

FLYIN' FLIVVER

Ever wonder about the origin of the word "Klutz?" Read on . . . and if you can pass up this .40 powered, four channel biplane, you've left your soul on the outside aisle of a 747 . . .

By Bob Wallace



Recently discovered in the musty archives of the Planeville Museum of Early Aviation History, and now available for the first time to the R/C modeling world in the form of a .40 powered miniature, comes the 1929 Klutz "Flyin' Flivver".

The original Flyin' Flivver was designed and built in 1929 by Clyde Klutz, an obscure young inventor known for his eccentric ways and questionable mechanical aptitude. Clyde is perhaps best remembered for his development of the first gasoline powered pop-up toaster, acclaimed to be years ahead of its time, and for his creation of the world's first steam powered ornithopter. With this solid background in aeronautical expertise and engine know-how, it was only natural that young Klutz would soon turn his attention toward the development of an aircraft with great commercial potential.

The resulting design was called "The Klutz Model A Sky Truck", but soon was dubbed the Flyin' Flivver. It was constructed entirely from readily available native white oak and was powered by a four cylinder Kretzmer garbage truck engine, which delivered a modest 30 horsepower. This combination produced an aircraft, which, although being on the heavy side, was incredibly rugged.

The Flivver was test flown on March 16, 1929, from the Farmington Meadows with a confident Clyde at the controls. This test flight, which amazed many of the locals who were aware of young Klutz's past projects, was deemed successful to the point that young Klutz, immediately upon landing, announced to all present, the formation of the Klutz Aero Service. Shortly thereafter, the Klutz Flyin' Flivver was a familiar sight to all, as it lumbered through the skies of Southern New England. Busi-

FLYIN' FLIVVER

Designed By: Bob Wallace

TYPE AIRCRAFT

Sport Biplane

WINGSPAN

Top, 44 3/4" — Bottom, 40"

WING CHORD

9 Inches

TOTAL WING AREA

763 Square Inches

WING LOCATION

Biplane

AIRFOIL

Symmetrical

WING PLANFORM

Constant Chord

DIHEDRAL, EACH TIP

1" (bottom wing only)

O.A. FUSELAGE LENGTH

40 1/2 Inches

RADIO COMPARTMENT AREA

(L) 9" X (W) 3 1/2" X (H) 3 1/8" min.

STABILIZER SPAN

18 Inches

STABILIZER CHORD (incl. elev.)

6 1/2 Inches

STABILIZER AREA

112 Square Inches

STAB AIRFOIL SECTION

Flat

STABILIZER LOCATION

Top of Fuselage

VERTICAL FIN HEIGHT

5 3/4 Inches

VERTICAL FIN WIDTH (incl. rudder)

7 1/4" (Max.)

REC. ENGINE SIZE

.40 cu. in.

FUEL TANK SIZE

8 Ounce

LANDING GEAR

Conventional

REC. NO. OF CHANNELS

4

CONTROL FUNCTIONS

Rud., Elev., Ail., & Throt.

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply & Maple
Wing	Balsa & Maple
Empennage	Balsa
Weight Ready-To-Fly	80 Oz.
Wing Loading	15.1 Oz./Sq. Ft.

ness was apparently booming for the fledgling Klutz Aero Service and, in an effort to keep pace with the increased demand for rapid pick-up and delivery services, the Flivver was frequently overloaded. This, coupled with the aircraft's heavy weight and marginal power, necessitated frequent low flying. The cry of "Duck, Here Comes Klutz" was soon to be heard throughout the countryside. This brand of flying was eventually to raise the ire of many and lead to the sudden demise of the Klutz Aero Service.

