EN. DIAGNOSTIC TROUBLE CODES (DTCs) 2-3-1 AND 2-3-2 MFI LH 2.4 AND LH 3.1

* 2-3-1 Adaptive (or long term) fuel trim too lean or too rich at part loads.

If DTC 2-3-1 is logged at the same time as other DTCs, the first code to be presented by the CBD system should be remedied first. The following DTCs are regarded as secondary faults.

DTC Conditions

The adaptive system has compensated for gradual changes in the fuel/air mixture. The control module receives information from the HO2S if the fuel/air mixture is too rich or too lean at part loads. The adaptive system compensates for this by enriching or weakening the mixture in order to maintain Lamda=1, which is the correct fuel/air mixture. When the adaptive system has almost compensated as much as it can this is interpreted as abnormal and DTC 2-3-1 is logged.

Causes Of Fault:

1. The Mixture Is Too Lean:
   - Air leaks.
   - Low fuel pressure.
   - Faulty sensor signals

2. The Mixture Is Too Rich:
   - High fuel pressure.
   - Contaminated engine oil.
   - Leaking injectors.
   - Leaking (EVAP) valve.
   - Faulty sensor signals.
   - Leak in exhaust system.

Fault Symptoms:

- Engine stops running when being started from cold.
- High fuel consumption.
If DTC 2-3-2 is logged at the same time as other DTCs, the first code to be presented by the CBD system should be remebered first. The following DTCs are regarded as secondary faults.

**DTC Conditions**

The adaptive system has compensated for rapid changes in the fuel/air mixture. The control module receives information from the HO2S if the fuel/air mixture is too rich or too lean in the idling range. The adaptive system compensates for this by enriching or leaning in order to maintain Lamda=1, which is the correct fuel/air mixture. When the adaptive system has almost compensated as much as it can this is interpreted as abnormal and DTC 2-3-2 is logged.

**Causes Of Fault And Fault Symptoms:**

Same as DTC 2-3-1.

EN1

**Connecting The CO Meter**

Start the engine and let it warm up.

**WARNING: The CO terminal may be very hot!**

- Connect the CO meter via adaptor 5410 to the CO output on the TWC.
- Disconnect the HO2S 1-pole connector.
- Continue with Resetting adaption EN2.

EN2

**Resetting Adaption**
- Remove and re-install system fuse from battery (in engine compartment (-1990) or no.6 (1991-)).

- Checking the Basic CO and HC readings EN3.

EN3

Checking The Basic CO And HC Readings.

NOTE: Take a reading from the CC meter within 30 seconds of the engine being started.

Adaption starts compensating for faults as soon as the engine is started.

- Start the engine.
-Take the basic CO and HC readings.

CO content should be **0.4-0.8 %**.

HC content should be below **400 PPM**.

1. **IF the basic CO and HC readings are OK:**
   - Connect the test box EN8.
   - Carefully check input signals for contact resistance.

2. **If the HC reading is too high:**
   - Check the ignition coil, ignition leads, rotor and spark plugs.

3. **If the basic CO reading is too high:**
   - The mixture is too rich.
   - Basic CO reading too high EN4.

4. If the basic CO reading is too low:
   - The mixture is too lean.
   - Basic CO reading too low EN7.

EN4

**Basic CO Reading Too High.**

- Warm up the engine.
- Disconnect and plug the crankcase ventilation.
- Read off the CO content.

If the CO content decreases to 0.4-0.8 %:

The engine oil is contaminated with fuel.
  - Change the engine oil.
  - Change the oil filter.

If the CO content is still high:
  - Check the fuel pressure EN5.

EN5

Checking The Fuel Pressure

- Connect the HO2S 1-pole connector.
Check the fuel pressure and residual pressure.  See: Fuel Pressure

If fuel pressure and residual pressure are OK:

- Check the EVAP system EN6.

EN6

Check Evaporative Emission (EVAP) System.
-Check the EVAP system.

If the EVAP system is OK:

-Connect the test box EN8.

EN7

Basic CO Reading Too Low

-Connect the HC2S 1-pole connector.
- Checking the air and vacuum hoses.

If the air and vacuum hoses are OK:

- Check the exhaust system EN8.

If the air and vacuum hoses are defective:

- Remedy as necessary.

EN8

Checking The Exhaust System
-Check the exhaust system for leaks or Mechanical faults.

If the exhaust system is OK:

-X. Fuel pressure and residual pressure. If the fuel pressure and residual pressure are AK, continue with Connecting the test box EN9.

If the exhaust system is leaking:

-Repair as necessary.

EN9
Remove fuse in engine compartment (-1990) or number 6 (1991-).

Connect the test box to MFI LH 2.4ILH 3.1 and check the GND points in accordance with P1-P2.

- Continue with Checking the input and output signals EN10.

EN10

Checking The Input And Output Signals
-Connect the control module to the test box.

-Re-install fuse.

Take readings with the ignition on and the engine idling. Check the following signals and compare them with the values in PB. Signal description MFI LH 2.4/LH 3.1.

-GND MAF sensor #6.

-MAF signal sensor #7.

-ECT sensor#13.

If readings are abnormal check the wiring and connections for contact resistance and clean connectors and treat them for corrosion.