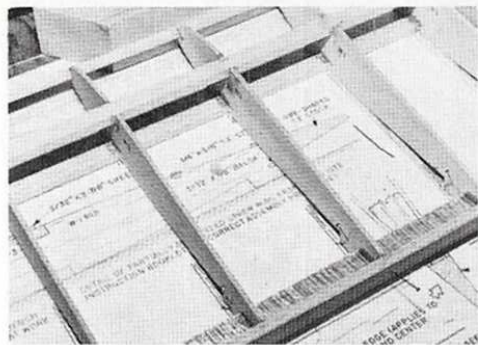
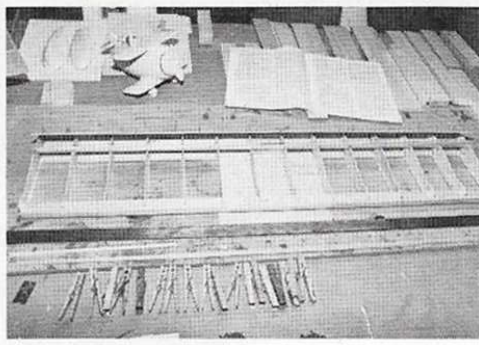
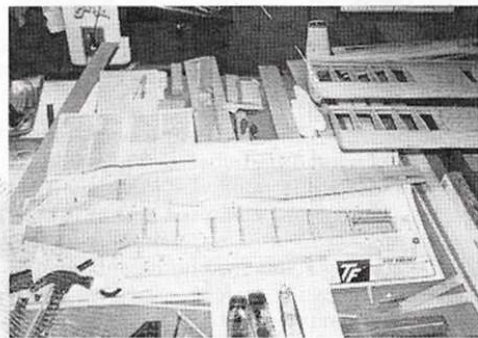




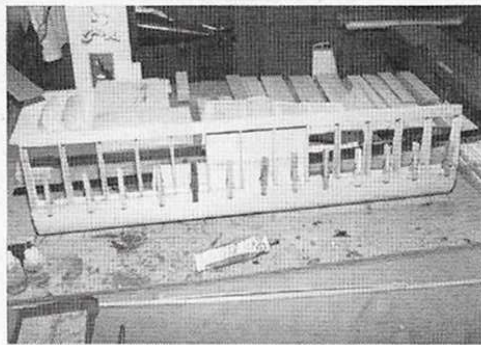
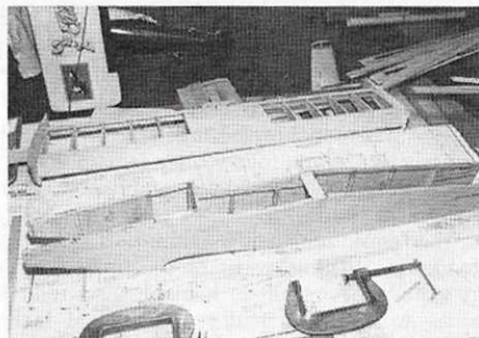
**TOP FLITE'S**  
**“Hot Canary”**



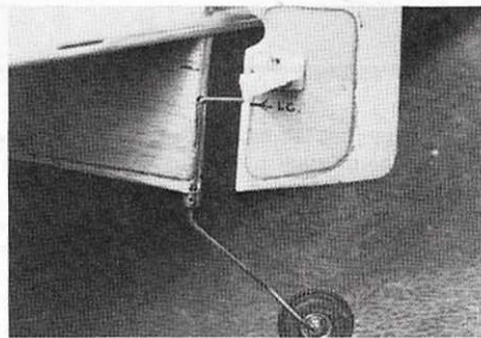
**Start of the wing construction (above).** Tabs located at the bottom of each rib make assembly easy without need for a wing jig. Fuselage sides under initial construction (**below**). Plenty of strength here even without ply doublers.



