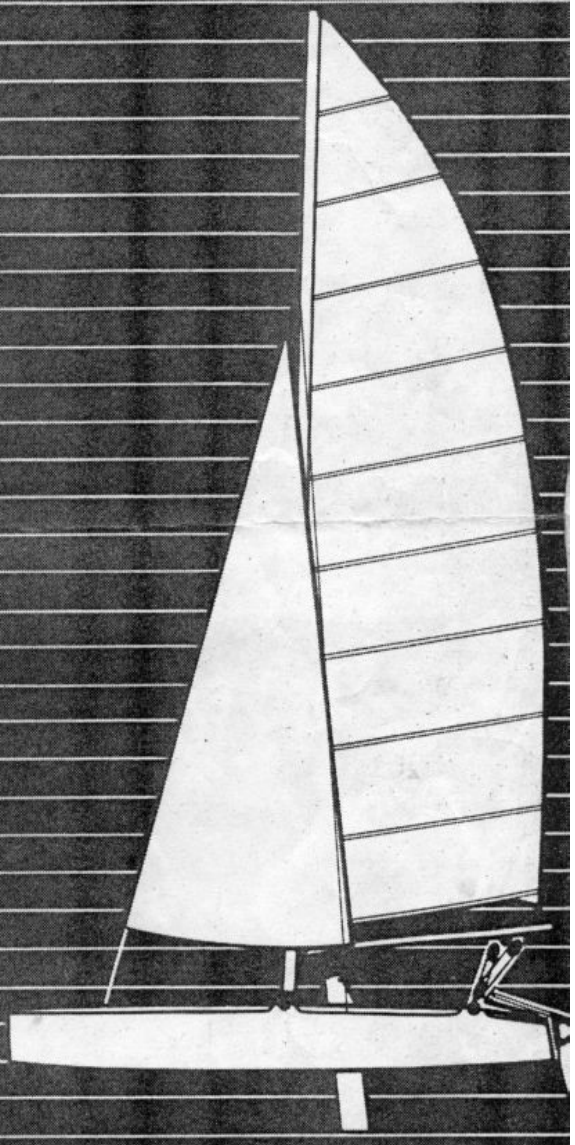
nacra



ASSEMBLY MANUAL

5.0 5.2 5.5 5.7 5.8 18²

Congratulations! Your new NACRA awaits many years of service and dedicated performance. This manual is provided to assist you in extracting maximum enjoyment from the finest production catamaran available. The procedure outlined and illustrated in this manual have been used countless times to assure proper function and long life of your NACRA. We strongly recommend you avoid the temptation to heartily "throw" the boat together and head for open water "to get it on". Please note this manual covers the full line of NACRA Catamarans. Please take time to review this assembly manual before beginning the step by step assembly procedures. Each assembly or tuning tip may not correspond with your NACRA, please note where your model catamaran is specifically mentioned for total proper assembly. If your boat has been assembled, take some time and review each of the assembly techniques to familiarize yourself in the event you may need to perform service on your own NACRA.

We encourage your involvement in the International NACRA Class Association. The events held by your local fleet are designed to benefit you. By participating, you will acquire a greater sailing knowledge, meet other enthusiastic NACRA owners and learn to thoroughly appreciate your new NACRA. If you don't have a local fleet, contact us here at NACRA for assistance in beginning a new fleet. The Class Association publishes a quarterly news magazine, the Telltale, which contains articles on local fleet and district action, plus tips on tuning, International news, outstanding photos and events calander.

Make sure your dealer submits your warranty card. This not only validates your warranty it allows you to receive a complimentary issue of the Telltale magazine. Notify us if you move or if you have just purchased a used NACRA.

We hope to see you at the next NACRA regatta.

Sincerely,

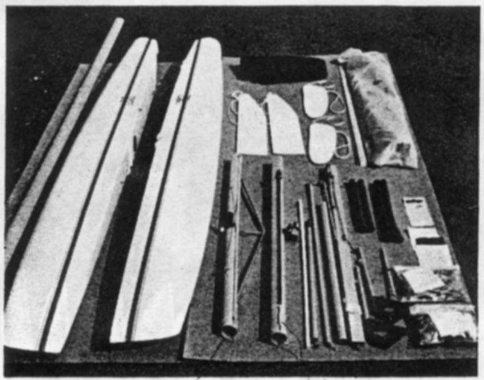
nacra

HULLS, BEAMS AND TRAMPOLINE ASSEMBLY

PARTS: (Photo #1)

1. Hulls
2. Main beam
3. Aft beam
4. Trampoline
5. 3/4" P.V.C. Trampoline tie tube
6. 8 Stainless steel beam straps
7. 16 5/16" x 1-1/2" Bolts
8. 16 Black reinforcement chips
9. 16 5/16" Washers
10. 1 Grease cup
11. 13' x 3/16" Solid braid nylon line
12. 2 Internal beam castings
13. 2 5/16" x 2" Bolts
14. 2 5/16" Small stainless flat washers

1



フロントビーム(前)　リアビーム(後) 旧モデル
新モデルはトランポリンに…てビーまでーおります。

TOOLS NEEDED:

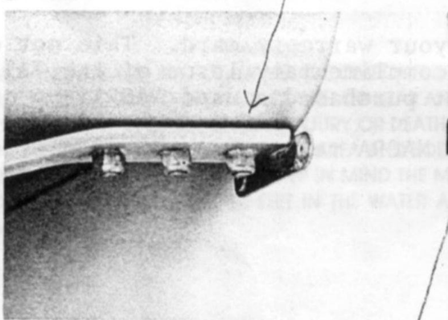
Ratchet with 1/2" socket, large crescent wrench, rubber mallet.

PROCEDURE:

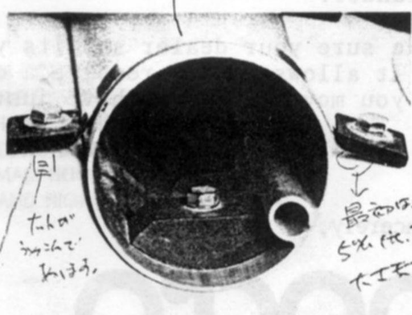
1. Place hulls approx. 8' apart on a level surface using the box ends to hold upright.
2. Slide the front of the trampoline into the slot in the main beam.
3. Lay the main beam across the hulls in front of the forward beam chocks.
4. Begin to slide both sides of the trampoline into the rails on each hull. (photo #2)
5. Now gradually and equally pull both sides of the trampoline aft so that the trampoline is fully engaged in the rails and the main beam rests loosely in the chocks. Using a mallet, tap down each end of the trampoline rail extrusion to narrow the slot opening. This will prevent the trampoline from pulling out at the corners. Be careful not to completely close the slot.
6. Arrange the 16 bolts, black chips, washers and main and aft beam straps so that upon the bolt will be a washer, a black chip (with the curved side down), now bolt through the hole in the beam strap.
7. Locate the 8 beam strap assemblies so that the 4 main beam and the 4 rear beam straps are seperated.
8. Place one end of the main beam flush in the chock in the hull so that the dolphin striker support strap, (bolted to the underside of the main beam) butts up against the bearing tang (riveted to the inside of the hull just under the forward chock). Rotate the main beam so that the beam hole will align with the 5/16" hole tapped in the main beam chock. (photo #3)
9. Dip the ends of the beam strap bolts into the grease cup making sure all threads are coated. Now thread the greased bolts into the tapped holes in the hull so that the beam is strapped snug to the hull. Be sure not to over-tighten the bolts, which may cause the trampoline slot in the beam to compress and distort (16-18 ft/lbs). Also be sure the curved side of the black chip is down so that the strap takes the same curve as the black chip. (photo #4)

2

3 フロントビーム(前)のストッパー



4 フロントビームのステンレス止め方です ストラップ



最初はこの位は あいていても大丈夫です。

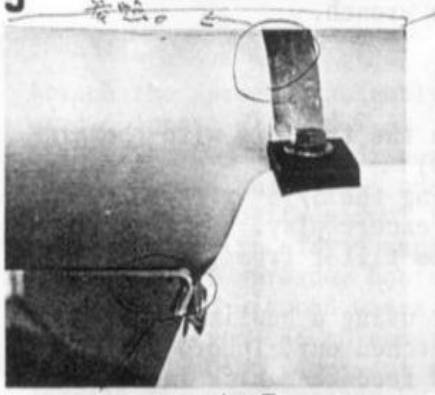
最初にフロントビームにトランポリンを通し、
それから、右と左のサイドレールに通して下さい。

ストラップ(ステンレス)がビームの形になじむのに時間が
かかるので、はじめから、このボルトを目一杯に、しめこまない
で下さい。無理に一杯にしめこむと、ハルの中にうめこんである

