

F.A.I.

MUSTANG F.A.I. AS SHE
APPEARS ON THE PLANS,
PICTURED WITH KDH MINI-RETRACTS,
LEE-K & B .40 AND KRAFT
RADIO USED. ALL-UP WEIGHT
4 POUNDS, 11 OUNCES.



MUSTANG

BY TONY DOWDESWELL

Why the Mustang?

This model started, from the very beginning, as a publishing venture soon after the F.A.I. pylon racing formula was adopted on a 'provisional' basis at the end of 1969. Personally, I prefer my racers to look like racing aircraft. I think it is a great pity that F.A.I. rules have not adopted a positive 'scale' appearance requirement, but that should not prevent us from getting the

scale appearance into our F.A.I. racers at no cost in performance.

In looking for a subject as a racing model for F.A.I. racing, the P-51 Mustang is the obvious choice — take a look at any of Reid Kinert's *Racing Planes Annuals* and you'll see what I mean. In fact there are, and have been, more Mustangs used in full size air racing than any other single type of aircraft, so it's a natural candidate.

There are so many glamorous colour schemes to choose from. My own four prototypes have used the highly colourful schemes of the late Ed Weiner's Bardahl Miss and Chuck Hall's Miss R.J. Others that come immediately to mind are Howard Keefe's Miss America and Clay Lacy's passionate purple No. 64 (complete with Snoopy emblem).

If you care to go back a bit in



Prototype No. 2, "Miss R.J." was actually modified back from a P-51D airframe, just like Chuck Hall's full size original. Foam wing on this model. Kraft radio and Lee Custom K & B .40.

racing history and fancy the P-51B (also shown on the plans here), there's a chance to model Paul Mantz's famous red and white No. 46 thrice Bendix Trophy winner, or even Bill Odum's superb, though ill-fated, No. 7 Beguine. Then, if you object to the excess fuselage depth caused by the underwing air scoop, the '51 will accommodate you, sir... Anson Johnson's all-yellow No. 45 had the scoop removed and the intake relocated to the wing leading edges where the gun bays had been.

The choice is almost endless, and it was with this sort of thought in mind

that my first Mustang F.A.I. was drawn up and took shape early in 1970, racing for the first time at the National Championships in May that year. The model proved quite fast, but the pilot, unfortunately, was not and we made it no further than the semi-finals.

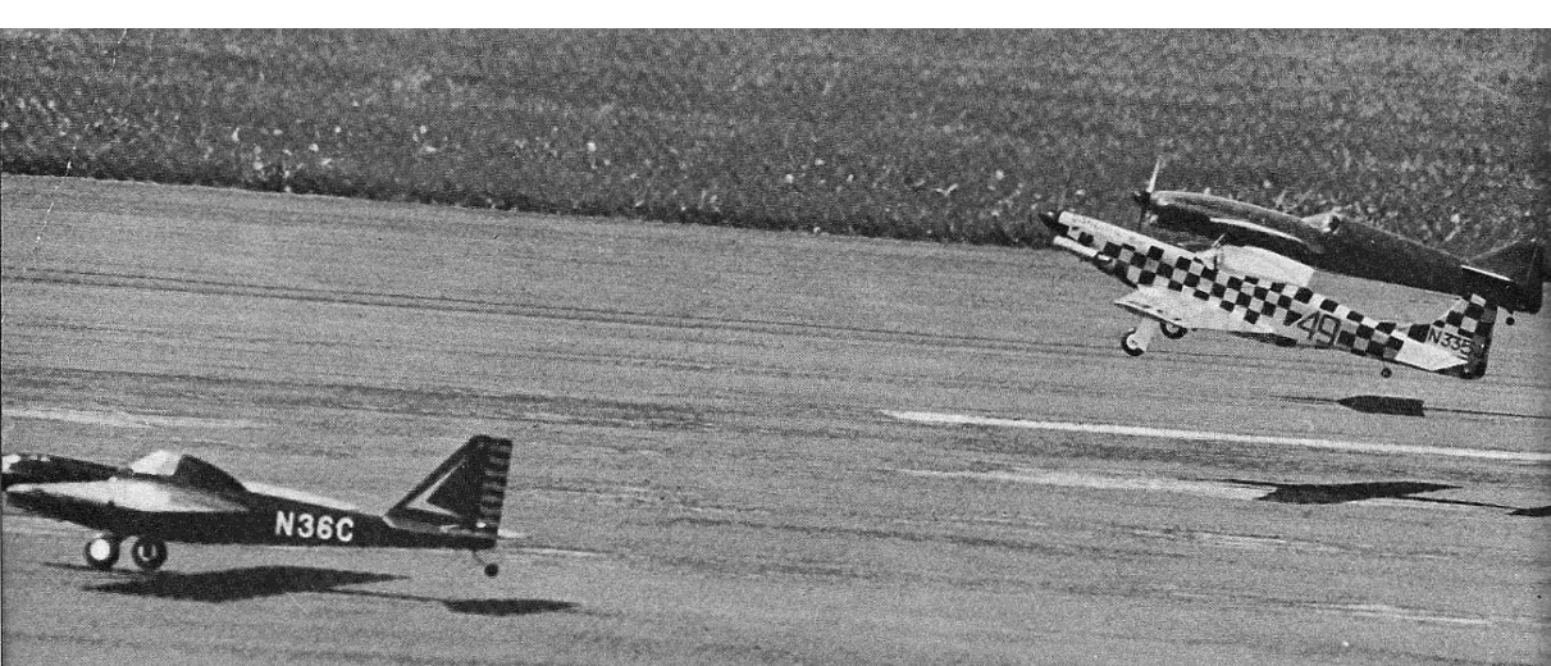
Prototype No. 1 ended in spectacular fashion at the Cotswold pylon race meeting in August 1970 in a magnificently over-cooked attempt to recircle the No. 1 pylon in the first lap of the final. It was a basket case par excellence, but the radio continued to work!

