



VE Alloytec Manifold Insulators

Fitting Instructions (Installed on a 3.6L Alloytec VE SV6)



For additional information on this product and all other products please visit our support website;

<http://support.maceengineering.com.au/Knowledgebase/List>

Please note that our 25mm manifold insulator kit cannot be installed on MY09.5 vehicles due to obstruction of the water hose. However all earlier vehicles can accommodate both the 12mm and 25mm manifold insulator kits.

The following instructions illustrate the installation of a 12mm manifold insulator kit on a MY09.5 vehicle. However the installation

process is the same for all VE alloytec vehicles.

Tools

- Flat-Head Screwdriver
- 4mm Socket
- Pliers
- 10mm Socket
- 13mm Socket and Spanner



PART 1: REMOVING MANIFOLD

Step 1: Loosen the hose clamp on the inlet duct at the front of the throttle body using a socket or spanner. Loosen the hose clamp on the inlet duct near the airbox using a socket or spanner.



Hose clamp near throttle body



Hose clamp near air box

Step 2: Locate the plastic duct that is inside the rubber tube as shown below.



Using a flathead screwdriver begin to separate the rubber tube from the plastic duct. Completely remove the rubber tube from the plastic duct by pulling the tube once it is loose enough.



Step 3: Begin to loosen the inlet duct near the airbox.



Step 4: Pull on the assembly as shown and the entire inlet duct should come out.



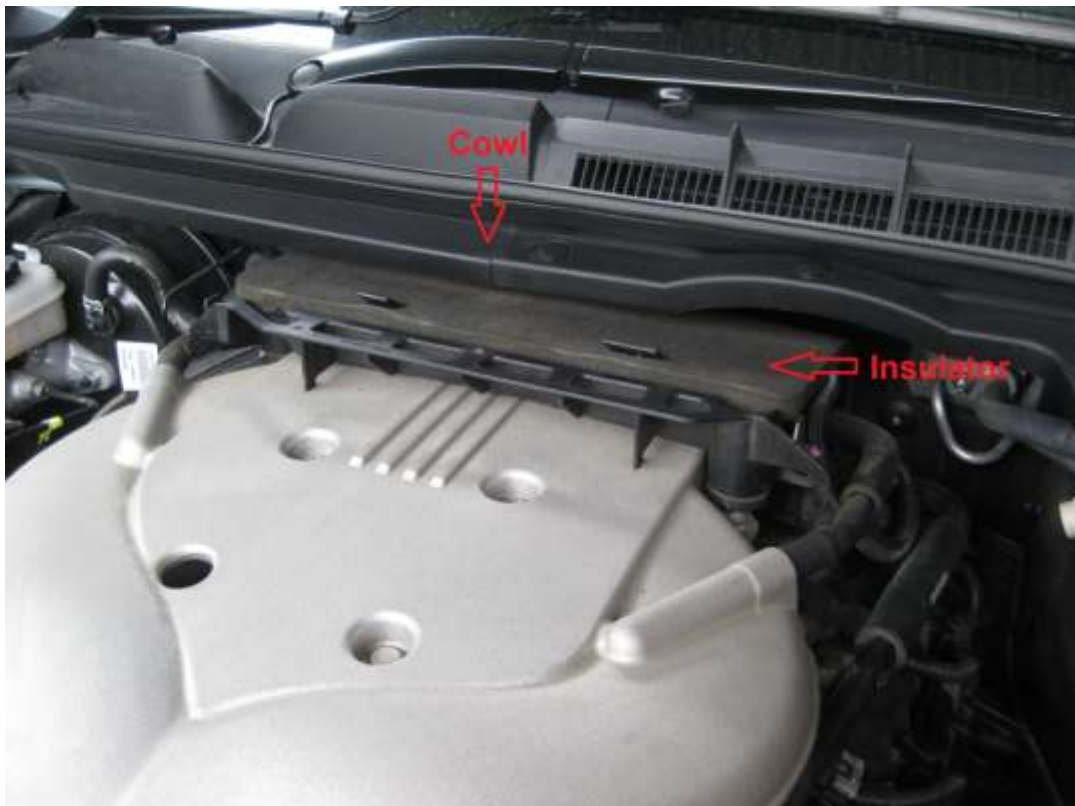
The image below shows the front of the engine with the inlet duct pulled out.



Step 5: Force the lid up on both sides as it is held by two mounting points (not seen). The engine cover will come off with a little force.



Step 5a: Remove the insulator located at the rear of the engine block under the cowl. Simply release the insulator from the clips and pull the insulator forward to remove it.



Step 5b: Remove the insulator mount. Use a flathead screw driver to loosen the connection of the mount on both sides. Then pull the insulator mount of the manifold.





Step 6: Separate the hose from the duct using a flat screwdriver and pull it off as shown.



When pulling the hose off, make sure the plastic washer is held in place to avoid destroying the washer.



