HOW TO SET UP YOUR BOAT PART 6

Lester McCarthy

A manoeuvre to practise – anchoring under sail

Anchor essentials

Rupert Holmes looks at setting a boat up for bulletproof anchoring and how to avoid common, but potentially costly, mistakes

There has been a revolution in anchoring technology over the past couple of decades. More and more boats are now fitted with electric windlasses, there have been marked improvements in the chain available to us, and today's anchors are much more effective than those of the late 20th century.

If you've recently bought a boat, or are planning more adventurous cruising in your existing vessel, it's worth taking a careful look at the anchoring equipment and arrangements for the ten common problems, ranging from rusty shackles to worn chain and poorly maintained windlasses (see panel, right).

Because of this, many second-hand boats will benefit from an upgrade in ground tackle and handling systems. It's worth remembering that few owners will do this for a boat they might be selling in a couple of years' time.

Equally, don't assume that 30 years of

10 common problems with ground tackle

- Joints in different lengths of chain
- Rusty or undersized shackles
- Rusting chain
- Worn chain
- Chafed/worn rope to chain splice
- Undersized anchors
- Older, inefficient anchor type
- Poorly maintained windlasses
- Windlass battery undersized or at end of life
- Windlass wiring of insufficient size, leading to voltage drop

Rupert Holmes

Many yachts have deficiencies in their anchoring arrangements – it's a good time now to audit the set up on your boat

'The ability to set quickly also means that most new-generation anchors will reset more easily after breaking out'

use is proof that the ground tackle of a used boat is up to the job – many owners never use their anchor for anything other than a lunch hook.

Of the seven boats I've bought to date there have been only two whose ground tackle I didn't upgrade. With the first, an 18ft plywood Caprice I bought at the age of 17, I honestly didn't know any better and the old fisherman's anchor looked big enough for the job. The second boat had recently completed a successful circumnavigation and was therefore well equipped in this respect, even if the chain was becoming worn.

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An excellent example of a deep chain locker, with plenty of space for the rode

