



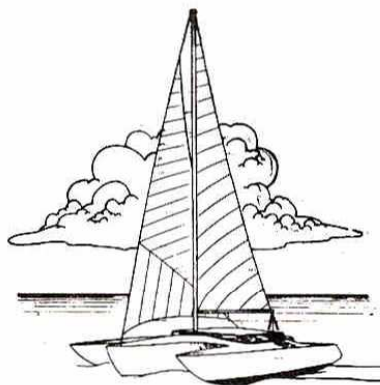
THE COMPLETE CATALOG OF
\$2.00

PI-CRAFT TRIMARANS

Cover Photo

The photograph on the Cover (by Beken) shows STILETTO doing 17 knots in the English Channel during the 1967 Crystal Trophy Race. This competition involved the fastest and most representative multihull fleet yet assembled. Two of the participants had been considered probably the fastest sea-going multihulls; being pure racing machines. These were: the 40' Mac-Alpine-Downey catamaran MIRRORCAT and the 42' Kelsall trimaran TRIFLE (a further development of TORIA).

First two legs presented ideal conditions for comparing the various craft. First was a 15-mile run; with STILETTO simply flying. Boats anywhere near her size were left out of sight astern, as she gained ten minutes on the largest



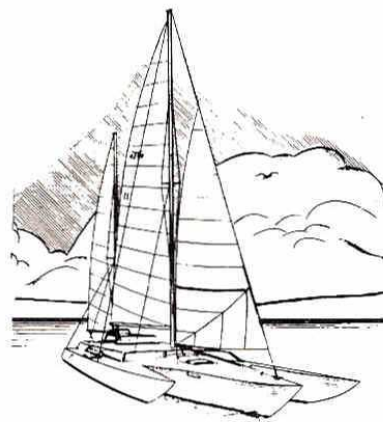
boat in the fleet—a 45' catamaran. Next leg was a wild 62-mile reach to France, with a 43' catamaran capsizing and the remainder of the fleet (of 13) proceeding cautiously under reduced sail. Sole exception was STILETTO, which displayed an impressive degree of stability; easily carrying full sail and driving all-out. Remainder of the 300-mile race was inconclusive; marked by light, shifting breezes and much calm.

Most intriguing factor of the Crystal Trophy Race concerned STILETTO'S performance. She was just far faster than she had any theoretical right to be, and experts have now reversed the usual process and are looking for reasons for her sparkling speed. If you look closely at the cover photo you may see some spinnakers far astern. These belong to the fastest of the 30-footers, and on the basis of visibility at sea are some six miles behind. Then you consider STILETTO started the Race ten minutes after the others, and the photo was taken some time

after she rounded the Nab Tower, it can be seen she went about twice as fast as these similar-sized boats on the 15-mile first leg.

It has been pointed out several times in the publications of the Amateur Yacht Research Society the float shapes on the Piver trimarans give the most comfortable ride (and greatest safety) at sea, but it was asserted that more rounded shapes would have to be faster. STILETTO has proven otherwise, and what had been acknowledged the easiest-riding floats proved considerably faster than the rounded ones against which she was competing. As all the boats involved had rounded central hulls, the float shapes apparently made the difference. What makes these deep-V floats so efficient?

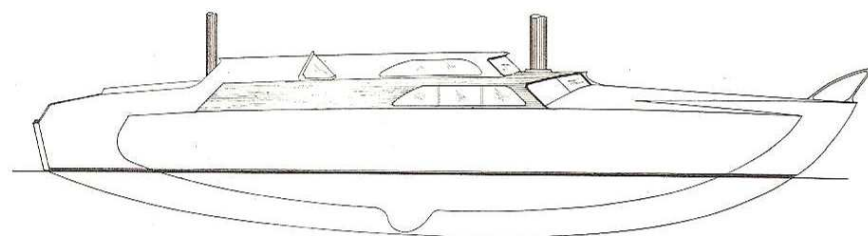
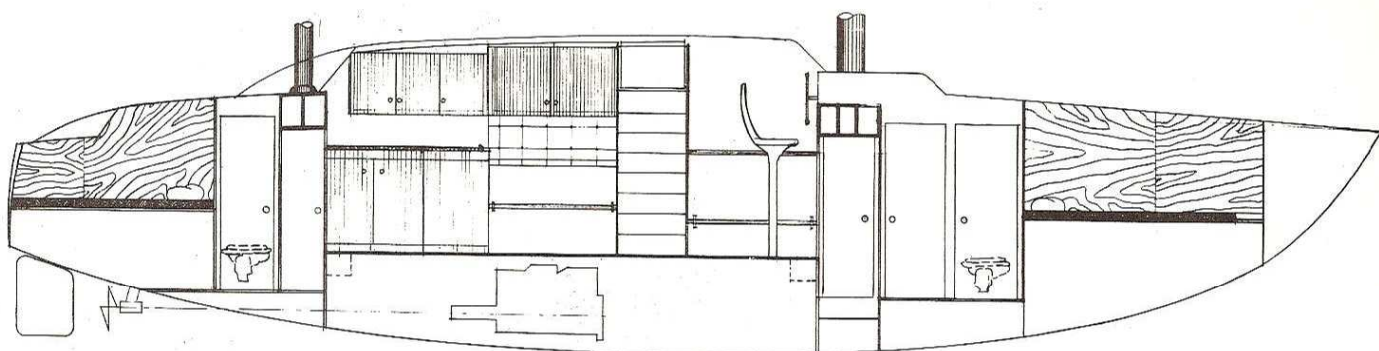
Latest development in sailing efficiency has to do with the hitherto unsuspected efficiency of low-aspect-ratio keel shapes—with such keels restricting cross-wise water flow underneath the hulls. STILETTO'S deep floats act as low-aspect-ratio keels, giving lift and efficiency to windward. On down-wind courses, their slight toed-in angle makes them act as low-aspect-ratio hydrofoils; giving the definite lift at speed which characterizes this boat.



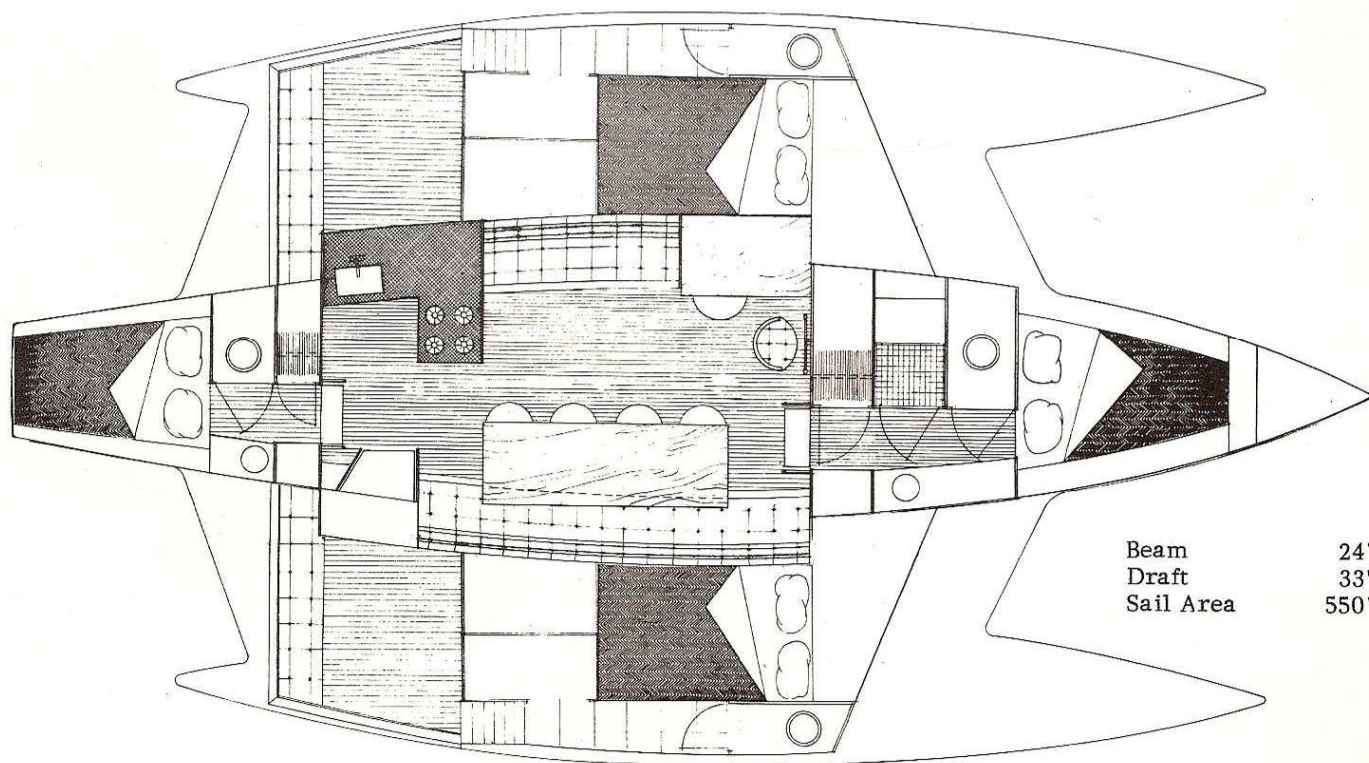
Because of her rounded central hull, STILETTO was fitted with a centerboard. In actual practice this has been found to be unnecessary because the deep, sharp floats give adequate lateral plane for efficient windward work. Approximately one foot of board is lowered when reaching in strong winds—preventing a weather helm which otherwise becomes evident.

Matching STILETTO'S performance was her Australian sister-ship VIVA in the 300-mile Brisbane-Gladstone Race in early 1967. In vigorous winds VIVA finished five hours ahead of the second multihull (a Nicol design), and seven and a half hours ahead of the first monohull.

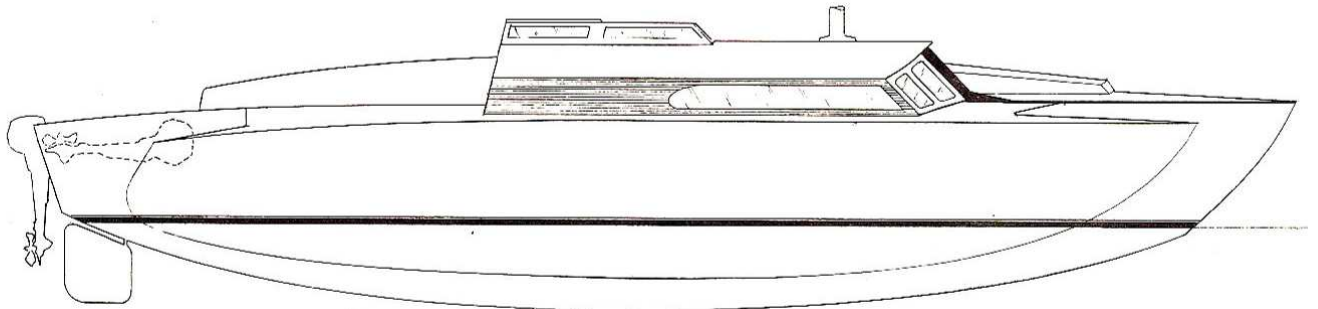
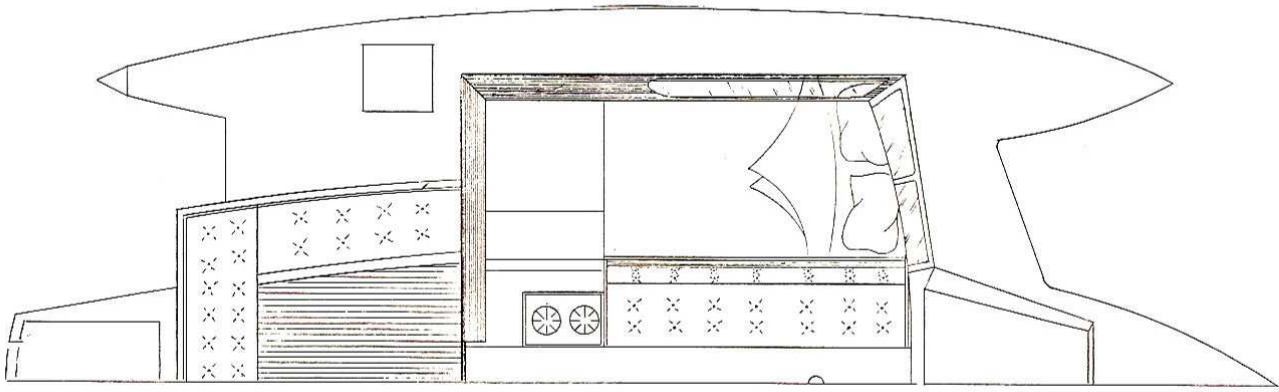
Latest Designs



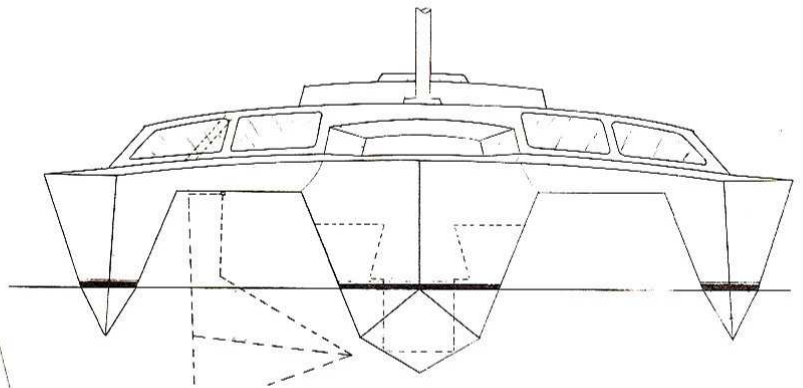
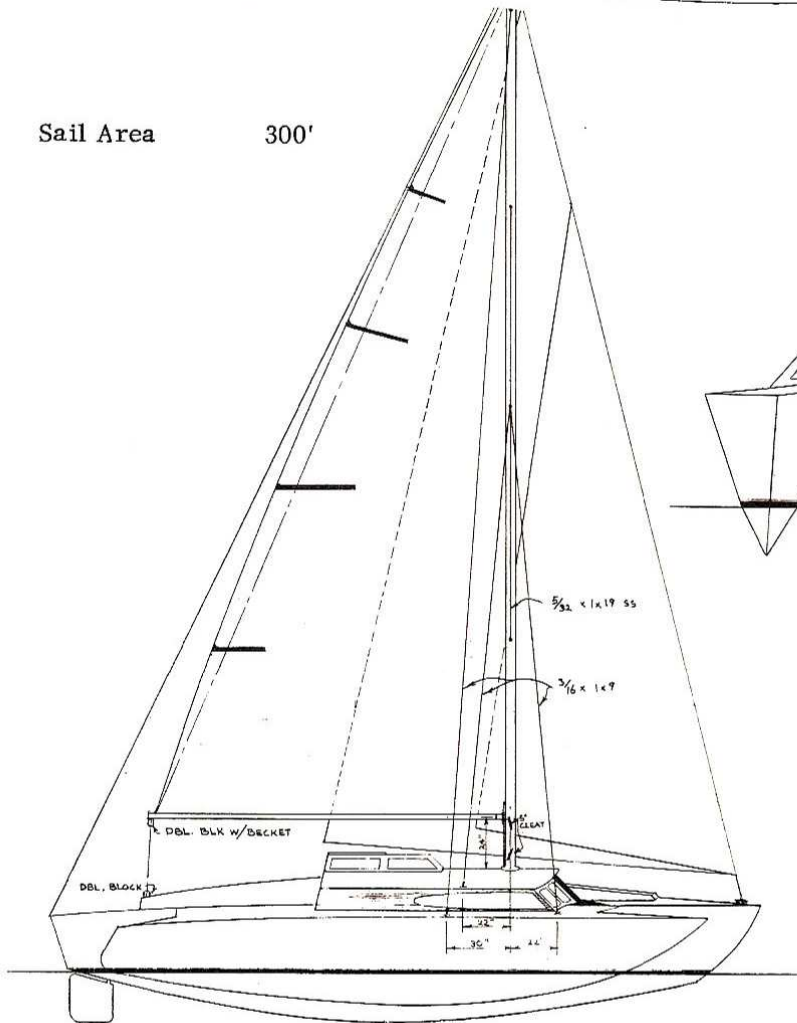
42' MOTOR SAILER is available with a unique accommodation arrangement which develops more livable space than heretofore. She is intended as a comfortable home afloat — with charter applications. Plan lease, \$475.



