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Greg Henery  
94846430

# Soling 1M

## A sloop rigged model yacht for Radio Control

This revised version of the Soling 1M is compatible with and conforms to The American Model Yachting Association Soling 1M competition class specification.

### SPECIFICATIONS;

Length	39.3 In. (99.8cm)
Beam	9.25 in. (23.5cm)
Height	64.5 in. (163.8cm)
Sail area	600 sq in (3871sq cm)

If you are competition oriented you may wish to join The American Model Yachting Association using the included application form. The AMYA promotes the sport of model yacht competition, with regattas held throughout the country. Their newsletters keeps you informed of all aspects of the hobby of model yachting.



### ASSEMBLY MANUAL

**Victor Model Products**

12260 Woodruff Ave., Downey, Ca. 90241  
Phone (562) 803-1897, Fax (562) 803- 1564

Revised 7/15/97  
by George V Dornis

*GD*



## SOLING ONE METER PARTS LIST

### SHIPPING CARTON

- (5) Hull
- (1) Deck
- (2) Keel halves
- (1) Mast bundle
- (1) Wood parts bag
- (1) Plastic part bag
- (1) Assembly manual
- (1) Tuning tips
- (1) AMYA form

### BAG, PLASTIC PARTS

- (1) Hatch
- (2) Rudder halves
- (2) Bulkheads
- (1) Transom
- (1) Deck support
- (1) Mast step blank
- (1) Hardware pkg.
- (1) Bundle rigging wire
- (1) Decal

### BAG, WOOD PARTS

- (1) Keel spar
- (2) Keel trunk sides
- (1) Shaped keel trunk filler
- (1) Keel trunk top
- (1) 5/16 sq trunk filler
- (3) 3/4 sq wood blocks
- (2) 3/8 x 3/4 blocks
- (1) Former
- (1) Drilled rudder block
- (1) Plywood radio board
- (2) 1/4 x 3/4 x 6 1/4 support
- (1) 3/4 x 1 3/4 block

### MAST BUNDLE

- (2) Mast blanks
- (1) Main spar
- (1) Jib spar
- (1) Rudder control rod
- (1) Sail Set

### HARDWARE PKG

- (1) Backstay crane brass
- (8) Bowsie blanks
- (1) Jib swivel
- (1) Mast jack assembly
- (1) Tiller arm
- (14) Screweyes
- (12) Crimp sleeves
- (2) Spreader tubes
- (9) Cotter pins
- (1) Spreader socket
- (2) Slide links
- (1) Rudder shaft
- (1) #10 x 1 1/2 screw
- (1) Rudder log tube
- (1) Nylon wire length
- (2) Brass brads
- (1) Vang assembly
- (1) Vang socket
- (2) Brass eyelets
- (1) Threaded tensioner
- (1) Wing nut
- (1) Washer
- (1) Gasket
- (1) Gooseneck assembly
- (1) Dacron line
- (1) #4 x 1/4 Screw

Additional items that are required to complete your SOLING model yacht.

- 1/2 ounce bottle of JET (thin cyanoacrylate glue)
- 1/2 ounce bottle of SUPER JET (gap fill cyanoacrylate glue)
- 2 ounce Kicker (for curing cyanoacrylate glue)
- Testors liquid plastic cement
- Finishing materials, primer, paint, stain (etc.)
- Assorted grades of sandpaper
- 2 channel radio set
- Sail drive mechanism or winch
- Boat stand
- Masking tape

This kit is an updated version, (rev 7/97), of the original model. The main change includes a removable keel and strengthened keel support structure. To aid the builder, the hull is now pre-slotted, the mast partially shaped and the rudder molded. Minor hardware changes are also included. These changes do not effect conformance of this kit to The American Model Yachting Association SOLING ONE METER class specification.

### GENERAL INSTRUCTIONS

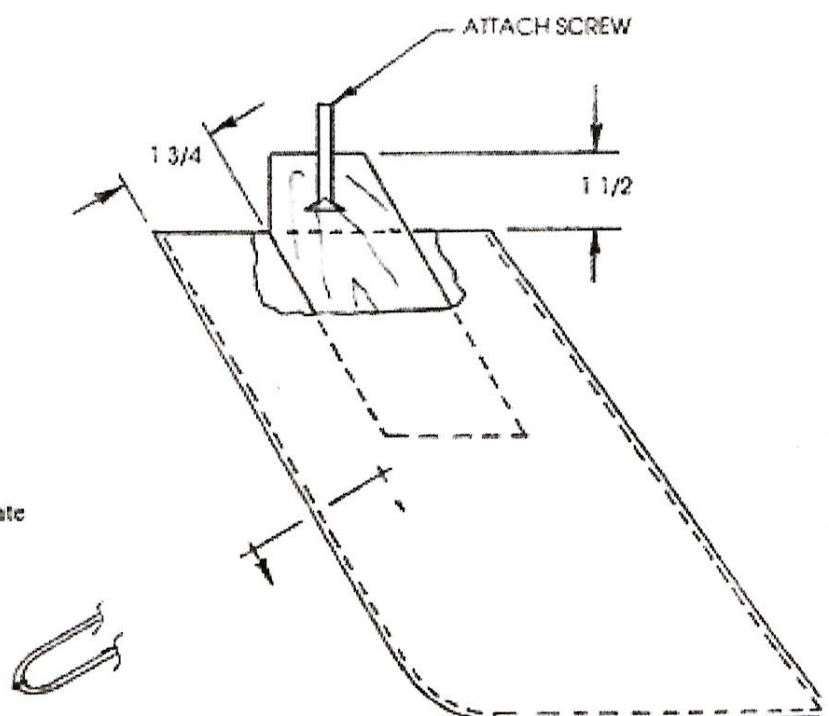
Several types of adhesives are used to assemble this model. Each construction step will specify the type to use for each task. TESTORS liquid plastic cement is used for plastic to plastic joints in the hull, keel and rudder assemblies. An excellent alternate to plastic cement is METHYL ETHYL KETONE (MEK) liquid solvent. Cyanoacrylate glues, such as JET and SUPER JET are used to bond wood to wood and wood to plastic. Super glue accelerators such as ZIP KICKER can be used, if used sparingly, to speed up the cure rate. CAUTION, follow all precautions of the CA glue manufacturer.

The model may be finished with most spray enamels or acrylic type lacquers. Our favorite finishing material is K&B SUPER POXY. This material is available at most hobby retailers. SUPER POXY yields a high gloss finish which is resistant to chipping and scratching. We recommend that the plastic surfaces be wet sanded with #400 wet or dry paper and finished with #600 grit paper. When satisfied that all surface blemishes have been removed, spray two coats of SUPER POXY per the manufacturers instructions and set aside to cure in a dust free area. The wood mast and spars should be fine sanded then stained as desired. Apply several coats of sanding sealer, sanding between coats then finish with clear SUPER POXY as before.

