

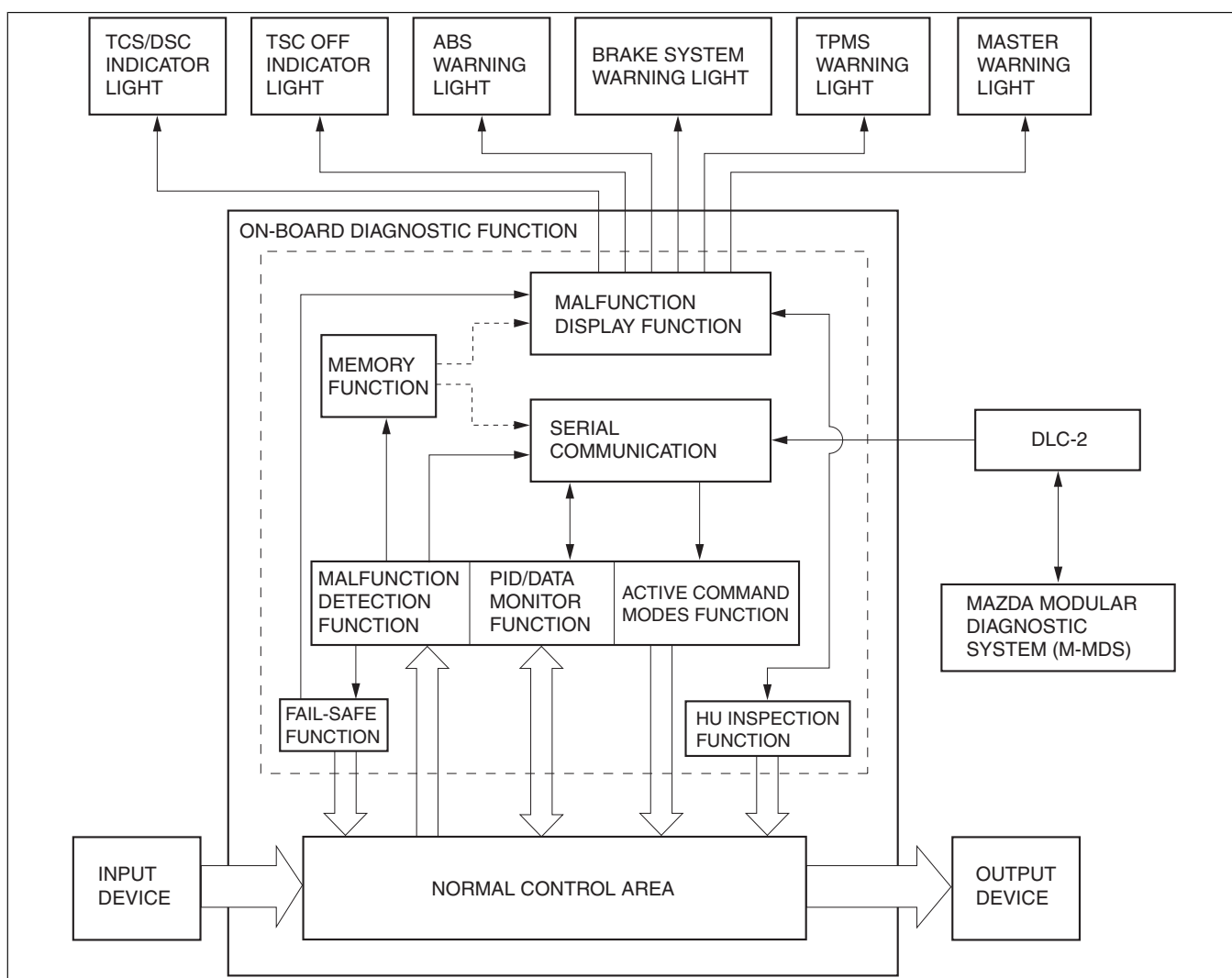
ON-BOARD DIAGNOSTIC SYSTEM [DYNAMIC STABILITY CONTROL (DSC)]

id0402b2181300

OUTLINE

- The on-board diagnostic system consists of a malfunction detection system that detects malfunctions in input/output signals when the ignition is switched to ON, a PID/data monitor function that reads out specified input/output signals, and an active command mode function that allows for override operation of output parts (such as solenoid valves).
- The data link connector 2 (DLC-2), which groups together all the connectors used for malfunction diagnosis and detecting/repair into a single location, has been adopted, thereby improving serviceability. Diagnosis is performed by connecting the Mazda modular diagnostic system (M-MDS) to the DLC-2.
- In addition to DTC read-out, the Mazda modular diagnostic system (M-MDS) is used to clear DTCs using the display screen of the diagnostic tester, and to access the PID/data monitor and active command modes functions, providing enhanced malfunction diagnosis and improved serviceability.