HULLS, BEAMS AND TRAMPOLINE ASSEMBLY

10. On the same hull, strap the aft beam in place, being sure that the stop (riveted to the underside of the aft beam) butts up against the bearing tang (riveted to the hull under the aft chock). (photo #5)
11. Strap the aft beam in place on the other hull in the same manner. Note: Rear beam rotation angle varies per model. Traveler pedestal casting should be parallel with the decks. With boom rigs the track should angle aft, boomless rigs forward. (photo #6)
12. To strap the other side of the main beam in the chock, the hulls must be pushed apart at the bows so the beam will lay flush in the chock with the end of the dolphin striker support strap butting against the bearing tang riveted to the hull. Strap the beam to the hull as previously described. Make sure the trampoline is pulled tightly aft and fed completely into the trampoline rail before this procedure is completed. (photo #7)

5



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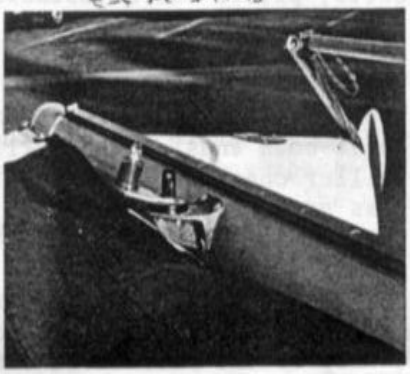


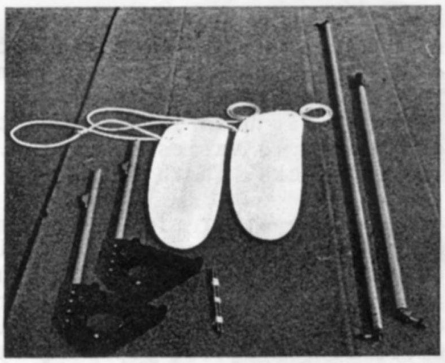
7

13. Insert a 5/16" bolt with washer through an internal beam casting so that the threads are exiting out the curved side. Dip the bolt into the grease cup. Place the unit into the main beam and carefully thread it into the tapped hole. Repeat for the other side. Tighten the bolts firmly (photo #4). Use a large crescent wrench to orient the black chips so they are square against the beam strap. This will insure an even load along the beam strap.
14. Before the beam straps are tightened down fully, don't forget to re-install the beam end caps. The caps for the main beam will have holes already drilled to accomodate the 1/4" trapeze shock cord which must be installed at this time.
15. Slide the 3/4" P.V.C. tube into the slotted vinyl pocket sewn to the underside of the trampoline. Then space the slug slides, located in the slot of the aft beam, so that they match the holes cut in the vinyl pocket.
16. Tie one end of the 13' x 3/16" line to an aft beam strap eye, run the line around the exposed P.V.C. tube and then return the line through the same strap eye. Lead the line to the slug slide next in line in the slot. Repeat this procedure until the trampoline is laced. (photo #8)
17. Go back to the beginning and pull the line tight as possible so the trampoline pulls taut at each slug slide in succession. Tie off the lacing line at the last strap eye. This line may need occasional re-tightening. (photo #9)
18. Lead skipper trapeze shock cord from the deck strap eye through trampoline grommets to strap eye on other hull. Tie a temporary knot to hold in place.

8

9

STEERING ASSEMBLY



PARTS:

1. 2 Rudders rigged
2. 2 Tiller cheek assemblies
3. 2 Nylon rudder set screws
4. 2 Pintles w/cotter pins
5. 1 Tie bar extrusion
6. 2 Tie bar end fitting packets
7. 1 Hiking stick
8. 2 Pivmatic assemblies

NOTE: (T) refers to general tuning

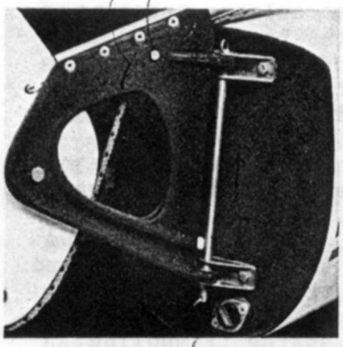
TOOLS:

Ratchet with 7/16" and 1/2" sockets, pliers and adjustable wrench.

PROCEDURE:

1. Attach the tiller cheek assemblies to the gudgeons on the transoms with the pintles, securing cotter rings at both ends. (photo #10)
2. Bolt the rudders into the tiller cheek assemblies using the 5/16" x 2" bolts supplied. Utilize spacers as necessary to eliminate excess play.
3. Feed one end of the 3/16" halyard tail line through the tiller from the forward and out the aft end.
4. Tie the line to the shock cord attached to the rudder using a bowline knot and pull the shock cord through the tiller. Hold it stretched out! (photo #11 & 12)
5. Put the bushing inside the loop of the shock cord and feed them back inside the tiller until the bushings aligns with the holes in the tiller. (photo #12)

10



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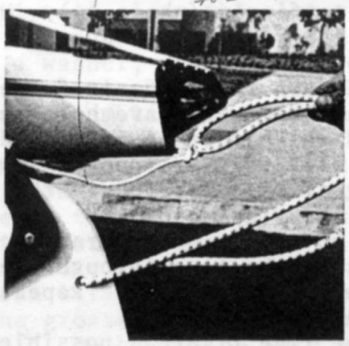

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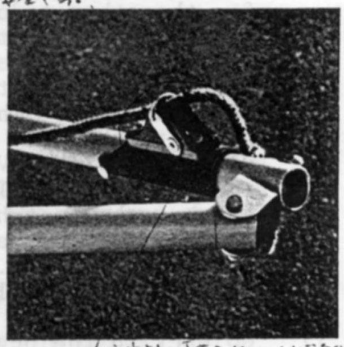
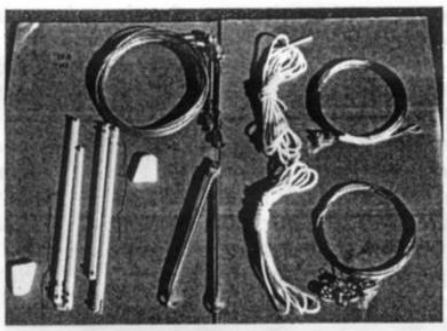


6. Push the 1/4" bolt on the end of the tie bar end fitting through the hole and bushing then attach with the washer and nut. Do not tighten yet. This will hold the shock cord stretched and the rudder in the up position. Repeat on other side. Attach the tie bar to the end fitting with the clevis pins provided. Placing nylon washer above and below the tie bar and in between the bracket to reduce play. Now turn tillers completely to one side or other, then tighten 1/4" nylock nuts. This insures proper tie bar alignment. (photo #13 and T-1)
7. To install pivmatic systems, remove split ring and clevis pin from the unit and then snap the plastic unit onto the tiller arm with the riveted shackle on the forward of the plastic unit facing forward. Then align the holes in the pivmatic bracket and the tiller arm. Fasten the system with the clevis pin by reinserting the pin and recapturing it with the split ring. (photo #13)
8. Feed the rudder pull down line from the head of the rudder over the clevis pin, then out of the assembly, over the top of the tiller to the pivmatic.(photo #10&13)
9. Tie a loop using a bowline knot on the end of the rudder pull down line (for pulling the rudder down into the sailing position. (T-2)
10. Bolt the hiking stick to the hole in the center of the tie bar.

MAST ASSEMBLY



PARTS:

1. Mast
2. Main and jib halyards
3. 2 Halyard tails (3/16" line)
4. 2 Diamond wires
5. 1 Spreader assembly
6. 1 Mast rotator (5.2 and 18 sq. only)
7. 2 Spreader boots

NOTE: (T) refers to general tuning

TOOLS:

Ratchet with 1/2" socket, needle nose pliers and regular pliers

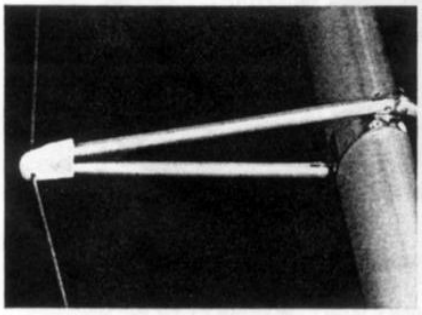
PROCEDURE:

1. Attach the spreader assembly to spreader base on the mast with the longest arm forward. (photo #14 and T-3)
2. Attach the end of the diamond wires with the turnbuckles to the lower tangs on the mast. Before doing this open the turnbuckles about half way on each side.(photo 15)
3. Attach the opposite end of the diamond wires to the upper tangs on the leading edge of the mast with clevis supplied. (photo #16)
4. Install vinyl spreader boots and feed the stainless seizing wire through the boot to attach the diamond wires to the ends of the spreader so that the diamonds cannot detach from the spreader while sailing. (photo #17 and 17A and T-4)
5. Pull the diamond wires out and engage at the ends of the spreaders and secure.
6. Install the mast rotator by bolting it to the mast through the 5/16" hole in the lower tangs, using supplied washers to shim bolt to length. (photo #34)
   Step #6 applies to the 5.2 and 18 sq. only.
7. Mount the jib halyard to the mast, using the wire block supplied with halyard. Be sure that halyard is oriented properly, with shackle away from mast, (to travel down forestay). (photo #16)

WARNING

ALUMINUM MASTS AND OTHER METAL COMPONENTS CONDUCT ELECTRICITY. COMING IN CONTACT WITH OR NEAR AN ELECTRICAL POWER LINE CAN CAUSE SERIOUS INJURY OR DEATH. DETERMINE THE SUITABILITY OF YOUR LAUNCHING AREA AND BODY OF WATER BEFORE RIGGING YOUR BOAT. KEEP IN MIND THE MAST HEIGHT OF THE NACRA EXCEEDS 30 FEET IN THE WATER AND HIGHER WHEN ON TRAILERS.

