



**2012 +  
DODGE CHALLENGER / CHARGER  
AND CHRYSLER 300  
INTERCOOLED SUPERCHARGER SYSTEM  
272A1001  
TO SUIT PENTASTAR 3.6L V6**



**INSTALLATION INSTRUCTIONS**

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## **DISCLAIMER**

**This Sprintex 272A1001 supercharger system detailed in this manual does not clear the stock hood of the Dodge Challenger, Dodge Charger or Chrysler 300 models when fitted.**

**By purchasing the Sprintex 272A1001 supercharger system, the purchaser acknowledges responsibility for any hood modifications undertaken and that Sprintex Ltd makes no representation of the system's suitability or approval for use on a road vehicle in any country, state or other jurisdiction, and that the purchaser is responsible for any hood modification required to safely operate any vehicle installed with a Sprintex supercharger system.**

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## **IMPORTANT INFORMATION / PRODUCT WARNING**

Installation of the Sprintex Supercharger system on a Pentastar 3.6L V6 vehicle may void all or parts of the Chrysler/Dodge Warranty. Customers should consult their relevant dealer for details.

Sprintex makes no representation that installation and use of the Sprintex supercharger system is legal for public road use worldwide. Customers should check that installation and use of the Sprintex supercharger system on their vehicle is legal by contacting the relevant statutory authority in their jurisdiction prior to use on public roads.

Provided in this installation manual are detailed instructions to the installer on how to install the Sprintex patent pending supercharger system to the Dodge Challenger, Dodge Charger and Chrysler 300. The instructions are aimed at being simple yet informative, and are aided with well-presented pictures to make installations as simple, fast, and problem free as possible. Please read the entire instruction manual prior to beginning the installation procedure. Pictures and descriptions may vary slightly from model to model.

It is recommended that all wiring harness connectors, and vacuum hoses are labelled at the time of removal for easy and correct refitting. Some components that are removed and are to be refitted are fragile, and should be stored safely to prevent damage to these components.

- Sprintex recommends performing the following vehicle checks prior to installing the supercharger:
- Check that the factory fuel system is operating correctly.
- Ensure that the vehicles ignition system is working correctly.
- Install new standard spark plugs and set gap to factory specifications.
- Inspect the catalytic converters for blocks or damage.
- Replace the fuel filter if the vehicle has travelled more than 15,000 Km or 9000 miles.

It is recommended to run at least one full tank of premium unleaded fuel through the vehicle prior to installing the supercharger system to prevent any possible damage that may occur due to running the supercharged engine on lower octane fuel.

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Sprintex reserves the right to change specifications from time to time and will not be liable to any person or entity for doing so. Sprintex believes that information in this document is correct at time of print. Sprintex limits its liability to the maximum extent permissible at law with regard to the reliance which any person places on anything in this document.

**This Sprintex installation requires that the vehicle be equipped with a standard Dodge Challenger/Charger, Chrysler 300 factory ECU and calibration. Failure to ensure this will affect the performance and may void warranty.**

**California residents:**

California Proposition 65 entitles California to special warnings for products that contain chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.



## **WARNING**

This product can expose you to chemicals including Cumene, which is known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, visit

**[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).**

## **2015+ POWER CONTROL MODULE (PCM) REPLACEMENT/MODIFICATION.**

Please note that Dodge Challenger/Charger & Chrysler 300 vehicles produced in and after 2015, will require the PCM to be exchanged or modified to facilitate the Diablo tuning device to correctly tune the vehicle, please contact Sprintex or your dealer for further information.

**NOTE:** Sprintex recommends that this process should be completed prior to the Sprintex supercharger system installation, as after the supercharger is installed, the vehicle should not be driven without a Sprintex calibration loaded to the vehicle.

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## **CHANGES TO FACTORY SPECIFICATIONS**

**FUEL:** Minimum 95 RON (91 Octane USA) premium unleaded gasoline / fuel to be used at all times. Never allow the engine to knock or detonate as serious engine damage may occur.

**SERVICING REQUIREMENTS:** See the "MAINTENANCE INSTRUCTIONS" section of this manual.

Routinely check the supercharger gearbox oil level on the dipstick provided on the supercharger gearbox, top up level if necessary with Redline 75W90 NS gear or equivalent.

Inspect supercharger drive belt at every routine service and replace when required.

Drain and replace supercharger oil every 50,000 km or 30,000 miles. Use a quality fully synthetic SAE 75W-90 gear oil, specifications: API GL5, MT1 such as: Redline 75W90 NS gear oil (factory fill), Castrol Syntrax Universal Plus 75W-90, Lucas synthetic SAE 75W-90 gear oil or equivalent. It is critical not to overfill supercharger gearbox as,

- a. damage might occur or
- b. rapid oil loss in the supercharger might be experienced until the oil reaches the recommended level.

**Fill with exactly 83 millilitres or 2.80 US fluid ounces and check the oil level with the dipstick provided.**

### **NOTE:**

Many of the photos shown in this document are of a typical Dodge Challenger vehicle and are similar to a typical Dodge Charger and Chrysler 300 vehicles.

Some of the terminology and language used in this instruction may vary from that of the end user / installer's expectations, as some tools and automotive components have different common names in different geographical locations.

## **TOOLS AND CONSUMABLES REQUIRED TO COMPLETE INSTALLATION**

- Metric & inch spanners (wrenches) and sockets
- Torque Wrench
- Flat blade & Philips screwdrivers
- Trim clip removal tool
- Rubber grease or white petroleum jelly
- Pliers & side cutters (dykes)
- ½" Breaker bar
- Hose clamp pliers
- Electrical tape
- Masking tape
- Metric Allen keys
- ½" Drive short extension
- Torque wrench
- 3/8" Metric socket set
- **Optional:** Cooling system refiller.



## PARTS SUPPLIED

Lower Supercharger Manifold



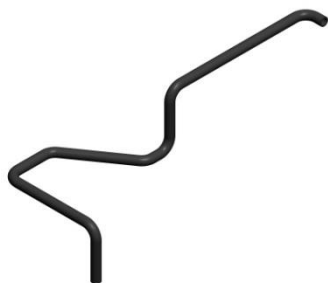
Upper Supercharger Manifold with Pulley



Supercharger drive support bracket, Pulleys and Fasteners



Intercooler feed hose 272P7401



Intercooler return hose 272P7403



Pump feed hose 272P7405



Engine breather hose "A" 263P7419



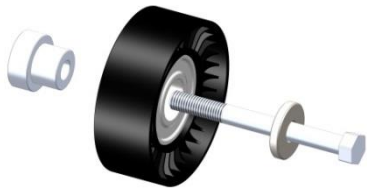
IAT sensor loom extension



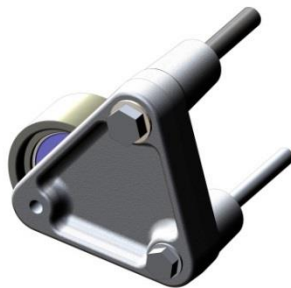
Brake booster hose 272P2303



Idler pulley spacer, idler pulley, M8 x 80 hex head screw & washer



Idler Pulley Bracket, Pulley, Screws and washers



Coolant Crossover



Water pump



W/Pump Wiring Harness



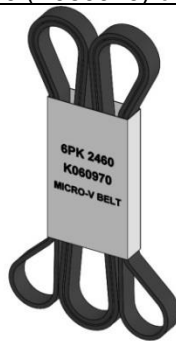
Intercooler Radiator



Radiator mount brackets (X2) with mounting hardware.



6PK2460 (K060970) drive belt



Fuel Injectors (X6)



M6 Manifold Studs (x7)



M6 Nyloc Nuts (x7)



26mm springband clamps (x6)





19mm springband clamp (x2)



6PK Idler pulley (x1)



Diablo SP2000 flash tuner



M6 x 30 Flange head screw (x10)



M6 x 25 Flange head screw BLK (x4)



MAP sensor adaptor loom



Throttle body extension loom



M6 x 90 (x1) M6 x 100 (x1) Hex head screws + 6mm x 17mm x 3mm Washers (x2)



Clean air duct and hose clamps



MAP sensor



Drive Pulley



Self-tapping screw (x1)



1/4 BSPP plug



M8 x 16 flange head screw (x2)



M6 x 20 flange head screw (x2)



M10 x 110 hex head bolt (X1)



M8 x 110 bolt (X1)



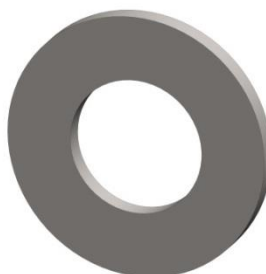
Pulley retaining washer



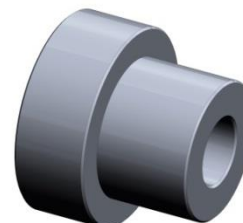
M8 flat washers (X5)



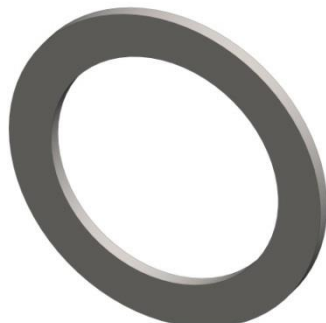
M10 Flat washers (X3)



Idler Pulley Spacer (x1)



Idler pulley bearing spacer (x1)



60mm Idler pulley (X3)



26mm springband clamp (x6)



M10 x 70 bolt (X2)



M8 X 40 Socket Head  
Cap Screw (SHCS)



Sticker, Premium Unleaded Fuel



# **PENTASTAR 3.6L V6 SUPERCHARGER SYSTEM**

## **SECTION 1**

### **DISASSEMBLY INSTRUCTIONS**

#### **PREPARATION**

Ensure that all components required to install the supercharger system are available, refer to the Parts Supplied section provided earlier.

Ensure that all required tools are available.

Please read the entire installation manual prior to beginning the installation procedure.

Ensure the vehicle is located in a secure position with vehicle tyres secured and hand brake applied. To avoid injury, Sprintex® recommends the use of a suitable vehicle lift or appropriate safety stands when the vehicle is required to be lifted. Stands should be positioned as per the vehicle manufacturer's owner's handbook.

#### **SAFETY WARNING**

No unauthorised service or alteration may be undertaken to the Sprintex supercharger. Installation should be carried out in a workshop which is a safe and ventilated working environment with equipment and procedures compliant with local authority guidelines and legal requirements.

Installers should ensure adequate hearing, eye, and physical protection is used at all times during the installation process. Installers should take reasonable precautions to avoid fatigue and closely follow the installation instructions during every installation. Sprintex recommends installation should not be carried out unsupervised. Sprintex, its directors, employees and agents will not accept liability for damage accident or injury resulting from the installation process. Safety warnings are also provided throughout this document.

Allow engine to cool prior to proceeding with disassembly to prevent scalding.

## **NOTES:**

- During disassembly and removal of components, take notes and ensure parts are labelled and stored safely; this will help with the reassembly.
- Most of the photos shown in this document are of a typical Dodge Challenger and are similar to a typical Dodge Charger and Chrysler 300 vehicles.



- Connect and disconnect battery cables, jumper cables or battery charger only with the ignition off.
- Disconnecting the battery may erase fault codes stored in control module memory. Using diagnostic equipment, check for fault codes before disconnecting battery cables.  
If the malfunction indicator light (MIL) is illuminated.
- **MIL (Malfunction Indicator Lamp) light.**  
The MIL light can be found in one of two locations, dependant on the market the vehicle has been built for.  
The MIL light may be an illuminated ENGINE symbol within the instrument cluster.  
Please refer to the owner's handbook to define which off the above applies to the vehicle to be fitted with the Sprintex unit.
- Always disconnect the negative battery terminal first. This prevents possible shorting and potential battery damage.



