BMW F22 228i, F3X 328i/428i N20 Performance Module

Introducing the Turner Performance Module! This tuning module plugs in ahead of the engine computer on the wiring harness. It's not the run-of-the-mill 'piggy-back' style upgrades you find for less. Inside our module is a sophisticated control unit that is designed to complement and work with the factory ECU. This unit intercepts the signals from the boost pressure sensors and the camshaft position sensor to alter the ECU perception of load. The ECU then adjusts parameters such as fueling, ignition, and others to reach the desired load levels, resulting in more horsepower and torque. The harness has factory-style weather-proof plugs to connect in-line with each boost pressure sensor and the camshaft position sensor on the engine. All of the factory safeguards remain in place, including overload protection and warm-up protocols to preserve longevity and factory drive-ability, and this type of system is unaffected by factory BMW updates and service.

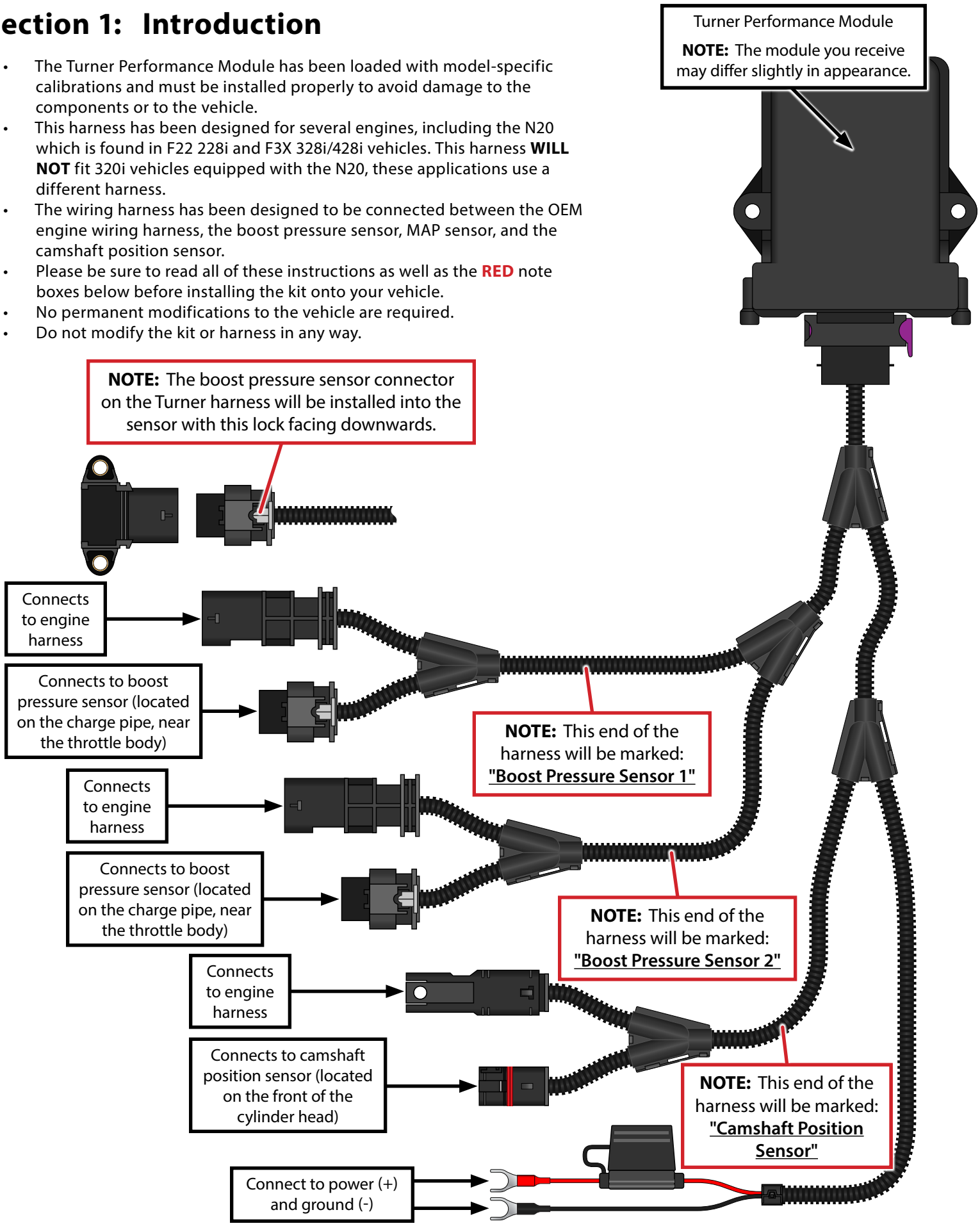
If you're looking for a substantial bump in power output, with minimal downtime for installation, full serviceability, and easy conversion back to stock, then the Turner Performance Module is unbeatable!

