

CANADIAN SAILCRAFT COMPANY
79 BRAMSTEELE ROAD
BRAMPTON, ONTARIO

INDEX - CS-22

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JOHN BUTLER'S COMMENTS - RE: J.B. DESIGN OF CS/22

THE CS/22 HAS BEEN DESIGNED TO MEET CANADIAN SAILCRAFT'S REQUIREMENTS FOR A SMALL PERFORMANCE SAILBOAT IDEALLY SUITED TO THE LIGHT SAILING CONDITIONS THAT PREVAIL ON THE CANADIAN LAKES.

THE DESIGN HAD TO BE SPECIFICALLY FOR ECONOMICAL QUANTITY PRODUCTION IN G.R.P. AND HAD TO OFFER REASONABLE FAMILY ACCOMMODATION WITH A LARGE COCKPIT. ALTHOUGH THERE IS NO SAILING DRAFT LIMIT A CENTREBOARD WAS REQUIRED FOR EASE OF TRAILING.

FOR LIGHT WEATHER PERFORMANCE I HAVE DESIGNED A LIGHT DISPLACEMENT EASILY DRIVEN HULL WITH LOW WETTED SURFACE AREA. A CONSIDERABLE BEAM/WATERLINE LENGTH RATIO WAS NECESSARY FOR THE REQUIRED ACCOMMODATION AND CONSEQUENTLY THE SECTIONS ARE SLACK BILGED.

I HAVE UTILISED THE CENTREBOARD TO DECREASE WETTED SURFACE AREA BY PIVOTING IT IN A SHORT BALLAST KEEL STUB. IN THE RAISED POSITION THE BOARD PROTRUDES AFT OF THE BALLAST.

WITH THE BOARD RAISED THE HANDLING CHARACTERISTICS ARE CONSIDERABLY IMPROVED, WHEN SAILING FREE IN STRONG WINDS, BECAUSE OF THE AFT MOVEMENT OF THE CENTRE OF LATERAL PLANE AREA. UNDER THESE CONDITIONS A SMALL LIGHT BEAMY BOAT CAN BE DIFFICULT TO STEER ESPECIALLY WITH A SPINNAKER SET. TO IMPROVE STEERING EVEN FURTHER I HAVE INCORPORATED A VERTICAL LIFTING RUDDER BLADE. THIS IS COMPLIMENTARY TO THE CENTREBOARD IN THAT THE BLADE CAN BE ADJUSTED TO SUIT THE SAILING CONDITIONS. IT ENABLES A CONSIDERABLE WETTED SURFACE REDUCTION WITH GOOD CONTROL IN LIGHT AIRS BUT IN HEAVIER CONDITIONS THE BLADE CAN BE INCREASED IN DEPTH AND AREA FOR COMPLETE CONTROL.

RUDDERS ON SMALL CENTREBOARD BOATS DO PRESENT A PROBLEM. MANY ARE FITTED WITH FIXED

BLADES WHICH CAN EASILY BE DAMAGED IN SHOAL WATERS. SOME ARE FITTED WITH SWINGING BLADES, IN DINGHY FASHION, WHICH WITH THE BLADE EVEN PARTLY RAISED PUT CONSIDERABLE WEIGHT ON THE HELM BECAUSE THE CENTRE OF PRESSURE IS MOVING AFT OF THE STOCK CENTRELINE. THE ARRANGEMENT SHOWN HAS THE BLADE LIFTING IN AN ALLOY FRAME STOCK. SHOULD THE BLADE HIT AN UNDERWATER OBJECT IT WILL SWING AFT.

THE HIGH ASPECT RATIO 15/16 RIG HAS BEEN DESIGNED FOR LIGHT WEATHER EFFICIENCY. THE SAILS CAN BE CUT FULL AND FROM RESINATED CLOTH SO THAT THEY PRESENT AN EFFICIENT SHAPE IN LOW WIND STRENGTHS. THE MAINSAIL FULLNESS CAN BE REDUCED FOR STRONGER WINDS BY EXTENDING THE MAINSHEET ALONG THE TRACK AND INCREASING THE LUFF TENSION. FULLNESS IN THE LIGHT GENOA CAN BE ADJUSTED WITH THE AID OF A HALYARD WINCH TO MAINTAIN MAXIMUM LUFF LENGTH.

THE ACCOMMODATION PROVIDES FOUR LARGE BERTHS, 5'0" HEADROOM, DINETTE AND GOOD GALLEY SPACE. A CURTAIN OR FOLDING DOOR FITTED TO THE MAIN BULKHEAD WILL GIVE THE FORECABIN PRIVACY. A PORTABLE CUSHION CAN FILL THE SPACE BETWEEN THE FORWARD BERTHS TO CONVERT THEM TO A LARGE DOUBLE.

J. A. B.

TRAILER CHECK LIST

1. TWO SAFETY CHAINS RECOMMENDED - CRISS CROSSED UNDER TRAILER TONGUE PERMIT FULL MANOEUVRABILITY, BUT GIVE MAXIMUM SAFETY IF COUPLING COMES APART.
2. ADEQUATE VISIBILITY - MIRRORS - ETC.
3. JACKING - AN AXLE JACK IS SUGGESTED - USE OF A CAR JACK IS DANGEROUS.
4. SPARE TIRE: IF CAR TIRE DOESN'T FIT ON TRAILER THEN MOUNT SPARE BRACKET ON TRAILER.
5. BRAKES AND LIGHTS - CARRY SPARE BULBS AND FUSES
6. EMERGENCY FLASHER.
7. SPARE TIE DOWN LINE OR STRAPS.
8. RUDDER SHOULD BE CARRIED INSIDE BOAT - WELL CUSHIONED.
9. ALL MAST HARDWARE AND LINES SHOULD BE WELL SECURED TO PREVENT CHIPPING OF FIBREGLASS.
10. COCKPIT DRAINS - OPEN - RAIN FILLED COCKPIT CAN CAUSE DANGEROUS WEIGHT SHIFT AT HIGH SPEEDS.
11. SMALL WIDE ANGLE MIRROR MOUNTED ON WINCH SUPPORT ALLOWS DRIVER TO BACK CAR COUPLER RIGHT ON TO TRAILER COUPLER.
12. TIRE PRESSURE (28LBS.) CHECK EVERY 250 MILES.
13. CENTREBOARD MUST BE DOWN (PURCHASE LINE LOOSE)
14. TIE DOWN ROPES SECURE.
15. WINCH ROPE AND HOOK SECURE.
16. BOAT LEVEL ON CRADLE - CRADLE BOLTS TIGHT

