

# THE "DEPERDUSSIN"



Well here I am again trying for another nervous breakdown. Another antique! The *Blackburn*, *Demoiselle*, *Bristol Brownie* and *Antoinette* weren't enough—I had to pick on one that the original designer either ran out of drafting paper or construction material because he never did finish the front end. There is no front end!

We now bring to you another 2" scale replica of a classic aeroplane of the early 1900 era. It's called the *Deperdussin "B"*; the "B" signifying the military version. This is also one of those aeroplanes used in "Those Magnificent Men," but was not seen flying because it was one of the two originals in the film. The *Blackburn* and the *Deperdussin* were loaned to 20th Century Fox for the film by the Shuttleworth Trust and were only seen briefly throughout the film. The *Deperdussin* is said to be in excellent flying condition and is of original design and structure and like the *Blackburn*, it is kept in this condition by the Shuttleworth Trust. The *Deperdussin* was built about 1911 and had a wingspan of 28 feet 10-1/2 inches, and a length of 24 feet 11-1/2 inches. With a total wing area of 263.72 square feet, it could attain a speed of 65 mph. Covering was oiled cotton on the fuselage, tail and wings, plywood on the cockpit floor and ventral fairing and an aluminum cowling.

In the year 1911 following the beginning of the company and the Circuit of Europe race, no less than seven *Deperdussin's* were entered and third place was won in that race by a chap by the name of Rene Vidart. In another race in August 1912, Maurice Prevost won second prize with his Gnome powered *Deperdussin*. Numerous other cross-country races were won by *Deperdussin's*.

The fuselage was constructed of a single box-girder type and was quite shallow. It was said that it appeared as though the pilot sat "on it" rather than in it, and as

All set to get gravelled to death. One takeoff run on these rocks should vibrate the rigging loose. Not a hard crate to fly when balanced nicely.

Sparse and basic thoughts formed the fuselage and undercarriage. Wheels are homemade so to speak, details shown. Dial cord rigging, open frame.

can be seen in the photos of the model, this appears to have been quite true.

The wing was of the two spar type with the usual amount of ribs, etc. We changed at this point to incorporate ailerons, which I think aid in making it a stable, flyable scale replica. The landing gear had to be moved forward 1-1/2" to acquire good ground tracking and takeoff. It's very noticeable that there is no structure beyond the leading edge of the wing; since the C.G. should fall at about 30% of the wing chord, we did have our problems in overcoming this little gremlin! After installing a certain (?) amount of lead, we tried to launch (?) the *Deperdussin* with a .19 on the checkout trials. Needless to say, this just didn't work out at all. (Something in the class of driving the *American Eagle* with an .049). We rearranged the entire R/C equipment installation, moving it farther forward to balance the model. We also installed a used .35 of unknown condition—you guessed it—it wouldn't start! Then we installed our good old standby—the Fox .36X R/C.

We then removed the tons of lead that I had spread like cream cheese all over the front of the plane. A one-half pound chunk of concentrated lead was installed directly under the engine just aft of the prop. All kidding aside, for those who will endeavor to build the *Deperdussin*, or any other of this type; remember to keep the rear of the plane *light* in material and structural design. But don't sacrifice structural integrity or your whole project will go up (down) in a cloud of silk and little bitty, bitty pieces.

The Fox .36X provided enough power for scale takeoffs, but we later changed to a Veco .45 to assure ROG's from grass fields. The prototype weighs 5 pounds; with four square feet of wing area. This gives a wing loading of 20 ounces per square foot, which makes it easy to fly and dead stick landings are no problem.

Flying wires should be used as shown in the fuselage construction for torsional rigidity. The wing wires are for appearance only, as the wing is built strong enough to fly this model without the rigging. Since you need weight up front anyway, you could sheet the top and bottom of the forward two inches of the wing. Also an oak, maple or lead leading edge would help!

We digressed from the original on the wing design and added strip type ailerons, so we could use full house proportional. The prototype R/C gear was the Bonner 4RS System. You can change the system installation, but keep in mind the C.G. location! If you can afford the time, it's also an advantage to build yourself a saddle type gas tank and mount it directly behind the engine on the firewall.