14



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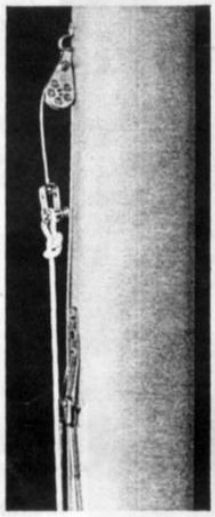

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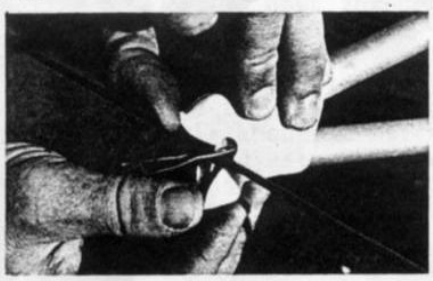
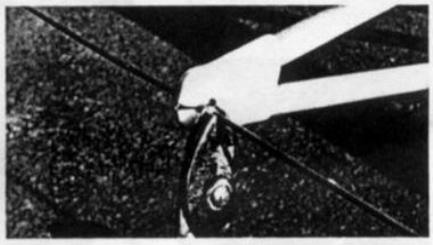


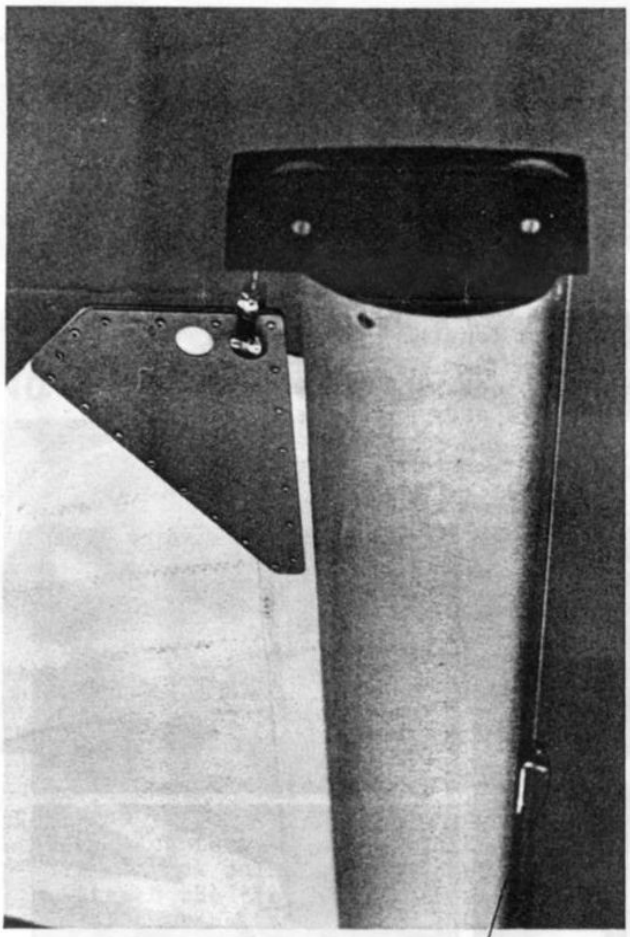


17a

WARNING: Be sure the total spreader system is securely attached. If any part disconnects the whole system may fail, and possible mast breakage may occur. Running diamond wires to tight or extremely loose (at end of adjustment) can also cause excessive strains or failures. The mast is not covered under warranty for breakage due to improper installation, tuning or maintenance.

8. Remove split rings, clevis pins and sheaves from mast head. Run main halyard through mast head (under 2 retaining bridges) with the shackle towards slotted side of mast. Replace sheave making sure halyard wire runs freely. (photo #18)
9. Tie the respective halyard tails to each halyard. The main halyard tail is 31' and is tied to the eye end of the halyard. The jib halyard tail is 21' and ties to the free end of the jib halyard. Position both halyards on the mast with the shackles near base and tie off temporarily.
10. To install 5.8 main halyard, run the 3/16" halyard line through the mast sheave from the back continuing over sheave then down the luff groove exiting at the hole provided just above the sail slot. NOTE: Tie a knot in the halyard so it cannot slip back through the hole. (photo #19)

18



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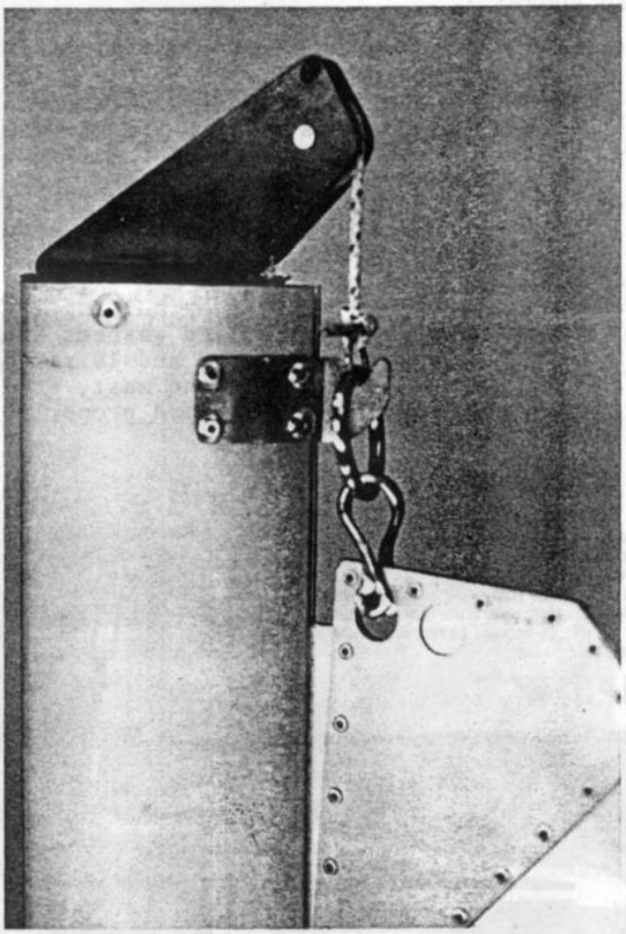

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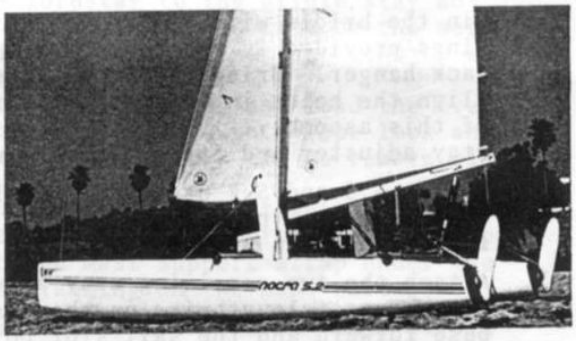
RIGGING THE BOAT AND FINAL ASSEMBLY



PARTS:

1. Hulls, beam and trampoline assembly
2. Boom (5.2 and 18 sq. only)
3. Main and jib sheet blocks
4. Main and jib sheet lines
5. 2 sets trapeze wires
6. 2 jib lead adjustment lines (5.2 only)
7. Traveler control line
8. 1 Suit of sails
9. 1 Set battens
10. 2 Shrouds
11. 1 Forestay
12. 2 Bridle wires
13. 2 Stay adjusters (4 ea. on 5.5 and 18 sq.)
14. 1 Stay adjuster w/jib tack hanger
15. 1 Pigtail assembly
16. 4 Trapeze lines, dogbones and rope locks
17. 2 P.V.C. Shroud adjuster covers (4 on 5.5 and 18 sq.)
18. 1 Main downhaul line
19. 1 Jib downhaul line
20. Various clevis pins and split rings
21. 2 Jib lead wires (5.2 only)
22. Shock cord bridle

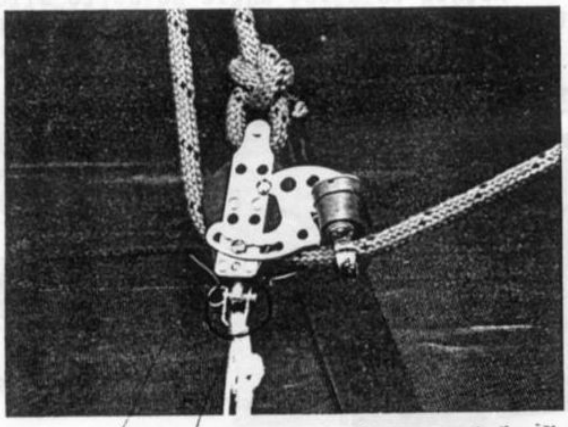
NOTE: 5.5, 5.7, 5.8 and 18 sq. main downhaul line also has a fiddle block and "S" hook. 5.2 main downhaul line has a bullet block connected to it. 18 sq. and 5.5 forestay and bridle wires are permanently connected and have no jib equipment.
T - refers to general tuning.

