What safety kit do you actually need?

How much safety equipment do you have onboard? Duncan Kent looks at what you should carry and why

Whatever sailing you do, you should always carry some safety equipment, but what you need and how much is a hot topic in club houses and web forums the world over. It's made more interesting because, for private use leisure vessels of less than 13.7m (45ft) LOA, there are no statutory requirements for safety equipment other than those required under the very limited SOLAS V regulations.

But it obviously makes sense to equip yourself, crew and boat with a level of safety equipment commensurate with the type of sailing you commonly do.

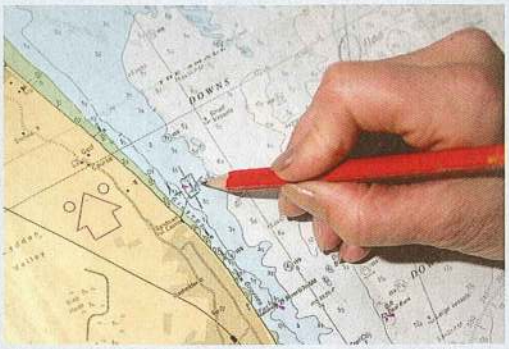
In the next few pages we'll aim to explain what kit we feel is really needed, what it does and how it can help, so that you can make an informed decision as to what to carry, depending on the type of sailing you do.

It's reassuring to know that you have the right safety kit, that it works, and that you can use it

PHOTOS: GRAHAM SNOOK/YM

Mandatory kit and responsibilities

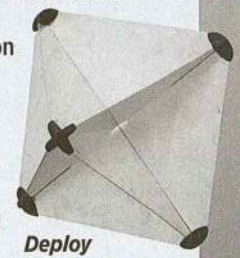
If your yacht is less than 13.7m (45ft) SOLAS V regulations state you should have certain safety equipment onboard, also that you act in a certain manner to conform to the regulations.



A passage plan should address most eventualities

■ **PASSAGE PLAN** (Regulation V/34) Prior to setting off you should have made a passage plan, including forecasts, tides, limitations of vessel and crew, navigational dangers on route, contingency plan. This can be as simple or as complex as you want it to be, but some evidence of forward planning is never a bad thing.

■ **RADAR REFLECTOR** (Regulation V/19) Important for being picked up by ships' radar when crossing shipping lanes or at times of restricted visibility. Fit the largest Radar Cross Section that is practically possible or consider an active Radar Target Enhancer.

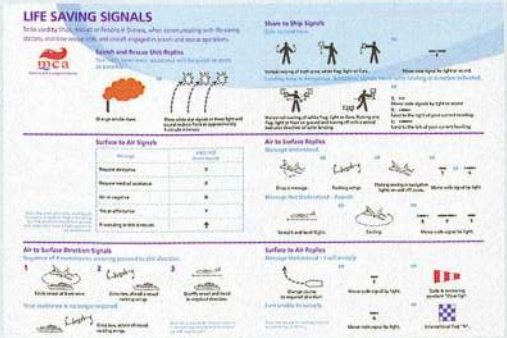


Deploy one with the biggest possible radar cross section

■ **LIFE SAVING SIGNALS** (Regulation V/29) You should carry an illustrated table of how to attract attention and/or communicate with rescue services. This can usually be found in a nautical almanac, or can be downloaded from www.gov.uk after searching for 'life saving signals'.

■ **ASSISTANCE TO OTHER CRAFT** (Regulation V/31, V/32 V/33) You should respond to any distress signal that you see or hear and offer assistance to any body/boat in distress the best way you can. Also, as skipper you have a responsibility to convey any dangers to navigation to the Coastguard.

■ **MISUSE OF SIGNALS** (Regulation V/35) You must not misuse any distress signals, by doing so you may be putting someone else's life at risk.



Learn distress signals and use only when necessary

Personal safety kit

A comfortable lifejacket for the lively conditions, and a pocket knife

PHOTOS: GRAHAM SNOOK/YM

Every skipper has his or her own interpretation of what is acceptable and safe. Many focus on what needs to be added to a yacht to keep her crew safe and sound. But it's all too easy to forget about personal safety, especially if you regularly sail on a well-equipped yacht and find yourself onboard an unfamiliar yacht. Taking responsibility for your own safety is something all of us can do.

