

ECU (Engine Control Unit), Diagnostic Trouble Codes



The two warning lamps (A) and (B) indicate engine problems. If warning lamp (A) lights up with the engine running, an engine problem of minor priority occurs. The engine does not have to be shut off immediately, but the cause of the problem has to be found soon. If warning lamp (B) lights up, shut off the engine immediately.

To recall the diagnostic trouble code that corresponds to the warning lamps (A) and (B) activation, proceed as follows:

1. Stop engine.

2. For accessing the diagnostic trouble codes, bridge (X6) must be connected by using a spare fuse.

3. Turn start switch to the ON position (engine not started).

4. If a malfunction is found out by ECU, either the lamp (A) will glow or the lamp (B).

5. The flashing pattern of lamp (A) or (B) indicates a flashing code number (see diagnostic trouble codes list hereafter).

6. Determine the digits by counting the number of flashes. The first flashing cycle indicates the first digit. After a short pause, the flashing cycle for the second digit will follow.

OUCC020,0001B0F -19-05AUG03-1/4

NOTE: If there are several malfunctions, the flashing cycle for the first diagnostic trouble code will be followed by the flashing cycle for the second code after a short pause.

indicates a short to the power supply (battery voltage) in the circuit. Warning lamp (A) will flash. When this diagnostic trouble code appears, the ECU uses standard values for the components.

• **Flashing code 22, ECU 001079.04 - 5-volt power supply 1, grounded or open circuit** is stored if a voltage under 4.44 volts is recorded

· **Flashing code 11, ECU 000091.03 - Accelerator pedal potentiometer, shorted circuit** is stored if the ECU registers a voltage over 5 volts at the signal input of the accelerator pedal potentiometer. This indicates a short circuit in the potentiometer circuit. Warning lamp (A) will flash.

· **Flashing code 12, ECU 000091.04 - Accelerator pedal potentiometer, grounded or open circuit** is stored if the ECU registers a voltage below 0.3 volts at the signal input of the accelerator potentiometer. This indicates that the potentiometer's circuit is open or grounded. Warning lamp (A) will flash.

· **Flashing code 18, ECU 000110.03 - Coolant temperature sender, shorted circuit** is stored if the ECU registers a voltage over 5 volts at the signal input of the coolant temperature sender. This indicates that the sender's circuit is shorted. This diagnostic trouble code does not necessarily mean that the sender for the coolant temperature gauge is responsible for the fault. Warning lamp (A) will flash.

· **Flashing code 19, ECU 000110.04 - coolant temperature sender, grounded or open circuit** is stored if the ECU registers a voltage below 0.1 volts at the signal input of the coolant temperature sender. This indicates that the sender's circuit is open or shorted. This diagnostic trouble code does not necessarily mean that the sender for the coolant temperature gauge is responsible for the fault. Warning lamp (A) will flash.

· **Flashing code 21, ECU 001079.03 - 5-volt power supply 1, shorted circuit** is stored if a voltage over 5.5 volts is recorded by the ECU as power supply 1 for the 5-volt components (hand throttle, accelerator pedal, cruise control and coolant temperature). This

by the ECU as power supply 1 for the 5-volt components (hand throttle, accelerator pedal, cruise control and coolant temperature). This indicates that the circuit is open or shorted to ground. Warning lamp (A) will flash. When this diagnostic trouble code appears, the ECU uses standard values for the components.

· **Flashing code 24, ECU 000100.03 - Engine oil pressure switch, shorted or open circuit** is stored if the engine oil pressure switch is open with engine not running and key switch in ON position. This indicates that the sender's circuit is open or shorted to 5 volts or 12 volts. Warning lamp (A) will flash.

· **Flashing code 25, ECU 000105.03 - Air inlet temperature 1, shorted circuit** is stored if the ECU detects 5 volts or more at the signal input of the air inlet temperature sender. This indicates that the sender's circuit is shorted. Warning lamp (A) will flash.

· **Flashing code 26, ECU 000105.04 - Air inlet temperature 1, grounded or open circuit** is stored if the ECU detects a voltage below 0.1 volts at the signal input of the air inlet temperature sender. This indicates that the potentiometer circuit is open or grounded. Warning lamp (A) will flash.

· **Flashing code 28, ECU 000629.13 - ECU fault** is stored if the ECU has diagnosed an internal fault. Warning lamp (A) will flash, it is not possible to start the engine.

· **Flashing code 32** indicates the start of active diagnostic trouble codes.

· **Flashing code 33** indicates the start of stored diagnostic trouble codes.