On a hot, humid day in August of 1930, Klutz was bound for the Hamlet of Onionville in the Farmington Valley, with a mystery cargo, which was rumored to be illegal spirits, destined for the local speakeasy. It was also the custom of young Klutz to "sample the goods" when carrying such cargo --- his reasoning being that it was poor business policy to deliver a bad batch. After an epic journey of 70 miles, which encompassed much sampling enroute, the Klutz Flivver was spotted approaching Onionville at a height of ten feet, flying inverted. As Klutz rumbled on into town, cutting a 300 yard swath through the Mayor's prize cornfield, the towns folk scattered in all directions. Klutz, still inverted, roared down Main street, leaving a trail of splintered telephone poles, signs and assorted other debris in his wake. The trusty Flivver, except for some minor scratches, remained intact and flew wildly on. However, the sustained inverted flight had a telling effect on the sturdy Kretzmer engine, which quit abruptly. Young Klutz, never one to be awed by adversity, struggled valiantly to roll the Flivver over in order to make an emergency landing. The combination of low altitude, insufficient airspeed, and Klutz's numbed reasoning combined to bring the Flivver to rest on its back in the

The dummy engine removed to show the real engine underneath.

mud flats at the far edge of town. Klutz, who was unharmed, wallowed to shore as the Flivver sunk beneath the slimy surface. Legend has it that young Clyde was last seen making a hasty departure from town, never to return.

The once proud Klutz clan, in a futile effort to protect the family name, ordered all records, drawings, and data pertaining to the Klutz model A Flyin' Flivver, be destroyed. However, the original design drawings, put down on 4½" wide perforated roll tissue, by Clyde and left in his outdoor study, were overlooked and consequently found their way into the Museum Archives.

In the years that followed, the Flyin' Flivver was forgotten, although the Klutz family was forced to relocate due to sustained public ridicule and scorn. Rumor has it that Clyde wandered throughout the land and finally settled in the wilds of Oregon where he met and married a fair young maiden, who was supposedly re-

Inside the Flivver - and plenty of room for everything.

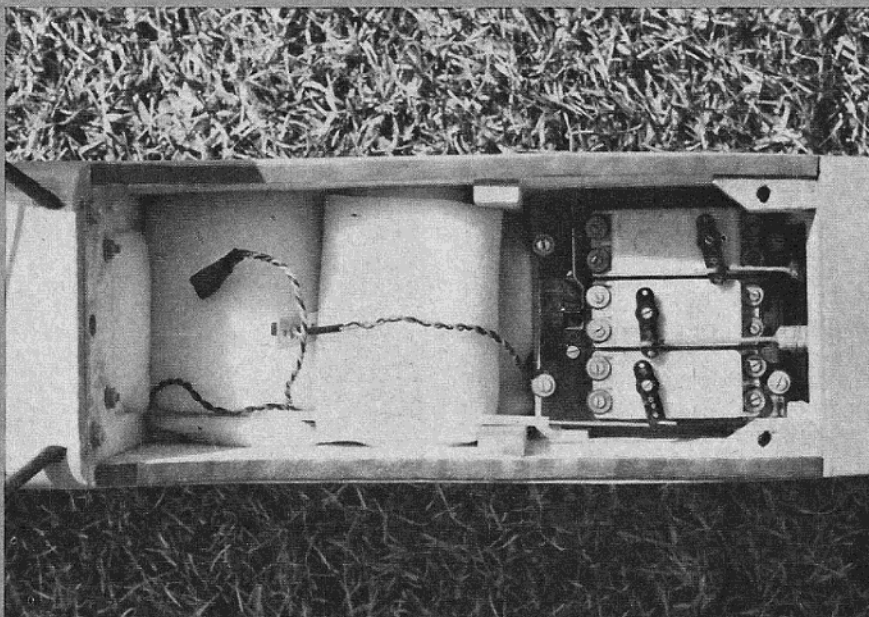
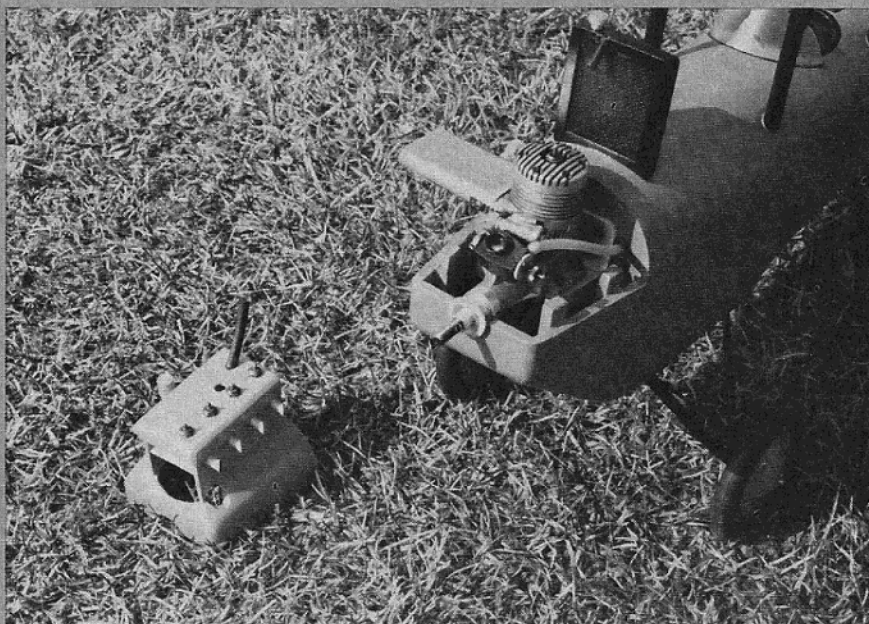
lated to the legendary Big Foot. A large family of little Klutzes resulted and, in the years that followed, many demonstrated their inherited aeronautical talents by entering in the R/C modeling field. To this day, the name Klutz is frequently heard being mumbled at every R/C flying field in the land, yet few know that it all began in the Farmington, Connecticut meadows in 1929.