TOOLS: Pliers

PROCEDURE:

1. Remove the shackles from the ends of the jib lead wires, (attached to the main beam under the trampoline slot) 5.2 only.
2. Feed lead wire up through the first slot in the trampoline continuing down through the second slot and attach it to the rear beam at the strap eye. (photo #20) 5.2 only.
3. Shackle the jib ratchet blocks to the jib lead wires. Tie a knot in the tie line around the jib ratchet block shackle. Tie the opposite end of the tie line to the eye strap (using a figure eight stop knot) so that the jib block is about 32" from the rear beam. This is only an average position for the jib block adjustment, you may find another location (fore and aft) better suited for your conditions. 5.2 only. (photo #20) (T-5)
   All other models, the jib blocks attach directly to jib track car or strap eye on hull. (T-5)

20



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8. Remove split rings, clevis pins and sheaves from mast head. Run main halyard through mast head (under 2 retaining bridges) with the shackle towards slotted side of mast. Replace sheave making sure halyard wire runs freely. (photo #18)
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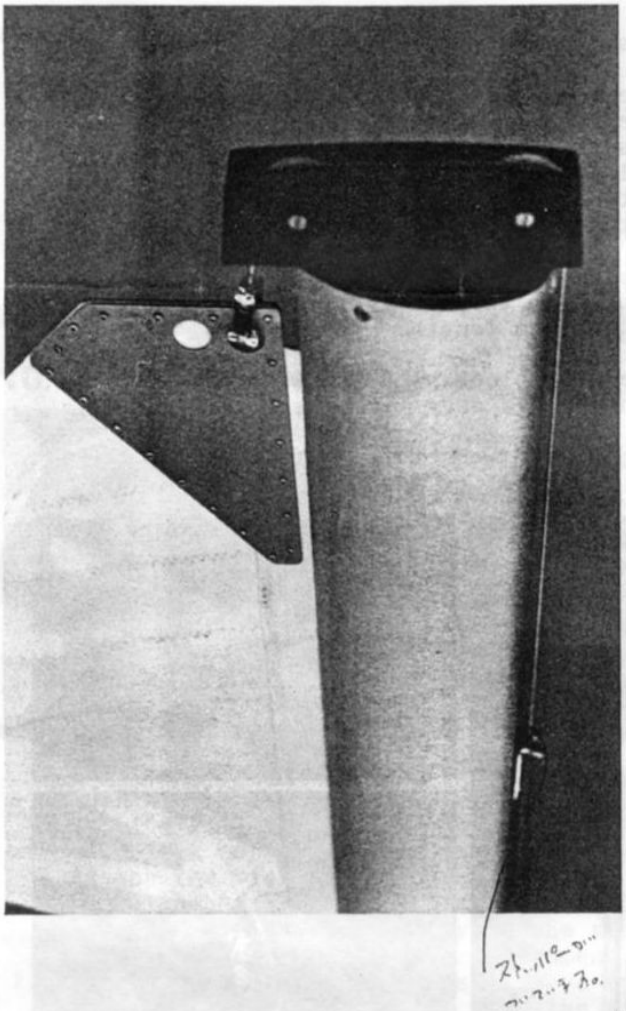
18



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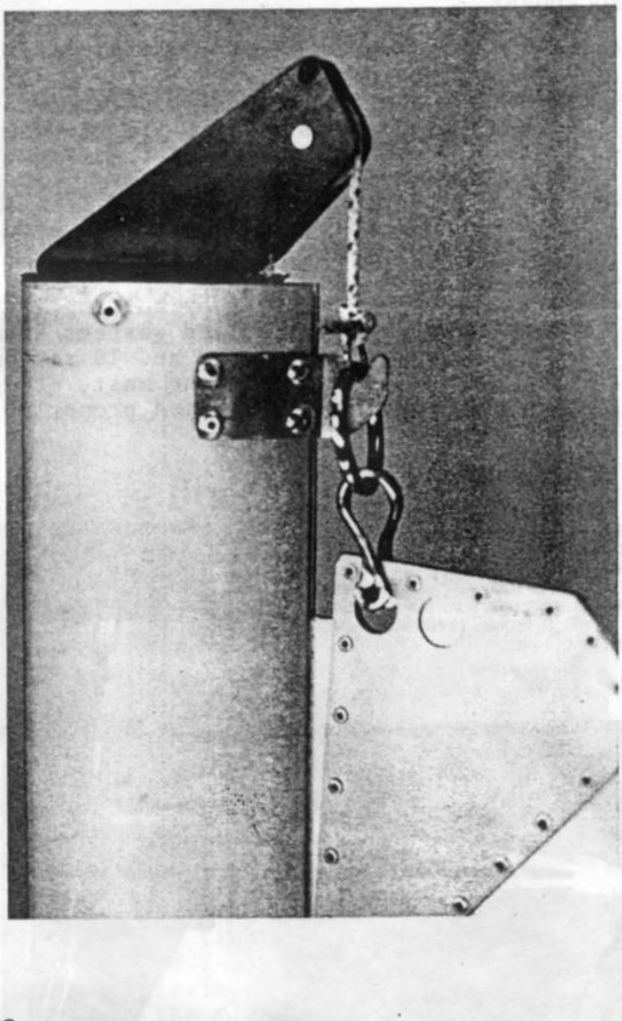

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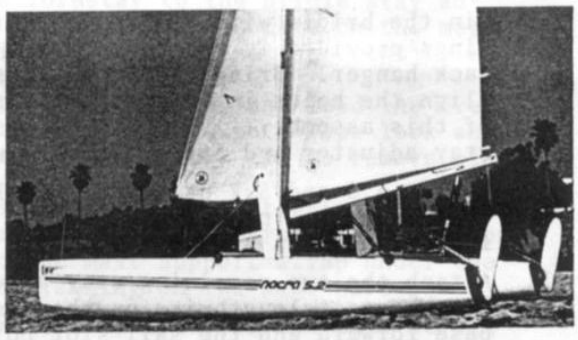
RIGGING THE BOAT AND FINAL ASSEMBLY



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TOOLS: Pliers

PROCEDURE:

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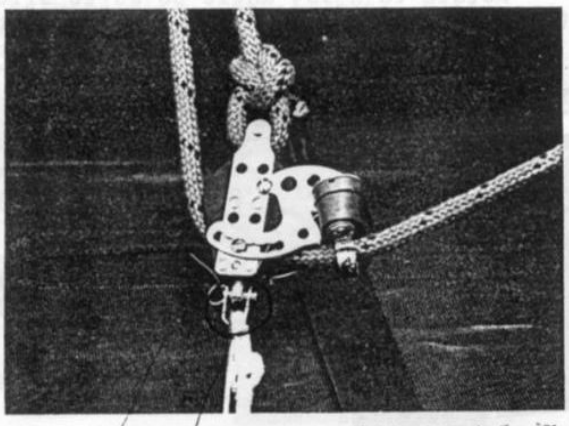
   All other models, the jib blocks attach directly to jib track car or strap eye on hull. (T-5)

20



WARNING

ALUMINUM MASTS AND OTHER METAL COMPONENTS CONDUCT ELECTRICITY. COMING IN CONTACT WITH OR NEAR AN ELECTRICAL POWER LINE CAN CAUSE SERIOUS INJURY OR DEATH. DETERMINE THE SUITABILITY OF YOUR LAUNCHING AREA AND BODY OF WATER BEFORE RIGGING YOUR BOAT. KEEP IN MIND THE MAST HEIGHT OF THE NACRA EXCEEDS 30 FEET IN THE WATER AND HIGHER WHEN ON TRAILERS.

4. Pin the bridle wires to the forward chainplate using the clevis pins and split rings provided in the small parts kit. Locate the stay adjuster with attached jib tack hanger. Bring the loose ends of the bridle wires together in the middle and align the holes in the forks and stay adjuster. Position the jib tack hanger aft of this assembly. Assemble by pushing clevis pin forward through tack hanger, stay adjuster and forks. Secure with split ring. (photo #21)

   NOTE: 5.0 and 5.7 use twist shackle at stay adjuster. Shackle 5.0 bridle wires to the hulls. (photo #22) 18 sq. and 5.5 bridle wires are permanently attached to forestays. Pin stay adjusters to bridle tangs.

