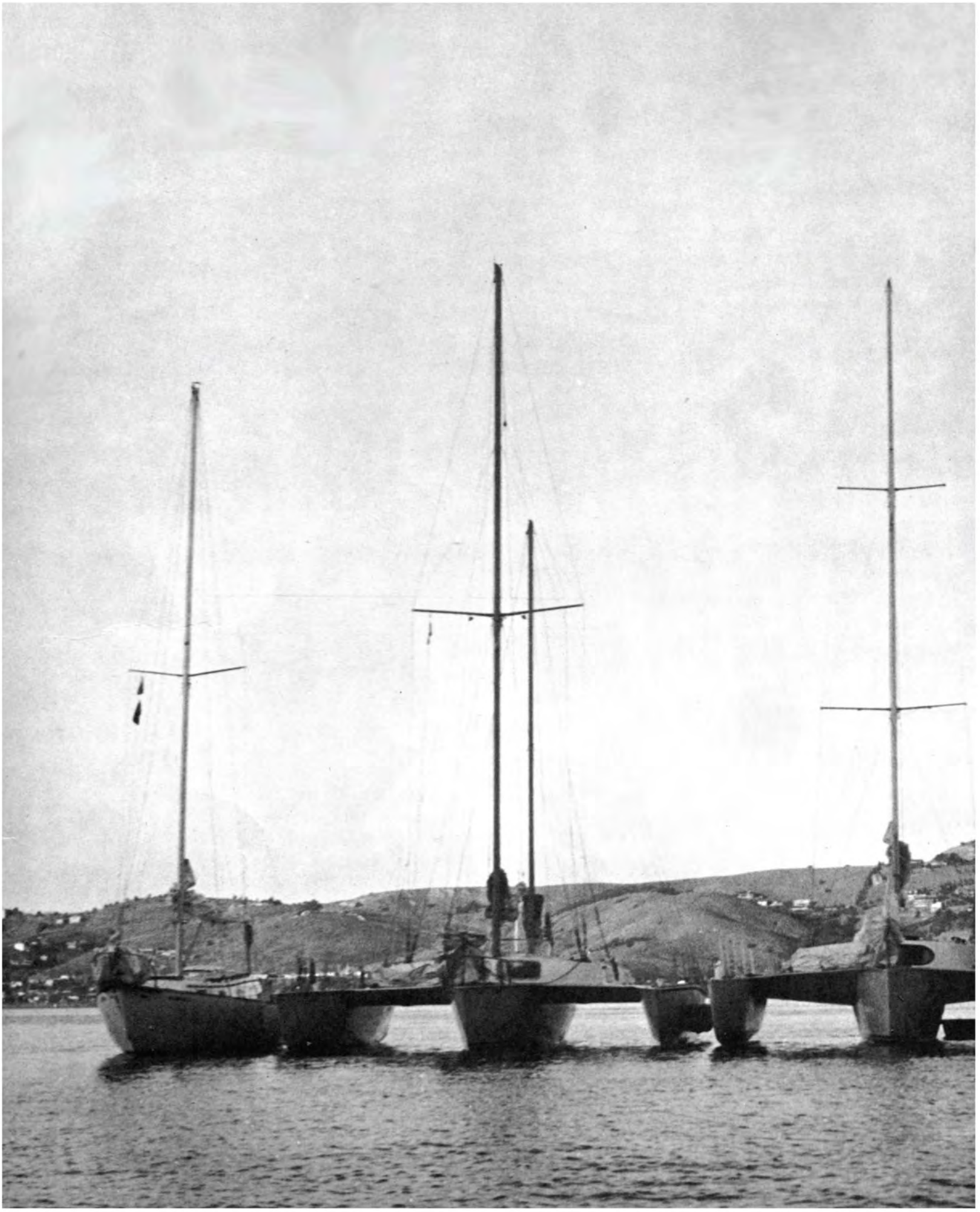
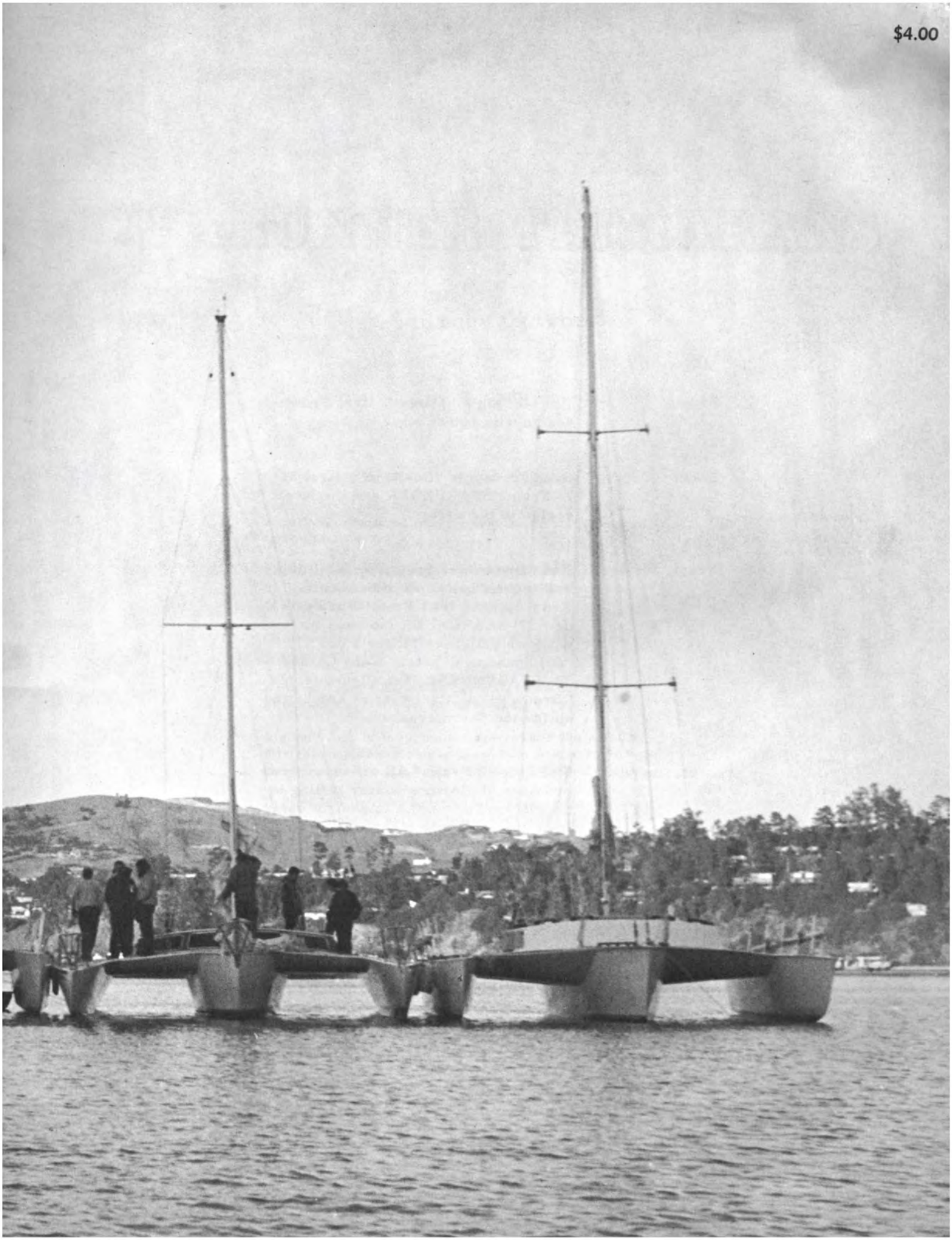
SEARUNNER TRIMARANS




$4.00

COVER PHOTOS

Front:	Jim McCaig's "Manta", first Brown-design with cutter rig.
Back:	Greg Johnson's "Do-Raku", first 31' A-Frame SEARUNNER and the latest design in the series.
Front, inside:	Four Brown-designs assemble in a raft (squall bait!) off of Sausalito. From right to left: Frank Wurz's new 37' SEARUNNER (so new, no windows yet); Ken Miller's 38' "Off Soundings" ketch; Tony Gaidos' 37' SEARUNNER; Jack Clementson's "Brown 41" central cockpit ketch; and an invited party-crasher.
Back, inside:	Stern view of raft. All crews enjoyed two days of glorious winter sailing in the Golden Gate and a late-night party in between. Early riser was "Woof", a SEARUNNER mascot who obligingly checked the anchors and tended other chores on the monohull.

SEARUNNER TRIMARANS

The writing, photography and design drawings are by Jim Brown; but the typing, spelling and project railroading are by Jo Anna Brown.

Cartoons by Jo Hudson, who knows vividly what he draws comically.

Working from a mountain of mysterious confetti, Tom Freeman somehow did the graphics.

A good bunch of folks up in Berkeley did the printing. For reasons known only to them they prefer to remain anonymous. Thanks Bob and Phil and Andy et. al.

Dedicated with envy to those who have yet to discover the pleasures of sailing, while also envying those who spare themeselves the displeasures of sailing.

JIM BROWN - designed SAILING TRIMARANS

P. O. BOX 2627 · SANTA CRUZ, CALIFORNIA 95060

Digitized to a PDF Document in 2013
by
Tay Vaughan
Builder of the 31' Searunner
Invocation to the Great Bear
in 1972

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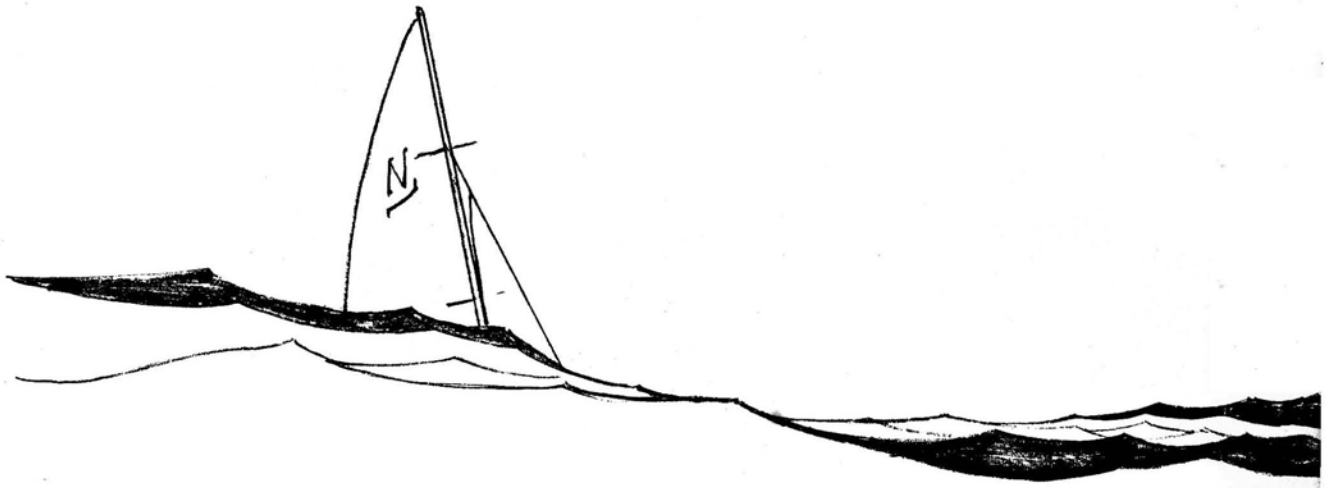


IN THE BEGINNING:

"Way-Up Suzy Anna! Mexico is the place where I belong in ..." was the song of the day. It helped to popularize the Kingston Trio, who were just beginning their rise. And it helped to catalyze the trimaran, which had not yet reached seagoing size.

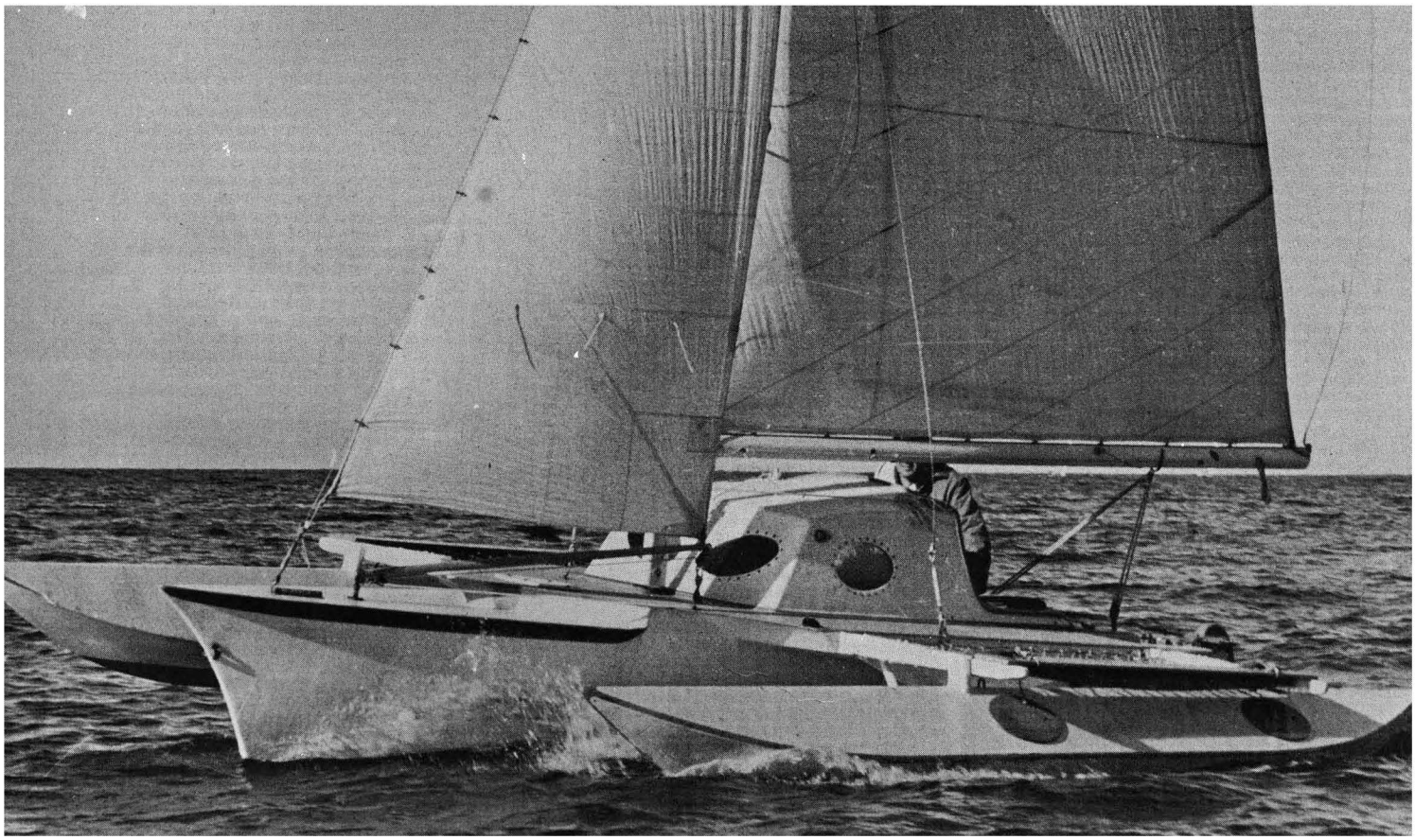
Before 1959 we had sailed an assortment of outrigger prototypes in San Francisco Bay. It was pure fun. I had been the first experienced sailor to become attracted to Arthur Piver's fun boats, but that calypso song kept reminding me that boats are for going places. Bright days dashing about on the shallow Bay for fun led to thoughts of something deeper - seafaring!

At first, I was incredulous of my own idea. But why not? The little boats had performed amazingly in the tide-rips under the Gate. I knew that a larger trimaran would seldom encounter proportionate conditions at sea.

A 24-foot trimaran was designed - Piver called it NUGGET - and I began to build.

It was huge by comparison, but larger were my fantasies of coasting down to Mexico, and beyond. I had sailed the Caribbean in blundering schooners. Why not a double outrigger?

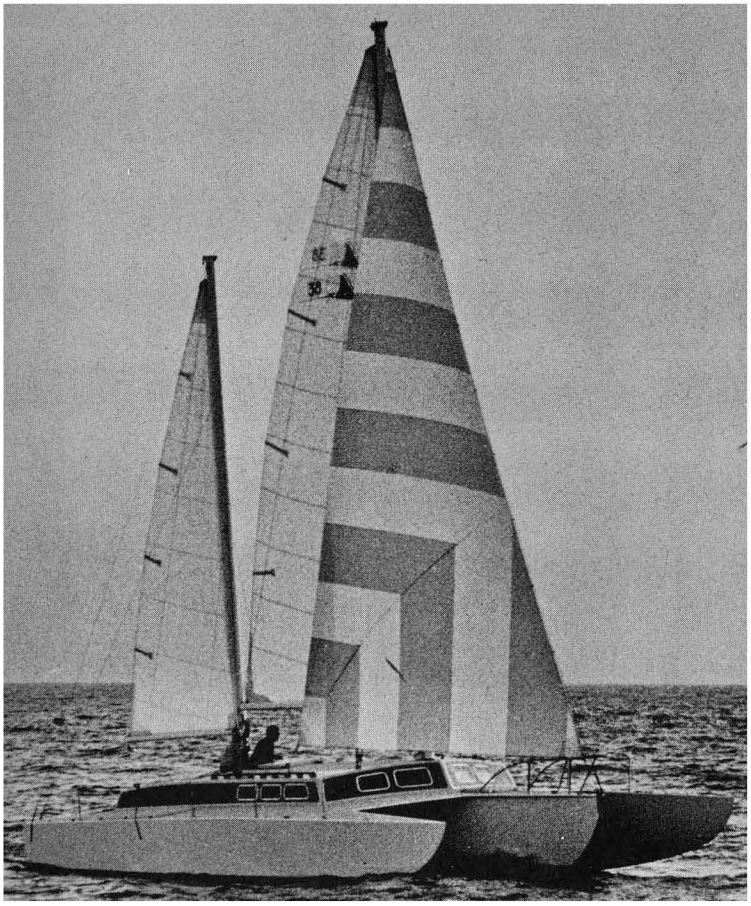
Before the boat was finished Jo Anna and I were married. We went together, coasting down to Mexico in a double outrigger, and we had the time of our lives.



The original ocean-cruising trimaran, 1959.

The next year NIMBLE crossed the Atlantic; and the next, LODESTAR crossed the Pacific. The ocean-going "trimaran" was clearly revived from its ancient beginning.

It's been said that carpenters are frustrated architects, and that boatbuilders are frustrated designers. At the urging of a friend, I decided to relieve the frustration of building trimarans by designing one for him.



"OFF SOUNDINGS", first BROWN-design, 1963.

In the years since, I have come to think of designing a boat as being like writing a song.

I mean that yacht design must seem to some people like songwriting seems to me: impossible. In all music, as in all design, there is no end to the variety. And it's all good unless its badly drawn or badly performed.

Not everyone likes Bach, nor everyone Dylan. Not everyone likes schooners nor everyone cutters. Not everyone junks, nor everyone multihulls. Many have admired the work of Herreshoff, many Piver.

A boat design, like a song, is a statement. Some of us hear statements in the classics, and others of us in folk rock.

If you are beginning to listen to the trimaran idea, I hope you will hear the statements in these new compositions:

The SEARUNNER SERIES

Design No. 106 - BROWN 25
107 - BROWN 37
108 - BROWN 31
109 - BROWN 40

JUANA

Historical Footnote: "JUANA" was the name of the original seagoing trimaran. The boat changed ownership several times until 1968 when she appeared as above in disuse. Jo Hudson acquired and modified her to include many of the features now found in SEARUNNERS. Re-christened "MOONDOG", the old boat sails today. Her structure has not one spot of rot and she has never leaked one drop; a testament to the potential longevity of plywood trimarans. Her contemporary appearance, her simplicity and practicality, may yet affect future trimaran designs. Her past marks are unmistakable.

JO HUDSON

MOONDOG

Max Hemminger flying "Dharma".

SEARUNNER TRIMARANS

PROVEN FEATURES IN A NEW COMBINATION

Close-hauled at eight knots, this 25' SEARUNNER jumps off the crests revealing her "molded-chine" main hull almost to the center-board. A "wind rudder" does the steering (see Section 13) while Max stands Pizarro-like in the after hatch. The headsail is the cutter's intermediate "mule" genoa (Section 5). Shadows on the hull are cast by wing-nets of the "A-frame" platform (Sections 10 and 11).

The opening portion of this catalog is devoted to a detailed discussion of the individual design features which, when combined, make a SEARUNNER. Each of these features is an established, proven concept long used with notable success in cruising sailboats. But it is their COMBINATION which makes SEARUNNERS unique.

These features are:

CENTER-BOARD
CENTRAL COCKPIT
CUTTER RIG
SEARUNNER INTERIORS
HULL FORM & CONSTRUCTION

A designer can take a pratfall when he becomes entangled in the structure and the dynamics of the vehicle. He slips when he forgets that boats are for people. To avoid this trap when describing these design features below, I am attempting to show from a sailor's and a builder's vantage - how they apply to YOU.

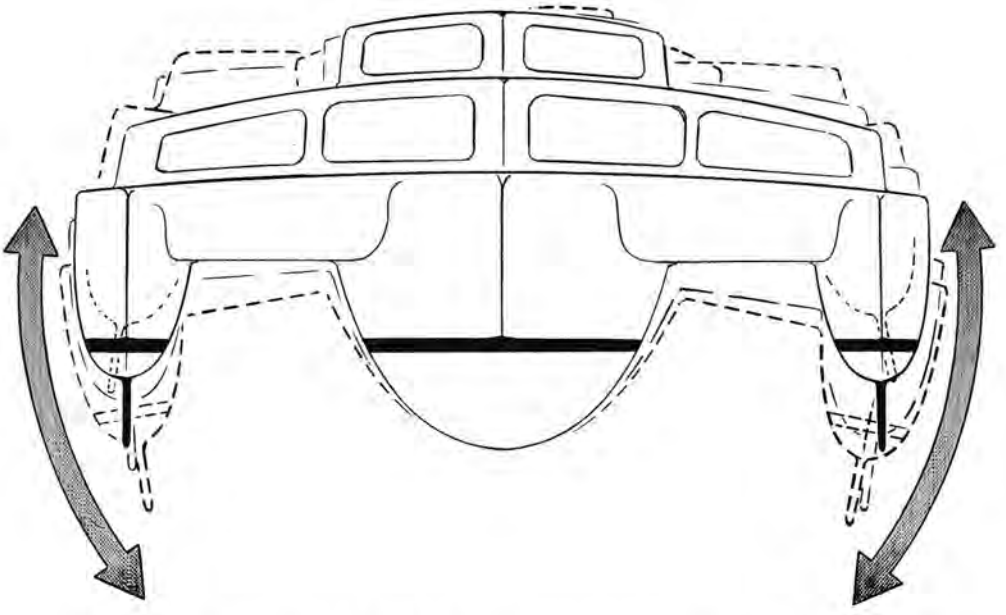
Later in the book, each individual design is considered separately. SEARUNNER features appear in all the sizes, but the differences between these sizes are comparatively shown to aid the prospective builder in selecting the size which meets his real requirements.

Then there is a section on SEARUNNER self-steering; its importance to cruising sailors. And some comments about the purpose of engines in sailing boats.

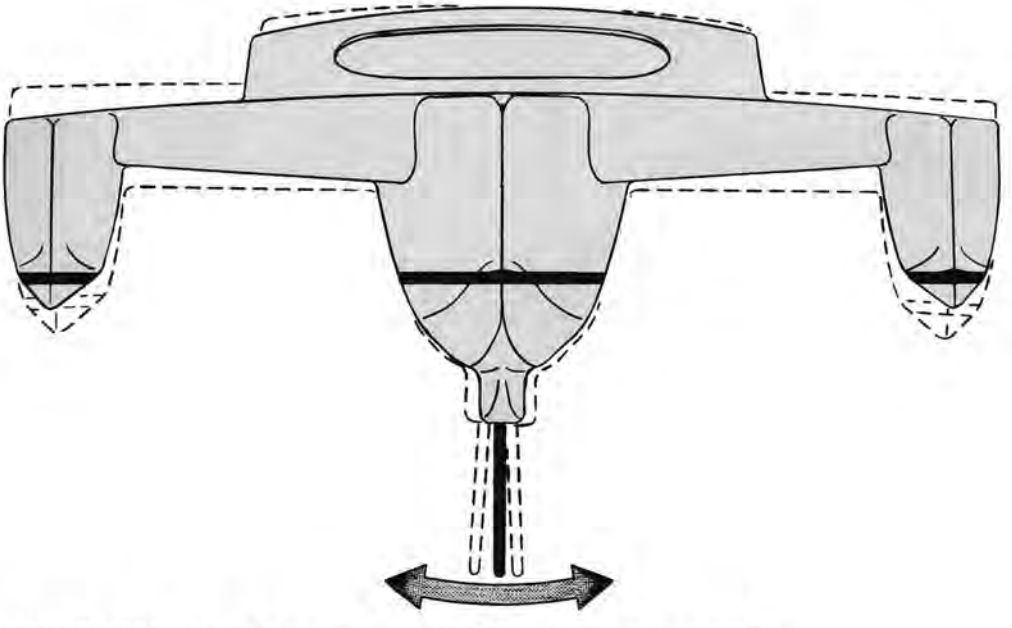
The essay on SEARUNNER SAFETY is drawn to show how closely integrated a trimaran design must be; a design whose features are not only interrelative to themselves, but to the crew - to YOU. The newest thing about the "NEW COMBINATION" in SEARUNNERS is that people and sailing are blended, not mixed-up. The purpose of this blend is safety.

Why Build Yours? is a question which I've been attempting to answer for myself for 10 years. Now that I am building my eighth trimaran, I think I've got it nailed down, but only for myself. The concluding section considers this root matter by presenting the answers of some other builders. The purpose of this catalog is not only to sell SEARUNNERS, but also to assist the reader in answering his own question ...

"Why build mine?"



NO CENTER-BOARD CAUSES "SNAP-ROLL" MOTION



MOTION IS DAMPENED **WITH** CENTER-BOARD

THE MULTIPURPOSE CENTER-BOARD

A center-board is a retractable fin-keel which, when retracted, yields a shallow, beachable boat; and when extended, serves MANY purposes.

To those who have followed trimaran development, it may seem that center-boards are like fashions - "in" and "out".

The early designs all had deep "dagger-boards" in the main hull. Their value was immediately evident when one would break and the boat became unmanageable. But as the first designs large enough to have cabins emerged, the disadvantage of the center-board trunk protruding up into the accommodation became unacceptable to the public. To keep the boat from sailing sideways, fins in the floats were offered as a reasonable substitute for the board. If they were big enough and deep enough, they did the job good enough. But the larger trimarans were disappointing to me, and to a lot of other people, because they just didn't have the feeling that a good boat has. They didn't steer like it seemed they should. They were uncomfortable at times because of motion. And quite surprisingly, the smaller, older designs were faster.

But the comparison was nebulous; hard to pin-point. The disappointment was accepted as perhaps a natural result of larger size ... maybe they should feel slushy.

To determine the effect of varying the center-board's size and position, along with testing other design concepts in their extremes, I designed the 26-foot experimental trimaran CARAVEL. She was built with two center-boards: one well aft for directional "trimming", and one truly huge dagger amidships, which was raised and lowered while sailing to measure effect. After a year of testing the boat, I realized the tremendous value of the whole project, and decided that trimarans must have center-boards; if not for reasons of preventing leeway, then certainly for reasons of motion and control.

"CARAVEL", the experimental prototype which led to the development of the SEARUNNER Series. She is known in San Francisco Bay for her ability to out-point racing monohulls twice her size; and her motion under sail makes her feel bigger than she is.

Still, CARAVEL was only 26 feet. We knew that 26 footers needed boards, but what about forty-footers. My suspicions were confirmed on my first ride in the BROWN 41, which was the first central-cockpit centerboarder I designed.

Dave Green had built his immaculate "Troika" in Toronto. He brought the boat down through the locks and the Hudson to New York, where I joined the crew for the jump down to Bermuda.

The boat was very exciting to me, and this was to be my first Atlantic crossing. I forgot to take my seasick pills.

As we started across the Gulf Stream it was kind of rough. We didn't have our sea legs on, and center-board or not, we were getting kicked around and I was feeling it. Dave and I shared a watch, each knowing that the other was thinking, "What's so great about this?" Dave, bless him, said instead, "Motion isn't bad in this cockpit, is it?"

Neither of us realized the importance of the center-board until later in the crossing when one evening we were romping along under spinnaker. The center-board came up into the well by itself when the control line came loose in the cockpit.

Not knowing why, suddenly we couldn't control the boat! Steering was hectic and the ride got rough enough for the spinnaker to flail about so that it collapsed and filled again with staccato reports. We eventually realized that the board had retracted itself (it is buoyant). Some difficulty was encountered in getting it back down because of our way, but once down again, the boat turned from cranky to manageable at once.

I tell the story here because it is convincing. In a board-less boat, we simply would not have carried the chute in those conditions; but similar, proportionate results are experienced in ALL conditions.

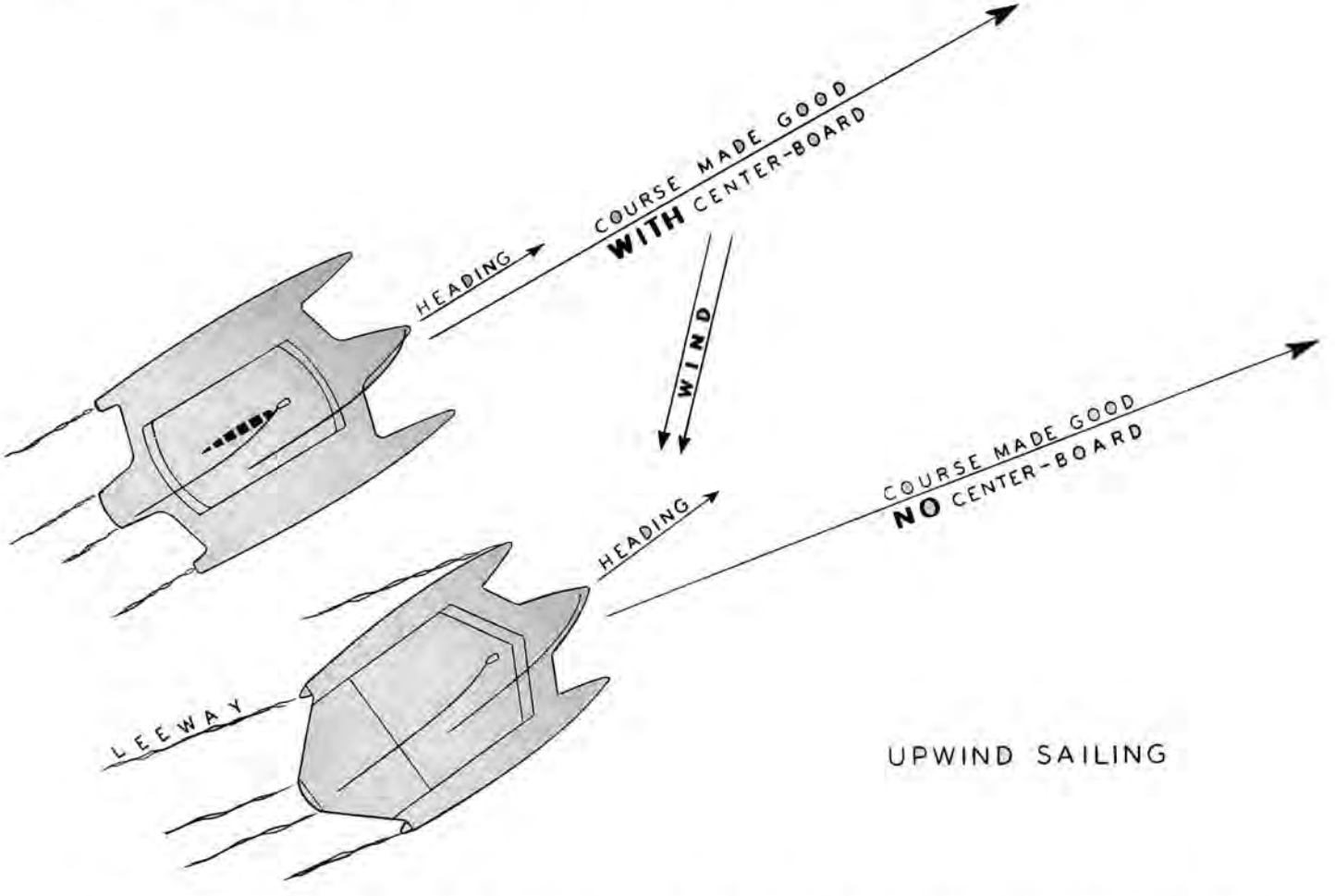
"Troika" submits to the scrutiny of enthusiastic visitors before departing New York for Bermuda and the Caribbean. Note life-lines and pulpits.

Float fins or daggers have minute effect on lateral motion because as the boat rocks, the fins go up and down, in and out. A shallow fixed keel on the main hull helps marginally. What is needed to stabilize the lightweight shallow trimaran in both "roll" and "yaw" motions is a deep center-board. It reaches down deep into solid, quiet water and hangs-on.

A trimaran with float fins or "daggers" may be pretty good to windward, because when heeling, the downhill float is depressed and the foil may go deep enough to grab some solid water. But that boat can't be better than "pretty good" when sailing downwind because now there is little heeling.

By contrast, the center-board is always down there hanging-on to keep the boat from getting pushed around by the surface.

It is possible to design a centerboardless trimaran that sails well to windward. It must have all the other requisites - narrow hulls, wide spacing, low windage, high sailplan, and some kind of lateral resistance - to make this possible. Now, if one adds the center-board to the above features, the boat turns from something "good to windward" to something truly splendid. And believe me, splendid windward performance is an absolute requirement in a cruising boat. It's hard to get where you're headed in a boat that sails sideways; especially when your heading just clears the rocks.



UPWIND SAILING

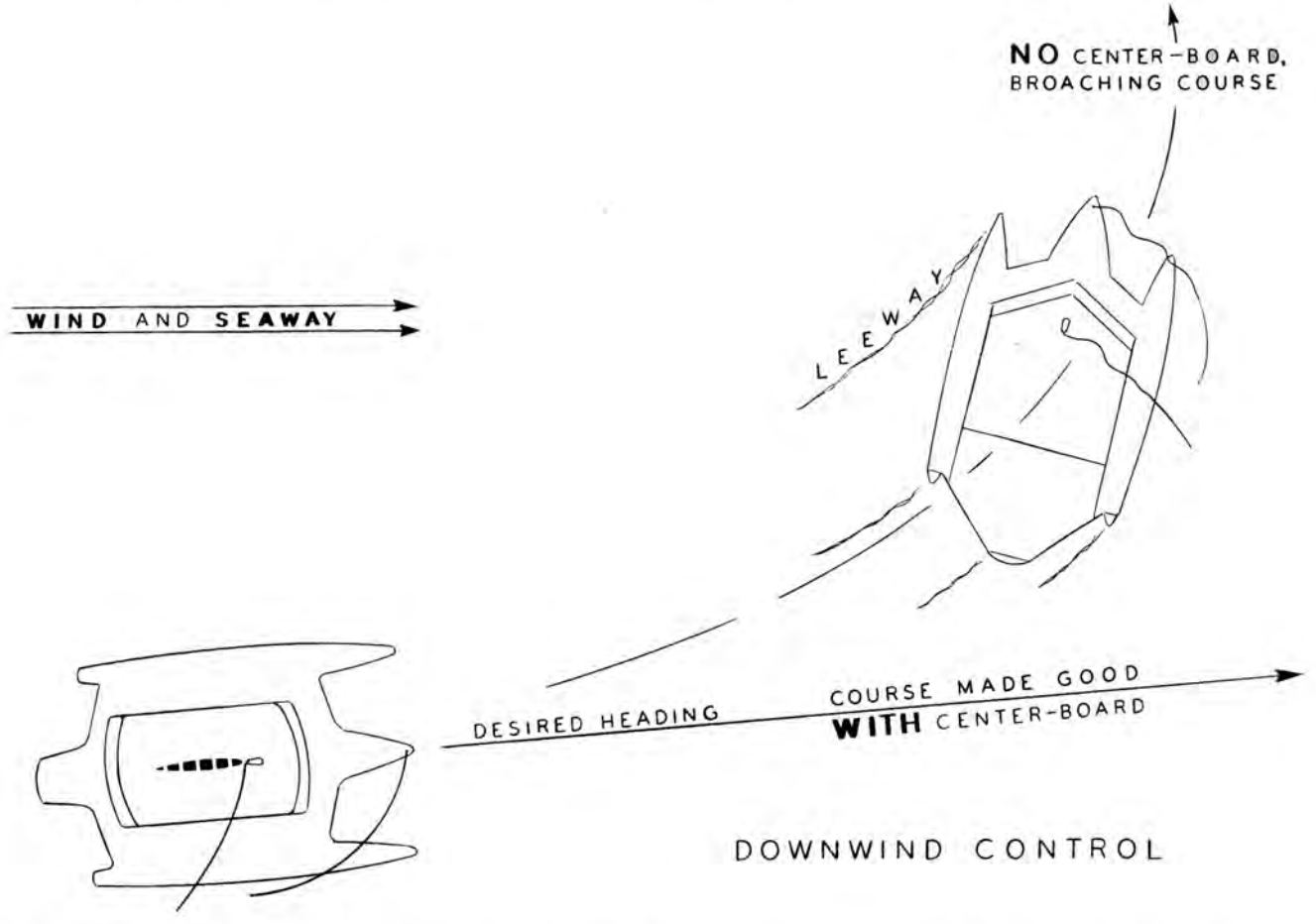
A boat that sails sideways upwind will sail "in circles" downwind. And some boats that don't sail sideways upwind will sail sideways downwind. The difference is the center-board.

"Broaching" has always been the dread fear of sailors. The square-riggers sometimes broached on huge waves with disastrous results. A full-fledged broach occurs when the boat is overtaken from astern by a wave which turns the vessel and sweeps

it sideways ahead of the crest. In the worst extreme, it causes the boat to tumble - or founder - inside the wave. Any boat can founder in the right conditions. Trimarans, because of their lightness and speed, have a better chance to survive than most IF they can be kept from turning sideways. Those with center-boards have a better chance to keep going straight, and here's why:

BROACHING IS LEEWAY

If the boat won't start sliding sideways, the rudder can keep it from turning sideways. Once it starts to slide, the rudder is hard-pressed to stop it. That's the job of the center-board!



DOWNWIND CONTROL

Most sailors never encounter true foundering conditions. Most of the time all that "broaching" means to us is that it's hard work to steer the boat, and we always have to slow down to keep her under control. I've had my belly-full of that stuff!

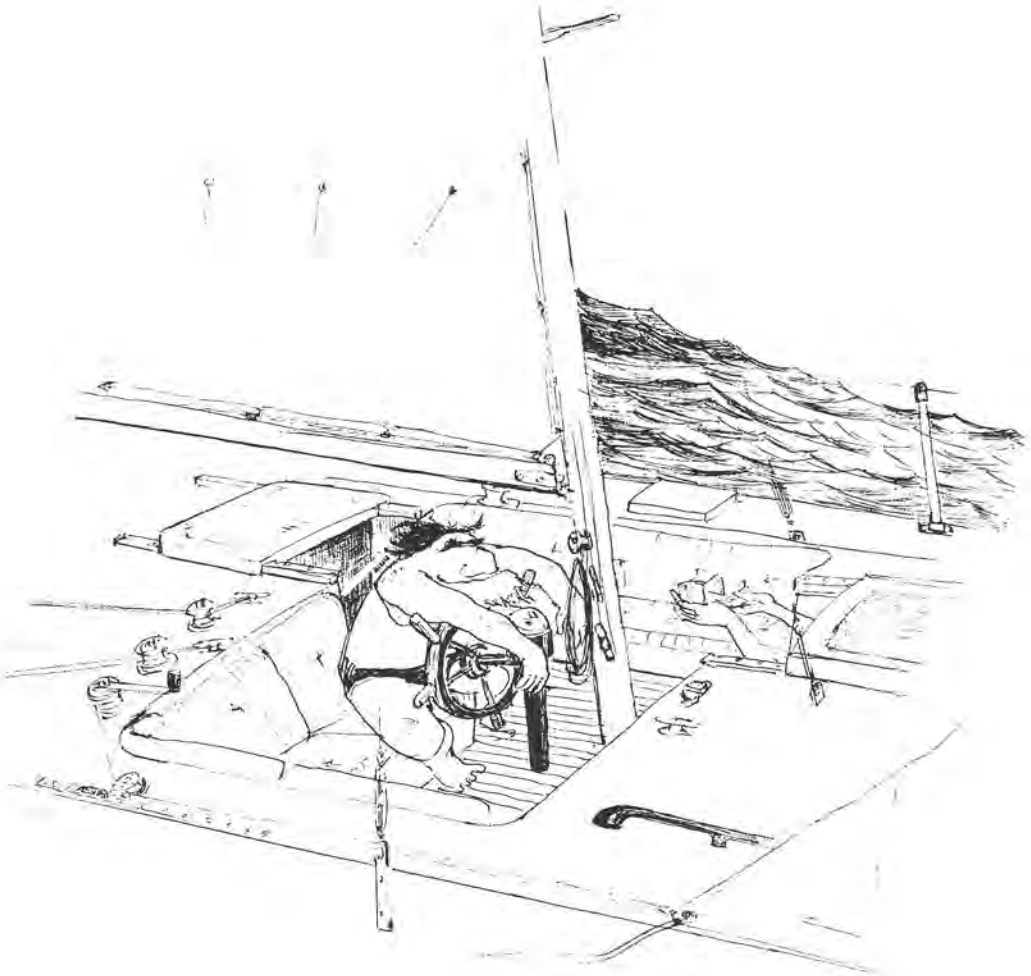
31'er hull construction shows center-board trunk installation. Builder's wife trustingly poses under cockpit-bay while builder holds the hull on edge, alone.

I am not alone in this opinion. Many designers are changing the fashion, and many cabins are interrupted by the trunk. To make the board big enough and strong enough to really do its job, the trunk becomes a dominant structure in the hull. Center-boards retract by pivoting aft on an axle, and so will retract themselves if the boat should run aground or strike an obstacle floating on the deep sea. Dagger-boards retract vertically, and so do not swing up when meeting an obstacle. For this reason, they are considered by most to be downright dangerous in all but harbor racers. Whether the dagger is in the floats, or in the main hull, if the boat hits something solid when sailing hard, the trunk may tear out of the bottom and you've got a big leak fast.

But pivot boards have a much larger trunk. So much larger that it really dominates the middle of the boat.

That's all right. Let's put the cockpit amidships, on top of the trunk.

Where it's at . . . amidships, on top of the trunk. Mark Hassall (with pipe) jests with a group of spray-blown friends while his boat steers itself at fifteen knots.



THE CENTRAL COCKPIT

It is difficult to verbalize what Jo Hudson's cartoon says so graphically about the central cockpit. Hip vernacular is perhaps the most accurate . . . he's got it made 'cause he's where it's at.

That's a big step - to move the cockpit from its classic perch on the fantail. Of course, the reason it has been there so long is so that the steersman could reach the rudder. With modern control systems, the aft cockpit is an anachronism. Most steering linkages nowadays require motion transfer anyway. Why not put the helmsman where he can <u>see</u>? See forward, where he's going. See aft, from where the waves often approach when cruising. See up, so he knows what the sails are doing - all the sails. And see all around, all extremities of his boat, and beyond, for docking and communication with the crew both on-deck and below. And so he can really <u>be</u> there on top of the situation, <u>driving the thing!</u> When we talk about the helmsman, we're not talking about some hired gob in a sailor suit or an apish cartoon character ... we're talking about YOU.

Another thing about SEARUNNER cockpits is safety. You not only are safer, you <u>feel</u> safer. It's the feeling that comes from being more IN the boat than ON it. Many multihulls I see sailing give the impression that the crew is running around in Adler Elevators on top of a pool table. They look insecure. The added freeboard of "flush-cabin" designs doesn't help, but a deep cockpit amidships does.

The central cockpit is ideal for covering with several types of "dodgers" or "boomtents". Some of these can be used under sail; others expand the accommodations for harbor-living by making the cockpit into the social center of the boat; another separate cabin.

Placing the cockpit amidships is the key to unlocking several compromise situations in trimarans. We will see how the arrangement affects the rigging and sails, how it changes the interiors, and how it adds strength. For now, let's examine its effect on motion.

Take a long pole and attach two sliding weights. Move the weights to opposite ends and swing the pole around from the middle. Start it swinging and try to stop it. It tries to keep swinging, you will find. That's "residual" motion. Now slide the weights in toward the middle and swing again. It starts more easily, and stops more easily.

Make that pole a trimaran. Place the cockpit in the stern and fill it with a husky crew, and beneath the cockpit place an engine and fuel. Trim the vessel by adding a water-tank in the bow, or a heavy mast and cross-arm well forward. Well, you see what I'm saying.

