



## BMW N54 Chargepipe Blow Off Valve Installation Instructions

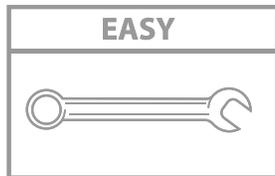


## INTRODUCTION

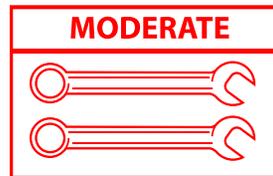
### BMW N54 Chargepipe Blow Off Valve Kits

BMW N54 Chargepipe Blow Off Valve Kits offer the following features and benefits:

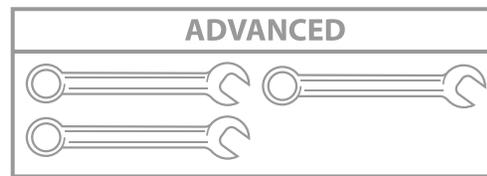
- Maintain a smoother power band across the entire RPM range
- Reduce wear and tear on your turbocharger
- Bolt on application with all the required hardware
- High quality construction
- Multiple different styles and finishes to choose from



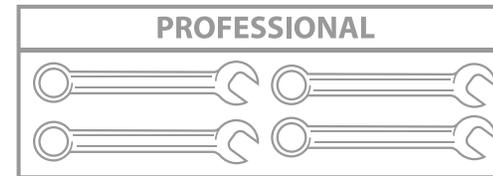
**EASY**  
BASIC SKILLS  
REQUIRED



**MODERATE**  
SOME EXPERIENCE  
RECOMMENDED



**ADVANCED**  
ADVANCED SKILLS &  
EXPERIENCE REQUIRED



**PROFESSIONAL**  
PROFESSIONAL SKILLS &  
SPECIALTY TOOLS REQUIRED

Installing a Chargepipe Blow Off Valve on your BMW N54 is a short afternoon project that can be completed in just a few hours. Notice immediate performance gains, save wear and tear on your turbocharger, and add an aggressive performance sound to your engine. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools on hand. Thank you for purchasing an N54 Chargepipe Blow Off Valve Kit from ECS Tuning. We appreciate your business!

## TABLE OF CONTENTS

Kit Contents.....	<a href="#">pg.4</a>
Required Tools and Equipment.....	<a href="#">pg.5</a>
Shop Supplies and Materials.....	<a href="#">pg.5</a>
Installation Notes .....	<a href="#">pg.6</a>
Preparation and Safety.....	<a href="#">pg.6</a>
Removing the Original Chargepipe.....	<a href="#">pg.7</a>
Installing the New Chargepipe.....	<a href="#">pg.23</a>
Changing the Blow Off Valve Springs .....	<a href="#">pg.32</a>

### NOTE

We are going to install our ECS Tuning Chargepipe and Blow Off Valve kit. While this kit will differ slightly in appearance and actual kit contents, the installation procedure is almost identical for all of the kits we offer and these instructions will provide you with a smooth, trouble free installation for any of the kits.

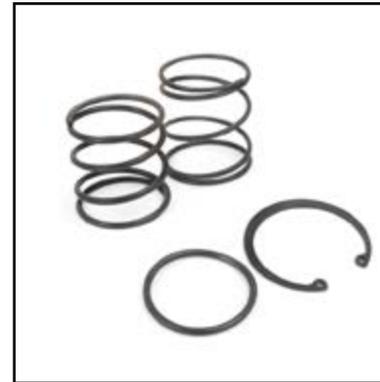
## TYPICAL CHARGEPIPE BLOW OFF VALVE KIT CONTENTS



Chargepipe



Blow Off Valve



C-Clip, O-Ring, and Blow Off Valve Springs



Silicone Vacuum Hose



Diverter Valve Block Off Caps and Installation Hardware



Silicone Coupler



Hose Clamps



Vacuum Filter

## REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

We recommend that you have a complete selection of tools and equipment necessary for automotive repair. Below is a list of the tools we used to install the ECS Tuning Chargepipe Blow Off Valve. Additional tools may be required for any issues that arise during installation such as rust, corrosion, or broken and stripped fasteners.

