



Dingo

1 or 2 Man Beachcat

LOA 14'11"

BEAM 7'7"

SAIL AREA 125 sq. ft. Main Only

SAIL AREA 160 sq. ft. W/JIB

WELCOME

Welcome to Catamaraning. -- We would hope you would further your enjoyment by joining the Dingo Catamaran class association--for it is only by association with owners of like boats that maximum pleasure can be derived from your new boat. Periodic newsletters with information on class activity, racing and tuning tips, and owners' ideas on "how to" -- all make your new boat more enjoyable.

Catamarans have grown in popularity, particularly since Rod MacAlpine-Downie designed the first Hellcat and in 1961 won the first International Catamaran challenge which became known as the "Little American Cup"... (subsequently he also won the next six challenges and then retired from that competition). This proved to the yachting world that catamarans sail faster and easier under all wind and sea conditions than other lightly ballasted boats of similar size. However, the sailing of catamarans is different, particularly by paying off handsomely for learning to understand them and acquiring skills in handling them.

The following paragraphs will attempt to give you some insight and understanding in order that you may further your enjoyment and competitive success.

THE RIG

J. R. MacAlpine-Downie and Dick Gibbs, designers of the Dingo, felt for some time that an exaggerated rake and an extreme aft position for a centerboard would provide a superior standard of performance on the wind. The Dingo's superiority is attested to by her successes, particularly at the American Teacup Regatta, where she was rated, by experts, as the fastest Cat there with comments like -- "she simply sailed away". All other things being equal, the Dingo will provide this margin of superiority over Cats her size and sail area.

BATTENS

The battens should be pushed in tight enough to smooth the wrinkles that lie along the batten pockets. Do not jam them in as tight as possible for then the battens will be difficult to reflex in light air when you tack or jib. Pushing them in really tight will not increase the draft for only so much draft is cut in the sail and there is no way to increase the draft. In light airs it is important to trim hard so that end compression on the battens will tend to lift the leech and thereby increase the draft by virtue of a tight leech.

THE SAIL

The best indicator of the proper attitude of the sail in relation to the wind is a ribbon punched through the sail with a darning needle, about three feet aft of the mast at a convenient height to view -- half the ribbon each side of the sail. The power in a sail, as developed by the wind, consists of positive pressure on the windward side and a low or less than atmospheric pressure on the lee side -- both caused by flow of wind on the sail. The ribbon, as blown by the flow of wind is an indication of the nature of the flow on the sail. Ideally, both the windward and lee side should be streaming straight aft. If the ribbon the lee side is blowing upward or even forward, the sail is at a stall and wind flow is turbulent -- the sail must either be paid off with the traveler or the boat pointed higher. The weather side ribbon is not as positive in its indication as the lee side. However, if the weather side is blowing mostly up or even forward the sail needs to be pulled in or the boat sailed at more of an angle to the wind (lay off the wind more). Since the wind is constantly changing direction there is a constant requirement to alter the direction of the boat to gain smooth flow of the wind as indicated by the ribbon through the sail.

THE DINGO JIB -

In order to make Dingo acceptable as a two person racing boat and a really dramatic "single hander" in light air or even heavy air by the more skilled helmsman a 35 sq. ft. jib is offered as an option. The jib can be added to any Dingo without any modifications other than adding two cleats, two pulleys, and one stay adjuster.

If the use of the jib is not desired or the wind gets heavy it is roller reefed on its luff wire in the, "wink of an eye" ---- instantly reducing (or adding) sail area by 23%.

The jib also makes tacking of a boat much easier by being able to induce lee helm causing the bows to fall off the wind until the boat gathers way.

We, at SAIL MFG trust you will spend many happy hours on your new Dingo. Perhaps we will have the opportunity to sail together, somewhere - sometime.

SAIL TRIM AND USE OF THE TRAVELER

Considering proper sail trim, within the limit of the length of the traveler, the traveler should be regarded as the mainsheet and the mainsheet as a boom vang. A proper sail shape is identified as the leech of the sail in a straight line (no twist in the leech). This can be attained only by hard trimming.

Place the traveler slide where the end of the boom is to be and then trim the end of the boom over the traveler slide.

