



BMW E9x/N54 Vent Pod and Boost Gauge Installation Instructions



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.

INTRODUCTION

BMW N54 Vent Pod Boost Gauge Kit ES#2588091

The ECS Tuning BMW N54 Vent Pod Boost Gauge offers the following features:

- Consistent and accurate boost pressure monitoring
- Innovative and precise OE look
- Gauge angled toward driver
- Color-matched back light
- Identical type face to late-model BMW vehicles

Installing the ECS Tuning Vent Pod and Boost Gauge Kit is an easy afternoon project that you can complete in just a few hours or less. Only basic tools and a few electrical connections are required. Keep close tabs on engine operation and boost levels, and add style to the look of your dashboard! Thank you for purchasing our ECS Tuning Vent Pod and Boost Gauge kit. We appreciate your business!

ECS Difficulty Gauge



1: Easy
Basic Skills Required

TABLE OF CONTENTS

Kit Contents.....	pg.4
Required Tools and Equipment.....	pg.5
Shop Supplies and Materials.....	pg.5
Installation Notes	pg.6
Preparation and Safety.....	pg.6
Installing the Vacuum Lines.....	pg.7
Removing the Interior Trim.....	pg.11
Installing the Wiring Harness.....	pg.19
Installing the Boost Gauge.....	pg.23

Symbols:

The following symbols may be used throughout these instructions indicating special attention:



FORK IN THE ROAD: When there are different options within any given kit, we will direct you to the proper page and step to continue.



YIELD: Pause for a moment to double check component installation before you continue. Ignoring this can cost you time later during the installation.



CAUTION: Pay close attention to these warnings and instructions. Difficult installation, personal injury or component damage may occur if ignored.



STOP: The upcoming steps require specific preparation and/or assistance in the interest of safety. Please read ahead in the instructions and prepare before continuing.

KIT CONTENTS

Boost/Vacuum Gauge



Vent Pod

Pressure Transducer with
Wiring HarnessGauge Power Supply Wiring
Harness

Zip Ties



Vacuum Line T-fitting



Electrical Connections



Rubber Mounting Strap



In-line Moisture Filter



Braided Vacuum Hose



Rigid Plastic Vacuum Line

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 BMW N54 Boost Gauge. Additional tools may be required for any issues that arise during installation such as rust, corrosion, or broken and stripped fasteners.

- Torx Drivers: T20.....Available at [ecstuning.com](#).....[ES#11417](#)
- Non-marring Trim/Moulding Tool Kit.....Available at [ecstuning.com](#).....[ES#517779](#)
- Wrenches: 8mm.....Available at [ecstuning.com](#).....[ES#2765907](#)
- Phillips Head Screwdriver.....Available at [ecstuning.com](#).....[ES#2225921](#)
- Small Flat Blade Screwdriver.....Available at [ecstuning.com](#).....[ES#2225921](#)
- Diagonal Cutting Pliers
- Wire Crimper/Stripper Pliers
- Electric Drill
- 3/8" Drill Bit
- Razor Blade or Exacto Knife
- Straight Pick Tool

SHOP SUPPLIES AND MATERIALS

- Hand Cleaner/Degreaser.....Available at [ecstuning.com](#).....[ES#2167336](#)
- Aerosol Brake Cleaner.....Available at your local auto parts store
- Shop RagsAvailable 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.

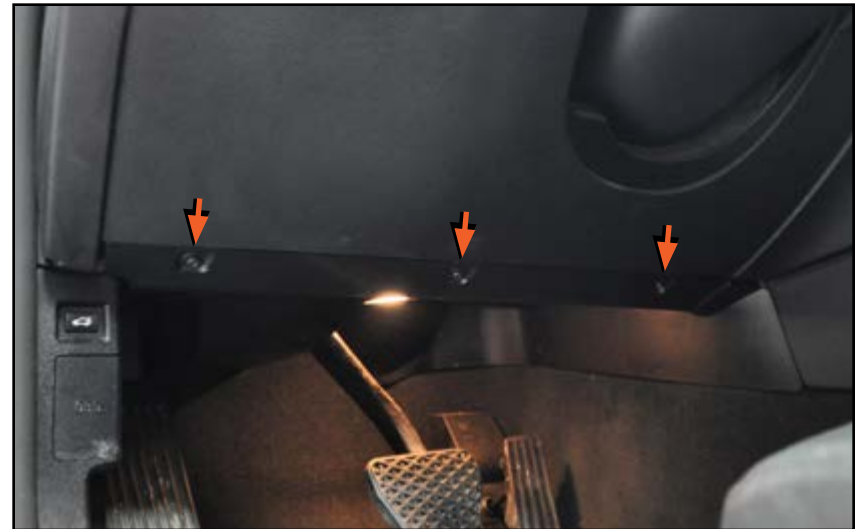


Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.

