BMW F3X N55 Boost Gauge Installation Instructions

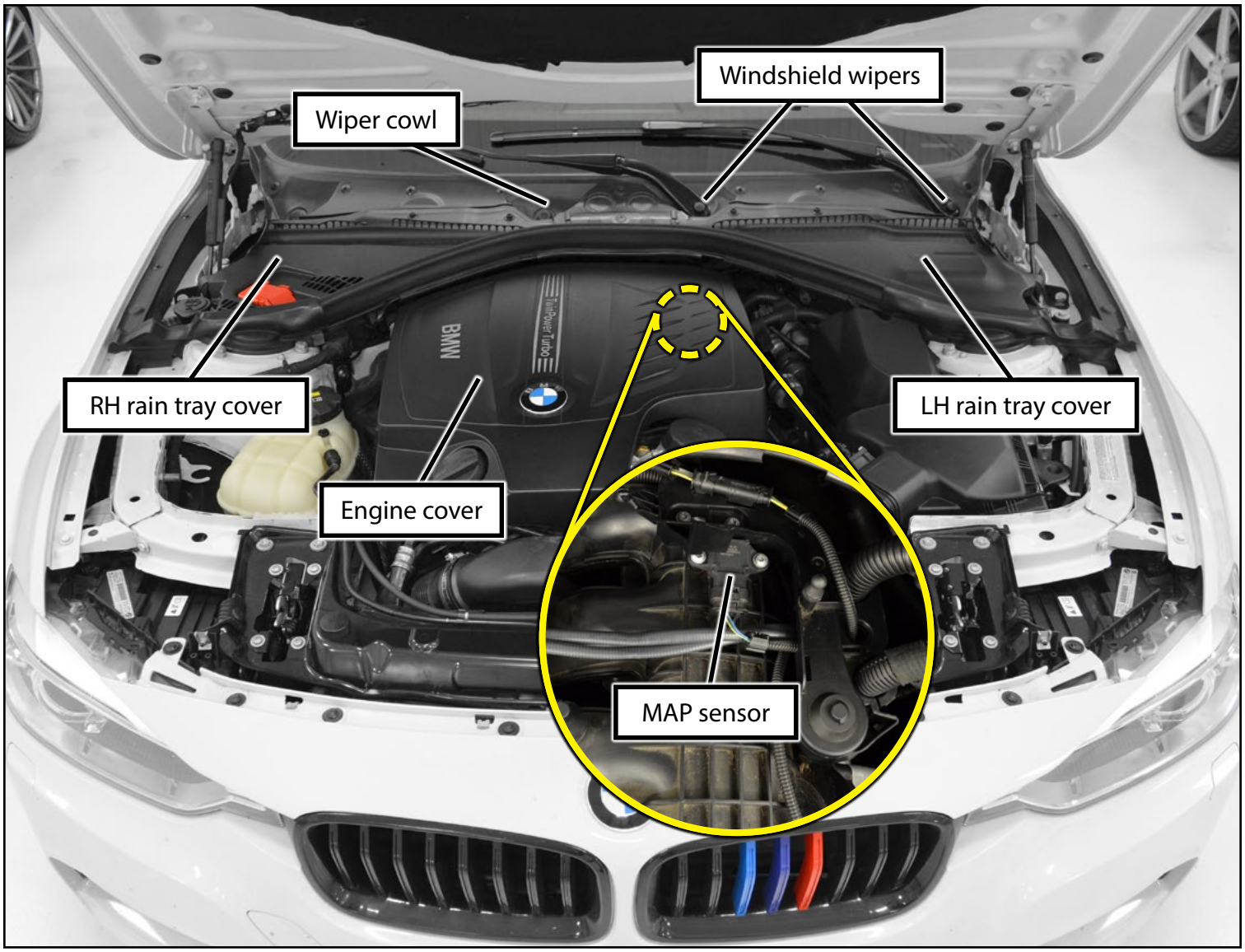
Turner Difficulty Gauge

Introduction

Today we will be installing a boost tap and boost gauge into our F30 335i N55. To install the boost tap we will need to remove the following components under the hood:

1. Windshield wipers
2. LH and RH rain tray covers
3. Wiper cowl
4. RH rain tray (located under the RH rain tray cover)
5. Engine cover
6. MAP sensor

We will need to install the boost tap first, then we'll route the vacuum hose/pipe into the vehicle through a grommet which is located directly beneath the RH rain tray. After that we can install the gauge into the center vent panel inside the car, and make all of our connections.



These installation instructions have been broken up into several sections:

1) Installing the Boost Tap (Page 3)
2) Routing the Vacuum Line (Page 4)
3) Installing the Vent Pod and Gauge (Page 9)

Section 1: Installing the Boost Tap

Step 1

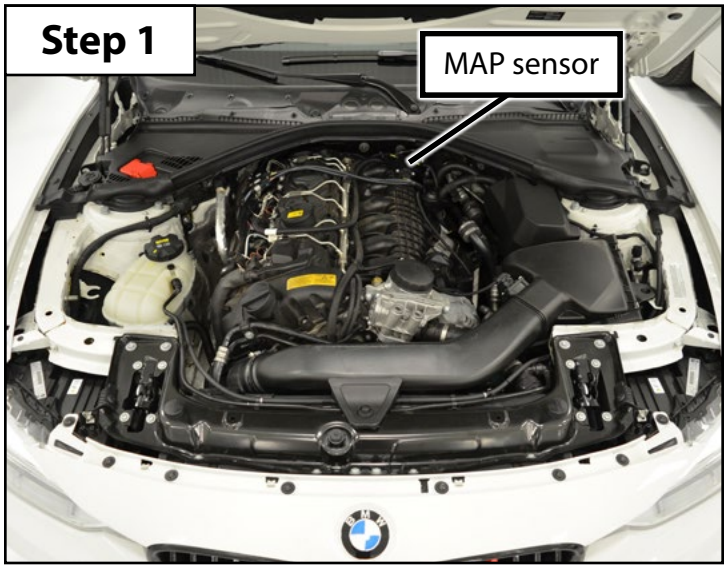
- Remove the engine cover and locate the MAP sensor near the back of the intake manifold.

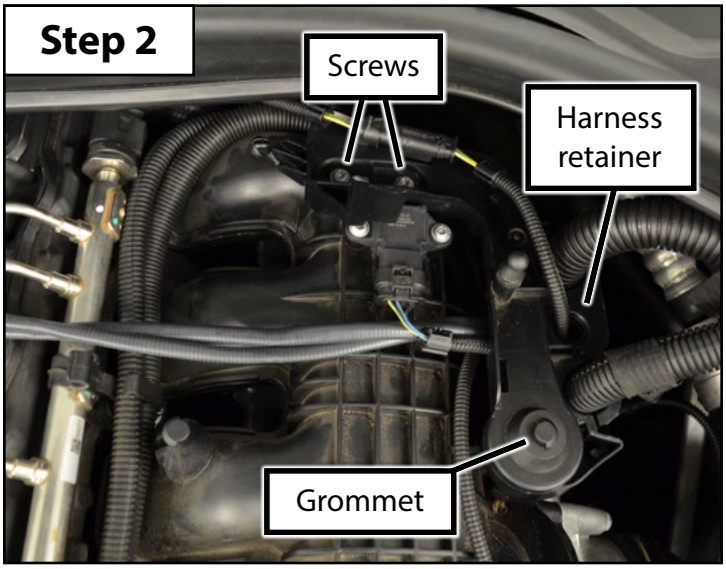
Step 2

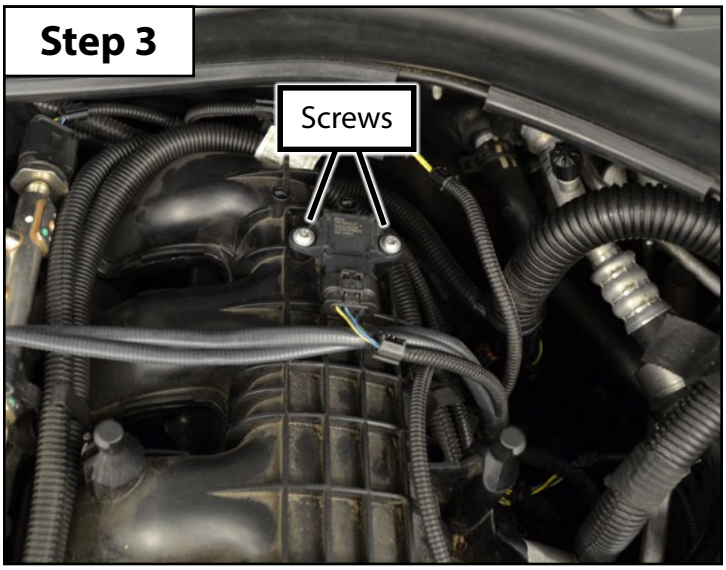
- Remove the two T25 screws from the back side of the bracket which covers the MAP sensor.
- Release the wiring harness from the retainer on the side of the bracket.
- Pull upward on the bracket to release it from the mounting grommet and remove it from the vehicle.

Step 3

- Release the electrical connector from the MAP sensor.
- Remove the two T25 screws which secure the MAP sensor to the intake manifold.
- Install your boost tap between the MAP sensor and the intake manifold with the supplied hardware (not shown).
- Reinstall the MAP sensor and bracket in the reverse order of removal.







