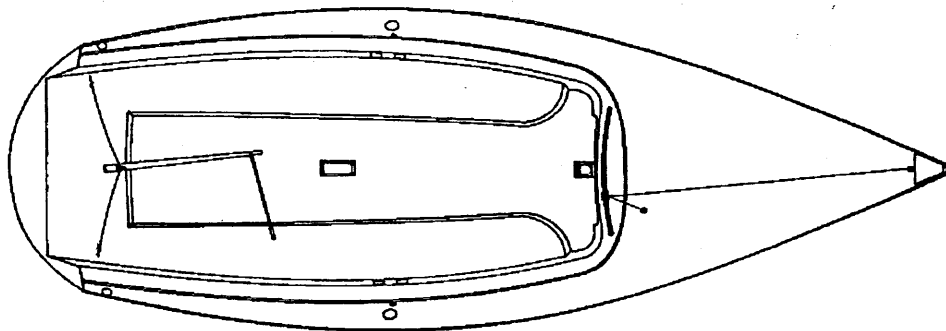


IDEAL 18

Owner's Manual and Rigging Instructions



For IDEAL 18 One-Design Keelboats

built by
ontarioyachts

Designer: Bruce Kirby, N.A
Builder: Ontario Yachts



**Class Association Headquarters
National Distributors
Warranty and Service Questions**

The Ideal 18 Class Association is registered with the U.S. Sailing Association and the Canadian Yachting Association as a registered one-design racing sailboat fleet. North American headquarters and United States distributor are located at:

**Ideal 18 Class Association
70 Pattonwood Drive
Rochester, New York 14617
United States
Telephone: 716-342-3030
Toll Free: 800-433-2518
Fax: 716-266-4722**

The ideal manufacturing facility and Canadian distributor is located at:

**Ontario Yachts Company Limited
Dirk Kneulman – Yacht Builder
Don Oakie – General Manager
4160 Morris Drive
Burlington, Ontario L7L 6L5
Canada
Telephone: 905-639-8382
Fax: 905-639-0551**

The designer of the Ideal 18 is:

**Bruce Kirby, Naval Architect
Bruce Kirby Yacht Design, Inc.
213 Rowayton Avenue
Rowayton, Connecticut 06853
United States
Telephone: 203-853-1899
Fax: 203-853-1298**



List of Standard Equipment

- * Class-legal hull - White with dual Midwatch blue waterline stripes
- * Class-legal deck/cockpit assembly - Northern white
 - * Cockpit mounted fiberglass barney post
 - * Four Harken handholds (2/side)
 - * Recessed bow cavity for jib roller furling
 - * Gel-coat finished underdeck storage area
- * Molded reinforcement grid - rudder, cockpit floor, mast step, shrouds
 - * E-glass laminate in stress areas
 - * Coremat core in all structures
- * Molded non-skid surface on seats and cockpit floor
- * Self-bailing cockpit with two bailer sumps/Elvstrom bailers
- * Bow eye, side deck eye straps
- * Isomat tapered mast, spreaders, standing rigging, gooseneck, maststep
 - * (2) Tubular aluminum fixed-angle spreaders w/end caps
 - * (2) 5/32" upper shrouds - marine eye fittings
 - * (2) 5/32" lower shrouds - marine eye fittings
 - * (1) Harken midi swivel block & cleat, rivited to mast
 - * (1) Cast aluminum gooseneck fitting w/stainless 1/2" pin
 - * (1) Cast aluminum spreader brackets rivited to mast
 - * (1) Cast aluminum mast step - male side
 - * (1) Cast aluminum masthead crane w/sparfly receiver
 - * (1) Cunningham clamcleat, eyestraps, 1/4" Dacron line
- * Isomat boom - outhaul, reef line, (2) Harken midi mainsheet blocks
- * Mars Keel elliptical lead keel (three bolt) with epoxy encapsulation
- * Elliptical inboard-hung rudder
- * Wood tiller, aluminum tiller head
- * Tiller extension - Ronstan X-10 extendable 30 inch
- * Harken "one-design" jib furling drum, swivel and line
- * Ronstan radial jib lead track - Ronstan ball-bearing slider car
- * Jib sheet assembly - shackle, wire/rope sheet, Harken block
- * Six Harken cleats on foredeck "console"
- * (1) Harken Hexaratchet with swivel cleat on barney post
- * (2) Harken Hexaratchet cheekblocks - deck mounted w/Harken cleat
- * Wire mainsheet bridle, eyestraps, shackles, Harken midi turning block w/becket
- * Stainless steel shackles, clevis pins, cotter pins, and mounting hardware
- * Dacron or Spectra/Dacron running rigging
 - * Mainsheet
 - * Main halyard
 - * Jibsheet



Standard Equipment (cont'd.)

- * Class-legal main and jib - w/sailmaker's royalty labels
 - Main
 - * 4.5 oz. Dacron mainsail - (2) transverse, (2) short battens
 - * Hull registration number
 - * Class insignia - dark blue
 - * Collision window
 - * 3/8" slugs on luff
 - * 5/16" boltrope on foot
 - * Class-approved reef points
 - * Cunningham eye
 - * Sail bag
 - Jib
 - * 4.5 oz. Dacron jib
 - * 5/32" wire luff
 - * Adjustable cloth tension
 - * Adjustable lead-position clewboard
 - * Sail bag
- * Triad Single-axle Float-on Trailer (US-only)
 - * 2" Class 2 female hitch w/safety latch
 - * Leaf-springs
 - * Light wiring w/brake, backup and turn signals
 - * Flat four-pin wiring end fitting w/ground
 - * (4) adjustable padded "popits"
 - * Padded float-on beds
 - * Padded keel receiver
 - * Adjustable rubber bow stop
 - * Ratchet crank w/Dacron line and hook
 - * Mast holder
 - * 10' extendable tongue w/retaining pins
 - * 15" bias-ply whitewall tires
 - * Bearing buddies
- * Manufacturer's statement of origin - trailer and boat
- * Sequential hull number - molded into transom
- * Class measurement certificate (filed at class offices)



Trailing Specifications and Suggestions

Trailing Weight: 1,950 lbs.

Includes boat, trailer, rig, sails.

Hitch Specification: Class 2

Trailer:

Single Axle, float-on

Flat four-pin wiring harness

225/75/15 Bias-ply tires

2" female hitch w/retainer

Trailing recommendations

The Ideal 18 is capable of being towed behind most family-sized automobiles. Any six-cylinder car of moderate wheelbase will pull an Ideal 18 at legal posted highway speeds.

If you plan to tow your boat often, or great distances, it is recommended that your automobile be fitted with heavier towing gear, such as a transmission cooler, overdrive gear, heavier springs and/or load-leveling shock absorbers.

It is strongly recommended that your trailer hitch be a frame-mounted Class 2, or stronger, unit.

All the car's systems should be checked for proper operation: brakes in excellent condition, fluids not leaking and properly filled, clutch or automatic transmission in good condition, steering and shocks, springs, etc. in proper operational order.

The standard provided wiring includes a flat, four-prong male plug. Suitable female outlets for wiring the car lights are available at automotive or marine retail stores.

Before trailing the boat, perform a visual inspection to insure that the car signals and trailer signals correctly correspond. Distinct lighting should include: brake-lights, running lights, right and left turn signals, emergency flashers and backup lights.

Attaching the Hitch

With the dolly jack lowered and fully extended (highest position), move the tongue cup over the 2 inch ball at the rear of the automobile.

With the locking mechanism on the top of the trailer hitch retracted (lever up), crank the dolly jack down until the trailer hitch firmly engages on the ball. Sighting from the side, the entire ball surface should disappear in the trailer tongue.

Latch the locking mechanism by pushing the lever firmly down until the hook underneath the lever catches and locks. Insert the retaining clevis pin

through the provided hole. The hitch is correctly locked when trailer cannot be lifted off the ball hitch.

Retract the dolly jack enough to pivot it off the ground. Pull the spring loaded pin on the side of the dolly jack to release it, pivot the wheel aft, and re-engage the pivot pin when the dolly jack is facing aft, parallel to the trailer tongue.

Attach the trailer wiring harness to the car's wiring harness. Insure proper operation of the trailer lights with an assistant, in necessary.

Attach each of the two (2) provided safety chains through the welded loops on each side of the car's trailer hitch.

The 1-10-100 Rule

It is wise to check the security and safety of your entire trailer and hitch often. When starting a long trip, check it after one mile, ten miles, and one hundred miles; as well as every time you stop for any other purpose.

Positioning and Supporting the Boat

The Ideal 18 trailer is designed to safely hold the boat upright by supporting the hull at five distinct points and along the bottom of the keel.

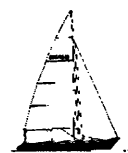
The keel should fully contact the lower channel along the keel's entire length. If it doesn't, lower the boat by loosening each pad ("pop-it) in sequence, screwing them down into the support tubes, one or more full turns. Each popit should firmly contact the hull when the keel is seated on the center channel.

Tighten the popit set-screws to immobilize them. Periodically lubricate the threaded portions of the popit assemblies to keep them from rusting.

The "vee" shaped rubber pad at the bow should contact the boat 8 inches below the bow eye. The bow pad is adjustable fore-and-aft, by loosening the set screw on the side of the square channel and moving the entire pad assembly.

Correct fore-and-aft location of the boat is important, to avoid tongue weight that is too great (making the tongue hard to lift), or too little (boat tips backward when you are standing on the transom with it on the trailer).

The correct fore-and-aft location for the boat is with the front edge of the keel making contact with the lower channel 22 inches behind the channel's front end. This puts the boat's center of gravity four (4) inches in front of the trailer axle.



Trailer Specifications (cont'd.)

Trailer Maintenance

Trailers need periodic maintenance to keep them in good working condition. The following items and procedures should be carried out annually:

- * Repaint areas where the paint has been worn or scratched. Lightly sand the area with 240 grit sandpaper, and repaint with suitable automotive touch-up paint.

- * Remove, clean and regrease the bearing buddies at the beginning of each sailing season. Check the bearing grease before any trip over 300 miles.

- * Check the wiring periodically for worn insulation, loose connections, and broken plastic retainers (wire ties). Repair or replace as necessary.

- * Check and equalize air pressure in the tires. Recommended inflation pressure is 32-35 pounds.

- * Lubricate all moving parts of the dolly jack, including: road wheel, pivot mechanism and crank handle. Use wheel bearing or white lithium grease.

