

Gen-II Secondary Air Injection System (SAIS) Bypass Kit

4.0L - 4Runner 2013-2015, FJ Cruiser 2013-2014 and Tundra 2011-2014

Installation Instructions – Rev 2



Introduction:

A failure of any component of the SAIS will generally set the check engine light (CEL) and cause the Engine Control Module (ECM) to store trouble codes. Many of the codes for a failed SAIS will cause the vehicle to enter “limp-mode” where the throttle is limited about 50% output to protect the engine from damage. Before installing the bypass module, it is highly recommended to address any codes not related to the SAIS.

The Gen-II units emulate operation of the SAIS and will allow you to clear your trouble codes/CEL and prevent the vehicle from entering limp mode. When installed the vehicle’s computer will think the system is operating correctly and you can remove most of the system if desired. The Gen-II SAIS bypass module installs by replacing the factory air injection control driver (AID) and by connecting to the air switching valves (ASV) and their factory harnesses. With the Gen-II unit and block off plates installed there is no longer a need for the air pumps, air tubes/plumbing or the factory air injection control driver. The Gen-II unit and vehicle will typically need the air switching valves to remain so the pressure sensors that are built into them can be utilized. If your air switching valve pressure sensors are damaged or you wish to remove the air switching valves from the vehicle, one Pressure Sensor Option(s) is needed to replace each air switching valve. Once an air switching valve is replaced with a PSO the ASV is no longer needed and can be removed. If you have any 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 or use the “Contact Us” page to contact us directly.

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 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 acknowledge and assumes ALL risks associated with its 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 driver (AID) in the engine bay. It is located on the inner driver side fender in front of the brake booster/master cylinder and to the rear of the vehicle from the main fuse/relay box. The 4.0L has one air injection control driver that is mounted on a bracket that is bolted to the fender.

4) Disconnect both connectors from the factory air injection control driver (AID).

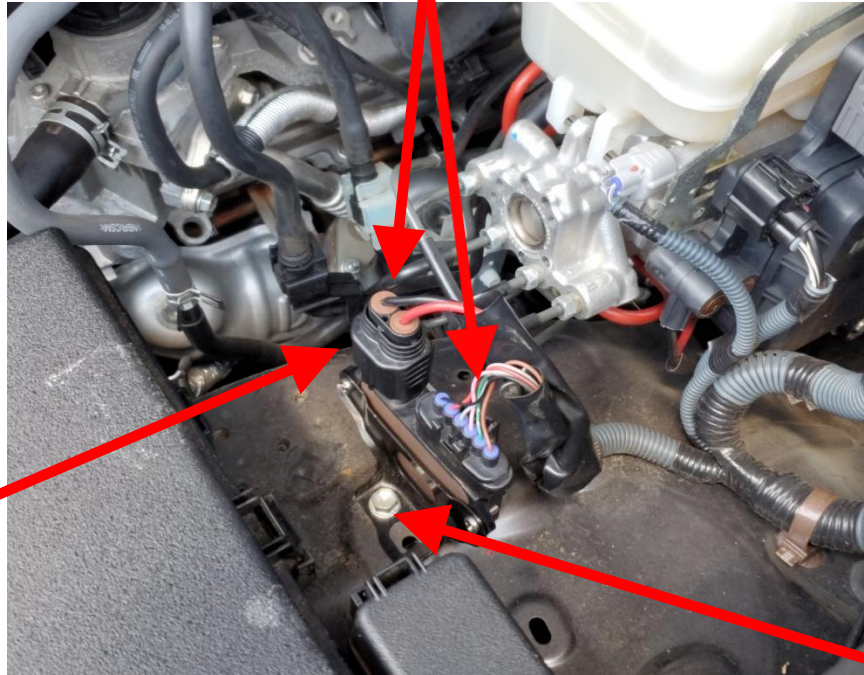


Figure 2 - Disconnect both from factory AID

10mm head
bracket mounting
bolt.

Install the custom
plug cap into
these connectors.

5) Insert the custom plug cap into the large 2 wire Connector and secure it out of the way.

6) Unbolt the AID Bracket from the fender and remove the two mounting screws holding the factory AID to the bracket. Using a wire brush and penetrating oil to clean the exposed threads in the wheel well may be necessary.

