

ECS TUNING

Installation Procedures Left Vent Vacuum/Boost Gauge



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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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Part Numbers
left **ES2588091**
right **ES2594189**
for BMW
E9x 335i/xi N54
(2007-2011)

BMW E9x 335i/xi N54 Left Vent Pod Vacuum/Boost Gauge Installation

Kit Contents:

- vacuum/boost gauge
- gauge power supply wiring harness
- gauge vent pod
- rubber strap for boost gauge
- vacuum/boost sensor (transducer with integral harness)
- boost sensing rigid plastic hose
- boost sensing braided rubber hose
- crimp connectors
- vacuum tee
- zip ties

Tools

- wire cutter-stripper- connector crimper
- T20 Torx® driver
- flat head (common) screwdriver
- Phillips screwdriver
- electric drill
- 3/8-inch drill bit
- 8mm socket with ratchet
- razor blade or xacto™ knife
- non-marring plastic removal tool



Two Kits Available

Instructions in this pdf may be used to install either the left or right center vent pod with gauge.

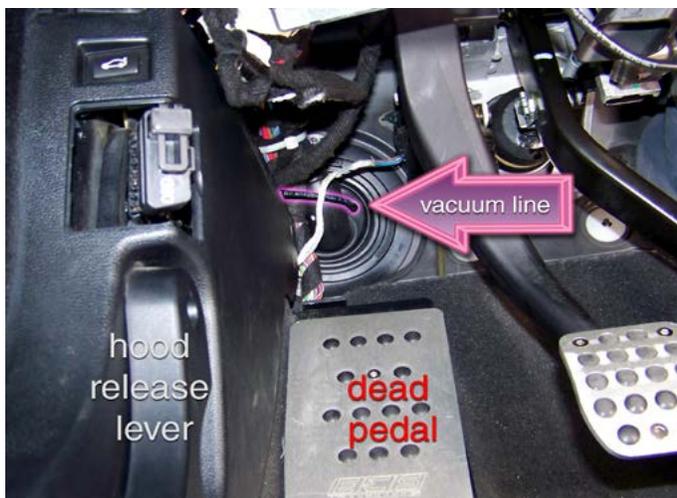
The tutorial that follows shows the left vent (ES2588091) being installed. Use the same general procedures on the right side to install vent pod gauge kit ES2594189.



This tutorial is broken into five sections:

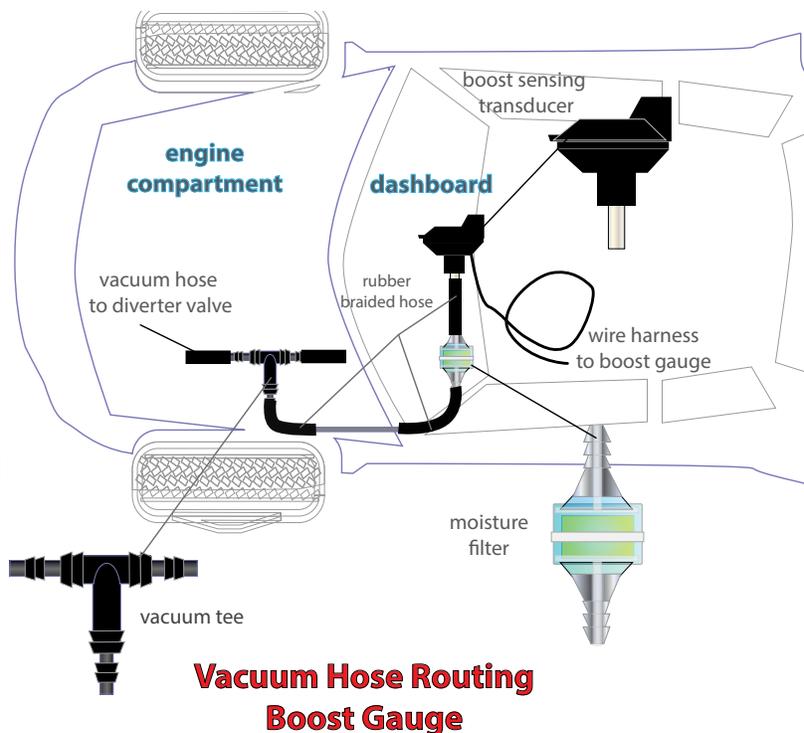
- 1) **Run the Vacuum Line** - Shows how to install the vacuum tee at the diverter valve vacuum hose, how to route the rigid vacuum line from the tee through the firewall, and how to connect it to the Vacuum/Boost Sensing Transducer.
- 2) **Disassemble the Dashboard and Console** - Shows how to disassemble the dashboard and route the gauge power and transducer harnesses to the vent opening.
- 3) **Make Wiring Connections** - Shows how to splice gauge and car harness wiring.
- 4) **Reassemble Lower Console Components** - Shows how to disassemble the dashboard vents, install the Vent Pod and Boost Gauge, and connect the wiring harnesses.
- 5) **Installing and Connecting the Vent Pod and Gauge** - Shows how to install, connect, and test the gauge.

