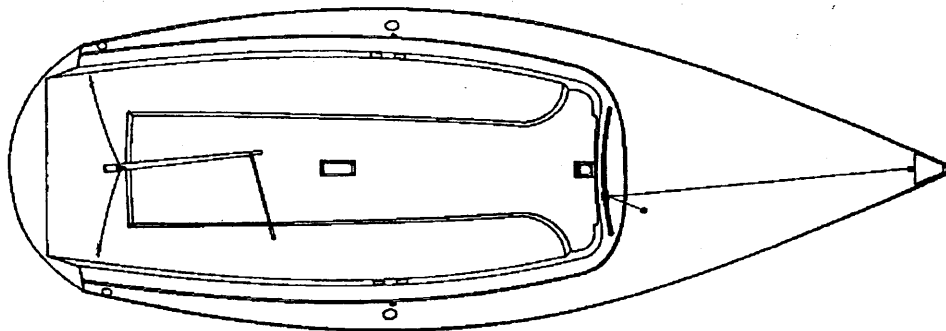


IDEAL 18

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
 - 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.

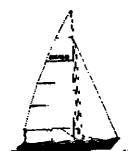
The keel should fully contact the lower channel along the keel's entire length. If it doesn't, lower the boat by loosening each pad ("pop-it) in sequence, screwing them down into the support tubes, one or more full turns. Each popit should firmly contact the hull when the keel is seated on the center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



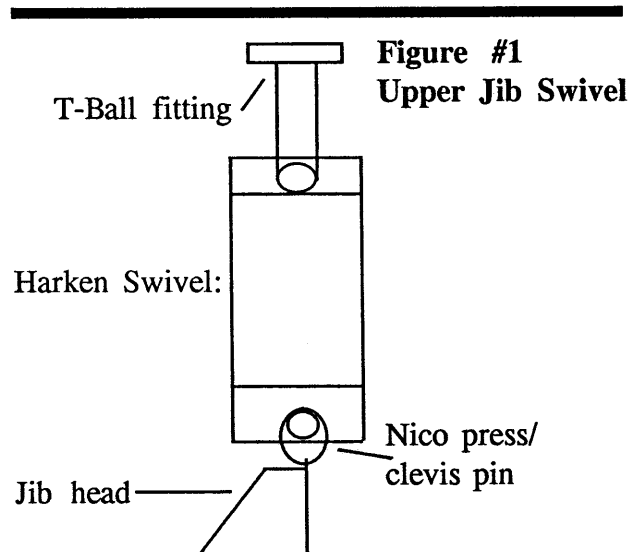
Spreader Attachment

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

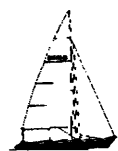
To facilitate raising the mast, it is best to keep an aft tie-down strap across the back of the boat, spanning the cockpit. This will support the middle of the mast while the hinge pin is installed, and will aid in keeping the rigging away from the tiller and



