GHC™ 20
Owner's Manual

Introduction

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

You are responsible for the safe and prudent operation of your vessel. The autopilot is a tool that will enhance your capability to operate your boat. It does not relieve you from the responsibility of safely operating your boat. Avoid navigational hazards and never leave the helm unattended.

Always be prepared to promptly regain manual control of your boat.

Learn to operate the autopilot on calm and hazard-free open water.

Use caution when operating the autopilot near hazards in the water, such as docks, pilings, and other boats.

The autopilot system continuously adjusts the steering of your boat to maintain a constant heading. In addition to the basic heading-hold functionality, the system allows manual steering and several modes of automatic-steering functions and patterns.

Operate the autopilot system using the helm control device. Using the helm control, you engage and steer, set up, and customize the autopilot system.

To install the autopilot system, including the helm control, refer to the installation instructions for each device.

Device Overview

①	Standby key
②	Soft keys
③	Power key

Tips and Shortcuts

• Select **STBY** to place the autopilot in standby mode and return to the heading screen.

• Select **Menu** from any main screen to access additional settings about that screen.

• Select ⏻ to adjust the backlight.

• Hold ⏻ to turn the chartplotter off.

Heading Screen

The heading screen displays the status of the autopilot and the heading screen.

Standby Mode

> **⚠ CAUTION**
>
> The autopilot does not steer the boat in standby mode. You are responsible for controlling the helm, when in standby mode.

In standby mode, you can engage the autopilot, adjust settings, or specify the transmission direction (page 2) of your boat (forward or reverse) by using the soft keys.

"Standby" appears in yellow and a yellow icon displays in the upper-right corner of the screen when the device is in standby mode.

Powerboat Autopilot Operation

Heading Hold

You can engage the autopilot heading hold function to maintain your current heading without steering the helm.

Engaging the Autopilot

When you engage the autopilot, the autopilot takes control of the helm and steers the boat to maintain your heading.

From the heading screen, select **Engage**.

"Heading Hold" appears in green at the top of the heading screen. A green icon appears in the upper-right corner of the screen when the device is in heading hold. This icon helps you determine the status of the autopilot and can be seen on every screen on the device. Your heading shows in the center of the heading screen.

Heading Adjustment

When the autopilot is engaged, you can adjust the heading using the keys on the helm control or using the helm if your autopilot is equipped with Shadow Drive™ technology.

Adjusting the Heading with the Helm

NOTE: When you manually maintain a specific heading for a few seconds, the autopilot resumes control of the new heading.

With the autopilot engaged, manually steer the boat.

A yellow marker and the numerical display on the center of the heading screen indicate the intended heading.

Adjusting the Heading with the Keys

You can steer your boat using the keys at the bottom of the helm control.

With the autopilot engaged, select an option.

• Select **1°> 10°>>** or **<<10° <1°** to use rudder steering mode. Rudder steering mode turns the boat in 1° increments, and steers the boat when you hold a key.

• Hold **1°> 10°>>** or **<<10° <1°** to use step steering mode. Step steering mode turns the boat in 10° increments.

Direction Control

When your boat is properly equipped, you can control the drive direction of the boat (forward or reverse) using the helm control.

Enabling Direction Control

1. Select **Menu** > **Setup** > **User Autopilot Setup** > **Direction Control**.

2. Select **Enabled**.

Using Direction Control

Before you can use direction control, you must enable the direction control functionality (page 2).

When traveling in standby mode, select **Direction**.

Steering Patterns

You are responsible for the safe operation of your boat. Do not begin a pattern until you are certain that the water is clear of obstacles.

The autopilot can steer the boat in preset patterns for fishing, and it can also perform other specialty maneuvers such as U-turns and Williamson turns. You can use the autopilot to begin pattern steering.

Pattern steering is not based on GPS, and it can be used without a GPS device connected to the autopilot.

Zigzag Pattern

The zigzag pattern steers the boat from port to starboard and back, over a specified time and angle, across your current heading.

Setting Up the Zigzag Pattern

You can modify the amplitude and period of the zigzag pattern. The default values are 30° and 1.5 minutes.

1 Select **Menu** > **Pattern Steering** > **Zigzag** > **Setup** > **Zigzag Amplitude**.

2 Select ▲ or ▼ to set the amplitude in increments of 5°.

3 Select **Done**.

4 Select **Setup** > **Zigzag Period**.

5 Select ▲ or ▼ to set the period.

6 Select **Done**.

Following a Zigzag Pattern

1 Select **Menu** > **Pattern Steering** > **Zigzag**.

2 Select **Engage**.

Circles Pattern

The circles pattern steers the boat in a continuous circle, in a specified direction, and at a specified time interval.

Setting Up the Circles Pattern

1 Select **Menu** > **Pattern Steering** > **Circles** > **Time**.

2 Select ▲ or ▼ to set the time.

3 Select **Done**.

Following the Circles Pattern

1 Select **Menu** > **Pattern Steering** > **Circles** > **Engage.**.

2 Select an option:
• Select ➡ to begin a clockwise turn.
• Select ⬅ to begin a counter-clockwise turn.

U-Turn Pattern

The u-turn pattern turns the boat around 180° and maintains the new heading. There are no settings to adjust the u-turn pattern.

