SUPERMARINE

This sleek little .10-.15 powered "Spiteful" from the Supermarine family, builds into an exciting model. Designed by Clive Smalley from England, who brought us "Ol Bluenose" in 1985.

Introduction

The story of the development of the Spitfire/Seafire family is generally well-known to aviation buffs interested in the WW II period. The wealth of books and articles available on the airplane would fill a complete bookshelf. Very few of these books deal with the ultimate engineering development, namely the Spiteful/Seafang family. Any references to these usually amounts to a few paragraphs concerning the laminar flow wing, with perhaps the odd photograph. There are, however, three excellent references available which are well-worth borrowing, stealing or even buying, which will also take your mind off building the model. One is Jeffrey Quill's book "Spitfire — A test Pilot's Story" in which his personal association with the types, including the Spiteful, give an interesting insight into the problems of high speed piston engined fighter development, and is very readable. The second reference is the two-part series published in Aeroplane Monthly magazine, issues December 1977 and January 1978 which give good photos, especially RB515 for camouflage patterns, and a well-researched documentary account of the development. The third reference is the 3-views appearing in Aviation News magazine 27th July — 9th August 1984 edition. This also gives colour notes, slightly inaccurate camouflage patterns and other useful data for finishing your model (if you ever get that far!).

Armed with the above, I set about designing a simple .10/.15 cubic inch powered version of the Spiteful. I considered the Seafang, with its cleaner nose and underside, more suitable for a model, but the Spiteful has a more interesting colour scheme and is probably the better known of the two.

The design of the model follows my previous efforts in this series except for the method of engine mounting. I generally dislike commercial radial mounts for one reason or another and I decided to see if it was practical to use a "power-egg" system of installation, whereby the engine, fuel tank (including all plumbing), prop and spinner were all mounted together on a ply plate prior to fitting to the airframe. The battery pack could also be fitted above the plate. Any problems now occurring in the engine bay can be sorted by simply removing the plate with tank, engine, etc., readily accessible. I also wanted to hide as much of the engine as possible to preserve the nose contours. There is little that can be done regarding the muffler, except to leave it off completely, though I suppose in this day and age it is a necessary evil. I compromise by only fitting it for flying sessions and removing it for photos and for "armchair operational sorties." The inverted installation assists the power-egg theory, by allowing the whole unit to be withdrawn vertically through the crutch and out from the same hatch as the R/C gear. The underside intake,

SUPERMARINE SPITEFUL
Designed By:
Clive Smalley
TYPE AIRCRAFT
Sport Scale
WINGSPAN
35⅜ Inches
WING CHORD
5⅝ Inches (Avg.)
TOTAL WING AREA
198 Sq. In.
WING LOCATION
Low Wing
AIRFOIL
Flat Bottom

"SPITEFUL"

WING PLANFORM
Double Taper
DIHEDRAL EACH TIP
1⅜ Inch
O.A. FUSELAGE LENGTH
32 Inches
RADIO COMPARTMENT SIZE
(L) 7" x (W) 2⅝" x (H) 2½"
STABILIZER SPAN
13 Inches
STABILIZER CHORD (incl. elev.)
3-5/16 Inches (Avg.)
STABILIZER AREA
43 Sq. In.
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top Of Fuselage
VERTICAL FIN HEIGHT
5 Inches
VERTICAL FIN WIDTH (incl. rud.)
4¼ Inches (Avg.)
REC. ENGINE SIZE
0.10-0.15 Cu. In.
FUEL TANK SIZE
2 Oz.
LANDING GEAR
None
REC. NO. OF CHANNELS
2
CONTROL FUNCTIONS
Elev., Ail.
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply
Wing	Balsa
Empennage	Balsa
Wt. Ready To Fly	**25-30 Oz.**
Wing Loading	**18-22 Oz./Sq. Ft.**

radiators could be be omitted if you wish to clean up the bottom for landing, but it will dramatically spoil the character, likewise should you omit the cannons. Whoever heard of a fighter with no armament? I elected to fit all these details and just take the consequences.

CONSTRUCTION

Construction is very straightforward, but since little can be done to the fuselage until the wing and tailplane are complete, these may as well be built first.

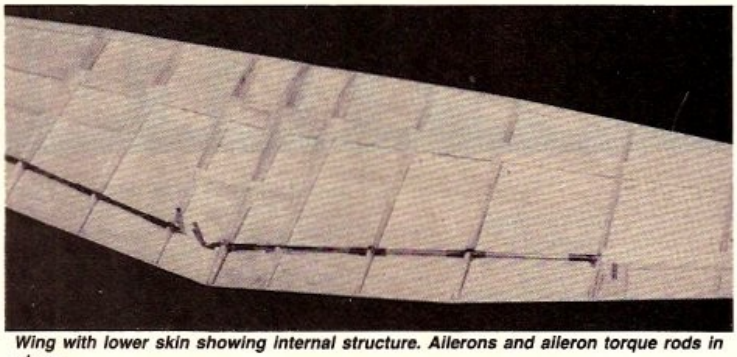
The wing panels are constructed over the bottom skin. Fit the torque rods but do **not** glue to the inside of the aileron yet. Join the two panels with the dihedral brace. Now skin the upper surfaces each in turn, building in the washout as shown. Cut off the ailerons, clean up and shape the leading edge, and cut the hinge slots. Only when permanently fitting the ailerons should the torque rod be epoxied into the blocks. If you do this beforehand, you wouldn't get the aileron off for cleaning up! Add tip blocks and sand smooth. Finish the wing to include the servo mounts for both aileron and elevator.