Step 7: Separate the hose from the duct on the other side using the exact same method described in the previous step.



Step 8: Remove the electrical wiring clip at the location shown.



Push on the release button located at the top of the electrical clip. While pushing down on the release button pull the electrical clip until it disconnects.



Alternatively the cowl can be removed to provide additional space to be able to more easily unplug the electrical clip.

Step 9: Free the hose from its clip by pulling the hose upwards as illustrated below.



Step 10: Loosen & remove the bolt holding down the inlet manifold using a socket or spanner.



Step 11: Remove the hose illustrated below using a pair of pliers to pull the spring clip holding the hose.



Turn the handles of the clip towards you. Clamp the handles of the clip and drag the clip away from the connection to disconnect the hose from the inlet manifold.



Step 12: Using a socket, loosen & remove the 6 bolts that fasten the manifold to the engine. To remove the back bolt the cowl can be removed for easier access. Do not try and remove the bolts located in the hollow sections as it is not necessary.



Make sure that you take into account which bolts were taken out of which hole so that the new bolts can be matched and bolted to the correct hole.

Step 13: Using a flathead screwdriver loosen the small hose from the connection located near the throttle body then pull off the hose.



Step 14: Release the electrical clip shown below by first pulling the horizontal grey pin using a flathead screwdriver.



Once the pin has been released pull the electrical clip to unfasten the clip from its connection.



Step 15: The entire inlet manifold can now be removed exposing the runners as shown below



PART 2: INSTALLING MANIFOLD INSULATOR

Step 1: Remove the gaskets from the underside of the manifold ports. Some vehicles have a reusable **metal gasket**, which you can reuse one side of the Insulator if desired. For other vehicles with a plastic/paper gasket these cannot be reused.



Step 2: Scrape off any remaining gasket remains using a blade and clean the surface of the runners with a rag & solvent such as Prepsolv. Also scrape and clean the surface of the inlet manifold runners with a rag and solvent if required.



Step 3: Spread the gasket sealant provided with the kit around the surface of each runner. Do not spread gasket sealant around the bolt holes.

Also spread gasket sealant on the top surface of each manifold insulator. It is also equally important for the surface of each insulator facing the inlet manifold to have a layer of gasket sealant so that the inlet manifold is appropriately sealed to avoid any air leakage.





(Picture is to be used as a guide to illustrate how to spread the Silicone over the Manifold Insulator)

Step 4: Align the manifold insulators provided with the runner surfaces. Make sure the insulators are inserted onto the surface correctly by aligning the insulators with the bolt holes. Push them into place so that the gasket sealant firmly holds the manifold insulators to the runner surfaces.



Step 5: Place the inlet manifold onto the manifold insulators. (** NOTE – EXERCISE EXTREME CAUTION TO ENSURE NOTHING FALLS INSIDE THE RUNNERS. IF ANYTHING DOES FALL IN, IT MUST BE REMOVED OTHERWISE DAMAGE TO THE ENGINE WILL RESULT).

To align the inlet manifold correctly with the manifold insulators, place the new bolts given with the kit into the inlet manifold bolt holes. When the inlet manifold is placed onto the manifold insulators the bolts will align with the bolt holes. Make sure a spring washer is firstly added onto each bolt followed by a washer to properly tighten the bolts. **Remember to use the longer bolts supplied with the 25mm & 12mm manifold insulator kit.**



Make sure that the bolts provided with the kit are matched up to the standard bolts that were used so that the longer and shorter bolts are used in the correct bolt holes of the inlet manifold.

Step 6: The bolts now need to be tightened. Tighten the bolts slightly starting with the bottom right bolt, top left, top right then the middle bolts. This ensures that the inlet manifold is pressed onto the manifold insulators in an evenly distributed manner.

The bolts can now be tightened to their maximum capacity in the same order outlined.



PART 3: REINSTALLING THE MANIFOLD

With the manifold insulator in place, reassemble the manifold using the reverse of the disassembly procedure. However it is not recommended to re-install the insulator (& insulator mount) located at the rear of the engine block for all the VE alloytec range.

For the MY09.5 it is also not recommended to re-install the engine cover as it rubs against the cowl and bonnet cover.

For all earlier model VE alloytecs the engine cover can be re-installed with the 12MM Manifold Insulator as the engine cover only comprises of two side covers and not a one piece engine cover as is standard with the MY09.5 vehicles illustrated below. Engine covers will not fit back on with the 25MM Manifold Insulators. They do tend to trap in heat so it's not a bad idea taking them off.

You will not be able to refit the engine cover on some vehicles with these insulators. If the engine covers are loose you can try placing a zip tie or tap around the ball joint (piece of metal that clips into the cover) or you could try raising the ball joint.



It is recommended not to re-install the engine cover on MY09.5 VE alloytec vehicles.