Beam	24'
Draft	33"
Sail Area	550'

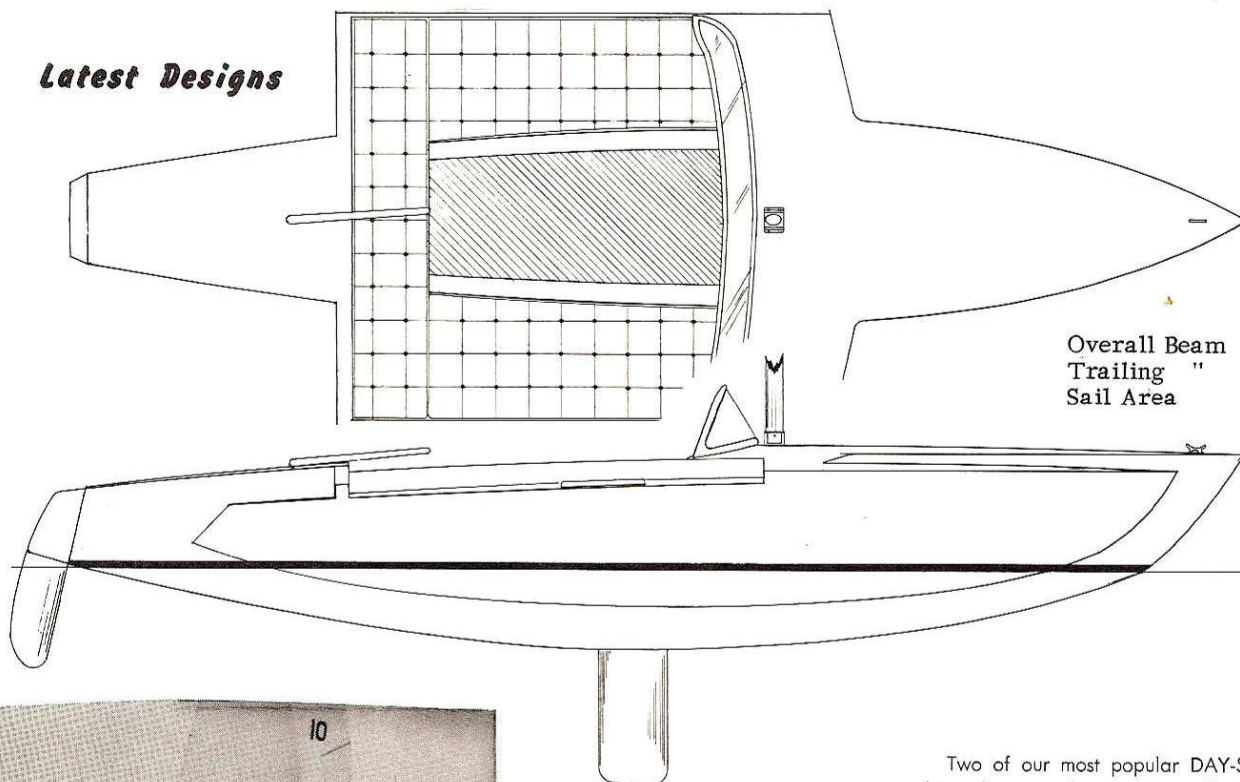


Sail Area 300'

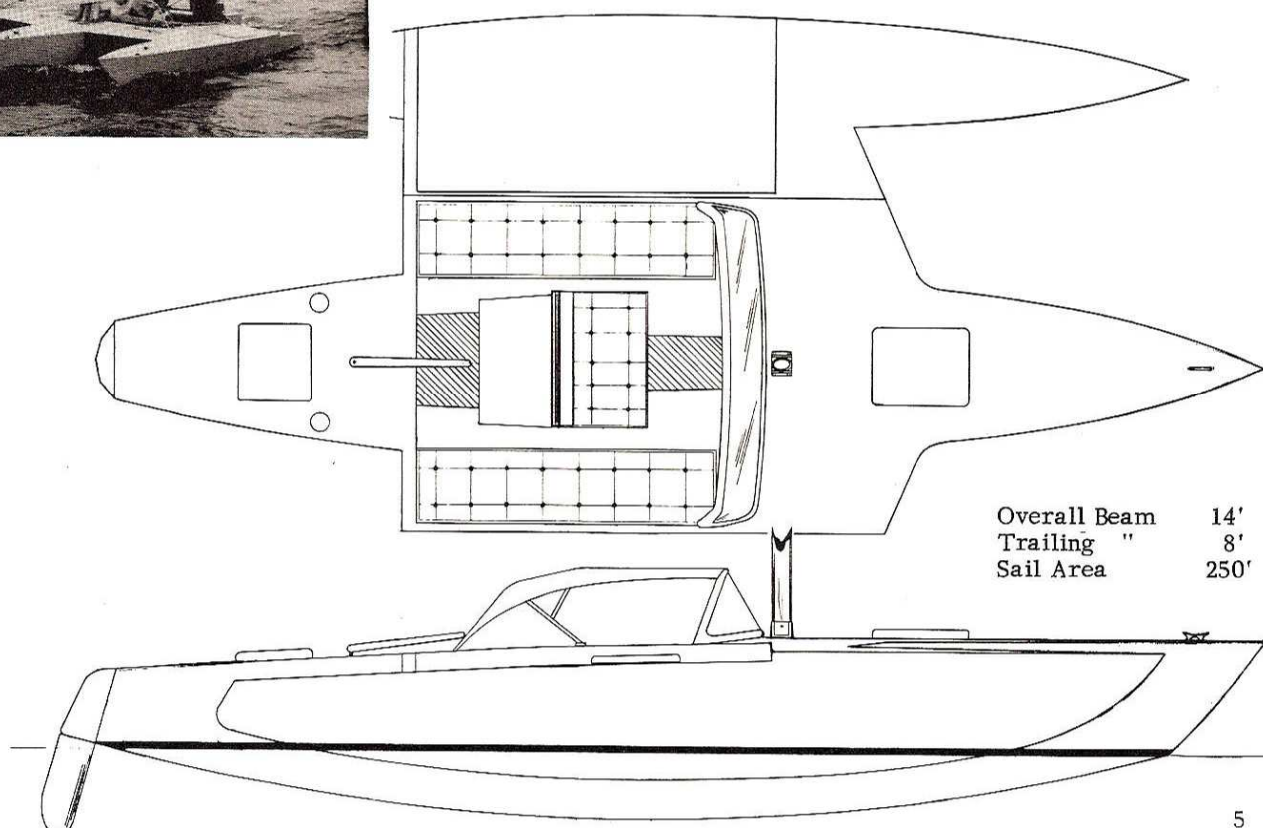


QUEST is intended to be a full-sized family cruiser in the smallest practical dimensions (27.5 X 17' X 21"). Plan lease, \$140.

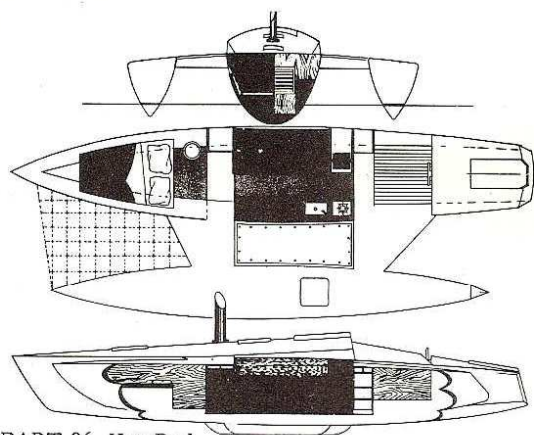
Latest Designs



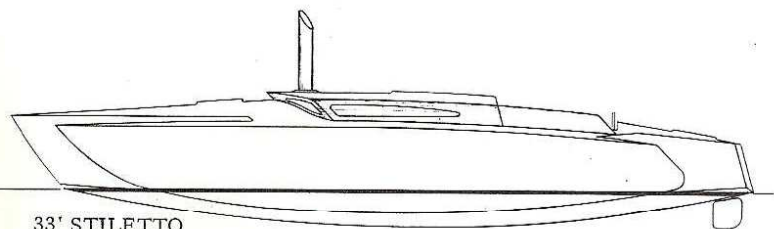
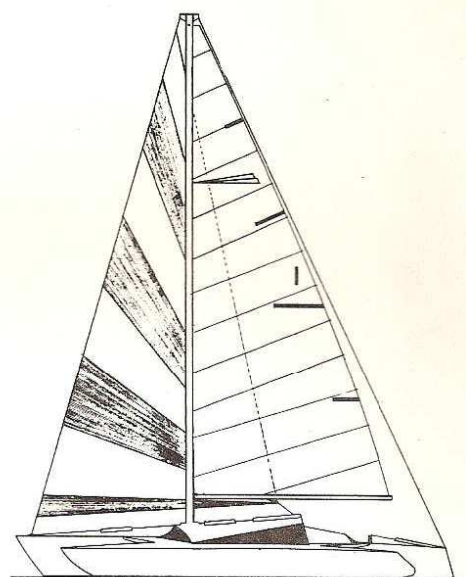
Two of our most popular DAY-SAILER models have been modernized to reflect latest design trends. These are now known as 20' BANNER MARK II and 24' NUGGET MARK II. Plans lease for \$40 and \$60, respectively.



OCEAN - RACERS

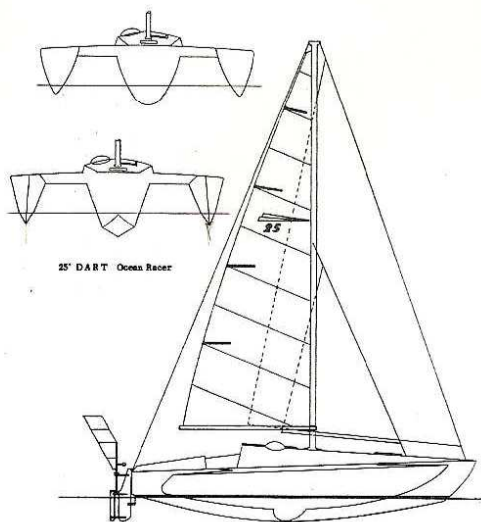


DART 36 Hot-Rod

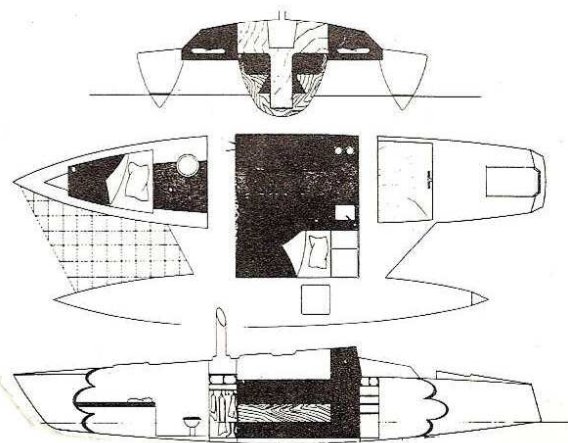


33' STILETTO

OCEAN RACERS are now available in a number of sizes. The DART Series now consists of 25, 33, and 36-footers. The 33' STILETTO is also available with DART profile if desired. All are round-bottom but with our simplified construction methods. Options include the use of sheet plywood for compound-curved surfaces. Plans lease for \$100; \$300; and \$350 respectively.



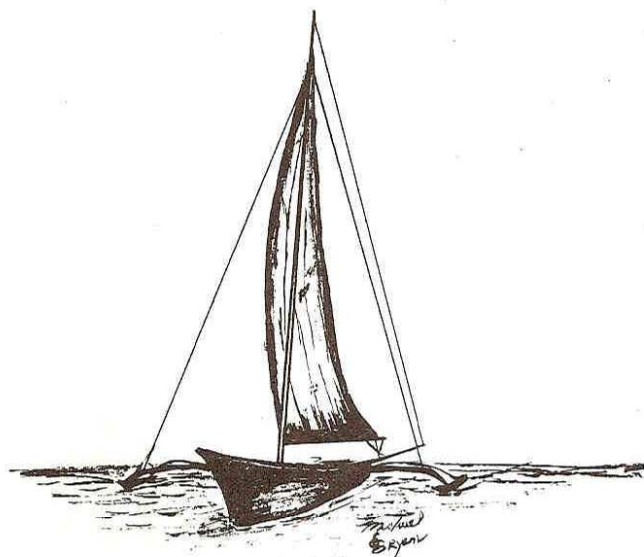
25' DART Ocean Racer



DART 36 Cruiser-Racer

The Story Behind The PIVER Trimarans

The most significant development in the history of yacht design is making itself ever more apparent. Only a few years after their introduction, Piver-designed trimarans now number in the thousands all over the World. What is a trimaran and what are its advantages over traditional cruising sailboats?



The basic principle of the trimaran is indeed ancient--being a development of the double-outrigger canoe of the Indonesians. The single-outrigger of the Polynesians is far better known among Western peoples, but the double-outrigger has an equal claim to antiquity. Thus, people who revere "traditional" concepts should feel more at home with an outrigger than with a ballasted sailboat--a comparative newcomer.

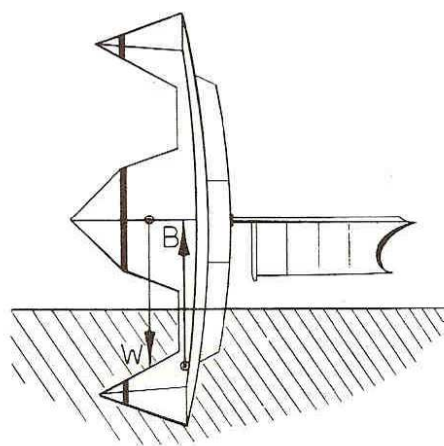
The modern cruising trimaran first came to public attention with the May, 1960 crossing of the Atlantic by the 30-foot sloop-rigged NIMBLE by its designer, Arthur Piver (rhymes with Diver). Since then, so many ocean crossings by his designs have been made count has been lost. Still contributing is the original NIMBLE, which in the Fall of 1965 returned to San Francisco from an 11,000-mile cruise to the South Seas. Despite indifference by the yachting press and outright opposition by established sailors, so many trimarans have been built this type can no longer be regarded as eccentric. As we cannot be responsible for the performance of trimarans of other than our design, the following remarks apply to our particular craft.

What are the characteristics of this type, and how can they be superior to ballasted boats which have been tested by centuries of experience? Yachts have evolved from earlier commercial craft, and the addition of permanent ballast is a logical extension of the cargoes which formerly furnished stability.

Here is our first clue--stability. Is dead weight the most efficient means of stability? Even those who consider ballast as essential are conscious of the importance of minimal weight where highest performance is concerned. Consider the apparently frantic efforts to rid the America's Cup racers of the slightest amount of un-needed weight above the water line.

It was long thought the most efficient stability was live weight to windward--as in planing dinghies--a factor of no practicability in cruising types. Then came the catamaran, far faster than the dinghy--with the surprising evidence that in a sailboat slicing hulls can be markedly faster than planing ones. In this case, stability is furnished by wide stance, and it has become evident the most effective means of stability yet discovered is that provided by buoyancy to leeward.

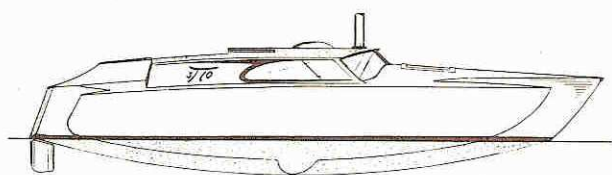
How does the trimaran compare with the catamaran as regards stability? (We feel qualified to compare the two types, for Arthur Piver was also a pioneer in the development of the day-sailing catamaran; being the first American with what has become the traditional shape--round-bottom symmetrical hulls with twin cen-



terboards). The twin-huller will capsize when it reaches approximately 50 degrees of heel. The depressed float of the trimaran will fight to regain the surface clear up to 90 degrees--far past the point where the wind has spilled from the

sails. In our designs we feature V-shaped floats, which, when deeply immersed, raise the center of buoyancy to the point where it will right the boat--even at 90 degrees. (See diagram).

With all the considerable experience in our cruising trimarans, including actual hurricanes, we have yet to hear of one single instance of a capsize at Sea. These boats are non-sinkable, a combination which has resulted in an unprecedented safety record. When we first began sailing these boats, we were hopeful that capsizes would be no more frequent than a sudden sinking of a ballasted craft; figuring a capsize would be far preferable to a sinking, as the boat would at least still be there.



As deliberate attempts to capsize failed (with full sail being carried in hurricane-strength winds), and as more and more experience was gained in conditions in which no boat could be expected to survive, and capsizes simply did not occur, we began to wonder how we should refer to this phenomenon. We have never claimed our boats to be "non-capsizable," but earlier said they were "apparently non-capsizable."

We have now revised this statement to say our trimarans "will not capsize"--simply because they do not. It has gotten to the point where if a capsize should indeed occur, this would merely emphasize the fact that such an occurrence would be extremely rare; being less likely than the sudden sinking of a conventional craft. It would be difficult to imagine greater safety, especially when coupled with non-sinkability. Our trimarans when constructed to specifications cannot sink. Both wooden and plastic models are equipped with foam flotation, and of course do not require ballast.

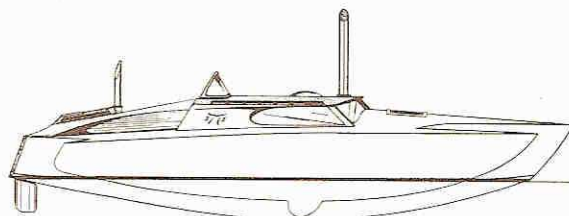
We receive requests from persons who want to know the relative merits of catamarans versus trimarans. As we design both, we consider ourselves unprejudiced. Catamarans are fine for day-sailing and limited racing, but for cruising and ocean-racing the trimaran rules supreme because of the safety factor, and if you are a speed maniac the greater stability of the trimaran enables you to carry more sail area under turbulent conditions.

Unless a catamaran exceeds some 40' in length, the full headroom cabin appears boxy

indeed if sufficient of the essential clearance under the wing section is furnished. On the other hand, a 30' trimaran easily achieves full headroom without a bulky appearance. The critical strength of the catamaran wing is achieved at considerable cost, whereas the much shorter trimaran connectives are relatively simple.

Both types have a characteristic which is simply delightful when compared with monohulls. This is the absence of rhythmic roll and non-heeling tendencies. Even in gales, objects placed casually on a flat surface often stay put, and the vessel skates over waves instead of rolling, heeling, pitching. The heeling of a monohull can add to the fun of sailing around the buoys, but is a technical absurdity when cruising.

What makes a trimaran seaworthy? First and foremost ingredient flies directly in the face of conventional thought and construction. It is--LIGHT WEIGHT! This relates to impulse forces, and admits the futility of trying to combat what, for practical purposes, amounts to irresistible impact--for each square foot of a breaking sea can contain thousands of pounds of energy. When you consider the multihull has far more exposed area than a monohull, it is obviously futile to try to oppose this gigantic force by sheer weight. You must yield constantly, instead. Prolonging impact (by yielding) by only fractions of a second can reduce impulse forces many-fold.



