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› Standard Motor Products TH105 Throttle Position Sensor User Manual

Standard Motor Products TH105

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MODEL: TH105

1. Product Overview

The Standard Motor Products TH105 is a high-quality throttle position sensor (TPS) designed for specific automotive applications. This sensor plays a crucial role in your vehicle's engine management system by monitoring the throttle valve's position and sending this data to the engine control unit (ECU). Accurate TPS readings are essential for proper fuel injection, ignition timing, and overall engine performance.

This manual provides essential information for the safe and effective installation, operation, and maintenance of your TH105 sensor.

2. Safety Information

Always prioritize safety when working on any vehicle. Failure to follow safety precautions can result in personal injury or damage to the vehicle.

- Ensure the vehicle's engine is off and cool before beginning any work.
- Disconnect the vehicle's battery to prevent accidental electrical shorts or activation of components.
- Wear appropriate personal protective equipment (PPE), such as safety glasses and gloves.
- Refer to your vehicle's service manual for specific instructions and torque specifications.
- If you are unsure about any step, consult a qualified automotive technician.

3. Setup and Installation

The TH105 Throttle Position Sensor is a direct-fit replacement part. Installation typically involves removing the old sensor and installing the new one in its place. The exact procedure may vary slightly depending on your vehicle's make and model.

1. **Locate the Existing TPS:** Identify the current throttle position sensor on your vehicle's throttle body. It is usually mounted on the side of the throttle body and connected to the throttle shaft.
2. **Disconnect Electrical Connector:** Carefully disconnect the electrical connector from the old TPS. Avoid pulling on the wires.

3. **Remove Mounting Screws:** Unscrew the mounting screws or bolts that secure the old TPS to the throttle body. Keep these fasteners for reuse if they are in good condition, or use new ones if provided.
4. **Remove Old Sensor:** Gently pull the old sensor straight off the throttle body. Note its orientation for correct installation of the new sensor.
5. **Inspect Mounting Surface:** Clean any debris or corrosion from the mounting surface on the throttle body.
6. **Install New Sensor:** Align the new TH105 sensor with the throttle shaft and mounting holes. Ensure it seats properly without forcing it. The sensor's internal mechanism must engage correctly with the throttle shaft.
7. **Secure Mounting Screws:** Reinstall the mounting screws or bolts and tighten them to the vehicle manufacturer's specified torque. Overtightening can damage the sensor or throttle body.
8. **Reconnect Electrical Connector:** Firmly connect the electrical connector to the new TH105 sensor until it clicks into place.
9. **Reconnect Battery:** Reconnect the vehicle's battery.
10. **Perform ECU Relearn (if necessary):** Some vehicles may require a throttle position sensor relearn procedure after replacement. Consult your vehicle's service manual or a professional technician for this step.



Figure 1: Top view of the TH105 Throttle Position Sensor, showing the main body and electrical connector.



Figure 2: Bottom view of the TH105 Throttle Position Sensor, highlighting the mounting tabs and central shaft opening.

4. Operating Principle

The throttle position sensor (TPS) is a potentiometer that measures the angle of the throttle plate. As the driver presses the accelerator pedal, the throttle plate opens, and the TPS sends a corresponding voltage signal to the vehicle's Engine Control Unit (ECU). The ECU uses this signal to determine the engine's load and the driver's power demands. This information is critical for:

- **Fuel Delivery:** Adjusting the amount of fuel injected into the engine.
- **Ignition Timing:** Optimizing spark timing for combustion efficiency.
- **Automatic Transmission Shifting:** Influencing shift points in automatic transmissions.
- **Idle Speed Control:** Contributing to stable idle speed.

A properly functioning TPS ensures smooth acceleration, good fuel economy, and reduced emissions.

5. Maintenance

Throttle position sensors are generally maintenance-free components. They are designed for long-term reliability. However, regular vehicle maintenance, including keeping the throttle body clean, can help ensure the longevity and accurate operation of the TPS.

- **Inspection:** During routine vehicle inspections, visually check the TPS and its wiring for any signs of damage, corrosion, or loose connections.
- **Cleaning:** While the sensor itself typically does not require cleaning, ensuring the throttle body is free of carbon buildup can prevent issues that might indirectly affect TPS readings. Use a throttle body cleaner specifically designed for automotive use.
- **Replacement:** If the sensor shows signs of failure (see Troubleshooting section), it should be replaced. TPS units are not typically repairable.

6. Troubleshooting

A faulty throttle position sensor can cause various drivability issues. Common symptoms include:

- **Rough Idle or Stalling:** The engine may idle erratically or stall, especially when coming to a stop.
- **Hesitation or Surging:** The vehicle may hesitate during acceleration or surge unexpectedly.
- **Poor Fuel Economy:** Incorrect fuel delivery due to inaccurate TPS readings can lead to increased fuel consumption.
- **Check Engine Light (CEL):** The ECU may detect a fault and illuminate the Check Engine Light, often accompanied by specific diagnostic trouble codes (DTCs) related to the TPS.
- **Transmission Shifting Issues:** Erratic or harsh shifts in automatic transmissions.

Diagnostic Steps:

1. **Check for DTCs:** Use an OBD-II scanner to retrieve any stored diagnostic trouble codes. Codes like P0120, P0121, P0122, P0123, or P0124 often indicate a TPS issue.
2. **Inspect Wiring and Connector:** Visually inspect the TPS wiring harness and connector for any signs of damage, fraying, corrosion, or loose pins.
3. **Voltage Test (Advanced):** A multimeter can be used to test the voltage output of the TPS across its operating range. This requires knowledge of the sensor's pinout and expected voltage values, which are typically found in a vehicle-specific service manual. The voltage should increase smoothly as the throttle is opened and decrease smoothly as it closes, without any drops or spikes.

If symptoms persist after checking connections and no other issues are found, replacement of the TPS is usually the solution.



Figure 3: Close-up of the TH105 electrical connector, showing the pin configuration.

7. Specifications

Key specifications for the Standard Motor Products TH105 Throttle Position Sensor:

Specification	Value
Brand	Standard Motor Products
Model Number	TH105
Item Weight	0.23 Pounds (approx. 3.68 ounces)
Product Dimensions (L x W x H)	5 x 5 x 3 inches
Mounting Type	Flange Mount
UPC	091769155285
Manufacturer Part Number	TH105

8. Warranty and Support

For specific warranty information regarding your Standard Motor Products TH105 Throttle Position Sensor, please refer to the documentation included with your purchase or visit the official Standard Motor Products website. Warranty terms and conditions may vary.

For technical support, installation assistance, or further inquiries, please contact Standard Motor Products customer service directly or consult a certified automotive professional. You can typically find contact information on the manufacturer's official website: www.smpcorp.com

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