

SCALE



## SHIP MODELER

**PLASTICS IN REVIEW:  
THE MRC/TAMIYA  
PT-15 TORPEDO BOAT/  
HELLER'S SUBMARINE  
'SURCOUF'/ERTL'S  
SPANISH GALLEON**

**THE WORLD'S  
SMALLEST  
R/C TUGS?**

**R/C  
BASICS  
FOR  
BEGINNERS:  
Part One Of  
A New Series**

**MAKING A  
PADDLEWHEEL  
TOWBOAT**

**BUILDING AN R/C  
COMBAT CRUISER:  
USS SAN FRANCISCO**



# SCALE SHIP MODELER

VOLUME 5, NUMBER 4

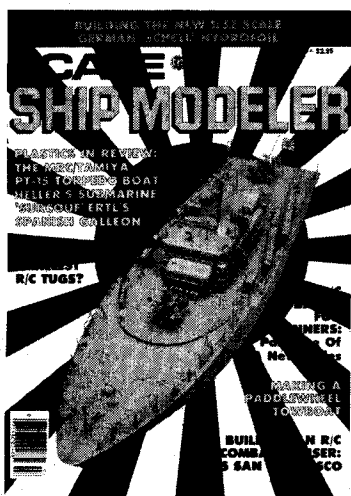
JULY, 1982

