THE SCHNEIDER SPORT ELECTRIC

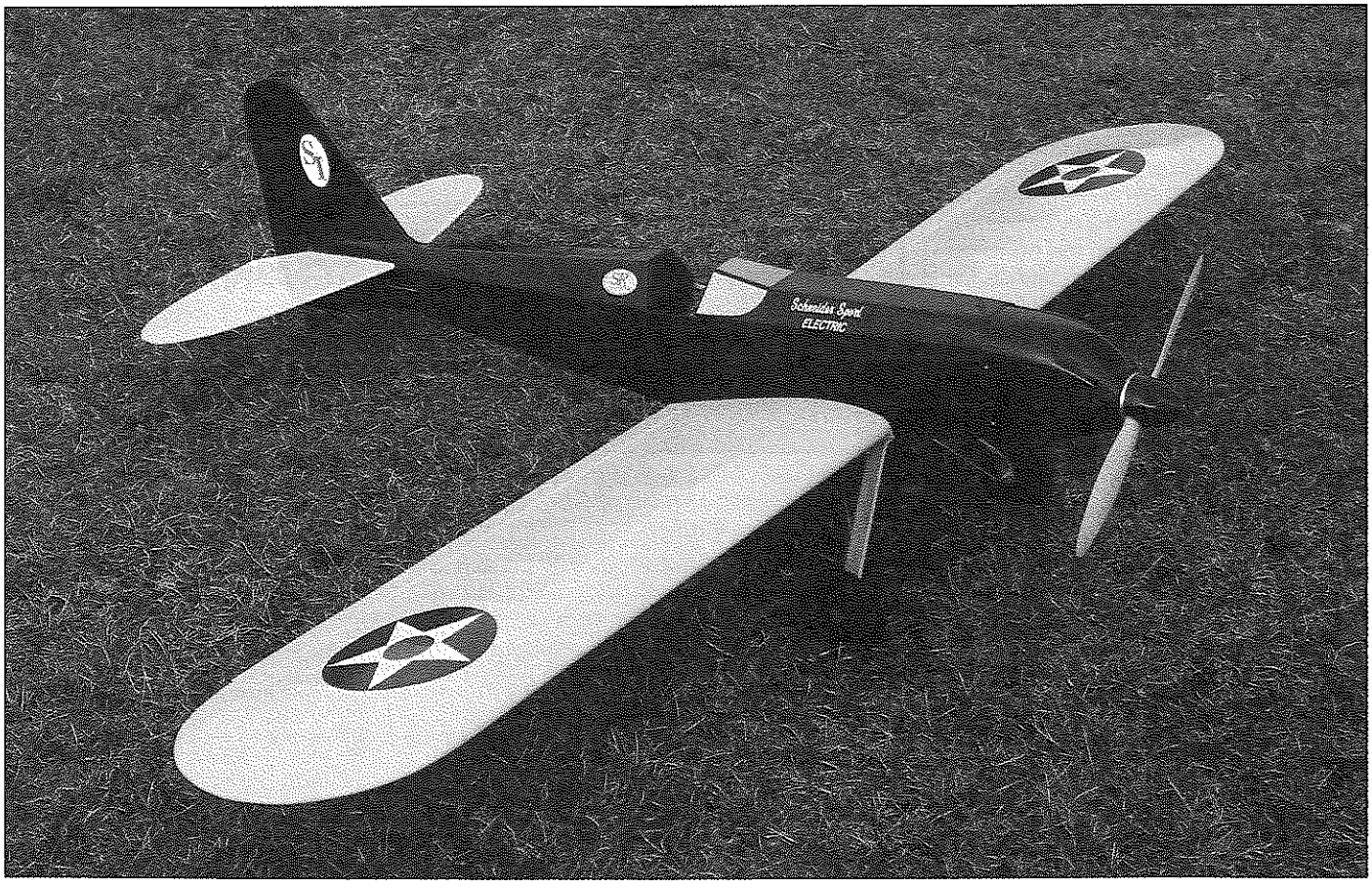
The fun of float flying combines with electric power in this attractive scale-like low-winger, from one of the most respected designers of electric powered model aircraft.

