

San Juan 28 Performance Tips

Your Don Clark designed San Juan 28 was designed for comfortable cruising and one design or club racing. Take the boat out in various winds with the sails you will be using. The sails may be selected by the chart that follows. Using the proper headsail to windward will give the boat approximately 15-20 degrees of heel in moderate air when sailing approximately 40-45 degrees to the apparent wind holding, with a slight weather helm. If so, your boat may be considered properly sheeted and will require either none or only minor adjustments.

If you experience more than slight weather helm:

1. Make certain main is not pulled in too tight.
2. Try moving jib or genoa leads forward.
3. Try tightening outhaul, downhaul, and/or cunningham adjustments on the main.
4. You may be trying to sail with too large a headsail. Try a smaller one.
5. Crew weight may not be properly distributed.
6. Rake mast forward more.
7. If you experience slight lee helm or neutral helm, before you panic - the San Juan 28 was designed to sail with the jib in light winds with little or no heel, with NEUTRAL helm. With the addition of the genoa and a little heel the boat should have a slight weather helm.

If you experience excessive lee helm:

1. Make certain main is not too loose.
2. Try moving jib or genoa leads aft.
3. Try slacking outhaul, downhaul and/or cunningham adjustments on the main. Crew weight may not be properly distributed. Rake mast aft more.

Sail Inventory

Mainsail

All mainsails should have at least one row of reefing. A second row is highly recommended for anyone sailing in areas where the wind exceeds 30 knots. A shelf foot built into the sail will help make the foot of the sail easy to adjust from flat to full.

170% Genoa or Light 150% Genoa

The 170% genoa is full cut and should be built out of a very firm 3.8 oz. dacron cloth to maintain its shape through a wide range of wind. The clew is about three feet off the deck.

150% Genoa

This is the real work horse sail that sees a lot of use throughout a typical season. It is cut with a low clew, and made out of 5 oz. or heavier dacron. It is designed to be used in winds from 8-20 knots. A reef can be put in this sail, but it is only recommended for short term use and not as a substitute for a smaller sail.

120% Full Hoist (Blade)

The blade is a full hoist 120% overlap working jib. It is a tall, narrow sail designed for winds of 20-30 knots. It works well in conjunction with a full or reefed main. This sail moves the boat faster, and balances the boat better than the old low cut 130% genoa is made out of 6.0 oz. or heavier dacron and is very easy to reef.

Tri-Radial Spinnaker

This spinnaker is exactly the same cut as a radial head except that panels are radiated out of each clew. This is done to reduce elongation of the clew area on close reaches. We recommend this sail for all purpose use.

The cloth in every sail we build is very carefully selected. It is a firm cloth which has been stabilized with the addition of various coatings and resins to help it resist stretch. With use the cloth will tend to soften up and stretch more. This will happen when the resin bonding the threads breaks down. The process is inevitable but can be slowed. Sails should be used only up to the wind ranges for which they were designed. Do not let the sails constantly flutter in the wind. When you are finished sailing fold the sails, do not stuff them in your sail bag. Do not leave your mainsail on the boom without a sail cover over it as ultra-violet rays harm the cloth.

You will find leech lines in most of your headsails. This is a light line designed to stop flutter in the leech. Most new sails will not have any leech flutter if they are sheeted properly. If you have no leech flutter, do not tighten the leech line. As a sail gets older and the cloth begins to stretch, one of the first areas of stretch will occur on the leech. The leech line should be tightened only enough to stop the flutter in your leech. It should also be readjusted with changes in wind strength. Excessive tightening of the leech line will hook the leech of the sail, causing it to distort the air flow.

In setting your sails, it is important that your leads be positioned properly and that you put adequate tension on your sheets to get the sail to take a proper shape. Enclosed is a sheet which will give sheeting positions for each individual headsail in your inventory. In addition, it will also give an approximate distance off your spreader the leech should set. If the sail does not come near the spreader a rule of thumb you might try is to tension the sheet so the leech of the jib, 25% of the way down from the head, is parallel to the centerline of the boat.

The headsails also come with yarn tell-tales attached. These are used to help steer the boat when going to windward. When you are sailing close hauled on the wind, the air passing over the sails will make the telltales stream aft, up, or down, depending on the air flow over the sail at the point at which the tell-tales are attached. Most people think that when both telltales stream aft the sail is set properly and the boat is going as fast as possible. This is not the case. It may be that your boat will go fastest when the leeward telltale is streaming aft and the windward one flowing up a little. What you must do is go sailing next to other boats and when you find that you are going fast, remember how the telltales are and strive to steer the boat so that they continue to flow in the same manner. The manner in which the telltales flow at maximum performance will vary from sail to sail and wind speed to wind speed.

On both the mainsail and genoa as the winds increase, the sailcloth will stretch. As the cloth stretches the location of maximum draft will move aft in the sail and the leech may tend to hook to windward. In order to maintain a proper sail shape, it is necessary to adjust the tension on the luff of a sail. If the tension on your luff is too little, small horizontal wrinkles will appear by the luff and the maximum draft will have moved aft. If a genoa has hanks on the luff, wrinkles will radiate out of each hank when the halyard tension is too little. On a genoa, luff tension is adjusted with halyard and on the mainsail it is adjusted with the cunningham hole (grommet hole above tack).