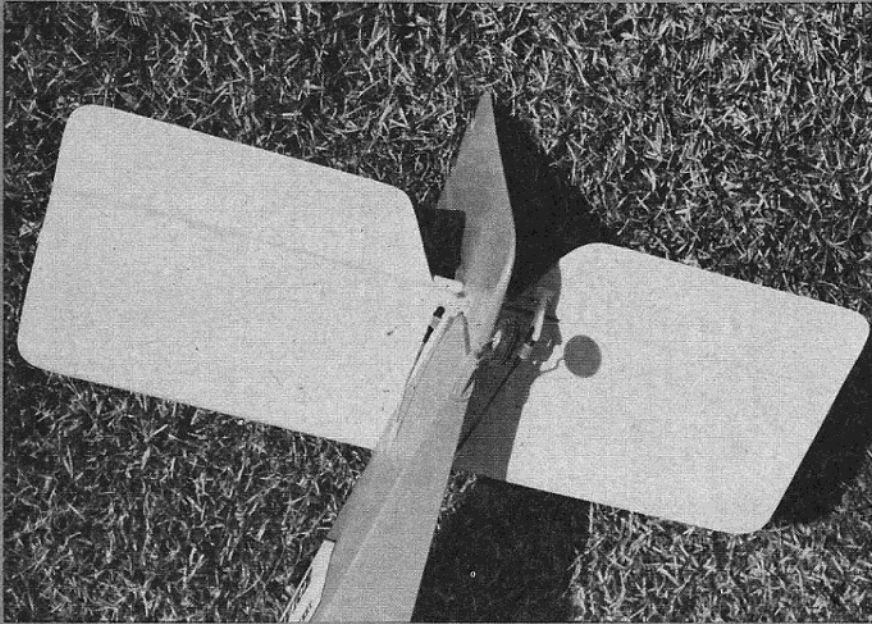
If you have had the tenacity to read this far, you must be interested in building a sport biplane with a vintage home-built look, or an RCM reader, such as myself, who reads every issue from cover to cover. In either case, we'll now start with the construction details, which follow simple proven methods.

