INTRODUCTION

Thank you for choosing the Garmin® GPSMAP® 278, which uses the proven performance of Garmin GPS and full-featured mapping to create an unsurpassed portable marine navigation chartplotter and automobile navigation device. Take a moment to compare the contents of this package with the packing list on the outside of the box; if any pieces are missing, contact your Garmin dealer immediately.

About This Manual

To get the most out of your new navigation system, read this manual and learn the operating procedures for your unit. This manual is organized into the following sections:

The Introduction contains the Table of Contents, Care Information, Warnings and Cautions.

The Getting Started section provides an overview of the unit, how to turn the unit on, and how to simulate navigation.

The Marine Mode section provides you with information about navigating with the GPSMAP 278 in Marine Mode.

The Marine Mode Pages section reviews the main pages in Marine Mode.

The Automotive Mode section provides you with information about navigating with the GPSMAP 278 in Automotive Mode.

The Automotive Mode Pages section reviews, in detail, the main pages and features in Automotive Mode, such as the Trip Data Page and creating waypoints.

The Main Menu section describes features found on the Main Menu, and information on how to change settings.

The Using Sonar section provides instructions on using a Garmin GSD 20 or GSD 21 sounder with your GPSMAP 278.

The Appendix contains specifications, optional accessories, maintenance information, and other product information.

An Index is provided at the end of the manual for reference.

Manual Conventions

This manual uses the term Warning to indicate a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

This manual uses the term Caution to indicate a potentially hazardous situation, which, if not avoided, may result in minor injury or property damage. It may also be used without the symbol to alert you to avoid unsafe practices.
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GPSMAP 278 Owner’s Manual
Caring for the GPSMAP 278
The GPSMAP 278 case is constructed of high quality materials and does not require user maintenance except cleaning.

Cleaning the Case
Clean the unit’s outer casing (except for the screen) using a cloth dampened with a mild detergent solution and then wipe dry. Avoid chemical cleaners and solvents that may damage plastic components.

Cleaning the Screen
The GPSMAP 278 screen should be cleaned using a soft, clean, lint-free cloth. Water, isopropyl alcohol, or eyeglass cleaner can be used if needed. If these are used, apply the liquid to the cloth and then gently wipe the screen with the moistened cloth.

Storage
Do not store the GPSMAP 278 where prolonged exposure to temperature extremes may occur (such as in the trunk of a car) as permanent damage may result. User information, such as waypoints and routes are retained in the unit’s memory without the need for external power. It is always a good practice to back up important user data by manually recording it or downloading it to a PC (transferring it to MapSource).

Water Immersion
The GPSMAP 278 is waterproof to IEC Standard 60529 IPX7. It can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the unit. After submersion, be certain to wipe and air dry the unit before reuse or charging.
Failure to avoid the following potentially hazardous situations could result in an accident or collision resulting in death or serious injury.

When installing the GPSMAP 278 in a vehicle, place the unit securely so that it does not interfere with vehicle operating controls or obstruct the driver’s view of the road (see diagram).

Do not mount where driver’s field of vision is blocked.

Do not place unsecured on the vehicle dash.

Do not mount in front of an airbag field of deployment.

Always operate the vehicle in a safe manner. Do not become distracted by the GPSMAP 278 while driving, and always be fully aware of all driving conditions. Minimize the amount of time spent viewing the screen of the GPSMAP 278 while driving and use voice prompts when possible. Do not enter destinations, change settings, or access any functions requiring prolonged use of the unit’s controls while driving. Pull over in a safe and legal manner before attempting such operations.

When navigating, carefully compare information displayed on the GPSMAP 278 to all available navigation sources, including information from street signs, visual sightings, and maps. For safety, always resolve any discrepancies or questions before continuing navigation.

The GPSMAP 278 contains a replaceable, rechargeable lithium-ion battery. The battery may present a risk of fire or chemical burn if mistreated.

- Do not recharge out of the unit, disassemble, heat above 140°F (60°C), or incinerate.
- Keep used battery away from children.
- Only replace with Garmin Lithium-ion Battery Pack. Using another battery may present a risk of fire or explosion.
- Dispose of used battery or unit properly. Contact your local waste disposal department for information on properly disposing of lithium-ion batteries.

Use the electronic chart in the GPSMAP 278 only to facilitate, not to replace, the use of authorized government charts. Official government charts and notices to mariners contain all information needed to navigate safely.

WARNING: This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This Notice is being provided in accordance with California’s Proposition 65. If you have any questions or would like additional information, please refer to our Web site at www.garmin.com/prop65.
Failure to avoid the following potentially hazardous situations may result in injury or property damage.

The GPSMAP 278 is designed to provide you with route suggestions. It does not reflect road closures or road conditions, traffic congestion, weather conditions, or other factors that may affect safety or timing while driving.

Use the GPSMAP 278 only as a navigational aid. Do not attempt to use the GPSMAP 278 for any purpose requiring precise measurement of direction, distance, location, or topography.

The Global Positioning System (GPS) is operated by the United States government, which is solely responsible for its accuracy and maintenance. The government’s system is subject to changes which could affect the accuracy and performance of all GPS equipment, including the GPSMAP 278. Although the GPSMAP 278 is a precision navigation device, any navigation device can be misused or misinterpreted and, therefore, become unsafe.

Map Data Information: One of the goals of Garmin is to provide customers with the most complete and accurate cartography that is available to us at a reasonable cost. We use a combination of governmental and private data sources, which we identify in product literature and copyright messages displayed to the consumer. Virtually all data sources contain inaccurate or incomplete data to some extent. In some countries, complete and accurate map information is either not available or is prohibitively expensive.
Unit Overview

The GPSMAP 278 is an all-in-one, versatile color chartplotter and automobile navigator—perfect for land or water. This portable GPS navigator features a 256-color TFT display that is easy to read in bright sun and includes a built-in worldwide basemap. The GPSMAP 278 comes preloaded with City Navigator® NT Europe, which contains street maps and a points of interest (POIs) database, including motels, restaurants, fuel, ATMs and more. In addition, GPSMAP 278 accepts customized points of interest such as school zones and safety cameras and includes proximity alerts to warn you of upcoming POIs.
Charging the GPSMAP 278

Before using the GPSMAP 278, you might need to charge the battery. Plug the power cable into an external power source to charge. You can use the unit while it is charging.

**To charge the battery:**
1. Lift the rubber weather cap to expose the power connector on the back of the unit. See the image on page 1 for connector location.
2. Align the notches and push the plug into the connector until fully seated.
3. Plug the 12-Volt adapter into an available AC outlet, or cigarette lighter receptacle if you have a cigarette lighter adapter. Use care when routing the cable; make sure it does not interfere with vehicle operation. The unit begins charging as soon as external power is applied.

   **TIP:** Placing the unit in Charge Mode charges the unit more quickly than when the unit is turned on and reduces draw on the vehicle/vessel battery.

When you turn on the GPSMAP 278 power source indicator on the GPS tab shows the unit is operating off battery power ( ), that the unit is charging ( ), or that an external power source is in use ( ).

**Using Charge Mode**

If you want to charge the battery when you are not using the unit, you can put the unit into Charge Mode.

**To put the GPSMAP 278 in charge mode:**
1. Connect the GPSMAP 278 to an external power supply.
2. Press and hold the \( \text{POWER} \) key. Instead of completely turning off, the GPSMAP 278 goes into Charge Mode.

   **NOTE:** While in Charge Mode, the GPSMAP 278 draws a small amount of current from the vehicle/vessel battery. To avoid discharging the vehicle’s battery, disconnect the external power cable from the unit when not in use for several days.

Over time, you might notice that the lithium-ion battery in the unit is not holding a charge any more. This is common for lithium-ion batteries. Contact Garmin or your Garmin dealer to order a battery pack replacement if you are experiencing battery charging issues.
Turning Your GPSMAP 278 On or Off

Before you turn on the GPSMAP 278, be sure the antenna is rotated up as shown on page 1, and it has a clear and unobstructed view of the sky to receive satellite signals.

The first time you turn on your GPSMAP 278, the GPS receiver must collect satellite data and establish its current location. To ensure proper initialization, the GPSMAP 278 is shipped from the factory in AutoLocate mode, which allows the receiver to “find itself” anywhere in the world.

To turn the GPSMAP 278 on and off:

1. Press and hold the **POWER** key. When the unit turns on, a tone sounds and the Warning Page appears.

2. Read the warning, and then press **ENTER** to continue.

3. To turn off the GPSMAP 278, press and hold the **POWER** key again.

Adjusting the Backlight and Volume

You can adjust the backlight to see the display better. If you are using the External Speaker with 12/24-Volt Adapter Cable with the GPSMAP 278, you can adjust the volume level of the audio output.

To adjust the backlight level or volume:

1. Press and quickly release the **POWER** key.

2. Press up on the **ROCKER** to increase the brightness or press down to decrease. Press right to raise the volume or left to lower.

3. Press **ENTER** or **QUIT** to close the Backlight/Volume adjustment window.
Getting Satellite Signals
After you turn on the GPSMAP 278, the unit automatically begins searching for satellites. The GPS page appears while the unit is gathering satellite signals and acquiring a fix, which should take only a few minutes. While the GPSMAP 278 is getting satellite signals, the GPS page shows the status as “Acquiring Satellites.”

![GPS Location](image)

**NOTE:** While acquiring satellites, the Map Page might show the wrong location, such as China. You need to wait a few more minutes to acquire satellites and find your current location.

**Viewing GPS Status**
The GPS tab provides a visual reference of satellite acquisition, receiver status, and accuracy. The sky view and signal strength bars show what satellites are visible to the receiver and whether they are being tracked.

As the receiver locks onto satellites, a signal strength bar appears for each satellite in view, with the appropriate satellite number underneath each bar. The numbers below each bar represent the particular satellite that is being received. Numbers above 33 indicate EGNOS satellites.

The sky view shows a birds-eye-view of the position of each satellite relative to the receiver’s last known position. The outer circle represents the horizon (north up), the inner circle represents 45° above the horizon, and the center point represents a position directly overhead. You can also set the sky view to a Track Up configuration, causing the top of the sky view to align along your current track heading. Press **MENU** to change the configuration of the sky view.
The progress of satellite acquisition is shown in three stages:

- **No signal strength bars**—the receiver is looking for the satellites indicated.
- **White signal strength bars**—the receiver has found the satellite and is collecting data.
- **Green signal strength bars**—the receiver has collected the necessary data from this satellite.

When the GPSMAP 278 collects the necessary data from the best satellites in view to calculate a fix, the status field indicates the status of the receiver. The unit updates the location, date, and time.

**Receiver Status**

The Receiver Status field shows one of the following conditions:

- **Searching the Sky**—the receiver is looking for satellites.
- **AutoLocate**—the receiver is looking for any satellite whose almanac was collected, which can take up to five minutes.
- **Acquiring Satellites**—the receiver is looking for and collecting data from satellites visible at its last known or initialized location but has not acquired a fix.
- **2D GPS Location**—At least three satellites were acquired and a two-dimensional position fix was calculated. “2D Differential” appears when you are receiving EGNOS corrections in 2D mode, and a “D” appears on the strength bar of satellites being corrected.
- **3D GPS Location**—At least four satellites were acquired and a three-dimensional fix was calculated. “3D Differential” appears when you are receiving EGNOS corrections in 3D mode, and a “D” appears on the strength bar of satellites being corrected.
- **Lost Satellite Reception**—the receiver is no longer tracking enough satellites for a 2D or 3D fix.
- **Receiver Not Usable**—the receiver is unusable, possibly due to interference or abnormal satellite conditions. Turn the unit off and back on to reset it.
- **Simulating GPS**—the receiver is in Simulator Mode.
- **GPS Off**—the GPS receiver is turned off.
GPS Options
Press MENU twice to open the Main Menu. Use the ROCKER to highlight the GPS tab. Press MENU to open the options menu.

Start/Stop Simulator—start and stop Simulator Mode, which is helpful when learning how to use your unit.

Enable/Disable EGNOS—enable or disable EGNOS capability. See page 109 of the “Appendix” for more information about EGNOS.

Track Up Skyview/North Up Skyview—orient the sky view display on the GPS page to North up or Track up.

New Altitude—manually enter your altitude.

New Location—enter a new location automatically or using the map.

GPS Tips
While the receiver is gathering information, your location on the map might appear different from where you are actually located. As soon as the receiver gathers enough satellite information, your proper location appears on the map.

When you travel more than 600 miles with the GPS receiver turned off, the receiver may take longer than normal to initialize and find your location.

The GPS receiver can lose satellite signals due to interference from such items as buildings, tunnels, and heavy tree cover. Monitoring the GPS status is recommended.

To learn about GPS, visit www.garmin.com/aboutGPS/.
Using the GPSMAP 278 Keypad

**PAGE/MODE Key**
- Press to cycle through main pages in sequence and exit a submenu page.
- Press and hold to switch between Marine and Automotive modes.

**QUIT Key**
- Press to cycle through main pages in reverse sequence, revert to the previous value in a data entry field, or cancel an unintended function.

**ENTER/MARK Key**
- Press to select a highlighted option.
- Press and hold to mark your current location as a waypoint.

**MENU Key**
- Press to open the options menu for the current page.
- Press twice to open the Main Menu.

**POWER Key**
- Press and hold to turn the unit on or off.
- Press and release to adjust the backlighting and external speaker volume.

**IN Key/OUT Key**
- Press to adjust map scale to show a larger area with less detail (zoom out) or a smaller area with more detail (zoom in).

**ROCKER**
- Press up, down, left, or right to highlight options and to enter data, or use to pan the arrow on the Map Page.

**NAV/MOB Key**
- Press to show the navigation menu.
- In Marine Mode, press and hold to activate the MOB function.
  In Automotive Mode, press and hold to show the Next Turn page and announce the next turn when using the external speaker.

**FIND Key**
- Press to quickly search for and access user waypoints, cities, and other items used for navigation.
Using The GPSMAP 278

The advanced keypad system on the GPSMAP 278 is designed to allow you to select options and enter data quickly and conveniently. As you progress through this owner’s manual, you are directed to press a specific key or highlight a field on the screen. When you are directed to press a key, you should press and quickly release the key. If the key needs to be held down for a period of time to start a secondary function, the instructions tell you to do so. When a field is selected on the screen, it is highlighted in yellow.

The following terms are used throughout this manual:

- **Highlight**—move the highlighted area on the screen up, down, left, or right with the ROCKER to select individual fields. Moving the highlight to a given location allows you to make a selection, begin data entry, or scroll through a list.

- **Field**—the location on a page where data or an option can be shown and entered. Select (highlight) a field using the ROCKER to begin entering data or selecting options.

- **On-screen button**—use the ROCKER to highlight a button, and press ENTER to select the button.

- **Scroll bar**—when viewing a list of items too long to show on the screen, a scroll bar appears along the right side of the list. To scroll through a list, press up or down on the ROCKER.

- **Default**—the factory setting saved in the unit’s memory. You can change the settings, and you can also revert to the factory (default) settings when you select Restore Defaults.

**Cartography**

The GPSMAP 278 comes preloaded with City Navigator NT Europe v 9.0

Optional preloaded Garmin data cards and MapSource CD-ROMs enhance the versatility of your GPSMAP 278. With optional MapSource BlueChart information and BlueChart g2 you can view information that is not already pre-loaded.

Selecting Options and Entering Data
To enter data and select options, use the **ROCKER** to highlight, select, or choose an item in a list or a field on the screen. Use the **ENTER** key and the **ROCKER** to select options, enter names and numbers in data fields, and activate your selections.

**To select an optional feature:**
1. From any page, press **MENU**. The options menu shows a list of optional features specific to that page.
2. Use the **ROCKER** to move the highlight up, down, right, or left on the menu to the option you want to select.
3. Press **ENTER** to select the feature. Another window with more options might appear. If so, select an option and press **ENTER** again.

**To exit a menu or return to the previous setting:**
Press **QUIT**. The **QUIT** key moves backward through your steps. Press **QUIT** repeatedly to return to the starting page.

**To select an on-screen button:**
On a page with on-screen buttons, use the **ROCKER** to highlight an on-screen button, and press **ENTER**.

To mark your current location as a waypoint, press and hold **ENTER/MARK** until the New Waypoint Page appears.

**To enter data in a data field:**
1. Use the **ROCKER** to highlight the data field and press **ENTER** to edit it.
2. Press up or down on the **ROCKER** to select characters. Press right to move to the next character or press left to move back to the previous character. If there are two lines of data, keep pressing right on the **ROCKER** to go to the next line.
Entering data

TIP: To clear the entire data field, highlight the left-most character field and press left on the ROCKER again.

3. Press ENTER.

Not all fields are programmable. When you are on a page with fields that are not selectable, the highlight skips over them.

Restoring Default Settings

You can restore factory defaults for the following Main Menu tabs: Track, Alarms, Display, Sound, and Setup. For more information about the Main Menu, see the “Main Menu” section beginning on page 66.

To restore default settings:
1. Press MENU twice to open the Main Menu.
2. Use the ROCKER to highlight a tab, and then press MENU to open the options menu.

