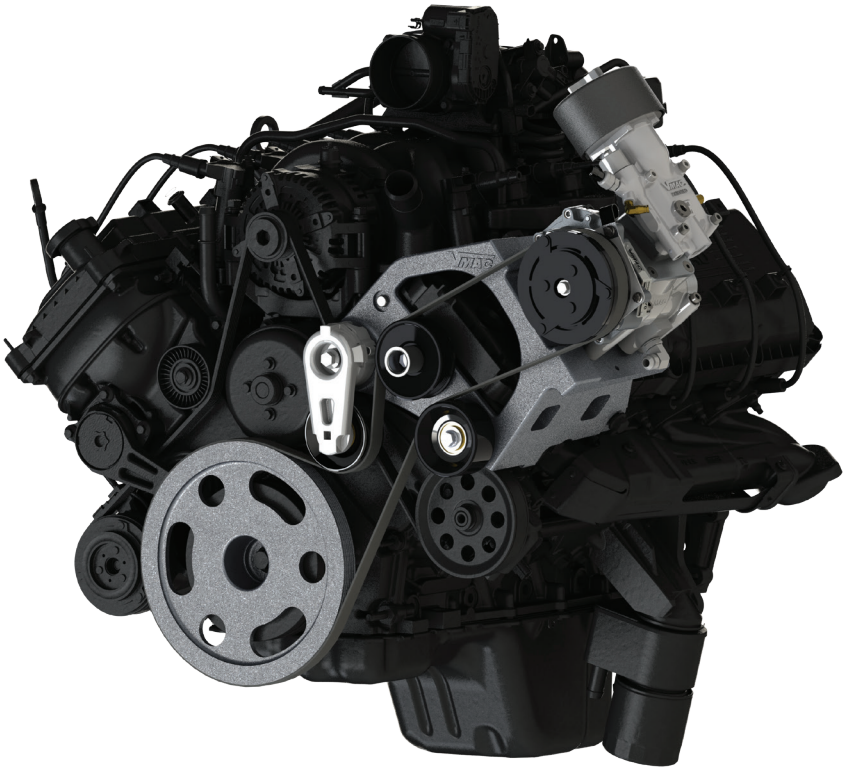
UNDERHOOD™ 150
AIR COMPRESSORS



Installation Manual for VMAC System

V910030

2020 – 2022 Ford Super Duty F250 – F600
6.7 L Diesel

www.vmacair.com

Table of Contents

Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
H	ECN: 22-102 Update OBD II connection locations	MSP	N/A	ASE	MSP	LPH	14 Jun. 2022
J	ECN: 23-082 Cap model year	MSP	N/A	N/A	MSP	N/A	18 Apr. 2023
K	ECN: 23-128 Add note RE extra battery relocate fastener	MSP	MRH	N/A	MSP	N/A	28 Jul. 2023

Additional Application Information

- 2020 – 2022 Ford Super Duty F250 – F600, 6.7 L Diesel.
- 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.

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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 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 removal set (such as Lisle® 43300) or a manual fan pulley holder (such as KD Tool® KD3900)
- ***Vehicles with adaptive power steering:*** Pulley removal tool kit (such as a Lilse 39000, Jet H3565 or Performance Tool 389708 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.***

When dissembling engine components, cover the openings to prevent debris from entering the system.

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.
- ☐ Disconnect both batteries.
- ☐ Remove the driver side battery.
- ☐ Remove the lower bumper/air dam to improve access.
- ☐ Remove the top radiator cross member cover.
- ☐ Remove the fasteners securing the grille and pull gently to remove the grille from the vehicle (there are (×2) fasteners located behind plastic covers on the grille face).
- ☐ Remove the driver side headlight (there is (×1) fastener hidden behind the rubber trim between the fender and the bumper).
- ☐ Drain the primary and secondary radiators into separate, clean containers. Set the coolant aside for use later.
- ☐ Remove the upper radiator hose (primary cooling circuit) and set it aside.
- ☐ Disconnect the small diameter upper cooling circuit hoses from the primary radiator and the primary degas bottle. Shift the hoses away from the front of the engine compartment and secure them out of the way (Figure 1).

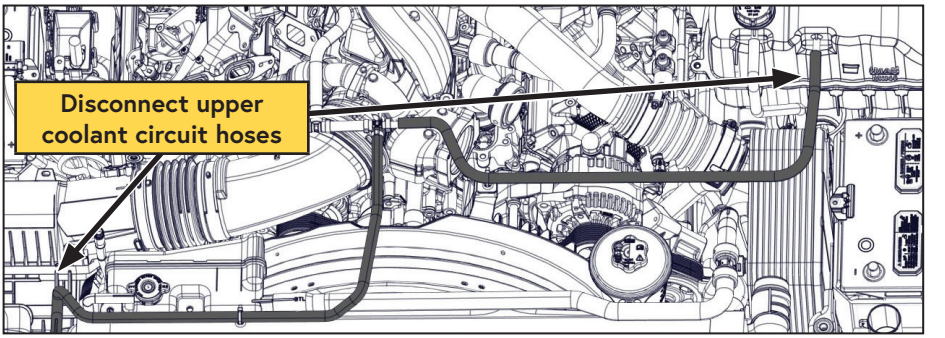


Figure 1 — Disconnect upper coolant circuit hoses

☐ Remove the intake air duct and set it aside.

☐ Disconnect the secondary cooling system hose running between the secondary degas bottle and Charge Air Cooler (CAC) (Figure 2).

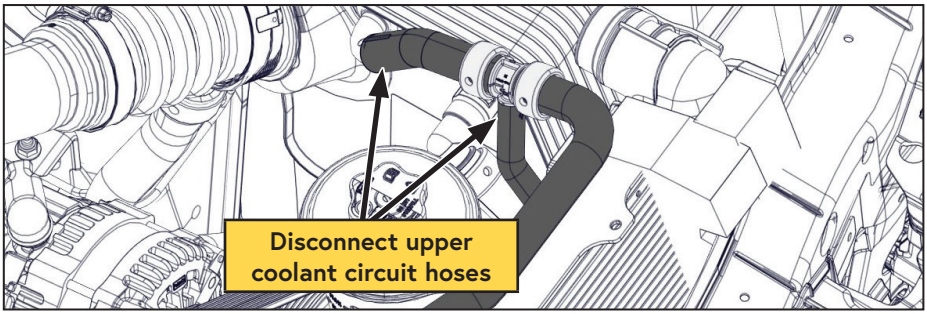


Figure 2 — Disconnect upper coolant circuit hoses

☐ Remove the secondary degas bottle (and hose) (Figure 3).

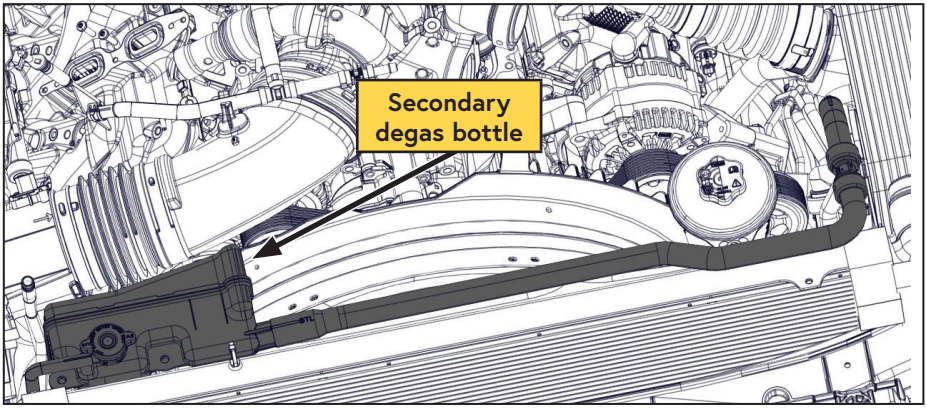


Figure 3 — Remove the secondary degas bottle

☐ Unclip the vacuum assembly from the back of the primary degas bottle (Figure 4).

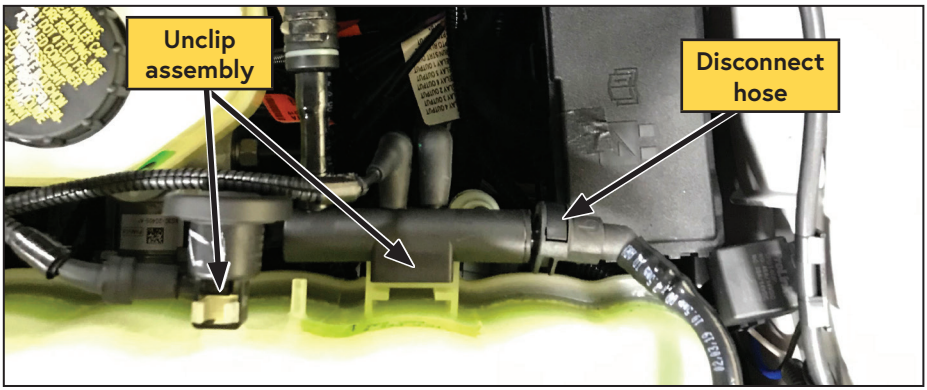


Figure 4 — Remove the vacuum assembly

- ☐ Disconnect the vacuum line and secure it out of the way (Figure 4).
- ☐ Disconnect the 'hot' side ducting from both the turbo and the CAC and set the ducting aside for modification.
- ☐ Disconnect the remaining CAC connections.
- ☐ Remove the CAC and set it aside, along with (×1) fastener (discard the remaining fasteners).
- ☐ Remove the driver side battery tray and degas bottle assembly. Retain the cap from the degas bottle, it is the only part needed from this assembly.
- ☐ Remove the inner fender liner fasteners and pull the fender liner out of the way to access the fasteners securing the washer fluid reservoir.
- ☐ Disconnect and remove the washer fluid reservoir and battery tray support bracket; retain the fasteners (Figure 5).

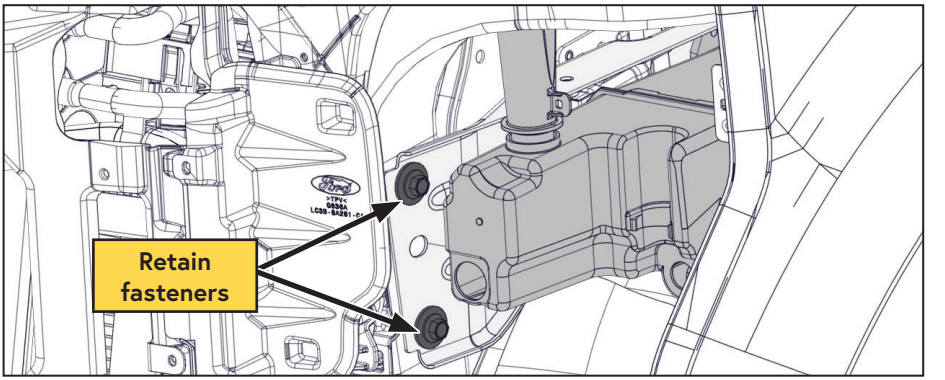


Figure 5 — Retain fasteners

- ☐ Drain the washer fluid into a clean receptacle and retain for use later.
- ☐ Set the fluid reservoir aside for use later.
- ☐ The battery tray support bracket will not be reused but can be retained should the vehicle be reverted to stock.
- ☐ Remove and discard the cable run tray from the driver side battery cables (Figure 6).

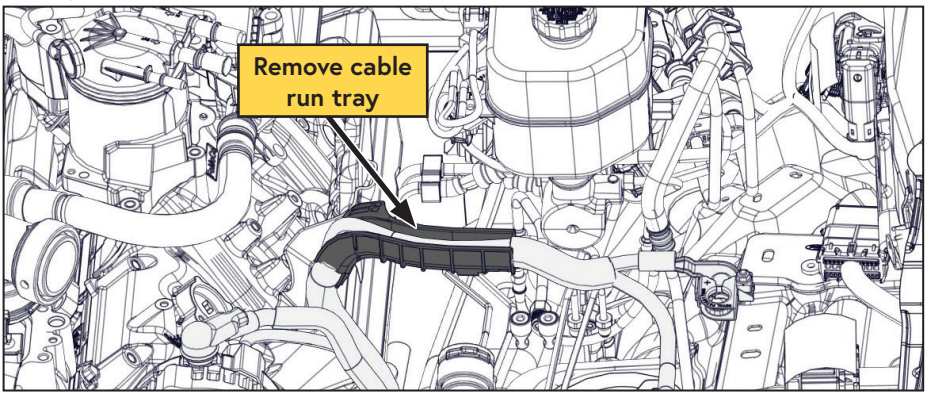


Figure 6 — Remove cable run tray

☐ Keeping the power steering lines connected, remove the power steering reservoir from the driver side of the fan shroud.

☐ Temporarily tie the power steering reservoir up and out of the way of the shroud.

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

☐ Remove the upper radiator shroud and set it aside, along with the fasteners.

☐ Disconnect the radiator fan harness and remove and discard the OEM bolt (Figure 7).

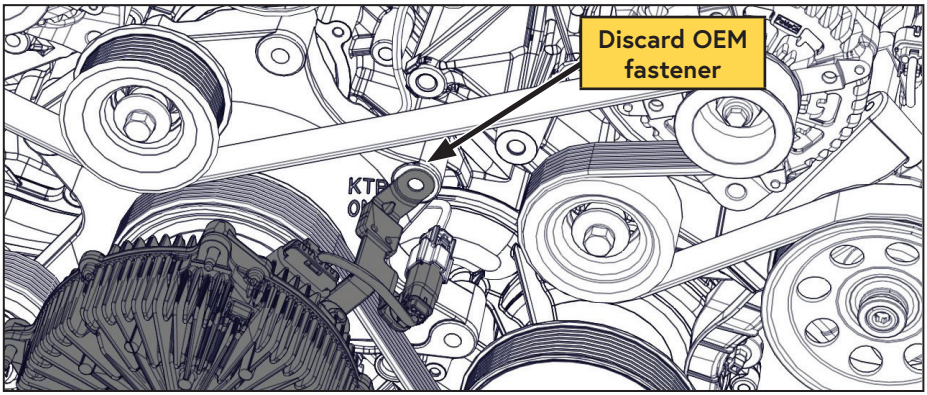


Figure 7 — Disconnect fan harness

☐ Remove the fan and harness assembly.

☐ Remove the fan shroud stator.

☐ Remove the OEM FEAD belt.

☐ Take note of the location of the OEM idler on the power steering pump / primary alternator bracket.

☐ Remove the OEM idler from the bracket (Figure 8).

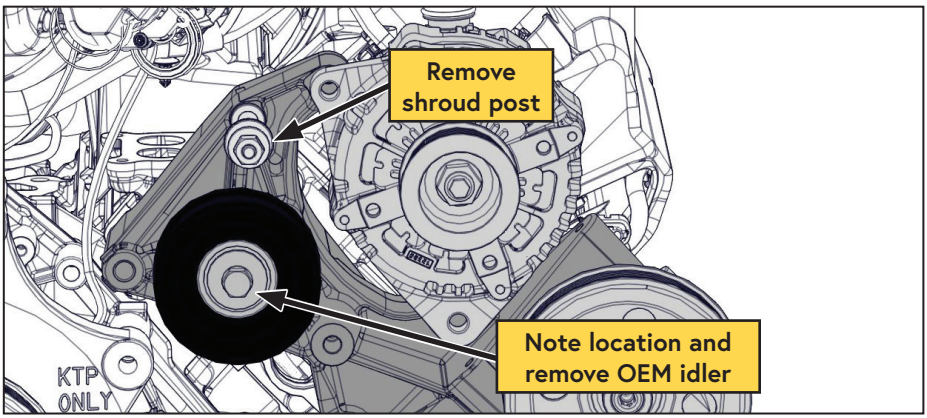


Figure 8 — OEM alternator and power steering bracket

☐ Remove the fan shroud stator post from the OEM bracket (Figure 8).

☐ Remove the primary alternator, setting the fasteners aside (Figure 8).

On vehicles equipped with adaptive power steering, removing the power steering pump pulley will improve access to the fasteners.

Do not remove the power steering fluid lines from the power steering pump.

☐ Unbolt the power steering pump and secure it out of the way (retain the fasteners).

For vehicles equipped with the optional "Adaptive Power Steering" power steering pump, relocate the upper rear bushing to the upper forward mount position (Figure 9).

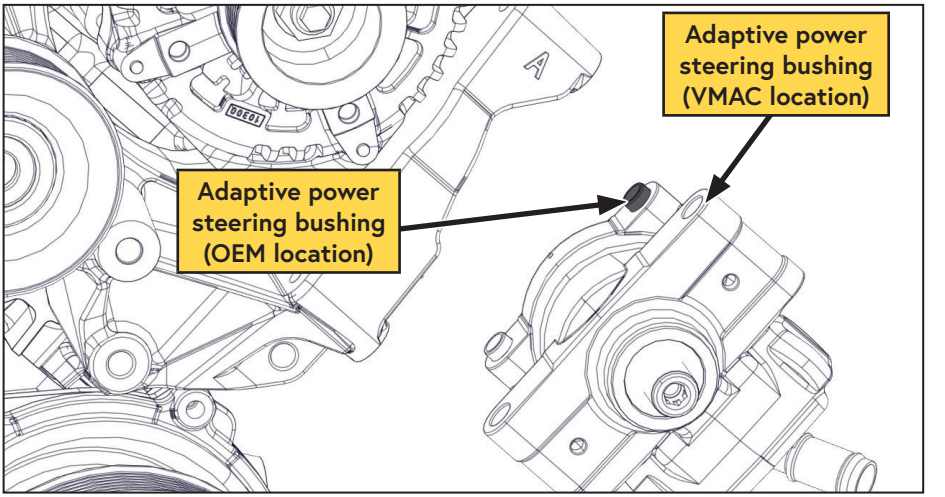


Figure 9 — Adaptive power steering pump

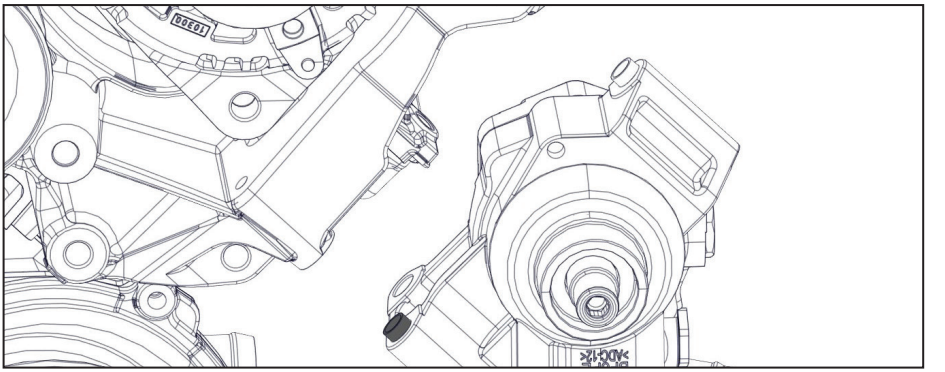


Figure 10 — Standard power steering pump (for comparison)

☐ Remove the OEM alternator / power steering pump bracket from the engine. This will not be reused but may be retained.

☐ Remove the (×4) rubber bushings from the main bracket bolt holes and set them, and the fasteners, aside for later.

☐ Remove the primary drain-back hose running between the engine and the OEM degas bottle (Figure 11).

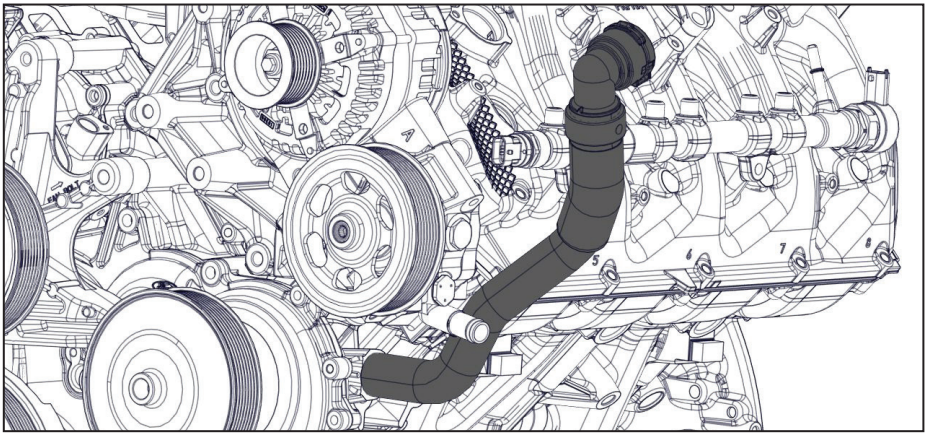


Figure 11 — Remove the primary drain-back hose

☐ Using the supplied 1/2 in loom, cover the section of harness (Figure 12).

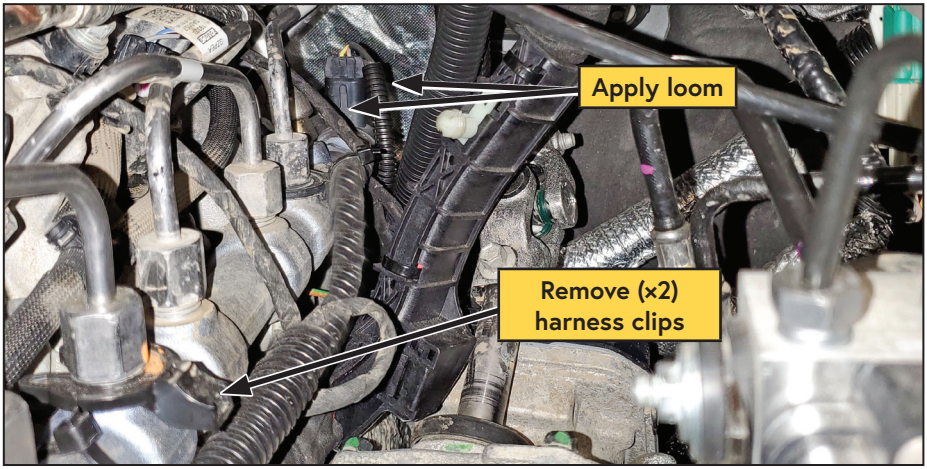


Figure 12 — Remove the primary drain-back hose

☐ Using the supplied 1/4 in loom, cover the small sections of harness at the rear of the engine (Figure 12).

Relocating the ABS Hydraulic Control Unit (HCU)

Depending on the application, the following steps may not be necessary. If the HCU is mounted towards the firewall (Figure 19 on page 18), proceed to the next chapter. If the HCU bracket is mounted using the holes shown in Figure 14, follow the steps in this chapter.

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.

Determine whether the vehicle is equipped electronic power assist steering (EPAS) (Figure 13)*:

- ☐ *If the vehicle is equipped with EPAS, turn to the next page.
- ☐ *If the vehicle is not equipped with the EPAS, skip to page 19.

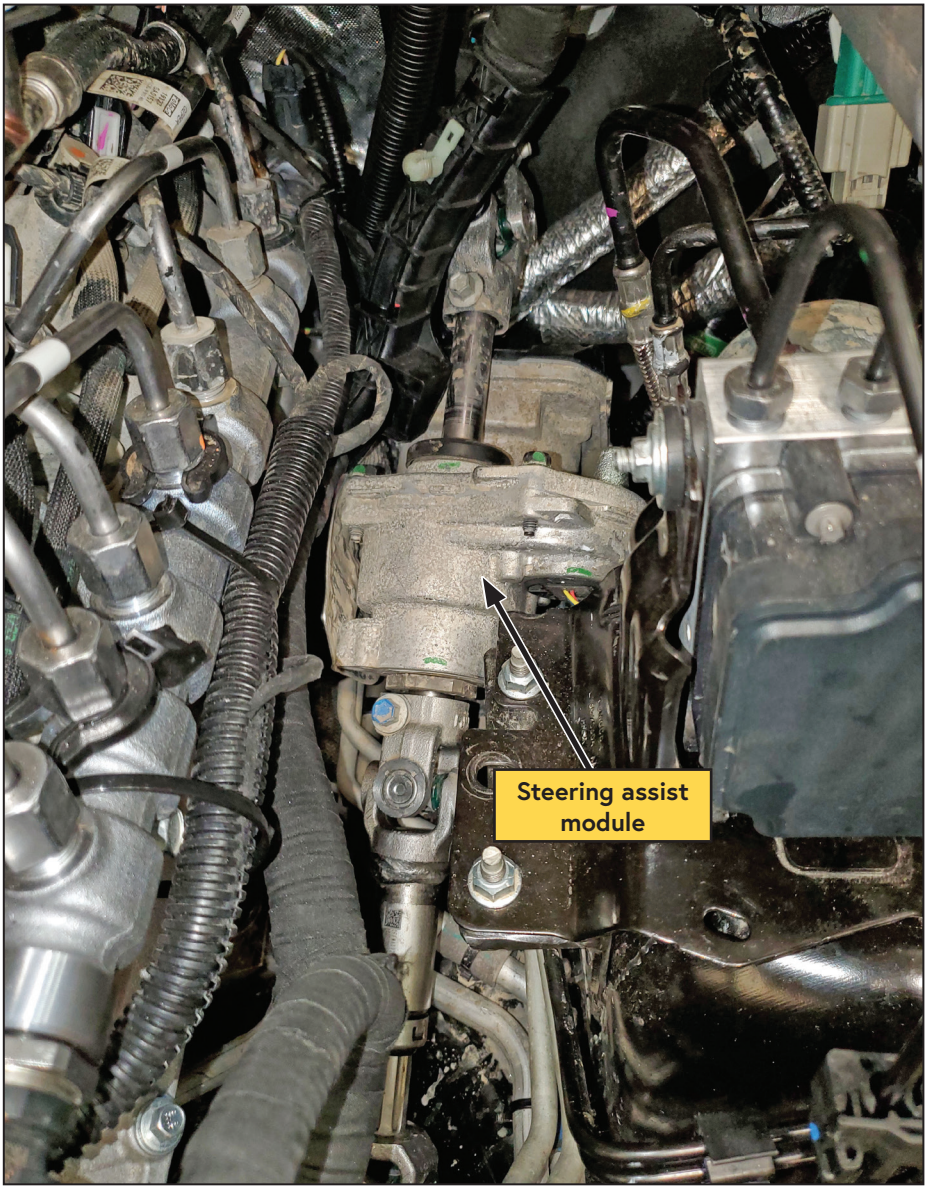


Figure 13 — Steering assist module

Vehicles equipped with EPAS

☐ Remove the (×2) nuts securing the HCU module to the bracket (Figure 14).

