07 Pump line nozzle (PLD) and immobilizer (WSP)

07.1 Survey of diagnostic trouble codes OM 501 LA, OM 502 LA

If a malfunction occurs in the electrical system on a SKN vehicle, a malfunction indicator lamp comes on on the instrument panel. The DTC('s) can appear on the display on the instrument panel together with the abbreviation for the system in which the malfunction has occurred. DTC's with the abbreviation PLD are listed in the following list of DTC's. Connect the HHT to the diagnostic socket for trouble-shooting (menu guided test).

Note

- If a number of DTC's are present only one DTC is indicated for each defective system (DTC with highest priority in each case).
- DTC's can only be erased when the vehicle and engine are standing still.

Prerequisites for testing

- Voltage in electrical system 24 V (acid density 1.16)
- Ignition on

Workshop equipment

Designation	Order no.
Hand-held tester (HHT) with accessories (commercial vehicle basic equipment):	–
Hand-held tester	6511 0001 99
Commercial vehicle module	6511 5000 00
Multiplexer test cable	6511 0040 99
Adapter cable for diagnostic socket (commercial vehicles, 14-pin)	6511 0140 99
Extension cable	6511 0080 99
Case	6511 0160 99
Printer cable (serial)	6511 0070 99

Available from: Mercedes-Benz AG, 70322 Stuttgart, Abt. VSE/IS, fax no. 0711/17-83469

DTC	Fault text/cause	Remedy
0 10 15	Oil temperature sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace oil temperature sensor.
0 10 16	Oil temperature sensor, value below measuring range (⌐¬–)	Check/replace oil temperature sensor, repair lead.
0 13 15	Barometric pressure sensor, measuring range exceeded (—//—, ⌐¬ +)	Check boost air pressure sensor. If no faults are found, replace PLD control module.
0 13 16	Barometric pressure sensor, value below measuring range (⌐¬–)	Check boost air pressure sensor. If no faults are found, replace PLD control module.
0 25 09	Oil level sensor, —//—	Check lead, replace oil level sensor.
0 25 15	Oil level sensor, measuring range exceeded	Check oil level and correct, if necessary replace oil level sensor to test.
0 25 16	Oil level sensor, value below measuring range	Check oil level and correct, if necessary replace oil level sensor to test.
0 25 17	Oil level sensor, reading not plausible	Check oil level and correct, if necessary replace oil level sensor to test.
0 30 15	Fuel pressure sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace fuel pressure sensor.
0 30 16	Fuel pressure sensor, value below measuring range (⌐¬–)	Check/replace fuel pressure sensor, repair lead
0 40 24	Defective limp-home processor	Replace PLD control module.
0 40 37	Number of cylinder not plausible	Replace PLD control module (software error, map record not programmed).
0 40 38	Second starter output stage defective	Replace PLD control module.
0 40 40	Starter output stage level recognition defective	Replace PLD control module.
0 40 47 **0 40 48**	Map record defective Number of cylinder not plausible	Replace PLD control module (software error, maps incorrect/defective or not programmed).
0 40 50 **0 40 51**	EEPROM read error Incorrect hardware recognition	Replace PLD control module (software error)
0 75 42	Battery voltage too high	Read out INS DTC memory. If DTC 0 19 42 is present check generator/regulator, repair if necessary.

