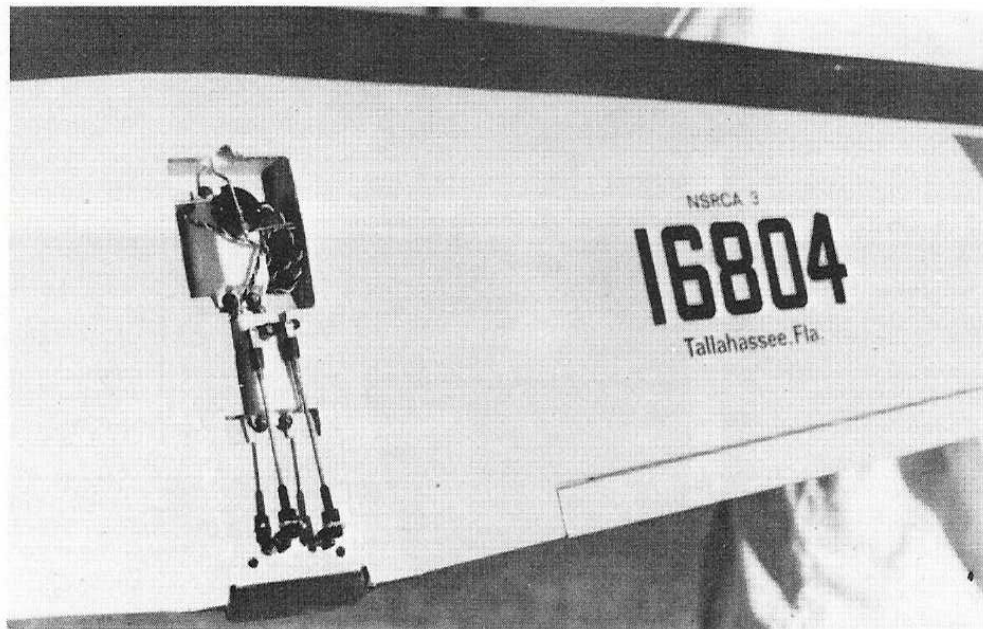


It doesn't seem quite right to see the plane shorter than the pilot—too often it's the opposite. Pretty little bird has all the capabilities as well.

Gator Flea

BY RHETT MILLER, III

Our two-time National Champ, in keeping with the times, has become energy and economy conscious and developed an outstanding 40 size variation of his Compensator—it's the way to go!



