

Hewitt Technologies Inc.

The Hewitt-Tech Secondary Air Injection System Bypass Kit

V5446H – 4.6L 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.

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) Pull the engine cover up and forward to remove.



Figure 1 – Intake/Cover Removal



Figure 2 – ECT Sensor Location

- 2) Disconnect the factory wire harness connector from the ECT Sensor by firmly depressing the locking tab and pull the connector off. Connect the factory ECT connector to one the module's ECT Harness (Grey Connectors). Now connect the module's ECT harness to the ECT Sensor.

- 4) Route the module across the front of the intake and mount to the back of the air chamber on the intake tube as shown in Figure 3. 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.



Figure 3- Module Mounting Location

5) Route the bypass module's IAT harness (Black Connectors) to the front of the air box. Disconnect the IAT/MAF sensor and connect the module's IAT Harness to the factory connector and IAT/MAF sensor. Secure any loose harnesses out of the way with zip ties.



Figure 4 - Connect the IAT/MAF Sensor Harness



Figure 5 - IAT/MAF Harness Connected

6) To install the starter relay wire, locate the starter relay in one of the under-hood fuse boxes. On most vehicles, the relay is the exact same violet relay as shown in the figures below. It is usually labeled as ST or STA on the inside of the lid. On some Lexus vehicles and Land Cruisers the relay will may be a cube type with 4 terminals in a cross pattern if you have trouble identifying the correct terminal give us a call. Carefully remove the relay by pulling the base of the relay straight up and out of the terminal sockets. Do not pull on the plastic top only! The relay can be very difficult to remove so take your time or use a tool that can get underneath the relay and pry straight out.

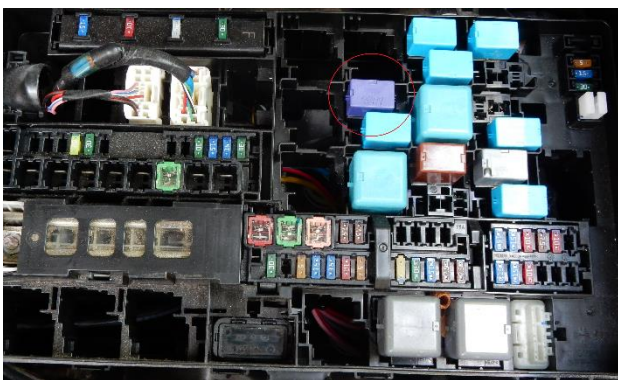


Figure 6 - Starter Relay Location - Location and Type May Vary

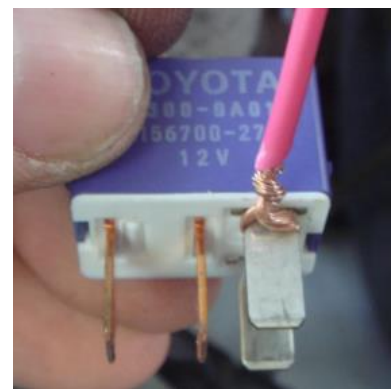


Figure 7 - Starter Signal Wire Tapped onto ECU Leg of Starter Relay

7) Strip the end of the starter relay wire that does not have a connector on it and temporarily connect it to the terminal as shown in Figure 7. **DO NOT** connect the starter signal wire to either of the larger copper terminals of the relay, they are for the starter solenoid and will damage the module. Firmly seat the relay back in its socket and make sure the wire is not creating a short to another terminal. If the relay is not fully seated or the terminals seem loose

when reinserting it, it may cause an intermittent or no crank condition. The terminal sockets can be tightened by slightly pinching them more closed with a pair of needle nose pliers.

8) Since connecting to the incorrect terminal may damage the bypass module and is not covered under our replacement warranty you will want to test it before connecting to the module. Use a Volt Meter or a Test Probe by connecting the positive lead of your tester to the 1/4" quick disconnect of the starter relay wire and the negative test lead to ground. There should be no voltage (<1V) present when the engine is off or running. Making sure the wire and harness are out of the way and crank the engine over. The Volt Meter or Test probe should ONLY show 5-12V DC (or light up) when the starter is engaged and cranking the engine over.

9) Disconnect the starter wire from the relay and fully connect it to the bypass module. Route the relay wire from the module towards the relay box. Routing the wire along the main harness to the firewall and around the back of the engine compartment is a convenient route and keeps the wire out of harm's way. While routing, you can also install it in split wire loom to give it a professional/factory look. Once you get it to the fuse box, cut your loom and relay wire to length. The wire can be routed into the box through an existing hole or you can create a hole or notch in the side of the fuse box. Once the wire is back in the fuse box reconnect it to the starter relay as previously tested. Use zip ties or electrical tape to secure the wire loom/starter relay wire through the engine compartment and close the fuse box.

9) Reinstall the engine cover.

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

11) Clear the engine trouble codes using an OBDII scanner. If you do not have access to an OBDII 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.

12) Congratulations! Once you have cleared the codes the secondary air system will no longer operate, and the bypass kit should prevent your trouble codes from coming back on and keep you out of limp mode.

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

www.Hewitt-Tech.com

or call

Toll Free 844-307-7671