5. Attach the two remaining stay adjusters to the chainplates on the hulls.
6. Lay the mast lengthwise on the boat so that the mast rests on the beams with the base forward and the sail slot pointing down. Shackle the standing rig (two shrouds and one forestay with 5/16" bow shackle) to the hound fitting on the mast in the lower hole and shackle the trapeze wires into the top hole. (photo #23)
7. Free the wires and lead to respective stay adjusters onto the hull. Slide stay adjuster cover onto shroud and pin into the sixth hole from the top. This is a preliminary setting and may vary with sailing conditions. Free trapeze wires and lead to respective shock cord. Make sure that both wires of the same trapeze wire set lead to the same side and are outside of shroud. The trapeze hardware should be added after the mast has been raised in the initial set-up. (photo #24)

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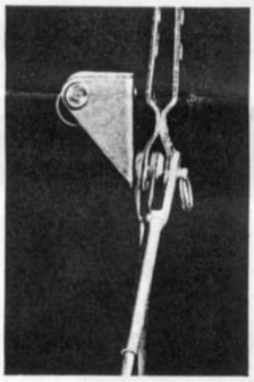

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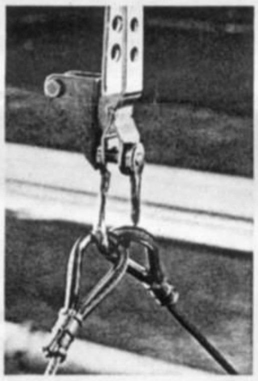

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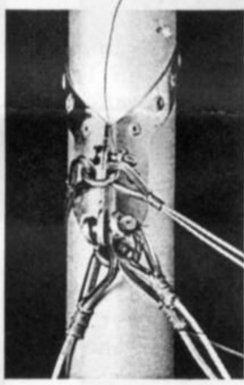

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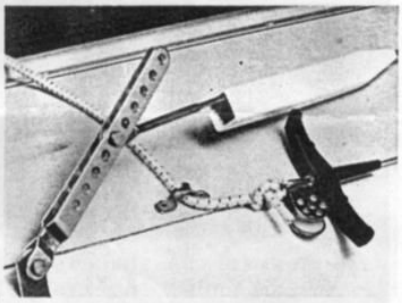

8. Move the mast aft, rotate to 90° so that the foot socket engages the ball on top of the beam. Pin the foot securely onto the ball with the 2" clevis pin and split rings. (photo #25)
9. The person at the mast head now begins to lift the mast and walks forward and off to one side so that one of the shrouds comes under tension, thus forcing the ball to carry the weight of the mast. The person continues forward until reaching the aft beam and hands the mast to the second person who is standing on the trampoline. (photo #26 & 27) When raising or lowering the mast always be sure it is secure. Rotate to a 90% angle so as to allow slot in mast foot to be utilized properly.
10. As the second person continues lifting the mast to the upright position, the first person may assist by pulling forward on a trapeze handle. (photo #28)

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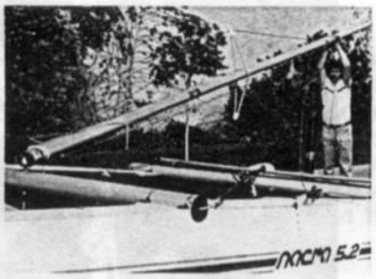

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RIGGING THE BOAT AND FINAL ASSEMBLY

11. With one person holding the mast up, attach the forestay to the bridle stay adjuster with a clevis pin. (photo #29) Be sure the 5/16" bow shackle on the mast hound is free and facing forward for correct fit. Mast rake and rig tension may vary with personal taste and sailing conditions. (T-2)
12. Tie a bowline around the dogbone (unless its already attached) and lead the free end through fitting under trapeze handle. Lead the line through a rope lock and tie bowline to appropriate shock cord. Trim excess shock cord off to remove slack. (T-6) (photo #30)
13. Before the sails are hoisted adjust both diamond wires to equal tightness and tie safety line. (photo #31) Lead the short piece of shock cord through both diamond wire thimbles and then tie off each free end to the mast support strap under the main beam. This will prevent the jib sheet from jamming on the mast hardware.

    Caution: If diamond wires are to tight, your mast will not bend and undo strain will be put on these wires. If they are too loose the mast could break under high loads. Be sure to tighten the locking nuts, plus utilizing a safety line on turnbuckles, so that they will not loosen. (photo #31)

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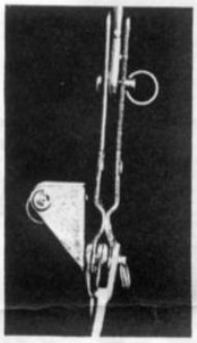

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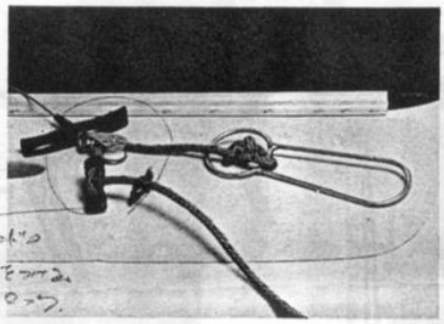

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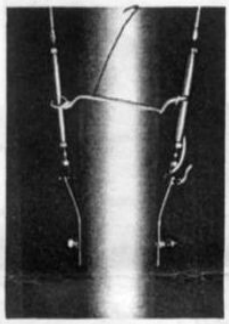

14. Sails: First unroll the suit of sails on a clean surface. A lawn or the top of boat is usual. Seperate the main from the jib sail.
15. Sort battens, #1, the shortest batten, is the top batten. In general terms they become longer going downward, but on some models the bottom batten isn't the longest batten.
16. Slide the battens into the pockets making sure the batten tips fit snugly into the plastic caps riveted to the luff of the sail. Fold a batten tie in half and loop it through the grommet on one side of the batten pocket. Lead both ends of the tie through the batten and then through the tie grommet on the opposite side. Tie an overhand knot while pushing the batten into the sail with your thumb. Tension the battens enough to eliminate all wrinkles from the sail. Finish tying with a square knot and tuck the loose ends into the batten pocket. (photo #32)
17. With the boat head to wind, feed the head of the main sail into the sail slot in the mast. Pull it up to level of halyard shackle and attach. (this cannot be done outside of mast slot) Pull on the main halyard tail to raise sail making sure sail is fed into slot. Upon reaching mast head, lock halyard by engaging swage ball into lock at top of mast, check engagement by pulling down firmly on sail. (photo #18 & 33) 5.8 main sail, once sail is fully hoisted rotate the mast counter clockwise to engage hook on mast into halyard ring. (photo #19) Pull down on sail to check for proper locking, hoist the sail a few inches and then rotate the mast clockwise to disengage.

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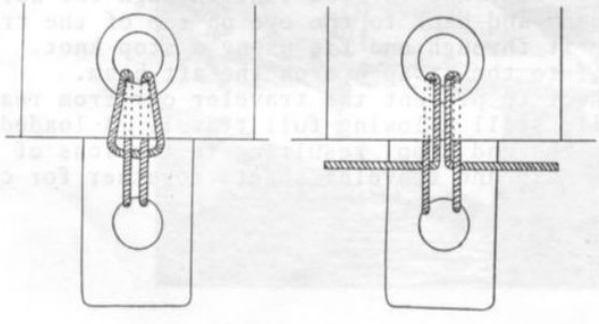

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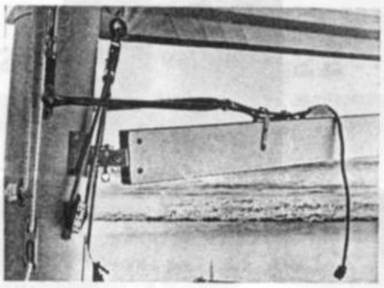
18. Hook halyard to halyard snap provided at front of mast. (this keeps the halyard from flying loose and is not intended to hold up the sail) Un-tie halyard tail, coil and stow in trampoline pocket, also stow 5.8 halyard in trampoline pocket.

