

## The Joys of a Lofrans Tigres Owner

The finer points of anchoring are a frequent point of discussion amongst us 'yachties.' The type of anchor, size of anchor, benefits and weaknesses of chain or rope or chain and rope, the amount of rode to pay out in a given depth, in various degrees of wind, and so on, can be discussed and argued over endlessly, with all sides knowing from the outset that a consensus of opinion is less likely than peace in the Middle East.

There is, however, one thing that I think all hands will agree on, which is that pulling up an anchor by windlass is far preferable to pulling up an anchor by hand. My previous yacht, a C and C 34, had a windlass, but lacked a gypsy, so it could only be used for rope. Naturally, my rode was all chain, so I was forced to pull it up by manually, anchor, mud slick chain, and sometimes hundred weight of firmly attached weed. If you have never had the pleasure of the experience I don't recommend it. Apart from being hard and dirty work, having to manually haul an anchor can easily become a safety issue. If you, like me, fail to wholeheartedly embrace the joys of hard physical labour, then it is only human to try to limit the exertion required. Thus, the use of minimal amounts of chain, and perhaps settling for a slightly dodgily set anchor rather than dragging it up to try re-setting it again for the third or fourth time, is encouraged.

The windlass is then the forgotten hero of the ground tackle equipment. Whilst we may shower prayers upon our chosen anchor whilst we hang off it in forty or fifty knots, the windlass that quietly drags in the fifty metres of 10mm chain when the blow is over, at about 2.3 kgs a metre, is simply expected to go about its duty with hardly a kind word or thought.

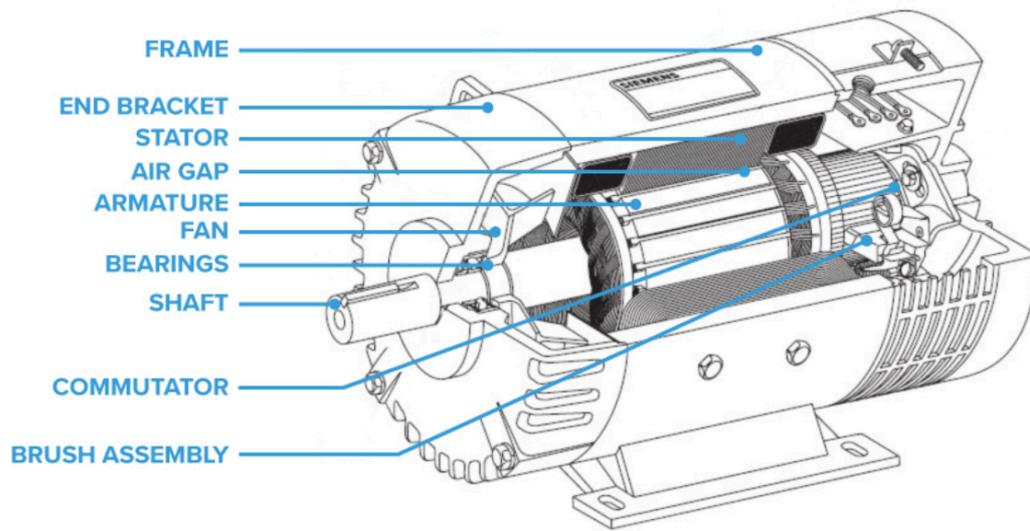
It's the squeaky wheel that gets the oil, so it's only when your windlass starts to complain that it attracts attention. *Taurus* came with a Lofrans Tigres, a French unit known for its reliability. Not long after we bought the boat, about four years ago, I took the windlass apart, to a fairly superficial level, to make sure everything was greased and to fit a new gypsy. The gypsy is also known as a chain wheel, and unsurprisingly is the wheel that the chain fits in to be pulled out of the chain locker or be pulled back in to it. At the cutting edge of the windlass' operation, the gypsy slowly wears to the point where the chain can slip or jump, an unwelcome and frightening experience that when it happens encourages a healthy respect for the power of metal in motion to shred flesh and bone. If I impart nothing else in this forum then I hope that my advice to be very careful around your chain and winch is remembered. If something goes wrong it goes wrong very quickly, and you don't want to have your digits or limbs in the way when it does.

Our Tigres had given fairly faultless service for our four years or so of frequent and later full time cruising. True, sometimes the chain skipped on the gypsy when being lowered, but this was more or less eliminated by my resting a foot on the chain just forward of the windlass, and was something I put down to a less than ideal installation. Whilst my foot cured the problem fixing the underlying cause was set into the too hard basket.

Recently, however, the windlass has been playing up. We have a hardwired switch that is brought through a deck hatch and allows the windlass to be controlled by the person standing at the bow. The switch began to sometimes fail to operate the winch. As the problem persisted, fixing the winch slowly rose to the top of our perennial list of boat jobs that need doing.