The key to setting sails is to remember that a sail is an airfoil with a specific shape built into it and you use your rigging to maintain that shape as the wind tends to distort it. On genoas, the maximum draft is located approximately 43% aft, and on a mainsail it should be 50% aft.

The mainsail is built with a very full foot so that the airfoil shape will carry right down to the boom level. In light air the outhaul should be eased about 4" to allow the foot of the sail to take an airfoil shape. The outhaul should not be tightened until the mainsail backwinds. In most wind conditions, when beating into the wind, the boom should be along the centerline of the boat, and the main sheet tension should be set just tight enough to make the top batten set parallel to the boom. Tighten the cunningham just enough to remove the horizontal wrinkles.

The spinnaker is a sail that many people tend to fly incorrectly. Once again we have built a specific shape into the sail by curving each panel. The shape of the sail can be distorted if the pole is not flown at the correct height. The pole height is set so that the forward edge of the sail will luff evenly. The height of the leeward clew has nothing to do with the correct height of the pole. In light airs, the pole has to be set a little lower than normal. Once you get a correct pole setting in about 7 knots of wind, the pole is at its maximum height. Many people feel that the stronger the wind blows, the higher the pole goes, and this is not correct. The spinnaker pole end will be kept within a two foot range on boats 20 to 28 feet.

The shape in the foot of a spinnaker on a reach is controlled by the sheet lead. If the lead is too far aft, the foot will be pulled flat and airfoil shape lost. The camber in the foot

should be identical to the camber in the middle of the spinnaker. This shape can only be achieved by moving the lead about 20% forward on most boats.

The one final area that needs to be well understood is the mainsail reefing. If reefing is done improperly, high strains can be put on areas causing costly tears. The Clark boats are all set up for jiffy reefing. When reefed, all the strain must go to the two large patches on the luff and leech. There are two small patches with grommets in them between the two main patches. These intermediate reef points must never be tied tight! They are only for loosely tying up the loose cloth that results from reefing. If they are tied tight the sail will rip!

When putting in a reef, first ease the luff down and then take up the line through the patch on the leech. When unreefing, let the leech reef line off first and then hoist the luff up. This procedure will prevent putting high strains on the luff bolt rope.

We hope that you will follow our hints and that they will be helpful to you. If you have any questions, please give us a call.

Sailing Selection

Sails are listed below in their order of importance for racing:

Mainsail	Two reefs, shelf foot
Genoas	Heavy 150%, 120% blade, light 150%, working jib
Spinnaker	3/4 oz. tri-radial, 1/2 oz. floater
Storm Jib	May be reefed blade

Your selection of sails will, of course, vary depending upon your level of competitiveness, cruising requirements, and the conditions you are likely to encounter in your area.

All Clark sails for the San Juan 28 are built to be sheeted to the tracks provided with the boat. If you are using another sailmaker he will need a drawing provided of the deck layout and sailplan, or access to the boat to build the sails to the correct dimensions. We recommend the Headfoil II slotted headstay for racing, as this eliminates the need for hanks on the genoas and greatly simplifies sail changes.

The size of sails should be reduced when the angle of hull reaches 25 degrees.

Trimming the Headsails

Approximate jib lead:

Light 150% - Aft track, second hole from aft end.

Heavy 150% - Aft track, second hole from front end.

120% - Forward track, fifth hole from front end just under front corner of window.
 Working Jib - Forward track, second hole aft from forward end.

The 170% genoa and 150% genoa are both designed to be sheeted in so that their leeches just barely touch the spreader. This requires constant adjustment as the wind varies in strength. The 170% genoa in winds under 6 knots may perform better if eased two to three inches off the spreader. When the 150% and 170% genoas are set properly, the line of the genoa sheet, if continued all the way to the luff of the sail, will intersect the luff approximately 60% of the way up the luff. On the blade an extension of the genoa sheet will intersect the luff 75% of the way up the sail. The blade will sail best if the top one-third of the sail is allowed to twist off a very slight amount. For optimum performance, the blade should be sheeted between the upper and lower shrouds when hard on the wind.

Conditions	Beat	Reach	Run
Drifting	170% or lt. 150%, main try to foot	Same as beat	Try the spinnaker
Light Air, 4-8 knots	170% or lt. 150%, main	Main, 170% or lt. 150% genoa, spinnaker	Main, spinnaker
Medium Air, 8- 12 knots	Main, 150% genoa	Main, 170% or lt. 150% genoa, spinnaker	Main, spinnaker
Moderate Air, 12-18 knots	Main, 150% genoa, or reefed main	Main, 150% genoa	Main, wing-out genoa or spinnaker
Heavy Air, 18-25 knots	Reefed main, blade, reefed blade, working jib	Same as beat	Main, wing-out blade or 150% genoa
Super Heavy, 25+	1-2 reef main, working jib	Same as beat	Reefed main, wing-out blade or working jib