19. Shackle bullet block w/becket and attach downhaul line, to tack eye in sail. Feed downhaul line inside mast rotator (5.2 only) to cheek block on mast, up through bullet block and down through clam cleat, always inside the rotator. (photo #34) NOTE: Be sure the sail bolt rope is completely inside sail slot before tensioning downhaul. On 5.0 tie stop knot in downhaul line and lead free end through strap eye to tack grommet around cheek block through tack grommet again and finally through V-jam cleat. 5.5, 18 sq., 5.7 and 5.8, attach S-hook with block to sail on port side. Tie line to strap eye, run through block and exit out the V-jam. (photo #43A) (T-7)

34 5.2用



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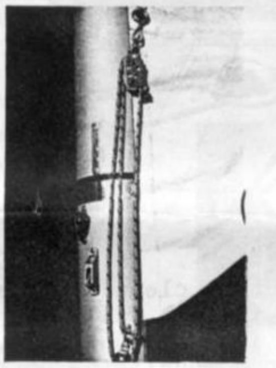

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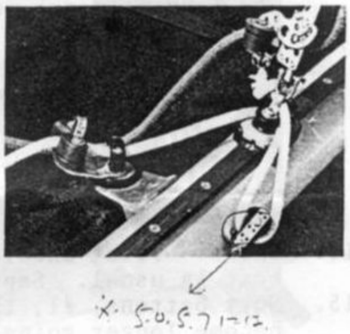

20. Attach the boom to the mast gooseneck plate by pinning the universal joint into the forks of the mast plate. (5.2 and 18 sq. only) (photo #34)
21. Attach the clew of the sail to the outhaul car with shackle.
22. Pass the line on top of the boom through the end of the rotator and back to the cleat on top of the boom. This is the mast rotation control device which limits the amount of mast rotation when sailing. (photo #34) (T-8) 5.2 only
23. Shackle the triple block with becket to the boom bail or hook in sail at clew plate (T-9). Shackle the ratchet block and triple block to the eye on top of the traveler car on the rear beam.
24. Locate mainsheet line, feed line through cleat on ratchet block and around hex block. Proceed up to triple block hanging, bring line through it and down through triple block attached to ratchet block. Repeat circle through upper block, lower block and back up to becket on upper block, tie off using a bowline knot. (photo #35)
25. Feed traveler control sheet line through the traveler control swivel cleat, and through the sheaves in the traveler car. Continue to feed line through the bullet block attached to the rear of the aft beam and back to the eye on top of the traeler car where the blocks attach. Push it through and tie using a stop knot. (photo #36) ※NOTE: 5.0 and 5.7 ties off to the strap eye on the aft beam.
26. Tie a stop knot through the traveler sheet to prevent the traveler car from reaching the end of the traveler track while still allowing full travel. A loaded traveler car on a jibe or tack can shear the end stop, resulting in the loss of traveler bearings. Tie the ends of the main and traveler sheets together for convenience.

RIGGING THE BOAT AND FINAL ASSEMBLY

27. Unzip the zipper in the luff of the jib and attach the jib halyard shackle to the head of the sail. Hoist sail slowly by pulling halyard tail, zipping or using jib hanks and connecting to the luff as you go. (photo #37) 5.0 utilizes jib hanks.
28. Attach the tack of the jib to the jib tack hanger, making sure the hanger is in upright position. (photo #38)
29. Run the jib luff tension line from the strap eye on port side of mast, through the fitting at the end of the halyard, and down through clam cleat. Tension to remove wrinkles from luff of jib. Remove and stow jib halyard tail. (photo #37 and T-7)
30. Attach jib pigtail set to clew eye of jib, fold line in half and insert center through hole, pull through and form into loop. Insert two blocks through this loop and pull, keeping the two blocks equal distance from the knot. (photo #39)

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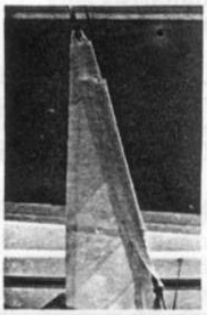

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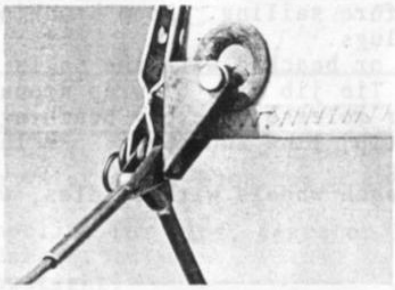

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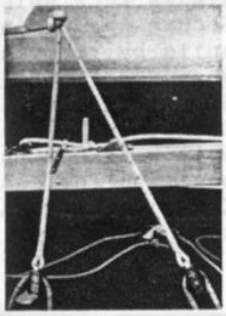
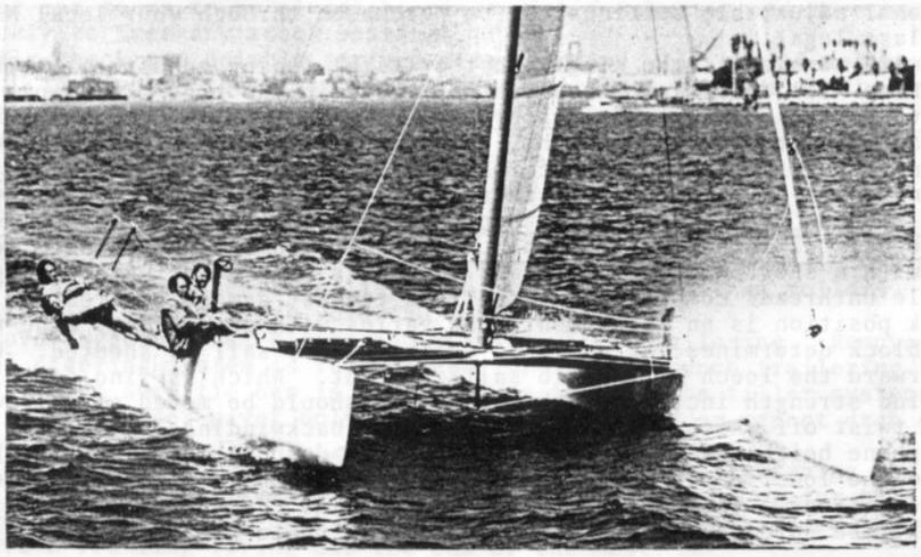


31. Face the jib ratchet blocks (already fastened) with cleats toward the center of the boat. Locate the jib sheet and beginning from the center of the boat feed one end through the cleat and around the jib ratchet block. Proceed forward to one pigtail block and back, tie off the line to the becket. (photo #20) Repeat the procedure on the other side of the boat, making sure that the line runs freely around the front of the mast. The jib sheet forms a continuous loop on the trampoline for ease of control.
32. Place the daggerboards in the wells. Stretch the attached shock cord forward and around the hook in forward deck. This holds the boards up when beaching. The 5.8 daggerboard is attached by a side loader, to be placed around board.

YOUR NACRA IS READY TO SAIL



SAFETY

1. Always carry and/or wear Coast Guard approved life jackets whenever sailing. Wearing life jackets is better than carrying them on board.
2. Be aware of overhead wires when raising and lowering the mast, launching and retrieving the boat or sailing on unfamiliar waters.
3. Check with local weather reports for updated conditions when sailing on unfamiliar waters. Don't get caught by surprise.
4. When sailing alone notify someone before you leave and when you return.

SAILING AND BEACHING

1. When launching through the surf, always head directly into the waves.
2. Always know which direction the wind is blowing from before launching.
3. Secure the drain plugs before sailing. Upon beaching equalize air pressure in the hulls by removing drain plugs.
4. When your NACRA is docked or beached with the sails up, head it to wind, release downhauls and mainsheet. Tie jib off, or wrap around forestay so it does not flap.
5. Do not use Pivmatic rudder release on every beaching. Repeated unnecessary use will wear out the rudder tip, line and cleat. Recleat the rudder in a horizontal position for easy beaching.
6. Carry your NACRA or use beach wheels with cradles, whenever possible, to minimize keel wear.

TUNING

1. A light sanding of leading and trailing edges of both the boards and the rudders will eliminate any humming at high speeds.
2. The boardless models will need some rudder rake adjustment. The rake of the rudders is directly related to mast rake. If the helm feels heavy, rake the rudders further forward and/or the mast forward. Never rake the mast forward of perpendicular! If the helm is too sensitive or jerky, rake the rudders back slightly and or rake the mast a little more aft. The rig tension should allow free rotation of the mast as well as eliminate any movement of the rig from side to side, or fore and aft.
3. A good starting point for the adjustable spreader rake on a 5.8 is 1" to 2". This is the distance a line drawn between the ends of the spreader would pass behind the mast sail slot. The standard spreader rake on all other models is non-adjustable. The optional adjustable sections can be purchased through your local NACRA dealer and is class legal.
4. Diamond wire tension is the single most critical tuning adjustment. The amount of wire tension will determine the amount of power in the rig. In simple terms looser wires give you less power and tighter wires give you more power. When it is windy and/or sailing with low crew weight, less power is needed. Heavier crew weight will require more power and therefore, tighter diamond wires. If you just want to cruise and can't be bothered with these adjustments, just set wires with medium tension. Medium tension would be when you can depress both wires against the mast simultaneously 12 inches up from the point of attachment. Once set, secure turnbuckles with a short piece of line and tape nuts to prevent unthreading. If the turnbuckle unthreads completely it can lead to mast damage or breakage.
5. Jib block position is an adjustment that varies with conditions. The position of the jib block determines the angle at which the jib sail is sheeted. With the jib block forward the leech of the jib sail is tight. Which is fine for light wind. As the wind strength increases, the jib block should be moved aft allowing the leech to twist off which will prevent mainsail backwinding.
6. Ideal dogbone height is where the bottom of the dogbone loop just touches the deck. Hook into the lower position when the water is smooth and the upper position for choppy conditions. The length of the trapeze line can be varied by adjusting the rope lock. Be sure that it is lead as shown in photo #30.

