DPS Turbonator VGT/VNT Variable Geometry Turbine Instruction Manual

DPS Turbonator VGTVNT Variable Geometry Turbine

Contents

Wiring Harness

Step 1: Lay the main harness out on the floor, every connector can only connect to a specific connector. (Figure 1)

- You should have the following components that connect to the main harness.

1. Turbonator® VGT Microcontroller
2. Two Pressure Sensors (Purple=Boost / Yellow = Exhaust)
3. Main Harness
4. Exhaust Brake Adapter (One of three styles included)
5. Turbo Adapter
6. Exhaust Switch with USB Connector

Step 2: Connect the harness on the floor in order to associate each piece.

- **Figure 1:** Main Harness (Unassembled)
- **Figure 2:** Microcontroller (Turbonator® VGT Controller)

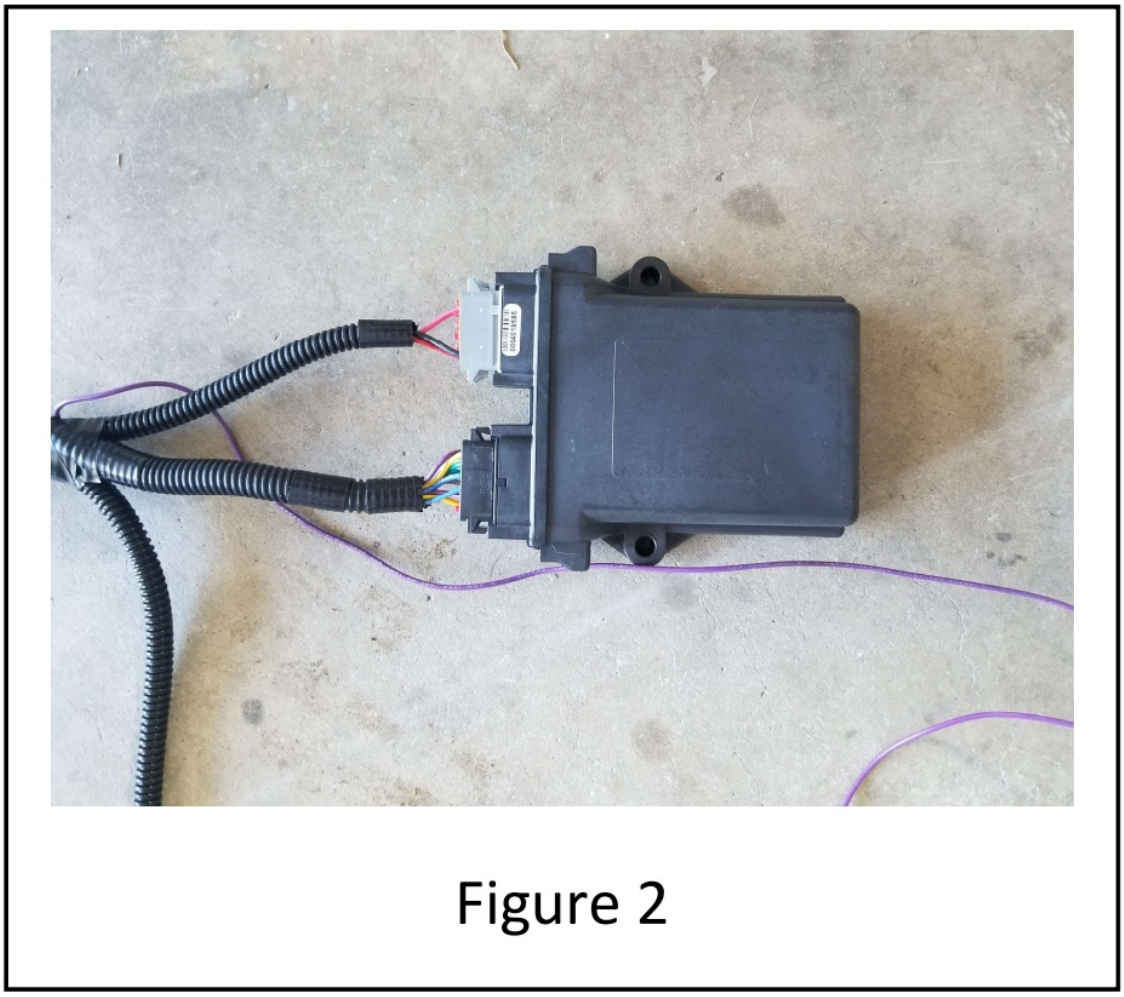


Figure 2

- **Figure 3:** Exhaust brake switch and USB adapter

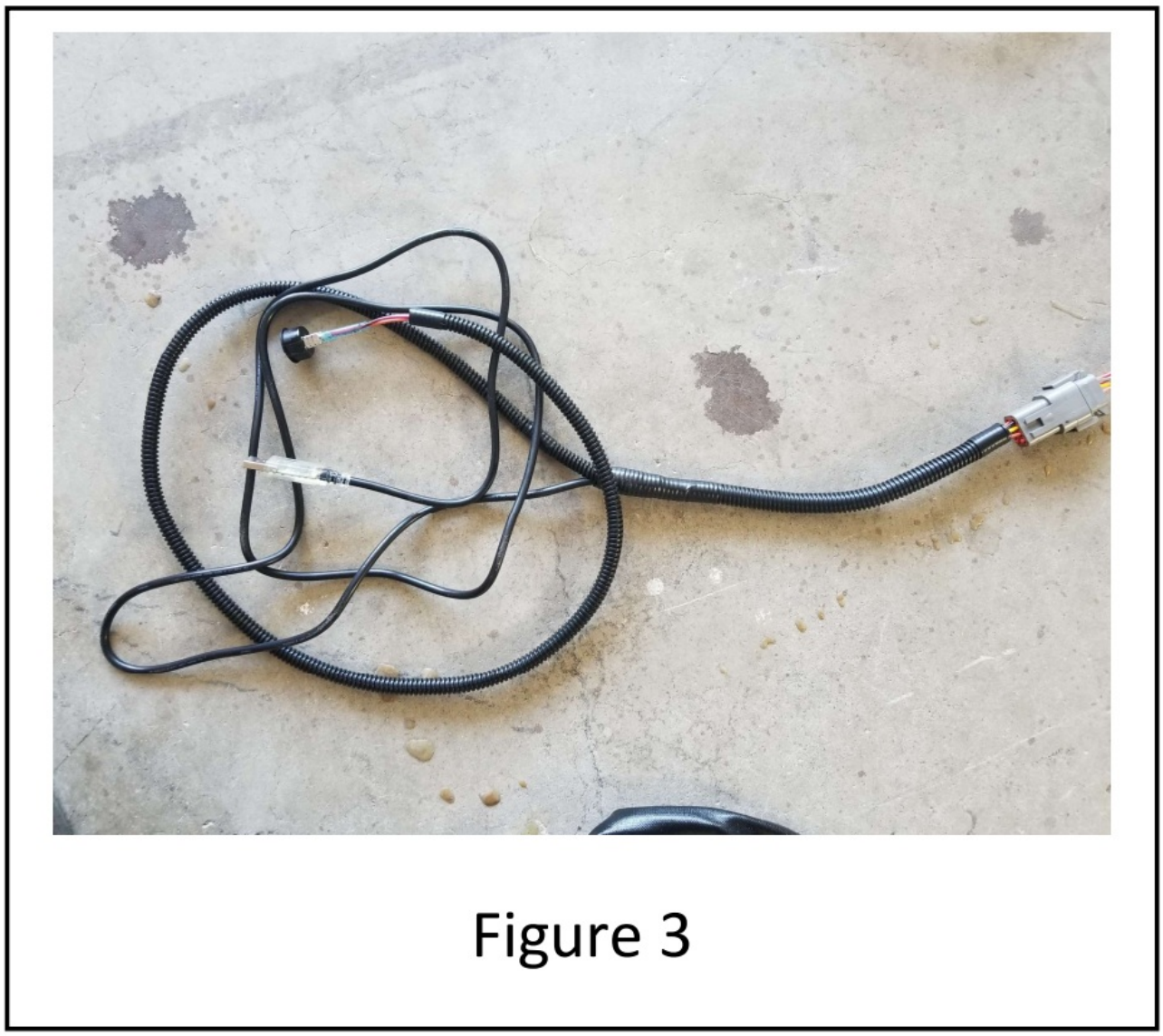


Figure 3

- **Figure 4:** 2003-07 Dodge Cummins (C/R) and Universal Exhaust Brake Adapter

Figure 4

- **Figure 5:** 1998.5-02 & 2007.5-18 Cummins Exhaust Brake Adapter (Yellow Wire)

