

ON-BOARD DIAGNOSTIC SYSTEM FUNCTION (ABS, DYNAMIC STABILITY CONTROL)

B3E040243000T02

Malfunction detection function

- The malfunction detection function detects malfunctions in the input/output signal system of the ABS HU/CM (vehicles with ABS) or DSC HU/CM (vehicles with DSC) when the ignition switch is at the ON position.
- When the ABS HU/CM and DSC HU/CM are started up, the following malfunction detections are performed.

ABS HU/CM

- The ABS and brake system warning lights illuminate for **approx. 3.0 s** when the ignition switch is turned to the ON position to inspect for open circuits in the lights. At the same time, the fail-safe relay is operated, and the input/output signals of each part is monitored for malfunction diagnosis. After starting to drive, the first time the vehicle speed is **approx. 10 km/h {6.2 mph} or more** the pump motor is operated and malfunction diagnosis is performed again. Input/output signals are monitored for malfunction determination when the ignition switch is at the ON position.

DSC HU/CM

- The ABS and brake system warning lights, and DSC indicator lights illuminate for **approx. 3.0 s** and the DSC OFF light illuminates for **approx. 1.8 s** when the ignition switch is turned to the ON position to inspect for open circuits in the lights. At the same time, the fail-safe relay is operated, and the input/output signals of each part is monitored for malfunction diagnosis. After starting to drive, the first time the vehicle speed is **approx. 10 km/h {6.2 mph} or more** the pump motor is operated and malfunction diagnosis is performed again. Input/output signals are monitored for malfunction determination when the ignition switch is at the ON position.

- When malfunctions are detected, the corresponding lights are illuminated to alert the driver. Using the external tester communication function, DTCs can be output through the CAN_H and CAN_L of the DLC-2. At the same time, malfunction detection results are sent to the memory and fail-safe functions.

Memory function

- The memory function stores DTCs of malfunctions in input/output signal systems. With this function, once a DTC is stored it is not cleared after the ignition switch has been turned off (LOCK position), even if the malfunctioning signal system has returned to normal.
- Since the ABS and DSC control modules have built-in non-volatile memory, DTCs are not cleared even if the battery is removed. Therefore, it is necessary to clear the memory after performing repairs. Refer to the Workshop Manual for the DTC clearing procedure.

Fail-safe function

- When the malfunction detection function determines a malfunction, each light illuminates to advise the driver. At this time, the fail-safe function controls the ABS, EBD, TCS* and DSC* as shown in the fail-safe function malfunction contents table.

*: Only vehicles with DSC

Warning

- If EBD control is suspended the rear wheels could lock-up before the front wheels. If this occurs, the vehicle could swerve and become unstable. Therefore always inspect the system immediately if EBD control is suspended.

Fail-safe Function Malfunction Contents (Vehicles With ABS)

Malfunction location	DTC	Fail-safe function			
		Warning light illumination status		Control status	
	WDS or equivalent display	ABS warning light	Brake system warning light (when parking brake is released)	ABS control	EBD control
Power supply system	B1317	Illuminated	Illuminated	Control disabled	Control disabled
	B1318*1		Illuminated *2		Control disabled*2
			Not illuminated *3		Control enabled*3
ABS HU/CM (internal malfunction)	B1342	Illuminated	Illuminated	Control disabled	Control disabled
	C1267				
Pump motor, motor relay	C1095	Illuminated	Not illuminated	Control disabled	Control enabled
ABS sensor rotor	C1141	Illuminated	Not illuminated *4	Control disabled	Control enabled*5
	C1142				
	C1143				
	C1144				
ABS wheel-speed sensor	C1145	Illuminated	Not illuminated *4	Control disabled	Control enabled*5
	C1146				
	C1147				
	C1148				
ABS wheel-speed sensor/ABS sensor rotor	C1233	Illuminated	Not illuminated *4	Control disabled	Control enabled*5
	C1234				
	C1235				
	C1236				
Brake switch	C1446	Not illuminated	Not illuminated	Control enabled	Control enabled
CAN line	U1900	Not illuminated *6	Not illuminated *6	Control enabled	Control enabled
	U2012				
	U2523				

^{*1} : Detected if vehicle speed is **20 km/h {12.4 mph} or more** .

^{*2} : Detected regardless of time if at **approx. 8 V** .

