Nav Rally Introduction

Sandringham Yacht Club

What is a Nav Rally?

Simply put, a Skipper and Navigator demonstrate their ability to plot a course from a set of instructions, and then safely and accurately navigate the course whilst maintaining a nominated speed.

A crew is assessed and scored based on how accurately they maintain the course and nominated speed, with points allocated for inaccuracy in maintaining speed or course.

The crew with the lowest score wins.

How do we do it?

a) Planning

b) Teamwork

c) Starting

d) Tracking and Turning

e) Time keeping

f) Scoring

a) Planning

1. Work out the best speed for you and your vessel. (5, 6, 7.5, 8, 10 or 12 kts)

2. Know what power setting will approximately give you your preferred speed.

3. Calculate and plot your course.

Boat Speed

Select a speed:

- Which is comfortable for your boat,

- Allows you to catch up or slow down easily,

- Is not too rushed for you or your navigator.

(suggest not above 85% of hull speed)

Power Setting

- Work out what engine speed will normally maintain your vessel at the nominated speed in still water

- Knowing this engine speed allows you to set power for an approximate speed and make small adjustments for wind or current

Calculating and Plotting a Course

- Starting Point Co-ordinates are normally provided to two or three decimal places.

    - Eg. S37°51.767, E144°55.427

- Course details are normally provided with bearings in degrees True and distances in Nautical Miles.

    - Eg. 125 T   1.18 NM

- Use a Position/Bearing/Distance calculator to calculate each turn point. Options include your own chart plotter or an online program or even a protractor/ruler/chart.

Aim to generate the most accurate data.

For example you could use an online program such as GPS Visualiser
(http://www.gpsvisualizer.com/calculators#coordinates)

1. Know what format is required for your nav system. So check your unit, eg. my Raymarine unit takes a 3 decimal place figure for minutes - so I use the "degrees minutes" figure, whilst I believe other nav units take a DMS – Degrees, Minutes Seconds – format.

2. Convert the start position (using the "converter") to the format required for your nav system.

3. Then enter the answer from '2' in the last item on the web page and insert the degrees True bearing (this web page only uses the degrees True bearings) and the distance (enter "nm" after the figure, eg. 0.55nm) and then click on the convert arrow to "find the coordinates at a given distance and bearing" – remember below the "Ending Lat. Long." box to tap on the "Convert to DMM/DMS format" option to give the decimal degrees, degrees-minutes or degrees-minutes-seconds required for your nav unit at the top of the page .

4. Record that for your first turn point. (remember using the maximum number of decimal places throughout these steps increases the accuracy and then just round your answers to one, two or three decimal places when entering the figure in your nav unit)

5. Repeat items 3 and 4 to calculate the second turn point and so on. (copy and paste works well both loading into the next leg calculation and to place each turn waypoint calculated onto a word doc or worksheet to print out the list of positions)

- Once you have the list of waypoints (to whatever number of decimal places your unit will accept) then you have the info to load a nav unit/program with all the waypoints by Lat Long.

- There are other online pages that can do this, and I believe you can also purchase a program that will do this for multiple points in sequence without the need to copy and paste.

- Personally I just use this method and copy and paste each answer onto a word doc and print it off, and then take it down to the boat and load up the nav unit to have the course.

- Set up your running sheet with:-

- ❖ Bearing in both True and Magnetic {using a variation of positive 11 degrees for Melbourne, if the True bearing is 153 then magnetic is 142 degrees}.
- ❖ Time markers (eg. 20 second markers) with distance to run to the turn waypoint for each time marker (to the accuracy of your nav unit, eg. 0.001nm).

b) Teamwork

- Select a Navigator you can easily work with.

- Have simple to use running sheets (eg. a page per leg), a pen and an easy to read time piece for the Navigator.

- Practice with them and never raise your voice, the skipper needs the navigator.

Note: *You can try single handed nav rallying, but it is harder and the team exercise is fun.*

c) Starting

- Plan a run up distance / time

- Align the run-up to the first outbound leg

- Use time markers to check timing as you run-up to your allocated start time *(staggered start times of usually 2 minutes are used with the slowest boat to start first)*

- Aim to cross the start mark on time and at the correct speed on the right track (power setting)

d) Tracking and Turning

- Keep it simple and look out ahead

- Initially steer by setting a course using your compass (degree magnetic from your running sheet) and if known lay off any drift.

- Then cross check your track on the nav unit and make small adjustments to keep the course.

- Turning can be done prior to a mark and should be done to ensure that the inbound and outbound courses are optimised (Flyby). This will vary with type of boat and speed (turn radius). Turn initially to set the next course using your compass (degree magnetic from your running sheet) and if known lay off any drift.

e) Time Keeping

- Have a clear easy read clock for your navigator and check the time verse the time datum (usually Telstra 1194) before the rally.

- There are two ways to time/speed check, either 'time verse distance to run' or 'distance to run verse time'.

- 'time verse distance to run' - Navigator calls 'Check' as it reaches that on the running sheet and the Skipper calls the distance to run from the Nav unit. The Navigator records that distance and advises the Skipper if early or late and the distance variation (eg. .001nm late/behind or slow). Skipper then adjusts speed.

- Recheck at next time check and when back on schedule re-set the power to hold the nominated speed.

f) Scoring

- Scoring is allocated based on deviation from both track or timing, so it is a penalty scoring system.

- Lowest score wins – so accuracy is the key.

Finishing

- Keeping accurate logs and teamwork will help.

- Keeping a good look out is essential – Rules of the Sea still apply!

    (doing a Nav rally does NOT give you right of way & if overtaking a fellow competitor you have to give way)

- Enjoy yourselves, the rally will go quicker than you think…..

GOOD LUCK