CAUTION WATER

420 Rigging Guide

A smaller version of the olympic 470 class, the 420 was formerly a youth development class. It has a good class following, and is a good introduction to performance boats. With a PY number of 1087 it's pretty fast, but still fair. The 420 has a single crew trapeze and a symmetric spinnaker, and for those nutters amongst you, can even be setup to sail single handed.

Why a 420

As already mentioned, the 420 is a good introduction to higher performance sailing. There are loads around, and you can pick up an older one with life left in it for a few hundred pounds. It's very similar in size and layout to the larger 470, so as you get bigger you can upgrade! With new boats still being built, the class is alive and well, with over 60 boats still attending the nationals every year.

What You Need

Hull, Mast + Shrouds and Forestay, Boom, Main Sail, Rudder, Centreboard (usually attached), Outhaul (4mm x 1m), Downhaul, Kicking Strap (4mm x 2m), Bungs, Painter Rope, Elastic bungee for the trapeze

Photo 1, cockpit layout

Photo 2, mast and jammers

Photo 3, rudder pintles

Let's Get Started!

Before starting for the first time, make sure you have everything available, or a rope and spares box handy. The 420 hull is smooth with no chines (ridges), so can be quite "tippy".

Photo 4, Parts laid out ready to rig

Photo 5, spinnaker pole holders

Once again the 420 is a restricted design rather than one design, so there is room for alternatives, if you want to experiment or upgrade, we suggest you take a look at the 420 Class Rules for more information.

Photo 6, back end of boom

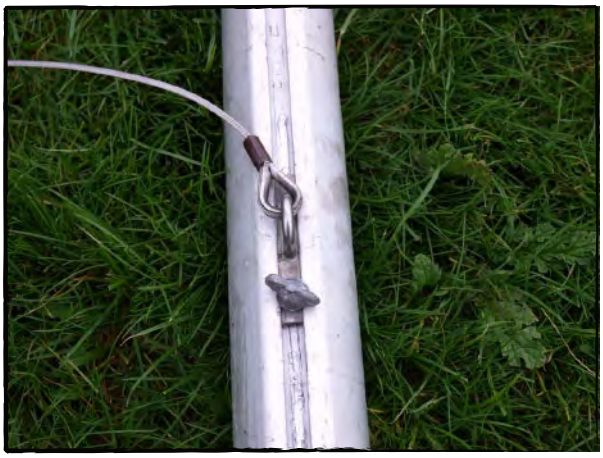

Photo 7, kicker attachment on boom

1. The Mast

We didn't take the mast apart on ours. If you have to put the mast up, it's easy - untangle the shroud and forestay wires, drop the bottom of the mast into the mast step, and secure the shroud and forestray wires with split pins and rings. It's a good idea to check the pulley sheaves in the bottom of the mast - if they are rusted or jammed up it makes it harder to hoist the sails.

It's best to have two people to step the mast - one to hold the mast while the other attaches the pins. Masts on 420s can vary, with jammers and pulley blocks in different places. The spreaders can also be adjustable but we won't go into that in this guide.

Photo 8, Attach the jib to the chainplate

Photo 9, Attach the jib to the halyard

2. The Jib

Attach the bottom of the jib luff to the fitting at the front of the deck, as shown in Photo 8. The jib goes behind the forestay, as shown. Attach the top of the jib luff to the free end of the halyard with a shackle (Photo 9), and then hoist the jib.

Tie the halyard off into the jammer/cleat, usually found on the mast on a 420. If the mast is adjusted correctly, the jib luff should now be tight, and the forestay a little slack, as shown in the photo. If needed, one person should pull forward on the forestay to pull the mast forward slightly, while the other hoists the jib.

Photo 10, hoist the jib

Photo 11, jib hoisted

Photo 12, attach the jib sheet

Attach the jib sheets to the jib clew; double the rope over to find the midpoint, tie one stopper knot, feed it through the clew, and then tie another stopper knot the other side - this keeps the rope with equal lengths either side (Photo 12). Feed the working ends of each jib sheet inside each shroud and trapeze wire, through the fairlead and jammer block (Photo 13). Finish it off with a stopper or figure 8 knot. You can do this differently, and make the jib sheets continuous, by either tying the ends together, or pass the rope through the jammers, and tie the ends to the jib clew. This will make it more difficult to use the jib sheets during a capsize though.

3. Main sail onto boom

Insert the boom onto the gooseneck, making sure it's the correct way up (the two pulley blocks should be underneath), ready for the next step.

