



INFLATABLE LIFE RAFTS 5 DECADES ON: WHAT NEXT?


DAVID STELLING
SURVITEC GROUP

Marine . Offshore . Defence . Aviation

www.survitecgroup.com



Providing protection and life support when things don't go to plan.



RFD
COMPANY
GODALMING · SURREY · ENGLAND
TELEPHONE : GODALMING 140
CABLES : AIRSHIPS GODALMING

Air-Sea Survival Equipment
RFD UNIVERSAL LIFERAFTS
6, 10 or 20 seats
Flotation plus weather protection
RFD LIFEJACKETS Type 50c, Mk 2
The world's lightest
H.O.S. DESIGN APPROVED A.R.B. DESIGN APPROVED

REGINALD FOSTER DAGNALL: R F D

1888 - 1942

RFD first developed rubberised pneumatic flotation bags to fit inside aircraft fuselages in 1920



By 1926, the company was producing collapsible inflatable boats



TIMELINE

1960's: Introduction of first life raft for commercial aviation briefing

1970's: Expansion of the range of life raft available

1980's: Introduction of the RFD Heliraft

1990's: Growth of SAR applications

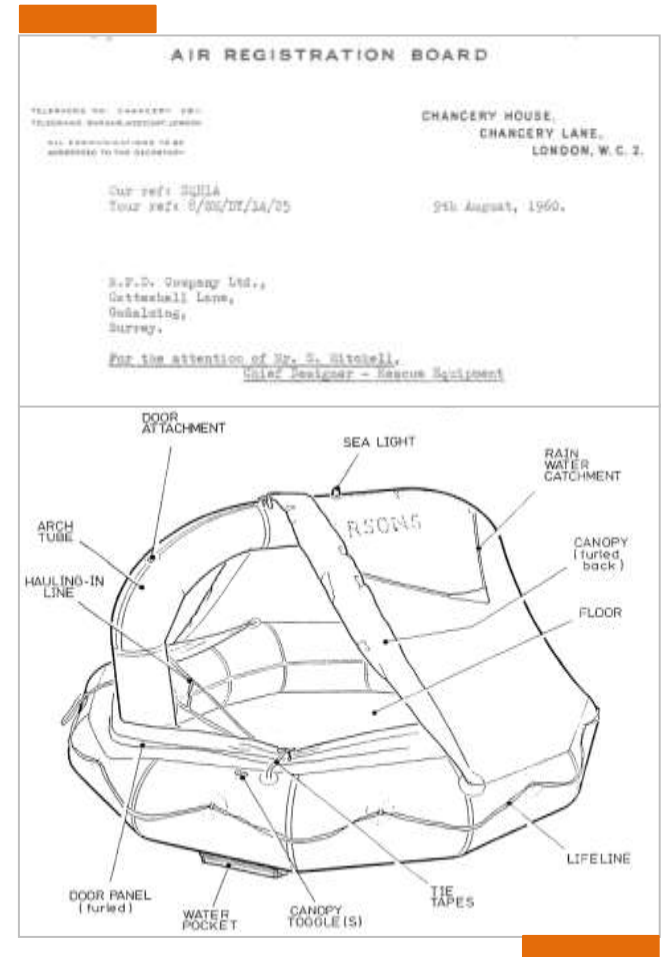
2000's: XDS Systems become established

NOW: New XDS Programmes Material Development

COMMERCIAL AVIATION

First Air Registration Board approval granted in 1960 for a life raft to be fitted to aircraft

- 4 person life raft
- For use on small, commercial aircraft
- Intended for use by crew
- Weighed approx. 19 kg
- Operational Range was minus 10 to plus 60°C



COMMERCIAL AVIATION

1970's – massive expansion of commercial flights and increased aircraft passenger capacity

- Larger capacity rafts
- Lighter weight
- Easier to board
- Less maintenance

Be Prepared— Fly Safely Packed with RFD

RFD INFLATABLES LTD. ARE
AMONGST THE WORLD LEADERS
IN THE DESIGN & MANUFACTURE
OF INFLATABLE LIFESAVING
EQUIPMENT.



AIRCRAFT RECOVERY

RFD supply recovery equipment to air lines and airports throughout the world.

LIFERAFTS CAA & STae approved

RFD supply a range of liferafts from the 40 for light aircraft to the large 200 for 747 aircraft. The 300 is also supplied for the SRH6 (Hercules), and a single seat liferaft is supplied to the RAF and many overseas Air Forces.

ESCAPE SLIDES & ESCAPE SLIDE/LIFERAFT CAA & TSO authorised

RFD supply escape slides for a number of aircraft and are proud to have supplied the escape slide/liferaft combination for Concorde.