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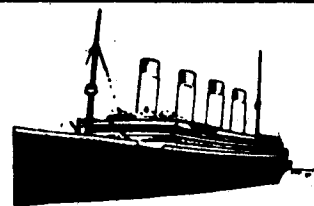
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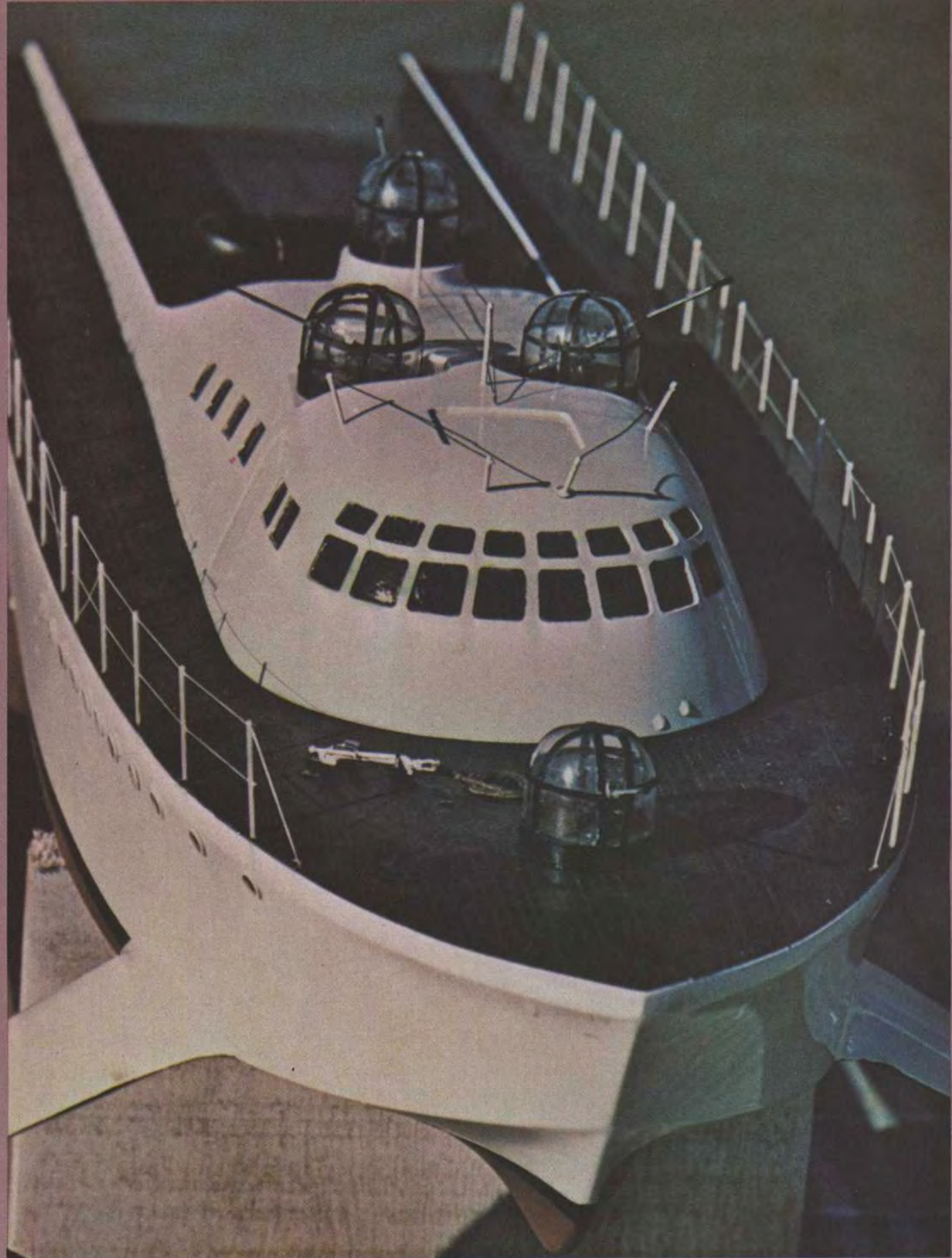
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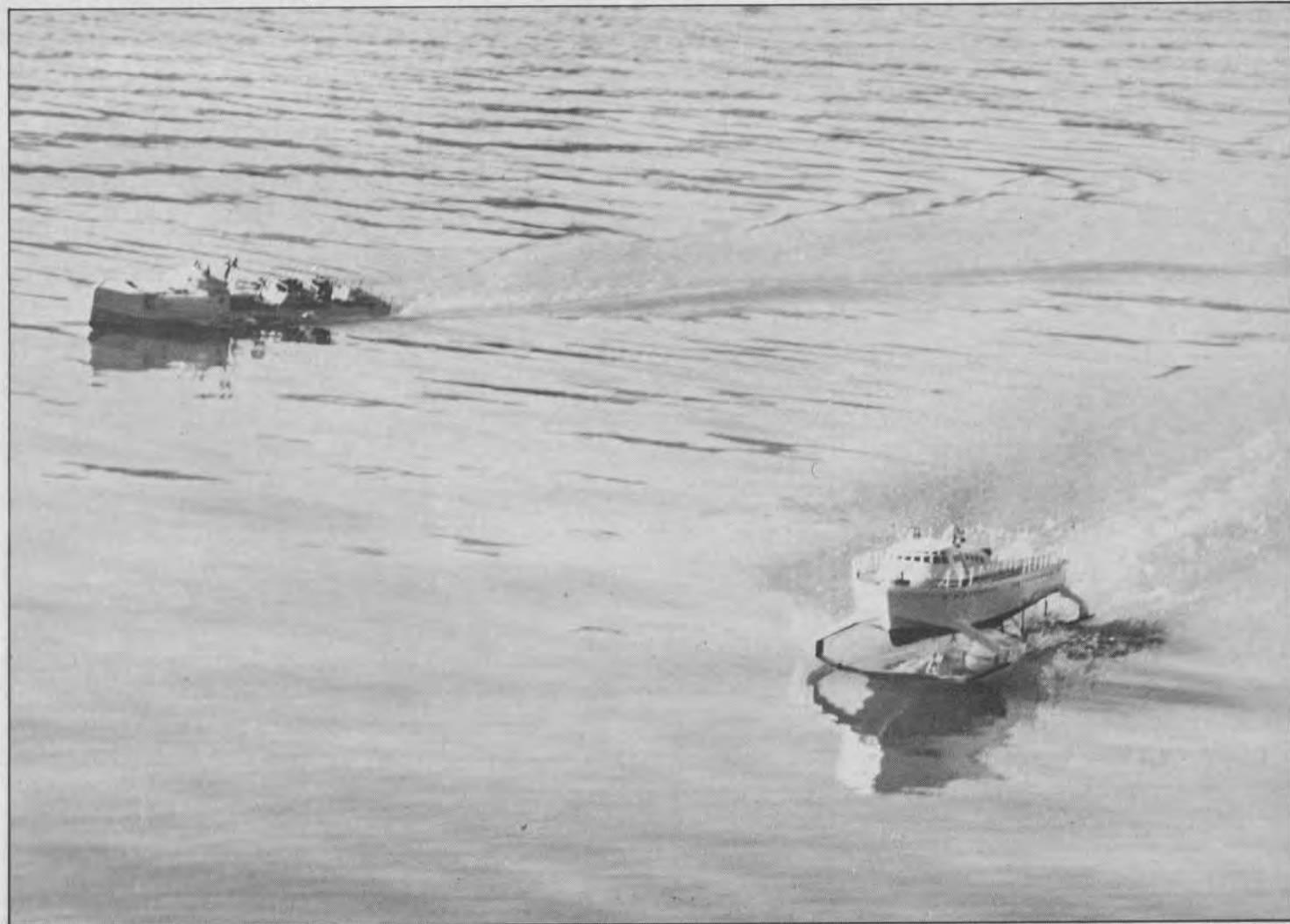


Looking more like an alien spaceship than a boat designed 40 years ago, the VS 8 was a highly advanced craft for its time and should certainly be a prime topic of conversation at any model boat gathering.

