

GARMIN®



GARMIN ONBOARD™

Owner's Manual

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M/N: AA4870

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人员落海警示系统

人員落海警示系統

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Important Safety Information

WARNING

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

Installing the System

CAUTION

For the best possible performance and to avoid potential injury, damage to the device, or damage to your vessel, installation by a qualified marine installer is recommended.

You must install and test the Garmin OnBoard engine cutoff system before using it on your vessel.

Follow the *Garmin OnBoard Engine Cutoff System Installation Instructions* provided in the product box to install and test the system.

Important Installation and Usage Requirements

NOTICE

Users are responsible for ensuring that the installation and use of this device complies with the American Boat and Yacht Council (ABYC) A-33 standard and any other applicable laws, regulations, or standards.

The Garmin OnBoard engine cutoff system is designed to meet the ABYC A-33 standard regarding emergency engine/propulsion cut-off devices. When using this system, observe the following considerations:

- Power to the GOS™ 10 hub should be tied to engine ignition in a way that it is operational when the engines are running. If the Garmin OnBoard engine cutoff system is installed and not powered on when the engines are running, it is not compliant with the A-33 standard.
- When the engines and the Garmin OnBoard engine cutoff system are running, you must have an MOB tag with the Captain role assigned, paired, and connected.

MOB Tag

⚠ CAUTION

Users should wear the MOB tag in a location that would likely be submerged during a man overboard event, such as on the wrist, belt, or lower part of a life jacket. The system may not activate as expected if the MOB tag is worn in a different location that may not become submerged, such as on the shoulder.



One MOB tag must be worn by the captain when piloting the vessel. Additional tags may be purchased and assigned as additional Captain tags or as Passenger tags. These roles determine the behavior of the system when a tag is out of range.

NOTE: You can connect up to eight total tags to the Garmin OnBoard engine cutoff system, and at least one tag must be assigned the Captain role.

1	Power and interface button: • If the tag is not connected to the Garmin OnBoard system, hold for two seconds to turn the tag on and off. • If the tag is connected to the Garmin OnBoard system: ◦ Hold for 2 seconds or longer to change the tag status from protected to disarmed and back to protected. ◦ Press to show the status and battery level. The shield and battery icon LEDs flash different colors (Checking the Status of an MOB Tag, page 5). ◦ Hold for four seconds or longer to turn the tag on and off.
2	MOB button: Press to initiate a Man Overboard (MOB) function (Initiating an MOB Procedure from an MOB Tag Manually, page 6). On a tag with the Captain role, you can hold this for two seconds or longer to initiate a MOB function that also kills the engine or engines.
	Status indicator. When you press the power button, the LED color indicates the status of the tag (Checking the Status of an MOB Tag, page 5).
	Battery-level indicator. When you press the power button, the LED color indicates the battery status of the tag (Checking the Status of an MOB Tag, page 5).

Attaching the Band or Carabiner Loop

The MOB tag is packaged with a carabiner loop, a wristband, and a floating keytag. You can use the carabiner loop to attach the MOB tag to your clothing, or you can attach the MOB tag to the wristband to wear it on your wrist. You can also attach the floating keytag to the carabiner or to the wristband to prevent the MOB tag from sinking if it is accidentally lost in the water. Follow these steps to attach the wristband or the carabiner loop to the MOB tag.

- 1 Insert one end of the spring bar on the band or carabiner loop into one of the holes on the MOB tag.
- 2 Slide the quick-release pin to retract the other end of the spring pin.
- 3 Align the spring bar with the other hole in the MOB tag, and release the pin.



MOB Tag Roles

You can connect multiple MOB tags to the Garmin OnBoard engine cutoff system and assign different roles to the tags, depending on who is wearing it. For details on the exact actions performed by each role, see ([MOB Tag Behavior, page 3](#)).

Captain: This role is intended for an MOB tag worn by a vessel captain or an individual responsible for controlling the vessel. A tag with a Captain role allows the system to shut off the engine or engines during a Man Overboard (MOB) event.

NOTICE

At least one MOB tag with the Captain role assigned must be paired for the Garmin OnBoard engine cutoff system to function. You cannot change the role of a Captain tag if it is the only tag paired with the Captain role assigned.

Passenger: This role is intended for an MOB tag worn by a passenger on the vessel. A tag with a Passenger role allows the system to create alerts during a MOB event, but it does not allow the system to shut off the engines.

