



Thank you for choosing DIEBALL SAILING sails for your Flying Scot. Much time has been spent in developing a durable sail program that is capable of making a wide range of gear changes easily. This will allow you to be fast in a wide variety of conditions. The following is a guide to use in boat set-up and preparation. Use these ideas and numbers in developing your program.

If you have any questions please call. We want to help you sail fast, smart and have fun!

BOAT SETUP

Mast Rake: Rake measurement is made by hoisting a tape measure as high as possible on the main halyard and measuring the distance from the masthead to top edge of the transom (top of the hump). The class standard is roughly 28'5". We find that with the DIEBALL sail design some boats perform best raked backed slightly more – 28'3" to 28'4". To find your sweet spot, set up as recommended and then rake the mast forward for greater acceleration (i.e. to handle chop or tacking duels) or back to point higher. While dialing in, make small adjustments (1/2"-1", mainly through tension) and remember to keep rig tension constant while adjusting the jib leads as necessary.

Rig Tension: Rig tension is an important gear-shifting tool. The Flying Scot performs best when set up "snug". The best all around forestay tension should be approximately 100lbs as measured on the trailer without the sails up. Less experienced sailors may want to make the groove wider by increasing slightly to approximately 120lbs. A tool such as the "Loose tension gauge" is required to measure forestay tension. They are available at most marine outfitters.

Hull Preparation: Make sure that the hull and foils are smooth and fair. The Flying Scot's lines are classic and pure. This design really enjoys a clean/fair hull. A happy boat is a clean and fast boat.

Centerboard angle: The centerboard angle is critical due to its large size. If it is blowing hard try bringing the board back (either by rolling back, or pulling it up a little) to a little in order to reduce weather helm and heeling force. When reaching, raise the board enough to neutralize the helm. Raise the board half up or more on a run. Extra board down will give control in big wind and seas. It will also help prevent the dreaded death

roll to windward. Remember: raising the board reduces weather helm and wetted surface thus reducing drag and increasing speed but if raised to far will hurt pointing and tracking. When beating error on the side of too much board down.

Helm: Flying Scots perform best with minimal helm. Neutral helm when the boat is flat is best. If you really desire some helm use the minimal amount you can. The reason for this is two fold. First, the Flying Scot centerboard is a “foil” which can stall. This is a shape that is capable of creating lift, and unfortunately drag. The goal is to minimize drag thereby increasing speed. Stalling reduces flow and speed. Speed reduction further decreases flow. Secondly, lots of helm means that you are always using the rudder. Turning the rudder creates lots of drag. Minimizing helm also minimizes rudder drag. This is the second way reducing helm reduces drag and increases speed. Increased speed reduces leeway.

Lots of helm may help you “point high.” But you may not be tracking or holding a high lane. If you check your actual course made good, and especially your velocity made good, you will find that a neutral helm results in the fastest time around the course.

Another advantage of a neutral helm is that it will permit the tiller to communicate an incredible amount of information to the skipper. Feedback from the helm is an important part of the feel of a Flying Scot. This feel indicates proper/improper sail trim, weight trim, heel and more. Proper set up and “Tiller Time” will develop this vital feel.

The four main determinates to helm are: 1) Mast rake. 2) Centerboard angle. 3) Sail Trim. 4) Heel. Mast rake aft increases (weather) helm/forward reduces. Centerboard angled aft reduces helm. Main trimmed harder increases helm. Leeward heel increases helm.

SAIL CONTROLS

Mark all controls/sheets/etc: These marks are points of reference. They permit repeatability and aide in training. Hey, if Olympic sailors, coaches and America’s Cup teams do it.... When you are fast, make note of your settings, the conditions, crew weight, etc. Taking the time to mark your controls will make you faster. Sailing faster is devastating to the competition and just plan more fun!!

Battens: Your DIEBALL SAILING Sails are supplied with a set of tapered battens to help adjust the sail to a wide variety of wind & wave conditions and crew weight. The softer battens help to power up for light winds, chop, or heavier crew. The softest batten goes in the top pocket. As the winds build into the 13+ knot range (white-caps) replace with stiffer battens, if you can. Stiffening the top batten first helps to keep the upper leach open. Important: Always insert tapered battens thin end first!

Outhaul: When beating in moderate conditions, pull the outhaul tight enough for a smooth shape. In flat water or strong winds, pull the outhaul on tight so that a hard crease forms on the bottom of the main. This will de-power the sail, make a better upwind

shape, and open the slot between main and jib. When in light air, chop, or reaching, ease the outhaul to increase depth and power.

Cunningham: The cunningham adjusts the draft in the lower 1/3 of the main. Seldom is any cunningham tension needed until the wind is 13+ knots. Small wrinkles along the luff are OK. In fact, if there are no wrinkles along the length of the luff there is usually too much luff tension. Check the cunningham & main halyard tension if this happens.