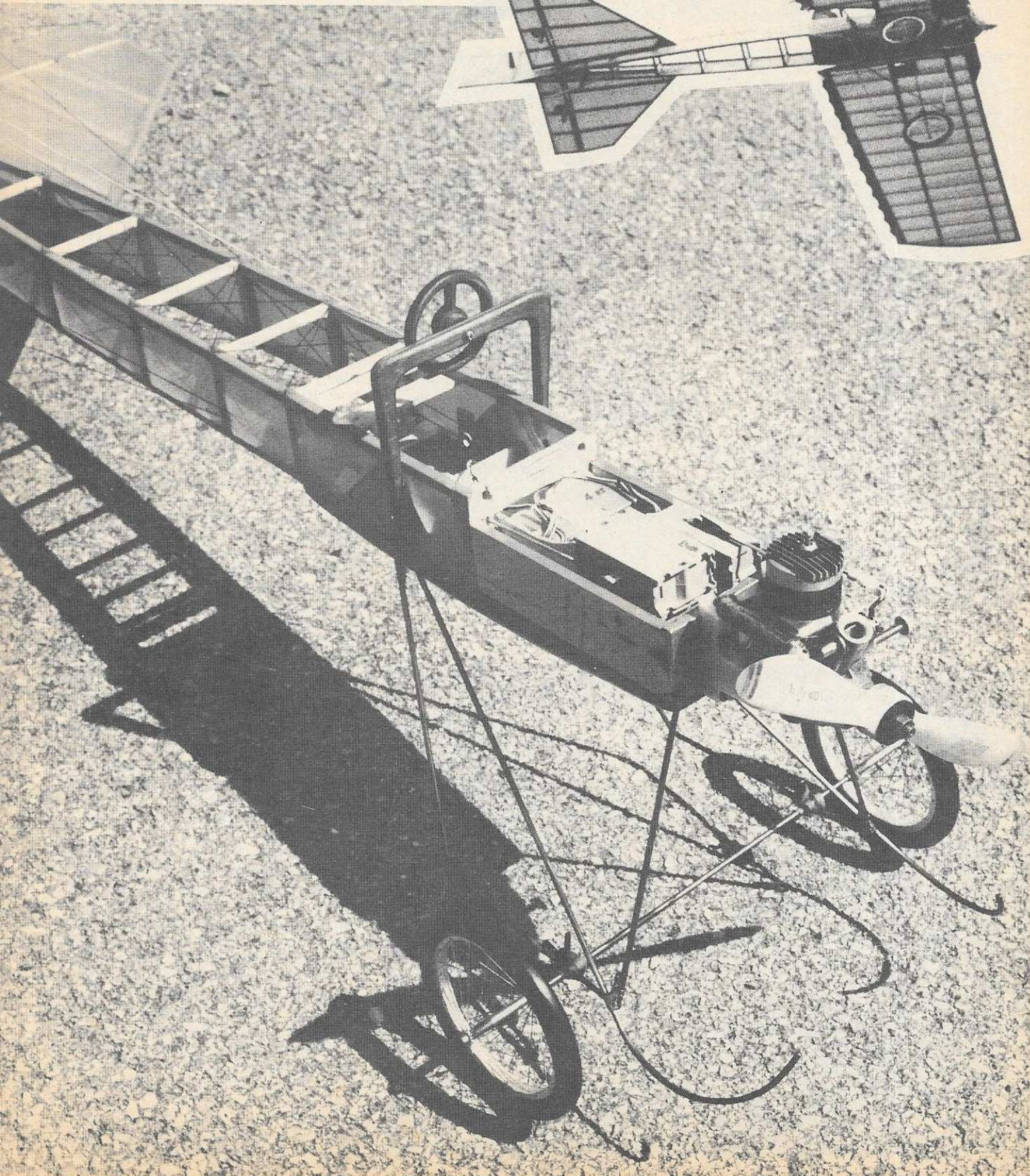
In addition to this, you may want to super-scale the front with Williams Brother's Cylinder Heads, as the original had a Rotary Engine. The hollow heads can become the ballast areas (fill with lead and epoxy). You may wish to use a couple of these cylinders to conceal a gas tank.

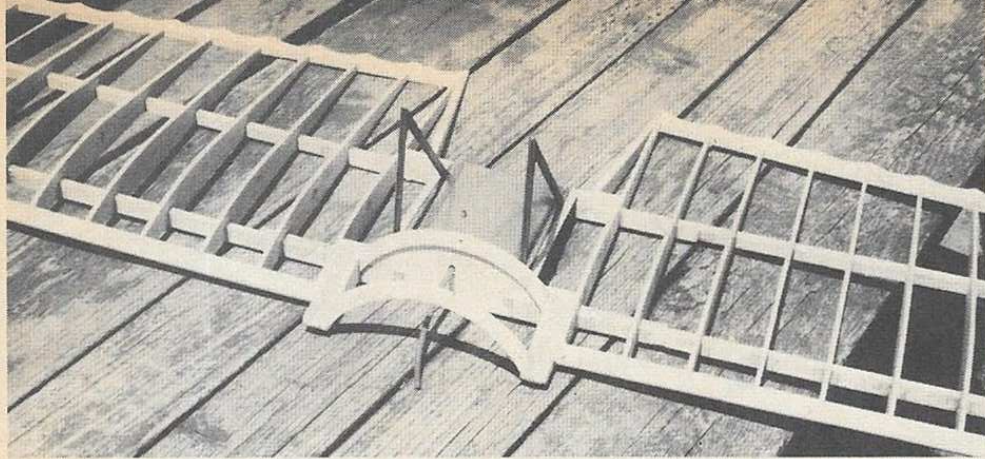
I'm telling you "straight out" that you can't stunt this ship, unless you install a .45 or .50. The first test flight with that .19 gave me quite a turn, and I said to myself, "Oh me, back to the drawing board

