SE8223-100 Modified Throttle Body

IMPORTANT, PLEASE READ AND FOLLOW THROUGH!

ECM Learning of your New Throttle Body

The SE8223-100 Modified Throttle Body (MTB) and its reworked variants increase airflow at part throttle 0-33% throttle position (TP) range from 80-120% above stock/OEM throttle body (TB), and 55-85% over other aftermarket ported throttle bodies (PTB). Once installed, the engine control module (ECM) does not compensate instantaneously in terms of fuel, timing, etc. for these airflow increases. Because the change is so drastic, the ECM is programmed to initially disregard this sudden airflow increase and rather compensate using time averages stored in memory, these come from mass airflow sensor (MAF) readings acquired from your previous TB/PTB.

The MAF sensor reads real time air flow of your new MTB and sends it to the ECM. The ECM will in turn start replacing the oldest time averaged values from your previous TB/PTB and recalculating a new MAF time average and adjusting fuel, timing, etc. over time, miles, driving cycles. **This is the learning period; your vehicle might not feel "smooth" in this period until the new MTB is fully learned.**

MAF readings outside ECM compensation range will set a diagnostic trouble code (DTC). These are not acceptable and indicate malfunctioning of the MTB. On the other hand, absence of a DTC upon installation and testing of your MTB indicates that the MAF offset is within ECM compensation limits and that the ECM will compensate for it given time to reconstruct the new MAF vs. TP curve/table. Fuel, timing, and other compensation types will follow MAF newer time averages of MAF vs. TP of your recently installed MTB.

There are two alternatives to relearn your new MTB. All equally effective given enough use.

A) OEM ECM reset (TB values only) tool and relearn procedure. Available at the dealership, or OEM approved service centers. No actions need to be taken by user.

B) **Full ECM reset and learning routine**. Consisting of overnight power down of ECM by disconnecting battery for several hours. Followed by steps below.

- Disconnect **negative battery terminal (black)** located under the trunk mat/carpet towards the rear-right corner of the trunk for at least 8 hours.

Test and Re-learn Instructions (Procedure B)

In case of perceived malfunction or if the MIL illuminates on your screen during any step of this test, turn engine off and replace throttle body. Do not attempt to drive until step 6 below.

1- Install modified throttle body and connect battery.

2- Start engine. Depending on engine temperature, engine will start idling in between 650-1100 RPM. If idling starts at greater than 650 RPM, it should slowly and consistently decrease RPM value to 650 RPM. Allow engine to **idle for three minutes** while monitoring idling process to ensure there are no RPM fluctuations greater than +/-30 RPM. Turn **engine off for one minute**.

3- Start engine and allow engine to **idle at 650 RPM for three additional minutes and until redline has retracted to 6500 RPM**. Accelerate engine slowly up to 4000 rpm. RPM's should always increase w/o interruptions. Remove your foot from accelerator pedal, RPM's should always decrease w/o interruptions.

4- Allow ECM partial learning of the new throttle body by repeating engine acceleration part of step 3 above four more times. Turn **engine off for one minute**.

5- Start engine and allow engine to idle at 650 RPM. While pressing brake, test transmission in D/Gear, R, and N while monitoring RPM's. Small fluctuations may occur while shifting. After shifting, RPM's should still be around 650 RPM and should not fluctuate more than +/-30 RPM.

6- Test drive safely. Chose a place away from public roads and where no people, pets or property is in harm's way. Allow the ECM to fully learn the newly installed TB as follows:

- **Drive normally at or above 44 mph and allow vehicle to decelerate**. Repeat 4 more times for 50-100 miles subdivided into 5-10 driving cycles, including cooldown periods between starts. (Normal everyday driving meets this step)
- For automatic transmissions, do not enter performance shift mode, driving in M mode is advised.
- Weather, Eco, or Touring modes are recommended during this period.
- Avoid high rates of change of throttle plate angle (aggressive acceleration).
- Revving up to 6500 RPM is okay if done progressively.

After meeting the full learning routine above, test all driving modes available in the car selector, performance shift mode, cruise control, and limp mode (disconnect ECM connector from throttle body). Bring tools and your original (OEM) throttle body to replace modified body in case of malfunction.

Testing limp mode will illuminate the MIL, but the code should go away after reconnecting TB to the ECM.