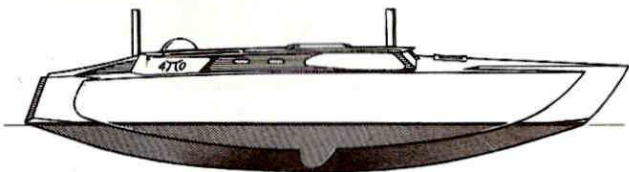
You might think such light weight would result in considerable motion, but the slicing hulls cut through wave-tops, with sufficient buoyancy to stay on top without pitching. Green water on deck is virtually unknown--even in appalling conditions--one reason we can have the wonderfully light and airy interiors possible with considerable window areas. The deck and cabin structure is the weakest part of a ballasted boat, but large windows are practicable in the dry multihull.

What about performance under sail? Here is sheer exhilaration, for the faster a boat goes the more fun it is. Speeds of 20 knots are possible (although you don't have to go fast if you don't want to), and these boats can surf indefinitely before storm waves, being comfortable and dry

under conditions which would be deadly to ballasted craft. As the wave steepens prior to breaking, the addition of gravity to the sail area accelerates the trimaran ahead of the crest, which breaks well astern. These craft will apparently accelerate indefinitely because of light weight and the fact there is no limiting hull speed.

"Hull speed" is an interesting term, and relates to the fact that with heavy boats, certain waves are formed which limit the speed of the boat according to its waterline length. Thus with ballasted boats the larger is potentially the faster.

All this has now changed--for if your boat does not form waves there is nothing to limit its top speed. We don't know for certain what the top speed might be, although 30 knots has been recorded on cruising trimarans in shortbursts. One of our 27-foot racing models has covered seven miles at an average speed of 28 mph--reaching approximately 35 mph in the gusts (60 knots of wind--full sail with one man aboard). One of our 40-footers averaged over 20 knots for seven consecutive hours while surfing down the California Coast--bound for the South Seas.



If conditions had continued, she would have beaten the fastest daily run ever claimed by any of America's famed Clipper Ships of the 1850's. As far as windward ability is concerned, during the 1964 Bermuda Race, one of our 38-footers within hours passed more than one hundred of the World's fastest ocean-racers--all of them larger--while hard on the wind.

It had long been known that very slim hulls could be fast indeed when sufficient stability (in the form of considerable beam) was obtainable. A ratio of length to breadth of at least 10 to 1 was thought essential. This was the situation when Piver became involved with outriggers, and had decided what was needed was a cruising boat which could still offer the flashing speed of multihulled racers.

Experimenting with length-breadth ratios, he built boat after boat, discovering that unprecedented performance was possible with wider hulls, for although a narrow hull can be fast when light--when heavily loaded it picks up wetted-surface (and hence friction) at a dis-

proportionate rate. The minimum of wetted surface for a given displacement is that furnished by a half-hemisphere--a shape obviously not well-suited for rapid thrusting through the water.

Far fatter shapes were developed, and the Piver cruising trimaran central hulls now have a length-breadth ratio of 6.8. His racing models have narrower hulls.

Trimarans can surf like surf-boards across really large storm waves, and if there is not sea-room these boats, with slicing hulls and tremendous stability which keeps the sails vertical, go to windward in tubulent conditions as never before achieved.

These boats do have drawbacks. Most obvious is the wide beam. Our usual ratio is six feet of beam to every ten feet of length. This can make finding a marina slip a bore. The shallow draft does make mooring easier--usually about one foot of draft for each sixteen feet of length. If you are going cruising, there are few marinas outside the United States; and the shallow draft

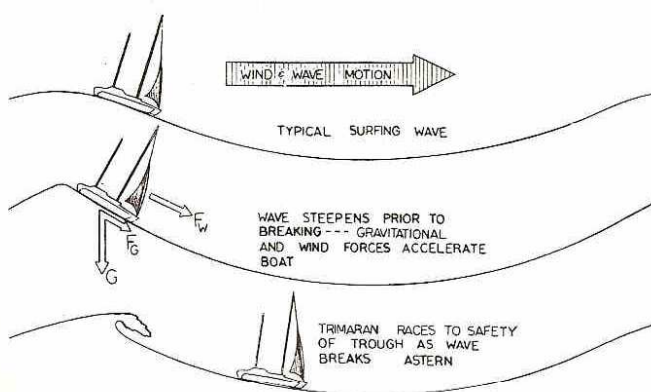


makes it possible for you to haul out on beaches, etc. You practically never see a trimaran on a marine railway. As trimarans approach aircraft in construction and light-weight, they must be similarly regarded when it comes to carrying capacity. They will transport sufficient for long ocean voyages, but have no capacity for heavy non-essentials. We use Nylon line instead of anchor chain (we do use about 10' of chain at the anchor itself), for instance. If a massive engine is more important to you than sails, the trimaran is not for you. Although our latest designs may carry more weight than our earlier versions without impairing performance, the phenomena of reducing impluse forces by yielding to breaking seas still applies--the lighter the weight, the more seaworthy the boat.

The development of the modern cruising trimaran took place in only several years, but was based upon experience which Piver had gained previously. A sailor of heavy displacement boats all his life, in 1953 he became attracted to catamarans, and purchased a commercial kit for a 16-footer. This boat proved a revelation--providing thrills and exhilaration he had long associated with skiing and surf-riding--yet still re-

taining the beauty and occasional peacefulness of travel under sail. There were a number of faults in the little catamaran, and as he failed to find anyone who could design him a better one, decided to do it himself.

He was next attracted to planing dinghies, and although he had never even ridden in one, produced NUTSHELL, which proved the first of its breed to plane when close-hauled to windward (with ordinary sitting-out by the crew). This boat (strip-planked of Spruce) weighed but a fraction as much as its contemporaries, and the designer was so delighted with its seaworthiness all his subsequent engineering embodies similar principles.



His first outrigger was produced in 1957. This was the 20-foot ROCKET, and was originally a Polynesian-type single-outrigger. The boat was comparatively unstable when the float was to windward, so he added another--discovering some time later that such a craft is known as a trimaran. The central hull of this boat had semicircular underwater shape--with floats of every imaginable size and shape being used over several years of experimentation. The floats used at present were not completely developed until actual deep-sea experience was gained.

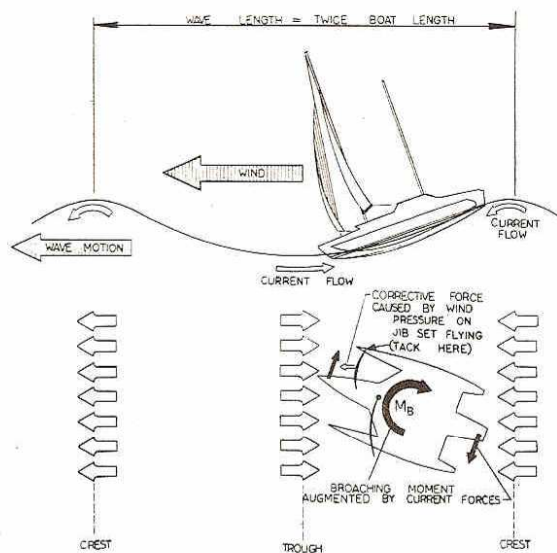
In 1959 a trip in a 24' NUGGET was made down the California and Mexican Coasts. The boat behaved splendidly, although the entire voyage was down-wind, with the craft being shipped back from Mexico.

The supreme test occurred the following year, which was the crossing of the Atlantic by NIMBLE. You can sail around the harbor and along the coast for a hundred years and still not know how your boat would act in a storm far at Sea. The voyage began inauspiciously, consisting of drifting around the Nantucket Lightship for several days in dead calm and pea-soup fog. Then things began to really happen. A storm arose at

night--developing into ten days of continual NW gales which thoroughly tested the trimaran and its crew. The boat was at first run off before the tempest, with a warp dragging astern according to custom, for what had been acknowledged the most dangerous situation was to go too fast down-wind for fear of broaching (an uncontrollable turn into the wind) or running clear underwater at the bottom of a wave.

Once the trailing warp twisted upon itself, apparently reducing its drag, and as the wave steepened prior to breaking the trimaran simply surfed ahead of it, and the wave broke well astern! This was all that was needed to know, and the warp was henceforth pulled in, and the boat surfed for hour after hour, with no water on deck except for wind-driven spray from adjacent breaking waves. Then an even more exciting discovery was made--if the waves were sufficiently large NIMBLE could surf across them like a surf-board, giving even greater speed and more choice of direction.

As Piver describes it in his first book (TRANS-ATLANTIC TRIMARAN) "it was incredible--terrifying--wonderful--we had mastered Nature in one of her most vicious moods! NIMBLE laughs at storms--for SPEED IS SAFETY!" It was indeed exciting to discover



new techniques of boat handling in defiance of centuries of knowledge of now outmoded storm techniques. The trimaran sailors became so heady with exhilaration and triumph they began to treat their boat as if it were indeed a surf-board. They would sail across the faces of the huge swells just below the top--waiting until the crests towered right over their craft--and then wheeled and dashed down the slope while the

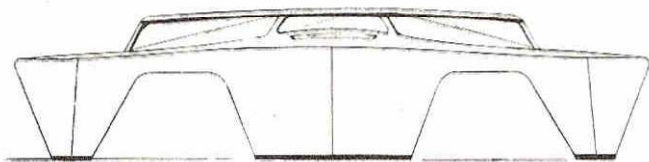
white water astern thundered and seethed in apparent frustrated fury!

There were bad moments, as well. Some large waves did indeed break directly upon the beam--but regardless of its angle of heel, the light trimaran would merely be shoved sideways--always in advance of the foaming white water. One particularly frightening episode resulted when a wave steepened very suddenly, and when the boat began surfing it was apparently in the vertical plane--headed for the Abyss! Down she plunged at break-neck speed, and when she reached the bottom the bow plunged deeper--deeper--until the point of the deck was actually below the surface! However, the water being thrown up by the bow kept the Sea at bay. Piver remembers thinking--"if we get out of this alive--I'm going to raise that bow." This he later did, and also increased the float buoyancy above the waterline--so as the bow would plunge deeper there would be more capacity to keep forward sections up. Slicing hulls were retained, but their depth increased.

Much was learned about float shape-- despite the vast amount of experimentation which had preceded that voyage. There are moments at Sea when ordinary float shapes become positively dangerous because of a particular wave action--either from lack of buoyancy or incorrect conformation.

Another question which was resolved at this time was the problem of wing clearance (over the water between the hulls). Years of sailing on bay and coastal waters had indicated that not much clearance was necessary, but actual experience in deep-sea storms was something else again. The clearance ratio now used was developed on the Atlantic voyage.

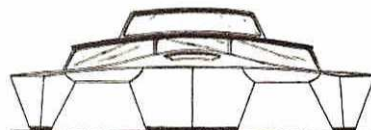
Another revelation on that first crossing concerned ease of motion -- and comfort at Sea is largely a matter of motion. Motion can



indeed become extreme as in any boat, but the trimaran skates over the waves, instead of heeling, rolling, pitching--all at the same time. Objects placed casually on a table usually simply remain where set--and entire ocean crossings have been made in which nothing has fallen off the table--a graphic contrast to ordinary boats

with their inclination for tossing everything (and everybody) all around.

One of the characteristics of voyaging in conventional boats is the surprising amount of friction which can occur between crew members. This is largely due to fatigue, which arises mostly because of the inability of finding sufficient rest on a boat which refuses to remain steady. On the non-rolling, non-heeling trimaran, however, things change drastically. A

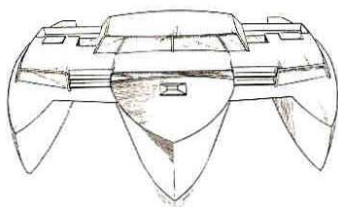


feature of ordinary boats is the need for large crews, which is merely an index of their inefficiency. When you normally need a large crew is during squalls etc. when sails must be reefed. On the trimaran, however, we usually furl the mainsail instead of reefing. This takes but seconds, and under reduced rig the boat remains balanced and still sails faster than an ordinary one. It can blow mightily and it won't even heel! With the advent of the modern self-steering wind vane, the need for helmsmen is greatly decreased, and although it is fun to steer around the harbor, on a long cruise minding the helm can become an overwhelming burden. Thus--on a trimaran you don't need a large crew--but merely good company.

Along with the development of these particular boats where it really counts--on trans-ocean passages, so much experience has been gained in all sorts of conditions definite techniques for handling trimarans in storms have been worked out. If you are going to seriously cruise, the logical procedure is to go the right direction at the right time of year--based upon information gathered by old-time sailing ships, and readily available. Thus it is possible to sail for long periods without becoming involved in major meteorological disturbances, but sooner or later you will encounter bad weather. Then nothing will matter except the manner in which your boat reacts to stressful conditions. Here, at the moment of greatest need, the Piver trimaran will safeguard you because it was evolved through identical conditions.

There are a number of ways to handle your boat during gales (described in TRIMARAN THIRD BOOK), and people who have been in similar conditions in ordinary boats find the

trimaran behavior to be a revelation. At times the Sea will become so rough it cannot be described in words--but the many people who have seen motion pictures of our trimarans in offshore storms are invariably impressed by the manner in which they bob about unconcernedly in conditions which would have conventional craft in extreme peril. The light trimaran will assuredly be jerked sideways in the water when struck upon the beam by a breaking wave--but it will endure repeated blows with no apparent strain. It took years of trimaraning before we could fully accept the fact these boats could safely lie in the trough--for a breaking wave smashing against the empty float makes a huge BOOM! sound--most unsettling.

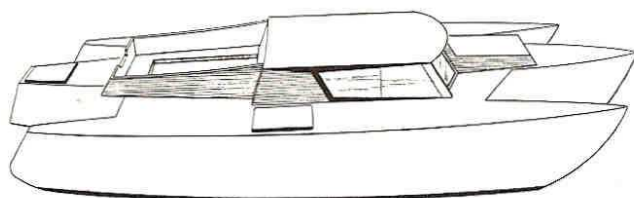


Shallow draft is a source of endless delight. An entire new World of sailing availability thus becomes accessible. A typical example occurred when LODESTAR #1 visited an unspoiled little island in the South Pacific. Only four yachts had called there in recent history, partly because the spot of land was in a little-traveled area but mostly because there was no entrance through the ringing reef. The preceding yacht had been forced to moor outside--her anchor had dragged and she became a total loss. Her five-man crew had to wait five months for the once-a-year steamer from Tahiti. LODESTAR had easily sailed across the reef into the lagoon. We have made a game of sailing into tropical lagoons which are marked "No entrance" on the charts. You soon learn to gauge the depth of the water by its color. If it is not brown you can sail over the bottom--regardless of how shallow the clear water might appear. Shallow draft and the ability to set upright when aground can be a great safety factor as well as an unprecedented convenience. Whereas a beach is a hazard to ordinary craft, to a trimaran it can be a place of refuge, and our boats have been deliberately run through storm-bred breakers to safety. There is a story of one of our craft, which after a good deal of stress was finally high and dry upon the sand. The man called to his wife--securely chocked into her bunk below: "You can get off the boat now." She replied: "You

told me this trimaran can't sink--I'm staying right where I am!"

Although you may use your trimaran only for day-sailing and short cruises, and not actually need its intrinsic seaworthiness for deep-sea emergencies, their comfort and stability still gives pleasure and peace of mind. Some people remark upon the general smallness of our cockpits--having been conditioned by the fact that in ordinary boats the cockpit is generally not only the safest spot, but by far the most comfortable. However, the non-heeling, dry trimaran is practically all cockpit, and the crew scatters about the spacious decks. Youngsters are usually seen lying on the float bows. Thus the cockpit becomes secondary and indeed, one peculiarity of this type is that the helmsman is sometimes lonely--being left by himself while the others find spots which are more appealing.

Sailing on non-sinkable, easily-repaired-if-damaged boat can be a revelation after experience with the conventional type. The difference in degree of responsibility can be amazing. On a ballasted craft in shallow water there is the ever present concern that merely touching the bottom can mean a stranding or even complete loss of the boat. There is also the danger of personal injury connected with the massive gear which is required because fittings etc. must be supplied on the basis of overall weight. Thus the trimaran can be handled with far less feeling of responsibility--a contrast which can be appreciated only by experience.

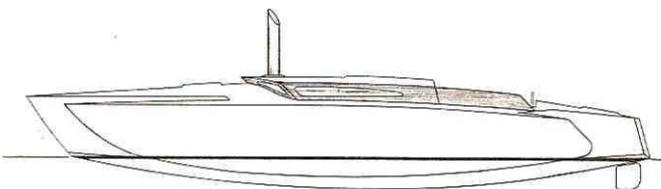


Despite simple, unballasted construction--our trimarans are proportionately stronger than any other type. Consider the case of the one which landed on a Hawaiian reef in the late Fall of 1963. For over 20 hours it was smashed against jagged coral by large seas--and received only MINOR damage! No other boat--regardless of type of construction--could have withstood such a merciless beating. Again this was a display of the reduction of impulse forces by light weight.

How can one describe the difference between the feeling of sailing a light, responsive, apparently air-borne sailboat? The difference in contrast to the ballasted one is the precise difference between driving a loaded dump truck and

a sports car. Exhilaration in the acceleration of the trimaran can be a revelation, and sailing is the most exciting when reaching in heavy weather with stronger gusts. When a ballasted boat receives a gust, it first heels, and then, if traveling more slowly than its hull speed, will pick up sluggishly. With the trimaran things are different. The boat heels but little, so the strength of the wind is reflected into immediate acceleration--aided of course by the fact the light-weight of the craft presents little inertia to overcome. Thus we have a responsiveness which furnishes thrills usually reserved for surf-riding and skiing.

