

## Gen-II Secondary Air Injection System Bypass Kit - 5.7L Tundra/Sequoia

### Installation Instructions



#### Introduction:

When a Secondary Air injection System (SAIS) failure occurs it typically causes the CEL to illuminate and often puts the vehicle into “limp mode”. When in limp mode caused by a failure of the SAIS it is common for the vehicle’s throttle to be limited to about 50%, the CEL, VSC, TRAC and 4X4 lights will be on or flashing. When in limp mode the VSC, TRAC and 4X4 systems are disabled.

When installed, the Gen-II SAIS bypass will allow you to clear the SAIS codes, clear the CEL and get the vehicle out of limp mode for almost all SIAS trouble codes except those caused by a damaged pressure sensor, wiring or engine control module (ECM). Another important part of the installation is the exhaust block off plates. The Gen-II kit cannot prevent valve stuck open codes without the block off plates being installed if your air switching valves are leaking or physically stuck open. The block off plates should always be installed with the Gen-II module.

The Gen-II module installs by replacing both factory air injection control drivers (AID) and connects to the air switching valves (ASV) and their factory harnesses. Because the vehicle’s ECM and Gen-II still require functioning secondary air injection system pressure sensors the only reason the ASVs need to remain on the vehicle are to utilize the pressure sensors built into each one unless the sensor has been damaged by exposure to exhaust.

If you have damaged pressure sensors in either air switching valves or wish to remove them, each must be replaced with a Pressure Sensor Option (PSO). Once an air switching valve has been replaced with a PSO it is no longer needed and can be removed from the vehicle. No PSOs are needed to remove the air pumps, air tubes and air injection control drivers when installing the Gen-II kit.

You can find a video installation of the Gen-II kit by searching on YouTube.com for our Hewitt-Tech to find our channel or if viewing these instructions electronically by following this link: [Gen-II Installation on a 5.7L Tundra](#)

If you have any questions about the installation, use or operation of this kit please contact us directly.

Toll Free [844-307-7671](tel:844-307-7671) or by email [support@hewitt-tech.com](mailto: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 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
- Long reach bent nose pliers (at least 10-12" long is recommended)
- 10mm ratchet/wrench
- Electrical tape
- Zip ties (optional)
- 0.5-1 hours



## Installation Steps:

- 1) Open the hood and remove the engine cover and disconnect the negative battery terminal because we will be disconnecting a live feed from the air injection control drivers. Leaving the battery disconnected while installing the bypass kit will also clear any pending and active trouble codes stored in the ECM. Any permanent codes for the secondary air system will drop out by themselves the first time Gen-II kit completes its first run successfully.

