

SailRaceTimer

User Manual

Contents

1	Features	3
2	Glossary	4
3	Display Icons	5
3.1	Flag Icons	5
3.2	Softkey Icons	6
4	System Operation	7
4.1	Power Switch	7
4.2	Hooter Drive Cable	8
4.3	Main Menu.....	9
5	Normal Race Operation	10
5.1	Normal Race Display	10
5.2	Running a Normal Race	11
6	Pursuit Race Operation	13
6.1	Pursuit Race Display	13
6.2	Running a Pursuit Race.....	14
7	Log Playback.....	16
7.1	Display Number of Starts	16
7.2	Display Number of Finishes.....	16
7.3	Display Starts.....	16
7.4	Display Finishes	17
8	Configuration Options.....	18
8.1	Display Oh or Zero.....	18
8.2	Display Leading Zero	18
8.3	Gen Rec Enable	18
8.4	General Recall Mode	19
8.5	Log Time Rounding.....	20
8.6	Button Layout	20
8.7	Reset to defaults	20

1 Features

- Easy to operate interface
- Animated flag position indicators
- Drive for external horn
- General Recall sequence management
- Logging of finish times and start offsets
- Pursuit race start count display
- Timing display wraps after 1000 minutes (more than 16 hours)

SailRaceTimer does not do everything for the Race Officer, they remain responsible for

- Recording the order of boats (sail numbers) as they finish
 - The SailRaceTimer “Log” function will record the sequence of finish times but the Race Officer must associate each time with a particular boat
- Individual Recall management
 - Raising of the “X” flag, sounding the hooter and lowering of the “X” flag are not handled in any way SailRaceTimer.
 - The Individual Recall hoot is sounded by using the manual hooter button on the portable air-horn box or the bridge desk.
 - DO NOT attempt to signal “Individual Recall” using any of the buttons on the SailRaceTimer. The best you will achieve is a General Recall which will not be very popular.

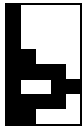

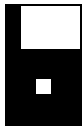

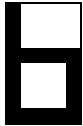
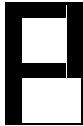


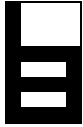

2 Glossary

Beep	The SailRaceTimer has an internal high pitched beeper used to indicate successful button presses, alert that flags need to be moved, etc.
Hoot	The SailRaceTimer drives an external hooter box (air horn).
Softkey	<p>There are 3 buttons ([LEFT], [CENTRE] and [RIGHT]) that control the operation of the SailRaceTimer. The function of each button changes depending on context. The current function is indicated on the bottom line of the display by a label and an arrow icon (◀, ▼, ▶) that indicates the applicable button. If there is no arrow icon then the corresponding button has no function.</p> <p>Example:</p> <div data-bbox="376 604 751 696" data-label="Text"> <pre>Starts: 1 ◀PREV ▼EXIT NEXT▶</pre> </div> <p>Note: depending on the physical layout of the buttons and the display the icons may be changed from “◀▼▶” to “▼▼▼”.</p> <p>In some circumstances a long press is required (to avoid accidental operation of critical functions such as ending a race); this is indicated by a “thick arrow” icon on the timer and a red icon (◀, ▼, ▶) in this document. When the button is pressed the icon will change to an outline and a short “chirp” will be sounded every half second until the button has been held down long enough (usually 3 seconds).</p> <p>See section 3.2 for softkey icon images.</p> <p>For some operations the [LEFT] and [RIGHT] buttons have to be pressed simultaneously, this is indicated by diamonds (◆) at the extreme left and right hand ends of the display.</p> <p>Example:</p> <div data-bbox="376 1310 751 1402" data-label="Text"> <pre>69:11 -00:19 21 ◆EVERYBODY STARTED ◆</pre> </div>

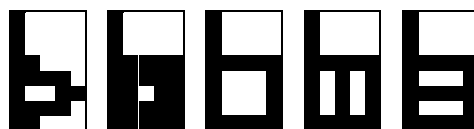
3 Display Icons

3.1 Flag Icons

The display uses icons to show the state of the flags:-

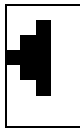
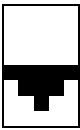
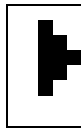
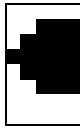
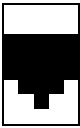

