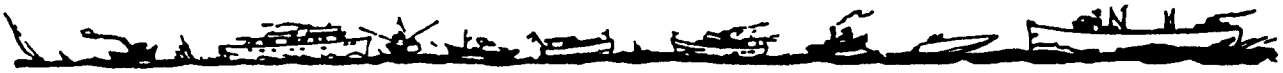
WESTON FARMER ASSOCIATES



7034-D Hwy 291
Tum Tum, WA 99034
509 276 6355

WELCOME ABOARD TAHITIANA!

The plans you have in your hands cost a lot of money and time to produce, and herewith is your share of the action. The drawings will build TAHITIANA and will rig her. The drawings are in a greater state of completion than that usually required by a yacht builder, who wants only offsets, scantilings, and rigging.

Details of joinery, electrical work and the simple to the engine are usually furnished by the individual builder to meet his needs and are not normally supplied, it being considered in most marine drafting rooms to be a waste of time to work up material that comes within the "state of the art", that is also subject to wide interpretation and individual preferences.

For your convenience I have included reprints of the original two-part story on TAHITIANA which ran in the October and November 1976 issues of MOTOR BOATING AND SAILING. Statements made in these stories are to be considered a part of the consulting advice in connection with the enclosed prints. It would be wise to make a list of these points to guide your decisions.

The usual legalities normal within the marine design trade apply with TAHITIANA here. You have the right to build one vessel from the drawings for your own use; you have the necessary details to do so in these plans. Commercial builders will be charged a royalty fee for duplicate hulls built after their first one.

Title to the design remains vested with the designer. Any changes that result in alteration of weights or position thereof (such as metric steel gauges) without the designer's knowledge or consent voids his professional responsibility. These matters and provisions are simple considerations of adjudicated common law, and are mentioned for the safeguarding of the builder's interests as well as the designer's and/or customer's interests.

Since first exposure in MOTOR BOATING AND SAILING magazine, TAHITIANA has appeared in Australia in the July, 1977 issue of MODERN BOATING; in the September 1977 issue of MECHANIX ILLUSTRATED; and in the October issue of the ENGLISH YACHTING MONTHLY. Well over 1,000 sets of plans have been shipped worldwide in the time interim. She has been built by professional and home builders and, judging from letters received, she has given great satisfaction to both.

NOTES ABOUT TAHITIANA'S SAIL PLAN

1. TAHITIANA is a simple boat, and therefore the drawings are uncomplicated and easy to understand.

She is a meat-and-potatoes boat for practical men, and is rigged in what might be termed "composite" fashion. I have used light, hollow, extruded aluminum spars because they are stronger and less costly than hollow wooden spars. Spruce costs are high these days, and glue to effect adequate joints is also very expensive. Materials for the mainmast would cost a fortune today. No man whose time is worth a cent can produce a wooden spar in mast size for what an aluminum spar can be purchased for. There is a note on the sail plan stating that the spar market is chaotic. So it is, with confusing arrays of sections, and prices quoted with about 40% mark-up in list over tradeable commercial price. Still, aluminum spars are superior on all counts, and are nominated for masts.

2. I have designed a rig which I would be comfortable with. The use of wooden booms allows repairs world-wide, and easy experiment with cleats, bails, vang fittings and so forth which a man can effect himself. Roller booms in circular aluminum extrusions are OK, but require a sail cut 90 degrees from the mast, which would change the shape of the sail design. I have used the time-tried belaying pin rack in the shrouds for belaying lines, instead of the now fashionable snubbing winches. So you pays your money and you takes your choice. Usually, by the time the rig is purchased, a man is counting pennies, and I have opted for frugality and universal practicality. If you want to fall in love with the gal and buy her diamond rings, it is up to you to denote the location of the winch pads you want, and how many.

3. No two sailors will want to rig a vessel in the same manner. What is one man's seagoing meat is another man's seagoing poison. I have therefore left the deck leads, sheet cleats, and so on in the limbo of your imagination. By the time you get the hull up in three dimensions and in metal, you can tramp the decks, position yourself comfortably in the cockpit, and will know then a lot more about the right choice of pad eyes and fairleads, and their suitable location, than I can tell you early-on.

4. Mature consideration of world conditions dictates the use of manila line instead of Dacron, braided, as at first suggested. Replacement of manila can be done in almost any port; braided Dacron is a sea horse from another stable.

5. Blocks for all sheets should be 3" dia. of good quality. Bails, brails, vangs, tangs, and orangutangs as well as spinnaker poles and raffees are your choice, if you must have them. SO, HAPPY NOODLING!!

Weston Farmer

1 of 9

6. Feedback from the builders has been along lines indicating that the keel has been varied to suit individual's needs and skills. A box keel of 1/4" side plate, 1/2" bottom, flared a bit to a new bearding line, has put about 1500-2000 lbs. more weight below, where it is more effective than the same weight stored as inboard ballast.

Lead can be used to fill the box, and wornout ball mill balls about 1" dia. have been used, using epoxy to fill the spaces and lock the balls in place. Lead shot also has been used. DO NOT USE CONCRETE OR CEMENT TO FILL VOIDS. Portland cement is deliquescent, picks up moisture, and rusts quickly if used against steel plate. Concrete, if immersed, has only 28 lbs. gravitational component, the difference between the weight of water, 64 lbs. vs. concrete, 90 lbs. Roughly only 26 lbs. Steel weighs about 490 lbs. per cu. ft., lead weighs 706 lbs. per cu. ft. Concrete with rock aggregate is variable, from 105 to 150 lbs., but still too light to be any good, gravitationally, for the weight wanted.

7. Epoxy coatings have been reported to work well inboard in lieu of hot zinc spray. But exterior mill scale must be either blasted off or sanded off with a disc, and quickly epoxied.

8. Please note the altered headstay location marked on the sail plan. The catalog housed listed on the sail plans and lines plans cannot send catalogs to foreign addresses. Too much customs hassle. The practice has been dropped. Better use local supply; British for Britain, German for Germany, Australian for Australia and Indonesia, etc.

9. ENGINES: Although the Sabb is shown, and is a fine choice due to the great maneuverability of the reversing wheel, Norwegian prices are now inflated. A Yanmar, Volvo, or Westerbeke, or any good small Diesel capable of handling a 16-18" propeller at around 1,000 rpm through a reduction gear will serve well. The first Lund TAHITIANA had a 30 hp outfit installed by Lund, and has worked well.

10. From feedback received from builders who have boats in the water, I add this set of recommendations:

a) Best to butt weld the frames at the chine corners. The overlap was designed for amateur help, but it is not really needed. Also, the interfaced steel will be prone to rust if not welded all around. <u>USE BUTT WELD.</u>

b) If an engine other than the Sabb is used, go to a 3" dia. tube instead of 4" as required by the Sabb propeller system.

TAHITIANA'S STEEL SCANTLINGS BILL OF MATERIALS

A. Pipe or rod or rectangular shapes, as optioned.

1. Chines-- 200' of 1½" (ID) Sched. 40 standard water pipe, or 3/4" dia. round bar, according to yard practice.

2. Sheer-- 65' of 1½" (ID)

3. Mast stanchions-- 10' of 2" (ID) Sched. 40

4. Sheer clamp-- 65' of 1½" (ID) Sched. 40 or square tube 1½" x 1½" x 1/8" wall (better seam closure)

5. Shaft log-- 4" (4½" o.d.) Sched. 80 for Sabb variable pitch, or 3" (3½" o.d.) Sched. 80 for solid shaft applications with PVC lining and cutless bearings. ALL 2' 7" long.

6. Sheer guard-- 35' of 2½" (ID) 2.875" o.d. Sched. 40 split for welding along outboard sheer line.

B. Shapes (hot rolled mild steel).

1. Intermediate stringers-- 260' of 1½" x 1½" x 3/16" T-bar for home construction, or 1½" x 5/16" for edge rolled construction. (Builder's option--with latter construction, curvature rolled edgewise in rolls).

2. Deck beams, floor flanges, mizzen step, etc. -- 180' of 3" x 2" x 3/16" angle or if floors can be flanged, drop 40' and substitute 1" x 1½" x 1/16" rectangular tube. Retain 40' of angles.

C. Frames. 200' of 2½" x 1/4" flat bar.

D. Intercostals. 60' of 1½" x 3/16" flat bar.

E. Keel. See discussion in text.

F. Plate.

1. Deck, cockpit house top. 10 pcs. 5' x 10' x ~~XXXXX~~ 1/8".

2. Hull, house sides, floors, etc. 9 pcs. 5' x 10' x 3/16".

3. Rudder. Best if of 3/8" plate.

4. Stem, horn. 1 pc. 4' x 10' by 1/2".

This list is believed accurate, but not guaranteed. In addition, about 30-40 ft. of 1½ x 1½ x 1/8" will be needed for furring clips for joiner work, ballast retainers, etc. Ballast, 2,000# lead forward, retained by 3 lb. expanded metal grating.

WESTON FARMER-Naval Architect - Marine Eng'r.

18970 AZURE ROAD
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612-473-2360

INTERIM ADDENDUM NO. 3-- June, 1979

As of the above date, about 800 sets of plans for TAHITIANA have been sold, mailed to all corners of the globe. Ten boats are now known to be in the water, and it is believed that between thirty and forty more are being actively built.

Feedback from the builders has been along lines indicating that the keel has been varied to suit individual's needs and skills. A box keel of 1/4" side plate, 1/2" bottom, flared a bit to a new bearding line, has put about 1500-2000 lbs. more weight below, where it is more effective than the same weight stored as inboard ballast.

Lead can be used to fill the box, and wornout ball mill balls about 1" dia. have been used, using epoxy to fill the spaces and lock the balls in place. Lead shot also has been used. DO NOT USE CONCRETE OR CEMENT TO FILL VOIDS. Portland cement is deliquescent, picks up moisture, and rusts quickly if used against steel plate. Concrete, if immersed, has only 28 lbs. gravitational component, the difference between the weight of water, 64 lbs. vs. cement, 90 lbs. Roughly only 26 lbs. Steel weighs about 490 lbs. per cu. ft., lead weighs 706 lbs. per cu. ft. Concrete with rock aggregate is variable, from 105 to 150 lbs., but still too light to be any good, gravitationally, for the wight wanted.

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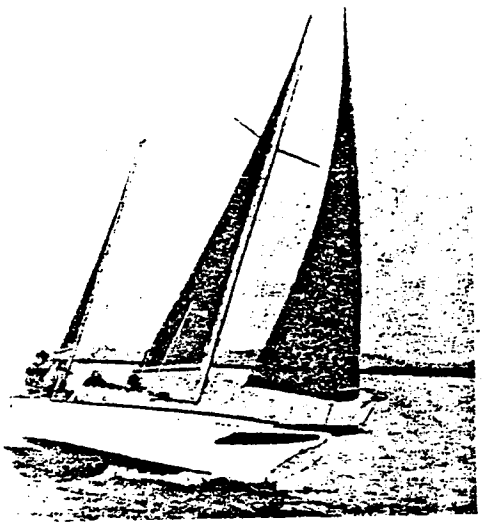
Please note the altered headstay location marked on the sail plan. The catalog houses listed on the sail plan cannot send catalogs to foreign addresses. Too much customs hassle. The practice has been dropped. Better use local supply; British for Britain, German for Germany, Australian for Australia and Indonesia.

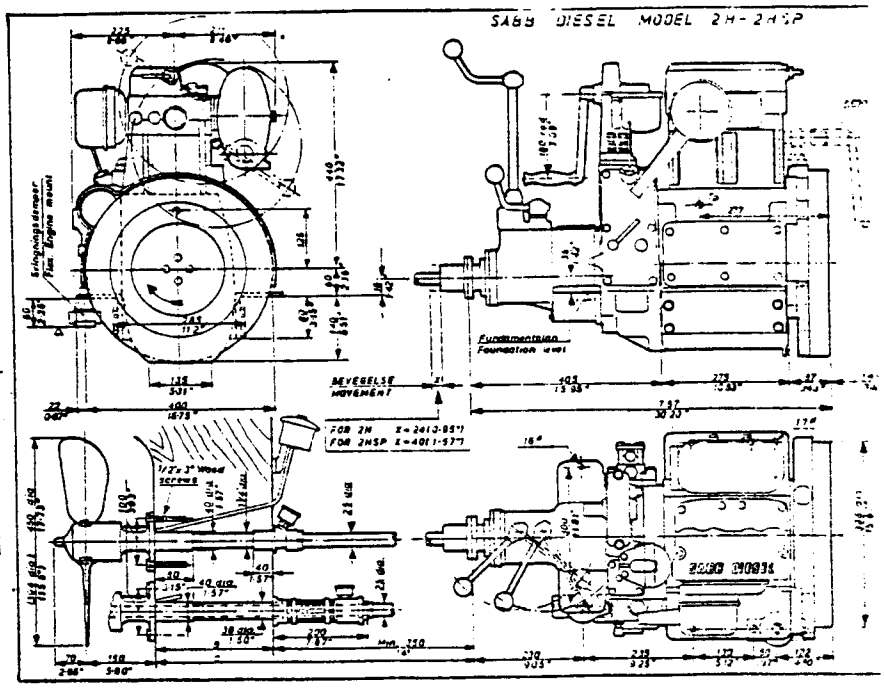
David Lund Marine, Albion Dockyard, Hanover Place, Bristol, England are working on their twelfth TAHITANA, and are the source for all information about prices and gear for the U.K.

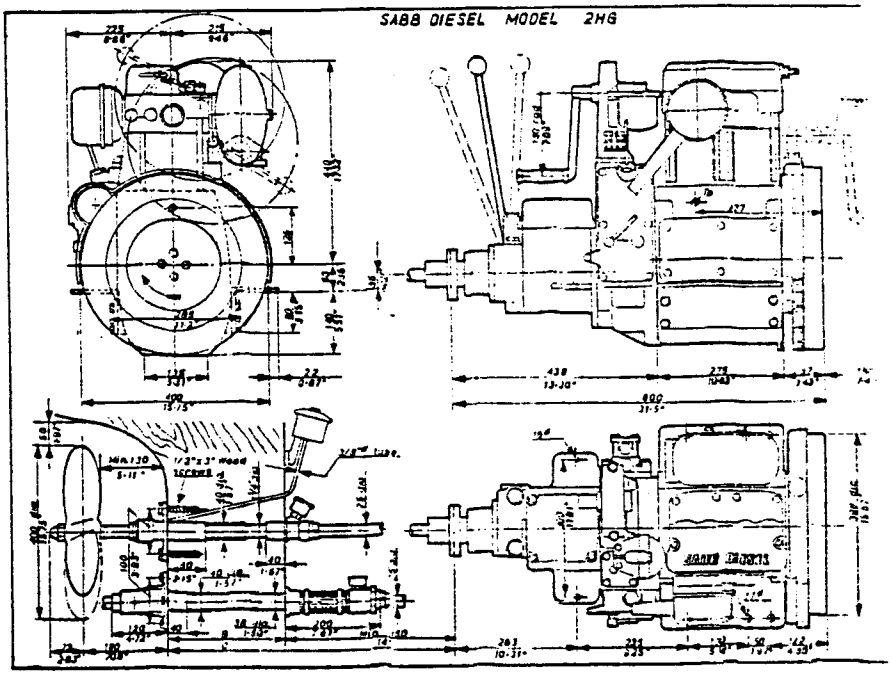
ENGINES: Although the Sabb is shown, and is a fine choice due to the great maneuverability of the reversing wheel, Norwegian prices are now inflated. A Yanmar, Vovo, or Westerbeke, or any good small Diesel capable of handling a 16-18" propeller at around 1,000 rpm through a reduction gear will serve well. The first Lund TAHITIANA HAD A 30 HP OUTFIT INSTALLED BY Lund, and has worked well. She is now en route to Australia on her own bottom, having been sold to an Australian buyer.