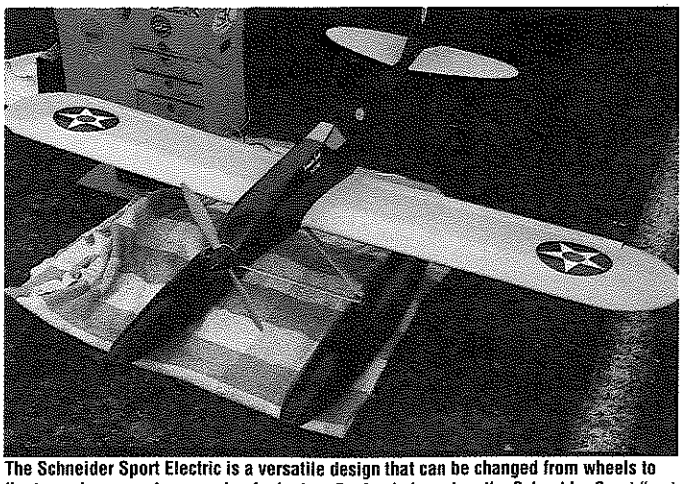
BY BOB BENJAMIN

The Schneider Sport Electric was designed to fly the way you are used to seeing "wet power" models fly, on readily available Astro Cobalt 25 or 40 geared electric systems. At 5-foot span and 7 pounds, it's big enough to handle rough conditions, yet small enough to transport easily, and best of all, it looks like an airplane. Not only that, but as you can see by the photos, this airplane flies on both wheels and floats, and converts from one to the other in minutes.

It may occur to some of you that you have seen this airplane before, and it just so happens that you are right. The Schneider Sport Electric is a derivative of the Schneider Sport 60 that has been kitted by Stream, Inc. for the past several years. The Schneider Sport series was developed by Tom Strom, founder of Stream, to be a scale-like sport model reminiscent of the Schneider Cup racers of the late 1920's, and to serve as a vehicle to introduce Stream's unique float system, which offers efficiency, very simple setup, and the capability of operating properly *without a water rudder.*

About a year ago, Allan Poinsett of Stream approached me at one of the local club flying fields and initiated a discussion on electric powered airplanes. What eventually resulted was a commission from Stream to develop an electric version of the Schneider Sport 60. My response to this challenge was to develop an entirely new airplane in the shape of the Schneider Sport; that is, to redesign the structure completely, as the original "wet power" design, while it works very well, is seriously overbuilt for electric power. To guarantee that the finished model would perform as expected, I incorporated an airfoil and incidence arrangement based on





The Schneider Sport Electric is a versatile design that can be changed from wheels to floats or vice versa in a couple of minutes. Design is based on the Schneider Sport "wet power" models kitted by Stream, Inc., but with a completely redesigned structure. Floats, cowl, landing gear, etc. are all stock Stream units.

my successful Tigerkitten and Tigercat electric designs.

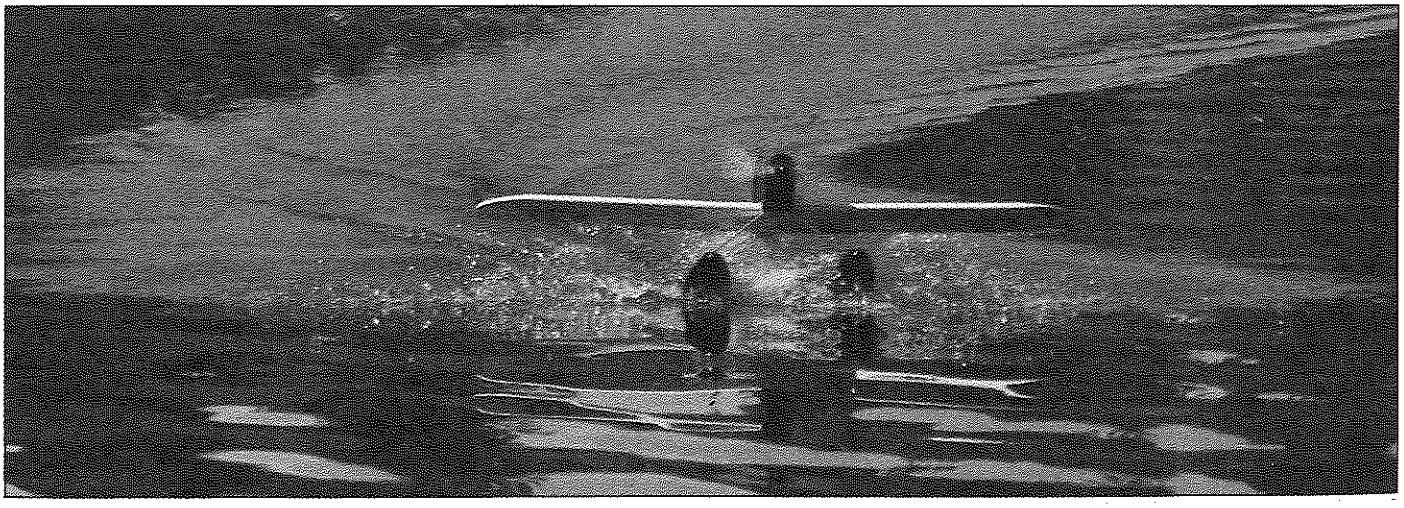
The end product of this effort is at first glance indistinguishable from the standard Schneider Sport 60 and flies as though powered by a good four-stroke .45 or .50 It is not a trainer, but if you are comfortable flying any of the common sport low-wing designs on the market, you should have no trouble with this airplane. If you have the required proficiency to build and fly the model, there is no reason that it should not serve you well as your first electric.