Figure 5

- **Figure 6:** 10 Amp Fuse in Fuse Holder

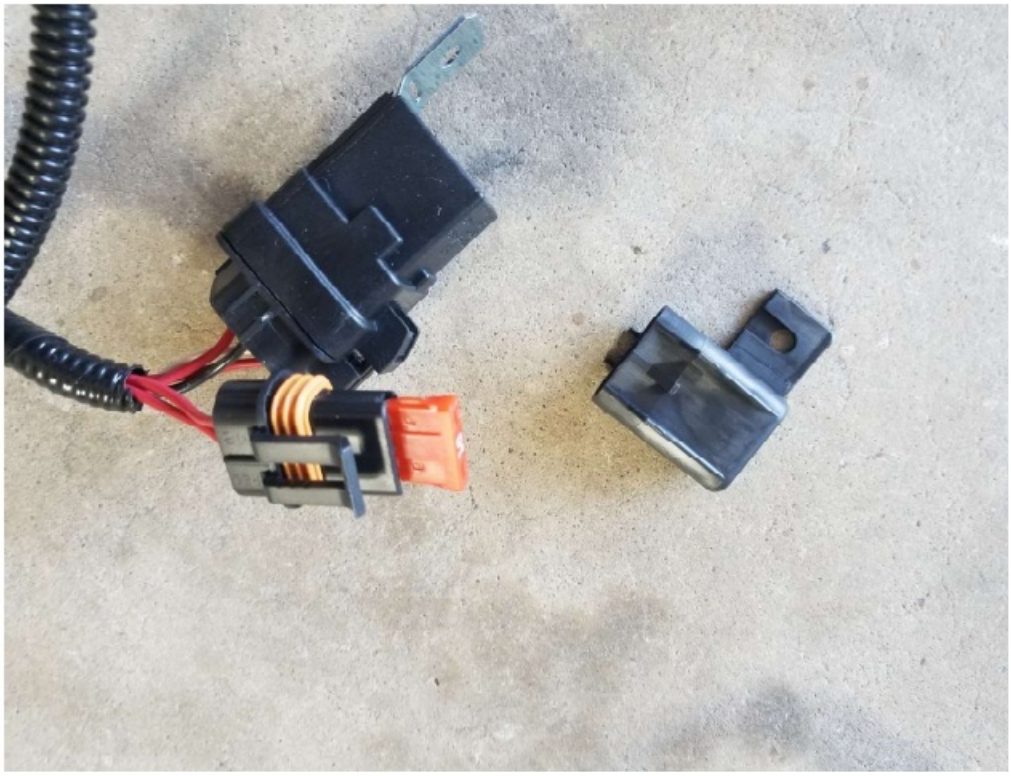


Figure 6

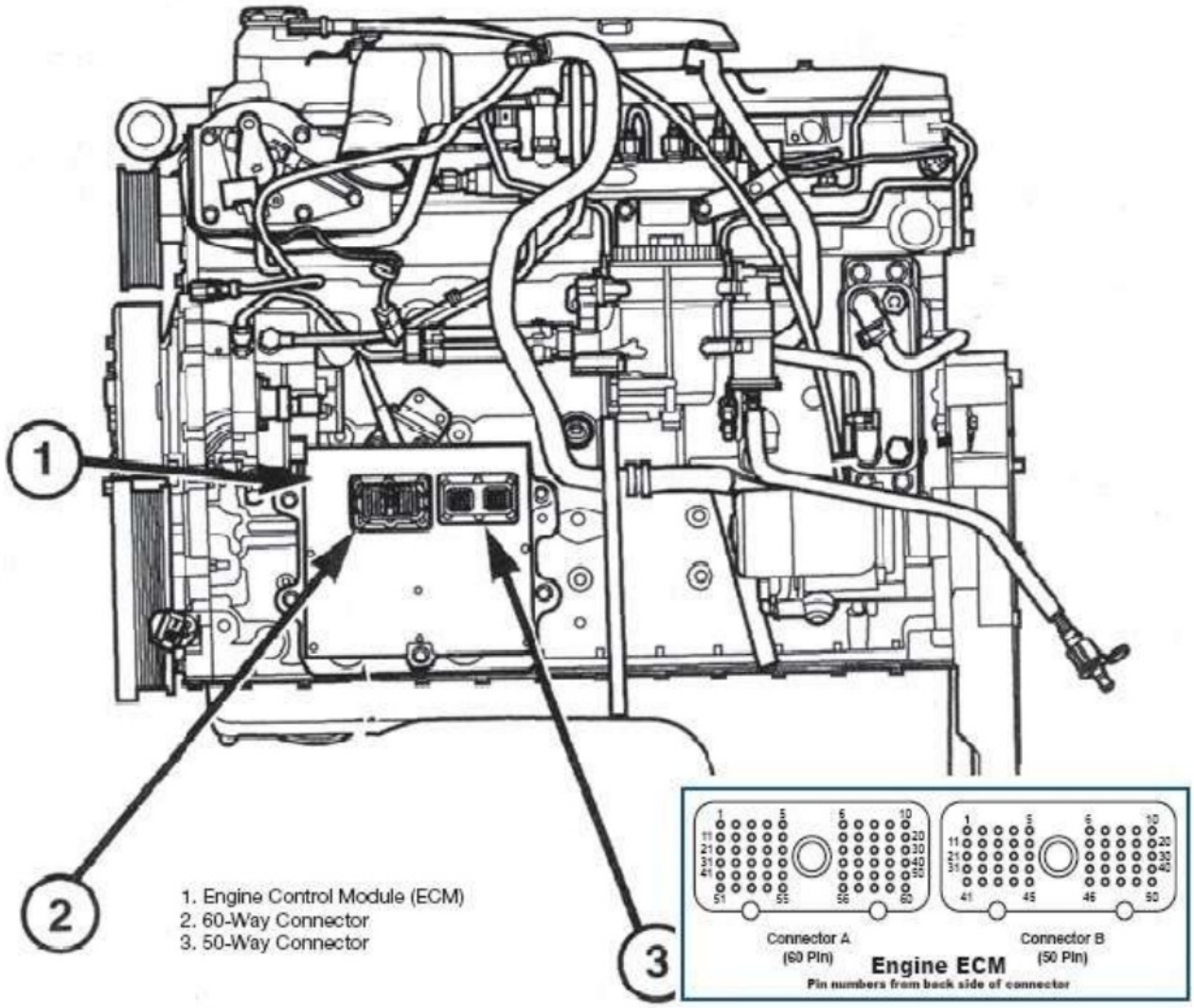
1. The harness is very simple to understand and connect.
2. Lay the cords out on a floor and simply connect the same color to the same color connector, (grey to grey) of the same type connector.
3. Attach battery power as follows: BLACK ring to ground and the RED to Positive terminals of the battery.
4. Attach the ACC wire to your accessories power (usually in your fuse panel).
5. Pull the toggle switch and USB cables into the cab, through the firewall.
6. Plug in the sensor wires (PURPLE=Boost Sensor / YELLOW=Exhaust Sensor).
7. Plug in the Actuator wire to the actuator. Make sure actuator wire is securely fastened (DO NOT BUMP OR BEND THE ACTUATOR, MISALIGNMENT CAN OCCUR).
8. **Note:** DO NOT LOOSEN OR ADJUST THE ACTUATOR FROM THE HOUSING. It is configured to the housing it comes on. If you to need to reconfigure the actuator please call us at (801)930-8404.
9. Software can be downloaded from our Website **https://www.dieselpowersource.com/installation-instructions#** (choose “DPS Turbonator® Software) which can tune and control the actuator, but the control is pre-programmed from DPS, and is not required to connect to a computer to operate properly.