- Flat Blade Screwdriver(s) ..... Available at [ecstuning.com](http://ecstuning.com)..... [ES#2225921](#)
- Torx Drivers: T20, T30 ..... Available at [ecstuning.com](http://ecstuning.com)..... [ES#11417](#)
- Safety Glasses
- Small Angled Pick or Hook Tool
- Nut Drivers: 6mm, 8mm
- Hex Bit (Allen) Wrenches: 3mm
- 1/4" Ratchet, Extensions
- 1/4" Sockets: 10mm
- Razor Blade
- Open/Boxed End Wrenches: 12mm
- Snap Ring Pliers
- Side Cutters
- Needle Nose Pliers

## SHOP SUPPLIES AND MATERIALS

- Hand Cleaner/Degreaser..... Available at [ecstuning.com](http://ecstuning.com)..... [ES#2167336](#)
- Aerosol Brake Cleaner..... Available at your local auto parts store
- Shop Rags ..... Available at your local auto parts store
- Aerosol Spray Lubricant/Penetrating Oil..... Available at your local auto parts store

## INSTALLATION NOTES

- RH refers to the passenger side of the vehicle.
- LH refers to the driver side of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process before you begin.

## GENERAL PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety. Please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- Always wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- If using an automotive lift, be sure and utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- When lifting a vehicle using a jack, always utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear. Always support the vehicle with jack stands.
- Always read and follow all safety information and warnings for the equipment you are using.



Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.

## REMOVING THE ORIGINAL CHARGEPIPE

### Step 1:

Remove the upper wiring harness channel cover by pulling out each of the four tabs (arrows) to release them, then lifting the cover upwards and unhooking it at the rear.

#### NOTE

We are installing this chargepipe on a car with the original airbox. If you have an aftermarket airbox or intake system, these steps will vary slightly but you will still have to remove the cowl panel for access.

### Step 2:

Pull the battery cable and corrugated wiring harness out of their retaining clips in the wiring harness channel.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 3: Small Pick

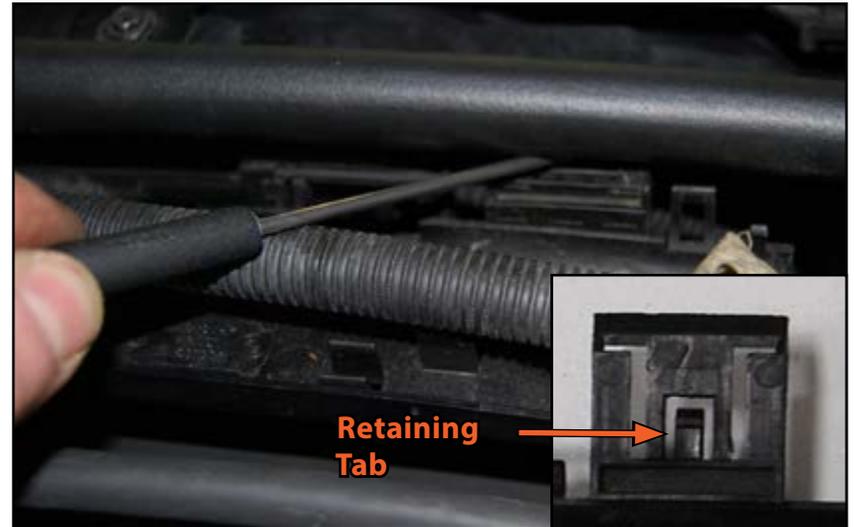
Carefully release the three retainers for the wiring harness channel by pushing down on each retaining tab. As you release each one, pull out slightly on the channel to prevent the tabs from locking back in place. The inset picture shows a close up view of a retaining tab.

#### NOTE

These tabs and the cowl panel mounts are very fragile and can be easily broken, use caution during removal.

### Step 4:

Pull the wiring harness channel forward and remove it from the cowl panel.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 5:

The large corrugated wiring harness mounts to the cowl panel at three different locations (refer to photo on right).



