SAFETY LOG 2 | 2017

Lifeboatbuilder since 1903

SAREX II: New insights into the challenges and adaptations necessary for lifeboat operation in Polar conditions.

Norsafe

BETTER BY DESIGN

Dear Maritime Colleague,

In this second edition of the Safety Log for 2017 we share several important new developments. As an innovative LSA designer and manufacturer, we're continually embracing new technologies to lead the industry through innovation. This has led to the development of a new electrical GES freefall lifeboat concept with a prototype ready in October 2017. The concept offers many advantages, including minimal maintenance, remote monitoring and no emissions.

Norsafe is also committed to understanding the risks associated with Polar operation and completed a second Search and Rescue Expedition in April 2017. The specialised lifeboat tested during SAREX II performed exceptionally well in the extreme conditions and our team of R&D engineers gained valuable first-hand experience in a 30 hour survival test.

In May 2017, Norsafe Academy launched its "Train the Trainer" course targeting instructors and trainers working in nautical schools and training centres. The course has proved to be very popular with some good feedback from the participants.

Our recent contract wins have also been cause for celebration and we highlight the recent Kværner order in this issue. I hope you enjoy reading and staying informed on the latest Norsafe news.

Dag Songedal, CEO Norsafe Group

SAREX II: First hand insights into lifeboat survival in Polar conditions

Norsafe participated in its first SAREX in April 2016, an experience that gave key insights into the operation of LSA in Polar conditions. The focus was to assess and mitigate the risks associated with such hostile environments in order to ensure safe operation of the LSA and most importantly, survival of the crew.

In May 2017 engineers from Norsafe returned to Spitzbergen, Norway, 80 degrees north of the Barentz Sea, to conduct further research in SAREX II.

Air quality tests inside the lifeboat were carried out, in addition to a gruelling survival test inside the lifeboat over a period of 30 hours. The tests were carried out on a SOLAS approved 55 person lifeboat with 24 persons onboard. The participants felt that the temperature, air quality and space in the vessel was sufficient at all times.

The general consensus is that surviving five days in such extreme conditions is possible due to the special adaptations of the vessel for Polar operation.
The hands-on study was rewarding due to the unique insights obtained and important lessons learned.
Some key findings included:

1) The importance of resource management: fuel, electricity, food/water, waste and organisation of the equipment at all times.
2) The importance of being comfortable while sitting for extended periods. Seat pads provided sufficient insulation.
3) The importance of condensation management for comfort and visibility.
4) The importance of a pull guide to aide in the pulling of a life raft behind the vessel, which can be difficult to manoeuver and avoid hitting floating ice.
5) The importance of preparedness for fluctuating weather conditions and changes such as movement from open water to floating or pack ice.
6) Importance of sufficient toilet capacity.
7) Thermal protection suits are of critical importance when inside the life raft pulled behind the vessel.

The air quality tests measured the carbon dioxide and oxygen levels inside with all hatches closed. The air quality was measured without running the engine, and both with and without the lifeboat ventilation system. Tests were carried out with people with a normal pulse and with a high pulse. The conclusion was that the ventilation system kept the air quality at a suitable level.

"During my 26 years in the lifesaving business I had never participated in such a realistic exercise. During the 30 hours we experienced calm water but were also exposed to several hours of waves rolling the lifeboat 30 degrees and pitching it 20 degrees. It felt completely safe, with good air quality, temperature and light inside the lifeboat. I'm convinced the new experience will contribute to improving the international rules for lifeboats on vessels operating in Polar waters and the general requirements for lifeboat design."

– Jan Jaap Boot, SVP Technical at Norsafe Group.

Norsafe Singapore Serves the Australian Border Force

The Australian Border Force (ABF) functions as the front-line operational agency protecting Australia's border and managing the movement of people and goods across it. The Australian Border Force Cutter (ABFC), called the Ocean Shield, is the largest ship in the fleet and serves as a multi-purpose vessel, responding to a wide range of maritime security threats in the northern waters and Southern Ocean. It is operational for 300 days per year.