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B +: ⌐¬ +

DTC	Fault text/cause	Remedy
0 75 43	Battery voltage too low	Read out INS DTC memory. If DTC 0 19 41 is present, charge battery or replace, if necessary.
0 90 44	Plug-in pump, cylinder 1, LRR limitation	Quantity correction for idle speed control outside of permissible tolerance for cylinder(s) with DTC: If engine does not run smoothly or deviation is greater than ± 6 % remove plug-in pump for affected cylinder and replace with another plug-in pump on engine. Then allow engine to run and check idle control again. If the deviation is then present on the other cylinder, replace plug-in pump moved. If the deviation is the same for the cylinder previously defective, check/replace affected injection nozzle.
0 91 44	Plug-in pump, cylinder 2, LRR limitation	
0 92 44	Plug-in pump, cylinder 3, LRR limitation	
0 93 44	Plug-in pump, cylinder 4, LRR limitation	
0 94 44	Plug-in pump, cylinder 5, LRR limitation	
0 95 44	Plug-in pump, cylinder 6, LRR limitation	
0 96 44	Plug-in pump, cylinder 7, LRR limitation	
0 97 44	Plug-in pump, cylinder 8, LRR limitation	
0 90 45	Plug-in pump, cylinder 1, limit., individual cylinder compens.	Quantity control under load (min. 50 %) outside of permissible tolerance for cylinder(s) with DTC: 1. Check compression with HHT. If poor compression (< 75 %) is found for the same cylinder, eliminate mechanical faults (valves, piston rings, etc.). 2. If the compression test does not reveal any major problems, remove plug-in pump for affected cylinder (quantity correction greater than ± 6 %) and exchange with adjacent plug-in pump. Then repeat individual cylinder compensation. If the deviation is now present for the adjacent cylinder, replace the plug-in pump moved. If the deviation is the same for the previously defective cylinder, check/replace affected injection nozzle.
0 91 45	Plug-in pump, cylinder 2, limit., individual cylinder compens.	
0 92 45	Plug-in pump, cylinder 3, limit., individual cylinder compens.	
0 93 45	Plug-in pump, cylinder 4, limit., individual cylinder compens.	
0 94 45	Plug-in pump, cylinder 5, limit., individual cylinder compens.	
0 95 45	Plug-in pump, cylinder 6, limit., individual cylinder compens.	
0 96 45	Plug-in pump, cylinder 7, limit., individual cylinder compens.	
0 97 45	Plug-in pump, cylinder 8, limit., individual cylinder compens.	
0 98 46	Termination, individual cylinder compensation	Repeat individual cylinder compensation procedure.

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B +: ⌐¬ +

DTC	Fault text/cause	Remedy
1 01 00	CAN-H connection to FMR defective	Check CAN connection to FMR control module for discontinuity, short circuit to ground or short circuit to U_B + and eliminate any faults present. If no faults are found on the CAN connection, first replace FMR control module and, if CAN DTC is still present, replace PLD control module to test.
1 01 01	CAN-L connection to FMR defective	
1 01 02	FMR data not plausible	Read out DTC memory in FMR control module. Eliminate any current DTC's present except for CAN bus DTC's 1 02 00, 1 02 01 or 1 02 03. For these DTC's see remedy, DTC 's 1 01 00 through 1 01 04.
1 01 04	CAN connection to FMR defective	See DTC's 1 01 00 and 1 01 01.
1 03 08	Crankshaft position transducer ⌐¬–	Check/replace crankshaft position transducer, repair lead.
1 03 09	Crankshaft position transducer —//—	Check/replace crankshaft position transducer, repair lead.
1 03 10	Crankshaft position transducer, signal too low	Press crankshaft position transducer in against mechanical stop with engine standing still.
1 03 11	Crankshaft position transducer, CKA/CAM signal association not plausible	Check crankshaft position transducer and camshaft position transducer for tightness, if necessary replace clamping sleeve.
1 03 12	Crankshaft position transducer, no signal	Press crankshaft position transducer in against mechanical stop with engine standing still, check crankshaft position transducer and lead/connector for discontinuity.
1 03 13	Crankshaft position transducer poles reversed	Connect crankshaft position transducer correctly.
1 04 08	Camshaft position transducer —//—	Check/replace camshaft position transducer, repair lead.
1 04 09	Camshaft position transducer polarity reversed	Connect camshaft position transducer correctly.
1 04 12	Camshaft position transducer ⌐¬–	Check/replace camshaft position transducer, repair lead.
1 04 13	Camshaft position transducer, signal not valid	Adjust camshaft position transducer and check leads for discontinuity and short circuit.