Turn back the hands of time: It's 1911 and the Deperdussin B was the latest thing in Air Racing. Seven entered the 1911 Circuit of Europe Race. One of the "Magnificent Men" type ships and Vern's fifth in a series of Semi-Scale nostalgic birds.

It's a rough ship to balance, so build it light as you travel aft. Dubbed "Old No-Nose" by a fellow club member. An ancient aerial machine.

by Vern Zundel

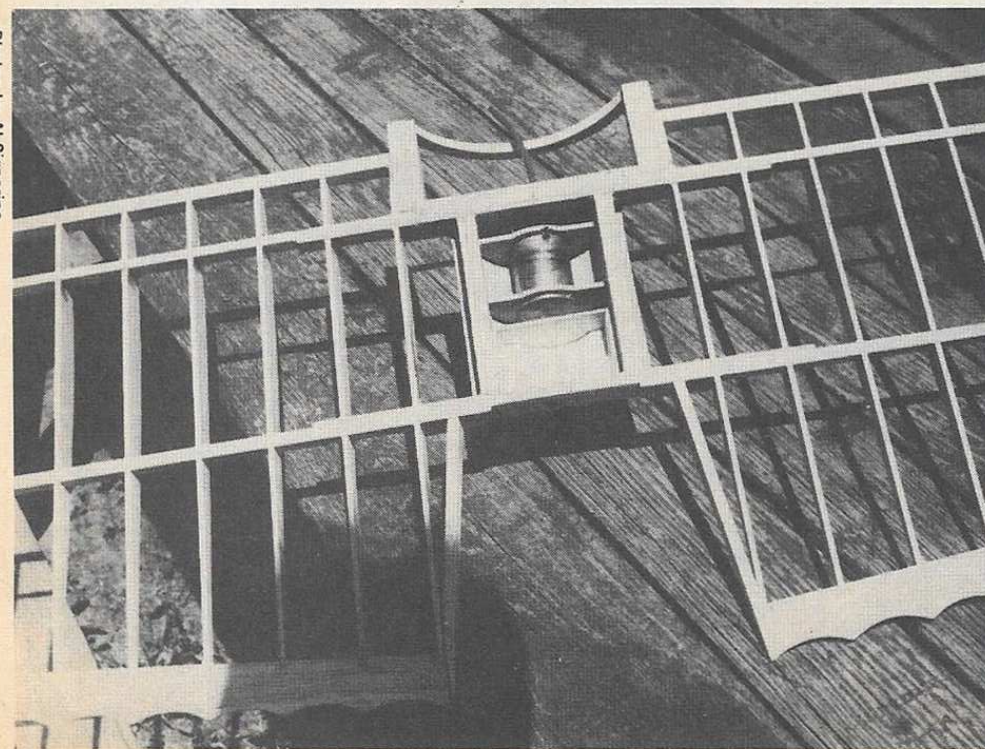




The frame of the wing as seen from above. Note trailing edge is scalloped, center gusseted.



The wing is simple and true. Tail surfaces are basic, the way they were. Generally the ship is an easy one to assemble, wheels take some effort.



again!" At this point, I asked the Mrs. to put on the coffee and break out the glue bottle, so we could start modifying the ship. I was ready to start for the balsa store and see the man about a new .60 (and "blast it" she found out). "You're out of your tree," said she, and I ended up borrowing Al Signorino's Veco .45.

Like all prototypes, there will always be a modification or two. This I feel always does one a bit of good (and gives an ulcer or two). It's a good feeling when you can stop gluing parts together. The Mrs. had a comment at this point, "Why didn't you make it with four engines on it?" A typical modeler's wife! "Because it would set a precedent!" (Now I'll never get that new engine).

Keep in mind that there is no forward moment, and that equipment placement is most important. During building, you can cheat wherever you think it may be to your advantage. While constructing the fuselage (from cockpit to tail), for example, you may want to use 1/8" x 1/4" upright braces instead of 1/4" x 1/4". The prime object is to eliminate an ounce here and an ounce there. This will prevent using a massive amount of lead in the engine area later.

