

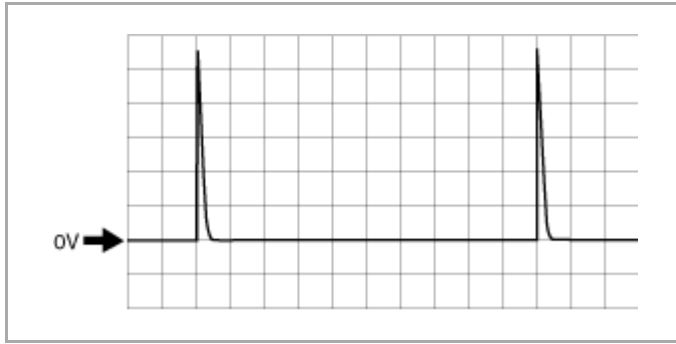
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## 2019 Mazda MX-5 Miata Service and Repair Manual

[Go to manual page](#)

## Pattern 1



ac5jjw00000385

- Terminal:
  - Brake fluid level signal: 2Q (+)  $\Leftrightarrow$  ground (-)
  - Washer level signal: 2S (+)  $\Leftrightarrow$  ground (-)
- Oscilloscope setting: 2 V/DIV (Y), 1 ms/DIV (X), DC range

Sample

Terminal	Signal	Connected to	Measurement conditions	Voltage (V)	Inspection item(s)
3A	–	–	–	–	–
3B	Serial communication	Start stop unit	Terminal used for communication therefore determination based on terminal voltage is not possible.		
3C	Fuel sensor ground	Fuel gauge sender unit	Under any condition	1.0 or less	<ul style="list-style-type: none"> <li>Fuel gauge sender unit</li> <li>Related wiring harness</li> </ul>
3D	Serial communication	Power window main switch	Terminal used for communication therefore determination based on terminal voltage is not possible.		
3E	CAN_H	CAN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
3F	Door lock switch signal	Door lock switch	Door lock switch unlocked	1.0 or less	<ul style="list-style-type: none"> <li>Door lock switch</li> <li>Related wiring harness</li> </ul>
			Other	4.5	
			Door lock switch locked	2.2	
3G	CAN_L	CAN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
3H	Driver-side door key cylinder switch signal	Door key cylinder switch	Door key cylinder is turned to unlock side	1.0 or less	<ul style="list-style-type: none"> <li>Door key cylinder switch</li> <li>Related wiring harness</li> </ul>
			Other	4.5	
			Door key cylinder is turned to lock side	2.2	
3I	Fuel sensor signal	Fuel gauge sender unit	Inspect the fuel gauge sender unit and related wiring harnesses because the terminal voltage at this terminal cannot be examined. (See <b>FUEL GAUGE SENDER UNIT INSPECTION [2WD]</b> .) (See <b>FUEL GAUGE SENDER UNIT INSPECTION [AWD]</b> .)		
3J	Lock input (lock-link switch (passenger's side, rear door))	<ul style="list-style-type: none"> <li>Door lock-link switch</li> <li>Power liftgate (PLG) control module</li> </ul>	The passenger-side and rear doors are all locked	4.6	<ul style="list-style-type: none"> <li>Door lock-link switch</li> <li>Power liftgate (PLG) control module</li> <li>Related wiring harness</li> </ul>
			Among the passenger-side and rear doors, at least one door is unlocked	1.0 or less	
3K *5	Fuel sensor signal (sub)	Fuel gauge sender unit (sub)	Inspect the fuel gauge sender unit and related wiring harnesses because the terminal voltage at this terminal cannot be examined. (See <b>FUEL GAUGE SENDER UNIT INSPECTION [AWD]</b> .)		
3L *3	Hood latch switch signal	Hood latch switch	Hood open (Hood latch switch OFF)	4.6	<ul style="list-style-type: none"> <li>Hood latch switch</li> <li>Related wiring harness</li> </ul>
			Hood is closed (Hood latch switch ON)	1.0 or less	
3M	Unlock input (front door lock-link switch (driver's door))	<ul style="list-style-type: none"> <li>Door lock-link switch (driver's door)</li> <li>Power liftgate (PLG) control module *10</li> </ul>	Driver's door locked	B+ *10 5.0 *11	<ul style="list-style-type: none"> <li>Door lock-link switch (driver's door)</li> <li>Power liftgate (PLG) control module *10</li> <li>Related wiring harness</li> </ul>
			Driver's door unlocked	1.0 or less	
3N	–	–	–	–	–
3O	Lock input (front door lock-link switch (driver's door))	<ul style="list-style-type: none"> <li>Door lock-link switch (driver's door)</li> <li>Start stop unit</li> <li>Power liftgate (PLG) control module *10</li> </ul>	Driver's door locked	1.0 or less	<ul style="list-style-type: none"> <li>Door lock-link switch (driver's door)</li> <li>Start stop unit</li> <li>Power liftgate (PLG) control module *10</li> <li>Related wiring harness</li> </ul>
			Driver's door unlocked	B+ *10 5.0 *11	
3P	–	–	–	–	–

