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5. Engine diagnostics (self-diagnosis)---dl06, dl08, dv11

Engine Diagnostics

The engine diagnostics can be carried out by scanning the scan-200 or by checking the fault codes displayed on the instrument panel with a flashing control lamp with Image of the engine.

We recommend that you use a diagnostic scanner asIt provides a quick and accurate check.

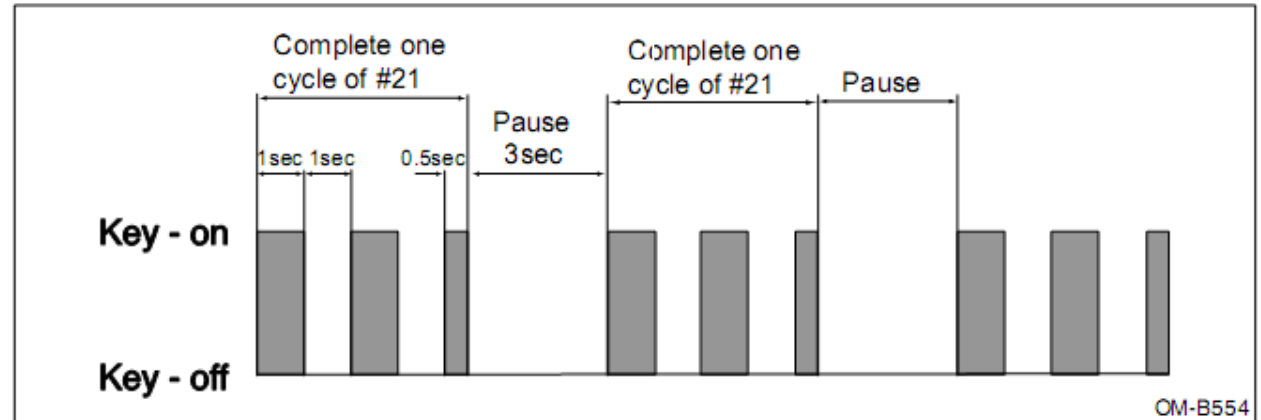
Diagnostics procedure

- a) Turn the main Switch The "on" position of the battery.
- b) Ignition key-in position "ON".
- c) Engine does not It's working.
- d) Press the engine diagnostics button. (Hold 2 SEC).
- e) The control lamp will start flashing on the instrument panel Image of the engine.
- f) Check the fault codes, then turn the ignition key into the Position «OFF».

Display fault code

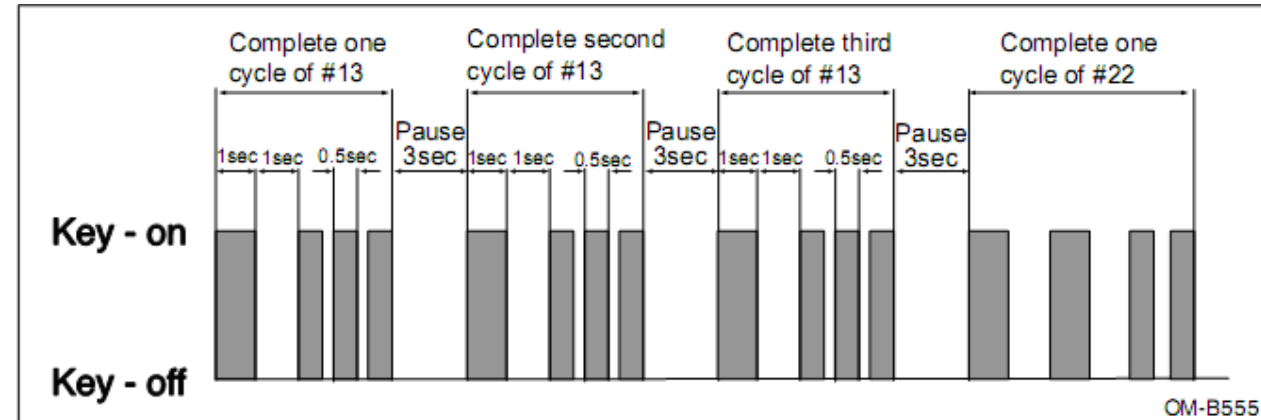
The examples below show how the malfunctions codes are displayedUsing the engine indicator light.