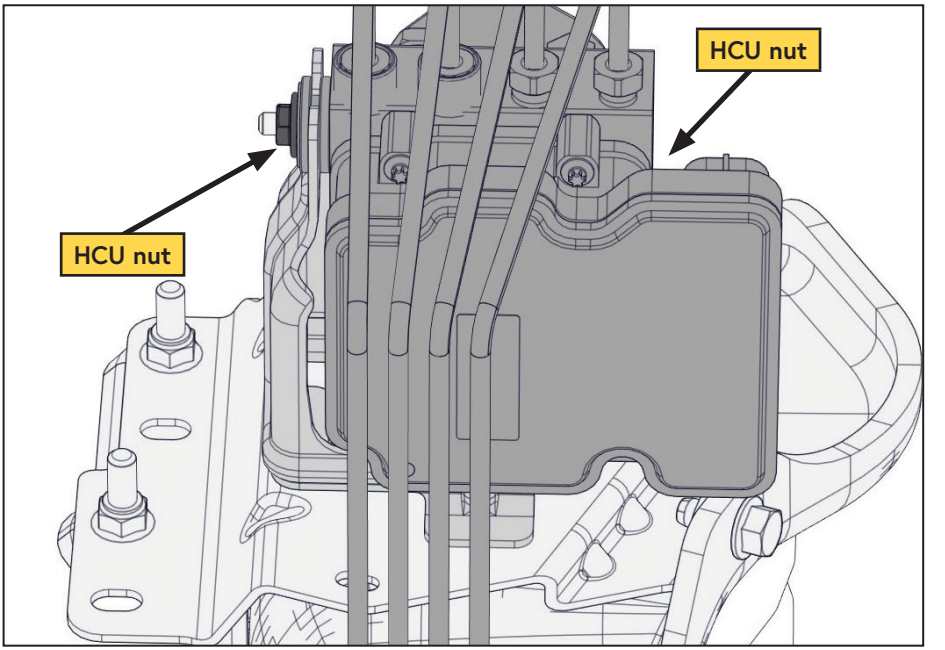


Figure 14 — Relocating the HCU

☐ Remove the bolt and (×2) nuts securing the HCU base bracket to the shock tower and set them aside. Remove the HCU base bracket (Figure 15).

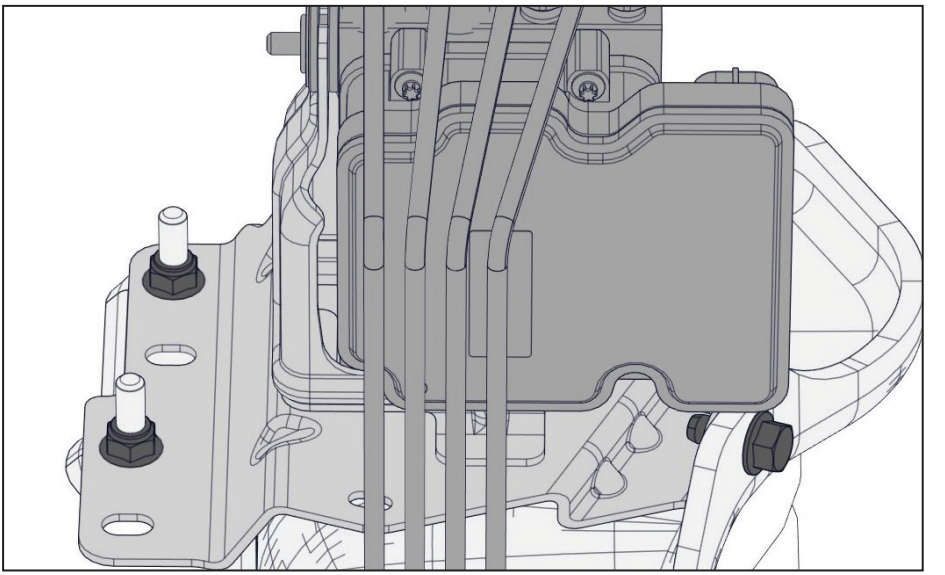


Figure 15 — Relocating the HCU

☐ Mark and cut the HCU base bracket in the location shown (Figure 16).

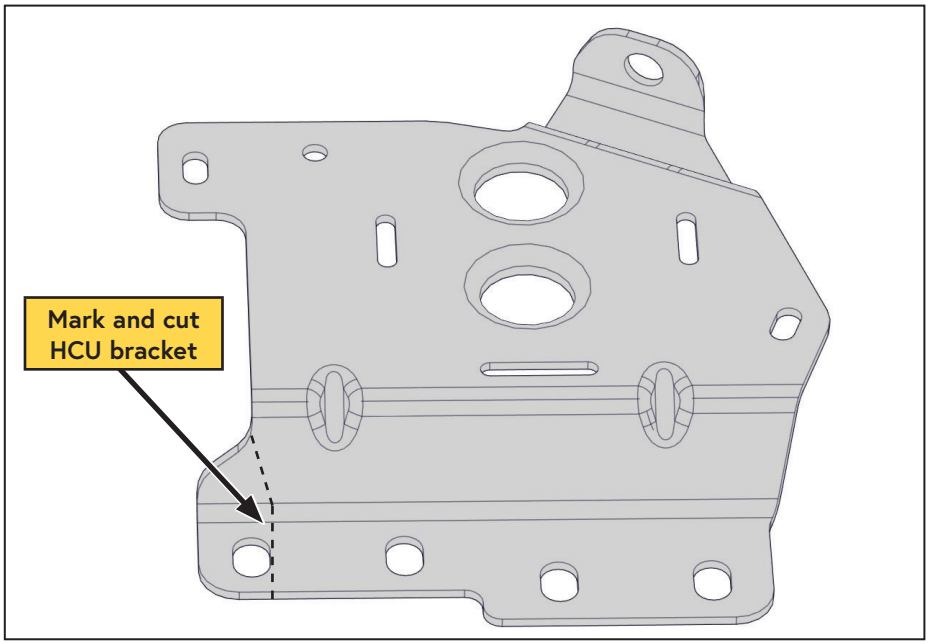


Figure 16 — Modifying the HCU bracket

☐ Using the supplied flat head fastener, install the HCU relocation bracket (Figure 17).

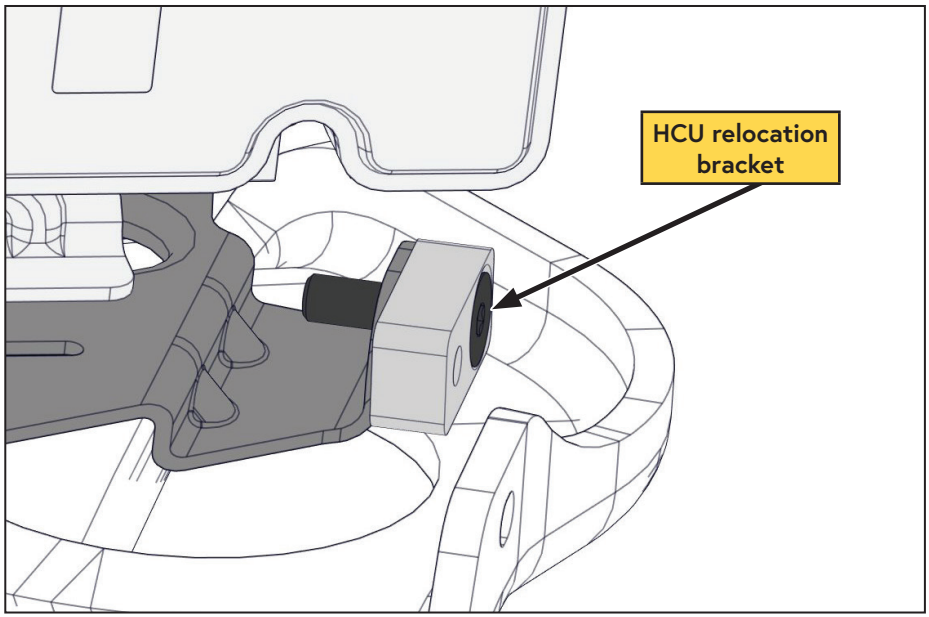


Figure 17 — Relocating the HCU

☐ Gently shift the HCU towards the firewall taking care not to bend or kink the brake lines. Align the bracket with the second set of mounting holes (Figure 18).

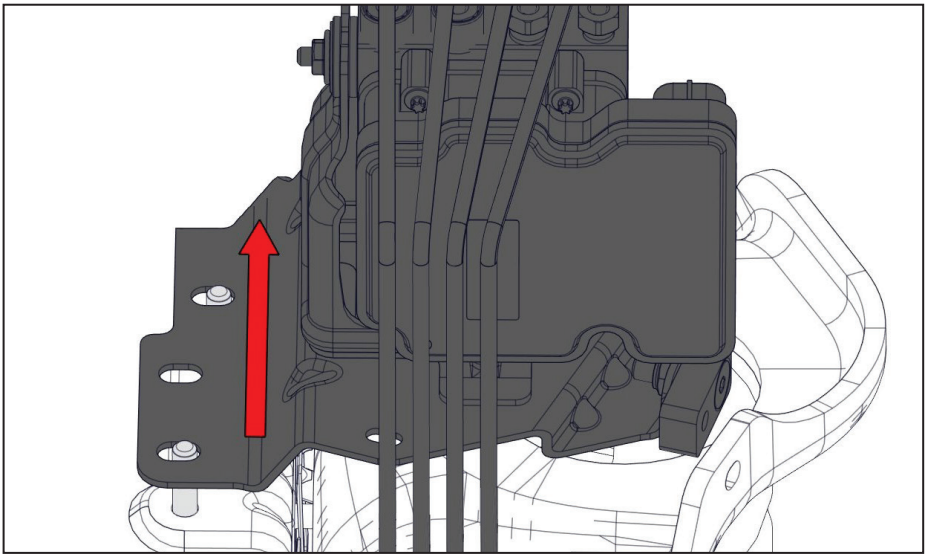


Figure 18 — Relocating the HCU

☐ Using the OEM fasteners retained earlier, secure the HCU base bracket to the shock tower (Figure 19).

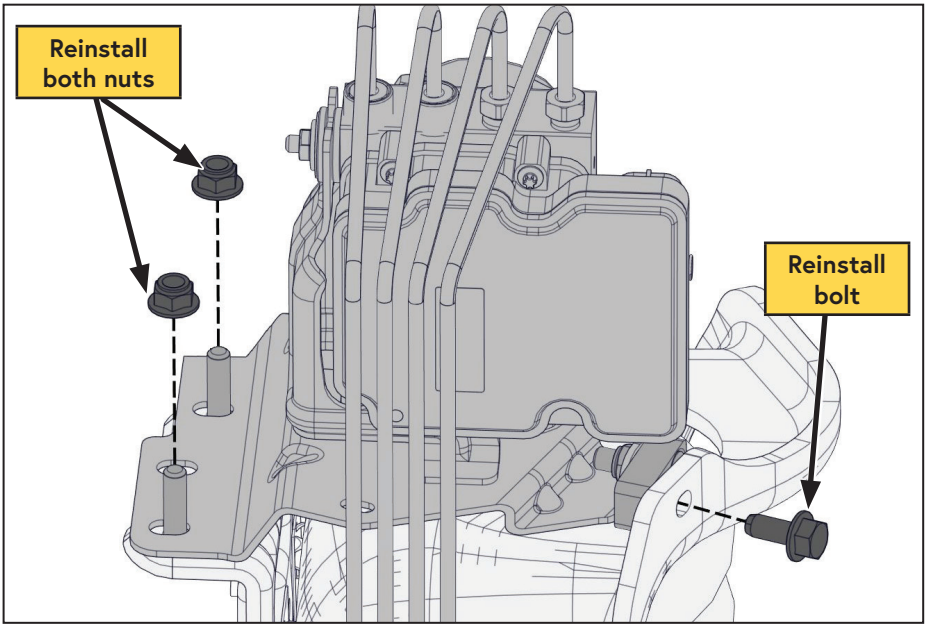


Figure 19 — Relocating the HCU

☐ Using the OEM fasteners retained earlier, secure the HCU module to the bracket.

Vehicles without EPAS

☐ Remove the bolt and (×2) nuts securing the HCU base bracket to the shock tower and set them aside. Remove the HCU base bracket (Figure 20).

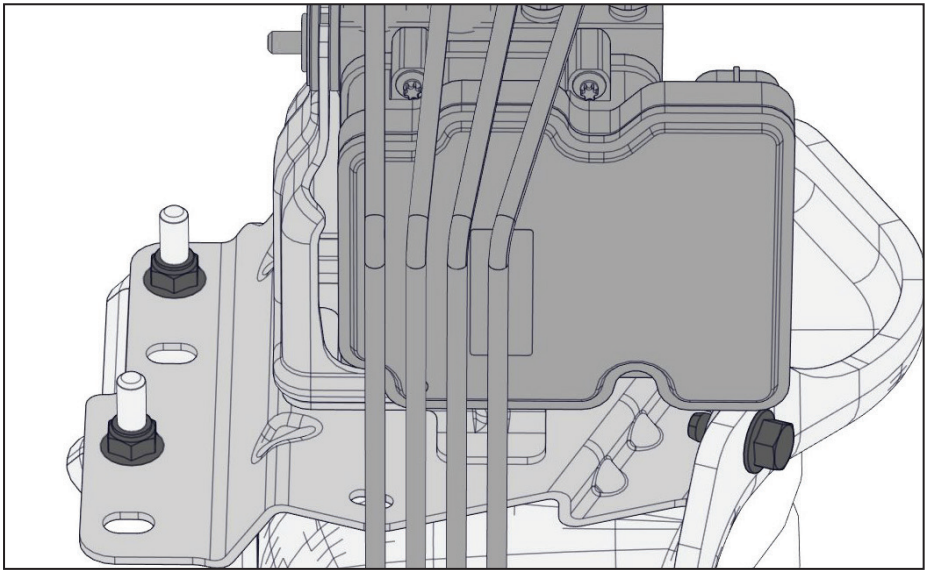


Figure 20 — Relocating the HCU

☐ Using the supplied flat head fastener, install the HCU relocation bracket (Figure 21).

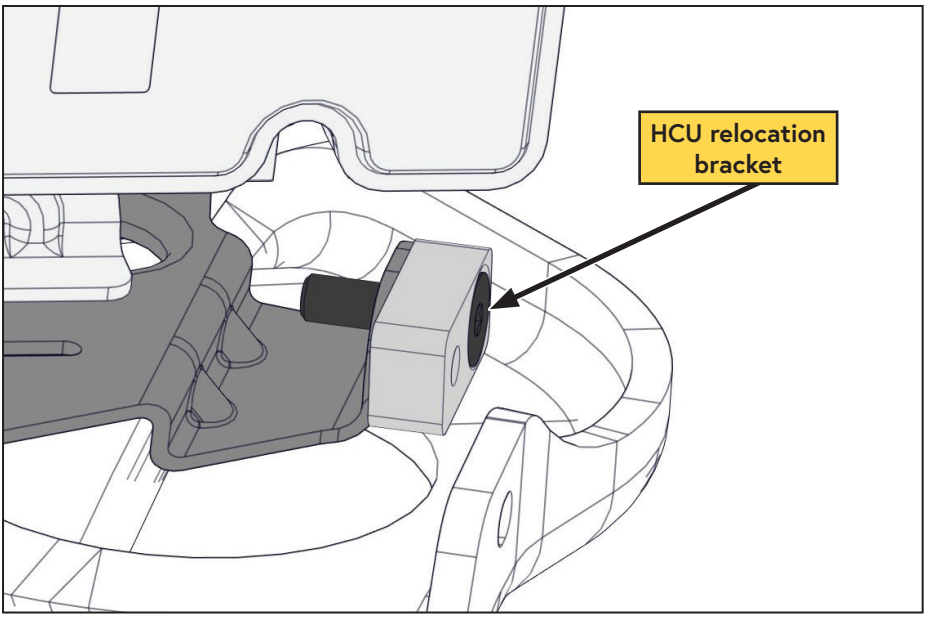


Figure 21 — Relocating the HCU

☐ Gently shift the HCU towards the firewall taking care not to bend or kink the brake lines. Align the bracket with the second set of mounting holes (Figure 22).

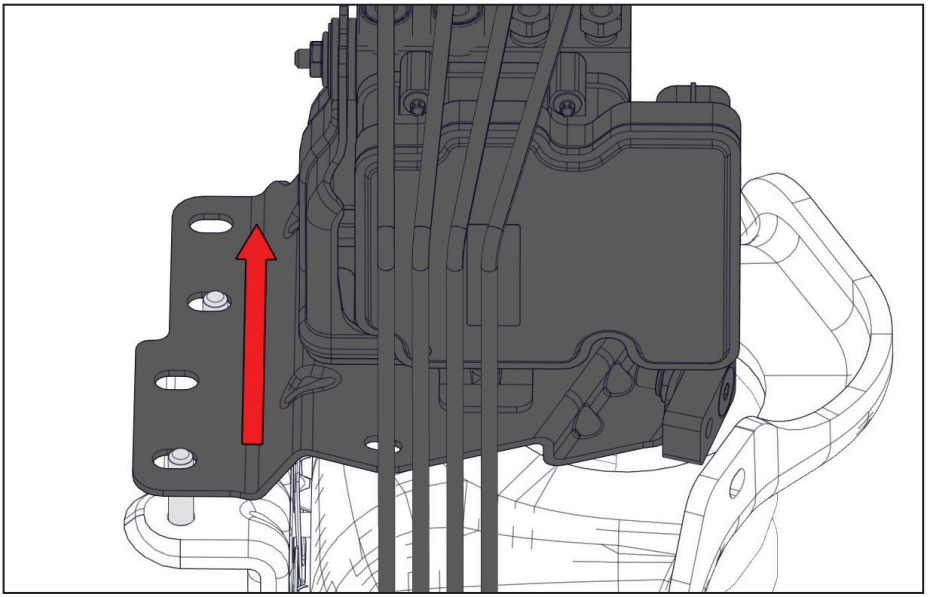


Figure 22 — Relocating the HCU

☐ Using the OEM fasteners retained earlier, secure the HCU base bracket to the shock tower (Figure 23).

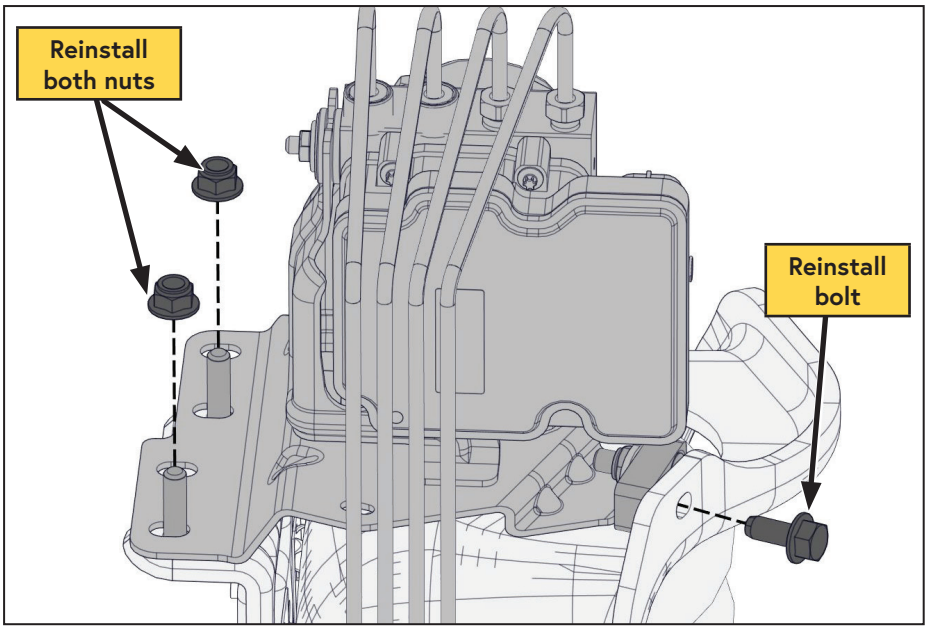


Figure 23 — Relocating the HCU

Modifying the Hoses, Installing the Cooler

Primary coolant drain-back hose

☐ Measure and cut the primary coolant drain back hose (Figure 24).

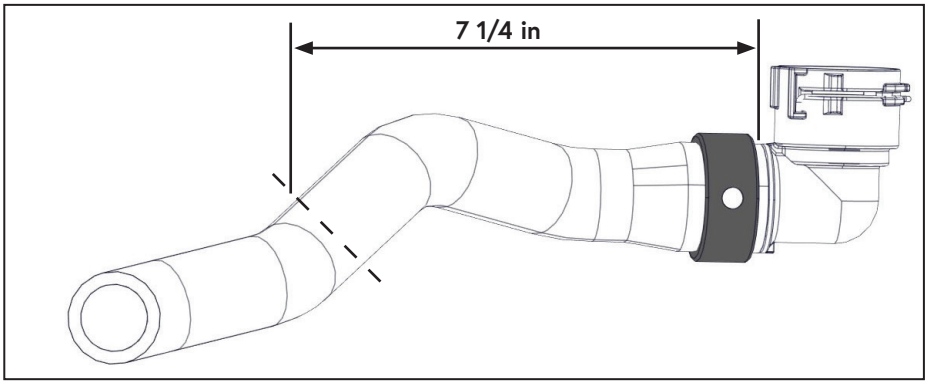


Figure 24 — Primary drain-back hose modification

☐ Carefully cut the cuff from the coolant drain back quick connect (Figure 24).

☐ Rotate the quick connect to the orientation shown (Figure 25).

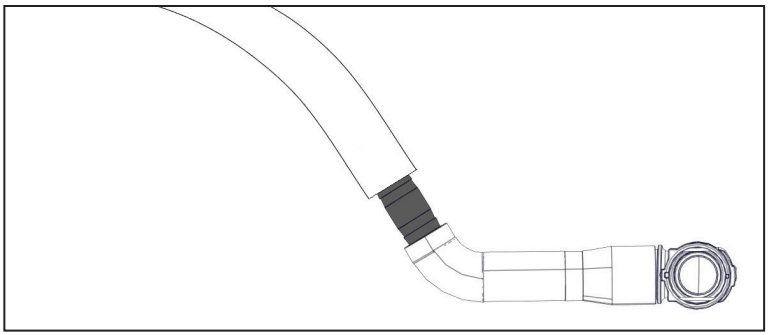


Figure 25 — Primary drain-back hose modification

☐ Install the barbed hose coupler into the modified end of the coolant drain back hose (Figure 25).

☐ Install the 1 in heater hose onto the hose coupler with the curve of the hose aligned as shown. Do not tighten the hose clamps (Figure 25).

☐ Slide the abrasion mesh onto the heater hose.

☐ Install the drain back hose assembly onto the engine with the OEM quick connect facing up (toward the hood) as it will connect to the bottom of the VMAC degas tank.

☐ Position the supplied abrasion mesh to protect the hose where it contacts the hard lines and secure it in place.

☐ Tighten all of the gear clamps.

Refer to Figure 34 on page 25 for an illustration of the modified coolant system.

- ☐ Remove the passenger side inner fender.
- ☐ Uncouple the lower radiator hose assembly at the engine and radiator and remove the assembly from the engine bay (Figure 26).

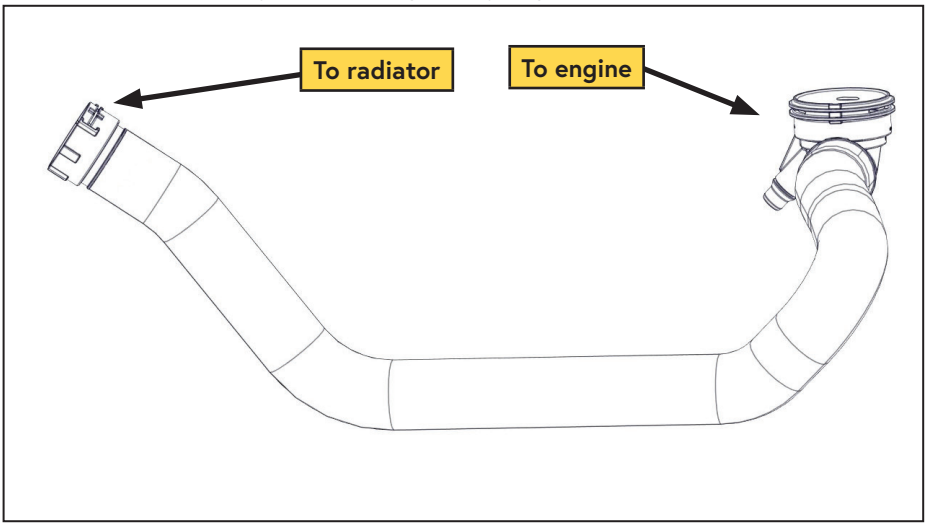


Figure 26 — Lower radiator hose

- ☐ Roll the OEM anti-abrasion mesh up towards the radiator side quick connect as this will be retained on the hose.
- ☐ From the radiator side of the hose, measure 5 1/4 in along the outside radius towards the center of the hose and mark with a grease pen (Figure 27).

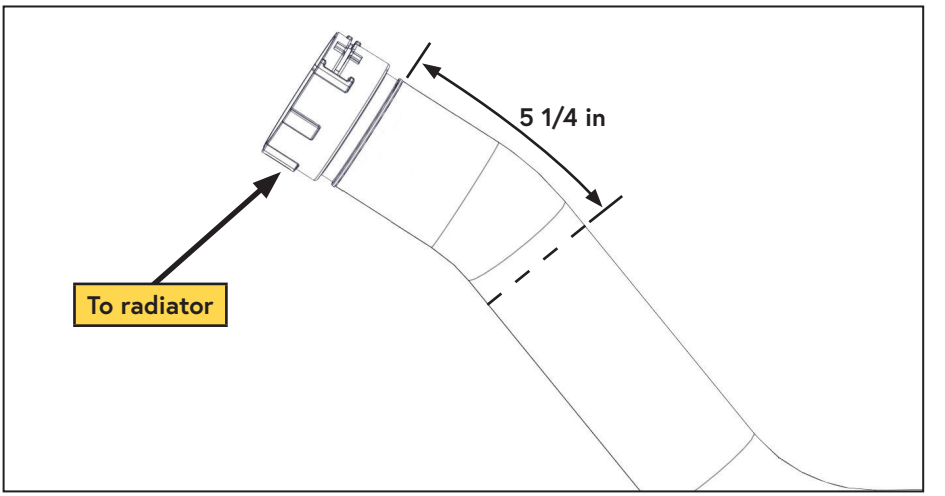


Figure 27 — Lower radiator hose modification

☐ From the end of the engine side of the hose, measure 6 3/4 in along the outside radius towards the center of the hose and mark with a grease pen (Figure 28).

