

RAIDER II TURBO TUNING GUIDE

Dave Ellis

The Raider II Turbo still has the potential to be faster. These are just a few things that I have found that work. Maybe you can come up with other ways to make the boat faster without adding expense or undo complication.

Mast rake: From the top of mast with a measuring tape attached to the main halyard to the top of the upper gudgeon on transom: about 23'9". You may have to enlarge the back of the mast hole in the deck plate that is on the mast a bit for it to go back to that position. Make the shrouds snug when the mast is raked that far.

Spreaders: The setting from the factory is quite satisfactory. (On mine, each side was about 18-1/2" from the side of the mast to the wire; it is 35-1/2" from wire to wire; a straight line between the wires is 6-5/8" behind the back of the mast.) The spreaders should be pinned so that they do not move from that position. Drill a small hole and use a little stainless bolt and nut.

The **jib tack** should be affixed down as close to the Harken furler on the bow as possible. If you can get the sail's tack grommet in there, it is best.

My Turbo has a wire jib stay. If yours does not, make sure the halyard is tied to the head of the jib securely, as you don't want it coming off, suddenly loading up the mast aftward. My wire jib stay is set rather loose, with maybe 6" of sideways play. I use a bit of shock cord to the front of the deck combing to keep the jib stay out of the way of the jib for furling.

If you have no jib stay and want to sail without the jib, a piece of line tied to the Harken Furler, or even the bow eye, if you have one, and tied to the jib halyard would suffice to hold the mast up.

The **vang** from the factory is lead to the deck before ending at the two side's cam cleats. This makes a bad lead that changes when the boom is let out. Instead, the vang line that you adjust should go straight to near the base of the mast where the rest of the lines that go to the boom are attached. I simply tied a strong, exotic piece of line through the bottom mast bale and around the mast, making it about six inches long aft of the mast. It has three blocks on it, one for each control line and the middle one with the becket and the rest of the vang parts, as original. Works much better.

The **boom** should have a guard around it that encompasses the main sheet where you go under the boom on tacks and jibes. Most simply use a piece of Dacron sail cloth formed into a sleeve about two feet long and hanging down two inches. Spot glue it or tape it to the top of the boom. It keeps the sheet from catching on your life jacket, which you wear when sailing, of course.

Dagger board should be polished enough and the carpet in the well 'McLubed' enough that you can pull it up easily. In heavy air it may help to pull it up 6" upwind. Err on the side of less board up on free legs of the course, rather than lots of board up. It is an efficient shape; going sideways is not.

Rudder MUST be all the way down always when sailing. Faster and safer. I have drilled a hole through the housing and blade to put a pin there while racing so it does not kick up even a little.

The class **asymmetrical spinnaker or screecher** is relatively small by modern standards. It can be used on broad reaches and downwind in significantly strong winds. On closer reaches there comes a wind speed where using just the jib is faster. The Raider rules allow moving the spinnaker fairlead to match the sail. Often, especially for the Screecher, it is set too far aft as a default from the factory. Moving it forward, affixing to the rail, as there are no reinforced areas on the deck, gives the sail a better lead. Rather uncomfortable to sit on if you go too far forward.

To **protect the spinnaker**, consider a tube of PVC or other plastic a few inches long around the bottom of each shroud. Since I have a jib stay, I put a tube around the bottom area of the jib stay for the spinnaker to go around without catching things. A piece of cut off cold weather tubing pipe wrapped and taped under the **Harken furler** on the bow helps keep the spinnaker sheet from getting caught on jibes.

Sailing: Sit well forward in light air. You are limited only by the length of your tiller extension. If you have crew, they should sit right up to the shrouds or inside the boat with legs under the vang. Get the bow down and the wide stern area out of the water. A slight heel to leeward helps fill the sail and diminishes lee helm that is present in most boats in light air, including the Raider.

As the wind increases, or as waves get larger, move aft. Hiking out helps. But if you get tired or just don't want to be uncomfortable, do sit out to the edge of the wing on the high side. Makes a difference.

In light air, pull the jib halyard all the way up to snug up the shrouds. As the wind gets stronger, let a little jib halyard out, as much as a couple inches in a blow. This allows the mast to bend aft and sideways, de-powering the mainsail. With the mainsheet traveler all the way to leeward, sheet tension keeps the jib luff from sagging much. (This is different from changing the luff tension on the wire.)

The Turbo seems to like to be driven fast, not pointed high. As on all dinghies, keep the aft third of the top batten parallel to the boom, using the vang and mainsheet to keep it there. Many sailors pull the mainsail in too tightly in light air, closing off the upper mainsail. Jib, too.

It is not fast to sail directly downwind with the spinnaker. I've tried winging out the asymmetrical spinnaker, but without a pole it is very difficult to keep it from collapsing. It takes practice, and another boat for reference, to determine how far from dead downwind to sail for best results.

For a Turbo without spinnaker, a **whisker pole** is very effective anywhere from downwind to broad reaching. When using the pole, let the jib halyard way off to let the jib go well out to the side. An automatic system, such as used on Snipes and Windmills, works very well. Their pole lives on the boom.

Finally, having a **crew** is faster on the Raider Turbo in anything over about 10 knots of wind. In over 15 it is significantly faster upwind with a crew, as has been demonstrated by Raider-on-Raider testing in race conditions. In lighter air having a crew does not seem to hurt speed much. Yes, the Raider can be sailed single handed in most any kind of breeze. On a day of measured 30-knots, when all racing was then cancelled, a Raider Turbo under reefed main sailed comfortably single handed while other types of boats could not. Off the wind the jib was unfurled and great speed with relative safety was attained.

Have Fun! You have a special boat.