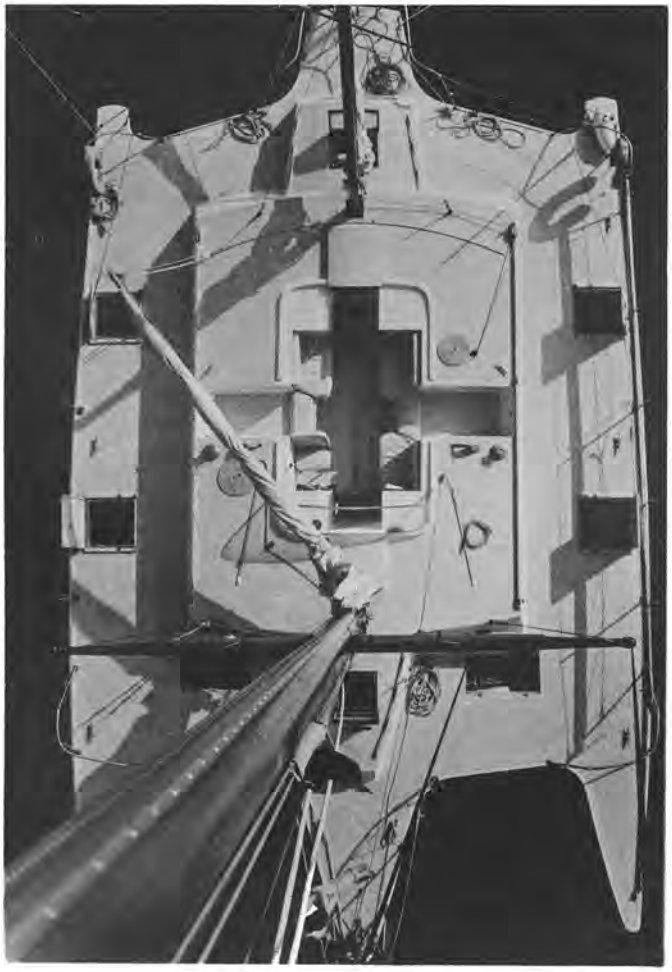
The loading of a vehicle affects its motion, especially if the vehicle is light and the load is heavy. Distribution of that load away from the "axial center of gyration" amplifies gyration because once the pitching or yawing begins, it's hard to stop. In the case of a boat, especially a lightweight, extremely stable boat, the effect of central loading is that now the boat may respond to the waves without over-responding. It conforms to the surface. In steering, if a wave knocks the stern sideways, the helmsman corrects the course without asking the rudder to stop those gyrating weights on the end of the pole. As the bow encounters a wave, it lifts without waiting to get the pole moving - instead of bucking skyward at the crest and falling on its nose into the next wave. Other things affect motion too of course, like hull form, float shape, and the center-board. But central loading is important. In the lateral direction, think of the pole running sideways with motorcycles, fuel tanks, canned goods, or staterooms on the ends of it. For myself, I hope never to be assigned to a cabin in the floats, especially in a trimaran with no center-board. The space may be habitable in very large trimarans, but in something under forty feet, I'll take the bunk that's under the cockpit seats, thank you.

That, at last, brings us back to the central cockpit. Under the cockpit sole in SEARUNNERS, there is ample space for engine, tanks and heavy stowage. That's where the weight belongs.

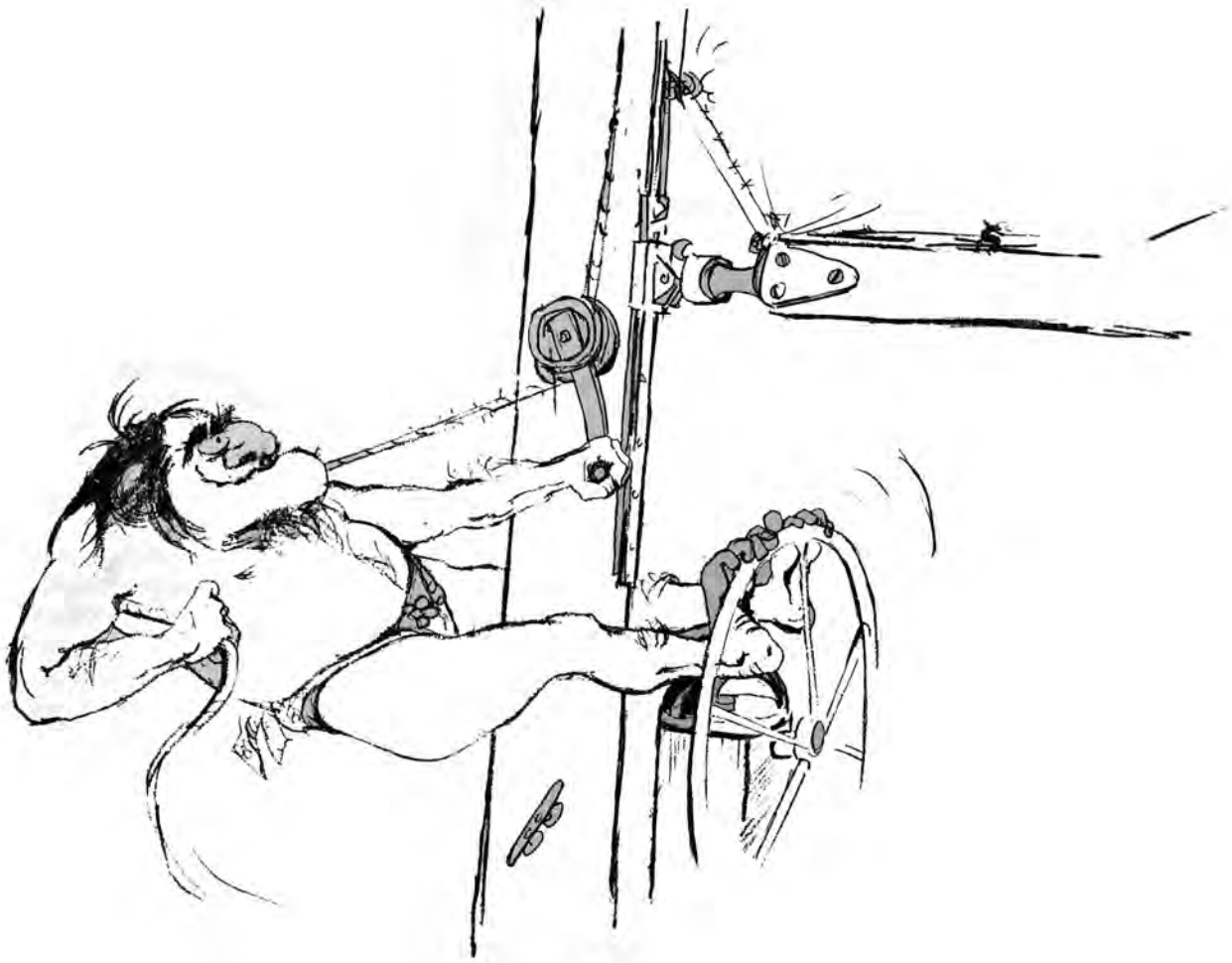
Cockpit of 25' SEARUNNER sports real comfort, good protection and seamanlike utility. Conestoga cover folds down for sailing. Note stowage under seats. Hiking stick on tiller allows helmsman to sit back and relax.

And also under the cockpit sole is the center-board trunk. The top of the trunk opens into the cockpit. In the larger SEARUNNERS, this makes sealing-off the trunk unnecessary because the top is far above the water-line. The board itself can be removed for service up through the cockpit without hauling-out the whole boat to drop the board from beneath. And if you ever take a wave into this cockpit - in spite of its defenses - the trunk forms a giant self-bailer. Midships bulkheading mounts the trunk massively into the hull. Neither trunk, nor bulkheads interrupt the cabin spaces, and full-width framing beneath the cockpit adds great strength to the entire structure in an area where other trimarans have air. For privacy, the accommodation is divided by the cockpit. Kids or crew up forward; master's cabin aft.

All these ramifications of the central cockpit are unique to SEARUNNERS, but none are as unique as the cockpit's COMBINATION with the cutter rig. The cutter's mast is IN the cockpit.



"Troika" was the first BROWN-designed central cockpit trimaran, but unlike SEARUNNERS, she was rigged as a ketch. Note center-board slot in cockpit sole.



THE CUTTER RIG

The word "cutter" seems to stimulate rich fantasies of the type exploited by Madison Avenue. One envisions the white, symmetric triangle on the horizon and the dread call "Revenuers!" ringing from the lookout of a blundering smuggler loaded with rum.

The word makes more sense than that. Those patrols were sailed in cutters because the type was fast, and easy to handle by a small crew. It still is. But no prohibitionist ever knew the convenience of reaching helm and halyard with his own hands (or feet) simultaneously. The cutter rig is not a new idea, but its peculiar combination with the central cockpit came like a breaking wave.

It all began with the center-board. Once it was established that the board must be included, the next step - the central cockpit - was easy. The BROWN 41 had the cockpit over the trunk. But she was rigged as a ketch. Her masts were stepped on the usual massive cross-arms. The cross-arms had to be located in the boat to receive the masts in their correct positions to give good proportions to the several sails. At the same time they had to be located to allow enough length between the cross-arms for the cockpit and cabins. There's the compromise. The main mast gets pushed forward and the mizzen pushed aft and the cross-arms go with them and still the cross-arms force the passengers to duck under the beams to get through the accommodation. Cut-away cross-arms - stepped up in the middle - were considered, but that would add even more weight in the ends of the boat.

I had designed two ketches, and liked them very much except for two shortcomings: ONE; two masts make for two boomed sails, and without the added boat-length of bowsprit or boomkin, these masts had limited height, because the booms had limited length. A sail can be only so tall for its foot; we pushed them up as high as possible and the boats still seemed under-dacroned in light airs. I knew that light conditions are the biggest drawback - the most arduous times - in cruising. TWO; The weight of the forward cross-arm (if built strong enough to resist flexing under the strain of the main-mast step) when combined with the weight of the mast itself, burdened the bows. When the sails developed full horsepower and thrust it upon the craft from so far forward, it tended to drive the bows down.

If there were only some way, I thought, to get the masts off of the cross-arms, then the cross-arms could be much lighter. The mast-step is the greatest single point of strain in the boat. When driving hard to windward, that strain can equal twice the weight of the craft. (The only cross-arm I ever saw break - in a 19 footer - failed under the mast.)

I hassled around with the problem for some time before the solution flooded in. "Let's step the mast on the center-board trunk! It is so much stronger than the cross-arm. We'll get rid of the mizzen, and instead of two boomed sails, we'll have two headsails like the old cutters."

Jim McCaig's "MANTA" romps across the sun on a heavy day.

This earlier BROWN-design has the aft cockpit and cross-arms. Originally designed as a sloop, the forward cross-arm (and the mast) was located well back from the bow giving a generous fore-triangle. When SEARUNNERS came along, it appeared that "MANTA" would accept the cutter rig. McCaig seized the idea and produced the first of our larger cutters, with a substantial improvement in handling and performance over earlier Mantas. The crew does not have access to the mast from the cockpit, but sail area can be easily adjusted with the two headsails. In this 30-knot wind, the small staysail is up, and the larger genoa is down.

That idea was exciting, but the revelation came when I realized that the mast would be in the cockpit.

Then I remembered all those good guys who were building those good ketches, and I almost rejected this new idea. There is a saying in design that says the thing you're working on now is the best thing you've ever done, and the thing you've just finished is the worst. I could see this combination as a source of controversy. Yet the new won't be still for the old. After all, I reasoned, a good thing - one as timeless as the ketch - is never bad. Those builders building ketches aren't really losing anything, but those who may build cutters have a chance to gain. So I set about working out the details of the central-cockpit cutter. If nothing else, it certainly would be different, and that's hard to find in boats these days.

The details of the cutter, it developed, were much easier to work out in a trimaran than in a monohull. Monohull cutters have fallen out of favor since the advent of large overlapping genoa jibs. One big sail up forward does a better job than two smaller jibs working together. This is particularly true if the boat is narrow. The sheet leads (lines that tend the sails) of two headsails must - in a monohull - come down to the rail in about the same place. This causes the "slot" between the sails to get smaller as it runs aft. The air is pinched between the sails, and robs them of their power; it's like a bi-plane with the wings too close together.

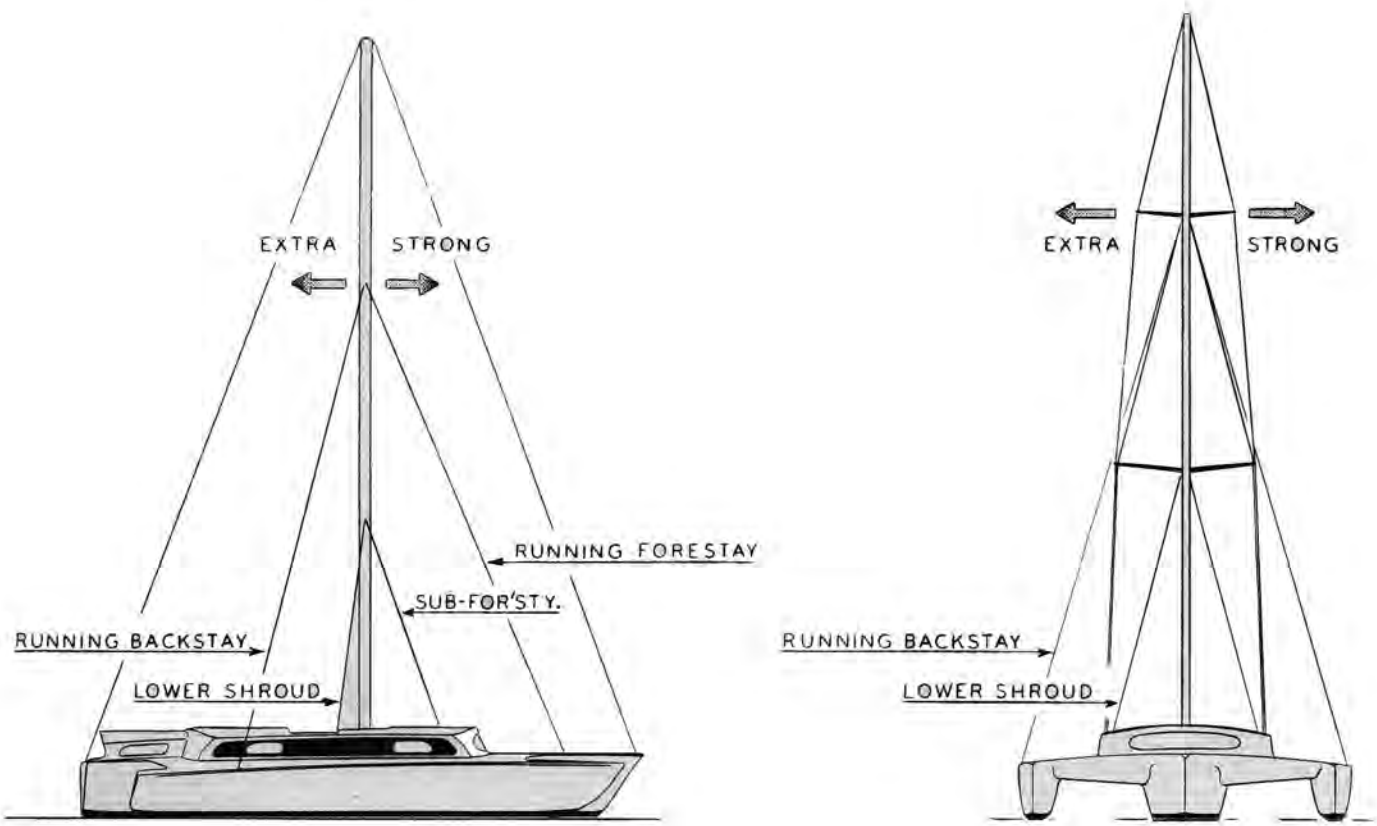
A single genoa jib doesn't work too well in monohull cutters because of its size. The cutter's mast is located farther aft than the sloop's, and the genoa gets very large if it overlaps the mast. This size, in itself, would be an advantage at times, but because of limited beam, the sheet lead for the genoa (in monohull cutters) pulls inward on the last half of the sail, causing it to do negative work. The bigger - or longer - the genoa, the farther out in the ocean we would like to have the sheet lead. Unlike monohulls, trimarans do have something outboard of the main hull. So the trimaran cutter CAN carry a large overlapping genoa efficiently. Also, we've got the stability to stand-up under such a sail.

Then why the little jib (staysail) also? Well, the object of two jibs has always been to adjust sail area. Carry one, or both, depending on conditions. In this respect, the cutter is like the ketch. When the wind picks up, drop the ketch's main and continue under jib and mizzen. With cutters, when the wind picks up, drop the jib, and continue under staysail and main.

But there the comparison ends. With ketches, if things get nastier yet, you're out there on the bow, dropping the genoa, un-snapping it from the headstay and stuffing it in the bag. Another man is at the mast, slacking the halyard for you. While you're bagging the genoa, he is dragging up a smaller jib, to snap it on for hoisting. You're both shouting to the helmsman to hold her steady as sheets of water drive up your sleeves and down your necks. Somebody - you maybe - is wishing he were back in his bunk.

But in the cutter - ah, the central-cockpit cutter - the second sail reduction is accomplished in the cockpit. The helmsman himself reaches up and cranks on the handle that reefs the main. The third sail reduction - reef the main some more. And the fourth, furl it altogether. And STAY IN THE COCKPIT! Off you go under staysail alone, balanced on all points of sailing.

In SEARUNNERS, the worse the weather gets, the more you stay in the cockpit.



Besides the cutter's extra strength at the upper spreaders, SEARUNNERS have a "sub-forestay". This stay resists the strain of the mainsail pulling aft on the mast; when it is combined with the aft-leading lower shrouds, the lower panel of the mast is well supported in all directions. The sub-forestay is fitted with a full-length roller; it aids in tacking by keeping headsails from catching on the mast hardware. Also, it is possible to tack with both headsails flying by holding the staysail on the old tack until the genoa slides across the staysail onto the new tack.

There is another feature of the cutter which makes it better for trimarans than for monohulls - running backstays. In heavy weather when the staysail is in use, it imposes a strain on the forestay which pulls forward on the mast. To oppose that strain, running backstays are installed. Now in a monohull, the runners come down to the rail so close to the main boom that the leeward runner must always be carried slack. Otherwise, the boom and the mainsail will chafe against it. This means that each time the boat is brought about to receive the wind from a new side, one runner must be tightened (by throwing a lever) and the other slacked. In sailing up narrow waters, or in any maneuvering, this gets to be a lot of exercise. If the sailor misses his cue and has both runners slack in a stiff gust, the mast may bend from unopposed strain at the forestay.

The trimaran is a natural for runners because - again - of the wide platform. They are led way outboard where they offer 100° of scope between them for the boom to swing. This means that they need be slacked only when running with the wind, when there is little strain anyway. When tacking to windward, both runners are left made-up tight.

Or they can be released altogether (in up-to-heavy conditions). The forestay can be released also, and all runners brought up against the mast and left idle. The result is a sloop with a very large fore-triangle (space for headsails).

It is when the runners are made up taut, however, that the cutter is really rugged. There is no stronger rig than the "Bermudian" cutter because the double spreaders and the runners offer more frequent support to the mast and from more directions. When one considers the long record of trimaran dismastings, this becomes very meaningful.

So much for the rigging strings. The art of playing the sails (as a musician plays an instrument) is a finer art in the cutter than with other rigs. It has to do with how the sails arrange the air passing between them. Learning what points of sailing, and in what conditions on those points, the staysail may be used to compliment the genoa's compliment to the mainsail - (breathe) - is something that cannot be described in this (or any) writing.

In light airs, the cutter's huge genoa (above) provides enough area to glide along on a zephyr. The forestay and runners are released for easy tacking.

"...the staysail's compliment to the genoa's compliment to the mainsail..."

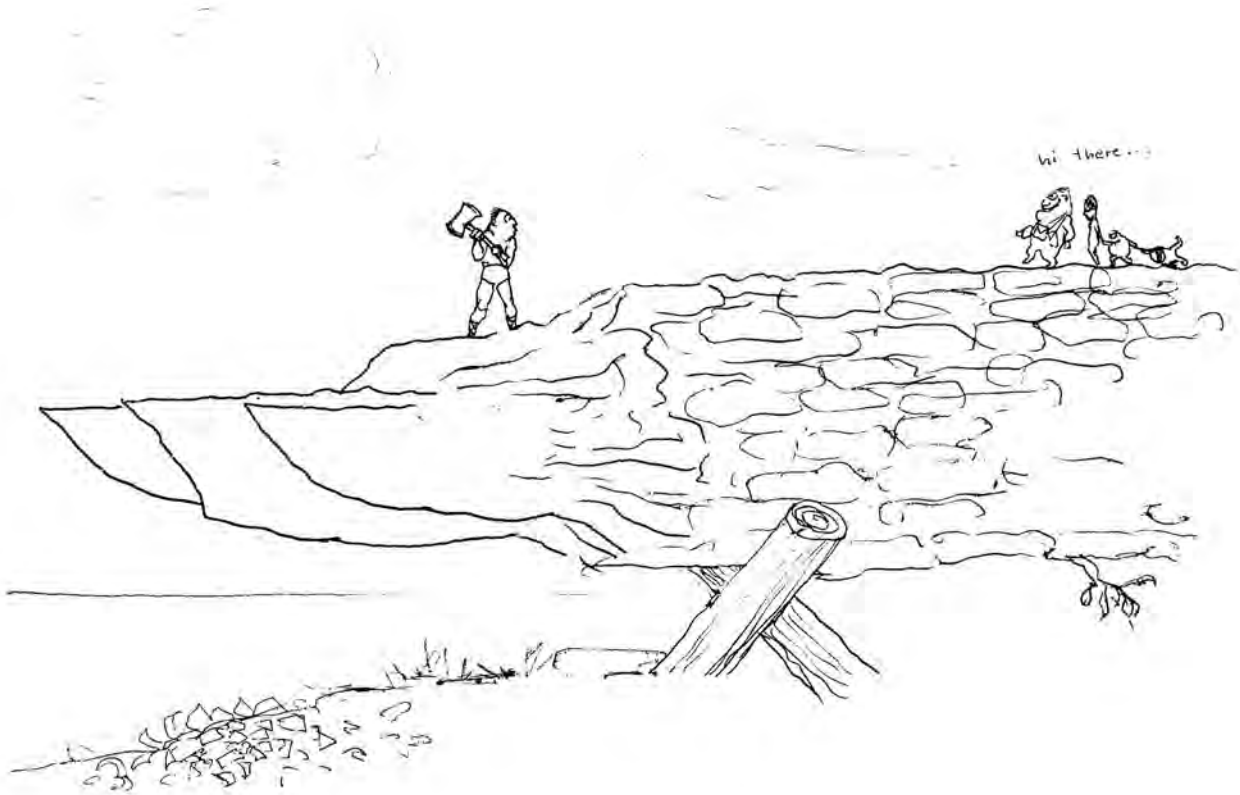
But this does not mean that the cutter is an instrument on which playing is hard to learn. Segovia - and maybe you - can both play the guitar.

Experienced cutter-players delight in their instruments not only because of the pleasure their accomplishment has brought them, but because they, like Segovia, know that their instrument is a good one to start on. It is easy to handle from the beginning. It is unlikely that you will get into bad trouble when the strings are so strong (as are the cutter's), and the volume control is at your fingertips (as in SEARUNNER cockpits).

With this knowledge from the artist, the neophyte may assume that the SEARUNNER combination of cutter-with-cockpit makes it easier for him to LEARN.

"Bacchanal," John Marples' Searunner 37 developed for ocean racing. Winner of the 1972 Transpac Multihull race to Hawaii and holder of the new corrected time record for the course. The 37 offers sail combinations which allow the most skillfull of sailors a great oppotunity to express their expertise.

6



HULL FORM & CONSTRUCTION

"...Consider all the requirements: performance, load carrying ability, strength, cost, availability of materials, ease of construction..."

Now I've come to the big trap for designers - the technical trap. A designer may have great technical mastery. He may see a complex stress-analysis as blazing colors flowing through the structure, but when he tries to explain it to someone who doesn't see the colors, it all comes out gray.

That's a shame, because designing is truly colorful and exciting.

Building, incidentally, is the same, but in a different part of the spectrum. Let's say that designing is in the red zone, building in the yellow center sector, and sailing on the blue end. The only way to embrace the entire range is to design your own boat, build it, and take it out to sea. For those who really see all the colors, that's the only way, and believe me, it's quite a show!

For those who wish to buy a boat, you're missing a lot, but the sailing is the most beautiful part. And for those who see light at the building stage, I sell plans that are, in a very limited way, like number-paintings*.

In this section I would now, if I could, tell you which colors I have used to fill the spaces.

MAIN HULL FORM is colored "efficient" to coordinate with the weights of its purpose and the tones of its construction. The main hull has a fine entry to relieve wave-making, a chesty forebody for buoyancy forward, a nearly semi-circular midsection*, and a broad, flat outrun to minimize pitching. The rounding-off of the chines is important to allow the water, which begins at the nearly vertical entry, to flow around-and-under the form and leave by the horizontal exit. The form is not really "hot" because cruising (and ocean racing) will require her to carry too much weight for the lithe body of a harbor-racer. Neither Twiggy nor Hindenburgish, she is proportioned to carry herself - and you - with speed and stamina.

SEARUNNER forebody is for surface-piercing with minimum bow-wave. Small "flat" in bottom develops well aft of cutwater to avoid pounding.

SEARUNNER afterbody is designed to repair the rent made in the surface by the forebody, with minimum stern-wave. Note gently-rounded chines; center-board slot. This hull is made from sheet plywood.

*The difference between trimarans and number-paintings is that trimarans are "soul" and number-paintings are "straight".

*Within two percent of the immersed girth in a truly molded midsection of the same area.

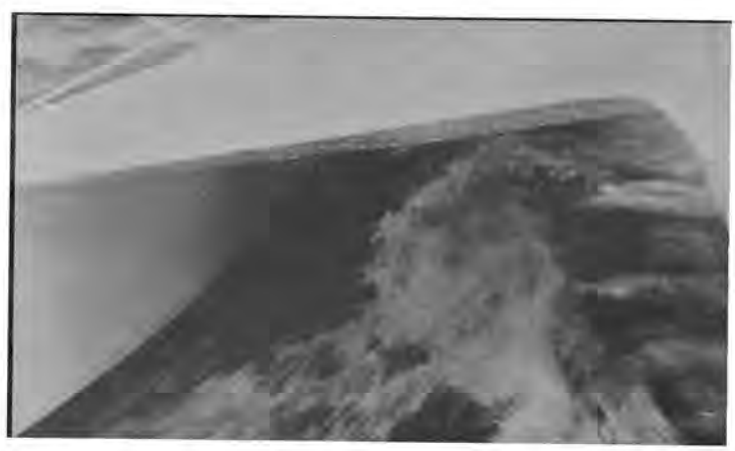
FLOAT FORM has a color that must harmonize with the Main Hull, but a different brush is used. Unlike the Main Hull, the Floats operate with a variable waterline. When running down-wind the floats just skim the surface, but when sailing to windward they are burdened by heeling effort in the sails, and depress accordingly. If the floats had broad transoms like the main hull, they would drag a chunk of water behind them when that transom is depressed. So the floats have fine entries and fine exits.

SEARUNNER floats have a wide "V" section amidships which changes at the gentle chines to become relatively narrow at the deck. Note the slight "compound" curve in the topsides.

CARAVEL's floats were extremely asymmetric, with flat bottoms. Note wide hull spacing.

Float deadrise amidships is also different from the main hull's. Floats go up and down, in and out of the water and so must not have flat bottoms. CARAVEL taught me that flat-bottomed floats are definitely not for seagoing; they pound viciously in some conditions. But CARAVEL also taught me that asymmetric floats definitely ARE for seagoing. A full analysis of the asymmetric float gets long-winded for this catalog. but briefly, it pays its way and then some. The adjacent photo explains. (Asymmetric floats, de-tuned from the CARAVEL experience, appear in all SEARUNNERS. Their usefulness is proven, but confined to trimarans with wide hull-spacing.)

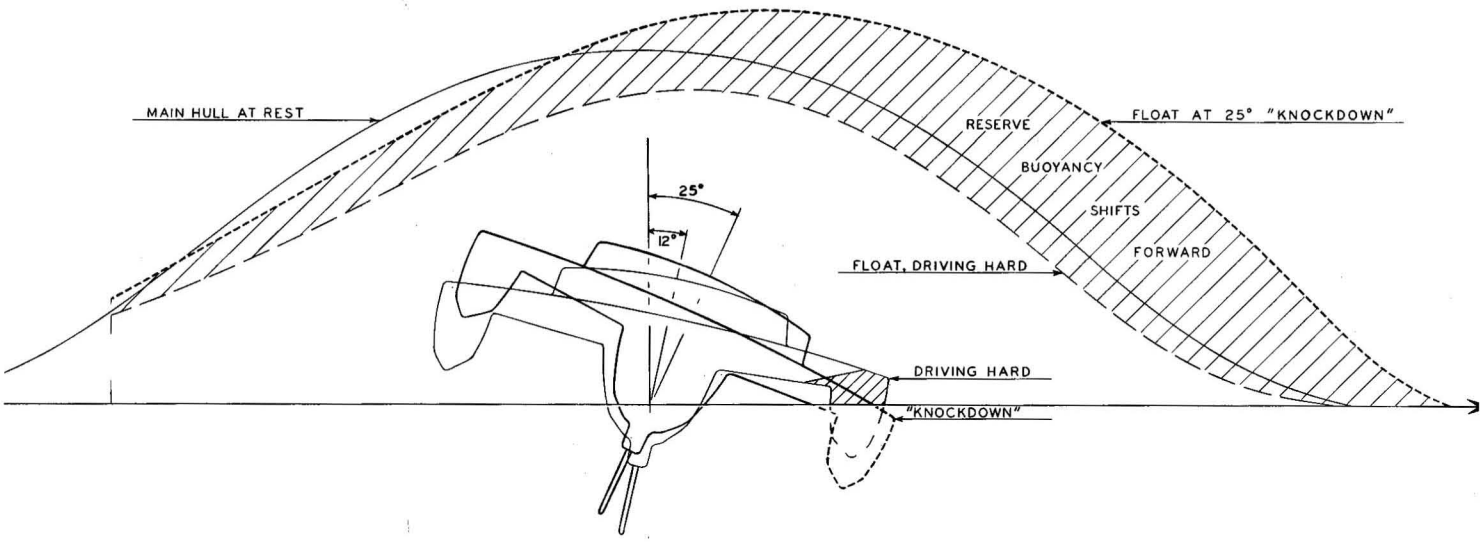
Looking aft into CARAVEL's tunnel from the bow, the bow wave is seen to lash-out to the left, toward the float. Trimarans with narrow tunnels suffer aggravated leeway caused by this wave pushing the float to the left - to leeward. Wide spacing relieves this, but asymmetric floats <u>reverse</u> the situation! Water flowing down the inboard side of the float is caused to accelerate by the float's asymmetric shape. This causes the surface, the water level, to drop. Water level on the INboard side is LOWER than on the OUTboard side. In this photo, the painted water-line is visible! The higher water level on the opposite side of the float keeps the whole boat from sliding sideways. The concept is particularly valuable in strong winds when the boat is heeling.



Another feature of SEARUNNER floats is that they are shallow. When the boat is at rest, they draw very little water. In trimarans without center-boards, they must be much deeper to add lateral resistance. But deep floats cause maneuvering problems - they must sweep through the turns like an oar dragging the surface on the recovery-stroke. The negative effect on tacking is especially costly to trimarans without center-boards; they tend to mush sideways through the turns anyway. The combination of deep floats with no center-board is largely responsible for the "won't-come-about" image earned by some trimarans. It may be argued that deep, sharp floats ease the snap-roll motion of trimarans, but this is the job of the center-board. Some racing trimarans have floats so "shallow" that both cannot touch the water at once. That's fine for speed because one never drags both floats. But the real "drag" occurs at anchor when the craft flops from float-to-float. Float form relates to the center-board only in that ALL floats will allow the boat to flop, whether sailing or at anchor, in choppy-enough conditions. And flop it will without a center-board.

We have considered the Main Hull and Floats separately. They're not the same, but let's just see how they match in SEARUNNERS.

Heeling effort from the sails has a vector that is mostly lateral but partly forward as well. This tends to drive the float bow down. To resist diving that bow - an old multihull malady - we need lots of buoyancy out there. The adjacent "displacement curves" are graphs showing where - along the hulls' length - the buoyancy is centered and how it is distributed. Note that as the float is immersed deeper with heeling, its buoyancy increases sharply forward.



When the float's displacement curve is superimposed over the main hull's, we see how each hull does its own job in harmony with the other. The point is that these shapes used together make it very unlikely for a "knockdown" to be accompanied by diving the float bow.

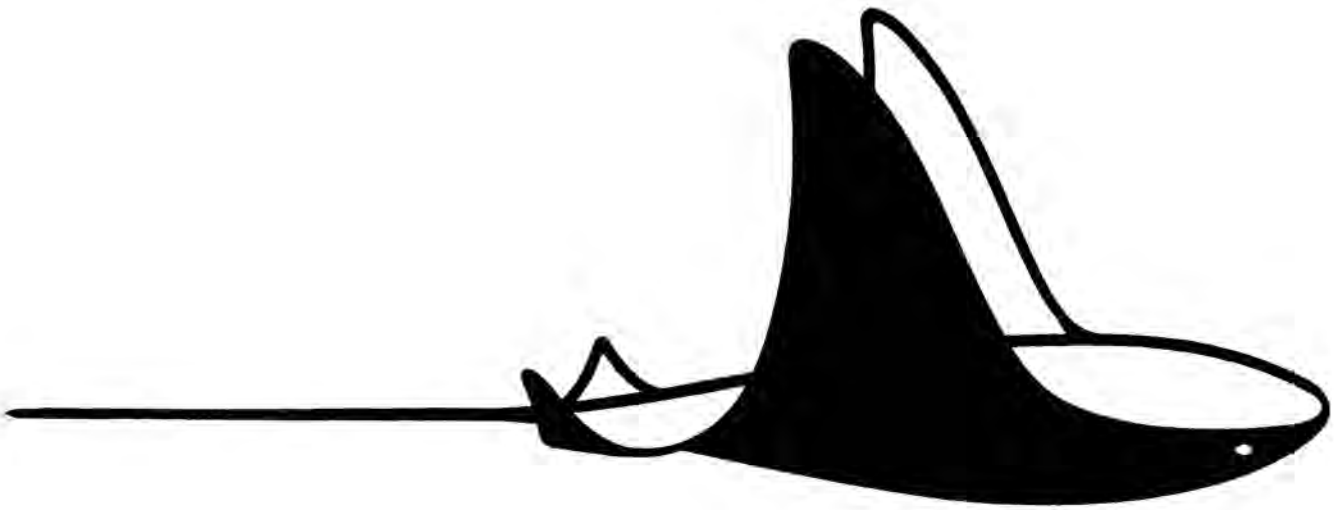
SEARUNNER WINGS have a special spread. The deck has a slight reverse-sheer, but on the bow it is nearly flat. Also, the forward float decks have little camber. This makes the most traveled areas easiest to walk on. But sheer and camber both increase as the deck runs aft. This is to shed water which may climb aboard from astern in severe conditions. And this is why the wing deck does not extend all the way to the transoms.

Notice that the bottoms of the wings reach upwards as they span outwards. It is the outboard portions of the under-wing which might pound on the wavetops when the boat is heeling; these wings have higher clearance outboard.

So a SEARUNNER is a different bird in the trimaran kingdom. A rider sits on its back between the wings. These stretch far from the creature's shoulders to grasp outriggers which stabilize its flight.

This is not a collection of three hulls, it is an organism whose real wings unfold straight up from its back and straight down from its belly. It flies through the water driven by the wind. And its plumage is as simple as black and white.

SEARUNNER SAIL EMBLEM



CONSTRUCTION. Color me easier. Not easy, but less difficult, less expensive, and faster. The reason that SEARUNNERS are easier to build than most trimarans is the result of a widely varying but overlapping and highly interrelative blend:

> Sheet plywood (instead of molded plywood) makes possible a reduction in framing components. The widely-spaced frames make possible easy installation of SEARUNNER interiors. "Molded-chines" make possible a great simplification in the installation of the sheet plywood planking. The center-board makes it possible to remove the mast from the cross-arm, which makes it possible to eliminate the cross-arms in favor of the lighter, simpler main-strength bulkheads. These bulkheads, because they are relieved of mast-step strain, make possible large cut-out passways through them so the crew doesn't have to duck under beams. It goes on: When the mast is placed on the center-board trunk, it makes possible the cutter rig instead of the ketch. Half as many masts and booms, fewer fittings, fewer sails, less wire (but more power, more strength, more safety).

These are all just overtones of SEARUNNER construction. The main scheme is the plans. They are printed in blue, but beyond that they lack the colors of a number-painting and are instead like a jig-saw puzzle wherein you make the parts from full-size patterns and paint them anything you like. Not only the hull and float frames, but wing framing, cabin bulkheads, main-strength bulkheads, stems and all structural metal parts are given jig-saw style.

A later section in this catalog describes the plans, but the point here is that good plans make the job easier, less expensive, and more enjoyable.

There are some colors in the expressionistic design of SEARUNNERS which clash to the eyes of a neoclassic viewer. They are:

Molded Chines. This is a method of composite construction which uses fiberglas - instead of lumber - to bond the panels of plywood planking together at the chines. The old way has been to put a strip of lumber in the boat at the point where planking seams would occur, and fasten the plywood to the lumber with glue and nails. The disadvantages of lumber swelling more than plywood swells, and lumber splitting more than plywood splits, were all minor compared to the skill required of the builder. He was asked to give the lumber chine-stringers a complicated shape - a compound, progressive bevel that changes constantly from one end of the boat to the other. It's not hard for the experienced builder, but it's a bad scene for the beginner. Results have testified to this. The wrong shape makes a bad glue-joint which is vulnerable to cracking when the swelling starts, or when the boat strikes a floating railroad-tie at fifteen knots. Or if the glue-joint holds, maybe the lumber chine-stringer splits, because the grain in the lumber runs parallel to - and directly beneath - the seam in the plywood planking. I mention these possibilities not to discredit the usual chine construction, which has served me well for many ocean miles, but to enumerate points of failure which I have sometimes seen in ocean-tested trimarans.

Another disadvantage to hard-chine construction is that the water is required to roll around these "corners" as it flows along the hull. This is especially true if the chines are near the surface, or if they are not arranged to parallel the flow-lines, and if the corners are sharp. SEARUNNER chines run submerged, they are gently rounded, and they do parallel the flow-lines. We call them "soft chines" because they aren't hard to build and they aren't sharp.

Still, it is an advantage to get rid of chines all together, especially if we're primarily interested in speed. One way this is done these days is to plank the boat with multiple layers of thin plywood cut in narrow strips and bent over the framing diagonally from deck to keel. The results of "molded construction" are impressive, but so is the work and the cost. Hundreds of narrow strips must be individually cut and edge-fitted to one another. When the frames are covered with one layer, you start over again with the next which is "cross-laminated" to run diagonally opposite. Great quantities of premium glue and fasteners are used. This planking has been known to cost three times as much, per square foot, as in boats planked with exterior-grade sheet plywood, and it takes lots of time.

It starts before the planking. Molded hulls require rounded frames (instead of straight sides) which must be located much more frequently in the boat. The framing interval in SEARUNNERS is about 40"; in molded boats it is usually about 24". With more frames, you also need more stringers or "longerons" to provide frequent places in which to fasten the layers of planking. This involved framing is required because the builder has to bond the laminates of planking together ON THE BOAT. It's like making your own plywood. SEARUNNER planking comes ready-made from the factory, and you only need half as much because there's just one layer.

Molded plywood hulls, incidently, are not "seamless". In fact, they have a seam where SEARUNNERS don't - right down the center-line. A keel stringer - like the old chine stringers - is necessary in molded construction to join the starboard half of the planking to the port half. And this keel stringer does not simplify the installation of a center-board trunk, the propeller shaft, or the rudder-post.

A "molded" hull is attractive, though. The underbody is almost anatomical, with a strong resemblance to the belly of a shark. It looks like it is - efficient.

But it's not necessarily stronger. The double-curves lend strength in the manner that an eggshell is strong. The geometric shape resists deflection as an eggshell

resists being crushed in the hand by squeezing at the ends. But what about puncture? The eggshell will withstand the weight of the hen, yet the unborn chick can peck his way out.

The kind of strength that a boat needs must resist the weight of the water, and the point of a rock. For puncture strength, shape doesn't help as much as thickness, and a SEARUNNER hull is thick where the rocks can reach it - on the bottom. On the other hand, a molded hull - say a 40'er - has the same thickness from the keel to the deck. To save weight, that thickness is kept at a reasonable minimum, say 3/8". By contrast, the arrangement of the chines in a SEARUNNER establishes a small "flat" in the bottom, which has no center-line seam. This bottom-plank is twice as thick - 3/4" - as the bottom of the molded boat. The adjacent panels of planking, the bottom-sides, are 5/8" thick, and only near the surface does this planking take advantage of safer weight-saving to become 3/8" thick. The thick bottom plank now, because it is flat, makes joinery at the center-board trunk really simple. It is reasonable to assume that it will never leak.

Fiberglas makes a better composite with plywood than does lumber. A lumber chine can "grow", both in width and length, with an increase in its moisture content. Plywood, however, is dimensionally more stable. To mate these materials can cause - in time - tremendous standing strains on the glue-joints. These strains are just waiting to be released by some kinetic impact; not the chick pecking his way out, but perhaps the railroad tie, or the rock busting its way in. Also, lumber may rot, especially in a dark, damp, poorly ventilated bilge. Plywood is much more rot-resistant than lumber.

The main thing that causes fiberglas to age is sunlight. Down inside the boat, molded-chines are well protected from ultra-violet. And fiberglas won't rot.

But what about the way in which all these panels of planking are joined together? What's a "molded chine"?

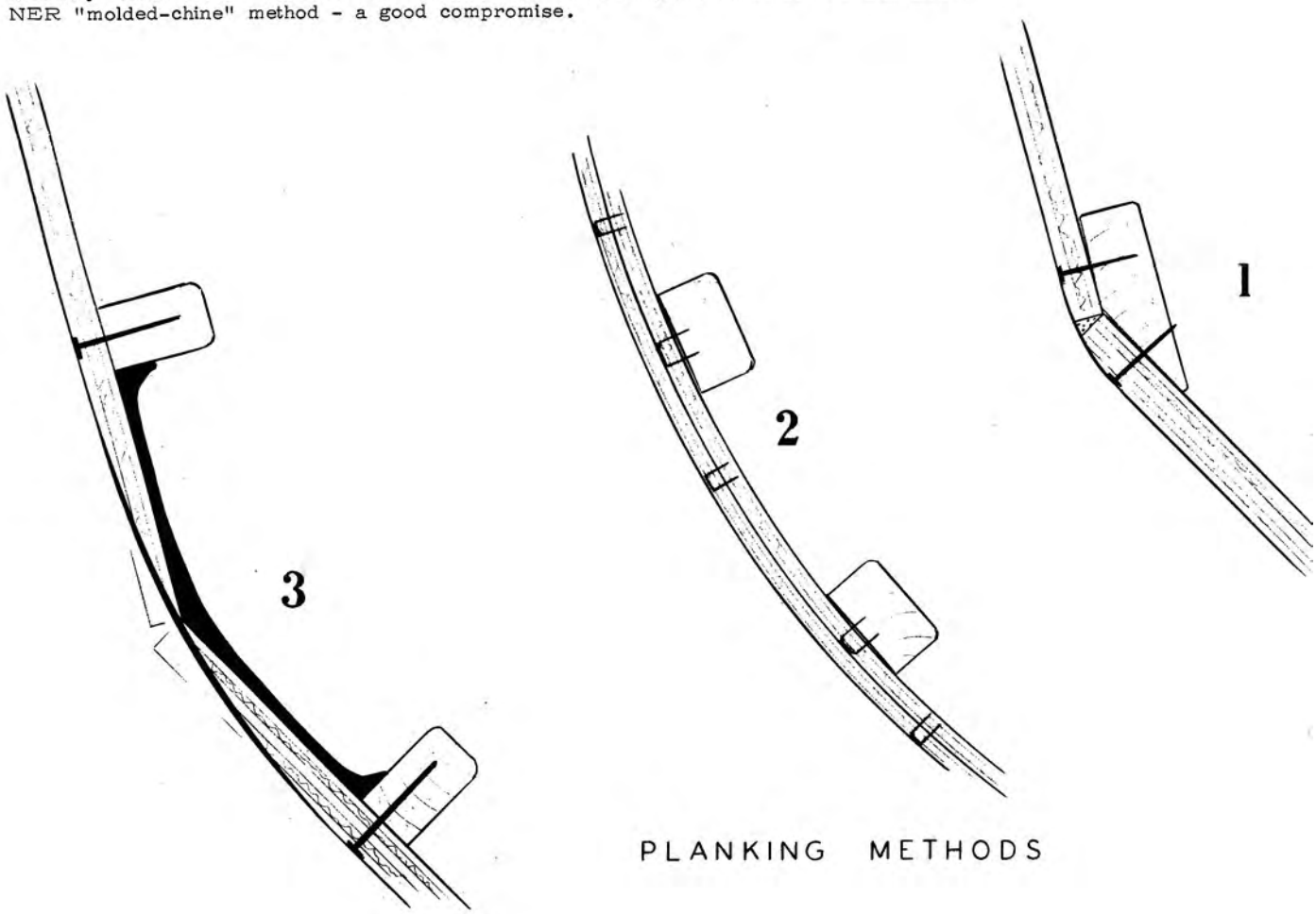
A molded chine, seen from inside out, is a distracting visual experience. Climb inside an unpainted SEARUNNER hull when it's upside down in construction. All along the chines you'll see sunlight shining through the seams!