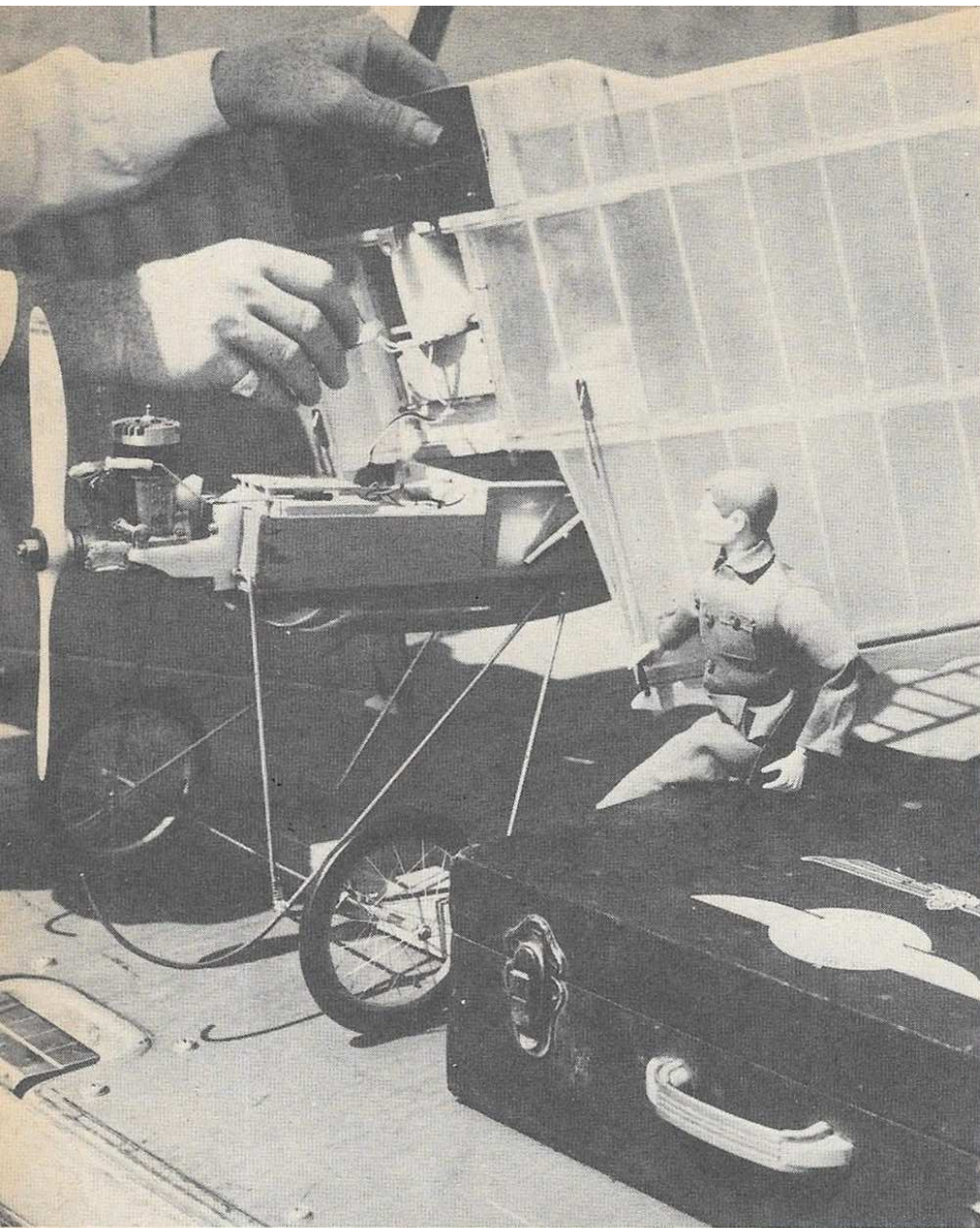
The gas tank location leaves you no choice as to size; you will have to fit whatever you have available or custom-make a tank. By the way... I didn't run out of silk on the fuselage; the original had an open top and bottom too!

Construction of the fuselage is started simply by laying two 1/4" sq. longerons on the side view and placing in the upright braces. At the same time, and before removal from the building board, be sure to fit F1-A and F1-B but don't join them together. The bottom piece is the only fixed section on the fuselage. If it's not too hard on the builder, I do recommend placing on the stress wires (heavy line) (also before removal from the plans) and be sure all the slack is removed. When the one side is completed and the glue has dried, remove all the pins and then lay a piece of waxed paper over the assembly and build your other side. When both are complete mount them on the properly squared 1/16" plywood floor section. Be sure the sides are set properly, install the front plate that is made from 1/4" ply and bulkhead FF-1. You can then join the very rear together; all that remains to be installed are the cross-pieces.