LIFEJACKETS CAA & STae approved

RFD supply a variety of life jackets for use by crew, passengers and children.

Solar Still's - Emergency Packs - Numa's Hats

YOU HAVE A SURVIVAL PROBLEM?
RFD'S RESEARCH AND
DEVELOPMENT UNIT WILL SOLVE
IT FOR YOU.



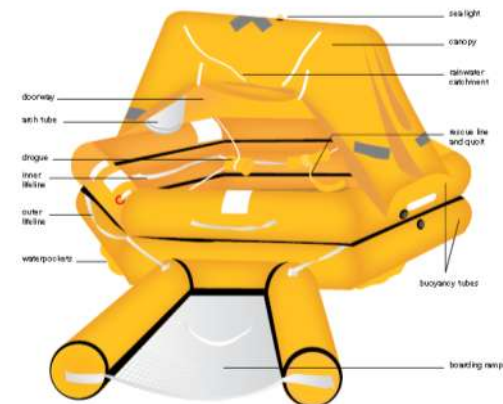
RFD Inflatables Ltd.

GODALMING - SURREY - ENGLAND
Tel: Godalming 4122 Telex: 859233

COMMERCIAL AVIATION

By 1980, life rafts ranged from 4 to 56 person capacity

- Most popular sizes were 4, 10, 30 and 46
- Carried on;
 - Commercial airlines
 - Military aircraft
 - Helicopters



GROWTH OF HELICOPTERS

The 1970s and 80's saw the rapid growth of offshore oil and gas platforms, especially in North Sea.

Unique operational environment

- Passenger services to remote offshore locations
- Harsh Environment
 - Cold, windy, sea state
 - Increased vibration & accelerations
 - Helicopter downwash

Significant number of accidents resulting in loss of life



THE NEED FOR A DIFFERENT APPROACH

TO PROTECT CREW AND PASSENGERS WHEN THIS HAPPENS



Once upon the water the subsequent attempts to deploy the liferafts met with a total lack of success. This was despite the almost ideal sea state, the un-damaged aircraft structure and flotation systems, and the absence of injuries among passengers accustomed to working in a hazardous environment.

THE NEED FOR A LIFERAFT DESIGNED FOR OFFSHORE HELICOPTER OPERATIONS

A collaborative approach with users and legislators

- Dialogue and collaboration with Offshore Operators and Aviation Safety Authorities resulted in the RFD Heliraft and superior outcomes following a ditching.



OVERVIEW OF THE RFD HELIRAFT

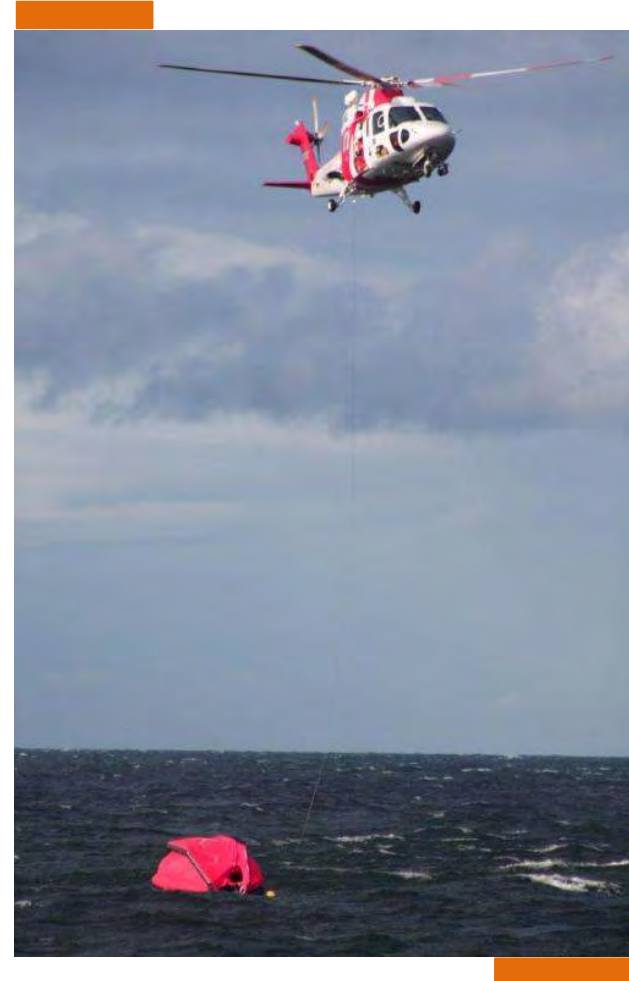
Unique features to meet offshore helicopter requirements;

