

ON-BOARD DIAGNOSIS SYSTEM [IMMOBILIZER SYSTEM]

id0914001112c3

Outline

- The immobilizer system has an on-board diagnostic function to facilitate system diagnosis.

Function

- The on-board diagnostic function consists of the following functions: A malfunction detection function, which detects overall malfunctions in the immobilizer system-related parts; a memory function, which stores detected DTCs; a display function, which indicates system malfunctions via DTC display; and a PID/data monitoring function, which reads out specific input/output signals.
- Using the Mazda Modular Diagnostic System (M-MDS), DTCs can be read out and deleted, and PID/data monitoring can be performed.

On-board Diagnostic Function

Malfunction detection function

- Detects overall malfunctions in the immobilizer system-related parts.
- Malfunction diagnosis of the immobilizer system is automatically performed every time the engine is switched from OFF/LOCK (ACC) to ON (START).

Memory Function

- Malfunctions detected by the malfunction detection function are all recorded as DTCs in the following modules.
 - Start stop unit
 - PCM

Caution

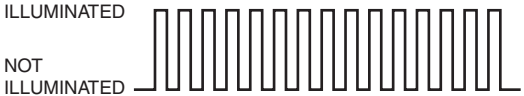
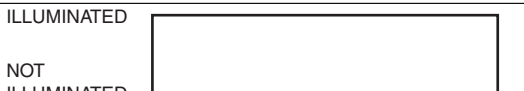
- Recorded immobilizer system DTCs are cleared when the ignition is switched ON from OFF (LOCK)/ACC.**

Display Function

- If there is a malfunction in the immobilizer system, the security indicator light in the instrument cluster is illuminated to notify the driver. In addition, DTCs are displayed by the number of times that the security indicator light flashes.

Note

- If two or more malfunctions are detected as a result of malfunction diagnosis, only the DTC with the lowest number of those detected will be indicated by the security indicator light.
- In the approx. 1 min after detecting a malfunction and before indicating the DTC, the security indicator light illuminates or flashes in the following patterns:

Security indicator light flash pattern (before displaying DTC)	DTC
	09, 11, 13, 15, 16
	22, 23

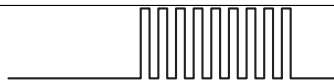
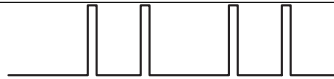






- DTC 21 is displayed when the ignition is switched ON (engine off or on) and the security indicator light illumination turns off after approx. 1 min.
- Using the Mazda Modular Diagnostic System (M-MDS), DTCs can be read out and deleted.

Caution

- If the security indicator light itself has a malfunction, it is possible that a DTC may not be indicated properly.**

DTC table

×: Applicable
—: Not applicable

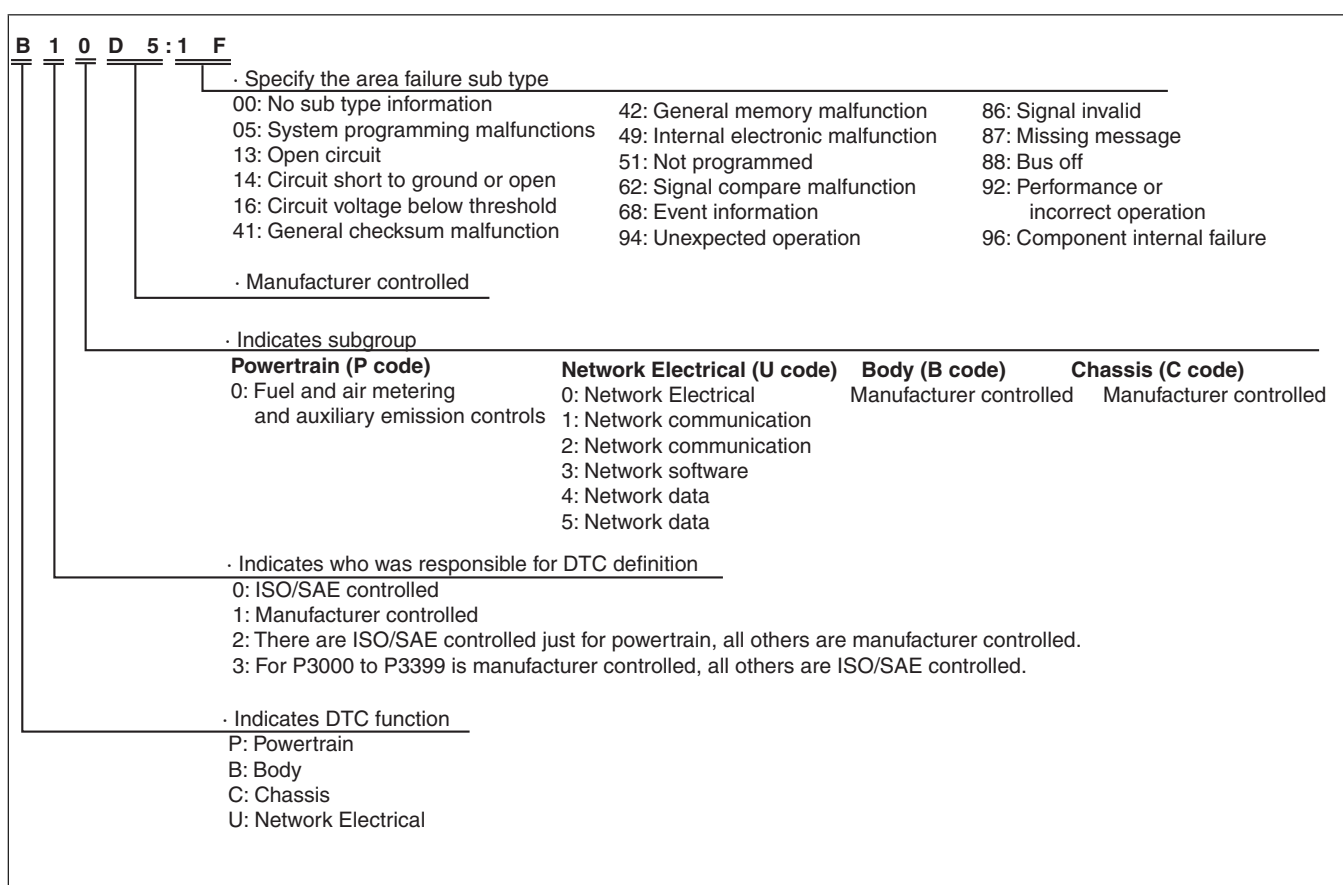
M-MDS display*1			DTC		KEY warn ing indic ator light (red)	Pus h butt on indic ator light (amb er)	Description	Fail- safe func tion	Driv e cycl e	Self test type *2	Mem ory func tion
Start stop unit	PCM	Security indicator light flash pattern									
U3000:9 6	P1260: 00	09			On	Flas h	Start stop unit malfunction	—	—	C	×
B10D9:8 7	P1260: 00	11			—	Flas h	Coil antenna (built into push button start) error	—	—	C	—
B13D3:0 5	P1260: 00	13			—	—	Remote transmitter programming error	—	—	C	—
B13D3:9 4	P1260: 00	13			—	—	Communication error with remote transmitter	—	—	C	—
B13D3:5 1	P1260: 00	15			—	Flas h	Unregistered remote transmitter is detected	—	—	C	—
U0100:8 7	P1260: 00	16			—	—	Communication error with PCM (no response or data mis-matched)	—	—	C	—
B13D4:0 0	P1260: 00	21			On	—	Insufficient remote transmitter programming number	—	—	C	—
B10DA: 51	P1260: 00	22			—	—	Communication error with PCM (data received failure)	—	—	C	—
B10DA: 62	P1260: 00	23			—	—	Communication error with PCM (code mis- matched)	—	—	C	—