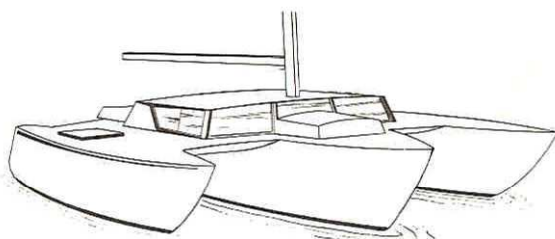
Which size trimaran for you? Although the number of bunks is the usual criterion for determining the size of a wanted boat, with the trimaran different yardsticks are used. In the first place, you can arrange to sleep up to a dozen people on one of our 35-footers if you wanted to develop all available space, but it would be ridiculous to go to Sea with any such number. For this size, about four people would be all you would want for an extended trip. There are indeed plenty of bunks and apparently limitless deck space, but when feeding people things become somewhat more condensed. Although there is less motion on a trimaran than on ordinary boats, the LEAST motion is at the center, and that is where people tend to congregate.



For extended cruising, three would be a maximum acceptable number for our 30-footers, and about 6 for the 40-footers. There are other factors. In the first place there is the easy handling and possibility of wind-vane steering--both of which eliminate the need for a large working crew. Then there is the fact that though almost any romantically-inclined person will eagerly discuss a voyage and indeed even help prepare--when sailing time arrives most of these are absent for one reason or another. Thus you perhaps don't need as large a boat as you originally thought--and with a smaller one you might not need a partner, an arrangement which usually does not work out in practice.

There are other considerations. Do you want to actually live aboard? Would you like to make

some additional money by chartering part-time? If the answer is yes to either of the above, a larger boat can be considered. The 40-footers are particularly adaptable to the above. If you plan to live aboard but perhaps not charter, you might want to study the aft-cockpit model--which has a central cabin with dimensions approaching that of an apartment. For chartering, however, the aft-cabin model makes sense, because 2 persons can set up housekeeping there and leave the remainder of the space to the charter party. Charter rates run on the average to about \$150 per person per week--which means a month or two of such work could give you a far longer period to yourself--depending upon the degree of simplicity of your own living. You will note we usually show several accommodation plans for a given size--anyone of which may be adapted to boats of similar dimensions.



The really large trimarans -- 50 and 60-footers, are similar to their smaller sisters in that there is a great deal more space than would be obtainable in conventional craft of similar lengths. When you begin to talk about boat with beams of 30 and 32-feet you are involved with considerable areas.

If you want to cruise and still have the wonderful flexibility of being able to trail your boat, we have a 25' cruising trimaran which is sufficiently seaworthy to go around the World--if you don't mind being condensed. Two in crew would be the maximum for long voyages.

The average sailor requires auxiliary power on his cruising trimaran. Simplest solution for the smaller models is the outboard motor--which has the additional advantage of being retractable while not being used. For 30-footers and up, however, fixed installations are indicated. We recommend gasoline power for the 30 and 35-footers--about 15 and 25 hp respectively. Lightweight diesels in small sizes are apparently a myth. For the 40-footer we come to the diesel, with about 15 hp being required--and this may be had with less than 300 lbs of engine weight. For larger sizes power requirement increase sharply--amounting to about 200 hp for the 60-

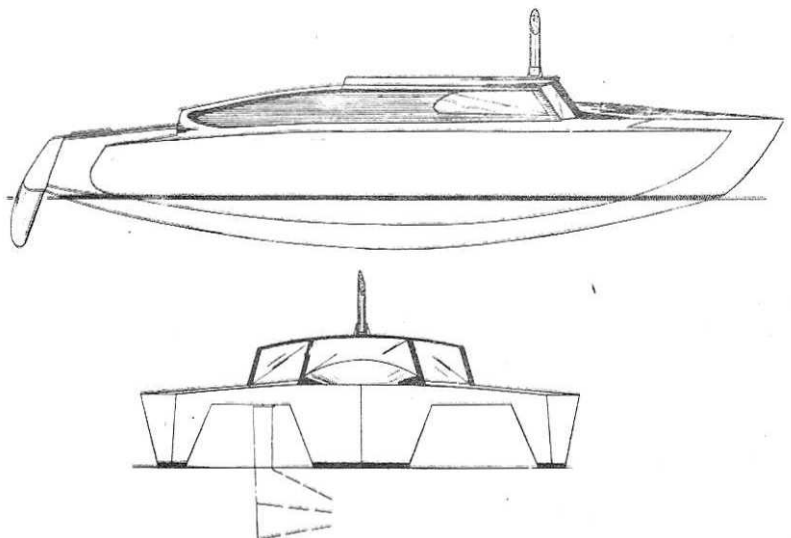
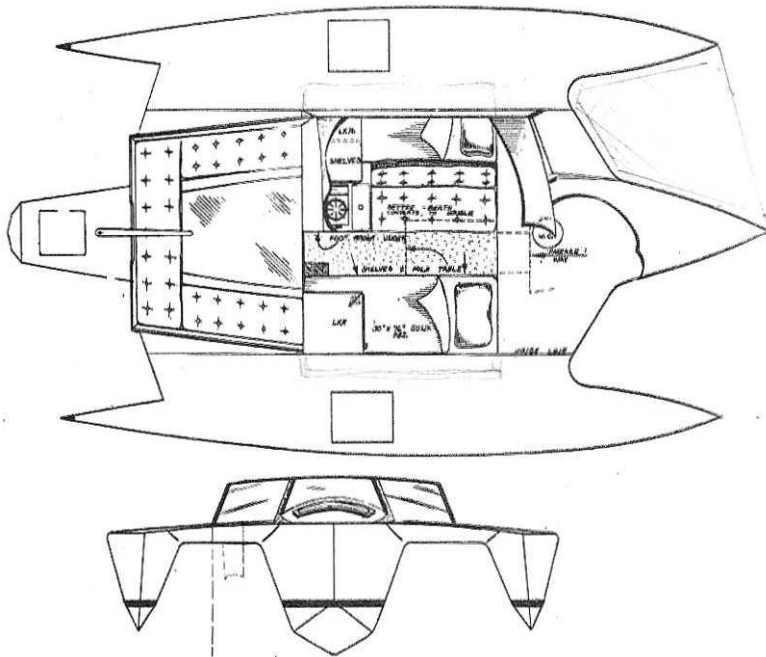
footers. Again--use the unit which will give the required power with minimal weight.

Dragging anything while sailing is most objectionable. Either retracting drives or feathering propellers are required, and in the case of the retracting drives the engines remain in their designated places--actuating the propellers by extension shaft.

How may these boats be acquired? It is a pleasure to be able to answer this question--for Piver trimarans are easier to own than other types. If you want to purchase one already-built, it will cost somewhat less than an ordinary boat of similar length. We also have the simplified building system we have evolved, which eliminates the need for lofting and other traditional boat-building skills. Only ordinary ability to handle wood-working tools is required--plus plenty of initiative. Although materials for our

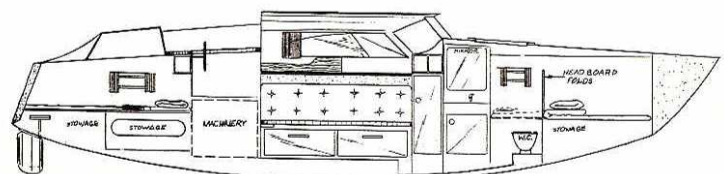
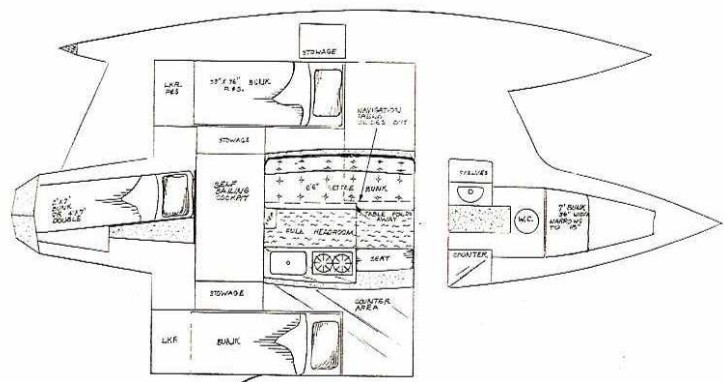
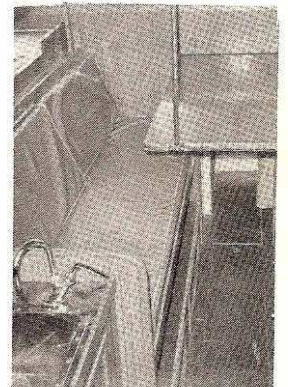
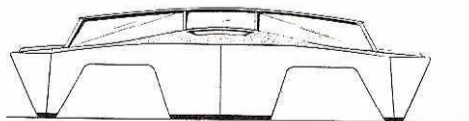
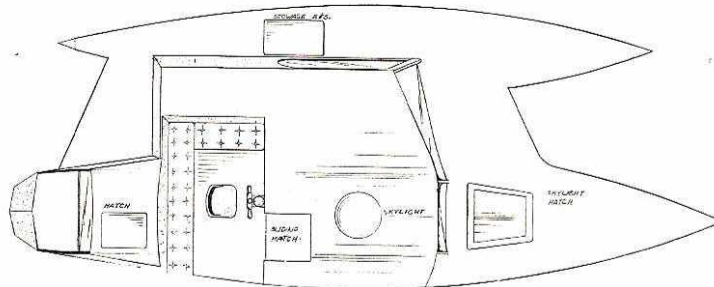
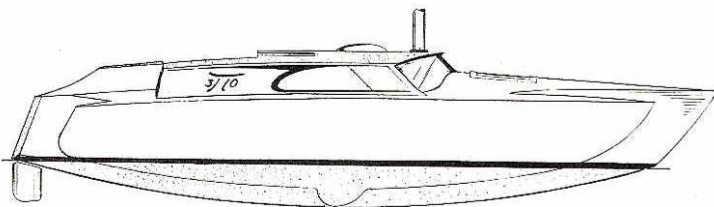
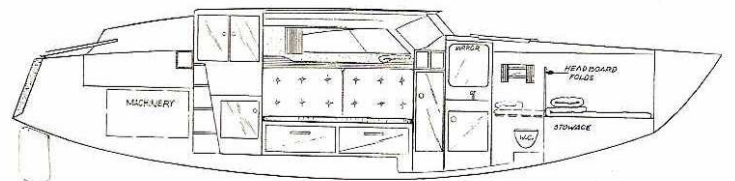
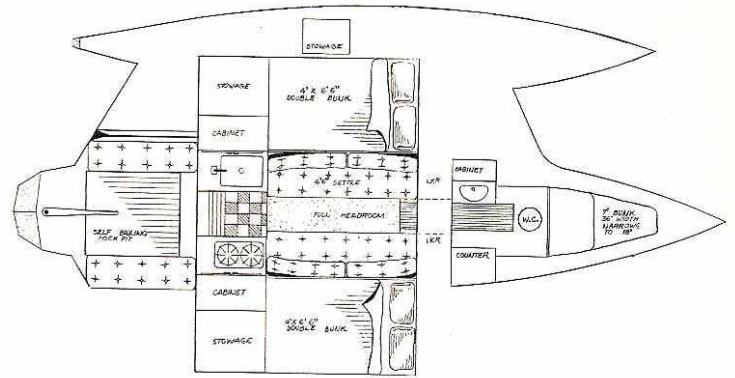
trimarans cost only a fraction of those needed for ordinary boats, it all adds up to a lot of work. If you can afford a completed boat, or one built-but-not finished; or in kit form; plan to get the best start possible--which means the nearest-to-complete state you can manage.

The following pages are divided into three major classifications: completely-finished professional construction (the PI-Series); our new AA (Advanced Amateur) - Series, which uses latest shapes in simplified form for amateur building; and our original Standard Series, which consists of models now roaming the World in the thousands. In addition to the professional PI-Series in plywood and fiberglass, we also have models built of either straight fiberglass or plastic-sandwich construction. There are builders who will construct superb custom models for you--in either wood or plastic.



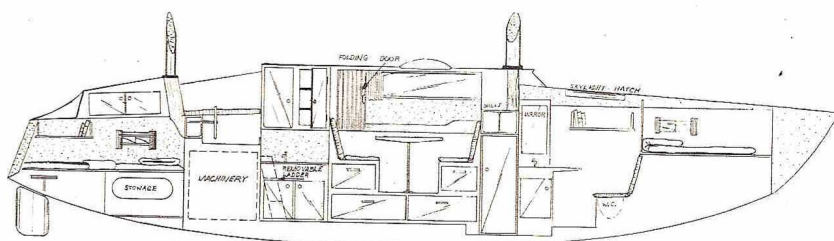
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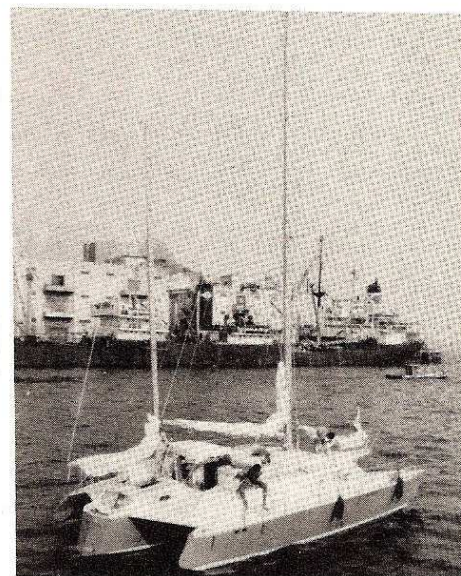
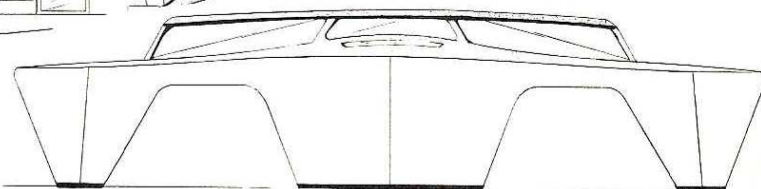
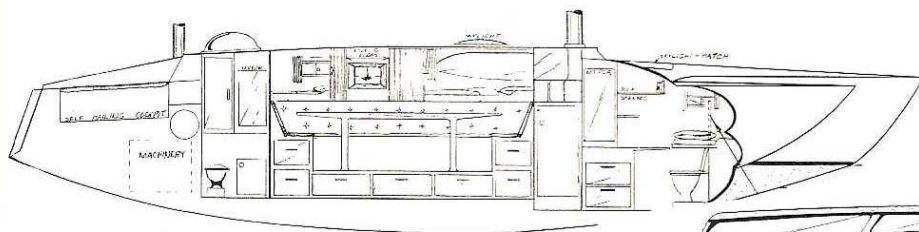
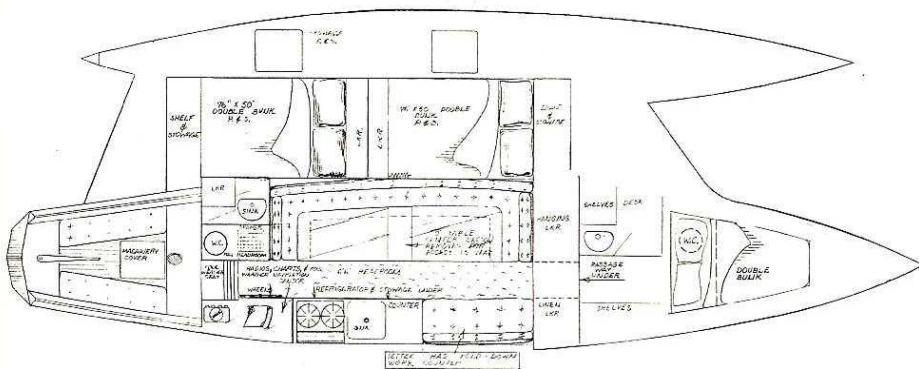
Length	25'
Beam	15'
Trailing	8'
Draft	19"
S.A.	220'



370

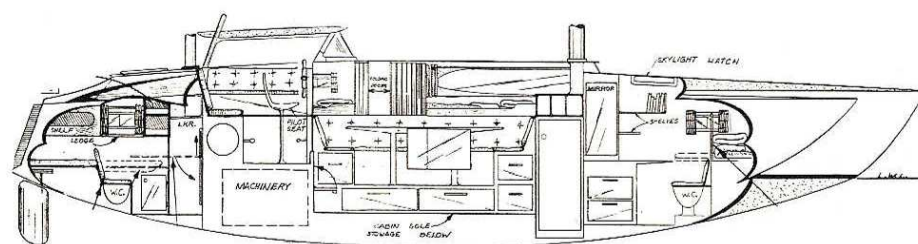
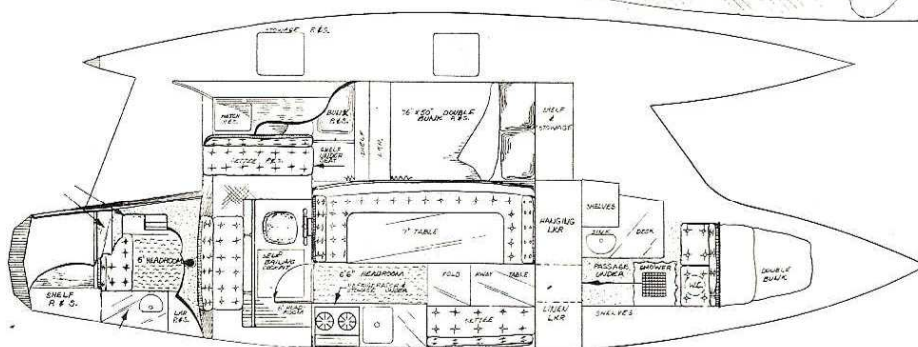
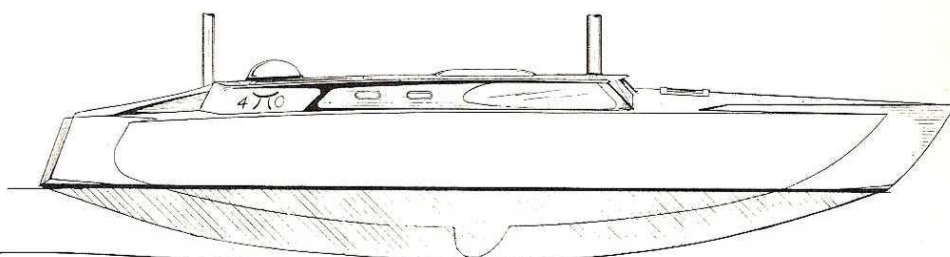
Length 30
Beam 18'
Draft 2'
S.A. 300'



