

Fast Freddy

By Fred Reese

For three channel radios, a hot sport .40 airplane. It's a versatile performer that can also be flown with floats or skis. A Quickee 500 in sheep's clothing!

Over the years, I have continued to build three channel sport airplanes in between more sophisticated aerobatic and scale aircraft. Three channel aircraft, like *Fast Freddy*, are quick building and versatile. This is the airplane I fly in unusual places or fly with floats or skis. *Fast Freddy* is unusual because most three channel models this size or for .40 size two cycle engines are of the trainer type. Although it has its docile qualities, with a K&B .40 pulling up front, *Fast Freddy* is not a trainer. Actually it is a *Quickee 500* in sheep's clothing. Other than in people's heads, it is not written that a fast .40 powered airplane has to have ailerons to perform well. *Fast Freddy* is fast. *Fast Freddy* will do axial rolls as well as many aircraft with ailerons. Inverted flight requires only a "touch" of down and, once in the air, you actually forget the ailerons are missing. I enjoy power, and the K&B 40 will pull *Fast Freddy* verti-

cally, from take off, for as long as I want to hold the nose up. *Fast Freddy* is a chance for those that bought a radio with only three servos to go beyond the typical three channel trainer in performance.

I have been flying *Fast Freddy* with a prototype set of ACE R/C floats. These are foam floats that can either be covered with wood and paint or simply be covered with EconoKote. The floats have a full length, T-shaped center spar of plywood for rigidity and mounting. To save time and weight, I simply put a strip of strapping tape down each side of the floats and covered them with white EconoKote. I also covered the bottom of the floats with strapping tape to protect the covering from punctures. I bolted a second aluminum landing gear to the fuselage and put screw eyes into the floats. The landing gears were then bolted to the screw eyes. Quarter by half inch spruce spreader bars were screwed between the floats. The floats work

very well and add a whole new dimension to flying. I planned for the floats while building and put foam tape around the wing opening in the fuselage to help keep water out. I have been flying from a small pond since *Fast Freddy* can take off very quickly on floats. However, with the high wing, it does not like cross winds. That's why I didn't bother with a water rudder. If it is windy, the wind blows

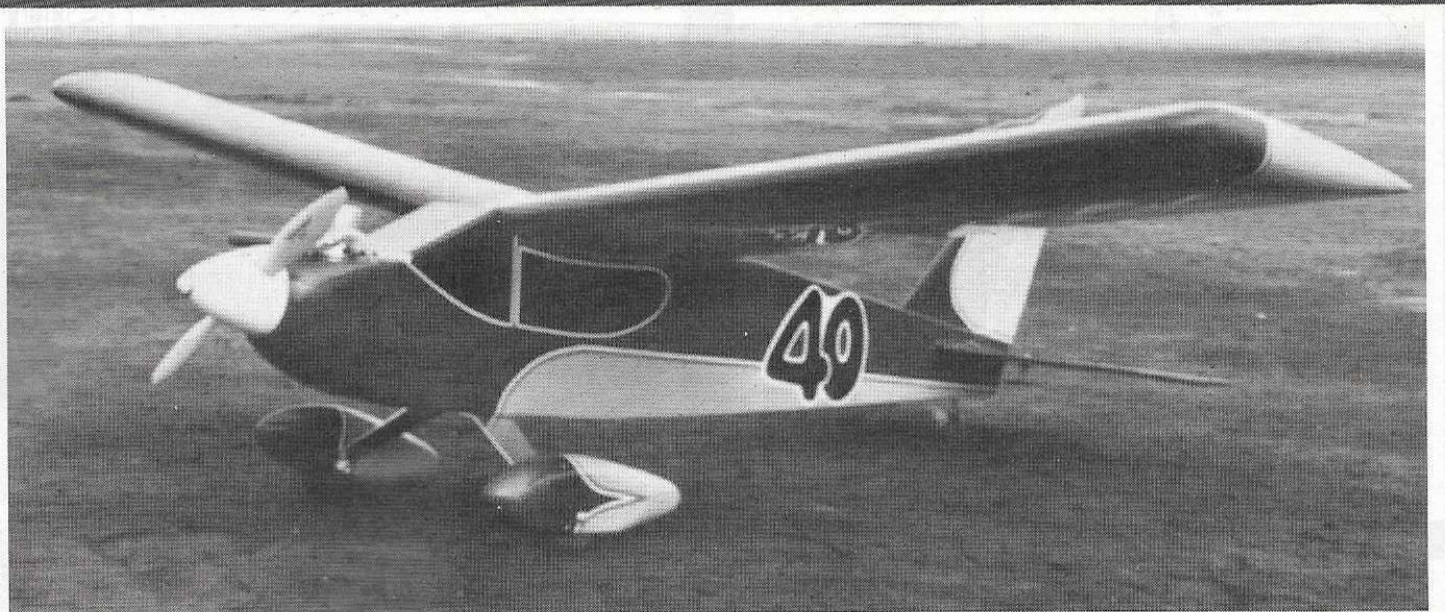
As I said before, *Fast Freddy* also has its docile side. The wing is quite thick and the C.G. on mine is at the forward location on the plan making it very difficult to spin and snap roll. If you want the model to spin and snap, move the C.G. aft. At idle or with power off, *Fast Freddy* tends to glide quite fast, so I usually feed in a little "up" trim for landings to slow it down. It can be slowed way down and still has good control. Ground handling is very good and take-offs are easy. It takes just a touch of right rudder to keep it straight as the tail comes up, but it tracks straight ahead after that. The landing gear placement, as shown, is for smooth runways. If you fly from grass, move the landing gear, forward about $\frac{1}{2}$ inch.

