



Turner Special

By KELSO BARNETT

• "Jim, I need to build a 40 size old timer that is big enough to do well in Limited Engine Run and Antique. One model that keeps popping into my head is the Turner Special."

"What the hell is a Turner Special?" asks Jim. (He is a young 54 and does not know about all these good things.)

"Well," I said, "it is an April 1936 Model Airplane News plan that would win an ugly contest hands down."

"Do you have a picture?" asks Jim.

"Yes, I think so, somewhere in this pile of magazines."

Down on the floor we go pouring over the old magazines. In a few minutes we found it. Kind of ugly, we both agree.

Ugly or not, I ordered the plans from John Pond. While I had John on the phone, I asked him what he knew about the Turner Special. John told me he had built one for electric power. It flew OK, but he thought the structure was kind of weak.

Two days later, the plans arrived, and Jim and I were back on the floor again. It didn't look too bad. The wing spar locations were redrawn, the elevator and rudder hinge lines were added, and a rib template was made. I started on Turner number one.

The construction went very fast. In a few days it was time to figure out where the engine mount should go. But first, what engine to use. I made a call to my neighbor George Aldrich and asked him what he could do with my whoo-pee good ten year old, but brand new HP40. He told me! George did his thing and the engine does its thing.

As the bird got closer to completion, Jim was getting more and more interested. He was beginning to drool because my construction weights are always heavy and this bird was staying extremely light. As soon as I was finished with the plans, Jim started Turner number two. Being retired, Jim had time to build all day long, and the two planes were completed on the same weekend.

My Turner weighs three pounds ten ounces, with an HP40 for power. The model was covered with silk. Three coats of dope were applied over a coat of gelatin sizing.

The use of Knox Gelatin for sizing and filling silk has been described by Dee Mathews. It does work very well. Dee, however, did not discuss the application and the mess which is created. The gelatin was mixed according to the instructions on the box. I applied the gelatin with a three-inch paint brush. You will be able to see a film all over the silk when it has filled. Be sure and do this in the garage or outside, as the gelatin will drip from the covered surfaces for hours. The end result is worth it, however, for both weight savings and cost.

Jim's Turner, powered with a K&B 6.5, weighs four pounds four ounces. It was also finished with silk and dope. The difference in weight between the two models seems to be due to the difference in weights between the engine, engine mount, and wheels.

Wayne Belcher, who has constructed a third Turner Special, used Monokote covering, and it has been very satisfactory. On the wing, which was the most critical portion, the covering was tacked all around the outline and lightly shrunk with a heat gun. Then it was ironed onto each rib and all the outline sheeting. A final shrinking with a heat gun produced a very rigid wing. It has successfully withstood an unintentional six-foot loop immediately after take off.

The climb performance of the airplane is awesome. It goes like this: release the model, roll three feet, rotate, climb at an 80 degree angle, kill the engine, and then dump the nose to level flight. It really is a beast! The lighter model has a noticeably slower glide, which requires absolutely maximum rudder throw to maintain directional control. In any wind above 12 MPH, the model will be moving backwards at best glide trim. With some down trim it will grudgingly penetrate.

Early in our flight training program with old timer models we proved conclusively to ourselves that you cannot use plastic control rods. They change length when the temperature changes. Repeatable trim settings are a necessity for competition flying so, use solid push rods.

The plans show the firewall located for a rear intake engine. If you plan to use a front intake engine, just move the engine forward on the mount. The original 1936 plans showed an aluminum windshield. If you use a rear exhaust engine, this is still a good idea. Jim used a balsa block, epoxy covered, which worked well. The one ounce fuel tank is located in the cabin area just behind the windshield.

The controls were set up as follows: rudder 1-1/2 inches each side of center; elevator 1/2 inch up and 1 inch down.

The fuel cut-offs that we use are very simple and reliable. To make one, cut a 1" square of 1/4" plywood and drill a 5/16" hole in the center. Glue a 3/4" long piece of 5/16" dia. brass tubing in the hole. Now glue this assembly to the firewall where it will be right in line with the throttle servo. When the glue is dry, center drill for 1/32" piano wire. Now form a loop in the end of a piece of 1/32" wire. Place the wire through the hole in the firewall with the loop outside. The other end goes to the servo arm. Run the fuel line from the tank through the loop to the carburetor. To adjust, put the throttle stick in the high speed position and move piano wire linkage until fuel line and the loop are fully exposed. Place the throttle stick in the low speed position and the loop should have pulled the fuel line into a sharp crease for an instant kill.

The Turner is a competitive airplane. Jim took his to the '83 SAM Champs and placed second in Antique Glow. Mine placed second in C Glow at the seventh annual Plansmen Labor Day Contest. The 1984 SAM rules, which allow a twenty-second engine run for schnuerle engines, will almost guarantee the Turner Special a seven-minute max in any decent air. •