



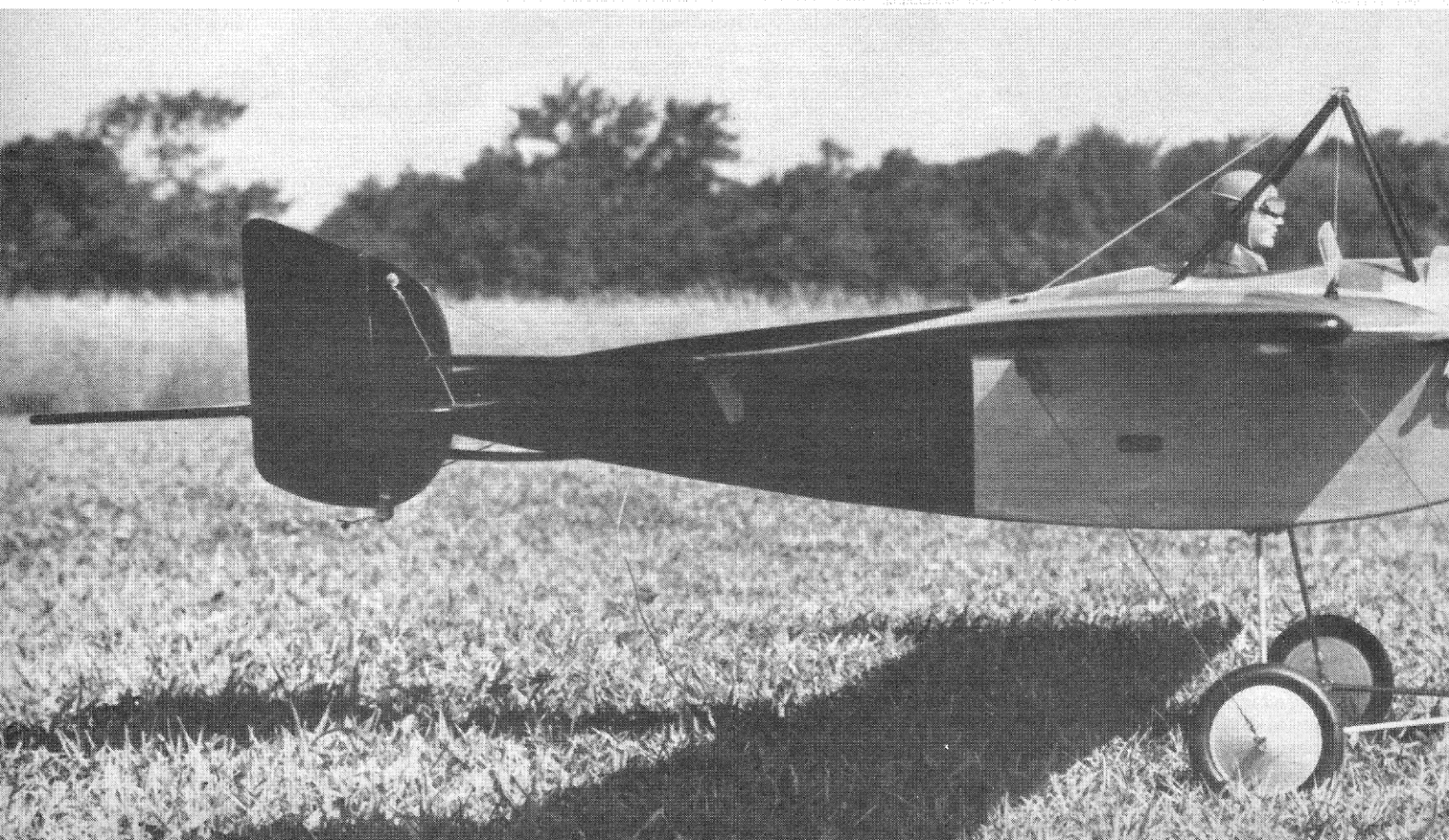
An R/C Stand-Off Scale

Lincoln Beachey

Visions of early barnstorming will haunt you when you fly this SOS .35 ship/**Al Wolsky**