Construction

Fuselage. I used Zap-a-Gap for all general construction and five minute epoxy for the firewall, wing mounts, and landing gear mounts. Make up the fuselage sides from two sheets of $\frac{1}{8} \times 3$ inch balsa. Glue on the $\frac{1}{16}$ inch vertical grain balsa doubler between the firewall, B, and bulkhead D. Be sure to leave a notch in the $\frac{1}{16}$ inch doubler for the front wing hold down, C. Add the $\frac{1}{8}$ inch balsa stabilizer doubler and the $\frac{1}{4}$ inch balsa landing gear support, G. If you might try floats, later, extend G and add the second landing gear mount, F. Glue on the $\frac{1}{2}$ inch triangle behind the firewall and the $\frac{1}{4}$ inch nose doubler. Before gluing in the firewall, set the blind nuts for the motor mount and drill the holes for the fuel tank tubes and the throttle pushrod. Epoxy the firewall to one fuselage side and glue on bulkhead D. Glue on the second fuselage side. Epoxy in landing gear mount F and the front and rear wing hold down mounts, C and E. Be sure to glue in E, $\frac{1}{4}$ inch below the top edge of the fuselage sides to allow for the dihedral. Glue on the



The *Fast Freddy* has become author Fred Reese's flying companion in unusual places or when flying with skis or floats. The plane provides plenty of aerobatic capability on only three channels and a K&B sport .40.



