

The Giant Prancer

by Carl Lorber



A beautiful, graceful giant pod and boom radio soarer for wind-burned slopes and roaring thermals. And nothing can match these big birds when the lift is on the wane. PCS

radio, buried in a Hartman molded fiberglass fuselage. An Eppler 387 airfoil, 12 feet in span, orange MonoKote. Hard to resist with Spring around the corner.

Emerging from a cloud of balsa dust and epoxy vapor in the heart of Maryland's fabled crabgrass belt, comes the "Prancer." A superb R/C soaring machine, featuring all weather, state-of-the-art performance. Slim, streamlined and clean in design, this huge twelve-foot sailplane is equally at home drifting slowly in the boiling heat of a mid-summer thermal or performing precision maneuvers close to a mountain slope in the brisk, invigorating wind of a winter afternoon.

A thoroughbred in every respect, the "Prancer" is responsive and smooth at the controls, making her a pleasure to fly in any weather. The ship is maneuverable enough to be under control at all times and stable enough to give the pilot plenty of time to correct errors and misjudgments. It is heavy enough to be smooth flying in gusty weather, yet light enough to climb slowly in weak lift.

The inboard wing panels utilize the Eppler 387 slope soaring airfoil for superb penetration and speed when it is called for, while maintaining a good sink rate. Her wing tip panels incorporate the Eppler 385 airfoil, rendering the tip panels completely stall free. As the angle of attack is increased to a point where the inboard wing panels stall, the nose settles to a more comfortable angle of attack long before the outboard panels have time to stall. This aerodynamic compromising of airfoils allows the "Prancer" to circle tightly without the need for constantly adjusting the controls. Landing approaches can be made flying very slowly without fear of a gust upsetting the ship.

The low drag, flying stabilizer keeps the design flying fast in circles, maintaining a

good sink rate. A large rudder (7% of the wing area) and a low aspect ratio (16:1) makes her adequately responsive. A very strong airframe and knock off wing panels make a good combination for skyrocket winch launches and the rough landings associated with slope flying or spot landings.

The heart of this design is the all fiberglass fuselage manufactured by Dwight Hartman, from Argenta, Illinois 62501, Phone 217-795-2275. Those of us that have viewed Dwight's fiberglass products at the Toledo Conference in the past, know of his superb workmanship. Originally created for the "Dancer" design, this fuselage is prepared for a "V" tail configuration. However one evening's work cutting off the end of the fuselage for the rudder and cutting down the "V" tail fillets to accept the standard stabilizer and another evening cutting and installing plywood in the nose pod gives you a beautiful fuselage. It is ready to sand lightly, after which you can apply a thinned-down coat of Hobbypoxy "Stuff", and a color coat. Or perhaps you will want to build a "V" tailed "Prancer". Simply add another rib spacing to the stabilizer to increase the area and leave off the rudder. This will cut down the weight in the tail section considerably.

Dwight warns us never to use butyrate products on this fuselage. He sells a complete line of fiberglass filler and epoxy cements or you can use Hobbypoxy cement as I did on the original.

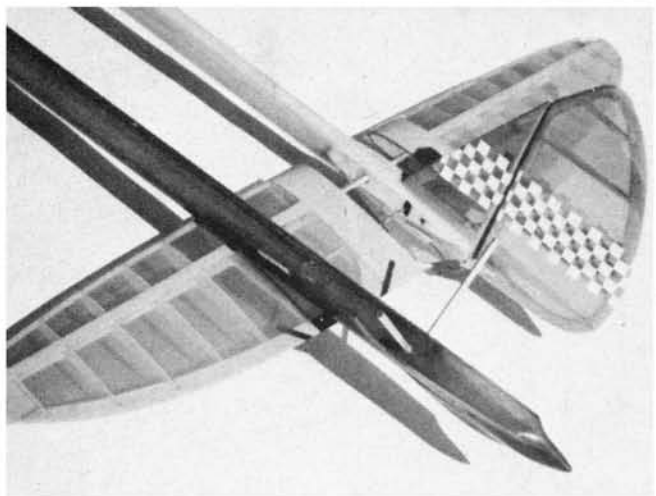
The fuselage has a plywood keel molded in at the time of manufacture as well as the tow hook receiver tubing. Also molded into the fuselage are markings for accurately cutting the slot for the 7076-T aluminum

