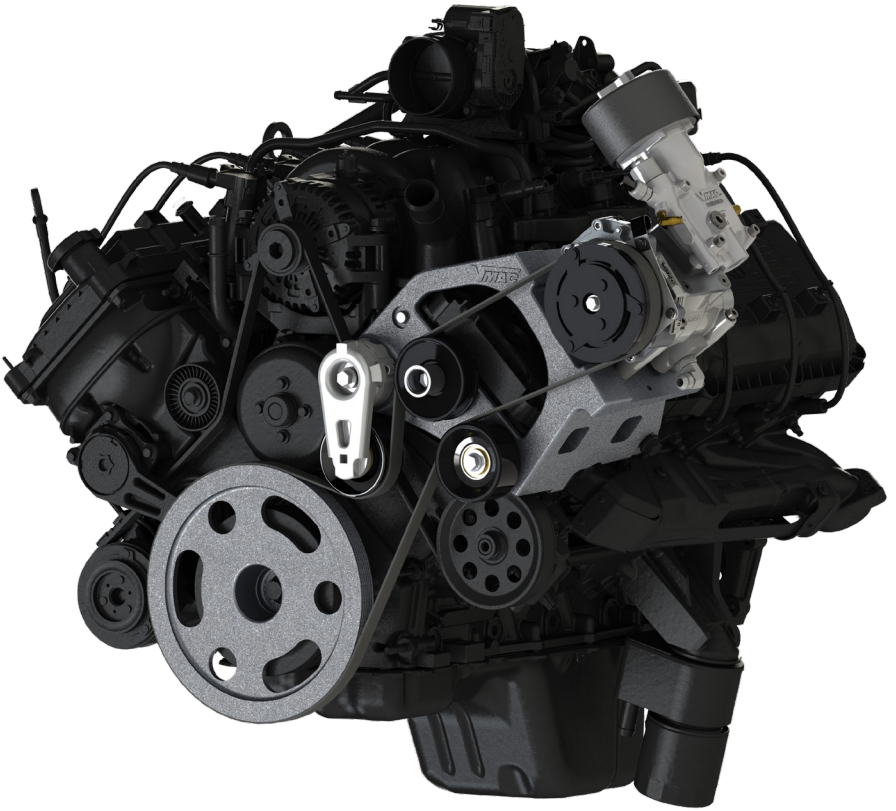
UNDERHOOD™ 150
AIR COMPRESSORS



Installation Manual for VMAC System

V910032

2020 – 2022 Ford F250 – F350 Super Duty
6.2 L Gas V8

www.vmacair.com

Table of Contents

Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
G	ECN 23-082 Cap model year	MSP	N/A	N/A	MSP	N/A	18 Apr. 2023

Additional Application Information

- 2020 – 2022 Ford F250 – F350 Super Duty with 6.2 L Gas V8.
- Single battery application only. Dual battery vehicles will require accessory A900016.
- Passenger side running board is only compatible when the Air Oil Separator Tank is mounted in the "midship location", see VMAC knowledge base article: EXT-ACC-002.

Not compatible with pickup trucks in the following trim levels:

- XL pickups equipped with the optional "Fleet Driver Assist Package" (Code 96F), or "Ultimate Trailer Tow Package" (Code 53R).
- XLT, King Ranch, Platinum, or Limited.

Registered Trademarks

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Eaton Aeroquip® is a registered trademark of EATON AEROQUIP INC.
Ford® and **Super Duty®** are registered trademarks of Ford Motor Company.

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 safet***y. 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).

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

Preparing for Installation

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.***

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

☐ 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 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.

☐ Locate a conspicuous area in the engine bay (where the tag will be easily noticed) to install the System ID tag.

☐ Mark and drill (x2) 7/64 in holes and secure the plate with the supplied self-tapping screws (Figure 1).

Figure 1 — System Identification Plate

☐ To alert any technicians that may service the vehicle, affix the servicing advisory decal in a conspicuous area in the engine bay (where the decal will be easily noticed) (Figure 2).

Figure 2 — Advisory label

☐ 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 3).

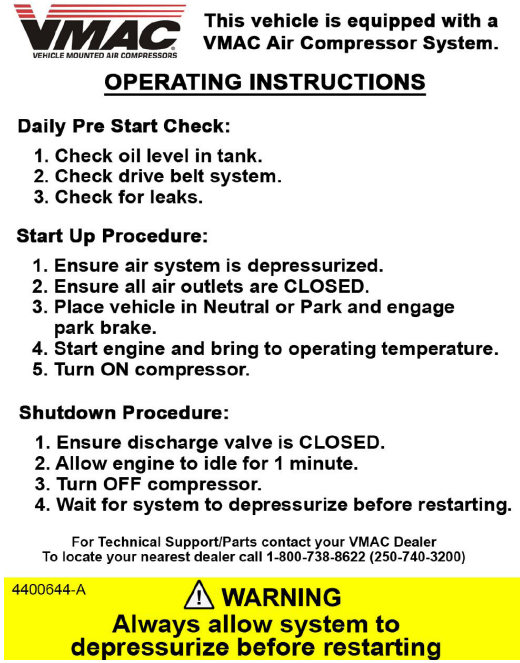


Figure 3 — Operating Instruction label

☐ As part of the installation process, ensure that the caution decal regarding the heavy-duty water pump is affixed in an obvious location so that it can be seen by maintenance personnel (Figure 4).

Figure 4 — Heavy-duty water pump Label

Do not use a test light to probe for power on vehicle circuits as the increased current draw of the test light may damage components.

- ☐ Locate the blunt-cut OEM SEIC wire harness, on the passenger side in the foot well. Find the transmission park signal, (grey with brown stripe wire).
- ☐ Use a multi-meter to verify the transmission park signal. Turn the key to the "IGN2" position, (do not start the truck), so as to supply power to the dash display. The resistance to ground should read close to 0 Ω in "PARK" and open circuit in all other gears. If this is correct, put the vehicle in "PARK" and turn the key to the "OFF" position.
- ☐ Mark the transmission "PARK" signal wire for connection later in installing control components section.
- ☐ Disconnect the battery (or both batteries if equipped with dual batteries).
- ☐ Drain the coolant into a clean container and set aside for use later.
- ☐ Remove the upper radiator hose and set it aside as this will be modified in a later chapter.
- ☐ Keeping the power steering lines connected, remove the power steering reservoir from the driver side of the fan shroud. Temporarily tie the reservoir up and out of the way of the fan shroud.

The power steering reservoir cap will leak if the reservoir is not kept upright.

Vehicles equipped with dual batteries will have an integrated degas bottle and battery tray which requires a different mounting bracket and different modification instructions.

Please contact VMAC to order A900016.

- ☐ Remove the degas bottle and set it aside (on vehicles equipped with dual batteries, remove the battery and battery tray / degas bottle assembly); discard the OEM fasteners.
- ☐ Swing the lower section of the fan shroud forward and tape it to the upper shroud.
- ☐ Remove the resonator from the air intake system and cover the openings to prevent debris entering the system.
- ☐ Remove the fan and shroud as one unit.
- ☐ Remove the fan harness bracket (13 mm nut on stud with bracket).
- ☐ With the accessory belt tensioned, loosen the (×4) water pump pulley bolts.
- ☐ Remove the Front End Accessory Drive (FEAD) belt.
- ☐ Remove the (×4) water pump pulley fasteners and retain for reuse.
- ☐ Remove the water pump pulley and set aside it for reuse.
- ☐ Remove the (×4) water pump fasteners and the water pump.
- ☐ Inspect and clean the water pump and engine block sealing surfaces.

Included in this kit is a heavy-duty water pump (with an integrated fan spacer), this replaces the OEM water pump (Figure 5).

OEM water pump

Heavy duty water pump

Figure 5 — OEM / Heavy Duty water pump comparison

Prior to seating the water pump in the engine, ensure the bolt holes are aligned as the water pump cannot be rotated once seated in the engine cavity.

☐ Lubricate the new water pump O-ring with clean engine coolant and install the supplied heavy-duty water pump (Figure 6).

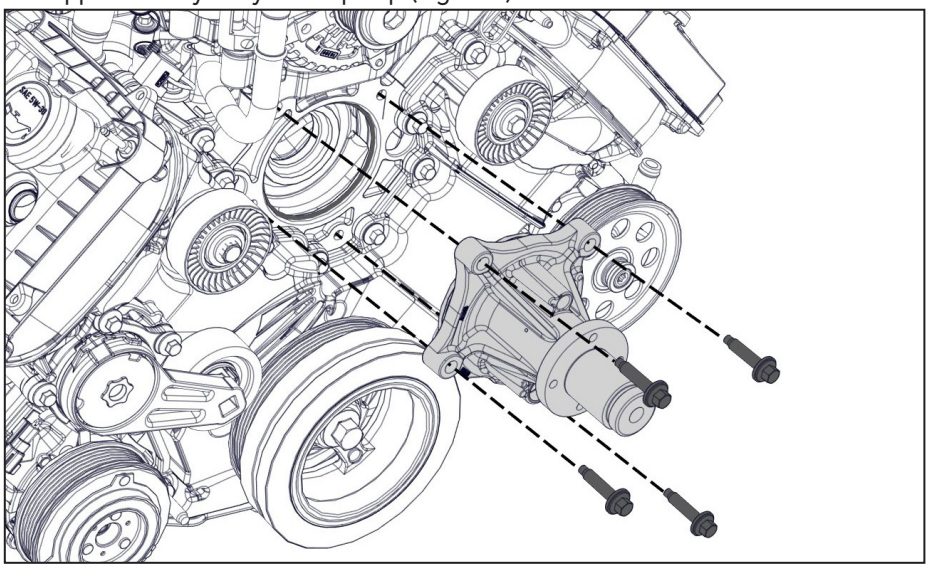


Figure 6 — Install water pump

Tighten the water pump fasteners in 2 stages using a criss-cross pattern:

- ☐ Install the fasteners finger tight.
- ☐ Torque fasteners to 18 ft•lb.

☐ Remove the idler mounted on the driver side head (Figure 7).

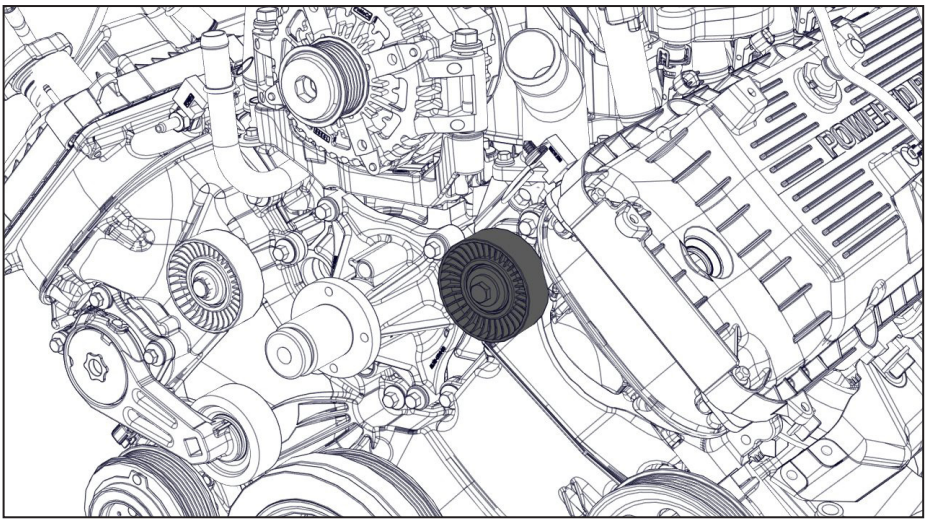


Figure 7 — Remove idler

☐ Relocate the Radio Interference Suppressor (RIS) to the fasteners directly above the idler (Figure 8).

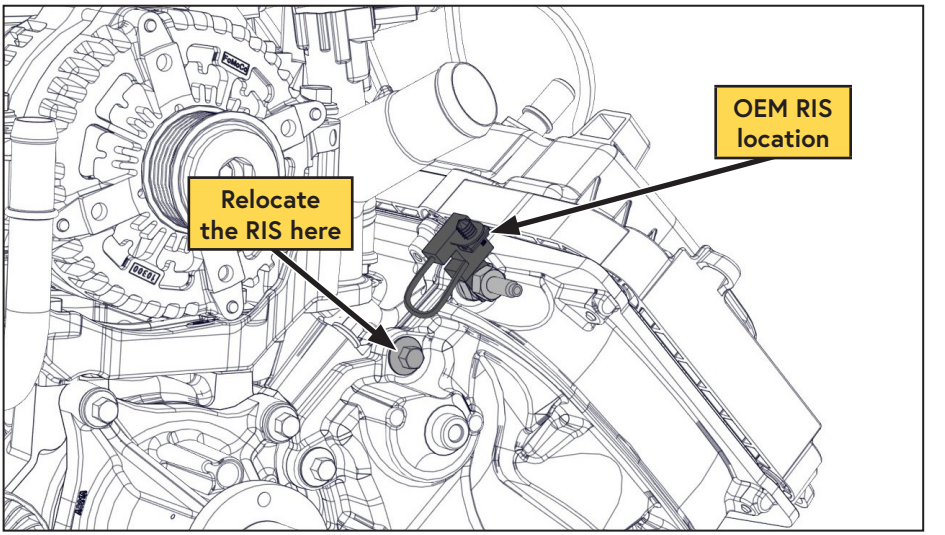


Figure 8 — RIS relocation

☐ Install the water pump pulley, leaving the fasteners finger tight.

☐ Reinstall the idler, leaving the fastener finger tight.

