



Report of the review into the abandoning of “Walawala 2” on the Audi Hong Kong Vietnam Race on 18 October 2013.



1. The scope of this review.

1.1 At the request of the RHKYC General Committee, the Rear Commodore Sailing was tasked to review the circumstances of the sinking of competing yacht Walawala 2 with a view to ensuring that such lessons and experience as could be learned from that loss be disseminated to members. Also to consider the RHKYC systems and operating procedures involved in light of that loss to ascertain whether those might be improved for future offshore events and, if so, to make appropriate recommendations.

1.2 The review panel comprised Anthony Day (Rear Commodore Sailing), James Farquhar (past Rear Commodore Sailing) and Andrew Taylor (Sailing Committee). The review involved interviews of

witnesses on board the yachts Walawala 2 and Krampus, the Hong Kong Government Flying Service (GFS) duty aircrews involved, shore based RHKYC employees and a consideration of relevant documentation. The panel also had the benefit of advice from the Marine Manager and others involved in the design, engineering, construction and maintenance of racing yachts. The panel is most grateful for the cooperation, time and expertise of all involved.

1.3 To be clear, the review was not undertaken nor this report prepared for use in the context of determining blame or liability or for the purposes of litigation or other proceedings.

2. The race.

2.1 Since 1996 the RHKYC Hong Kong to Vietnam race has proved a popular and challenging event. The 656nm race is now typically run biennially in October in North East monsoon conditions under ISAF Special Regulations Category 1. 2013 saw the race being run in its sixth edition with 17 competing yachts.

3. The yacht "Walawala 2".

3.1 Walawala 2 - SIN2008 - a Ker designed Sydney GTS 43 of epoxy glass sandwich construction was built in Australia (hull no. 2) and delivered in October 2011. Since taking delivery her Singapore-based owner had competed with the yacht on the Asian circuit and estimated her to have covered 10,000nm by the time she started the Audi Hong Kong Vietnam Race which was her first offshore race.

3.2 Walawala 2 was equipped to ISAF Cat 1 standard. The ICOM 802 SSB HF radio had been professionally installed in Singapore shortly before her delivery to Hong Kong for the AHKVR. As with all competitors, Walawala 2 was subjected to a comprehensive pre-race safety compliance and scrutineering process involving the completion of an ISAF Special Regulations Offshore Compliance Checklist and Safety Declaration followed by a physical inspection by an appointed Independent Inspector with the boat's representative. That inspection took place on Walawala 2 on 24 September 2013 and

the procedure was completed to the satisfaction of the Chief Scrutineer who signed off before the start.

3.3 Walawala 2 was skippered for the AHKVR by her owner with a total crew of ten. The race safety regulations required at least 50% of the crew to have completed an accredited Safety and Sea Survival Course (including the skipper) and six of the Walawala 2 crew had been checked and confirmed as appropriately so certified in the course of the scrutineering process. The safety regulations also require the skipper and crew to have appropriate offshore experience and adequate certified first aid training which requirements were met. The certification of the liferaft and EPIRB were also validated.

4. The circumstances leading up to the abandonment and rescue of the Walawala 2 crew.

4.1 The race started at 1330 on 17 October 2013 and once around Cape D'Aguiar the fleet deployed spinnakers as they headed for the Lemas and open water heading about 210 degrees (T). Walawala 2 completed the first radio sched satisfactorily shortly after 1803. That evening the fleet was experiencing strong North Easterly winds (20 to 25 knots) and moderate (2m to 4m) swells providing fast and exciting running conditions. At 1930 the Hong Kong yacht "Avant Garde" (Archambault 40) retired having experienced steering difficulties caused by a cable failure and deploying an emergency tiller.

4.2 At 2100, having broached twice on port gybe, Walawala 2 changed down from the A4 to the A6. Although those on board described the sea state as rough at that time, having reduced sail the yacht was reportedly well under control and making good speed (upto 22 knots).

4.3 By midnight the wind and sea state had started to moderate and consideration had been given to changing back up to the A4. However at 0110 (on 18 October) there was a loud noise and a sudden and total loss of steerage but with no associated reduction in speed. The helm described a grinding effect on turning the wheel and a full loss of control as the yacht was immediately and violently

knocked down on port before promptly gybing onto starboard for a second knockdown. Once head to wind the gennaker was recovered and the mainsail dropped and secured. By that time it was apparent that Walawala 2 was taking on water and pumping and bailing efforts had been initiated.