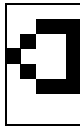
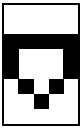
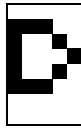
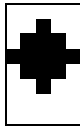
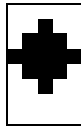
Lowered	Raised	Description
		General Recall flag (1 st Substitute)
		Preparatory flag (P)
		Class/Fleet #1 flag
		Class/Fleet #2 flag
		Class/Fleet #3 flag

The flag icons appear in the upper right of the race start display (they are removed when no longer useful). Depending on the selected race type there may be 1, 2 or 3 class flags. The initial condition is all flags lowered...



3.2 Softkey Icons

The display uses icons to indicate softkey status:-

Left	Below	Right	Description
			Normal press
			Long press (not pressed)
			Long press (pressed) Accompanied by short chirps
			Left and right together

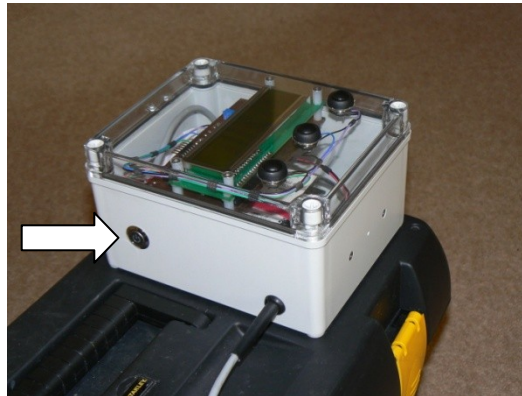
The softkey icons and labels appear on the bottom line of the display.

Softkey labels are always in CAPITAL letters.

4 System Operation

4.1 Power Switch

The SailRaceTimer is switched on using the silver push button switch on the left hand side towards the rear of the unit.



Remember to switch the unit off when you are finished with it.

The SailRaceTimer is powered internally using 4 AA batteries. It is independent from the air-horn box. When the charger is plugged in to the air-horn box this has no effect on the SailRaceTimer.

When the SailRaceTimer batteries are getting low the following display will appear when the unit is switched on...

```
Low battery!  
      ACKNOWLEDGE▶
```

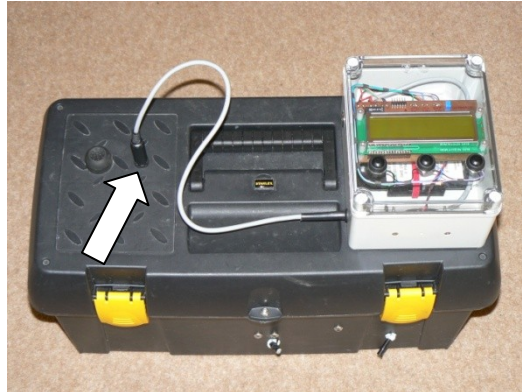
...press [ACKNOWLEDGE] to proceed.

The Timer will, most probably, continue to function correctly for the next race. However the batteries should be changed at the earliest opportunity. Please inform a member of the Sailing Committee.

4.2 Hooter Drive Cable

The cable coming out of the left hand side of the SailRaceTimer is the drive for the hooter.

If the SailRaceTimer is to sound hoots then this cable must be plugged into either the portable air horn box (socket is adjacent to the manual hoot button)...



...or the bridge air horn circuit...



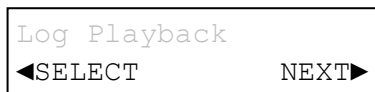
Apart from the start sequence SailRaceTimer sounds hoots...

- During normal racing when the [LOG] softkey is pressed
- Automatically at the end of a pursuit race.

If hoots will be sounded when the SailRaceTimer is inside the bridge office the Race Officer is advised to disconnect the hooter drive cable from the portable air horn and plug it in to the bridge air horn circuit.

4.3 Main Menu

After switching the SailRaceTimer on it enters the main menu.