INSTALLING THE VACUUM LINES

Step 1: T20 Torx Driver

Remove the three screws to release the driver's side lower dash trim. Pull the trim downward and out of the vehicle.



Step 2: Straight Pick Tool

Locate the large rubber grommet on the left side of the firewall, at the base of the steering column. It's identified by the large wiring harness running through it. With a straight pick or similarly pointed tool, create a small hole in the recessed cavity located directly to the right of the wiring harness.



INSTALLING THE VACUUM LINES

Step 3:

Push the end of the rigid plastic vacuum line through the opening into the engine compartment about 2".



Step 4:

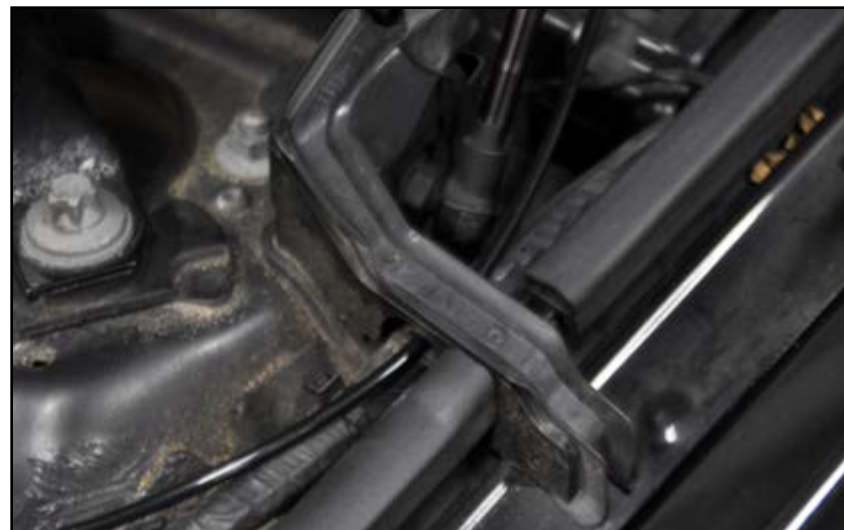
Remove the cover for the brake fluid reservoir. Reach straight down and retrieve the rigid plastic vacuum line that's been pushed through the firewall grommet, and pull the line through. After the line is pulled through, re-install the cover.



INSTALLING THE VACUUM LINES

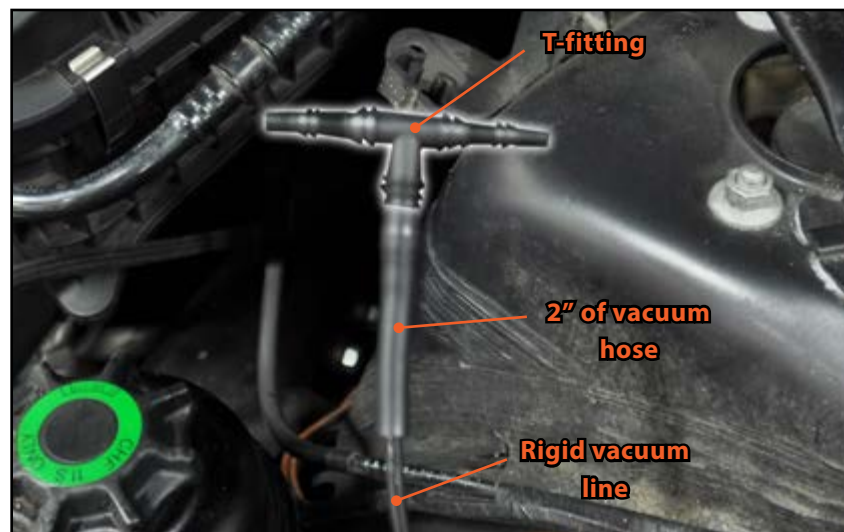
Step 5:

Route the line under the rubber hood seal.



Step 6: Diagonal Cutting Pliers

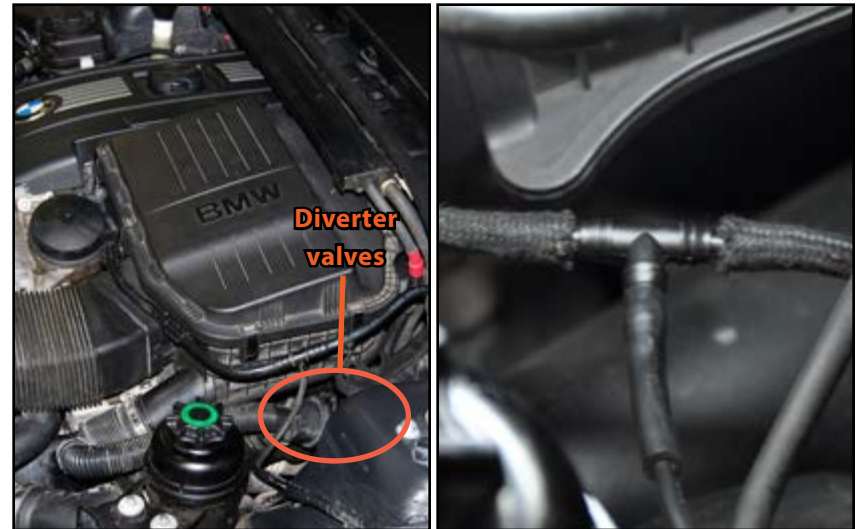
Attach a 2" length of braided vacuum hose between the T-fitting and the end of the rigid plastic vacuum line.