The model is rigged with stainless steel wire. Use CAUTION when working with this material because the ends of the wire are as sharp as a needle and will draw blood. When forming the stays, use a pair of needle nose pliers with smooth jaws to flatten the crimp sleeves. After flattening the sleeves, bend the loose end of the wire 90° then clip flush with the sleeve. This bend will prevent the crimp sleeve from slipping. The purpose of the bowsie used in rigging the dacron lines is to adjust the length of the line. To change the length, simply slide the bowsie to the desired position. When tension is applied, the bowsie will lock onto the line preventing slippage. When tying knots in the dacron line, we suggest that you place a minute drop of SUPER JET on the knot and immediately "kick it" with accelerator to prevent the glue from stiffening the line. Another method is to trim the line approx 1/16 beyond the knot then melt the loose end with a soldering iron or other heat source. This will prevent the line from fraying and also the knot from loosening. When installing screweyes and screws, first predrill a 1/16 dia pilot hole to prevent splitting the wood.

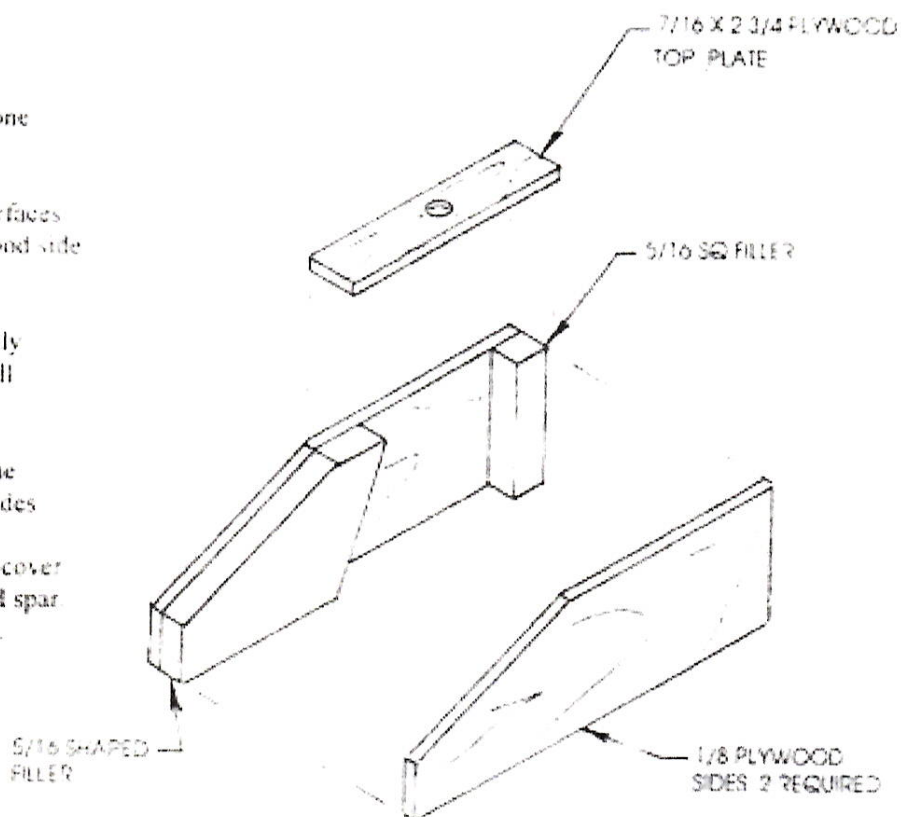
### KEEL ASSEMBLY

1. On the keel spar, press a #10 x 1 1/2 attach screw into the slot in the spar and center. Bond in place with SUPER JET.
2. Tape the two keel halves together and sand the top edges flat.
3. Bond the keel spar assembly to one half of the keel, aligned as shown, with SUPER JET.
4. Carefully align and bond the opposite keel half to the spar with SUPER JET. Tape the edges together all around with masking tape. Using a small brush, apply TESTORS plastic cement or MEK to the inside of the joint. Rotate the assembly so that the solvent saturates the full length of the joint. Pour out any excess solvent and set aside to dry overnight.



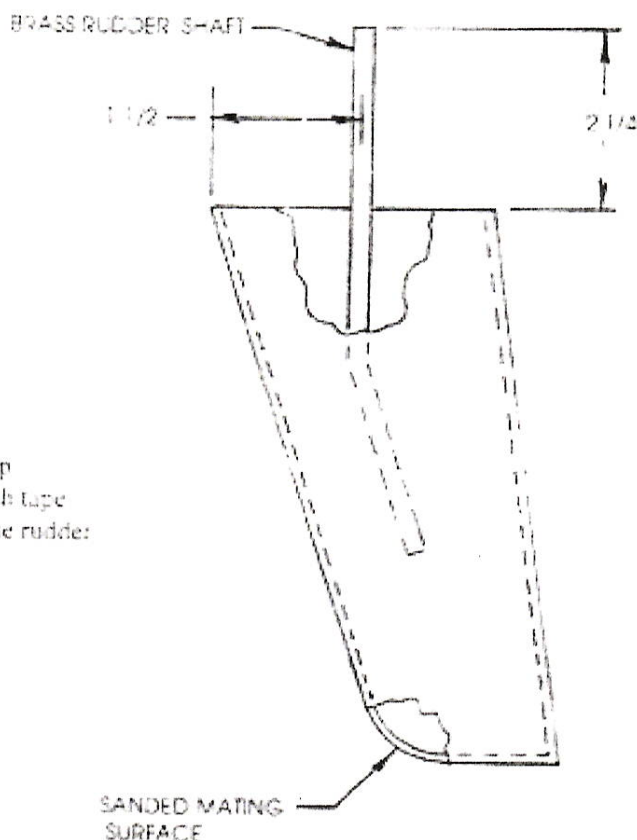
### KEEL TRUNK ASSEMBLY

1. Bond the two 5/16 filler pieces to one trunk side with SUPER JET.
2. Using JET (thin) coat the inside surfaces of the trunk and the opposite plywood side to waterproof the assembly.
3. Bond the second side to the assembly with SUPER JET. Make sure that all voids are filled to prevent leakage.
4. Sand the top and bottom edges of the assembly flat and square with the sides.
5. Drill a 3/16 diameter hole in the top cover to match the attach screw in the keel spar. Bond top in place with SUPER JET.