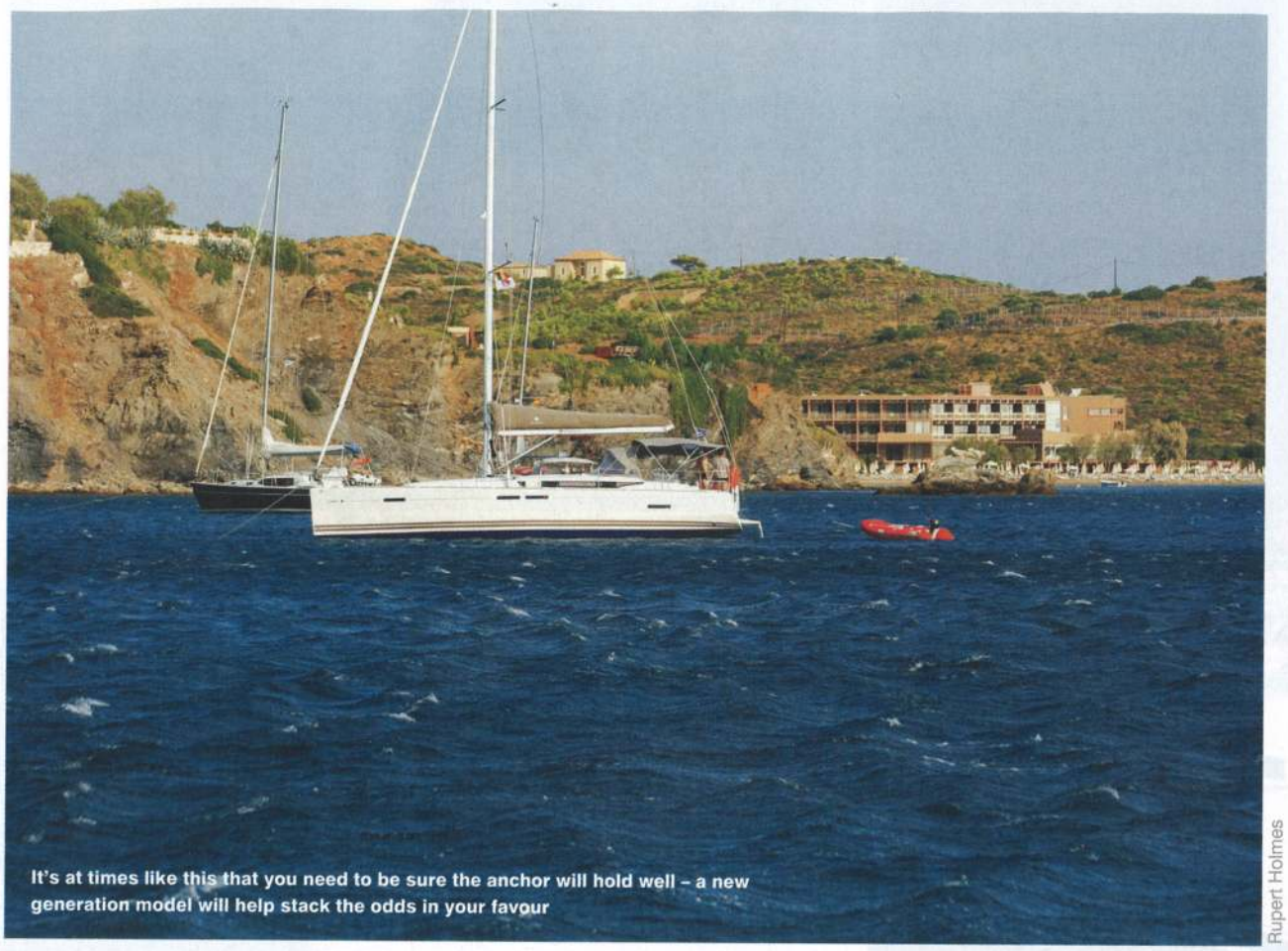
Identifying problems

It's easiest to examine the chain when the boat is out of the water, but if necessary this can be done when afloat, especially on a smaller boat. Are the shackles that connect the chain to the anchor of at least the same diameter as the chain? Do they look in good condition, with galvanising mostly intact? Are the pins moused, or riveted over, to stop them unscrewing? What about the other end of the chain – is it attached to a strong point on the boat? It should be fixed with a length of rope that's long enough to reach the deck. This allows it to be cut easily in an extreme situation that requires the boat to be moved quickly.

Next take a careful look at the chain itself, examining each link for any evidence that two lengths of chain have been joined together. This isn't necessarily a problem – my boat in Greece has one 17m length of chain joined to another of 10m. As there's no windlass I've been able to do this with galvanised shackles that are rated to the same strength as the chain and securely moused. There's therefore no loss of strength in the system and the shackles pass reasonably smoothly over the bow roller.

However, that option isn't available for boats with a windlass – whatever is used to join the chain must be a perfect fit for the gypsy, while also being as strong as the rest of the chain. Unfortunately there are few products that achieve both.

Metallurgist and long-standing PBO contributor Vyv Cox (**coxeng.co.uk**) recommends using products that are stamped with a SWL (safe working load) rating. If these can't be sourced from a



It's at times like this that you need to be sure the anchor will hold well – a new generation model will help stack the odds in your favour

Rupert Holmes

chandlery then look for a supplier of industrial lifting gear.