But "Where there's smoke there's fire" doesn't mean that "Where there's light there's water". The seams are made with fiberglas. Fiberglas is translucent. Also it is waterproof.

Those seams are not backed-up by a lumber chine and fastened with glue and nails. They are backed-up with fiberglas and fastened with polyester resin. That doesn't mean they're weaker, or won't last as long, but it does mean that you'll be building faster and sailing sooner.

Let's admit that the bond strength of a good glue joint is greater than that of fiberglas, but let's also admit that the bond strength of fiberglas is as good as that of a bad glue joint - I mean one that, because of the builder's limitations, does not mate plywood to lumber with a careful fit and a lean glue-line between. Molded-chines are practically immune to the builder's limitations because fiberglas is a plastic material. When you put it in there it fits automatically! There's no trick to doing it right. But there is a trick to doing it fast. Full instructions are in the plans, and the builders agree that it's easier to learn than "fairing" chines, and certainly faster to accomplish than "cold molding".

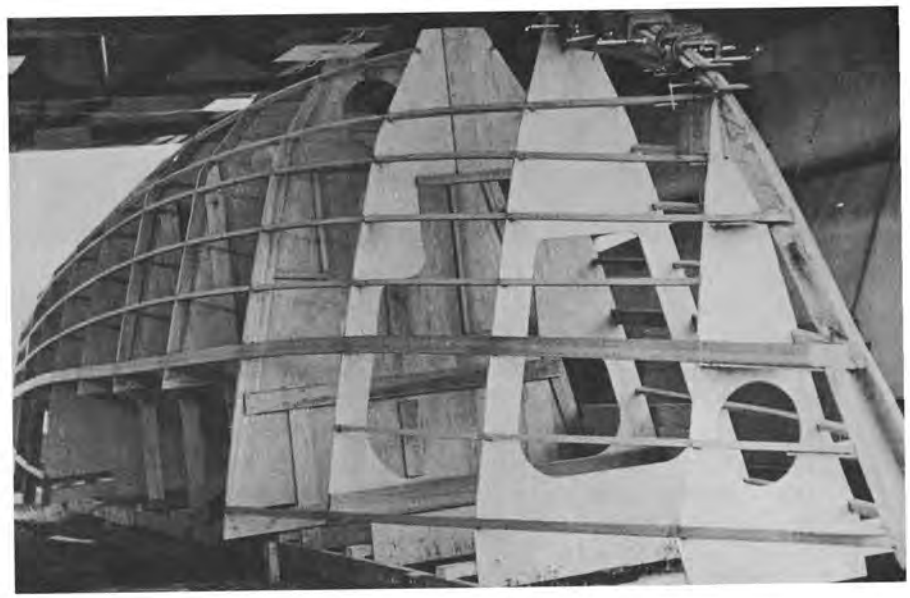
1. Early "hard-chine" method. 2. "Molded" or double-diagonal method. 3. SEARUNNER "molded-chine" method - a good compromise.

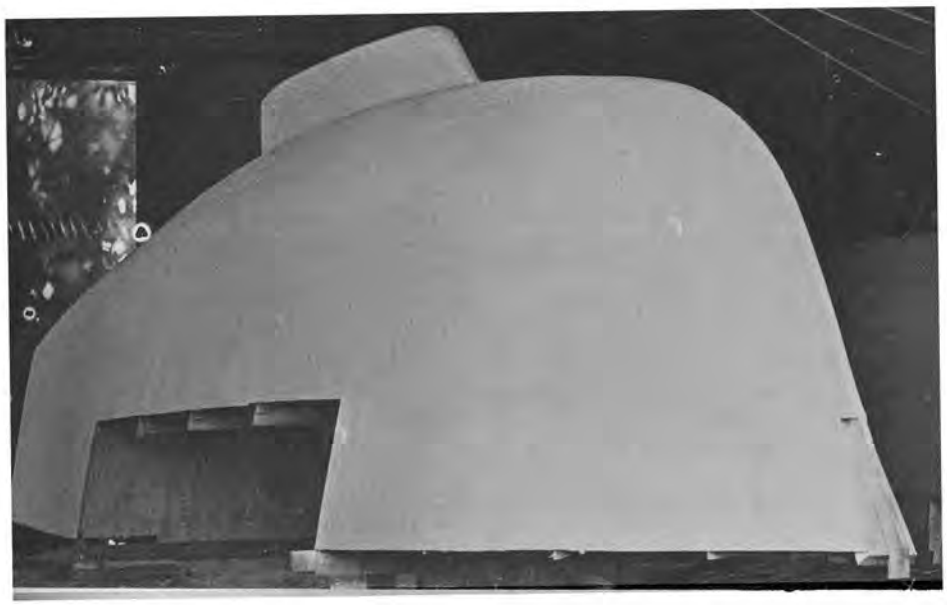


PLANKING METHODS

Stringers located in the hull adjacent to the chine-joint form a "gutter" after planking is on. The builder fills this gutter with multiple layers of fiberglas pre-saturated with resin on the bench. This "tape" goes in while in a plastic condition and so automatically fits the progressive bevels at the seams. After the "tape" cures, the outside of the seams are rounded and fiberglassed again.

SEARUNNER hull framing is a pleasure to build. Note the slight "compound" curve in the topsides; the widely-spaced frames (only eleven frames in this 37' hull) and the interior joinerwork already done on the frames.

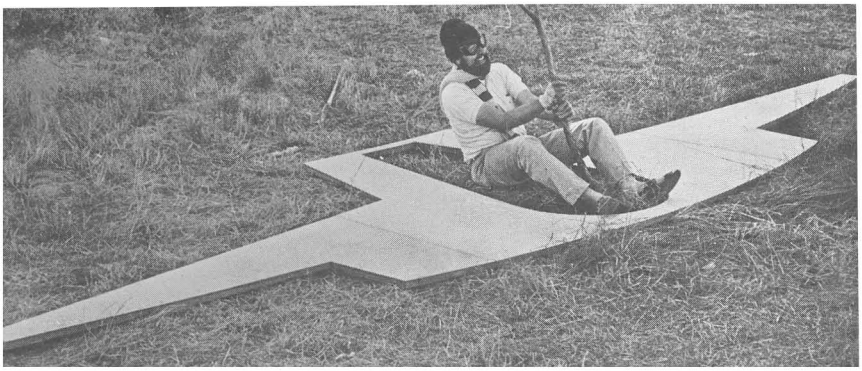




After planking and fiberglassing the hull, the "molded chines" are "soft" but the hull is <u>rugged</u>. Hold the photo upside-down for perspective.

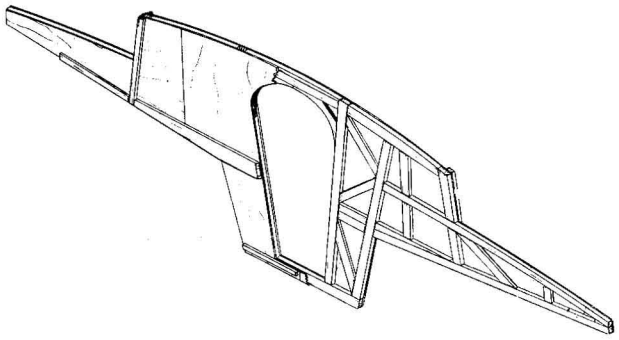
And it's not so new. All fiberglas production boats have their plywood bulkheads bonded in with fiberglas tape. And some of the largest fiberglas yachts have a center-line seam in the hull which is taped just like a molded-chine. I built a small trimaran with molded-chines eleven years ago, and the last I heard she was still going. My old NUGGET was stuck together with 'glas in lots of structural areas. She's been in the water just about constantly since she was launched, and she's still <u>solid</u>. Molded-chines or "taped seam construction" is widely used by home-builders in a popular racing catamaran class, and I trust it well enough to use in the boat for my family. More important, I trust it well enough to offer it for <u>your</u> family.

"Snoopy" Freeman regularly flies his main-strength bulkhead in pursuit of the Red Baron.



MAIN-STRENGTH BULKHEADS. "What's he trying to do, hook the hulls together with Swiss cheese?" Well, it looks that way just because it's different. And it looks different from a cross-arm because it can be. As always, it begins with the center-board: because the trunk is there, so can the mast be "someplace else" besides on the cross-arm. The cutter's mast now, is stepped on the center-board trunk. Aside from the special combination of mast-with-cockpit, the structural result is that the critical members which join the hulls together are relieved of the concentrated strain of the mast. The reason this strain is "concentrated" is that the columnar loads on the mast are the sum, the accumulation of all the rigging wire tensions of the headstay, backstay and the weather shrouds. This tension is distributed by the rigging to the several chainplates dispersed about the platform, but it all adds up to appear as compression on the mast. In SEARUNNERS, this compression is, in turn, distributed back into the platform by the massive trunk and its bulkheading, instead of being concentrated on the lateral spars (cross-arms) which join the hulls together.

So, now the hulls can be joined with sandwich diaphrams which have large holes cut through to open-up the accommodation. The "sandwich" refers not to Swiss cheese, but to the lumber truss which is encapsulated between two layers of marine plywood (cut to size from full-size patterns).



Main-strength bulkhead shown with sandwich partly open. For "A-frame version" bulkhead, see Section 11.

The hulls are built separately with "connective frames" located to receive the Main-Strength-Bulkheads. These bulkheads are later "dropped-in" to the hulls and mated to the frames with glue and bolts. The arm-like appendages of these bulkheads protrude full-width and serve as the primary mount for the floats. Because SEARUNNER wings are relatively deep or "thick", these arms become relatively strong and "stiff". (The strength and stiffness of a beam increases by the cube of its depth.)

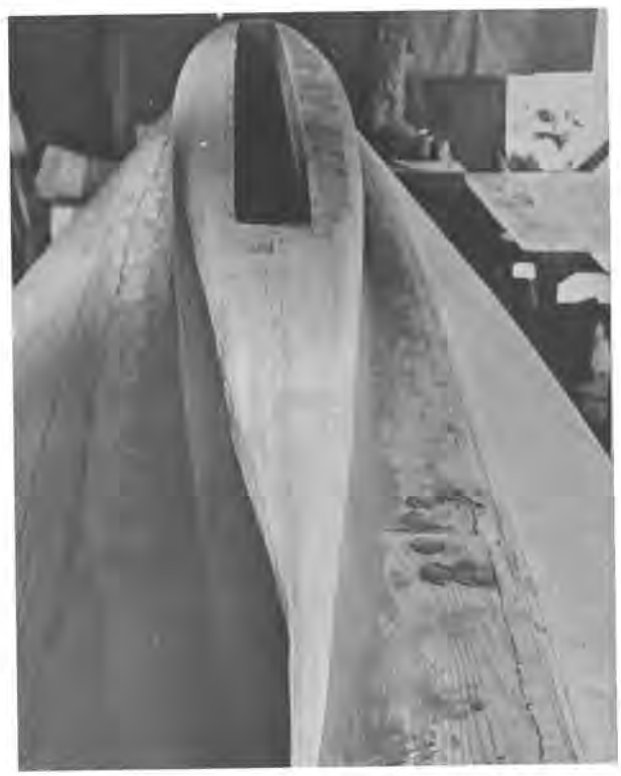
Other "wing bulkheads" then drop-in to mate with waiting frames in hull and floats. These are also cut from full-size patterns, and the builders agree that this is one jigsaw puzzle where the pieces really fit!

These components establish the shape of the entire platform: decks, under-wings and superstructure.

One more major component is pre-fabricated, the cabin-side panels. These are large longitudinal shear-panels which are notched to slide over the main-strength bulkheads so that they go through the deck and down to support the under-wings. It's like a house of cards. This makes the cabin built-in instead of built-on. The cabin-sides now accept the rigging shrouds (less than half of the total rigging strain) and distribute the load into all the platform.

What all this means is that SEARUNNER designs have the strains flowing through the structure without the clashes which result from too much concentration in certain places. This color-scheme has some odd new shades all right, if you see them separately, but when integrated they really harmonize.

Cabin-side panel is notched to slide down through deck-level to meet under-wing. Main bulkheads, wing bulkheads and cabin-sides are integral.



...to keep damage away from the body. This photo shows the minikeel (looking forward) and the "molded-chines" before fiberglassing. The minikeel is heavily 'glassed, and may be further protected by a hardwood "wormshoe" outside the 'glas if frequent grounding or beaching is anticipated.

THE MINIKEEL is one more controversial feature. As an option, some SEARUNNERS are built with bare bottoms.

I see the minikeel as being like the bumper on the family car; not absolutely necessary. The sports-minded may wish for the fractional gain in performance which results from removing the bumpers.

But the minikeel is a practical thing. It is a shallow skeg attached to the bottom at the center-board trunk. It increases the draft of the hull, like bumpers increase the length of a car to keep damage away from the body.

In a boat, the damage is seldom encountered from the front or rear; it usually comes from beneath. If you really have a fender-bender you may well reach the radiator, or the gas tank, especially if there are no bumpers. If you really run aground, you may well take-on water, especially if there is no minikeel. A minor smack-up sometimes knocks-out the motor and the front end, or the propeller and the rudder. (Who said, "Call Triple-A"?)

The center-board trunk is built to protrude through the bottom-plank to attach the minikeel. Layers of "two-by" lumber are attached to the sides of this protrusion and shaped to form a rugged belly-fin. Now, a swell can drop the full weight of the boat down onto a reef-top, and the strain is delivered into the same massive structure which mounts the trunk and supports the mast step. We've got the greatest strains - the brightest colors - in the middle where they belong.

The added depth-of-hull is for more than protecting the bottom, the rudder, and the prop-shaft. It is to aid in beaching. Beaching your boat is a great convenience at times; it relieves depending on maintenance facilities. Beaching is a great pleasure at times; it opens up your access to places otherwise inaccessible. And beaching could be your salvation sometime; that shore may be the only refuge.

The minikeel is not a substitute for the center-board - it is too shallow for that. Neither is it a "fixed keel", deep enough to get knocked off or prohibit beaching. If you go in on soft sand or mud, the minikeel will sink into its surface. If you go in on hard gravel or coral, the minikeel will hold the hull up. If you drive the boat full-sail right up on a rockpile, you've got a good chance of sustaining only superficial damage without tearing out the bottom.

But to the racing sailor, the added wet surface will cost a fraction of performance in light airs, which may be unacceptable to him. For those who choose this option, we suggest that their bottoms be double-planked (the central "flat" only) for security in cruising; but with this, the rudder and prop still go unprotected.

The reader may be puzzled by my attention to both cruising and racing in the same designs. There really is no conflict in combining these requirements, but it's very hard to convince the landsman that cruising boats must perform and so will do well in ocean racing. This opinion is developed mainly from experience.

SEARUNNERS are developed mainly from experience also. A self-taught draftsman with no formal training in design, I love to sail FAST. But I refuse to send my clients to sea in papier-mache machines, or in floating ranch-houses. This is no discredit to the fine protected-water racers now emerging with the high excitement of competition in places like Southern California, England and Australia. Neither is this a slam to the folks who want to loll around the deltas and the bays, enjoying themselves. It's just that SEARUNNERS are designed for something else: real cruising. My experience has been that a real cruising boat is a good competitor, and a good gunk-holer too.

The design of such a craft depends more on experience than on technology. It depends on that empirical grasp of the "big picture" which transcends the technical. If to the technician it is known as "fusilage breathing stresses", but the sailor calls it "panting", it still means that the hull must be stiff enough to resist deflection. If, in the language of my territory it is "peanut butter", but he calls it "creme de cacajuate", does that mean that Mexican peanut butter is any smoother or will last longer at sea?

So these sections on Hull Form and Construction have been prepared, as much as possible, without the use of foreign-sounding ingredients. I use the same stuff, but I mostly just go by the color.

The next section, Interiors, is where the flavor is. SEARUNNERS are so different inside that they take some getting used-to.

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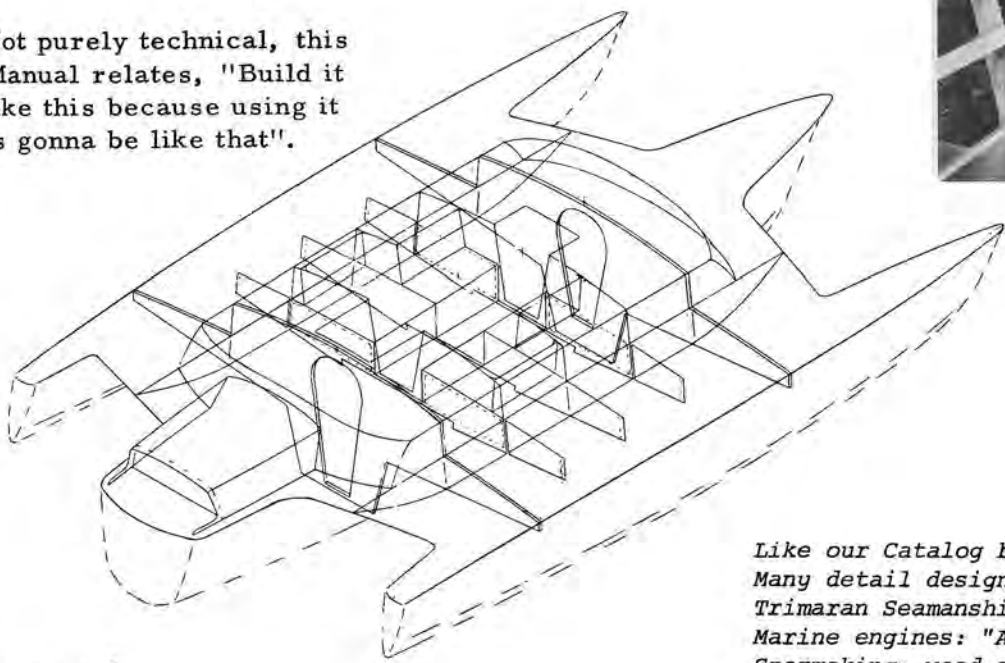

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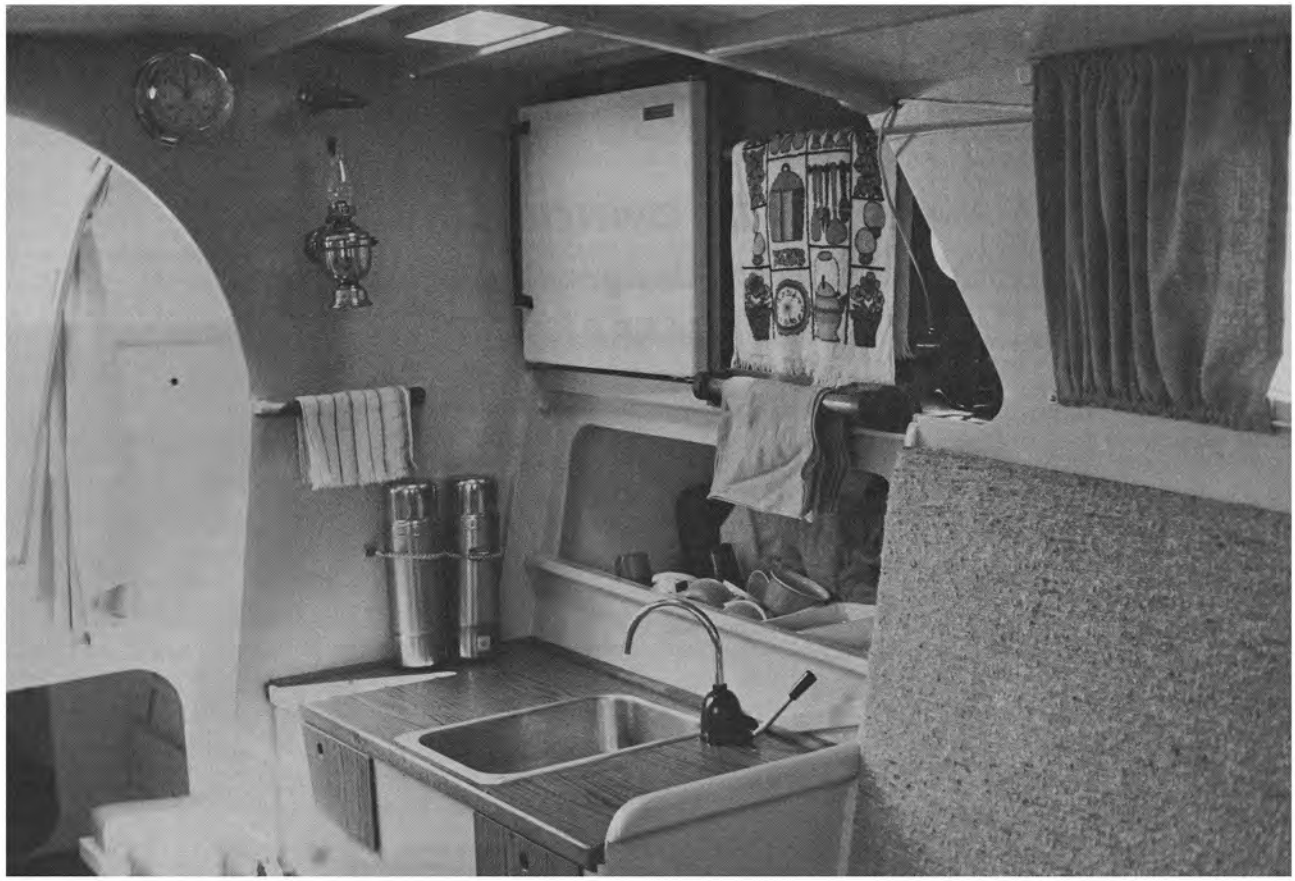
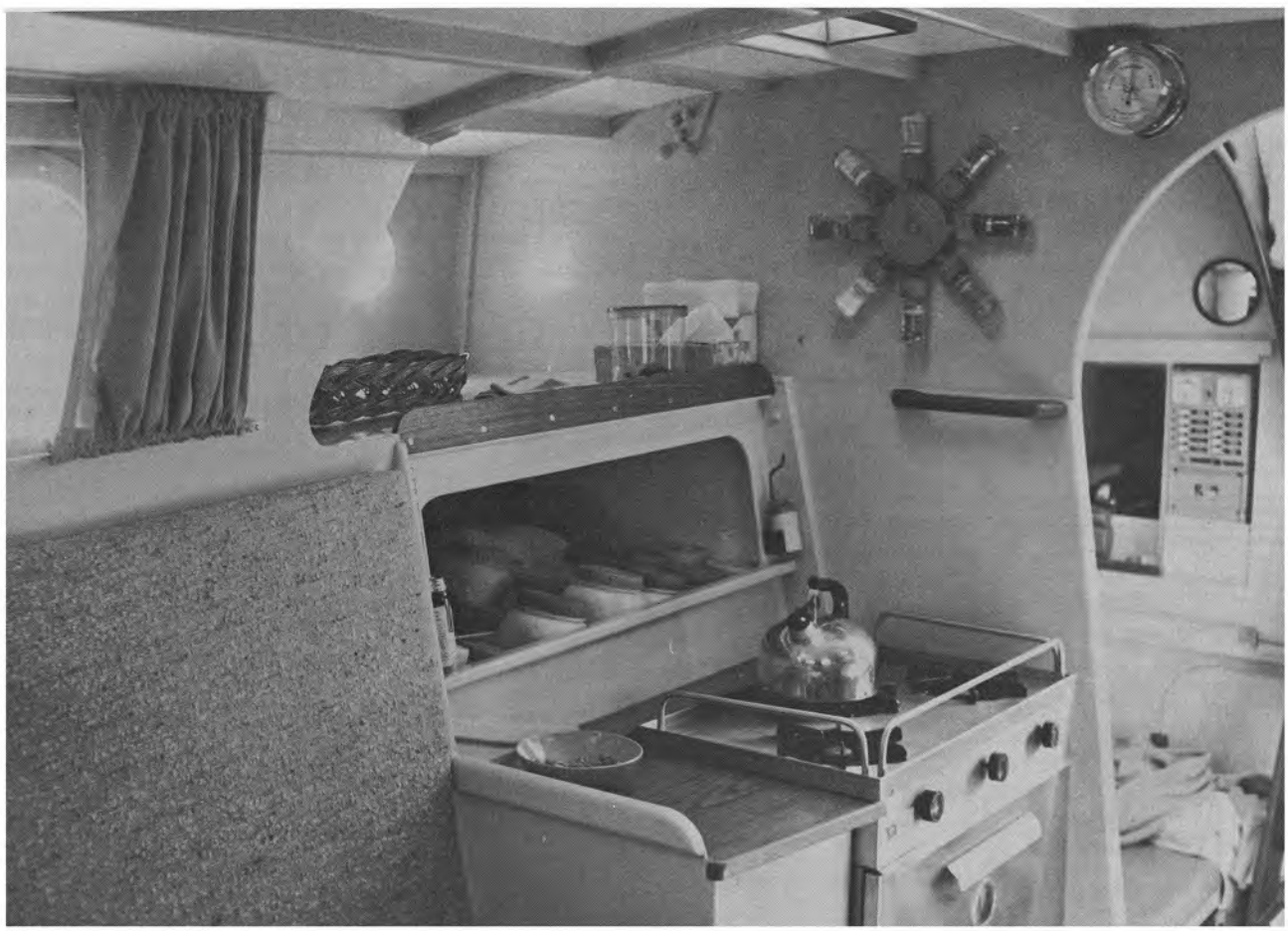
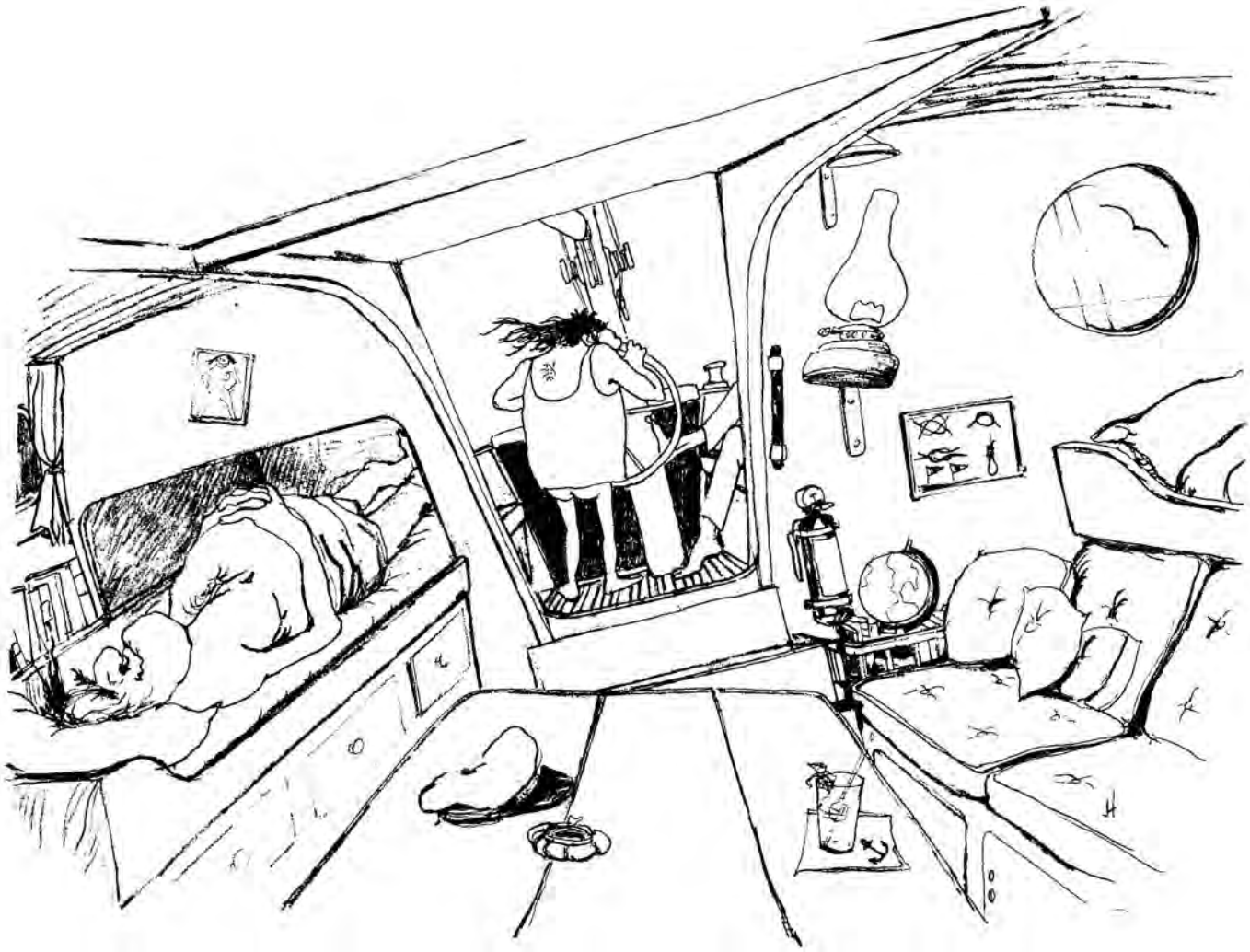






SEARUNNER INTERIORS

Living on the ocean is different from living on the land because a house is not good transportation. Should we expect a boat to be a good house?

Some boats are good for staying places and others are better for going places. The ones that are best for going places are okay for stopping-off, but the house-like ones are not so good for moving-on.

When an architect designs a house which has a really comfortable interior, you can bet that people will want to be in there. They'll feel private and secure.

The yacht designer's job is similar, but the trick is to get that same comfortable, secure feeling while the thing is moving. And it's not like moving down the highway.

A boat operates on the boundary between two fluid mediums. The ocean of water on one side is some six-hundred times more dense than the ocean of air on the other. This boundary is very irregular at times. Flowing convolutions of the boundary are caused by movements of air sliding against movements of water. To travel mostly on the less-dense side, a vessel must respond to these convolutions by moving in six directions: forward or back, up or down, sideways, and by rolling, pitching and yawing. SEARUNNERS are designed to move mostly forward by stopping the movement in all other directions as much as possible. Only so much is possible, but the last sentence explains how all the dynamic factors previously discussed in this catalog relate to the interiors.

So those of you who think that the interiors are the most important part are maybe right, but a designer can tell you that to finish with comfortable cruising-boat interiors can only be the result of a good dynamic start. What we want in the end is a comfortable vehicle.

The reason SEARUNNER interiors are different is that out there on the boundary, everything is different. This is no place for a floating tri-plex because if that's what you've got, everybody ends up living in the lobby.

A well-designed trimaran, with center-board, can be just about the most comfortable, secure seagoing thing there is if it is left as a trimaran, with accommodations fitted in. But when the designer (or a builder) inflates the vehicle with the volume required for a house-like interior, the crew suffers because:

1. Motion is aggravated by decentralized overweight.
2. The added volume becomes unusable because of motion.
3. The feeling of comfort and security, while under way, is lost.

The "while under way" part is what really matters because if one has had mostly uncomfortable experiences with his "roomaran" out on the boundary, then even at the dock he's sick-at-heart because he knows the thing does not meet its primary purpose ... going places. He realizes that he has neither real mobility, nor a real domicile. He merges back with the immobiles or the domestics, and all that he will admit about his boating days is that it's hard to take tomatoes when you were counting on mangos and papaya.

It may sound presumptuous of me to suggest that design can help to avoid this disillusion. Certainly the boat itself cannot guarantee that you will make it all the way with sailing. But if good design can help avoid such common disillusion, here's how:

1. Building her can be a pleasure which you approach with eagerness, or a grind which you resent with vengeance. It can depend on the construction method and the plans.

2. Sailing her can be joy which you approach with spirit, or an ordeal which you avoid with fear. It depends on her performance and her comfort underway.

If you don't feel right about the boat when she's under way, and you're inside, you're going to feel wrong about venturing out upon the boundary. It can depend on her design.

The best single word I can think of that describes SEARUNNER interiors is "seamanlike". Each separate function like eating, sleeping, cooking, dressing and gathering, is assigned a separate compartment. There's nothing new about the old shipboard tradition "...everything in its place".

Another wise tradition followed in SEARUNNERS is that first-class quarters are located in the stern. The wide transom stern of trimarans serves to establish a large block of space which is just not there in monohulls or catamarans. It is such a useful area that it's a shame to cut it up with the cockpit! Let's put the real living area here. The galley, the lounge - where people want to sit around. The reason that people want to sit around aft of the cockpit is because here they feel more comfortable, more secure. Jack London wrote of his schooner, "Snark", "The bow is meant to punch storms". I say that aiming those punches is up to the guys in the cockpit. Let's let them go first. The noise of the water and the ruckus of the deck-watch goes on up forward, while we ponder the wake in secure comfort from the sterncastle.

It's the same psychological comfort one feels when riding in the lounge-car, which is never put right behind the locomotive.

I think the mood of the cartoon captures it. Not saying that these space-ships are commanded by Cro-Magnon characters or helmed by ghoulish dwarfs. I'm saying that ocean sailing is like another world. Try to picture yourself in that scene, trading watches with your own kind of companions while guiding this multi-hulled module out between the oceans of sea-water and air. You roll up into your bunk and fold your aching hands across your chest. They've got that good ache which comes from pulling sheets and halyards with the same digits that have put the craft together from the start. You and your companions and your vessel fall into the rhythm of the boundary and move-on.

SEARUNNER interiors serve well for sea-people under way, and they also absorb the extra landsmen on a visit or a weekend cruise. Here's how:

WING-BUNKS in the larger SEARUNNERS may be used as doubles in the harbor, or when sailing downwind. But double bunks are often uncomfortable at sea. Even the 10° or so of heeling in a trimaran causes one sleeper to roll against the other. When in use by a single sleeper, very wide bunks give room for him to toss around. It is not exactly restful. So, the wing-bunks in the larger SEARUNNERS convert from doubles to singles easily. A "leeboard" is arranged to fit either the double or the single position so the crewman can make a pallet. He can wedge some pillows in around his ears and relax. In harbor the leeboards remove and the settee panel is brought up from the adjacent seat and dropped-in to extend the berth to full 4'6" x 6'8" size. This conversion makes it practical to take along eight persons on overnighters in, for instance, the thirty-seven-footer. But this capacity does not affect the outward form of the boat because the extra bunk-width for the conversions is gained inward (into the hull and under the cockpit seats) instead of by carrying an extra-wide housetop on the boat's back all the time. It cannot be used all the time! Eight persons in <u>any</u> thirty-seven-footer would make a weekend party-pad into a ghetto on a passage.

In the smaller SEARUNNERS, extra visitors sleep in the cockpit. That sounds inhospitable but it isn't. The central cockpit is a natural for expanding the interior. A "boomtent" makes these cockpits almost like another separate, private cabin.

In the twenty-five and thirty-one footers, the seat-back panels in the cockpit are placed between the seats to form a generous double-bunk. Even if not used for sleeping, these covered cockpits greatly increase the livability of SEARUNNERS. Some "dodgers" can be used while the boat is under way, and so give you the best protection under the tropic sun or in cold climates. With a "dodger" under sail or a "boomtent" at the dock, these cockpits add comfort to the interior.

All SEARUNNER bunks, not just those in the cockpit, offer sitting headroom - rare in multihulls.

PRIVACY is also established by the cockpit, which separates the two sleeping cabins. These sleeping cabins are used for just that - sleeping. Nobody is cooking or eating or sitting around in <u>your</u> cabin because there are separate places for those activities.

The value of privacy is twofold. One is safety; fatigue on a passage is dangerous. Two is comfort; you are a whole lot more comfortable in your own cabin, and it shows when you emerge to keep the watches and to keep the company of others, be they landsmen on a visit or seamen on a passage.

These are 37' SEARUNNER interiors shown "room-by-room".

Sterncastle lounge and galley.

Designed to seat five, will hold eight friends. Aft window opens. In this boat, builder has arranged for table to raise and fasten to overhead. Then floorboard removes to reveal a plexiglas panel in the bottom for underwater viewing.

After sleeping cabin.

Two double bunks are possible in this cabin, each with sit-up headroom and stowage beneath. This builder, however, has devoted the opposite side (not shown) to a single bunk with navigation station.

HEAD compartments in SEARUNNERS are more than compartments. In all but the twenty-five, the entire forecastle is devoted to a dressing room with head and optional shower. The dressing area has stand-up headroom, a settee, and a dressing table with hand-basin. There is lots of stowage. The forecastle is spacious, and it is private - both for you and for your guests.

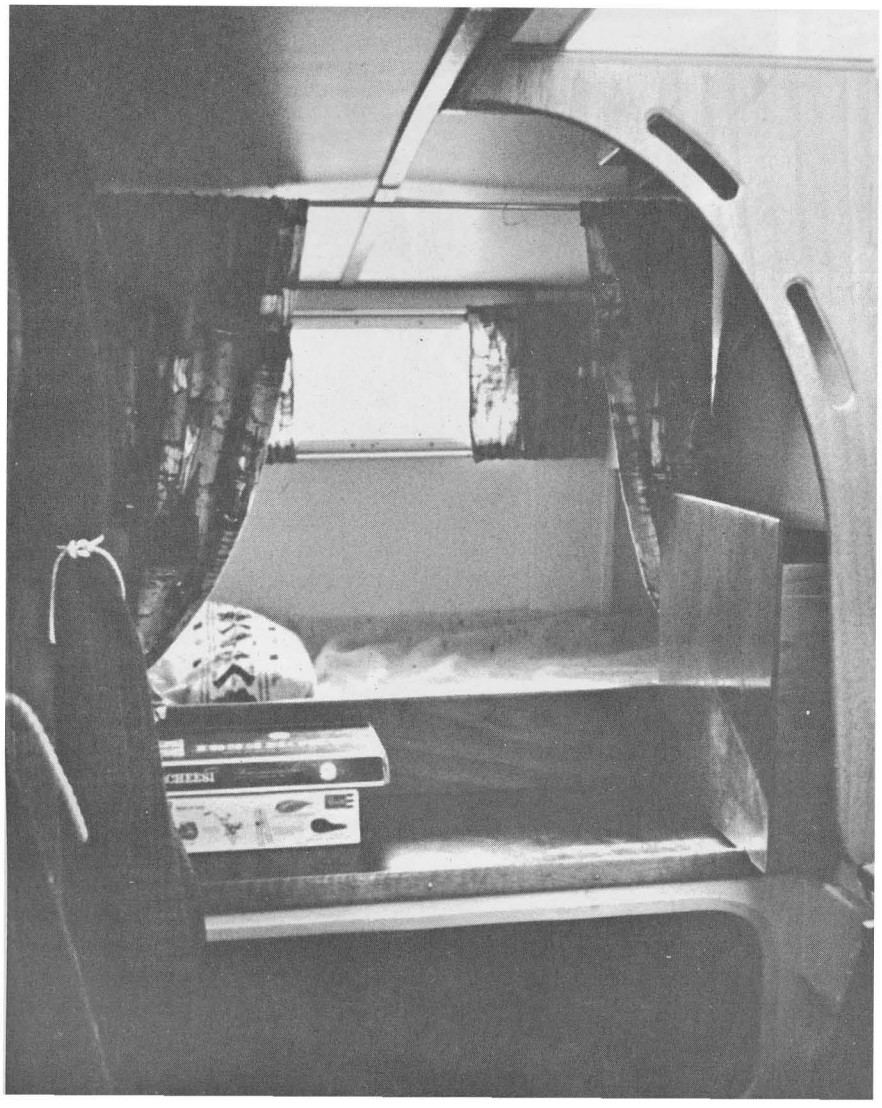
STOWAGE space in SEARUNNERS is designed to fit the needs of serious cruising, with enough to spare for the plunder of your stowaways. There are so many nooks and crannies that each item can be stowed near the area where it is used. Wing sections adjacent to the bunks, galley, and dressing room offer multiple compartments for specialized, orderly stowage. These spaces extend to the extremities of the superstructure, with other voids in the wing accessible from the floats. Just one such wing-void is large enough for twenty loaves of double-wrapped bread, or a 5-man life raft. Heavy stowage such as canned goods are kept in the bilges which are plenty deep beneath the cabin soles. Very heavy objects such as anchor chain, skin-diving tanks, Aztec gold and coconuts are kept in the four large lockers under the cockpit, which also serve for hanging garments. Lightweight articles such

as sails and extra clothing and bedding are stowed in the floats along with, perhaps, a folding dinghy, oars, fishing rods, buckets, fenders, dock lines, sail covers, boomtent and the walking plank; things which usually litter the deck or drive you right out of the cabin in monohulls, or in multihulls with cabins in the outer hulls.

VENTILATION, of which no boat ever has too much, is well considered in SEARUNNERS. Because there are two companion hatches from the cockpit, the problem of ventilation is greatly reduced. Voids in the wings are utilized as dorade-boxes which scoop air in and drain the water out before delivering the dry air into the hulls. But best of all, SEARUNNER sterncastles have that aft-facing window, which opens. Other boat windows, even traditional port-holes, all leak into bunks if designed to open. But this sterncastle window is protected from rain and spray by its top-overhang arrangement, and an internal gutter which drains any drips outboard to either side. Because of this window's aft-facing direction, it must be protected by a plywood storm-cover when running downwind in a gale. At this time, ventilation is established by louvers in the after companion hatch, which unlike any other cockpit hatchway, faces forward away from the weather. With this feature, and the wing dorades, the cabins can be kept airy even in dirty weather. Good ventilation is just as important when the boat is left alone and empty, as when the cabins are crammed with extra passengers.

Forward sleeping cabin.

Double bunks are possible here also, but this boat features two singles. This bunk has stowage beneath, plus a huge drawer (right) which slides left all the way across the counter. Pullman curtains offer privacy with comfort.



Dressing room and head.

Curtain over bulkhead passway makes entire forecastle private. Head is located in a locker which, when closed, forms the seat for a sit-down shower.

The foregoing discussion of SEARUNNER interiors purposely avoids the use of the word "spacious". The reader may therefore gain the impression that because of all the privacy and all the seamanlikishness, these boats "don't have any room in 'em". This would be a false impression.

The roominess of SEARUNNERS comes to the viewer by taking it in room-by-room. The impression expressed by visitors to SEARUNNERS is one of amazement at how MUCH room there is. These interiors are as difficult to draw and photograph as are the insides of an express train. But like a good streamliner, they make for lots of sense and lots of COMFORT when you're rolling down the rhumb line out there on the boundary.

If the reader sees the issue here as one of comfort, not spaciousness, then I will have made my point that, in a vehicle, spaciousness is wastedness. When the necessary features of a boat's interior are pushed out to the sides so that there is nothing but space in the middle (not even a center-board), then the result is not comfort. But if we begin with good dynamics and install a seamanlike interior, we end up with the mobility of a good cruising boat; a <u>mobile home</u> in the worldly sense.

The author and his family off the coast of Mexico sit down
to a dinner of freshly caught crab in the sterncastle of their 31.

Sterncastle and owners' bunk of Searunner 37 "Bacchanal".

SPECIFICATIONS

The adjoining specifications have been tabulated to offer comparative values for use in selecting a size which meets the prospective builder's requirements. From long experience with back-yard builders, our policy is to urge the prospect to select the SMALLEST size that suits his AVERAGE requirements. To determine his "average", one must coldly, realistically answer the question, "What am I really going to do with this boat?"

Most items in the table are self-explanatory, but some deserve elaboration. They are:

Displacement, loaded for cruising. This figure is the total weight of the craft as it is outward bound for a distance crossing or an ocean race in which heavy weather may be encountered, or speed is important. For short cruises when the weather can be safely forecast, and when the boat can be sailed with the reserve not indicated by racing, an increase of about 15% may be tolerated in the total displacement, which increases the cruising payload margin equally. This margin is the amount of stores, fuel, water, people, baggage and general plunder that may be added to the boat when cruising or ocean-racing; added after the boat is already carrying the normal payload of standard tankage, cruising crew, and weekend stores. The "weekend" displacement is not the dry weight, but the usual weight of the craft at the dockside except when ready for a crossing or a long race.

Sail areas given are for the standard cutter sailplans for all designs. Racing sailplans, and storm dacron measurements are available also. The BROWN 25 is usually rigged as a sloop, for which sail areas are given later in the section on that boat.

Mast length is given from the step at the top of the center-board trunk. The Twenty-Five and Thirty-One footers may optionally have their masts stepped on the cabin-top, with compression struts below to deliver the columnar load to the trunk. This reduces spar length by 3' in the Twenty-Five, and 4'6" in the Thirty-One.

Engine weights are guidelines for the builder to use in selecting the engine of his choice. The same is true of horsepower. More on engines is included in a later section. Fuel tankage figures are suggestions for the maximum that the boat will carry within the displacement figures given. Much less is usually carried, but much more can be added for a river trip or doldrum-crossing if heavy seas are not anticipated.

Number of bunks available, when compared to the suggested maximum cruising crew may seem a drastic comparison to readers not acquainted with shipboard life, but this comparison holds roughly true for ANY boat. Minimum crew of one refers to the fact that all central-cockpit cutters are ideal for single-handed sailing; but single-handing is not encouraged except in the case of seasoned sailors who knowledgeably accept the danger. Two in the crew is a safe minimum, given that both sailors know the boat, and know the ocean.