The cockpit floor is made from three layers of laminated 1/2" soft balsa sheet—hollowed in the center and rounded as shown on the drawings. We stained it with rubbed-in maple stain. Be sure to remove excess; then apply five coats of well thinned clear dope, which gives a good glossy finish. You may have to gouge out a section where the landing gear attaches, so check your final fitting with the gear attached, before a permanent installation is made.

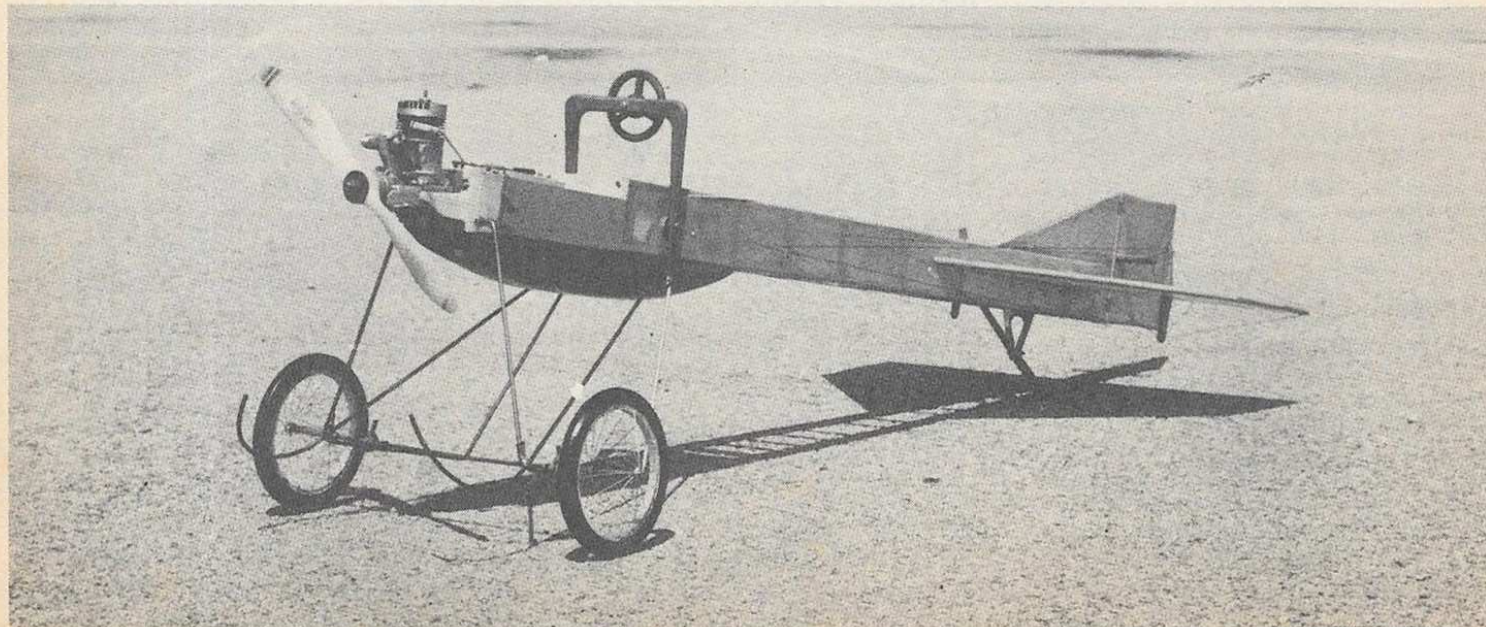
When installing the horizontal stab, it will be necessary to cut a diagonal on the section that is in the interior of the fuselage

Tank's in the wing, a good place for it, easily installed. Wing is stressed, needs no rigging.



G.I. Joe standing by while Vern plugs in the aileron servo. Ship has the look and feel of days gone by. It took brave men to fly in early years.

The "Deperdussin" handles reasonably on the ground. It is not intended for the novice in R/C, but it is within the realm of the average flyer.



as there is no means of installing this in one piece and the diagonal cut will form a basis of a perfect fit in this area. The rudder and elevator are straight forward and need no precise explanation (except to keep them light). The elevator coupling is made from a short piece of 1/8" dia. music wire, bent into a "U" shape.

When doping your plane, use four coats of well thinned clear dope on the aft section (from the cockpit back). On the rest of the plane I used six coats of well thinned clear dope. The detailing I leave to your choice. I used a modified G.I. Joe doll for the pilot. This is done by removing as much plastic from inside the clothing as possible and replacing it with light weight sponge rubber.

To add ailerons to the wings, just remove part of the existing trailing edge and add on the 1/4" x 1-1/4" ailerons. Detailing the trailing edge is optional, but it looks really good on the field.