☐ Install the tensioner plate on the OEM tensioner (Figure 9).

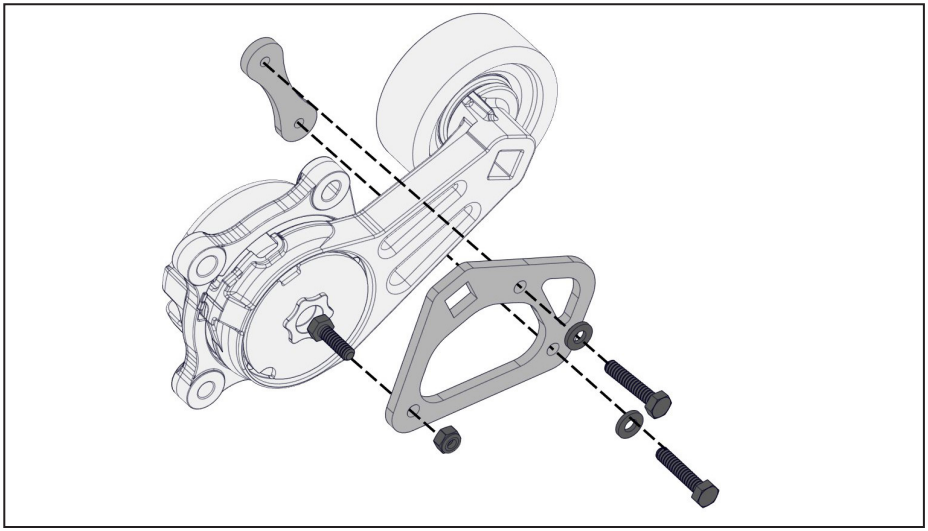


Figure 9 — Install tensioner plate

☐ Install, and tension the OEM FEAD belt (Figure 10).

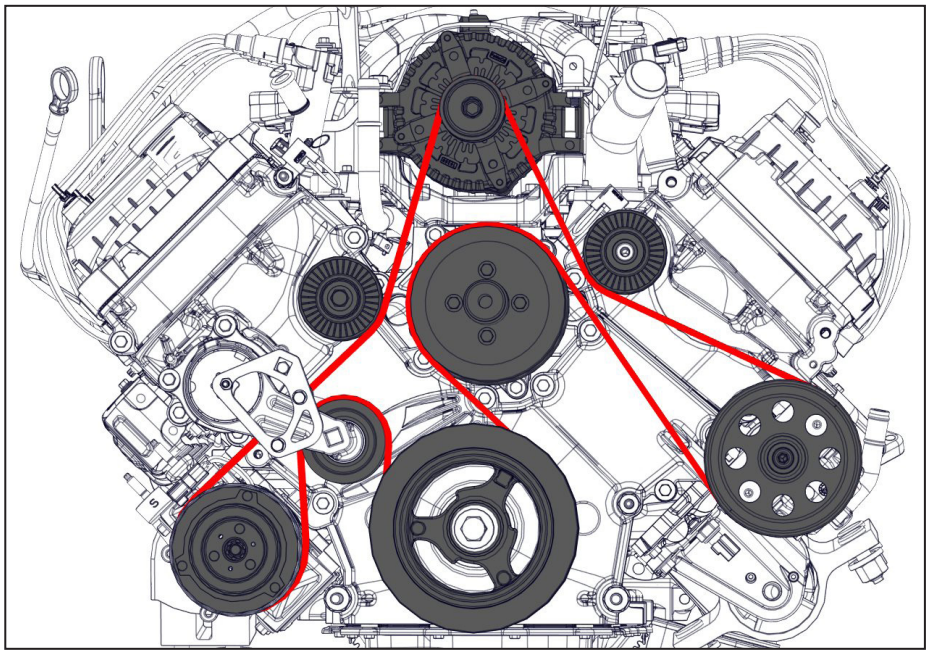


Figure 10 — OEM belt routing

☐ Torque the water pump pulley fasteners to 18 ft•lb.

☐ Remove and discard the idler bolt, leaving the belt tensioned and the idler on the post.

Relocating the ABS Hydraulic Control Unit (HCU)

Failure to follow these instructions may result in brake system contamination, component damage, and/or death.

If there is any concern that air may have entered the brake system, consult a local Ford dealer or licensed repair facility for vehicle specific HCU brake bleeding instructions.

Use extreme caution while adjusting the brake lines to prevent damaging them.

If there is any concern that the brake lines may have been kinked or damaged in any way, contact a local Ford dealer or licensed repair facility to have the issues rectified.

Do not allow the brake master cylinder to run dry during these steps as the master cylinder may be damaged if operated without fluid.

Use only clean brake fluid from an unopened container that meets Ford specifications.

It may be necessary to rotate the brake lines that connect the master cylinder to the ABS HCU module to avoid kinking the flexible rubber hoses as the HCU is shifted to its new position. The following process will help avoid air entering the brake system as brake fluid will be forced out of the system rather than air permitted to enter the system.

Do not pump the brakes at any time while the brake lines are loose as air may be drawn into the system.

Have an assistant gently depress the service brake as the brake line is loosened, rotated into a relaxed position and then quickly retightened. Adjust one brake line at a time. If there is a significant amount of brake fluid escaping from the fitting, the pedal is being pressed too hard and/or the fitting has been loosened too much.

☐ Remove the bolt and (×2) nuts securing the HCU and gently raise it up (Figure 11).

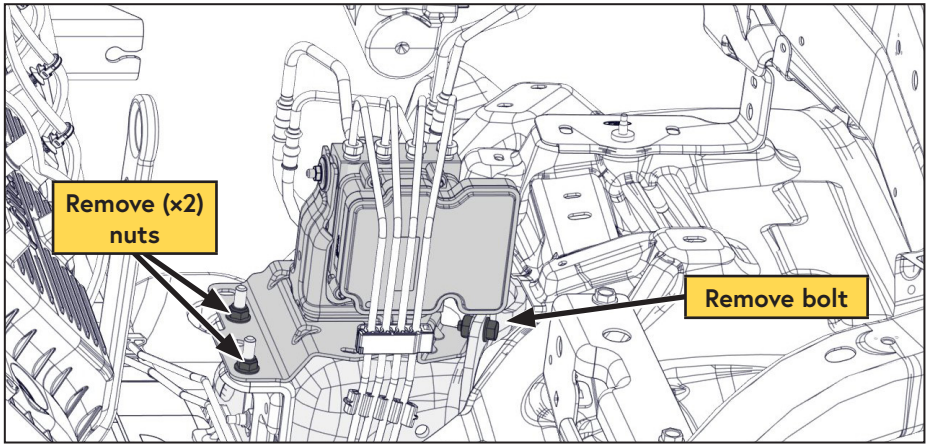


Figure 11 — Relocating the HCU

The vertical slot of the HCU brace bracket attaches to the shock tower, the horizontal slot attaches to the HCU unit.

☐ Install the VMAC HCU relocation plate on the shock tower mount and the HCU brace bracket onto the HCU module (Figure 12).

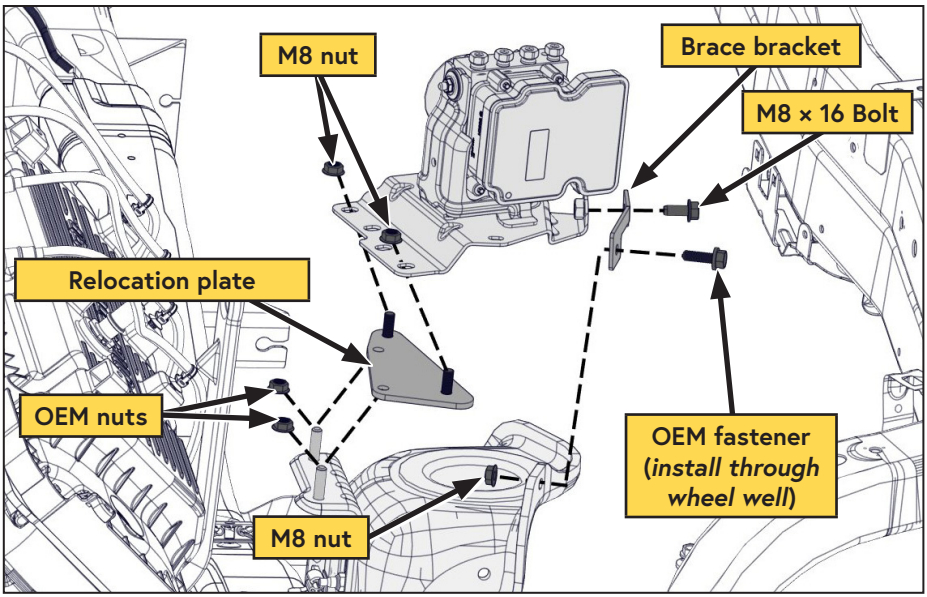


Figure 12 — Relocating the HCU

☐ Gently shift the HCU module toward the firewall, rotating it a few degrees clockwise, and secure it to the VMAC relocation plate and HCU brace bracket (Figure 12).

Installing the Main Bracket and Compressor

When modifying the valve cover, it is important to remove only the webs indicated and not cut past the face shown in Figure 13. Cutting into the main valve cover body may compromise the O-ring sealing the valve cover to the cylinder head.

☐ Using a die grinder or cutoff wheel, remove the wire harness mounting tabs on the driver side valve cover (Figure 13).

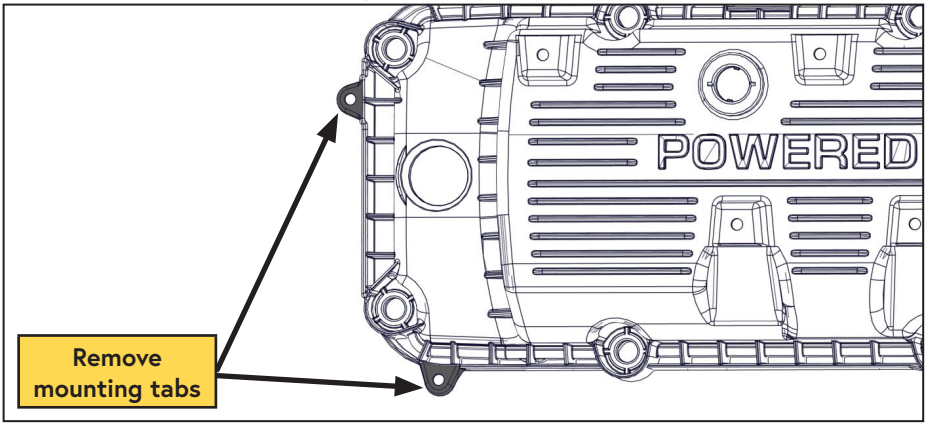
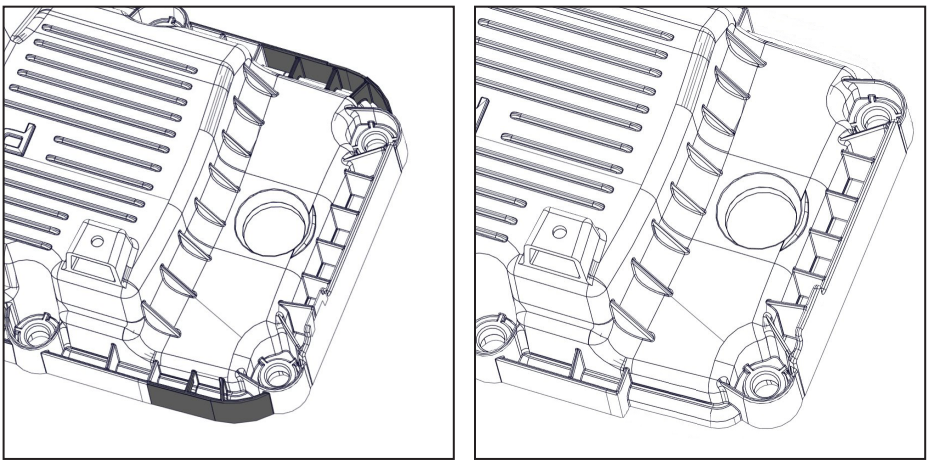


Figure 13 — Modifying the Valve Cover

☐ Using a die grinder or cutoff wheel, remove the webbed area on both the upper and lower sides of the driver side valve cover (Figure 14).



Remove the shaded area ***After modification***

Figure 14 — Modifying the Valve Cover

☐ Using the M6 fasteners, install the fan spacer bracket onto the alternator bracket; route the fan extension harness along the front of the valve cover (Figure 15).

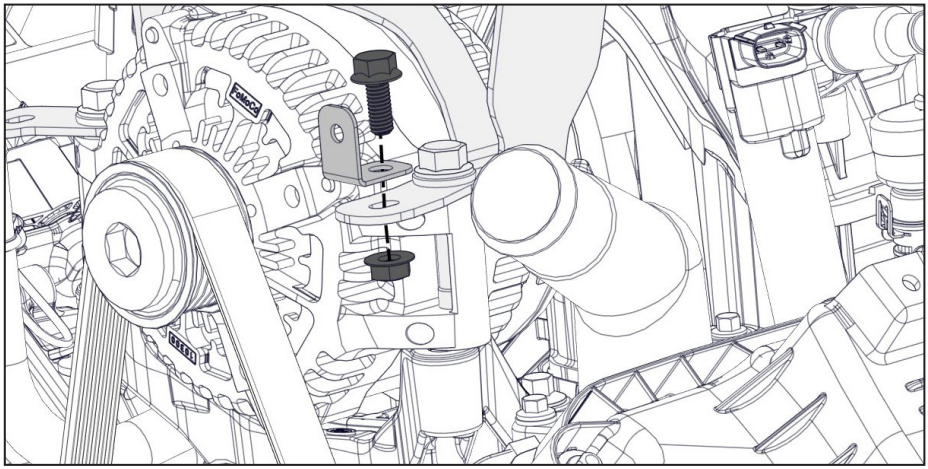


Figure 15 — Fan spacer bracket

☐ Relocate the fan's electrical connector from under the engine block; using a cable tie, attach it to the fan jumper harness.