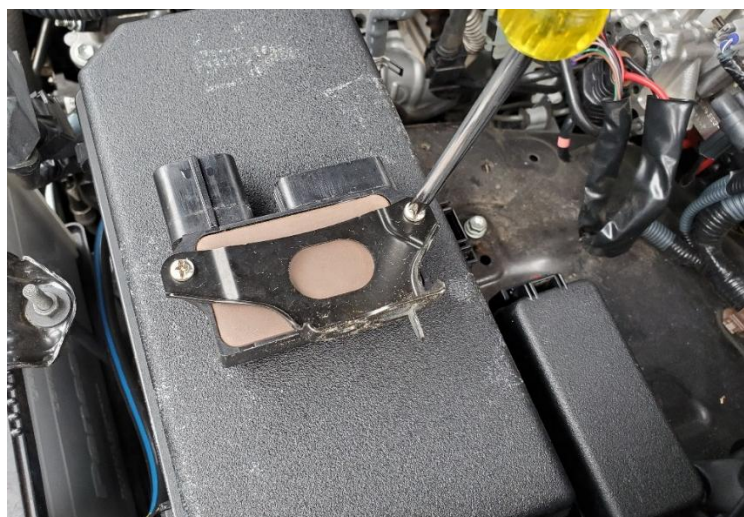


Figure 3 - Remove the factory AID

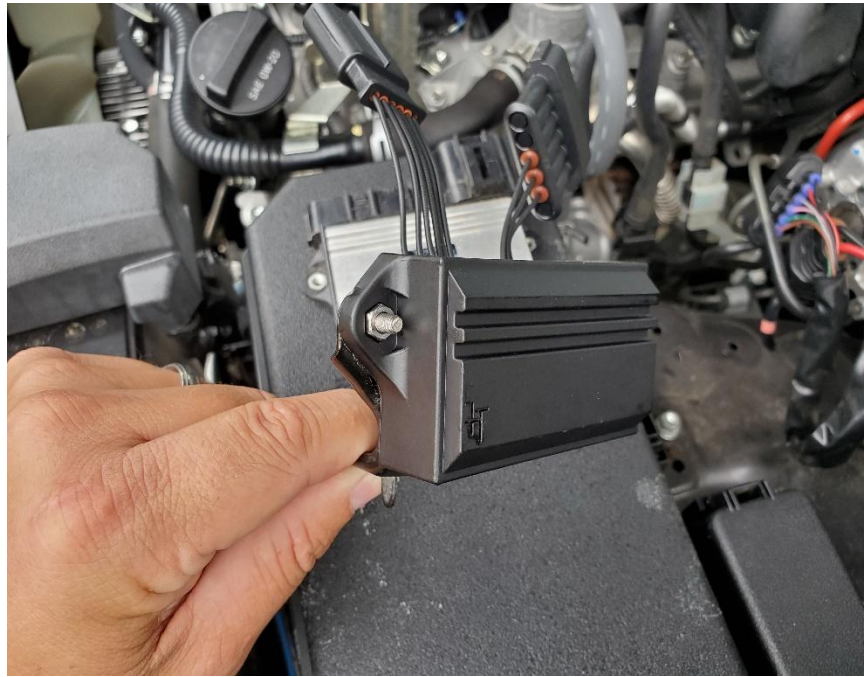


Figure 4 - Mount the Gen-II to the bracket and fender

- 7) With the Gen-II Bypass unit mounted, connect the factory six-wire AID harness and the included Gen2 harness to the matching connectors of the Gen-II unit.

