

Lower Intake R&R for '01 Cobra

This document details the removal and reinstallation of the lower intake manifold on an '01 Cobra. The procedure will be similar, but not identical, for a '99 Cobra, since the idler pulley is different. The upper coolant pipe bracket may be different, as well.

I. Vehicle Preparation:

There are a couple of safety-related steps required to prep the car for the intake removal.

- 1) Open the gas cap at the filler neck to relieve pressure on the fuel system.
- 2) Disconnect the negative battery cable at the battery.

II. Removing the air canister and air tube assembly:

You can remove the air inlet components as a single assembly. Disassembly into individual components is not required. Refer to Figure 1 and Figure 2 to complete this section. The numbered arrows in Figure 2 point out the components named in the following steps.

- 1) Unplug the MAF sensor cable from the MAF housing.
- 2) Unplug the IAT sensor cable from the elbow on the air inlet tube.

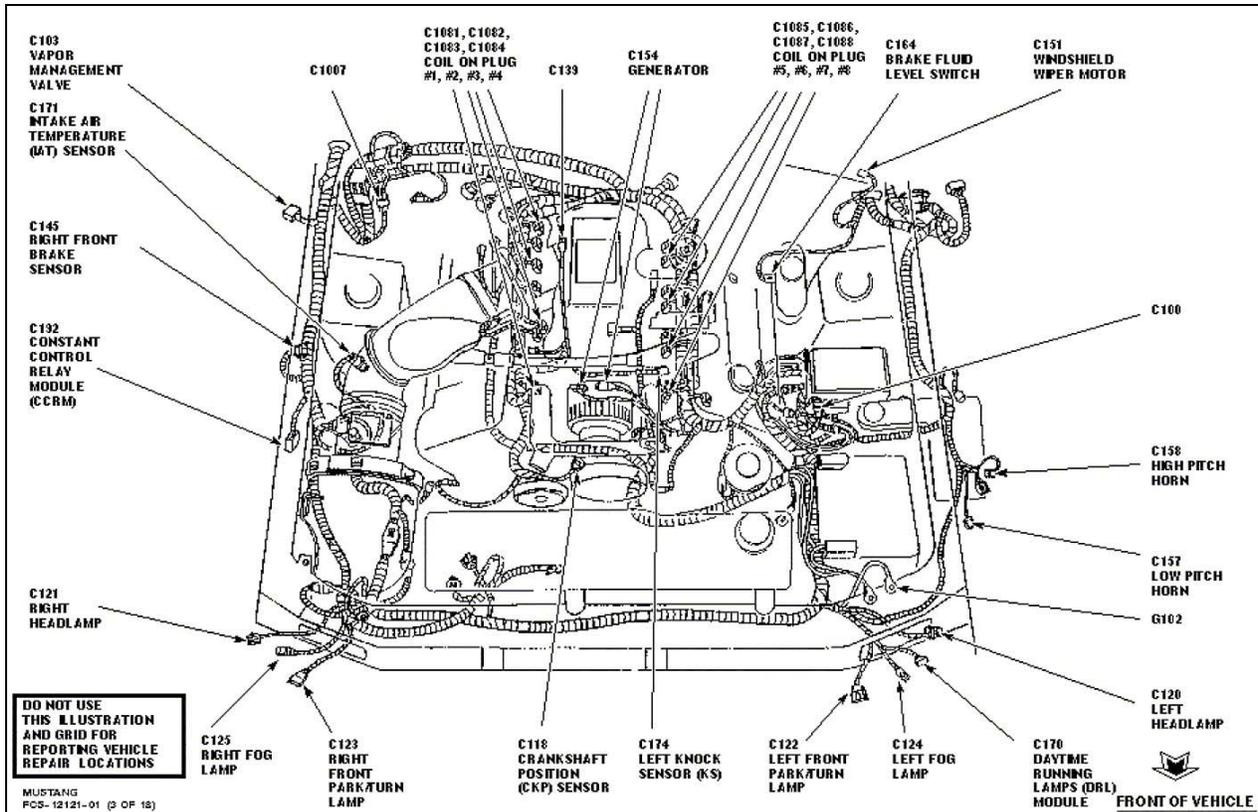


Figure 1 Electrical Connectors

- 3) Remove the 8mm bolt attaching the air canister to the fender. (62 lb-in, 7 Nm)
- 4) Loosen the hose clamp securing the air inlet tube to the throttle body on the upper intake.
- 5) Disconnect the air recirculation hose from the passenger side cam cover.
- 6) Pull the air inlet tube away from the throttle body and remove the air canister, MAF, sensor, and inlet air tube as a single assembly.