Section 1 - Run the Vacuum Line



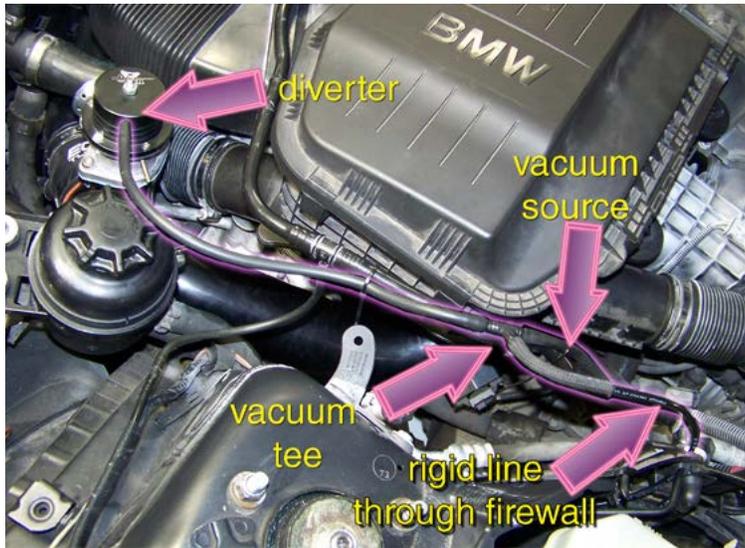
Inside the car: Remove the screws at the front edge of the underdash panel.

Drop the left hand side under-dash panel. Make a small hole in the rubber firewall rubber seal above the dead pedal area. Push the rigid plastic line through the grommet into the engine compartment.



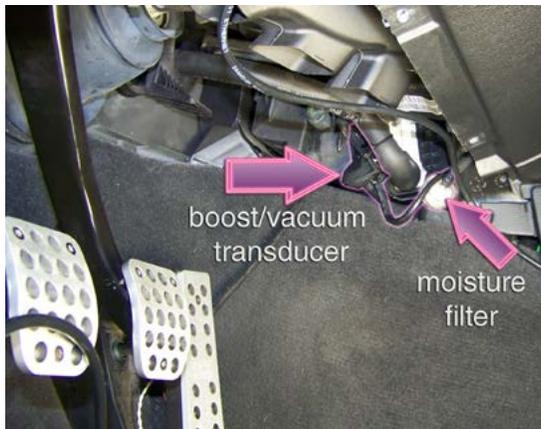
Use this schematic for reference to identify general components and locations as you route the vacuum hose and make connections.

Section 1 - Run the Vacuum Line



Under the hood: Install the vacuum tee from the kit in the vacuum supply hose to the diverter valve. Use a short length of braided hose to connect the rigid hose to the vacuum tee.