3. Highlight Restore Default, and press ENTER.
Using the Main Menu

Use the Main Menu on your GPSMAP 278 to access various waypoint, system, navigation and interface management, and setup menus. Press the MENU key twice from any page to open the Main Menu. For more information, see the “Main Menu” section on page 66.

By default, the Main Menu tabs are shown as icons along the left side of the screen. You can change the Main Menu to show tabs in a text-only format.

To view the Main Menu icons in text only format:
1. Highlight the Display tab, and press ENTER.
2. Select the Main Menu field. Press ENTER.
3. Highlight Text Only, and Press ENTER.

To select a tab from the Main Menu:
1. From any page, press MENU twice to open the Main Menu.
2. Press up or down on the ROCKER to highlight a tab. The information for the highlighted tab automatically appears on the right. To highlight a sub tab, press left or right on the ROCKER, and then press up or down to select individual fields.
Using Simulator Mode

Simulator Mode is great for practicing with the unit if you are indoors or when satellite signals are not available. All waypoints and routes created in Simulator Mode are retained in memory for future use.

**NOTE:** Do not try to navigate using Simulator Mode because the GPS receiver is turned off. Any satellite signal strength bars shown are only simulations and do not represent the strength of actual satellite signals.

To turn on Simulator Mode:
1. Press **MENU** twice to open the Main Menu.
2. Highlight the **GPS** tab.
3. Press **MENU** to open the GPS tab options menu.
4. Highlight **Start Simulator**, and press **ENTER**.

**Entering a New Location**

Use the GPS options menu to enter a new location to simulate from.

To enter a new location using the map:
1. Highlight the **GPS** tab on the Main Menu.
2. Press **MENU** to open the options menu.
3. Highlight **New Location**, and press **ENTER**.
4. Highlight **Use Map**, and press **ENTER**.
5. Use the **ROCKER** to move the panning arrow to the location you want on the map, and press **ENTER**.
MARINE MODE

Your GPSMAP 278 comes preloaded with an enhanced worldwide basemap that depicts shorelines, roads, and surface features. The GPSMAP 278 is compatible with BlueChart g2 marine cartography.

Marine Mode Pages
Marine Mode has five main pages: Map, Compass, Highway, Active Route, and Position Data. An optional Sonar Page is available when a GSD 21 or GSD 20 is connected. See the “Setting Up and Using Sonar” section beginning on page 90 for more information.
Navigating to a Destination
You can navigate to your destination using the Map Page. As you travel, you see a magenta line that always runs from your current location to the destination or to the next turn on the Map Page. You can use the Map Page, Compass Page, or Highway Page to help navigate.

You can navigate to a destination using one of the following methods:

- Select a point on the map and press the NAV key (page 15).
- Press the NAV key to navigate a new route using the Find Menu, or to navigate a saved route or track (page 24).
- Press the FIND key to search for a particular item and create a route to it (see page 17).

Marine Mode and Automotive Mode are similar. Most of the features discussed here also apply to Automotive Mode.

Navigate Options Menu
Press NAV to open the Navigate options menu.

Go To Point—select a waypoint or point of interest from the Find menu to which to navigate (page 15).

Navigate Route—select a route to navigate (page 24).

Navigate Track (TracBack)—select a saved track to navigate (page 38).

MOB (Man OverBoard)—create a MOB waypoint and navigate to that location (page 16).

Stop (Resume) Navigation—stop or resume navigation (page 15).
To navigate (Go To) a point on the map:

1. Highlight a point to navigate to, and press NAV.

2. Highlight Go To <point name>, and press ENTER.

3. Follow the magenta line created on the Map Page.

To stop navigation:

1. While navigating to a point, press NAV.

2. Highlight Stop Navigation, and press ENTER.

**Man OverBoard (MOB)**

Use the MOB function to simultaneously mark your current location and create a direct route back to that location for quick response to emergency situations.

**To activate the MOB function:**

1. Press and hold the NAV/MOB key, or press the NAV/MOB key twice.

2. Press ENTER to confirm and begin navigating to the MOB location.

When a MOB is activated, a MOB waypoint with an international MOB symbol is created, and the unit begins actively navigating to that point. Use any of the navigation pages to guide you back to the MOB point. The MOB waypoint is stored in the waypoint list and can be deleted like any other waypoint.
Finding an Item

Use the Find menu to search for addresses, food & drink, fuel services, lodging, banks/ATMs, cities, shopping, stored waypoints, and points of interest (POIs). To open the Find menu, press the FIND key. The Find menu is comprised of several default categories, including Waypoints, Cities, Exits, Transportation, and Data, just to name a few. Additional categories appear depending on the optional BlueChart or MapSource data card in the unit.

To find an item and go to it:

1. Press FIND to open the Find menu.
2. Highlight a category, and press ENTER.
3. Press ENTER, and then spell the name of the item.
4. Select an item from the list, and press ENTER.
5. Highlight the Go To button, and press ENTER.
6. Follow the magenta line created on the Map Page.
Finding an Item From Another Location
You can use the Find menu to center your search around an item you just found. For example, you search for Restricted Areas and the search shows an “Anchoring Prohibited” search result. If you press FIND again, you will see “From Anchoring Prohibited” as the new search from point. You can also use the Find feature to center your search from any waypoint, route list entry, map item, or POI.

To find an item near another item:
1. Follow the steps on page 17 to find an item.
2. Press FIND to open the Find menu.
3. Select a category, and press ENTER. Items near the previously-selected item are shown in the search results list.

To find an item from another location on the map:
1. Move the arrow (pointer) to the location you want on the map, and press FIND.
2. Highlight a category, and press ENTER.
3. Highlight an item from the search results list, and press ENTER.

4. Press ENTER to go to the item.

To find an item near another location:

1. Press FIND.

2. Press MENU to open the options menu.

3. Highlight Near Other, and press ENTER.

4. Select a reference location on the map, and press ENTER. The list shows items nearest to the new map location.
Viewing Recently Found Items
The Recently Found Page shows a list of the items you have searched for or gone to recently.

To view a list of recently found items:
1. Press FIND to open the Find menu.
2. Highlight Recently Found, and press ENTER to open the list of recently found items.
3. Press MENU to open the options menu.
4. Select Show Find History to view the list of items you have searched for recently.
   OR
   Select Show Goto History to view the list of items you have recently created a Go To for (Go To History).
5. Highlight Remove Point, and press ENTER to delete the selected recently found point.
Viewing the Information Page

Each item on the map and each item listed in the results list has an Information Page.

To view details about an item:
1. Highlight a point on the map or in the search results list, and press ENTER.

An Information Page appears with details about the item in a tabbed format. Depending on the item selected, and if you are using optional BlueChart data cards, additional information is available for viewing the item on the Map, viewing a tide chart, viewing the list of maps on your data card, and viewing the next item in the search results list.

2. Press PAGE or QUIT to exit the Information Page. You can also highlight one of the on-screen buttons, and press ENTER.

Find Menu Options

To view additional Find menu options, press FIND, and then press MENU.

Enable Auto Arrange—automatically arranges the Find menu. When selected, Disable Auto Arrange and Restore Default options are available.

Near Other—select a new location from which to compile the Find items lists. Using the ROCKER, move the map arrow to the location you want, and press ENTER.

Map Information—shows information about the detailed map data stored on the data card and allows you to select which maps appear on the Map Page.

Additional selections are available on the options menu when you are navigating:

Near Next—compiles the Find items lists based on the next turn in the route.

Near Destination—compiles the Find items lists based on the route destination.

Near Current Route—compiles the Find items lists based on the active route.
Creating and Using Routes
You can create and store up to 50 reversible routes, with up to 300 points each.

Creating a New Route
Use the Route tab to create a route by selecting waypoints from the Find menu, or by selecting waypoints or map items from the Map Page.

To create a route using the Find menu:

1. Highlight the Route tab on the Main Menu.

2. Press MENU once to open the Route options menu.

3. Highlight New Route, and press ENTER.

4. Press ENTER to find items to add to the route.

5. Highlight OK, and press ENTER to add a route point.

6. Repeat step 5 to define additional route points.
To create a route using the map:

1. Highlight the Route tab on the Main Menu.

2. Press MENU once to open the Route options menu.

3. Highlight New Route, and press ENTER.

4. Highlight Edit on Map, and press ENTER.

5. Highlight a location on the map, and press ENTER.

6. Repeat step 5 to define additional route points.

NOTE: If you select an area of the map that is not a feature or waypoint, a new waypoint is created for that location. Press ENTER on the New Waypoint Page to save the location as a waypoint and continue adding points to your route. You can edit the properties of this waypoint as you can with any waypoint.
Navigating a Saved Route
Use the Navigate Route option to select and navigate a saved route.

To navigate a saved route:
1. Press the NAV key.
2. Highlight Navigate Route, and press ENTER.
3. Highlight a route, and press ENTER.

To navigate a new route using the Find menu:
1. Press the NAV key.
2. Highlight Go To Point, and press ENTER to open the Find menu.
3. Highlight Waypoints, and press ENTER.
4. Select a waypoint from the list, and press ENTER to open the Waypoint Review Page.
5. With the Go To button highlighted, press ENTER to begin navigation.
**Editing a Route**

After you create a route, use the Route Review Page to edit, change the name, and review route points of a selected route.

**To change the name of the route:**
1. Press **MENU** twice to open the Main Menu. Highlight the **Route** tab.
2. Use the **ROCKER** to highlight the name of the route, and press **ENTER**.
3. With the Route Review Page open, highlight the route name field at the top of the page, and press **ENTER**.
4. Enter the route name, and press **ENTER**.

**To review individual route points:**
1. Press **MENU** twice to open the Main Menu. Highlight the **Route** tab.
2. From the Route List Page, use the **ROCKER** to highlight the name of the route, and press **ENTER**.
3. From the Route Review Page, highlight a point, and press **ENTER**.
4. On the Point Review Page, choose **Next** (highlight the next point on the route list), **Show Map** (show the point on a map window), or **Save** (save the point as a waypoint) and press **ENTER**. If the route point is a user waypoint, you can edit any of the waypoint properties on the Waypoint Page (see the “Creating and Using Waypoints” section beginning on page 28).

When you return to the Route Review Page, the next point in the route is automatically highlighted. You can review each point on the route by pressing **ENTER** repeatedly.
To add points to a route:
1. Press **MENU** twice to open the Main Menu. Highlight the **Route** tab.
2. Select a route, and press **ENTER**.
3. Highlight the spot in the route that you want to add the new point. (The new point is added before the highlighted route point.)
4. Press **MENU**.
5. Highlight **Insert Waypoint**, and press **ENTER**. The Find Menu opens for you to search for and select the point you want to add to the route.
6. In the Point Review Page, highlight **OK**, and press **ENTER** to add the new point to the route.

To edit the route on the map:
1. Press **MENU** twice to open the Main Menu. Highlight the **Route** tab.
2. Select a route and press **ENTER**. Press **MENU** to open the Route Review Page options menu.
3. Highlight **Edit on Map**, and press **ENTER**.
4. Use the **ROCKER** to select a location on the route (the route turns white when the arrow is over the route), and press **ENTER**.
5. Use the **ROCKER** to drag the route to the new point location, and press **ENTER**.
6. Repeat steps 4 and 5 until all points are added to the route. Press **QUIT** when finished.
You can enter information about your trip so the GPSMAP 278 can estimate information about your trip.

**To plan your route:**
1. Open the Route Review Page options menu.
2. Highlight **Plan Route**, and press **ENTER**.
3. Enter the data for speed and fuel flow. You also can enter the date and time of your departure. Press **QUIT** to return to the Route Review Page.

**NOTE:** Fuel flow rates are measured in “units per hour.” System setting changes for units of measure (statute, nautical or metric) do not affect the fuel flow measure. You should enter fuel flow rates based on information for your vehicle (such as the operator’s manual or performance specifications) and make note of the units of measure (gallons or liters).

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**Manually Transitioning to the Next Waypoint**

From the Route tab option menu, highlight **Set Up Routes** and press **ENTER** to set the route leg transition (or waypoint transition). Select **Distance** to enter a radius so that when you are within the entered distance, the GPSMAP 278 leads you to the next point on your route.

When you select **Manual**, you can transition to the next waypoint anytime while navigating a route. While you are navigating the route, open the Active Route Page. Press **MENU**. Highlight **Next Route Waypoint** and press **ENTER** to have the GPSMAP 278 start routing you to the next point in your route.
Creating and Using Waypoints

The GPSMAP 278 stores up to 3,000 alphanumeric waypoints with a user-defined icon, comment, elevation, depth, and temperature available for each waypoint. You can create waypoints using three basic methods:

- **ENTER/MARK**—use the ENTER/MARK key to mark your present location.
- **Graphically**—use the map display to define a new waypoint location.
- **Manually**—enter waypoint location coordinates manually.

### Marking Your Present Location

Use the ENTER/MARK key to capture your present location to create a new waypoint. You must have a valid position (2D or 3D) fix to mark your present location.

**To mark your present location:**

1. Press and hold the ENTER/MARK key until the New Waypoint Page appears, then release it. A default four-digit name and symbol are assigned for the new waypoint.

   ![New Waypoint Page](image)

2. To accept the waypoint with the default information, highlight **OK**, and press **ENTER**.

   To change any information on the New Waypoint Page, highlight the appropriate field and press **ENTER**. After entering and confirming your changes, highlight **OK**, and press **ENTER**.
Creating Waypoints Using the Map

You can quickly create a waypoint using the Map Page. When you pan the map and move the arrow over a map item, you see a highlighted description of that item. The GPSMAP 278 uses the map item text shown on the map as the default name and symbol for the new waypoint.

To create a new waypoint using the Map Page:

1. Use the ROCKER to move the arrow to the map location or map feature you want.
2. Press and quickly release ENTER/MARK to capture the arrow location. Pressing and holding ENTER/MARK marks your current location, not the arrow’s location.
3. If you have highlighted a map feature, an information page appears after you press ENTER. Use the ROCKER to highlight Save, and press ENTER to save the item as a waypoint. The New Map Waypoint Page appears.

To accept the waypoint with the default information, highlight OK, and press ENTER.

To change any information on the New Map Waypoint Page, highlight the appropriate field and press ENTER. After entering your changes, highlight OK, and press ENTER.
Creating a Waypoint by Entering Coordinates
You can manually enter location coordinates to create a waypoint. This method is useful for creating a waypoint at a specific latitude/longitude position from a chart.

To create a new waypoint by entering location coordinates:
1. Press ENTER/MARK to create a waypoint. The new waypoint is created with the next available waypoint number and the receiver’s last know location as the default location.
2. On the New Map Waypoint Page, highlight the Location field, and press ENTER.
3. Use the ROCKER to enter location coordinates and press ENTER when finished.

To change any of the other information on the New Waypoint Page, highlight the appropriate field and press ENTER. After entering your changes, highlight OK, and press ENTER.

Reviewing a Waypoint
After you create and store a waypoint, you can modify, review, rename, move, or delete it at any time using either the Waypoint Review Page or Waypoint Edit Page.

To access the Waypoint Review Page:
Highlight a waypoint on the Map Page, and then press ENTER to open the Waypoint Review Page. If the waypoint is located on a map feature or MapSource or BlueChart feature, the Waypoint Review Page might include additional tabs containing information about other features at that location.
To access the Waypoint Edit Page:
1. Highlight the Points tab on the Main Menu, and then select a waypoint from the list.
2. Press ENTER to open the Waypoint Edit Page.

**NOTE:** If the waypoint is located on a map feature or MapSource or BlueChart feature, the Waypoint Edit Page does not show the details of the other map features.

**Adding a Waypoint to a Route**
Use the Append to Route option to add the selected waypoint to the end of a route. This option is available only when you are not navigating. When you are navigating to a destination, Add to Current Route appears. The selected waypoint is added to the current route before the route destination.

To add a waypoint to the end of the route:
1. Open the Waypoint Edit Page, and press MENU.
2. Select Append To Route. The Select Route window appears.
3. Highlight a route or select New Route, and press ENTER.
4. Highlight OK, and press ENTER to save the waypoint.
**Averaging the Waypoint’s Location**

**Average Location** makes the unit take several sample location measurements for the waypoint and recalculate for a more accurate location reading.

**NOTE:** You must have a GPS satellite fix before you can average a waypoint’s location.

**To calculate the average location:**
1. Open the Waypoint Page, and press **MENU**.
2. Select **Average Location**, and press **ENTER**. The Average Location window appears. The fields change as the unit calculates the average location of the waypoint.
3. Press **ENTER** to save the location.

**Projecting a Waypoint**

You can create a new waypoint by projecting the distance and bearing from a specific location to a new location.

**To create a new waypoint by projecting its location:**
1. Create a waypoint. The new waypoint uses the next available waypoint number and the receiver’s last known location as the default location.
2. Highlight the **Points** tab on the Main Menu, and then select a waypoint. Press **ENTER**.
3. Press **MENU** to open the New Waypoint Page options menu.
4. Highlight **Project Location**, and press **ENTER**.
5. To change the location from which you are projecting the new waypoint, highlight the **From** field, and press **ENTER**.

6. Select the point that you will project your new waypoint from. For more information see the “Finding an Item” section on page 17.

7. To adjust the distance that the new waypoint will be projected beyond the original waypoint, highlight the **Distance** field, and press **ENTER**. Enter the projection distance, and press **ENTER**.