**The wrap-around wing leading edge sheeting** makes it necessary (**above**) to first glue sheeting at the front leading edge; then let it dry. Here are the fuselage sides under initial construction (**below**). Alignment strictly "eyeball".



**After the glue has dried in the sheeting/leading edge joint (above),** it is then time to pull the rear of the sheeting down onto the main spar. To alleviate landing loads on the tail wheel (**below**), Bob modified the tail wheel bracket (see text).



## Top Flite's Hot Canary

forward sheeting wraps over the  $\frac{1}{4}$  inch square leading edge stock. When attaching the first sheet (let's say the top piece) you can easily use clothespins to hold the sheeting in place while the glue dries. When the other sheet is added (the bottom in this case), you no longer have a surface which will accept the clothes pin clamps. A friend suggested that I use masking tape to hold the sheeting in place. What I ended up doing was to first glue the sheeting to the leading edge. After the glue dried I wet the rear side of the sheet and then pulled it back over the main spar. The clothes pins were then easily applied at the spar position. It worked, but if the sheeting had butted up to the leading edge in the first place, none of this extra work would be required. The plans do not call for vertical grain sheeting between the ribs at the main spar line. Believe me, these wings are strong enough, without the webs. The two main spars are balsa (not spruce) but are quite larger. Since both wing panels are flat (no dihedral), they are constructed as one piece units without the need for center joints.

I did note several problems with regard to the various control surface installations. On the ailerons, for example, the pre-bent wire torque rods (you may also call them control horns) are bent in such a way that they enter the balsa just underneath the surface. It would be most difficult to drill a hole to accept these torque rods without breaking through the top of the aileron stock. What I did was re-bend the torque rods so that the end that penetrates into the aileron points further down into the thick portion of the balsa material. This eliminates the chance of the rod (wire) breaking out of the balsa. On the elevators, in the rear, Top Flite shows the use of a hardwood dowel to join the two

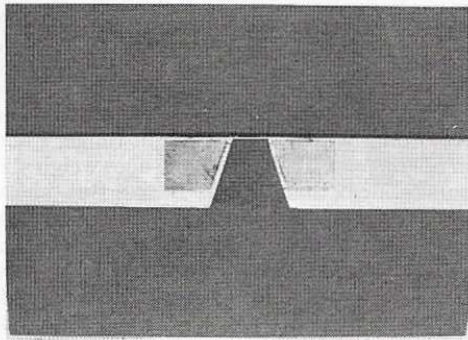
halves. I replaced this dowel with a  $\frac{1}{8}$  inch diameter wire which I bent in a "U" shape. Our local club rules prohibit the use of dowel elevator joiners, because of several bad experiences in the past. In addition, I added a top and bottom laminate of  $\frac{1}{32}$  inch thick plywood on the inboard elevators and the lower portion of the rudder. This not only braces the balsa control surfaces but provides a more rigid support for the two nylon control horns. My final modification involved the installation of the tail wheel strut. On the plans it appears that the  $\frac{1}{16}$  inch wire strut is simply mounted to the rudder. All the load is therefore placed directly on the rudder and its hinges. Instead, I fabricated my own tail wheel bracket using  $\frac{1}{16}$  inch I.D. brass tubing which was silver soldered to a one inch square brass strip. This strip is then epoxied between the fuselage sides at the rear most point. All the tail wheel loads are now transmitted directly to the homemade bracket, rather than just the rudder itself.

The wing hold down system is simple and works! Each wing has a single forward  $\frac{1}{4}$  inch diameter hardwood dowel and two 8-32 nylon screws at the trailing edge. Top Flite supplied 8-32 metal screws which can be used initially to cut the necessary threads in the plywood mounts. It sounded a little unusual to me, but I assure you it did work. Both wings lined up perfectly without the need for any trimming of either saddle. In fact, I didn't have to resort to any wing seating tape.

