



VELIE MONOCOUCPE

MAMMOTH



SCALE

...ELECTRIC POWERED...

By BOB BOUCHER . . . Mammoth Scalars need not be heavyweights. This one, even with heavier-than-gas electric power, weighs just a little over seven pounds. Be on the lookout for the original . . . it was stolen!

• The Velie Monocoupe is a natural subject for a quarter-scale project. It is easy to build, yet has interesting lines for a basic box structure. The Monocoupe is a fabric covered airplane, which means a light but strong structure, and has an exposed radial engine for good engine detail without too much work, thanks to

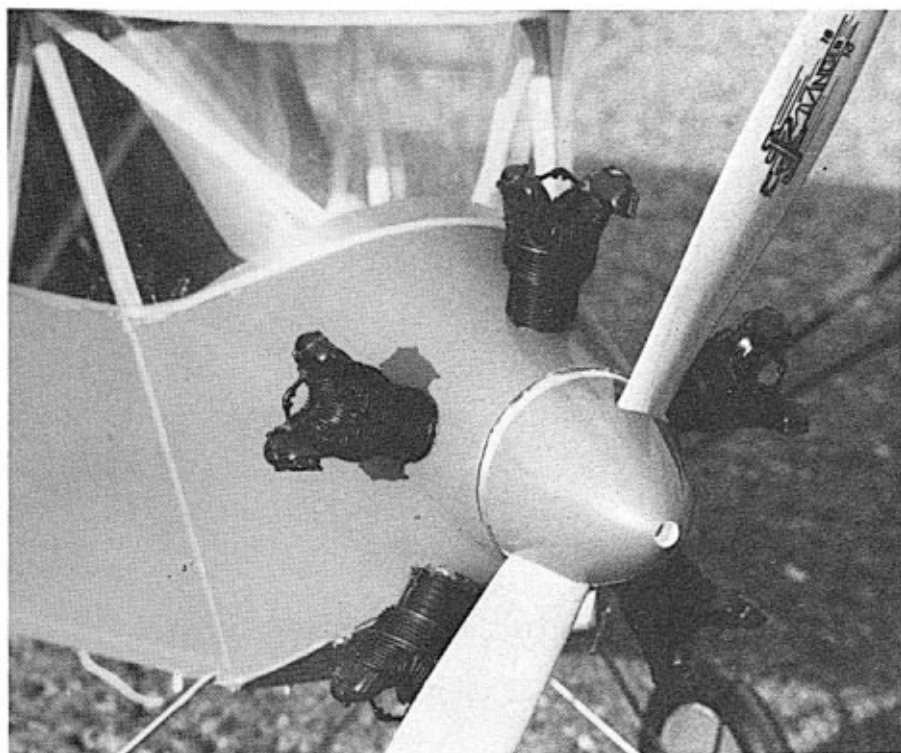
Williams Bros. It met my personal transportation requirements by fitting into my Mercury Monarch and my wife's Mustang. The Monocoupe specs are: span 90 inches, length 56 inches, wing area 1300 sq. in., and weight 7 lbs.