To adjust the bearing that the new waypoint will be projected from the original waypoint, highlight the **Bearing** field, and press **ENTER**. Enter the bearing, and press **ENTER**.

8. When you have adjusted all elements of the projected location, highlight **Save**, and press **ENTER**.

9. Make any other changes to the new waypoint data (such as the name or symbol); highlight **OK**, and press **ENTER**.

**Editing a Waypoint**

The User sub tab shows a master list of all waypoints stored in memory. From the User list, you can review, edit, rename, or delete individual waypoints or delete all user waypoints.

The number of stored and available waypoints is shown at the bottom of the User sub tab. Stored waypoints arranged in alphanumerical order.

**To navigate (Go To) a waypoint from the Points tab:**

1. Select the **Points** tab on the Main Menu, and then highlight the **User** sub tab.

2. Highlight the waypoint you want in the list.

3. Press **NAV** to open the Navigate Menu. Highlight **Go To <Point Name>**, and press **ENTER**.

**To edit a waypoint:**

1. Open the Waypoint Review or Waypoint Edit Page.

2. Highlight the waypoint name, symbol, or field you want to change, and press **ENTER**.

3. Use the **ROCKER** to select a symbol or enter data, and press **ENTER** when finished.
To edit the next waypoint in the list:
1. Highlight Next and press ENTER. The Waypoint list appears with the next waypoint highlighted.
2. Press ENTER to edit that waypoint.

Organizing Waypoints into Categories
You can organize your waypoints into categories, to help manage your waypoints. For example, you can create a Vacation category that stores all of the waypoints you will use for your vacation. When the vacation is over, you can delete all the waypoints in that category. You can create up to 15 categories.

To create a category:
1. From any of the waypoint pages or the Points tab, press MENU to open the options menu.
2. Select Edit Categories, and press ENTER.
3. Highlight Add, and press ENTER.
4. Use the ROCKER to enter a name for the category.
5. Highlight Save, and press ENTER.

To assign a category to a waypoint:
1. Open the Waypoint Edit Page. (You can also change the category on the New Waypoint Page.)
2. Select the Category field, and press ENTER.
3. Select the category to which you want to assign the waypoint, and press ENTER.
Select the category to which you want to assign the waypoint.

Deleting Waypoints
You can delete waypoints from the waypoint list in the Points tab or from the Waypoint pages. To delete a waypoint from the Waypoint Page, use the ROCKER to highlight the on-screen Delete button and press ENTER.

NOTE: When you delete a waypoint from the list, it cannot be recovered from the unit. Back up important waypoints to a computer using the PC cable and interface software, such as MapSource Trip & Waypoint Manager, or write them down.

To delete a category:
1. With the Waypoint Categories window open, highlight the category you want to delete, and press MENU.
2. Select Delete Category, and press ENTER.
3. Press ENTER again to delete the category.

To delete a waypoint from the User Points tab:
1. From the Points tab, use the ROCKER to highlight the waypoint you want to delete.
2. Press MENU, highlight Delete Waypoint, and press ENTER. A confirmation message appears.
3. Press ENTER to confirm.
To delete waypoints by symbol or category:
1. On the User sub tab, highlight a waypoint to delete, and press MENU.
2. Highlight Delete by Symbol or Delete by Category, and press ENTER.
3. When deleting by symbol, highlight the symbol of the waypoint you want to delete, and press ENTER. When deleting by category, select the category you want to delete from the list, and press ENTER.
4. Highlight OK, and press ENTER to confirm. Choose Cancel or press QUIT to exit without deleting the waypoint.

To delete waypoints by distance:
1. On the User sub tab, highlight a waypoint to delete, and press MENU.
2. Highlight Delete By Distance, and press ENTER.
3. Select Less Than or More Than and enter the distance using the ROCKER.
4. You can select a waypoint or point of interest as the From location. Highlight the From field and press ENTER. From the Find menu, select a location and press ENTER. When OK is highlighted, press ENTER.
5. Highlight Delete and press ENTER to delete all waypoints within the set location. Choose Cancel or press QUIT to exit without deleting the waypoints.

Proximity Points
Use the Proximity Points tab to define an alarm circle around a stored waypoint location. The alarm circle can help you avoid reefs, rocks, or restricted waters. Up to 100 waypoints can be listed with a maximum alarm radius of 99.99 nautical miles, statute miles, or kilometers.

If a proximity alarm circle overlaps an existing alarm circle, a “Proximity Overlaps Another Proximity Waypoint” message appears. Because the unit only alerts for one of the overlap points, use caution when navigating in these areas. If you enter an alarm circle overlap, you are only alerted to the closest proximity waypoint.

To turn proximity alarms on or off:
1. Highlight the Points tab on the Main Menu, and then select the Proximity sub tab.
2. Use the ROCKER to highlight the field below Proximity Alarm, and press ENTER.
3. Select the On or Off setting and press ENTER.

To add a proximity waypoint:
1. From the Proximity Points tab, use the ROCKER to highlight an empty line on the Proximity List, and press ENTER. The Find Menu appears.
2. Select a waypoint or point of interest from the Find menu.
3. With OK highlighted, press ENTER to select the point. The distance field is now highlighted. Press ENTER to begin entering the proximity radius.
4. Use the ROCKER to enter a distance value (up to 99.99 units) and press ENTER.

To clear one or all proximity waypoints from the list:
1. Highlight the Points tab on the Main Menu, and then select the Proximity sub tab.
2. Use the ROCKER to highlight the proximity waypoint to clear, and press MENU.

3. To clear a single alarm, highlight Remove Point, and press ENTER. To clear all proximity waypoints, select Remove All, and press ENTER.
4. Use the ROCKER to highlight OK, and press ENTER to confirm.
Managing Your Tracks
The GPSMAP 278 draws an electronic breadcrumb trail or track log on the Map Page as you travel. The track log contains points along its path, including time, and location for each point.

The track log starts recording as soon as the GPSMAP 278 gets a location fix. For the best results, clear the track log before you start traveling because when the track log is full, new track points overwrite the oldest track points.

The percentage of memory used by the current track log appears at the top of the Active tab. After the track log is cleared, it shows zero percent. When the track log reaches 100%, the most recent track points start to overwrite the least recent track points (if Wrap is selected for Record Mode). To avoid losing track points, save the track log when it approaches the 99% mark.

Setting Up and Saving Your Tracks
You must save the track log before you can use the Navigate Track feature. The Save feature allows you to store up to 15 track logs from certain times and dates.

To access the Track tab:
1. Press Menu twice to open the Main Menu.
2. Use the ROCKER to highlight the Track tab.

Active Track Tab

Record Mode—Wrap records over the oldest tracks when the track log reaches 100%. Fill records a track log until the track log is full (100%). When Off is selected, the unit does not record tracks.

Interval—Distance records track points after a specified distance is traveled. Time creates track points after a specified time has elapsed. Resolution records track points based on the resolution. The higher the resolution entered, the more points the unit creates to make the track.

Color—select a color for the track when it appears on the map.

Value—records a track according to the Interval and Value. Enter a specific distance, time, or resolution.
To clear the track log:
1. Highlight the Track tab, on the Main Menu, and then highlight the Active sub tab.
2. Highlight the Clear button, and press ENTER. A confirmation message appears.
3. Highlight OK, and press ENTER.
4. Press QUIT to exit.

To save the entire track log:
1. Highlight the Track tab, on the Main Menu, and then highlight the Active sub tab.
2. Select Save, and press ENTER. A message appears asking if you want to save the entire track.
3. To save the entire track, highlight Yes, and press ENTER.
4. Highlight OK and press ENTER to save the track.
**Saved Tracks**

The Saved sub tab lists all of the saved tracks in your unit. Press **MENU** to open the Saved tab options menu.

- **Review on Map**—shows the highlighted track on the Map Page.
- **TracBack**—navigates the track. You can either navigate the track as it is saved, or you can navigate the track in reverse.
- **Delete Track**—erases the highlighted track from the unit’s memory.
- **Delete All**—erases all tracks from the unit’s memory.

**To edit a track:**

1. Highlight the **Track** tab on the Main Menu, and then select the **Saved** sub tab.
2. Select a track to edit, and press **ENTER**.
3. Highlight the **Name** field, and press **ENTER**. Use the **ROCKER** to change the name, and press **ENTER**.
4. Select a different display color to show the track on the map.
5. Highlight the box next to **Show on Map**, and press **ENTER** to show the track on the map.
6. To begin a TracBack, highlight **TracBack**, and press **ENTER**.
7. To view the track on the map, highlight **Map**, and press **ENTER**. Press **QUIT** to return to the Track tab.
8. Highlight **OK**, and press **ENTER** to save your changes.
Navigating a Saved Track

You can save your track log to use later as a TracBack, which reduces your track log into a route with up to 300 turns. When initiated, a TracBack route leads you back to the oldest stored track log point. It is a good idea to clear the existing track log before you start your current trip. Also, you must save an active track log before you can navigate it as a TracBack.

To activate a TracBack using the NAV key:
1. Press NAV, highlight Navigate Track, and press ENTER.
2. Highlight the track you want to navigate, and press ENTER.
3. Use the ROCKER to select the point you want to navigate to (TracBack to), and press ENTER.

TracBack Tips

When a TracBack is initiated, the GPSMAP 278 divides the track into segments called legs. Up to 300 temporary turns are created to mark the most significant features of the track in order to duplicate your exact path as closely as possible. To get the most out of the TracBack feature, remember these tips:

- Always clear the track log at the point that you want to go back to (such as a dock or campsite).
- The Record Mode option on the Active Track tab must be set to Fill or Wrap.
- If the track log Interval option on the Active tab is set to the Time option, the route might not navigate your exact path (keep the interval set to Resolution for best performance).
- If the receiver is turned off or satellite coverage is lost during your trip, TracBack draws a straight line between any point where coverage was lost and where it resumed.
- If the changes in distance and direction of your track are too complex, 300 waypoints might not mark your path accurately. The receiver then uses the most significant points of your track so there are fewer changes in direction.
MARINE MODE PAGES

Five pages are available in Marine Mode—Map, Compass, Highway, Active Route, and Position Data. An optional Sonar Page is available when a GSD 20 or GSD 21 sounder module is connected.

Map Page

When you turn on the GPSMAP 278, the Map Page appears after the unit acquires a satellite signal. The position arrow (▲) shows your current location on the map.

The Map Page shows map information (digital cartography) that includes navaids, lakes, rivers, coastlines, cities, and highways. Use the zoom keys (IN and OUT) to adjust the Map Page scale.

Map Page Options Menu

Press MENU to open the options menu.

Declutter On (Off)—hide unwanted map items such as highways to declutter the display (page 47).

Measure Distance—measure distance between two map items (page 48).

Show (Hide) Heading Line—turn the heading line on or off.

Set Up Map—set up how the Map Page appears (page 44).

Set Up Page Layout—select the page layout (page 43).

Change Data Fields—change onscreen data fields (page 43).

Map Information—review maps loaded on your GPSMAP 278 (page 44).
Changing the Page Layout and Data Fields

By default, five data fields appear on the right side of the Map Page. You can select how the fields are shown and what information each field contains.

To change the map page layout:
1. Press MENU to open the options menu.
2. Highlight Set Up Page Layout, and press ENTER.
3. Select a page layout option, and press ENTER.

To change a data field display:
1. Press MENU to open the options menu.
2. Highlight Change Data Fields, and press ENTER.
3. Highlight the data field to change, and press ENTER.
4. Press up or down on the ROCKER to highlight the type of data you want to show, and press ENTER.
5. Press QUIT to exit.
Setting Up the Map Page
Use the Set Up Map option to set how items appear on the Map Page.

To change a map setup option:
1. On the Map Page, press MENU to open the options menu.
2. Highlight Set Up Map, and press ENTER.
3. Press left or right on the ROCKER to highlight a tab; press up or down on the ROCKER to highlight to the field you want to change, and press ENTER.
4. Press up or down on the ROCKER to highlight a setting, and press ENTER.
5. Press PAGE or QUIT to exit.

Viewing Additional Map Data
Use the Map Information page to view the data loaded on your GPSMAP 278 unit and data card.

To review/change map information:
1. On the Map Page, press MENU.
2. Highlight Map Information, and press ENTER. The first page shows the Map Families stored on the data card and unit and whether they are shown on the Map Page.
3. To change the setting for a map family, highlight the box next to the map family name and press ENTER to select (check mark) or deselect (no check mark) the Show setting.
4. To view the list of maps within a map family, highlight the name of the map family, and press ENTER.

Map Information Page
5. When using map loaded to a data card, you can view detailed information about an individual map, highlight the Map Name, and press ENTER. Highlight OK, and press ENTER to exit the Map Information page.

6. To select/deselect individual maps (data card maps only) for display on the Map Page, highlight the box next to the map you want, and press ENTER to check/uncheck the Show box.
   OR
   Press MENU, select one of the options (Show All, Hide All, or Show Defaults), and press ENTER.

7. Press QUIT to exit the Map Information Page.

**Map Orientation**

There are three map orientation options: North Up orients the map like a paper map. Track Up orients the map in the direction of travel. Course Up orients the map so the direction of navigation is always up. When using Track Up or Course Up, the North arrow indicates the orientation. To change the map orientation, press MENU to open the Map Page. Press MENU again. Select Set Up Map and press ENTER. See page 43 for information.

**Zooming In and Out of the Map**

The map display has 28 available zoom scales ranging from 5 m to 800 nm (5 m to 1200 km). The map scale is controlled by the IN and OUT keys, with the current scale shown at the bottom right of the data window.

**NOTE:** The scale value represents the distance from one end of the scale bar (3m) to the other.

To select a map scale (zoom in and out):
Press the OUT key to zoom out; press the IN key to zoom in.

The GPSMAP 278 has a built-in worldwide land database. The unit shows cartography as long as chart information is available for the zoom scale you selected.
Map coverage conforms to the following conditions:

- Cartography is shown when the selected zoom scale is covered by either the internal basemap or other MapSource data loaded onto a data card.
- When the selected zoom scale is covered by both the internal database and data card map information, the cartography with the best resolution appears.
- When the selected zoom scale exceeds the resolution of the data in use, “overzoom” appears below the map scale.

No Additional Data is Available

- When internal data (such as MapSource data) is used, “detailed map” appears below the map scale.

Panning the Map

Use the panning arrow \( \rightarrow \) to pan the map to view other map areas. As you pan past the edge of the current map display, the screen moves to provide continuous map coverage. The position icon \( \uparrow \) stays in your present location and might not be visible on the screen when you pan the map.

To pan the map:

Press up, down, right, or left on the ROCKER. The panning arrow moves the map so you can view different parts of the map.

As you move the arrow, the distance and bearing from your present location to the arrow appears in the data window, along with the arrow’s position coordinates. When you zoom in pan mode, the arrow stays centered on the screen. When the arrow is stationary, fixed coordinates appear in the position field, and the distance and bearing from your present location update as you move.
To re-center your position on the screen:
Press QUIT. The map automatically moves to show your present location, and the unit returns to position mode.
You can also use the arrow to select on-screen map items, which allows you to review a selected item directly from the map display.

To view details about an on-screen point:
1. Use the ROCKER to move the arrow to a waypoint or map item. If several items are grouped closely together, zoom in closer for a better view.
   When a waypoint or map item is selected, it is highlighted on-screen with the name and location shown at the top of the screen, along with the distance and bearing from your current location.
2. Press ENTER to view more information about the point. The information and on-screen buttons shown vary depending on the type of item selected. In some cases, additional information tabs appear at the top of the Information Page or Waypoint Page.
3. Use the ROCKER to highlight the extra tabs and view the information.

Clearing Unwanted Details from the Map
You can remove items from the Map Page display (declutter the display) to remove unwanted items, such as highways.

To declutter the Map Page:
1. On the Map Page, press MENU to open the options menu.
2. Highlight Declutter, and press ENTER.
3. Press ENTER again to restore the detail to the map display.
**Measuring Distance**

You can measure the distance and bearing between two map items.

**To measure the bearing/distance between two points:**

1. On the Map Page, press **MENU** to open the options menu.
2. Highlight **Measure Distance**, and press **ENTER**. An on-screen arrow appears on the map at your present location with **ENT REF** below it.
3. Move the arrow to the reference point (the starting point that you want to measure from), and press **ENTER**. A push pin icon marks the starting point.
4. Move the arrow to the point want to measure to. The bearing and distance from the reference point and arrow coordinates appear in the data window at the top of the display.
5. Press **QUIT** to finish.
Compass Page
During active navigation, the Compass Page guides you to your destination with a graphic compass display and a bearing pointer. When the pointer is pointing straight up, you are heading directly to your destination.

The middle of the page features a rotating compass ring that shows your course over ground (track) while you are moving. Your present course over ground is indicated at the top of the compass ring. The direction of the destination (bearing) relative to the course over ground is indicated by an arrow in the middle of the compass ring and a course to steer “bug” on the outside of the compass ring. The course to steer represents the direction to steer to get back to the course line.

If the arrow points up, you are going directly to the waypoint. If the arrow points any direction other than up, turn toward the arrow until it points up, and then continue in that direction.

NOTE: You must be moving for the compass to accurately update and show your heading.

