

2 Fuel, Ignition, and Exhaust Systems

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GENERAL

This general information group covers application information and system descriptions for the repair groups listed under **2 Fuel, Ignition and Exhaust Systems**.

NOTE —

- For general information on the battery, starter and alternator, see **27 Engine Electrical Systems**.
- For emission control system application information, see **26 Exhaust System and Emission Controls**.

FUEL SUPPLY

The plastic fuel tank is mounted beneath the rear of the vehicle. All engines use an in tank electric fuel pump with integrated level sensor (except 1.9L ALH, which only uses an in tank level sensor). Diesel engines use an additional engine driven diesel injection pump to supply fuel to the engine.

This gasoline fuel pump/fuel level sensor assembly is called the fuel delivery unit. An inlet strainer provides coarse filtration and prevents dirt and debris from entering the fuel system. Built into the fuel delivery unit is a check valve and a relief valve. The check valve is on the outlet side of the pump and holds pressure in the system after the engine is shut off. The relief valve prevents high pressure from damaging the system. The check valve and relief valve are not replaceable.

The fuel tank is designed to prevent overfilling and allow for fuel expansion. The fuel cap contains a valve to prevent a vacuum from forming in the tank.

On all engines, fuel is supplied to the engine and excess fuel is returned to the tank through special plastic fuel lines. In addition, diesel engines with automatic transmissions use a fuel cooler on the supply line to the pump.

FUEL INJECTION

The various types of engine management systems used on the engines covered by this manual are listed below.

Engine Codes

- AWD, AWW, AWP 1.8L 4-cylinder gasoline
Motronic ME 7.5
- ALH 1.9L 4-cylinder turbo diesel
TDI Diesel Direct Fuel Injection EDC/DFI
- BEW 1.9L 4-cylinder turbo diesel
TDI/PD Diesel Direct Fuel Injection EDC 16
- AEG 2.0L 4-cylinder gasoline
Motronic 5.9
- AVH, AZG, BBW, BEV 2.0L 4-cylinder gasoline
Motronic ME 7.5
- AFP, BDF 2.8L 6-cylinder gasoline
Motronic ME 7.1

Motronic 5.9 engine management

The AEG (2.0 liter) engine is equipped with an enhanced version of the sophisticated Bosch Motronic engine management system. See Fig. 1. This version (5.9) complies with the federal and state government mandated On-Board Diagnostic (OBD) II standards.

Basic fuel metering is determined by engine speed and engine load. The Engine Control Module (ECM) receives engine speed and crankshaft position information from the engine speed and reference sensor, and engine load information from the Mass Air Flow sensor (MAF). The ECM then meters fuel to the engine by sequentially triggering the fuel injectors at a rate proportional to engine speed and load. The length of time the injectors remain open determines fuel quantity.