

# Installation Manual for VMAC System V900089

**General Motors 2006-2007 Classic  
6.6L Duramax Diesel  
C4500 – 5500**

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| e       | ECN 07-70 belt # (RD)     | IB 19 Apr 2007  | TG 24 Apr 2007 | 27 Apr 2007 |

## Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation procedures and for people with mechanical trade certification who have the tools and equipment to properly and safely perform the installation. Do not attempt this installation if you do not have the appropriate mechanical training, knowledge and experience.

Follow all safety precautions for underhood mechanical work. Any grinding, bending or restructuring operations for correct fit in modified vehicles must follow standard shop practices.

These instructions are a general guide for installing this system on standard production trucks and do not contain information for installation on non-standard trucks. This system may not fit special order models or those which have had other changes without additional modifications. If you have difficulty with the installation, contact VMAC.

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

To order parts, contact your VMAC dealer. Your dealer will ask for the VMAC serial number, part number, description and quantity. To locate your nearest dealer, call 1-800-738-8622.

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**VMAC – Vehicle Mounted Air Compressors**

Toll Free: 1-800-738-8622

Fax: 1-250-740-3201

# General Information

## Before You Start

Read this manual before attempting installation so that you can familiarize yourself with the components and how they fit on the vehicle. Open the package, unpack the components and identify the parts. Identify variations for different model years or OEM options that are listed in the manual.

All fasteners must be torqued to specifications. Use manufacturers torque values for OEM fasteners. Apply Loctite 242 or equivalent on all engine-mounted fasteners. Torque values are with Loctite applied unless otherwise specified.

| STANDARD GRADE 8 NATIONAL COARSE THREAD |     |      |     |      |     |      |     |     |
|---|-----|------|-----|------|-----|------|-----|-----|
| Size                                    | 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                                  | 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                | M8 | M10 | M12 | M14 | M16 |
| Foot-pounds (ft-lb) | 19 | 41  | 69  | 104 | 174 |
| Newton meter (N•m)  | 25 | 55  | 93  | 141 | 236 |

## Hose Coding

Different frame designations will affect the tank mounting position. You may have to move the tank rearward from the standard position on your application. If you must move the tank, the lines may be too short. If this is the case, measure the hose shortfall and order a *Hose Extender Kit*. The following table shows the color code used by VMAC to define the different hose diameters.

| Hose Diameter | Colour-Coded Label |
|---------------|--------------------|
| 1/4 inch      | Yellow             |
| 5/16 inch     | Orange             |
| 1/2 inch      | Blue               |
| 5/8 inch      | Blue               |
| 3/4 inch      | Green              |
| 1 inch        | Green              |

## VMAC – Vehicle Mounted Air Compressors

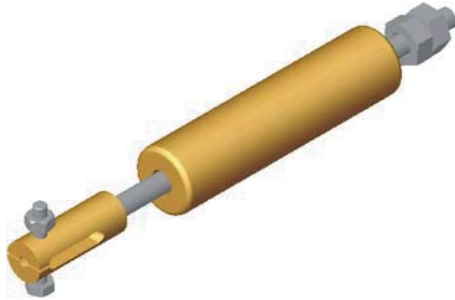
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## Special Installation Notes

The following special tools are required:

- 36 mm 12 point 1/2 inch drive socket for removing the OEM crankshaft bolt
- crankshaft locking tool (GM #J-44643) or VMAC equivalent (Part #5900010)
- VMAC crankshaft pin extraction tool (Part #5900076) or equivalent



The following additional materials are recommended:

- assorted sizes of fireproof protective plastic loom
- assorted lengths of nylon tie-straps

An alternate tank mounting system using frame hangers is available. Contact VMAC to order the tank mount bracket accessory pack.

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# Part 1: Preparing for Installation

## 1.0 Preparing for Installation

Preparation for installation is very important. Missing an item can cause problems in the installation or even damage to components. Check off each item as it is completed so that you do not miss any preparation steps.

- Disconnect the batteries.
- Drain the coolant.
- Disconnect the MAF sensor wire from the air cleaner and remove the air cleaner assembly from the engine.
- If necessary on trucks with dual alternators, remove the plastic centering lug from the back of the air cleaner housing (if equipped).
- Remove the plastic inner fender liner on the passenger side.
- Disconnect the hoses from the coolant expansion tank, disconnect the level sensor connector and remove the tank.
- Remove the top radiator hose from the radiator.
- Remove the OEM belt.
- On trucks with air conditioning, remove the four compressor locating bolts, disconnect the wiring and move the compressor out of the way.
- Remove the upper fan shroud. Remove the mount bolts from the lower fan shroud, but leave the shroud in position.
- Remove the fan.
- Remove the passenger side intercooler tube and hoses.

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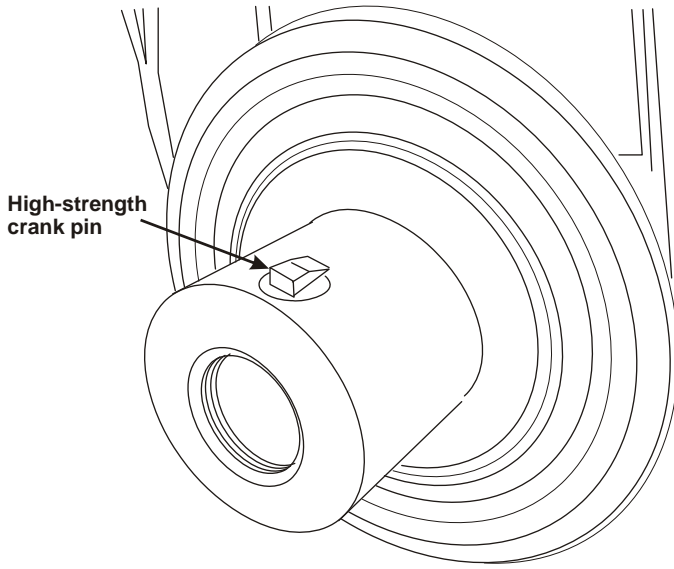
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- Disconnect the heater hose from the front end of the metal connector pipe and remove the bolt securing the tube to the cast alternator bracket.
- Disconnect the electrical multi connector from the glow plug relay by pulling out the slide lock under the wire harness. Remove the two bolts locating the glow plug relay and move the relay out of the way.
- Disconnect the throttle body heater wire and move the harness out of the way
- Remove the fuel bleed valve and the glow plug mounting bracket from the OEM alternator bracket. Disconnect the fuel line rail clip securing the line to the alternator bracket and small L-bracket.
- Remove the bracket attaching the throttle body to the cast alternator bracket. Discard the bracket and keep the fasteners.
- Bend the starter motor wire harness retaining bracket and clip under the passenger side exhaust manifold up 45 degrees from vertical.
- Remove the 5/8 inch heater return hose from the lower radiator hose connection. Mark the hose 11 inches from the lower radiator hose connection end, cut the hose and discard the 11 inch section.
- Remove the rock guard from under the truck (if equipped) and remove the lower radiator hose.
- Remove all wire harness retainers from the OEM alternator mount bracket.
- Remove the alternator (passenger side on dual alternator trucks) and keep the bolts.
- Remove the OEM idler and tensioner from the alternator mount bracket.
- Remove the OEM alternator mount bracket.

