Getting the best out of your GPS

John Horwell

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Presented by

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What we will cover:

- What GPS?
- Preferred units of measurement
- Entering positions
- Numbering system

What GPS?

- Personal Preference
- Cost
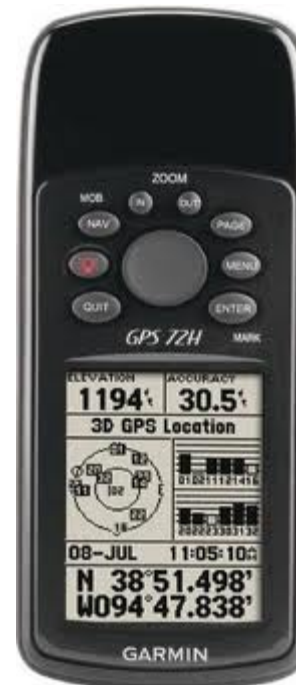- Availability
- Fixed or Hand Held

GPS Units

The current Unit of Choice

Garmin GPS 72H

Know the Controls

Whatever unit you are using:

Know how to use it!!!

Set up of GPS

- Initialising sets if NEW

- Select Units

- Language

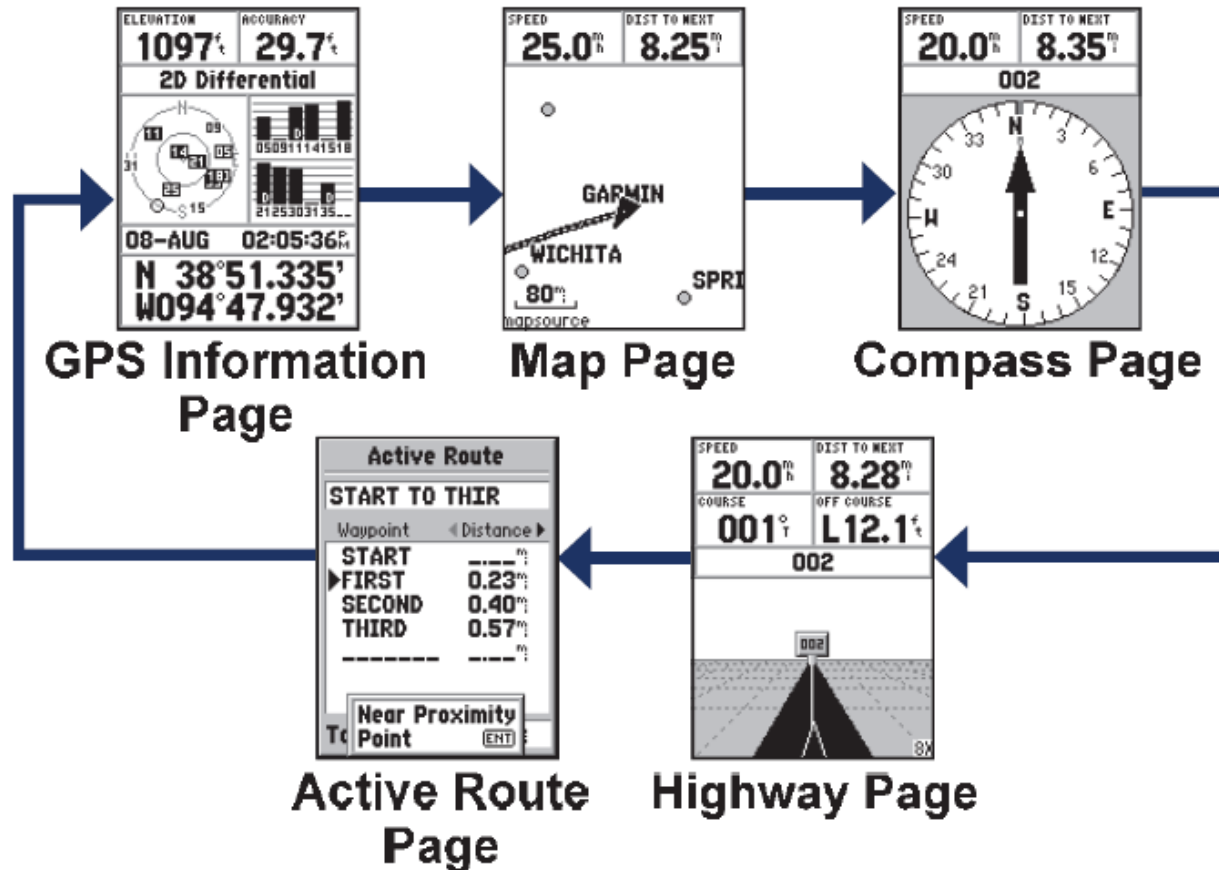- Magnetic Bearings

- Display Screen

Units of Measurement

It helps if everybody is on the same units:

- Time Format   24 Hour
- Time Zone   UTC
- Daylight Saving Time
- Location Format   hddd°mm.mmm'
- Map Datum   WGS84
- North Reference   Magnetic

Display Screens

GPS Information Page

Map Page

Compass Page

Active Route Page

Highway Page

What screens do we need?

- GPS Information Page   Yes-at start up
- Map Page   Yes-our working screen
- Compass Page   An option to above
- Active Route Page   No
- Highway Page   No

GPS Information Page

- Confirms unit is working

- Confirms receiving Satellite Signals

- Confirms Date and Time Settings

- Confirms correct Lat/Long format

GPS Information Page
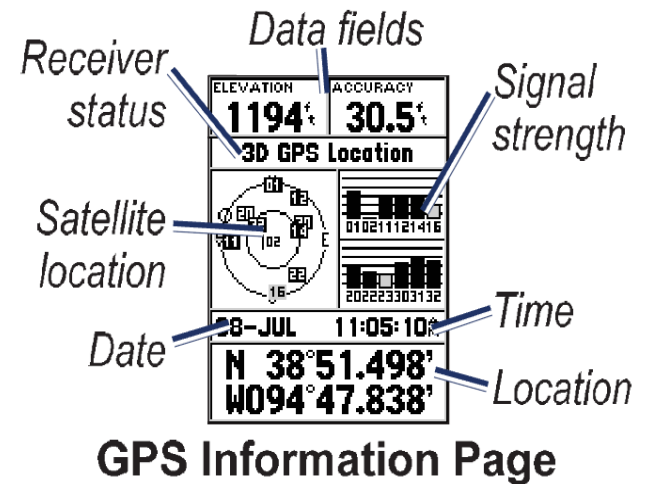
Map Page

This is your working screen.
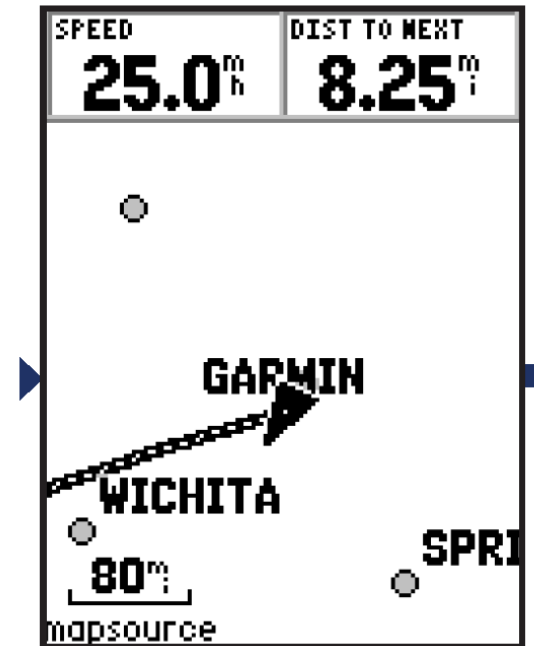
The screen can be set with a number of data fields from a fixed list.