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

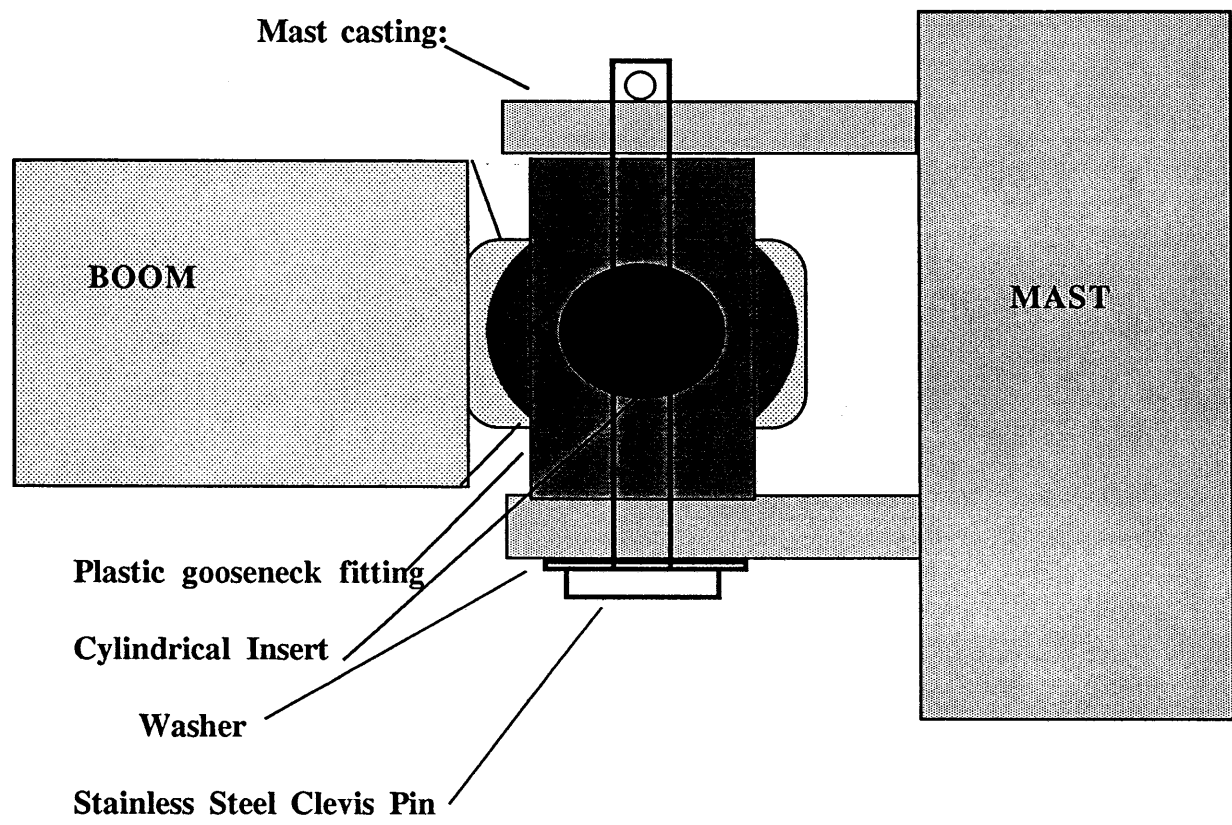
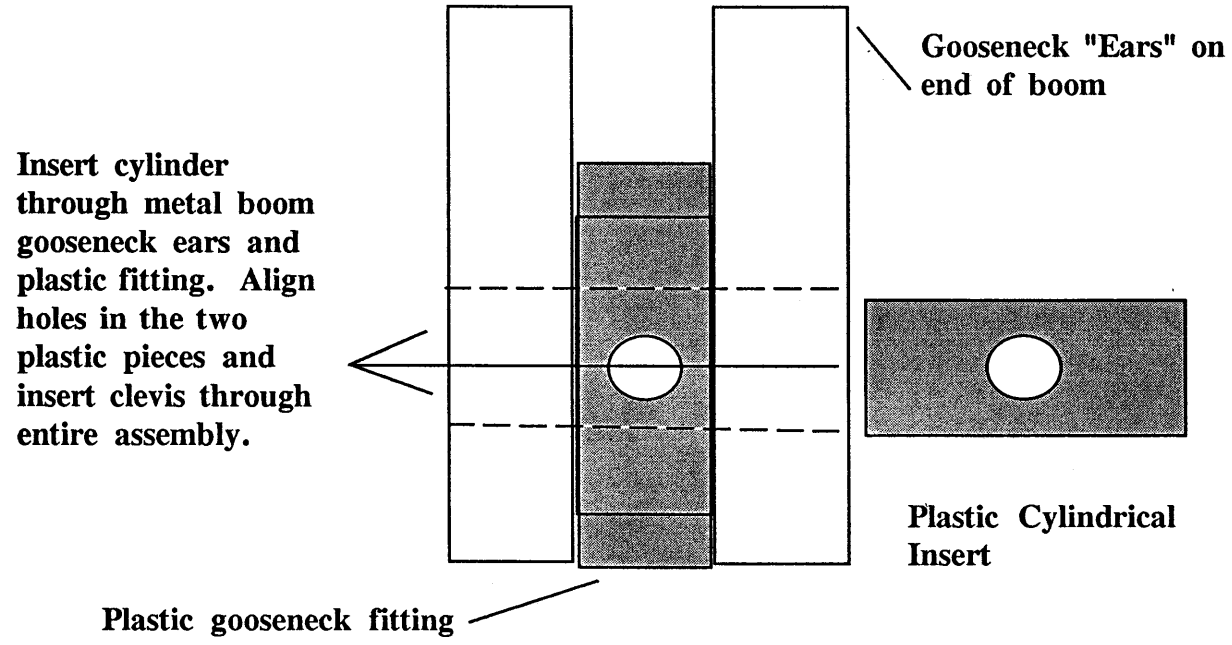


Figure #3
TOP VIEW



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.