4.4 Down below some of the crew were engaged in an attempt to stem the ingress by plugging the hole using sails and cushions. They describe seeing the rudder stock intact and the bottom bearing insitu and also intact. The stock had however dropped out of the top bearing and was being held up by the single quadrant. The stock and quadrant had caused considerable damage in the vicinity of the compartment. The hole in the hull, located about 100mm forward of the bottom bearing and well below the waterline was estimated to be about 400mm by 100mm. The rudder blade itself remained attached and fixed in aspect pointing forward. It soon became apparent that it would not be possible either to detach the rudder completely or to plug the leak. The engine would not start and the instruments would not function which the skipper put down to the flooding of the autopilot computer which was located below the cabin sole.

4.5 The navigator repeatedly attempted to transmit a distress call by SSB on HF on 2182kHz and 4060mHz and also over VHF channel 16 but received no acknowledgement. At 0135 the skipper made contact with the RHKYC Sailing Manager ashore in Hong Kong by sat phone and informed him of the situation indicating that an abandonment was imminent and confirming his position as 20 deg 32.71N 112 deg 50.51E which was approximately 130nm from Hong Kong and within helicopter range. The EPIRB was then activated. At 0138 the Sailing Manager relayed the distress message to HKMRCC and initiated the Crisis Management Plan involving the RHKYC General Manager and Marine Manager who each made their way to the club.

4.6 On board Walawala 2 the crew continued bailing and pumping efforts as they prepared to abandon, safely abandoning into the liferaft at 0230 with water, food, flares, handheld VHF, sat phone, EPIRB and the tracker. A parachute flare was launched at that time. By then waves were coming in the open transom, the cockpit floor was awash and the yacht was described as “nose up”. Once in the liferaft the skipper remained in sporadic contact with the Sailing Manager over sat phone and at 0256 was asked to launch a parachute

flare in an attempt to attract the attention of competing yacht “Krampus” (Anteros 36) which was in the vicinity. Those in the liferaft believe they saw Walawala 2 sink at about 0300. Apparently the masthead light was still visible until that time.

4.7 By 0330 the crew of Krampus had been advised of the situation by the Sailing Office by sat phone and were preparing to assist. The Walawala 2 crew had all transferred from the liferaft onto Krampus by 0405 by which time the HKGFS fixed wing aircraft was overhead. The liferaft was cut adrift at that time. The HKGFS helicopter arrived at Krampus’ position at 0440. Once the lineman had been lowered on board the lift proceeded reasonably smoothly given the very challenging conditions and at 0545 the helicopter returned to base with eight of the ten Walawala 2 crew on board. The Krampus skipper then decided to retire and returned to Hong Kong with the remaining two Walawala 2 crew.

4.8 One other competing yacht - Mandrake - (Mills 40) also returned to Hong Kong that morning with relatively minor water ingress reported which was subsequently ascertained to have been caused by localised failure of the sealant bond between the aluminium lower rudder bearing housing and the fiberglass rudder tube into which the lower rudder bearing unit is installed. The rest of the race fleet proceeded to Nha Trang without further incident.

5. Observations as to the possible cause of the damage and loss of Walawala 2.

Note: A visual representation of the arrangement of the Sydney GTS 43 rudder stock, quadrant and bearings is appended at Appendix A to facilitate description.

5.1 Given the loss of Walawala 2 the review panel can only speculate as to the precise cause of the catastrophic rudder failure on the basis of the evidence of those on board.

5.2 It is possible that contact was made with some submerged or partially submerged object as the owner of Walawala 2 believes may have been the cause of the damage.

5.3 Given the crew’s description of the immediate circumstances of the initial loss of control and of the damage (including the angle of

the rudder stock during the incident, the fact that the rudder stock had become disengaged from the top bearing and the damage to the hull laminates around the lower bearing) a number of other possible causes for the failure were considered by the review panel:-

- 5.3.1 That the stock broke just below the top bearing, allowing the rudder to swing freely, rotating around the lower bearing. As no reports mentioned signs of a breakage in the stock this is considered the least likely possible cause.
- 5.3.2 That the deck laminate around the top bearing failed, allowing the top bearing to displace sufficiently such that the top journal of the stock became disengaged from the top bearing. Again, as there were no reports of visible damage at the deck this scenario is also considered to be highly unlikely.
- 5.3.3 That the hull laminate around the lower rudder bearing failed, opening up a hole in the hull and allowing the lower bearing housing to move sufficiently for the top of the stock to disengage from the top bearing. Given the geometry of the installation and the description of the size and location of the damage in the hull this is also not considered to be likely.
- 5.3.4 That there was a failure in the retaining system securing the rudder into the boat that then allowed the rudder and rudder stock to drop down through the bottom bearing and become disengaged from the top bearing. The steering quadrant attached to the rudder stock would have prevented the rudder from dropping completely out of the boat. The top of the rudder blade may then have punctured the hull and wrenched the lower bearing as the bearing became the fulcrum around which the rudder gyrated. This is consistent with the reports from the crew regarding the nature of damage and angle and position of the rudder stock at the time of the incident.