## 1. Fuel System Pressure Relief

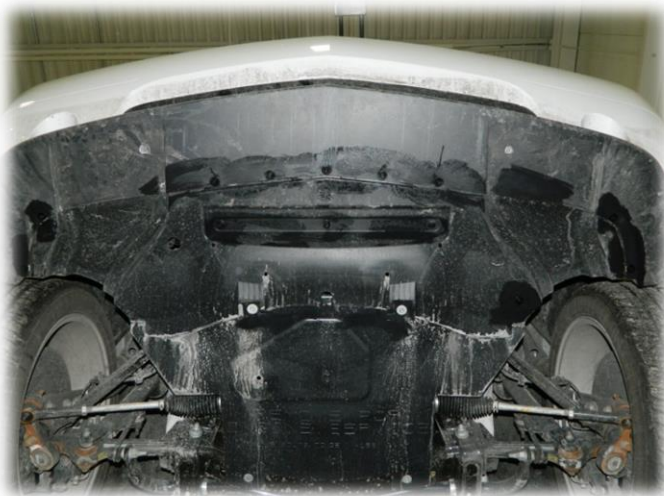
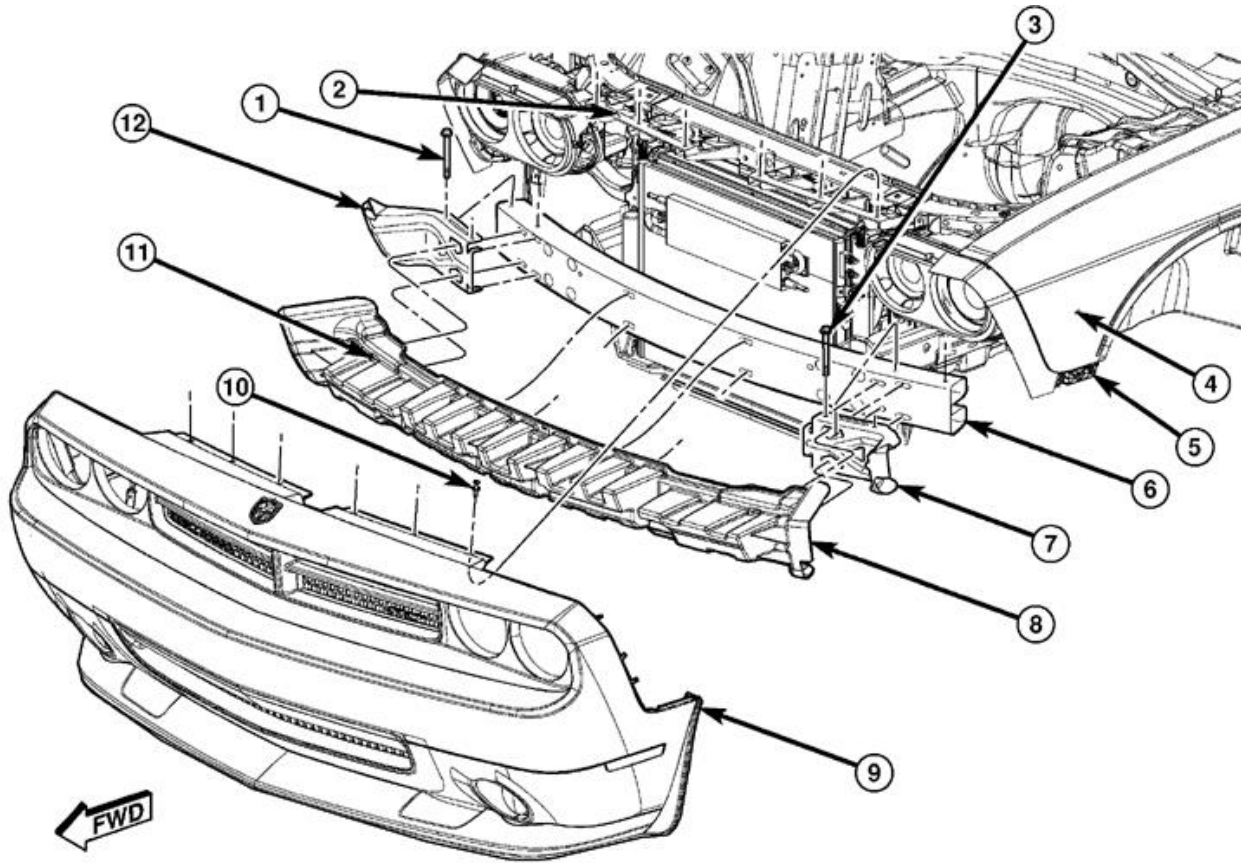
- Remove the fuel fill cap.
- Remove the fuel pump relay from Power Distribution Centre (PDC). For location of the fuel pump fuse, refer to label on the underside of the PDC cover
- Start and run the engine until it stalls.
- Attempt restarting the engine until it will no longer run.
- Turn the ignition key to the OFF position. Be certain that all electrical accessories are turned off.
- Re-install the fuse.
- Disconnect and isolate the negative ("-") battery terminal.
- Disconnect and isolate the battery positive cable.





## 2. Front Fascia Removal.

- Raise and support the vehicle.
- Remove the left and right front splash shields as necessary
- Remove the belly pan.
- Remove the **six** mounting fasteners that secure the front fascia assembly (9) to the inside of the front fender. (see images on next page for fastener locations)
- Partially lower the vehicle and remove the push-pin retainers (10) that secure the front fascia assembly to the upper radiator support.
- Carefully pull the left and front side of the fascia out of the fender mounted fascia mounting brackets.
- Carefully pull the front fascia assembly forward to disengage the push-pin retainer from the slot in each side of the fascia and disconnect the fog lamp wire harness connectors, if equipped.







**Note this location on both left and right hand fenders for 2 of the six fasteners to be removed when removing fascia.**

### 3. Remove the engine cover.

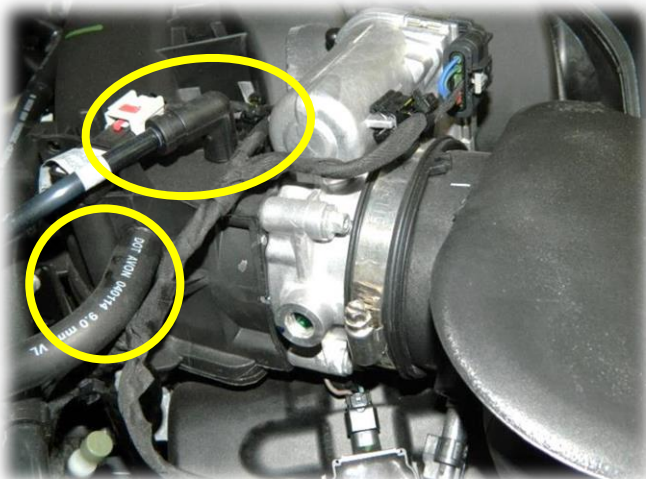
- Lift the engine cover retaining grommets off the ball studs and remove the engine cover
- Disconnect the electrical connector from the Inlet Air Temperature (IAT) sensor
- Loosen the clamp at the throttle body and at the air cleaner housing.
- Lift the air inlet hose assembly retaining grommet off the ball stud.
- Remove the air inlet hose assembly.





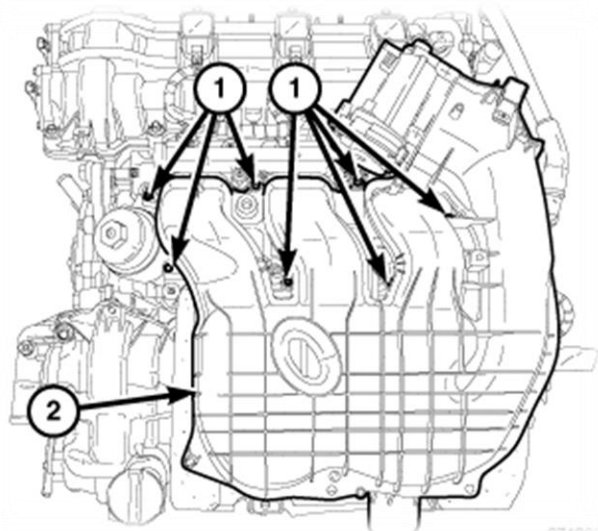
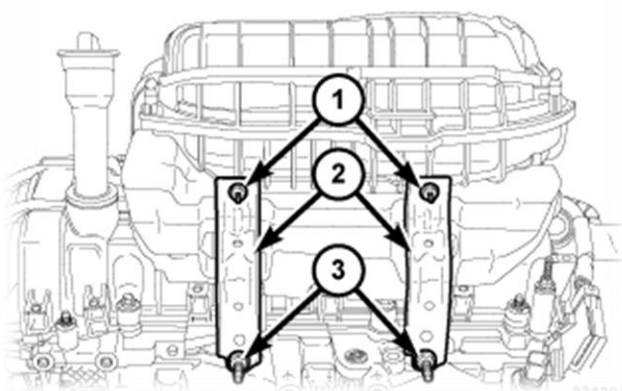
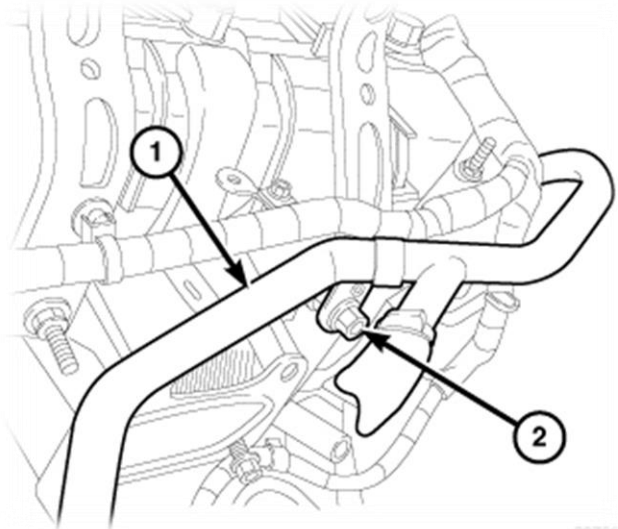
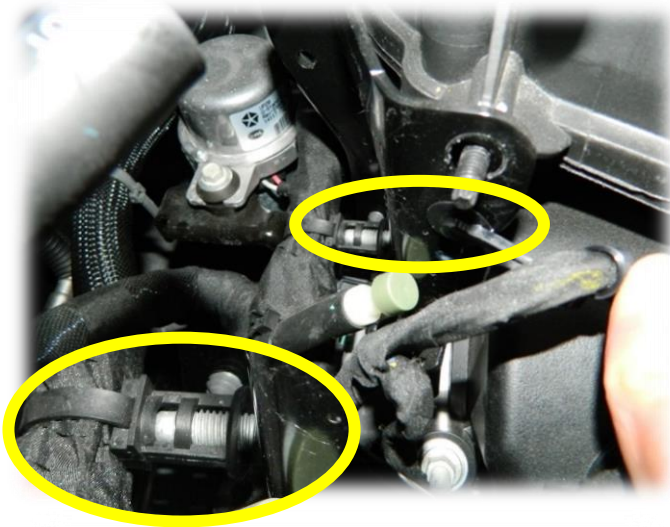
#### 4. Disconnect brake booster hoses.

- Disengage the brake booster hose retainer from the upper intake manifold.
- Disconnect the electrical connectors from the Manifold Absolute Pressure (MAP) sensor and the Electronic Throttle Control (ETC).
- Disengage the ETC harness from the clip on the throttle body and unfasten the wire harness retainer from the upper intake manifold near the MAP sensor and reposition the wire harness.
- Disconnect the following hoses from the upper intake manifold; Brake booster vacuum hose, EVAP vapour purge line and completely remove the Positive Crankcase Ventilation hose from the vehicle.
- Disconnect the crankcase ventilation tube from the airbox. Remove the airbox retaining screw and remove the airbox from the vehicle.



## 5. Intake manifold removal.

- Unfasten the wire harness retainer (4) from the upper intake manifold support bracket (2) stud retainer (3).
- Remove the two nuts (1), loosen the stud (3) and reposition the upper intake manifold support bracket (2).
- Remove the heater core return tube upper support bracket retaining nut (2) and reposition tube (1).
- Remove the two nuts (1), loosen two stud retainers (3) and reposition the two upper intake manifold support brackets (2).



- **NOTE:** The upper intake manifold attaching bolts are captured in the upper intake manifold. Once loosened, the bolts will have to be lifted out of the lower intake manifold and held while removing the upper intake manifold.
- **NOTE:** Exercise care not to inadvertently loosen the two fuel rail attachment bolts that are in close proximity of the upper intake manifold attaching bolts.
- Remove the seven manifold attaching bolts (1) and remove the upper intake manifold (2).
- Cover the open intake ports to prevent debris from entering the engine.
- Remove the insulator from the left cylinder head cover
- Re-tighten the stud retainers and refit the heater core return tube.
- Re-tighten the upper manifold support bracket and reattach the harness to the stud retainer.

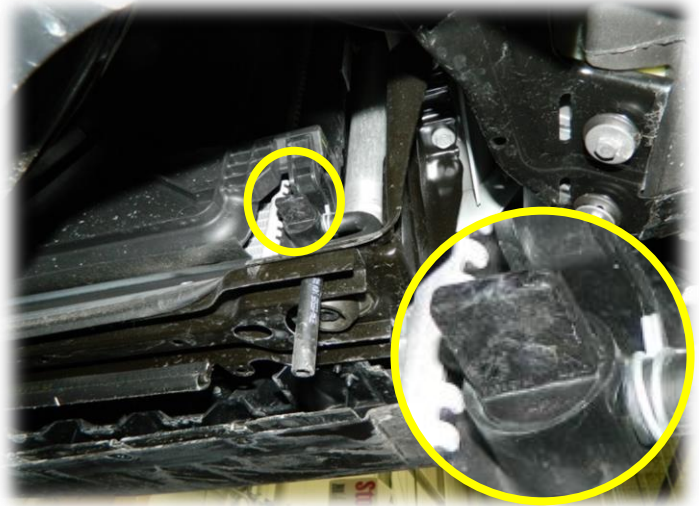


## 6. Drain the vehicles cooling system.

**WARNING:** Do not remove cylinder block drain plugs or loosen radiator draincock with system hot and under pressure. Serious burns from coolant can occur.