17. CAR TRAILER LINK FASTENED WELL.
18. MAST SECURE.
19. CHECK FOR ANY NOTICEABLE FRICTION CREATING SURFACES.

RIGGING THE CS-22

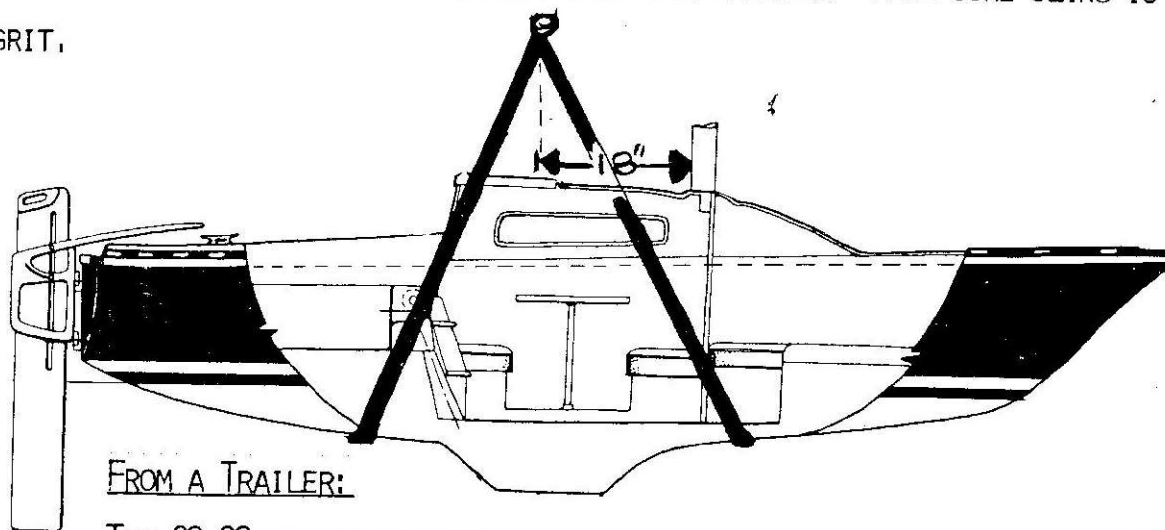
THE BOAT MAY BE RIGGED ON LAND OR IN THE WATER. IT IS EASIER OF COURSE TO DO IT ON LAND. IN ANY EVENT IT IS NECESSARY TO FOLLOW THE PRECEDURES OUTLINED HEREIN, MAKING SURE THAT THE FOLLOWING WORK IS DONE PRIOR TO LAUNCHING:

- (A) CLEAN AND WAX THE HULL (THIS WILL NOT BE REQUIRED DURING THE FIRST YEAR AS THERE WILL BE ENOUGH WAX LEFT ON THE HULL FROM MANUFACTURE) ABRASIVE OR SOLVENT CLEANERS MUST NOT BE USED ON PLEXIGLOSS - MILD SOAP AND LOTS OF WATER ONLY.
- (B) APPLY A GENEROUS BUT WELL SPREAD COATING OF ANTIFOULING PAINT SUITABLE TO YOUR AREA. (AVAILABLE FROM C. S. YACHTS) APPLY WITH INEXPENSIVE ROLLER AND TRAY. APPLY WITH STROKES IN FORE AND AFT DIRECTION FOR MAXIMUM PERFORMANCE.
- (C) INSTALL ALL FITTINGS THAT WILL BE BELOW THE WATER LINE I.E. - SUMLOG SENDING UNIT.
- (D) INSTALL RUDDER HEAD ON PINTLES AND MOUNT RUDDER BLADE AND TILLER HANDLE.
- (E) CLEAN RUB RAIL (ACETONE MAY BE USED SPARINGLY).
- (F) BEFORE WAXING - INSTALL THE DEPARTMENT OF TRANSPORT REGISTRATION NUMBERS ON BOW. (STARBOARD AND PORT). THIS IS A LEGAL REQUIREMENT.
- (G) SUPPLY BLACK BANDS ON MAST AND BOOM - SEE CLASS ASSOCIATION CONSTITUTION
- (H) CLEAN AND WAX MAST AND BOOM.

LAUNCHING THE CS-22

1. FROM A CRANE:

TWO SLINGS (CANVAS OR RUBBER) ARE REQUIRED, ONE SHOULD BE PLACED AFT OF THE KEEL DIRECTLY BELOW THE POSITION OF THE SHEET WINCHES AND THE OTHER IS PLACED FORWARD OF THE KEEL. SLINGS SHOULD BE PLACED ON THE HOOK (BE SURE TO LOG THEM WITH A PIECE OF ROPE) AT A POINT APPROXIMATELY 18" AFT OF THE MAST STEP FOR BALANCE. MAKE SURE SLING IS FREE OF SAND AND GRIT.



2. FROM A TRAILER:

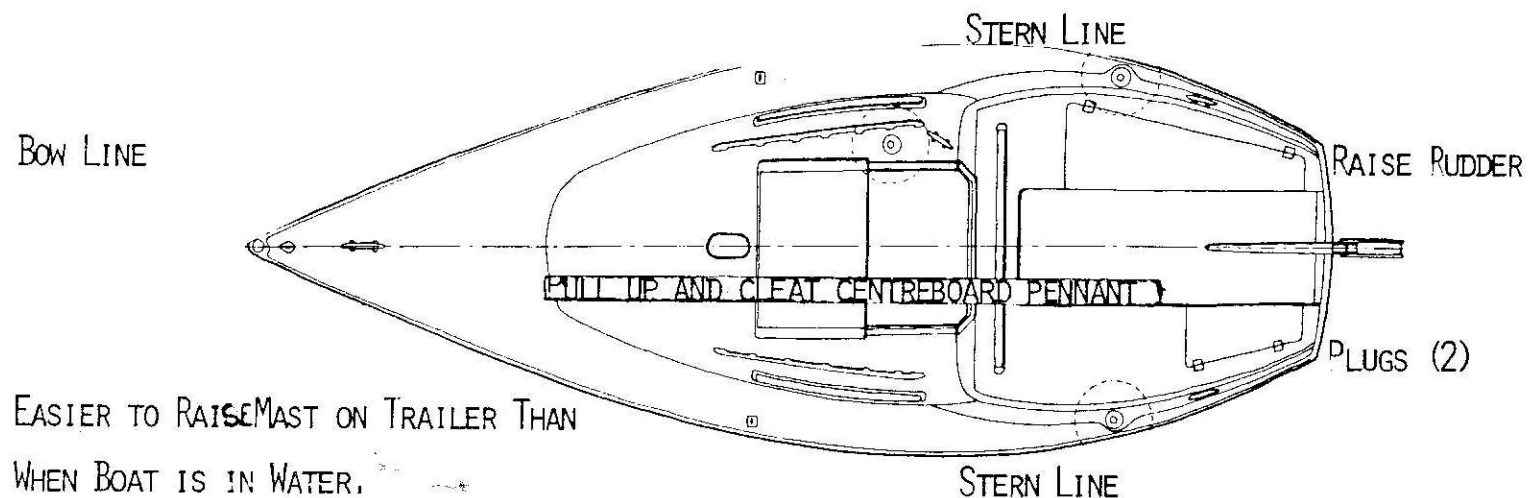
THE CS-22 IS EASILY LAUNCHED FROM A TRAILER INTO APPROXIMATELY 2½ FEET OF WATER.