Note 1: The harness can be cut the harness, to ensure proper fitment.
Note 1: If any part of the harness is shortened. The wires must be soldered, and heat shrunk.

Caution 1: Take caution when cutting the harness. There may be 2 or more wires side by side with the same color code with different functions.
Caution 2: Only cut one branch at a time, once that branch is completed then move to another. Cutting more than one branch may cause issues identifying how the branches connected.

Exhaust Brake Wiring

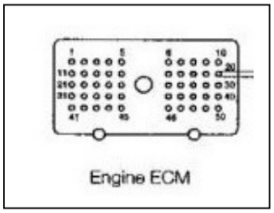
2003-2007 Dodge 5.9 Common Rail



1. Locate the wires shown in Figure 4, which have the relay and two loose wires, with PIN labels.
2. Locate the ECM on the drivers side of the engine, remove bolt, disconnect the connector from the ECM, which contains the pins shown on the provided wires.
3. On the inside of the plug at the pin location there is a small piece of plastic to keep water out. Use needle nose pliers and pull the plastic piece out.
4. Push the two new pins into the connector until they click.
5. Plug connector back into the ECM and tighten bolt.

1998.5-2002 Dodge 5.9 VP44

1. Locate the ECM on the drivers side of the engine, remove bolt, disconnect the connector from the ECM.
2. On the inside of the plug at pin 20 there is a small piece of plastic to keep water out.
   Use needle nose pliers and pull the plastic piece out.
3. Push the Yellow single wire into the plug from the wire side, until it clicks.
4. Plug connector back into the ECM and tighten bolt.



6.7 2007.5-2018 (Do not connect to indicated pin)

1. Connect the single yellow wire shown in figure 5, labeled PIN 20 into the wiring harness.
2. Run the wire end on the yellow wire into the cab.
3. Locate the factory Accelerator Pedal Position (APP) plug located just above the accelerator pedal.
4. Unplug the factory APP connector by pressing the release button.
5. Carefully peel back the protective sheathing to expose about 1½ inch of wires. If using a razor blade be very careful to not cut into the insulation on the individual wires.
6. On the factory APP plug, locate the factory Brown/Light Green wire, and use the provided wire tap to crimp into that wire.
7. Connect the yellow wire labeled PIN 20 to the wire tap.
8. Plug the factory connector back into the APP.