^{*3} : Detected if condition of **approx. 9.7 V or less** continues for **210 ms or more** .

^{*4} : Illuminates when two wheels or more have a malfunction.

^{*5} : Control disabled when two wheels or more have a malfunction.

^{*6} : Illuminates depending on malfunction contents.

Fail-safe Function Malfunction Contents (Vehicles With DSC)

Malfunction location	DTC	Fail-safe function							
		Warning light illumination status				Control status			
	WDS or equivalent display	ABS warning light	Brake system warning light (when parking brake is released)	DSC indicator light	DSC OFF light	ABS control	EBD Control	TCS Control	DSC Control
	B1317		Illuminated				Control disabled		
			Illuminated				Control disabled		

Power supply system	B1318*1	Illuminated	*2	Illuminated	Not illuminated	Control disabled	*2	Control disabled	Control disabled
			Not illuminated*3				Control enabled*3		
DSC HU/CM (internal malfunction)	B1342	Illuminated	Illuminated	Illuminated	Not illuminated	Control disabled	Control disabled	Control disabled	Control disabled
	C1267								
Vehicle data not recorded	B2141*4	Not illuminated	Not illuminated	*5	Not illuminated	Control enabled	Control enabled	*6	*6
Combined sensor system (internal malfunction)	B2741	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
DSC OFF switch	C1093	Not illuminated	Not illuminated	Not illuminated	Not illuminated	Control enabled	Control enabled	Control enabled	Control enabled
Pump motor, motor relay	C1095	Illuminated	Not illuminated	Illuminated	Not illuminated	Control disabled	Control enabled	Control disabled	Control disabled
ABS sensor rotor	C1141	Illuminated	Not illuminated*7	Illuminated	Not illuminated	Control disabled	Control enabled*8	Control disabled	Control disabled
	C1142								
	C1143								
	C1144								
ABS wheel-speed sensor	C1145	Illuminated	Not illuminated*7	Illuminated	Not illuminated	Control disabled	Control enabled*8	Control disabled	Control disabled
	C1155								
	C1165								
	C1175								
ABS wheel-speed sensor/ABS sensor rotor	C1233	Illuminated	Not illuminated*7	Illuminated	Not illuminated	Control disabled	Control enabled*8	Control disabled	Control disabled
	C1234								
	C1235								
	C1236								
Steering angle sensor	C1277	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
	C1295								
	C1306								
	C1307								
Combined sensor system	C1279	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
	C1280								
	C1281								
	C1282								
	C2778								
Brake fluid pressure sensor	C1288	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
	C1440								
Brake switch	C1446	Not illuminated	Not illuminated	Not illuminated	Not illuminated	Control enabled	Control enabled	Control enabled	Control enabled
TCS control system	C1470	Not illuminated	Not illuminated	Not illuminated	Not illuminated	Control enabled	Control enabled	Control enabled	Control enabled
Brake fluid pressure sensor power supply	C1730	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
TCS/DSC									

control system	C1994	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
Combined sensor (initialization procedure not performed)	C2785	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
CAN line	U1900	Not illuminated ^{*9}	Not illuminated ^{*9}	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
	U2012								
	U2023								
	U2202								
	U2523								
Combined sensor (CAN 2 line malfunction)	U1901	Not illuminated	Not illuminated	Illuminated	Not illuminated	Control enabled	Control enabled	Control disabled	Control disabled
	U2527								

^{*1} : Detected if vehicle speed is **20 km/h {12.4 mph} or more** .

^{*2} : Detected regardless of time if at **approx. 8 V** .

^{*3} : Detected if condition of **approx. 9.7 V or less** continues for **210 ms or more** .

^{*4} : DTC B2141 (vehicle data not recorded) is stored in the memory only when the ignition switch is turned to the ON position for the first time after DSC HU/CM replacement. Since the vehicle data is downloaded from the PCM via a CAN line when the ignition switch is turned to the ON position, it is only stored as a past malfunction when the ignition switch is turned off and then turned to the ON position.

^{*5} : Illuminates only when the ignition switch is turned to the ON position for the first time after DSC HU/CM replacement.

^{*6} : Disabled only when the ignition switch is turned to the ON position for the first time after DSC HU/CM replacement.

^{*7} : Illuminates when two wheels or more have a malfunction.

^{*8} : Control disabled when two wheels or more have a malfunction.

^{*9} : Illuminates depending on malfunction contents.