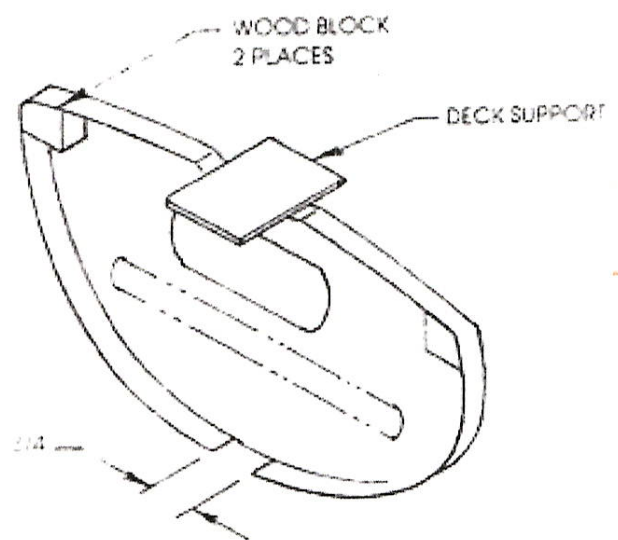
### RUDDER ASSEMBLY

1. Sand the mating surfaces and top edge of each rudder half flat using a sanding block and paper.
2. Using coarse sandpaper, skuff up the lower half of the brass rudder shaft.
2. Position the shaft on one rudder half and align perpendicular to the top edge of the blank using the dimension shown and bond with SUPER JET.
3. Spread a moderate amount of SUPER JET on the rudder shaft and carefully position the opposite rudder half on top of the assembly. Draw both edges together all around with tape segments. With the same method used on the keel, bond the rudder halves together with TESTORS plastic cement or MFK. Set aside to dry overnight.



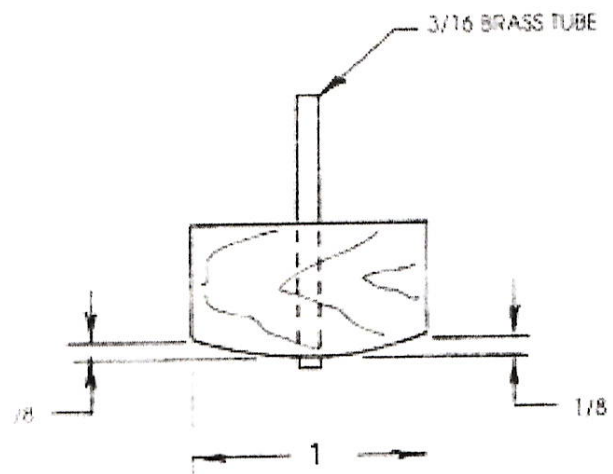
### FORWARD BULKHEAD PREP

1. Sand to shape two  $3/8 \times 3/4$  square wood blocks and install in each corner of the forward bulkhead (orient wood grain horizontal). Fix in place with SUPER JET.
2. Notch the bulkhead flange  $3/4$  inch wide centered on the keel slot.
3. Using TESTORS plastic cement or MEK, bond a  $1/2 \times 2$  plastic deck support to the bulkhead centered on the bulkhead flange recessed area.



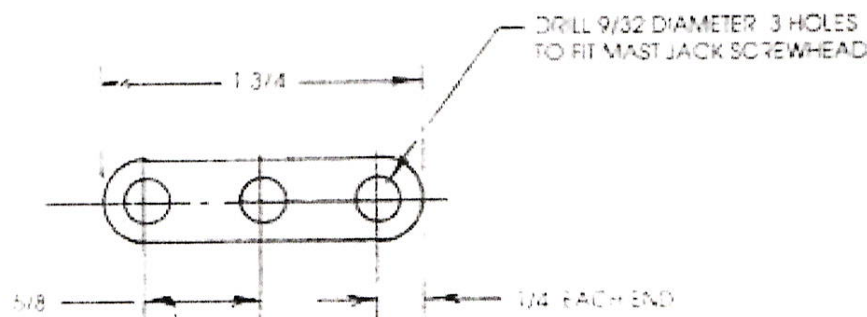
### RUDDER SUPPORT BLOCK

1. Shape the predrilled rudder support block as shown making certain that you remove equal amounts from each side.
2. Using coarse sandpaper, skuff up the exterior surface of the  $3/16$  dia brass rudder log tube.
3. Insert the tube into the hole in the support block with the tube protruding approx  $1/16$  inch. Fix with JET (thin).



### MAST STEP

Make from  $1/2 \times 1 3/4$  plastic



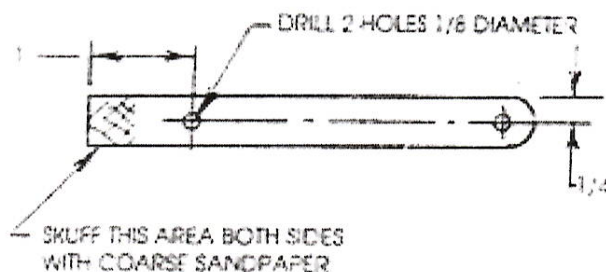
## KEEL AND RUDDER FILL

Polyester resin in liquid state is not compatible with plastic, and will soften the plastic if the cure rate is too slow. It is suggested that you increase the amount of catalyst specified by the manufacturer approx 50%. This will shorten the cure time but will also generate heat. This excess heat can be dissipated by partially submerging the keel in a bucket of water with the level adjusted to that of the resin while curing.

1. Measure out 6 lbs of #8 or 9 lead shot, available through most gun and ammo retailers (a coke can makes a handy pouring vessel).
2. Thoroughly mix 12 ounces of polyester resin and catalyst. Pour approx. 3 oz. of the resin into the keel assembly. Pour one lb of lead into the keel making certain the shot is submerged. Continue pouring lead shot, adding resin as required to keep the shot submerged. When all shot is used, top off to within 1/4 inch of the top with resin. Place the keel in a container of water to dissipate the heat generated during curing.
3. Position the rudder vertical and fill with the remaining resin (it is not necessary to submerge the rudder in water to cure).
3. After the resin cures, fill the top of the keel the and rudder with BONDO or similar filler material and sand flush with the plastic edge of each assembly.

