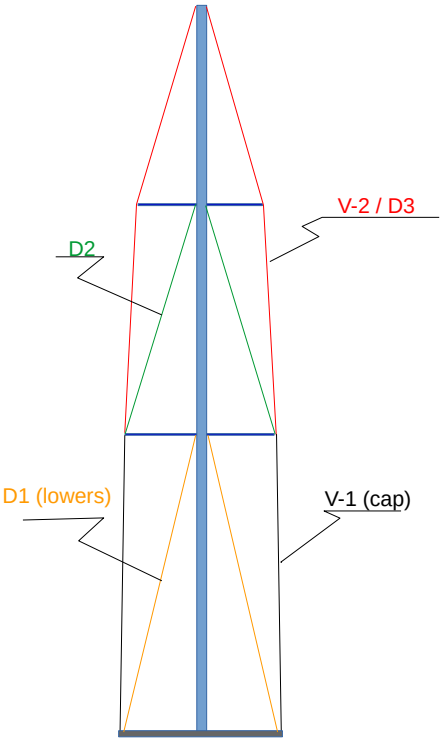
Rig Tune and Mainsail Furling Guide

Covering Newer Beneteau Boats with new wide rig envelope (shrouds mounted at the gunwale)

The goal of tuning your furling mast is four fold:

1) Mast straight athwartship
2) Mast straight fore and aft (to facilitate ease in mainsail furling)
3) Mast in column athwarthship when sailing
4) Overall rig tension while sailing (to keep mast stable)



Shrouds

The new Beneteau Yachts are set up with double spreader rigs with spreaders that are swept well aft and are quite long. The chainplates on the boats terminate at the gunwale. This system makes for a very stable 'box' in which the sails are then flown. The rig is composed of the V-1 shrouds that run from chainplate to first spreader and make the discontinuous length of the 'cap' shrouds by mating with the V-2/D3 shrouds. The lower D1 shrouds run from chainplate to the mast at the lower spreaders and the D2 from the outboard end of the lower spreader to the mast just below the top spreaders. On these rigs the V2/D3 shrouds are fixed length as is the forestay and the D1, D2,V1,and backstay are adjustable. The fixed length forestay makes the mast tuning easier as you do not have to concern yourselves with the fore and aft inclination of the mast (rake) as this has been per-determined by the naval architect and during sea trials on the prototype boat.

Setup:

The forestay is fixed so nothing to adjust and the backstay should be soft with very little tension on it. The first goal is make sure that the mast is not leaning to one side. To do this:

1.) Tighten the V1 and D1's both sides by hand and in equal amounts until they are just firm.

2.) Then hoist a tape measure (or use the main topping lift or halyard) to measure down from the mast head (top) to the chain plates (where shrouds attach to deck). Compare one side to the other. If equal, this will tell you the top of the mast is centered over the boat. But if the mast tip is further to port (for example), then release the port V1 turnbuckle one turn and tightening the starboard V1 one turn. Check again. Continue until the mast head is centered side to side.

3.) Next, tighten both V-1(cap) shrouds two more turns to start loading up the static rig pressure. As you do this, the spreaders which are raked aft will be compressed forward from the loading and start to bend the mast forward. You can sight this or use the topping lift pulled tight to the gooseneck as a plumb bob to help you visualize the bend.

4.) Once that mast develops a bit of pre-bend fore and aft, you then need to tighten each D1 in equal amounts. The goal here is to pull the mast back into column and make it straight. As you bring the lowers on this will increase the static rig tension quickly and straighten the mast.

5.) At this point, sight up the backside of the mast from the boom to the top of mast. You want to see that the mast is fairly straight side to side. If you find the lower third bowing off to port (as an example), then release the port D1 a turn and take up on the starboard D1 to bring the mast back to center. Sight up the back of the mast again to check that it is fairly straight side to side.

6.) Once the shrouds are tight and not slack at all, you can go up do the D2 and bring them snug. The D2's are there to stabilize the mast side to side when underway, so the middle to top section does not bow to leeward while sailing. They are typically the least snug of the standing rigging.

Remember as you bring the rig tension up, by tightening each turnbuckle equal amounts side to side and in the same order, use a heavy lubricant on the turnbuckles to ease and prevent galling of the threads.
At this point take up the backstay until snug. The mast should stay straight fore and aft at this point.

The next step is to go sailing. Remember that new rigging will stretch in length about the width of the wire and this will happen pretty quickly so you will need to re-tighten the rig after a week or two of sailing.

1. When sailing upwind in 10-14 true wind the mast should be straight side to side with no leeward bend in the mid-section. The leeward shrouds should be beginning to appear to slacken. They can be deflected by hand, but should not be swinging loose.

2.) If the leeward shroud is slack you'll need to get out your tools and take a full turn up on each V1 and D2 on the leeward side.

3.) Tack the boat and do the same amount on the starboard side. Now check the leeward cap shroud to see that it is just beginning to get soft underway but not loose.

4.) Do not over tighten the leeward shrouds while sailing...the should just feel firm but not slack when sailing.

5.) Lastly, sight the mast side to side while sailing up wind. If the center of the mast is bowing a bit to leeward, than the D2 shroud opposite the bow should be tightened. This can be done back at the dock.

Make sure all your turnbuckles are pinned and taped.

Mainsail Furling Guide

To better understand furling, point your browser to: https://www.neilprydesails.com/beneteau-videos . Neil Pryde Sails has produced a series of "how to" videos that cover the furling system top to bottom.
To better understand your mainsail (and headsail) trim point your browser here:
https://www.neilprydesails.com/beneteau-tuning-guides

If there is friction in the outhaul/inhaul systems when unfurling or furling the sail you will have problems furling the main. To facilitate easy and smooth furling, we recommend that you lubricate the entire outhaul and inhaul systems with McLube Sailkote or other dry lubricant. Spray the boom track, the outhaul car bearings, the sail clew block the outhaul sheaves at each end of the boom, the blocks at the mast, deck and turning blocks. Spray the top and bottom of the bearing case of the furling unit inside the mast. Check also for friction with in the halyard organizers or at the mast base blocks, if these do not move freely it will cause slowing of the gear. Spray the mast on both sides at the slot that the sail goes into, as high up as you can reach. Friction is your enemy here. Carry out this once a month. If you live near or in an area with a fair amount of industrial pollution, wash the above systems with soap and water, rinsing clean, allowing to dry and then lubricate.

When furling, make sure the outhaul line is free to run with no kinks, knots, or the crew standing on it. This is important! Have the boat head to wind or with the wind slightly to port. Boat speed at close to zero.
When furling make sure the boom vang is off and then pull out several feet of the vang line in front of the stopper to ensure you are free to run. Ease the mainsail at least 2' /60cm. Snug up the topping lift if it has been off.
With a properly set up system you should be able to furl the main by hand..the first turn might be a bit stiff as you make the initial furl but as soon as it turns the rest of the sail will follow with ease. The video series will illustrate this.

You can always check one morning when there is no wind by furling and unfurling the mainsail from behind the mast by hand! Just have both the inhaul and outhaul line loose and at your feet. Reach up and grab the clew of the main and walk it aft. I should pull out easily. Then with the outhaul completely loose, grab the inhaul line where it exits the worm gear at the mast and pull it in. It will go right in. This simple test confirms that the furler unit and bearing is fine and that the sail goes in and out smoothly. If you still have problems focus on reducing the friction as described above.