

**STANDARD OPERATING PROCEDURE**  
**Using the Garmin® GPS III+ unit**

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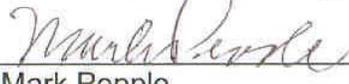
**KEY WORDS**

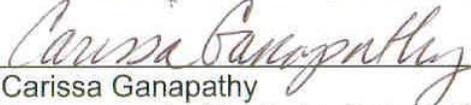
Waypoint, global position, longitude, latitude

**APPROVALS**

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## STANDARD OPERATING PROCEDURE Using the Garmin® GPS III+ unit

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### 1.0 INTRODUCTION

#### 1.1 Purpose

This Standard Operation Procedure (SOP) discusses the specific procedure for using the Garmin® GPS III+ unit to determine global position. This SOP will cover the basic features and navigation of the Garmin® GPS III+ unit, initializing the unit, marking waypoints, and traveling to waypoints.

#### 1.2 Definitions

1.2.1 Waypoint: A destination or point of reference in longitude and latitude.

### 2.0 MATERIALS

- 2.1 Garmin® GPS III+
- 2.2 Garmin® GPS III+ manual
- 2.3 4 AA batteries



### 3.0 PROCEDURES

Instructions included here are modified from the Garmin® GPS III+ Owner's Manual and Reference.

#### 3.1 Turning On and Off the GPS III+

3.1.1 To turn the GPS III+ on or off, press and hold the red power key. When turning off the unit the power key must be held down for at least 1 second.

#### 3.2 Initializing the GPS III+

- 3.2.1 Check the GPS III+ to see if initialization is needed prior to entering an area you are unfamiliar with (see 3.2.3).
- 3.2.2 Initialization is required under three circumstances: if the unit has never been used before, after the unit has been moved more than 500 miles from its last use, or if the unit has had its memory cleared. Memory clearing may result from loss of battery power for an extended period.

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3.2.3 When initialization is needed, the GPS III+ will give a message informing you of this. Press ENTER when this occurs. Use the rocker keypad (the large center button that reads GPS III+) to highlight 'Use Map' and press ENTER. Once a map appears, use the rocker keypad to point to your approximate location. The zoom IN and OUT buttons can also be used to make this easier. Once you have pointed to your approximate location, press ENTER. Initialization is complete.

### 3.3 Navigation (NAV) Setup

3.3.1 The first time you use the GPS III+ it is important to check the navigation (NAV) setup. The GPS III+ will hold the navigation (NAV) setup parameters in its memory and does not need to be reset each time you turn the power off and on. If the memory is cleared, the navigation (NAV) setup will have to be reset. By pressing the Rocker keypad (top, bottom, left, right) one can maneuver to the field that needs to be corrected.

3.3.1.1 Press MENU twice to get to the main menu and select "setup" using the Rocker keypad.

3.3.1.2 Use the Rocker keypad and Enter key to select the following parameters.

- i. POSN: you may choose any position format preferred or required for the project.
- ii. MAP DATUM: NAD27 CONUS
- iii. UNITS: Statute
- iv. Heading: True

### 3.4 Navigating Through Different Screens

3.4.1 When the GPS III+ is first turned on, it will go thru a sequence of three introductory screens. There are then six main screens displaying different information. In order to navigate through these screens press the PAGE key or the QUIT key. The PAGE key moves you through the screens in a forward direction, while the QUIT key moves you through the screens in the reverse direction. To change the orientation of the screen, from vertical to horizontal and vice versa, press and hold the PAGE key.