Photo 13, Pass the jib sheets through the jammers

Photo 14, Put the main sail foot car in the boom

3. Main sail onto boom

Next, feed the car on the bottom of the mainsail (Photo 21), and then the mainsail foot, into the slot on the top of the boom (Photo 22). Pull it along until it reaches the end (photo 23), then slide a cotter pin into the fitting at the end (Photo 24), through the eye in the tack, to hold the front egde of the sail.

Photo 15, Pull the main sail along the boom

Photo 16, Pin the tack of the main sail

Photo 17, Feed the outhaul rope through the cleat

Photo 18, Pass the rope around the boom end

4. Outhaul

The end of our outhaul rope whipped with tape to stop it fraying. Put a knot in one end of the outhaul rope, and then pass the other, working end, through the v jammer style cleat on the underside of the boom. Pass it through the boom end (Photo 26), around the sheave

Photo 19, Attach to a shackle

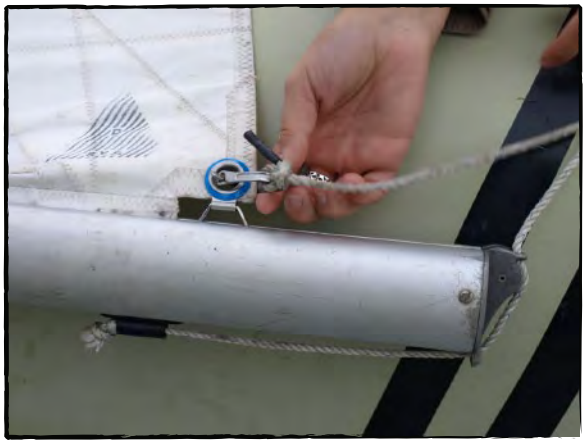

Photo 20, Attach to the sail, outhaul complete

5. Hoist Mainsail

Attach the main sail halyard to the top of the mainsail using an appropriate shackle (Photo 21), then one person should feed the main sail luff into the slot on the back of the mast (Photo 22), as the other hoists it using the halyard (Photo 34).

Photo 21, Attach the main sail halyard

Photo 22, Feed the main sail luff into the mast slot

Do not put the boom on the gooseneck yet - one person should lift the boom to take the weight off the sail, and then hoist the sail to the top of the mast. Next, pull down on the boom and feed it onto the gooseneck.

5. Hoist Mainsail continued...

Photo 23, hoist the main sail

Photo 24, boom onto gooseneck

6. Kicking strap

Now, put the kicker together. A swivel block is attached to the mast, and a v-jammer to the underside of the boom. In our pictures, the v-jammer is attached to a short length of steel wire, which is permanently fixed onto the underside of the boom.

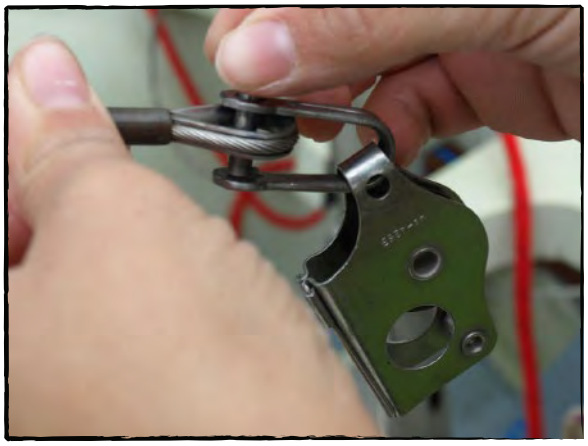

Photo 25, Assemble the kicker

Photo 26, Assemble the kicker

Next, feed the rope through the blocks as shown, starting by tying the one end to the becket on the v-jammer, down through the swivel block from underneath up to the top, then back up to the v-jammer, around and out through the jammer. Put a stopper or figure 8 knot in the end to sop it going through. See Photos 25 and 26 to assemble the kicker, and Photo 27 for the completed kicking strap.

6. Kicking Strap continued...

Photo 27, the complete kicker

Photo 28, trapeze wire

Photo 29, trapeze elastic

7. Trapeze System

Assemble the trapeze handle jammers in the same manner as the kicker - although in the picture shown, our top block is twisted round (Photo 28). A length of elastic reaches from one handle to the other, going from a handle, through a fairlead, through a whole in the deck/bow, behind the mast, then out the other side to the other trapeze handle (Photos 29 and 30). We'd recommend not using the trapeze the first time you go out, until you get more used to the boat, unless you are a very experienced trapeze artist!

