

Are mid-wings better?

The Compromise

A unique concept in an ordinary looking R/C airplane polishes performance. For 45's to 61's.

BUD ATKINSON

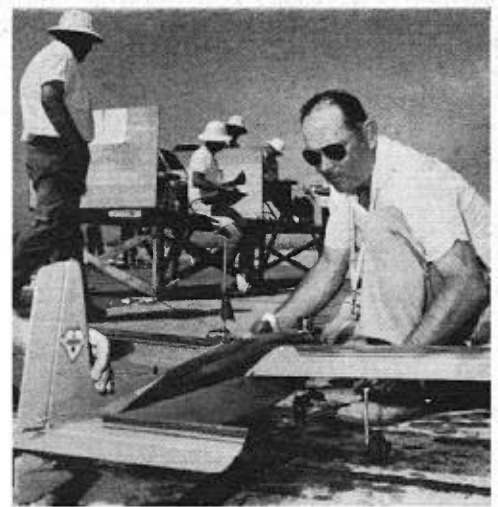
IT seems we R/Cers must be conformists because our competition birds are in a rut. Over the past three or four years they have all looked, and performed, about the same. The competition multi airplane has become a low-wing Taurus, Candy, Beachcomber, or Kwik-Fli, or a variation of the same. All are good competition machines, of course. But there cannot be an ultimate end in design. There should, and will, be new and different methods for obtaining high-performance in an R/C airplane. With this in mind, we present the Compromise, a high-performance, easy-to-construct, pattern-competition airplane, much different from the run-of-the-mill low winger.

In my association with the old Class II for the past several years many things have been learned about lateral stability, which such an airplane must possess. This is the main, controlling factor of this class of planes. A large percentage of the ships in this class lack lateral stability, simply because many designers say you don't have to worry about it. We have ailerons to

overcome the lack of stability, they argue, so it's no problem. That's why many low-wing airplanes don't spin easily on command, or, when they do, recover poorly from a spin. Rolls are rather sloppy on many a low-wing ship.

The Compromise was designed to handle these problems. With the addition of more power in our airplanes, performance didn't necessarily improve very much, simply because wing loading also went up. The answer, as I see it, was to go to a cleaner aerodynamic airplane. A mid-wing, or one with the engine, wing and stabilizer on the same line, produces less drag. Many of the Goodyears prove this; both in full-size and models. Generally speaking, the mid-wing is faster.

I would define a mid-wing this way: It is not a mid-wing because the wing is in the center of the fuselage; it's a mid-wing because the engine, wing, and stabilizer are on the same line. So why the name Compromise? It's just that, a compromise between a low-wing and a shoulder-wing airplane.



Showing clearly in this picture, the wide-tread tricycle landing gear is capable of takeoffs from extremely rough fields. Wing is foam.

With the help of Bob Almes (Bee Line), who produces one of the finest foam pre-covered wings and stabilizers I have seen, was able to come up with an excellent surface cut from foam, covered with Bee Line's special material.

I don't claim the Compromise to be a revolutionary design. It is different, and a new approach to a high-performance airplane. I think we will see more mid-wing airplanes in the future because they have outstanding flying characteristics.

Construction: I try to keep my pattern birds simple and comparatively light with a minimum of parts. The fuselage sides are $\frac{1}{8}$ " sheet with $\frac{1}{16}$ " ply doublers. Normally, I use $\frac{3}{16}$ " sides without doublers; but being a mid-wing, the fuselage is rather shallow at the wing center. So I believe the $\frac{1}{16}$ " ply is necessary. The entire top section is made of a balsa and hollowed out. This is the strongest, fastest, and simplest way, and takes only an hour or

Continued on page 66

Bud prepares for a takeoff at the Nationals. Important points of the design are wing, engine, stab on one line, and wing-mounted gear.

The odd rake line of wing and stabilizer tips is functional feature which tends to reduce tip losses through control of air flow.



The Compromise

Continued from page 27

so to complete the entire top section.

The engine mount is drawn for an Enya 60 but, of course, any engine will do from a 45 to 61. Make your mounts accordingly. The lower block is hollowed-out balsa.

The wing is foam but it could be built of wood, if desired. I have found that the negative rake of the tips grooves the airplane in flight. It also eliminates yaw tendencies at low speed, which many a low-wing airplane exhibits in the landing approach. The rake in the stabilizer matches that in the wing. I ran several tests on wings with, and without, the rake. There is a definite advantage to using the negative rake at the tips.

The main landing gear is somewhat unorthodox, since it is mounted in the wing rather than attached to the fuselage, as is the usual practice on other than low-wing airplanes. The ground stability of this gear is far superior to the fuselage-mounted gear. The ship practically will take off from a plowed field. Some contest sites I have seen are almost that bad. I have used this type of main gear on several airplanes. Once you have ever tried this gear, I'm sure you would never go back to the fuselage mounted type.

You will notice that the aileron servo is mounted to the top of the wing, as in a low wing. Since the lower half of the fuselage is shallow, there is not room to mount the servo on the bottom of the wing; also it's easy to make adjustments to the servo and ailerons, simply by removing the center hatch, held in place by one screw. You don't have to remove the wing from the fuselage to make adjustments.

The stabilizer also is foam but it, too, may be built of balsa. The elevator is one piece. The chances of warping are less than with a split-type elevator. Fin and rudder are of balsa. Use hard balsa on the rudder to discourage warping.

You will enjoy the first flights of your Compromise. Its smoothness and ease of handling are exceptional. It does both AMA and FAI patterns easily.

(Editor's Note: Under the rules the old class designations are gone. It is now Class A, B, and C. Any airplanes may be used in any class, but the flyer is required to execute maneuvers called for in the particular class. Bud's article was written before the rules changes and appropriate alterations were made in his copy to references to Class II or Class III.)