12 Valve Cummins & Universal Kit

Warning! Take extraordinary care when attempting to wire in a switch. The below information is only an example and is attempted at your own risk. You must ensure the switch does not affect operation of the pedal and the wires do not get cut or frayed during installation and operation.

The relay triggers 12 volt voltage, which could ground out to the vehicle if care is not take in. Grounding can cause

fire, vehicle or electrical damage, injury and or death.

Universal kit uses the same brake adapter as the 2003-2007 Dodge 5.9 Common Rail. Except, instead of connecting to an ECU, the 2 loose wires need to be shorted together in order to close the circuit.

Do not connect these wires to anything but each other through a switch

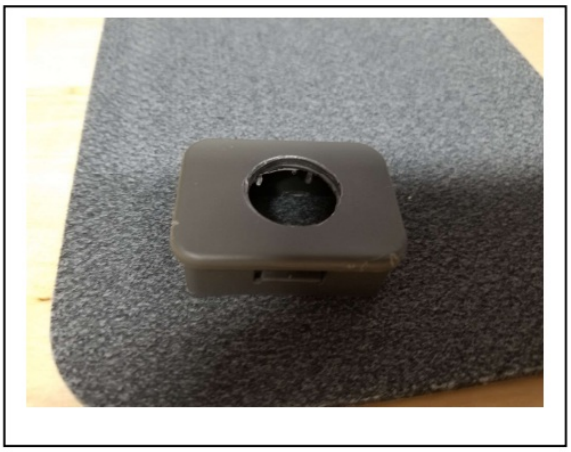
The goal is for the pedal to close the circuit to engage the exhaust brake. You can verify the pedal voltage in the software under Gauges / Voltages.

There are multiple ways you can do this

1. Attach a normally open, momentary microswitch, under your accelerator pedal. The pedal must press on the switch when your foot is off the accelerator. Then release the switch when your foot presses on the pedal.
2. Attach a microswitch to your injection pump, the injection pump must have a lever attached to your accelerator pedal and must follow the same description as in option 1.
3. Attaching a momentary switch to your manual transmission shifter. Attaching