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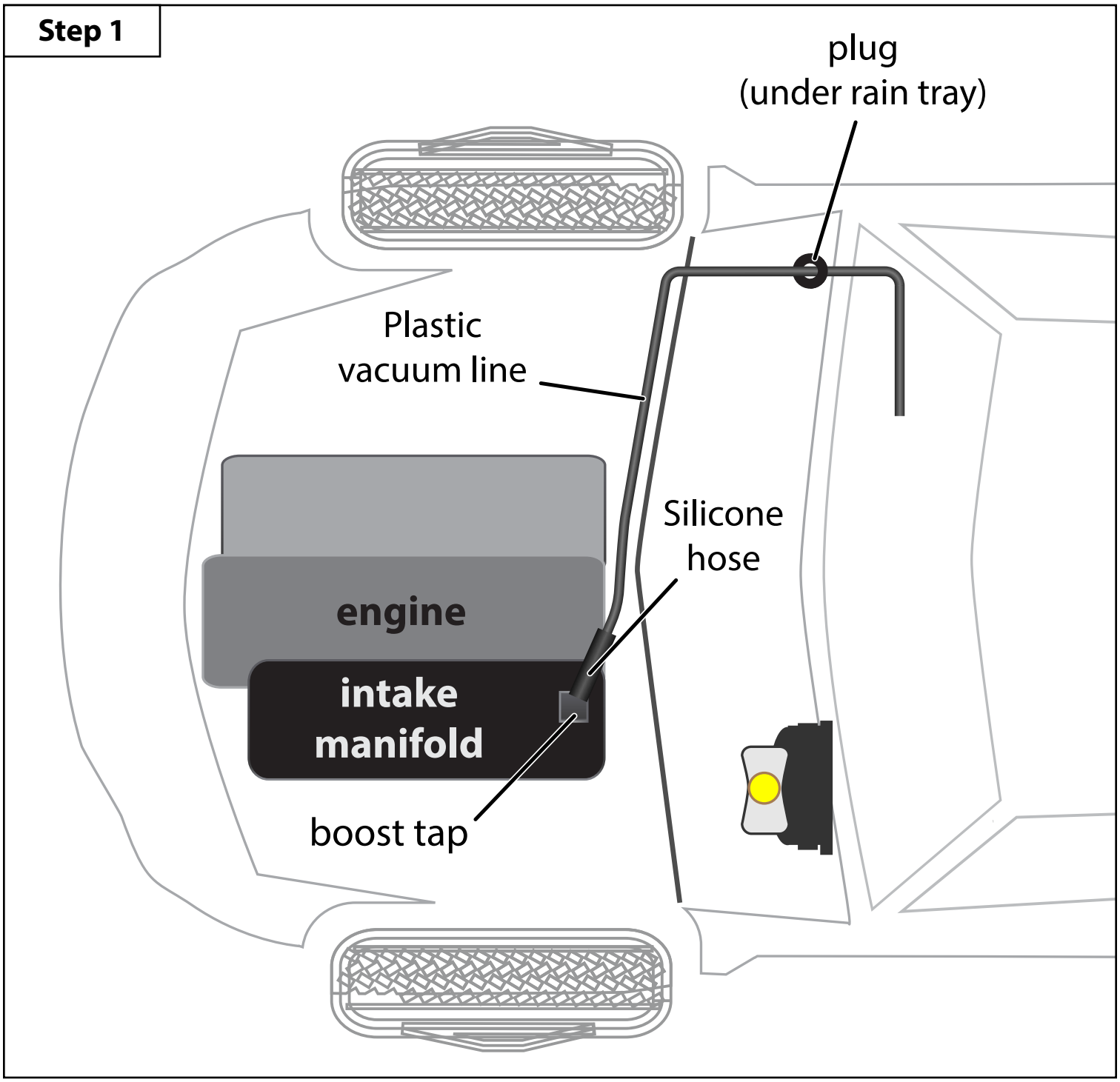
Section 2: Routing the Vacuum Line

Step 1

- The diagram below shows the basic layout of where we will be routing the plastic vacuum line during this section.
  - We found that the best access point between the passenger compartment and the engine bay was through a small grommet which is located directly under the RH rain tray. Routing the vacuum line through here will help to prevent any water or debris from entering through the firewall, and the install will be completely reversible if so desired down the road.
  - We will need to remove the wiper cowl and the RH rain tray for this, so take a moment to review the diagram below, then proceed to Step 2 on the next page.



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Section 2: Routing the Vacuum Line

Step 2

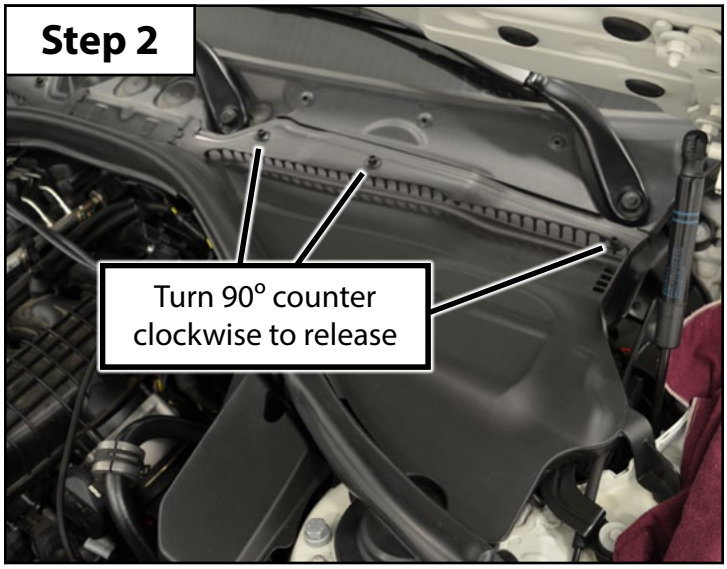
- Remove both rain tray covers.
  - Turn the 10mm plastic nuts 90° counter clockwise to release them.
  - Lift the rain tray covers out and set them aside.

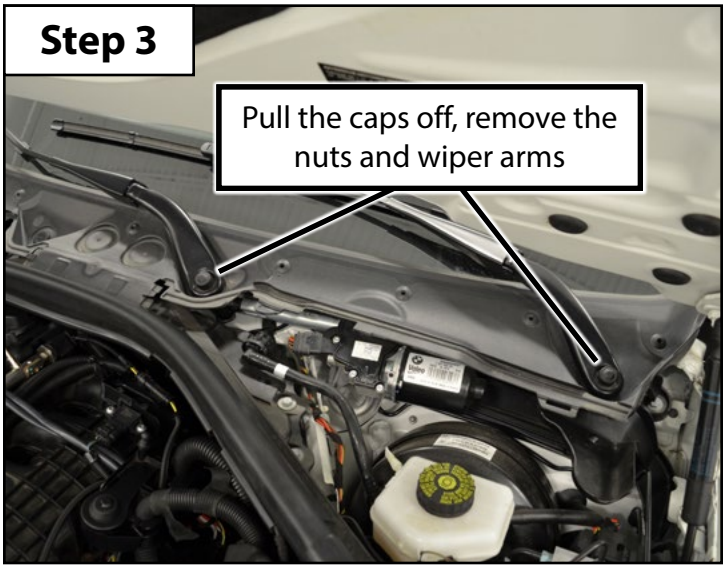
Step 3

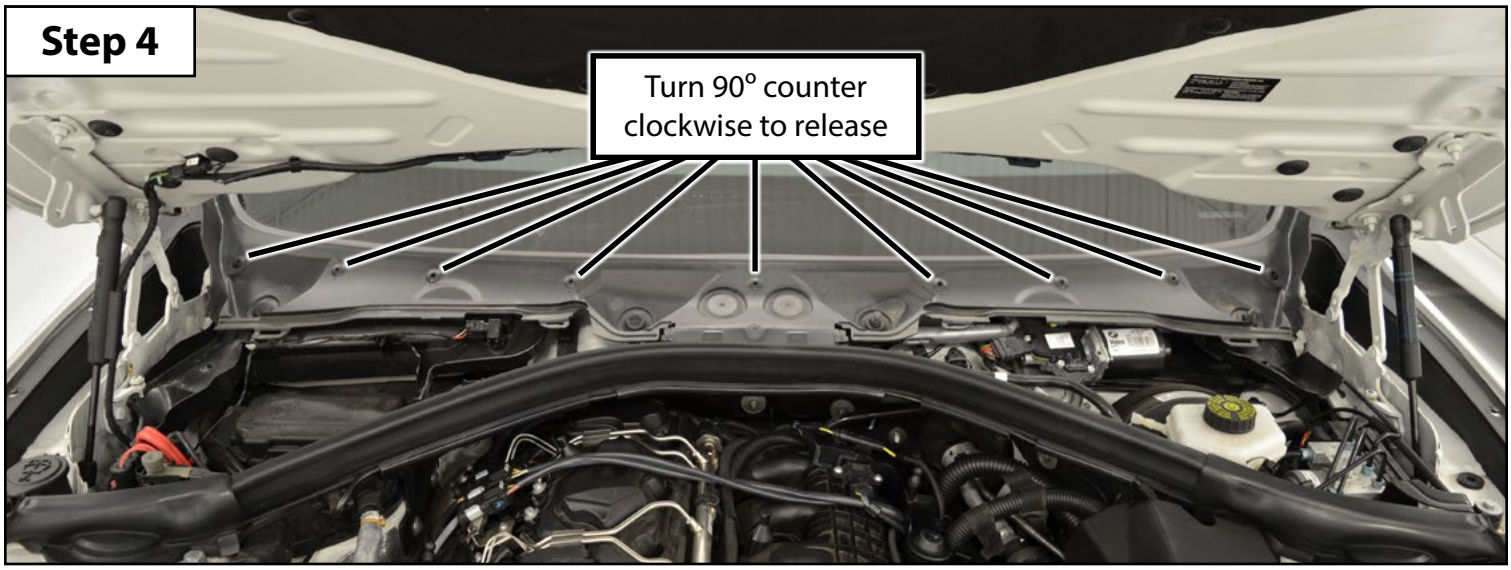
- Remove the wiper arms.
  - Pull the plastic caps off of the wiper arms.
  - Remove the wiper arm nuts.

Step 4

- Turn the nine 5mm allen screws on the wiper cowl 90° counter clockwise to release them.
  - Do not remove the wiper cowl, there are a few more steps we need to perform first.







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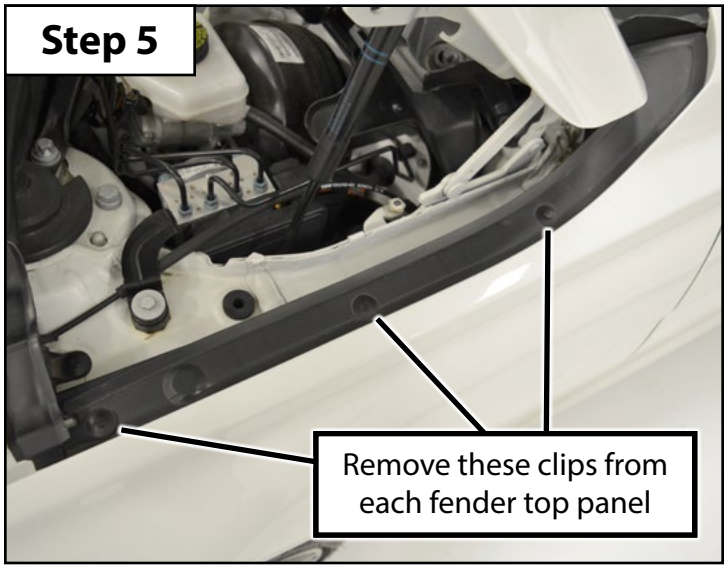
Section 2: Routing the Vacuum Line

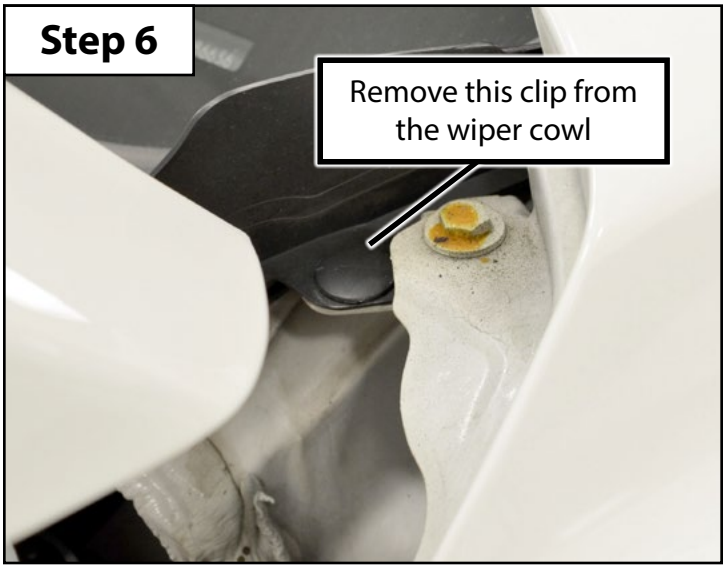
Step 5
- Remove both fender top panels.
  - Release the expanding rivet clips on each panel.

