

SOUTH WEST YACHT TIME CORRECTION SYSTEM (YTC)

POLICY AND PROCEDURES for the 2019 racing season

Introduction

- The South West Yacht Time Correction system (abbreviated to YTC) has been developed over recent years to assist
 the wide variety of yacht-types that take part in local and club-based events to race competitively and fairly. It is
 based on the statistical models developed by Professor Linda Wolstenholme, of the Cass Business School and
 Emsworth Slipper SC.
- 2. The aim of this document is to set out the process by which a boat's YTC number is developed. The ethos throughout is to develop the number in a fair, open and transparent manner, if necessary bringing the yacht's skipper into the discussion where appropriate. It is intended that the YTC process will assist the achievement of fair racing as required by the Racing Rules of Sailing.
- 3. Boats competing in racing will be allocated a YTC number using the process shown in paragraphs 6 to 10 below.
- 4. A boat's YTC number may be used by individual clubs at their discretion: for club racing only, the YTC system allows a club's handicapping team to adjust a boat's YTC number as it sees fit.

Documentation and application process

- 5. Boats wishing to apply for a YTC number are to complete and submit a web-based YTC Form. This is obtained by following the process set out at www.swytc.org.uk.
- 6. The first step is to request a code to access the application form (see the example screenshots at Appendix A). The user is informed of the code by email and this should take a few moments only. The code is then entered (see the example screenshots at Appendix B) and the application form is completed (see the screenshots at Appendix C). If the system already has data about the boat on the YTC system, a recall code will be emailed to the user that when applied will automatically upload those data and populate the form with minimal input from the user, but the user will be able to edit those data if necessary and be asked to confirm that the data is correct.
- 7. A new form should be submitted if there is a change to a boat's data during the season.
- 8. Boat-owners will receive by email a YTC certificate showing the boat's allocated YTC number and the data on which that YTC number is based (see the example at Appendix D); this is generated by the YTC software under the control of the YTC administrators. If a boat's sails are measured by a YTC sail measurer during that process, a YTC sail measurement certificate will be issued: see the example at Appendix E.

Process for developing a YTC number

- 9. In general, a boat's raw YTC number will be calculated automatically by the YTC software using the formulae in paragraphs 11 and 12 below, although some boats (e.g. light displacement boats, gaff-rigged boats and others) will be allocated a YTC number using the formulae and other pertinent data as necessary. This number will then be adjusted to reflect the yacht's engine and propeller configuration, rig and downwind sail area using the tables in paragraph 14 below. The number so calculated shall be the boat's YTC number for events and inter-club racing, and the basic number for club events.
- 10. Failure to complete the YTC Form before racing may result in a temporary YTC number being issued until the necessary boat data has been obtained and checked and the necessary calculations have been completed. Late entries may also be allocated a temporary YTC number, until the necessary calculations can be completed.
- 11. When issued, a temporary YTC number shall not be altered; also, any results using this number shall not be altered retrospectively.

- 12. Queries concerning individual YTC numbers shall be made in writing to the YTC Main Committee at admin@swytc.org.uk.
- 13. A boat's YTC number may be used at other events, at the discretion of the relevant organising committee.

Formulae

14. Yachts will be issued a YTC number which will be based on the formulae in the table below:

| | Fin-keeled boats | Bilge-keeled boats |
|---------|--|---|
| Formula | YTC = $k_f(2091 - 407d + 86d^2 - 30.5*L - 59.6$ (SA/L ²) - 810 SA ^{1/3} / D ^{1/4}) | YTC = k _f (2211 -1389d +431d ² - 137*B/L - 54.9*L ^{1/2} + 455*SA/D ^{2/3}) |
| Notes | for flat single keels $k_f = 1$, and for long keels $k_f = 0.98$; for non-flat keels (bulbs, winged, etc), $k_f = 1 - 0.003*k_g$ and k_g ranges from 1 for a slight flare or bulb to 5 for a winged keel. | for twin bilge keels, k_f = 1; for triple bilge keels, k_f = 1.01 |

15. Both formulae use data declared by the entrant; d = draft, B = beam, L = LOA – 0.5*(LOA-LWL), SA = total sail area (upwind sails only, largest sail area in use), D = displacement empty/dry.