Block diagram



ac5wzn00000981

FUNCTION

Malfunction detection function

- The malfunction detection function detects and displays malfunctions in the input/output signal system of the DSC HU/CM when the ignition is switched to ON.
- When the DSC HU/CM is activated, the following malfunction detection is performed.
 - The ABS warning light, brake system warning light, TCS/DSC indicator light, TSC OFF indicator light, tire pressure monitoring system warning light and master warning light illuminate for **approx. 3.0 s** when the ignition is switched to ON to inspect for open circuits in the lights. At the same time, 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. The input/output signals of each part are then constantly monitored and malfunctions are diagnosed.

Note

- When the pump motor operates, it is sound can be heard.
- If the above malfunctions are detected, the corresponding lights are illuminated to alert the driver. DTCs can be output through the CAN_H and CAN_L of the DLC-2 using the external tester communication function. 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 has been switched off, even if the malfunctioning signal system has returned to normal.
- Since the DSC HU/CM has a 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.

DTC 7-digit code definition

- When related systems or components have failed, the CM stores the DTC of the malfunctioning part in the CM memory, and allows for the retrieval of the store data using scanning tool when necessary. The DTCs are indicated using seven digits. Each digit indicates the following.

C 0 0 0 1 : 0 1

• Specify the area failure sub type

00: No sub type information	41: General checksum malfunction
01: General electrical malfunction	46: Calibration/parameter memory malfunction
07: Mechanical malfunctions	49: Internal electronic malfunction
08: Bus signal/message malfunctions	52: Not activated
11: Circuit short to ground	54: Missing calibration
12: Circuit short to battery	55: Not configured
13: Open circuit	56-5F: ISO/SAE reserved
15: Circuit short to battery or open circuit	62: Signal compare malfunction
16: Circuit voltage below threshold	64: Signal plausibility malfunction
17: Circuit voltage above threshold	67: Signal incorrect after event
1C: Circuit voltage out of range	68: Event information
28: Signal bias level out of range/zero adjustment malfunction	71: Actuator stuck
29: Signal signal invalid	76: Wrong mounting position
2F: Signal erratic	85: Signal above allowable range
35: Signal high time > maximum	86: Signal invalid
	88: Bus off

• Manufacturer controlled

• Indicates subgroup

Network Electrical (U code)	Body (B code)	Chassis (C code)
0: Network Electrical	Manufacturer controlled	Manufacturer controlled
1: Network communication		
2: Network communication		
3: Network software		
4: Network data		

• Indicates who was responsible for DTC definition

- 0: ISO/SAE controlled
- 1: Manufacturer controlled
- 2: There are ISO/SAE controlled just for powertrain, all others are manufacturer controlled.
- 3: For P3000 to P3399 is manufacturer controlled, all others are ISO/SAE controlled.

• Indicates DTC function

- B: Body
- C: Chassis
- U: Network Electrical

Fail-safe function

- When the malfunction detection function determines a malfunction, the warning indicator light illuminates to alert the driver. At this time, the fail-safe function controls as indicated in the fail-safe function malfunction contents table.

Warning

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

DTC table

×: Applicable

-: Not applicable/not illuminated

DTC No.	ABS warning light	Brake system warning light (when parking brake is released)	TCS/DSC indicator light	TCS OFF indicator light	Tire pressure monitoring system warning light	Master warning light *1	Malfunction location	Fail-safe	Drive cycle	Self test type *2	Memo ry function
B10DF:46	-	-	Illuminated	-	-	Illuminated	DSC HU/CM (internal malfunction)	×	-	C, D	×
B11D4:08 *1	-	-	-	-	-	Illuminated	Laser sensor	×	-	C, D	×
C0001:01	Illuminated	Illuminated	Illuminated	-	-	Illuminated	DSC HU/CM internal malfunction (solenoid valve system)	×	-	C, D	×
C0002:01											
C0003:01											
C0004:01											
C0010:01											
C0011:01											
C0014:01											
C0015:01											
C0018:01											
C0019:01											
C001C:01											
C001D:01											
C0020:11	Illuminated	-	Illuminated	-	-	Illuminated	Pump motor, motor relay	×	-	C, D	×
C0020:12											
C0020:13											
C0020:71											
C0023:62 *1	-	-	-	-	-	Illuminated	Brake switch	×	-	C, D	×

