

Tools Required:

- ✓ 10mm & 8mm socket and ratchet
- ✓ Flat screw driver
- ✓ Wire striper / crimp tool
- ✓ 7/8 or 22mm Wrench
- ✓ Hack Saw
- ✓ Pry Bar

I would strongly recommend reading though this entire guide prior to starting this project.



Installation:

- Disconnect the battery and remove the air intake tubing from throttle body and MAF sensor.
- Disconnect all vacuum lines, electrical connections, PCV, coil pack and throttle body cables from the stock intake manifold.
- Using an 8mm ratchet remove all 12 bolts in the upper intake manifold. *(it's a good idea to stuff paper towels into runners to prevent objects from falling into them)*
- Cut a 6" long section out of the copper EGR pipe starting about an inch before the valve. Remove the EGR mount and valve. *Note: Figure 1 does not show the updated hose or cut length.*
- Re-using the stock bolts install the new low profile Windstar EGR mount and then bolt on the EGR valve. You will need to bridge the gap in the EGR pipe with the included piece of silicon heater hose. **(see figure 1)**

Note: Figure 1 does not show the updated silicone hose or cut length.



Figure 1



Figure 2



Figure 3

- Using a 7/8 or 22mm wrench over the square part of the fuel rail; gently bend the fuel rail down about a 1/2". (**see figure 2**)

- Using a lever of some sort (crowbar, jack handle) propped against the engine block bend the coolant overflow tube until the side touches the radiator tube. (**see figure 3**)

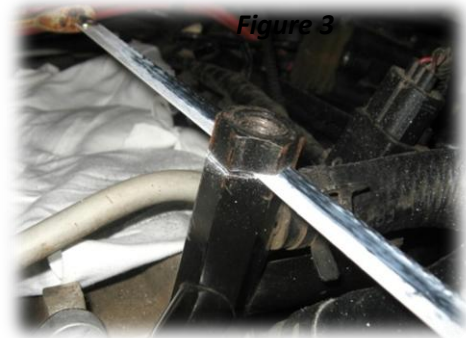


Figure 3

- Taking a hack saw, remove about 1/2" from the top of the overflow tube. (the tube is threaded all the way down, so there is plenty of threads for the plug) (**see figure 4**)

- Test fit the new Windstar intake. Check and see that the intake does not contact the fuel rail. Make sure the throttle body can open and close without hitting the overflow tube. If the overflow or fuel rail are still in the way just keep bending in small increments until it fits.
- Before you bolt down the intake take the second longest 3/8" vacuum line provided and rout from the top intake barb under the intake, exiting to the passenger side. (you will see a channel cut out under the intake to hold the hose in place)
- Now the intake is ready to bolt down. Be sure and clean the lower intake gasket surfaces and remove the paper towels before continuing. Hand tighten the 12 included bolts to install the Windstar intake manifold. Ford recommends tightening them down to 53 in/lbs, then 71 in/lbs and then to give them an additional 90-degree turn.

IMPORTANT!

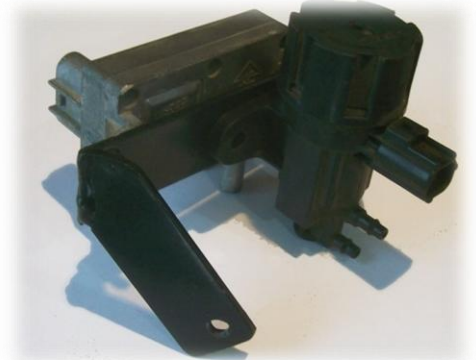
If you have a hood scoop installed you MUST remove the nut and snip off the end of the bolt that would otherwise hit the top of the throttle body. You should also remove the fiberglass hood-insulator for added clearance.



