

Using Parasailor Sails on a Neel 51 — SY San

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Fig. 1. Our large 283m² Parasailor for medium wind strengths up to 20 kn, when crossing the Atlantic.

1 Introduction

This note is meant to inspire other NEEL 51 owners and help them to set up their Parasailor sails on their boats. We had a bit of a struggle at the time with

various parties, as general wisdom had it that these sails do not work well with a NEEL 51 trimaran, but we can assure you they work like a charm!

This note will cover our deck installation, some thoughts about chafing, handling the sails, and how to tune the sail for good results. On the latter topic most definitely not the final word has been spoken yet, as we are in a learning curve here ourselves. We will also try to give advice how to hoist and lower the Parasailor, but there we are even more beginners and our advice has to be taken with a pinch of salt.

We currently own three different sails of this type: A yellow light-wind Parasail of 252 m² for up to 15 kn of wind, a blue medium-wind Parasailor of 283 m² for up to 20 kn of wind, and a red strong-wind Parasailor of 232 m² for up to 25 kn of wind. The limits we chose for the wind strengths are a guidance we have given ourselves. The sails will tolerate stronger winds, but it would be difficult for a short-handed crew such as ours to get them down in stronger winds. If you want to go for just two sails, get the light-wind and the strong-wind one. The middle one is a biest that does not fit through the hatches of the front storage lockers, and thus has to live in one of the garages in the aft, which is quite a bother. Also, the window between light wind and strong wind, where this sail would be ideal, is rather small. Still, we used it for a good part of the Atlantic crossing.



Fig. 2. Layout for the tack lines at the bows. Please note the small deck-ring blocks for re-routing the tack lines to prevent them from getting caught in the hatches, in particular of the bath room.



Fig. 3. Additional routing for the tack lines along the sea fences (in the same spirit as done by NEEL with the furler lines) to prevent them from chafing at the hatches or otherwise interfering with those.

2 Deck Installation

Our primary requirement for the deck installation of all blocks and lines was that it is simple, fool proof, and as much as possible to be handled from the helm station, in particular in rough weather. We wanted all four lines to be on winches and decided not to have any line jammers / clutches. These jammers might be a nuisance when the lines have to be let go off quickly. Furthermore, they will add chafing for the lines or simply let the line sheaths break under high load, and generally make things more complicated. The downside of not having any jammer is that all 4 winches are busy and cannot be used for anything else. Please note that all major blocks have been specified with a working load of 3.5 t. Only the small correctors for the line routing on deck are specified for less, but that should be fine, the way they are being utilized.

We have only three winches at the helm station, and a fourth one manually operated on port side, which is inconvenient and potentially dangerous to get to, particularly in heavy weather. In our experience so far, the lines least often manipulated are what we call the tack lines, which pull the Parasailor down to the bows and in return provide uplift of the bows. The two sheets running to the aft, on the other hand, are much more often trimmed. Hence, the decision was



Fig. 4. Layout for the sheet and tack lines port side. The sheet is routed over the roof next to the standard spinnaker pad-eye block. I have recently added another deck-ring block here to raise the line from the roof a bit and thereby reduce chafing on the roof. But I will have to add transparent teflon stripes along the run of the sheet on the roof to get on top of this chafing issue...

to have the port side tack line go to the manual winch there, and the port side sheet to go over the roof to the “Genoa” winch in the helm station, for maximal convenience of handling the system.

So, with regards to deck gear, let us start from the bows. For the tack lines we added on each bow a 360° swivel block as shown in Fig. 2. Just to be on the safe side, we had this bow section reinforced with glas fibre underneath to make sure the deck does not come off the hull. These blocks should be fitted as much forward as possible, since they are the leverage points for the Parasailor to pull the boat back on course. Mine could have even gone an inch or two further forward.

From these points we have the tack lines running backwards, guided first by some small deck-ring blocks, and also some low-friction ball rings attached to the sea fence as shown in Fig. 3. This is to make sure the tack lines do not get entangled with the vaious hatches and, also, do not chafe on these.

