Installing the Waste Heat Air Separator Package (WHASP) Tank

WHASP Tank location guidelines

When determining a mounting location for the WHASP Tank, ensure the following conditions are met:

- Adequate supply of fresh air and venting for the cooling fan.
- Minimum of 12 in of clearance at the front of the cooling fan.
- Minimum of 6 in clearance at the rear of the unit.
- Hose connections and wiring are accessible.
- Mounted on a level surface.
- Impact protection.
- The oil level sight glass is easily accessible.
- The oil fill and drain ports are accessible for servicing.
- Minimize the hose lengths to maximize performance.

Mounting the WHASP Tank

Refer to (Figure 20) for mounting dimensions.

Special consideration must be made to ensure the WHASP Tank will be protected from damage and to ensure that it has adequate ventilation.

In some cases, it may be necessary to fabricate a mounting bracket to position the tank in an appropriate location.

Secure the WHASP Tank by bolting the mounting feet to the installation surface, use M8 or 5/16 in fasteners (not supplied).

Mounting in an Enclosure or Body

Mounting the WHASP Tank in an enclosure will limit access to cooling air or restrict the escape of hot air from around the unit and will have an adverse effect on cooling.

Ensure adequate ventilation is provided for the cooling system to function properly.

It is not possible to make absolute recommendations regarding ventilation because of the widely differing configurations that are possible. Duty cycle, ambient temperature and enclosure shape are some of the important variables that need to be taken into account when determining the suitability of enclosure mounting.

Cool air ducted to the cooler and installing an exhaust fan to remove hot air is recommended.

Confirm the hose lengths included in this kit when determining the location of the WHASP Tank and bulkhead fittings. Hose lengths can be found in the Illustrated Parts List (IPL). If the WHASP Tank or bulkhead fitting location requires longer hoses, contact a local VMAC dealer. See page 6 for ordering information .

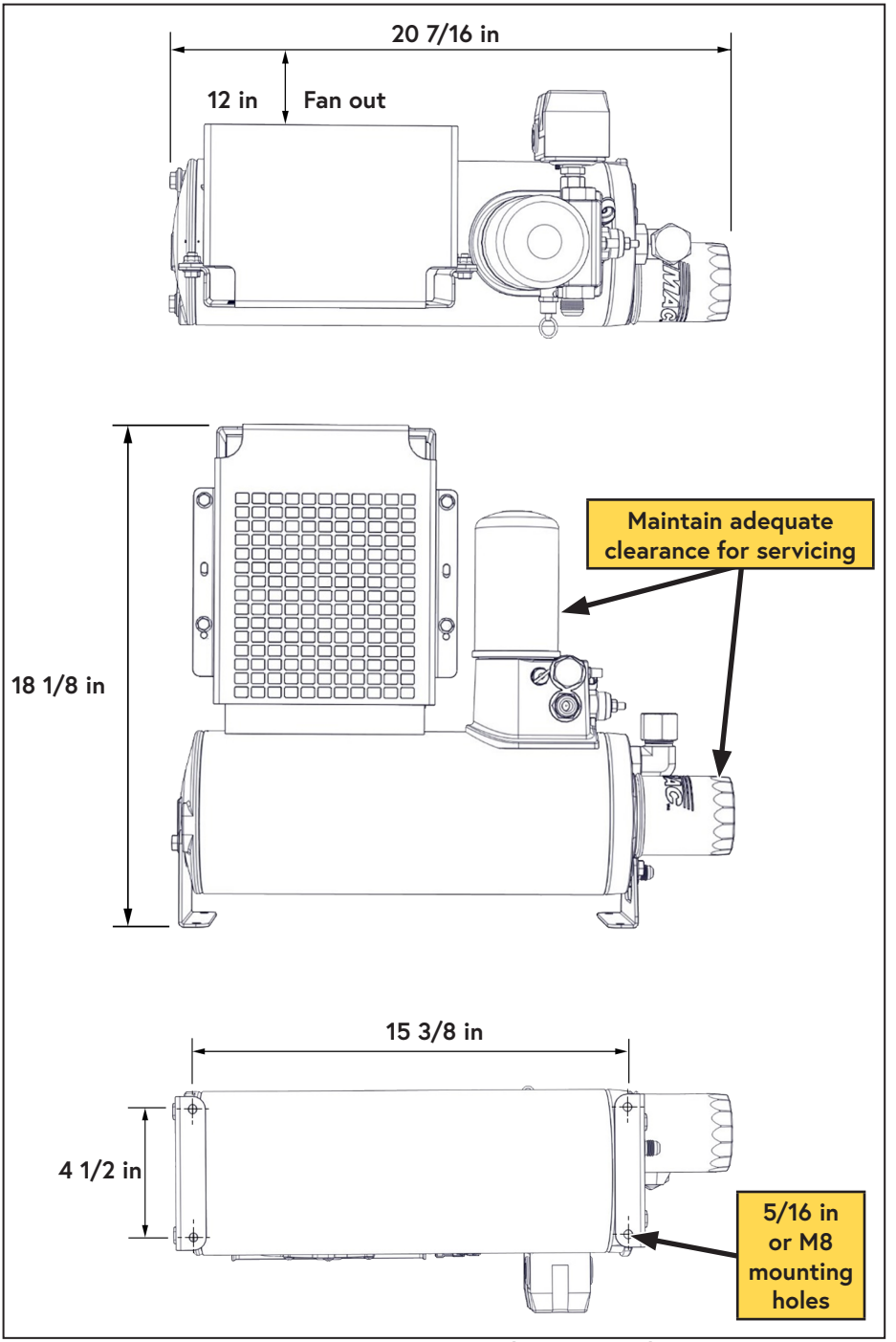


Figure 20 — Minimum WHASP Tank mounting clearances

Mounting the WHASP Tank

The WHASP Tank uses a "puller" fan to cool the air/oil mixture. Position the WHASP Tank to ensure there is adequate air flow and so that the fan is blowing out toward the cargo door. During operation, the door should be kept open to ensure there is a constant supply of cool air to prevent the system from overheating (Figure 21).

Provide ample space to check the oil level, as well as access to the filters and compressor oil drain to facilitate servicing.

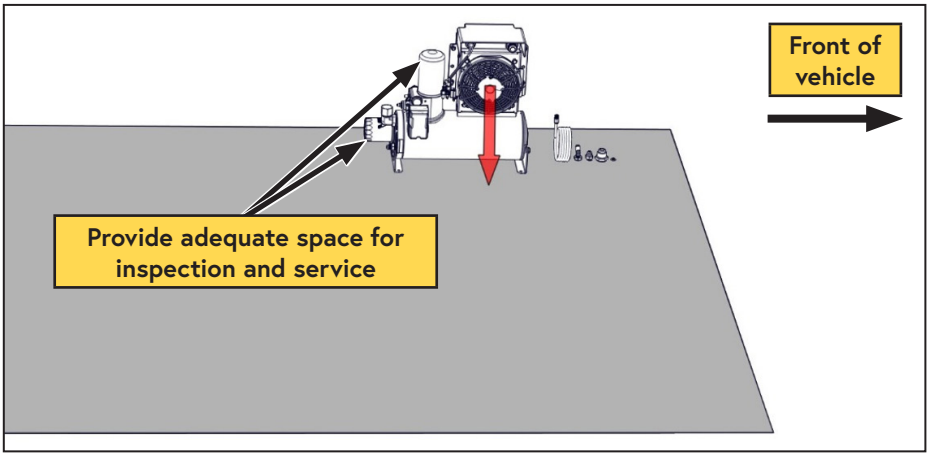


Figure 21 — WHASP ventilation

A minimum of 6 in of clearance is recommended around the radiator (intake) side of the WHASP Tank to allow fresh, cool air to circulate into the cooler and fan (Figure 22).

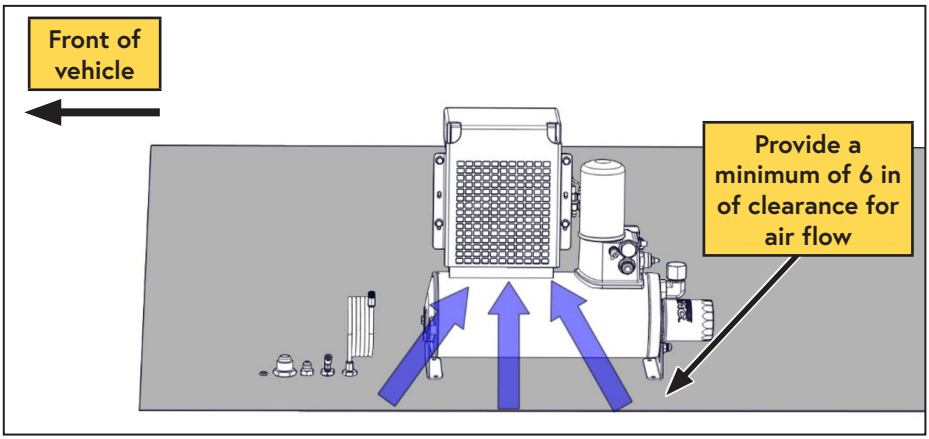


Figure 22 — WHASP ventilation

Installing the Bulkhead Fittings

4 bulkhead fittings are supplied with the system (Figure 23):

- 3 bulkhead fittings are used to pass the system discharge, oil, and scavenge hoses/tubes into the body of the vehicle.
- 1 bulkhead fitting is used to locate the blowdown muffler outside of the vehicle.

This kit includes hoses of a fixed length to run from the compressor to the bulkhead fittings, and from the fittings to the WHASP Tank.

To maximize compressor performance, hose lengths should be kept as short as possible; if longer hoses are required please follow the hose requirements listed on page 26 of this manual.

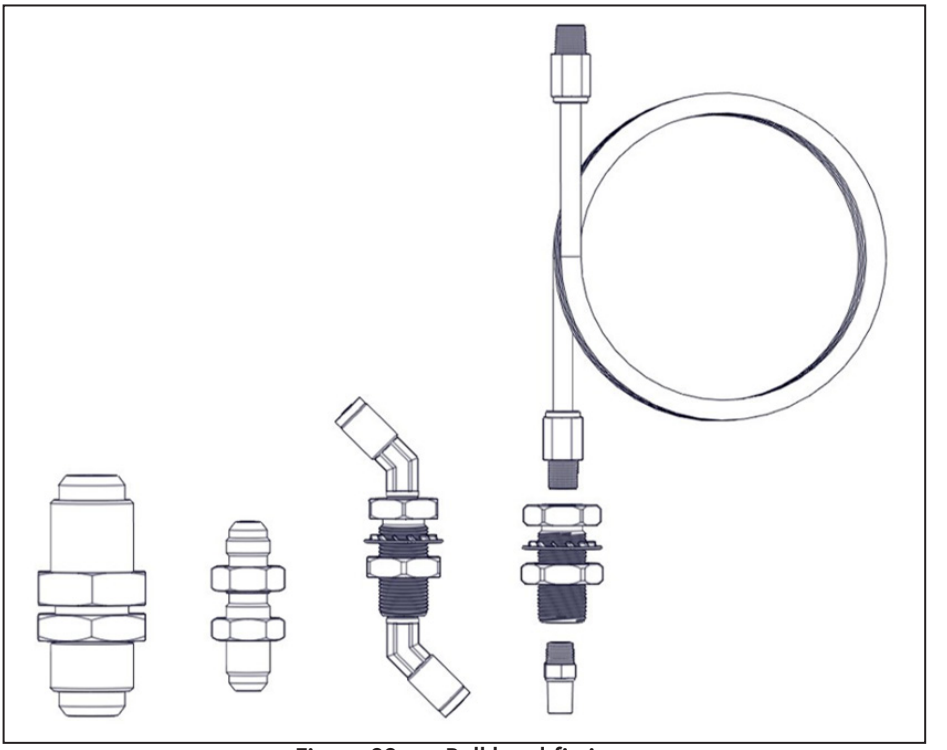


Figure 23 — Bulkhead fittings

Good judgment must be used during installation. Prior to drilling any holes in the vehicle, confirm the installation location of the WHASP Tank and the bulkhead fittings. Confirm that the supplied hoses will reach from the compressor to the bulkhead fittings, and from the bulkhead fittings to the WHASP Tank. Also ensure that there are no wires, hoses, or other components on the other side of the panel that may be damaged when drilling holes.

For best fit, ensure the bulkhead fittings are centered on the top of the structural ribs.

☐ From the chassis member, mark a location 5 in from the front of the vehicle (Figure 24), and 4 in from the driver side (Figure 25).

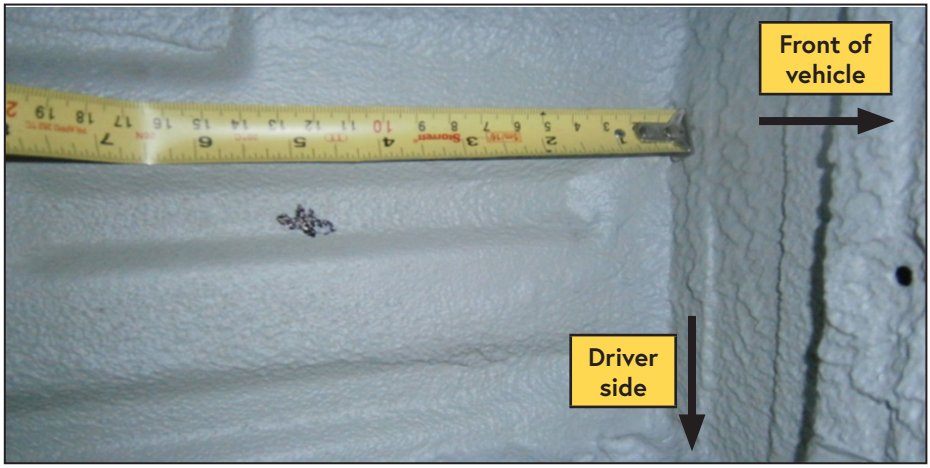


Figure 24 — Measure from front of vehicle

Figure 25 — Measure from driver side of vehicle

☐ Drill the bulkhead fitting holes using a drill, step drill or hole saw. Leave enough room between the fittings to allow access for a wrench (Figure 26, Figure 27 Figure 28).

- Discharge from the compressor: ø1 1/8 in.
- Oil return: ø9/16 in.
- Oil scavenge: ø5/8 in.
- Remote blowdown: ø5/8 in.