NOTE: If the stock air snorkel is still attached to your air canister, you will probably want to release the ring clamp that secures the cover to the air canister, and leave the canister in place when removing this assembly.



Figure 2 Engine Air Inlet Component Disconnection (aftermarket MAF, Filter, & Shroud shown)

III. Removing the upper intake manifold assembly:

Only the electrical harnesses and air/vacuum hoses and pipes need be removed from the upper intake connections. Throttle linkage can be left intact. Once the harnesses and hoses/pipes are disconnected from the upper intake, you will simply unbolt it, lift it off the lower intake, flip it over, and

lay it aside on the driver's side of the engine bay. Have a couple shop towels on hand to lay the assembly on to avoid scratching its finish. Refer to Figure 3, Figure 4, and Figure 5 to complete this section. The numbered arrows in Figure 3 and Figure 4 point out the components named in these steps.

- 1) Disconnect the throttle position sensor cable from the upper intake, between the throttle body and firewall.
- 2) Pull the evaporative emissions return hose from the intake, below and behind the throttle body.
- 3) Disconnect the idle air control valve electrical harness, at the top rear of the upper intake.
- 4) Remove the two 7mm bolts securing the differential feedback EGR vacuum motor to the top rear of the upper intake. You will leave the hoses and electrical harness attached to this housing.

