REPORT OF THE ISAF OFFSHORE SPECIAL REGULATIONS WORKING PARTY ON DISTRESS ALERTING AND REGISTRATION OF EPIRBS AND PLBS

Background

1.   At the November 2012 meeting of the Offshore and Oceanic Committee, it was agreed to form a Working Party to review this area, following the receipt of submission SR15-12 which proposed mandatory registration of PLBs to a yacht when racing.

2.   The following extract from ISAF Special Regulations minutes is relevant:

> ***OSR 5.01.1 – Personal Locator Beacon (PLB) Registration Requirements***
> *Submission SR07-12 was received from the Chairman to amend 5.01.1 to require registration of PLBs in 5.01.1 by deleting 'should' and inserting 'shall'. Submission SR15-12 was received from Sten Edholm regarding registration of PLBs to a yacht and supply of this information to a race organiser. The submissions originated from the Irish Marine Casualty Investigation Board (MCIB) recommendations following the capsize of Rambler 100 and were considered together.*
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> *It was noted that a PLB on a lifejacket is only a requirement for Category 0. As an observer, Rob Weiland reported that a boat captain of a maxi yacht had strongly recommended that the PLBs should just be registered as 'Boat Name 1', 'Boat Name 2'etc. Ken Kershaw was concerned that PLBs are referred to in several different parts of the OSR.*
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> *It was agreed to create a Working Party to review and make recommendations regarding distress alerting and registration of EPIRBs and PLBs. Richard Besse (Ocean Safety), Stuart Carruthers, Sten Edholm, Eddie Warden-Owen and Will Apold.*
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> ***Recommendation to the Oceanic and Offshore Committee: Defer***
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> *Oceanic and Offshore Committee Decision: Defer.*

3.   The Working Party was also asked to note the Irish Marine Casualty Investigation Board (MCIB) Report into the capsize of Rambler 100 and in particular safety recommendation 6.6:

> *"It is recommended that all crew carry their safety pack with them at all times and that all PLB's be registered to the individual user and that the vessel's name, call sign and satellite phone number be included on the registration (ISAF OSR 5.01 k). It is further recommended that all PLB's be entered on crew lists with the race organisers prior to commencement of the race (ISAF OSR 4.19e). OSRs currently state that PLBs should be properly registered with the appropriate authority."*

Working Party Membership

> Stuart Carruthers (Chairman), stuart.carruthers@rya.org.uk
> Richard Besse,   rbesse@oceansafety.com
> Mike Broughton, mike@winningwind.com
> Sten Edholm,   sten.edholm@collarpoint.se
> Christophe Gaumont, christophe.gaumont@ffvoile.fr
> Adam Manders, Adam.Manders@tollgroup.com
> Ron Trossbach, rontrossbach@msn.com

4.   The final membership of the working party has resulted in representation from Australia, France and USA. Eddie Warden Owen has stood down in favour of Mike Broughton and Will Apold has also stood down in favour of Ron Trossbach.

5.   It should be noted that the Working Party is seen as being complementary to the work of the Offshore Special Regulations Sub-committee and its intention to redraft and improve the current OSR document.

Aim

6.   The aim of this paper is to make proposals for incorporation into the ISAF Offshore Special Regulations (OSR) regarding Distress Alerting and Registration of EPIRBs and PLBs.

General Discussion

7.   It is not the intention of the Working Party to review the Rambler 100 capsize incident. This has been done both by the Irish Marine Casualty Investigation Board (REPORT MCIB/206, No.9 of 2012) and US Sailing ISAF Offshore Special Regulations sub-committee. Both reports make safety recommendations that resulted in a number of Offshore Special Regulations (OSR) Submissions in 2012 that were considered fully at the time and the outcome for each can be found in the Offshore and Oceanic (OC) minutes from its meeting on 7 November 2012 (2012_OC_07_11). However, OC deferred a number of submissions to do with distress alerting and the registration of distress beacons. The Working Party has assessed these in light of lessons arising in order to recommend improvements for incorporation into the current draft of OSR.