When fitting the main bracket, it is important that the bracket sits flush on all mounting surfaces. Ensure the bracket is not contacting the valve cover when installed. If necessary, trim the valve cover until proper fitment is obtained.

☐ Remove the bolt directly beneath the driver side valve cover, as well as the stud that the RIS was originally secured to (Figure 16).

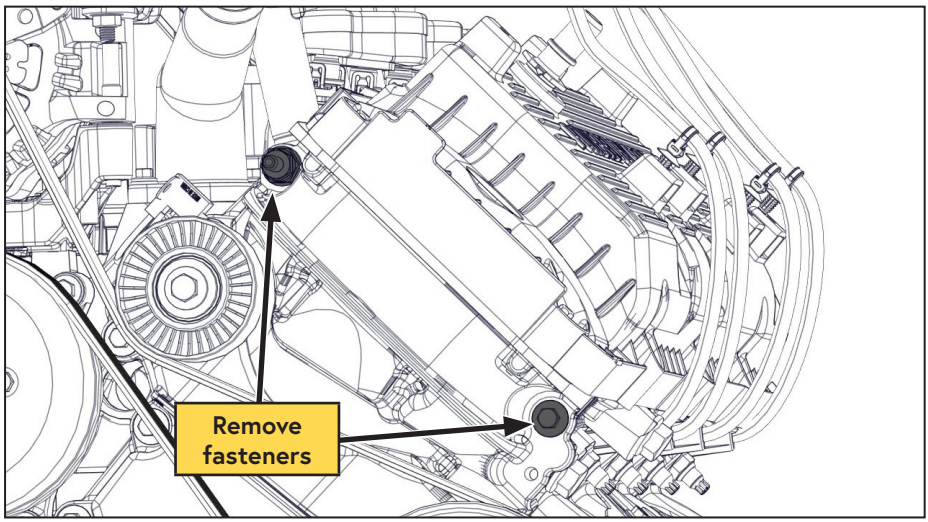


Figure 16 — Installing the main bracket

☐ Remove the OEM wire hold down clip (located just above the power steering pump) from the harness and discard. Secure the harness to the rear of the mounting boss using the supplied barbed cable tie (Figure 17).

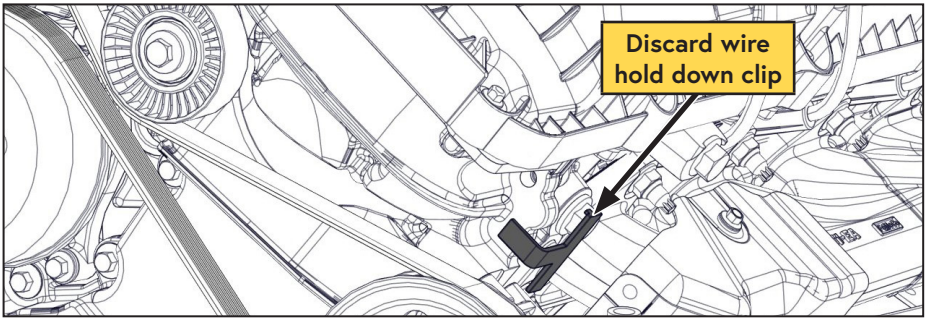


Figure 17 — Discard wire hold down clip

Failure to follow the procedure below may cause excessive stress to the bracket and fasteners which could lead to failure.

☐ Remove the captive bolt from the VMAC supplied tensioner (it may need to be removed with a drift) and discard it.

☐ Place the tensioner onto the VMAC bracket

☐ Position the bracket securely against the engine and install the (x5) fasteners finger tight.

☐ Confirm that the bracket is positioned correctly, is tight against the engine, and that no wires are pinched.

☐ Grab the fan extension wire harness on both sides of the VMAC main bracket and confirm it is not pinched in the main bracket.

☐ Torque the (x2) M16 fasteners to specification followed by the (x3) M8 fasteners (Figure 18).

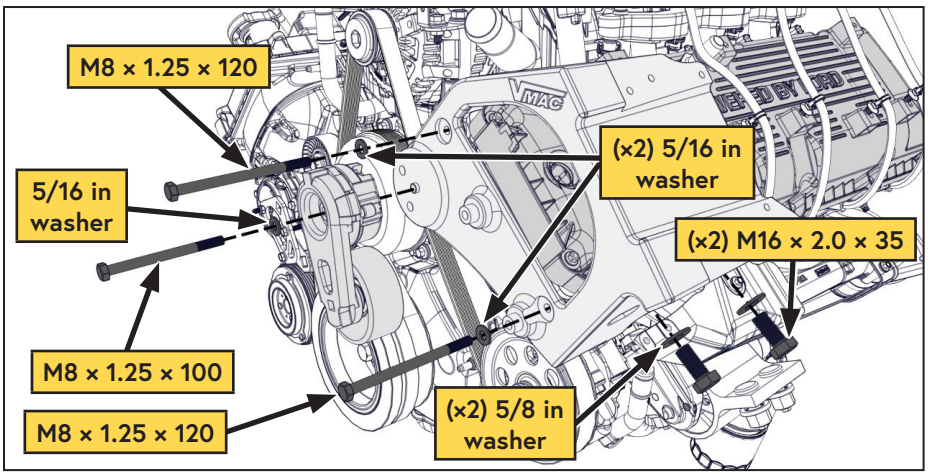


Figure 18 — Install main bracket

☐ Install the idlers and tensioner pivot post onto the bracket (Figure 19).

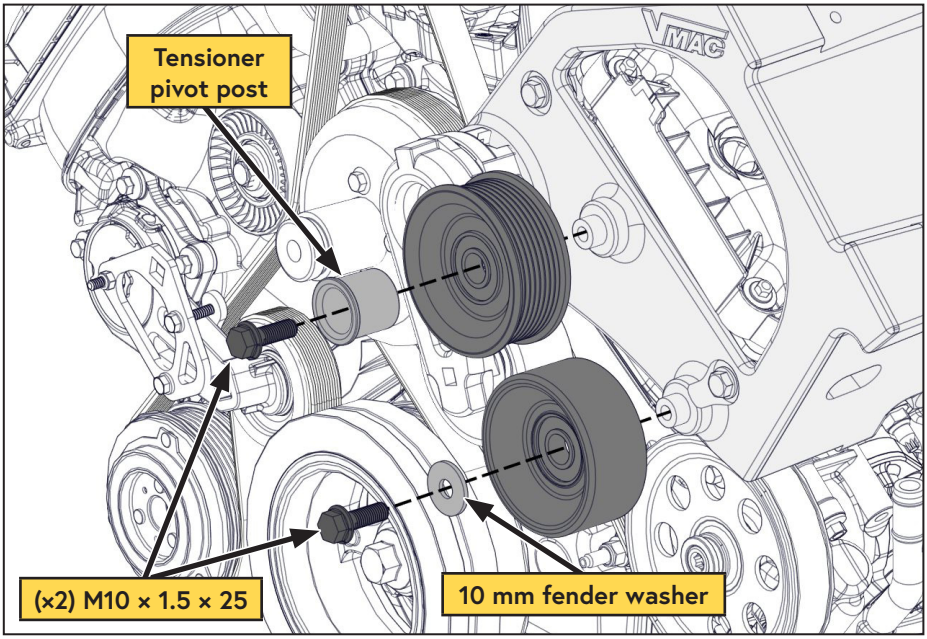


Figure 19 — Installing idlers

☐ Remove the inlet valve from the compressor and cover the opening to prevent debris entering the compressor.

☐ Position the compressor on the mounting bracket and secure it using the (×3) supplied bolts (Figure 20).

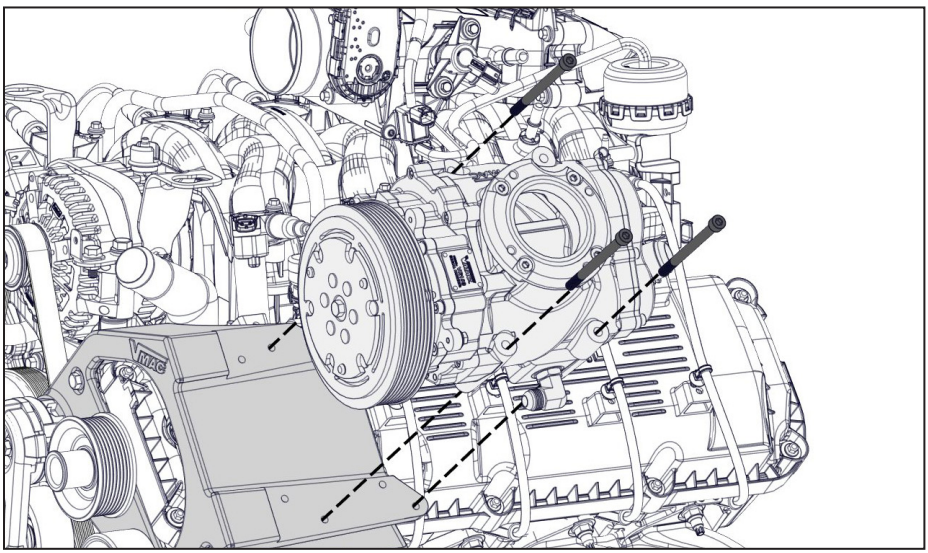


Figure 20 — Mount compressor

Minor adjustments to the brake lines may be necessary when installing the inlet, refer to "Relocating the ABS Hydraulic Control Unit (HCU)" on page 14 for more information and best practices.

The inlet valve is secured with bolts of two different lengths. Install the longer bolts nearest to the air filter. Installing the bolts in the wrong location will damage the compressor housing when tightened.

☐ Remove the protective covering, place the Viton O-ring in the inlet adapter, and install the inlet onto the compressor (Figure 21).

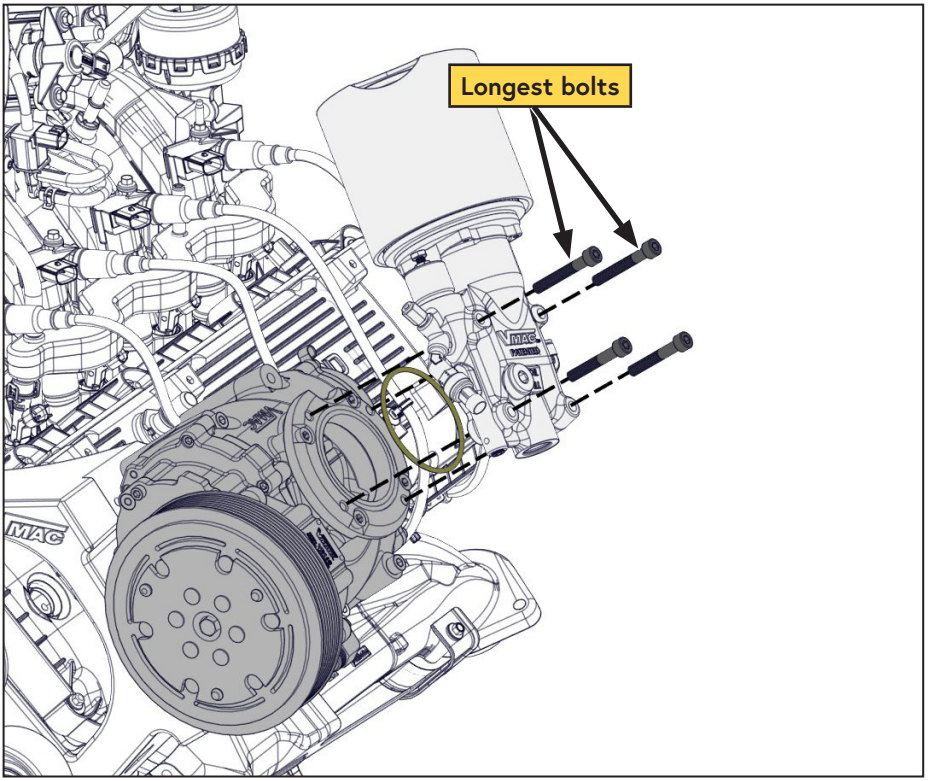


Figure 21 — Install inlet

☐ Remove the center bolt from the OEM crankshaft pulley and discard.

☐ Lightly oil the threads of the supplied M14 × 110 bolt.

☐ Install the VMAC crank pulley using the supplied M14 × 110 bolt and 9/16 in washer, leaving the bolt finger tight.

☐ Rotate the VMAC crank pulley counterclockwise until the (×3) lugs are against the web of the OEM crank pulley.

☐ Using a strap wrench (or similar tool) to prevent the engine from turning over, torque the bolt to 129 ft•lb then turn it an additional 90°.

☐ Install the VMAC drive belt (Figure 22).