CONSTRUCTION

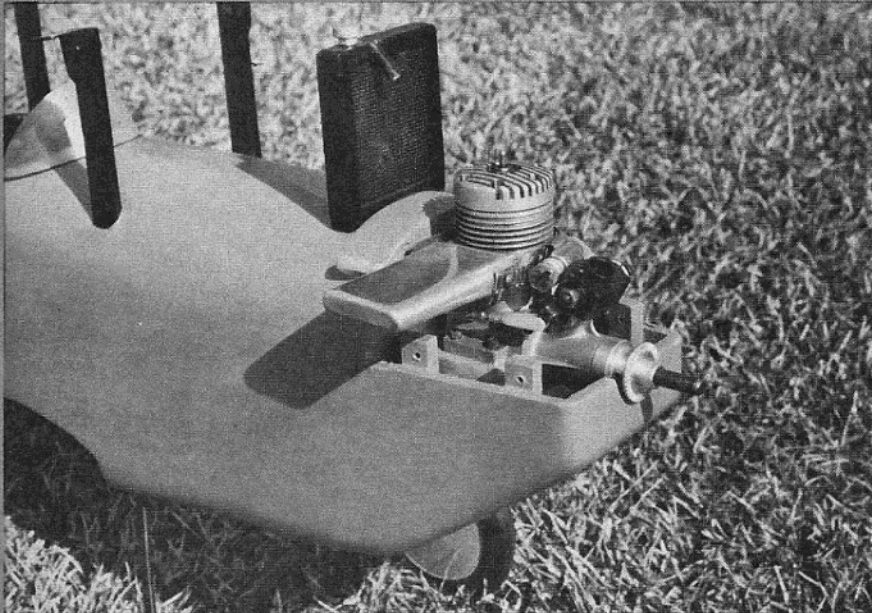
Wing: Start by cutting 34 wing ribs from 3/32" sheet and 4 from 1/8" sheet. Cut 4 aileron end ribs and 2 aileron well cap ribs from 3/32" sheet. Cut the 4 wing tip blocks from 1/4" sheet. In studying the plan sheet, you will notice that both

A nice day, two wings, and a trip back to yesteryear . . .





The tail feathers with linkages. Plenty of surface area if you want to go ape!



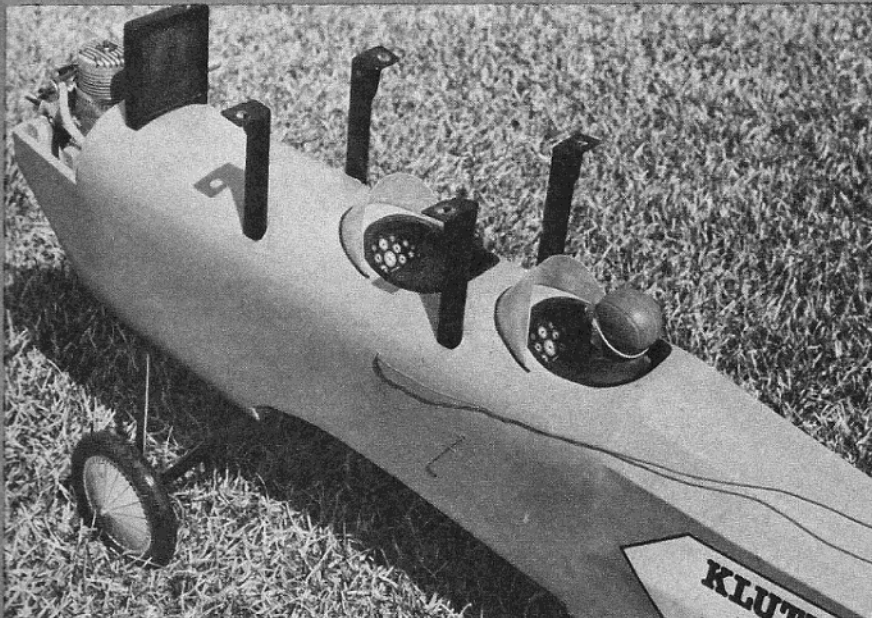
top and bottom wings are built over the same plan view. Any differences are noted with a (B.W.) for bottom wing and a (T.W.) for top wing. The top wing is two rib spans larger and is easy to build in one piece, as it has no dihedral. If you own, or have access to, a wing building jig, so much the better as its use will greatly simplify wing construction. Just drill the jig rod holes in the ribs in the proper location, and assemble the respective ribs, spars and sheeting. The assembly sequence covered here will be via the flat building board route.