Example: one fault code 21



OM-B554

Example of displaying two fault codes 13 and 22



OM-B555

- a. When the engine diagnostics button is turned on, watch the control lamp Engine.
- b. The engine control lamp blinks, displaying the first digit of the fault code, then pausing, and then flashing again, showing the second digit Code Malfunction. For example, if the fault code is "21", the flashes engine indicator lamp is twice (the first Qi"2"), then pause-1 sec, then flashes again (second digit "1"). The loop repeats to show the fault code more clearly.
- c. If you want to display two fault codes or more, the first code is displayed 3 times, the following code starts displayAzhsatsja after 3 seconds pause. As indicated above, each fault code is repeated 3 times.
- d. The following is an example of displaying fault codes in case Malfunction № 13 and № 22 were found simultaneously.
 - The engine is muted and the ignition key is in position ON
 - The lamp blinks once, then after 1 second blinks 3 times, and the whole sequence is repeated 3 times: fault code display 13 Completed.

- The lamp blinks twice, then after 1 sec. Flashes Twice, and the whole sequence is repeated 3 times: The fault code display 22 is complete.
- After the end of one cycle, you should pause Three seconds.
- The fault code is repeated until the process is completed Check.

Removing the fault code

ToThe faults stored in the memory of the Electronic Control Module (ESM) can be easily removed from the Using the scanner.

The history of the eliminated fault codes is automatically removed from the ECU memory after 5 days.

Erasing the eliminated fault codes from the ECU memory can be done manually, turning on and off the ignition 5 times. Do not use this method permanently because it will affect the search time

The service center using the scanner. NNeed will reproduce conditions of malfunctions in real conditions Engine operation when the vehicle is moving.





Table of fault Codes

• Двигатель EURO III (DL06, DL08, DV11)

Code Malfunction- Unido	Fault content	Status	Conditions of Occurrence
1.1	No signal from temperature sensor Coolant	C	Faulty sensor/wiring Coolant temperature too high
1.2	No signal from fuel temperature sensor	C	Faulty sensor/wiring the fuel temperature is too high
1.3	No signal from temperature sensor Charge Air	C	Inlet air temperature Intercooler Abnormally High. Defective engine/turbocharger/ Intercooler
1.4	No signal from pressure sensor Charge Air	C	Faulty sensor/wiring Inlet pressure, after Intercooler, abnormally high defective engine/turbocharger/ Intercooler
1.6	No signal from atmospheric air pressure sensor	C	Atmospheric pressure sensor attached to the ECU is defective
1.7	No signal from oil temperature sensor	N	Faulty sensor/wiring the oil temperature is too high
1.8	No signal from oil pressure sensor	C	Faulty sensor/wiring Oil pressure too low (leakage, etc.)
2.1	Incorrect battery voltage Battery	C	Battery/generator/ECU Faulty
2.2	No signal from fuel pressure sensor	B	Faulty sensor/wiring
2.3	No signal from the electronic accelerator pedal	B	Faulty sensor/wiring/accelerator pedal switch

2. 4	No signal from the electronic accelerator pedal	B	Foot brake and accelerator pedal are used simultaneously while driving Faulty sensor/switch/foot brake wiring
2. 5	Faulty car speed sensor and tachometer	C	Faulty sensor/car tachometer/wiring