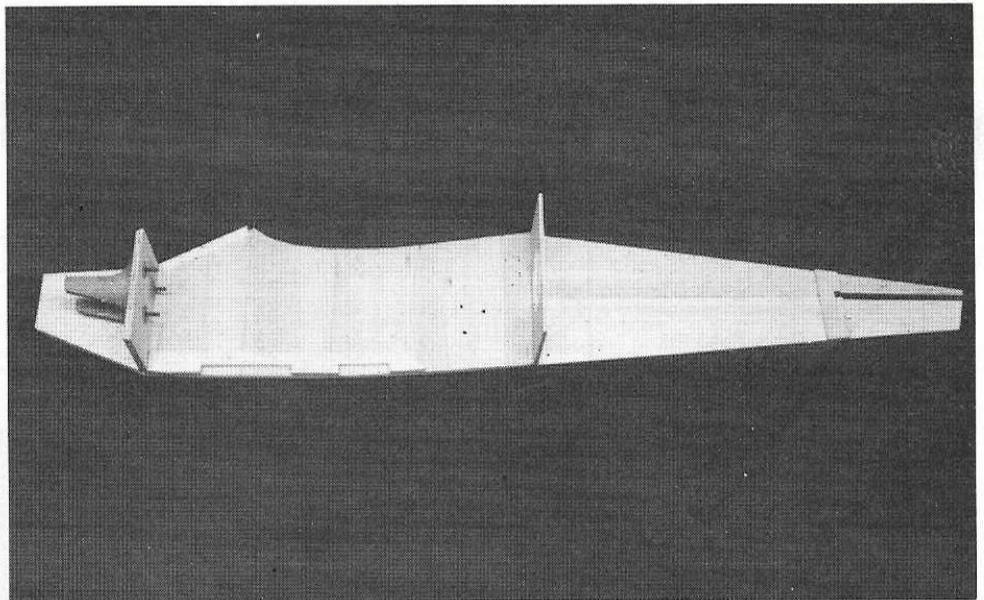
PHOTOGRAPHY, FRED REESE

bottom, front $\frac{1}{8}$ inch lite ply, but leave off the top piece until after the wing is fitted. Pull the tail together and glue and add the tail wheel support, H. Add the remainder of the top and bottom $\frac{1}{8}$ inch balsa sheeting. Glue in the $\frac{1}{2}$ inch triangle stock and the bottom nose block, then add the one inch trailing edge stock filler at the nose. Bolt the engine in place and fit the spinner ring, A, to the nose using the spinner as a guide, leaving a $\frac{1}{16}$ inch gap behind the spinner. Carve and sand the nose to shape.

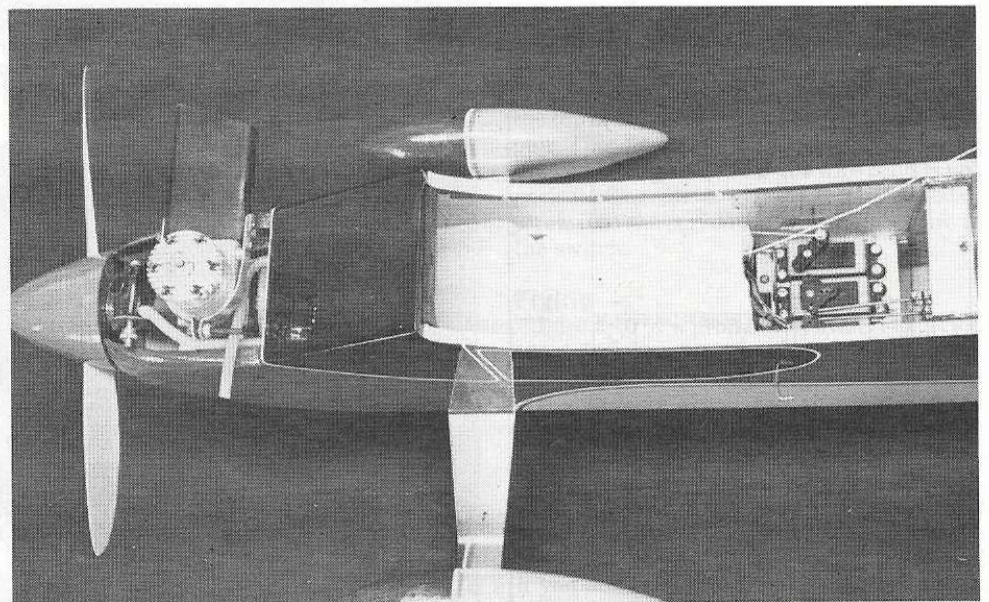
Tail. Cut out the tail surfaces from light $\frac{1}{4}$ inch balsa and bend the tailwheel wire. The tailwheel wire is slipped in from the bottom after all the parts are covered and with only the stabilizer glued into place. With the tailwheel wire inserted up through the fin slots in the stab and fuselage top, glue in the fin. Hinge the rudder and elevator with the tailwheel wire end inserted into a hole in the rudder. Attach the rudder control horn over the end of the tailwheel wire as shown on the plan.