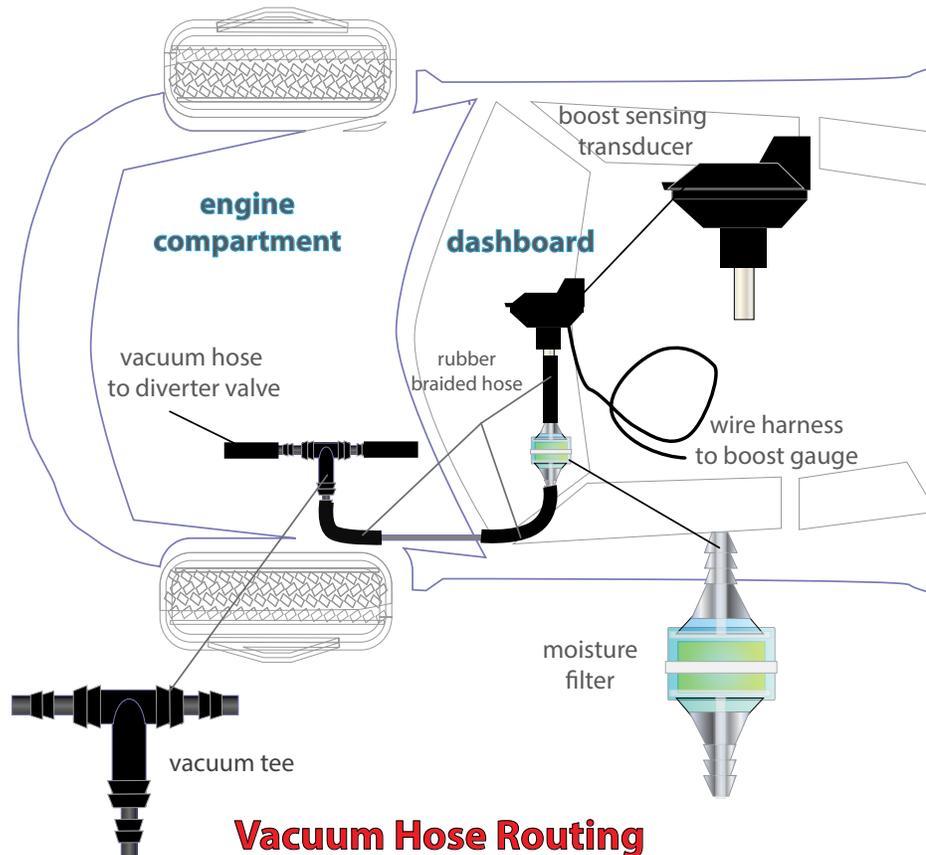
Secure all lines with zip ties.



Inside the car: Mount the vacuum sensing transducer in a safe location under the dash.

Connect the sensor to the vacuum line using the diagram on this page for general reference.

Be sure to install the moisture filter.



Vacuum Hose Routing Boost Gauge

Section 2 - Disassemble the Dashboard and Console

Step 1- Remove the dash trim panel.

Using a plastic non-marring trim removal tool, pry on the right side of the dash board trim panel.

Pop it loose.



Step 2 - Remove the dash trim panel.

Repeat this on the left side of the dash board trim panel. Pry in the area near the start button.

Disconnect the electrical connections on the back of the dash panel (ignition and emergency flasher/ central locking/ temp rheostat switch).

Remove the dash trim panel and lay it aside.



Step 3 - Remove the climate control head.

Remove the climate control panel. It snaps in and out of place, so there are no fasteners to remove. Pushing from the back makes it easier to remove.



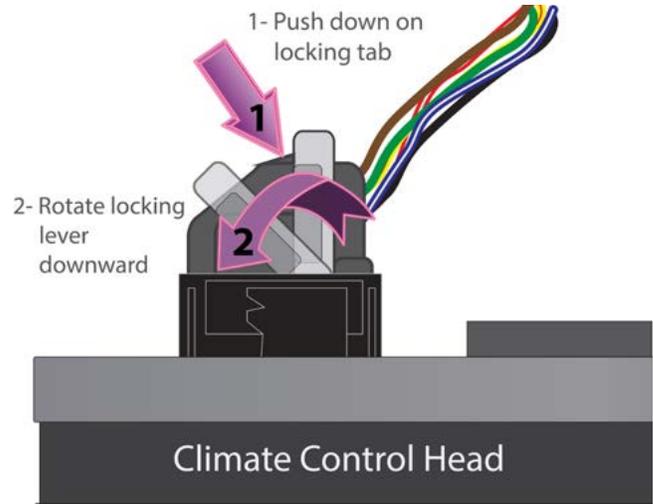
Section 2 - Disassemble the Dashboard and Console

Step 4 - Unplug the climate control head.

