

Since late 1966, I have been a fascinated bystander, observer, heckler and sometimes (I hope) helper to an event few modelers ever witness - the genesis and evolution of a truly thoroughbred R/C Pattern winner. As all roads have a beginning, so it is with all good models. Starting with only the battered nose section of an old Kwik-Fli II, Calvin, Dick and John Scully have gradually brought forth what I consider to be the finest flying contest machine I have ever seen in my 16 years in R/C.

Some years ago, Ed Kazmirski decided that it would take more than a Smog Hog to beat another Smog Hog, so he designed the Orion, from whence came the Taurus and a whole new generation of multi's. Likewise, Cal decided that it was going to take more than a Kwik-Fli to beat another Kwik-Fli. Even more, he also realized that the other top fliers he would be competing against were also aware of this fact. He also knew that these top fliers all seem to have three ingredients that are very scarce in this area - practice, time, and money. (More on the money angle later.) As to the practice time, the Scully brothers and their wives operate three businesses, including a large construction company and A.C.E. Hobby Shop, so time is always at a premium for them. The only way around the practice time angle would be to simply design a model which not only had superior flight characteristics, but also one which would have no odd flight traits to master and would not require constant day-in and day-out practice in order to stay in trim. In other words, one helluva good basic design - and Mr. Ed IV is just that.

With these thoughts in mind, Cal

drew first on brother John for the basic design and aerodynamics, and then on brother Dick for the engine and pit work. This combo produced the Mr. Ed series. Since early 1967, Mr. Ed, versions I, II and IV have been entered in 15 contests, taken 6 firsts, 5 seconds, 1 third, 1 fifth (hic!), 2 High Point Trophies and have been forced to withdraw twice because of equipment failure. I often wonder what this record would have been like had Cal been allowed the time to practice as much as the other top fliers and the money to make even longer trips to more distant contests. Just to prove that these were not small time events, these placings include 3 Houston Space City Championships, the 1968 Mexico City Nationals, the recent Memphis State Championships and 2 New Orleans Crescent City Championships.

Starting with the nose of that old QF II, a new fuselage back end, including a turtledeck, was added. Two sets of foam wing cores were designed and cut. Moment arms and tail areas were changed from the QF configuration. Covered with red, white and blue MonoKote, Mr. Ed I proceeded to cut a swath through the contests of early 1967. Then one day we decided to fly from the abandoned midway on Pleasure Island in Lake Sabine, south of Port Arthur. I was tending my chores with Cal flying behind me when I heard a groan and an "OH, NO!" followed by a quick engine cut; I turned around just in time to see Mr. Ed I disappear below the seawall at a 45 degree angle, followed by a loud splash and a geyser of water. The elevator horn had come off in the middle of a Cuban Eight!

After a brief swim and a lengthy

drying out process, Dick decided that the only useable portion of Ed I would be the tail feathers. Around these Mr. Ed II was built. The spare foam wing cores were covered. The moments were, again, slightly altered and soon Ed II picked up right where Ed I had left off - winning contests, until early in the 1968 contest season when an elevator servo gave out. And that was the end of Ed II.

Three Mr. Ed III's were quickly built to take advantage of the newer, smaller radio sets that were just then becoming available. Where Ed I weighed 7 lbs. and Ed II had weighted in at various times anywhere from 7½ lbs. to 8¾ lb. with no real change in flight characteristics, the new Ed's came out at about 5 lbs. A new built-up balsa wing was designed, using a slightly different airfoil and a higher aspect ratio. Inset ailerons were added in place of the strips previously used. 'Manta' tips on the empennage were tried and discarded, as well as a conventional landing gear. Unfortunately none of the Ed III's ever lasted long enough to see a contest day because of unreliable radios.

Mr. Ed IV was started, using the same basic wing as the Ed III. The moment arms were again slightly altered, and a new airfoiled tail section was built to replace the usual slabs. Large wing fillets were added and a new contest winner was born.