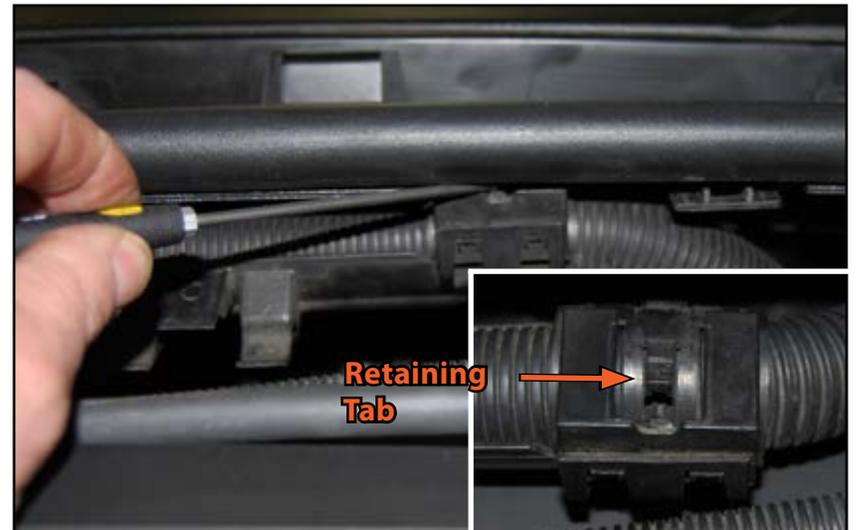
### Step 6:

Small Pick

Carefully release the three retainers for the large wiring harness by pushing down on each retaining tab. As you release each tab, pull out on the harness to prevent the tabs from locking back in place. The inset picture shows a close up view of a retaining tab.

#### NOTE

These tabs are very fragile and can be easily broken, use caution during removal.



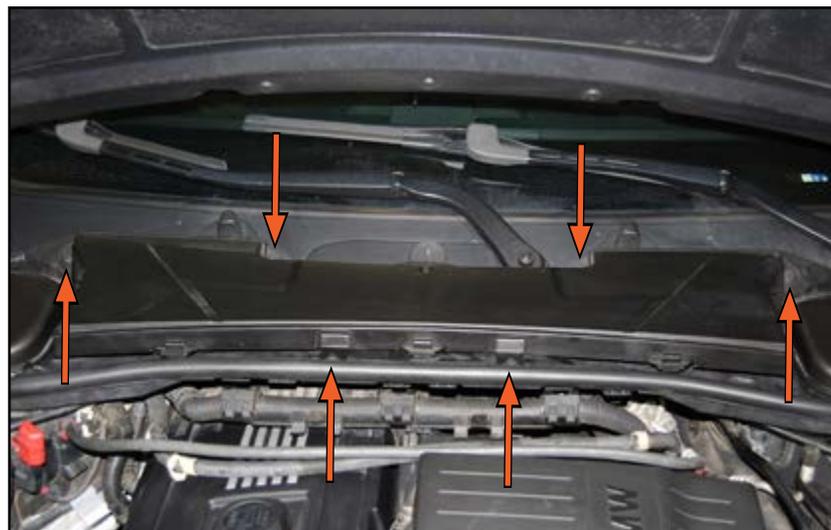
## REMOVING THE ORIGINAL CHARGEPIPE

**Step 7:** 8mm Nut Driver / 8mm Socket and Ratchet

Remove the six self threading screws holding the cabin air filter housing to the cowl panel.

**Step 8:**

Gently lift up on the cabin air filter housing and remove it from the cowl panel



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 9:

Remove the brake master cylinder cover by sliding out the rubber seal retainer and releasing the front and rear retaining tabs. Lift the cover up and remove it.



### Step 10:

Moving to the passenger side of the vehicle, disconnect the air temperature sensor by pushing in on the connector release tab and pulling the connector off of the sensor.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 11:

Remove the air temperature sensor wiring harness retention clips from the cowl tabs by pulling up on them. These clips have small "teeth" that grip the cowl tabs as they are pushed into place, if they are difficult to release by hand a small flat blade screwdriver can be used to pry them off. Lay the harness to the side after clips have been removed.



### Step 12:

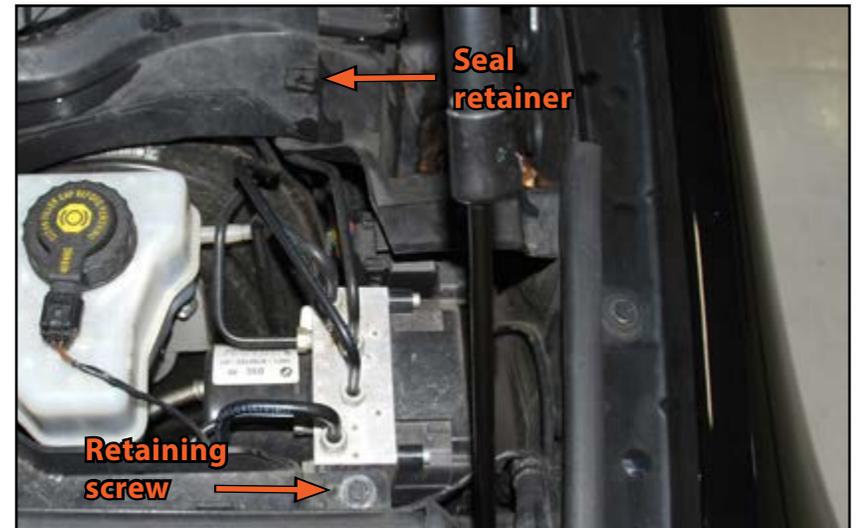
Remove the passenger side cowl cover by sliding out the rubber seal retainer and releasing the front and rear retaining tabs. Lift the cover up and remove it.