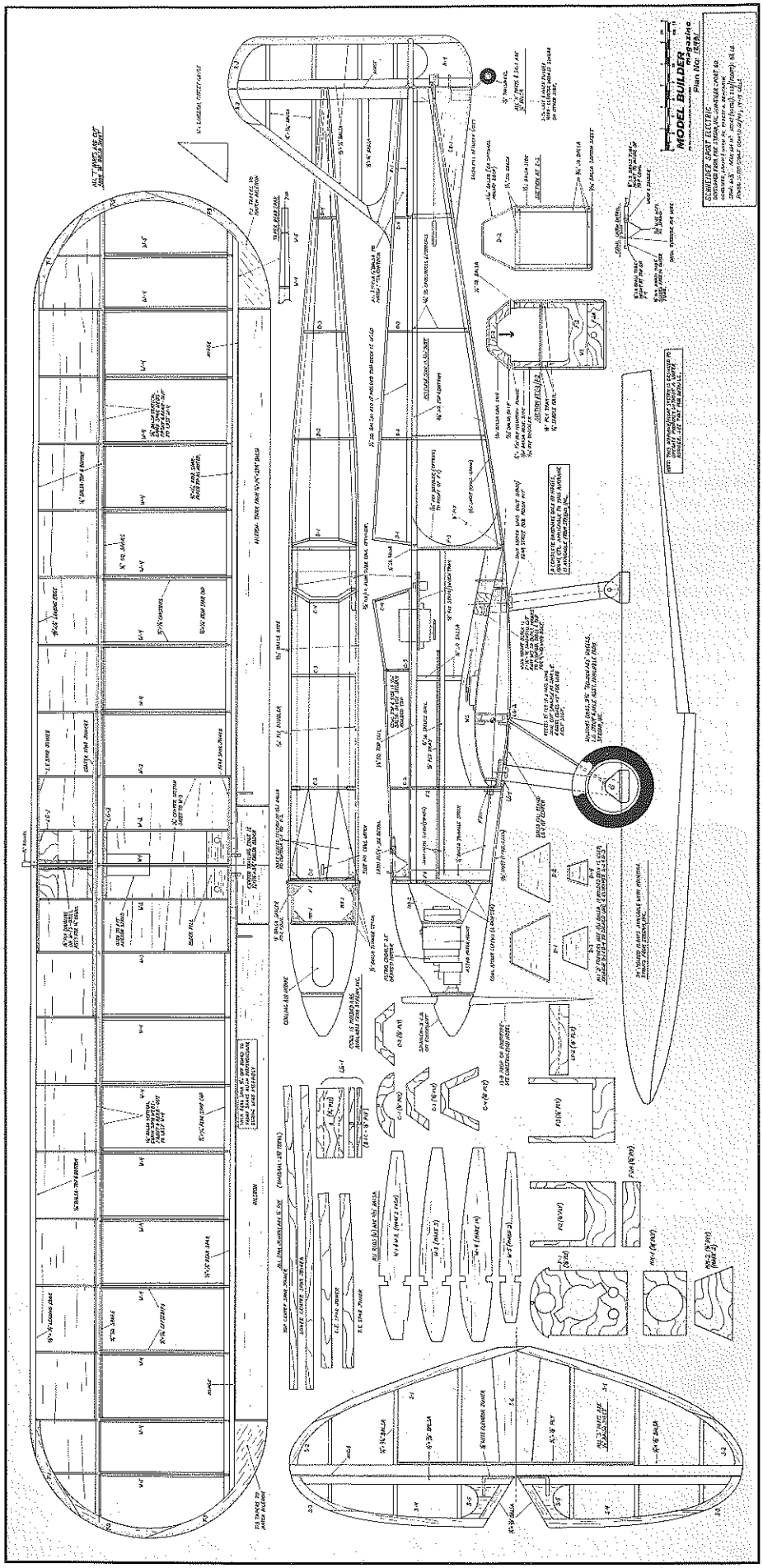
Tom Strom designed the floats used with the Schneider Sport series to be both efficient and attractive, with an appearance reminiscent of the same vintage represented by the airplanes. My tests confirm Tom's claims that the floats present a minimum of aerodynamic drag and allow exceptionally easy planing and takeoff. Moreover, I found it true that by following Tom's procedures, the Stream floats, used as designed, offer the option of good water handling and excellent flight characteristics without the complexity of a water rudder system.