THE FOLLOWING ITEMS SHOULD BE CHECKED PRIOR TO LAUNCHING:

- (A) PULL CENTREBOARD FULL UP AND CLEAT THE PENNANT.
- (B) RAISE THE RUDDER AS HIGH AS POSSIBLE.
- (C) TILT OUTBOARD MOTOR UP.
- (D) ATTACH STERN MOORING LINES BOTH STARBOARD AND PORT.
- (E) ATTACH BOW LINE (TWO IF DESIRED).

- (F) PUT PLUGS IN TRANSOM DRAINS,
- (G) BOAT HOOK IS OFTEN HANDY.
- (H) AFTER LAUNCHING: CHECK THROUGH HULL FITTINGS FOR LEAKS.
- (I) NOTE: A LITTLE WATER IN THE BILGE IS NOT UNCOMMON WHEN THE BOAT IS FIRST LAUNCHED.
- (J) DISCONNECT TRAILER WIRING BEFORE BACKING INTO WATER. BACK THE TRAILER INTO THE WATER UNTIL THE STERN BEGINS TO FLOAT. NOW DETACH THE TRAILER CABLE FROM THE BOW EYE. GENTLY EASE THE BOAT OFF THE TRAILER (BY PUSHING UP AND OUT ON THE BOW AND WALKING THE STERN LINES AFT) MAKING SURE THE BOAT MAINTAINS ITS FORE AND AFT CENTRE LINE CONCENTRIC WITH THE TRAILER CENTRE LINE (THIS WILL PREVENT SCRATCHING OF HULL AND ANTIFOULING.)

WIRE CABLE SHOULD NOT BE SUBSTITUTED FOR ROPE



1

UPPER AND LOWER SHROUDS AND TOPPING LIFT.

THE MAST. BE SURE THE TURNBUCKLE END IS AT THE MAST FOOT.

- 2 LOWER SHROUDS - SHORTEST LENGTHS APPROXIMATELY 14'0", FORK ON ONE END TURNBUCKLE ON OTHER END.

- 2 UPPER SHROUDS - NEXT LONGEST LENGTH APPROXIMATELY 27'0", FORK ONE END TURNBUCKLE OTHER END.

- 1 FORESTAY - NEXT LONGEST LENGTH APPROXIMATELY 27'9", FORK ONE END TURNBUCKLE OTHER END.

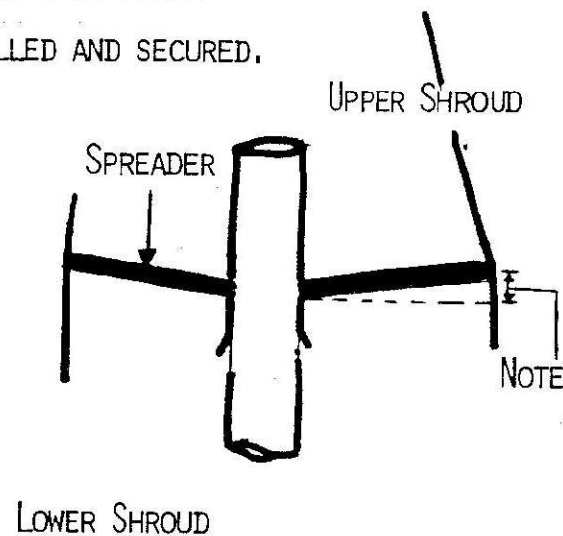
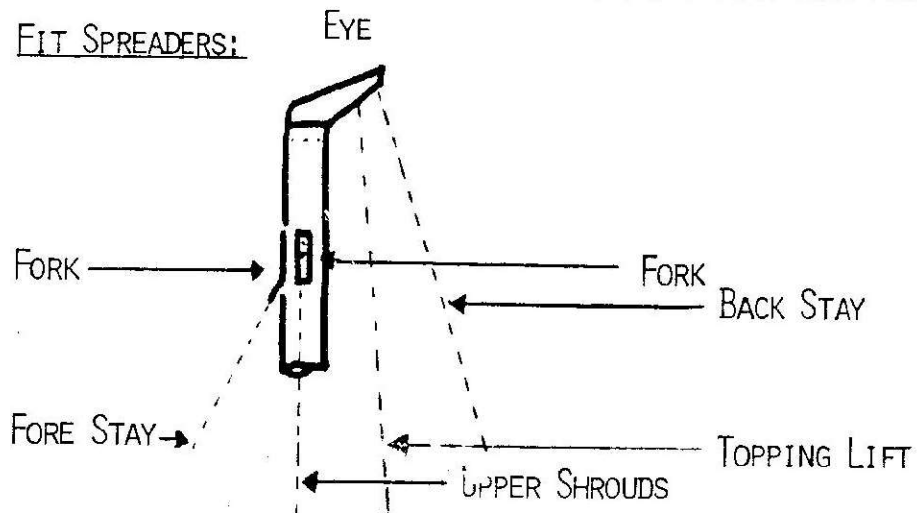
- 1 BACKSTAY - LONGEST LENGTH APPROXIMATELY 30'6" EYE ONE END TURNBUCKLE OTHER END.

- 1 TOPPING LIFT - SMALLEST GAUGE WIRE EYE ON END ROPE TAIL OTHER END.

REMOVE ALL CLEVIS PINS FROM THE SWAGED FITTING ENDS RIGGING AND STORE IN SAFE PLACE.