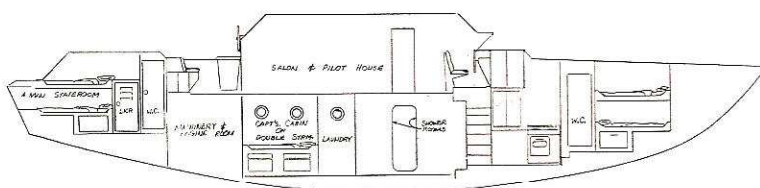
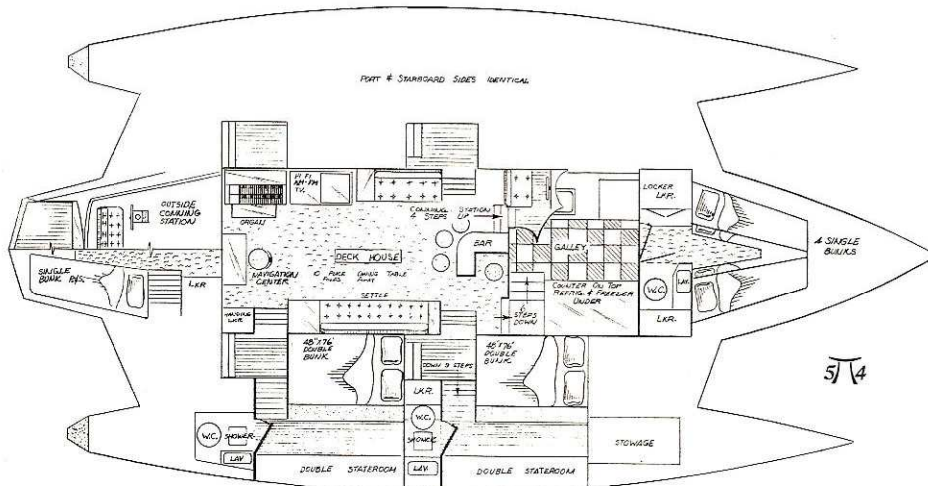
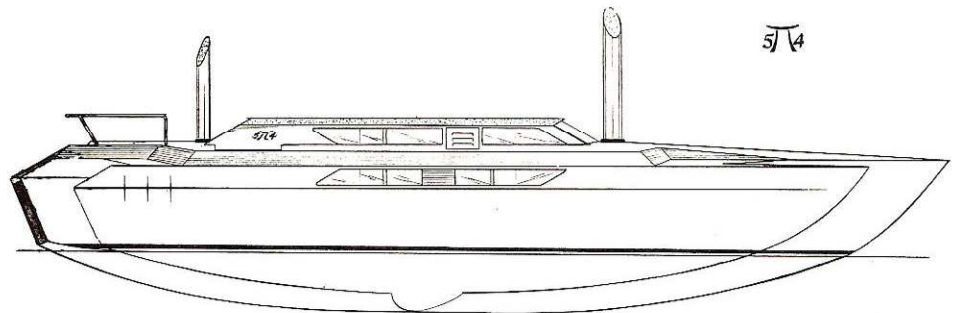


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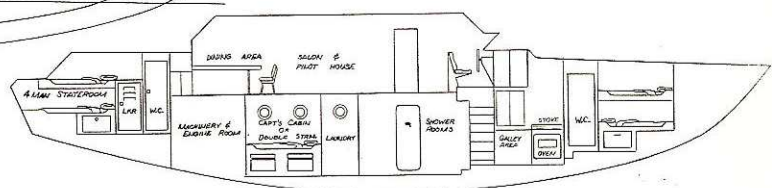
Length 40'
Beam 22'
Draft 33"
S.A. 585'



A hand-drawn floor plan of a boat's interior. The layout includes a cockpit area at the rear with a helm seat, engine compartment, and storage. Moving forward, there are two berths (labeled LER and RER), a galley with a sink and stove, and a cabin area with more storage and a small table. A door leads to a "POOT HOUSE" at the bow.

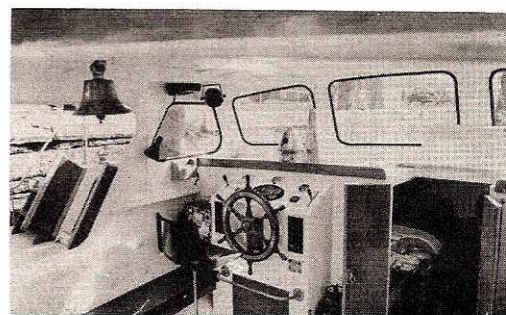
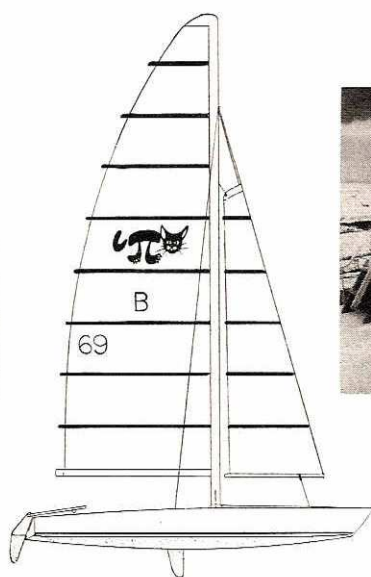
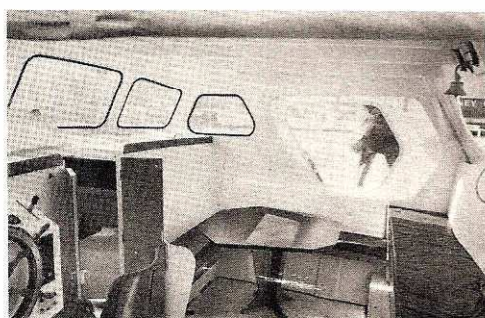
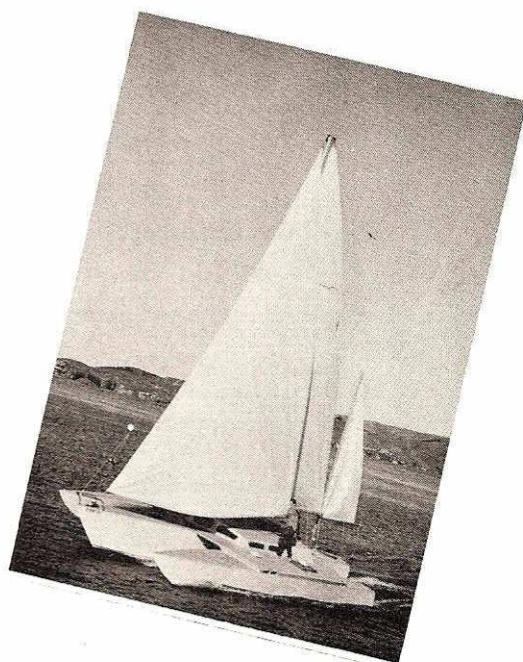
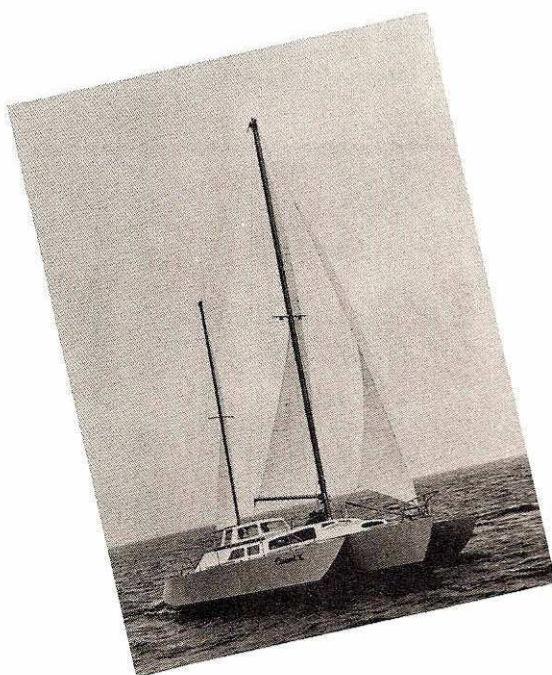
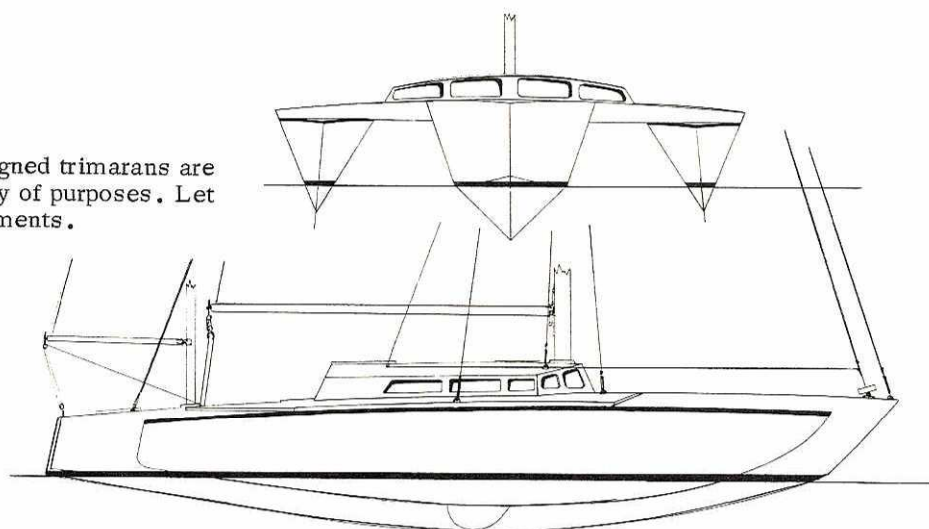


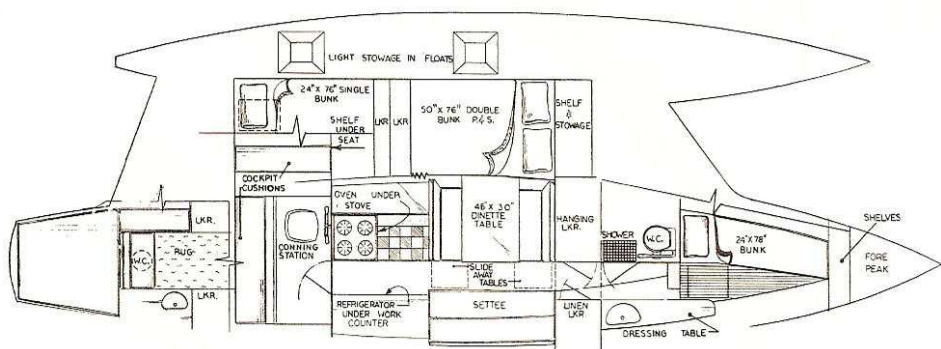
A technical line drawing of a boat hull and deck layout. The drawing shows the hull's profile and the deck's structure, including a central cabin area with a flat roof and two vertical poles. The hull is shown in cross-section, revealing the internal structure and the placement of the cabin. The drawing is a black and white line art, typical of a technical sketch or a blueprint.



CUSTOM

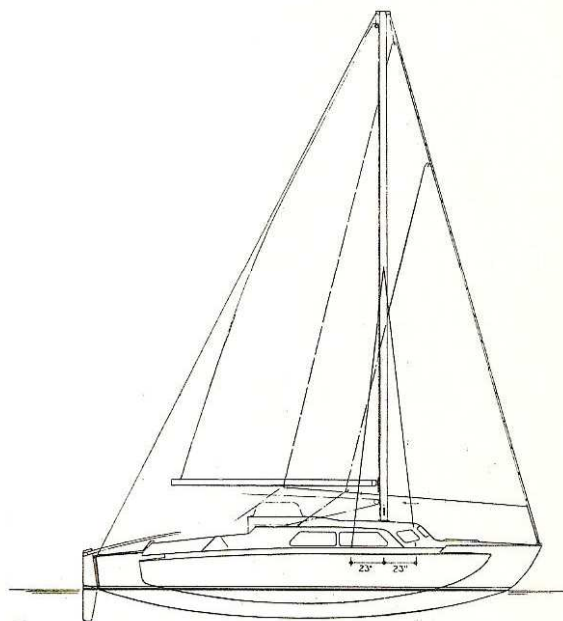
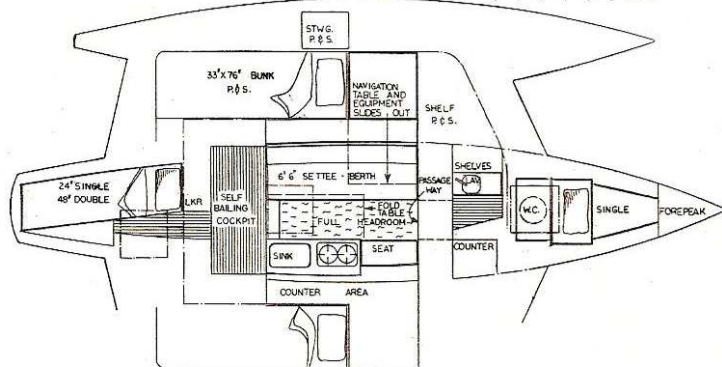
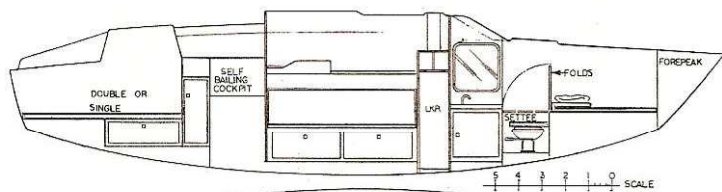
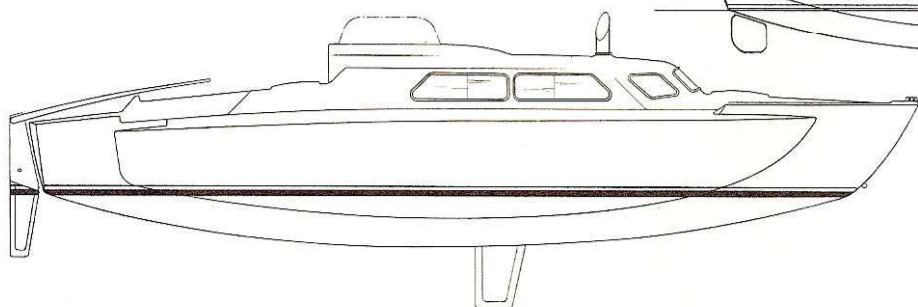
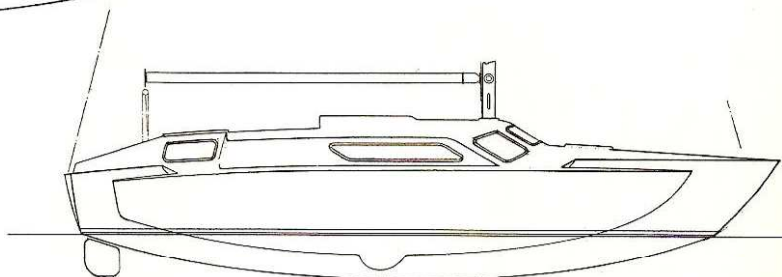
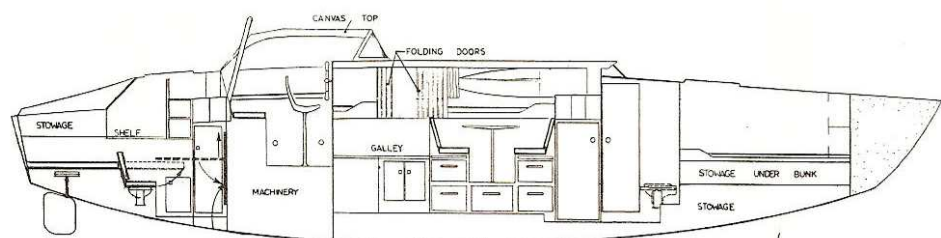
Superb custom-designed trimarans are available for a variety of purposes. Let us know your requirements.





FIBERGLASS

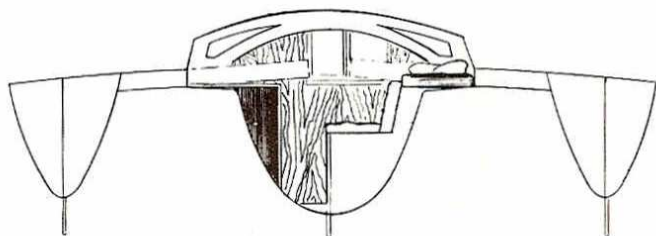
Trimarans in both fiberglass and plastic sandwich construction are now available in various sizes. Write for details.



CONCERNING HULL SHAPES

The most efficient shape for the central hull is generally considered to be the semi-circular-- which gives minimum wetted surface (hence minimum drag). On the debit side, such hulls have poor directional stability, make an unacceptable amount of leeway, and are the most difficult (and most expensive) to build. In order to reduce leeway and improve directional stability, various boards and/or fins must be added, thus restoring much of the wetted surface which was saved in the first place.

When we began designing multi-hulls in 1954, we used this shape -- both for catamarans and



trimarans. We built them either of strip-planking or double-diagonal (moulded ply). Although the resulting boats were milestones for their time, this method of construction was so tedious we could not find amateur builders who would attempt them. Then we shifted to the easiest shape of all -- the V -- which has resulted in thousands of happy owner-builders of our designs.

