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## 2024 Mazda CX-30 Service and Repair Manual

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BLIND SPOT MONITORING (BSM) WARNING LIGHT FLASHES WHILE NOT UNDER BLIND SPOT MONITORING (BSM) WARNING LIGHT-FLASHING CONDITIONS (NO LIGHT SWITCH OPERATION (TURN SIGNAL SWITCH)) [BLIND SPOT MONITORING (BSM) SYSTEM]

SM2899947

id1503a302080

<div>Description</div>	<div>BLIND SPOT MONITORING (BSM) WARNING LIGHT FLASHES WHILE NOT UNDER BLIND SPOT MONITORING (BSM) WARNING LIGHT-FLASHING CONDITIONS (NO LIGHT SWITCH OPERATION (TURN SIGNAL SWITCH))</div> <div><ul style="list-style-type: none"><li>• The blind spot monitoring (BSM) warning light flashes despite not satisfying the blind spot monitoring (BSM) warning light flashing conditions (vehicle speed above 32 km/h {20 mph} or more, turn signal on, and vehicle in warning zone).</li><li>• The blind spot monitoring (BSM) warning light flashes, but the turn signals are off.</li></ul></div>
<div>Possible Causes</div>	<div>Note</div> <div><ul style="list-style-type: none"><li>• This malfunction symptom is basically the same as symptom “blind spot monitoring (BSM) warning light while not under blind spot monitoring (BSM) warning light-illumination conditions”.</li><li>• The detection performance of the blind spot monitoring (BSM) control module has limitations and the blind spot monitoring (BSM) system may not operate normally. For the detection performance limitations, refer to the [BLIND SPOT MONITORING (BSM) CONTROL MODULE] in the service highlight.</li><li>• Blind spot monitoring (BSM) control module recognizes a vehicle as being inside the warning zone when it is actually outside of it.<ul style="list-style-type: none"><li>— Radar (blind spot monitoring (BSM) control module integrated) is emitted outside of warning zone (deviates from warning zone)<ul style="list-style-type: none"><li>• Damage, deformity or looseness to installation bracket or vehicle frame (including moderate impacts).</li><li>• Malfunction in steering angle signal (communication error between rear body control module (RBCM) and blind spot monitoring (BSM) control module, or EPS control module malfunction).</li><li>• Problem with rear bumper such as soiling to radar emitting/receiving area, application of stickers (including transparent types), repairs using putty application.</li></ul></li><li>— After-market electrical parts interfere with BSM system</li></ul></li><li>• BSM does not recognize vehicle speed correctly (blind spot monitoring (BSM) control module mistakenly recognizes vehicle speed as being above 32 km/h {20 mph} or more)<ul style="list-style-type: none"><li>— PCM communication error with blind spot monitoring (BSM) control module</li><li>— Malfunction in ABS wheel speed sensor related parts</li></ul></li><li>• Blind spot monitoring (BSM) control module mistakenly recognizes that turn signals have been operated<ul style="list-style-type: none"><li>— Short to ground circuit in wiring harness between combination switch (turn signal switch) and rear body control module (RBCM)</li><li>— Communication error between rear body control module (RBCM) and blind spot monitoring (BSM) control module</li><li>— Blind spot monitoring (BSM) control module malfunction</li></ul></li></ul></div>

Diagnostic Procedure

# BLIND SPOT MONITORING (BSM) OFF INDICATOR LIGHT DOES NOT ILLUMINATE WHILE BLIND SPOT MONITORING (BSM) SYSTEM IS OFF [BLIND SPOT MONITORING (BSM) SYSTEM]

SM2899949

id1503a302100

### Caution

- Configuration cannot be implemented correctly if only the blind spot monitoring (BSM) control module (RH) is replaced. When replacing the blind spot monitoring (BSM) control module (RH), it is necessary to replace the blind spot monitoring (BSM) control module (LH) at the same time.