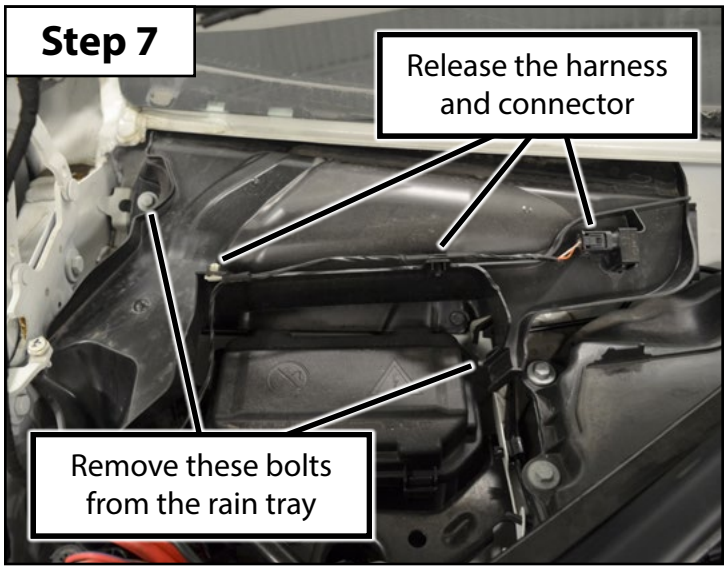
Step 6
- Remove the wiper cowl from the vehicle.
  - Remove the push clips from each end of the wiper cowl,these push clips were covered by the fender top panels.

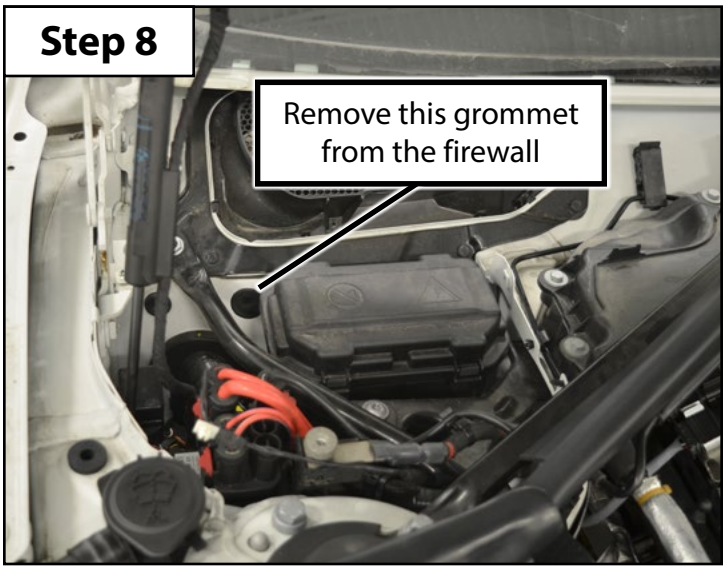
Step 7
- Remove the rain tray.
  - Release the wiring harness from the sensor in the RH rain tray.
  - Release the clips securing the wiring harness to the rain tray.
  - Remove the rain tray bolts.

Step 8
- Remove the grommet located just below the rain tray.
  - This is where we will be routing the vacuum line into the cabin.









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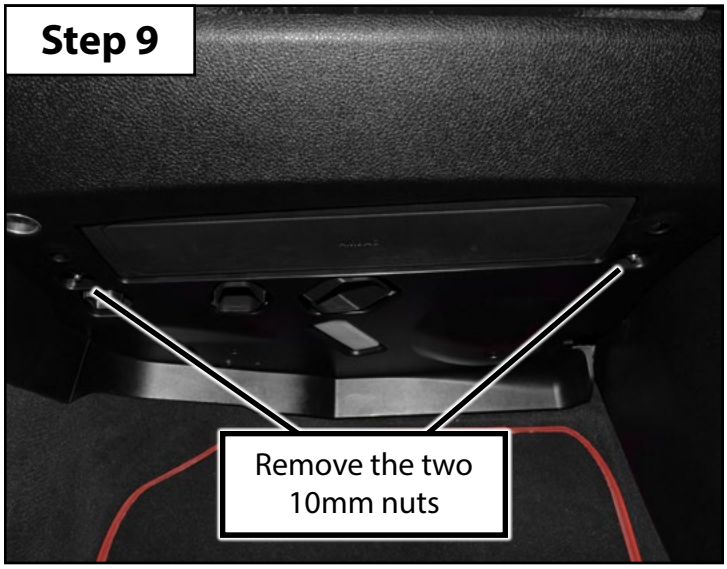
Section 2: Routing the Vacuum Line

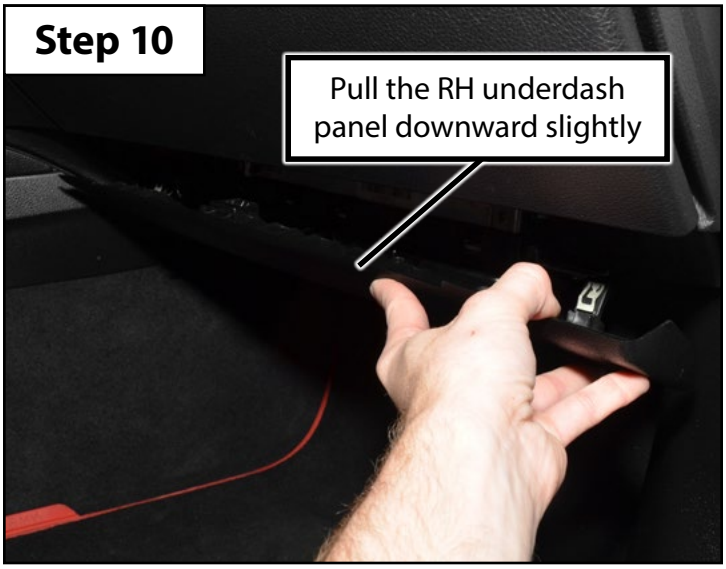
Step 9
- Working inside the vehicle, remove the two 10mm nuts which secure the RH underdash panel.

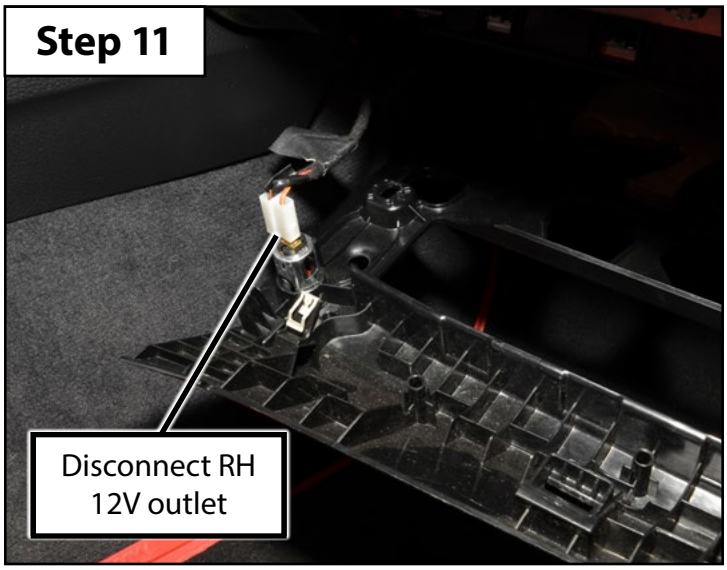
Step 10
- Grasp the RH underdash panel along the front edge and pull it downward slightly to release the push clips which secure it in place.

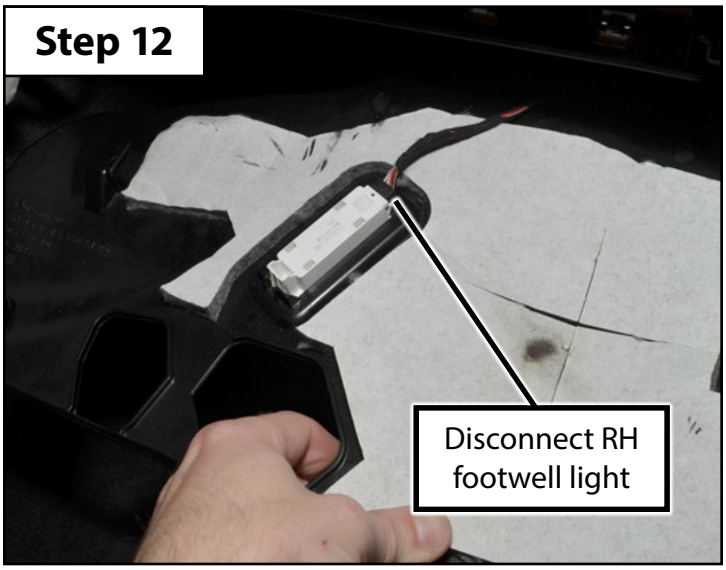
Step 11
- Disconnect the wiring harness from the RH 12V outlet.

Step 12
- Disconnect the wiring harness from the RH footwell light.
- Remove the RH underdash panel from the vehicle.