Boom Vang: When beating in light to moderate air, adjust the vang so that when the main is eased the boom raise a couple inches allowing the upper batten falls off up to 8 degrees to leeward and then the boom eases laterally. This setting permits quick gear shifting between pointing and footing. Heavier winds require more vang tension to help bend the mast, flatten the main, and help with forestay tension. (See “main sail trim” for details.) Hint: In heavier winds Flying Scot vang settings usually rang between “super,” “mega,” & “ultra-max” settings.

CARE OF YOUR DIEBALL SAILING SAILS: Roll your sails whenever possible. Leave the battens in. (Except when putting away for winter. Then be kind to the elastic in the batten pockets by removing the battens.) Fold the jib/main in half loosely by pairing the head and the clew. Starting at the fold (do not crease the fabric) and roll, keeping parallel to the seams. Keep your sails dry. Beware of mice in the winter. Put the spinnaker away loosely. Pack with as few wrinkles as possible to keep it as big as possible.

SAIL TRIM:

Jib Trim: Your Flying Scot jib is trimmed properly when the bottom batten points straight back—parallel to the centerline of the boat. Keep the leech telltale always streaming. Another key thing to watch is the slot. The leech of the jib should parallel, or symmetrical to, the luff of the main. When steering upwind use the telltales on the luff of the jib. Always keep the leeward telltale streaming. The windward telltale should also be streaming when powering up, and it should be lifting just slightly every 5-6 seconds when in max point mode. Mark your jib sheets with a permanent marker or whipping for the upwind setting. When beating, the middle telltales are the best indicators because they indicate the average trim of the sail. Flying Scots love to breath. Hate pinching. Proper upwind jib lead position will require hard sheeting to bring the head of the sail in. This hard sheeting helps to flatten the sail and gains pointing. When eased, the jib becomes fuller thus increasing power and acceleration. When close reaching, keep windward, leeward and leech telltales streaming. When deep, keep the bottom half drawing (the top will twist off) with the bottom and middle outer telltales streaming.

Mainsail Trim: Constant adjustment of the Flying Scot main is needed for top performance due to its large size, full roach, effect on forestay tension/sag and effect on helm. Top helmsman keep the mainsheet uncleated and in hand at all times. The mainsheet also provides lots of information and feel.

Beating: Upper batten parallel to the boom. Upper telltale will stall 50-70% of the time.

When footing, in a puff, or light air ease the main slightly allowing the upper batten to fall off as much as 10 degrees and keep the upper telltale streaming full time. When pinching, sheet hard and hook the upper batten by as much as 10 degrees for a short period (a couple of seconds...until speed drops). Hooking may completely stall the upper batten. Leech tension is key to pointing and is controlled by mainsheet and vang tension.

Reaching: Keep all telltales flowing. It is often fast to add extra twist and slightly over-trim the foot of the main when close reaching with the spinnaker. Setting up this way keeps the slot between the main and the spinnaker open.

Running: Boom all the way out. When running very deep, twist the top by easing the vang so as to keep the upper batten perpendicular to the wind thus increasing projected area.

Spinnaker trim: Start with the spinnaker pole perpendicular to the wind. On a reach, pull the pole back an additional 6-10" if you can maintain proper trim (or slightly forward if you want a wider groove). When running, keep the pole perpendicular to the wind. Adjust the pole height so that the clews are equal height. In all but extreme conditions, ease the halyard by 6-8" to help get the sail in clearer air and open the slot. Twing lines are highly recommended in air greater than 5 knots. If you have twings pull both full on when running, and fully ease the sheet twing when reaching. When sailing very deep, heel your Flying Scot slightly to windward thus reducing wetted area, lifting the main up into greater wind, letting the spinnaker rotate out from behind the mast increasing projected area and permitting the skipper to use the chine to steer the boat downwind with neutral helm. Important: Use non-stretching spinnaker sheets.

STEERING: Use of sail and weight trim to steer is definitely fast. Trimming the main helps turn to windward. Easing the main helps turn to leeward. Easing and trimming the jib helps in steering to windward/leeward. Steering with sail trim is more critical as the wind increases. Leeward heel turns to weather. Windward heel turns to leeward. Try to steer without using the rudder. Excessive use of the rudder really kills boat speed. Just allow the tiller to follow the motion of the boat. When tacking, start and complete the turn smoothly. Steer 5 degrees wide. Build speed. Then sheet in the last couple of inches and point.