NOTE-- Only in very light air when on a reach should the full width of the traveler be used.

BOOM VANG

In heavier airs, when the sail must be freed beyond the limits of the traveler track, only a boom vang will set the leech of the sail straight.

RUDDERS AND CENTERBOARD

Both rudders should be carried full down when going to weather. The centerboard should be carried full down as well, except perhaps, in heavy winds where one might choose to let it come slightly up to reduce weather helm. Other than letting the centerboard up 10 to 15 degrees on the wind, the centerboard should be either full up or full down.

If the wind is sufficiently free that the boat can be steered with one rudder, the weather rudder may be pulled all the way up to reduce wetted surface. In no case should a rudder be carried partially up. Drag is increased and the additional load on the blade, partially up. Drag is increased and the additional load on the blade, partially up, can break a rudder or rudder head or bend a tiller.

CENTERBOARD COMMENTS

To the novice or new Cat sailor, the Dingo may appear burdened with an extra unnecessary piece of equipment -- a centerboard. The facts are, to have a boat that sails well upwind close reaching and that tacks well, a centerboard is absolutely necessary. It is said "asymmetrical hulls generate lift like an air-plane wing and therefore eliminate the need for a centerboard". This is pure fantasy! If the hulls are to provide resistance to leeway by generating lift, an asymmetrical shape of the lee hull to be effective, otherwise the lift is cancelled by the equal and opposite shape of the weather hull and Catamarrans, like other light displacement boats, should be sailed upright -- or nearly so -- to give their best.

Basically, the only factor that prevents a Cat without a centerboard from being totally impossible to sail to weather is the deeply immersed flat slab side of the hull, resisting sidewise pressure. Further, the shape of a hull form that provides the least wetted surface is a round or U shape, like the Dingo, as opposed to the narrow wedge of the typical asymmetrical hull.

TUNING

In order for a boat to be in balance, two hypothetical centers must be one over the other -- the center of effort in the sail (roughly the geometric of the sail center) and the center of lateral resistance of the boat (located somewhere in the center-board). The Dingo will, when these centers are one over the other, have neutral helm. Setting the mast more straight up and down will create lee helm (make the bows want to fall off the wind) and conversely, more rake will create weather helm. Letting the centerboard come slightly aft will create lee helm and, conversely, more forward creates weather helm.

For best performance, to weather, a Catamaran should carry rather strong weather helm so that the rudders must be held over the about 3 degrees to maintain a straight ahead course. The rudders will then also provide lift to weather as does the centerboard.

WEIGHT DISTRIBUTION

(A) ON THE WIND

The weight of skipper and crew, if aboard, should be placed about midships and close together to reduce pitching. As the sea builds, the crew's weight should be moved forward to further reduce the pitching*. A rule of thumb otherwise is to place crew weight so that the boat is level and, in no case, should the Dingo be down by the stern.

(B) REACHING

Weight should be placed midships so that the boat is level fore and aft. Then take a look at the wake astern. If the wake astern is turbulent, move ahead to lift the sterns. As the wind builds, the pressure of the wind at the center of effort will tend to depress the bows or lift the sterns. Then move aft to maintain a level attitude. In high winds the crew weight should be as far aft as possible to keep the bows from "running in". In really heavy winds you cannot get your weight far enough aft.

(C) RUNNING

The same general rule for weight placement holds true for broad reaching and running as for reaching. One exception is light airs where you must move really far forward to get the sterns clear of the water.

SAILING TO WEATHER

A Catamaran is sailed to weather the same as any other light, high-performance boat -- hunting to weather in the lifts, laying off to drive through seas, as high on the wind

* Pitching - Bow and Stern alternately rising & falling as opposed to Bow slightly down & sailing level.

as possible while still maintaining boat speed. Because of the raked mast and the high aspect ratio of the aft placed centerboard, the Dingo is probably one of the closest winded boats of all. On the wind the Dingo should be sailed with the boom nearly midships with the main trimmed down hard -- even in light airs as this keeps the leech as straight as possible, presenting the same airfoil shape to the wind from foot to head. In light air, hard sheeting end loads the battens and springs the sail into shape. The lost speed penalty for easing the mainsheet, even slightly, is far greater than over-trimming -- because easing the mainsheet in heavy gusts permits the upper portion of the sail to twist, reducing the drive and increasing the tendency for the lee bow to dig in.