[SELECT] select this menu item.

[NEXT] move to the next menu item.

The first entry in the main menu is “Log Playback”; this option is used after a race to view the delays between starts and the finish times of boats (see section 7). The race log is available until the timer is turned off or another race is started. The log is not applicable to pursuit races.

The other menu entries are used to select a race type. Use [NEXT] to move to the type of race you need and then [SELECT] to confirm your choice. The race type specifies the countdown sequence (5-4-1-0 or 3-2-1-0) and the number of starts. For pursuit races the length of the race (e.g. 90 minutes) and the interval between each start (e.g. 30 seconds) is indicated. The available race types are...

```
1 start: 5-4-1-0
2 starts: 5-4-1-0
Pursuit 90m 30s 5410
1 start: 3-2-1-0
2 starts: 3-2-1-0
3 starts: 3-2-1-0
Training: 5-4-1-0
Training: 3-2-1-0
```

The commonly used race types are at the start of the list. If you press [NEXT] when you meant to press [SELECT] then you must cycle through the list.

Once a race has been selected then the display will change depending on the type of race, normal (see section 5) or pursuit (see section 6)).

The “Training” options perform a single start and then reset so that the system is ready to perform another single start. These options are intended to assist with start training but may also be useful for Team/Match racing events.

5 Normal Race Operation





5.1 Normal Race Display

<div style="border: 1px solid black; padding: 5px; text-align: center;"> 00:00 -05:15 GP12 ▼QUIT START► </div>	<p>Example shown is for “2 starts: 5-4-1-0”.</p>
<p>Explanation:</p>	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> 00:00 -05:15 GP12 ▼QUIT START► </div>	<p>Race elapsed time (minutes:seconds), this will start to count up when the first start gets underway.</p>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> 00:00 -05:15 GP12 ▼QUIT START► </div>	<p>Start countdown timer (minutes:seconds), this will start to count down when [START] is pressed.</p> <p>A few seconds are added on to the first warning time to allow the Race Officer time to press [START] and then get ready with the first class flag.</p> <p>The start countdown timer will be reloaded for each start.</p>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> 00:00 -05:15 GP12 ▼QUIT START► </div>	<p>Graphical representation of status of flags (see section 3.1). The flags will start animating 10 seconds before they need to be moved, the animation is accompanied by beeps. Hoots will sound when the actual flag is to be moved.</p> <ul style="list-style-type: none"> G: General Recall (1st substitute) P: Preparatory ('P' flag) 1, 2: Class flags. Depending on the selected start there may be 1, 2 or 3 class flags.

5.2 Running a Normal Race

The example below assumes that race type “2 starts: 5-4-1-0” has been selected from the main menu. For other race types the display will be slightly different (countdown timer value, flag display).

Step	Display	Notes
1	<div>00:00 -05:15 GP12</div> <div>▼QUIT START▶</div>	<p>[QUIT] return to main menu.</p> <p>[START] start countdown timer, go to step 2.</p>
2	<div>00:00 -04:30 GP12</div>	<p>Countdown timer running.</p> <p>‘P’ and Class Flags (‘1’, ‘2’) will animate at appropriate times accompanied by beeps and hoots.</p>
3	<div>00:00 -00:00 GP12</div> <div>GEN REC▶</div>	<p>Countdown timer reaches zero.</p> <p>If there are more starts to follow then the Countdown timer will be reloaded (e.g. -05:00) and will continue to count down.</p> <p>If this is the first start then the Elapsed time counter will start incrementing.</p> <p>General Recall option is enabled for the current start (for a short period).</p> <p>If [GEN REC] is pressed then 2 hoots are automatically sounded, the Race Officer will need to raise the ‘G’ flag (1st substitute). Go to step GR1, below.</p> <p>If [GEN REC] is not pressed then the start sequence repeats for the next start from step 2.</p> <p>When all starts have completed go to step 4.</p> <p>Note: Individual recalls are not handled by the SailRaceTimer. The Race Officer is responsible for sounding the extra hoot and raising/lowering the ‘X’ flag.</p>
4	<div>05:15 -00:00 GP12</div>	<p>All starts have been successful.</p>
5	<div>05:30 ▼STOP LOG▶</div>	<p>Logging is automatically enabled after a short time. Race elapsed time moves to the bottom line of the display.</p> <p>The race can be stopped using a long press on [STOP] (indicated by a “thick arrow” icon). A short press on [STOP] will have no effect.</p>