The team at Norsafe Singapore is proud to have worked closely with engineers from the ABFC Ocean Shield on recent annual inspections, but also for the extensive scope of additional refurbishment work that was requested to be carried out on both their Magnum 850 patrol boats. It was a pleasure having the Ocean Shield's engineer-in-charge on site at Norsafe's workshop every day for the duration of the works. The Norsafe Singapore team worked around the clock to achieve completion of the required overhauls and refurbishments within the stipulated timeline.

The boats were surveyed and passed by the Class Administration and returned to yet another one of Norsafe's satisfied customers.

"I wanted to thank you all again for the experience of working with Norsafe Singapore. You all went above and beyond my expectations and your attention to detail was exceptional... Again, I thank you all sincerely as this was a huge scope of work to complete in such a tight timeframe." – said an engineer on ABDC Ocean Shield.

A flexible and modular boat that reaches high speeds with ease

The Marathon 900 RIB, Norsafe's first rigid inflatable boat, complements an already wide range of boats for its military and professional customers. Fitted with two 3L V6 Mercury OptiMax diesel outboard engines, which were developed for the US Armed Forces, the model has 175hp at the propeller and high speed capabilities of 40–60kt.

Bjarte Skaala, the designer of many of Norsafe's boats, is very pleased with the 9m RIB's functionality and seaworthiness.

"The typical benefits of the RIB are a low centre of gravity, large carrying capacity in terms of weight and size, very good stability in case of water filling the boat and a 'soft' interior that reduces the risk of crew injuries," said Mr Skaala.

"Norsafe's Marathon 900 RIB concept is modular and flexible, and can be equipped with inboard diesel engines/water jet, stern drives and a lifting point for installation in davits."

The outboard engine from Mercury, which runs on diesel fuel, comprises 95% of the components of a 225hp gasoline engine, and is a low-compression engine that uses an advanced injection concept for fuel. To ensure that the engine starts in cold nvironments and to secure a smooth idle, the engine is equipped with glow and spark plugs.

"This concept is especially important for the customers who do not have the opportunity to store gasoline on board a ship, such as naval vessels," said Mr Skaala.

Come to the Experts and Become a Better Teacher

In May 2017 Norsafe launched "Train the Trainer", a specialised lifesaving appliances (LSA) course aimed at instructors and trainers working in nautical schools and training centres. The course provides operational and maintenance training on freefall lifeboat systems; conventional lifeboats covering davits, winches and hook systems; and rescue boat systems.

The course has sparked great interest from maritime academies and Norsafe's Rosendal Academy has been busy since its launch.

A recent "Train the Trainer" course was attended by participants from Sweden, Iceland, the Netherlands and the UK. The four-day course gave them hands-on experience using the latest equipment, experience they can pass on when conducting their own training sessions.

"The course gave me valid information and challenging exercises with modern equipment which has benefited me and my teaching,"

said Bogi Thorsteinsson, Teacher/Ch. Officer at Safety and Survival Centre - ICE-SAR in Iceland. The course concluded with an informal gathering in the afternoon where the participants could discuss best practice in an informal setting.

"At Norsafe Academy our instructors want to contribute to the enhanced safety of seafarers by providing quality training directly to crew and to also help their teachers by letting them benefit from Norsafe's decades of LSA manufacturing, servicing and crew training experience," said Michael Røssland, VP Norsafe Academy.

Valuable feedback is also gained by Norsafe from the instructors during the 'train the trainer' sessions which can help improve the company's next generation of equipment, services and training courses. Electric installation will meet all DNV-GL and NMA requirements.

Norsafe to deliver new lifeboat systems to Statoil's Njord A platform

Norsafe has received orders from Kværner relating to the delivery of new lifeboat systems to Statoil's Njord A platform.