Installation time: 1 hour

These installation instructions have been broken up into several sections:

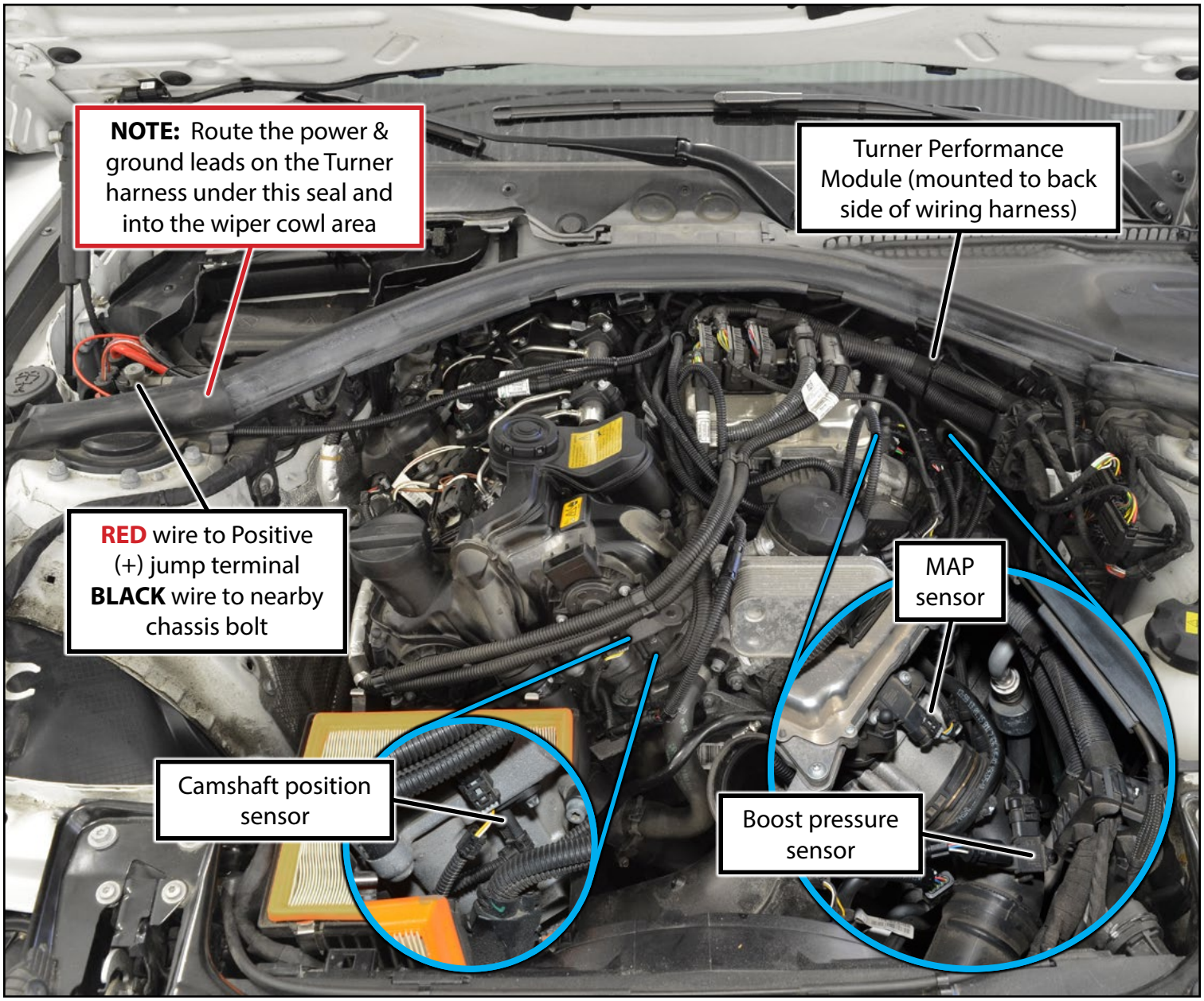
Section 1: Introduction

- The Turner Performance Module has been loaded with model-specific calibrations and must be installed properly to avoid damage to the components or to the vehicle.
- This harness has been designed for several engines, including the N20 which is found in F22 228i and F3X 328i/428i vehicles. This harness **WILL NOT** fit 320i vehicles equipped with the N20, these applications use a different harness.
- The wiring harness has been designed to be connected between the OEM engine wiring harness, the boost pressure sensor, MAP sensor, and the camshaft position sensor.
- Please be sure to read all of these instructions as well as the **RED** note boxes below before installing the kit onto your vehicle.
- No permanent modifications to the vehicle are required.
- Do not modify the kit or harness in any way.



Section 2: Overview

