THE SYLPH

A No-Moving-Parts design for Rocket Glide

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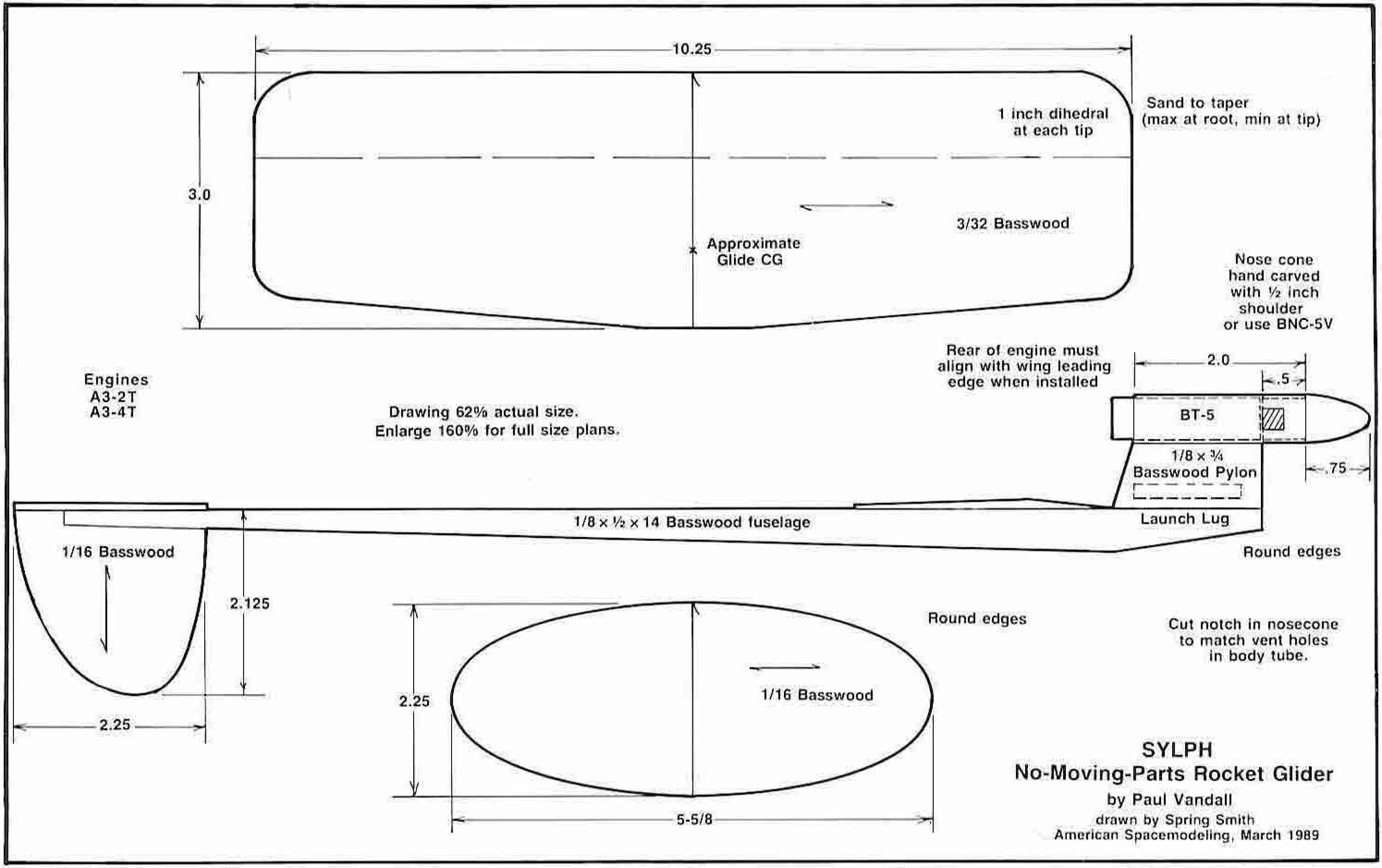
In classical ballet, a sylph is an illusionary night-time forest sprite of a girl who disappears when you think you've caught her. In other words, something of the mind that plays "hard-to-get."

That's exactly what "no-moving-parts" rocket gliders are: hard to get! Hence the name of this R/G, the "Sylph." This type of R/G must boost fairly straight, transition at burn-out and settle into a glide without moving any part of its construction. The **Continued page 9**



(Sylph from page 8)

balance point for boost is ahead of the balance point for glide. The center of gravity shift happens as the A3-2T motor burns out from full to empty. Once the engine casing is empty, the CG moves to the rear, usually about 3/4 of an inch. It is the loss of the weight of the fuel that allows the transition to glide.

The Sylph is built as illustrated, 8 parts in all, including the launch lug on the left side of the pod/pylon joint. Round the edges of the stab and rudder as well as the bottom of the boom and the front and rear of the pylon. The nose cone shoulder serves as the engine block. Cut a "U" notch in it to match the right and left exhaust vents cuts from the body tube as shown. Sand the wing tips to a taper. Apply one coat of clear dope to the model and lightly sand all surfaces smooth. Color the bottom of the wing, the stab, and both sides of the rudder with black magic marker so that the glider can be seen in flight.

The model is balanced for glide pre-flight with an empty A3-2T casing in the pod. A little trim clay was used under the leading edge of the wing/boom joint on each side. Another bit of clay was placed under the right wing tip to produce a right hand turn during glide. Performance may vary from model to model due to slight differences in wood weights. Balancing a glider of this type is a fine art in itself. Be patient. Before contest use, wring out the glide with a couple of test flights with A3-2T's, adjusting the clay as needed. Total weight, balanced and empty (without empty casing in place) should be about 16.8 grams. Fly the "Sylph" on a calm day. With a bit of luck in a thermal, she'll dance away true to her name!

Right, Mr. Reynolds

Why do gliders that defy all the "rules" of good aerodynamics, still seem to perform impossibly well? The answer lies with a creature known as Reynolds Numbers.

Without getting into the specifics of Reynolds numbers I'll say that our gliders fall into lower realm of values. It is known that "common-sense" aerodynamics begin to break down in this realm of flying insects and certain "impossibilities" are fact ...such as a bumble-bee being able to fly.Our smaller gliders are getting close to the realm of the bumble-bee. This leads to almost paper-thin "airfoils" that don't really lend to the efficiency of the wing. In flying so close to a "non-flying" speed and Reynolds numbers, smooth surfaces "stick" to the air...which means more drag, lower airspeed, and lower lift. By coincidece, our choosing to not finish these small wings to a glass-like finish may enable them to stay in the air when they "really shouldn't." The rough surface finish causes a laminar turbulence to become attached to the wing. This turbulent layer closely conforms to the shape of the winge and is "less sticky"...like teflon for air, and so we will often see an unfinished wing perform better. However, credit is mistakenly given to "saved weight."

(Reynolds continues page 14)