You will notice that there are two different drawings of the trailing edge. This will allow the builder the option to build to his choice. I followed scaling of this plane from a book called "Pioneer Aircraft 1903-14", obtainable from John W. Caler, \$2.95, 7506 Clybourn, Sun Valley, California, 91352. It is an excellent pocket encyclopedia of world aircraft from 1903 to 1914, all in color, and I recommend it highly.

I would suggest that the engine hood be built up while the finished wing is attached to the fuselage. This will eliminate any errors in proper shape as part of the fuselage is fixed to the wing permanently.

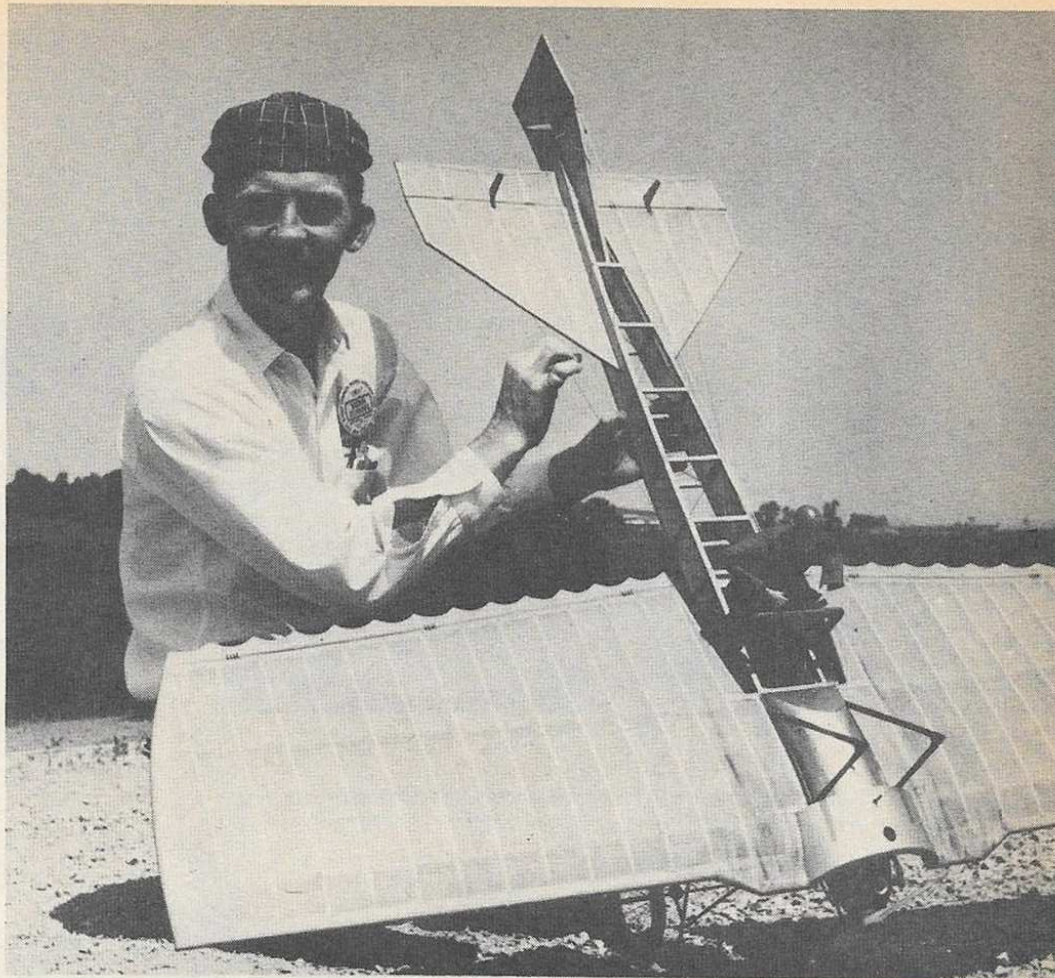
To install wing dowels, first lay a piece of wax paper across the radio compartment, then lay a strip of glue on the 1/8" dia. dowel plate. Install the wing tightly and insert the dowel pins through the holes in FF-1 into the rear spar of the wing and onto the dowel plate. This will assure a tight wing fitting. Let dry, then remove the wing and wax paper.

You will have to remove about 1/2" of the leading spar and forward wing brace in order to install the wing bolt bracket; an X-Acto razor saw comes in very handy here. The engine hood is sheeted inside and out with 1/16" balsa (top and bottom). (Refer to photos as well as plans.) Covering is gold silk, except for the bottom section,

which is stained. The engine hood, gas tank area and fuselage sides up to FF-1 were covered with TopCote and painted silver. Inside of the engine hood and front of fuselage were painted black.