Landing gear wheel/wheel plant assembly is another easy job because of Top Flite's planning. The wheel pants are vacuum formed from plastic in two halves. All you do is cut out for the wheel clearance. Then attach the inboard half of the pant to the alumi-

num landing gear strut using a small plywood insert. Cyanoacrylate glue is used in this step. A second alignment screw (2-56) is added to maintain the proper position of the pant with respect to the landing gear. Attach the Kraft racing wheels and then cement the other half of the wheel pant in place using cyanoacrylate type adhesive. The only problem with this set-up is that you don't have any access to the inside of the wheel pant assembly after the cement dries. If that wheel collar inside the Kraft wheel comes loose, you are in for "major surgery". I must admit that I filed a small flat on the wheel shaft to preclude this from happening.

Since this is a Top Flite kit you just know I ended up covering this entire model with their Super MonoKote™ heat shrink material. To do anything less than that would be an insult to those folks (Top Flite) that developed that product over twelve years ago. The basic color scheme is all yellow (actually opaque Piper Yellow) with a small amount of opaque Sky Blue trim around the top wing center section, which extends forward to the spinner. The border between the two colors is trimmed with  $\frac{1}{8}$  inch wide black tape obtained from a local automotive finishing store. The full size "Canary" had large racing numbers (No. 97) on either side of the fuselage (near the cockpit) and another set of numbers out on the top, left wing panel (near the tip). Top Flite has the name "Hot Canary" on the top wing of their prototype model which is featured in their advertisements. They did this by making a Xerox copy of the kit box label and using that as a stencil to cut the letters out of the Sky Blue Super MonoKote. Some of the final finishing steps include the addition of a Williams Bros. No. 185 pilot head (not supplied with the kit).

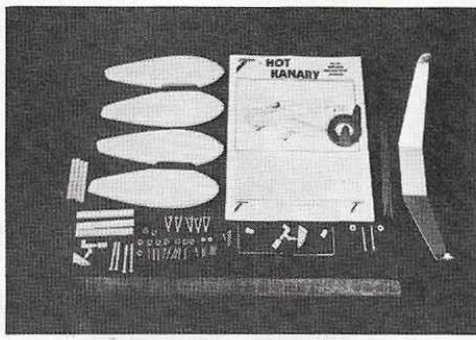


The elevator halves are joined together with 1/8 inch wire instead of using the wood dowel supplied in the kit. 1/64 scrap ply pieces reinforce the wire joiner and also provide a firm mount for the elevator control horn.

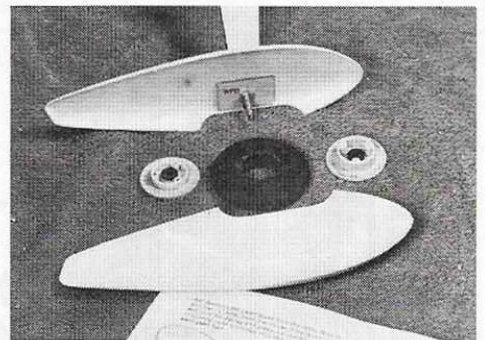
This head must be cut down to fit a recessed hole in the top cowl block. You will also have to shape, sand and Super Monokote cover a pilot's headrest. I cemented this in place after the covering was completed. Unfortunately a small amount of painting is still required. I found that the Hobbyoxy Bright Yellow (H-47) epoxy paint shade will roughly match the color of the Super MonoKote™. With this color I painted the landing gear, wheel pants and the inside of the engine compartment area (three brushed coats were adequate). Top Flite supplies a piece of flat acetate which must be cut and bent to shape to form a pilot's windshield. As you can see in the photos, I installed the rear portion of a standard Sig 10 inch canopy. This was easier to install (with cyanoacrylate glue) and is actually closer to the canopy style employed on the full size plane.

