The RYA Portsmouth Yardstick Scheme

Specimen Races

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Each specimen is based on an actual race and so the Portsmouth Numbers and their Status will not necessarily be the same as published in the current Lists.

All the specimen races illustrate Portsmouth Number adjustment.

Specimen Race Zero is a dinghy race with few classes each with several finishers. It gives entry level race analysis to allow clubs to make a simple start on the review and adjustment of Portsmouth Numbers. The method will not provide ideal Numbers but allows experience to be gained before moving to more sophisticated methods.

Specimen Race One is similarly a dinghy race with few classes each with several finishers. It gives a more sophisticated post race analysis although Crew Skill Factor (see 3.12), because of the nature of the fleet, is assumed to even out and is ignored.

Specimen Race Two is a dinghy race with a limited numbers of boats in each class together with one-offs and when special care must be taken to apply the correct Crew Skill Factor. The method requires new boats to be allocated an estimated Trial Number.

Specimen Race Three is similar to Specimen Race Two but with cruisers.

Specimen Race Four is the same race as Specimen Race Three but illustrates retrospective Trial Number Allocation.
SPECMN RACE ZERO
A race with few classes each with several finishers (Numbers and Status taken from the 2002 tables)
SPECIMEN RACE ZERO

The method below allows a club to make a simple start on analysing races and adjusting Portsmouth Numbers.

The method will not provide ideal Numbers because it ignores 'poor performers', Crew Skill Factor (CSF) and other factors, but generally it will give better Numbers than doing nothing or just guessing.

When experience has been gained, the Yardstick Officer can move on to the more sophisticated specimen races which will allow even better Numbers to be set.

Steps 1 to 5 produce the race results

1. Enter the boats in the order in which they finish in columns a, b, c, d, and their Elapsed Times (E), in seconds, in column g.

2. Enter the times for each boat the Portsmouth Number (N), which is to be used for calculating the race results. (This Number can be an RYA published Number, or a Club or Trial Number allocated by the race organiser in accordance with the Sailing Instructions.)

3. Enter in column f each boat’s status as Primary Yardstick (PY), Secondary Yardstick (SY), Recorded Number (RN), Club Number (CN) or Trial Number (TN).

4. Using the formula (6.2 page 5):

\[ C = \frac{E \times 1000}{N} \]

Where C = Corrected Time
\[ E = \text{Elapsed Time} \]
\[ N = \text{Portsmouth Number} \]

calculate a Corrected Time (C), in seconds, for each boat and enter in column h.

5. From the Cs, give the position of each boat in the race in column i (1 to 26 in the example).

This is the race result

Normally steps 1 to 5 would be completed by the Race Officer, with steps 6 to 19 being completed by the Yardstick Officer.

Steps 6 to 10 gives the performance of the boats

6. Select and enter in column j the Cs of all the PY boats.

If there are no PY boats then select and enter in column j the Cs of all the SY boats. If there are no PY or SY boats then select and enter in column j the Cs of all the RN boats.

7. Calculate the Race Average Time (A) by averaging the Cs in column j.

Steps 8 and 9 are not used

10. Using the formula (6.3 page 5) \( P = \frac{E \times 1000}{A} \)

Where \( P = \text{Performance Number} \)
\[ E = \text{Elapsed Time} \]
\[ A = \text{Race Average Time} \]
calculate and in column l enter a P for each boat to the nearest whole number. The P is the Number to which the boat has performed in this race.

If steps 1 to 10 have been carried out correctly, the Ps in column l will always be in ascending order.

Steps 11 to 17 produce data for the review of Numbers

11. The difference between the P in column l and the N in column e is to be the Performance Indicator (PI) and is entered in column m, for all boats.

12. Specimen Race Zero does not include the effect of Crew Skill Factor (CSF) in calculations and so column n is ignored and the PC, entered in column o, is equal to the PI entered in column m.

Steps 13 and 14 are not used

15. Enter in column p, on the first line of each class, the sum of the PCs (∑PC) and the number of boats (∑R) of the class in this race. ∑PC should be entered in the top left hand side of the box and ∑R in the bottom right hand side. For one-off boats or if there is only one boat of a class the ∑PC will equal the PC in column o and the ∑R will equal 1.

16. Except for boats with Trial Numbers (TN in column f), enter in column q, on the first line of each class the sum of the PCs (∑PC) and the number of boats (∑R) of the class in this race and the previous races since the last Number review. This will be the sum of the figures entered in column p for this race and in column q for the previous race for this class.