DTC No.	ABS warning light	Brake system warning light (when parking brake is released)	TCS/DSC indicator light	TCS OFF indicator light	Tire pressure monitoring system warning light	Master warning light *1	Malfunction location	Fail-safe	Drive cycle	Self test type *2	Memory function
C0030:07	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LF ABS sensor rotor	×	-	C, D	×
C0031:07							LF ABS wheel-speed sensor/ABS sensor rotor				
C0031:11	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LF ABS wheel-speed sensor	×	-	C, D	×
C0031:15											
C0031:29	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LF ABS wheel-speed sensor/ABS sensor rotor	×	-	C, D	×
C0031:2F											
C0031:64											
C0033:07	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	RF ABS sensor rotor	×	-	C, D	×
C0034:07							RF ABS wheel-speed sensor/ABS sensor rotor				
C0034:11	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	RF ABS wheel-speed sensor	×	-	C, D	×
C0034:15											
C0034:29	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	RF ABS wheel-speed sensor/ABS sensor rotor	×	-	C, D	×
C0034:2F											
C0034:64											
C0036:07	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LR ABS sensor rotor	×	-	C, D	×
C0037:07							LR ABS wheel-speed sensor/ABS sensor rotor				
C0037:11	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LR ABS wheel-speed sensor	×	-	C, D	×
C0037:15											
C0037:29	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	LR ABS wheel-speed sensor/ABS sensor rotor	×	-	C, D	×
C0037:2F											
C0037:64											
C0039:07	Illuminated	_ *3	Illuminated	-	Flashes *4	Illuminated	RR ABS sensor rotor	×	-	C, D	×
C003A:07							RR ABS wheel-speed sensor/ABS sensor rotor				

DTC No.	ABS warning light	Brake system warning light (when parking brake is released)	TCS/DSC indicator light	TCS OFF indicator light	Tire pressure monitoring system warning light	Master warning light *1	Malfunction location	Fail-safe	Drive cycle	Self test type *2	Memory function
C003A:11	Illuminated	*_3	Illuminated	-	Flashes *4	Illuminated	RR ABS wheel-speed sensor	×	-	C, D	×
C003A:15											
C003A:29	Illuminated	*_3	Illuminated	-	Flashes *4	Illuminated	RR ABS wheel-speed sensor/ABS sensor rotor	×	-	C, D	×
C003A:2F											
C003A:64											
C0040:64	-	-	Illuminated	-	Flashes *4	Illuminated	Brake switch	×	-	C, D	×
C0044:01	-	-	Illuminated	-	Flashes *4 *5	Illuminated *6	Brake fluid pressure sensor	×	-	C, D	×
C0044:28	-	-	Illuminated	-	Flashes *4	Illuminated					
C0044:54	-	-	Illuminated	-	Flashes *4 *5	Illuminated *6					
C0044:64	-	-	Illuminated	-	Flashes *4	Illuminated					
C0051:62	-	-	Illuminated	-	Flashes *4	Illuminated	Steering angle sensor	×	-	C, D	×
C0051:64											
C0051:67					-	Illuminated					
C0051:85	-	-	Illuminated	-	Flashes *4	Illuminated					
C0061:28	-	-	Illuminated	-	Flashes *4	Illuminated	SAS control module system	×	-	C, D	×
C0061:54	Illuminated *6	-	Illuminated	-	Flashes *4 *5	Illuminated *6	DSC HU/CM system (unperformed initialization procedure)	×	-	C, D	×
C0061:64	-	-	Illuminated	-	Flashes *4	Illuminated	SAS control module system	×	-	C, D	×
C0062:28	Illuminated *6	-	Illuminated	-	-	Illuminated *6					
C0062:54	Illuminated *6	-	Illuminated	-	Flashes *4 *5	Illuminated *6	DSC HU/CM system (unperformed initialization procedure)	×	-	C, D	×
C0062:64	Illuminated *6	-	Illuminated	-	-	Illuminated *6	SAS control module system	×	-	C, D	×
C0062:76	Illuminated *6	-	Illuminated	-	Flashes *4 *5	Illuminated *6	SAS control module system	×	-	C, D	×
C0063:28	-	-	Illuminated	-	Flashes *4	Illuminated	SAS control module system	×	-	C, D	×

