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Gen-II Secondary Air Injection System Bypass Kit

Tundra 4.0L 2007-2010



Introduction:

Before installing the bypass module, it is highly recommended to address codes not related to the SAIS. It is also important to inspect the wiring and make any necessary repairs for certain circuit-related fault codes. For the Gen-II kit to work correctly, the wiring, pins and connectors, as well as the engine control module (ECM), cannot be damaged. The related wiring is between the air switching valves, the air injection control drivers and the ECM. Further troubleshooting, pressure sensor replacement options or, in EXTREME cases, ECM replacement may be required if there is damage or if the vehicle has been driven for an extended period with circuit fault codes.

The Gen-II units emulate operation of the SAIS and allow you to clear your trouble codes/CEL, preventing the vehicle from entering limp mode. The Gen-II SAIS bypass module installs by replacing the factory air injection control drivers (AID) and by connecting to the air switching valves (ASV) and their factory harness. With the Gen-II unit and block off plates installed, air pumps, air tubes/plumbing and factory air injection control drivers are no longer required. Regardless of the bypass kit or SAIS, the vehicle still requires functioning pressure sensors as they are utilized by the engine control module (ECM) as barometric pressure sensors and as part of a sensor test involving the evap. system's pressure sensor. Because of this, the Gen-II unit will typically need the air switching valves to remain in place because these sensors are in them. If your air switching valve pressure sensors are damaged, you can replace them or use our Pressure Sensor Replacement Options (PSO). One PSO is needed for each damaged sensor. Once an air switching valve is replaced with a PSO, the ASV is no longer needed. If you have questions about the installation or use of this kit, please visit us at www.Hewitt-Tech.com to view our Trouble Codes and FAQ pages. You can also contact us directly using the information found on the "Contact Us" page.

You can also view our install videos on our YouTube channel by searching "Hewitt-Tech". Or, click [Hewitt Tech YouTube Channel](#) if you're viewing these instructions electronically. If you have questions about any part of the installation, kits or your codes, please call us toll-free at [1-844-307-7671](tel:1-844-307-7671) or email us at support@hewitt-tech.com.

Important: It is illegal to remove, dismantle or otherwise cause to be inoperative any pollution control device required by federal, state or local emissions law. The Gen-II bypass kits are sold for off-road or competition use only, no other applications are intended or implied. By installing or using this SAIS bypass kit, the vehicle owner and installer acknowledges and assumes ALL risks associated with its installation and use.

Needed for Installation:

- #2 Philips or Flat/Head Screwdriver
- 10mm ratchet/wrench
- Electrical tape
- Zip ties (optional)
- 0.5-1 hours



Installation Steps:

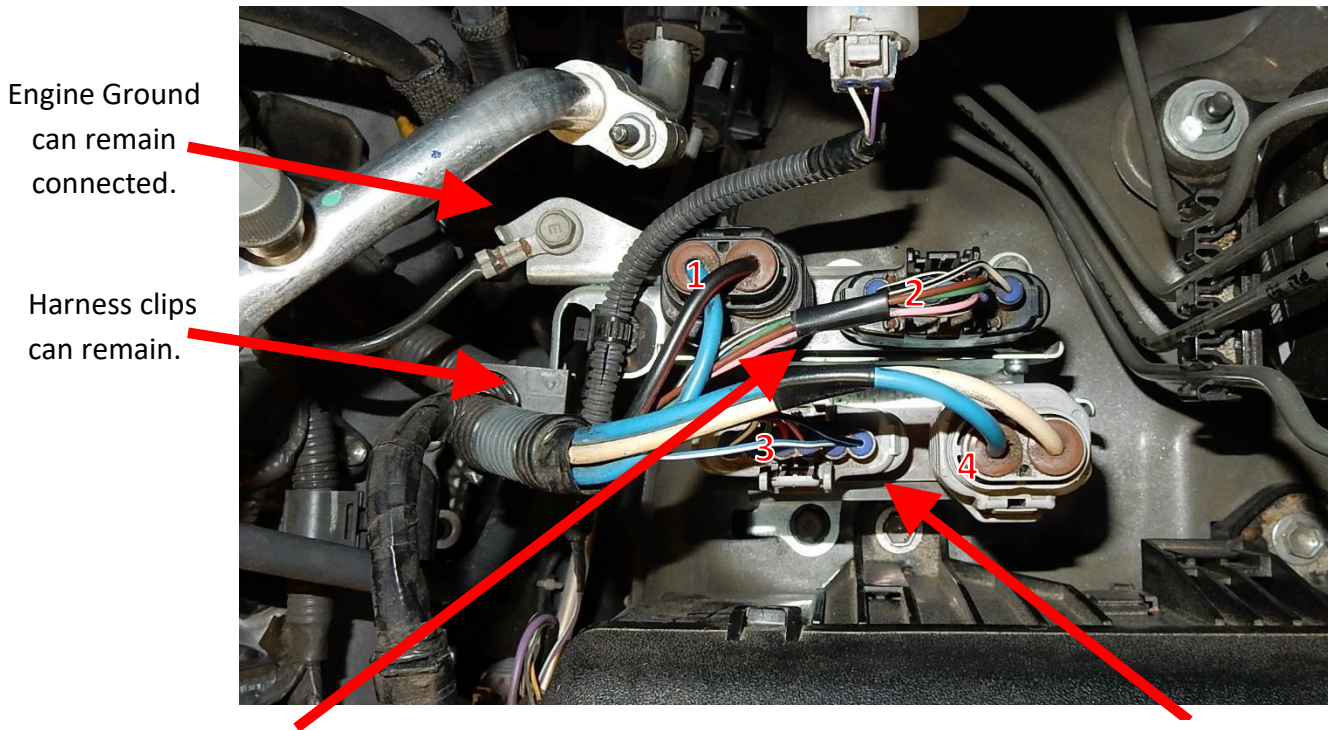
- 1) Open the hood and disconnect the negative battery terminal. This will reset the computer and trouble codes during installation. When resetting the computer this way, the engine may initially stall when first started and run rough until the computer has time to retune itself. This is perfectly normal and will correct itself in 5-10 minutes of idle or drive time.
- 2) Remove the engine cover from the top of the engine. Lift the front of the cover until it pops loose then pull forward to remove.