For the radio system, I chose my new Airtronics Championship series which was reviewed in the December 1982 FLYING MODELS. Just prior to the first flights of my Hot Canary, Dave Shadel provided me with the first production version of a new Airtronics single stick transmitter. I prefer that configuration over the more usual dual stick versions. A detailed overview of this new Airtronics transmitter will appear in FLYING MODELS shortly. Weight of the Airtronics airborne components is 10.5 ounces (rather light!). This same radio system is shown on the Top Flite plans so it made the installation job quite easy for me. The servos used are the small Airtronics model 94461, which are roughly the same size as the Bantam Midgets. Since the R/C compartment is so large you could literally place any type of radio system in it. The aileron servo mounts on the upper portion of the lower wing. One thing nice with this particular biplane configuration, you can remove the top wing and observe the complete operation of the servos. If something is binding it will be very obvious and can be easily corrected. I used the 1/4 inch dowel control rods supplied with the kit to connect the servos with the elevator and rudder control surfaces. With the exact locations shown on the plans for the cut-outs, I was able to make straight runs directly to the rudder and elevator control horns, without the need for any bends (which is important). The throttle connection was made with a Sullivan flexible brass cable inserted into a Sullivan Gold N' Rod (red) outer tube. I also ran another length of Gold N' Rod (red) tubing from the middle of the R/C compartment all the way out to the tail end of the fuselage. In this tube I inserted the radio receiver antenna. This internal (to the fuselage) antenna

