

LI'L HONCHO

The Model That Almost Didn't Happen

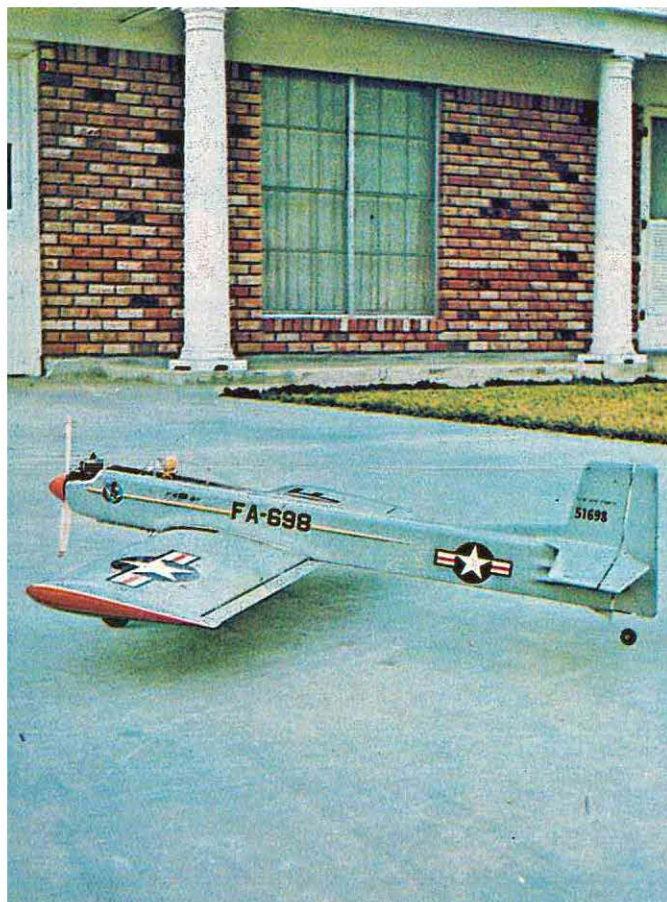
BY BOB TALLEY

This is the story of a model that almost didn't happen. Now that it did happen, a lot of my later designs almost "aren't". It's so much fun to fly that I hate to take my radio out and put it in anything else. Lil' Honcho will probably never win a contest — it wasn't designed to. It probably wouldn't win any beauty awards — its about as curvy as a two-by-four and just about as subtle. It was designed to do only two things and do them well — and it does. It was designed to: (1) Be capable of doing all the standard AMA and FAI pattern maneuvers, (2) Do them low and slow. Why, takes a bit of explaining.

Having had this obsession — er — "hobby" called R/C since 1953, I've naturally progressed from the old escapement days right on up to propo. However, a few years back, competition wise, I cast my lot with Class II. In 1968 this suddenly became a lost art. Just about the time I was beginning to win a few contests regularly, the event was jerked out from under me. I was so mad (I still am) I continued to fly Class II models in A and B contests for over a year. Finally I built myself a few .60 powered wing-wigglers and entered them in the contests. I also continued to fly a little three foot span shoulder wing model

with only REM controls for fun, and as a comedy act between rounds of the contests. After the last contest of the season I sat back to appraise what I was actually accomplishing. I was having a ball with the comedy act but I wasn't winning any contests. Oh, I'd do OK for a few rounds — until the pressure got a little tough. Then at the most crucial times and usually in the simplest of maneuvers, I'd fall back into my old Class II reflexes and blow it. Mulling this over and over I came to two conclusions. First, I just couldn't mix a Class II comedy act with a Class III type contest machine. The reflexes and timing required were just too different. Second, I needed one heck of a lot of practice with an aileron type low winger just to kill these old Class II reflexes once and for all. It was time to fly or cut balsa! It was right about here that Lil' Honcho almost didn't happen. I already had two or three .60 powered contest bombs laying around the shop and the foam wings all cut for what I hoped would be a new design that would be superior to almost anything flying in contests today. The easiest way would be just to take one of these and go out and practice until I had it licked. As a matter