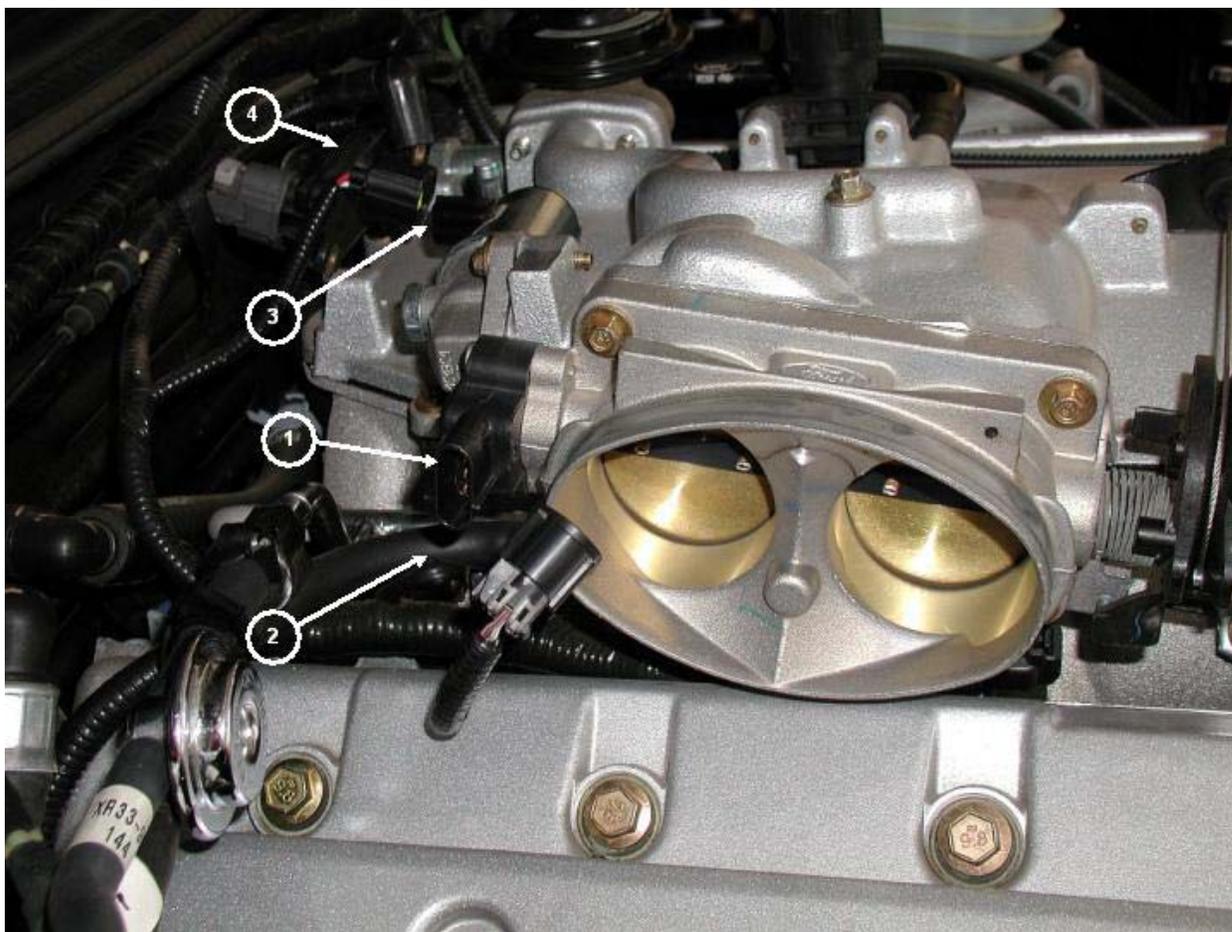


Figure 3 Upper Intake Connections – Passenger Side

- 5) Disconnect the main chassis vacuum supply hose from the top of the intake.

- 6) Disconnect the EGR valve vacuum line from the top of the EGR vacuum motor.
- 7) Disconnect the electrical harness and vacuum lines from the EGR vacuum regulator solenoid.
- 8) Disconnect the PCV tube.
- 9) Loosen the sleeve bolt securing the EGR pipe to the EGR housing and slide it back along the EGR pipe.

NOTE: Even after I slid the sleeve bolt back on the EGR pipe, I was unable to pull the pipe out of the EGR housing far enough to free it without the possibility of kinking it. To free the EGR pipe, I unbolted the housing from the intake and removed the housing and its gasket, freeing the pipe in the process. You may also find this to be necessary. If so, just unbolts the EGR housing using a 10mm deep socket.

