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› [Standard Motor Products](#) /

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Model: EM4659

INTRODUCTION

This manual provides essential information for the proper installation, operation, maintenance, and troubleshooting of the Standard Motor Products EM4659 Engine Control Module (ECM). Please read this manual thoroughly before attempting any installation or operation to ensure safe and effective use of the product.

The EM4659 is a remanufactured Engine Control Module designed to meet or exceed OEM specifications, ensuring reliable performance for your vehicle's engine management system.

PRODUCT OVERVIEW



Figure 1: Standard Motor Products EM4659 Engine Control Module. This image shows the black, rectangular module with various ports and connectors, including a large intake-like opening on one side and an exhaust-like opening on the other, along with an orange reflective element and electrical connectors.

The EM4659 Engine Control Module is a critical component in modern vehicle engine management systems. It processes data from various engine sensors and controls actuators to ensure optimal engine performance, fuel efficiency, and emissions control.

SAFETY INFORMATION

Always observe the following safety precautions:

- Disconnect the vehicle's battery before installing or removing the ECM to prevent electrical shock or damage to components.
- Wear appropriate personal protective equipment (PPE), such as safety glasses and gloves.

- Ensure the vehicle is on a stable, level surface and properly supported if working underneath.
- Consult a qualified automotive technician if you are unsure about any installation or diagnostic procedures.

SETUP AND INSTALLATION

Pre-Installation Checks

- Verify that the EM4659 is the correct part number for your vehicle's make, model, and year.
- Inspect the new ECM for any visible damage from shipping.
- Ensure all necessary tools are available, including wrenches, screwdrivers, and diagnostic scan tools (if required for programming).

Installation Steps

1. **Disconnect Battery:** Locate the vehicle's battery and disconnect the negative (-) terminal first, followed by the positive (+) terminal.
2. **Locate Old ECM:** Refer to your vehicle's service manual for the exact location of the existing ECM. Common locations include under the hood, inside the passenger compartment, or in the trunk.
3. **Remove Old ECM:** Carefully disconnect all electrical connectors from the old ECM. Note their positions for reinstallation. Unbolt or unclip the old ECM from its mounting bracket.
4. **Install New EM4659:** Mount the new EM4659 in the same location as the old unit. Secure it with the original bolts or clips.
5. **Connect Electrical Connectors:** Reconnect all electrical connectors to the new EM4659, ensuring they are fully seated and locked into place.
6. **Reconnect Battery:** Reconnect the positive (+) battery terminal first, then the negative (-) terminal.
7. **Initial Start-up and Programming (if applicable):** Some ECMs require programming or a "relearn" procedure after installation. Consult your vehicle's service manual or a qualified technician for specific instructions. This may involve using a diagnostic scan tool.

OPERATING PRINCIPLES

The EM4659 ECM functions as the "brain" of your vehicle's engine. It continuously monitors various engine parameters through sensors, such as:

- Engine speed (RPM)
- Throttle position
- Mass airflow
- Oxygen levels in exhaust
- Coolant temperature
- Vehicle speed

Based on these inputs, the ECM calculates and adjusts critical engine functions, including:

- Fuel injection timing and duration
- Ignition timing
- Idle speed control
- Variable valve timing (if equipped)
- Transmission shift points (in some integrated systems)

Proper operation of the EM4659 ensures optimal engine performance, fuel economy, and compliance with emission standards.

MAINTENANCE

The Standard Motor Products EM4659 Engine Control Module is a sealed unit and generally requires no routine maintenance. However, its longevity and performance are directly linked to the overall health of your vehicle's electrical system and engine components.

Recommendations:

- **Battery Health:** Ensure your vehicle's battery is in good condition and maintains proper voltage. A weak or failing battery can cause erratic ECM behavior or damage.
- **Ground Connections:** Periodically check and clean all ground connections in the engine bay and chassis to ensure good electrical conductivity. Poor grounds can lead to electrical noise and affect ECM performance.
- **Wiring Harnesses:** Inspect wiring harnesses connected to the ECM for any signs of fraying, corrosion, or damage. Repair or replace damaged wiring promptly.
- **Sensor Integrity:** Ensure all engine sensors (e.g., O2 sensors, MAF sensor, coolant temperature sensor) are functioning correctly, as their inputs directly affect ECM operation.
- **Avoid Water Exposure:** While designed to be robust, avoid direct exposure of the ECM to excessive water or moisture.

TROUBLESHOOTING

If you experience issues after installing the EM4659, consider the following common troubleshooting steps. Note that complex ECM issues often require professional diagnostic equipment.

Symptom	Possible Cause	Solution
Engine cranks but does not start	Incorrect ECM programming; security system not reset; faulty sensor input; poor electrical connection.	Verify ECM programming/relearn procedure; check security system status; inspect sensor connections; ensure all ECM connectors are fully seated.
Check Engine Light (CEL) illuminated	Faulty sensor; wiring issue; ECM internal fault (less common for remanufactured units).	Use an OBD-II scanner to retrieve diagnostic trouble codes (DTCs); diagnose and repair the component indicated by the DTC.
Erratic engine performance (rough idle, misfires)	Incorrect ECM programming; vacuum leak; faulty ignition components; fuel delivery issues.	Confirm ECM programming; check for vacuum leaks; inspect spark plugs, coils, and fuel injectors.
No communication with OBD-II scanner	Blown fuse for OBD-II port or ECM; faulty OBD-II port; ECM power/ground issue.	Check relevant fuses; inspect OBD-II port wiring; verify power and ground connections to the ECM.

Note: If troubleshooting steps do not resolve the issue, it is recommended to seek assistance from a certified automotive technician.

SPECIFICATIONS

Attribute	Detail
Model Number	EM4659
Brand	Standard Motor Products
Product Type	Engine Control Module (ECM) - Remanufactured
Item Weight	2.1 pounds

Attribute	Detail
Package Dimensions	9.8 x 6.9 x 2 inches
Manufacturer Part Number	EM4659
UPC	091769250843

WARRANTY INFORMATION

Standard Motor Products offers a limited warranty on its remanufactured parts, including the EM4659 Engine Control Module. Warranty terms and conditions typically cover defects in material and workmanship under normal use and service. The duration and specifics of the warranty may vary. Please retain your proof of purchase.

For detailed warranty information, including coverage period and claims procedures, please refer to the official Standard Motor Products website or contact their customer support directly. Warranty claims usually require the part to be returned to the place of purchase or directly to the manufacturer for inspection.

CUSTOMER SUPPORT

For technical assistance, product inquiries, or warranty claims regarding your Standard Motor Products EM4659 Engine Control Module, please contact Standard Motor Products customer support:

- **Website:** Visit the official Standard Motor Products website for FAQs, technical bulletins, and contact forms. *(Specific URL not provided, user should search for "Standard Motor Products official website")*
- **Phone:** Consult the Standard Motor Products website for their customer service phone number.
- **Authorized Dealers:** Contact your local authorized Standard Motor Products dealer or distributor for support.

When contacting support, please have your product model number (EM4659) and proof of purchase readily available.

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