

## Installation Procedure

2002 - 2008 Nissan Maxima 3.5L

*Instructions can also be used for most other FWD Nissans with the 3.5L motor*

**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 hurt you!

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

**Tools/Materials Needed:** Basic Metric Socket set, Basic Metric Open-Ended Wrench set, Metric Allen Wrench set, Pliers, Flathead and Phillips screwdriver, Torque Wrench, E8 External Torx Socket (optional), Permatex Ultra Black RTV Silicone Gasket Maker (598B) or 1 Minute Gasket (25229), Shop Vacuum for removing dirt in engine valley



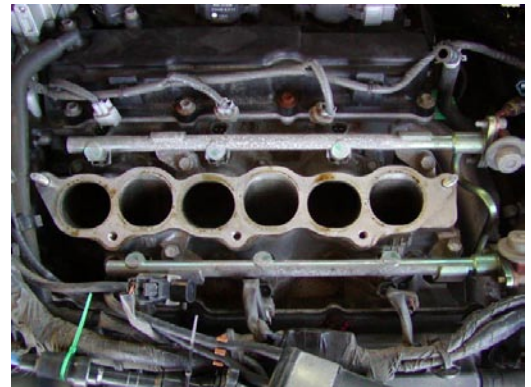
Pic 2

**Estimated Labor Time:** 2-3 hours

- 1) Unplug Negative Battery Cable
- 2) Remove Engine Cover and Disconnect Intake Air Tube from Throttle Body (**Pic 1**)
- 3) Unplug the Drive-By-Wire Throttle Body Connector
- 4) Unplug the blue EVAP solenoid connector and make sure it's free from the UIM
- 5) Unbolt VIAS tank and solenoid from Upper Intake Manifold (UIM)
- 6) Disconnect all the vacuum hoses you see connected to the UIM
- 7) Disconnect Brake Booster Breather Hose
- 8) Undo the two coolant hoses on the bottom of the Elbow near the Throttle Body and install the coolant bypass fitting, connecting the IN and the OUT coolant hose
- 9) Unplug the two connectors on the backside of the UIM and unbolt bracket from UIM (**Pic 2**)
- 10) There is a support bracket below the Elbow near the firewall. Remove this bracket **completely** and leave it off the motor. The UIM will not bolt back up if the bracket is left in place with spacers installed.
- 11) (**For years 04-08**) Unbolt the EGR by removing the two lower bolts, then the two upper nuts. Leave the EGR temp sensor attached to the tube.
- 12) (**For years 04-08**) Unbolt the EGR bracket strap from the backside of the UIM on the passenger side. There is one bolt holding that bracket in place.
- 13) Make sure that nothing is still connected to the UIM
- 14) Unbolt the 3 bolts and 2 nuts securing the UIM to the Lower Intake Manifold (LIM)
- 15) Carefully lift it straight up and remove the UIM, Elbow, and TB all together. (**Pic 3**) **Do not scratch the mating surfaces!!**
- 16) Cover the intake ports on the LIM immediately with lent free rags



Pic 1



Pic 3



Pic 4

- 17) Unplug the injector connectors
- 18) Look closely in the valleys where the LIM meets the heads. You should see a lot of dirt in there that has collected over the years. Get a shop vacuum and remove all this dirt before removing the LIM to prevent debris from falling in the heads.
- 19) Unbolt the 8 bolts on the LIM
- 20) Carefully lift the LIM straight up and set it on its side on the rear valve cover as shown below. There should be plenty of slack in the fuel rail hose in order to lift the LIM with the fuel rails still attached. **Make sure nothing drops into the heads! (Pic 4)**

**CAUTION:** If you drop something down in one of the ports on the heads, you've got a BIG problem!

21) 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 5

22) Cover the ports on the heads with lint free rags to prevent anything from falling in the heads.

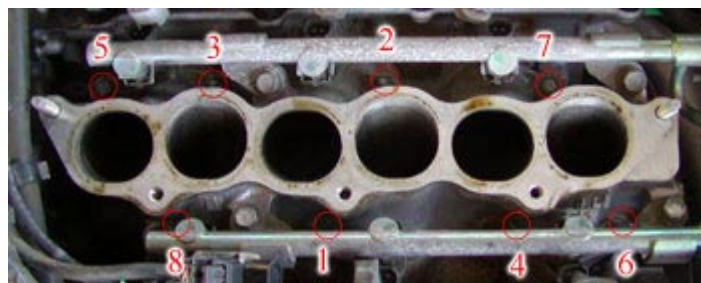


Pic 6

23) Apply RTV to both sides of the 1/16" LIM spacer as shown. **(Pic 5 & 6)**

**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 a consistent application of RTV without any breaks 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.

24) Press the LIM spacers firmly onto the bottom of the LIM and make sure the intake ports properly line up. Look to see if RTV squeezes out in the intake port.



Pic 7

25) Repeat steps 23 and 24 for the other 1/16" LIM spacer.

26) 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!

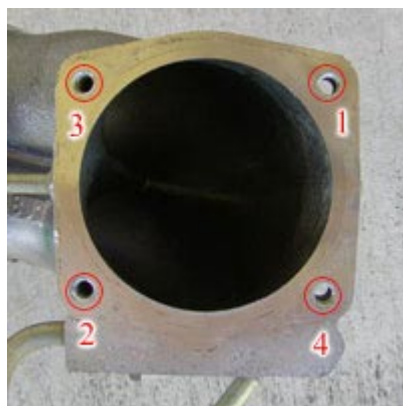
27) Bolt down the LIM with the bolts that came on the motor and first tighten all bolts and nuts to 4 to 7 ft-lb in numerical order as shown. Then, tighten all bolts and nuts to 20 to 23 ft-lb. **(Pic 7)**

28) Cover the top of the LIM to make sure nothing falls inside the ports.