Staying warm, dry and comfortable on deck is key to your safety

Warm, dry clothing

There's a level of personal safety that I apply to both my crew and myself at all times and it's doesn't necessarily just involve carrying the latest bit of smart electronics in my pocket. Anyone who has spent a long night watch in foul weather and rough seas will know that the most important responsibility you have is to stay awake and alert. You are unlikely to do this when you're shivering with cold and wet through. For this reason I put proper clothing as the number one on my list. Be prepared for all weathers and you'll be able to concentrate far better on the task of keeping the boat on course and the crew safe.

Lifejacket and harness

Then there's your Personal Flotation Aid (PFA), which will usually come down to an inflatable lifejacket of sorts these days. Remember, this device could save your life, so don't skimp on it. When you suddenly find yourself in the freezing sea you'll be very glad you opted for the best money could buy. To my mind that's one with an integral harness, sprayhood, twin crotch straps, bright flashing strobe and a PLB pocket at least. If it's a proper fit and comfortable you're also more likely wear it. Whether you choose a manual or auto activation is down to you, but as the most common way to be nudged over the side is by the boom hitting your head, personally I choose to use an automatic mechanism just in case I'm unconscious when I hit the water.

RIGHT: An AIS beacon can raise the alarm on the closest boat: yours

Personal Locator Beacon (PLB)

At around the £200 mark, why would any offshore sailor not want to carry a PLB on them when sailing? A modern PLB is light and compact so it will tuck easily into a jacket or lifejacket pocket. Remember that a PLB does not activate automatically – unlike an EPIRB or AIS beacon, it must be triggered manually. This is a design feature intended to stop them being set off accidentally – especially as lowering cost makes them more popular. A PLB will send an immediate distress signal and your position to the rescue authorities via the nearest satellite and is probably one of the most reliable items of safety kit available.

A headtorch is practical and helps in an MOB situation

AIS beacons

AIS beacons have become popular as an MOB device. They mostly self-trigger on contact with water, so are ideal for tracking down an unconscious MOB. These beacons don't use the COSPAS/SARSAT satellite system to call for help, they merely transmit a radio signal that appears on a chart plotter as an icon and an alarm. Some will also send a message to a specific VHF radio using a pre-programmed MMSI number.

While they're useful in busy shipping areas, they're not much use anywhere remote other than to alert the mothership. Personally, I'd carry both an AIS and PLB beacon for offshore sailing, but if I was forced to choose just one, it would be the PLB.