Naturally, for power, I chose the new Astro 25 mechanical speed

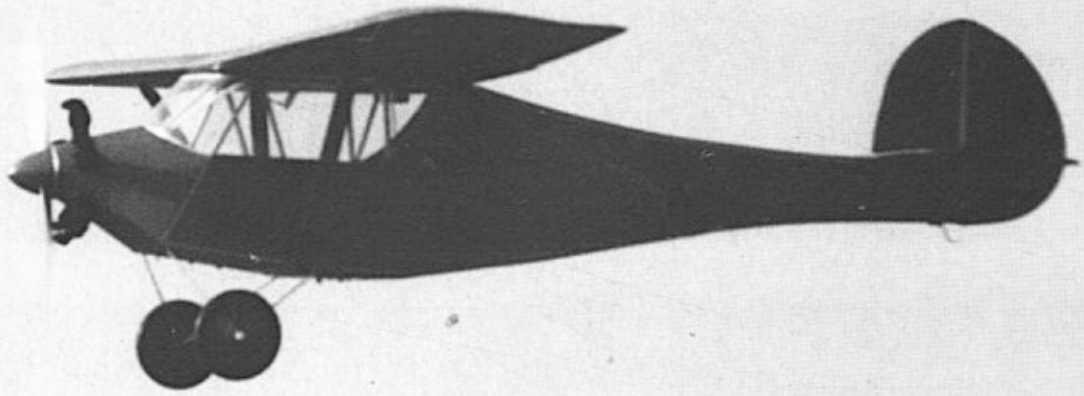
reducer, which swings a big 18 x 10 scale prop. I had no worries about enough power, since these dimensions and weights were almost exactly the same as my Super Buccaneer Old-Timer, with which I won the electric event at the SAM Champs at Las Vegas in July, 1977. In fact, the Monocoupe turned out to be a little lighter, so I used a one amp battery pack to allow ten minutes of power. The wing loading came out at 11 ounces, so I bet the ship will thermal, but unfortunately I didn't get the chance to try it.

The plane was stolen the night before our Electric Champs, when some thieves broke into the station wagon carrying this and other planes to the meet.

The first flights were made with a 17 x 6 prop, which loaded the Astro 25 to only 10 amps, about 60% of available power. The climb was good and the plane was very stable and well damped in all axis, and responded immediately to the controls. The Monocoupe's movements were slow and very majestic with the 17 x 6 prop, the speed seemed to be about 25 mph, much too slow for any aerobatic maneuvers. The next day, Larry Jenno and Joe Zingali, the famous JZ team, supplied me with some of their new 18 x 10 props, and I headed for Mile Square to get some flight shots for **Model Builder**. The Monocoupe flew as expected, very realistic, at about 40 mph, and smooth and positive. We wanted



Clean nose with electric power! Williams Bros. 2-inch scale Pratt & Whitney cylinders are about right size, and can be modified to look like Velie.



some low fly-by photos. My timid 10-foot high passes were not low enough, but after about ten circles of the field, I finally got down to about two feet. The Monocoupe is a high winger and can be turned with aileron-only, but a little rudder as well is needed to make a nice coordinated turn.

After the photo session, I returned to the shop to put the final finishing touches and trim on the ship for the