*1 : The letters at the beginning of each DTC are only displayed when using the M-MDS, and refer to the following:
B= Body system, P= Powertrain system, U= Network communication system.

*2 : C: CMDTC self test, D: ODDTC self test

DTC 7-digit code definition

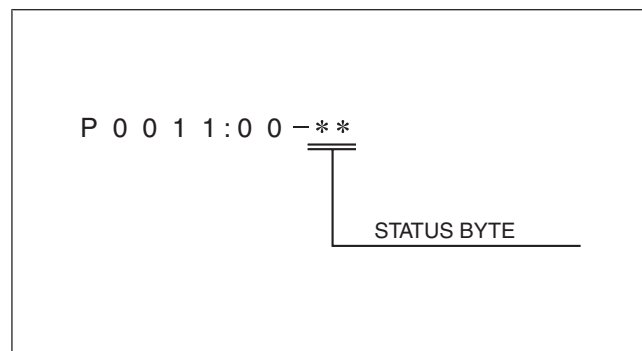
- When related systems or components have failed, the CM stores the DTC of the malfunctioning part in the CM memory, and allows for the retrieval of the store data using scanning tool when necessary. The DTCs are indicated using seven digits. Each digit indicates the following.



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Status byte for DTC

- The status byte is the two digits (two digits after hyphen (-)) after the seven-digit 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 M-MDS when reading the DTC.



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Detection condition for the applicable DTC

DTC	System malfunction location	Detection condition
U3000:96	Start stop unit malfunction	Start stop unit malfunction detected.
B10D9:87	Coil antenna (built into push button start) error	The starter stop unit detected a malfunction in the coil antenna, and remote transmitter communication is not possible.
B13D3:05	Remote transmitter program error	The start stop unit detects a remote transmitter program error.
B13D3:94	Communication error with remote transmitter	The starter stop unit could not detect remote transmitter communication or communication error was detected.
B13D3:51	Unregistered remote transmitter is detected	The start stop unit detects that the remote transmitter has not been programmed.
U0100:87	Communication error with PCM (no response or data mis-match)	The starter stop unit detects a communication error (no response or immobilizer system cancel not possible) with the PCM.
B13D4:00	Insufficient remote transmitter programming number	The start stop unit detects that the number of programmed remote transmitters is less than 2.

DTC	System malfunction location	Detection condition
B10DA:51	Communication error with PCM (data received failure)	The start stop unit detects a communication error (data received failure) with PCM.
B10DA:62	Communication error with PCM (code mis-matched)	The start stop unit detects a communication error (code mis-matched) with PCM.

PID/data Monitor Function

- With the PID/data monitor function, items set in the module can be selected and read out in real-time.

PID/data monitor table

PID	Unit/ Operation	Data contents	Inspection item(s)
NUM_TRNS MIT	—	Displays the number of the remote transmitters programmed to the start stop unit.	Start stop unit