

## Forge Motorsport BMW N54 Diverter Valves



Please thoroughly read through and familiarize yourself with these instructions in their entirety prior to beginning any part of the installation process of any component. Please also ensure that the vehicle and engine have cooled down sufficiently to avoid risking skin burns or other injury. Work gloves and protective eyewear are recommended.

### Tools Required for this Installation:

- T20 Torx Driver
- Flat head screw driver or 7mm socket

### Parts Checklist (included with kit):

- 2 Forge Diverter Valves
  - 4 Hose clamps
  - Two pieces of silicone hose (1 x ~13 inch length | 1 x ~16 inch length)
- 

1.) Begin by removing the intake scoop that leads cold air from the front grille to the air box. To do this you will need to remove the two screws at the front of the scoop using a T20 Torx driver. These two screws are circled in the picture to the right.



2.) Next, disconnect the rear section of the intake scoop that leads into the air box (circled at right). To disconnect this, simply squeeze on the top and bottom of the snorkel until it is free of the tabs on the sides. Then, simply pull outward gently. Now that this is free, you can remove the entire intake scoop from the car.



3.) With the intake scoop removed, you will next remove the air box cover. To do this, simply unhook all the metal clasps holding it on. There are five clasps (circled below) located around the outer edge of the cover. You can then lift the cover off, and remove the air filter from the air box.



4.) Disconnect the small hose at the front of the air box. To remove this hose (circled below) simply squeeze the sides of the plastic ring connector and pull up. Then pull the hose away from the air box where it is held in place at the corner.



5.) Disconnect the two large intake hoses located at the front and rear of the air box (circled below). To remove simply use a flat head screw driver to loosen the clamp. Then, simply pull the hose free of the intake port on the air box

FRONT OF AIR BOX >>>



BACK OF AIR BOX >>>



6.) Finally, you will want to disconnect the wiring harness (left picture) from the air box. The three wires are held onto the air box with three rubber connectors. To disconnect these, pull straight up on each one of the rubber connectors. These can be difficult to remove, so you may need to use force to get them off. **DO NOT** pull up on the wire looms themselves, as this can rip the rubber connectors. Be sure to pull up on the square portion of the rubber connectors that slides onto the air box.

At this time, you will also want to disconnect the wire loom casing that runs across the top of the engine bay (right picture). To do this, simply pull straight out. You can carefully move this out of the way, placing it on the weather-stripping at the back of the engine bay. This will give you enough room to remove the air box in the next step.



7.) Now that all the intake hoses and wiring harnesses are disconnected from the air box, it is time to remove the air box from the car. There are three rubber grommets underneath the air box holding it in place, one in front and two in back. To remove the air box, you will need to pull up on the air box itself. It is easiest to pull up on the front of the air box first to free the front rubber grommet. Then, rapping your hands around both sides of the back of the air box, pull straight up with force. It may be easiest to try and free one side at a time. This will require force, so do not be afraid to pull up hard. Just be sure to pull **STRAIGHT UP**, not toward the front or sides.

8.) With air box removed, you can now begin to remove the factory diverter valves and hoses. There are a total of four BMW connectors holding the valves and hoses in place. First, disconnect the hoses at the front and rear of the engine bay (shown below). To disconnect these connectors, twist the gray ring clockwise and then pull up on the hose.

**BACK OF ENGINE**

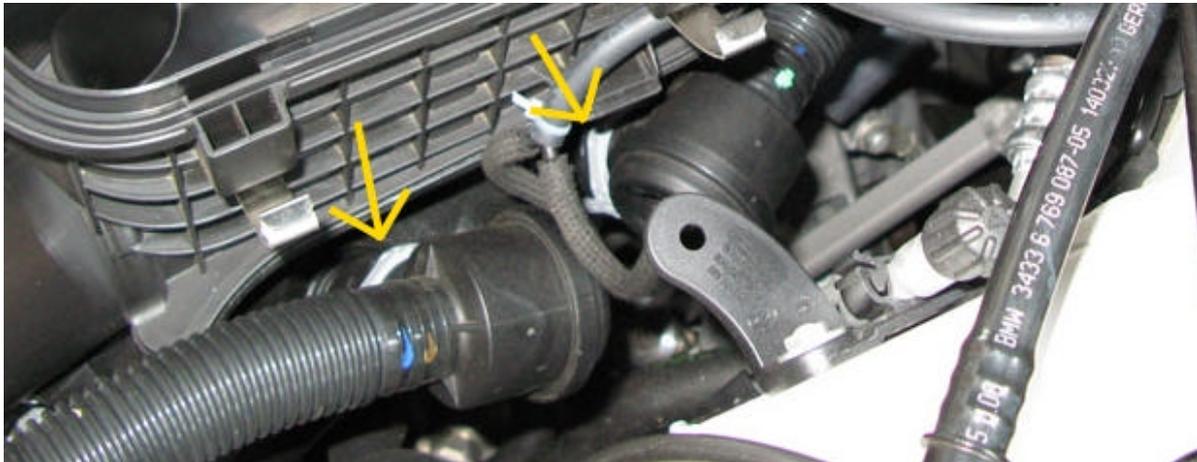


**FRONT OF ENGINE**



9.) Next, remove the vacuum lines from the factory diverter valves. These are the two small hoses that connect to the top center of each valve. To remove these, simply pull them away from the valve.