- * Wash the entire trailer periodically with fresh water.

- * Remove road wheels at least once a year, lubricate wheel studs with silicaon and replace road wheels. Tighten wheel nuts to 80 ft. lbs. of torque.

- * Check all bolted connections.

- * Clean and lubricate the hitch and latch assembly.

- * If you plan not to tow the boat for an extended period, slice open a tennis ball and push it over the ball hitch on the car, to keep the ball from rusting.

- * Remove the extendable tongue once a year, clean and reassemble.

Trailer Technical Support

More detailed information on the U.S. supplied trailers may be obtained by contacting:

Triad Trailers, Ltd.
90 Danbury Road
New Milford, CT.
(203) 354-1146

Mast Rigging

Specifications:

- Isomat section # F50 T6061 aluminum
- Single-taper above hounds
- Isomat cast spreader base
- Isomat cast gooseneck
- Aerodynamic tube spreaders w/caps
- 5/32" Stainless steel shrouds.
- Merriman adjustable turnbuckles
- Main halyard - 60 ft., 5/16" Dacron
- Main cunningham - 4 ft., 5/16" Dacron
- Halyard shackle - Shaeffer # 93-43
- Main halyard cleat - Harken swivel #140

The mast is supplied from the factory ready to rig and raise. No drilling or installation of any permanent mast fittings is required.

Jib Installation

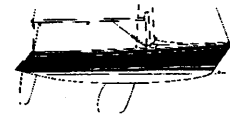
Before raising the mast, it is necessary to install the roller-furling jib, which contains the forestay and remains on the rig as long as the mast is up.

Remove the jib from its bag. With a helper, stretch the jib out horizontally, holding the head and tack wire thimbles. Twist the luff wire until the sail begins coiling itself around the luff wire. Continue this action until the jib is entirely wound around the headstay in a tight coil. It will take approximately 10-12 complete rotations of the headstay to accomplish this. Tie a short piece of line around the jib and through the metal clewboard, to keep the sail from unfurling throughout the remainder of installation.

The upper Harken roller swivel may already be installed on the jib, with its "T-Ball" mast receiver fitting at the top. If not, bolt through the bottom of the Harken swivel and head nico press on the jib, using the supplied clevis and cotter pins. Bend and tape the cotter pin.

Jib Onto Mast

Insert the T-Ball fitting into the receiver (hole) on front of the mast, located approximately five inches below the level of the upper shroud connections. The T-Ball is twisted 90 degrees and inserted, then returned to a vertical position, which will engage and lock it in the hole. The supplied rubber plug is pushed into the hole just above the forestay key, which holds it firmly in the slot.



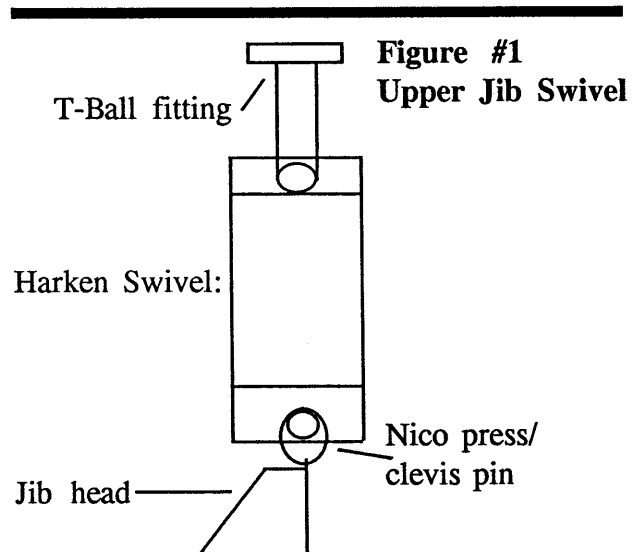
Spreader Attachment

The spreaders are attached to the shrouds at the factory. The plastic end cap captures the shroud, is pushed into the outer end of the spreader and fastened with a small self-tapping screw.

The inner walls of the spreaders and the shape of the ears on the cast spreader base (on the mast) are matched to permit a tight fit. The inner end of each spreader is pushed firmly onto the base. Slight wiggling of the spreader may be necessary for the provided clevis pins to fit through. Install cotter pins; bend and tape.

Mast Raising

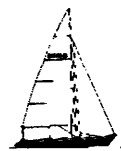
To facilitate raising the mast, it is best to keep an aft tie-down strap across the back of the boat, spanning the cockpit. This will support the middle of the mast while the hinge pin is installed, and will aid in keeping the rigging away from the tiller and



barney post in the cockpit.

It is also helpful to tie a light line around the mast, rolled jib and all four shrouds (two uppers/two lowers) to keep them tidy while raising the mast.

Approach the boat from the stern, with the mast butt forward and the spreaders pointed down (mainsail luff groove toward the ground.) Raise the mast over the tie-down strap or other line strung between the aft eye straps, and push forward until the mast butt can be placed under the foredeck. This process is easier with a person in the boat and a



Mast Rigging

person on the ground.

Once the butt end of the mast is captured under the foredeck, you are ready to install the pivot pin and raise the spar.

Push down firmly on the butt of the mast. It will pivot around the line strung across the aft section of the deck. Lower the black cast fitting on the mast to the cast mast step fitting on the floor of the boat. Line up the largest hole on the aft part of the mast butt between the holes on the mast step. Push the stainless steel hinge pin (Fastpin) through all three holes, until the ball bearing engages and locks.

Remove the four inch bolt from the aft end of the partners. Standing in the middle of the cockpit, grab the mast behind the barney post and firmly hoist the mast until it sits in the partners. Take care not to twist or rotate the spar as you are raising it, as this will put strain on the hinge pin at the butt.

After pushing the mast into the partners, insert the long bolt behind the mast and screw the locknut on the threaded end.

The mast is now set on its step and may be released to attach the two upper shrouds, two lower shrouds, and furled headsail.

The uppers and lowers are attached by means of the turnbuckles. Progressively thread each turnbuckle until the slack is taken up. Do not tighten the turnbuckles fully until the headstay/furled jib is pinned in the bow furling unit.

Using the provided clevis/cotter pin, fix the bottom of the rolled jib on the top of the roller furling drum. Be sure to turn the cotter pin to prevent it from backing out. Tape the clevis pin with electrical tape.

Progressively tighten the upper shrouds, one at a time, until they are firm, but not drum tight (300-400 pounds on a Loos Gauge). After tightening the upper shrouds, follow the same tightening procedure for the lower shrouds until the slack is removed. Proper final setting for the lower shrouds is approximately 250 pounds on a Loos Gauge, or about two-thirds the tension on the upper shrouds.

After tightening the shrouds, sight up the back side of the mast to check for straightness. Adjust shrouds as necessary to put the mast straight (no sideways bends). The mast is now installed and tuned for general sailing. Further tuning may be required for racing as wind conditions vary.

When you are satisfied with the tuning of the mast, insert the provided cotter pins through each of the threaded barrels in the turnbuckles (eight total). Turn the ends of the cotter pins to keep them from backing out.

Boom Rigging

The boom is delivered with the gooseneck temporarily installed. The gooseneck fitting must be removed from the boom to be installed on the mast.

Start by removing the gooseneck clevis pin (4" long x 1/2" diameter). Unscrew the shackle from the top of the gooseneck fitting, then slide the clevis pin downward and remove it.

Two plastic pieces will now be loose. The first is a rectangular black plastic casting with a hole running vertically through it. The second is a black cylindrical casting with a hole running through it midway along its length.

To disengage the entire gooseneck (the two plastic pieces) from the boom, slide the cylinder sideways out of the metal boom casted "ears". The rectangular plastic fitting will now be loose.

Move the forward end of the boom to the back side of the mast, near the casted metal "ears" on the mast. Note that the "ears" on the mast are oriented 90 degrees from the "ears" on the boom. The mast metal casting has two holes to accept the stainless steel clevis pin. The boom casting has two larger holes to accept the cylindrical plastic fitting.

Place the two boom ears between the two mast ears, vertically. Place the rectangular plastic casting between the two boom ears, keeping the large holes in alignment.

Slide the plastic cylinder through one side of the boom ears, through the rectangular plastic casting, and through the other boom ear. Looking vertically down at the boom/gooseneck assembly, twist the cylinder until the half-inch receiver holes for the clevis pin are aligned.

Move this assembly to the mast and set the top and bottom of the rectangular plastic fitting between the mast ears. Align the half-inch clevis holes with the holes in the mast ears. Starting from beneath the boom, slide the clevis vertically through the mast ear, rectangular plastic, the plastic cylinder, and finally the top of the mast casting. This may require further alignment of the round cylinder.