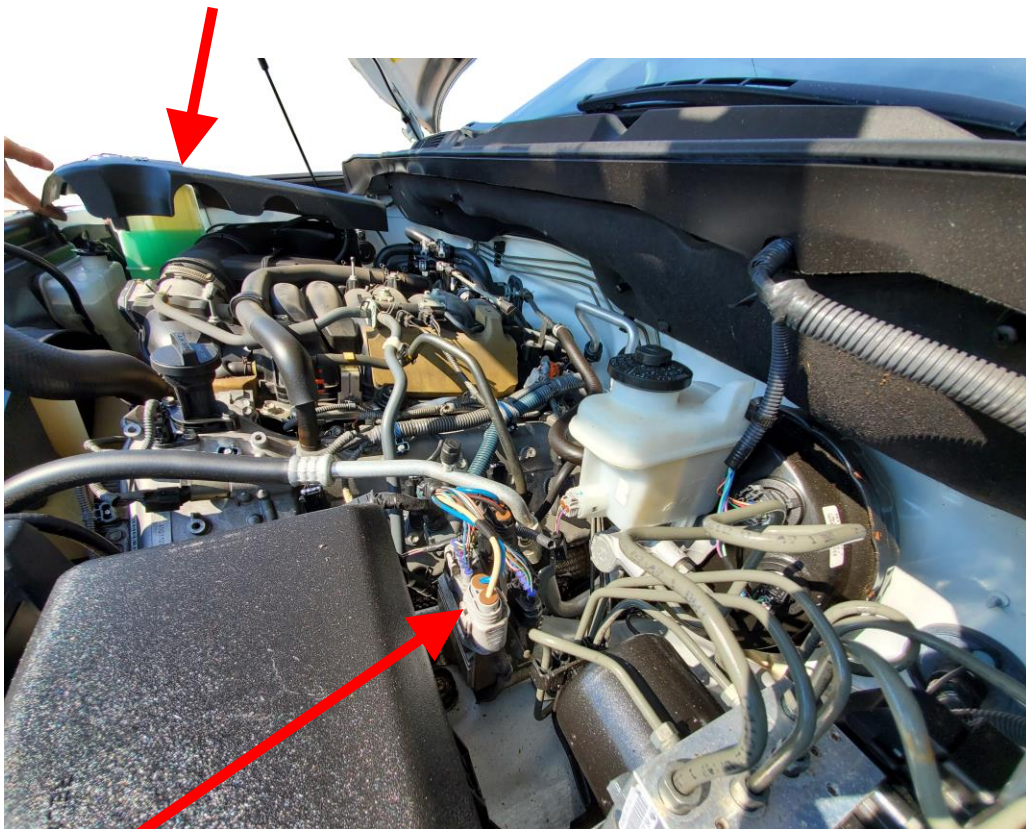


Figure 1 - Engine Compartment Viewed from Driver's Side Fender

- 2) Locate the Air Injection Control Drivers (AIDs) in the engine bay. They are located on the inner driver side fender between the fuse box and the brake booster/master cylinder. The 5.7L has two air injection control drivers that are mounted in a back to back arrangement.

- 3) Disconnect all four connectors from the air injection control drivers (AID) and move them out of the way to allow easy removal of the mounting bracket from the inner fender. Cover and tape off the gray 2 wire connector with electrical tape to prevent its terminals from contacting anything and tuck out of the way. This connector will remain disconnected. (A custom sealing connector plug is still in production for this purpose)

Bank 2 AID

Bank 1 AID

Cover and tape off this connector's terminals with electrical tape.