**DO NOT WASTE** reusable coolant. If solution is clean, drain coolant into a clean container for reuse.

- Remove radiator pressure cap.
- Raise and support the vehicle.
- Remove the underbody splash shield.
- Loosen radiator petcock.
- Drain coolant into a clean container.





## 7. Replace the injectors.

- Disconnect the fuel injector electrical connectors by lifting the red locking tab then apply pressure to the black tab when removing the connector.
- Place a rag under the fuel rail supply line quick connector to catch any residual fuel while disconnecting the fuel supply hose from the fuel rail.
- Disconnect the fuel supply line quick-connect fitting at the fuel supply line.

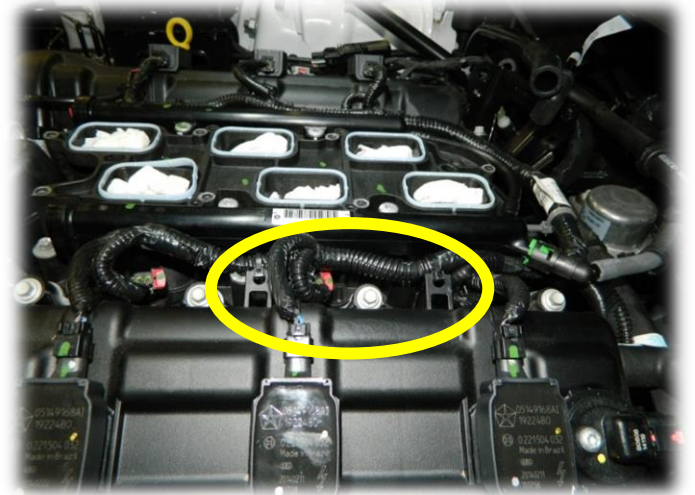
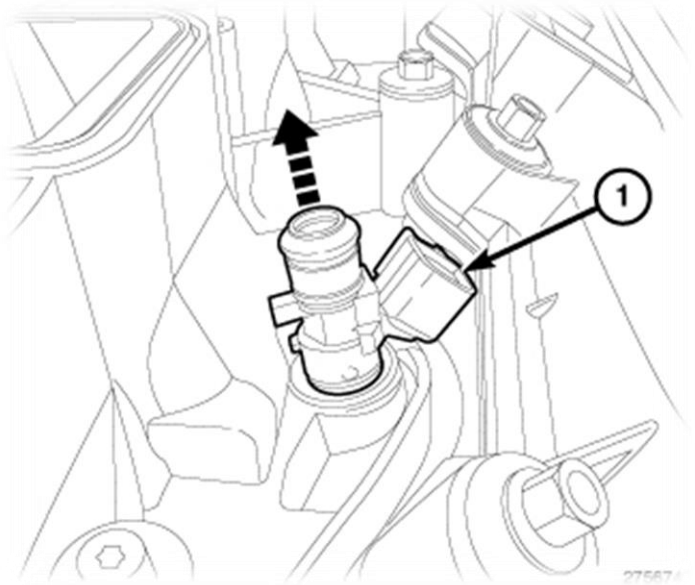
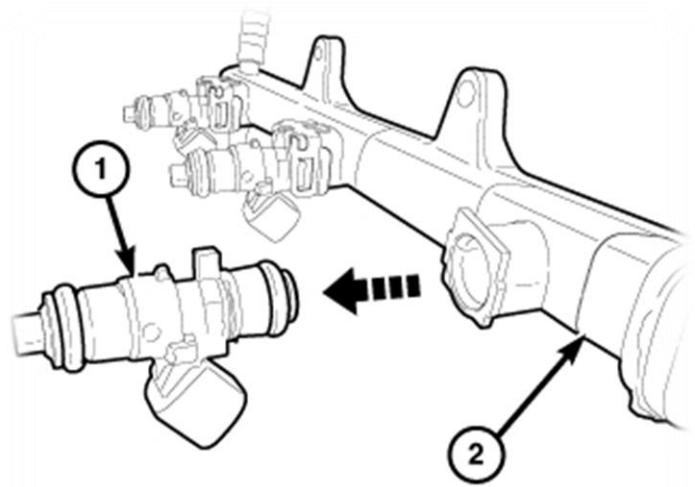
**Note: Fuel may escape under pressure when any fuel hose is disconnected. Take care to avoid contact with the skin or eyes. Ensure that no ignition source is close by to prevent the risk of fire.**

- Remove the four bolts (1) from the fuel rail (2).

**CAUTION:** When removing the fuel rail from the lower intake manifold, one or more fuel injectors may remain in the intake manifold resulting in residual fuel spilling out onto the engine from the fuel rail.



- Remove the remaining fuel injectors (1) from the fuel rail (2).
- Remove the remaining fuel injectors (1) from the lower intake manifold.
- Lubricate the o-rings of the injectors supplied with the system with rubber grease or white petroleum jelly prior to replacing the OEM injectors. Take care when installing the injectors into the fuel rail to prevent damage to the o-ring.
- Re-attach the fuel rail with the OEM fasteners and tighten to 7Nm.
- Re-connect and lock the fuel injector electrical connectors.
- Lubricate the fuel rail spigot with rubber grease or white petroleum jelly before reconnecting the fuel rail supply line quick connector.
- Ensure that the connector is locked in place.
- Remove the grey harness retainers from the valve cover and harness on the left bank, neatly tuck the harness down beside the fuel rail and tie in place with the cable ties supplied.
- **At this stage connect the water pump wiring harness to the injector connector of cylinder #2 and run the wire down beside the radiator. Tie in place with cable ties supplied.**



- Securely attach the harness to the valve cover using the cable ties supplied on both banks.

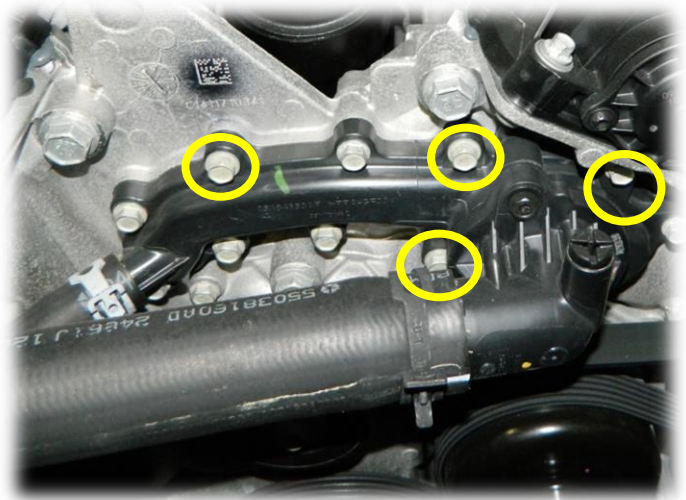
**Failure to correctly secure the wiring loom may cause electrical faults in the future with short circuits due to insufficiently secured wiring.**

## 8. Remove the OEM coolant cross over.

- Remove thermostat housing mounting bolts and remove the thermostat housing assembly.
- Remove the heater supply hose from the coolant crossover.
- Remove the coolant crossover mounting bolts. Take notice to the four bolts that bolt directly to the timing cover.
- Remove the coolant crossover and gaskets.
- Clean gasket sealing faces
- Ensure that the supplied o-ring is in place prior to installing the supplied cross over. (see image)

**NOTE:** The shorter M6 mounting bolts, bolt directly to the engine timing cover.

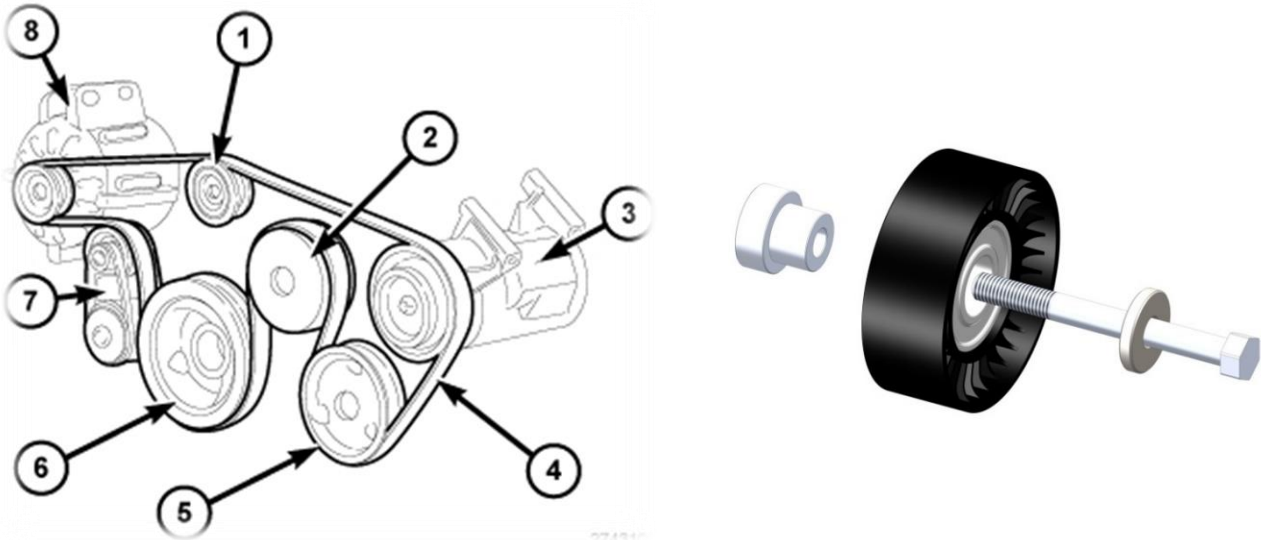
- Install the supplied coolant cross over, Hand tighten the M6 mounting screws, then tighten the screws in a criss cross pattern to 12Nm's.





## 9. Install idler pulleys.

- Remove the main drive belt (4)
- Rotate belt tensioner (7) until it contacts its stop. Remove belt (4), then slowly rotate the tensioner (7) into the freearm position.
- Remove the OEM Idler pulley and bolt (1) and replace with supplied idler pulley spacer, 60mm flat idler pulley, pulley retaining washer and M8 x 80 hex head bolt and tighten to 25Nm.



- Remove the 2 fasteners from the timing case.
- Attach the idler pulley to the idler pulley bracket and fix in place with the M8 x40 Hex head bolt and pulley retaining washer and tighten to 25Nm
- Attach the idler pulley bracket to the engine with M8 x 110 hex head bolt and M8 flat washer and M10 x 110 hex head bolt and M10 flat washer tighten M8 fastener to 25Nm, Tighten M10 fasteners to 55Nm, ensure the new belt is fed around the pulley on the pulley bracket prior to tightening fasteners.
- Install the supplied drive belt.



- Attach the heater supply hose to the new coolant crossover and fix in place with the original hose clamps.
- Attach the thermostat housing, clean the mating areas of timing chain cover and thermostat housing.
- Ensure the seal is retained in the thermostat housing prior to re-attaching it to the crossover.
- Position thermostat housing on the coolant cross over and Install two thermostat housing bolts. Tighten bolts to 12 Nm.