17. Details of classes and boats which, although not finishers in this race, did finish in previous races are added at the bottom in columns c, d, e, & g to be ready for the next race calculations.

18. Review of TN boats undertaken boat by boat. There are no TN boats in this specimen race so no review is undertaken

19. Periodic Review undertaken class by class.

The Number Change (NC), entered in column r in the first line for each class, is the sum of the PCs for all boats of the class in the last four races (the number of races since the last periodic review) divided by the total number of races completed by these boats

\[ \text{i.e. the } \frac{\sum PC}{\sum R} \text{ as entered in the top left hand side of boxes in column q divided by the }\frac{\sum R}{\text{boat}} \text{ as entered in the bottom right hand side of the same box.} \]

For the B14 this is \( \frac{221 + 20}{11} \) (after rounding).

As there are good PY classes in the race (Laser II and Laser) with NCs equal or close to zero, these are taken as the 'Yardstick' and no adjustment is made to their Numbers (see 7.2 page 5 and above Note).

For all other classes, including SYs (see above Note) the club does adjust Numbers.

The (new) N, to be entered in column s, is the (old) N for this race in column e, with NC applied. If NC is positive then this should be added to the old N. If NC is negative it should be taken away from the old N.

For the B14 this is 880 - 11 = 869 which will be applied to all boats in this class for the next four races.

After a periodic Number review \( \sum PC / \sum R \) in column q are cancelled (returned to zero) ready for the next race calculations.
### SPECIMEN RACE ONE

A race with few classes each with several finishers in which it is assumed that the CSF will balance out

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\[ \text{ACT} = 4391 \]

\[ \text{ACT} \times 1.05 = 4611 \]

\[ \text{S} = 4439 \]
SPECMEN RACE ONE

A race with few classes each with several finishers in which it may be assumed that the range of Crew Skill Factors (CSF) within a class will balance out and so can be ignored. Specimen Race Two illustrates a race with many classes each with few boats in which CSF should not be ignored.

Steps 1 to 5 produce the race results
1. Enter the boats in the order in which they finish in columns a, b, c, d, and their Elapsed Times (E), in seconds, in column q.
2. Enter in column e for each boat the Portsmouth Number (N), which is to be used for calculating the race results. (This Number can be an RYA published Number, or a Club or Trial Number allocated by the race organiser in accordance with the Sailing Instructions.)
3. Enter in column f each boat’s status as Primary Yardstick (PY), Secondary Yardstick (SY), Recorded Number (RN), Club Number (CN) or Trial Number (TN).
4. Using the formula (6.2 page 5): \( C = E \times 1000 \div N \)
   Where C = Corrected Time
   E = Elapsed Time
   N = Portsmouth Number
   calculate a Corrected Time (C), in seconds, for each boat and enter in column h.
5. From the Cs give the position of each boat in the race in column i, (1 to 26 in the example).

This is the race result

Normally steps 1 to 5 would be completed by the Race Officer, with steps 6 to 19 being completed by the Yardstick Officer.

Steps 6 to 8 avoid ‘poor performers’ influencing the Standard Corrected Time
6. From the Cs of PY, SY and RN boats select and enter in column j the best performing two-thirds of the fleet (seventeen boats in the example).
7. From column j calculate an Average Corrected Time (ACT): 74639 ÷ 17 = 4391.
8. Multiply the ACT by 1.05 = 4611

All boats with Cs exceeding this figure, in other words more than 5% slower than ACT, are regarded as ‘poor performers’ and their Cs bracketed in column h (boat W in the example). The times of bracketed boats are not included in the calculation of the Standard Corrected Time (S).

Steps 9 to 17 produce data for the review of Numbers
9. In the specimen race there are no PY boats and few SY boats and therefore the S has been calculated using the Cs of un-bracketed SY and RN boats. It is preferable for S to be calculated from the Cs of PY and SY boats with the Cs of RN boats only used where there are insufficient Yardsticks.

From the un-bracketed times of SY and RN boats (PY and SY if there are sufficient) in column h, calculate S by averaging the Cs: 110978 + 25 = 4439.
10. Using the formula (6.3 page 5): \( P = E \times 1000 \div S \)
   Where P = Performance Number
   E = Elapsed Time
   S = Standard Corrected Time
   calculate and in column l enter a P for each boat to the nearest whole number.

