

THE MID-WING DETACHMENT DILEMMA

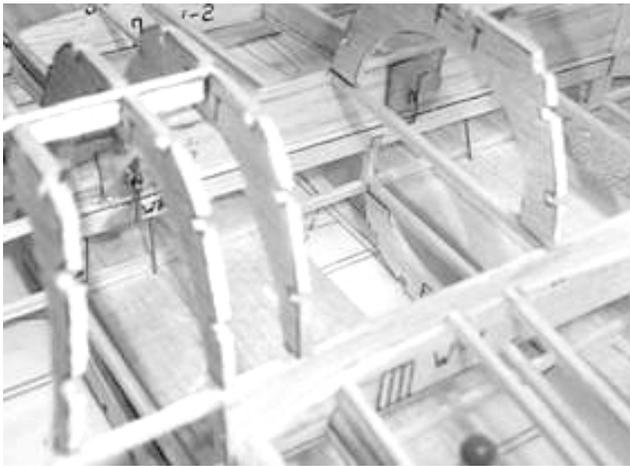
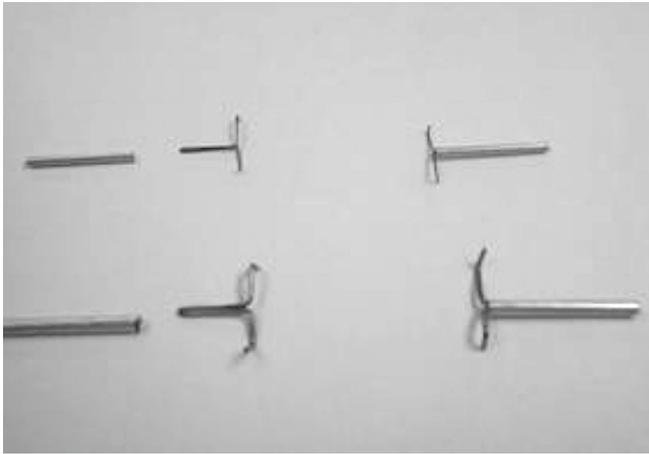
by George White

In the June 2004 issue of Flying Models Bill Schmidt published the plans for a 21" Steve Whitman F1 "Buster" Racer, a little jewel whose mid-wing was directly in line with the motor. Bill indicated that the wings should be glued to the fuselage using RC56 glue. Since we're only talking about a couple of wing halves a bit over 9 inches, and if the model is build light enough, that obviously works or he wouldn't have recommended it.

That started me thinking about all the other mid-wing models which so many of us are reluctant to build because of wing attachment problem. I mentioned this to a couple of friends who are prolific and highly skilled builders, and asked how they do it. Their answers were creative and just might be of some help to those, who like me are less imaginative.

My first set of ideas came from Oklahoman Gene Smith, who also writes a column for Model Aviation. He sent a couple photos of the method he used to attach the wings to a WWII Japanese "Grace" and to a MIG 9. He claims to have gotten the idea from Clarence Mather. As can be seen in the photos, he makes a "T" from bent music wire, with the cross of the "T" bent into an "S" shape. He epoxies the "T" into an aluminum tube, and epoxies the tube and "T" into the fuselage at the root rib joint. He epoxies another aluminum tube into/onto the spar of the wing, and the tube from the fuselage slides into that tube. Of course there are two sets on each wing half. He reinforces the fuselage fitting with a square of thin plywood as seen in the other photograph. He then holds the wing securely to the fuselage with a Forcefield magnet near the leading edge of the root rib. This allows the removal of the wing for stowage, and provides a bit less risk of a broken wing when the earth rises up to smite it. Those readers possessing great wisdom will immediately ask "How on earth do you get exactly symmetrical incidence of the wings?" Gene's response is: "It's a matter of jiggging and eyeballing. I drew a reference line for the bottom of the root rib on each of the fuselage mounting plates, then measured distance and height from that line for the two holes for the fuselage tubes. The fuselage was jigged onto the work surface. The assembly was trial fit and the holes enlarged a bit as needed for proper alignment. The left wing was jigged in place and the fuselage fixtures were epoxied (sparingly) into place. When that had set, the right wing was mounted similarly with several eyeball checks to be sure it was at the same incidence as the left wing. The root rib was pinned to the mounting plate on the fuselage to hold it in position as the epoxy sets up."

He also said: "I butt glued the wings on my Goodyear racer Ricochet and it has worked well. The root rib was made thicker, 1/8", and 2 short pins were glued to the root rib so the sharp end acted as "markers" to set the incidence of the wing and brace the joint. I think I used Carpenters yellow glue to put them in place.



Another friend I turn to for ideas is Bob McLellon of Virginia Beach. Bob says: "If you put in quite a bit of dihedral (which most scale models require), and put the main spar on the bottom of the wing, lots of times the rubber motor will pass above the structure O.K. at the centerline of the fuselage.

I omit any spars on top of the wing in the section within the fuselage, and rely on the one heavier bottom spar, leading and trailing edges to provide the strength. My Brewster SB2A is a true mid-wing, and that worked out fine. You have to draw a cross section right at the point where the wing passes through the fuselage to make sure you will have sufficient clearance."

There you have some choices — glue the wing halves on, build removable halves, or just build the rascal with a solid wing and run the spar under the motor. Not exactly as simple as a couple of rubber bands over dowels on a Sparky!