INSTALLING THE VACUUM LINES

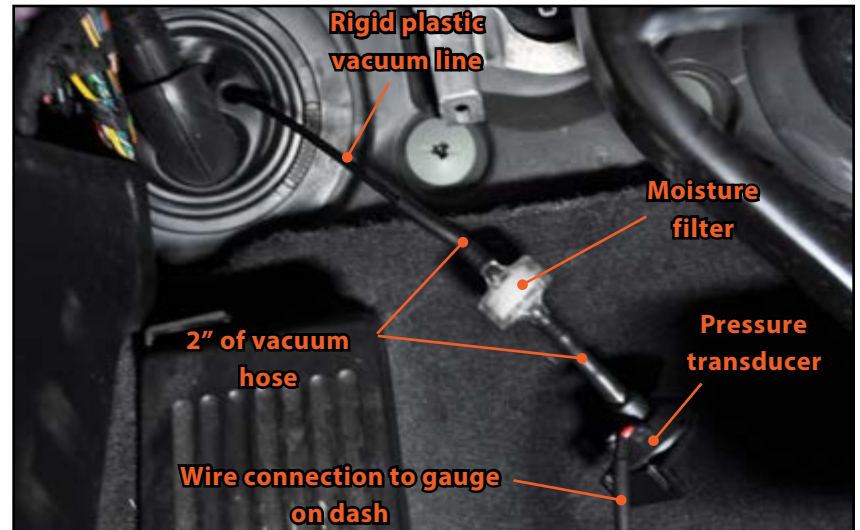
Step 7: Diagonal Cutting Pliers

Cut the vacuum hose leading to the diverter valves, and attach the T-fitting between the two ends.



Step 8: Diagonal Cutting Pliers

Attach a 2" length of braided vacuum hose onto the end of the rigid plastic vacuum line inside the vehicle. Attach the moisture filter to the vacuum hose, followed by another 2" length of braided vacuum hose. Attach the pressure transducer to the end of the vacuum hose.



NOTE

The moisture filter can be installed in either direction.

REMOVING THE INTERIOR TRIM

Step 1: Trim Removal Tool

Pry out the right side of the dashboard trim panel. Work around the edges with the trim removal tool as you pry out the panel from right to left until it's free.



Step 2: Trim Removal Tool

Pry out the left side of the panel until it's free. Unplug the electrical connectors (Start/Stop button, Hazard Lights, Door Locks), pull the dashboard trim panel and climate control vent ducts straight out as a unit, and set it aside.



For vehicles with iDrive, proceed with step 3.
For vehicles without iDrive, proceed to [step 11](#).

REMOVING THE INTERIOR TRIM

Step 3: Trim Removal Tool

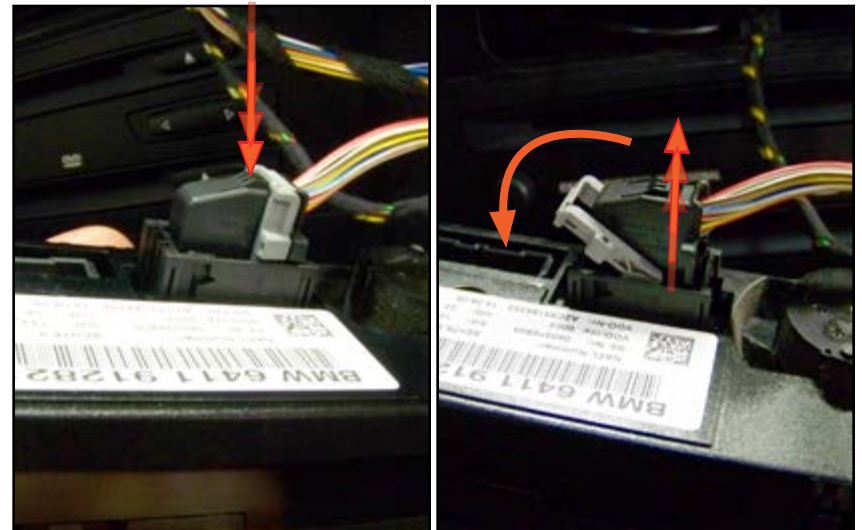
For vehicles with iDrive:

Pry around the edges of the Climate Control Module until the tabs are released, then pull the unit straight out.