Figure 1 - Engine Compartment Viewed from Driver's Side Fender

- 3) Locate the air injection control drivers (AID) in the engine bay. The 4.0L Tundra has two air injection control drivers mounted on a bracket located on the inner driver side fender. They are in front of the brake booster/master cylinder and to the rear of the vehicle from the main fuse/relay box.

4) Disconnect all four connectors from the air injection control drivers (AIDs).



Bank 1 AID

Figure 2 - Bank 1&2 Air Injection Control Drivers

Bank 2 AID

5) Disconnect the brake master cylinder sensor. Install the custom blank plug caps into the two connectors labeled #1 and #4 in the figure above. The capped off connectors will remain disconnected. Tuck all the connectors out of the way to allow easy removal of the mounting bracket from the inner fender.

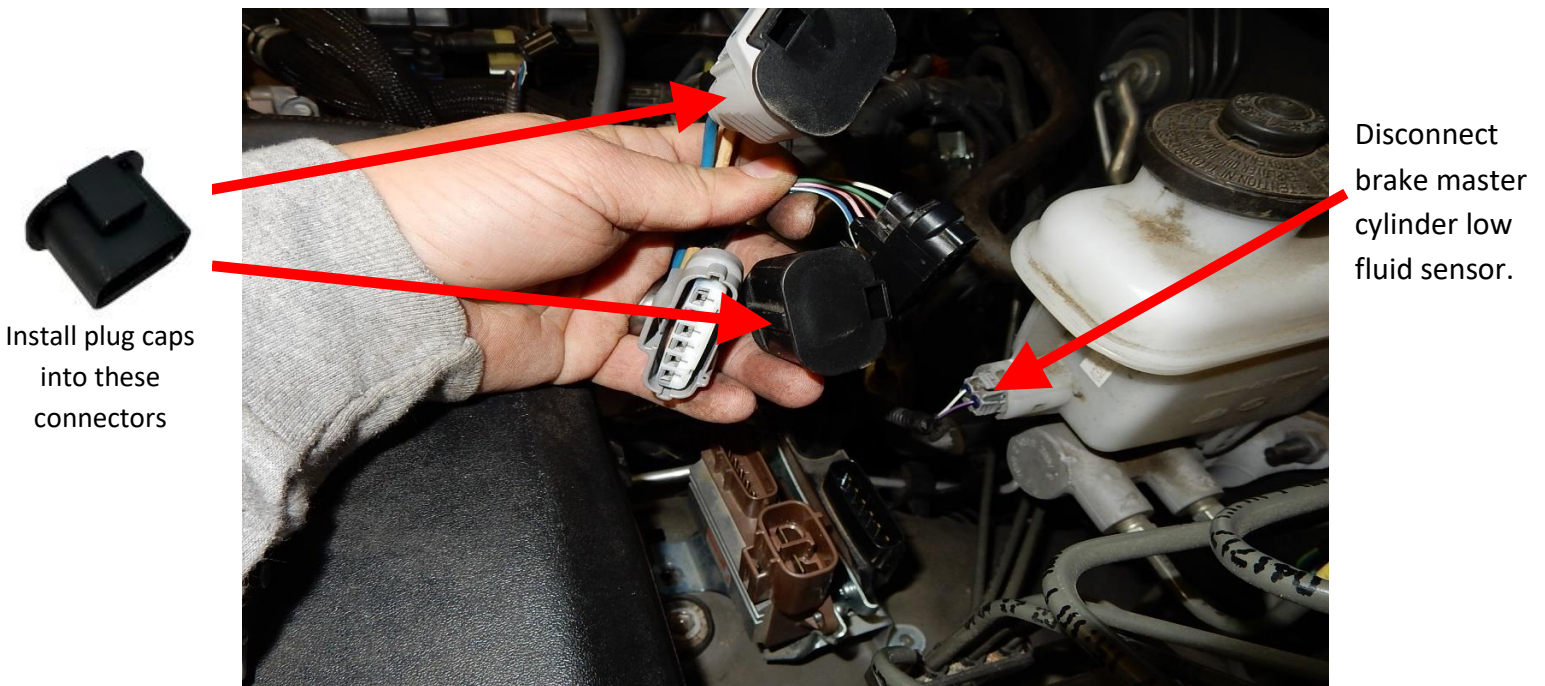


Figure 3 - Custom plug caps installed

- 6) Remove the AID brackets and factory AIDs.
 - a. Remove the three bolts securing the main bracket to the fender.
 - b. The harness clips and engine ground wire can be removed to allow the whole bracket to be removed from the vehicle for easier access to mount the Gen-II unit to the main bracket.
 - c. Unbolt and remove the Bank 2 AID/sub-bracket from the main fender bracket and set aside.
 - d. Remove the two Philips screws holding the Bank 1 AID to the main bracket set aside.
 - e. The factory AIDs and sub-bracket are no longer needed.

Note: If you do not completely remove the main bracket from the vehicle it is easier to mount the Gen-II unit to the sub-bracket.

