Hewitt Technologies Inc.

The Hewitt-Tech Secondary Air Injection System Bypass Kit

V5440H – 4.0L Installation Instructions

Introduction:

The Secondary Air Injection System (SAIS) bypass module is used to prevent the operation of the SAIS that is found on Toyota/Lexus vehicles. By preventing the operation of the SAIS the trouble codes related to mechanical malfunctions of the SAIS can be cleared and prevented from returning. In general, the bypass module cannot clear codes that are caused by electrical faults or circuit malfunctions which can be the result of an electrically damaged component or wiring. The exhaust block off plates are an integral part of the Hewitt-Tech SAIS Bypass Kit and should always be installed with the bypass module. 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.

Please note that it is illegal to remove, dismantle or otherwise cause to be inoperative any pollution control device required by federal or state law that is to be maintained in or on a motor vehicle; as such, the SAIS Bypass Kit is sold only to be installed on vehicles that are exempt from vehicle emission laws or that are intended for off-road use only. By installing or using the SAIS Bypass Kit the vehicle owner and or installer assume ALL risks associated with its use.

SAIS and Bypass Module Operation:

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 these mechanical failures will also cause the vehicle to enter "limp-mode" where throttle operation is limited to 50% 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 SAIS Bypass Module prevents the SAIS from operating at a cold start by intercepting and altering the IAT signal. The Bypass Module is triggered when the vehicle ignition is first switched to the "ON" position and again whenever it senses a 5-12V signal on its starter relay input wire (energized only when the starter is engaged). The starter relay wire eliminates the need to crank the engine as soon as the ignition is turned "On". The starter relay is a mandatory connection on the V53H units.

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Tools/Supplies Needed for Starter Relay Wire Connection:

- Wire Strippers /Cutters
- 10mm ratchet/nut driver
- Wire Loom and Mounting Supplies (optional)
- Access to an OBDII Scanner to Reset any Trouble Codes/CEL and for troubleshooting (recommended)
- Good Quality Multi Meter or Test Light/Probe
- 0.5-1 hours

Installation Steps:

1) Disconnect the air intake tube from the filter housing using a 10mm socket/nut driver or Philips screwdriver. Remove the air filter housing by undoing the housing latches. Remove the intake cover by removing the two nuts that hold it down in the front. Lift the front of the cover up and pull forward to remove.

Figure 1 – Intake/Cover Removal

Figure 2 - Disconnect MAF/IAT from factory harness and remove the harness mount, mounting bolts and vacuum line.

2) Disconnect the factory wire harness connector from the IAT/MAF sensor by firmly squeezing the locking tab down connector to disengage the catch and pull the connector off. Remove the harness mounting zip strap from the IAT connector using a small screwdriver to disengage the locking tab. It can also be cut and replaced with a zip tie.

3) Remove the two intake mounting bolts and loosen throttle body clamp. Disconnect the small vacuum line at the rear of the air box and remove the air box. Locate the ECT sensor at the back of the engine.

4) Mount the bypass module to the back of the air box next to the throttle body connection leaving room to allow you to reconnect to the throttle body and connect the starter relay wire. The unit can also be mounted to the bottom of the air box housing. The mounting tape is high quality 3-M Automotive Acrylic double sided adhesive but even it won't stick to a dirty or oily surface. Clean the mounting location with a bit of rubbing alcohol or solvent if needed and let dry. Peel the red backing film off of the adhesive and press the module firmly to the mounting surface. Mount the

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module to the air box so you can still connect the starter relay quick disconnect terminal and route it to the starter relay. Disconnect the factory ECT connector and connect it to the bypass module's ECT harness.

Figure 3 – Mounting and ECT Location.

Figure 4 – Locate the ECT connector at the back of the engine. Shown by dowel.

Figure 5 - View of ECT Sensor from Passenger Side Firewall

5) Connect the starter relay wire to the module's quick disconnect terminal and route the wire along with the ECT harness towards the firewall and fuse box. The starter relay wire can be installed in wire loom or simply zip tied along the fire wall to an entry point in the fuse box. To get the starter relay wire into the fuse box a notch can be cut in the edge of the box or it can be routed through an existing hole.

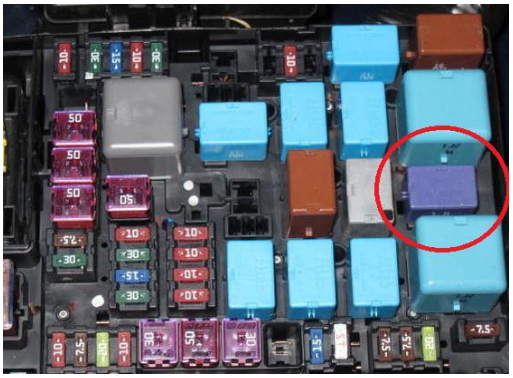

Figure 6 – Starter Relay Circled (labeled STA on lid diagram)

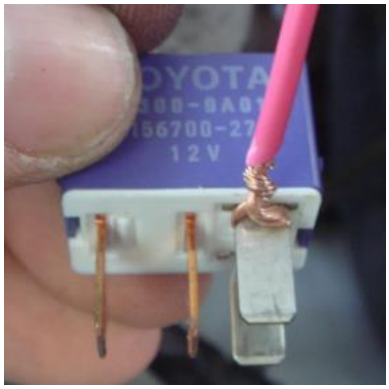

Figure 7 - Starter Signal Wire Taped onto ECU Leg of Starter Relay

6) Once the wire has been installed and routed into the box connect the end of the violet starter signal wire to the terminal as shown in Figure 7, excess wire can be cut off. **DO NOT** connect the starter signal wire to either of the larger copper terminals of the relay. Now, firmly seat the relay back in its socket (remember how hard it was to remove). Make sure the wire is not preventing it from seating completely and that the wire is not creating a short to another terminal. If the relay is not properly reinstalled it may cause intermittent starting problems. If the terminals seem loose when reinserting the relay, the socket terminals may need to be tightened by slightly pinching them more closed with a pair of needle nose pliers. Reinstall the fuse box lid.

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7) Route the bypass module's IAT harness to the front of the engine and reinstall the air box (don't forget the vacuum line on the back). Connect the factory IAT/MAF connector and sensor to the bypass module's IAT/MAF harness. The factory IAT/MAF harness can be tucked under the intake towards the SAISBM so only the bypass module's IAT/MAF harness can be seen going to the sensor. Secure loose harnesses out of the way with zip ties.

Figure 8 - Connect the IAT/MAF Sensor Harness

8) Reinstall the air filter holder, air intake tube and the engine cover.

11) Install the exhaust block off plates according to the installation instructions that came in the kit.

12) Clear the engine trouble codes using an ODBII scanner. If you do not have access to an ODBII scanner you can reset the codes by removing the negative battery terminal and let the vehicle sit for a minute before reconnecting. If the battery method is used the engine may run rough or initially stall until it can rebuild the tuning data.

13) Once you have cleared the codes the secondary air system will no longer operate, keep you out of limp mode.

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

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or call

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