

GARMIN GPS73 PROCEDURES

Initial Set-Up:

1. Scroll to 'Setup' on the Menu page, press SELECT.
2. Scroll to 'Profiles', press SELECT, scroll down to MARK LAYING, press SELECT.
3. Press RETURN, scroll to 'Waypoint Manager', press SELECT.
4. Press MENU, scroll to 'Delete All', press SELECT, scroll to 'Yes', press SELECT.
5. Set-up finished!

MARK Present Position:

1. Press MARK once to save present position with a default name. If 'MAN OVERBOARD' appears press RETURN, then MARK again.
2. Scroll to WPT name and press SELECT.
3. Edit name, then 'Done', scroll to 'Done' on Waypoint Page, then press SELECT to save waypoint.

GOTO a Waypoint (WPT)

1. Press and hold PAGE for GOTO function.
2. SELECT 'Find Another'.
3. Scroll to 'Waypoints' and SELECT.
4. Scroll to WPT xxx, SELECT, scroll to 'Go', then SELECT.
5. Sequence PAGE to display the 'active' waypoint and confirm WPT xxx.

Entering a Waypoint (WPT) by Latitude/Longitude (eg. RF1)

1. Press MARK then scroll to WPT name and press SELECT.
2. Re-name WPT RF1, then 'Done', then scroll to 'Location', then SELECT to edit Latitude and Longitude. Select 'Done' when finished, then scroll to 'Done' on Waypoint Page and press SELECT to save this waypoint.

'Projecting' a Waypoint From Present Position (eg. Mark 4P from the Start Line)

1. Press MARK .
2. Press MENU.
3. Scroll to 'Project Waypoint'.
4. Press SELECT.
5. Enter Bearing, then 'Done'.
6. Scroll to Meters or Nautical(nm), then press SELECT.
7. Enter Distance, then 'Done'.
8. Scroll to 'Save and Edit', then press SELECT.
9. Scroll to WPT name, press SELECT, re-name 4P1, then 'Done'.
10. Scroll to 'Go' then press SELECT.
11. Sequence PAGE to display the 'active' waypoint and confirm WPT 4P1.

Note: a default name present position waypoint (WPTxxx) is also saved.

'Projecting' a Waypoint From an Existing Waypoint (eg. Mark 1 from SB1)

1. Sequence PAGE until MENU appears.
2. Scroll to 'Waypoint Manager'.
3. Press SELECT.
4. Scroll to WPT SB1.
5. Press SELECT.
6. Press MENU, scroll to 'Project Waypoint', press SELECT.
7. Enter Bearing, then 'Done'.
8. Scroll to Meters or Nautical(nm), press SELECT.
9. Enter distance, then 'Done'.
10. Scroll to 'Save and Edit', press SELECT.
11. Scroll to WPT name, press SELECT, re-name WPT 101, then 'Done'. Scroll to 'Go' then press SELECT.
12. Sequence PAGE to display the 'active' waypoint and confirm WPT 101.

TERMINOLOGY

GPS

Active waypoint is the WPT the GPS is currently navigating to.

Bearing is the Course Over Ground (COG) to a waypoint (WPT) from your present position. Matching your Heading and Bearing on the Garmin GPS73 will take you directly to the WPT.

Course is the **fixed** ground track from the position you STARTED navigating to a WPT ie. SELECTed 'Go' or 'GOTO'. It is not updated enroute and is not used for mark-laying.

Heading on the Garmin GPS 73 is COG and will only indicate correctly when you are underway since the unit has no built-in magnetic compass.. When not underway it will indicate your COG due to windage and tidal stream.

'Project' a waypoint means create a new waypoint at a Bearing and Distance from an existing waypoint or from present position.

Waypoint (WPT) is any position saved in memory. A default waypoint name is automatically assigned and can be edited. The 'Waypoint Manager' Page lists all saved WPTs and is accessed by sequencing the PAGE button until Menu is displayed, then SELECTing 'Waypoint Manager'. Bearing and distance from present position to each WPT in memory is always displayed on this page and is used to cross-check position after arriving at a 'projected' waypoint.

It is important that every MLB uses the same convention for naming waypoints to facilitate the swapping of Mark positions between MLBs for course changes.

The first character/s should be the Mark position and the last the **latest** position:

101 - Mark 1 initial position, 102, 103 etc. for subsequent positions.

1A1 - Mark 1A initial position, 1A2, 1A3 etc. for subsequent positions.

201 - Mark 2 initial position, 202, 203 etc. for subsequent positions.

2A1 - Mark 2A initial position, 2A2, 2A3 etc. for subsequent positions.

3P1 - Mark 3P initial position, 3P2, 3P3 etc. for subsequent positions.

4P1 - Mark 4P initial position, 4P2, 4P3 etc. for subsequent positions.

SB1 - Signal Boat initial position, SB2, SB3 etc. for subsequent positions.

SP1 - Start Pin initial position, SP2, SP3 etc. for subsequent positions.

