

EQUIPMENT

The Care & Maintenance of Safety Products



Air Mail Down the Bay Race 2013

Safety at Sea
Seminar
Annapolis, MD

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and
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Homeland
Security

It's the law (and it makes good sense)

- 2.03.1 All equipment required by Special Regulations shall:
 - a) function properly
 - b) be regularly checked, cleaned and serviced
 - c) when not in use be stowed in conditions in which deterioration is minimized
 - d) be readily accessible
 - e) be of a type, size and capacity suitable and adequate for the intended use and size of the yacht.

More good sense

- 2.03.2 Heavy items:
 - a) ballast, ballast tanks and associated equipment shall be permanently installed
 - b) heavy movable items including e.g. batteries, stoves, gas bottles, tanks, toolboxes and anchors and chain shall be securely fastened
 - c) heavy items for which fixing is not specified in Special Regulations shall be permanently installed or securely fastened, as appropriate

Key Equipment Goals:

Good crew, boat & equipment

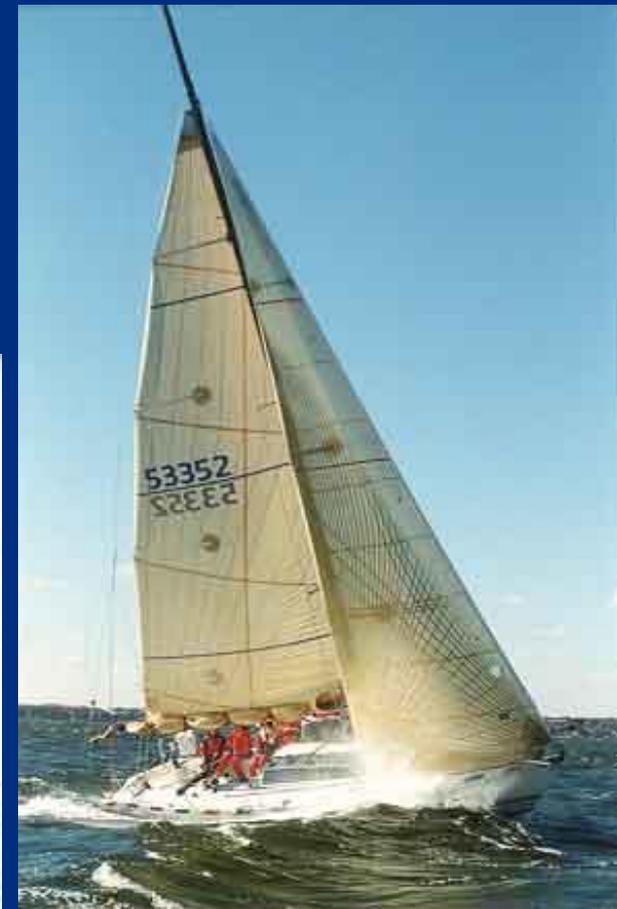
Train the good crew, on the boat & equipment