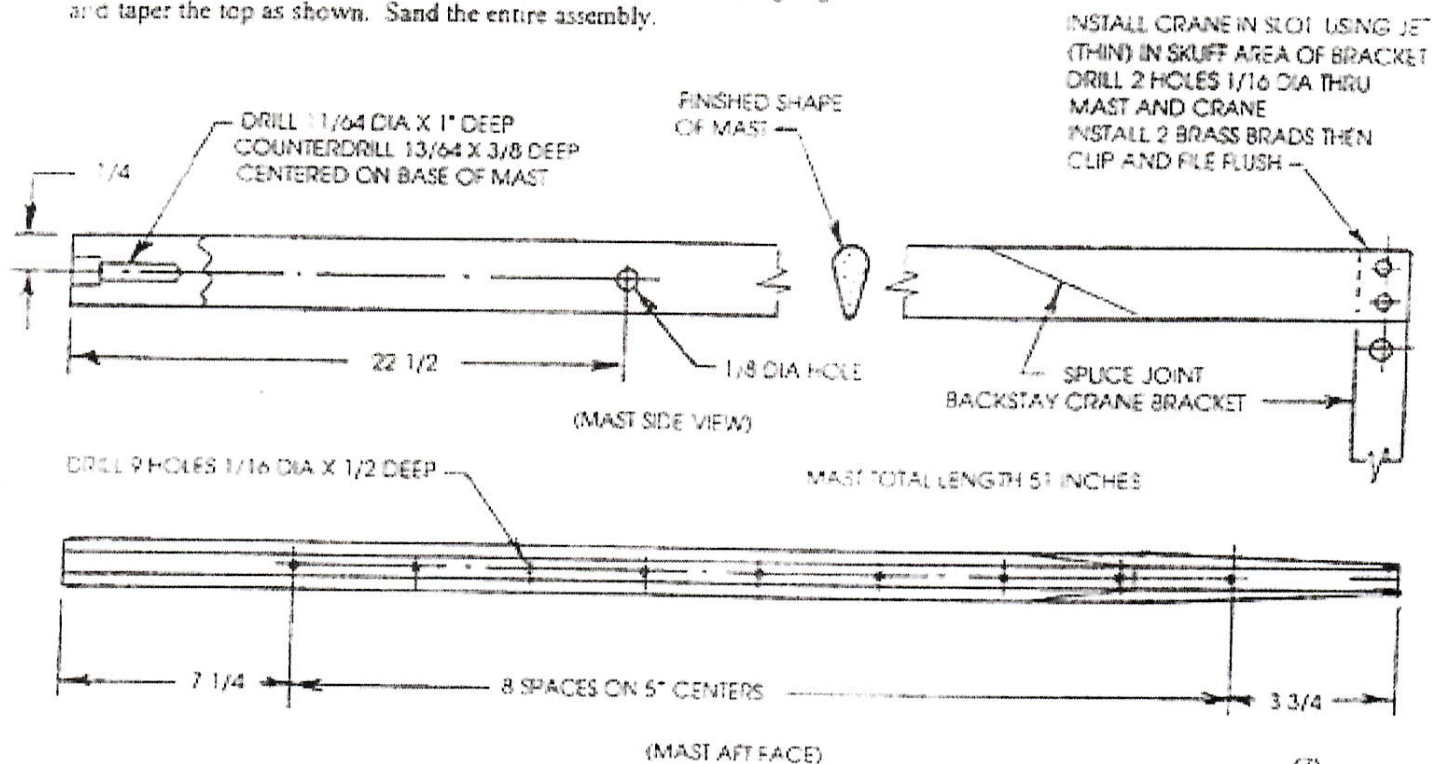
## BACKSTAY CRANE BRACKET

Make from 1/2 x 4 brass stock. Shape end full round and drill holes as indicated.



## MAST DETAILS

Assemble the mast splice by wetting both mating surfaces with SUPER JET and allow to dry. Reapply SUPER JET to one surface then align and join the parts together. Drill holes in mast and base then shape the leading edge round and taper the top as shown. Sand the entire assembly.



**MAIN SAIL SPAR**  
SPAR LENGTH 15 1/4

CENTER AND DRILL A 3/32 DIA HOLE  
HOLE 3/4 DEEP INSERT GOOSENECK  
CLOTH PIN AND ALIGN HORIZONTAL  
FIX WITH JET (THIN)

GOOSENECK  
ASSEMBLY

DRILL A 1/8 DIA HOLE THRU SPAR  
INSERT VANG SOCKET AND FIX WITH  
JET (THIN)

CENTER AND DRILL A 3/32  
DIA HOLE THRU THE SPAR

SCREWEYES 2 REQUIRED

WITH VICTOR 600 WINCH LOCATE SCREWEYE AS  
SHOWN. IF USING ANOTHER WINCH, LOCATE TO  
PROVIDE APPROX 90° TOTAL ROTATION OF SPAR

**JIB SPAR**  
SPAR LENGTH 14 1/4

CONNECT JIB SWIVEL  
TO THIS SCREWEYE

DRILL 1/16 DIA HOLE  
IN END OF SPAR

CENTER AND DRILL A 3/32  
HOLE THRU THE SPAR

3 SCREWEYES REQD

WITH VICTOR 600 WINCH LOCATE SCREWEYE AS  
SHOWN. IF USING ANOTHER WINCH, LOCATE TO  
PROVIDE APPROX 80° TOTAL ROTATION OF SPAR

**TYPICAL BOWSIE**  
S REQUIRED

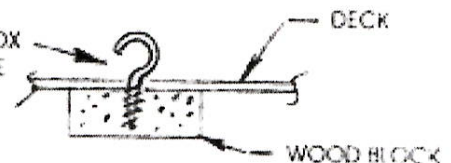
LOOP OR LINE  
TERMINATION

TO AID IN THREADING THE BOWSIES,  
STIFFEN THE END OF THE LINE WITH JET  
(THIN) THEN TRIM ON AN ANGLE TO A  
NEEDLE POINT

DRILL 3 HOLES 1/16 DIA IN  
SHAPED PLASTIC PIECES

IN USE, SLIDE THE BOWSIE ALONG THE  
LINE TO SHORTEN OR LENGTHEN IT AS  
REQUIRED. WHEN TENSION IS APPLIED  
THE BOWSIE WILL LOCK ON THE LINE.

REMOVE APPROX  
1/8 INCH OF EYE



TRIM SCREWEYES AS SHOWN  
AFTER INSTALLATION 6 PLACES

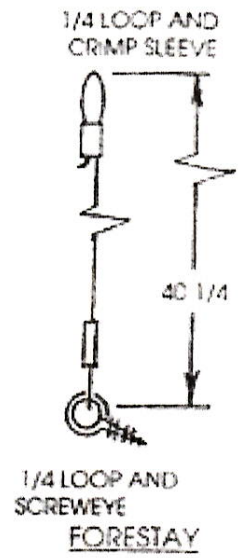
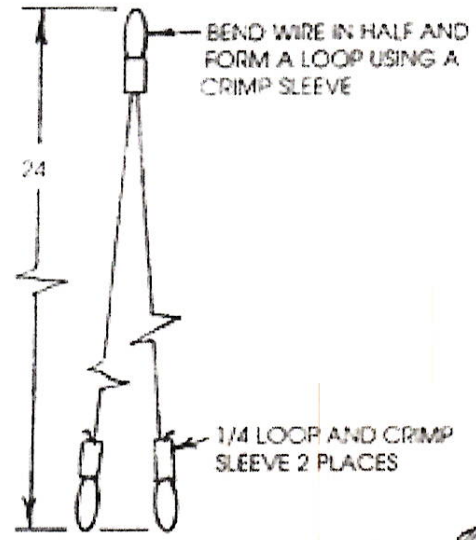
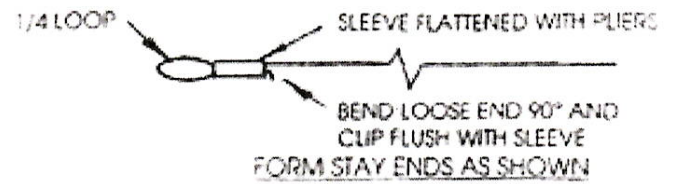
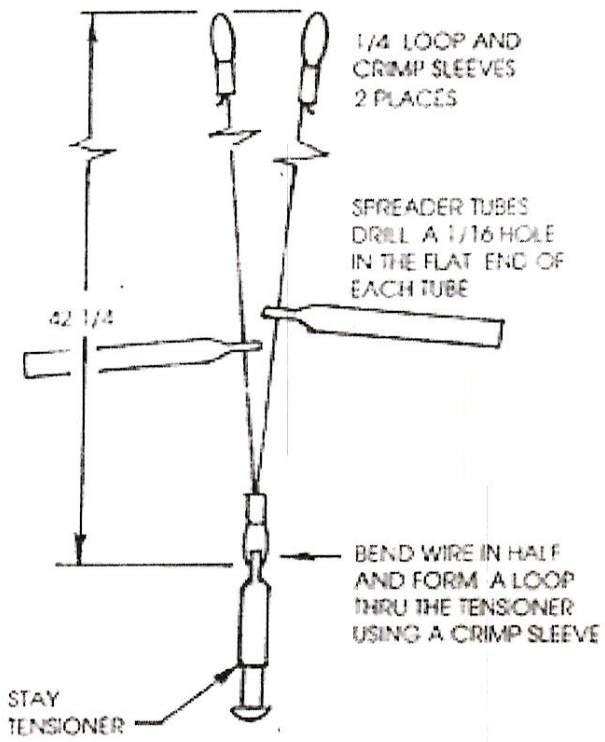
**DECK RIGGING ATTACH HARDWARE**