tongue which is included with the fuselage as well as full length sitka spruce spars for the wing. The fuselage keel is cut out to accept nylon bolts to fasten the bottom fuselage pod to the main fuselage. My plans indicate a wooden slide-lock that works very nicely and eliminates the need to loosen two screws to get into the radio compartment. The complete bottom of the nose pod comes off, which requires that the radio installation be upside down in the fuselage and renders the radio installation extremely easy to get to with plenty of room for big fingers. I installed my large PCS system in the upper fuselage portion of the pod as the plans indicate, leaving room aft for a Thermal Sniffer and the bottom of the pod is completely empty. Lots of room for your lunch, a thermos of coffee or extra batteries, etc.

The fiberglass sections of this fuselage are completely finished and joined and ready for paint. They do not need any joining of fuselage halves or filling of joints, Hartman has already assembled the mold sections and it is ready for finishing. Pushrods are included in the fuselage, but will need re-positioning for the new tail configuration. The wings are extremely strong and will tolerate a lot of abuse. They are simple to construct and should not take more than four or five evenings to complete. Consider only epoxy glues for the tongue section of the wing, both for laminating the tongue receiver and cementing it into the wing panel. Twist in about 1/4" of washout in the tip panels only (trailing edge up).

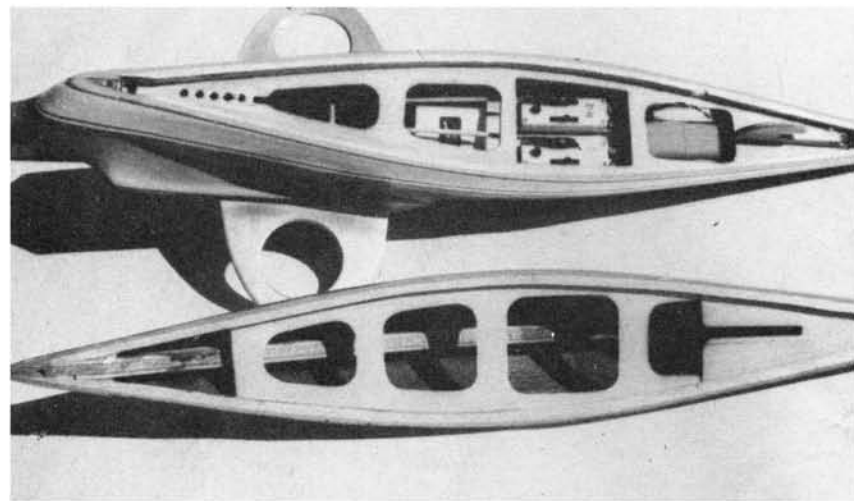
When converting the "Dancer" tail section for use on the "Prancer," I first cut the

Photos by the Author

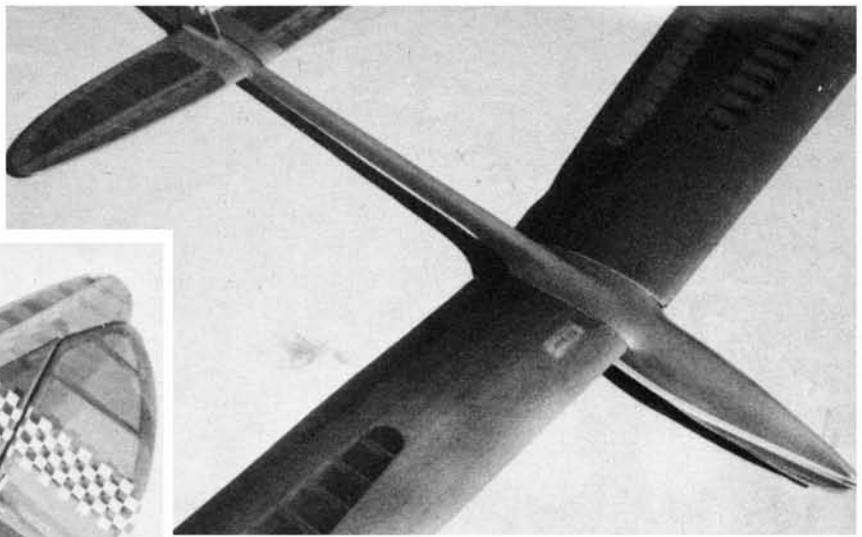
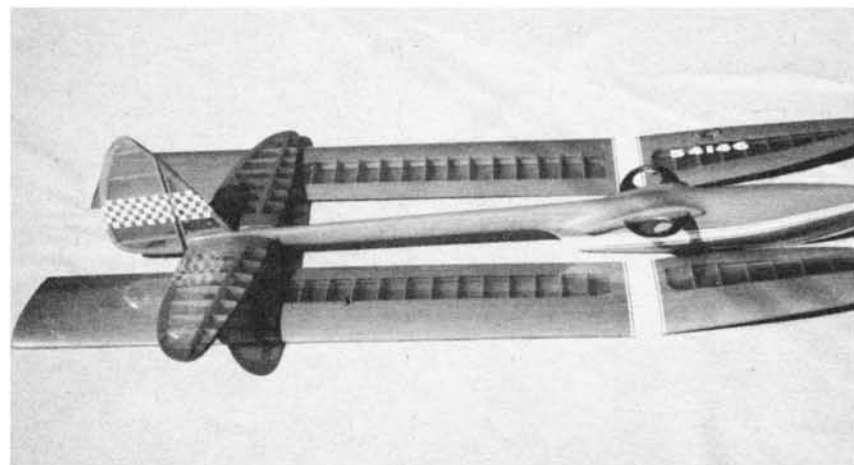