Practice using all routine and emergency equipment



Before going offshore, practice inshore in heavy weather

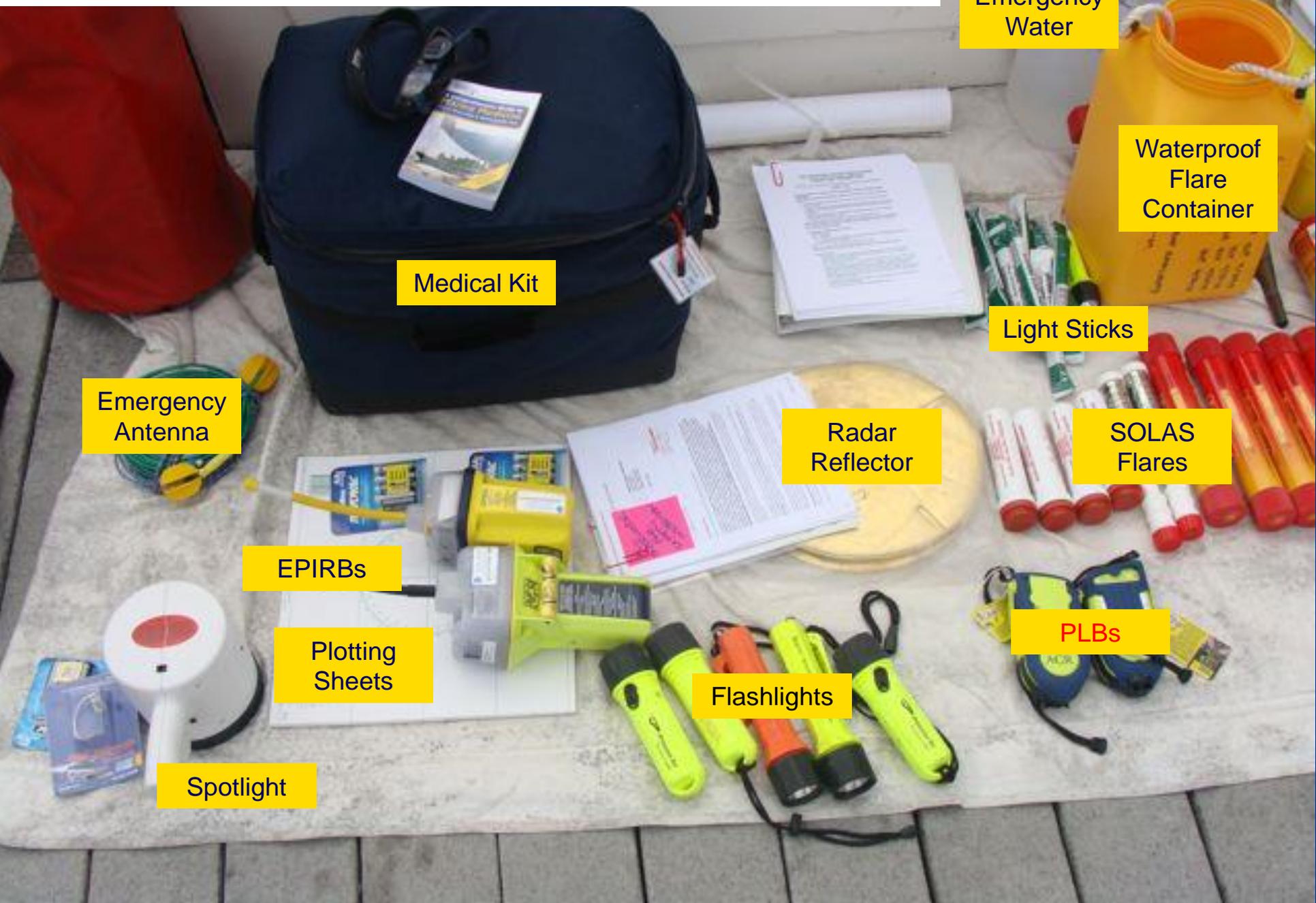


“What winch does the reef line go to?”

Can you do this at night?

Can you do this, navigate & change watches at night?

