

Installation Procedure

1995 - 1999 Nissan Maxima 3.0L

Disclaimer: These spacers should only be installed by a qualified mechanic. If you decide to do the install yourself, please read everything and make sure you understand everything before beginning. NWP Engineering is not responsible for the content of these instructions. This write-up is to be used only as a guideline to help you during the installation process. Refer to the correct Factory Service Manual for the most accurate and up to date information. NWP Engineering shall have absolutely no liability relating to the use, non-use, improper use, installation or removal of this product. This product is not intended for use on public roads and is not DOT approved. Please use common sense and ask a qualified mechanic if you have any questions. Also, feel free to contact us if you need help!

Note: If you have done any port work to your manifold, some minor porting on the spacers may be necessary. **CAUTION:** Wear a suitable respirator or mask when porting or sanding these spacers! If inhaled, the dust can be hazardous!

Note: These spacers are designed to be installed without using any OEM gaskets. RTV silicone sealant is to be applied to both sides of every spacer to prevent intake leaks on all mating surfaces. If your engine is force inducted above 6psi of manifold pressure, the use of Permatex 1 Minute Gasket (Item #25229) instead of Black RTV is recommended.

Tools/Materials Needed: Basic Metric Socket set, Basic Metric Open-Ended Wrench set, Pliers, Flathead and Phillips Screwdriver, Torque Wrench, Permatex Ultra Black RTV Silicone Gasket Maker (598B) or 1 Minute Gasket (25229), Hand Held Drill, 7/16"-1/2" Drill Bit or included Step Drill Bit (optional), 5/16" Fuel Injection Hose (optional).

Estimated Labor Time: 4-5 hours

1) Relieve fuel pressure.

Remove the gas cap, pull the Fuel Pump fuse, and attempt to crank the car at least 3 times. Install the gas cap and fuse once the pressure is relieved.

Note: Normally, the fuel pressure does not need to be relieved, but if the fuel injection hoses are not in good condition, they may not be flexible enough in order to safely move the fuel rail out of the way to remove the lower intake manifold completely from the engine. It is recommended to inspect and replace (if necessary) the fuel injection hoses during this install.

2) Disconnect Negative Battery Cable.

3) Disconnect intake tubing from throttle body and completely remove from vehicle.

4) Unplug TPS connector and all other connectors on the upper intake manifold and throttle body.

5) Remove throttle body cables and move away from IM.

6) Remove the three rear coil packs with an 8mm socket. There are 2 bolts per coil pack.

7) Unplug all the connectors on the IACV and move entire cable out of the way. **(Pic 1)**

8) Undo all vacuum and breather hoses from the upper intake manifold. Label if necessary.

9) Remove the 4 throttle body bolts and separate throttle body from upper intake manifold while coolant hoses are still attached. **(Pic 2)**

10) Remove the EGR temp sensor harness bracket from the IACV by removing the bolt with a 10mm socket. **(Pic 3)**

11) Remove IACV assembly completely from the vehicle. **(Pic 4)**



Pic 1



Pic 2



Pic 3



Pic 4

- 12) Remove the upper EGR tube bolts with a 12mm socket. **(Pic 5)**
- 13) Remove both intake manifold support brackets.

Note: These support brackets may not fit properly after the installation of these spacers. This is fine. Just leave these brackets off the car permanently.

- 14) Remove the two coolant hoses from the backside of the upper intake manifold near the upper EGR tube. Keep them upright to prevent coolant from leaking.
- 15) Remove the 2 bolts and 2 nuts from the upper intake manifold. Everything should be free from the manifold at this point.
- 16) Completely remove the upper intake manifold from the vehicle.

CAUTION: Make sure nothing drops into the intake ports! Cover the ports with shop rags.

- 17) Install the brass coolant bypass fitting by connecting the two coolant hoses together. Make sure the hose clamps are securely fastened to prevent coolant leaks.
- 18) Use the two high temperature cable ties that are supplied in the kit and secure the coolant bypass hoses to the heater hoses on the firewall to move them away from the EGR tube. **(Pic 6)**

CAUTION: Make sure the rubber coolant hoses are not touching the EGR tube!

- 19) Remove the EGR temp sensor from EGR tube. **(Pic 6)**
- 20) Completely remove EGR tube from engine by removing the 2 lower EGR tube bolts with a 12mm open-ended wrench.
- 21) Use a 7/16" drill bit or the optional supplied Step Drill Bit in order to enlarge the 2 upper and 2 lower EGR tube bolt holes. If you use our supplied Step Drill Bit, enlarge the bolt holes to 7/16" with a hand held drill.