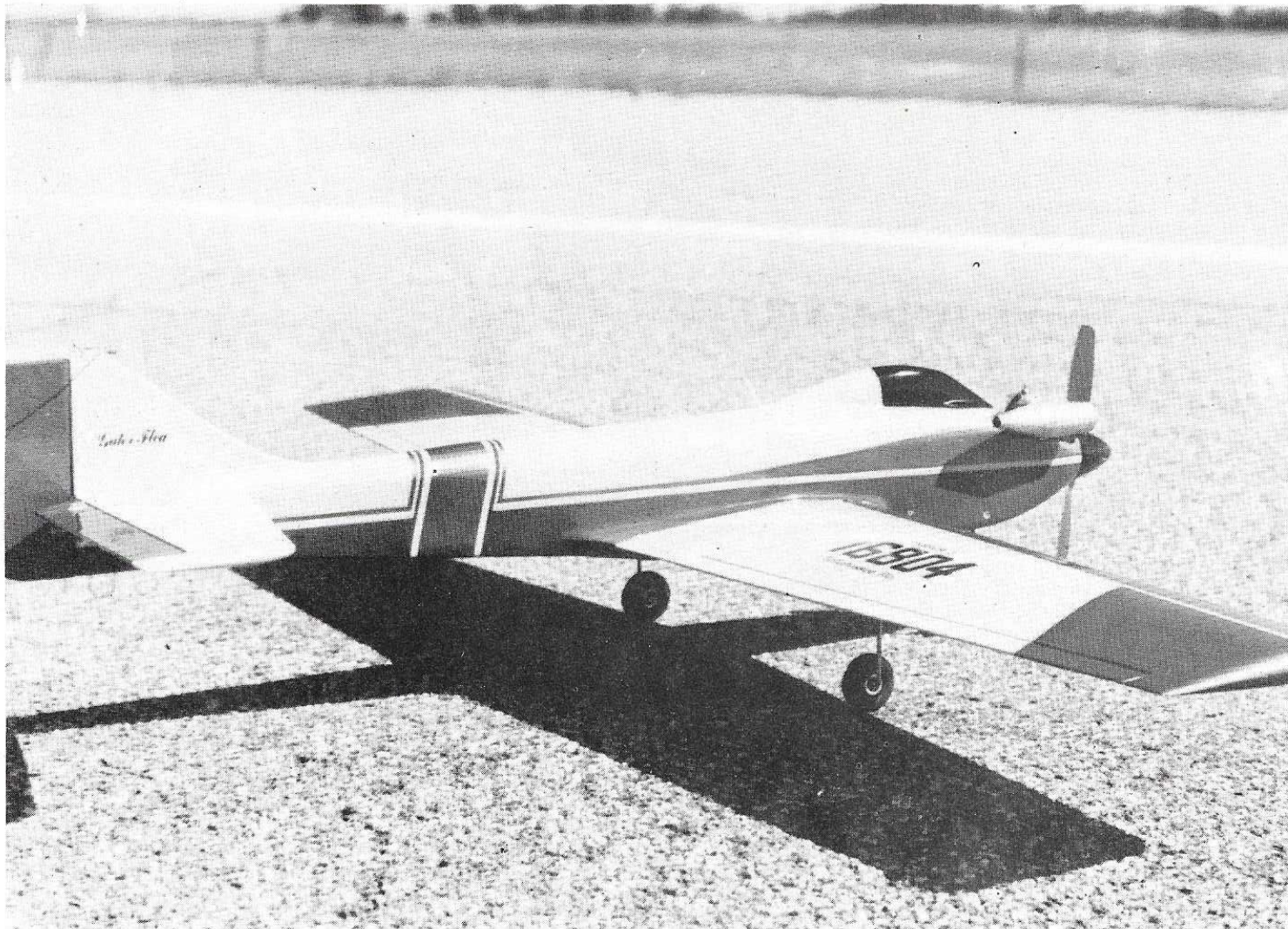
Close-up of the aileron and retract servo installation shows more than enough room for both servos.

● Gator Flea? For those of you who are not familiar with Florida, a Gator Flea is a hellgrammite. For further clarification, hellgrammites are the larvae of dobsonflies and are in high demand among all Floridians as fish bait for bream, bass, etc. The Gator Flea resembles a small alligator and is so mean and tough, he has been known to actually grab a fish swimming by!

Getting back to the airplane (this was beginning to sound like a *Field and Stream* article), the Gator Flea is actually a 40 sized, 80% version of the Compensator. It started out to be just a fun airplane but turned out to be competitive and quite capable of winning in today's pattern events.

My initial intentions were to scale down the Compensator by 20%. Upon doing this, I found that the wing area was somewhat low and that the fuselage was too narrow for a comfortable radio installation. The wing area was then increased to make nose-high landings easier, and the fuselage width was also increased to ease radio installation. For further design theory you might read the Compensator article, (M.A.N., Jan., 1974). It describes in detail the ideas of design used in the Compensator and incorporated in the Gator Flea.

Today, more than ever, 40-sized airplanes could become a reality in serious pattern competition. Because of the current fuel situation, more compact cars are in demand and ease of transportation is a definite plus factor. Have you ever tried to carry a 63" wing and fuselage in a Volkswagon? Also, with the price of our model fuels, a 40 engine



A well finished plane has been the hallmark for all of Rhett's planes, and the Gator Flea carries on the tradition—a true, well finished plane is important.