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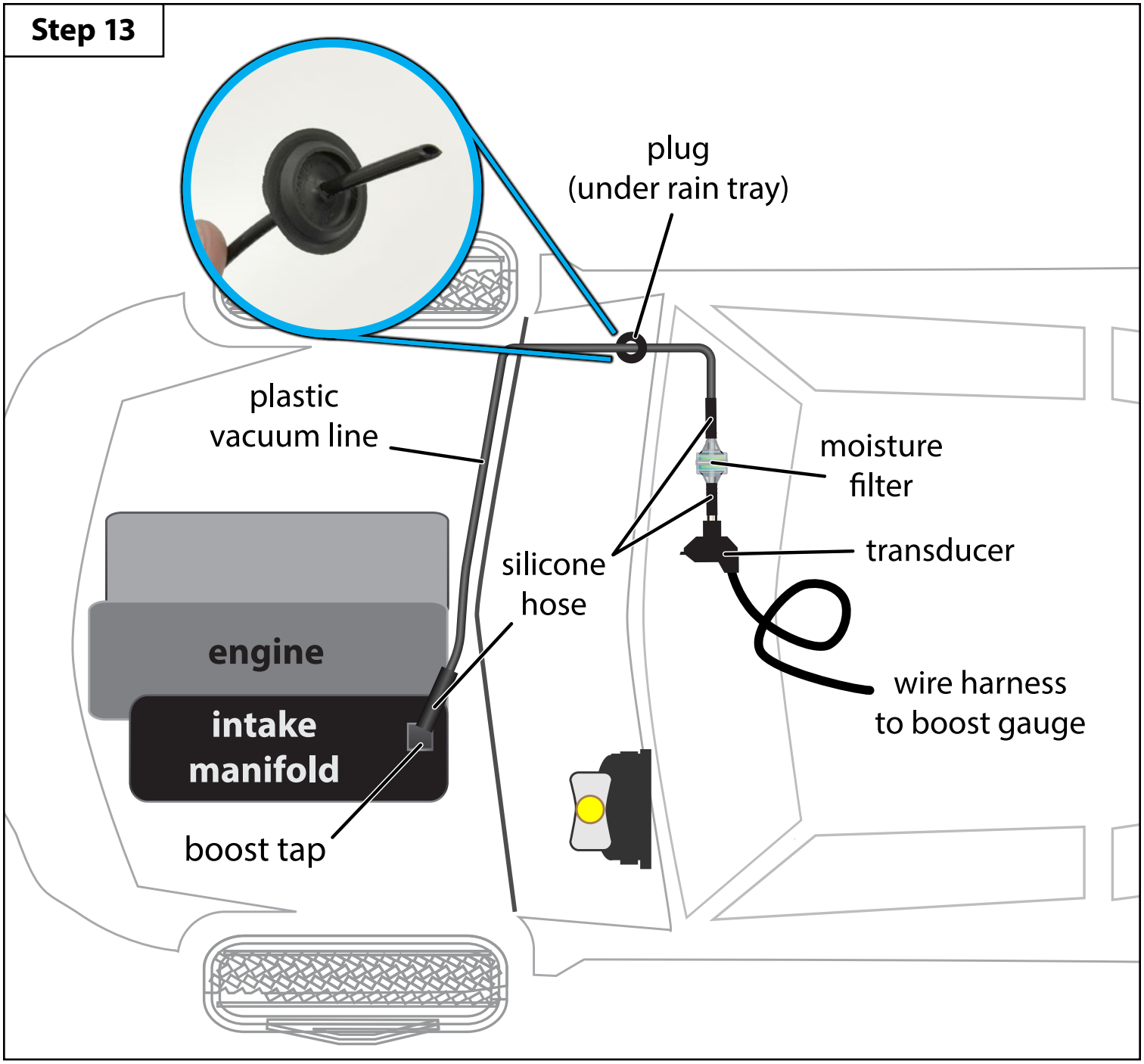
Section 2: Routing the Vacuum Line

Step 13

- Beginning near the boost tap on the intake manifold, route the plastic vacuum line across the engine compartment and toward the grommet we removed in Step 8.
  - Be sure to route and secure the vacuum line out of the way of moving or hot parts which could damage it. We used the OEM cable management which is incorporated into the seal running along the wiper cowl for this.
  - Use a small section of the included silicone hose to connect the plastic vacuum line to the boost tap.
- Puncture the grommet with the plastic line as shown in the inset photo, guide through the grommet hole in the firewall and into the RH footwell.
- Install the moisture filter between the plastic vacuum line and the transducer using small sections of the included silicone vacuum hose. Leave the transducer in the RH footwell at this time.
- Reinstall the grommet into the firewall.



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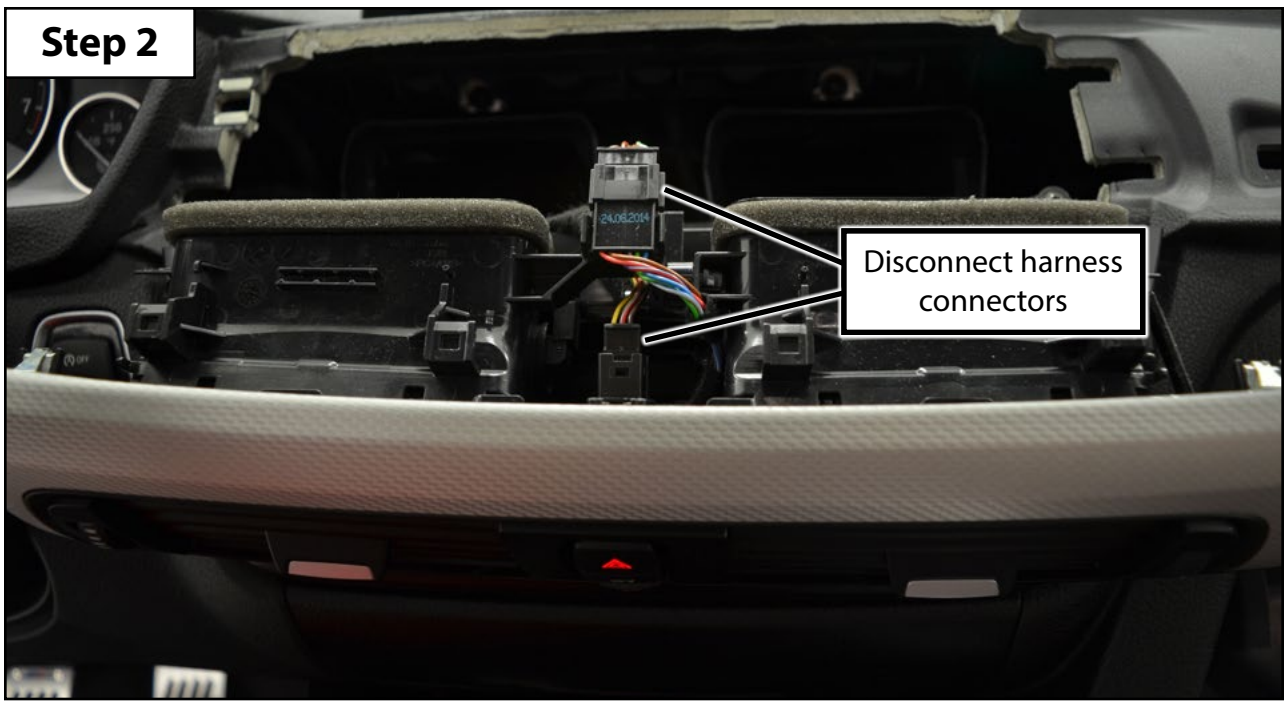
Section 3: Installing the Vent Pod and Gauge

Step 1

- Working inside the vehicle, pry along the top edge of the center vent dash panel with a non-marring trim removal tool, then work your way around the entire perimeter to release all of the snap-clip fasteners.
  - Pull the panel out of the dash a few inches, but do not remove it until you perform the instructions in step #2 below.

Step 2

- Locate and disconnect the two electrical connectors on the back side of the vent assembly.
- Remove the center vent dash panel.



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Section 3: Installing the Vent Pod and Gauge

Step 3

- Working on the back side of the center vent dash panel, locate the clips which run around the entire perimeter of the vent assembly.
- Carefully pry on these clips with a non-marring trim removal tool to release them one by one, working your way along one edge of the vent assembly as shown.

Step 4

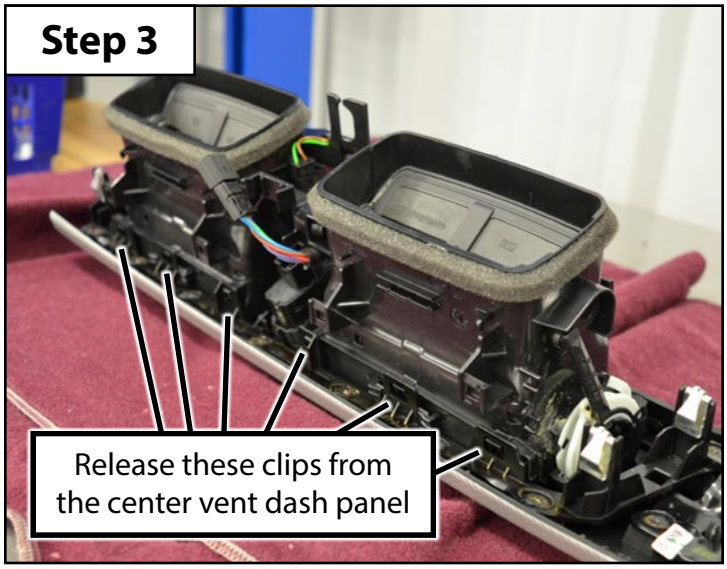
- With one side of the center vent assembly completely released from the clips, rotate the entire assembly toward the side which wasn't released as shown. This will release all of the remaining clips.
- Remove the center vent assembly from the dashboard panel.

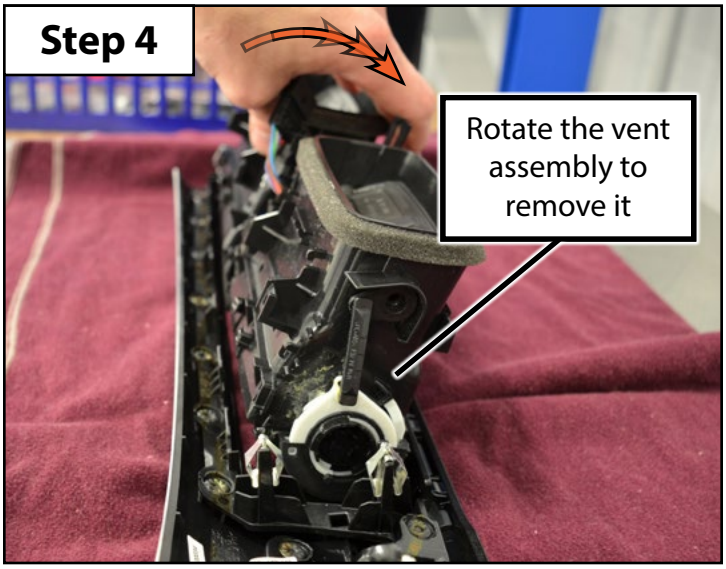
Step 5

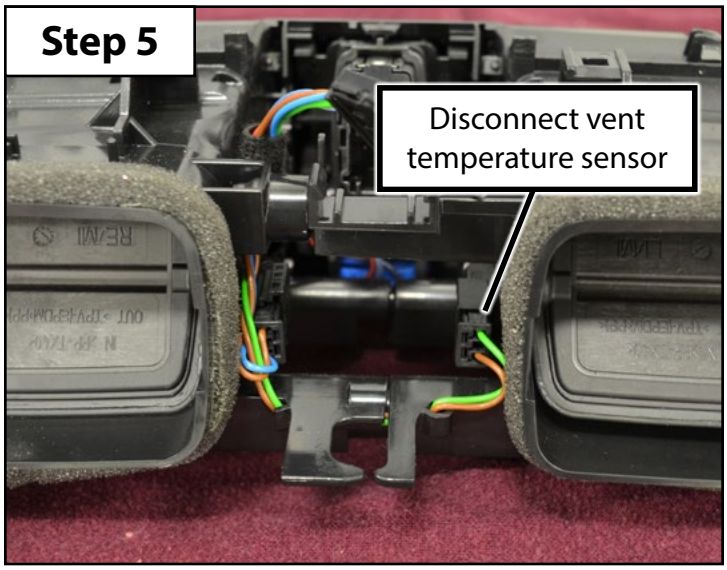
- Disconnect the LH vent temperature sensor connector.