Figure #2
GOOSENECK SIDE VIEW

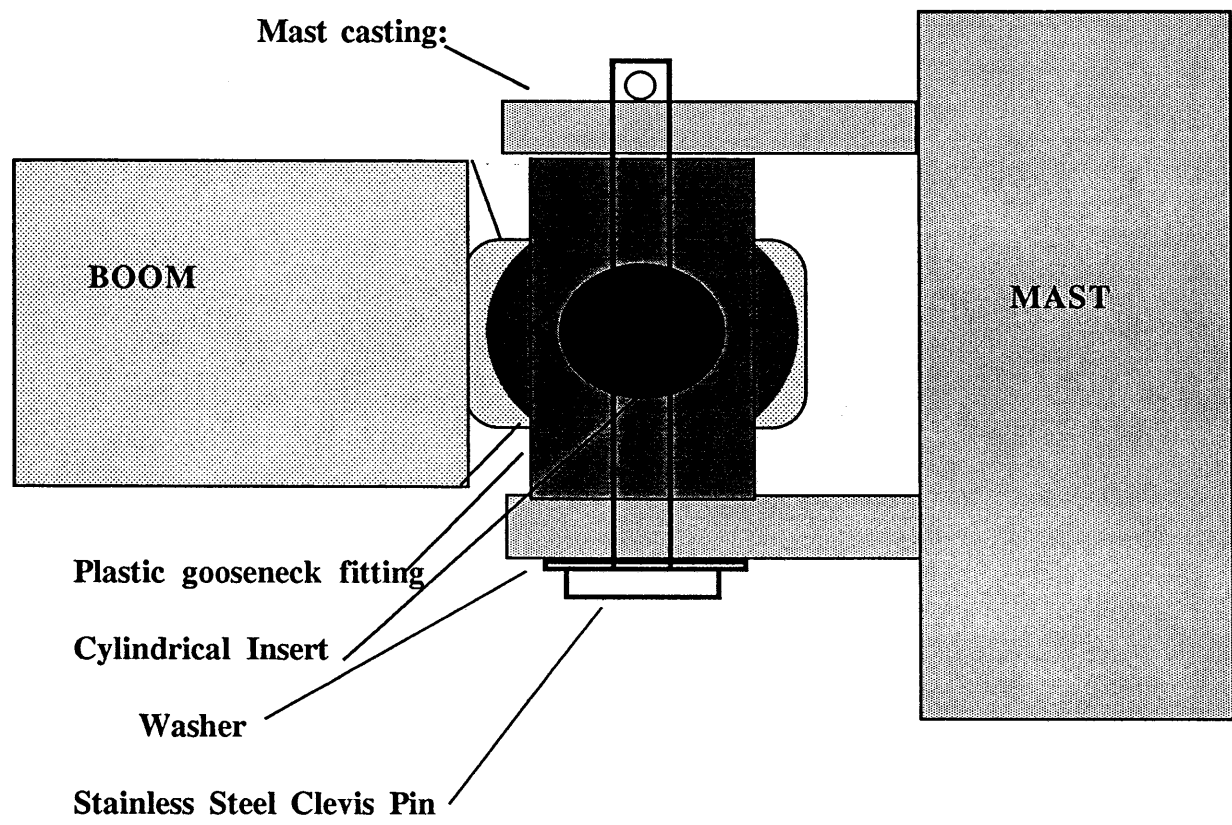
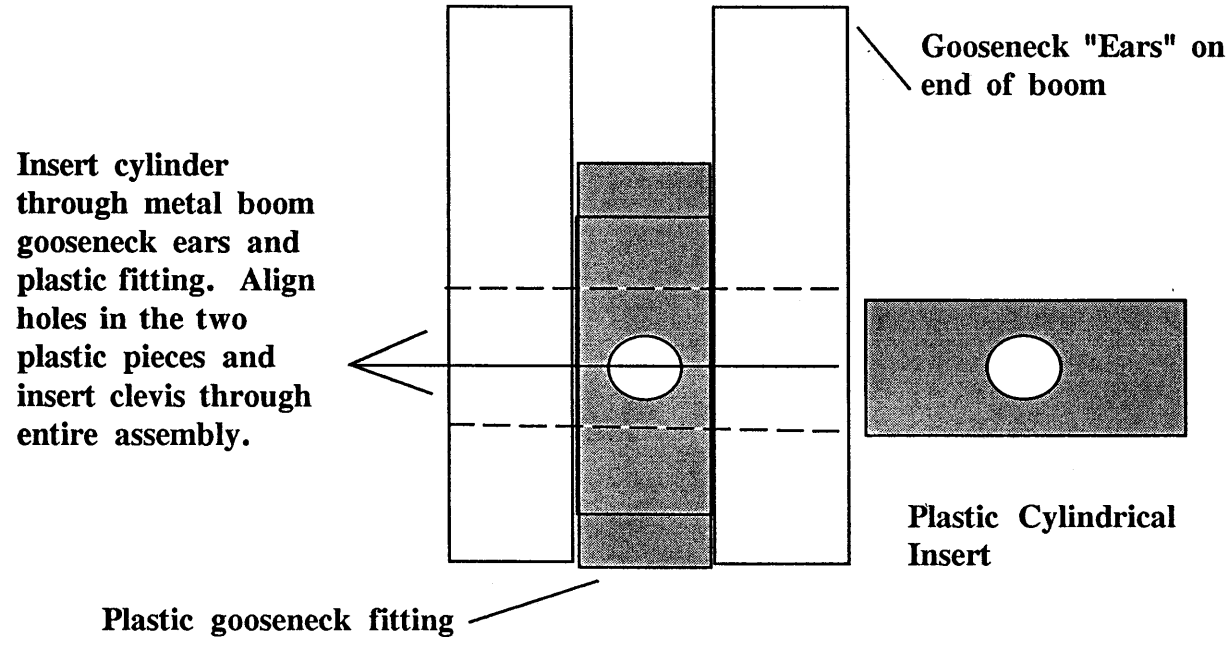


Figure #3
TOP VIEW



Boom Rigging (cont'd.)

Once the pin is fully through the plastic assembly and boom casting, reconnect the large shackle through the hole in the top of the clevis pin and screw it shut.

(Note: some mainsail designs require that the tack grommet be captured by the gooseneck shackle. Other mains (Haarstick) have a "floating" tack and later insertion in the tack shackle is not required.)

Mainsheet

The mainsheet (5/16" braided Dacron) is tied in a bowline to the Harken midi block with becket, in the middle of the bridle. It runs up through the aftermost block on the boom (Harken midi), down through the bridle block (going through the block aft-to-bow), up through the second Harken midi from the end of the boom, forward through the mainsheet block at mid-boom, down through the Harken hexaratchet on the barney post and through the swivel Cam cleat. Note that when the ratchet is on, the mainsheet will move freely through the Hexaratchet in one direction only.

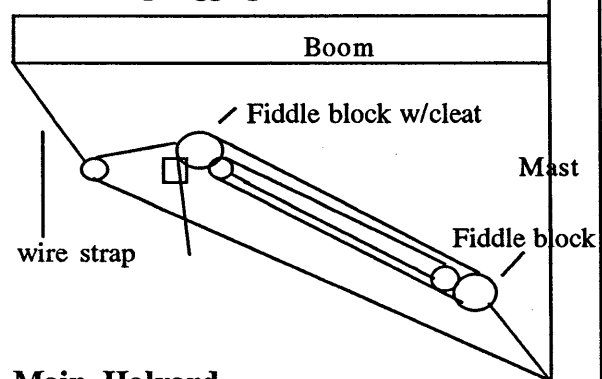
Tie a figure-eight knot in the tail end of the mainsheet.

Boom Vang

The boom vang is a six-to-one (6:1) cascading rope system with a pigtail to shorten the amount of line required. The boom vang may be rigged a number of ways. Figure #4 represents one typical method.

Whether you will be sailing singlehanded or with additional crew, keep in mind that the release tail of the boom vang (purchase that goes through the Harken cam cleat), should be easy to uncleat. This will help in puffy wind conditions, as well as during hoisting/dropping the mainsail.

Figure #4
Boom Vang Rigging



Main Halyard

The main halyard (5/16" braided Dacron), is installed at the factory, inside the mast. Its lower tail exits below the gooseneck and is led through the swivel Harken cam cleat and block. This allows you to raise, lower, cleat and uncleat the main halyard from any position inside the cockpit.

The top tail of the main halyard is led out of the aft side of the masthead crane, and has a locking shackle tied on with a bowline knot. The shackle clips in the headboard of the mainsail before hoisting.

Periodically check the condition of the halyard for fraying or wear, particularly near the shackle, where it bears on the masthead crane when the mainsail is flying.

Rigging the Mainsail Luff

All Ideal 18 mainsails are fitted with plastic luff slugs by the manufacturer. These fit into the luff groove on the back side of the mast, and are retained by a knurled screw which keeps the slugs captive. The mainsail luff does not need to be removed from the mast after sailing.

Remove the knurled screw by rotating counter-clockwise.

Harken midis (3) Mainsheet Rigging Detail

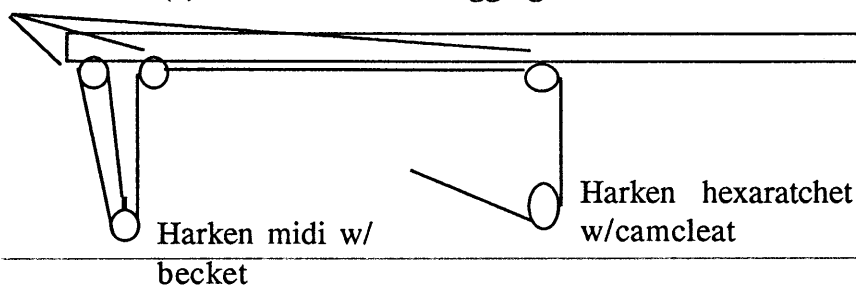


Figure #5

Rigging the Mainsail Luff (cont'd.)

Starting at the head of the mainsail, slide the first luff slug up into the mast slot, pushing it toward the top of the mast. Do the same with the next lower slug, pushing it up against the first. Continue doing this with each lower slug until all are installed in the mast, and they are sitting in a row.

Insert the knurled screw back into its threaded hole, below the luff slugs. Tighten it by turning it clockwise until it fully engages. The luff of the mainsail is now installed.

Rigging the Mainsail Foot

All currently produced mainsails have 5/16" boltrope foot fittings. Starting at the clew (lower, aft end of the mainsail), slide the large clew slider in the front of the boom's boltrope track. Follow this by inserting the back end of the boltrope itself, and work the sail toward the back end of the boom, feeding in boltrope at the same rate that you pull the clew aft.

When the boltrope is fully fitted in the boom track, install the shackle on the outhaul wire through the large grommet at the lower aft end of the mainsail and fix the clevis/cotter pin.

The mainsail foot is now installed.

Rigging the Cunningham

The mainsail cunningham (downhaul) is a simple two-to-one purchase system, rigged completely on the mast. The 5/16" Dacron line runs from the eye strap riveted to the mast, up through the lowest luff slug grommet, and back down on the opposite side of the mast to a medium clam cleat.

After inserting the line through the clam cleat, tie a figure eight knot to secure it.

