

# Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

## 2023 Mazda CX-50 Service and Repair Manual

[Go to manual page](#)

Step	Inspection		Action
4	<b>VERIFY IF MALFUNCTIONING LOCATION IS INSTRUMENT CLUSTER DEPENDING ON REPEATABILITY</b> <ul style="list-style-type: none"> <li>• Clear the DTC for the blind spot monitoring (BSM) control module (LH) using the M-MDS. (See <b>CLEARING DTC [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Switch the ignition ON (engine off or on) and wait for 5 s or more.</li> <li>• Retrieve the blind spot monitoring (BSM) control module (LH) DTCs using the M-MDS. (See <b>DTC INSPECTION [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Is the same DTC displayed?</li> </ul>	Yes	Replace the instrument cluster, then go to the next step. (See <b>INSTRUMENT CLUSTER REMOVAL/INSTALLATION.</b> )
		No	Go to Step 6.
5	<b>VERIFY THAT REPAIRS HAVE BEEN COMPLETED</b> <ul style="list-style-type: none"> <li>• Clear the DTC for the blind spot monitoring (BSM) control module (LH) using the M-MDS. (See <b>CLEARING DTC [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Switch the ignition ON (engine off or on) and wait for 5 s or more.</li> <li>• Retrieve the blind spot monitoring (BSM) control module (LH) DTCs using the M-MDS. (See <b>DTC INSPECTION [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Is the same DTC displayed?</li> </ul>	Yes	Replace the blind spot monitoring (BSM) control module (LH), then go to the next step. (See <b>BLIND SPOT MONITORING (BSM) CONTROL MODULE REMOVAL/INSTALLATION.</b> )
		No	Go to the next step.
6	<b>VERIFY IF OTHER DTCs DISPLAYED</b> <ul style="list-style-type: none"> <li>• Are any other DTCs displayed?</li> </ul>	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See <b>DTC TABLE [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b> )
		No	DTC troubleshooting completed.

Step	Inspection		Action
4	<b>VERIFY IF MALFUNCTIONING LOCATION IS INSTRUMENT CLUSTER DEPENDING ON REPEATABILITY</b> <ul style="list-style-type: none"> <li>• Clear the DTC for the blind spot monitoring (BSM) control module (LH) using the M-MDS. (See <b>CLEARING DTC [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Switch the ignition ON (engine off or on) and wait for 5 s or more.</li> <li>• Retrieve the blind spot monitoring (BSM) control module (LH) DTCs using the M-MDS. (See <b>DTC INSPECTION [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Is the same DTC displayed?</li> </ul>	Yes	Replace the instrument cluster, then go to the next step. (See <b>INSTRUMENT CLUSTER REMOVAL/INSTALLATION.</b> )
		No	Go to Step 6.
5	<b>VERIFY THAT REPAIRS HAVE BEEN COMPLETED</b> <ul style="list-style-type: none"> <li>• Clear the DTC for the blind spot monitoring (BSM) control module (LH) using the M-MDS. (See <b>CLEARING DTC [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Switch the ignition ON (engine off or on) and wait for 5 s or more.</li> <li>• Retrieve the blind spot monitoring (BSM) control module (LH) DTCs using the M-MDS. (See <b>DTC INSPECTION [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b>)</li> <li>• Is the same DTC displayed?</li> </ul>	Yes	Replace the blind spot monitoring (BSM) control module (LH), then go to the next step. (See <b>BLIND SPOT MONITORING (BSM) CONTROL MODULE REMOVAL/INSTALLATION.</b> )
		No	Go to the next step.
6	<b>VERIFY IF OTHER DTCs DISPLAYED</b> <ul style="list-style-type: none"> <li>• Are any other DTCs displayed?</li> </ul>	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting (See <b>DTC TABLE [BLIND SPOT MONITORING (BSM) CONTROL MODULE].</b> )
		No	DTC troubleshooting completed.

Snapshot Data

Note

• The 360°view monitor control module stores the following two types of snapshot data (vehicle information) when a DTC is detected and displays them in the M-MDS.

- Vehicle information detected by 360°view monitor control module
- Vehicle information detected by instrument cluster and received by 360°view monitor control module via CAN communication

• The data for all DTCs currently detected is stored.