After removing the climate control head from the dash, disconnect the two electrical connectors, one black and one white.

Each connector is held in place by a locking lever. Push to release the locking tab and rotate the levers downward to unplug the two electrical connectors.

Lay the climate control head aside.



Step 5 - Pry off the radio face.

Use a non-marring trim removal tool to pry off the radio trim fascia. Lay it aside.



Step 6 - Unscrew the radio.

Remove the four Torx head radio screws.



Section 2 - Disassemble the Dashboard and Console

Step 7 - Remove the radio.

Slide the radio out of the center console, being careful not to scratch the center console surface. Disconnect the electrical connectors and antenna leads at the rear of the radio head.

Lay the radio aside.

Note: There are multiple radio connections. The connector shapes are matched to the shapes of the receptacles.



Step 8 - Raise the shifter boot.

Unfasten the shift boot from the center console.

To do so, pinch the boot material as you pull up and toward the shift stalk until the boot pops out of the console.



Step 9 - Remove the console trim.

Using a non-marring trim removal tool, pry up on the rear, left side of the center console trim cover.

Pry along the edges until the console cover pops loose.

Disconnect the wiring connectors from the iDrive knob at the rear and from the power adapter socket in the ash tray.

Push the shift boot through the hole in the console cover. Remove the console trim cover and lay it aside.



Section 3 - Make Wiring Connections

We prefer soldering electrical connections and then protecting them with heat shrinkable insulation.

For those who do not have access to soldering, each kit includes crimp-style electrical connectors in three sizes, identified by color. Those who are familiar with their use, or who intend to solder, may proceed to the next page, where a schematic identifies harness connections and wire colors.

If you are unfamiliar with using crimp connectors, please review the information on this page.

Using crimp connectors

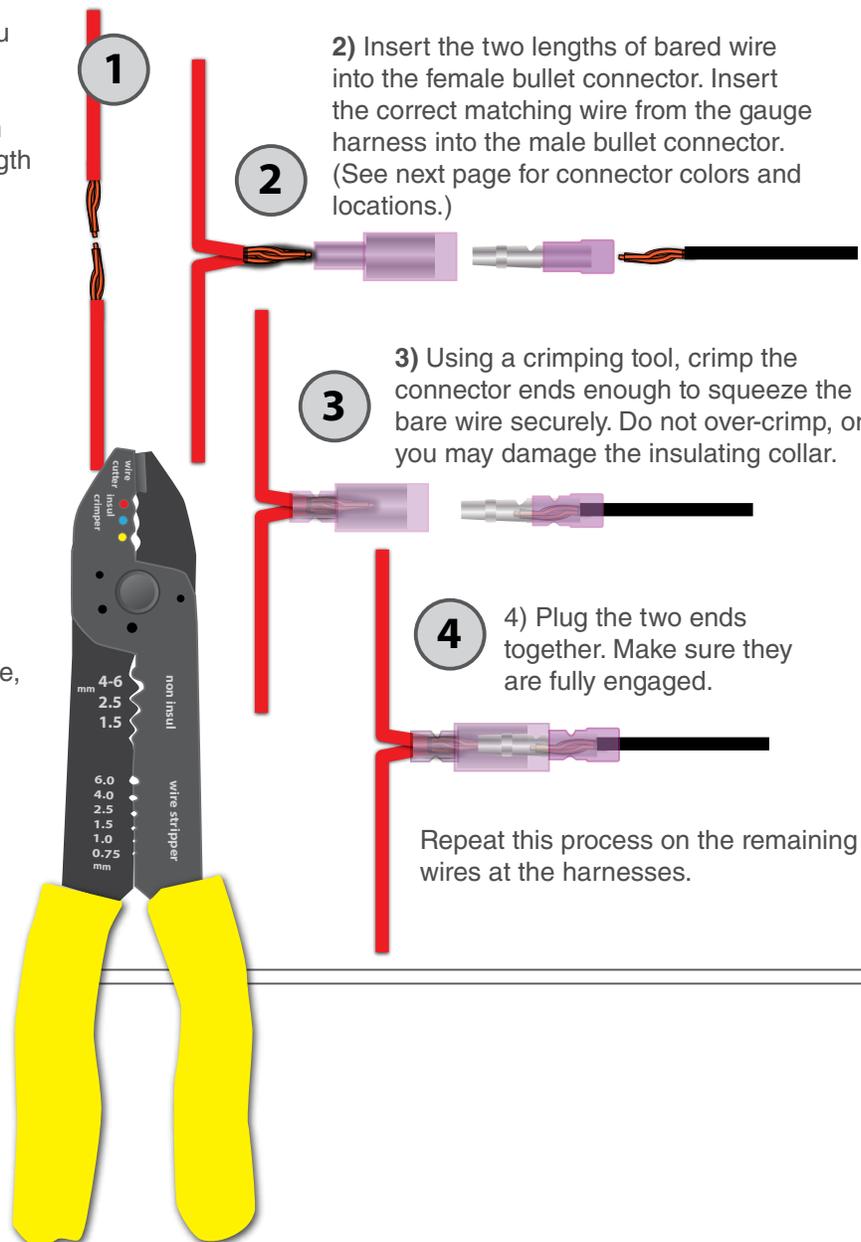
1) Cut the headlight harness wire you want to tap into.

