

This model of the Slingsby T-53B is the result of an extensive search for a full size sailplane that, in model form, would meet this criteria:

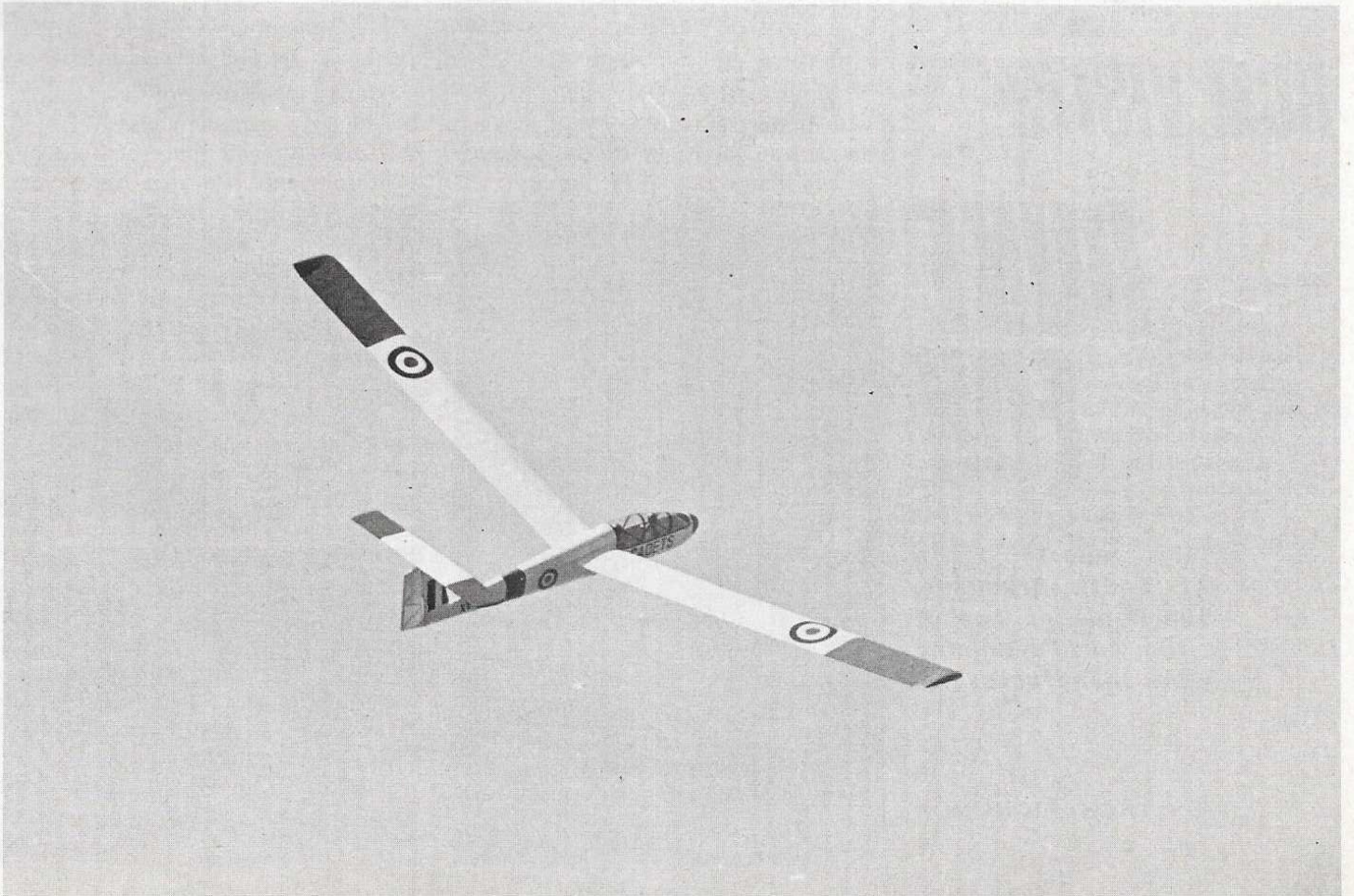
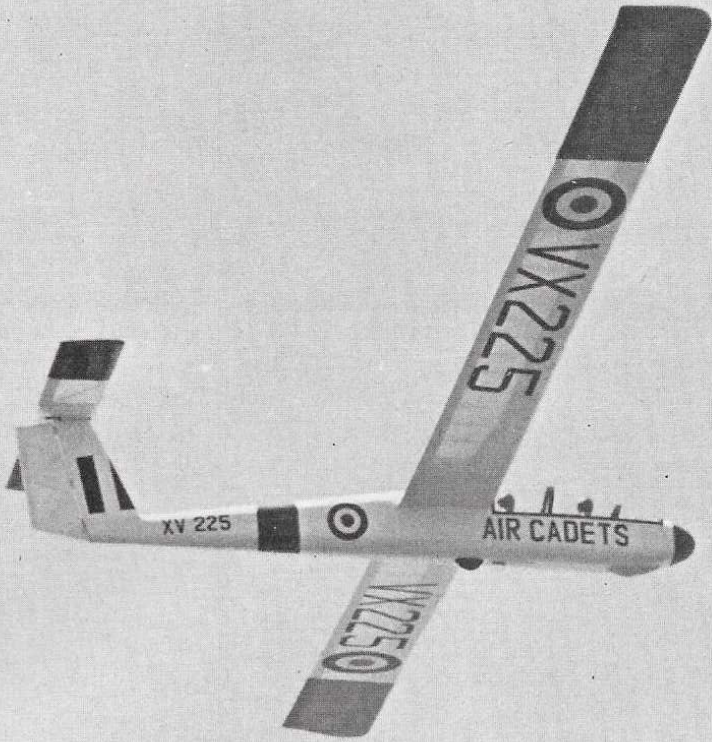
1. In one sixth scale, have a wingspan of 9 to 10 feet with generous wing area.
2. Must have good performance potential with little or no changes in the wing/stab surfaces.
3. Must not be overly complicated with compound curves and fairly simple to build for that reason.
4. Must have "Charisma."