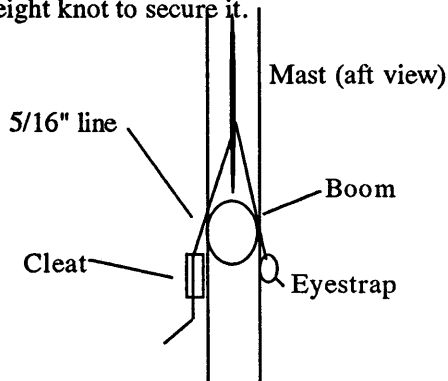
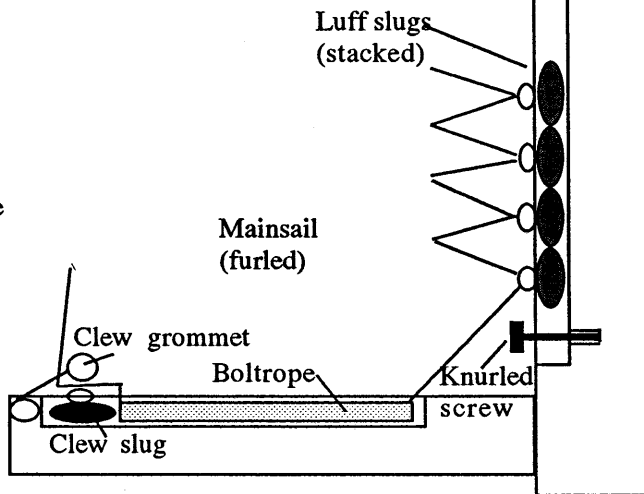


Figure #7
Cunningham Rigging



Figure #6
Mainsail Rigging



Mainsail Battens

Ideal 18 class-legal mainsails have two full width (transverse) battens on the upper part of the sail and two shorter battens toward the bottom of the sail. The purpose of the transverse battens is to aid in setting the sail properly and to give it a longer lifespan. With proper care, an Ideal 18 mainsail should give good performance and stay in shape for years.

In most cases, the battens are installed by the manufacturer, and the mainsail is provided in a long tube-type (roll) bag. If you should be required to remove the battens for any reason, consult with the manufacturer's instructions for reinstallation. The way this is done varies from sail to sail, and manufacturers occasionally change methods of batten installation.

In addition, sailmakers sometimes provide detailed tuning and usage instructions for their products. This information may be especially important if you plan to race your boat. Contact your U.S. or Canadian Ideal 18 distributor for more information about sail manufacturers.

Jib Rigging

The jib is a very easy sail to rig, maintain and use. It is designed as a roller-furling, self-tacking design, 95% of the size of the foretriangle.

It is installed with the mast (see "Mast Rigging"), and remains installed and aloft on the rig whenever the mast is up. Following are a few tips for successful rigging and usage of the jib.

Using the Roller Furling

Installing the jib on the mast before raising the spar was previously discussed. However, a few additional precautions will make this process easier.

When the jib is initially coiled for installation on the mast, the "rolls" you make are likely to be rather loose. As the furling unit is used, the jib will naturally roll tighter around the luff wire, because the mechanical advantage created by the furling unit is greater than your ability to do the same thing, rolling by hand. The effect, then, is that after repeated unfurling and furling a small wedge of fabric will remain exposed when the furling line is fully retracted.

The solution to this is to detach the clew from the clew shackle and roll the remaining fabric tightly around the headstay, with the furling line fully retracted. After doing this, the sail will fully roll and unroll.

Clewboard Attachment

Jibs are provided with an aluminum "clewboard", a metal plate riveted to the sail with a series of five or more holes along its edge.

Because the jib self-tacking track has a fixed, unmovable position, "jib lead" adjustment is impossible through movement of the jib lead block in a fore-and-aft direction.

To achieve the same effect, the jib shackle may be moved up and down the clewboard. Moving the shackle to a higher hole on the clewboard simulates moving the lead position forward; lowering the shackle on the clewboard simulates moving the lead position aft.

In general, use higher clewboard holes in lighter wind strengths and the lower clewboard holes in heavier winds. On currently produced jibs, the lowest hole is never used.



Jib Cloth Adjustment

Like most jibs or genoas, the cloth tension on an Ideal 18 jib may be adjusted independently from the wire (rig) tension.

The provided adjustment method is generally a piece of 1/8" line, looped between the tack grommet and the lower swage fitting on the wire. To work properly, the line should make several passes through both openings, then tie back on itself with two or three half-hitches.

Note: the roller furling system will only work properly if the cloth adjustment line is attached. If the line breaks or unties, correct the problem promptly, or the lower portion of the jib will not roll up.

The adjustment on the jib cloth tension is a matter of preference and wind conditions. In general, keep the cloth tensioned so that no wrinkles show along the luff of the jib, either vertically or horizontally. In lighter winds, ease the line to create less vertical pull; in heavier winds, tighten the adjustment line to create more vertical pull.

Figure #8
Jib Tack

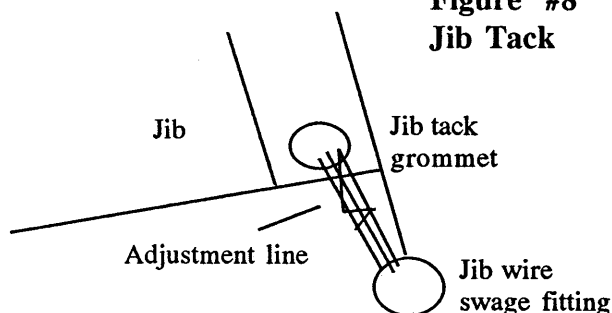
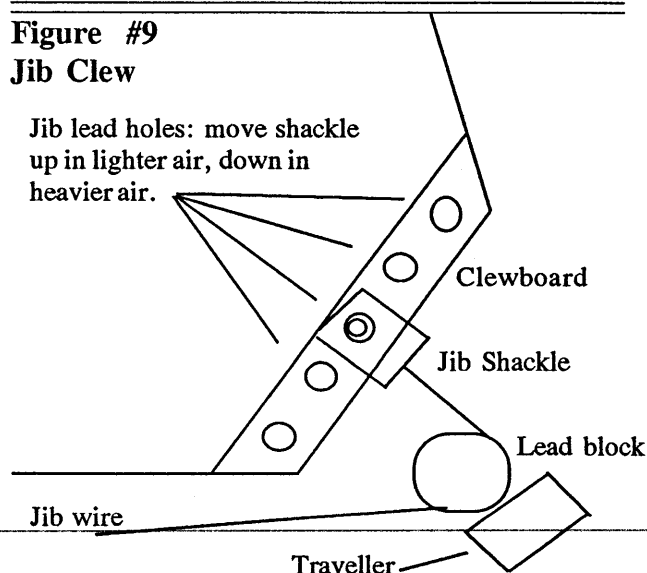


Figure #9
Jib Clew

Jib lead holes: move shackle up in lighter air, down in heavier air.



Sail Care

Ideal 18 mains and jibs are built from stabilized Dacron sailcloth, to the highest industry standards. With care, they will last for years of enjoyable sailing. It should be noted that working performance and racing performance involve different standards, in terms of sail shape. Racing sailors who want top performance will need to replace sails more often than sailors who do not race, or race only occasionally.

Storage - Onboard

The mainsail is intended to be furled on the boom and placed under a sail cover when not in use. Because it has luff slugs, it is not necessary to remove the mainsail from the mast when storing it after sailing. Simply drop the main halyard, arrange the folds neatly along the boom, and tie two or three sail ties or pieces of light line around the sail and boom, to keep it in place. Place the sail cover over the mainsail, and it is stored.

The jib remains on the forestay, rolled up, when not in use. To protect the jib from the elements, an optional "sock" (essentially a long tube bag) is available for the jib. It is attached at its upper end to the spinnaker halyard and raised along the jib, as the provided zipper is closed. When fully raised, the jib sock completely encloses the sail.

The primary source of sail breakdown is from sunlight. For this reason, it is especially important to protect the sails from the sun when they are not in use. Modern sailcovers are made from synthetic Acrylic canvas, and have generous life expectancies. Furthermore, their cost is very moderate, compared with the price of new sails. Investment in mainsail and jib covers is highly recommended to all Ideal 18 owners.

Storage - Mast Down

Mainsail: Remove the main from the mast and boom before lowering the rig. Spread it out on a clean, dry surface (lawns are best), and roll the sail in a long tube, starting from the headboard and continuing until the entire sail is rolled. Avoid rolling the sail with any large creases or wrinkles, as these may become permanently "set" into the fabric.

Place the rolled mainsail in its tube bag. If storing for a long period, keep the sail in a cool, dry location. Do not lay heavy items on top of the mainsail during extended storage.



Jib: If you plan to store your mast indoors, the jib may be kept on the mast, rolled up, inside its cover. If you plan to store the mast outdoors or in a humid location, it is best to remove the jib and place it with the mainsail.

In either case, it is most convenient, and acceptable, to keep the sail rolled inside an Acrylic cover.

Sail Washing

Sails which are used in saltwater environments or which become dirty should be periodically washed to keep dirt and salt from becoming encrusted in the seams, threads and fabric.

Generally, a simple dousing with a garden hose, on both sides of the sails, is all that is necessary. This should be done twice a season in all cases; more often if you sail in saltwater.

To remove dirt from the sail surfaces, use a gentle dishwashing liquid or Woolite in a weak solution with warm water. Gently wipe down the sails with a sponge, then rinse thoroughly to remove all traces of the soap. Never use harsh abrasives or metal scrub brushes to clean sails. This may break down the fibers in the fabric and cause premature failure of the stitching, patches or attachments.

Boat Maintenance

Ideal 18s are designed and built to require a minimum of upkeep and maintenance through years of hard usage. The sealed hull/deck connection with no through-hull openings will ensure that the boat remains sound and dry inside. The only piece of wood on the boat is the tiller, which eliminates virtually all refinishing work.

Following are some hints to help you maintain your Ideal 18 in excellent working condition.

Hull, Keel, Rudder

The only required yearly maintenance needed for a good condition hull, keel and rudder is cleaning and surface protection.

Several times a season, thoroughly wash your boat with a mild detergent and water. Rinse down the hull and appendages to remove the soap.

A liberal coating of a high-quality boat wax to the entire hull surface (topsides and bottom), keel and rudder will help maintain the gelcoat in excellent condition. It will also help prevent dirt from clinging to the hull between washings.

Boat Maintenance (cont'd.)

Starbrite Products make an entire line of boat cleaning compounds, waxes and coatings which can help maintain the luster of your fiberglass hull. They are available at any marine retailer.

Deck Fittings, Running Rigging

The attached fittings, blocks, cleats and shackles are the highest quality boat fittings available on the market today.

With normal care and usage, they should provide worry-free usage for the life of your boat.

Since most fittings have a certain number of moving parts, and are built from a combination of plastics and stainless steel, periodic cleaning is beneficial. Thoroughly flush all fittings and running rigging with fresh water at least once a year.

Inspect the jib traveller, jib turning block, under-deck fittings, mainsheet blocks and cleats along the console periodically for proper function. Any parts that are cracked, broken or non-functional may be replaced with identical components, which are available from the U.S. or Canadian distributors.