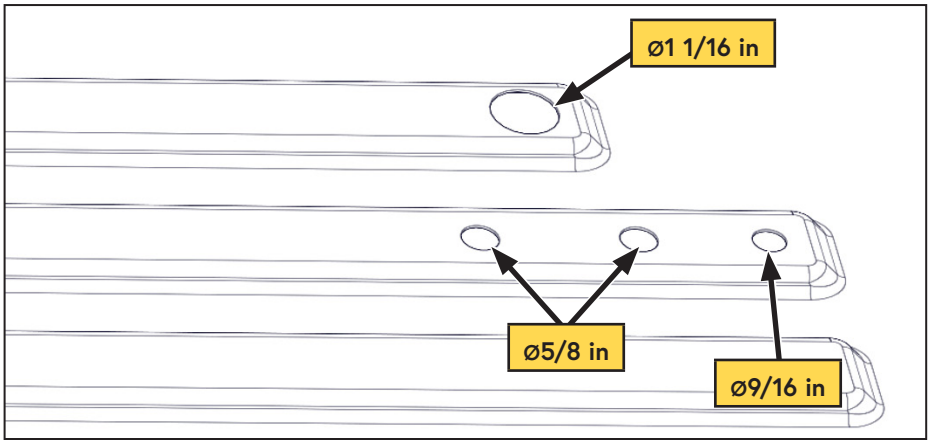


Figure 26 — Bulkhead fitting location

☐ Fit the bulkhead fittings through the top of the hole and secure from the bottom with the supplied nuts. Apply Loctite 567 (thread sealant) when installing the 1/4 in push-to-connect fittings in the bulkhead fittings (Figure 27 and Figure 28).

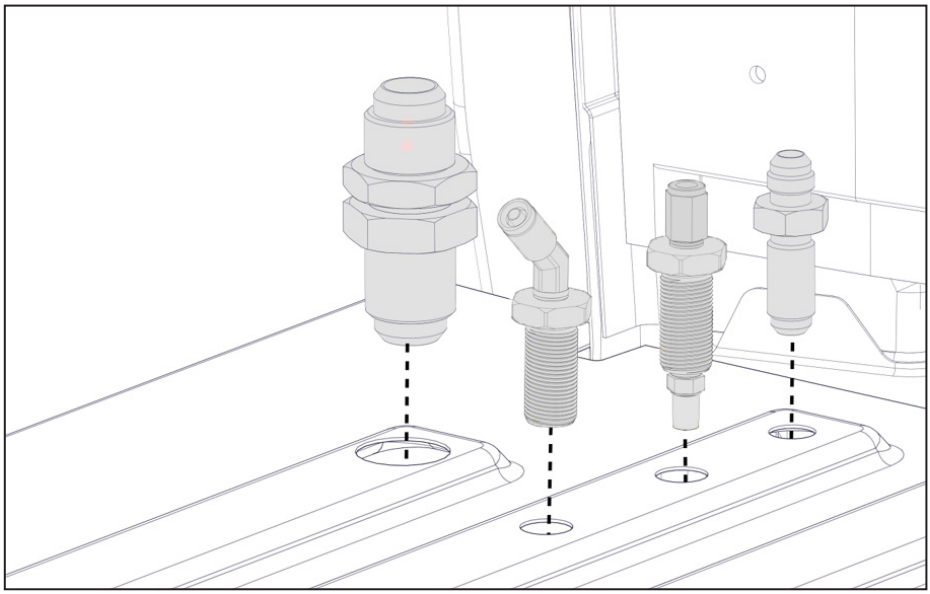


Figure 27 — Interior view

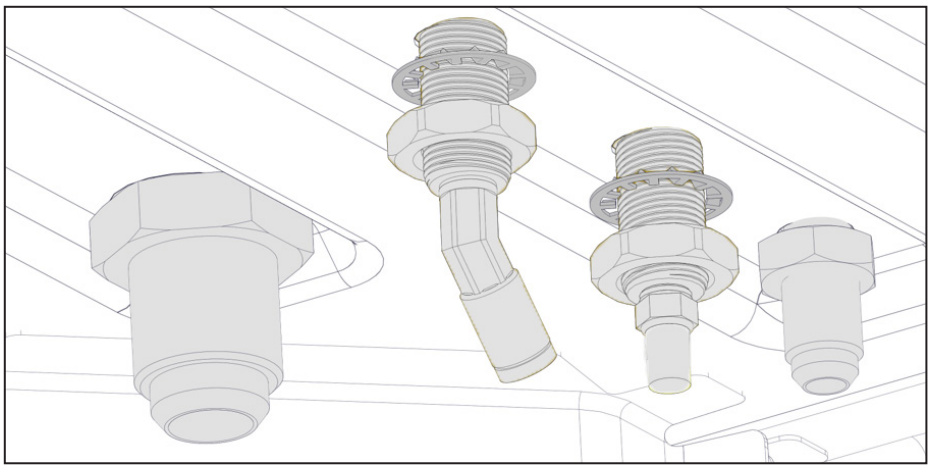


Figure 28 — Exterior View

Hose Requirements

Only attempt to shorten the supplied hose if there is access to the appropriate equipment. Do not attempt to cut the hose and splice it using hose clamps.

VMAC Compressor oil will degrade rubber lined hoses, use only hoses with an AQP elastomer type liner. Contact VMAC Technical Support at 1-888-241-2289 for further information.

The 1/4 in PTFE tube, and the 3/8 in and 3/4 in hoses with AQP elastomer liner, are specifically designed to work with VMAC compressor oil and at compressor operating temperatures.

Based on the desired location of the WHASP Tank, the hose lengths provided with this system may not be ideal. They can be shortened or replaced as necessary, or hose extenders can be used.

VMAC recommends shortening these hoses as a preferred alternative to coiling up and securing the excess. ***Shorter hose length will maximize system performance.***

Avoid using 90° fittings wherever possible as they cause flow restrictions and negatively impact performance.

The following hoses are included with this compressor kit:

From the compressor to the bulkhead fittings:

- 3/4 in × 118 in.
- 3/8 in × 118 in.
- 1/4 in (PTFE Tube) × 140 in.

From the WHASP Tank to the bulkhead fittings:

- 3/4 in × 22 in.
- 3/8 in × 30 in.
- 1/4 in (PTFE Tube) × 25 in.

If longer hoses are required:

To order parts, contact a VMAC dealer. The dealer will ask for the VMAC serial number, part number, description and quantity. See page 6 for ordering information.

- Eaton Aeroquip hoses with an "AQP" type inner liner are required.
- OTC fittings are required for the VMAC supplied hose.
- Push-lock fittings are suitable if FC332 hose is used.
- If Push-lock fittings are being used, do not use hose clamps as they will damage the hose and cause leaks.

Connecting the Hoses

When routing hoses, ensure cap plugs are installed so that contaminants do not get in the line. Take care when routing hoses, as a hose failure may damage the compressor and/or cause injury.

All hoses, tubes and wires that are installed, rerouted or shifted during the installation must be secured so that they do not contact any hot, sharp or moving parts. Use rubber coated P-clips wherever possible. Follow the routing suggestions in this manual and cover all hoses with plastic loom.

Push-To-Connect Fittings (Figure 29)

- ☐ 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.

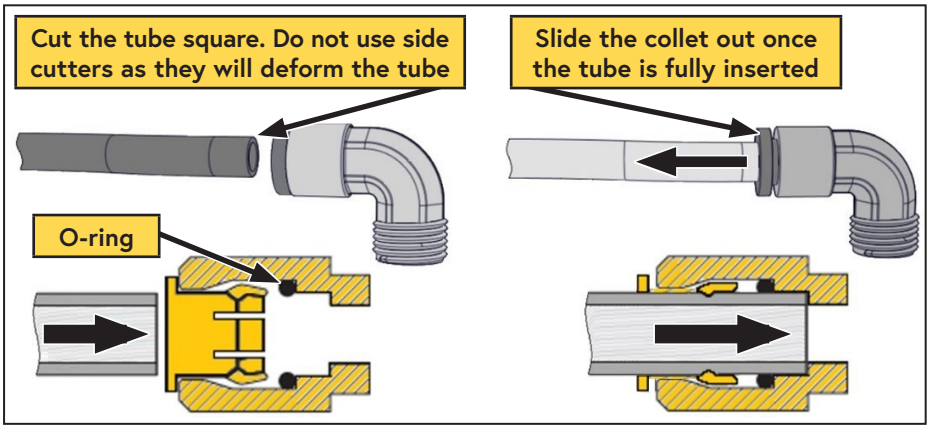


Figure 29 — Push-to-connect fittings

Connecting the Interior Hoses (Figure 30)

- ☐ Connect the straight ends of the 3/4 in × 22 in and 3/8 in × 30 in hoses to the top side of the bulkhead fittings.
- ☐ Connect the 1/4 in × 25 in PTFE tube to the top side of the bulkhead fitting.
- ☐ Bundle the PTFE tube and hoses together and route them to the WHASP Tank.
- ☐ Connect the 90° fitting on the 3/4 in × 22 in hose to the #12 JIC fitting (air/oil inlet) on the cooler above the fan (Figure 34).
- ☐ Connect the 90° fitting on the 3/8 in × 30 in hose to the #6 JIC fitting (oil return fitting) beneath the oil filter on the tank (Figure 34).
- ☐ Connect the 1/4 in PTFE tube to the 1/4 in push-to-connect (oil scavenge) fitting near the coalescing filter (Figure 30).
- ☐ Connect the discharge fitting (#8 male JIC) to the customer's air system (hose not supplied).
- ☐ Secure all hoses, tubes, and wires with P-clips and/or cable ties.

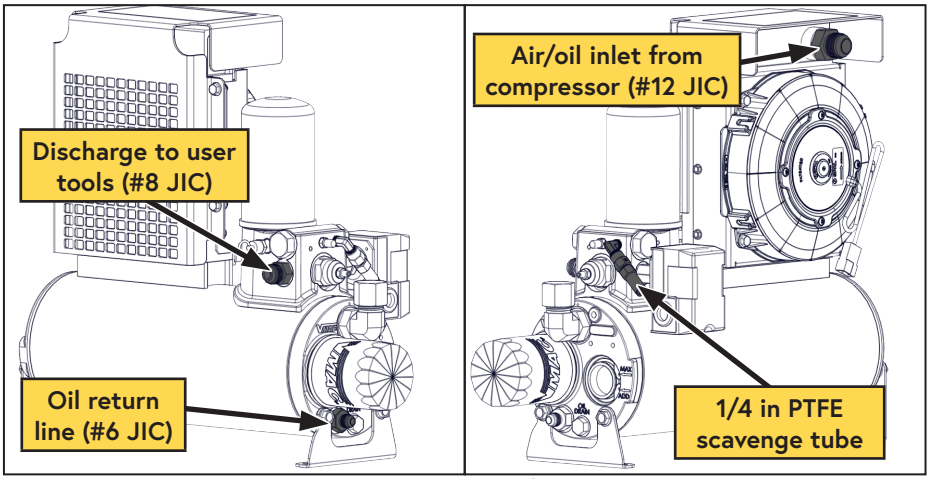


Figure 30 — WHASP Tank connections

VMAC recommends using a receiver tank with this system. Follow the instructions on page 44 of this manual to prevent damage to the system.

Remote Muffler Installation

The WHASP Tank automatically depressurizes when the clutch disengages. This prevents damage to the compressor on the next start up.
Installing the blowdown muffler outside of the vehicle will reduce cabin noise during blowdown, and will ensure any oil vapor will be safely discharged outside of the vehicle.

☐ Remove the blowdown muffler from the side of the WHASP Tank (below the coalescing filter) (Figure 31).

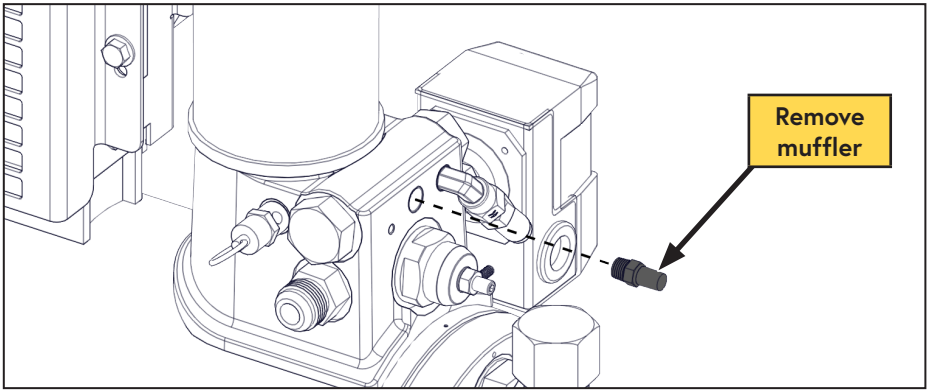


Figure 31 — Remove blowdown muffler

Ensure no debris enters the WHASP Tank manifold. Contamination of the assembly may cause erratic performance.

☐ Separate the PTFE tube from the fittings.

☐ Apply the supplied 1/4 in split loom to the 1/4 in PTFE tube.

☐ Apply Loctite 567 (thread sealing) compound to the 1/4 in push-to-connect fitting and install it into the threaded hole which previously held the blowdown muffler (Figure 32).

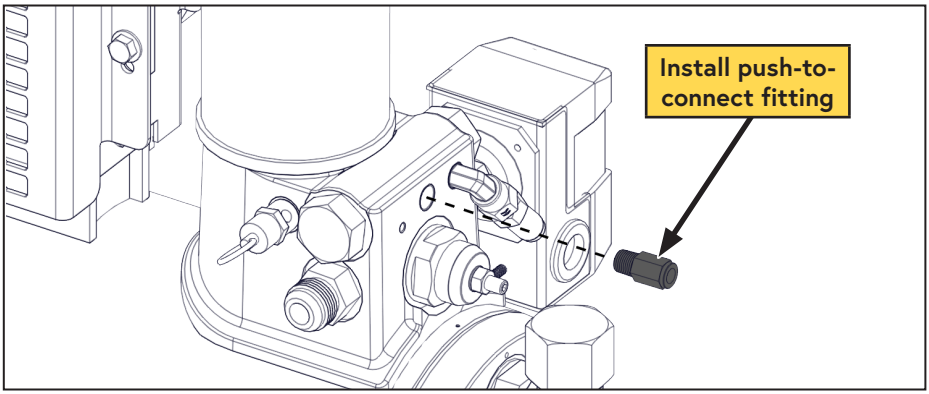


Figure 32 — Install push-to-connect fitting

☐ Connect the 1/4 in PTFE tube into the push-to-connect fitting installed in the WHASP Tank (Figure 33).