Note: It may be possible to keep the EGR tube on the engine and to only enlarge the two upper EGR tube bolt holes with a hand held drill. This makes the procedure much easier, but bolting the EGR tube back to the UIM once the spacers are installed may be difficult since clearances will be tight. For the most assurance, it is best to enlarge all four of the bolt holes on the EGR tube, but this requires removing the tube completely from the engine. We were able to successfully install the tube to the UIM by only enlarging the two upper EGR tube bolt holes using the 7/16" step of the supplied step drill bit, but clearances were tight. To be safe, it should be ok to use the 1/2" step of the step drill bit for more clearance.

- 22) Reinstall the EGR tube on the engine and leave the two bottom bolts loose so the EGR tube position can be adjusted slightly during the installation of the upper intake manifold.
- 23) Disconnect all injector harness connectors.
- 24) Remove the 4 fuel injector rail bolts.
- 25) Remove grounding bolts and the breather hose support bracket from lower intake manifold.
- 26) Remove all the bolts on the lower intake manifold.
- 27) Carefully lift the fuel injector rails out of the way so the LIM can be removed from engine. **(Pic 7)**

Note: If the fuel injection hoses are not in good condition, they may not be flexible enough to safely move the fuel rails out of the way. If so, replace them with new high pressure fuel injection hose.

- 28) Remove LIM completely from engine.
- 29) Carefully wipe the ports on the heads and the bottom ports on the LIM to remove any dirt or oil from the edges of the ports.



Pic 8

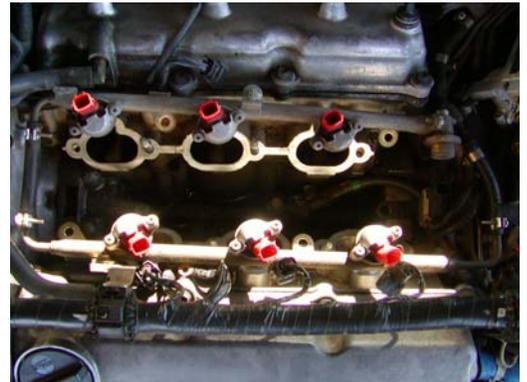
The spacer shown is not for the VQ30DE. Photo used for illustrative purposes only.



Pic 5



Pic 6



Pic 7



Pic 9

The spacer shown is not for the VQ30DE. Photo used for illustrative purposes only.

30) Apply RTV to both sides of the 1/16" thick LIM spacer as shown. **(Pic 8 & 9)**

Note: If you apply too much RTV, it will squeeze out and obstruct the intake ports when you torque down the manifold bolts. Use extra caution to make sure each port has enough RTV to prevent any intake leaks. The best method is to apply a little RTV to your finger and carefully smear it around each port. Once the RTV is applied around each port, make sure the inside of the port on the spacer is clean. You don't want RTV obstructing the airflow.

31) Press the LIM spacer onto the bottom of the LIM and make sure the intake ports properly line up.

32) Repeat steps 30 and 31 for the other 1/16" thick LIM spacer.

33) Carefully lower the LIM in place and make sure the spacers have not moved from their position. You want the intake ports to line up perfectly or airflow will be hindered!

34) Bolt down the LIM with the bolts that came on the motor. First, tighten all bolts and nuts to 3.6 to 7.2 ft-lb in numerical order as shown. Then, tighten all bolts and nuts to 20 to 23 ft-lb. Then, torque all the bolts and nuts again at least five times (20 to 23 ft-lb) to ensure they are all tightened at the correct torque. **(Pic 10)**

35) Bolt down the fuel rail to the LIM. First, tighten all bolts to 6.9 to 8.0 ft-lb in numerical order as shown. Then, tighten all bolts to 15 to 20 ft-lb using the same numerical order. **(Pic 11)**

35) Reinstall everything that was removed from the LIM and connect all injector connectors.

36) Apply RTV on both sides of the UIM spacer.

37) Firmly press the spacer on the LIM and make sure the ports line up perfectly.

38) Carefully place the UIM back on the engine and bolt down the UIM with the bolts that came on the motor. Tighten all the bolts and nuts to 13 to 16 ft-lb in numerical order as shown. **(Pic 12)**

39) Bolt the EGR Tube back to the UIM by threading in the 2 upper bolts. Tighten all the bolts to 6.5 to 8.0 ft-lb in numerical order as shown. Then, tighten all bolts to 15 to 20 ft-lb using the same numerical order. **(Pic 13)**

40) Apply RTV to both sides of the Throttle Body spacer.