- We will be showing you one specific mounting location for the Turner Performance Module in these instructions, you can choose any suitable location (one option would be in the empty space underneath the rain tray cover).
- When selecting a mounting location for the module, be sure that the answers to the following questions are **YES**:
  - Will the module be easily accessible if you want to install the valet plug and bypass the module?
    - More information on the valet plug can be found on Page 8.
  - Will the module be adequately protected from water, surrounding components, or anything else which could damage it?
  - Can the wiring harness be safely routed to this location without stretching it, or modifying it in any way?
- Reference the photos below for component locations, then proceed to the next page for installation instructions.



Section 3: Installation Instructions

Step 1

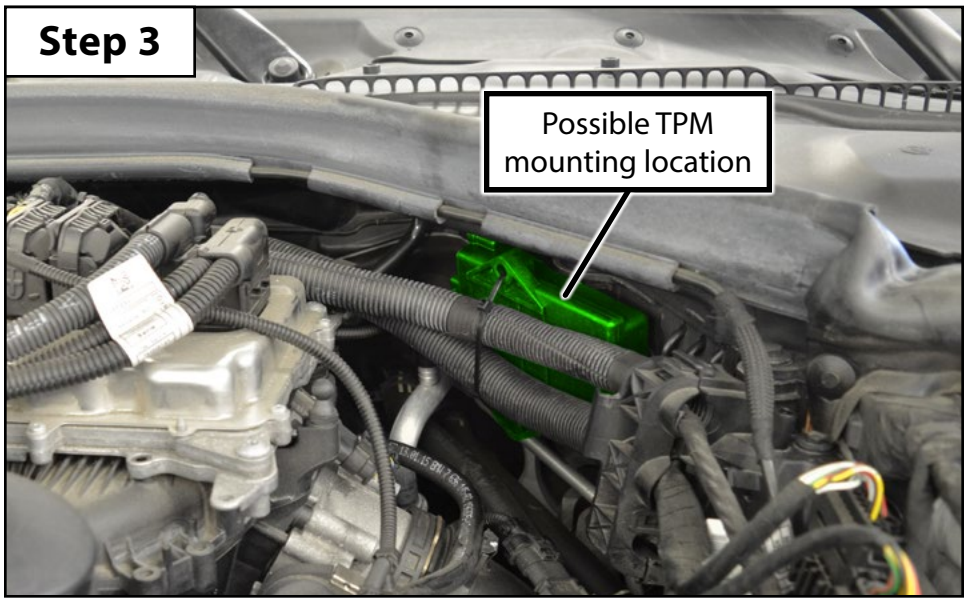
- Turn the ignition off and remove the key from the dash.
- **Disconnect the negative (-) battery terminal.**
- Wait for the engine to cool down.
- Remove the engine cover.