⚠ CAUTION

When a tag with a Passenger role disconnects, the system does not shut off the engines. The system shuts off the engines only when all Captain tags are disconnected.

MOB Tag Behavior

When a protected MOB tag disconnects from the Garmin OnBoard engine cutoff system by traveling out of range of the GOS 10 hub, the Garmin OnBoard system considers this to be a man-overboard event. Based on the role assigned to the tag, the performs these actions in this general order.

Action	Captain Role	Passenger Role
A message banner appears on all connected chartplotters indicating that the connection with the tag has been lost. The alarm buzzer connected to the GOS 10 hub sounds a loud alert.	✓	✓
A three-second countdown timer appears on all connected chartplotters. NOTE: You can cancel the timer and alert if the man-overboard event was an error. If the countdown timer is not canceled, after three seconds, the system: • cuts off power to the engines to stop the vessel • creates a Man Overboard (MOB) waypoint on the chartplotter at the location where the signal from the MOB tag was lost • displays a message stating Engine Cutoff Initiated	✓	✗
NOTICE		
If more than one MOB tag connected to the system are assigned the Captain role, all of the Captain tags must disconnect before the system kills the engines and triggers an MOB action.		
A fifteen-second countdown timer appears on all connected chartplotters. NOTE: You can cancel the timer and alert if the man-overboard event was an error. If the countdown timer is not canceled, after fifteen seconds the system creates a Man Overboard (MOB) waypoint on the chartplotter at the location where the signal was lost. The engines remain functional.	✗	✓
⚠ CAUTION		
When a tag with a Passenger role disconnects, the system does not shut off the engines. The system shuts off the engines only when all Captain tags are disconnected.		
You are prompted to begin navigation to the MOB waypoint. If a compatible autopilot system is connected to the network, you can initiate a route to the waypoint from this message.		
NOTICE		
For an MOB tag with a Captain role, you must acknowledge the Engine Cutoff Initiated message on a chartplotter before power is restored to the engines and you can begin navigating again.	✓	✓
An SOS script appears that can be used to make a VHF distress call. From this view, you can also see the location of the MOB waypoint on the chart and dismiss it if necessary.		
⚠ CAUTION		
The Garmin OnBoard system does not contact emergency services at any time. You must initiate a distress call if needed.	✓	✓

Turning an MOB Tag On and Off

When you are not using the tag, you can turn it off to preserve battery life.

NOTICE

You must turn on an MOB tag before it can communicate with the GOS 10 hub.

- 1 If the MOB tag is off, hold the power button on the side of the tag for at least two seconds.
The  and  icons flash green twice to indicate that the MOB tag is now on.
- 2 If the MOB tag is on, hold the power button on the side of the tag for at least 4 seconds.
The  and  icons flash red twice to indicate that the MOB tag is now off.

Checking the Status of an MOB Tag

Press and release the power button on the side of the MOB tag.

NOTE: You should not hold the power button when checking the status of the tag, as this turns off the tag. Only press and release it to view status information.



	Green	Connected and protected
	Yellow	Connected, not protected
	Red	Not connected
	White flash	Appears after the status color to indicate that the tag is assigned a Captain role.
	Green	The battery is full or mostly full
	Yellow	The battery is getting low and should be replaced soon
	Red	The battery is critically low and should be replaced immediately

Disarming an MOB Tag

By default, when you turn on an MOB tag within range of the GOS 10 hub, it connects to the system in a protected status. When a tag is in a protected status, it triggers an action based on its assigned role when it loses communication with the GOS 10 hub.

On occasion, you may want to leave the vessel or otherwise keep a connected tag from triggering an event. To do this, you can disarm a tag. A disarmed tag remains connected to the GOS 10 hub when in range, but it does not trigger an action when it travels out of range or otherwise becomes disconnected.

By default, when you disarm an MOB tag, the system will attempt to protect it again after 15 minutes. If the tag is out-of-range of the GOS 10 hub when this time elapses, it becomes protected the next time it connects. You cannot change this default reacquisition time, although you can adjust an individual instance after you have disarmed a tag ([Changing the Reacquisition Time for an MOB Tag, page 9](#)).

- 1 If necessary, turn on the MOB tag you want to change.
- 2 Hold the power button on the side of the MOB tag for two seconds.
 flashes yellow to indicate that the MOB tag is disarmed.
- 3 To change the status of a tag to protected again, you can repeat the previous step.
 flashes green to indicate that the MOB tag is protected again.

TIP: You can also disarm connected MOB tags using the chartplotter ([Configuration, page 7](#)).