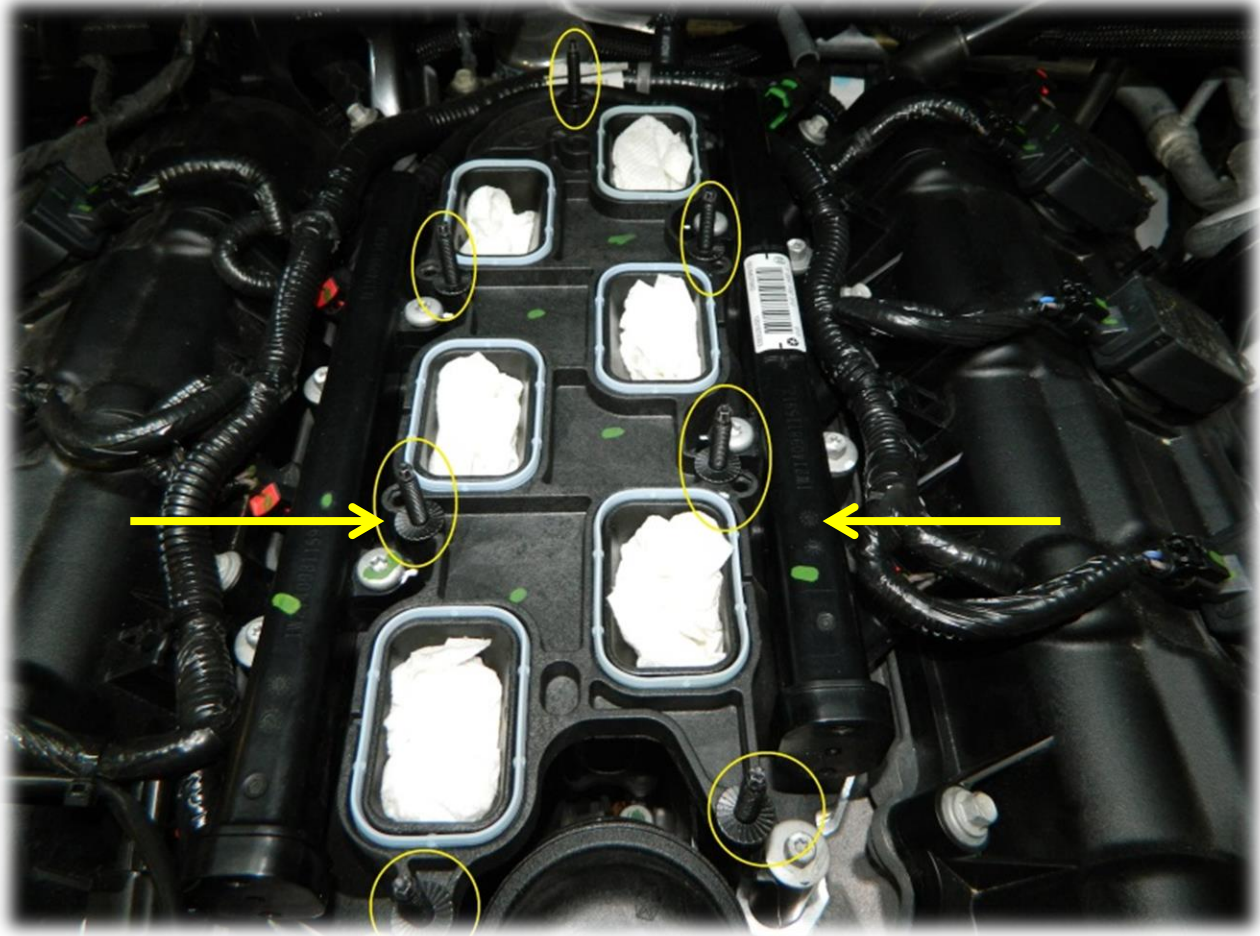
# **PENTASTAR 3.6L V6 SUPERCHARGER SYSTEM**

## **SECTION 2**

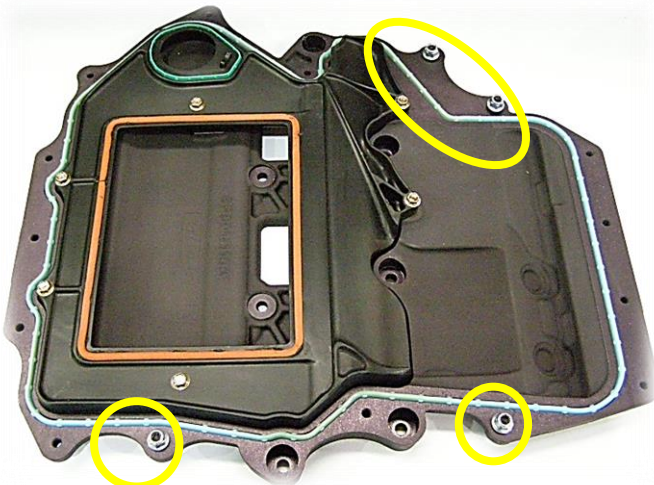
### **INSTALLATION INSTRUCTIONS**

## 10. Install the lower supercharger manifold.

- Install the 7 manifold studs with a 4mm socket and tighten to 8Nm for stud location see the image below. Note that the 4 central studs utilise the inboard locations. See images below for clarification.



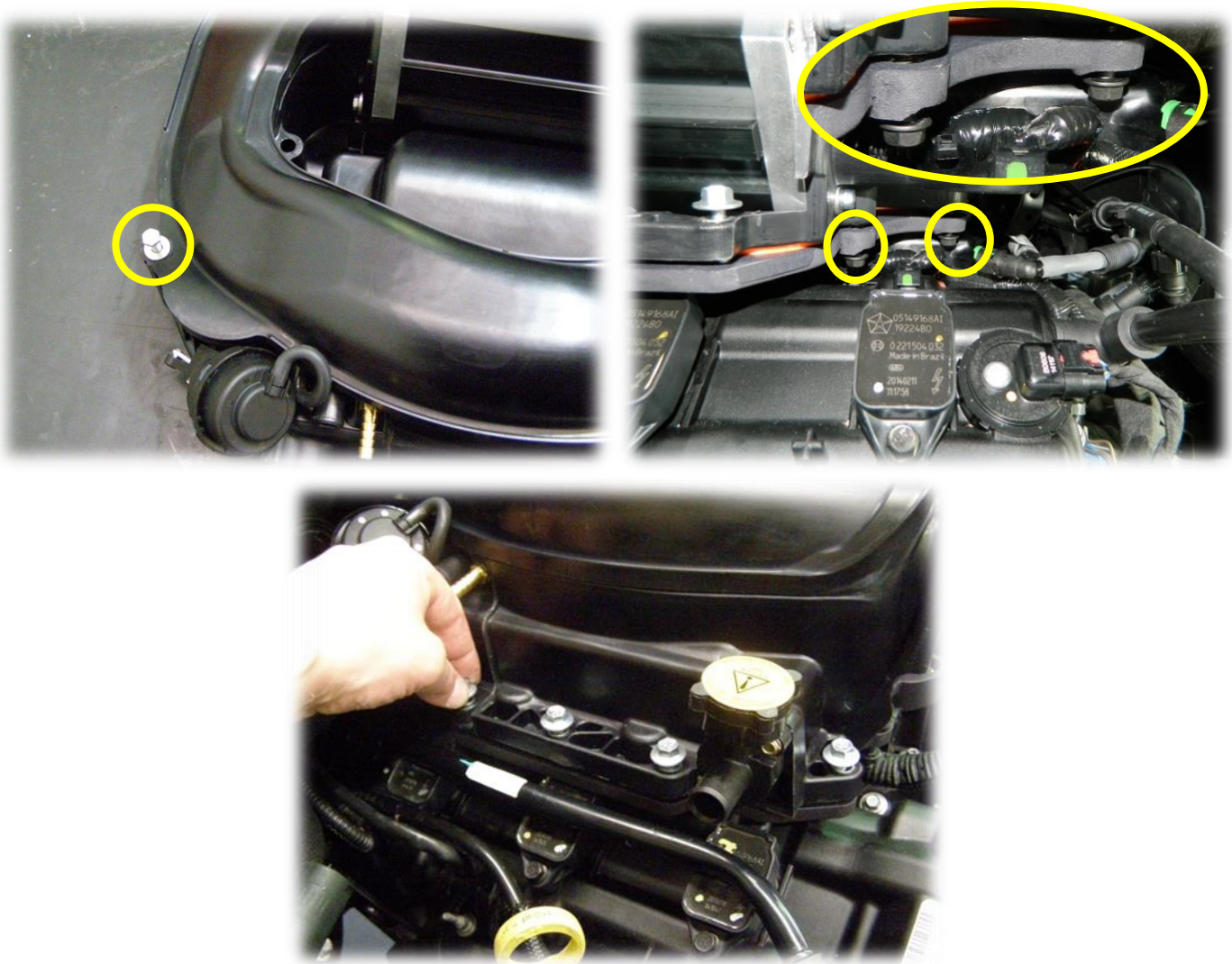
- Place the four M6 X 25mm black screws into the lower manifold from the underside (see image). Retain screws in place with M6 Nyloc nuts, finger tighten only.
- Place the lower manifold over the studs & install the M6 Nyloc nuts utilising the four nuts which are retaining the four M6 x 25mm black screws in place.  
**Take care to not drop any nuts down the intake ports.**
- Gently push the lower manifold back towards the bulkhead and tighten the nuts to 12Nm.





## 11. Install the upper supercharger manifold.

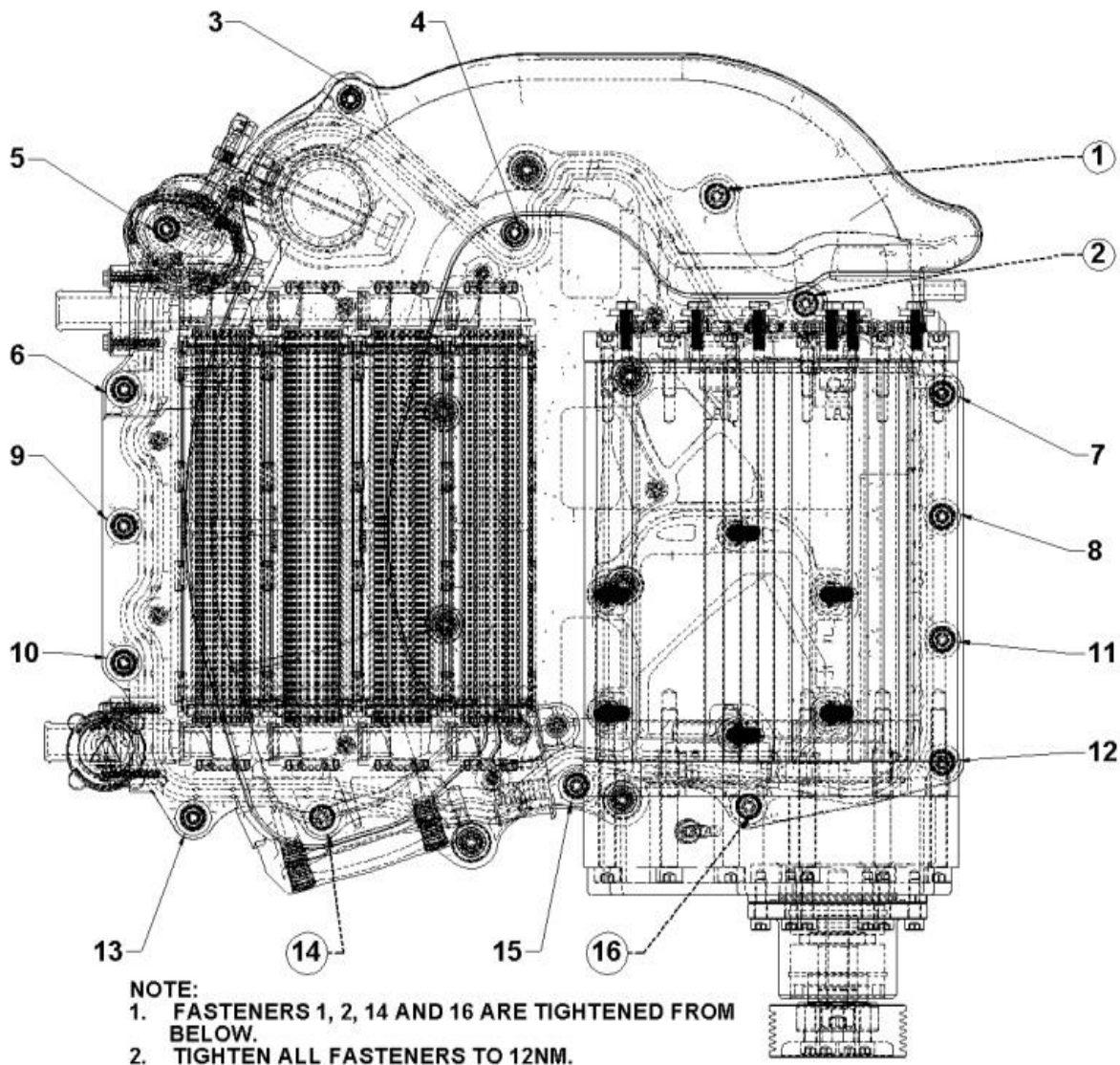
- Carefully lower the upper manifold onto the lower manifold.
- Place the M6 X 90mm long hex head screw and washer supplied into the upper manifold prior to installation.
- With the upper manifold in place, start to tighten the two rear screws from the underside, finger tighten only.



- Place the ten M6 X 30mm flange head screws into the upper manifold, finger tighten the screws to engage the threads.
- To align the upper manifold to the accessory drive, place the supercharger drive support bracket over the supercharger drive extension and install and tighten the M8 X 40 SHCS on the support bracket, and tighten the screw so the support bracket is firm but still allows the idler bracket to rotate on supercharger drive extension.
- Next attach the support bracket to the block with the two, M10 x 70 hex head screws and M10 washers, tighten these fasteners up so the support bracket is firmly attached to the timing case but still has some movement from left to right.
- Tighten the support brackets M8 x 40 SHCS to 10Nm.
- Place the M6 x 100 hex head screw and washer into bolt hole #4. (see next step for hole identification)
- Insert the ten M6 X 30 flange head screws into the supercharger manifold then finger tighten all fasteners.

## 12. Tighten the upper manifold

- Follow the sequence below for tightening the fasteners. Tighten all the fasteners to 8Nm's on first pass.



- Remove the supercharger drive support bracket and tighten all fasteners to 12Nm.
- Attach the throttle body and IAT sensor loom extensions and the MAP sensor adaptor loom extension supplied to the OEM connectors.