- Install a crankshaft locking tool, remove the crank pulley bolt and remove the crank pulley. If you are using the VMAC tool:
  - put the socket on the nut
  - put the single-pin end of the tool on the front of the pulley with the locking tool hanging straight down
  - put a short extension and long flex-bar on the socket
  - turn the engine until the pin on the tool makes contact and the tool jams against the protruding center-piece of the cross-member under the front of the engine.
  
- Remove the crankshaft pin. If you are using the VMAC extraction tool:
  - fit the split end of the tool (on the end of the shaft) over the crankshaft pin and tap downward with the slide-hammer to make sure that it is seated correctly
  - tighten the pinch bolt securely
  - use the hammer action of the slider in an upward motion to remove the pin from the crankshaft
  
- Install the replacement crankshaft/harmonic balancer locating pin and tap it home using a brass drift and a small hammer. Ensure that the head of the pin is aligned with the crankshaft. You may have to twist it into position (Figure 1.1).
  
- Apply a light wipe of oil to the inside of the OEM crank pulley and install the pulley back onto the crankshaft.

## **1.1 Dual Alternator Trucks**

- Loosen the top mounting bolt on the driver's side alternator and remove the lower mounting bolts.
  
- Install the bracket under the alternator and insert the mounting bolts.
  
- Push the alternator upward and tighten all the bolts.



**Figure 1.1**



# Part 2: Installing the Main Bracket and Compressor

## 2.1 Installing the Main Bracket

- Remove the belt tensioner assembly from the VR main bracket.
- Remove the plastic caps and remove the two M10 x 85 mm low profile socket head screws from the bracket. Place the bracket in position on the front of the engine.
- Insert the two M10 x 85 low profile socket bolts and thread the two OEM 10 mm flange nuts onto the two studs. Thread all fasteners in just enough to hold the bracket in place (Figure 2.1). Check the fit of the bracket against the engine to make sure that it fits flat and has no obstructions, tighten the bolts evenly and then torque them to specifications.

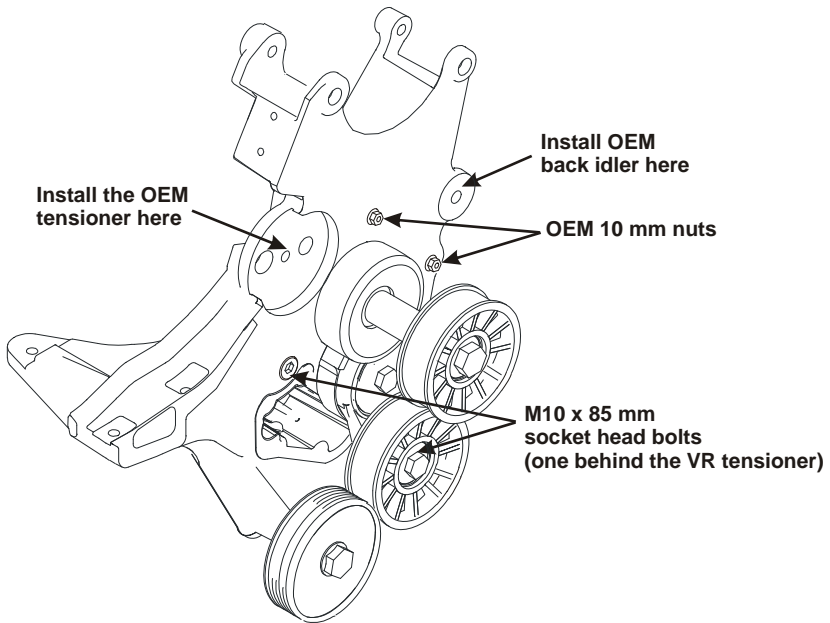


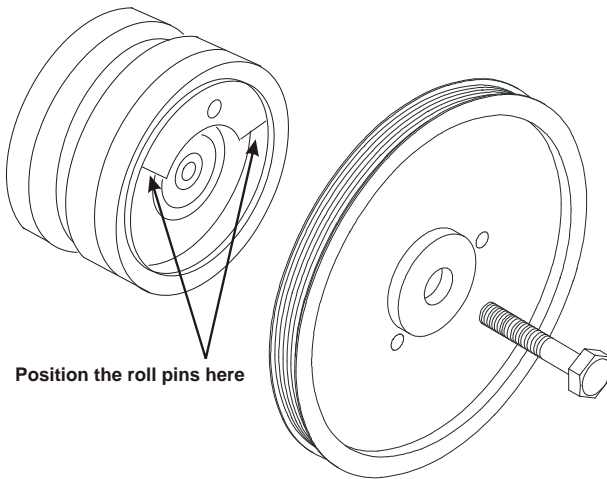
Figure 2.1

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- Apply Loctite and install the VR tensioner, the OEM belt tensioner and one OEM back idler.
- Install the alternator.
- Place the VR crank pulley in position with the two roll pins on both sides of the counter balance weight of the OEM pulley (Figure 2.2).



**Figure 2.2**

- Thread the M18 x 100 mm center bolt with OEM washer into the crankshaft. Install an engine-locking tool and torque the center bolt to manufacturer's specifications (usually about 250 ft-lbs (340 N.m)).
- Remove the inlet control valve from the compressor. Cover the opening on the compressor with the supplied orange cap to prevent contamination.
- Install the compressor on the bracket without the inlet valve and thread in the two front M8 x 25mm bolts with serrated washers.
- Install the rear M8 x 20 mm bolt with serrated washer.

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- Torque the fasteners to specifications. Ensure that the compressor is fully tightened down and secured. Make sure that the bolt threads have not bottomed out in the holes.
- Install the inlet control valve.
- Attach the straight end of the short 1/2 inch hose to the fitting on the side of the compressor with the hose routed over the top of the compressor just behind the clutch assembly. Do not tighten the fitting until the other end is connected to the cooler.