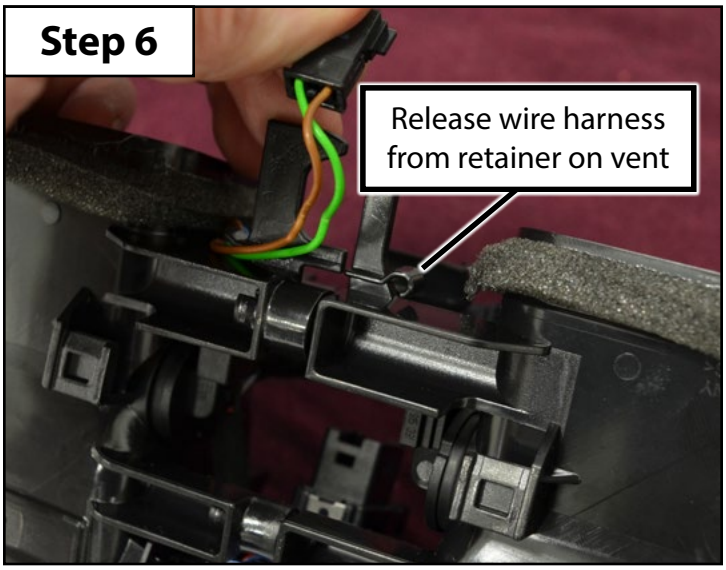
Step 6

- Release the wiring harness for the LH vent temperature sensor connector from the retainer on the back side of the center vent assembly.









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Section 3: Installing the Vent Pod and Gauge

Step 7

- Next we need to release the LH vent from the RH vent.
- To do this, begin by gently squeezing the tabs together as shown to release them, then proceed to step 8.

Step 8

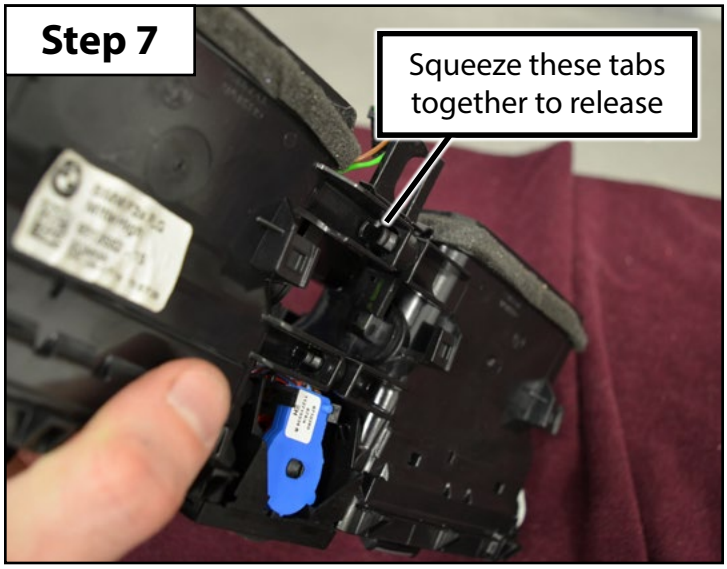
- With the tabs released you will be able to pull the LH vent housing off of the center vent assembly.

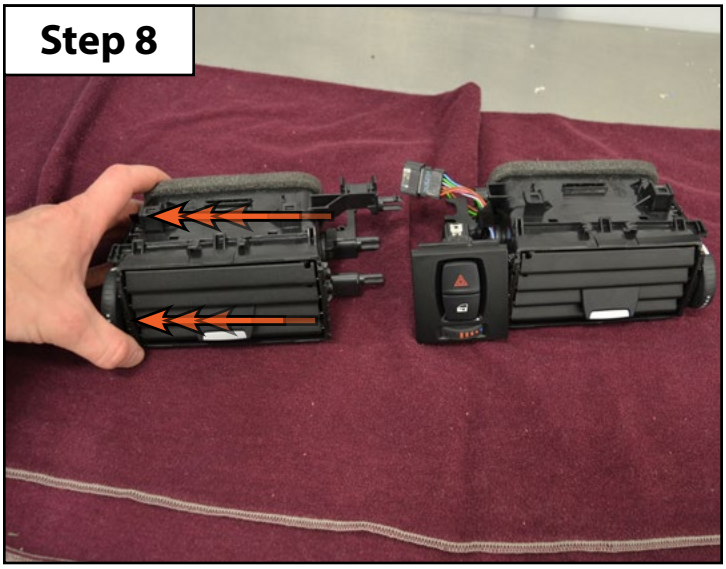
Step 9

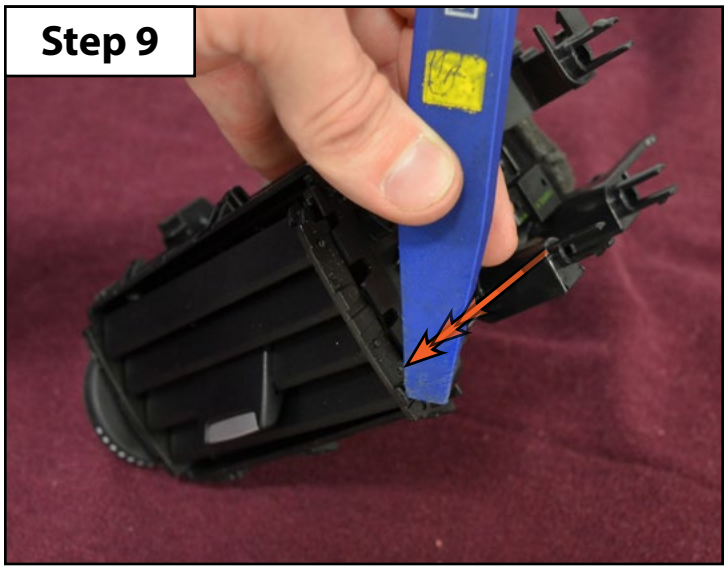
- Use a suitable non-marring tool to pry gently on the side retaining tabs which hold the outer louvers in the LH vent housing.
  - Pry the outer louvers away from the housing slightly; move it out just far enough to clear the retainers.

Step 10

- When all tabs are released, remove the outer louvers from the vent.







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Section 3: Installing the Vent Pod and Gauge

Step 11

- Locate the retaining tabs which secure the inner louvers into the vent housing.
  - Release all four tabs one by one with a small screwdriver or pick.

Step 12

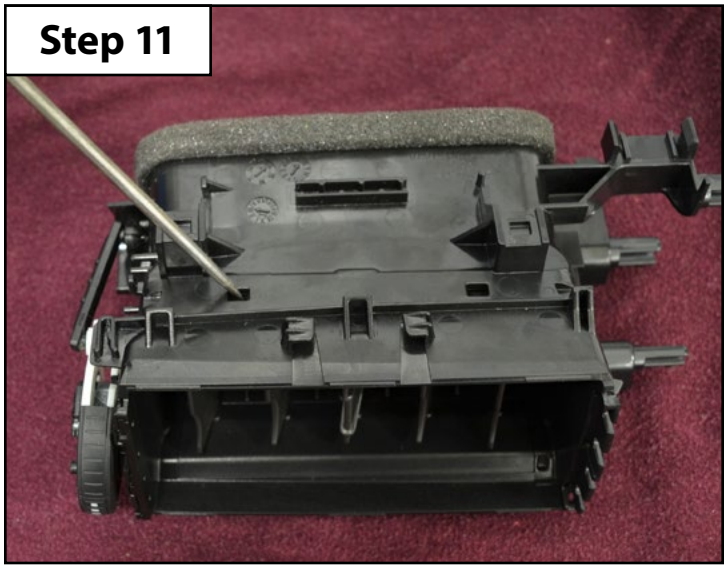
- Pull the inner louvers out of the housing.

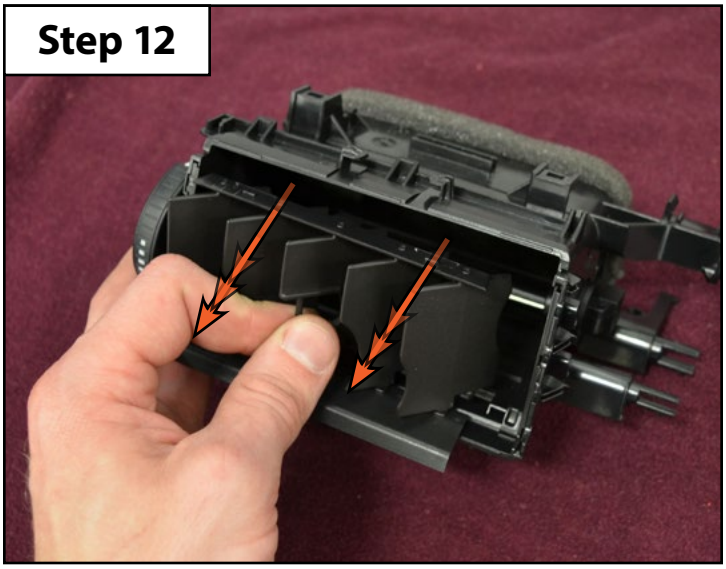
Step 13

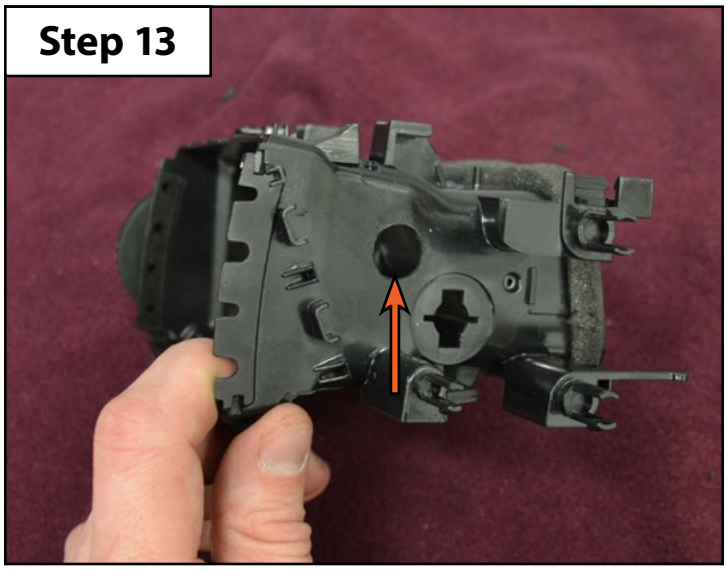
- Drill a ½" hole in the **side** of the vent housing near the vent temperature sensor hole (arrow).
  - The hole location can vary slightly as long as the wires do not interfere with the vent open/close flap, linkage, temperature sensor, or the installed vent pod.

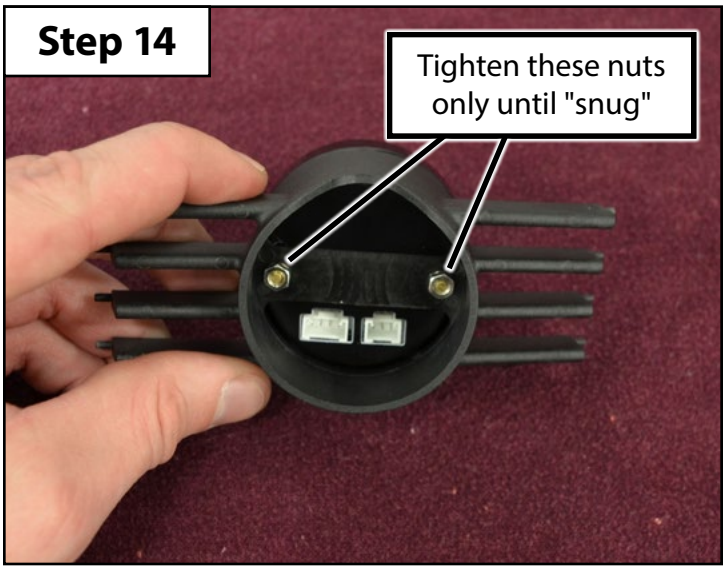
Step 14

- Install and tighten the two nuts to hold the gauge into the vent pod.
  - These nuts only need to be tightened by hand turning the socket or by carefully using a ¼" driver.
  - Using a ratchet or excessive force will risk breaking the studs inside the gauge.