FB1 - Finish Boat initial position, FB2, FB3 etc. for subsequent positions.

FP1 - Finish Pin initial position, FP2, FP3 etc. for subsequent positions.

RF1 - REFERENCE point initial position, RF2, RF3 etc. for subsequent positions.

TS1 - Tidestick initial position, TS2, TS3 etc. for subsequent positions.

Marks 1A(Offset), 3S, 4S, SP and FP are not normally saved as WPTs as only their relative position to an adjacent mark is important not their absolute position.

Mark-Laying

Check For Drift means taking up station next to a mark and monitoring the GPS Distance. Steadily increasing/decreasing GPS Distance means the mark is drifting out of position. This may be caused by insufficient warp for the depth, or a bight of anchor chain capsizing the anchor. Either way the mark will need to be re-layed.

Dragging a Mark means dragging the anchor along the seabed after first taking all of the slack (catenary) out of the anchor warp. Not always possible!

Dropping a Mark means placing it in the water at the correct position and motoring up-course whilst paying out the anchor warp. Care should be taken **not** to drag the Mark out of position by having tension on the anchor warp whilst motoring.

Marks 1, 1A (Extended), 2, 2A(Extended), 3P and 4P are normally 'dropped'.

Ground Wind is the wind measured on an **anchored** boat (no T.I.W, see below)

MLB - Mark Laying Boat

REFERENCE point is commonly the centre of Gate 4P/4S and may be calculated by the Race Officer and broadcast to the MLBs. The SB position may be used in lieu of the REFERENCE point at the RO's discretion. The laying of Gate 4P/4S is the only mark-laying procedure changed by the use of a REFERENCE point. On Optimist Courses the REFERENCE point is in the middle of the Start Line.

Sailing Wind is the wind measured on a drifting boat and is the vector sum of the Ground Wind and the T.I.W. (see below). The Course Axis will normally be aligned with the Sailing Wind. When a strong cross-current exists on the first leg of an Optimist Trapezoid Course (no Inner Loop!), Mark 1 may be offset significantly 'downstream' (20deg in a 10kt wind and 1kt crosstide) to balance the first leg beat (equal time on each tack). The Outer Loop (Gate 3P/3S - Mark2) however will remain set on the Sailing Wind.

Settled position is the actual position of a mark once it has stopped moving following 'dropping' or 'streaming-in'. Tidal stream is the dominant influence on the lay of the anchor warp and mark.

SB - Signal Boat, principal Race Committee boat used for displaying the starting signals.

Streaming-in a mark means towing it behind the RIB with only the anchor remaining onboard. The anchor is dropped when the mark is 3m downwind of the 'tidestick' or when the "drop" call is made by the RO on the SB. The mark should then settle in the correct position.

The Start/Finish Pins, Mark 1A (Offset Mark), Marks 3S and 4S should always be 'Streamed-in' as their relative position to an adjacent mark is important.

Tide Induced Wind (T.I.W.) is the wind induced by the tidal stream. An anchored boat will measure no wind on a calm day with 2kts of tide running. After it weighs anchor it will measure 2kts of T.I.W.!

Trapezoid or 'Trap' Course is two parallel W/L courses separated by a 'spacer' leg (Mark 1 - Mark 2). It requires fewer Race Committee resources than two independent W/L course but is difficult to modify for wind shifts. Two configurations are commonly used (60 or 70 degree interior angles) depending on the Fleet, with racing taking place on the Inner Loop (4 - 1 - 4) and Outer Loop (3 - 2 - 3) simultaneously. The geometry is fixed to allow accurate course distances to be tabulated and courses selected to achieve Target Race Times.

Trapezoid Tables are used to set the initial course configuration. Once racing is underway either Course Axis (4 - 1)/(3 - 2) or Leg Length can be varied independently to suit different wind conditions across the course. A Course Axis/Leg Length change on the Inner Loop may require Mark 1/1A and Mark 4S to be moved. A Course Axis/Leg Length change on the Outer Loop may require Mark 2/2A and Mark 3S to be moved. The new Mark 2/2A position will be referenced to the position of Mark 3P.

'Is The String Happy?' is commonly used to prompt a check of the correct orientation of a Leg, Gate or Start/Finish line using a string tied to a flagpole or VHF aerial. The string should align with the upwind/downwind marks or at an angle of 90 degrees to a Gate or the Start Line Axis.

Note: The Finish Line axis is set at 90 degrees to the last leg of the course and may not be 'square' to the wind.

Gross Error Check is a position cross-check by a secondary means before laying a mark eg. at WPT 101 on a Course Axis of 070 degrees, leg length 1.0 NM, the SB should be on a Bearing of 250 degrees and Distance of 1.0NM on the Waypoint Manager page. **Always** cross-check the position of a mark to be dropped on the Waypoint Manager page before proceeding. **Always** cross-check the Bearing of a mark to be streamed-in using a hand-bearing compass before dropping the tidestick as it is more accurate than GPS over short ranges.