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B +: ⌐¬ +

DTC	Fault text/cause	Remedy
1 05 30	Excessive engine speed	Erase DTC and if necessary advise driver of permissible max. RPM.
1 11 15	Fuel temperature sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace fuel temperature sensor
1 11 16	Fuel temperature sensor, value below measuring range (⌐¬–)	Check/replace fuel temperature sensor, repair lead.
1 12 15	Boost air temperature sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace boost air temperature sensor.
1 12 16	Boost air temperature sensor, value below measuring range (⌐¬–)	Check/replace boost air temperature sensor, repair lead.
1 14 15	Boost pressure sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace boost pressure sensor.
1 14 16	Boost pressure sensor, value below measuring range (⌐¬–)	Check/replace boost pressure sensor, repair lead.
1 14 17	Boost pressure sensor, reading not plausible	Replace boost pressure sensor or, if barometric pressure sensor is defective replace control module.
1 15 15	Coolant temperature sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace coolant temperature sensor.
1 15 16	Coolant temperature sensor, value below measuring range (⌐¬–)	Check/replace coolant temperature sensor, repair lead.
1 16 15	Oil pressure sensor, measuring range exceeded (—//—, ⌐¬ +)	Check lead, replace oil pressure sensor.
1 16 16	Oil pressure sensor, value below measuring range (⌐¬–)	Check/replace oil pressure sensor, repair lead.
1 18 18	Defective charging circuit	Check hoses between turbocharger and charging pipes for leakage.
1 18 20	Boost pressure too high	Check function of bypass valve on turbocharger and repair.
1 22 19	T. 15 on FMR or PLD —//—, control module	Check t. 50 connection on FMR and PLD, repair lead.
1 23 19	T. 50 on FMR or PLD —//—, control module	Check t. 50 connection on FMR and PLD, repair lead.
1 40 38 **1 40 39**	Starter control (output stage) defective	Replace PLD control module.

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B +: ⌐¬ +

DTC	Fault text/cause	Remedy
1 40 41	Control for proportional valves defective	Check function of connected proportional valve outputs (pin 54/40, 55/41, 55/43, 55/50, 54/51 and ground return 55/12). If electric faults are present (short circuit, discontinuity, etc.) eliminate. If no function replace PLD control module.
1 40 52	EEPROM read error 2	Replace PLD control module.
1 50 26	Plug-in pump, cylinder 1, valve stuck/hard to move	If no complaints (poor output, etc.) and fault is not present continuously erase DTC. If engine does not run smoothly switch off affected cylinder momentarily with HHT. If this does not have a negative effect on the engine smoothness, replace affected plug-in pump.
1 51 26	Plug-in pump, cylinder 2, valve stuck/hard to move	
1 52 26	Plug-in pump, cylinder 3, valve stuck/hard to move	
1 53 26	Plug-in pump, cylinder 4, valve stuck/hard to move	
1 54 26	Plug-in pump, cylinder 5, valve stuck/hard to move	
1 55 26	Plug-in pump, cylinder 6, valve stuck/hard to move	
1 56 26	Plug-in pump, cylinder 7, valve stuck/hard to move	
1 57 26	Plug-in pump, cylinder 8, valve stuck/hard to move	
1 50 27	Plug-in pump, cylinder 1, control error	Check tightness of screw terminals on affected plug-in pump. Check lead for affected plug-in pump for discontinuity. If the same DTC occurs again after installing the affected plug-in pump, replace PLD control module to test.
1 51 27	Plug-in pump, cylinder 2, control error	
1 52 27	Plug-in pump, cylinder 3, control error	
1 53 27	Plug-in pump, cylinder 4, control error	
1 54 27	Plug-in pump, cylinder 5, control error	
1 55 27	Plug-in pump, cylinder 6, control error	
1 56 27	Plug-in pump, cylinder 7, control error	
1 57 27	Plug-in pump, cylinder 8, control error	