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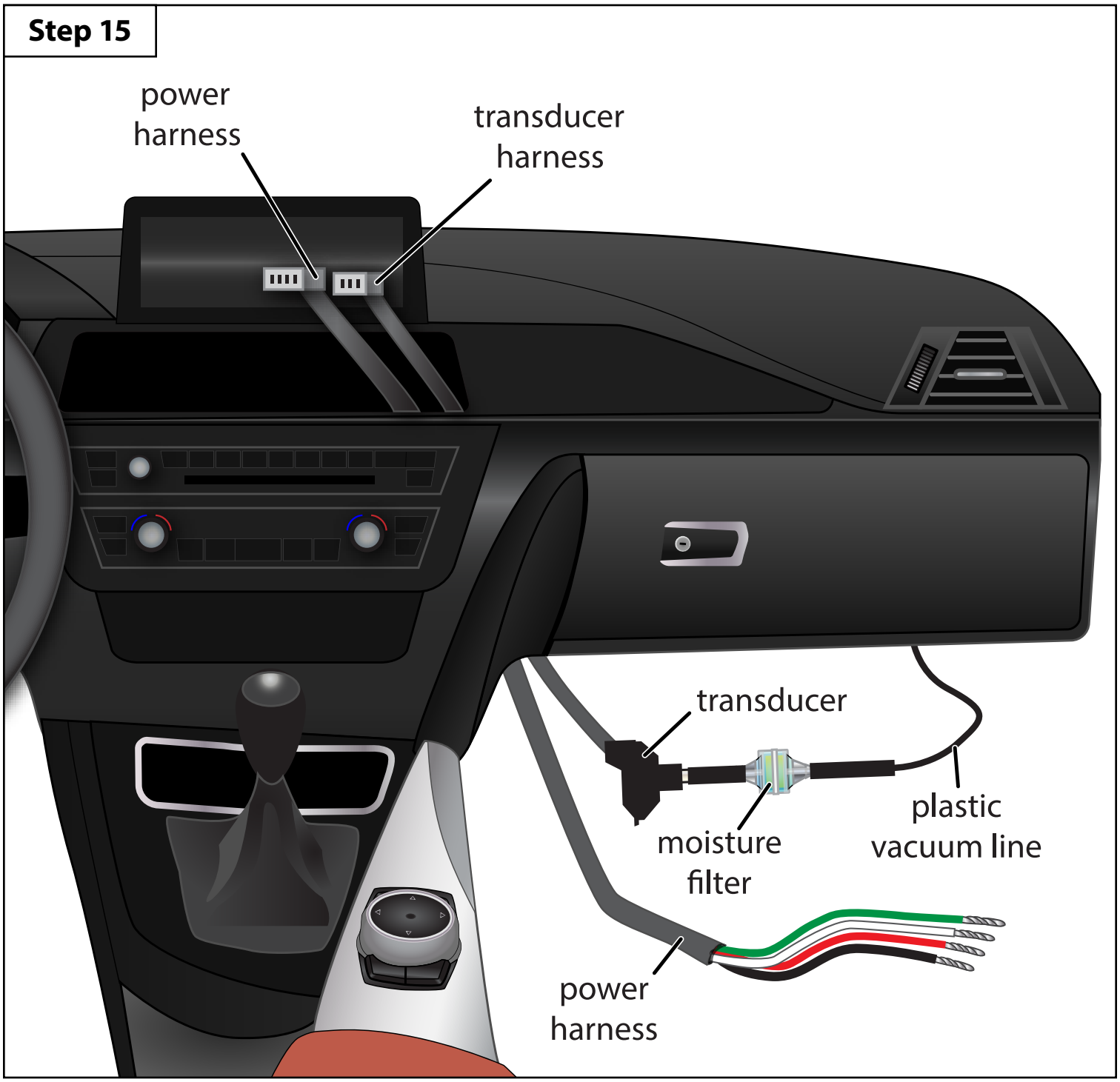
Section 3: Installing the Vent Pod and Gauge

Step 15

- Route the transducer cable and the power harness from the RH underdash area, up behind the dashboard and out through the center vent opening.
- Pull the cables through far enough to reach the area where the gauge will be installed in the vent pod.
  - We will secure the wiring harnesses below the dashboard after we have made our final connections.



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Section 3: Installing the Vent Pod and Gauge

Step 16

- One at a time, insert the power and transducer harnesses through the hole in the vent housing and pull them out the front as shown.
  - Rest the vent housing in the opening of the dash, but do not install it into place yet. It will remain here over the next few steps.

Step 17

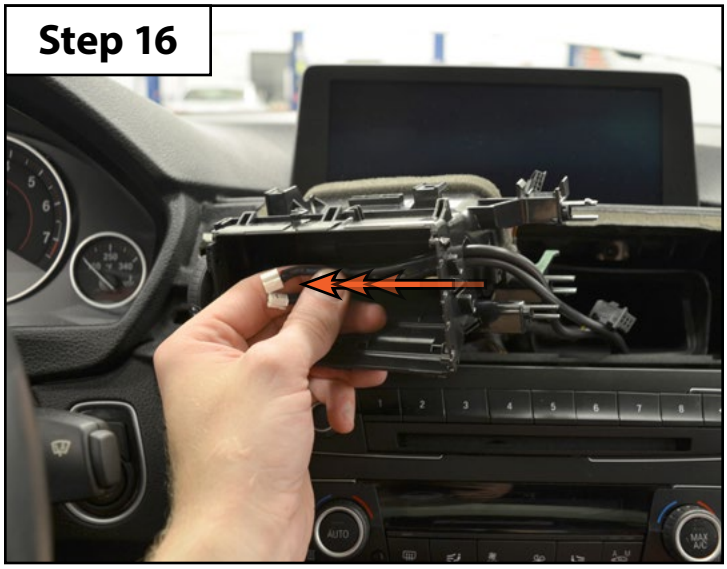
- Insert the power harness (4-pin) connector into the RH plug on the back of the gauge.
- Insert the transducer harness (3-pin) connector into the LH plug on the back of the gauge.

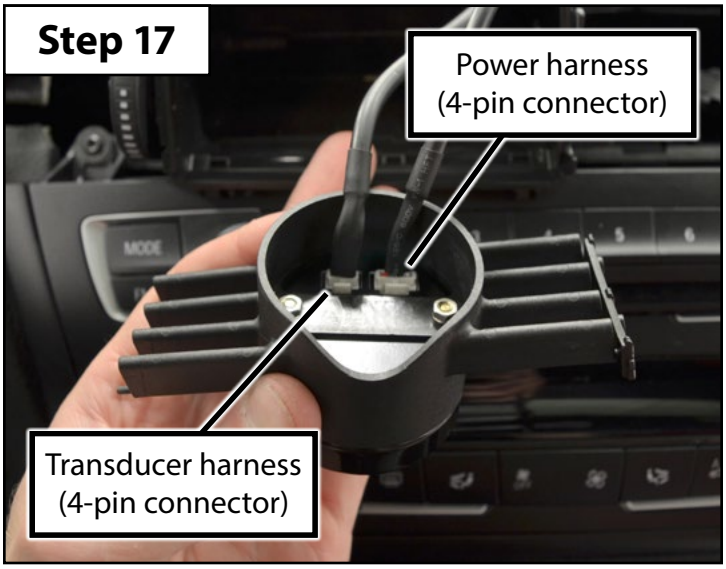
Step 18

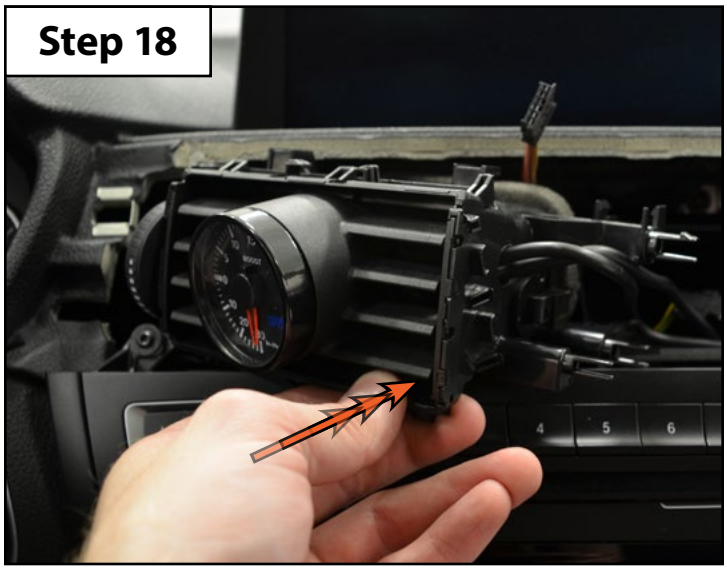
- Reassemble the LH vent housing with the new gauge pod.

Step 19

- Reassemble the entire center vent assembly.
  - Ensure that the wiring harnesses are all properly routed and connected to their respective components during reassembly.
- Carefully rest the center vent assembly in the dash, we will reassemble everything after completing the installation and confirming proper operation of the gauge.







