

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

4.0L Tundra, 4Runner, FJ Cruiser

Installation Instructions



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 drivers (AID) and by connecting to the air switching valves (ASV) and/or their factory harnesses. With just the Gen-II unit and block off plates installed there is no longer a need for the air pumps, all the air tubes/plumbing or the factory air injection control drivers. The Gen-II unit for this vehicle do however still require at least one good pressure sensor that are built into the air switching valves (one each) or a Pressure Sensor Option (PSO) to be added to the kit for correct operation. If you have two damaged pressure sensors or wish to remove the air switching valves from the vehicle, one Pressure Sensor Option is needed to take the place of the switching valves. Once the air switching valves are replaced with a single PSO the valves are 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.

The products manufactured and sold by Hewitt Technologies Inc. are for off-road or competition use only, no other applications are intended or implied. Our bypass kits are not EPA/CARB certified and are not legal for street-use. The vehicle owner and installer acknowledge and assumes ALL risks associated with the purchase, installation and use of our products.

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). To prevent accidental contact with the +B terminal of the two-wire connector, securely cover it with electrical tape. Alternatively, the 50A Air Pump fuse can be broken or cut to remove power from the connector. The connector can also remain connected to the factory AID and it or the Gen-II unit can be secured by other means.

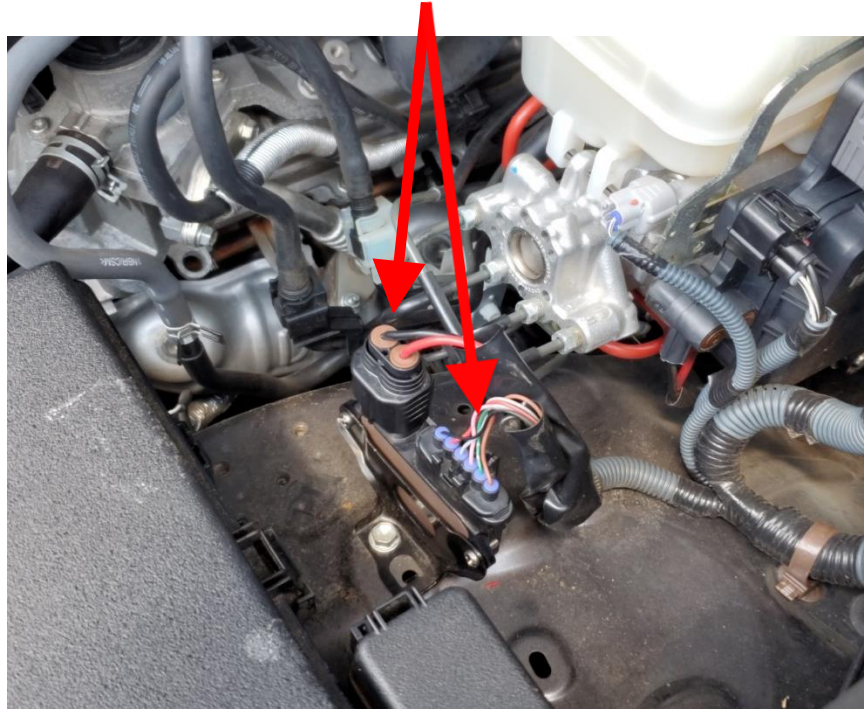


Figure 2 - Disconnect both from factory AID

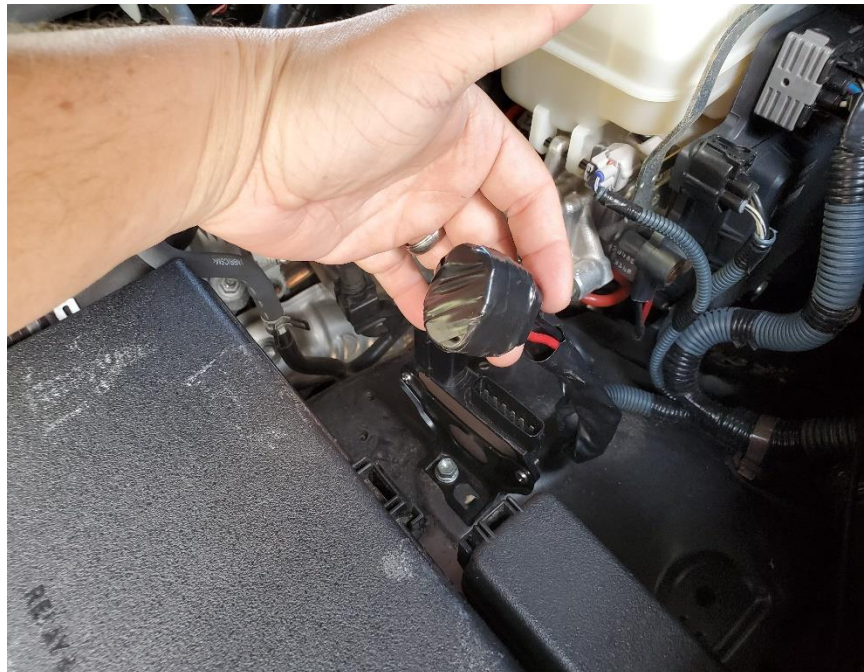


Figure 3 - Tape off the two-wire connector

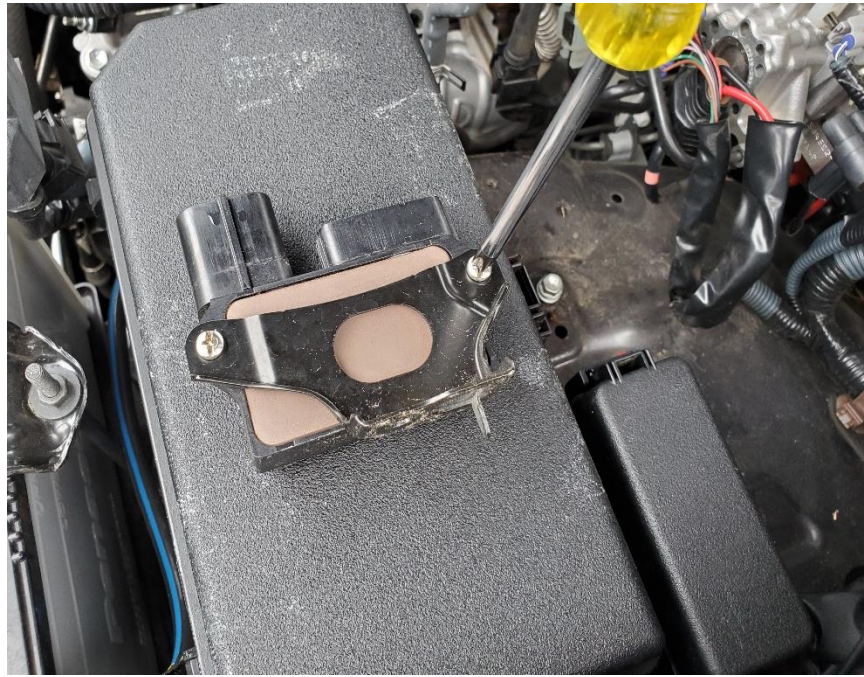


Figure 4 - Remove the factory AID

- 5) Unbolt the AID Bracket from the fender and remove the two mounting screws that are holding the factory AID to the bracket. Use the stainless hardware that came with the kit to mount the Gen-II unit to the bracket and bolt the bracket and Gen-II unit back in place on the fender. There should be plenty of the room between the bracket and the Gen-II unit's wires but just make sure you do not pinch or cut a wire when mounting.