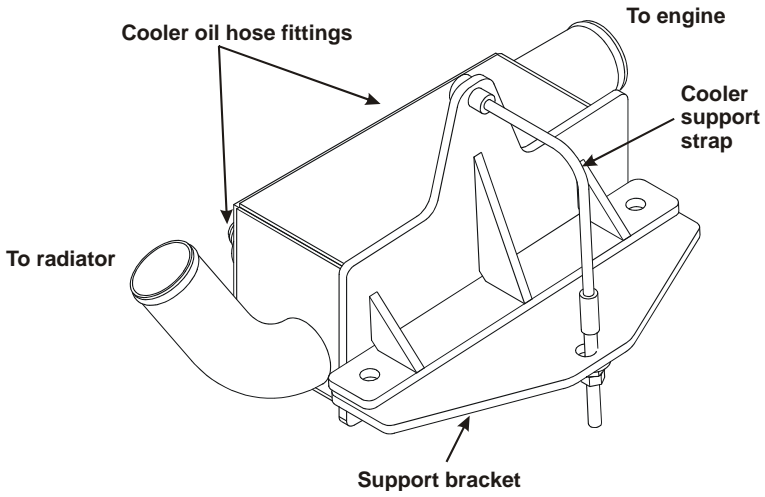
## 2.2 Installing the Cooler

- Remove the strap and the support bracket from the cooler assembly (Figure 2.3).
- Move the lower fan shroud up to provide clearance and position the cooler (from under the truck) on the inside of the U-channel cross-member where the rock guard was located. Insert two 3/8 x 1 inch flange lock bolts through the rock guard mounting holes into the cooler.
- Place the cooler support bracket on the two bolts with the center hole facing toward the front of the vehicle, install flange lock nuts on the bolts and torque to specifications.
- Pass the support strap through the hole in the top of the cooler back plate, around the U-channel frame and through the support bracket. Install a flat washer and 5/16 inch nut and tighten, then install a second 5/16 inch nut as a lock.
- Cut the lower radiator hose at line “A”, “C” and “D” (Figure 2.4) and discard the 1 inch end piece at “A” and the 12 inch section from “C-D”.
- Install each hose section back to the original positions, between the radiator and the cooler and the engine and the cooler.
- If necessary, trim the engine end at “B” for a proper fit.

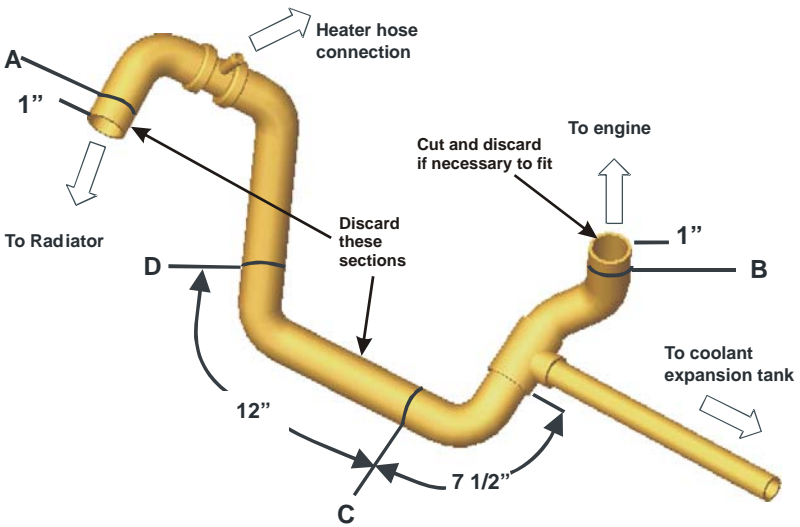
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**Figure 2.3**

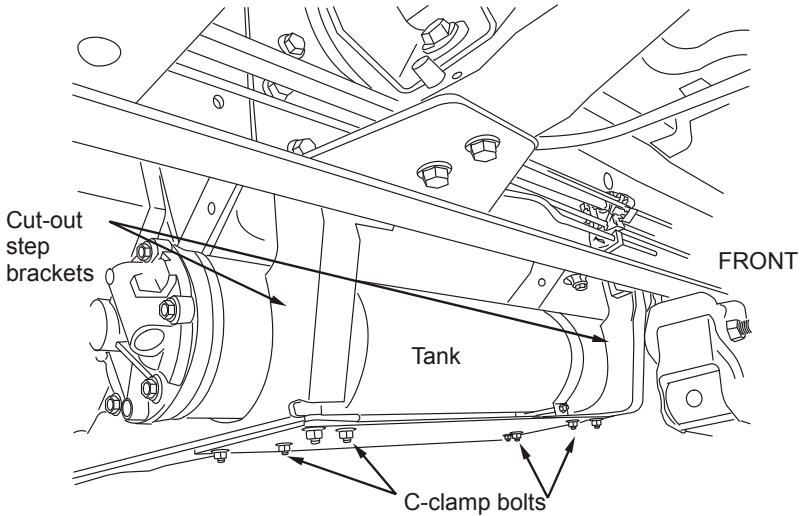


**Figure 2.4**

# Part 3: Installing the Tank and Hoses

## 3.1 Installing the Tank and Brackets

The tank mounts under the driver's side step (Figure 3.1).



**Figure 3.1**

- Remove the step from the truck. Place the supplied template on the rear of the step back support panel and cut a half-crescent section out of the lower part of the existing cut out section. Repeat this operation with the front step support panel.
- Slide the two C-clamps over the front of the tank, position the clamps at the front and rear of the tank and loosely install the pinch bolts in the clamps.
- Pass the tank through the cut out section in the front step support panel then align the tank through the rear cut-out in the rear step support panel.

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- Position the tank so the C-clamps are set at the inside edge of the bottom step panel and clear of the double-panel joints. Place the tank mount spacers under the C-clamps and align the C-clamp and spacer holes. Mark the location of the four holes.
- Remove tank and spacers; drill four 11/32 inch holes at the marks, then install the step back onto the truck.
- Install the tank with the C-clamps and spacers, align the holes and install the two outer M8 x 30 bolts and nuts. Tighten the fasteners.
- Rotate the tank so that the “UP” arrow points upward and adjust the position of the tank so that the front of the tank approximately even with rear of front spring hanger.
- Tighten the two C-clamp bolts.
- Install the two inner M8 x 30 bolts, nuts and washers. Tighten the fasteners.
- Install the two steel oil lines with the flexible hoses to the matching fittings on the rear of the tank. Tie the two steel tubes together with nylon ties.
- Locate the OEM hole in the driver’s side frame rail next to the M8 nut on the stud. Use the supplied M8 x 30 mm bolt, washer and nut to attach the supplied L-bracket with the horizontal part at the bottom facing the driver’s side of the truck.
- Fit the small tube retaining P-clip over the steel tubes and fasten it to the L bracket using a M8 x 20 bolt, nut and washer.
- Thread the 45 degree end of the 1 inch hose onto the matching fitting at the front of the tank. Position the fitting so that it is in the front recess of the spring hanger and up as far as possible to clear spring movement, but clear of the frame and spring hanger. Tighten the fitting.
- Thread the straight end of the longest 1/2 inch hose onto the matching fitting on the front of the tank. Route the hose up over the inside of the driver side frame rail and over the steering box.

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- Thread the other end onto the driver's side fitting on the oil cooler. Tighten the connections and tie the hose to the brake lines, clear of sharp edges.
- Route the 1 inch, 5/16 inch and 1/4 inch lines under the transmission bell housing and over the transmission cooler lines to the passenger side frame rail.
- On the driver's side of the bell housing, first locate the two lower bell housing bolts then locate the next higher bell housing bolt. Remove this bolt and fit the second supplied L-bracket with the "L" at the bottom facing forward.
- Install the insulated P-clip over the three hoses and secure them to the L-bracket using a M8 x 20 bolt, nut and washer.
- Fasten the hoses together with nylon ties and fasten them to the harness on the passenger side of the truck.
- Route all three hoses up the back of the shock tower and over the outside of the frame rail to the compressor. Fit loom over hoses where they rest on the frame.
- Connect the hoses to the matching fittings at the compressor and tighten the fittings.
- Route the short 1/2 inch hose from the compressor over the compressor gear case and down under the lower radiator hose connection. Thread the 90 degree end onto the passenger side fitting on the oil cooler and tighten the fitting.
- Remove the oil filter from the tank and remove the cardboard protector.
- Apply a light coating of oil to the filter gasket and install the filter on the tank. Tighten an additional 3/4 turn after the gasket contacts the base.