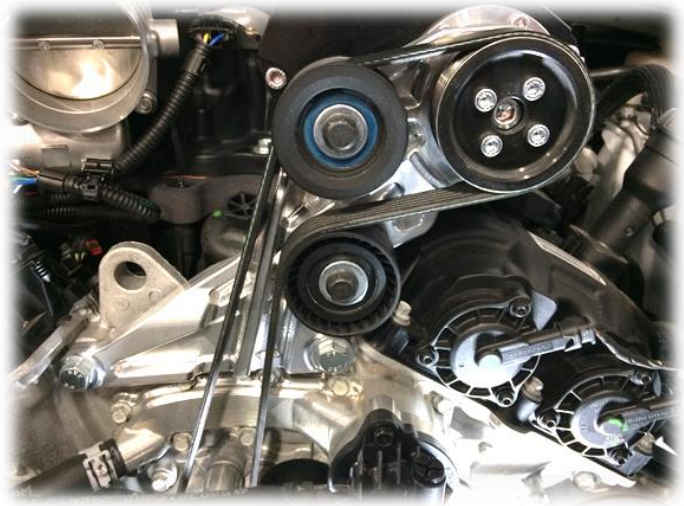
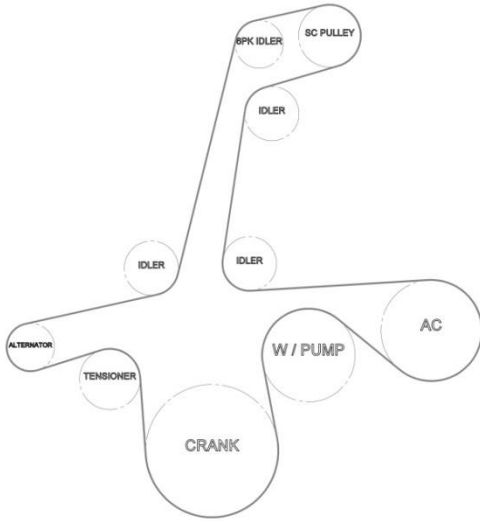
### 13. Install the supercharger drive support bracket

- Re-attach the supercharger drive support bracket to the timing case, tighten the M10 x 70 hex head screws with the M10 washers to 55Nm then tighten the M8 x 40 SHCS to 15Nm.
- Attach the idler pulley bearing spacer to the upper post of the supercharger drive support bracket prior to installing the 6PK grooved idler pulley.
- Attach the flat idler pulley to the lower post of the support bracket, and tighten both pulleys with two M8 x 16mm screws and two 8.5mm x 25mm x 3mm washers, and tighten to 23Nm.
- Install a 1mm shim into the back supercharger drive pulley and attach it to the supercharger with the four M6 x 20mm SHCS and tighten to 12Nm.



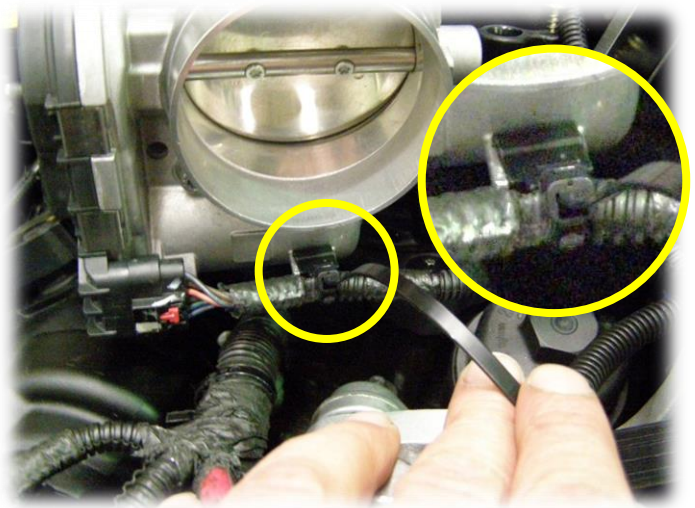
## 14. Install the drive belt

- Install the new drive belt supplied, ensure that the belt is routed correctly (see image below).
- Relieve the tension on the belt tensioner to complete the fitting of the belt and ensure that the belt is correctly fitted on all pulleys before releasing the belt tensioner



## 15. Install the throttle body

- Prior to installing the throttle body remove the o-ring seal from the OEM manifold and fit it to the throttle body seal groove of the supercharger manifold.
- Attach the throttle body to the manifold with the four M6 x 40mm SHCS and washers supplied, and tighten to 12Nm.
- Connect the throttle body extension loom to the throttle body and secure in place with the OEM harness clip and a cable tie supplied.
- Trim off excess cable tie.



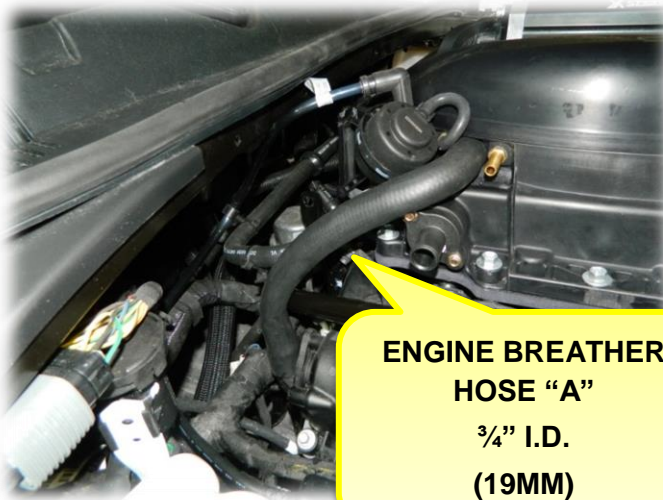
## 16. Install the MAP sensor

- Prior to installing the MAP sensor, lubricate the o-ring with rubber grease or white petroleum jelly attach the MAP sensor to the manifold and secure in place with the self-tapping screw supplied and tighten to 6Nm.
- Attach the MAP sensor adaptor to the MAP sensor.



## 17. Install engine breather hose.

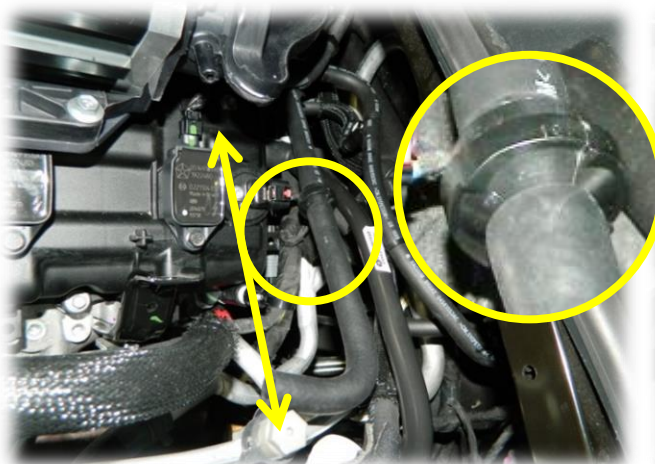
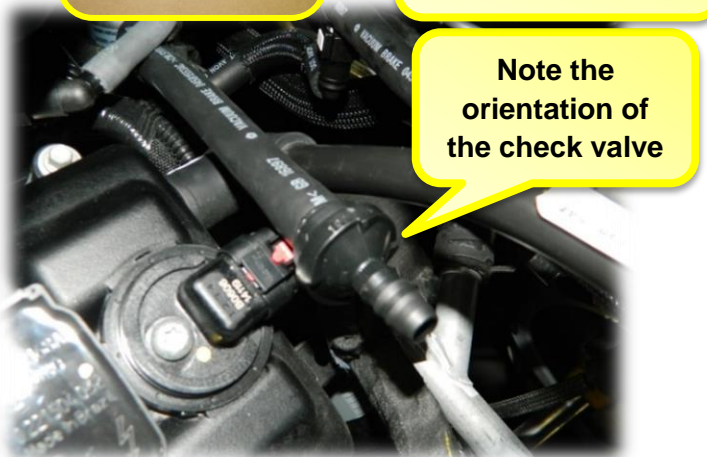
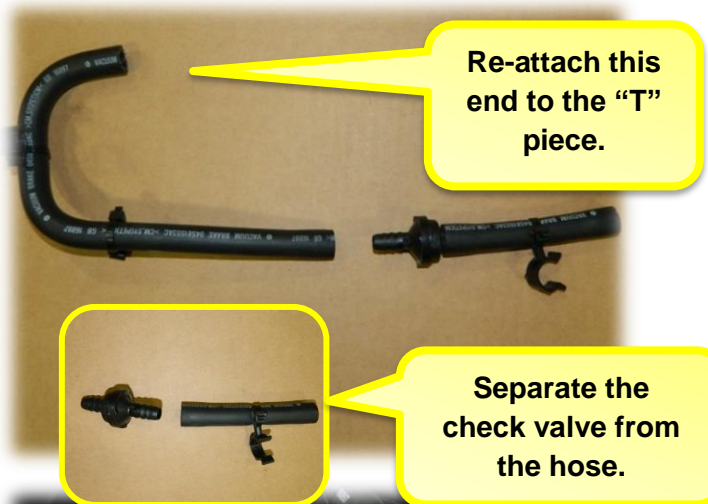
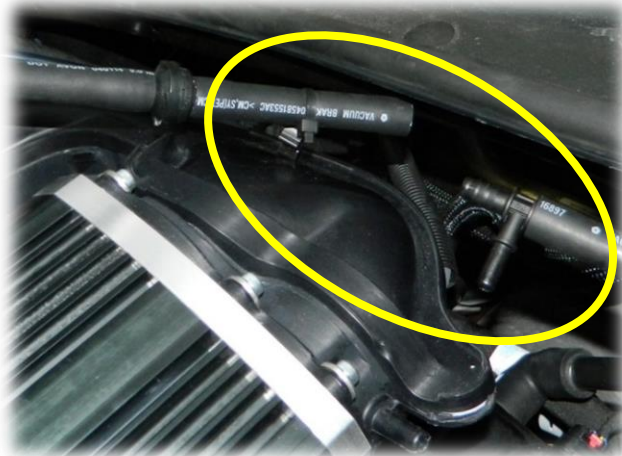
- Attach the straight end of engine breather hose “A” to the spigot of the rear of the LHS valve cover.
- Attach the other end of the hose to the manifold, as shown in image below.
- And attach the EVAP purge hose to the manifold.





## 18. Install the brake booster hose.

- Disconnect the brake vacuum hose at the “T” junction, press the white button and remove the fitting.
- Separate the hose from the “T” junction. Next separate the check valve from the section of hose removed.
- Attach the bent section of this hose to the “T” piece. (see highlighted image)
- Insert the check valve into the other end of hose, ensuring that the valves orientation is correct.
- Attach the straight end of the brake booster hose supplied to the check valve, and attach the other end of the brake booster hose to the manifold, secure with spring band clamp supplied.
- Secure the hose in place with cable ties supplied.





## 19. Install the clean air duct.

- Install the IAT sensor that was previously removed from the intake manifold, into the new clean air duct supplied. Prior to installing the sensor apply rubber grease to the sensor o-ring to prevent it getting damaged upon installation.
- Re-install the airbox and secure with the OEM fastener.
- Loosely attach the hose clamps supplied to the duct and attach the duct to the Airbox and throttle body, tighten the hose clamps to fix the duct in place.
- Connect the IAT extension loom to the IAT sensor.
- Re-attach the crankcase ventilation tube to the airbox



## 20. Install the radiator mount brackets and radiator.

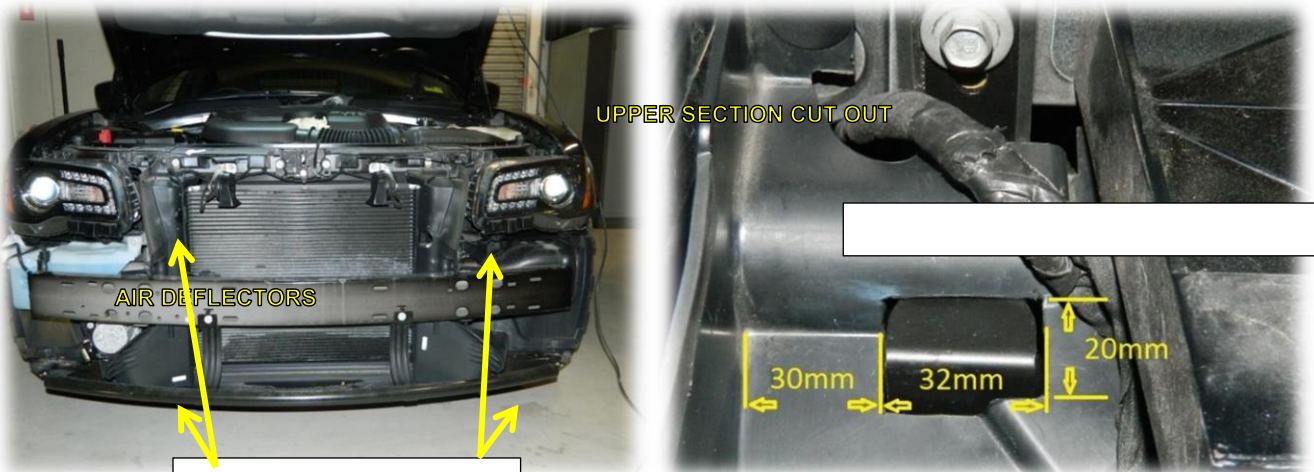
- Prior to installation of the radiator mount brackets, remove the air deflectors from the radiator. (Note that this step not required on Challenger)
- Install the ¼ BSPP plug supplied, into the radiator and tighten to 16Nm.
- Pre-assemble the radiator to the brackets, utilising the M6 and M8 X 12 hex head screws, only finger tighten fasteners at this stage.
- Attach the water pump to LHS radiator mount bracket with the heavy duty cable tie provided.
- Attach the pump feed hose to the radiator and water pump with the supplied spring band clamps.