Mast and Boom

The Isomat mast and boom are sturdy and need little maintenance. Periodic washing and inspection of all parts are a good idea.

Check shrouds (uppers and lowers), shroud terminals, turnbuckles, clevis pins and cotter pins for proper operation. Any that show signs of wear, such as broken wire strands or bent pins, should be replaced, because these components are what hold the mast up.

Check the spreader bases where they go through the mast, to ensure that the rivets do not loosen. The spreader bases should be rigidly held against the mast.

Check the spreader outer caps. They should show no signs or excessive wear, and should not be cracked. If they are, replace them.

Periodically clean the sheaves (pulleys) that go through the mast and boom. They should turn easily with light finger pressure. Washing with fresh water will help maintain them. If they break, do not turn, or become excessively abraded, they may be replaced with identical components. If this is necessary, call your national distributor for advice on making the change.

Dacron lines should be checked at least once a year for excessive wear or broken strands.



Sump Cover, Bilge Maintenance

The rectangular sump cover is positively engaged to the cockpit floor by means of a threaded fitting which screws into a stainless steel bar crossing beneath the cockpit floor. It takes approximately twenty full turns to engage or disengage this screw.

It should be firmly screwed down, and bearing against, the sump cover at all times while sailing. Failure to do so may result in water leaking into the bilge around the edges of the cover.

Although the sump cover is edged with a water-tight foam, it will not work properly unless forced down into the sump opening cavity. The cover is cambered slightly to allow positive watertight engagement when fully tightened.

If you plan to store your boat outside in a Northern climate during winter months, it is recommended that you put a gallon of water-soluble antifreeze into the bilge for the duration of storage. This will prevent any water that does find its way into the bilge from freezing and causing damage to the lamination of the reinforcement pan.

During the sailing season, inspect the bilge regularly and pump out any ambient water. The lowest point of the boat is at the keelbolts, so any water in the bilge will run to the exposed bilge, either on the (level) trailer, or in when the boat is floating.

Hoisting by Crane

If you plan to lift your Ideal 18 in and out of the water by means of a hoist (one ton capacity or greater), the lifting bridle wires will be attached to the two forwardmost keelbolts, by galvanized eye straps. These should be firmly screwed down into the bolts, and tightened with locking pliers.

Factory-supplied lifting bridles are nico-pressed directly to these galvanized eyes. The working strength of each piece of galvanized wire is far in excess of boat's weight. In fact, the entire boat, rig and trailer may be lifted on the two wire bridles.

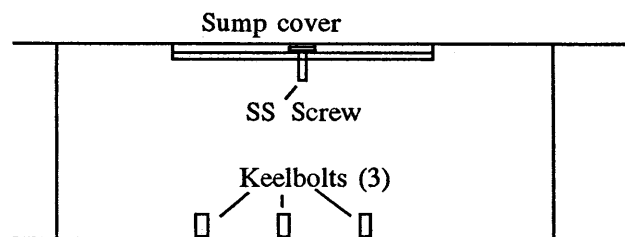
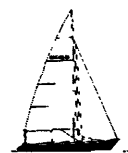


Figure #11 - Sump Detail



Cockpit Rigging

The hallmark principle behind the Ideal 18 is simplicity of rigging and ease of usage. This principle extends to the cockpit rigging.

The function of all deck hardware is readily apparent. The one area where some latitude exists for rigging variation is the "console"; the area alongside the mast which contains six Harken Cam cleats. Following are suggestions for rigging the console. Owners may find that their needs vary, and may change the locations of lines on the console to suit individual habits or techniques.

The Console

Figure #10 shows the console from above, including the mast partner and cleat locations.

The indicated position for each adjustment is optional. However, when locating adjustment tails on the console, take care that the underdeck adjustment lines do not cross or tangle each other in a way which prevents adjustment over a line's full range of movement. This is especially important with the jib sheets and roller furling line, which are sometimes under great load and have long throws.

Note: The jibsheet is "double-ended"; to hold the

jib in place it must be cleated in both cleats. Each of the other lines is "single-ended", and need only be held in one cleat.

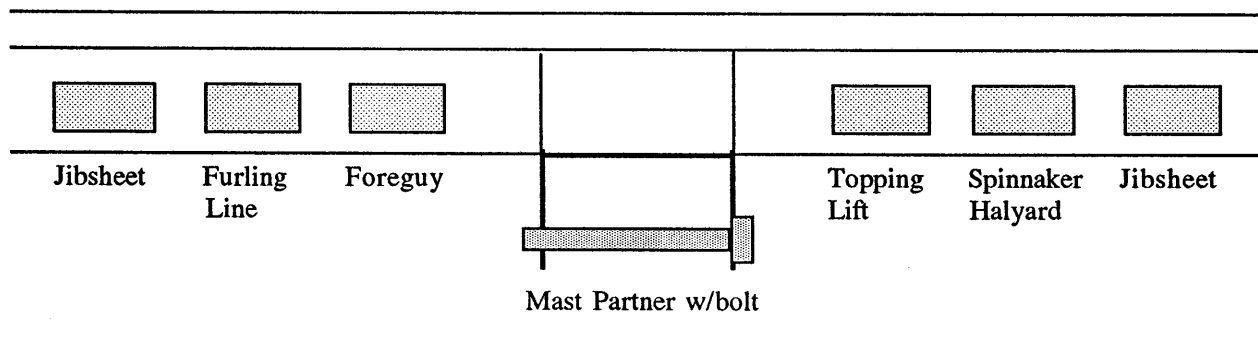
The foreguy, topping lift and spinnaker halyard cleats are used with the optional spinnaker package. If your boat does not have a spinnaker, these cleats are not required to be used for adjustment lines. The foreguy, topping lift and spinnaker halyard locations may be interchanged without any problem.

The topping lift and spinnaker halyard exit from the front side of the mast below the deck, run through the Harken bullet blocks directly underneath the console (inside the storage cuddy), then through the console holes to cleats. Again, ensure that these lines are fully adjustable when under tension.

After running any adjustment line through a cleat on the console, tie a figure eight knot in the bitter end to prevent it from inadvertently falling through the lead eyes in the console face.

When your boat is delivered, the jib sheets and furling lines will be located as shown in figure #10. If you do not use spinnaker rigging, you may select to move the jib sheets to cleats further inboard on the console.

Figure #10 - Console



Mainsheet Bridle

The wire mainsheet bridle was selected for its simplicity. No moving parts or adjustment of the bridle length is ever required, for racing or daysailing.

It is a good idea to check the strands of wire in the mainsheet bridle occasionally. Although never under as much load as the shrouds, failure of the mainsheet bridle can cause temporary inability to properly trim the mainsail. Also, in light winds the bridle tends to

hang slack, and may catch under the back of the tiller head. To prevent this, you may put a piece of shock cord between the two aft eyestraps (on the side deck), and through the center eye of the bridle. Pull the shock cord tight and tie it off. This will hold the center of the bridle at deck height, well above the tiller head.

Periodically check the eyestraps which hold down the ends of the bridle.

Sailing Performance

The Ideal 18 was designed to combine good performance in a variety of wind and sea conditions, for one person or as many as four adults.

The keel weighs 700 pounds, providing great stability and safety. The hull shape is narrow forward to prevent pounding in waves, and the underwater shape carries a minimum of "wetted surface" for quick acceleration and maneuverability.

Here are some hints to help you get the most sailing enjoyment from your Ideal 18.

Getting Started

A majority of the total sail area is carried in the mainsail. This allows the boat to sail at nearly its full speed under mainsail alone. This feature is important for leaving the mooring, docking, and sailing the boat singlehanded.

You will be able to sail the boat away from docks and moorings under sail, in most cases. Don't be afraid to sail it out of small basins or mooring areas: the boat will turn a complete circle in its own length, when it has some speed.

Accelerating and Stopping

Because the boat has a keel, it takes a bit of time for the sailplan to generate enough power to get the boat up to full speed, unlike centerboard dinghies.

Conversely, once the boat is up to full speed, it carries its momentum for considerable distance, even when the sails are completely luffed or dropped.

Adjusting to these two characteristics takes some practice. In particular, be aware that the boat "carries way" when you approach a mooring or dock. Generally, it is possible to completely luff the sails, or roll up the jib and drop the mainsail, when you are approximately five boatlengths from the dock or mooring.

Do not sail directly up to a dock at which you intend to stop. The momentum the boat carries will make it difficult or impossible to stop by hand unless the boat is moving slowly.

Backing Up

One unique and handy characteristic of the Ideal 18 is that, with no sails raised, it can be "sculled" to a destination.

To do this, reverse the direction of the rudder by turning the tiller completely around, so that the tiller

is pointed aft (toward the stern). Stand on the aft deck, facing aft, with your feet spread across the top of the rudder post. Grab the tiller firmly about halfway along its length and sweep it back and forth through a 3 ft. to 4 ft. arc. After a few sweeps, you will notice the boat beginning to move "in reverse". As long as you continue the sweeping motion, the boat will back up.

Backing up is practical as long as the wind is not blowing too hard. Above 12 knots of breeze, this technique may be impractical or impossible, due to windage on the rig and hull.

Jib Handling

The boat is intended as a convenient platform for singlehanded sailing, training and sailing with friends or family who aren't experienced sailors.

The primary reason this is possible is the self-tacking jib traveller.

It is unnecessary to handle the jibsheets when tacking or gybing. The jib will automatically move from one side to the other on the jib traveller, and stop at the optimum "lead angle", as defined by the ends of the traveller track.

You may, of course, control the amount of trim on the jib as you would on any other sloop, by pulling in or easing out either jibsheets. When the appropriate adjustment is done, cleat off the adjusted sheet. The jibsheets will only hold the sail in position when they are both cleated.

To use the roller furling, the jibsheets must be eased at the same rate as the roller furling line is pulled in. Be aware that it is sometimes necessary to ease both jibsheets to completely furl the jib, as the amount of "throw" available in easing one jibsheets is not enough to allow the sail to fully roll up. This condition is apparent when the clewboard and a small wedge of fabric will not roll to the headstay, despite a strong pull on the furling line.

To unfurl the jib for sailing, uncleat the furling line and pull in on either jibsheets. As the sail unrolls, be sure the furling line does not tangle, as this will prevent the jib from fully unrolling.

The "normal" position of the clewboard for upwind sailing is approximately 2 inches from the turning block on the genoa traveller.