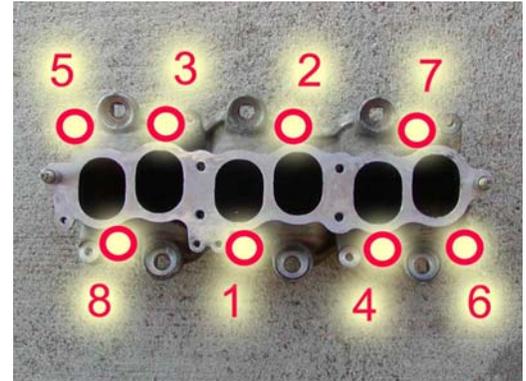
41) Firmly press the spacer on the UIM and make sure the port lines up perfectly.

42) Bolt the Throttle Body to the UIM using the supplied lengthened bolts. First, tighten all bolts to 6.5 to 8.0 ft-lb in numerical order. Then, tighten all bolts to 13 to 16 ft-lb using the same numerical order. **(Pic 14)**

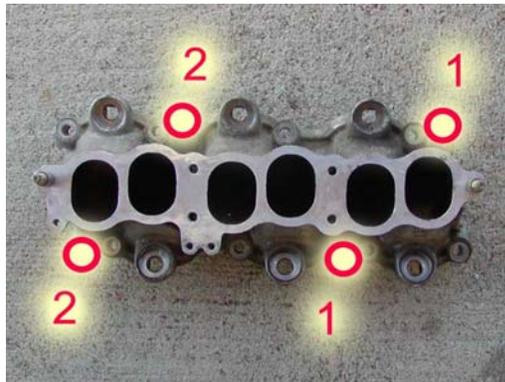
43) Adjust the throttle cables and make sure the throttle valve is able to close completely.

44) Follow the instructions in reverse order. Connect all the vacuum and breather hoses back in their same position. Connect all the electrical connectors that were unplugged and make sure everything is assembled the way it was when you started.

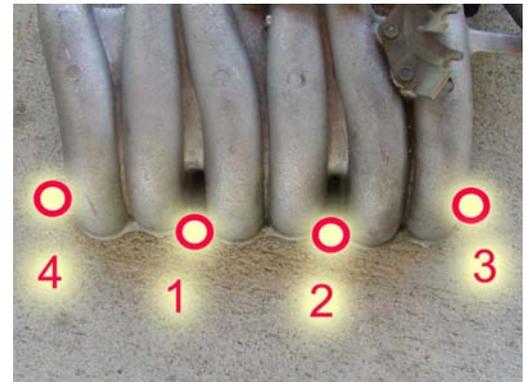
CAUTION: Make sure the RTV you applied on the spacers has been sitting for at least one hour before starting the engine. This allows the silicone sealant to properly setup to prevent any intake leaks. Please disregard if you used Permatex 1 Minute Gasket.



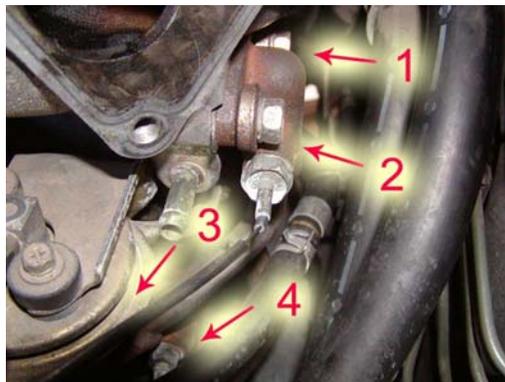
Pic 10 – Lower Intake Manifold Torque Procedure



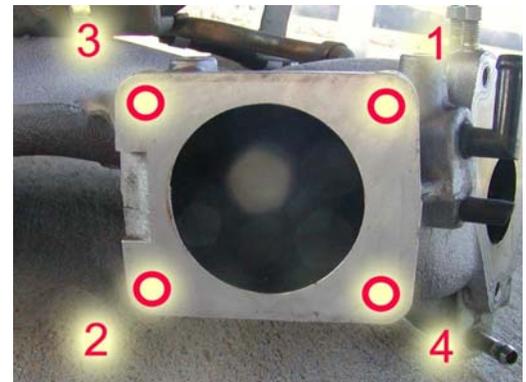
Pic 11 – Fuel Rail Torque Procedure



Pic 12 – Upper Intake Manifold Torque Procedure



Pic 13 – EGR Tube Torque Procedure



Pic 14 – Throttle Body Torque Procedure