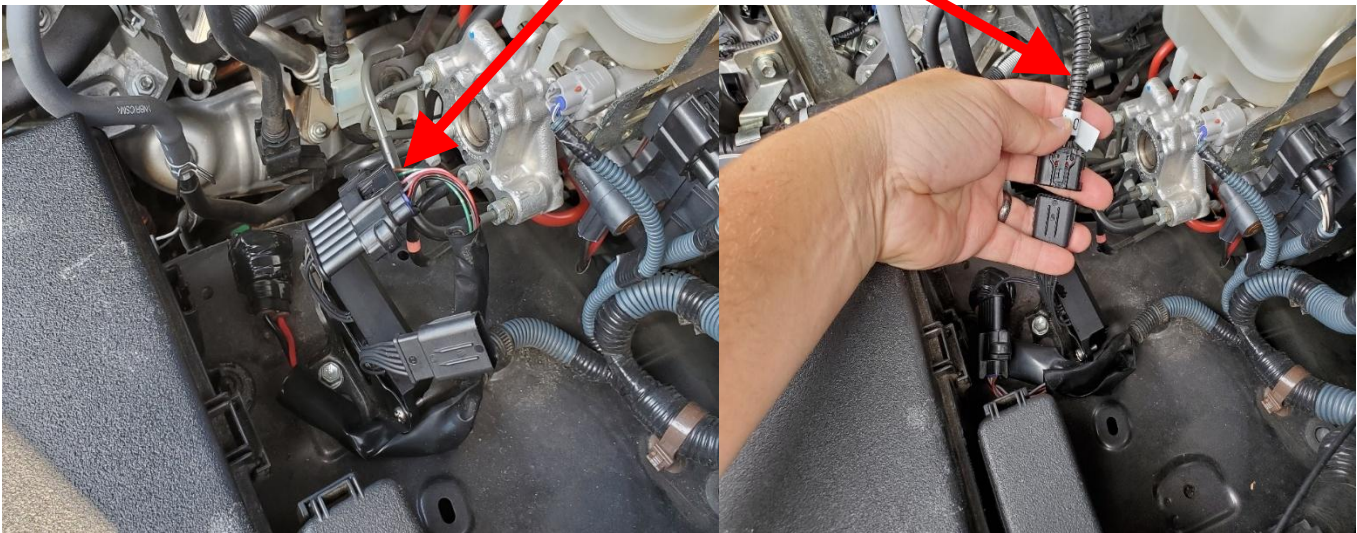


Figure 5 - Connect the Gen-II Unit

- 8) Routing the harness around the back the brake master cylinder to the firewall. Route the harness along the the air switching valves on the driver side of the engine. From there route the rest of the harness and the remaining pair of connectors along the firewall or simply over the top of the intake manifold to the passenger side ASV. There should be enough harness to make a neat factory-looking installation. needed.