Turning On the Compass Page
The Compass Page is on by default in Marine Mode but off by default in Automotive Mode.

To show the Compass Page in Automotive Mode:
1. Highlight the Display tab on the Main Menu
2. Highlight the Compass Page field, and press ENTER.
3. Select On, and press ENTER.
Compass Page Options Menu

Use the options menu on the Compass Page to customize the Compass Page. For definitions of data field options, see page 120.

Press MENU to open the Compass Page options menu.

Set Up Page Layout—select the page layout.
Show Course Pointer/Show Compass—toggle between showing the Course Pointer, which shows how far off you are from your course and how to get back on course, or show the compass arrow. The Course Pointer is also referred to as a CDI or Course Deviation Indicator.
Show (Hide) Bug Indicator—shows the course to steer bug indicator (the purple tick mark on the compass ring).
Change Data Fields—change onscreen data fields.

Using the Marine Timer

The Marine Timer, specifically designed for sail boat racing, allows you to easily count up or down by specified time increments. As is common in sail boat racing, there is often a 5-minute warning countdown, followed by a 4-minute preparation countdown, and finally a one-minute final countdown. Then during the race, mariners might want to count up to keep track of their time.

You can use your GPSMAP 278 to perform each of these different countdowns.

To open the Marine Timer:
1. Press MENU on the Compass Page.
2. Use the ROCKER to highlight Set Up Page Layout, and press ENTER.
3. Highlight 2 Columns With Timer, and press ENTER. The Marine Timer appears in the lower-right corner.
To use the Marine Timer:
1. Press the ROCKER up or down to select the time you want to count. Five (5) minutes is the default.
2. Press ENTER to start the timer. Use the ROCKER during the timing to quickly select a different length of time.
3. Press ENTER to stop timing.

To set the Marine Timer:
1. Highlight the Setup tab on the Main Menu, and then select the Timers sub tab.
2. Highlight Stop next to Marine to change the timer’s behavior.
3. Highlight the time field, press ENTER, and then enter a new time.

As discussed previously, the timer is set to count down five minutes. If you want to change the length of time and the behavior or the timer, open the Timers Setup tab on the Main Menu.

NOTE: You can set the timer countdown for up to 60 minutes.
Highway Page

The Highway Page is available in both Marine Mode and Automotive Mode.

When you are navigating, the Highway Page provides digital and graphic steering guidance to the destination. The right side of the page features user-selectable data fields showing useful navigation information. The compass ribbon at the top of the page shows your current heading, represented by the violet bar. The red vertical bar represents the bearing to your course. To stay on course, steer toward the red vertical indicator (or arrows) until it lines up with the violet bar in the middle. The bottom section of the screen provides visual guidance to the waypoint on a graphic highway display. The line down the center of the highway represents your desired track line.

As you head toward your destination, the highway perspective moves to indicate your progress to the waypoint and which direction you should steer to stay on course. If you are navigating a route, the Highway Page shows each route waypoint in sequence connected by a black “road” with a white line down the middle, which is your desired track line. Nearby waypoints not in the active route can also be shown. You can zoom in or out to show a larger or smaller view of the highway.

To hide/show the Highway Page:
1. Highlight the Display tab on the Main Menu.
2. Highlight the Highway Page field, and press ENTER.
3. Select Off to hide or On to show, and press ENTER.

Using the Highway Page

To stay on course, steer toward the violet bar (or arrows) until it lines up with the red bar in the middle. The bottom section of the screen provides visual guidance to the waypoint on a graphic highway display. The line down the center of the highway represents your desired track line.

As you head toward your destination, the highway perspective moves to indicate your progress to the waypoint and which direction you should steer to stay on course. If you are navigating a route, the Highway Page shows each route waypoint in sequence connected by a black “road” with a white line down the middle, which is your desired track line. Nearby waypoints not in the active route can also be shown. You can zoom in or out to show a larger or smaller view of the highway.

To change the highway perspective scale:
Press IN to zoom in; press OUT to zoom out.
Highway Page Options Menu

Use the Highway Page options menu to define the data fields and select which waypoints and tracks appear on the screen. The data fields, located along the right side of the page, provide various types of useful data.

Press MENU to open the Highway Page options menu.

Set Up Page Layout—select the page layout.

Change Data Fields—change onscreen data fields.

Set Up Highway—shows an options menu with two sub tabs: Line and Waypoint. Each tab has on/off settings for options including enabling the line for the Active Leg and Track Log.
**Active Route Page**

When you are navigating a route using your GPSMAP 278, the Active Route Page shows each point (waypoint or map item) of the active route, with the point name, course, distance, and several other fields of information. The current destination point, the active point, is marked with an arrow icon. As you navigate a route, the list automatically updates to indicate the next active point. The Active Route and Route Review Pages share many of the same features and options.

**Active Route Page Options**

Press **MENU** to open the Active Route Page options menu.

- **Deactivate**—stop route navigation.
- **Edit on Map**—edit the route on the map. See page 23.
- **Add Waypoint**—insert a point before the highlighted waypoint or add a point to the end of the route.
- **Remove Waypoint**—delete a selected waypoint from a route.
- **Invert**—reverse the order of the route.
- **Plan Route**—enter information about your route to more accurately provide you with arrival times.
- **Change Data Fields**—customize the data fields shown on the Active Route Page.
Position Data Page
The Position Data Page shows important navigation data while navigating a route in Marine Mode. By default, the Position Data Page shows a compass ribbon, your current latitude and longitude, date and time, your location in relation to a prominent nearby landmark such as a waypoint or city, and eight user-selectable data fields. The compass ribbon appears at the top of the page to show your current heading with a red, vertical bar. To stay on course, steer toward the violet bar (or arrows) until it is aligned with the red bar.

Position Data Page Options
Press MENU to open the Position Data Page options menu.

Change Nearest Type—specify the type of item use as the nearest item (shown in the lower-left data field). The choices vary based on the current usage mode.

Reset Trip—clear trip information, except the maximum speed and the odometer.

Reset Max Speed—clear the maximum speed.

Reset Odometer—clear the running total of the distance traveled since the odometer was last reset.

Reset All—clear all trip information including the maximum speed and odometer.
Your GPSMAP 278 comes preloaded with City Navigator Europe NT v 9.0, which contains detailed maps of major metropolitan areas in Europe, including motorways, national and regional thoroughfares, local roads, and points of interest such as food and drink, lodging, border crossings, petrol stations, hospitals and more.

Automotive Mode Pages
Automotive Mode has two main pages (Map and Trip Computer) that are always available. Optional Highway and Compass pages can be turned on in Automotive Mode. When you are actively navigating, the Current Route Page is available if you are navigating a turn-by-turn route. The Active Route Page is available if you are navigating off-road.
Navigating to a Destination
You can navigate to your destination in Automotive Mode using the Map Page. As you travel, your GPSMAP 278 guides you to your destination with voice prompts, arrows, and directions along the top of the screen. When you are actively navigating, you see a magenta line that always runs from your current location to the destination or to the next turn on the Map Page. You can use the Map Page, Compass Page or Highway Page, to help navigate.

You can navigate to a destination using one of the following methods:

- Select a point on the map and press the NAV key.
- Press the NAV key to navigate a new route using the Find Menu, or activate a saved route or track.
- Press the FIND key to search for a particular item and create a route to it.

Navigate Options Menu
Press NAV to open the Navigate options menu.

Go To Point—select a waypoint other point from the Find menu to which to navigate.

New Route—create a new route (page 59).

Custom Avoids—set up roads to avoid when navigating (page 61).

Detour—create a detour route while navigating (page 62).

Edit Vias—add points through which you want to travel when navigating (page 62).

Navigate Route—select a route to navigate. (Page 60)

Navigate Track (TracBack)—select a saved track to navigate (page 41).

Stop (Resume) Navigation—start or stop navigating (page 58).
To navigate (Go To) a point on the map:

1. Highlight a point to navigate to, and press NAV.

2. Highlight Go To <point name> and press ENTER.

3. Follow the magenta line created on the Map Page.

Stopping and Resuming Navigation

When navigating to a point, you can stop navigation. For example, if you are on a long car trip, but you want to stop for dinner, you can stop navigation and resume after dinner.

To stop navigation:

1. While navigating to a point, press NAV.

2. Highlight Stop Navigation, and press ENTER.

3. Highlight Resume Navigation, and press ENTER.
To create a new route:
1. Press NAV to open the Navigate menu.
2. Highlight New Route, and press ENTER.
3. From the Find menu, highlight Waypoints, and press ENTER. (You can also choose to go to other points, such as Cities or Exits from this list. The steps vary only slightly from those listed for waypoints.)
4. Select a waypoint from the list, and press ENTER to open the Waypoint Review Page.
5. Highlight the Go To button, and press ENTER to begin navigation.

To go to a destination using the Find menu:
1. Press FIND to open the Find menu.
2. Using the ROCKER, highlight a category, such as Food & Drink, and press ENTER.
3. Press ENTER and use the ROCKER to begin entering the letters contained in the item name. The list begins to sort by the items which contain the letters you are entering. Press ENTER when finished.
4. Highlight the item you want from the list, and press ENTER.
5. Highlight the Go To button, and press ENTER.

For complete information about finding an item, see the “Finding an Item” section on page 17.
Following a Saved Route

Use the Navigate menu to follow a saved track or route. If you want to follow roads on your route, press MENU and select Follow Roads on the Active Route Page.

To follow a saved route in Automotive Mode:
1. Press NAV to open the Navigate menu.
2. Highlight Navigate Route, and press ENTER.
3. Highlight the route you want to navigate, and press ENTER.
4. Press MENU to open the options menu.
5. Highlight Follow Roads, and press ENTER to create a turn-by-turn route (auto-route), which appears in the Current Route Page.

You can also navigate a saved route from the Route tab on the Main Menu.
Editing Your Route
When you are navigating a route, you can edit that route. You can add areas and roads to avoid as well as temporary detours to your current route. You can also add stops along your trip, called Via Points.

While navigating, press NAV to open the Navigate menu.

Entering Custom Avoids
The Custom Avoids feature allows you to enter specific areas and roads to avoid when navigating. Custom avoids apply to all routes, but detours apply to only the active route. You can add custom avoids while you are navigating a route or before you navigate.

To enter a custom avoid:
1. Press NAV while navigating to a destination.
   OR
   Open the Map Page, and press MENU.
2. Select Custom Avoids, and press ENTER.
3. Press ENTER when the Add Avoid button is highlighted.
4. Select Avoid Road or Avoid Area, and press ENTER.
5. Use the ROCKER to move the arrow to the first point in the avoidance area. Press ENTER to select the first point.
6. Move the arrow to the end point, and press ENTER. During route calculation and navigation, the GPSMAP 278 avoids the area within the box or the selected area of the road.
7. When finished, highlight the OK button, and press ENTER.
Creating a Detour
If there is road construction or some other form of a detour while navigating a route, you can have your GPSMAP 278 create a detour route for you.

To create a detour:
1. While navigating a course, press **NAV**.
2. Select **Detour** from the Navigate menu.
3. Select a distance, and press **ENTER**. The GPSMAP 278 recalculates your course based on your detour distance.
4. To end the detour manually, press **NAV** again, and select **Cancel Detour**.

Adding and Editing Stops (Via Points)
You can add Via Points—points through which you would like to travel—to your route using the **Edit Vias** option.

To add Via Points to your route:
1. While navigating your route, press **NAV** to open the Navigate menu.
2. Use the **ROCKER** to select **Edit Vias**, and press **ENTER**. The Add/Edit Vias window opens.
3. Highlight **Add Via Point**, and press **ENTER**.
4. From the pop-up window, highlight either **Use Map** or **Use Find Menu**, and press **ENTER**.
5. If you selected **Use Map**, use the **ROCKER** to select an item on the map, and press **ENTER**.
   If you selected **Use Find Menu**, select an item from the Find menu as discussed in the “Finding an Item” beginning on page 17. Remember you can press **MENU** while the Find menu is open to find an item near another location, such as the destination. The new point is added to the route as shown on the Add/Edit Vias Page.
6. Repeat steps 3 through 5 until you have added all of the Via Points that you want. Highlight **Done**, and press **ENTER** to apply the new Via Points to the route.
Automotive Mode has two main pages (Map and Trip Computer) that are always available. Optional Highway and Compass pages can be turned on in Automotive Mode. When you are actively navigating, the Current Route Page is available if you are navigating a turn-by-turn route. The Active Route Page is available if you are navigating off-road. For information about pages and features not discussed here, see the “Marine Mode Pages” section.

Map Page
In Automotive Mode, by default, four user-selectable data fields appear on the right side of the screen that can be configured to display any one of the possible data options. The top of the screen shows the GPS status or the route leg. You can also add data fields to the page or select a full-screen map without data fields.

Press the zoom keys (IN and OUT) to change the map scale. Some items on the map appear only if the map is zoomed in to a certain level.

- Press ENTER to quickly declutter (remove unwanted items) from the Map Page.
- Press MENU to open the options menu for the Map Page.
- Show and hide the heading line from the options menu.
- Use the ROCKER to measure the distance between two objects on the map.
- Change the page layout and data fields to customize the Map Page.
Current Route Page

When navigating a route using your GPSMAP 278 in Automotive Mode, the Active Route Page shows each turn of the active route, with the distance to the turn, the street name, and estimated time to arrival and time of arrival. As you navigate a route, the turn list automatically updates to indicate the next turn at the top of the list.

You can scroll through the entire list by moving the scroll bar up or down. Highlight any of the turns on the list and press ENTER to view the Next Turn Page for that turn. The Current Route and Next Turn Page display similar information using a different layout. The Next Turn Page shows your next turn on a map.

Saving the Current Route

You can save the current route from the Current Route Page. Press MENU to save the route. Press ENTER when Save Route is highlighted. Your route is automatically saved, using the starting point and destination as the route name. Press ENTER when OK is highlighted to finish saving the route.
Trip Computer Page
The Trip Computer Page shows important data while navigating a route in Automotive Mode. It indicates your current speed and other data about your trip, such as average speed and moving time.

Reset the Trip Computer before beginning a trip. If you make frequent stops, leave the GPSMAP 278 turned on in order to receive satellites. This allows the unit to accurately measure elapsed time during the trip.

Like the Map Page, the Compass Page features user-selectable data fields. For definitions of data field options, see to page 120.

Trip Computer Page Options Menu
Press MENU to open the options menu. Highlight an option, and press ENTER.

Set Up Page Layout—choose the page layout and number of data fields.

Change Nearest Type—allows you to specify the type of item to be used as the nearest item [shown in the lower-left data field of the Position Data (2 Columns) layout]. The choices change based on the current Usage Mode.

Reset (Trip, Max Speed, Odometer, All)—reset the maximum speed, the odometer, everything but the maximum speed and odometer, or reset everything in the trip computer.
The Main Menu provides access to various waypoint, system, navigation and interface management, and setup menus.

To select a tab from the Main Menu:
1. From any page, press MENU twice to open the Main Menu.
2. Press up or down on the ROCKER to highlight the tab you want. The information for the highlighted tab automatically appears on the right. To highlight a sub tab, press left or right on the ROCKER, and then press up or down to select individual fields.

Main Menu Tabs
- GPS—view satellite information (page 67).
- Route—create and store routes (page 67).
- Points—view stored waypoints (page 68).
- Track—record and save tracks (page 68).
- DSC—set up digital select calling features (page 69).
- Sonar—configure sonar options (page 71).
- Alarms—define alarm settings (page 71).
- Calendar—view sun/moon and hunting/fishing information for a specific day (page 73).
- Celestial—view tide, hunting & fishing, and sun & moon information (page 74).
- Message—view system-generated messages (page 78).
- Display—adjust backlighting and page display (page 79).
- Sound—customize GPSMAP 278 sounds (page 80).
- Setup—adjust system settings (page 81).
GPS Tab
The GPS tab provides a visual reference of satellite acquisition, receiver status, and accuracy. The sky view and signal strength bars give an indication of what satellites are visible to the receiver and whether they are being tracked. For more information about GPS, see pages 4-6.

Route Tab
The Route tab shows all the routes currently stored in memory, along with a descriptive name for each route. Use the Route tab create and store up to 50 reversible routes, with up to 300 points each. See the “Creating and Using Routes” section beginning on page 22 for more information about routes.
Points Tab
The Points tab contains two sub tabs, User and Proximity, which allow you to manage a large number of waypoints quickly and efficiently. For more information about waypoints, see the “Creating and Using Waypoints” section beginning on page 28.

User Sub Tab
The User sub tab shows a master list of all waypoints currently stored in memory. The total number of stored and available waypoints appears at the bottom of the User sub tab.

Proximity Sub Tab
Use the Proximity sub tab to define an alarm circle around a stored waypoint location. See page 36 for more information.

Track Tab
Use the Track tab to specify whether or not to record a track log, define how it is recorded, or save the track log data for future use. The Track tab is divided into two sub tabs: Active and Saved. For more information about tracks, see the “Managing Your Tracks” section beginning on page 38.

Active Sub Tab
The Active sub tab is for the active log (the log currently being recorded.) It shows the amount of track memory used and current settings.