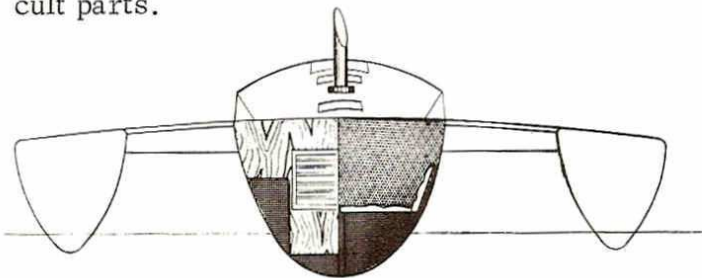
Still feeling the semi-circular shape to be advantageous, in 1965 we introduced double-chine bottoms for our AA (Advanced Amateur) line of trimarans. This gives the essential round-bottom form but still maintains the easy-to-build V-hull. For practical purposes, this approximates the efficiency of the pure round-bottom -- at least for cruising purposes. If you want an outright racing machine, semi-circular is recommended.

For those who must have semi-circular, we have developed in our latest line pure round-bottoms -- but ones which are far easier to construct than such shapes were heretofore. They consist of double-diagonal planking to the chine line of the central hull -- with compound-curved sheet plywood above. The two methods mate so well at the join they are as effective as all double-diagonal. Floats are made of compound-curve sheet ply. These compound

curves are so developed they are as virtually as simple to build as with straight sheet ply -- with the advantage of lessened wetted surface and greater plywood stiffness due to the curves themselves. Constant radii of the sheet ply sections make these as easy to layout as simple V by use of a template.

With the above composite method of construction, we have eliminated most of the tediousness of double-diagonal construction -- for the bottom of the central hull is but a fraction of the total exposed surface. Sheet ply can be far cheaper than double-diagonal, which uses two layers of often more-expensive thinner plywood. Also saved are great quantities of glue, and the necessity of having a pneumatic stapler. Driving 30-40,000 staples by hand (which must later be withdrawn) can become just too much effort.

Also contributing to the simplicity of construction of our version of the round-bottom is the supplying of full-size patterns for the difficult parts.



There is another -- and quite interesting -- reason for the fatter central hull. These boats are evolving from high-speed racing craft -- with narrow, slicing hulls. Such shapes lose efficiency rapidly when overloaded, but those in charge of establishing safety standards in organized racing are usually swayed by their most timid personnel -- resulting in some apparently ridiculous requirements. For instance, in the 1966 Round Britain Race the 33-foot British STILETTO had to have a main anchor (and chain) weighing 300 pounds! How do you raise such a weight? Obviously -- with a winch -- more weight. In the new British Crystal Trophy Race -- this size boat must have a main anchor of 35 lbs., at least three fathoms of 3/8" chain, and 27 fathoms of 1/2" warp. In contrast, STILETTO #1 carried a 22-lb. anchor, and 8 feet of 1/4" chain, and 3/8" Nylon line.

STUDY PLANS \$5 each boat (Refundable)

The amateur builder is the elite of yachtsmen--

The sheet below is a reproduction of one furnished with sets of our Study Plans (\$5 per boat – refundable with full plan purchase).

23

THE AA SERIES

The AA (Advanced Amateur) -Series represents our latest thinking -- sophisticated hull shapes similar to those used on our professional PI-Series -- yet simplified for construction by amateur builders. What are the advantages over our Standard Series? The AA-Line has increased carrying capacity -- about twenty percent more -- without impairing performance. However, the basic principle of the lighter the boat the more seaworthy still applies -- just because a boat can carry more does not mean you should transport weights you do not really need.

Some people think the new boats are smoother in appearance -- although our Standard boats when carefully constructed can be beautiful. It is ridiculous not to spend sufficient building time to ensure a neat finish -- for when sloppily done a boat is a credit to no one.

What do plans cost? In general, our plans cost approximately ten percent of the estimated material cost. Cost of plans is NOT important. What is significant is the cost of the entire project -- which of course includes plan cost. Thus the true cost of our plans is much less than that of conventional ones.

As the name AA (Advanced Amateur) implies, these boats do require somewhat more than a beginner's skill. For those completely new to woodcrafting we suggest the Standard Series.

Any of the accommodation plans shown for any Series may be adapted to similar length trimarans of all Series.

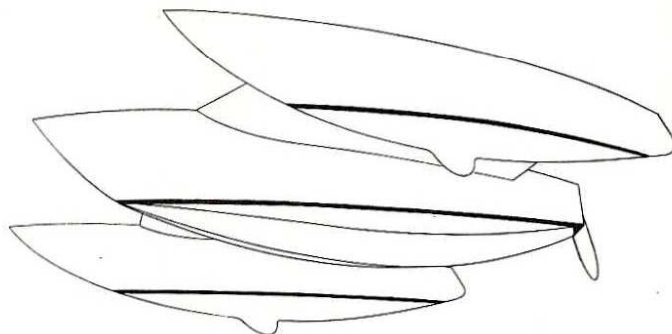
Plans for the AA-Series are obtainable on a LEASE basis only. The royalty shown is for one boat only, and the plans are returned to PI-CRAFT when the boat is completed.

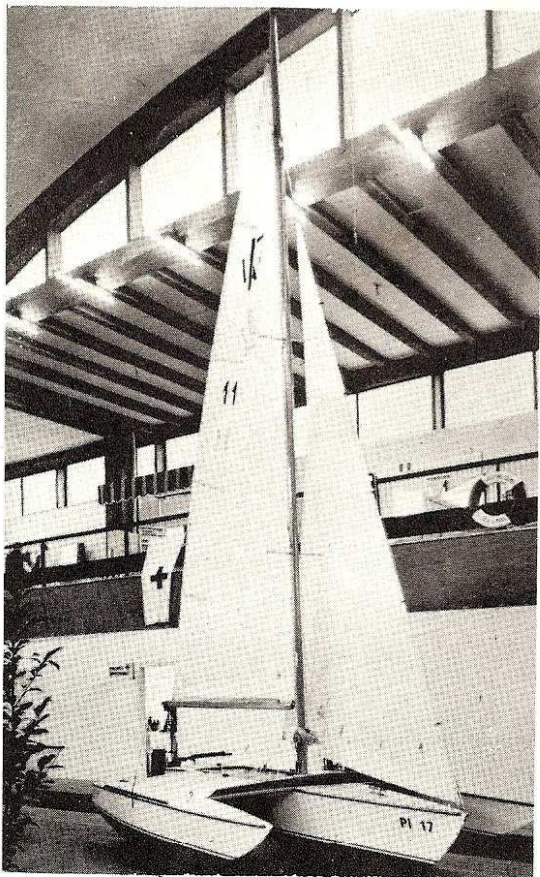
KITS AND PART BUILT

Our trimarans are obtainable at any stage of construction. It assuredly costs much more to buy a kit than just plans and materials, but unless you have plenty of time (together with the required initiative) you will be better off purchasing a kit or part-built boat. Buy as complete a degree of completion you can handle, and you will have your trimaran sailing that much earlier. Let us know of your interest, and we will supply the name of the kit-builder nearest you.

The professional PI-Series is the ultimate in modern yacht design. Knowing we had craft which completely outclassed all that had gone before, we have made a specific effort to have them the most elegant, as well.

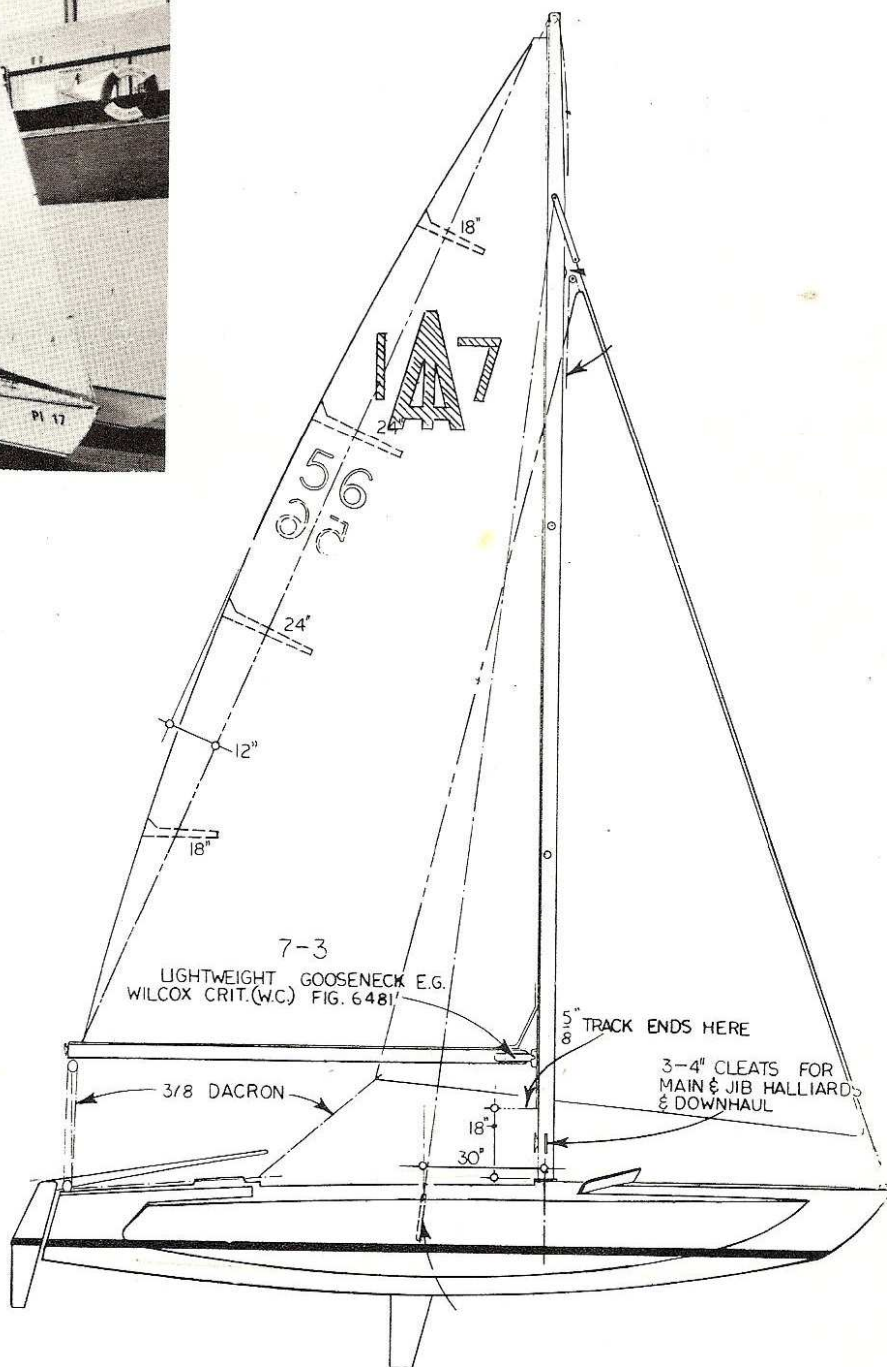
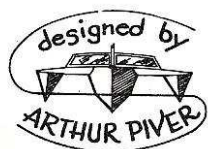
These boats are obtainable only completely professionally built.



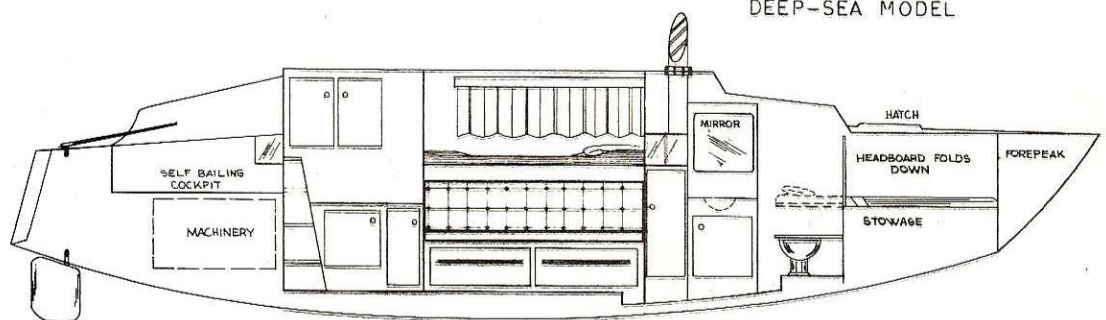
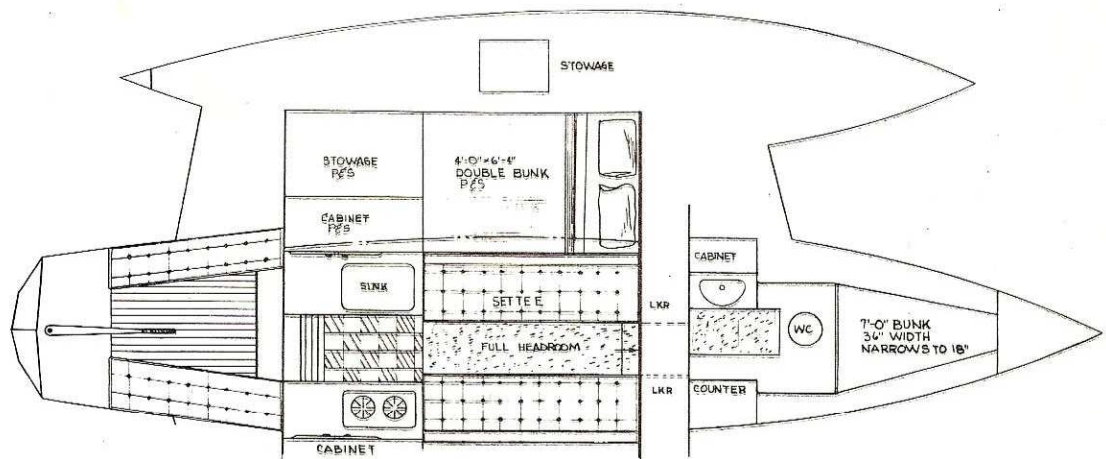
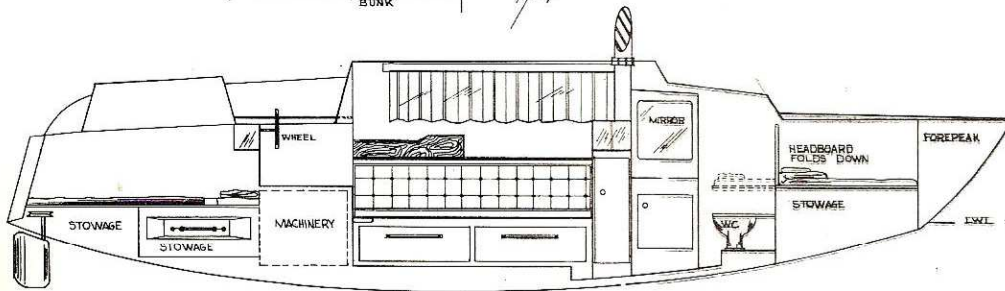
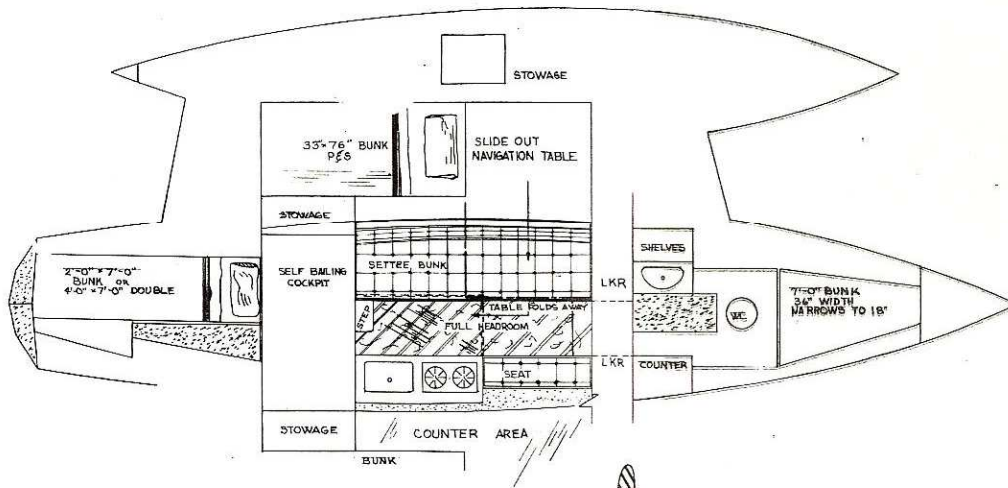


