Table of Contents

MSV70 Engine Electronics

Subject **Page**

Initial Print Date: 03/05 Revision Date:

Subject **Page**

MSV70 Engine Electronics

Model: All with N52 Engine

Production: All with N52 engine

OBJECTIVES

After completion of this module you will be able to:

- Understand the MSV70 Engine Management System
- Understand the Heat Management System
- Understand the Changes to Valvetronic
- Understand EKP Operation

Introduction

There are several new innovations introduced with the new MSV70 engine management system. The most obvious innovation is the addition of Valvetronic II to the six-cylinder engine line. This is the first use of Valvetronic on the BMW six-cylinder.

The MSV70 engine management system is responsible for the following tasks:

- Ignition control
- Injection control
- VALVETRONIC II control
- Control of “Weight Optimized” double VANOS
- Engine temperature control (characteristic map control of engine thermostat)
- Electric coolant pump control (Heat Management System)
- Knock control
- Lambda control
- Fuel tank ventilation control
- Load request to air conditioning control unit for A/C compressor
- Activation of 3-stage differentiated intake manifold (DISA)
- Electric fuel pump module control (EKP)
- Cruise control
- Alternator control
- Heated crankcase ventilation
- Electronic oil condition monitoring and oil level monitoring
- Energy management (IBS)
- Monitoring of input and output signals
- Calculation of substitute signals and failsafe functions
- Self-diagnosis

The engine management system on the N52 engine complies with OBD regulations and meets the ULEV II requirements for 2006.

Components

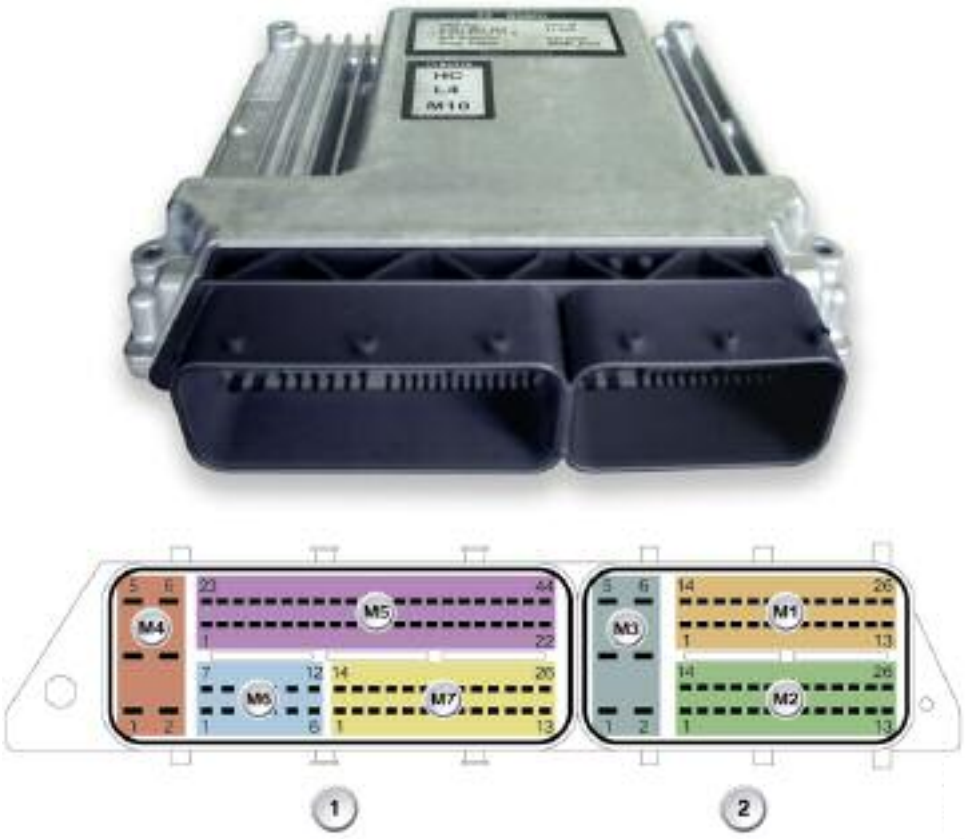
Control Module

The new MSV70 control module is manufactured by Siemens/VDO. The “MSV” designation indicates a Siemens control unit (Motor Control with Valvetronic).

The control module feature an all aluminum housing with a new modular connector configuration. The control unit has two main connections, one with 4 modular connections and the other with 3 for a total of 7 “sub” connectors. This arrangement provides a total of 146 possible pin connections.

Processor Power

The computing power has been increased to a clock frequency of 60 MHz to accommodate the extended functions.



Index	Explanation	Index	Explanation
1	Connector X60004 to X60007	M4	Connector module 4 (6 pins)
2	Connector X60001 to X60003	M5	Connector module 5 (44 pins)
M1	Connector module 1 (26 pins)	M6	Connector module 6 (12 pins)
M2	Connector module 2 (26 pins)	M7	Connector module 7 (26 Pins)
M3	Connector module 3 (6 pins)		

MSV70 System Overview