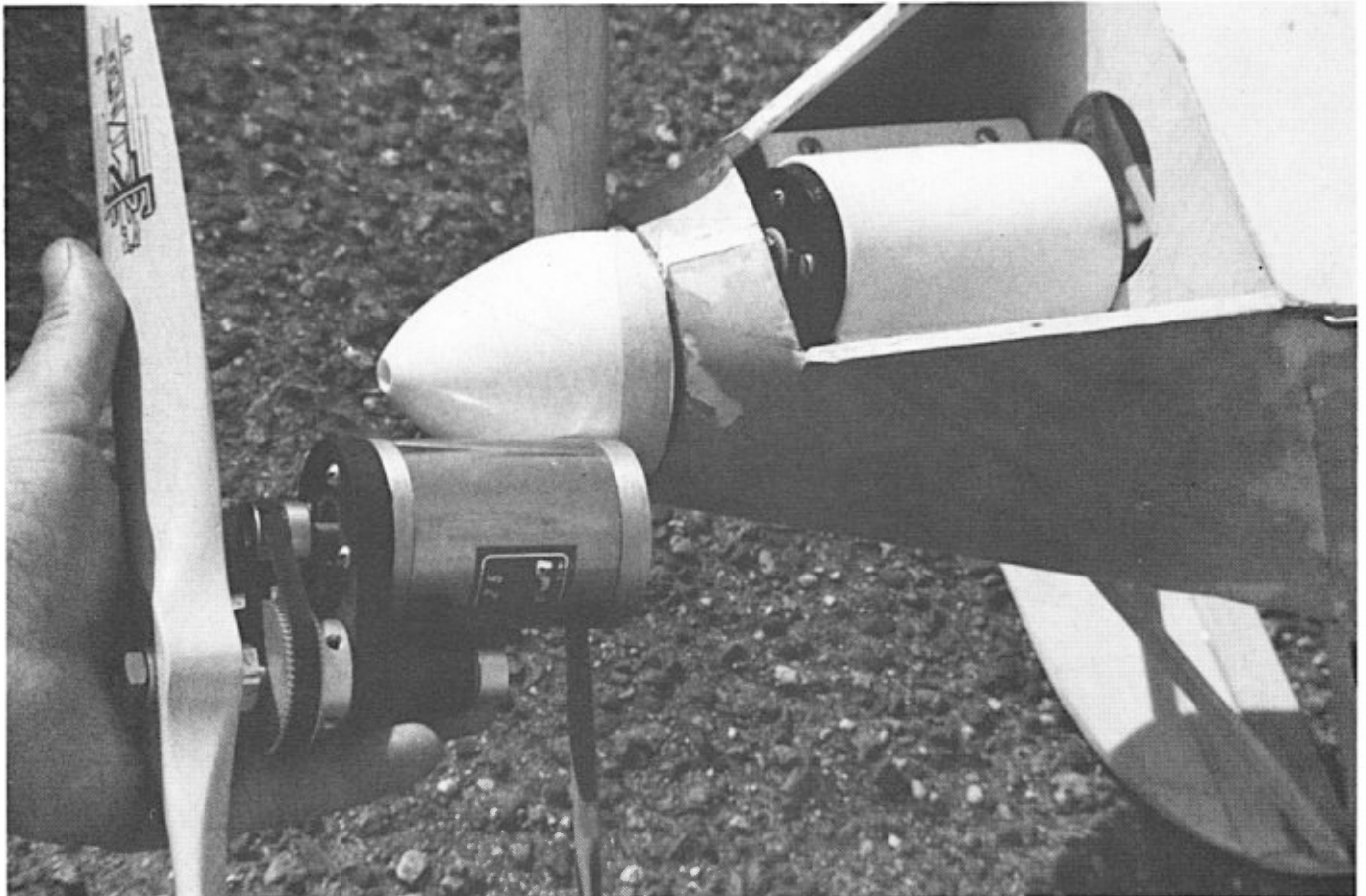
Model Builder Electric Champs.

Boy, was I going to show those guys! As I had five planes for the contest, and was CD as well, it was impossible to take everything in one car. So the assistant CD, Keith Shaw, volunteered to take the Monocoupe in his station wagon. That night, some thieves smashed in the window to his wagon and made off with the Monocoupe and two other models, plus transmitters and field boxes.

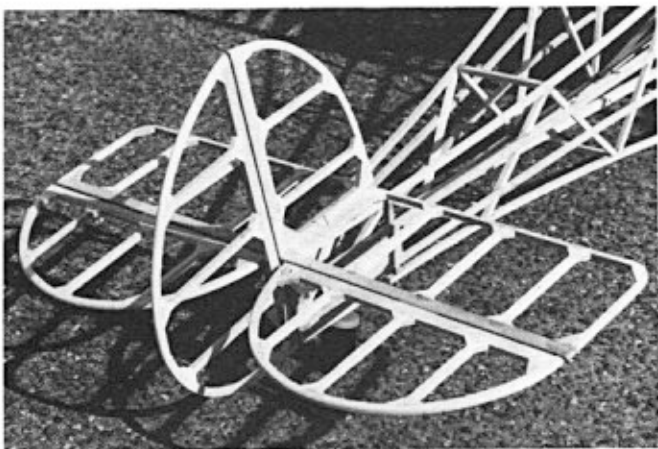
Luckily, Keith had the trophies in the apartment, so the contest went on undisturbed. It was a beautiful California day, and the contest ran very well. I even got in some good flights with my backup ship, a Twin P-68. The next one will be even better.