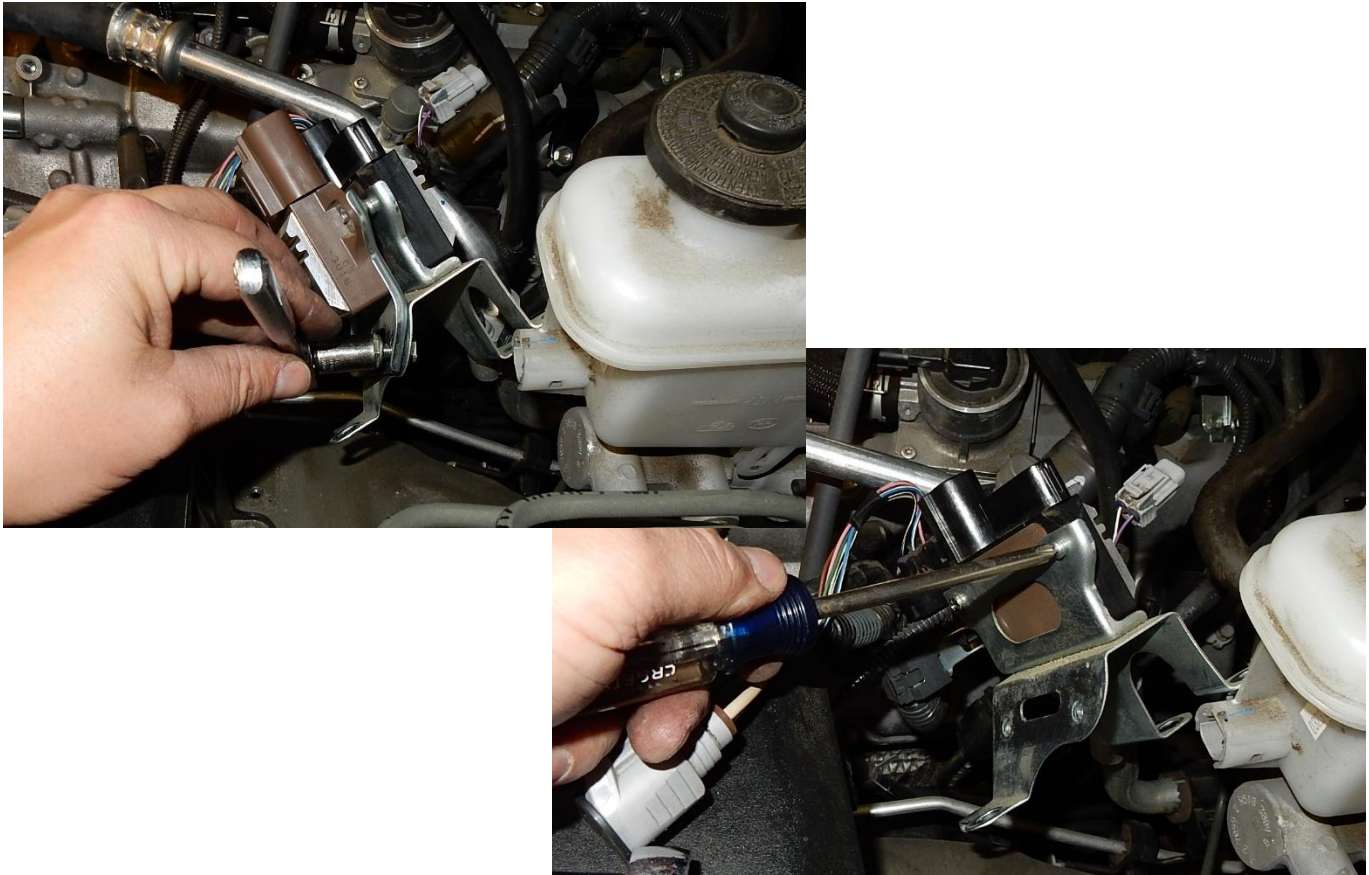


Figure 4 - Removing the air injection control drivers

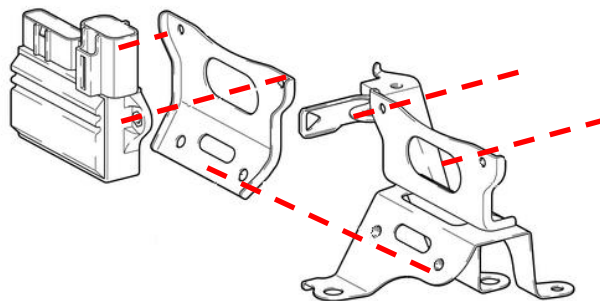


Figure 5 - Bank 2 AID and Mounting Brackets



Figure 6 – Gen-II mounted to the sub-bracket for easier installation

- 7) Using the included M4 x 0.7mm stainless steel nuts and screws;
Mount the Gen-II unit to the main AID bracket in place of the Bank 1 AID
OR
Mount the Gen-II it to the sub-bracket in place of the Bank 2 AID and bolt back to the main bracket.
- 8) Bolt the main bracket and Gen-II unit back to the fender. There should be no factory AIDs left installed on the vehicle.
- 9) Connect the black and gray factory AID harness connectors to the matching connectors of the Gen-II unit. Tuck or zip-tie the large capped-off connectors out of the way. At this point there should only be one smaller 6 pin connector left unconnected.
- 10) Reconnect the brake master cylinder, as well as the ground wire and harness clips if they were removed

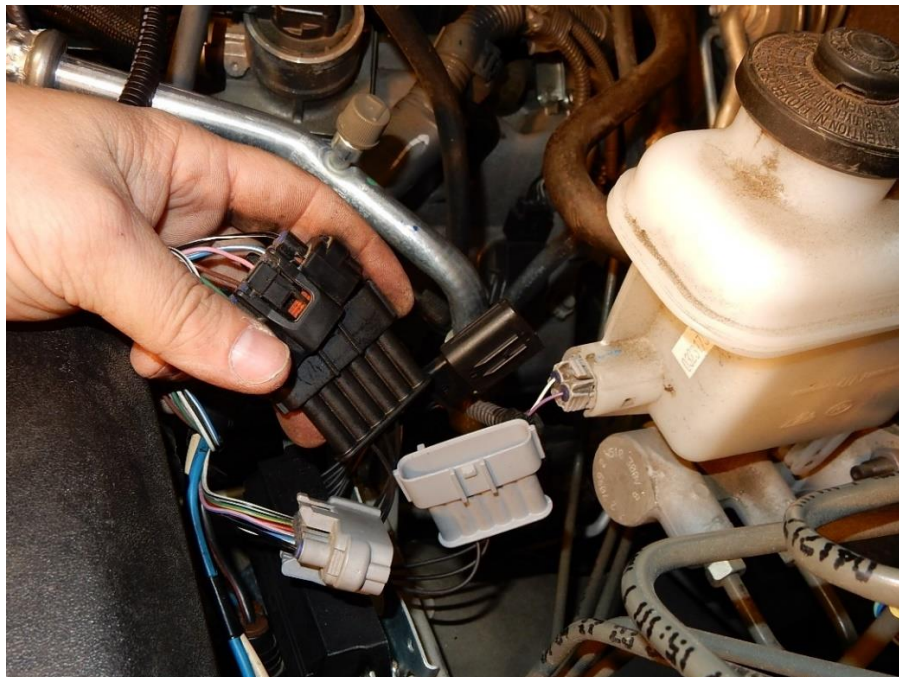


Figure 7 – Gen-II unit and connecting the AID connectors

11) Connect the Gen-II air switching valve harness to the remaining connector of the Gen-II unit.