The fuselage is constructed around a horizontal crutch which eventually becomes part of the fuselage skin. Add the top and bottom half formers and all the vertical keels. This assembly should now be epoxied to the wing. Next fit the plank above the crutch which is cut to give the correct

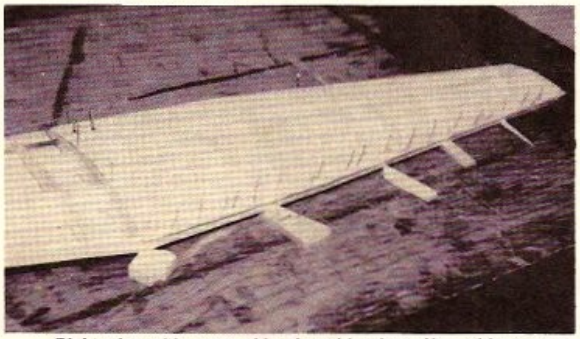
That's Wing Commander Alfie hiding behind the RAF oxygen mask.

tailplane incidence and position. Now epoxy on the tailplane complete with elevators. Fit the elevator controls and complete the installation now. If you can get the elevator horn inside, do so by all means, with the clevis at the servo end. I couldn't! Now check all controls using your R/C gear until it all works satisfactorily. Remove all R/C gear before doing any further work. The fuselage can now be planked or fitted with pre-curved wide sheets but do beware of twisting the basic assembly. Work from both sides or top and bottom equally. Add the fin/rudder assembly. The hatch can be built in position by spot cementing the formers in position. Add the keels and plank or sheet over. Remove the hatch and trim away for the cylinder bank fairings. Use scrap sheet inside to support the exhaust stacks. These were made from plastic tube epoxied in position.

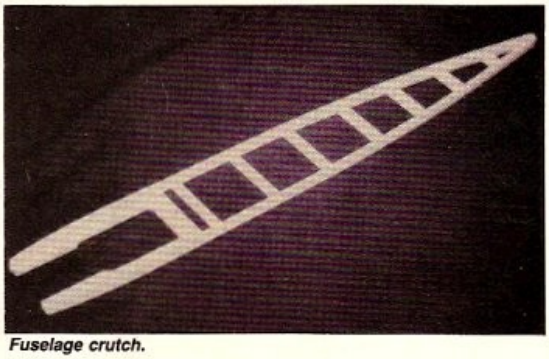
Next cut and trial fit the wing fillets. I made these from 1/64" ply carefully pre-bent and fitted in sections working from rear to main spar. The front part is made from laminated 1/16" balsa sheeting carved to shape with a round or half round file. It's all far easier than it looks (I hope!). Line the inside of the nose with lightweight fiberglass cloth and resin.



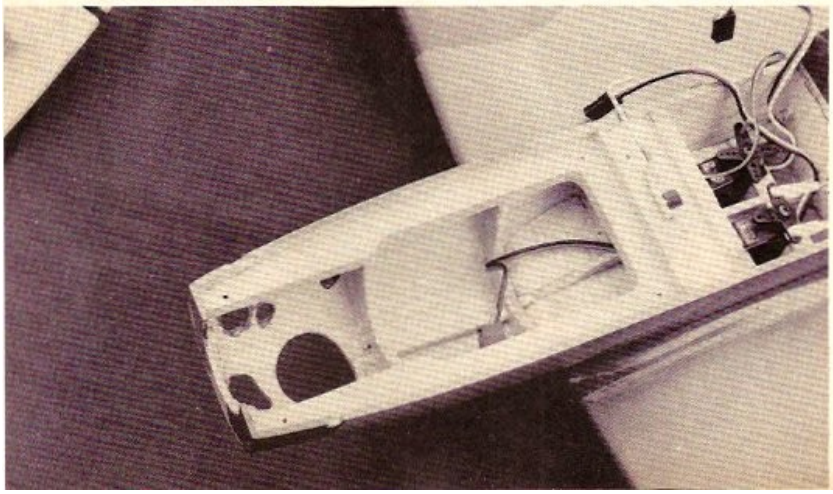
Wing with lower skin showing internal structure. Ailerons and aileron torque rods in place.