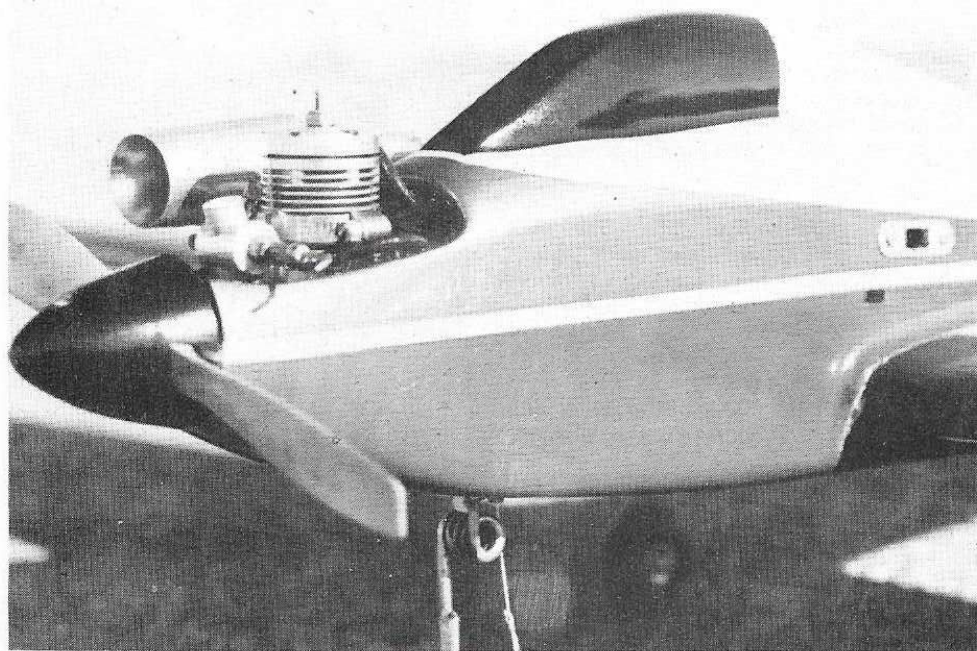
is more economical than a 60 with the same amount of flying time and possibly more. The price of balsa wood today also makes the smaller airplanes more economical, and they are quite a bit easier to work with in the workshop because of their size. With the current emphasis on framing, the smaller airplanes also have an advantage. The pattern may be performed well within the 100-meter limit and the 45° angle.

Before flying the Gator Flea, I was somewhat hesitant about its ability to penetrate the wind. Most small airplanes are usually at the mercy of the wind in rough, windy weather because of their weight. I might mention at this point that the optimum weight for the Gator Flea is 5 to 5½ lbs. It isn't too hard to keep the weight down if you remember from the beginning that there is no one area to save weight. You must cut an ounce off here and there to minimize the weight. After the first few flights in our normal Florida wind, it was apparent that the Gator Flea could penetrate the wind and retain its smoothness as well as most 60-sized airplanes.

The original Gator Flea is powered with an H.P. 40. This engine provides plenty of power for all maneuvers, including the Top Hat with a full vertical roll. A good 40 to 46 is needed to fly the new D Pattern; however for the A and B Pattern flyer, I would imagine that if the weight is kept down, a 35 would prove ample. The H.P. 40 seems to like a 10 × 7 prop. Since this is an unusual size, I trim and balance an 11 × 7 to a 10 × 7.

Construction techniques are not unusual, and the airplane can be built in an amazingly short period of time. You will note that in order to save weight and money a large area of the fuselage top is stripped. This is the only departure from standard construction; however this feature will be explained later.

WING. Cut wing cores using templates shown on the plans. At this point you might go ahead and cut the stab cores also. Pre-parencores for sheeting by making cutouts for retracts and applying trailing edge. Pro Line retracts were used on the original; however it is a simple matter to modify for fixed
(Continued on next page)



Close-up of the nose area showing the H.P. 40 installation and the simple, but effective, nose gear brake.

GATOR FLEA . . . CONTINUED

gear. Prepare wing skins from super-light 1/16" balsa. Sand cores and sheeting; then vacuum prior to applying contact glue.

Wing skins are bonded to the cores using Southern R/C Products Southern Sorghum. Cores are now glued together with epoxy, taking care to insure perfect alignment. Wing construction is completed by installing wing tips, aileron linkages, aileron fill material and fiberglass reinforcing at midsection. Tack glue ailerons to the wing and sand to proper shape. F-2A, dowels and bottom pan are not installed until fuselage is built.