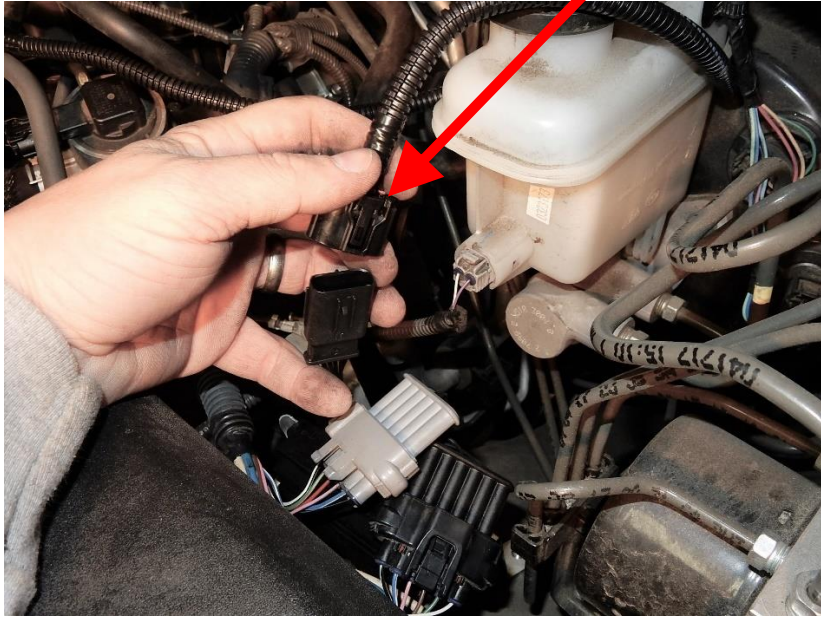


Figure 8 - Connect the Gen-II ASV harness to the Gen-II unit

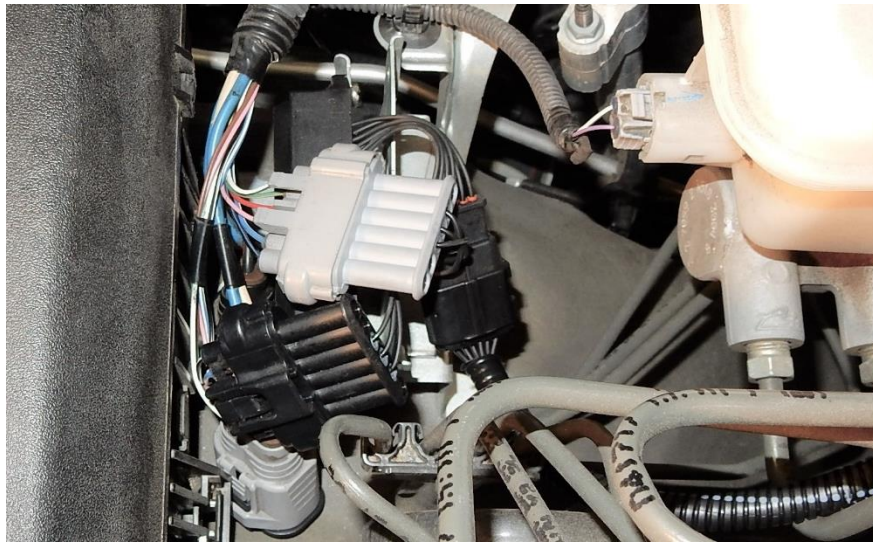


Figure 9 - Gen-II unit mounted on sub-bracket and completely connected

12) Route the harness from the Gen-II unit to the bank 1 and bank 2 air switching valves. The first set of connectors will go to the driver side ASV and the 2 connectors on the opposite end of the Gen-II unit will go to the passenger side ASV. Routing the harness around the back and over the top of the brake master cylinder to the first valve. From the bank 1 ASV on the driver side the rest of the harness can be routed along the firewall or simply over the top of the intake manifold. There should be enough harness that you can make a neat factory looking installation. Secure with zip-ties as needed.