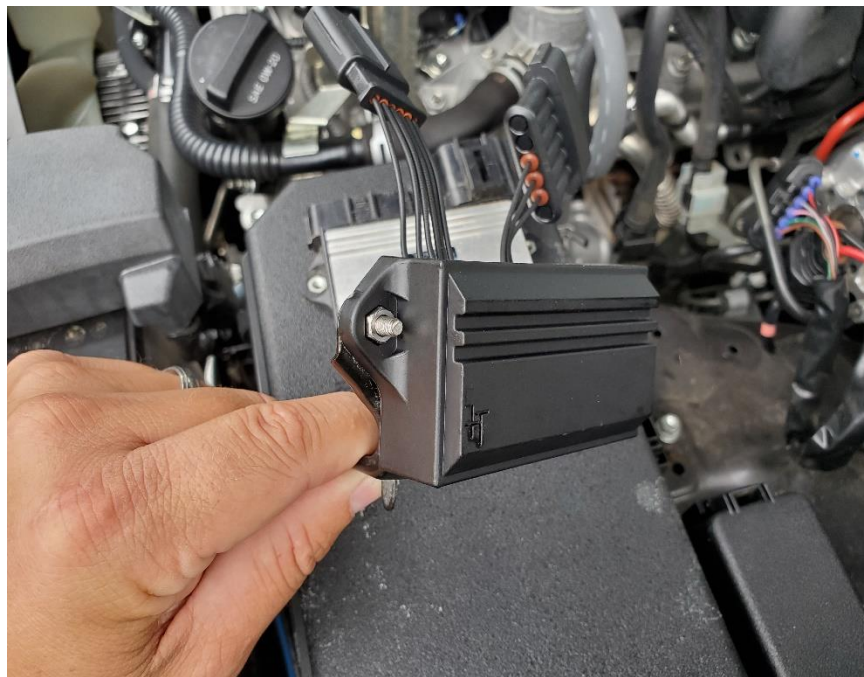


Figure 5 - Mount the Gen-II to the bracket and fender

- 6) With the Gen-II Bypass unit mounted, connect the factory six-wire AID harness to the matching connector of the Gen-II unit. Connect the remaining smaller six-wire connector of the Gen-II unit to the matching connector of the wire harness. Tuck or zip-tie the taped off connector out of the way.



Figure 6 - Connect the six-wire connectors



Figure 7 - Connect the wire harness to the Gen-II unit

- 7) 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.