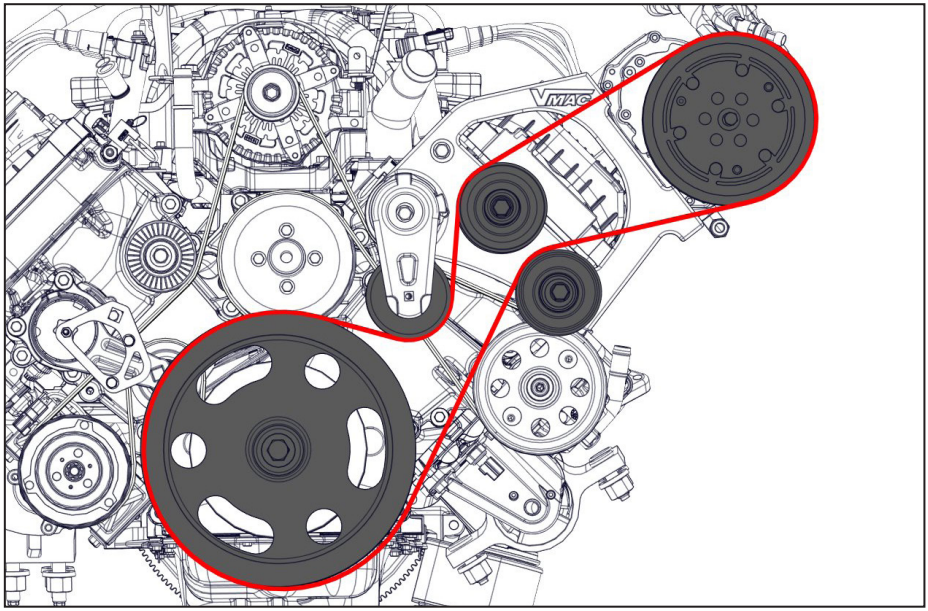


Figure 22 — Route VMAC belt

After the fan is installed, the tensioner can be rotated using a pry bar against the idler's tensioner pivot post (Figure 23).

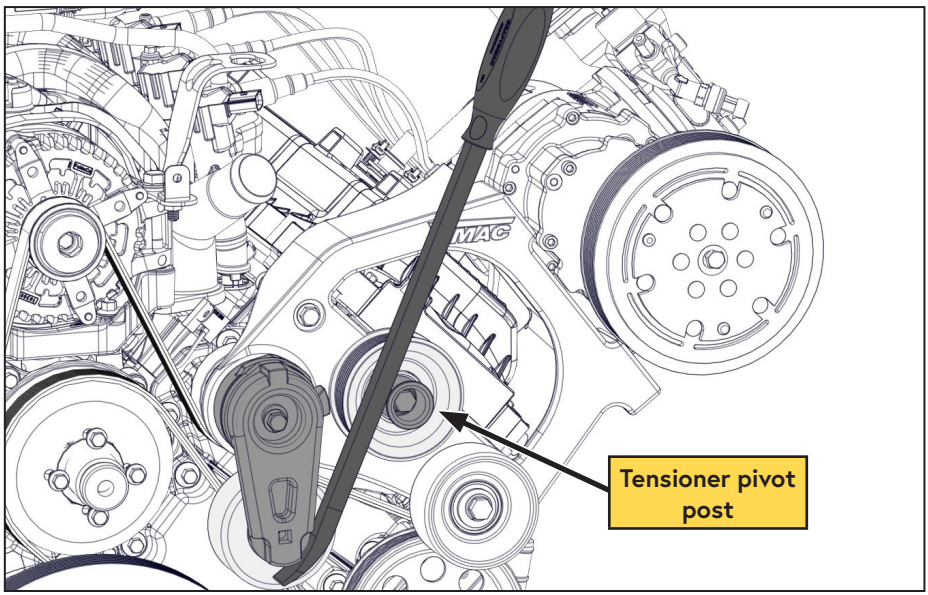


Figure 23 — Route VMAC belt

Modifying the Hoses, Installing the Degas Bottle, and Cooler

☐ Using the supplied M8 fasteners, install the degas bottle brackets in the location shown. Leave the fasteners finger tight (Figure 24).

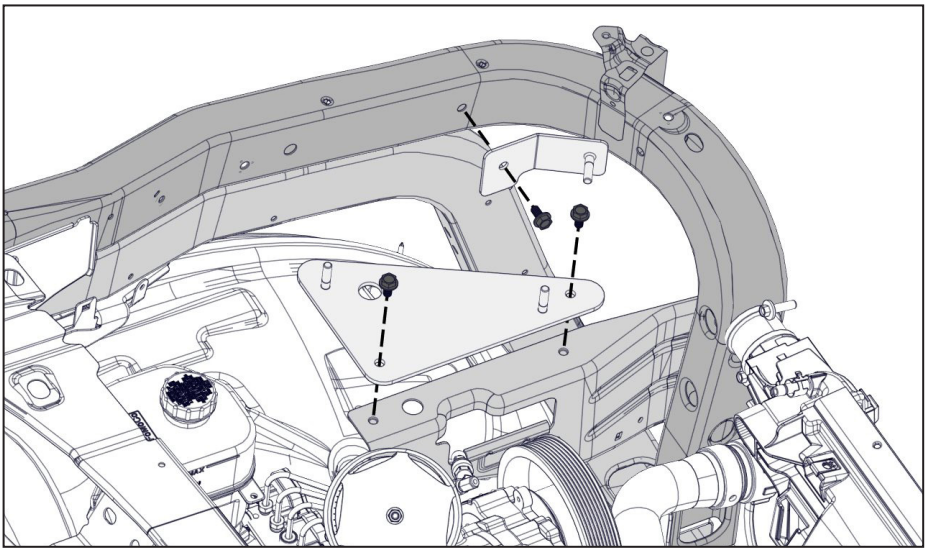


Figure 24 — Install degas bottle brackets

☐ Using the supplied fasteners, install the degas bottle onto the degas bottle brackets (Figure 25).

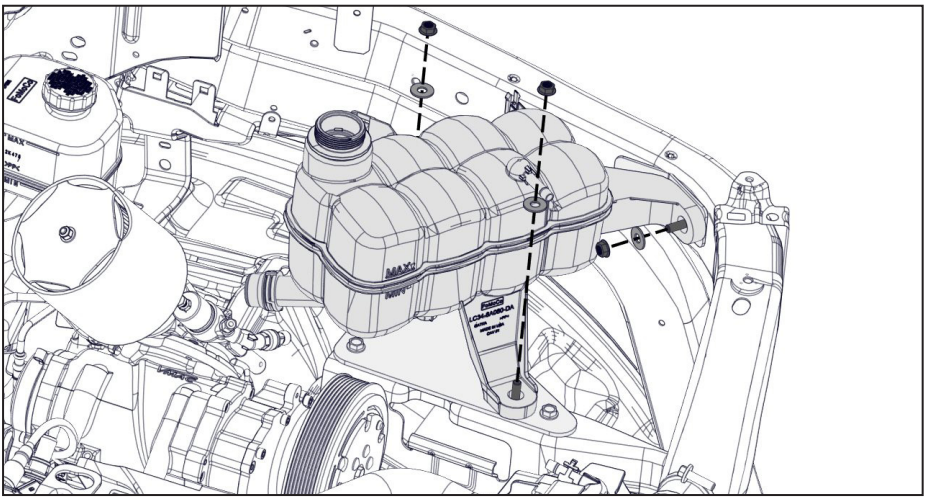


Figure 25 — Install degas bottle brackets

☐ Tighten all of the fasteners to specification.

☐ Uncouple the lower radiator hose assembly at the radiator, oil cooler, and the Tee between the engine supply and the degas bottle.

☐ Remove the assembly from the engine bay (Figure 26).

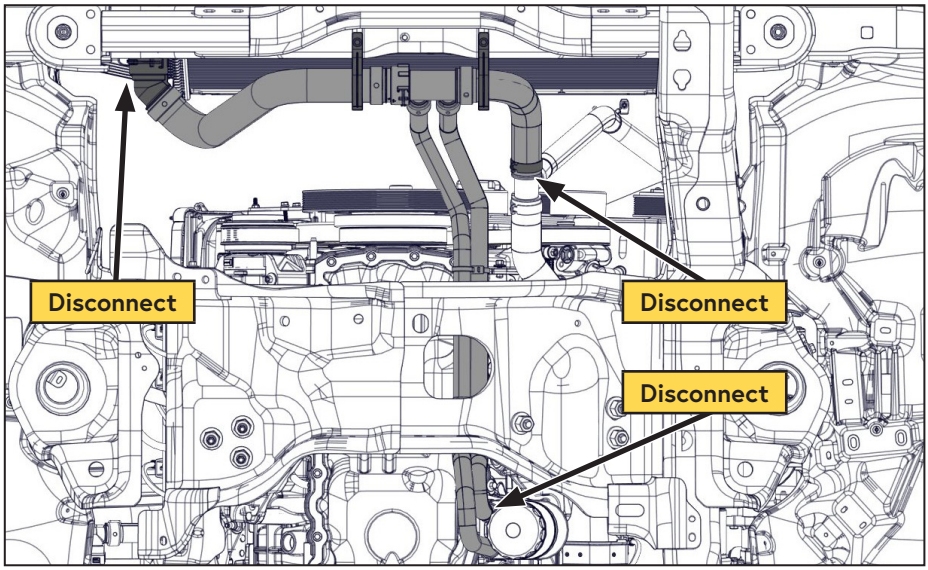


Figure 26 — Remove lower radiator hose assembly
(passenger side frame rail removed for clarity)

☐ Carefully cut the (x5) molded plastic cuffs clamping the lower radiator hose to the oil cooler diverter valve and the OEM quick connect. After removing the cuffs, separate the hoses from the fittings (Figure 27).

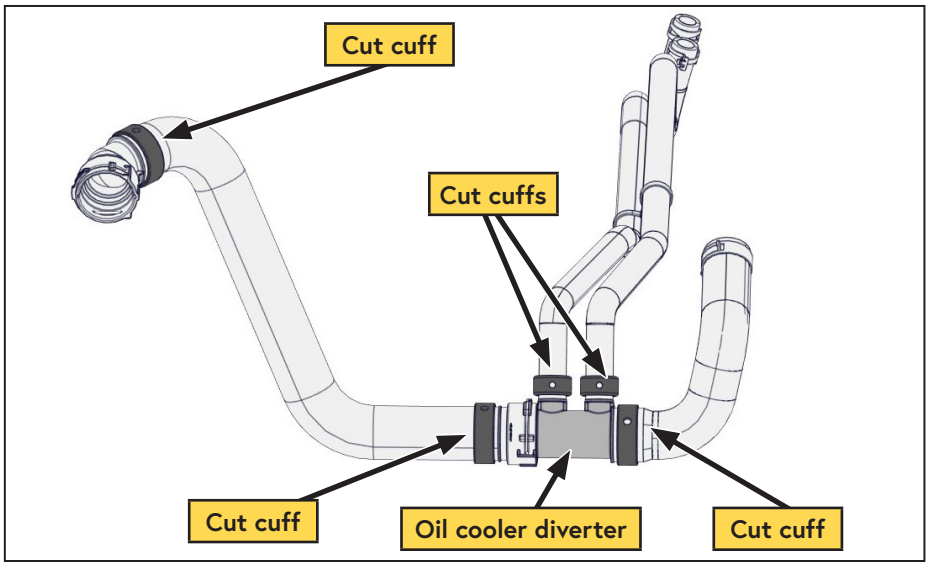


Figure 27 — Modify lower radiator hose assembly

☐ With the radiator side quick connect removed, measure and cut 1/2 in off of the radiator hose and reinsert the quick connect using the supplied hose clamp (cut "A") (Figure 28).

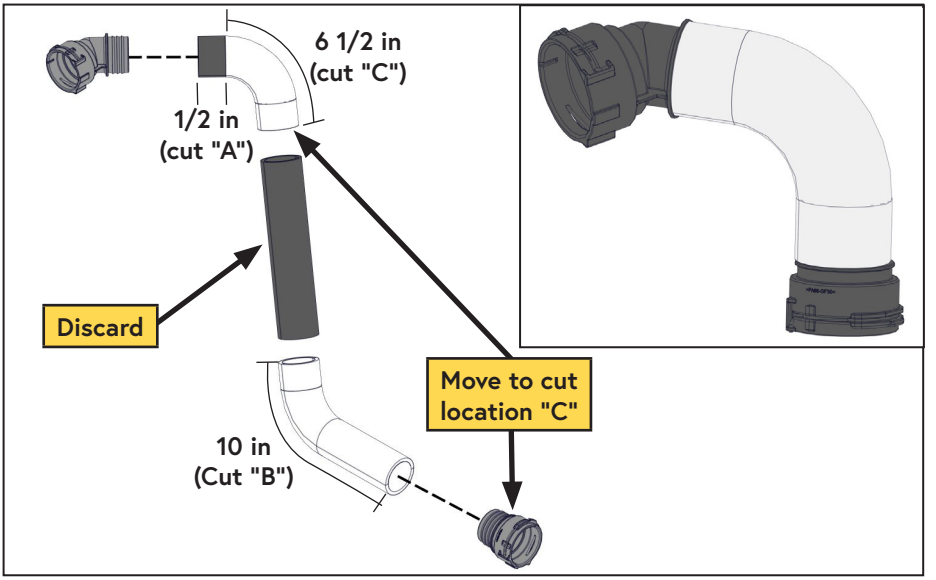


Figure 28 — Lower radiator hose modification

☐ With the diverter side quick connect removed, measure 10 in along the outside radius and cut the hose (cut "B") (Figure 28).

☐ Measure 6 1/2 in from cut "A" along the outside radius towards the center of the hose. Cut the hose, retaining the curved section (cut "C") (Figure 28).

☐ Move the quick connect, removed from the diverter end, to cut location "C"; secure using the supplied hose clamp (Figure 28).