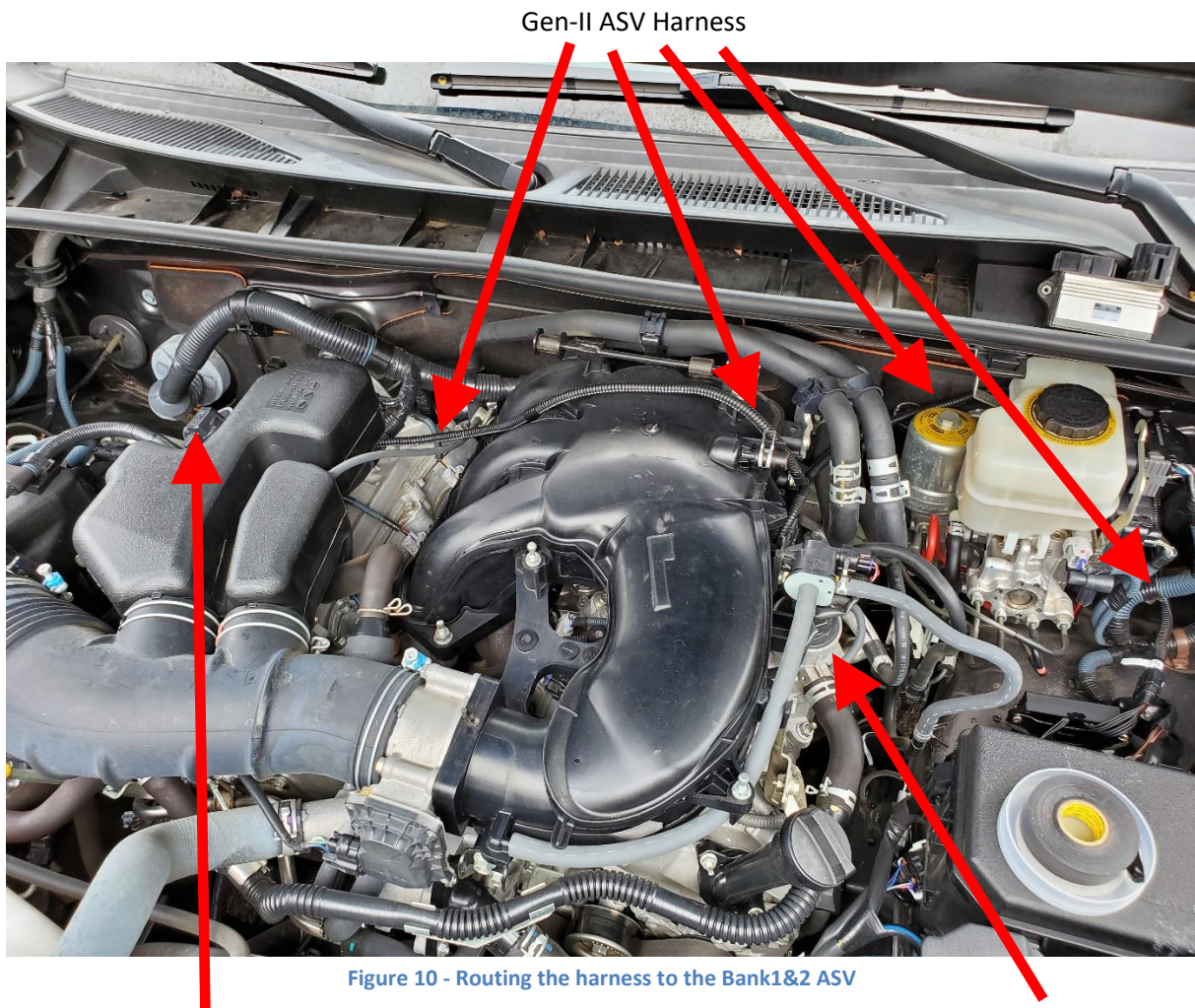


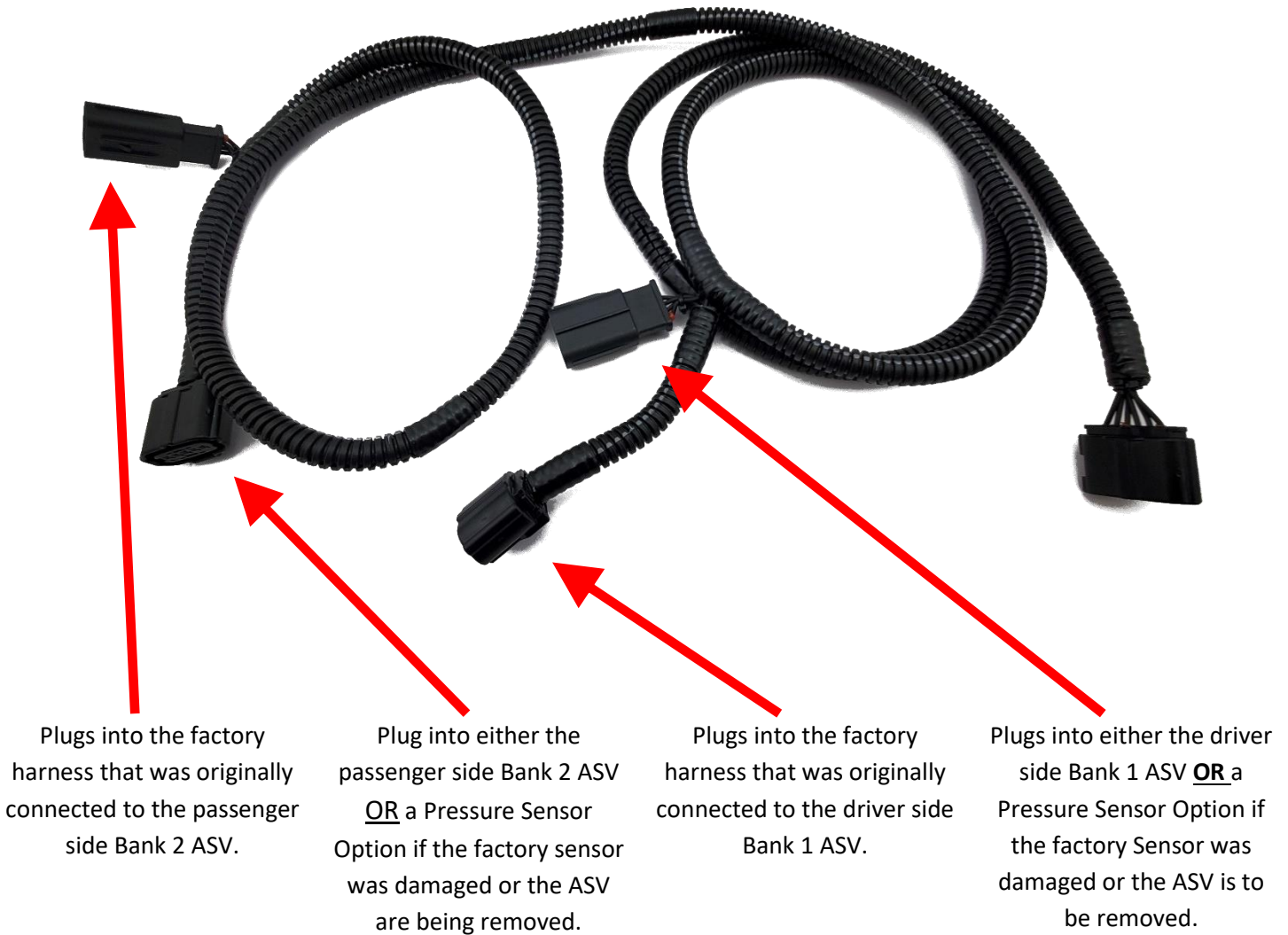
Figure 10 - Routing the harness to the Bank1&2 ASV