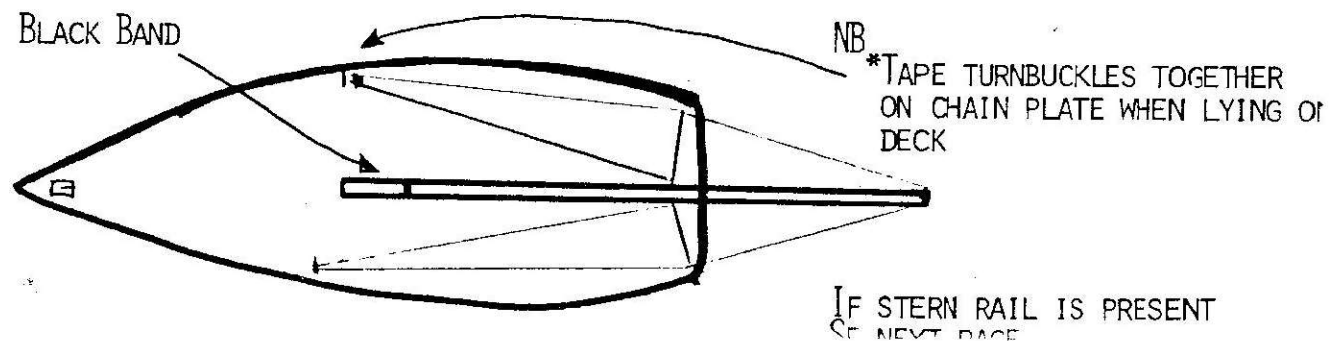
ATTACH ALL STANDING RIGGING TO SPAR MAKING SURE THAT PINS ARE RE-INSTALLED AND SECURED.

EIT SPREADERS:

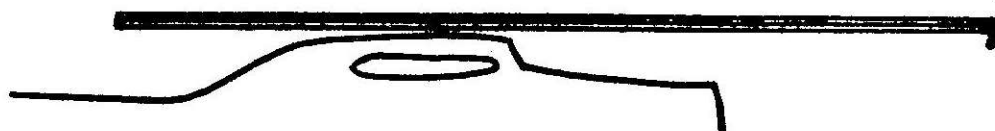


- NOTE: - IF SPREADER IS NOT MARKED, TOP OR BOTTOM, THE OUTBOARD END SHOULD BE ABOVE THE BRACKET WHEN IN POSITION.
- INSERT UPPER SHROUDS IN SPREADERS - IT IS A GOOD IDEA TO TAPE THE SPREADER ENDS WITH ADHESIVE TAPE OR TO INSTALL ANTI-CHAFING ROLLERS AT THIS TIME TO PROTECT YOUR SAILS FROM DAMAGE.
 - REMOVE THE PINS FROM THE TURNBUCKLES. BE CAREFUL NOT TO LOSE THEM. YOU MAY FIND IT USEFUL TO HAVE ONE PERSON KEEP ALL THE PINS SO THAT THERE WILL BE NO CONFUSION WHEN THE MAST IS RAISED.
 - OPEN ALL THE TURNBUCKLES TO $3/4$ OF THEIR TRAVEL. BE SURE THAT THERE IS AN EQUAL AMOUNT OF TRAVEL AT BOTH ENDS OF THE TURNBUCKLE, SO THAT NO ADJUSTMENT IS LOST.
 - IF YOU INTEND TO RACE INSTALL BLACK BANDS ON THE SPAR NOW (SEE CLASS ASSOCIATION SPECIFICATIONS FOR LOCATIONS)
 - BE SURE ALL COTTER PINS ARE INSTALLED AND BENT TO RETAIN THEM.
 - IF YOU INTEND TO MOUNT A SPAR FLY ON THE MAST HEAD, DO IT NOW.
 - IF YOU ARE READY TO RAISE THE MAST THE BOAT WILL APPEAR THIS WAY AS YOU LOOK DOWN AT THE DECK.

NOTE: THE FORESTAY SHOULD NOW BE THE LINE ON TOP EDGE OF THE MAST AND PASSING OVER ALL OTHER LINES AND EQUIPMENT.



- BE SURE THE MAIN AND JIB HALYARDS ARE COILED AND SECURED TO THE MAST, (THIS ALSO APPLIES TO SPINNAKER HALYARD AND SPINNAKER POLE LIFT IF BEING USED)
- LAY THE SPAR ACROSS THE CABIN TOP WITH THE MAST HEAD AT THE STERN AND THE FORWARD SECTION ON TOP.



- ATTACH ALL STANDING RIGGING, EXCEPT FORESTAY, TO THE DECK FITTINGS:



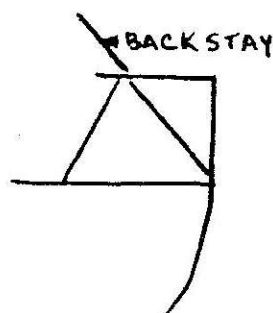
TAPE TOGETHER

POSITION UPPER AND LOWER TURNBUCKLES PERPENDICULAR TO THE CHAIN PLATE. PLACE A STRIP OF MASKING TAPE AROUND THE TURNBUCKLE BODIES TO HOLD THEM IN POSITION.

- IF BOAT IS FITTED WITH A STERN RAIL - BE SURE THE BACKSTAY IS POSITIONED AS FOLLOWS:

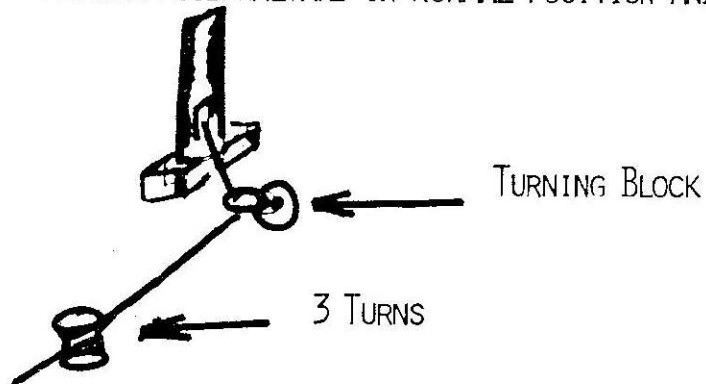


- SO THAT WHEN RAISED THE BACKSTAY WILL ASSUME POSITION AS FOLLOWS:



- NOTE: MAKE SURE OUTER SHROUDS HAVE NO GREAT SLACK ABOVE THE SPREADER (IF THERE IS A LOT OF SLACK, AS THE SHROUDS TIGHTEN WHEN THE MAST IS RAISED, THE SPREADERS MAY BE BENT AND BROKEN)
- WHEN POSITIONING MAST, BE CAREFUL NOT TO BEND SPREADERS.
 - CLEAR ALL RIGGING FOR RAISING MAST, BE SURE THAT EVERYTHING WILL BE IN CORRECT POSITION WHEN MAST IS RAISED.
 - ARRANGE JIB HALYARD IN NORMAL POSITION AND ATTACH SHACKLE TO DECK PLATE

(A)



- (B) TAKE UP SLACK ON JIB HALYARD. MOST OF THE WEIGHT OF THE MAST WILL NOW BE TAKEN BY THE HALYARD. WHEN THE MAST IS IN THE UPRIGHT POSITION CLEAT THE HALYARD UNTIL THE FORESTAY IS IN POSITION.