Drill 1/16 dia pilot holes and install screweyes in deck to connect the jib swivel, sidestays and backstay bowsie

1. At the jib swivel location, drill pilot holes and install screweyes facing forward 3 places, located by dimples in the deck. Clip the screweyes as shown above.
2. Using a flashlight or similar light source inside the hull to cast a shadow, locate the wood blocks located in the upper corners of the forward bulkhead. Drill and install two screweyes centered in the wood blocks and 1/2 inch inboard of the edge of the deck flange. Align the eyes facing aft and clip as shown above.
3. On the hull centerline, drill and install a screweye in the block located on the inside surface of the transom flange facing aft. Clip the screweye as shown above.

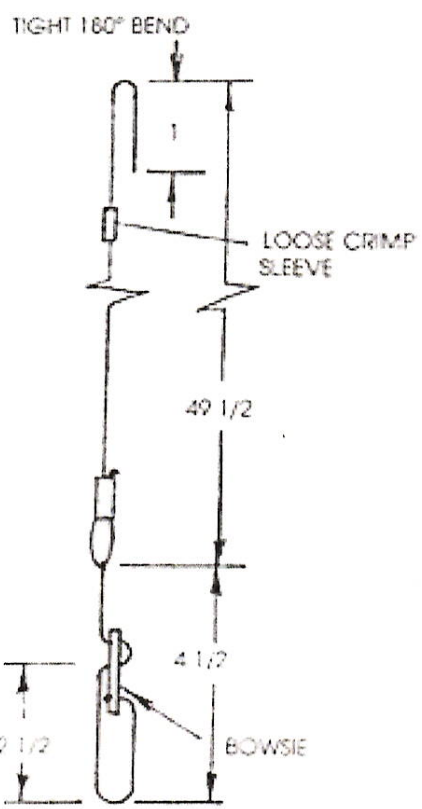


**MAST SHROUD SUPPORT DETAILS**



**LOWER STAY ASSEMBLY**  
WIRE LENGTH APPROX 50 IN

**DIAMOND STAY ASSEMBLY**  
WIRE LENGTH APPROX 90 IN



CONNECT DIAMOND STAY LOOPS TO MAST UPPER SCREW EYE

#4 X 1/4 ATTACH SCREW LOCATE WITH MAST JACK EXTENDED 4 TURNS

CENTER 1/8 DIA X 2 SPREADER SOCKET TUBE IN MAST HOLE AND PLUG SPREADERS ONTO SOCKET TUBE

TIGHTEN DIAMOND STAYS USING TENSIONER SCREW

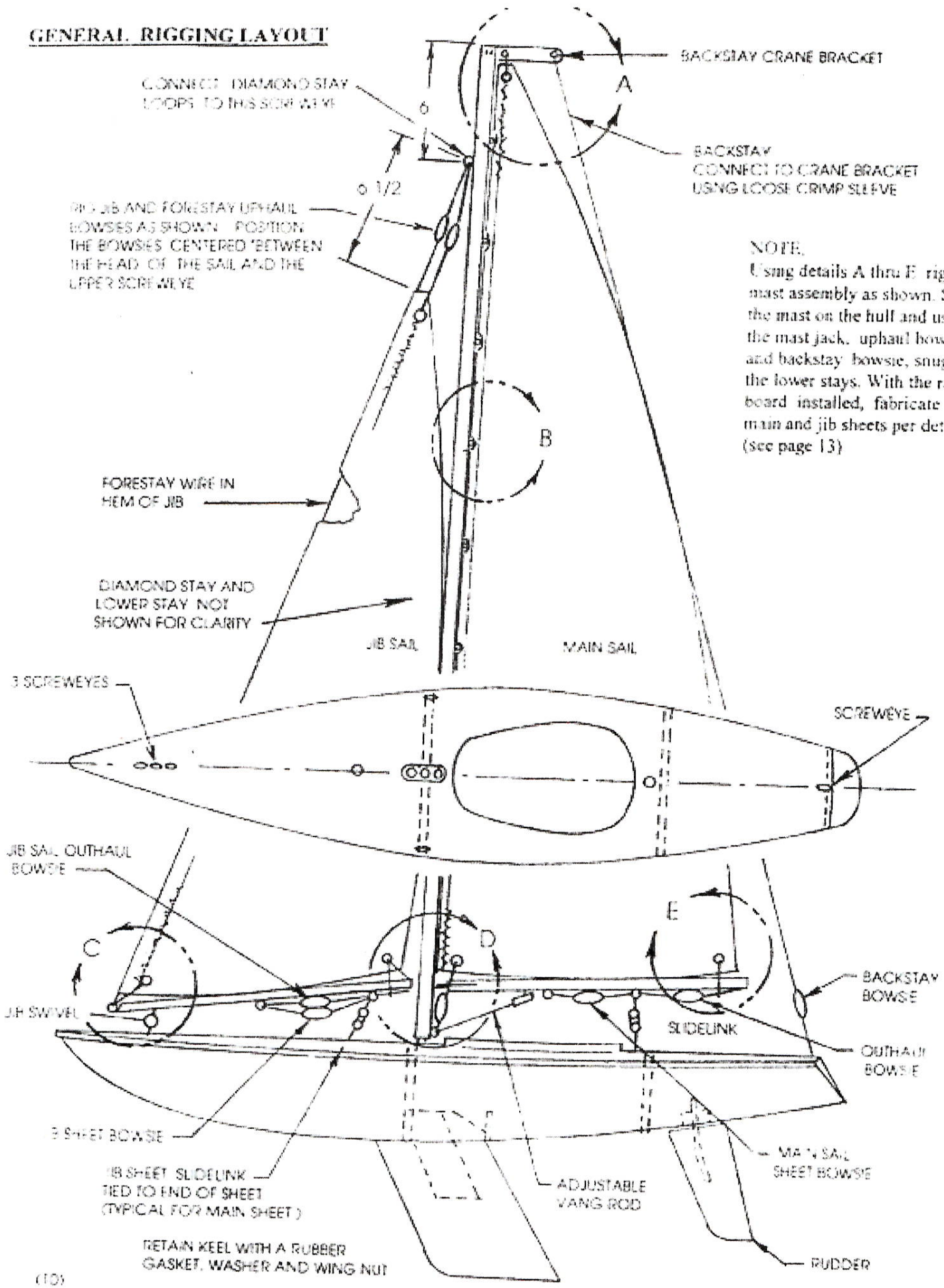
STAY TENSIONER AND SCREW EYE

MAST JACK AND DECK MAST STEP

**MAST RIGGING**  
(NO SCALE)

**BACKSTAY**

# GENERAL RIGGING LAYOUT



CONNECT DIAMOND STAY LOOPS TO THIS SCREW WYE