6	<div> 55.30 55:25 54:31 55:42  STOP LOG  </div>	<p>To finish a boat press [LOG], the race elapsed time is captured on the top line of the display and a hoot is sounded.</p> <p>The Race Officer is responsible for recording the sail number of boats as they finish.</p> <p>Previously logged times move to the right.</p> <p>The top line of the display shows up to the last 3 log times.</p> <p>All the log times are saved and may be viewed once the race has completed (see instructions for “Log Playback”, section 7). The log is lost when the SailRaceTimer is turned off or a new race is started.</p>
7	<div> Everybody finished?  YES NO  </div>	<p>A long press on [STOP] (in step 6) brings up a confirmation screen.</p> <p>A long press on [YES] will terminate the race and return to the main menu from where the log can be viewed (see section 7).</p> <p>A press on [NO] will return to the logging screen.</p> <p>If no button is pressed then after a few seconds the SailRaceTimer will return to the logging screen.</p>
GR1	<div> 00:00 -06:30 GP12 </div>	<p>General Recall</p> <p>The screen is similar to the start countdown screen, be prepared to follow the indications of the flag status display (beeps and hoots will occur automatically).</p> <p>Note: In practice the ‘G’ flag (1st substitute) will be up for less than a minute in order to keep things moving along.</p> <p>Note: The race elapsed timer will be reset if General Recall has been raised before one fleet has made a clean start, otherwise it will continue to run.</p>

6 Pursuit Race Operation






6.1 Pursuit Race Display

<div data-bbox="225 327 600 416"> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	<p>Example shown is for "Pursuit 90m 30s 5410".</p>
<p>Explanation:</p>	
<div data-bbox="225 506 600 595"> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	<p>Race countdown timer (minutes:seconds), this will start counting down when the start gets underway.</p> <p>When only a few minutes are left the timer will start beeping to alert the Race Officer to begin recording the positions of the boats on the water.</p> <p>When the race countdown timer reaches zero the finishing hoot will be automatically sounded.</p>
<div data-bbox="225 826 600 916"> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	<p>Start countdown timer (minutes:seconds), this will start to count down when [START] is pressed.</p> <p>A few seconds are added on to the warning time to allow the Race Officer time to press [START] and then get ready with the class flag.</p> <p>The start countdown timer will be repeatedly reloaded with the pursuit start interval (e.g. 00:30) until manually cancelled.</p>
<div data-bbox="225 1146 600 1236"> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	<p>Graphical representation of status of flags (see section 3.1). The flags will start animating 10 seconds before they need to be moved, the animation is accompanied by beeps.</p> <p>G: General Recall (1st substitute) P: Preparatory ('P' flag) 1: Class flag.</p>
<div data-bbox="225 1366 600 1456"> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	<p>Pursuit start count. When the start countdown timer reaches -00:00 the start count will be incremented to 01. The pursuit start count will be incremented every pursuit start interval (e.g. 30 seconds), this will be accompanied by preceding beeps and a hoot when the start count board should be updated.</p>

6.2 Running a Pursuit Race

The example below assumes that race type “Pursuit 90m 30s 5410” has been selected from the main menu. For other race types the display will be slightly different (race countdown timer value, pursuit start interval timer).