Description	BLIND SPOT MONITORING (BSM) OFF INDICATOR LIGHT DOES NOT ILLUMINATE WHILE BLIND SPOT MONITORING (BSM) SYSTEM IS OFF <ul style="list-style-type: none"><li>• Blind spot monitoring (BSM) warning light does not illuminate even though blind spot monitoring (BSM) switch turns off the system after ignition switch is turned to ON position.</li></ul>
Possible Causes	<b>Note</b> <ul style="list-style-type: none"><li>• The detection performance of the blind spot monitoring (BSM) control module has limitations and the blind spot monitoring (BSM) system may not operate normally. For the detection performance limitations, refer to the [BLIND SPOT MONITORING (BSM) CONTROL MODULE] in the service highlight.</li><li>• Blind spot monitoring (BSM) control module (RH) malfunction</li><li>• Connectivity master unit (CMU) malfunction</li><li>• Instrument cluster malfunction</li></ul>

### Diagnostic Procedure

Step	Inspection	Result	Action
1	<b>INSPECT IF MALFUNCTION IS IN BLIND SPOT MONITORING (BSM) SWITCH OR INSTRUMENT CLUSTER</b> <ul style="list-style-type: none"><li>• Monitor the blind spot monitoring (BSM) control module (RH) PID BSM_OFF_IL using the M-MDS. (See <b>PID/DATA MONITOR TABLE [BLIND SPOT MONITORING (BSM) CONTROL MODULE]</b>.)</li><li>• Turn the blind spot monitoring (BSM) switch on and off. (See <b>i-ACTIVSENSE PERSONALIZATION FEATURES SETTING PROCEDURE</b>.)</li><li>• Does the PID BSM_OFF_IL monitoring value turn on and off according to the blind spot monitoring (BSM) switch operation?</li></ul>	Yes	Go to Step 3.
		No	Go to the next step.
2	<b>INSPECT CONNECTIVITY MASTER UNIT (CMU)</b> <ul style="list-style-type: none"><li>• Retrieve DTCs from connectivity master unit (CMU) using the M-MDS. (Refer to the [DTC INSPECTION [CONNECTIVITY MASTER UNIT (TYPE-A)]] in the workshop manual) (Refer to the [DTC INSPECTION [CONNECTIVITY MASTER UNIT (TYPE-B)]] in the workshop manual)</li><li>• Are any DTCs displayed?</li></ul>	Yes	Go to the applicable DTC inspection. (Refer to the [DTC TABLE [CONNECTIVITY MASTER UNIT (TYPE-A)]] in the workshop manual) (Refer to the [DTC TABLE [CONNECTIVITY MASTER UNIT (TYPE-B)]] in the workshop manual)
		No	Go to the next step.

BLIND SPOT MONITORING (BSM) WARNING LIGHT ILLUMINATES WHILE NOT UNDER LIGHT-ILLUMINATION CONDITIONS [BLIND SPOT MONITORING (BSM) SYSTEM]

SM2899951

id1503a302120

Description	BLIND SPOT MONITORING (BSM) WARNING LIGHT ILLUMINATES WHILE NOT UNDER LIGHT-ILLUMINATION CONDITIONS <ul style="list-style-type: none"><li>The blind spot monitoring (BSM) warning light illuminates, but the conditions to illuminate the blind spot monitoring (BSM) warning light are not satisfied (vehicle speed above 32 km/h {20 mph} or more, turn signals off, and vehicle in warning zone).</li></ul>
Possible Causes	<p><b>Note</b></p> <ul style="list-style-type: none"><li>The detection performance of the blind spot monitoring (BSM) control module has limitations and the blind spot monitoring (BSM) system may not operate normally. For the detection performance limitations, refer to the [BLIND SPOT MONITORING (BSM) CONTROL MODULE] in the service highlight.</li><li>The blind spot monitoring (BSM) control module recognizes a vehicle as being inside the warning zone when it is actually outside of it.<ul style="list-style-type: none"><li>Radar (blind spot monitoring (BSM) control module integrated) is emitted outside of warning zone (deviates from warning zone)</li></ul></li><li>Damage, deformity or looseness to installation bracket or vehicle frame (including moderate impacts)</li><li>Malfunction in steering angle signal (instrument cluster or EPS control module malfunction)</li><li>Problem with rear bumper such as soiling to radar emitting/receiving area, application of stickers (including transparent types), repairs using putty application.<ul style="list-style-type: none"><li>After-market electrical parts interfere with blind spot monitoring (BSM) system</li></ul></li><li>Malfunction in blind spot monitoring (BSM) warning light related parts<ul style="list-style-type: none"><li>Short to power supply circuit in wiring harness between blind spot monitoring (BSM) control module and blind spot monitoring (BSM) warning light</li></ul></li></ul>