- Remove the screws from the OEM radiator brackets on both sides.
- Feed the radiator assembly up through the gap between the bumper support frame and air conditioner condenser and attach the radiator assembly to the radiator support panel with the OEM fastener. Ensure the new radiator bracket is place on top of the OEM radiator brackets, finger tighten only.

**Note:** On the Dodge Charger and Chrysler 300 you will need to modify the air deflectors to allow the air deflectors to be fitted over the radiator bracket (see images below).

- With the air deflectors removed from the vehicle, modify the air deflectors as shown in the images below. Perform the modifications to both left and right hand side air deflectors.

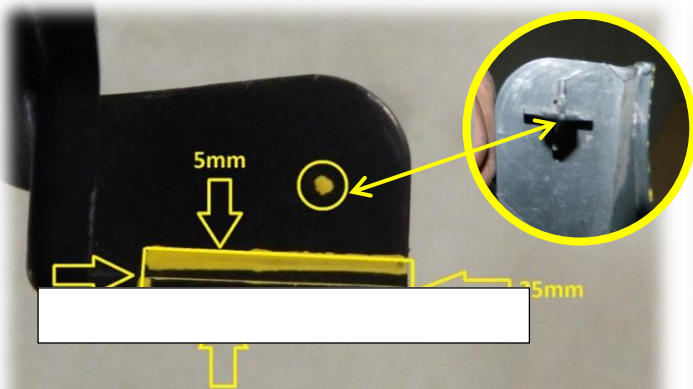


- Mark out the area to be removed on the upper air deflector as shown in image 2, carefully remove the marked out section.
- Mark out the area to be removed, locate the centre of the of the air deflector location pin, and drill a Ø7mm hole through the air deflector at this position. (see image. 3) Carefully remove the marked out section.
- Remove the section of the air deflector as shown on the next page; remove all burrs from the cut section of the air deflector.

IMG. 2

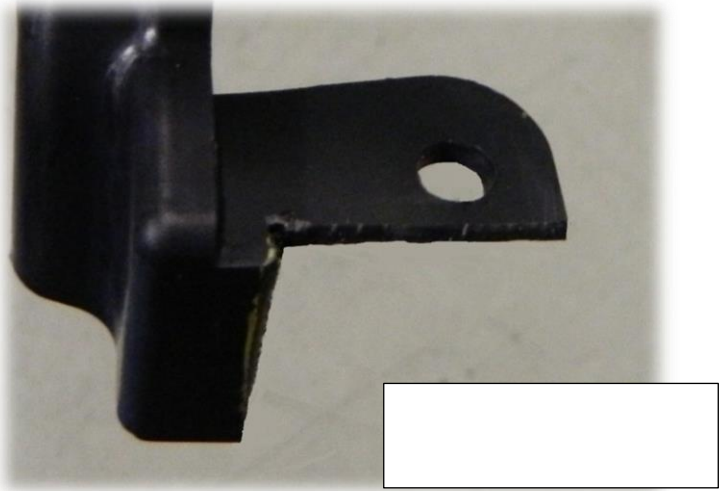


- Ensure that all of the location pin is removed from the underside of the air deflector to ensure that the air deflector will sit flush when re-installed on the vehicle.
- Attach the lower end of the radiator assembly to the radiator support panel with the M6 X 12 hex head screws and M6 Nyloc nuts provided.



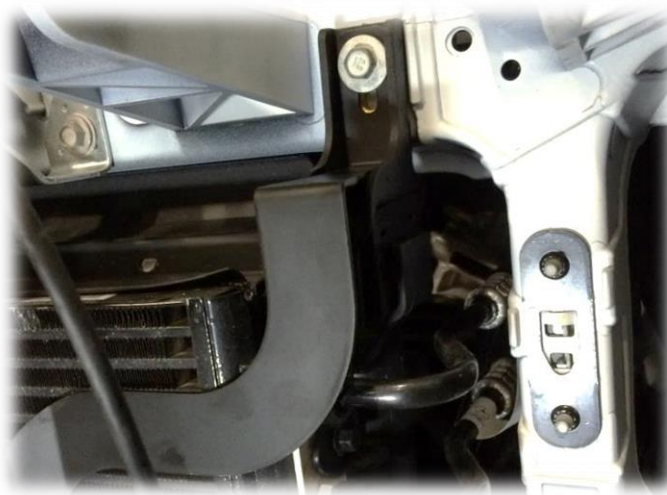
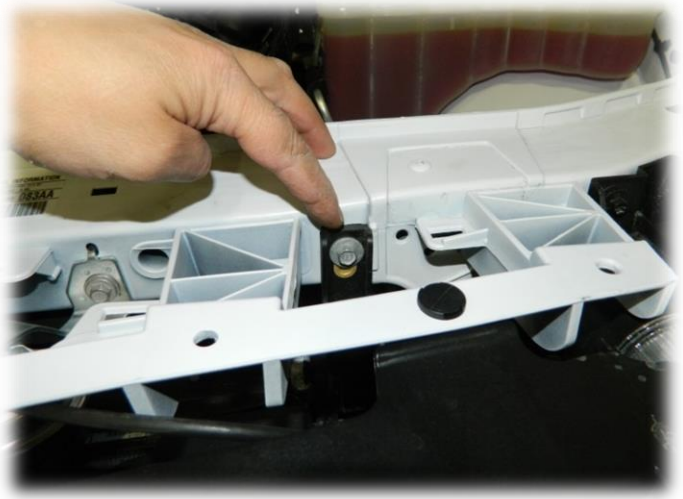
LOWER SECTION CUT OUT

IMG. 3

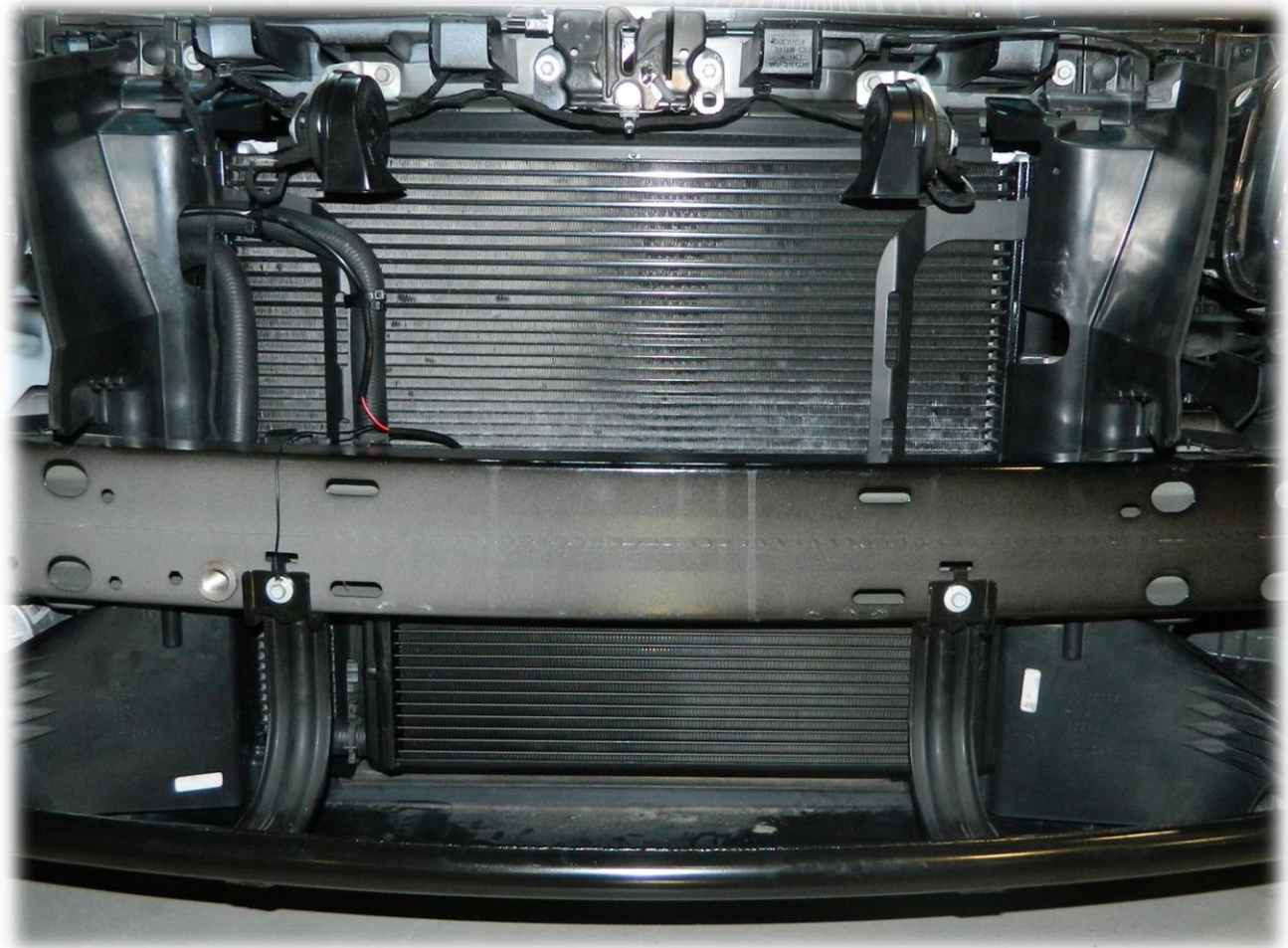


- Attach the water pump harness to the pump and connect the pump earth connection to the left hand side bottom radiator mount screw.
- Re-install the air deflectors.
- Once all fasteners are installed tighten the M8 fasteners to 16Nm and tighten the M6 fasteners to 12Nm, also tighten the OEM fasteners to 12Nm.
- Secure the water pump harness to the radiator mount brackets with supplied cable ties.