MOB transmitters

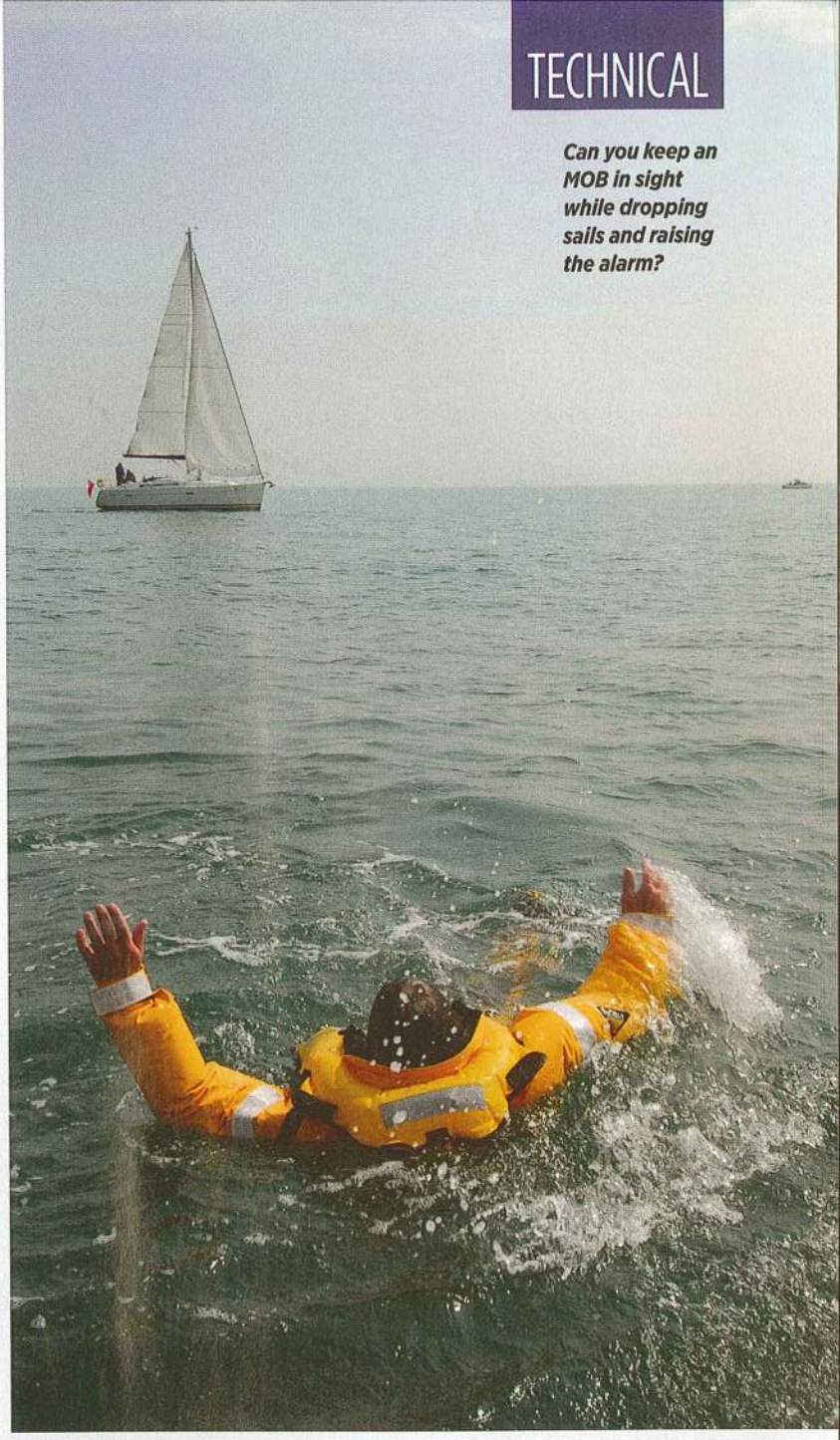
If you're planning to undertake a lengthy passage or ocean crossing you might be interested in other types of local personal MOB transmitter, such as Raymarine's LifeTag (raymarine.com) system whereby each crewmember has a miniature beacon attached to them that continuously transmits a signal to an onboard receiver. Should any tag not 'report in' at regular intervals (ie. drops out of range) then the base station assumes the person has gone overboard and emits an audible alarm.

A similar system, CrewWatcher's Pan Pan device (crewwatcher.com), has also been recently launched. This works in a similar way to the LifeTag, only it uses an app on a smartphone to alert the rest of the crew. All well and good provided your smartphone's battery isn't flat.

LED flare/torch

One last item I'd like to have on me if I'm in the water would be an LED flare or very bright LED torch. Saying that, all this electronic kit has to be stowed somewhere and I'd rather not be walking around the deck looking like a modern police officer with things dangling from my waist ready to get snagged by any one of a hundred bits of deck gear around me. Probably the best solution is to wear a head torch with built-in strobe at night and in fog. I know this sounds a little excessive, but since testing a bunch of them some time ago and found some that are so light and comfortable that I find it easy to forget I'm wearing one. During the day I keep it inside the companionway, next to my diver's knife.

MOB tracking and retrieval



Can you keep an MOB in sight while dropping sails and raising the alarm?

ABOVE: Some method of parbuckling your MOB back aboard keeps them horizontal, which is safer

Losing someone overboard is probably one of the most common incidents onboard a sailing yacht, but it's also the one most people studiously ignore! When was the last time you practised your MOB drill? Do you even have one? Could your partner get you back on board when you're wet through, or unconscious even?