Step 4:

Unplug the electrical connections for the climate control module using the following method: Push and hold down the tab to release the lever, then rotate the lever forward over the plug. As the lever is moved forward, the plug will move up and out.



REMOVING THE INTERIOR TRIM

Step 5: Trim Removal Tool

Pry off the radio trim.



Step 6: T20 Torx Driver

Remove the four screws for the radio.



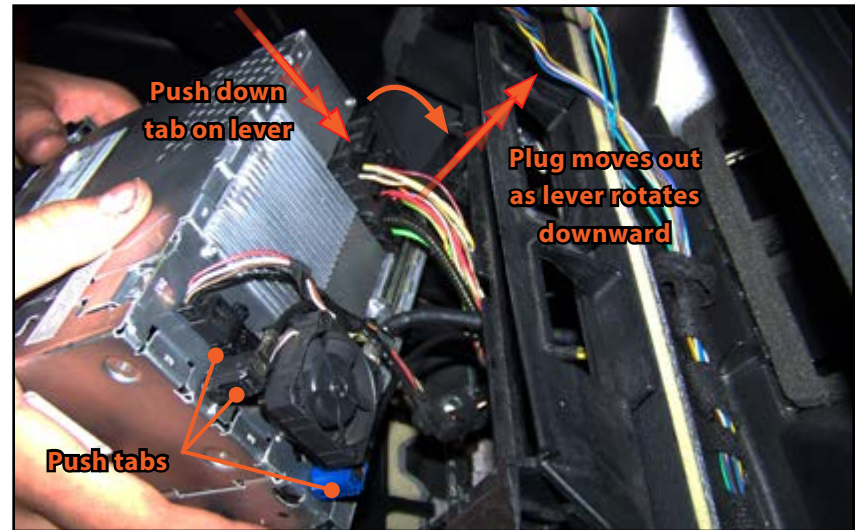
REMOVING THE INTERIOR TRIM

Step 7:

Pull the radio straight out, then unplug the electrical connections. Remove the radio from the vehicle.

CAUTION

The radio is located very close to the center console trim, and may make contact with the brushed metal surface of the trim or ashtray cover as the radio is removed. To avoid damage, lay down a protective cover over the trim, such as a clean rag or fender cover .



Step 8:

Trim Removal Tool

Pry the edge of the shift boot to release the clips, and without taking it off, lift the shift boot up as far as it will go onto the shift lever.



REMOVING THE INTERIOR TRIM

Step 9: Trim Removal Tool

Pry around the edge to release the center console trim. Lift the trim up and disconnect the electrical connections for the iDrive controller and the auxiliary power supply.



Step 10:

While maneuvering the shift boot through, pull the center console trim straight up and out.



Proceed to [Page 19](#), *Installing the wiring harness.*

REMOVING THE INTERIOR TRIM

Step 11: Trim Removal Tool

For vehicles without iDrive:

Pry around the edges of the climate control module until the tabs are released, then pull the unit straight out.

CAUTION

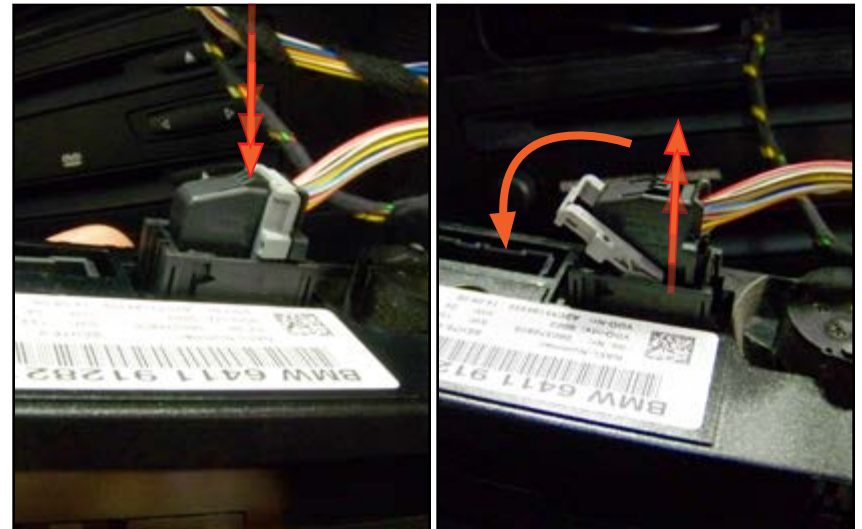
The climate control module is located very close to the center console trim, and may make contact with the brushed metal surface of the trim or ashtray cover as the module is removed. To avoid damage, lay down a protective cover over the trim, such as a clean rag or fender cover .



Step 12:

Unplug the electrical connections for the climate control module using the following method:

Push and hold down the tab to release the lever, then rotate the lever forward over the plug. As the lever is moved forward, the plug will move up and out.



