
RISK ASSESSMENT

The level of heavy weather preparation required is a question of risk assessment. You wouldn't, for example, bolt down your floorboards, double-lash the dinghy, and remove weather cloths for a short hop in the tradewind belt.

On the other hand, any passage in an area of rapidly changing weather; across strong currents (especially warm ones); or taking place during gale seasons, calls for the highest state of preparation before you depart.

You don't have to be caught in a strong gale to create problems through lack of preparation. A sail on a day with winds in the 25- to 30-knot range, if your gear starts coming apart in the puffs, can create a real mess.

Preparing for a Rollover

Looking at your systems, sailing gear, storm equipment, and vessel preparation is best done with an eye towards a severe knockdown or rollover.

First on our list is watertight integrity. Seat lockers should have heavy-duty hinges and latches with positive catches, as well as well-sealed upstands so they won't leak when the cockpit is filled with water.

The companionway is one of the most vulnerable parts of the boat. Washboards need to be extremely strong, and the washboards and sliding hatch must have positive locks—typically barrel bolts. This will prevent them from opening unexpectedly in a knockdown or rollover.

Cockpit drains should be extra large, and if they have restricting grates on them (to keep bits and pieces from being lost overboard) the grates should be removed to improve drainage on serious passages.

Dorade vents should be removed and capped. Caps for inside the boat must be handy, in case the cowl or dorade box is lost.

It is amazing how much water will run down your chain where it enters the chain pipe and anchor windlass. It is best if the chain is removed, the anchor secured, and the chain pipe capped or stuffed with rags and taped with duct tape.

Storm covers should be fitted to all hatches. If not, they should be ready to apply when required.

As a preventative measure, it often makes sense to give the windlass a cleaning and lube job, then wrap it in plastic and affix its cover. In really heavy weather, there will be so much water forward that the pre-lubrication and sealing may just be enough to make this vital piece of gear functional at the next anchorage.

Clear the Decks

There are two reasons for clearing the decks of loose gear. First, anything loose on deck will probably be lost early on, even in a moderate gale.

Second, when it does come adrift, the odds are that, for a short period of time, the loose gear will have the potential to do damage to the boat and/or its crew.

Inflatables should be deflated and stored below, anything stored in the hard dinghy should be removed, and it should be inverted. Jerry jugs, sailboards, fender boards, etc. should either be left behind or stored below.

Knockdown checklist:

- Washboards ready and lockable.
- Storm covers fitted.
- All loose gear from deck stored low in the boat.
- Deck gear double lashed.
- Positive locks on locker doors, stoves, batteries, floorboards, and fridge doors.
- Storm canvas checked, hanks lubed.

There may be situations where you have sails on deck, either in their bags or tied to the lifelines. Even in moderate gales, this can be a prescription for disaster. A small boarding sea will have the power to remove these from the deck, and they will tend to take what they are attached to as well—leaving your lifeline system bent and broken.

Extra Lashings

The gear left on deck must be heavily secured—and the hardware to which the lashings are attached should be stout.

Padeyes must be through-bolted with backing plates.

Lashings are better if made up from a series of turns with lighter line rather than fewer turns of heavier cordage.

If you have a hard dinghy or RIB on deck, you will want the bow, stern, and athwartships secured. The average dinghy should be secured to at least six padeyes.

If any anchors are left on deck (most should be in the bilge), they will require extra lashings and well constructed chocks.

Life Raft Security

Life raft storage and security is always a conundrum. As you will see in the notes to the 1998 Sydney-Hobart Race storm (starting on page 296); and as we have learned from the *Freya* experience, keeping the life raft aboard in a rollover is difficult.

Yet storing it below, in a soft pack, is not a panacea. Rafts in soft packs can be unwieldy and difficult to deploy quickly.

One answer is to have a built-in locker on deck, which structurally protects the raft from the force of the sea. Another option is to have an extremely strong stainless steel frame which is through-bolted to backing plates.

Storm Windows

The subject of storm windows is important. (They are covered in more detail in *Offshore Cruising Encyclopedia* starting on page 257.) Your storm windows need to be easy to attach. The securing system must be extremely strong to withstand the force of the sea if the boat is rolled or dropped off a wave.

It is far better to fit storm covers before you depart. Once at sea, by the time conditions deteriorate to the point where you think storm covers are required, digging them out from under a bunk and going on deck to install them is the last thing you will want to do—the odds are that they will stay under the bunk until a port or window is lost.

Fit them before you leave.

Center of Gravity

The vertical center of gravity (VCG) is the sum of all the weights in the boat—rig, keel, hull, payload and cruising toys, and their height above the waterline. The higher this is, the less stability you have. Nothing helps the boat withstand punishing wind and waves better than a low VCG.

The further the weight is above the waterline, the more impact. A roller-furled jib that weighs 75 pounds (35kg) might have a VCG of 30 feet (9m) on the average 40-foot (13m) yacht. This is the equivalent of removing 600

Improving center of gravity:

- Bring anchors and chain off ends of boat and store in bilge.
- Deflate dinghies and stow below.
- Remove all deck gear that is not essential to the operation of the vessel and store it low in the boat.
- Move heavy gear on shelves to lower storage areas.
- Make sure lowest tanks are used last.
- Drop any unneeded roller-furling headsails.

RISK ASSESSMENT

pounds (272kg) from the ballast in your keel—not exactly what you are after in heavy weather.

All the weight modern cruising boats accumulate on deck raises their VCG. The effect is rarely noticed because gear accumulates slowly. But if you take it all off one day for a brisk daysail, you will be amazed at the difference in performance.

Weight at the ends of the boat is a factor as well. The further the weight is situated from the pitch center (usually just aft of the mid-point of the waterline) the more it affects your motion. This is especially important when close reaching and beating.

You want to remove as much weight from the ends as possible. For example, take anchors off the bow and stow them below the floorboards, where their weight will enhance stability rather than reduce it.

Windage

Windage is a huge factor in the ability of the boat to beat, heave to, and even hold station with a parachute anchor.

The more windage, the lower the performance. Windage that is located forward—such as roller-furled sails—makes the boat tend to shear at anchor, both in harbor and when on a parachute.

If you expect bad weather, get large roller-furling sails down on deck, brick them, and store them below.

The same applies to leecloths and sailing awnings (although leecloths will help the boat hold her head up when hove to or on a sea anchor).

If you can't get the roller-furled headsails off the headstay, they need to be secured so they cannot unfurl. Rolling extra wraps of sheet helps, but there is still a great deal of load on the furling gear and line.

Securing the Interior

From reading the Burmans' account of their knockdowns, you know that the interior rapidly becomes a mess unless everything is well secured.

If you are prepared, a mast-in- or mast-near-the-water knockdown is no big deal. If you take a really severe knockdown, and the interior stays clean, it is easier for you to deal with the critical issues on deck.

When you are looking at your interior there are two levels of knockdowns to consider. The first is and less than 90 degrees. Here, the main issues are locker doors, drawers, which face athwartships, and loose gear on shelves.

You will want to have positive locks on all doors and drawers—this does not mean finger locks. (For more information on this subject see page 1,013 in *Offshore Cruising Encyclopedia*).



A dab of 3-in-One oil on storm headsail hanks keeps them working freely.