Map Page

Map Page – Data Fields

From the list the following are the most useful to Mark Layers

- Bearing

- Dist to Destination

- The direction from your current location to a destination

- The distance from a current position to a GO TO destination or waypoint

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Course Setting

- Having 'set up' your GPS you can look at the actual course setting

- There are three ' games' that Mark Layers play to accurately set a course. All involve GPS

- GPS is used to accurately set Distances and Angles

Course Setting

- **Join the Dots** – one boat runs around the course and sets each mark in order

- **Chain Reaction** – Each boat has a mark and each mark is laid in relation to the previous

- **Numbers Game** – each boat has a mark and finds the position as a bearing and distance from a Reference Point

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Waypoints

- Waypoints are the key to all the 'games'
- There are THREE main ways to save waypoints:
- Save your current position
- Project a waypoint
- Enter a Lat/Long position

Save your current position 'Pinging'

- Save your current position eg. alongside buoy or Committee boat
- Go to a buoy -'ping' it
- Go to Committee boat -'ping' it
- Go to Reference point -'ping' it
- Give a name to anything you 'ping'
- You can now get a distance and bearing to it

Project a Waypoint

- GPS knows where you are
- You (hopefully!) know where you want to go, how far and what angle/bearing from where you are
- Move the cursor on away from your current position, the screen now gives a bearing and distance
- Save the position with a unique number
- Drive to it

Enter a Lat / Long Position

- Use with Reference point system
- You can be anywhere on the course area or not as the case may be
- Enter the Lat / Long position
- In practice you will be requested to 'read back' the entered position to confirm
- Save the Reference point
- You can now go to any mark by using the Reference point and the tables

Reference Point Course Tables Angles

Trapezoid Course 70°, 110° interior angles

Trapezoid Course 70, 110 interior angles

Course Axis 4-1 / 3-2	1-4 / 2-3	4-2	2-4	4-3 / 1-2	3-4 / 2-1	Signal -Pin	Pin- Signal	3- Finish	Finish -3
000	180	321	141	250	070	270	090	110	290
005	185	326	146	255	075	275	095	115	295
010	190	331	151	260	080	280	100	120	300
015	195	336	156	265	085	285	105	125	305
020	200	341	161	270	090	290	110	130	310
025	205	346	166	275	095	295	115	135	315
030	210	351	171	280	100	300	120	140	320
035	215	356	176	285	105	305	125	145	325
040	220	001	181	290	110	310	130	150	330
045	225	006	186	295	115	315	135	155	335
050	230	011	191	300	120	320	140	160	340
055	235	016	196	305	125	325	145	165	345
060	240	021	201	310	130	330	150	170	350
065	245	026	206	315	135	335	155	175	355
070	250	031	211	320	140	340	160	180	000
075	255	036	216	325	145	345	165	185	005
080	260	041	221	330	150	350	170	190	010
085	265	046	226	335	155	355	175	195	015
090	270	051	231	340	160	000	180	200	020
095	275	056	236	345	165	005	185	205	025
100	280	061	241	350	170	010	190	210	030
105	285	066	246	355	175	015	195	215	035
110	290	071	251	000	180	020	200	220	040
115	295	076	256	005	185	025	205	225	045
120	300	081	261	010	190	030	210	230	050
125	305	086	266	015	195	035	215	235	055
130	310	091	271	020	200	040	220	240	060
135	315	096	276	025	205	045	225	245	065
140	320	101	281	030	210	050	230	250	070
145	325	106	286	035	215	055	235	255	075
150	330	111	291	040	220	060	240	260	080
155	335	116	296	045	225	065	245	265	085
160	340	121	301	050	230	070	250	270	090
165	345	126	306	055	235	075	255	275	095
170	350	131	311	060	240	080	260	280	100
175	355	136	316	065	245	085	265	285	105