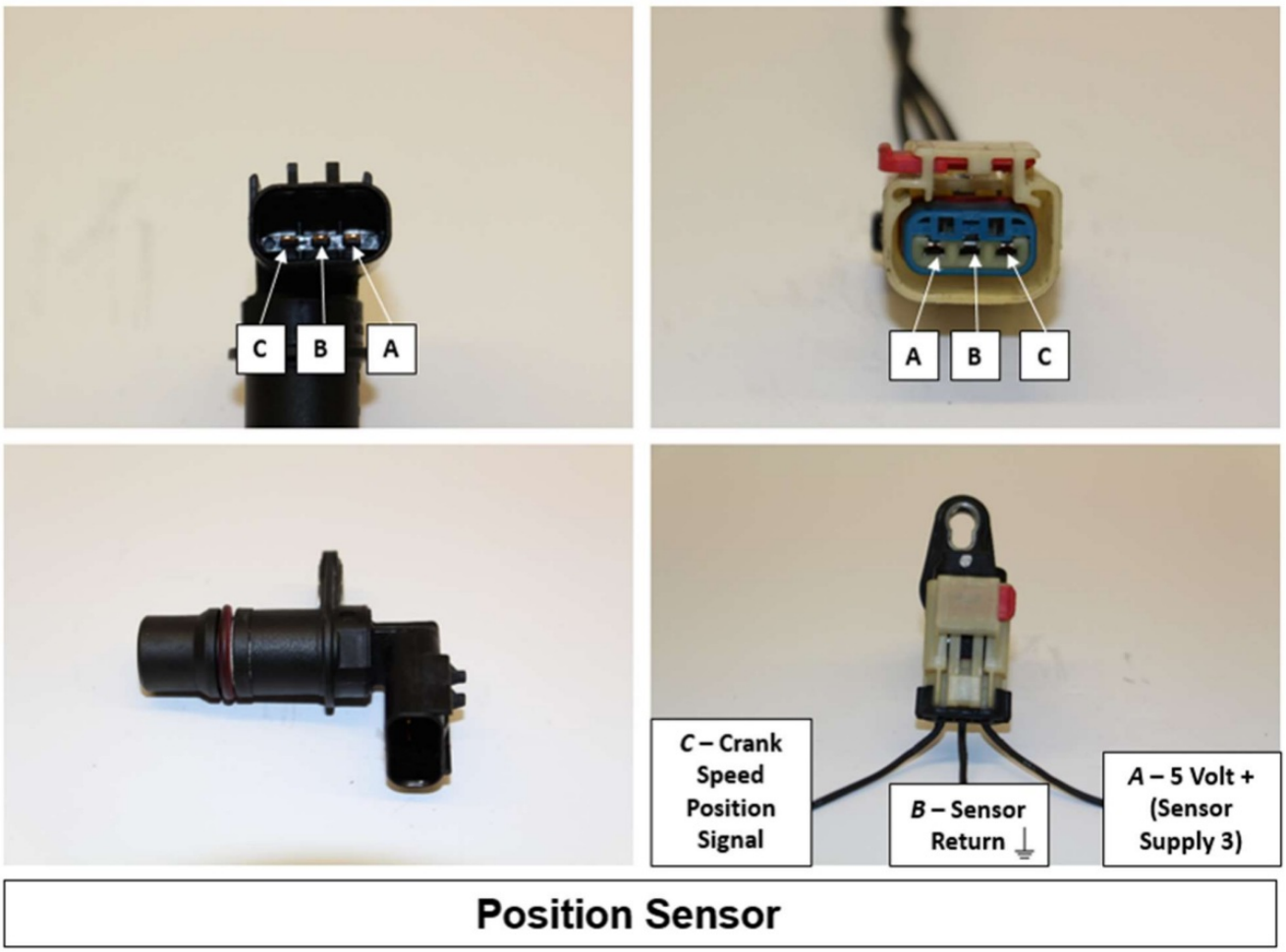
Exhaust Brake Switch

Step 1: Identify a desirable spot to mount the exhaust pressure switch



1998.5-2007 Dodge 5.9

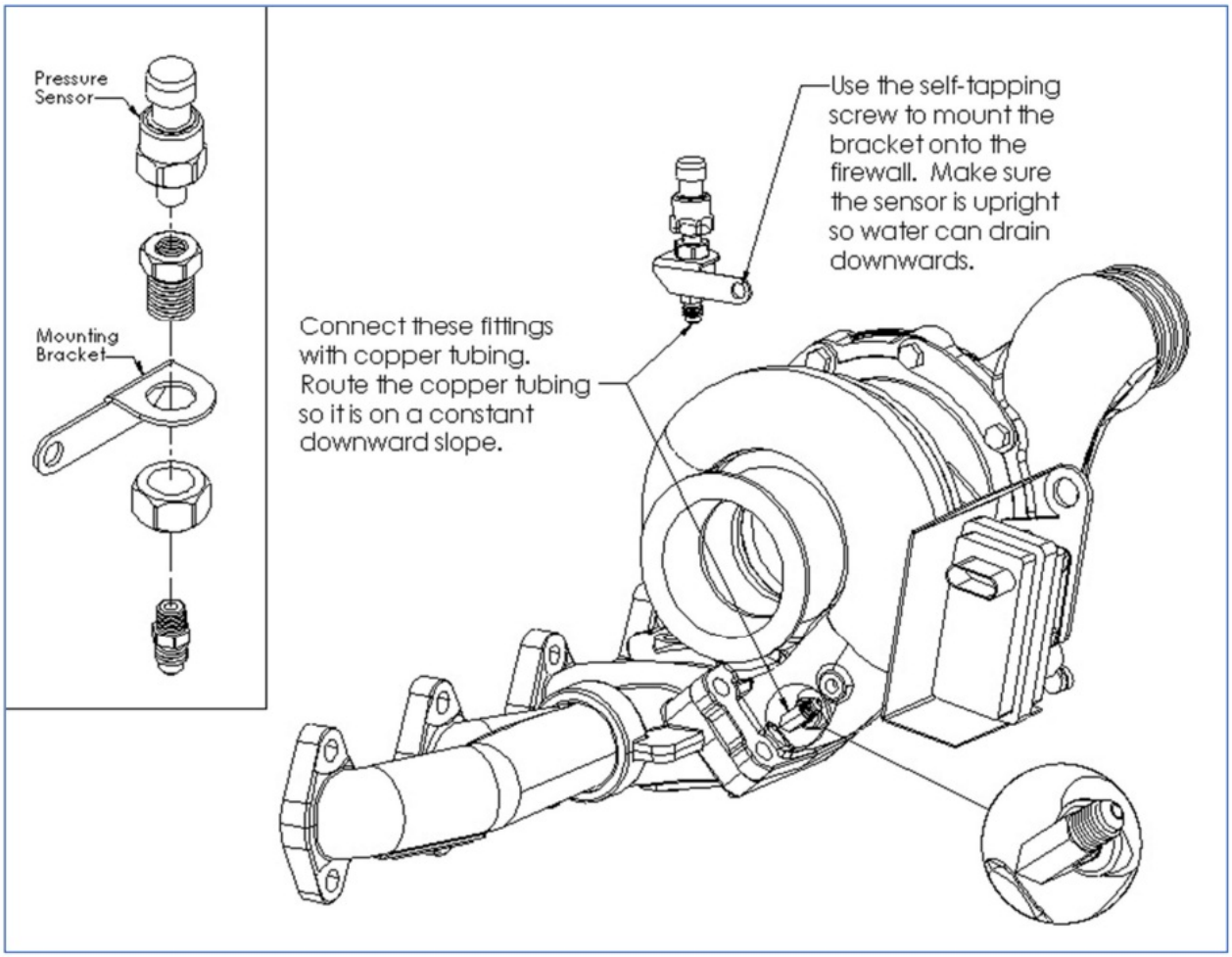
The Engine RPM Wiring is NOT necessary to connect to achieve correct VGT operation. It is only used for cold start help with warm up.