CONSTRUCTION

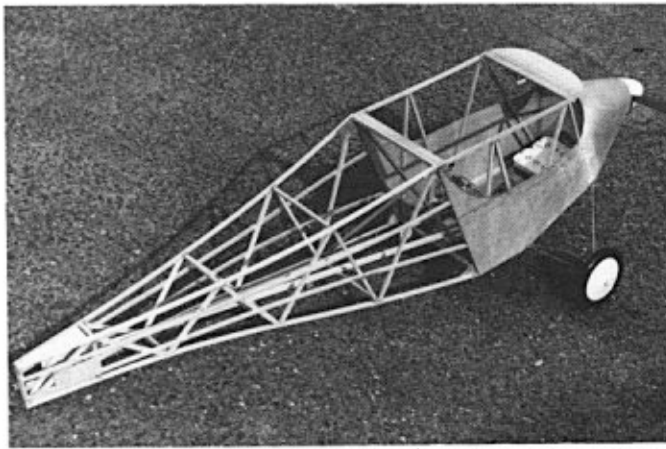
The construction is quite straightforward, just like any other old-timer R/C. The wing uses a two-spar,



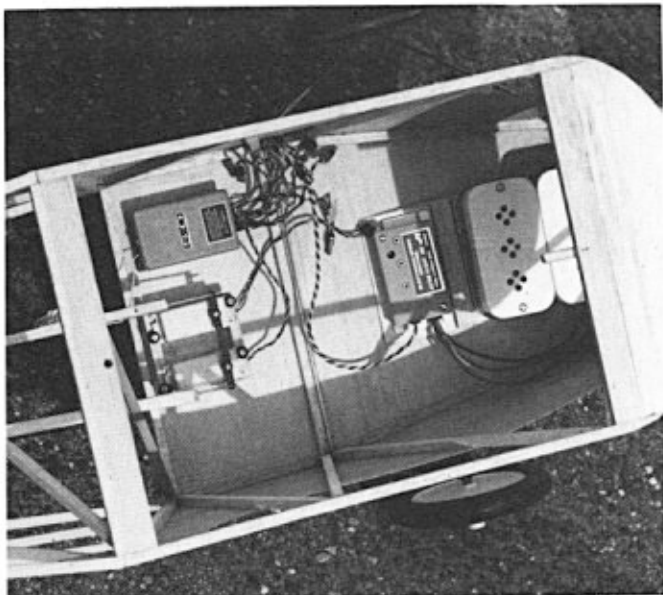
Looking like a fuel tank, the Astro 25 electric motor is mounted below the thrust line of the belt-driven shaft. Air cooling scoop will direct air into drive-battery compartment. Another scope directs air out.



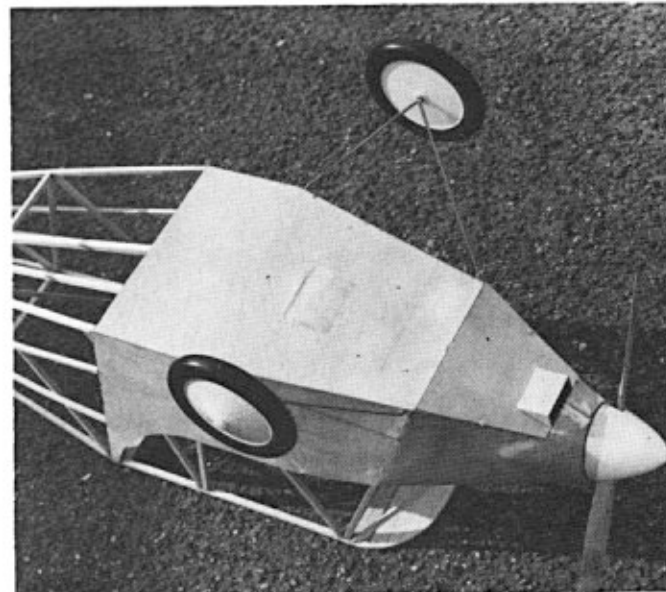
Round tail outline is made up of laminated 1/16 strips. Gussets add strength, prevent warping.