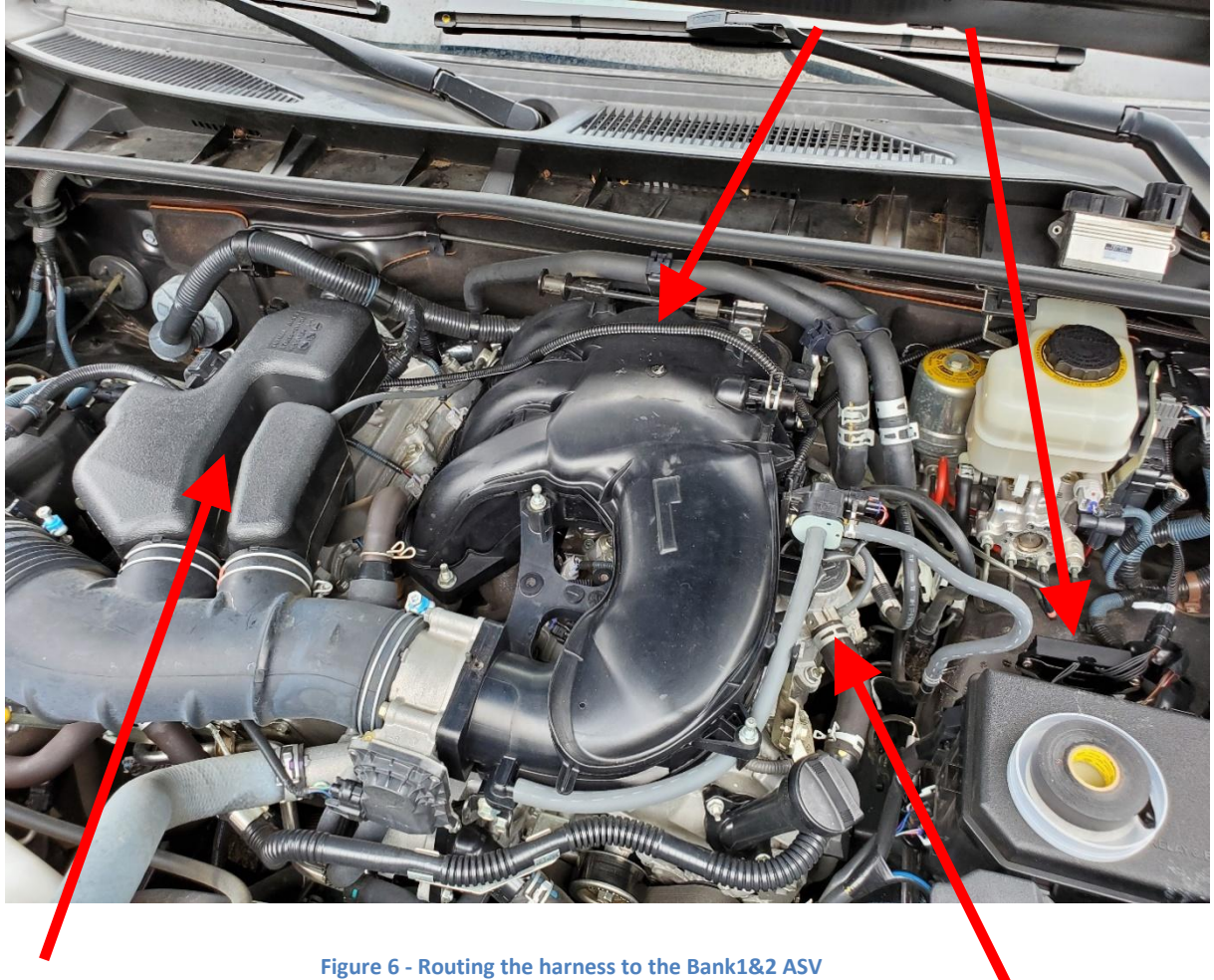


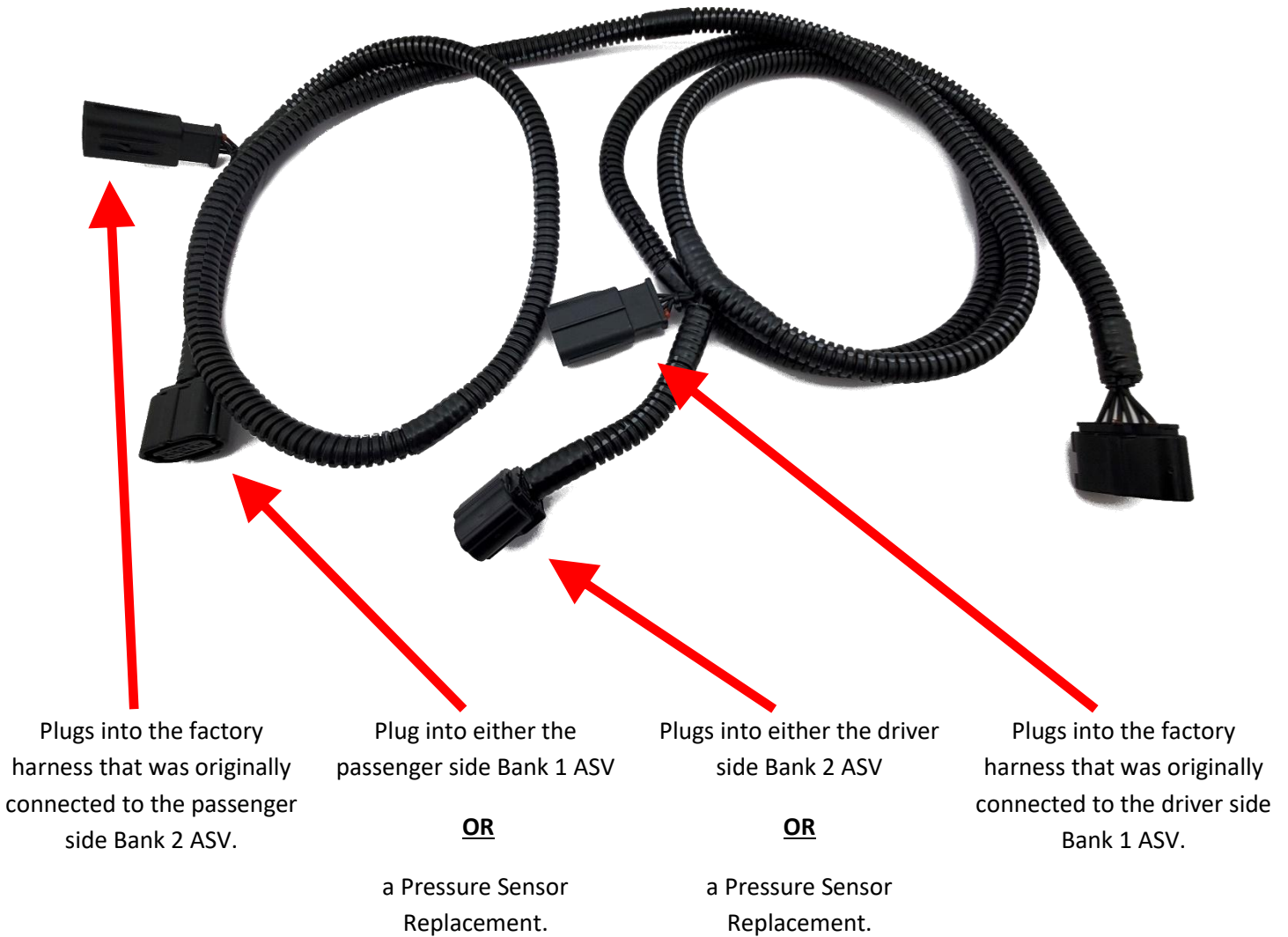
Figure 6 - Routing the harness to the Bank1&2 ASV