- Two buoyancy chambers with floor centrally positioned
- Fully reversible
- 50% Overload Capacity
- Large, open, stable platform to allow rescue
- Inflatable boarding ramps
- Manually erected canopy
- Highly visible
- Carry on and External Systems (XDS)



DEVELOPMENTS OF THE HELIRAFT

- Introduction of range of sizes
 - 7, 10, 11, 12, 14, 18
- End user specific variants
 - 18R Mk3 for Super Puma and Nordic Range
- Increased environmental performance (first Helirafts were operational at -20°C ; latest Heliraft operational at -40°C)
- Reduced weight
 - Composite cylinders



PRODUCT DEVELOPMENT PHASES

- Establish requirements, Performance spec
- Feasibility study
- Component / materials selection
- Initial testing, safety / reliability
- Packing and deployment trials
- Qualification testing
- Documentation
- Approval submission
- Delivery, entry into service



QUALIFICATION TESTING

STAGE ONE

- Reliability trials – repeated deployments
- Temperature testing (hot and cold trials)
- Pool trials



QUALIFICATION TESTING

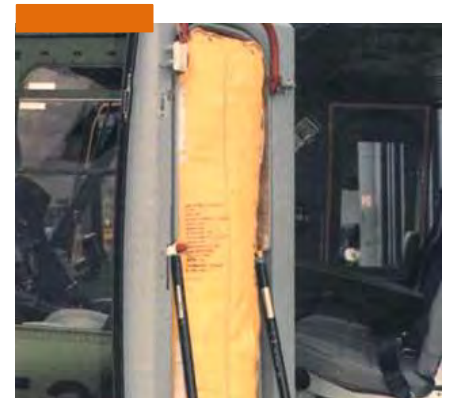
Stage two

- Offshore & operational trials / sea drills
- Mooring out trials
- Wind tunnel /stability tests
- Jump tests
- Material testing / lab analysis



TODAY'S LIFERAFT APPLICATIONS

- Internal / carry on stowage
- Search & Rescue – air droppable
- Training variants
- External Deployment System (XDS)



EXTERNAL DEPLOYMENT SYSTEM – XDS BECOMING THE NORM OFFSHORE

- Preferred solution for Offshore operations
 - Automatic or manual deployment
 - Increased prospects of successful deployment
 - Dry shod boarding
 - Can deploy from inverted aircraft
 - Improved survival prospects



WHAT NOW?

MAJOR INITIATIVES;

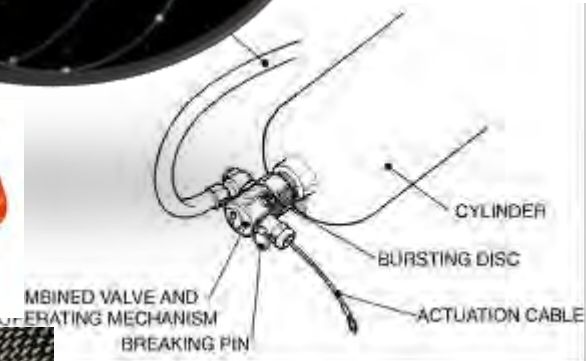
- Reduced weight / bulk – advanced textiles, manufacturing techniques
- Reduced maintenance
- Increased performance – inflation speed, air holding, tear/puncture resistance.



CREATING A BETTER LIFERAFT

Major contributors;

- Advanced textiles / materials – global sourcing of best in class suppliers
- Improved manufacturing techniques
- Materials longevity, longer maintenance intervals
- Increased performance, inflation technology, visual signalling, radio beacons
- Best in class survival aids – beacons, flares, LED stobes



THANK YOU

Copyright Notice

The copyright, trademarks, domain names and other intellectual property rights in all material and information in this presentation belongs to Survitec Group Limited. All rights are reserved.

Disclaimer

This presentation provides general information about Survitec Group and its companies, its products and services, and summarises general capabilities and offerings which we deem to be of relevance to our customers. Whilst Survitec has taken appropriate steps to ensure the accuracy of the information contained in this presentation, Survitec gives no warranty regarding the accuracy or completeness of such information.

This presentation was prepared to provide information and does not constitute a contract. Survitec reserves the right, without prior notice, to change, delete, supplement, or otherwise amend at any time the information, images, and offerings contained in this presentation, or other documents. Survitec shall not be liable for any loss or damage of whatever nature (whether direct, indirect, consequential or other) that may arise as a result of any third party relying on the information contained in this document (but nothing in this disclaimer excludes liability for death or personal injury arising from negligence or any fraudulent misrepresentation).

For further detailed information, prices, terms and conditions, customers should contact Survitec at info@survitecgroup.com