## REMOVING THE ORIGINAL CHARGEPIPE

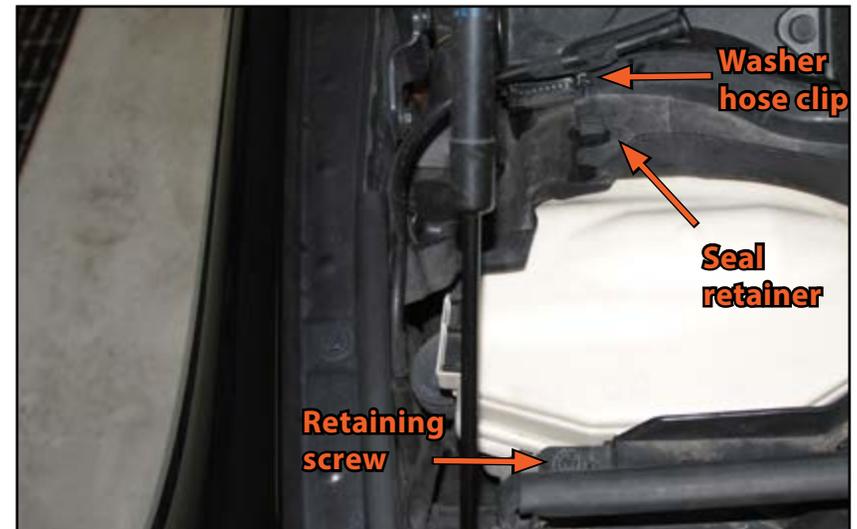
### Step 13: 8mm Nut Driver / 8mm Socket and Ratchet

Slide the driver side cowl seal retainer out of the slot in the cowl panel, and remove the screw holding the cowl panel to the body of the car.



### Step 14: 8mm Nut Driver / 8mm Socket and Ratchet

Slide the passenger side cowl seal retainer out of the slot in the cowl panel, remove the washer hose retaining clip from the cowl tab. This clip has small "teeth" that grip the cowl tab as the clip is pushed into place. Remove the screw holding the cowl panel to the body of the car.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 15:

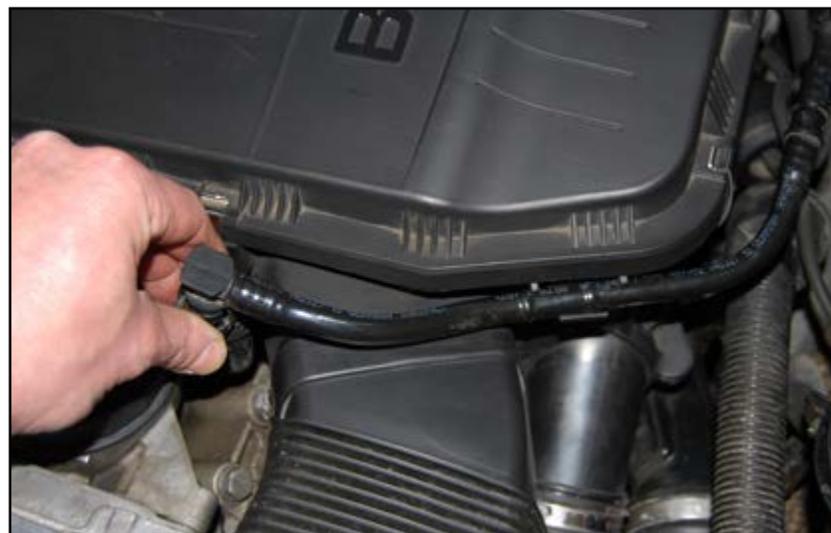
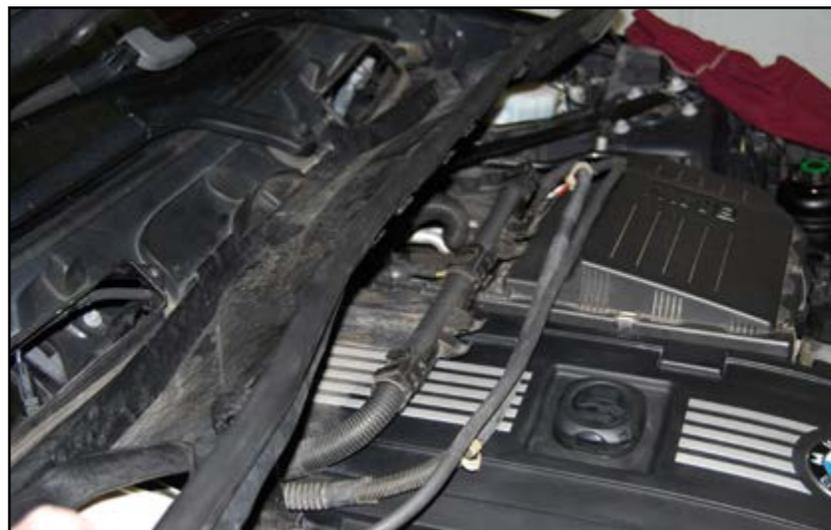
Tilt the cowl panel up at the front, then lift and pull it forward to remove it from the vehicle.