Step 2

- The Turner Performance Module can be mounted by routing a zip tie through the mounting hole.
  - **NOTE:** Discharge any static electricity by grounding yourself on a large metal object (tool chest, engine lift, etc.) ***BEFORE*** handling the Turner Performance Module.

Step 3

- Select a mounting location for the Turner Performance Module (highlighted in **GREEN**).
  - The **Step 3** photo below shows the module mounted to the wiring harness near the LH shock tower. This location offers sufficient protection, and provides a very clean overall install.
  - This is the location we will be utilizing for these instructions, but you can mount the module anywhere in the engine compartment or wiper cowl as long as the wire leads will reach their respective connections.



Section 3: Installation Instructions

Step 4

- Locate the MAP sensor on the intake manifold, just above the throttle body.
- Release and disconnect the OEM wiring harness plug (highlighted in **RED**) from the MAP sensor.

Step 5

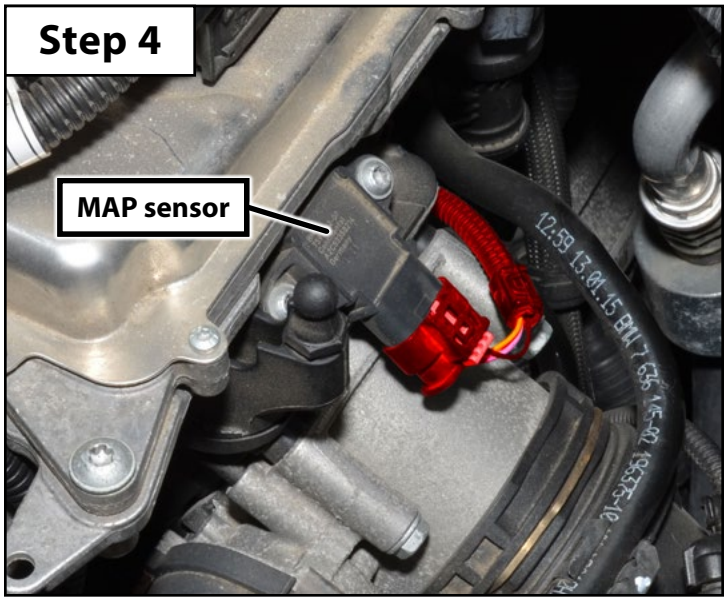
- Connect the OEM wiring harness plug (**RED**) to the female lead on the Turner harness (**BLUE**).
- Connect the male lead on the Turner harness (**BLUE**) to the MAP sensor.
- Slide the gray locking tabs forward on both of the male connectors to secure them in place.