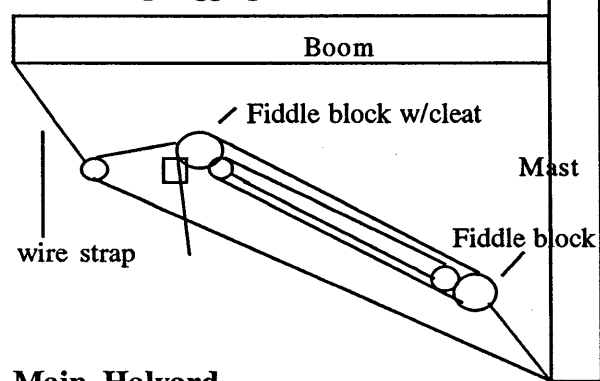
Tie a figure-eight knot in the tail end of the mainsheet.

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

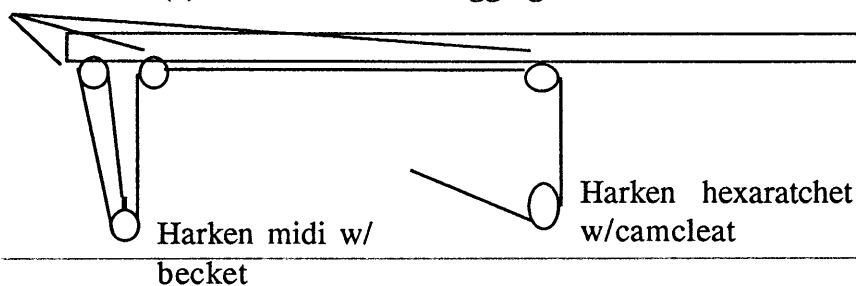


Figure #5

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 rivited 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.

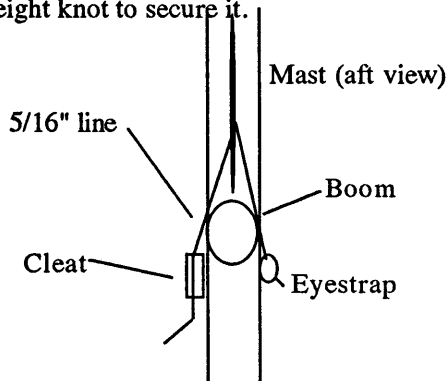
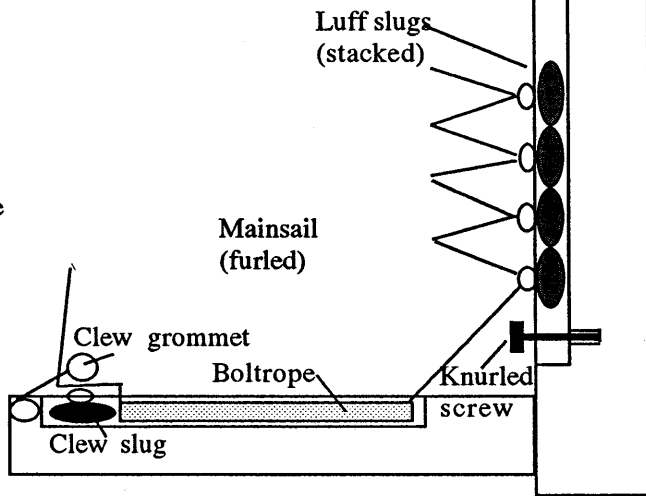


Figure #7
Cunningham Rigging



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

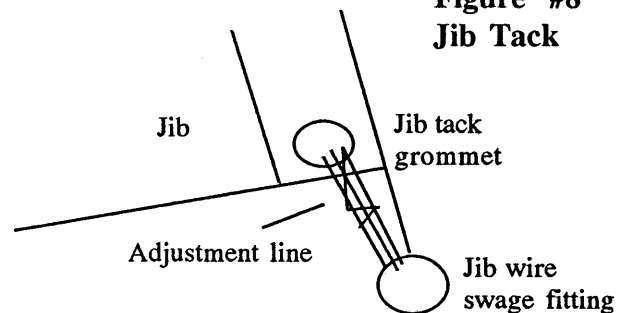


Figure #9
Jib Clew

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

