Dorman 977-161

Dorman 977-161 Electronic Throttle Body Instruction Manual

Model: 977-161

1. Product Overview

The Dorman 977-161 Electronic Throttle Body is an upgraded replacement component designed to address common failure points found in original equipment throttle bodies. It features Dorman Sensor Shield technology, which incorporates a proprietary butterfly shaft seal to prevent contamination from moisture and oil, thereby enhancing durability and reliability.

Figure 1.1: Dorman 977-161 Electronic Throttle Body with included gasket. This image displays the main component and its sealing accessory.

Key Features:

- **Upgraded Design:** Enhanced internal components to prevent future failures common in original equipment.
- **New Construction:** Manufactured with 100% new cast aluminum, ensuring reliability and eliminating core charges.
- **Sensor Shield Technology:** Features a proprietary butterfly shaft seal to protect internal electronics from moisture and oil intrusion.
- **Direct Replacement:** Designed for straightforward installation, matching original equipment specifications with a plug-and-play electrical connector.
- **Quality Engineering:** Developed in the United States, backed by extensive automotive aftermarket experience.

What's in the Box:

- 1 Electronic Throttle Body (Dorman 977-161)
- 1 Gasket

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2. Installation (Setup)

Installation of the Dorman 977-161 Electronic Throttle Body is designed to be a direct replacement for the original equipment. However, due to the critical nature of this component to vehicle operation and safety, professional installation by a qualified technician is highly recommended.

General Installation Steps (Consult Vehicle Service Manual for Specifics):

1. **Safety First:** Disconnect the vehicle's battery before beginning any work. Ensure the engine is cool.
2. **Access:** Locate the existing throttle body. This typically involves removing air intake components (e.g., air filter housing, intake tube).
3. **Disconnect:** Carefully disconnect the electrical connector and any vacuum lines or coolant hoses attached to the old throttle body.
4. **Remove Old Unit:** Unbolt the old throttle body from the intake manifold. Note the orientation for the new installation.
5. **Prepare New Unit:** Ensure the mating surface on the intake manifold is clean and free of old gasket material. Install the new gasket provided with the Dorman 977-161.
6. **Install New Unit:** Position the Dorman 977-161 Electronic Throttle Body onto the intake manifold, ensuring the gasket is properly seated. Secure it with the appropriate bolts, tightening to the manufacturer's specified torque.
7. **Reconnect:** Reconnect the electrical connector, vacuum lines, and coolant hoses (if applicable).
8. **Reassemble:** Reinstall all air intake components removed earlier.
9. **Final Steps:** Reconnect the vehicle's battery. Perform any necessary throttle body relearn procedures as specified by the vehicle manufacturer. This often involves specific ignition key cycles or diagnostic tool commands.

Important: Always refer to your vehicle's specific service manual for detailed, model-specific installation instructions and torque specifications.

Figure 2.1: Side view of the Dorman 977-161 Electronic Throttle Body, showing mounting points and connections.

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3. Operating Principles

The electronic throttle body is a crucial component of a vehicle's engine management system. It controls the

amount of air entering the engine, which directly affects engine speed and power output. Unlike older mechanical throttle bodies, the Dorman 977-161 operates electronically, receiving signals from the vehicle's Engine Control Unit (ECU) based on accelerator pedal input and other sensor data.

How it Works:

- When the accelerator pedal is pressed, a sensor (accelerator pedal position sensor) sends a signal to the ECU.
- The ECU processes this signal along with data from other sensors (e.g., engine speed, manifold pressure, coolant temperature).
- The ECU then sends a command to the electronic throttle body's internal motor.
- The motor precisely opens or closes the throttle plate (butterfly valve) within the throttle body, regulating airflow into the engine.
- This electronic control allows for more precise engine management, improving fuel efficiency, emissions, and vehicle performance.

Figure 3.1: Illustration of Dorman's OE FIX Sensor Shield technology, highlighting the internal seal that protects electronics from contamination.

4. Maintenance

The Dorman 977-161 Electronic Throttle Body is designed for long-term reliability. Regular maintenance typically involves ensuring the air intake system is clean and free of debris, which can affect throttle body function.

Recommended Practices:

- **Air Filter Inspection:** Regularly inspect and replace the engine air filter according to your vehicle manufacturer's recommendations. A dirty air filter can restrict airflow and introduce contaminants to the throttle body.
- **Intake System Check:** Periodically check the air intake tube and connections for cracks, leaks, or loose clamps that could allow unfiltered air or debris to bypass the air filter and enter the throttle body.
- **Cleaning (If Necessary):** If carbon buildup or debris is observed on the throttle plate or bore, cleaning may be necessary. This should be done carefully using a throttle body cleaner specifically designed for electronic throttle bodies, and only when the throttle body is removed from the vehicle or with extreme caution to avoid damaging internal electronics. **Never force the throttle plate open manually on an electronic throttle body.**

Note: The Sensor Shield technology in the Dorman 977-161 helps protect against internal contamination, reducing the need for frequent internal cleaning.

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5. Troubleshooting

If you experience issues after installing or while using the Dorman 977-161 Electronic Throttle Body, consider the following common troubleshooting steps. Always consult a qualified technician for diagnosis and repair.