OUCC020,0001B0F -19-05AUG03-2/4

· **Flashing code 37, ECU 000174.03 - Fuel temperature sender defective, shorted or open circuit** is stored if the ECU detects an

risen above 100 °C (212 °F). This is caused by insufficient performance of the cooling system.

input signal of 5 V or more. This indicates a short in the sender or wire to 5 V or an open sender circuit. Warning lamp (A) will flash.

- **Flashing code 38, ECU 000174.04 - Fuel temperature sender defective, grounded circuit** is stored if the ECU detects an input signal below 0.1 V. This indicates that the sender or wire is shorted to ground. Warning lamp (A) will flash.

- **Flashing code 39, ECU 000637.02 - Crankshaft speed sender, signal distorted** is stored if the basic incoming frequency is altered by additional impulses. Warning lamp (A) will flash, it may not be possible to start the engine.

- **Flashing code 39, ECU 000637.10 - Crankshaft speed sender, signal faulty** is stored if the incoming signal does not correspond to the normal frequency. This implies a faulty input pattern. Warning lamp (A) will flash, it may not be possible to start the engine.

- **Flashing code 62, ECU 000110.15 - Coolant temperature slightly high** is stored if the temperature of the engine coolant rises above 108 °C (226 °F). Warning lamp (A) will flash. The ECU throttles back the engine over a period of one minute until it is running at 80% of its full output.

- **Flashing code 63, ECU 000110.16 - Coolant temperature is high** is stored if the temperature of the engine coolant rises above 113 °C (235 °F). Warning lamp (B) will flash. The ECU throttles back the engine (20% per minute) until it is running at 60% of its full output.

- **Flashing code 65, ECU 100.01 - Engine oil pressure very low** is stored if the engine oil pressure switch is closed. Warning lamp (B) will flash.

- **Flashing code 66, ECU 000105.16 - Air inlet temperature 1** is stored if measuring values of temperature sensor are valid and the temperature has

Warning lamp (A) will flash. The ECU throttles back fuel delivery in stages (2% per minute) until the engine is running at 80% of its full output.

- **Flashing code 68, ECU 001569.31 - Fuel derate** is stored if the ECU detects low engine oil pressure, high coolant or air inlet temperature, a severe drop of coolant temperature or high fuel temperature. The ECU restricts the supply of fuel in order to protect the engine. Warning lamp (A) will flash.

- **Flashing code 69, ECU 000110.00 - Coolant temperature is high** is stored if the temperature of the engine coolant rises above 120 °C (248 °F). Warning lamp (B) will flash. The ECU throttles back the engine (20% per minute) until it is running at 40% of its full output.

- **Flashing code 71, ECU 001076.00 - Pump control valve closes too slowly** is stored if the pump control valve closes too slowly. Warning lamp (A) will flash.

- **Flashing code 72, ECU 001076.01 - Pump control valve closes too fast** is stored if the pump control valve closes too fast. Warning lamp (A) will flash.

- **Flashing code 73, ECU 001076.05 - Pump control valve, open circuit** is stored if there is an open circuit in one of the wires to the pump control valve. Warning lamp (B) will flash, it is not possible to start the engine.

- **Flashing code 74, ECU 001076.06 - Pump control valve, shorted circuit** is stored if there is a short in one of the wires to the pump control valve. Warning lamp (B) will flash, the ECU shuts off the engine immediately.

- **Flashing code 75, ECU 001076.07 - Pump control valve** is stored if closing of the pump control valve could not be detected by the ECU. Warning lamp (A) will flash.

· **Flashing code 76, ECU 001076.10 - Pump control valve, shorted circuit** is stored if there is a short in one of the wires to the pump control valve. Warning lamp (B) will flash, the ECU throttles back the engine to 50% of its full output immediately.

· **Flashing code 77, ECU 001076.03 - Pump control valve, current too high** is stored if the current at the pump control valve is too high. Warning lamp (B) will flash.

· **Flashing code 79, ECU 002000.06 - Internal ECU fault** is stored if the ECU has detected an internal short causing excessive current in the pump control valve circuit. Warning lamp (B) will flash, the engine is shut off immediately.

· **Flashing code 81, ECU 000174.16 - Fuel temperature is slightly high** is stored if the ECU registers a fuel temperature above 120 °C (248 °F) within the injection pump. Warning lamp (A) will flash. The ECU throttles back the engine in stages (2% per minute) until it is running at 80% of its full output.

· **Flashing code 84, ECU 000158.17 - ECU cannot shut down** is stored if the voltage at the ECU does not drop to 0 volts with ignition key in OFF position. Warning lamp (A) will flash.

· **Flashing code 88** indicates that there are no diagnostic trouble codes stored.