Now, how does the T-53B stack up? The scale wingspan works out to 111 inches, i.e., 9 ft., 3 inches, the Aspect Ratio is a shade under 16:1, the fuselage can be constructed using flat balsa for sides, top and bottom, and the constant chord wing permits all ribs to be cut out at one time using the sheet balsa stacking method. Further, the plywood root ribs can be used as "master" ribs and then used in the construction. Finally, with insignia red wing and stab tips, a red nose and fuselage stripe, coupled with the British roundel and "AIR CADETS" in huge black lettering, how could it miss being a stand-out anywhere?

The full size T-53B is a minor modification of the Slingsby T-53 two seat tandem trainer, and is used by the RAF for Air Cadet (pilot) training. The necessity to carry two people requires a lower-than-normal aspect ratio so worthwhile for a model; while the role it plays in training necessitates a gaudy finish and markings. The real model (one is based at Elsinore in Southern California) has a wingspan of 55.5 ft. with an area of 194 sq. ft. The structure is all metal with a weight of 700 lbs. empty. At the gross weight of 1160 lbs. (add radio, oxygen, parachute, and passengers) the wing loading is calculated at 6 lbs. per square foot. When the Slingsby factory in Great Britain decided to get away from wooden construction used in the past, they developed two T-53 prototypes conducting extensive wind tunnel testing over a three year period. Two fixed tandem wheels and a very obvious swept forward wing gives a rather unusual, but pleasing, appearance. Performance is nominal with a calculated L/D max of 29:1 at 55 mph using a proven Wortman FX 61-184 airfoil.