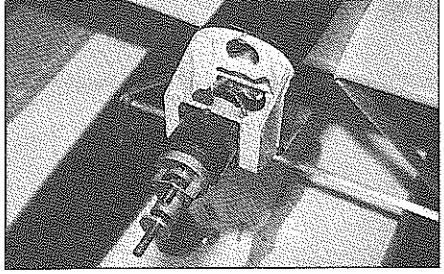
I know there are many of you who honestly aren't comfortable with the idea that electrics will perform the way we say they can. With this in mind, a 21-minute, professionally made, broadcast quality video has been produced and is available to help you decide whether this airplane and/or electric flight in general might be for you. The "Schneider Sport Electric" video is available from Videoland Productions, Inc., 805C College St., Lacey, WA 98503; (206) 491-1333. Cost is $14.95 plus shipping. Phone orders using your Visa/Mastercard, American Express or Discover card are welcome.

It was anticipated from the start that the electric version of the Schneider Sport would appear as a magazine construction feature and would also serve as the basis of possible future kit production. With this in mind, as much commonality as possible with the Schneider Sport 60 kit was retained. The entire float assembly, including all struts and hardware, as well as the nose cowl, landing gear assembly and most of the kit hardware pack will fit the electric version without modification. In addition, an optional ABS top cowl/rear deck is available; one of these was used on the prototype. Contact Stream, Inc. directly for parts ordering information: P.O. Box 1113, Newport News, VA 23601; (804) 591-0720.

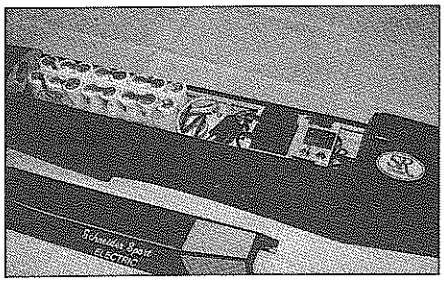
Power for the Schneider Sport Electric prototype is an Astro Cobalt geared 25 system, controlled by an Astro Model 207 speed control. First flights were made using the nominal battery pack of 14 cells—specifically, SR 1200 Max cells. The airplane performed well with this power. If you can keep the total flying weight at around 6-1/2 pounds, you can expect excellent performance on 14 cells. Prior to making the flights for the video presentation, I installed a pack of 16 SR 1800 Magnum cells. The extra voltage is well within the design limits of the motor and provides really crisp performance, and the extra 50 percent current capacity of the 1800-mAH



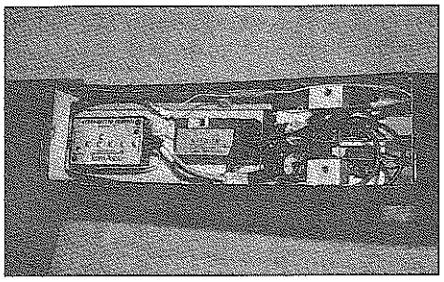




Removing the cowl reveals the Astro 25 installation on its built-up plywood mount. There's plenty of room up front for a geared Astro 40 and 18 cells, for those who *really* want to tear up the sky.



Forward fuselage top is removable for quick access to the battery pack. Batteries rest on top of a removable plywood tray, speed control and receiver are directly underneath.



Underside view with the wing removed shows the Astro 207 speed control, Airtronics receiver and rudder and elevator servos.

cells allows flights on the order of 7 minutes with proper power management.

The fuselage will easily accommodate a geared Astro Cobalt 40; a pair of 1/4-inch square hardwood spacer blocks between the motor brush holders and the back of former F-1 is the only adjustment necessary. There is also enough space for the nominal 18-cell battery used with the 40. Although I haven't yet tried this combination in my airplane, I have no hesitation in recommending it for those with some experience in electric flying.