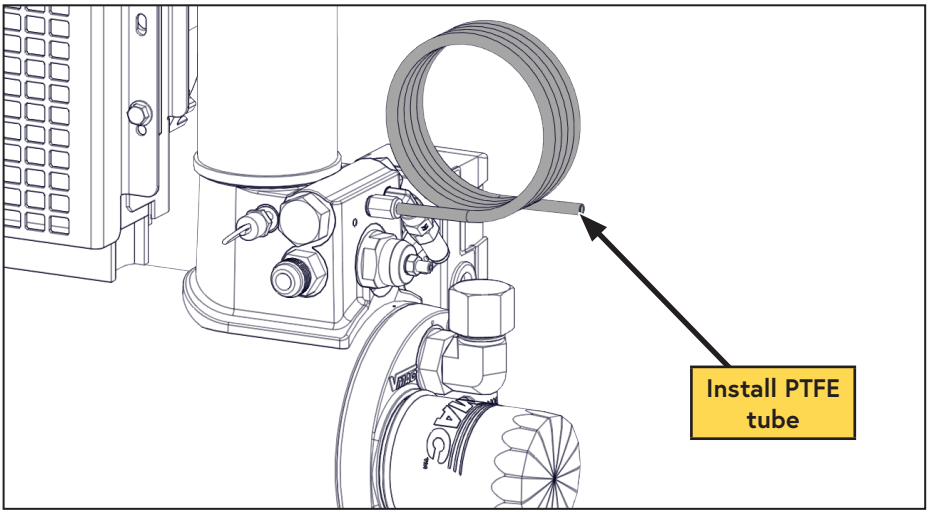


Figure 33 — Tubing Installation

☐ Route the 1/4 in PTFE tube to the bulkhead fitting, ensuring the tube will not kink, and cut the hose to length.

Ensure the tube is cut square and that there are no sharp edges. Do not use side cutters as this will deform the hose.

☐ Install the tube into the push-to-connect bulkhead fitting (Figure 34)

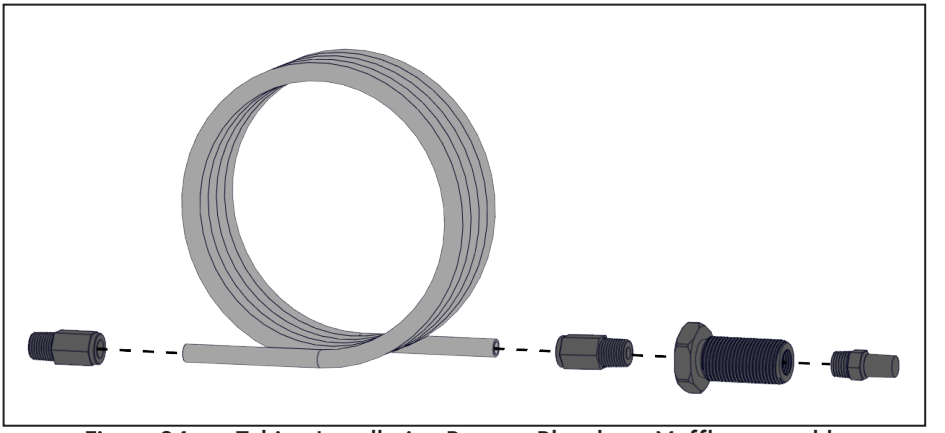


Figure 34 — Tubing Installation Remote Blowdown Muffler assembly

☐ Secure the tube with the supplied cable ties.

Connect the Exterior Hoses

- ☐ Apply loom (not supplied) to the 3/4 in × 118 in and 3/8 in × 118 in hoses, as well as the 1/4 in × 140 in PTFE tube.
- ☐ Connect the 1/4 in × 140 in PTFE tube to the 90° push-to-connect fitting on the compressor. Ensure the tube fully seats in the fitting.
- ☐ Connect the 3/4 in × 118 in and 3/8 in × 118 in hoses to the compressor.
- ☐ Route the 3/4 in × 118 in and 3/8 in × 118 in hoses as well as the 1/4 in × 140 in PTFE tube behind the engine oil pan, positioning them 90° toward the driver side of the vehicle (Figure 35).

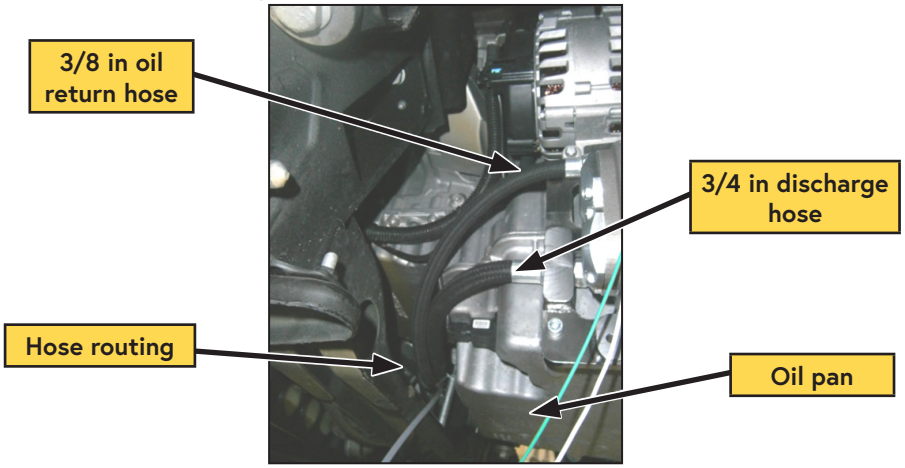


Figure 35 — Hose routing

Ensure the distance between the pressure switch and the Union Tee is no more than 24 in, and the distance between the compressor and the Union Tee is no more than 6 in

- ☐ From the 24 in spool of 1/4 in PTFE tubing, connect the scavenge tube to the compressor, pressure switch assembly, and Union Tee (Figure 36).

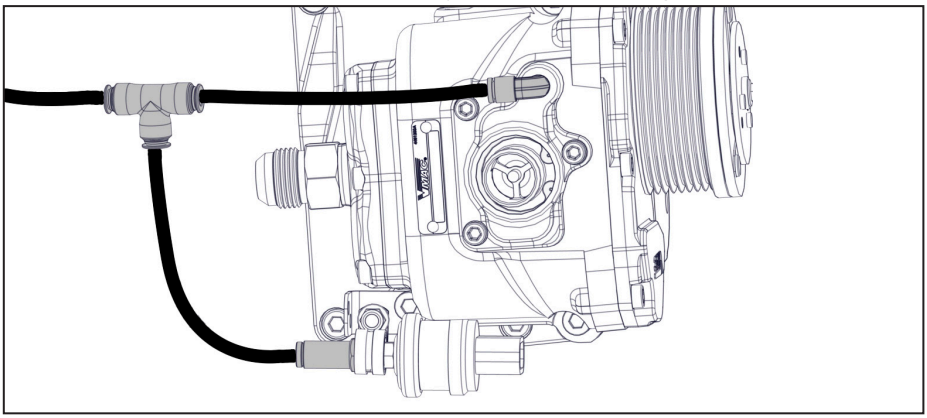


Figure 36 — Install pressure switch

☐ Insert the supplied M8 × 1.25 × 100 mm bolt and washer through the hole in the vehicle sub frame (Figure 37).

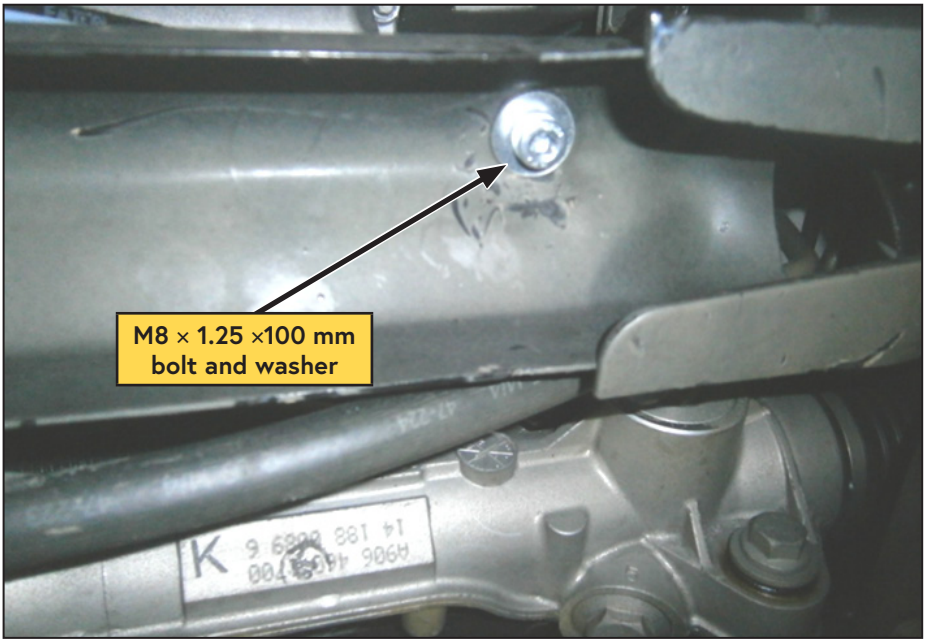


Figure 37 — Install P-clip mount

☐ Route all 3 hoses through the P-clip, then position the hoses towards the rear of the vehicle (Figure 38).

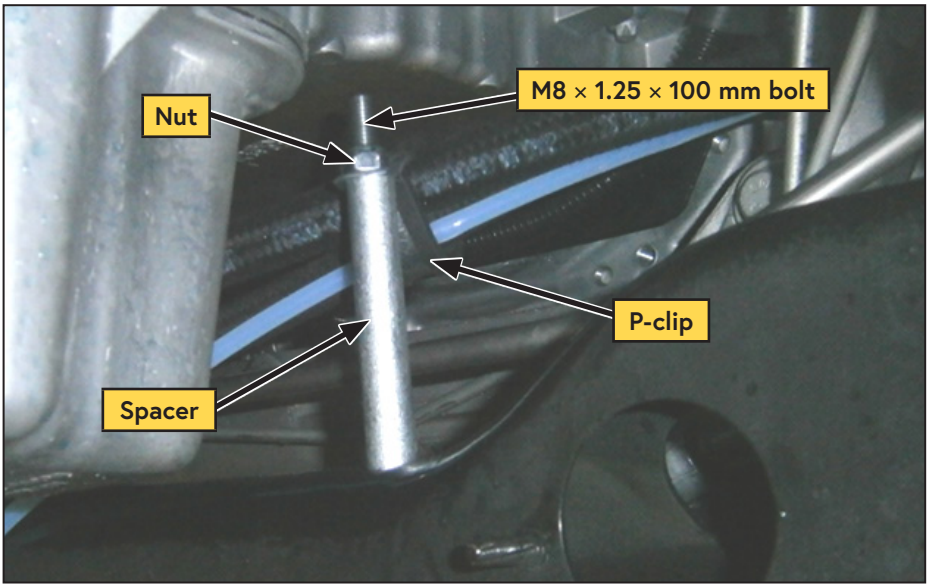


Figure 38 — Install P-clip mount

Ensure there is sufficient slack in the hose routing to allow for normal engine movement.

☐ Remove the lower OEM bolt from the shift bracket mounted on the driver side of the bell housing (Figure 39).

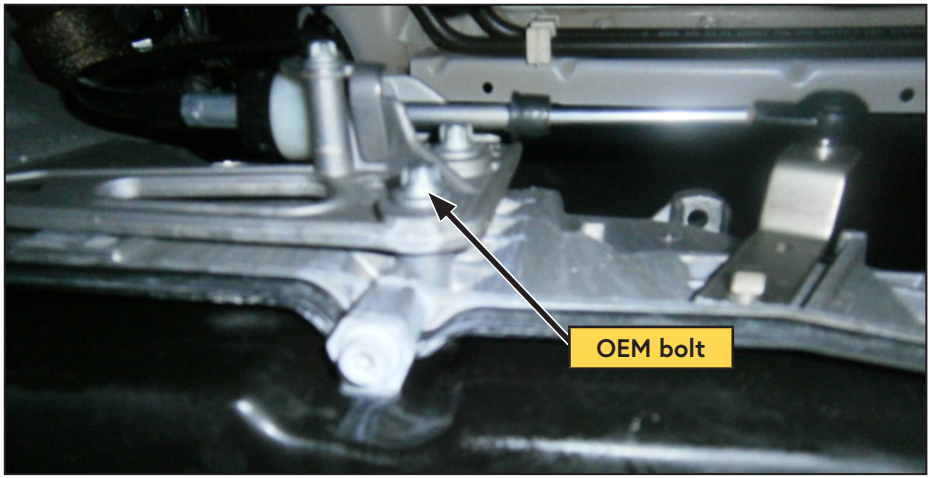


Figure 39 — Remove shift linkage bolt

☐ Route the hoses toward vehicle's battery box and install the supplied P-clip using the OEM bolt (Figure 40).

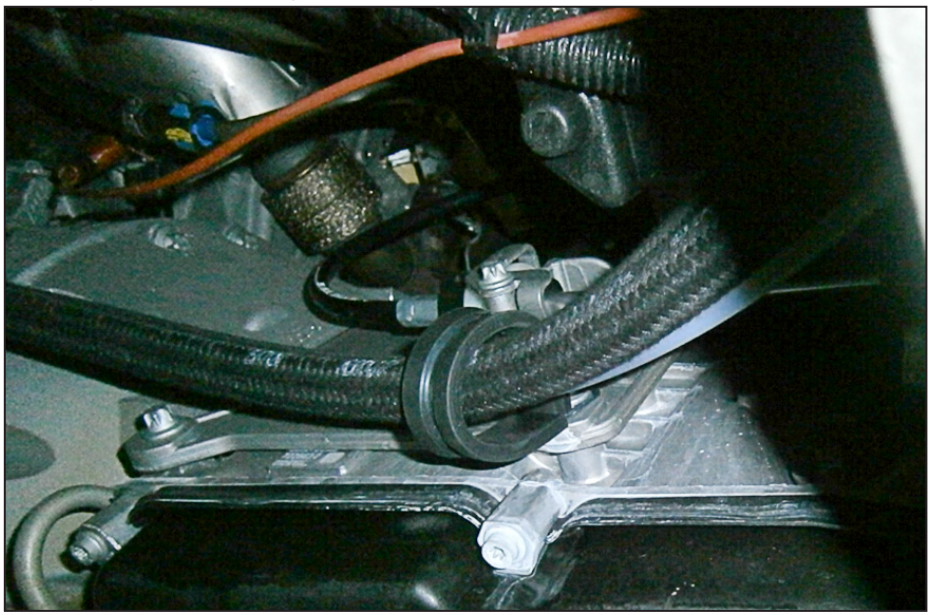


Figure 40 — Install P-clip

☐ Remove and discard the OEM M6 bolt on the rear of battery box (Figure 41).