The P is the Number to which the boat has performed in this race. Ps of boats with bracketed Cs are also bracketed and are not used for adjustment. If steps 1 to 10 have been carried out correctly, the Ps in column l will always be in ascending order.
11. The difference between P in column l and N in column e is called the Performance Indicator (PI) and is entered in column m for each boat. Ps for boats with bracketed Cs are also bracketed.
12. If there is a sufficient number of boats in a class racing for the effects of different Crew Skill Factors (CSF) to balance out, then steps 13 and 14 may be omitted for that class. In this example this is assumed to be the case, so column i is ignored and the PC, entered in column o, is equal to the PI entered in column m. However it would never be wrong to include steps 13 and 14 (see Specimen Race Two).

Steps 13 and 14 are omitted in this race
15. Enter in column p, on the first line of each class, the sum of the PCs (\( \Sigma PC \)) and the number of boats (\( N \)) of the class in this race. \( \Sigma PC \) should be entered in the top left hand side of the box and \( \Sigma \) in the bottom right hand side. ‘Poor performers’ should not be included in these totals. For one-off boats or if there’s only one boat of a class the \( \Sigma PC \) will equal the PC in column o and the \( \Sigma \) will equal 1.
   e.g. for the International 14,
   \[ \Sigma PC = 37 - 30 \times 3 + 4 + 14 + 19 - 50 \]
   This is entered as - 50/7 in the column p box of boat A, the first International 14 in the race.
16. Except for boats with Trial Numbers (TN in column f), enter in column q, on the first line of each class the sum of the PCs (\( \Sigma \)) and the number of boats (\( \Sigma N \)) of the class in this race and the previous races since the last Number review.

This will be the sum of the figures entered in column p for the race and column q for the previous race for this class.
   e.g. for the International 14, \[ \Sigma PC = 50 \] (from this race) – 57 (from the previous race) – 107 and \[ \Sigma N = 7 \] (from this race) + 23 (from the previous race) – 30. This is entered as - 107/30 in the column q box of boat A, the first International 14 in the race.

For TN boats the \( \Sigma PC \) in column q should be the same as the \( \Sigma PC \) in column p, i.e. it should not include data from the previous races.
17. Details of classes and boats which, although not finishers in this race, did finish in previous races are added at the bottom in columns c, d, e, f & q to be ready for the next race calculations.

Steps 18 and 19 are the review of Numbers
A review and adjustment of TN boats should be undertaken after every race. A periodic review and, if appropriate, adjustment of PY, SY, RN and CN boats should be undertaken at periods determined by the club and as specified in Sailing Instructions (7.4 page 5).In this specimen race it is assumed that the club undertakes a periodic review of Numbers after every fourth race in which a class is adequately represented.

Note: When adjusting any Portsmouth Numbers, great care should be exercised. The proposed change should only, and truly, reflect the performance of that design of boat on your club’s sailing waters and not be because the class has better (or worse) sailors than the club average. Additionally, Primary Yardsticks are Portsmouth Numbers well attested over many years and should not require adjustment. However it is possible that, in your club on your sailing waters, small changes may be necessary to a Primary Yardstick in order to maintain fair relationships between classes. Secondary Yardsticks are also well attested though not as well as Primary Yardsticks, so the same recommendation applies though changes may be made with less reluctance.

18. Review of TN boats undertaken boat by boat. There are no TN boats in this specimen race so no review is undertaken.
19. Periodic Review undertaken class by class.

International 14 - Seven boats with an RN of 884
As this is the twelfth race in which the class has been adequately represented a Number Change (NC) for the class should be calculated and entered in column r in the first line for the class. The NC is the sum of the PCs for all boats of the class in the last four races (the number of races since the last periodic review) divided by the total number of races completed by these boats i.e. the \( \Sigma PC \) entered in the top left hand side of boxes in column q divided by the \( \Sigma R \) entered in the bottom right hand side of the same box. -107/30 = -4 after rounding.

As this is an RN class the adjustment is made (see above Note). The (new) N, entered in column s, is the N for this race in column e, with NC applied. If NC is positive then this should be added to the old N. If NC is negative it should be taken away from the old N. For the International 14 this is 884 - 4 = 880.As the club has opted to review Numbers after every fourth race the new N is used for the class in the next four races and the \( \Sigma PC / \Sigma R \) in column q are cancelled (returned to zero) ready for the next race calculations.