The T-53B was in quantity production for the RAF when, in November 1968, the entire Slingsby factory was destroyed by fire; the

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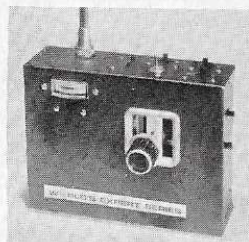
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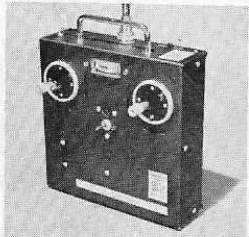
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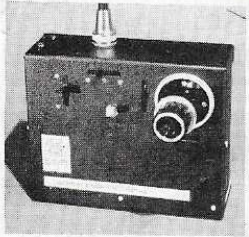
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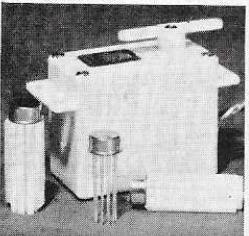
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SLINGSBY T-53B

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company later going into bankruptcy. It is known that six T-53B sailplanes were imported into the U.S. prior to the fire, but none display the colorful markings that one sees on the ones used by the RAF. More data and one photo is contained in the 1970 U.S. Sailplane Directory, Part II, which is the April 1970 issue of SOARING.

The model has attracted spectators and fliers alike wherever it has flown — ranging from the 1970 NATS Soaring event near St. Charles, Illinois, to the fabulous LSF 1970 R/C Soaring Tournament in Livermore, California. However, the most memorable flight I can remember was the 1 Kilometer goal-and-return flight last Summer. This flight was one that I had been trying to make for months as a part of the Level III LSF Soaring Accomplishments Program. The stumbling block, as with most flights, was that there was never quite enough lift to get out and back. Flying out of a small High School athletic field in the heart of a large city is just not the best place to hook into a "strong" thermal and go cross-country with the promise to return to the launching point.

During the third round of a contest one Sunday, I managed to hook into a

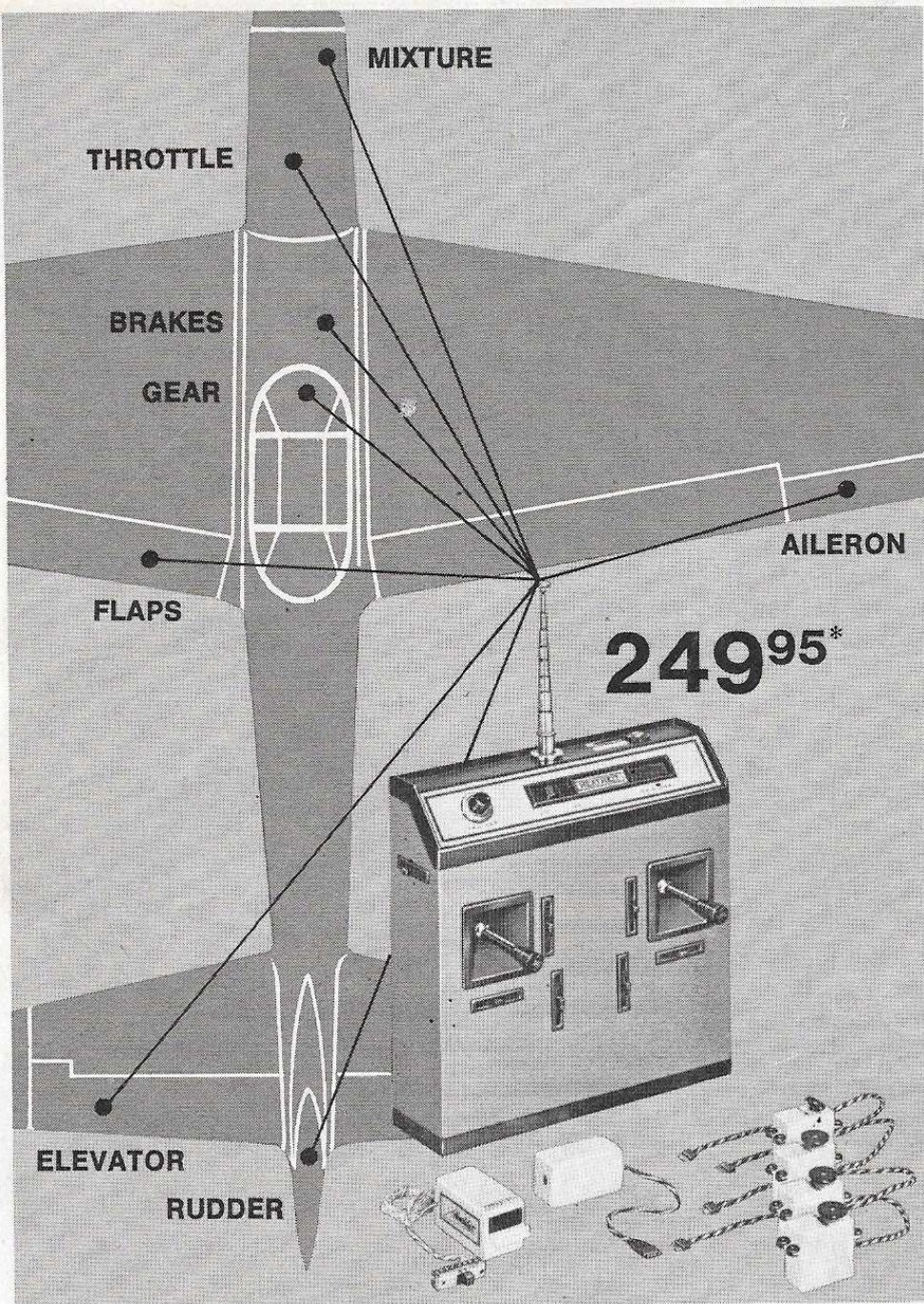
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strong one and, in two or three minutes, was up to the base of our "city-bound" inversion layer at 1200 ft. With much prompting from most of the other contestants, plus the fact that I wasn't scoring well enough to win a first place, anyway, I decided to go for that elusive goal-and-return. Three of us jumped into a convertible parked near the field and scrambled upwind toward the goal, the hamburger stand almost 3/4 miles away. One kilometer is .624 miles.