Note: On the Sydney GTS 43 there are a combination of bolts and grub screws at both the upper and lower rudder bearings that clamp the rudder stock (via rudder journal sleeves that are bonded to the carbon fiber rudder stock) directly to the aluminium rudder bearing carriers.

Of the possible causes by the review panel, this is considered the most probable.

5.4 Walawala 2 was not designed with any watertight bulkhead or compartment in the vicinity of the rudder. While clearly there are potentially significant access considerations involved in such arrangements, Walawala 2 would likely not have been lost in this instance or at least not nearly as quickly had the water ingress been contained by an effective watertight compartment.

6. Other relevant factors.

6.1.1 **Communications.** Walawala 2's SSB and VHF radios appear to have been functional and so the fact that the distress call transmitted by Walawala 2's navigator was apparently not received was a matter of some surprise and understandable concern for those on board.

6.1.2 It is to be noted in this context that the SSB unit installed on Walawala 2 was not GMDSS enabled and so had no DSC function; the Sailing Instructions required all boats *"to carry an HF marine SSB transceiver (GMDSS/DSC preferred) capable of operation on 2182kHz, 4125kHz, 4060kHz, 6215kHz and 6230kHz."*

6.1.3 The Sailing Instructions require all competitors merely *"...to keep a listening watch on their VHF radios (Ch. 16) and have their satellite phones switched on at all times during the race if hard wired into the boat"* and go on to "strongly advise" competitors to monitor 4060mHz.

6.1.4 For whatever reason it would seem that no competitor received the Walawala 2 distress call such that the Walawala 2 crew were forced to rely upon their sat phone (and EPIRB and the use of flares) to attract attention and to relay information. It is noted in this context that there is very variable reception quality in sat phones; the Iridium unit in use by Walawala 2 worked well while the Inmarsat ISatPhone being used by Krampus was effectively unusable save by text function, at least at relevant times. Variable reception quality can be a function of specification, installation or atmospheric conditions.

6.1.5 Experience over recent years has shown that competitors often fail to participate in the twice daily radio scheds either for tactical reasons or for want of reception and that Race Committees have been slow to penalize such non-participation. With the advent of alternative and increasingly reliable means of satellite communication, position monitoring and tracking there is scope for some debate as to whether radio scheds are even still warranted.

6.1.6 The review panel also notes that one of the competitors was struggling to establish operable SSB communications very shortly before the start.

6.2 **Location of electronic equipment.** According to the owner of Walawala 2, the fact that much of the yacht's electronic equipment including the autopilot was physically located low down on the boat resulted in a significant loss of functionality including the instruments and possibly also the engine.

6.3.1 **Training.** As with any developing casualty or emergency situation involving the onset of shock and fatigue the beneficial impact of appropriate experience and training cannot be overstated. It seems that all involved in this instance coped adequately but that those that had had safety and survival training were better equipped to handle the difficulties encountered and their performance considerably enhanced as a result.

6.3.2 With the benefit of hindsight, the fact that the liferaft was let go once the Walawala 2 crew had embarked on board Krampus was clearly sub-optimal from an airlift perspective. The aircrew of the helicopter involved stated that facilitating a lift from Krampus was "many times" more hazardous than an airlift from the liferaft held in position by Krampus would have been given the risks posed by mast, boom, aerials and lifelines and all the more so on a relatively small boat. This single factor very likely resulted in the two Walawala 2 crewmembers being left on board Krampus and in different circumstances would have entailed a second sortie with the associated risks and complications involved.

7. Observations and recommendations

7.1 Pre-race inspection of steering gear. While it cannot be stated with certainty that an “out of the water” pre-race inspection of Walawala 2’s steering system would have identified any of the factors that ultimately led to the loss of that yacht, a detailed pre-race check of a yacht’s steering gear would certainly be considered prudent. Such an inspection could conceivably have resulted not only in the type of failure encountered by Walawala 2 but also those by Avant Garde and Mandrake being discovered and rectified prior to the race.

7.2 The importance of effective pre-race inspection of steering gear and specifically of the integrity of rudder retaining systems, cables, seals and collars should therefore be brought to the attention of competitors headed offshore. Some consideration was given by the panel to the introduction of some certified inspection by a professional as part of the scrutineering process but such an approach was not considered workable.

It is recommended that thorough pre-race steering gear inspections be actively encouraged as a strong recommendation in the Notice of Race/Sailing Instructions.