Saved Sub Tab
The Saved sub tab shows a list of all saved tracks in your GPSMAP 278.
DSC Tab

Use the DSC tab (Marine Mode only) to control and set up the Digital Selective Calling (DSC) features. DSC uses marine VHF radio and GPS to transmit and receive location information. DSC is used by mariners for distress calls and position reporting.

For more information about DSC and Maritime Mobile Service Identity (MMSI) numbers, see pages 116-117 in the “Appendix”.

DSC Call List

The Call List sub tab shows the 50 most recent calls, even if the unit is left unattended. The Call List only shows the most recent call from a vessel. If a second call is received, it replaces the first call in the Call List. Press MENU to sort the list and delete entries.

DSC Log

When DSC calls are received, they are automatically stored in the Log, with the most recent call at the top. The unit can store up to 100 calls; after 100 calls are received, the oldest log file is removed when a new call is received.
The DSC Directory is like a phone book and can hold up to 50 entries. To add a new directory entry:

1. Open the DSC Directory on the Main Menu.
2. Highlight the first blank space in the directory list and press ENTER.

   OR

   Press MENU, highlight New Item, and press ENTER.
3. Enter the MMSI number, the name, and any comments.
4. When finished, highlight OK, and press ENTER.

   After creating a New Directory Item, the name created is attached to that particular MMSI number. If you return to the log, the new name appears under the corresponding MMSI number.

   Another way to input a name is from the Entry Review Page or the DSC Distress Call or DSC Position Report pages. The Name and MMSI are sent to other Garmin GPS units: Only the MMSI numbers are sent to other non-Garmin DSC users.
Sonar Tab
Use the Sonar tab to set up and configure sonar. See the “Setting Up and Using Sonar” section beginning on page 90 for more information about Sonar setup options.

NOTE: You must have a GSD 20 or 21 sounder module connected to your GPSMAP 278 to use sonar.

Alarms Tab
Use the Alarms tab to define alarm settings. When an alarm goes off, the alarm message appears on the GPSMAP 278 and the unit emits five (5) beeps.

To set an alarm:
1. Highlight the Alarms tab on the Main Menu.
2. Select an alarm to set, and press ENTER.
3. Change the setting to On, and press ENTER. If necessary, highlight the next field to the right and press ENTER, enter the settings you want,
4. Press ENTER to finish.

When you set a persistent alarm, the alarm message appears on the screen and the GPSMAP 278 beeps until you press ENTER to acknowledge the alarm.
To set a persistent alarm:
1. Highlight the Alarms tab on the Main Menu.
2. Highlight the box next to the alarm you want to make persistent (for example, Next Turn).
3. Press ENTER to place a check mark in the Persist box.

**Navigation (Nav) Alarms**

**Next Turn**—set an alarm to indicate the next turn in a route. Select **Dist** to specify a distance before you reach the next turn to sound the alarm. Select **Time** to specify a time before the turn for the alarm to go off. Select **Auto** for the unit to provide a Next Turn alarm at its discretion.

**Arrival**—set an alarm to sound when you are a specified distance or time away from a destination waypoint. Select **Auto** for the unit to provide an arrival alarm at its discretion.

**Off Course**—set an alarm to sound when off course. Select **On**, and then enter a distance.

**Anchor Drag**—set an alarm to sound when you exceed a specified drift distance. Select **On**, and then enter a distance.

**Custom POI**—set an alarm to sound when approaching a custom POI.

**System Alarms**

**Clock**—set an alarm based on the unit’s clock. Select **On**, and then enter a specific time that you want the alarm to sound. The GPSMAP 278 must be on for the clock alarm to work.

**Ext. (External) Voltage**—set an alarm to sound when the external voltage drops below a specified amount. Select **On**, and then enter a specific voltage.

**DGPS**—set an alarm to sound when the GPSMAP 278 loses a differential fix.

**Anchor Drag**—sets an alarm to sound when you exceed a specified drift distance. Select **On**, and then enter a distance.

**Accuracy**—set an alarm to sound when GPS accuracy falls outside of the user-set value. Select **On**, and then specify a distance.
Sonar Alarms

**Shallow Water/Deep Water**—set an alarm to sound when you enter an area of water that is too shallow or deep. Select On and then specify a distance. You must be receiving sonar NMEA data for this function to work.

**Water Temp**—set an alarm to indicate if the water temperature has exceeded or dropped below a specific temperature, or fallen outside/inside a specific temperature range. Select **Above** or **Below** and then enter a specific temperature, or select **Inside** or **Outside** and enter a range of temperatures. You must be receiving sonar NMEA data for this function to work.

**Drift**—set an alarm to sound when you exceeded a specified drift distance. Select On and then enter a specific distance.

**Fish**—set an alarm to sound when fish are detected with sonar.

Calendar Tab

Use the Calendar tab to plan trips, view sun and moon, and hunting and fishing information for the day.

Highlight an arrow and press ENTER to change the date in the view.

List of points and routes added to this date.

Calendar Tab in Day View

**Calendar Options**

The options menu is available in all three calendar views. Press MENU to open the options menu. To view the Sun & Moon Information or Hunt & Fish sub tab, highlight **View Sun and Moon** or **View Hunt and Fish** and press ENTER.
To add a route (or point) to the calendar:
1. Highlight the Calendar tab on the Main Menu. The current day appears on the Day View sub tab.
2. Press MENU to open the options menu. Highlight Add Route (or Add Point) and press ENTER.
3. From the pop-up route list (or the Find menu if Add Point was selected), select the route you want to add to the calendar, and press ENTER.

**Day View Sub Tab**
The Day View sub tab shows sunrise and sunset times for your current date and location. A list of points and routes for the day appear in a list.

**Week View Sub Tab**
The Week View sub tab provides the same elements as Day view, but the entire week is visible. Days with added points or routes are shown highlighted in green. Icons for the points and routes assigned to the date are shown along the bottom of the screen.

**Month View Sub Tab**
The Month View sub tab provides the same elements as Day view, but the entire month is visible. Days with points or routes added to them are shown highlighted in green. Icons for points and routes assigned to the date are shown along the bottom of the screen.

**Celestial Tab**
The Celestial tab shows tide information, sun and moon information, and hunting and fishing information. You can view data for your current location, a location from the map, or a waypoint location. Also, you can select a different date and time, or use the current data.
**Tide Sub Tab**

The Tide sub tab contains a graphical chart that shows tide station information in a 24-hour span starting at midnight station time. You can choose from different dates and more than 3,000 tide stations.

Enter the date for which you want to view the tide information. Select the tide station for which you want to view the information.

The top of the page shows the tide station and date being referenced. The chart shows a 24-hour block of time, with the time progressing from left to right. The solid vertical lines represent 4-hour increments; the dotted vertical lines represent 1-hour increments.

The tide curve appears as a shaded area; higher tides are taller and lower tides are shorter. The bottom of the page indicates the times with the highest and lowest tides.

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To view a tide chart for a different tide station:
1. From the Tide sub tab, highlight the At field, and press ENTER. The Find menu opens showing the tide stations.
2. Press MENU, and select Near Current Location, Near Current Route, Near Other (select another location using the map), or Near Destination. The list is updated with your search requirements.
3. Select a tide station from the list, and press ENTER. The Tide Station Information Page appears.
4. Highlight OK and press ENTER. The Tide tab appears again showing the tide chart for the selected tide station.

To view the tide chart for another date:
1. From the Tide sub tab with a chart open, highlight the On field, and press ENTER.
2. ENTER the date with the ROCKER, and press ENTER. You can also use the zoom IN and OUT keys to view information for another date. Press and hold IN or OUT to scroll quickly through dates.
3. Press ENTER when finished. The unit shows the chart for the date you entered or selected.

To use the current date again, highlight the Date field. Press MENU, highlight Use Current Date, and press ENTER.
To view a chart's details for another time during the day (other than current time):
1. From the Tide sub tab with the chart you want to view, press MENU, and then select Move Cursor.
2. Press the ROCKER right or left to view the chart at another time.
3. To return to the current time, press MENU, and select Stop Moving Cursor.

To automatically start pointer mode to scroll the chart:
1. Use the ROCKER to highlight the Date field. Then press down to start the pointer (pan) mode.
2. Scroll the chart right to view the next day or left to view the previous day.

Sun & Moon Sub Tab
The Sun & Moon sub tab provides you with sunrise/sunset and moon rise/set times. A graphic of the moon phase also appears. You can view Sun & Moon information for any date or location. You can also use the play, fast forward, and stop buttons to view an animation of the Sun & Moon sub tab.

To view sun and moon information for a different date:
1. Highlight the Date field, and press ENTER.
2. Use the ROCKER to change the digits of the date to the date you want. You can also use the Zoom IN and OUT keys to view information for another date. Press and hold IN or OUT to scroll quickly through dates.
3. Press ENTER when finished. The unit shows the sun and moon information for the selected date.
4. To use the current date again, highlight the Date field. Press MENU, highlight Use Current Date, and press ENTER.
To view sun and moon information for a different location:
1. Use the ROCKER to highlight the From field, and press ENTER.
3. Select a waypoint or point of interest, and press ENTER.
4. On the waypoint information page, press ENTER. The unit shows the sun and moon information for the location you selected.

To use the current location, highlight the From field. Press ENTER, highlight Current Location, and press ENTER again.

Hunt & Fish Sub Tab
The Hunt & Fish sub tab provides you with predictions of the best times to hunt and fish in a selected location on a specific date.

To display the Hunt & Fish information:
1. Highlight the Celestial tab on the Main Menu.
2. Use the ROCKER to select the Hunt & Fish sub tab.

To view hunt and fish information for a different date:
1. Highlight the Date field, and press ENTER.
2. Use the ROCKER to change the digits of the date to the date you want. You can also use the zoom IN and OUT keys to view information for another date. Press and hold IN or OUT to scroll quickly through dates.
3. Press ENTER when finished. The unit shows the information for the date you entered.
To use the current date again, highlight the Date field. Press MENU, highlight Use Current Date, and press ENTER.

To view hunt and fish information for a different location:
1. Highlight the From field, and press ENTER.
3. Select a point, and press ENTER.
4. On the information page, press ENTER. The unit shows Hunt & Fish information for the selected location.

To use the current location:
1. Highlight the From field, and press ENTER.
2. Highlight Current Location, and press ENTER.

Message Tab
The Message tab shows a list of messages generated by the GPSMAP 278. Use the ROCKER to scroll through the list of messages on the Log sub tab. Use the Log Filter sub tab to show only the message types that you want to view.

To view messages:
1. Highlight the Message tab on the Main Menu.
2. Use the ROCKER to highlight a message.
3. Press ENTER to view detailed information about the message.
To show or hide messages using the log filter:
1. Highlight the **Message** tab on the Main Menu.
2. Highlight the **Log Filter** sub tab. All messages appear by default.
3. Highlight the message type you want to hide, and press **ENTER**. The message name appears in the **Hide** window.
4. Highlight the message, and press **ENTER** to show it again.

**Display Tab**

Use the Display tab to set display features, such as pages to show in the main page sequence and how long the backlight stays on.

**Main Menu**—indicates whether the Main Menu tabs to contain text and icons (default) or text tabs only.

**Color Mode**—sets the display to **Day**, **Night**, or **Auto** color mode. Select **Auto** to automatically switch from day to night at sunset and change back at sunrise.

**Backlight Timeout**—sets the backlight to stay on when it is turned on, or to time out after a selected period of time has elapsed when using the battery. The backlight stays on regardless of this setting when external power is used.
Twilight Adjustment—allows the unit to adjust the backlight for optimum viewing during twilight times.

Highway Page—indicates whether the Highway Page appears in the main page sequence.

Compass Page—indicates whether the Compass Page appears in the main page sequence.

Backlight Intensity—turns the backlight up or down. Press right on the ROCKER to increase the intensity or left to decrease.

Sound Tab
Use the Sound tab to customize the sounds made by your GPSMAP 278.

Beeper—set the beeper to chime during key presses and alarms (Key and Alarm) or on Alarms Only.

Attention Tone—turn the attention tone on or off that sounds before the vocal prompts.

Voice Prompt—set the vocal prompt to operate for Guidance and Status, Route Guidance Only, or No Voice Prompts.

Voice Language—set the language for vocal prompts.

Speaker Volume—set the external speaker volume.
Setup Tab
To customize how your GPSMAP 278 looks, use the System tab to adjust certain system settings.

System Sub Tab
Use the System sub tab to control settings for system mode, speed filter, language, and external power.

Main Menu—System Setup Tab

System Mode—sets the unit to operate in Normal mode, Battery Save mode, or Simulator mode (for practice ONLY).

Usage Mode—sets the unit to operate in Marine (default) or Automotive Mode.

Speed Filter—allows the unit to average speed readings. Choose from Off, Auto (automatically controls filtering), or On (allows you to enter a value in seconds).

Text Language—sets the unit’s on-screen language.

EGNOS—allows you to enable or disable EGNOS.

External Power Off—indicates whether the GPSMAP 278 remains on (Stay On) or the unit turns off (Turn Off) when external power is removed from the unit.

External Power On—indicates whether to turn on the GPSMAP 278 (Turn On) or charge the battery (Charge Battery) when external power is applied to the unit.

Road Routing Sub Tab
Use the Road Routing sub tab to select road routing settings.

Main Menu—Road Routing Sub Tab

Route Preference—sets the unit to use Faster Time or the default time. Ask My Preference allows the unit to remember the user’s preference.

Calculation Method—sets the calculation method for routes: Calculate Routes for Better Route or the default route: Car/Motorcycle.

Avoid—sets the unit to avoid U-Turns, Highways, Unpaved Roads, or Carpool Lanes. Custom Avoids allows the user to create custom avoidances.

Custom Road Preferences—sets the default route preferences for custom roads.
**Route Preference**—allows the unit to calculate routes based on:
- **Faster Time**—routes calculated are faster to drive but might be longer in distance.
- **Shorter Distance**—routes calculated are shorter in distance but might take more time to drive.
- **Off Road**—creates a direct line from your current location to your destination. This is useful when traveling outside of the detailed map coverage area or where no roads exist.

**Ask My Preference**—determines whether you are asked to select a Route Preference before route calculations.

**Calculation Method**—sets how the unit searches for the route.
- **Quickest Calculation**—calculates the route the quickest, but it might not produce the best route.
- **Quick Calculation**—takes a bit more time to calculate but generates a better quality route.
- **Better Route**—generates an even better quality route but uses a longer calculation time.
- **Best Route**—generates the most optimal route but takes the longest time to calculate.

**Calculate Routes for**—sets route calculation for the particular vehicle you are operating to optimize the route for your vehicle type, because some roads have vehicle-based restrictions.

**Avoid**—allows you to avoid certain road types and maneuvers on your route. The unit uses these road types only if alternative routes take you too far out of your way or if no other road is available.

**Custom Avoids**—allows you to enter specific areas and roads that you would like to avoid in your navigation. See page 61 for information on creating custom avoids.

**Custom Road Prefs**—allows you to avoid or use **Major**, **Medium**, and **Minor** roads using a slider scale. This is useful if you want to avoid major highways, for example. Select **Reset** to use preset values.

**Guidance Sub Tab**
Use the Guidance sub tab to set guidance information.
Off-Route Recalculation—allows you to set whether the unit prompts you when it is recalculating your route (Prompted), or recalculates automatically. Set whether the unit announces the recalculation (Automatic - Announced) or recalculates silently (Automatic - Silent). You can turn the off-route recalculation Off.

Next Turn Pop-up—turns the Next Turn pop-up window Off, or opens the window when you press NAV (Held NAV Key Only), opens automatically (Automatically Only), or Both.

Timers Sub Tab
Use the Timers sub tab to set timers and view information about how long the unit has been on.

User—allows you to set the timer to Count Up or Count Down. You can also Reset the timer and turn it Off. Enter a time to use when counting up or down.

Marine—appears on the Compass Page in Marine Mode.

Since Midnight—shows the time the unit was turned on since midnight. To reset, select All Unit Defaults on the System sub tab.

Time Sub Tab
Use the Time sub tab to set the time format and zone, and set the unit to conform to Daylight Saving Time. The current time and date appear in the Current Time and Date field.

Time Zone—choose the time zone for your location so the GPSMAP 278 shows the correct local time. Select Other to enter a UTC Offset.

If the wrong date appears, press MENU, highlight Set Date, and press ENTER. You are prompted to enter the current year. The GPSMAP 278 uses this information when gathering satellite data to show the correct date.
**Units Sub Tab**

Use the Units sub tab to customize measurement units.

**Distance and Speed**—select the unit of measure to show your speed and distance traveled.

**Direction Display**—select the unit of measure to show your direction. Mils is a unit of angle measurement used in military settings, in which 17.78 mils equal one degree.

**Temperature**—select the unit of measure to show the temperature.

**Elevation**—select the unit of measure to show your altitude.

**Depth**—select the unit of measure to show the depth.

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**Location Sub Tab**

Use the Location sub tab to change location setting information.

See the “Appendix” for more information about location formats and map datums. Also visit the National Imagery and Mapping Agency at [www.nima.mil](http://www.nima.mil) for more information on grids and datums.

**Changing the Location Format**

When you change the **Location Format**, you change the coordinate system in which a given location reading appears. The default format is latitude and longitude in degrees, minutes, and thousandths of a minute (hddd°mm.mmm). Only change the location format if you are using a map or chart that specifies a different location format or want to use a format you are familiar with.