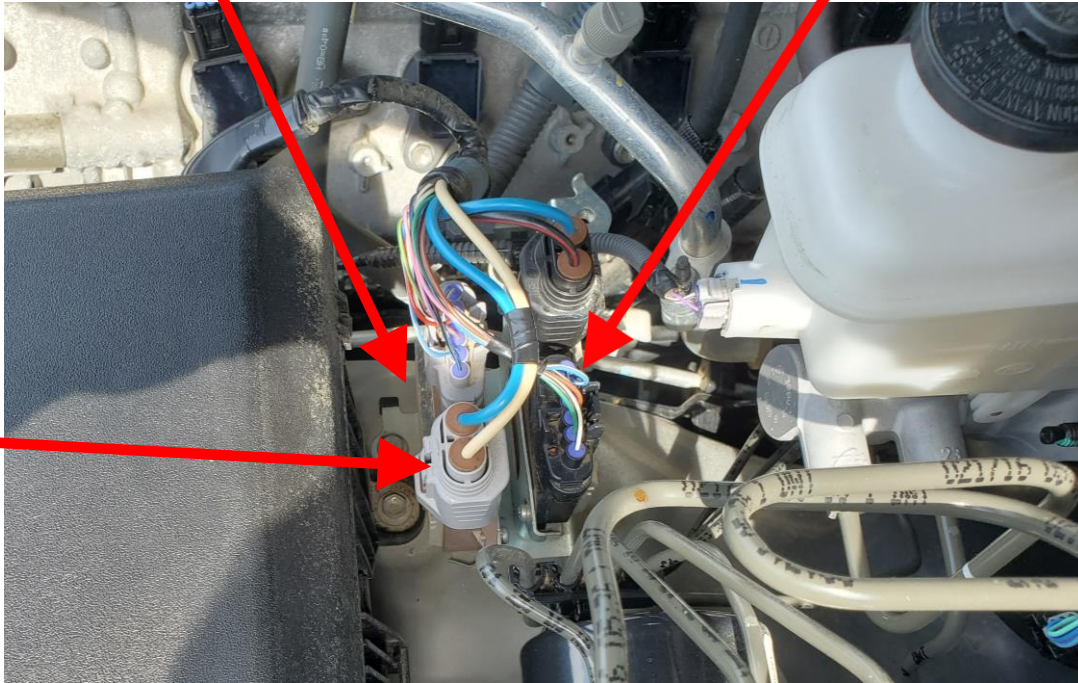


Figure 2 - Bank 1&2 Air Injection Control Drivers

- 4) Unbolt the main AID mounting bracket from the fender and then unbolt the Bank 2 AID sub-bracket from the main fender bracket. Remove the brown colored Bank 2 AID from the sub-bracket and set aside, it will not be used. Mount the Gen-II unit to the sub-bracket in the same orientation as the Bank 2 AID using the included stainless-steel nuts and screws. Be careful not to pinch or cut the wires when mounting to the sub-bracket.

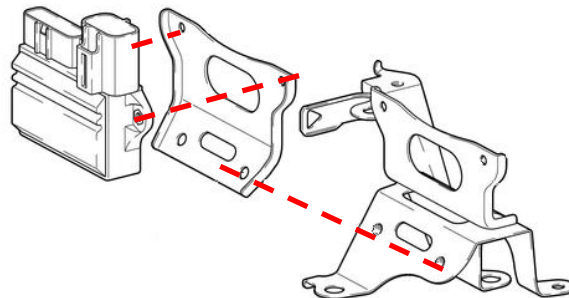


Figure 3 - Bank 2 AID and Mounting Brackets

- 5) Bolt the Gen-II unit and sub-bracket back to the main mounting bracket and bolt the whole assembly back to the fender.