# FRONT BODY CONTROL MODULE (FBCM) CONFIGURATION (USING READ/WRITE FUNCTION)

SM2899707

id0940000230

## Note

•When performing configuration, it is necessary to read the vehicle specification information from the front body control module (FBCM) before replacing it. Connect the M-MDS to the vehicle and perform vehicle identification before removing the front body control module (FBCM). The vehicle specification information is temporarily stored in the M-MDS.

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

1.Select "Module Programming".

3.Then, select items from the screen menu in the following order.

1.Select "Programmable Module Installation".

2.Select "F\_BCM".

4.Perform the configuration according to the directions on the screen.

## Caution

•When the configuration is performed, CAN communication between the front body control module (FBCM) and control module connected to the CAN line is cut temporarily, and communication error DTCs may be detected. After performing the configuration, verify the DTCs for the control module connected to the CAN line and clear it if any DTC is detected.

5.Verify the DTCs for all of the control modules connected to the CAN line.

•If any DTC is stored, clear it.

•If the DTC is cleared, finish the procedure because the configuration has been completed normally.

•If the DTC remains, perform troubleshooting according to the DTC.



# GATEWAY UNIT (GWU) REMOVAL/INSTALLATION [TYPE-B]

SM2899711

id0940000061z

## Caution

- When replacing the gateway unit (GWU), perform the configuration to assure that the system operates correctly.

1.To replace the gateway unit (GWU), perform the following procedure.

(1)Connect the M-MDS to the DLC-2.

(2)Switch the ignition ON (engine off).

(3)Activate the M-MDS and perform the following procedure.

1)Press [Start] to start the vehicle identification.

2)Press the [Toolbox] tab.

3)Press the [Work Support] icon.

4)Press [Configuration].

5)Press [Run] to perform the configuration.

6)Press [GWU].

7)Verify that the ignition is switched ON (engine off) and press [Next].

- If the ignition cannot be switched ON (engine off), leave it as it is and press [Next]

8)When [Install the new ECU] is displayed, move to the gateway unit (GWU) replacement procedure.

2.Disconnect the negative battery terminal. (See [NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.](#))

3.Remove the following parts:

(1)Passenger-side front scuff plate (See [FRONT SCUFF PLATE REMOVAL/INSTALLATION.](#))

(2)Passenger-side front side trim (See [FRONT SIDE TRIM REMOVAL/INSTALLATION.](#))