Weston Farmer

(6)







Dimensional drawings–Scale 1:15

STANDARD EQUIPMENT

Variable pitch propeller 450 mm or
Solid propeller 400 mm
200 cm propeller shaft, 25 mm stainless steel (79")
45 " stern tube, bronze, with stuffing box (18")
4 pcs. 5/8" through bolts with nuts and washers, length 38 cm (15"), 2 pcs. wood screws
1 " galv. stern greaser with tube, 75 cm (29,5")
1 " sea cock with strainer for water intake
1 " cooling water suction tube, 55 cm (22")
1 " cooling water discharge tube, 170 cm (67")
1 " fuel tank, 42 litres, 9.5 Imp. gall., with cocks, stainless steel
1 " fuel tank tube, 170 cm (67")
1 " sump drain pump
1 " grease gun – oil can – funnel
1 " Tool box with necessary tools
1 " Instruction Book and Parts List

EXTRAS

Generator–Alternator
Electric starter–Instrument panel
Front end hand start–Glow plugs
Rubber mounting–Flexible shaft coupling
Rubber exhaust pipe–Flexible stuff. box
Remote controls–Fresh water cooling
Extra water pump for wet exhaust, with fresh water cooling
Cooling water filter–Bilge pump
Front end power-take-off equipment
2 blade variable pitch propeller, 394 mm dia. (15½" in.)
Water lubricated stern bearing for fixed propeller
Stainless steel fuel tank, 75 litres

MODEL 2 HSP–Feathering Propeller

This special model is intended for sailing boats, and has clutch, reversing mechanism and fully feathering propeller, 2-bladed, diameter 450 or 394 mm.

SABB SERVICE:

Full stocks of spares are maintained at all times and we take great pride in prompt spares service.

Spares and service are available in most countries where the engine is sold, and we are always ready to help out in an emergency.

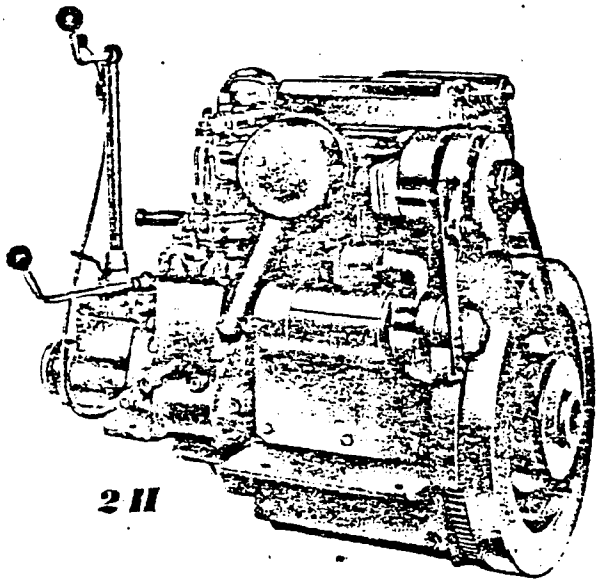
Sabb Motor A.s (formerly Dansgård Motorfabrik-found. in 1925) is one of Scandinavia's leading manufacturers of small diesel marine engines

3M 273

L 9

SABB DIESEL

18 HP *marine diesel engine*



2 H

MODEL 2H
Clutch, reversing mechanism and 2-blade variable pitch propeller with diameter 450 mm, 17¾".

MODEL 2HG
Reverse gear and 3-blade fixed propeller – diameter 16" (400 mm).
Rotation: Left hand.

SPECIFICATION:

2-cylinder, watercooled, four stroke diesel engine
16 HP at 2000 RPM
18 HP at 2250 RPM
Built-in reduction gear: 2:1
Cylinder bore/stroke: 90/90 mm–3,54/3,54 in.
Cubic capacity: 1,14 litres–69,6 cu.in.
Compression ratio: 1:22
Propeller torque: 11,5 kpm–83 ft.lbs
Fuel consumption: 215 g/HPh–.47 lbs./HPh
Lub.oil consumption: 1,5–2 g/HPh–.03–.07. ozs./HPh
Weight of engine: 190 kilos–419 lbs.

Suitable for boats between 20 and 28 feet, and as auxiliary power for sailing boats between 5 and 10 tons displacement

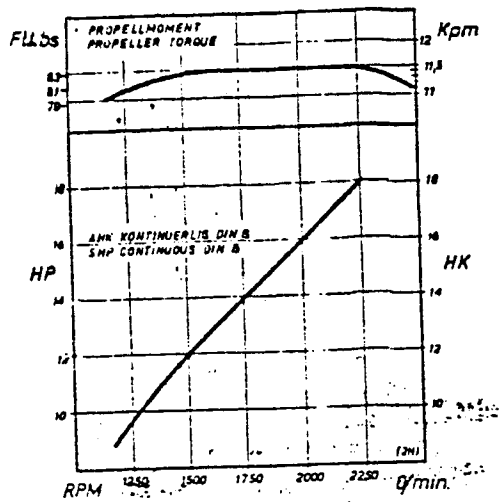
This new member of the SABB "family" is the result of many years' development work and long tests, and it now appears as a compact, light-weight, medium speed diesel, ideally suited for pleasure craft, light work boats and fishing boats and as auxiliary power for sailing boats.

With this engine the manufacturers have endeavoured to meet all the requirements boat owners are entitled to demand from their marine diesel today:

Low weight and space-saving design,
smooth running and little vibration,
easy and low-cost maintenance,
easy access to all parts

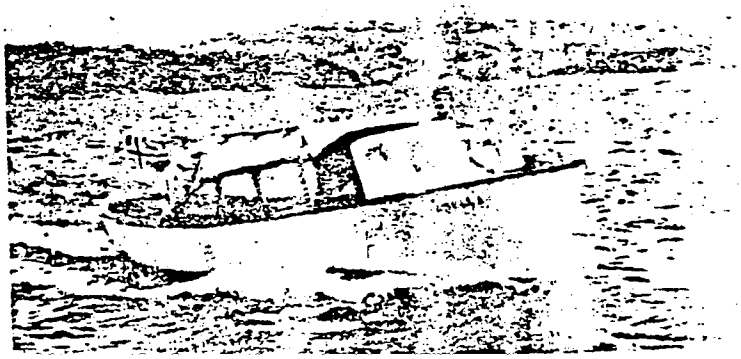
and last, but not least, the key word has been **reliability,** the very same reliability which has made the SABB name known the world over.

PERFORMANCE



IMPORTANT FEATURES:

This engine has great propelling force because the built-in reduction enables full use of engine power and the most effective RPM of a relatively large propeller.
The engine has force feed lubrication and cleaning of oil with strainer in sump and external full-flow oil filter.
The crankcase is of salt water resistant aluminium alloy, and separated from engine block, which is of high quality cast iron with replaceable, "wet" cylinder liners.
Main bearings with tin/aluminium lining and big-end bearings with lead bronze.
Sturdy crankshaft of drop forged steel with hardened and ground journals, 70 mm diam.
The swirl chamber combustion ensures smooth running at all RPM and enables use of self cleansing needle nozzles. Days of idling will present no problem.
Air intake is well protected against water and is effectively silenced.
Hand start with crank at the rear, and self-closing decompression device.
Starter ring is fitted on flywheel.
Sea water cooling with wet exhaust is standard.
Water pump of diaphragm type has no stuffing box, is not sensitive to water impurities and requires no greasing.
The engines are supplied complete with the necessary installation equipment such as propeller, stern gear, fuel tank, tubes etc. See overleaf.



WESTON FARMER-Naval Architect - Marine Eng'r.

18970 AZURE ROAD
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612-473-2360

ADDENDUM-- May 1, 1980

From feedback from the twelve known boats in the water and about forty more building worldwide, I add this set of recommendations:

1. The W shape keel is proving to be a bit shortweight, and the W shapes are hard to get in some localities. Current practice is to build a box keel of 1/4" plate, same dimensions and shape as the external shape shown, filling the box with lead or boiler punchings bedded in melted hard tar or epoxy. Do NOT use concrete made with Portland cement! Concrete has only 26 lbs. of positive gravity per cubic foot, although it weighs 92-94 lbs. per cu. ft. out of water. But water--sea water--weight is 64 lbs per cubic foot, so the net difference is worthless as ballast. Moreover, concrete against steel is an oxygen donor, is deliquescent, hence always wet, and will be a source of incurable rust if used. Weight of steel is about 490 lbs. per cu. ft., Lead, about 706 lbs. cu. ft. Lead is inert. It can be poured in successive heats if the cold surface is brushed with sal ammoniac solution, and will melt into previous pourings.

2. Best to butt weld the frames at the chine corners. The overlap was designed for amateur help, but it is not needed. Also the interfaced steel will be prone to rust if not welded all around. Use butt weld.

3. American catalog houses mentioned on lines plans will no longer mail catalogs to foreign addresses. In some countries this is considered commercial mail, and gets stuck in Customs. The retrieval has been too expensive a problem. Use local hardware, which usually is of high caliber.

4. If engine other than Sabb is used, go to a 3" stern tube instead of 4" as required by the Sabb propeller system.

5. The boats launched so far have been floated without joiner work installed. The trim is perfect, but the boats have ridden from 1" to 2½" high, which makes the gauge thickness of the hull metal something to be checked. Use the nearest metric equivalent, allowing for weight change per sq. ft.

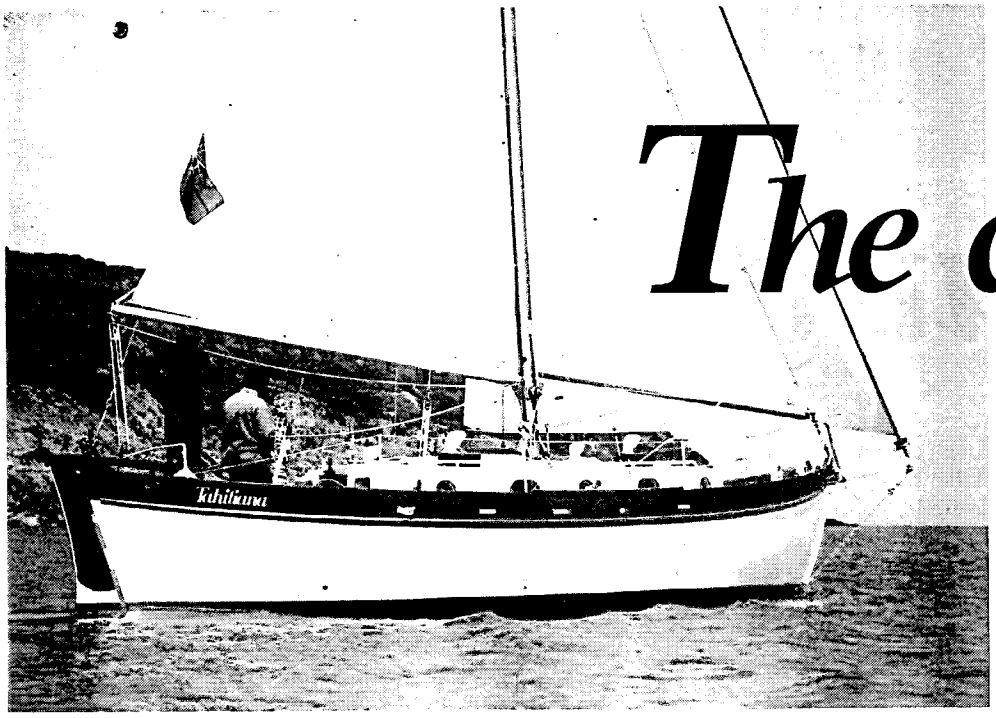
Weston Farmer

VALUABLE BOOKS AND WHERE TO GET THEM

1. It is presumed that the hull of TAHITIANA must be welded by a certifiably competent welder. Amateur fender-welders should not undertake a task of this magnitude. Therefore, all hands are advised to secure, and READ, "Boatbuilding With Steel", by Gilbert C. Klingel. This book is published by International Marine Publishing Co., 21-W Elm St., Camden, Maine 04843. Mr. Kringel is a skilled builder of small steel vessels, and is one of the men to whom TAHITIANA was submitted for critique before publication.

2. Another extremely valuable book is "Own A Steel Boat", by Mike Pratt, which is written from the point of view of a man who is asking basic questions. This book can also be obtained from International Marine Publishing Co. Both books in your kit should carry you through the job.

Weston Farmer



The classic:

An updated cruising classic has become a classic in her own right

by Wes Farmer

John G. ("Jack") Hanna designed his famous Tahiti ketch during the Depression years of the 1930s. He created a great, sea-kindly craft an amateur builder could put together for a relatively modest amount of money. Since money was very hard to come by during those years, a boat you could afford to build while you were dreaming about sailing to the South Pacific and maybe taking life easier was attractive indeed. It has been estimated that during the ensuing years more than 3,000 boats have been built to this design, and at any given time there are perhaps dozens passagemaking somewhere in the world.

Early in his naval-architecture career, Jack became very interested in the sailing and sea-keeping qualities of the double-enders among the Mediterranean-type used in the sponge fisheries at Tarpon Springs, Florida, and made an extensive study of them. These craft were heavily influenced by the Colin Archer "redningskoite," his double-ended rescue boat used extensively by the Norwegian lifesaving service, and Jack believed this design approach would lend itself well to a cruising sailboat for Everyman. As they say, the rest is history.

In the 1920s, Jack designed and built a double-ended sailboat he named *Orca*, and then another double-ender he named *Carcasonne*, both of which were influenced by his study of the Greek spongers. He was on his way to a career in naval architecture when the Great Depression hit, and it became extremely tough to make a living in this field. By the time the 1930s had rolled around, Jack — who, in later years of his life was known as "The Sage of Dunedin" (Florida) — had designed a third boat of this genre, unnamed, and was looking for a sale of his work in order to eat.

First publication

Enter my father, E. Weston Farmer, N.A., who at the time was editor of *Fawcett's Modern Mechanix and Inventions* magazine (later re-named *Mechanix Illustrated*). "Westy," as he was known, and Jack were friends. Dad became interested in being the first one to publish Jack's design of his new, as-yet-unnamed cruising ketch. He was able to offer Jack the munificent sum of $150 for his design and article, over the violent objection of his boss and publisher, Roscoe Fawcett, who feared that paying this exorbitant amount would put him out of business.

Before publishing Jack's design, Westy suggested the name Tahiti for a couple of reasons. First of all, he figured the name had just the magic to take the builder's (and/or dreamer's) mind off his Depression-caused woes and economic troubles — most people had them in those days. Secondly, someone in the office was going on a trip to Tahiti and agreed that was what he would name the boat if *he* were to sail her there. So the name stuck and has since come to mean a romantic attachment to the concept of sailing off into the sunset, heading for the balmy breezes of the South Pacific, where there is nary a care.

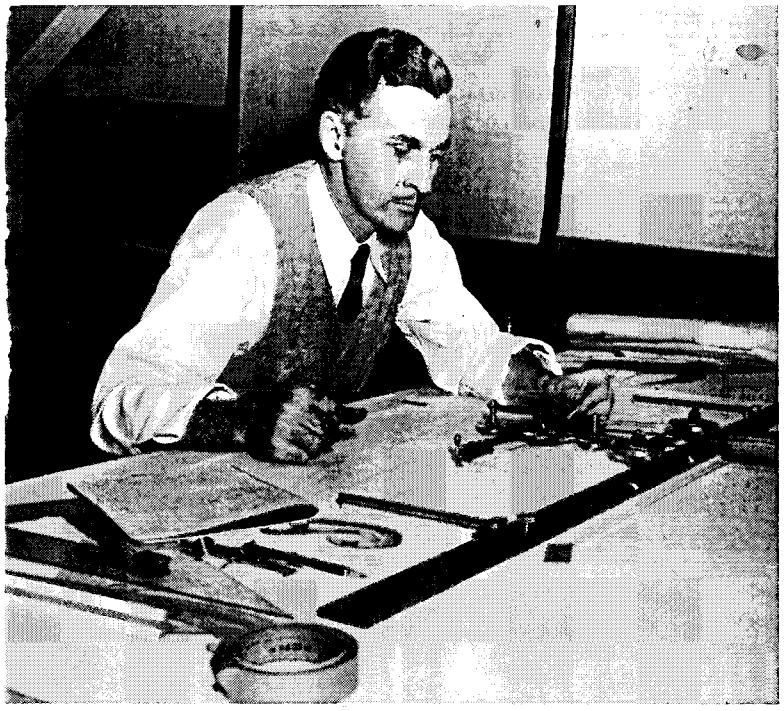
As more and more Tahiti sailboats were built and sailed around the seven seas by passagemakers, the craft gained a great reputation for sea-kindliness, comfort of motion, and safety. Many were the true tales of sailors riding out hurricanes and typhoons and returning to port safely. However, she also gained a reputation of being somewhat slow and not pointing especially well to weather.