There are a hundred different ways of tackling an MOB situation, but the most important factor is planning. Devise a way that suits you and your regular crew and then practise it in a variety of weather conditions. We all know about throwing lines, Danbuoys and horseshoe buoys and lights, but are there better devices for marking an MOB?

Firstly, bear in mind your own visibility. Forgetting smart electronics, a lifejacket with a high-viz hood will not only keep the spray from your face, but it'll also make you ten times more visible in the water – day and night. Likewise a bright flashing white strobe light, mounted as high as possible on your lifejacket, will enable you to be spotted up to two miles away, although you'll still need a powerful portable spotlight to hand when you get closer to avoid actually running the MOB over.

In daylight, a floating orange smoke flare kept near the helm and deployed as soon as possible after the MOB has gone over will help you look in vaguely the right direction once you've taken your eyes off the casualty to sort the boat out; it might even attract other nearby craft too.

A large number of cruising yachts are sailed with just two on board these days, which makes many of these precautions an absolute must.

Getting the casualty back on board

Once you've returned to the MOB, the real hard part begins – how do you get them back onboard? There's a plethora of devices marketed for this purpose – some useful, some not. In 25 years of testing marine safety kit for leisure craft I think I've probably tried them all, but there's not one that I would call the panacea of MOB retrieval.

Firstly, it depends on crew numbers, or whether 90 percent of your sailing is done as a man-and-wife team. With enough strong crew, often all you need is sheer brute strength and a little aid from a few simple devices such as a padded sling. If your partner is slightly built and you're the opposite you'll need to have pre-planned each step of the operation and have practised with both the method and the apparatus.

The most popular method is to attach a parbuckle to the toe rail amidships (where movement is least), position the victim over it and haul/roll them aboard under the guard wires using a tackle on the outer edge. The parbuckle can simply be an old hank-on jib sail, which just about works but doesn't sink very easily. Alternatively, there are purpose-made porous netting devices such as the Kim Pick-up Sail or the Jason's Cradle, both of which sink below the surface aiding access for the casualty. A further advantage of this method is that the victim is lifted horizontally, which is now recommended to avoid sudden shock as the blood rushes to the feet, but getting them onboard quickly is your priority.

If you can afford it I think the best device is the Jon Buoy, which is basically a self-inflating mini liferaft and Dan buoy that is designed to be hauled back on board with the victim safely aboard.

Safety equipment for the boat

In addition to preparing yourself for every eventuality you need to look at what is required on the boat to ensure the safety of your crew and to try to avoid emergency situations arising in the first place. If you have safety equipment, make sure your crew know where to find it, and also how it works. If you're sailing on a boat you don't know, ask your skipper to go through any unfamiliar equipment with you before setting off – finding out which is the hot end of the flare is better when you're not having to learn in a panicked rush.