With its nose tucked down slightly, the T-53B was penetrating nicely, but the receiver, which was monitoring the output of my telemetering variometer, gave forth a low tone, indicating I was out of that thermal and losing altitude. By that time I had reached the street on which the hamburger stand was located upwind and there were no stop lights between the goal and my fast driven conveyance. Then, quite suddenly, the tone on the receiver became excited and went into high pitch, indicating a thermal! I eased the stick back slowly and up she went. There was no time to let it circle and drift down wind again... I was going the other way!! So I let it ride up into the wind until the lift played out, then continued on the same heading toward the goal again. My luck held. I managed to hit two more small thermals, generated by the roof tops of the houses that went by unnoticed, until I reached the hamburger stand.

After making it to the goal point, we (the car and the T-53B) turned around for the return leg. Anxious moments followed as the T-53B was out of the lift and losing altitude slowly, but surely, I wasn't helping by "dumb-thumbing" (just you try to fly a sailplane from a moving car some-time). But, as if the course was on a wire, the same three thermals were not too far from where I left them on the way up, so they, in turn, were used to the fullest on the way back.

Much to the amazement of the crowd of spectators, aloft at about 300 feet was an RAF trainer, with no one in apparent command. Sailplanes can fly at angles across city blocks, convertibles must surely follow the streets. Within 30 seconds the puzzle was solved, however, as the three of us appeared from around the corner behind the school buildings and parked. I guess coming over the school buildings had given the T-53B a bit more altitude. I got out of the convertible and leisurely (like I knew it all the time) walked across the street