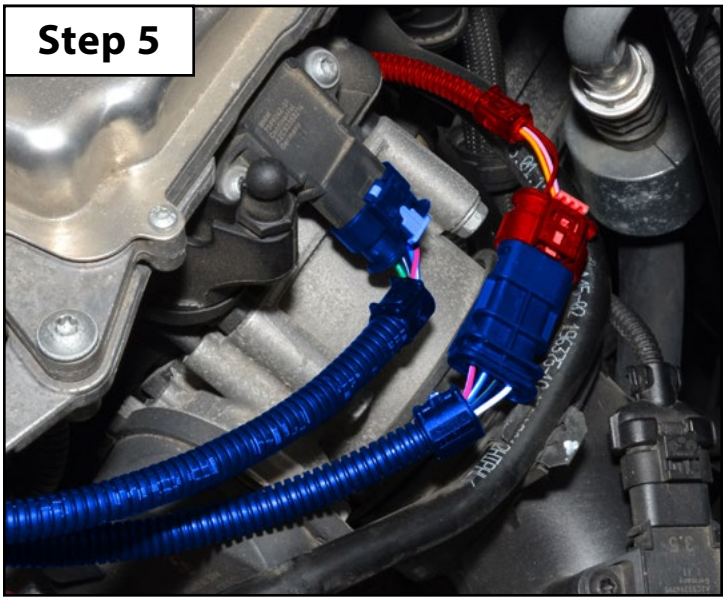
Step 6

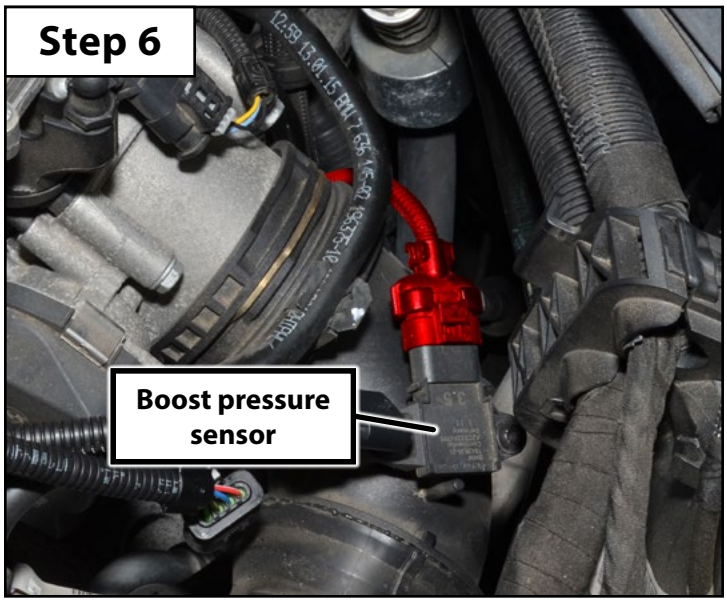
- Locate the boost pressure sensor on the intake charge pipe just before the throttle body.
- Release and disconnect the OEM wiring harness plug (highlighted in **RED**) from the boost pressure sensor.

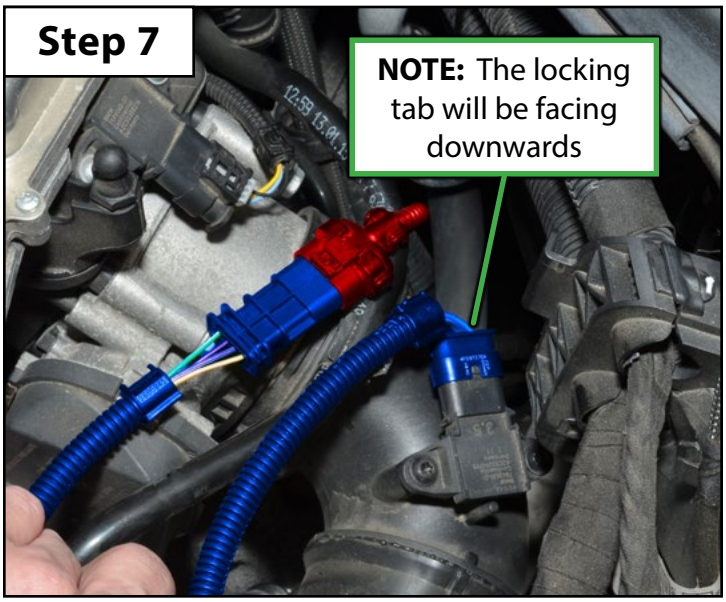
Step 7

- Connect the OEM wiring harness plug (**RED**) to the female lead on the Turner harness (**BLUE**).
- Connect the male lead on the Turner harness (**BLUE**) to the boost pressure sensor.
- Slide the gray locking tabs forward on both of the male connectors to secure them in place.