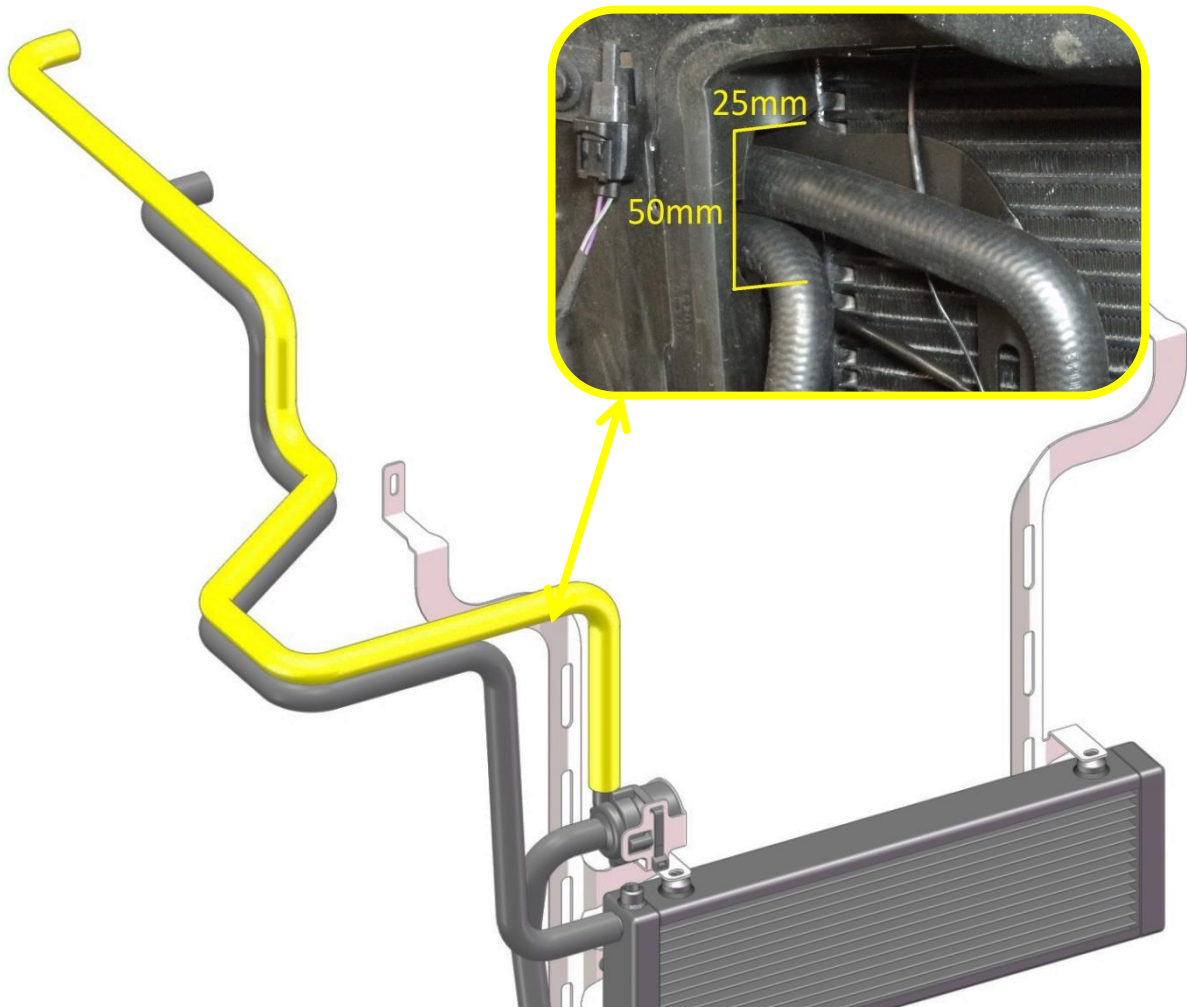






## 21. Install the Intercooler hoses.

- Feed the intercooler return hose (the black hose in image below) through the gap at the top of the radiator and next to the headlight and attach the hose to the front hose spigot of the supercharger manifold.
- Attach the other end of the hose to the top spigot of the radiator and fix hose in place with the spring band clamp supplied.
- Attach the pump feed hose to the lower radiator spigot; attach the other end of the hose to the water pump.
- Feed the intercooler feed hose (yellow hose in image below) through the gap at the top of the radiator and next to the headlight and attach the hose to the remaining spigot of the supercharger manifold, next attach the other end of the hose to the water pump. Secure the hose with the springband clamp provided.
- Attach the pump connector to the pump; ensure that the connector is properly secured to the pump.
- Neatly tie the hoses and wiring harness in place with the cable ties supplied and trim off excess cable ties.
- Prior to re-installing the air deflectors; on the left hand side of the air deflector a section **50mm tall x 25mm wide**, 25mm from the top of the radiator opening will have to be removed to allow the hoses to pass through.
- Secure hoses in place with the supplied cable ties.
- Re-install the air deflectors.



## 22. Refill the vehicles cooling system

Evacuating or purging air from the cooling system involves the use of a pressurized air operated vacuum generator. The vacuum created allows for a quick and complete coolant refilling while removing any airlocks present in the system components.

**WARNING:** ANTIFREEZE IS AN ETHYLENE GLYCOL BASE COOLANT AND IS HARMFUL IF SWALLOWED OR INHALED. IF SWALLOWED, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING. IF INHALED, MOVE TO FRESH AIR AREA. SEEK MEDICAL ATTENTION IMMEDIATELY. DO NOT STORE IN OPEN OR UNMARKED CONTAINERS. WASH SKIN AND CLOTHING THOROUGHLY AFTER COMING IN CONTACT WITH ETHYLENE GLYCOL. KEEP OUT OF REACH OF CHILDREN. DISPOSE OF GLYCOL BASED COOLANT PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA. DO NOT OPEN A COOLING SYSTEM WHEN THE ENGINE IS AT OPERATING TEMPERATURE OR HOT UNDER PRESSURE; PERSONAL INJURY CAN RESULT. AVOID RADIATOR COOLING FAN WHEN ENGINE COMPARTMENT RELATED SERVICE IS PERFORMED; PERSONAL INJURY CAN RESULT. WEAR APPROPRIATE EYE AND HAND PROTECTION WHEN PERFORMING THIS PROCEDURE.

**NOTE:** The service area where this procedure is performed should have a minimum shop air requirement of 80 PSI (5.5 bar) and should be equipped with an air dryer system.

**NOTE:** For best results, the radiator should be empty. The vehicle's heater control should be set to the heat position (ignition may need to be turned to the on position but do not start the motor).

- Refer to the Chrysler Pentastar Service Equipment (Chrysler PSE) Coolant Refiller #85-15-0650 or equivalent tool's operating manual for specific assembly steps.
- Choose an appropriate adapter cone that will fit the vehicle's radiator filler neck or reservoir tank.
- Attach the adapter cone (2) to the vacuum gauge
- Make sure the vacuum generator/venturi ball valve (3) is closed and attach an airline hose (2) (minimum shop air requirement of 80 PSI/5.5 bar) to the vacuum generator/venturi (1).
- Position the adaptor cone/vacuum gauge assembly into the radiator filler neck or reservoir tank. Ensure that the adapter cone is sealed properly
- Connect the vacuum generator/venturi (2) to the positioned adaptor cone/vacuum gauge assembly (1)
- Open the vacuum generator/venturi ball valve.

**NOTE:** Do not bump or move the assembly as it may result in loss of vacuum. Some radiator overflow hoses may need to be clamped off to obtain vacuum.

- Let the system run until the vacuum gauge shows a good vacuum through the cooling system. Refer to the tool's operating manual for appropriate pressure readings.

**NOTE:** If a strong vacuum is being created in the system, it is normal to see the radiator hoses to collapse.

- Close the vacuum generator/venturi ball valve.
- Disconnect the vacuum generator/venturi and airline from the adaptor cone/vacuum gauge assembly.
- Wait approximately 20 seconds, if the pressure readings do not move, the system has no leaks. If the pressure readings move, a leak could be present in the system and the cooling system should be checked for leaks and the procedure should be repeated.
- Place the tool's suction hose into the coolant's container.

**NOTE:** Ensure there is a sufficient amount of coolant, mixed to the required strength/protection level available for use. For best results and to assist the refilling procedure, place the coolant container at the same height as the radiator filler neck. Always draw more coolant than required. If the coolant level is too low, it will pull air into the cooling system which could result in airlocks in the system.

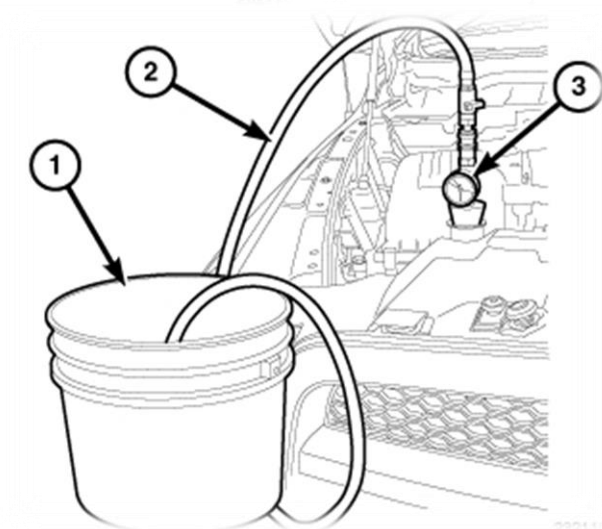
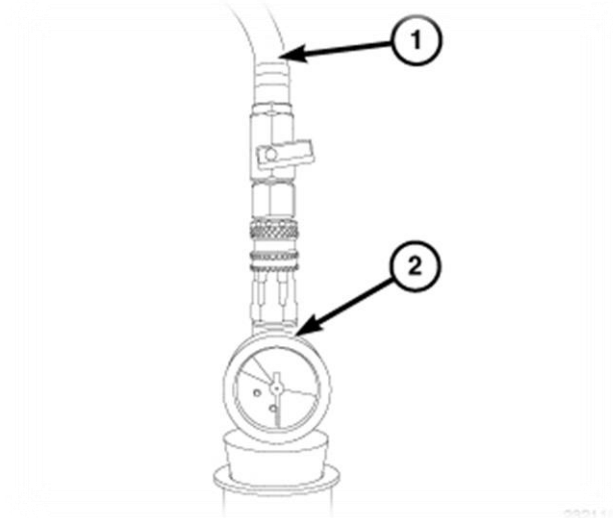
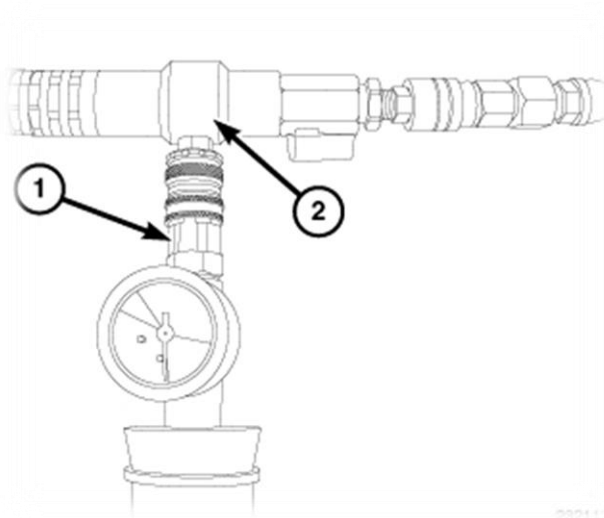
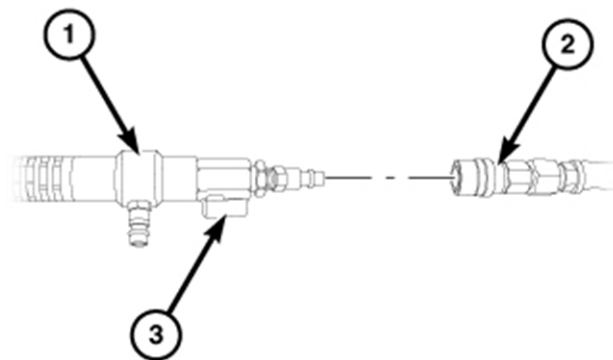
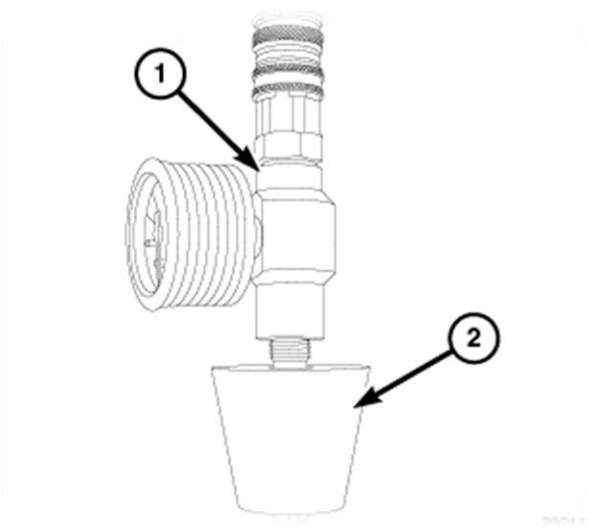
- Connect the tool's suction hose (1) to the adaptor cone/vacuum gauge assembly (2).
- Open the suction hose's ball valve to begin refilling the cooling system.
- When the vacuum gauge reads zero, the system is filled.

**NOTE:** On some remote pressurized tanks, it is recommended to stop filling when the proper level is reached.

- Close the suction hose's ball valve and remove the suction hose from the adaptor cone/vacuum gauge

assembly.

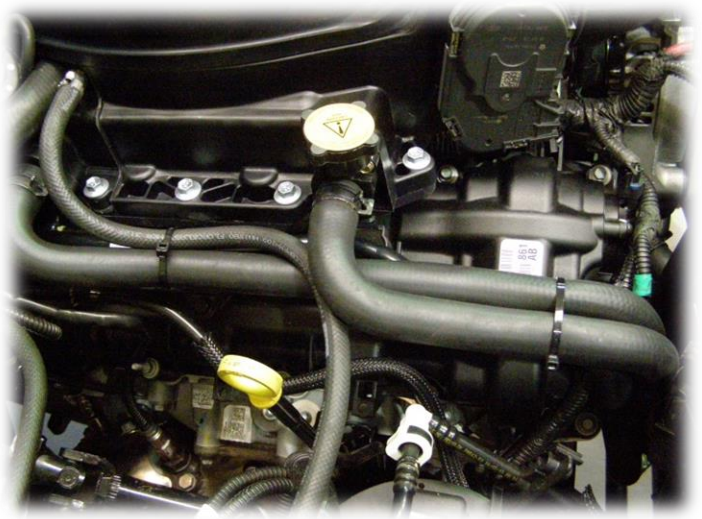
- Remove the adaptor cone/vacuum gauge assembly from the radiator filler neck or reservoir tank.
- With heater control unit in the HEAT position, operate engine with container cap in place.
- After engine has reached normal operating temperature, shut engine off and allow it to cool. When engine is cooling down, coolant will be drawn into the radiator from the pressure container.
- Add coolant to the recovery bottle/container as necessary. **Only add coolant to the container when the engine is cold. Coolant level in a warm engine will be higher due to thermal expansion.** Add necessary coolant to raise container level to the COLD MINIMUM mark after each cool down period.
- Once the appropriate coolant level is achieved, attach the radiator cap or reservoir tank cap.