Remove enough insulation from both lengths of wire to expose a short length of wire (about 3/8-inch).

Note:

Use a suitable wire stripper that will remove the insulation without cutting away wire strands.

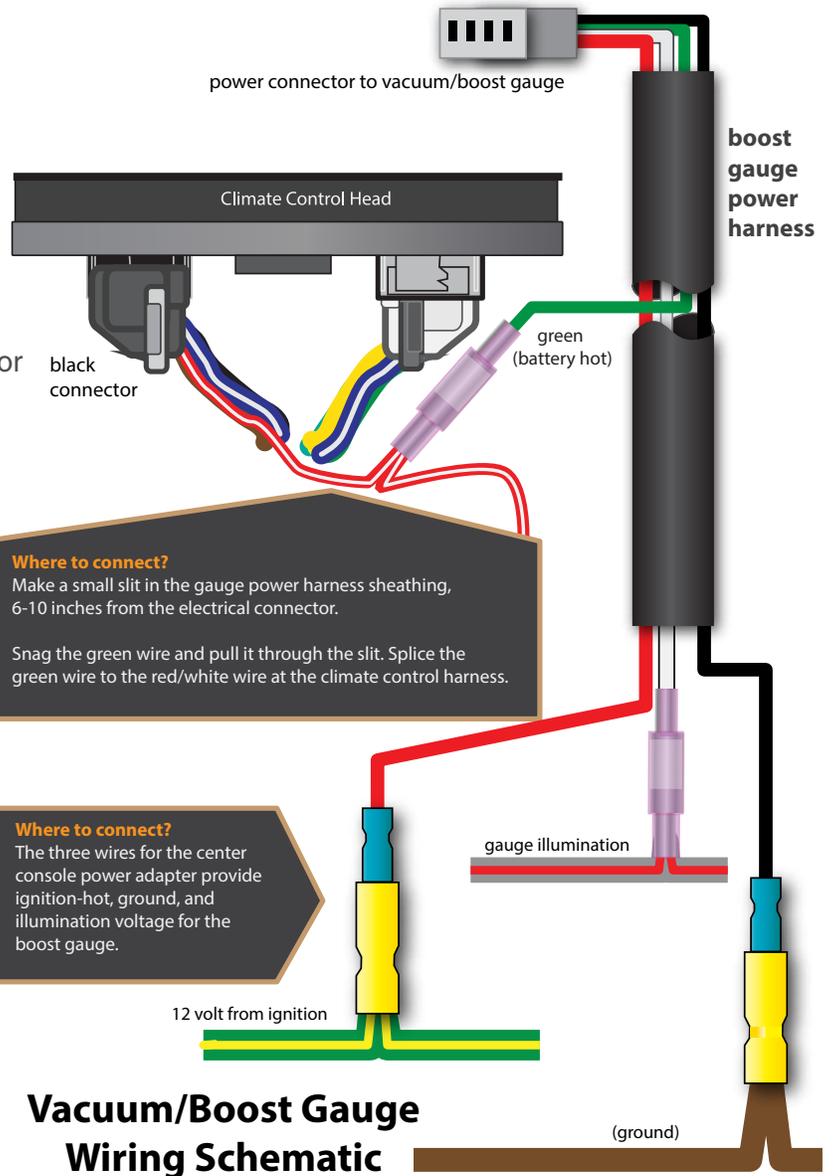
Use a crimping tool of the correct size, not side cutters or other pliers that may damage the insulation on the connectors.