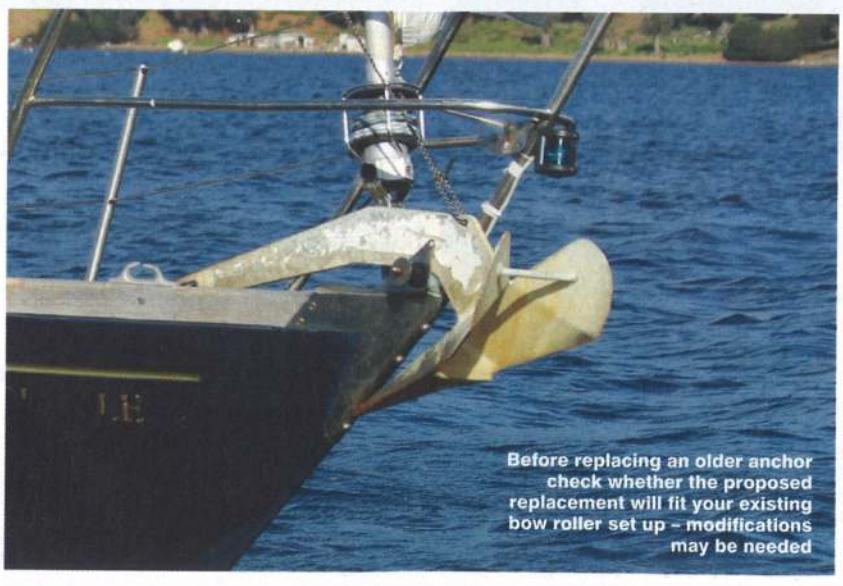
The same also applies to the swivel near the anchor that prevents twists in the chain reaching the gypsy.

Over time the ends of the chain links tend to wear against each other – the metal here should be the same diameter as at centre of the link.

In the past, if the galvanising was worn it was easy to get chain re-galvanised. It is still possible in the UK, but there are now very few outfits that carry out this kind of work and the price advantage compared to buying new chain is smaller than in the past.

Many boats have a mix of warp and chain for their anchor rode. There's no intrinsic problem with this, but it's important to have a good look at the warp. Is it an appropriate diameter for the boat? How secure does the splice to the chain look? These can trap water and therefore have a tendency to encourage rust over time, but it may be feasible to sacrifice a short length of the chain and re-splice the warp to links that are in good condition. However, if the warp has a whiskery appearance, indicating broken strands, it's far more sensible to replace the rope.

Don't forget the kedge and any other anchors – most serious cruisers have at least three anchors – and some even more. These often languish in the bottom of damp lockers and are therefore not inspected for years at a time.



Before replacing an older anchor check whether the proposed replacement will fit your existing bow roller set up – modifications may be needed

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Choice of anchor

This is the subject of much-heated debates on sailing chatrooms, including PBO's own Reader to Reader forum hosted on YBW.com. However, there are a number of indisputable factors on which there's broad agreement and there's merit in many sides of these arguments.

It's certainly true that technique has as much bearing on successful anchoring as choosing a high performing model in the first place.

If you don't have a generous amount of rode, lay it in a big heap on top of the anchor and fail to dig the hook in well using the engine in reverse, you're not stacking the odds in your favour. However, a well-set recent generation ultra-high holding power anchor will usually outperform a well set older model by a very considerable margin.

