



Phenolic Thermal Intake Spacers

Installation Procedure

2003 - 2006 Nissan 350z
and the G35 Coupe, G35 Sedan, FX35, & M35

Disclaimer: These Phenolic 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 Phenolic Spacers may be necessary to match them to your larger ports. You may use the same die grinder sand paper rolls that you would normally use to port cast aluminum intake manifolds. **CAUTION:** Wear a suitable respirator or mask when porting or sanding the Phenolic Spacers! If inhaled, the dust can hurt you!

Note: These Phenolic Spacers are designed to be installed without using any OEM gaskets. RTV silicone sealant is to be applied to both sides of each Spacer to prevent intake leaks. Once installed, you will never have to worry about intake leaks for the life of your motor regardless of how much boost you run! For easy removal of the intake manifold in the future, you may use an OEM gasket on one side of a Spacer with RTV on the other side. But since OEM gaskets are NOT port matched, this will not provide the best and smoothest airflow.

Tools/Materials Needed: Basic Metric Socket set, Basic Metric Open-Ended Wrench set, 5mm Metric Allen Socket or Wrench, Pliers, Screwdrivers, Torque Wrench, Permatex Ultra Black RTV Silicone Gasket Maker (82180) or "The Right Stuff" One Minute Gasket Maker (25229), and Shop Vacuum for removing dirt in engine valley where the lower intake manifold meets the heads.

Estimated Labor Time: 2-3 hours

CAUTION: DO NOT attempt to open the throttle body plate manually with your fingers!
This can result in a misalignment of the throttle body and can prevent the engine from idling properly.

- 1) Remove fuel pump fuse and start engine to relieve fuel pressure. Engine will stall after a few seconds. Repeat until the engine no longer starts. Replace the fuel pump fuse.
- 2) Remove fuel filler cap to relieve pressure from tank. Leave cap off or loose to prevent the pressure from increasing again if you expect rising air temps during the install.
- 3) Disconnect the negative battery cable from battery terminal.

Note: These are basic instructions to help you during the install procedure. Refer to the Factory Service Manual for the proper procedure of removing and installing the intake tube, intake plenums, and intake manifold.

- 4) Remove the upper and lower plenums so that the 6 intake ports on the lower intake manifold (LIM) and the fuel rails are visible. **Make sure nothing drops into the ports!**

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

- 5) Install the brass coolant bypass fitting by connecting the two coolant hoses together and reinstalling the hose clamps as shown in the first Pic. This will prevent the coolant from flowing through your upper plenum just behind your throttle body unit. We have thoroughly tested this coolant bypass in temperatures below 10°F without any issues.
- 6) Before removing the lower intake manifold (LIM) with the fuel rails, look closely in the valleys where the LIM meets the heads. You should see a lot of dirt/debris in there that has collected over the years. Get a shop vacuum and remove all this debris before removing the LIM to prevent it from falling in the heads.
- 7) You may have to disconnect the fuel hose in order to access the 3 ports on the bottom of each side of the LIM. Some vehicles have enough slack in the fuel hose to lift the LIM and flip upside down on the valve cover as shown.
- 8) Unbolt the 8 bolts/nuts on the LIM and carefully lift the LIM straight up off the head studs.
- 9) Stuff the intake ports on the heads with lint free rags to prevent anything from falling in the heads.
- 10) Remove the OEM metal gaskets. 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. You want the mating surfaces to be clean and smooth to the touch prior to applying Black RTV. Also, wipe the NWP Spacers clean as well.



11) Apply a paper thin layer of Black RTV to both sides of the 1/16" thick LIM Phenolic Spacer as shown. Or you can apply RTV to one side and use an OEM gasket on the other. Gray RTV, as opposed to Black RTV, can also be used. But do not use any other color RTV such as Red RTV which does not make a good air tight seal. Higher temp-rated RTV does not mean it's better! Use **only** Black or Gray RTV!

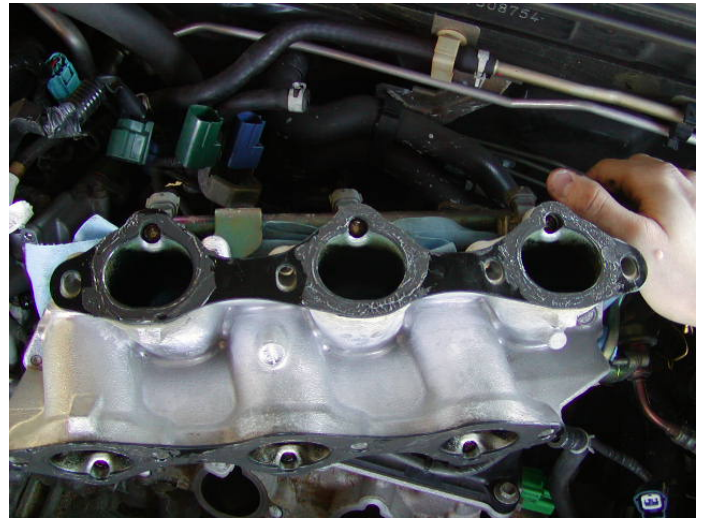
Note: If you apply too much RTV, it will squeeze out and obstruct the intake ports when you torque down the manifold bolts. Use extra caution to make sure each port has a consistent thin application of RTV without any breaks to prevent any intake leaks. The best method is to apply a little RTV to your finger and carefully smear it around each port. Then, with the tip of your finger, lightly go around the port at least 2 more times to provide a consistent thickness of RTV and making sure it goes completely around the port without any breaks. **Only a consistent, paper thin coating of RTV is needed!**

Tip: When applying RTV around each intake port, try to stay away from the very edge of the port itself as shown in the picture. This will reduce the chances of any RTV squeezing out into the intake port when tightening down the manifold.