FUSELAGE. Using templates shown on plans, cut out formers, doublers, sides, etc. Prepare sides complete with doublers, stiffeners and longerons being sure to prepare both a right and left side. Be sure to install blind mounting nuts to accommodate the motor mount of your choice as well as nose wheel unit. Clamp F-2 and F-2A together before drilling holes for dowels, thus guaranteeing perfect alignment for wing mounting. Assemble fuselage taking care to assure perfect alignment. This can best be accomplished through the use of a good fuselage jig. Install balsa cross members and bottom sheeting (rear of wing) before removing fuselage from jig. Add maple block for wing mounting bolts using epoxy glue.

At this point, sand leading edge of wing to receive F-2A. Temporarily fasten F-2A to F-2 using short pieces of dowel. Apply glue to F-2A and align wing in fuselage wing saddle. When this glue has hardened, remove wing (which now has F-2A attached) drill into wing through holes in F-2A and install dowels. Wing is now placed in fuselage, realigned properly, and an electric drill is used to drill through wing and into maple block for 1/4"-20 bolts and enlarge holes in wing to insure free movement of bolts. Glue 1/16" plywood plate to wing and reinforce center section with fiberglass cloth.

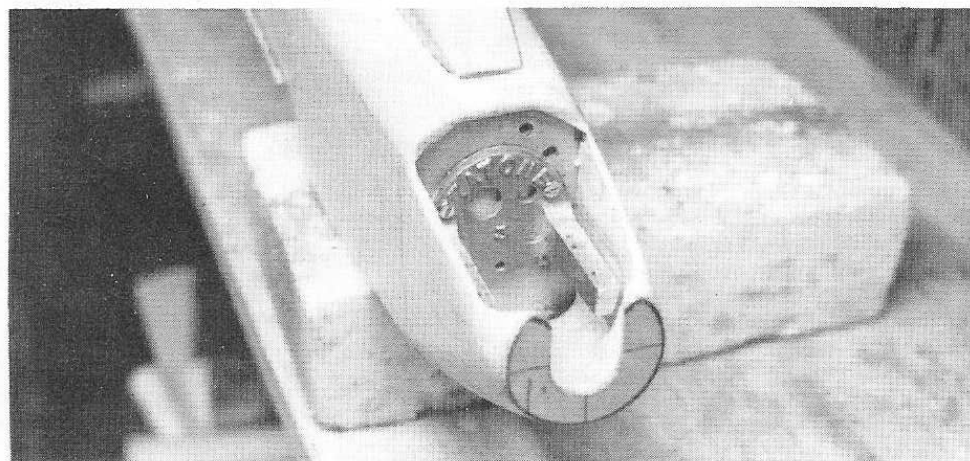
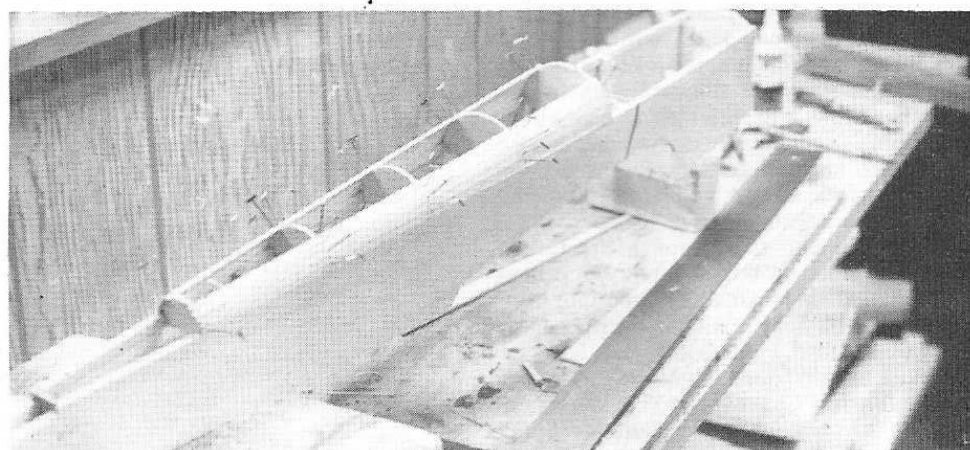
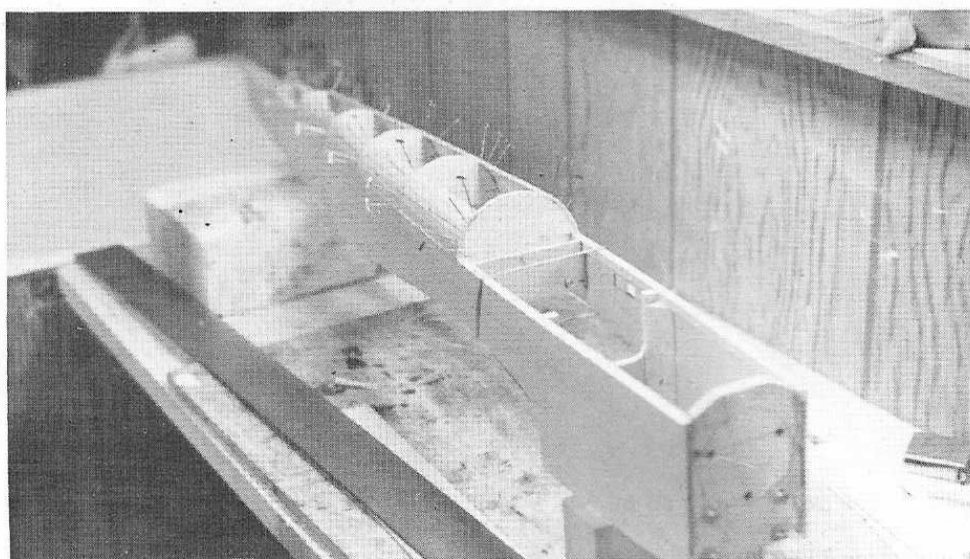
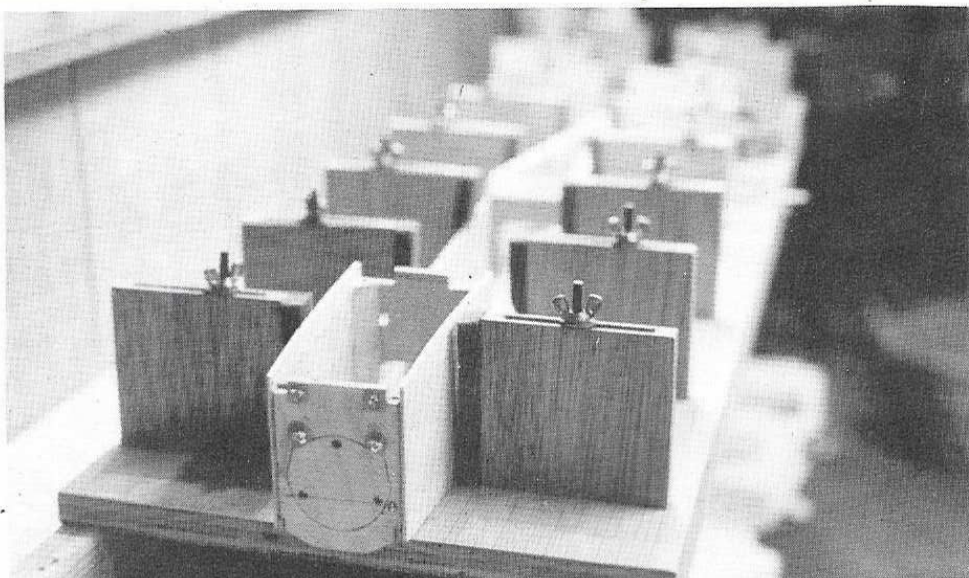
Front top block is tack glued in place. Next, formers FT-1 through FT-5 are installed. Using long sanding block, make sure the FT-1 and FT-5 are aligned properly. Now, 1/8" balsa stripping is applied, taking care to work from each side towards the middle so as to not warp the fuselage. Tail block is installed along with the stab and vertical fin. Top front block is carved to shape, removed and hollowed, and then glued permanently in place. Fuselage is completed by installing nose blocking, canopy and 1/2" bottom blocking. Build fuselage pan on bottom of wing, and you are ready to start the finishing operation.