Rig- And Engine-Related Adjustments

- 16. The formulae in paragraph 11 above assume a boat has a two-blade fixed propeller and a spinnaker.
- 17. Raw numbers will be adjusted to reflect declared engine, prop and sail configurations, using the tables below: **Engine related**

| | - | | | |
|---|--|--|--|--|
| | Percentage allowance | | | |
| 2-blade fixed propeller | 0% (this configuration is assumed in the formulae) | | | |
| 3-blade fixed propeller | +2% | | | |
| Folding propeller | -1% | | | |
| Outboard (able to be lifted clear of water) | -2% | | | |

Rig related

| | Percentage allowance |
|---|--|
| Use of conventional or asymmetric spinnaker | 0% (this configuration is assumed in the formulae) |
| No use of spinnaker or other downwind sail | +2.5% |
| In mast reefing | +2% |
| Twin mast ketch | +3% |
| Spinnaker Area Allowance (to account for | The formula 1.75 - (DSA/USA) generates the |
| variation in spinnaker area) | percentage required. |

Note: DSA is the sum of the declared spinnaker and mainsail areas;

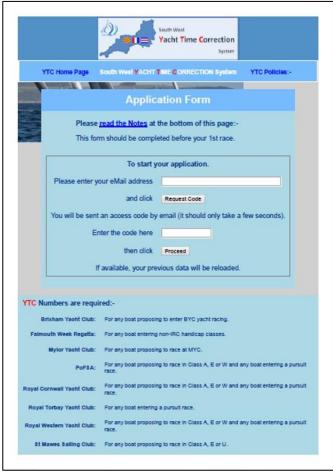
USA is the sum of the declared genoa (or jib) and mainsail areas.

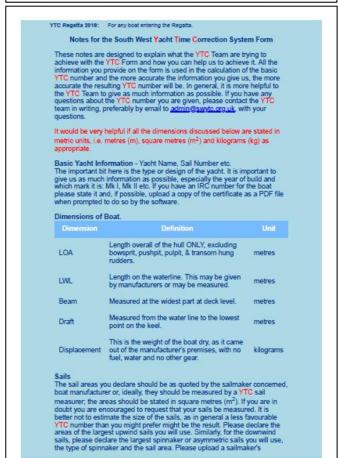
Collection of race timings data

- 18. An important part of the YTC quality control process lies in verifying that under normal race conditions, boats perform approximately to their YTC number. This is achieved by comparing their calculated performance number in a race or series of races, with their YTC number. This performance number is calculated by the YTC software using the YR2 process, from the elapsed times recorded for each boat on a race spotting or recording sheet.
- 19. A specimen proforma for recording these data in a fleet race is at Appendix E. A specimen proforma for a pursuit race is at Appendix F. These forms are normally completed by the race committee team. Clubs in the YTC scheme should compile a file of these recording sheets as the season progresses; these data files will then inform the end-of-season performance review process.

<u>Note</u>. Quite clearly, normal club spotting or recording sheets, or Sailwave print-outs, could be adapted for this task. However, in order to achieve proper analysis of the results, all the data fields shown on the templates should be on such an adapted form and should be completed for each race and the boats sailing in that race.

The YTC Committee thanks Professor Linda Wolstenholme (Cass Business School and Emsworth Slipper SC) for her kind permission to use her handicap models.





certificate, email or a YTC Sail Measurement certificate when prompted to do by the software. Also, please do not use the sail area data as given by www.sailboatdata.com. It is usually misleading and often wrong.

Configuration.

The keel type, engine & propeller configurations are used in the YTC calculation to calculate your YTC number. It is important to let us know whether your keel has a wing, bulb or flare, and the extent of it. Sketches or photographs of the keel will be helpful and can be uploaded when prompted to do so by the software.

Indemnity.

A boat's YTC number is generated by the YTC team in good faith, using the data supplied, historical data and, where necessary, pertinent data from other sources. The YTC team attempts at all times to give an accurate and fair YTC number but the team cannot be held responsible or liable for any losses of any type, however incurred.

Before you proceed::
It will be helpful if you will upload a digital photo/scan/PDF of your existing IRC certificate (if applicable); a photo/scan/PDF showing any bulb, flare or wing on your boat's keel and a photo/scan/PDF of documentary evidence of sail areas. These will be requested on submission of this form if required.