You carry all of this safety equipment



Emergency Water

Waterproof Flare Container

Medical Kit

Light Sticks

Emergency Antenna

Radar Reflector

SOLAS Flares

EPIRBs

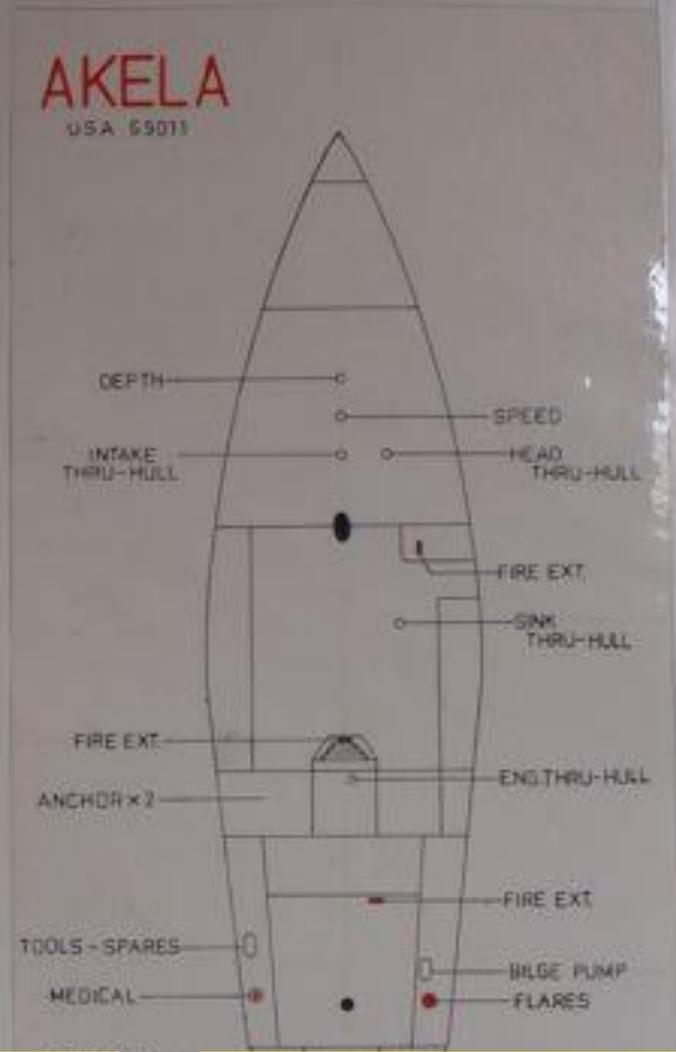
Plotting Sheets

PLBs

Spotlight

Flashlights

You need to know where it is



Stowage and Safety Diagram from Akela, RP 78

Some boats are a dungeon down below... headlamps can be good.

And have a grab bag for it if you abandon ship



Damage Control Kit with
specialized tools



EPIRBs and PLBs

- Ensure it is registered TO **YOUR** BOAT
 - beaconregistration.noaa.gov
- Replace batteries every 5 years (or as req'd)
- Replace hydro release every 2 years
- Self-test feature
 - 406 MHz units can be tested at any time
 - GPS-enabled models can verify GPS operation
- Store your beacon where it can be reached quickly and the antenna won't get damaged.



Personal Protective Equipment



**“Sunset” Friday:
Inflatable PFDs, Foul Weather Gear, Watch Caps, Hoods & Gloves**

Down the Bay Race, May 2013 (Memorial Day Weekend!)
20-37 knots of wind COLD!



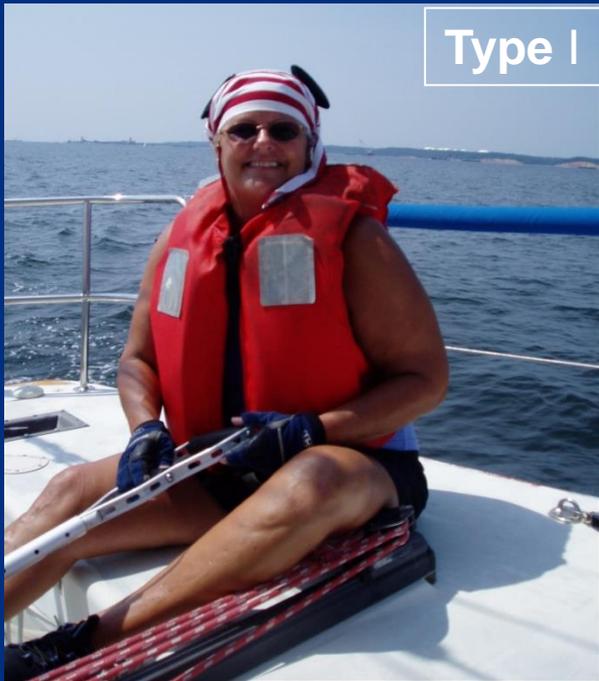
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PFDs/Life Jackets – when to wear



- ✓ Personal decision, mandated by skipper or race rules
- ✓ Common: When reefing, when reefed, at night
- ✓ Consider distance offshore / seas / wind / # POB

PFD helps you get back to surface quickly so you don't inhale water
due to gasp reflex in cold water



Type I



Type II



Type III



Type IV Throwable

Type I, II, III IV & V PFDs



Type V

Why use inflatables?

1. Non-restrictive
2. Excellent in-water performance
3. Compatible with harnesses



Lifesling & MOM

Different inflatables for different applications

- Buoyancy:
16, 24, 35 and 60 lb.
75, 100, 150, 275 Newton
- Harness, no harness, or belt pack
- Inflation:
 - Automatic
 - Water activated
 - Hydrostatic activated
 - Manual activated
- Advances in inflatable PFDs:
 - Leg/crotch straps, integral harness, spray hood, strobe light, lifting loop, whistle, reflective material, pocket for PLB, hydrostatic activation. Check for compliance with USCG or ISO standards.



Wear harnesses a few inches below armpits

The Hydrostatic Advantage



1. Very unlikely to have an accidental inflation
2. Five year replacement

Inflatable PFD Maintenance



Use the correct replacement cylinder
All contain 35g, but are **not** interchangeable

Inspect water-activated bobbin; replace red with yellow versions

Check expiration dates on inflator water sensors

Silkscreen on inflation bladder shows proper replacement cylinder.