The Beachey Monoplane can probably be called one of this country's first homebuilt aircraft. At the time of its construction there were few people in the country with experience in the building of airplanes. It is amazing what a beautiful little ship they ended up with considering it was a departure from the pusher types that were flying. No copy of the plans were kept after the death of Lincoln Beachey so working from known dimensions supplied by a

PHOTOGRAPHY: BOB HUNT



Mr. Hud Weeks and using photographic data from the H.P. Christoferson collection, the late Willis L. Nye developed a fine 3-view which was published in the spring of 1964 in the American Aviation Historical Society Journal. Willis was well known for his excellent aircraft drafting which appeared in model and aircraft magazines throughout his life.

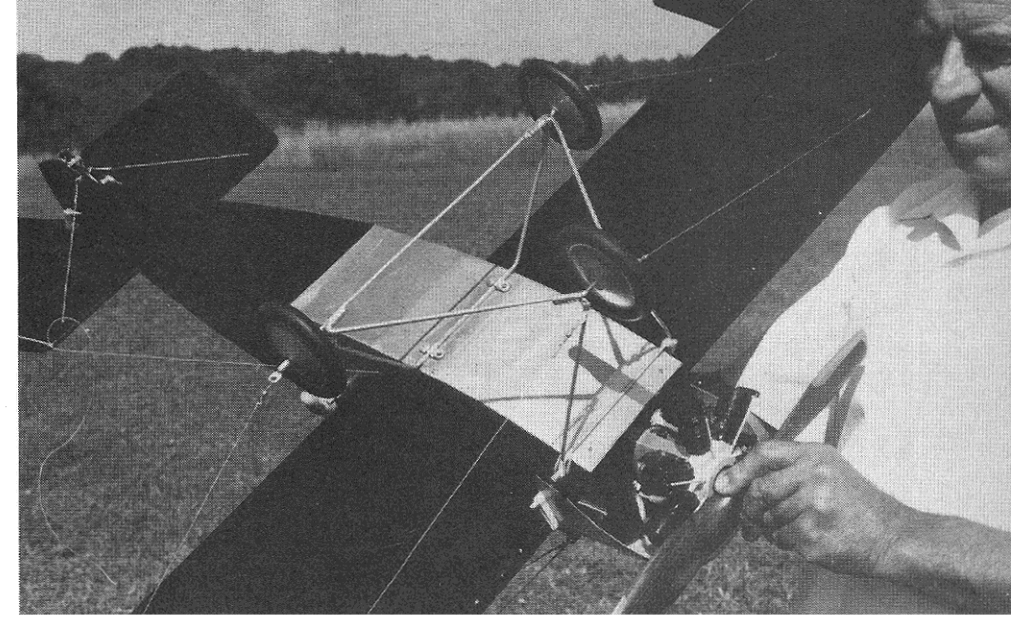
The model is approximately 1/3 scale. Specifications of the real plane were: Wing Span, 26 feet; length, 18 feet; weight, 735 lbs. loaded.

I have enjoyed doing this Beachey model as it is a part of our early aviation history in this country. If you do build it I wish you success, and if you don't, reading the history of Beachey will have enlightened you to our early aviation.

The airplane

In the year 1910 the Wright Brothers sold to the U.S. Government the first military airplane. Thereafter, experimenters fought to develop better aircraft to either sell to the government, or to individuals. The same year, 1910, fairs and exhibitions all across the country sought the services of aviators to simply prove to the crowd that man could fly. From this period a rare breed of men developed. Traveling the country by train with their plane, a mechanic, and spare parts these daredevils would perform before thousands of people. One such flyer was Lincoln Beachey.