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of fact, I started to do just that, but after the first few sessions something was still bugging me. Here I'd take this big roaring .60 beast, go blasting off all over the sky to practice. I'd get the big monster all set up for a maneuver, get halfway thru — goof — and before I had time to make the correction, it was all over and I'd have to go thru the whole elaborate setting up process to start again. At twelve ounces of fuel of flight, yet! (I'm a cheapskate). Moreover, my natural style of flying is close to me and the ground, where I can see exactly what's going on. These big six pound .60 bombs roaring by at eighty mph and twenty feet up and rolling, is enough to rattle even my 200 lb. plus frame! A mistake, here, and there's no time or room to correct. I could do all the maneuvers I needed, but I just couldn't do them well enough — and my progress was painfully slow. I kept wishing for my little three foot span .15 model that I could throw all over the sky, down close to the ground, and if I goofed, so what? There'd be plenty of time and room to correct my mistake. The model was always close enough to me to see the mistakes as soon as they happened, correct, watch the correction and re-correct again if necessary. Anybody who saw my old comedy act will remember that I would do multiple snap rolls and reverse spins starting about thirty feet off the deck. I never quite felt "at home" enough with my .60 bombs to try to throw them around this way — indeed, it wouldn't have been save to try. What I needed was a model I could feel "at home" with down low and close in, yet one which would be capable of all the standard maneuvers. It would have to be small, light, simple, slow and easy to build. Lil' Honcho was about to happen!

Frankly, the fuselage was 'designed' first. I knew I needed side area, but I hated the thought of all the work involved in a turtle deck. Surely there must be a simpler way. What could be simpler than two three-inch wide pieces of balsa — all the way? Three inches wide at the nose and three inches wide at the tail. Why not? Since light weight and a simple structure was another requirement, why not leave out all those time consuming and weighty items in the wings, like landing gear blocks and braces? In fact, why even a nose wheel at all? I already knew how to take off and land with a trike gear, in fact, this was the one area of the pattern that I wasn't having any trouble with. Anyway, it wasn't going to be flown at contests so why clutter it up? A conventional L.G. mounted in the fuselage

was the obvious answer, so in it went. There was an unexpected fringe benefit in this which I'll explain later on.

The wing had to be something special. The airfoil had to embody all the aerodynamic knowledge I had accumulated in 30 years of modeling and 16 years in R/C. Armed with all of this know-how, I carefully stole a rib pattern from a Flite-Streak Ukie kit! Seriously, this is an airfoil we're all missing the boat on. About six years ago, I built a couple of semi-scale SE-5 bi-planes using two Flite-Streak wings. While they were not outstanding models otherwise, they did have two good characteristics as R/C models. They did invert easily and they did have good low speed characteristics, especially in the glide and landing approaches — no snap tendencies — nose high glide — just right. The wing span was also determined scientifically — balsa sheets are three feet long, right? Why cut any more balsa than I had to? Dihedral — like, who needs it? It's just another glue joint I didn't need.

The tail turned out to be just a few sheets of ¼ inch balsa sheet hinged together. The fillets at the stab leading edge just happened because I had some scraps left over. I may not use them on the next one, but they do look sorta good. I doubt that they have any other value.

Lil' Honcho was put out on the flight line to all sorts of comments about it looking like a misplaced ukie. I had originally named it Lil' Slabsides, but I quickly decided to re-name it after one of my favorite old ukies, the Veco Chief. For those of you that have never spent any time in the Far East, "Honcho" is G.I./Japanese for "Chief".

The first flights were about average for a new model. At first, I thought I hadn't succeeded in my low and slow bit, but a change to a Top-Flite nylon 9-4 prop and a bit of familiarization was all that was required. The model grooves, both upright and inverted. I've still got a whole heck of a lot of practice ahead of me, but now its with a model I can feel "at home" with. If the model has any one peculiarity, its that it seems to fly better inverted than upright. Once a gradual inverted turn is set up, it will continue all the way around without the aileron or elevator — just a touch of engine trim occasionally. The Inverted Figure Eight looks like it was designed for this model — you just initiate the turn, reverse at the crossover and take it out at the end — the rest is hands off. The rest of the maneuvers in the pattern are just about aver-

age — you can make them large or small, as you like them. The best part of it is that Honcho does them slowly enough that you can see the corrections when they are needed, make them, and then watch the results of the corrections. Its almost like watching a slow motion movie. Since I like to do most of my maneuvers at about half or two-thirds throttle, adding power as needed, this effect is enhanced.