RIG JIB AND FORESTAY UPHAUL BOWSES AS SHOWN. POSITION THE BOWSIES CENTERED BETWEEN THE HEAD OF THE SAIL AND THE UPPER SCREW WYE

BACKSTAY CRANE BRACKET

BACKSTAY CONNECT TO CRANE BRACKET USING LOOSE CRIMP SLEEVE

**NOTE:**  
Using details A thru E rig the mast assembly as shown. Step the mast on the hull and using the mast jack, uphaul bowsies and backstay bowsie, snug up the lower stays. With the radio board installed, fabricate the main and jib sheets per details (see page 13)

FORESTAY WIRE IN HEM OF JIB

DIAMOND STAY AND LOWER STAY NOT SHOWN FOR CLARITY

JIB SAIL      MAIN SAIL

3 SCREWEYES

SCREWEYE

JIB SAIL OUTHAUL BOWSE

JIB SWIVEL

E

BACKSTAY BOWSE

OUTHHAUL BOWSE

3 SHEET BOWSE

JIB SHEET SLIDELINK TIED TO END OF SHEET (TYPICAL FOR MAIN SHEET)

RETAIN KEEL WITH A RUBBER GASKET, WASHER AND WING NUT

ADJUSTABLE VANG ROD

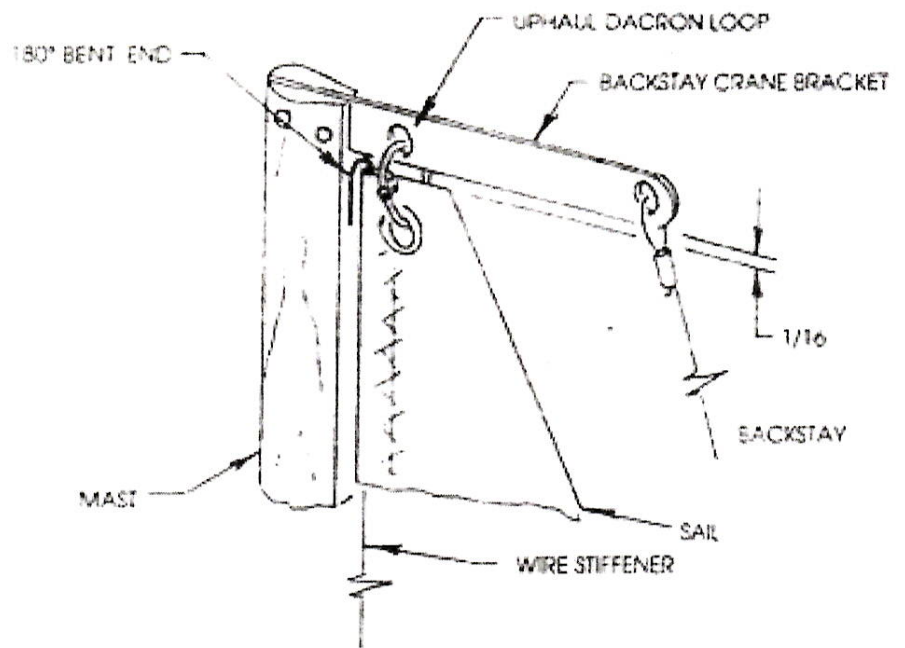
SLIDELINK

MAIN SAIL SHEET BOWSE

RUDDER

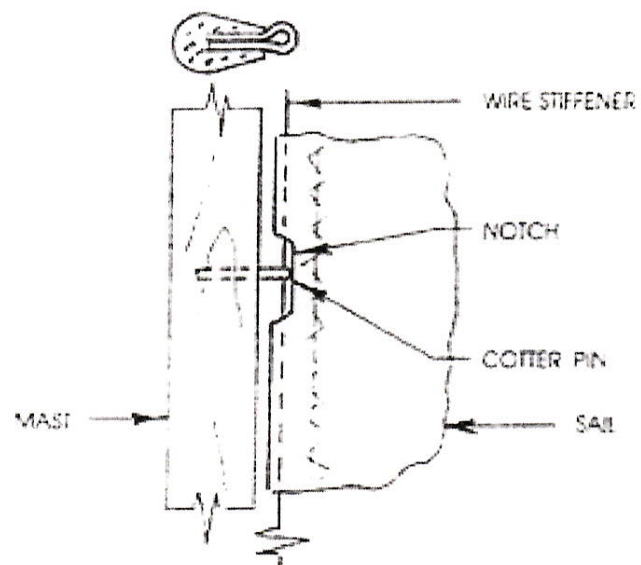
**DETAIL A**  
MASTHEAD RIGGING

1. Cut a piece of stay wire 48 1/2 inches long. Tightly bend each end of the wire 1/2 inch x 180°. Insert the wire in the sail hem and center. Both ends of the wire will be exposed.
2. Using dacron line, install the uphaul loop. Fix the knot with a small drop of SUPER JET and kick immediately with accelerator to prevent the line from stiffening.
2. Connect the backstay wire to the crane bracket using the existing crimp sleeve. Bend the wire and clip the end as before.