DTC No.	ABS warning light	Brake system warning light (when parking brake is released)	TCS/DSC indicator light	TCS OFF indicator light	Tire pressure monitoring system warning light	Master warning light *1	Malfunction location	Fail-safe	Drive cycle	Self test type *2	Memo ry function
C0063: 54	Illuminated*6	-	Illuminated	-	Flashes*4*5	Illuminated*6	DSC HU/CM system (unperformed initialization procedure)	×	-	C, D	×
C0063: 64	-	-	Illuminated	-	Flashes*4	Illuminated	SAS control module system	×	-	C, D	×
C006B:00	-	-	Illuminated	-	Flashes*4	Illuminated	TCS/DSC control system	×	-	C, D	×
C0072: 68			-*9		-	-					
C0089: 64	-	-	-	-	-	-	TCS OFF switch	-	-	C, D	×
C1031: 35	-	-	-	-	Flashes*4	-	Tire pressure monitoring system (TPMS) set switch	×	-	C, D	×
C1031: 41	-	-	-	-	Flashes*4	-	Tire pressure monitoring system (TPMS) system	×	-	C, D	×
C1031: 54											
C1031: 68											
C1A08:1C	-	-	Illuminated	-	Flashes*4	Illuminated	DSC HU/CM (internal malfunction)	×	-	C, D	×
U0001: 88	Illuminated	-	Illuminated	-	Flashes*4	Illuminated	CAN line	×	-	C, D	×
U0100: 00	Illuminated*6	-	Illuminated*6	-	Flashes*4*5	Illuminated*6					
U0101: 00*7	-	-	Illuminated	-	Flashes*4	Illuminated					
U0114: 00*8	-	-	-	-	Flashes*4	-					
U0131: 00	-	-	Illuminated	-	Flashes*4	Illuminated					
U0151: 00	-	Illuminated*6	Illuminated	-	Flashes*4*5	Illuminated*6	SAS control module system (CAN2 line malfunction)	×	-	C, D	×
U0154: 00	-	-	Illuminated	-	-	-	CAN line	×	-	C, D	×
U0155: 00	Illuminated*6	-	Illuminated*6	-	Flashes*4*5	Illuminated*6					
U0235: 00*1	-	-	-	-	-	Illuminated					
U0401: 00	-	-	Illuminated*6	-	Flashes*4*5	Illuminated*6	Abnormal message from PCM	×	-	C, D	×

DTC No.	ABS warning light	Brake system warning light (when parking brake is released)	TCS/DSC indicator light	TCS OFF indicator light	Tire pressure monitoring system warning light	Master warning light *1	Malfunction location	Fail-safe	Drive cycle	Self test type *2	Memory function
U0402:00*7	-	-	Illuminated	-	Flashes*4	Illuminated	Abnormal message from transmission/transaxle	×	-	C, D	×
U0420:00	-	-	Illuminated	-	Flashes*4	Illuminated	Abnormal message from EPS CM	×	-	C, D	×
U0423:00	-	-	-	-	Flashes*4	Illuminated	Abnormal message from instrument cluster	×	-	C, D	×
U0433:00*1	-	-	-	-	-	Illuminated	Abnormal message from laser sensor	×	-	C, D	×
U0443:00	-	-	-	-	-	Illuminated	Abnormal message from instrument cluster	×	-	C, D	×
U0452:00	-	-	Illuminated	-	-	-	Abnormal message from SAS control module	×	-	C, D	×
U0452:86	Illuminated*6	-	Illuminated	-	Flashes*4*5	Illuminated*6					
U2007:46	-	-	Illuminated	-	-	Illuminated	DSC HU/CM (internal malfunction)	×	-	C, D	×
U2007:62	Illuminated	Illuminated	Illuminated	-	-	Illuminated	DSC HU/CM (internal malfunction)	×	-	C, D	×
U2101:00	Illuminated	-	Illuminated	-	Flashes*4	Illuminated	Configuration data not recorded	×	-	C, D	×
U2107:68*1	-	-	-	-	-	Illuminated	Laser sensor	×	-	C, D	×
U2300:52	Illuminated	-	Illuminated	-	Flashes*4	Illuminated	Configuration data not recorded	×	-	C, D	×
U2300:54											
U2300:55											
U2300:56											
U2300:64											
U3000:49	Illuminated*6	Illuminated*6	Illuminated	-	Flashes*4*5	Illuminated	DSC HU/CM (internal malfunction)	×	-	C, D	×