At this point, I interrupt this thrilling narrative for a word from Old Motor Mouth - me. One day, I staggered into A.C.E. Hobby on clean-up day and saw a familiar looking tail sticking up out of the pile of scraps about to be burned. It was the remains of Ed II. There was no fuselage left from the trailing edge of the wing forward and

BY CALVIN, DICK & JOHN SCULLY

TEXT BY BOB TALLEY

MR. ED IV



“Flying Mr. ED IV is like
writing your name with a very
high quality ball
point pen
... it goes where
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when you want it to,
and nowhere else.”



the wing was a mangled mess of balsa and foam, but even in that shape it was a better flying machine than I was then building. Using all my powers of tact and persuasion, I stole it. At last, I was going to have a contest winner and beat Cal, Ed to Ed! Much epoxy, Titebond and MonoKote later, and on the very day that Ed IV was unveiled on the flying field, I drove up, smirked and produced the resurrected Ed II to a bunch of dumbfounded Scullys. After several trim flights, it was its old self again and I was ready to take on Cal - I thought. My readiness to take him on lasted until Cal pulled a knife-edge the length of the flying field - at head height! Oh well, Ed II was a ball to fly, even if I couldn't beat Cal with it. I flew Ed II for over 6 months and compared to any of the plastics or a Kwik-Fli III, I can truthfully say that it outflew any or all of them, even with an old Class II flier like me. Finally, I relented and gave Ed II back to its master so Cal would have a back-up ship for the 1969 contest season. This was fine until one day when it was accidentally shot down.

Since that time, Ed IV, the one shown in the photographs, has gone through many, many gallons of fuel and quite a few contests, the latest being the win in New Orleans. It has also survived a 30 minute upside down excursion as a pleasure boat for some crickets in a local canal - the engine

quit 10 feet up inverted over the canal. Five days later, still quite water logged, it took a second place at Baton Rouge. The clay you may notice under one wingtip in the photos was necessary to compensate for one wing remaining slightly heavier from the water than the other. It has since dried and the clay is no longer necessary.

Now let's get back to that money angle that I mentioned way back there. I said that Cal lacked two ingredients to be a top contest flier, and one of these was money. By this I mean the money to buy the latest of radio and sufficient back-up sets to keep the machine up on the flight line for practice and contests. Look at all your nationally known top contestants. They all seem to have some sort of an 'in' with a manufacturer or else they are so knowledgeable about electronics that they can fix their own sets. Not so with us. Furthermore, we in the extreme southeast corner of Texas seem to be looked upon as the 'drain plug' of the R/C industry. Every defective component and poorly assembled part seems to gravitate down to us. Maybe they think we will lose all these bum parts in the Gulf of Mexico. At any rate, Calvin has been extremely fortunate in having a group like the Oily Birds (the Port Arthur Radio Control Club) to stand behind him. No less than 8 different people's radios other than Cal's have been used

at one time or another in the Ed series. I have even seen club members remove their radios from their models at a contest for Cal to use, this being done without being asked, and knowing that it would void their own chances in their particular class! With a team like that behind him, plus his two brothers, plus the superior design of the Ed, Cal has been able to slug it out on a fairly equal basis with his competition. This team effort is apparent even at practice sessions. Invariably two or three members will gather behind Cal as he practices. One of them will judge his every maneuver as hard as he can, trying to be the typical contest 'tough' judge, and telling Cal what he is doing wrong. The others are there to rattle him - yell at him unexpectedly, make fun of his flying, run engines behind his back - in general, put so much pressure on him while he is practicing that, by comparison, a tight contest becomes an exercise in peace and tranquility. Sometimes our practice sessions look like a Three Stooges Comedy, but the flight goes on!

CONSTRUCTION

If you need a complete set of instructions in order to build this bird, I'd advise you to go get a Sr. Falcon and learn how to build an R/C model first. Only a few peculiarities will be touched upon. The toughest of these are the wing fillets, but before you can

“... A lot easier to learn
than any other design
I've ever seen or flown.
Try ED — stick with ED,
and you'll win with ED.”

