GPS setup for navigation or competitions
for Garmin 60, 64, 76, 78, 96 series
Note: each model may have slightly different menus

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1. **Track Log** – Go to "Menu" – "Tracks" and press enter.
   a. *Note:* Track log should be "on" *Note: It is very easy to turn it off, forget that it is off, fly – and have no tracks! It is better to turn off the receiver in the GPS (or use Demo mode) if you do not want to clutter up your track log with track points while on the ground. If you forget to turn on the receiver, you will know right away that your GPS is not receiving a signal e.g. a blinking question mark on top of your location ion. Check your doc on how to turn the receiver on and off.*
   b. Clearing the Log - Highlight "Clear" and press enter. Be SURE you CLEAR your track log BEFORE the comp begins. The scorekeepers do not appreciate filtering through dozens of tracklogs in your GPS. The ONLY data that should be in your GPS before a comp are the waypoints and that day's routes.
   c. Track log setup – highlight "Setup" and press enter
      i. Uncheck "Wrap when full". If, for some reason, your track log fills up, you will have the beginning and some end of your track log rather than get a "zero" when scored by the comp software.
      ii. "Record Method" is "Time". Pilots have chosen "Distance" or "Automatic" and – sadly – had no record when they briefly entered a proximity cylinder and left.
      iii. "Interval" should be 3-5 sec. Less than this, the log may fill quite fast. More than this – see "i." above.
      iv. "Data Card Setup" – (optional) Purchase a data card. In case you delete your track log, a backup will be stored here. A 125 mb card will store hundreds of hours of tracks. Scorekeepers for comps may know how to retrieve your saved tracks in case you have a disaster. Newer GPS's have internal storage that is many gigabytes (e.g. Garmin 64cs has 8 Gb of memory) so a data card is not that useful.
2. **Routing** – Go to Menu – Setup – Routing and press enter. You must be familiar with adding, deleting, and changing routes in your GPS. Thoroughly practice this beforehand. See your user manual.
   a. "Guidance Method" is "Off Road". You may not want to follow roads while flying.

b. "Activity" is "Direct Routing" if your GPS has this option.
c. Other options on the page are not active if "Off Road" is chosen and do not matter.

3. **Units** – Go to "Menu" – "Setup" – "Units" and press enter.
   a. "Position Format" is hddd.dddddº This is known as decimal degrees". It is far less confusing to enter degrees longitude and latitude in this manner. Any other method increases your chances of entering the wrong coordinates.
   b. "Map Datum" should always be set to WGS 84 (on some units see the setup menu "Position Format")
   c. "Distance/Speed" is "Metric" as most comps are done in this manner.
   d. "Elevation" can be metric or feet – whatever the pilot prefers.
   e. Other options do not matter

4. **Time** – Go to "Menu" – "Setup" – "Time" and press enter. Be sure to set the correct time zone for the region you are flying in. All GPS units use satellite time and record in UTC (Zulu) time so it will not affect your scoring. However, if you have the wrong time zone set and use your GPS as a clock, you could get confused as to when the meet starts, closes, etc.

5. **Map** – Go to "Menu" – "Setup" – "Map" and press enter
   a. "Orientation" should be "North Up". If you have "Track Up" it may be difficult to follow your route as the GPS will be re-drawing full screens rather than just your moving icon. Most who have aviation and marine pilot experience choose "North Up". If you are thermalling, for example, you will have no idea what your course direction is. This is a personal preference. The author of this FAQ thinks it is best to get used to "North Up" in the long run.
   b. "Auto Zoom" is off
   c. "Guidance Text" is "Never", if an option. This is a serious annoyance when flying.
   d. "Detail" is least. When flying picnic areas and other irrelevant detail should not be displayed. All you need to see are your tracks, waypoints, route, and enough detail that is viewable from the air such as major highways.
   e. Map errors: If you fail to see your proximity circles or other aspects of your map are incorrect, while in "Map", press "Menu", highlight "Restore All Map Defaults" and press enter. This will fix most problems.
   f. Other options do not matter.

6. **System** – Go to "Menu" – "Setup" – "System" and press enter
   a. "GPS" must be "Normal" ("GPS" or "GPS+GLONASS on some models). Note: GLONASS can sometimes conflict with "GPS" when navigating and the tracking will stop! Make sure your GPS is tested with GLONASS active before enabling it for any important navigation.
   b. "WAAS/EGNOS" should be "Enabled" for the greatest accuracy.
   c. "Proximity Alarms" must be ON if you want to be notified when you touch a proximity radius. Do NOT forget to press "enter" to clear the message. For additional and important info, see "8" below.
   d. Other options do not matter.

7. **Waypoints** – Learn how to download them from a computer/tablet/smartphone into your GPS as this will save a great amount of time. Creating the waypoints and setting the proximity radii is a tedious and time-consuming task if not done on another device e.g. computer. BaseCamp (free) by Garmin is the consummate software for both PC's and MAC's for doing this easily and quickly. GPSDump can translate tracks for all different kinds of units. A free download can be found here: http://fs.fai.org/ Get these tools and learn how to use them.
   a. To access/check your waypoints, press the "Find" button – highlight "Waypoints" and press enter (to enter a waypoint) and then "quit" to highlight and then access your existing waypoints. All of your waypoints should be visible. If they are not, you do not have any.
   b. It always best to upload your waypoints often as they can change from day to day.
8. **Proximity** – to check/change press "Menu" twice – highlight "Proximity" and press enter. You will see all of the waypoints that have a proximity cylinder set. Typically, the cylinder (proximity) is in miles/km or a fraction e.g. 0.5. For testing in a small area (yard) a value of 0.005 is about 30 feet and is the approximate limit of ordinary GPS accuracy. Setting the value on the GPS itself may be limited to .01 miles, depending on the model.