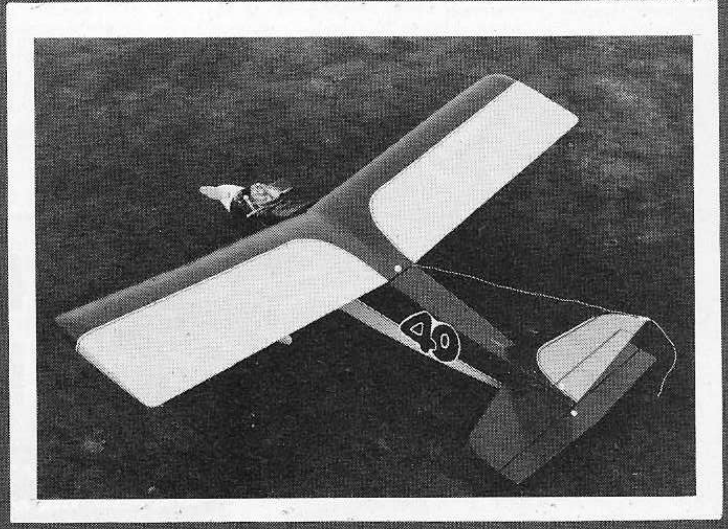
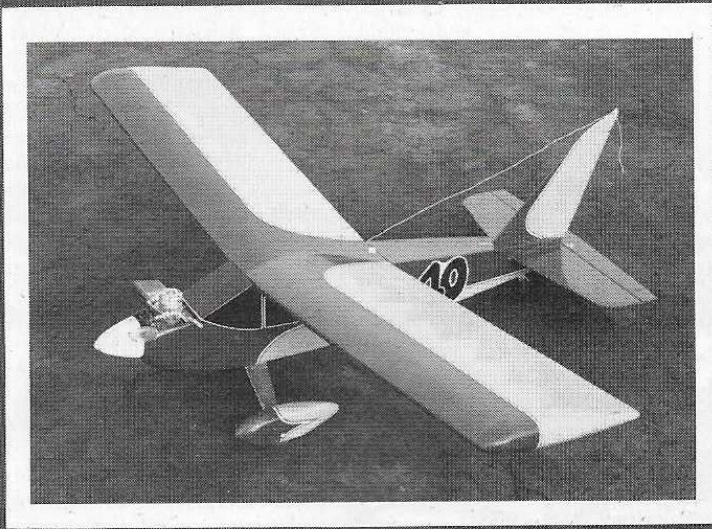
Landing gear. I used two $\frac{1}{4}$ -20 nylon bolts to attach the landing gear. If the plane hits really hard, the bolts shear off and the landing gear mount in the fuselage is not ripped out. I like this system. Drill the landing gear with two $\frac{3}{16}$ inch holes and use these holes as guides for the $\frac{3}{16}$ inch holes through the bottom of the fuselage. Enlarge the holes in the landing gear to $\frac{1}{4}$ inch and run a $\frac{1}{4}$ -20 tap through the plywood bottom of the fuselage.

Wing. Build the wing over the plan using Saran wrap or waxed paper to protect the plan from the glue. Pin down the bottom $\frac{1}{4} \times \frac{1}{2}$ inch spar and the $\frac{1}{16} \times 2$ inch bottom trailing edge. Glue on the ribs except W-1. Glue in W-4, the root rib angle guide, and then glue in W-1. Add the top spar and the one inch trailing edge filler between W-1 and the first W-3. Glue on the top trailing edge. Glue on the $\frac{1}{8} \times \frac{5}{8}$ inch leading edge glue strip. You will have to cut that strip from wider stock. The glue strip gives a forward edge to glue to the top and bottom leading edge sheeting. With the wing still pinned down, glue on all of the top $\frac{1}{16}$ inch sheeting. Turn the wing over and glue on the bottom $\frac{1}{16}$ inch sheeting. Trim the sheeting along the leading edge and glue on the $\frac{3}{8} \times \frac{3}{4}$ inch



Pre-drill fuel line, throttle push-rod, and engine mount holes before you get to this stage (above). The $\frac{1}{8}$ inch balsa fuselage sides are doubled with $\frac{1}{16}$ inch vertical grain balsa. Support the fuel tank with either the battery or a piece of styrofoam and some foam rubber (below). Centers it with the needle valve.





It's has rakish good looks from any angle and performs just as well. You'll soon find that take-offs are literally blast-offs!

leading edge. Rough shape and hollow the wing tip blocks and glue them to the wing tips. Trim the sheeting and spars at the root. Epoxy the wing panels together while blocking up one wing tip 6 inches. Carve and sand the leading edge to shape and finish shaping the wing tip blocks. Wrap the wing root joint with a 4-6 inch wide strip of 6 ounce fiberglass cloth and resin. Sand off the excess resin before it sets too hard and feather sand the cloth edges into the wood. Fit the triangular filler piece of $\frac{1}{8}$ inch balsa at the trail-

ing edge of the root joint. This fairs the wing into the top of the fuselage.