TUNING

7. Tension jib downhaul, which controls the luff, enough to remove the wrinkles when sheeted in. The same is true for the main downhaul. In strong winds, tension the main downhaul extra tight in order to flatten the sail. This will reduce overpowering and increase your speed.
8. On all boomless models the mast will rotate properly upwind and downwind. For racing, an optional mast rotator kit will allow a more precise control. The system can rotate the mast to a 90° angle for downwind sailing and over-rotate the mast upwind in heavy air to flatten the main sail. This type of rotator induces more rotation as opposed to that on a 5.2, which limits rotation. In other words if you release the rotation control line on a 5.2, the mast rotates more. Do the same on boomless model, it will rotate less. The 5.2 rotator is self-tacking, where as the optional boomless rotator must be uncleated when tacking and jibing. If the rotator remains cleated, damage to the mast, spreader or sail may result.
9. Hooking the mainsheet blocks into a different hole in the mainsail clew plate will affect the sail's fullness. A more forward hole will result in a flatter sail and an aft hole will result in a fuller sail.

MAINTENANCE

1. Rinse ENTIRE boat with fresh water after each use. Be sure to flush all blocks and fittings thoroughly.
2. Check the sails and the trampoline for rips, tears or loose stitching, repair immediately to avoid further damage.
3. Always keep trampoline lacing tight!
4. Check mast ball for excessive wear. REPLACE IF NECESSARY.
5. Tape all split ring and cotter pins to prevent loss or damages.
6. Check for broken or delaminated battens (abrupt curvature 1"-5" at batten end nearest mast). Never sail with damaged battens.
7. Rinse sails with plenty of fresh water, make sure sail is dry and batten tension is released when storing for more than a day. To roll main sail, start with second batten from the top and keep battens parallel. Roll jib starting at second seam from top or roll them up together at the same time for ease of storage.
8. Check the beam strap bolt tension and tighten as necessary. Don't overtighten as to crush the slot in the beam (16-18 ft/lbs).
9. Periodically check for and replace frayed or kinked wires, shock cord, frayed or broken lines.
10. Avoid storing your NACRA overnight or longer with shrouds at racing tension (very tight). Check all shackles and fasteners for looseness or wear, adjust or replace as needed.
11. Periodically check the bearings in the traveler car and replace them if necessary! If traveler car seems to be sluggish, rinse with freshwater and move back and forth quickly to free any stuck bearings.
12. Periodically check the dolphin striker strap tension. It should not move more than a ¼". To tighten the strap loosen the upper nut, tighten the lower nut and then retighten the upper nut.

TRAILERING AND STORAGE

1. Always use trailers and beach dollies with cradles rather than rollers.
   NOTE: Trailering with rollers voids hull warranty.
2. Always remove daggerboards, blocks and rigging while trailering. Removal of rudders and/or steering system is recommended for long distance trailering. For short trips, make sure tie bar is tied off, as to keep the tiller systems from turning, tighten rudder pivot bolt in casting so the rudder cannot drop down into sailing position.
3. Tie boat snugly but be aware you can damage hulls by over-tightening the tie downs. Don't use the dolphin striker as a tie down attachment point or for pulling the boat, run a line around the main beam instead. Secure BOTH ends of the mast. Be sure to have a red flag flying off the end of the mast.

TRAILERING AND STORAGE

4. Boat covers are recommended to avoid rocks, gravel or road debris thrown from tow vehicles and to provide good protection against sun and weather.
5. Mooring is not recommended.
6. Always leave drain plugs and/or inspection port lids open to avoid possible air pressure damage when not sailing.
7. Coil wires into a loop and slide into the trampoline pocket and tie off securely while trailering.

GLOSSARY OF TERMS

AFT - toward or near the rear part of the boat.
BACKWIND - a sail sheeted to the weather side, used to get out of "IRONS".
BARBER HAULER - an option for racing which sheets the jib outboard for downwind
BATTEN - thin narrow strip of material used to stiffen the shape of a sail.
BEAT - to sail to windward or windward leg of a race.
BLOCK - pulley used to give a mechanical advantage for sail control.
BOOM - a spar that controls a sail and is attached to the mast.
BOOM BAIL - a fitting on the boom on which the mainsheet blocks are attached.
BOW - the forward part of a hull.
BRIDLE - two wires, one from each bow that intersects at the forestay.
CHOCK - pockets the beams rest in.
CLASS RULES - a set of rules governing the fairness of competition among boats in a class.
CLEAT - a device which secures a line or rope by jamming or tying off.
CLEW - lower aft corner of a sail from which it is sheeted.
DAGGERBOARD - vertical sliding keel which provides lift and lateral resistance.
DOLPHIN STRIKER - a stainless steel rod which distributes the downward mast pressure to the ends of the main beam.
DOWNHAUL - tackle used to tension the luff of a sail.
DOWNWIND - sailing with the wind.
FOOT - side of the sail between the clew and the tack. (bottom)
FORE AND AFT - orientation in relation to a line drawn between the bow and stern.
FORESTAY - forward wire supporting the mast and the luff of the jib sail.
GOOSENECK - universal joint connecting the boom to the mast.
GROMMET - a ring set into a sail or trampoline.
GUDGEON - fittings bolted on the transom of each hull for attaching the rudder system.
HALYARD - line or wire used to hoist and lower the sail.
HARNESS - a sling worn which supports your body when trapezing.
HEAD - top of the sail and the corner which the halyard is connected.
HEAD OFF - to steer the boat away from the wind.
HEAD TO WIND - also referred to as "IN IRONS" pointing with bows directly into the wind.
HEAD UP - to steer the boat into the wind.
HELM - tiller which controls the rudders
HIKE - to position body weight as far as possible to windward to stabalize the boat.
HOIST - to pull up as in hoisting the sails.
I.N.C.A. - International Nacra Class Association.
IN IRONS - head to wind, unable to tack or go forward without backwinding.
JIB - the small sail on the front of the boat,
JIBE - manuever in which the sails switch sides by passing the stern through the eye of the wind.
LEE - side falling away from the wind.
LEECH - side of sail between clew and head. (back edge)
LEE HELM - improper boat balance causing it to head off.
LUFF - side of sail between head and tack, (front edge) flogging of sail due to improper sail trim or boat heading.
LIFE JACKET - JUST WHAT IT IS, A JACKET TO SAVE YOUR LIFE! WEAR THEM!!!
MAIN BEAM - the forward large beam which joins the two hulls and supports the mast.
MAST RAKE - the distance the mast head is from perpendicular in a fore and aft direction. Rake is important in performance and boat balance.
MAST ROTATOR - a device used to control the amount of mast rotation.

GLOSSARY OF TERMS

OUTHAUL - tackle mounted on the boom to move the clew away from the tack, flattening the lower part of the mainsail.
PIGTAIL - a line from the jib clew to the jib clew block which allows the use of a shorter jib sheet.
PINTLE - pin which holds rudder casting onto gudgeon.
PIVMATIC - NACRA's exclusive rudder release system
PORT - the left side.
PORTSMOUTH HANDICAP - a handicap number based on the past racing performance of an entire class against all other classes.
PURCHASE - the amount of mechanical advantage derived from a block system.
REACHING - to sail across the direction of the wind, usually the fastest point of sail.
REAR BEAM - the beam which the traveler is located on.
SHACKLE - "U" shaped fitting with removable pin used to fasten lines/parts together.
SHEAVE - roller part of block or pulley.
SHEET - lines used to control sails.
SHROUD - wire on each side of boat supporting the mast vertically.
SLOT - the opening or distance between the jib and the main which the wind passes through. Also a groove in a mast or beam.
SPREADER - strut projecting from each side of the mast which with the diamond wires stiffen the mast.
STARBOARD - the right side.
STERN - the back of the boat.
TACK - manuever in which the sails switch sides by passing the bow through the eye of the wind, or the lower forward corner of the sail.
TELL TALE - short piece of ribbon on the sail or rigging for indicating sail trim or wind direction.
TELLTALE - I.N.C.A. magazine.
TILLER EXTENSION - device which controls rudder steering.
TRAMPOLINE - polypropylene material stretched between hulls and beams to serve as a lightweight deck.
TRANSOM - aft-most end of boat.
TRAVELER - a track and car on the rear beam used to change the angle of the mainsail to the wind.
TRIM - to adjust sheet tension resulting in proper air-flow over the sails.
TURNBUCKLE - threaded fitting for adjusting wire length found on diamond wires.
UPWIND - to sail into the wind.
WEATHER - to sail into the wind.
WINDWARD - side toward the wind.

OPTIONAL CONVENIENCE ITEMS

1. Non-skid tape: Various colors, textures and brands exist that can be applied to the rail area for sure footed trapezing.

2. Telltales: On the jib, space 3 sets (one on each side) about 1 foot aft of the luff. Mainsail leech telltales help maintain proper trim when sailing downwind.