8.   If there is one lesson to be learnt from the Rambler 100 capsize is that things can and do go suddenly and catastrophically wrong. Once the keel had snapped off, the boat capsized so quickly that the crew had no time to collect lifesaving and emergency communication equipment before they had to swim clear of the capsizing hull and its rigging as the boat inverted. Clearly a number of 2012 OSR submissions focused on how the equipment that the crew had with them in the aftermath of the incident performed in initiating distress and on that basis made proposed improvements for the future. However, a number of the proposals would require equipment to be carried whereas the Fastnet Race is a category 2 event and therefore survival equipment, particularly PLB was not required. Under these circumstances, it was further felt that no amount of detailed prescription can substitute for identification, assessment and prioritisation of undesirable scenarios followed by coordinated and well-rehearsed plans (drills if you will) to control their probability and/or impact should the worst happen.

9.   This is not an unfamiliar concept; the Rambler 100 capsize reports recognise that in the event of an emergency at sea, people with training are more likely to survive. The ISAF Sea Survival Course has been devised in response to the possibility that sailors may have to use a life raft and shows them how to help themselves. The Working Party was mindful that in many cases guidance is required to inform decision making and planning rather than compulsion through the addition of yet another regulation. However, it is for the Offshore Special Regulations Sub-committee to consider to what extent guidance notes should be included in the text of the OSR, whether more use should be made of appendices for extensive guidance (grab bag recommended contents (4.21.3) being a case in point) or whether better reference should be made to the ISAF Guide to Offshore Personal Safety manual.

Emerging Technology

10.   In writing this report the Working Party was mindful that there was an emerging view that OSR were becoming too prescriptive and did not consider the significant effects on smaller boats. There are currently a number of significant developments taking place with AIS enabled MOB systems, the satellite detection of AIS with EPIRB, and a review of the GMDSS system. There is no

point in prescribing something now to find that has been overtaken by technology before OSR are republished. It is for consideration that as the Regulations are redrafted, OSR 3.29 (Communication Equipment, EPFS (Electronic Position-Fixing System), Radar, AIS) becomes a standalone section that also includes the components of GMDSS including EPIRB, PLB and DSC that are currently fragmented and disbursed throughout the Regulations.

Approved 2012 submissions concerning Distress Alerting

11.   The working party noted that the following 2012 submissions concerning the use of DSC for distress alerting were approved by the OC at its meeting on 7 November 2012 and will become effective from 1 January 2014:

a. OSR 3.29 – Communication Equipment

Submission SR10-12 was received from Yachting Australia to update the communication equipment required on board to reflect practical testing of equipment and to introduce DSC capability. OC rejected proposals to reflect practical testing but approved the addition of the following sub clauses in respect of DSC:

- vi VHF transceivers installed after 31 December 2015 shall be DSC capable for categories MoMu1,2,3,4.
- vii DSC capable VHF transceivers shall be programmed with an assigned MMSI (unique to the boat), be connected to GPS receiver and be capable of making distress alert calls as well as sending and receiving a DSC position report with another DSC equipped station for categories MoMu1,2,3,4.

b. OSR 3.29.1(e) – Communications Equipment, Electronic Position Fixing, AIS

OC approved Submission SR18-12 recommended extending the use of DSC to handheld VHF transceivers following a US Sailing Safety Review recommendation.

Deferred 2012 submissions concerning Distress Alerting

12.   The following deferred submissions were considered by the Working Party:

a. Submission SR07-12 was received from the Chairman to amend 5.01.1 to require registration of PLBs in 5.01.1 by deleting 'should' and inserting 'shall'.

> 1) Registration is important and now mandatory for EPIRB worldwide because of the global alerting nature of the Cospas-Sarsat system. Registration also ensures that SAR resources have enough information about you and/or your vessel if an alert is activated. Yet it is a staggering fact that something like 40% of beacons worldwide are not registered. Accurate registration is crucial for effective rescue in the event of distress. Beacons should be registered with the national authority associated with the country code in the hexadecimal identification (15 Hex ID) of the beacon.

> 2) Where national authorities do not provide a registration facility and that national authority has allowed it, beacons can be registered on-line with the Cospas-Sarsat International Beacon Registration Database (IBRD). IBRD Registration permissions by Country Code and Beacon Type are available at: https://www.406registration.com/countriessupported.aspx?CultureCode=en-US

3) Regrettably, registration of PLB is not permitted in a number of countries; furthermore some of these do not authorise registration of PLB with their Country Code on IBRD as an alternative. This means that whilst PLB registration is highly desirable it cannot be made mandatory for all country codes.