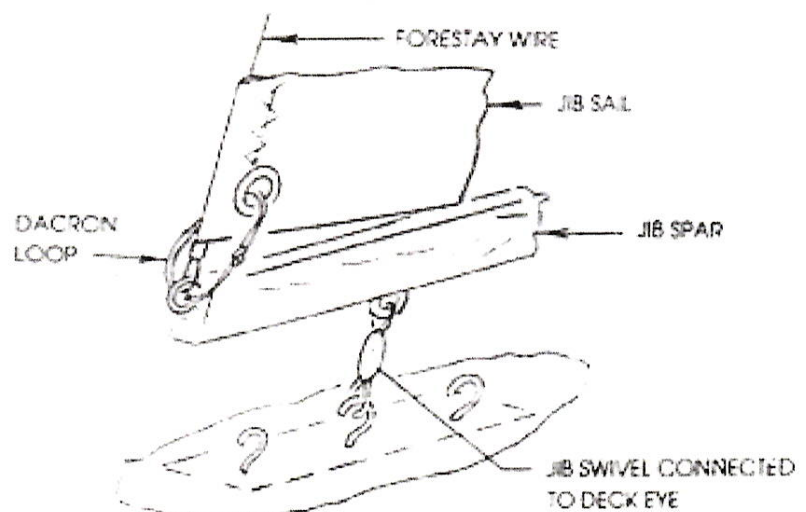
**DETAIL B**  
MAIN SAIL ATTACHMENT

1. Position the sail hem with the wire stiffener installed adjacent to the mast. Mark the sail with the position of each of the mast 9 predrilled 1/16 dia holes.
2. Using a sharp x-acto knife, slit the sail hem 1/2 inch adjacent to the wire 9 places. Seal frayed edges with a hot soldering iron.
3. Place a cotter pin over the exposed wire in each notch. With the dacron loop installed in detail A, insert the cotter pins fully in each mast predrilled hole (9 places).



**DETAIL C**  
SHOWING JIB SAIL TACK AND SWIVEL ATTACH

1. Screw the forestay screweye into the tapered end of the jib spar. Pass the forestay fully through the jib sail hem from the bottom.
2. Using dacron line, form a 5/8 inch loop attaching the sail to the screweye. Fix the knot with a minute amount of SUPER JET.
3. Rig the jib sail clew eye details using dacron line as shown in detail E.



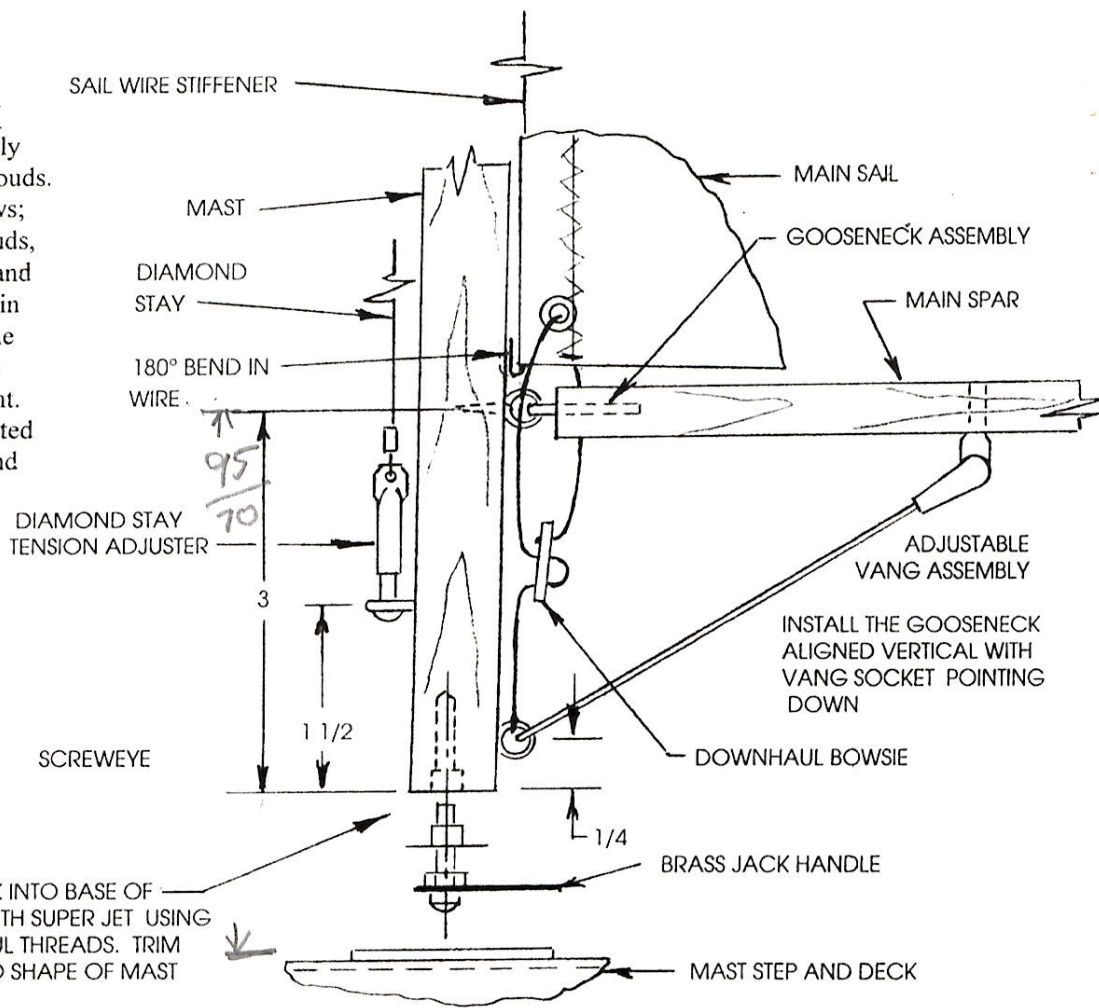
TRIMMED DECK SCREW EYES  
TYPICAL 6 PLACES

**DETAIL D**

SHOWING MAST BASE,  
MAST JACK AND VANG  
ASSEMBLY

**MAST JACK OPERATION**

The mast jack is used to apply tension to the two lower shrouds. Erect the mast as follows; Connect the two lower shrouds, the jib swivel, the backstay and position the jack screwhead in the deck mast step. Rotate the screw using the brass handle until the shrouds are just tight. Mast rake may then be adjusted using the backstay bowsie and jib uphaul bowsies.

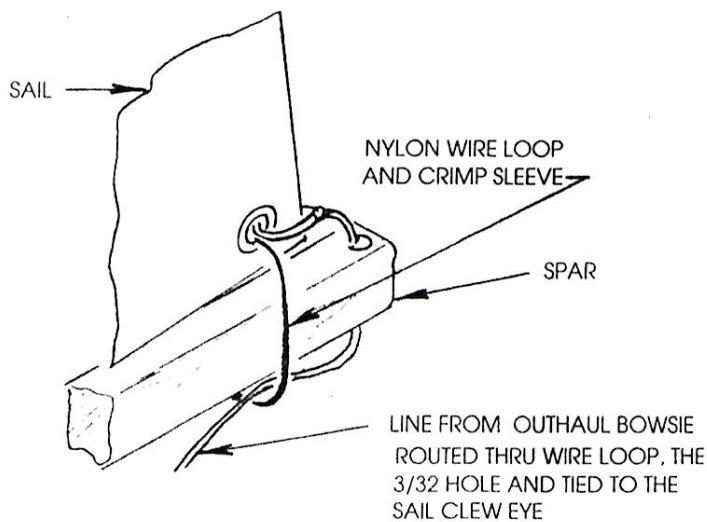


INSERT MAST JACK INTO BASE OF MAST AND FIX WITH SUPER JET USING CARE TO NOT FOUL THREADS. TRIM JACK BASE NUT TO SHAPE OF MAST BASE.