Prototype No. 2 Mustang F.A.I. was in the shape of Miss R.J. and was first raced at the beginning of 1971, getting into the final of the first race meeting of the season despite a very new engine and a near 5½ lbs. weight less fuel.

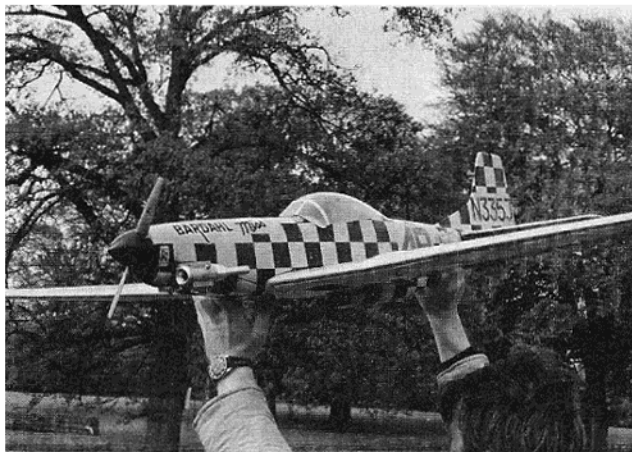
Prototype No. 3 represents the model drawn here. It is basically the same design as Numbers 1 and 2 but the outline has been improved to make it look a lot more like a Mustang. Here, of course, is one of the problems of the game—making 700 square inches of wing and tailplane plus 7 x 3½ inches minimum depth and

Mustang F.A.I. built by John Evans of Scarborough, England, features K.D.H. Mini retract gear. Kraft radio, K & B .40 with KO muffler.





In England they do pylon the man's way, that's to say, they all go together at one drop of the flag at takeoff. Takeoff collisions are a rare thing and the effect of four models exploding into the air at once is not lost on the spectators. Here, the author's prototype No. 1 lifts off with the models of Fred Coombes on the left, and Roy Yates in background. Note rudder of Mustang in shadow indicating right rudder held on for takeoff. Wide track undercarriage of Mustang F.A.I. imparts beautifully smooth takeoff characteristics.



KDH Mini-retracts in retracted position. Operation is improved by shortening spring to 2/3rds of original length, reducing load to servo. RMK servo tagged up with special British Skyleader amplifier to plug straight into receiver like normal servo --- no extra batteries required!