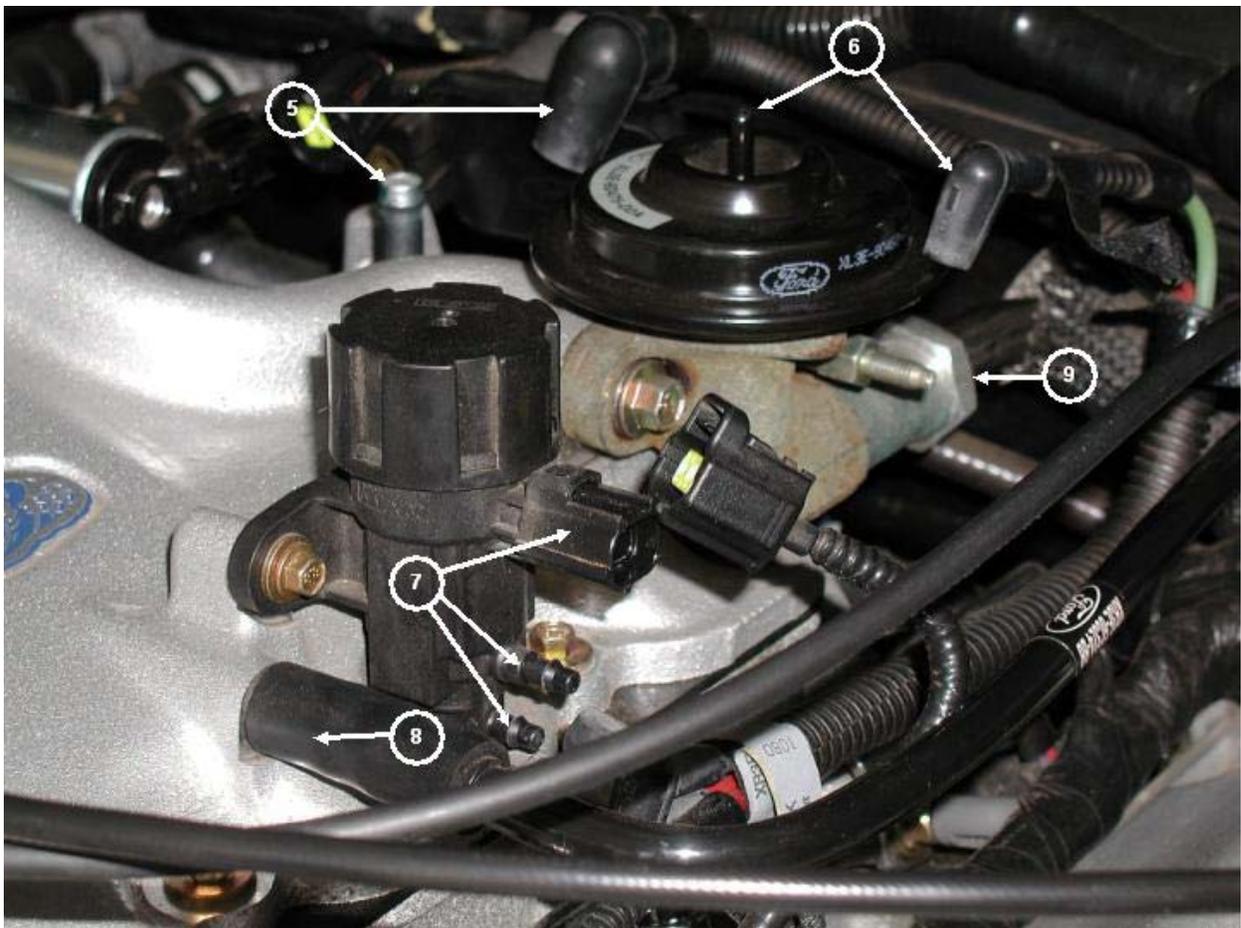


Figure 4 Upper Intake Connections – Driver Side

- 10) Remove the upper intake bolts in the sequence detailed in Figure 5.