Step	Display	Notes
1	<div> 90:00 -05:15 GP1 00 ▼QUIT START► </div>	[QUIT] return to main menu. [START] launch start sequence, go to step 2.
2	<div> 90:00 -04:30 GP1 00 </div>	Start countdown timer running. ‘P’ and Class Flag 1 will animate at appropriate times accompanied by beeps and hoots.
3	<div> 89:59 -00:29 GP1 01 GEN REC► </div>	<p>Start countdown timer reaches zero. Start countdown timer is loaded with pursuit start interval (30 seconds in this example). Race countdown timer starts decrementing (from 90:00 in this example).</p> <p>General Recall option is enabled for the first start (for a short period). If [GEN REC] is pressed then 2 hoots are automatically made, the Race Officer will need to raise the ‘G’ flag (1st substitute). Go to step GR1, below.</p> <p>Note: Individual recalls are not handled by the SailRaceTimer. The Race Officer is responsible for sounding the extra hoot and raising/lowering the ‘X’ flag.</p> <p>Note: General Recall can only be raised on the first start. If boats are over the line in subsequent starts then the Race Officer should use flag “X” and sound an extra hoot manually.</p>
4	<div> 89:30 -00:00 02 ◆EVERYBODY STARTED◆ </div>	<p>Every pursuit start interval (30 seconds in this example):-</p> <ul style="list-style-type: none"> the pursuit count will be incremented a hoot will be sounded (preceded by 10 seconds of beeps) the pursuit interval timer will be reloaded <p>When everybody has started the Race Officer can stop the beeps/hoots and pursuit count display updates by simultaneously pressing the [LEFT] and [RIGHT] buttons.</p>

5	<div>79:24  STOP</div> <div>Stop race?  YES  NO</div>	<p>The race may be abandoned by a long press on [STOP], this requires confirmation...</p> <p>A long press on [YES] will terminate the race and return to the main menu. A press on [NO] will return to the race countdown screen. If no button is pressed then after a few seconds the system will return to the race countdown screen.</p>
6	<div>05:30  STOP</div>	<p>With about 5 minutes to the end of the race the system will make beeps to alert the Race Officer to start noting the positions of competitors ready for the finish.</p>
6	<div>00:30  STOP</div>	<p>With 30 seconds to the end of the race the system will make beeps to alert the Race Officer to note the final positions of the competitors.</p> <p>When the race countdown timer reaches zero a hoot will be sounded and the system will return to the main menu.</p> <p>Note: Normal practice is for the competitors to hold position after the finishing hoot until the Race Officer manually sounds an extra hoot to indicate that finishing positions have been recorded and the competitors can sail in.</p>
GR1	<div>90:00 -06:30 GP12</div>	<p>General Recall The screen is similar to the start countdown screen, be prepared to follow the indications of the flag status display (beeps and hoots will occur automatically).</p> <p>Note: In practice the 'G' flag will be up for less than a minute in order to keep things moving along.</p> <p>Note: The race countdown timer will be reloaded.</p>

7 Log Playback

The log is most applicable for viewing times related to non-pursuit races.

The Race Officer should press the [LOG] button as each boat finishes, the finish times are captured in a log that can be viewed when the race screen is exited.

The log is retained until another race is started or the SailRaceTimer is switched off.

The Race Officer is responsible for recording the order of the boats (i.e. sail numbers) as they finish.

To view the log [SELECT] "Log Playback" from the main menu (see section 4.3).

Available operations are:

```
Starts:                2
◀PREV ▼EXIT  NEXT▶
```

[PREV] display the previous log screen.

[EXIT] go back to the main menu.

[NEXT] display the next log screen.

The log is a sequence of screens that can be navigated forwards and backwards using [NEXT] and [PREV]. The sequence is treated as a loop so pressing [NEXT] on the last screen will take you to the first screen, [PREV] on the first screen will take you to the last screen. The descriptions below are in order of pressing [NEXT].

7.1 Display Number of Starts

This is the number of starts in the start sequence.

e.g. "Starts: 2"

7.2 Display Number of Finishes

This is the number of times the Race Officer pressed [LOG] during the race.

e.g. "Finishes: 24"

7.3 Display Starts

The properties of each start are displayed.

e.g. "Start #1: F1 00:00"

This is interpreted as "Start 1 was for Fleet/Class 1, the start was 00:00 (minutes:seconds) delayed relative to the race elapsed time".

If there was a General Recall and "Go To Back Of Queue" mode is configured then the Start number and Fleet/Class number may be different.