Our first thought was to take apart the switch and check for corrosion. This made no difference. We then checked all the connections from battery to control box to windlass motor. No difference. We then sought advice and decided to take our electric motor apart to check the brushes. Before undertaking this job we consulted the Haynes Manual of the modern era, You Tube. A video entitled, 'SDA156 Don't Throw in the Towel. Lofrans Tigres Windlass Repair' by Sailing Dark Angel was helpful in this regard. However, if you choose to have a go at this job yourself, we reinserted the armature into its housing by the far easier expedient of pulling the brushes out slightly against the tension of their springs, rather than trying to reinsert them individually with the armature already fitted, as they do in the video.

If you have never checked the brushes on your motor then you can expect a deal of black powder to come tumbling out. The powder is created as the brushes wear on the commutator (see image below). This residue gums up the works and eventually can prevent the brushes making contact. In our case, three of the brushes appeared to be stuck, so we gave them all a good clean and put everything back together, hoping that the



problem was fixed. If you have as much

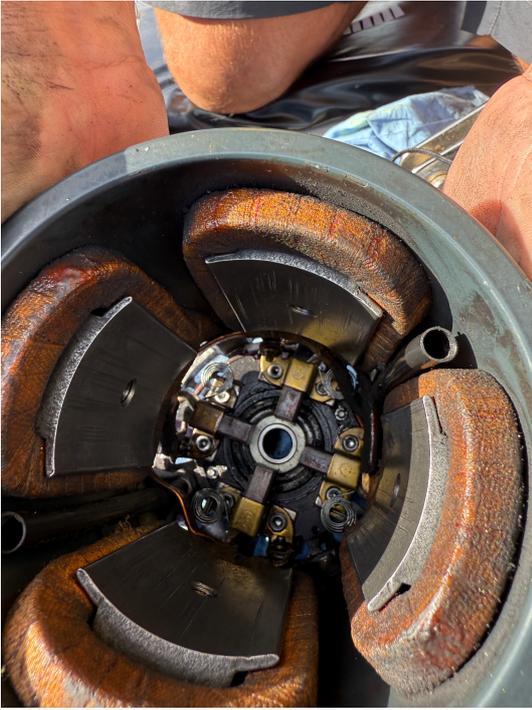
knowledge of small electric motors as we do then the following image may help.

The above image is not an exact match of the Lofrans motor but is close enough. The shaft points into the windlass body and drives the gears that makes the windlass work. If you undo the cap at the opposite end you can withdraw the frame leaving the armature in place. The brushes come out with the frame. Be careful that the springs holding the brushes don't fall off the studs holding them. If they do you will need to pretension them before replacing. I don't know how much tension this would require, and I don't imagine it will be easy to do this, so best they don't fall off!

In the photo below you can see the armature in place after the housing has been removed.



Below is the housing. The brushes form the arms of the cross in the image below. They need to be able to move easily so that the springs that tension them keeps them in contact with the commutator (the silver disc at the end of the armature in photo above).



You can remove the brushes, making sure the springs remain in place, to clean them. These can be replaced but are eye-wateringly expensive for what they are. South Sea Marine, the Australian agents for Lofran, quoted me something like A\$250.00 for a set. I had mentally prepared myself for something merely expensive like A\$100. This kind of daylight robbery is sadly a fact of life with some companies. When I was new to the boat I shelled out NZ\$70 for a Lofrans service kit. This came in a large package that turned out to contain a small quantity of stainless steel nuts and bolts and o-rings. I could have sourced the parts myself for a fraction of the cost. Perhaps this is the outcome of having a reliable product — the company has to make money through its spare parts, but it still leaves a foul taste in the mouth. As my brushes are currently serviceable I will measure them sometime soon to see if I can get a generic set that fits. If not then I will have to grit my teeth, get the mouthwash ready, and shell out for a genuine Lofrans set.

Anyhow, we put the windlass back together and carried on cruising, hoping that our Tigres was as good as new. We realised that we had not fixed our problem when trying to anchor a few days later. We had just anchored successfully but decided to move further away from another boat so we were in the process of lifting the hook. As the anchor started to rise to the surface I released the switch. However, the windlass failed to stop so that the anchor came charging up into its seat at quite the rate of knots. Luckily I had been playing with an idea involving a second rubber roller to keep the chain on the gypsy, and this may have had a dampening effect as the shaft of the anchor forced its way beneath it. The contact breaker did its magic and cut the engine off before, we hoped, anything went ‘ping’ or ‘snap.’ Clearly we had not resolved our windlass issue.