Also beware of the myth that says the

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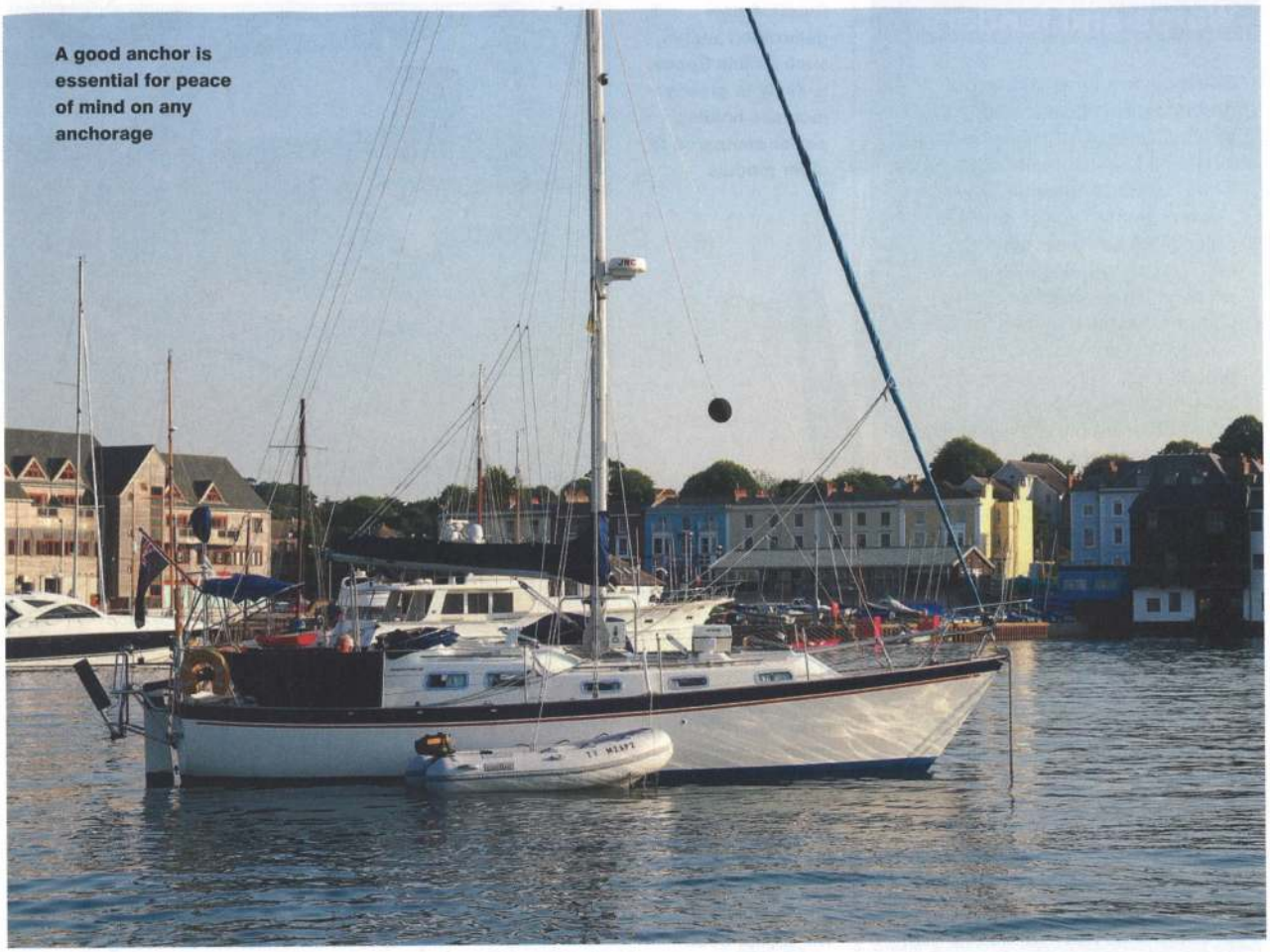


A good anchor is essential for peace of mind on any anchorage

anchor doesn't do that much work and it's primarily the rode that holds the boat. That may be true in benign conditions – and back in history when anchor technology was not well developed – but in a big wind the hook at the end of the chain is also of paramount importance.

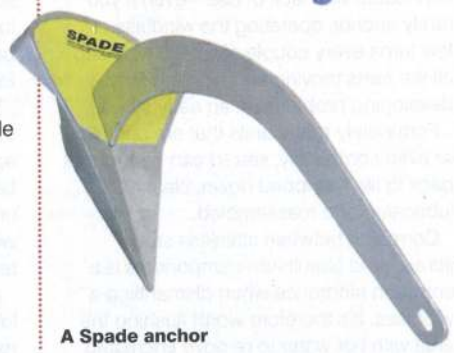
It's easy to see the anchors available in the final few decades of the 20th century were a lot better in terms of holding power versus weight than an old school fisherman's anchor. Development has continued apace since then, with the turn of the millennium witnessing a period of rapid evolution.

In the 1980s and 1990s some of the newer anchor designs focussed on reducing weight, compared to the then popular shapes such as the CQR (plough), Bruce (claw) and Danforth, while maintaining or improving holding power.

Some of these were lightweight aluminium models such as the Fortress that gained massive holding power at least in part thanks to the very large surface area of the flukes.