On port side the tack line ends at a manual winch, as indicated above and shown in the left picture of Fig. 4. On starboard side the tack line gets rerouted by a pulley up into the helm station. Care has to be taken here against chafing, but luckily the standard NEEL 51 configuration has already chafe protection at the rim of the roof for the two furler lines. This tack line goes to the middle winch in the helm station.

Now, the port side sheet for the Parasailor gets rerouted by two pulleys such that it runs over the roof to the helm station as shown in the middle and right picture of Fig. 4. Care has to be taken here against chafing, and so we added a metal protector for the rim of the roof, just underneath the Dyneema pad-eye blocks used for the spinnaker. If it is placed as shown in the picture, it protects also an alternative configuration where the port side tack line is routed back to the helm station, and the port side sheet is operated with the manual winch on that side. The two looper blocks on port side are then used differently, the front



Fig. 5. Left: Zoom for the tack lines starboard side; Middle and right: Routing of the sheet starboard side into the helm station.



Fig. 6. Deck blocks on star board side. Note that the pad-eye block at the foot of the shrouds needs to hold two looper blocks, one for the tack line, and one for the sheet.

one for leading the tack line up the roof¹ and the back one as before to lead the sheet, but now to the winch and not the other looper block. However, we do not quite like this configuration, even though it is the one we had initially started with. Meanwhile, we have added a deck-ring block at the rim of the roof to help against chafing on the roof. The roof is curved and so there is quite some

¹ In this case the tack line would run in front of the spinnaker Dyneema pad-eye block, and not behind it as seen in Fig. 4



Fig. 7. Layout for the lines going to the winches at the helm station. From left to right: Port side sheet, star board side tack, star board side sheet.

friction with the line and, eventually, you will see marks in the roof. I have not done so yet, but I will also add some protecting teflon stripes along the line run to further protect against this chafing.

On starboard side the sheet is routed to the helm station using two looper blocks as shown in Fig. 6, in a symmetrical way to port side. Again, care has to be taken here against chafing at the edge of the roof, and so we added a small guiding deck-ring block on the roof edge (Middle picture in Fig. 5). In the helm station it then looks like in Figure 7.

Finally, we would like to point out that the sheets for the Parasailor can be used as is also for the normal spinnaker, including all their line routing. This may be useful if one intends to use the spinnaker deeper downwind. The standard Dyneema pad-eye blocks for the spinnaker mounted by NEEL are rather close to the center of the boat and do not allow really to run the spinnaker wide open as is needed for deep downwind. In Fig. 8 an A2 spinnaker is shown sailed more deeply than it would have been possible with the standard NEEL deck fittings. Somebody having a spinnaker already and not wanting to spend the extra money on Parasailors may still want to install the deck blocks discussed in the note to expand the wind range the spinnaker can be used.

When trying to get the Parasailor down it is happening time and again that some lines drop between the bows and end up in the water, getting caught underneath the hulls. It is annoying, but recoverable, making sure not to have



Fig. 8. Strong wind spinnaker (A2) using the Parasailor sheets and deck fittings.

the lines running all the way to the aft and getting caught by the propeller. However, in an effort to reduce the probability for lines dropping into the water, or getting caught by the anchor, we have added a line running in a triangular



Fig. 9. Our large 283 m² Parasailor being set up for hoisting it.

shape across all three bows, being as much forward as possible. At the center bow we have added a small deck-ring block facing forward to feed this line through. We do not have tested this in real yet, though.

Regarding lines — we have been using good-quality 10 mm Dyneema lines so far, but possibly we will change that to 12 mm in the future.

3 Storage of the Parasailor

Except for the big blue Parasailor, we store all downwind sails in the front lockers in the floats. Each locker can hold two sails, and we have organised it very much like the old-style office filing cabinets. Each locker has two folders, separated by a string underneath the ceiling going all the way from front to back inside the locker, and then having some nets hanging from the walls of the locker and from this middle string, like a huge W in cross section, to create two filing folders, a left and a right one. They are just big enough to hold one downwind sail each. The sacks that the Parasailors came with we left at home, except for one in case we need to bring a sail to the sail maker...

The big blue Parasailor has too big a mound at the base of its snuffer. It does not fit through the hatches of the front lockers. The only place we found it can be stored are the garages in the aft. Not very convenient...