A Catamaran has a greater range of speed than any other type of sailboat. Apparent wind (the wind as indicated by a ribbon on the shrouds) is the resultant direction of the wind caused by true wind speed and boat speed. As the speed of a boat increases the apparent wind will come from further ahead. This condition would suggest falling off and not pointing as high. Falling off increases the boat speed and the wind again comes from further ahead. Herein lies the accusation that Cats will not go to weather. Any Cat should be sailed high on the wind so that the boat speed is normal for beating to weather in order that the apparent wind will come more from the side. Sailing speed will not be as fast, but the course "made good" will more than make up for the loss in speed.

Bearing in gusty weather and high seas calls for a nice balance between falling off and sailing high on the wind. The Dingo is much too light to carry way, even briefly, a correlary of her acceleration. A fraction too much pinching* will allow the sea to stop her. For best performance, constant attention must be paid to maintain boat speed to punch through waves -- then pinching up as boat speed increases or as smooth patches of sea permit and bearing away as boat speed falls off or to gain the power to punch through heavy seas.

The centerboard and both rudders should be full down when on the wind. To control an excessive weather helm in very heavy air it can be of some advantage to carry the centerboard pivoted 10 to 15 degrees aft.

REACHING

Reaching in winds over 5-7 knots requires a different technique than used on a monohull -- not in principle, but in degree. Those who have experienced the thrill of planing in a monohull know that as a boat accelerates to a plane the apparent wind shifts forward. It is then necessary to trim the main and jib to keep them from luffing. Those who have sailed or seen iceboats sail know they go "downhill" with the sail trimmed close in as if they were on the wind, because of the apparent wind shifting forward as a result of the velocity the boat has attained.

Even on a broad reach (according to the true wind not as indicated by a ribbon on the shrouds) the apparent wind is often ahead of abeam and, except when running, or when very broad reaching in lighter airs the mainsheet traveler is rarely more than 18 inches from center.

Only in very light air, and then it is essential, that the full width of the traveler is used.

As a Cat goes faster she builds the apparent wind strength and when the apparent wind strength increases, the boat goes faster. When the boat goes faster, the apparent wind shifts to a closer reach and the traveler slide should be close to center. The center the reach the faster you go and the cycle repeats itself, again and again.

* Pinching - Sailing too high into the wind.

As one bears off there comes a most abrupt stall, indicated by the lee side ribbon dancing about -- the boat has gone instantly from near close-hauled to near running, all on the same point of sailing. Speed usually drops to less than half and considerable pointing up is required to reinstate the smooth wind flow on the lee side.

RUNNING OR BROAD REACHING

Very broad reaching or running is done in the same manner as in any other boat -- heading up when it is light -- bearing off in the puffs. When racing, a leeward position is worth as much on the reach as a windward position on the beat. When the apparent wind direction changes due to velocity or actual change of direction, take advantage of the maintained unstalled reach by luffing in the lulls and bearing off in the puffs.

Much has been written about the techniques of tacking downwind when the course is straight downwind. There is a narrow range of wind velocity where it is advantageous to tack downwind, but it is difficult to determine when it is advantageous. However, one does not seem to lose much if one guesses wrong. Generally, only in the very lightest or very heavy airs is it advisable to run rather than tack downwind.

A Catamaran's stability and speed robs jibbing of its sting. By jibbing from reach to reach a Cat can be sailed downwind much like an ice boat.

JIBBING

Caution -- when jibbing, do not let the sail go to right angles to the hull thus banging the battens against the wire shrouds. While the battens are durable, they may break if sharply struck on the shrouds.

TACKING

While the aft centerboard provides a marked superiority to windward, it makes the Dingo a bit more difficult to tack. The Dingo tacks better than boats without boards. The price paid for her superiority on the wind, provided by the aft centerboard, is a boat that does not tack as well as a monohull because of the short couple between the rudders and the centerboard. Any light boat lacks the momentum to carry a tack through. All Cat rigged boats lack a jib to induce lee helm (causing the bows to fall off the wind) by trimming a jib and slacking a mainsail.