Aluminum tubing holds all together, easy, light and strong. Flying tail works to perfection, eliminates the need of hinged elevator surfaces too.

The fuselage comes apart at the paint trim line. Ample cubic content for PCS radio and others of larger size. Note wooden hook and slot which is used to hold the nose section together. A bolt fastens the rear of the pod.

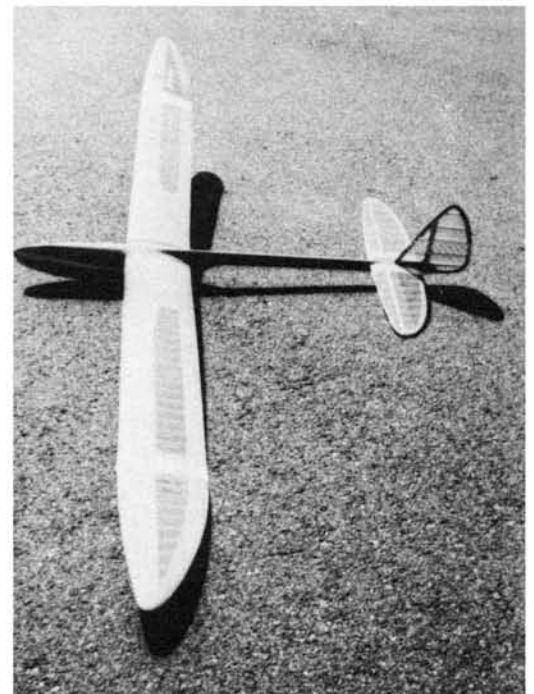


Design was finished with Transparent orange MonoKote and matching custom mixed Hobbypoxy with white trim. Wing comes apart into six-foot panels.