#### NOTE

There are 5 tabs that hold the cowl panel tightly to the seal at the rear of the panel. These can be easily broken, use caution during removal.

### Step 16:

Disconnect the brake booster vacuum line by squeezing the two retaining tabs together and pulling up on the line. Pull the line out of the retaining clip on the side of the original air box.



## REMOVING THE ORIGINAL CHARGEPIPE

**Step 17:** 6mm Nut Driver or Flat Blade Screwdriver

Loosen the clamps holding the front and rear turbo inlet tubes to the air original box. (front clamp shown)



**Step 18:** T20 Torx Driver

Remove the 2 screws holding the intake air duct to the radiator core support.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 19: Flat Blade Screwdriver

Release the intake air duct from the tabs on the original air box, pull the intake air duct off of the original air box and remove the duct from the vehicle.



### Step 20:

Pull all 3 wiring harness retainers off of the retainer bracket on the side of the original air box



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 21:

Remove the front and rear turbo inlet tubes from the original air box.



### Step 22:

Lift up on the air box and remove it from the vehicle. Be careful to make sure all hoses and wires are clear while removing the air box.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 23:

Follow the vacuum hose for the original diverter valves and locate where it connects to the intake manifold, just rear of the throttle body.



### Step 24: Razor Blade

Carefully remove the vacuum hose from the intake manifold. This is a small plastic nipple, be careful not to break it. The best method is to slice the tubing with a razor blade which will allow you to pull the hose off easily.



## REMOVING THE ORIGINAL CHARGEPIPE

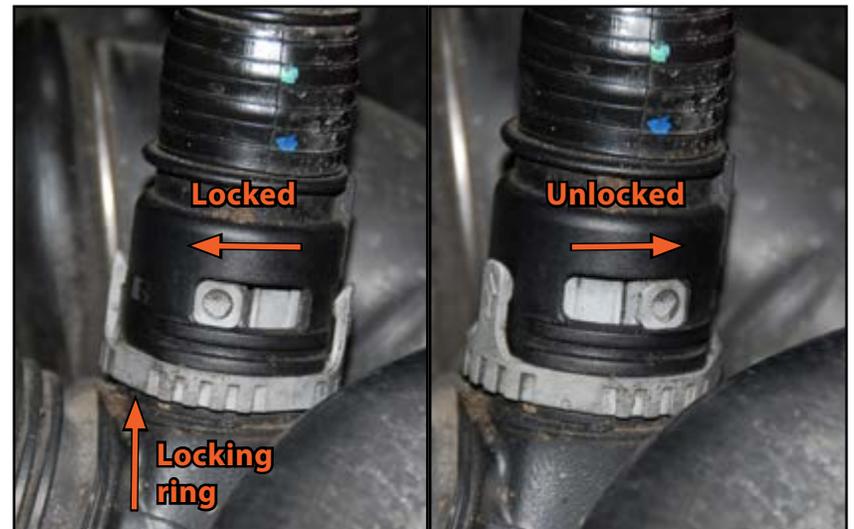
### Step 25:

Locate the four fittings that connect the original diverter valve tubes on each end.