Then you can remove the factory diverter valves in the same manner as the hoses. Twist the gray rings (yellow arrows below) clockwise, and pull up on the factory diverter valves. You can now completely remove the valves and hoses from the engine bay.



10.) With the factory diverter valves and hose out of the car, it is now time to install your Forge Motorsport diverter valves. You will want the small vacuum ports on the top of each valve to face the passenger side as shown below. See below for instructions on how to adjust these ports prior to installing the valves.

Once the vacuum ports are adjusted correctly, you will want to make sure the gray rings on the BMW connectors are turned counterclockwise before inserting the valves. This was the LOCKED position on the factory valves. Insert each Forge valve until you hear it snap into place. The snapping sound is the gray locking ring locking the valve into place. Then gently pull up on each valve to make sure it is fastened securely. At this time you can also rotate the entire valve within the lock mechanism so that the tops of each valve are parallel to each other, and free from rubbing. With both valves locked in place, you can now slide the factory vacuum lines over the vacuum ports on the valves. Simply push these over the barb as far as you can. Make sure they are snug by gently pulling on them to make sure they do not come off. (NOTE: It does not matter which vacuum line you connect which valve. Either line can go to either valve)

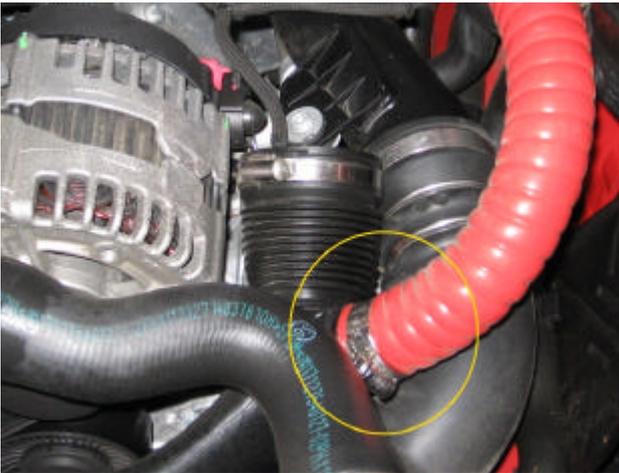
#### **VACUUM PORT ADJUSTMENT**

Be sure that the small vacuum ports are aligned to the passenger side of the car as shown, so that you can easily reconnect the OEM vacuum lines. To adjust these, loosen the valve cap by unscrewing the outer ring a little and twisting the center section with the vacuum port. While holding the vacuum port where you want it to be positioned, tighten the outer ring of the valve cap securely. Repeat for second valve.



11.) Next, you will install the included silicone hoses. You will notice the two hoses are slightly different lengths. One is 13" long and the other is 16" long. The longer hose (16") will install from the rear most valve to the port at the back of the engine bay. The shorter hose (13") will install from the front most valve to the port at the front of the engine bay. We will start with the front hose (the shorter of the two).

11A.) The easiest way to install the front hose is to install it at the front port first (left picture below). Slide a hose clamp over the hose, slip the hose over the port, and tighten the clamp with a flat head screwdriver or a 7mm socket. Then, slide a hose clamp over the other end of the hose, slide it onto the remaining connections of the front most Forge valve, and tighten the hose clamp (right picture below).



11B.) The procedure for the rear hose is the same. For this hose, it may be easiest to start by connecting it to the connection on the rearmost valve first (bottom left picture), and then connecting it to the rear port (bottom right picture).



12.) Once both hoses are installed, it is a good time to make sure that all four hose clamps are properly tightened. Also, make sure all ends of the silicone hoses are pushed as far onto each port as possible. Gently pull at all four ports to make sure the silicone hoses do not come off. Now is also a good time to check both Forge diverter valves to make sure they are properly locked in place. Finally, double check both vacuum lines on the valves to make sure they are secure and do not come off the vacuum ports. If all connections are snug, it is now time to reassemble the air box.

### **13.) REASSEMBLING THE AIRBOX.**

The reassembly of the air box is the reverse of the removal as described previously.

#### **!!IMPORTANT!!**

It is very important to make sure all the hose connections to your new Forge valves, and the valves themselves, are secure and leak free before reassembling the factory air box. Failure to secure all of these connections could result in a boost leak that may harm the performance of your vehicle. No damage will result, however, to fix any such leak, it will require disassembling the airbox all over again.

#### **REASSEMBLY SUMMARY:**

- Push factory air box into place over three rubber grommets.
- Reinstall the intake hoses at the front and back of the air box. Make sure to securely tighten the hose clamps on these hoses.
- Snap wire loom casing into place at the top rear of the engine bay.
- Slide the three rubber wire connectors over the slots on the air box.
- Place air filter into air box
- Place cover on air box and secure with 5 clasps on outer edge.
- Snap the air hose at the front of the air box into place at the corner, and plug it into the port by firmly pushing down on it.
- Snap the rear portion of the air intake scoop over tabs on the air box.
- Screw the front of the intake scoop into place using the two T20 torx screws

#### **YOUR INSTALLATION IS NOW COMPLETE!**

**Be sure to test drive the vehicle and make sure it is running properly.  
Review and repeat the installation if there are any issues.**

**Please feel free to contact us if you have any questions or concerns.**