

Submission: **SR08-12**

Offshore Special Regulations 5.01

Preventing lifejacket and safety harnesses from pulling over the head

A joint submission from the Norwegian Sailing Federation

Proposal

5.01.1.b fitted with either a crotch strap(s) / thigh straps or a full safety harness, **in both cases** in accordance with ISO 12401, ~~OSR 5.02.1~~ **5.02.1.a.**

5.02.1.a Each crew member shall have a harness ~~and safety line not more than 2m in length~~ that complies with

A) ISO 12401 or equivalent ~~with a safety line not more than 2m in length.~~ **Thigh straps that comply with at least one of the following standards shall be attached to the harness:**

- I. **EN 12277:2007 type A**
- II. **EN 361:2002**
- III. **ANSI/ASSE Z359.1-2007**
- IV. **ISO 10333-1**

B) Alternatively each safety harness shall comply with at least one of the following standards:

- I. **EN 12277:2007 type A**
- II. **EN 361:2002**
- III. **ANSI/ASSE Z359.1-2007**
- IV. **ISO 10333-1**

~~Harnesses and safety lines manufactured prior to Jan 2010 shall comply with either ISO 12401 or EN 1095.~~

Harnesses and safety lines manufactured prior to Jan 2001 are not permitted.

- b. **Each crew member shall have a safety line not more than 2 meters in length, complying with at least one of the standards mentioned in 5.02.1.a.**
- c. **Warning: Irrespective of requirements in these standards the hook at the harness end of the safety line should be able of being released under load.**
- d. (as before but with change of number) *Warning: it is possible for a plain snaphook to disengage from a U bolt if the hook is rotated under load at right angles to the axis of the U bolt. For this reason the use of snaphooks with positive locking devices is strongly recommended.*

~~5.02.5.b A harness should be fitted with a crotch strap or thigh straps.~~

Current position

As above

Reason

Several accidents have occurred when persons have been lost in the water and drowned because the jacket/harness has been lost overhead when they have been hanging overboard in the safety line. Examples of such accidents are:

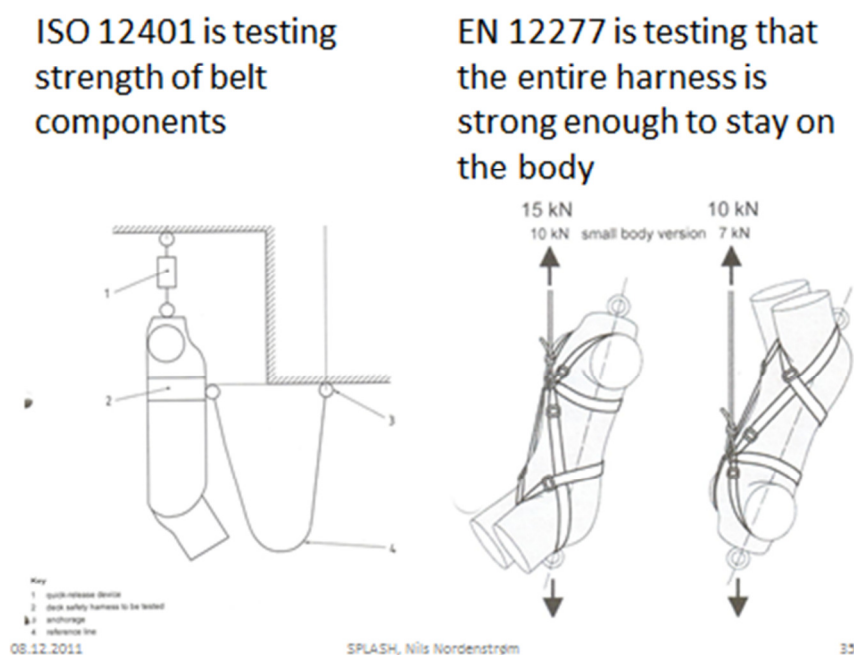
1. On November 25, 1983, a 28 foot Catskill sloop sailing off Monterey, California, when the skipper was lost over the side. "As the two crewmen pulled on the shoulder straps, the skipper lost his grip on the upper lifeline and slip out of the harness...He never regained consciousness." (US Sailing, Safety at Sea Studies, Case 22)
2. On September 6, 1984, a 38 foot Hans Cristian ketch was sailing off Santa Cruz...the skipper fell overboard. He was wearing a PFD..attempted to lift him..pulled his PFD off...recovered the body two hours later." (US Sailing, Safety at Sea Studies, Case 21)
3. 0115 hours, September 1987, off the mid-California coast. " .. a swage parted in the lifeline spilling the crewmember over the side into the water. In the process of trying to drag him aboard the crew pulled the victim's harness over his head and he sank beneath the surface and disappeared. "(US Sailing, Safety at Sea Studies, Case 40)
4. "Harness failures occurred on Loki, Margaret Rintoul, Challenge Again and Kingurra (see below). The nature of these failures was that the harness slipped over the head of the crewmen."
(Minutes of the 1998 race review committee at the cruising yacht club of Australia on Monday 1st of March 1999 at 6.00 PM, item 6.2)
5. Yacht *Kingurra* in Sydney to Hobart Race 1998, when a person was washed overboard on 28th September and was hanging in the safety line. "Wearing a wet weather jacket ...soaking wet and heavy, and as they lifted him the jacket started coming off." "To my horror – and I will never forget the feeling – the jacket started to turn inside out and he just slipped out of the bottom of it".
(Interview in Coroners Report, Sydney to Hobart Yacht Race 1998) The man was miraculously saved by helicopter after long time in the water. In most cases a helicopter is not available.
With reference to the incident at the yacht *Kingurra*, the Coroners Report of the Sydney to Hobart Race in 1998 stated
"b) THAT THE SAID MINISTER OR OTHER RELEVANT NSW GOVERNMENT MINISTER CONSIDERS REQUIRING THAT ALL HARNESSSES USED BY YACHT CREWS HAVE A CROTCH STRAP FITTED;" (Comment: Obviously with the intention to prevent that harnesses are lost overhead.)
6. On May 30, 2011 off the Norwegian coast west of Karmøy, Ole Aga (61) wearing lifejacket was washed overboard hanging in the safety line. After 20 minutes struggle to get him on board the lifejacket slipped off and he drowned. (www.aftenbladet.no 21. May 2011)
7. Recent note from the UK Marine Accident Investigation Branch: "His lifejacket came off while the body was being recovered." (ISAF Submission SR41-11)
8. These accidents are probably only the "top of the ice-berg", and it is likely that several more sailing accidents have occurred because of lacking or inadequate thigh/crotch straps.

Current OSR requirements do not safeguard that safety harnesses, and lifejackets with integral harness, cannot be lost overhead when a person is hanging overboard in the safety line. Reference is made to ISO 12401 which states that: «Unless the harness is part of an integrated combination of safety harness and clothing, the holding down device shall not be fitted during the dynamic test.»

«These dynamic tests do not simulate reality on board a craft but represent a strength test under overload conditions in order to ensure sufficient durability of the components tested.»

The other standards mentioned above require tests that show that the harness stays on the body, e. g. **ANSI/ASSE Z359.1-2007**: “After the drop, the torso is to remain suspended by the harness for a period of five minutes.”

The following figure illustrates the different testing procedures:



The realistic situation is as follows:

- The human body is flexible
- There are usually several layers of clothing
- Clothing and equipment may be wet and slippery
- The fit is not firm, since the wearer wants to breathe and be able to move
- «Correct adjustment» (tight) is completely unrealistic and inadequate.

This submission is supported by the Norwegian Offshore Racing Club (NORC)

There is vast world wide experience with fall arrest and climbing equipment, meeting the standards mentioned in the proposal, and there are large numbers of such devices on the market today at reasonable prices.

Example of fall arrest harnesses:

Fall arrest harnesses with thigh straps

Example of a website showing inexpensive and effective fall arrest harnesses with instructive videos showing how they save lives. Fall arrest harnesses from \$ 36.95

The one showed meets ANSI Z359.1, all applicable OSHA regulations, and is CSA certified



ANSI=American National Standards Institute
OSHA=Occupational Safety and Health Institute
CSA International, testing organisation

<http://www.discountssafetygear.com/fallprotection.html>