REMOVING THE INTERIOR TRIM

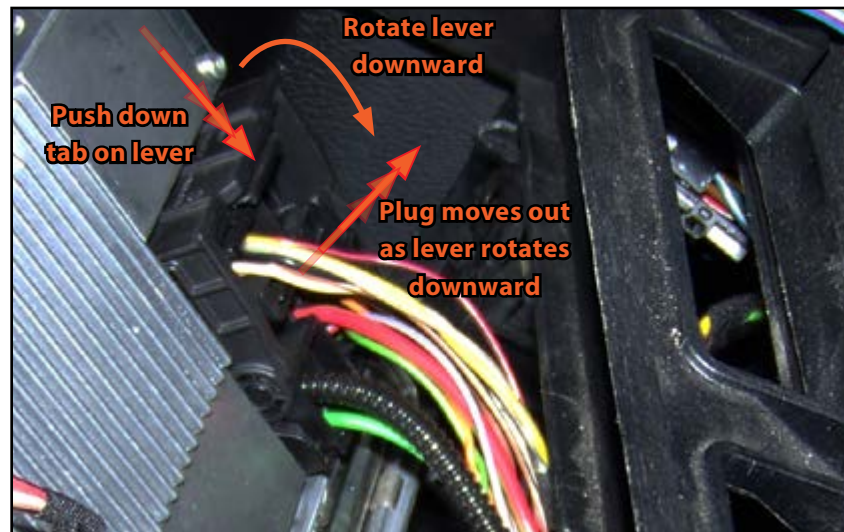
Step 13: Phillips Screwdriver

Remove the two phillips head screws, then pull the radio straight out.



Step 14:

Unplug the electrical connections and remove the radio from the vehicle.



REMOVING THE INTERIOR TRIM

Step 15: Trim Removal Tool

Pry the edge of the shift boot to release the clips, and without taking it off, lift the shift boot up as far as it will go onto the shift lever.



Step 16: Trim Removal Tool

Pry around the edge to release the center console trim. While maneuvering the shift boot through, pull the center console trim straight up and out. Disconnect the electrical connection for the auxiliary power supply.



INSTALLING THE WIRING HARNESS

Step 1:

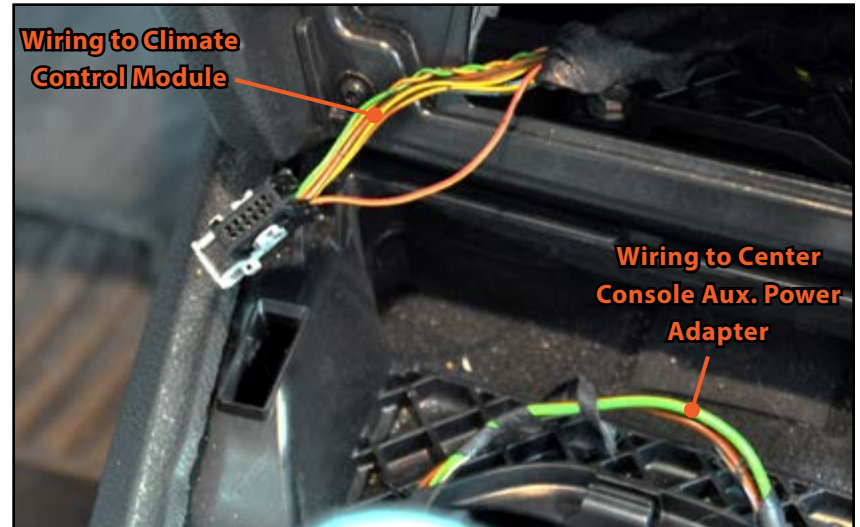
Locate the wires that will be used for the harness connection:

Three are located in the wiring for the center console aux. power adapter:

- **Green/Yellow** (power source from ignition switch)
- **Grey/Red** (illumination)
- **Brown** (ground)

One is located on the wiring harness leading to the black connector for the climate control module:

- Vehicles without iDrive: **Red/Yellow** (power source from battery)
- Vehicles with iDrive: **Red/White** (power source from battery)



Step 2:

Wire Stripper/Crimper

Cut the wires, strip off each end, and twist the wire ends back together. Attach and crimp a female connector to each wire as follows:

- **Pink** (smaller gauge) connector► **Grey/Red** (illumination) wire
- **Pink** (smaller gauge) connector► **Red/Yellow** (battery +) wire
[or **Red/White** wire for vehicles with iDrive]
- **Yellow** (larger gauge) connector► **Green/Yellow** (ignition) wire
- **Yellow** (larger gauge) connector► **Brown** (ground) wire