With seconds of activation, rescue services will know you're in distress

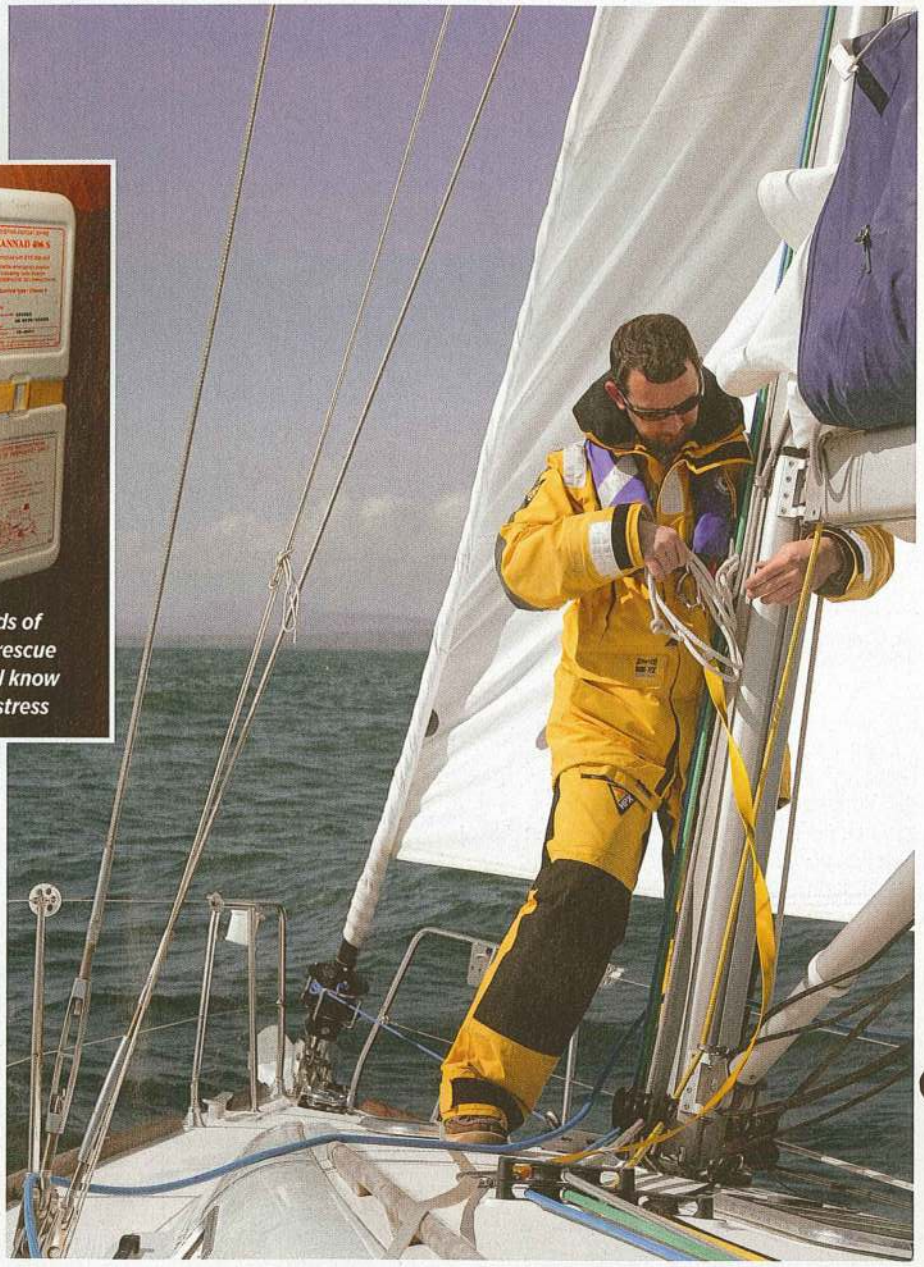
Emergency Position Indicating Rescue Beacon (EPIRB)

An essential item when ocean cruising, a satellite beacon is intended for your boat, rather than for personal use. It is usually automatically activated on contact with water, when it repeatedly transmits a distress call on 406MHz to the COSPAS/SARSAT worldwide rescue authorities.

An EPIRB must be registered to a particular vessel and details left on file to assist the authorities with the search if ever required. The main advantage they have over a PLB is that they have larger battery pack so they can transmit for longer (minimum 48 hours).

Clipping on

The number one golden rule to avoid the risk of an MOB situation is to stay clipped on. The Clipper Round The World Fleet now clips on when the true wind is over 10 knots. If you're the skipper it's your call when your crew clip on. If you're crew and you want to clip on, do it, it's your safety. Clipping on requires proper jackstays, clipping eyes, harnesses and safety lines. For unavoidable deck work in foul conditions offshore I use two lines, clipping them alternately when I reach a crossing point so that I always have one firmly attached to the boat. The elasticated webbing type help keep them tidy, but be sure not to have them so long as to allow you to hang over the rail, possibly with your head in the water.



Clipped on while working at the mast, but the jackstays aren't tight and the tether is too long

One other thing – folk tend to rely on guard wires when they lose their balance on deck. It might not be the correct thing to do, but it's often unavoidable, so make sure they are properly secured and the stanchions bases sound. Rather than fixing them to the rails using steel shackles or lashings, try using a soft shackle on the end that can be cut when needing to drop the wires in an emergency.