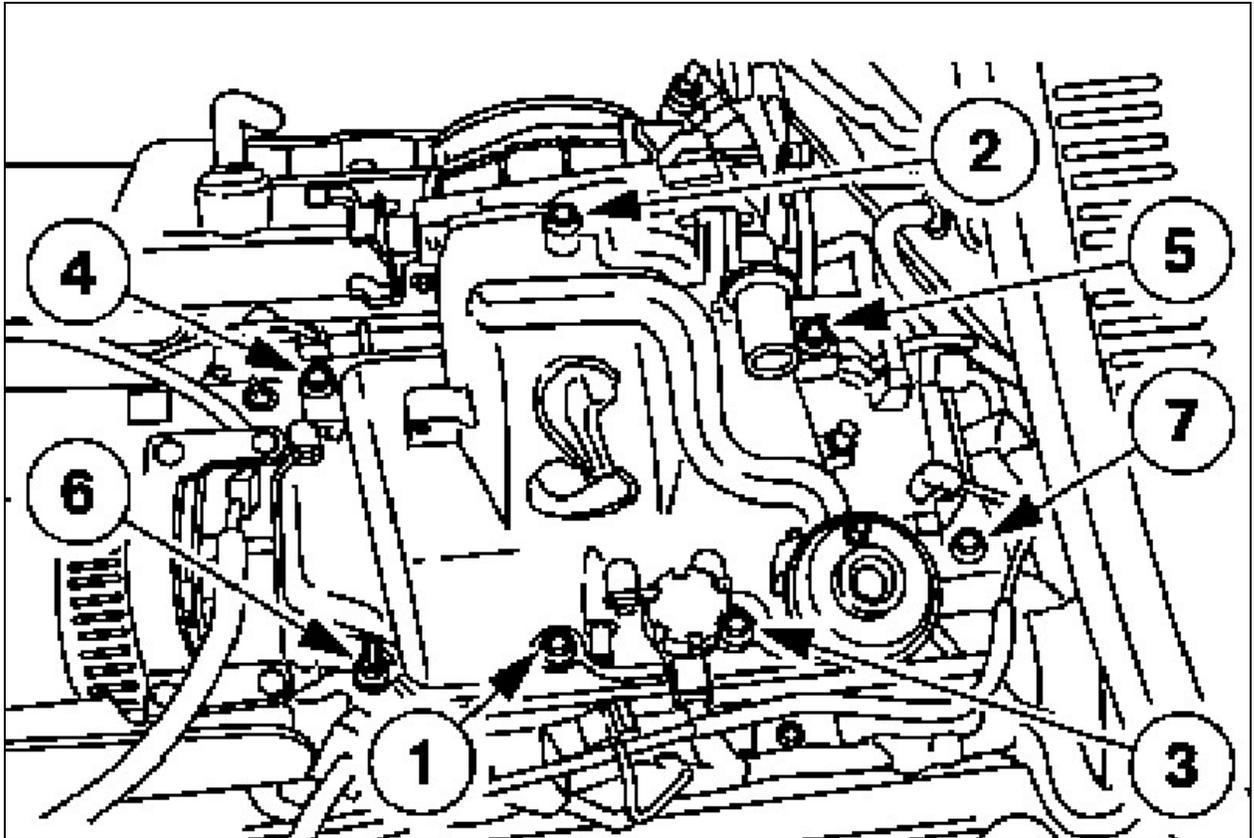


Figure 5 Upper Intake Bolt Removal Sequence

IV. Loosening belt tension and sliding the upper alternator bracket out of the way:

If the upper alternator bracket and the upper coolant pipe bracket on your motor are two separate parts, as they are on my car, it will NOT be necessary to remove the upper coolant pipe. On some Cobras, a single bracket secures both the top of the upper coolant pipe and the top of the alternator to the lower intake. If yours is the single bracket design, you're SOL, and you'll have to pull the upper coolant pipe before you can remove the lower intake. The instructions in this section are specific to the 2-piece design, since that is what I have. Refer to Figure 6 to complete this section. The numbered arrows in Figure 6 point out the components named in these steps.

- 1) On the '01 Cobra, simply insert a 3/8" square drive extension into the center hole on the front face of the idler pulley and detension the belt by applying torque to the pulley. Then, slip the belt off the idler pulley.

NOTE: I've heard that the accessory belt idler pulley on the '99 Cobra is somewhat less "user friendly." However, I am not familiar with that design, so I cannot comment on the detensioning procedure for that model year. If you have a '99, consult your service manual for the correct procedure.

- 2) Using a 10mm socket, remove the four (4) bolts securing the upper alternator bracket to the lower intake and the top of the alternator.

- 3) Slide the bracket toward the front of the car far enough to clear the lower intake.