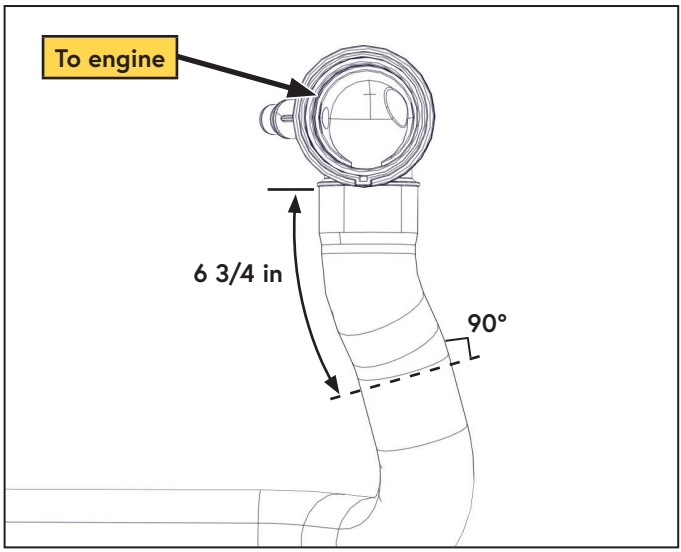


Figure 28 — Lower radiator hose modification

☐ Cut the radiator hose in the two marked locations, ensuring the cuts are square to the hose section.

☐ Install the modified radiator side of the lower radiator hose onto the radiator.

☐ Install the modified engine side of the lower radiator hose onto the engine.

☐ Remove the anti-abrasion sleeve from the center section of the lower radiator hose and slide it over the radiator side coolant tube; securing it in place with cable ties (Figure 29).

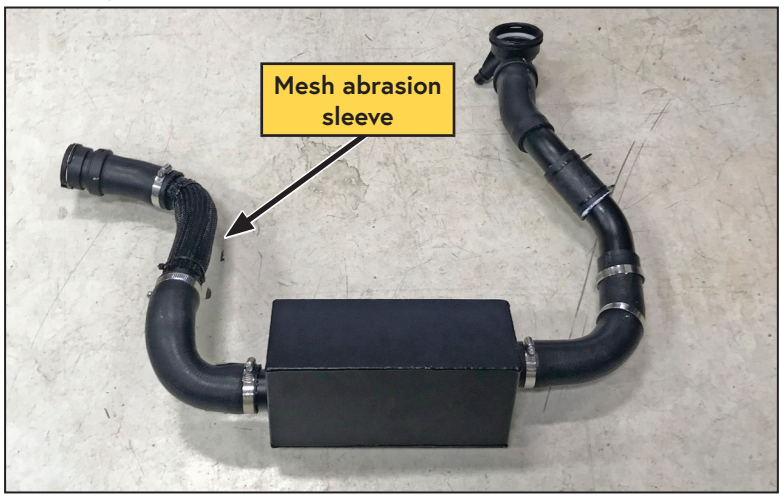


Figure 29 — Radiator side anti-abrasion sleeve
(Coolant assembly removed from vehicle for clarity)

☐ Cut a straight 6 in section of the discarded lower radiator hose and slit it lengthwise. This will be used as an anti-abrasion sleeve on the driver side coolant tube.

☐ Wrap the 6 in section around the straight section of the driver side coolant tube and secure with cable ties (Figure 30).

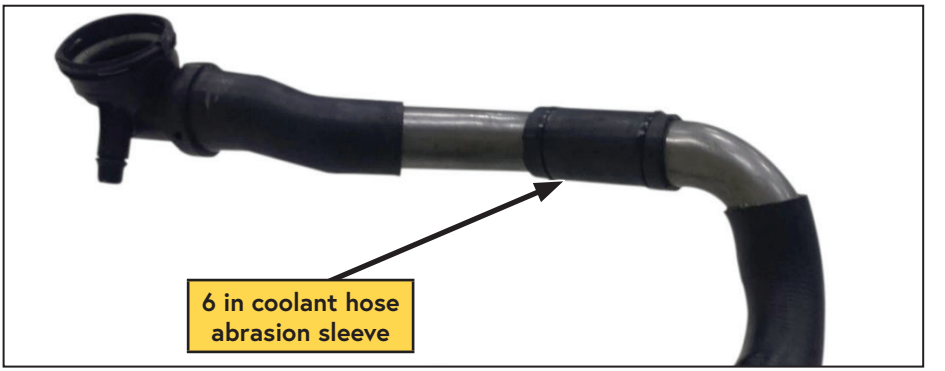


Figure 30 — Engine side anti-abrasion sleeve

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

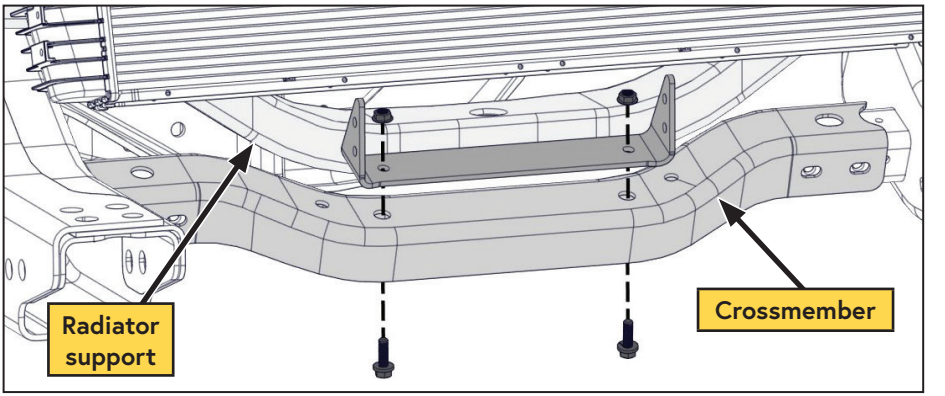


Figure 31 — Install cooler

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

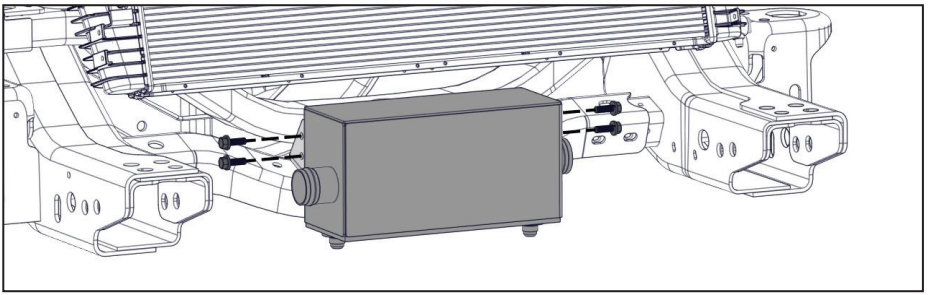


Figure 32 — Install cooler

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

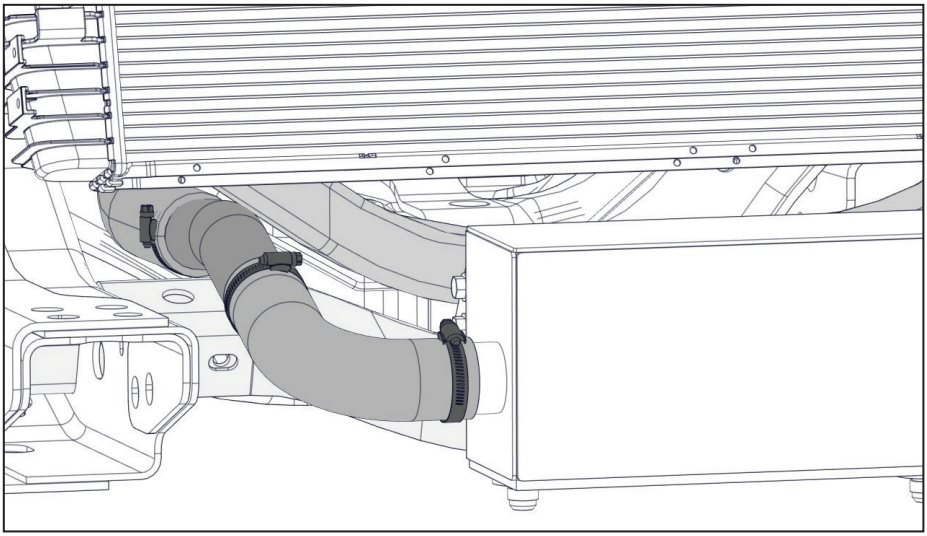


Figure 33 — Install radiator hoses and tube connectors

☐ Connect the modified OEM hoses as indicated (Figure 34).

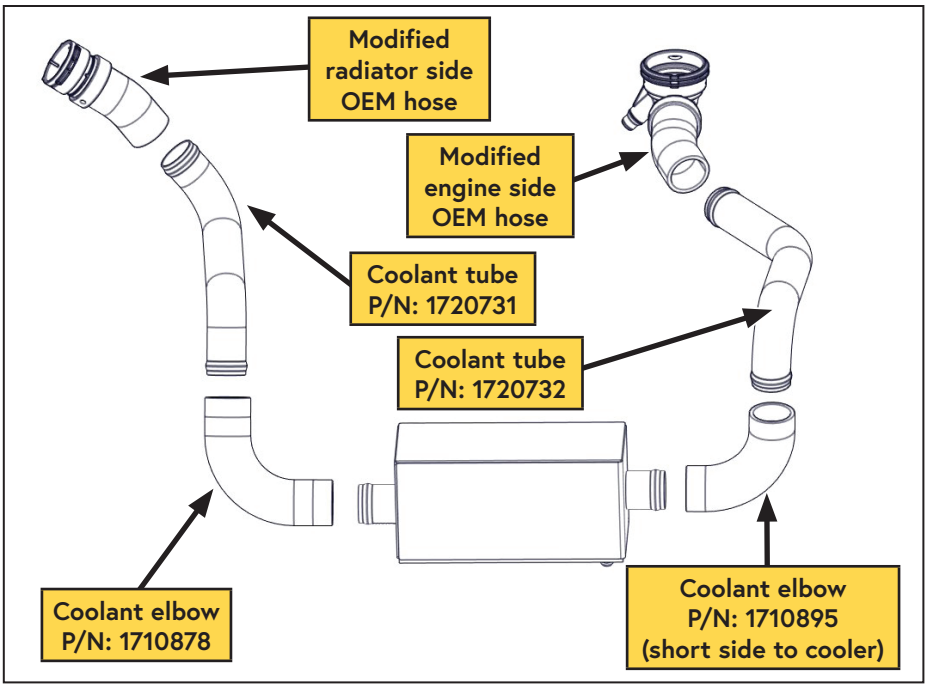


Figure 34 — VMAC cooler assembly

☐ Disconnect the small flexible hose secured to the cable run tray on the front of the engine, above the steering linkage, from the metal coolant tube. Retain the OEM spring clamp (Figure 35).

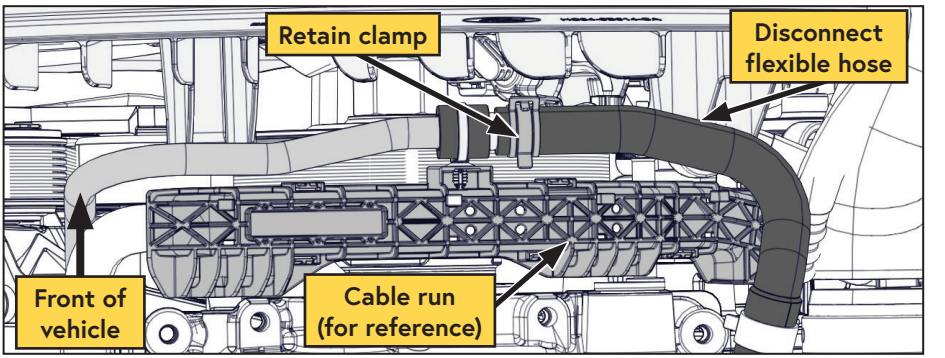


Figure 35 — Disconnect the heater return hose

☐ Insert the supplied aluminum plug into the flexible hose section and secure using the OEM spring clamp (Figure 36).

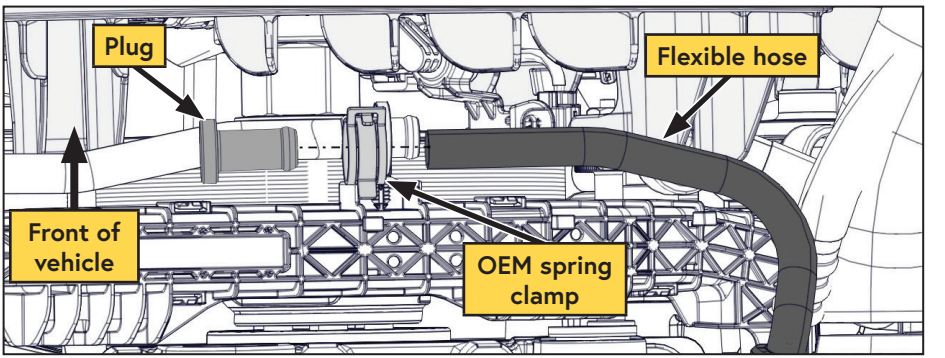


Figure 36 — Plug the flexible hose

☐ Connect one end of the supplied hose to the metal coolant tube. Ensure the hose is seated against the bead in the OEM hard line and secure using a hose clamp (Figure 37).

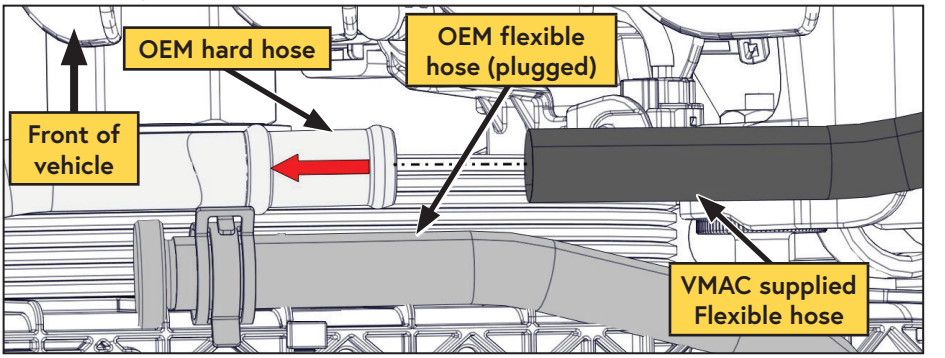


Figure 37 — Plug the flexible hose

- ☐ Secure the plugged OEM flexible hose to the metal coolant tube using a cable tie.
- ☐ Route the longer heater hose forward, following the path of the larger coolant tubes past the frame crossmember and over the cooler towards the passenger side of the vehicle.
- ☐ Connect the hose to the small spigot on the passenger side of the cooler using a hose clamp (Figure 38).

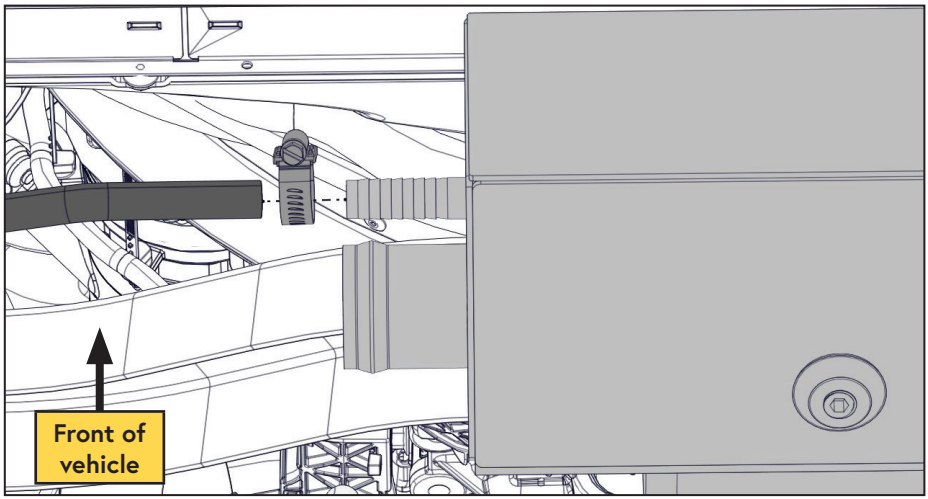


Figure 38 — Connect hose to VMAC cooler

- ☐ Using the supplied P-clips and clip nuts, secure the heater hose to the radiator support.
- ☐ Adjust all connections as necessary to confirm that all joints are engaged securely and that there are no twists, kinks or pinches.
- ☐ Secure all the connections with the supplied hose clamps.

Modifying the Fan Shroud and Fan Stator

☐ Cut a relief for the VMAC crank pulley between the (×2) lower stator mounts (Figure 39).

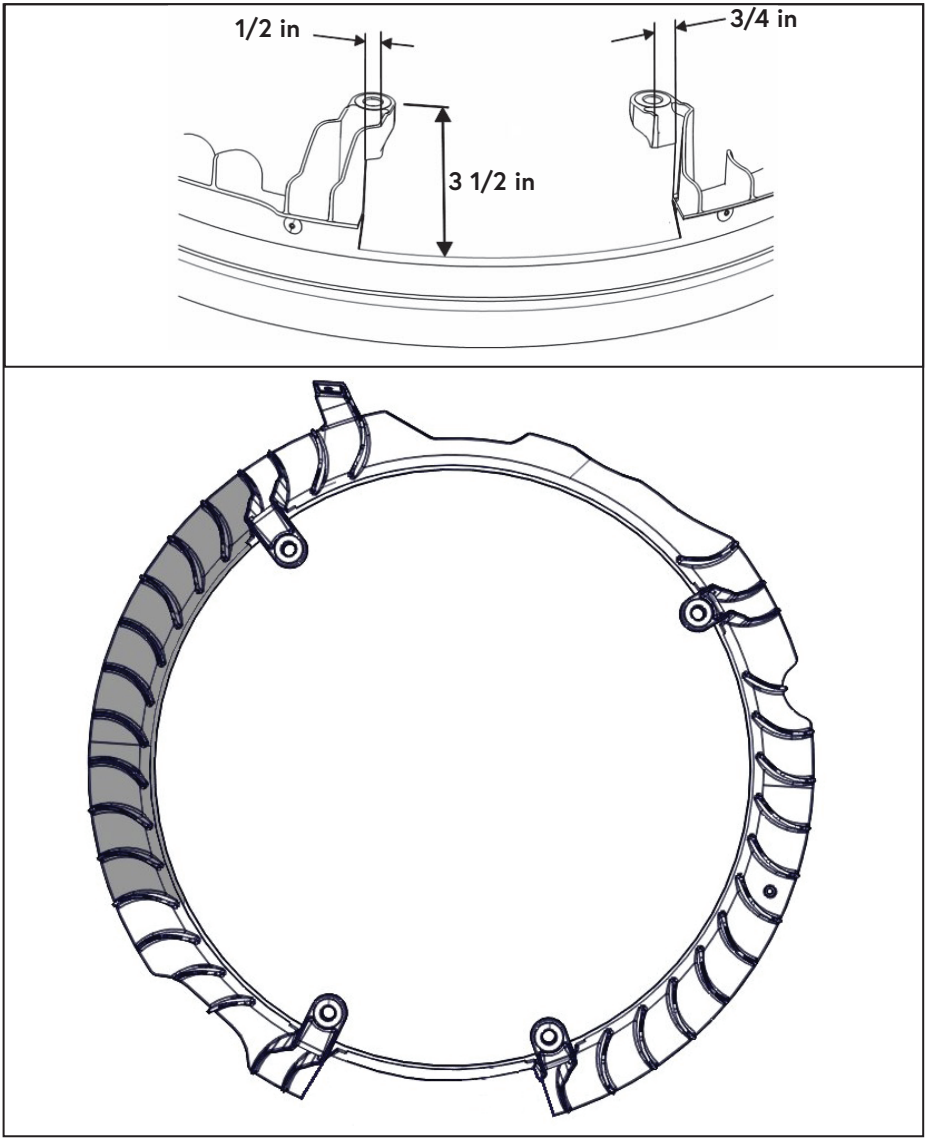


Figure 39 — Stator modifications

☐ From the bottom left stator mount, count (×4) vanes in a clockwise direction and mark the left side of the vane with a grease pen. (Figure 39).

☐ Mark the left side of the upper left stator mount's vane.

☐ Remove the material between the marked lines (Figure 39).

☐ From the OEM notch on the top right of the stator, count clockwise (×6) vanes and mark the outer edge, tracing the profile of the cowl (Figure 40).

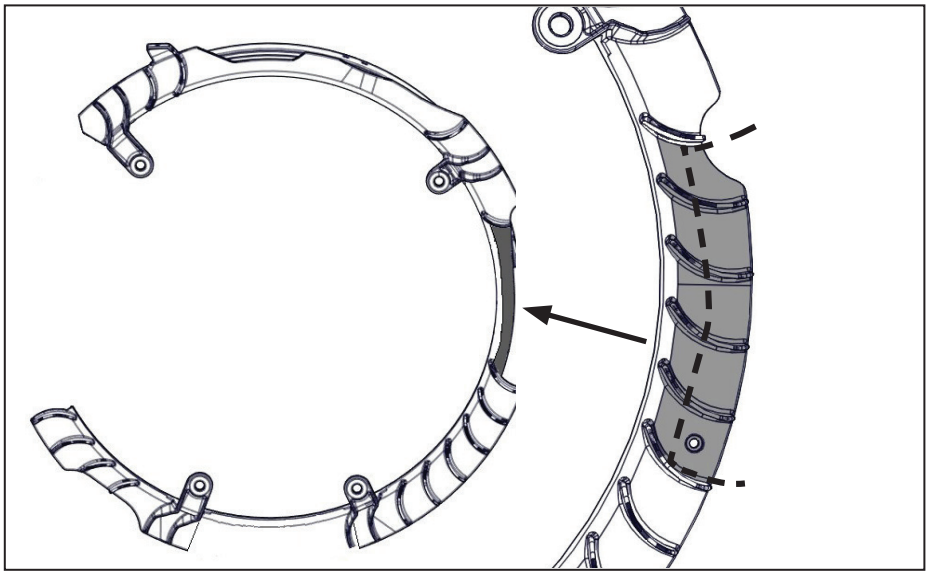


Figure 40 — Stator modifications

☐ Using a die grinder or similar tool, cut the hard plastic lip flush with the cowl of the stator (Figure 40).

☐ Cut a rectangle out of the soft rubber section on the back of the fan shroud (Figure 41).

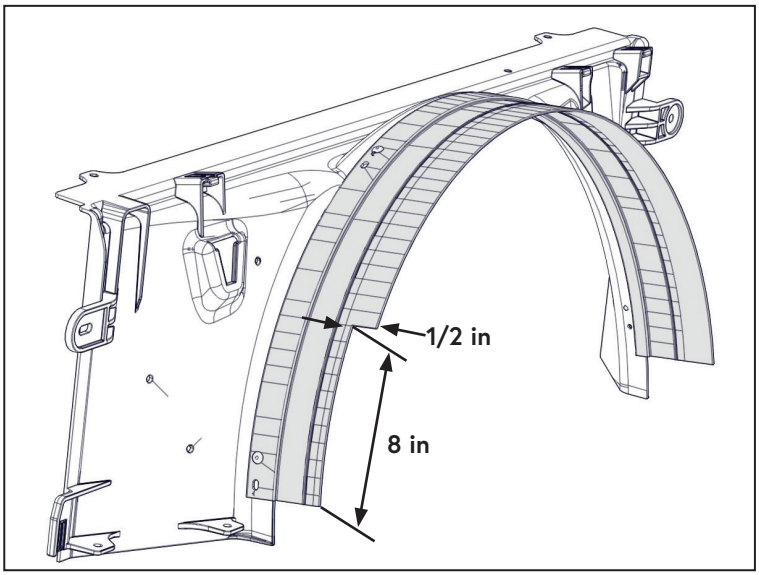


Figure 41 — Fan shroud modification

Due to variances with trucks it may be necessary to remove more material from the fan shroud. After the truck is assembled inspect the area to ensure there is enough clearance.

☐ Remove the power steering mounting boss and cut out the shaded area (Figure 42, Figure 43).

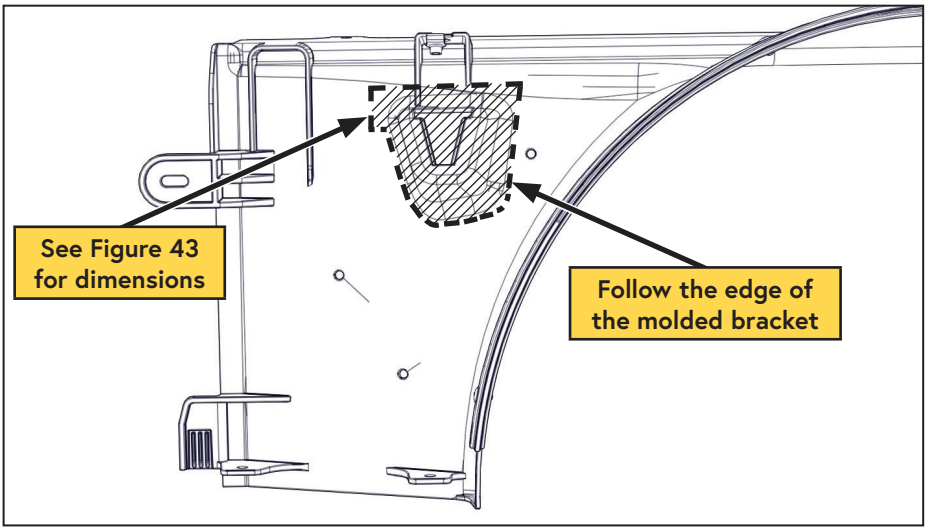


Figure 42 — Fan shroud modification

☐ Use the VMAC power steering bracket as a template to locate and mark the location of the top hole (Figure 43).

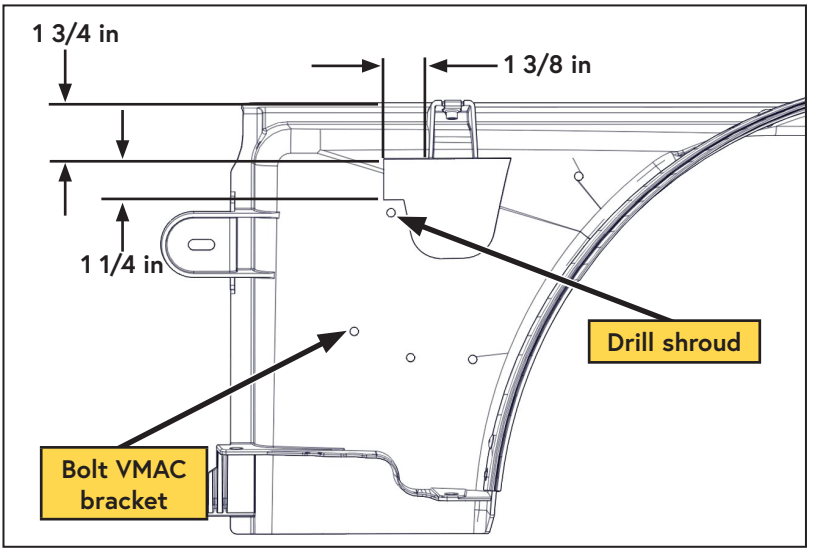


Figure 43 — Fan shroud modification

☐ Drill the marked location using a 1/4 in drill bit (Figure 43).