Code	Fault content	Status	Conditions of Occurrence
2.7	No signal from the clutch pedal sensor	C	Faulty sensor/wiring clutch pedal
2.8	No signal from the brake pedal sensor	C	Faulty sensor/wiring harness brake pedal
2.9	No signal from Cruise control switch	C	Faulty switch/wiring harness
3.2	The pressure in the fuel ramp is abnormally Large deviations	B	The pressure in the fuel ramp outside the permissible
3.6	Incorrect input signal value when Operating system ASR	N	ASR plug/wiring Harness Faulty
3.7	Non-standard signal on CAN bus system ASR and automatic transmission	N	ASR plug/wiring harness and automatic transmission faulty
3.8	Warning that the speed of rotation Engine is excessively high	C	Exceeding the maximum permissible engine speed (Engine operation in different)
3.9	Internal ECU relay malfunction (ECU block protection)	B	Operation of the ECU protection due to the short circuit in the wiring/sensors. As a rule, there is also another fault code (pedal sensors and Etc) The internal protective relay ECU is malfunctioning. Failure to supply electricity
4.1	Emergency stopEngine	B	Motor Emergency Stop
4.2	No signal from crankshaft speed sensor	C	SENSOR/socket/wiring harness faulty sensor gap
4.3	No signal from camshaft speed sensor	C	Sensor/connector/harness wiring Faulty Incorrect sensor clearance
4.	Engine speed sensor faulty	C	The discrepancy between the signal values of crankshaft sensors and

4			Camshaft
4. 5	The data storage unit in the ECU memory is faulty	C	The error occurs while storing important technical data in the ECU memory, when the engine is switched off
4. 6	Does not start after the power supply is ECU	C	Emergency initialization of ECU unit
4. 7	The pressure limit valve in the fuel ramp opens abnormally high Main pressure	B	The pressure limit valve is opened by force at an abnormally high main pressure greater than the pressure of the high pressure pump
4. 8	Faulty power source	N	Battery voltage incorrect: ECU, battery or generator faulty

Code Malfunction- Unido	Fault content	Status	Conditions of Occurrence
4.9	The voltage on the injector (№ 1, 5, 3) deviates from the required value	B	Cable/Injector connector faulty or defective ECU
5.1	The voltage on the injector (№ 6, 2, 4) deviates from the required value	B	
5.8	Contact with № 1 injector connector is broken	B	Cable/Injector Connector Faulty
5.9	Contact with the № 5 injector connector is broken	B	
6.1	Contact with the № 3 injector connector is broken	B	
6.2	Contact with the № 6 injector connector is broken	B	
6.3	Contact with the № 2 injector connector is broken	B	
6.4	Contact with the № 4 injector connector is broken	B	
6.6	contact with the control lamp of the Glow candle Faulty	N	Lamp/connector/wiring Harness Faulty
7.1	Contact with faulty diagnostic lamp	N	Lamp/connector/wiring Harness Faulty
7.2	The relay of the candle is malfunctioning	C	Relay/connector/wiring harness malfunction
7.3	Relay № 2 Auxiliary engine brake is malfunctioning	N	Solenoid/connector/wiring Harness Faulty
7.	Relay № 1 Auxiliary engine brake	N	Solenoid/connector/wiring Harness Faulty

5	invalid		
8. 3	Contact with the fuel pump control valve is broken	C	Fuel pump control valve/wiring harness Faulty
8. 6	Car engine speed meter does not work	N	Tachometer Motor/Harness wiring Faulty
9. 1	Abnormal launch	B	The startup procedure is incorrect. Faulty ECU, power failure