Diagnostic Procedure

Step	Inspection	Result	Action
1	<b>INSPECT IF MALFUNCTION IS IN INPUT SIGNAL OR BLIND SPOT MONITORING (BSM) CONTROL MODULE</b> <ul style="list-style-type: none"><li>Monitor the following PIDs on the suspected side of the blind spot monitoring (BSM) control module using the M-MDS. (See <b>PID/DATA MONITOR TABLE [BLIND SPOT MONITORING (BSM) CONTROL MODULE]</b>.)<ul style="list-style-type: none"><li>SWA_POS</li></ul></li><li>Are the monitoring values normal?</li></ul>	Yes	Go to Step 3.
		No	Go to the next step.
2	<b>INSPECT STEERING ANGLE SIGNAL</b> <ul style="list-style-type: none"><li>Monitor the PID STR_ANG for the EPS control module using the M-MDS. (See <b>DTC INSPECTION [ELECTRIC POWER STEERING (EPS) CONTROL MODULE]</b>.)</li><li>Is the monitoring value normal?</li></ul>	Yes	Replace the instrument cluster. (See <b>INSTRUMENT CLUSTER REMOVAL/INSTALLATION.</b> )
		No	Replace the EPS control module. (See <b>STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.</b> )



BLIND SPOT MONITORING (BSM) WARNING LIGHT DOES NOT FLASH WHILE UNDER BLIND SPOT MONITORING (BSM) WARNING LIGHT-FLASHING CONDITIONS (WITH LIGHT SWITCH OPERATION (TURN SIGNAL SWITCH)) [BLIND SPOT MONITORING (BSM) SYSTEM]

SM2899953

id1503a302140

Description	<div>LIND SPOT MONITORING (BSM) WARNING LIGHT DOES NOT FLASH WHILE UNDER BLIND SPOT MONITORING (BSM) WARNING LIGHT-FLASHING CONDITIONS (WITH LIGHT SWITCH OPERATION (TURN SIGNAL SWITCH))</div> <div><ul style="list-style-type: none"><li>• The blind spot monitoring (BSM) warning light does not flash or illuminate continuously, but the conditions to flash the blind spot monitoring (BSM) warning light are satisfied (vehicle speed above 32 km/h {20 mph} or more, turn signal on, and vehicle in warning zone).</li><li>• Blind spot monitoring (BSM) warning light does not flash or illuminate continuously, but turn signals are off.</li></ul></div>
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Step	Inspection	Result	Action
3	<b>VERIFY BLIND SPOT MONITORING (BSM) WARNING LIGHT CONDITION</b> <ul style="list-style-type: none"><li>• Verify the blind spot monitoring (BSM) warning light illumination condition while under the blind spot monitoring (BSM) warning light-illumination conditions (vehicle speed above 32 km/h {20 mph} or more, turn signals off, and vehicle in warning zone).</li><li>• Does the blind spot monitoring (BSM) warning light illuminate normally?</li></ul>	Yes	Replace the blind spot monitoring (BSM) control module. (See <b>BLIND SPOT MONITORING (BSM) CONTROL MODULE REMOVAL/INSTALLATION.</b> )
		No	Go to the symptom troubleshooting procedure, "blind spot monitoring (BSM) warning light does not illuminate while under blind spot monitoring (BSM) warning light-illumination conditions". (See <b>BLIND SPOT MONITORING (BSM) WARNING LIGHT DOES NOT ILLUMINATE WHILE UNDER BLIND SPOT MONITORING (BSM) WARNING LIGHT-ILLUMINATION CONDITIONS [BLIND SPOT MONITORING (BSM) SYSTEM].</b> )

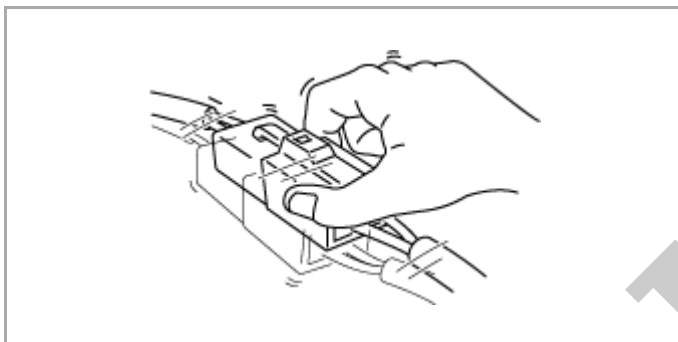
Sample

\*1:(See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-B].**) (See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5)].**) (See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5T, SKYACTIV-D 2.2)].**)

## Action for Non-repeatable Malfunction

• If the malfunction does not recur, verify the malfunction cause by performing the following actions:

- Based on the repair order form, attempt to drive the vehicle or perform tests to replicate the malfunction, record the data at that time, and detect the malfunction cause.
- Shake the wiring harness or connector of the electrical component which is suspected to be the cause of the malfunction, and inspect for occurrence of any malfunction or DTCs.