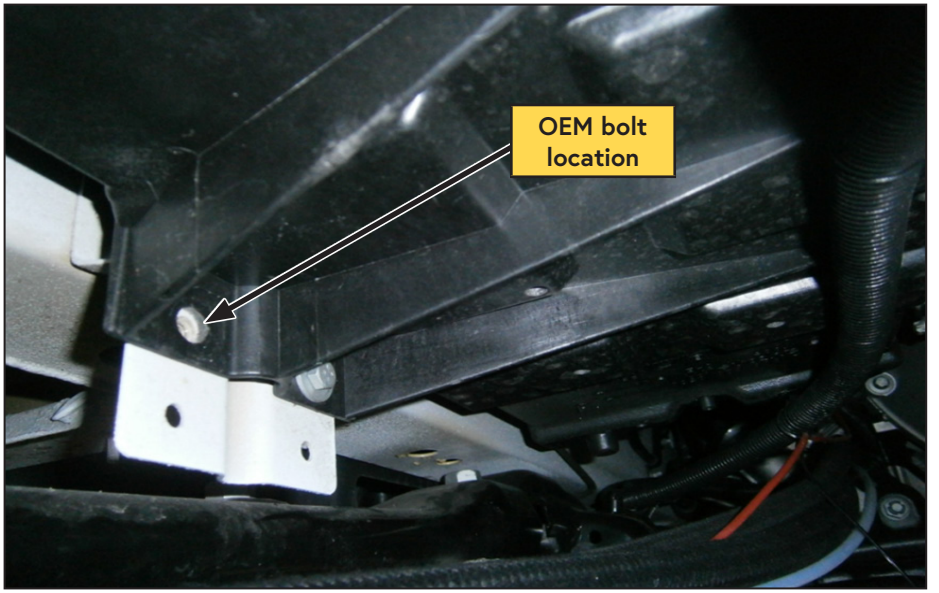


Figure 41 — Remove battery bolt

☐ Route the 3 hoses through the P-clip toward the rear driver side of the vehicle and secure the P-clip using the supplied M6 × 1.0 × 16 mm fastener.

☐ Locate the M6 OEM stud on the driver side of the underbody (approximately 8 inches in front of the fuel filler) (Figure 42).

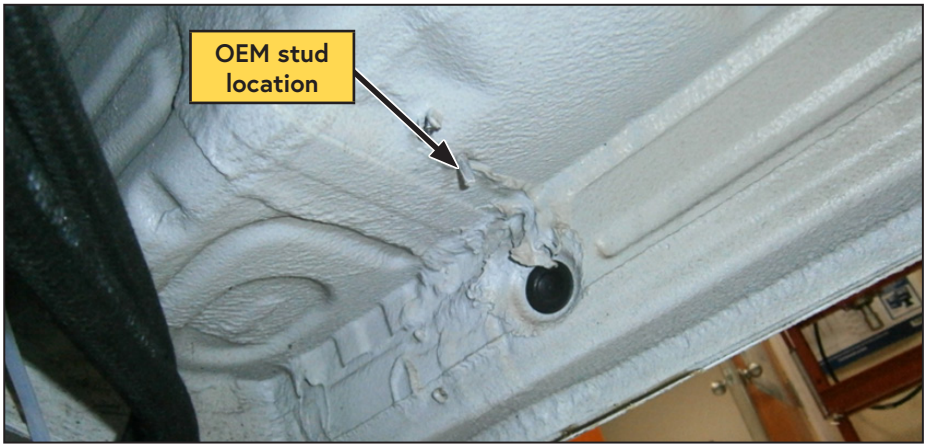


Figure 42 — Hose routing

☐ Route the PTFE tube and 2 hoses through the P-clip and secure the P-clip using the M6 nut.

☐ Feed the PTFE tube and hoses through the lower portion of the OEM aluminum shield around the fuel filler (Figure 43).

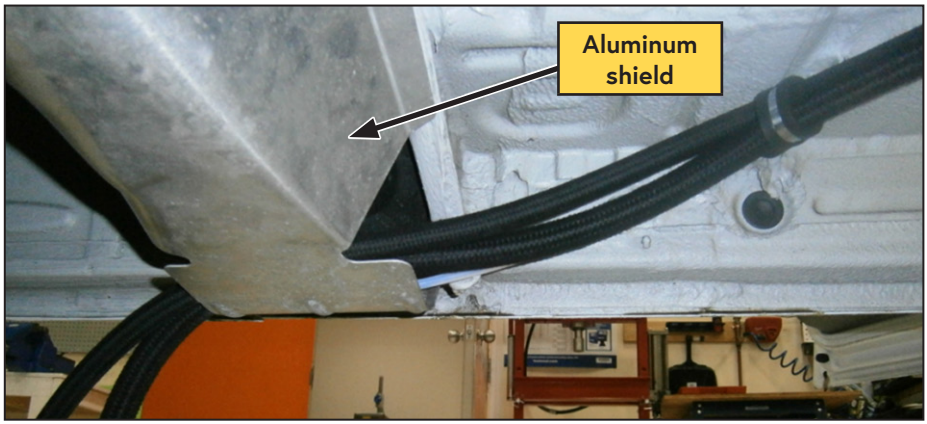


Figure 43 — Hose routing

☐ Apply the supplied spiral loom to the hose bundle to protect it from the sheet metal.

☐ Drill a 1/4 in hole in the rear lip of the fuel filler bodywork in the location shown (Figure 44).

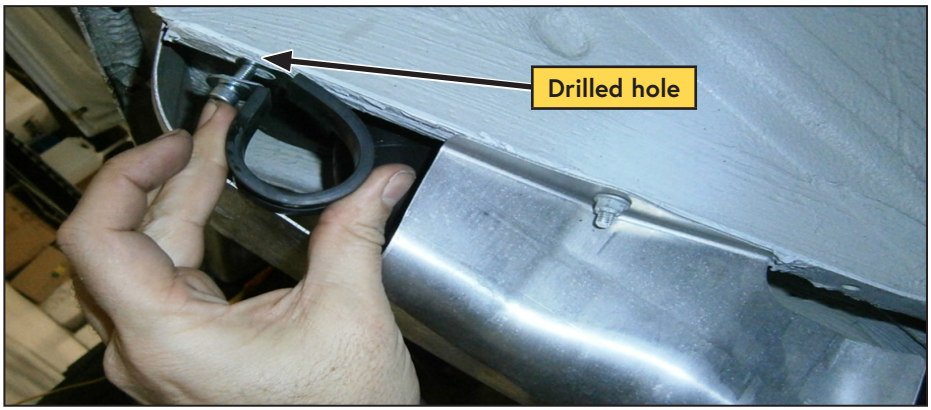


Figure 44 — Install P-clip

☐ Secure the hose bundle using the supplied P-clip, M6 × 1.0 × 16 mm bolt and nut.

☐ Continue routing the 1/4 in PTFE tube and the 3/4 in, 3/8 in hoses toward the bulkhead fittings installed earlier.

☐ Connect the hoses to the appropriate bulkhead fittings.

Adding Oil to the System

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.

- ☐ Remove the fill cap on the WHASP Tank (above the sight glass) (Figure 45).
- ☐ Using a funnel, pour oil into the tank until the oil level in the sight glass reaches the "MAX" line. **The system capacity is 4 L** (Figure 45).
- ☐ Reinstall the fill cap and tighten it securely. Ensure the fill port remains accessible as it will be necessary to check and top up the oil after the first compressor start.

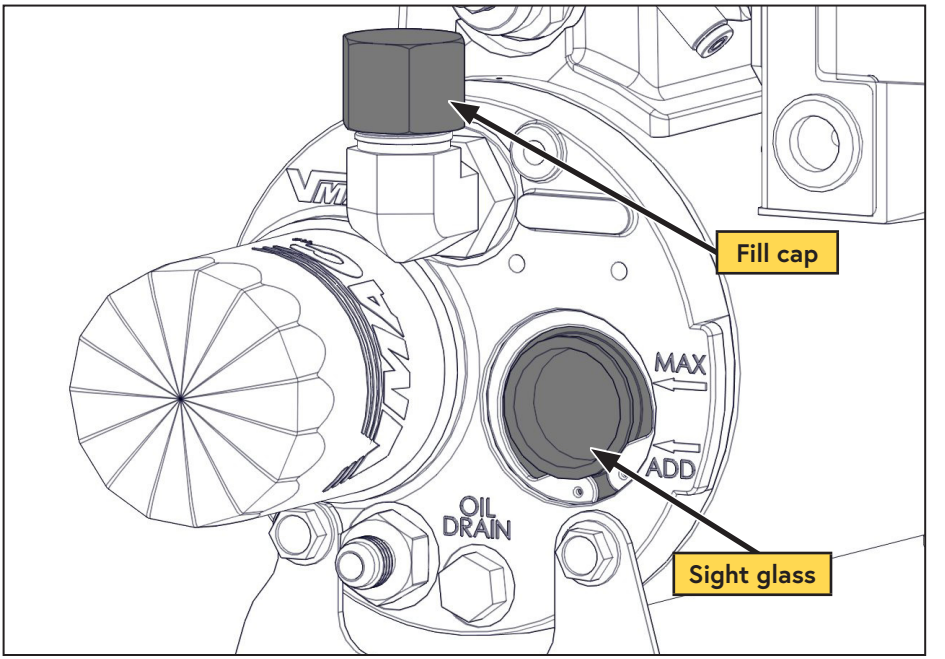


Figure 45 — Filling the WHASP Tank

Interior Panel Removal

☐ Remove the driver side step cover and floor mat (Figure 46).

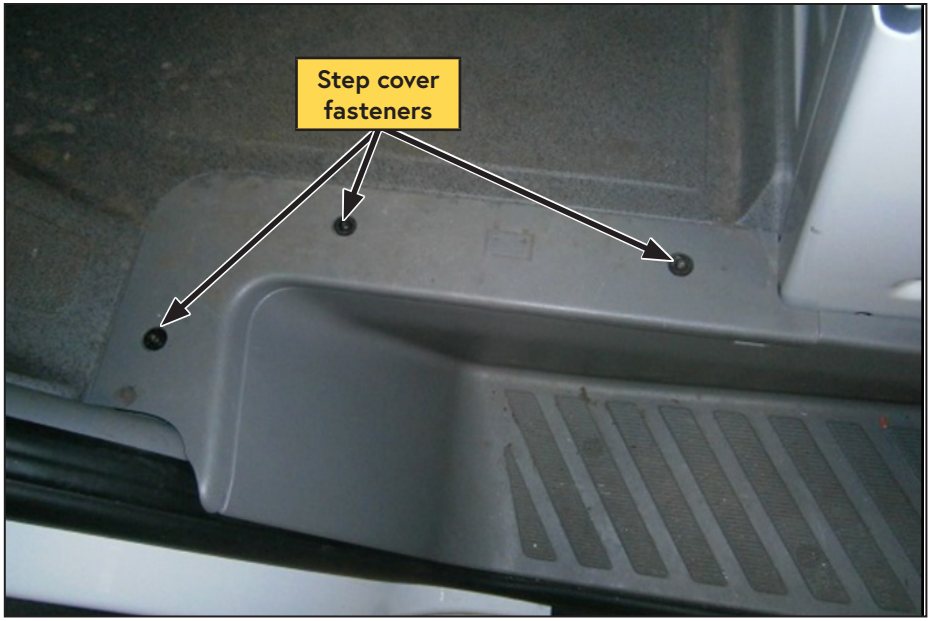


Figure 46 — Remove step cover and mat

☐ Remove the driver side lower dashboard panels (Figure 47).

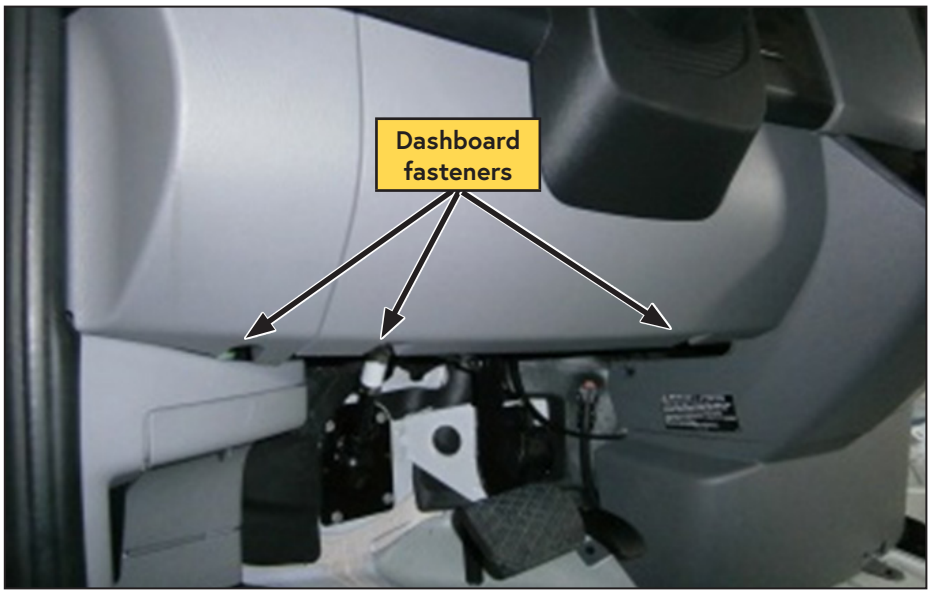


Figure 47 — Remove lower dashboard panels

The driver seat is heavy, use care when lifting it to prevent injury.

☐ Remove the driver seat.

☐ Remove the hatch from the driver side floorboard (Figure 48).

Figure 48 — Remove driver side hatch

Remove the cover from the park brake:

☐ Pull the cover toward the passenger seat to release the latch.

☐ Pull back on the cover to separate it.