DTC No.	Fail-safe function											
	Control status											
	ABS control	EBD control	TCS Control		DSC Control	Roll over mitigation (ROM)	Brake assist control	Vehicle roll prevention function*1	Hill launch assist (HLA)	Tire pressure monitoring system (TPMS)	Smart city brake support (SCBS)*2	Secondary collision reduction (SCR)
Brake control			Engine control									
C0020:11	Control disabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control enabled	Control disabled	Control disabled
C0020:12												
C0020:13												
C0020:71												
C0023:62*2	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled
C0030:07	Control disabled	Control enabled*3	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C0031:07												
C0031:11												
C0031:15												
C0031:29												
C0031:2F												
C0031:64												
C0033:07	Control disabled	Control enabled*3	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C0034:07												
C0034:11												
C0034:15												
C0034:29												
C0034:2F												
C0034:64												
C0036:07	Control disabled	Control enabled*3	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C0037:07												
C0037:11												
C0037:15												
C0037:29												
C0037:2F												
C0037:64												
C0039:07	Control disabled	Control enabled*3	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C003A:07												
C003A:11												
C003A:15												
C003A:29												
C003A:2F												
C003A:64												
C0040:64	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control enabled
C0044:01	Control enabled	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
C0044:28	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C0044:54	Control enabled	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
C0044:64	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
C0051:62	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control enabled	Control enabled	Control disabled	Control disabled	Control disabled	Control disabled
C0051:64												

[illegible]

DTC No.	Fail-safe function											
	Control status											
	ABS control	EBD control	TCS Control		DSC Control	Roll over mitigation (ROM)	Brake assist control	Vehicle roll prevention function*1	Hill launch assist (HLA)	Tire pressure monitoring system (TPMS)	Smart city brake support (SCBS)*2	Secondary collision reduction (SCR)
U0100:00	Control disabled*4	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
U0101:00*1	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control enabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
U0114:00*5	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled	Control enabled
U0131:00	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control enabled	Control enabled	Control enabled	Control disabled	Control disabled	Control disabled
U0151:00	Control disabled*4	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
U0154:00	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled
U0155:00	Control disabled*4	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
U0235:00*2	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled
U0401:00	Control enabled	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control enabled	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
U0402:00*1	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control enabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
U0420:00	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control enabled	Control enabled	Control enabled	Control disabled	Control disabled	Control disabled
U0423:00	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control disabled	Control enabled
U0433:00*2	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled
U0443:00	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled
U0452:00	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled
U0452:86	Control disabled*4	Control enabled	Control disabled*4		Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4	Control disabled*4
U2007:46	Control enabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control enabled	Control disabled	Control disabled
U2007:62	Control disabled	Control disabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control enabled	Control disabled	Control disabled

DTC No.	Fail-safe function											
	Control status											
	ABS control	EBD control	TCS Control		DSC Control	Roll over mitigation (ROM)	Brake assist control	Vehicle roll prevention function*1	Hill launch assist (HLA)	Tire pressure monitoring system (TPMS)	Smart city brake support (SCBS)*2	Secondary collision reduction (SCR)
Brake control			Engine control									
U2101:00	Control disabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
U2107:68*2	Control enabled	Control enabled	Control enabled		Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control enabled	Control disabled	Control enabled
U2300:52	Control disabled	Control enabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
U2300:54												
U2300:55												
U2300:56												
U2300:64												
U3000:49	Control disabled*d*4	Control disabled*d*4	Control disabled		Control disabled	Control disabled	Control disabled*d*4	Control disabled	Control disabled	Control disabled*d*4	Control disabled	Control disabled
U3003:08	Control enabled											
U3003:16	Control disabled	Control enabled*d*6	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled
		Control disabled*d*7 *8										
U3003:17	Control disabled	Control disabled	Control disabled		Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled	Control disabled

^{*1} : ATX only

^{*2} : Vehicles with smart city brake support (SCBS)

^{*3} : Control disabled when two wheels or more have a malfunction.

^{*4} : Enabled depending on malfunction content.