Lincoln Beachey at the age of 17 set out to earn his living as a balloonist, having served a brief apprenticeship in the operation of balloons. For 5 years he earned a good living along with fame. In 1910 he became an aviator and was off to a new career. By early 1911 he was giving airplane flying exhibitions and was paid as much as \$5,000 for a single performance. He was born showman with nerves of steel combined with an ac-



Al gives us a look at the landing gear set-up. Note the placement of the flying wires. A front view also gives us a look at the non-functional flying wire arrangement (below). A scale pilot and prop help the illusion (opposite page top). From a side view the dummy engine can be seen (opposite page bottom).

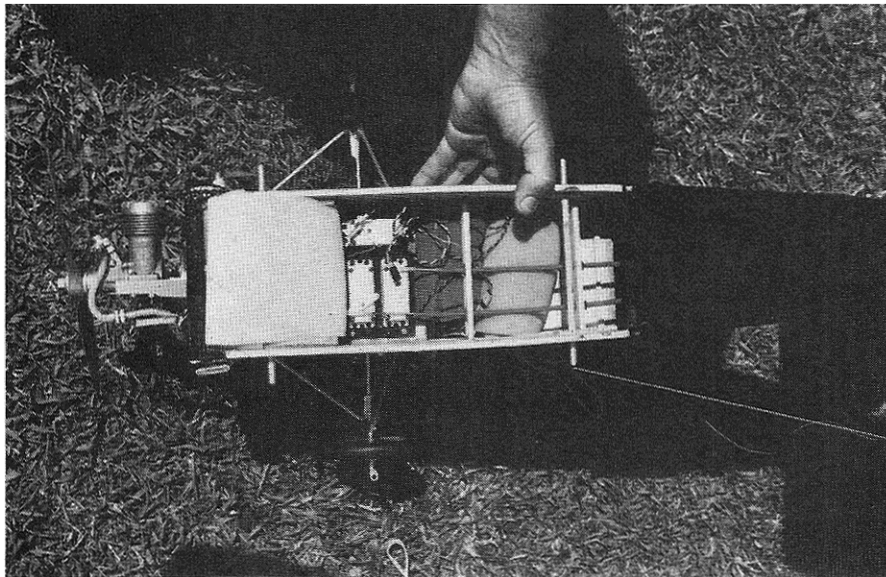
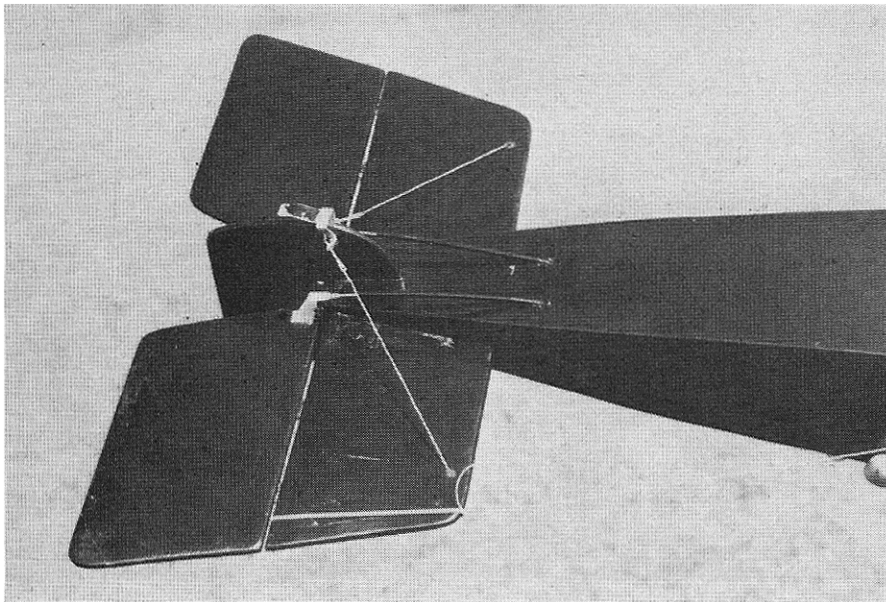


robats sense of balance. He was a star who was in constant demand. After 2 years he was being copied by many imitators hoping to cash in on the growing interest in flying. Many did not possess Beachey's abilities and paid with their lives.