“... A ball bearing up in
the air — a frictionless
three
dimensional gimbal
with your thumbs on the
axis.”

build them, you'll need a completed wing, fuselage and tail. The wing can be built very quickly by the following method. Mark the center lines on both sides of the root ribs, W-1 and W-11. Mark the rib locations on all four wing spars. Pin the top front spar flat on a flat work bench. Place ribs W-1 and W-11 in place and level the center lines, fore and aft. Block these ribs in place with scrap stock and glue in place. The remaining 9 ribs may then be set on their marks on the spars, leveled and glued in place. Both bottom spars and the leading edge are then put in place and glued and allowed to set up firmly. Now add the L.G. blocks, the plywood L.G. mount ribs, and the plywood reinforcing for the nylon screw. When all this is set up, add the bottom wing sheeting. Let it dry for a few days while you work on the tail or the fuselage. Then pick it up, turn it over and add the rest of the wing internals, such as the L.E. dowels, plywood plates B-1 and B-2, aileron mount plates, bellcrank, pushrods and all that fancy stuff. Then sheet the top of the wing, blocking it in position while it is drying so it will not warp. When both halves are ready, cut out and hinge the ailerons. Cut both center wing ribs to receive D-1 and D-2. Sand these ribs so that the top of the wing will have no dihedral, the only dihedral coming from the tapered bottom of the wing. Join the

two halves with D-1 and D-2 and epoxy.

On the fuselage, notice that the 1/32" plywood fuselage doublers in the front and rear of the fuselage are INSIDE the triangular corner balsa. That is, the triangular balsa stock is glued directly to the balsa fuselage sides and then the 1/32" ply is cut to fit inside. The only exception to this is in the area from the firewall forward, where the balsa doublers and triangular stock are glued onto the plywood.

Now you should have the basic fuselage, complete with tail glued in place and the wing completed before proceeding onto the wing fillets. Cut the 1/32" plywood wing saddle to the outline shown on the plan top view, allowing for the curvature of the wing. If you need to, make a trial piece out of cardboard first. Now place this plywood wing saddle in place and screw the wing tightly in place with the nylon screw. Now check the angular difference between the wing and the stab. It should be 0 degrees. You can check the downthrust at this time if you like. Check to see that the wing, fuselage and tail are all square with each other and you still have 0 degrees difference. If not, shim under the saddle until it is absolutely perfect. When it is, loosen the wing and glue the saddle to the fuselage, tighten the wing back and re-check while the glue is still wet. Now, while this is drying;

start building up the wing fillet blocks out of 1/4" soft sheet balsa. Be sure you make each fillet out of pieces from the same sheet of balsa or you will get some weird curves when you go to sand it out. When the saddle is dry, carve the L.H. and R.H. blocks to fit both on top of the saddle and the side of the fuselage. Now add a 2" wide piece of masking tape to the sides of the fuselage. Tack glue the fillet blocks to the saddles and sand them to the curve shown on the plans. The tape on the fuselage sides will insure that you don't gouge into the fuselage sides with the sandpaper. When finished to your satisfaction, unglue from the saddle, remove the masking tape and glue the fillets permanently in place. This entire process should use only regular model airplane cement, no white glues or resins or epoxies - they're just too hard to sand. More on this later.

The tail section is completely conventional except that, when all is in place and squared up and glued up, the entire assembly is heavily filleted to the fuselage sides and the fin with mucho Plastic Balsa, sanded to a minimum radius of 1/4". Don't overlook these little things that take up so much time - they make the difference between a smooth flying model and just another model.

About this time you should be
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thinking about writing to see if we didn't make a mistake on the C.G. location shown on the plans. I know it looks like a long way back there, but believe me, that's where it is, and there are absolutely no snap-rolling tendencies, even on slow, tight turn, dragged in, power-off landings. As a matter of fact, after the canal incident, we discovered that we flew two contests with the C.G. one inch BEHIND the rearward point shown on the plans with no ill effects!