The large amount of dihedral drops the center of the wing deeper into the fuselage than is shown on the plan. The plan shows the wing cross section at the fuselage side, not the center of the fuselage. Fit the wing into the wing saddle. With the wing held firmly in the fuselage, drill the $\frac{1}{4}$ inch hole for the wing dowel into the leading edge of the wing using the hole in former C as a guide. Epoxy the wing dowel into the wing

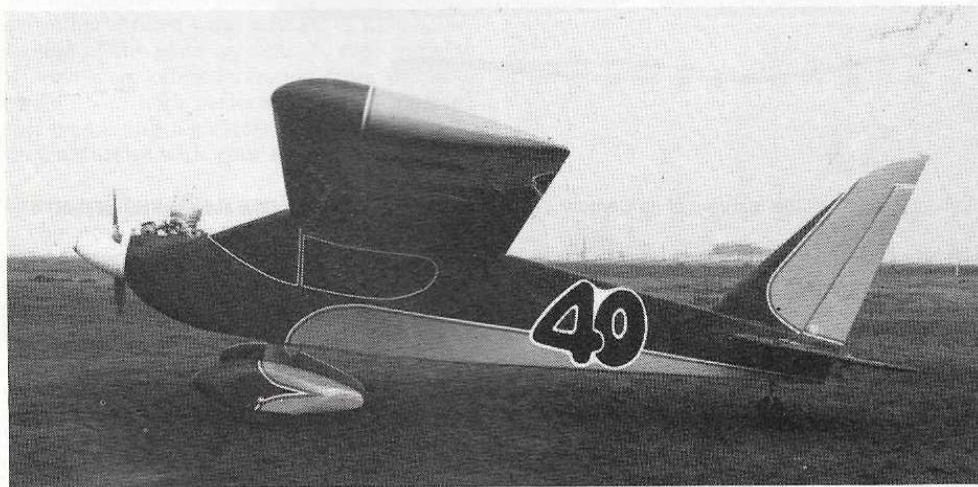
and put the wing back onto the fuselage while the epoxy sets. Now you can glue on the top, forward fuselage. For the rear hold-down bolt, drill down through the wing and former E with the wing on the fuselage and using a $\frac{3}{16}$ inch drill. Note the angle of the hole on the plan so that the head of the bolt sits flat on the top of the wing. Enlarge the hole in the wing to $\frac{1}{4}$ inch and run a $\frac{1}{4}$ -20 tap down through former E. The wing should bolt on firmly.

Make the wheelpants with a balsa core and plywood sides. Light ply can be used. The doubled plywood side of the pant is notched to fit the bottom of the aluminum landing gear so the pants cannot twist or rotate. The wheelpants shown on the plan are for smooth field use only. If you fly from grass or a rough field, omit the wheelpants or make them deeper to fit $2\frac{1}{2}$ " wheels and leave more of the wheels exposed.

Covering. Cover the model as desired. I used MonoKote trim for the windows and numbers and Goldberg striping tape for the pinstripes. Give the entire model, inside and out, a coat of Balsarite to seal the wood and make the covering stick better. Coat the inside of the engine compartment with epoxy. Install the fuel tank and loosely place the radio system in the airplane. Shift things around until the fuselage balances as shown on the plan. Mark the location of the servos and epoxy the servo mounts into the fuselage. I have shown my way of mounting the radio switch. I drill a $\frac{5}{64}$ inch hole through the top of the switch throw for a $\frac{1}{16}$ inch wire pull. This fit should be loose so the switch does not crack or break if the wire bend is not perfect. The servo grommets or an extra screw into the servo mount keeps the wire in the switch.

Flying

I use a 10×6 prop on my K&B .40. Try a 10×7 on your four cycle .40. Take offs, at first, with *Fast Freddy* will be blast-offs. As you gain more experience with this airplane you may want to ease it off more gracefully or you can blast off, do a half-roll, and climb out inverted, whichever your heart can stand. There is plenty of power and the wing is very forgiving. If it can lift off, it can be made to continue flying. Fly it, enjoy it, and if you don't break it occasionally, you aren't trying hard enough.



The author did a nice job with the MonoKote finish (above) and Goldberg Striping Tape. Since some of *Fast Freddy's* flight time includes some water flying (below), Fred first sealed the entire model with Balsa-rite.