☐ Install the supplied steering reservoir bracket to the shroud using (×2) of the supplied fasteners. Place the (×2) supplied fender washers on the radiator side of the fan shroud and secure with the supplied nylon lock nuts (Figure 44).

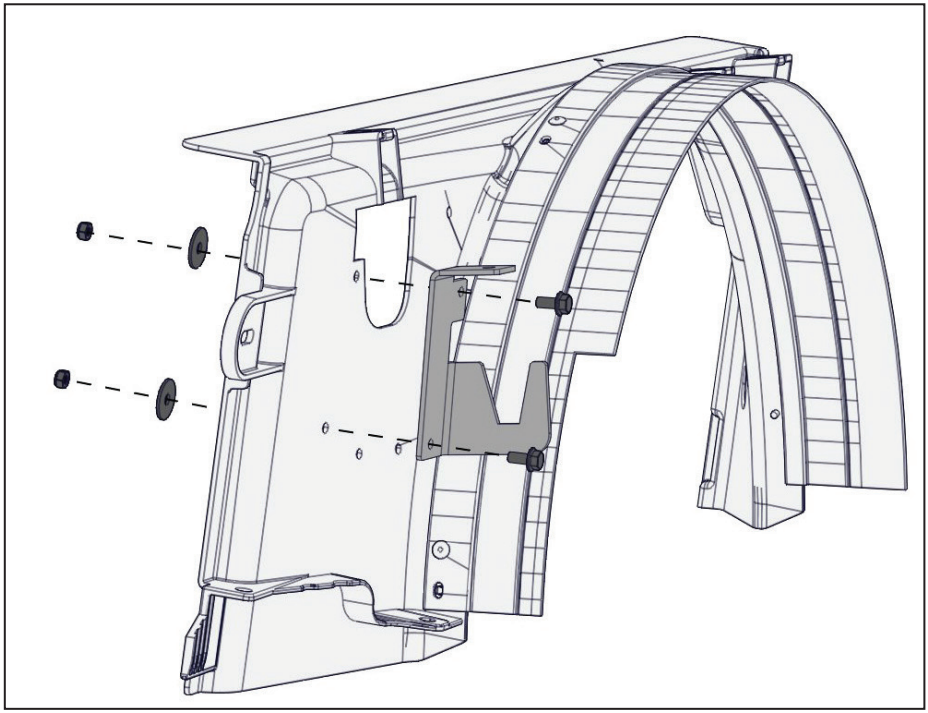


Figure 44 — Installing the power steering fluid reservoir bracket

Installing the Main Bracket, Idler Bracket and Compressor

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

Main bracket installation

☐ Ensure the alternator slide bushing is flush with the inside face of the alternator mount (Figure 45).

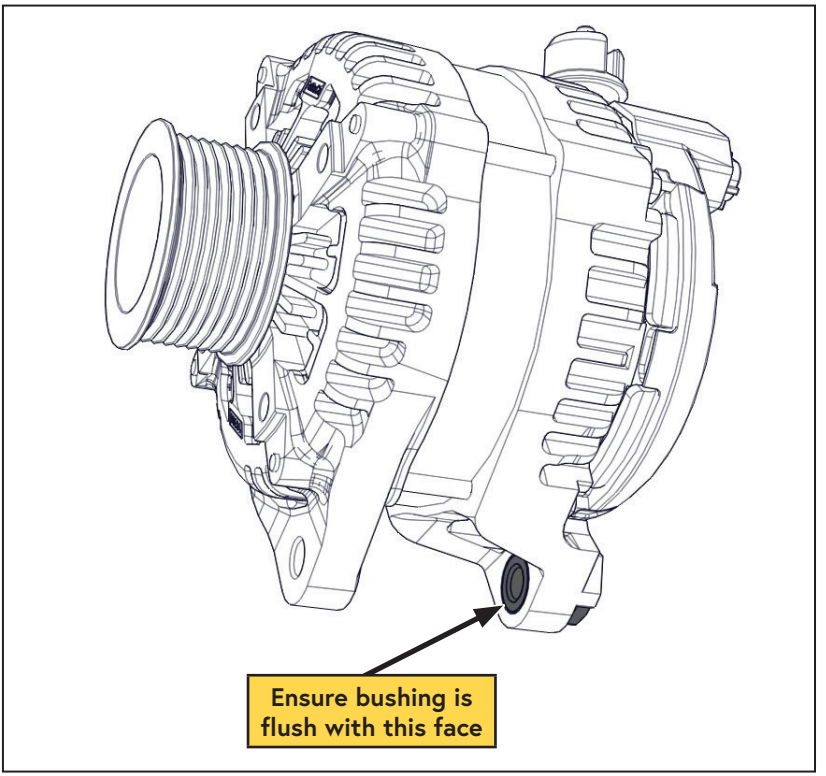


Figure 45 — Reset alternator slide bushing

☐ If required, adjust the bushing position using the OEM fastener and a shim block.

☐ Remove the upper bolt securing the OEM cable tray to the primary water pump in preparation for VMAC bracket installation

☐ Place the alternator on its back on a bench with the pulley facing up.

☐ Align the VMAC main bracket over the top of the alternator, with the mating surface facing down. Lower the bracket over the alternator (Figure 46)

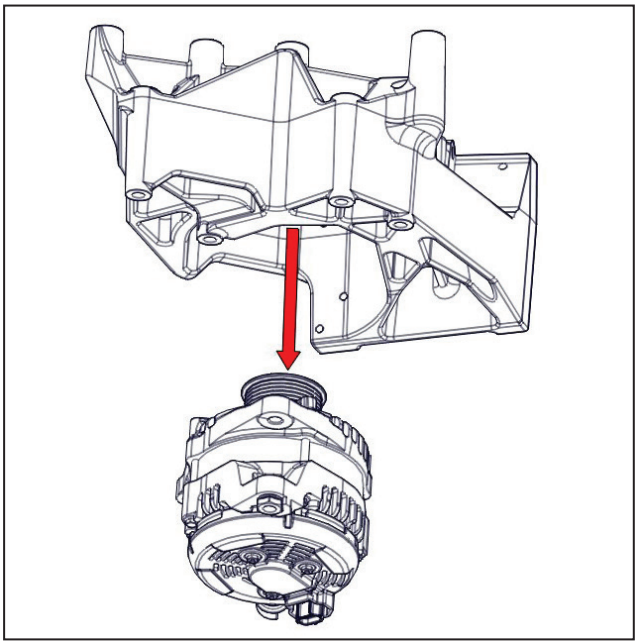


Figure 46 — Mounting the alternator

☐ Pull the alternator up and rotate it counter clockwise until the alternator mount holes are aligned with the VMAC bracket (Figure 47).

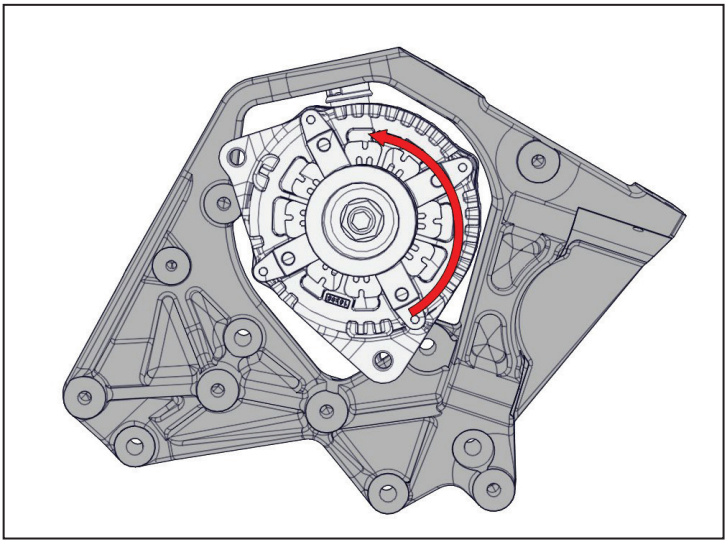


Figure 47 — Mounting the alternator

☐ Install the alternator using the OEM alternator bolts

☐ Install the retained rubber bushings onto the (×4) OEM fasteners and mount the bracket onto the engine. The VMAC bracket uses the same mount location as the OEM bracket (Figure 48).

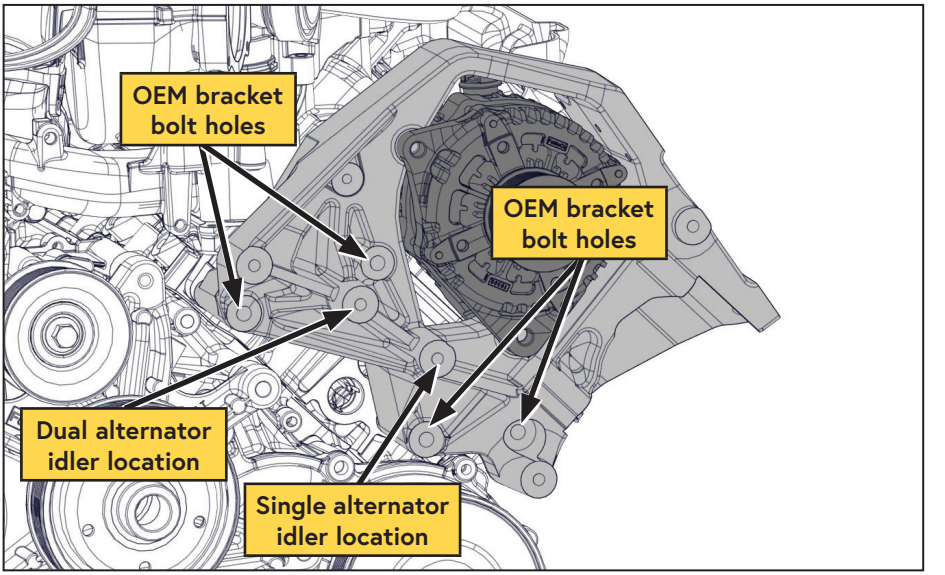


Figure 48 — Installing the OEM idler

☐ Slide the supplied heat shrink tube onto the OEM alternator harness.

☐ Using the supplied jumper harness, fastener, serrated washer, and nut, connect the primary alternator wiring (Figure 49).

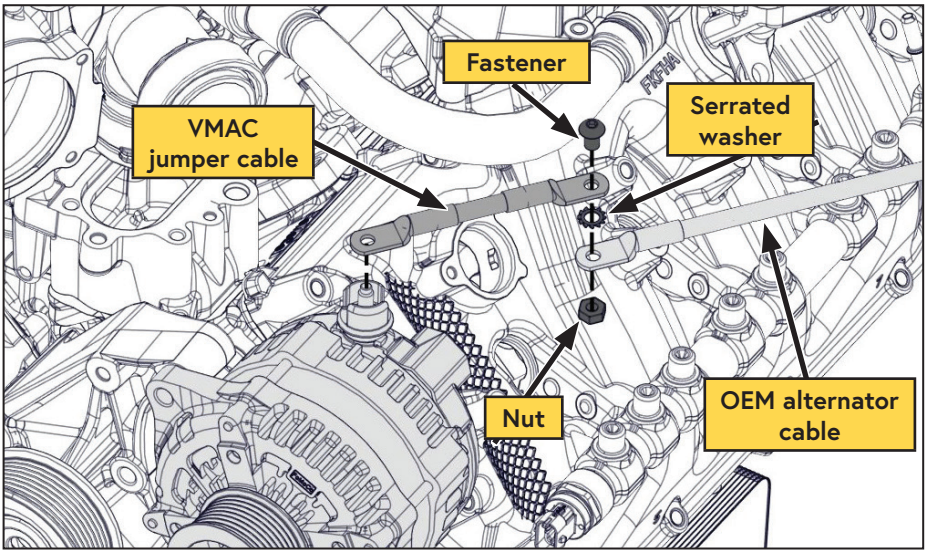


Figure 49 — Installing the cable tray

☐ Slide the heat shrink tubing over the connection and, using a heat gun, carefully apply heat to the heat shrink tubing to seal the connection.

☐ Using a cable tie, secure the OEM cable tray to the water pump (Figure 50).

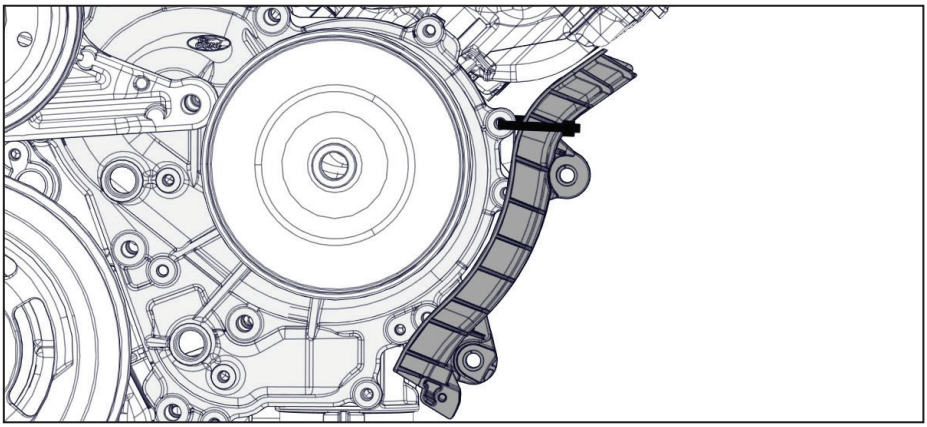


Figure 50 — Installing the cable tray

☐ Using the (×3) OEM bolts, install the power steering pump onto the VMAC main bracket.

☐ Protect the battery cables, and alternator harness, using a piece of the scrap radiator hose retained earlier in the installation and secure with cable ties.

☐ Reinstall the power steering pump pulley (if removed).

☐ Install the OEM idler onto the VMAC main bracket in the location noted when the idler was removed (Figure 51).

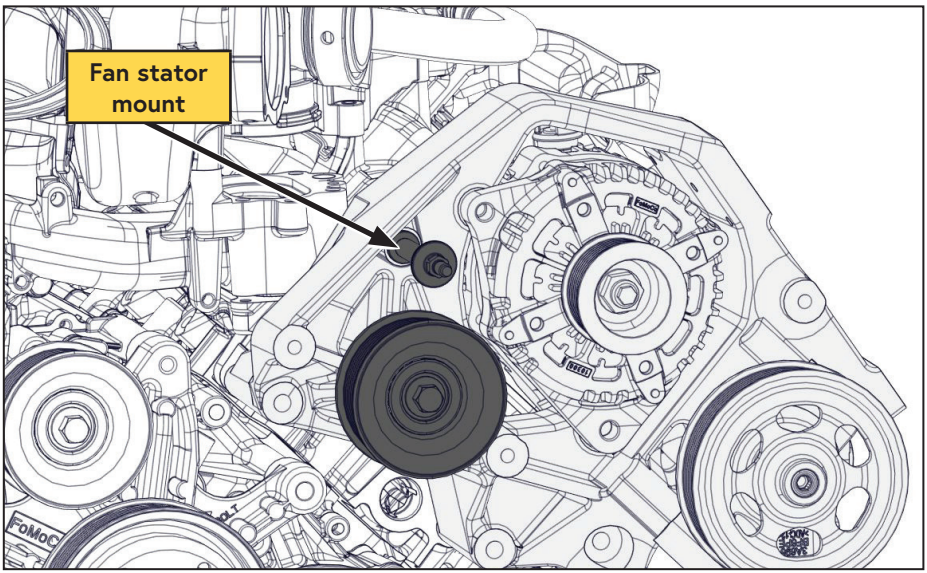


Figure 51 — Installing the stator mount

☐ Install the stator mount onto the VMAC main bracket (Figure 51).

☐ Install and tension the OEM belt (Figure 52 or Figure 53).

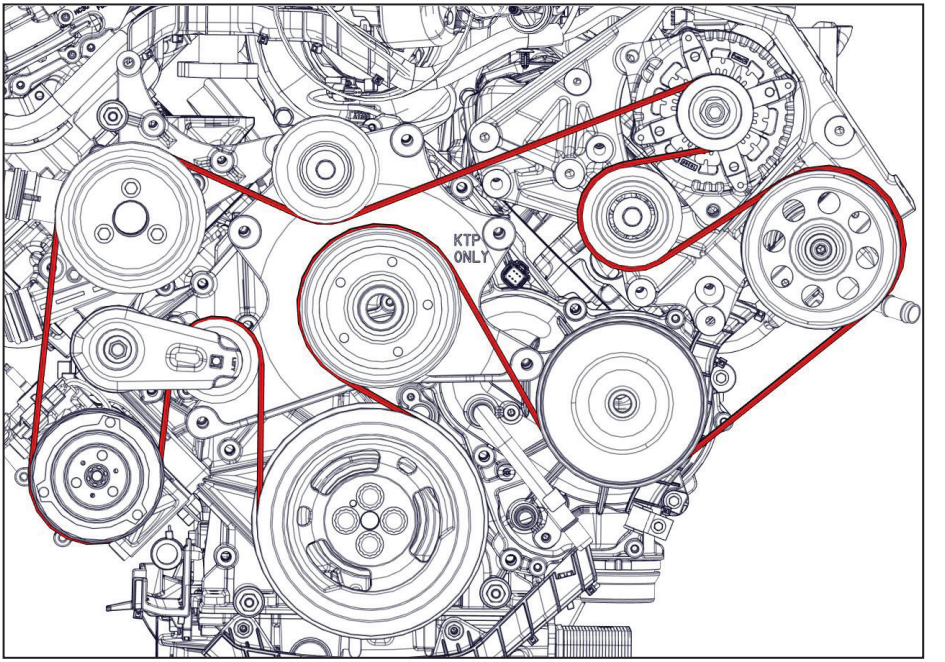


Figure 52 — OEM single alternator belt routing

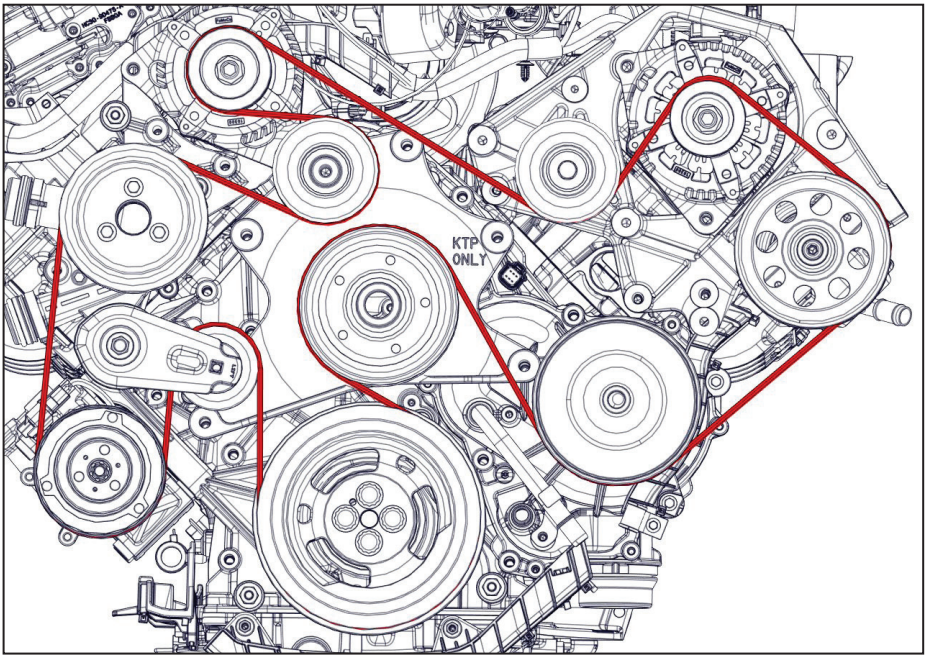


Figure 53 — OEM dual alternator belt routing

Installing the compressor

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

Due to the weight of the compressor, VMAC recommends having an assistant hold the compressor in place while the bolts are threaded.

The compressor is secured with bolts of (×2) different lengths. Installing the bolts in the wrong location may prevent the compressor from being properly secured to the main bracket.

☐ Position the compressor on the mounting bracket and secure with the (×4) supplied bolts (note the location of the shorter bolt) and torque the compressor bolts to specification (Figure 54).

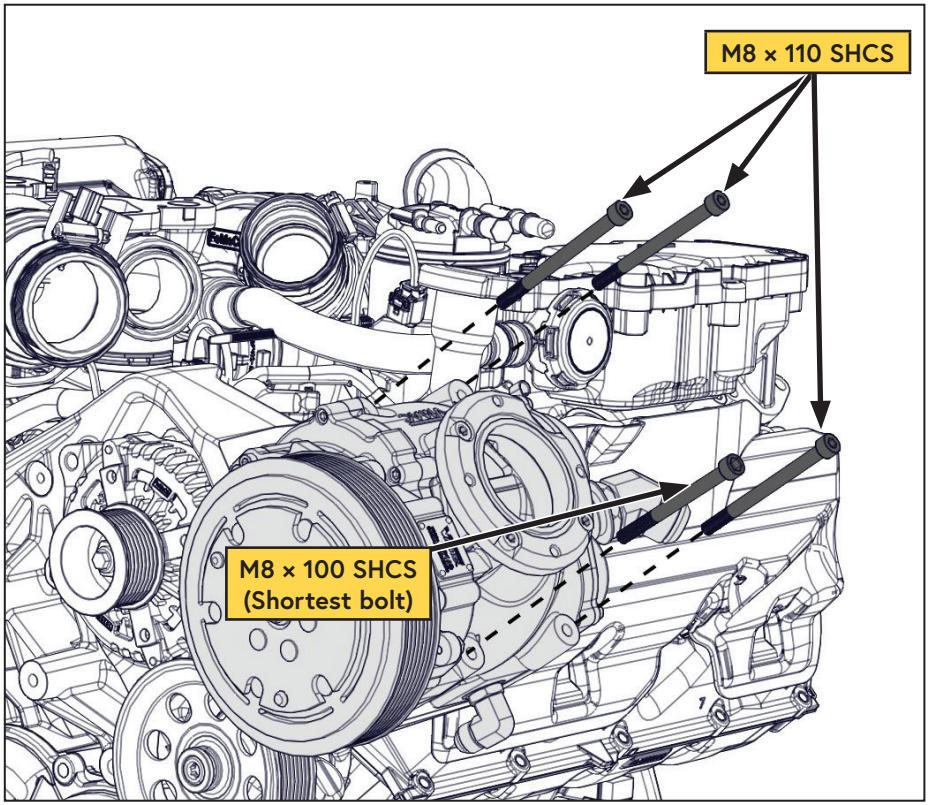


Figure 54 — Install Compressor

A minimum of 3/4 in clearance between the compressor and the break lines is required to allow for normal engine movement.

If adjustment to the break lines in required, follow the guidelines listed on page 14.

The inlet valve is secured with bolts of varying 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 and reinstall the Viton O-ring and inlet onto the compressor. Torque to specification (Figure 55).

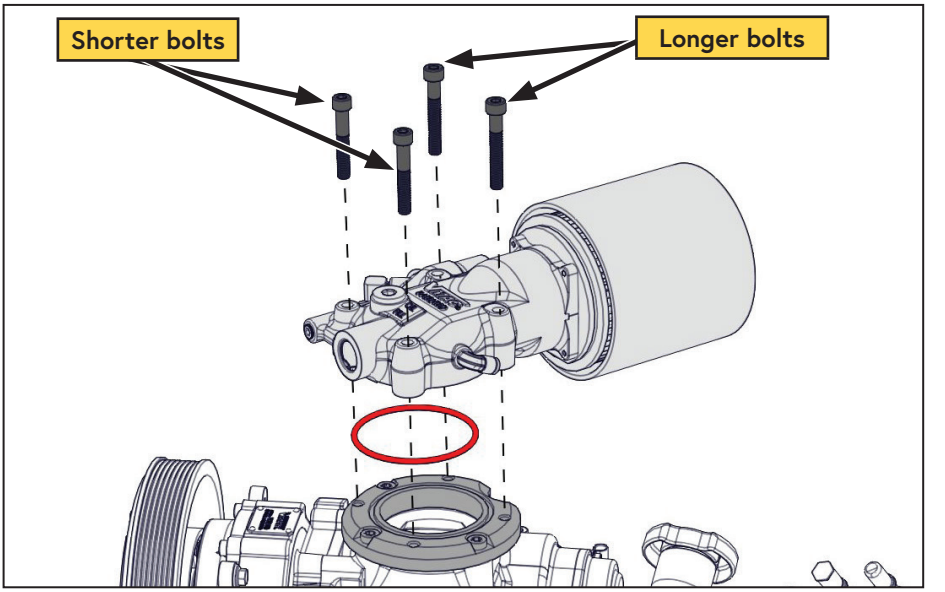


Figure 55 — Install the inlet

Due to differences in vehicle configuration, there may be interference between the VMAC air filter cover and the vehicle's brake fluid reservoir.

☐ ***If Required:*** Loosen the nut securing the filter cover, rotate the cover to align the relief cut with the brake fluid reservoir and retighten the nut (Figure 56).

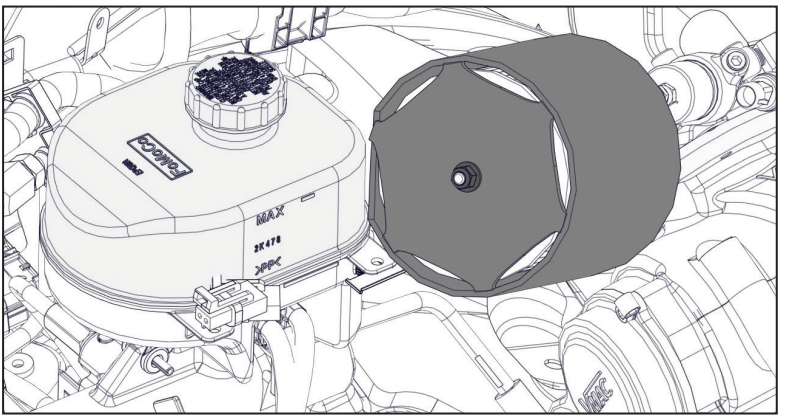


Figure 56 — Air filter cover relief cut

Installing the crank pulley

- ☐ Remove and discard the (×4) OEM crank pulley bolts.
- ☐ Scrape any clear coat or rust from the inside front face of the crank pulley hub to ensure the VMAC crank pulley will sit squarely against it.
- ☐ Install the modified fan stator.
- ☐ Install the VMAC crank pulley using the supplied fasteners (finger tight).
- ☐ Ensure there is adequate clearance for the FEAD belt between the crank pulley and the fan stator. Modify the fan stator as necessary.
- ☐ Torque the crank pulley bolts to 22 ft•lb.
- ☐ Tighten all (×4) crank pulley bolts an additional 90°.
- ☐ Remove the tensioner and idlers from the VMAC FEAD bracket.
- ☐ Install the VMAC FEAD bracket onto the VMAC main bracket (Figure 57).