Fuselage construction is extremely light, yet strong. Note drive battery location on cabin floor.



S & O radio looks lost in huge cabin. Electronic speed control just behind drive batteries.



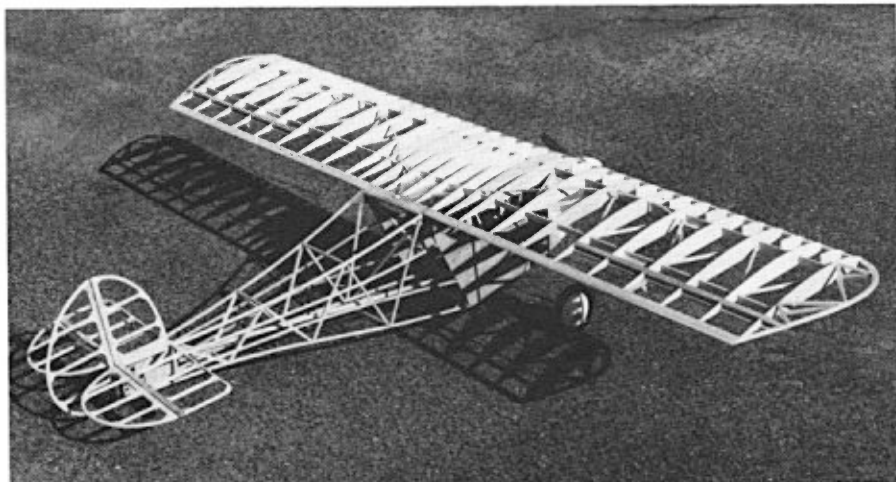
Bottom view shows inlet and outlet air scoops...Essential to prevent overheating of drive batteries.

open frame construction, with working struts. Don't leave these out. They greatly increase the bending strength of the wing, and make it torsionally stiff, to eliminate flutter. The model was built with ailerons and no dihedral, but will also fly very well, with 2 inches of dihedral, on

rudder and no ailerons. The half-ribs extend back to the main spar and prevent the fabric from sagging between the ribs. The tail surfaces are laminated from 1/16 cap strip stock and are quite light and strong.

Before covering the airframe, components weighed as follows:

