

## Engine Control Module Replacement

Engine control module (ECM) service should normally consist of either ECM replacement or electrically erasable programmable read only memory (EEPROM) programming. If the diagnostic procedures require ECM replacement, inspect the ECM first to see if the correct part is being used.

**Important:** In order to prevent internal ECM damage, the ignition must be OFF when you disconnect or reconnect the power to the ECM. For example, disconnect the power when you work with the following components:

- A battery cable
- The ECM pigtail
- The ECM fuse
- Jumper cables

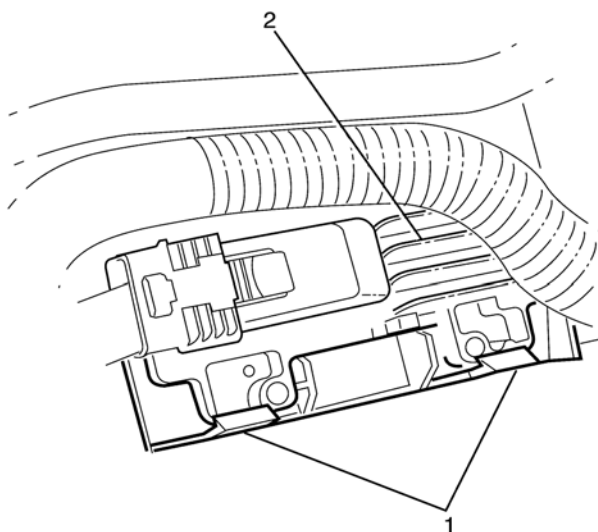
**Important:** When you diagnose or replace the ECM, remove any debris from the ECM connector surfaces before servicing the ECM module connector gaskets. Make sure that the gaskets are installed correctly. The gaskets prevent contamination intrusion into the ECM.

**Important::** The replacement ECM MUST be programmed.

### Removal Procedure

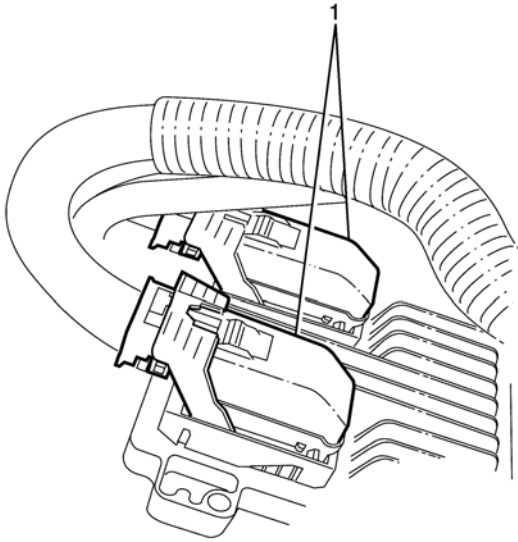
**Important:** It is necessary to record the remaining engine oil life. If the replacement module is not programmed with the remaining engine oil life, the engine oil life will default to 100%. If the replacement module is not programmed with the remaining engine oil life, the engine oil will need to be changed at 5000 km (3,000 mi) from the last engine oil change.

1. Using a scan tool, retrieve the percentage of remaining engine oil. Record the remaining engine oil life.
2. Disconnect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#) .