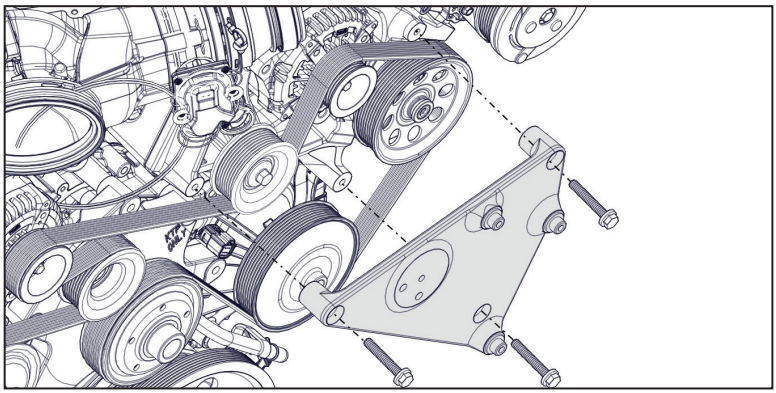


Figure 57 — Installing the FEAD bracket

- ☐ Reinstall the idlers and tensioner and torque to specification.
- ☐ Install and tension the VMAC drive belt (Figure 58).

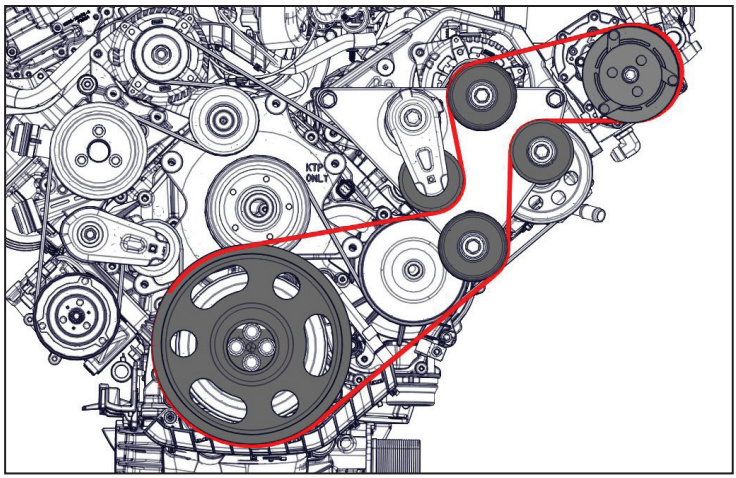


Figure 58 — VMAC belt routing

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 (except nylon lock nuts) unless otherwise stated.

Installing the AOST

Prior to proceeding with the AOST installation, review this chapter, as well as the A700250 accessory instructions (included with this kit), to determine the AOST mounting location.

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

The AOST will either mount in the "mid ship" location (A700250) or to the passenger side frame rail behind the transmission crossmember (Figure 59).

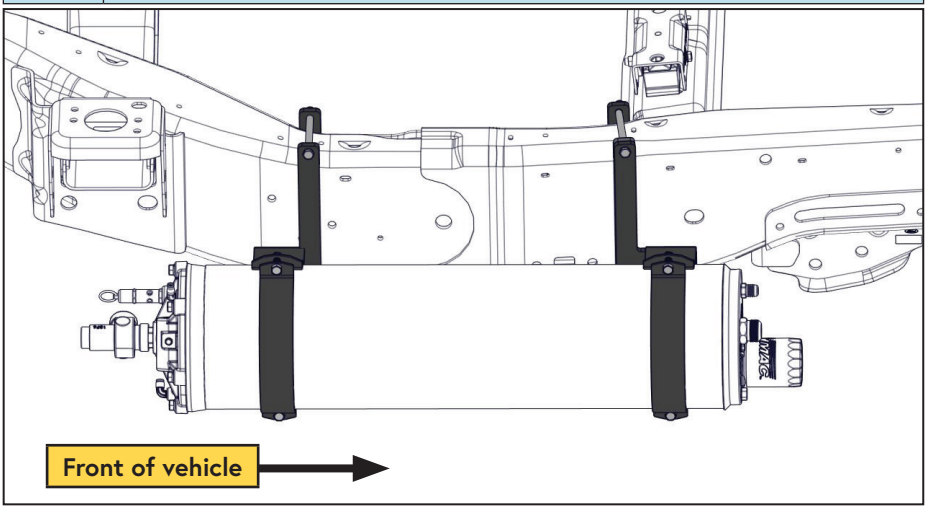


Figure 59 — AOST installed

The top bolt on the forward tank mount will need to be installed from the inside of the frame (Figure 60).

☐ Install the tank mounting brackets on the frame (Figure 60):

- 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.

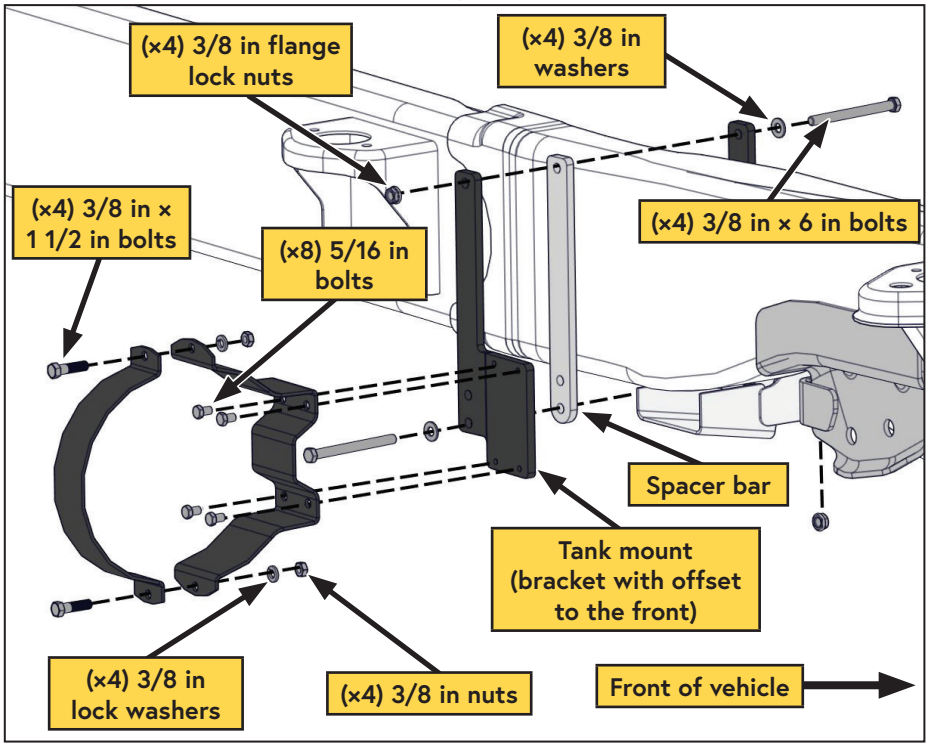


Figure 60 — Installing the AOST
(For clarity, the rear AOST mounting hardware is not shown)

☐ Mount the inner portion of the tank mounting bracket clamp onto the tank mounts (Figure 60).

☐ Using a floor jack, raise the AOST up to the mounting bracket clamps and install the front and rear tank outer clamps (Figure 60).

☐ Leave the tank clamps finger tight so the tank can be shifted forward or back when installing the hoses.

☐ Rotate the tank so that the directional arrow on the rear of the tank is pointing upwards (Figure 61).

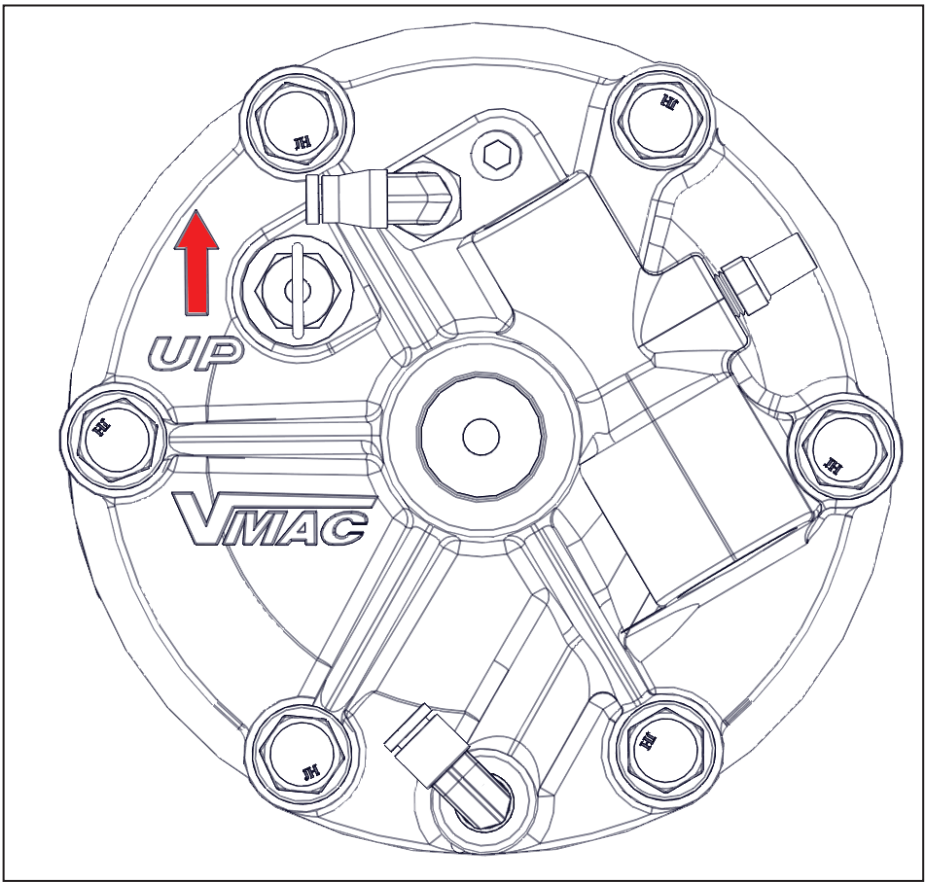


Figure 61 — Securing the AOST (Rear view)

AOST orientation is critical. The arrow 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.

Based on 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:

- 1/2 in × 54 in.
- 1/2 in × 85 in.
- 1 in × 87 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.

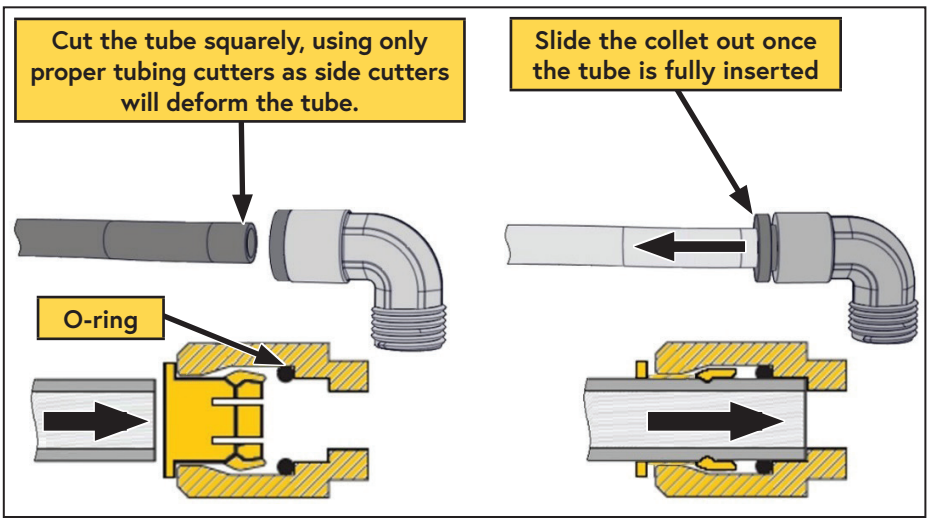


Figure 62 — Push-to-connect fittings

If necessary, gently deflect the brake lines away from the discharge hose to provide adequate clearance.

- ☐ Connect the straight fitting on the 1 in hose to the compressor discharge port.
- ☐ Route the discharge hose from the compressor to the firewall, and toward the transmission (Figure 63).

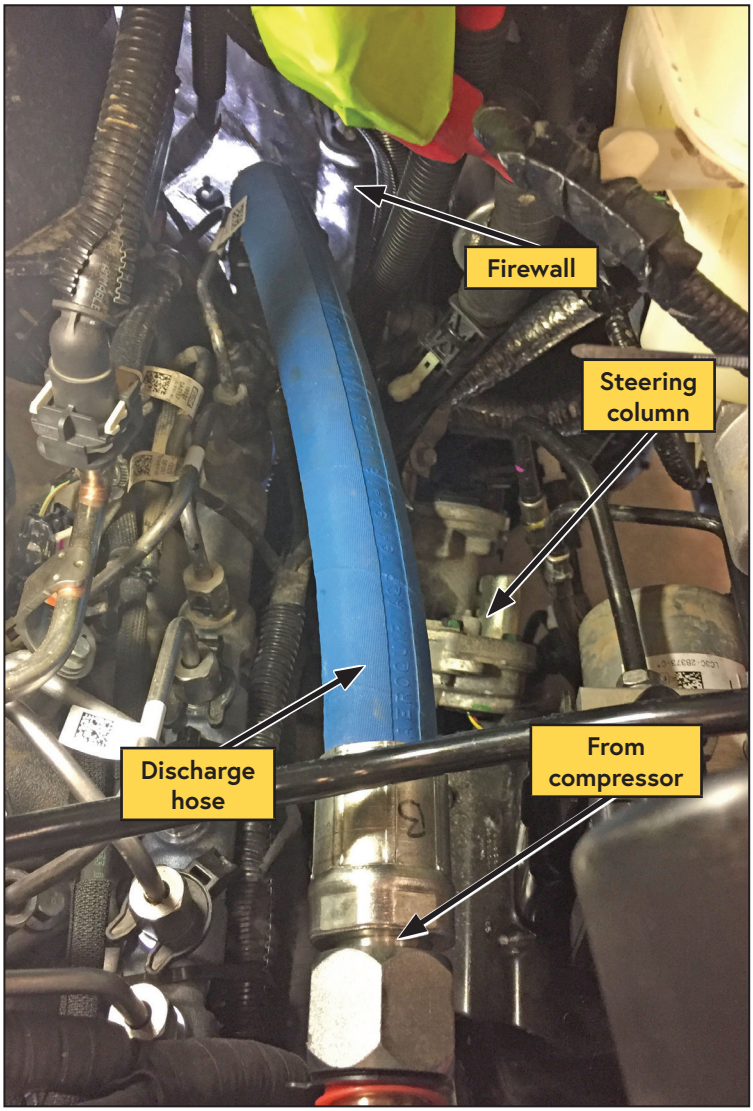


Figure 63 — Routing the hoses

- ☐ 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.

☐ Route the 1/4 in and 3/16 in PTFE tubes along the 1 in discharge hose; secure the tubes to the 1 in hose using cable ties.

☐ Install the 90° brackets onto the transmission cooler studs (Figure 64).

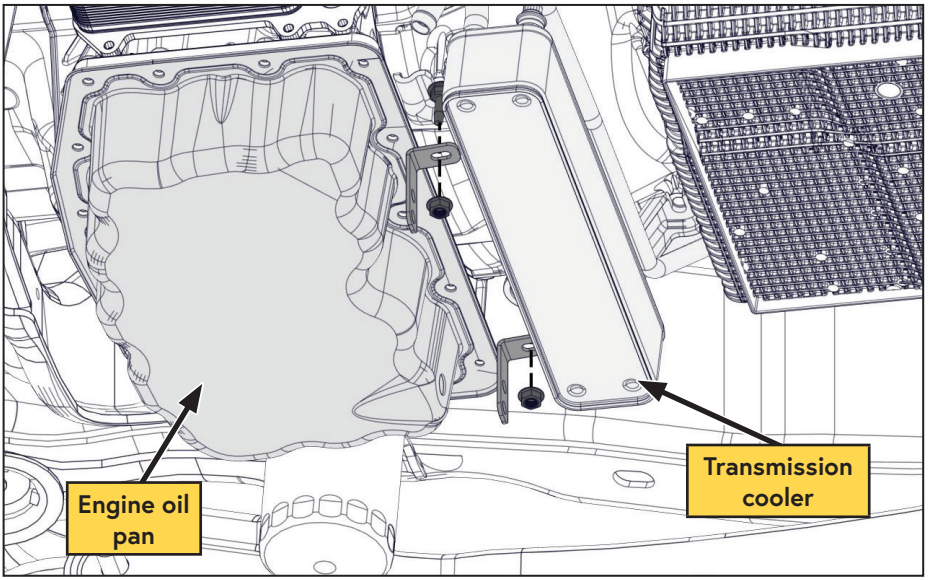


Figure 64 — Routing the hoses

☐ Route the hose along the engine oil pan and toward the passenger side frame rail.

☐ Using the supplied P-clips and fasteners, secure the hose to the 90° brackets (Figure 65).

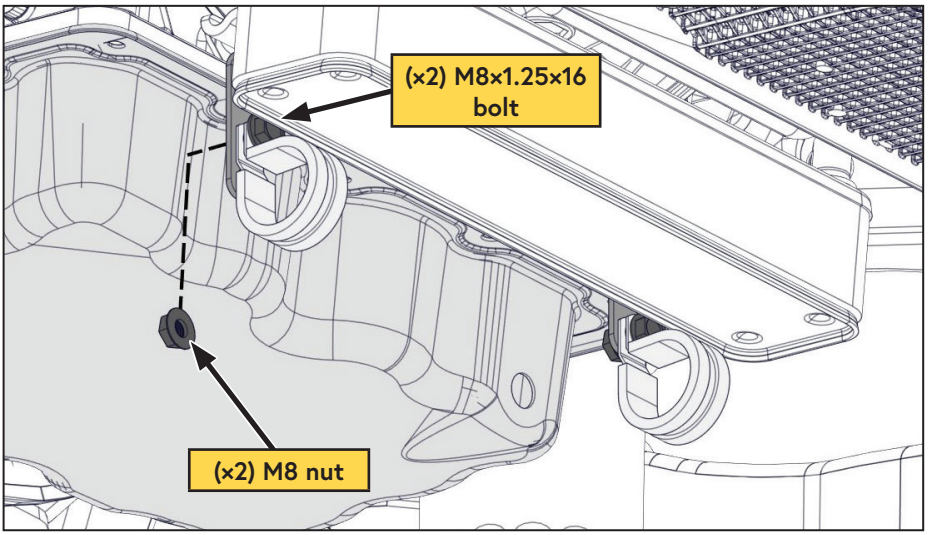


Figure 65 — Routing the hoses
(hose removed for clarity)

☐ Slide the discharge hose strap into the passenger side frame (Figure 66).

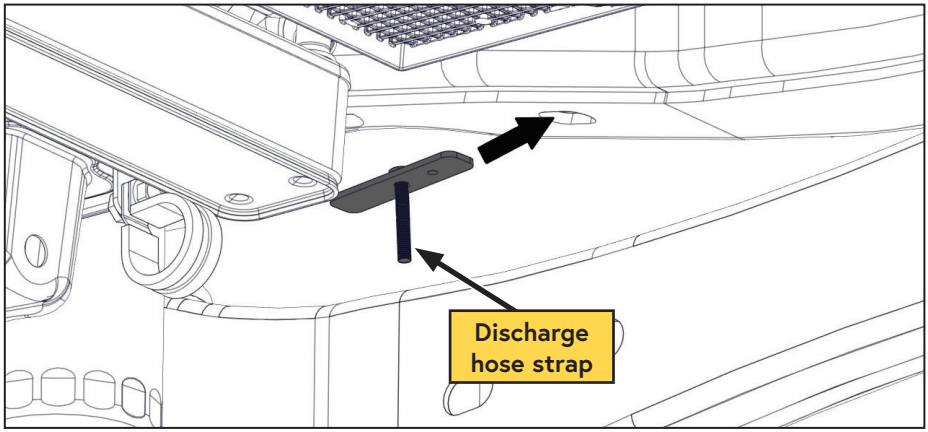


Figure 66 — Discharge hose strap

☐ Install the fender washer onto the discharge hose strap stud and secure the discharge hose to the frame using the P-clip (Figure 67).

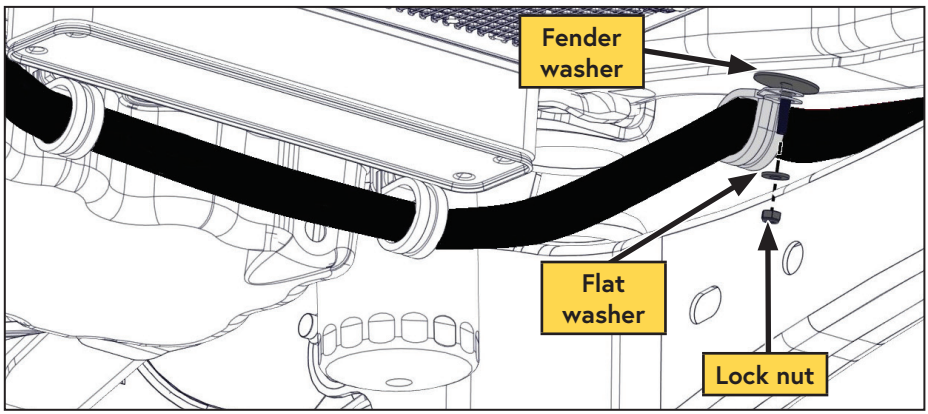


Figure 67 — Routing the hoses

☐ The tubing and hose bundle will gradually bend 45° to the front of the AOST.

☐ Connect the 1 in hose 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. Connect the 90° fitting on the shorter 1/2 in hose to the passenger side of the cooler and run it up to the oil return fitting on the compressor.

☐ Adjust the hoses and/or the AOST to minimize sharp bends, contact with any hot, sharp or moving parts, then tighten all fittings and the tank mounts and straps.

☐ Bundle the hoses together and secure with cable ties.

☐ Move the steering between the left and right lock positions to confirm adequate clearance.

Relocating the Battery

VMAC's universal battery relocation bracket is designed to accommodate a multitude of frame variations.

Final battery location, and whether to use the supplied relocation bracket, is up to the upfitter or end user.

If relocating the battery to a different location (such as the service body), refer to the wire size table below (Table 2).

The wire gauges VMAC recommends are designed to provide an equivalent resistance to that provided by the firewall mounting kit, which has been extensively tested by VMAC.

If using the frame as the ground return path, ensure the ground location is clean and protected from corrosion, and the ground points in the engine bay are also tied in to chassis ground in a similar manner.

Battery Wire Sizing Guide	
Combined length of power and ground wires	**Recommended wire gauge**
Less than 12 ft (3.7 m)	1/0 AWG
Between 12 ft (3.7 m) and 16 ft (4.9 m)	2/0 AWG
Between 16 ft (4.9 m) and 20 ft (6 m)	3/0 AWG
Between 20 ft (6 m) to 24 ft (7.3 m)	4/0 AWG
For cable runs beyond 24 ft (7.3 m), double up the cables.	

Table 2 — Battery wire size guide

☐ Remove the OEM ground wire cap nut from the firewall and set it aside (leave the OEM ground wire in place) (Figure 68).

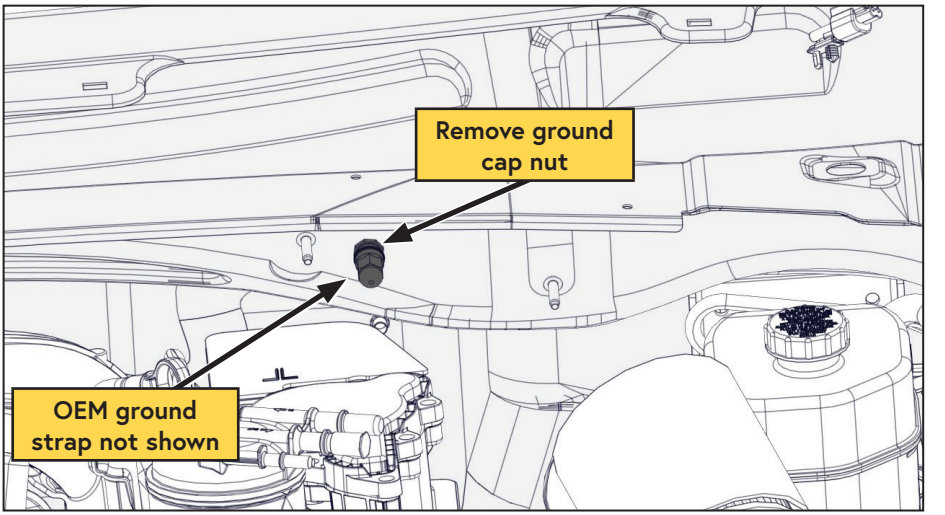


Figure 68 — Mount battery disconnect bracket

☐ Using the supplied nut, washer, and the retained ground wire cap nut, mount the battery disconnect bracket to the firewall (Figure 69).

An additional bolt has been included in the fastener pack for vehicles equipped with a PEM nut in the firewall.

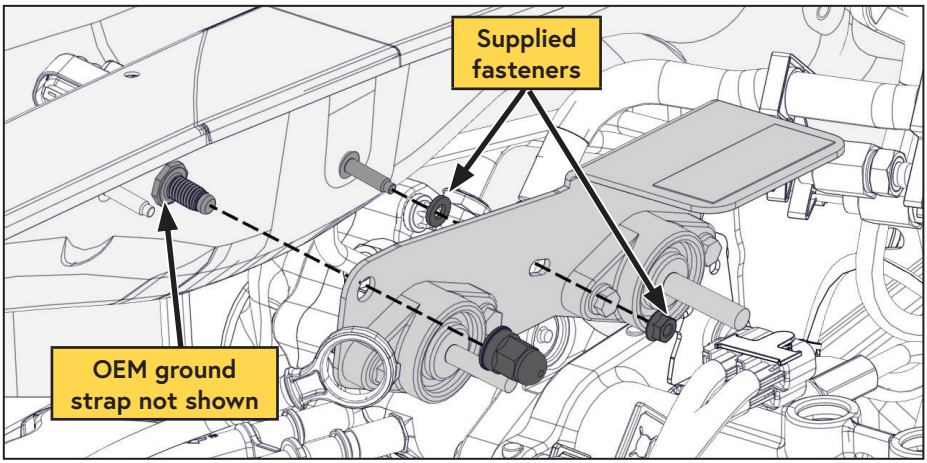


Figure 69 — Mount battery disconnect bracket

☐ Apply the 5/8 in loom to the VMAC battery extension cables.