**Selecting a Different Map Datum**

Datums are used to describe geographic positions for surveying, mapping, and navigation and are not actual maps built in the unit. Only change the datum if you are using a map or chart that specifies a different datum.
The default setting is WGS 84. The unit automatically selects the best datum depending on your chosen location format.

**WARNING:** Selecting the wrong map datum can result in substantial position errors. When in doubt, use the default WGS 84 datum for best overall performance.

**Selecting a Different Heading Reference**
You can select from **Auto Mag Var**, **True**, **Grid**, and **User Mag Var**. **Auto Mag Var** provides magnetic north heading references that are automatically determined from your current location. **True** provides headings based on a true north reference. **Grid** provides headings based on a grid north reference (and is used in conjunction with the grid position formats). **User Mag Var** allows you to specify the magnetic variation at your current location and provides magnetic north heading references based on the variation you enter. Enter the magnetic variation of your current location in the **Magnetic Variation** field if you selected **User Mag Var** for the heading.

**WARNING:** If **User Mag Var** is selected, the unit does not automatically calculate and update the magnetic variation at your present location. You must update the magnetic variation as your location changes. Failure to update this setting can result in substantial differences between the information shown on your unit and external references, such as a magnetic compass.

**Welcome Sub Tab**
Use the Welcome sub tab to enter information, such as your name and address, or a welcome message that appears when you turn on your GPSMAP 278.

To add a welcome message:
1. Press up or down on the **ROCKER** to highlight one of the Welcome Message fields, and press **ENTER**.
2. Use the **ROCKER** to enter information in the fields. You do not need to enter information in every field. When finished, press **ENTER** again.
3. To display the welcome message when you turn on your GPSMAP 278, highlight the **Show at Power-up** check box, and press **ENTER** to select it. To hide the welcome information at start-up, clear the check mark.

**COM 1 and COM 2 Sub Tabs**

Use the COM 1 and COM 2 sub tab to change the data format and control the input/output format used when connecting your unit to external devices.

**Serial Data Format**—sets the data format to one of the following:

- **Garmin Data Transfer**—provides the proprietary format used to exchange data with a computer or another Garmin unit. Garmin Data Transfer is disabled when the USB is connected, and the unit automatically switches to USB format. When the USB is disconnected, the USB field changes to Transfer Mode.
- **GARMIN DGPS**—connects the GPSMAP 278 with a Garmin DGPS beacon receiver.
- **Garmin Remote Sonar**—connects the GPSMAP 278 with a GSD 21 or GSD 20 Sounder Module and transducer.
- **NMEA In/NMEA Out**—supports the input/output of standard NMEA 0183 version 3.01 data and sonar NMEA input support for the DBT, DSE, DPT, MTW, and VHW sentences.
- **RTCM In**—allows DGPS input using a standard RTCM format.
- **RTCM In/NMEA Out**—allows DGPS input using a standard RTCM format and also provides NMEA 0183 version 3.01 output.
- **RTCM In/Text Out**—allows Differential GPS (DGPS) input using a standard RTCM format and also outputs simple text data that includes data, time, location, and velocity.
• **Text Out**—allows the unit to output simple text data that includes data, time, location, and velocity. The Baud can be set to 1200, 2400, 4800, or 9600.

• **None**—provides no interfacing capabilities.

If you select **GARMIN DGPS** or **RTCM In/NMEA Out** format, you can control a differential beacon receiver directly from your GPSMAP 278 using the COM 1 or COM 2 sub tab. You can have the unit automatically scan for the DGPS beacon signal, or you can enter the beacon frequency and bit rate on the unit, and the information will be used to tune the beacon receiver. If you use a DGPS receiver, WAAS capability is automatically turned off.

**To have the unit automatically scan for a frequency:**

1. Set the unit to **GARMIN DGPS** or **RTCM In/NMEA Out**.
2. Highlight the **Beacon** field, and press **ENTER**.
3. Highlight **Scan**, and press **ENTER**. The numbers in the **Frequency** field change as the unit scans from 284 kHz to 325 kHz, 200 bit rate, then 100, at 6-second intervals.

The Status field shows one of the following:

• **Tuning**—the unit is attempting to tune to the specified frequency and bit rate.

• **Scanning**—the unit is automatically scanning through the frequencies and bit rates.

• **Receiving**—the unit is receiving DGPS signal and ready for operation.

• **Check Wiring**—the unit is not making connection with DGPS receiver.
To restart the scan:
1. Press MENU.
2. Highlight Restart Scan, and press ENTER.

To manually enter a frequency and bit rate:
1. With the unit set to Garmin DGPS or RTCM In/NMEA Out, highlight the Beacon field, and press ENTER.
2. Highlight User, and press ENTER.
3. Highlight the Frequency or Bit Rate field, and press ENTER
4. Enter a frequency or bit rate. Press ENTER when finished.

When the unit is receiving a DGPS signal, the Signal to Noise Ratio (SNR) and Distance fields show data. The SNR range is 0 dB to 30 dB, with 30 being the best. The Distance field may or may not show data, depending on the signal being broadcast from the DGPS site.

The DGPS beacon transmitters are operated by the United States Coast Guard (or similar government agency in other countries), which is responsible for their accuracy and maintenance. For DGPS transmitter problems or to find the most updated list of frequencies and coverage areas, contact your local USCG or see their Web site at www.navcen.uscg.mil.

**Advanced NMEA Output Setup**

If you are going to interface the GPSMAP 278 with another piece of equipment (such as a radar or autopilot), you must set the unit to output NMEA data. The NMEA data transmission can be customized to keep the output rate at two seconds. If too many NMEA sentences are activated, the unit may take longer than two seconds to update.

You can also set the Output Rate to Fast to output a minimum number of NMEA sentences at one-second intervals.

**To access the Advanced NMEA Output Setup:**
1. Highlight the Setup tab on the Main Menu.
2. Select the COM 1 or COM 2 sub tab.
3. Highlight the Serial Data Format field, and press ENTER.
4. Select NMEA In/NMEA Out, and press ENTER.
5. Press **MENU** to open the options menu.

6. Select **Advanced NMEA Setup**, and press **ENTER**.

Use the Advanced NMEA Output Setup Page to set the output rate, change the precision of the Lat/Lon minutes, set Waypoint IDs to names or numbers, and turn on and off the GPS status, the Garmin Proprietary sentences, and Waypoint/Route (WPL, RTE).

GPSMAP 278 NMEA Sentence Output (NMEA version 3.01 compliant):

- Always transmitted: GPRMC, GPGGA, GPGLL, GPBWC, GPVTG, GPXTE, GPRMB
- Switchable sentences: GPGSA, GPGSV, GPWPL, GPRTE
- Garmin proprietary: PGRME, PGRMZ, PGRMM
SETTING UP AND USING SONAR

This section covers the additional sonar options for the GPSMAP 278 when used in conjunction with a GSD 21 or GSD 20 Sounder Module. Read the *GSD 21 or GSD 20 Sounder Module Installation Instructions* to properly install the sounder module. When you turn on your GPSMAP 278, the Sounder Module automatically turns on.

**NOTE:** You **MUST** have a GSD 21 or GSD 20 installed and connected to your GPSMAP 278 to use the sonar features.

The Sonar Page is added to the end of the page sequence when you are in Marine Mode. To view the Sonar Page, press **PAGE** or **QUIT** repeatedly until it appears.

**Showing Sonar on the Map Page**

You can change the layout of the Map Page to show a split screen to show the sonar on the Map Page. You must be in Marine Mode to use sonar.

**To show the Sonar Page on the Map Page:**

1. On the Map Page, press **MENU**.
2. Highlight **Set Up Page Layout**, and press **ENTER**.
3. Highlight **Map with Sonar**, and press **ENTER**.

**To resize the Map Page sonar split screen:**

1. After showing the Sonar and Map pages together in the split screen as described in the previous steps, press **MENU**.
2. Highlight **Size Split**, and press **ENTER**.
3. Use the **ROCKER** to move the vertical double-arrow right or left.
4. Press **ENTER**.
5. To stop resizing the screen, press **QUIT**. You can also press **MENU**, highlight **Stop Resizing**, and press **ENTER** to stop resizing the screen and retain the previous split setting.
Using the Sonar Page

When combined with a GSD 21 or GSD 20 Sounder Module, your GPSMAP 278 becomes a powerful fishfinder/flasher with the Sonar Page. If a GSD 21 or GSD 20 is attached, but the unit does not detect a transducer, a “Sonar Turned Off” message appears across the Sonar Page. The Sonar Page appears only if a GSD 21 or GSD 20 has ever been attached or when the unit is in Simulator Mode.

The middle of the page contains a right-to-left moving sonar image of the water beneath your boat. Items appear as they pass under your transducer. Those items on the right side of the screen are closer to you than those on the left. Along the right side of the screen is an adjustable scale that reflects the depth of the area being shown. The top-left corner shows the adjustment option, the depth, and the water temperature.

The sonar returns show as red (strongest), then orange (strong), yellow (medium), green (weaker), and blue (weakest). The Fish Symbols option allows you to view the actual sonar data, a fish symbol or a combination of both. When the unit is set to Dual, the appearance of the fish symbols changes. Fish symbols from the center of the beam (200 kHz) are solid (or narrow arches), but the returns from the edges of the beam (50 kHz) are hollow (or wide arches).

The sonar display can also be set to show a split screen view of a zoomed portion of the sonar, bottom lock (display scaled from the bottom up), or a combination of these options. For example, you can choose to show dual frequency at a 2X zoom (Dual 2X) on one half and normal range dual frequency (Dual) on the other half. The current display mode appears at the bottom of each sonar display.

Read the “Understanding Sonar” section beginning on page 99 for more on information about sonar.
Adjusting the Sonar Page

Use the Adjustment menu to access the settings and features most commonly used on the Sonar Page. Ten main adjustment options are available: Range, Zoom, View, Gain, Target Level, Whiteline, Frequency, Depth Line, Noise Reject, and Scroll. The currently selected option appears in the upper-left corner.

To select an adjustment option:

Use one of the following methods to select an adjustment option:

• Press the ROCKER right or left to scroll through the adjustment options. When the adjustment option you want appears, press ENTER.

• Press MENU, highlight Adjustments, and press ENTER. Use the ROCKER to highlight the adjustment and press ENTER.

After you select an adjustment option, press the ROCKER up or down to change the setting.

You can also press MENU and highlight a shortcut setting to quickly change to commonly used settings and values.

Press ENTER to accept the new setting (or press QUIT to cancel) and return to the Sonar Page.

Sonar Adjustment Options

Range—sets the display depth range used for viewing. The unit can be set to automatically track the bottom or set to a user-specified depth range.

Zoom—allows you to select a display zoom scale or to split the display. When a scale other than No Zoom is selected, the Adjustment menu shows a new selection labeled View or Span. The Zoom function is divided into six display levels:

• 2X Split—shows two reduced-size sonar pictures at the same time. The right half shows the complete sonar picture at its original scale. The left half shows a portion of the original picture at 1/2 depth scale.

• 2X Zoom—shows the 2X zoomed picture on the full screen.

• 4X Split—shows two reduced pictures, the right at the original depth scale and the left at 1/4 the original depth scale.
• **4X Zoom**—shows the 4X zoomed picture on the full screen.

• **Btm (Bottom) Split**—shows two reduced pictures, the right at the original depth scale and the left showing sonar returns from the bottom up. All target depths read as a distance from the bottom.

• **Btm (Bottom) Lock**—shows returns from the bottom up on the full screen.

**TIP:** Press the **In** and **Out** keys to quickly zoom in and out of the Sonar display.

**View/Span**—changes the viewing range of a zoomed display. If the display is 2X or 4X split, only the zoomed portion on the left side of the display is affected by the change. If the display is Bottom Split or Bottom Lock, **Span** adjusts how far off the bottom the unit shows data. This option is available when a **Zoom** scale other than **No Zoom** is selected.

**Gain**—allows you to control the sensitivity of the unit’s receiver. To see more detail, increase the receiver sensitivity by selecting a higher gain. If there is too much detail or if the screen is cluttered, select a lower gain.

**Target Level**—adjusts colors used to display sonar information. A **Color Bar** appears on the right side of the screen as you adjust this setting. A higher percentage results in more strong-signaled colors shown on the sonar display. A lower percentage results in more weaker-signaled colors shown on the sonar display. This setting does not increase or decrease the unit Gain.

**Whiteline**—controls how the unit shows information about the bottom type (hard or soft). With Whiteline Off, the bottom return shows as red. Set Whiteline at **Normal** or 1–100% to determine bottom hardness. See page 101 for more information.

**Frequency**—allows you to choose a transducer frequency. Frequency refers to the “pitch” of the sound that the transducer sends and receives.

**Depth Line**—adds a horizontal depth line across the display that is used to measure the depth of underwater objects. The depth of the line appears in a box on the right side of the line. Press up or down on the **ROCKER** to move the line on the sonar display.

**Noise Reject**—helps filter unwanted noise from the sonar display. The Noise Reject can be turned **Off**, set to **Normal** (automatically adjusts for optimum viewing) or to a fixed 1–100% setting. When setting the Noise Reject, remember that a higher noise rejection setting is less likely to show fish or structures.

**Scroll**—adjusts the rate that the sonar display scrolls from right to left. If you are sitting still or the sonar display is moving too fast, slow the scroll rate or pause the scrolling.
Resizing the Split Screen
You can adjust the way the split screen appears. This option is only available when a zoom scale other than **No Zoom** is selected.

To resize the Sonar Page split screen:
1. From the Sonar Page split screen, press **MENU**.
2. Using the **ROCKER**, highlight **Size Split**, and press **ENTER**.
3. Move the horizontal double-arrow left or right using the **ROCKER** until the vertical width line shows, then press **ENTER**.
4. If you want to cancel this operation, press **QUIT** or press **MENU**, highlight **Stop Resizing**, and press **ENTER**.

Using the Pointer on the Sonar Page
You can show the pointer (arrow) to reference sonar items and mark underwater waypoints. This makes it easier to find and use an object such as a stump for a future fishing location. When using this feature, the Sonar Page pauses. The depth continues to update while the display is paused, but the unit does not show any new sonar data until the Sonar Page resumes scrolling. You might see a discontinuity from where the sonar information stops and where it starts again.

To mark an underwater waypoint:
1. From the Sonar Page, press **MENU**, highlight **Show Pointer**, and press **ENTER**.
2. Use the **ROCKER** to move the pointer to the location you want to mark. Press **ENTER**. The New Map Waypoint Page appears.
3. To change the name, symbol or depth, highlight the appropriate field, and press **ENTER**. Make your changes and press **ENTER**.
4. When you are done making changes, highlight **OK**, and press **ENTER**.
5. To return to the standard Sonar Page, press **QUIT**; or press **MENU**, highlight **Hide Pointer**, and press **ENTER**.
Setting Up Sonar

Use the Sonar tab on the Main Menu to set up the Sonar Page.

**Fish Symbols**—select how the Sonar Page shows underwater targets and background information. Select **Off** to show all of the available information about the underwater environment. Select a fish symbol, to show only the information related to that symbol.

**Water Type**—select the proper water type you are boating in. Because sound waves travel through fresh and salt water at different rates, it is necessary to select the water type to ensure accurate readings on the unit.

**Depth Number**—select how efficient the digital depth update rate is. **Fast Update** updates quicker and is recommended for low-noise water deeper than 50 feet. **Auto** is best for shallow water or high-noise areas, has a slower screen update, and is best used if you travel a wide variety of depths.

If the unit is unable to track the bottom for any reason, the digits in the depth window flash on and off to alert you that the unit is not tracking the bottom.

**Map Split Sonar Detail**—select how much detail appears on the Map Page with the sonar shown. **Full Range** shows data using the **Range** setting of the Sonar Page, regardless of **Zoom** or **Bottom Lock**. **Maximum Detail** shows any **Zoom** or **Bottom Lock** data from the Sonar Page.

**Keel Offset**—enter the surface reading for the depth of a keel. This makes it possible to measure depth from the bottom of your keel instead of from the transducer’s location. Enter a positive number to offset for a keel. It is also possible to enter a negative number to compensate for a large vessel that can draw several feet of water. The **Keel Offset** is reflected in the depth reading.

**Transducer**—select the type of transducer that you are using. If you are using a speed-capable transducer/sensor, select **Temp, Spd**.
Calibrating the Water Speed

If you select Temp, Spd for the Transducer option on the Setup sub tab, you must calibrate the water speed to ensure the Water Speed shown on your unit is accurate. The calibration should take place in water having little or no current.

The unit automatically uses the GPS ground speed, if it is available, for comparison on the calibration. If a GPS ground speed is not available, use either your boat’s speedometer reading (not always accurate) or a stopwatch to determine your speed over a certain distance. To find out your speed, divide the distance by the time.

To calibrate the water speed:

1. On the Setup sub tab, highlight the Calibrate Water Speed button and press ENTER.
2. Bring the boat to a cruising speed. Both the top ground and uncalibrated water speeds are shown at the bottom of the calibration window. Note your top speed, then stop the boat, and press ENTER.