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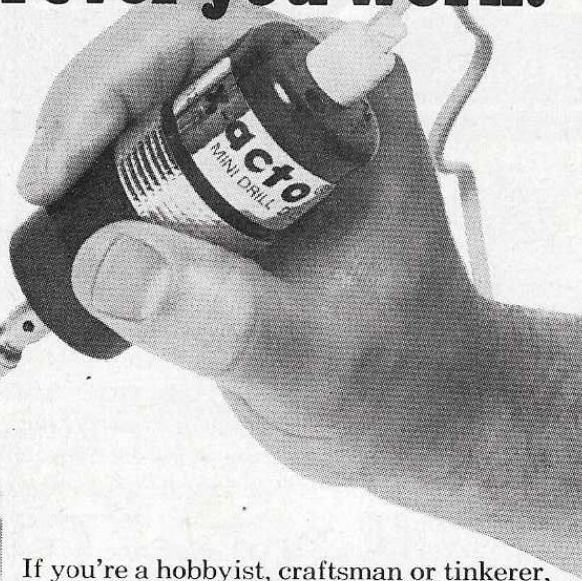
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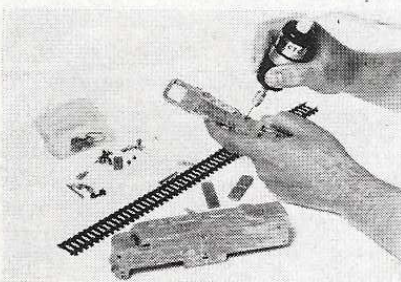
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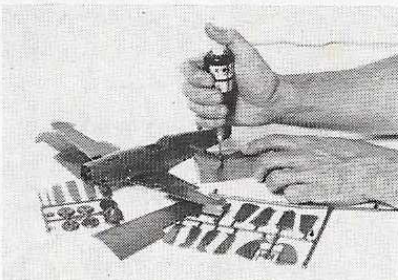


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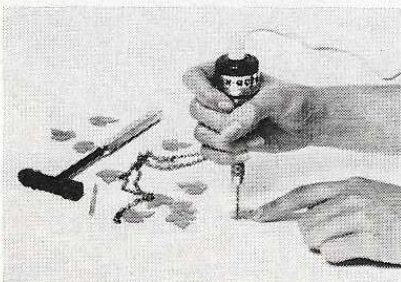


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to the athletic field and landed the plane well inside the required 200 meter radius of the launch point!

Congratulations were offered all around and I was pleased with my T-53B. Most of the spectators and contestants hadn't dreamed this type of flying could be done with a model sailplane. The most rewarding congratulations were from the more experienced fliers who knew (and had experienced) the real challenge of cross-country flying in a city with traffic lights and long square blocks, and even more so, with a scale sailplane.

There is no reason to dwell too much on the construction as the plans are very complete and detailed. As you can see, the fuselage is a simple box. Just use soft balsa for the top and bottom and sand most of it away to get the half round section top and bottom. The bulkhead sandwich ply should be laminated with Titebond, clamped, and allowed to dry. Then cut the formers to size and you'll be amazed because they are extremely light in weight and very strong. A soft balsa block can be tack glued to the front of the fuselage and both sanded together to form a block for pulling a canopy.

The elevator pushrod tube must be glued into the fin during construction. Before sealing it over, exercise it to eliminate as much drag (friction) as possible. Make the bend in the tube with as large a radius as possible, then insert it into the fuselage, holding it in place while cementing the fin in place. The wing and stab construction is self-explanatory. While I did not install ailerons, some scale fans may desire to do so. With the fuselage and wings completed, insert the wing wires into the fuselage holes, slip each wing panel on, and wiggle them for proper alignment. Equal lengths of balsa, or non-stretch thread, when touching both the wing tips and the end of the fuselage, will help establish the correct alignment. Now reach inside and, with four dabs of epoxy, fix the rods in place. When cured, carefully take the wing panels off and apply fiberglass to the rods inside of the fuselage . . . simple and strong.

Cover and decorate according to the small 3-views, or copy some other T-53B, add the towhook, check that the CG is properly located, and test glide a few times. Then you are ready to show them all that not only does a Scale Sailplane fly, but it can fly extremely well!

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