7.2 Watertight bulkheads and compartments. The considerable lifesaving potential of having effective watertight bulkheads or compartments in the vicinity of the rudder is not to be underestimated in the design and construction process and those commissioning the design and construction of yachts are encouraged to seriously consider the incorporation of such measures.

7.3 Location of electronic equipment. The panel encourages appropriate consideration be given by owners to not locating batteries and electronic equipment in places on board where they are likely to become quickly flooded in the event of water ingress.

7.4 Deployment of emergency tiller. Although not relevant in the context of the Walawala 2 loss it seems that the crew on board Avant Garde encountered some difficulty in the deployment and use of their emergency tiller.

It is recommended that the scrutineering process include the actual deployment of the emergency tiller by the crew and some demonstration of its effectiveness once deployed.

7.5.1 **Communications.** The failure or lack of any effective ability to communicate with other competing yachts by SSB is an obvious concern. Consideration has been given by the panel as to the need and desirability of continuing to rely upon SSB communications at all given recent technological advances (including AIS, trackers and satellite communications). It is noted though that given the length of our races in many instances restrictions in flying ranges mean that rescue by another yacht or commercial vessel is likely to be the only option available. It was determined that provided such units are professionally installed and operated by experienced hands (and no suggestion is made that this was not the case on board Walawala 2) HF and VHF transmission constitute a potentially vital means of communication in distress scenarios with other competitors and with commercial traffic.

7.5.2 On that basis it is also considered on balance useful to continue the practice of twice daily scheds for the time being provided such scheds are properly observed. In the event of an inability to report on HF competitors should report by sat phone. Time penalties should however be consistently applied to those not complying (by any means) so as to encourage full fleet participation and ensure that operable radios are installed and checked and best operator practice maintained insofar as is possible.

7.5.3 The strong recommendation to use GMDSS enabled units so as to facilitate DSC call transmission and monitoring is reiterated by the panel and it was noted that with effect from 2015 the ORC requirements will change to require this at least in the case of VHF units. In the absence of stipulating the compulsory installation of GMDSS enabled units it is considered necessary to continue to encourage competitors to monitor VHF, HF and also sat phone communications by maintaining a listening watch at all times while racing.

It is recommended that SailCom be tasked to review, consider and outline appropriate specific technical communication requirements for incorporation into Sailing Instructions involving

unit installation and scrutineering, monitoring HF, VHF and sat phone communications and the observance of scheds.

7.6 Crisis management hotline. In the case of the incident under review the crew were able to make contact with the Sailing Manager by sat phone and the club's Crisis Management Plan was activated and proved effective. It is only too easy to imagine though an incident involving multiple yachts under which the system could quickly have been put under considerable strain.

It is recommended that with the installation of the club's new digital phone exchange early in 2014 a dedicated cascading emergency contact number be programmed to facilitate incoming call management by members of the Crisis Management Team. That number should be distributed to competitors in accessible and durable form along with details of sat phone and MMSI numbers for all competitors.

7.7 Training. The existing requirement that at least half of the crew including the skipper or person in charge was reconsidered in light of the incident . Consideration has also been given to increasing that requirement to 100% with scope for limited dispensations. In that context the lack of available year-round training approved and provided by the Hong Kong Sailing Federation remains an issue of real and pressing concern. It was determined that until the number of such courses provided improves any increase in the 50% certification requirement would likely prove a significant hindrance to crewing boats.

It is recommended that that the Sailing Instructions include a strong recommendation that all crew be appropriately trained and certified in safety and survival at sea. The club should continue to push for an increase in the number of courses approved and provided by the HKSF. In addition that locally approved and provided courses include specific training and instruction input from members of the GFS and that more yachts be given the opportunity to train with the GFS on the water. It is further recommended that the GFS be invited to participate in a seminar with members around the issues arising and specific lessons learned from the Walawala 2 experience and also be given the opportunity to present to and engage with members prior to each offshore event.

8. Conclusion and commendations

8.1 The skipper and those of the crew of Walawala 2 that the panel spoke with could not say enough in appreciation of the efforts of those involved in providing assistance to them.

8.2 Indeed it is hard to properly commend the skill, professionalism and commitment shown by those on duty at HKMRCC and notably by the crews of the HKGFS aircraft involved in successfully extracting the Walawala 2 crew in what were clearly highly challenging conditions.

8.3 The skipper and crew of Krampus are also to be commended on providing critical assistance and in doing so displaying considerable seamanship.

8.4 The panel thanks also the members of the RHKYC Sailing Office for their continuing and valued professionalism displayed once again in their vital role in helping manage and coordinate this successful rescue.

Rear Commodore Sailing

8 January 2014

APPENDIX A - Sketch of Rudder Installation (not to scale)