The first take-offs and landings with Lil' Honcho showed one unexpected benefit from the 3" deep tail section. The model sits on the ground in what seems to be a natural angle of attack for a take-off or landing without the use of a lot of up elevator. On take-offs, just hold it straight ahead and when it has enough air speed, it'll fly itself right off. On landings, when you flare out and chop power, it sets itself right down on three points. The angle shown seems to be just about right — no need for excessive nose-up attitudes that usually causes ballooning. As far as snap-rolling in slow, dragged in approach, it just hasn't happened to me as yet, and in fact, the longer and slower the approach, the easier seems to be the touch-down. One incident proved its reluctance to snap roll even when stalled. The second Sunday out the winds were gusting from 20 mph to 40 mph. Like usual, I overestimated my fuel supply and suddenly found myself with a dead engine about thirty feet overhead. I decided to land straight ahead into the wind. All was well, until I was about fifteen feet up, when the 40 mph gust I was flying into suddenly dropped to a 20 mph one. The model was nose high, and stalled right there. It fell like a pancake the last 15 feet, wings level. The stab hit a bit of bovine remnants and snapped off, and one wheel bounced thru the bottom of the wing, but of snap rolls, there were none.

A word about the landing gear and fuel hatch. The landing gear looks long and probably could be shortened. At the time I built it, I was leaving room for a .35 sized prop if the .19 didn't prove big enough, but the Max .19 is plenty. However, the long L.G. gives the correct angle of attack I mentioned before and makes take-offs from a grass field most easy. If you are one of those who habitually bounces them in pretty hard, you might want to make the struts out of 5/32" wire to keep from knocking holes in the bottom of the wings with the wheels. The optional foam wings would also cure this, but the thing always seems to land so gentle, I haven't had the reason to try this. The fuel tank hatch was placed on the bottom so I could get the forward placement of the

cockpit I wanted to balance the side areas off. So far, its worked perfectly and I have no reason to change it, but I must warn you to keep the screws tight – R/C models don't fly too hot after the battery has fallen out!

The painting of Lil' Honcho is the second version. Originally, it was solid red with yellow trim, but it looked just like another small R/C Model – which it definitely ain't! I reverted to a scheme I had used on a Ukie back in 1953. Cessna Grey to simulate a military finish (its easier to apply and patch than aluminum paint and still looks "military"). A sheet of Finishing Touch decals (Sheet A-101) were used to simulate the markings of the F-94B's, F-80C's and T-33A's as they were painted and used by the 68th Fighter-Interceptor Squadron at Itazuke AFB in Japan during the period of 1952 thru 1954 – I was dere, Charlie. The squadron insignia was homemade from brown gummed tape. The red and yellow stripes were masked off and doped, but the rest was from the Finishing Touch sheet. I like it and it do stand out in the bunch on the flight line, but you can paint it like you like – it'd be a dull world if we all painted our models the same.

CONSTRUCTION

Two wings are shown, the foam type and the more conventional built-up and sheeted type. The latter is the type used on the original and is the one shown in the photos. It was an experiment to see if I could build a conventional sheeted wing almost as quick as a foam and sheeted one. It works, with the limitations I'll outline later, but right here I'll describe how its done and you can decide for yourself which way you want to go. First, all the wing ribs were cut out and notched. Then the full-depth wing spar was also cut out and notched. The leading edge and trailing edges were marked with the rib locations. The 3/32" x 3/8" strip was contact cemented to the back of the L.E. and notched out to fit the ribs. Then both the L.E. and T.E. were blocked to the proper height and pinned to the work bench. The ribs were then assembled onto the spar, shim sheets placed under the spar and the whole assembly aligned and pinned together to the leading and trailing edges that were already pinned down. Then a liberal application of Titebond was applied to all joints and the whole mess let set to dry for a day or two. This is just about the length of time it takes to get a set of foam wing cores cut by your local wing cutter