4) The Working Party was aware of a conflict that arises between the carriage requirements of Regulation 5.01.1.i and Regulation 5.07.1.b. This is confusing and suggests the carriage of two PLB per crew member in Category MoMu0 is required. In Addition, Regulation 5.07.1.d draws attention to the value of keeping a PLB on the person when on deck. It is quite possible that this may be beneficial at times when a lifejacket is not required. This needs clarity.

5) It is the view of the working party that PLB should only be considered under section 5.07 or alternatively, a new section should be included in OSR as referred to in paragraph 10 above. This is a decision for the OSR sub-committee dependant on the structure that emerges from its redraft of OSR. However, for reasons that are discussed under the next deferred submission and given that they are coded differently, OSR must not blur the distinction between the two types of beacon.

6) Working Party recommendation.

- **Withdraw SR07-12 rather than defer it.**

- **Delete all reference to PLB in 5.01.1.i and k (it is not certain what 5.01.1.k achieves).**

- **Reword 5.07.1.e to read: Where possible every PLB should be registered with the national authority associated with the country code in the hexadecimal identification (15 Hex ID) of the beacon. You may be able to register your beacon online with the Cospas-Sarsat IBRD if your country does not provide a registration facility and your country has allowed direct registration in the IBRD.**

b. Submission SR15-12 concerned a proposal regarding registration of PLBs to a yacht and supply of this information to a race organiser.

1) Before considering this submission it is worth looking at the concept of beacon operation.

2) When a beacon is activated, the 406 signal will be detected by two types of satellite, A Geostationary (GEO) satellite will detect a beacon nearly immediately. Some wait time, dependent on latitude, may be associated with detection by a Low Earth Orbiting (LEO) satellite. The satellite downlink signal containing the beacon information is processed by ground receiving stations to generate a distress alert consisting of the Beacon identifier (15HexID) and location data. The Beacon identifier allows the distress alert to be linked to owner specific information in a beacon registration database by a Rescue Co-ordination Centre. (The beacon identifier also identifies which country a beacon is registered in and whether it is a PLB or EPIRB).

3) However, the GEO satellite system can only locate a beacon if a GNSS derived position is encoded into the message. If it isn't because a beacon cannot get position lock, the LEO satellite system uses Doppler information to calculate the beacon's position as LEO satellites pass overhead, this take more than one pass. Doppler location fixing takes longer; therefore beacon registration information associated with the beacon identifier is critical for efficient search and rescue operations where position is not provided in the beacon coding and until a Doppler fix is calculated.

4) Once received, the ground receiving station transfers the alert to its associated Mission Control Centre (MCC) which then forwards it to the MCC associated with the beacon owner's country (encoded in the beacon message); and the MCC associated with the geographic region where the beacon was detected who in turn alert its Rescue Co-ordination Centres (RCC) to co-ordinate search and rescue activities. By the time this happens and provided the beacon has been properly registered, the RCC will know who it is, where it is and who the emergency contact is, the emergency contact should then be able to provide additional information about what that person is doing.

5) As has been stated above the Working Party believes that OSR must maintain a clear distinction between EPIRB and PLB, not only because they are coded differently, but they are intended for different purposes. An EPIRB Alert will be treated as a vessel in distress whereas a PLB alert will be treated as an individual requiring assistance; as such registration is treated quite differently by a number of national registration authorities. While there is no difficulty in registering an EPIRB, there may be considerable difficulty in registering a PLB in some countries.

6) In view of the Concept above, the Working Party was unsure what further benefit would be gained by requiring PLB details to be included in race organisers' crew lists. If race organisers consider this necessary, they can refer to the ISAF code set out in OSR Appendix H for guidance on what information may be collected. There is no reason why race organisers should only use Appendix H guidance when a race is over 800 miles. However the utility of collecting PLB information will very much depend on whether race organisers have consulted with the SAR authorities through whose areas a race is intended to pass. This is vital for effective liaison and SAR authorities will not know this unless they are told.