### Step 26:

Unlock the fittings by turning the locking ring from the locked position to the unlocked position. All four fittings are the same, however the direction in which you turn them is different because two are facing up and two are facing down.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 27:

With the fittings unlocked, simply pull the original diverter valve tubes off on each end and remove them along with the vacuum hose.



### Step 28: Small Flat Blade Screwdriver

Disconnect the air temperature sensor located in the original chargepipe. There is a small locking tab on the sensor that must be gently pried out to release the electrical connector. Be careful and patient so you do not break the locking tab.

#### TECH TIP

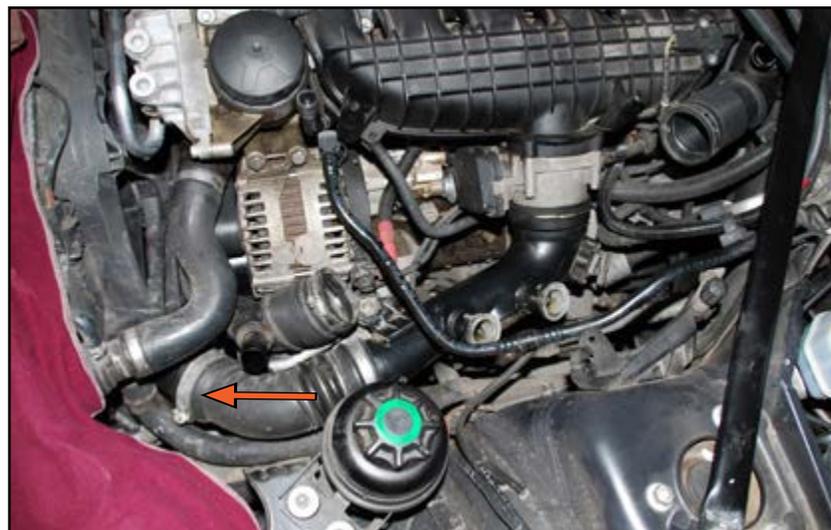
Most vehicles will have a MAP sensor on the top of the intake manifold that has the same type of locking tab. This sensor is easy to see and you can inspect it to familiarize yourself with the locking tab before disconnecting the air temperature sensor.



## REMOVING THE ORIGINAL CHARGEPIPE

### Step 29: Flat Blade Screwdriver

Loosen the clamp holding the original chargepipe flexible elbow to the intercooler pipe.



### Step 30: Flat Blade Screwdriver

Pull the wire retainer out of the original chargepipe where it connects to the throttle body. The retainer will pull straight up out of the chargepipe.



## REMOVING THE ORIGINAL CHARGEPIPE

**Step 31:** T30 Torx Bit Socket or Torx Driver

Remove the hold down bolt for the original chargepipe.



**Step 32:**

With all three chargepipe mounting points disconnected, remove the original chargepipe from the car.



## INSTALLING THE NEW CHARGEPIPE

### Step 1: T20 Torx Driver

Remove the two mounting screws then pull the air temperature sensor out of the original chargepipe.



### Step 2: 3mm Hex Bit (Allen) Wrench

Wipe any oil and dirt from the air temperature sensor, then install it into the new charge pipe and secure it with the two mounting screws and lock washers supplied with the kit.



## INSTALLING THE NEW CHARGEPIPE

### Step 3: 12mm Wrench

Apply a small amount of teflon thread sealant to each of the two pipe plugs that are included with the kit, then install and tighten them into the new charge pipe.

#### NOTE

These holes are for the addition of water/methanol injection which we are not installing with this kit.

### Step 4: Small Angled Pick

Carefully remove the o-ring seal from the end of the original chargepipe, wipe it clean, then install it into the groove in the end of the new chargepipe.



## INSTALLING THE NEW CHARGEPIPE

### Step 5:

Wipe the throttle body and intercooler pipe clean.



### Step 6:

Push the reducing coupler over the end of the intercooler pipe and loosely place both clamps onto the coupler.