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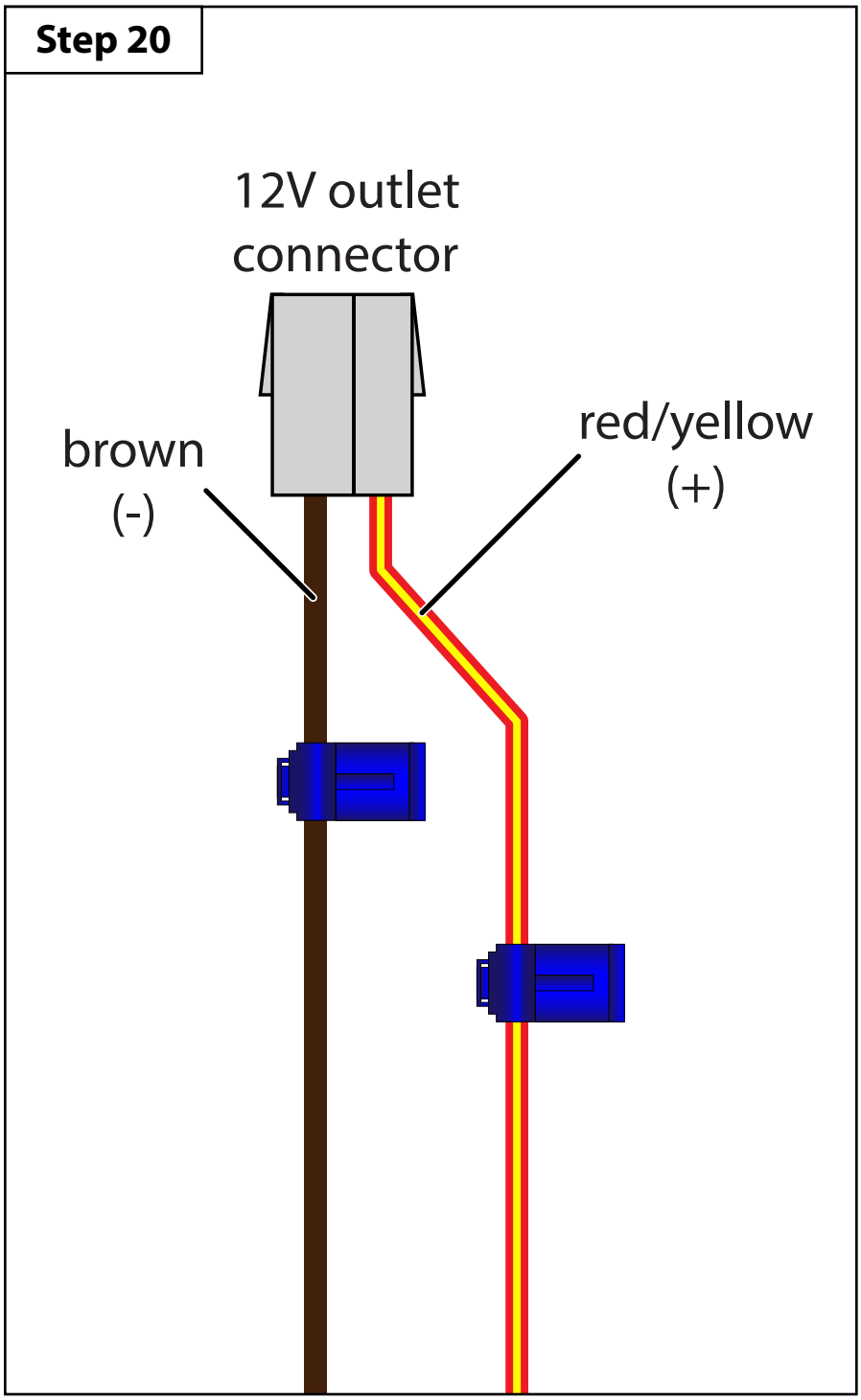
Section 3: Installing the Vent Pod and Gauge

Step 20
- You will be installing the two 18-14 AWG T-Taps onto the 12V outlet wiring harness located under the RH dash panel.
  - Inspect the **Step 20** illustration below, then follow the procedure outlined in **Step 21** & **Step 22**.

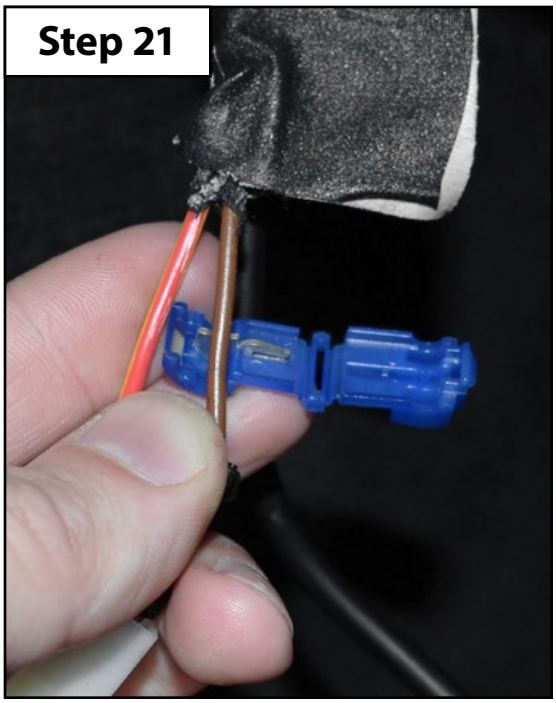
Step 21
- Position the T-Tap so the wire is located in the groove of the blade.

Step 22
- Fold the top of the T-Tap over then squeeze it together with curved jaw pliers until you hear a “click” indicating that the T-tap is fully closed.
  - Repeat **Step 20**, **Step 21**, **Step 22** on the remaining wire in the 12V outlet harness.

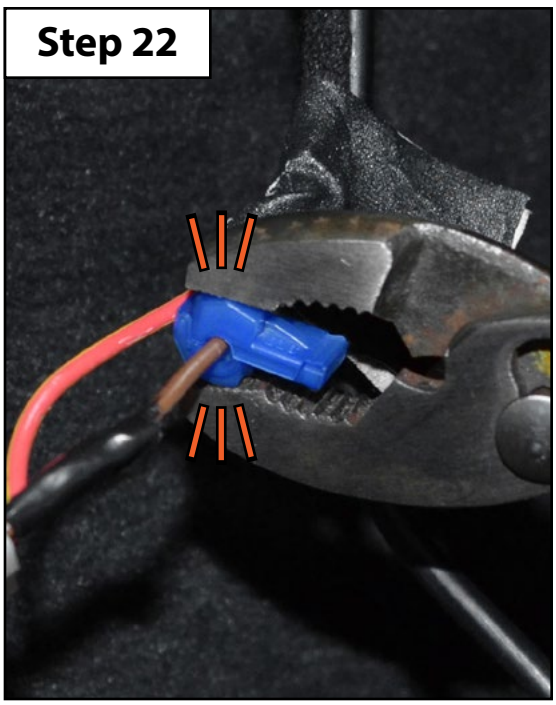
Step 20



Step 21



Step 22



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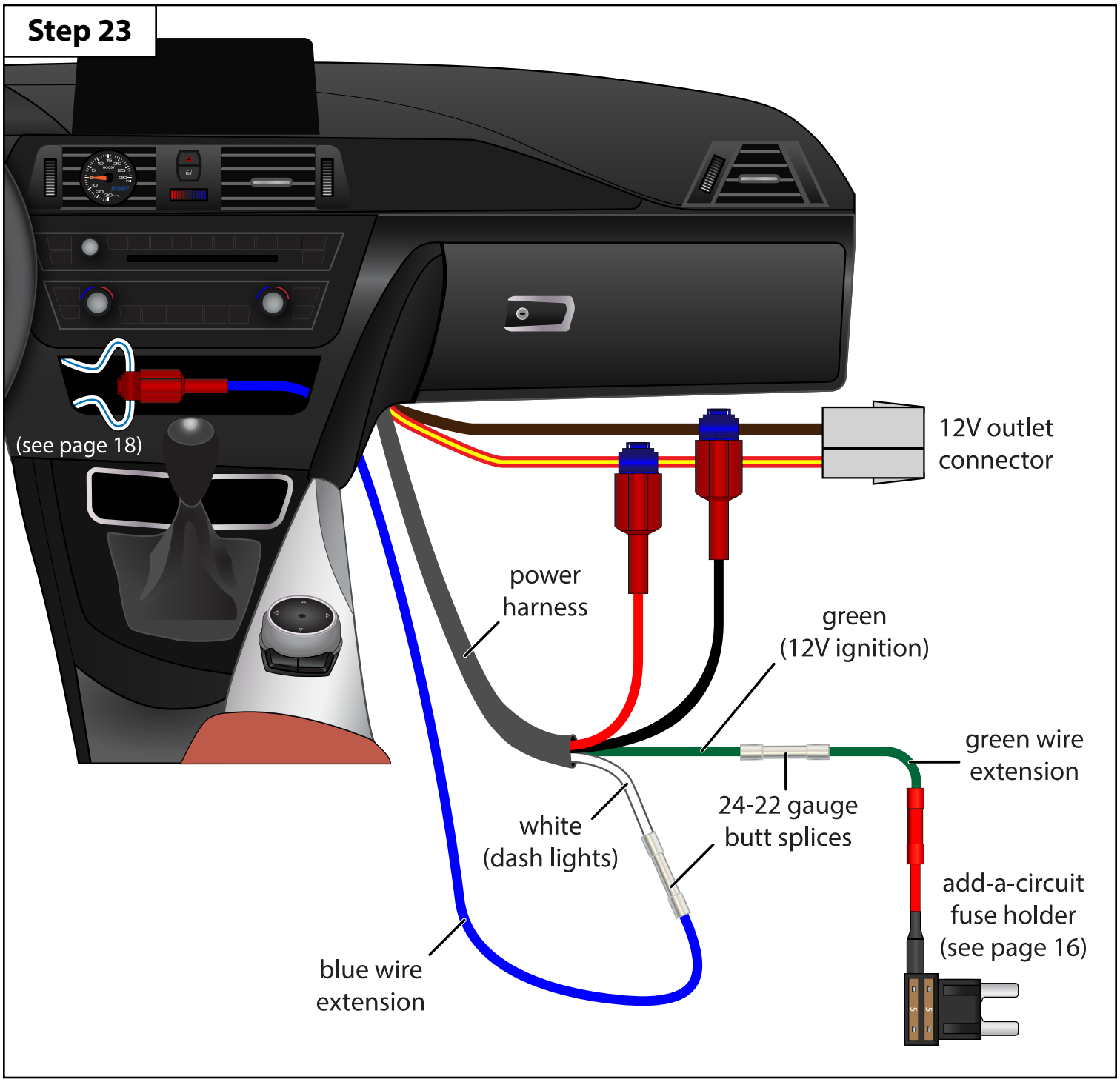
Section 3: Installing the Vent Pod and Gauge

Step 23

- Crimp two of the 22-18 AWG spade connectors onto the **RED** and **BLACK** wires on the gauge power harness.
- Connect the two spade connectors to the T-Taps using the **Step 23** illustration below for reference.
  - Firmly support each T-Tap from behind as you push the spade connector into place, these are a tight fit so you will have to push fairly hard to fully seat the spade connectors.
- The illustration below also shows the connections for the lighting and 12V ignition circuits, more details on those connections will be provided over the next two pages.