**DETAIL E**

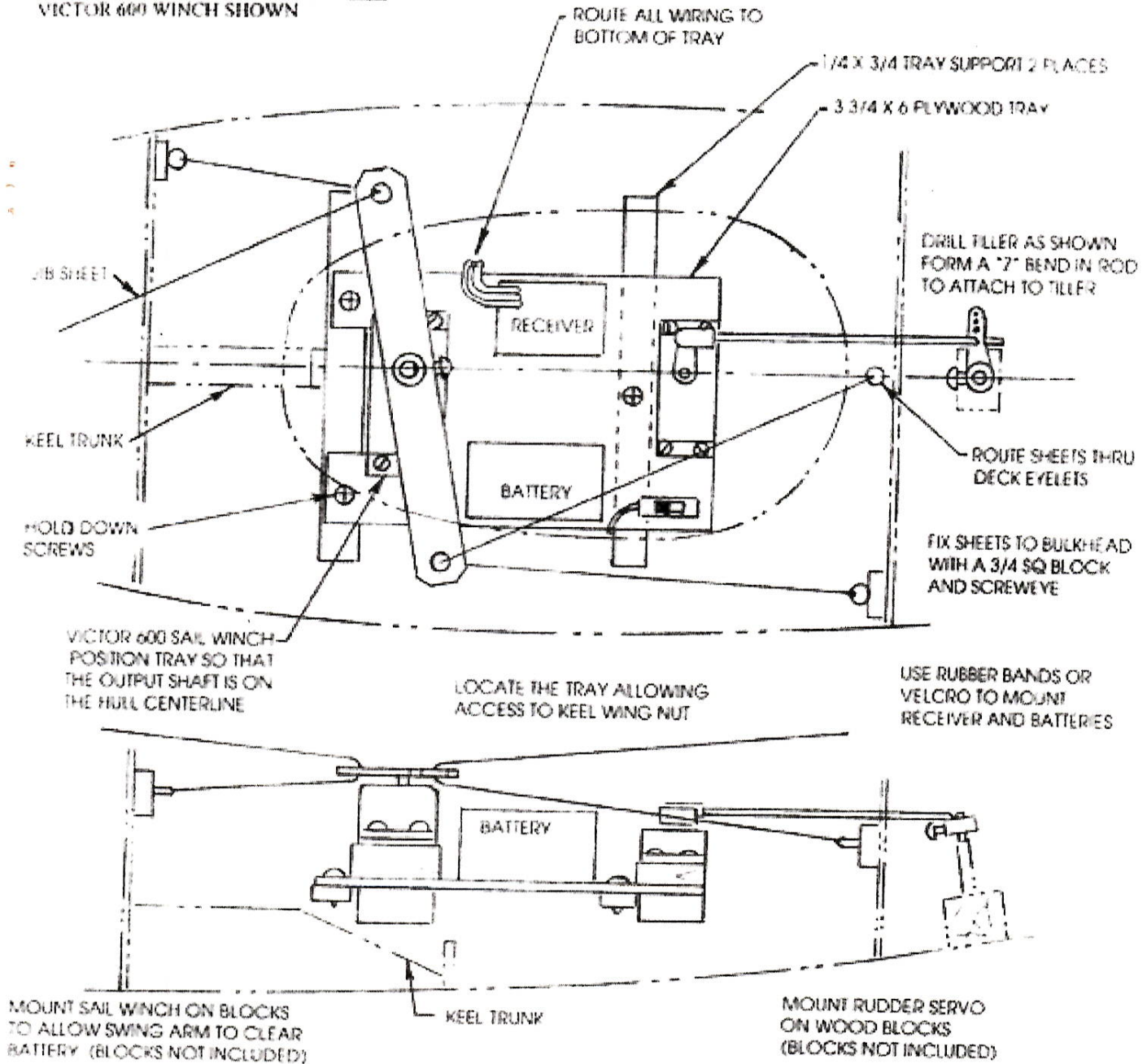
SAIL CLEW ATTACH METHOD  
TYPICAL FOR MAIN AND JIB

1. Form a loop around the jib and main spars using Nylon coated wire and a crimp sleeve. Adjust the length so sail is approx 1/4 inch above the spar
2. Using Dacron line and drilled bowsies, form and route outhaul bowsies thru the spar 3/32 dia holes



## TYPICAL R/C INSTALLATION

VICTOR 600 WINCH SHOWN



### RIG SHEETS AS FOLLOWS

- 1 Connect the mast assembly to the hull (center socket) and adjust the mast jack to tension the lower stays. Using the uphaul and backstay bowsies, position the mast vertical.
- 2 Rig the jib and main sheet bowsies tying 3/8 inch loops in the ends of each adjacent to the screweyes. Connect slidelinks to each loop. (slidelinks allow the sheets to be disconnected)
- 3 Turn your radio on and rotate the winch to full inhaul position (fully clockwise). With the sheets routed as shown thru the deck eyelets, position the main spar on the hull centerline. Remove all slack from the main sheet line and tie it to the slidelink. Tie the jib sheet to the jib slidelink with the spar pointing outboard approximately 10°. Set the winch to the full outhaul position, the main and jib spars should be approximately 90° to the hull centerline. If more rotation is needed in the main spar, move the sheet bowsie screweye towards the mast and if less rotation is desired, move the screweye in the opposite direction. The jib spar rotation can be adjusted the same manner.

## SAILING HINTS

After you have launched, try practicing the maneuvers shown. Try a beam reach. Get used to watching the main club angle from a distance. You will find that with a little practice you can coordinate the sails and rudder together without thinking. Position the sail in a little and try a close reach. Finally sheet in all the way and see how closely you can sail into the wind before the sail starts luffing. You will note that the yacht is slowing down a bit as you head closer to the wind. Try coming about through the eye of the wind by holding the rudder hard over until the sails fill on the opposite tack. Try a broad reach by letting the sails out about halfway. You will note that this is probably the fastest point of sailing. Finally turn the yacht so that the sail "wing on wing", quickly give several hard rudder commands in the direction that the main sailsets. This will cause the jib sail to jibe to the opposite side from the main sail, then you can resume your course. When you are running wing on wing you will note an increase in speed. Keep running through these maneuvers and you will soon have confidence and skill in handling your model