Start by pinning the 1/16" bottom leading edge sheet in place over the plan. Pin and glue the 3/16" x 3/8" bottom spar in place. The 1/16" trailing edge bottom sheet should be shimmed up to the proper height and pinned in place. If you have access to a table saw, a strip can be cut (from scrap lumber) that is 5/8" x 1" x 42" long, with an 8° angle cut on one 1" face. This strip will shim the

We already told you what this was – why did you want to see it again?

trailing edge sheet perfectly for both top and bottom wings. The 6 center section ribs (4-3/32" and 2 1/8") should be notched on the bottom to accept the front 1/4" x 1/2" hardwood wing hold-down block. Pin and glue all ribs in place. Glue the 1/4" x 1/2" hardwood front hold-down block in place. Glue the top 3/16" x 3/8" spar and 1/4" square leading edge in place. Glue the center section trailing edge block in place and add the top 1/16" sheet trailing edge. The bottom 1/16" leading edge sheeting should now be shimmed up to the 1/4" square leading edge, rib bottoms, and glued. Add the top 1/16" leading edge sheeting and glue. The top of the center section 1/16" sheeting can now be added along with the 1/4" sheet wing tips. Glue the 1/16" x 3/16" top cap strips in place.

When dry, remove the top wing assembly from the building board and add the 1/4" x 7/8" x 1/2" hardwood rear hold-down blocks flush with the rib bot-



If you can pass this up, you probably don't like apple pie, girls, or football, either!

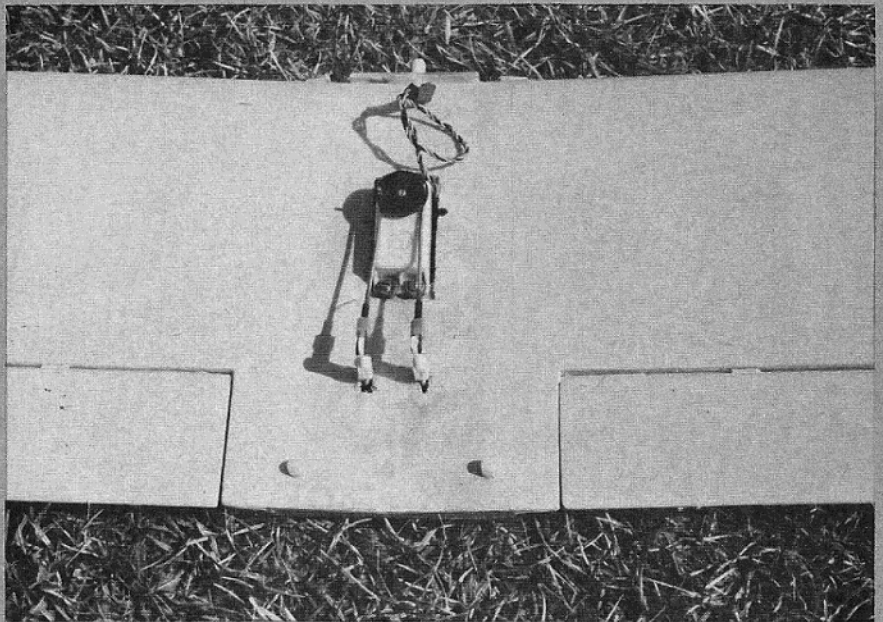
The aileron linkage is conventional. That means it's also straightforward.

toms. The bottom center section 1/16" sheeting is now installed, along with the 1/16" x 3/16" bottom cap strips. The wing strut blocks are more easily installed when the two wings are bolted in place on the fuselage.

