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Mass Air Flow Sensor – Ten Warranty Reduction Tips

Application:

Vehicles equipped with Mass Air Flow (MAF) sensors.

Problem:

Replacement unit does not correct the original problem, or the replacement unit fails after short use.

Cause:

MAF sensor failure analysis has shown that many failures are the result of an external problem. Before installing a replacement unit, make every effort to determine why the original unit failed. Shorted wiring, failed connections or contaminated air flow must be corrected, and the engine must be properly tuned. If all necessary repairs are not applied, the replacement unit will fail or not perform as expected.

Solution:

The maintenance and installation tips listed below are some of the procedures that should be performed when replacing a MAF unit.



SCAN FOR
TECH TIP VIDEO

1. Check for trouble codes. The vehicle may have problems preventing the sensor from proper operation. Repair or correct as required.
2. Inspect wiring and connectors. Repair or replace as needed.
3. Verify reference voltage and grounds. Typically, the ECM supplies a regulated reference voltage to the sensor. If not present, check ECM operation. In addition to performing ground continuity checks, it is recommended to perform voltage drop tests on all grounds.
4. Be sure to eliminate any vacuum leaks downstream of the MAF sensor. If not corrected, this will introduce unmetered air into the system, resulting in a drivability issue and most likely illuminating the check engine light. Inspect the air inlet duct and connections; check for loose clamps, duct cracks or other damage.
5. Check air ways for obstruction. Replace the air filter with an O.E.-approved air filter. Note that some so-called high performance filters may not meet O.E. standards.
6. Check for oil-impregnated air filters. If excessive oil is applied or if the filter is improperly serviced, it is possible for oil residue to build up on the MAF sensor element. Be certain the filter meets O.E. standards and is properly installed and maintained.

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7. Inspect electrical connector weather seal condition. If a weather seal is used on the electrical connector, be sure it is transferred to the replacement unit. Inspect for damage and install on the connector properly to ensure water intrusion protection.
8. Prevent static discharge and voltage surges. Protect the replacement unit from static electricity discharge. Be sure to disconnect the battery ground cable before unplugging the MAF unit. Note: Provide keep-alive power to avoid loss of adaptive strategies and settings in other modules.
9. Check for proper operation using a diagnostic scanner (if available). Verify sensor data and check for vehicle trouble codes.
10. Always follow the vehicle's service manual for specific diagnostics and complete installation instructions. Be sure to use proper tools, techniques and safety procedures when servicing the vehicle.

MAF sensors are designed for long service life and reliable operation. Applying these tips and correcting related vehicle problems will lead to a successful installation, protect the replacement unit, and allow it to perform as expected.

Note:

Please refer to your vehicle's service manual for specific diagnostic instructions. This ProTech bulletin is supplied as technical information only and is not an authorization for repair.