3. Reaching line: A simple system for stabilizing the crew on fast rough water reaches. The line attaches to the transom (tied around the pintle) and is lead forward along the rail to the main beam where it is joined to a length of shock cord. The shock cord is lead through the main beam to the same line on the other side. Knots or loops may be tied in the reaching line for convenience.

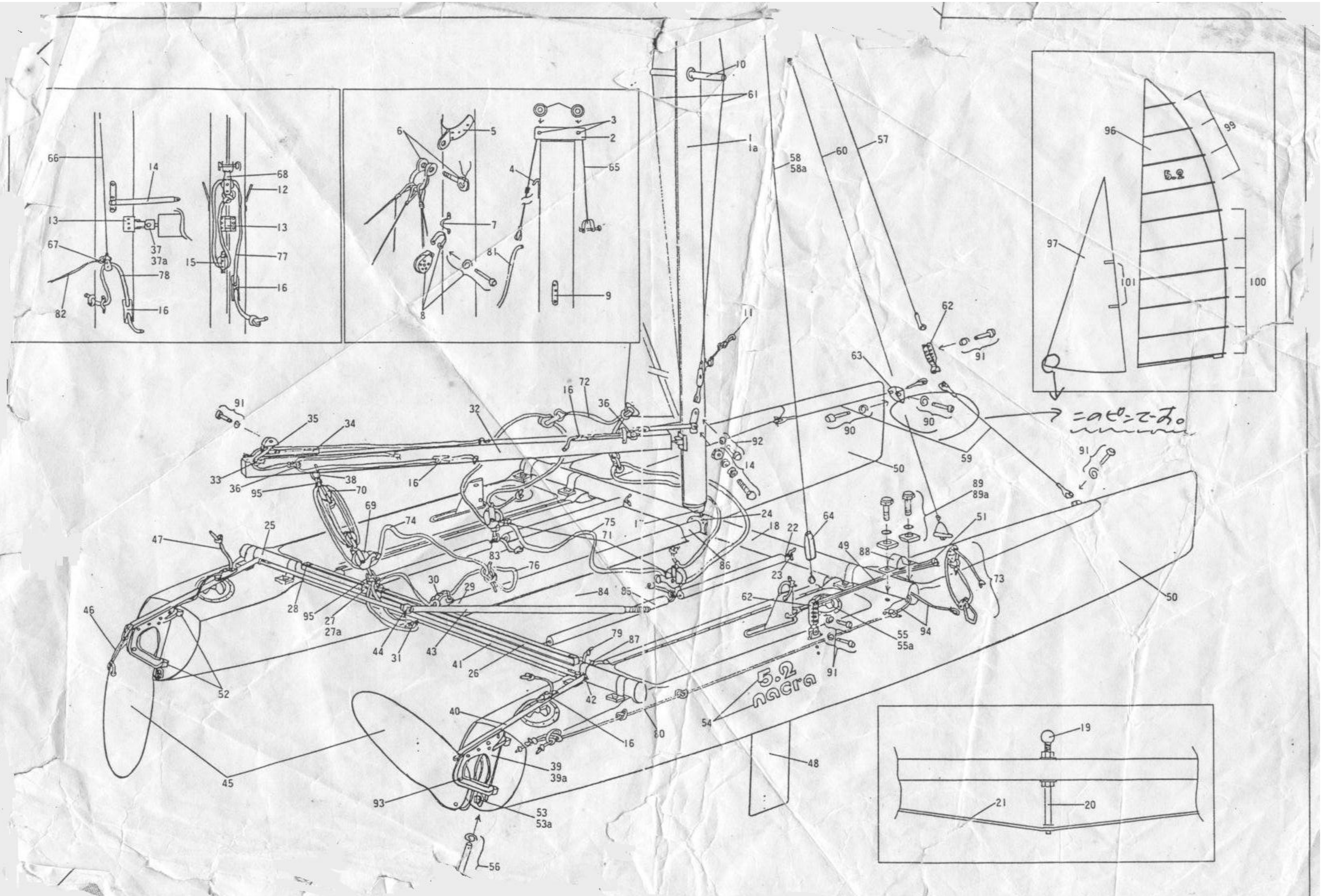
4. Mast rotator: Standard on the 5.2 and 18 sq. and optional on all boomless models.

5. Barber Hauler system: This is basically a racing option but can be used for everyday high speed sailing. It changes the jib sheeting angle to an outboard position which is used for heavy air reaching and down wind.

6. Righting line: In the event of a capsize the jib sheet can be used as a righting line. If you go over more than occasionally you may want a permanent righting line.

WARNING

ALUMINUM MASTS AND OTHER METAL COMPONENTS CONDUCT ELECTRICITY. COMING IN CONTACT WITH OR NEAR AN ELECTRICAL POWER LINE CAN CAUSE SERIOUS INJURY OR DEATH. DETERMINE THE SUITABILITY OF YOUR LAUNCHING AREA AND BODY OF WATER BEFORE RIGGING YOUR BOAT. KEEP IN MIND THE MAST HEIGHT OF THE NACRA EXCEEDS 30 FEET IN THE WATER AND HIGHER WHEN ON TRAILERS.



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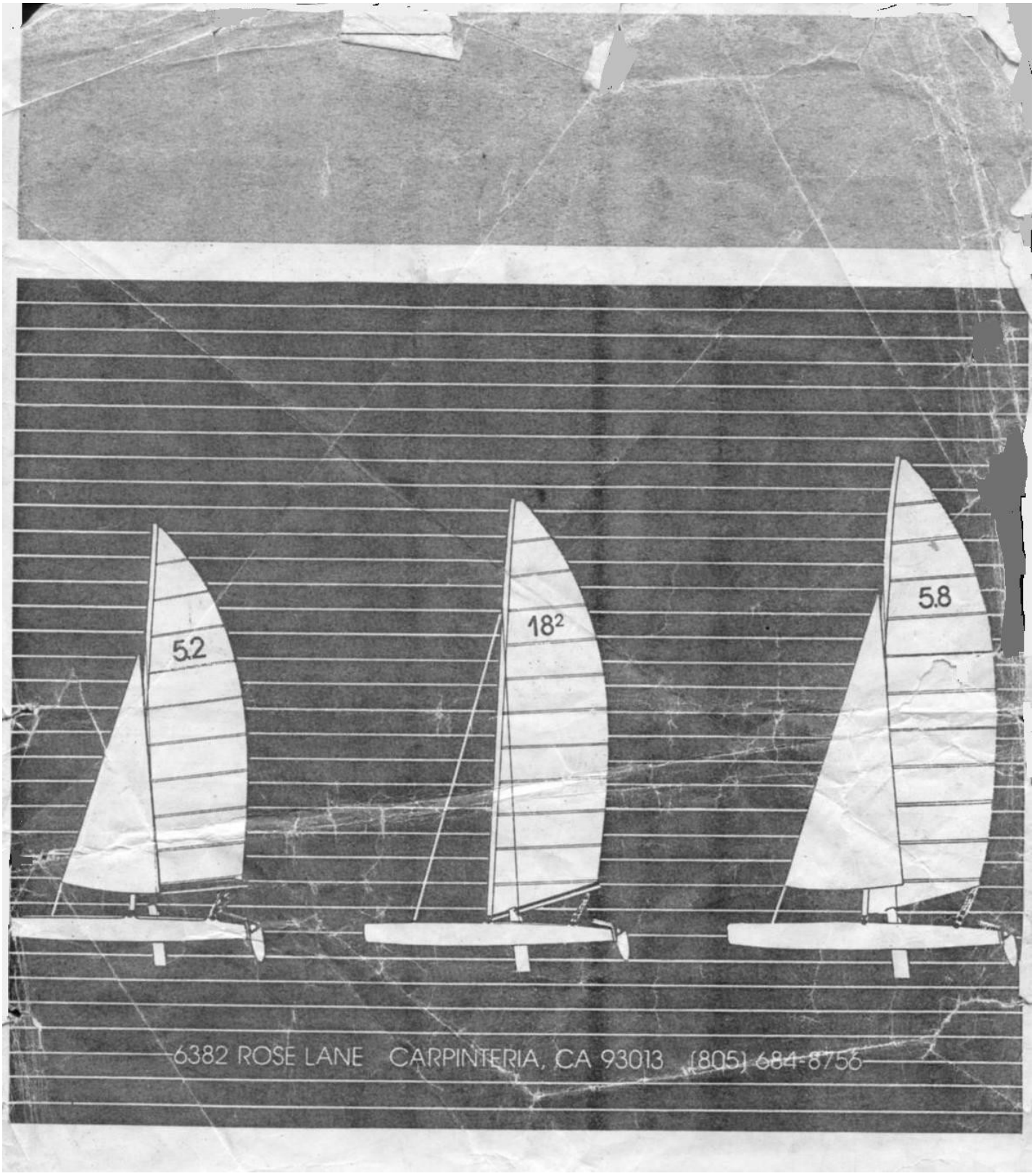

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