## INSTALLING THE NEW CHARGEPIPE

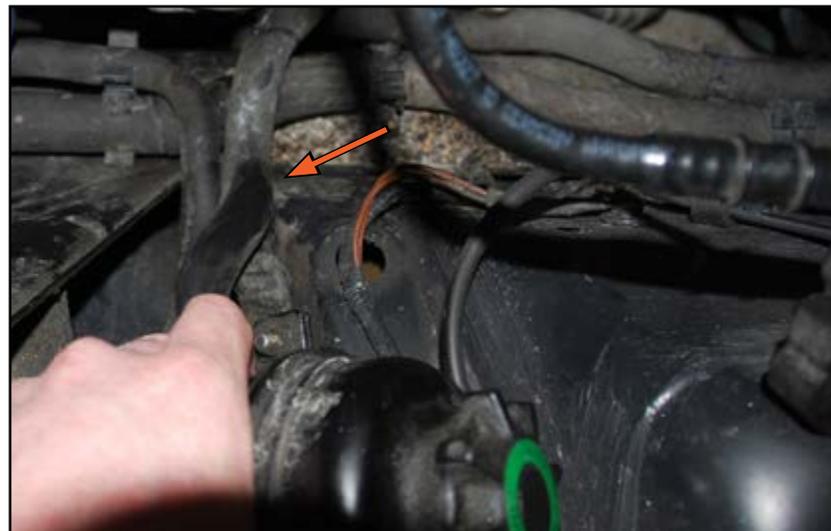
### Step 7: 10mm Socket and Ratchet

Remove the power steering reservoir nuts and lift the reservoir of the studs and position to the side.



### Step 8:

To gain the clearance necessary for installing the new chargepipe, tilt the power steering reservoir to the side and tuck the hoses close to the inner fender as shown.



## INSTALLING THE NEW CHARGEPIPE

### Step 9:

Install the new chargepipe into the car, pushing it first into the silicone coupler, then pushing it into place on the throttle body. Pull the steering hoses back away from the inner fender and reinstall the power steering reservoir.



### Step 10:

Install the wire retainer on the end of the chargepipe to secure it to the throttle body.



## INSTALLING THE NEW CHARGEPIPE

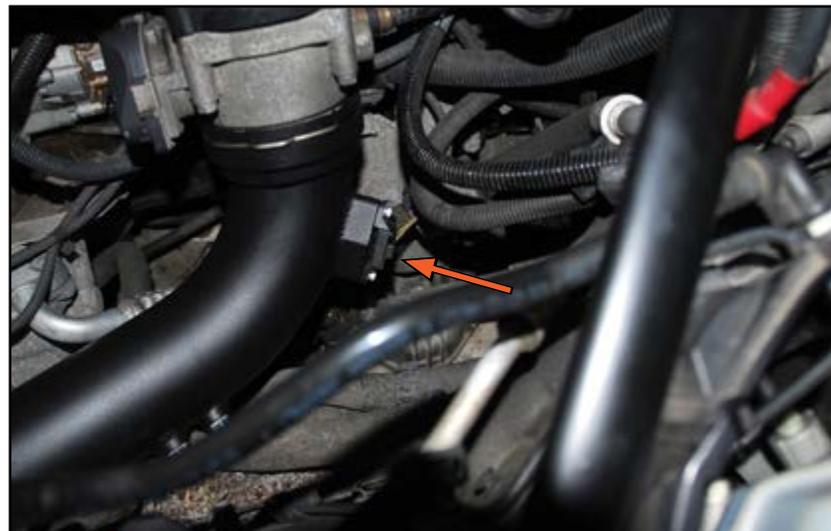
### Step 11: Flat Blade Screwdriver

Tighten the clamps on the silicone coupler.



### Step 12:

Reconnect the air temperature sensor.



## INSTALLING THE NEW CHARGEPIPE

### Step 13: Flat Blade Screwdriver

Install the two plugs provided with the kit onto each of the original diverter valve tube couplers. Push the plugs into place then install and tighten a clamp onto each one.



### Step 14:

Place the new o-ring for the blow off valve into the groove in the blow off valve seat (LH picture).

Inspect the blow off valve seat and you will see a groove around the perimeter. The groove is for the snap ring which holds the blow off valve in place. In the picture on the right, we have silhouetted the outline and approximate position of the snap ring to familiarize you with it's installation before the next steps.



## INSTALLING THE NEW CHARGEPIPE

### Step 15:

Place the blow off valve retaining snap ring onto the base of the blow off valve.



### Step 16: Angle Tip Snap Ring Pliers

Place the blow off valve onto the chargepipe and install the snap ring.