Section 3 - Make Wiring Connections

Splice the vacuum/boost gauge power harness and vehicle wiring.

This schematic shows the splice locations for connecting the vacuum/boost gauge power harness to wire locations in two vehicle harnesses.



Removing the center console cover exposes the brown, green/yellow, and gray/red wires that provide ground and power to the gauge harness.

When all splices are made and insulated, route the power harness to the dash area behind the vents. Then route the transducer wiring harness to the same location. (See Section 1 of this pdf for transducer installation instructions.)

Section 4 - Reassemble Console Components

Recap

At this point we have:

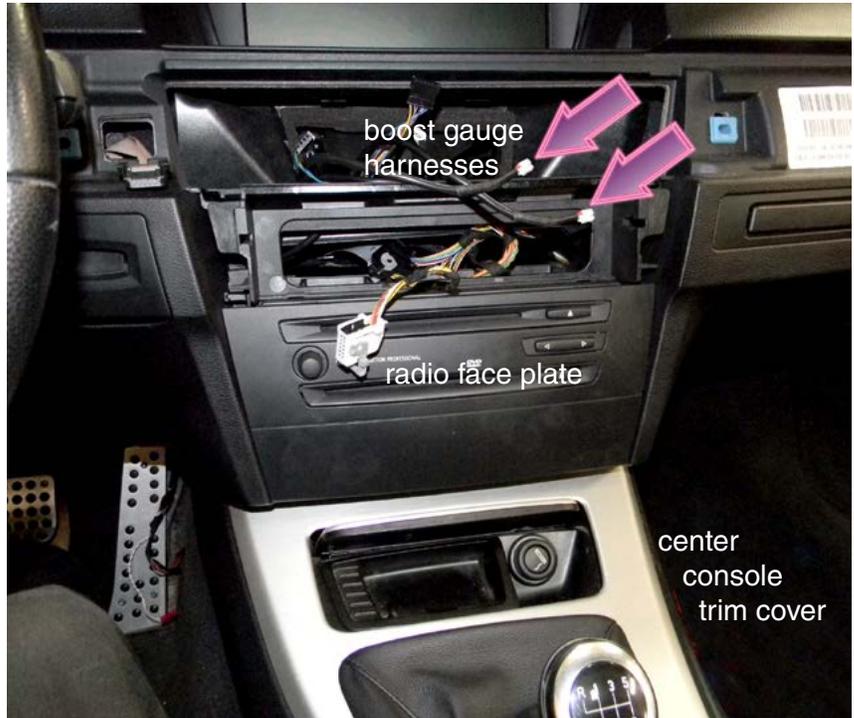
- Installed the transducer and vacuum hoses.
- Spliced the gauge power harness connections.
- Routed the gauge power harness and transducer harness to the dashboard vent opening.

Re-assembling the Dash

Begin re-assembling the console and dash.

- 1) Reconnect the center console wiring: iDrive knob and power outlet.
- 2) Reinstall the radio and replace the radio face plate.

- 3) Reinstall the climate control head in the dash.



Before you start reassembling the dash make sure you have routed the gauge power harness and transducer harness to the vent opening in the dashboard (arrows).



We are now ready to assemble the gauge and vent pod and complete our installation.

Section 5 - Installing and Connecting the Vent Pod and Gauge

CAUTION

Instructions shown are for the **left** vent. Use the same general procedures on the right side center vent if you have kit ES2594189 (right center vent). See page 2.