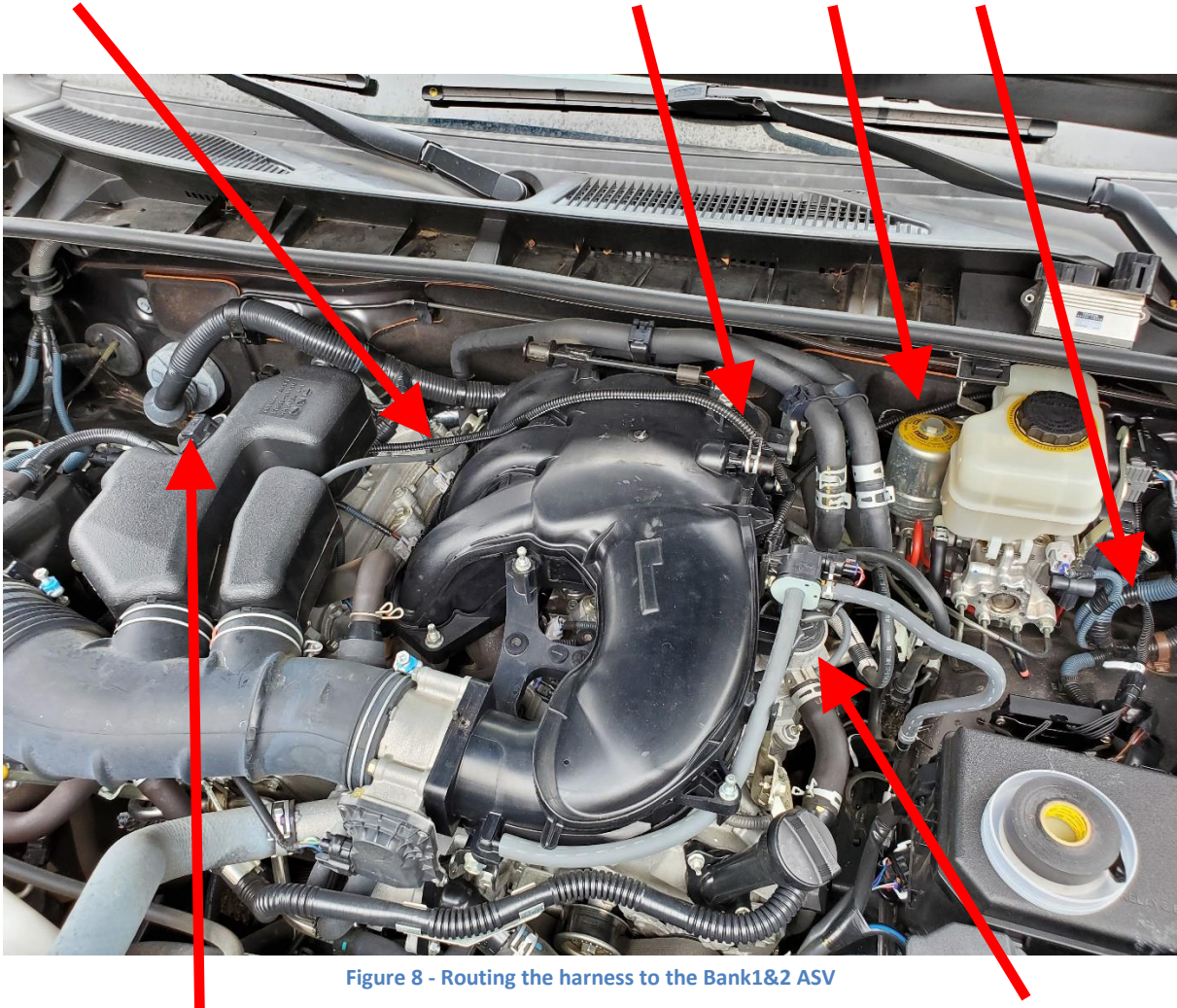


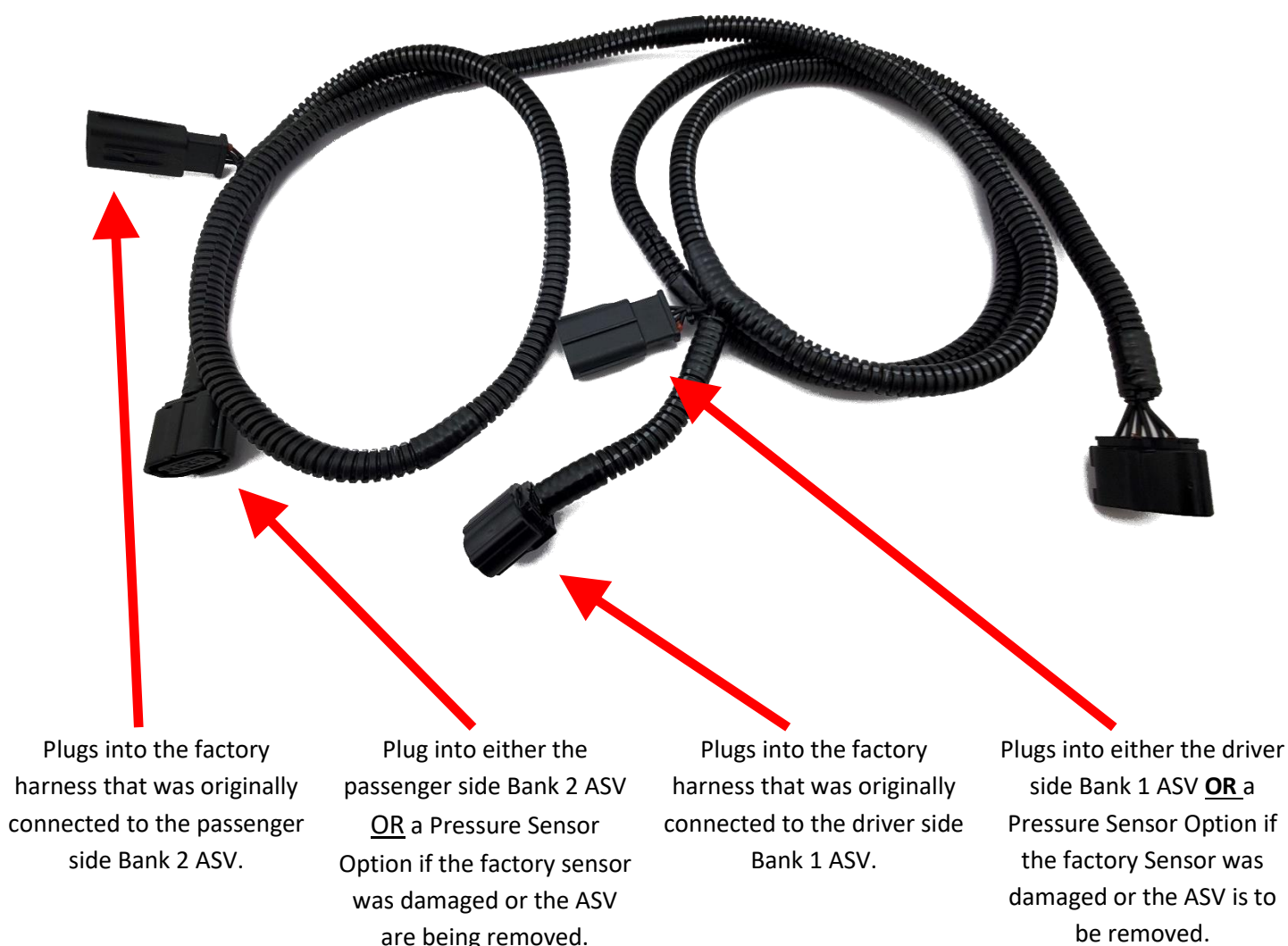
Figure 8 - Routing the harness to the Bank1&2 ASV