The jib is intended to be used unrolled all the way. Sailing with a "partial furl" is possible, but not recommended for best performance.

Sailing Performance (cont'd.)

Mainsail Handling

The mainsail is much like this sail on other boats. The adjustments which control mainsail setting and performance are: mainsheet, halyard, cunningham, outhaul, boom vang and reef points.

The mainsheet is your "power switch". It is used to control the angle of attack of the mainsail to the wind. Because a wire bridle is used, it is not possible to trim the main boom above the boat's centerline.

It is helpful in windy and/or puffy conditions to keep the mainsheet in hand at all times, even when it is cleated on the barney post. When a puff hits the boat, ease the mainsheet out to keep the boat "on its feet", then trim it back in after the puff passes.

The halyard and cunningham together control the height of the mainsail and the luff tension. When raising the main, it is helpful to make sure the boom vang and cunningham adjustments are completely loose, to avoid adding resistance as the main halyard is raised. Pull the halyard until the head of the main raises as far up the mast as it will go.

After cleating the halyard, pull down on the cunningham tail until the "crow's feet" disappear from the luff slugs. The optimum cunningham setting is a matter of experimentation and prevailing wind condition; a good starting point is to have enough tension that no horizontal wrinkles appear on the luff.

The outhaul controls the fullness in the bottom half of the mainsail. When sailing to windward, it is usually beneficial to pull the outhaul adjustment tight, so that the extra "belly" of fabric along the boom is folded up. Downwind, ease the outhaul an inch or two to create more fullness in the sail.

The boom vang controls the "twist" in the leech of the main, as well as the height of the boom. In light winds, the boom vang can remain virtually slack. As the wind increases, the boom vang should be progressively trimmed to keep the boom from rising, and to keep the leech of the mainsail from twisting too much. Note: the six-to-one boom vang purchase is very powerful, and can be trimmed by even the smallest sailor in almost every wind condition. Be careful not to overtrim the boom vang, especially in lighter winds.

Reaching Adjustments

When sailing "off the wind" - beam reach to run - the jib must be eased out beyond the end of the

traveller, for best performance. One way to keep good control over the jib clew is to put the tweaker hooks (on the rail with a removable clip) through the jib clew shackle. By pulling the tweaker down, the clew will be trimmed outboard and downward; both desirable effects on reaches. The tweaker must be released before tacking.

Running Adjustments

When the boat is sailing on a run (wind aft of 150 degrees to the boat) the mainsail will blanket the much smaller jib.

If you are daysailing, you may want to simply roll up the jib and sail under main alone. The boat will perform just as well as it would with the jib flying. Most racers select to raise a spinnaker on runs. (See our supplemental guide about spinnaker rigging, handling and performance).

Reefing

The reefing system on an Ideal 18 is almost identical to the slab reefing systems on most boats.

The aft reef line runs from its cleat underneath the front end casting, internally the length of the boom, out the back casting, up through the aft reef point, and back down to the aft mainsheet block eyestraps, where it is tied off.

The front reef point has no independent line. Before the sail is lowered for reefing, untie the cunningham and pull it free from the sail. Then, when the main is lowered, insert the cunningham line through the front reefing grommet and send it back through its cleat, in identical fashion to the manner in which the cunningham is rigged.

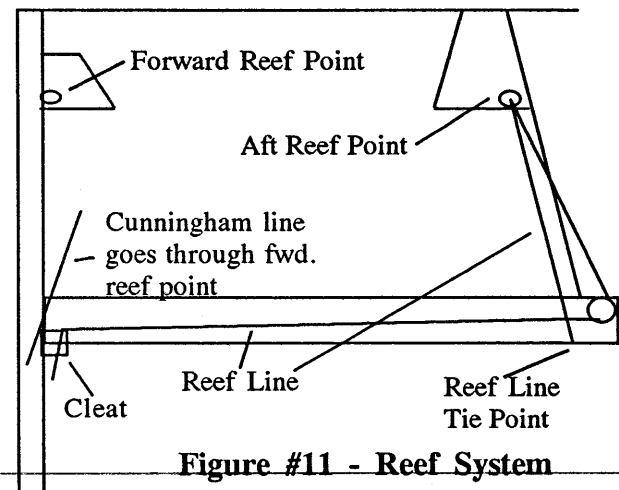


Figure #11 - Reef System

Sailing the Ideal 18

Sailhandling, Rigging and Tuning Tips

The Ideal 18 keelboat was designed by Bruce Kirby as a strict one-design, accessible to sailors of all ages, weights, skill levels and competitive backgrounds. The emphasis is on strategy and tactical skills and boathandling, rather than tuning or special rigging.

Some design specifications: 18 ft. LOA, 14.2 ft. LWL, 1240 lbs. displacement, 700 lb. ballast (lead keel), 168 sqft. main/jib (108 main, 60 jib), 240 sqft. spinnaker. The keel and rudder are both elliptically shaped, and relatively narrow, giving the boat good pointing ability.

The hull, deck and cockpit look a bit like a "baby Sonar"; the hull shapes are mostly semi-circular, with a fine entry and little flattening of the hull shape aft of the keel. It has moderate overhangs bow and stern. The transom is reversed and opens through to the cockpit seats (known as the "swim platform"). Freeboard is about 36" at its highest, making the boat dry, even at 20 degrees of heel. Maximum beam is about where the skipper sits.

The 3/4 fractional sloop rig has no permanent or running backstays; instead, rig stability is generated by 15 degree swept spreaders and a large cross-section mast. Pre-bend varies only slightly at varying rig tensions, and most sailors prefer to keep the upper and lower shrouds fairly loose up to 15 knots. Upper tension ranges from a low of about 180 lbs. up to 300 lbs.; lowers are one or two turn above hand-tight until 12 knots; thereafter, usually about 75% of upper tension. The harder the vang is trimmed, the more lower tension is used.

The jib is self-tacking and roller furling. The curved jib traveler is non-adjustable... sailing to windward, the car slides out to an end stop, creating a sheeting angle of approximately eight degrees. The spinnaker is small for an 18-foot boat, fairly high aspect for a one-design and easily handled by any size forward crewmember; with standard twings, topping lift, foreguy, and Spectra sheet/guy. The spinnaker is stored in a mesh bag on the port side of the cockpit, just in front of the seats (set up for mostly port windward mark roundings.)

Ideal 18s are comfortable and easy to sail upwind. No hiking straps are provided or allowed; in fact, sailors are required to keeping their legs inside the boat, with no part of the body touching the topsides (ie. no droop hiking). Handholds are provided for safety when sitting up on the deck.

Because of the no-hiking rule and heavy keel (ballast-displacement is 55%), a larger range of weights is competitive than in most one-designs. Winning class teams range from a low of 260 to more than 400 pounds. In 5-15, any weight is equally competitive. Light crews have some advantage in chop and light air; heavier crews have some advantage in overpowered conditions. As always, the two bodies should be close

together upwind, weight centered (athwartship) six or eight inches in front of the barney post.

Ideal 18s are fastest with 5 - 7 degrees heel in winds under six, and flat as possible above eight knots. The circular hull sections allow the boat to heel without creating too much windward helm. In "sitting out" conditions, keep the notch of the transom opening even with the waterline's exit from the hull, and you'll be going fast...with the bow knuckle one inch immersed and stern overhang just kissing the water. Take care not to sit too far forward as the breeze builds; when you move from the seats to the rail, sit back a foot or so. This keeps the bow up and the waterline long.

Although it sails at extremely high tacking angles (approx. 80 degrees in "full-speed" conditions), it is usually better to foot some and let the boat run. This is especially true when waves build up, because the boat maintains a good head of steam and doesn't do a lot of "stopping-and starting". It is often the case that a boat which carries a lower pointing angle will track higher, making better VMG.

Main trim is more important than jib trim in all conditions. Until you are sitting on the deck, the vang is used to create approximately 5-10 degrees of twist (sighting up the leech). Once both crew are sitting out, the vang may be pulled harder to bend the mast, open the narrow slot, and get the tip of the spar to bend sideways above the hounds, which releases main leech tension somewhat. Above 15, pull the vang as hard as possible and be prepared to use the sheet aggressively. The main ordinarily likes a tight outhaul. Outhaul tension should be set before the vang. The cunningham is a "floating tack" and the halyard non-locking (Harken cleat), so the height of the whole main is adjustable. Set the height so when the cunningham is trimmed to your liking, no hardlines radiate from the forward end of the boltrope in the boom slot. There is no main traveler...a fixed non-adjustable bridle is placed above the tiller. In light air you can drop one purchase on the mainsheet for quicker sheeting action.

The jib is tall and narrow, more so than any one-design you've ever sailed. Easing the jibsheet too much (more than two inches from "normal") in puffs, after tacks, etc. allows the top half of the sail to twist excessively. Typical jib trim is one-half inch to three inches from the clewboard to the traveler block. The clewboard adjusts the lead angle: top hole in 0 - 3, second hole in 4 - 8, middle hole 8 - 18; 4th hole, 18+. Jib halyard tension and length are non-adjustable.

Because the main is large, bearing off (ducking transoms, etc.) requires some mainsheet ease above 12 knots. Aggressive ease-and-trim is also fastest in puffy conditions. Although the helm does not load up significantly, the boat slows down with the mainsheet "pinned" and cleated. With more than 10 degrees heel, it is typical to carry significant float in the main luff. In puffy conditions above 15, it is faster to luff the main and keep the boat driving than it is to feather up; partly because the boat sails at high tacking angles in the first place, and partly because this technique will keep the boat flatter.

Downwind sailing is very much like in other dinghies. The spinnaker is tall for its girth. Whenever helm control is not a problem the pole should be square to the apparent wind; in moderate wind and flat seas, Ideal 18s may be sailed almost dead downwind with the pole "oversquared" and the clew eased to the headstay. Sailing higher downwind gybing angles is usually only effective in light air.

There are no mysteries in raising, gybing or dousing the chute; but the techniques do require a bit of practice. During gybes, the crew stays in the cockpit...some prefer to gybe the pole ahead of the main; others gybe the main first, then the pole. The skipper trims both the sheet and guy during gybes, and pulls the guy back on the hoist. Some skippers trim the spinnaker sheet downwind, and let the crew work on weight placement.