3. By default, the top ground speed is automatically shown. If a ground speed is not available, the top uncalibrated water speed is used instead. If the new speed is correct, highlight OK, and press ENTER.

If you want to manually enter a calibration, press ENTER while the speed is highlighted, enter a new speed, and press ENTER again.

If the boat is not moving fast enough or the speed sensor is not outputting a speed, “Boat Is Not Moving Fast Enough To Calibrate” appears at the bottom of the screen. Check that the speed sensor wheel is moving or safely increase boat speed. If there is a problem with the speed sensor or if a speed sensor is not installed, “Water Speed Sensor Is Not Working” appears at the bottom of the screen. Check connections of speed sensor cables.
**Setting Up the Sonar Display**

You can set up how the sonar information appears on-screen using the **Display** sub tab.

**Scale**—select how and where you want the depth scale to appear.

**Color Bar**—select **On** to show a gradient scale of the current Target Level setting on the Sonar Setup tab.

**Flasher**—select **On** to show a graphic Flasher representation on the far right side of the sonar display. This graphic Flasher shows structure and bottom returns much the same as a true Flasher. You might find this feature useful when using Fish Symbols.

**Temperature Graph**—select **On** to show a temperature graph along the bottom of the Sonar Page.

**Background Color**—select the color for the Sonar Page and the sonar on the Map Split Page.
Viewing the Temperature
Use the Temperature sub tab to view a graph of water temperature changes over a period of time. The graph reads from right to left so that the most recent temperature measured appears on the far right side of the graph. The dotted lines within the graph indicate intervals in the temperature scale and the duration of time. To view temperature information, you must select Temp as the Transducer type on the Setup sub tab.

NOTE: You must be receiving proper sonar data from another device, such as a Garmin GSD 20 or GSD 21 Sounder Module, to view temperature information.

Changing the Temperature Display
The graph will adjust and show the temperatures changes according to the Temperature Scale and Time Duration settings.

Temperature Scale—select a degree span from the list. Select Auto to have the unit automatically determine the best range, or select a span of 2, 4, 6, 8, or 10 degrees.

Time Duration—set how fast or slow the temperature log scrolls; a shorter time duration means a faster temperature log scroll. Select a duration from 1 minute to 2.5 hours.

Resetting the Temperature Graph
To reset the scale range for the temperature graph, press MENU, highlight Reset Auto Scale, and press ENTER. This is useful when the scale spans a large range due to extreme temperature changes. You can reset the scale only when you select Auto for the Temperature Scale.

To restore the temperature graph to defaults, press MENU, highlight Restore Default, and press ENTER.
Understanding Sonar

The transducer mounted on your vessel transmits sound waves toward the bottom of the water in a cone-shaped pattern. When a transmitted sound wave strikes an underwater object—such as the bottom, a structure, or a fish—sound is reflected back to the transducer. The transducer collects the reflected sound waves and sends the data to the GSD 21 or GSD 20 Sounder Modules and then to the GPSMAP 278 to be processed and shown. The underwater data is shown on the Sonar display in the order that it is returned; first returned is the first on the display.

Understanding the Sonar Display

One of the first things to understand about sonar is that the transducer sends a beam down to the bottom of the water, much like the beam of a flashlight. The beam starts small near your vessel and expands as it gets to the bottom. See “Transducer Coverage” for more detailed information.

The Sonar Page does not show a three-dimensional representation of the underwater environment; the display is in two-dimensions, much like if you took a picture of an aquarium. Only the depth of the item in the water appears. The Sonar display does not show you where an item is located horizontally in the water, as shown in the drawings below. The fish is not directly above the tree in reality, but it might look like it is on the Sonar Page.

Generally speaking, if the only thing between the transducer and the bottom is water, the first strong return comes from the bottom directly below the transducer and sets the bottom level. Weaker secondary returns provide the detailed data. Stronger returns appear in darker colors, with red being the strongest return.
Transducer Coverage
The area covered by the transmitted sound waves is determined by the cone angle of the transducer and the water depth. The wide cone angles (40°) associated with low frequencies (50 kHz) provide a large coverage area for finding fish within a coverage width that is approximately 2/3 of the water depth. However, this also means that wide cone angles produce less bottom detail and resolution. As shown in the drawing on the near right, the 40° cone angle produces a coverage area of approximately a 20-foot diameter circle at a 30-foot depth.

The narrow cone angles (10°) associated with high frequencies (200 kHz) provide better bottom resolution and crisper detail, but cannot show a large coverage area for finding fish. The 10° cone angle provides a coverage width that is approximately 2/10 of the water depth. As shown in the drawing on the far right, the 10° cone angle produces a coverage area of approximately a 6-foot diameter circle at a 30-foot depth.

Dual frequency mode combines both frequencies to get the best coverage area and contour/depth readings.
**Whiteline**
The GSD 20 or GSD 21 can help you determine whether the bottom is hard or soft. When the sonar sound waves are reflected back by the bottom, a hard bottom returns a stronger signal than a soft bottom. A thin whiteline indicates a softer bottom, while a thick whiteline indicates a harder bottom. Normally, a red line is used to show the point where water meets the bottom. This line follows the bottom contour, along with any significant objects lying on the bottom. The unit uses the whiteline function to make the bottom layer information easier to distinguish.

**Thermoclines**
A rough definition of a thermocline is a break in water where the water temperature changes faster than the water above it. Thermoclines are shown as the weakest colors.

One of the unique features offered by Garmin is See-Thru® technology, which allows the GPSMAP 278 to hear both weak and strong signals simultaneously so it can identify fish returns under the toughest conditions, such as suspended in thermoclines or even hiding near structures. See-Thru technology allows the GSD 21 or GSD 20 Sounder Modules to “see” through thermoclines and helps locate fish where they live.
Specifications

Physical Specifications
Size: 5.7” W x 3.2” H x 1.9” D (14.5 x 8.1 x 4.8 cm)
Weight: 14.0 oz (0.40 kg)
Display: 3.75” diagonal (9.5 cm) Transflective, 256-color display with backlighting (480 x 320 pixels)
Case: Fully gasketed, high-impact plastic alloy, waterproof to IEC 60529 IPX7
Temp. Range: 5°F to 140°F (-15°C to 60°C)

Power
Battery: Rechargeable lithium-ion
Battery Life: 7-15 hours
Source: 11–35 VDC
Fuse: 3AG - 1.5 Amp

Performance
Receiver: Differential-ready 12 parallel channel receiver
Acquisition Times:
- Approx. 15 seconds (warm start)
- Approx. 45 seconds (cold start)
- Approx. 5 minutes (First Time/AutoLocate™)
Update Rate: 1/second, continuous
Accuracy
GPS: 15 meters (49 feet) RMS 95% typical
DGPS (USCG): 3–5 meters (10–16 ft), 95% typical
DGPS (WAAS): < 3 meters (10 ft) 95% typical with DGPS corrections
Velocity: 0.1 knot RMS steady state
Dynamics: 6 g's
Optional Accessories

In addition to the standard accessories included with your GPSMAP 278, several optional accessories are available to enhance the operation of the GPSMAP 278.

To obtain replacement parts and optional accessories, contact your Garmin Dealer, Garmin Product Support at 800/800.1020, or Garmin Europe at 44/0870.8501241.

**WARNING:** Garmin accessories have been designed and specifically tested for use with Garmin products. Accessories offered by other manufacturers have not been tested or approved for use with Garmin products. Use of such accessories could cause damage to the GPSMAP 278 and void the warranty.

**GA 29, GA 29F, and GA 26C Antennas:** Garmin remote antennas.

**Non-Skid Friction Mount:** Portable vehicle mount, no installation required.

**Permanent and Temporary Adhesive Disks:** Adhesive disks for using the unit in a vehicle.

**PC Interface Cable:** Connects the unit to a serial port on your PC.

**Power/Data Cable:** Allows you to connect the unit to the electrical system using bare wires.

**Programmable Data Cards:** Blank data cards available in 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, and 512 MB sizes. Download detailed map data from MapSource CD-ROMs to a data card, either directly through your GPSMAP 278 using the PC USB cable, the optional PC Interface cable, or with the optional USB Data Card Programmer.

**USB Data Card Programmer:** Programs blank data cards at high speed through a PC.

**Carrying Case:** Protects the GPSMAP 278 when not in use; has storage space for data cards.

**Protective Cover:** Snaps on the front of the unit to protect the screen from damage.

**MapSource Software CD-ROMs:** Offers several detailed mapping options that are compatible with the GPSMAP 278, including BlueChart (outside the USA), Fishing Hot Spots, and Topo.

**Pre-Programmed Data Cards:** Data cards preprogrammed with either Garmin BlueChart (outside the USA), BlueChart g2, or Fishing Hot Spots map data.
Installation Information
This section of the Appendix provides information on connecting the GPSMAP 278 to auxiliary devices and removing the antenna.

Connecting the Power/Data Cable
The power/data cable connects the GPSMAP 278 to an 11–35 VDC system and provides interface capabilities for connecting external devices. The color code in the diagram below and to the right indicates the appropriate harness connections. Replacement fuse is a 3AG - 1.5 Amp fuse.
Connecting Your GPSMAP 278 to a Computer

You can connect your GPSMAP 278 to your computer using the supplied USB cable to connect to a USB data port or the PC Interface cable to connect to a DB-9 serial communications port.

NOTE: Fully install the supplied MapSource program, Trip & Waypoint Manager, on your computer before connecting the USB cable to the computer.

To connect your GPS to your computer:

1. Connect the small end of your cable to the lower connector on the back of the GPSMAP 278, shown in the illustration to the left.

2. When using the supplied USB Data Cable, connect the larger end of the cable to an available USB data port (see the illustration on the left).

   When using a PC Interface Cable, connect the larger end of the cable to a serial communications port on your computer (see illustration on the bottom left).

Information About USB Drivers

The USB drivers should have been automatically installed when you installed the MapSource program that came with your GPSMAP 278. The first time you connect the GPSMAP 278 to a USB port, your computer might prompt you to locate the destination of the drivers for the device. You only need to install the drivers once. After the drivers are installed, your computer will always detect your GPSMAP 278 when it is connected. USB drivers might be updated periodically. You can find these updates at www.garmin.com.
Using xImage for Customized Waypoint Icons
Use xImage to exchange images between your computer and your GPSMAP 278. You can download and save screenshots of any screen shown on your unit. xImage also allows you to download customizable splash screens and waypoint symbols from compatible GPS units, customize them (if you have an image editing program on your computer), and send them back to your GPS unit.

You can download xImage from the Garmin Web site at www.garmin.com/ximage/. See the Help file for complete instructions about using xImage.

Custom POIs (Points of Interest)
Your GPSMAP 278 accepts custom POI databases, available from various companies on the Internet. Some custom POI databases contain alert information for points such as safety cameras and school zones. Your GPSMAP 278 can notify you when you approach one of these points.

After downloading your POI database, use the Garmin POI loader to install the POIs to your unit. The POI Loader is available at www.garmin.com/extras.

**CAUTION:** Garmin is not responsible for the consequences of using a custom POI database or the accuracy of third-party data.
Installing and Removing Data Cards

You can use optional Garmin data cards in your GPSMAP 278 to show digital charts and maps. Install the data card in the card slot located on the bottom of the unit. Install or remove the data card at any time, whether the unit is on or off.

You can load a variety of information on your data card, such as MapSource detailed maps. You can also buy pre-programmed cards to use with your GPSMAP 278.

NOTE: Data cards are not waterproof, should not be exposed to moisture or excessive static charges, and should be stored in the case supplied with the card.

To install a data card:
1. Insert the card into the slot on the bottom of the unit. Be sure the label is facing the front of the unit.
2. Firmly push the card into the unit. It is not necessary to force the card. The handle is still exposed when it is properly inserted.
3. If the unit is on, a confirmation tone sounds. The first time you insert a programmed data card, the unit takes a few seconds to read the card. Once the data card has been properly installed and accepted, a summary screen noting the card details appears. Press ENTER to acknowledge.

If you insert a data card and get a card format not recognized message, try removing the card and reinserting it. If the card is still not recognized, contact Garmin or your Garmin dealer.

To remove a data card:
1. Grasp the card handle. The handle expands for easy removal.
2. Pull the card out of the card slot on the bottom of the unit.
3. If the unit is on, a confirmation tone sounds when the data card has been removed.
**Interfacing**

The following formats are supported for connection of external devices: GARMIN proprietary Differential GPS (DGPS), NMEA 0180, 0182, 0183 (versions 1.5, 2.0, 2.3, 3.01), ASCII Text Output, and RTCM SC-104 input (version 2.0).

The following are the Approved Sentences for NMEA 0183, version 3.01 output: GPRMC, GPGGA, GPGSA, GPGSV, GPGLL, GPBOD, GPRTE, and GPWPL. The following are the Proprietary Sentences for NMEA 0183, version 3.01 output: PGRME, PGRMZ, and PGRMM.

The GPSMAP 278 also includes NMEA input with support for the BWC, DBT, DPT, DSC, DSE, MTW, VHW, VTG, and XTE sentences.

Garmin’s proprietary communication protocol is available from the Web site (www.garmin.com).

**Removing the GPS Antenna**

You can remove the GPS antenna to use an external antenna. After the antenna is removed, the BNC connector is exposed and ready for use with an external antenna. For information on connecting an external antenna to the GPSMAP 278, refer to the installation instructions that came with the antenna.

To remove the GPS antenna:

1. Remove the external power cable from the connector on the back of the GPSMAP 278.
2. Rotate the antenna to approximately a seven o’clock position. The alignment notches in the casing must line up with the notches on the antenna.
3. Pull the antenna away from the GPSMAP 278 unit.
What is EGNOS/WAAS/MSAS?
The European Geostationary Navigation Overlay System (EGNOS) is European Space Agency developed service to improve the overall integrity of the GPS signal and increase position accuracy for users in Europe. In North America, EGNOS is referred to as WAAS.

The system is made up of satellites and network of ground reference stations positioned across Europe that monitor GPS satellite data.

All SBAS systems use the same receiver frequency; therefore any operational SBAS system should be capable of providing your GPS unit with increased accuracy at any location in the world.

Currently, enabling EGNOS/WAAS on your Garmin GPSMAP 278 in regions that are not supported by ground stations may not improve accuracy, even when receiving signals from an SBAS satellite. In fact, it can degrade the accuracy to less than that provided by GPS satellites alone. For this reason, when you enable EGNOS/WAAS on your Garmin GPS receiver, the receiver automatically uses the method that achieves the best accuracy. To enable EGNOS/WAAS, see to page 6.

LORAN TD Setup
LORAN C is a radio navigation aid operated and maintained in the United States by the United States Coast Guard. LORAN (LOng RAnge Navigation) system covers the entire United States and the U.S. Coastal Confluence Zone. From the perspective of a mariner, the system is used for ocean and coastal navigation. It can be used as a supplemental system for harbor and harbor approach navigation, and it is used for inland navigation by recreational vehicles.

LORAN TD Feature
The LORAN TD (Time Delay) feature eases the transition from using LORAN to using GPS. The GPSMAP unit automatically converts GPS coordinates to LORAN TDs for those who have a collection of LORAN fixes for favorite fishing spots and other waypoints recorded as TDs. You can display your location as a TD or enter waypoints as TDs. The accuracy to be expected from this conversion is approximately 30 meters. When the unit is placed in the LORAN TD format mode, it simulates the operation of a LORAN receiver. Position coordinates might be shown as TDs, and all navigation functions may be used as if the unit was actually receiving LORAN signals.
Using the LORAN TD Format

When creating new waypoints using LORAN TD coordinates, you must set the correct LORAN chain number and secondary stations in the Setup TD field before storing the waypoint. After the waypoint is stored in the unit’s memory, it always references the LORAN chain number and secondary stations selected in the Setup TD field. If you enter a different LORAN chain number or change the secondary stations or offsets in the Setup TD field, the active waypoint information reflects those changes. Because the GPSMAP 278 does not rely on the LORAN signal for navigation, it can reference a different GRI chain and/or secondary stations and still navigate to the location stored in memory.

The LORAN TD Setup window contains the fields to select the Loran GRI-Chain Number, Primary and Secondary Stations, and TD Offsets.

To set up Loran TD from the Main Menu:
1. Highlight the Setup tab on the Main Menu, and then highlight the Location sub tab.
2. Highlight the Location Format field, and press ENTER.
3. Highlight Loran TD, and press ENTER.
4. Highlight the Setup button located on the right side of the Location Format field, and press ENTER. The Loran TD Setup window appears.

5. To change the settings of any of the five fields, highlight the field, press ENTER, select a setting using the ROCKER, and press ENTER AGAIN.

6. When finished, highlight the Save button, and press ENTER.

If the active GRI Chain, secondary stations, or offsets were changed since the waypoint was created, the waypoint references the active GRI chain and secondary stations and adjusts the TD coordinates accordingly. Remember that the GPS is not relying on the LORAN signal for navigation and actually converts the TD coordinate to a useful latitude and longitude coordinate before storing the waypoint to memory or using it for navigation. Because of this, the unit can navigate to a TD coordinate anywhere in the world.

For more information on LORAN TDs, you can download the LORAN TD Position Format Handbook from the Garmin Web site.
Map Datums and Location Formats

Map Datums are based on a mathematical model of the Earth.