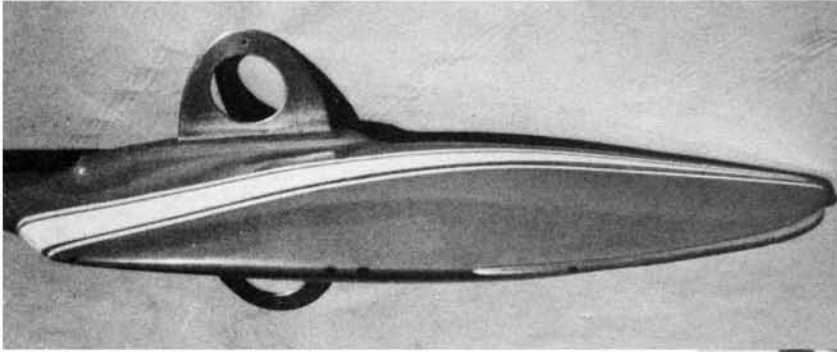
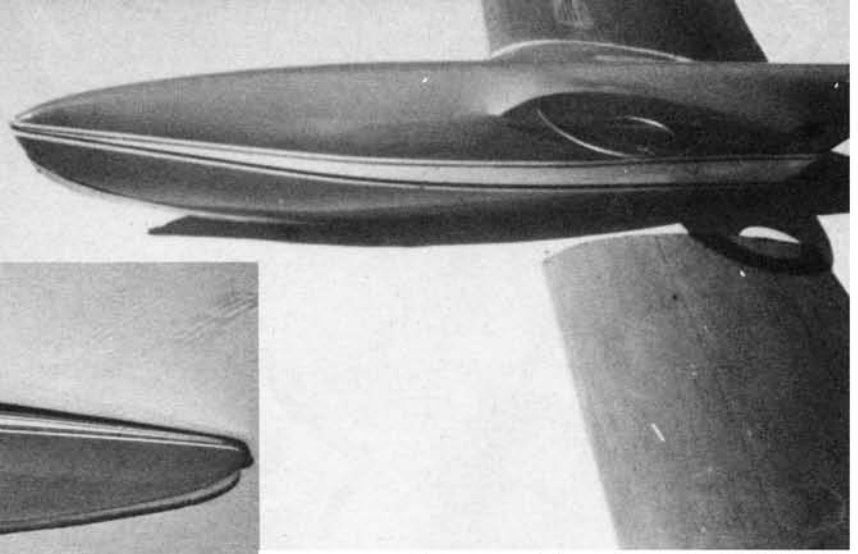
Fuselage has an extraordinary amount of space for equipment, yet a minimum of wetted surface.

fuselage off as indicated on the plans and epoxied the rudder into place. Next I cut down the "V" tail fillets, filed them square and parallel to the fuselage centerline, then epoxied the stabilizer ribs (F-7) to the fuselage. If any large gaps are present, fill them with fiberglass cloth and resin. After this is all cured, fill the remaining space with Hobbypoxy "Stuff", or an epoxy filler to a shape similar to that shown in the photos. Next cut off the bottom of the fuselage tail section so you can install the control horn for the flying stabilizer. Note that the tubing used on the flying stabilizer is not cemented into place. There is no tubing in the stabilizer panels. The stabilizer pivots on the large forward tubing and this same tubing supports the stabilizer. The small tubing keeps the two panels working together and converts movement from the pushrods and stabilizer control horn. A



The boom emerges above the wing with an underslung pod effect housing all PCS radio system.

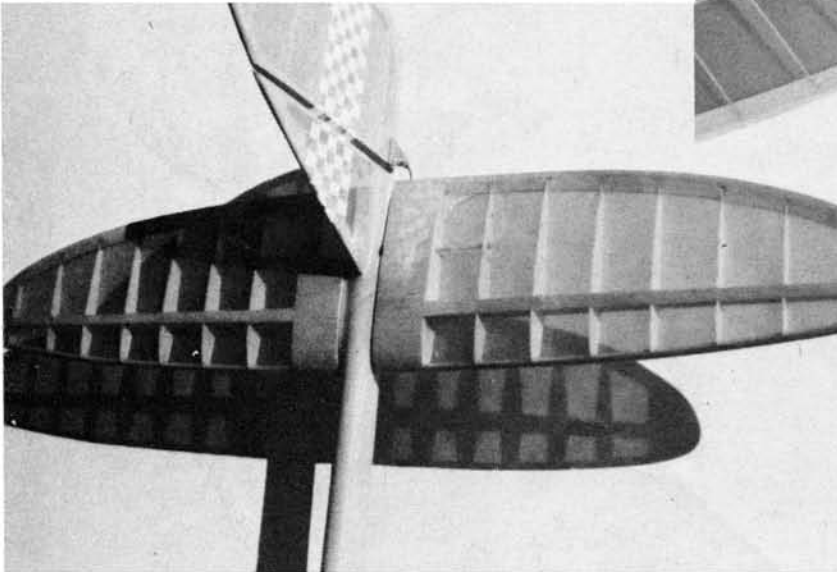
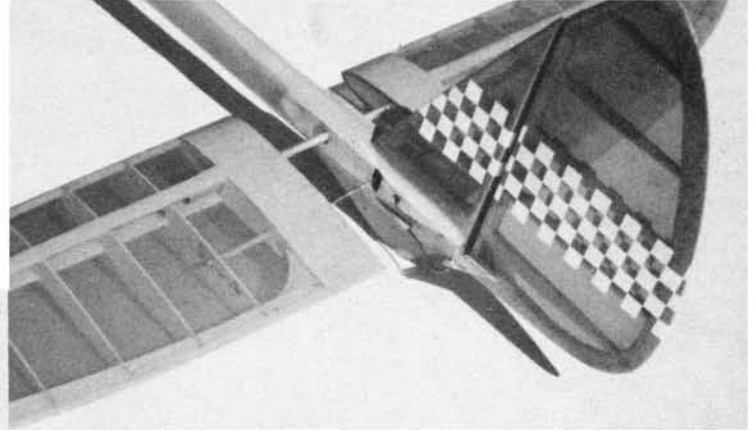
Wings slip onto the aluminum tongue. A toothpick locks them in place and shears if need be on hard impact. The ship is well developed, practical.