Course Axis 4-1 / 3-2	1-4 / 2-3	4-2	2-4	4-3 / 1-2	3-4 / 2-1	Signal -Pin	Pin- Signal	3- Finish	Finish -3
180	360	141	321	070	250	090	270	290	110
185	005	146	326	075	255	095	275	295	115
190	010	151	331	080	260	100	280	300	120
195	015	156	336	085	265	105	285	305	125
200	020	161	341	090	270	110	290	310	130
205	025	166	346	095	275	115	295	315	135
210	030	171	351	100	280	120	300	320	140
215	035	176	356	105	285	125	305	325	145
220	040	181	001	110	290	130	310	330	150
225	045	186	006	115	295	135	315	335	155
230	050	191	011	120	300	140	320	340	160
235	055	196	016	125	305	145	325	345	165
240	060	201	021	130	310	150	330	350	170
245	065	206	026	135	315	155	335	355	175
250	070	211	031	140	320	160	340	000	180
255	075	216	036	145	325	165	345	005	185
260	080	221	041	150	330	170	350	010	190
265	085	226	046	155	335	175	355	015	195
270	090	231	051	160	340	180	000	020	200
275	095	236	056	165	345	185	005	025	205
280	100	241	061	170	350	190	010	030	210
285	105	246	066	175	355	195	015	035	215
290	110	251	071	180	000	200	020	040	220
295	115	256	076	185	005	205	025	045	225
300	120	261	081	190	010	210	030	050	230
305	125	266	086	195	015	215	035	055	235
310	130	271	091	200	020	220	040	060	240
315	135	276	096	205	025	225	045	065	245
320	140	281	101	210	030	230	050	070	250
325	145	286	106	215	035	235	055	075	255
330	150	291	111	220	040	240	060	080	260
335	155	296	116	225	045	245	065	085	265
340	160	301	121	230	050	250	070	090	270
345	165	306	126	235	055	255	075	095	275
350	170	311	131	240	060	260	080	100	280
355	175	316	136	245	065	265	085	105	285

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Reference Point Course Tables Distances

70° Trapezoid Course Lengths to Marks and Course Lengths – Equal beats 1-2 two thirds of beat length
Start 0.05 nm downwind of 4S/4P and Finish 0.15 nm from 3S/3P

Leg lengths		
4 - 1 & 1 - 4 2 - 3 & 3 - 2	4 - 2 & 2 - 4	1 - 2 & 2 - 1 4 - 3 & 3 - 4
0.20	0.20	0.13
0.25	0.25	0.17
0.30	0.30	0.20
0.35	0.35	0.23
0.40	0.40	0.27
0.45	0.45	0.30
0.50	0.50	0.33
0.55	0.55	0.37
0.60	0.60	0.40
0.65	0.65	0.43
0.70	0.70	0.47
0.75	0.75	0.50
0.80	0.80	0.53
0.85	0.85	0.57
0.90	0.89	0.60
0.95	0.94	0.63
1.00	0.99	0.67
1.10	1.09	0.73
1.20	1.19	0.80
1.30	1.29	0.87
1.40	1.39	0.93
1.50	1.49	1.00
1.60	1.59	1.07
1.70	1.69	1.13
1.80	1.79	1.20
1.90	1.89	1.27
2.00	1.99	1.33

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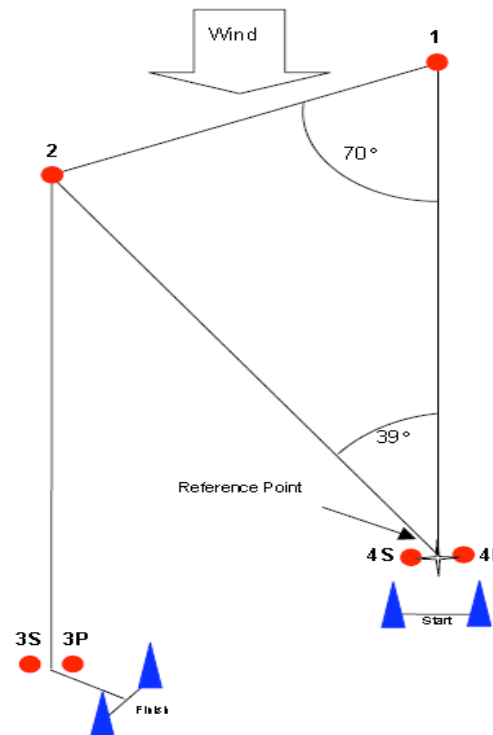
Recalling Waypoints

- Each waypoint saved needs a number or reference

- Find a system you like and stick with it

- Reference Point – typically - REF

- Mark 1 – 101

- Subsequent moves become 102,103 etc

- Mark 2 – 201 etc

- System needs to be quick and easy

Other Equipment

- To complement the GPS a range of other equipment should be available

- Burgee,

  hand bearing compass,

  anemometer,

  range finder

In summary

- GPS very good for distance
- Hand bearing compass to confirm GPS angles
- Use burgee to confirm windward mark really is upwind
- Combine technology with traditional methods

Any Questions?

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