# 1/32 SCALE GERMAN VS8 HYDROFOIL

For the first time, an operating R/C model kit of a hydrofoil is now on the market — and its scale! By Frank Johnson

**A**fter their rather impressive entry into the scale model marketplace with last year's introduction of a 1/32nd scale Type VII U-Boat, it seemed only appropriate that *32nd Parallel* come up with something even a little more imaginative for their second kit. The Type VII kit, on which yours truly wrote a feature article a few issues back, was quite an accomplishment in that *32nd Parallel* could lay claim to the first high quality, easily constructed, operational scale submarine to be offered on the scale R/C market. Needless to say, a good deal of pioneering and engineering went into the effort. Certainly scale R/C subs had been built in the past, but usually by quite talented and innovative scratch modelers. The task of first coming up with a workable model



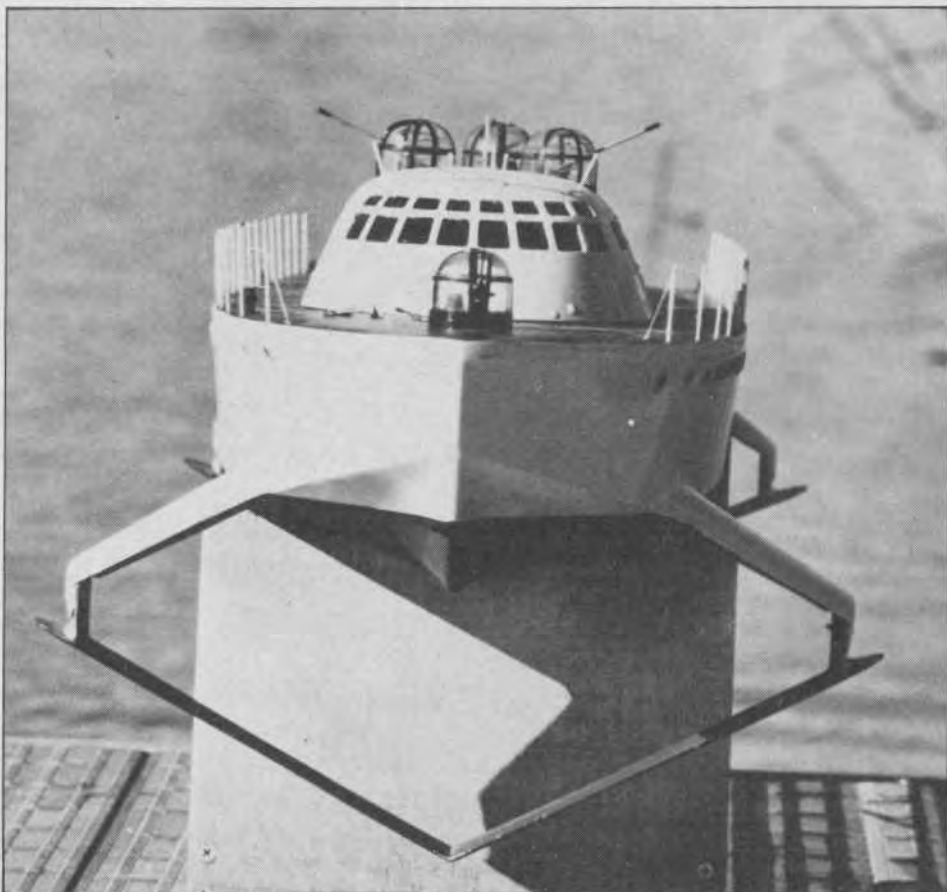
The VS 8 and an escorting Schnellboote (E-Boat) on a high speed run, much as the prototypes might have looked crossing the Mediterranean, dodging Allied fighter/bombers. In the model version, it is all the Schnellboote can do to keep up with the VS 8 even after the hydrofoil has been throttled back.



The VS 8 as seen from a profile view while running foilborne in the proper configuration (i.e., the majority of the foil surface under water is for maximum stability).

submarine design, and then putting it into kit form so that the average model builder could successfully complete the project was no easy undertaking.

While visiting the 32nd Parallel production facility on a trip to California's beautiful San Luis Obispo for that first article, with all of the day's photo work done and all of the necessary information on the Type VII sub collected, it was about Miller time (Blatz to you folks on the East Coast) and the inevitable brainstorming bull session followed. All halfway serious model builders have their dream projects that never seem to get off the ground even though they are so fantastic "you could sell a million of 'em." As we talked into the evening, the enthusiasm for their work eventually overpowered the three partners in this new company, and Chris, Simon and Lou began to divulge classified company information. (We have ways of making you talk, eh!). They mentioned that their second kit would very probably be a model of the WWII German VS 8 hydrofoil. I must admit I thought this to be a rather strange choice at first since, successful as it was, the Germans had only managed to complete the original prototype before war's end. But as we talked, the