Best Practices

- To confirm a good ground, use an ohm meter to measure the resistance between the ground point and the negative battery terminal. Resistance should be less than 1 Ω.
- Route all wires to ensure they will not contact hot, sharp or moving parts (including the park brake mechanism, steering column, and pedals).
- Before drilling any holes ensure there are no OEM wires, hoses, or components that may be damaged.
- Do not use a test light to probe for power on vehicle circuits, the increased current draw of the test light may damage components.
- VMAC recommends using only sealed crimp and solder butt connectors for all electrical connections.
- To ensure a durable connection, use only good quality crimping tools.
- Apply loom to all wiring:
    - Use high temperature loom in areas where high temperatures may be expected.
    - Use spiral loom in areas with high vibration.

In-line Butt Splice Connections

- Cut the wire approximately 2 in from the connector.
- Strip approximately 3/8 in from the end of both sides of the cut wire, as well as from the end of the wire being spliced in-line.
- Twist the wire to be spliced in-line, together with the "live" side of the wire (not the wire attached to the connector).
- Slide the butt connector onto the twisted wires and crimp it.
- Insert the "connector side" of the wire into butt connector and crimp it.
- Lightly tug the wires to ensure they are properly crimped.
- Using a heat gun, carefully apply heat to the butt connectors to seal the connection.

Posi-Tap Connectors

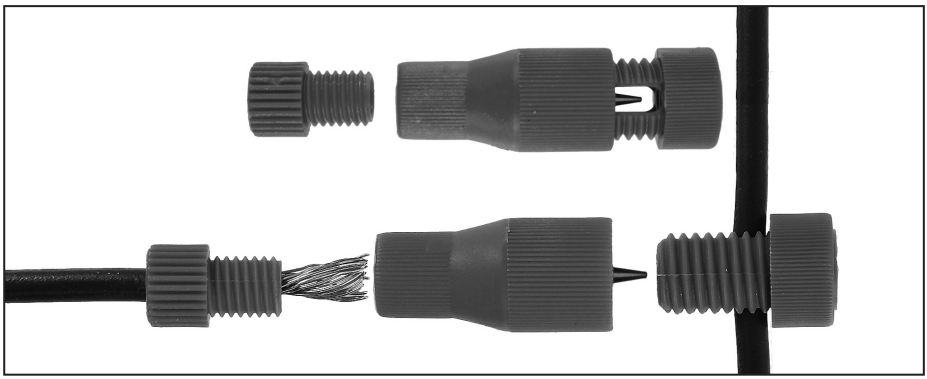


Figure 49 — Posi-Tap wire connector

Electrical Modules

- The throttle control, control module, and interface panel are not weather proof; ensure they are mounted where they will be protected from rain, snow, mud, direct sunlight, etc. (e.g. inside the cab, service body or cabinet).
- Keep the rear of the Interface Panel protected.
- Ensure the control module and throttle control are mounted away from the pedals, park brake mechanism, or where they could be inadvertently knocked by occupants.

Control Components Overview

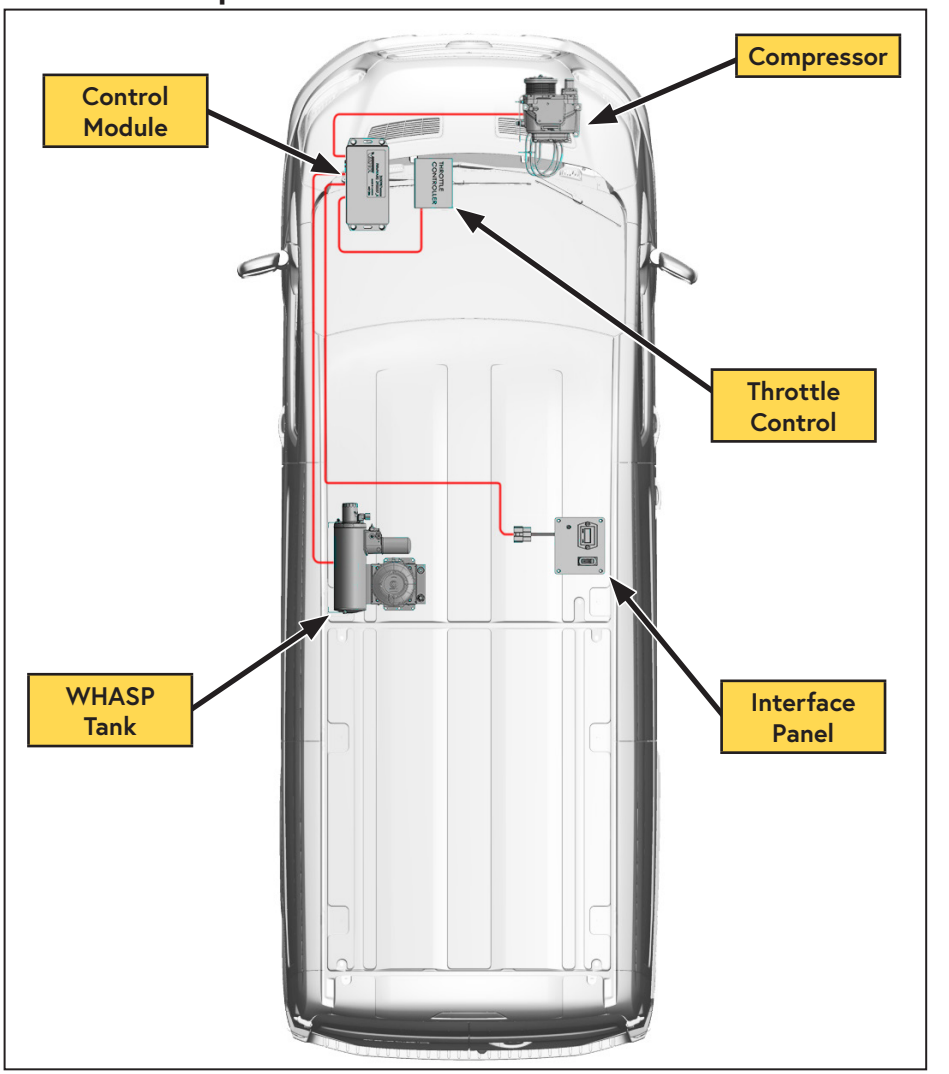


Figure 50 — General component overview
(Actual installation locations may vary)

Control Module (Figure 51)

The Control Module serves as the primary input/output interface between the vehicle and the various VMAC components (compressor, Throttle Control, WHASP Tank, Control Interface, etc.).

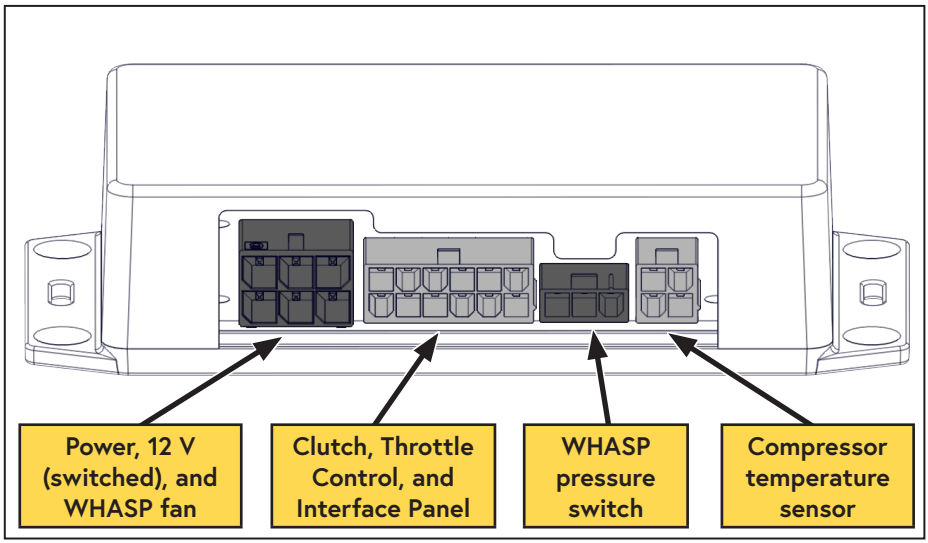


Figure 51 — Control Module

Interface Panel (Figure 52)

The Interface Panel serves as the operator's control panel and contains the "ON/OFF" switch, compressor status light, and the compressor hour meter.

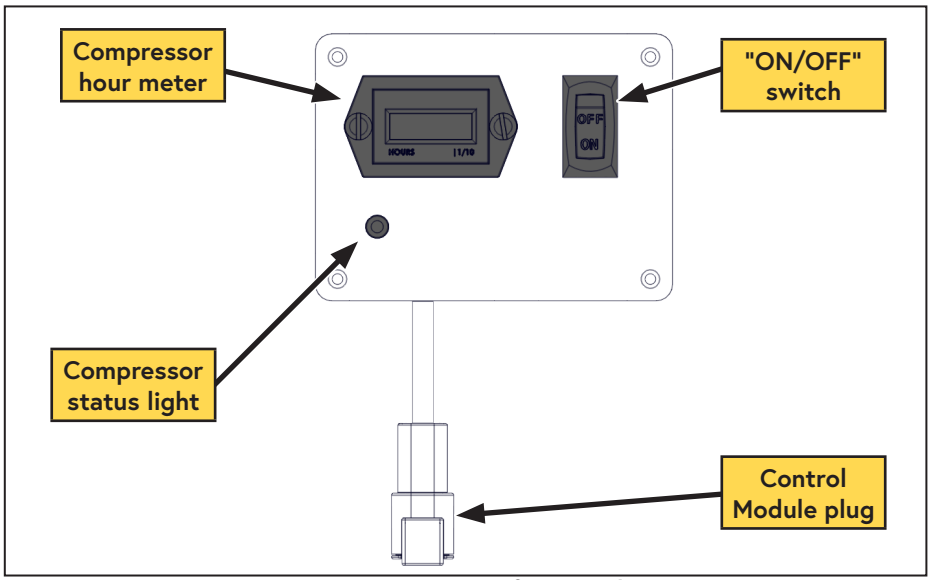


Figure 52 — Interface Panel

Throttle Control (Figure 53)

The throttle control responds to signals from the control module and commands the vehicle's throttle to increase or decrease engine speed in response to air demand.

The throttle control also allows the operator to configure the vehicle's engine speed (when air is demanded) to their needs (maximum cfm, specific tool requirements, fuel efficiency, or a combination of these factors).

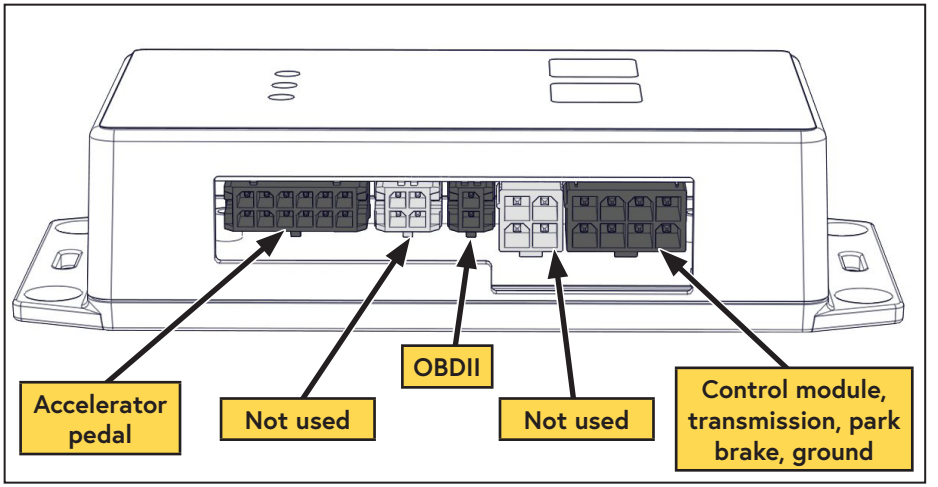


Figure 53 — VMAC digital Throttle Control

Mechanical Pressure Switch (Figure 54)

The mechanical pressure switch is mounted on the side of the WHASP Tank and limits the maximum pressure to a safe amount by disengaging the clutch once system pressure is achieved.