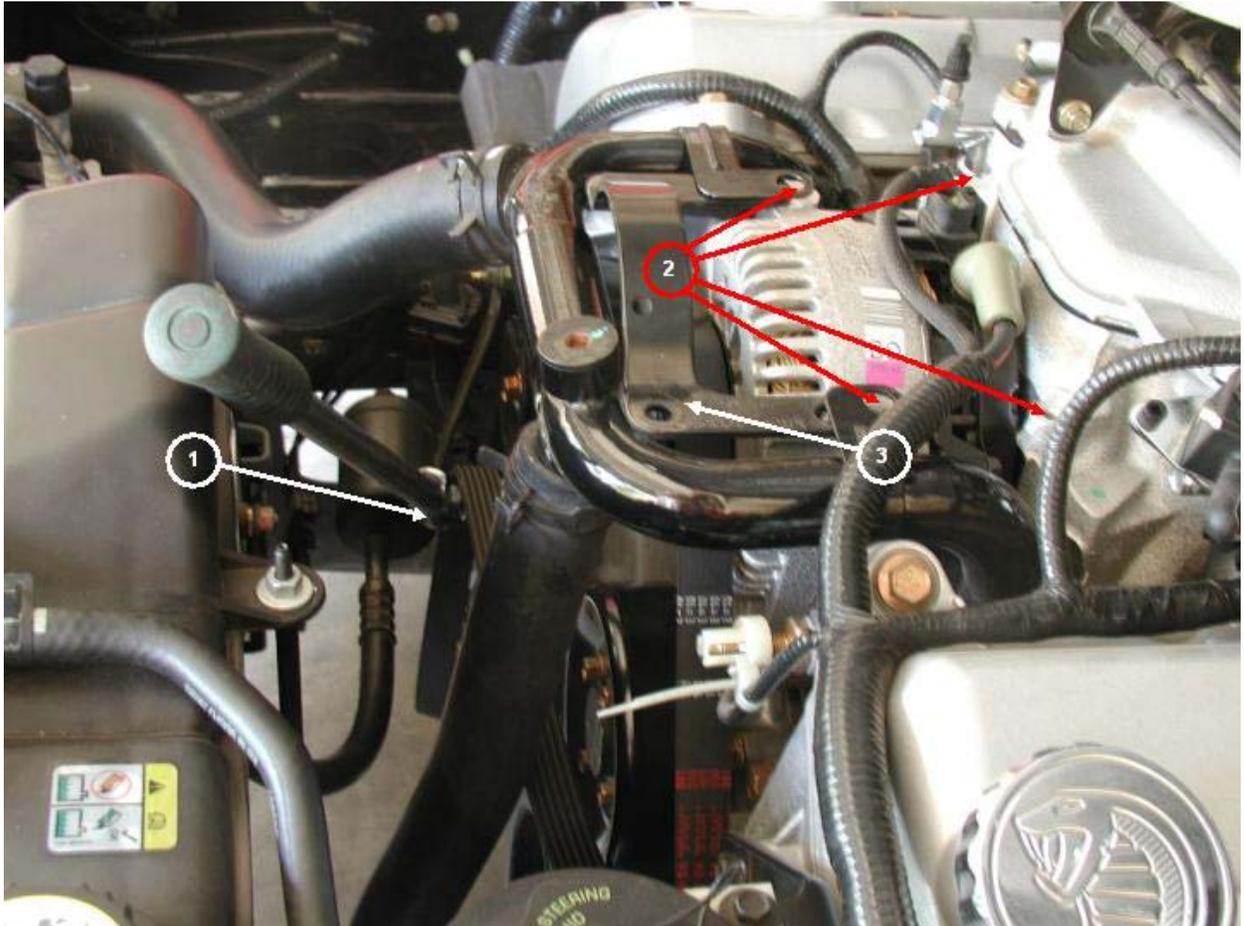


Figure 6 Accessory Belt Detensioning & Upper Alternator Bracket Repositioning

V. Removing the fuel rails and injectors:

You can remove the fuel rails from the lower intake and lay them aside as complete assemblies. Separate removal of the rails and the individual injectors is unnecessary. Refer to Figure 7 and Figure 8 to complete this section. The numbered arrows in Figure 7 and Figure 8 point out the components named in the following steps.

- 1) Disconnect the wiring harnesses from all of the fuel injectors on both engine banks.
- 2) Pull the electrical harness standoffs away from the studs securing the fuel rails to the lower intake on both sides of the intake (total of 3 standoffs). Then unbolt the studs (4 total) from the fuel rail mounting brackets on both sides.

NOTE: Have some clean, lint free shop towels handy on which to lay the fuel rail/injector assemblies after you have removed them from the intake.

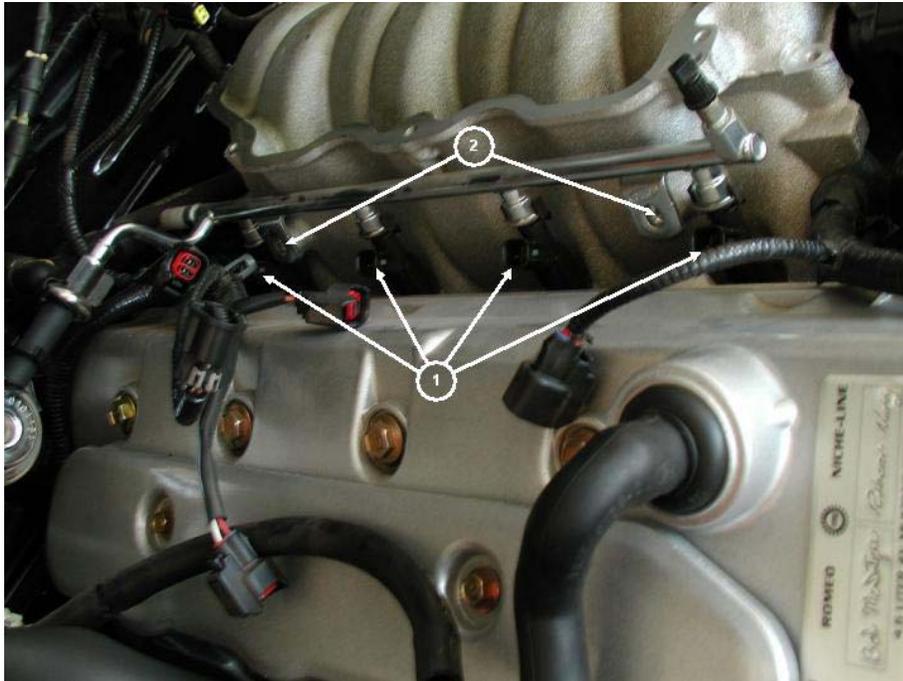


Figure 7 Injector Cable and Fuel Rail Stud Removal

- 3) Disconnect the electrical harness and vacuum line from the fuel pressure sensor. The sensor itself can remain in place on the driver's side fuel rail.
- 4) GENTLY wriggle each fuel rail while LIGHTLY pulling it away from the intake. The injectors should remain attached to their respective fuel rails and come away with the rails. When the fuel rails and injectors are free, lay them aside, away from the intake.