   Proximity Alarms may also be set in "System" – see "6c" above. Highlight the actual value and change as necessary. "Proximity Alarm Tones" must be checked (highlight this and press enter to see options). The tones may all be turned off as you cannot easily hear the tones when flying anyway and, even if they are heard, may be an unnecessary distraction i.e. "what tone was that, where did it come from, and what did it mean?" Note: The Proximity firmware in the GPS can be buggy on some models. Be sure to test your proximity settings with a practice waypoint before flying.

9. **Routes** – Go to "Menu" – "Routes" and press enter. *You will have to go to the user manual for details on setting up routes with waypoints and how to change, as needed. It is not particularly difficult but should be practiced before you get to the comp – you will have enough mental overload as it is. This is a task that may be required to perform at any time. Please don't waste other pilots' time learning stuff you should have acquired at another time and place. However, most will be happy to help if you can't remember some detail.*

   a. "Off Road Transition" or "Route Transition" *Note: This must be setup properly or the GPS will not advance through the waypoints in a way suitable for pilots. The purpose of proximity cylinders is so that you do not have to fly to a pre-determined minimum distance from every waypoint. This would be very hard to measure while in the air. This distance can vary widely depending on the competition host! With proximity cylinders you can fly to a waypoint and easily know if you are at the pre-determined minimum distance set for each waypoint.* On the "Route" screen, press "Menu". "Off Road Transitions". Set this value to "Manual". This means that when on the "Active Route" screen (see below), you will have to press the "Out" key (or equivalent) to advance to the next waypoint on the route. There is no method by which it will automatically advance when you touch the edge of a proximity cylinder. If you choose "Distance" and choose a distance from the waypoint, you can have the GPS automatically advance to the next waypoint but it is a set distance from ALL waypoints which may be too much or too little, depending on how the proximity cylinders are set for each waypoint. It would be really helpful to have a fourth option like "Proximity" with a plus (outside cylinder) or a minus value (inside cylinder) for each waypoint but nothing like this exists – yet.

   b. "Route" screen – this is a useful screen but must be setup properly. When a route is active this becomes the "Active Route" screen (see "e" below) and tells the pilot which waypoint he is going to, how far it is, and the relative direction towards it. Note: Some models and versions do not have all of these features. To setup, highlight the route and press enter. Press "Menu" and go to "Change Data Fields". Change the lower left screen to "Dist To Pt" and the lower right screen to "Pointer". You want to know how far it is to the next waypoint in the route and what direction it is. To advance to the next waypoint when navigating, press the "Out" button, to go back to the previous, press the "In" button. Note: These buttons only work if the GPS knows where you are and you have an active route. There are other screens that will give this info but they will not let

you advance your route to the next waypoint. Remember that you just set up your GPS to only advance to the next waypoint manually.

    c. To Navigate: Highlight the route you created and press enter. The default is "Navigate" so press enter again. You don't have to navigate but having an active route will:

        i. Highlight the route on the map.

        ii. Help you know which waypoint is next.

        iii. Tell you the direction you should go.

        iv. Indicate how far the next waypoint is (if you setup the appropriate data fields in the windows that are active while navigating).

        v. Visually following the route on the screen only works if it is a relatively straight course. If the route makes a sharp turn, then you want to navigate to the inside edge of the relevant proximity cylinder and touch it. This will give you the shortest distance to the next waypoint/goal. You could always add another waypoint just inside the proximity cylinder and navigate to it.

    d. "Map" Screen – when you start navigating, go the Map screen. You must get a feel for where your screens are via the "Page" and "Quit" keys as you may have to go back and forth between screens often.

    e. "Active Route" screen – After you start navigating, press "Page" one time and the "Active Route" screen will appear (most models). The waypoint you should go to will be flashing, the distance to it displayed in the lower left, and the direction towards it in the lower right (if you set things up per "b" above). There are other screens that will give this info but they will not let you advance your route to the next waypoint. Read the appropriate sections in your manual. To advance waypoints press the "Out" key. To go back for some reason, press the "In" key.

    f. "Compass" screen – If you use it, set the pointer to "Course". See your manual for more info on this feature.

    g. Be sure to turn off the electronic compass if there is one as it draws a considerable amount of power. To do this, press the "Page" button twice. If nothing happens, you do not have an electronic compass.

Notes: Some of the above options and configurations may not be available on all models or there may be some differences in the access sequence.

The author has extensive marine experience with a GPS and its challenges of fog and night travel. Therefore, always carry a magnetic compass for safety because it is essential if you get caught in a cloud. A GPS can be

disorienting as most cannot accurately display a course or point north if the pilot/aircraft/ship is changing direction rapidly. Ship pilots are particularly aware of this shortcoming of all GPS units.

Fly safely!

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