For a "2 starts: 5-4-1-0" race with no General Recalls the following screens would be displayed:

```
Start #1: F1    00:00
Start #2: F2    05:00
```


For a “2 starts: 5-4-1-0” race with a “Go To Back Of Queue” General Recall on the first start the following screens would be displayed:

Start #1: F2 00:00
Start #2: F1 05:00

There will be the same number of screens as the number of starts.

7.4 Display Finishes

The properties of each logged finish are displayed.

e.g. “Finish 01: 53:29”

The first time that the Race Officer pressed [LOG] was at race elapsed time 53:29 (minutes:seconds).

To determine the elapsed time for a competitor the Race Officer must know which class/fleet the competitor was in – the “start delay time” for the relevant Fleet/Class must be subtracted from the competitor’s finish time.

There will be the same number of screens as the number of finishes.

8 Configuration Options

Some characteristics of the SailRaceTimer can be configured using a hidden menu.

DO NOT CHANGE THE SETTINGS UNLESS YOU KNOW WHAT YOU ARE DOING

The next Race Officer may be expecting “standard” behaviour.

The configuration menu is accessed by holding down the [CENTRE] button when the main menu display shows “Log Playback”.

Note: There is no centre softkey icon. “Chirps” will NOT be made while the centre button is held down.

Viewing or changing a setting is a two stage process.

First the list of configuration items is scrolled through and a configuration item is selected for editing, the available operations are:

```
Display Oh or Zero
◀SELECT▼EXIT  NEXT▶
```

[SELECT] edit the displayed configuration setting.

[EXIT] go back to the main menu.

[NEXT] display the next log screen.

When a configuration item has been selected then the current value of that item is displayed. The available operations are:

```
Numeric zero: 0
◀SAVE ▼QUIT CHANGE▶
```

[SAVE] commit the displayed configuration setting.

[QUIT] discard any changes. The value prior to entering the menu will continue to be used.

[CHANGE] change the value of the configuration item.

The display shows the value of the configuration item that will be used if it is saved.

8.1 Display Oh or Zero

Numeric zeroes can be displayed as “0” (oh) or “Ø” (zero). It is possible that the slashed zero may be mistaken for another digit, e.g. 8.

Default: oh

8.2 Display Leading Zero

The SailRaceTimer displays times up to 999:59 (minutes:seconds). This configuration option allows for the hundreds-of-minutes digit to be blanked if it is a zero, this leads to a less cluttered display when races are less than 100 minutes long. If the hundreds-of-minutes digit is not zero then it will be displayed regardless of this configuration setting.

Default: suppress leading zero

8.3 Gen Rec Enable

General Recall functionality can be enabled or disabled.

If “disabled” is chosen then the General Recall flag will not be shown on the display and the [GEN REC] softkey will not be available after each starting signal. General Recall procedures will have to be manually controlled with no support from SailRaceTimer.

If “disabled” is chosen then the setting for “General Recall Mode” (see section 8.4) has no effect.

Default: enabled

8.4 General Recall Mode

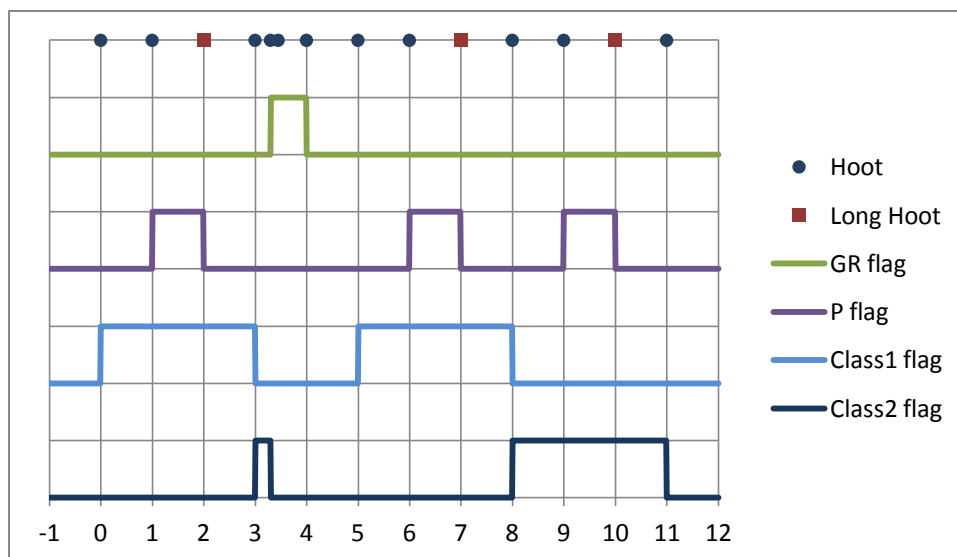
The SailRaceTimer can be configured to operate with one of two General Recall procedures, “ISAF RRS 29.2” and “Back Of Queue”. The final start of a sequence of starts will always use “ISAF RRS 29.2” mode, this includes single start races.