☐ Connect the VMAC and OEM battery cables to the battery disconnect bracket (Figure 70).

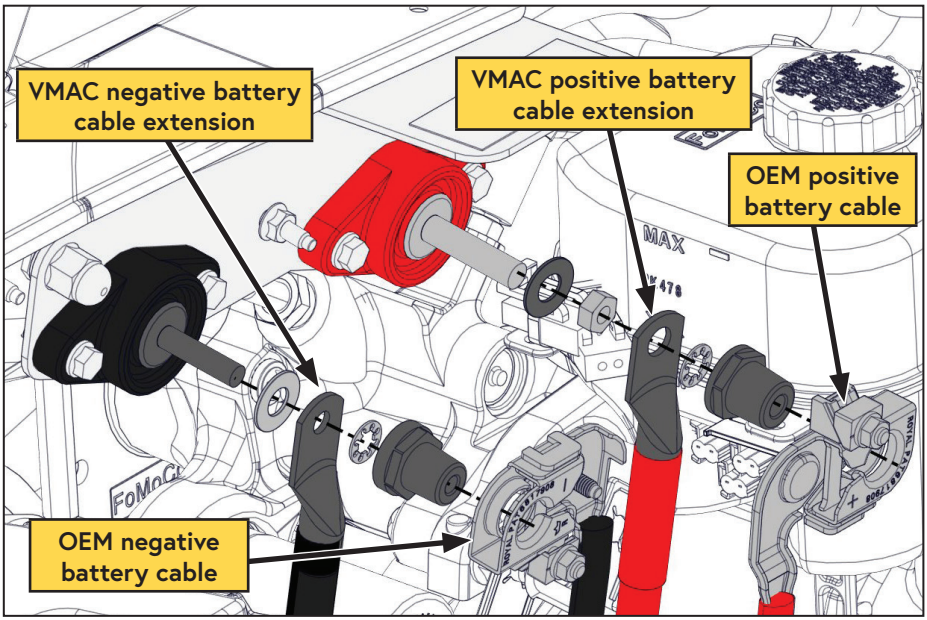


Figure 70 — Mount battery disconnect bracket

☐ Bundle the excess length of the OEM battery cables and secure them where they will not contact any hot, sharp or moving parts.

☐ Route the VMAC battery extension cables down to the driver side frame rail.

☐ Disconnect the negative OEM battery terminal from the VMAC battery disconnect.

Driver Side Battery Relocation

☐ Insert the M10 x 1.5 x 150 bolt into the bottom of the rear battery box mount (this will be inaccessible once the battery box is attached) and attach the battery box finger tight to the battery mounting brackets (Figure 71).

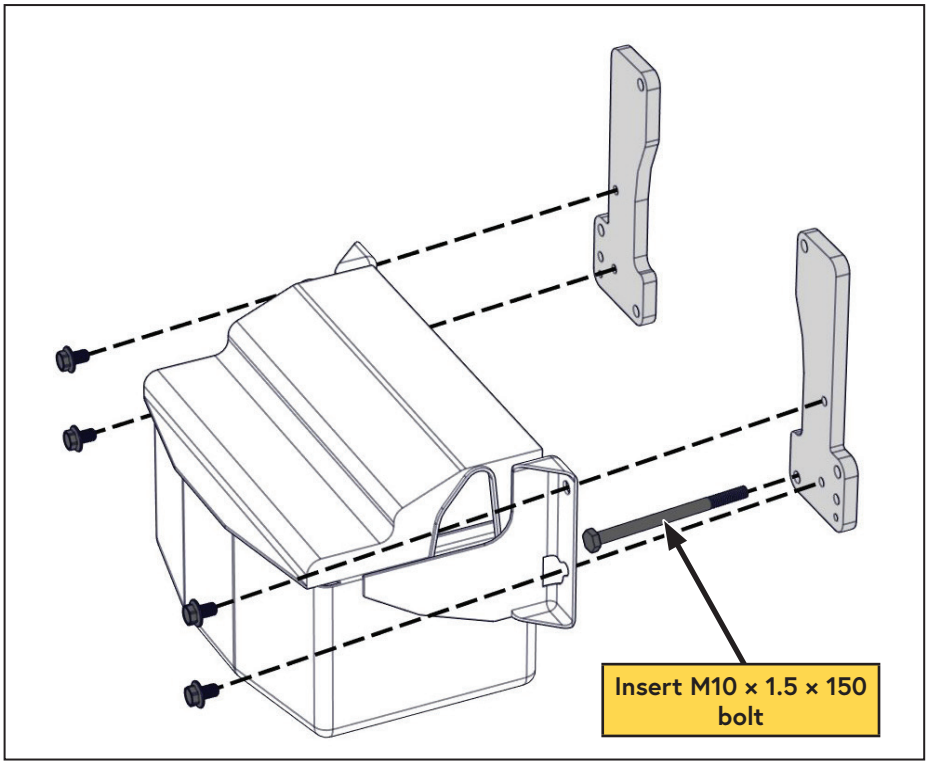


Figure 71 — Installing the battery box

Ensure the battery mounts and fasteners will not crimp or pinch any wire harness or brake lines that run along the top of the frame rail. Run the fasteners below any harness / brake lines.

☐ Raise the battery box and straps into position. The battery box mounts straddle the radius arm mount on the driver side of the frame. Remove any barbed cable ties as needed to allow the OEM wiring harness to pass over the top of the battery box cover (Figure 72).

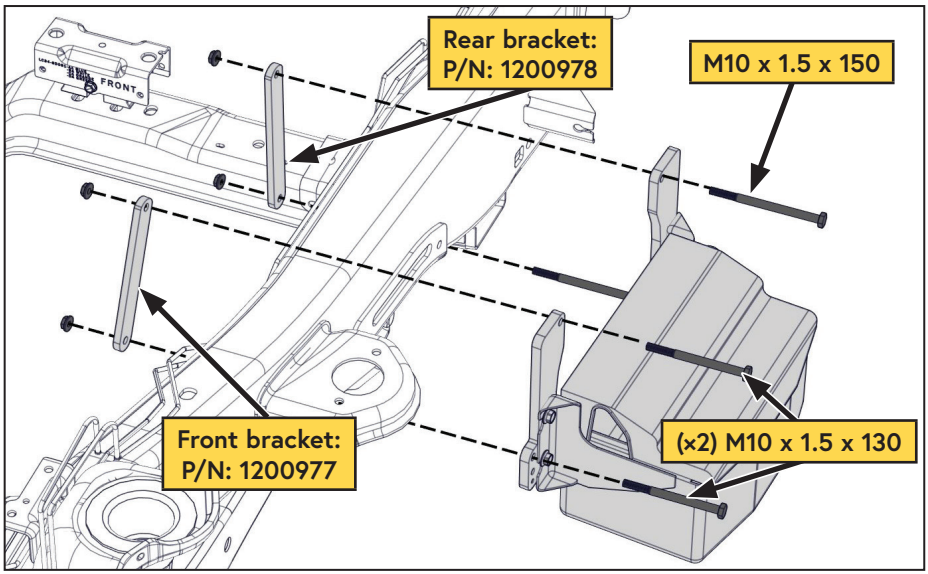


Figure 72 — Installing the battery box

☐ Install the backing straps and tighten the assembly to the frame to prevent the bracket from shifting.

☐ Torque the mounting fasteners to specification.

☐ Ensure any OEM harnesses that were shifted for the battery box mount brackets are resecured.

☐ Remove the top rear fastener from the mounting bracket (Figure 73)

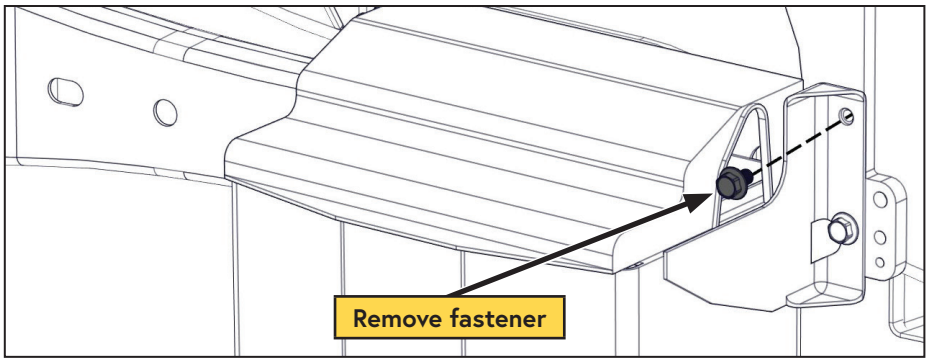


Figure 73 — Installing the battery box

☐ Loosen the (x2) forward fasteners and the lower rear fastener securing the battery box to the mounting brackets and lift the battery box up and to the rear of the vehicle to remove it from the bracket (Figure 74).

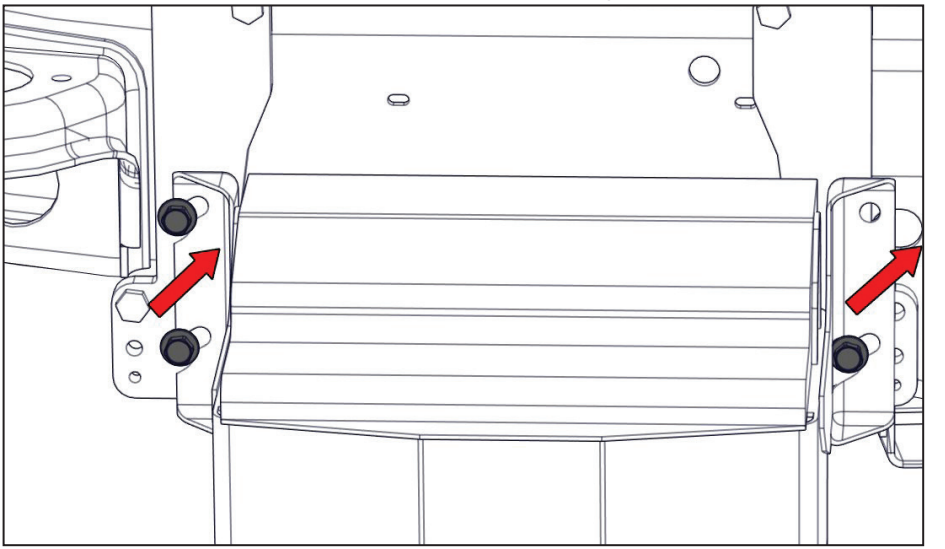


Figure 74 — Installing the battery box

☐ Place the battery in the battery box and install the hold down clamp.

☐ Route the battery cables under the frame rail.

☐ Apply dielectric grease to the battery terminals and connect them to the battery (Figure 75).

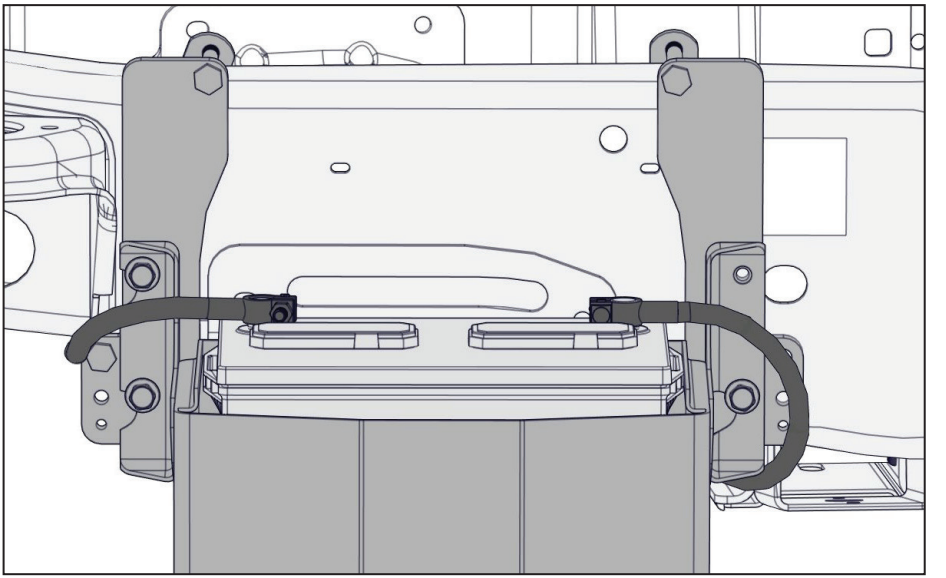


Figure 75 — Installing the battery box

☐ Install the battery lid and secure it using the supplied fasteners.

The battery box and battery are heavy. Use caution when lifting into position or lowering. Assistance is recommended to prevent personal injury or damage to the battery.

☐ Raise the battery box and mount it onto the brackets.

☐ Install the top rear fastener and tighten the other box mount fasteners (Figure 76).

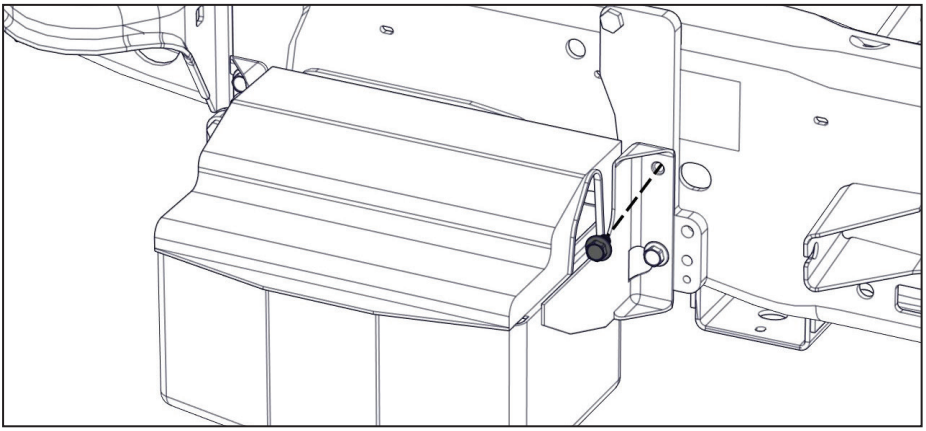


Figure 76 — Mounting the front battery box

☐ Install the safety cables onto the brackets.

The supplied battery cables include enough cable to allow the battery box to be lowered from the mount without having to disconnect the terminals from the engine bay.

☐ Pull the excess battery cable to the inside of the frame and secure them using the supplied cable ties.

Do not secure the excess battery cables to the brakes lines, or any harnesses as they could inadvertently be damaged if the battery box is lowered from the mounts prior freeing the excess battery cable.

Modifying and Installing Charge Air Cooler and Washer Bottle.

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

- ☐ Install the fan spacer onto the fan driver.
- ☐ Install the fan.
- ☐ Install the fan harness using the VMAC fan wire spacer, washer and bolt.
- ☐ Connect the fan harness.
- ☐ Install the upper fan shroud.
- ☐ Install the power steering reservoir into the bracket. Ensure the power steering reservoir is not being pulled or stressed by the hoses. Secure the reservoir in place with the supplied fastener (Figure 77).

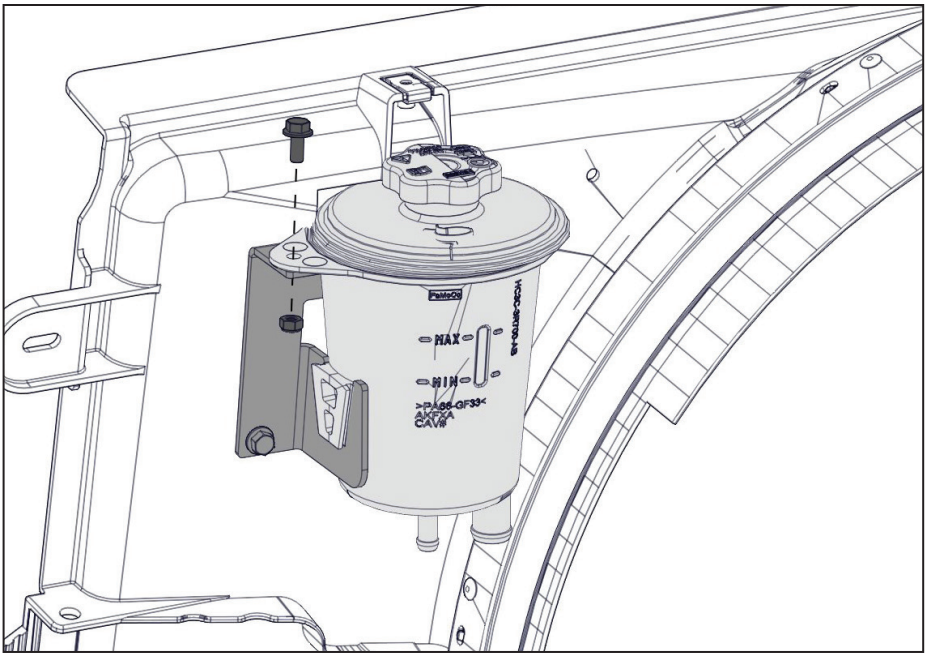


Figure 77 — Installing the power steering reservoir

Vacuum assist power brakes only*:

- ☐ *Reroute the vacuum hose, that runs between the brake booster and the power steering reservoir, behind the compressor and in front of the brake fluid reservoir.
- ☐ *Using a cable tie, secure the vacuum hose to the oil fill tube.
- ☐ *Rotate the vacuum tube and reconnect the vacuum hose to the vacuum assembly (Figure 78).

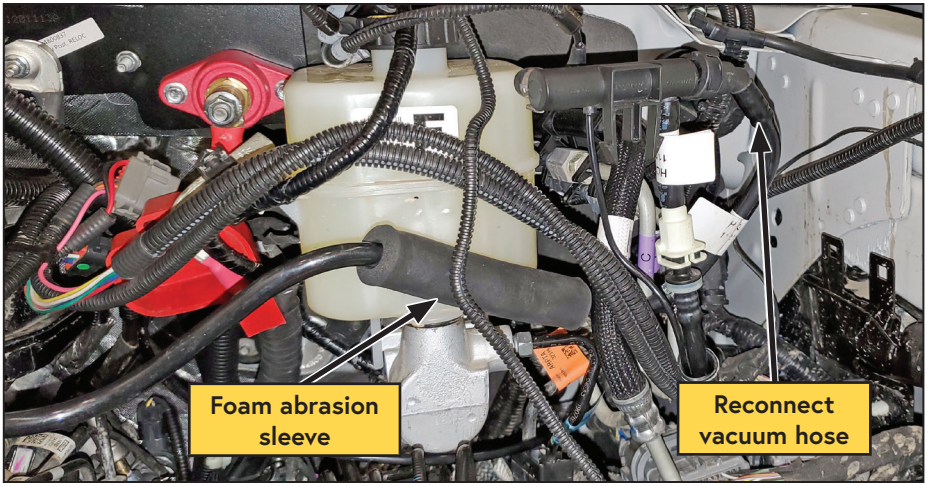


Figure 78 — Position foam abrasion sleeve

- ☐ *Slide the foam abrasion sleeve on the vacuum hose up until it is in front of the brake fluid reservoir (Figure 78).

☐ Using the OEM fastener, install the supplied windshield washer bottle bracket (Figure 79).

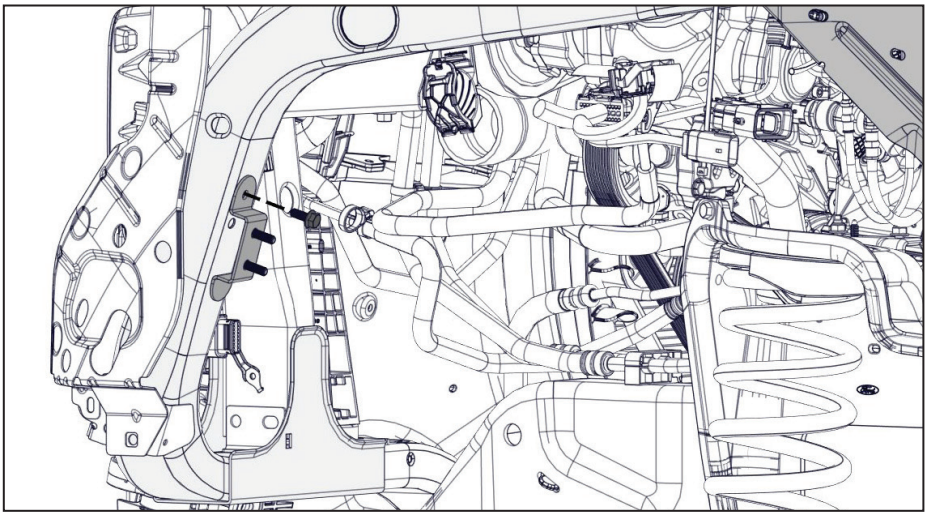


Figure 79 — Installing the windshield washer bottle bracket

Ensure the battery clamps and cables are routed below the plane of the bracket so they do not interfere with the CAC hose connections.

☐ Using the OEM fasteners, install the supplied degas tank bracket; ensure the drain back hose is positioned to the rear of the bracket (Figure 80).

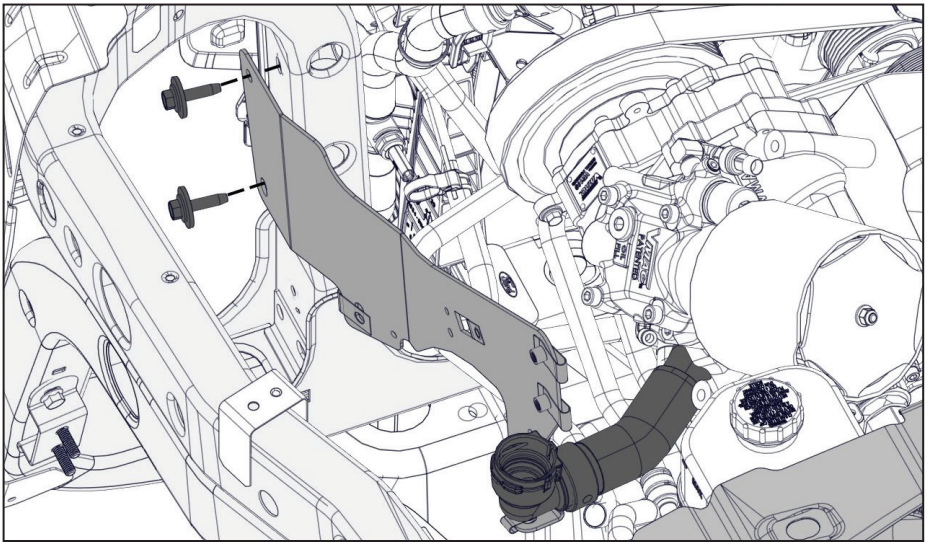


Figure 80 — Installing degas bottle bracket

☐ Mount the lower harness, and hood latch cable "push mounts" to the degas tank bracket.

☐ Using the supplied fasteners, install the windshield washer bottle (Figure 81).

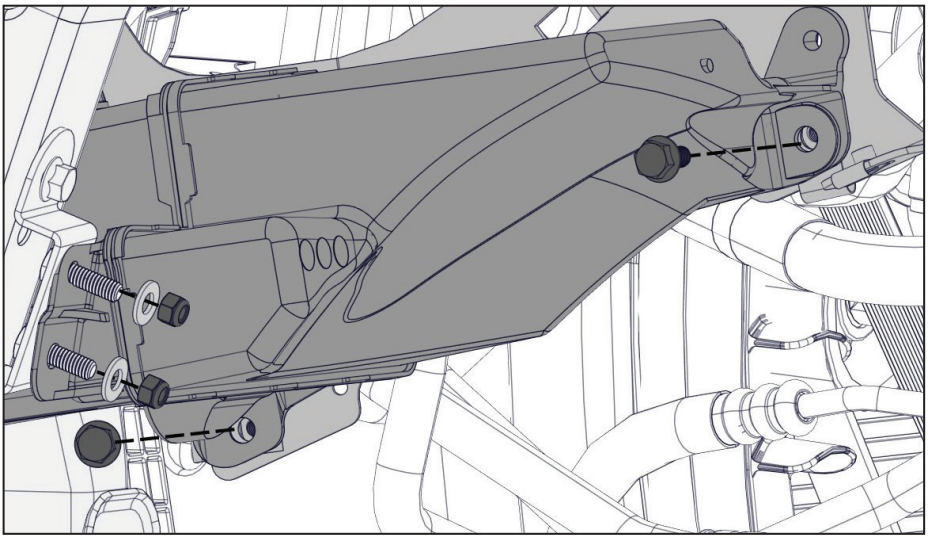


Figure 81 — Install the windshield washer bottle

☐ Using the supplied P-clip and fastener, secure the washer bottle fill to the subframe (Figure 82).

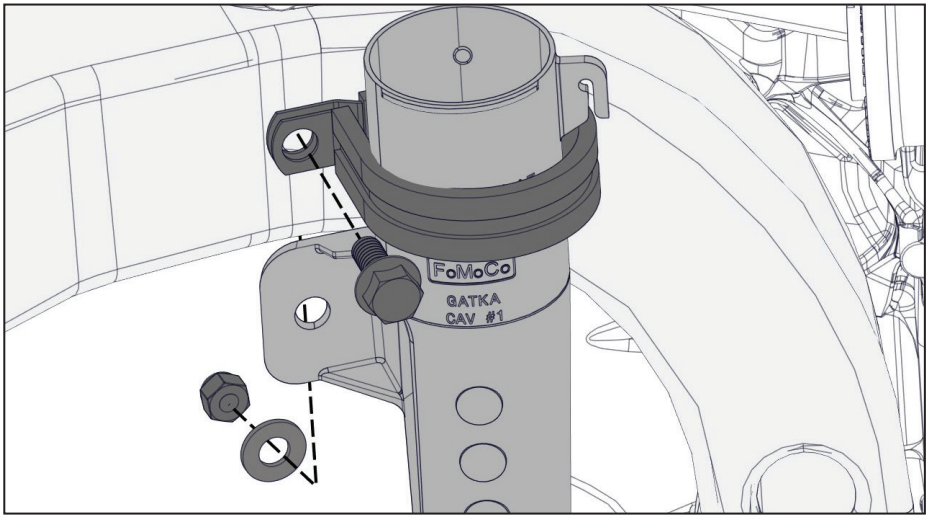


Figure 82 — Install the windshield washer bottle

☐ If equipped with a cable running below the washer bottle, apply the supplied 1/2 in loom to it and position the loom to provide abrasion protection and secure it in place using the supplied cable ties.