Building time ratio is to show proportion only. Owner-builders produce such extremely variable products in such widely dissimilar durations that any man-hour figure for any design is illusory. We can say only that roughly equivalent boats of different sizes, built by the same man in the same circumstances will take relative man-hours on a scale of ten for the Forty-footer. According to this, you can build five Twenty-Five footers in the time it takes you to build one Forty-footer. The values given are empirically determined. Any relation to other designers' claims for actual hours is impossible; but generally speaking, SEARUNNERS take less time to build.

Materials cost proportion is also given for comparison, but actual dollars shown are ballpark figures for what they may cost the U.S. builder. Again, any relation to other designers' estimates are valueless, and results for the same design from different builders can vary more than 100%. Compared to other designs built with equivalent materials, SEARUNNERS cost no more, and often less. These materials costs are higher than for some other designs because they refer, as much as possible, to all the materials. From the sandpaper to the sextant, your building cost is not over until the boat is finished and equipped.

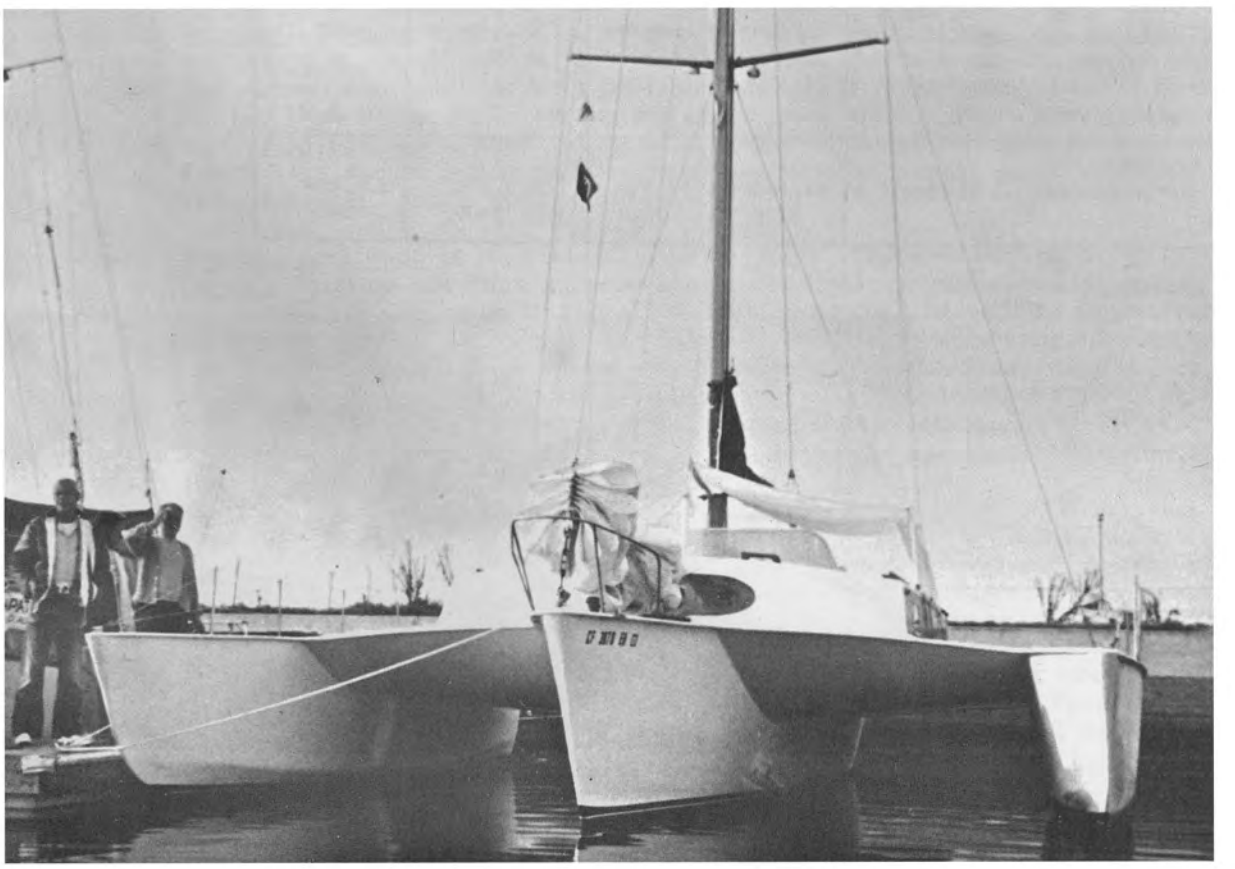
SPECIFICATIONS

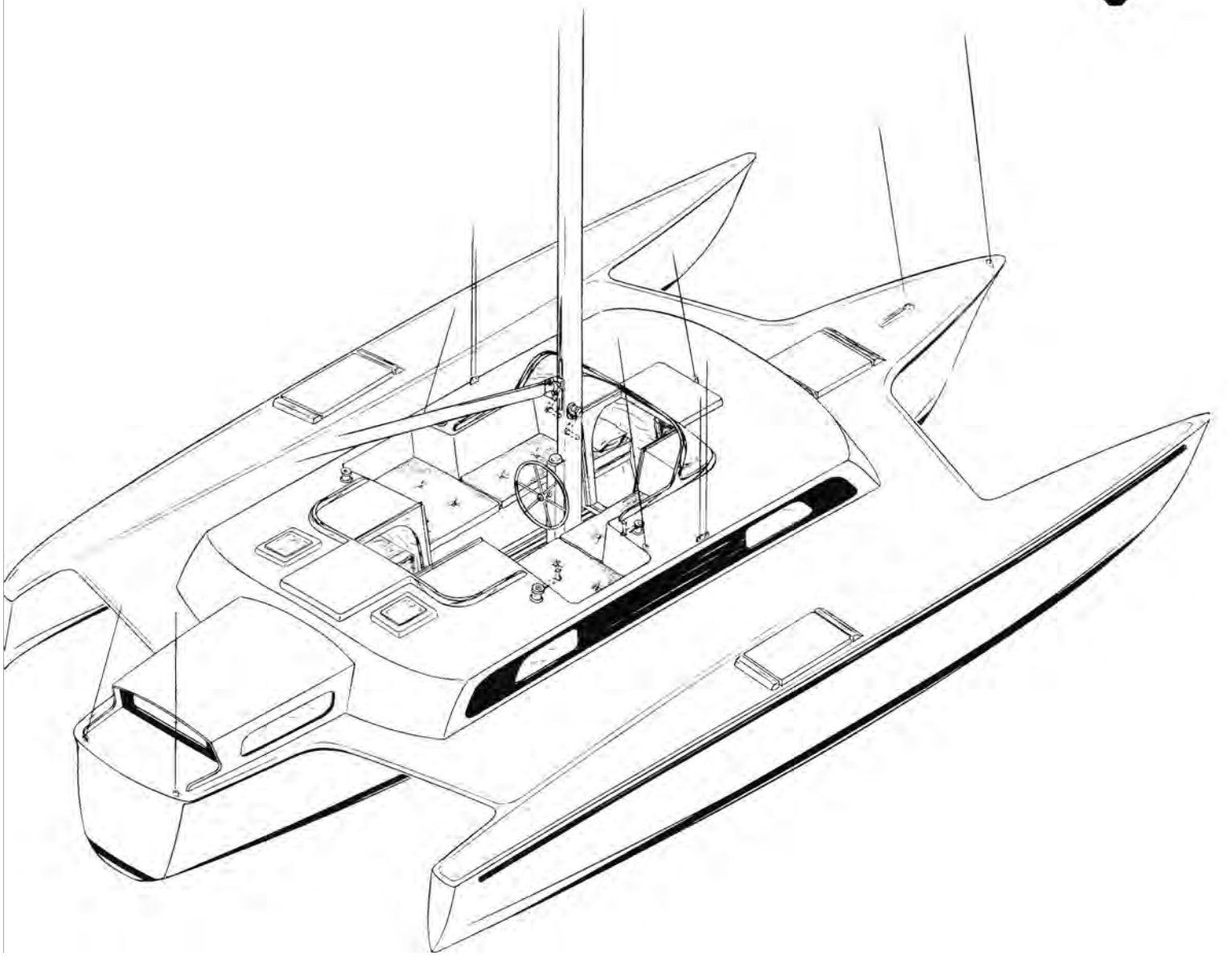
THE SEARUNNER SERIES	BROWN 25	BROWN 31	BROWN 37	BROWN 40
Length on deck	25'0"	31'2"	37'4"	40'10"
Float length	21'5"	27'2"	33'2"	36'2"
Beam, main hull (at under wing)	3'9"	5'0"	5'10"	6'2"
Extreme beam (outside rubrails)	16'7"	18'8"	22'3"	23'11"
Float beam (on deck)	1'10"	2'5"	2'10"	2'10"
Draft, hull only (with wormshoe)	16"	23"	25"	28"
Minikeel adds	none	+10"	+12"	+12"
Draft, center-board up	16"	33"	37"	40"
Draft, c. b. down (2/3 down position)	4'6"	5'9"	6'4"	6'9"
Minimum planking thickness	1/4"	1/4"	3/8"	3/8"
Bottom plank, with minikeel		3/4"	3/4"	3/4"
Bottom plank, no minikeel	1/2"	3/4"	1 1/2"	1 1/2"
Displacement, loaded for cruising	2,500	5,600	9,200	13,800
Displacement, "weekend"	-2,100	-4,700	-7,000	-10,200
Cruising payload margin	400	900	2,200	3,600
Sail area, mainsail	122'	195'	272'	336'
fore triangle	+152'	+255'	+374'	+382'
"projected area"	274'	453'	681'	727'
staysail	79'	103'	150'	169'
"mule"	113'	207'	292'	312'
genoa	210'	357'	488'	612'
spinnaker	497'	832'	1,139'	1,350'
Mast length (from trunk)	28'0"	35'0"	45'0"	50'0"
Engine, maximum weight	40	200	300	400
" horsepower	o. b. 5	20	30	40
standard tankage	6	20	30	40
cruising speed	5	6	7	8
Standard water tankage, gals.	10	25	45	60
Number of bunks, using doubles		4	8	8-9
" " " using cockpit, add	2	2	2	2
" " " using dinette, add			2	2
" " " singles only	2	3	4	4-5
Suggested cruising crew, maximum	2	4	5	6
" " " minimum	1	1	1	1
Maximum cockpit seating	4	4	8	8
Building time ratio	2	4	7	9
Materials cost proportion (as of 1973)	$3,500	$7,000	$15,000	$20,000
Design fee	$150	$300	$400	$450

Wonder what these Bangkok craftsmen would think of a term like "building time ratio"?

Mark Hassall's 37' SEARUNNER is lifted by special crane-lift bridle, included in plans as part of boat's permanent equipment. No slings required. Note minikeel, feathering propeller and outboard, skeg-type rudder with self-steering trim-tab.

To lie at dockside is not the SEARUNNER way. This boat is currently on an extended circuit of the South Pacific.





"BROWN 37" SEARUNNER

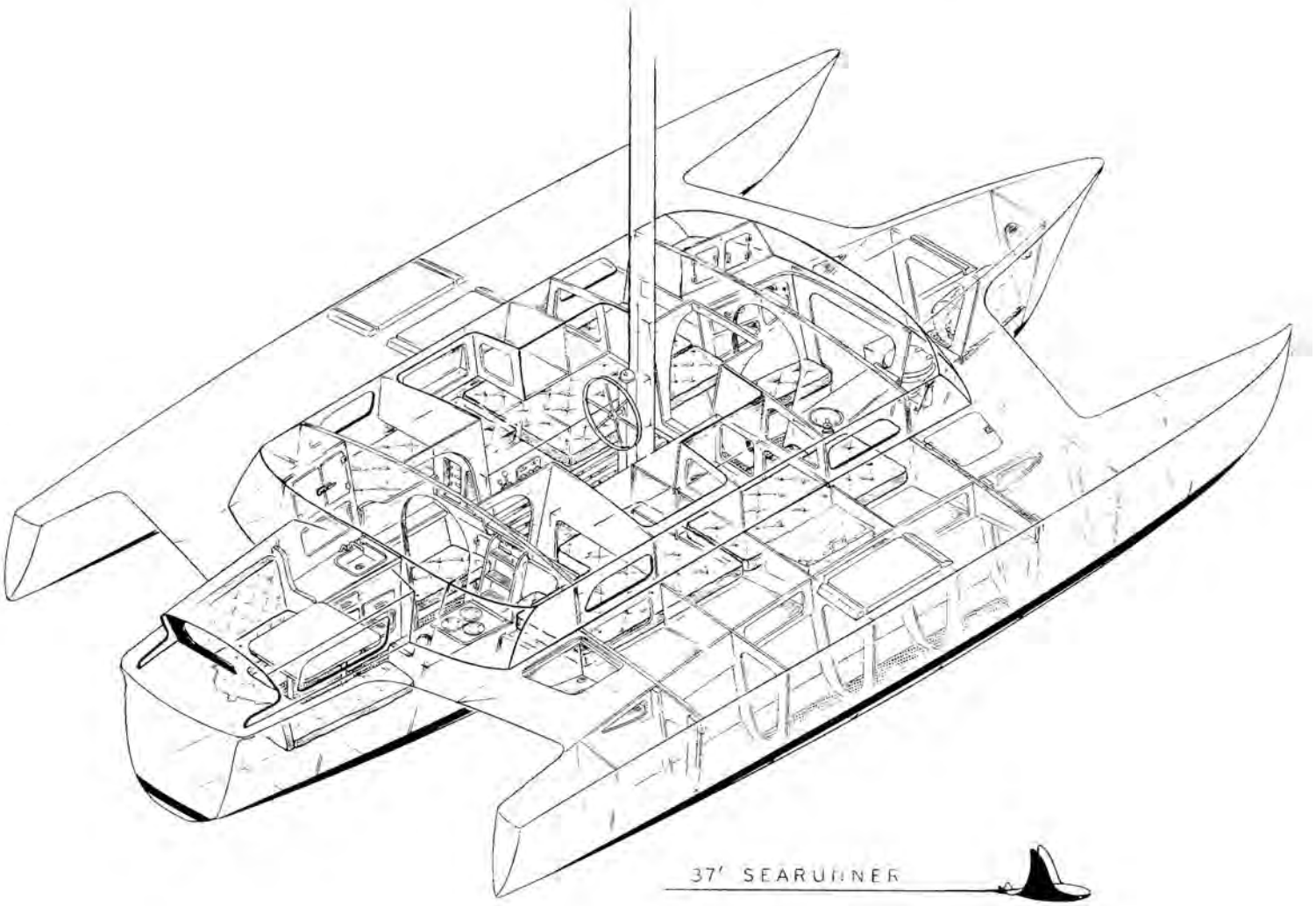
The Thirty-Seven is chosen to introduce the series because it is in this size that the trimaran configuration can first be taken full advantage of. It is the smallest size that "has everything". Just large enough to be a serious family live-aboard cruiser, and just small enough to be built by an individual in a reasonable period

at a cost which makes it feasible. Only at this size does the trimaran begin to exceed the monohull in accommodation (unless, in the smaller sizes, the trimaran is inflated to the extent that the monohull exceeds it in performance). The 37' SEARUNNER has more bunks, more "room" and more features that are more usable than "tupperware" production monohulls of similar length.

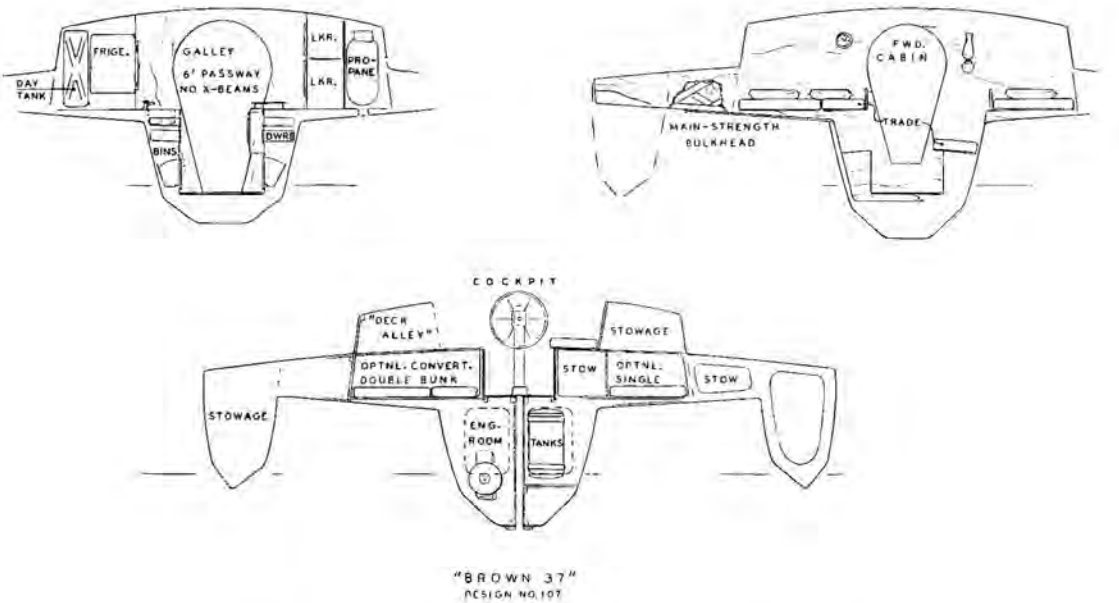
The load-carrying capacity of this model makes her not well suited to charter applications or other service where large weights of special equipment are necessary. But she is large enough to be really comfortable at sea with a crew of four-to-six.

The sailplan of the Thirty-Seven is a little "hotter" than her sisters', with enough sail area-to-weight to make her a threatening competitor when sailed against other multihulls with similar accommodations. The cutter's giant fore-triangle, and the central cockpit, should bring lots of thrills and lots of silver to the man so interested. But, as we have described the cutter rig, it is especially well suited to cruising with a small crew also.

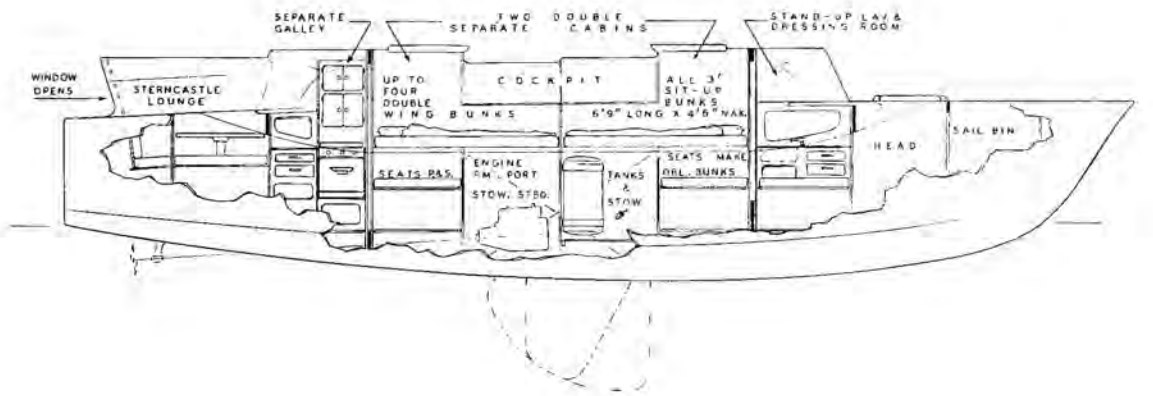
Individual cabins of the 37' SEARUNNER are shown in Section 7. They may be compared with this composite view.



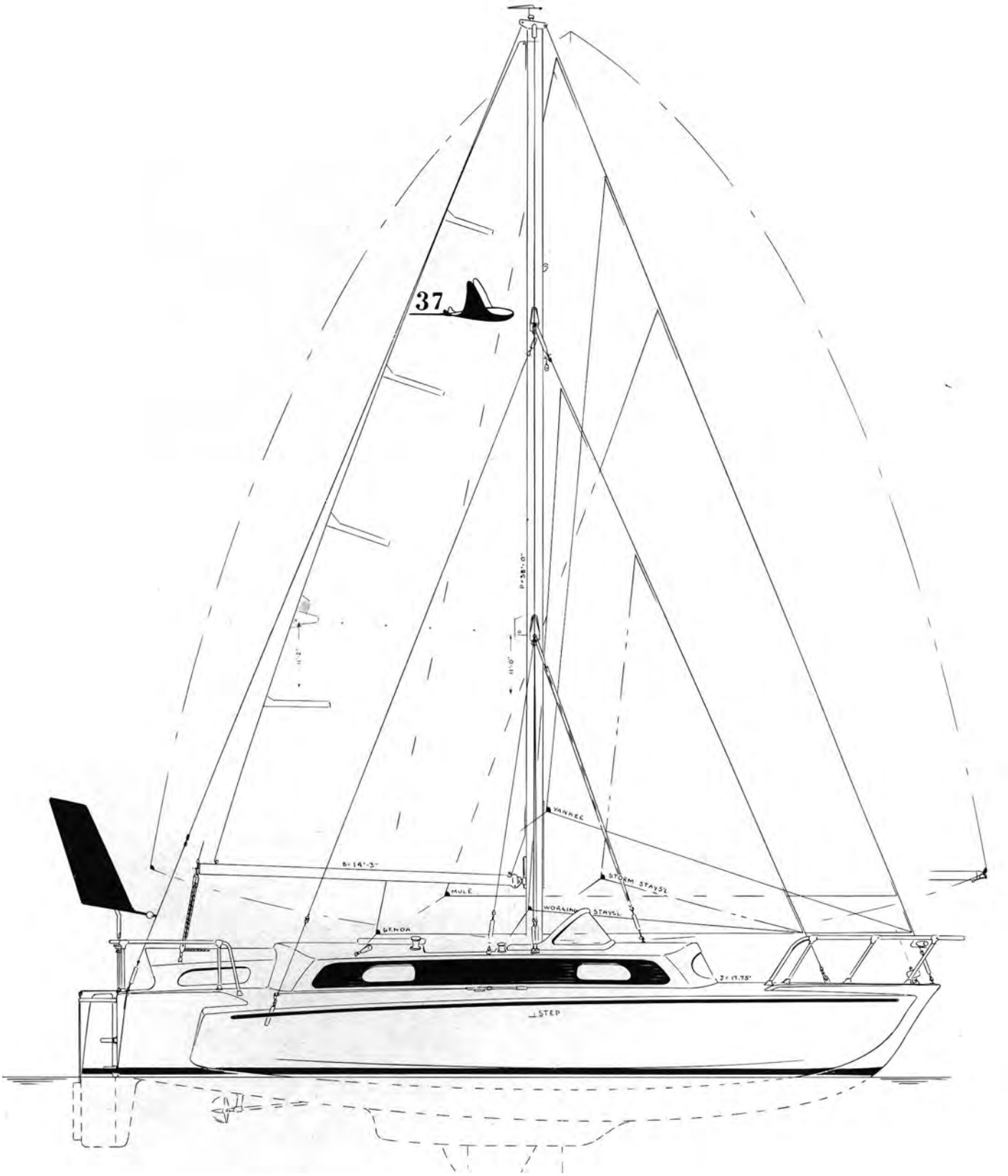
The designer takes this opportunity to address those readers who are contemplating trimarans of forty-feet and larger: consider something smaller. This Thirty-Seven footer, with all its simplification, is still a titanic undertaking for any mortal builder. Make yourself aware of the frightful number of aborted projects in the forty-to-fifty foot range, and consider the devastating disappointment of having your Titanic sunk before the launching.

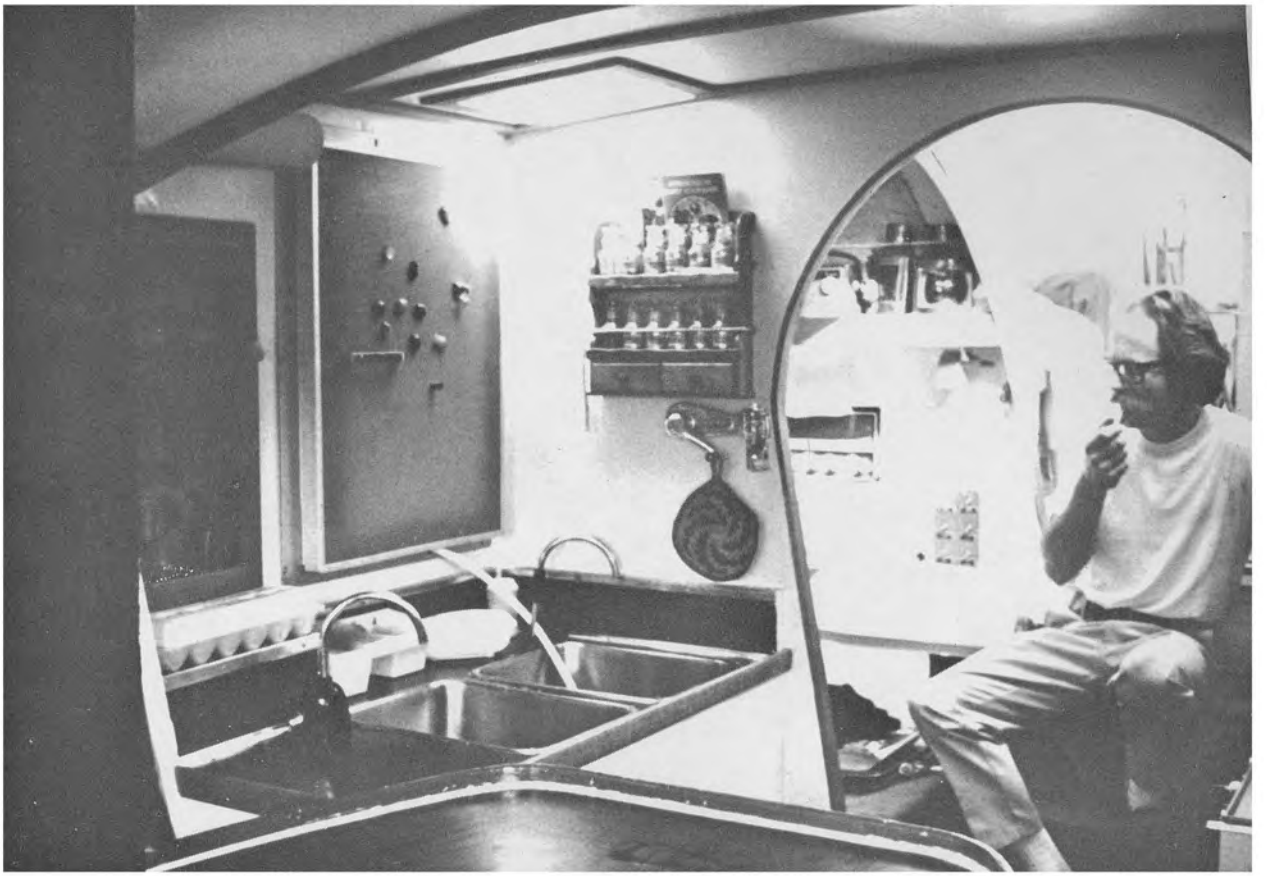


"BROWN 37"
DESIGN NO. 107

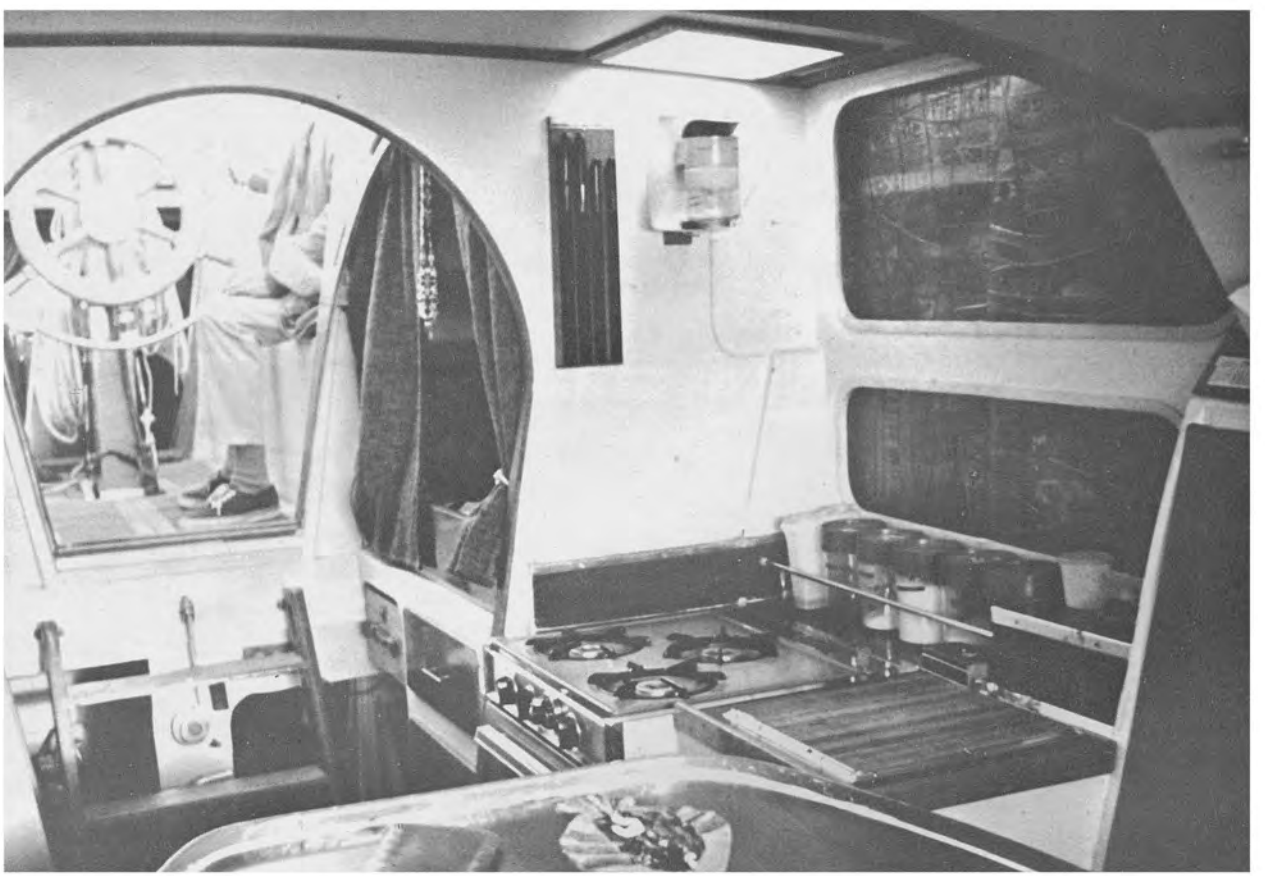


Look at it this way; there are a lot more thirty-footers sailing around the world than forty-footers! If your dream is a world cruise with your friends or your family, with extended periods of living aboard while stopping-off, and extended periods of open-water living while you're moving-on, the 37' SEARUNNER is enough boat. In the opinion of those who are qualified to say, the boat you want is just enough boat, especially if you're going to be building it yourself.

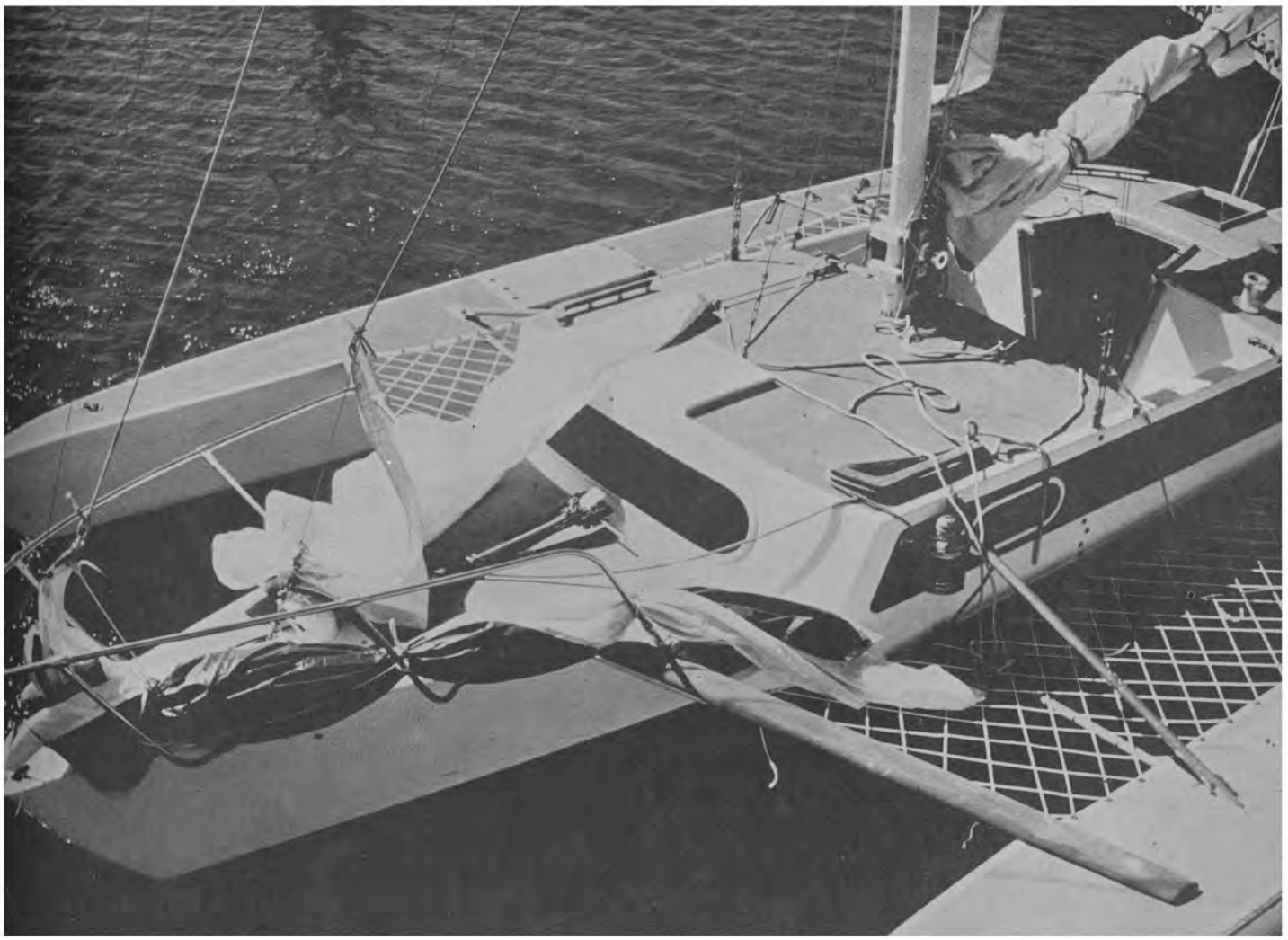

37
P=38'-0"
11'-0"
11'-2"
B=14'-3"
YANMEC
STORM STAYSL
MULE
WORKING STAYSL
GENOA
J=17.75'
STEP



Double galley has sinks and drainboard to port (above) with icebox over and stowage beneath. Stove-with-oven is to starboard (below) with large, deep lockers over and drawers below the cutting board. Views look forward from sterncastle lounge through entire length of boat.

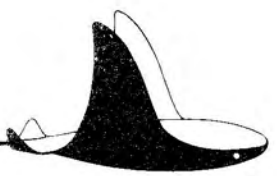



25
114



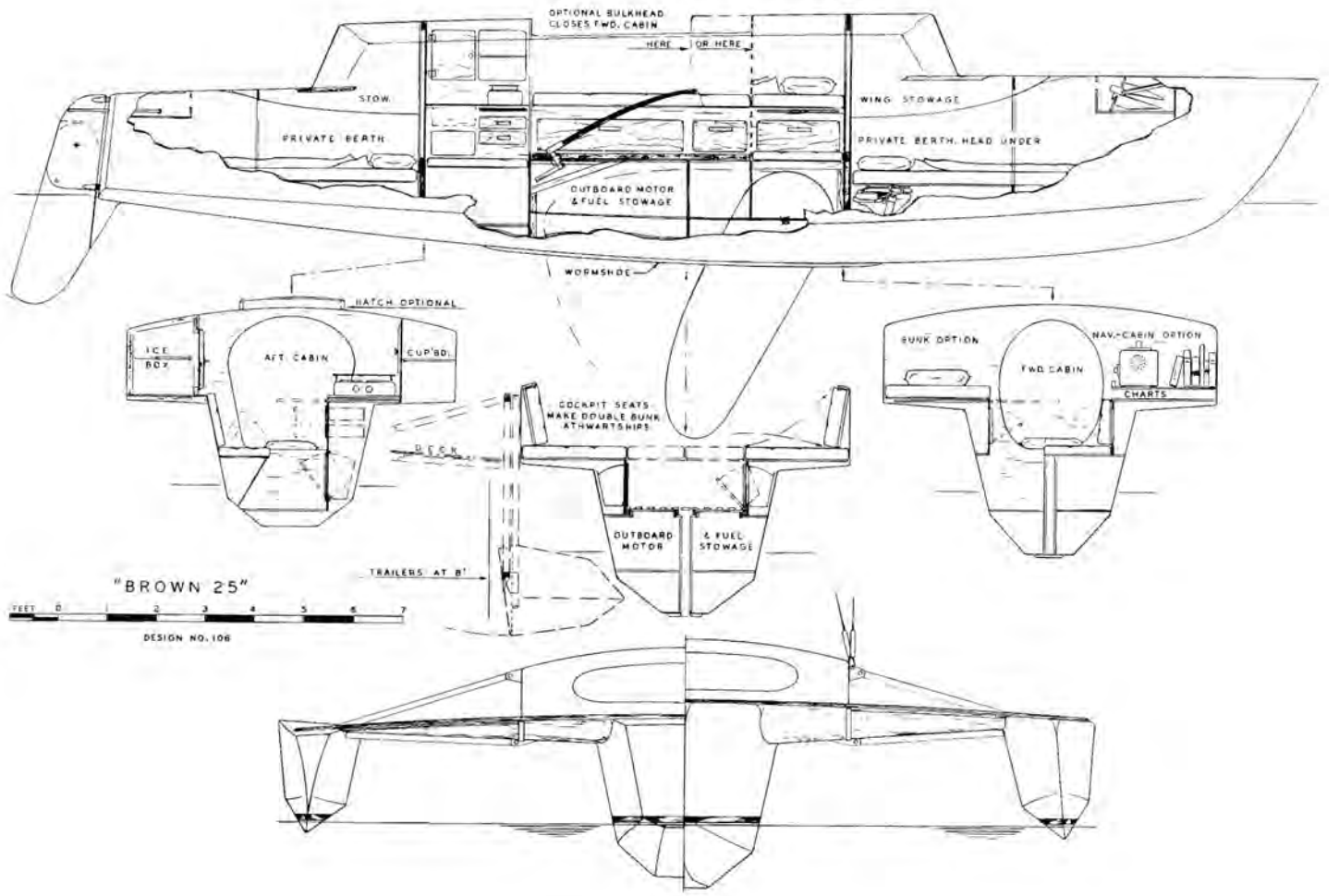
Cutter-rigged 25 is specialized for serious cruising. Both headsails are made-up in preparation for quick adjustment of sail area to any weather. Small "deep-sea" cockpit seats only two. Deck becomes crowded with rigging if boat is used for day-sailing. Larger cutters have same rigging, more space between. Note kerosene running-lights; electricity is a nuisance on small, long-distance cruisers.

"BROWN 25" SEARUNNER



Just as the Thirty-Seven is intended to be the smallest practical live-aboard cruiser, the Twenty-Five is designed to be the largest practical trailering cruiser. It is in these two catagories that owner-builders express the greatest interest.

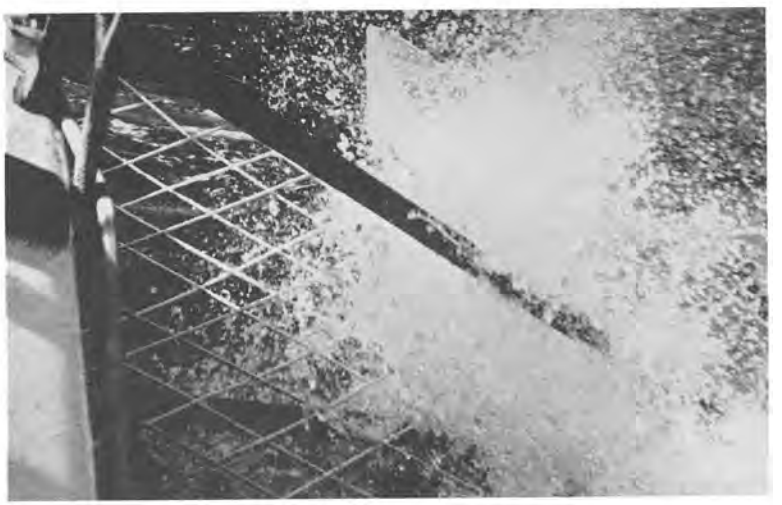
The value of trailering, however, is seldom fully appreciated until an owner finds himself doing it. If his boat will fold-up for highway transport at less than the eight foot legal width, a whole new dimension is added to cruising. In the 25' SEARUNNER, for instance, the same boat that ties-up in the carport is capable of deep-sea navigation. Expeditions can be planned to distant cruising ground within a week-or-two. And because sailing is geared to seasons, more real sailing can be done in a year without re-locating the entire family. For instance, on the West Coast, late August is the time to visit Alaska or Puget Sound. If you live in San Francisco, it's not a bad drive, even upwind. After island-hopping in the North, you can sail her down the coast, running with the wind for as far as time allows. In February, the same boat can arrange to leave Los Angeles on a downwind cruise to Mexico, to be recovered on the trailer by the happy man who has cruised to both the tropics and fiords - who has met the Eskimos and Indians, the mountains and the ocean - in the same year, with a boat he built himself at the cost of a pickup camper. He doesn't need the camper because, on the highways or the seaways, he camps in his boat.



Camping in the Twenty-Five is like camping in a pickup, except that you can't stand up inside. Standing up in any vehicle while it is moving is difficult, so seats are provided. Just forward of the cockpit is a "cuddy" where the navigator may sit, with a large "breadboard" for chartwork and adequate wing-storage for instruments and books. From this position, the sailor may reach the tiller and see out the front window while navigating at the same time. It's a sheltered place to sit in bad weather, known to some sailors as the "vomitorium".

Folded for trailering, the 25 makes a neat package for the highway. Less than eight-feet wide, and lower than most pick-up campers, it will fit any trailer with a long tongue that is engineered for 2,000 lbs. A much lighter trailer will serve for local hauling. The boomtent can be set-up while the rig is parked, offering camper-type accommodations while traveling overland. A-frame hardware, owner-built from stainless or aluminum, is shown in the open position, and folded. Note that the folding axis is at the TOP of the cabin, not under the wing. This allows for adequate sailing beam (16'5") while also carrying the float high-enough on the trailer to clear the fenders.

A-frame hardware and platform design have been relentlessly tested by thousands of miles of ocean-sailing.



Forward of this compartment is a single cabin which has sit-up headroom over the bunk. Entering this bunk area is done by passing through the cut-out in the main-strength bulkhead instead of crawling under cross-beams. The head is located beneath this bunk, and is used by folding the bunk forward. One sits on the can facing forward, looking out the "Cinerama" window, with his feet in the bilge. A curtain across the bulkhead passway, and in front of the window, makes the head private; but when sailing hard it's fun to open the window curtain just enough to see the spray dashing on the plexiglass two inches from your nose. A little bilgewater sloshing on your feet adds to the sensation.