Initiating an MOB Procedure from an MOB Tag Manually

If a passenger falls overboard who is not wearing an MOB tag, or if you want to initiate a Man Overboard (MOB) procedure without waiting for a tag to become out of range of the GOS 10 hub, you can manually trigger the effect directly from any MOB tag connected to the Garmin OnBoard engine cutoff system.

Press the large MOB button on the face of a connected MOB tag.

NOTE: On a tag with the Captain role, you can hold the MOB button for at least two seconds to initiate a MOB function that also kills the engine or engines.

The Garmin OnBoard system creates a Man Overboard (MOB) waypoint on the chartplotter at the location where the button was pressed and prompts you begin navigating to the waypoint. An SOS script appears that can be used to make a VHF distress call, and you see the location of the MOB waypoint on the chart and dismiss it if necessary.

Replacing the MOB Tag Battery

WARNING

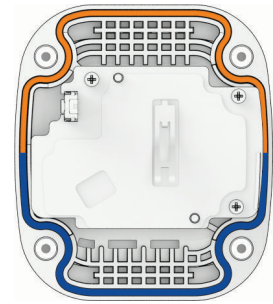
See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

NOTICE

The MOB tag uses a CR2032 3V coin-cell battery. You must install a new CR2032 3V coin-cell battery as a replacement. Using any other type of battery is not supported, and may result in a non-functioning system.

- 1 Using a #1 Phillips screwdriver, loosen the four captive screws to remove the back cover.
- 2 Gently lift the white tab to release the battery from the back cover.
- 3 Place the new battery in the back cover, with the positive (+) side down.
- 4 Make sure the rubber gasket in the front cover of the MOB tag is not broken and is fully seated in its groove.

The gasket fits in the groove in a specific orientation.



NOTICE

If the gasket is not properly and fully seated in the groove, it does not create a seal, which leads to the failure of the MOB tag when it is exposed to water. Contact Garmin® product support for information on purchasing a replacement gasket.

After you replace the battery, you may need to pair the MOB tag again ([Pairing an MOB Tag](#), page 8).

Configuration

To configure the Garmin OnBoard engine cutoff system and MOB tags, on a connected chartplotter select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags**, then select the name of a tag if necessary.

Role: Changes the role of an MOB tag.

NOTE: The Garmin OnBoard engine cutoff system must have at least one paired tag with the Captain role assigned. To change the role of an existing tag from Captain to Passenger, there must be more than one paired tag with the Captain role.

Rename: Changes the name assigned to a tag for easier identification. Changing the name does not change the role.

Review: Shows the status and other information about a tag.

Review > Remove Device: Unpairs and removes a tag from the Garmin OnBoard engine cutoff system.

Turn Off: Turns off a tag.

Protect: Changes the protection status of a tag. Protected tags trigger actions when leaving range of the hub, disarmed tags do not trigger actions. Tags are protected by default, and can be disarmed for a set period of time before automatically becoming protected again ([Disarming an MOB Tag, page 5](#)).

Reacquire In: Available only when a tag is disarmed. Temporarily changes the time for when a disarmed tag automatically becomes protected again. If the tag is out-of-range when this time elapses, it will become protected again as soon as it is in range and connects to the hub.

New Connection: Begins the pairing process on the hub to connect a new MOB tag.

Adding the MOB Tags Overlay

1 From the page where you want to add the overlay, select **Options** > **Edit Overlays**.

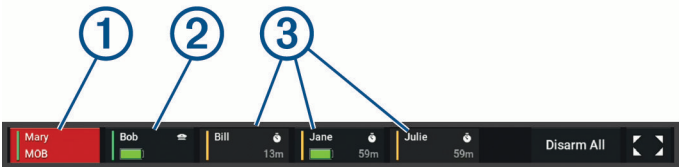
TIP: You can also select Toolbars from the menu bar to quickly change the overlays.

2 Select **Top Bar**, **Bottom Bar**, **Left Bar**, or **Right Bar**.

3 Select **MOB Tags** > **Back**.

MOB Tags Overlay

When connected to a GOS 10 hub, you can add an overlay on the chartplotter to control MOB tag functions.



①	Protected Passenger tag in Man Overboard (MOB) status: • The green line on the left indicates that the tag is protected. • The red shading and "MOB" text indicates that the tag has left the range of the hub and is now in an active MOB status (MOB Tag Behavior, page 3).
②	Protected Captain tag: • The green line on the left indicates that the tag is protected. •  indicates that this is a captain tag.
③	Disarmed Passenger tags: • The yellow line on the left indicates that the tag is disarmed. • The  and time indicate when the system will attempt to protect the tag again automatically.
Disarm All	Sets all connected tags to the Disarmed status.
	Opens the full-screen MOB tag page.