Code Malfunction- Unido	Fault content	Status	Conditions of Occurrence
9.2	Low-quality ignition in the cylinder № 1	C	Faulty injector, low compression pressure, Faulty camshaft/crankshaft speed sensor signal
9.3	Low-quality ignition in the cylinder № 5	C	
9.4	Low-quality ignition in the cylinder № 3	C	
9.5	Low-quality ignition in the cylinder № 6	C	
9.6	Low-quality ignition in the cylinder № 2	C	
9.7	Low-quality ignition in the cylinder № 4	C	
9.8	Low-quality ignition in multiple cylinders	C	
9.9	Injector Open Too long	C	Injector operation time exceeds standard values
10.1	Engine speed abnormally high (optional function)	C	The error occurs when calculating the engine speed with Using the camshaft/crankshaft speed sensor
10.2	Contact with electronic accelerator pedal Wrong	B	The foot brake and the accelerator pedal work simultaneously, When the car starts
10.3	Malfunctioning Cooling Fan	C	Faulty sensor/connector/wiring Harness
10.4	Fuel pressure is wrong	B	Large fluctuations of fuel pressure in the fuel ramp
11.1	Smooth operation of the engine is not standard	N	Excessive injector solenoid Core deviation
11.2	Smooth operation of the engine is not standard	N	Excessive injector solenoid Core deviation
11.3	Smooth operation of the engine is not	N	Excessive injector solenoid Core deviation

	standard		
11.4	Smooth operation of the engine is not standard	N	Excessive injector solenoid Core deviation
11.5	Smooth operation of the engine is not standard	N	Excessive injector solenoid Core deviation
11.6	Smooth operation of the engine Non	N	Excessive injector solenoid Core deviation

* Status of malfunction

N: No Disruption of engine performance and performance.

C: Requires Check after work (no need for emergency check).

B: Requires Check and take action after working at low speed during the event.

7. Diagnostics of ABS system (self-diagnosis) (optional)

Diagnostics and ABS Systems

Total Action

Diagnostics of the ABS system is usually performed at startup Engine. If no problems are found when the ignition key is turned to the on position, the ABS system indicators и Asr (Traction System Switched Shortly after Enable.

If no system errors are detected while the engine is running, the indicators will not blink. **Detected malfunctions**

If any malfunctions are detected during the verification performed by the ECU unit, the indicator The ABS system starts flashing and the ABS system shuts down partially or completely. If any problems are detected by the ECU through the wheel speed sensor while driving, the ABS system indicators will blink until the ECU receives tFace-to-face results from all sensors located on wheels.

If the normal state of the system is confirmed, the ABS indicator will be extinguished.

Flashing code

The ABS indicator informs you of malfunctions and indicates that they are flashing.

Flashing block code of the electronic UEThe board engine is used to transmit two types of codes:

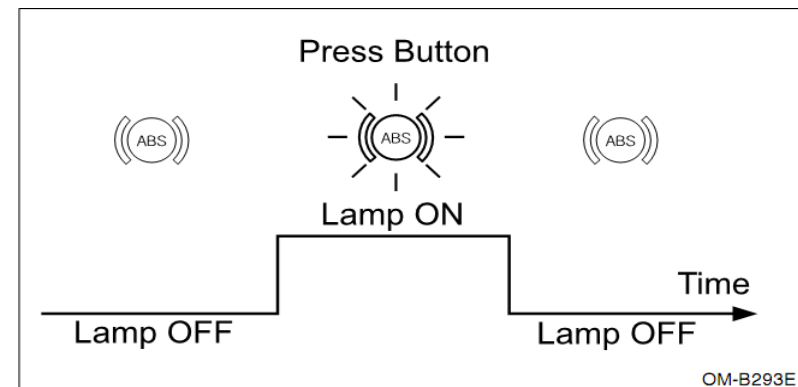
- System Component Code: Shows System components programmed in the ECU block.
- Fault code: reports information about the Faults detected by the unit Ecu.

If the flashing code is valid when using the button Self-diagnosis ABS, it can be read in short intervals when the ABS indicator lights. The code can be decrypted using the ABS fault codes table.

ABS Self-diagnosis button action

FlashingThe code reproduced using the ABS indicator is expressed in two ways.