## 23. Secure hoses and wiring

- Make sure all hoses and wiring are neatly secured with cable ties supplied.



## 24. Connect battery

- Connect battery terminals and tighten to 7 Nm.
- Note: Always connect the positive battery terminal before connecting the negative terminal to reduce the danger of short circuit through the wrench.



## 25. Fill intercooler system and vehicle cooling system.

- Remove the intercooler fill cap and fill the system with approximately 1.9 litres of ethylene glycol based automotive engine coolant. Ensure all air is expelled from the system. Air in the intercooler system can reduce engine performance and cause pinging or detonation.

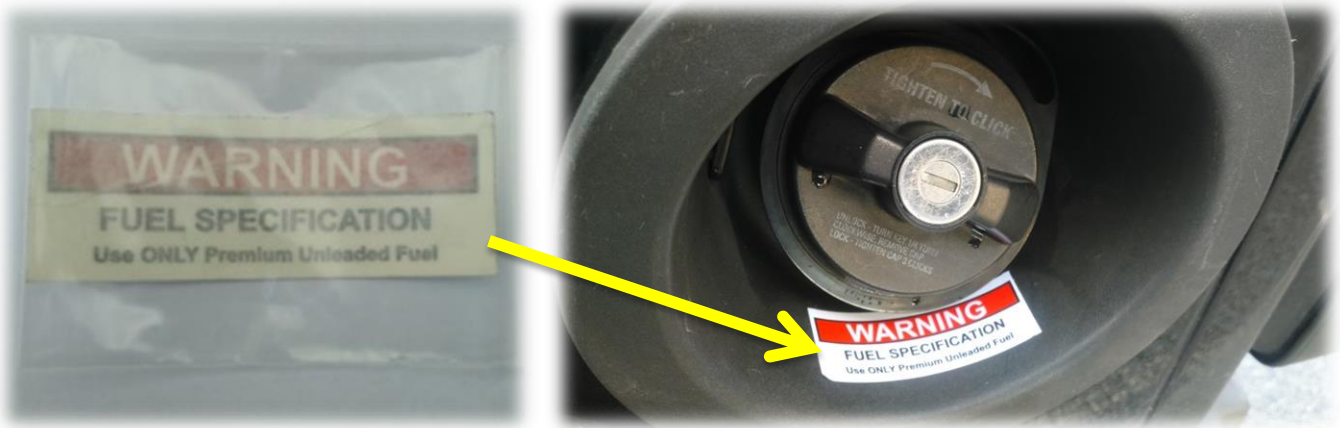


## **26. Load the ECM re-flash**

- Read the instructions included with the Diablo SP2000 flash tuner. Intune i2 instructions apply.
- Follow the on screen prompts on the Diablo SP2000 flash tuner.

## 27. Install Premium unleaded fuel sticker

- It is recommended that the Premium unleaded fuel sticker is installed inside of the fuel flap or close to the fuel cap in a visible convenient location.
- Clean the area with soap and water, rubbing alcohol or any other fast drying cleaner.
- Remove sticker from its plastic bag and peel sticker off front protective film and paper backing.
- Place sticker.



## **PENTASTAR 3.6L V6 SUPERCHARGER SYSTEM**

### **SECTION 3**

#### **PRE TEST DRIVE INSPECTION**



## 28. Pre start inspection

- Ensure coolant is at correct level.
- Ensure engine oil is at correct level.
- Ensure vehicle has fresh 95 RON (91 Octane USA) premium unleaded fuel or higher.
- Ensure the belt is correctly installed on each pulley and aligned.
- Ensure the air filter is clean.
- Check & replace spark plugs if necessary. Set gap to factory specification.

**SAFETY WARNING:** Ensure adequate steps are taken to prevent injury, spillage or fire should any of the required installation steps not have been carried out to specification.

## 29. Engine warm up

- Start engine and allow it to run until engine reaches normal operating temperature.
- Ensure that the Intercooler water pump is operational.

**NOTE:**

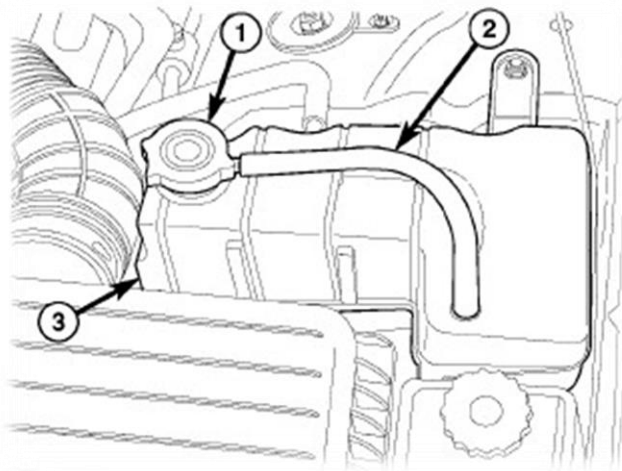
If the intercooler water pump is not operating, check pump ground connection to ensure the pump is connected to ground.

- Check for coolant leaks.
- Check the intercooler filler cap coolant level with the engine running and top up the system if required.
- Check engine coolant level and top up if required.

**NOTE:**

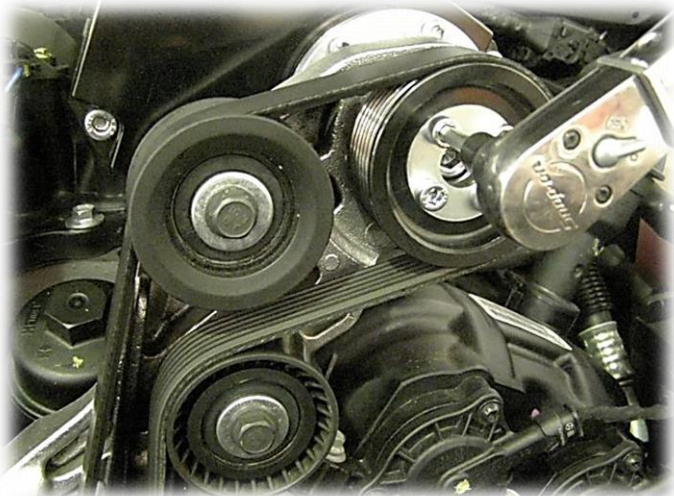
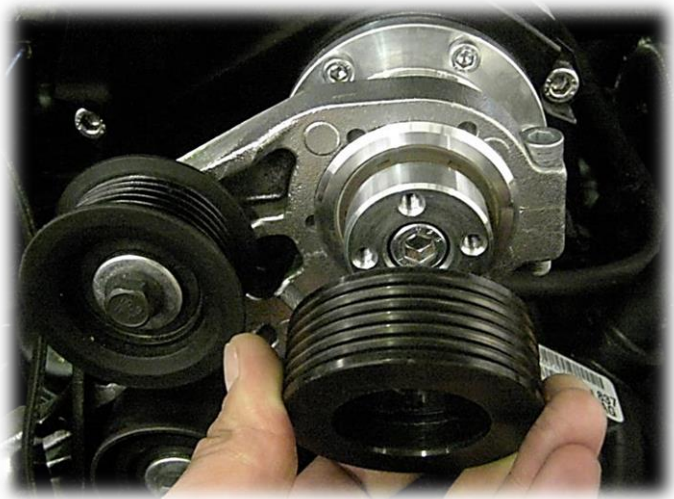
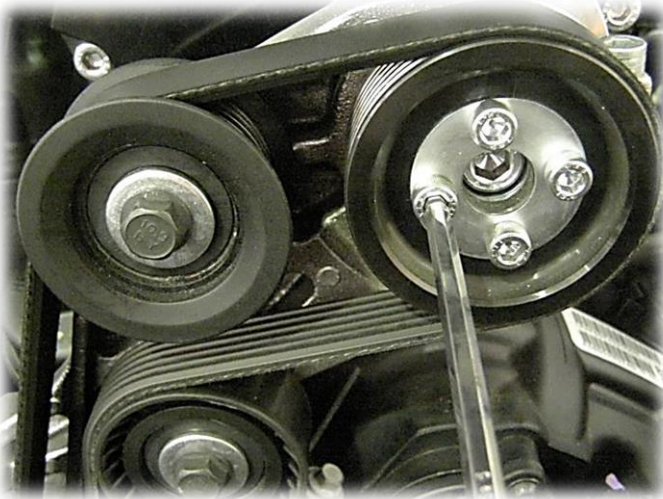
Do not remove radiator cap for routine coolant level inspections. The coolant level can be checked at coolant recovery bottle (2).

The coolant reserve/overflow system provides a quick method for determining coolant level. With engine not running, the coolant level should be between MIN and MAX marks (3). If the coolant level is at or below the MIN mark, fill the recovery bottle with a 50/50 mixture of antifreeze and water ONE QUART AT A TIME. Repeat this procedure until the coolant level is at the FULL mark.



### 30. Check and adjust supercharger pulley alignment.

- Due to manufacturing tolerances of the original parts, it may be necessary to adjust the alignment of the supercharger pulley to match the other pulleys in the system, either remove or add shims supplied to align the belt. If required, add another shim into the pulley to bring the pulley forward to align the belt as necessary. If the 1mm shim is removed from the pulley to achieve correct belt alignment, the use the shim removed as a washer underneath the pulley bolts when attaching the pulley.
- Remove the 4, M6 x 20mm SHCS.
- Relieve the belt tension and remove the belt from the pulley and remove the pulley from the drive extension.
- Place the shim into the pulley and re-attach the pulley and belt.
- Tighten the screws to 12Nm.



### 31. Re-attach the vehicles front fascia.

- Re-attach the front fascia by reversing the steps in step 2.

## **32. Road test**

- Road test vehicle.
- Recheck all joints and connections for leaks and rectify as necessary.
- Check intercooler system coolant level and top up as necessary.
- Check engine coolant level and top up as necessary.

## **PENTASTAR 3.6L V6 SUPERCHARGER SYSTEM**

### **SECTION 4**

### **MAINTENANCE INSTRUCTIONS**



### **33. Supercharger belt replacement**

- It is recommended that the supercharger drive belt be checked at every regular service and be replaced at 50,000 km (30,000 miles) or 2 years, whichever occurs first.

### **34. Supercharger gear case oil change interval**

- Drain and replace the supercharger oil every 50,000 km or 30,000 miles, use a quality fully synthetic SAE 75W-90 gear oil, specifications: API GL5, MT1 such as: Redline 75W90 NS gear oil (factory fill), Castrol Syntrox Universal Plus 75W-90, Lucas synthetic SAE 75W-90 gear oil or equivalent.
- It is critical not to overfill the supercharger gear case as
  - a. damage might occur or
  - b. rapid oil loss in the supercharger might be experienced until the oil reaches the recommended level.
- Fill with exactly 83 millilitres or 2.80 US fluid ounces.
- Make sure vehicle is parked on level ground before checking oil level, check the oil level in the supercharger assembly, using the dipstick provided, Tighten the dipstick fully before checking the oil level.

### **35. Supercharger gear case oil change procedure**

- Make sure the vehicle is parked on level ground before checking the oil level. Allow sufficient time for the oil level to settle after the engine has been run.
- Remove the dipstick from the gear case.

#### **For gear cases without a drain plug follow numerical steps, for gear cases with a drain plug follow the alpha steps.**

1. Using a syringe and a 190mm long piece of tube draw out as much oil as possible from the gear case.
  - A. Place a tray underneath the drain plug to collect the oil once the plug is removed.
  - B. Remove the drain plug and drain the oil from the case.
  - C. Re-install and tighten the drain plug to 12Nm.
- Fill the gearbox with exactly 83 milliliters or 2.80 US fluid ounces of fully synthetic SAE 75W-90 gear oil, specifications: API GL5, MT1, such as: Redline 75W90 NS gear oil (factory fill), Castrol Syntrox Universal Plus 75W-90, Lucas synthetic SAE 75W-90 gear oil
- Check oil level with the dipstick provided in the supercharger.
- Refit the dipstick and tighten to 10Nm.

## **Record of Amendments**

<b>Revision</b>	<b>Action</b>	<b>Date</b>	<b>Completed By</b>	<b>Approved By</b>
3.1	Updated company address details, Changed font on step 7 to highlight process.	6-Apr-16	Adrian de Kock	Jay Upton
4	Installations instructions added for new item: Sticker, premium unleaded fuel. Gear case oil quantity updated.	01-Dec-16	Marius Pepenar	Adrian de Kock
4.1	California Proposition 65 Warning added	03-May-17	J.Stephens	