Pairing an MOB Tag

When you purchase a Garmin OnBoard engine cutoff system, the MOB tag packaged with the system is already paired with the GOS 10 hub and is ready to use. If you purchase additional tags you must pair them with the GOS 10 hub.

- 1 If necessary, turn on the Garmin devices on the vessel, including the GOS 10 hub and any connected chartplotters.
 - 2 Hold the power button on the side of the MOB tag for more than two seconds to turn it on.
 on the MOB tag flashes red to indicate that the tag is not connected to the GOS 10 hub.
 - 3 On a connected chartplotter, select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags** > **New Connection**.
If it is accessible, you can press the button on the GOS 10 hub three times to start the pairing process.
The LED on the GOS 10 hub flashes blue to indicate that it is in pairing mode.
 - 4 On the MOB tag, press the power button on the side three times.
 on the MOB tag flashes blue to indicate that it is in pairing mode.
A message is shown on the connected chartplotter screen, indicating a pairing request from the MOB tag to the GOS 10 hub.
 - 5 On the connected chartplotter, confirm the pairing request to complete the pairing process.
- If this is the first MOB tag to be paired with the GOS 10 hub, it is assigned the Captain role by default. All additional MOB tags paired to the GOS 10 hub are assigned the Passenger role by default.

Changing the Role of an MOB Tag

NOTE: At least one MOB tag with the Captain role assigned must be paired for the Garmin OnBoard engine cutoff system to function. You cannot change the role of a Captain tag if it is the only tag paired with the Captain role assigned.

- 1 On a connected chartplotter, select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags**.
- 2 Select the MOB tag you want to change.
- 3 Select **Role**.
- 4 Select the role you want to assign to the MOB tag.

Changing the Name of an MOB Tag

- 1 On a connected chartplotter, select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags**.
- 2 Select the MOB tag you want to change.
- 3 Select **Rename**.
- 4 Enter a new name for the MOB tag.

Changing the Reacquisition Time for an MOB Tag

By default, when you disarm an MOB tag, the system attempts to protect it again after 15 minutes. You can temporarily extend the length of time before a disarmed tag becomes protected again automatically. After the disarmed tag becomes protected again, this value resets to the default of 15 minutes for the next time you disarm the tag.

- 1 Disarm an MOB tag.
- 2 On a connected chartplotter, select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags**.
- 3 Select the disarmed MOB tag.
- 4 Select **Reacquire In**.
- 5 Select a new value.

The system attempts to protect the disarmed MOB tag again after the newly-specified value elapses. After the disarmed tag becomes protected again, this value resets to the default of 15 minutes for the next time you disarm this tag.

Removing an MOB Tag

If you no longer want to use a paired MOB tag, you can remove it from the system.

NOTE: At least one MOB tag with the Captain role assigned must be paired for the Garmin OnBoard engine cutoff system to function. You cannot remove a tag if it is the only tag paired with the Captain role assigned.

- 1 On a connected chartplotter, select  > **Communications** > **Wireless Devices** > **OnBoard MOB System** > **MOB Tags**.
- 2 Select the MOB tag you want to remove.
- 3 Select **Review** > **Remove Device**.

Restoring the Garmin OnBoard Engine Cutoff System to Factory Default Settings

NOTICE

When performing a factory reset on the Garmin OnBoard engine cutoff system, the security event log stored on the GOS 10 hub is cleared. All personal information, including locations and timestamps, as well as security-event records are deleted.

- 1 Turn on the GOS 10 hub.
- 2 Press the button on the GOS 10 hub five times.

Restoring the GOS 10 hub software to factory defaults does not affect any paired MOB tags. Any previously-paired MOB tags retain custom name and role information you may have applied, but are no longer paired to the GOS 10 hub. Each previously-paired MOB tag must be reset individually if you want to clear custom name or role configuration information stored on the tag.

Restoring an MOB Tag to Factory Default Settings

You can perform a procedure to restore an MOB tag to factory default settings, which clears any custom name or role information stored on the tag.

- 1 Turn on the MOB tag you want to restore to factory default settings.
- 2 Disarm the MOB tag ([Disarming an MOB Tag](#), page 5).

