

MIDN Bird Vital Sign Protocol: Using the Global Positioning System (GPS)

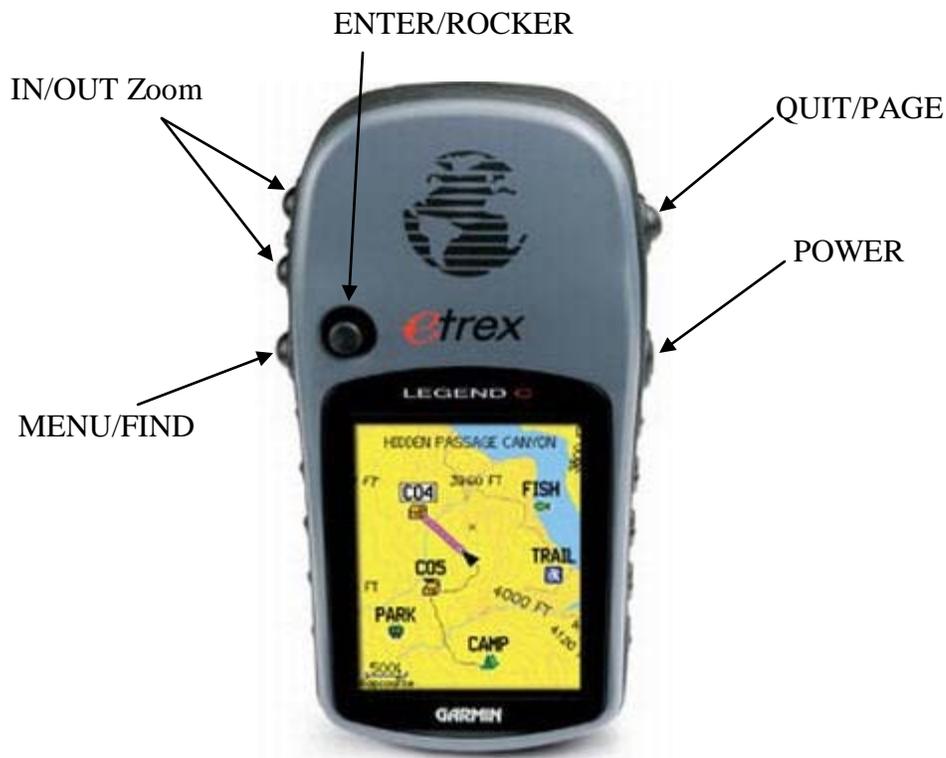
Version 1.03 (May 2011)

Overview

This Standard Operating Procedure was adapted from a SOP written by Shenandoah National Park for the Garmin 76CS. It explains the methods that all observers should follow to learn to use Global Positioning System (GPS) with the Garmin eTrex Vista HCX unit. GPS is used to help navigate to and locate pre-existing plots as well as document the location of new plots.

Suggested Reading

Garmin GPS eTrex Vista HCX Owner's Manual



Note:

- Use "Rocker" for scrolling/toggling.
- To Enter, press straight down on "Rocker".

Setting Up and Using the GPS Unit in the Field

GPS is used in the field to navigate to the predetermined location of new plots and to aid in the relocation of existing plots.

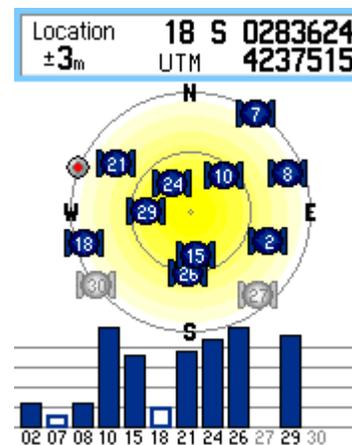
A. General Use

1. To turn the unit on press and hold 'POWER' until you see a display.
2. If you have trouble seeing the display you can hit power 2 or 3 times to increase the backlight.
3. At any time you can press 'QUIT/PAGE' to cancel data entry or exit a page

B. Setup

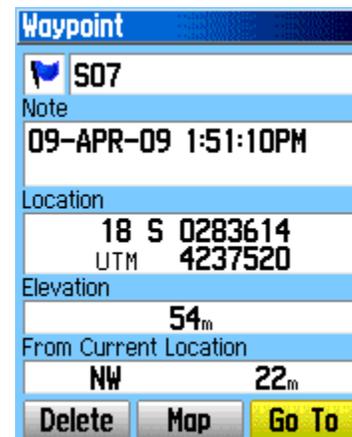
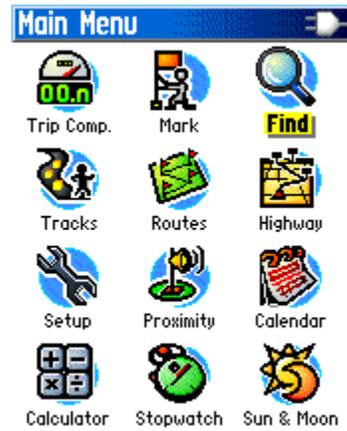
1. As soon as you turn the unit on, it starts searching for satellites. Your GPS should immediately take you to the satellite page. If not, you can track the status of the satellites by pressing 'Page' until you reach the Satellite screen. The GPS is most accurate when it has at least four satellites and a 3D position. To check if the unit has a 3D position, press 'POWER' once. If the unit does have a 3D position, it will show 3D on the bottom left. The GPS can pick up satellites quickest when it is positioned horizontally (i.e. screen facing sky). The location of satellites in the sky changes from day to day and thus sometimes satellite reception is more difficult to achieve. Openings in forest canopy can increase the strength of satellite signals reaching the GPS unit.

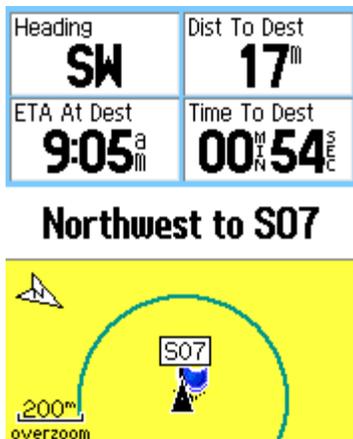
Once the receiver has at least four satellites, it will display the estimated accuracy on the upper left. The accuracy fluctuates as satellite signals are gained and lost. An accuracy of 10 m (30 feet) or better is desirable to precisely locate points.



C. Navigating to a site

1. After the receiver is turned on and has adequate reception, press and hold the 'MENU/FIND' key to get to the 'Find' menu.
2. Navigate to 'Waypoints' and press 'ENTR'.
3. Hit "QUIT/PAGE" once.
4. Use the 'ROCKER' to navigate to the point you want or click 'QUIT' to scroll to the appropriate waypoint. To select the point press 'ENTR'.
5. 'Go To' should already be highlighted so press 'Enter'.
6. The Map Page (default page), Compass Page or Highway Page can be used to navigate to the waypoint. To select the Compass Page or Highway Page, press 'QUIT/PAGE' once. At the top of the Map Page and Highway Page, the direction you are heading, the distance to the waypoint, the estimated time of arrival (ETA), and time to destination will be displayed. The compass page will show you your speed. As the distance to the waypoint decreases, the bearing and distance numbers will begin to jump around as the accuracy varies. As the waypoint nears, the use of a hand compass and measurement by pacing will help locate the point. An accuracy of 10m is required. Be sure to check the distance to destination.