Position Sensor

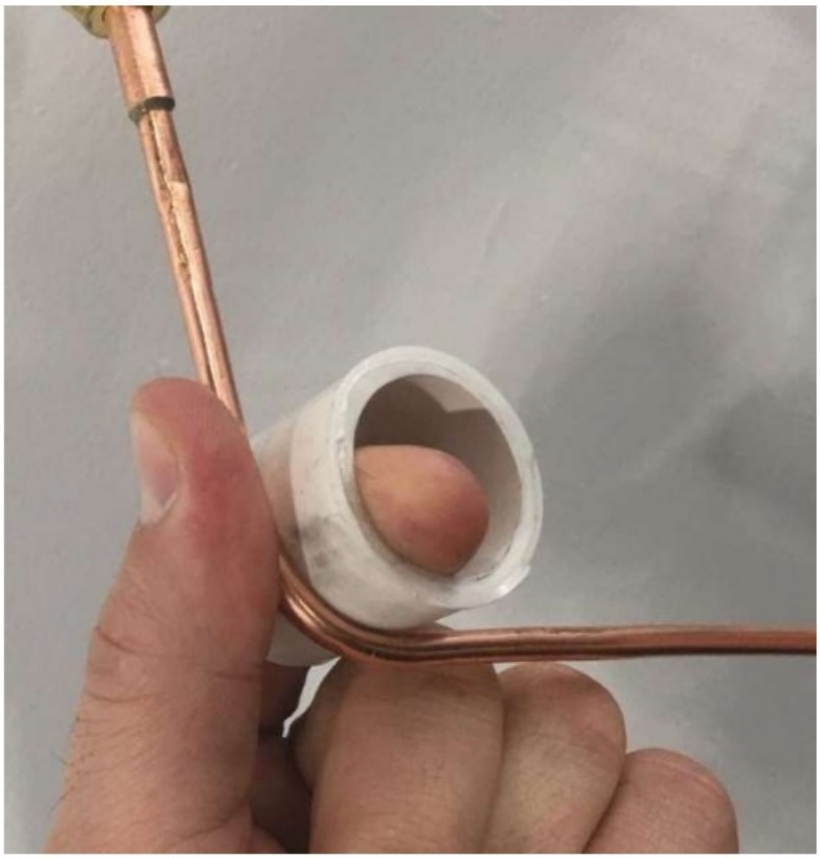
Exhaust Pressure Sensor Mounting Bracket Installation Instruction

1. Attach the pressure sensor mounting bracket onto the firewall using self tapping screw, in such a way that the pressure sensor is vertical (electrical plug side up). Condensation can occur in the copper tube and MUST BE MOUNTED UPRIGHT to drain the water away from the sensor.
   MOUNT SENSOR AWAY FROM EXHAUST COMPONENTS.
2. Route the copper tube in such a way that it is on a constant downward slope from sensor to turbine housing fitting. Use the provided PVC pipe as a mandrel to bend the tube around so it does not kink. (See the next page for pictures)
3. Attach the copper tube to the sensor and fitting in turbine housing and tighten.