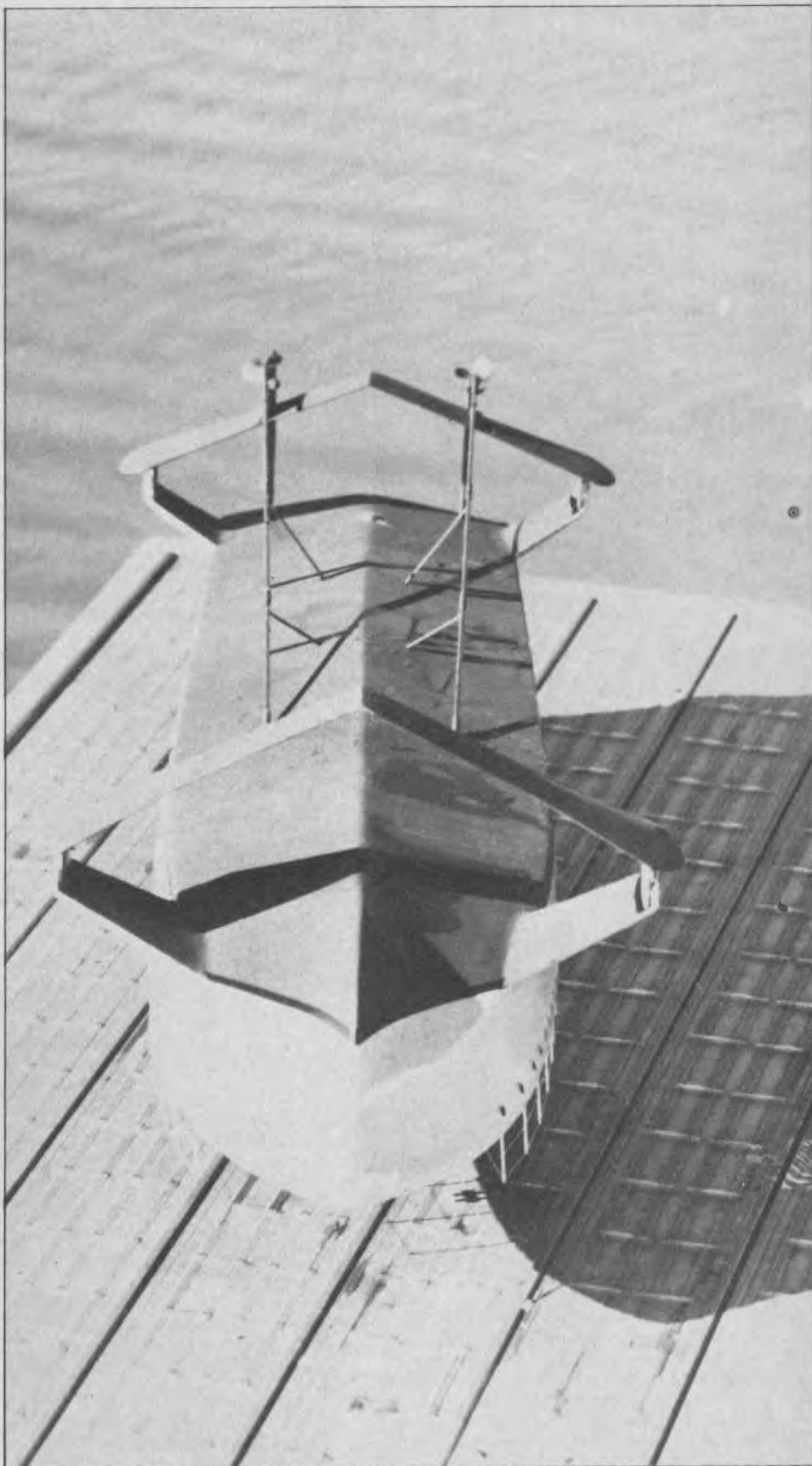


This head on view of the boat out of water illustrates the substantial relative depth of the foils compared to the rest of the boat.