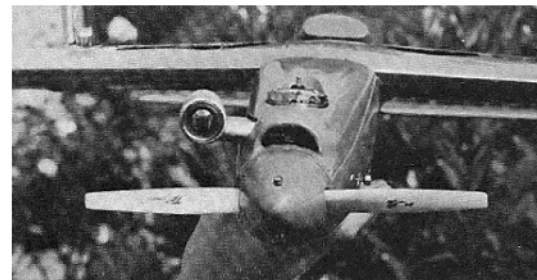
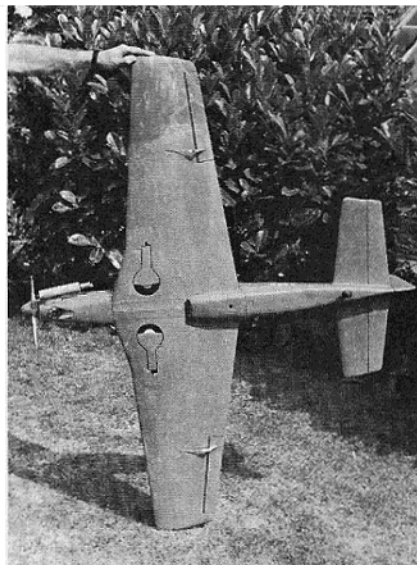
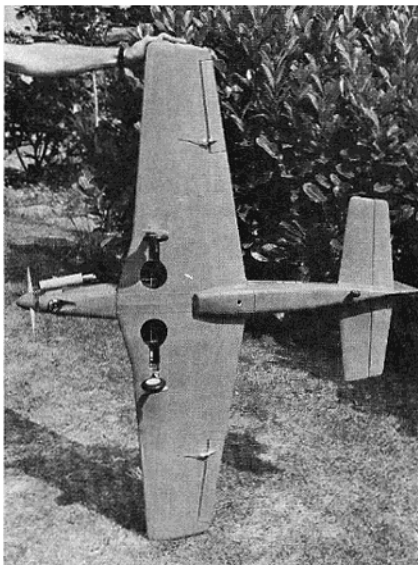
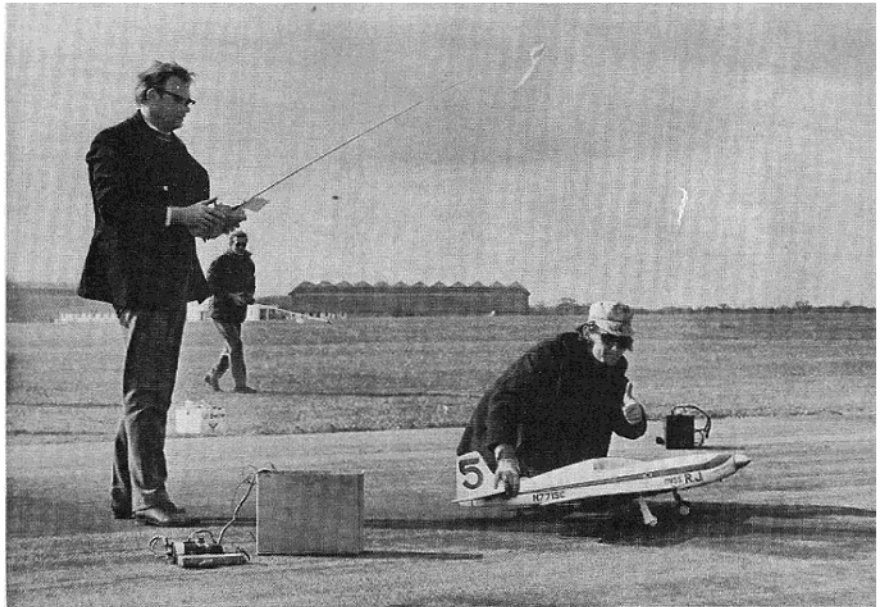
Nose close-up showing Super Tigre S.56 air scavenged type muffler. Large muffler right behind engine creates much drag. Next step is to incorporate muffler within cowl. Reworked T/F 9 x 8 prop shown - T/F 9 x 7 Speed prop., cut to 8 3/4" worked best with K & B .40. "Bardahl Miss" decals available from designer on request, also "Miss R.J."



Tanking up with "Bardahl Miss" No. 2 at 1971 British Nationals. Profile of this machine reshaped to better resemble a '51D. Note access to both engine and tank bays. K.D.H. mini-retract gears have been made to work very effectively with R.M.K. retract servo. "Bardahl Miss" covered with yellow and black Solarfilm.



Prototype No. 2 follows lines of Chuck Hall's "Miss R.J." Had fixed gear, Lee Custom K & B .40. Eric Wall holds model ready for takeoff at right. Above, a dead stick landing.



LEFT: Details of KDH retract gear installation on John Evan's Mustang. Non-scale wheel covers allow better streamlining. ABOVE: Photo detail of engine cowl on Evan's Mustang. F.A.I. rules allow engine cylinder protrusion of only 1 cm. from cowl. Arrangement for adequate cooling essential.

wide fuselage take on the scale appearance from which the F.A.I. model specification is so very far removed. It took a great deal of bending and stretching of the lines and curves of the full size, but finally I think it is as near to 'Dutch' Kindleburger's original shape as it is ever going to get . . . and I think it looks good.