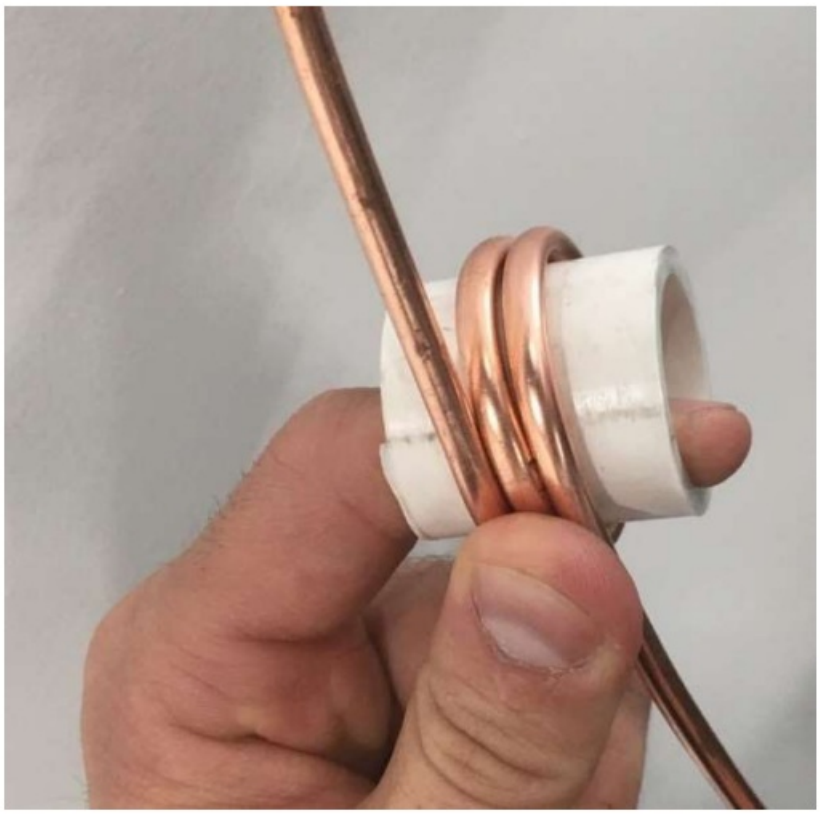


Bending instructions (only if necessary):

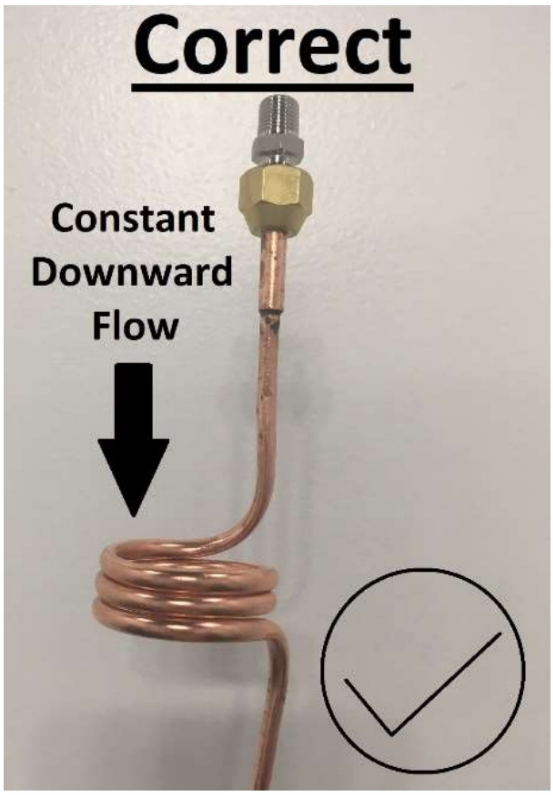
Route the new copper tubing from the pressure sensor fitting to the fitting installed in exhaust housing. Be careful not to kink the tube. Use 1.0-1.5 inch PVC pipe as a mandrel to bend the tube. Once the tube is bent, do not try to straighten or it could kink.



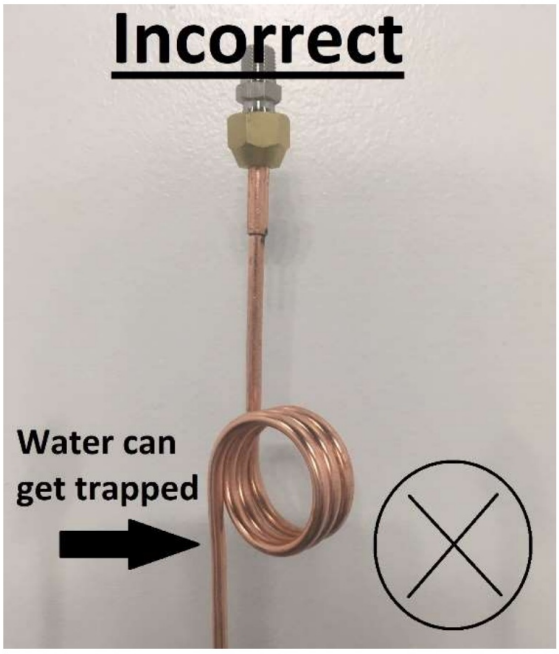
If the tubing is too long, it can be coiled around a pipe to shorten as needed.



Correct



Incorrect



Customers Support

DPS

Documents / Resources

	DPS Turbonator VGT/VNT Variable Geometry Turbine [pdf] Instruction Manual Turbonator VGT VNT Variable Geometry Turbine, Turbonator, VGT VNT Variable Geometry Turbine, Variable Geometry Turbine, Geometry Turbine