☐ Remove the hose running between the oil cooler diverter and the degas bottle Tee and discard (Figure 29).

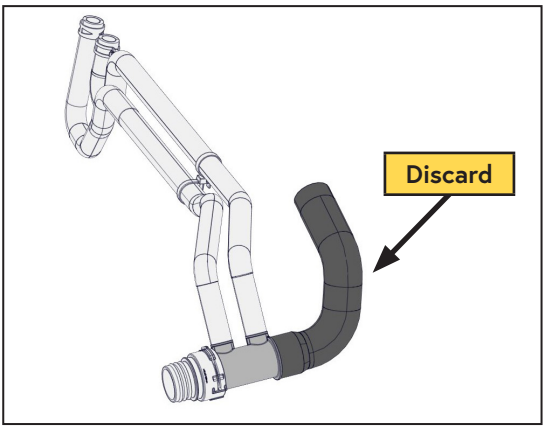


Figure 29 — Discard coolant return hose

☐ Cut the oil cooler hoses 8 in from where they connected to the diverter (Figure 30).

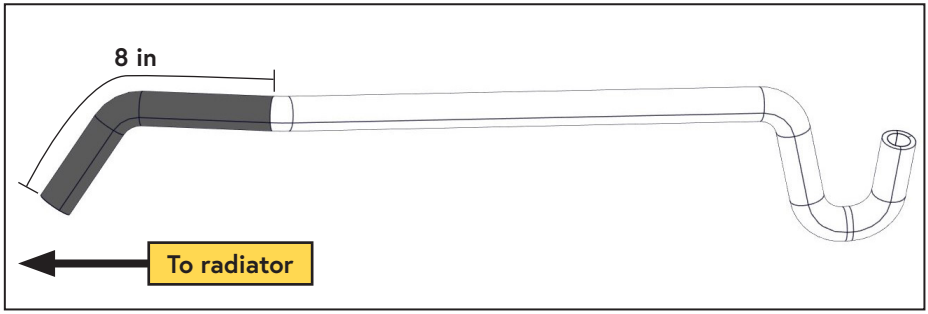


Figure 30 — Modify oil cooler hoses

☐ Install the cooler bracket onto the black front crossmember, below the body coloured radiator support (Figure 31).

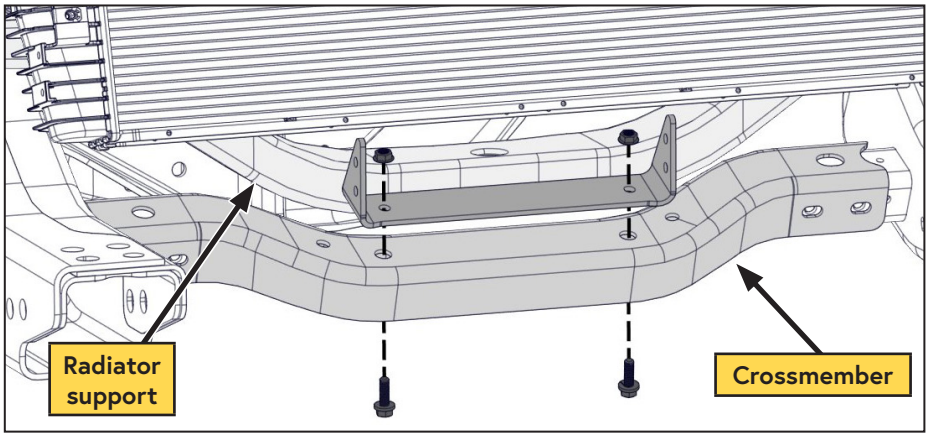


Figure 31 — Install cooler

☐ Mount the cooler to the cooler bracket (Figure 32).

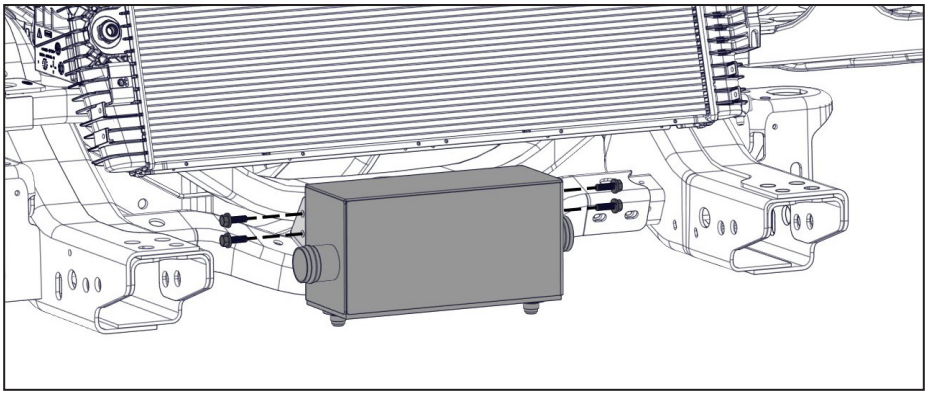


Figure 32 — Install cooler

☐ Apply the supplied mesh loom to the hoses where they pass between the crossmember and the radiator support.

☐ Connect the supplied passenger and driver side radiator hoses and tubes to the VMAC cooler, routing the steel tube connectors between the cross member and the radiator support (Figure 33).

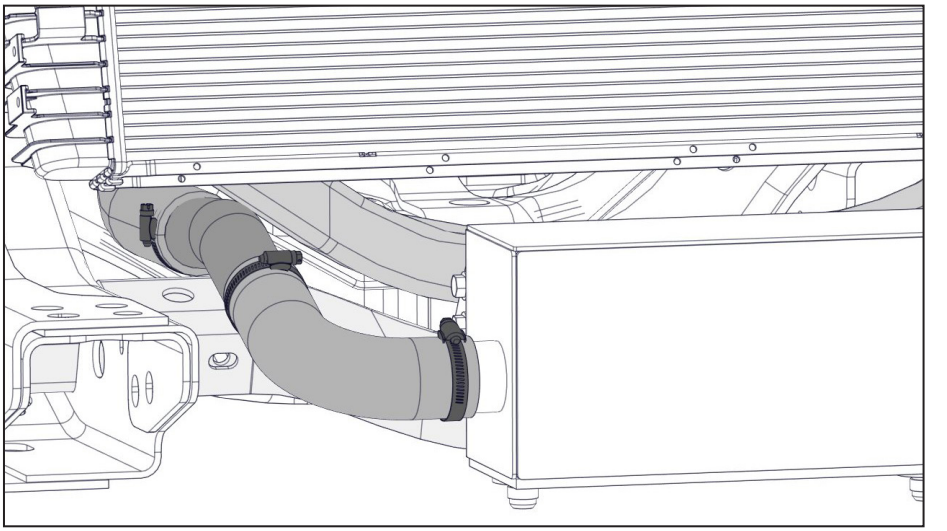


Figure 33 — Install radiator hoses and tube connectors

☐ Insert the OEM diverter valve, with the spigots facing toward the rear of the vehicle (Figure 34).

☐ Install the (x2) 24 in lengths of heater hose onto the oil cooler diverter (Figure 34).

☐ Using the supplied gear clamps, install the hose barbs into the heater hoses (Figure 34).

☐ Using the supplied gear clamps, install the modified oil cooler hoses onto the hose barbs, and connect them to the OEM oil cooler (Figure 34).

☐ Install the modified radiator hose between the diverter and the radiator (Figure 34).

☐ Install the supplied hose between the driver side tube connector, and the degas bottle Tee (Figure 34).

☐ Carefully cut the molded plastic cuff from the radiator side of the upper radiator hose, and set the quick connect aside.

☐ Remove 1/2 in from the hose.

☐ Using the supplied gear clamp, reinstall the quick connect onto the upper radiator hose.

☐ Reconnect the hoses to the degas bottle.

A fastener pack containing 8 in of hose, a hose barb, and gear clamps, has been included in case the degas hose needs to be lengthened.

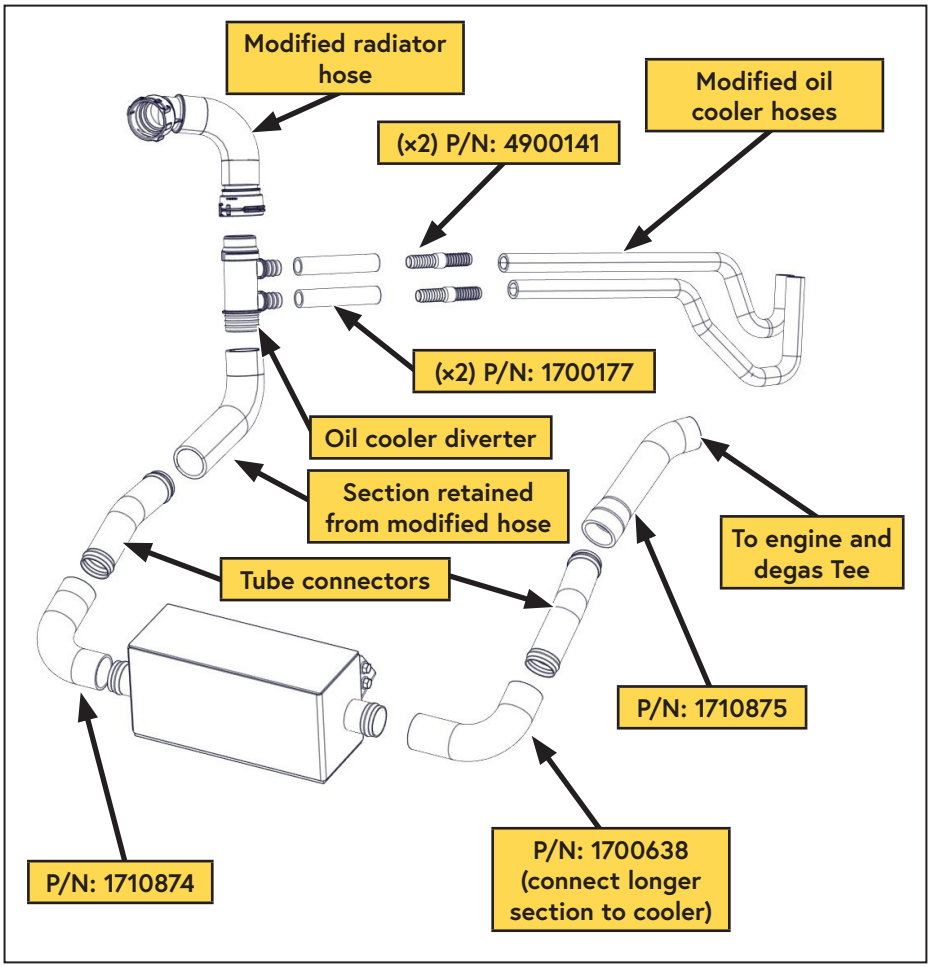


Figure 34 — Modified lower radiator hose schematic

Installing the Air Oil Separator Tank (AOST)

Dependent upon other installed equipment, it may be necessary to move the AOST 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 the warranty.

The AOST must be level for proper air/oil separation, and to ensure that the oil level will display accurately in the sight glass.

Apply Loctite 242 (blue) to all fasteners.

Installing the AOST

If mounting the AOST in the "midship" location, refer to the A700250 accessory instructions (included with this kit).

Note that the A700250 accessory is not compatible with pickup trucks or chassis & cab applications equipped with a midship fuel tank.

The AOST will mount to the passenger side frame rail behind the transmission crossmember (Figure 35).

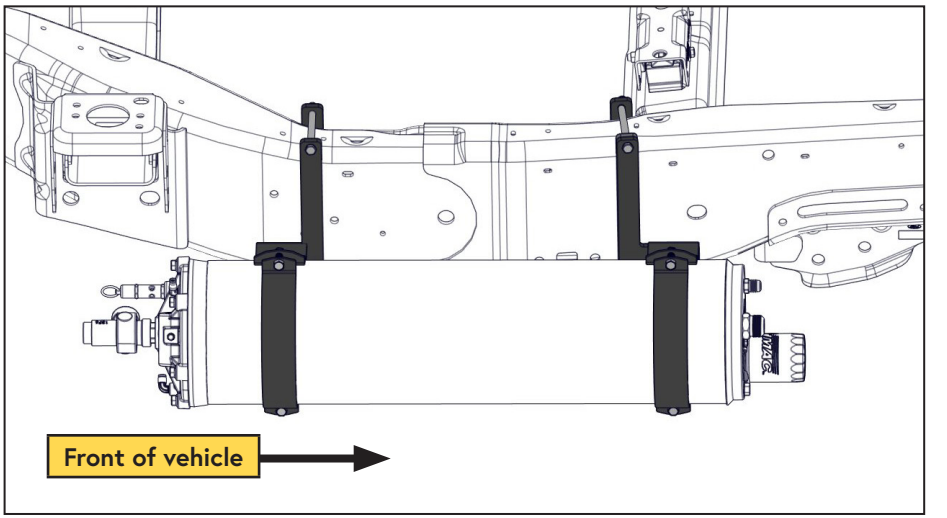


Figure 35 — AOST installed

The front tank mount bracket assembly consists of the offset bracket, a spacer and the strap that goes on the inside of the frame.

Install the tank mounting brackets on the frame (Figure 36):

- ☐ The front tank mount bracket mounts to the rear of the transmission crossmember.
- ☐ The rear tank mount bracket mounts just before the bend in the frame.