Following the U-Turn Pattern

1 Select **Menu** > **Pattern Steering** > **U-Turn** > **Engage**.

2 Select an option:
• Select ➡ to begin a starboard turn.
• Select ⬅ to begin a port turn.

Williamson Turn

The Williamson turn pattern turns the boat around with the intent of running alongside the location where the Williamson turn pattern was initiated. There are no settings to adjust the Williamson turn pattern.

The Williamson turn pattern can be used in man overboard situations.

Following the Williamson Turn Pattern

The Williamson turn pattern is not determined by GPS and is affected by wind, current, and speed. Be ready to adjust the throttle and take the helm to avoid harm to a person in the water.

⚠ CAUTION

The boat must be below planing speed when using this pattern.

1 Select **Menu** > **Pattern Steering** > **Williamson Turn** > **Engage**.

2 Select an option:

• Select ⮕ to begin a starboard turn.

• Select ⬅ to begin a port turn.

Cancelling a Steering Pattern

• Physically steer the boat.

• Select **<<10° <1°** or **1°> 10°>>**.

• Select **STBY**.

GPS Steering Patterns

⚠ WARNING

You are responsible for the safe operation of your boat. Do not begin a GPS pattern until you are certain that the water is clear of obstacles.

The autopilot can steer the boat along a route defined by your GPS device or in preset patterns based on a GPS location (waypoint). To use GPS steering, you must have a compatible GPS device connected to the autopilot using NMEA 2000® or NMEA® 0183. GPS steering patterns are based on a GPS waypoint to which you are actively navigating using your optional GPS device. This waypoint is called the active waypoint.

Following a GPS Steering Route

The autopilot can steer the boat according to a route defined on a compatible GPS device.

1 Create and navigate a route on your GPS device.

2 Select **Menu** > **GPS Steering** > **Follow Route**.

Cancelling a GPS Steering Pattern

• Physically steer the boat.

• Select **<<10° <1°** or **1°> 10°>>**.

• Select **STBY**.

Route To

NOTE: The autopilot must be connected to a NMEA 2000 or NMEA 0183 compatible chartplotter to use Route To.

When you use the Route To feature, the autopilot steers the boat according to a route defined on your chartplotter.

Following a Route To Pattern

Before you can begin following a Route To pattern, you must define a route on your chartplotter. Refer to the owner's manual included with your chartplotter for information on how to define a route.

Select **Menu** > **GPS Steering** > **Route To**.

Orbit Pattern

The orbit pattern steers the boat in a continuous circle around the active waypoint. The size of the circle is defined by your distance from the active waypoint when you begin the orbit pattern.

Following an Orbit Pattern

1 Select **Menu** > **GPS Steering** > **Orbit** > **Engage**.

2 Select an option:

• Select ⮕ to begin a clockwise turn.

• Select ⬅ to begin a counter-clockwise turn.

Cloverleaf Pattern

The cloverleaf pattern steers the boat to repeatedly pass over an active waypoint. When you begin the cloverleaf pattern, the autopilot drives the boat toward the active waypoint and begins the cloverleaf pattern.

Setting Up the Cloverleaf Pattern

You can adjust the distance from the waypoint at which the autopilot turns your boat for another pass over the waypoint. The default setting turns the boat at a range of 1000 ft. (300 m) from the active waypoint.

1 Select **Menu** > **GPS Steering** > **Cloverleaf** > **Length**.

2 Select ▲ or ▼ to set the range.

3 Select **Done**.

Following the Cloverleaf Pattern

1 Select **Menu** > **GPS Steering** > **Cloverleaf** > **Engage**.

2 Select an option:

- To begin a starboard turn, select ➡.

- To begin a port turn, select ⬅.

Search Pattern

The search pattern steers the boat in increasingly larger circles outward from the active waypoint, forming a spiral pattern. When you begin the search pattern, the autopilot drives the boat to the active waypoint and begins the pattern.

Setting Up the Search Pattern

You can adjust the distance between each circle in the spiral. The default distance between circles in 50 ft. (20 m).

1 Select **Menu** > **GPS Steering** > **Search** > **Spacing**.

2 Select ▲ or ▼ to set the distance.

3 Select **Done**.

Following the Search Pattern

1 Select **Menu** > **GPS Steering** > **Search** > **Engage** .

2 Select an option:

- To begin a starboard turn, select ➡.

- To begin a port turn, select ⬅.

Sailboat Autopilot Operation

> ⚠ **CAUTION**
> When engaged, the autopilot controls only the rudder. You and your crew remain responsible for the sails while the autopilot is engaged.

In addition to heading hold, you can use the autopilot to maintain a wind hold. You can also use the autopilot to control the rudder while tacking and gybing.

Wind Hold

You can set the autopilot to maintain a specific bearing relative to the current wind angle. Your device must be connected to a NMEA 2000 or NMEA 0183 compatible wind sensor to perform a wind hold or a wind-based tack or gybe.