DOWN TO THE NITTY-GRITTY

In the process of making Ed IV the contest winner that the first two were, it was found useful to clip the wingtips to the position shown on the plans. This seems to be the optimum for the weight when flying our present AMA 'Snap-Dragon' pattern. If I read the portents correctly, 1970 will see a return to the smoother, more open type pattern, possibly even a full FAI pattern, with big, graceful maneuvers, and no snap or reverse maneuvers required. For this type of pattern, the longer wing is strongly recommended. Not that Ed cannot compete adequately in either pattern with either wing, but its just that these are the optimum configurations for each type of pattern.

While the Ed I and II weighed between 7 lbs. and 8¾ lbs., Ed IV weighs in at 5½ lbs. dry, but complete with two wheel electric brakes and a separate battery for them. If you like

them heavy, go ahead, but at 5½ lbs. Ed is absolutely stable and gusty winds have no noticeable effect on the flying characteristics. My theory is that bounciness in gusty winds is strictly a function of basic aerodynamic cleanness and power loading. Clean it up and shove the hosses to it and the wind won't bug it. Ed II is about as clean as you could want it, but if you like 'em heavy, go ahead, but remember, it takes more hosses to pull the extra weight.

How do you get a thing like this down to 5½ lbs? Two secrets. First, use nothing but old fashioned model airplane cement everywhere you can, saving the epoxies and resins for only the essential portions, such as the firewall, engine mounts, wing hold-downs, etc. Second, balsa selection. Use only contest grade balsa, and I don't mean the lead sheets stamped 'Contest Balsa' they are putting out today. Try this test to see if balsa is light enough to use. Get a piece of what you think is light 1/8" sheet or 1/4" square balsa. Take the end between your thumb and forefinger and squeeze about as hard as you would have to to cut off the fuel line to your engine if it was of light wall surgical tubing - a moderately light squeeze. If the end of the balsa didn't go to at least one half of its original thickness, get rid of that lead and find something lighter!

Now let's get back to what our down 'Under Boid', Colin Cliff, calls the 'screwdriver' department. All of the Ed's have used at one time or another most of the popular large engines - Merco, Super Tigre, Fox, Enya .60 and Veco .61. Most of the earlier contest wins, with the heavier models were with the Enya .60, but recently, engine genius, Dick Scully reworked a Veco .61 - I should say he took 3 Veco .61's and made one real good one out of it, and it "do put out the hosses and the rp&m's!" The Kavan Carb helped the idle and Dick took care of the top end. This is just the thing for the new larger open type maneuvers which require constant engine correction to maintain constant speed and smoothness - you can't add any more power if you're already wide open when you started. Now I'm not saying that you have to have a super hot engine to fly Ed with - the one I'm building will have my old reliable Enya in it, but if yo DO have a warm mill, this is the machine to take the most advantage of its excess power.

FLYING

The flying characteristics of Mr. Ed are hard to put into words without resorting to too many superlatives. Tracking is literally perfect through all maneuvers. The only way I can accurately describe it is by comparing it to a ball bearing up in the air - a frictionless three dimensional gimbal, with your thumbs on the axis, the control sticks. Cal once described it to me thus: "It's like writing your name with a very high quality ball point pen - it goes where you want it to go, exactly when you want it to, and nowhere else." After flying Ed II for six months and getting a bit of time on Ed IV, I can think of nothing better to add to this. This is a perfect description of how it flies.

One thing I have to add in closing. There are many expert R/C fliers who never quite reach the fullest extent of their capabilities and I believe I know why - they are 'design hoppers'. It's a Citron this month, a New Orleanian next month, and a Kwik-Fli the month after. These are all good designs, but the design hopper never settles down on one type long enough to really learn that model to the hilt. Look at all your top name fliers - they have been flying the same basic design for at least two years or longer. They know precisely what that model will do in ANY given circumstance. All models have to be 'learned' like this, and Mr. Ed IV is no different.

It's just that Mr. Ed is one whole heck of a lot easier to learn than any of the other designs I've seen or flown. Try Ed - stick with Ed, and learn Ed, and you'll win with Ed!! ●