The bottom wing can now be constructed. (Remember the bottom wing is shorter in span by two rib sections.) Mark the aileron cut lines on twelve 3/32" ribs with either a felt tip or ball point pen. The ailerons are cut out after each wing panel is assembled. Start by pinning to the plan the 1/16" bottom leading edge sheet. Pin and glue the 3/16" x 3/8" bottom spar in place. The 1/16" bottom trailing edge sheet should be shimmed up to the proper height and pinned in place. Pin and glue the ribs in their proper locations. The 1/8" center section ribs should be angled 3 degrees to insure the proper dihedral angle. Pin and glue the top 3/16" x 3/8" spar and 1/4" square leading edge in place. The bottom 1/16" leading edge sheet can now be shimmed up to the 1/4" leading edge, rib bottoms and glued. Pin and glue the top 1/16" leading edge down. Install the angular trailing edge hardwood hold-down blocks and glue. The 1/16" trailing edge sheet is now glued in place. Add the top center section 1/16" sheeting, top 1/16" x 3/16" cap strips and 1/4" sheet cap strips, and 1/4" sheet wing tips.

When dry, remove each wing panel and add the 1/16" center section bottom sheeting and bottom 1/16" x 3/16" cap strips. The ailerons should now be carefully cut from each wing panel. The rib material (between the previously marked cut lines) is discarded. Glue the 1/4" x 7/8" strips in place, making sure that the aileron fits properly into the wing cut-out. Glue the aileron end ribs and aileron well cap ribs in place. Install the aileron horns and cut the hinge slots as indicated. The two wing halves can now be joined together at the proper dihedral angle. Install the 1/4" hardwood dowel, front hold-down. The leading edge of both wings can now be sanded to the proper contour and the entire wing surfaces sanded smooth. The center sections of both wings should be reinforced with fibreglass cloth and resin. The aileron servo opening and servo rails are now installed in the bottom wing.

Tail Surface: Both the horizontal and vertical tail surfaces are constructed in the same fashion. The rudder and elevators are cut from 3/8" sheet and sanded to the proper shape. The elevators are joined together with a section of 1/4"



dowel. The vertical fin and stabilizer are constructed on the plan, using the indicated wood sizes, pinned and glued in place. These frames are then covered with 1/16" sheet, top and bottom. If you are using water soluble glue, it is recommended that the tail frame assemblies be pinned down or weight covered, when the 1/16" sheeting is applied, to avoid warpage. The hinge slots are now cut and all tail surfaces are sanded smooth and to the indicated shape.

Fuselage: Cut out the 3/16" sheet fuselage sides, 1/8" sheet fuselage doublers, and all plywood and balsa bulkheads and formers. Epoxy the 1/8" fuselage doublers to the 3/16" fuselage sides. Glue bulkheads F1, F2, and F3 in place, making sure each is square. Install the 3/8" triangle stock reinforcing aft of the firewall (F1). Position the engine mount in place and mark and drill the mounting holes into F1. Install blind nuts on the back of F1 to hold the engine mount. Add formers F3T, F4T, F5T, and the 1/8" x 1/4" cross braces (below F4T and F5T) and glue. The 1/8" sheet fuselage bottom is now glued in place, cross grain. Position and glue the top 3/16" x 1/4" stringers in place. Add the 3/16" x 1/8" stringers to the fuselage sides.