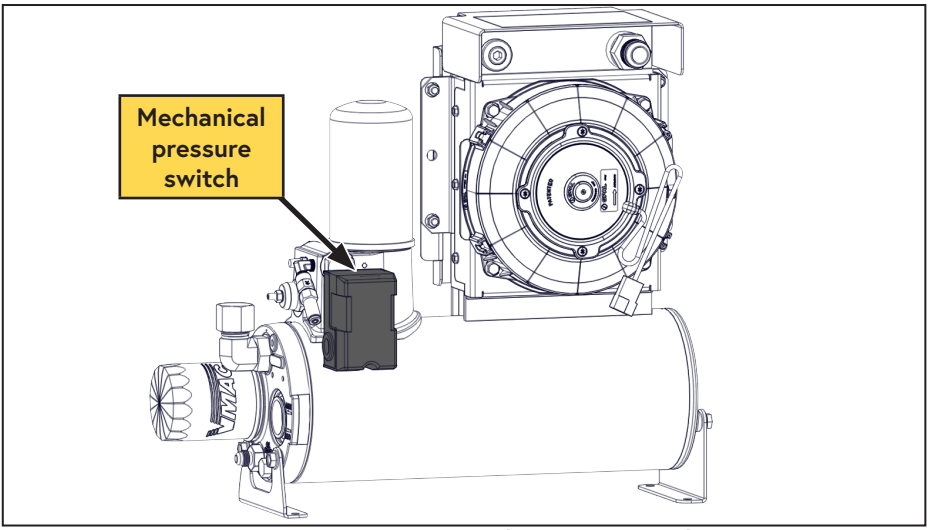


Figure 54 — WHASP Tank pressure switch

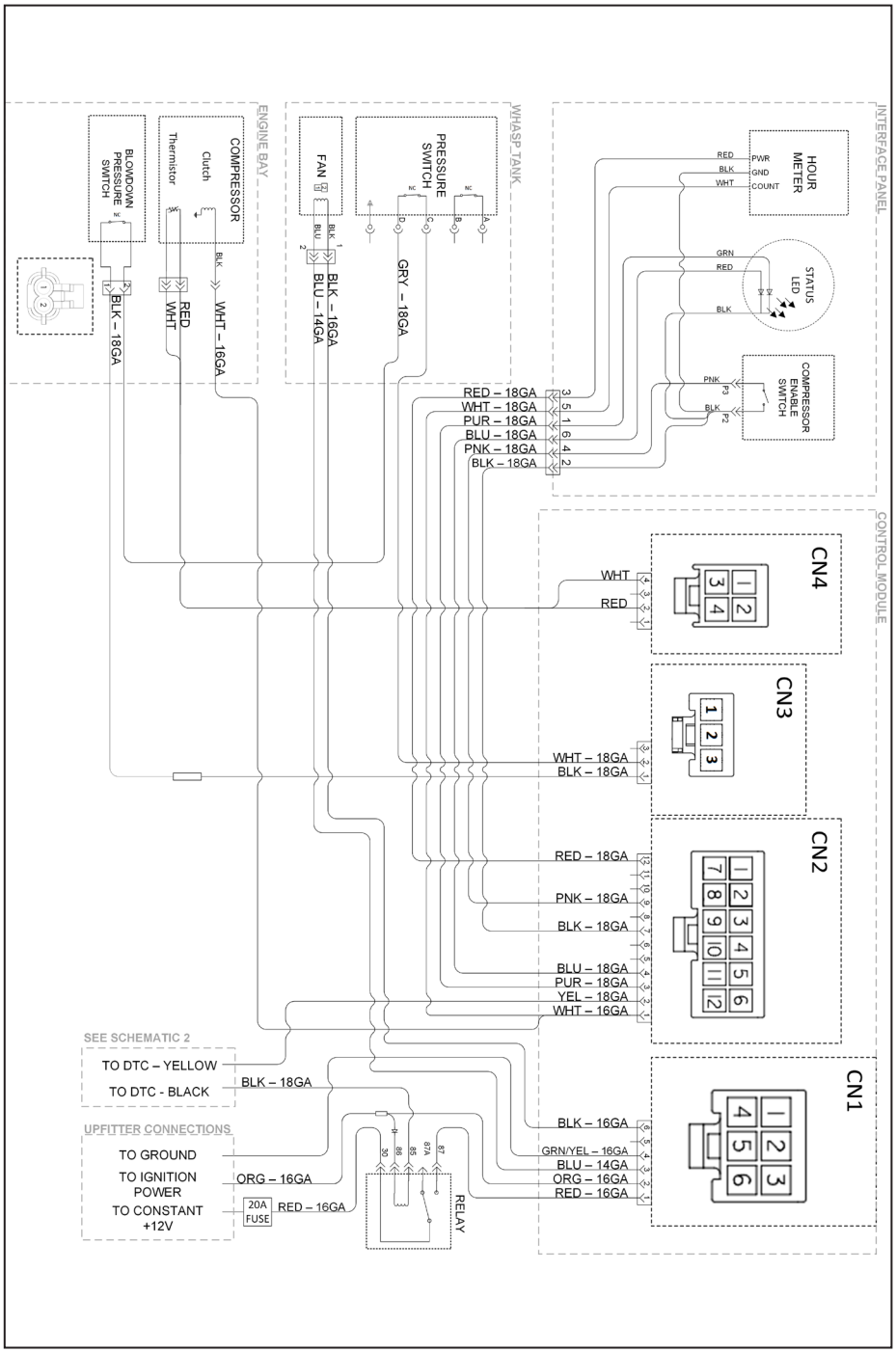


Figure 55 — Electrical schematic 1

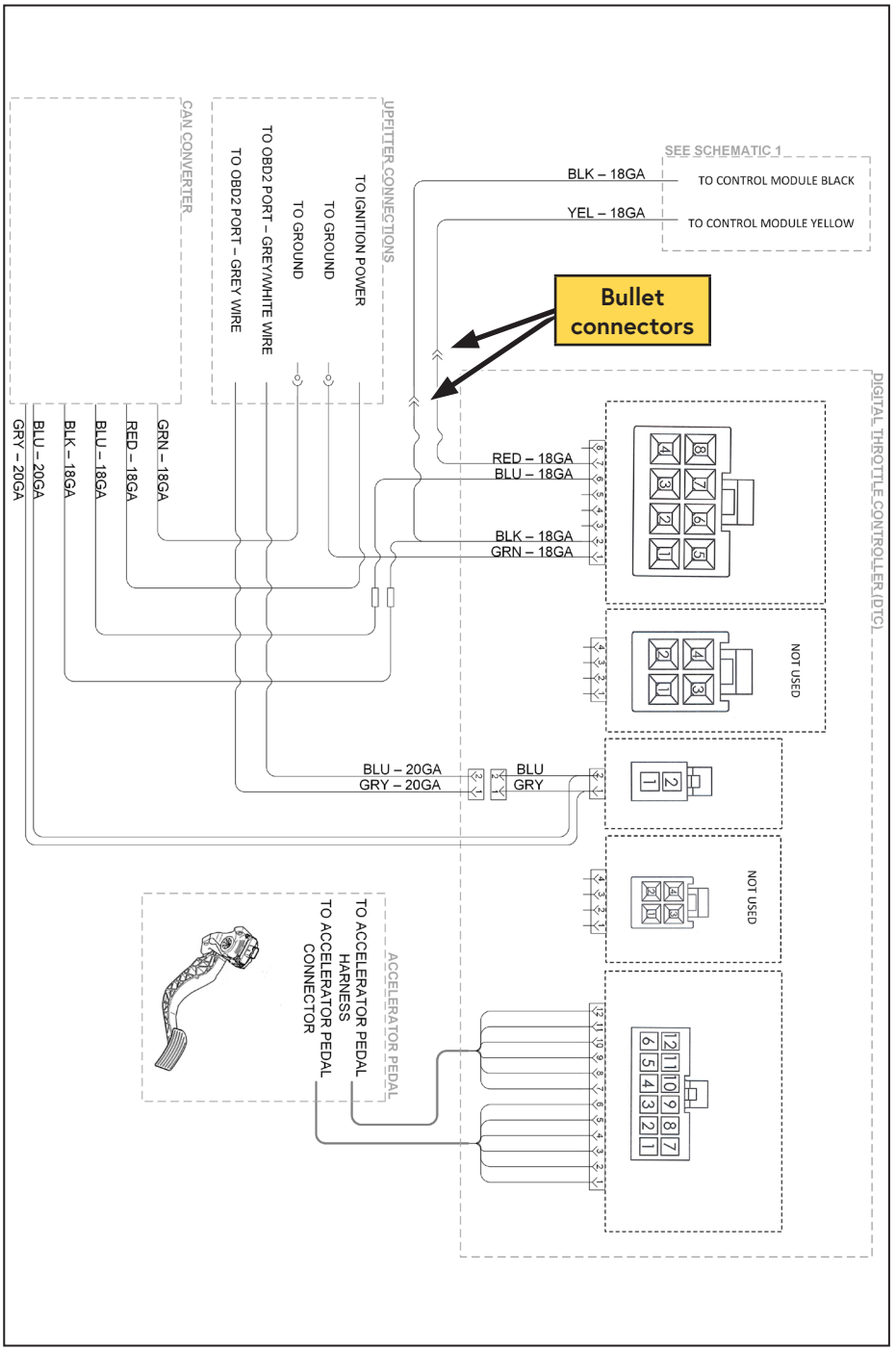


Figure 56 — Electrical schematic 2

☐ Remove the driver side lower dashboard panels (Figure 57).

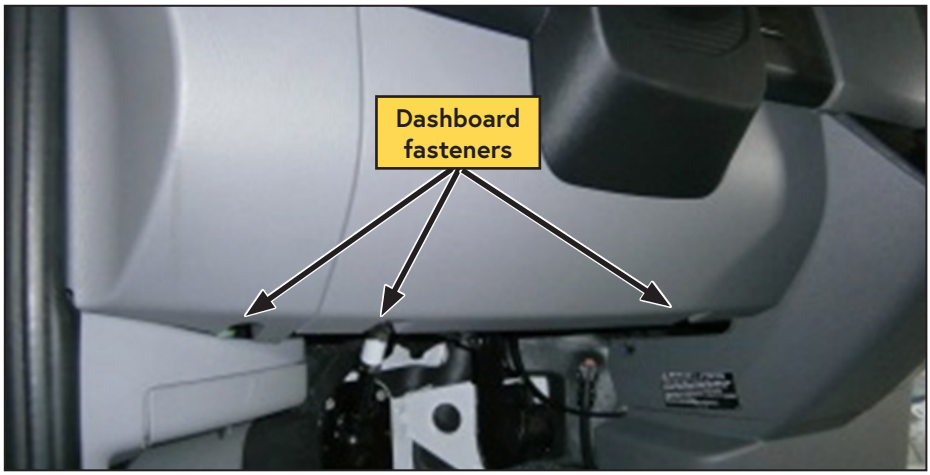


Figure 57 — Remove lower dashboard panels

Throttle Control

☐ Plug the (×3) harnesses into the throttle control.

☐ Plug the 2 pin connector from the throttle control into the can converter harness.

☐ Using cable ties, secure the throttle control, and CAN converter under the dashboard, next to the OBD II port. Ensure it is away from moving parts and positioned so that the buttons and LED lights are accessible.

Control Module

☐ Plug the (×4) harnesses into the control module.

☐ Mount the control module under the dashboard, up and out of the way of the pedals, steering column, and the park brake mechanism.

Connecting the Wiring

☐ Locate the (×3) terminal studs that serve as the electrical access point under the driver seat (Figure 58).

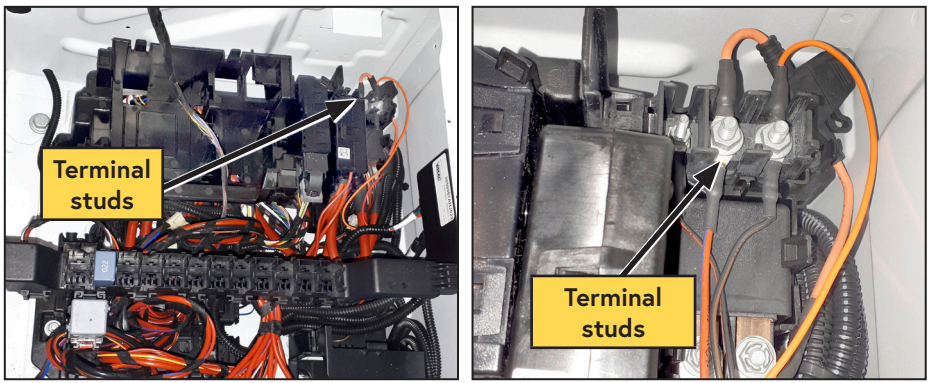


Figure 58 — Electrical access point

- ☐ Crimp the supplied fuse holder to the red wire running from the control module. Ensure the fuse holder is installed as close to the power source as possible.
- ☐ Connect the other end of the fuse holder to the terminal that holds the OEM red wire with blue stripe (Figure 59).

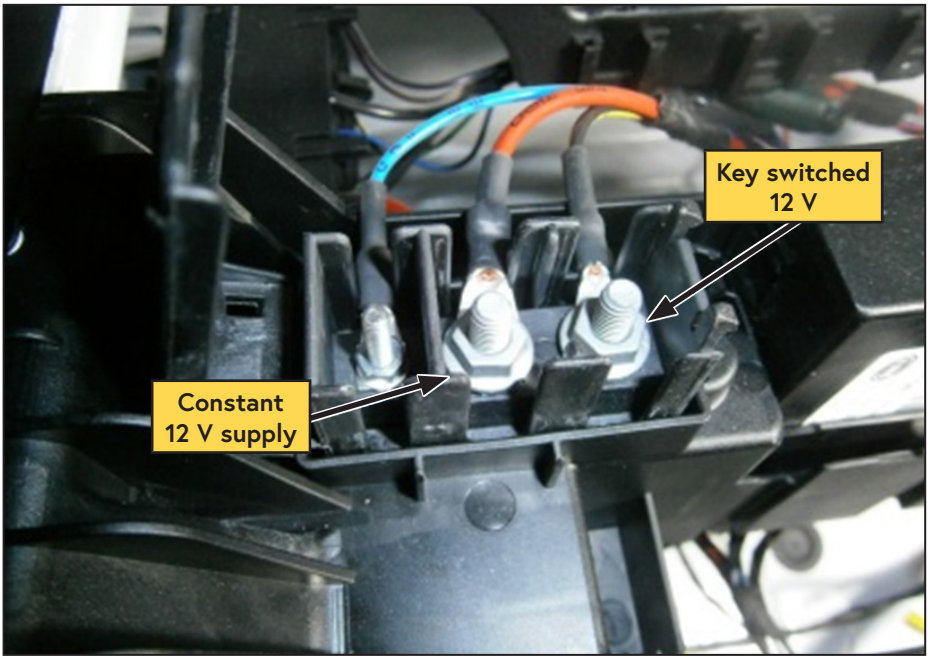


Figure 59 — Tie into vehicle power

- ☐ Connect the orange wire from the control module, and the red wire from the CAN converter, to the terminal that the OEM black wire with brown stripe is attached to (Figure 59).
- ☐ Unplug the OEM cable from the accelerator pedal and plug it into the matching connector from the throttle control. Plug the cable from the throttle control into the matching connector on the accelerator pedal.
- ☐ Splice the blue wire running from the CAN converter to the blue wire running from the throttle control.
- ☐ Splice the black wire running from the CAN converter to the black wire running from the throttle control.
- ☐ Connect the bullet connector on the black wire running from the control box to the power relay to the matching connector on the throttle control.
- ☐ Connect the ground wires (green wire) running from the throttle control, CAN converter, and control module to a good ground.
- ☐ Locate the OBD II port (generally located under the dashboard, beneath the steering wheel column).
- ☐ Remove the fasteners securing the OBD II port to the dashboard; this provides easier access to the wires at the back.
- ☐ Peel back the tape on the harness a few inches.

Due to running OEM changes, the OBD II wire colours are subject to change without notice however, pins 6 (CAN high) and 14 (CAN low) are the standard and shall be the definitive method for determining the correct wire connections (the wires will be a twisted pair).

☐ Using the supplied Posi-Taps (see page 39), connect the blue wire from the throttle control to the wire at pin 6 (grey wire with white stripe at time of writing) of the of the OBD II port (Figure 60).

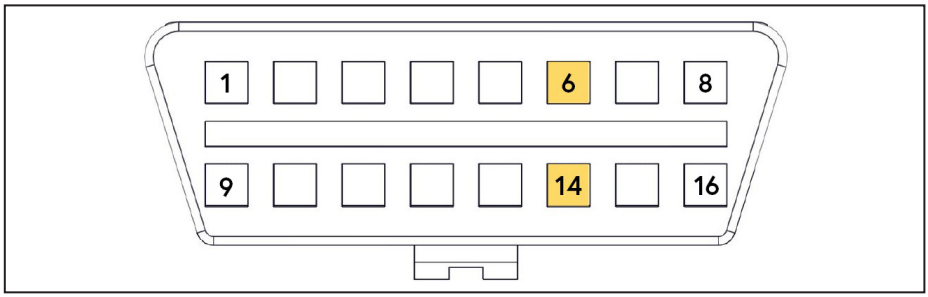


Figure 60 — OBD II connector

☐ Using the supplied Posi-Taps, connect the grey wire from the throttle control to the wire at pin 14 (grey wire at time of writing) connected to pin 14 of the OBD II port (Figure 60).