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

Driver side ASV (bank 1)

- 8) 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 9 – 4.0L Gen-II Harness



- 9) **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.

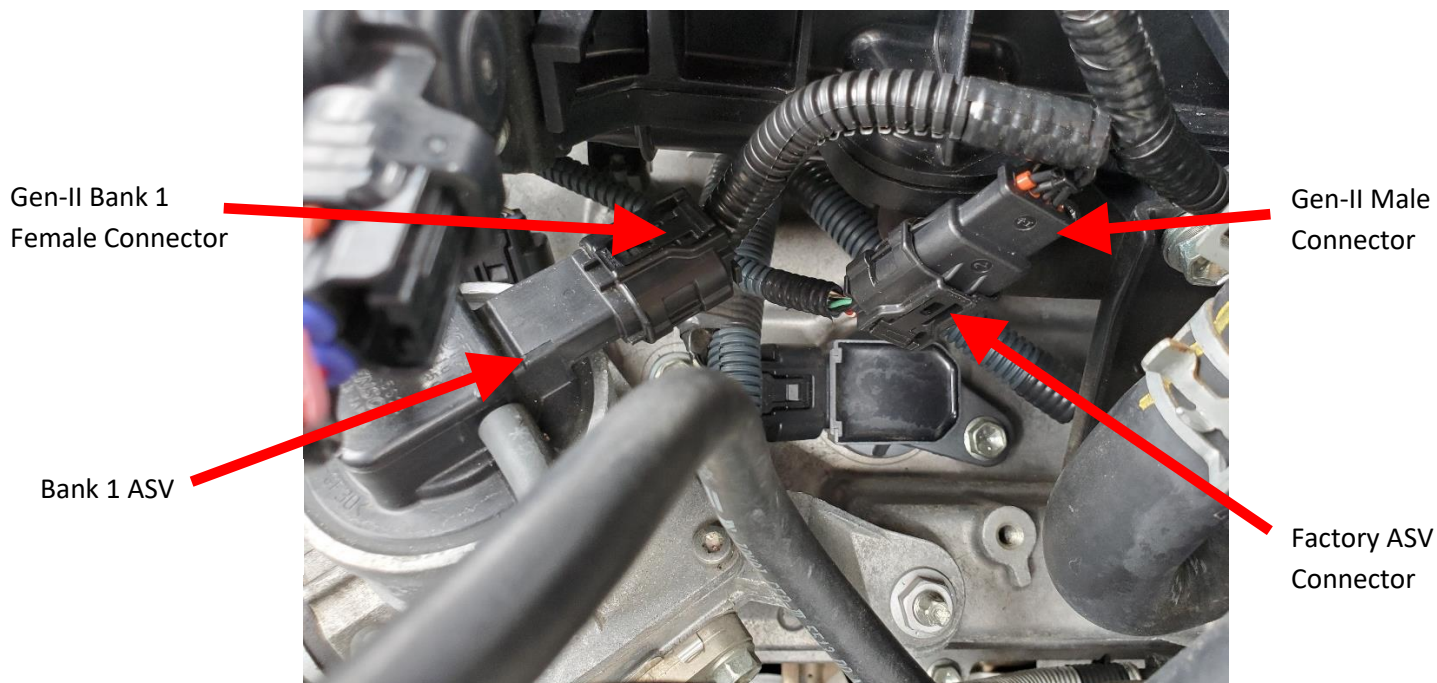


Figure 10 - Connecting to the bank 1 ASV and factory ASV harness

- 10) 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.