NOTE: You cannot restore an MOB tag when it is in a protected status. You must disarm it first.

- 3 On the MOB tag, press the power button on the side five times.
- 4 Repeat this process for any additional MOB tag you want to restore.

System Bypass

The Garmin OnBoard engine cutoff system is designed with two methods you can use to bypass the system. These methods allow you disable engine control and restore typical functionality in the case of an emergency.

Bypassing the System From a Chartplotter

One method to bypass the Garmin OnBoard engine cutoff system is by using a connected chartplotter.

Bypassing the engine cutoff system using the chartplotter is possible only when the system has cut off the engines due to a man overboard event with a Captain tag, or when testing the system. This option is not available during normal operation.

Within 30 seconds after the system has cut off the engines, select one of these options on a connected chartplotter:

- Select **Yes** in the message that reads **Do you want to be able to restart the engine now?**¹
- On an MOB screen, select **Disable Cutoff**.¹
- Select  > **Communications** > **NMEA 2000 Setup** > **Device List**, select the **GOS 10 Hub**, then select **Review** > **Engine Cutoff** > **Disable**.

The Garmin OnBoard engine cutoff system is now disabled, and the engines should be restored to previous functionality.

NOTICE

The system remains disabled until you enable it again or until you turn off the system and turn it back on again. You must enable the system as soon as possible to be compliant with the AYBC A-33 standard.

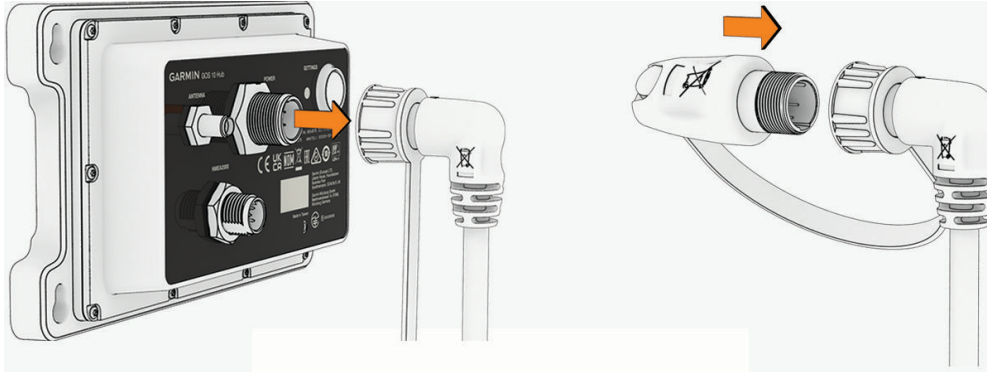
To restore the Garmin OnBoard engine cutoff system functionality, select  > **Communications** > **NMEA 2000 Setup** > **Device List**, select the GOS 10 Hub, then **Review** > **Engine Cutoff** > **Enable**.

¹ This option is available only during an man-overboard event initiated by an MOB tag with the captain role. This message does not appear when testing the system.

Bypassing the System from the GOS 10 Hub

If bypassing the Garmin OnBoard engine cutoff system using a connected chartplotter does not work as expected, or if you prefer to use a different method, you can bypass the system directly from the GOS 10 hub.

- 1 Disconnect the wiring harness from the GOS 10 hub.



- 2 Connect the bypass module to the wiring harness connector, and tighten the locking ring.
The bypass module should be tethered to the connector end of the wiring harness.
The Garmin OnBoard engine cutoff system is now disabled, and the engines should be restored to previous functionality.

NOTICE

The system remains disabled until you enable it again. You must enable the system as soon as possible to be compliant with the AYBC A-33 standard.

To restore the Garmin OnBoard engine cutoff system again, disconnect the bypass module and reconnect the wiring harness to the GOS 10 hub.

Appendix

Software Updates

You can go to garmin.com/support/software/marine/ to find information on the latest software updates for your Garmin marine devices.

Third-Party Software Attributions

This product may include the following open source software subject to the following licenses.

GOS 10 Hub

- Apache-2.0: MCUboot, Mbed TLS, zcbor, Zephyr Project
- BSD-3-Clause: nRFX drivers, OpenAMP
- BSD-2-Clause: OpenAMP
- TinyCrypt by Intel Corporation
- Unicode License: Unicode software

MOB Tag

- Apache-2.0: Mbed TLS, Zephyr Project
- BSD-3-Clause: nRFX drivers
- TinyCrypt by Intel Corporation