Route the following wires from the throttle control and control module through the grommet in the floor, beneath the driver seat*:

- ☐ *White 16 AWG wire from the control module (clutch wire).
- ☐ *Grey cable with the green connector from the control module (Temperature sensor).

Engine Bay Connections

- ☐ Cover all of the engine compartment wires with plastic loom.
- ☐ Route the grey cable and white wire running from the control module to the compressor along with the compressor hoses installed earlier and secure them with cable ties.
- ☐ Connect the green connector on the grey cable to the matching connector on the compressor.
- ☐ Connect the bullet connector on the white wire to the matching connector on the compressor.
- ☐ Connect the 2 pin connector on the pressure switch harness into the pressure switch.
- ☐ Connect the ring terminal on the green wire with yellow stripe to a good ground.
- ☐ Route the pressure switch harness (black 18 AWG, and grey 18 AWG wires) into the cab.
- ☐ Route the black 18 AWG wire running from the pressure switch harness to the control module.

☐ Using a butt splice supplied with the pressure switch harness, splice the black wire running from the pressure switch to the black wire running from pin 1 of the CN3 connector.

☐ Bundle the grey 18 AWG wire running from the pressure switch harness, the white wire running from the CN3 connector, the black and blue wire harness running from the CN1 connector, and the interface panel harness together.

☐ Route the bundled harnesses through the pass-through in the bulkhead to the cargo bay (Figure 61).

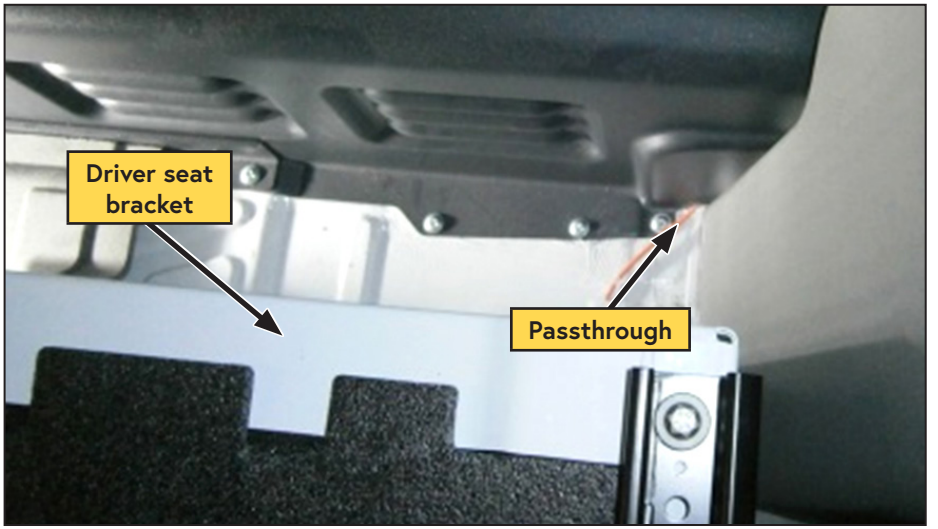


Figure 61 — Bulkhead passthrough

Interface Panel

☐ Install the interface panel in a suitable location (Figure 62).

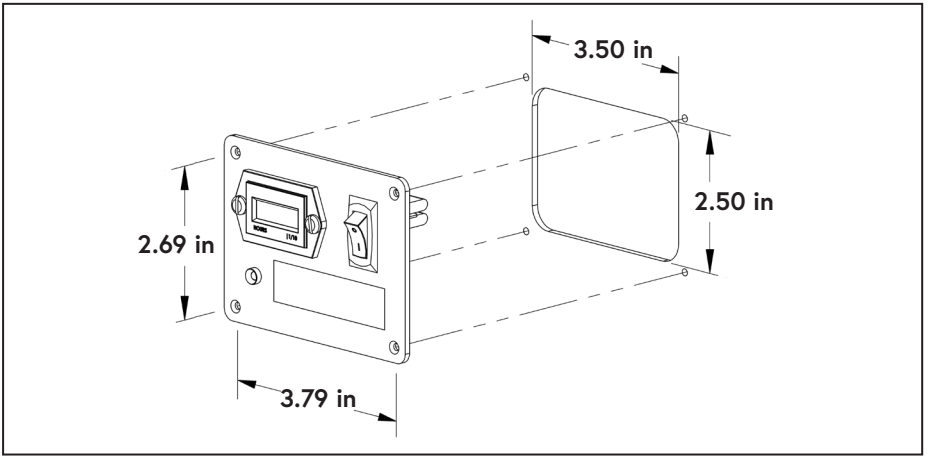


Figure 62 — Interface panel mounting dimensions

☐ Connect the harness from CN2 of control module to the interface panel.

☐ Connect the fan connector from CN1 of the control module to the plug on the WHASP Tank.

☐ Remove the cover from the WHASP Tank pressure switch.

☐ Connect the ring terminals from the white wire running from CN3 of the control module, and the grey wire running from the pressure switch harness to the pressure switch on the WHASP Tank (these are not polarity dependent) (Figure 63).

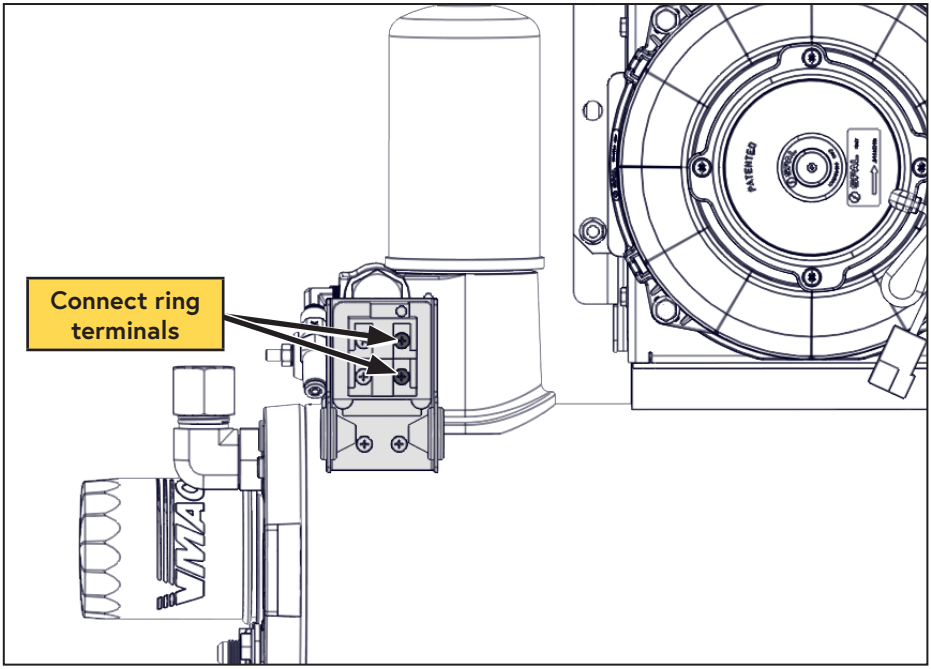


Figure 63 — Connect pressure switch

☐ Replace the WHASP Tank pressure switch cover.

The WHASP Tank harnesses are made to a generic length. Any excess harness should be coiled up and secured out of the way. There are 2 extra ring terminals included with the pressure switch harness; if desired, cut the harness to length and crimp the spare ring connectors to it.

☐ Ensure all wires and harnesses are protected with loom and routed away from sharp, hot, or moving components and away from high traffic areas.

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 VMAC 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.

The VMAC compressor system will automatically depressurize when it is shutdown. The WHASP Tank has a built in check valve which prevents blow back and moisture from the receiver tank entering the WHASP Tank. Installation of an additional check valve will cause erratic performance.

While the air receiver tank can be installed at any height in relation to the WHASP, the discharge hose running from the WHASP must be installed as high as possible on the air receiver tank to prevent problems with condensation that may have accumulated in the receiver tank (Figure 64).

Drain the condensed water from the receiver tank daily.

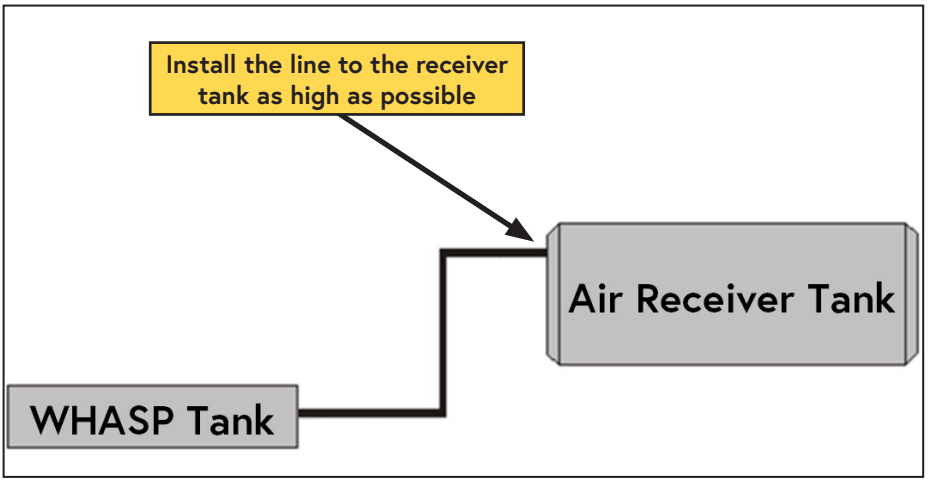


Figure 64 — Air receiver tank

Recommended Accessories

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

See the "Accessory Product" section of this manual on page 59 for a list of products available for purchase through VMAC.

Receiver Tank

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.

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 150 psi (1035 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.

Completing the Installation

- ☐ Check all VMAC and OEM wiring to ensure that it will not contact any hot, sharp or moving components and will not interfere with the operation of the vehicle. Secure all wiring with rubber coated P-clips, cable ties and loom as required.
- ☐ Check all VMAC and OEM hoses and tubes to ensure that they will not contact any hot, sharp or moving components and will not interfere with the operation of the vehicle. Secure all hoses and tubes with rubber coated P-clips, cable ties and loom as required.
- ☐ Replace all dashboard panels.
- ☐ Replace the driver seat.
- ☐ Reconnect the battery(s).

Testing the Installation

Lift the vehicle, ensuring the driven wheels are off of the ground. Support the vehicle securely with appropriately rated jack stands. Ensure there are no people around the vehicle before beginning the test.
If the vehicle fails the test, ensure the wiring to all of the connections are correct and secure. If additional assistance is required, contact your local VMAC dealer or call VMAC Technical Support 1-888-241-2289 or 250-740-3200.

Safety Test

Ensure the following has been completed:

- ☐ Place the transmission in "PARK" and apply the park brake. Turn the ignition key to "ON" but do not start the engine.
- ☐ Turn on the compressor and listen for the compressor clutch to engage.
- ☐ Observe the hour meter, and ensure the hourglass icon is blinking.
- ☐ Turn off the compressor switch and ensure the clutch has disengaged.

Before Starting the Engine Checklist

Ensure the following has been completed:

- ☐ Check that the compressor oil level at the tank sight glass is correct.
- ☐ Complete a final inspection of the installation to ensure everything has been completed.
- ☐ Perform a final belt alignment check.
- ☐ Check all wiring for security and protection. Ensure nothing is touching the compressor body.
- ☐ Ensure all of the compressor outlets are closed.
- ☐ Ensure the parking brake is engaged and the transmission is in "PARK".
- ☐ Start the engine.

After Starting the Engine Checklist

- ☐ Allow the vehicle to reach operating temperature.
- ☐ Turn on the compressor. The compressor clutch should engage, and the engine speed should increase in response to the throttle control. The vehicle's tachometer should indicate approximately 2,200 rpm.
- ☐ Once the engine speed reduces to base idle, turn off the compressor.
- ☐ Shut down the engine.
- ☐ Check the compressor oil level after the engine has been shut down and the oil level has had time to stabilize.

Ensure any stored air is drained from the system prior to adding oil.

- ☐ Add oil as necessary to bring the level to the "FULL" line in the sight glass and check for leaks.
- ☐ Install the VMAC Air Test Tool (P/N: A700052) with the 40 cfm (5/32 in) orifice installed and the ball valve closed.
- ☐ Start the engine. Assistance may be required for the next steps.

The following tests confirm that the drive disable system is working correctly. The drive disable system prevents the VMAC throttle from increasing engine rpm unless the transmission is in "PARK" and the park brake is engaged (it does not disengage the clutch!).

2 people are required to perform this safety test. 1 person must remain in the driver seat and be prepared to actuate the service (foot) brake if necessary.

The second person will actuate the compressor switch and ball valve as necessary.

- ☐ With the engine running and the vehicle in "PARK", release the parking brake.

Turn on the compressor and open the ball valve.

- ☐ The clutch should NOT engage, and the engine speed should remain at OEM base rpm.
- ☐ The "STATUS" and "PRK BRAKE" LED's on the digital throttle control will turn off.

- ☐ Close the ball valve.
- ☐ Turn off the compressor.
- ☐ Reapply the park brake.

The steps marked with asterisks will be repeated.

- ☐ *With the engine running, depress the service (foot) brake and shift the transmission out of "PARK".

*Turn on the compressor and open the ball valve.

- ☐ *The clutch should engage, but engine speed should NOT increase.
- ☐ *The "STATUS" and "PRNDL" LED's on the digital throttle control will turn off.

- ☐ *Close the ball valve.
- ☐ *Turn off the compressor.
- ☐ *Drain any accumulated air from the system.
- ☐ *Shift the transmission into "PARK".
- ☐ Repeat the steps marked with asterisks for all transmission selector positions, returning the gear selector to "PARK" and cycling the compressor "OFF", then "ON" after each gear is tested.

Engine speed should not increase unless the vehicle is in "PARK" or "NEUTRAL".