anyway, so use the time to build the fuselage and tail. When the basic wing structure is completely dry, remove it from the bench, add the aileron servo mounts and T.E. screw block, trim all the excess glue that oozed from the joints, sand and get ready for the next step. Get two 10" wide sheets of 1/16th balsa sheet (soft) and mark on them the locations of all the wing ribs, the leading edge, spar and trailing edge. The leading edge should be at one edge of the sheet. You are now about fifteen minutes away from a completely sheeted wing. Using a 3/4" wide paintbrush, paint regular contact cement on the sheets on the marks and then on all ribs, the spar, the leading edge and the trailing edge of one side of the wing structure. As soon as this is dry, start at the leading edge and align the sheet and put it in place, and then "roll" it back along the wing structure until the trailing edge is reached. Make sure you have full contact with each rib all the way back. Now trim off the excess from the trailing edge and repeat the process with the other side, bang, you're ready for tips and ailerons and hinges, dowels, and all them goodies. Now for the limitations to this method. It works fine as long as you don't plan on doping the finished product. If you are gonna use MonoKote or Solarfilm or even Hobby-poxy Easy-Does-It method, this'll work fine. If, however, you plan to use regular dope, substitute Titebond for the contact cement and be prepared to wait out the drying time. The reason for this became obvious when I applied the first coat of dope over my pride and joy. The solvents in the dope penetrated thru the balsa sheets and softened the contact cement enough to allow several definite non-airfoil type curves to pop up all over the plane. I finally solved the problem with a hypo full of Titebond, which I injected at each rib and pinned the whole mess down again. Just you decide which way to finish the wing before you build it and save yourself some grief. The foam wing should need no explanation, except that spars would seem to be unnecessary with a wing this short and so lightly loaded.

The fuselage is about as straightforward as you can make it. While I show 3" wide sheet balsa on the plans, this isn't critical. What I mean by this is that almost all the soft balsa sheets seem to have edges that are neither straight or parallel. The average deviation seems to be about 3/32", which I simply trimmed off on the original, giving me a fuselage that was 2-29/32" wide, but

who cares? It's a lot more important to have the top and bottom straight and parallel than to meet an exact dimension.

The rest of the fuselage is about as common as fleas on a hippie. The only point where the cheese gets a bit tight is you have to be certain that the aileron pushrods, the wing mount screw and the rudder, elevator and engine pushrods don't decide to argue with each other. I originally used dowel pushrods to the tail with the regular wire ends, but they were always getting in each others way and they had to be bent "just so" in order to keep them from flexing at the ends, so I said to heck with it and put in NyRods. I ordinarily don't care to use these on larger models because I figure there's usually enough control surface drag to keep the servos fully loaded anyway, but on a model this small and light this becomes a negligible factor. More important is that I could epoxy the ends in place and not have them wander all over the inside of the fuselage and get tangled up. The engine servo then proceeded to become tangled with the aileron pushrods. The alternatives were to either lay one of the two-servos down on its side or to move the engine servo out in front of the receiver. Since the EK receiver has very convenient mounting lugs, this is the approach I took, although there are those receivers which would not easily lend themselves to this. In these cases a side mount of the engine servo would be best. I guess you also could lay the aileron servo on its side and use the usual mess of wires and bellcranks thru the wing, but, man, thats like work, and I like to avoid as much of that as possible! The same goes for the nose section. It could easily be rounded off to meet the spinner and give that all-too-common flatsided bullet appearance to the entire fuselage, but why bother, the cylinder head is gonna stick out somewhere anyway, and so is the needle valve, so whats a few extra bumps among friends?

The tail is just a batch of light 1/4" sheet balsa, glued together in the right places. If you have troubles with warping tails, you can add some stiffeners, but I've never had the problem, so I've never bothered. One cure for this, if it bugs you, is to use the Hobbypoxy Easy-Does-It method of coating the surfaces with Formula II Epoxy before doping. This effectively seals out the moisture and solvents from the wood

and insures a true surface, provided you started out with a true surface.

The original came out to about three pounds, dry, but I don't suspect this is too critical. I haven't finished the foam wing version yet, so I can't tell you how much it'll weigh, but it should be somewhere near the same. I started off with a Thimble-Drone 8-5 nylon prop, which lets the Max .19 wind out, but doesn't give the pull through the bigger maneuvers that I like. It also allowed the model to fly faster in level flight than I wanted. A much better prop was the Top-Flite nylon 9-4. I would like to try a 9-4 or 9-6 wood Power Prop, but I haven't been able to locate one in my area. As far as the engine goes, I sure can't fault that Max .19. Its a GREAT little engine, although I'm sure there are others that could cut the mustard equally well. You takes your choice and you pays your price.

So theres the story of the model that almost didn't happen. When it did happen, it just sorta' happened the way it did, and I'm glad 'cause I like it that way. I like it too much. I still can't beat Cal Scully in pattern yet, and maybe I never will, but at least now I'm working on it — and at only four ounces of fuel a flight, too! ●