I.E. MAIN HALYARD BEHIND SPREADERS (ALONG LUFF TRACK)

JIB HALYARD AND FORESTAY FORWARD OF SPREADERS.

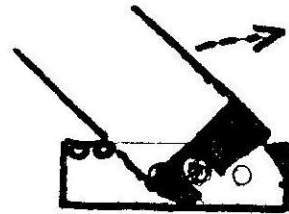
HALYARDS SHOULD BE NEATLY COILED TO AVOID CONFUSION AND SECURED SO SHACKLE AT EXIT BOXES. ONCE MORE CHECK THAT ALL COTTER PINS ARE IN AND BENT SECURELY.

THE SPAR IS NOW READY FOR STAPPING.

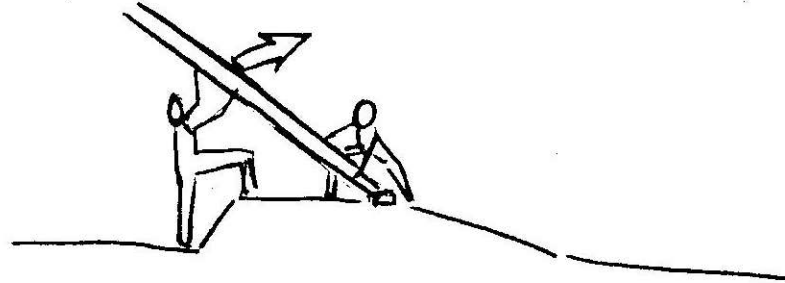
STEPPING

MOVE MAST AFT SO THAT THE FOOT IS OVER THE STEP.

RAISE MAST HEAD TO ENGAGE FOOT SLOT ON MAST STEP PIN.



WALK THE MAST TO THIS POSITION.

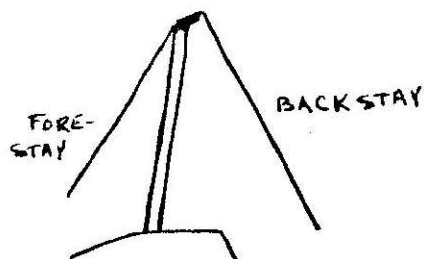


DO NOT PANIC. THIS ONLY LOOKS DIFFICULT. IT DOES NOT REQUIRE A GREAT DEAL OF STRENGTH AND CAN BE DONE BY ONE MAN ONCE YOU BECOME USED TO IT.

ATTACH FORESTAY TO DECK PLATE IN THE FORE-WARD MOST HOLE



- TIGHTEN STAYS SO THAT MAST IS STRAIGHT ABEAM AND FORE AND AFT THE RAKE SHOULD BE 2" AFT, I.E. MAST HEAD 2" AFT OF FOOT, WITH NO BEND IN SPAR.



- ADJUST FORE AND AFT RAKE FIRST BY ADJUSTING FORESTAY AND BACKSTAY. THE MAIN HALYARD MAY BE USED AS A PLUMB BY ATTACHING A WEIGHT TO THE END. BE CAREFULL NOT TO LOSE THE SHACKLE I.E. HAVE IT RUN TO THE MASTHEAD. CHECK VISUALLY FROM LAND. THIS STEP SHOULD BE COMPLETED BEFORE GEAR IS STOWED ON BOARD AND ENGINE PUT IN PLACE.
- ADJUST ABEAM POSITION AND BEND IN SPAR WITH UPPER AND LOWER SHROUDS. THIS MAY BE CHECKED BY STANDING AT MAST FOOT AND SIGHTING UP THE SAIL TRACK.

NOTE:

TIGHTENING FORESTAY - MOVES MASTHEAD FORWARD

TIGHTENING BACKSTAY - MOVES MASTHEAD AFT, THROWS CENTER OF SPAR FORWARD.

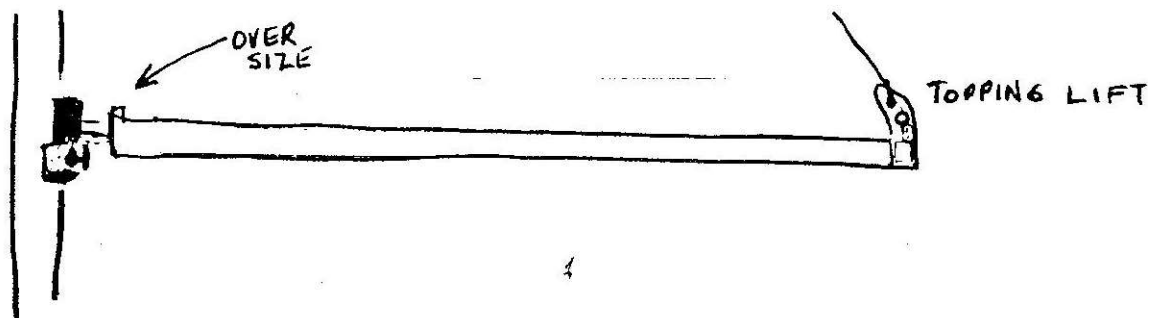
TIGHTENING UPERS - MOVES MASTHEAD ABEAM

TIGHTENING LOWERS - MOVES CENTER OF SPAR ABEAM AND AFT.

THE STAYS SHOULD BE TIGHT I.E. NO SLACK, BUT NOT OVERLY SO, FINAL TURNING CAN ONLY BE DONE WHILE SAILING.

RUNNING RIGGING

ATTACH BOOM TO MAST BY LOOSENING SET SCREW ON GOOSENECK AND INSERTING IN THE MAST TRACK THROUGH SWAGED (LARGE) OPENING.