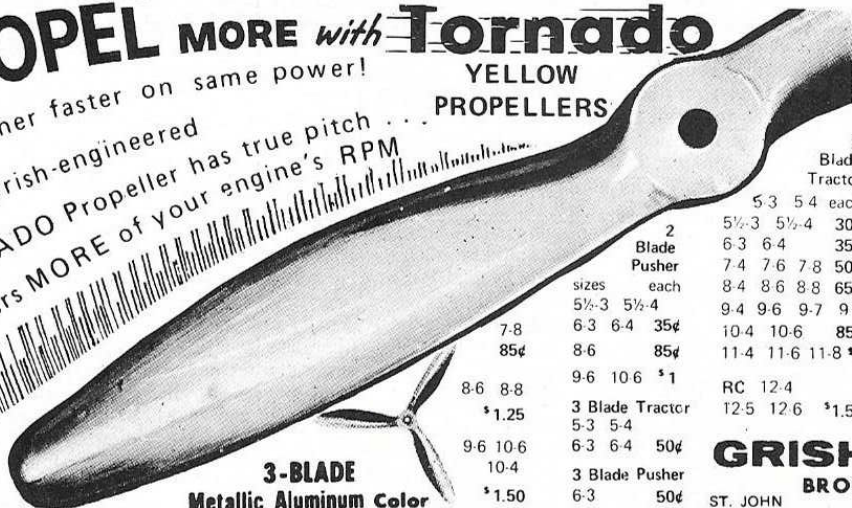
FINISH. The entire airplane is sanded with 400 sandpaper, and any dings are filled and sanded smooth. Apply two coats of dope, sanding between coats. Cover with Southern R/C Products Skyloft. After covering has dried thoroughly, apply two more coats of dope, again sanding between coats. Now build wing fillets and apply fillets at stab, etc. Apply K & B Super Pox primer and finish coats according to the manufacturer's instructions, and you should have a very light, durable finish.

After all trim coats have dried for at least

(Continued on page 62)

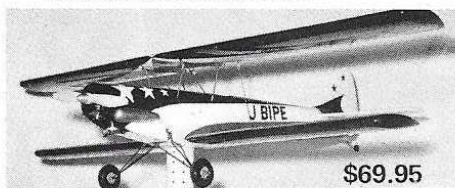
Four pix at right show a typical construction sequence for the Gator Flea. At top, note the very effective building jig. Next two pix show the method of applying planking (Rhett calls it stripping). Bottom shows motor mount installation and nose area.





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plans using the servos and battery pack as ballast. The original Gator Flea balanced with the battery pack placed directly behind the tank and the servos as indicated on the plan.

It is common knowledge that smaller aircraft are somewhat more sensitive than their bigger brothers; therefore, it is wise on the initial flight to go easy on the throws for all control surfaces. The first step toward flight trim is to adjust all throws to suit your individual style and make any C.G. adjustments. Determining the proper amount of throw for the control surfaces is a matter of compromise. I set ailerons so as to obtain three rolls in approximately five seconds, elevator to obtain large smooth loops but not forgetting the spin entry, and enough rudder to accomplish the Figure M—but don't forget too much rudder can play havoc in the rolling maneuvers.

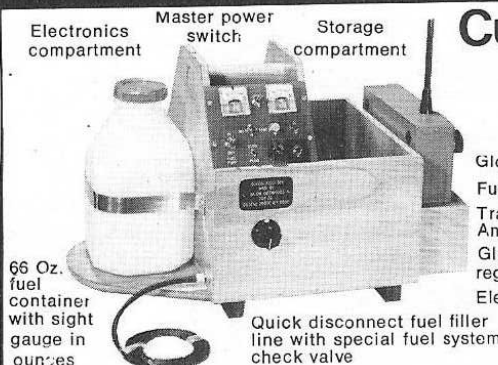
The Gator Flea is now ready for the final flight trim. Adjust C.G. and elevator until little down is necessary for inverted straight and level flight. Next trim for tracking through loops. This is done

by balancing from wing tip to wing tip, and I know of no other method than trial and error. Usually I use small nails pushed into the wing tips to accomplish this.

When these initial trim flights are completed, you are ready to get down to serious business. With a few flights under your belt you will discover that, like its big brother, the Compensator, the Gator Flea is a very honest airplane and to date has demonstrated no bad characteristics. It performs all the maneuvers well, including nice, nose-high landings, and in short will give you 60 performance with 40 economy and a lot of pleasure and satisfaction in the process.

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