Under-rigged

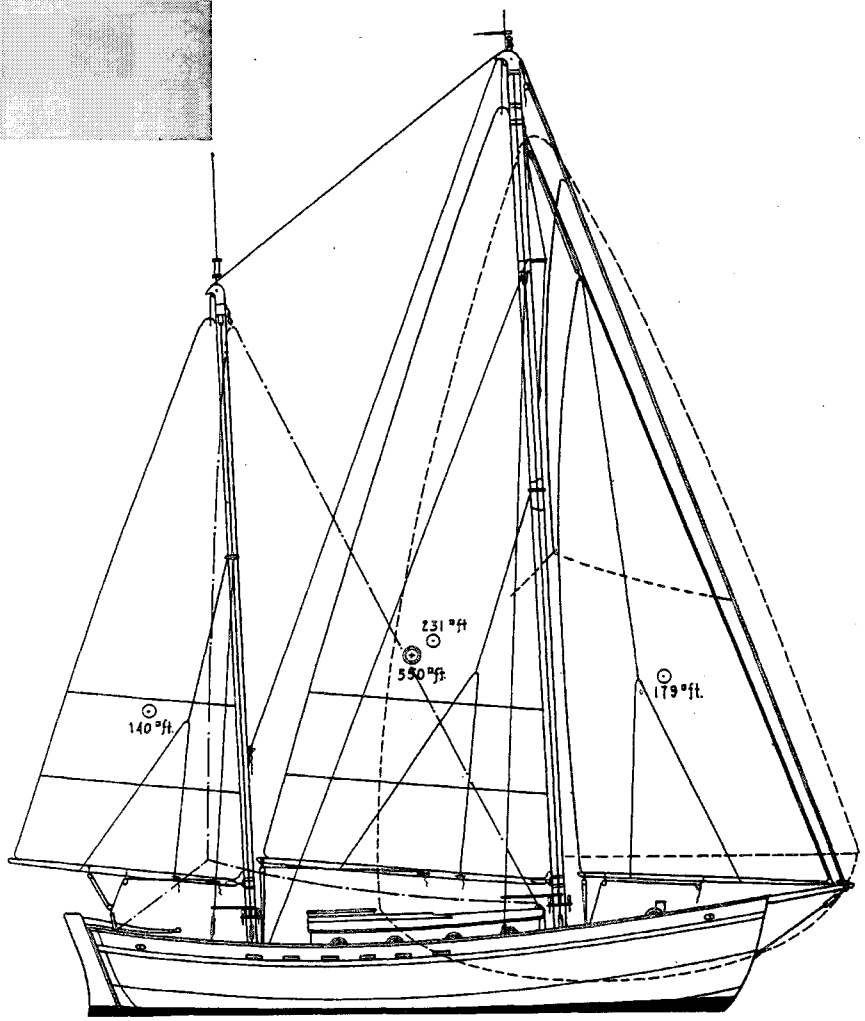
About 1975, quite some time after Jack's death, Dad began to "noodle" about these concerns, as was his wont. He came to the conclusion that Tahiti was simply under-rigged, and her slowness was not in any way due to her

1 of 4

Tahitiana

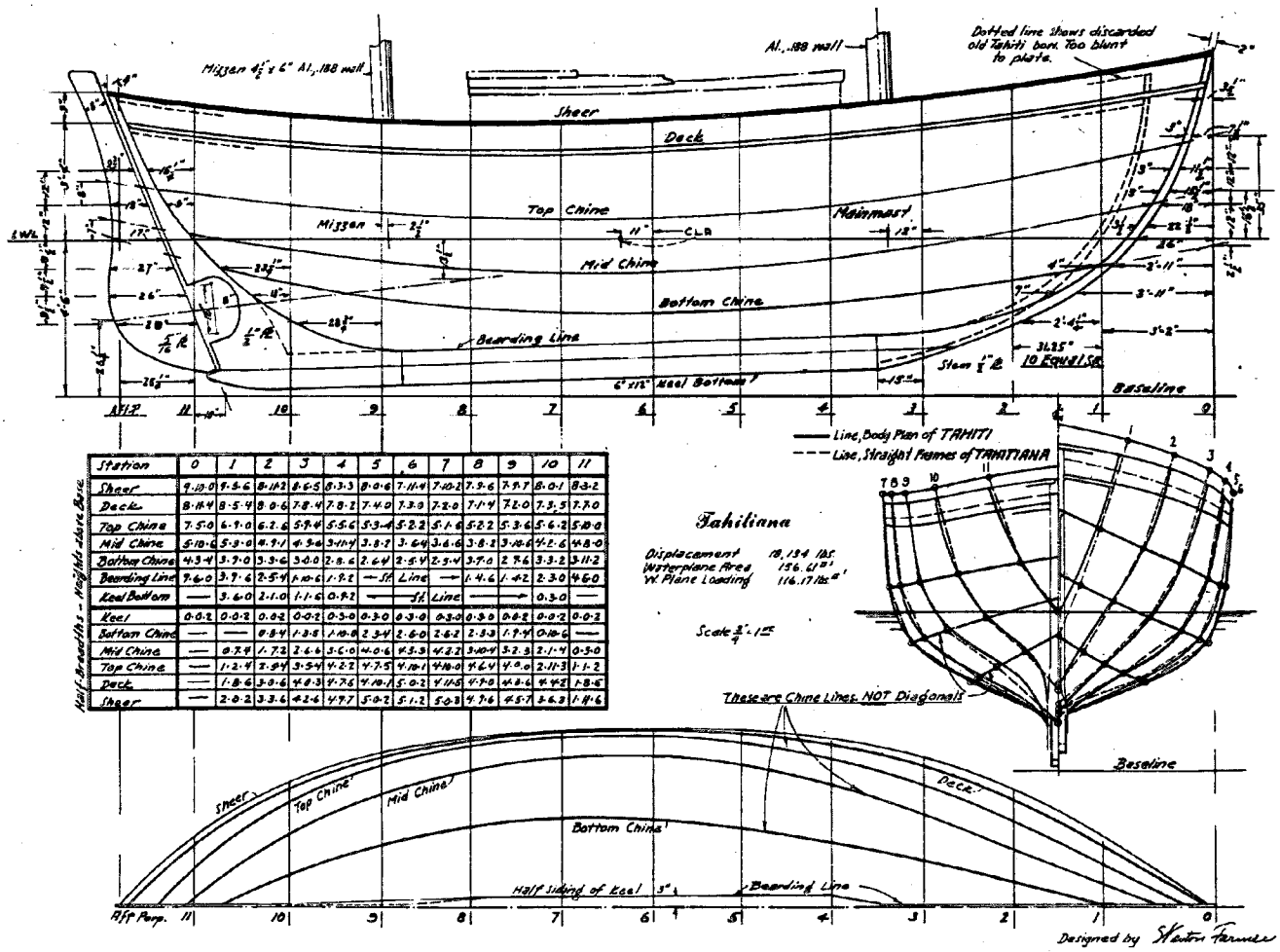


E. Weston Farmer, N.A., at the drafting table, at left, and the Tahitiana's sail plan, below.



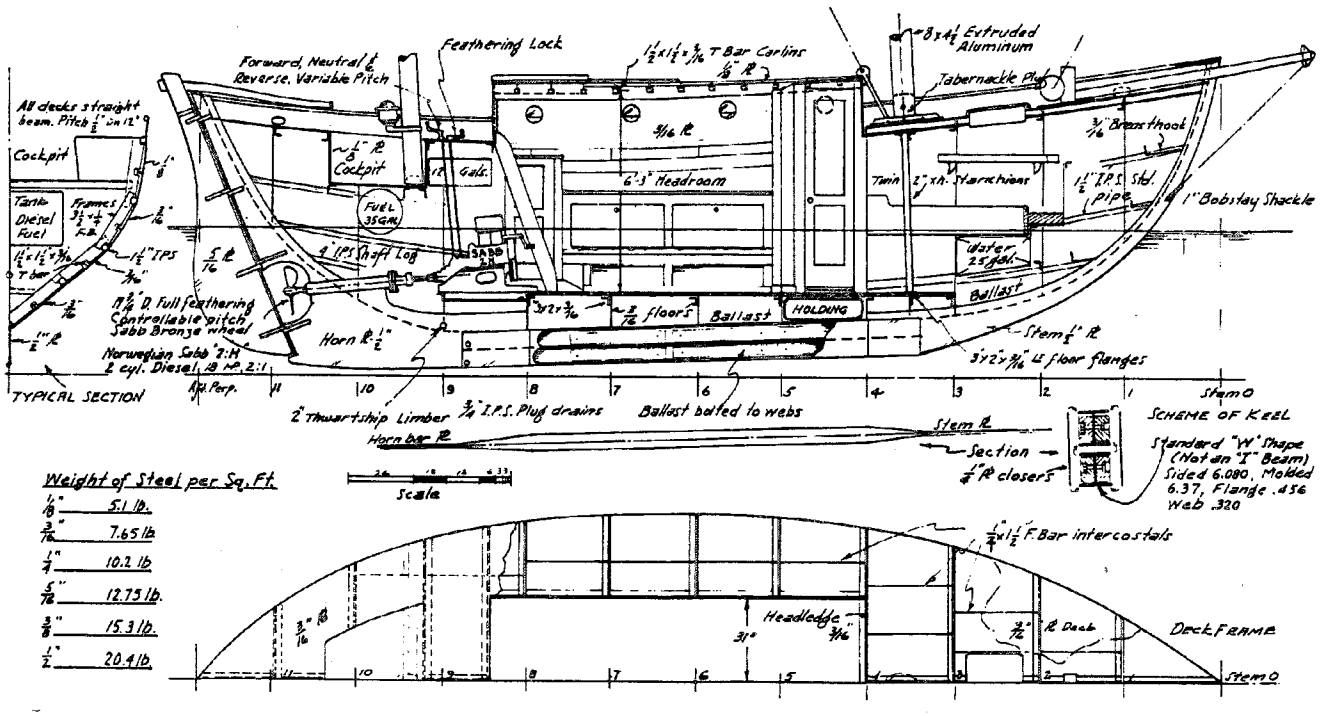
hull shape. Of the known 3,000-plus Tahitis registered in the world's nations, a small percentage had been provided with beefed-up rigs, measurably increasing her speed. Westy came to the conclusion that she was simply starved for sail area — Jack Hanna was not trying to design a racer, but rather a comfortable, conservative heavy-weather cruiser. Of her, Westy wrote, "Hanna's original design carried but 420 square feet in her rig, and but 50 square feet extra (for a total of 470 square feet) after I had asked him for more. This works out to be about 44 pounds of boat lugged by each square foot of sail; whereas *Svaap*, almost the same boat technically, carries sail [which is] asked to lug but 29 pounds per square foot of sail. Sail is horsepower, and Tahiti just didn't have enough."

This "noodling" also encompassed the knowledge that by 1975, amateur boatbuilding of a craft the size of Tahiti was actually less expensive in steel and took less skill. More amateur builders out there had welding skills



Station	0	1	2	3	4	5	6	7	8	9	10	11
Sheer	9-10-0	9-5-6	8-10-2	8-6-5	8-3-3	8-0-6	7-11-4	7-10-2	7-9-6	7-9-7	8-0-1	8-3-2
Deck	8-11-4	8-5-4	8-0-6	7-8-4	7-8-2	7-4-0	7-3-0	7-2-0	7-1-4	7-2-0	7-3-5	7-7-0
Top Chine	7-5-0	6-9-0	6-2-6	5-9-4	5-5-6	5-3-4	5-2-2	5-1-6	5-2-2	5-3-6	5-6-2	5-10-0
Mid Chine	5-10-6	5-3-0	4-9-1	4-5-6	4-1-4	3-10-2	3-8-2	3-6-6	3-8-2	3-10-6	4-1-2-6	4-8-0
Bottom Chine	4-3-4	3-7-0	3-3-6	3-0-0	2-8-6	2-6-4	2-5-4	2-5-4	2-7-0	2-7-6	3-3-2	3-11-2
Bearding Line	2-6-0	3-7-6	2-5-4	1-10-6	1-7-2	— ft. Line	—	1-4-6	1-4-2	2-3-0	4-6-0	
Keel Bottom	—	3-6-0	2-1-0	1-1-6	0-9-2	— ft. Line	—	—	—	0-3-0	—	
Keel	0-0-2	0-0-2	0-0-2	0-0-2	0-0-2	0-0-0	0-0-0	0-0-0	0-0-0	0-0-2	0-0-2	0-0-2
Bottom Chine	—	—	0-8-4	1-3-6	1-10-0	2-3-4	2-6-0	2-6-2	2-5-3	1-7-4	0-10-6	—
Mid Chine	—	0-7-4	1-7-2	2-6-6	3-5-0	4-0-6	4-3-4	4-2-2	3-10-4	3-2-6	2-1-4	0-3-0
Top Chine	—	1-2-4	2-0-4	3-5-4	4-2-2	4-7-5	4-10-1	4-10-0	4-6-4	4-0-0	2-11-3	1-1-2
Deck	—	1-8-6	3-0-6	4-8-3	5-7-6	6-1-0-1	5-10-2	5-11-6	5-7-0	4-8-6	4-4-2	1-8-6
Sheer	—	2-0-2	3-3-6	4-2-6	4-9-7	5-0-2	5-1-2	5-0-3	4-7-6	4-5-1	3-6-3	1-11-6

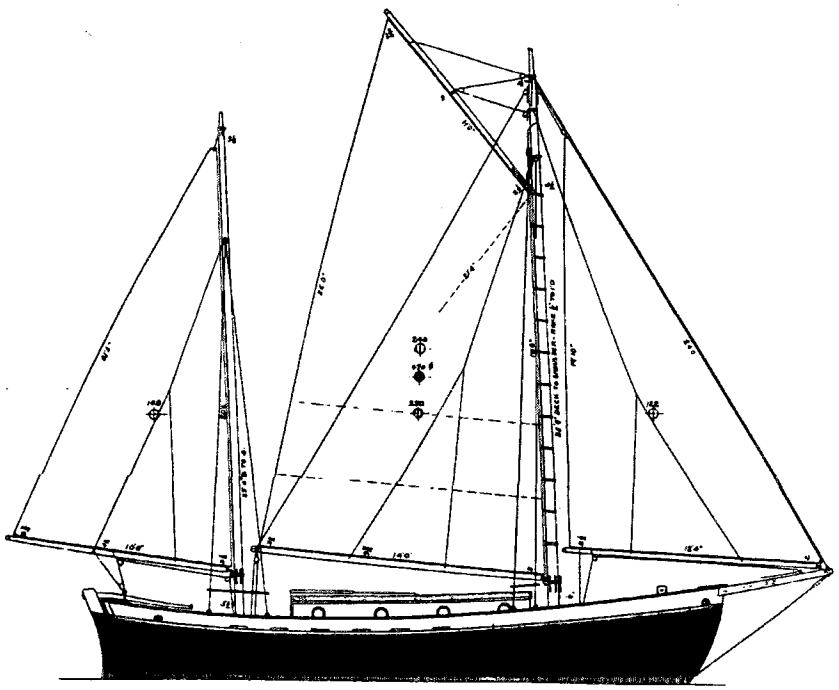
Half Breadths — Height above Base



Tahitiana's profile, similar to that of *Tahiti* but somewhat enlarged, follows in steel the structure of the original, but with steel construction eight to ten times stronger than wood. Modern concessions include the holding tank and the 18-hp Sabb 2-H diesel with its full-feathering, controllable-pitch propeller for close-quarter maneuvering.