Passenger side ASV (bank 2)
– under/behind intake resonator

Driver side ASV (bank 1)

13) If you do not have damaged pressure sensor(s) or did not purchase Pressure Sensor Option(s) to allow removal of the factory air switching valves, make the connections below to the driver and passenger side ASV.

Figure 11 – 4.0L Gen-II Harness



14) **Important!** With the 4.0L Gen-II unit installed the ECM and Gen-II unit only requires one good ASV pressure sensor for proper operation. If you do not have a damaged pressure sensor plug all connectors of the Gen-II's harness into the vehicle according to figure 9 above.

If your bank 1 or bank2 ASV has a damaged pressure sensor leave that ASV disconnected from the Gen-II harness. In the case that both pressure sensors are damaged or you want to remove both ASVs from the vehicle you will need to plug a Pressure Sensor Option into the driver side connector in place of the bank 1 ASV and leave the Gen-II's connector for the bank 2 ASV disconnected. You can tape off the unused connector and zip-tie it out of the way.

Regardless of what is or isn't plugged into the ASV connector of the Gen-II's harness, both factory ASV harnesses must be plugged into the Gen-II's harness.

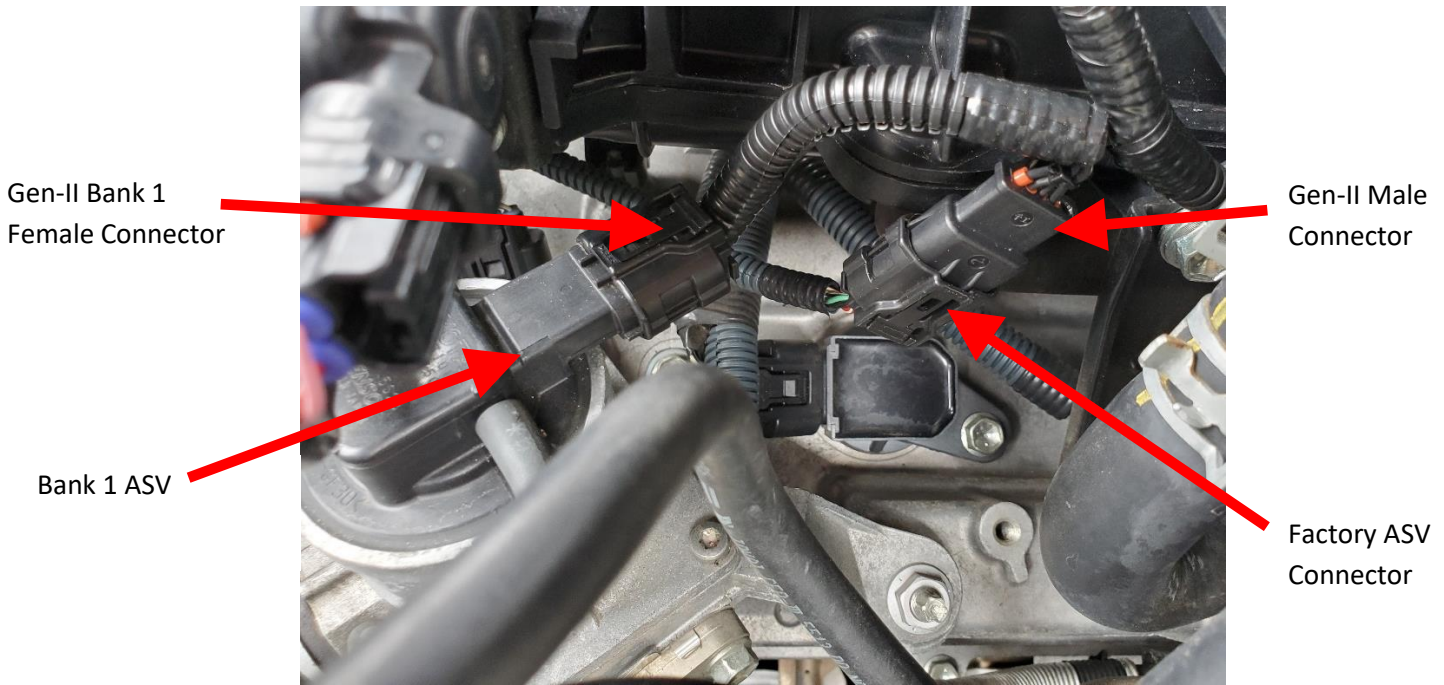


Figure 12 - Connecting to the bank 1 ASV and factory ASV harness

15) Disconnect the driver side ASV from the factory harness. Plug the Gen-II harness into the factory ASV connector and then plug the Gen-II harness to the ASV. The two connectors of the Gen-II harness should now be “in line” or in the between the bank 1 ASV and the factory harness for the ASV.

