

SECTION A

DIGITAL FUEL INJECTION DIAGNOSIS (6.0L V8-6-4)

ALL NEW G.M. VEHICLES ARE CERTIFIED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AS CONFORMING TO THE REQUIREMENTS OF THE REGULATIONS FOR THE CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES. THIS CERTIFICATION IS CONTINGENT ON CERTAIN ADJUSTMENTS BEING SET TO FACTORY STANDARDS. IN MOST CASES, THESE ADJUSTMENT POINTS EITHER HAVE BEEN PERMANENTLY SEALED AND/OR MADE INACCESSIBLE TO PREVENT INDISCRIMINATE OR ROUTINE ADJUSTMENT IN THE FIELD. FOR THIS REASON, THE FACTORY PROCEDURE FOR TEMPORARILY REMOVING PLUGS, CAPS, ETC. FOR PURPOSES OF SERVICING THE PRODUCT MUST BE STRICTLY FOLLOWED AND, WHEREVER PRACTICABLE, RETURNED TO THE ORIGINAL INTENT OF THE DESIGN.

TABLE OF CONTENTS

"Trouble Codes"	A-1	Code 70	A-4
Intermittent Codes vs. Hard Failures.....	A-1	Switch Tests Procedure	A-6
"Trouble Code" Diagnosis	A-2	Engine Data Display Procedure	A-7
Intermittent Problem Diagnosis.....	A-2	Output Cycling Tests Procedure.....	A-8
ECM Service Precautions.....	A-3	Cylinder Select Test Procedure.....	A-8
How to "Enter" Diagnostic Mode.....	A-3	Chart A - Multiple Codes Stored Hard	A-10
How to "Clear" Trouble Codes.....	A-3	Trouble Codes 12 through 68.....	A-12
How to "Exit" Diagnostic Mode.....	A-3	Switch Test Codes 71 through 80.....	A-80
Diagnosis Procedure	A-4	Performance Charts.....	A-98

DIGITAL FUEL INJECTION (DFI)

DIAGNOSIS

"TROUBLE CODES"

The following abbreviations will be used in this section:

BARO - Barometric Pressure (Sensor)
 CTS - Coolant Temperature Sensor
 ECC - Electronic Climate Control
 ECM - Electronic Control Module
 EGR - Exhaust Gas Recirculation
 EST - Electronic Spark Timing
 HEI - High Energy Ignition
 ISC - Idle Speed Control (includes Idle Speed Motor and Throttle Switch)
 MAP - Manifold Absolute Pressure (Sensor)
 MAT - Manifold Air Temperature (Sensor)
 MD - Modulated Displacement
 MDA - Modulated Displacement Amplifier
 MPG - Miles Per Gallon (Display Panel)
 TPS - Throttle Position Sensor

The dash-mounted "CHECK ENGINE" light is used to inform the technician of detected system malfunctions or abnormalities. These malfunctions may be related to the various operating sensors or to the ECM itself. The light goes out automatically if the fault clears (intermittent). However, the ECM stores the trouble code associated with the detected failure until the diagnostic system is "Cleared" or until 20 ignition switch (on-off) cycles have occurred without any fault reappearing.

Proper operation of the light is as follows:

- The light is normally off.
- A bulb check is performed when the ignition is in the "On" and "Crank" positions. When the engine starts, the bulb goes out.
- The light comes on and stays on when a constant malfunction is detected.
- If a malfunction is intermittent, the light will go out when the malfunction is not present. The light will come on each time a malfunction is detected (may flicker).
- The light stays on when the system is displaying the diagnostic routine.

The dash mounted digital display panel, normally used for the ECC system, can be temporarily directed to display trouble codes stored in the ECM. Trouble codes programmed into the DFI ECM are listed and identified in **Figure A-1**.

INTERMITTENT CODES VERSUS HARD FAILURES

For codes 12 through 38 and code 51, the check engine light will go out automatically if the malfunction clears. However, the ECM stores the trouble code associated with the detected failure until the diagnostic system is cleared or until 20 ignition cycles have occurred without any fault reappearing. This condition is known as an intermittent failure.

Therefore, the ECM may have two types of trouble codes stored in its memory. These two code types are: