
Glide Navigator II Tips and Setup Procedure



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Pocket PC Tips

In addition to this GN II tips document, you will also want to read the *Pocket PC Tips* document found here: <http://www.cumulus-soaring.com/ppc.htm>

Overview

The first part of this document includes tips and answers to frequently asked questions regarding Glide Navigator II. The second part of the document contains the setup procedure I use when installing Glide Navigator II onto a new Pocket PC.

This document is available at: http://www.cumulus-soaring.com/gn_downloads.htm

Glide Navigator II Tips

Menu Access

To access the menu, touch the top right corner of the screen.

EnterPolar data into Glide Navigator II

Go to Menu 3 and press the “Polar Data” button. Below is a summary of the parameters you need to enter:

- Ballast in Liters – the maximum amount of water ballast the glider can carry.
- Empty Weight in Kilograms – Weight of the glider **and pilot** without water ballast. To convert pounds to Kilograms divide by 2.205.
- Best Glide L/D – Be a little conservative
- Best Glide in kilometers/hour – Speed at which the best L/D is achieved. To convert miles/hour into kph multiply by 1.609.
- V2 – Speed in kilometers per hour at which the polar crosses the 2 meter/second (394 feet/minute) sink rate. To convert miles/hour into Kph multiply by 1.609.

Speed-to-Fly

Glide Navigator II can display a “Speed-to-Fly” number on the map screen. **This number does not change as you fly through lift or sink.** It is designed to be a nominal speed to fly. It is based on the entered values for the polar, MacCready, and water ballast. Wind is not taken into account because theory suggests that you are

flying in an airmass and flying to the next thermal which is moving in the airmass and should therefore fly at a speed independent of the ground speed of the airmass. I use this number to get an idea for how fast I should fly when leaving a thermal. I find it very useful because I fly a wide variety of gliders and it helps me know how fast to fly. I then of course speed up in sink and slow down in lift. To enable the display of the number go to Menu 3 and click the “**Display Options**” button and press the “Next” button to access the “**Select Displayed Numbers**” dialog box and select the “Show Speed-to-fly” checkbox.

SUA Altitude – Start Gate Altitude Warning

I get many reports from contest pilots that say an altitude warning keeps popping up and interfering with their contest flying. The problem is that they are using the wrong setting to enable altitude warnings, or they are setting it incorrectly. There are 2 different ways that Glide Navigator II can display warning altitudes. There is a Start Gate altitude and an SUA Max Altitude.

- **SUA Max Altitude**

The SUA Max Altitude is set using the “SUA Warnings” button in Menu 2. If you will be flying in wave or near low altitude controlled airspace you may want to use this feature. It is rarely used. To use it you enable the check box and press the “Set” button to enter the maximum altitude in MSL altitude. It works great for warnings such as exceeding 18000 feet MSL and entering controlled airspace.

The SUA Max Altitude is not intended to be used for contest start altitudes.

- **Start Gate Altitude Limit**

The Start Gate Alt. Limit is set using the “Start Gates” button in Menu 3. Check the checkbox to enable it and use the “Set” button to enter the desired start gate maximum altitude in MSL altitude. **The Start Gate Altitude Limit is the correct parameter to use for contest start gate maximum altitudes.** Be sure to enter the start gate max altitude in MSL, not AGL.

Application Buttons

It is possible to re-assign the 4 buttons on the front of the Pocket PC to run any application or utility you desire. It is very common to assign the leftmost button to run the soaring software program. Glide Navigator II users sometimes assign the “Input Panel” (keyboard) to another button. To change the application button assignments go to: Start Menu/Settings/Buttons (icon). Select the button you want to change in the top window and then use the drop down list in the lower window to select the desired action. To use an application button to launch a program, it must be available in the Start Menu (see below).

Start Menu

The Start Menu is accessed by touching the top left area of the Pocket PC screen. You can touch the Windows icon or the text to the right of it. Note: Older model Pocket PCs have the Start Menu on the bottom of the screen – it may also be “hidden” such that you need to touch the bottom line of the screen to pop-up the start menu. Many soaring software programs automatically install themselves so that they are available in the Start Menu. But some (like Glide Navigator II) don’t use automatic installation programs (so that the file download is small) so they must be manually copied into the Windows/Start Menu directory if you want to be able to run them from the Start Menu.

Note that there is limited space for applications in the Start Menu. If you have too many applications in that directory the program may not show up in the Start Menu. To remove applications you don't need from the Start Menu go to: Start Menu/Settings/Menus (icon). Remove check marks from the applications you don't use to make room for your soaring applications.

Hiding the Menu Bar

If you switch between applications it is possible that you will return to your soaring software and the top (or bottom) of the screen may be covered by the Start Menu. To bring the application back to the front again and hide the Start Menu you can re-run the software using either of the methods listed below:

- Touch the Start Menu and then select the application name from the Start Menu list. It will not run the application a 2nd time. It will bring the application back to the front.
- If you have assigned an application button to run the desired program (see above) you can simply press that button again. It will not run the application a 2nd time. It will bring the application back to the front.

Rocker Switch

Most Pocket PCs have rocker switch on the side or the front of the unit. This rocker switch is very handy for several purposes. When viewing the map screen the rocker switch can be used for zooming in or out. When selecting waypoints while editing tasks or while in the "Go To Waypoint" screen the rocker switch is the easiest way to move through a long list of waypoints. To use the rocker switch to scroll through a list you must first make the list active by touching it. There is a minor bug in Glide Navigator II such that the last waypoint in the Go To Waypoint list is not always visible. It cannot be accessed using the scrollbar on the right side of the screen. However, the rocker switch can be used to view and select the last waypoint.

SUA Boundaries

Glide Navigator II will display SUA data only in the area that contains waypoints. Glide Navigator II draws a rectangular boundary around the waypoints and only displays SUA data that is inside that area. The area is not actually a rectangle but is bounded by the latitude and longitude lines so the area is narrower at the top in the Northern hemisphere.

Password or Waypoint Files Missing

Customers sometimes complain that their password cannot be found by Glide Navigator II. Glide Navigator II will store configuration data such as the password on a memory card (CF or SD) if there is a memory card installed in the Pocket PC. If the memory card is later removed you may need to re-enter the password. To keep from losing my passwords I keep them in a "Note" in Outlook on my PC. Then I have the Notes synchronized with my Pocket PC. That way I always have the password with me at the airport because I can open the note on my Pocket PC.

Memory Cards

CF (Compact Flash) and SD (Secure Data) cards are a great place to store soaring programs, waypoint and SUA files. The data stored on the card will not be lost if the battery in the Pocket PC runs down. If you forget to charge your Pocket PC and the

battery runs down you will need to recharge the Pocket PCs battery and copy all soaring programs, waypoint and SUA files back into the Pocket PCs memory. It is possible to run some soaring programs directly from the memory card, but I recommend copying them to the Pocket PC memory for two reasons. First, theoretically the program will run faster from Pocket PC memory than from SD or CF card memory. The difference is very small though. The main reason is that I wouldn't want to accidentally bump the SD card and have it pop out of the Pocket PC in flight - and cause the Pocket PC to lock-up. CF cards are held quite securely in the Pocket PC so it is not as much of a concern for them. But SD cards are often easy to eject by accident as they use a spring mechanism for ejection. I've never had that happen to me in flight, but it is very possible. I tend to keep backup copies of the program and waypoint and SUA files on my memory card and I copy them all to Pocket PC memory and run them from there. That way I get the fastest program execution possible and I don't need to worry about bumping the memory card.

Installation

1. Download the Glide Navigator II program file to your PC by right-clicking on the desired filename below and selecting "Save Target As...".
2. Connect the PC to the Pocket PC using Microsoft ActiveSync (available as a free download at www.pocketpc.com).
3. Use Windows Explorer on your PC to copy the program file to your Pocket PC. The full path in Windows Explorer on the PC is "My Computer/Mobile Device/My Pocket PC/Windows/Start Menu". You can now run the program from the Start Menu on the Pocket PC.
4. I also recommend copying the GN program to an SD (Secure Data) or CF (Compact Flash) memory card as a backup. Pocket PCs will lose their battery charge after a week or so and all data on the Pocket PC will be lost. If you have a backup on a memory card you will be ready to fly as soon as you copy the program from the memory card to the Pocket PC. You can copy it using the File Explorer program on the Pocket PC. I usually save the backup of the program on my memory card using Windows Explorer on my PC. The full path is: "My Computer/Mobile Device/My Pocket PC/Storage Card/My Documents". If you use the File Explorer program on the Pocket PC the path is simply "My Documents"
5. Download or create waypoint and SUA data files and copy them to the directories listed below using Microsoft ActiveSync on your PC. There are more detailed instructions on this process below under the heading "Transferring Waypoint and SUA Files to the Pocket PC".
 - "My Computer/Mobile Device/My Pocket PC/My Documents" (I recommend this location)
 - "My Computer/Mobile Device/My Pocket PC/Storage Card/My Documents" (I recommend this location as a backup)

Waypoint Data Files

Glide Navigator II uses the same turnpoint data format used by Cambridge Aero Instruments products. Turnpoint data files are available from John Leibacher's Worldwide Soaring Turnpoint Exchange at: <http://soaring.aerobatics.ws/SOARING/JL/TP>. See the Transferring Waypoint and SUA

Files to the Pocket PC paragraph below for details on how to transfer the SUA files to your Pocket PC.

Note: When downloading files from the Worldwide Soaring Turnpoint Exchange, download the files labeled "Cambridge Aero Instruments", **not** the files labeled "Soaring Innovations Glide Nav®". Those files are for the original, early 1990's version of Glide Navigator which ran on HP-95 Palmtop computers.

Waypoint File Size – Cambridge GPS-NAV

The Cambridge GPS-NAV has a memory limit of 250 waypoints. Glide Navigator II can handle waypoint files of up to 2000 waypoints. I have found that the only way to get Glide Navigator II to successfully send task declarations to the GPS-NAV is to use the waypoints from the GPS-NAV in Glide Navigator II. When Glide Navigator II finds the GPS-NAV it asks whether you want to use the GPS-NAV waypoints. I always select "yes".

Waypoint File Size - Cambridge 302 or 302A

Cambridge 302 and 302A units can accommodate waypoint files of up to 1500 waypoints. I generally use very large waypoint databases in Glide Navigator II with no turnpoints loaded in the 302. The task declaration can be sent down to the 302 without any need to match existing waypoints in the 302. If you are using a 303 LCD Navigation Display you will need to load a waypoint file into the 302 or 302A. In that case it may make sense to use the same waypoint file (up to 1500 waypoints) in both GN II and the 302. But if they are not the same files it is not a problem for task declarations.

Special Use Airspace (SUA) Data Files

Glide Navigator II uses the [Tim Newport-Piece format](http://soaring.aerobatics.ws/SOARING/JL/TP/sua.html) (<http://soaring.aerobatics.ws/SOARING/JL/TP/sua.html>) for Special Use Airspace data files. SUA files for many regions of the world are available on John Leibacher's Worldwide Soaring Turnpoint Exchange. The SUA data files are located in the same area as the waypoint files for each soaring site. The list of waypoint files is sorted by instrument type, but the SUA data files are listed under "SUA". See the Transferring Waypoint and SUA Files to the Pocket PC paragraph below for details on how to transfer the SUA files to your Pocket PC.

Carl Ekdahl has created some very nice PC programs for creating SUA data files for the [United States](#), [Canada](#), and [Europe](#) here:

<http://soaring.aerobatics.ws/SOARING/JL/SUA/>

Transferring Waypoint and SUA Files to the Pocket PC

Download the waypoint and SUA files to your PC. Connect the PC to the Pocket PC using Microsoft ActiveSync (available as a free download at www.pocketpc.com). Use Windows Explorer on your PC to copy the waypoint and SUA files to your Pocket PC. Copy the files to any of the directories listed below. I have included the entire path as shown in Windows Explorer on the PC (not the Pocket PC). The directory names must be exactly as shown - capitalization is important:

- "My Computer/Mobile Device/My Pocket PC/**Storage Card/My Documents**" (**I recommend this location as a backup**)

- "My Computer/Mobile Device/My Pocket PC/**Storage Card**/SUAsandWPs" (must **not** be a sub-directory in the "My Documents" directory)
- "My Computer/Mobile Device/My Pocket PC/My Documents" (**I recommend this location**)
- "My Computer/Mobile Device/My Pocket PC/My Documents/SUAsandWPs" (this one **is** a sub-directory of the "My Documents" directory)

Flight Logs Created by Glide Navigator II's "PDA Logger"

This can be a bit confusing so I'm going to try to make this very clear. This section is **not** about flight log files downloaded from GPS flight recorders. It is about flight logs created by the "PDA Logger" feature in Glide Navigator II. Glide Navigator II can record your position and altitude every second and save it to either a memory card or the Pocket PC's internal memory. Every flight log will be saved with a unique filename that meets IGC standards such as: 578GNII1.IGC. However, the flight log is not IGC approved as secure so it cannot be used for badge or record claims or contest flight validation. However it is fun to view your flight in SeeYou or StrePla after the flight. Flight logs are even generated when in simulator mode. Many pilots confuse these GN II flight logs with flight logs downloaded from IGC approved flight loggers. Note that the filename contains the text "GNII". Any flight log with a filename that contains "GNII" was generated by GN II and not an IGC approved flight recorder.

The flight log will be saved to one of the directories listed below.

- On an SD or CF Memory Card: "Flights" (not My Documents/Flights)
- On the PDA: "My Documents/Flights" (only if a memory card is not available)

At this time Glide Navigator II does a good job recording the data points and creating a unique filename for every flight, but it does not create all the header data that is required for the file to be viewed correctly in SeeYou or StrePla. You will want to manually edit the flight log file and enter a pilot name, glider type and glider ID. If you do not edit the header data the flight review software will open the file just fine but won't correctly display the pilot and glider data. Below is a sample of the flight log data from the top of Glide Navigator II generated flight log files. To edit the data I copy the flight log to my PC and open it in Notepad. I then edit the data, and save the file. The added data is highlighted.

```

AXXXGN2 Soaring Innovations GNII
HFDTE180805
HFFXA050
HFPLT PILOT           : Paul Remde
HFGTY GLIDERTYPE     : DuoDiscusX
HFGID GLIDERID       : DuX
HFDTM100 GPS Datum   :Probably WGS84
HFRFW Firmware Version :GNII Version 2.4
HFRHW Hardware version :Unknown
HFFTY FR Type        :Generic GPS
HFGPS                :Unknown, generic, 12, 30000
HFPRS Press Alt Sensor :None, GPS altitude used, 20000
I013640FXA

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LX Navigation Colibri & LX20 Setup

Glide Navigator II can receive pressure altitude data and serial number data from LX Navigation Colibri and LX20 units. These features will probably also work with other LX products. The Colibri is **not** setup by default to send out all the data required by Glide Navigator II. It must be configured to send the correct data and have the baud rate (“COMSPEED”) changed to 4800 baud. Below is a list of the settings that must be correct:

- NMEA Output, “GPGGA = Y” (enabled by default)
- NMEA Output, “GPRMC = Y” (enabled by default)
- NMEA Output, “LXWPx = Y” (not enabled by default – you must enable it)
- COM Speed, “COMSPEED 4800bps” (not the default – you must set it)

Version 4 Colibris are very easy to setup. The “Pocket PC Data” option enables all the necessary data output sentences.

- Go to the Setup menu and use the down arrow key to access the “NMEA OUTPUT” screen.
- Press the “Enter” key to access the sub menus.
- Press the down arrow once. The display should read “Pocket PC Data”.
- Press the “Enter” key. The screen will momentarily display “Pocket PC Data Set”.
- Press the “Esc” key and then the down key once. The display should read “COM SPEED”.
- Press the “Enter” key.
- Use the up and down arrow keys to select “COMSPEED 4800bps”.
- Press the “Enter” or “Esc” key.

Version 3 or earlier Colibri units must have the output sentences enabled manually.

- Go to the Setup menu and use the down arrow key to access the “NMEA OUTPUT” screen.
- Press the “Enter” (“✓”) key to access the sub menus. The display should read “NMEA GPGGA? Y”. If the “Y” is not there you will need to edit it to enable it.
- Press the “Enter” (“✓”) key to enter edit mode.
- Use the up or down arrow key to change select “Y”.
- Press the “Enter” (“✓”) or “Esc” (“X”) key to exit the edit mode.
- Use the down arrow key to access the “NMEA GPRMC? Y” screen. If the “Y” is not there you will need to edit it to enable it.
- Press the “Enter” (“✓”) key to enter edit mode.
- Use the up or down arrow key to change select “Y”.
- Press the “Enter” (“✓”) or “Esc” (“X”) key to exit the edit mode.
- Press the up or down arrow key several times to access the “NMEA LXWPx? Y” screen. If the “Y” is not there you will need to edit it to enable it.
- Press the “Enter” (“✓”) key to enter edit mode.
- Use the up or down arrow key to change select “Y”.
- Press the “Enter” (“✓”) or “Esc” (“X”) key to exit the edit mode.
- Press the “Esc” key (“X”) and then the down key once. The display should read “COM SPEED”.
- Press the “Enter” (“✓”) key.

- Use the up and down arrow keys to select “COMSPEED 4800bps”.
- Press the “Enter” (“✓”) or “Esc” (“X”) key

GPS Type Not Recognized

Glide Navigator II checks the GPS type and reads the GPS serial number once every minute – as the GPS time rolls over each minute mark. When you first start Glide Navigator II it may not recognize the GPS or display the GPS serial number. That is normal. Once the clock rolls over a minute boundary the software will automatically figure out the GPS type. This feature had me confused because I kept setting the GPS Type to “Colibri/LX20” but every time I started the software it would go back to Generic GPS. When in Generic GPS mode it would not receive the pressure altitude data. Eventually I noticed in the GPS Info screen that the pressure altitude data started to work. I then went to the GPS Type screen and found that GN II had figured out that it was connected to a Colibri.

Password Fails - GPS Serial Number Not Detected

Glide Navigator II checks the GPS type and reads the GPS serial number once every minute – as the GPS time rolls over each minute mark. When you first start Glide Navigator II it may not recognize the GPS or display the GPS serial number. That is normal. Once the clock rolls over a minute boundary the software will automatically figure out the GPS type and GPS serial number. This feature had me confused. I was trying to enter the password into GN II and when I entered the correct password it displayed an error message stating that the password was bad and the logger serial number was not found or 0. I also noticed that the GPS Type was not correct. After a short time I noticed that GN II figured out the GPS Type. After that I found that GN II was able to find the GPS serial number and the password worked fine. So... if you can't get the password to work, wait a minute and try again.

Pocket PC and Glide Navigator II Setup Procedure

Overview

Below is the process I use to setup a Pocket PC with Glide Navigator II, and waypoint and airspace files. I always copy the files to an SD or CF memory card installed in the Pocket PC and then copy a few files from the memory card to the Pocket PC's internal memory.

Connect to Pocket PC using Microsoft Active Sync

Put the Pocket PC into the sync cradle and make sure the cradle is connected to your Pocket PC. If you haven't already done so, install Microsoft Active Sync on your PC. It was provided on a CD with your Pocket PC and is available here:

<http://www.pocketpc.com> in the download section.

Copy Files to Memory Card

Copy Glide Navigator II (the latest beta version) and waypoint and airspace files onto the SD or CF memory card. First, you may need to create a new directory on the memory card. It must be named "My Documents" for Glide Navigator II to be able to find it. Use Active Sync to copy Glide Navigator II and your waypoint and SUA files into the "My Documents" directory on the memory card. If you are using a Cambridge 302 you will also want to copy the 300 Utility (get the version for your device type) into the same directory. You can download the 300 Utility here: <http://www.cambridge-aero.com/300series.htm>

Copy Programs to Pocket PC Memory

Run the File Explorer program on the Pocket PC and use it to copy the Glide Navigator II.exe program and the Cambridge 300 Utility (if necessary) to the Pocket PC memory. Save it to the Windows/Start Menu directory. It should then appear in the Start Menu. If it does not appear it is because there are too many applications listed in the Start Menu so you will need to take a few out of the list. To do that go to Start Menu/Settings/Menu and uncheck the checkboxes for a few applications that you don't use often. Then re-copy Glide Navigator II to the Windows/Start Menu directory and it should appear in the Start Menu

Enter Owner Name

It is a good idea to enter your name into the Owner Information screen so that the Pocket PC can be returned to you if you lose it. Go to Start Menu/Settings/Owner Information (icon). Enter your personal data and click OK when done.

Set Pocket PC Clock and Calendar

It is a good idea to set the Pocket PC clock and calendar. Some soaring software programs use the Pocket PC clock and calendar rather than the GPS clock for some data. Go to Start Menu/Settings/System (tab)/Clock (icon). Enter the correct date and time and click OK.

Application Buttons

Assign a Button on the front of the Pocket PC to run Glide Navigator II and another button to access the "Input Panel". To change the settings from the Start Menu press

“Settings” and then touch the “Buttons” icon. In the window in the middle of the screen touch the button you want to assign to Glide Navigator II and then use the list below that window to select Glide Navigator II. It will then be assigned to that button. You can then use the button to launch Glide Navigator II or to bring it to the front if another application is covering it. I also recommend assigning an application to run the 300 Utility program.

Screen Brightness and Backlight Dimming Settings

For all Pocket PCs that have color screens, I recommend that you turn the backlight up to its highest brightness to make sure you can see the screen as well as possible in sunlight and when in the shade under clouds. Pocket PCs with black and white (greyscale) screens do not need to turn on the backlight. The downside is that this increases the current draw, but I feel it is necessary. To adjust the brightness setting go to: Start Menu/Settings/System (tab)/Backlight (icon)/Brightness (tab) and slide both sliders up to the top.

I also recommend that you disable the auto-dimming feature related to both battery and external power. Go to: Start Menu/Settings/System (tab)/Backlight (icon)/Battery Power (tab) and uncheck the checkbox labeled: “Turn off backlight if device is not used for:” Also, Go to: Start Menu/Settings/System (tab)/Backlight (icon)/External Power (tab) and uncheck the checkbox labeled: “Turn off backlight if device is not used for:”

Basic Glide Navigator II Setup Items

- Run Glide Navigator II and touch the top-right corner of the screen to access the menu.
- Press the “Next” button to access Menu 2 and then press the “**SUA, WP Files**” button. Select the desired waypoint and airspace files from the list on the bottom of the screen and click the “Add” button to add them to the list of active waypoint and airspace files in the top window. Then click “Done”.
- Touch the top-right corner of the screen again to access the menu.
- Press “Next” twice to access Menu 3 and touch the “**Units**” button. Select the desired units and click the “Menu” Button.
- Go to Menu 2 and click the “**Task Options**” button. I always check the boxes for “Multiple Tasks On”, “Declare Tasks On” and “Show FAI Sector”, but you can set them as you like.
- Go to Menu 3 and click the “**Display Options**” button and select only the checkboxes for “Show TP Names”, “Show Other WP Names” and “Show Waypoint Comments”. I like to view the entire waypoint name rather than the numbers, but you can set adjust those settings to suite your preferences. Then press the “Next” button to access the “**Select Displayed Numbers**” dialog box and select the “Show Speed-to-fly” checkbox.

- Go to Menu 4 and click the “**Password**” button. Enter the 8-digit password provided to you when you purchased Glide Navigator II.
- Go to Menu 3 and click the “**Polar Data**” button and enter the data for your glider.
 - Ballast in Liters – the maximum amount of water ballast the glider can carry.
 - Empty Weight in Kilograms – Weight of the glider **and pilot** without water ballast. To convert pounds to Kilograms divide by 2.205.
 - Best Glide L/D – Be a little conservative
 - Best Glide in kilometers/hour – Speed at which the best L/D is achieved. To convert miles/hour into kph multiply by 1.609.
 - V2 – Speed in kilometers per hour at which the polar crosses the 2 meter/second (394 feet/minute) sink rate. To convert miles/hour into Kph multiply by 1.609.
- Go to Menu 4 and touch the “Select GPS Logger” button. Select the GPS you are using. If it is not on the list select “Generic GPS”.

Please let me know if you have any other tips or setup procedure items that I should add to this document.

Good Soaring,

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