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## 3.2 Filling the System with Oil

- Remove the fill plug and pour the supplied compressor oil into the compressor, turning the center of the compressor clutch clockwise to speed oil flow into the tank.



***You must use VMAC compressor oil in this system. Failure to use this special oil will result in damage to the compressor and will void your warranty.***

- Allow 5 minutes for the oil to drain into the tank, then check the level at the sight glass at the front of the tank. Continue adding oil until the level is correct.



***Do not overfill the system.***

## 3.3 Completing the Installation

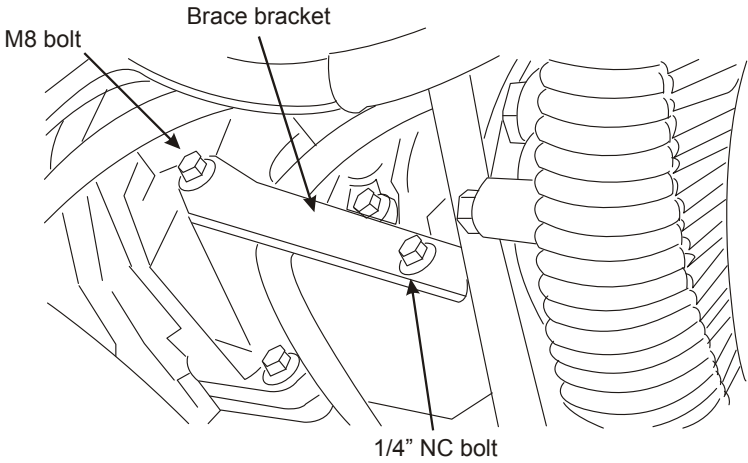
- Release the OEM spring clip with the retaining tab located on the wire harness under the passenger side exhaust manifold to the starter. Move the clip up to the top of the heat wrap on the harness and fasten the clip. Fit the clip to the tab attached to the heater tube under the compressor, pulling the slack on the harness up to provide adequate clearance for the wiring harness around the compressor.
- Install the rubber-covered 7/8 inch P-clip around the heater tube next to the main air discharge connection at the rear of the compressor.
- Attach the brace bracket to the P-clip with a 1/4 inch NC bolt, nut and washer. Attach the other end of the bracket to the threaded hole on the top of the valve cover (Figure 3.2). Use one of the OEM M8 bolts from the cast alternator bracket.
- Install the fan spacer onto the fan pulley.

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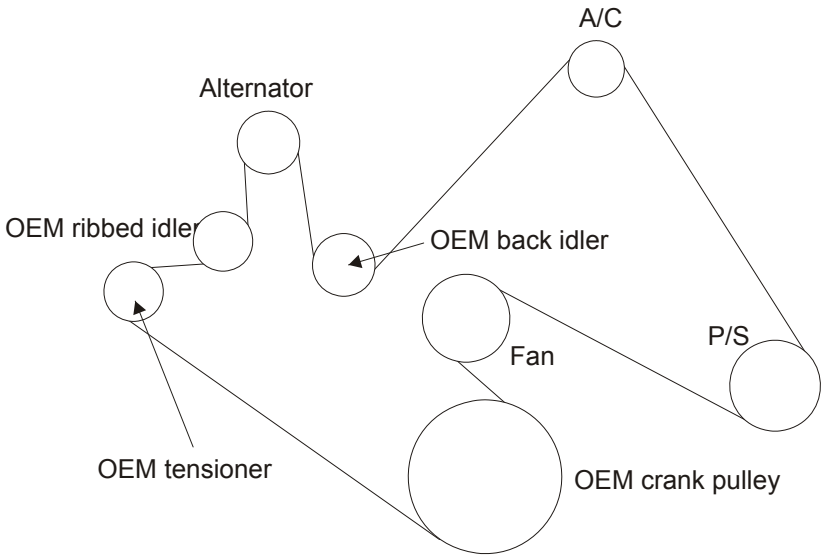
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**Figure 3.2**

- Install the air conditioning compressor and the replacement belt.
- 105 AMP alternator VMAC part #1610337 Gates K061150
  - 150 AMP alternator VMAC part #1630202 Goodyear Gatorback belt 4061175 (extra belt with 150 amp alt)
  - Dual alternator use OEM belt (Figure 3.4)

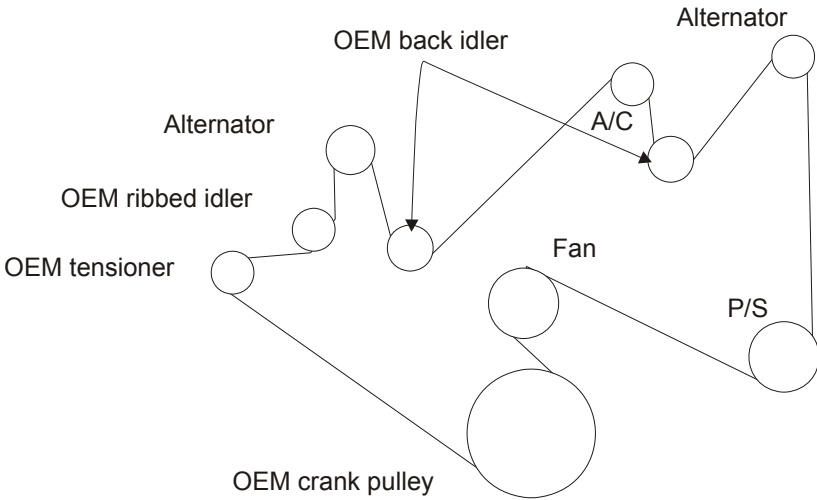


**Figure 3.3 Single alternator**

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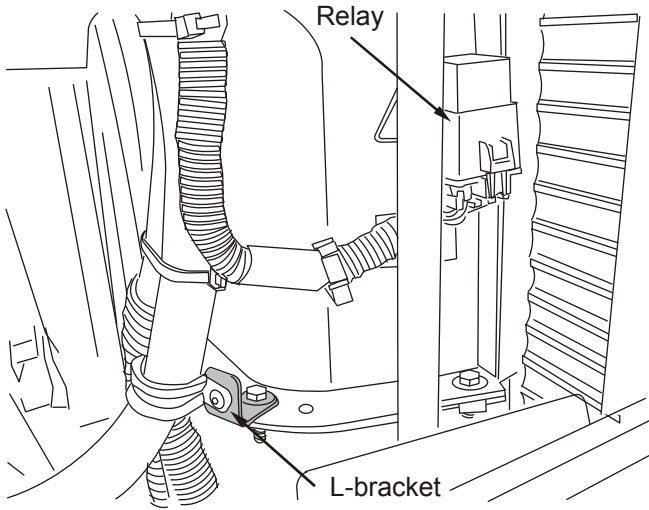
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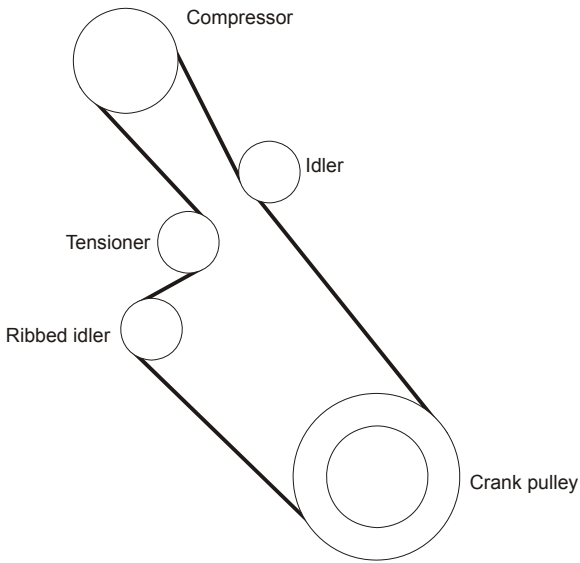
**Figure 3.4 Dual alternator**