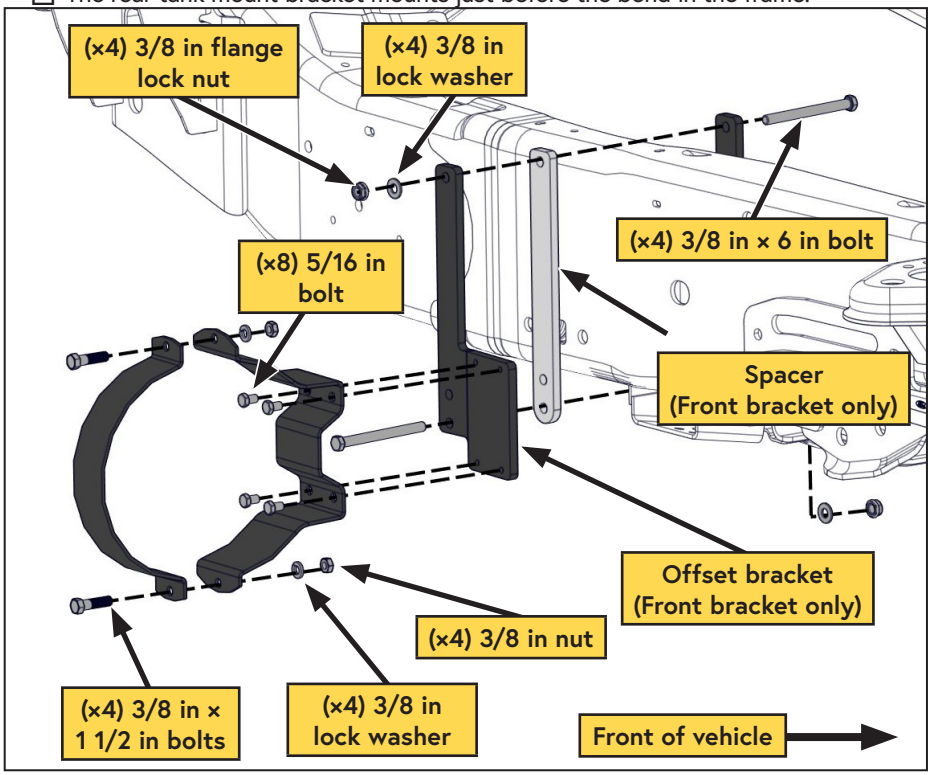


Figure 36 — Installing the AOST
(*for clarity, the rear bracket has been hidden*)

- ☐ Install the front and rear tank straps onto the frame mount brackets (Figure 36).
- ☐ Install the tank onto mounts by loosening the tank clamps and sliding the tank in from the rear.
- ☐ Leave the tank clamps finger tight so that the tank can be shifted forward or back when installing the hoses.
- ☐ Adjust and rotate the tank within the clamps until the arrow on the front of the AOST is pointing up and the oil drain is at the 6 o'clock position.

AOST orientation is critical. The arrow on the blowdown cap at the rear of the tank must be pointing up to prevent compressor failure due to oil starvation, or oil in the discharge air.

Hose Requirements

Only attempt to shorten the supplied hose if there is access to the appropriate equipment. <u>Do not</u> 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 PTFE tubes and AQP elastomer lined hoses are specifically designed to work with VMAC compressor oil and at compressor operating temperatures.

Dependant upon the desired location of the AOST, the hose lengths provided with this system may not be ideal. VMAC suggests first trying to adjust the AOST within its mounts to take up any excess slack in the hoses. If this is not effective, the hoses 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:

- 1 in × 90 in.
- 1/2 in × 53 in.
- 1/2 in × 92 in.
- 1/4 in (PTFE tube): Shipped with the A700250 AOST Relocation Kit. Cut to length as required.
- 3/16 in (PTFE tube): Shipped with the A700250 AOST Relocation Kit. Cut to length as required.

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.

Routing and 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.

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

PTFE Tubing, Loom, and Push-To-Connect Fittings

- ☐ PTFE tubing should only be cut using proper tubing cutters. Side cutters, utility knives, etc. will deform the tube, preventing a proper seal (or leave sharp edges which cut the internal O-ring).
- ☐ When applying loom to the PTFE tube, leave approximately 1 in between the loom and the fitting.
- ☐ Ensure the tube is clean, cut at 90° and that there are not sharp edges.
- ☐ 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.

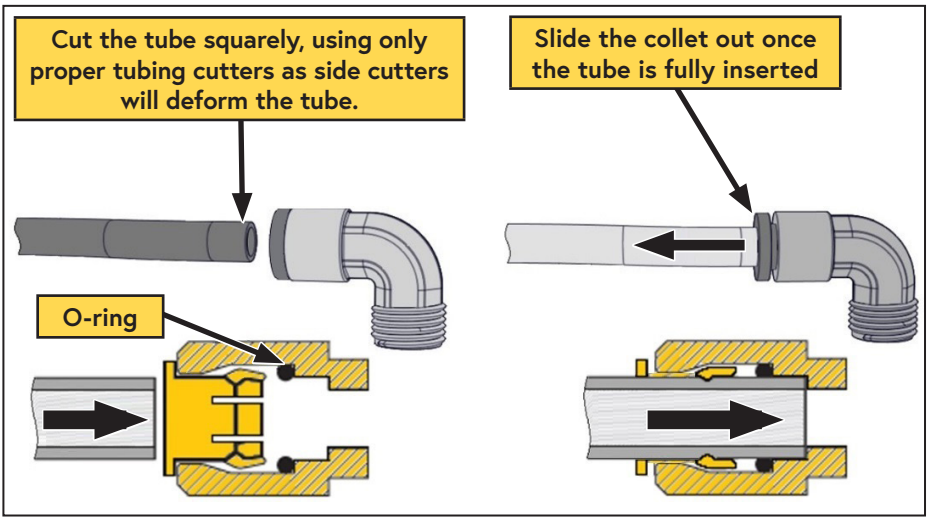


Figure 37 — Push-to-connect fittings

- ☐ Apply the supplied loom to the 1/4 in and 3/16 in PTFE tubes.
- ☐ Connect the PTFE tubes their respective fittings on the inlet.
- ☐ Connect the 45° fitting on the 1 in discharge hose to the matching fitting on the compressor.
- ☐ Route the 1 in discharge hose to the firewall, then toward the passenger side of the vehicle. Ensuring there is adequate slack to accommodate for engine movement, secure the 1 in hose to the firewall with the supplied P-clips (Figure 38).

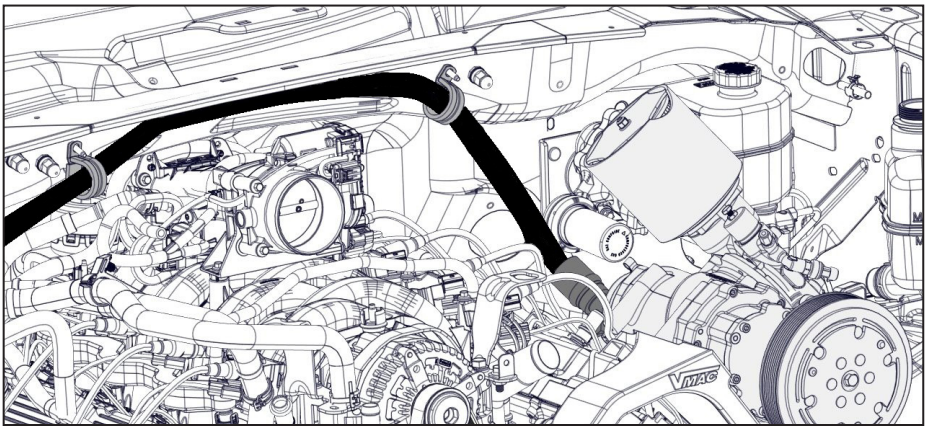


Figure 38 — Route discharge hose

It may be necessary to unclip the windshield wiper harness from the molded ECM assembly, and shift it to the rear of the assembly to provide room for the discharge hose routing (Figure 39).

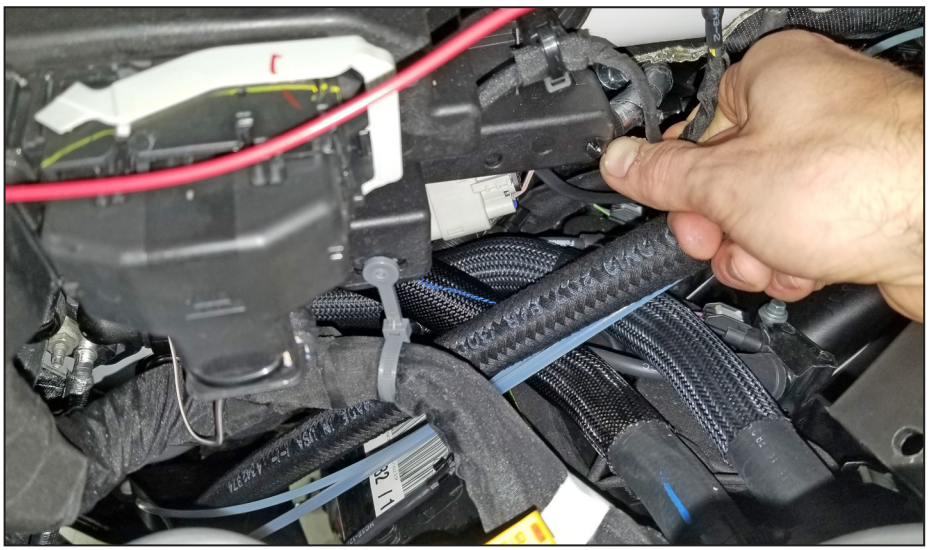


Figure 39 — Route discharge hose

- ☐ Route the 1/4 in and 3/16 in PTFE tubes with the 1 in discharge hose, and secure them using cable ties.
- ☐ Route the tube and hose bundle down the firewall toward the passenger side inner fender. Using the supplied P-clip, secure the 1 in hose to the stud on the firewall (Figure 40).

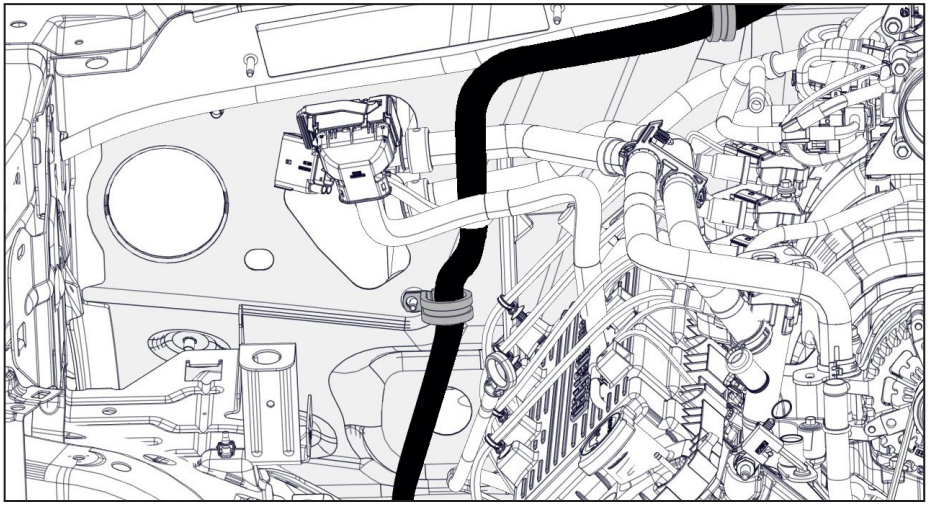


Figure 40 — Route discharge hose

- ☐ Route the tubing and hose bundle between the wheel well and the frame, then over to the AOST.
- ☐ Trim the PTFE tubes as necessary and connect them to their respective fittings on the AOST.
- ☐ Connect the 90° fitting on the longest 1/2 in hose to the driver side fitting of the cooler and route it along the frame to the AOST.
- ☐ Secure the hose to the suspension bump stop using the supplied cable ties.
- ☐ Connect the 90° fitting on the shorter 1/2 in hose to the cooler and run it up to the oil return fitting on the compressor.
- ☐ Adjust the hoses to minimize sharp bends, contact with any hot, sharp or moving parts then tighten all fittings.
- ☐ Bundle the hoses together and secure with cable ties.
- ☐ Move the steering between the left and right lock positions to confirm adequate clearance.

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.

- ☐ Ensure the vehicle is parked on level ground.
- ☐ Tighten all of the VMAC hoses.
- ☐ Remove the oil filter from the AOST and discard the cardboard warning tag.
- ☐ Apply a light film of compressor oil to the filter gasket and thread the filter onto the AOST until the gasket makes contact. Tighten the filter an additional 3/4 to 1 turn after the gasket contacts the base.
- ☐ Remove the fitting from the inlet (mounted on the top of the compressor) (Figure 41).