However, a bit of understanding, practice, and using a proper technique will minimize the problem and assure successful tacking.

Pick a time to tack where the waves are not likely to stop the boat. Be certain you are high on the wind rather than off the wind close-hauled. Move crew weight aft in the boat. Push the tillers away so as to sail the boat around, rather than putting the helm down quickly and stalling the rudders. As the Dingo comes through the "eye of the wind" pay off the mainsheet so as to have no wind in the sail, and let her carry well on through the tack. (It is necessary to continue to hold the rudders over, otherwise the rudders, when free, will return to center.) Push on the sail, if necessary, to cause the battens to reflex and be set for the new tack when the sail crosses the center line. When you are well off the wind on the new tack and before the Dingo has stopped, trim in the mainsail quickly so that the entire sail is presented to the wind at the same time. Otherwise the back edge of the sail comes into play first, creating weather helm and pulling the boat right back head to wind.

When a tack is not completed successfully and the boat is head to wind, let the centerboard come about half way up, push out the boom, and push the rudders in the direction of the new tack. This will cause the Dingo to back up, the sterns upwind, and the bows move off the wind to the new tack. When the Dingo is well off the wind on the new tack, hold the rudders nearly full over. As the Dingo gathers speed, return the rudders to normal and return the centerboard full down.

NOTE --

While the Dingo is capable of carrying and floating more than two people, the more weight that is added, the greater the immersion of the hulls in the water, and tacking becomes increasingly difficult -- particularly in heavy weather.

If you are having trouble tacking initially, try putting the mast more straight up and down so that lee helm is present.

PITCHPOLE

When reaching or running, the force at the center of effort creates a lever and hence a force that tries to capsize the boat end over end. Three elements will prevent this from happening -- in order of importance, they are:

(A) The designers of the Dingo planned a proper hull shape for a Catamaran with, relatively full bow sections and overhang to provide reserve buoyancy as the bows begin to depress in heavy going on the reaches or runs.

(B) To counter driving the bows in, place your weight well aft as the bows begin to depress.

(C) To reduce the tendency to pitch pole, pay off the mainsheet.

CAPSIZE

A correlary of the difficulty of pitchpoling and the weight capacity of the Dingo is that she is relatively difficult to right after a 180 degree capsize. Since one cannot immerse one hull standing on it, one person of average weight cannot right the boat after a 180 degree capsize. Two people can right a 180 degree capsize by passing the line across the upturned hulls and tying onto the chain plate, standing on the hull, and leaning out.

NOTE --

It is suggested, if you are concerned about a capsize, that you rig righting lines on the Dingo. Pass a line around the main and rear beam, top and bottom, tying the ends of the line together, at each hull side. When the boat is capsized this gives you a hand hold to assist in righting the boat.

Obviously, one should prevent a 180 degree capsize. If alone, get off immediately after the capsize and stand on the immersed hull. This will prevent masthead sinking. (Even though the mast is plugged, the buoyancy is insufficient to prevent the mast sinking.) Grab the righting line and lean out as far as possible to keep the masthead from sinking. Generally, the boat will slowly drift head to wind where it will then be righted by your leaning out and assisted by the wind blowing under the sail. As the boat comes right side up, duck under the hull coming down to the front of the mainbeam, and go into the boat over the main beam.

FLOATATION

There is sufficient foamed reserve buoyancy to float the boat, with two people in the water hanging on, even if both hulls were holed and full of water. If the hulls are not holed, the same number of people can sit on her upside down as right side up.

WATERTIGHTNESS

An all glass boat will collect some moisture, therefore the reason for drain plugs in the hulls. The Dingo is sealed at the deck level with a butyl rubber sealant and fastened with stainless steel fasteners. Age of the boat, prolonged hot weather, or bumps and bangs against the hulls, can result in the seal being less than 100% watertight. Another possible source of water could be the rudder fittings on the transom, or a

loose fitting drain plug. (The drain plug can be expanded by turning the screw base the plug.)

Periodic checks should be made to maintain the watertight integrity of the hulls and the tightness of the bolts on the rudder fittings, to insure maximum buoyancy, even in a prolonged capsize.