Section 3: Installation Instructions

Step 8

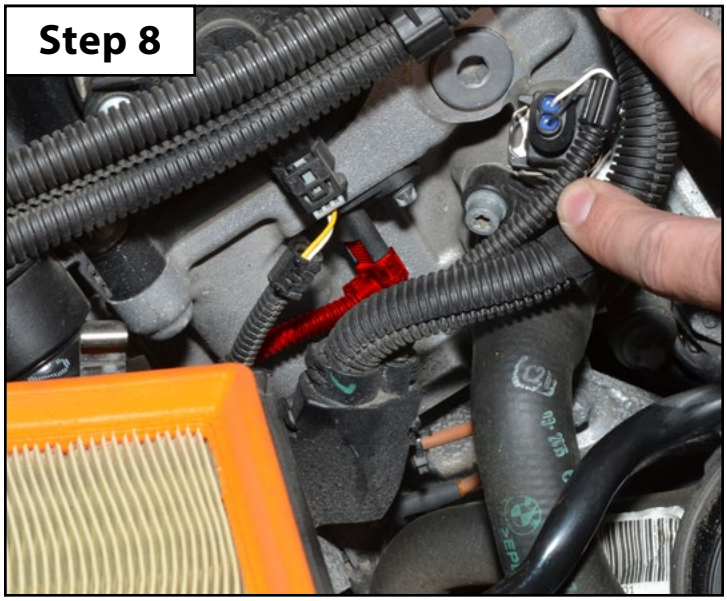
- Locate the camshaft position sensor on the front of the cylinder head.
- Release and disconnect the OEM wiring harness plug (highlighted in **RED**) from the sensor.
  - There isn't a lot of room to work around all of the surrounding components.

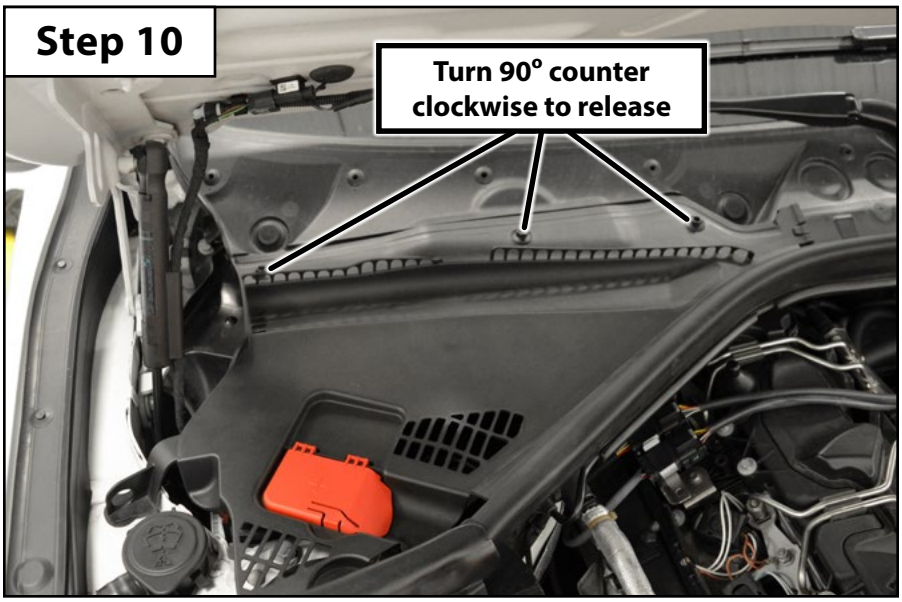
Step 9

- Connect the OEM wiring harness plug (**RED**) to the female lead on the Turner harness (**BLUE**).
- Connect the male lead on the Turner harness (**BLUE**) to the cam position sensor.