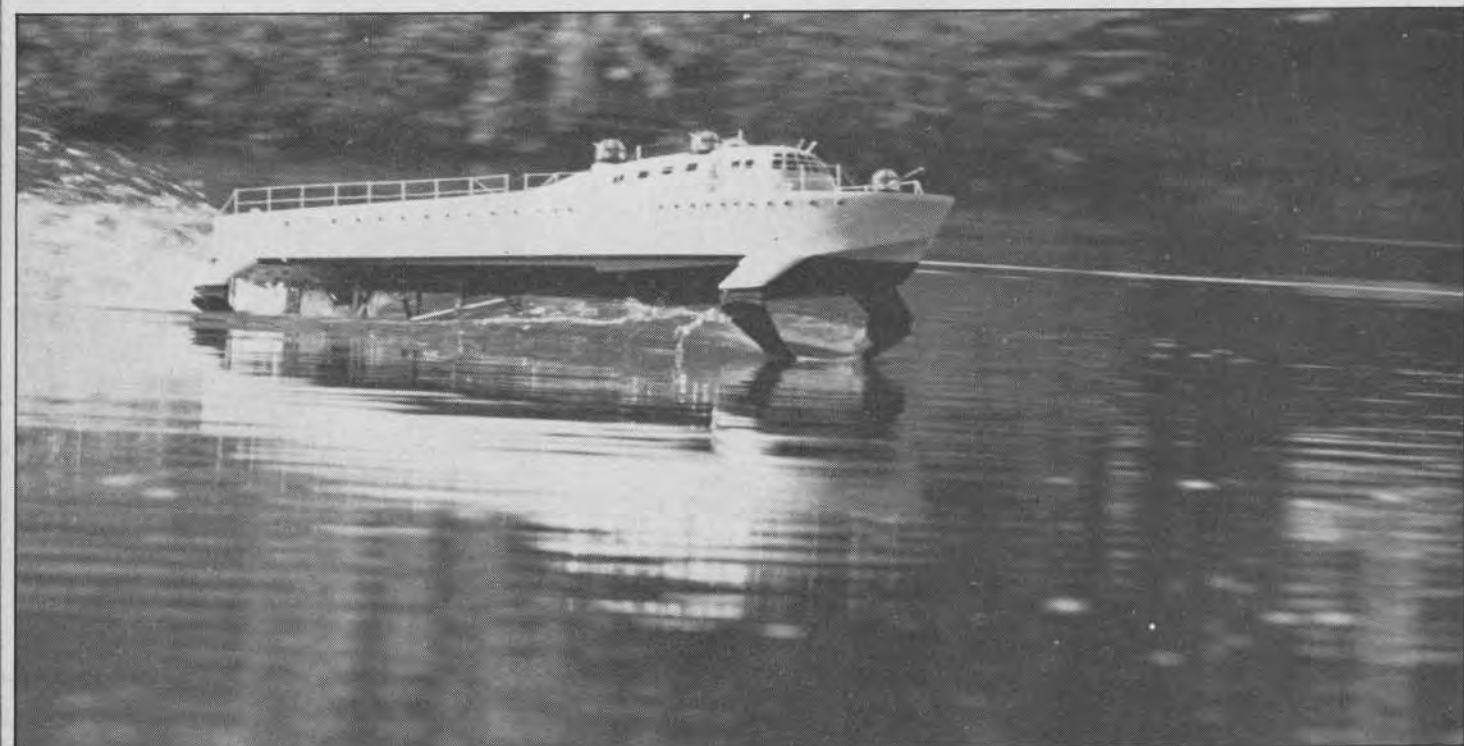
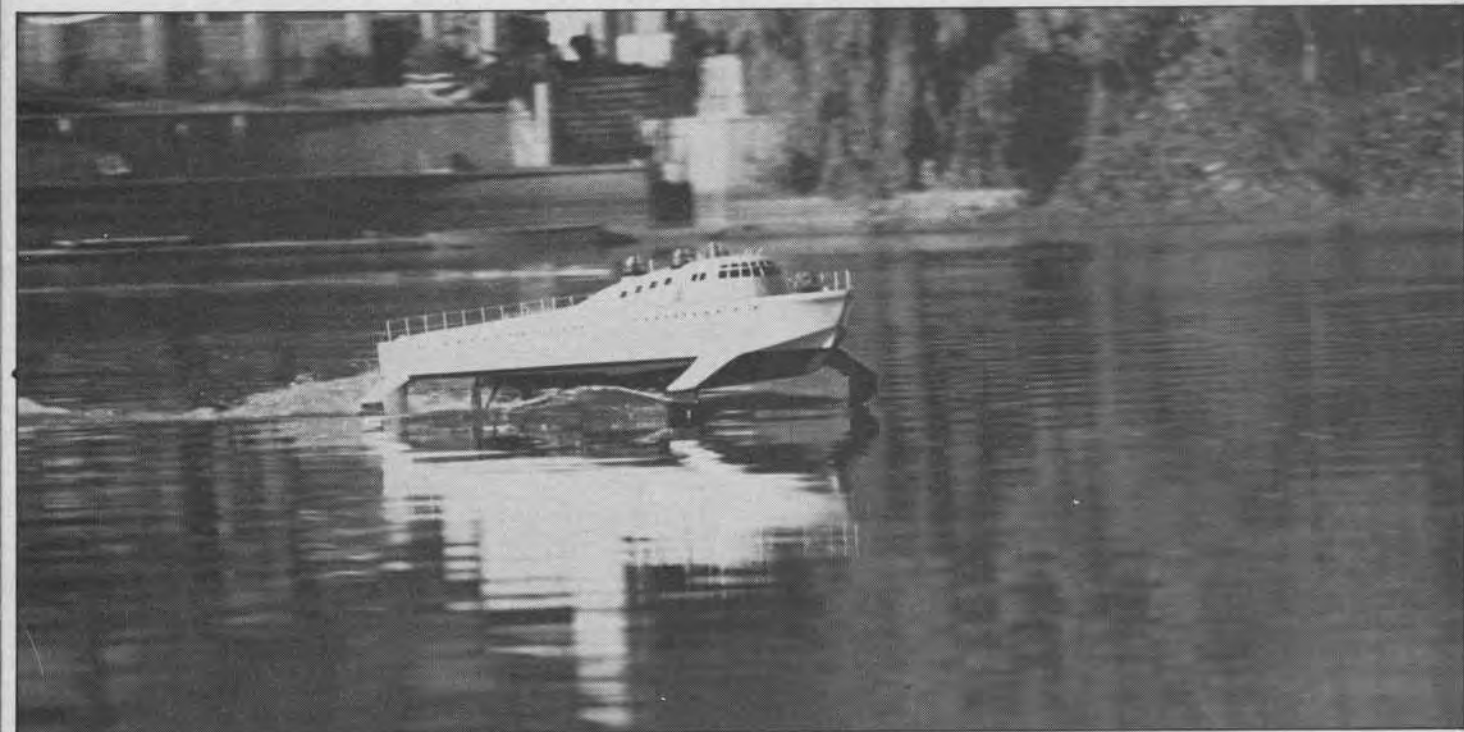
logic behind the choice began to dawn on me. (The Germans never managed to produce too many of *any* one thing except ME-109s.)

