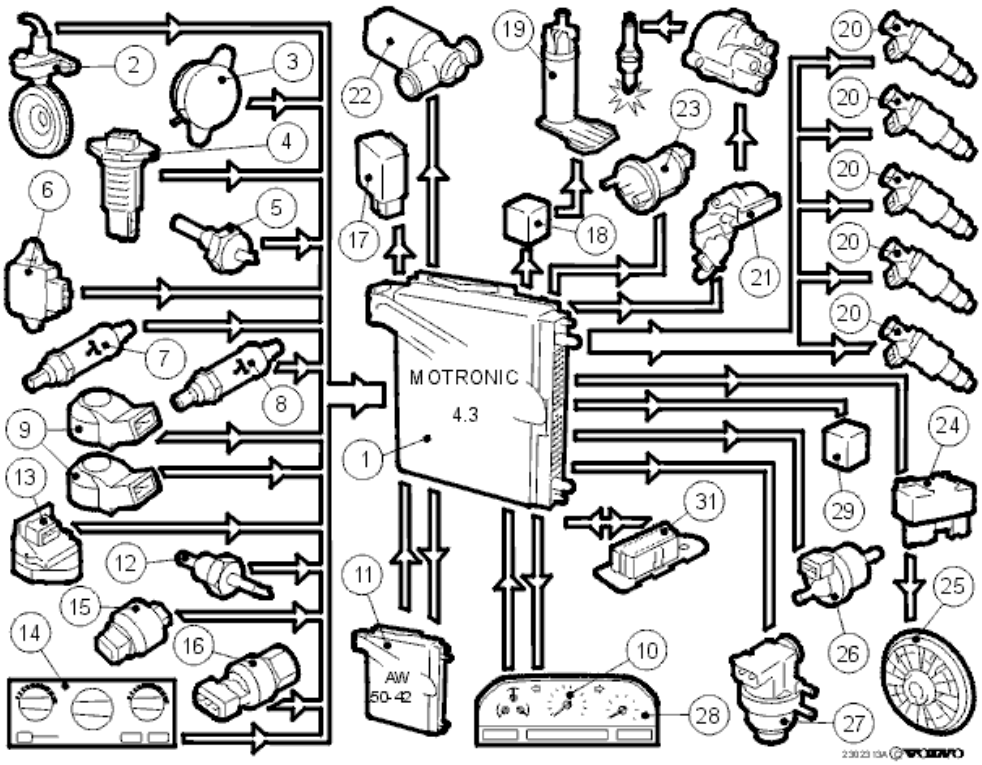
Conclusion



Complete system

- 1. Control module
- 2. Engine speed (RPM) sensor
- 3. Camshaft position (CMP) sensor
- 4. Mass air flow (MAF) sensor
- 5. Throttle position (TP) sensor
- 6. Throttle position (TP) sensor
- 7. Front oxygen sensor (HO2S)
- 8. Rear oxygen sensor (HO2S)
- 9. Knock sensor (KS)
- 10. Speedometer
- 11. AW transmission control module (TCM)
- 12. EGR temperature sensor (USA)
- 13. Acceleration sensor (USA)
- 14. Air conditioning AC
- 15. Air conditioning (A/C) pressure switch (Pressostat)
- 16. Air conditioning (A/C) pressure sensor
- 17. System relay
- 18. Fuel pump (FP) relay
- 19. Fuel pump
- 20. Injectors
- 21. Idle air control (IAC) valve
- 22. Idle air control (IAC) valve
- 23. Turbocharger (TC) control valve
- 24. Fan relay
- 25. Engine cooling fan (FC)

- 26. Canister purge (CP) valve
- 27. EGR controller (USA)
- 28. Combined instrument panel
- 29. Air conditioning (A/C) compressor relay
- 31. OBD II data link connector (DLC)

Now we have a complete system with a control module which can control quantity of fuel, idling speed, ignition setting, air conditioning (switch off the AC compressor), engine cooling fan (FC), EGR system, EVAP system and boost pressure.
Furthermore the system is adaptive has emergency programs and an on-board diagnostic (OBD) system.

The system we have used as an example is the Motronic 4.3 on a 1994 model year Volvo 850 Turbo for the USA market.

Even if a part of the system has separate control modules for the fuel, ignition and boost pressure controls and in certain cases fewer functions, the basic principles are the same for all of Volvos electronic engine management systems.

What one learns one might forget. What one has understood one never forgets.