Visual Inspection
No tears, wear, salt or green crud

Manual Inflation & Leak Test Overnight;
Inspect CO2





Most prefer an inflatable with
integral harness

Some prefer harness that can be worn
with float coat or inflatable without
integral harness



Clip to something solid, *not the lifelines.*

Tethers



Old fashioned hooks can't be released under load & may accidentally unhook

Loop for Lazy Tether

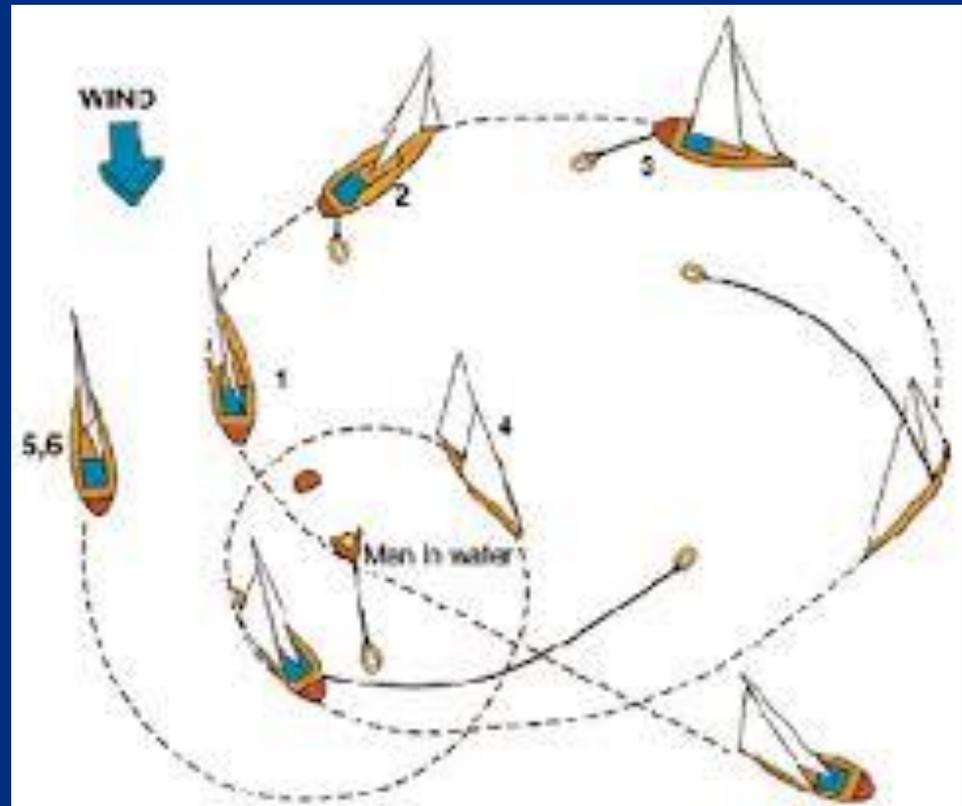
Modern tethers:

- Quick release on your end and locking hook(s) on boat end. (Orient quick release to dominant hand)
- 1 meter tether or mid-point snap on 2 m tether
- Overload indicator flag embedded in stitching

Jacklines, & practice tether management

Lifesling

1. Mount properly
2. Fake the line in the bag (don't coil)
3. Tie the bitter end to the boat



Practice
maneuvering the
boat & recovering
the victim

Throwable Devices & Throw Ropes

Alternatives to Life Sling



Inflatable Dan Buoy



Buoyant Cushion and
Horseshoe Buoy with
Floating Strobe Light



Throw Rope

Drouge

- Alternate way to get injured MOB back on board
- Slow the boat down in heavy weather
- Emergency steering

Signaling...

- Mirrors work GREAT in sunny weather!
- Flashlight, or chem light waved frantically & pointed toward rescuer, can be better than a steadily beating strobe light.
- Whistles can be heard much further than yelling.
- Flares must be perfectly timed.
- Electronic signaling lights now available.
- CG aircraft now have Forward Looking Infra Red (FLIR)
 - Anything that makes heat can be seen by FLIR (you/engine/stove), night or day.
- CG Night Vision Goggles
 - Can see virtually any light
 - Cigarette at 2-3 mi
- Retro Tape is long lasting and passively bright



**Beware sparks
& slag**

Personal Safety Gear

- Replace batteries in strobes, flashlights, headlights every six months; use lithium or alkaline batteries
 - Alkaline batteries retain 80% of charge, 3 years, 20° C
- Inspect zipper sliders for corrosion; avoid metal sliders if possible
- Inspect knives for corrosion and sharpness
- Add fanny pack or pouch on PFD to store small items