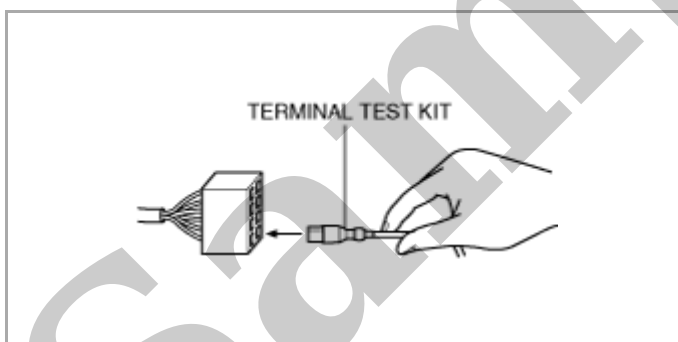


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- Inspect the female terminals on the connector of the electric component which is suspected to be the cause of the malfunction for poor connection. (See **ELECTRICAL SYSTEM.**)

### Note

- Tool used (Reference): terminal test kit (49US-15-KIT)



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# CONDITION IN WHICH LANE-KEEP ASSIST SYSTEM DOES NOT OPERATE INCREASES SIGNIFICANTLY [LANE-KEEP ASSIST SYSTEM]

SM2899960

id1503b400050

## Note

- If there is any vehicle malfunction complaint lodged by a customer, first perform malfunction diagnosis according to the troubleshooting procedure. (See **FOREWORD [LANE-KEEP ASSIST SYSTEM]**.)

## Description

- Condition in which lane-keep assist system does not operate increases significantly, even though white lines can be verified visually.

## Possible malfunction

### Note

- The detection performance of the forward sensing camera (FSC) has limitations and the lane-keep assist system may not operate normally. For the detection performance limitations, refer to the [FORWARD SENSING CAMERA (FSC)] in the service highlight.
- The forward sensing camera (FSC) operation record can be verified using the M-MDS.

- Windshield malfunction
  - Windshield dirty
  - Foreign matter caught between the windshield and the forward sensing camera (FSC)
  - Sticker adhesion on the windshield
- Object placed on the upper part of the dashboard
- Headlight malfunction
- Non-designated part installed
  - Non-designated suspension installed
  - Non-designated tire installed
  - Non-designated windshield installed
- Forward sensing camera (FSC) lens dirty
- Forward sensing camera (FSC) optical axis adjustment not performed correctly
- Forward sensing camera (FSC) malfunction
- Steering assist function of traffic jam assist (TJA) is operating

## Diagnostic Procedure

# LANE-KEEP ASSIST SYSTEM DOES NOT CANCEL [LANE-KEEP ASSIST SYSTEM]

SM2899961

id1503b400060

### Note

- If there is any vehicle malfunction complaint lodged by a customer, first perform malfunction diagnosis according to the troubleshooting procedure. (See **FOREWORD [LANE-KEEP ASSIST SYSTEM]**.)

### Description

- When turn switch is operated, lane-keep assist system does not cancel.

### Possible malfunction

#### Note

- The detection performance of the forward sensing camera (FSC) has limitations and the lane-keep assist system may not operate normally. For the detection performance limitations, refer to the **[FORWARD SENSING CAMERA (FSC)]** in the service highlight.
- The forward sensing camera (FSC) operation record can be verified using the M-MDS.
- Turn switch malfunction
- Instrument cluster malfunction
- Forward sensing camera (FSC) malfunction
- EPS CM malfunction