The examples below show flag/hoot sequences for a 2-fleet start sequence (3-2-1-0) where the first start is subject to a General Recall.

ISAF RRS 29.2

The offending fleet maintains its position in the sequence of starts; the remaining starts are delayed while the offending fleet gets another go.

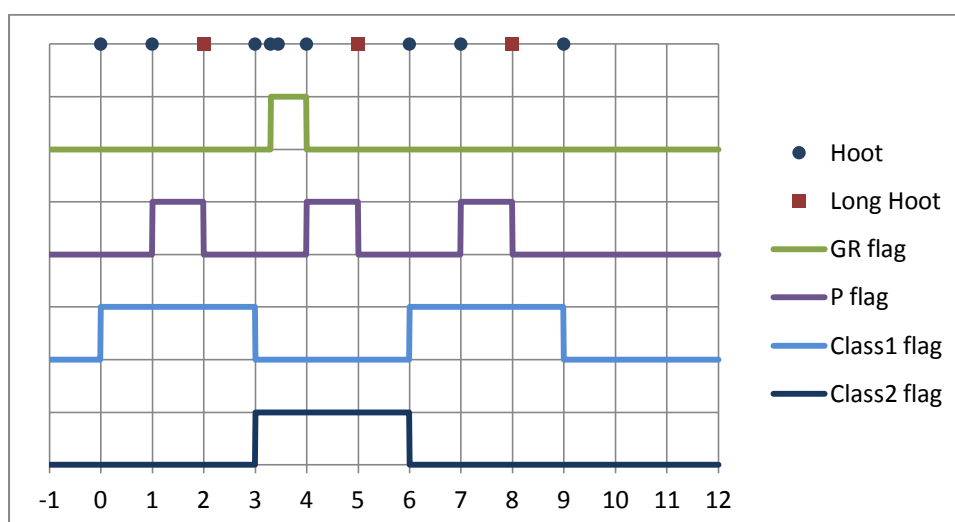
Note: the Class2 flag is raised for a brief period after the first start and is lowered when General Recall on Class1 is signalled.



Back Of Queue

The offending fleet is moved to the back of the queue of starts.

Note: the GR flag (1st substitute) is lowered at the Preparatory signal for Class2.



Default: Back of Queue

8.5 Log Time Rounding

During a non-pursuit race when the [LOG] button is pressed the current race elapsed time is captured. In addition to the whole number of seconds that appears on the display there is an internal “fractional seconds” count.

Depending on the configuration setting the time saved in the log takes account of the fractional seconds at the time the [LOG] button was pressed, see table below.

Elapsed time display	Fractional seconds	Log time with Rounding Off	Log time with Rounding On
99:59	< 0.5	99:59	99:59
99:59	>= 0.5	99:59	100:00

Default: Rounding on (compliant with RYA PYS)

8.6 Button Layout

Depending on the physical construction of the SailRaceTimer the three buttons may be to the left, right and centrally below the display (“◀ ▼ ▶”) or all buttons may be below the display (“▼ ▼ ▼”). This configuration setting changes the icons that are used for the softkeys so that they match the physical location of the buttons.

Default: “▼ ▼ ▼”

8.7 Reset to defaults

This is not a configuration setting as such but is used to reset all the other configuration settings to their default values. The setting must be changed to “Yes” and then saved in order to reset the other configuration settings.