Passive radar reflectors can do only so much. Consider an active radar target enhancer

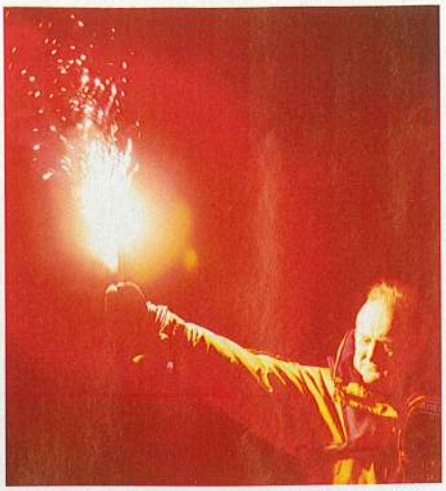
Radar reflectors

There's an awful lot of misinformation around concerning these devices, but over 25 years of testing a wide range of devices both at sea and on land in an anechoic chamber, I've discovered one golden rule – a passive radar reflector should be as large as possible. Better still, if you really want to be seen by a passing ship and can afford the initial cost (c. £500) and have the battery power to run it then buy an active Radar Target Enhancer such as the excellent Active-X (echomax.co.uk).

Liferaft

Only last week I overheard a debate as to whether it is worth carrying a liferaft for coastal cruising. Take my word for it – it is! It's as easy to hit a submerged container halfway across Lyme Bay as it is in the Bay of Biscay. A good friend of mine lost his boat that way when just a few miles off the French coast – at night in a force six and an unpleasant sea from the previous two days' gales.

The boat went down minutes, just after



No-one likes carrying them but they are still effective at attracting rescue services

they'd managed to call a Mayday on the VHF but before they had time to go below to grab anything. In this case the liferaft was their only route to safety and undoubtedly the sole reason the four of them were able to have a drink and discuss it having been subsequently rescued by a cross-Channel ferry.

Flares & smokes

Much as I hate carrying pyrotechnics onboard they still have their uses and are not yet dispensable. Whilst LED and laser flares are incredibly handy to have around, especially about your person at night, they're still nowhere near as good at attracting the attention of possible nearby rescuers as a conventional flare – especially during daylight hours, when they're difficult to spot at any distance beyond a few hundred metres. If you sail in crowded waters like the Solent pyrotechnics will help SAR crews identify which white-hulled yacht you are between Lymington and Beaulieu in an instant.

The same goes for floating smokes. These are great for indicating the position of an MOB and are useful to indicate the wind direction to a helicopter descending for a hi-line winch rescue.

Emergency VHF antenna

If you lose yur rig, you lose your masthead VHF antenna too, which means your radio will become useless. You can buy a smaller emergency antenna, but remember to keep it handy for an emergency and not buried somewhere in a locker where you'll never be able to find it in a panic.

Some boat owners prefer to fit another VHF antenna permanently to their stern rail to use as an AIS antenna, but make sure the plugs are interchangeable (or you have the necessary adapters) so it can be swapped should the mast be lost over the side.

It would be madness to put all we recommend on a small open dayboat, likewise if you're sailing farther afield you may feel you need more. To cater for all our readership in this short article would be impossible, but at least we've given you some ideas about what equipment you could have, and hopefully you'll never need to use it.

What's in your grab bag?

Those planning to go offshore or ocean cruising need to consider seriously the contents of their grab bag to take into the liferaft. Remember, it really should be kept in a dry cockpit locker, as near to the liferaft as possible and within easy reach – not buried under a heap of other gear.

I particularly like the type of liferaft that has a second, smaller canister for this purpose as it is automatically deployed with the liferaft.

Wherever possible it's best to pack electric or electronic items that use standard dry-cell batteries so you can then pack a few extras (not possible with PLB/EPIRBs). Some rechargeable radios will accept AA cells in an optional converter pack, for emergency use.

We recommend you include at least the following contents:

- PLB or EPIRB
- Waterproof, handheld VHF radio
- LED flare
- Waterproof LED torch
- Hand held GPS with spare batteries
- Sharp knife with sheath
- Multitool with plyers
- Bottles of water
- Seasickness tablets

Your grab bag should include a handheld VHF radio with spare batteries

BELOW: Find out what is in your liferaft's survival pack, and enhance where needed

PHOTOS: GRAHAM SNOOK/YM

Losing your rig presents you with many challenges. Communication is one