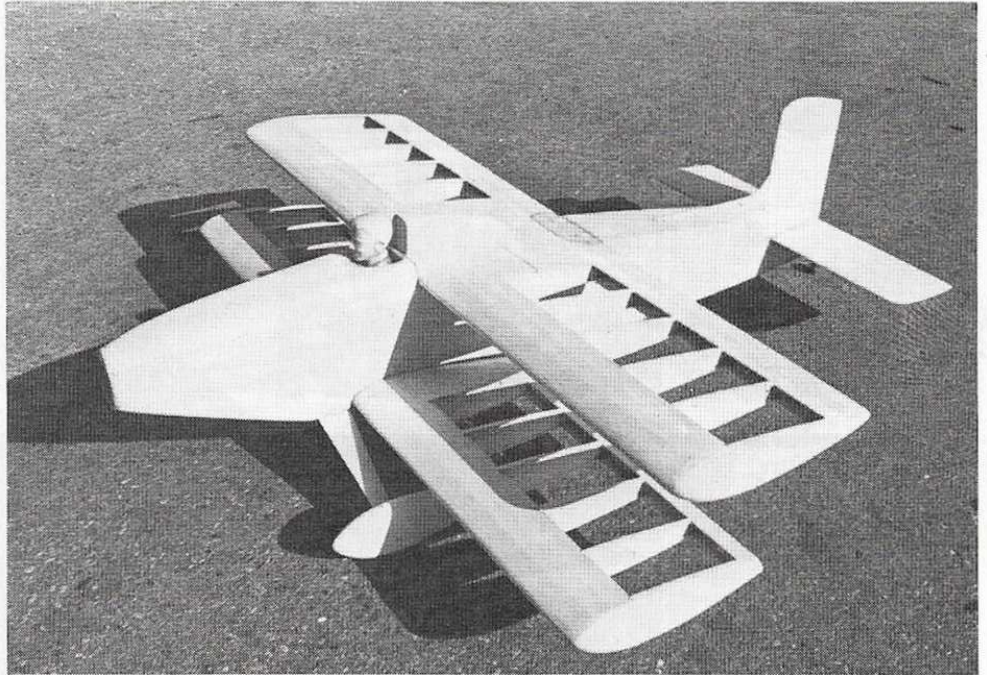
FLYING MODELS



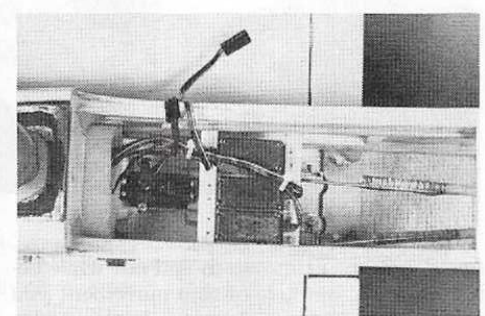
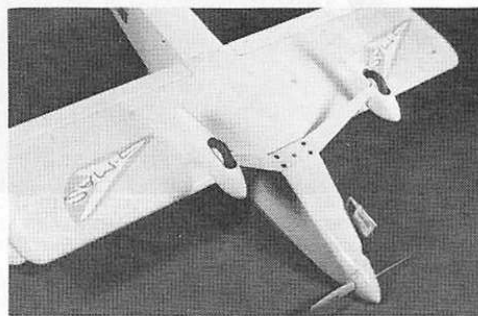
Some of the accessory hardware supplied with the Hot Canary kit. Aluminum landing gear and a glass-filled motor mount also included. An instruction booklet supplements the plans and sticking to it can certainly help in a correctly built plane.



The procedure for assembling the molded plastic wheel pants is very easy to follow. Kraft racing wheels are perfect for this application. Be sure to have some cyanoacrylate glue handy for these assembly steps since it simplifies them.



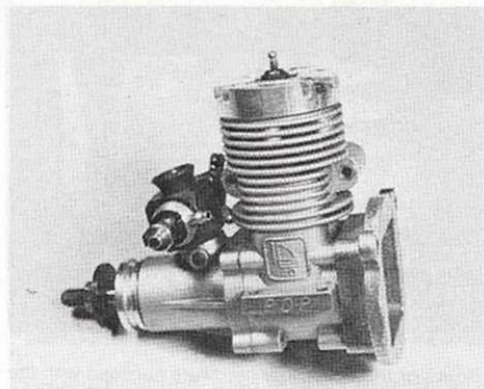
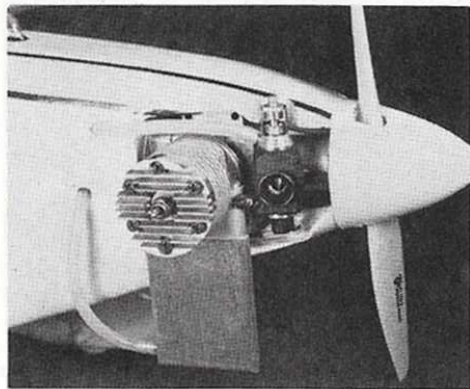
Ready for covering. A lot of sanding is required to finish the model (above). Wheel pants and landing gear (below left) were painted with Hobbyoxy Bright Yellow which matches the GMAS decal made from Super MonoKote™. The radio compartment is large (below right). View is with top wing removed.