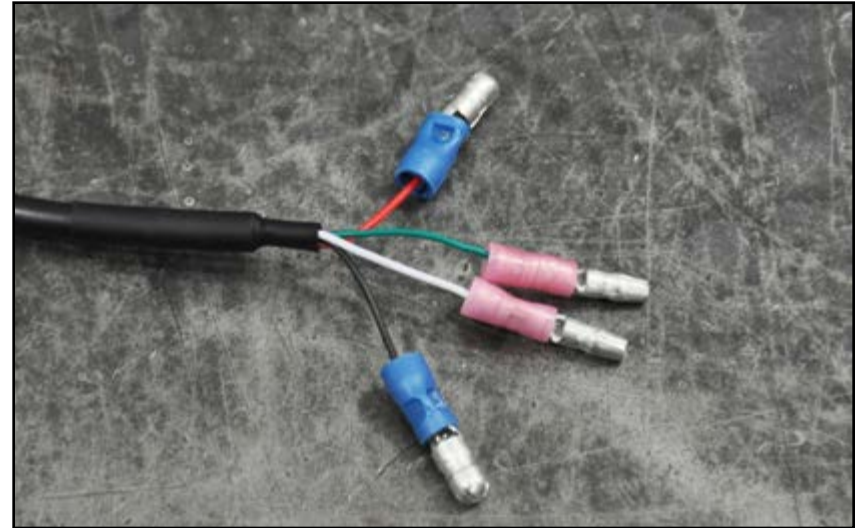


INSTALLING THE WIRING HARNESS

Step 3: Wire Stripper/Crimper

Attach and crimp a male connector to each wire on the gauge wiring harness as follows:

- **Pink** (smaller gauge) connector ➔ **White** (illumination) wire
- **Pink** (smaller gauge) connector ➔ **Green** (battery +) wire
- **Blue** (larger gauge) connector ➔ **Red** (ignition switch) wire
- **Blue** (larger gauge) connector ➔ **Black** (ground) wire



Step 4: Razor Blade/Exacto Knife

Make a small slit in the gauge wiring harness sheath, approx. 8" in length from the point at which the wires come out of the end of the sheath. Pull the **Green** (battery +) wire through the slit in the sheathing to separate it from the other wires.



INSTALLING THE WIRING HARNESS

Step 7: T20 Torx Driver, Phillips Head Screwdriver

Re-assemble the center console, radio, and climate control module (reverse of steps 3-16, Removing the Interior Trim).



Step 8: T20 Torx Driver

Re-install the lower dash trim.



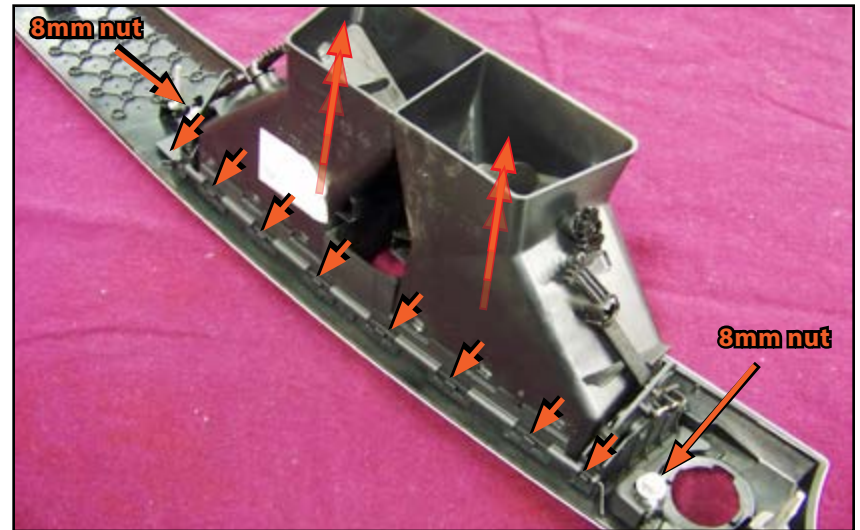
INSTALLING THE BOOST GAUGE

Step 1: 8mm Wrench, Small Flat Blade Screwdriver

Remove the vent door assembly from the dashboard trim panel: Remove the two 8mm nuts, then pry the tabs out on both sides to separate the two pieces.



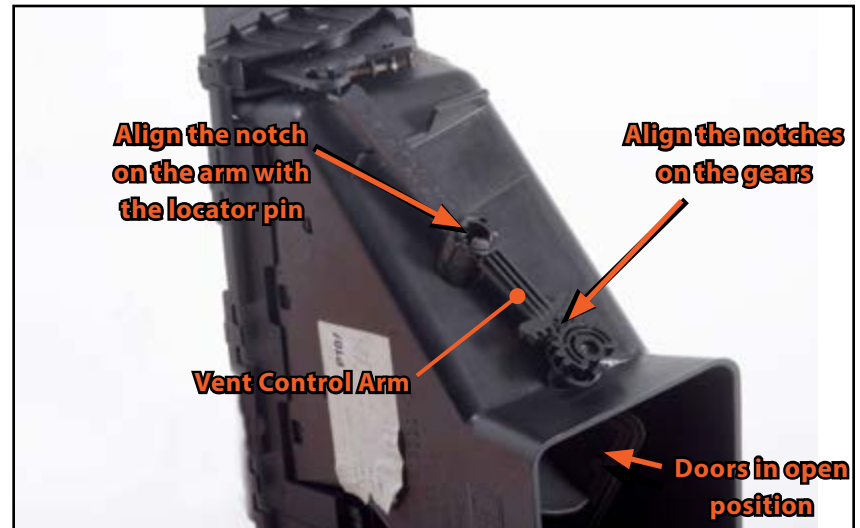
Note that we are installing the vent pod and boost gauge on the LH side. If you are installing the RH side vent pod, follow the same general procedures outlined here, except on the RH side of the vent door assembly.