—: Not applicable

Snapshot data item	Unit		Definition	Data read/use method	Corresponding PID data monitor item
AAT	°C	°F	Ambient temperature	—	—
APP_STATUS	Accelerator Pedal Off/Under20%/Over20%/FAIL		Accelerator pedal position status	—	—
CFG_STATUS	Config Complete/Not Configured/Config Error		Instrument cluster configuration status	—	—
ECT_STATUS	Under 0 degrees C/0 - Under 80 degrees C/Over 80 degrees C/FAIL		Engine coolant temperature status	—	—
IC_VPWR	V		Instrument cluster power supply voltage	<ul style="list-style-type: none"><li>• The 360°view monitor control module constantly receives the power supply voltage value of the instrument cluster sent via CAN signal from the instrument cluster.</li><li>• If a DTC is detected, the 360°view monitor control module records the power supply voltage of the instrument cluster when the DTC was detected, and it is displayed in the M-MDS.</li></ul>	VPWR *1
IG-ON_TIMER	hh:mm:ss *2		<p>Elapsed time since ignition was switched ON (engine off or on)</p> <p><b>Note</b></p> <ul style="list-style-type: none"><li>• The instrument cluster records the elapsed time since the ignition was switched ON (engine off or on).</li></ul>	<ul style="list-style-type: none"><li>• The 360°view monitor control module constantly receives the elapsed time since the ignition was switched ON (engine off or on) sent via CAN signal from the instrument cluster.</li><li>• If a DTC is detected, the 360°view monitor control module records the elapsed time since the ignition was switched ON (engine off or on) when the DTC was detected, and it is displayed in the M-MDS.</li></ul>	—



4.Press the clear button on the DTC screen to clear the DTC.

5.Switch the ignition off.

6.Switch the ignition ON (engine off or on) and wait for 5 s or more.

7.Perform DTC inspection. (See [DTC INSPECTION \[360°VIEW MONITOR CONTROL MODULE \(TYPE-A\)\]](#).)

8.Verify that no DTCs are displayed.

DTC B115E:54 [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]

SM2899893

id1502cm05460

Description	Aiming not performed
Detection condition	• The 360°view monitor control module detects camera aiming has not been performed.
Fail-safe	• Projected vehicle path lines and fixed lines for each view are not displayed • Icons for cameras not aimed are indicated in area where vehicle image is displayed
Possible cause	• Aiming is not performed (VIN mismatch) • 360°view monitor control module malfunction
System wiring diagram	Not applicable

Diagnostic Procedure

Step	Inspection	Action
1	<b>VERIFY OTHER 360°VIEW MONITOR CONTROL MODULE DTCs</b> • Clear the DTC for the 360°view monitor control module using the M-MDS. (See <b>CLEARING DTC [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]</b> .) • Retrieve the 360°view monitor control module DTCs using the M-MDS. (See <b>DTC INSPECTION [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]</b> .) • Is DTC U3000:41 or U3000:49 displayed?	Yes Replace the 360°view monitor control module then go to Step 3. (See <b>360°VIEW MONITOR CONTROL MODULE REMOVAL/INSTALLATION</b> .)
		No Go to the next step.
2	<b>IDENTIFY CAMERA NOT AIMED</b> • Verify the vehicle image displayed in the center display. • Verify which of the following cameras have not been aimed by the location of its icon in the display.  — Front camera — Side camera (LH) — Side camera (RH) — Rear mount camera	– <b>Icons for cameras not aimed are displayed in all positions</b> • Perform 360°view monitor system aiming. (See <b>360°VIEW MONITOR SYSTEM AIMING</b> .) <b>Icons for any camera not aimed are displayed at the position</b> • Perform corresponding camera aiming or 360°view monitor system aiming. (See <b>360°VIEW MONITOR SYSTEM AIMING</b> .) Go to the next step.
3	<b>VERIFY THAT REPAIRS HAVE BEEN COMPLETED</b> • Clear the DTC for the 360°view monitor control module using the M-MDS. (See <b>CLEARING DTC [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]</b> .) • Retrieve the 360°view monitor control module DTCs using the M-MDS. (See <b>DTC INSPECTION [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]</b> .) • Is the same Pending DTC present?	Yes Repeat the inspection from Step 1. • If the malfunction recurs, replace the 360°view monitor control module. (See <b>360°VIEW MONITOR CONTROL MODULE REMOVAL/INSTALLATION</b> .) Go to the next step.
		No Go to the next step.