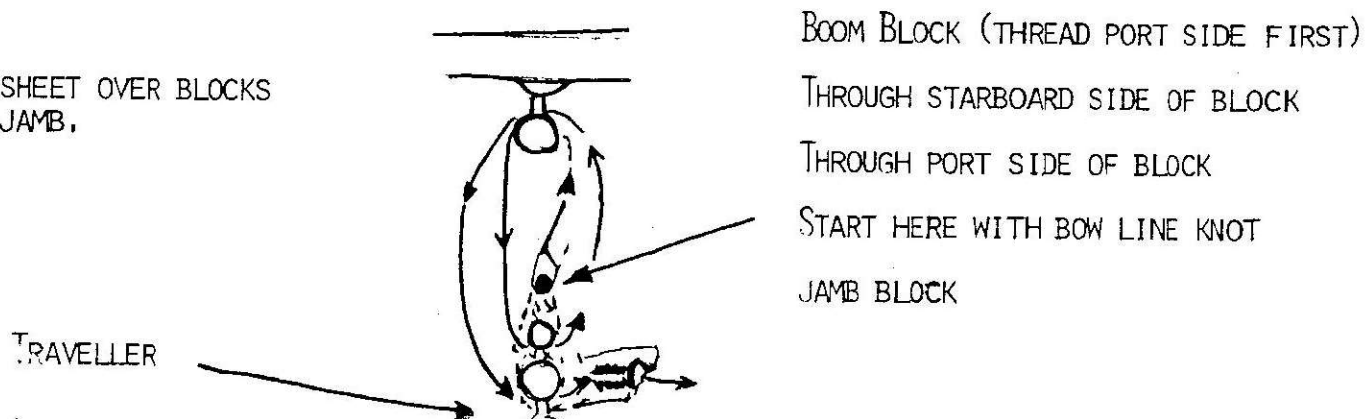
ATTACH TOPPING LIFT TO BOOM TANG.

ATTACH DOUBLE BLOCK TO EYE SLIDE ON THE BOOM WITH SHACKLE SUPPLIED, MOVE EYE SLIDE OVER THE TRAVELLER.

ATTACH JAMB CLEAT TO TRAVELLER CAR.

TIE MAINSHEET (SHORTER OF TWO SHEETS) TO THE BECKET ON JAMB BLOCK.

NOTE: TREAD MAINSHEET OVER BLOCKS ENDING AT JAMB.



SAIL BENDING

- WITH RARE EXECPTION THE MAIN SAIL GOES UP FIRST.
- RELEASE THE MAIN SHEET FROM THE JAMB CLEAT SO THAT THE MAIN SHEET IS FREE TO RUN.
- LOOSEN THE GOOSE NECK SET SCREW AND MOVE THE BOOM TO ITS UPPER MOST POSITION IN THE MAST SLOT.
- UNDO THE MAIN SAIL TACK THUMBSCREW AND FEED THE FOOT OF THE SAIL INTO THE BOOM TRACK, REPLACE THE THUMBSCREW THROUGH THE SAIL TACK CRINGLE AND PULL FOOT OUT TO THE OUT HAUL.
- TIE THE SAIL OUT HAUL TO THE BOOM FITTINGS BY RUNNING A $\frac{1}{4}$ " LINE FROM CLEW CRINGLE THROUGH EYE STRAP ON PORT SIDE, BACK THROUGH CRINGLE AND THEN TO CLEAT ON THE STARBOARD SIDE, PULL FAIRLY TIGHT.
- FEED THE MAIN SAIL LUFF INTO THE MAST AND ATTACH THE MAIN HALYARD SHACKLE TO THE SAIL HEADBOARD. HOIST THE MAIN SAIL ALL THE WAY UP, PUTTING IN THE BATTENS AS YOU GO. CLEAT THE MAIN HALYARD ON THE PORT SIDE OF THE MAST. COIL AND STOW THE LOOSE END. EASE OFF TOPPING LIFT.
- ADJUST THE POSITION OF THE BOOM TO SUIT THE WIND CONDITIONS BY LOOSENING THE SET SCREWS AND LOWERING THE BOOM TO THE POSITION CHOSEN WITHIN THE BLACK BANDS.
- ATTACH THE TACK OF THE JIB TO THE BOW PLATE WITH THE SHACKLE PROVIDED.
- ATTACH THE HEAD OF THE JIB TO THE JIB HALYARD WITH THE SHACKLE.
- ATTACH THE JIB SHEETS TO THE CRINGLE IN THE CLEW OF THE JIB (A REEF KNOT IS SUITABLE.)
- RUN EACH SHEET BACK TO THE COCKPIT BY PASSING THEM, OUTSIDE THE SHROUDS, THRU THE SHEET BLOCKS ON THE RAIL, AROUND THE WINCH AND PUT A FIGURE EIGHT KNOT IN EACH END.

- HOIST THE JIB ALL THE WAY UP TIGHT AND HARD AND CLEAT THE HALYARD ON THE STARBOARD SIDE OF THE MAST.

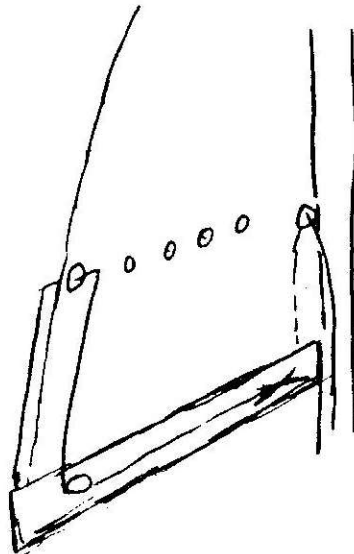
YOU ARE NOW READY FOR YOUR FIRST SAIL ON YOUR NEW CS/22.

MAIN SAIL REEFING

YOUR CS/22 IS EQUIPPED WITH THE LATEST DESIGN FOR SAIL REEFING WHICH IS CALLED "SLAB" OR "JIFFY" REEFING GEAR.

A 1/8" LINE IS SECURED THROUGH THE EYE STRAP ON THE PORT SIDE OF THE BOOM THEN TAKEN UP THROUGH THE CRINGLE ON THE MAINSAIL, DOWN TO AND THROUGH THE CHECK BLOCK ON THE STARBOARD SIDE OF THE BOOM AND FORWARD TO THE CLEAT.

A SECOND LINE IS SECURED TO THE EYE STRAP ON THE PORT SIDE OF THE MAST; UP THROUGH THE CRINGLE ON THE MAINSAIL AND THEN DOWN TO THE CLEAT ON THE STARBOARD SIDE OF THE MAST.



TUNING THE MAST AND STANDING RIGGING

- THE MAST IS FIRST TUNED AT THE DOCK
- THE FORESTAY, BACKSTAY AND UPPER SHROUDS SHOULD BE ADJUSTED AND TIGHTENED UNTIL THE HEAD OF THE MAST IS STRAIGHT IN THE CORRECT FORE-AFT POSITION (2" RAKE) AND STRAIGHT AND PERPENDICULAR IN THE ABEAM POSITION.

