components identified. When servicing the engine or emissions systems, the VECI label in your particular vehicle should always be checked for up-to-date information.

2 Electronic control system and ECU

General description

Note: *These models are susceptible to ECU damage if water is allowed to build up in the front cowl drain and overspill into the dash area near the computer. Inspect and clear the front cowl drain as a regular maintenance item to keep the water draining properly. Remove the duckbill-type rubber hose and inspect it for clogging, collapsing or deterioration.*

1 The Lucas LH Engine Management system controls the fuel injection system by means of a microcomputer known as the Electronic Control unit (ECU).

2 The ECU receives signals from various sensors which monitor changing engine operating conditions such as intake air mass, intake air temperature, coolant temperature, engine rpm, acceleration/deceleration, exhaust oxygen content, etc. These signals are utilised by the ECU to determine the correct injection duration.

3 The system is analogous to the central nervous system in the human body: The sensors (nerve endings) constantly relay signals to the ECU (brain), which processes the data and, if necessary, sends out a command to change the operating parameters of the engine (body).

4 Here's a specific example of how one portion of this system operates: An oxygen sensor, located in the exhaust manifold, constantly monitors the oxygen content of the exhaust gas. If the percentage of oxygen in the exhaust gas is incorrect, an electrical signal is sent to the ECU. The ECU takes this information, processes it and then sends a command to the fuel injection system telling it to change the air/fuel mixture. This happens in a fraction of a second and it goes on continuously when the engine is running. The end result is an air/fuel mixture ratio which is constantly maintained at a predetermined ratio, regardless of driving conditions.

5 In the event of a sensor malfunction, a backup circuit will take over to provide driveability until the problem is identified and fixed.

Precautions

6 Follow these steps:

a) Always disconnect the power by either turning off the ignition switch or disconnecting the battery terminals before removing electrical connectors.

Warning: Later models are equipped with airbags. To prevent accidental deployment of the airbag, which could cause personal injury, DO NOT work in the vicinity of the steering column or instrument panel. The manufacturer recommends that, on airbag equipped models, the following procedure should be left to a dealer service department or other repair workshop because of the special tools and techniques required to disable the airbag system.

Caution: If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.

b) When refitting a battery, be particularly careful to avoid reversing the positive and negative battery cables. Also, make sure the ignition key is in the Off position when connecting or disconnecting the battery.

c) Do not subject EFI components, emissions-related components or the ECU to severe impact during removal or refitting.

d) Do not be careless during fault diagnosis. Even slight terminal contact can invalidate a testing procedure and damage one of the numerous transistor circuits.

e) Never attempt to work on the ECU or open the ECU cover. The ECU is protected by a government-mandated extended warranty that will be nullified if you tamper with or damage the ECU.

f) If you are inspecting electronic control system components during rainy weather, make sure that water does not enter any part. When washing the engine compartment, do not spray these parts or their electrical connectors with water.

g) These models are susceptible to ECU damage if water is allowed to build up in the front cowl drain and overspill into the dash area. Inspect and clear the front cowl drain system as a regular maintenance item to keep the water draining properly. Remove the duckbill type rubber hose and inspect it for clogging, collapsing or deterioration.

ECU removal and refitting

7 Disconnect the negative cable from the battery (see Chapter 5).

Warning: Later models are equipped with airbags. To prevent the accidental deployment of the airbag, which could cause personal injury, DO NOT work in the vicinity of the steering column or instrument panel. The manufacturer recommends that, on airbag equipped models, the following procedure should be left to a dealer service department or other repair workshop because of the special tools and techniques required to disable the airbag system.

Caution: If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.

2.10 The ECU is located behind the passenger's side glovebox near the footrest area. Remove the mounting screws (arrowed) and carefully lower the ECU

8 Remove the lower instrument panel on the passenger side under the glove compartment (see Chapter 11).

9 Remove the glove compartment from the passenger compartment (see Chapter 11).

10 Remove the screws from the ECU bracket **(see illustration)**.

11 Lower the ECU and unplug the electrical connectors.

12 Refitting is the reverse of removal.

3 On Board Diagnosis (OBD) system - description and fault code access

Note: *1990 and 1991 models may set Code 69 erroneously. If the battery voltage drops sufficiently and the ignition key is switched quickly from OFF to START, battery voltage will be lowered and during cranking causing a delayed park/neutral signal from the decoder module to the ECU. Check all the battery connections and the condition of the battery and then check the rotary switch adjustment in Chapter 7 to remedy this code.*

General information

1 The ECU contains a built-in self-diagnosis system which detects and identifies malfunctions occurring in the network. When the ECU detects a problem, three things happen: the CHECK ENGINE light comes on, the fault is identified and a diagnostic code is recorded and stored. The ECU stores the failure code assigned to the specific problem area until the diagnosis system is cancelled.

Note: *1988 and 1989 models are not equipped with long term memory. It is possible to access the codes but the operator must remember to NOT turn the ignition key to the OFF position after the CHECK ENGINE light has been noticed. The codes will be lost and it will be necessary to start the engine and operate the vehicle through a complete drive cycle to allow the fault code(s) to be set once again. Instead of turning the ignition key to the OFF position, simply stop at position II (key ON but engine not running) to retain the fault codes.*