7) There are also wider issues relating to what information should be included in the registration of a PLB as registration formats vary between national authorities and not all are capable of on-line, real-time amendment. Clearly where registration formats permit it, any additional information, such as boat name, MMSI, Sat phone details, etc. that can aid a rescue is useful. The Working Party felt additional information is particularly useful for PLB that are supplied to crew members in compliance with OSR 5.07.1.b as part of the boats survival equipment. However there are three critical points to stress on the proper registration of any beacon:

- The owner's details and emergency contact information must be current.
- The primary and where the facility exists, alternate 24 emergency contacts must know what the beacon owner is doing and where he/she is likely to be. It is useful if they know what boat the beacon owner is on, what race they are taking part in and race organiser contact details. There is no point in

simply nominating a legal next of kin who may not be close to you and who does not know this information.

- It is the beacon owner's personal responsibility to ensure that the beacon registration details are kept up to date, not anyone else's.

8) Working Party Recommendation:

Withdraw Submission SR15-12 rather than defer it. The recommended rewording of 5.07.1.e above together with guidance provided in OSR Appendix H is considered sufficient given the vagaries of PLB registration.

b. Submission SR21-12 was a proposal to amend OSR 4.19.1 to achieve better access to EPIRBs on deck following recommendations from both the MCIB and the US Sailing reports into the Rambler 100 capsize.

1) The Working Party sympathised with the intent of this this submission, but from discussion recognised that specifying that an EPIRB shall be mounted on deck may be impractical and at worst is an example of over prescription.

2) The Working Party felt that the real objective of this submission was to make at least one EPIRB available for immediate deployment in the event of a catastrophic failure where speed is of the essence. Clearly an on-deck EPIRB may well achieve the aim, but it may not be the only solution, particularly if there is nowhere to put it on smaller boats.

3) The Working Party was also aware that auto Float-free housings, automatically deploy when submerged to a depth lower than 2 - 4 metres in the sea, this might not always be achieved in the event of an inversion. The important thing is that the person in charge must consider where best to stow an EPIRB for immediate deployment in the event of a rapid and/or catastrophic failure. This might be the companion way, a grab bag at the helm position or any one of a number of alternatives.

4) Working Party Recommendation:

- **Withdraw Submission SR21-12 rather than defer it.**

- **Add another guidance sub-section to 4.19.1 to recommend that consideration be giving to stowing at least one EPIRB where it is ready for immediate use in the event of sudden and/or catastrophic failure that prevents crew from re-entering the boat.**

8. Additional proposed amendments to OSR.

a. OSR4.19.1. c.

Amend to Read: *Every EPIRB shall be properly registered with the national authority associated with the country code in the hexadecimal identification (15 Hex ID) of the beacon. You can register your beacon online with the Cospas-Sarsat IBRD if your country does not provide a registration facility and your country has allowed direct registration in the IBRD.*

Reason: It is a legal requirement to register EPIRB worldwide, if there is no national authority then this can be done on the IBRD database

b. OSR4.19.1. e

Amend to read: *EPIRB should be tested when first commissioned and thereafter in accordance with the manufacture's instructions.*

Reason: Testing runs internal routines that use battery power and may affect the life of the battery and performance if the beacon is activated.

c. OSR4.19.1.h

Amend to read: *Beacons with only 121.5MHz can no longer be used for distress alerting. Satellite processing of 121.5 MHz ceased on 1 February 2009. 121.5MHz will continue to be used for local homing by on-board D/F systems and for local homing by SAR units. Type "E" EPIRBs are no longer supported and should be replaced immediately.*

Reason: Cospas-Sarsat satellite decoding of 121.5MHz ceased on 1 February 2009.

d. OSR4.21.3.d

Amend to read: *A combined 406MHz/121.5MHz EPIRB registered to the boat (see OSR 4.19.1.b) in at least one of the grab bags*.

Reason: The type E EPIRB service was operated by Inmarsat and was withdrawn on 1 December 2006.

e. OSR4.21.3.aa

Delete: this is replaced by the amendment to OSR4.21.3.d proposed above.

Reason: The type E EPIRB service was operated by Inmarsat and was withdrawn on 1 December 2006. Reference to OSR 4.19.2 no longer exists.