Return to the Form

APPENDIX B THE CODE TO ACCESS THE APPLICATION FORM



APPENDIX C SCREENSHOTS OF THE WEB-BASED YTC DATA ENTRY FORM

| | South West Yacht Time Correction Paystam |
|-----|--|
| | YTC Home Page South West YACHT TIME CORRECTION System YTC Policies:- |
| 100 | |
| | YTC Application Form |
| | Please <u>read the Notes</u> at the bottom of this page, then fill in all the compulsory fields marked * & submit the form:- This form should be completed before your 1st race. |
| | Before you proceed: It will be helpful if you will upload a digital photo/scan/PDF of your existing IRC certificate (if applicable); a photo/sketch/PDF showing any bulb, flare or wing on your boat's keel and a photo/scan/PDF of documentary evidence of sail areas. These will be requested on submission of this form if required. |
| | Boat Name*: |
| | Sail Number#: |
| | Owner's Namero |
| | eMail: tony@annton.uk.com |
| | Telephone Nos.* |
| | |
| | Yacht Club≪ Select Yacht Club • |
| | |
| | I declare that I have read & accept the YTC Privacy Policy.*: Yes |
| | Print Full Name* |
| | Date: 15/02/2019 |
| | |
| Т | he following information is required to calculate your YTC Number:- |
| | Boat Type or Designe: |
| | Current IRC Rating: (if available) |
| | 101/01/ |
| | LOA (m)* |

| LWL (m)« | | |
|--|-------------------------|----------------------------|
| Beam (m)#: | | |
| Draft (m)*: | | |
| Displacement (kg)/k | | |
| Year Built* | | |
| | | |
| Upwind Sail Areas (m² |) | |
| Genoa/Jib* | | |
| Main*c | | |
| Other. | | |
| Total Upwind Area: | 0 | |
| Downwind Sai | 1 | |
| Type 🖈 | Select Spinnaker + | |
| Area (m²)*: | 0 | |
| | | |
| Total Downwind Area: | 0 | |
| | | |
| Sail Area Source∗: | Select Area Source | • |
| | | |
| | | |
| Ketch/Yawl | Yes O No O | In-mast Reefing*: |
| Yes No 0 | | miniast reenings. |
| | | |
| | Select Keel • | |
| | Select Engine • | |
| Propeller*: | Select Propeller • | |
| Are the rigging, sail plan and ball | ast of Yes O No O | |
| standard desig | | |
| Comments: | | |
| | | |
| | | |
| Please give details of any variation from sta briefly list all changes since last year. | andard design and other | relevant information. Also |
| , | | |

APPENDIX D AN

AN EXAMPLE YTC CERTIFICATE



APPENDIX E

AN EXAMPLE YTC SAIL MEASUREMENT CERTIFICATE



TEMPLATE YTC RACE DATA COLLECTION SHEET FOR A FLEET RACE

| CLUB | | RACE (Series, race number) | TIME OF START FOR CLASS | DATE | |
|-------|----|----------------------------|---------------------------------|----------------------------------|--|
| | | | | | |
| | | | | | |
| CLASS | CC | OURSE SAILED | Wind direction / speed at start | Wind direction / speed at finish | |
| | | | | | |
| | | | | | |

| Sail number | Boat | Owner | YTC number | Finishing time | Elapsed time | Corrected time | Position |
|-------------|------|-------|------------|----------------|--------------|----------------|----------|
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TEMPLATE YTC RACE DATA COLLECTION SHEET FOR A PURSUIT RACE

| CLUB | | | RACE (Series, race number) | | | DATE | | |
|-------------|------|----------|----------------------------|------------|-----------------|--|----------------|-------------------|
| | | | | | | | | |
| CLASS COUR | | COURSE S | GE SAILED Wind direction | | Wind direction | n / speed at start Wind direction / speed at f | | / speed at finish |
| | | | | | | | | |
| Sail number | Boat | Owner | YTC number | Start time | Finishing time | Elapsed time | Corrected time | Position |
| Jan number | Doat | Owner | TTC Humber | Start time | rinisining time | Elapseu tillie | Corrected time | Position |
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