- Install the lower fan shroud and fan, then install the upper fan shroud.
- Install the small L-bracket with the welded nut to the rear passenger side outer shroud 6 mm OEM bolt that joins the upper and lower shroud halves (Figure 3.5).
- Drill a 1/4 inch hole in the side section of the passenger side upper fan shroud. Install the relay that was attached to the rear of the upper shroud in this new location.
- Install a rubber-covered P-clip around the heater hose connected to the heater tube and fasten the P-clip to the L-bracket using the 10-32 button head screw to keep the hose away from the compressor clutch.
- Install the supplied 5/8 inch hose barb connector to the cut heater hose, then install the 14 inch length of supplied heater hose between the hose barb connector and the lower radiator hose connector.



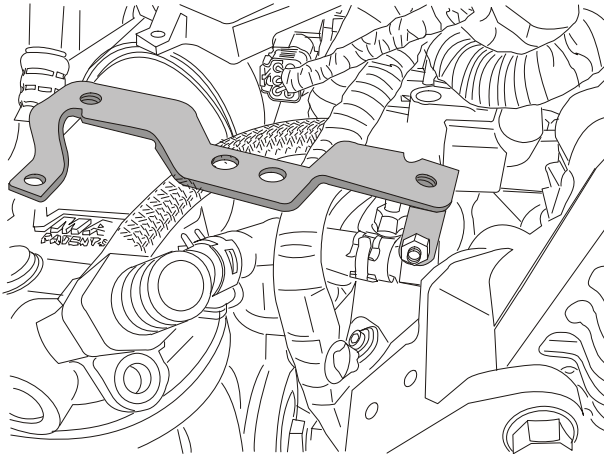
**Figure 3.5**

- Tie the two heater hoses and the relay harness together and install loom protection to the heater hose where it contacts the fan shroud joint.
- Use a plastic tie to secure the two air conditioning lines together down by the lower radiator hose to keep the lines from contacting the compressor belt.
- Install the VR compressor belt (Figure 3.6).



**Figure 3.6**

- Fit the long tab of the OEM glow plug bracket over the clip on the steel section of the fuel bleed valve hose and install the supplied 1/4 inch bolt with flange lock nut and washer (Figure 3.7).



**Figure 3.7**

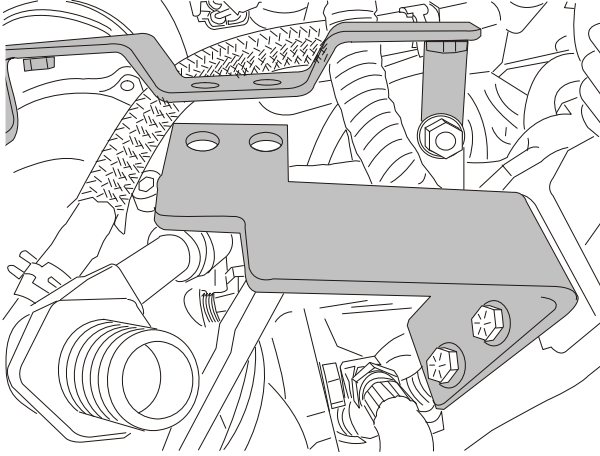
- Install the supplied glow plug locating bracket onto the main bracket and leave the bolts loose (Figure 3.8).

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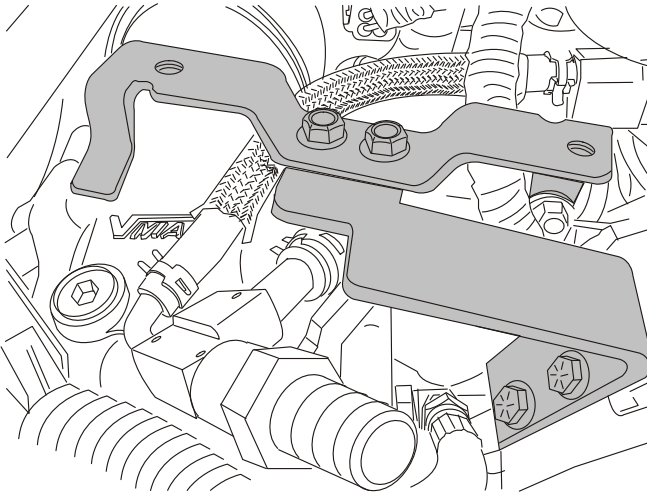
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- Position the bleed valve under the bracket and release the clip holding the bleed valve to the hose so the valve will rotate in the hose to avoid hose twist.



**Figure 3.8**

- Use the two M8 x 20 mm OEM bolts to mount the OEM glow plug bracket to the supplied bracket (Figure 3.9).



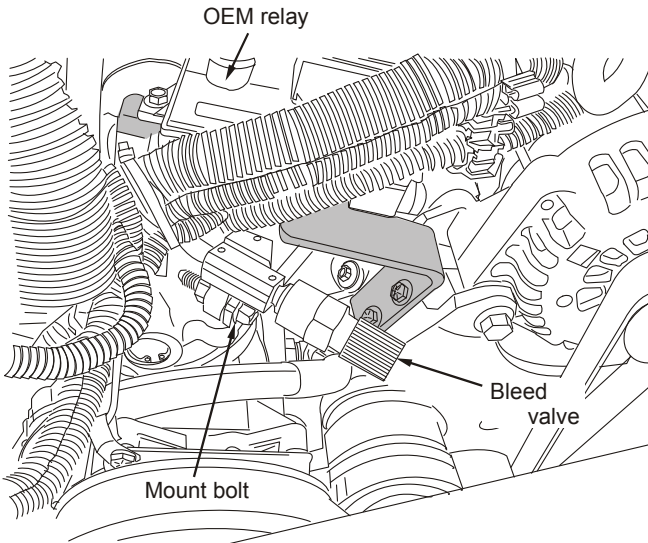
**Figure 3.9**

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- Attach the bleed valve to the front tab on the supplied bracket with and M8 bolt and serrated nut. The body of the bleed valve should fit into the cut-out on the tab (Figure 3.10). Tighten all the fasteners.
- Attach the relay to the OEM bracket using OEM M10 bolts (Figure 3.10). Connect the multi pin connector to the relay.
- Install the supplied throttle body securing bracket using the 8 x 55 mm socket bolt to secure the spacer end of the bracket to the throttle body. Secure the other end to the bolt locating the engine oil fill tube.
- Connect the alternator and air conditioning compressor wiring and make sure that the wire harness is tied away from the heat of the compressor.
- Install the intercooler tube and the air cleaner assembly.