Aluminum nose skid saves wear and tear on fiberglass pod. Note the tow hook receiver positions.

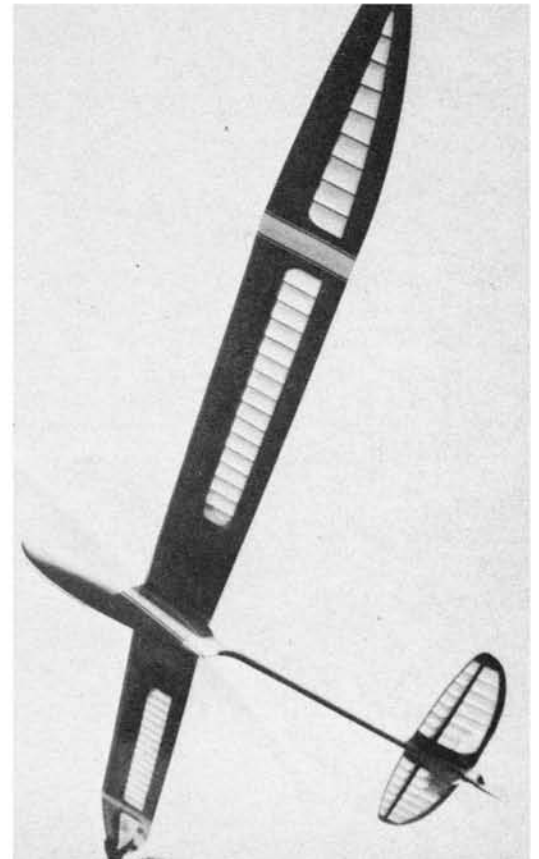
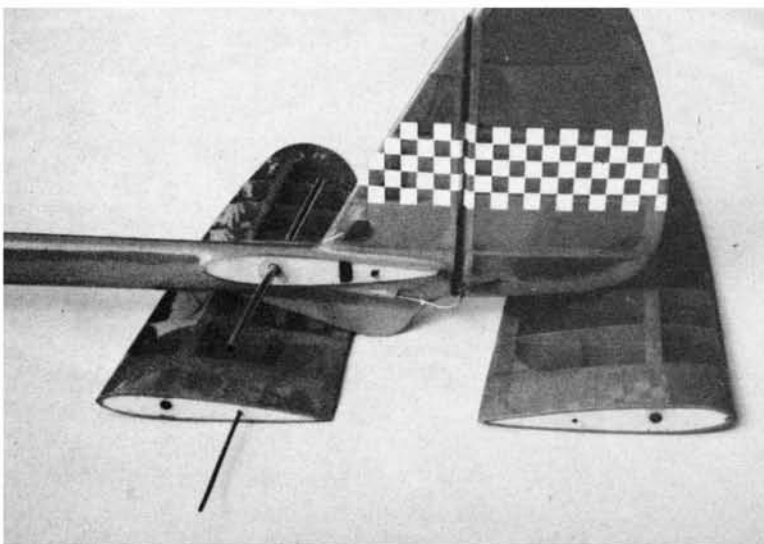
Just an evening's work converts the "V" tailed "Dancer" fuselage into the "Prancer" fuselage.