Step 2:

Remove the vent control arms on both sides of the vent door assembly:

Move the vent doors into the "open" position. This will align the notches on the gears, and the center arm notch with the locator pin on the joint at the center of the arm. When the notches are aligned, push the tabs on the center joint inward, then lift the arm off of the joint. Once the arm is released from the center joint, move the arm 1/4 turn to unhook the end from the retainer.



INSTALLING THE BOOST GAUGE

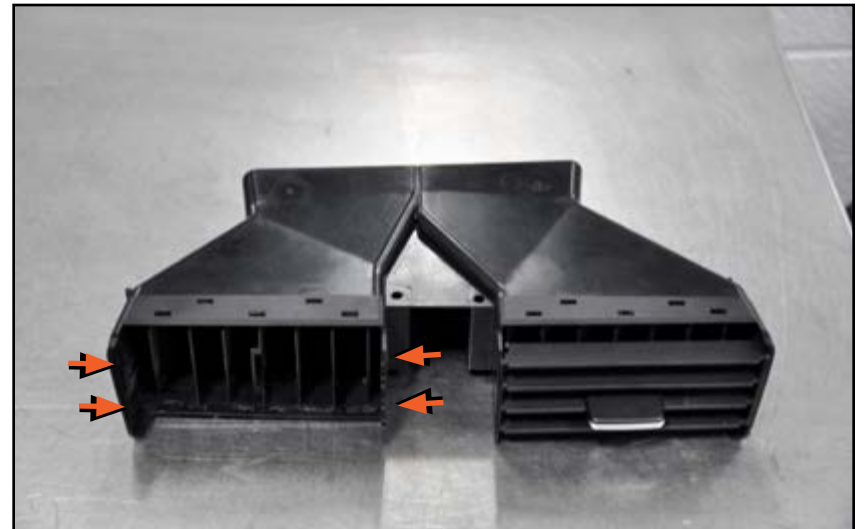
Step 3: Small Flat Blade Screwdriver

Remove the cover for the vent door assembly by pushing in on the six tabs closest to the edge (on both sides).



Step 4: Small Flat Blade Screwdriver

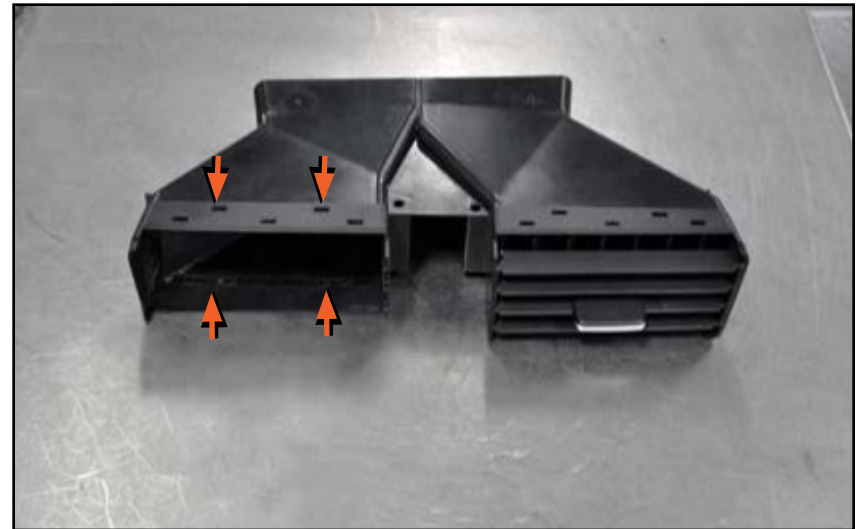
Remove the left side horizontal flaps by pushing in and releasing the two tabs on each side of the vent opening.



INSTALLING THE BOOST GAUGE

Step 5: Small Flat Blade Screwdriver

Remove the left side vertical flaps by pushing in and releasing the two tabs on the top and bottom of the vent opening.



Step 6: 3/8" Drill Bit, Electric Drill

On the same side of the housing where the vents have been removed, drill two 3/8" holes in the housing for the boost gauge power and transducer wiring harnesses.