It would certainly be a gamble on the part of a fledgling firm for if sales were to be less than expected, if the partners had read the market wrong, there would be no extensive "line" of kits to fall back on. And what about that logic? Well, to begin with, the VS 8 was a magnificent machine, beautiful in every respect and highly advanced for its time. Aside from the fact that the prototype's 103 foot length made it the perfect size for 1/32nd scale modeling (producing a 38.5-inch long hull), it would also be the first hydrofoil (not to mention scale hydrofoil) ever offered in an operational R/C construction kit. Further, it would bring a new dimension to the delightful pastime of operating an R/C model boat for, as you will see, one does not simply "steer" a hydrofoil, you "fly" it . . . and it takes some skill, a certain challenge, to become proficient. I couldn't argue with the logic. So what if the Germans only built one. I just hoped the partners were right. I put my order in for one of the first ten boats in case they weren't.

As a former member of the staff of Challenge's *Sea Classics* I had had occasion to do considerable research on hydrofoils while preparing an in-depth look at the U.S. Navy's current hydrofoil program. There are basically two types of hydrofoil systems, surface piercing and subsurface. The foil very simply is used to lift a hull, under power, up and out of the water just as an *airfoil* lifts the body of an aircraft. Since water is much denser than air, the cross section of the foil cutting through the water does not need to be nearly as big as the cross section of an aircraft airfoil to lift a corresponding amount of weight. The problem with hydrofoils, whether they be the real thing or a tiny model, is in the control. Achieving lift is easy. Maintaining steady directional control of the craft once it is foilborne is something else. In a sense, it would be proper to term surface piercing foils as inherently stable, although this is misleading. The VS 8 was equipped with surface piercing foils as were all early hydrofoil craft—and as are most hydrofoils in service today. (The Russians and Chinese operate dozens of such craft—many directly descended from VS 8 technology—on their many inland waterways.) Submerged foils are something else. Not wanting to engage in a long technical explanation of submerged hydrofoil



A view of the underside of the VS 8 model shows the lengthy prop shafts. Although not really a problem with a model hydrofoil, the nemesis of the full size hydrofoil vessel is floating debris such as logs and other obstructions which tend to make a mess of prop shafts and the rather delicate foil work. Models are much sturdier in comparison, but a run in with a floating beer can or a duck will definitely bring the boat down off its foils.



*These two photographs illustrate the effect of added power on the surface piercing hydrofoil model once it is foilborne. In the top photo, we see the VS 8 model running foilborne in its most stable configuration; throttle pulled back somewhat so that most of the "V" shaped foil is in the water creating maximum stability. When more power is applied, the foils lift the boat further out of the water (as seen in the lower photo) and as the boat is supported by a smaller surface, the tip of the "V", it tends to become less stable.*

technology, suffice to say that rather than having the foil shaped surface actually partly in the water and partly out of the water during operation (thanks to the "V" shape of the foil), a submerged system uses a straight "wing" which flies along under water at all times and is connected to a (nonlifting) strut extending from the boat hull above the water's surface. The primary advantage of the submerged foil system is that it allows the craft to operate in relatively heavy seas (as long as waves pass under the raised hull, they have, of

course, no effect whatsoever on the submerged foils). The surface piercing foil, while steadier and certainly much faster per given horsepower than a conventional speedboat hull, still "rides the waves" and is therefore more affected by rough water than the submerged foil. The disadvantage of the submerged foil system is its high sensitivity to control movements. In fact, the reality of an operational submerged foil craft of any size or importance (such as the U.S. Navy's new *Pegasus* class of

*(Continued on page 57)*

The two running mates nestled together awaiting another mission. The infamous Schnellboote (or S-Boat or E-Boat — whichever you prefer) was the most successful torpedo boat used in WWII. Both of these kits are now available from 32nd Parallel along with their Type VII U-Boat in the same scale.





# 1/32 SCALE GERMAN VS8 HYDROFOIL

(Continued from page 48)

patrol combatant) has only been possible since the development of a super sensitive, fully computerized steering and control system that handles all variables virtually instantly to keep the craft flying.