Norsafe will supply three lifeboat systems of its largest freefall lifeboat, the GES 52, with compatible davits. The lifeboat systems are built according to SOLAS and DNV-OS-E406, and although the products were developed just a few years ago, they have already been delivered to many installations worldwide. The contract is worth over 30 million Norwegian kroner and will be delivered in 2018 and 2019.

The upgrade of the platform is a part of the project that Statoil has called "Njord Future" with the purpose of extending the life of the Njord field. The Njord field where Njord A is normally stationed, lies approximately 130 kilometres North West of Kristiansund and 30 kilometres west of the Draugen field in the Norwegian Sea.

Njord A was originally delivered in 1997 by the organisation that is known as Kværner today. The platform will be back in operation in 2020, and it should then be operational for another 20 years.

The contract with Kværner shows that Norsafe has good and competitive products and technical solutions that its customers value.

"We are proud to be chosen by Kværner/Statoil to be a part of this important upgrade project. The cooperation with Aker Solutions and Kværner has been orderly, informative and challenging. To have succeeded and secured this contract shows that the efforts we have made within these upgrade projects have been correct, both in terms of technical solutions, products and implementation model. Today we have every reason to be proud," said CEO of the Norsafe Group, Dag Songedal.

Norsafe subsidiaries:

Norsafe Norway

Norsafe Australia

Norsafe Brazil

Norsafe China

Norsafe Greece

Norsafe Holland

Norsafe Japan

Norsafe Korea

Norsafe Mexico

Norsafe Singapore

Norsafe UAE

Norsafe UK

Norsafe USA

Are Electric Powered Lifeboats The Future?

Norsafe has joined forces with ZEM (Zero Emission Maritime Solutions), with support of DNV-GL and NMA (Norwegian Maritime Authority) to assess the feasibility of a new electrically powered freefall lifeboat concept with the goal of minimising the operation and maintenance costs associated with such LSA.

A conceptual study and evaluation of the use of electrical propulsion equipment was carried out. Norsafe's GES 45 freefall lifeboat, which is built in compliance with DNV-OS-E406, was the basis of the study and involved removing all diesel related equipment and replacing it with an electric propulsion system.

The study involved both full scale and model scale tests, measurements, and simulations. The tests have shown that the complex components are easily replaced by electrical alternatives. The weight of the components remain within a reasonable range, and the increase in cost is minimal. A prototype will be realised and available for tests and presentation in October 2017. The E-GES electric freefall solution, as it has been named, provides an environmentally friendly alternative to diesel propulsion lifeboat systems.

Benefits of the E-GES freefall lifeboat:

- Environmentally friendly with no emissions
- Remote monitoring: Testing and monitoring of the batteries can be performed remotely from land. The drive line can be remotely started/stopped and relevant parameters logged and verified without personnel entering the lifeboat.
- Significantly reduced maintenance costs due to easier maintenance. No parts require replacement during the design life of the system (25 years).
- Simplified access to evaluate the condition of the equipment.
- Increased safety of the first phase of evacuation due to higher possible sprint speed, especially when internal air is supplied.
- High level of comfort due to the absence of exhaust and emissions, heat, noise or vibration.
- 90% reduced need for air bottles, saving weight and lowering maintenance requirements.
- No need for diesel.
- No risk of contaminated fuel, no fuel to be replaced and no costs related to diesel problems.
- No heavy engine frame.
- No start batteries, redundancy in starters or uncertainty with ignition.
- Extreme simplification of maintenance (estimated 95% less effort required) while remaining tasks can be monitored/documented and tested from onshore locations/office locations.
- A sophisticated battery management system (BMS) is part of the battery system. In case of fire, the battery compartment is flooded using the water pump that supplies the sprinkler system, efficiently extinguishing fire in the battery system.
- Electric installation will meet all DNV-GL and NMA requirements.

Norsafe Group Activity Plan 2017:

12.09 – 15.09
Defence & Security Equipment International, London

24.10 – 27.10
Kormarine, Busan, Korea

29.11 – 01.12
International Workboat Show, New Orleans

05.12 – 08.12
Marintec China, Shanghai

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