On hoists, the crew moves the pole from the boom to the mast, raises the topping lift, clears the spinnaker out of its turtle and raises the halyard; while the skipper trims the guy back. Some skippers also trim the sheet, others leave it cleated until the crew is done hoisting. Dousing is essentially the opposite of hoisting. Some care must be taken to ensure the halyard runs freely when it is uncleated - check during the approach to the leeward mark to make sure it isn't tangled with other lines on the console.

The idea is to keep the spinnaker in front of the boat, out from behind the main. If the sail repeatedly collapses or the head area goes soft, despite good breeze, it probably means the pole is not squared enough and the sheet is not eased enough. Ideal 18s surf well, but plane only in more than 15 knots of wind. The windward twing line is pulled down about halfway on reaches. When the pole is squared all the way aft, the twing must be released so it doesn't prevent the pole from being trimmed back.

In windy conditions with moderate to large waves, the boat has a tendency to roll. This is okay to a point. If it rolls too hard the rudder comes about halfway out of the water. This is not okay, as the boat may broach to windward. One cure is to ease the pole forward a few inches and place slight pressure on the leeward twing. This technique is not faster - it only provides better control.... When control gets tricky, it also pays to move aft (skipper at back of seats, crew behind barney post), raising the bow knuckle out of the water, eliminating any "tripping" action, at the same time keeping the rudder well planted. Below 15 knots a little heel to windward is fast; above 15, keep the boat flat.

The Ideal 18 is agile, more like a centerboard dinghy than a keelboat. It will turn a 360 degree circle in little more than its own length. The result is that upwind, you can take advantage of even the smallest windshifts to good advantage. It is common for teams to tack ten times on a quarter-mile beat. Sailors who spend most of their time thinking about windshifts, rather than the mechanics of sailing the boat, do the best.

Finally, Ideal 18s are even in speed. Keels and rudders are identical, no fairing of underwater surfaces is permitted, the mast steps and partners are all located the same, and headstay lengths are fixed. They go around the race course like they "are tied on a string." National-level regattas often feature races in which seven or eight boats finish in a 30-second period, on a two-mile course. This puts a premium on boat-to-boat tactics; and gives trailing boats a chance to catch up, even late in the race.

IDEAL 18 TRIM CHART

Wind Strength

Sail Control/Technique	0-4 knots	5-10 knots	11-15 knots	18+ knots
Mainsheet Tension (boom to bridle)	8-12"	6-8"	6"	6-10"
Flat Water	8-12"	8-10" trim/ease	8" trim/ease	8-10" trim/ease
Choppy				
Outhaul				
Flat Water	1" eased	tight	tight	tight
Choppy	1 1/2" eased	1/2" eased	tight	tight
Cunningham (cloth tension at slugs)	soft	soft	small wrinkles	flat(no wrinkles)
Vang	5 - 10 degree twist	5 degree twist	tight	very tight
Jibsheet (clew shackle to turning block)	1 1/2" - 3"	3/4" - 1 1/2"	3/4" - 1 1/2"	1/2" - 1"
Jib Clew	top hole	2nd hole	middle hole	4th hole
Upper Shroud Tension	150 - 180 lbs.	180 - 220 lbs.	220 - 280 lbs.	300 lbs.
Lower Shroud Tension	hand tight	hand tight + 1/2 turn	165 - 250 lbs.	225 - 250 lbs.
Heel Angle	5 - 7 degrees	5 degrees	flat as possible	flat as possible
Skipper Position				
Upwind (relative to barney post)	1' in front	athwartship	athwartship	1' aft
Downwind (barney post)	athwartship	athwartship	1' aft	2' aft
Crew Position				
Upwind (relative to shrouds)	front leg touching	3" aft	6" aft	1' aft
Downwind (shrouds)	3" aft	6" aft	1' aft	3' aft



IDEAL18

2002 Tuning Guide

The *Ideal 18* keelboat was designed by **Bruce Kirby** as a strict one-design, accessible to sailors of all ages, weights, skill levels, and competitive backgrounds. The emphasis is on strategy, tactical skills, and boathandling, rather than tuning, hull fairing, or special rigging.

It is a $\frac{3}{4}$ fractional sloop rig, with swept spreaders and no permanent or running backstays. No hiking straps are provided or allowed; in fact, sailors are required to keep their legs inside the boat. Because of the no-hiking rule and the heavy keel, a larger range of crew weights is competitive than in most one-designs. In 5-15 knots, any weight combination is competitive.

The Keel and Rudder are identical from boat to boat, with no fairing allowed. The mast step and partner locations are fixed and the headstay length is fixed as well.

THE HULL :

The Class Rules allow no fairing of the Hull or the foils. This endeavors to keep every boat identical in performance and to avoid the pitfall of many classes where you have to spend \$\$ sending your hull to a speed shop in order to be competitive.

If you are competing in One Design Fleet racing, we recommend drysailing the boat if possible. This keeps the boat at minimum weight and will allow you to keep the bottom clean. If you are wetsailing, you should have bottom paint applied to the bottom and foils. Keep a large sponge with your boat to sweep the water line free of algae and other "slime". A mossy surface is definitely not fast. During the season, periodically have the boat hauled and power washed to remove growth. If you are trailering to a regatta, you can wetsand the bottom and foils very lightly to remove bumps, blisters and dirt only. No drilling, fairing, or reshaping is legal.

Check the seam around the gunwhale edge of the boat for cracks or separation. This is the connection between the cockpit and the hull. You may apply silicone caulk to any cracks or separation. In the offseason, you can have the boat reconditioned by the Ideal 18 North American Dealer, Shumway Marine. This includes hull, foils, hardware, and lines. Shumway is an approved *Haarstick Sailmakers, Inc.* dealer and can include our OEM sails in the package as well.

THE RIG :

The 3/4 fractional sloop rig has NO permanent or running backstays; instead, rig stability is generated by 15 degree swept spreaders and a large cross-section mast. Rig tuning is controlled by the Upper and Lower Shroud tensions. With swept spreaders, more Upper Shroud tension will induce mast bend, pulling the top of the spar aft and moving the center forward. The Lower Shrouds keep the mast in column side to side and help limit mast bend to prevent overbending or inverting the mainsail.

We prefer to keep the upper and lower shrouds fairly loose up to 15 knots. Upper tension ranges from about 180 lbs. up to 250 lbs.; lowers are hand-tight until 12 knots; thereafter, usually about 75% of upper tension.

THE RUNNING RIGGING :

The IDEAL 18 is rigged for the easiest hoisting and dowsing of the sails. You can get on the boat and be sailing in about 15 minutes. The mainsail has Nylon slugs on the luff so it is easy to single hand, as you do not need a second person to feed a luff boltrope into the mast groove. The jib is roller furled so unwinding and furling it is a snap. There is a jib sheet on either side of the pit, so it can be adjusted from the rail at any time. All The halyards are lead to very convenient positions. Most of the forward sail controls are on the aft face of the foredeck.

The boat is equipped for spinnaker use downwind. It comes standard with Twings, Topping Lift, Foreguy (Pole Downhaul), and Sheets/Guys. The spinnaker hoists from a port side launch bag and the spinnaker pole is stored along the boom for easy reach and stowing.

THE SAILS :

(1) MAINSAIL - The main is a 2 + 2 Batten setup: 2 full length upper battens and 2 shorter lower battens. Full battens support the sail across it, preventing flogging and increasing the life of the sail. Most One Design boats do not allow full battens and so their mainsail leech breaks down much faster. There is one mandatory Class Reef for safety and heavy air cruising. The Leech Telltales help identify airflow past the leech of the sail. There is a standard vision window in the main for safety. The Nylon Luff Slugs that slide in the mast may be stacked up above the mast gate for flaking the mainsail, or they may be dropped out of the groove for rolling the main (preferred). The cunningham is the Tack Ring or "Floating Tack". This eliminates the need for a separate cunningham patch and ring, saving weight and added cost. The Foot has a shelf, a foot boltrope, and an outhaul slug that slide in the boom groove.

(2) JIB - The jib is Self-Tacking and Roller-Furling. When sailing to windward, the jib has a sheeting angle of about eight degrees. It has an adjustable Clewboard to change the trimming lead angle and a luff adjustment line that acts as a jib cunningham. The forestay wire itself is non-adjustable.

(3) SPINNAKER – The chute is small for an 18-foot boat. It is remarkably easy to handle for almost any size forward crewmember. The spinnaker is stored in a mesh launch bag on the port side of the cockpit. The new *Haarstick* Triradial Maxi-Runner design is now our standard spinnaker for the boat. It has bigger shoulders, a larger foot roach and is designed to perform best in Windward-Leeward sailing. The big shoulders make it more forgiving because you can carry more shoulder curl without it collapsing.

Upwind Sailing

In light winds, 5-7 degrees of heel is best, and as flat as possible above eight knots, unless the sea is quite choppy. The two bodies should be close together upwind, weight centered six or eight inches in front of the barney post. When the breeze builds, move from the seat to the rail and back a foot or so. This keeps the bow up and the waterline long. Although the boat can have an 80 degree tacking angle, it is usually better to foot some and let the boat run. This is especially true when the waves build up.

Because the main is large, bearing off requires mainsheet ease above 12 knots. Aggressive ease and trim is fast in puffy conditions. Above 15 knots, it is faster to luff the main some and keep the boat driving than it is to feather up; partly because the boat sails at high tacking angles in the first place, and partly because this will keep the boat flatter.

Main Trim :

This is the most important sail in all conditions. The small foretriangle of the jib keeps the jib small and its trimming is less critical than the main. An over-vented or over-trimmed mainsail will show frequent or complete stalling in the upper leech telltales and will slow your performance greatly. There is no main traveler; a fixed, non-adjustable bridle is located above the tiller. Most mainsail shape control is facilitated with the sheet and the vang.

- **Main Sheet** - There is a fine range of about 2-3 inches where the boat really takes off in pointing angle and speed. Too little sheet and the boat will be relatively fast, but will not point. Too much sheet tension for the wind strength, and the boat stalls, pointing well for a short time but then quickly slowing down. It pays to get out in the 8-12 knot wind range and get a feel for the main trim range. We like to find the range and put a large Black Mark there with a Permanent Marker. This makes it easy to look down anytime and know where you are for trim without having to re-feel the range again. This pays most at the leeward mark when you are trimming in yards of

sheet. The Tuning Chart lists the mainsheet tension as the distance between the blocks at the end of the boom. The more mainsheet you pull on, the more the rig pulls back and the tighter the forestay will get. The sheet controls the amount of mainsail leech twist. In light air we trim the sheet until the top batten is parallel to the boom. This gives you enough leech to point without stalling the airflow. In more wind you can sheet harder, closing the leech and reducing twist without stalling the airflow (telltails).