INSTALLING THE BOOST GAUGE

Step 7:

Place the rubber mounting ring on the boost gauge from the back side. Position the vent pod so that the vent flaps are horizontal and angled back at the top. Press the gauge into the vent pod with the face perpendicular to the horizontal flaps.

TECH TIP

Apply silicone spray lubricant to the rubber mounting ring for ease of assembly. Care must be taken when aligning the gauge, because it's very difficult to adjust or remove once it's fully pressed into the vent pod.

Step 8:

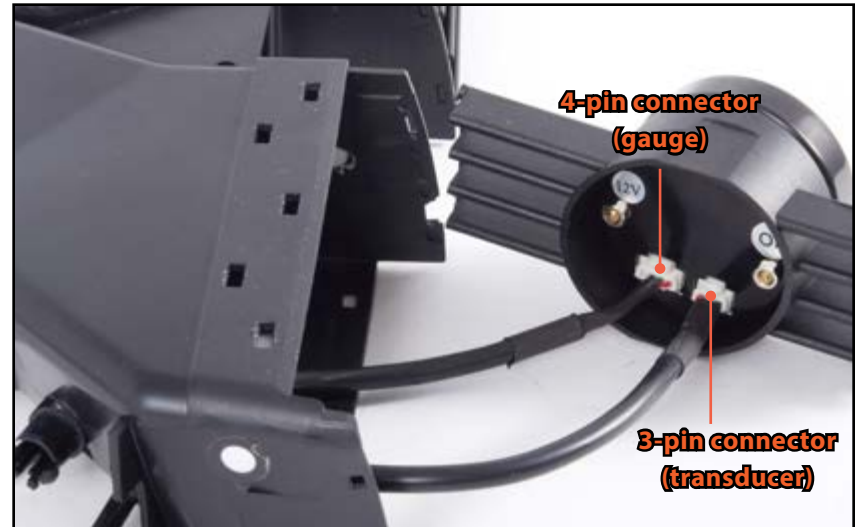
Snap the supports onto the pins on the ends of the vent pod, with the tabs facing outward.



INSTALLING THE BOOST GAUGE

Step 9:

Pull the wiring harness ends through the two holes drilled earlier in the side of the vent housing, and plug them into their respective sockets on the boost gauge.



Step 10:

Attach the boost gauge assembly to the vent housing by inserting the tabs of the right vent pod support into the side of the vent opening, and then snapping the left side vent pod support into place.



NOTE

The shape of the vent pod supports correspond with the shape of the receiving platform in the vent housing.

INSTALLING THE BOOST GAUGE

Step 11:

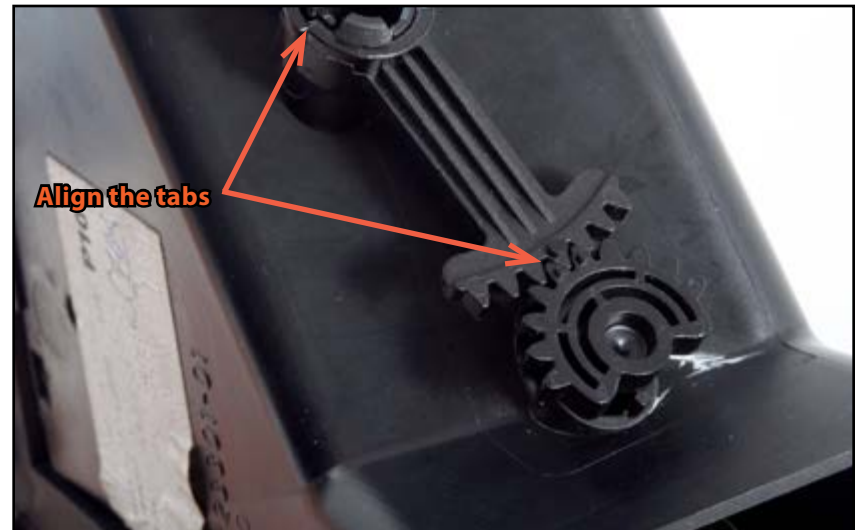
Re-install the vent housing cover, and snap the tabs into place.

NOTE

The gauge is larger than the opening in the cover, so the shape of the cover must deform slightly as it passes over the gauge.

Step 12:

Re-connect the vent door control arms (reverse of [step 2](#): Installing the Boost Gauge).



INSTALLING THE BOOST GAUGE

Step 13: 10mm Wrench

Re-attach the vent housing to the dashboard trim and tighten the two 10mm nuts. (Reverse of [step 1](#): Installing the Boost Gauge). Plug in the electrical connections for the start/stop button, hazard lights, and door locks, and press the trim into place.



Step 14:

Key-on initialization:

Each time that the ignition is switched on, the vacuum/boost gauge will go through an initialization process - the needle will sweep from full vacuum to full boost and then return to zero before the engine starts.

The gauge back light color matches the OE instruments, and responds to changes in the dimmer settings.



Your BMW N54 Vent Pod and Boost Gauge 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.

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