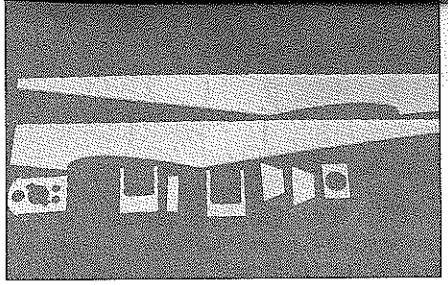
CONSTRUCTION

(Editor's note: It's always been Model Builder's policy to include a reprint of the author's construction notes with each plan we sell, and the Schneider Sport Electric is no exception. However, because the building instructions Bob supplied with his text are quite lengthy, we've decided not to present them here. Instead, the following are Bob's notes on electric float flying, with emphasis on the special characteristics of the Stream floats. The complete set of building instructions will be furnished with each full-size plan order.)

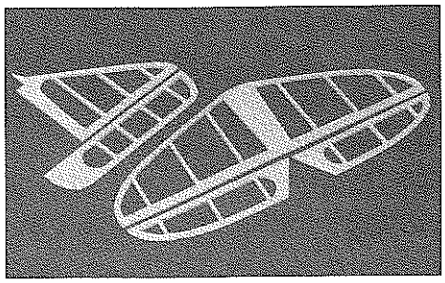
BOB'S FLOAT FLYING NOTES

Although many good articles on the sub-

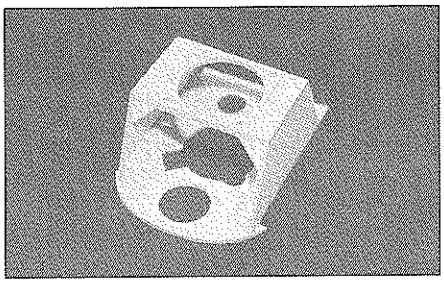
Here the sheeted left-hand wing panel is being joined to the partially finished right panel via 1/8-inch ply upper and lower spar joiners. Note that the spars are shear webbed on both sides with 1/16 balsa.



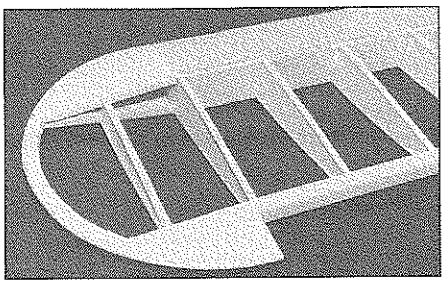
The individual fuselage components ready for assembly. Fuselage sides have had the plywood doublers, WS (wing saddle) pieces and longerons added.



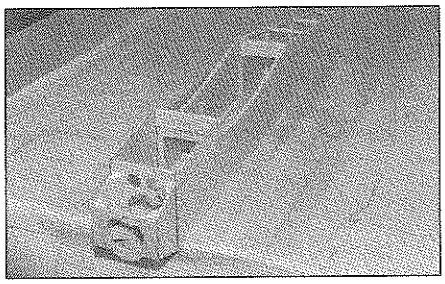
Tail surfaces are simple built-up structures of 1/4-inch balsa.



Motor mount is built of 1/8-inch plywood and gets epoxied to the firewall (F-1). Diagonal cutouts in the big hole in F-1 are to clear the Astro cobalt's brush holders.



Wing construction is completely conventional—just be sure to keep it light!



The basic fuselage structure is assembled in place upside down over the plan with F-1 just off the edge of the building surface.

ject of float flying have appeared in the various magazines, many of you will not have seen them and may not have access to the relevant back issues. Moreover, the Stream float system is different from what most modelers are used to in that it is designed to operate without a water rudder. This alone makes some explanation necessary.

There are a number of aircraft and float or hull configurations that will allow you to fly from water, but the twin float arrangement used here is the most common. The floats support the airplane while at rest on the water and while moving slowly by displacing water equal in weight to that of the airplane, and are designed to plane or ride up onto the surface of the water to minimize water resistance so the airplane can accelerate to takeoff speed. On landing, the floats plane until speed decreases, then sink back into the displacement mode. Good float design maximizes the ease with which the floats plane and leave the water, and allows for steering while in the displacement mode.