☐ Connect the washer bottle hose and electrical connectors.

☐ Using the supplied fasteners, mount the CAC relocation bracket (Figure 83).

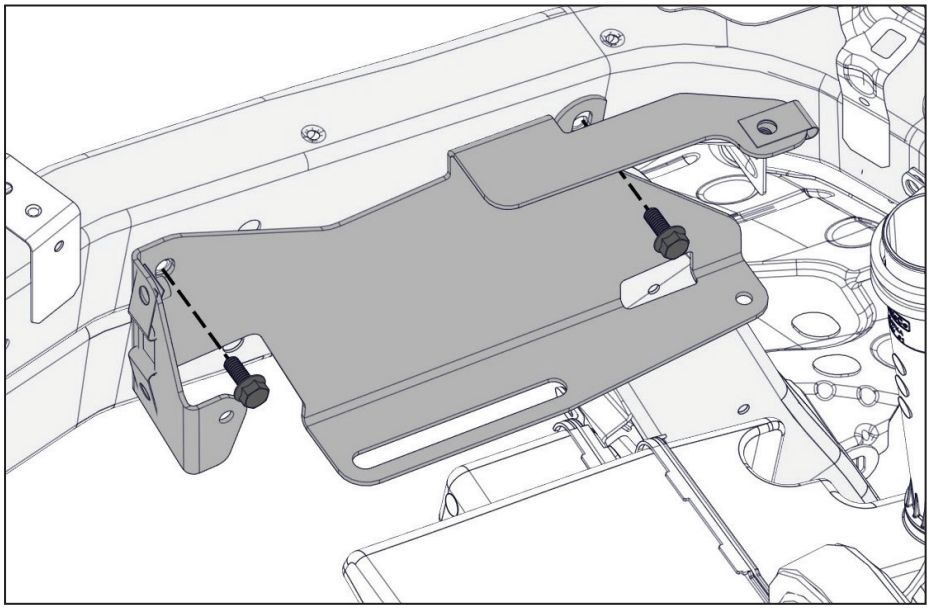


Figure 83 — Install the degas relocation bracket

☐ Using the supplied fasteners, mount the degas tank (Figure 84).

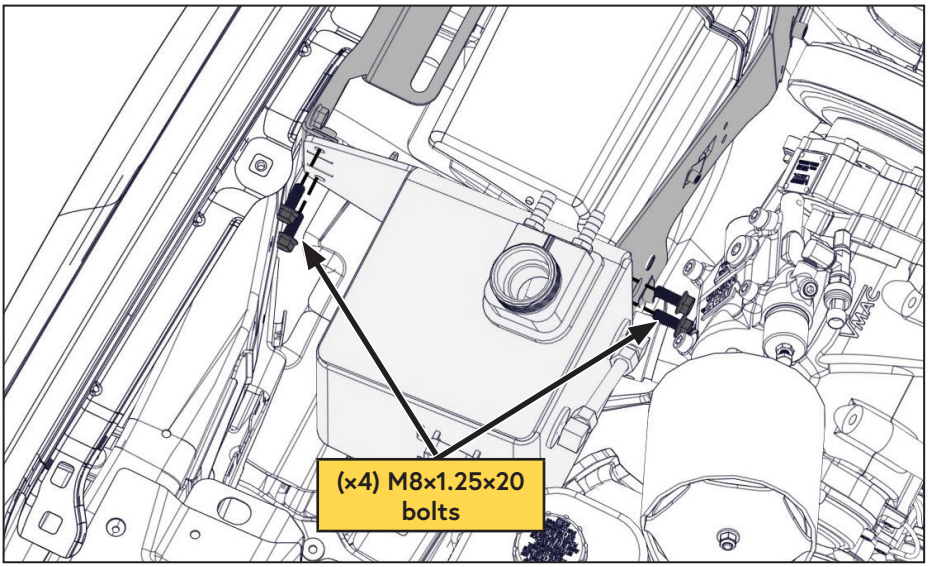


Figure 84 — Install the degas tank

☐ Install the drain back hose onto the degas tank (Figure 85).

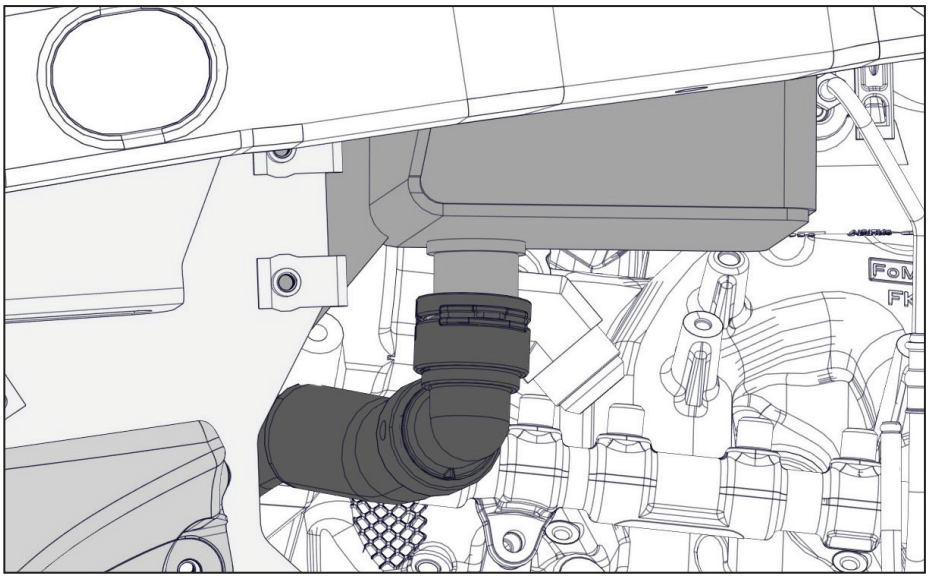


Figure 85 — Connect the drain back hose

☐ Ensure the vacuum hose (that runs toward the front of the vehicle) routes between the brake fluid reservoir and the degas tank.

☐ Secure the vacuum brake assembly to the mounting bracket on the degas tank.

☐ Using cable ties, secure any other vacuum system components as necessary.

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.

- ☐ Lower the vehicle from the axle-stands.
- ☐ Ensure the vehicle is parked on level ground.
- ☐ 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 cap from the oil-fill port located on the Inlet valve (Figure 86).

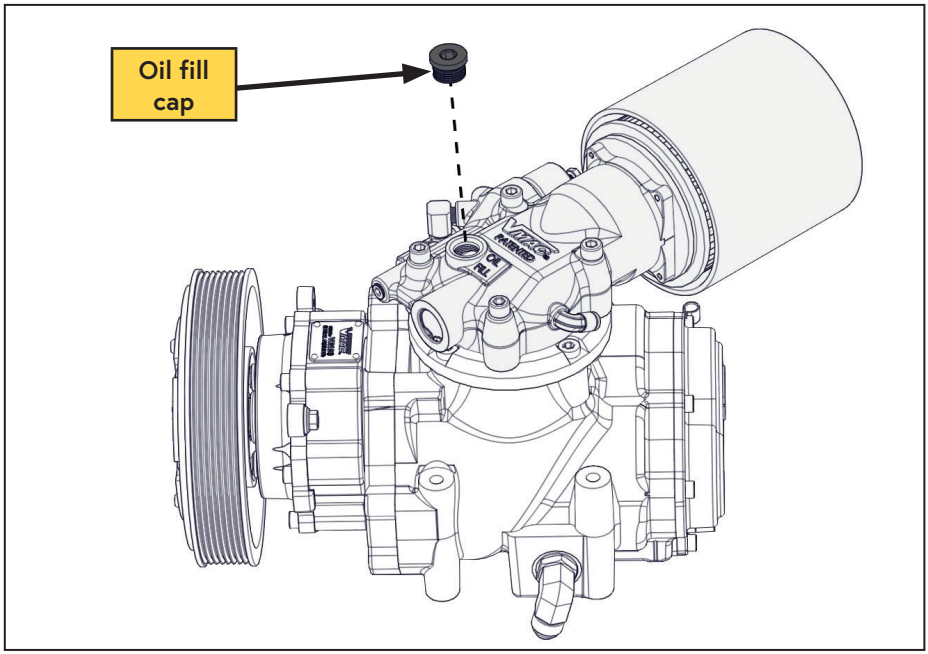


Figure 86 — Oil fill location

- ☐ Fill the system with the supplied oil (when dry, the system will take approximately 9 L (9.5 qt) of oil). Rotate the compressor clutch by hand while adding oil to speed the process. *Do not* use power tools to rotate the clutch.
- ☐ Allow a few minutes for the oil to drain into 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 cap and tighten.

☐ Install the CAC onto the VMAC CAC relocation bracket (Figure 87).

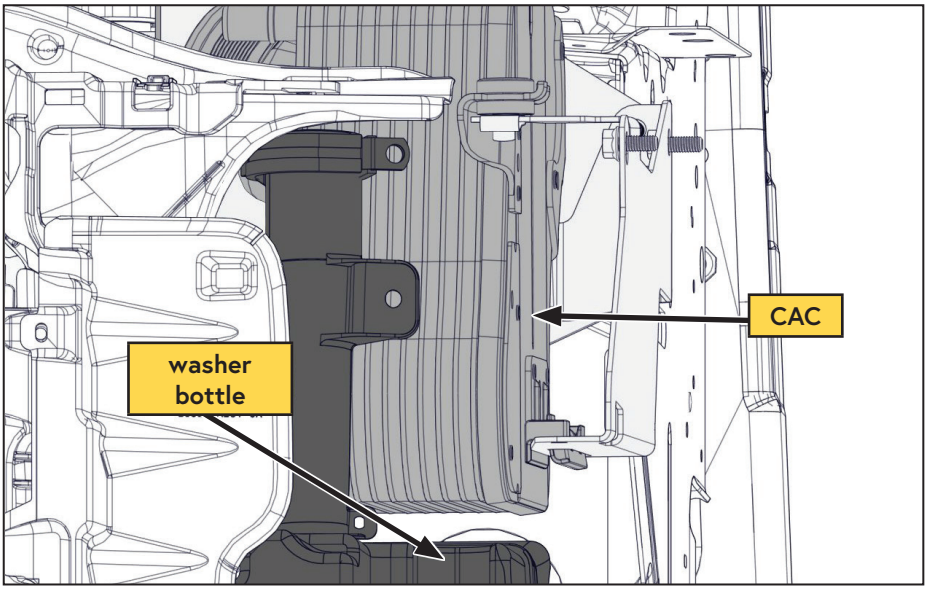


Figure 87 — Installing the CAC

☐ Secure the CAC to the CAC relocation bracket. Install the fastener nearest the firewall first using a VMAC supplied fastener. Reuse the OEM fastener in the upper mount location (Figure 88).

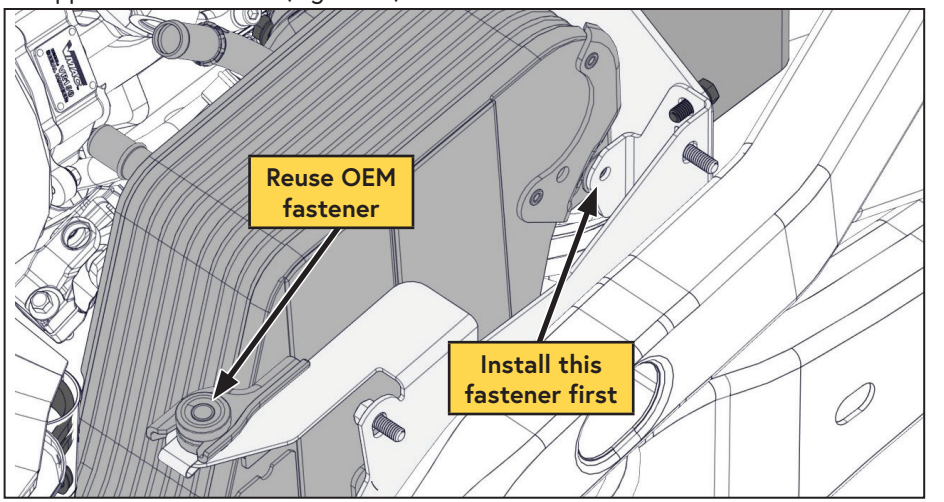


Figure 88 — Installing the CAC

☐ Ensure there is approximately 1/8 in clearance between the CAC and the washer bottle, but that they are not touching; if necessary, adjust the brackets in the clearance mount holes.

☐ Using the supplied P-clip and fastener, secure the degas tank overflow hose to the degas tank bracket (Figure 89).

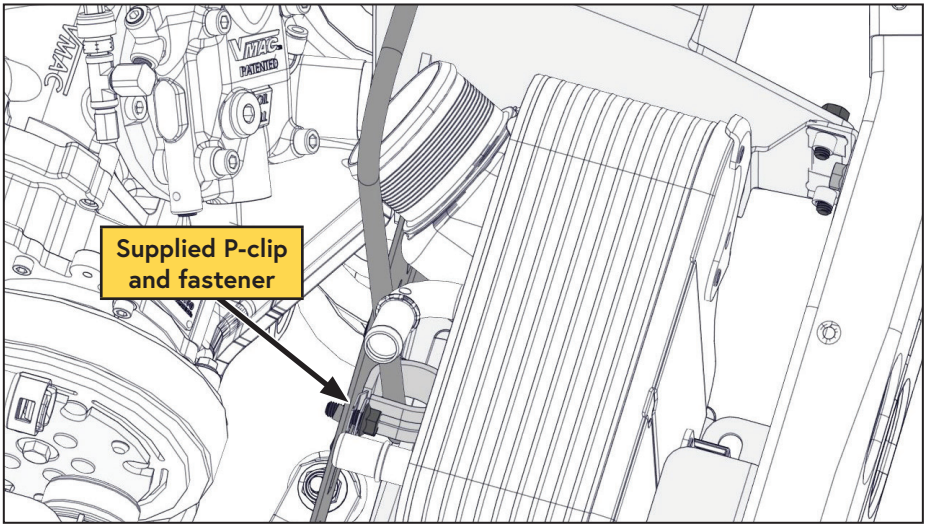


Figure 89 — Installing the CAC

CAC coolant hose

All hoses must be secured to prevent contact with any hot, sharp or moving parts.

☐ Remove the lower driver side radiator vibration mount fastener.

☐ Using the supplied P-clip and OEM fastener, secure the front CAC tube to the radiator vibration mount (if necessary, deflect the hard line cooling hose at the frame clip to account for the new routing) (Figure 90).

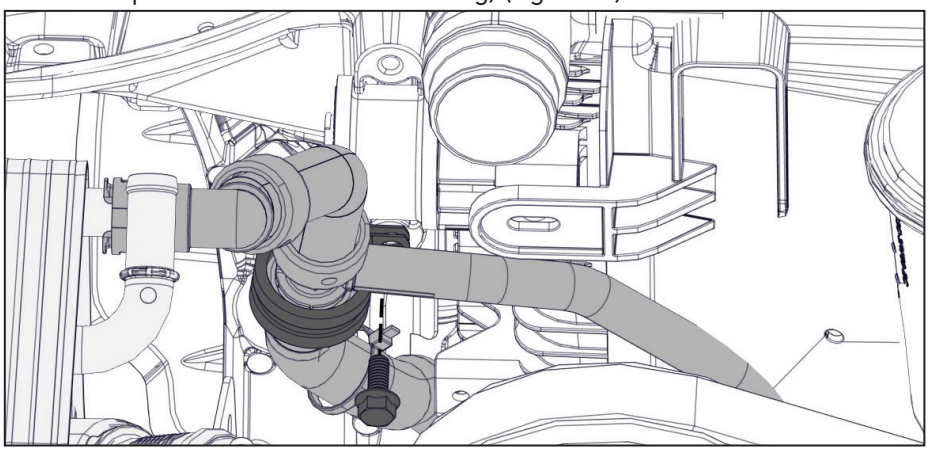


Figure 90 — Installing the CAC hoses

☐ Install the quick connect onto the CAC (Figure 90).

☐ Measure and mark 3.5 in from the outside radius of the secondary cooling hose and cut the hose (Figure 91).

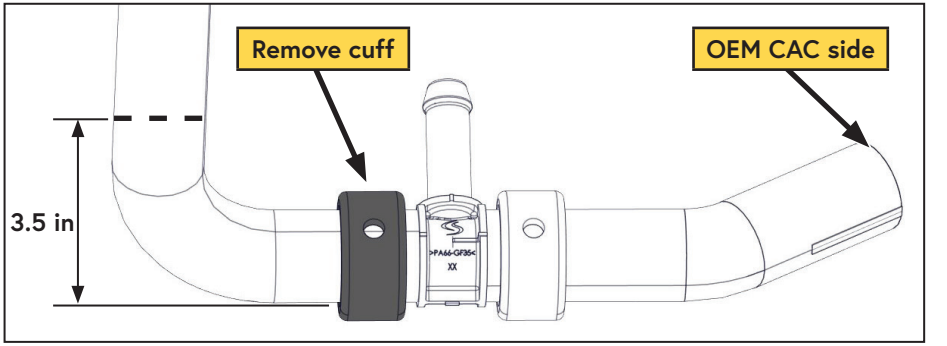


Figure 91 — Secondary cooling hose modification

☐ Rotate the hose (CAC side) on the Tee into the orientation shown (Figure 92).

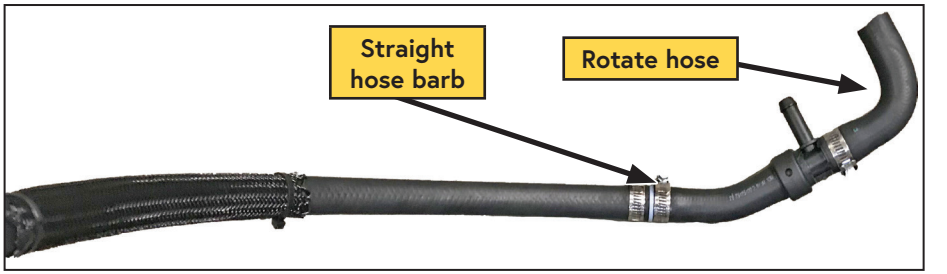


Figure 92 — Installing the secondary coolant hose

☐ Install the straight hose barb into the modified secondary cooling hose and secure it with a gear clamp (Figure 92).

☐ Install the supplied heater hose onto the straight hose barb and secure it using a gear clamp.

☐ Install the supplied abrasion sleeve onto the heater hose approximately 3 in from the end of the hose extension (Figure 92).

☐ Route the hose down, past the power steering reservoir, then up toward the top of the radiator (Figure 93).

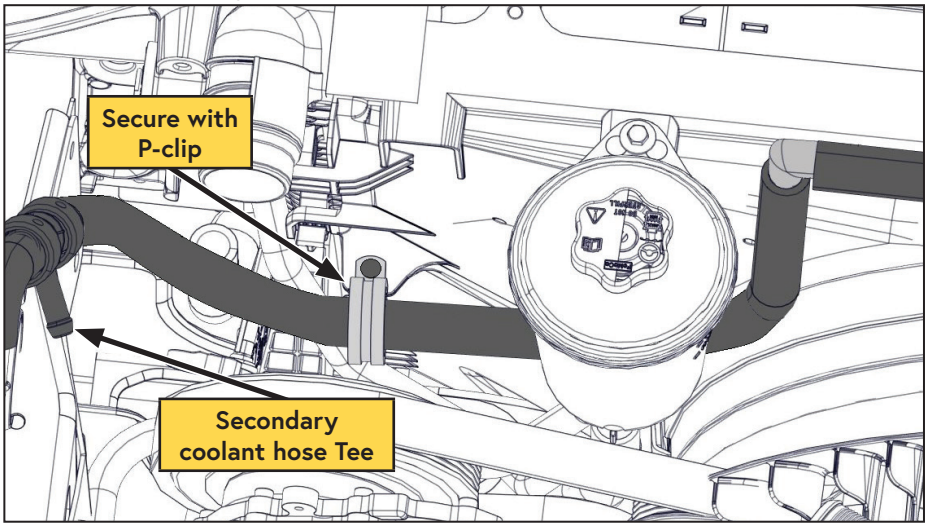


Figure 93 — Installing the secondary coolant hose

☐ Using the supplied P-clip, secure the hose to the radiator shroud in the location indicated (Figure 93).

☐ Connect the smaller hose to the secondary cooling Tee and secure it to the degas tank bracket using the supplied P-clip and fastener (Figure 93).

☐ Secure the OEM MAF harness to the heater hose as required.

☐ Secure the supplied abrasion sleeve onto the CAC side hose (Figure 94).

Figure 94 — Installing the secondary coolant hose

- ☐ Install the secondary cooling hose assembly onto the CAC and secure it with a gear clamp .
- ☐ Ensure all of the lower fasteners on the shroud are tight.
- ☐ Install the 90° barb into the secondary cooling hose extension.
- ☐ Trim the hose running from the secondary coolant reservoir as required and connect it to the 90° barb (Figure 95).

Figure 95 — Installing the secondary coolant hose

CAC cold ducting

- ☐ Remove the protective covering from the intake port.
- ☐ Remove the quick connect fitting from the OEM hose and reinstall it on the vehicle. Save the hose clamp for reuse (Figure 96).

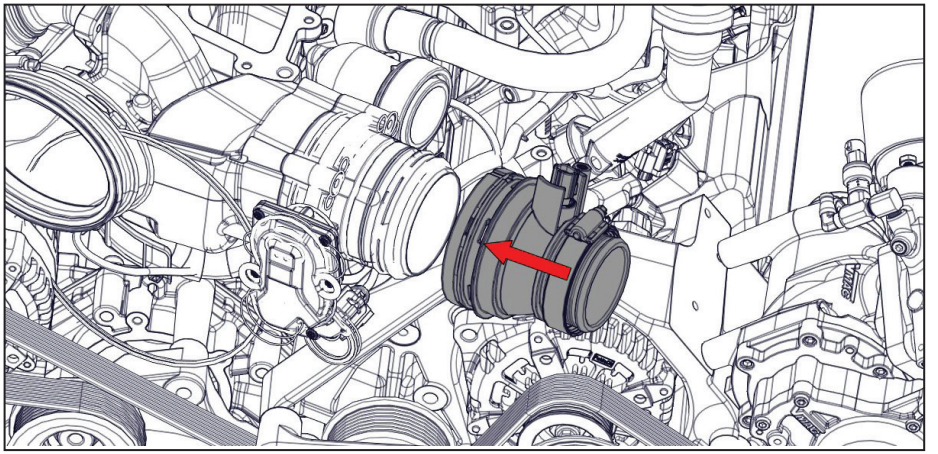


Figure 96 — Installing the CAC hoses

☐ Remove the "staking" from the OEM hose clamp (Figure 97).

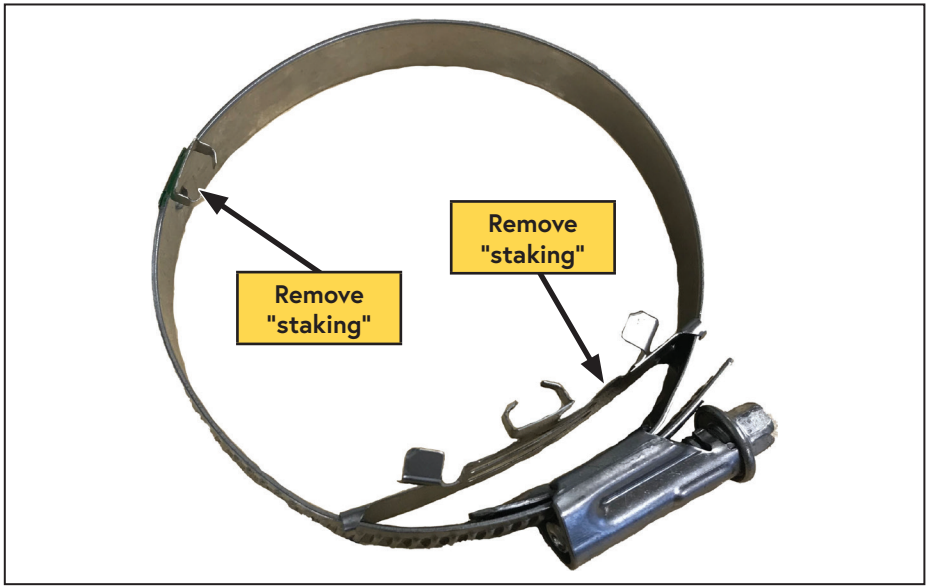


Figure 97 — Installing the CAC hoses

☐ Install the VMAC supplied "cold" CAC hose and secure with OEM hose clamps (Figure 98).

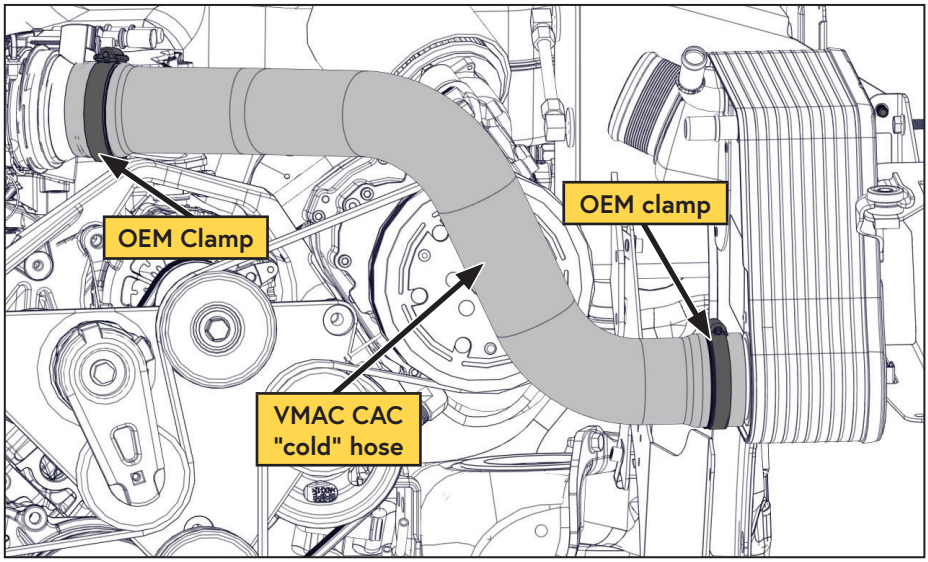


Figure 98 — Installing the CAC hoses

☐ Close the hood and check the clearance between the CAC hose and the hood. If there is contact with the hood, adjust the CAC lower in its bracket.