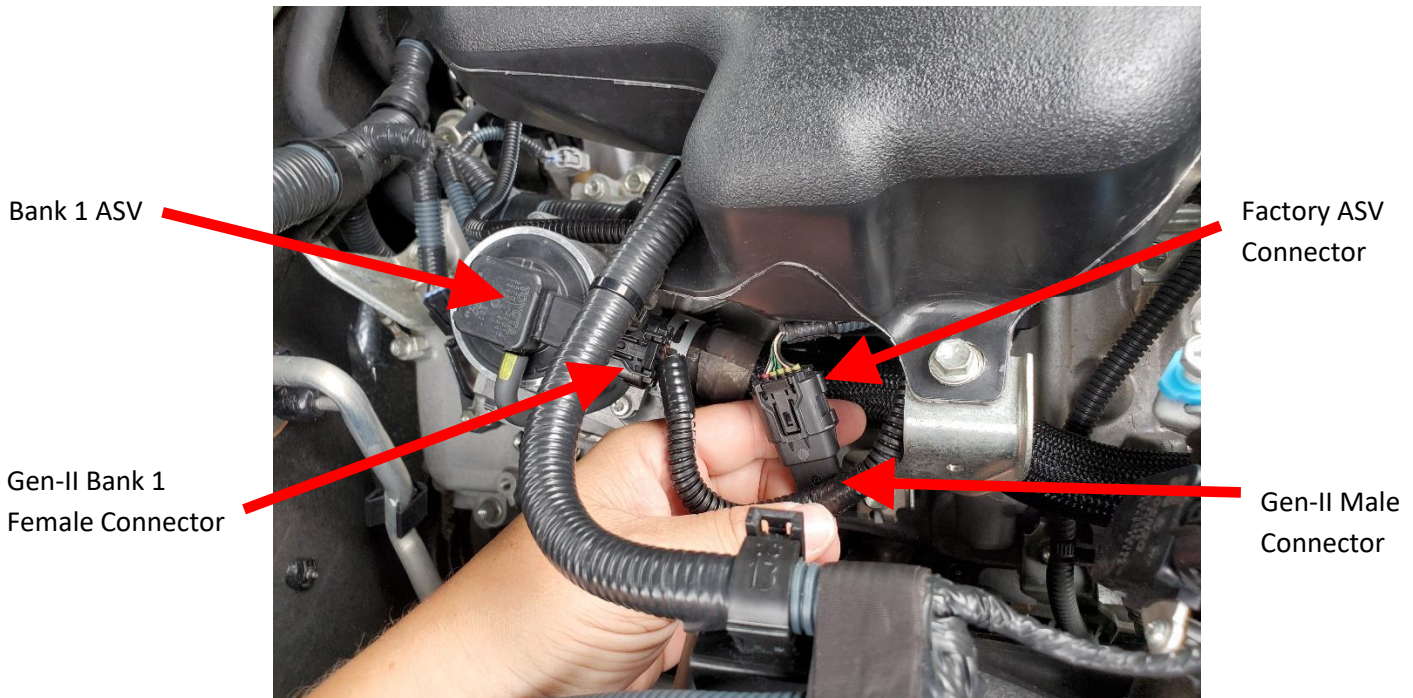
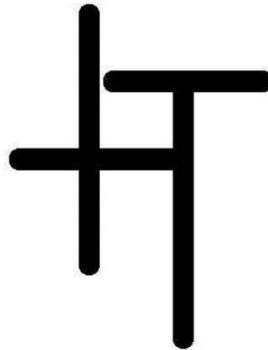


Figure 13 - Connecting to the bank 2 ASV and factory ASV harness

16) Repeat the connection process by connecting the two connectors on the remaining end of the Gen-II’s harness to the passenger side ASV and factory ASV harness.

- 17) Secure the harness as needed with zip-ties and reinstall the engine cover. You can now remove the secondary air pump and the air tubes. Likewise, if a pressure sensor option was utilized the air switching valves can also be removed from the engine.
- 18) If you have not already installed the exhaust block off plates refer to the separate instruction to complete their installation before proceeding.
- 19) Reconnect the negative battery terminal and you are ready to start the engine.
- 20) Once finished with installation there should be no CEL on for the secondary air injection system and there should be no Active or Pending trouble codes stored in the computer. Any Permanent trouble codes remaining in the computer will drop out by themselves the next time the secondary air injection system is commanded to run, and the Gen-II unit completes operation.
- 21) After the next run of the secondary air injection system the monitor for the system should show as Ready or Complete.



If you have any questions or trouble before, during or after installation please contact us directly by phone or email and we will be glad to help.

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Support@hewitt-tech.com

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