Now that you may or may not understand how a hydrofoil works, let's get back to the VS 8. Being great tinkerers, the Germans fooled around with any number of small hydrofoil test models during WWII and finally came up with a need to match a known capability to build a particular type craft. The need was for a fast, efficient method of transporting tanks and other heavy equipment across the Mediterranean from Italy to North Africa and return in one night, this to avoid daylight

Allied air patrols. Although the Afrika Korps would long since have been buried in the desert sands by the time the VS 8 first mounted her foils in August 1943, the new craft was nevertheless a technological success in her trials.

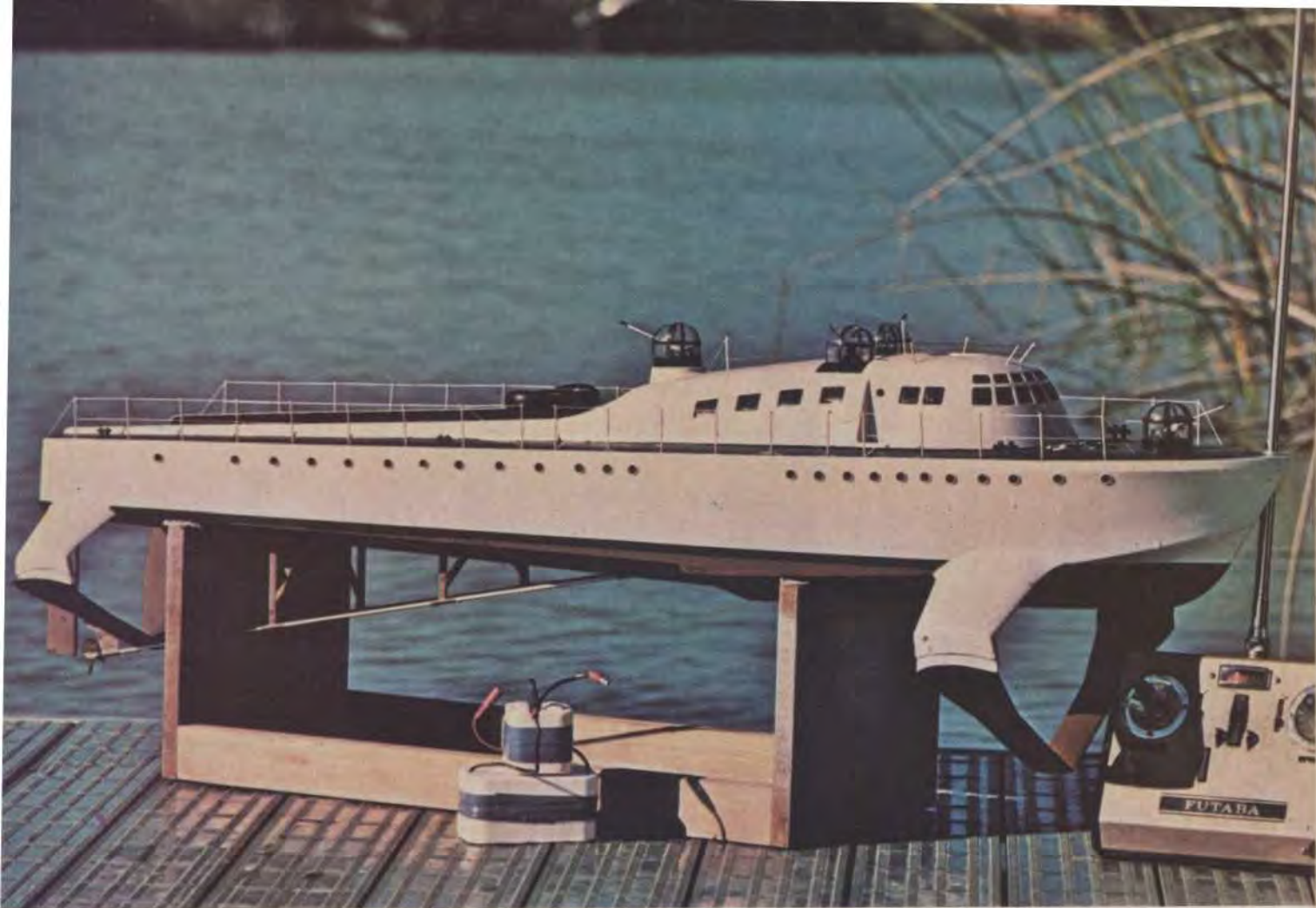
The concept of this fast transporter craft was first advanced by one General Schell and it was in late 1942 that a contract was let to the Sachsenberg yard for construction of the VS 8. Given the name *Schell I* in honor of her sponsor, the 103-foot craft featured a light metal, hard chine, stepped planing hull with an unloaded displacement of seventy tons (a full load would take the craft up to ninety-eight tons). Originally intended to be powered by two

Daimler-Benz V 20-cylinder four-stroke MB 511 diesels driving through two shaft, it was calculated that this combination would produce a top speed of forty-five knots and a sustained speed of forty-one knots. Armament was to be strictly for defense against aircraft and would consist of four 15mm Luftwaffe machine guns in Drehkranz mountings with plexiglass domes. *Schell I* would be manned by a complement of twenty-two men.