Researching this new problem led us to suspect the control box or windlass solenoid. It turns out, if the internet is to be trusted, that this problem is not uncommon, and can result in seriously nasty outcomes. These include breaking gears, bending the windlass’ shaft key, and chopping off fingers. Apparently, the issue is such that charter boat companies in Europe often get rid of the Lofrans control box in favour of two car starter motor solenoids — the latter being more reliable and hence safer. Note, however, that these may not be rated for the kind of power the windlass requires.

The unstoppable windlass was caused by the solenoid contacts becoming stuck together. Having fished our control box out of the anchor locker we found that it comes apart quite easily. Inside there are two solenoids, electronic switches that allow small currents of electricity to create electronic magnets that operate switches for larger currents. We cleaned the contacts and replaced the box. Not wanting another flying anchor experience we also bit the bullet and ordered a new one. A mere A\$160 and a further A\$20 for it to be sent to Tasmania, practically free for a boat part! When it arrives we will fit the new one and keep the old one, which has since worked fine, as a spare.



My intention to service the winch ‘when I had a chance’ had now become a priority. If for no other reason than to make sure the run-away- anchor hadn’t broken anything. As many disgruntled Lofrans clients have found before me, information in regards to servicing the winch is a bit thin on the ground (see for example [https://maringret.wordpress.com/maringret/maint\\_maintenance/maint\\_windlass/](https://maringret.wordpress.com/maringret/maint_maintenance/maint_windlass/)) and for some reason made unnecessarily difficult. My favourite piece of gallic design initiative was someone’s decision not to include a drain plug. Should you want to replace the oil, Lofrans’ advice is to remove the windlass and turn it upside down so that the oil drains out through the fill plug... Thinking I was being clever I tried to run a small tube through the fill plug to suck the oil out with a pump, but I found that there was no room for even a small hose. Unbelievable.

Ignoring the oil for the moment I tried to disassemble the gypsy, clutch cones, and rope drum. These I found were stuck solid. Soaked in CRC for a few days, as best as I could achieve on a working boat, they still refused to move. Applying heat was not an option due to oil seals and plastic washers, and there was no room to be able to use gear pullers, so, as reluctant as I was to head down this path, I eventually had to resort to prying them off with screwdrivers. In this decision I was somewhat encouraged by a blog post written by someone who had found themselves in a similar bind. This blog is full of helpful pictures and can be found here: <https://nikimat.com/>.

Once I had room to use a puller I found that there really had been no alternative. The puller made it easy, but the way in which the manual emergency wheel in particular resisted my efforts demonstrated that it would never have come free without a degree of brute force.

Operating the manual lever before the strip down was notably difficult, a two handed job, which made me wonder how much extra work the motor and all associated parts had been forced to do. Ultimately, I have to acknowledge that I should have stripped and cleaned the windlass much earlier.

Once cleaned and greased everything went back together beautifully, and the manual operation is now a one handed breeze rather than a two handed grunt — though the tiny amount of chain each swing pulls up makes me pray I never have to use it in anger.

One other good thing that came out of this operation is that being older and more cynical of chandleries, I took the time to inspect my gypsy and make sure that it's the right one for my chain. It turns out it isn't — even though it was specially ordered at the same time as I purchased new anchor chain. This explains the slight skip of the chain that I have put up with for all these years. The correct gypsy with postage to Tasmania — A\$547.

Although, as you can imagine, I'm a bit frustrated at having to buy a new gypsy, I'm grateful that there was one in stock in Australia. If there wasn't I would have had to get one sent from France. Which apparently can take up to six weeks and involves air freight charges — they must use very slow aeroplanes.

Whilst the windlass was apart I took note of the oil seal numbers. Cara, my wife, is returning to New Zealand for a few weeks soon, and I intend to head into a marina to get a few jobs done. If I can, I will strip the windlass again and replace the oil seals and bearings. I hope to be able to use quality parts but avoid using genuine Lofrans items, so that I can avoid paying the extortionate price that Lofrans would no doubt charge for them, as well as freight from the Gold Coast.

One added benefit of changing the seals and bearings is that I will have access to the oil without having to remove the windlass! Perhaps I could drill and tap a hole for oil changes whilst I'm in there and sell the design back to Lofrans?



So, our Tigres travails are not yet over, but there is hopefully light at the end of the tunnel. To conclude it may be worth my passing on the comments of the marine surveyor who 'inspected' *Taurus* over a cup of coffee for an insurance survey. He told me that new Lofrans winches are far inferior to the old ones, and that if I had any issues I should fix what I have rather than replace it. With this in mind I feel even worse about neglecting our loyal windlass workhorse that has doggedly dragged our anchor out of the mire more times than I care to remember. The problem with boats is that preventative maintenance always takes a back seat to emergency maintenance, and who has the time to fix what a'int broken? After all, its the squeaky wheel that gets the oil.