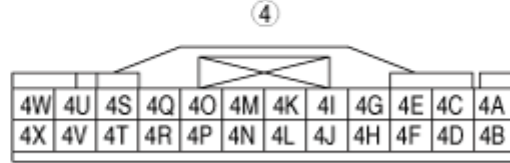
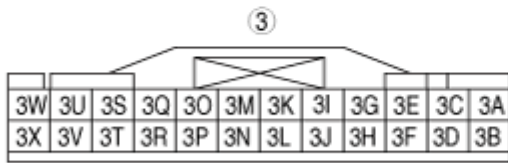
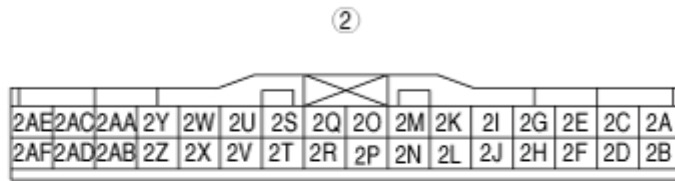
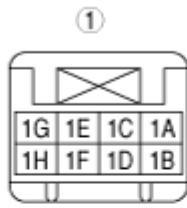
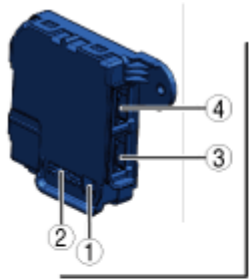
(3)Lower decoration panel (See [DECORATION PANEL REMOVAL/INSTALLATION.](#))

(4)Glove compartment (See [GLOVE COMPARTMENT REMOVAL/INSTALLATION.](#))

(5)Dashboard under cover (See [DASHBOARD UNDER COVER REMOVAL/INSTALLATION.](#))

(6)Passenger-side lower panel (See [LOWER PANEL REMOVAL/INSTALLATION.](#))

4.Remove the nuts. (See [Nut Installation Note.](#))



ac9uuw00011408

### Terminal Voltage Table (Reference)

Terminal	Signal	Connected to	Measurement conditions	Voltage (V)	Inspection item(s)
1A					
1B	batt1limphome	AT 15 A fuse	Under any condition	B	AT 15 A fuse Related wiring harness
1					
1D	batt2room	AT 15 A fuse	Under any condition	B	AT 15 A fuse Related wiring harness
1E					
1F					
1G					
1					
2A					
2B					
2					
2D					
2E					
2F	ANLPT	AN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
2G					
2	ANPT	AN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
2I					
2	ANLBODFRONT	AN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
2					
2L	ANBODFRONT	AN system related module	Terminal used for communication therefore determination based on terminal voltage is not possible.		
2M					
2N					
2O					
2P					

## Power door lock system (Using center display)

•(See **CENTER DISPLAY PERSONALIZATION FEATURES SETTING PROCEDURE.**)

## Power door lock system (Setting method by operation of door lock switch)

•The following setting can be changed by operation of the door lock switch.

M-MDS display	Function	Initial setting	Setting contents	Control unit
Auto Door Lock Mode.	Auto door lock function can be changed.	Lock: Driving, Unlock: IGN Off.	OFF / Lock When Driving. / Lock: Driving, Unlock: IGN Off. / Lock When Shifting Out Of P. / Lock: Shift From P, Unlock: In P. / Lock: When Driving, Unlock: In Park.	Rear body control module (RBCM)

•Change the setting for the auto door lock referring to the following procedure:

### Note

•If any of the following conditions is met during procedure, the setting change for the auto door lock is stopped.

- Lock side of the door lock switch is pressed while in the personalization mode.
- Unlock side of the door lock switch is pressed 7 times while in the personalization mode. (ATX)
- Unlock side of the door lock switch is pressed 4 times while in the personalization mode. (MTX)

## Auto wiper system (Using center display)

•(See [CENTER DISPLAY PERSONALIZATION FEATURES SETTING PROCEDURE.](#))

### Type-B

#### Note

•For personalization features setting using the center display, refer to Mazda Connect's [PERSONALIZATION FEATURES].