By March 1913 Lincoln Beachey decided he had enough and announced his retirement from flying. He went on a nationwide vaudeville tour. While in New York word reached him that a Frenchman, Adolphe Peguod, had performed a loop, something Beachey had never done. Here was a challenge and a good reason to get back to performing in the air. The loop by Peguod had been done in a Bleriot. Beachey had a conference with his friend Glenn Curtiss at Hammondsport, N.Y., and it was decided to have Curtiss construct a new biplane for him powered by a Curtiss OX engine, capable of a loop. By October 1913 it was ready. After testing, it was shipped to the Curtiss winter quarters at San Diego. It was here that Beachey learned within a few weeks to perform loops at low altitude where the customers could get a good view. He performed over San Diego on Thanksgiving Day 1913, did three loops and earned \$4,000. He was on his way again. During early 1914 he traveled demonstrating loops, spirals, and 8,000 foot dives. In April he decided that he would need a lighter airplane. Also about this time he heard that the Frenchman Peguod was con-

sidering a tour of the U.S. Since Beachey's Curtiss was a heavy machine compared to the Bleriot, he had his brother Hillery, who was also into aviation, Warren Eaton who was a builder of airplanes with 5 years experience, and Art Mix his mechanic, build a smaller Curtiss type design powered by an 80 h.p. Gnome rotary. Tested during May of 1914 in Chicago, it was called the "Little Looper", it proved to have exceptional flying qualities. He set out on a nationwide tour flying almost daily exhibitions.

Since racing drivers such as Barney Oldfield and others were exceeding over 100 m.p.h. Beachey's thoughts were of a faster airplane, he was a showman and wanted to go faster and give the crowd a thrill. So in the fall of 1914 he put his crew to work again on a new design. This time it would be a Tractor Monoplane, as small an airplane as possible. Finished sometime in January or early February 1915 it was a beauty compared to his Curtiss type "Little Looper". It had a wing span of 26 feet, weighed 585 lbs. and was powered by a 7 Cylinder Gnome. In tests it was fast and a thing of beauty in the air. About this time Beachey was approaching his Tenth Anniversary as an aviator, and his hometown of San Francisco was getting ready to celebrate its recovery from the 1909 devastating earthquake and the opening of the International Exposition, a Worlds Fair type of event, with displays from 41 nations



The radio compartment is well designed and spacious. The Enya .35 can be seen here. Al chose to use dowels for the wing hold down as there was no solid bolt anchor available. The tail feathers with their flying wires attached (top). Note the placement of the Nyrod pushrods, skid and control horns. Al removes the wing and cowling for access to the radio compartment (below).



and 43 states. Beachey was asked by the exposition committee to do exhibition flying for the fair spectators. On Feb. 21, 1915, he opened the fair with a flight in the "Little Looper", thereafter he flew regular daily flights. Some time early in March the fair officials asked Beachey to use his new monoplane in his flights, since a medal was being struck in his honor. Between March 3rd and 13th he made several flights in the new monoplane, these were at a location on the beach south of San Francisco. On the afternoon of March 14th Beachey took off on what was to be his last flight. He climbed to 500 or 6000 feet and coming back over Alcatraz he started a series of loops. After his last loop he climbed back to 3,500 feet and, pushing the nose over, he went into his famous vertical dive for 1,000 feet with power on. He pushed it over still further into a 45 degree inverted flight, so the crowd could read "Beachey" on the top of the wing. The ship reached a terrific speed and lost altitude very fast. At about 1000 feet he prepared to recover to normal altitude, his excessive speed in the clean monoplane must have shaken him, for he whipped the stick back abruptly to gain level flight. At about 500 feet there was a loud sound as both wings folded up, the ship fell into the bay. Lincoln Beachey was killed instantly. An investigation into the crash reported that he misjudged his speed because his body and face were protected by the enclosed fuselage and windshield, in all previous vertical drops he had used a Curtiss pusher type biplane where he was exposed to the full force of air pressure which aided him in judging his speed. It was estimated his speed was close to 240 m.p.h. in the dive. An autopsy revealed that he died from drowning. So ended the career of what was this country's greatest early aviators.