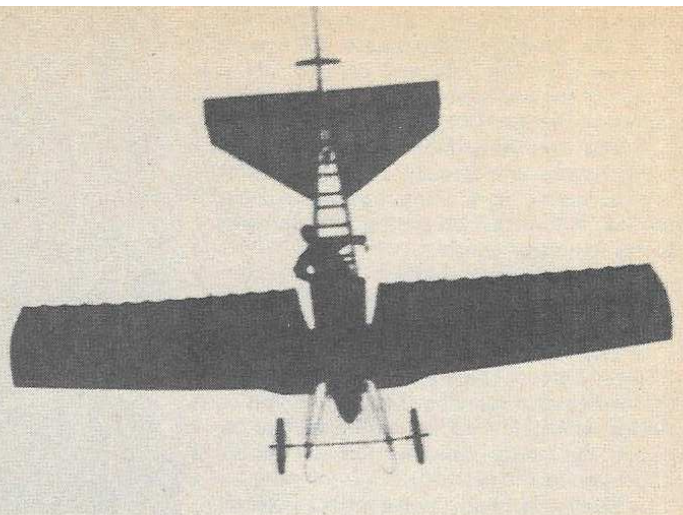
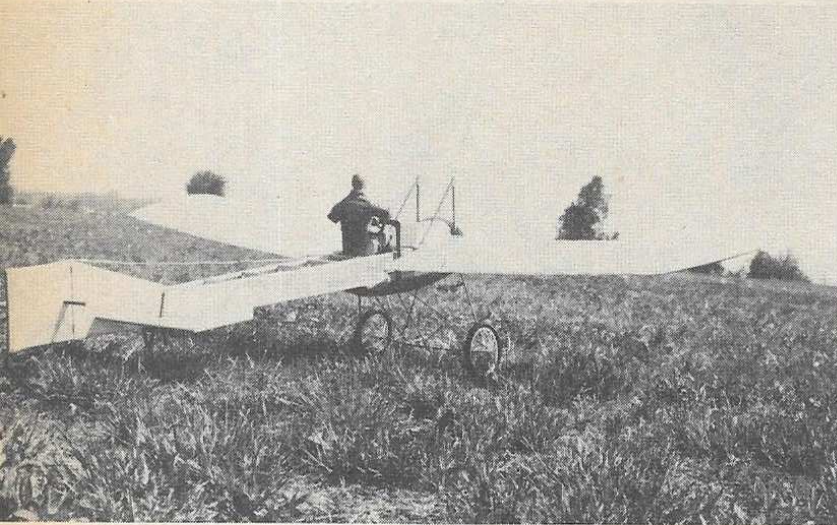
If you have been following the last few articles, you are already acquainted with my technique in making spoked wheels, so just follow the 10 easy steps and you won't have any trouble.

1. Draw all lines shown.
2. Draw all holes shown (spokes and axle.)
3. Cut away all four sections as shown, thereby leaving the outer ring attached by the center cross-section, being sure you do not cut through the 1/16" still attached between the center cross-section and the inside edge of the wheel.
4. Place axle bushing as shown in sketch, being careful of alignment (an equivalent amount of bushing should be exposed on both sides of wheel).
5. Place four spokes on both sides of wheel and permanently attach.
6. Be very careful and cut out the remaining wood cross-section, making sure not to misalign either bushing or spokes. If the spokes are tight, bushing will remain unaffected, suspended by the eight spokes.
7. Complete installation of remaining spokes on both sides. Set with a small touch of epoxy at wood. Soft solder at bushing.
8. Place balsa outer rings on both sides. Clamp with spring type clothespins till dry.