12) Press the LIM Phenolic Spacers firmly onto the bottom of the LIM and make sure the intake ports properly line up.

13) Repeat this process for the other LIM Spacer and 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!

14) Bolt down the LIM using the same bolts and nuts. Refer to the Factory Service Manual for the tightening procedure.



CAUTION: Do not confuse "ft-lbs" with "in-lbs"!
Damage to expensive parts can result!

15) While the upper plenum is removed from the engine, it may be easier to install the Throttle Body (TB) Phenolic Spacer. Line up the TB Spacer to the port on the upper plenum. Make sure the port **AND** bolt holes line up perfectly. If they don't, the spacer is upside down.

16) Apply RTV to both sides of the TB Spacer and firmly press it on the plenum. Or you can apply RTV to one side and use an OEM gasket on the other.

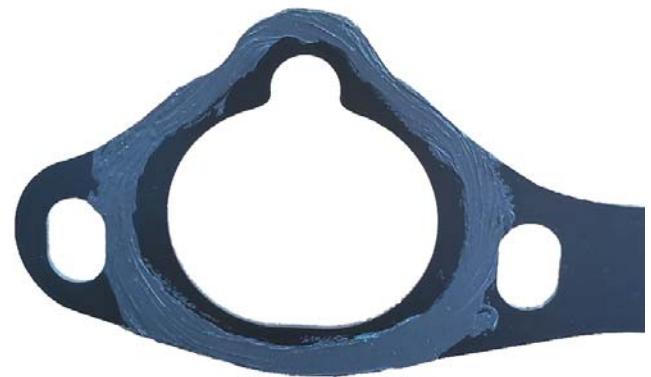
17) Install the stock 70mm TB unit or the NWP 75mm TB Adapter Plate using the supplied lengthened bolts.

18) Install the large Intake Plenum Phenolic Spacer using the same method of applying RTV. Apply a paper thin layer of Black RTV around each intake port on both sides of the Spacer and firmly press it on top of the LIM. Or you can apply RTV to one side and use an OEM gasket on the other for easy removal in the future.

19) Install the lower and upper intake plenums, connect all breather hoses, install throttle body and intake tube.

20) Tighten the fuel filler cap if it is still loose.

21) Connect battery.



Note: Make sure the RTV you applied on the Phenolic 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. If you used Permatex One Minute Gasket Maker, then you do not have to wait. Go ahead and crank the engine.

You may perform the procedures below if you are experiencing any issues out of the normal (e.g. Delayed Throttle Response, High or Low Idle, etc).

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) Make sure that accelerator pedal is fully released.
- 2) Turn ignition switch ON.
- 3) 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.

Note: If you experience a high or erroneous idle or any drivability issues, first check for intake leaks, 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.

Idle Air Volume Learning Procedure

Before performing this procedure, make sure that all of your electronics are OFF including your radio, headlights, all interior lights, AC, AC/Heater Fan, rear defroster, and any aftermarket electronics such as speaker amplifiers, power inverters, and cell chargers.

Also, make sure these conditions are met if you are having problems successfully doing this procedure:

- Battery Voltage: More than 12.9V (at idle)
- Engine Coolant Temp: 158-212 degrees F
- Automatic Shifter: In Park
- Steering Wheel: Straight Ahead Position
- Vehicle Speed: Stopped

Transmission: Warmed-up (usually requires a 10 minute drive)

- 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 stops blinking and turned ON.
- 6) Fully release the accelerator pedal within 3 seconds after the MIL turned ON.
- 7) Start engine and let it idle.
- 8) Wait 20 seconds.
- 9) Rev up the engine two or three times and make sure that the idle speed is normal (550-725 rpm).

Troubleshooting: If you are still experiencing problems such as a surging idle, check for any intake leaks around the Phenolic Spacers, intake tube couplers, and any breather/vacuum hoses. There should be RTV on both sides of every Phenolic Spacer or an OEM gasket. Also, if your tachometer needle moves up and down by itself while idling, then you probably have a leak somewhere. If your tachometer needle is nice and steady for a while and then it stumbles (suddenly drops) by itself, you probably have a small leak. Once everything appears to be installed correctly and there are no leaks, if your idle speed is high, you may unplug the negative battery terminal for at least 8 hours. This will allow all the memory to drain from the ECU. Then, when you plug your battery back up, it is forced to do an Idle Air Relearn procedure from scratch without any prior memory stored as soon as you crank the engine.