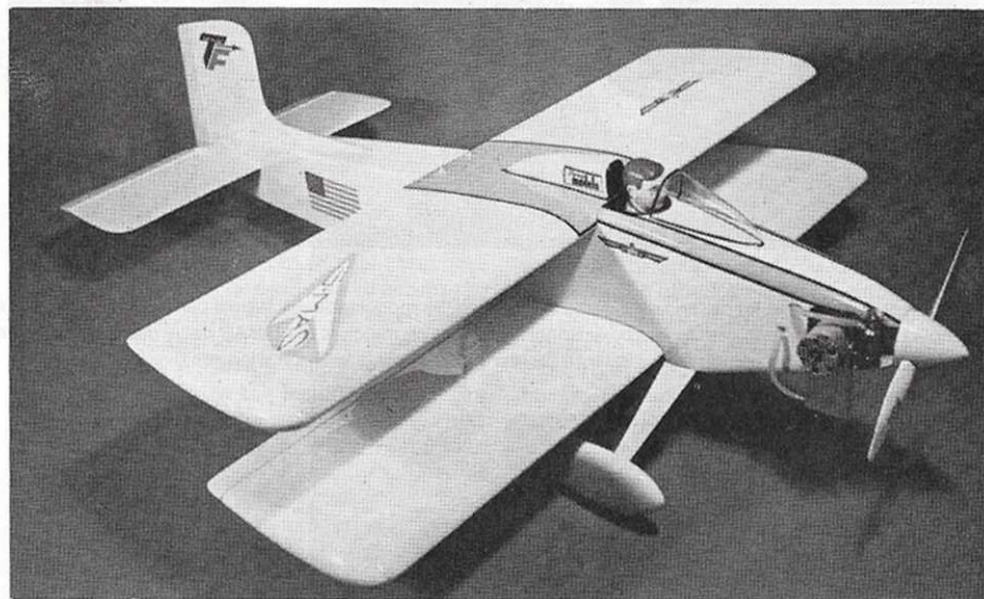
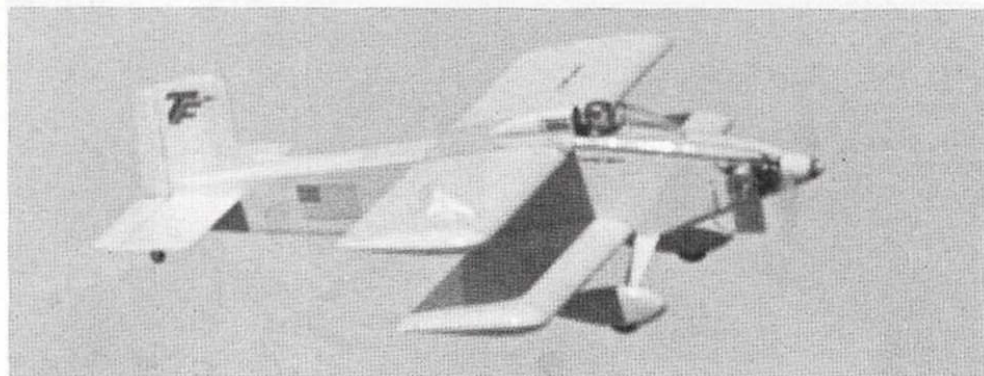
has worked fine for me. An external radio antenna would definitely be out of place on a model such as this. The square battery pack (500 mAh variety normally supplied with Airtronics systems) was located under the fuel tank and directly above the landing gear mount. A flat pack (as shown on the plans) would probably have fit more easily. Be careful that the 4-40 machine screws holding the aluminum landing gear in place don't project beyond the plywood mount. If they do, cut them off flush; otherwise, these screws could easily penetrate and damage the battery pack. Actually the same applies to the motor mount screws. If they are allowed to project beyond the firewall (inside the fuselage), they

could easily puncture the fuel tank on a rough landing.

My choice of an engine was the popular HB .40 PDP which is available from Bavarian Precision Products Co. (22 East Ave., New Canaan, CT 06840). This particular engine was reviewed in the April 1979 issue of FLYING MODELS as part of an overall Quickie 500 model kit review. Since my HB .40 was well broken in and proven to be reliable I wanted to stay with it for this special project. As a point of updating my engine, Alex and John Amarillos of Bavarian Precision provided me with one of their new Model 4915 carburetors, to replace the original Perry unit. The barrel on this new carb moves in



Bob's Hot Canary sports an HB .40 PDP. The muffler (above left) is a Slimline Products 1000 muffler. The engine (above right) comes with the new HB No. 4915 carburetor. Special rear radial mount worked well.



two directions (it moves in and out while being rotated). Because of this movement you will need some extra clearance in the engine compartment for the throttle linkage. I also obtained a special HB rear crankcase cover/radial mounting plate (P/N 7008- approx. \$6.00). It appeared to be a good idea and it does save some space in that crowded engine compartment. If you use this mounting plate make sure you place flat washers and locking washers under all three firewall mounting bolts. Should you choose the K & B .40 engine then, of course, you can use the glass filled mount supplied with the kit.