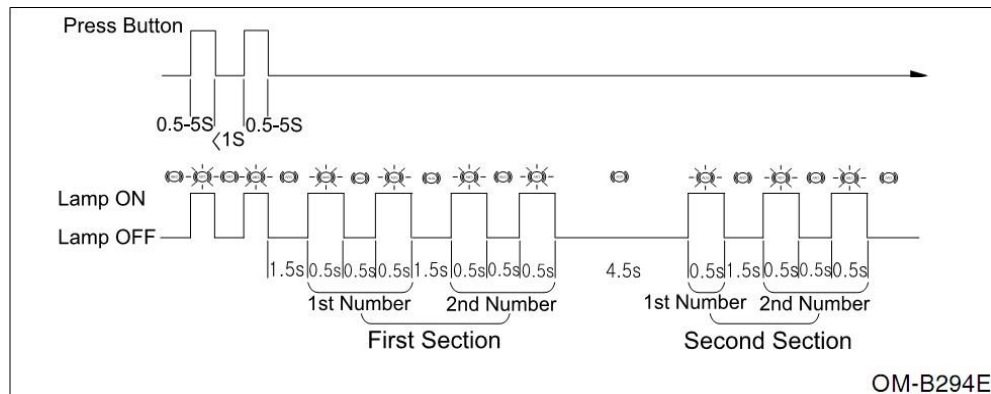
- Turning the lamp on and off shows a couple of Characters
- The code is reproduced in stages according to the scheme c time when the ABS light is on, after the The As button Self-diagnosis was pressed.



Note: On some bus models, the ABS self-diagnosis button is combined to the button Inspection lamps "Bulb Check".

System Component Code

- After turning on the ignition, press Button Self Sisiemy ABS twice at intervals of at least a second and release the button.
- The system components code will be displayed by flashing the indicator Abs.
- The system component code is divided into two sections. Each section consists of two digits. Two digits are displayed by turning the lamp on and off on the 0.5 Seconds.
- After displaying the first The digits of the first section is delayed by 1.5 seconds. The second digit of the first Section.
- Delay about 4 seconds after display First section. Then one flashing of the second section Code Delay of 1.5 seconds. 2 flashing the second section of code.
- The code display will stop if you press the Self.



ABS System Component Codes table

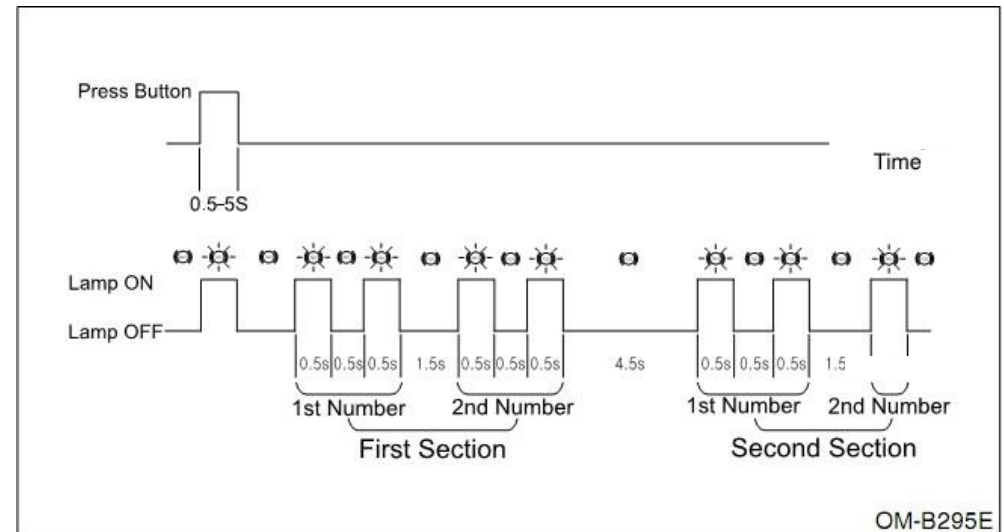
Time Affairs	No	Number of Flashes	Component
1	1	2	24 Volts
	2	2	4s/4M (4 wheel speed sensors and 4 Pressure regulator)
1	1	1	Retarder And the J1939 CAN Bus controller is not Apply. Mountain Brake Relay/ Retarder (DBR) does not apply.
	2	2	Retarder And the J1939 CAN Bus controller is not Apply. Relay Mountain Brakes/ Retarder (DBR) does not apply.
	3	3	Retarder And the J1939 CAN Bus controller is not Apply. Mountain Brake Relay/ Retarder (DBR) does not apply..
	4	4	Retarder And the J1939 CAN Bus controller is not Apply. Relay Mountain Brakes/ Retarder (DBR) does not apply.
2	2	2	Motor Controller J1939 CAN Tire not Apply. The ASR valve does not apply.
	3	3	Motor Controller J1939 CAN Tire not Apply. The ASR valve does not apply.
	4	4	Motor Controller J1939 CAN Tire not Apply. The ASR valve does not apply.
	5	5	Motor Controller J1939 CAN Tire not