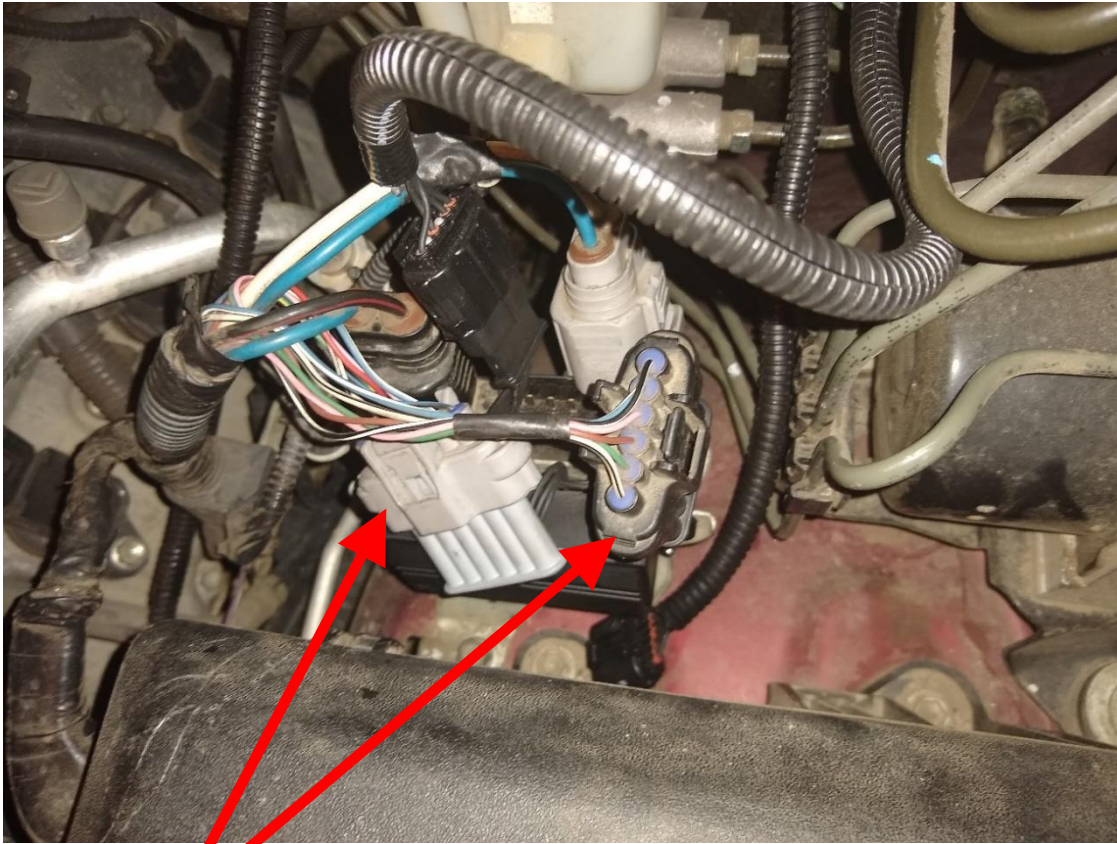


Figure 4 - AID Keyed Connections

- 6) Connect the factory black and gray 6-pin AID connectors to the matching Gen-II connectors. Make sure the connectors click together. Reconnect the factory black 2 wire connector to the Bank 1 factory AID or it can also be taped off and left disconnected.
- 7) Connect the 6-pin connector of the Gen-II harness to the matching 6-pin connector coming out of the Gen-II unit.



Figure 5 - 5.7L Gen-II ASV Harness

- 8) Route the Gen-II ASV harness behind the brake master cylinder and brake booster to the firewall and temporarily lay the harness over the top of the intake manifold. Keep the harness away from the exhaust. The two connectors for each side are intentionally left long to make it easier to make the needed connections to the ASV and harness down behind the intake manifold.

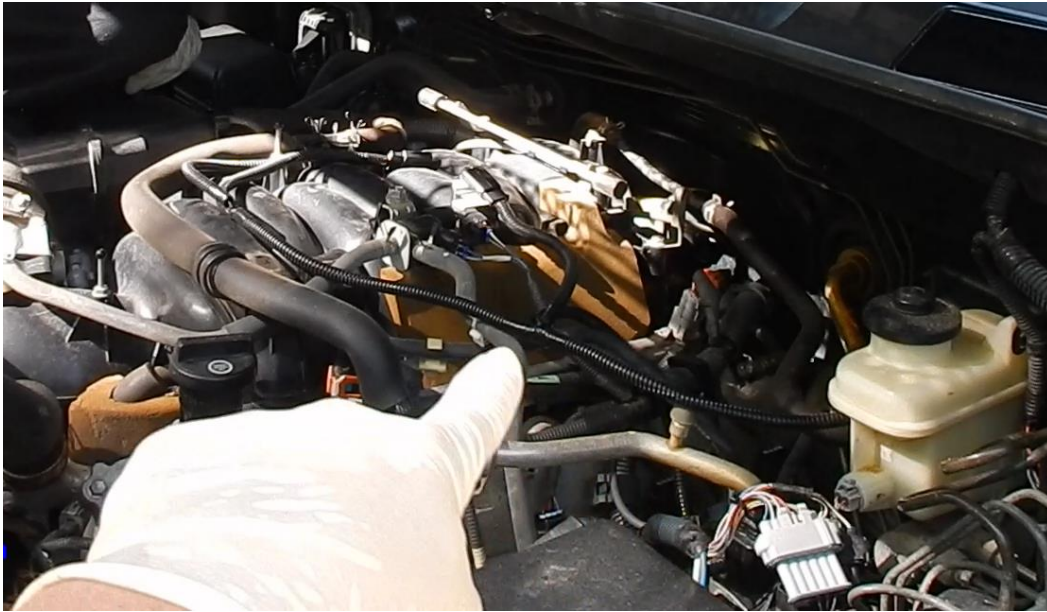


Figure 6 - Gen-II Harness Routed over top of engine.