### Diagnostic Procedure

Step	Inspection	Action
1	<b>VERIFY DTCs</b> <ul style="list-style-type: none"><li>• Using the M-MDS, display the DTCs related to the EPS control module, instrument cluster and forward sensing camera (FSC). (See <b>DTC TABLE [ELECTRIC POWER STEERING (EPS) CONTROL MODULE]</b>.) (Refer to the <b>[DTC INSPECTION [CONNECTIVITY MASTER UNIT (TYPE-A)]]</b> in the workshop manual) (Refer to the <b>[DTC INSPECTION [CONNECTIVITY MASTER UNIT (TYPE-B)]]</b> in the workshop manual) (See <b>DTC INSPECTION [FORWARD SENSING CAMERA (FSC)]</b>.)</li><li>• Are any DTCs displayed?</li></ul>	Yes
		Repair the malfunctioning location according to the applicable DTC troubleshooting. (See <b>DTC TABLE [ELECTRIC POWER STEERING (EPS) CONTROL MODULE]</b> .) (See <b>DTC TABLE [INSTRUMENT CLUSTER]</b> .) (See <b>DTC TABLE [FORWARD SENSING CAMERA (FSC)]</b> .)
2	<b>INSPECT PHENOMENON DUE TO DETECTION PERFORMANCE LIMITATIONS</b> <ul style="list-style-type: none"><li>• Refer to the new vehicle instruction and inspect the detection performance of the forward sensing camera (FSC).</li><li>• Inspect the forward sensing camera (FSC) operation record using the M-MDS.</li><li>• Are the applicable items for the detection performance displayed?</li></ul>	No
		Go to the next step.
		Yes
		The vehicle is normal. (Explain to the customer that the lane-keep assist system may not operate due to the detection performance limitations of the forward sensing camera (FSC). Complete the symptom troubleshooting.)
		No
		Go to the next step.

# LANE-KEEP ASSIST SYSTEM OPERATES EVEN THOUGH LANE-KEEP ASSIST SYSTEM OFF INDICATOR IS DISPLAYED [LANE-KEEP ASSIST SYSTEM]

SM2899964

id1503b400090

### Note

- If there is any vehicle malfunction complaint lodged by a customer, first perform malfunction diagnosis according to the troubleshooting procedure. (See **FOREWORD [LANE-KEEP ASSIST SYSTEM]**.)

## Possible malfunction

### Note

- The detection performance of the forward sensing camera (FSC) has limitations and the lane-keep assist system may not operate normally. For the detection performance limitations, refer to the [FORWARD SENSING CAMERA (FSC)] in the service highlight.
- The forward sensing camera (FSC) operation record can be verified using the M-MDS.
- Lane-keep assist system switch malfunction
- Instrument cluster malfunction
- Forward sensing camera (FSC) malfunction

## Diagnostic Procedure

Step	Inspection		Action
1	<b>VERIFY DTCs</b> <ul style="list-style-type: none"><li>• Using the M-MDS, display the DTCs related to the EPS control module, instrument cluster and forward sensing camera (FSC). (See <b>DTC INSPECTION [ELECTRIC POWER STEERING (EPS) CONTROL MODULE]</b>.) (See <b>DTC INSPECTION [INSTRUMENT CLUSTER]</b>.) (See <b>DTC INSPECTION [FORWARD SENSING CAMERA (FSC)]</b>.)</li><li>• Are any DTCs displayed?</li></ul>	Yes	Repair the malfunctioning location according to the applicable DTC troubleshooting. (See <b>DTC TABLE [ELECTRIC POWER STEERING (EPS) CONTROL MODULE]</b> .) (See <b>DTC TABLE [INSTRUMENT CLUSTER]</b> .) (See <b>DTC TABLE [FORWARD SENSING CAMERA (FSC)]</b> .)
		No	Go to the next step.
2	<b>INSPECT PHENOMENON DUE TO DETECTION PERFORMANCE LIMITATIONS</b> <ul style="list-style-type: none"><li>• Refer to the new vehicle instruction and inspect the detection performance of the forward sensing camera (FSC).</li><li>• Inspect the forward sensing camera (FSC) operation record using the M-MDS.</li><li>• Are the applicable items for the detection performance displayed?</li></ul>	Yes	The vehicle is normal. (Explain to the customer that the lane-keep assist system may not operate due to the detection performance limitations of the forward sensing camera (FSC).) Complete the symptom troubleshooting.
		No	Go to the next step.
3	<b>INSPECT LANE-KEEP ASSIST SYSTEM SWITCH</b> <ul style="list-style-type: none"><li>• Inspect the lane-keep assist system off switch. (See <b>LANE-KEEP ASSIST SYSTEM OFF SWITCH INSPECTION</b>.)</li><li>• Is the lane-keep assist system switch normal?</li></ul>	Yes	Go to the next step.
		No	Replace the cluster switch, then go to step 5. (See <b>CLUSTER SWITCH REMOVAL/INSTALLATION</b> .)