Common Symptoms and Potential Causes:

- **Check Engine Light (CEL) / Malfunction Indicator Lamp (MIL):**
  - **Cause:** Improper installation, loose electrical connection, or a necessary throttle body relearn procedure not performed.
  - **Action:** Verify all connections are secure. Ensure the throttle body relearn procedure has been completed according to vehicle manufacturer specifications. Use an OBD-II scanner to retrieve diagnostic trouble codes (DTCs) for further diagnosis.
- **Reduced Engine Power / Limp Mode:**
  - **Cause:** The ECU has detected a fault with the throttle body or related sensors and has limited engine power to prevent damage.
  - **Action:** This often accompanies a CEL. Check for DTCs. Re-verify installation and relearn procedure. Inspect wiring for damage.
- **Rough Idle or Stalling:**
  - **Cause:** Air leaks in the intake system, incorrect throttle body calibration, or issues with other engine sensors.
  - **Action:** Check for vacuum leaks around the throttle body and intake manifold. Ensure the relearn procedure was successful.
- **Unresponsive Accelerator Pedal:**

- **Cause:** Faulty accelerator pedal position sensor, wiring issue, or a problem with the throttle body's internal motor.
- **Action:** Professional diagnosis is required to pinpoint the exact cause.

Disclaimer: This troubleshooting guide provides general information. Always consult a certified automotive technician for accurate diagnosis and repair of vehicle issues.

6. Specifications

Attribute	Detail
Brand	Dorman
Model Number	977-161
Manufacturer Part Number	977-161
OEM Part Numbers	67-3000; ETB0019; S20006; TB1008; 12570800; 12679525; 19420713
Item Weight	1 pound
Product Dimensions	10.23 x 7.08 x 5.9 inches
Material	100% New Cast Aluminum
Technology	Dorman Sensor Shield

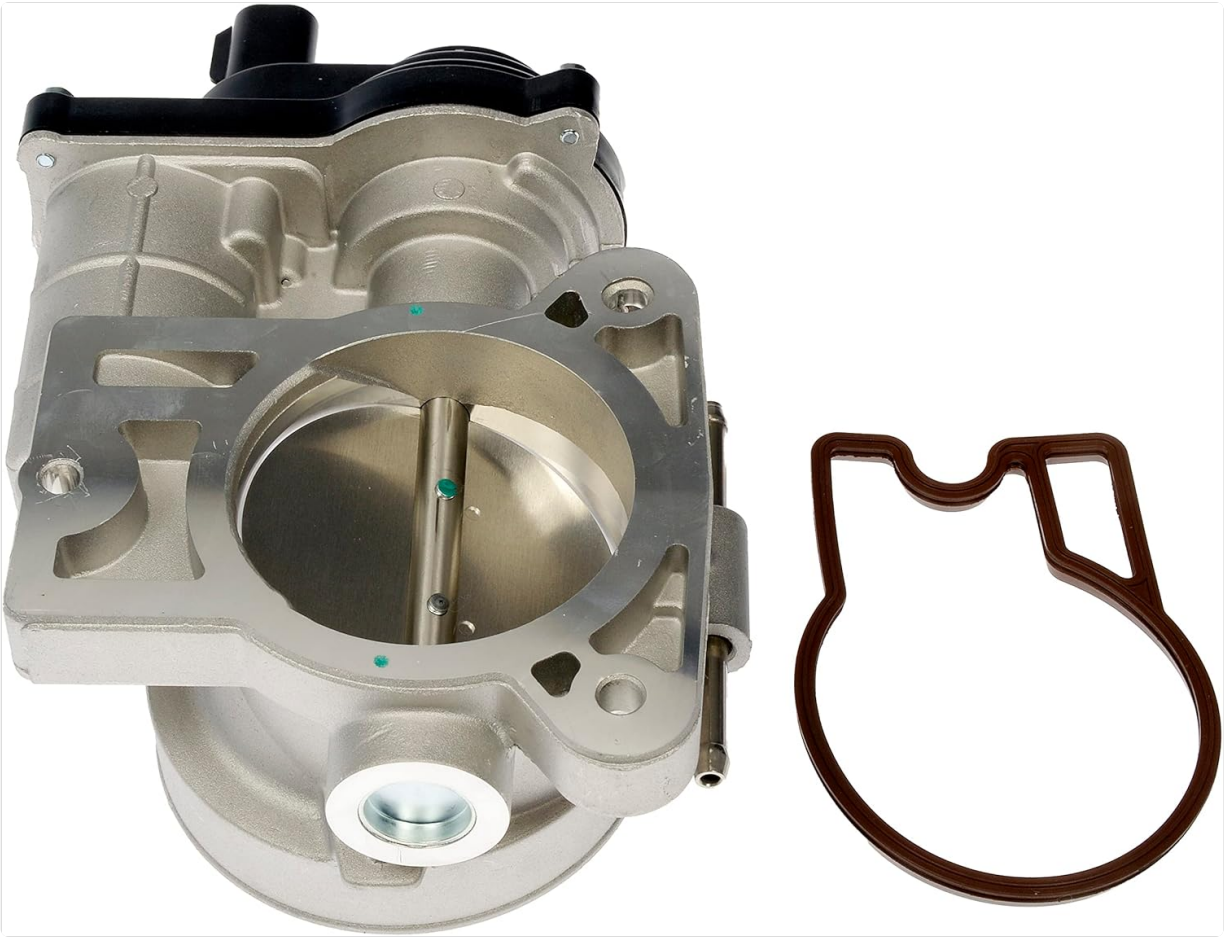

Figure 6.1: Top-down view of the Dorman 977-161 Electronic Throttle Body, showing the throttle plate and mounting holes.

7. Warranty and Support

For information regarding the warranty coverage for your Dorman 977-161 Electronic Throttle Body, please refer to the warranty documentation included with your purchase or visit the official Dorman website. Warranty terms and conditions may vary.

Customer Support:

If you require technical assistance, have questions about installation, or need to report a product issue, please contact Dorman customer support directly. Contact information can typically be found on the product packaging or on the official Dorman website.

When contacting support, please have your product model number (977-161) and any relevant purchase information readily available.