Step 10

- Working on the RH rain tray cover, turn the 10mm plastic nuts 90° counter clockwise to release them.
- Lift the RH rain tray cover out and set it aside.

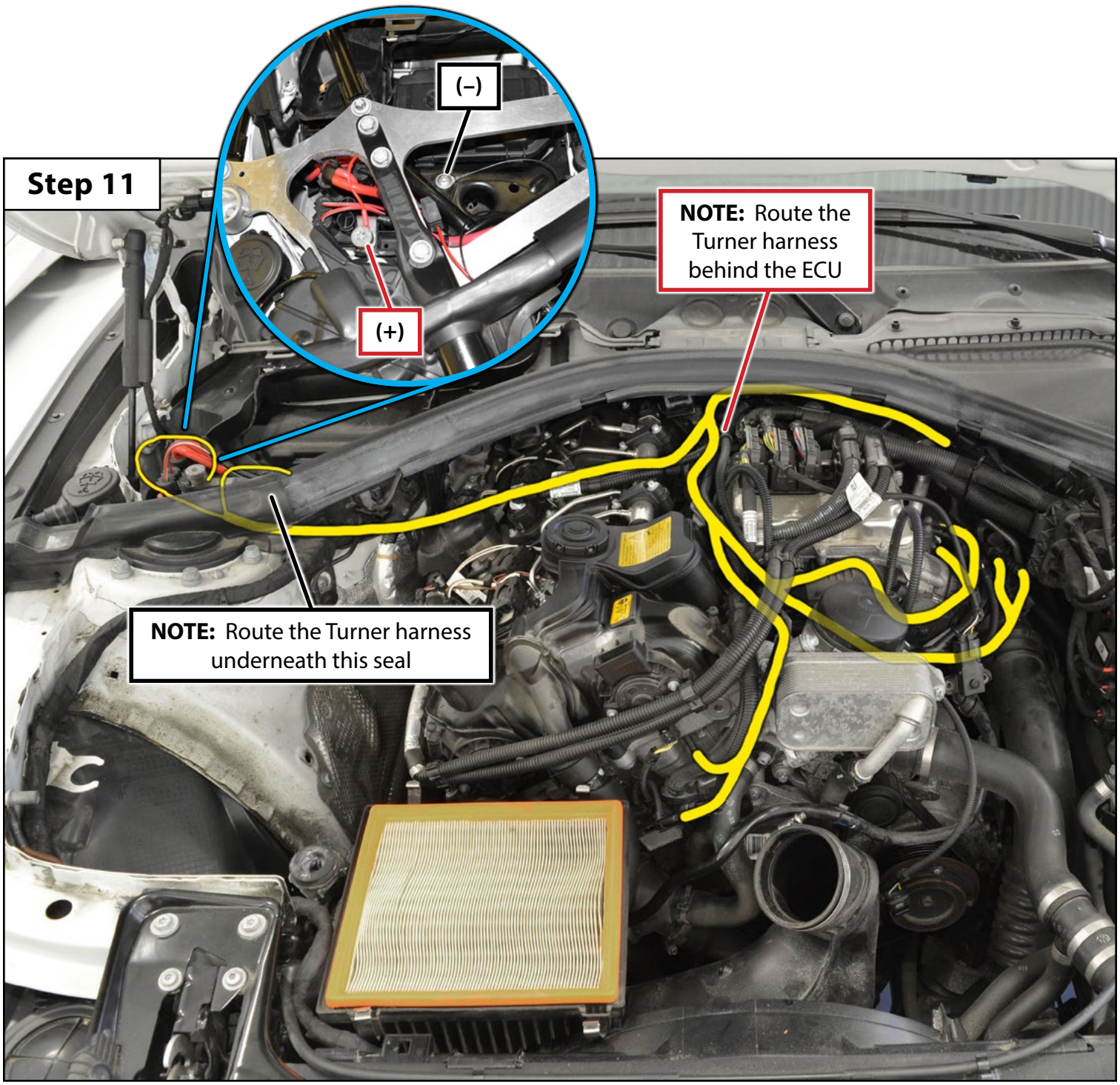




Section 3: Installation Instructions

Step 11

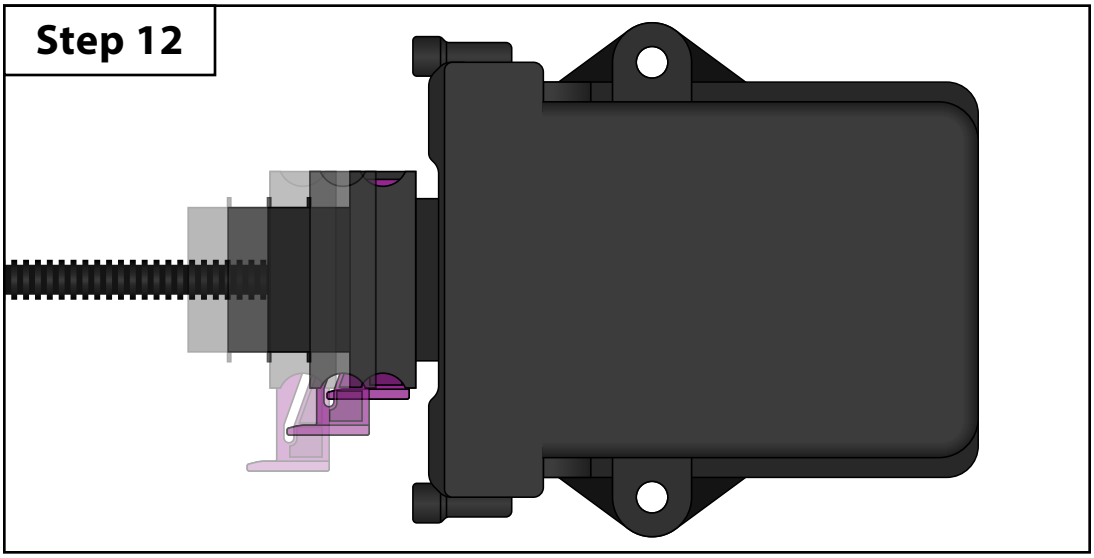
- Route the Turner harness in a manner similar to what is shown in the photo below.
  - The goal here is to route the harness away from any moving or hot components.
  - Use zip ties to secure the harness out of the way wherever necessary.
  - Be sure to route the harness behind the ECU and underneath the wiper cowl seal as noted below.
- Route the power (+) wire up to the jump post located just behind the RH shock tower (see inset photo).
- Install the power (+) wire underneath the jump terminal nut.
- Route the negative (-) wire up to the nearby chassis brace bolt behind the RH shock tower.
- Install the negative (-) wire underneath the bolt.



Section 3: Installation Instructions

Step 12

- Extend the purple sliding lock on the large plug of the Turner harness, then connect it to the Module (the connector will only go in one way).
- Next, push on the purple lock to secure the plug to the Module, once it is fully seated the plug should not come disconnected (test this by gently tugging on the black connector).
- Double check all of your connections.
- Reinstall any components that you removed or loosened in the reverse order of removal.
- Check that the harness is secured out of the way of any moving or hot components.
- Enjoy your new power responsibly.



Section 4: Valet Connector Operation

Step 1

- The Valet connector is used to bypass the tuning module and revert the tuning back to stock. With the Valet plug installed the ECU will use the stock maps instead of getting modified data from the Turner module.
  - To use the Valet connector, unplug the Turner module from the wiring harness by releasing the purple sliding lock, then plug in the Valet connector to the harness and secure with the sliding lock.