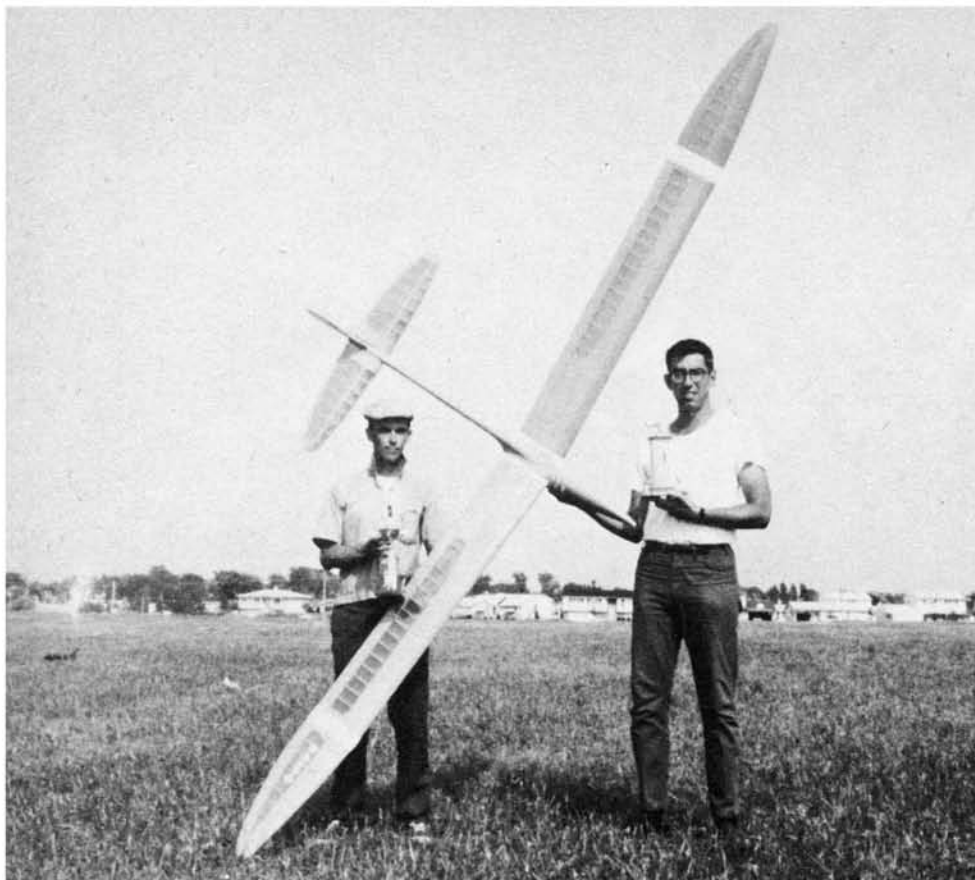
Tail surfaces are lightly built, make it easy to balance out the aircraft at nose. Build very accurately for a close fit, good streamlining.



MonoKote on each side of the rudder touches at the hinge line, providing a hingeless rudder without an airspace between the fin and rudder surface.

As models grow in size, the need for stab area lessens. The soaring ship is a stable aircraft.





Jack Hiner (on the right) after flying Carl's "Prancer" to 2nd Place in Soaring Nationals in Chicago. Carl holds trophy for Best Original Design.

snug fit is desirable on all the above mentioned tubing.

The only part that is critical on this design is the stabilizer control horn. The slot that is cut to allow the tubing to slide as it controls the stabilizer is very critical. It must fit loose enough so as not to bind or stick, yet it must not have any play. Use a material that will not change size with temperature or humidity change. I am using a converted nylon control line bellcrank with excellent results. Make several until you have one that you feel is working properly. Time spent here will assure you a smooth comfortable feeling at the controls, and that is what makes any airplane a pleasure to fly.

I spent two weekends and the evenings between building my "Prancer." Just eleven days from material selection to decals, good time for a twelve-foot sailplane. The design had only one test flight, to check trim, before it was taken to Chicago for the Soaring Nationals.

Lending the "Prancer" to Jack Hiner for the two days of the contest proved to be quite exciting as Jack acquired a second place position on the first day and maintained that position the second day of the contest. Jack mentioned that the aircraft did not require any practice flying to become familiar with it, because it had no unusual traits. Even spot landings were attempted on the first flight.

The "Prancer" was also awarded the trophy for "Best Original Design" at the Soaring Nationals which made this contest particularly exciting for me. Good luck with yours.