**Figure 3.10**

- Add protective loom to hoses and wiring where they contact components and tie all coolant and oil hoses together where possible away from sharp edges or sources of heat.

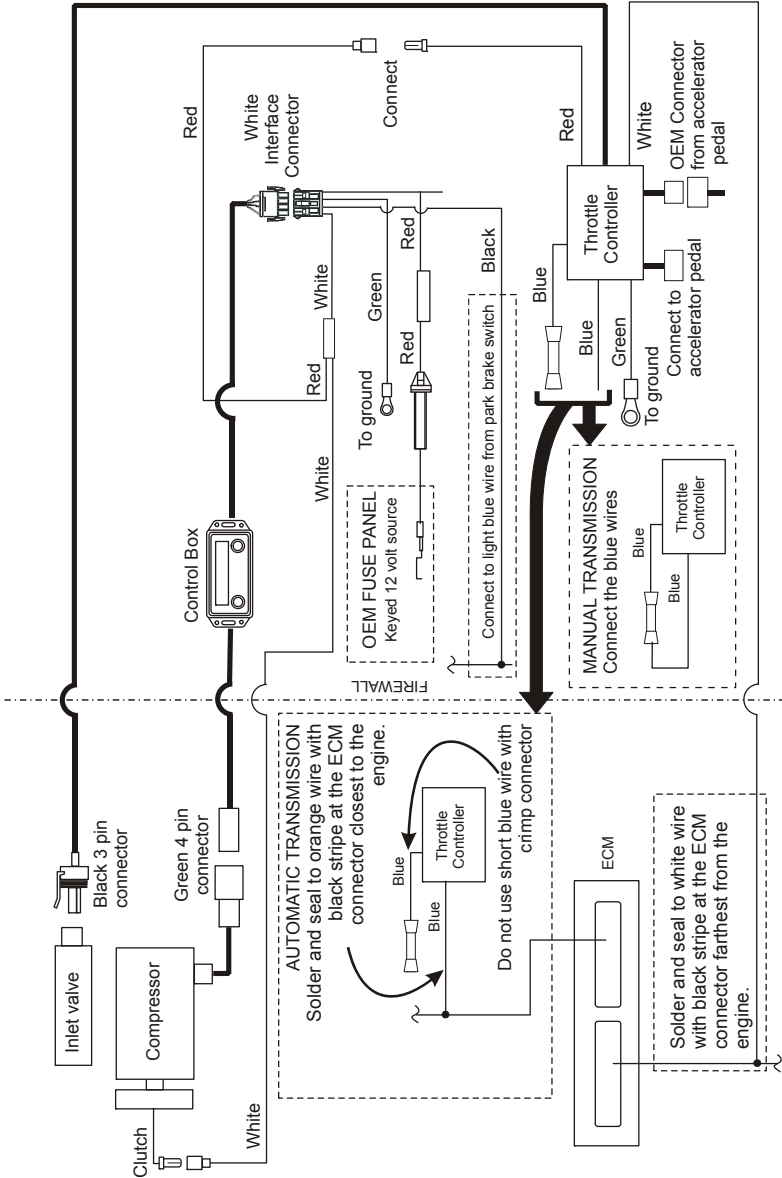
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- Install the coolant tank, connect all coolant hoses and fill the cooling system to the correct level. Install all other OEM parts removed previously. Check all the hoses, lines and OEM harnesses to make sure that they are secured and protected.

# Part 4: Installing the Control Components



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- Lay out all of the control components and identify the wiring and connections according to the wiring diagram.

## **4.1 Installing the Control Components**

- Install the control box where it will be accessible but will not be subject to damage.
- Mount the throttle control under the dash using plastic ties, in a location where the harness connectors on the throttle control will easily reach the OEM accelerator connectors.
- Route the following wires into the engine compartment through a suitable OEM opening in the firewall (above the throttle pedal or left corner of the firewall):
  - grey wire with a 3 pin black connector
  - grey wire with a 4 pin green connector
  - white wire with a plug connector
  - white wire with no connector
  - automatic transmission vehicles – long blue wire with no connector
- Leave all other wires inside the cab.

## **4.2 Connecting the In-cab Wiring**

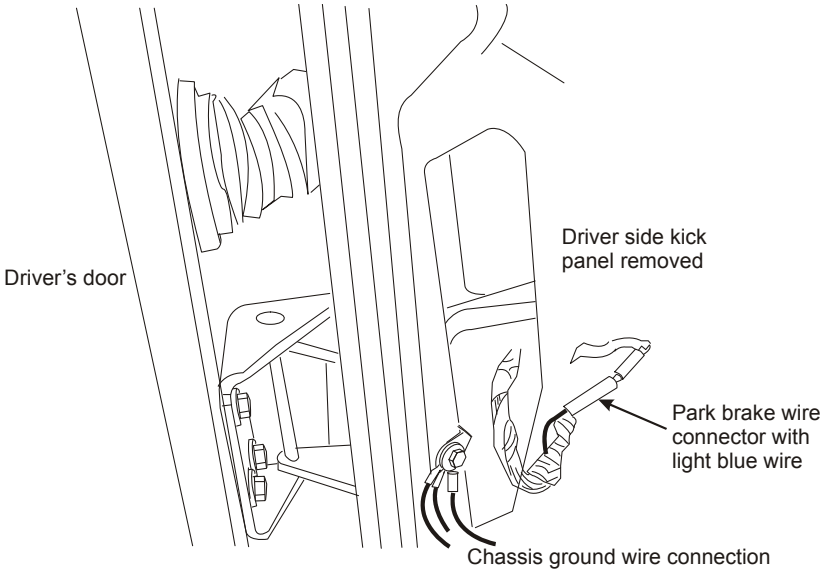
- Unplug the OEM cable from the accelerator pedal and plug it into the matching connector from the throttle control box. Plug the cable from the throttle control into the matching connector on the accelerator pedal.
- Connect the two white interface connectors together.
- Connect the red wire from the interface connector to the red wire from the throttle controller.
- Connect the ground wires from the interface connector and the throttle control to a good ground under the dash.

### 4.2.1 All Trucks

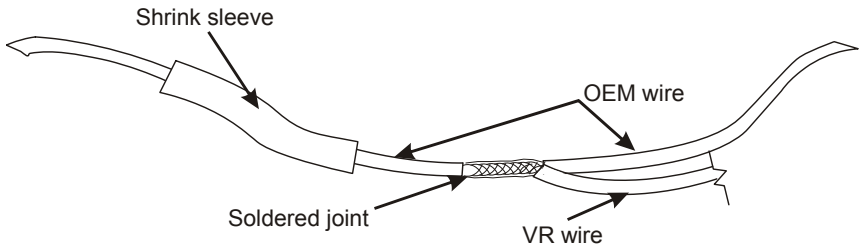
- Remove the kick panel on the front driver's side of the cab. Locate the park brake connector with a light blue wire next to the chassis ground wire bolted to the body (Figure 4.1). Solder the black wire from the interface cable to this wire and seal the connection with a shrink sleeve. The preferred connection method is shown in Figure 4.2.