Unfortunately, at the time of her initial testing, the only engines available were MB 501 diesels of 2000 hp each as opposed to the 2500 hp supercharged 511s which were in the original plans. Even with a twenty percent reduction in horsepower, the



The VS 8 in the process of coming down off her foils. The boat simply mashes back down in the water. For all of the spray it kicks up, the VS 8 is a very dry boat in terms of the water it takes aboard.



The ugly duckling out of water in company with the Futaba transmitter and the two battery packs comprising 10 "C" size Ni-Cads. The prototype was equipped with a Futaba integrated speed control for the motors. The VS 8's designers were about to embark on further power pack experimentation in the belief that the model could lift substantially more battery weight for extended running.

VS 8 still achieved a top speed of forty-one knots with a light load and could sustain thirty-seven knots in a six-foot sea. After considerable testing, this magnificent craft was stranded in a storm off Hela in September 1944 and had to be abandoned.

\* \* \*

I doubt that her German designers had the slightest idea that forty years later, their work would be immortalized (?) by a small model company in America. It was determined early on that the model would have to work for both gas and electric power in order to take full advantage of the potential market. This meant that great care would have to be taken to keep the model as light—but as strong—as possible. The hull consists of a light fiberglass layup with gray gell coat pigmentation, with a separate stern piece attached by the modeler. The decking is also of a

light fiberglass layup while the cabin superstructure is a single vacuum formed plastic structure reinforced with balsa on the interior. The cargo well is constructed of aircraft plywood.

The prototype model was powered by two Astro-Flite .5 electric motors driven by a pack of ten "C" size Ni-Cads. The twin shafts are long, but produce no apparent problems.

Correct propping is a critical factor in the operation of an electric powered VS 8. Primarily from the standpoint of extending the running time, it is important to use props that allow the motors to turn the highest rpm for the least current drain rate (lowest amp pull). All of the proper guidelines are presented in the kit's instructions, but there will be many modelers experimenting with different types of motors (all of varying efficiency and rpm) and it should be realized that prop experimentation may be an essential

part in achieving an optimum power-train setup. I should mention that a separate running hardware kit is available for the VS 8.

All necessary deck hardware is included in the kit for detailing purposes including guns, domes, railings, bits, chocks, etc. The foils and struts are aluminum castings and are easily attached to the hull, using some care in their alignment.

Operation of the VS 8 is definitely on a different "plane" than your typical hullborne model boat. Successful operation requires a little practice and finesse at the controls. Generally, full power is applied at the beginning of a run to get the craft foilborne. Then, as the model rises out of the water, power must be eased back. It always takes more power to *get* the boat up than to *keep* it up. Well then, the logical question is what happens if you keep full power on once the craft is foilborne? It must be understood that there is

a definite optimum foilborne operating speed with this model. Noting that the foils are arranged in a "V," you can understand that the faster the boat travels while foilborne, the more lift is created by the foil surfaces and the higher the boat is lifted on the foils until only a small portion of the bottom of the "V" is left in the water. The boat then becomes unstable (trying to balance on such a tiny point) and falls off the foils and back down onto the hull. No damage done, of course, but all your friends will laugh at you.

It is suggested that for further information on *32nd Parallel's* line of offerings, you see their advertisement elsewhere in this issue. I would

like to point out that *32nd Parallel* has picked up the manufacturing rights to the 1/32nd scale German Schellboote formerly offered by Accuscale. This was a good move as it increased *32nd Parallel's* line and is a perfect match for the VS 8 in that the two types were intended to operate together. It was originally planned that E-Boats would escort the VS 8 types as required on their Mediterranean crossings and to this end, some of our photography illustrates this concept as the boys at *32nd Parallel* had prepared one of their E-Boat kits for running with their hydrofoil model. There will be significant improvements to the Schellboote kit now offered by *32nd Parallel* including simplified con-

struction using vacuum formed parts for the armored bridge and foredeck torpedo tubes, rafts, ventilators and other miscellaneous items. They are also offering a running hardware kit for the S-Boat. Again, write for details.

It's nice to see new kits of high quality like the VS 8 coming out on the market, particularly in the popular 1/32nd scale category. Such kits, admittedly, are not cheap, this primarily due to their relatively low production volume compared to an injection molded plastic model. But beyond all of the rationale, imagine the looks on the faces of your fellow scale model boating enthusiasts as your VS 8 climbs up on her foils for a quick turn around the pond.



A look at the interior works of the prototype VS 8 model shows the two AstroFlite motors mounted well forward to accommodate the long drive shafts. Next comes the radio gear followed by the battery pack which is set in its own quick access compartment for fast changes. On the day we ran, two packs were used, one charging while the other ran. With this arrangement, you could literally run all day interrupted only by the two minute operation of switching packs in and out of the boat.