Line drawings for the Tahitiana by Weston Farmer, with his notes.

3 of 4



The Tahiti ketch by Jack Hanna above and at right below.

and safe for passagemaking. This is, in part, due to her lines, which were essentially true to the original. For years after Jack Hanna's death, his widow, Dorothy, sold his Tahiti designs by mail order. *Mechanix Illustrated* also had a designer come up with a design for a Tahiti II, which was two feet longer. These plans were offered in the magazine for many years.

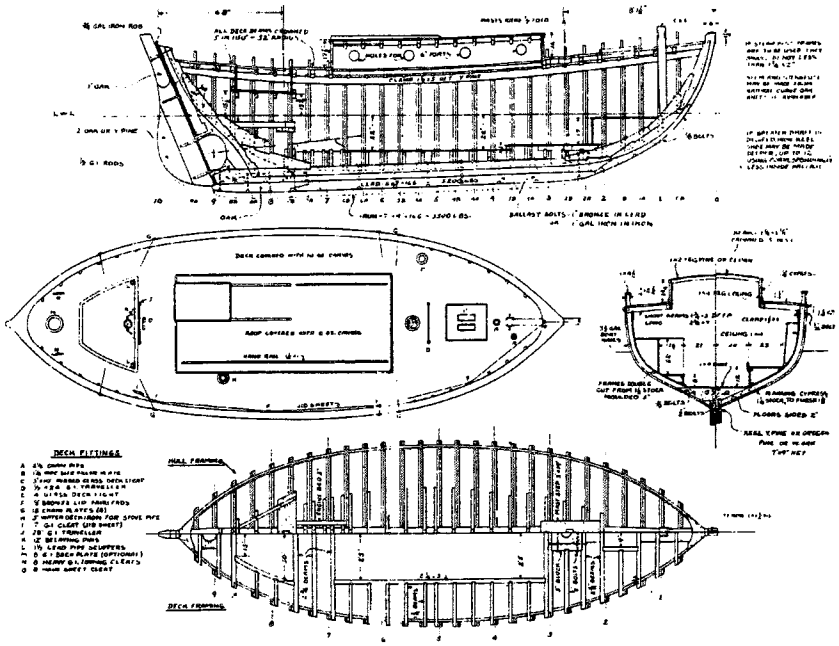
These days only Tahitiana seems to go on and on. I still get orders for the boat plans from builders all over the world. Since the first hull was built and floated, I have received many letters from owners who have safely sailed in at least most of the oceans. One letter described a rather harrowing journey that included riding out a hurricane bare-poled for three days off Cape Hatteras. The owner praised Tahitiana's stability and seakindliness even under the most extreme conditions of wind and wave.

than had woodworking skills. A steel version of Tahiti, if properly designed, would be less expensive, go together in less time, be stronger than wood, and stand up under the rigors of sea water better over the long haul. For one thing, worms can't eat steel, he reasoned.

So Westy set about to design a steel version of the by-now-famous Hanna ketch. The lines for this new craft are shown superimposed on the lines of Tahiti in the top figure on the facing page. He achieved a very close approximation by the technique of giving her multiple chines; this type of construction is easier for the amateur builder to put together because the steel plates do not have to be pre-formed by large and expensive equipment. Rather, they can simply be clamped to the frames and welded in place. Westy added about a foot of length and gave her a more gentle entry at the stem in order to make it easier to bend the plates there properly. Note at the top right of the first illustration on Page 58 the notation, "dotted line shows discarded old Tahiti bow. Too blunt to plate."

More headroom

The profile and accommodations drawings at the bottom of the facing page demonstrate that the accommodations of Tahitiana are essentially the same as those of Hanna's Tahiti. However, Tahiti had less than 6 feet of headroom in the main cabin, and Westy



figured this was inadequate, especially for long passages, so he gave her headroom of 6 feet 3 inches and an enlarged forepeak for stowing sails and ground tackle.

He also reasoned that owners might prefer a cutter rig to the ketch rig, so he gave her two sailplans, both of which appear on his drawings and both of which carry significantly more sail area than the original. As a result, she is a faster craft, and points better to windward.

Like her predecessor, Tahitiana has proven to be seaworthy, comfortable,

Wes Farmer is the son of the late E. Weston Farmer, N.A., the designer of Tahitiana. The latter passed away in 1981, but Wes still sells 23 of his father's designs created specifically for the amateur builder. A catalog of these designs can be obtained by sending $2 to Weston Farmer Associates, 18970 Azure Road, Wayzata, MN 55391.

The Ketch TAHITIANA

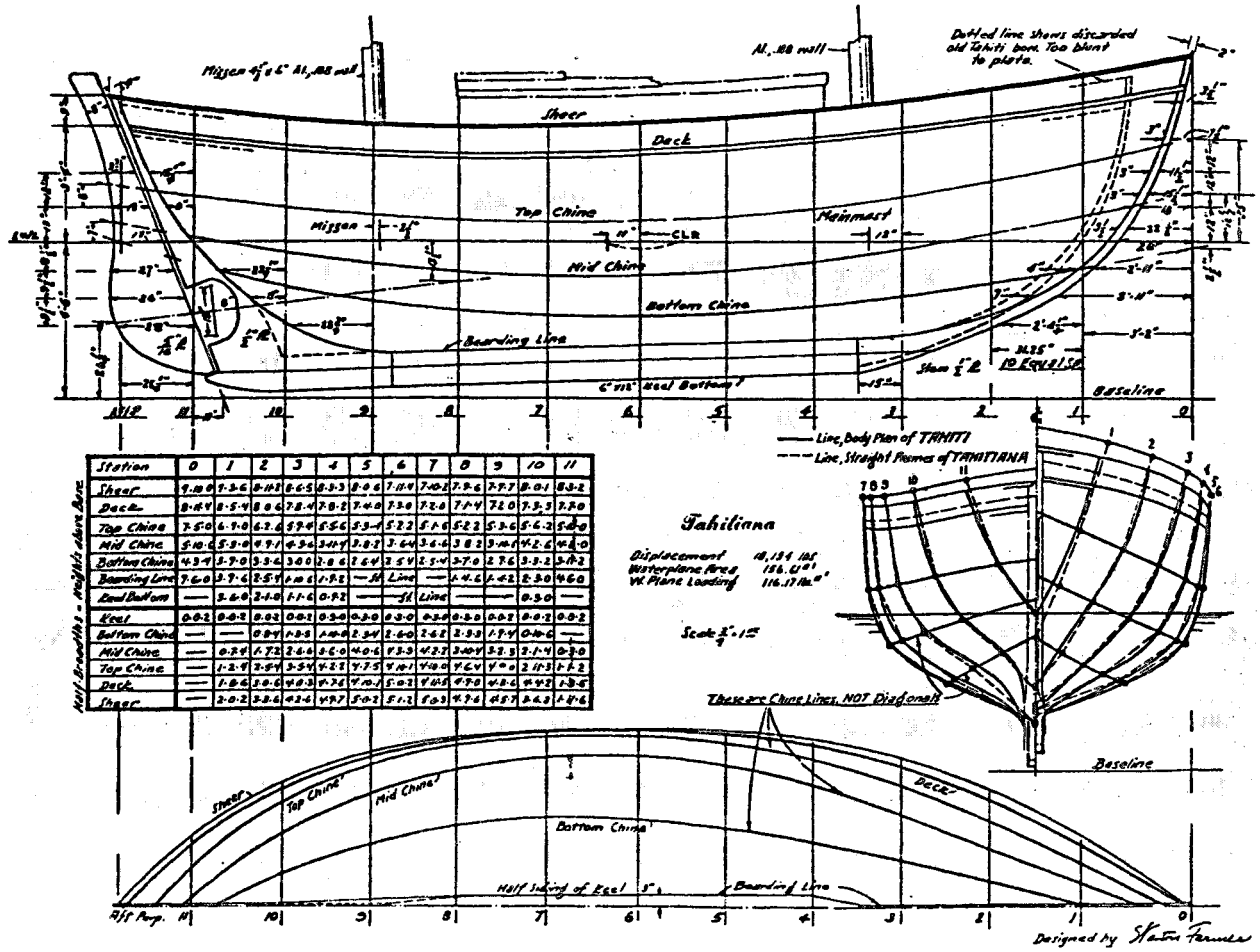
Weston Farmer's authentic steel version of John C.Hanna's famous little boat is creating a new rumble all over the world.

by Bill Tapia.

The double-ender, an ancient form of hull, has intrigued yacht designers, boatbuilders, and cruising sailors for ages. As well it should, because the sea-keeping qualities of the double-ender are still unsurpassed in wild waters.

In the 1890s when Colin Archer of Norway designed his 47' double-ender REDNINGSKOITE, little did he know that he was starting a school of design concepts the philosophy of which, with its firm advocates and occasionally sneering detractors, would carry on for nearly a hundred years.

Probably one of the first descendants of Archer's REDNINGSKOITE was W. H.Miner's DIRECTION. As are many innovators or precursors of great design ideas, Miner was not a professional yacht designer. He did spend many hours in his New York apartment dreaming of the South Seas and working on his dream boat. Though he is said to have simply scaled down the full curves of REDNINGSKOITE, Colin Archer's sea-keeping pilot station vessel, to 33' LOA, the drawings we've seen look fresh and original. They are beautiful.



Station	0	1	2	3	4	5	6	7	8	9	10	11
Sheer	9.10.0	9-3-6	8-11-2	8-6-5	8-3-3	8-0-6	7-11-4	7-10-2	7-9-6	7-9-7	8-0-1	8-3-2
Deck	8-8-4	8-5-4	8-2-6	7-8-4	7-8-2	7-4-0	7-3-0	7-2-0	7-1-4	7-2-0	7-3-5	7-5-0
Top Chine	7-5-0	6-9-0	6-3-0	5-9-0	5-5-6	5-3-4	5-2-2	5-1-0	5-2-2	5-3-6	5-6-2	5-8-0
Mid Chine	5-10-6	5-3-0	4-9-1	4-5-6	4-3-4	4-2-2	4-2-6	4-3-6	4-3-2	4-4-6	4-6-2	4-8-0
Bottom Chine	4-3-4	3-9-0	3-3-6	3-0-0	2-8-6	2-6-4	2-5-4	2-5-4	2-7-0	2-9-6	3-3-2	3-7-2
Boarding Line	2-6-0	2-2-6	1-11-4	1-8-6	1-6-6	1-5-2	—	Keel Line	—	1-4-6	1-4-2	1-5-0	1-6-0
Keel Bottom	—	0-6-0	0-3-0	0-1-6	0-0-2	—	—	—	—	—	—	0-3-0	—
Keel	0-0-2	0-0-2	0-0-2	0-0-1	0-0-0	0-0-0	0-0-0	0-0-0	0-0-0	0-0-0	0-0-2	0-0-2	0-0-2
Bottom Chine	—	—	—	0-0-4	0-1-0-5	0-1-4-0	0-2-0-4	0-2-0-6	0-2-0-2	0-2-0-3	0-1-7-4	0-1-6-6	—
Mid Chine	—	0-2-4	0-4-7-2	0-6-6-6	0-8-5-0	0-10-0-6	0-11-3-0	0-11-2-2	0-10-9-4	0-10-3-3	0-9-1-4	0-7-3-0
Top Chine	—	1-2-4	1-5-4	1-8-5	1-11-2	2-1-7-5	2-3-1-0	2-3-1-0	2-2-6-4	2-1-0-0	1-10-3	1-6-2
Deck	—	1-8-6	1-8-6	1-8-3	1-7-3	1-6-0	1-5-0-2	1-4-1-5	1-3-7-0	1-2-6	1-1-4-2	1-0-6
Sheer	—	2-0-2	2-2-6	2-2-6	2-1-7	2-0-2	1-11-2	1-10-3	1-9-4-6	1-8-5-7	1-7-6-3	1-6-6