Building the model

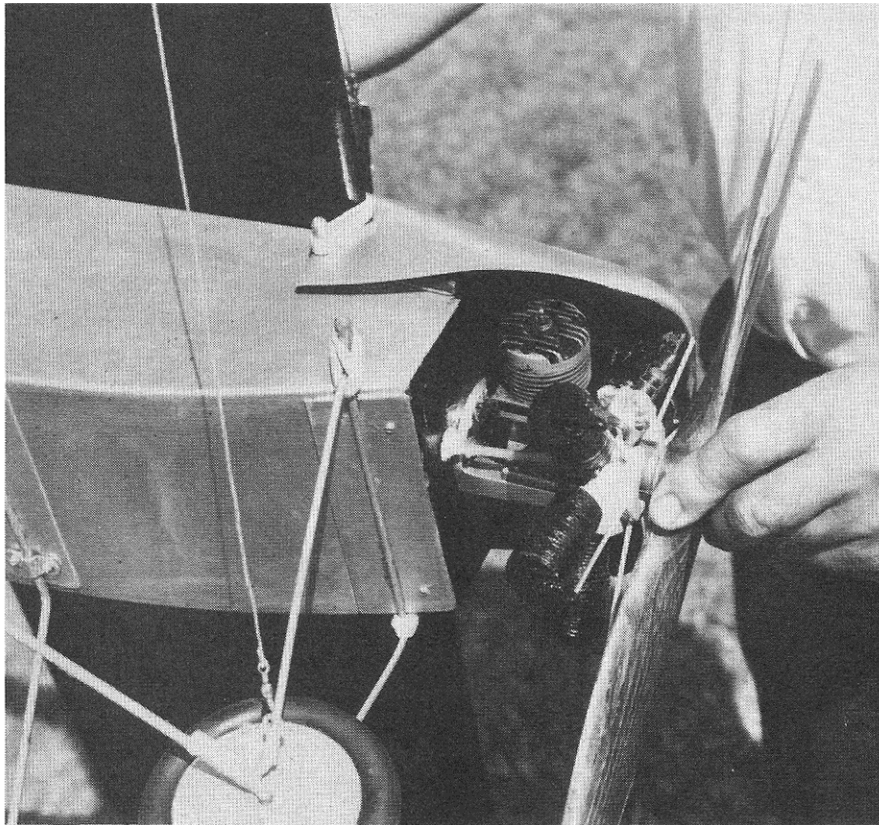
I will not go into a lengthy account on the construction, only presenting what will be of help in areas that need explaining. The model is not difficult to construct but requires patience since pieces must be cut accurately for a strong and true model.

Wing

Construct the $\frac{3}{8}$ " x $\frac{1}{4}$ " lower spar with the ply center braces. The spar has 1-inch dihedral. When dry pin in place over wing plan, pin in place lower $\frac{3}{32}$ x 1 inch sheet trailing edge. Add all full ribs, $\frac{3}{8}$ " square leading edge. Next glue in place the top trailing edge, now add all the false ribs. The tips are simply $\frac{3}{8}$ " x $\frac{1}{2}$ " blocks glued in place. When dry, trace the bottom of the rib underchamber on the block. Do the same at the top of the block using top of rib airfoil. Carve to shape and sand blending into leading and trailing edge. Add $\frac{1}{4}$ " square top hardwood spar, fit piece from last rib to tip. Oil plan turn over and construct other half of wing. When complete, sheet center section top and bottom.

