Component Procedures: Throttle Body

Table of Contents

Component Procedures: Throttle Body

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Throttle Body	12632172	Throttle Body	244.24	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Throttle Body > Throttle Body, R&R	B	0.6	0.4

Throttle Body Inspection and Cleaning (Article 11460)

- Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement .
- Fully open the throttle valve in order to Inspect the throttle body bore and the throttle valve plate for any deposits.
- Throttle position (TP) sensor
- Throttle actuator control components
- Sealed throttle shaft bearings
- Use a clean shop towel and Top Engine Cleaner GM P/N 1052626 or equivalent product in order to clean the throttle body bore and the throttle valve plate. If necessary, use a parts cleaning brush in order to remove heavy deposits.
- Install the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement .
- Perform the Throttle/Idle Learn procedure. Refer to Throttle or Idle Learn .

Throttle Body Assembly Replacement (Article 11459)

Callout Component Name
Preliminary Procedures Remove the fuel injector sight shield. Remove the outlet duct. Refer to Air Cleaner Outlet Duct Replacement .
Preliminary Procedures
- Remove the fuel injector sight shield.
- Remove the outlet duct. Refer to Air Cleaner Outlet Duct Replacement .

1 Throttle Body Assembly Fastener (Qty: 4) Caution: Refer to Fastener Caution . Tighten 10 Nm (89 lb in)
10 Nm (89 lb in)
2 Throttle Body Assembly Procedure Install a NEW throttle body seal. Disconnect the electrical connectors. Perform the throttle learn procedure. Refer to Control Module References .
Procedure
- Install a NEW throttle body seal.
- Disconnect the electrical connectors.
- Perform the throttle learn procedure. Refer to Control Module References .

Throttle or Idle Learn (Article 11462)

Description
The engine control module (ECM) learns the airflow through the throttle body to ensure the correct idle. The learned airflow values are stored within the ECM. These values are learned to adjust for production variation and will continuously learn during the life of the vehicle to compensate for reduced airflow due to throttle body coking. Anytime the throttle body airflow rate changes, for example due to cleaning or replacing, the values must be relearned.
An engine that had a heavily coked throttle body that has been cleaned or replaced may take several drive cycles to unlearn the coking. To accelerate the process, the scan tool has the ability to reset all learned values back to zero. A new ECM will also have values set to zero.
The idle may be unstable or a DTC may set if the learned values do not match the actual airflow.
Conditions for Running the Throttle Learn Procedure
Scan tool Idle Learn or Idle Learn Reset Procedure
- DTCs P0068, P0101, P0102, P0103, P0106, P0107, P0108, P0116, P0117, P0118, P0120, P0122, P0123, P0128, P0171, P0172, P0174, P0175, P0201-P0208, P0220, P0222, P0223, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271, P0273, P0274, P0276, P0277, P0279, P0280, P0282, P0283, P0300-P0308, P0351-P0358, P0496, P0601, P0604, P0606, P060D, P0641, P0651, P0697, P06A3, P06D2, P1248, P1249, P124A, P124B, P1516, P16A0-P16A2, P2101, P2119,

P2120, P2122, P2123, P2125, P2127, P2128, P2135, P2138, P2147, P2148, P2150, P2151, P2153, P2154, P2156, P2157, P216B, P216C, P216E, P216F, P217B, P217C, P217E, P217F, P2176, P2300, P2301, P2303, P2304, P2306, P2307, P2309, P2310, P2312, P2313, P2315, P2316, P2318, P2319, P2321, or P2322 are not set.
- Ignition ON, engine OFF.
- The vehicle speed sensor (VSS) is 0 km/h (0 MPH).

Service Bay/On Road Learn Procedure

- The engine speed is between 450–4,000 RPM.
- The manifold absolute pressure (MAP) is greater than 5 kPa.
- The mass air flow (MAF) is greater than 2 g/s.
- The ignition voltage is greater than 10 volts.

Diagnostic Aids

A un-metered air leak in the induction system or a small vacuum leak may not set a DTC. If the condition goes undetected, the ECM may learn an incorrect Throttle Body Idle Airflow Compensation value over time. The incorrectly learned value may cause various symptoms to occur such as rough or unstable idle speeds, and/or engine stall. If this condition is detected and repaired it will be necessary perform the Idle Learn procedure to ensure any symptoms are corrected.

Throttle Learn

Scan Tool Idle Learn or Idle Learn Reset Procedure – Performed after the throttle body is cleaned or replaced

- Ignition ON, engine OFF, perform the Idle Learn or Idle Learn Reset in Configuration/Reset or Module Setup.
- Engine idling, verify the scan tool Throttle Body Idle Airflow Compensation value is equal 0% and the engine is idling at a normal idle speed.
- Clear the DTCs and return to the diagnostic that referred you here.

Service Bay/On Road Idle Learn Procedure – Performed after the ECM is programmed or replaced

- Engine idling for 3 min.
- The ECM will start to learn the new idle cells and the scan tool Desired Idle Speed should start to decrease.
- Ignition OFF for 60 s.
- Start and idle the engine for 3 min.
- Verify the engine is idling normally.
- If the engine idle is not correct
- Operate the vehicle at speeds above 70 km/h (44 mph) with several decelerations and extended idles.
- If the engine idle is not correct. Ignition OFF for 60 s, repeat step 5.1.
- If the engine idle is correct.
- Clear any DTCs and return to the diagnostic that referred you here.
- If the engine idle is correct