## INSTALLING THE NEW CHARGEPIPE

### Step 17: Side Cutters

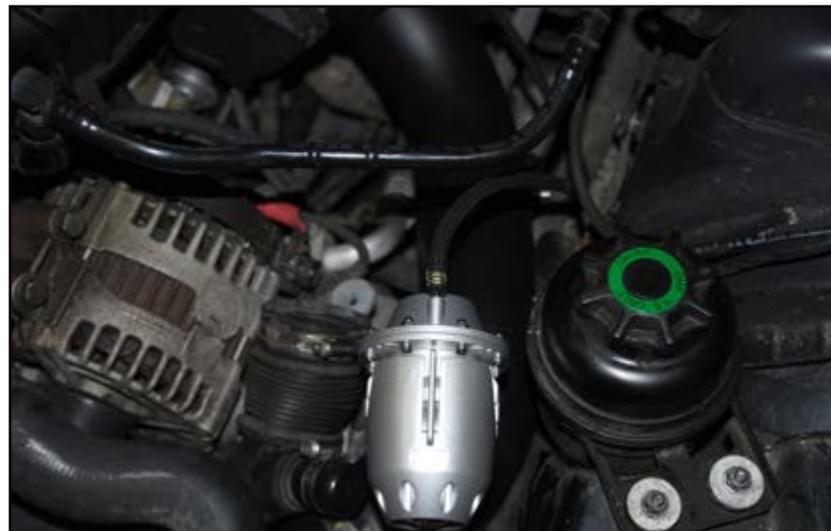
Cut three inches off the end of the vacuum hose supplied with the kit. Attach the two pieces of vacuum hose to the filter with the long section of hose connected to the short end of the vacuum filter.



### Step 18: Needle Nose Pliers

Install the long end of the vacuum hose onto the blow off valve and install the short end onto the intake manifold.

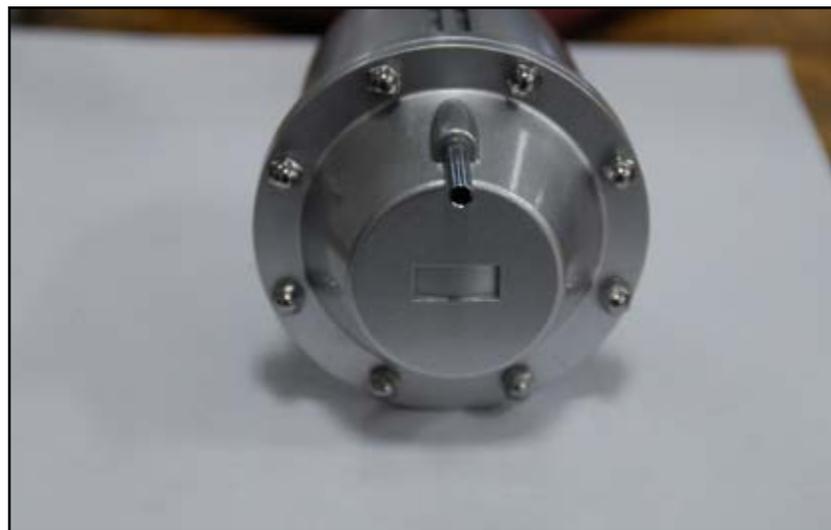
Reinstall your original intake system or air box and cowl and your new Chargepipe/Blow Off Valve is ready!



## CHANGING THE BLOW OFF VALVE SPRINGS

### Step 1: 6mm Socket

Remove all the nuts around the perimeter of the blow off valve.



### Step 2:

Lift off the top of the blow off valve.



## CHANGING THE BLOW OFF VALVE SPRINGS

### Step 3:

Lift off the spring cap.



### Step 4:

Remove the spring.

Reassemble the blow off valve using the spring of your choice.



## Your BMW N54 Chargepipe BOV installation is complete!



These instructions are provided as a courtesy by ECS Tuning.

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

Although this material has been prepared with the intent to provide reliable information, no warranty (express or implied) is made as to its accuracy or completeness. Neither is any liability assumed for loss or damage resulting from reliance on this material. SPECIFICALLY, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY IS MADE OR TO BE IMPLIED WITH RESPECT TO THIS MATERIAL. In no event will ECS Tuning, Incorporated or its affiliates be liable for any damages, direct or indirect, consequential or compensatory, arising out of the use of this material.