Passenger side ASV (bank 1) –
under/behind intake resonator

Driver side ASV (bank 2)

**YES! The passenger (RH) side of the 1GR-FE V6 engine is the Bank1 side... weird right!
The closest cylinder to the front of the vehicle is always #1 making the RH side bank 1.**

Figure 7 – 4.0L Gen-II Harness



Important! Pressure Sensor Replacements (PSR) are purchased separately. If you have PSR(s) to install, do so as directed or contact us with your trouble codes for help. PSR are only needed if the pressure sensors in your air switching valves are damaged or complete removal of the valve is wanted. They are most often installed after identifying a damaged sensor. Damaged sensors are most commonly the result of continuing to operate the vehicle for an extended period with the valves physically stuck open. The exhaust gas that leaks through the valves exposes the sensors to the high temperature and moisture content of the exhaust. Aftermarket air switching valves have also been known to cause problems as they are just not the same as the factory sensors. Our kits are designed to work with factory spec. Toyota pressure sensors as found in the factory original air switching valves.

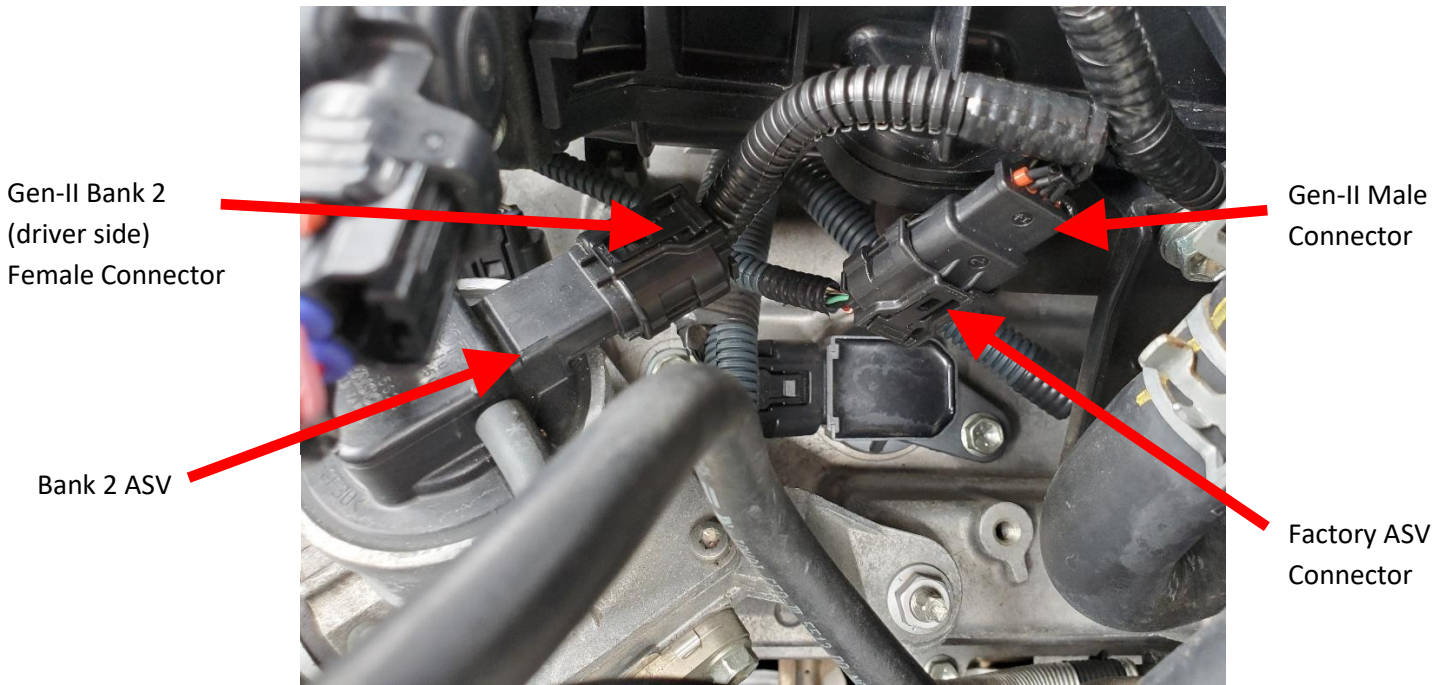


Figure 8 - Connecting to the bank 2 ASV and factory ASV harness

- 9) 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 2 ASV and the factory harness for the ASV.