29) Remove the Throttle Body from the Elbow.

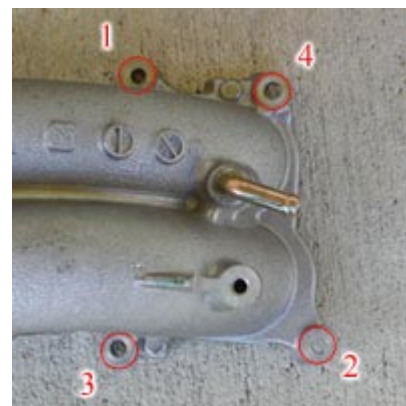
30) Apply RTV on both sides of the TB spacer.

31) Firmly press the spacer on the Elbow and make sure the port **and** bolt holes line up perfectly. If they don't, you have the spacer upside down.



Pic 8

32) Use the 6x60 SHC Throttle Body bolts included in the kit and tighten all bolts to 5 to 7 ft-lb in numerical order as shown. **(Pic 8)**



Pic 9

33) Now, unbolt the Elbow from the UIM.

34) Apply RTV on both sides of the Elbow spacer.

35) Firmly press the spacer on the UIM and make sure the ports line up perfectly.

36) Use the 8x35 Hex Elbow bolts included in the kit and tighten all bolts to 13 to 15 ft-lb in numerical order as shown. **(Pic 9)**

37) Remove the two studs on the LIM. The easiest method to removing these studs is to use an E8 external torx socket. If not available, tighten two nuts together on the stud as shown. Once tight enough, you can use an open-ended wrench on the bottom nut in order to unscrew the stud. **(Pic 10)**

38) Install the two lengthened studs that are included in the kit using two nuts as explained in Step 37. **Torque these studs to 7-8 ft-lbs!**

**CAUTION: DO NOT** over torque these studs or you can crack the manifold!

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

40) Firmly press the spacer on the LIM and make sure the ports line up perfectly. **(Pic 11)**

41) Carefully place the UIM, Elbow, and TB back on the engine.

42) Use the 8x35 Hex UIM bolts included in the kit and tighten all bolts to 13 to 15 ft-lb in numerical order as shown. **(Pic 12)**

43) **(For years 04-08)** Install the EGR tube and tighten all bolts/nuts to 12 to 13 ft-lb

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.

45) After everything is together again, perform the "Accelerator Pedal Released Position Learning" and the "Throttle Valve Closed Position Learning" procedure.

#### Accelerator Pedal Released Position Learning Procedure

- 1) Make sure the accelerator pedal is fully released.
- 2) Turn ignition switch ON and wait at least 2 seconds.
- 3) Turn ignition switch OFF and wait at least 10 seconds.
- 4) Turn ignition switch ON and wait at least 2 seconds.
- 5) Turn ignition switch OFF and wait at least 10 seconds.

#### Throttle Valve Closed Position Learning Procedure

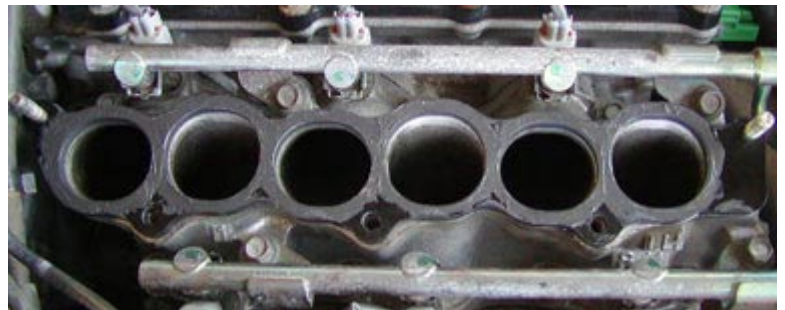
- 1) Turn ignition switch ON.
- 2) Turn ignition switch OFF and wait at least 10 seconds. Make sure the throttle valve moves during the above 10 seconds by confirming the operating sound.

#### Idle Air Volume Learning Procedure

- 1) Start engine and warm it up to normal operating temperature.
- 2) Turn ignition switch OFF and wait at least 10 seconds.
- 3) Confirm the accelerator pedal is fully released, turn ignition switch ON and wait 3 seconds.
- 4) Repeat the following procedure quickly 5 times within 5 seconds.
  - 1) Fully depress the accelerator pedal.
  - 2) Fully release the accelerator pedal.
- 5) Wait 7 seconds, fully depress the accelerator pedal and keep it for approx. 20 seconds until the MIL goes off.
- 6) Fully release the accelerator pedal within 3 seconds after the MIL goes off.
- 7) Start engine and let it idle.
- 8) Wait 20 seconds.
- 9) Rev up the engine two or three times and make sure that idle speed and ignition timing are within the specifications.



Pic 10



Pic 11



Pic 12

**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.

**Note:** If you experience a high or erroneous idle or any drivability issues, then perform the "Idle Air Volume Learning" procedure below. A stopwatch or clock with second hand will be needed to ensure you adhere to the proper timing specified in the directions below.