Half Breadths = Heights above Base

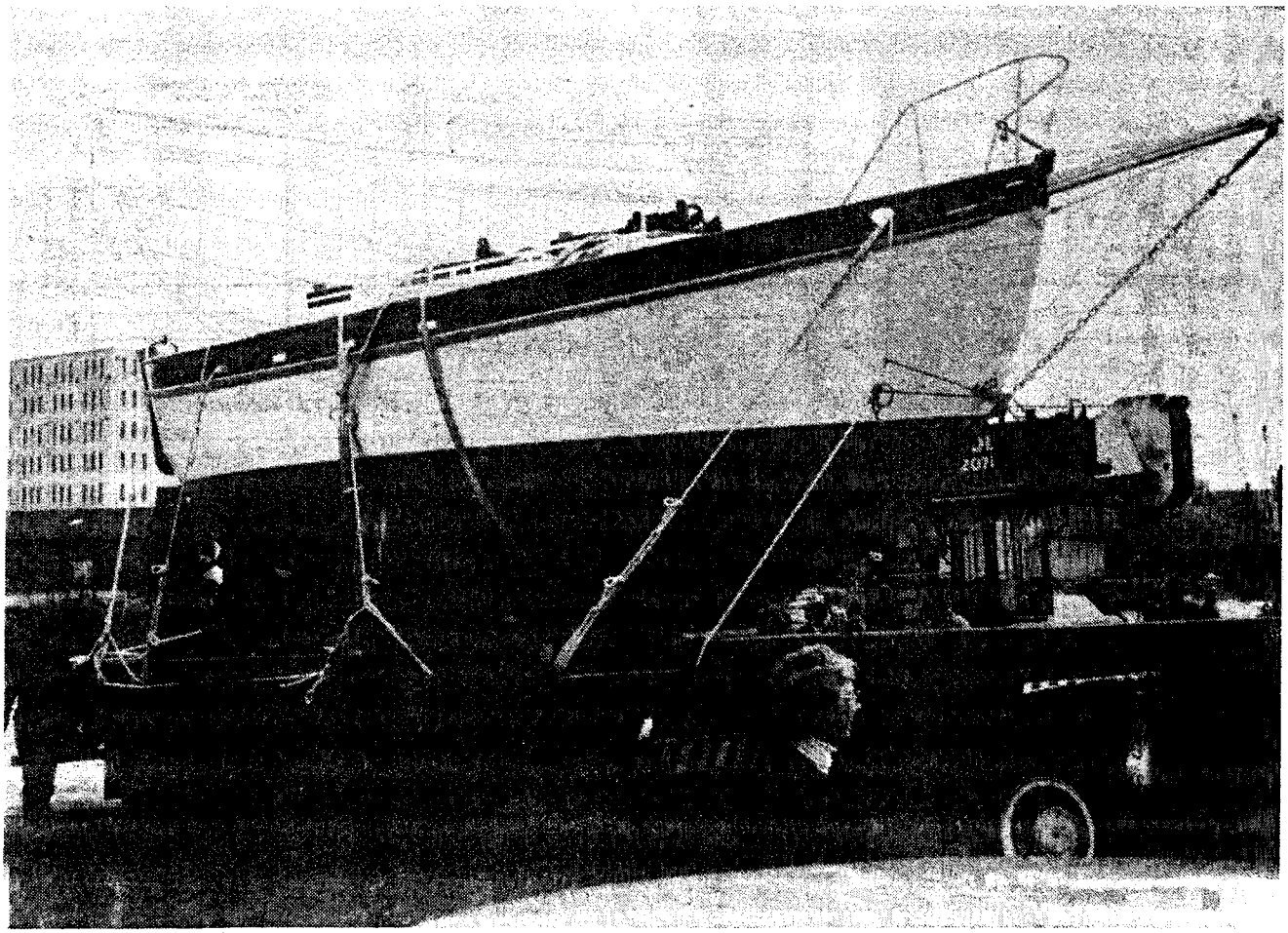
10 pgs

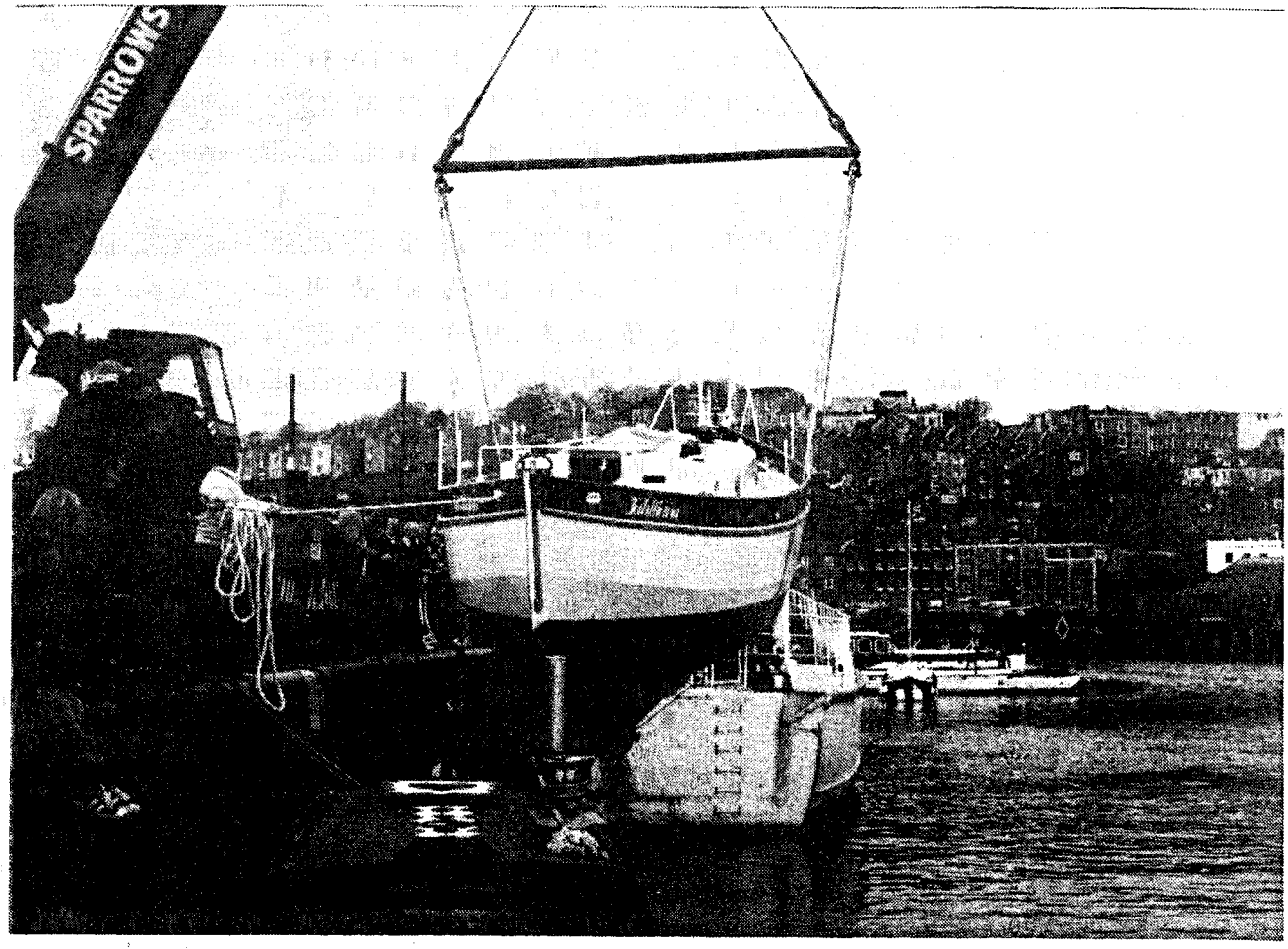
At about this time, William Washburn Nutting, Editor of Motor Boat, and William Atkin, together with Arthur Hildebrand, produced Bill Atkin's ERIC, a 32 footer of authentic Colin Archer "fat wineglass" sections. This was one of Atkin's most successful yachts.

John Hanna, the Sage of Dunedin, perfected his version of the double-ender yacht about this same time, but he used and studied the full-bodied Mediterranean types to be found in Tarpon Springs, Florida, brought to America by Greek sponge fishermen who, over the ages, had perfected a form which would lie-to in all weathers while on the sponge grounds of the Gulf. It is erroneous to compare Hanna to Archer. Hanna always claimed his hull was strictly an American type, evolved by him after years of study and building several preliminary ORCAS.

Hanna's now famous design first appeared in the April 1923 issue of Rudder. The design was called NEPTUNE, built for Dr. Anton Schneider, of Lakeland, Florida. Her virtues were kept buried by unsympathetic editorial treatment. Anyone wishing to further any research in this regard, should read the excellent articles by Farmer in the Oct. and Nov.,1976, issues of Motor Boating, or as re-printed and supplied with the plans of TAHITIANA. These two articles are absolutely required reading for any serious TAHITIANA buffs.

A few years after the 1923 exposure, when young Weston Farmer became the



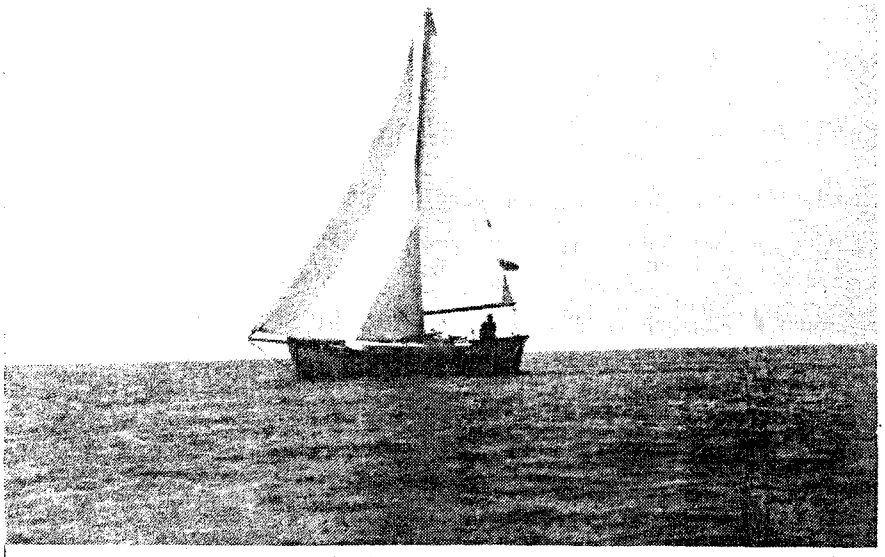


The first TAHITIANA afloat was built by David Lund, of David Lund Marine, Albion Dockyard, Hanover Place, Bristol 1, England. These shots show Lund's TAHITIANA being on-loaded for the treck to the dock-side crane which put her in the water. She was on trim, and was soon fitted with a cutter rig, with emphasis on headsails. Lund is Weston Farmer Associates agent for TAHITIANA and Hanna's design for the United Kingdom. He has built 14 TAHITIANAS and is backlogged for several more.

first editor of Mechanix Illustrated, he asked Hanna to up-date NEPTUNE for the new magazine. The year was 1928 but it was not until 1933 that Hanna got around to rework the design. Editor Farmer renamed the design TAHITI and the rest is history. Yes, nearly forty-eight years of boating history.

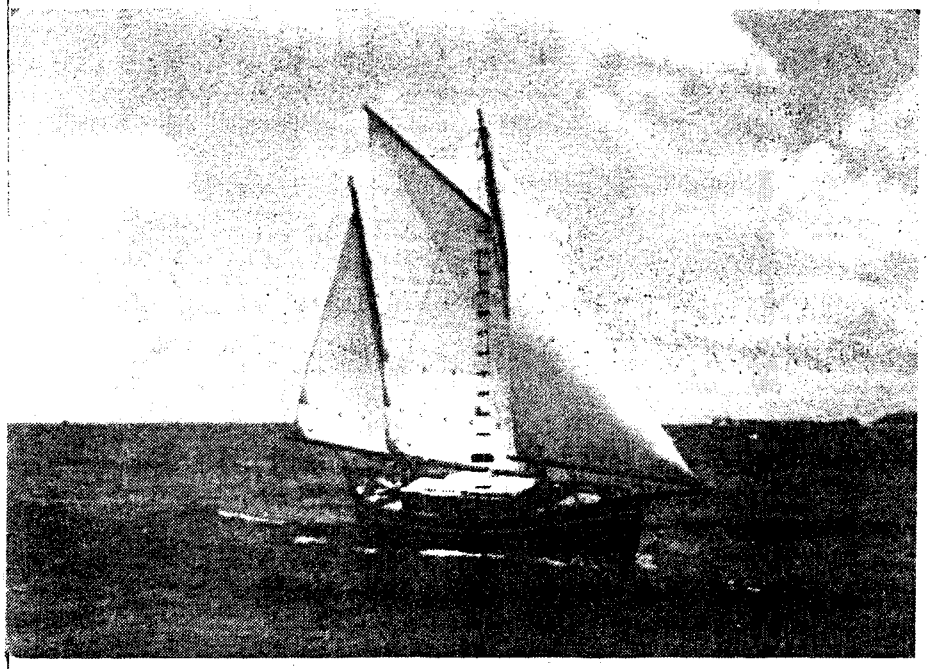
For years Westy, as he was affectionately called by all who knew him and by many who didn't, was facinated by the possibility of redesigning TAHITI in steel as a multi-chine boat, a slab-sider with roundish contours the cross sections of which would be the same areas as the round bilged parent.

Westy's idea was to up-date the wooden TAHITI into a strong, easy-to-build boat a fellow could construct himself, and for a lot less money than the wooden version. The cost of wood fastenings was out of sight, beyond practicality. Steel will build in one-third the time, Farmer knew from long



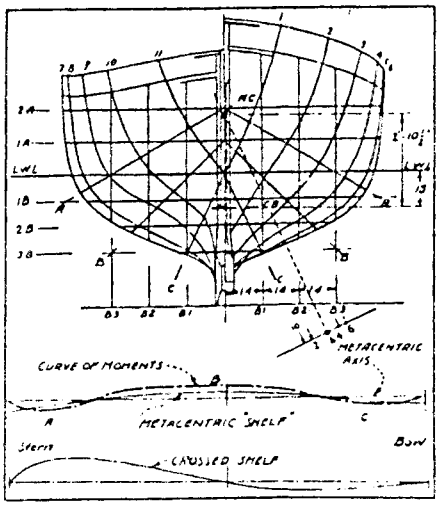
Top to bottom:

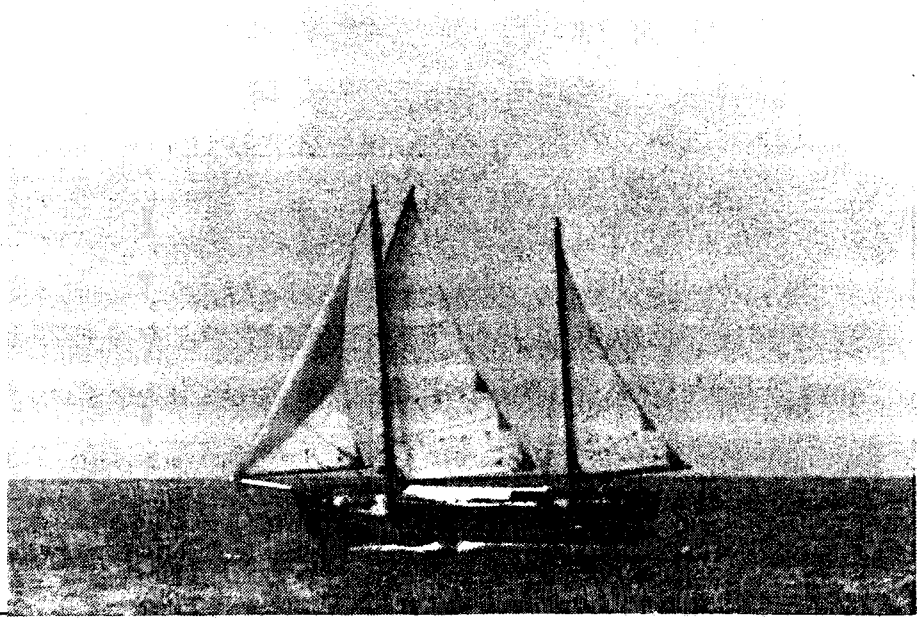
David Lund's original TAHITIANA shaking out over 700 sq. ft. in a cutter rig on her maiden trials. She can handle 790 sq. ft. if fully ballasted to 18,000 lb. trim, which makes her a highly respected race contender.

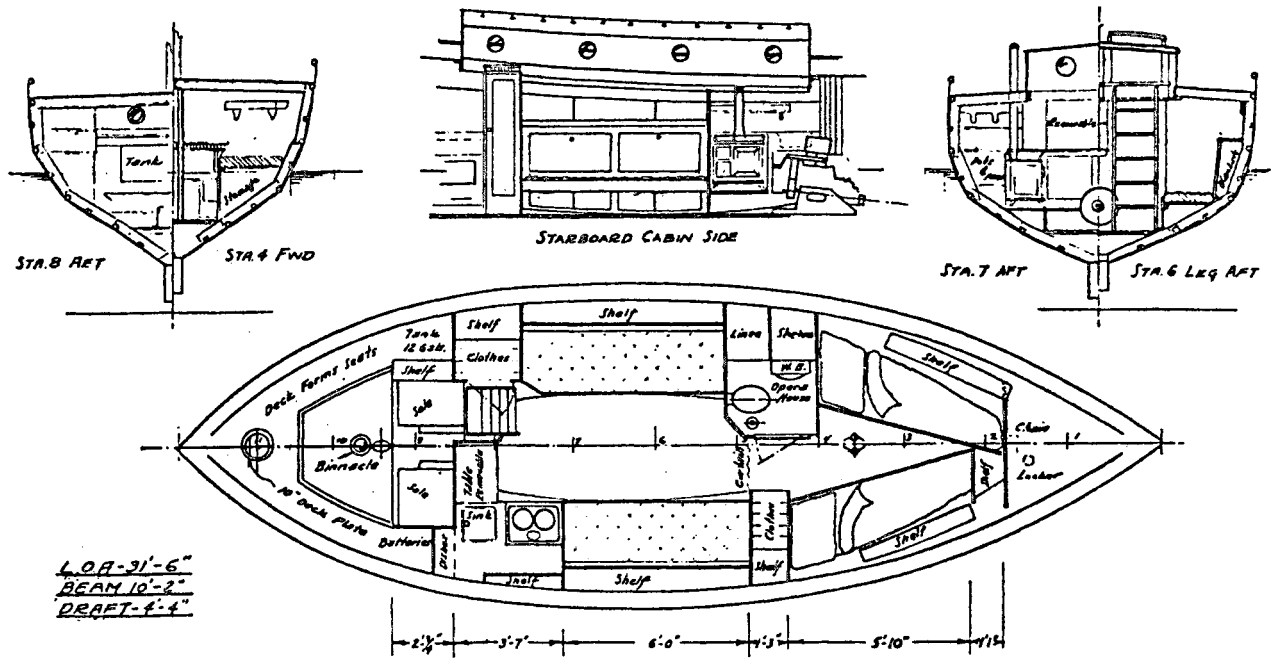


Mr. G. Hein's ATOLL carries 550 sq. ft. easily, and wants plenty of headsail if the gaff rig is used.