Fault code

- If the ECU is on (ignition enabled), wait at least 1 second and press the ABS self-test button once (0.5-5 sec.) and release Her.
- Code transfer will begin Malfunction.
- The fault code is transmitted in brief Flashing indicator Abs.
- Troubleshooting CodesAvnostej that describe them are divided into Two stages of flashing.
- First stage (approx. 0.5 sec. each) Shows "First digit", and the second stage (approximately 0.5 sec. each) shows the "second digit".
- Components and malfunction can be checked by Table of codes of detected Fault.
- If more than two faults are found, The following code will be displayed in about 4 Seconds.
- Memory ECU can save up to 16 Fault.
- The first one will display a malfunction, Discovered later all, and the fault detected first will be displayed Last.
- If the fault codes display is complete the indicator will stop Flashing.
- If you press the self-diagnostic button again, the process of displaying codes blinking Persists.
- If you press the self-diagnosis button while the indicator lamp blinks, the process Identify The faults will be stopped for a while.

- It is not possible to activate the normal functions of the ECU Motor Control unit during the display of Neispravn codesSetae. (ABS system function does not Works).

Explanation of the fault code display



ABS 6 system error Codes table

Faulty detail	1-nd Room	2nd Room	Fault data
Normal code	1	1	The system is in a normal state
Speed sensor Wheels, front axle (left Wheel)	2	1	ABS sensor gap too large (> 0.6 mm)
	2	2	The speed sensor is missing.
	2	3	The toothed ring is damaged or contaminated. Faulty sensor signal. Check and configure Ring as well as the wheel bearing.
	2	4	Unstable sensor signal. Check and adjust the gear ring. Adjust the wheel bearing. Check connector/Wiring Harness
	2	5	The speed sensor signal is not triggered.
	2	6	The wiring of the speed sensor is damaged or disconnected.
Speed sensor Wheels Front axle (right wheel)	3	1	ABS sensor gap too large (> 0.6 mm)
	3	2	The speed sensor is missing.
	3	3	The toothed ring is damaged or contaminated. Faulty sensor signal. Check and configure Ring as well as the wheel bearing.
	3	4	Unstable sensor signal. Check and adjust the gear ring. Adjust the wheel bearing. Check connector/Wiring Harness
	3	5	The speed sensor signal is not triggered.
	3	6	The wiring of the speed sensor is damaged or disconnected.
Speed sensor Wheels, rear axle (left Wheel)	4	1	ABS sensor gap too large (> 0.6 mm)
	4	2	The speed sensor is missing.
	4	3	The toothed ring is damaged or contaminated. Faulty sensor signal. Check and configure Ring as well as the wheel bearing.
	4	4	Unstable sensor signal. Check and adjust the gear ring. Adjust the wheel bearing. Check connector/Wiring Harness
	4	5	The speed sensor signal is not triggered.
	4	6	The wiring of the speed sensor is damaged or disconnected.