Engaging Wind Hold

NOTE: You must have a wind sensor installed before you can engage wind hold.

When the autopilot is in standby mode, select **Wind Hold**.

Engaging Wind Hold from Heading Hold

NOTE: You must have a wind sensor installed before you can engage wind hold.

With heading hold engaged, select **Menu** > **Wind Hold**.

Adjusting the Wind Hold Angle with the Autopilot

You can adjust the wind hold angle on the autopilot when wind hold is engaged.

- To adjust the wind hold angle in increments of 1°, select **<<10° <1°** or **1°> 10°>>**.

- To adjust the wind hold angle in increments of 10°, hold **<<10° <1°** or **1°> 10°>>**.

Tack and Gybe

You can set the autopilot to perform a tack or gybe while heading hold or wind hold is engaged.

Tacking and Gybing from Heading Hold

1 Engage heading hold (page 2).

2 Select **Menu** > **Tack/Gybe**.

3 Select ⬅ or ➡ to choose a direction.

The autopilot steers your boat through a tack or gybe, and the "Tacking" displays on the heading screen until the maneuver is complete.

Tacking and Gybing from Wind Hold

1 **NOTE:** You must have a wind sensor installed before you can engage wind hold.

Engage wind hold (page 5).

2 Select **Menu** > **Tack/Gybe**.

3 Select **Tack** or **Gybe**.

The autopilot steers your boat through a tack or gybe, and the wind hold screen shows the compass and wind gauges with yellow highlights that indicate the direction and progress of the tack or gybe.

Route To in the Sailboat Autopilot

> ⚠ **CAUTION**
>
> Garmin recommends using route to only under motor power. Using route to while under sail can cause an unexpected gybe, risking damage to your sailboat. Unattended sails and rigging can be damaged or cause injury to any crew or passengers during an unexpected gybe maneuver.

Device Configuration

User Autopilot Settings

Select **Menu** > **Setup** > **User Autopilot Setup**.

Power Mode: Sets the device power mode to normal or economy mode. Economy power mode allows you to set the percentage of power used to run the autopilot.

Power Saver: Sets the percentage of power used to run the autopilot when the device is in economy power mode.

Direction Control: Sets the transmission direction of your boat (forward or backward).

Configuring the Remote Control

You can connect one optional remote control to a the helm control.

Select **Menu** > **Setup** > **Remote**.

Searching for a Remote Control

1 Select **Menu** > **Setup** > **Remote**.

2 Select **Search for Remote**.

Assigning Remote Button Actions

> ⚠ **CAUTION**
>
> If you assign a pattern to a button on the remote control, remember that you are responsible for the safe operation of your boat. Do not begin a pattern until you are certain the water is clear of obstacles.

NOTE: If you assign **Direction Control** to a button on the remote, the autopilot must be in standby mode to change the direction (forward or reverse).

1 Select **Menu** > **Setup** > **Remote**.

2 Select a remote button you want to assign an action to.

3 Select a button action.

4 If necessary, repeat steps 2 and 3 for the remaining buttons.

Display Settings

Select **Menu** > **Setup** > **Display** to open the display settings.

Color Mode: Sets the device to display day or night colors.

Configure Colors: Sets the color configuration for each color mode. For day color mode, you can select a full color or high contrast color configuration. For night color mode, you can select a full color, red and black, or green and black color configuration.

Backlight: Sets the backlight level.

Network Sharing: Allows you to share color mode, color configuration, and backlight settings with other devices across the NMEA 2000 network.

System Settings

Select **Menu** > **Setup** > **System**.

Units: Sets the units of measure.

Heading: Sets the reference used in calculating heading information.

Variance: Adjusts the variance from true north. This setting is only available when the heading is set to True.

Beeper: Sets if and when audible sounds are used.

Auto Power: Automatically turns on the autopilot when it is connected to a NMEA 2000 network.

GHC Low Volt. Alarm: Sounds an alarm when the autopilot is receiving low voltage.

Language: Sets the on-screen language.

Operating Mode: Allows you to set the operating mode to normal or store demo mode.

System Information: Allows you to view software information.

Factory Defaults: Resets the unit to factory defaults.

www.garmin.com/support

913-397-8200
1-800-800-1020

+32 2 672 52 54

+49 (0)1805-427646-880

00800 4412 454
+44 2380 662 915

0808 238 0000
+44 870 850 1242

+45 4810 5050

+ 39 02 36 699699

+ 35 1214 447 460

1-866-429-9296

+358 9 6937 9758

0800 - 023 3937
035 - 539 3727

+ 34 902 007 097

+43 (0) 820 220 230

+ 331 55 69 33 99

+ 47 815 69 555

+ 46 7744 52020

Garmin International, Inc.
1200 East 151st Street
Olathe, Kansas 66062, USA

Garmin (Europe) Ltd.
Liberty House, Hounsdown Business Park
Southampton, Hampshire, SO40 9LR UK

Garmin Corporation
No. 68, Zhangshu 2nd Road, Xizhi Dist.
New Taipei City, 221, Taiwan (R.O.C.)