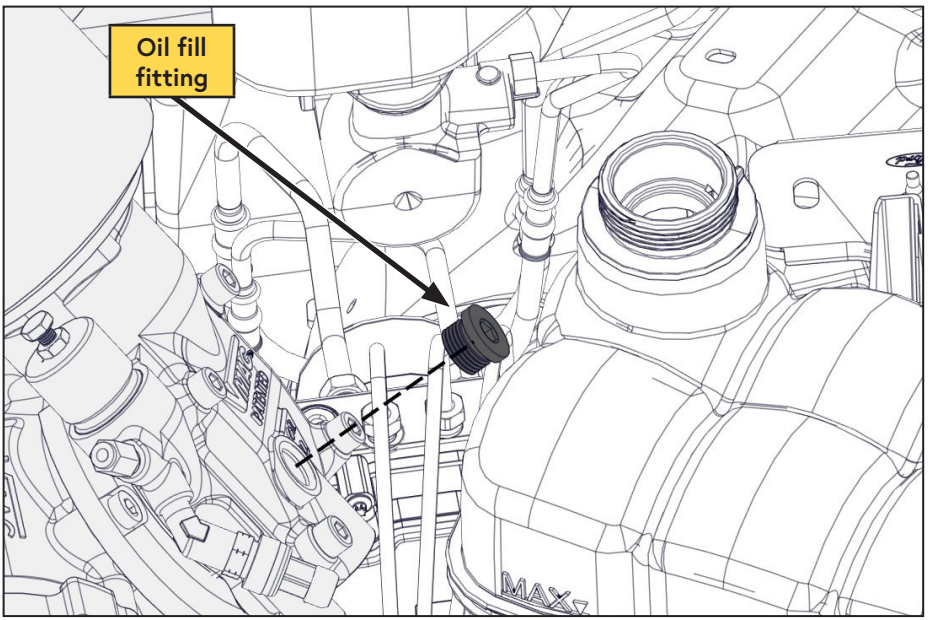


Figure 41 — Oil fill location

- ☐ Using a funnel, fill the system with the supplied oil. When dry, the system will take approximately 9 L (9.5 qt) of oil.
- ☐ Rotate the clutch clockwise (do not use power tools to rotate the clutch) while adding oil to help drive the oil to the AOST.
- ☐ Check the level at the sight glass at the front of the AOST. Continue adding oil until the level is correct.
- ☐ Replace the oil fill fitting and tighten.

Installing the Control Components

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

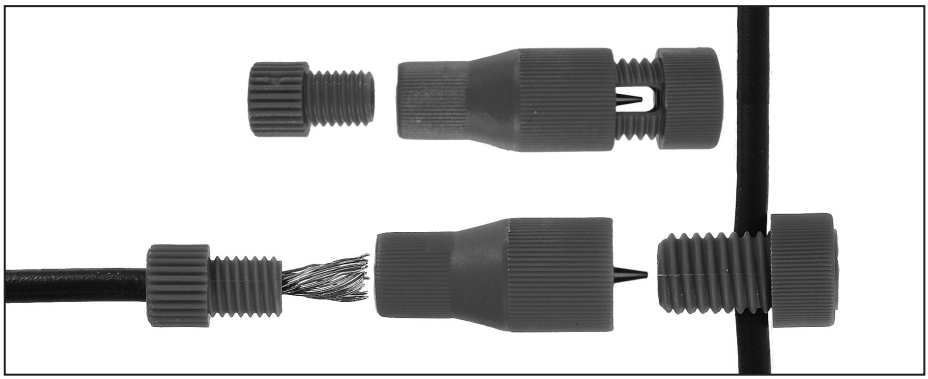


Figure 42 — Posi-Tap wire connector

- Slide the OEM (live) wire into the slot on the large cap as far as it will go.
- Thread the tap (barrel with pin) over the slotted cap, ensuring the pin is centered on the wire. Firmly tighten the tap.
- Strip approximately 3/8 in from the end of wire.
- Unscrew the small cap.
- Twist the wires together and insert the wire into the cap.
- Deflect the wires to one side.
- Insert the cap into the tap, ensuring the wires enter one side of the metal core.
- Ensuring the wire does not slip out of the cap, push and turn until the threads catch and firmly tighten the cap.
- Ensure all of the connections are firmly tightened by hand (overtightening will cause the threads to strip).

Tying into OEM connectors

Some OEM connectors may have locking tabs that must be disengaged prior to inserting a crimped connector

Digital Throttle Control Wire Schematic

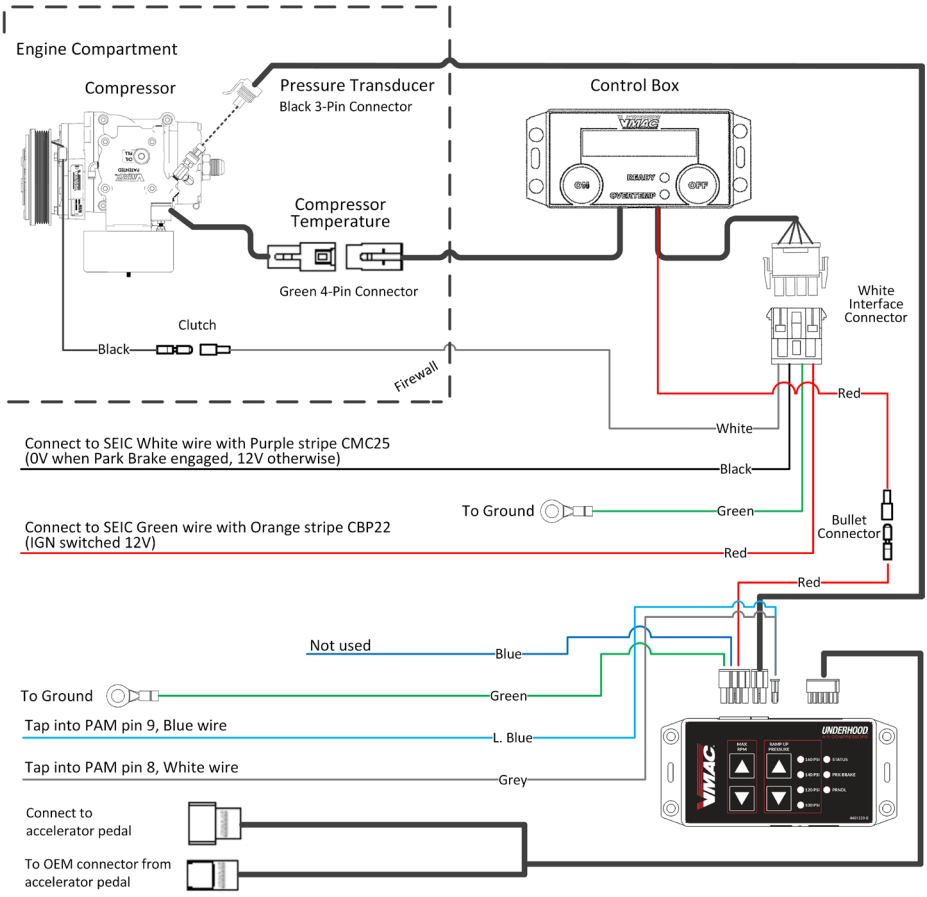


Figure 43 — Digital throttle control

Control Box

- ☐ Remove the plastic trim panel from the doorsill and the kick panel on the driver side.
- ☐ Install the Control Box in a convenient location in the cab, positioned so that the wire harness will reach the compressor. The most common location for the control box is between the driver side seat and the door.

Throttle Control

- ☐ Using cable ties, secure the throttle control 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.

Connecting the Wiring

- ☐ 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.
- ☐ Connect the interface harness to the matching connector from the Control Box.
- ☐ Replace the doorsill trim and the kick panel.
- ☐ Attach the green wire with ring connector, running from the Control Box, to a good ground under the dashboard.
- ☐ Locate the Parking Assist Control Module (PAM) (located on the driver side, under the dashboard and above the parking brake). The PAM harness will either be plugged into a blanking plug, or a PAM module (Figure 44).

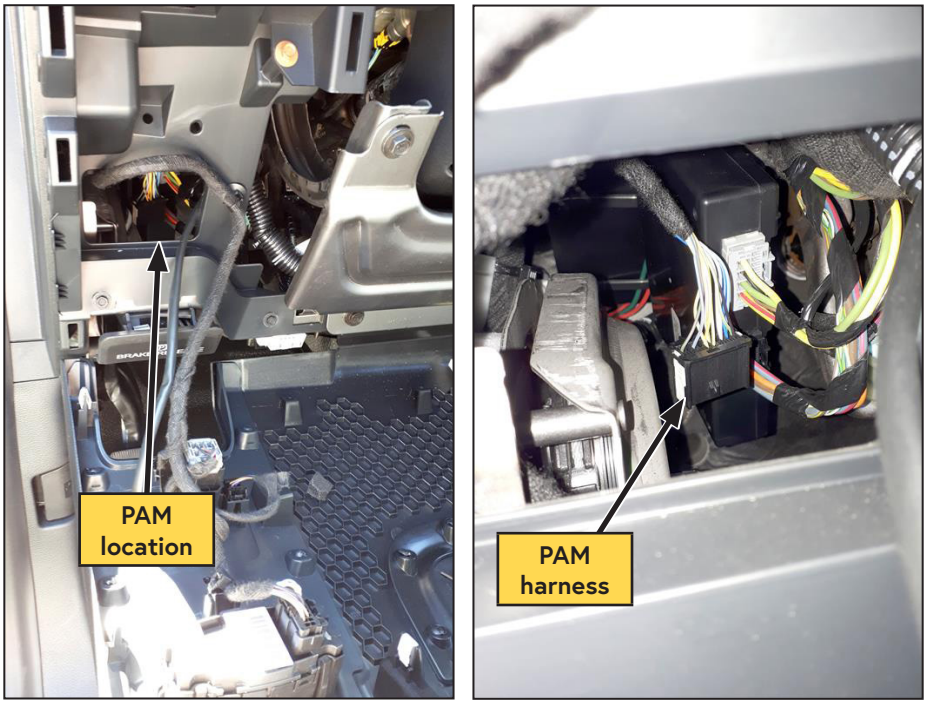


Figure 44 — Parking Assist Control Module (PAM)

☐ Disconnect the connector.

Due to running OEM changes, the PAM wire colours are subject to change without notice however, pins 8 (CAN low) and 9 (CAN high) of the PAM connector shall be the definitive method for determining the correct wire connections.

Pins 8 and 9 will have 2 wires of the same colour crimped to their respective pins, either wire may be utilized for the connections.

☐ Using the supplied Posi-Taps (see page 35), connect the blue wire from the throttle control to the wire at pin 9 (blue wire at time of writing) of the PAM connector (Figure 45).

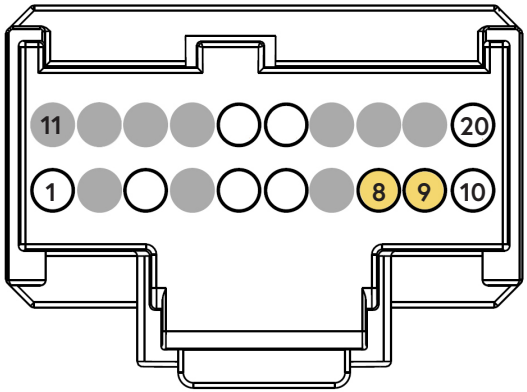


Figure 45 — PAM connector

☐ Using the supplied Posi-Taps, connect the grey wire from the throttle control to the wire at pin 8 (white wire at time of writing) of the PAM connector (Figure 45)

☐ Reconnect the PAM harness to the PAM module or blanking plug.

☐ Shorten the darker blue wire running from the throttle control and apply insulation (e.g. shrink tube, electrical tape, etc.) to safely terminate the wire.

☐ Route the following wires to the SEIC interface located behind the kick panel in the passenger side footwell (there is a wire run behind the glove compartment)*:

- ☐ *Black wire from the white 4-pin connector.
- ☐ *Red wire from the white 4-pin connector.

☐ Connect the red wire with the butt connector, running from the control box, to the matching red wire running from the throttle control.

☐ Splice the red wire running from the VMAC 4 pin interface connector to the green wire with orange stripe (CBP22).

☐ Splice the black wire running from the VMAC 4 pin interface connector to the white wire with violet stripe (CMC25).

☐ Cover all of the engine compartment wires with plastic loom.

Route the following wires into the engine compartment via a grommet in the firewall*:

- ☐ *Grey cable with the green plug connector from the control box.
- ☐ *Grey cable with the black connector from the throttle controller.
- ☐ *White wire with a bullet connector from the interface cable.

☐ Cover all of the engine compartment wires with plastic loom.

Compressor connections

☐ Route the (×2) grey wires and the white wire over to the compressor.

☐ Connect the grey cable with the green plug connector to the corresponding connector coming from the rear of the compressor.

☐ Connect the grey cable with the black connector to the matching connector on the pressure transducer at the compressor.

☐ Connect the white wire with the bullet connector to the matching connector at the compressor clutch.

Air Receiver Tank

If an air receiver tank will be used with this system, a check valve (not supplied) must be installed to prevent damage to the system.

Once a check valve is installed, 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.

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, therefore the hose from the VMAC AOST to the air receiver tank must have a check valve installed; this prevents blow back and moisture from the receiver tank entering the AOST

While the air receiver tank can be installed at any height in relation to the AOST, the discharge hose running from the AOST 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 46).

Drain the condensed water from the receiver tank daily.