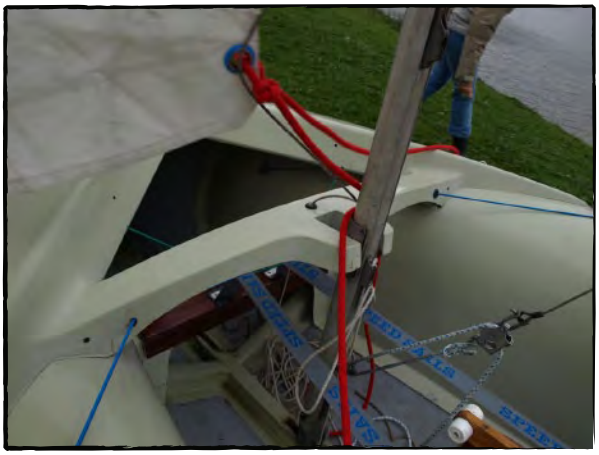

Photo 30, the trapeze elastic

Photo 31, attach the mainsheet to the boom

8. Mainsheet and Traveller

Tie one end of the main sheet to the fairlead fixing in the middle of the underside of the boom behind the swivel block with a bowline (Photo 31).

8. Mainsheet and Traveller continued...

Photo 32, Attach main sheet to the boom

Photo 33, Through the pulley on the traveller

Feed it through the block attached to the traveller behind the centreboard (Photo 33), then back up and through the swivel block on the boom (Photo 34). Next, take the working end down, and through the pull and then the jammer block (Photo 35), and finish off with a stopper or figure 8 knot.

Photo 34, back up to the pulley on the boom

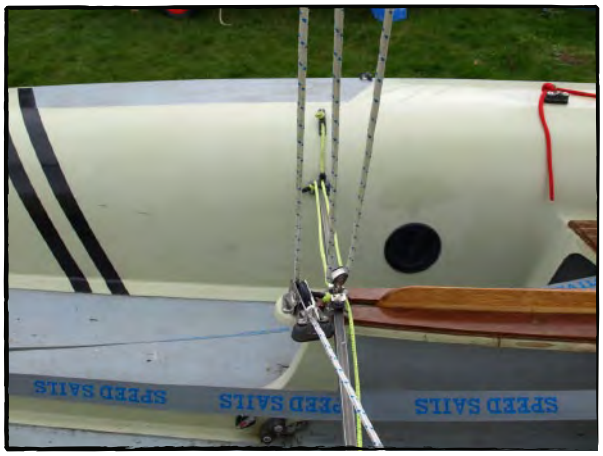

Photo 35, the complete mainsheet

Different traveller designs are used on 420s - on ours an older one is in use, which is fixed onto the bouyancy tanks at either side, and is difficult to replace if it breaks (which this one has) - this is an important thing to look out for when buying a 420. In theory, the position of the traveller can either be fixed by jamming the adjustment lines to control the amount of twist in the sail, or left to move from side to side as required.

9. Rudder

This is an easy one - attach the rudder to the pintles on transom as shown (Photo 36). Depending on your style of rudder/tiller, you may have uphaul and/or downhaul lines on it (Photo 37).

Photo 36, Add the rudder

Photo 37, Attach the rudder uphaul

10. Bungs

Ensure you place all bungs into holes that require them - this is important, as 420's have very large bouyancy tanks which don't take well to filling up with water (Photos 38 and 39).

Photo 40, Extension under the horse

Photo 41, Secure the rudder

11. Buying a 420

There are several things to watch out for when buying a second hand 420. First of all, check for the springiness of the tops of the bouyancy tanks, where you sit - these can be weaker on older models and are difficult to strengthen. Also look at the traveller and see what condition it is in, and how easy to replace - be careful if it is similar to ours as we are having difficulty locating spares to repair ours.

11. Buying a 420 continued...

As always, check for the condition of the deck, and look for any cracks or damage, particularly along seams, joins and structural areas.

On the mast, the pulley blocks can wear out quickly, as they tend to sit in water at the bottom of the boat. This can make it hard to hoist the sail. On the subject of the sail - check the luff for any damage, particularly around the top full length batten where it can wear and make it hard to hoist the sail.

Check any hairline cracks around the hull - it is usual to see them on an older boat, just make sure they aren't hiding more damage, particularly in corners or joins.

Photo 42, Attach the centreboard

Summary

There you have it - a fully rigged and ready to sail 420. The 420 does have a spinnaker - unfortunately we had no wind when we started rigging our boat, but a devilish Force 6 by the time we finished, so not very good for rigging a spinnaker on land. We will revisit the 420 soon and add an article on rigging the spinnaker.