Prototype No. 3 was the model I raced at the Nationals this year and did quite well until the semi-finals when I over-cooked the engine on the start line and, the retracting undercarriage which had operated faultlessly throughout the heats, failed to retract fully. Subsequently the model has done well. It has also shown itself to be quite fast. The retracting undercarriage has proved quite reliable and it certainly makes the Mustang look right in the air. So much for the fact that I'm now a confirmed retract addict!

Mustang F.A.I. is a dolly of an aeroplane (airplane to you American blokes) to fly and race. It has no vicious characteristics at all, it grooves beautifully straight down the pylon course, and turns on a sixpence, thanks, of course, to the light wing loading, characteristic of all F.A.I. racers.

Takeoffs and landings with this machine are also a pleasure, due to the relatively wide wheel spread and, while other racers are screwing left and right when the starter's flag drops, a little right rudder will hold Mustang F.A.I. straight as a poker as it pulls away low for the scatter pylon!

CONSTRUCTION

Rule No. 1 of construction in this model is to watch the weight. Remember that at 4 lbs. 13.7 oz. minimum, the F.A.I. racer is almost as light as your Formula I craft, so it is absolutely imperative to select the very lightest balsa consistent with strength.

Wing:

I think that the wing is always the most sensible place to start building. In this case, the object was to produce the least amount of structure consistent with strength.

This wing uses the egg crate method of assembly and starts with the cutting of the spar. Decide at this stage whether you prefer to make the wing in two separate panels, joined on completion, or whether to build the wing all in one bit over the plan with spars and ribs jigged to suit the dihedral angle and wing taper. Personally, I prefer the latter, in which case the

mainspar is made up complete, but if you prefer to make two separate panels, then make two spar halves, gluing the ply spar reinforcer to only one half.

Slot the ribs into place and add the false leading edge, lining up the ribs at the trailing edge at the same time. Actually, construction is straightforward R/C model practice so I don't intend to bore you with a complete 'glue A to B' construction sequence, but I would like to add that I 'cheated' on the wing skinning sequence by making a jig out of the bottom halves of the 'gloves' provided from the foam blocks from which the cores of prototype No. 1's wings were made. By cutting away the top halves, I made a jig 'tray' into which complete bottom skins could be placed to take up the contour of the lower wing chamber. The spar and rib assembly was then glued in place.

If you happen to have a pair of foam wing 'gloves' in your workshop, that reasonably resemble the wing section used in the model, this construction method may be well worth a try.

Fuselage:

The basic fuselage construction uses what I call the Jack Stafford method. Since the first time I saw it was on the plan for Jack Stafford's Chipmunk.

Here you cut the two basic fuselage sides and soak the outside surfaces in water, while the inside surfaces are doped. When dry, this produces a slight inward curl to the sides which suits the curvature of the fuselage perfectly when the sides are offered up to the fuselage formers.

Doublers of 1/64" ply (1/32" will do if you can't find the thinner variety) are then contact cemented into place. Begin joining the fuselage with F2, F3, F4, and F5, and then add F6, and F7, drawing the rear ends together.

Thereafter, build in the engine bay from F2 forward, taking absolute care to achieve a perfectly solid engine mount. Remember, at this stage, that a weak or flexible engine mount means lost rpm's so be sure to make it solid. Most important, in this respect, are the 1/8" metal facings to the engine bearers, glass fibred into place.

The next step is to start building up the fuselage shape, starting with the rear underside. At this point, match up the wing to the fuselage and align the wing bolt and retainer nut. Next, cut and shape the stab from light 3/8"

sheet. Make up the stabilizer complete with elevator and horn and build into the fuselage, adding the elevator pushrod. At this point, the fuselage is beginning to take shape and, after laying in the elevator pushrod (the elevator horn is built in), the top deck can be added. Glue on the top sheet first and, when set, bevel the edges of this and the top edges of the basic fuselage sides to take the top deck sides.

When all has set, the fuselage can be sanded to section. The rest is just a case of wielding the balsa knife, and I simply refuse to treat you all as though your last model was a North Pacific chuck glider.

If there's anything you choose to change, modify or improve (yes, there's plenty of room for the latter) feel free to do so . . . it's your racer!

O yes, if anyone wants the Bardahl Miss or Miss R.J. decals, I have them for \$1.50 per pair. Write to me c/o RCM, and they'll forward your request to me here in Great Britain. □

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