After adjusting the CAC, ensure there is adequate clearance for the CAC tubes (including the lower "cold" CAC tube, and the windshield washer fluid reservoir.

☐ Adjust the hose as required to ensure there is a minimum of 3/8 clearance to the compressor clutch (Figure 98).

CAC Hot ducting

☐ Install the supplied (×3) in hose (2 1/2 in ID) silicone hose onto the VMAC supplied "hot" CAC tube and secure with a VMAC supplied hose clamp. Ensure the tube is inserted 1 1/2 in into the silicone hose (Figure 99).

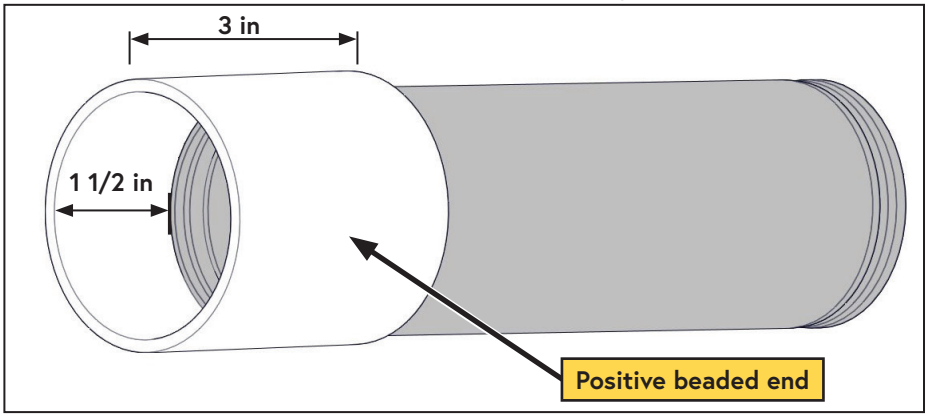


Figure 99 — Installing the CAC hoses

☐ Separate the engine side coupler from the OEM steel duct.

☐ Install the VMAC "hot" CAC tube into the OEM silicone hose on the engine side OEM "hot" CAC quick connect and secure with the OEM hose clamp. Ensure the internal bead on the silicone coupler engages the bead on the VMAC tube (Figure 100).

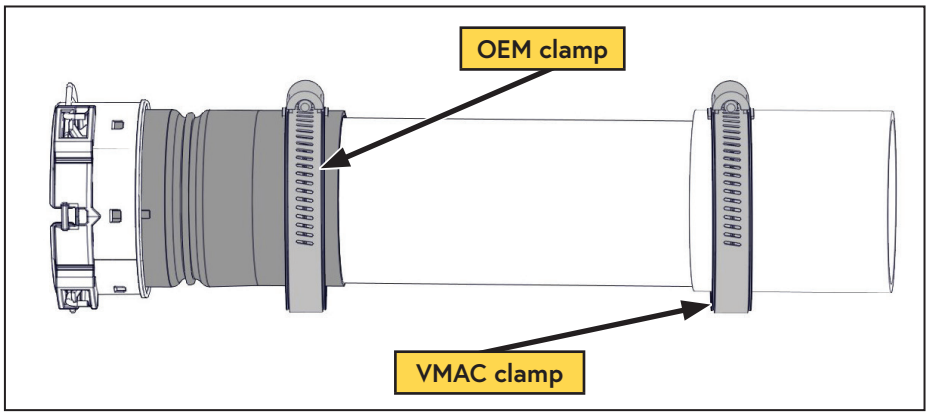


Figure 100 — Installing the CAC hoses

☐ Install the circlip into the negative bead of the OEM steel duct (Figure 101).

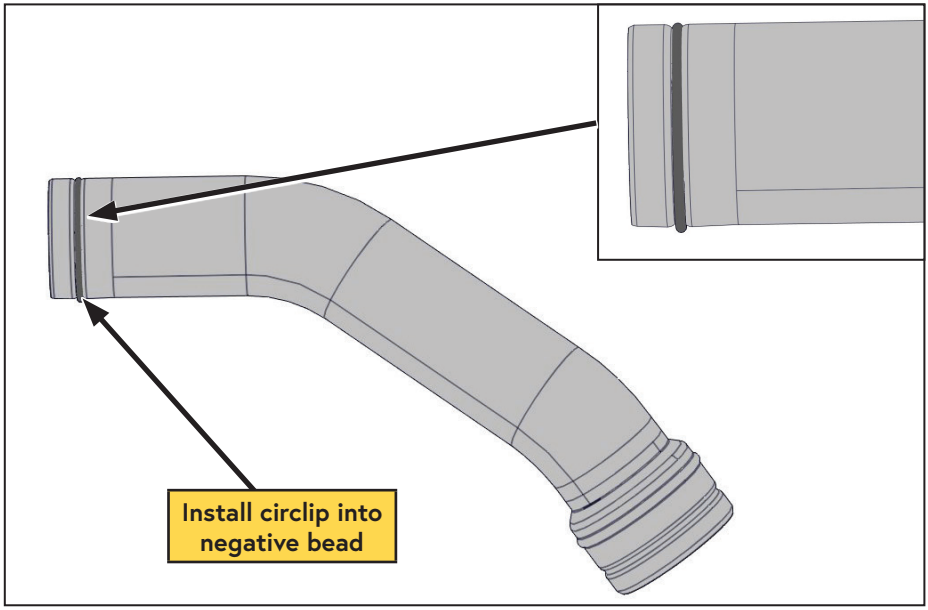


Figure 101 — Install circlip

☐ Install the OEM "hot" CAC tube into the VMAC silicone hose. Ensure the silicone hose has equal coverage of both components. Install the gear clamps with the screw heads facing the firewall to provide the best fit (Figure 102).

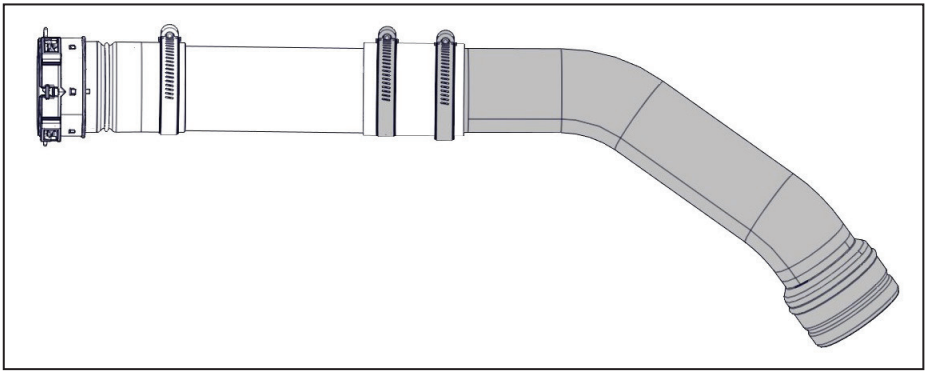


Figure 102 — Installing the CAC hoses

☐ Remove the protective covering from the turbo port.

☐ After ensuring the wire bail on the OEM quick connect is in the locking position, install the assembly onto the turbo port. The wire locking bail should be heard to click into place as it secures the quick connect onto the turbo port (Figure 103).

Figure 103 — Installing the CAC hoses

☐ Install the OEM CAC tube onto the CAC. Rotate the CAC tube as necessary to ensure there is adequate clearance between the tube and the compressor inlet and fittings (Figure 104).

Figure 104 — Installing the CAC hoses

☐ Verify that there is adequate clearance between the degas tank and the hood.

☐ Verify that there is adequate clearance between the CAC tube and the hood.

☐ Install the secondary coolant reservoir.

☐ Install the engine air intake duct.

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

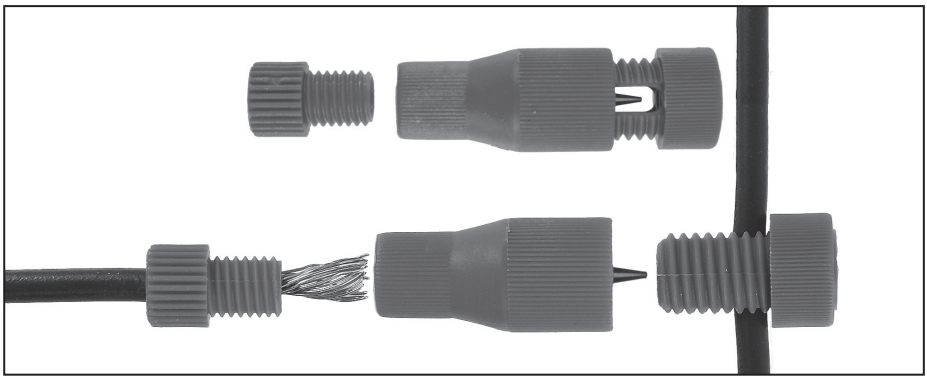


Figure 105 — Posi-Tap wire connector

- 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

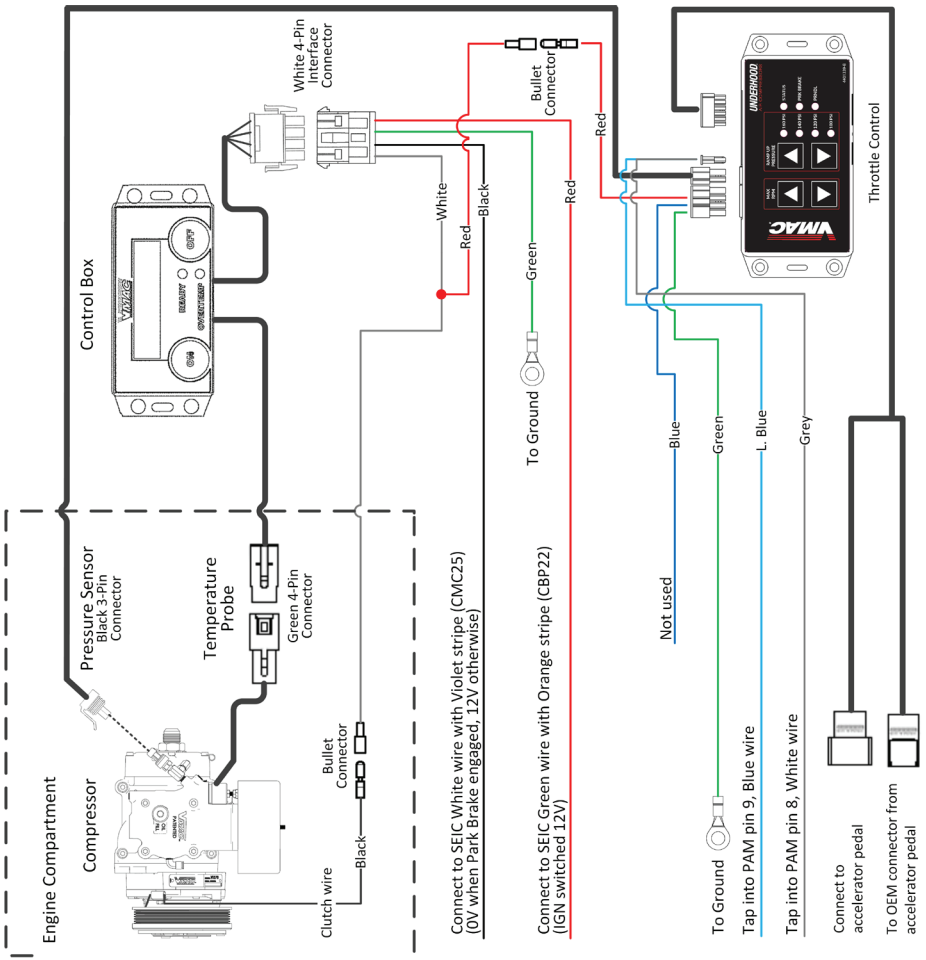


Figure 106 — Digital throttle control

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 the PAM module (Figure 107).

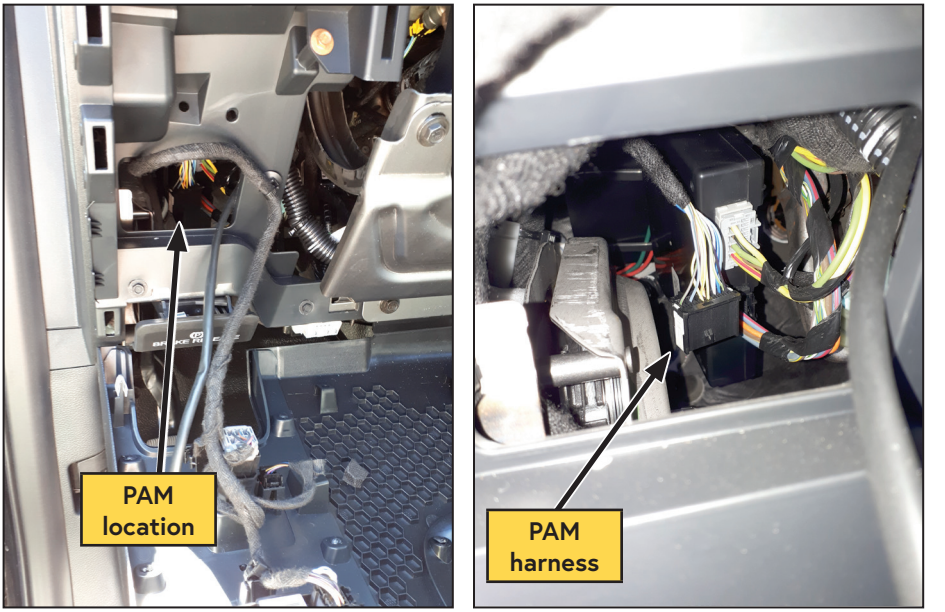


Figure 107 — Parking Assist Control Module (PAM)

☐ 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 69), 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 108).

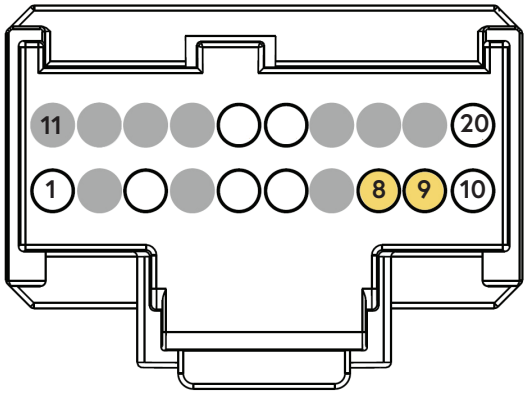


Figure 108 — PAM connector

☐ 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 108)

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

☐ Remove the glove box compartment to gain access to the wire run behind it.

☐ 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.

☐ Unplug the SEIC pigtail from the SEIC interface plug.

☐ Splice the blunt cut red wire (from 4-pin connector) to the green wire with orange stripe (CBP22).

☐ Splice the black wire to the white wire with violet stripe (CMC25).

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 cables 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.

Completing the Installation

- ☐ Reinstall the driver side headlight.
- ☐ Reinstall the grille.
- ☐ Reinstall the inner fender liner.
- ☐ Reinstall the radiator cross member cover.
- ☐ Connect the upper degas hose to the radiator and VMAC degas tank.
- ☐ Reinstall the lower bumper air dam.
- ☐ Fill the VMAC degas tank with the coolant saved from the primary coolant system (Figure 109).

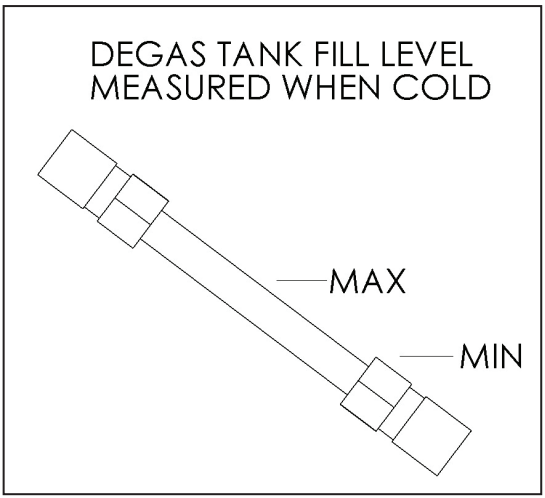


Figure 109 — Degas fill level

- ☐ Install the cap retained from the OEM degas bottle onto the VMAC degas tank.
- ☐ Fill the secondary coolant reservoir with coolant saved from the secondary coolant system.
- ☐ 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.
- ☐ 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.
- ☐ Pull any excess wiring back into the cab and tie it up and out of the way under the dash with cable ties.
- ☐ Connect the positive driver side battery terminal to the positive post battery relocation bracket.
- ☐ To ensure the positive OEM battery cable boot remains in place, secure it in place using a cable tie.
- ☐ Reconnect the passenger side battery terminals.

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 (×2) 7/64 in holes and secure the plate with the supplied self-tapping screws (Figure 110).

Figure 110 — System Identification Plate

☐ 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 111).

Figure 111 — Advisory label

☐ Install the belt routing label in the engine compartment near the hood latch in a visible location (Figure 112).

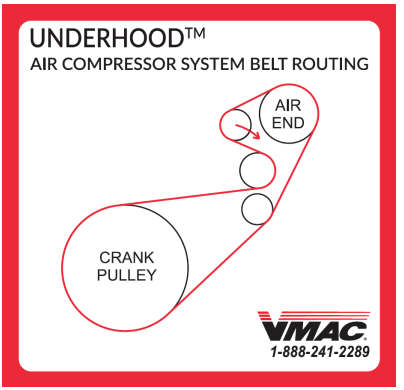


Figure 112 — Belt routing label
(actual belt routing label may differ)

☐ 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 113).

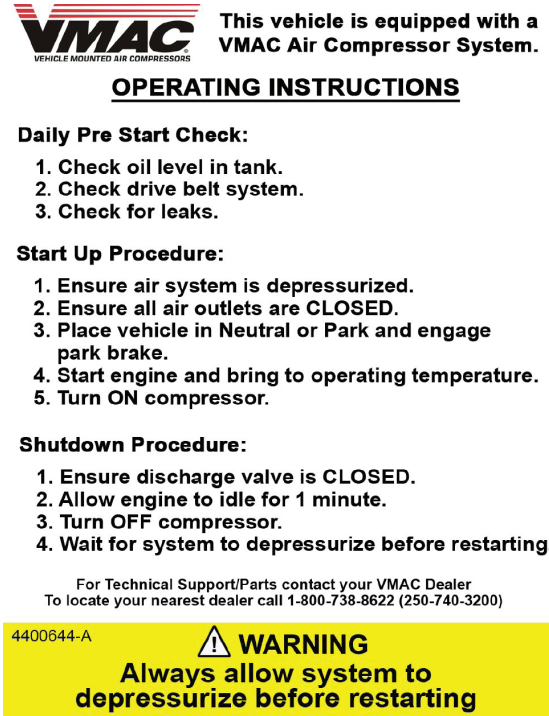


Figure 113 — Operating Instruction label

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 87 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 (1207 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.

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 114).

Drain the condensed water from the receiver tank daily.

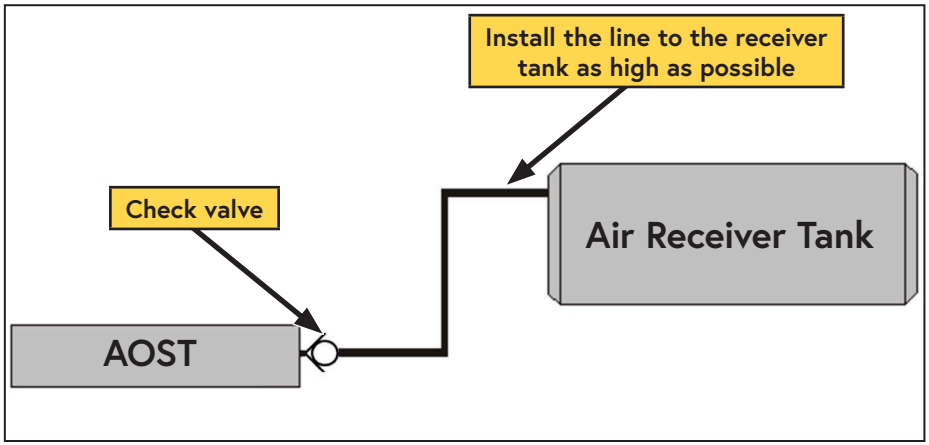


Figure 114 — Air receiver tank

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 run for a minimum of 30 seconds.

Calibrate the Ford ECU*:

- ☐ *Rev the vehicle to 2,000 rpm and allow it to return to base idle.
- ☐ *Shut down the engine.
- ☐ *Start the engine.
- ☐ *Repeat this process (x2) more times.

☐ 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 (1,800 rpm).

  If the throttle over revs, drops to OEM base idle (approximately 600 rpm), and displays 4 red LED pulses, perform the steps listed under "High rpm Error (4 Red LED pulses)" on page 85.
- ☐ 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 115).

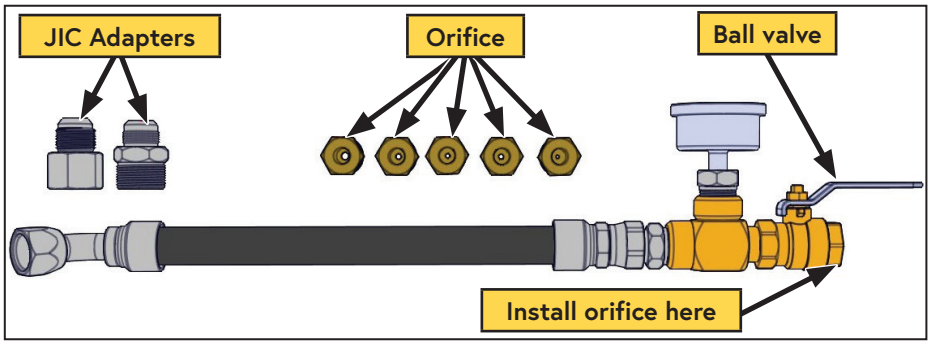


Figure 115 — A700052 VMAC Air Test Tool

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 1,800 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.

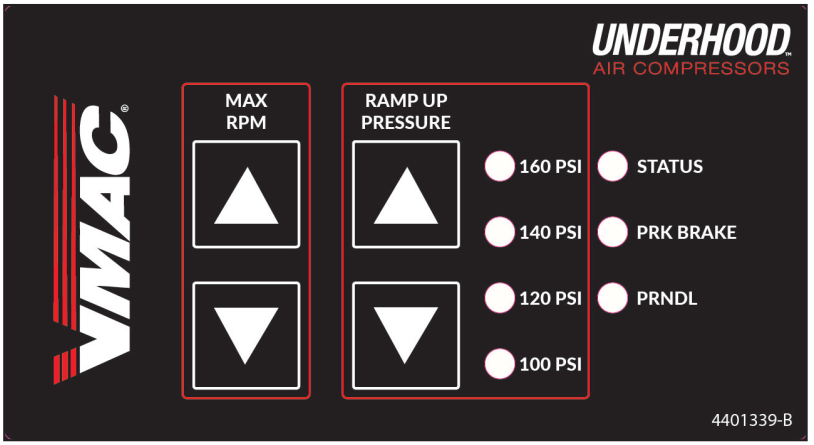


Figure 116 — Throttle control

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

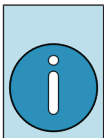
The cfm produced by the system is directly related to engine speed; this system delivers 83 cfm at 2,400 rpm, and 115 cfm at 3,200 rpm.
Maximum VMAC rpm can be adjusted between 1,500 rpm and 3,200 rpm (in 50 rpm increments) via the "▲" or "▼" buttons in the "MAX RPM" column.

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.

High rpm Error (4 Red LED pulses)

4 red LED pulses indicates a high rpm error from the throttle, which occurs when the VMAC throttle control is having difficulty calibrating to the vehicle.

To recalibrate the VMAC throttle, perform the following steps:

- ☐ Shut down the VMAC system.
- ☐ Disconnect the 4 pin connector (pressure sensor) on the throttle.
- ☐ Turn the VMAC system on. The compressor will start to build air but the engine speed will not increase and the throttle will report a "Pressure" error (3 red pulses).
- ☐ Press the "MAX RPM" ▼ button (×20) times.
- ☐ Shut down the VMAC system.
- ☐ Reconnect the 4 pin connector (pressure sensor) to the throttle.
- ☐ Turn the VMAC system on, allow the system to build to 150 psi.
- ☐ After 20seconds, slowly open the ball valve enough to maintain approximately 90 psi.
- ☐ After 20 seconds, the engine speed should settle to approximately 1,500 rpm.
- ☐ Press the "MAX RPM" ▲ button repeatedly until the engine speed reaches 2,200 rpm (allow the engine speed to respond between each press of the button).

☐ After engine speed has stabilized at 2,200 rpm for approximately 10 seconds, close the ball valve and allow the system to build to full system pressure.

☐ Turn off the system.

The system should work normally now.

Factory Reset

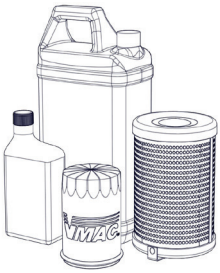
The throttle control can be reset to factory default values via a button inside the throttle control box.

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

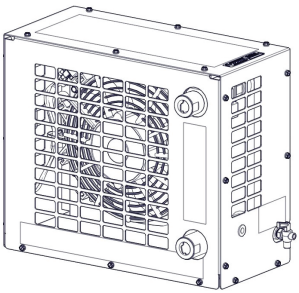
Compressor Service Kits



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.

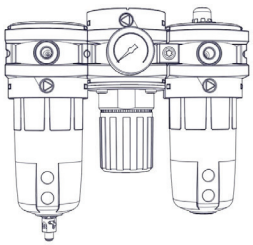
Air Aftercooler — 185 cfm



Part number: A800185 (includes A700221 FRL)
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).

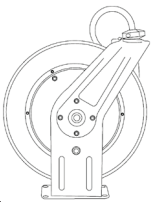
Filter Regulator Lubricator (FRL) — 185 cfm



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).

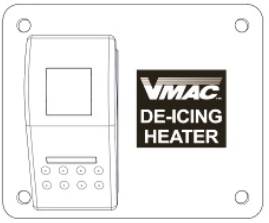
- Max air flow: up to 185 cfm / 200 psi.
- Port size: 1 in NPT inlet and outlet.

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



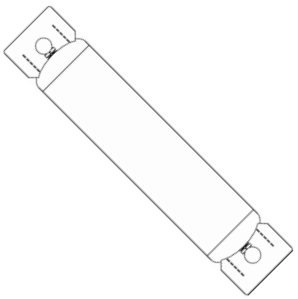
Part number: A700031
Cold climate heater package for operating VMAC compressors in cold climates; proven at temperatures of -30 °C (-22 °F). Requires 12V DC at 10A.

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

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

888-241-2289

877-740-3202

www.vmacair.com

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