ISO - Seven boats with an RN of 906
As this is the tenth race in which the class has been adequately represented and as the club undertakes a periodic review of Numbers every fourth race, no further action is necessary.

RS 400 - Six boats with an RN of 966
As this is the eighth race in which the class has been adequately represented a Number Change (NC) for the class should be calculated and entered in column r in the first line for the class. The NC is 150 + 26 = 6 after rounding.

As this is an RN class adjustment is made (see above Note) with the (new) N entered in column s = 966 + 6 = 972.As the club has opted to review Numbers after every fourth race the new N is used for the class in the next four races and the \( \Sigma PC / \Sigma R \) in column q are cancelled (returned to zero) ready for the next race calculations.
SPECMEN RACE TWO
A race with several classes and individual boats in which it cannot be assumed that the CSF will balance out

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Total: 55002

ACT = 3667

ACT X 1.05 = 3850

47522

S = 3656
SPECIMEN RACE TWO
A race with many dinghy classes each with few boats in which CSF should not be ignored when adjusting Numbers.

Steps 1 to 5 produce the race results

1. Enter the boats in the order in which they finish in columns a, b, c, d, and their Elapsed Times (E), in seconds, in column g and any relevant information, e.g. how many races boats with Trial Numbers have completed, in column k.

2. Enter in column e for each boat the Portsmouth Number (N), which is to be used for calculating the race results. (This Number can be an RYA published Number, or a Club or Trial Number allocated by the race organiser in accordance with the Sailing Instructions.)

3. Enter in column f each boat's status as Primary Yardstick (PY), Secondary Yardstick (SY), Recorded Number (RN), Club Number (CN) or Trial Number (TN).

4. Using the formula (6.2 page 5): C = E + 1000

Where
C = Corrected Time
E = Elapsed Time
N = Portsmouth Number
calculate a Corrected Time (C), in seconds, for each boat and enter in column h.

5. From the Cs, give the position of each boat in the race in column i (1 to 26 in the example).

This is the race result

Normally steps 1 to 5 would be completed by the Race Officer, with steps 6 to 19 being completed by the Yardstick Officer.

Steps 6 to 8 avoid ‘poor performers’ influencing the Standard Corrected Time

6. From the Cs of PY, SY and RN boats select and enter in column j the best performing two thirds of the fleet (fifteen boats in the example).

7. From column j calculate an Average Corrected Time (ACT); 55002 + 15 = 3667

8. Multiply the ACT by 1.05 = 3850

All boats with Cs exceeding this figure, in other words more than 5% slower than ACT, are regarded as ‘poor performers’ and their Cs bracketed in column h (boats R, S, T, U, V and W in the example). The times of bracketed boats are not included in the calculation of the Standard Corrected Time (S).

Steps 9 to 17 produce data for the review of Numbers

9. In the specimen race there are many PY boats and therefore the S may be calculated from these. If only a few PY boats have been racing, then the Cs of un-bracketed SY and RN boats also may need to be used. From the un-bracketed times of PY boats in column h, calculate S by averaging the Cs of boats A,B,C,D,E,G,H,I,J,L,M,P,Y and Z i.e. 47522 + 13 = 3656.

10. Using the formula (6.3 page 5) P = E + 1000

Where
P = Performance Number
E = Elapsed Time
S = Standard Corrected Time
calculate and in column i enter P for each boat to the nearest whole number. The P is the Number to which the boat has performed in this race. Ps of boats with bracketed Cs are also bracketed and are not used for adjustment.

If steps 1 to 10 have been carried out correctly, the Ps in column i will always be in ascending order.

11. The difference between P in column i and N in column e is called the Performance Indicator (Pi) and is entered in column m, for each boat. PIs for boats with bracketed Cs are also bracketed.

12. If there is a sufficient number of boats in a class racing for the effects of different Crew Skill Factors (CSF) to balance out, then steps 13 and 14 may be omitted for that class. This is NOT the case in this example and so steps 13 and 14 are included.

13. The assessed CSF for each boat is entered in column n. It is shown as negative if the crew would be expected normally to sail a boat faster than its Portsmouth Number.

14. As CSF should not be allowed to influence the assessment of adjusted Numbers, it needs to be subtracted from the PI to give the Provisional Change (PC) which is entered in column o. Remember that subtracting a negative CSF gives a greater PC than the PI.