Figure 8 Injector/Rail Repositioning

NOTE: Ensure that each injector's O-ring remains on its injector and that the O-ring is undamaged.

VI. Removing the lower intake:

You can now unbolt and remove the lower intake. Refer to Figure 9 to complete this section. The numbered arrows in Figure 9 indicate the order of bolt removal from the intake.

- 1) Remove the eight (8) bolts and two (2) studs from the lower intake in the order indicated in Figure 9.

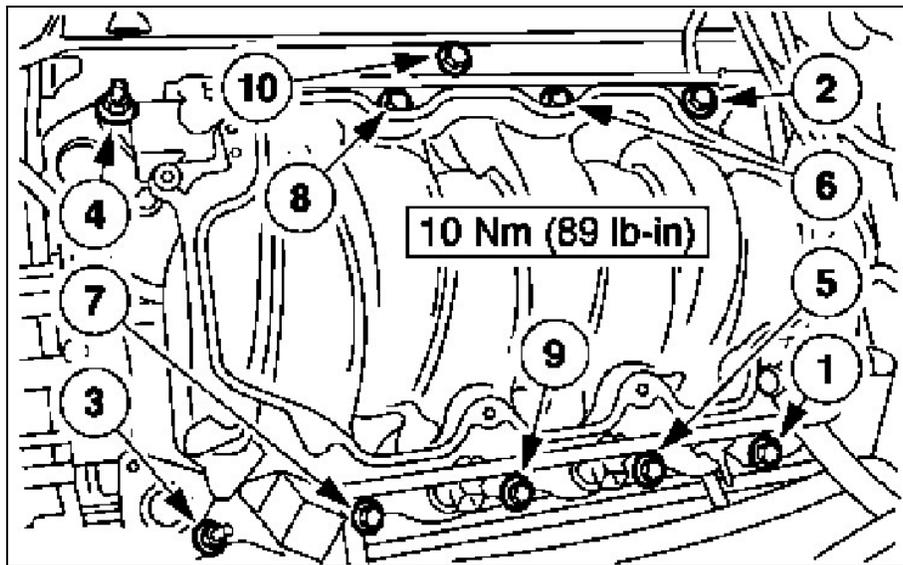


Figure 9 Lower Intake Bolt/Stud Removal

- 2) Raise the intake slightly and pry the nylon pushpin electrical harness connector from the eyelet in the center of the bottom rear on the intake.
- 3) Remove the two (2) lower intake manifold gaskets, lube them with clean engine oil, and replace them.

VII. Reassembly:

Now, you're ready to install your modified intake. Installation is the reverse of removal.

- 1) Sequence of installing the lower intake bolts and studs is the reverse of the sequence for removal (Figure 9), so work from 10 down to 1. To avoid warping or cracking the intake, tighten the fasteners in two stages, first to 46 lb-in (5 Nm), then to 89 lb-in (10 Nm).
- 2) Before installing the fuel rail/injector assemblies, lubricate the O-ring on each injector with fresh engine oil.
- 3) Ensure that all injectors on each fuel rail seat properly as you press the injector/rail assemblies into position. The fuel rail studs require torquing to 89 lb-in (10 Nm).

- 4) When reinstalling the alternator bracket, torque all four (4) bolts to 89 lb-in (10 Nm).
- 5) Before reinstalling the upper intake, lube its gasket with clean engine oil. Sequence of installing the upper intake bolts is the same as the sequence for removal (Figure 4), so work from 1 down to 7. To avoid warping or cracking the upper intake, tighten the bolts in two stages, first to 46 lb-in (5 Nm), then to 89 lb-in (10 Nm).
- 6) When reinstalling the sleeve bolt on the EGR pipe, tighten it to 30 lb-ft (40 Nm).
- 7) After reinstalling the inlet air assembly, perform a final visual inspection to ensure that you haven't overlooked any connectors.

Congratulations! You've successfully R&R'd your intake.

Happy motoring,

Taz