Faulty detail	1-nd Room	2nd Room	Fault data
Speed sensor Wheel rotation, Rear Axle (Right wheel)	5	1	ABS sensor gap too large (> 0.6 mm)
	5	2	The speed sensor is missing.
	5	3	The toothed ring is damaged or contaminated. Faulty sensor signal. Check and configure Ring as well as the wheel bearing.
	5	4	Unstable sensor signal. Check and adjust the gear ring. Adjust the wheel bearing. Check connector/Wiring Harness
	5	5	The speed sensor signal is not triggered.
	5	6	The wiring of the speed sensor is damaged or disconnected.
Adjustment valve Pressure Front Axle (Left wheel)	8	1	The exhaust solenoid valve is closed.
	8	2	The exhaust solenoid valve is closed.
	8	3	Closing of the exhaust solenoid valve wiring.
	8	4	Closure of the grounding of the valve.
	8	5	The retaining solenoid valve is closed.
	8	6	The retaining solenoid valve is closed.
	8	7	Closing of the holding solenoid valve.
	8	8	Valve picking error. Valve/Wiring Harness System/Unit Check Engine control.
Adjustment valve Pressure Front Axle (right Wheel)	9	1	The exhaust solenoid valve is closed.
	9	2	The exhaust solenoid valve is closed.
	9	3	Closing of the exhaust solenoid valve wiring.
	9	4	Closure of the grounding of the valve.
	9	5	The retaining solenoid valve is closed.
	9	6	The retaining solenoid valve is closed.
	9	7	Closing of the holding solenoid valve.

	9	8	Valve picking error. Valve/Wiring Harness System/Unit Check Engine control.
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Faulty detail	1-nd Room	2nd Room	Fault data
Pressure adjustment valve (PCV), Rear axle (left rear wheel)	10	1	The exhaust solenoid valve is closed.
	10	2	The exhaust solenoid valve is closed.
	10	3	Closing of the exhaust solenoid valve wiring.
	10	4	Closure of the grounding of the valve.
	10	5	The retaining solenoid valve is closed.
	10	5	The retaining solenoid valve is closed.
	10	7	Closing of the holding solenoid valve.
	10	8	Valve picking error. Valve/Wiring Harness System/Unit Check Engine control.
Ground Pressure adjustment valve	10	10	Circuit. Remove the X2 connector on the engine control unit. Check power supply Wiring Valve ground. Replace transaction (if necessary)
	10	11	Closure/internal damage of the valve. Remove the X2 connector. Check the valve ground/ Chassis.
Pressure adjustment valve (PCV), Rear Axle (right rear wheel)	11	1	The exhaust solenoid valve is closed.
	11	2	The exhaust solenoid valve is closed.
	11	3	Closing of the exhaust solenoid valve wiring.
	11	4	Closure of the grounding of the valve.
	11	5	The retaining solenoid valve is closed.
	11	6	The retaining solenoid valve is closed.
	11	7	Closing of the holding solenoid valve.
	11	8	Valve picking error. Valve/Wiring Harness System/Unit Check Engine control.
ASR valve Malfunction	14	5	The valve closure of the ASR system is high.
	14	6	The valve closure of the ASR system is low.
	14	7	Short circuit of the electrical wiring of the ASR valve.
	14	8	ASR valve Malfunction

Faulty detail	1-nd Room	2nd Room	Fault data
Internal Block error nt Engine Manageme	15	1	Faulty internal microprocessor. The fault memory is erased.
	15	2	Change the engine control unit if this error code is constantly appearing.
	15	3	Faulty engine control unit data. The fault memory is erased. Change the engine control unit if this error code is constantly appearing.
	15	4	Faulty engine control unit data. The fault memory is erased. Change the engine control unit if this error code is constantly appearing.
	15	5	
	15	6	
	15	7	
	15	8	
	15	9	Faulty engine control unit data. The fault memory is erased. Change the engine control unit if this error code is constantly appearing.
	15	10	The internal part of the engine control unit is not converted into relays. Fault memory Erased. Change the engine control unit if this error code is constantly appearing.
15	11	The constant switch of the internal relay side of the engine control is activated. Memory Faults are erased. Change the ECU block if this error code is constantly appearing.	
15	15	The ABS system software is not compatible with the hardware. Check Installation System and the assembly of the engine control unit.	
Power source	16	1	Battery power is a temporary high voltage. Check Generator/ Voltage.
	16	2	Battery power-temporary low voltage. Check Status Discharged battery and stop the ABS system.
	16	3	Battery power – electrical wiring is damaged.
	16	4	The rated voltage is the network tip. Temporary network tip.
	16	9	Ignition is a temporary high voltage. Check the condition of the generator/voltage.
	16	10	Ignition – Temporary low voltage. Check the battery status and stop.