What Are a Map Datums?
A datum is a mathematical model of the Earth that approximates the shape of the Earth and enables calculations to be carried out in a consistent and accurate manner. The datum is physically represented by a framework of ground monuments whose positions have been accurately measured and calculated on this reference surface. Lines of latitude and longitude on a map or chart are referenced to a specific map datum. Every chart has a map datum reference, and you can set the GPSMAP 278 to match most of those commonly used.

If you are navigating and comparing the GPS coordinates to a map, chart, or other reference, set the map datum in the GPS unit to the same datum as the map to ensure the most accurate navigation.

What is a Location Format?
Your current location can be viewed on the GPS in the form of coordinates. Because different maps and charts use different location formats, Garmin GPS units allow you to choose the correct coordinate system for the type of map you are using. The most common format is latitude and longitude, which is used by all Garmin units.

You can choose to change the location format to use with other coordinate systems in Location field of the Setup tab—Location sub tab. UTM/UPS (Universal Transverse Mercator/Universal Polar Stereographic) are easy-to-use metric grids that are found on most USGS topographic quadrangle maps. You can also select one of several other grids, including a user-definable grid (for the advanced user).

Digital Selective Calling (DSC)

DSC uses marine VHF radio GPS technologies to transmit and receive location information. DSC is used by mariners to assist them in two major areas: distress calls and position reporting.

A non-emergency DSC position report allows mariners to exchange and display the positions of one another. When you receive a DSC position, you can create a waypoint or to show the received position on an electronic map.

An emergency DSC distress call allows a vessel in trouble to transmit a substantial amount of information in a single transmission, or “call,” without the need for voice communication. When any nearby rescuer receives the DSC signal, an alarm sounds, and they immediately receive the position of the caller.

The rescuer can to navigate (Go To) the caller’s position to assist or forward the call on to the Coast Guard. When the Coast Guard receives the call, they can immediately access the caller’s information in their database while in transit to the caller’s location.

Any time a vessel receives a DSC call, the vessel can store that location and quickly navigate to that position using a Go To. This makes DSC a time-saver, especially in an emergency situation. To use DSC, users must first register their VHF radio with the FCC and receive a Maritime Mobile Service Identity (MMSI) number.

Understanding Distress Calls

With your GPSMAP 278 properly connected to a VHF radio with DSC output, you can receive any DSC distress call within range. An alert message appears and a tone sounds when a distress call is received. The alarm only sounds on a distress call; position reports do not sound the alarm. Distress calls are broadcast to all DSC users in radio range and appear with a blue and white checkered icon on the DSC Call List and Log tabs.

You can enter a caller’s name, if it is known. The caller’s name replaces the MMSI number as a reference once entered.

Understanding Position Reports

The Position Report operates similarly to the distress call. This type of contact is like a phone call; no emergency alarms are set off. Position reports are not broadcast to all DSC users and appear with a gold boat icon.

Receiving DSC Calls

Each time you receive a distress call or position report, either the DSC Position Report Page or a Distress Call Page opens. Both pages contain identical fields to the DSC Entry Review Page.
Each entry in the Call List and Log has a corresponding DSC Entry Review Page. This page operates similarly to the Distress Page and Position Report Page. From the DSC Entry Review, you can delete the entry, save it as a waypoint, or show the location on the map.

To review a call or log entry:
1. Open the Call List or Log from the DSC tab.
2. Highlight the call you want to review.
3. Press ENTER to open the DSC Entry Review Page.

**DSC Call List**
The Call List shows the 50 most recent calls, even if the unit is left unattended. The Call List only shows the most recent call from a vessel. If a second call is received, it replaces the first call in the Call List. Press MENU to sort the list and delete entries.

**DSC Log**
When DSC calls are received, they are automatically stored in the Log, with the latest call at the top. The unit can store up to 100 calls; after 100 calls are received, the oldest log file is removed when a new call is received. Press MENU to sort the list and delete entries.
**Receiving a Position Report or Distress Call**
After you receive a Position Report or a Distress Call, you can quickly navigate to the location. Highlight a call from the Call List or Log and press Direct To. The top selection in the Navigate Menu is highlighted. Press ENTER to go to the location.

**DSC Directory**
The DSC Directory acts much like a phone book and can hold up to 50 entries. Pressing MENU from this page allows you to add a New Item, Delete a highlighted entry, or Delete All entries.

To add a new Directory entry:
1. Open the DSC Directory on the Main Menu.
2. Use the ROCKER to highlight the first blank space in the directory list and press ENTER.
   OR
   Press MENU, highlight New Item, and press ENTER.
3. Enter the MMSI number, the name, and any comments.
4. When finished, highlight OK, and press ENTER.
Enter the MMSI number, name, and a comment (if needed) in the fields.

Highlight OK and press ENTER to save the directory entry.

After creating a New Directory Item, the name created is attached to that particular MMSI number. If you return to the Log, the new name appears under the corresponding MMSI number.

Another way to input a name is from the Entry Review Page or the DSC Distress Call or DSC Position Report pages. The Name and MMSI are sent to other Garmin GPS units: Only the MMSI numbers are sent to other non-Garmin DSC users.

**Making a Distress Call**
To make a Distress Call, press the MayDay button on your VHF radio. The call transmits on an emergency channel with the MMSI number attached to the call, if you have DSC support. Any DSC-equipped mariner (on sea or land) within range can receive the call.

**Setting Up DSC**
Use the Setup sub tab to turn DSC on and off. If you have more than one chartplotter and only want DSC to display on another chartplotter, turn DSC off on this unit.

This Setup sub tab also allows you to simulate Distress Calls and Position Reports while the unit is in Simulator Mode. Simulating calls is helpful for practice before connecting to the real system. The Distress Call simulator also helps to check if alarms are working properly.
What is a Maritime Mobile Service Identity (MMSI) Number?
MMSI allows a VHF radio to act like a phone. The 9-digit MMSI number acts like a phone number when used in a position report and as a unique identifier to the Coast Guard when used in an emergency distress call. To obtain a MMSI number, users must register their VHF radio with the FCC (Form 605). Garmin does not supply this number!

For more information regarding MMSI numbers, visit www.navcen.uscg.gov/marcomms/gmdss/mmsi.htm.

How Are MMSI Assignments Obtained?
Non-commercial users, such as recreational users, who remain in United States waters and only carry VHF, EPIRB (Emergency Position Indicating Radio Beacons), and Radar are not required to have a FCC ship station license. The FCC and Coast Guard have authorized some second and third-party vendors to assign MMSI numbers. This service is limited to registering recreational vessels only. To receive information on how to obtain a recreational MMSI number, contact www.uscg.mil/rescue21/links/mmsi.htm or http://wireless.fcc.gov/marine/.

Non-Federal Users in the United States
Commercial users, or those who travel outside the United States or Canada, must apply for a ship station license or an amendment to a ship station license. To find out if you require a Ship Station license, visit http://wireless.fcc.gov/marine/fctsht14.html. If your vessel requires licensing by the FCC, you can obtain a MMSI during the application/licensing process when you file FCC Forms 159 and 605.

Federal Users in the United States
Federal users can obtain MMSI assignments from their agency radio spectrum management office. These procedures are currently under review by the National Telecommunications and Information Administration (NTIA).

Users Outside the United States
Users can obtain an MMSI assignment from their telecommunications authority or ship registry, often by obtaining or amending their ship station license.

Users In Canada
Industry Canada is responsible for assigning MMSI numbers to commercial and recreational vessels. Information is available at the following Web site: http://apollo.ic.gc.ca/english/mmsi.html.
**How Can Garmin Help You with DSC?**

To receive distress calls or position reports, you must have a DSC-equipped chartplotter as well as a VHF radio with DSC support. During normal, non-emergency position report communication, Channel 70 (156.525 MHz) has been set aside as the VHF/DSC digital call channel.

For a distress call, press the MayDay button on the VHF radio. The call transmits on an emergency channel with the MMSI number attached to the call, if the receiver has DSC support. Any DSC-equipped mariner (on sea or land) within range can receive the call.

When the GPSMAP 278 is connected to a VHF with DSC support, the GPSMAP 278 shows a call list, log, and a directory. Basic wiring is required for the Garmin unit and VHF radio to send and receive NMEA data from each other.

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**Declaration of Conformity (DoC)**

Hereby, Garmin, declares that this GPSMAP 278 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

To view the full Declaration of Conformity, see the Garmin Web site for your Garmin product: [www.garmin.com/products/gpsmap278/](http://www.garmin.com/products/gpsmap278/). Click **Manuals**, and then select the **Declaration of Conformity** link.
**Accuracy Alarm**—the GPS accuracy has fallen outside of user-set value.

**Alarm Clock**—the alarm clock has sounded.

**Antenna Shorted to Ground**—the external GPS antenna has an electrical connection problem. Contact Garmin Product Support.

**Approaching Turn**—you are nearing a turn in a route.

**Arriving at Destination**—you are nearing your destination.

**Batteries Low**—the battery needs to be recharged.

**Basemap Failed Unit Needs Repair**—there is an internal problem with your unit. Contact Garmin Product Support to have the unit serviced.

**Boat Is Not Moving Fast Enough to Calibrate**—the boat is not moving fast enough for the speed wheel to provide a valid speed.

**Can’t Unlock Maps**—no applicable unlock code for one or more maps was found. All MapSource maps are not accessible.

**Database Error**—internal problem with the unit. Contact your dealer or Garmin Product Support to have the unit repaired.

**Deep Water**—the water is deeper than the amount set in the Deep Water Alarm.

**Detail Maps Don’t Support Routing**—maps that are loaded on the data card do not support automatic route calculation.

**Distress Call**—a DSC distress call was received. Take appropriate action.

**Dragging Anchor**—the distance set in the Anchor Drag Alarm was exceeded.

**Drift Alarm**—the water depth has changed by the amount entered in the Drift Alarm setup.

**Fish Alarm**—a fish was detected. The unit shows an icon and beeps (if enabled). This alarm does not display a message banner.

**Lost Satellite Reception**—the unit is unable to receive satellite signals.

**Memory Full**—unit memory is full, no further data can be saved.

**Memory (RAM) Failed Unit Needs Repair**—there is an internal problem with your unit. Contact Garmin Product Support to have the unit serviced.

**Memory (ROM) Failed Unit Needs Repair**—there is an internal problem with your unit. Contact Garmin Product Support to have the unit serviced.

**Near Proximity Point**—you have reached the distance set for a proximity waypoint.

**NMEA Depth is Below Transducer**—no keel offset value has been received from the external sonar device.

**No Diff GPS Location**—RTCM is selected but the unit is not receiving DGPS data.

**No Roads Near Destination**—the destination for the road route you tried to calculate is not near any roads. Select a different destination.

**No Roads Near Starting Point**—the start location for the road route you tried to calculate is not near any roads. Select a different start location.

**No DGPS Position**—no differential connection data is available, or not enough data is available to calculate a DGPS position.

**No Tide Stations for that Area**—no tide stations within 100 miles of the area.

**None Found**—no data matched the search criteria.
Off Course—you are off course by the distance set in the Off Course Alarm.

Proximity Memory Full—no additional proximity waypoints can be saved.

Proximity Radius Overlaps—the radius of two proximity waypoints overlap.

Route Already Exists—you have entered a route name that already exists.

Route Calculation Error—no route can be calculated.

Route Memory Full—no additional routes can be saved.

Route Truncated—uploaded route from another device has more than 300 waypoints.

Route Waypoint Memory Full—no additional route waypoints can be saved.

Shallow Water—the water is shallower than the amount set in the Shallow Water Alarm.

Sonar Failed Unit Needs Repair—there is an internal problem with the unit. Contact Garmin Product Support to have the unit serviced.

Sunrise, Switching to Day Mode—the unit is switching to Day Mode.

Sunset, Switching to Night Mode—the unit is switching to Night Mode

Track Already Exists—a saved track with the same name already exists.

Track Log Full—the track log is full and track recording was turned off. To record more track points, you need to clear the track log and turn track recording on.

Track Memory Full—no more track data can be stored. Delete the old track data to store the new data.

Track Truncated—a complete uploaded track will not fit in memory. The oldest track log points have been deleted.

Transducer Disconnected, Sonar Turned Off—the unit has no transducer attached, has a bad cable/transducer, or has a disconnected transducer cable.

Transfer Complete—data transfer was completed.

USB Connected—the USB cable was recently plugged in.

User Timer Expired—the Timer Alarm value has counted down to zero.

Water Speed Sensor is Not Working—the speed sensor is not detected. Check the connections.

Water Temperature Alarm—sonar has reported a temperature above, below, inside, or outside the specified value(s).

Waypoint Already Exists—a waypoint with the same name already exists.

Waypoint Memory Full—the unit has stored the maximum number of waypoints.
Data Field Options

The following list provides a brief description of each data field option. Some of these options are supported only by devices interfaced to your GPSMAP 278.

**Accuracy**—the current accuracy of your GPS determined location.

**Battery Timer**—the time remaining on the battery before it is fully discharged.

**Bearing**—the compass direction from your current location to a destination.

**Course**—the desired path of travel from your starting location to a destination.

**Course to Steer**—the recommended direction to steer in order to reduce cross-track error and return to the course line. Shown as **Steer**.

**Cross Track**—the distance you are off a desired course in either direction, left or right.

**Depth** (Marine Only)—the depth of water from sonar NMEA input.

**Dest Wpt**—see **Waypoint (Destination)**.

**Distance** (Destination)—the entire distance of a route, from beginning to end.

**Distance** (Next)—the distance to the next point on a route.

**ETA** (Destination)—Estimated Time of Arrival. The estimated time you will reach your destination.

**ETA** (Next)—Estimated Time of Arrival. The estimated time you will reach the next point on your route.

**Elevation**—the altitude (height) above or below mean sea level (MSL).

**GPS Status**—the current status of the GPS receiver, such as “3D GPS.”

**Location** (Lat/Lon)—your current location as latitude/longitude coordinates.

**Location** (Selected)—your current location described in the selected units of measure (other than lat/lon).

**Max Speed**—the maximum speed the unit has moved since last reset.

**Mov Avg Spd**—see **Trip Avg. Speed (Moving)**.

**Move Timer**—see **Trip Timer (Moving)**

**Next Course**—the course your route will take you on after you reach the next waypoint.

**Next Turn**—the direction of the next turn on an active route.

**Next Wpt**—see **Waypoint (Next)**.

**Odometer**—the total distance traveled since the odometer was reset.

**Pointer**—the arrow indicating the direction to travel to the next point on a route.

**Power**—the power indicator icon: Battery, External Power, or Charging.

**Speed**—your current vehicle speed can be measured in kilometers per hour, miles per hour, or knots.

**STEER**—see **Course to Steer**.
Sunrise—the time at which the sun rises on this day.

Sunset—the time at which the sun sets on this day.

Time—the current time and date. It can be shown in 12-hour or 24-hour format in local time or universal (UTC) time.

Track—the direction of movement relative to a ground position. Also referred to as ground track.

Trip Avg. Speed (Moving)—the average speed while moving since the last reset of the trip computer. Appears as Mov Avg Spd.

Trip Avg. Speed (Total)—the total average speed traveled since the last reset of the trip computer. Appears as Ttl Avg Spd.

Trip Odometer—the total distance traveled since the trip computer was reset.

Trip Timer (Moving)—the length of time your vehicle has been in motion, since the trip computer was reset. Appears as Move Timer.

Trip Timer (Total)—the total time the unit has been tracking since the trip computer was reset.

Ttl Avg Spd—see Trip Avg. Speed (Total).

Turn—the distance between Bearing (BRG) and Track (TRG). L indicates you should turn left. R indicates you should turn right. The degrees indicates the difference angle and the number of degrees you should turn.

User Timer—the timer you set on the Main Menu.

Velocity Made Good—the rate of closure on a destination based on your current speed and course of travel. Appears as VMG.

Vertical Speed—the rate of climb or descent.

Voltage—the direct current voltage level of an external power source.

Water Speed (Marine Only)—the data acquired from measurement devices interfaced to the unit is used to calculate your current speed over water.

Water Temperature (Marine Only)—the temperature of water at a measured depth using measurement devices interfaced to the unit.

Waypoint (Destination)—the last point on a route, your destination. Appears as Dest Wpt.

Waypoint (Next)—the next waypoint in your route. Appears as Next Wpt.
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Contact Garmin if you have any questions while using your GPSMAP 278. In the USA contact Garmin Product Support by phone: 913/397.8200 or 800/800.1020, Monday–Friday, 8 AM–5 PM Central Time; or go to www.garmin.com/support/, and click Product Support.

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The Garmin GPSMAP 278 has no user-serviceable parts. Should you ever encounter a problem with your unit, please take it to an authorized Garmin dealer for repairs.
FCC Compliance

The GPSMAP 278 complies with Part 15 of the FCC interference limits for Class B digital devices FOR HOME OR OFFICE USE. These limits are designed to provide more reasonable protection against harmful interference in a residential installation, and are more stringent than “outdoor” requirements.

Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses, and can radiate radio frequency energy and may cause harmful interference to radio communications if not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The GPSMAP 278 does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could result in permanent damage to the equipment and void your warranty and your authority to operate this device under Part 15 regulations.
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