Step 1 - Remove the Vent Housing

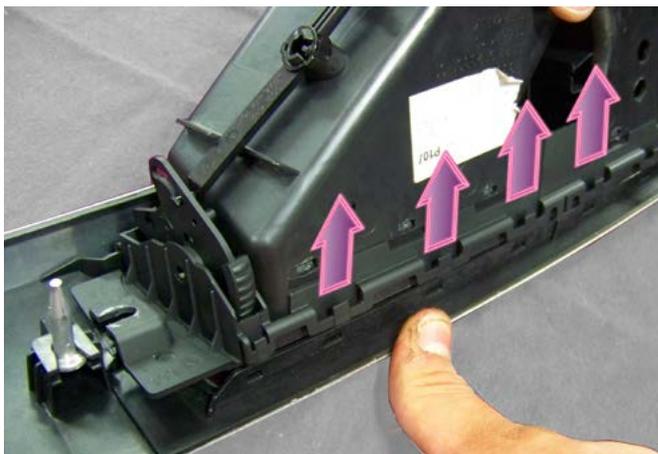
Unbolt the center vent assembly from the dashboard trim panel removed earlier. Remove the two 8mm nuts on either side of the vent.



Step 2 - Remove the Vent Housing

Pry on the molded plastic attachment snap clips connecting the vent housing to the dash trim panel.

When the clips are released, pull the vent assembly away from the rear of the dashboard trim panel.



Step 3 - Remove the Front Cover

Remove the vent assembly front trim panel.

Start by disconnecting the flapper door linkage arms on the sides of the vent housing (see next photo for detail).

Then push down on the release tabs holding the trim to the housing to release them. Arrows highlight the tabs located on the top of the housing; there are tabs on the bottom, as well.

Separate the vent housing from the front cover.



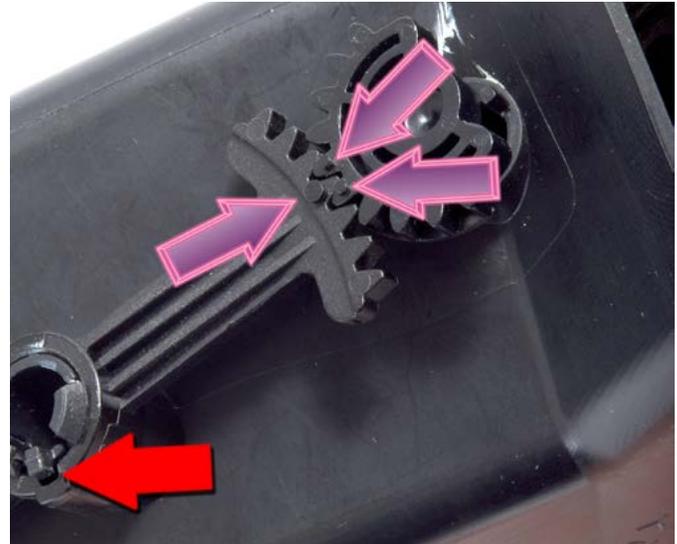
Section 5 - Installing and Connecting the Vent Pod and Gauge

Step 4 - Remove the front cover

This image shows a close-up of the vent control relay arm mechanisms.

To remove each arm, align the pivot arm notch and pivot post locator pin (red arrow), and the gear index marks (pink arrows); then slide the arm off the pivot post.

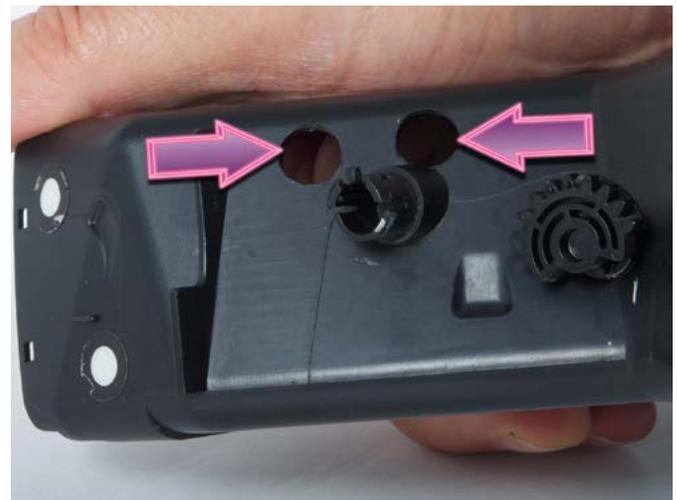
Reverse the process to reinstall the arms later.