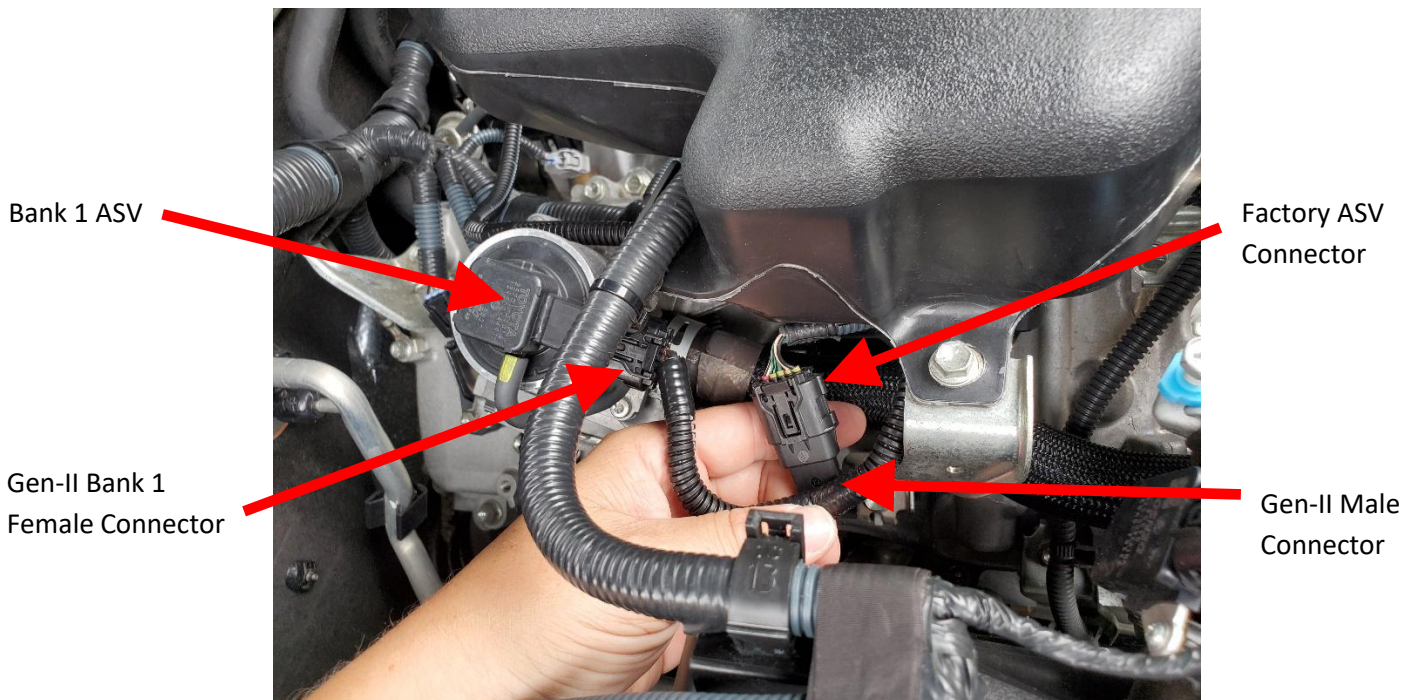
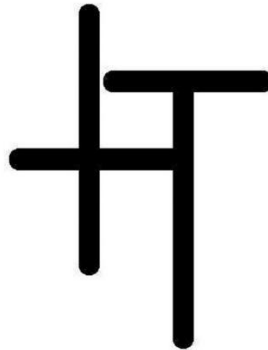


Figure 9 - Connecting to the bank 1 ASV and factory ASV harness

- 10) Repeat the connection process on the passenger side ASV and factory ASV harness. Again, Bank1 is the right hand or passenger side of the vehicle.

- 11) 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.
- 12) If you have not already installed the exhaust block off plates refer to the separate instruction to complete their installation before proceeding.
- 13) Reconnect the negative battery terminal and you are ready to start the engine.
- 14) 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.
- 15) 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.

Toll Free 1-844-307-7671

Support@hewitt-tech.com

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