4

BACKSTAY WILL BE FAIRLY TAUT

FORESTAY SHOULD
BE VERY TAUT, SO
THAT YOU CAN
TWANG IT LIKE
A GUITAR STRING

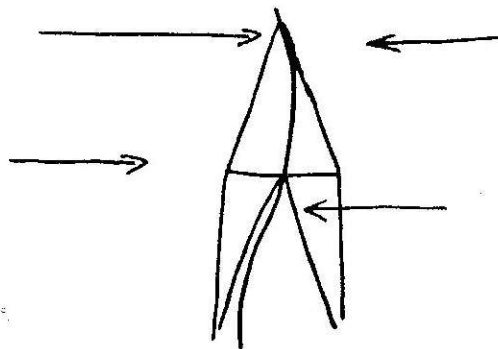
UPPER SHROUDS WILL BE QUITE
TAUT AND LOWERS WILL BE A
LITTLE LESS TAUT, (THE
LOWERS ARE ONLY USED TO
STRAIGHTEN)

SIGHT UP THE AFT SIDE OF THE MAST. ANY BENDS WILL BE VERY APPARENT AND MUST BE REMOVED.

IF MAST LOOKS LIKE THIS THEN RE-ADJUST SHROUDS TO ELIMINATE THE BENDS.

UPPER TOO-TIGHT

LOWER TOO-TIGHT



UPPER TOO-SLACK

LOWER TOO-SLACK

FOR FINAL TURNING THE CS-22 SHOULD NOW BE TAKEN OUT AND SAILED. THE BOAT SHOULD BE PUT ON A STARBOARD TACK AND ON A BEAT TO WINDWARD. (THE WIND WILL BE COMING OVER THE STARBOARD BOW AND THE BOOM WILL BE OVER THE PORT QUARTER.)

CHECK THE LEEWARD (PORT SIDE) SHROUDS. THEY SHOULD NOT BE SLOPPY: THEY SHOULD NOT BE TAUT: THAT SHOULD BE JUST A BIT SLACK TO THE TOUCH. PUT THE BOAT ON A PORT TACK AND CHECK THE LEEWARD (STARBOARD SIDE) SHROUDS IN THE SAME MANNER.

ADJUST YOUR TURNBUCKLES (LOOSEN OR TIGHTEN) TO SUIT YOUR FINDINGS. ONCE AGAIN SIGHT-UP THE MAST TRACK FOR BENDS AND THEN GO OUT AND REPEAT THE DRILL.

MOST TUNING IS A CONTINUAL JOB, IT NEVER ENDS BECAUSE IT DEPENDS SO MUCH ON WEATHER CONDITIONS AND TYPES OF SAILS AND YOUR COMPETITION.

IF THE BOAT TENDS TO ROUND UP INTO THE WIND AND IS HARD TO KEEP ON COURSE, YOU HAVE WHAT IS CALLED "WEATHER HELM" INDICATING THAT YOUR MAST MAY BE TOO FAR AFT RAKED.

IF YOUR BOAT DOES THE OPPOSITE "LEEWARD HELM" YOUR MAST MAY BE RAKED TOO FAR FORWARD.

FOR FURTHER INFORMATION ON TUNING TECHNIQUES CONSULT "BASIC SAILING" BY M. B. GEORGE - AVAILABLE AT MOST YACHTING RETAIL OUTLETS.

TIPS FOR YOUR CS-22

- HULL: OCCASIONALLY WAX WITH "TREWAX" FOR A LONG LASTING LUSTRE.
- DECK: A STANDARD CLEANER SUCH AS "FANTASTIK" WITH A DECK BRUSH AND HOSING DOWN WILL KEEP YOUR TOPSIDES SPARKLING.
- TEAK TRIM: APPLY "WATCO" TEAK OIL TO ALL TEAK TRIM AT THE SEASON BEGINNING AND OCCASIONALLY THROUGH THE SEASON. DO NOT USE STEEL WOOL. SAND LIGHTLY.
- SPREADERS: END COPS OR ROLLERS WILL PREVENT SAIL CHAFING.
- WATER SYSTEM: RINSE OUT THE ENTIRE SYSTEM WITH A MIXTURE OF SODIUM METABISULPHATE AND WATER TO STERILIZE THE SYSTEM. RINSE WELL.
- ANTIFOULING: TO BE DONE EACH SPRING TO ELIMINATE MARINE GROWTH. "KL990" AVAILABLE FROM CANADIAN SAILCRAFT COMPANY AND "UNIPOXY" HAVE PROVEN SATISFACTORY FOR INLAND WATERS.
- CENTRE BOARD
- PENNANT: MARK $\frac{1}{4}$ AND $\frac{1}{2}$ POINTS WITH COLOURED TAPE TO ENABLE YOU TO KNOW THE CENTRE-BOARD POSITION.
- RUDDER BLADE: THE BLADE SHOULD BE PAINTED WITH ANTIFOULING PAINT BELOW THE WATER LINE TO ELIMINATE MARINE GROWTH.
- MOTOR: A 4 HORSEPOWER MOTOR IS SUFFICIENT, A 6 HORSEPOWER IS IDEAL. (LONG SHAFT MODEL)
- TILLER EXTENSION: AVAILABLE FROM CANADIAN SAILCRAFT COMPANY WILL ALLOW SHIPPER AND CREW TO MOVE FORWARD IN THE COCKPIT TO REDUCE STERN DRAG.
- WETTING CARPET ON TRAILER PADS AND BONKS EASES LAUNCHING AND RECOVERING.

- MUD FLAPS ON TRAILER AND CAR HELPS PREVENT ROAD TAR, DIRT, AND STONES FROM MARRING HULL.
- VASELINE OR SIMILAR GREASE IN LIGHT SOCKETS AND ON BULBS WILL PREVENT CORROSION.

RECOVERY OF BOAT

RECOVERY - RETURNING BOAT TO TRAILER

FOR REPEATED EASY RECOVERIES IT IS VERY IMPORTANT TO HAVE TRAILER SET-UP AND ADJUSTED PROPERLY. A FEW DUMMY-RUNS AT A QUIET RAMP WILL PAY-OFF IN THE LONG RUN.

- (1) BEFORE FIRST LAUNCH- CHECK IF BOAT WATERLINE SITS PARALLEL TO TRAILER BED

IS BOAT SITTING IN FULL CONTACT WITH BUNKS?

ARE DIMENSIONS A AND B EQUAL (FROM TRAILER BED TO TOP OF BUNK AT FORE AND AFT EDGES)?

FORWARD PADS ARE IN CONTACT WITH HULL

IF THESE REQUIREMENTS ARE MET THEN NO DIFFICULTY SHOULD BE ENCOUNTERED DURING RECOVERY.