Map Page



Highway Page



Compass Page

OTHER INFORMATION

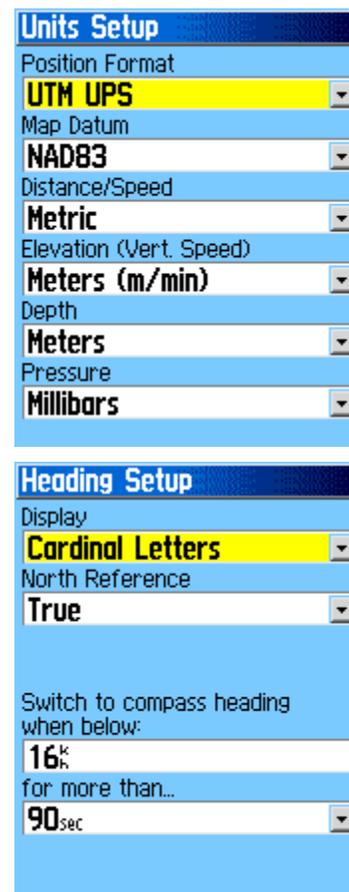
Formatting to GPS

1. Make sure the GPS is set to UTM NAD83.
 - a. Go to the Main Menu by pressing 'MENU' twice.
 - b. Toggle to 'Setup' and press 'ENTR'.
 - c. Toggle to 'Units' and press 'ENTR'.
 - d. Set the 'Position Format' to 'UTM UPS' and the 'Map Datum' to 'NAD83'. To change these, highlight the field press 'ENTR'. Then toggle to the appropriate setting and press 'ENTR' again.
 - e. To get back to the Setup menu press 'QUIT'.
2. Make sure the GPS is set to True North.
 - a. Toggle to 'Heading' on the Setup menu and press 'ENTR'.
 - b. Set the 'North Reference' to 'True'.

Note: These settings will be saved on the GPS and should not have to be re-entered each time the unit is turned on.

Each unit is equipped with rechargeable NiMH batteries.

Be sure to carry at least one full replacement of batteries for the GPS receiver. Battery power can be checked by pressing 'POWER' once or by looking at the top right of the menu page.



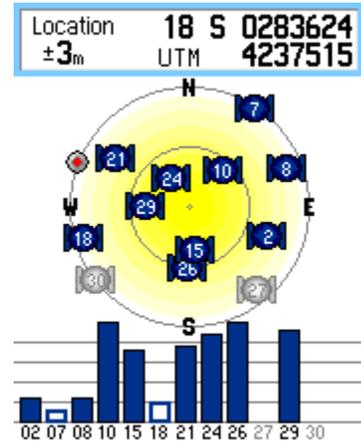
Turn the unit off, and replace the batteries if the power goes to 1 bar out of 4. Place the spent batteries in the "To Be Charged" box when you return the unit.

If for some reason the rechargeable batteries are replaced with standard alkaline batteries, then do the following:

1. Press the “QUIT/PAGE” button until you get to the Main Menu page.
2. Select “Setup” (picture of a wrench)
3. Select “System” (picture of a small wrench and two cogs)
4. Use the ‘ROCKER’ to navigate down to Battery Type. Press the ‘ROCKER, and choose Alkaline.
5. Use the same procedure, but chose NiMH if switching to rechargeable NiMH batteries from alkaline.
6. Do not mix alkaline and rechargeable batteries.

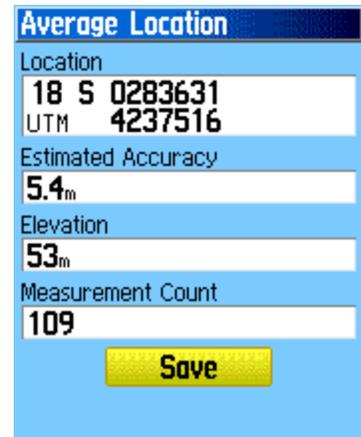
Reading your location

1. Navigate to the satellite page
2. On the top right you will see the coordinates
3. The first number is the grid number for the Easting (e.g. 0283624) the second is the grid number for the Northing (e.g. 4237515).
4. The number and letter above UTM (e.g. 18 and S) refer to the zone number for the coordinate system and can be ignored.



Taking a waypoint

5. From the main menu navigate to ‘Mark’
6. Change symbol
 - a. Navigate to the first line where the symbol is located and click ‘ENTR
 - b. Navigate to green flag and press ‘ENTR’
7. Change waypoint name (e.g. SP01A) by clicking the entry box and using the keypad
8. To mark waypoint click ‘Avg’ and wait till the Measurement Count field reaches at least 100
9. Click ‘Save’



Change History

Original Version #	Date of Revision	Revised By	Changes	Justification	New Version #
1.00	May23, 2009	NRM_VAFO		Easier to understand	1.01
1.01	May 6, 2010	NRM_VAFO	Added Battery setting info	Needed instructions for switching battery types	1.02
1.02	May 3, 2011	S. Wakamiya	Modified so suitable for all parks in network	Was written for VAFO	1.03