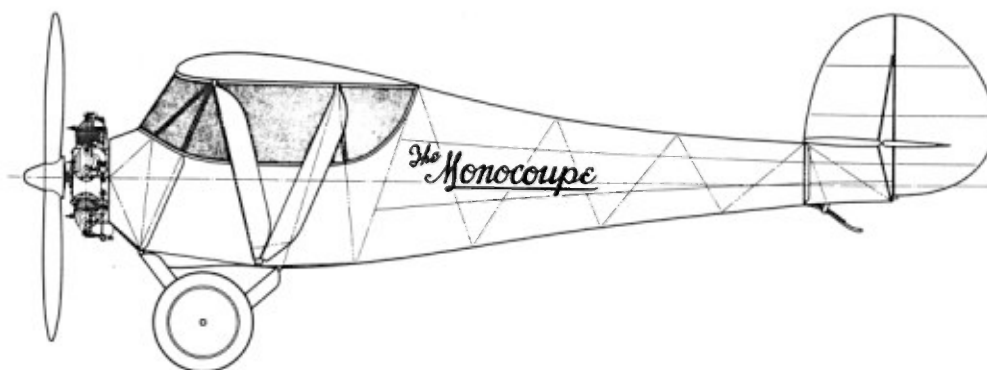
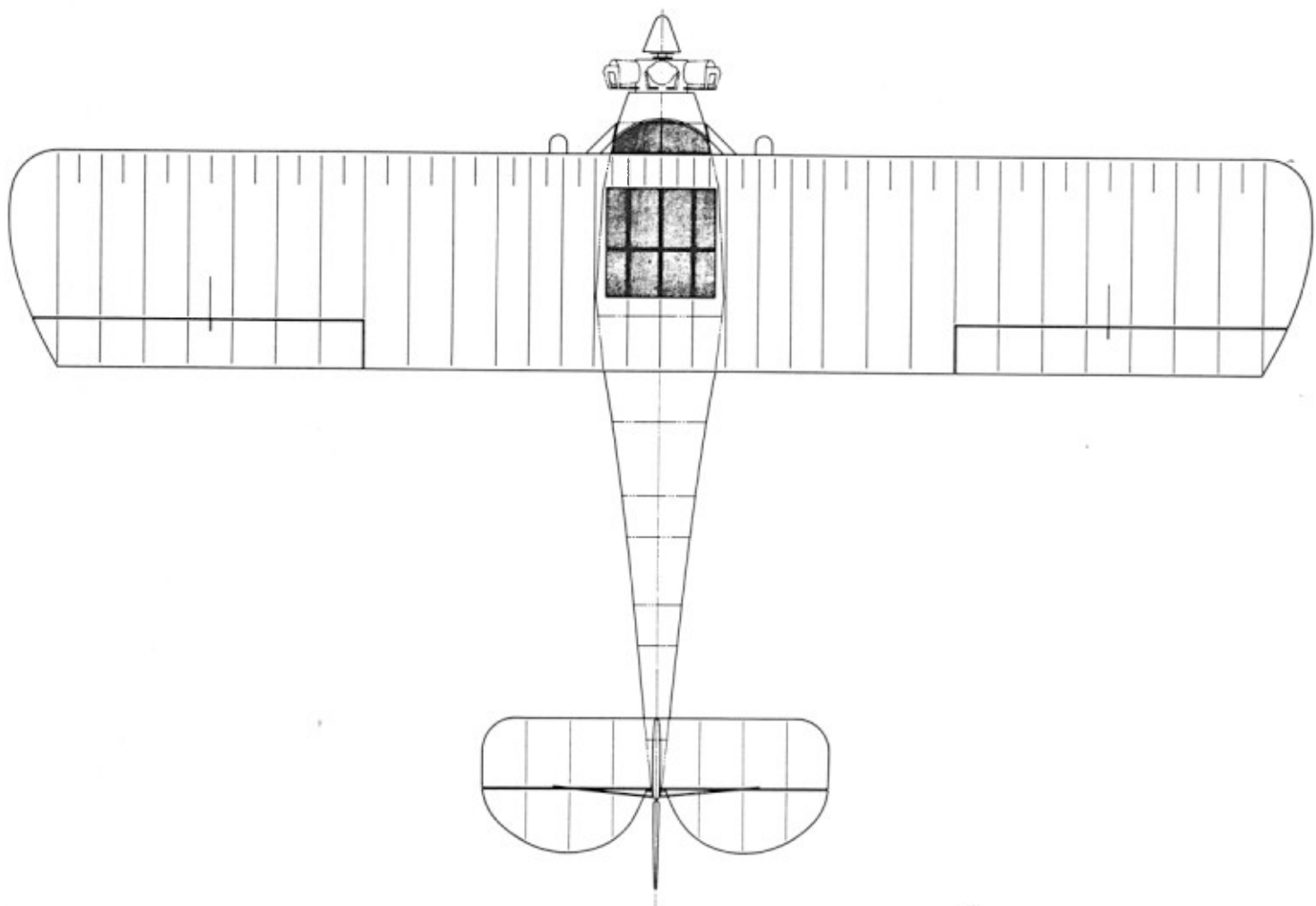
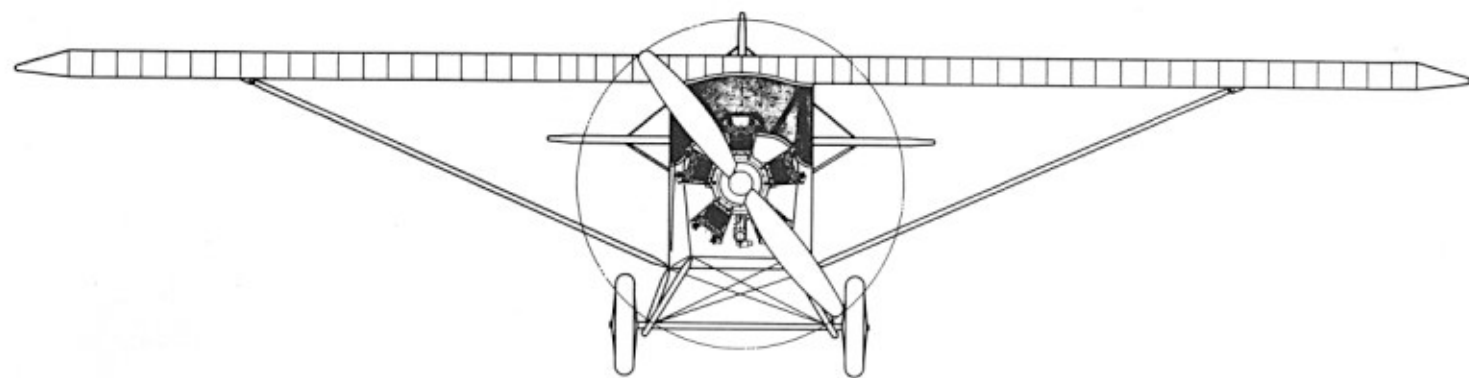
wing 15 oz., fuselage 16 oz., and tail group 3 oz. When all rigging and covering was added, the airframe weighed slightly over 3 lbs. Not bad for 1300 sq. in. wing area and a fuselage almost one foot high and one foot wide! Cover the fuselage sides and make up the cowl from 1/64 plywood. The fuselage bottom is made from 1/16 plywood. Williams