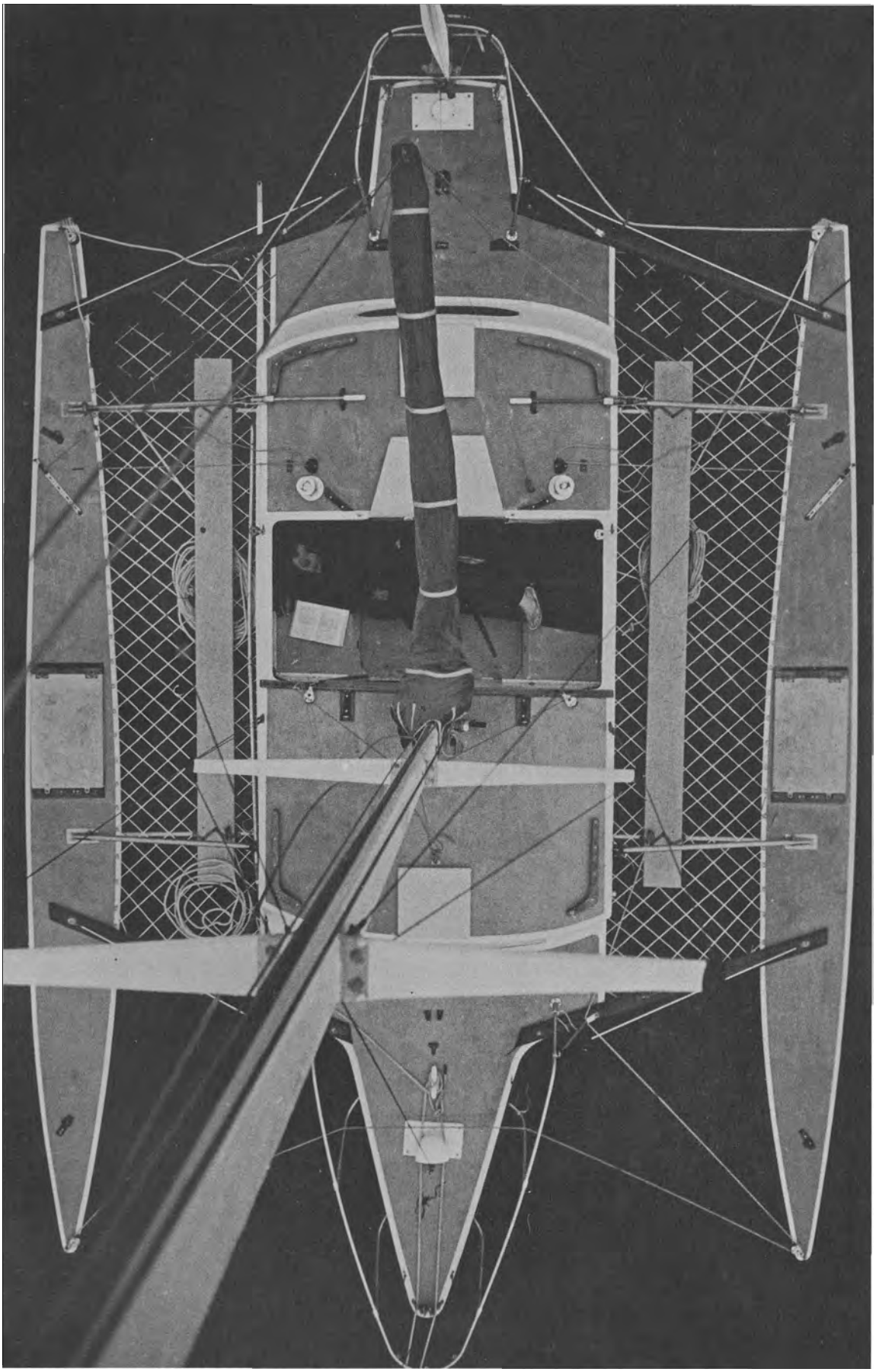
Aft of the cockpit there is a space similar to the "cuddy" where the cook may sit and reach all parts of the complete, but compact galley. And aft of the galley is the after cabin, with a wider single bunk than forward - perhaps wide enough for two youngsters. Both cabins have generous stowage in the adjacent wing spaces and beneath the bunks. An optional overhead hatchway makes it possible to stand in the galley.

There is another option to be decided by the builder: how big to make the cockpit. The forward cuddy can be extended aft into the cockpit making it possible for two persons to sit side-by-side in the cuddy. The cockpit becomes correspondingly shorter now, having seats for only one person on each side. This we call the "deep-sea version"; it is selected by those who contemplate serious cruising. The galley can be moved forward now to the enlarged cuddy, making the after cabin all for living. But the standard version, with the four-place cockpit and small cuddy, is recommended for boats primarily intended for day-sailing and weekending.

Standard sloop-rigged 25 cruises in the Gulf of Siam; then pulls up on the beach under palms.

The adjacent masthead view of "Dharma" deserves attention.

Running forestay meets deck just forward of removable ventilator. Running backstays lead to ends of aft A-frames. Home-made backstay levers on cabin-top have bicycle handle-grips; are accessible from cockpit. Lines rigged to float bows are whisker-pole guys; pole is tucked into net starboard of cabin. Lines led to float sterns are to tow tire by bridle as downwind drogue (tires shown are too big). Drogue-hawsers are lashed under planks for access from cockpit; are tended by headsail winches. Planks are for decking (but net can be jumped-on); planks also make emergency lumber, firewood, chafing-boards, and are good for cleaning fish, etc.; when at dock both planks can be lashed in dockside net. Staysail sheets lead to blocks forward of cockpit, headsail sheets lead to winches aft of cockpit, mainsail sheet can be held by clam-cleat on boom to lead down into cabins or bunks. Wind-vane control-line is to port of after hatch. Sheet leads on float decks are for off-the-wind headsail vangs which snap-in to clews within reach of cockpit. Special bow-pulpit has legs which fasten into topsides to form basket for lashing downed headsails off of deck. Special stern-rail mounts the wind-vane. Photo was taken in the rain with water dripping off the author's nose into viewfinder while Max pretended to study navigation (cursing) in cockpit.



A second elective option in the plans is in the rig. The Twenty-Five was originally designed as a sloop, but the plans now include the cutter also. I think of the cutter as being desirable in this size boat only to the shellback sailor who plans on lots of way-out cruising, especially if by himself. The disadvantage is that the number of lines and sails on so small a boat makes for crowding. The same number of lines and sails on a larger boat relieves this crowding. (The boat gets bigger but the people don't.)

The sloop-rigged 25 is simpler.* Its mast is stepped on the bulkhead. The cutter's mast comes down inside the cuddy, and crowds that cabin enough to make it cramped for two persons.

But the cutter has its place. In this design, that place is with a man like Max Hemminger. The exciting sailing photos of his "Dharma" (#13) portray the first full-fledged SEARUNNER running on a full-fledged sea, and they explain, in part, the confidence that was gained by the designer to produce other SEARUNNERS.

The other part, which no photos can explain, is explained by Max who says, "My boat is as different from other trimarans as multihulls are from keel-boats"; and, "...I almost got clobbered by a gale...".

Before "Dharma" departed California for Hawaii, we had had eight months to shake her down. There was no attempt made to talk Max out of going by himself; it was clear that that would be useless. But there was every effort made to develop the boat for single-handing. What emerged was a sophisticated, very interesting pocket-cruiser with the speed and humor of the porpoise, the stability of the manta-ray, and the determination of the salmon. I should say, the determination of a Max.

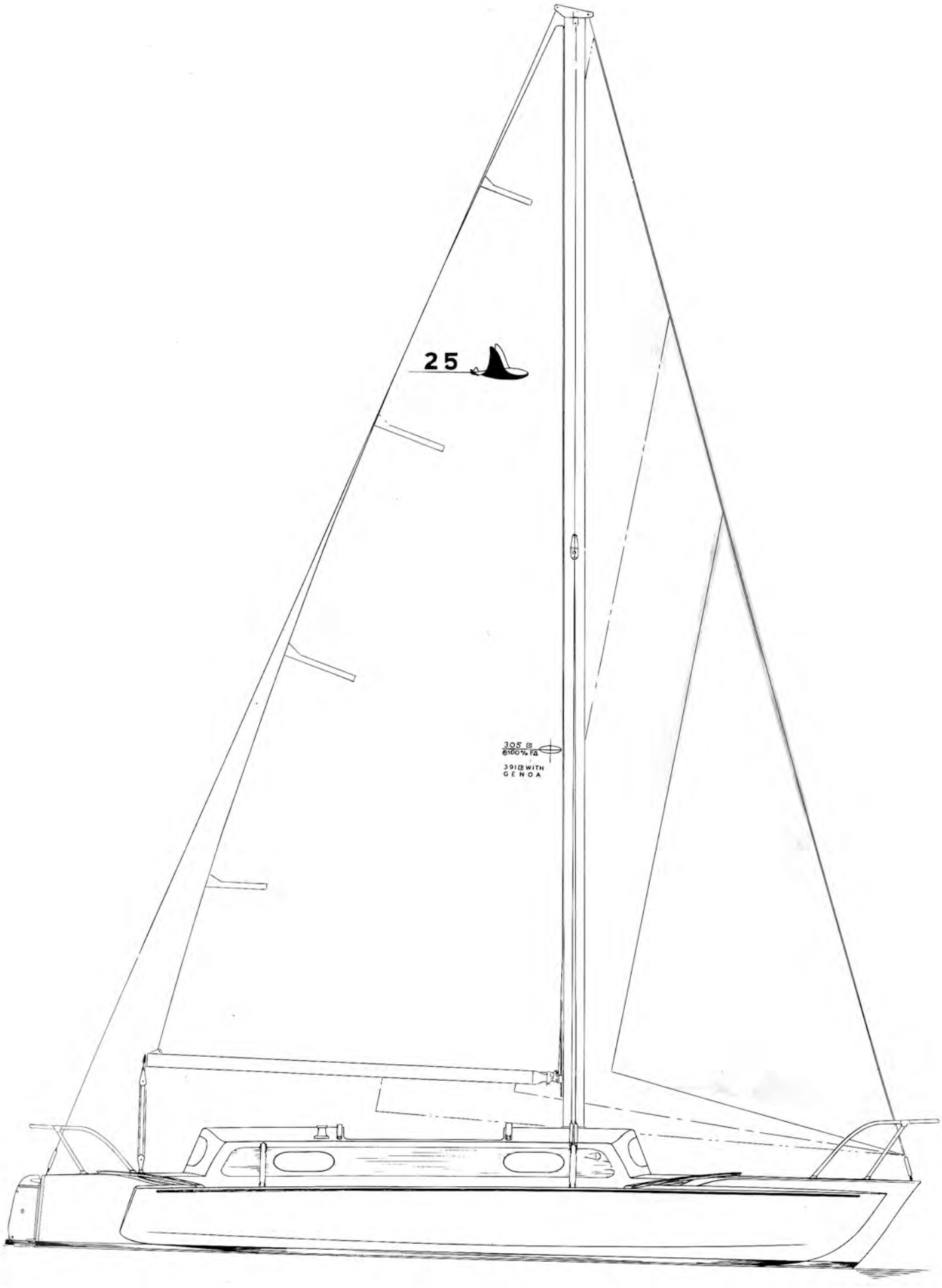
Going by the pilot chart, we knew that his chances of encountering gales in that part of the November-Pacific were almost certain. Yet he was determined to go.

From Lahaina he reports that, generally, he had a pleasant, easy trip, except for one thirty-hour period in mid-crossing. Max describes the waves in the storm as being like those he had seen once before - in the North Atlantic - when they were breaking over the flight deck; "...all breaking, with the tops falling down the faces and the surface completely covered with foam." With two feet of water in both cabins, from inundation, "Dharma" steered herself, while Max bailed!

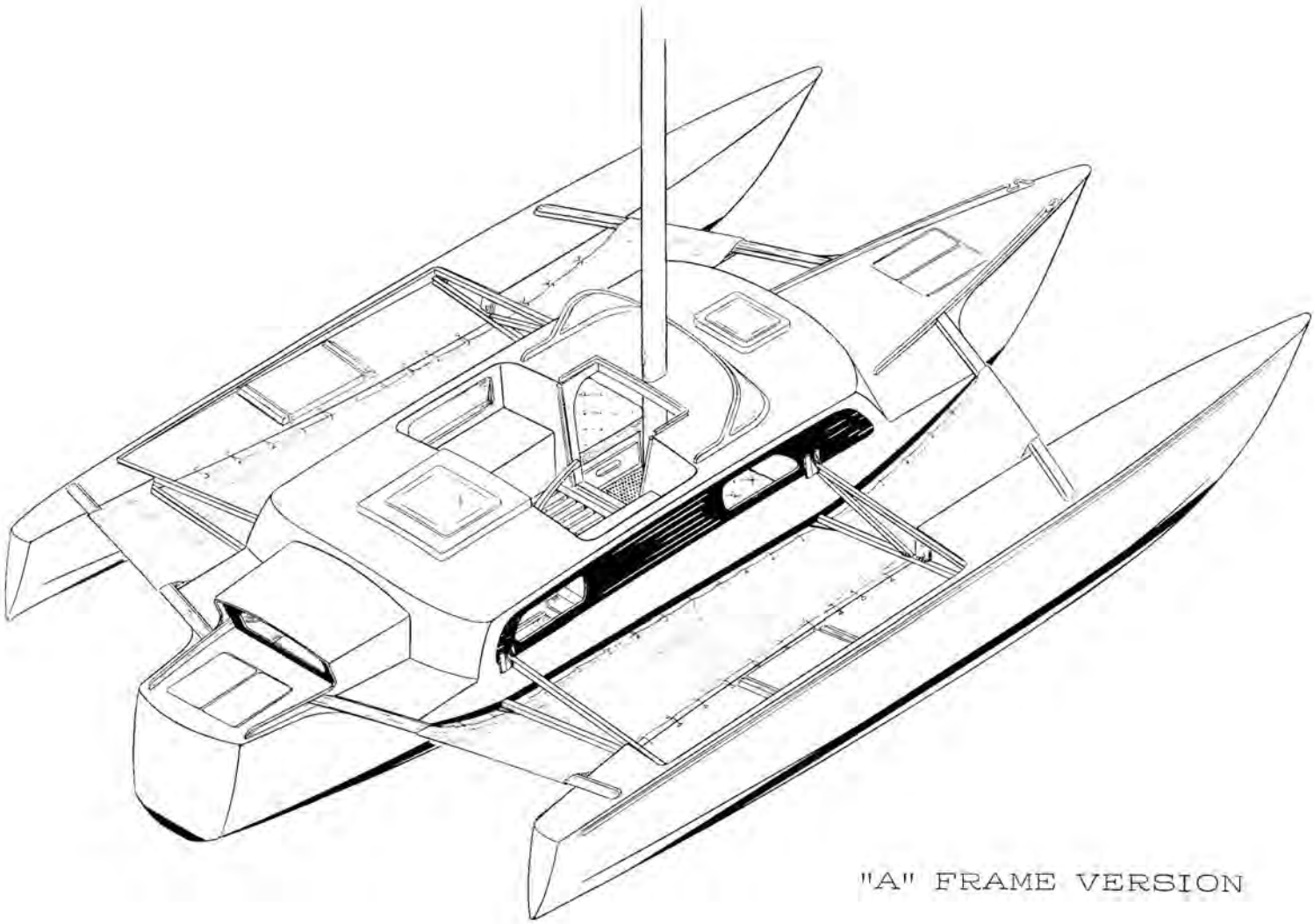
Max speaks positively of his boat, as do all sailors who build their own. An achievement like his is enough reinforcement for designers like myself to claim the idea "right", the boat "good" and the design "ocean tested". But the truth is that the boat survived because of the man.

The only credit that can be given to the boat is for her unconscious part in the combination. All that can be said for her is that in the pummeling she took, she didn't capsize and she didn't come apart. Of that much boat-credit, most attests to the care with which she was built, and the skill with which she was sailed. Anything that's left goes to happenstance and design.

*Sloop sail areas are: Mainsail-145, Fore triangle-126, Projected-261, #1jib-60, #2jib-132, Genoa jib-210.


25
305 ⍁
@100% FA
391⍁ WITH
GENOA

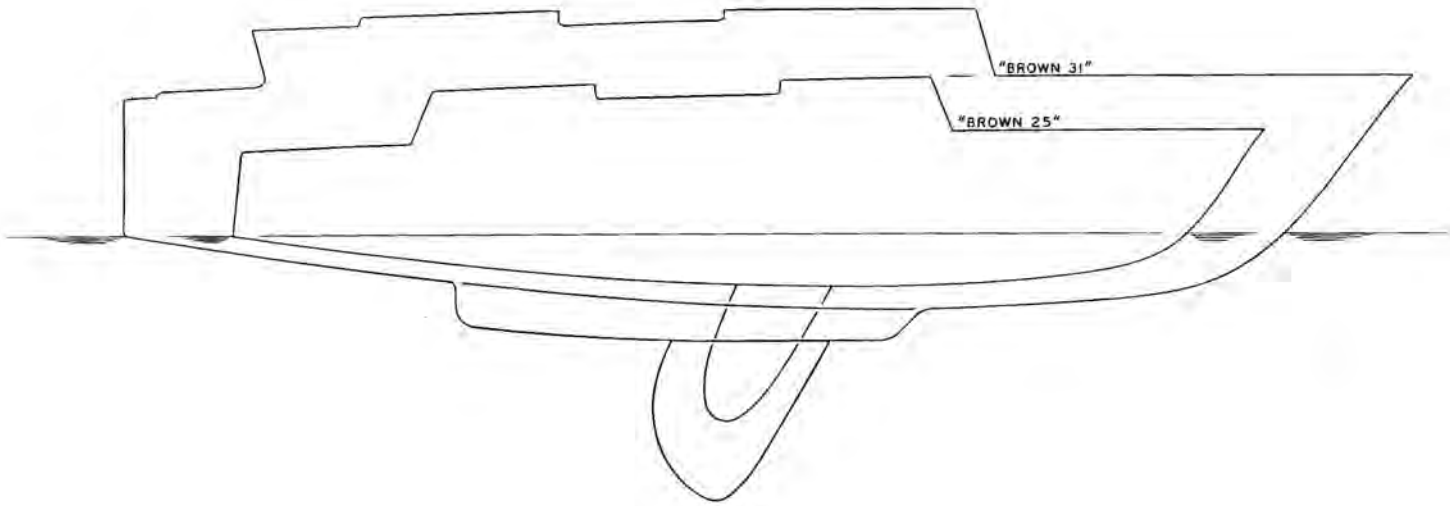
"SCRIMSHAW" is the old sailors' art-form of etching in ivory and bone. This is the author's 31 foot A-frame SEARUNNER built and used for family cruising.



"A" FRAME VERSION

"BROWN 31" SEARUNNER

The Thirty-One is neither an exaggerated statement of the 25 nor an abridgement of the 37. It is a succinct way to say SEARUNNER. This size is intended for those who plan on some serious cruising with two-to-four; who don't wish to be campers, but who have no fantasies about a full-time floating family home.



A size comparison makes it obvious that, relative to the Twenty-Five, there is no comparison. The freeboard on the foredeck of the 31 is as high as the cabin-top on the 25. The volume is more than twice. Compared to the 37, the 31 is only half the boat (see back cover). Let's see what can be done with it.

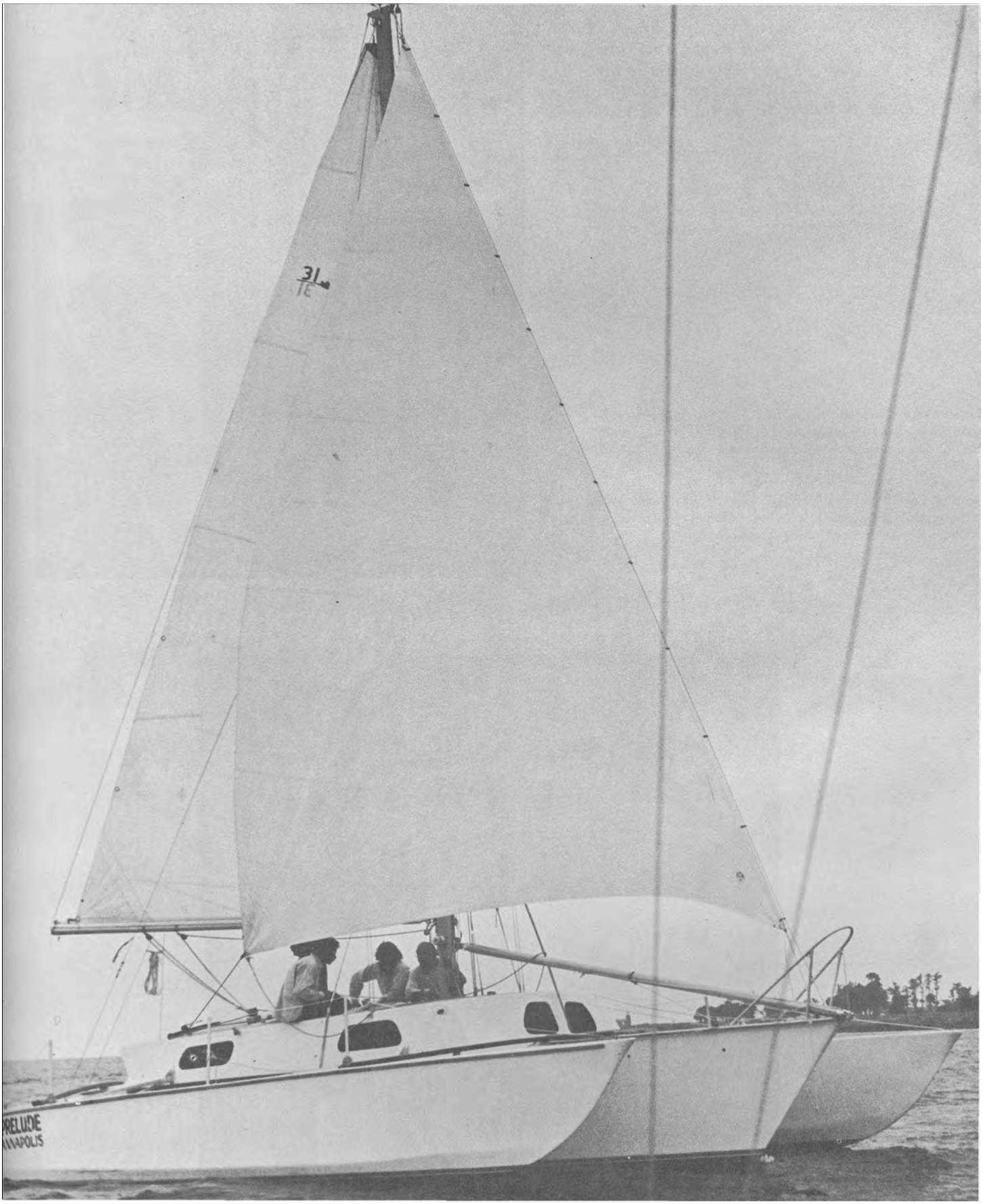
Anything but trailering, and cruising with more than four can be done with it. Of these, trailering is the greatest sacrifice, but that is tempered by the optional "A-frame version", which we will get to in a moment.

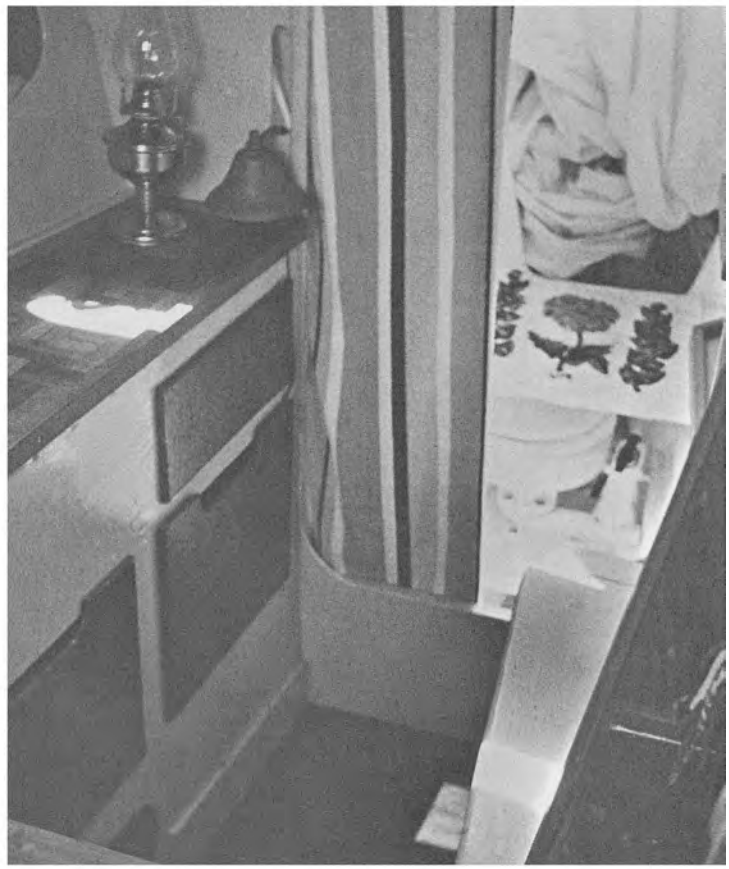
Cruising with more than four means perhaps that you have more than two children, or more than two couples in the boat. Many of those who have sailed in such a crew will concur that, regardless of the vessel's size, large crews are seldom happy crews on a long trip.

If you can build a 37, why not build a 31 and be sailing in maybe half the time, with several thousand dollars left to move-on? Is your oldest son or daughter really going to want to come along? What about your wife? If you're building a Titanic, she'd better be for it. Two years or three from now, when you finish-up your forty-footer, how will you have changed?

The cockpit in the Thirty-One is slightly more than half the size of the Thirty-Seven's, but it is not crowded by the mast or a wheel. The mast steps just forward of the cockpit (within easy reach) and the boat is intended to steer by tiller. To enter the forward cabin from the cockpit, one steps down to enter a compartment which is not at all like the 25's cuddy, but nonetheless does not have standing headroom. There is sitting headroom however, with the wing bunks serving as seats for as many as four persons (though it's comfortable for two). (By fitting the tiller with a hiking stick, the helmsman can steer from inside.) The mast comes through this cabin, and serves more to aid than to obstruct the inhabitants. It makes a good hand-hold, with room to pass on either side, and the mast can receive two small tables in brackets which makes the area suitable for taking meals. The bunks are seagoing singles which extend aft under the cockpit seats. Complete with stowage lockers under the bunks, this forward sleeping cabin is ideal for kids in a family crew, or that visiting extra couple.

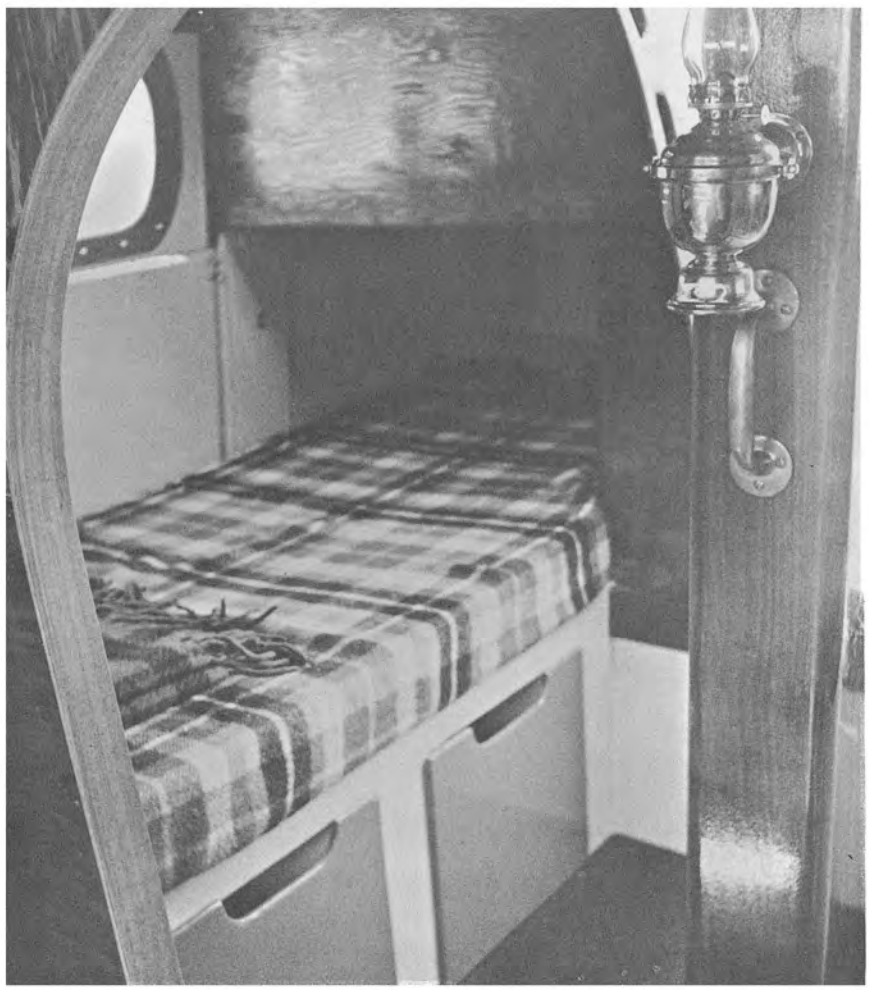
The forecastle has the same utility and privacy as in the larger SEARUNNERS, with dressing room, head-and-shower, extensive wing-stowage, and the sail locker. To enter the forecastle one steps down again from the forward cabin with the same posture and motion used to step down from the cabin of a light airplane. Once down in the forecastle, there is full standing headroom.


31
PRELUDE

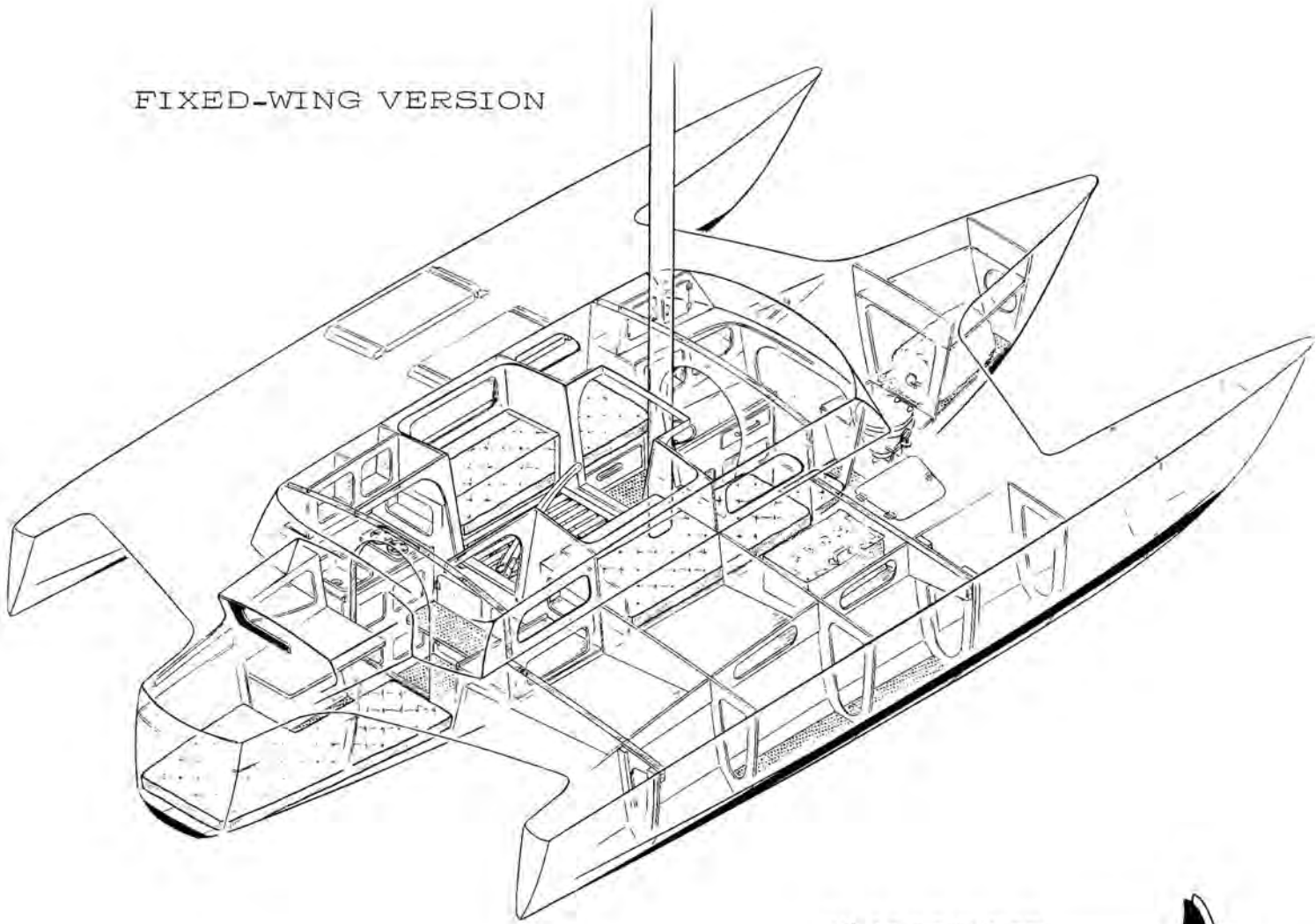


Forecastle dressing room has seat at right, standing headroom, and counter with stowage at left. Head-and-shower compartment is beyond with sail bin in the bow.

Vertical mast support, with lamp, is centered in the forward sleeping cabin between two single bunks, each with sit-up headroom and stowage beneath.



There is also standing headroom aft of the cockpit in the galley. There are two counters in this compartment, each 26" x 40" which reach out into the wings on each side. Both can be used for galley, and one, the starboard one, can be alternately used for navigation. There are stowage lockers above, below, and forward of these counters. A step is easily removed to allow access to the engine room and locker beneath the cockpit. (There are similar lockers accessible from the dressing room.)



The double bunk in the sterncastle is four feet wide at the head, and six-ten long. The forward two-quarters of the matress remove in a manner different from the drawing above. The new sterncastle dinette has sliding table and folding seats to give a four place dinette as in the larger boats. For families this affords a seperate place for adults to read or write, while the youngsters can carry on up forward in their own privacy.

Taken all together, the Thirty-One's interiors give the kind of livability that most people need for stopping-off and moving-on.

But what about the "A-frame version"? Does it fold up like the 25?

No, but it takes apart for individual transport of the three hulls. All three hulls won't fit on an average trailer within the eight-foot breadth limit, but the main hull alone, with cabin, will. There are several reasons for this optional take-apart trimaran, but one of them is not "trailering". A thirty footer is just too big to pack around on the highway; it is big enough to make it on its own in the ocean.

The best reasoning for "A-frame" outrigger beams is that the boat can be built anywhere and launched anywhere else. Special harbor building sites are unnecessary, and even the hinterland builder can drag his baby to the coast by making two trips with the trailer or hiring a truck. Because trimarans are usually built by individuals in their spare time, the back-yard boatyard has great importance. If you can go out and put in an hour when you feel like it, without commuting to a rented site, it can make building her a happy thing instead of being shaded with pressure.

There is another reason: seaworthiness. One inherent shortcoming to the trimaran configuration is that the large, flat surfaces of the under-wing can, at times, pound on the wave-tops. This problem is aggravated by narrow hull spacing and by overloading, and is more likely in smaller trimarans sailing to windward in steep waves. But it is particularly prevalent in low harbor racers which are loaded-up for an ocean race and sailed with no reserve. It is possible to strain a boat much more by driving in a race than when riding-out a gale. So, together with portability, these reasons make A-frames of interest to cruising people who may encounter heavy going when overloaded, and to racing sailors who will not tolerate slowing-down in those conditions.

The relief from pounding on the under-wing is made possible by the A-frame's net or trampoline which replaces the outboard portion of the under-wings with something that doesn't resist the wave-tops coming up. Or coming down. If the boat goes awash from "pooping", she's got to free herself of the water's weight before the next wave arrives. Nets are best for this, and the trampolines have large scupper-spaces all along their edges where they lash in place.

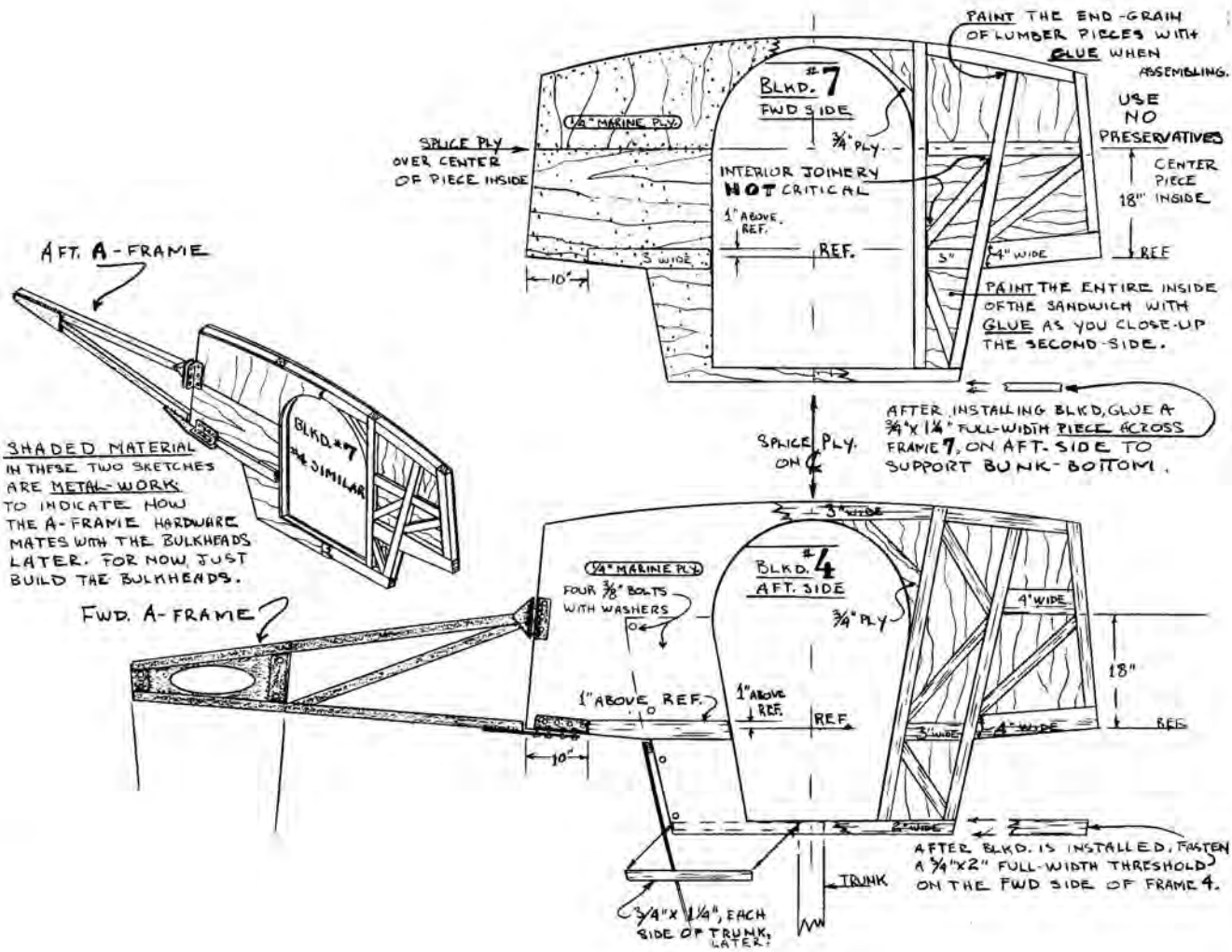
At first glance, the nature of the trampoline or the net would seem to cost the loss of much deck space, but we have come to value this type of decking surface for its usability. Contrary to suspicion, it can be walked-on; even jumped-in. Nets make a great place to throw a muddy anchor, to take a sunbath, or a spray bath. The spray that comes up through the net, incidentally, is almost always on the leeward side where it cannot get blown back into the cockpit; the A-frame version is not "wetter" than the Fixed-wing version except for the deck of the leeward float.

Float decks are recessed between the A-frames to expose the upper portion of the float connective bulkheads, which receive the steel A-frames. The attachment is made with husky bolts through the specially reinforced bulkheads. The recess in the deck forms a small bulwark along the float rail which makes objects placed on the deck, or in the net more secure from falling off. The psychological effect of the net, the A-frames, and the bulwark is that greater security is enjoyed by the crew because there are more things to hang on to.

The aesthetic effect of the A-frame version is an individual matter. Some builders like the idea of riding on the bird's back without being able to see through the wings. Maybe it's fear of heights. For myself, I like to see the water sluicing through the tunnels. At night you can see phosphorescent comets - the porpoises - as they buzz between the hulls. Best of all, one beholds a boat that is a multi-hull and looks it. The outrigger identity of the craft is not buried by an expanse of non-skid paint.

A disadvantage of the A-frame version is that wing stowage spaces outboard of the cabin are lost. To compensate for the resulting shortage of deck-access stowage, the main hull of the 25 and 31 is equipped with two lazarette hatches which open into self-bailing wells under the deck. These show in the drawings just forward of the transom and out on the bow. The life-raft in A-frame boats is lashed in the net and is accessible from the under-wing by cutting the net.

Wood portion of main bulkheads terminates at cabin-sides in A-frame version. Simple steel angles bolt-on to bulkheads inside cabin. Outside, matching angles and plates welded to A-frames are bolted through cabin-side and under-wing to mate with inside angles. Full-size patterns simplify the metal work, which may be made of stainless steel. For economy, common "mild steel" is fabricated, then galvanized. For racing, aluminum parts may be built (to different scantlings) and anodized or alodined, then epoxy painted.



Another disadvantage to the A-frame version is that it is weaker. Let me qualify that: platform strains caused by heeling effort against righting effort (the sailing strains) are tolerated by the A-frames just as well as by the solid deck. If anything, the main-strength bulkheads become stronger with appendages of steel. But the boat is more vulnerable to collision, particularly on the float bow. Fore'n'aft integrity in the platform is afforded by the diagonal "cross-spars" which simulate the leading and trailing edges of the wings. These members combine with the vertical steel A-frames to establish horizontal "A"s with the same fantastic triangle strength. And if the builder wishes, a long "X" brace of rigging wire can be set-up banjo-tight beneath the nets. But I'm not talking about running into the wharf when docking, or hitting a floating railroad tie. There's plenty of beef for that. I'm talking about surfing full-force into the side of a freighter or vice-versa. With the fixed-wing boat, you might knock off the float bow (it has happened) and with the A-frame boat you might tear-up the platform instead. I don't know which is worse - a broken float or a bent A-frame. Trying to evaluate these evils, considering the bizarre variables of collision, makes me dizzy, and I'd rather think of porpoises and avoid collision. (See "cross spars" in masthead photo, Section 10)

At any rate, you've got your choice, and in any event you've got a better chance to make it in for collision repairs than in boats which have only ONE hull to scuttle. Or two.

Construction view of 31' SEARUNNER (Fixed-Wing) shows how cabin-side mates with underwing and other platform framing. The A-frame version would be identical between the cabin-sides, which are eight feet apart.

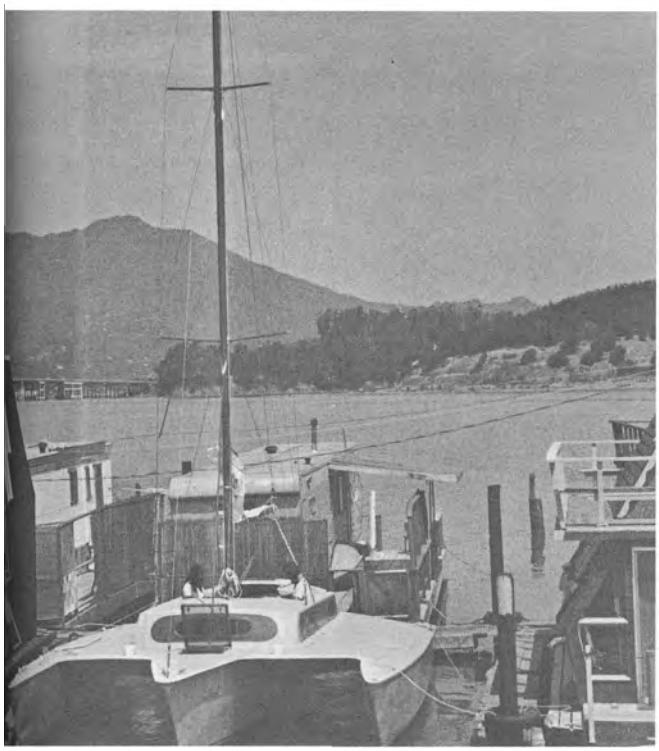
There's something rather boggling about ocean sailing that I'd like to have the reader consider. The hemispheric wind-systems sometimes say to you, "You can't get there from here". To sail from California to Japan, for instance, involves thousands of miles of beating against the wind. The same thing happens when you try to fetch Tahiti from Hawaii. If putting your boat and yourselves on a freighter sounds like cheating, who's being cheated when you miss-out on Japan? If it sounds expensive, think of what you'll save by building a Thirty-One instead of a Forty. Shipping your boat - even once or twice - could make your world cruise unlike any other, and if it takes-apart, you can fit it on a smaller, cheaper, funkier freighter for that kind of sailing also. Or, if you live in California, you can buy a SEARUNNER built in England. Shipping rates are based on volume, so if it has A-frames, it will come in a crate at an attractive price. For the racing man, the competition is now good on both coasts. He can get in on it all by putting his A-frame Thirty-One on a flat-car for about $300.

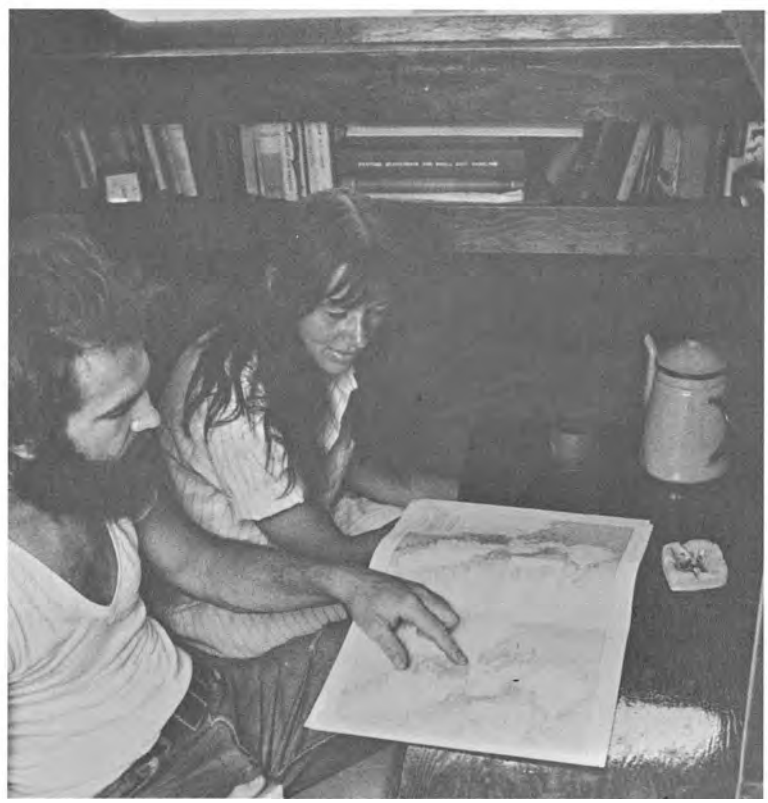
My mention of all these features - the cost, the transport, the A-frames and the wind-systems - is not intended to corrupt the basic virtue of the Thirty-One, which is its size. This is the right size for an owner-built trimaran; big enough to really go places, not big enough to be a monkey on your back.