Faulty detail	1-nd Room	2nd Room	Fault data
Mountain Brake/ Retarder	17	1	Control relay Closure Retarder /Mountain Brake. Check the transaction.
	17	2	Control relay Closure Retarder /Mountain brake or short circuit in Wiring. Check the transaction.
Tyre size	17	5	Non-standard tire. Check the size and pressure.
	17	6	Check the C-3 signal.
Stop signal	17	7	Stop signal switch does not work.
	17	14	Faulty stop signal.
Системы ABS / ASR ETC.	17	8	ASR or ESP systems do not work. Test mode for Roller stand (running drums).
	17	9	The off-road ABS system is not available.
	17	11	The control time limit of the ASR system has been exceeded.
Signal Lamp	17	10	Short-circuit or separation of the instrument panel control lamp wiring. Check The state of the control lamp wiring.
Wheel speed sensor	17	12	Faulty Sensor Speed Rotation Wheels Which one Was в Previous Cycle "Inclusion Engine ". State When Alarm enabled after erasing the memory of the control unit Engine If the malfunction is eliminated, the display will go out when the vehicle reaches a speed higher than 20 km/h. Stop the car if the warning continues to burn, check the error code again.
	17	13	Check transaction Electro Connector.
Подключение CAN шины J1969	18	3	The Controller network bus is disabled. Check the CAN bus associated with the jumper and connected Resistor.
	18	4	Indication of the exceeded communication time limit for retarder and network controllers. Check the CAN bus jumper.
	18	5	Indication of the exceeded communication time limit for the engine control Unit and CAN Tires.
	18	6	Indication of the exceeded communication time limit for the engine control Unit and CAN ASR system tires.

Removing the fault code

Remove all error codes from the memory of the engine control unit.

Press the ABS self-diagnosis button.

Move the ignition key to the on position. Release the ABS self-diagnosis button **Mention**

If you press the self-diagnosis button when the ignition is on” ,

The ABS system control lamp lights up.

In the This Case, the memory of the control unit Will Removed.

Control Unit Memory Error Engine Sensor-related Wheel rotation speed Can Lead to The that the control lamp of the ABS system Will

Flashing continuously in certain situations.

In the This Case, the ABS system control lamp PerezAnnette flashing at a speed of more than 20 km/h if the Problem Will Was Resolved.

Removing the fault code (ASR shutdown function)

You can forcibly disable the ASR function to monitor the Funkctional Brakes and increase/decrease

Torque of the engine. Utb It is usually required thatWould

Measure the speed on the roller stand (running drums) to check the braking system or in other cases (difficult road conditions).

- a. Hold The ABS system self-diagnosis button for 5 seconds, with ignition key position "ON".
- b. After 5 seconds the system signal is lit Asr.
- c. Burning Lamp Means That the ASR system is disabled ("OFF").
- d. Error code 17/80 Will Blink if you are in This is It's time Will Conduct system self-diagnosis Abs.
- e. Lamp systemASR is disconnected, When You remove the error code after you finish Just Process.
The ASR function will be activated in normal mode.

Note

* On some bus models the ABS self-diagnosis button is combined to the button Inspection lamps "Bulb Check".

For Notes

**BS, BC, BV, BH, BX SERIES
DAEWOO BUS OWNER'S MANUAL**

**DAEWOO BUS CORPORATION
TECHNICAL CENTER
75-11, GUMSA – DONG, GUMJUNG-KU, BUSAN,
KOREA, OM-BA-C1-02C-1002**