- Strobe
- Knife
- Headlight
- Chem Light sticks



Next time you are sailing along at a good speed in the middle of the night with no moon and salt spray on your glasses, consider:



February 2014: Svendborg Maersk lost 500 containers off coast of France

3 March 2018: Maersk Shanghai lost 76 containers off Oregon Inlet, NC

March 2013: Barge *Atlantic Trader* lost 22 off Jacksonville

Dec 2015: Another barge, 25 more lost

*What is your collision & flooding plan? Do bilge pumps work?
What plugging & patching equipment do you carry?*

Immersion Suit



- Consideration for high latitude or ocean-crossing racing or cruising.
- Survival suit for abandon ship

Life Rafts



Life Rafts



- ✓ Inspect according to manufacturer recommendations
- ✓ Only use factory authorized service stations
- ✓ Store in dry location when not needed
- ✓ Keep valise life rafts dry unless in use

Life Rafts

- ✓ Make sure the tether is made fast to the boat
- ✓ Can you get the life raft to the lifelines in 15 seconds?
 - Raft on “Cynthia Woods” stored below deck
- ✓ Establish an Abandon Ship Plan and review with crew



Safety Equipment Regulations

World Sailing Offshore Special Regulations (OSR) - International

<http://sailing.org/documents/offshorespecialregs/index.php>

US Sailing Sailing Equipment Regulations (SER) – USA

<https://www.ussailing.org/competition/offshore/safety-information/ser-world-sailing-special-regulations/>

Proper Equipment, Proper Training, Position & PFDs

greatly increase the chance of avoiding accidents,
and a successful rescue if required



Sail & Race Safely & Well...See you on the water!

BACKUP

- Remember “*P*” !!!
- “Preparation Equals Performance”
 - Admiral James Loy, Commandant of the USCG thru 9/11
 - The 7 Ps:
 - Proper Prior Planning Prevents Piss Poor Performance
 - *And if you remember nothing else...*
 - #1: Position *Position* *POSITION!!!*
 - #2: PFDs *PFDs* *PFDs!!!*

Can you see me?



How about now?

The
SEE/RESCUE®
Streamer
25' & 40' long

Orange smoke
flare would be
similar but
doesn't last as
long



Chem Lights & Retro Tape

- Chem Lights:

- *Myth:* Night vision goggles can't see green chem lites
- *Truth:* CG NVGs can see any light of any color
- No maintenance & long-lasting
- Emergency light if power loss (e.g.: compass light)

- Retro tape:

- No maintenance & long lasting
- It's always there
- Works amazingly well



Thunderstorm returning from Bermuda, 2008

The Type I/SOLAS Option

- OK in-water performance
- Difficult to work on deck
- Difficult to use with harnesses



Inflatable PFD with personal equipment



PLB, Streamer, Mirror, Whistle, Strobe Light, Flashlight & Knife
Perhaps add personal pen flares offshore



Modern inflators have a window so you can see whether they are ready to go

Different Inflators



1F Inflator

6F Inflator

Manual Inflator

Old auto inflator

JERK TO INFLATE

JERK TO INFLATE

JERK TO INFLATE

Use the correct replacement cylinder
All contain 35g, but are **not** interchangeable



Secumar



Halkey



Hammar

Manual,
automatic,
or both?



Silkscreen on inflation bladder shows proper replacement cylinder.



Rearming kit
for specific
inflatable
models

PFD Rearming Kit 38MRP-1

For rearming the following
SOSPENDERS® rip-cord
inflatable PFD models only:

**38MSTD-1, 38MPRO
38MHAR-P-1, and
38MWB-1**

Equipped with HALKEY ROBERTS

Contains:

One 38 gram CO2 cylinder
One green cap
Rearming instructions



LOT # U 98026



Manufactured by: Sporting Lives, Inc. • 1510 NW 17th St. • Fruitland, ID 83619

Silkscreen on inflation bladder shows proper replacement cylinder.



M/V *Selkirk Settler* November 2006, Lake Superior



A nasty day with boarding seas...

Same laker a few minutes later...



Lookouts won't be able to see well.

Radars don't work well in heavy rain & seas.

Radar reflectors may not survive.

Can your hatches, ports & vents keep solid water out?

EPIRBs Emergency Position Indicating Radio Beacons

PLBs Personal Locator Beacons





MV EVER
SMART alongside
in Los Angeles on
November 9,
2017.

The British-
flagged EVER
SMART 42
containers
overboard
approximately
700nm east of
Japan on October
30, 2017.

The incident
occurred as the
ship was
underway from
Taipei, Taiwan to
the Port of Los
Angeles.



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END