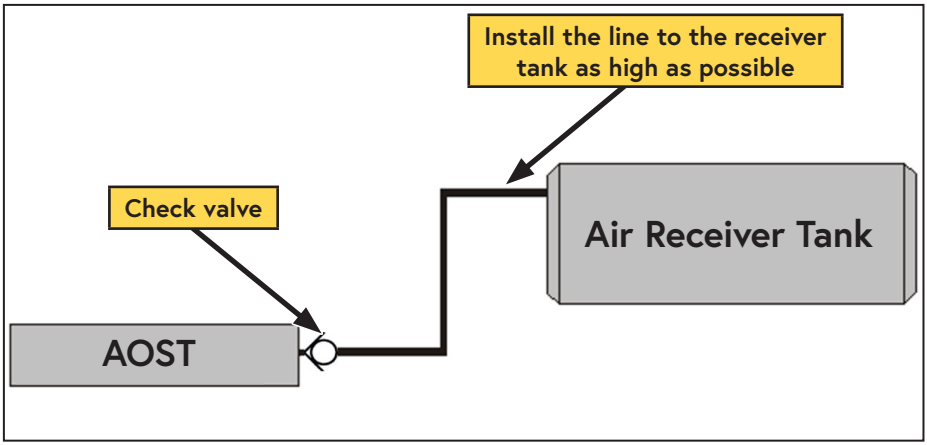


Figure 46 — Air receiver tank

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 50 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 175 psi (1206 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 wiring, hoses and tubes to ensure that they will not contact any hot or moving components and will not interfere with the operation of the vehicle. Ensure all wiring, hoses and tubes are secured with cable ties and protected with loom as required.
- ☐ Pull any excess wiring back into the cab and tie it up and out of the way under the dash with cable ties.
- ☐ Replace all dash panels and covers removed during installation.
- ☐ Place the fan and shroud into the engine bay as one unit.
- ☐ Install the fan.
- ☐ Reinstall the fan shroud.
- ☐ Connect the fan harness.
- ☐ Connect the upper radiator hose.
- ☐ Fill the cooling system with the coolant set aside earlier in the installation.
- ☐ Reinstall the power steering fluid reservoir onto the fan shroud. Top up the fluid as necessary.
- ☐ Remove the protective coverings and reinstall the air intake resonator.
- ☐ Cover all VMAC under-hood wiring with high heat plastic loom (if not done previously). Secure the harness with cable ties as needed to avoid hot, sharp or moving components.
- ☐ Reconnect the battery / batteries.

Reinstall the running boards:

- ☐ ***Single battery vehicles with "midship" AOST mount:*** Install the OEM running boards using the OEM brackets.
- ☐ ***Dual battery vehicles with "midship" AOST mount:*** Install the OEM running boards using the supplied low profile mounting bracket where required.

The passenger side running board is only compatible when the AOST is mounted in the "midship" location.

Testing the Installation

Safety Test

Ensure the following has been completed:

- ☐ Place the automatic transmission in "PARK" and apply the park brake. Turn the ignition "ON" but do not start the engine.
- ☐ Check the control box to see if it is illuminated. If there is no display, there is no power to the control box.
- ☐ Press the "ON" button. The green LED should come on and the compressor clutch will engage, this should be audible.

On systems equipped with VMAC's Digital Throttle Control, the "PRK BRAKE" LED will remain illuminated at all times, regardless of park brake position.

- ☐ Release the park brake. The green light on the control box should flash and the display will flash "PARK BRAKE". Apply the park brake again and press the "ON" button. The green light should come on.
- ☐ Press the "OFF" button.
- ☐ Turn the ignition "OFF".

The engine must be running to complete the final steps in the safety test. This will be done after the pre-start checks have been completed.

Place the vehicle in a safe operating position and adequately block the wheels. Ensure that there are no people around the vehicle before beginning the test

Before Starting the Engine Checklist

Ensure the following has been completed:

- ☐ Verify that the compressor oil level at the AOST sight glass is correct.
- ☐ Verify that the vehicle coolant level is correct.
- ☐ Perform a final inspection of the installation to ensure everything has been completed.
- ☐ Check all wiring for security and protection. Ensure nothing is touching the compressor body.
- ☐ Install the VMAC Air Test Tool (P/N: A700052) with the 150 cfm (0.250 in) orifice installed and the ball valve closed.
- ☐ 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

- ☐ Check for any leaks, confirm belt alignment, and ensure the belts are rotating properly.
- ☐ Close and latch the hood.

☐ Allow the vehicle to reach operating temperature.

☐ Turn on the compressor.

The VMAC digital throttle is a "slow ramp" throttle. Each time the system is powered on, it will quickly increase engine speed to 1,500 rpm; then increase to maximum VMAC rpm over 8 seconds (provided the system has not reached full system pressure before maximum VMAC rpm is reached).

After the initial slow ramp, the throttle will respond normally to air demand

☐ When the VMAC system is first engaged, the engine speed should increase to 1,500 rpm and then drop down to VMAC base idle (approximately 1,000 rpm) once system pressure is reached.

With the system running, check for*:

- ☐ *Coolant leaks.
- ☐ *Compressor oil leaks.

☐ Allow the compressor to run until the system reaches full system pressure.

☐ Engine speed should reduce to between 900 rpm to 1,000 rpm.

☐ 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.

☐ Start the engine.

☐ Turn on the compressor and allow it to build to full system pressure.

☐ Release the park brake.

- The control box should read "PARK BRAKE", the compressor clutch should disengage and engine speed should reduce to OEM idle.

☐ Re-engage the park brake and start the compressor.

☐ Allow engine speed to stabilize after re-engaging the compressor.

With the brake pedal firmly depressed, shift the truck into "REVERSE"*:

- ☐ *The engine speed reduces to OEM base idle (Approximately 650 rpm).
- ☐ *The green LED on the control box remains illuminated.
- ☐ *The "STATUS" and "PRNDL" LED's on the digital throttle control ***will turn off and engine speed will reduce to base idle.***
- ☐ *Shift the vehicle back into "PARK".
- ☐ *Cycle the compressor off, then on again to reset the safety parameters.
- ☐ Repeat these steps in all gear selector positions to ensure the engine speed does not increase unless the gear selector is in "PARK".

Digital Throttle Auto Calibration

When first installed, the VMAC digital throttle will perform an auto-calibration as it adjusts to the vehicle's tune, this process takes approximately 3 minutes.

- ☐ Remove the orifice from the VMAC Air Test Tool.
- ☐ Open the ball valve slowly, until the system maintains approximately 85 psi.
- ☐ Allow the system to run for 3 minutes while the VMAC digital throttle calibrates itself. During this time, engine speed may gradually increase until achieving the maximum VMAC rpm (2,500 rpm).
- ☐ Close the ball valve.
- ☐ Allow the compressor to run until the system reaches full system pressure.
- ☐ Confirm all air valves are closed and the system has no air leaks.
- ☐ Turn off the compressor.
- ☐ Ensure any stored air is drained 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).
- ☐ Road test the vehicle for approximately 14 miles (20 km).
- ☐ Observe the compressor operation to ensure that the belt alignment is good and nothing is rubbing or contacting hot components.
- ☐ 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.

Performance Testing and System Adjustments

Performance Testing and System Adjustment

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 150 cfm (0.250 in) orifice in the outlet to simulate tool use (Figure 47).

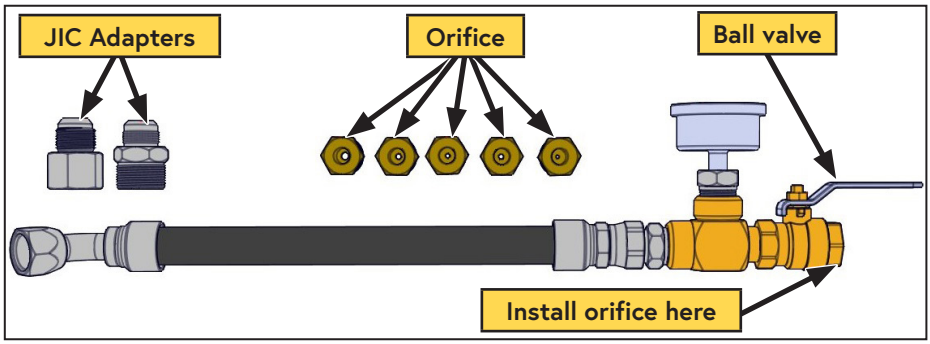


Figure 47 — A700052 VMAC Air Test Tool

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

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 AOST outlet with the 150 cfm (0.250) orifice.
- ☐ Ensure that 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 approximately 2,500 rpm.
- ☐ Close the air valve slowly to allow the system pressure to rise.
- ☐ Once system pressure is at maximum, slowly open the ball valve on the test tool until the pressure on the gauge begins to drop. Engine speed should ramp when the pressure drops to approximately 140 psi.

Digital Throttle Control Operation and Adjustments

The VMAC digital throttle is a "slow ramp" throttle. Each time the system is powered on, it will quickly increase engine speed to 1,500 rpm; then increase to maximum VMAC rpm over 8 seconds (provided the system has not reached full system pressure before maximum VMAC rpm is reached).

After the initial slow ramp, the throttle will respond normally to air demand.

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.

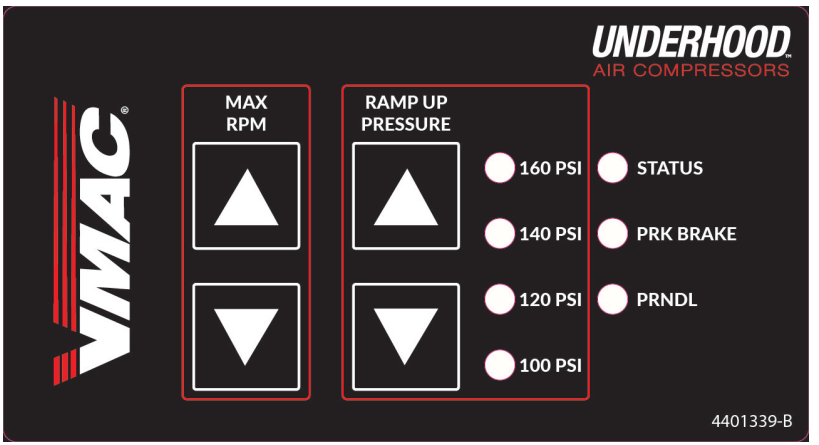


Figure 48 — Throttle control

If the park brake is released, or the vehicle is placed in gear, the "STATUS" LED and the corresponding lockout 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.

MAX RPM

The cfm produced by the system is directly related to engine speed; this system delivers 93 cfm at 2,500 rpm and 111 cfm at 3,000 rpm.
Maximum VMAC rpm can be adjusted between 1,500 rpm and 3,000 rpm (in 50 rpm increments) via the "▲" or "▼" buttons in the "MAX RPM" column.

If the system is at full system pressure while the rpm is being adjusted, the engine speed will increase to the new value for 4 seconds, then return to base idle.

RAMP UP PRESSURE

"RAMP UP PRESSURE" is the amount of pressure the system will drop before the engine speed is increased to generate air; as air continues to be used and the pressure drops, engine speed will increase until maximum VMAC rpm is achieved.

"RAMP UP PRESSURE" is set to 140 psi (10 psi below the factory default maximum system pressure of 150 psi). This allows for a small amount of air use without the need to increase engine speed.

"RAMP UP PRESSURE" should only be adjusted if the maximum system pressure is changed (via the inlet regulator). To maintain proper performance, and rapid response to air demand, ensure the "RAMP UP PRESSURE" is set at no more than 20 psi below the maximum system pressure.

The "RAMP UP PRESSURE" can be set to "100 PSI", "120 PSI", "140 PSI", or "160 PSI via the "▲" or "▼" buttons in the "RAMP UP PRESSURE" column; an LED will illuminate beside the setting that has been selected.

Factory Reset

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

To perform a factory reset, turn the system on and allow the engine speed to drop to VMAC base idle (approximately 1,000 rpm). 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.

For more information on the digital throttle, including error codes, see the related article the VMAC Knowledge Base:

https://kb.vmacair.com/help/vmac-digital-throttle-control

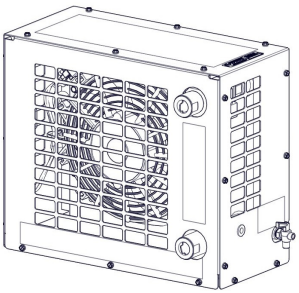
Accessory Products from VMAC

Compressor Service Kits

200 Hour or 6 Month Service Kit -
Part number: A700059
Includes 9 L VMAC high performance compressor oil, oil filter, air filter, and next service due decal.

400 Hour or 1-Year Service Kit -
Part number: A700060
Includes 9 L VMAC high performance compressor oil, oil filter, air filter, coalescing filter, pressure relief valve, muffler, and next service due decal.

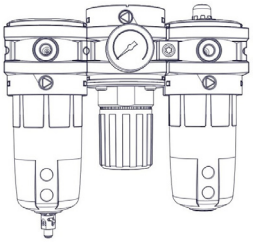
Air Aftercooler — 185 cfm



Part number: A800185
Improves tool performance and extends the life of air tools; removes up to 80% of water from compressed air; includes automatic water drain and A700221 (Filter Regulator, Lubricator).

- Max air flow: 185 cfm / 200 psi.
- Port size: 1 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).

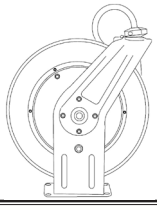
Filter Regulator Lubricator (FRL) — 185 cfm



Part number: A700221
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).

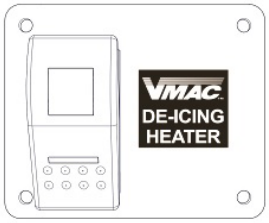
- Max air flow: up to 185 cfm / 200 psi
- Port size: 3/4 in NPT inlet and outlet

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.

VMAC De-icer Kit



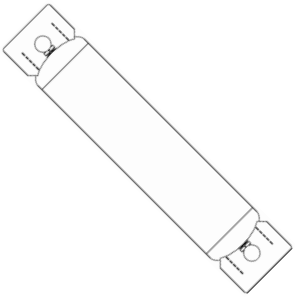
Part number: A700031
Cold climate heater package for operating VMAC compressors in cold climates; proven at temperatures of -30 °C (-22 °F). Requires 12V DC at 10A.

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).

Notes

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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: **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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