Step	Inspection		Action
5	<b>INSPECT SIDE CAMERA (LH) CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Verify that the side camera (LH) and 360°view monitor control module connectors are disconnected.</li> <li>• Connect the negative battery terminal. (See <b>NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.</b>)</li> <li>• Switch the ignition ON (engine off or on).</li> <li>• Measure the voltage at the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>— Side camera (LH) terminal F</li> </ul> </li> <li>• Is the voltage 0 V?</li> </ul>	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>• 360°view monitor control module terminal AA–Side camera (LH) terminal F</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply.</li> <li>• Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>• Repair or replace the wiring harness which has a short to power supply.</li> </ul> Go to Step 8.
6	<b>INSPECT SIDE CAMERA (LH) CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Switch the ignition off.</li> <li>• Disconnect the negative battery terminal. (See <b>NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.</b>)</li> <li>• Verify that the side camera (LH) and 360°view monitor control module connectors are disconnected.</li> <li>• Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>— 360°view monitor control module terminal AA–Side camera (LH) terminal F</li> </ul> </li> <li>• Is there continuity?</li> </ul>	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>• 360°view monitor control module terminal AA–Side camera (LH) terminal F</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit.</li> <li>• Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>• Repair or replace the wiring harness which has an open circuit.</li> </ul> Go to Step 8.
7	<b>INSPECT SIDE CAMERA (LH)</b> <ul style="list-style-type: none"> <li>• Inspect the side camera (LH). (See <b>SIDE CAMERA INSPECTION.</b>)</li> <li>• Is the side camera (LH) normal?</li> </ul>	Yes	Go to the next step.
		No	Replace the side camera (LH), then go to the next step. (See <b>SIDE CAMERA REMOVAL/INSTALLATION.</b> )
8	<b>VERIFY THAT REPAIRS HAVE BEEN COMPLETED</b> <ul style="list-style-type: none"> <li>• Always reconnect all disconnected connectors.</li> <li>• Connect the negative battery terminal. (See <b>NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.</b>)</li> <li>• Clear the DTC for the 360°view monitor control module using the M-MDS. (See <b>CLEARING DTC [360°VIEW MONITOR CONTROL MODULE (TYPE-A)].</b>)</li> <li>• Retrieve the 360°view monitor control module DTCs using the M-MDS. (See <b>DTC INSPECTION [360°VIEW MONITOR CONTROL MODULE (TYPE-A)].</b>)</li> <li>• Is the same Pending DTC present?</li> </ul>	Yes	Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>• If the malfunction recurs, replace the 360°view monitor control module. (See <b>360°VIEW MONITOR CONTROL MODULE REMOVAL/INSTALLATION.</b>)</li> </ul> Go to the next step.
		No	Go to the next step.
9	<b>VERIFY IF OTHER DTCs DISPLAYED</b> <ul style="list-style-type: none"> <li>• Are any other DTCs displayed?</li> </ul>	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See <b>DTC TABLE [360°VIEW MONITOR CONTROL MODULE (TYPE-A)].</b> )
		No	DTC troubleshooting completed.

DTC B12BD:16 [360°VIEW MONITOR CONTROL MODULE (TYPE-A)]

SM2899895

id1502cm05480

Description	Rear mount camera, side camera, front camera internal voltage malfunction
Detection condition	<ul style="list-style-type: none"><li>• The 360°view monitor control module detects that the power outlet voltage of the rear mount camera, side camera, front camera is less than the specified range for a certain period of time.</li></ul>
Fail-safe	<ul style="list-style-type: none"><li>• Black screen displayed when system is starting</li></ul>
Possible cause	<ul style="list-style-type: none"><li>• 360°view monitor control module connector or terminal malfunction</li><li>• Rear mount camera connector or terminal malfunction</li><li>• Rear mount camera power supply circuit malfunction<ul style="list-style-type: none"><li>— Short to ground in wiring harness between 360°view monitor control module terminal U and rear mount camera terminal B</li><li>— Open circuit in wiring harness between 360°view monitor control module terminal U and rear mount camera terminal B</li></ul></li><li>• Rear mount camera malfunction</li><li>• Side camera (LH) connector or terminal malfunction</li><li>• Side camera (LH) power supply circuit malfunction<ul style="list-style-type: none"><li>— Short to ground in wiring harness between 360°view monitor control module terminal Y and side camera (LH) terminal A</li><li>— Open circuit in wiring harness between 360°view monitor control module terminal Y and side camera (LH) terminal A</li></ul></li><li>• Side camera (LH) malfunction</li><li>• Side camera (RH) connector or terminal malfunction</li><li>• Side camera (RH) power supply circuit malfunction<ul style="list-style-type: none"><li>— Short to ground in wiring harness between 360°view monitor control module terminal M and side camera (LH) terminal A</li><li>— Open circuit in wiring harness between 360°view monitor control module terminal M and side camera (LH) terminal A</li></ul></li><li>• Side camera (RH) malfunction</li><li>• Front camera connector or terminal malfunction</li><li>• Front camera power supply circuit malfunction<ul style="list-style-type: none"><li>— Short to ground in wiring harness between 360°view monitor control module terminal Q and front camera terminal A (front camera connector type A)/F (front camera connector type B)</li><li>— Open circuit in wiring harness between 360°view monitor control module terminal Q and front camera terminal A (front camera connector type A)/F (front camera connector type B)</li></ul></li><li>• Front camera malfunction</li><li>• 360°view monitor control module malfunction</li></ul>