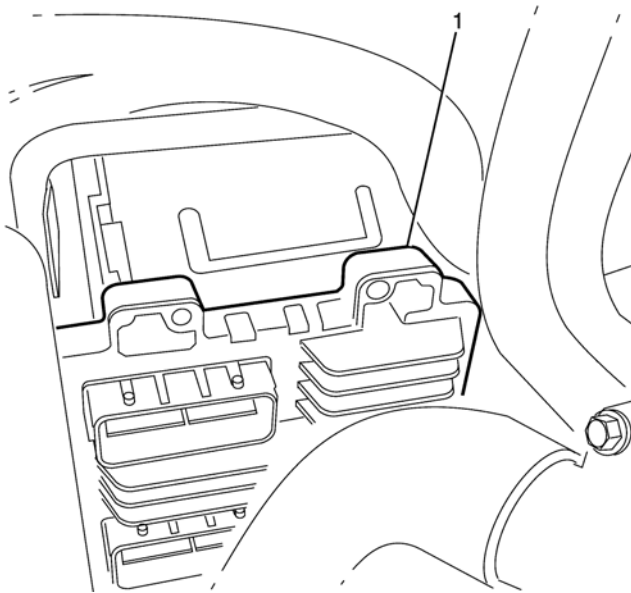




3. Release the ECM retaining clips (1) and detach the ECM (2).



4. Move the connector lock levers to the unlock position and disconnect the ECM electrical connectors (1).

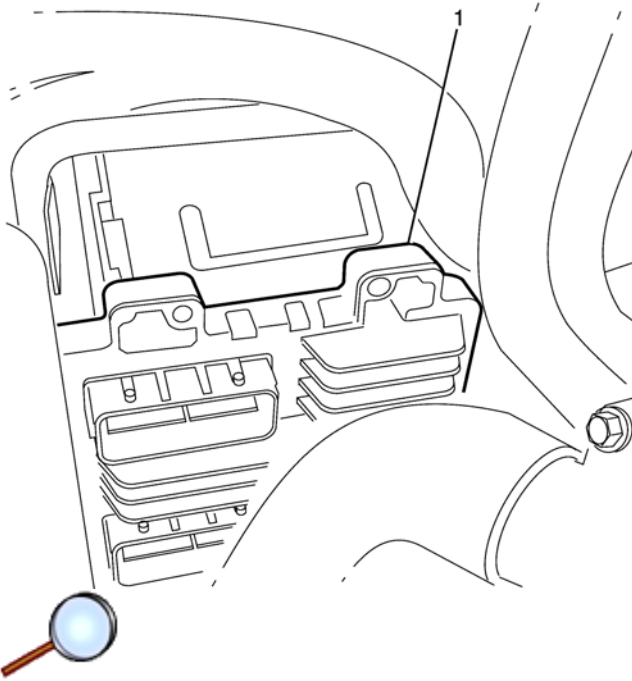


5. Remove the ECM from the vehicle.

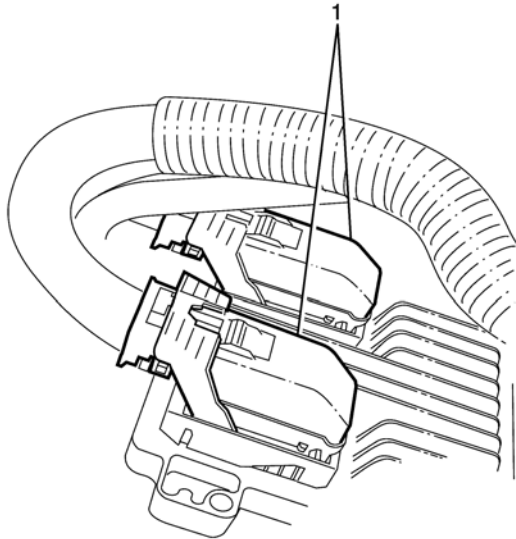
## Installation Procedure

**Notice:** Do not touch the connector pins or soldered components on the circuit board in order to prevent possible electrostatic discharge (ESD) damage to the PCM.

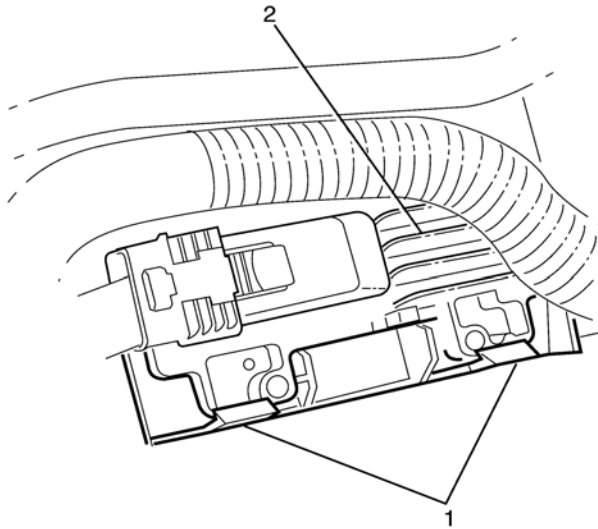
**Notice:** In order to prevent internal damage to the PCM, the ignition must be OFF when disconnecting or reconnecting the PCM connector.



1. Install the ECM to the vehicle.



2. Connect the ECM electrical connectors (1).



3. Engage the ECM retaining clips (1) to secure the ECM (2).
4. Connect the negative battery cable. Refer to [Battery Negative Cable Disconnection and Connection](#) .
5. If a new ECM is being installed, program the ECM. Refer to [Service Programming System \(SPS\)](#) .