4 Hoisting the Parasailor

Any handling of the Parasailor, be it hoisting or taking it down, is preferably done by the strongest crew member. If there are more than two crew members, more than one person should be on the foredeck. For us it has proven highly useful to have water-proof head phones to communicate between helm station and foredeck. Sometimes, the person at the front needs help, or (s)he needs to communicate whether to continue hoisting the Parasailor, or to stop it because it got twisted.

Twisting is the one thing to watch out for when hoisting Parasailor sails. The snuffer must always be red to port side, and green to star board side. Otherwise, the opening in the sail will point backwards and it will all go horribly wrong. When lying down the snuffer on deck in a meander before hoisting, making sure the halyard runs free of all lines, one usually gets it right. Fig. 9

Also, when hoisting, make sure you do not let the Parasailor unfold in an uncontrolled way. Once it is past a certain point, the wind will catch it and try to fully open it. At this point you need to slow things down by having the hoisting sheet led around a cleat and use friction to force a slow unfolding. If the sail goes up too fast, it may generate too much heat at the lines, resulting in burns in the sail. Gloves are a good idea here as well... :)

5 Tuning the Parasailor

We are by no means experts in sailing with Parasailors yet, but still, it may perhaps be useful to share our experiences so far. As we will gain more experiences, we will update this section.

We were surprised to see how high at the wind we could still use the Parasailor. Our big blue one, 283 m², would still run fine at an apparent wind angle of 80° — although it was tricky to set up. One has to use both tack lines and both sheets to achieve this, starting with a more or less downwind direction and then gradually changing course whilst continuing to tune the lines. Some folks say the Parasailor has to fly as high as possible, but this is not our experience. If the tack lines have slack, then particularly with our big Parasailor we find that its top section is constantly collapsing. So, in a first step we therefore tighten the tack lines such that this collapsing is only marginal. I suppose a compromise between freely flying and not collapsing has to be found and this will be the expert tuning we are still in the process of learning. Once the tack lines are roughly ok, we adjust the two sheets such that they do have an effect on the sail, but do not strangle it. The leeward sheet needs to be pulled in to avoid the parasailor having a collapsing nose on windward side, very much like a spinnaker would be trimmed. Generally, we find that the windward tack line is longer than the leeward tack line.

Even at 80° AWA, some nice speed could be achieved. It may well be smarter for this wind direction, though, to use white sails only, or better a spinnaker and the main sail. However, for a short-handed crew such as ours it is inconvenient to move from Parasailor to this configuration, or back, since we use the Parasailor always without the main sail, so as not to disturb its air flow. This can be a problem, however, when wanting to take down the Parasailor, as it cannot be hidden behind the main sail.

If one were to use a main sail with the Parasailor, one of its main benefits would disappear, though — there is no worry regarding accidental gybes!!! One just tunes the Parasailor a little bit to the port side or the star board side, but all very relaxed and not in a panic.

Generally, as wind increases, one will need to adjust the two tack lines and let the sail fly higher. With stronger wind, it is less inclined to collapse in the top. This way one also makes sure the forces do not become too high in the corners of the sail where the tack lines and sheets are attached, as this may lead to sail damages.

If you do want to use soft shackles to connect the sheets and tack lines with the sail, then do make sure to have redundancy built in by having two soft shackles for every connection — one stronger one, and one weaker one. The weaker one should be specified with at least 1.8 t. In one of the squalls during the Atlantic crossing I heard a 1.8 t soft shackle pop and knew, I had still the 4.5 t shackle to keep me going.

What speed can one expect from a Parasailor downwind? Or at an angle? We are still learning here, but as a rule of thumb I have found that if the boat speed is less than half the true wind speed, I have not tuned the sail optimally.



Fig. 10. Chafing after one night (and two squalls) at 80° AWA with the blue Parasailor.

6 Taking Down the Parasailor

We are still experimenting how best to take down the Parasailor. Obviously, one needs to get the sail into a situation where it is collapsing. This is achieved by loosening the leeward sheet, by loosening the tack lines somewhat, and by changing the course of the boat relative to the wind. As we are only two persons on board, we usually prefer to have the engine running at higher speed to make sure the boat stays on course, and to reduce the relative wind speed.