For engine accessories I took the suggestion of Top Flite and obtained a Slimline Products Series 1000 muffler. These mufflers are available from Jim Leonard of Slimline Mufflers, P.O. Box 3295, Scottsdale, Arizona 85257 (602-967-5053). Their model 1102, in-

tended for the ST .46, Veco .61 and the Webra .60 engines, also fits the HB .40 PDP. However, you will have to slightly enlarge the muffler mounting holes on the HB engine to accept the screws supplied by Slimline. I didn't particularly like doing this to my engine. Let's hope that Jim will alter the screw size in the future so that this procedure can be eliminated.

A Kress Technology (27 Mill Road, Lloyd Harbor, New York 11743) 8 ounce capacity "Simplstopper" fuel tank worked out well in this application. These tanks have very convenient "plumbing" connections that eliminate the need for bending and cutting brass tubing. A single vent line is attached to the muffler pressure tap. For a spinner I selected the Carl Goldberg 2 1/4 inch diameter variety. The yellow color doesn't match the Super MonoKote too closely, nor is the spinner con-

tour quite correct for this application, but I happen to like Carl's spinners because they are both safe to use and inexpensive.

Final weight of my model was 86 ounces. According to Top Flite's weight range, I am in the *top end*. The HB engine does weigh 4.2 ounces more than a K. & B. .40. But, since my Hot Canary balanced perfectly at the very front leading edge of the top wing, a lighter weight engine only would have contributed to a tail heavy model. Top Flite did suggest the use of a CB spinner and a heavier muffler (than the 2 1/4 ounce Slimline) to correct any tail heavy situations. But the overall message is—build the tail as light as you can.

My Hot Canary was completed one week after Long Island received a 24 inch cover of snow (February 11, 1983). Fortunately, with the help of fellow modeler, Nick Zirolì, I was able to get to use the large parking lot of a local municipal park/beach facility. First flights were in 35 degree weather, with winds moderate at 10-15 MPH. Despite the new HB carburetor (which I was unfamiliar with) it only took one quick engine run-up and one extra turn of the low speed idle jet to obtain a reliable engine idle (a plus for this unit!). Nick Zirolì didn't like the large amount of control surface throw I was using on both the aileron and elevator. I had established the control throws per the recommendation in the Top Flite instruction booklet. So before making the first flight I did use the dual rate features on my Airtronics R/C system to reduce the aileron deflection to 5/16 inch either side of neutral (instructions called for 1/2 inch) and the elevator deflection to 7/16 inch either side of neutral (in this instance the instructions had called for an incredible 3/4 inch movement). This turned out to be a good decision. The Hot Canary got off the concrete parking lot surface in about 30 feet. The initial climb out was so startling that I immediately throttled back somewhat to get my composure. I found the aileron control to be fast and positive, yet the roll rate was moderate (comfortable) which was somewhat of a pleasant surprise. I did a few basic maneuvers and then concentrated on some slow fly-bys so that Nick could catch a few photos in flight. Be careful on low approaches, the sink rate at partial throttle settings is a little greater than you might first expect. Landing my very first R/C biplane turned out to be a pleasure. Although the Canary sinks fast, if you keep hauling back on the elevator, it doesn't have any tendency towards tip stalling. At touch down I still had complete aileron control authority and yet my forward progress at that point was extremely slow. I doubt if the model rolled out more than 40 or 50 feet on the concrete after touching down. I know I'm going to have a ball with this model. One thing to be careful about is the orientation in the sky. The biplane configuration combined with the all yellow color scheme tends to pose a visibility problem against a light blue sky. I could see myself getting confused at times. It bothered Nick more than myself and he wasn't even on the controls. It might be wise to put some type of stripe or checkerboard pattern on the bottom of the wings.

Did I like the Hot Canary ... you bet I did! It was easy to build because of the excellent quality of the kit. It flies well. As far as flying proficiency level goes, you should be able to fly the Hot Canary if you can already handle something like a Q-500 (.40 powered) racer.

You just have to be pleased—I am!