However, they were also cumbersome and didn't gain widespread adoption, other than in multihulls and raceboats, where the reduced weight was seen as a bonus.

A Rocna anchor



A Spade anchor

The most recent generation of anchors – such as the Bügel, Manson Supreme, Rocna and Spade – approached the problem from a different perspective. In essence they combine high tip weight, which helps the hook to dig in, with wide flukes shaped like a scoop and carefully researched geometry.

As a result they're capable of holding significantly higher loads than earlier generations of anchor of the same weight without dragging.

Crucially, the ability to set quickly also means that most new generation anchors will reset more easily after breaking out when the tidal stream changes direction, or after a significant wind shift.

How well do they really work in practice?

My first hand experience of newer anchors is anecdotal, but previously we'd dragged *Zest*'s original CQR across a number of bays when trying to dig it in using reverse engine power. The replacement Rocna of the same weight has, so far, set immediately first time, every time.

One of the biggest downsides of the new generation of anchors is their cost – unbranded older models of similar weight are often sold for a fraction of the price.

However, lower-cost options are gradually becoming available.

'Operating the windlass a few turns every couple of weeks will keep all parts moving and highlight any developing problems'

Warps and fenders

Some owners have bulletproof ground tackle and anchoring arrangements, yet still skimp on the kit needed to ensure the boat is safe when berthed alongside.

Even summer storms have the potential to turn what might normally be a well-sheltered pontoon into a cauldron of disturbed water with damaging waves. This is an even bigger problem when tied to a concrete quay in more remote harbours.

A plentiful supply of large fenders minimises the chances of sustaining damage – both minor and expensive – when berthing in a tight space, especially in a strong crosswind or awkward tidal stream. Equally, they will protect the boat in its home berth. Yet all too often I see boats with a scant collection of half-deflated and undersized fenders.

Equally, mooring lines of a thickness that allows for a little chafe make a huge difference to tying up safely anywhere that's not perfectly sheltered. Four separate lines cover bow and stern lines (equal to the boat length), springs (1.5 times the boat length), plus an extra pair of longer warps (twice the boat length) for shore lines when rafted that can also be pressed into service for other purposes if necessary.

In the past, these would have been nylon thanks to the material's natural stretch. However, in recent years this has become more expensive, so polyester is more often used. Ideally they should be of a construction that allows for stretch, rather than that used for pre-stretched lines that are produced for halyards and sheets.

Rupert Holmes

Plenty of warps and fenders are essential when tied up alongside

RIGHT A new generation anchor, such as this Spade, is likely to greatly increase holding power compared to older models

Will it fit?

Before buying a new anchor check whether it will fit your bow roller without fouling the hull. Not all arrangements, whether those on older boats, or newer designs with a vertical bow, will accommodate all anchors.

If necessary, in many cases the bow roller arrangement can be adapted by a metal fabricating workshop to take a larger shank, or a different shape of anchor. Some manufacturers of new-generation anchors such as Rocna provide templates to make a 3D cardboard replica of the anchor, allowing you to check whether it will fit your boat.

In the past there was a tendency for those who put their anchors to serious use to choose markedly oversized anchors. That's not necessary with new generation types and is something manufacturers tend to argue against, in some cases very strongly.

Windlasses

Windlasses are all too often neglected until something goes wrong. Yet, they are exposed to a super-harsh saltwater environment on the foredeck and ought to be given plenty of care.

The most common causes of mechanical failure are generally connected with lack of use – even if you rarely anchor, operating the windlass a few turns every couple of weeks will keep all the parts moving and highlight any developing problems at an early stage.

Fortunately many units that are partially, or even completely, seized can be brought back to life if stripped down, cleaned, lubricated and reassembled.

Corrosion between stainless steel screws and aluminium components is a common hindrance when dismantling a windlass. It's therefore worth flushing the area with hot water to remove encrusted salt, allow it to dry and then treat with penetrating fluid for a day or two before starting work.