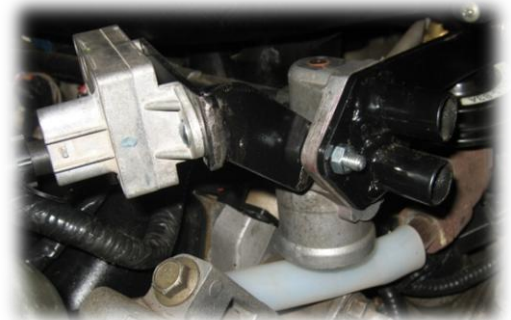
- Extend the TPS and IAC sensor wiring using the provided wire and splices. Make sure the splices are crimped down tightly so you get a good connection. You can use electrical tape and wire loom to wrap the splices when you are finished.
- Install the throttle body and angled TB spacer with the provided bolts and washers. The thick portion of the spacer will go on top so it tilts the throttle body downward for extra hood clearance. The IAC bracket will bolt to the outside of the throttle body using the lower two throttle body bolts.
- Bolt on the IAC valve and the new provided gasket. Transfer the TPS sensor from your stock throttle body and connect the wiring.
- The EGR bracket shown on the right will hold both EGR sensors. *Note; your car may not have the silver EGR sensor if it is integrated into the EGR pipe.* Bolt on your EGR sensors to this bracket and bolt onto the tip of the IAC bracket as show in the picture below. Reconnect all wiring. Vacuum line configuration is covered on the next page.
- Bolt the coil pack onto the new side bracket. Remove the throttle cable bracket from the stock intake and bolt it on the end of the new side bracket. You can adjust this throttle cable bracket as far back as it will go while still allowing you to attach your throttle and cruise control lines to the TB.
- Connect the strait side of the intake pipe to the throttle body using the provided 90 degree elbow. The MAF sensor will slip over the end of the pipe with the MAF air filter adapter bolting on the other end. A 3.5" ID Air Filter is needed to attach to the end.



TB Spacer



EGR Bracket with both sensors

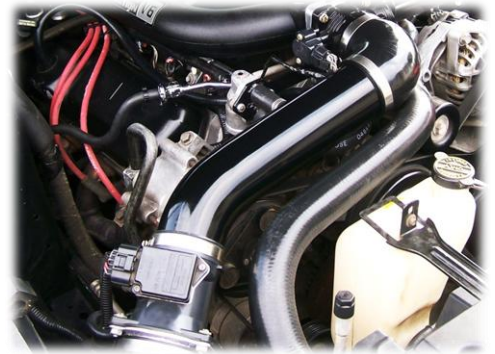


EGR bracket bolted to the tip of the IAC bracket



Side bracket with coil pack installed

- Connect the large barb on the new intake pipe to the top barb on the IAC bracket using the very short piece of 5/8" hose. The longer section of 5/8" hose will go from the lower IAC barb to the brass elbow under the intake manifold. *Take care not to push too hard on the barb under the intake manifold.*



- Take the longest piece of 3/8" hose and attach it to the passenger side PCV valve and then to the 3/8" barb on the intake tubing.

- For the driver's side PCV you must remove the hard plastic elbow from the stock PCV valve. *You can use that elbow on the vacuum line that attaches to the top of the intake manifold to create a sharper bend.* Using the short piece of 3/8 hose with the 3/16 tee in the middle connect the PCV valve to the barb on the intake.



- Connect the top EGR sensor barb to the EGR valve using the short stock red hard plastic vacuum line removed from the fuel regulator. Connect the lower barb on the EGR sensor to the 3/16 tee on the PCV line using the long red hard plastic line used for the stock EGR setup. You will need to cut off the green line from the rubber end.

- Rout the rest of the vacuum lines as shown. Make sure to use a 1/4" hose clamp on the fuel rail. The 3/8 evap vacuum line that come from the passenger side is routed under the intake manifold (*as you did in the earlier steps*) and then attached to the top barb using the elbow you removed from the stock PCV.



- 99-00 only, *plug in the IAT sensor into the rubber grommet in the intake pipe.*
- Verify all vacuum hoses, intake tubing, and electrical connections are secure and then re-connect the battery.

- Start the engine. If the engine idles poorly check all hoses and gaskets for vacuum leaks. Even a very small vacuum leak can cause a rough idle.

Enjoy your new Windstar Intake and the increased power!

For any help or questions please email me at steven@vapauto.com