By virtue of careful design, the Stream floats operate in the displacement mode without the use of a water rudder. This eliminates extra weight and complexity and makes converting from wheels to floats as easy as possible. Most float designs, when used without a water rudder, will not turn the airplane reliably when in displacement, especially when trying to turn crosswind. The Stream system accepts the reduced ability to make tight turns at very low speed in any appreciable wind in the interest of offering a float system that is incomparably easy to set up. By using moderate power, on the order of 1/4 to 1/3 throttle, airplanes equipped with these floats can be water taxied very satisfactorily, and with a little practice can be operated safely wherever traditional setups can.

The Stream system offers one real advantage over traditional floats. In full-scale operation, water rudders are retracted prior to beginning the takeoff run, as they become dangerously sensitive at planing

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SCHNEIDER SPORT ELECTRIC

By Robert A. Benjamin

SPAN	62-3/4 in.
WING AREA	664 sq. in.
FLYING WEIGHT	7 lbs. (wheels), 8-1/2 lbs. (floats)
WING LOADING	24-29 oz./sq. ft.
OVERALL LENGTH	46-1/2 in.
POWER	Geared Astro Cobalt 25/40; 14-18 cells.
RADIO	Four channels required.

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speed. Very few models use a retractable rudder, with the result that a heavy hand on the stick at high speed can cause an upset. With no rudder in the water, high speed control and "step turns" are much less demanding.

To taxi the model on the water, add power until the front of the floats begin to rise and the airplane begins to squat down at the tail. You will see that as speed increases, so does the spray thrown by the floats, but you will also notice that it is thrown out to the sides and does not get into the prop. If no significant wind is blowing, you will find that as soon as the plane is moving fast enough for the nose to begin to rise, you will have rudder control and will be able to steer the airplane well. As ambient wind speed increases, the airplane will show an increasing tendency to want to turn into the wind, and you will need to increase power to maintain directional control. At no time should you need to add power to the extent that the floats are beginning to plane.

The hardest thing will be to turn out of the wind. The trick is to use short bursts of increased power and full rudder. The Stream floats have a wide enough forebody that you can safely use forward stick (down elevator) while doing this to get weight off the rear portion of the float and tighten the turn. With a water rudder airplane, this would be counterproductive; keeping the tail down with back stick keeps the water rudder submerged and effective.

I would suggest that you commit a couple of battery charges to taxi practice before flying the airplane. Be sure to keep enough charge in reserve to get back to the beach; you will be using a lot of current even at moderate power settings compared to what would happen in flight, as the prop will not be unloading. Don't go to full power until you intend to take off, as this airplane will be ready to fly before you are!

When you are confident that you can put the airplane where you want it on the water, you're ready to fly. The rule with any floatplane is to take off directly into the wind. Arrange your flying site so that you can do this without compromise. The ideal water surface condition is lightly rippled, with winds of 5 to 10 mph. Strong or gusty wind and heavy chop is the signal to go do something else. Glassy water can be a real problem with improperly designed floats, but this airplane and the Stream floats handle it effortlessly, as the video proves.

Taxi the airplane out just far enough to assure a clear takeoff path and reduce power; the airplane will align itself into the wind. Smoothly add full power. With some float setups it is helpful to hold full up elevator as the plane begins to accelerate, then push the stick forward slightly to ease the floats into a planed condition. With the Stream floats the Schneider Sport Electric will plane without help; just stay off the elevator and use the rudder as necessary to maintain heading.

If there is any wave action at all the airplane should fly itself off the water within 50 feet or so of the point at which it planes. On very smooth water, once you see that the floats have planed and the airplane has accelerated, *gently* ease the stick back and the airplane will leave the water. Don't pull the model off the water abruptly, as it is heavier with the floats mounted and you might end up dunking it and going swimming. Once the airplane has gained a little speed, go ahead and fly it normally.

Plan to land while you still have battery

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power left to taxi back to the beach. Set up an approach that is a little higher and closer in than you would use on wheels. Get level on final approach while you still have 20 feet or more of altitude and fly the airplane down to the water in a level attitude. Land a little faster than you would on wheels—at least at first. The idea is to let the floats touch the water with the afterbody (rear bottoms) parallel to the surface; that is, you put it back on the water in the same attitude in which it left. With some practice you may find that this airplane lands most smoothly on water with a gentle touch of power added just before touchdown. Keep a bit of power on as the floats settle, and use your new water taxiing skills to bring the airplane back to the beach, where you will be most justified in celebrating loudly! Following that, practice, practice, practice and send pictures of your Schneider Sport Electric! ***MB***