2.15 ELECTRONIC ENGINE CONTROL

The Detroit Diesel Electronic Control System (DDEC) controls fuel injection timing and output by the electronic unit injectors (EUI) on the Series 60 Diesel engine. DDEC controls throttle, gas valve and the ignition system on the Series 60G engine. The system also monitors several engine functions using electrical sensors which send electrical signals to the Electronic Control Module (ECM). The ECM then computes the incoming data and determines the correct fuel output and timing for optimum power, fuel economy and emissions. The ECM also has the ability to display warnings or shut down the engine completely (depending on option selection) in the case of damaging engine conditions, such as low oil pressure, low coolant, or high oil temperature.

Early Series 60 engines have the DDEC system called DDEC I. Later Series 60 engines have the 2nd generation DDEC system called DDEC II. See Figure 2-78. The current engines have the third generation DDEC system, DDEC III/IV.

Series 60 2004 Exhaust Gas Recirculation (EGR) engines will use the fifth generation of the DDEC system, DDEC V® Electronic Control Unit. See Figure 2-78a.

The replacement of DDEC components is based on indicated diagnostic codes leading to faulty components. Check the Detroit Diesel Single ECM Troubleshooting Manual (6SE497) for more complete information on diagnosis of components and system problems.

![Figure 2-78](DDEC III/IV and DDEC II Electronic Control Module (ECM))
Figure 2-78a  DDEC V Electronic Control Unit
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2.16 DDEC III/IV ELECTRONIC CONTROL MODULE

DDEC III/IV provides an indication of engine and vehicle malfunctions. The ECM continually monitors the DDEC III/IV system. See Figure 2-79 and see Figure 2-80.

![Diagram of DDEC III/IV system](image)

**Figure 2-79** DDEC III/IV System Series 60 Diesel Engine