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B+: ⌐¬ +

DTC	Fault text/cause	Remedy
0 70 06 **0 70 09**	Solenoid valve for turbocharger adjustment ⌐¬– Solenoid valve for turbocharger adjustment —//—	Check/replace solenoid valve for turbocharger adjustment, repair lead.
0 71 06 **0 71 09**	Solenoid valve for fan run-up ⌐¬– Solenoid valve for fan run-up —//—	Check/replace solenoid valve for fan run-up, repair lead.
1 72 06 **1 72 09**	Solenoid valve for mechanical turbocharger ⌐¬– Solenoid valve for mechanical turbocharger —//—	Check/replace solenoid valve for mechanical turbocharger, repair lead
1 73 05	Solenoid valve for decompression valve brake ⌐¬ +	Check/replace solenoid valve for decompression valve brake, repair lead. If no faults are found, replace PLD control module.
1 73 06 **1 73 17**	Solenoid for decompression valve brake ⌐¬– Solenoid for decompression valve brake	Check/replace solenoid valve for decompression valve brake, repair lead.
1 80 05	Starter relay t. 50 ⌐¬ +	Check starter relay/lead and repair. If no faults are found, replace PLD control module.
1 80 08 **1 80 09**	Starter relay t. 50 ⌐¬– Starter relay t. 50 —//—	Check starter relay/lead and repair.
1 80 33	Starter relay contact defective ⌐¬	Replace starter relay.
1 99 60	Too many keys	A maximum of 8 transponder codes can be stored in the PLD control module. If this many keys have already been lost, it is necessary to learn in the keys again (HHT setting "delete old keys and learn in one after another").
1 99 61	Control module disabled	PLD control module is no longer usable, because vehicle has been manipulated to decode the transponder code (immobilizer).
1 99 62	PLD control module self-activation active	A PLD control module without immobilizer was installed for testing. The PLD control module has "activated itself" during this operation, i.e. it is no longer usable for the previous application. It is now only usable for operation with immobilizer (for this purpose it is necessary to learn in the transponder codes).

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B +: ⌐¬ +

DTC	Fault text/cause	Remedy
1 99 63	No transponder code via engine CAN bus	Check connection t. 50 to FMR control module. Set parameters in FMR control module for immobilizer
1 99 63 and 1 99 64	No transponder code	To start try replacement transponder key: 1. If starting operation functions properly with replacement key, attempt to learn in the defective transponder key again or order new transponder key and learn in. 2. If the starting operation does not function properly with the replacement key, check power supply and wiring to electronic readout circuitry for immobilizer. If no faults are found, replace electronic readout circuitry for immobilizer.
1 99 64	No transponder code via t. 50	Check connection t. 50 to PLD control module.
2 40 53	EEPROM read error 3	Replace PLD control module.
2 50 28	Plug-in pump, cylinder 1 ⌐¬	Check lead and screw terminals for affected plug-in pump for short circuit. If no faults are found, separate lead to affected plug-in pump on PLD control module and allow engine to run. If the same DTC appears again replace PLD control module. If DTC appears for defective control for affected cylinder (1 50 27 to 1 57 27), replace plug-in pump on cylinder in question.
2 51 28	Plug-in pump, cylinder 2 ⌐¬	
2 52 28	Plug-in pump, cylinder 3 ⌐¬	
2 53 28	Plug-in pump, cylinder 4 ⌐¬	
2 54 28	Plug-in pump, cylinder 5 ⌐¬	
2 55 28	Plug-in pump, cylinder 6 ⌐¬	
2 56 28	Plug-in pump, cylinder 7 ⌐¬	
2 57 28	Plug-in pump, cylinder 8 ⌐¬	
2 99 65	Wrong transponder key	Improbable fault or attempt to manipulate immobilizer. The engine can be started with the correct transponder keys (perhaps after a waiting time).

Discontinuity: —//— Short circuit: ⌐¬ Short circuit to ground: ⌐¬– Short circuit to U_B+: ⌐¬ +