AA-17

Length	17'
Beam	8'
Draft	1'
S.A.	150'
Plans lease	\$20

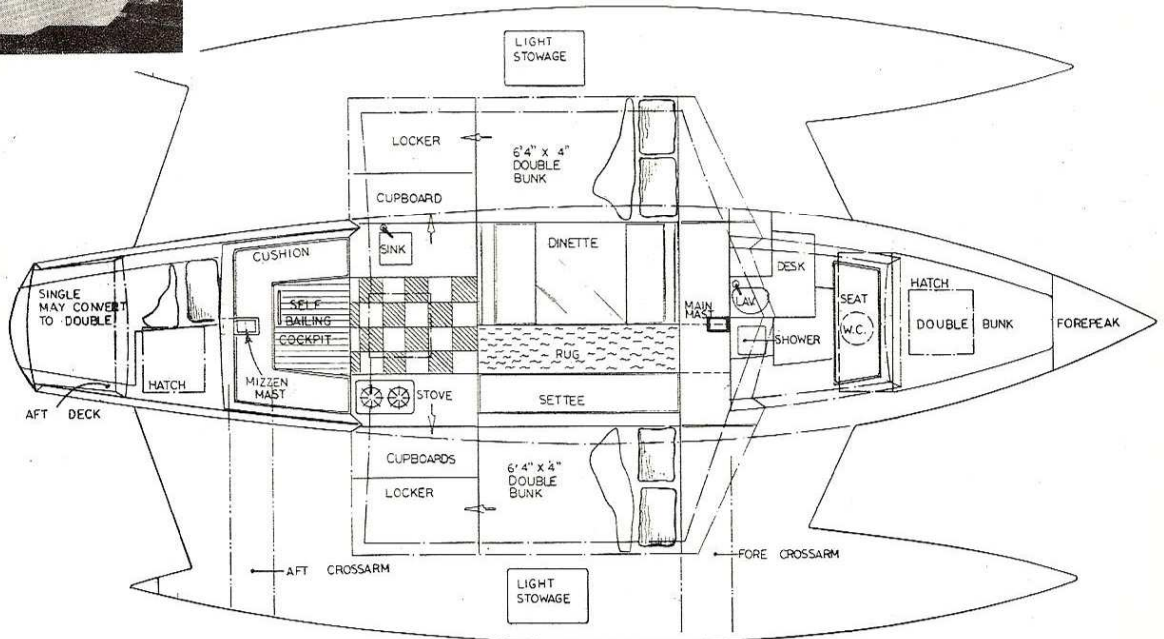
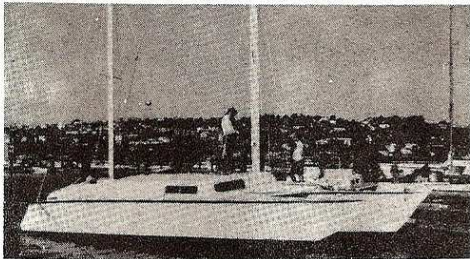
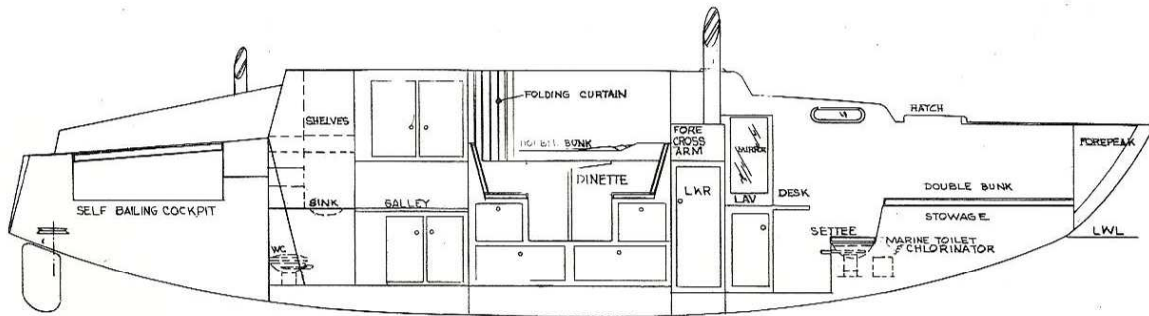
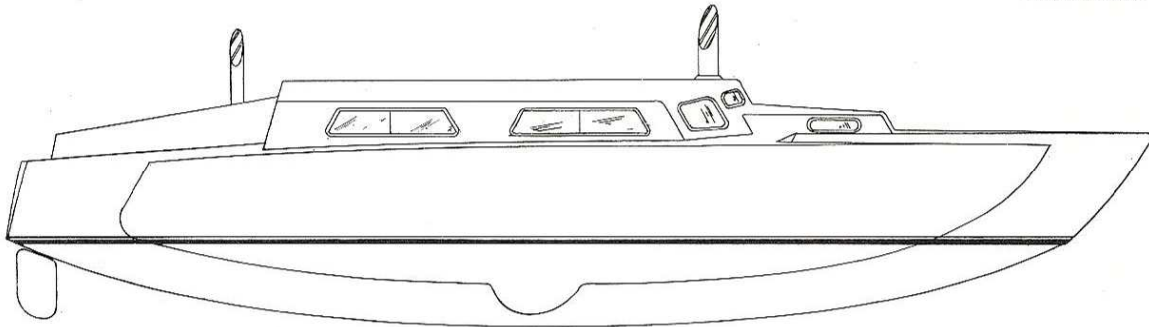


AA-31
 Length 31'
 Beam 18'
 Draft 2'
 S.A. 330'
 Plan lease \$175



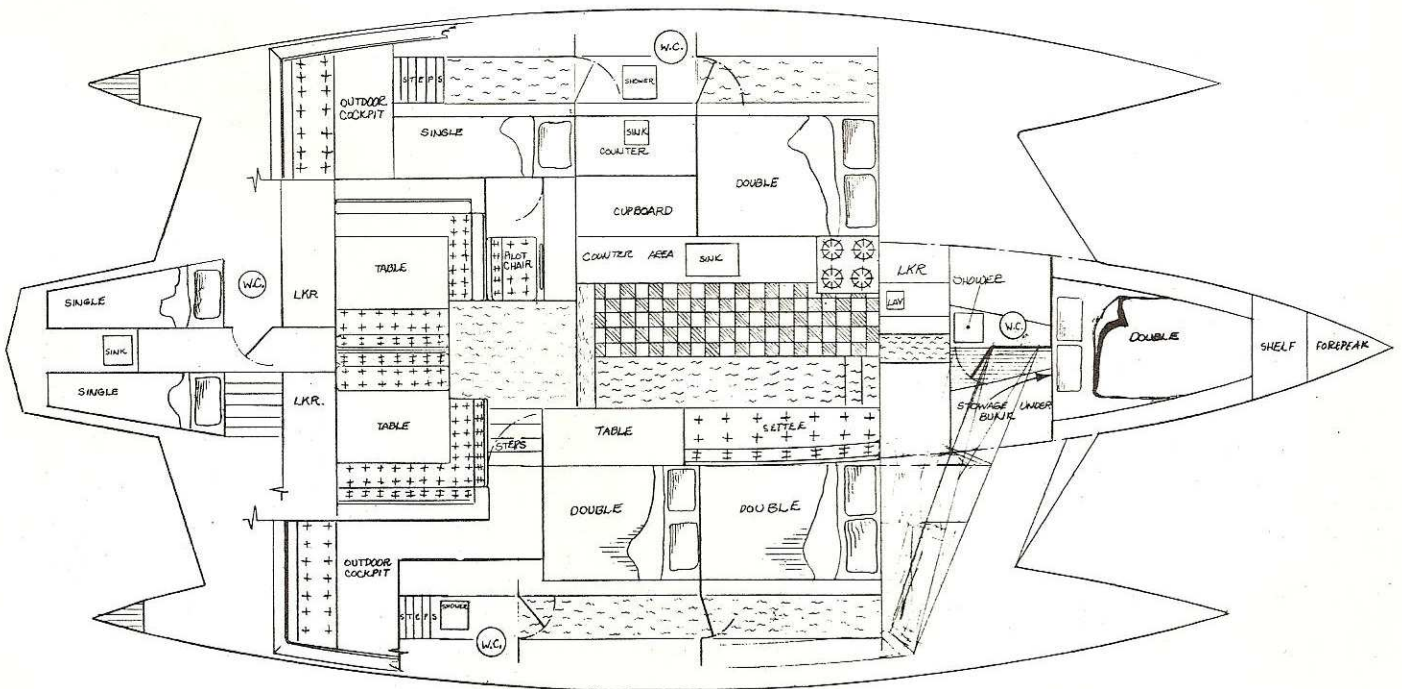
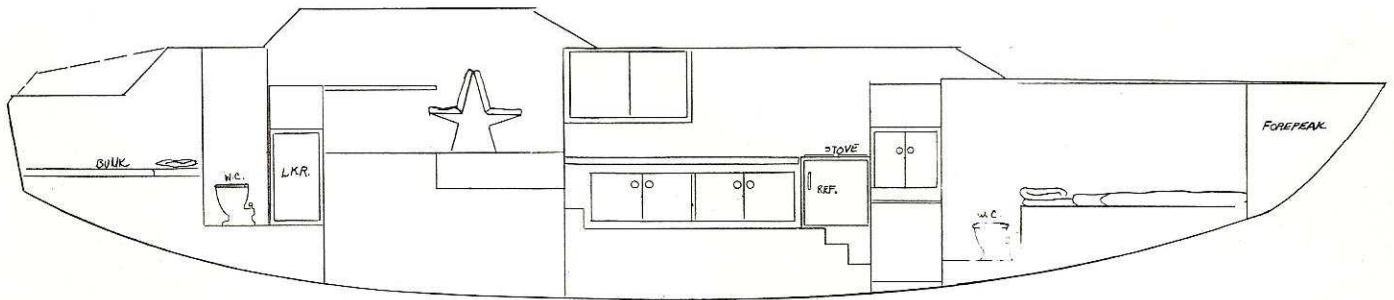
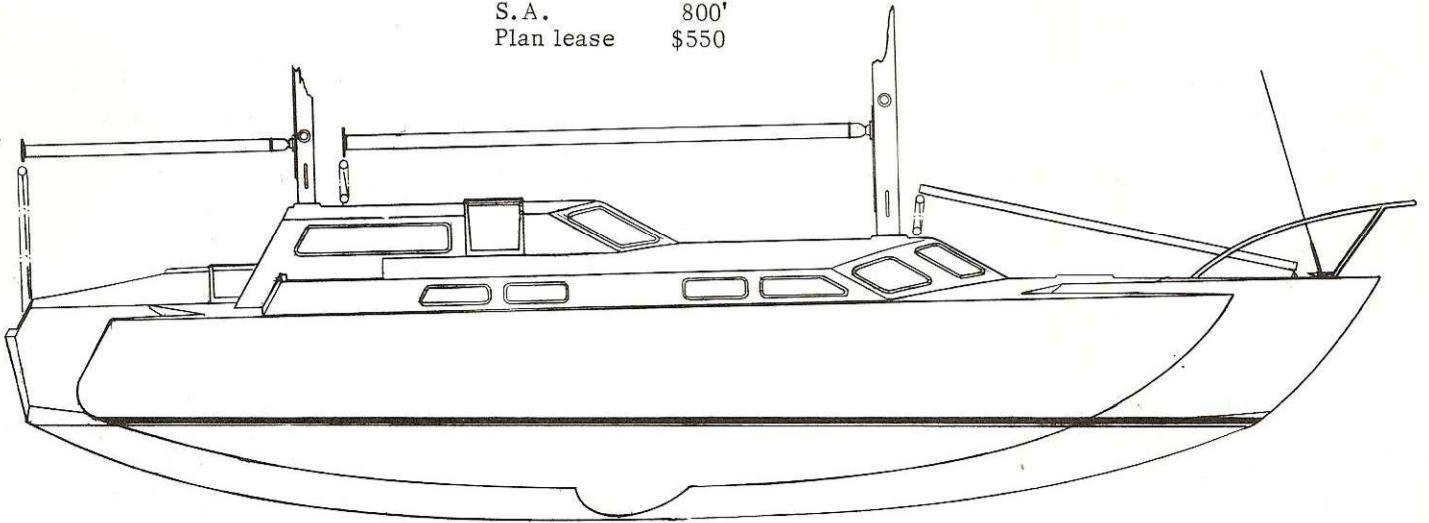
AA-36

Length 36'
Beam 20'
Draft 30"
S.A. 410'
Plan lease \$350



AA-48

Length 48'
 Beam 24'
 Draft 33"
 S.A. 800'
 Plan lease \$550



THE STANDARD SERIES

Our Standard Line of trimarans is the one which is by far the best known. Thousands of these boats are found all over the World, delighting their crews with new standards of Safety, Comfort, and Performance--all available to a person of but average manual dexterity--but of sufficient determination. Although our simplified building system has eliminated traditional boat-building skills such as lofting, it still adds up to a lot of work. However, there is nothing so satisfying as creating something which is useful as well as beautiful, and many people have found the building of their trimaran the most rewarding activity in which they have ever engaged.

Few people realize how strong is our need for expressing ourselves creatively and individually, and a word of warning is in order for prospective trimaran builders. Because of the basic drives mentioned above, some people feel compelled to change something. A successful boat is the result of a considerable number of factors working in harmony, and a person who is not completely familiar with the entire theory of the trimaran can completely spoil the entire project by changing just one feature (small accommodation changes do not matter). It is foolish to spend the time and money necessary to create a boat and not have a successful one by not strictly adhering to specifications. It is also grossly unfair, for when the builder finds his altered boat is inferior, he sells it to some unsuspecting innocent who may risk his very life by sailing such a craft.

You may have noticed we have emphasized

the importance of building the trimaran lightweight as specified. If you cannot completely accept this principle--do NOT build one of these boats. Do NOT exceed specifications--for weight can increase in an insidious manner. For instance--if you double the dimensions of a piece of wood, the weight does not double, but increases by the cube--so the wood is EIGHT times as heavy! Thus, by increasing dimensions but slightly, the boat can be considerably over-weight. We prefer Spruce for framing, but as it is scarce locally, as well as very expensive, we use Fir. This is moderately light, and generally satisfactory. We ask for kiln-dried, vertical-grain stock. This comes 3/4" thick--although referred to by lumbermen as 1".

For our larger trimarans, we usually show specifications to be 1"--although in this case the lumber may be up to 1-1/8" thick--so we may use what is known as "Stair-Tread" stock--usually a good deal cheaper and more available than having to have lumber especially milled to specifications. If Fir (and Spruce) is not available in your locality--ask for "Light-Weight boat-building wood."

Most satisfactory construction for amateurs is plywood. We cover ours completely with fiberglass--using only one layer of light cloth. Fiberglass is both heavy and expensive, and is required only for weatherproofing the plywood. The wooden structure alone is adequately strong. With fiberglass on the outside, and rot-inhibitor on the inside (we use Cuprihol) these boats apparently last indefinitely.

MINIMUM CONSTRUCTION COSTS, ETC.

Minimal figures for trimarans complete (with wooden spars) less sails, machinery, etc.

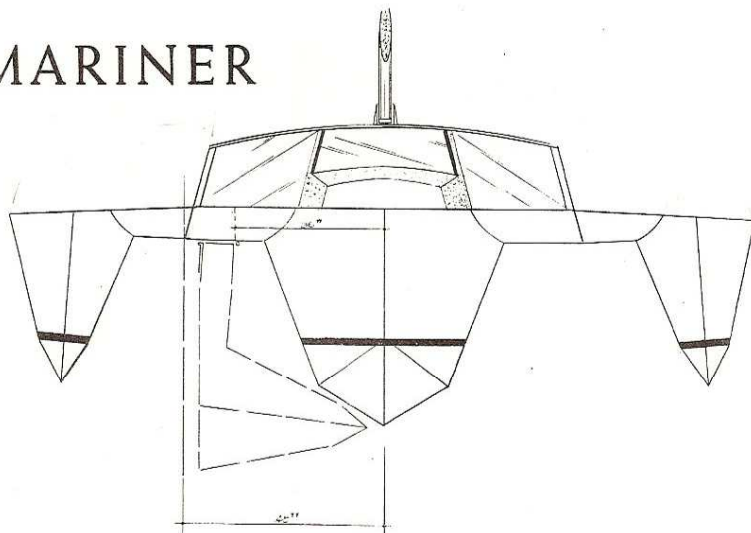
Boat (Trailable)	Plans	Materials	Man-Hours
12' V-2 Catamaran	\$ 10	\$ 100	140
14' V-4 "	20	200	170
20' B- Cat	40	400	250
Trimarans			
20' BANNER	40	450	320
24' NUGGET	60	750	480
27' CHARIOT	90	950	640

Boat	Plans	Materials	Man-Hours
Cruising			
25' MARINER	100	1,000	660
27.5' QUEST	140	1,800	800
30' NIMBLE	150	2,200	960
35' LODESTAR	300	3,300	1,440
40' VICTRESS	400	5,000	2,000
46' TRIDENT	500	9,000	3,000
53' DIADEM	750	17,000	4,500
64' EMPRESS	1,000	35,000	8,000

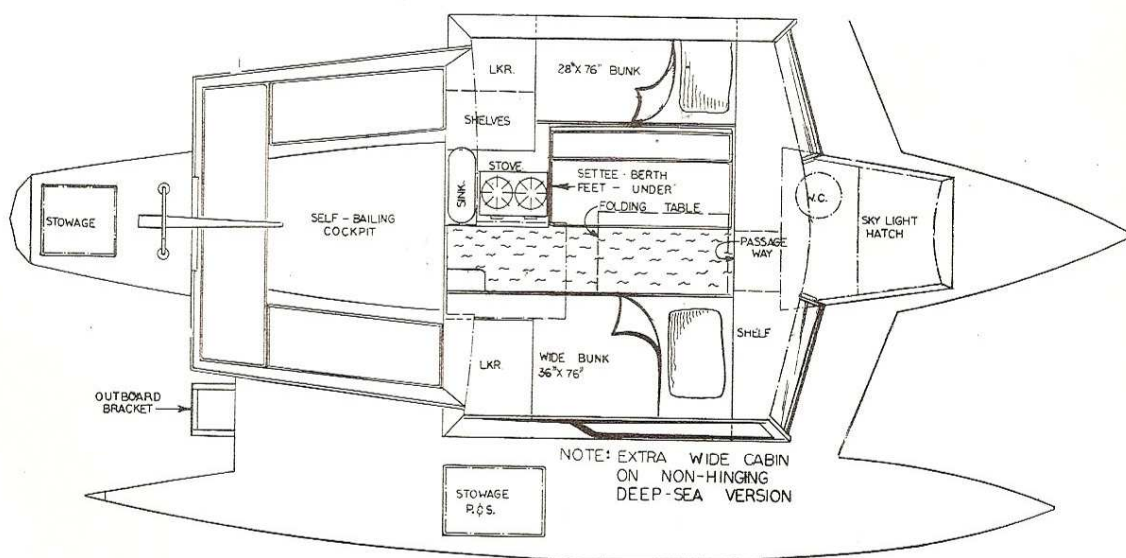
Note: Costs for AA-Line slightly higher for comparative size trimaran.