When reassembling the unit, components should be coated lightly with waterproof grease. To facilitate dismantling the next time the unit needs to be serviced smear zinc or barium chromate paste such as Duralac on screws and other stainless steel components that are in direct contact with aluminium, as this separates the metals and therefore helps reduce corrosion.

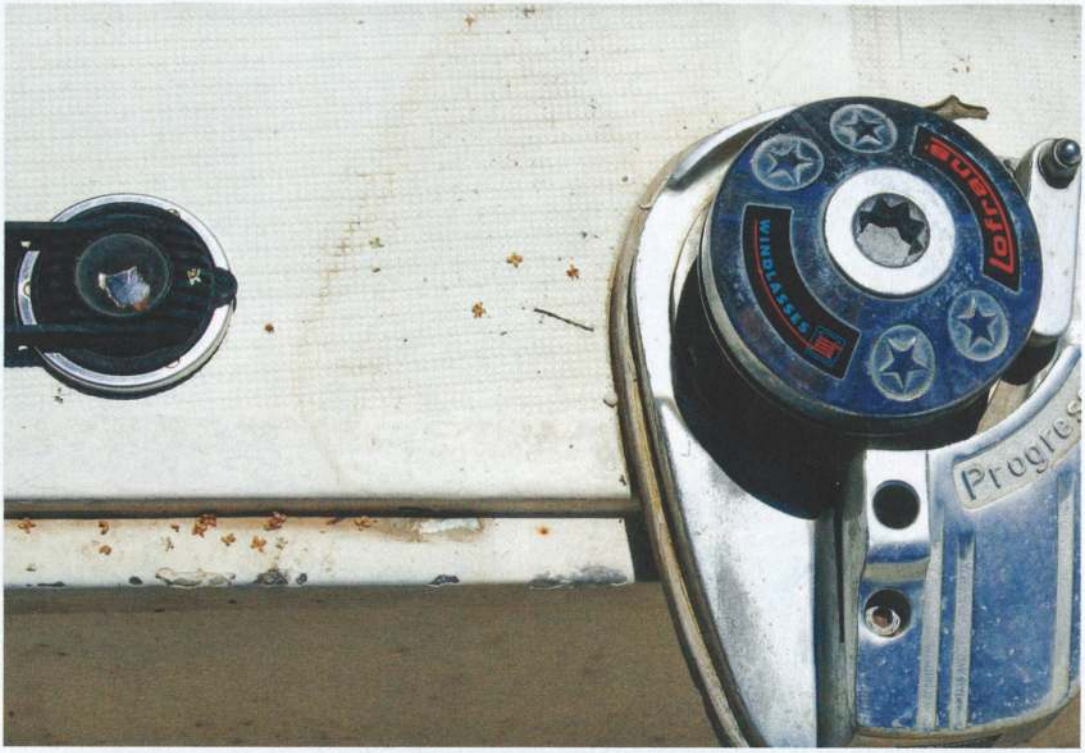
ABOVE A decent electric windlass can take all the effort out of hauling chain back into the locker, but make sure you maintain it well

The most common problem on the electrical side is a high current tripping the circuit breaker that's intended to prevent the motor overheating.

This, of course, is easy to fix if you know the location of the breaker, but this is sometimes far from obvious – it may be located between a dedicated windlass battery (possibly somewhere in the forepeak) and the windlass itself.

Windlasses are very high power devices that operate in a remote part of the boat, so other electrical problems are likely to be down to insufficient power reaching the unit. This may be a result of undersized wiring, compounded by loose or corroded terminals.

Alternatively the battery may simply be low on charge, either due to age or repeatedly using the windlass without running the engine. Some boats don't have a dedicated windlass battery and use the engine starting battery instead. It's important to know if this is the case for your boat – and to keep revs high (in neutral) while retrieving the anchor to avoid discharging the start battery.



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RIGHT Deck mounted windlass switch gear doesn't survive well in sunny climates. In any case for short-handed sailing a radio control unit that can be operated from the cockpit is a better option

Problems with the foot-operated switches on deck are also common. In sunny parts of the world these can have a relatively short service life and may need to be replaced every three or four seasons.