Mr. G. Hein's ATOLL, one of the first TAHITIANAS, sports the Hanna type gaff rig, sailing the China seas off Hong Kong.







Tahitiana's accommodations are essentially the same as those of John Hanna's *Tahiti*. The simple four-berth, ample-stowage arrangement of the original is as classic and sea-functional as the hull itself. *Tahitiana*, however, has 6-foot 3-inch headroom in the main cabin, more efficient machinery space, and an enlarged forepeak for stowing sails and ground tackle.

experience. TAHITIANA can be lofted, framed out and partially plated in a month's time. And we have records of TAHITIANA hulls being built by two guys in two months during week-ends only.

In up-dating Hanna's original design, Farmer analyzed the boat from two aspects: as a water machine, subject to certain laws, and as a wind machine, subject to other physical laws.

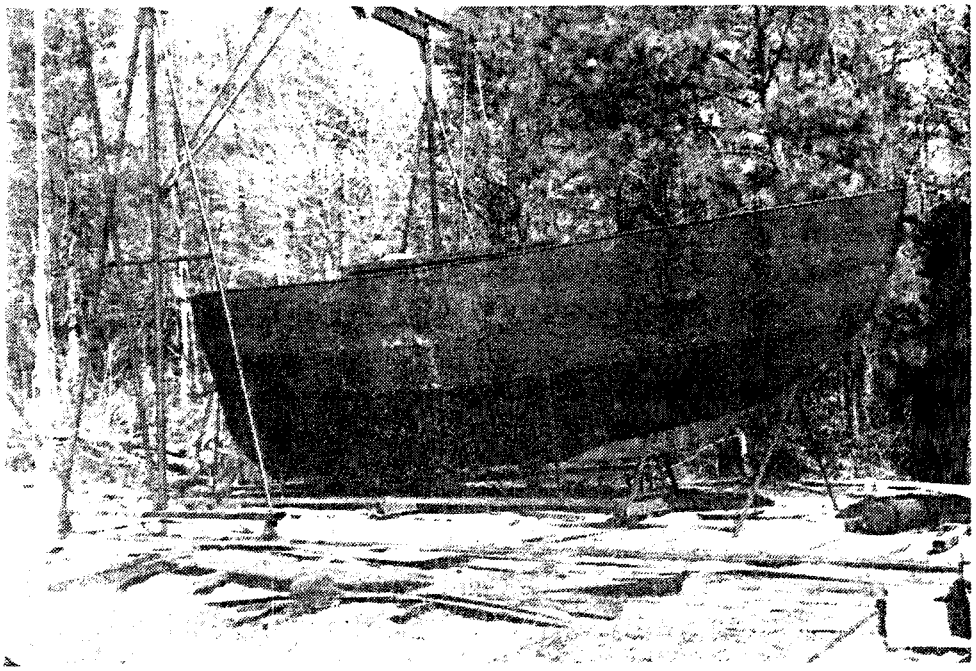
"Nobody ever faulted TAHITI for being one of the world's greatest sea boats," said Weston Farmer. "Her hull is as fast as any of her size and weight. It is in the wind department she found her slowness. She simply did not, at 420 sq. ft., have enough sail area." In this regard it is interesting to note at this later date of developments, that TAHITIANA as a cutter can handle over 700 sq. ft. and will fly. This is proven on Bristol estuary waterways, where David Lund, of Lund Marine, Albion Dockyard, Hanover 1, Bristol, England, has built 14 TAHITIANAS.

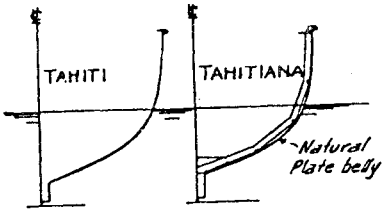
John Griffin Hanna died in Dunedin, Florida, on February 1, 1948, of cardiac asthma. He was only 57. Were he alive today he would certainly have taken advantage of light aluminum spars and dacron sails to bring sail area up, because it would not have hampered stability -- steel below and aluminum above is better.

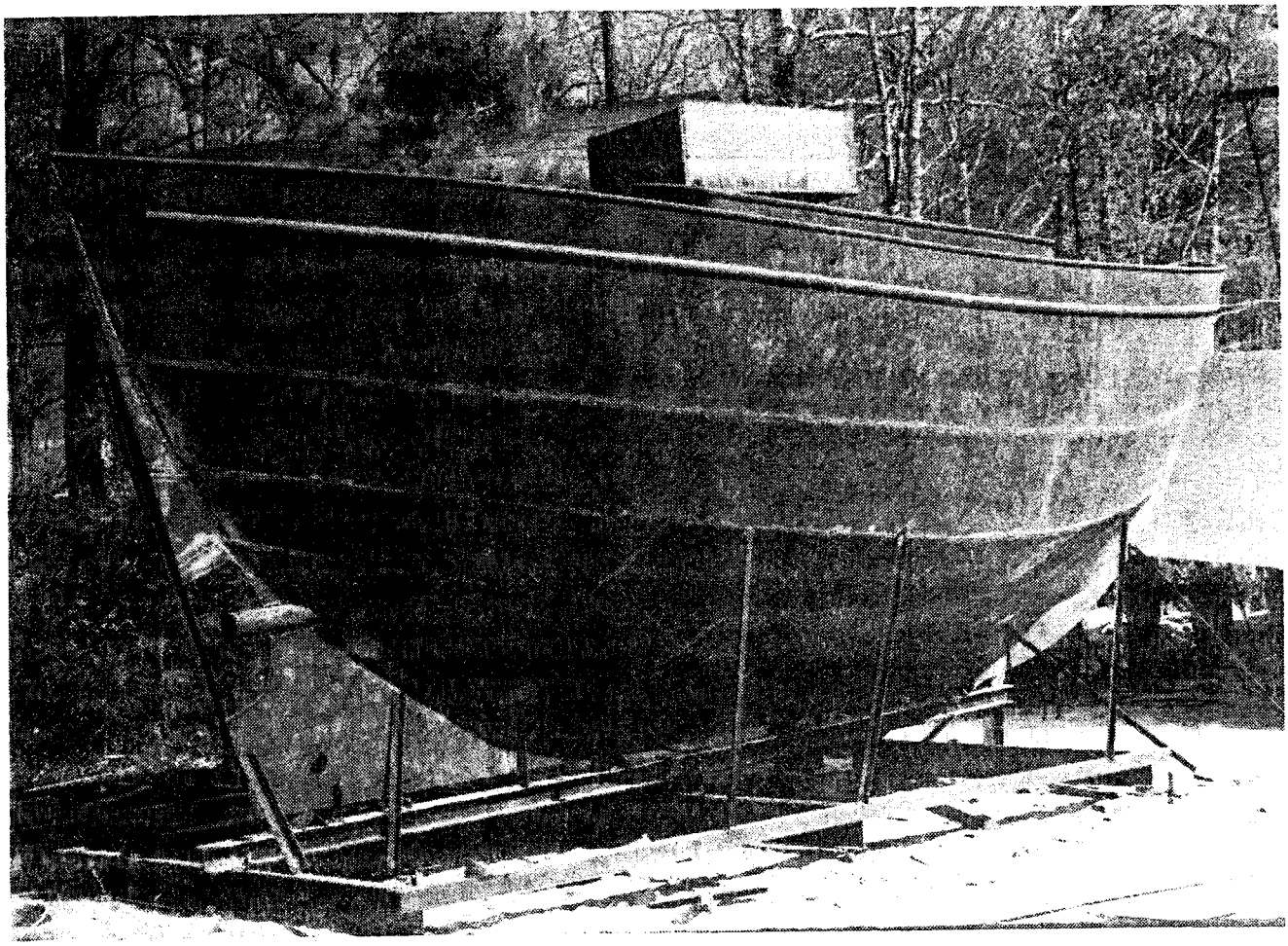
"I am certain," continued Westy, "Jack would design her today in metal, in either steel or aluminum, and probably in both, using a multi-chine form of construction to preserve her sectional areas and keep her the same com-

(text continued on page 11)

Excellent views of B. A. Aguair's TAHITIANA at McCandless Yard prior to sandblasting and hot zinc flame spraying.



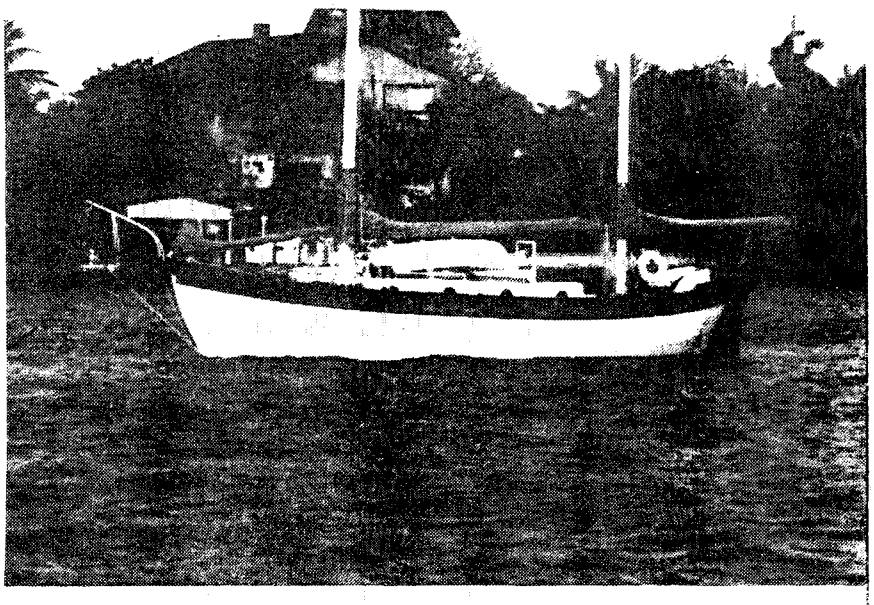


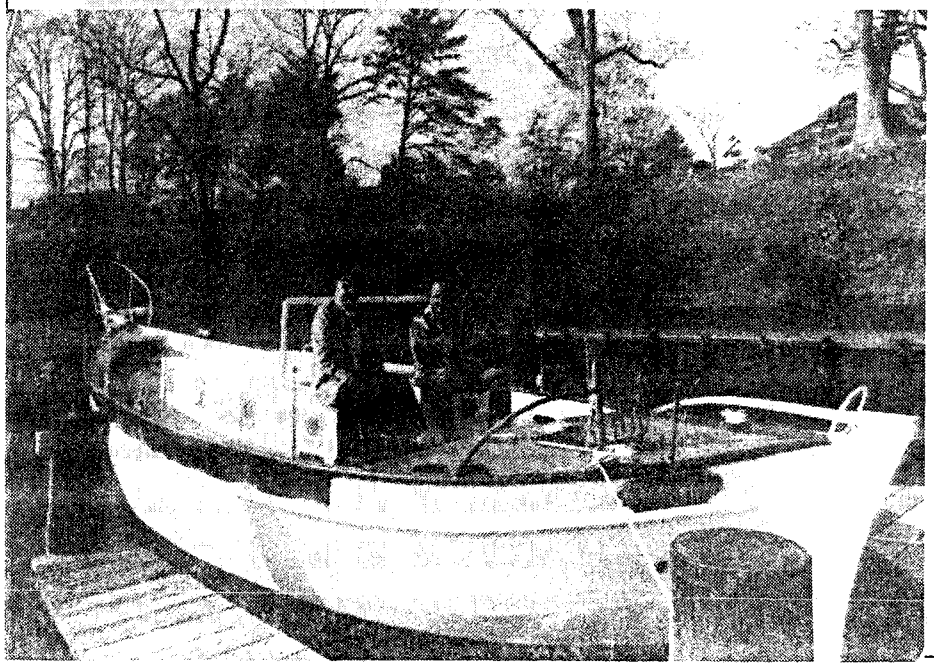


That box-like structure atop is the cockpit.

Below:

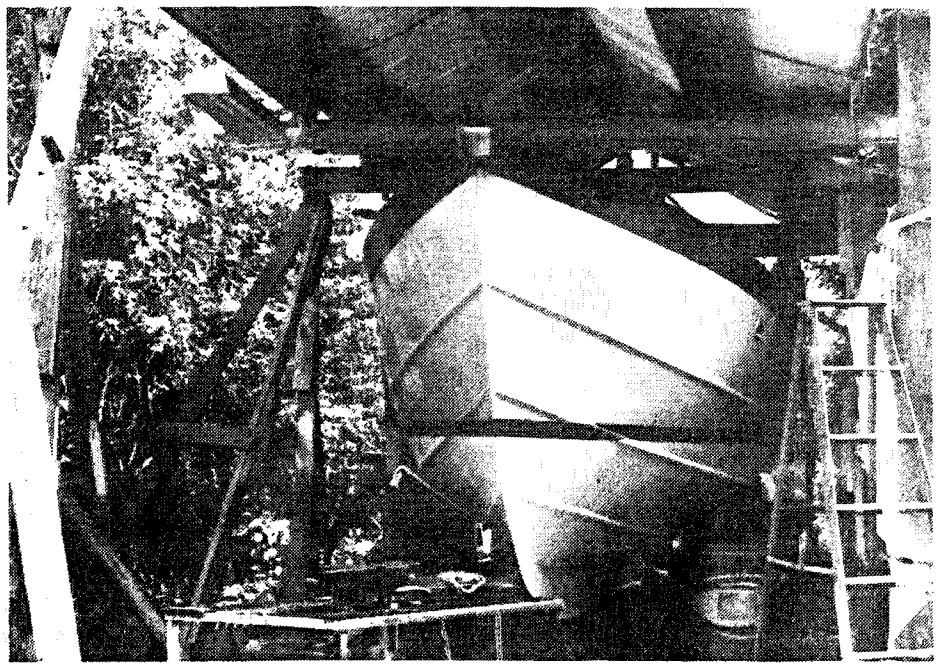
Lou Marley and Paul Sipe aboard Paul Sipe's TAHITIANA "Saaz" at Annapolis. Built by Ron Barnes now of St. Augustine, Fla., finished by Sipe and extensively cruised for several years in the Caribbean, "Saaz" is now owned by Sandy Liss, of Largo, Florida.