15. Enter in column p, on the first line of each class, the sum of the PCs (ΣPC) and the number of boats (ΣR) of the class in this race. ΣPC should be entered in the top left hand side of the box and ΣR in the bottom right hand side. ‘Poor performers’ should not be included in these totals. For one-off boats or if there is only one boat of a class the ΣPC will equal the PC in column o and the ΣR will equal 1.

e.g. for the Wanderer, ΣPC = 4 + 6 + 74 + 84 and ΣR = 3. This is entered as 843 in the column p box of boat L, the first Wanderer in the race.

16. Except for boats with Trial Numbers (TN in column f), enter in column q, on the first line of each class the sum of the PCs (ΣPC) and the number of boats (ΣR) of the class in this race and the previous race since the last Number Review. This will be the sum of the figures entered in column p for this race and in column q for the previous race for this class.

e.g. for the Wanderer, ΣPC = 84 (from this race) -204 (from the previous race) = -120 and ΣR = 3 (from this race) + 10 (from the previous race) = 13. This is entered as -120/13 in the column q box of boat L, the first Wanderer in the race.

For TN boats the ΣPC and ΣR in column q should be the same as the ΣPC and ΣR in column p, i.e. it should not include data from the previous races.

e.g. for the QPR, -33/1.

17. Details of classes and boats which, although not finishers in this race, did finish in previous races are added at the bottom in columns c, d, e, & q & to be ready for the next race calculations.

Steps 18 and 19 are the review of Numbers

A review and adjustment of TN boats should be undertaken after every race.

A periodic review and, if appropriate, adjustment of PY, SY, RN and CN boats should be undertaken at periods determined by the club and as specified in Sailing Instructions (7.4 page 5).

In this specimen race it is assumed that the club undertakes a periodic review of Numbers after every fourth race in which a class is adequately represented.

Note: When adjusting any Portsmouth Numbers, great care should be exercised. The proposed change should only, and truly, reflect the performance of that design of boat on your club’s sailing waters and not be because the class has better (or worse) sailors than the club average. Additionally, Primary Yardsticks are Portsmouth Numbers well attested over many years and should not require adjustment. However it is possible that, in your club on your sailing waters, small changes may be necessary to a Primary Yardstick in order to maintain fair relationships between classes. Secondary Yardsticks are also well attested though not as well as Primary Yardsticks, so the same recommendation applies though changes may be made with less reluctance.

18. Review of TN boats undertaken after by boat

For TN boats a review and adjustment of Number, should be undertaken after every race. The Number Change (NC) for each boat should be calculated and entered in column r. The NC is the PC in this race divided by 1 i.e. the ΣPC as entered in the top left hand side of boxes in column q divided by the ΣR as entered in the bottom right hand side of the same box.

The (new) N, entered in column s, is the N for this race in column e, with NC applied. If NC is positive then this should be added to the old N. If NC is negative it should be taken away from the old N.

Q.P.R. - One boat with a TN of 1173 in her first race

For this boat the NC is -33/1 – 33 so the new N is 1173 + 33 = 1140.

420 No Spinnaker - One boat with a TN of 1126 in her second race.

The NC is 20/1 = 20 and the new N = 1126 + 20 = 1146.

X.Y.Z. - One boat with a TN of 1325 in her third race.

The NC is 35/1 = 35 and the new N = 1325 + 35 = 1360.

As this is the third race in which this boat has finished without being a ‘poor performer’, her new N should be sufficiently stable to warrant a status change to a CN with the ΣPC/ΣR in column q cancelled (returned to zero) ready for the next race calculation. However, if a club considers appropriate, it would not be wrong to keep the Number as a TN and to continue review after every race.

Periodic Review undertaken by class

Laser, Enterprise, Wayfarer, GP 14 and Mirror- all boats with a PY

As PY classes are taken as ‘Yardsticks’ no adjustment is made to their Numbers (see 7.2 page 5 and above Note).

A.B.C. - One boat with a CN of 1098

This is the tenth race the boat has completed and as the club undertakes a periodic review of Numbers after every fourth race, no further action is necessary.

Wanderer - Five boats with an RN of 1131

As this is the twelfth race in which the class has been adequately represented a Number Change (NC) for the class should be calculated and entered in column r in the first line for the class. The NC is the sum of the PCs for all boats of the class in the last four races (the number of races since the last periodic review) divided by the total number of races completed by these boats i.e. the ΣPC as entered in the top left hand side of boxes in column q divided by the ΣR as entered in the bottom right hand side of the same box -120/13 = -9 after rounding.