- ☐ Drain any air that may have accumulated during the previous tests.
- ☐ Ensure the parking brake is engaged.
- ☐ Turn on the compressor and open the ball valve.
- ☐ Release the park brake. The engine speed should drop to base idle.
- ☐ Close the ball valve.
- ☐ Turn off the compressor.
- ☐ Reapply the park brake.
- ☐ Shut down the engine.
- ☐ Drain any accumulated air from the system.

Final Testing

Ensure the following has been completed:

- ☐ Operate the system with an air tool (or the VMAC Air Test Tool with the appropriate orifice installed) for at least 1/2 hour (1 hour preferred).

The WHASP Tank cooling fan is thermostatically controlled, and may start or stop without warning.

- ☐ Road test the vehicle for approximately 20 km (14 miles).
- ☐ Observe the compressor while it is operating to ensure the belts rotate properly, pulleys rotate smoothly and nothing is rubbing or contacting hot parts.
- ☐ Check all components, connections and fasteners once the engine is turned off and the system has cooled.
- ☐ Check the coolant level after the engine has been operated.
- ☐ Check the compressor oil level after the engine has been shut down and the oil level has had time to stabilize.

Compressor Performance Testing

This system has been adjusted at the factory for general operation, not maximum cfm. Any performance testing should be done with the throttle control set for maximum cfm. See the previous page for instruction on adjusting the throttle control.

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 40 cfm (5/32 in) orifice in the outlet to simulate tool use (Figure 65).

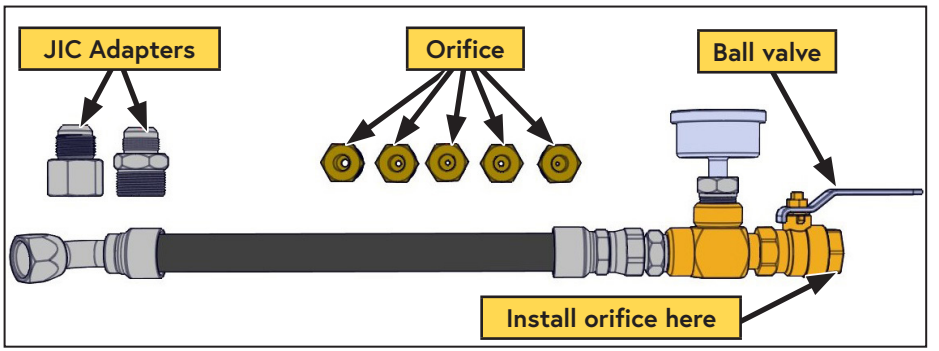


Figure 65 — A700052 VMAC Air Test Tool

Disconnect all downstream equipment (hose reels, etc.) and connect the test tool directly to the discharge fitting on the WHASP Tank.

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

- ☐ Install the VMAC test tool at the system outlet with the 40 cfm (5/32 in) orifice.
- ☐ Ensure the ball valve is closed.
- ☐ Place the transmission in "PARK" and fully apply the park brake.
- ☐ Allow the engine to run until it is at operating temperature.
- ☐ Turn on the air compressor system and allow it to operate until the oil is warm.
- ☐ Observe the pressure gauge. Pressure should be approximately 150 psi.

Open the ball valve on the test tool and observe the engine tachometer:

- ☐ Engine speed should increase to a maximum of 3,700 rpm.
- ☐ The pressure on the gauge should be 90 - 120 psi.

- ☐ Close the air valve slowly to allow the system pressure to rise. When the pressure reaches the pressure switch set-point of 150 psi, the system will disengage the compressor clutch and reduce the engine speed to base idle.
- ☐ Once the system pressure is at maximum pressure, slowly open the ball valve on the test tool until the pressure on the gauge begins to drop. Engine speed should ramp up to a maximum of 3,700 rpm when the pressure drops approximately 40 psi below the pressure switch set-point.

Digital Throttle Control Operation and Adjustments

The throttle control is configured at the factory for optimum performance at maximum cfm. In applications where maximum cfm is not required, or noise is a concern, the throttle control can be adjusted to reduce the maximum VMAC rpm.

Safety features

The throttle control has built in safety features that will disable the system if an unsafe condition is detected, or either of the lock out parameters is not met (the vehicle must be in "PARK" and the park brake must be engaged).

If an unsafe condition is detected, the "STATUS" LED will turn off, and engine speed will return to idle. Once all unsafe conditions have been removed, the system must be cycled off, then on again to reset it. Once the system powers up, the "STATUS" LED will illuminate, and the system will operate normally.

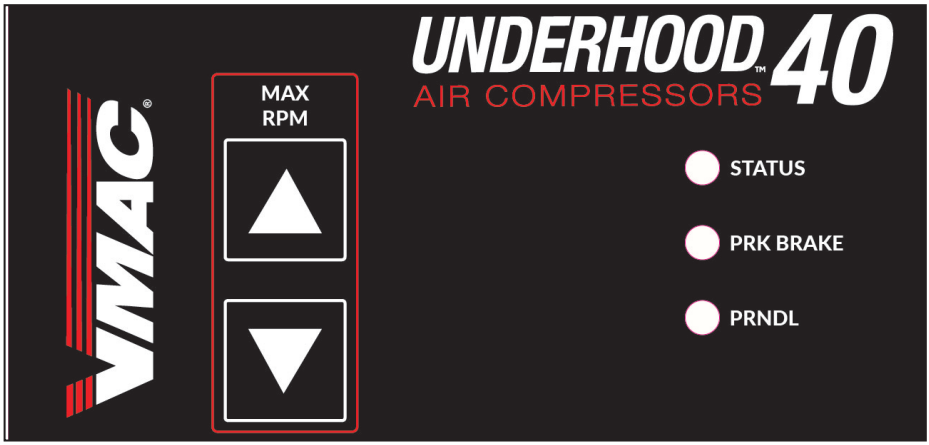


Figure 66 — Throttle control

If the vehicle is placed into gear, or the park brake disengaged, the "STATUS" LED and the "PRNDL" or "PRK BRAKE" LED will turn off and the throttle control will deactivate. This will reduce engine speed to base idle.

In order to activate the system again, re-engage the appropriate lockout and cycle the VMAC "OFF" then "ON" via the control box.

In order to perform a factory reset, or adjust the "MAX RPM", the throttle needs to be active and engine rpm elevated; VMAC recommends installing the VMAC Air Test Tool (P/N: A700052) with the 40 cfm (5/32 in) orifice. Turn the system on and open the ball valve, allowing the engine speed to increase.

MAX RPM

The cfm produced by the system is directly related to engine speed; this system delivers 40 cfm at 2,200 rpm.

Maximum VMAC rpm can be adjusted between 1,000 rpm and 2,400 rpm (in 50 rpm increments) via the "▲" or "▼" buttons in the "MAX RPM" column.

Factory Reset

The throttle control can be reset to factory default values via a button inside the throttle control box.

Using a paper clip (or similar object), push and hold the factory reset button for 5 seconds. All of the LED lights will illuminate for several seconds while the settings revert to their defaults. Once the LED's return to their normal state, the system is ready for use again (Figure 67).

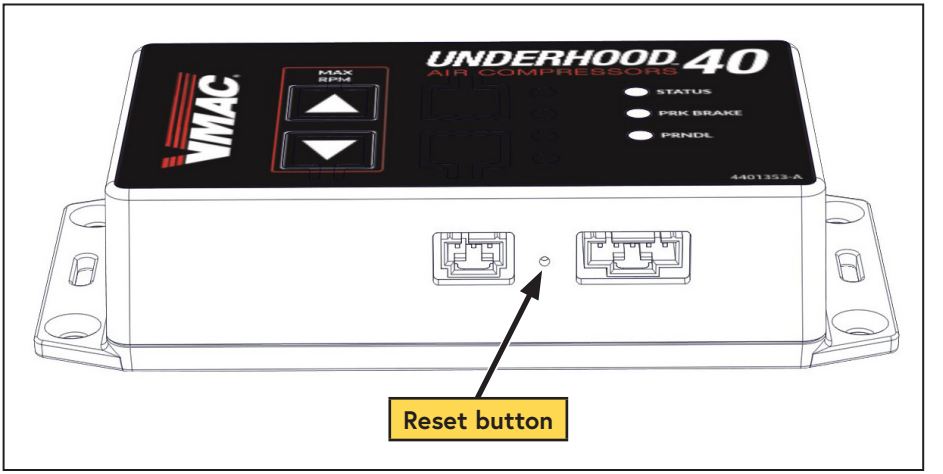


Figure 67 — Reset button

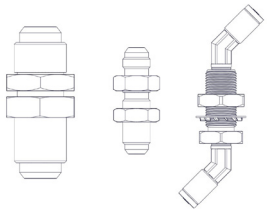
Accessory Products from VMAC

Compressor Service Kits

200 Hour or 6 Month Service Kit -
Part number: A700263
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: A700264
Includes 4 L VMAC high performance compressor oil, oil filter, air filter, spin-on oil separator, safety valve, muffler, and next service due decal.

Bulkhead Fittings



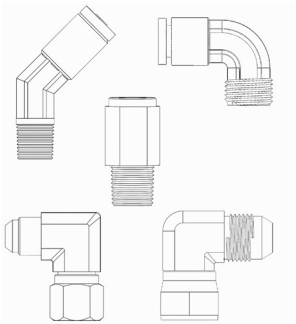
Part number: 3801095

Includes:

Bulkhead fittings are used for passing the system discharge, oil, and scavenge hoses through the floor or body panels.

- 3/4 in JIC bulkhead fitting P/N: 4900170.
- 3/8 in JIC bulkhead fitting P/N: 4900209.
- 1/8 in NPT bulkhead fitting P/N: 5000178.
- 2 × 45° 1/4 push-to-connect fittings P/N: 5000158.

Hose Fittings



45° 1/4 push-to-connect fitting P/N: 5000158.
1/4 in push-to-connect fitting For PTFE scavenge tube.

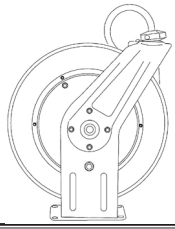
90° 1/4 push-to-connect fitting P/N: 5000020.
1/4 in push-to-connect fitting For PTFE scavenge tube.

Straight 1/4 in push-to-connect fitting P/N: 5000012.
1/4 in push-to-connect fitting For PTFE scavenge tube.

90° 3/8 in hose fitting P/N: 4900117.
3/8 in hose fitting for Oil Return Hose.

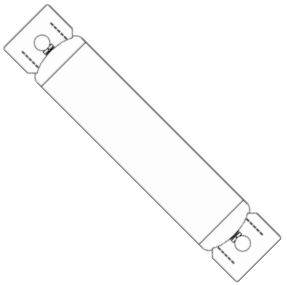
90° 3/4 in hose fitting P/N: 4900043.
3/8 in hose fitting for Compressor Discharge Hose.

1/2 in × 50 ft Hose Reel



Part number: A700007
Spring-loaded 1/2 in × 50 ft hose reel; steel construction; full flow shaft and swivel for maximum performance.

6 Gallon Air Receiver Wing Tank



Part number: A300056

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 UNDERHOOD40 air compressors. Manufactured to FMVSS 121 standard; includes fittings, 170 psi pressure relief valve, and tank drain.

- Max pressure: up to 170 psi.
- Dimensions: 32 in (81.3 cm) L × 8 in (20.3 cm) D.
- Weight: 23 lb (10.4 kg).

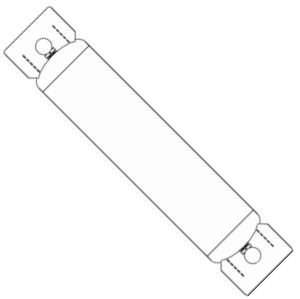
10 Gallon Air Receiver Tank w/ Mounting Feet

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 × 10 in (25.4 cm) D.
- Weight: 33 lb (15 kg).

35 Gallon Air Receiver Wing Tank

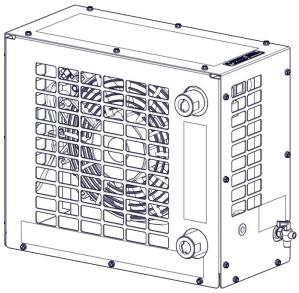


Part number: A300010

Air receiver tanks are used for lowering compressor duty cycle and removing water from compressed air. Recommended for optimum operation of VMAC Diesel Air Compressors, Hydraulic 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 value, tank drain, and 200 psi pressure gauge.

- Max pressure: up to 200 psi.
- Dimensions: 73 3/4 in (187.3 cm) L × 14 in (35.6 cm) D.
- Weight: 95 lb (43.1 kg).

UNDERHOOD 70 Air Aftercooler

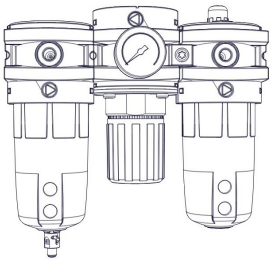


Part number: A800070

Improves tool performance and extends the life of air tools; removes up to 80% of water from compressed air; includes automatic water drain.

- Max air flow: 70 cfm / 175 psi.
- Port size: 3/4 in NPT inlet and outlet.
- Electrical: 12 V.
- Dimensions: 17 in (43.2 cm) L × 8.0 in (20.3 cm) W × 14.5 in (36.8 cm) H .
- Weight: 35 lb (15.8 kg).

Filter Regulator Lubricator (FRL) – 70 cfm

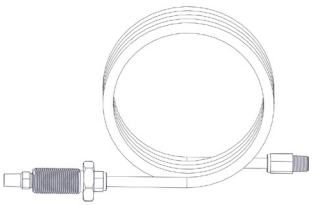


Part number: A700151

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.

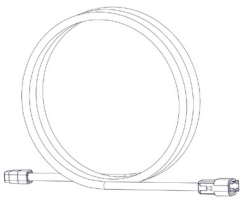
Remote Muffler



Part number: A700224

The A700224 WHASP remote mount muffler kit is designed to relocate the blowdown muffler to an external location. This is recommended for applications where the WHASP Tank will be located inside of a van or service body, the remote mounted muffler will reduce cabin noise when the compressor blowdown operates, and will ensure any oil vapor will be safely discharged outside of the vehicle.

Interface Harness Extension



Part number: A700265

This interface harness extension provides an additional 10 ft of cable which allows for greater flexibility in locating the Interface Panel.

Notes

Notes

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: **V** _ _ _ _ _ _ _ _ _ _ _ _ _

Compressor Serial Number: **P** _ _ _ _ _ _ _ _ _ _ _ _ _

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: _____

Manufactured by

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