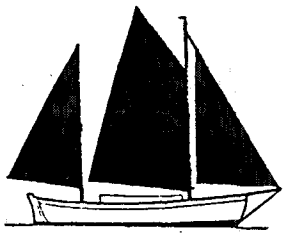


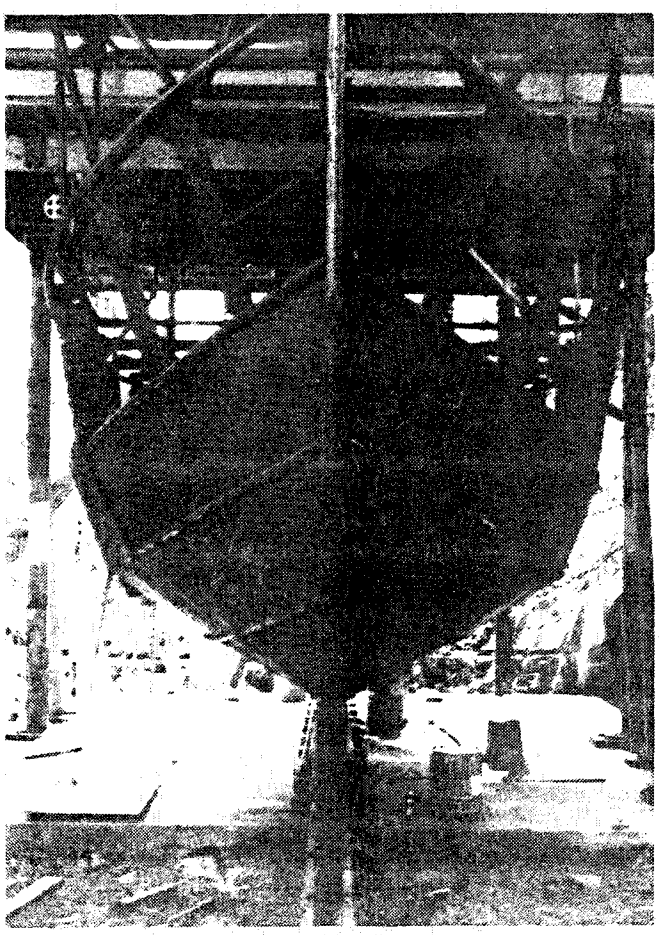


Above:

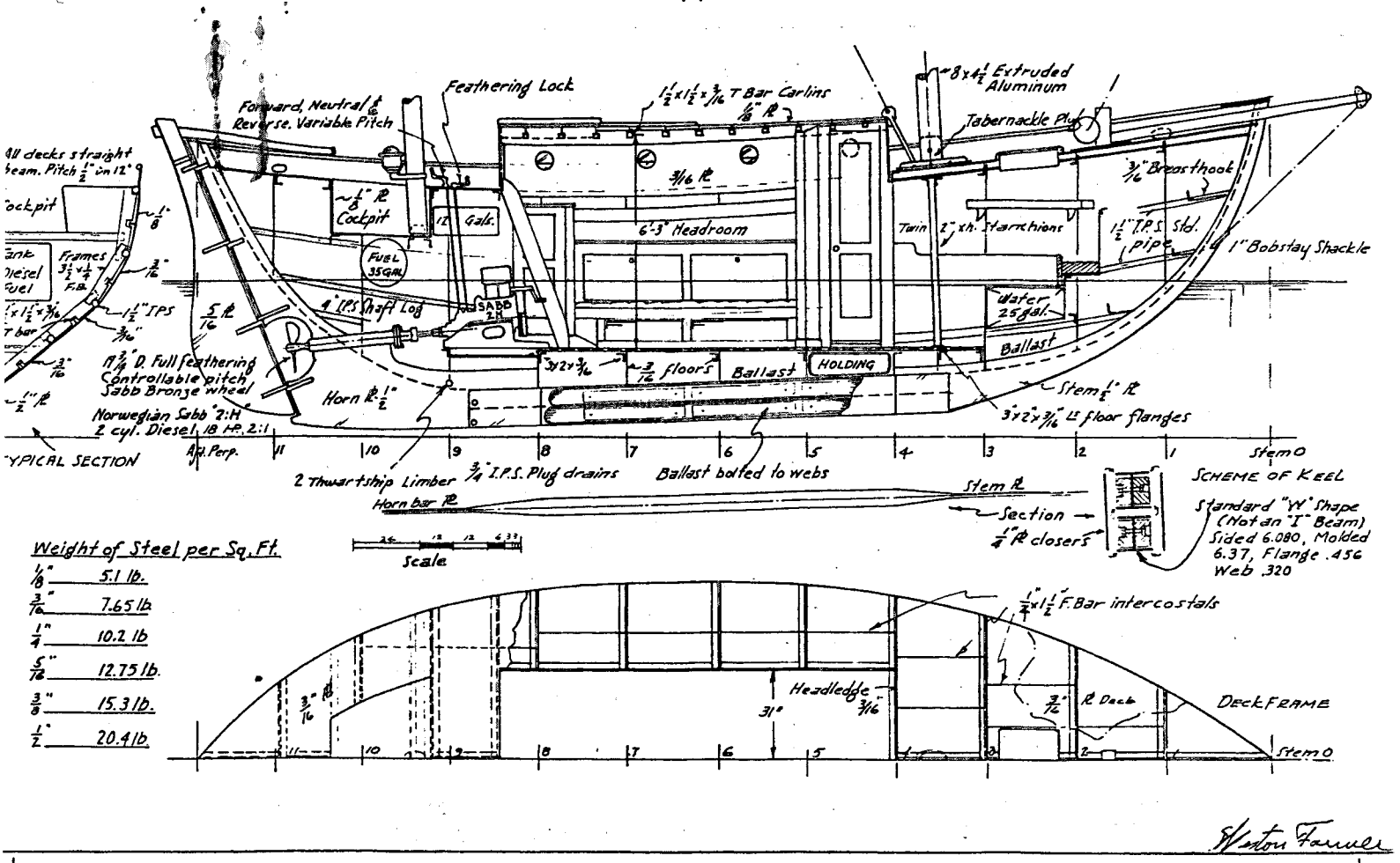
"Saaz", Paul Sipe's TAHITIANA, Barnes built, at anchor in the Indian River at Eau Galle, Florida after a run from Annapolis, her maiden voyage.







Scenes at David Ward's Ft.Lauderdale building site where he built "Rain". Note that Ward, a professional marine hull welder, kept his chine pipes exposed. David Ward terms TAHITIANA a "fantastic seaboat" that later took him 100 miles a day for 3 days scudding bare-poled before a Hatteras hurricane.



Weston Farmer

petent water machine. He would use arc welded techniques, because a rock-solid, stronger, tighter, drier boat can be built of steel."

John Hanna died before arc welding had received the wide acceptance it has today.

TAHITIANA is a poor man's boat. She can be put up, as to hull metal costs, for about the price of an automobile, with labor thrown in. About 10,000 lbs. of steel will be needed, of which 5,751.86 lbs. are in plated hull, and 4,250 lbs. in shapes. Adding 6,000 lbs. of ballast in a box keel filled with railroad iron in pitch, or steel shot or lead shot in epoxy, and allowing 2,800 lbs. for joiner work, engine, inboard hardware and ship husbandry we get 18,800 lbs. all up.

The original drawings of the framing profile of TAHITIANA showed W sections of steel girders, back to back with cast pads installed. Farmer was thinking of backyard muscular limitations in that regard, and admits that the box keel suggested and developed by David Lund is cheaper and easier to build. The current construction drawings of TAHITIANA carry this, although as Westy said, "About 1,000 sets of plans got out of my shop, sold all over the world, before I could catch this improvement."

There are 21 more TAHITIANAS now happily slopping about in all waters of the world, from Hon Kong to Kalamazoo, from the Emirate of Oman to Norway and Maine. David Ward's RAIN got caught off Hatteras in a hurricane, and Ward phoned Farmer from Puerto Rico recounting how RAIN had run 100 miles a day easting under bare poles for three days. "Fantastic seaboat," exclaimed David Ward. "We were quite secure and comfortable below."

Weston Farmer was a professional of long standing. He had his own philosophy about pricing his plans at what seem absurdly low figures. "Study plans are for the birds and beginners," he said. "Why not add a few bucks to the cost of a couple prints, shoot the whole bundle out for an impulse price, and be done with burdensome crackpot correspondence? The more fellows to get plans, the more wealth created in boats built." Plans for TAHITIANA consisting of six to seven sheets, varying according to rig desired - ketch or cutter are [redacted], postpaid anywhere in the world, and may be ordered from: WESTON FARMER ASSOCIATES, ~~18970 Azure Road, Wayzata, Minn. 55391~~ 7034-D Hwy 291, TumTum, WA 99034. The ketch is self-steering for long voyages; the cutter rig costs less, but needs conning, always.

Farmer had a word of caution about tankage. "Keep your tanks separate, up in the hull inboard and make them cleanable. Do not try to incorporate fuel and water into a steel boat's bottom in such a small sized boat," said Westy. "If you have bought plans for any one of the several plagiarized versions of TAHITIANA now being offered under various guises ranging from Tahiti to Panama to the family dog, throw the drawings away. They are the product of an incompetent. Water tankage below the sole, extended to intersect the hull skin, is a guaranteed ticket to typhoid. The free surface shift of gravity is not understood by such treatment. The fuel tanks in the bottom will be a continual source of fuel leaks because, if built as drawn on the plans I've seen, without margin plates or mouseholes at the frames, fuel will wick up the frames into the bilges. Diesel fuel, once in a bilge, will ruin the livability of the boat forever. Use Jabsco, or similar tanks."

For reasons above, TAHITIANA is secure with separate water and fuel tanks of stainless steel, cleanable. A most important point.

Although originally designed around the 18 hp. Sabb engine built in Norway because of the unique Sabb reversible propeller combination, it has been found that 18-22 hp. is not enough. About 25 hp. turning an 18" prop thru a reduction gear at about 1000-1200 r.p.m. is required to safely attack ebb tides and head winds and make headway upstream, as at ocean inlets. Some engines recommended, other than Sabb: Murphy (with replaceable liners), Yanmar, Volvo, and the Danish engine Bukh. There is also a Chinese diesel being imported by China Diesel Imports of Jamul, California (15749 Lyons Valley Road) 92035. This is a new import of 20 hp. turned out at only 2,000 r.p.m. with large torque at 3:1 reduction. The price of $1,595.00 f.o.b. San Diego for the complete import is also an attractive statistic. It has been found that the 10 hp. single cylinder engines will not move a vessel of this size in the upstream extremes mentioned.

The vital statistics of this most appealing vessel, TAHITIANA, are as follows: L.O.A. 31'6", Beam 10'2", Draft 4'0", Displacement 16,500 lbs. to 18,884, according to rig and stiffness wanted. For serious ocean cruising, Farmer said "Ketch rig, hands down!! She'll self-steer, and a loner can sleep days and sail nights, right on course. For afternoon breezing, and for being shipmates with plenty of hands, a cutter is okay. She is cheaper."

As far as is known, John G. Hanna, during his career, designed only 17 boats. Each was so accurate a peg as to economics, and as to design insight and 'on beam' to the paths of boat lovers' hearts, that he has become immortalized. His masterpiece was TAHITI, with 3,000 built. Farmer's second generation in steel may one day surpass this record. She is well on her way, she is TAHITIANA.

* * *

Mig Welding

by Doug Knight

A Basic Guide to the Art and Technique of Welding with Metalic Inert Gas

When comparing Metalic Inert Gas (MIG) and stick arc welding, although these two welding procedures produce the same end results, they differ in some degree in cost, technique, and welding time. Welding with MIG is basically like stick arc. Rather than consuming a rod, wire is fed through a gun to the work. An inert gas, usually CO^2, is used to shield the weld, as the flux coating does with the arc rod. MIG is very simple to learn as compared to stick arc. The welding industry proclaims that they can train an operator in just a few days, where it might take a few weeks of training for the operator to master stick arc. Once MIG is mastered, the fun begins with the basic tool in steel yacht construction.

One main consideration in choosing to use MIG in steel boat construction is its portability. If you are building a shoal draft design you're over the rough part. The main lead, with the gun attachment, is about 12 feet or slightly shorter, from the welder to the gun tip. This short length would pose a few problems when building a deep draft hull above the 12 foot limited length of the main lead. On a shoal draft design, the MIG can be rolled around in your work area for easy access to the entire hull. Once the hull is plated the MIG will have to be lifted topside to finish the interior welding. In the case of a plywood deck, access will be readily available throughout the interior. If portability is your main concern there are small portable units available, but these are usually so small that they are not provided with wheels in which to move about on. A unit of this size would be nice for the interior but would hinder all exterior work. You would have to look into an additional power source, which brings about unreasonable cost.

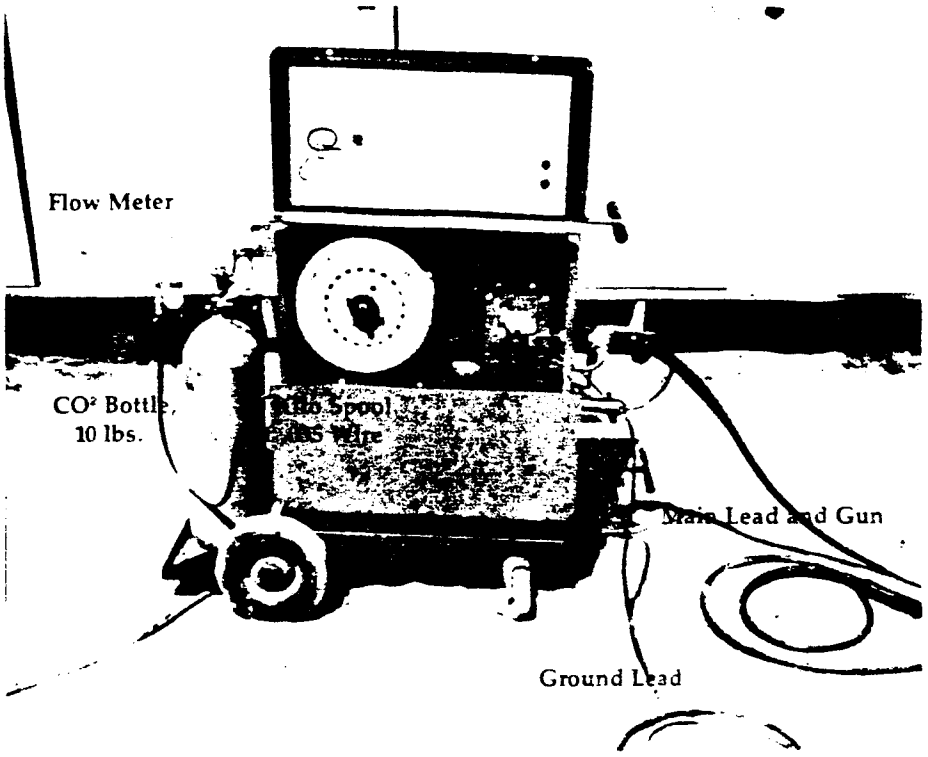
Cost seems to be the biggest factor to the home builder in purchasing a MIG welder. A good used welder would cost about $900 for a minimum of 150 amps needed. With patience, one can be found still cheaper. A good welder is money in the bank when you're ready to go cruising. MIG's hold their resale value as well. Have you thought about all of those rod stubs that will be lying around under your boat? They're all waste. I find it difficult to believe that most of us don't think about these petty things. All those wasted stubs might be worth a porthole or two, and maybe some teak trim too. With MIG, the only waste is what's at the end of the spool. In my case that's 12 feet out of a 20 kilo spool. If you are building in a coastal area or in moist climate how often will you be taking your arc rods home to bake out the moisture that accumulates in them? The MIG doesn't have this problem. The cost for the inert gas will vary depending on what type is being used. I tend to prefer to use dry CO^2. It's the cheapest and gives the best penetration possible. Other gases and combinations are possible but the trade-off for a cleaner weld with less penetration doesn't make sense in steel yacht construction. Don't get me wrong, the MIG lets the welder produce a textbook weld repeatedly.