Figure 7 - 5.7L Gen-II ASV Harness

**Bank 2 - Passenger Side Connectors**

The male connector plugs into the factory ASV harness. The female connector plugs into the Bank 2 ASV (or Pressure Sensor Option).

**Bank 1 – Driver Side Connectors**

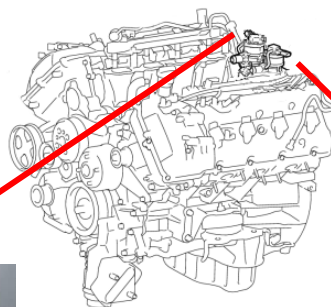
The male connector plugs into the factory ASV harness. The female connector plugs into the Bank 1 ASV (or Pressure Sensor Option).

Note: Pressure Sensor Options (PSO) are purchased separately. If you purchased a PSO refer you will complete Step 12 to configure and install the PSOs. PSO are only needed if the pressure sensors built into the air switching valves are damaged or it is desired to remove the air switching valves from the vehicle. One PSO is needed for each damaged ASV pressure sensor or ASV to be removed).

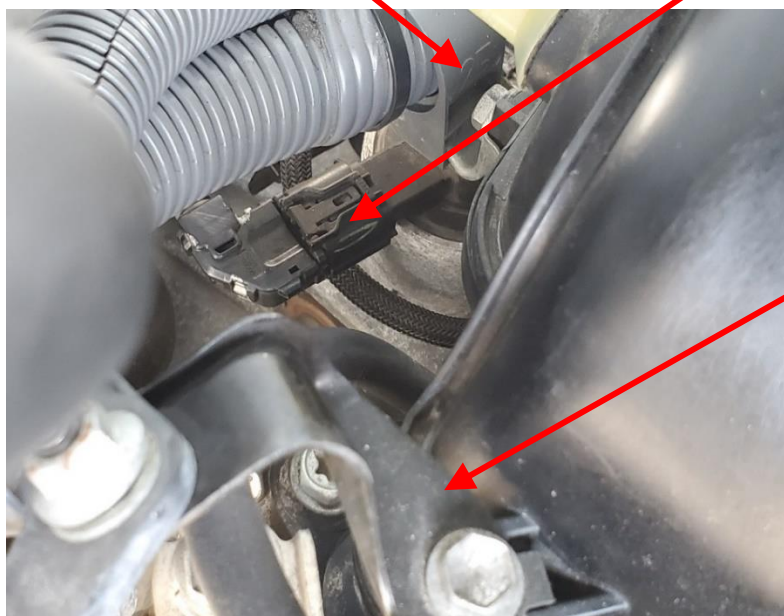
- 9) Disconnect the air switching valves (ASV) from their factory harnesses. The air switching valves are located at the rear and below the intake manifold. The air switching valves are very difficult to see from under the hood and can be a little tricky to disconnect. Once located, squeeze the connector locking tabs at the end of the connectors and pull them. Do not pull on the ASV wires as this can easily damage the wiring.

TIP: If you are having trouble reaching the ASV connectors you can unbolt and move some of the lines and brackets out of the way. The main engine harness can also be unclipped from its bracket and gently moved. A long screwdriver can be used to push down on the locking tab so you can use your whole hand to pull it off instead of trying to pinch the tab and pull at the same time. A long pair of bent nose pliers can also be very helpful to disconnect the connectors but can damage the connector housing and the wires if they are pinched.

Figure 8 - Air Switching Valves/Connector Location Shown with the intake manifold cutaway



The main engine harness can be unclipped here.



These brackets can be unbolted and moved to make more room. Brackets and locations may vary.



Figure 9 - Bank 2 Air Switching Valve Connection. Shown from the Rear Passenger corner of the intake manifold.