For safety reasons, one needs to be secured to jack stays when trying to get the Parasailor down (or up for that matter). Otherwise, in a gust, it might simply lift one off the boat. The endless line for the snuffer needs to be long enough so that it can be run around one or preferably two cleats in the front section of the boat. (Our cleats for the bridle for the anchor are ideal for this.) This will add friction and allows the person pulling down the snuffer to wait for moments when the sail collapses to pull down the snuffer a bit further and then wait again.



Fig. 11. Fight chafing of the spinnaker halyard by adding an extra 2nd sheath made of Dyneema, effectively making it a 14 mm halyard for that length. Note that we use a strong swivel shackle to attach the halyard to the head of the sail, and not just a knot.

It is prudent to take down the sail every few days to check for chafing, particularly so at the head of the halyard.

7 Chafing

Chafing can be a real issue when sailing downwind for many days — with any coloured sail, actually.

The most important point to watch out for is chafing of the sheet lines underneath the shroud connectors at the hull. In particular with Dyneema shrouds serious damage can be done here, when the lines are getting slack and then get entangled underneath the shrouds. The worry here is not the chafing at the sheets, but rather the chafing at the Dyneema connection between shrouds and hull. You do not want your mast to come down... So, always keep enough tension

on the sheets to prevent this from happening. Furthermore, we have added some cloth protecting the shrouds from the sheets rubbing at them from the side. In one picture you can see the red cloth that is also used for our lazy bag. On top, we are also experimenting with some means to keep the lines up even when they go slack for a while, using rubber tubes (of the kind used for protecting mooring lines against chafing) wrapped around the sheets and wool threads connecting them to the sea rail, but this is all very experimental for now.

In Fig. 10 we show some chafing of the tack line stemming from the little guiding deck-ring block on the foredeck — admittedly, though, after having survived two squalls with the big blue Parasailor up, and at very low AWA angle.

The chafing of the sheet running across the roof is still not fully resolved, but the new means described earlier I believe will do the trick.

The chafing of the spinnaker halyard can be very much reduced by using a high-quality halyard of 12 mm rather than the standard 10 mm used by NEEL. Also, we added an additional 2nd Dyneema sheath for the first 6 meters at the top of the halyard as in Fig. 11. This way the halyard will last at least twice as long.² And when it is worn out, I cut off one meter of the 6 meters, and have another trouble-free time ahead of me. Seven lives of the cat... ;)

8 Conclusions

Sailing with Parasailors is great fun. Because the sail pulls the boat rather than pushes it, the motion of the boat is generally much more stable than with other sail plans and thus we all enjoy it a lot. And still, it runs fast. In a surf, with up to 29 kn of wind (and thus the red Parasailor up), we did up to 21.6 kn SOG so far. The apparent wind speed is not so large then, actually. It is paramount at those speeds to have adjusted one's autopilot well. We had to reduce its activity quite a bit compared to the original settings upon delivery of the boat. It was much too nervous. And the Minimole, a NEEL 47, did almost 24 kn when crossing the Atlantic, albeit with a much bigger Parasailor than ours, in comparison, and more crew to handle it.

With a short-handed crew one has to make up one's mind how to handle squalls, particularly at night. The squall will hit you before you have the chance to get the sail down. For us it worked fine when crossing the Atlantic to keep the Parasailor up, but perhaps we were just lucky and the squalls not very strong.

² This is perhaps too naive a calculation, but... The 2nd sheave turns the 12 mm halyard effectively into a 14 mm halyard for that length. Cross-section-wise, when comparing this with the original 10 mm halyard provided by NEEL, I get a ratio of $(14/10)^2 = 1.96$, so almost a factor of 2. Or when looking only at the strength of the sheath: With the addition of a 2nd sheath, obviously, also a factor 2 is gained. So, one way or another, all other things being equal, it is a factor two compared to the original setup. ;)



Fig. 12. Our 252 m² Parasail for light wind strengths up to 15 kn.



Fig. 13. Our large 283 m² Parasailor for medium wind strengths up to 20 kn.



Fig. 14. Our small 232 m² Parasailor for strong wind strengths up to 25 kn.