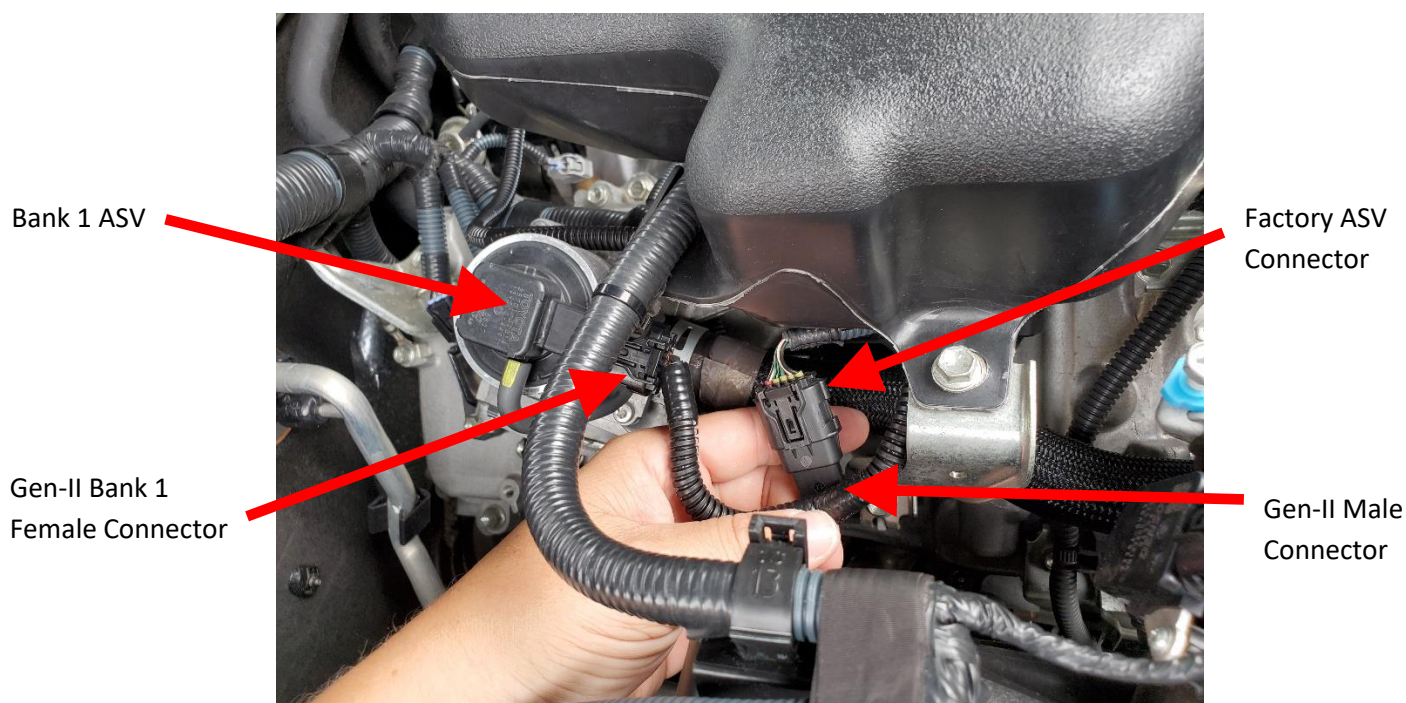
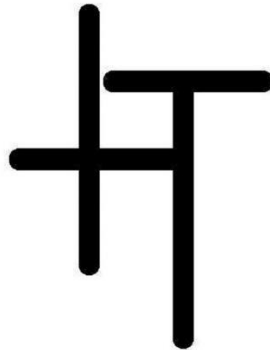


Figure 11 - Connecting to the bank 2 ASV and factory ASV harness

- 11) 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.

- 12) 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.
- 13) If you have not already installed the exhaust block off plates refer to the separate instruction to complete their installation before proceeding.
- 14) Reconnect the negative battery terminal and you are ready to start the engine.
- 15) 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.
- 16) 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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