Figure 10 - Bank 1 Air Switching Valve Connection. Shown from Rear Driver Side of the intake manifold. Connector Obscured by the harness.



10) Connect the factory ASV harnesses to the Bank 1 and Bank 2 connectors of the Gen-II's ASV harness.

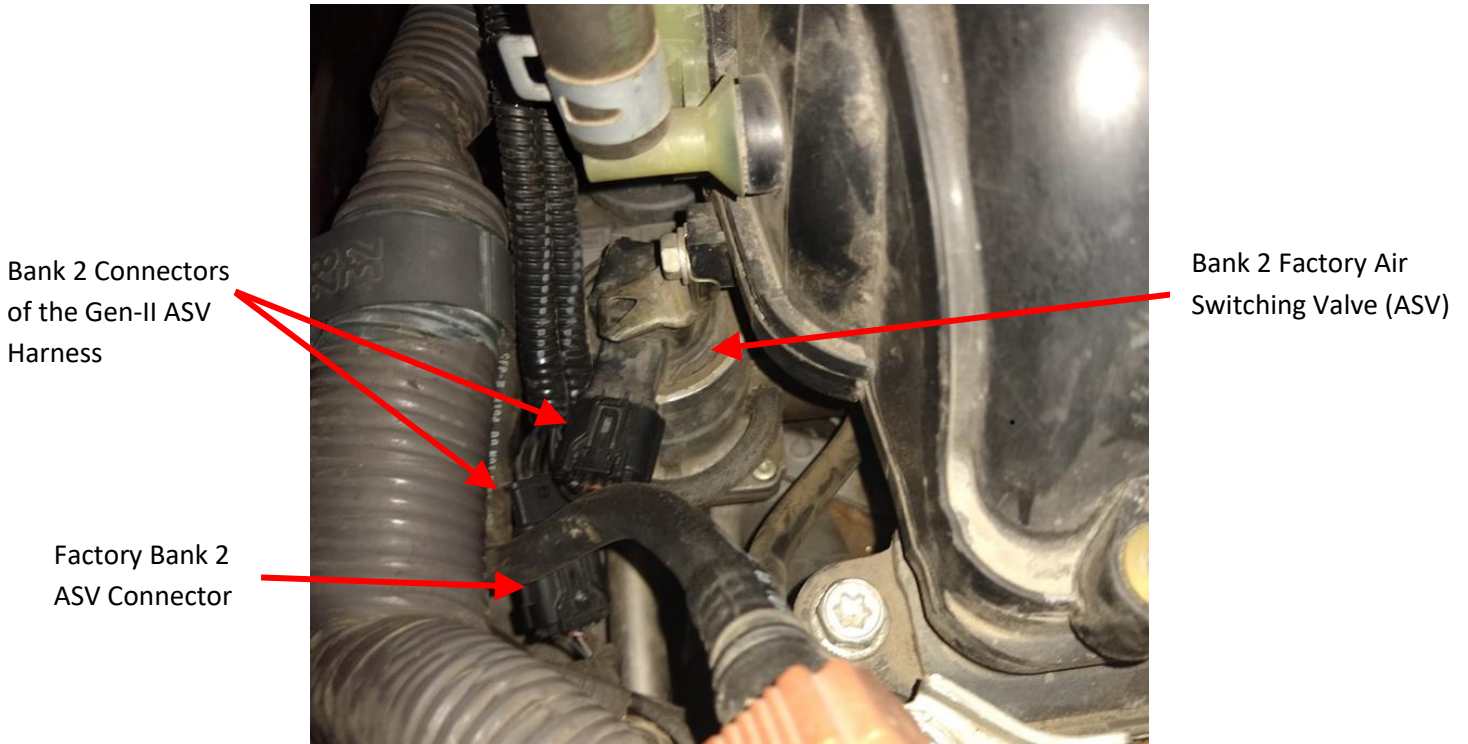


Figure 11 - Gen-II ASV Harness Connected to passenger side ASV and Factory ASV Harness (no PSO installed) Main Harness and Bracket moved out of the way.