CREW WEIGHT: Fortunately the Flying Scot has a large "weight groove," and your DIEBALL SAILING sails are design to maximize the competitive weight range. A combined weight of 385-485lbs. works well (naked weight). Three persons, totaling 435lbs would be ideal (a junior sailor is often helpful to achieve this). Many crews compete weighing as little as 325 but if the wind comes up they are seriously handicapped, especially on a reach or beating into chop. Crews over 500lbs are regularly found in the front of fleets in breeze. Keep weight forward, shoulder to shoulder, roll the boat strong, and hike hard...really hard. A flat Flying Scot is a fast Flying Scot (except in light air). Two crew and skipper is a good combination: Crew can hike harder than skippers, extra hands permit quick spinnaker maneuvers and extra eyes/brains are always a plus! Design fact: The Flying Scot's fore/aft center is just behind the shrouds. In order

to keep weight centered in hull you need to be forward in cockpit.

BOAT TRIM: Light air: Weight forward and to leeward to induce heel and raise the flat stern out of the water thus reducing wetted area while allowing gravity to shape the sails. Moderate air: Keep boat flat and on its lines. Planning: Slide aft to encourage bow to lift and boat to ride on flatter aft sections. Keep your Flying Scot on its lines...even when planning.

MISC. TIPS & TRICKS:

-- Remove slop/play from tiller and rudder. This system is vital in developing feel and quick response. Old gudgeons become enlarged. The joining of the tiller and rudder at the head gets loose. Mechanical universals at the tiller extension are sloppy. Replace and tighten as necessary. Use a rubber universal on the tiller extension. (Replace rubber universal every couple years or at the first sign of wear.)

-- Thinner, lighter sheets provide more performance and feel at a lower cost! Drawback: hand fatigue.

-- Write your tuning numbers for various conditions on a "Hello my name is" sticker and stick it on your loose tension gauge. That way they will always be handy.

-- The deck core immediately under the mast step often gets crushed on older boats. Why? Because years of rig pressure have driven the mast down smashing the core. If this happens the rig will not hold tension. When quickly inspected these decks usually look fine since the fiberglass springs back when the tension is released. This condition can only be found with the rig under tension for a period of time. Once this problem is spotted the fix is easy. Replace the area under the mast step with a block of mahogany making a snug fit. Be sure to seal the new edge of the deck core with epoxy.

-- Crew/skipper communication is key at all times. Anticipate. Keep your eyes out of the boat. Talk about what you see. What you are looking for. What you are going to do. Good communication reduces stress and mistakes while improving teamwork, performance and fun. Plus it is safe.

-- Go Sailing. Even if it is not for practice. Sail. Practice is even better. Sail in all conditions. Take a friend. Sail. Sail some more. Just sail...a lot. SMILE. YOUR SAILING!

-- The mainsheet system can be quickly converted from 2:1 to 1:1 by untying the main sheet from the end of the boom and tying a stopper knot at its end. This knot will stop at the block on the bridle. This configuration is great in very light air.

-- Use a 2:1 jib sheet system. Many of the Flying Scot Champions from the nineties until now have used this system. A 2:1 system is easier and safer in a breeze. It is also more manageable for ladies and juniors, plus it permits finer adjustments. To build this system you need: two small blocks, a short piece of line, and another jib sheet. Attach the two blocks to the clew of the jib with the short piece of line. Attach one end of the jib sheet to the base of the block on the jib car. Lead from the base of the block on the car through a block on the jib and back through the block on car. Make sure your sheets are long enough to permit "wing on wing" on either jibe. 1/4" thick line works great. In light air change to 1:1 by simply untying the sheet from the base of the jib block, and place a stopper knot in the end.

POINTING VS. SPEED CHECKLIST

Remember: Speed = Height

You must first move fast before you can track and point high.

FLYING SCOTS HATE PINCHING!

Problem: Pointing low.

- Get the boat moving up to speed.
- Check jib leads. Often needs to be moved aft. Is top telltale breaking first? It should be, slightly.
- Make sure centerboard is near full down. (Its often left up after leeward rounding.)
- Trim main in hard. Upper batten parallel to boom, or even slight hook. Boom on centerline.
- Make sure vang is on hard enough.
- Make sure there is enough rig tension.
- Can you increase outhaul tension?
- Seaweed on centerboard or rudder?

Problem: Slow.

- Remember: When in doubt, let it out.
- Pinching? Flying Scots HATE pinching. Let it breath.
- POWER UP:
 - Ease the main a couple inches. Don't hook the leech.
 - Ease the Outhaul.
- Check vang tension. Too much in a lull is slow. Not enough in a blow is slow.
- Check jib lead position. To far back looses power. To far forward is also slow.
- Ease the jib. Don't hook the leech. Let is breath.
- Reduce weather helm.
- Check centerboard position.
- Crew placement. Weight should be centered or even forward.
- Seaweed on centerboard or rudder?

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