Falcon F16 tuning guide

GENERAL RIG SETTINGS

The mast and sail combination developed for this platform provides for an extremely wide range of tuning to meet varying wind conditions. The following settings are based on the latest Glaser cut Pentex sails.

- Spreader Rake : 65- 72mm (factory setting is 68mm)
- Diamond Tension: 30-32 on the Loos gauge (factory setting is 32)
- Mast Rake: Front edge of the rear inspection port using the trap wire method.
- Rig tension: 20-25 on the Loos gauge

The spreader rake and diamond tension will provide prebend in the mast. It is important that this matches the cut of your sail. With the battens evenly tensioned, and the sail raised on the mast, there should be no discontinuity in the sail as you look at the pocket all the way up the sail. If there is too little or too much bend for the sail you will see the pocket change at or near the top of the diamond wires. In severe case a wrinkle in the sail at this point may even be present. A tight rig is recommended for all wind ranges. This is particularly true when sailing sloop to prevent slop on the jib.

Next set your mast rotation to 45 degrees and with just the downhaul pretension or with a very small amount of additional downhaul, sheet the main sail as you would for light winds. (centered traveler and medium light sheet tension). Look up the leeward face of the mast. There should be a smooth transition of the mast section as it flows around onto the sail. This may vary slightly as you look up the height of the sail, but should be very close throughout the middle. If there is a concave transition, your sail is likely too full. If there is a convex kink in the transition your sail is a bit flat. You can adjust this discrepancy to a point with changes to the mast prebend, or take note of where the downhaul and mast rotation need to be set to get a smooth transition with the sail and mast. This setting would now be your starting point for optimum power.

Note as you apply more downhaul tension the mast rotation needs to be pulled more towards the center to maintain the smooth transition of the sail and mast leeward face. A general rule of thumb is that if you find yourself adjusting the down haul more than 50mm (2 inches) as the wind is increasing or decreasing, you should be changing the rotation setting as well.

The main sail foot on the Falcon was designed to provide for automatic adjustment. The outhaul tension will automatically increase as downhaul tension is applied. Therefore it is very important that outhaul setting be made after applying downhaul tension to the sail, otherwise it is very likely the foot of the sail will be pulled out of the mast track.

In light air conditions there should be some belly to the foot of the sail 35 to 50mm. At max downhaul tension the foot should be tight along the boom. With the Glaser sail a single knot will work for this range. Other sail cuts may require a separate stopper knot for each major wind range condition.

SAIL TRIM UPWIND

Always ensure the hull is horizontal in the water. Crew position is the most important. In light conditions this means you will have to move forward, when there is more wind you will have to get more backwards on the boat.

	Light wind (1-5 knots)	Medium (6-15 knots)	Strong wind (16-25 knots)
Crew position	Crew in front of front beam windward Skipper forward next to crew	Double trapping. Move back to keep the hull level (see Hull)	Double trapping at the back to keep the nose up (see Hull)
Hull	Bow +/- 1/3 in the water	Bow just in the water	Bow out of the water
Mast rotation	Point at the front of the daggerboard	Reduce as you put more downhaul on	Pointing at the crossing of the back beam and hull
Downhaul tension	Pull out the major wrinkles	Increase to keep the hull just flying out of the water. In gusty weather add tension so no more then an arms length of sheet is required to trim the boat	Max on
Main sheet tension	Light (all tell tales flowing)	Firm	Firm
Main traveler	Centered	Centered	Centered (200mm out from 20+ depending on crew weight)
Jib sheet tension	Light but keep shape	Firm	Firm
Jib traveler	Between track supports (keep the slot open)	Just in front of the outer support	At the outer stops
Daggerboards	Fully down	Raise with 50mm increments once you start to apply downhaul. In gusty winds you will have to raise the daggerboards higher then in stable conditions	300mm above deck
Outhaul	90mm from the boom	Auto adjust	Auto adjust

As the wind increases we try to maintain the following sequence of events for conditions up to just double trapping:

- Move the crew weight outboard
- Increase sheet tension in the main and jib as the crew weight shifts. Maintain tell tale flow. (If the winds are steady we will move the jib traveler slightly inboard to the inner support up until we reach double trapping conditions)

If the water is very flat or you have an especially low crew weight, you may wish to rotate the mainsail inboard slightly and add a small amount of downhaul tension. This may help in pointing ability. If the conditions are lumpy keeping a full sail and open slot will help you maintain power.

One of the keys in sailing fast up wind is to minimize the amount of motion you have in your tiller.

With a performance dagger boarded boat, let the boat accelerate with the pressure changes and lift on its foils.

Avoid rounding up on a gust unless it is also a lift.

SAIL TRIM DOWNWIND

The Falcon with its asymetric spinnaker is an absolute blast to sail down wind. Thanks to the refined hull shape the boat is a dream to sail downwind, even in wavy and gusty conditions. The last generation catamarans sail very fast downwind. You will notice the apparent wind coming from the side in light conditions and from the front in windy conditions.

	Light wind (1-5 knots)	Medium (6-15 knots)	Strong wind (16-25 knots)
Crew position	Crew in front at the leeward size Skipper far forward next to the mast	Both on the windward hull or crew trapping. Move the crew weight front and back in puffs and lulls	Crew trapping out fully back. Skipper mid tramp at the back beam.
Hull	Bow +/- 1/3 in the water	Bow just in the water	Bow out of the water
Mast rotation	Open	Open	Open
Downhaul tension	Off	Off	Off
Main sheet tension	Light	Firm	Firm
Main traveler	Centered (open 150mm in very light conditions)	Centered	Centered (200mm out from 20+ knots depending on crew weight)
Jib sheet tension	Light (trim so the top is trimmed correctly)	Medium (trim so the top is trimmed correctly)	Medium (trim so the top is trimmed correctly)
Jib traveler	Same as upwind	Same as upwind	Same as upwind
Daggerboards	Fully down	Raise with 100mm increments once you start to feel the boat lifting in stead of moving forward. In gusty winds you will have to raise the daggerboards higher then in stable conditions	480mm above deck (max. you can pull the boards up with the dagger pull control line)

Normally under spin we try to maintain a slight forward apparent wind. In very light conditions it often pays to take a slightly deeper course. Once the sails fill on their own consistently, sail to the apparent wind. If there is not sufficient wind for the skipper to notice the boat accelerating, it is very important for the crew to provide feedback to the driver when they notice increases or decreases in the sheet tension (turning off the spin ratchets will help with this).

Downwind reducing rudder motion is not as important as maintaining consistent apparent wind. Smooth gentle motions are required though. Crew weight positioning is extremely important.

As the pressure increases the boat should accelerate. If the hull flies without accelerating the crew weight needs to shift out board. It is important not to sail a line to try and fly a hull, but to sail a line that provides increased acceleration, and then adjust your crew weight position to maintain a windward hull just free of the water if the conditions warrant. As you accelerate the forward apparent wind will increase and it will be possible to head lower. If the boat begins to slow or the crew indicates less pressure on the sail, you have gone too far.

As the wind increases adjust crew weight out board and rearward as necessary to maintain a horizontal trim and the windward hull light if not just flying.