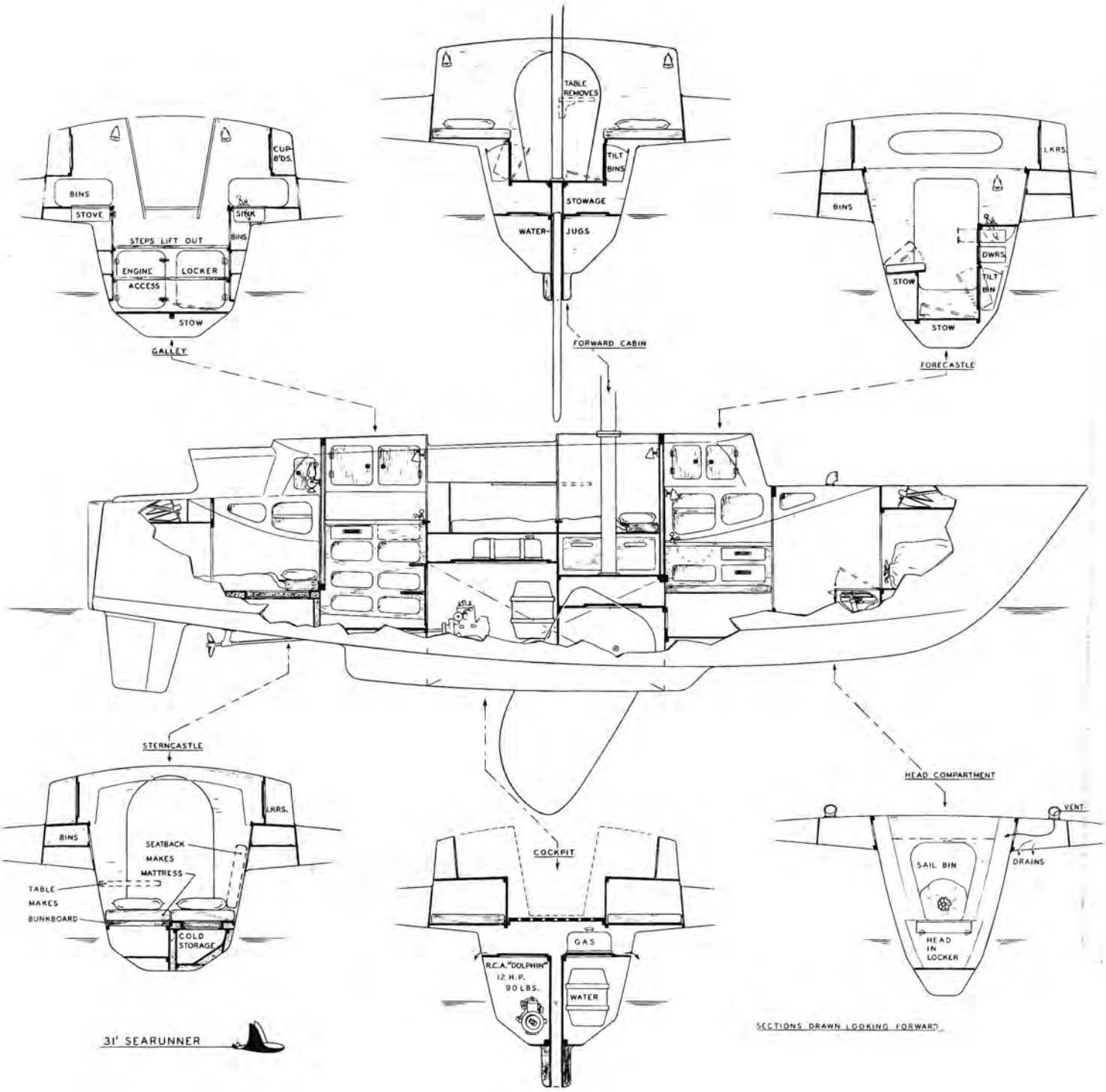
The galley in the 31 is compact, yet complete. Sink and drainboard are to starboard (above) and cooking area is to port (left). "Sea Swing" stove is gimballed with axis above the fluid level in the pan. This insures hot, one-pot meals in roughest weather and adds a 3rd burner to the counter stove for more elaborate meals in port.

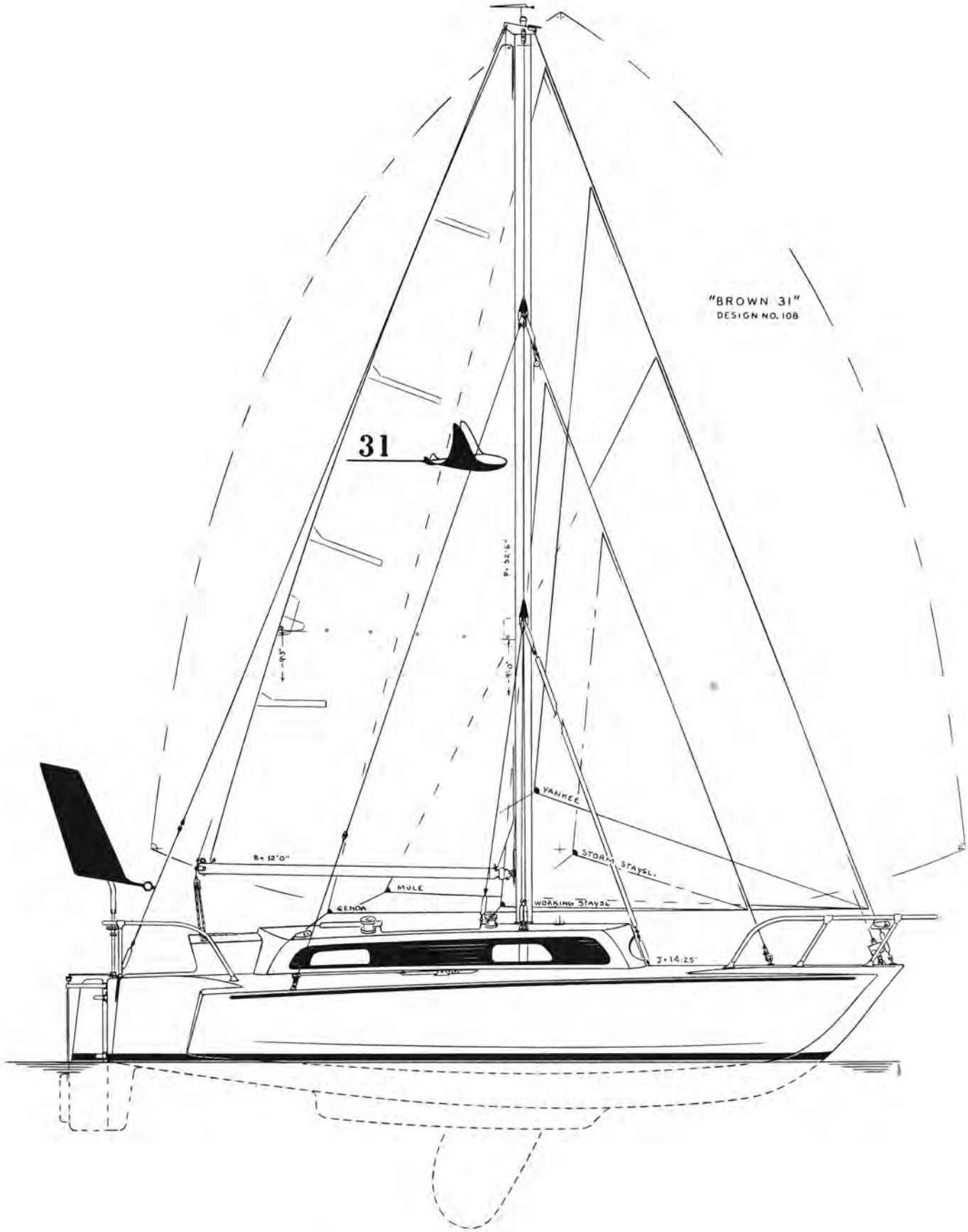
TATTOO marks her spot in this Sausalito houseboat community as a boat for going among boats for staying.

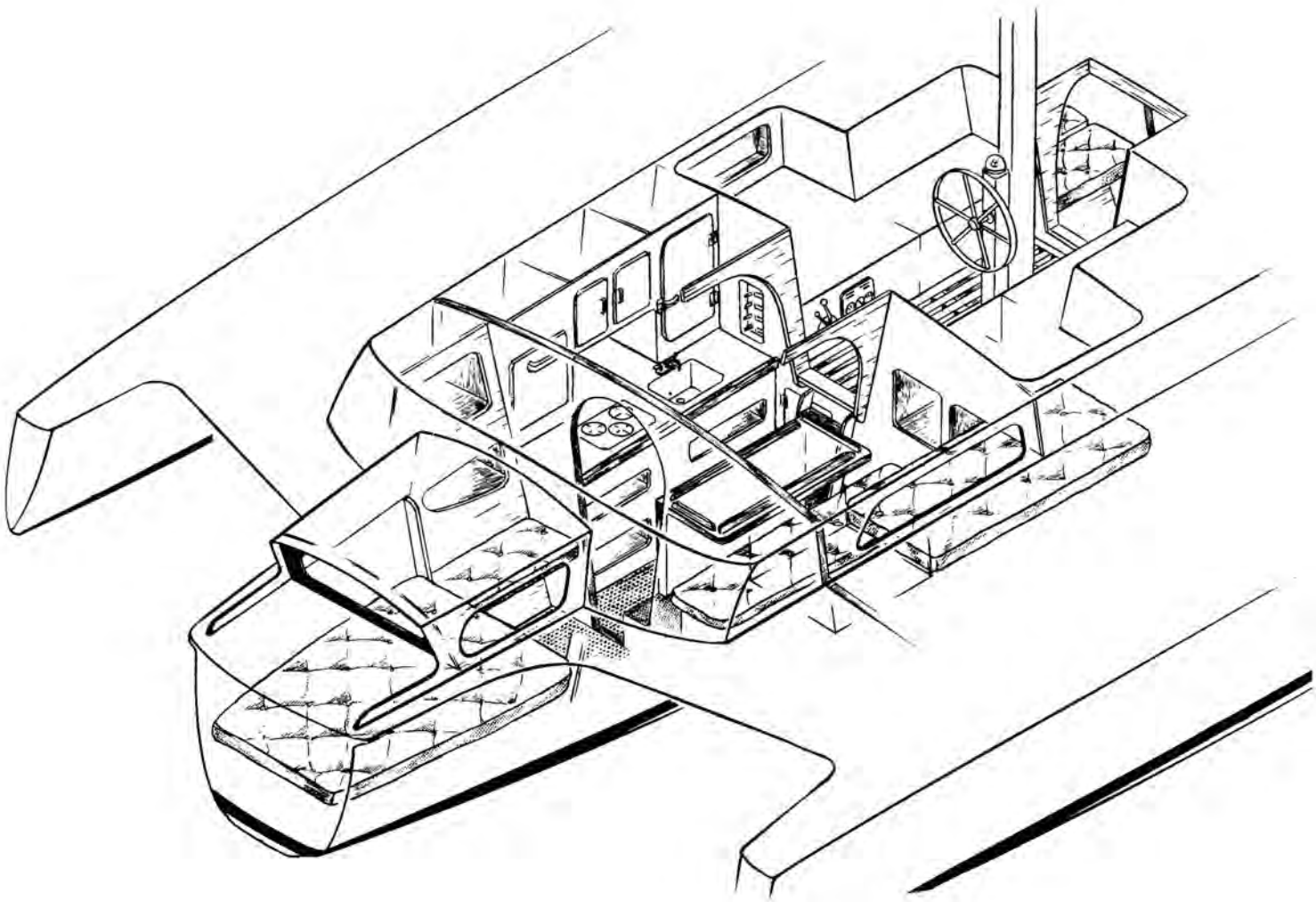
Brent and Suzanne examine tidal current charts in preparation for first sea-trials out the Gate. Dinette area converts to double berth. Poopdeck window opens for comfort in the Tropics.






CUP B'DS.
BINS
STOVE
SINK
STEPS LIFT OUT
BINS
ENGINE ACCESS
LOCKER
STOW
GALLEY
TABLE REMOVES
TILT BINS
STOWAGE
WATER-
JUGS
FORWARD CABIN
LKRS.
BINS
DWRS.
STOW
TILT BIN
STOW
FORECASTLE
STERNCASTLE
LKRS.
BINS
SEATBACK MAKES MATTRESS
TABLE MAKES BUNKBOARD
COLD STORAGE
COCKPIT
GAS
R.C.A. "DOLPHIN" 12 H.P. 90 LBS.
WATER
HEAD COMPARTMENT
VENT
SAIL BIN
DRAINS
HEAD IN LOCKER
31' SEARUNNER
SECTIONS DRAWN LOOKING FORWARD


"BROWN 31"
DESIGN NO. 108
31
P = 32'6"
E = 11'0"
B = 12'0"
YANKEE
STORM STAYSL.
MULE
GENOA
WORKING STAYSL
J = 14.25'



"BROWN 40" SEARUNNER

Top of the line! After cutting down big boats for several pages I can still get positively enthusiastic about the SEARUNNER Forty. My comments about size have been directed to the trimaran prospect who is looking for advice on size. The Forty is for the man who already knows what he wants and is trying to find it.

Big and powerful. Big means that you can park the dinghy in the tunnel sideways, and have a central cockpit and a main salon too. Powerful means that the genoa is 648 feet square and the center-board is nearly eight feet long.

The boat is only forty inches longer than the Thirty-Seven, but volumetrically it is nearly twice as large. It displaces three or four thousand pounds more ocean as it passes through. The extra size doesn't mean much to the forward cabins. They are higher and wider than in the Thirty-Seven, but the arrangement is the same. Aft of the cockpit however, there is little similarity. The 37 "has everything" but it is compact. The 40 is not compact. I hate to say this, but it really is "spacious".

Steve Smith, a prodigious worker, built his 40' SEARUNNER from scratch to this condition in eight months. The basic structure shown represents about 60% of the man hours, 40% of the cost of completion.

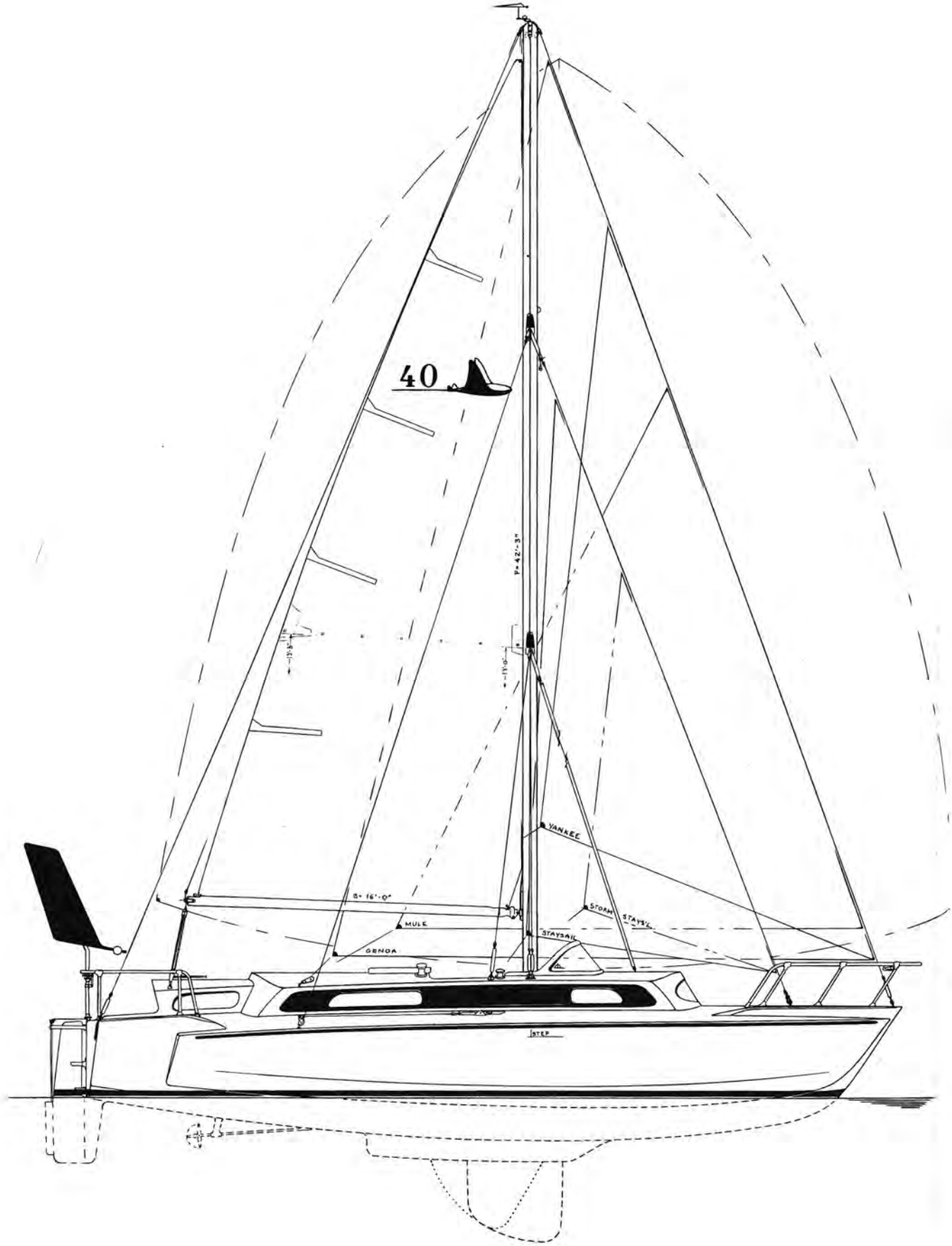
SEARUNNER sailplans show special large spinnakers.
In trimarans, the spinnaker definitely becomes a reasonable cruising sail because of the boat's stability. Wide decks make for easy handling. Because the boat cannot develop the monohull's "rhythmic rolling" downwind, helmsmanship is not critical. The extra-long spinnaker pole is guyed to the float bows, which relieves the usual columnar strain on the pole, and because the pole is long, the boat actually "bears away" in a gust instead of dangerously "rounding-up". The object of such a sail in cruising is to keep the boat moving in extremely light conditions to avoid the purgatory of sitting, or running under power. Ghosting conditions are <u>very</u> common when cruising. A spinnaker-equipped SEARUNNER is for <u>all</u> cruising conditions.

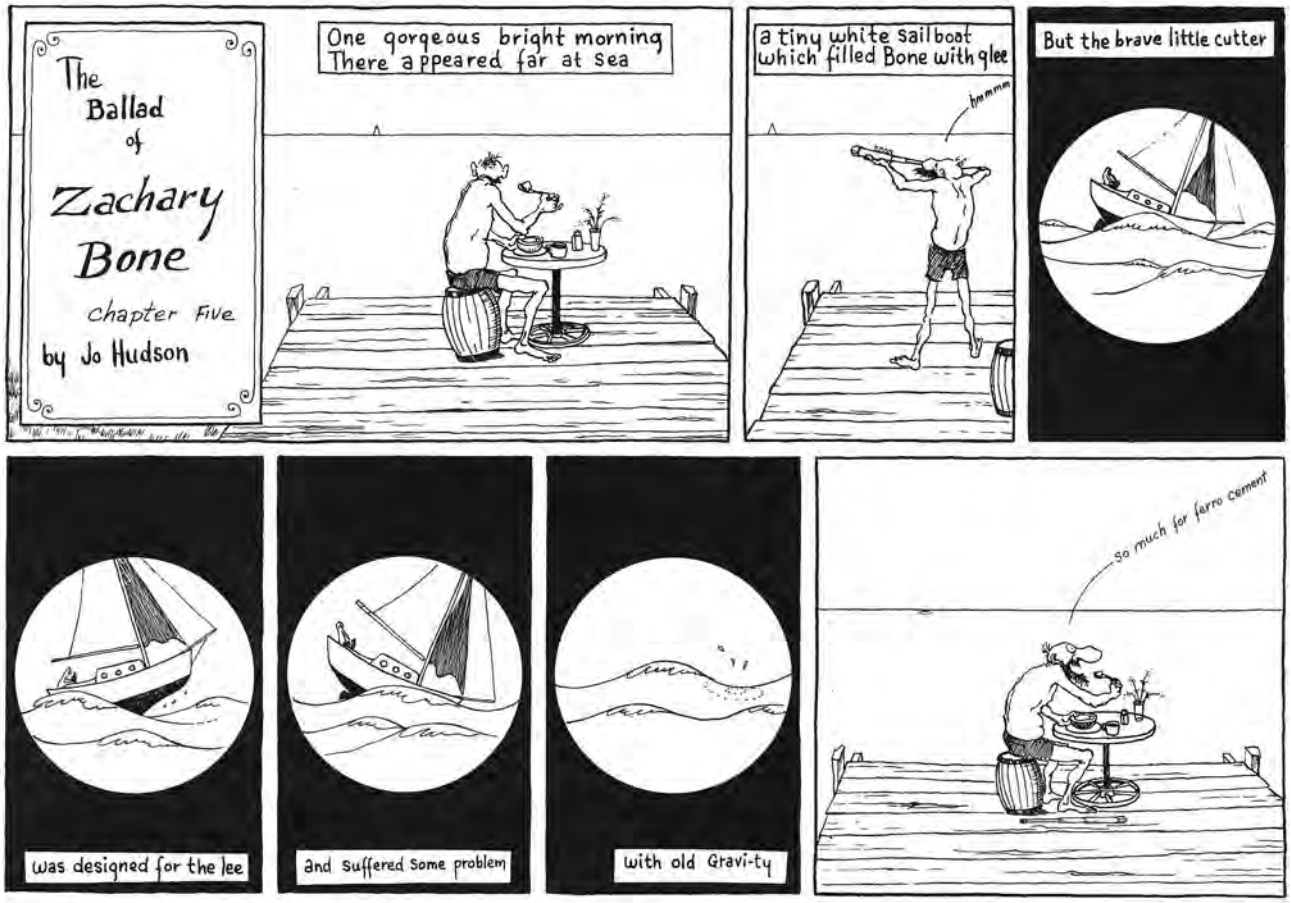
Other SEARUNNERS are rather tightly designed; it is difficult for the builder to modify the interior massively because of the structure, but the Forty has many interior options. The isometric drawing shows the sterncastle devoted to a master cabin, and the salon is equipped with an extensive galley, and a long dining table with a settee to seat four-to-six persons. There can be a single bunk in the starboard wing above the settee. The master's cabin has a Neptune-sized double berth, a settee to port with dressing table opposite, and voluminous stowage. Quite a nice cabin with that aft-facing window and all.

The basic option is that the sterncastle can be arranged as in the Thirty-Seven to include galley and lounge. This leaves the huge salon-space completely available for whatever the builder wants. He can put a convertible double bunk in each wing, with long settees on both sides. Or, put a permanent double in one wing, with elaborate navigation and radio facilities in the other. Maybe you need a darkroom, a studio, or a laboratory. A special interior can be designed for charter work with the galley and crew forward, leaving the entire stern section free for paying guests. You may wish to install a small private conference room, a professional office, or roulette. The space is there.

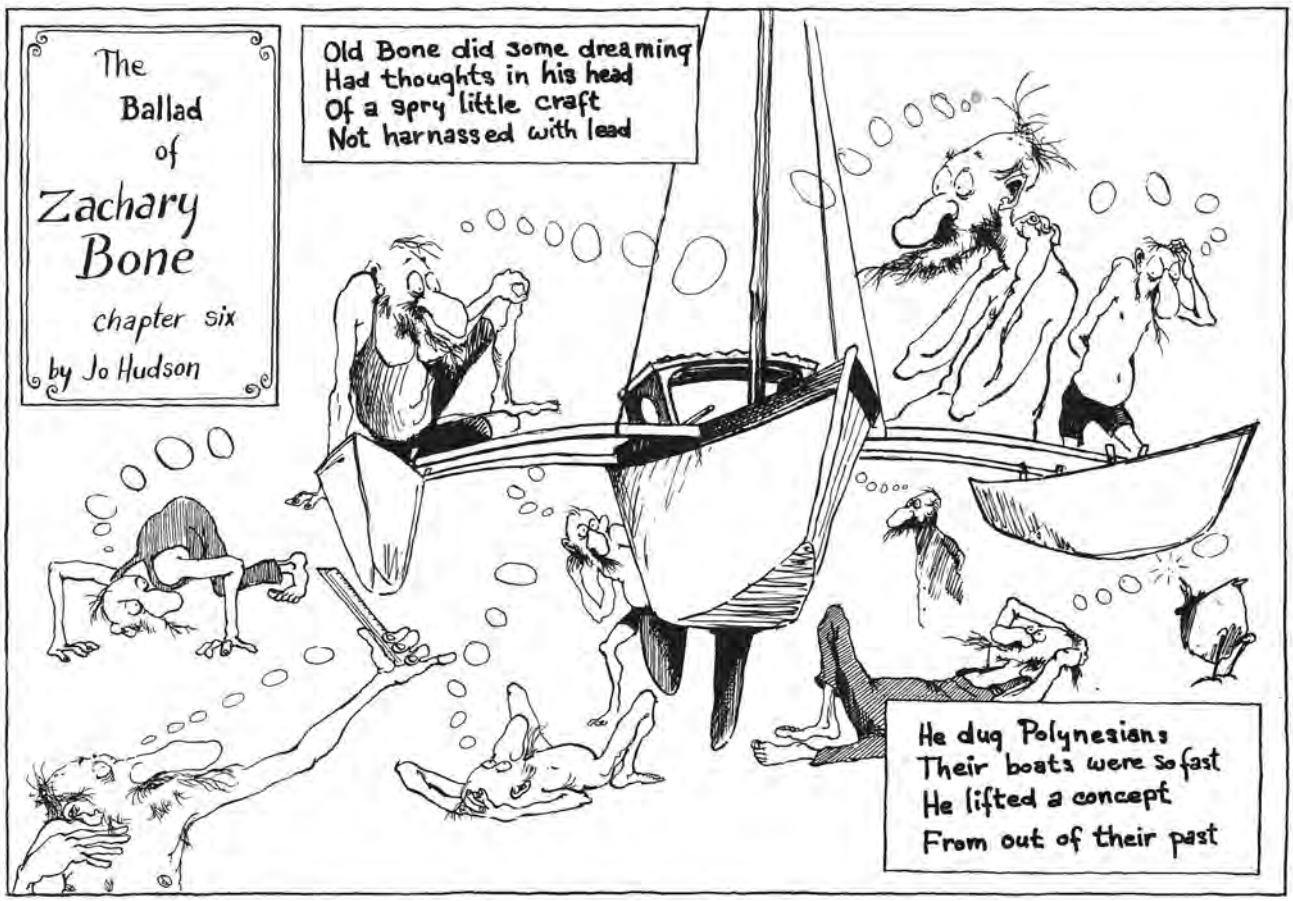
I really drew the boat for the guy who knows what it means to say "I'm going to give up my house, get on to my boat and stay there". Everybody's saying it, but almost nobody knows what it means. If you've got the wherewithal to do it, the Forty gives you your best chance to find out.

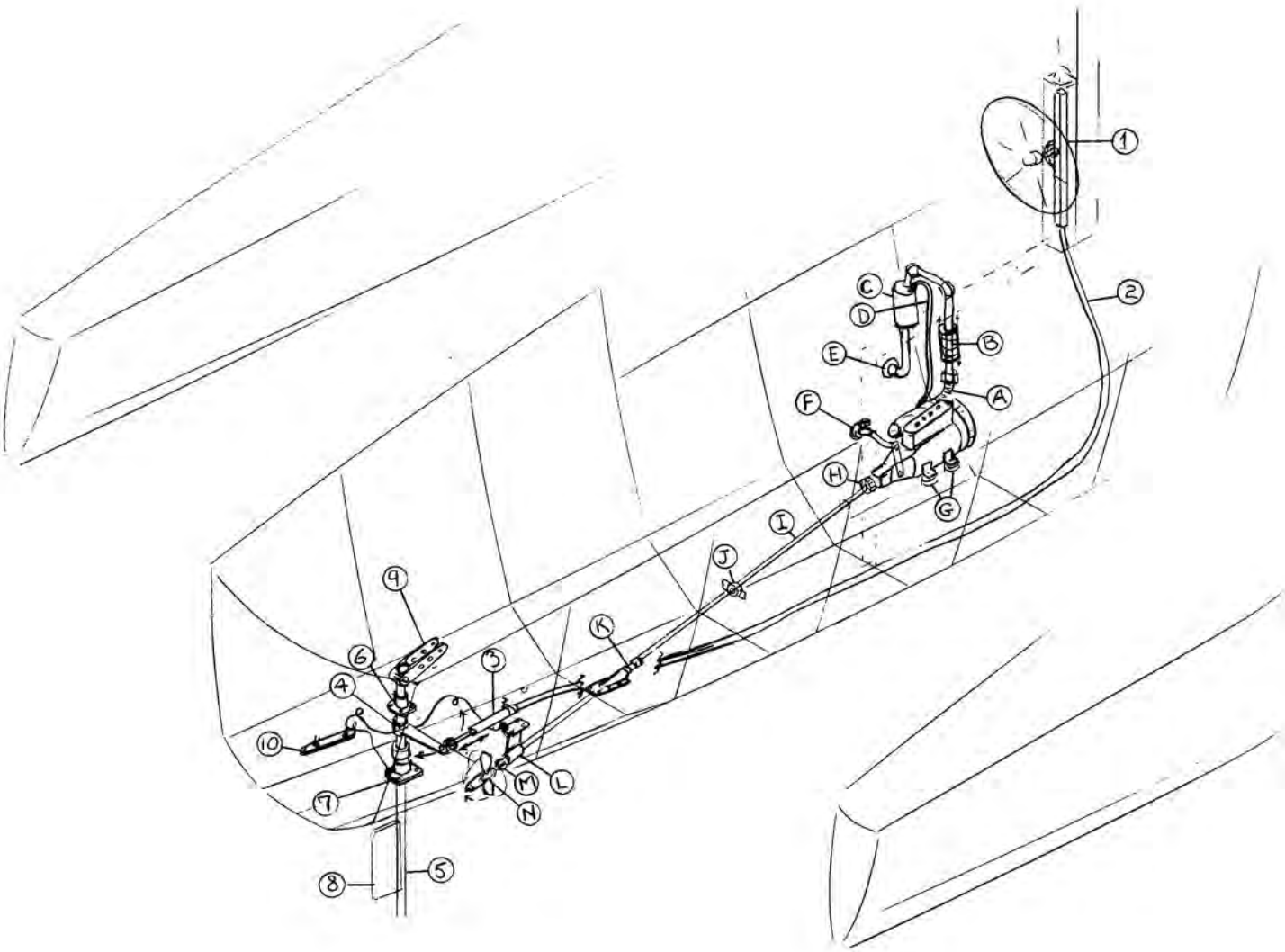
Rob and Wendy Keyston terminate a rollicking dash on San Francisco Bay with their 40' SEARUNNER. Muzzling into the shallows near their retreat at Black Point, the boat's outfitting proceeds as funds become available. This is the first 40 sailing and Rob contends, "The thing just flies! It handles like a 40-foot dinghy".


40
P=42'-3"
E=16'-0"
YANKEE
STORM STAYS'L
MULE
STAYSAIL
GENOA
STEP



Excerpts from a forthcoming book, "The Ballad of Zachary Bone".
Printed with the permission of the cartoonist, Jo Hudson.

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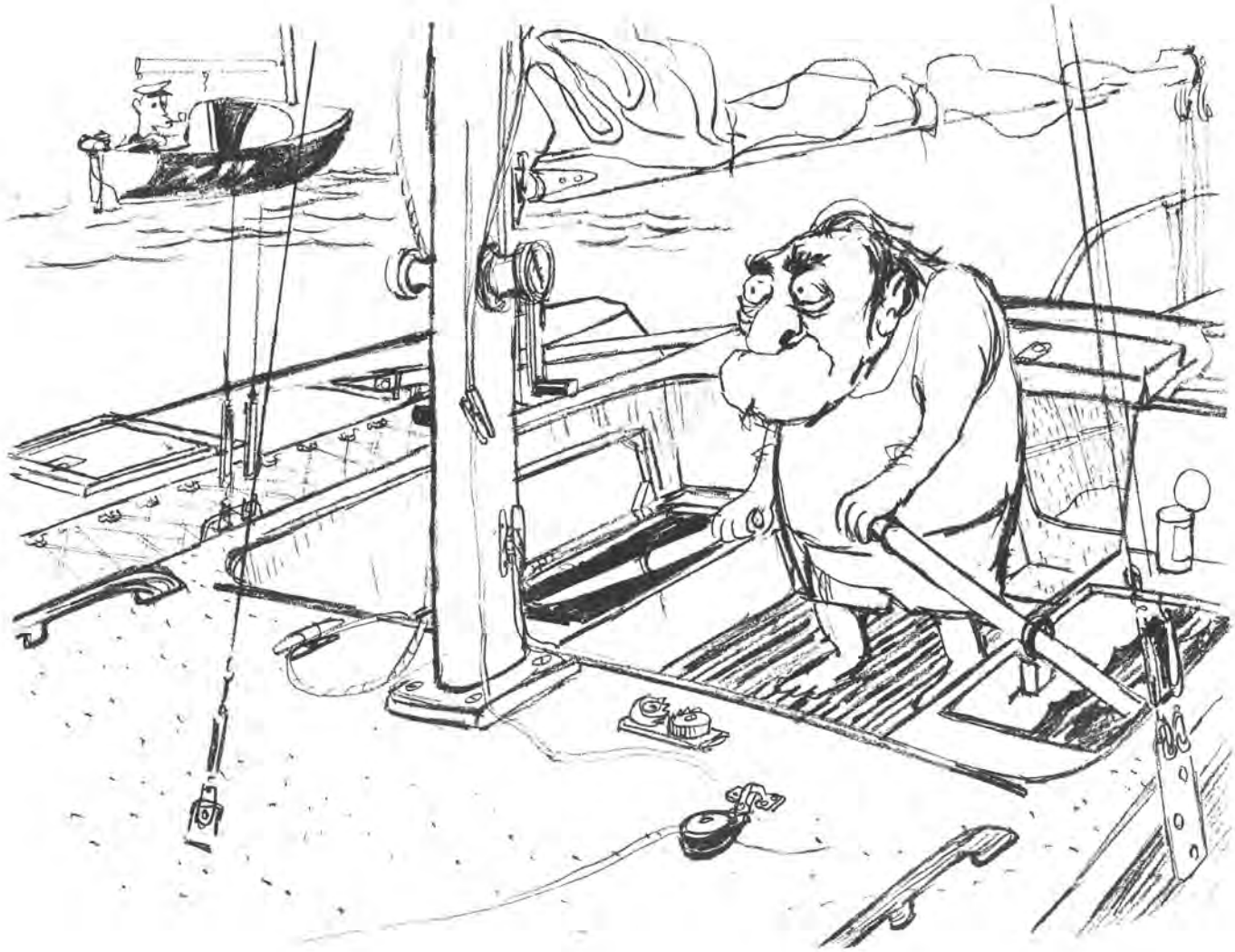


AUXILIARY ENGINES

A revolting thought - to burden a bird with a chunk of greasy iron in its belly. Many purists wish to wait for the wind, or row. But what's so pure about waiting? Rowing is revolting, too.

It is definitely possible to design a trimaran that performs well under both sail and engine, with the resulting versatility of having two motive powers. We have learned that the way to gain this versatility in definitely NOT by hanging an egg-beater over the stern. Outboards just don't make it, except perhaps in the smallest cruisers so the motor itself is light enough to be carried around in one hand. Even then, their operation is limited to calm waters and no wind. These comments apply to the 25 foot SEARUNNER whose 4-horse outboard is mounted on the transom, beside the rudder. An extra long shaft (30") keeps the prop in the water while the head of the motor is above the deck. When tilted up for sailing, the engine head comes inboard, on deck, and is fairly well protected. This makes a realistic installation in the 25 and possibly in the 31, but only for the anti-engine sailing purist.

All other SEARUNNERS have inboard engines because the inboard-outboard, or outboard in a well puts the weight of the iron in the bird's tail, which is much worse than in its belly. Also, SEARUNNER sterncastles are too valuable to be cut-up with engine.

The weight of machinery and the space it consumes can best be tolerated amidships, under the cockpit. By mounting the engine to port of the center-board trunk, a slight off-center shaft angle results; this is desirable to counteract "torque" (the tendency for screw propellers to drive the boat in circles). Because there is no center-line seam in SEARUNNER bottoms, the off-center shaft-log presents no installation problem. And because the engine is isolated from its tankage by the water in the center-board trunk, some safety is gained. Both engine-room and tank-bay can be vapor-sealed from the cabins and independently ventilated. Some builders prefer to put two small tanks out in the wings where they ventilate themselves very effectively.

What we're talking about, of course, is gasoline. One of the most perplexing decisions faced by owner-builders is which to choose, gasoline or diesel? If you were building a trawler, where the engine was the primary mode of power, there would be no question - the diesel would be running all the time. But when the sails are your primary mode, there's a lot to be said for gasoline. Initially, there is the cost difference in the engines themselves; diesels are somewhat higher. In the Forty, for instance, a gas installation would cost about $1,250; diesel, about $2000. Then there's weight. Horsepower-per-pound strongly favors gasoline engines, and the old "but" about fuel consumption and fuel weight and cruising range doesn't hold at all in trimarans because we just don't use much fuel at all - if the boat will sail in light airs. (A good trimaran will glide along for miles on a zephyr that wouldn't budge a Tahiti-Ketch one wavelength.) Another disadvantage to diesel is the noise. The Thirty-Seven is just large enough to carry a two-cylinder diesel, like the "Volvo", or a four cylinder gas engine like the "Atomic-4". The Atomic-4 is somewhat more powerful for somewhat less weight, and the difference in noise and vibration is the difference between conversing, and shouting in the cabin. Even with the best sound-proof installation, small diesels are like living with a non-melodic Anvil Chorus. The Forty is just enough bigger to make a four-cylinder diesel, like the Perkins, realistic. The extra cylinders really cut the noise down, but the engine cost is high.

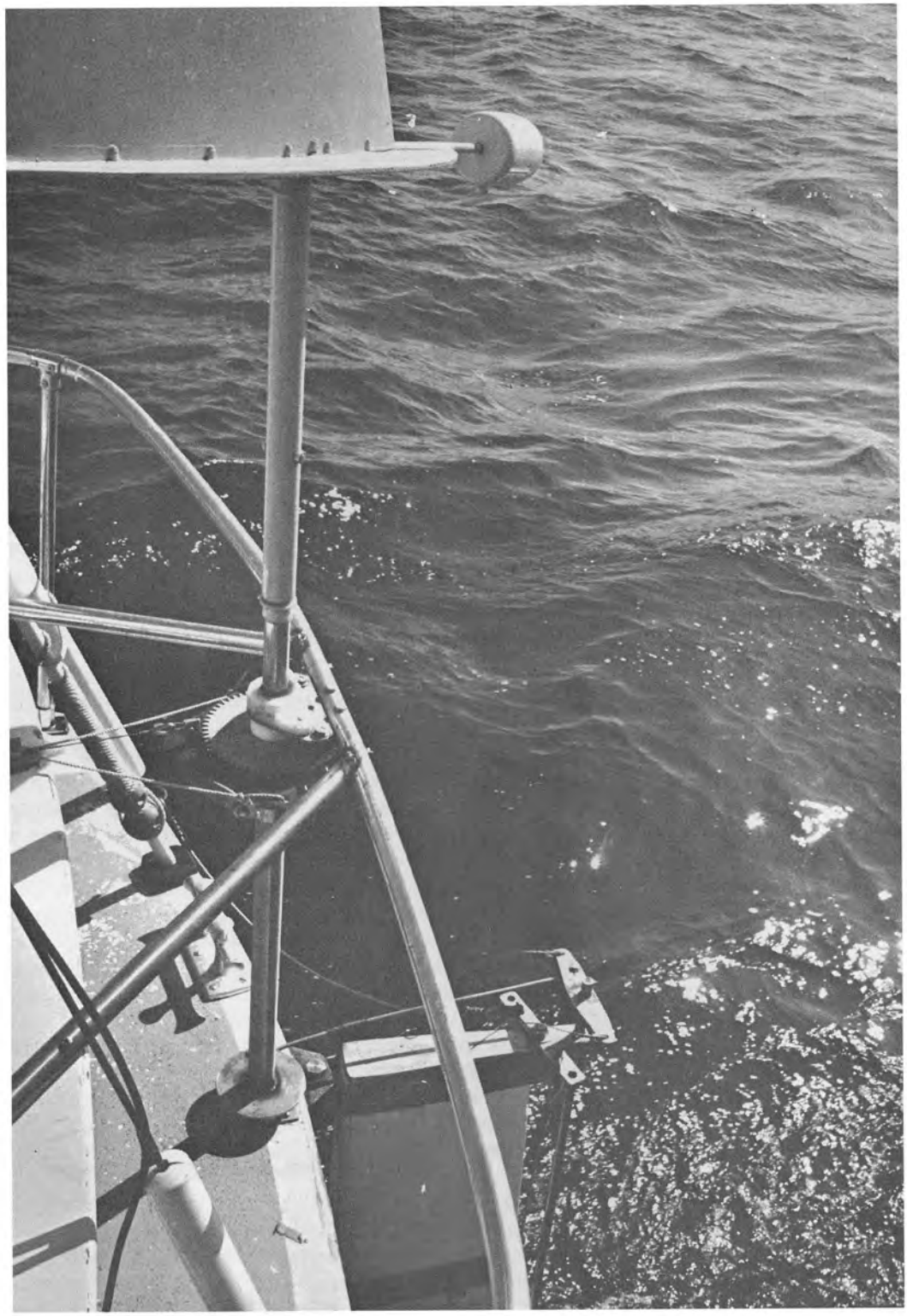
In the Thirty-One, there are at present no small, dependable, bread-and-butter diesels which I can recommend. Hot little air-cooled diesels are emerging, but as yet they are to be avoided because of parts problems, and everything else that goes with owning a sewing machine in Siberia that's not a "Singer". But there is an endless variety of small gasoline engines that fit the Thirty-One nicely.

The danger of gasoline explosion brings the kind of fear that sailors learn to counteract with vigilance. There is no substitute for a premium-quality installation and regular examination of ALL equipment. Those who go to sea with gasoline learn to sleep soundly when the machine becomes an autonomic extension of themselves. An electronic "vapor-sniffer" brings them little comfort compared to the assuredness they gain from sticking their nose in the engine room each time before starting-up.

The only Brown-design to be lost by fire was loaded with gasoline, butane and medical oxygen. The fire was caused by perhaps the "safest" fuel of all, kerosene. The kerosene refrigerator pilot ran wild when no one was aboard. If there is one lesson to be learned from this, it is that ALL gadgets are dangerous. Especially those which increase the boat's automatic character with full-time flame or electrical drain. We must realize that when we distill the sun's energy and take it with us in a bottle, it will be trying to get out and warm things up.

Whatever your engine, it is important to stay within the weights specified, and use a folding (or feathering) propeller. An overweight engine cuts into the payload margin; this, while the boat is slower and so needs greater payload. A folding or feathering propeller is required because the drag of a fixed-blade propeller causes the rudder to operate in turbulated water; this has a drastic effect on high-speed control under sail. Yet the prop must be located forward of the rudder to gain maneuverability under power. This is the primary purpose of the engine - close-quarter maneuvering. As a motive power it is a distant second to the sails except in calms.

The alternatives to the engine, which are wait-for-the-wind and stay-out-of-tight-places, are unacceptable to the Western mind. But to a seasoned sailor, so is a frogged-up installation or a mis-named monster in the bilge called "safety". An engine, whether gasoline or diesel, is someday going to quit. The main thing that makes any engine dangerous in a sailboat is the false sense of safety that it brings. Because it is there, many sailors never learn to jump for the halyards and "rod" the boat with wind-power. Starting-up is safe enough because you only have to use your nose, but when it stops, you'll have to use what's in your head.



Self-steering mechanism is simple and rugged. Parts are shown in plans with full-size patterns. Mark Hassall writes from the Marshall Islands, "'Tilley' is still at it - every hour since California . . . Better get a monohull where at least I'd have to sail the boat . . . all we do is eat, read, navigate, shower and sleep. . . ".