^{*5} : 4WD only

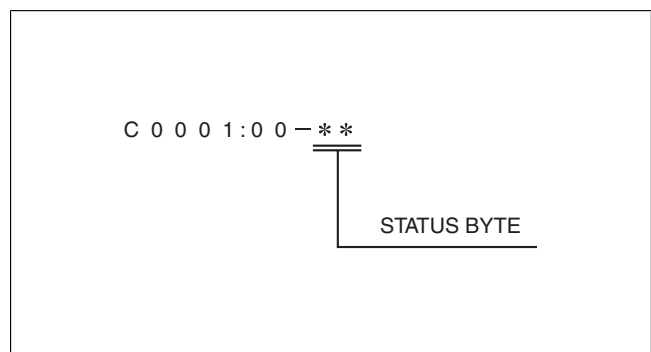
^{*6} : When power supply voltage is **7.9—9.6 V** for **550 ms or more**.

^{*7} : When power supply voltage is **6.0—7.9 V** for **630 ms or more**.

^{*8} : When power supply voltage is **below 6 V** for **50 ms or more**.

Status byte for DTC

- The status byte is the two-digit code (two digits after hyphen (-)) after the DTC.
- The status byte is a code which indicates the pending code, current/past malfunction status, or warning illumination status.
- The status byte can be read by performing a CMDTC self test using the Mazda Modular Diagnostic System (M-MDS).
- For details on the status byte, refer to the explanation on the Mazda Modular Diagnostic System (M-MDS) when reading the DTC.



Snapshot data

Note

- The DSC HU/CM stores the following two types of information when a DTC is detected and displays snapshot data in the M-MDS.
 - Vehicle information detected by DSC HU/CM
 - Vehicle information detected by instrument cluster and received by start stop unit via CAN signal
- The snapshot data stores the currently detected DTC data

Snapshot data item	Unit	Data contents	Data read/use method	Corresponding data monitor items
AAT	°C, °F	Ambient air temperature	Not applicable.	Not applicable.
ABS	Inactive/ Active	Antilock braking system	Not applicable.	Not applicable.
APP_STATUS	Accelerator Pedal Off/ Under 20%/ Over 20%/ FAIL	Accelerator pedal position	Not applicable.	Not applicable.
AYC	Inactive/ Active	Active yaw control	Not applicable.	Not applicable.
BRK_F_P_R	Pa, psi	Brake fluid line hydraulic pressure (Raw Value)	BRK_F_P_R	BRK_F_P_R
BTCS	Inactive/ Active	Brake traction control system	Not applicable.	Not applicable.
CFG_STATUS	Config Complete/ Not Configured/ Config Error	Instrument cluster configuration status	Not applicable.	Not applicable.
ECT_STATUS	Under 0 degrees C/ 0 - Under 80 degrees C/ Over 80 degrees C/ FAIL	Engine coolant temperature status	Not applicable.	Not applicable.
EDC	Inactive/ Active	Engine drag control	Not applicable.	Not applicable.
IC_VPWR	V	Instrument cluster power supply	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the power supply voltage value of the instrument cluster sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the power supply voltage of the instrument cluster when the DTC was detected, and it is displayed in the M-MDS. 	VRWR*2

Snapshot data item	Unit	Data contents	Data read/use method	Corresponding data monitor items
IG-ON_TIMER	hh:mm:ss*1	<p>Elapsed time since ignition was switched ON</p> <p>Note</p> <ul style="list-style-type: none"> The instrument cluster records the elapsed time since the ignition was switched ON. 	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the elapsed time since the ignition was switched ON sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the elapsed time since the ignition was switched ON when the DTC was detected, and it is displayed in the M-MDS. 	Not applicable.
LAT_ACCL_R	G	Lateral acceleration (Raw Value)	LAT_ACCL_R	LAT_ACCL_R
LON_ACCL_R	G	Longitudinal acceleration (Raw Value)	LON_ACCL_R	LON_ACCL_R
PMP_MT	Off/On	Pump motor	Not applicable.	Not applicable.
PWR_MODE_KEY	Key Out/ Key Recently Out/ Key Approved (Position 0)/ Post Accessory (Position 0)/ Accessory (Position 1)/ Post Ignition (Position 1)/ Ignition On (Position 2)/ Running (Position 2)/ Running - Starting In Progress (Position 2)/ Crank (Position 3)	<ul style="list-style-type: none"> Key Out: Ignition switched to off Key Recently Out (Position 0): Elapsed time within 3 s since ignition was switched to off Accessory (Position 1): Ignition is switched to ACC Post Ignition (Position 2): Elapsed time within 3 s since ignition was switched ON Ignition On (Position 2): Ignition switched ON (engine off) Running (Position 2): Ignition switched ON (engine on) Running - Starting: Cranking condition 	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the ignition switch status sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the ignition switch status when the DTC was detected, and it is displayed in the M-MDS. 	Not applicable.
RPM_STATUS	Engine Stop/ Under 1500rpm/ Over 1500rpm/ FAIL	Engine RPM status	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the ignition switch status sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the ignition switch status when the DTC was detected, and it is displayed in the M-MDS. 	TACHOMTR*2