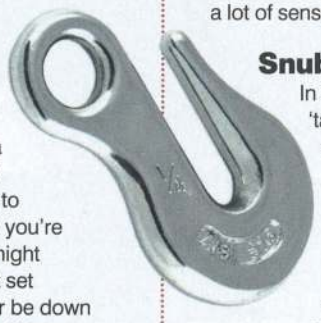
Fitting a new electric windlass is one of the most common upgrades to the deck equipment of an older boat, but there are also some craft that don't need a windlass. As mentioned earlier *Ammos*, my 30ft Discovery 3000 in Greece, doesn't have a windlass. When I bought the boat, almost 20 years ago I was young and fit, ten years later I contemplated fitting an electric windlass, but spent an equivalent amount on fitness instead!

Similarly although larger, *Zest* has no windlass. If anchored in 5m or less it's never a problem. In deeper water, where there's longer length of chain to lift vertically, lines can be led back to the primary winches, alternating on each side of the boat if necessary to facilitate the final part of the lift.

Setting *Ammos* up for anchoring stern-to to a quay in Greece when single-handed was a bit more of a challenge, but it needs less than a couple of minutes of preparation.

Nevertheless, one of the arguments for an electric windlass, even on a relatively small boat, is that they reduce the temptation to stay put when there's a risk you're not safely anchored. That might be because the hook didn't set properly in the first place, or be down to a later arrival anchoring within your swinging circle.

In addition there's a sizeable chunk of the population with back problems, or who are at risk of developing one. In that situation fitting an electric windlass makes a lot of sense.



INSET BELOW A hook designed for chain is ideal for use in a snubber setup

Snubbers

In big winds most boats will 'tack' from side to side when at anchor, which risks the hook breaking out of the seabed if the chain snatches bar taught.

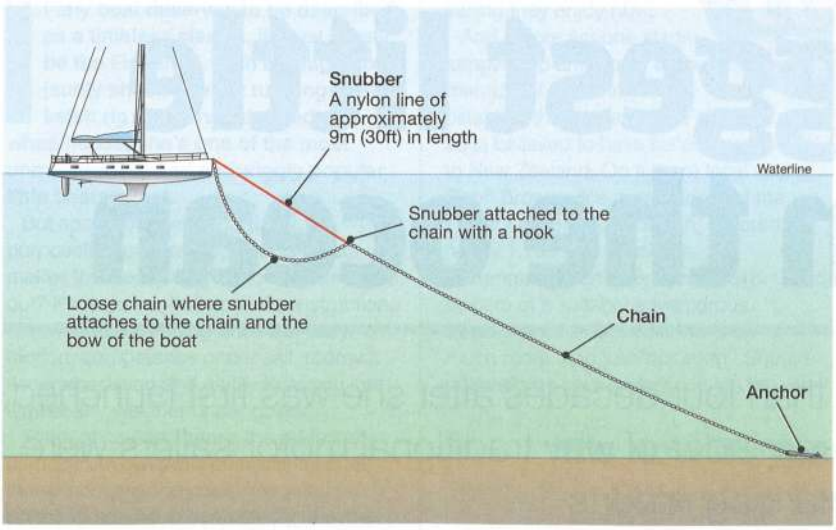
The solution is a nylon line that's long enough to have plenty of stretch and will therefore gradually absorb these loads.

For most boats a length of around 9m (30ft) is ideal. Equally, if the snubber is too large in diameter it will not stretch easily – a diameter one size less than the recommended anchor warp is recommended for general use, although a greater diameter is needed for use in severe gale conditions.

These repeated stretching cycles mean that a snubber may not last indefinitely and some long-term cruisers who live at anchor for much of the year replace them annually or every couple of years.

But on a boat that is used primarily for weekend sailing, plus an annual summer cruise, they have the potential to last for many seasons.

A further advantage of using a snubber is that it removes repeated load cycles from the windlass – they are generally not designed to handle these. The easiest way of attaching the snubber to the chain is with a hook specifically designed for chain. PBO



A snubber provides some 'stretch' in an anchor rode to absorb shock