Fuselage

Material is $\frac{1}{4}$ " square hardwood longerons and cross pieces. The sides are filled in with $\frac{1}{4}$ " ply from the firewall back 5 inches, also use it in the areas that the gear mounts to. Do not be concerned about using the plywood as the model tends to be slightly tail heavy without it, might as well add strength to the nose section rather than the use of lead weight to get the model to balance out later. The fuselage top front section is removable and is part of the wing assembly. When the wing is complete, tack glue it to the fuse-



A close-up of the engine compartment shows the attachment of the dummy engine to the front of the Enya .35. This dummy engine is removed for flying. The rugged landing gear is held in place with rubber bands. The name is painted on top of the wing so spectators can read it during a loop (**bottom**).

lage in its proper location, check for squareness to fuselage center line. Next, glue in place on the wing the formers that form the top of the fuselage and plank with $\frac{1}{8}$ " balsa. Sand to shape and cut out the cockpit. The landing wire pylon is made of $\frac{1}{4}$ " diameter dowels. The wing is held to fuselage by rubber bands to the dowels that are shown in top view. The fin, rudder, stabilizer and elevator all are made of $\frac{1}{4}$ " sheet and $\frac{1}{4}$ " balsa.

Landing gear

The gear is made of $\frac{5}{32}$ " and $\frac{1}{8}$ " dia. wire.

Bend all parts accurately bind with copper wire and solder well. The gear is non steerable and is held to the fuselage with clips and screws at the rear. At the front rubber bands are looped around the front leg to the dowel.

Finishing

The model is covered with Silron and finished with Sig dopes. Iron-coverings could be used but make certain that it holds to the rib underchamber.

The cowling is made from the bottom section of a gallon plastic bottle-bleach etc.

Mine came from a cola syrup bottle which had a perfect radius at its bottom. Cut away what is not needed to fit. It is held in position by a screw at top, the sides slip over the wing dowels, with wing rubber bands in place the dowel is secure. The dummy Gnome rotary was made as follows: The cylinders are pieces of a broom handle shaped and wrapped with heavy cord. These are epoxied to the crankcase which is made of a 1-inch thick piece of pine. The valve push rods are pieces of $\frac{3}{32}$ " wire. The cylinders are black, the crankcase is gray. Mounted in place hiding the glow engine and used only for appearance, it looks real from 10 feet. The color of the model follows the color of the full sized plane. The wing, tail surfaces and fuselage aft of the cockpit are black. The fuselage at the cockpit section forward is aluminum. The BEACHEY letters are on the top surface of the wing only and are hand painted with fire red dope, mix orange and red together. The letters are 8-inches in height. The stroke of all letters is 1 and $\frac{1}{4}$ inches. The width of all letters is 6 and $\frac{1}{8}$ inches except the C which is 9 and $\frac{1}{4}$ inches and extends over the fuselage onto the other wing. The letters are spaced 1 and $\frac{1}{4}$ inches from each other.

Flying

Make certain the model is not tail heavy. If it is, add weight until it balances at the point indicated, a wheel weight from car wheels are useful for this. The landing gear should be mounted so that the model will track straight.

One very important fact that I should mention and that is that the ailerons seem sluggish. I learned this early in the testing of the model. I have been using the rudder for turns, using the ailerons only it tends to react too slowly into and coming out of turns. It could be that their size is rather small for the wing span. However other than this it flies well. You should keep this in mind when making that all important first flight. Also the ailerons should be trimmed so that at neutral their trailing edge is up $\frac{3}{8}$ to $\frac{1}{2}$ inch, giving the appearance of a wash out condition, this seems to help, especially on landing. The model is very stable and I have hand launched it many times, holding the transmitter in my left hand. Wishing you the best of luck if you build the Beachey. ☺