MARINER



Exhilarating Speed in Safety and Comfort



25' MARINER Trimaran by:
Arthur Piver
Box 449, Mill Valley, Calif.
Phone: (415) 388-8930

Length 25'
Overall Beam 15'
Trailing " 8'
Draft (Board up) 19"
Weight 1,700 lb
Sail Area 250'
Estimated material cost,
complete less sails, etc.,
\$1,000 (includes cost of
Plans, \$100).
Study Plans \$5 (credited
with plan purchase).

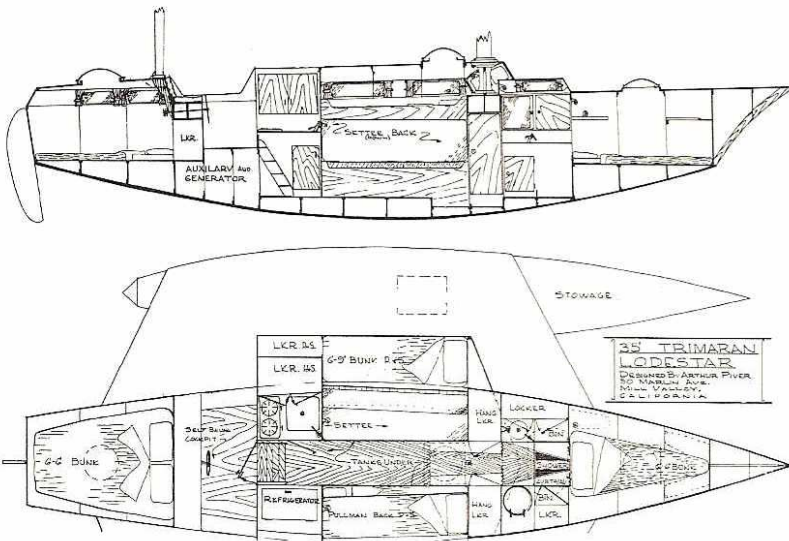
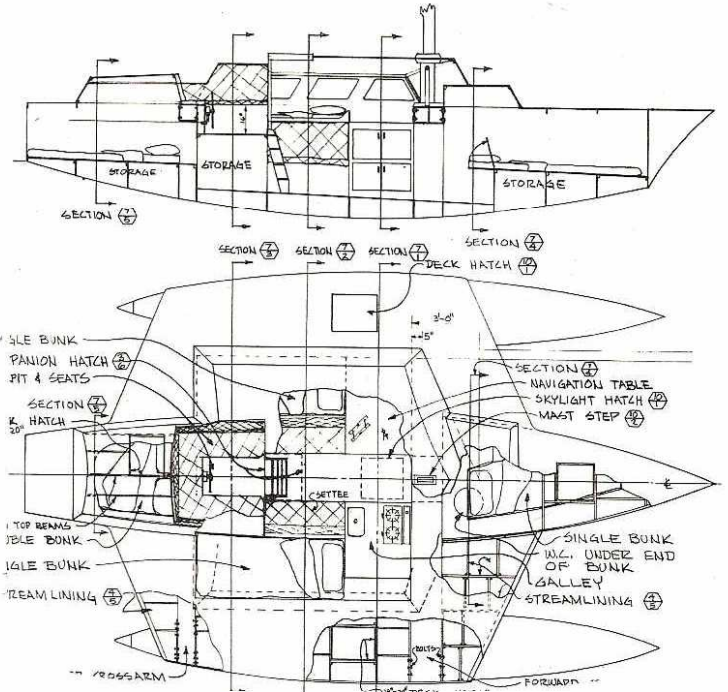
TRAIL IT, SAIL IT
Rivers, Lakes, Oceans

Designed especially for the amateur builder, and intended as the minimal full-cruising, trailable Trimaran. Construction is largely Plywood--1/4" for hulls and 3/8" for decking (total wood costs including spars should be approximately \$400). Entire boat is covered with one layer of light (4 oz.) fiberglass. Simplified building plans (no lofting nor usual boat-building skills required) contain 19 large sheets of drawings; step-by-step instruction booklet; full-size stem pattern, etc. Plan options show both trailable and deep-sea models. No cross-arm hinges on deep-sea model. Also shown in plans is optional placement of head; possible widening of settee-berth to form double--two wing bunks. Recommended auxiliary power--5 hp outboard on bracket.



NIMBLE

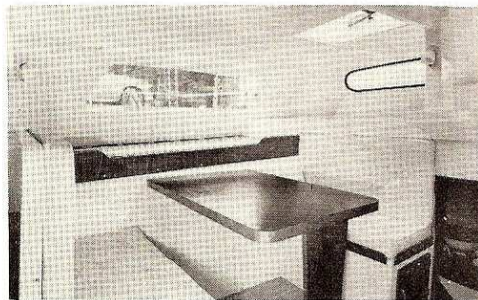
Length 30'
Beam 18'
Draft 2'
S.A. 300'
Plans \$150



LODESTAR

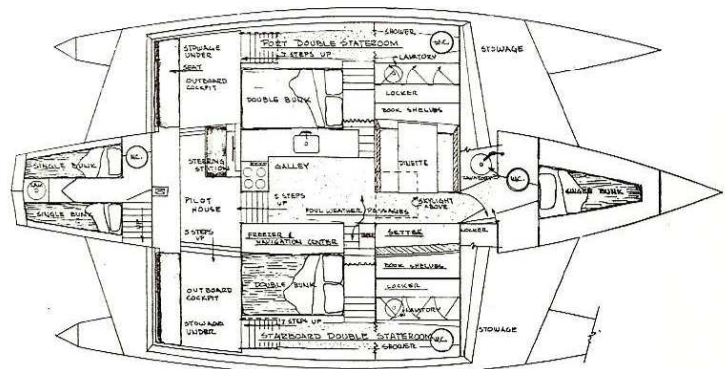
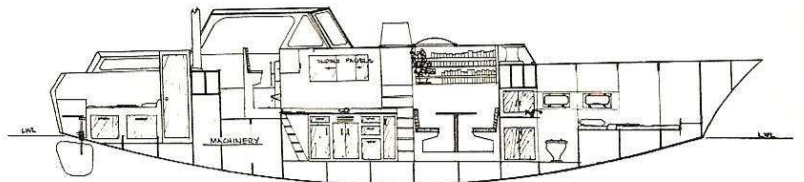
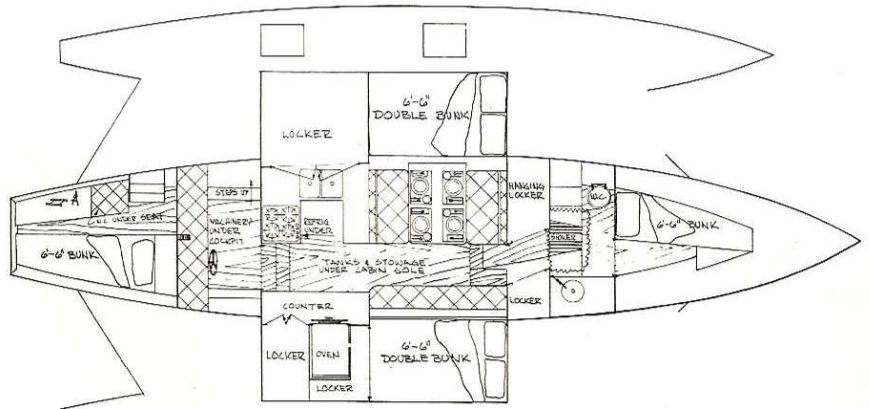
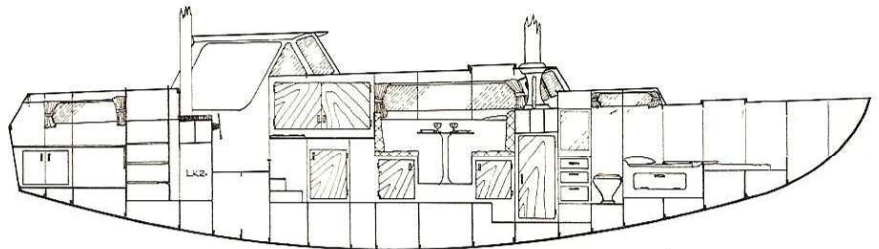
Length 35'
Beam 20'
Draft 30"
S.A. 400'
Plans \$300





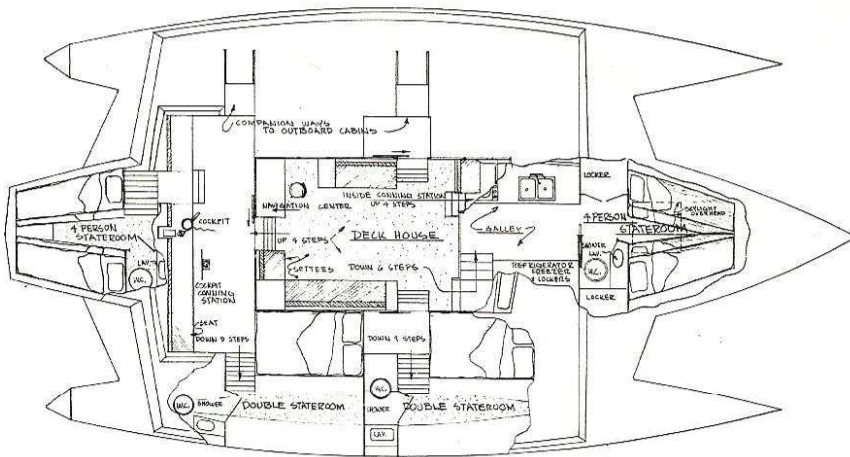
VICTRESS

Length 40'
Beam 22'
Draft 33"
S.A. 550
Plans \$400



TRIDENT

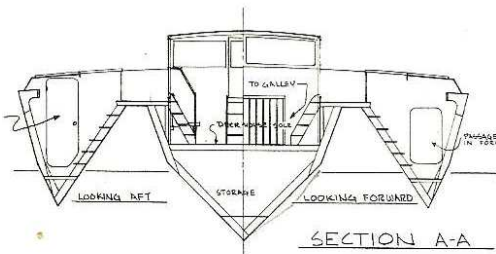
Length 46'
Beam 24'
Draft 3'
S.A. 800'
Plans \$500



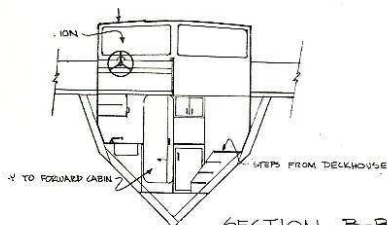
ACCOMMODATION PLAN

DIADEM

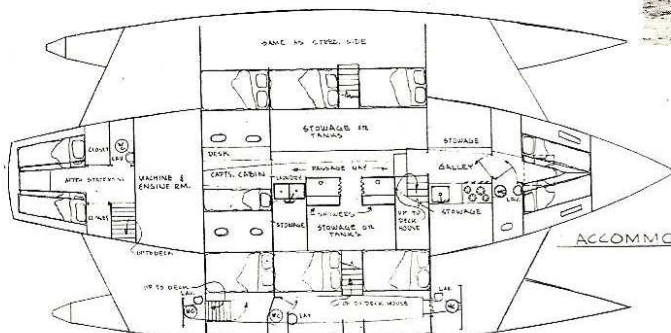
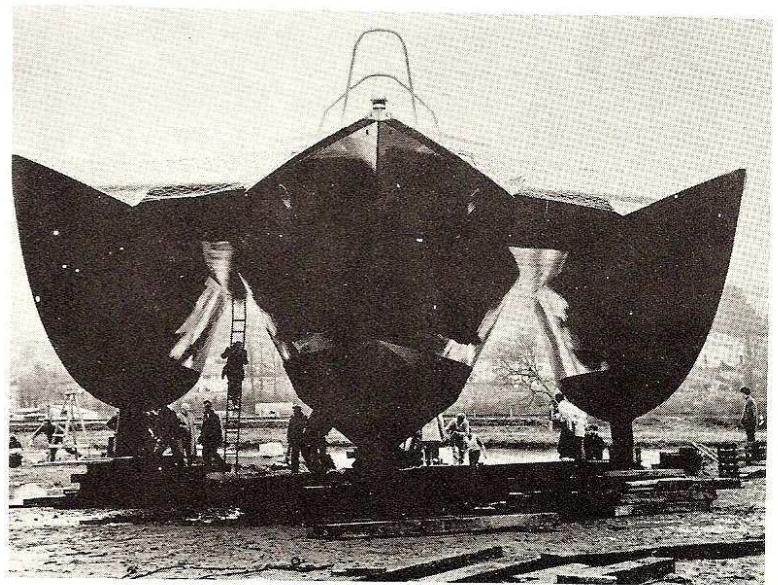
Length 53'
Beam 30'
Draft 40"
S.A. 800'
Plans \$750



SECTION A-A



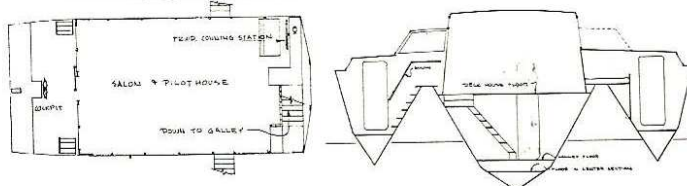
SECTION B-B
IN GALLEY LOOKING FORWARD



ACCOMMODATION PLAN

EMPRESS

Length 64'
Beam 32'
Draft 4'
S.A. 1,400'
Plans \$1,000



AMATEUR YACHT RESEARCH SOCIETY Self-Steering \$4.00

BARRIER REEF BY TRIMARAN

by John Gunn \$4.95

NOON POSITION (Simplified Navigation)

by Arthur Piver \$2.95

TRANS-ATLANTIC TRIMARAN

by Arthur Piver \$3.95

TRANS-PACIFIC TRIMARAN

by Arthur Piver \$4.95

TRIMARAN THIRD BOOK

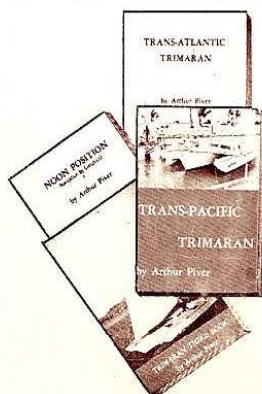
by Arthur Piver \$4.95

PI-CRAFT CATALOG of trimaran designs, history \$2.00

Davis plastic Sextant \$13.50

PI-CRAFT

Box 449, Mill Valley, Calif. 94941
(415) 388-8930



For California orders Add 5% Sales Tax.

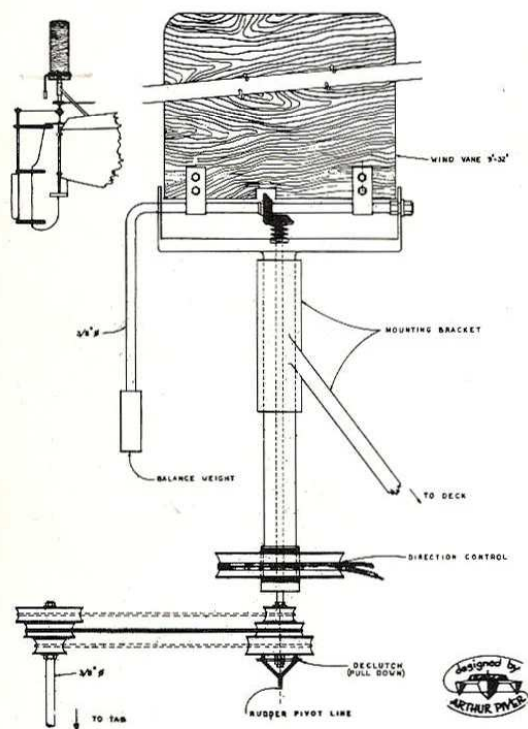
TRIMARAN-AIRCRAFT ANALOGY

The practice of comparing trimaran features with similar characteristics of aircraft becomes more valid as the analogy is extended to basic design, according to Arthur Piver of Mill Valley, California. Multiple trimaran tragedies around Australia over the past year have emphasized the fact it makes no more sense to risk one's life in a relatively untried trimaran than it does to do so in an aircraft which has never been thoroughly flight-tested.

Hundreds of unblemished ocean crossings over a seven-year period by Piver trimarans have combined to produce a remarkable safety record which has given the impression any craft with three hulls is automatically seaworthy—but the tragedies in the Australian-designed trimarans show this is not necessarily so. Trimaran equivalent of a well-tested aircraft is repeated exposure to storms at sea. As far as is known, Piver is the only trimaran de-

signer with such a background. Many scores of trimarans are now being constructed to plans by his contemporaries who customarily do not even bother to build a prototype.

The aircraft analogy received further amplification with the report from Simon's Bay in South Africa of a Piver trimaran capsizing at moorings. Investigation revealed the wind had blown so hard the market was removed—bricks, mortar—everything down to the foundations. Even more intriguing was the disclosure there was not just the one—but FIVE Piver designs in the same anchorage. Why had one capsized but not any others? Then it developed the affected boat had been modified by the unauthorized addition of wing-deck area—precisely the wrong thing for high-wind stability. Obvious moral: if you do NOT modify the plans of a qualified designer, chances for trouble-free operation improve at the ratio of four to one!



SELF-STEERING WIND VANE. Latest designs of this invaluable cruising aid are radically different than earlier versions. Note the vane itself is mounted on a horizontal rather than a vertical axis—so it flip-flops rather than turns. This gives greater sensitivity at small angles to the wind—the weak point of previous models. Wind-vane drawings are included with all sets of plans for cruising trimarans.

More Piver designed Trimarans have cruised and crossed the oceans of the World (in unprecedented safety) than the boats of any other designer in yachting history.

When Piver "invented" the modern cruising Trimaran, he was years ahead of the rest of the sailing fraternity. Constant testing, sailing (35,000 personal deep-sea miles) and refining his designs, and introducing completely new ones, has kept him just as far ahead today as he was then.