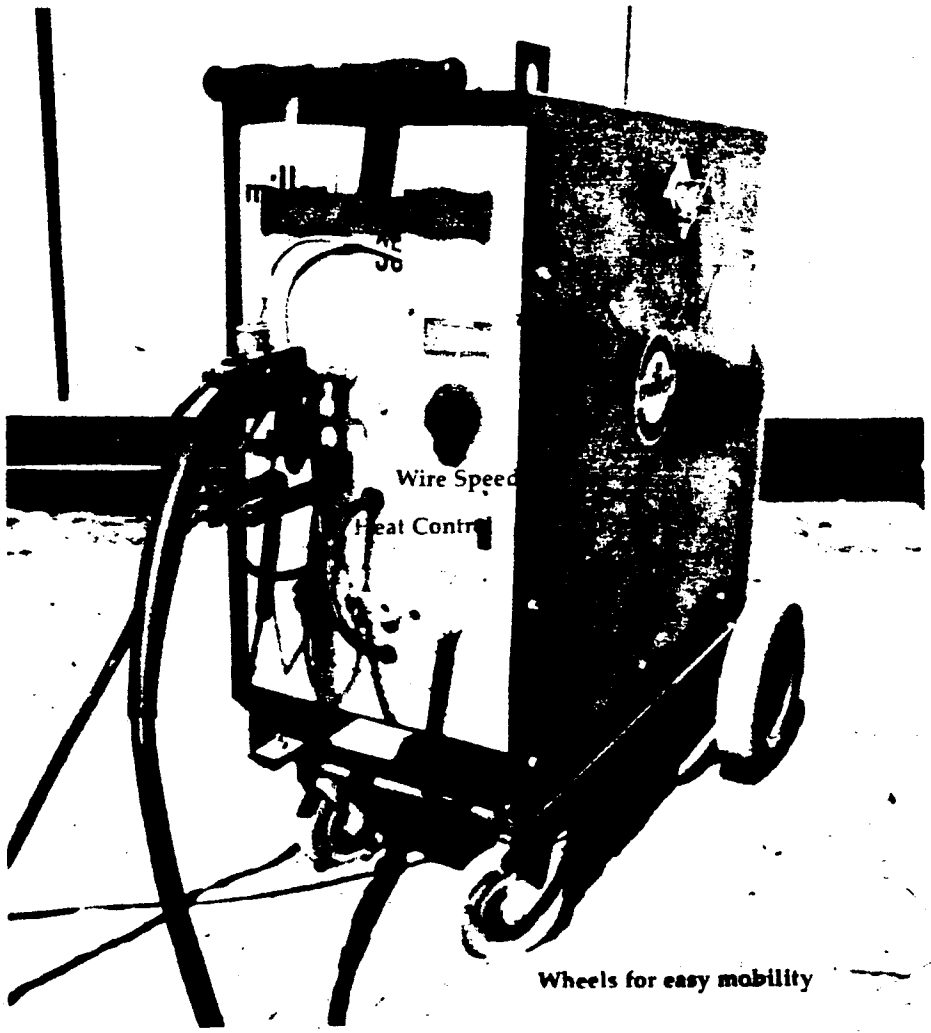
We all spend a great deal of time doing layout work and almost as much securing it fast. With MIG, tacking is simple. I sometimes leave my welding helmet in the shed. Instead I grab a clear face shield to protect my already pitted glasses. I learned the hard way, ten minutes of tacking and ten pits on my glasses. When tacking I place the MIG gun, close my eyes and tack. I can make about ten tacks a minute without having to fuss around with a welding helmet or trying to strike an arc rod hopefully in the right place. Remember, where you place the MIG gun will be your tack. I find I no longer spend time changing rods, just a 20 kilo spool of wire. Some of you might argue that changing rods is no bother. I'll leave it to your judgement. I don't own either a slag hammer or a wire brush. I do use a small stainless brush for prepping the metal

to be welded. A typical frame takes me approximately four hours to construct. Using MIG I figure I've saved about 45 minutes per frame. I now have time for lunch, which we all tend to overlook quite often. If my frame construction seems slow to some of you, my method of madness is a bit different.

To make a frame I use a lay-out template. I tend to favor a plywood lay-out board with only half frames traced out. I start with the keel shoe by making a paper pattern and transferring it to the plate. After completing the keel shoe, I move on to the frames by measuring and marking the precise angle for the bars, (See TSY #15, HOW TO CUT A STEEL FRAME). All frame bars are cut to their corresponding angles and then beveled to 60 degrees. I find I have a better fit if the starboard and port bars are of equal length. The bars can be shorter than the template. With bars of equal length, their gaps may be filled with weld metal. When all bars are angle-cut and beveled I continue from the keel shoe, adding both lower hull bars, starboard and port. These are tacked on both sides. I find this less difficult than tacking the top side completely, and then as I turn it over to finish the back side, the whole thing takes a turn for the worse and crumbles at my feet. I add the upper sections, starting with the port side, gently lifting and tacking the backside as I go. The starboard side follows in suit. When a frame is completed, the headstock is added and then it can be lifted carefully off the lay-out board. These frames weigh in excess of one hundred pounds, so extra caution should be used. The frame is now complete except for the centerline, which should be added when the frame is moved into the scaffold. When using an upright scaffold, don't use or keep it around any longer than you have to.

Technique for MIG welding is quite simple in theory. I strongly recommend that a beginning welder learn arc first. With the basic understanding





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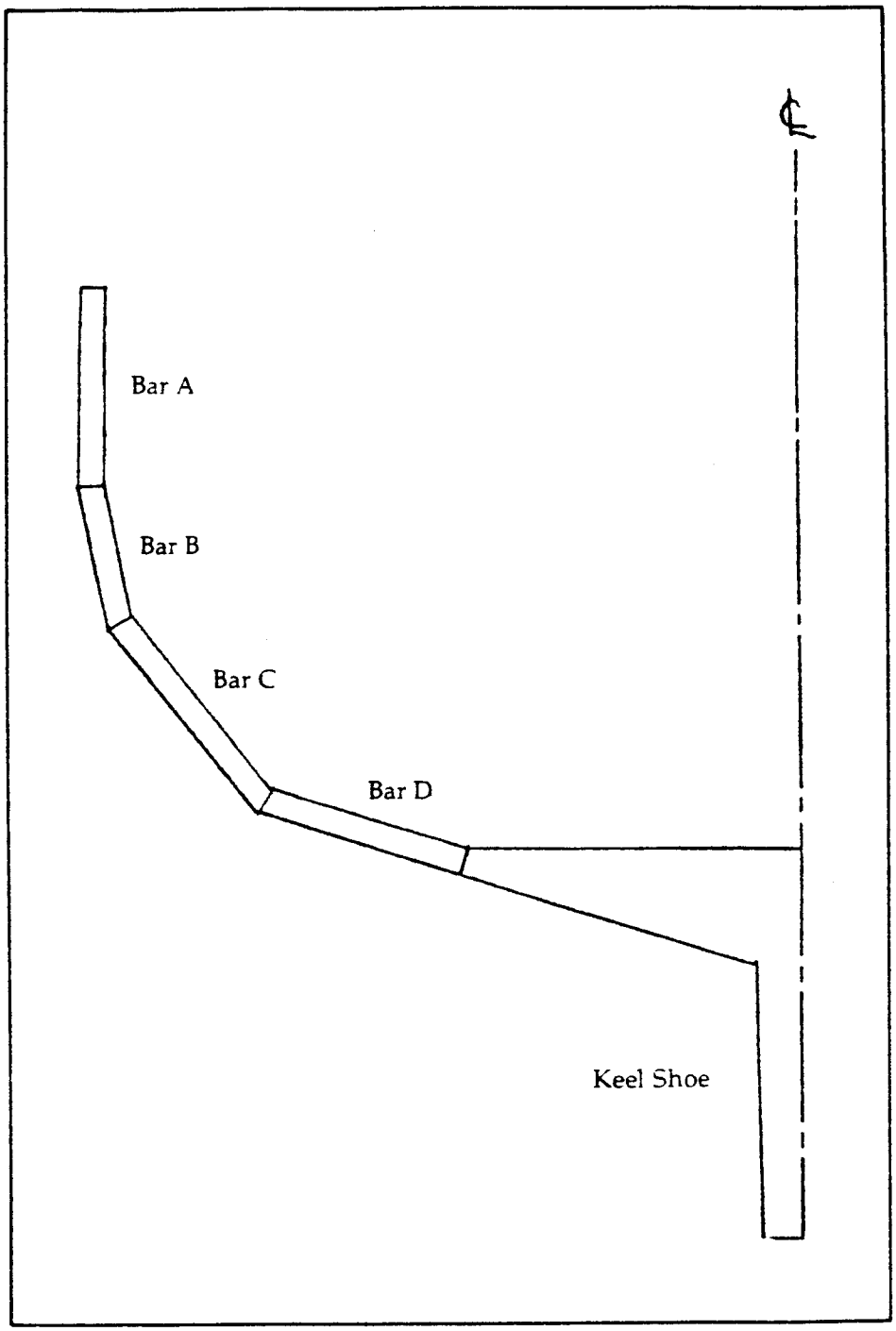

Typical Frame on the SPRAY - Bar D, both starboard and port are tacked first on both sides to the Keel shoe. Bars A, B, and C are tacked to form one piece for both starboard and port, tack on both sides. The final tack will be made between Bar C and Bar D. Be sure to tack on both sides or you'll find out the hard way.

of arc and learning to control a molten puddle of metal, you can learn MIG quickly. MIG can be tricky but with a little patience and practice, a fine yacht can be built.

I've searched many welding manuals and they all seem to produce the same element of surprise. They all slant towards welding exotic metals and alloys. Such is the case from one reference to another. I finally found one devoted entirely to the MIG, which I found useful. The manual is a technical over-view on the MIG and is put out by Hobart, (Technical Guide for Gas Metal Arc Welding, publication #EW-473). I got mine free as a sales aid, but if you have to pay for it, it's worth it.

CO^2 gas, which I've already pointed out, gives the best penetration. I tend to allow the gas to flow through the nozzle tip against my chin a few inches and just slightly feel the gas. This should be at about 25 cubic feet per hour. If the wind picks up to a light breeze, add about 5 cubic feet to the gas flow. If the wind gets stronger you can build a wind screen. Any stronger than about 10 knots you might consider stopping and take care of that long over-due yard clean-up. I've been lucky this past year working next to a six-foot fence, a natural wind screen. I only had one windy day in which I shut my welder down and turned my attention to some other detail. By now you must realize that all my steel work has been entirely outdoors and I have not experienced any welding difficulties. Just remember that if the wind picks up you will have to protect the shield gas from being blown away from the weld. How you achieve this goal will depend upon each individual case.

To get the most out of your MIG, the angle and distance that the MIG gun is held to the work correlates directly to the penetration. Dragging the gun at 15 degrees was best. The closer the gun is, the deeper the penetration. A word of warning, MIG produces pretty welds on the outside. This doesn't necessarily mean that the weld is thorough, just because it looks good. Cold welds are a problem in both MIG and stick arc. MIG sometimes requires a little more attention in metal prep with proper beveling and fitting. If proper attention to the assembly of each plate, frame and bar, cold welds can virtually be eliminated. Sometimes the first inch of the weld becomes slightly porous. This minor problem can be corrected by overlapping the weld on the next pass.

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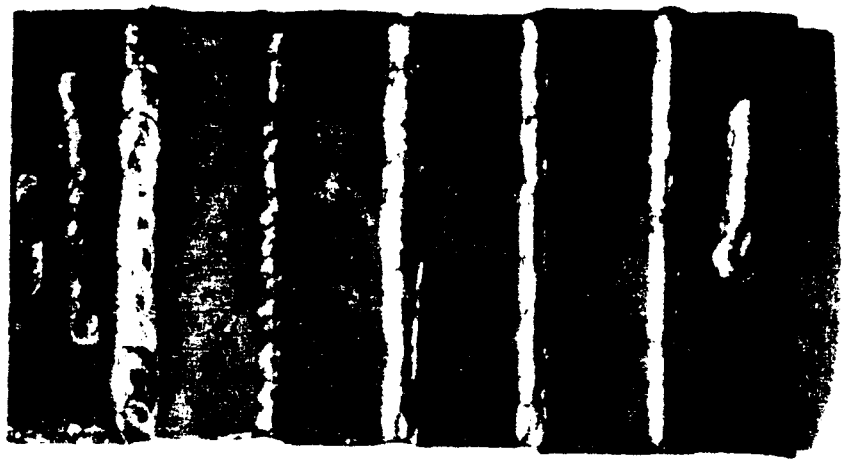
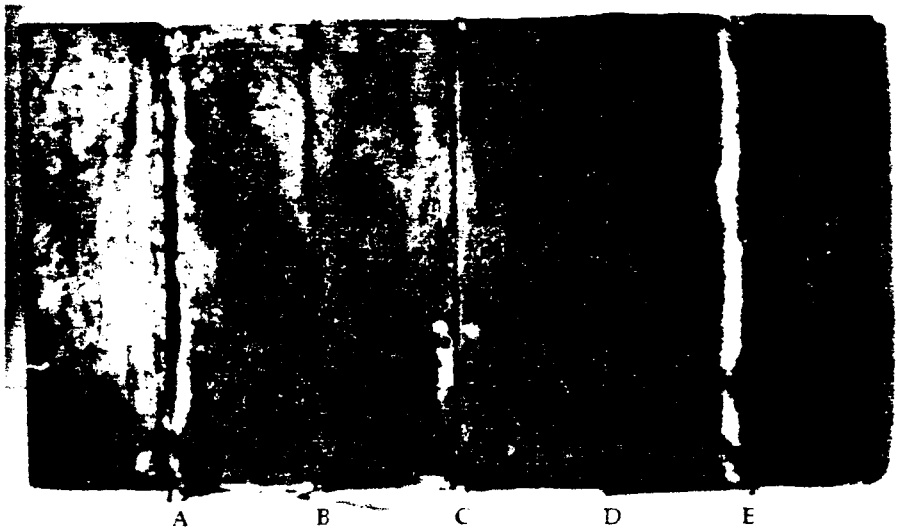
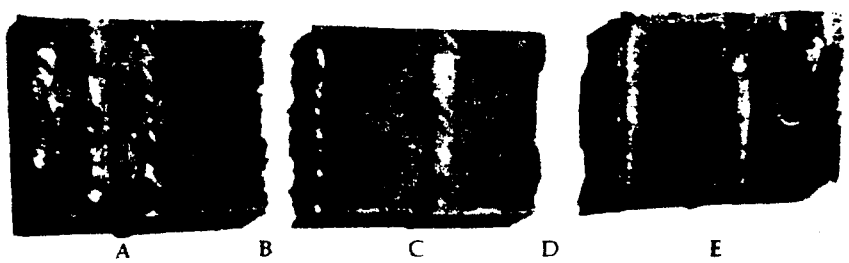


Welded samples ¼ x 1¼ FB. All samples were welded in about a 15 mph wind. To the left of A are two beads with no shield gas. Note their extreme pourosity. Weld A was spaced ⅛" and welded. B is a V-notched, low head. C is V-notched with proper heat. D is V-notched and heat is between that of B and C. E is V-notched on both sides and welded on both sides with the heat setting used in D.



Back side of welded sample. "A" shows good penetration. "B" and "D": have become cold welds with too low heat input. "C" shows some blistering on the mill scale, but not complete penetration and is not considered a cold weld. "E" back side weld of double V-notch.



Testing of welded samples. Welds B and D clearly show what happens to a cold weld. I was not able to break welds A, C and E. These are sufficient for welding of a steel yacht.

Don't be afraid to hammer test your work. If you are still unsure of your weld, you can cut a cross section with a band saw or a hack saw. You'll know right off where you and your weld stand. A typical weld failure can usually be traced to not enough heat. Try tacking two pieces together with low heat and break them apart. You'll instantly notice the zero penetration. Crank up the heat and try again. Your results will improve each time you add heat. The wire feed increase will also increase the heat. Remember, adjust your variables to suit your needs. With a little thought and practice anyone can learn the proper techniques of MIG in construction of a steel yacht.

This past spring while I was out giving estimates on the West Coast for my Flame-Spraying services, I noticed that three professional builders were using MIG entirely or to some degree to their advantage. Frank Kelly of Kelly Marine has built a VERITY 40 using only MIG. While Frank works entirely indoors, he does keep his bay door open when it's not windy. Skip Pence of The Overland Boat Co., built a NEW FRONTIER 56 using MIG and stick arc entirely outdoors. Skip made note that the wind did shorten some of his work days. Dave Smith of Olympic Torque Tool built a Robert Perry design of 43' using MIG and stick arc. Dave leaves his bay doors open quite often for ventilation and for room to move his forklift around. Whether you build inside or outside, using MIG make sure you are dialed in with the welder and you provide some sort of shield when the wind picks up.

I can only stress how important the basics are. I learned them over a decade ago and they're implanted forever. I hope I've been able to introduce to you a welding alternative and answer a few questions, and I know I've sparked a few.

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