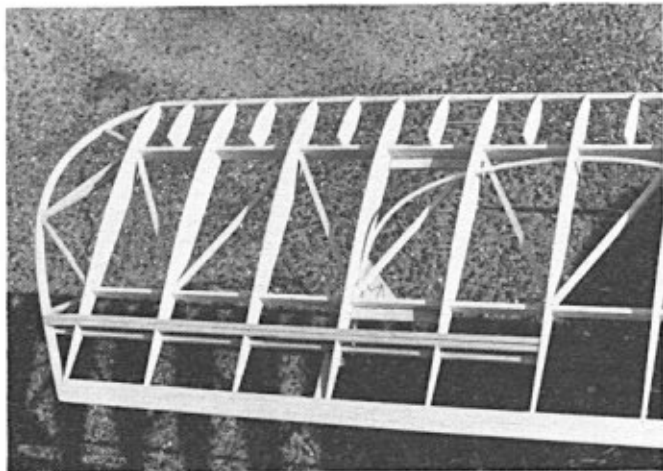
The completed framework is very light, weighing just over 3 pounds with covering. Wings show slight droop, as struts were not in place for this photo.



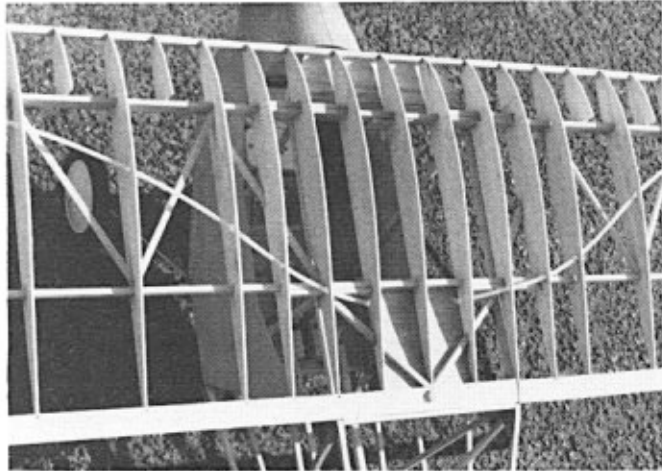
Flaring for a landing. Wheels scale to 6 inches. Largest Wms. Bros. are 5-inch.



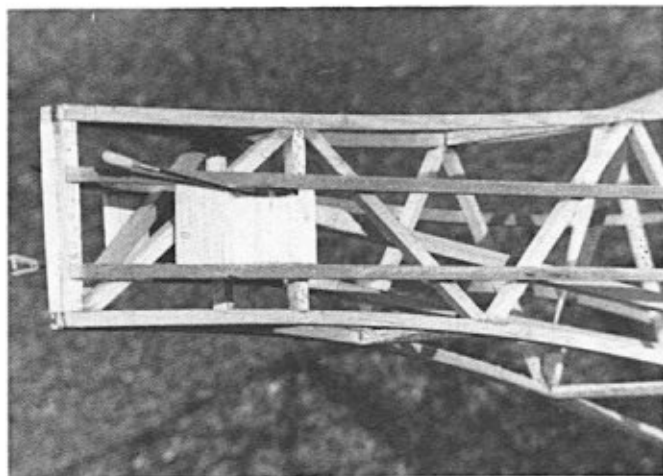
This 3-view courtesy of John W. Underwood, from his book, "Of Monocoupes and Men". Copies of complete book available for \$4.95 . . . Heritage Press, Box 167, Glendale, Calif. 91209.



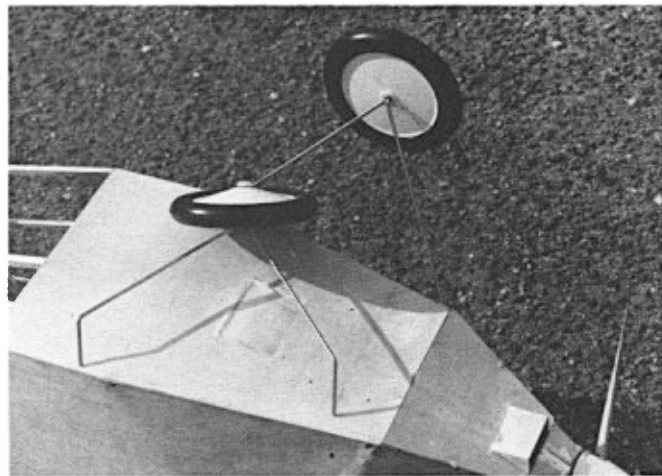
Wing structure is light. Ailerons not separated at this time. Note Nyrond control tubing.



One bolt and one dowel hold wing in place. Struts are functional. Cap ribs if using silk and dope!



Sheet filling between stringers provides slots for control push rods.



Simple wire struts plug into brass tubing. Add fairings to improve their appearance.

Bros. 2-inch scale Pratt & Whitney cylinders were used to make the engine. They are about the right size, and can be modified to look quite like the Velie cylinders . . . especially for standoff scale. The Astro 25 is almost completely hid-

den within the cowl, only the cooling air inlet giving its presence away.

The Velie was a very satisfying project, and is perfect for we old-timers whose reaction time is slowing down a bit and who can't see those small jobs too well anymore.

These big birds gather a great crowd, and are very pleasing and relaxing to fly. Try one and bring back the good old days.



Bob Boucher with his Mammoth Monocoupe, during first flight tests. Design is enlargement of his Astro Flight 50 inch kit for 1/2A glow or .05 electric.