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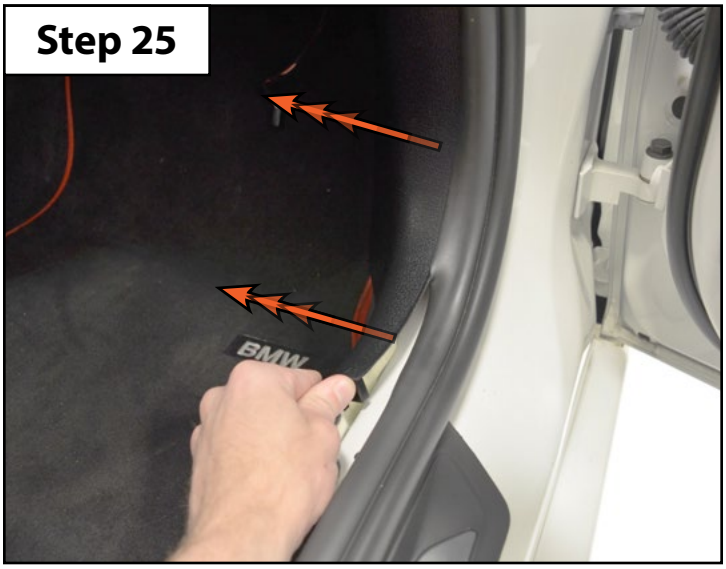
Section 3: Installing the Vent Pod and Gauge

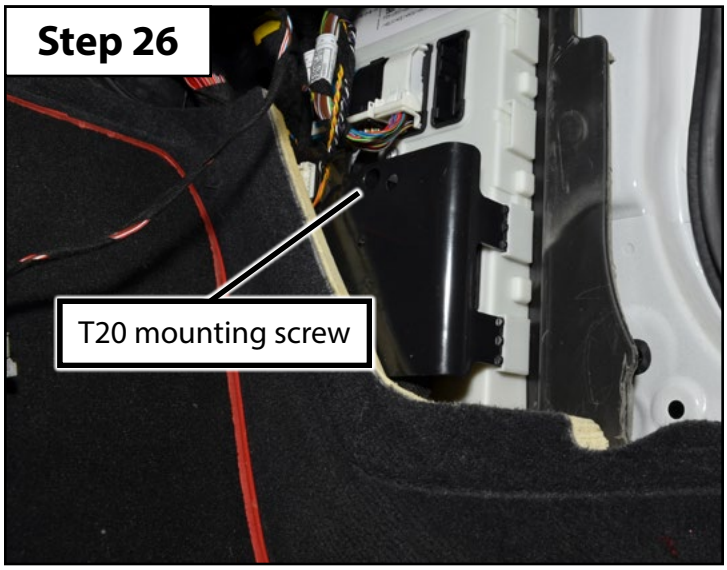
Step 24 • Pull up and remove the RH door sill panel, working your way from the front toward the rear.

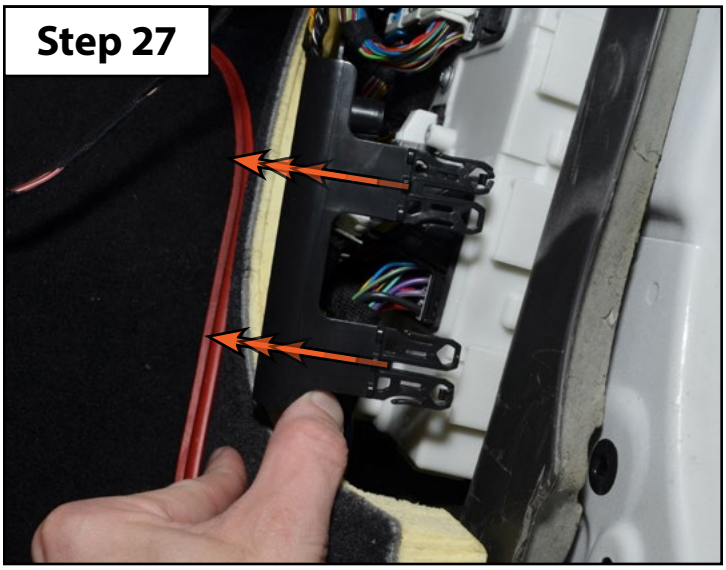
Step 25 • Pull on the RH kick panel by hand to release the clips (pull in the direction shown in the **Step 25** photo below).

Step 26 • Remove the single T20 screw which secures the fuse panel cover to the front electronic module.

Step 27 • Gently pull the front edge of the fuse panel cover out of the front electronic module and swing it out of the way.







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Section 3: Installing the Vent Pod and Gauge

Step 28

- Now we need to select a suitable fuse location for our add-a-circuit fuse holder.
- We need to locate a circuit which will supply switched (or "key on") 12V power, for our install we chose to use the 5a fuse located in slot #10.
  - Not all vehicles will have the fuses listed below, these may vary based upon vehicle trim levels and features.

Step 29

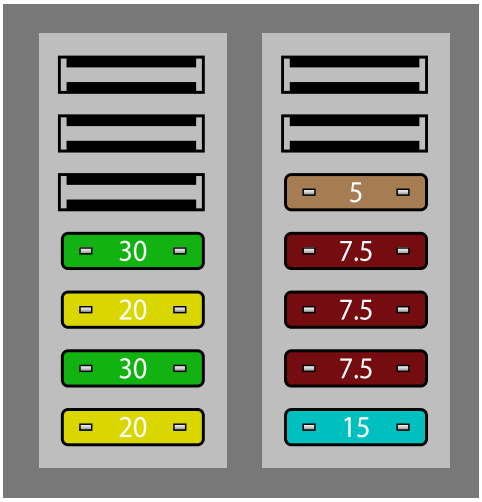
- Remove the fuse you selected and place it into the add-a-circuit fuse holder along with a duplicate identical fuse from the add-a-circuit kit.

Step 30

- Install the add-a-circuit fuse holder into your desired slot in the fuse panel.
- Connect the add-a-circuit fuse holder to the **GREEN** wire on the gauge power harness using the supplied **GREEN** wire extension and connectors (use the **Step 23** illustration on Page 16 as a reference).

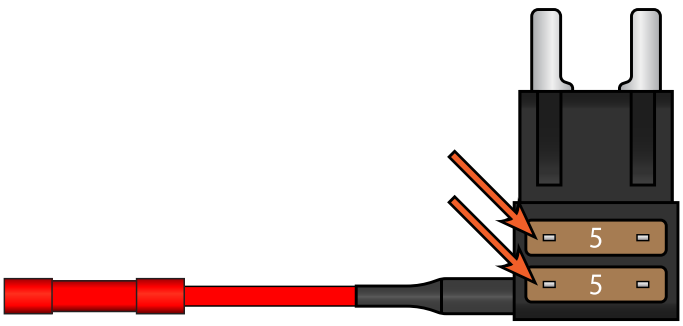
Step 28

#1 - not used
#2 - not used
#3 - not used
#4 - RH Power Window Motor
#5 - Central Locking System
#6 - LH Power Window Motor
#7 - Central Locking System

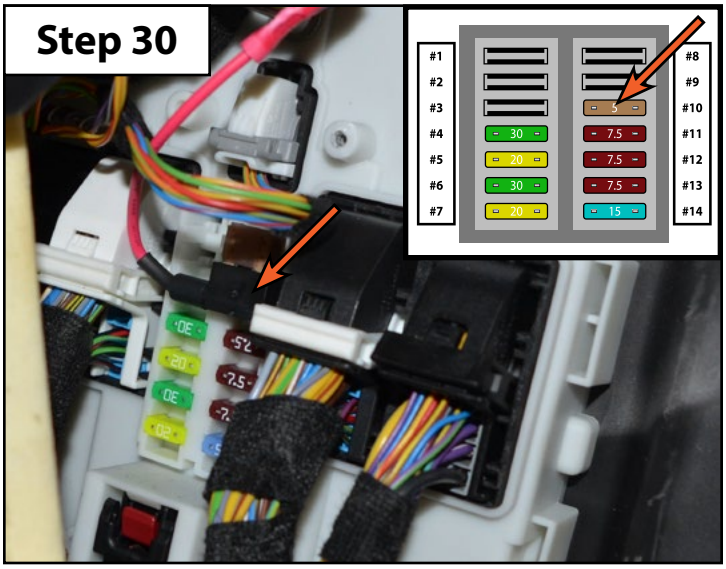


#8 - not used
#9 - not used
#10 - Dashboard Lighting
#11 - Rear Electronic Module
#12 - OBD II Diagnostic Plug
#13 - Electronic Outer Door module
#14 - Horns

Step 29



Step 30



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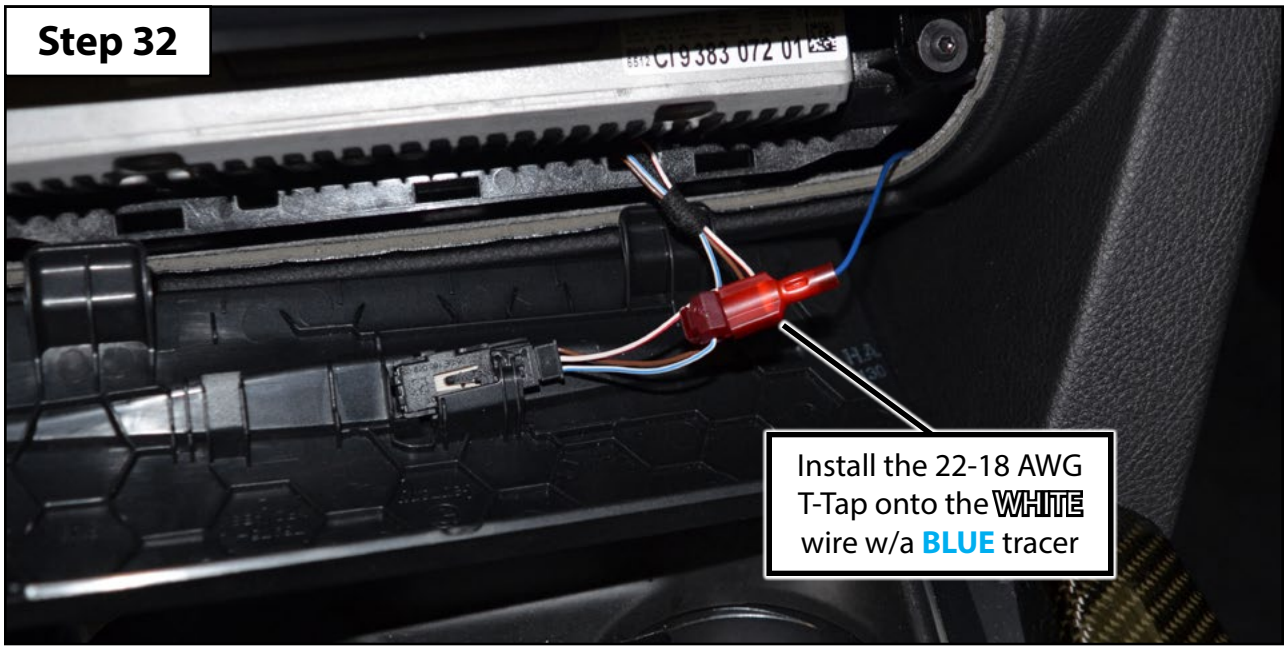
Section 3: Installing the Vent Pod and Gauge

Step 31

- Our final connection is the 12V lighting circuit. One of the easiest places to tap into this circuit would be the small LED housing located directly beneath the HVAC controller.
- Grasp the housing and pull the top edge downward to release it.

Step 32

- Install the 22-18 AWG T-Tap onto the **WHITE** wire with a **BLUE** tracer.
- Crimp the final 22-18 AWG spade connector onto the **BLUE** wire extension from the power harness.
- Connect the spade connector to the T-Taps using the **Step 32** photo below for reference.
  - Firmly support the T-Tap from behind as you push the spade connector into place, these are a tight fit so you will have to push fairly hard to fully seat the spade connectors.
- Confirm proper operation of the boost gauge.
- Secure all wires and lines out of the way as required.
- Reassemble all vehicle components in the reverse order of removal.



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