The landing gear should now be bent from 5/32" and 3/32" music wire, as shown, and mounted to bulkheads F1B and F2 with J-bolts. Wrap and solder the landing gear joints as indicated. Add the 1/4" sheet front fuselage bottom. Install the engine throttle control rod through bulkheads F1 and F2. Add the 1/4" sheet fuselage top pieces. Assemble the 1/4" sheet lower half engine cowl pieces and glue in place. The 1/4" sheet top half cowl pieces should be glued together, but only tack glued to the lower cowl and F1. For the purpose of shaping to the proper contour, sand the fuselage to the

designated contour. Remove the top part of the cowl, cut the two cockpit openings and from the lower wing opening, install the 1/8" sheet instrument panels and cockpit floor. The hardwood lower wing mounting blocks are now installed, along with the servo rails, to fit your particular servos or tray. Install the tail wheel and bracket. Position the lower wing in place, making sure that it fits properly. Drill the lower wing mounting bolt holes through the wing, and into the hardwood mounting blocks, with a #7 drill. Tap the hardwood mounting block holes with a 1/4-20 tap. Drill out the holes in the wing with a 1/4" drill to accept the 1/4-20 nylon bolts. Bolt the wing in place and add the bottom blocks to the lower wing center section. Sand these blocks to the proper fuselage contour. The top wing aluminum angle brackets should now be fabricated as shown on the plan and attached to the maple wing supports. Position the top wing in place. Mark, drill and tap the top wing mounting holes. Bolt the top wing in place. Place the horizontal stabilizer in place and check the alignment and incidence of both wings and the stabilizer. The wing strut blocks can now be installed, using the 1/4" x 1/2" hardwood struts as a guide to insure proper wing-to-wing alignment. The engine cowl and radiator can now be fabricated according to the detail views shown on the plan. Glue the 1/16" plywood inserts in place on the top cowl. Install the cowl attachment blocks inside the lower portion of the cowl. Drill the four cowl attachment holes through the plywood inserts into these blocks. Also drill a small hole, as shown, in the bottom of the lower cowl for drainage of residual oil. Disassemble, and fine sand all component parts in preparation for finishing.

Finishing:

The original Flyin' Flivver was covered

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with silkspun Coverite. Prime coats were with K & B Superpoxy Primer. The wings, horizontal tail surfaces and fuselage side portions were finished with a

2/3-1/3 mix of K & B Superpoxy yellow and white, with satin finish catalyst. If you have used yellow in the past, you are well aware of its poor covering qualities. It helps considerably to tint your primer with some yellow if you decide on that color. The fuselage and vertical fin and rudder were painted with 2/3-1/3 mix of K & B Superpoxy blue and white, with satin finish catalyst. The "Proud Klutz Logo" on the fuselage sides was applied with Chart Pak "velvet touch" transfer lettering, and covered with K & B clear satin finish. The "velvet touch" type lettering is available in most drafting and/or art supply stores. It is different from the other brands of transfer lettering, in that it is a vinyl type transfer process. Its one drawback is that it will not readily transfer to a glossy or slick surface.

The heat shrinkable films should work equally as well, as a finishing medium, and result in a even lighter aircraft which is certainly an added bonus. Ya takes yer choice! The only point to be stressed in your finishing process is *keep it light!* If you yield to the temptation to apply a "super" finish, in all probability you'll wind up with an overweight aircraft that will be marginally powered with a conventional .40 size engine, and one that will likely be tail heavy to boot. Airplanes that fall in this category just don't fly too nice or too long!

FLYING

No attempt is being made to try to tell you how your Flivver will fly since there are many variables involved. It is not intended as a beginner's type model. However, any flyer who has had a reasonable amount of aileron, elevator, rudder, and throttle experience should have no difficulty and, hopefully, many hours of enjoyment at the flying field with this sport design. Build it light and you'll have a real fun type design, with a vintage look.

If you're lucky, someone at your flying field may even call you a "Klutz"! □