Sample

DTC output module	DTC	System malfunction location	Reference for initial letter of DTC
Radar unit *1 (SBS/MRCC)	U0001:88	Unit communication error	(See <b>DTC TABLE [RADAR UNIT].</b> )
	U0100:00	Communication error with PCM	
	U0101:00	Communication error with TCM	
	U0121:00	Communication error with DSC HU/CM	
	U0131:00	Communication error with EPS control module	
	U0140:00	Communication error with front body control module (FBCM)	
	U0151:00	Communication error with SAS control module	
	U0155:00	Communication error with instrument cluster	
	U0214:00	Communication error with start stop unit	
	U023A:00	Communication error with forward sensing camera (FSC)	
TCM (TCM)	U0073:00	Unit communication error	(See <b>ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (FW6A-EL, FW6AX-EL)].</b> )
	U0100:00	Communication error with PCM	
	U0121:00	Communication error with DSC HU/CM	
	U0131:00	Communication error with EPS control module	
	U0155:00	Communication error with instrument cluster	
	U0214:00	Communication error with start stop unit	
Front body control module (FBCM) (F_BCM)	U0001:88	Unit communication error	(See <b>DTC TABLE [FRONT BODY CONTROL MODULE (FBCM)].</b> )
	U0100:00	Communication error with PCM	
	U0101:00	Communication error with TCM	
	U0151:00	Communication error with SAS control module	
	U0155:00	Communication error with instrument cluster	
	U0214:00	Communication error with start stop unit	
	U023A:00	Communication error with forward sensing camera (FSC)	
Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit (AFS/ALM)	U0001:88	Unit communication error	(See <b>DTC TABLE [AFS/ALM].</b> )
	U0100:00 *10	Communication error with PCM	
	U0131:00 *9	Communication error with EPS control module	
	U0140:00	Communication error with front body control module (FBCM)	
	U0155:00	Communication error with instrument cluster	
Power liftgate (PLG) control module (PLG)	U0001:88	Unit communication error	(See <b>DTC TABLE [POWER LIFTGATE (PLG) CONTROL MODULE].</b> )
	U0100:00	Communication error with PCM	
	U0101:00	Communication error with TCM	
	U0155:00	Communication error with instrument cluster	
	U0156:00	Communication error with connectivity master unit (CMU)	
	U0214:00	Communication error with start stop unit	

DTC output module	DTC	System malfunction location	Reference for initial letter of DTC
360° view monitor control module (VMC)	U0010:88	Unit communication error	(See <b>DTC TABLE [360°VIEW MONITOR CONTROL MODULE (TYPE-B)]</b> .)
	U0100:00	Communication error with PCM	
	U0131:00	Communication error with EPS control module	
	U0140:00	Communication error with front body control module (FBCM)	
	U0155:00	Communication error with instrument cluster	
	U0159:00	Communication error with parking assist unit	
	U0214:00	Communication error with start stop unit	
	U0232:00	Communication error with blind spot monitoring (BSM) control module (LH)	
Telematics communication unit (TCU)	B10A2:87	SAS control module collision judgement system malfunction	(Refer to the [DTC TABLE [TELEMATICS COMMUNICATION UNIT (TYPE-B)]] in the workshop manual)
	U007A:00	Unit communication error	
	U0140:00	Communication error with front body control module (FBCM)	
	U0151:00	Communication error with SAS control module	
	U0164:00	Communication error with climate control unit	
	U213C:00	Communication error with DSC HU/CM	
Gateway unit (GWU) (GWU)	U0075:88	Module communication error (CAN BUS No.1)	(See <b>DTC TABLE [GATEWAY UNIT (GWU) (TYPE-B)]</b> .)
	U0076:88	Module communication error (CAN BUS No.2)	
	U0077:88	Module communication error (between gateway unit (GWU) and DLC-2 (MS-CAN))	
	U0079:88	Module communication error (CAN BUS No.3)	
	U007A:88	Module communication error (between gateway unit (GWU) and telematics communication unit)	
	U007D:88	Module communication error (between gateway unit (GWU) and DLC-2 (HS-CAN))	
	U0151:00	Communication error with SAS control module	
	U0336:82	Error signal received from SAS control module	
	U2132:00	Communication error with 360°view monitor control module	

\*1:With smart brake support (SBS)

\*2:With position memory system

\*3:AWD

\*4:With power liftgate (PLG) system

\*5:With active driving display

\*6:With parking sensor system