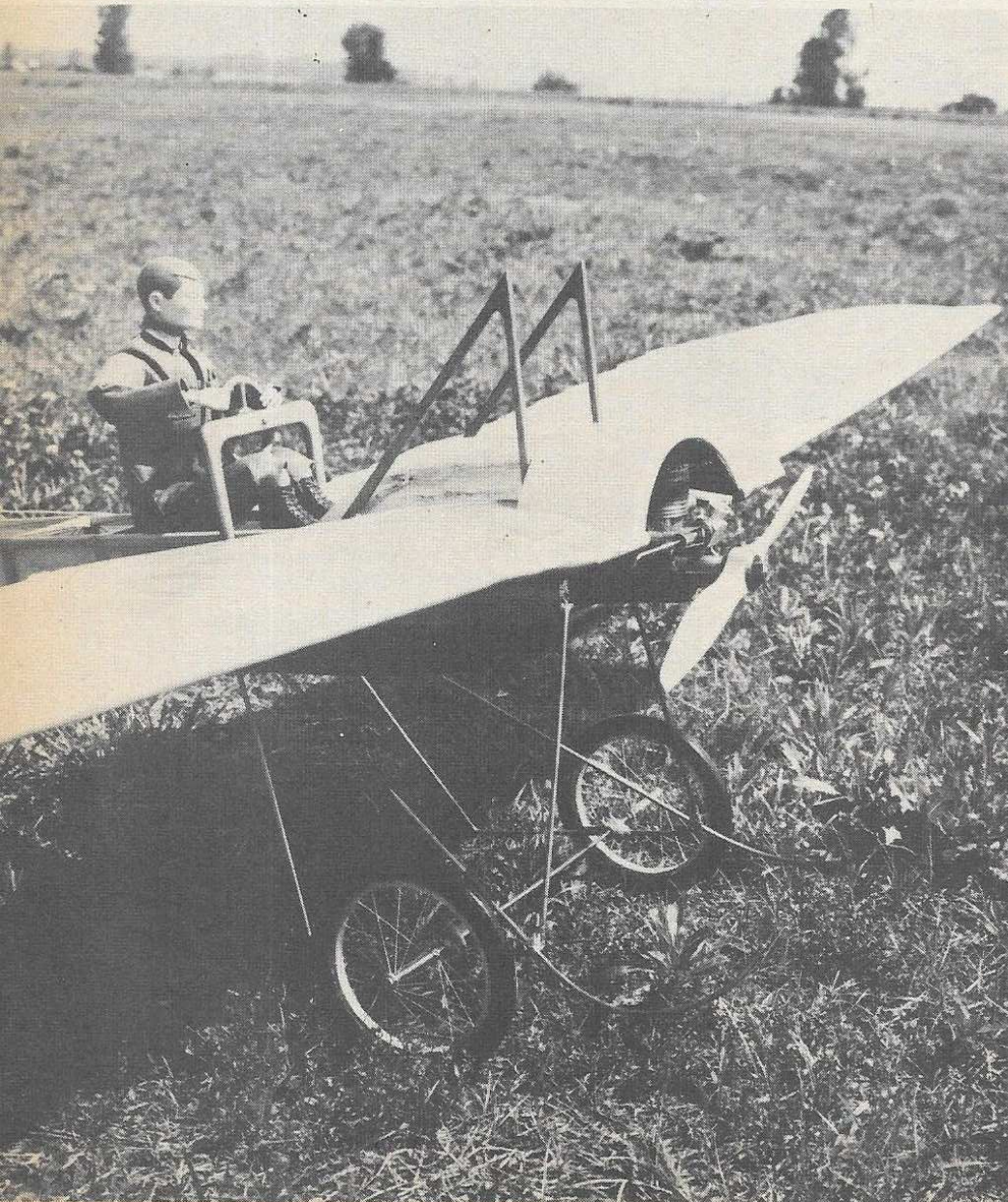
The ailerons are very thin, hardly noticed, though a deviation from scale deemed advisable. Gear is also moved forward a bit for ground handling.

Contemplating the flight. Facing the morning breeze, the ship stands ready to try its wing.



A little body-english always helps make a good left turn. Warping wings probably required it.

The Magnificent Man and his Flying Machine! Ship appeared in the movie, it is still in existence. Note pilot's exposed position, unhealthy spot.



9. Chuck a 1/8" dia. length of music wire, approximately 4" long in a hand drill and attach the wheel on this shaft. (You now have a hand lathe.) Secure tightly on shaft and start drill. Using coarse sandpaper, contour the spinning wheel to shape. Be sure to stay clear of the spokes. Finish with light sandpaper and finish near the spokes by hand.

10. Scribing of the outer surface to simulate rubber wheels was done by using the sharp tip of a jeweler's file, or it can be done with any sharp object, such as a metal scribe or knitting needle. Apply four coats of clear dope and four coats of flat black or dull black.

The entire wheel/axle assembly is detachable using wing hold-down rubber bands looped over the axle about four times. This action makes for good shock absorbing landings which can save the model from damage if you land anything like I do!

Before flight testing check the C.G. to make certain your model is not tail heavy. If you need ballast in' the nose, sling it under the engine. Putting it in the forward fuselage won't help much because of the lack of a nose moment. Install a good .40 or .45 to begin with and you won't have any problems getting airborne. Flight characteristics are no different than conventional models you've been flying.

It's a very low-cost aircraft to build and I think there is nothing more moving than to see an Old Timer banging away overhead. It brings a thought to mind of what it must have been like in the bygone days of aviation when man would fly anything that wasn't tied down (and they did too). Join us in the nostalgic feeling of flying something really different. Get a little hot castor oil in your eye. Order yourself a set of drawings and build yourself a *Deperdussin*; then put on your black knee boots, goggles, silk scarf, helmet and don't forget your aviator's gloves. Go out to your local field and drive the rest of the fellows nuts with envy.