Hewitt Technologies Inc. – Hewitt-Tech.com Gen-II Secondary Air Injection System Bypass Kit 4.7L Tundra/Sequoia Installation Instructions



Introduction:

<u>Before installing the bypass module, it is highly recommended to address codes not related to the SAIS.</u> 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 <u>www.Hewitt-Tech.com</u> 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 <u>Hewitt Tech</u> <u>YouTube Channel</u> 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 <u>1-844-307-7671</u> or email us at <u>support@hewitt-tech.com</u>.

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 <u>ALL</u> risks associated with its installation and use.

Needed for Installation:

- #2 Philips and flathead screwdrivers
- 10mm, 12mm ratchets/wrenches/sockets/extensions
- Pliers
- Wire Cutter/Stripper
- 1 hour 1.5 hrs.



Installation Steps:

 Open the hood and remove the engine cover. Disconnect the negative battery terminal. We will be disconnecting live battery feeds. Leaving the battery disconnected while installing the bypass kit will clear all pending and active trouble codes stored in the ECM. For 2009 and newer vehicles, remaining permanent codes for the secondary air system will automatically clear after the Gen-II kit completes its first run sequence.



Figure 1 – 4.7L Tundra/Sequoia Engine Compartment

 Locate the air injection control drivers (AID) on the inner driver-side fender in the engine bay. The 07-09 4.7L Tundra and 08-09 Sequoia have two air injection control drivers mounted on a common bracket on the inner driver-side fender. 3) Disconnect all four connectors from the air injection control drivers.

Bank 1 AID



Figure 2 - Bank 1&2 Air Injection Control Drivers

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Bank 2 AID
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4) Disconnect the brake master cylinder sensor. Install the custom blank plug caps into the two connectors labeled #1 and #4 in the figure above. Tuck all the connectors out of the way to allow easy removal of the mounting bracket from the inner fender.



Install plug caps into these connectors



Figure 3 - Custom plug caps installed

Disconnect brake master cylinder low fluid sensor.

- 5) Remove the three bolts securing the main bracket to the fender.
- 6) The harness clips and engine ground wire can remain connected to the bracket or removed to make it easier to mount the GenII unit to the main bracket.
- 7) Unbolt the AID bracket from the fender.
- 8) Remove the two bolts holding the Bank 2 AID sub-bracket.
- 9) Remove the two Philips screws holding each of the AIDs to their brackets and set both AID aside, they are no longer needed.



Figure 4 - Removing the air injection control drivers



Figure 5 - Bank 2 AID and Mounting Brackets



Figure 6 – Gen-II mounted to sub-bracket with included stainless screws/nuts

- 10) Using the included stainless screws/nuts, mount the Gen-II unit to the main bracket or the sub-bracket as shown above in Figure 6. If mounting to the main bracket the sub-bracket can be completely omitted.
- 11) If you mount the Gen-II unit to the sub-bracket, bolt the sub-bracket to the main bracket, then bolt the main bracket to the fender. Mount the Gen-unit and bracket(s) back to the fender.
- 12) Connect the factory black and gray 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.
- 13) 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



IMPORTANT ALL Gen-II harness connectors should be connected when finished.



Connect the Gen-II harness to the Gen-II unit

Connect to the Bank 1 driver-side Air Switching Valve and factory harness

Figure 9 - Connect the Gen-II ASV harness to the Gen-II unit

14) Connect the Gen-II harness to the Gen-II unit.

Connect to the Bank 2 passenger side Air

Switching Valve and

factory harness

15) Route the Gen-II ASV harness around the brake master cylinder to the firewall, then to the Bank 1 air switching valve and finally over the intake manifold to the Bank 2 air switching valve. Keep the harness away from the exhaust and moving parts like the engine cooling fan.

16) Disconnect the Bank 1 (driver side) air switching valve (ASV) from the factory harness. Squeeze the connector locking tab at the end of the connectors and pull it off the ASV. It is often easier to use a the flat of a screwdriver on top of the tab and push on the screwdriver to release the tab.



Gen-II harness connected to the Bank 1 ASV

If applicable, a PSO would plug into this connector instead of the Bank 1 ASV

17) Connect the factory air switching valve (ASV) harness to the Gen-II harness. The factory ASV harness will always connect to the Gen-II harness.

18) Connect the female connector of the Gen-II harness to the ASV. The Gen-II harness should now be in-line or plugged in between the factory harness and the air switching valve.

OR

If you have a PSO for your Bank 1 air switching valve, plug the PSO into the Gen-II harness instead of plugging in the Bank 1 ASV. With a PSO installed on Bank 1, the ASV will remain disconnected.

19) Move to the passenger side and connect the Gen-II harness to the Bank 2 ASV the same as steps 17 and 18.

Bank 2 factory ASV harness connected to Gen-II harness



Gen-II harness connected to the Bank 2 ASV

If applicable, a PSO would plug into this connector instead of the Bank 2 ASV

Figure 11 - Connecting the Factory ASV harness to the Gen-II ASV harness

- 20) Once the harnesses are installed and the PSOs are installed and secured, use zip-ties to neatly secure the rest of the harnesses and reinstall the engine cover.
- 21) Reconnect the negative battery terminal. If the battery was not disconnected during installation, clear the active and pending codes using an OBDII tool. You can also clear the active and pending codes by disconnecting the negative battery terminal for at least 2 minutes.

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 stored for the secondary air injection system will automatically clear the next time the secondary air injection system is commanded to operate, and the Gen-II unit successfully completes its first 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.

- 22) Install the block off plates if they were not already installed.
- 23) Congrats! You are finished with the installation!

If you have questions or trouble before, during or after installation, please contact us directly. Toll-Free: <u>1-844-307-7671</u> | Email: support@hewitt-tech.com https://Hewitt-Tech.com



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