Step	Inspection		Action
10	<b>INSPECT SIDE CAMERA (LH)</b> • Inspect the side camera (LH). (See <b>SIDE CAMERA INSPECTION.</b> ) • Is the side camera (LH) normal?	Yes	Go to the next step.
		No	Replace the side camera (LH), then go to Step 19. (See <b>SIDE CAMERA REMOVAL/INSTALLATION.</b> )
11	<b>INSPECT SIDE CAMERA (RH) CONNECTOR CONDITION</b> • Disconnect the side camera (RH) connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 19.
12	<b>INSPECT SIDE CAMERA (RH) CIRCUIT FOR SHORT TO GROUND</b> • Verify that the side camera (RH) and 360°view monitor control module connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Side camera (RH) terminal A • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • 360°view monitor control module terminal M–Side camera (RH) terminal A <b>If there is a common connector:</b> • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. <b>If there is no common connector:</b> • Repair or replace the wiring harness which has a short to ground. Go to Step 19.
		No	Go to the next step.
13	<b>INSPECT SIDE CAMERA (RH) CIRCUIT FOR OPEN CIRCUIT</b> • Verify that the side camera (RH) and 360°view monitor control module connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — 360°view monitor control module terminal M–Side camera (RH) terminal A • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • 360°view monitor control module terminal M–Side camera (RH) terminal A <b>If there is a common connector:</b> • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. <b>If there is no common connector:</b> • Repair or replace the wiring harness which has an open circuit. Go to Step 19.
14	<b>INSPECT SIDE CAMERA (RH)</b> • Inspect the side camera (RH). (See <b>SIDE CAMERA INSPECTION.</b> ) • Is the side camera (RH) normal?	Yes	Go to the next step.
		No	Replace the side camera (RH), then go to Step 19. (See <b>SIDE CAMERA REMOVAL/INSTALLATION.</b> )
15	<b>INSPECT FRONT CAMERA CONNECTOR CONDITION</b> • Disconnect the front camera connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 19.

Step	Inspection		Action
1	<b>VERIFY OTHER 360°VIEW MONITOR CONTROL MODULE DTCs</b> <ul style="list-style-type: none"> <li>• Clear the DTC for the 360°view monitor control module using the M-MDS. (See <b>CLEARING DTC [360°VIEW MONITOR CONTROL MODULE (TYPE-A)].</b>)</li> <li>• Retrieve the 360°view monitor control module DTCs using the M-MDS. (See <b>DTC INSPECTION [360°VIEW MONITOR CONTROL MODULE (TYPE-A)].</b>)</li> <li>• Is DTC U3000:41 or U3000:49 displayed?</li> </ul>	Yes	Replace the 360°view monitor control module, then go to Step 15. (See <b>360°VIEW MONITOR CONTROL MODULE REMOVAL/INSTALLATION.</b> )
		No	Go to the next step.
2	<b>INSPECT 360°VIEW MONITOR CONTROL MODULE CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>• Switch the ignition off.</li> <li>• Disconnect the negative battery terminal. (See <b>NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.</b>)</li> <li>• Disconnect the 360°view monitor control module connector.</li> <li>• Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection.</li> <li>• Is the connector normal?</li> </ul>	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 15.
3	<b>INSPECT REAR MOUNT CAMERA CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>• Disconnect the rear mount camera connector.</li> <li>• Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection.</li> <li>• Is the connector normal?</li> </ul>	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 15.
4	<b>INSPECT REAR MOUNT CAMERA CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Verify that the rear mount camera and 360°view monitor control module connectors are disconnected.</li> <li>• Connect the negative battery terminal. (See <b>NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.</b>)</li> <li>• Switch the ignition ON (engine off or on).</li> <li>• Measure the voltage at the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>— Rear mount camera terminal B</li> </ul> </li> <li>• Is the voltage 0 V?</li> </ul>	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>• 360°view monitor control module terminal U–Rear mount camera terminal B</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply.</li> <li>• Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>• Repair or replace the wiring harness which has a short to power supply.</li> </ul> Go to Step 15.
5	<b>INSPECT REAR MOUNT CAMERA</b> <ul style="list-style-type: none"> <li>• Inspect the rear mount camera. (See <b>REAR MOUNT CAMERA INSPECTION.</b>)</li> <li>• Is the rear mount camera normal?</li> </ul>	Yes	Go to the next step.
		No	Replace the rear mount camera, then go to Step 15. (See <b>REAR MOUNT CAMERA REMOVAL/INSTALLATION.</b> )