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- 3.4.1.1 The first main screen in the sequence is the satellite status page. While the GPS III+ is locating satellites, it will read “acquiring stats”. On this page you can find the battery level (E though F scale), the number of satellites you are currently receiving a signal from, and what type of navigation you are capable of. See section 3.5.5 for further details.
- 3.4.1.2 The second page is the position page. Your current position, time, date, speed, and other stats can all be found on this page. If the incorrect time is displayed, refer to the owner’s manual to reset. The order in which these stats appear depend upon which screen orientation is in use.
- 3.4.1.3 The map page is the third page in the sequence. This page is used in initialization and when traveling to waypoints (see sections 3.5 & 3.6 for further details regarding waypoints). Your present position is also indicated on this page with a dark arrow. Basic stats, such as speed and distance can be found on this page, though they can only be seen when traveling to waypoints.
- 3.4.1.4 The compass page and highway page are the fourth and fifth pages and have essentially the same function. Both pages are used for navigation when traveling to a waypoint. When using the compass page you want to keep the arrow pointing straight up (this means you are heading directly towards your destination). When using the highway page the idea is to keep the pointer pointing up and the image of the highway straight ahead.
- 3.4.1.5 The sixth and last page in the sequence is the active route page. One function of this page is to list the waypoints that have been selected. This page has other functions that can be found on pg. 58 of the manual.

## 3.5 Finding Satellites

- 3.5.1 The GPS unit takes time to achieve maximum accuracy. Turn on the unit 10 minutes before using for more accurate readings.
- 3.5.2 If you are not already there, find the satellite status page.

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- 3.5.3 The GPS III+ will automatically gain a signal from satellites on its own. In order to gain any signal you need to have a sky view. Signals from the satellites can be obstructed if using the unit indoors, or if surrounded by or standing near tall buildings, and canopy cover.
- 3.5.4 A signal is needed from at least three satellites to take 2D readings (longitude and latitude), and from at least four satellites to take 3D readings (longitude, latitude, and altitude).
- 3.5.5 The numbers within the circle represent satellites in the sky. Highlighted numbers correspond to satellites that the GPS III+ is currently receiving a signal from. The bars indicate the strength of the signal you are receiving from each satellite. A tall bar indicates a strong signal, while a short bar indicates a weak signal. The accuracy of the position fix is indicated by EPE (Estimated Position Error) and DOP (Dilution of Precision) figures. For more information on EPE or DOP refer to the owners manual.

### 3.6 Marking and Naming a Waypoint

- 3.6.1 To mark a waypoint or your current position, press and hold the ENTER key. A new screen should appear that gives the name of the waypoint (a default 3 digit number), the symbol it is represented by (this is located directly to the left of the name), the time and date, and the position of the point. For further detail or to reference a waypoint, please see owner's manual.
- 3.6.2 To change the name of the waypoint use the rocker keypad to highlight the name (or number) field and press ENTER. Using the rocker keypad you may now enter the new name of the point. Once you have entered the proper name, press ENTER.
- 3.6.3 To change the symbol given for the waypoint, highlight the symbol using the rocker keypad and then press ENTER. A menu should appear of different symbols to choose from. Select a symbol and then press ENTER. Highlight the 'done' button and press ENTER.

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#### **3.7 Traveling to a Marked Waypoint**

- 3.7.1 If you have a waypoint already marked on the GPS III+ that you wish to travel to, begin by pressing the key labeled GOTO. Using the rocker keypad highlight the tab labeled 'All' or 'Nearest Waypoints'. Select the desired waypoint and press ENTER.
  - 3.7.1.1 Using the map page you can also select a destination by using the rocker keypad to move the cursor to the location of the desired destination. In this case you do not need to already have a waypoint created, as the GPS III+ will create one automatically in its absence. Once you have moved the cursor to the correct location press GOTO and then press ENTER. If you wish to cancel a GOTO destination, press the GOTO button followed by the MENU button. When a menu pops up highlight 'Cancel GOTO' and press ENTER.
- 3.7.2 Now that your destination has been selected, the map page, compass page and highway page can be used to navigate yourself to the destination by following the arrow.

#### **4.0 REMEDIAL ACTION IN CASE OF MALFUNCTION**

- 4.1 Turn the unit off then back on. Check that the batteries are installed correctly, as indicated under the battery cover. Try new batteries if available.
- 4.2 Do not let the GPS III+ get wet.

#### **5.0 REPORTING REQUIREMENTS**

Record a waypoint and position data on water quality sheets, or in a notebook, or on a COC as required.

#### **6.0 REFERENCES**

Garmin® GPS III+ Owner's Manual and Reference