11) If you do not have PSO(s), connect the remaining Gen-II ASV connectors to the Bank 1 AND Bank 2 ASVs. Your connections should then look like Figure 12 above for both banks. Skip Step 12 which is info about the PSOs.



Figure 12 - Pressure Sensor Option (each sold separately)

Note: PSO(s) are only needed when one of the ASVs has a damaged pressure sensor. One PSO for each damaged ASV or valve to be removed.



Figure 13 - Pressure Sensor Option (each sold separately)

- 12) If you have a PSO follow this step to make sure it is installed on the Gen-II's ASV harness correctly. If you do not have a PSO skip ahead to step 13 to finish your installation.
- a) Your PSO(s) will be connected to the Gen-II's ASV harness using one of the three cases below. If you are still unsure about how to determine how to connect the PSO to the kit please contact us directly.
- i) For codes (P2431, P2432, P2433, P2440, P2441, P2444, P2445) that cannot be cleared or come back after being cleared, plug the PSO into the remaining Bank 1 connector of the Gen-II ASV harness. There will now be no connection made to the Bank 1 air switching valve.
  - ii) For codes (P2436, P2437, P2438, P2442, P2443, P2446, P2447) that cannot be cleared or come back after being cleared, plug the PSO into the remaining Bank 2 connector of the Gen-II ASV harness. There will now be no connection made to the Bank 2 air switching valve.
  - iii) If you purchased two PSOs simply connect one PSO to each of the remaining connectors of the Gen-II ASV harness and there will be no connections to either of the air switching valves.
- b) Mount the PSO(s). There is no existing mounting location for the PSO. The sensors can be secured with zip-ties or under a non-critical mounting bolt. A bolt that only serves to secure vacuum or brake lines in place works well as a sensor mount if the bolt is long enough.

Ideally the PSO sensor should be secured with the vacuum nipple pointing downward to keep water and debris from getting into the sensor. If the sensor nipple is horizontal or pointing up, a small length of vacuum line can be placed on the sensor and the open end of the line secured pointing downward.

**Note The vacuum nipple of the pressure sensor does not connect to anything and needs to remain open to the atmosphere. There will be no connection to the ASV for any side that has a PSO installed.**



- 13) Connect the remaining female connectors of the Gen-II ASV harness that do not have a PSO(s) to that bank's air switching valves. If either bank has a PSO installed there will be no connection made to that bank's ASV.
- 14) Once all the harnesses are installed and PSO mounted replace any lines, brackets or harnesses that were moved out of the way to gain access. Pay close attention nothing is left undone or disconnected and that the engine harness is properly secured if it was moved out of the way.
- 15) Use zip-ties to neatly secure the rest of the harnesses and re-install any engine covers that were removed.
- 16) Reconnect the negative battery terminal and install the block off plates if they were not already installed. If the battery was not disconnected during installation or for at least 2 minutes the codes will still need to be cleared with an OBDII scan tool.
- 17) Congrats, you are finished with the installation!

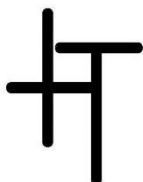
At this point there should be no active or pending codes stored for the secondary air injection system and the CEL should remain off (if there are no other problems). Any Permanent trouble codes that remain in the computer will drop out by themselves the next time the secondary air injection system is commanded to run, and the Gen-II unit completes the cycle.

Attn: Disconnecting the negative battery terminal to reset the codes will also reset engine tuning parameters like the fuel trims. It is normal for the engine to run rough, off idle and even stall after the first start. A few minutes of idle and drive time is all that is needed for the computer to relearn this tuning data.

If you have questions or trouble before, during or after installation please contact us directly

[www.Hewitt-Tech.com](http://www.Hewitt-Tech.com)

Toll Free 1-844-307-7671



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.