Snapshot data item	Unit	Data contents	Data read/use method	Corresponding data monitor items
SHIFT_STATUS	P/N D/ R/ FAIL	Shift position status	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the selector lever position sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the selector lever position when the DTC was detected, and it is displayed in the M-MDS. 	Not applicable.
STR_ANG_C	°	Steering wheel angle (Calculated Value)	STR_ANG_C	STR_ANG_C
TCS	Inactive/ Active	Traction control system	Not applicable.	Not applicable.
TOTAL_DIST	km, ft, mi	Accumulated total traveled distance from completion of vehicle until DSC HU/CM detects DTC (Odometer value in instrument cluster)	<p>The distance traveled when the DSC HU/CM detected a DTC can be calculated by performing the following procedure.</p> <ol style="list-style-type: none"> 1. Verify the odometer value in the instrument cluster. 2. Verify the snap shot data item TOTAL_DIST. 3. Subtract 2 from 1. 	Not applicable.
TOTAL_TIME	hh:mm:ss*1	<p>Accumulated total elapsed time since vehicle completion until DSC HU/CM detects a DTC</p> <p>Note</p> <ul style="list-style-type: none"> When the ROOM removed, and the ignition is switched to off, the time is not included in the elapsed time. 	<p>The elapsed time when the DSC HU/CM detected a DTC can be calculated by performing the following procedure.</p> <ol style="list-style-type: none"> 1. Verify the PID item TOTAL_TIME of the instrument cluster. 2. Verify the snap shot data item TOTAL_TIME. 3. Subtract 2 from 1. 	Not applicable.
VPWR	V	Power supply	VPWR	VPWR
VSPD	KPH, MPH	Vehicle speed	VSPD	VSPD
VSPD_STATUS	Stop/ 0 - 10km/h/ Over 10km/h/ FAIL	When a DTC is detected, the DSC HU/CM receives the vehicle speed being detected by the instrument cluster via CAN signals and displays it in the M-MDS.	<ul style="list-style-type: none"> The DSC HU/CM constantly receives the vehicle speed sent via CAN signal from the instrument cluster. If a DTC is detected, the DSC HU/CM records the vehicle speed when the DTC was detected, and it is displayed in the M-MDS. 	SPEEDOMTR*2
YAW_RATE_R	°/S	Yaw Rate (Raw Value)	YAW_RATE_R	YAW_RATE_R

*1 : The seconds may be indicated after the decimal point.

*2 : Instrument cluster PID (See ON-BOARD DIAGNOSTIC [INSTRUMENT CLUSTER].)

PID/data monitor function

- The PID/data monitor function is used for optionally selecting input/output signal monitor items preset in the DSC HU/CM and reading them out in real-time.