SEARUNNER SELF-STEERING

This section concerns the development of a wind-actuated auto-pilot for cruising sailboats. The requirements of the device are to get the boat to steer itself with a gadget that has no energy requirements except the wind, and that anybody can build.

Like trimarans, the "wind rudder" is developmental; almost mystical. The man who has a good one often wants to keep it to himself.

SEARUNNER Self-Steering is not just for SEARUNNERS, but the system doesn't work so well in ketches or in boats without a center-board. The only clear "constant" which can be applied to all self-steering is that it won't work in a boat which is inherently cranky on the helm - which doesn't sail well to windward - or which tends to broach downwind. We've got to start out with a boat which is directionally stable in the first place, and that can be a very rare quality in the absence of a center-board.

The adjoining photo is also rare. It is the only one I've ever seen of a trimaran (taken from a remote vantage) in its true habitat - running in nice big waves at more or less the same speed as the waves; surfing. And what makes it rarer still is that no one is in the cockpit! "Dharma" is steering herself in conditions which would usually have the helmsman clutching the tiller with white knuckles - his eye glued to the compass with the same attention required of a driver who tries to keep the left-front tire on the center-line; knowing that if he wanders just a little his machine may spin-out on to soft shoulders. The photo shows SEARUNNER Self-Steering in control.

Conditions like this are very common at sea. This is the kind of stuff that cruising boats are running in most of the time. This is what it's like! Can you see yourself out there? Perhaps not; especially if you and your companions always had to take turns at steering sessions of nervous drudgery. Perhaps yes if you and your companions could take turns at observing - directing - the flight of an obedient bird. That is the difference that a good, center-board equipped trimaran with self-steering can make to you in cruising. It can be the difference between drudgery and pleasure.

Remember that, when we were talking about engines, I said "All gadgets are dangerous". Self-steering is certainly a gadget - even though it doesn't involve flame or electrics - and it can be dangerous. A wind rudder is not a substitute for a man on watch. But it can be a substitute for one of two men on watch, and it can make watch-keeping very pleasant instead of very tiring.

When a sail needs tending, go tend it - with your safety line, but without calling somebody out of his bunk to steer (in his underwear) while you monkey with the sail. Or when the boat is romping along in good weather, you can go have a look at the chart, shoot a sun-line, or fix a cup of bouillon. Lay around the cockpit, splice the fender pig-tails or weave yourself a scullyrunner for the cockpit sole. But DON'T fall asleep. To let the boat go soaring mindlessly out across the ocean is to put blinders on your obedient bird. A boat with nobody on deck is blind. Single-handers have their own motives for blind flying, and that's okay if they've got the skill and don't mind living with the eventuality of in-flight collision.

The real purpose of self-steering is to release the helmsman's hand from the helm and his eye from the compass. Now he's got a hand for the boat, and his eyes can watch the sky and the sea. The net result is, like all good things in sailing, pleasure. Self-steering brings you greater pleasure from your boat.

Here is how it works:

There is something mystical about a trim-tab. This tiny control surface trailing behind the rudder has unsuspected power. With no more energy needed than what's in your fingertips, the trim-tab can be turned a touch in one direction and its dynamic power will turn the rudder decisively in the other direction. So the energy of a fingertip turns the whole boat - and right now (if it's a good boat).

Let's say we've got the boat set-up for running with the wind, as in the photograph. That's the way we happen to want to go, and luckily the wind wants to go where we do today. But the trim-tab doesn't know that. If we could get the wind to talk to the tab, the tab would gladly steer the boat for us. So, to tell the tab what the wind is doing, we'll build a vane, a wing-like weathercock, which can rotate so that it always points into the wind. A mechanical linkage joins the vane-shaft to the tab-shaft so that when the vane turns, the tab turns. A disconnect in the linkage (actuated by a line to the cockpit) can disengage the two until everything is ready.

TRY GETTING THIS KIND OF CONTROL WITHOUT A CENTER BOARD.

The vane is pointing straight aft today because that's where the wind is coming from. The sails are set for running free and the helmsman (steering from the cockpit with the ordinary helm) checks the compass to get the boat right on course. Right-on it is. He releases the disengage line and releases the helm. The vane takes over.

If the boat wanders from its course, the vane does not wander from the wind. That means the boat has turned but the vane hasn't. Neither has the tab, because the tab is hooked-up to the vane. But the rudder, now, has followed the boat. So relative to the rudder, the vane and the tab are turned. This fingertip of difference between tab and rudder is enough for the tab to make the rudder turn. This is what we need to get the boat back on course; and back it goes.

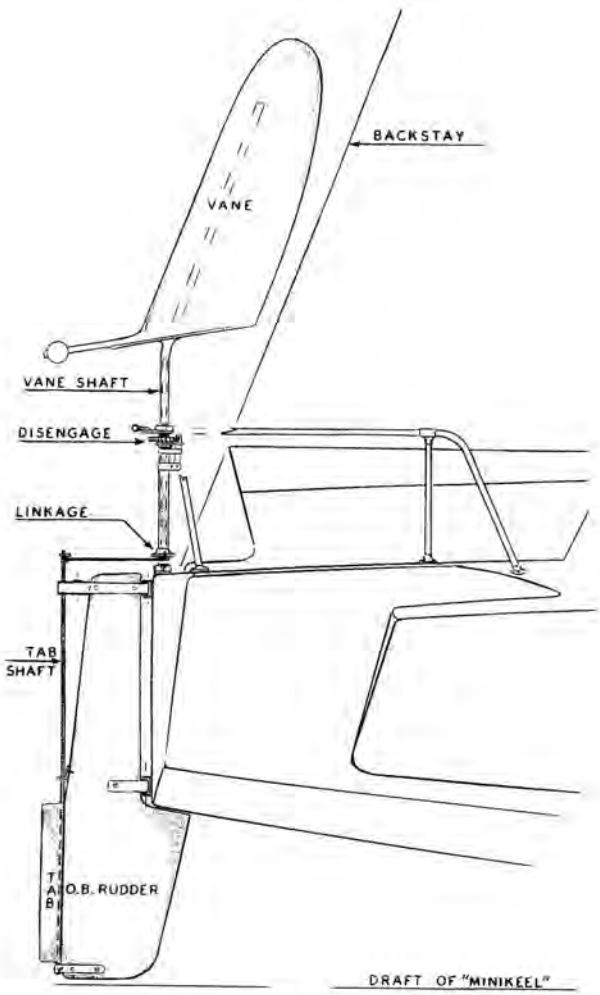
If this sounds like something for nothing, that's exactly what it is. The boat is, relative to the wind, steering itself. That doesn't say it is always on course. If the wind changes, the boat will follow, and you may find yourself headed for the Aleutians instead of Hawaii. So, disengage the vane from the tab; steer for Hawaii and set the sails to receive the new wind, which is coming over the side now. There's the vane, pointing right at the wind. Check the compass, and engage the humble service of the vane again. Off you go for Hawaii and you can get back to your ukulele until the wind shifts, or until you sight the peaks of Molokai.

There is nothing new or mystical about SEARUNNER self-steering except perhaps SEARUNNERS. The vane-tab method is the original, the simplest principle used by others. But indications are that it works better on a SEARUNNER than any other self-steering boat we can find out about. As far as we know, nobody but Max Hemminger has been able to leave his boat to the vane's control as it runs in storm seas dead downwind, surfing. This, without special downwind canvas.

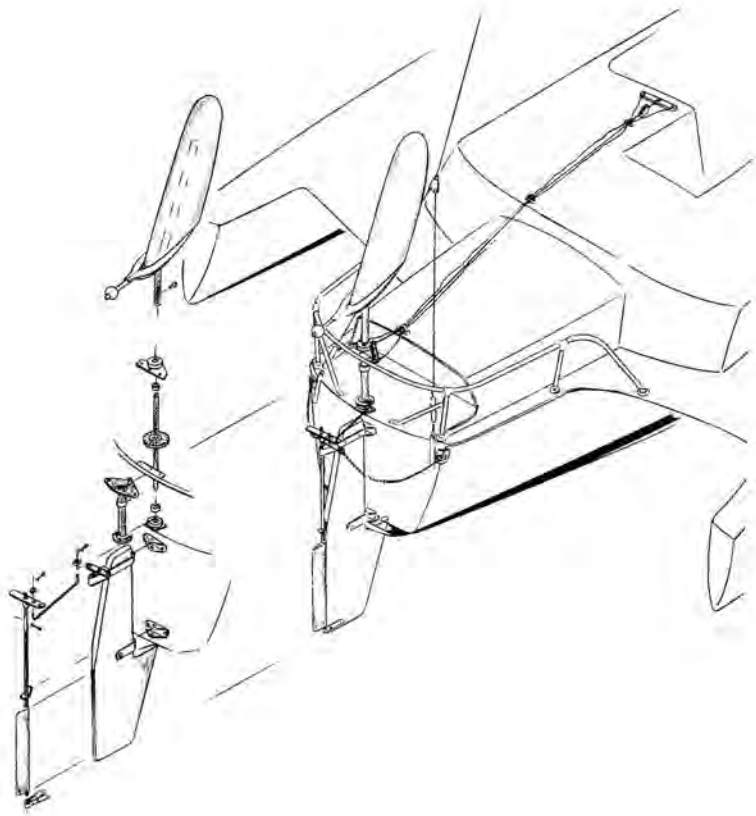
When sailing close-hauled, the boat responds to gusts by heading-up automatically to keep the same angle-of-heel with varying wind-force. And in calm conditions, if there's enough wind to move the boat, the vane will usually steer it unless there's a chop left over. One explanation for this unusual performance may be the careful development of the foil-shaped vane, and rudder-with-tab.

New developments, however, are expected to reveal the current method to be just a beginning. Improvements in the linkage, plus connecting both vane and helm to a single skeg-type rudder (fixed leading fin) may result in a substantial improvement and a welcome simplification of self-steering.

Self-steering for any boat cannot be designed without regard for the vessel's main steering system. For cruising boats we are now convinced that the "push-pull" type of linkage from the cockpit, like "Morse" single-cable controls, is best. When integrated with self-steering, it appears that we are onto a downright dreamy way to guide the bird.



DRAFT OF "MINIKEEL"



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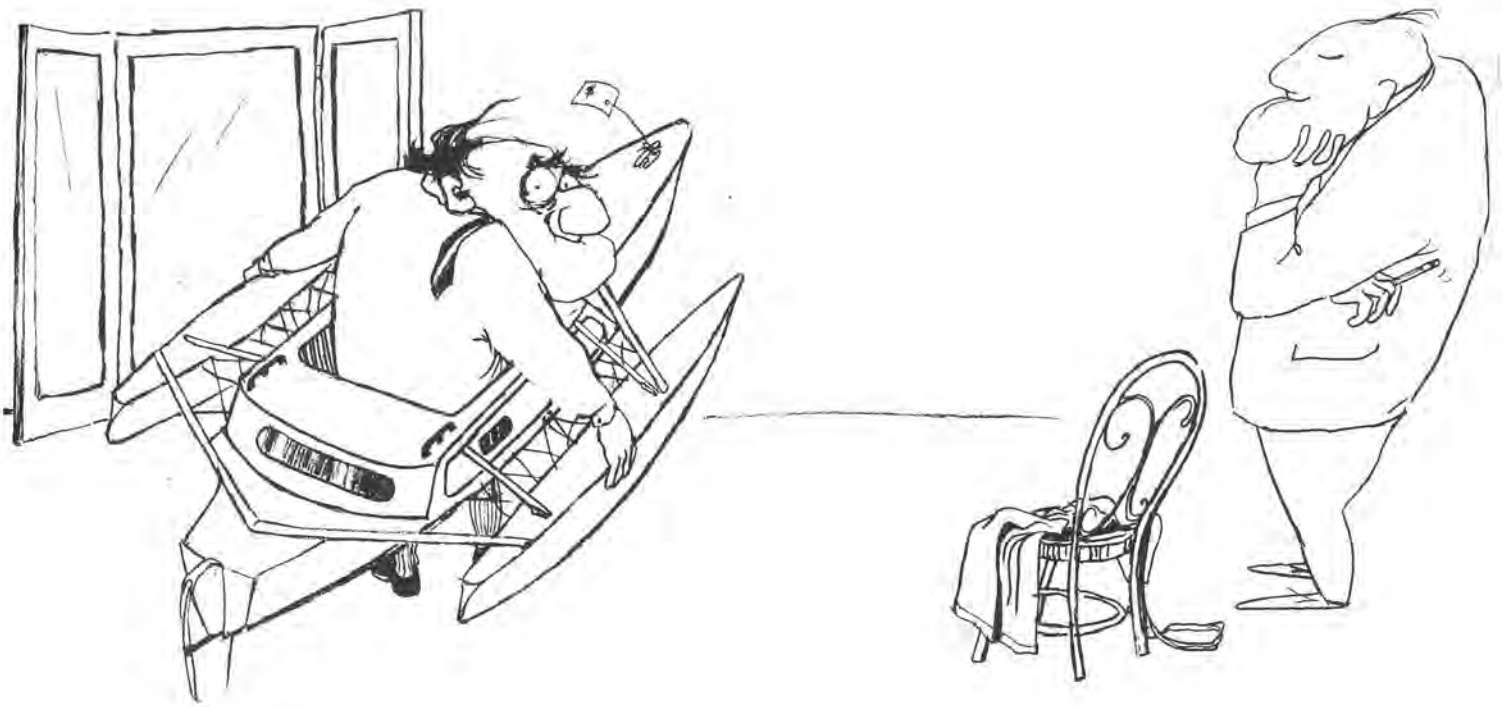


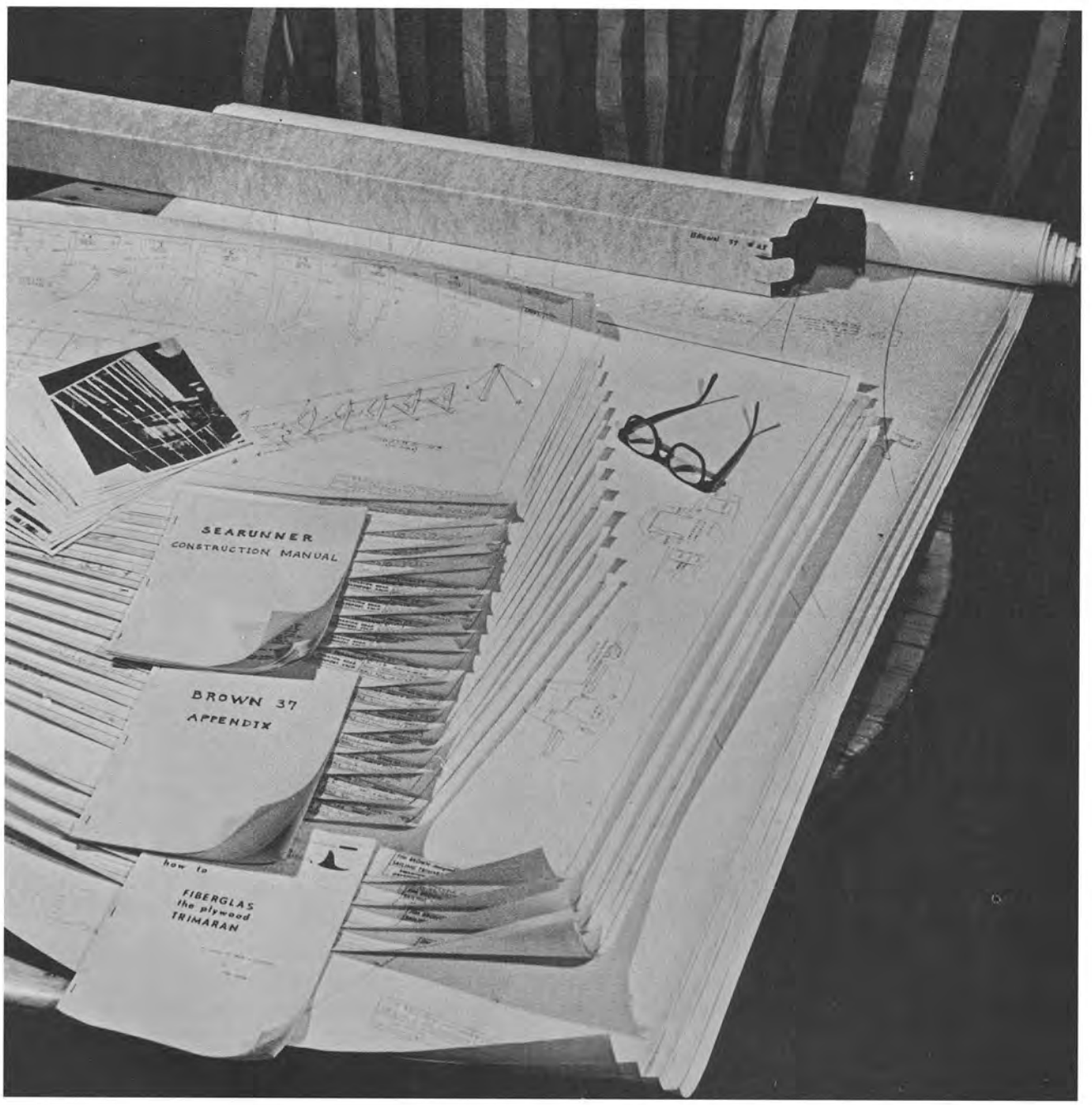
PLANS AND COSTS

Selecting a design is, for the owner-builder, like buying trousers which will have to fit two years from now. But with boats, size determines price; don't order larger than your needs. The only way to try the product on for size is to build it yourself. The plans can save you lots of money on material, and months of work as well.

SEARUNNER plans are drawn for the "amateur", meaning that the builder may or may not be highly skilled. He undertakes to build a boat without pay for his <u>own pleasure</u>. The boats are designed and the plans are drawn to yield the greatest pleasure possible from the sailing and the building.

To make work into fun is not always possible, but this is the SEARUNNER approach:

Let's say that it doesn't matter much which design you build, IF you are <u>convinced of your decision</u>. And the construction, the actual fabrication becomes pleasure only when you <u>know</u> what to do next and how to do it. The anguish comes when you <u>don't know</u> which design to build, or the plans don't give you enough information to build without anguish. This catalog is to convince the reader that SEARUNNERS are the right decision, and these plans are to show the builder what to do and how to do it.

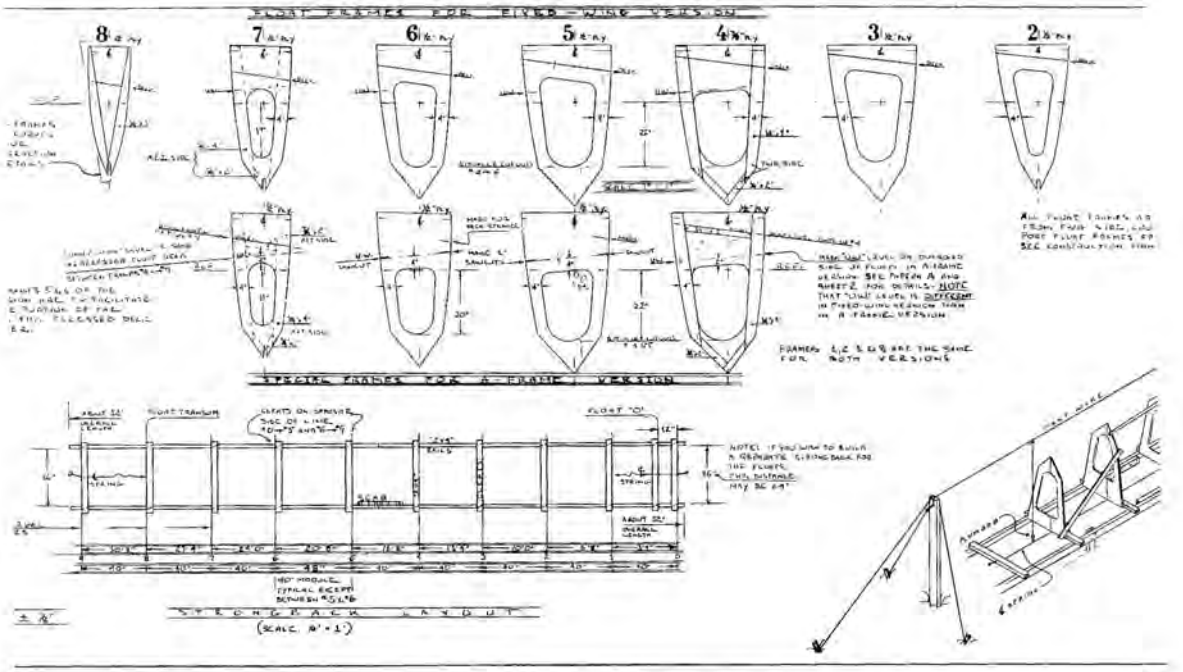


SEARUNNER 37 PLANS

Table of Contents

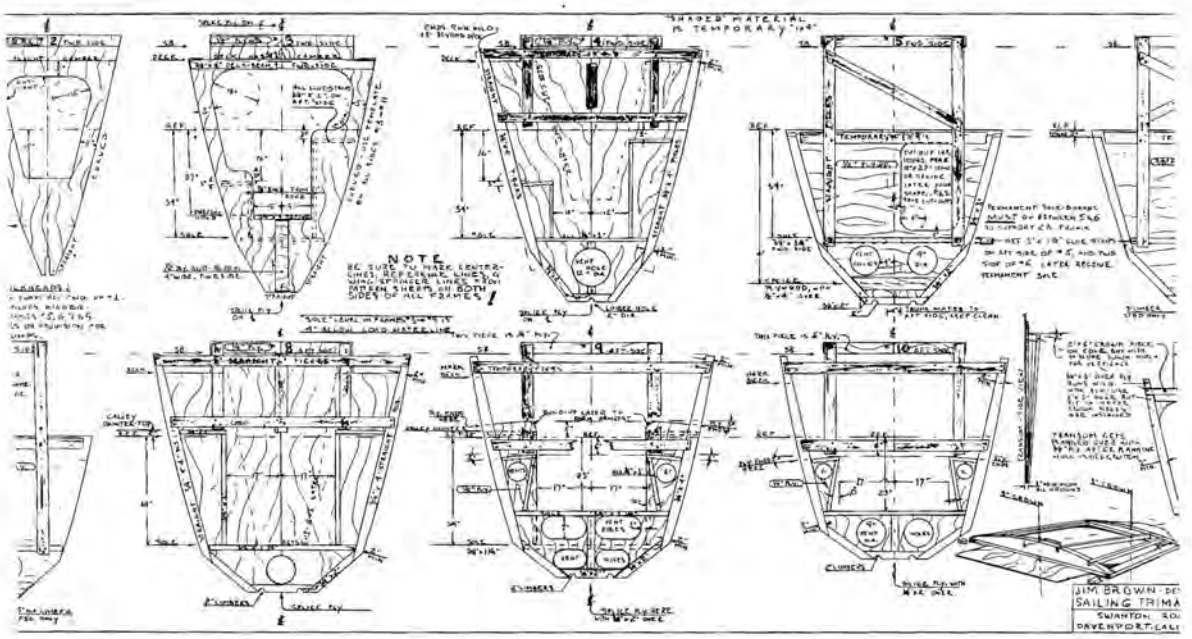
The SEARUNNER CONSTRUCTION MANUAL (described in Section 18) comprises the balance of the plans. Since its' first publication in 1972 it has been widely heralded as a "Bible" for back yard building. On the bottom of the pile of plans (photo at left) are the full size framing patterns, 42" x 94". These are rolled out onto the plywood from which a given part is to be cut. Marking through the paper onto the plywood is done with an awl, so that when the paper is removed, the plywood has marks describing the perimiter of the part. These marks are joined with pencil lines and the part is then cut to the lines. There is no measuring, no "table of offset". Accuracy is assured by reducing builders' error, and frame cutting goes very fast. It's a pleasure. Under the eyeglasses (in the photo) are the Roman numeraled sheets, 26" x 42" listed on the "Table of Contents", and on top of those are the numbered sheets, 18"x42". These working drawings graphically communicate each part and its relationship to other parts.

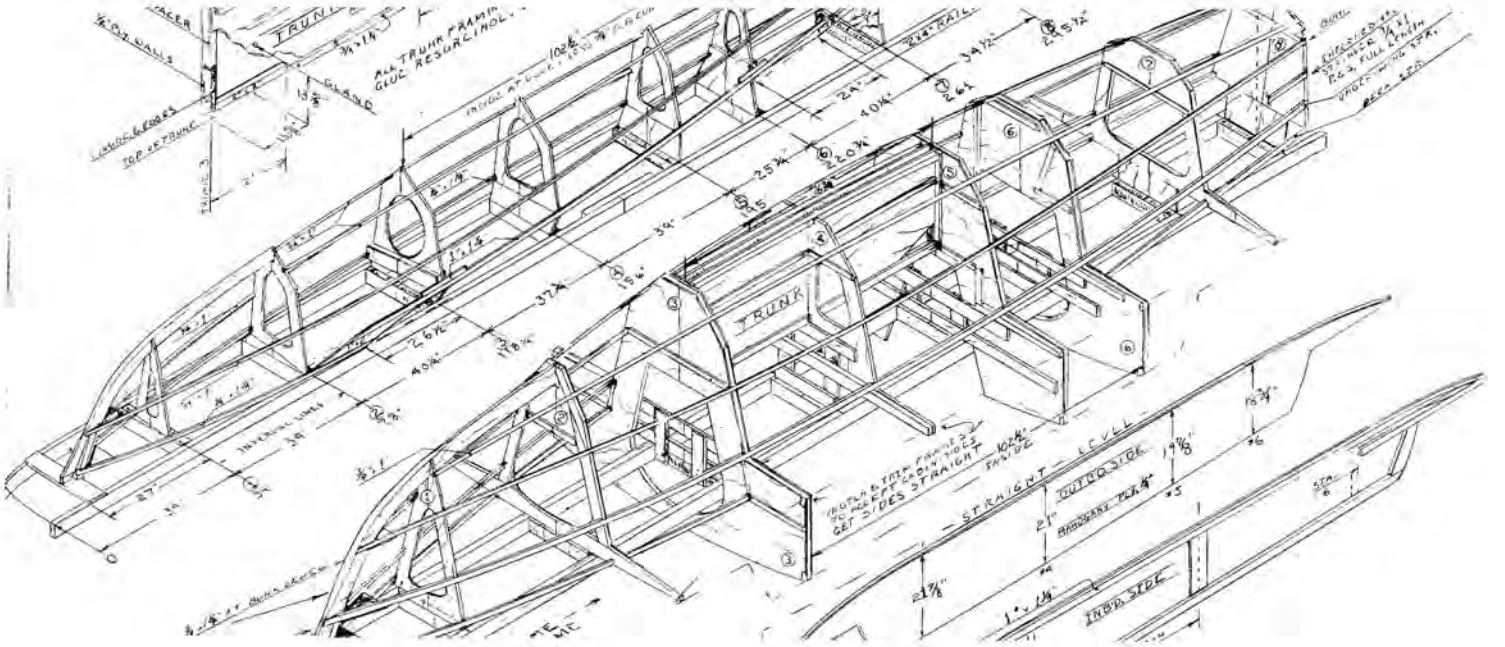
Following are some photo-reduced samples of the plans:



Float frameplan for BROWN 31 gives information to be used with the full-size patterns to fabricate the frames. Strongback layout and jigging-up method are also shown. The same strongback can be used for both floats and main hull.

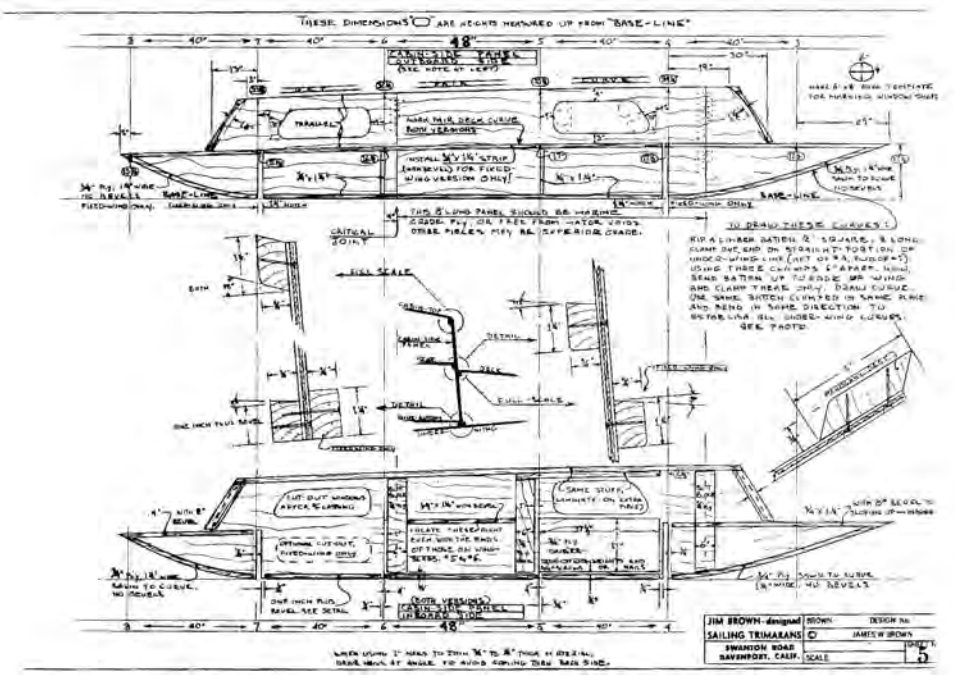
Mainhull frameplan for BROWN 37 shows how the boat's interior is established in the framing stage. Glue-strips and cut-outs are installed while the frames can be laid flat on the bench. When the hull is finished, the basic interior is established. The discouraging, time-consuming chore of scabbing on the interior joinery to the bare-belly-of-a-whale is avoided.

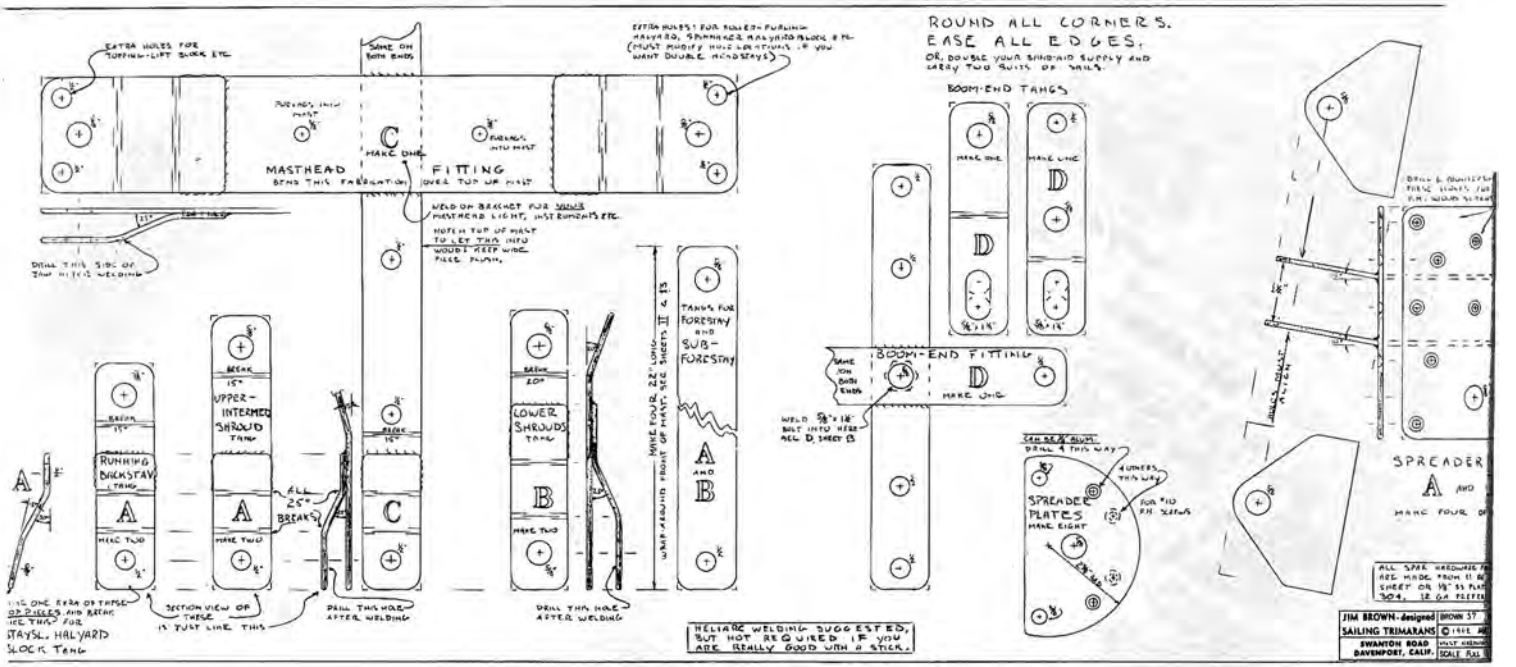




Isometric view of BROWN 25 framing shows simplified construction. Unlike the larger SEARUNNERS, the 25 is built with the main-strength bulkheads in place. (In the larger boats they are dropped-in to mate with waiting connective frames.) Note the massive installation of the center-board trunk.

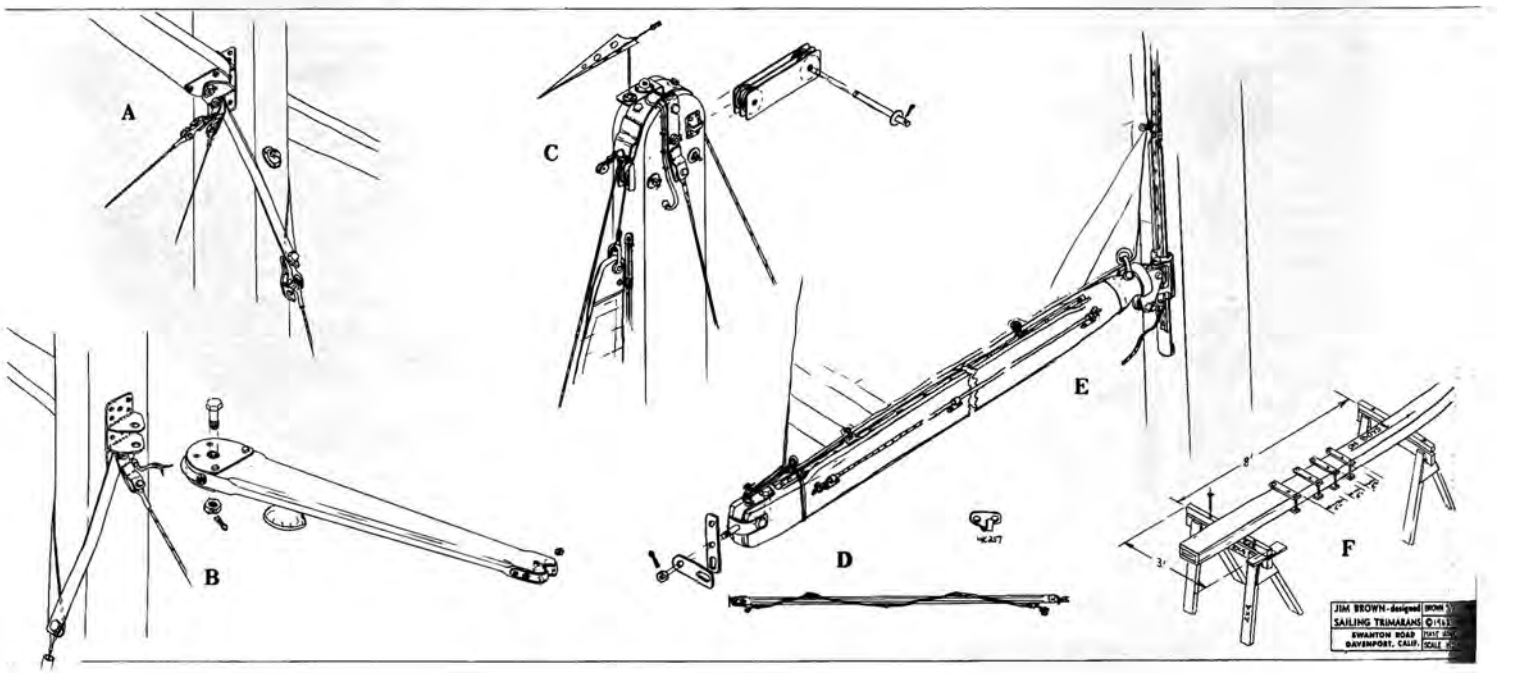
Cabin-side panels are prime structural members in all SEARUNNERS. Together with the main-strength bulkheads and the intermediate wing bulkheads, they establish the wing structure and superstructure and receive the shroud chainplates.

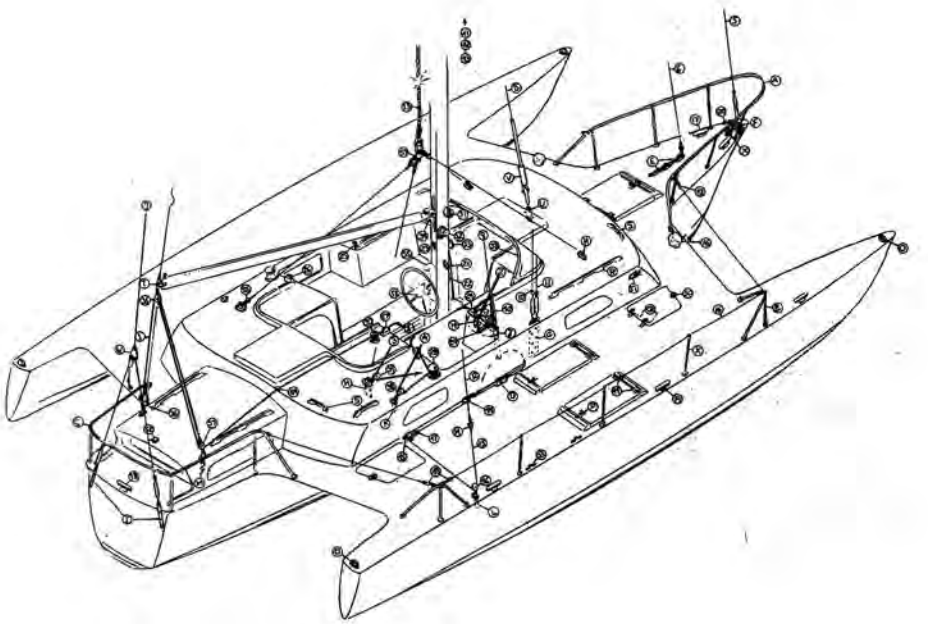




Metal parts which cannot be purchased from a manufacturer, like these mast-hardware parts, are given FULL SIZE. The builder cuts-out the parts from his print and pastes them directly onto the metal from which the part is to be made. This eliminates costly layout work by a machinist. The parts can now be cut from the metal by machine-shear, and holes machine-punched where marked. The cost, at a metal-shop, is low because the time required is short. Then, the builder can bend where needed, round corners, etc. Some parts are then taken to a welder, all ready for welding.

Critical spar hardware parts are given full-size in patterns; then installation sketches and photographs clarify the exact application of these parts. These sketches show wood-spar hardware. Plans for wood spars are included for the builder who prefers to make his own. Aluminum spar specifications are also given. Wood spars are not inferior to aluminum in any important way except that aluminum can be somewhat lighter. Extra weight aloft can have a noticeable effect on the boat's motion, especially if there is no center-board.





Sailboat outfitting is an immense subject with great opportunity for personal preference, and for error. The drawing above is used with the "Outfitting Schedule" below to inform the builder of the requirements of each part. A suggested manufacturer and catalog number is given for purchasable parts, and a list of sources is included. With the manufacturer's catalog at hand, the builder may substitute another item or make the part himself, while being cognizant of what the designer intended that part to be like.

SHOWN BELOW IS A PORTION OF THE SECTION ON OUTFITTING TAKEN FROM THE SEARUNNER CONSTRUCTION MANUAL

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11. Stern cleat (two). Like W/C 14051, 7". One may be used in the center of the transom if no self-steering is planned. Otherwise, cut the sterncastle coaming short and install one cleat each side, mounting like "10".

12. & 13. Staysail sheet cleats, W/C 14055, 5". Assuming that the staysail sheet will be led directly from block "18" to winch "1" in strong winds, it is possible to omit a separate staysail sheet winch. But when the headsail is flying (lighter winds), winch "1" will be in use. If the staysail is <u>also</u> flown in these light conditions, a winch to sheet it in is not necessary.

14. Headsail sheet blocks (two). Like Fico #FG428 or something of equal strength.

15. Main sheet block, with becket (one). Like Fico #FG432.

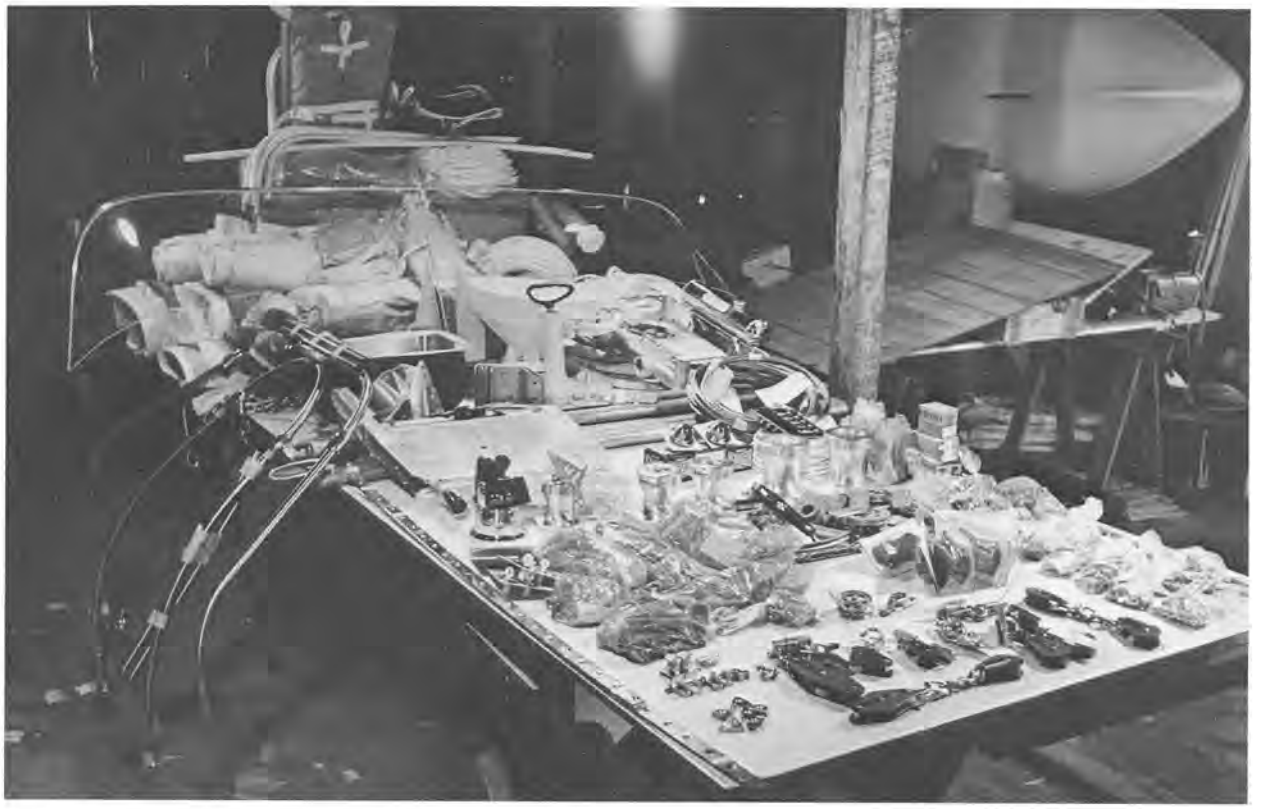
16. Main sheet block, double (one). Like Fico #FG435.

17. Main sheet block, single (one). Like Fico #FG429.

18. Staysail sheet block, single swivel (one). Like Fico #430. Attach to husky eye strap like W/C 276, size 2. Screw into bulkhead 5, 24" from boat C/L with four $\frac{1}{4}$" x $1\frac{1}{4}$" wood screws. The block must swivel freely, and may be attached to the eye strap with a Fico #FG365 shackle. About fifteen of these shackles will be needed on board for attaching all blocks, etc.

19. Forestay release. Merriman, figure #493, $\frac{3}{8}$". Or Almar forestay release lever.

20. Crane-lift shackles. Large, galvanized, forged steel shackles are prescribed. The big upper shackle is $\frac{5}{8}$" diameter, while two lower ones at the junction are $\frac{1}{2}$" diameter and the four on deck are $\frac{3}{8}$" diameter.



This group of outfitting parts was assembled for a "loaded" BROWN 25 at a cost of $2,000. Economy outfitting for the same design would cost about $600. This is why designers' cost estimates must be regarded with the builders' tastes firmly in mind.

The more boats cost the less I like 'em. That doesn't mean "the cheaper the better". It means that, in my opinion, owner-builders tend to ask too much of themselves regarding precise workmanship and expensive yacht gear. The most successful back-yard projects (successful in terms of the pleasure they bring the owners) are those which get done with the building and get on with the sailing. Certainly your boat needs good solid gear, but accessories can always be added as their need becomes evident to the sailor. A fetish for cosmetic perfection or middle-class gadgetry is an acknowledgement of the pride-of-ownership motive as supreme, and of the see-the-world motive as secondary. I personally believe that this money and this energy is misdirected.