### 4.2.2 Manual Transmissions

- Cut the long blue wire to about 6 inches, strip the end and connect it to the short blue wire using the attached crimp connector.



**Figure 4.1**



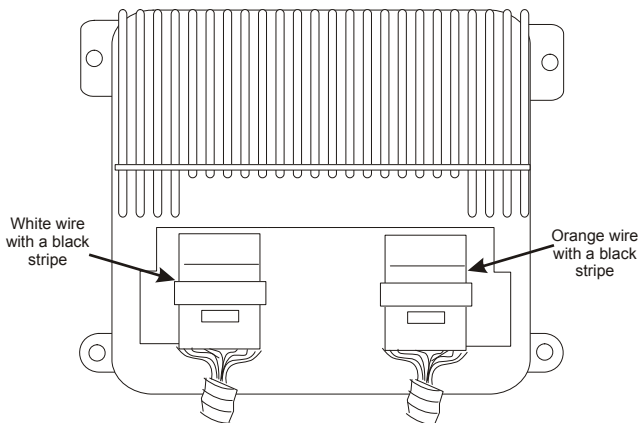
**Figure 4.2**

### 4.3 Connecting the Underhood Wiring



***Cover all underhood wiring with plastic fireproof loom. Secure the harnesses with nylon ties and pull all excess wire back into the cab.***

- Route the two grey wires and the white wire with the plug connector across the radiator to the compressor. Connect the wires to the matching connectors at the compressor.
- Route the white tachometer wire and the long blue wire from the throttle control (if the truck has an automatic transmission) across the radiator to the ECM in the stack on the passenger side firewall.
- Locate the connector away from the engine on the ECM (Figure 4.3). Peel back the tape on the wire bundle for easier access to the wires.



**Figure 4.3**

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**ENGINE**

- Locate the white wire with a black stripe. Solder the white tachometer wire from the throttle controller to this wire and seal the connection with a shrink sleeve.

#### 4.3.1 Automatic Transmission Trucks

- If the truck has an automatic transmission, locate the two orange wires with black stripes at the ECM connector closest to the engine.
- Connect the batteries and test each wire with a digital Voltmeter set to DC Volts. The correct wire will show 0 Volts in Park or Neutral and 12 Volts in all other gear positions.
- Disconnect the batteries, solder the long blue wire to this wire and seal the connection using the remaining piece of shrink sleeve.

#### 4.4 Connecting the Power Supply Wire

- Route the red wire from the interface connector (with the inline fuse) to the fuse panel.
- Connect the truck batteries.
- Locate a fuse in the fuse panel dash that provides power when the ignition switch is in the “ON” position. Remove the selected fuse from the panel and connect the fuse tap to one side. Plug the fuse back into the empty socket using needle-nose pliers to make sure that it seats properly.



***Make sure that the fuse is inserted with the tap on the battery power side (hot), not the fused side.***

#### 4.5 Completing and Testing the Installation

- Pull all excess wiring back into the cab, bundle the wiring together and tie it up out of the way under the dash.
- Replace all dash panels and other covers removed during installation.

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### 4.5.1 Confirmation Test

- Place the automatic transmission in Park or manual transmission in neutral and apply the park brake.
- Turn the ignition key “ON” but do not start the engine.
- Check the control box to see if there is a number showing in the display. If not, there is no power to the control box.
- Press the “ON” button on the control box. The green light should come on and you should hear the compressor clutch engage. Press the “OFF” button. The green light should go off and you should hear the compressor clutch disengage.
- Press the “ON” button on the control box. The green light should come on and you should hear the compressor clutch engage. If it does not, allow about 20 seconds for internal reset and try again.
- Release the park brake. The control box display should read “PARK BRAKE”, the green light should flash and the compressor clutch should disengage.
- Apply the park brake. The green light should stop flashing. Press the “ON” button on the control box. The green light should come on and you should hear the compressor clutch engage. If it does not, allow about 20 seconds for internal reset and try again.
- Press the “OFF” button on the control box



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

- Turn the ignition key “OFF”.



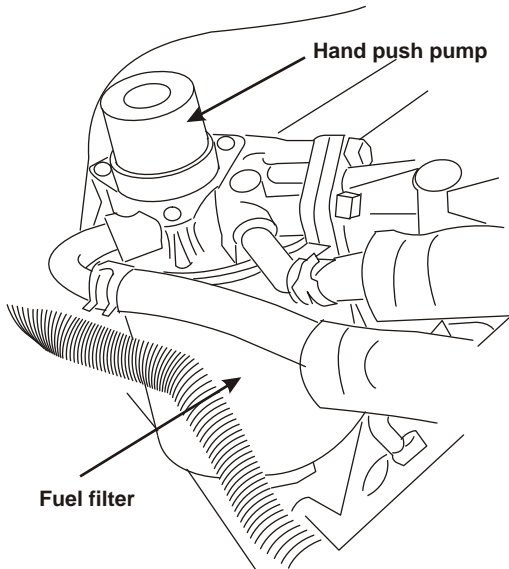
***If the vehicle fails the test, check the wiring to make sure that all the connections are correct and secure. If you require additional assistance, contact your local VMAC dealer. Call 1-800-738-8622 or 250-740-3200.***

# Part 5: Finishing the Installation

## 5.1 Before Starting the Engine Checklist

Make sure that the following have been completed:

- Check the vehicle coolant.
- Check the compressor oil level.
- Do a final inspection to make sure that everything has been completed and tightened.
- Perform a final belt alignment check.
- Check all wiring to make sure it is secure and protected.
- If the fuel line has been disconnected, pump the primer on the fuel filter (Figure 5.1) and use the bleed valve to remove air from the fuel system.



**Figure 5.1**

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- Start the engine. If the engine stops, pump the primer again until you feel fuel pressure resistance and restart the engine.



***You may have to prime two or three times to eliminate air from the fuel system.***

## 5.2 After Starting the Engine Checklist



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

Make sure that the following have been completed:

### 5.2.1 Automatic Transmission Trucks

- With the engine running, engage the park brake; place your foot firmly on the brake pedal, shift the automatic transmission out of Park and into gear.
- Push the "ON" button on the control box. The green light will come on and the compressor will engage, but the engine will not idle up. Push the "OFF" button.
- Repeat this test in all gear selector positions to make sure that the engine does not idle up unless the selector is in Park or Neutral.

### 5.2.2 All Trucks

- Operate the system with an air tool for at least 1/2 hour (1 hour preferred).
- Road test the vehicle for approximately 14 miles (20 km).
- Watch the underhood operation to make sure that belts travel properly and nothing is rubbing or contacting hot parts.