- **Boom Vang** – The Vang hauls down on the boom, controlling the mainsail leech twist and pulling the entire rig aft, consequently controlling the forestay tension as well. A hard vang will bend the rig aft, tighten the forestay and open the slot between the main and jib. Keep the vang fairly loose in light air for more twist and more forestay sag. This keeps the top battens of the main from stalling too much and the jib full and powered up. In 8 knots or more, both crew can sit on the deck and the vang may be pulled harder to bend the mast and open the slot. Above 15 knots, pull the vang as hard as possible and be prepared to use the mainsheet aggressively. In heavy conditions, luff into the wind, trim the mainsheet on hard, then trim the Vang on hard, then release the mainsheet. This “Vang-Sheeting” technique allows you to dump the mainsheet in puffs without easing the forestay not powering up the jib. It keeps the slot open and the jib flat.
- **Outhaul** - The main likes a tight outhaul most of the time upwind. Easing it slightly downwind can help fill it out, but do not forget to put it back on before the leeward mark. It can be difficult to get it back on when going upwind.
- **Cunningham** - The cunningham is a floating tack type like the J/24. Trim it just enough to remove the speed (horizontal) wrinkles in the luff of the main. In light air leave slight wrinkles and in heavy air, trim it hard to help pull the draft forward and flatten the sail. Older sails require more cunningham to get the draft forward to where it is most effective.
- **Shrouds** – The rig is quite sensitive to rig tension, so sticking close to this Tuning Guide is highly recommended. Too much upper shroud tension and not enough lowers will over bend the rig, over-flattening the mainsail, giving it too much twist to point upwind. While too much lowers will stand the rig up too much not letting it bend enough to depower and point.

Jib Trim :

The jib is tall and narrow. It has a Clewboard with multiple holes to adjust the lead angle. Jib halyard tension and length are non-adjustable, however there is an adjustable tack line that acts as a jib cunningham allowing draft fore and aft control. Typical jib trim is one-half inch to four inches from the clewboard to the traveler block.

- **Clewboard** – The holes in the clewboard allow lead angle adjustment, much like moving the car forward and aft on a big boat genoa track. We recommend the second hole for 0-3 knots, 3rd hole from 4-8, 4th hole for 8-18, 5th hole for 18+ knots. Lowering the Jib Sheet hole pulls the foot more and the leech less, adding twist allowing the upper jib to spill wind in heavy air to help keep the boat flatter.
- **Luff (Tack) Line** - Tension this to move the draft forward in heavy air, but do not forget to ease it in light and medium breeze to power up the jib. As your jib ages, it will require more luff tension to get the draft forward.
- **Jib Sheet** – Proper sheet tension can really improve your performance. We like to ease it 1-1½ inches through tacking to power it up and then trim it back on when the boat gets up to speed again on the new tack. Over trimming the jib will stall the airflow and the boat speed, and under trimming will not let you point. One trick to make it easier to trim in heavy air is to jump the sheet at the shackle about 6-8 inches. This allows better purchase, but will not let the jib furl fully. Basically you have the sheet line and shackle led to your preferred hole, then the 6 inch tail of the sheet is tied to the bottom hole. When the day is over, release the shackle and the jib will furl up all the way.
- **Forestay** – with no backstay or runners, the only ways to tension the headstay is with aggressive shroud tension or with the Boom Vang. Vang Sheeting in heavy air is a dinghy technique that works very well in the Ideal 18. By maximum tensioning the Boom Vang, the rig is pulled back, tightening the forestay and opening up the slot. This is very important in Big Breeze. With no traveler, the only way to depower is to ease the mainsheet. Without Vang mainsheet tension controls the forestay, but when you ease it, the forestay goes soft, powering up the jib - not what you want in heavy air. Big vang tension keeps the forestay tight and the slot open even with the mainsheet eased.

In very heavy air, a combination of aggressive mainsheet trim and feathering will keep the boat on its feet. Even though the Ideal 18 is a keelboat and has an open transom, it is still possible to swamp the cockpit by taking a wave over the bow or by over healing in a puff. Once you take on water, it is very difficult to keep the boat flat as the water counteracts your hiking weight. Make sure your scuppers are always open in heavy air. Move your crew weight back in the boat to keep the bow up and the water flowing out the back of the boat. When water gets in the bow it amplifies the boats bow down tendency of the boat in heavy air.

The best way to avoid swamping is to get the boat set up properly for the conditions. Even if you are set up a little light on the shrouds and the breeze builds, get extra Vang tension to compensate. Luff up and Maximum trim the Mainsheet hard so the crew can Max Trim the Vang. In some extreme puffs, the jib may need to be eased by the crew (from the rail) to help reduce heel and to release pressure off the bow.

Downwind Sailing

Downwind sailing is very much like it is in other small keelboats and dinghies. The pole should be square (90 Degrees) to the apparent wind at the Windex; in moderate wind and flat seas, Ideal 18's may be sailed almost dead downwind with the pole "oversquared." Sailing higher downwind angles is usually only effective in light air. The *Haarstick* Maxi-Runner spinnaker design will let you sail lower with speed. Keep the spinnaker in front of the boat and out from behind the main. If the sail repeatedly collapses despite good wind, try squaring the pole back more and easing the sheet. Ideal 18's surf well, but only plane in more than 15 knots of wind. In heavy breeze if the boat is rocking & rolling too much, ease the pole forward and trim the leeward twing to gain more control. Also move crew weight aft to keep the bow out of the water.

- **The Set** - On hoists, the crew moves the pole from the boom to the mast, clipping the guy into the outboard end of the pole. Raise the topping lift to the proper height for the wind strength - lower for lighter winds and reaching, higher for medium and heavy air. Hoist the spinnaker halyard while the skipper trims the guy back. After the chute is up and the guy is back, then the skipper trims the sheet to fill the spinnaker. We like to trade off the control lines (sheet and guy) to the crew once underway downwind, so the skipper can concentrate on driving and his position with other boats. This lets the crew concentrate on the spinnaker. We talk a lot downwind about angle, boatspeed, and tension on the sheet. If we have plenty of speed and sheet tension, we will bear off slightly to work down. If we are slow and there is little sheet tension, then we head up slightly to get more of each.
- **The Gybe** - During gybes, the crew stays in the cockpit. Many teams prefer to gybe the main first, then the pole. First the crew hands the sheet and the guy to the skipper. The skipper steers the boat with their knees trimming both the sheet and guy through the gybe. Next, as the skipper heads the boat down, crossing the stern through the wind, the crew pulls on the vang system (not the line but the whole purchase system) to help the boom across to the new leeward side. Then, the crew stands up and trips the pole from both ends, and gets the new guy locked into the pole jaw and then the new mast end onto the mast ring. The crew then releases the old weather twing line and trims the new weather twing. Finally, the crew retrieves the sheet and guy from the skipper.

However after many hours of practice and racing, we prefer to the following Gybing Technique:

- (1) Release the guy twing 8-12 inches up and pre trim the sheet side twing half way down. This will help the skipper keep the chute flying through the gybe.
- (2) Trip the pole so that only the outboard end releases the guy line. Keep the pole on the mast ring.
- (3) Duck down, leaning hard to windward to help roll the boat through the gybe.

- (4) Reach over and pull on the whole vang system to pull the boom across to the other side of the boat. Be careful not to get pinned between the boom and the shrouds.
- (5) Duck around the Vang, stand up and reach up to the mast ring.
- (6) Release the pole from the mast with the Trip line and get the new guy line into the pole jaw.
- (7) Push the pole out and forward until the new inboard end can be made to the mast ring. The skipper may have to ease the new guy slightly to help the crew get the pole back onto the mast.
- (8) Finally, retrieve the sheet and the guy from the skipper.

This method will take some practice, because the skipper is free flying the chute longer. The best way to practice this is to leave the pole off the chute and just practice gybing without the pole, back and forth.

- **The Take Down** - Dousing is essentially the opposite of hoisting. We like to have the skipper free fly the chute if possible for the last few downwind boat lengths, so the crew can stow the pole on the boom and unfurl the jib. Make sure that the halyard will run free when uncleated. The crew grabs the spinnaker sheet forward of the shrouds and releases the spinnaker halyard, pulling the spinnaker down between the shrouds and the mast and into the port side launch bag. Finally, fine trim the jib and get back into Upwind mode.

IDEAL18 Trim Chart

Sail Control/ Technique	0-4 knots	5-10 knots	11-16 knots	17+ knots
Mainsheet Tension				
- Flat Water	8 – 10 "	6 – 8 "	5 "	6 – 10 "
- Choppy	8 – 12 "	8 – 10 "	7 "	6 – 10 "
Outhaul				
- Flat Water	½ " eased	tight	tight	very tight
- Choppy	1 " eased	½ " eased	tight	very tight
Cunningham (cloth tension at slugs)	soft	soft	slight wrinkles	flat (no wrinkles)
Boom Vang	5 – 10 ° twist (very light)	5 ° of twist (light to med.)	tight (med to hard)	very tight (hard)
Jibsheet (clew shackle to turning block)	2 - 3 "	1 - 2 "	¾ - 1 ½ "	½ - 1 "
Jib Clew (Gold Clewboard)	2 nd hole down	3 rd hole	3 rd hole	4 th hole
(Blue Clewboard)	3 rd hole down	4 th hole	5 th hole	6 th hole
Upper Shrouds Tension	180 lbs.	180lbs.	200-220lbs.	250 lbs.
Lower Shroud Tension	just hand tight	hand tight + ½ turn	160-180 lbs.	220 lbs.
Heel Angle	5 – 7 °	5 °	flat unless steep chop then 2-5 °	flat as possible
Skipper Position (relative to barney post)				
- Upwind	1 ' in front on seat	athwartship; on seat	athwartship; on gunwale	1 ' aft; over gunwale
- Downwind	athwartship	athwartship	1 ' aft	2 ' aft
Crew Position (relative to shrouds)				
- Upwind	Just aft; center or leeward	3 " aft; center or on seat	6 " aft; seat to gunwale	1 ' aft; over gunwale
- Downwind	3 " aft	6 " aft	1 ' aft	3 ' aft

I-18 Sails Websites:
<http://www.haarsticksailmakers.com>
<http://www.shumwaymarine.com>