As this is an RN class adjustment is made (see above Note).

The (new) N, entered in column s, is the N for this race in column e, with NC applied. If NC is positive then this should be added to the old N. If NC is negative it should be taken away from the old N.

For the Wanderer this is 1131 - 9 = 1122.

As the club has opted to review Numbers after every fourth race the new N is used for the class in the next four races and the ΣPC/ΣR in column q are cancelled (returned to zero) ready for the next race calculations.

Busan - One boat with an RN of 1198

This is the eighth race for the boat but as she is a ‘poor performer’ this race is discounted as a review race and the ΣPC/ΣR from her previous race is carried forward to the next race unchanged.
### SPECIMEN RACE THREE

A cruiser race with many individual entries in which it cannot be assumed that CSF will balance out.

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\[ \text{Act} = 13402 \]
\[ \text{Act} \times 1.05 = 14072 \]

\[ S = 13490 \]
A race with many cruiser classes each with few boats in which CSF should not be ignored when adjusting Numbers.

Steps 1 to 5 produce the race results

Steps 6 to 8 avoid poor performers influencing the Standard Corrected Time

Steps 1 to 8 should be undertaken using the same method as shown in Specimen Race Two. The ACT = 13402. ACTx1.05 = 14072.

Steps 9 to 15 produce data for the review of Numbers

In the specimen race there are few PY boats and SY boats and therefore the S has been calculated using the Cs of un-bracketed PY, SY and RN boats. It is preferable for S to be calculated from the Cs of SY and PY boats with the Cs of RN boats only used where there are insufficient Yardsticks. From the un-bracketed times of PY, SY and RN boats in column h, calculating by averaging the times of boat A, D, E, G, J, M, Q, T, V and W and x e = 175375 = 13 = 13490.

Steps 10 to 14 - should be undertaken using the same method as illustrated in Specimen Race Two.

15 Enter in column p, on the first line of each class, the sum of the PCs (∑PC) and the number of boats (∑R) of the class in this race. ∑PC should be entered in the top left hand side of the box and ∑R in the bottom right hand side. ‘Poor performers’ should not be included in these totals. For one of the boats or if there is only one boat of a class the ∑PC will equal the PC in column o and the ∑R will equal 1.

e.g. for the Sigma 38, ∑PC = 29 and ∑R = 1. This is entered as 29/1 in the column p box of boat A, the first, and in this example, the only Sigma 38 in the race.

16 Except for boats with Trial Numbers (TN in column f), enter in column q, on the first line of each class the sum of the PCs (∑PC) and the number of boats (∑R) of the class in this race and the previous races since the last Number review. This will be the sum of the figures entered in column p for this race and in column q for the previous race for this class.

e.g. for the Sigma 38, ∑PC = 29 (from this race) + 60 (from the previous race) = 89 and ∑R = 1 (from this race) + 3 (from the previous race) = 4. This is entered as 89/4 in the column q box of boat A, the first, and in this example, the only Sigma 38 in the race.

For TN boats the ∑PC/∑R in column q should be the same as the ∑PC/∑R in column p, i.e. it should not include data from the previous races.

e.g. for the Q.P.R., 23/1.

17 Details of classes and boats which, although not finishers in this race, did finish in previous races are added at the bottom in columns c, d, e, f & q to be ready for the next race calculations.

Steps 18 and 19 are the review of Numbers

A review and adjustment of TN boats should be undertaken after every race.

A periodic review and, if appropriate, adjustment of PY, SY, RN and CN boats should be undertaken at periods determined by the club and as specified in Sailing Instructions (7.4 page 5).

In this specimen race it is assumed that the club undertakes a periodic review of Numbers after every fourth race in which a class is adequately represented.

Note: When adjusting any Portsmouth Numbers, great care should be exercised. The proposed change should only, and truly, reflect the performance of that design of boat on your club's sailing waters and not because the class has better (or worse) sailors than the club average. Additionally, Primary Yardsticks are Portsmouth Numbers well attested over many years and should not require adjustment. However it is possible that, in your club on your sailing waters, small changes may be necessary to a Primary Yardstick in order to maintain fair relationships between classes. Secondary Yardsticks are also well attested though not as well Primary Yardsticks, so the same recommendation applies though changes may be made with less reluctance.