Materials cost estimates for each SEARUNNER are included in the table of specifications. These can be doubled for a really yachtsie, gilded-lily version, and almost cut in half for a rock-bottom economy version built by a real scrounger. It has been said, "Show me a boatbuilder and I'll show you a thief". To any materials cost must be added the fixed expenses such as seven pairs of trousers stiff with resin and glue; two ruined pairs of shoes; band-aids and/or doctor bills; commuting to the site and building a shelter (if necessary) and perhaps launching expenses. Some say it takes a lot of beer to build a boat. In any case, your boat is bound to cost you more and take you longer than you think. Nothing can be said or written to make the prospective builder truly aware of the scope of such a project. So select the smallest size that you can do with; a design that considers cost as an important design criterion, and work to get it done. Building can be a great pleasure to the builder so inclined, but real fulfillment comes from using the boat for its originally-intended purpose.

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SEARUNNER SAFETY

A bewildering array of multihulls have set out upon the ocean. Some have vanished, but many have not. SO MANY, in fact, that wrong trimarans, even with reckless crews, have got to be right boats. That trimarans are safe is unquestionable, especially the right trimaran with the right crew.

The purpose of this section is not to compare the safety of trimarans to the safety of unimarans. That subject is so controversial, so charged with emotion that it has been worn to the same gray middle-ground as the relation between, say, Democrats and Republicans; everyone has his preference, but there isn't a whole lot of difference in the way it works out.

Boats work out also. They do function - all kinds. Let's face it; a lot of miles have been sailed in log rafts, a lot in "Tupperware" boats, too. Who, when he chooses a trimaran for himself, can say that the Tahiti Ketch just doesn't function? The reverse is just as narrow. The same guy who sails his keeler through the reef-strewn Bahamas could do a nice job managing a trimaran in a typhoon. It's a question of skill, and of preference.

It may also depend on the individual boat. When sailing among the reefs, if the keeler must carry the dinghy on the cabin-top, the helmsman has a slim chance to see the breakers or the changing color of the water. When riding out a typhoon, if the trimaran gets cranky and wants to broach, the helmsman has little chance to keep the seas from bursting on the beam. The possible ultimate result is just as bad in either case. One is called a shipwreck and the other is called a capsize. In the event of either disaster, the crew must obviously take to the life-raft.

Trimarans have <u>earned</u> their controversial safety reputation, even if the public has been quick to seize and inflate the evidence. Perhaps the single most fatal mistake made by trimaran enthusiasts in the last ten years was the assumption that, because monohulls sink from shipwreck and trimarans don't sink from capsize, trimarans are their own lifeboats. It sounds good at first, and it was used as a salespitch until this assumption caused the loss of several crews. It was exactly the same thinking that caused the high toll in the Titanic disaster. The ship went down, and there were not enough lifeboats. At least three trimarans have been found upside-down at sea, with no crews. There were no life-rafts. Evidence of attempts to survive inside the upturned craft and outside on the under-wings were noticed; but the vessel may as well be sunk. The hypothesis for survival inside the capsized vessel must include provision for air and light, and such deterrents as battery acid, engine oil, fuels, motion and exposure to sloshing water. Outside on the wave-washed platform, exposure is the main problem, even if there is something on the hulls to hang onto. What a real ocean-going boat must have is <u>another</u> boat. And the dinghy doesn't count. Since the Titanic, inflatable lifeboats have been developed which, to a trimaran builder, represent three-to-five percent of the cost of the project. These boats have water ballast-bags beneath them to make capsize in storms unlikely, and they have tent-like canopies to shelter the survivors from exposure. Complete with rations, such a lifeboat makes a welcome retreat - if it is accessible from the under-wing. It can be tethered to an upturned multihull to ride-out heavy conditions. When things calm down, the crew can go back to the stricken boat and live for months on its contents while awaiting rescue - and perhaps even salvage of the boat.

There are two design considerations which refer specifically to capsizing which I believe deserve further emphasis here. One is directional stability; the other is float buoyancy. In any vehicle, the steering is the primary mode of control. If a boat won't steer well in the rough stuff, you're out of control. The trimaran's speed potential allows the helmsman to steer around, and away from, the hot-spots, the breaking crests. But to succeed, he needs a boat that <u>steers</u>. To me, that means a center-board and a skeg-type rudder. The skeg rudder is not as good for low-speed maneuvering in the clutches, but it is really crisp for guiding the boat at speed.

Float buoyancy is, after all, stability. The float must be large enough and far-away enough to make the craft stable with the given sailplan. And buoyancy in the bow - far enough forward - can relate directly to the likelihood of capsize in a given design. When a gust strikes the sails and the float is depressed, it must be depressed <u>at an attitude</u> which, as the boat gathers speed, brings the float climbing out! If it is diving instead, a capsize is more likely. Or, when sailing downwind at high speed in big waves, a short, diving float bow could cause - not a capsize - a boatcrash.

Slicing surface at high speed in quiet water, float bow appears to have greater length and deeper forefoot than necessary.

But punching through a crest at sea requires long, buoyant float bows.

Actually, there is very little support for the proposal that certain design features (like center-boards or buoyant float bows) have much to do with making a given trimaran "safe" or "unsafe". If we could only talk with the crews that were lost, we would know much more about the cause of capsize. Some reasonable assumptions can be made from the facts on hand. Here is a collection of information:

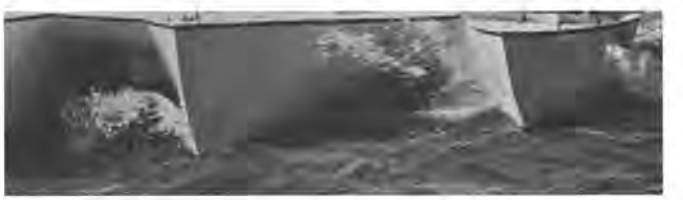
The trimaran "Privateer" was lost with all hands when it was sailed from Australia for the U.S., departing right in the teeth of the typhoon season. The "Vagabond" was destroyed with all hands when it was sailed across Australia's terrible Breaksea Spit at the height of a gale - apparently due to a navigation error. The "Bandersnatch" was apparently rammed by an angry whale - perhaps after ramming the whale. The dismembered boat and the whale were floating together, but the crew was gone; there was no life-raft aboard. A 25' trimaran was dumped in the Indian Ocean when the sailor went to bed, knowing that the floor boards were floating and the weather was worsening. He was miraculously rescued. A fine British catamaran was capsized in a Channel race from sheer zealous competition - they just sailed it over in strong winds with racing sail set; afterward the owner-skipper remarked, "How could I be so stupid". Similar catamaran capsizings occur in California occasionally, caused by the same zeal for winning. The same boats, when sailed with reserve, have achieved enviable cruising records. A recent trimaran capsizing occurred when, as the squall mounted, the skipper attended to his family to keep them dry, instead of attending to the sails; the boat capsized and got <u>everything</u> wet. I learned of a capsizing in San Francisco Bay caused by a 24'er chasing a 38'er. The larger boat was driving hard; the smaller boat was doggedly driven over. Arthur Piver disappeared off California on a routine run down the coast. Not a trace of man nor boat. Considering the passagemaking record of that man and those designs, it is unlikely that his mystery can be attributed to the boat's design or the sailor's judgement.

But in most of the above conglomerate of information there is the question of the sailor's judgement. The rest can be blamed on something like a whale, and virtually none of it can be attributed to multihulls as such. Real exoneration of the trimaran concept comes only when one knows of the hundreds of passages made by novice sailors in home-made boats of rudimentary design which did not end in disaster. The list would fill this publication.

Just because no Brown-designs have yet turned over or fallen apart doesn't mean that it can't happen. I am certain that seamanship is one reason that it hasn't.

Another aspect of the trimaran's controversial safety record has been structural failure. I think the public image started way back in the Forties when Henry Kaiser's big power catamaran came unstuck. Since then we have had a shameful list of equipment failures, but amazingly few major hull or platform failures. The falling masts, the snapping rudders, the twisted deck hardware, punched-in windows and blown-out sails have really plagued the movement. Lots of this has been the designer's fault, and some has been the builder's. But the sailors; well, if you abuse a rickety boat, things start popping. It's usually the little things first.

Contrary to the stories in the yacht club bars, trimarans do not "break up". The exceptions which prove this rule are few enough to be impressive. An Australian racing machine once had problems with float connectives - nothing lost except the race; and the bottoms of the wings in an overloaded tri were once pounded-out in the English Channel. Recently, two French trimarans competed in a race across the Atlantic, but didn't make it because their designer was really out of touch with trimarans. The boats, quite predictably, came apart. Both sailors were rescued (both had less than one year's sailing experience) but the word really got around that "trimarans break up". Those did. A monohull sank in the same race, but nobody seemed interested.



Narrow hull spacing (above) causes great constriction in the tunnel, and aggravates leeway. Wide spacing (left) lets boat romp over crests without constriction and pounding.

The above safety record is far from complete, but we're working on it. The Amateur Yacht Research Society is now conducting a Multihull Safety Study which is expected to be of great service to the movement by providing a consensus of opinions on multihull design and multihull seamanship.

There are some interesting differences between trimaran seamanship and monohull seamanship which deserve more thorough treatment than can be given here. These differences stem from the trimaran's light weight, and speed potential. For instance, anchoring can be best accomplished from the stern; or in heavy weather, by a bridle from the float bows. Unbelievable anchorages can be considered because of shallow draft, and the surge on the anchor is less than with heavy boats because of the multihull's light weight. There is the beaching potential to be explored; for maintenance, refuge and pleasure, this is an aspect of seamanship not present in keelers.

Handling in storms includes such axioms as "don't sail faster than the waves"; "don't stop the boat stern-to with a big sea-anchor"; "trail your drogue by a bridle from the float sterns"; and "if seas are boarding from astern, get some sail up and pull away from them". It seems that the boat's speed potential is its salvation at zero-hour. It is a matter of balancing your speed with the speed of the seaway. This lets the vessel give with the punches instead of just lying down and taking them.

In monohulls, the burden of their own inertia plus meager speed potential makes this brand of seamanship unapproachable. How can you give with the eighteen-knot punch of a growling crest in a boat whose maximum speed is seven? If, at that moment, the boat can quickly get moving at fifteen, the collision is somewhat softer. When the crest has passed, or has spent itself at the transom, the trimaran drops back to seven until another bad one comes along. This brand of seamanship, however, is absolutely and critically dependent on directional control.

Trimaran seamen need a new approach to seamanship, and that approach is just emerging. It is a conservative, knowledgeable approach to the handling of radically different boats. Designers are not usually involved with the conduct of crews, but trimaran designers can do much to distribute the new knowledge and to establish the conservative approach. Designers' comments, together with the tabulated experiences of hundreds of sailors, will make the Multihull Safety Study a regular Bible for trimaran people.

Lots of people have lots of fun with boats, but overloading is a shortcut to trouble.

The designer's initial role is with the boats themselves. His task is to offer boats which contain the necessary rudiments for safety. All previous information in this booklet has referred to these rudiments as this designer sees them. They are:

SEARUNNER Center-board
" Central cockpit
" Cutter rig
" Hull & float form
" Construction
" Interiors
" Self-steering
" Plans
" Safety
and now
SEARUNNER SAILORS

The combination is incomplete without the last ingredient.

Trimarans, probably more than other vehicles, attract the aspirant who is self-confident; individualistic. This person is simply unaffected by the magnetic field which says "buy a Mustang", "hop a jet", or "go with Chris Craft". There is another polarity which reaches him with "ride a real horse", "fly your own plane", and "build your own boat".

Why? Because it's more dangerous? I doubt that is the reason, and I doubt that it <u>is</u> more dangerous. But it <u>can</u> be if one selects an ornery mount for his first ride; if he tries to solo without instruction; or if he attempts the ocean without learning the bay.

Scalping the ridgetops on a 15-knot reach, this boat is in the process of crossing from the face to the back of a breaking crest; an explosive instant. To lash the boat into such a lather is a tactic used only in racing or while sailing in the company of another boat. It is very necessary for a sailor to "rod" his boat <u>before</u> cruising. Without this he cannot really <u>know</u> his craft. Then, while cruising, one sails with <u>reserve</u> and <u>confidence</u>.

What I'm proposing is that the only thing we need now to make SEARUNNERS safe is a safe attitude. I mean a mental climate for seafaring that lets the sailor meld with his boat and with the ocean in a safe way.

The human desire to voyage is as innate as the human need for song. The motive for each is simply that performance brings the person pleasure. The more practice and the more talent, the more pleasure. But to make seafaring safe, I believe we need a closer understanding of the motives. "Why sail?" is perhaps more difficult to answer than "why sing?" The motives of my clients are, for me, the main enticing force to design. Trimarans are fun, but the people are what makes them happen.

WHY BUILD YOURS?

"Why build yours?" is a question like "What's it like on Mars?" Nobody should be asking you if you haven't been there yet. But "Why build mine?" is a question which the reader may be asking himself. If he hasn't been there yet, he can only dream the answer.

The undertaking has three phases: building the boat, learning to sail it, and cruising.

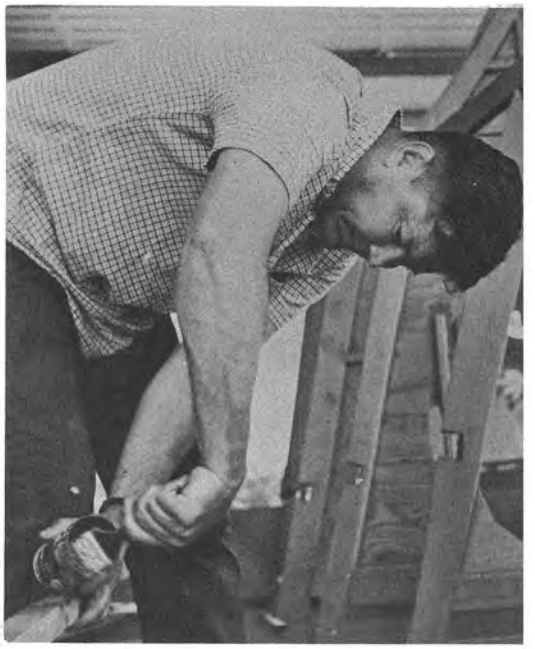
Building is more than hard work. It can be a hassle in your life, or an enjoyable project. The skills involved are achievable by almost everyone, but they are much easier for the guy who has a feeling for tangibles. Still, the day that he has glass-dust in his eyes and glue in his whiskers is the same day that he'll hit his thumb with the hammer. Other days are pure fun, like when you get the gang together to hook the hulls together.

Planking party mixes hard work with fun. Nail-setter's hammer keeps time with dirty blues guitar while dogs and kids dance.

...when you get the gang together to hook the hulls together...

That individuals who have never sailed a boat can sustain building one speaks highly of the human potential. It would be easier for them if there were a way to describe learning to sail, and cruising - a description that would transcend the terrestial; but there is not. So let's admit the limitations of this answer to "Why build yours?" and do the best we can with Earthly terms.

Tom LeDew (right) ... "I slaved on that boat for two and a half years, but it wasn't really slavery 'cause I knew I was working for myself. Now, when I go down to my boat, I know it is one place I can go where I'm my own man".



Bernie Wolf (right) and Herb Ross (left) ... "We're getting out".

Bob Steg at departure interview ... "We're not copping-out on anything here. We just want to see a little of the world before it all becomes Los Angeles-ized."

Dave Green and family in their central cockpit... "It's just the idea of bloody doing something!"

Max Hemminger ... "I tend to de-emphasize the objective, and accentuate the subjective ..."

Jim and Barbara McCaig ... "When we works, we works; when we sits, we sits and looks out of our eyes".

Learning to sail is, for most people, just like riding a bike. It is very easy for a kid who starts in a dinghy. "Yachting", let's say, is like riding with the big boys. But cruising! That stuff is very grown up.

For most kids, driving a car comes after the bike, and yet so many grown-ups are starting out with cruising in trimarans not knowing what it is to sail a dinghy! Many a lanky twelve-year-old could step from his bicycle into the driver's seat, and he could drive. He would probably get the auto down the street, up the ramp and out onto the freeway. Maybe he'd even make it off again. But that's a very drastic way to learn to sail! The ocean may be safer than the freeway, but that's not what most people think.

Max Hemminger riding "Dharma".

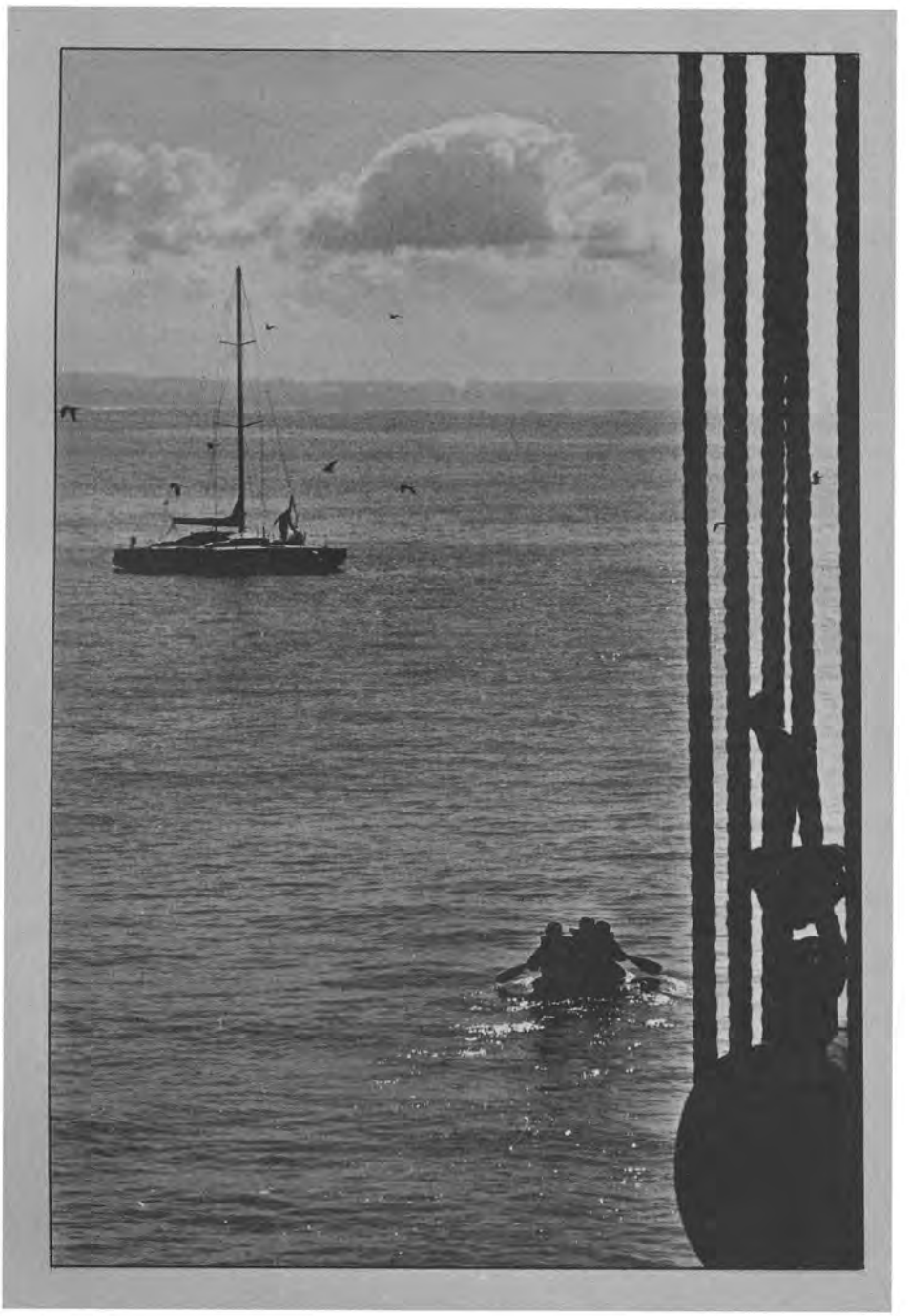
You don't "ride" a car, you "drive" it, and you don't "drive" a sailboat, you "fly" it. The trimaran, especially, is flown. This, with the possible exception of when the pilot leaves the cockpit, under self-steering. Then he "rides" - no hands.

An afternoon sail can be rather like a Sunday drive, but that's not what it's like to "hit the road". Real traveling is a way of life that requires massive adjustments, especially at sea. To tighten-up the last turnbuckle and at once shove-off for Rapa Nui is a trauma similar to that of being born as an adult. Condition yourself gradually if you wish to avoid fear of the new, the unknown realm. Live aboard for a while. Cruise around to local harbors and encourage those metamorphic changes - both physical and psychological - that will occur within you. Don't force them; you'll know when it's time for cruising.

Building a boat and learning to sail can be described in terrestial terms like "hard work", and "riding a bike". The next obvious question is "What in the world for?" There is no answering that one because of the "in the world" part. Cruising, I am trying to explain, is a new realm.

The midregions of the sailor's realm are vaguely similar to deserts or forests - challenging to travel through - except that in the open sea, the sailor rides for free. Oxen are needed to pull the prairie schooner, and gasoline to push the car. But wind is free! Currents in the air-oceans are systems which form circuits over the seas in each hemisphere. You can get on the circuit in one place and ride for free to anyplace on the line where you want to get off. Switching circuits is possible. You can change oceans or change hemispheres, stopping anywhere you like while having quite an interesting time. Sailors call it "cruising".

...time for cruising.



Passing through the deserts and the forests is a big part of land traveling, but the seacoasts are probably our favorite. The sailor also enjoys the midregions of his realm, but the places where the seas come together with the land are his favorite places on the circuit.

There are different kinds of traveling. There's the tourist and the wanderer, the yachtsman and the cruisingman:

> The tourist pounds the pavement to reach the next town, the next National Park, or the next Motel. But the wanderer makes his way down to Denver not for Denver itself. He travels for the feeling of that land he's passing through; the exchanges with the landsmen that he meets along the way. Looking back upon his footprints, he knows they'll lead to Denver, but for now he just makes them come-on-out behind. The feeling is "There's nothin' ahead but blue skies, highway and time".
>
> Some say the yachtsman cuts the waves to reach the next port, the next island, or the next hotel. But the cruisingman sails his way down to Kingston-town not for Kingston itself. He cruises for the feeling of that sea he's passing through; the exchanges with the seamen that he meets along the way. Looking back upon his wake, he knows that it will lead to Kingston, but for now he just makes it. What he feels ahead of him is the same as for the wanderer, except it's blue skies, ocean and time.

Of course, that's not the only thing these travelers will meet. But on land, blizzards end. Gales blow-out at sea. After they are over, those times are almost better. There is the refuge of the inn, or the trapper's cabin all lit up with lanternlight; a sailor has the pink dawn's reflection on huge left-over rollers, or the laughter of the anchor splashing down in Kingston harbor.

The cruising sailor has his motives, like the wanderer on land, but "escape" is not the meaning in their ways of life. Don't make the mistake of thinking of SEARUNNERS in terms of running away. The sailor's escape is much more positive than that; he runs <u>to</u> the ocean, not away from the land.

Now I'll admit that leaving port is definitely leaving:

> You aim your bows out through the Golden Gate and . . . Look! Up there on the bridge - it's your family and friends. They're dropping off big bunches of colorful balloons while asking themselves inwardly, "Will we ever see him again?" Ahead, Pacific - bright and beckoning. Behind, Oakland - dark and threatening. Who should pray for whom?

When John Glenn returned from his first orbital flight he reported to the Congress that if the diameter of the Earth were likened unto his own height (as he stood there on the podium), then the altitude of his flight would be equal to the thickness of two fingers on top of his head:

> I once was sailing on the circuit when some astronauts were orbiting the earth. In a calm, we watched the spacecraft zooming through the heavens; a special star much faster than the rest, but just two finger's-worth away. It was out of our atmosphere. On a passage one becomes quite conscious of the universe; our shallow envelope of air, and the seas beneath the "boundary" more shallow still. I have come to think of "space trash" as those little chunks of soot that sometimes settle in the sails when you're a thousand miles out.

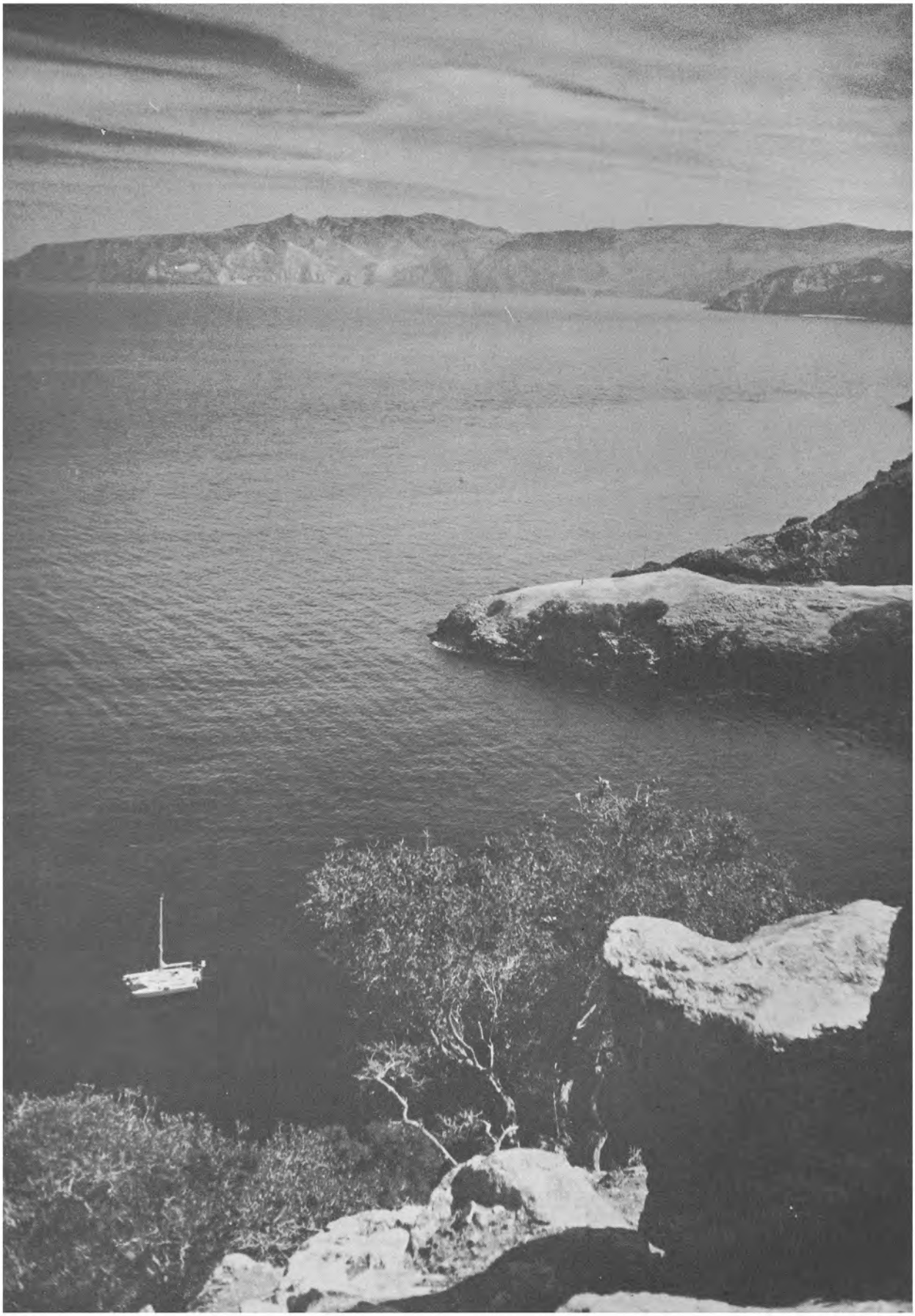
When a landsman goes to sea gradually, and if he stays there long enough to feel like he belongs, then returning to the land can demand adjustments:

> Entering a port, like landing a plane, is said to be the time of greatest danger. It can also be a shock. Your approach is marked by buoys, but perhaps you also pass a flock of dead and dying seagulls floating on a raft of lethal garbage. You glide-by on the swell; the living show no fear of man nor trimaran. Their bird-brain glances only ask "What's happening?"

Braced for landing into 20th Century Honolulu after sixteen days in another realm.

Experience like this makes trimarans (and other things) seem urgent, but don't get the idea that the ocean is a realm of Shangri-la. The challenges and the dangers, the achievements and the pleasures - the displeasures - are at least as prevalent and powerful as they are on land. If the reader has known a <u>feeling of belonging</u> as he travels on the land, he will concur that to gain that same sensation as he travels on the sea will take some time, some trouble, some experience. Traveling on land is different from cruising at sea in the same indefinable way that learning the road from Helena down to Denver is different than knowing your way from Nassau down to Kingston. The trimaran enthusiasts I know value the experience along the way as much as the destination. To them, experience <u>is</u> the destination. <u>That</u> is "Why build yours".

I build mine because, in a word, trimarans are my "trip". A trip out on the ocean in one of my designs is, for me, the farthest-outest trip on Earth. For anyone, in any boat which he has <u>built himself</u>, it is far enough to be another world. And any way you go is hard traveling - but among a certain group of sailors, the SEARUNNER line is said to be the only way to fly.



".....far enough to be another world."
Pelican Bay, Santa Cruz Island, California

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"That's what it says, Luv. "DO NOT install centerboard Trunk until after..."

or "Sorry Luv. I lost my place..."

SEARUNNER CONSTRUCTION

A Manual for Owner-Builders of Jim Brown-designed (and other) Trimarans

The first "BROWN -25" plans were offered to the public in early 1966 in response to requests from friends and acquaintances for a "pocket-sized assault cruiser". Word got around and dozens were under construction before the plans were half-completed, and the first launchings were of boats built from many rough pencil sketches and lots of cut-and-try.

In the years since we have steadily added to the drawings and amended the plans with corrections and suggestions offered by the builders themselves.

The results have been amazing. It is certainly true, we know now, that the individual craftsman who is sufficiently motivated can produce these complex, vehicular life-support systems IF he's got plans - the kind of plans HE needs. These individuals have proven untrue the assumption that quality seafaring vessels must be produced by the professional builder. That assumption simply says that the designer is unwilling to provide the neophyte with suitable information.

And I don't blame that designer. It's a hell of a lot of work - a year's work for each design! But it's also a hell of a lot of fun. Working with pioneering individuals to develop the boats and the plans has been a privilege. Both ashore and at sea we have enjoyed a rare level of camaraderie with our clients. We could not ask for more.

The working drawings for all four SEARUNNERS were completed in early 1971, much to the relief of builders who were working themselves out of plans. But the other part of the design information that has made these boats so build-able has been the "How To..." stuff. The "Construction Manuals". These booklets have been produced by hand on our small copy machine to include the latest available information at the time of printing. But the problems of up-dating and the pressures of correspondence have reached the workload limit of our "staff" (Mrs. Jo Anna Brown and friends).

Now that all SEARUNNERS have sailed in sea trials, and some on extended cruises, we have gathered enough proof data to "finalize" the plans and the manuals. Not that development stops here. New ideas and addendums to the plans will be distributed to the builders as necessary through our SEARUNNER Newsletter. But the purpose of this section is to announce the availability - as of December 1, 1971 - of our new trimaran book:

SEARUNNER CONSTRUCTION MANUAL

It has everything - everything we have to aid the backyard builder of a SEARUNNER, or for that matter, any other trimaran design. The book has the same format as this Catalog and contains all material for all four SEARUNNERS, plus descriptions and photos of other types of trimaran construction, for the purpose of comparison. Hundreds of detail drawings and photographs are applicable to any multihull project; but the content is directed at builders of SEARUNNERS. The text is necessarily more text-like than is this Catalog, but every effort has been made to keep this "How To..." book from saying "Do it my way". While the nomenclature and the subject matter are slightly more technical than that of the Catalog, a liberal dash of Jo Hudson's cartoons are sure to keep you in touch with the pleasure, the pain and the humor of building your own seagoing sailboat.

In industry, a design project the size of the SEARUNNER Series would be a team effort, and so the scope of the plans has been honestly too much for a one-man office. As a result, it may be necessary for the builder to dig through the book or the drawings for the details he wants, or contend with repetition between the drawings and the instructions. But we feel safe in saying, "It's all there". Some builders don't need the instructions at all; others need more than can be given and write long letters with involved questions. We hope the new book will encourage individual self-reliance and discourage correspondence - because the latter has clearly gotten out of hand. However, the designer or his agents still offer free consultation, if it is not excessive.

The SEARUNNER CONSTRUCTION book is part of the plans. Everyone who buys plans will receive a sopy with the drawings, if he does not already have one. The purchase price of the book is deductible from the design fee for plans. To serve a double purpose, the book is made available separately to anyone interested. Reading the Catalog, and then the construction book will give the prospective builder everything available to decide if he wants to bite the bullet and really build one. To temper that, let's say in fairness that nothing will let you know what it's really like to build a boat except to build one; but our literature is as complete and truthful as we can make it.

Nothing will let you know what it's really like to go ocean sailing either, except going. Building, it must be said, is not preparation for sailing. No amount of building makes a sailor; except that the sailor of his own-built boat if intimately familiar with the physical craft, which has great and obvious advantages. Sailing is a subject for another book.

However, to the limited extent that sailing can be treated in a written article, the new construction book contains a reprint from SEA Magazine titled "Trimaran Seamanship". This piece was well received in May, 1970 for its treatment of those facets of ocean sailing that are peculiar to trimarans. Since that article we have added a list of eight one-liners: "Heavy Weather Dos and Don'ts for Trimarans".

If, after reading this Catalog, you are further interested in SEARUNNERS and have some questions, we think you'll find them answered in the new SEARUNNER CONSTRUCTION Manual. And, if you're building a multihull of any kind we feel you'll find our book helpful and worth the price. The order blank has prices for everything we publish; and following is a copy of our "Owner-Builder's Agreement" and instructions for ordering plans.

Thank you for your interest.

JIM BROWN - designed SAILING TRIMARANS

P. O. BOX 2627 · SANTA CRUZ, CALIFORNIA 95060

OWNER-BUILDER'S AGREEMENT

I, the undersigned, desire to build the trimaran sailboat known as _____(A-Frame_____, or Fixed-Wing_____) sail #_____, as designed by Jim Brown, and hereby state my understanding of and agreement to the following provisions:

The plans and specifications are instruments of service and as such remain the property of the designer.

The plans and specifications are for the construction of one boat only, as built by myself, the undersigned. I will not let, or have let, the privilege of building from the plans to another individual, group, company, or corporation without the written consent of the designer.

I will not copy, or allow to be copied or reproduced in any way, said plans and specifications, or any portion thereof.

I agree to follow said plans and specifications in the construction of the boat. I agree that any material deviation from the plans and specifications, without the designer's prior written consent to such deviations, will require me, at the request of the designer, to refrain from identifying the boat with its class name or the designer's name.

Because the designer has no control over the actual fabrication or use of the boat, I agree that his responsibility shall end with providing said plans and specifications as available. I hereby waive all implied warranties in regard to the above-mentioned trimaran design.

Signed_____Date_____

Mailing Address:

Optional Information:

Current Phone No.:

Permanent mailing address (while cruising):

PLANS

We feel it is important to maintain contact with our builders. Unless the use of the plans is limited to one builder, this contact is lost. Adherence to the designs is necessary to create a full line of trimarans which are recognizably uniform and strongly oriented toward quality. However, variations on the plans may be made in consultation with the designer.

We do not "lease" plans. We sell a service, and the plans are "instruments" of that service. Technically they remain the designer's property to clarify that the designs themselves are not for sale. But the plans need not be returned; they stay with the boat.

To order plans, complete the "Owner-Builder's Agreement" (following page) and forward with the design fee. Subtract prior payment for this Manual and/or our SEARUNNERS TRIMARANS Catalog from your check or money order. These are part of the plans. Plans are mailed promptly; distant orders are sent Airmail directly to you or to your local agent. Order through your agent whenever contact with him is more convenient - all through the project - than with us (see list of agents on flyer in catalog).

The working drawings are printed by the "Ozalid" process, and will fade rapidly in sunlight. We suggest making a cardboard or masonite folder for the sheets currently in use, and keeping the others safely put away. Faded or damaged sheets will be replaced for printing cost (about 15¢ per square foot) upon the return of the old sheets.

The "lines drawings" are scale versions of the lofting used by the designer in working out the boat. You may study them to advantage, and scale from them. Bear in mind that paper is not stable dimensionally - it stretches with humidity. The pattern sheets particularly should be protected from dampness.

Any questions which you may have will be answered by mail if you type or print the question, leaving sufficient space for the answer, and enclose return postage. Address these questions to the agent from whom you purchased your plans. He receives a commission for consulting with builders. Plans purchased directly from the designer do not necessarily earn consultation from the designer himself; the designer's wife or your nearest agent may perform this assistance. We feel, however, that a great deal of consultation should not be necessary because of the scope of these plans and this Manual. Telephoned questions are discouraged because they have proven inefficient, but the builder may sometimes wish to telephone his agent or the design office if his questions are urgent and easily explained verbally. Because current projects involve more sailing than drafting, it is suggested that calls to the design office be placed during week days, and between the hours of 9:00 and 12:00, pacific time. The most current address will appear in the Classified Sections of many boating magazines

Whichever design you select, and whicever designer, we hope the building and sailing bring you lots of pleasure.

ORDER BLANK

Please send_____copy(s) of your $4 SEARUNNER TRIMARANS Catalog $_____
For airmail postage add $1 each $_____

Please send_____copy(s) of your $8 SEARUNNER CONSTRUCTION Manual $_____
For airmail postage add $2 each $_____

To order plans send check or money order
with signed "Owner-Builder's Agreement" for:

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SEARUNNER 31 - $300 _____
SEARUNNER 37 - $400 _____
SEARUNNER 40 - $450 _____

Deduct price of Manual and/or Catalog - _____

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JIM BROWN-designed SAILING TRIMARANS

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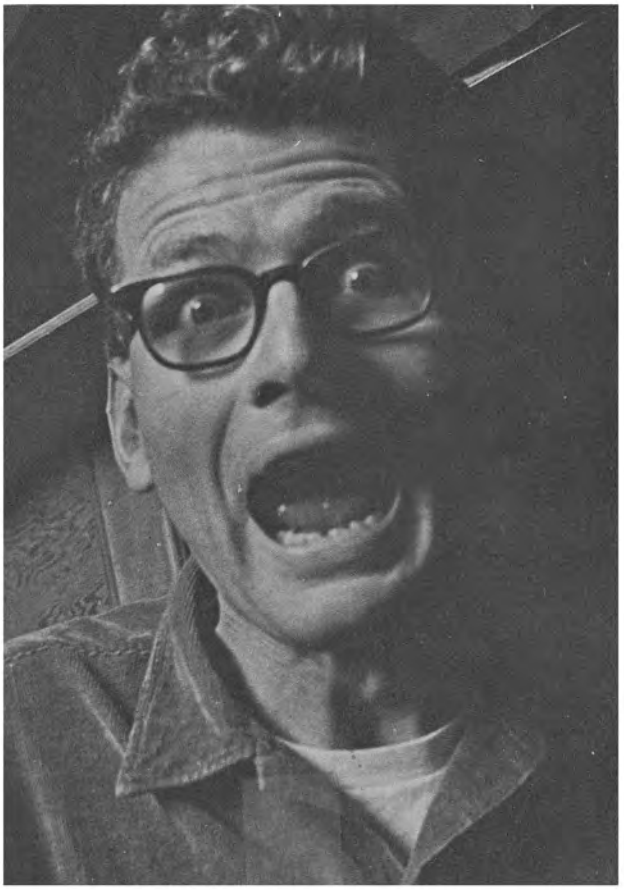
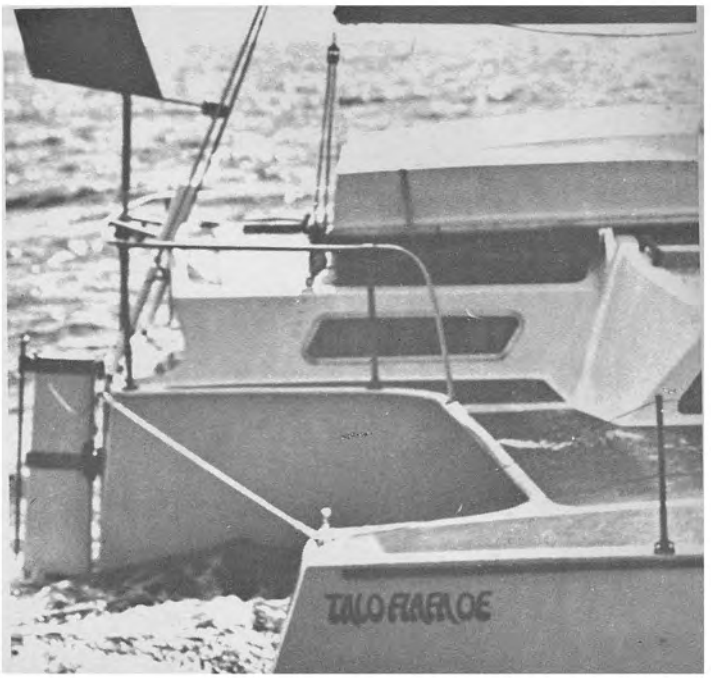
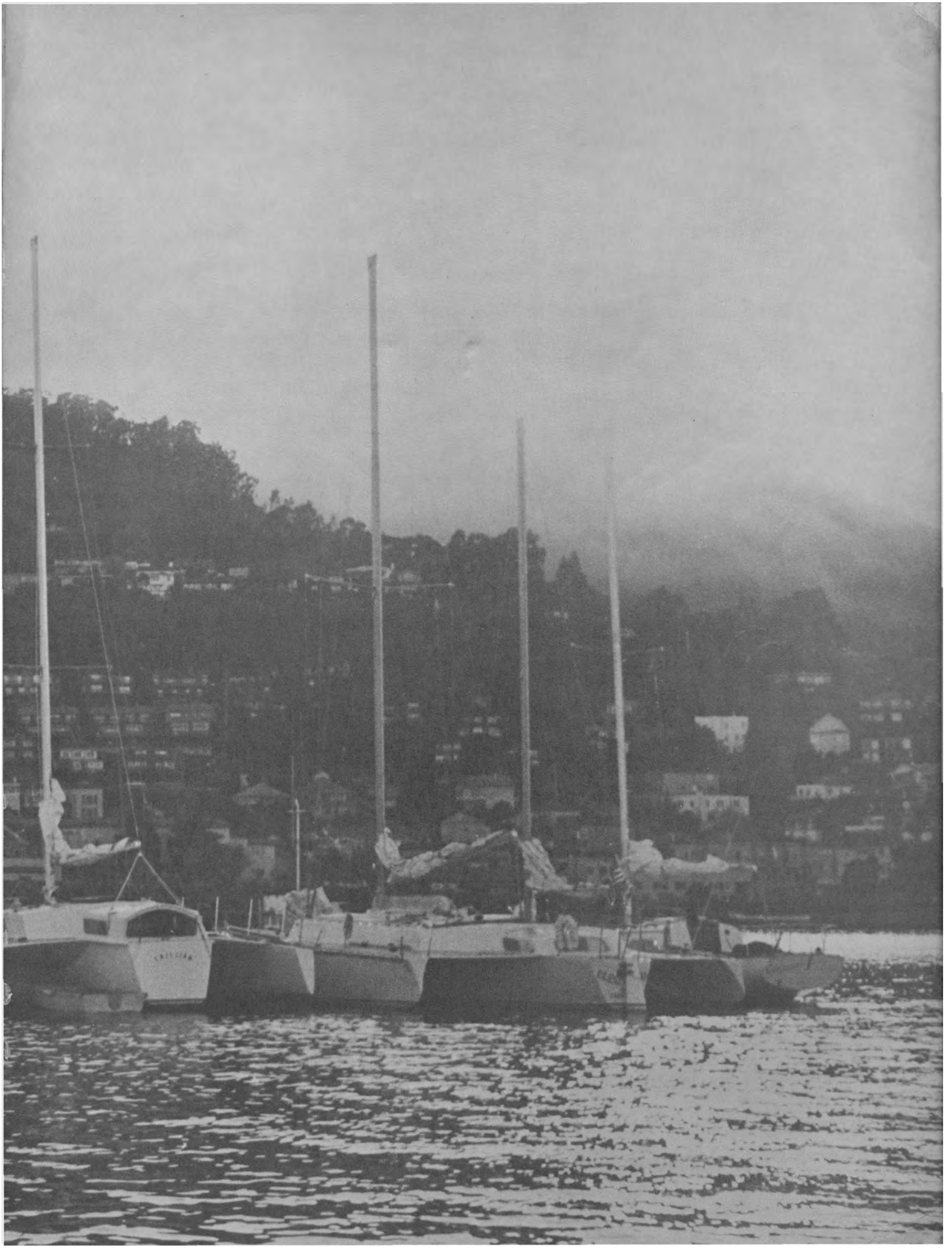


Portrait photography by Chris Knowles



"You're going to name it what!!?"



JIM BROWN - designed