Step 5 - Remove the old vent

With the trim fascia removed, pry the original vent louvers from the left side of the vent housing. Use a screwdriver to pop the individual vent pins out of the housing.

Drill two 3/8-inch holes in the housing on the same side where the vent pod will be installed. These two holes are for the boost gauge power and boost sensor transducer harnesses.



Step 6 - Install the gauge in the vent pod

Wrap the black rubber band (arrow) around the body of the gauge.

Insert the gauge into the pod opening.



Section 5 - Installing and Connecting the Vent Pod and Gauge

Step 7 - Install the gauge in the vent pod

Align the gauge properly, then push it into the pod opening until it is fully seated. This is a tight fit; apply pressure evenly.



Step 8 - Route gauge wiring

Route the power harness and transducer harness through the holes we drilled in the vent housing, and plug them into the back of the boost gauge.



Step 9 - Install the vent pod

Insert one end of the vent pod into the opening in the vent housing, then rotate the opposite end down until the plastic tabs snap in place. Make sure the vent pod is secure in the vent housing at both ends.

Stop here and test the gauge: make sure the gauge needle responds with the ignition on, and that it illuminates when the dash lights are on.



Section 5 - Installing and Connecting the Vent Pod and Gauge

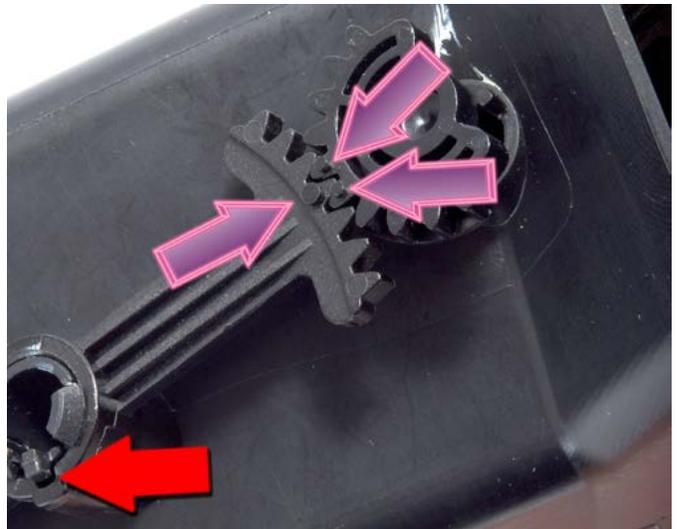
Step 10 - Reinstall the vent fascia

Reinstall the front fascia trim on the vent assembly. Align the trim section evenly on the vent housing. Push the two pieces together until the tabs and mating holes in both sections snap together securely.



Step 11 - Reconnect the vent arms

Reinstall the vent control relay arms, aligning components as shown.



Step 12 - Install dash assembly

Bolt the vent assembly with gauge back onto the dashboard trim panel. (Reverse steps 1 and 2 in this section.)

Reconnect the wiring harness connectors at the ignition switch and four-way flasher/doorlock/temp rheostat switch. Then reinstall the dash trim panel.

Reinstall the under-dash trim panel.



Section 5 - Installing and Connecting the Vent Pod and Gauge

Step 13 - Key-on initialization

Each time you switch the ignition on, your vacuum/boost gauge go through an initialization process: it will sweep from full vacuum to full boost and then settle back to zero before your engine starts.

Your gauge backlight color matches that of your stock instruments, and will respond to changes in your dimmer settings.



Thanks!

Thank you for purchasing the ECS Tuning Vent Pod Vacuum/Boost Gauge.

We appreciate your business, and hope this installation guide has been helpful.

LEFT **ES2588091**

RIGHT **ES2594189**



Make the job easier and prevent damage to headliners and other interior trim with **ECS Tuning Trim and Molding Removal Tool Sets: [ES2500877](#) and [ES517779](#).**