18 Review of TN boats undertaken boat by boat

For TN boats a review and adjustment of Number, should be undertaken after every race.

The Number Change (NC) for each boat should be calculated and entered in column r. The NC is the PC in this race divided by 1.1 i.e. the ∑PC as entered in the top left hand side of box divided by the ∑R as entered in the bottom right hand side of the same box.

The (new) N, to be entered in column s, is the (old) N for this race in column e, with NC applied. If NC is positive then this should be added to the old N. If NC is negative it should be taken away from the old N

P.O.R. - One boat with a TN of 993 in her first race

For this boat the NC is 123/1 = 23 so the new N is 993 + 23 = 1016.

Etap 30 - One boat with a TN of 1069 in her second race

The NC is -61/1 = -61 and the new N = 1069 - 61 = 1008.

Change 24 - One boat with a TN of 1079 in her third race

The NC is -21/1 = -21 and the new N = 1079 - 21 = 1058.As this is the third race in which this boat has finished without being a ‘poor performer’, her new N should be sufficiently stable to warrant a status change to a CN with the ∑PC/∑R in column q cancelled (returned to zero) ready for the next race calculation. However, if a club considers appropriate, it would not be wrong to keep the Number as a TN and to continue to review after every race.

One-Off (boat S) - One boat with a TN of 1069 in her second race

The NC is 41/1 = 41 and the new N = 1069 + 41 = 1110.

19 Periodic Review undertaken class by class

This club has few PY classes and so has chosen to treat both PY and SY classes as ‘Yardsticks’ making no adjustment to their Numbers unless the race analysis indicates inequally between them (see 7.2 page 5 and above Note).

Sigma 33, Achillies 24 and Westery Centaur - all boats with a PY

Ballard 30, Westery Konsort and Folkboat - all boats with a SY

As, at this club PY and SY classes are taken as ‘Yardsticks’ no adjustment is made to their Numbers (see 7.2 page 5 and above Note).

Sigma 38 - One boat with an RN of 844

As this is the eighth race the boat has completed without being a ‘poor performer’ a Number Change (NC) should be calculated and entered in column r. The NC is the sum of the PCs for the boat in the last four races (the number of races since the last periodic review) divided by the total number of races completed by the boat i.e. the ∑PC as entered in the top left hand side of boxes in column q divided by the ∑R as entered in the bottom right hand side of the same box. 89 + 4 = 93 after rounding.

As this is a RN class the adjustment is made (see above Note).

The (new) N, in column s, is the (old) N in column e, with NC applied = 844 +22 = 866.

As the club has opted to review Numbers after every fourth race the new N is used for the class in the next four races and the ∑PC/∑R in column q are cancelled (returned to zero) ready for the next race calculations.

Club 19 - One boat with an RN of 1058

This is the eighth race the boat has completed without being a ‘poor performer’ so an NC of -12 is calculated and entered in column r. As this is a RN class the adjustment is made (see above Note). The (new) N to be entered in column s is 1058 - 12 = 1046.

The new N is used for the class in the next four races and the ∑PC/∑R in column q are cancelled (returned to zero) ready for the next race calculations.

Feeling 850, Achilles 9m, Triellina, Trapper 28, Trapper TS 240 and Westery Berwick - All RN boats

As this is the fifth race which all of these boats have completed without being ‘poor performers’ and as the club undertakes a periodic review of Numbers every fourth race, no further action is necessary.

A.B.C. - One boat with a CN of 1098

This is the fifth race the boat has completed without being a ‘poor performer’ and so no further action is necessary.

One-Off (boat C) - One boat with a CN of 908

As this is the eighth race the boat has completed without being a ‘poor performer’ an NC of 6 is calculated and entered in column r.

As this is a CN class the adjustment is made (see above Note).

The (new) N, in column s, is 908 - 6 = 914 which is used for the class in the next four races and the ∑PC/∑R in column q are cancelled (returned to zero) ready for the next race calculations.

Contention 30 - One boat with a CN of 1098

As this is the seventh race the boat has completed without being a ‘poor performer’ and as the club undertakes a periodic review of Numbers every fourth race, no further action is necessary.

Rival 34 - One boat with a CN of 1041

This is the fifth race the boat has completed without being a ‘poor performer’ so no further action is necessary.

X.Y.Z. - One boat with a CN of 1079

This is the sixth race the boat has completed without being a ‘poor performer’ so no further action is necessary.