PID/data monitor table

Mazda Modular Diagnostic System (M-MDS) display	Data contents	Unit/Operation (Mazda Modular Diagnostic System (M-MDS) display)
BRAKE_SW	Brake switch signal	Off/On
BRK_F_P_C	Brake fluid pressure sensor signal (calculated value)	Pa, psi
BRK_F_P_R	Brake fluid pressure sensor signal (raw value)	
DDS_MODE	Deflation detection system mode	Not_Learned/Learning/Learned
DSC_OFF_SW	TCS OFF switch condition	Off/On
DSC_ST	DSC system status	Off/On
LAT_ACCL_C	lateral-G value (calculated Value)	G
LAT_ACCL_R	lateral-G value (raw Value)	
LON_ACCL_C	longitudinal-G value (calculated Value)	G
LON_ACCL_R	longitudinal-G value (raw Value)	
P_BRAKE_SW	Parking brake switch signal	Off/On
PMP_MT	Pump motor condition	Off/On
PMP_MT_SP	Pump motor supply condition	
R_GEAR_SW	Shift/select lever at R position signal	Off/On
STR_ANG_C	Steering wheel angle (Calculated Value)	°
STR_ANG_R	Steering wheel angle (Raw Value)	
TPMS_TYPE	TPMS type	No_DDS/DDS+TOM_EU/DDS+TOM_US
V_INLET_LF	LF inlet solenoid valve condition	Off/On
V_INLET_LR	LR inlet solenoid valve condition	
V_INLET_RF	RF inlet solenoid valve condition	
V_INLET_RR	RR inlet solenoid valve condition	
V_OUTLET_LF	LF outlet solenoid valve condition	
V_OUTLET_LR	LR outlet solenoid valve condition	
V_OUTLET_RF	RF outlet solenoid valve condition	
V_OUTLET_RR	RR outlet solenoid valve condition	
V_STB_LF/RR	Stability control solenoid valve condition (LF/RR)	Off/On
V_STB_RF/LR	Stability control solenoid valve condition (RF/LR)	
V_TRC_LF/RR	Traction control solenoid valve condition (LF/RR)	Off/On
V_TRC_RF/LR	Traction control solenoid valve condition (RF/LR)	
VPWR_B_SOL	Module supply voltage	V
VSPD	Vehicle speed	KPH, MPH
WSPD_SEN_LF	LF ABS wheel-speed sensor signal	KPH, MPH
WSPD_SEN_LR	LR ABS wheel-speed sensor signal	
WSPD_SEN_RF	RF ABS wheel-speed sensor signal	
WSPD_SEN_RR	RR ABS wheel-speed sensor signal	
YAW_RATE_C	Yaw rate value (calculated Value)	°/s
YAW_RATE_R	Yaw rate value (raw Value)	

Active command modes function

- The active command modes function is used for optionally selecting simulation items of input/output parts preset in the DSC HU/CM, and to operate them regardless of CM control.
- To protect the hydraulic unit interior, operate output related parts for only **2 s or less** when using the active command modes function.

Active command mode table

Command name	Output part	Operation	Operating condition
PMP_MT_SP	Pump motor	Off/On	Switch the ignition to ON
V_INLET_LF	LF inlet solenoid valve		
V_INLET_LR	LR inlet solenoid valve		
V_INLET_RF	RF inlet solenoid valve		
V_INLET_RR	RR inlet solenoid valve		
V_OUTLET_LF	LF outlet solenoid valve		
V_OUTLET_LR	LR outlet solenoid valve		
V_OUTLET_RF	RF outlet solenoid valve		
V_OUTLET_RR	RR outlet solenoid valve		
V_STB_LF/RR	LF/RR stability control solenoid valve		
V_STB_RF/LR	RF/LR stability control solenoid valve		
V_TRC_LF/RR	LF/RR traction control solenoid valve		
V_TRC_RF/LR	RF/LR traction control solenoid valve		

External tester communication function

- The external tester communication function enables communication of diagnostic data (DTC read-outs, input/output signal read-outs, operation of input/output parts) between the DSC HU/CM and an external tester.

Connections/communication contents

	External tester	
	Mazda Modular Diagnostic System (M-MDS)	
	Connection	Communication method
On-board diagnostic (malfunction detection) function	Input/output: CAN_H (HS), CAN_L (HS) terminals	Serial communication
PID/data monitor function	Input/output: CAN_H (HS), CAN_L (HS) terminals	Serial communication
Active command modes function	Input/output: CAN_H (HS), CAN_L (HS) terminals	Serial communication

Serial communication

- Serial communication (two-way communication) allows for multiple data to be sent and received instantly along the same line.
- By connecting the Mazda Modular Diagnostic System (M-MDS) to the DLC-2, diagnostic data can be sent and received between the Mazda Modular Diagnostic System (M-MDS) and the DSC HU/CM using the CAN_H and CAN_L terminals (within the DLC-2).
- The DSC HU/CM receives the command signals of the malfunction detection function, PID/data monitor function, and the active command modes function based on the Mazda Modular Diagnostic System (M-MDS), and sends DTCs and data regarding the operating condition and status of each input/output part to the Mazda Modular Diagnostic System (M-MDS).

Diagnostic function name	Signal received	Signal sent
Malfunction detection function	DTC verification signal	DTC
PID/data monitor function	Command signal to read selected monitor item	Monitored data for requested monitor item
Active command modes function	Operation command signal for selected active command modes item	Output part drive signal