- (2) LAUNCH BOAT - WHEN BOAT IS OFF TRAILER - ADJUST BUNKS SO THAT DIMENSIONS A AND B ARE EQUAL
- RETRACT BOW ROLLER 2" TO 3" WHEN BOAT WAS ON TRAILER AND FORWARD PADS CONTRACTED HULL

- IF BOW WAS HIGH, LOWER THE PADS A FEW INCHES

- IF BOW WAS LOW, RAISE THE PADS A FEW INCHES.

- (3) BACK TRAILER INTO WATER SO THAT TOP FORWARD EDGE OF REAR BUNK (PT. Y) IS ABOUT AN INCH BELOW SURFACE. PULL BOAT MANUALLY ONTO TRAILER. ATTACH WINCH CABLE & WINCH BOAT UP TO BOW ROLLER (9" - 12"). IF BOW ROLLER WAS NOT RETRACTED, BOW EYE WILL SNAG ON ROLLER. ROLLER SHOULD NOT BE RETRACTED SO FAR AS TO PERMIT BOAT TO HIT WINCH. WINCH CABLE SHOULD FEED FROM TOP OF WINCH DRUM OF ROTATION OF BOAT DURING HAUL OUT MAY SNAP CABLE.

HAUL BOAT OUT OF WATER, CHECK LINES DON'T SNAG AND THAT RUDDER IS FULLY UP (KEEL ALSO)
AS BOAT LEAVES WATER IT WILL ROTATE A FEW INCHES AWAY FROM BOW ROLLER. EXTEND BOW ROLLER
TO CONTACT BOAT FULLY. THE BOAT SHOULD NOW SIT SQUARELY ON TRAILER, I.E. WATERLINE
PARALLEL TO TRAILER BED.

IF FORWARD PADS ARE LOW RAISE THEM TO CONTACT HULL FULLY.

IF FORWARD PADS ARE HOLDING BOW HIGH AND PREVENTING BOAT FROM SITTING LEVEL, IT IS
NECESSARY TO RE-LAUNCH, LOWER FORWARD PADS A COUPLE OF INCHES AND RECOVER AGAIN.

FOLLOWING THIS PROCEDURE THE BOAT WILL NEVER SIT BOW LOW. ONCE THE BOAT IS LEVEL AND ALL
SUPPORTS CONTACT THE HULL, THERE SHOULD NEVER BE ANY FURTHER NEED TO MOVE OR ADJUST SUPPORTS
EXCEPT FOR THE BOW ROLLER WHICH MUST BE RETRACTED AND EXTENDED 3" DURING EACH LAUNCH/RECOVERY.
MARK (PAINT) THE POSITIONS OF THE SUPPORTS AND BOW ROLLER.

NOTE: IF TRAILER IS TOO DEEP BOAT WILL FLOAT OVER TRAILER AND HIT WINCH AND MAY NOT LOCATE
IN GROOVE.

IF TOO SHALLOW, WINCHING DISTANCE AND EFFORT WILL BE EXTREME.

FORWARD PADS SHOULD ONLY BE LOWERED (2" MAXIMUM) ON VERY STEEP RAMPS. RE-ADJUST TO
HULL ONCE AGAIN AFTER RECOVERY. LOWERING FORWARD PADS CAUSES EXCESSIVE ROTATION
OF BOAT AS IT LEAVES THE WATER. THE BOAT WILL THEN ACTUALLY SIT FURTHER AFT ON
TRAILER. (THIS IS A FUNCTION OF THE BOW TO WATERLINE ANGLE).

DURING RECOVERY BOW ROTATES CLOCKWISE. THE BOAT ALSO SINKS DOWN INTO THE REAR BUNKS
AND THEREFORE STAYS IN CONTACT WITH THE FORWARD PAD.

DRAWING SHOWS STANDARD CONSTRUCTION FOR BOATS UP TO 2 TON

UPRIGHTS

UP TO 2 TON -	4 x 4 Cedar/FIR
" 4 "	4 x 6 "
" 6 "	4 x 8 "
" 10 "	6 x 6 "

WIDTH
MAX BEAM
+2" EACH SIDE

• KEEL •
CHANNEL IRON
IS PREFERRED
FROM 2" x 10"
TO 4" x 14"
REDUCES
HEIGHT
APPROX.
8"

HEIGHT
KEEL TO DECK
+ 2 FT OR MORE
AS DESIRED.

OPTIONAL

PAD OF UPRIGHT MAT
OR NOTCH BASE TIMBERS
FOR UPRIGHTS.

ANGLE IRON WOOD STRUTS

1 1/2"	2	TON-2 x 4 FIR
2"	4	" - 2 x 6 "
3"	6	" - 2 x 8 "
4"	10	" - 2 x 10 "

IF WOOD IS USED BOLT ENDS TO PREVENT SPLITTING
STEEL ANGLE IS RECOMMENDED-2 EXTRA HOLES ALLOW
OPENING UP CRADLE FOR PAINTING, AFTER SHOREING

2 x 8 ONLY

PLEASE DON'T USE 10" OR 12"

MAX-8'6"

MAX-8'6"

ALL OUTER BOARDS 2" x 8" FIR

WOOD SIDES 2" x 4" BOLTED THROUGH 4-BOLT
IRON SIDES 1/4" x 3 1/2" BOLTED THROUGH 3-BOLT

TOPS & GUIDES MUST BE CHAMPFORD
SIDES MUST BE BOLTED NO LAG SCREWS.

SAFETY IS THE MAIN REASON, NOT ONLY FOR THE BOAT BUT PEOPLE CAN GET
HURT IF A BOAT FALLS, ALSO PROPER CRADLES SPEED UP OUR OPERATION
P.S. CREOSOTING YOUR WOOD WILL DOUBLE THE LIFE OF YOUR CRADLE!
FOR BOATS WITH UNCONVENTIONAL UNDERBODIES SEE MARINE CHARTMAN.

CROSSBARS	
2 TON	2 x 4
4 "	2 x 6
6 "	2 x 6
10 "	2 x 8
CROSS BRACES	
2 TON	1 x 4
4 "	1 x 6
6 "	1 x 6
10 "	1 x 8
KEEL TIMBER	
2 TON	4 x 10
4 "	4 x 10
6 "	6 x 10
10 "	8 x 10
BASE TIMBER	
2 TON	6 x 10
4 "	6 x 10
6 "	8 x 10
10 "	10 x 10
ABOVE FIR OR SPR	
6 1/2" OR 78"	
NARROW GAUGE WIDE GAUGE	

TIES
FROM 2 x 6
TO 2 x 12