***If you see unusual belt fluctuations during initial operation, stop the engine and move the tensioners back and forth, then restart the engine. Belt fluctuations should stop within the first 30 minutes of operation.***

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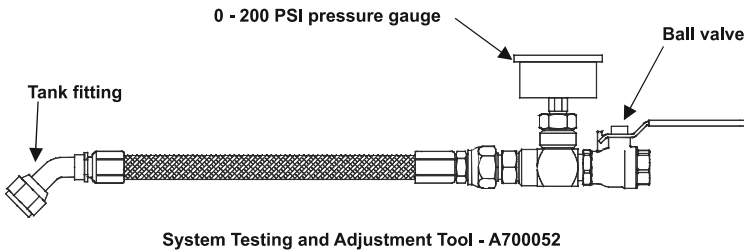
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- Check all components once the engine is turned off and the system has cooled.
- Check the vehicle coolant after the vehicle reaches operating temperature.
- Check the compressor oil level after the vehicle has been shut down and the oil level has had time to stabilize.

### 5.3 Setup, Performance Testing and Adjustments

This system has been adjusted at the factory for general operation. If your tests indicate that adjustment is necessary, refer to the owner's manual for specific instructions on how to adjust the system.

You can test the system operation using the tools that will be operated by the system or you can test operations using an orifice in the outlet to simulate tool use (Figure 5.2).



**Figure 5.2**

1. Install the test tool in the tank outlet fitting.
2. Make sure that the ball valve is closed.
3. Place the manual transmission in neutral or the automatic transmission in park and fully apply the park brake.
4. Allow the vehicle to run until the engine is at operating temperature.
5. Operate the air compressor system until the oil is warm.
6. Observe the pressure gauge. Pressure should be approximately 150 psi (See the owner's manual for adjustment procedures).

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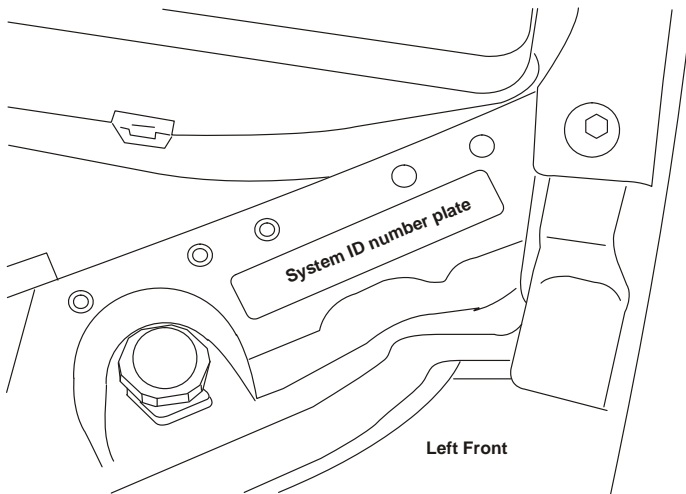
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7. Open the ball valve on the test tool and observe the engine tachometer. Engine speed should increase to about 1,800 to 2,200 RPM.
8. Close the air valve slowly to allow the system pressure to rise.
9. Once the system pressure is at maximum, slowly open the ball valve on the test tool until the pressure on the gauge begins to drop. Engine speed should start to ramp-up when air pressure drops to approximately 140 psi.

## 5.4 System Identification and Warnings

The System Identification Number Plate must be attached to the vehicle at the time of installation (Figure 5.3). This plate provides information which allows VMAC to assist in customer inquiries and the ordering of parts. Mark and drill two 7/64 inch holes, then secure the plate with self-tapping screws.



**Figure 5.3**

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 (Figure 5.4).

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This Vehicle is Equipped with a VMAC Air Compressor System

**OPERATING INSTRUCTIONS**

**Daily Pre-Start Check**

1. Check Oil Level in Tank
2. Check Drive Belt
3. Check for Leaks

**Start Up Procedure**

1. Ensure Compressor is OFF
2. Ensure discharge valve is CLOSED
3. Ensure air system is discharged
4. Place vehicle in Neutral or Park and engage vehicle safety features - park brake
5. Start engine and bring up to operating temperature
6. Turn ON compressor

**Shutdown Procedure**

1. Allow engine to idle for 1 minute
2. Turn OFF compressor
3. Wait for system to discharge for 1 minute before restarting

For Technical Support/Parts contact your VMAC Dealer  
To locate your nearest dealer call 1-800-738-8622 (250-740-3200)

**⚠ WARNING**

Always allow system pressure to discharge before restarting

Figure 5.4

## 5.5 Auxiliary Air Receiver



***If you intend to use an auxiliary air receiver with this system you must observe the following installation procedure to prevent damage to the system.***

The line from the VMAC tank to the auxiliary air receiver must have a one-way check valve installed (part #3600078) to prevent blow back from the auxiliary tank to stop moisture from entering the VMAC tank (Figure 5.5).

The line to the auxiliary tank must not be installed in the bottom of the tank, but must be installed as high as possible to prevent water from entering the line.

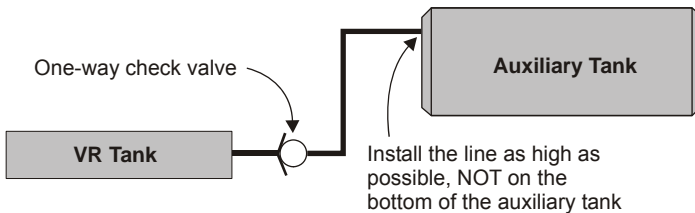


Figure 5.5

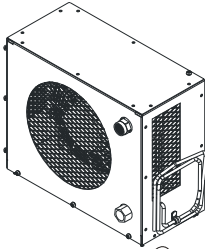
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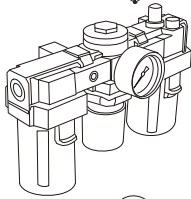
# Accessory Products from VMAC

The following accessory products for your VR compressor system are available from VMAC. For more information or to order these products, call 1-800-738-8622.



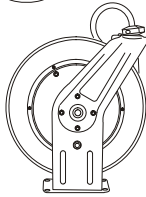
## Eliminator Aftercooler

Removes up to 80% of moisture from compressed air. Quick installation, automatic drain and compact design



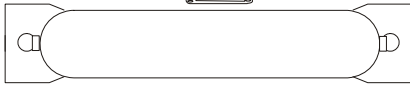
## Filter Regulator Lubricator

Removes lubricants, water and dirt from the air stream. Adds atomized tool oil to lubricate tools. Reduces pressure for longer tool life.



## Hose Reel

Secure, compact, retractable hose storage in a sturdy reel.



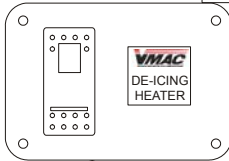
## Air Receiver Tank

Thirty-five gallon capacity in a compact tank, complete with fittings and a gauge.



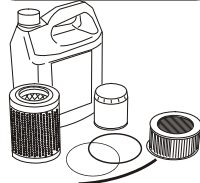
## De-icer Kit

Insulated rope heater prevents freezing of lines and regulator.



## Service Kits

Using OEM service products will extend the life of your system. Includes oil, filters, seals and O-rings. 200 hour and 400 hour service interval kits are available



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