Right wing with upper skin pinned in place. Note shims to set correct washout.



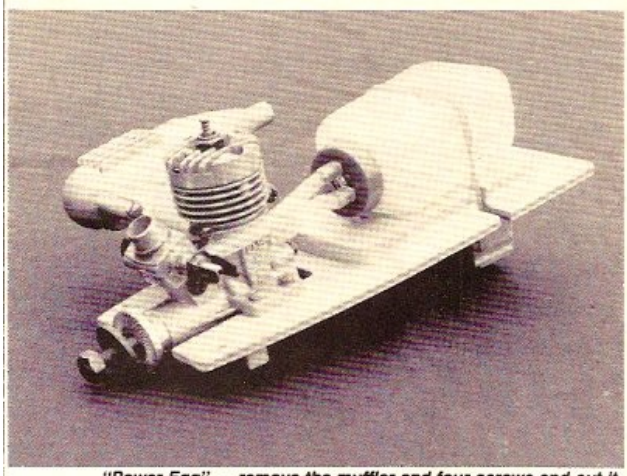
Fuselage crutch.



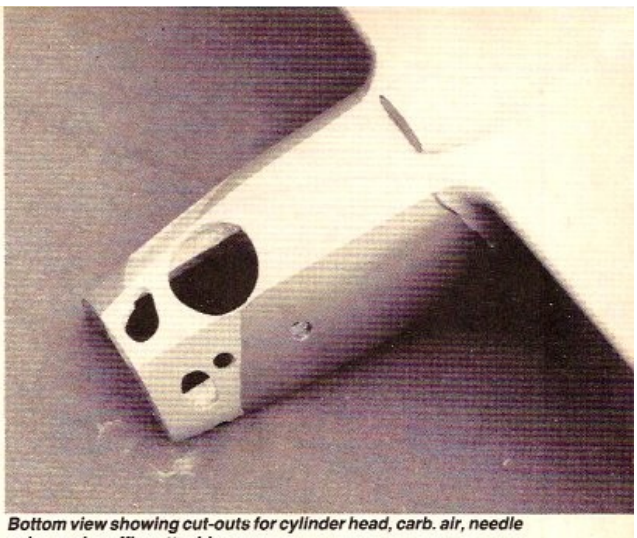
Make up the power-egg, cut all slots for silencer, cooling air, etc., and consider the detail to be fitted. As mentioned, I did add the radiators and cannons and these now transform your model into a fighter! Trim the cockpit opening and if you fit a molded canopy, please please fit a pilot.

The pilot is a Micro-Mold WW II type at 1/10 scale. I know this is overscale but it looks okay and is the correct type. You could use a Williams Bros. 1/12 scale standard pilot which is the correct scale but lacks the fighter pilot appearance.

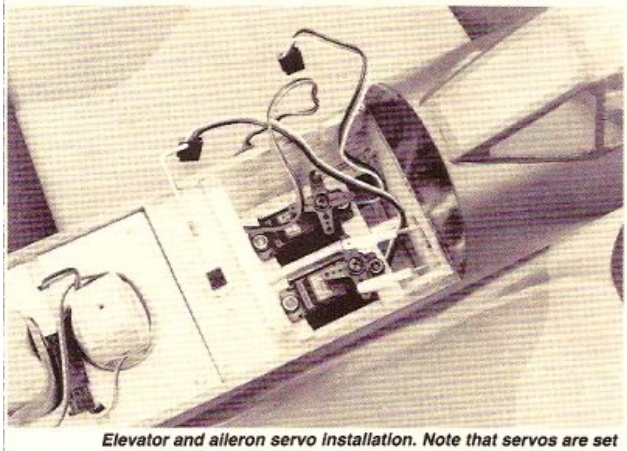
Forward fuselage structure (top view).



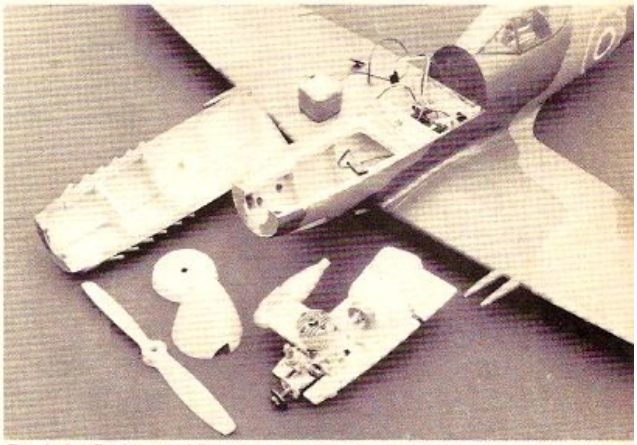
"Power Egg" — remove the muffler and four screws and out it comes; engine, tank and plumbing.



Bottom view showing cut-outs for cylinder head, carb. air, needle valve and muffler attaching screws.



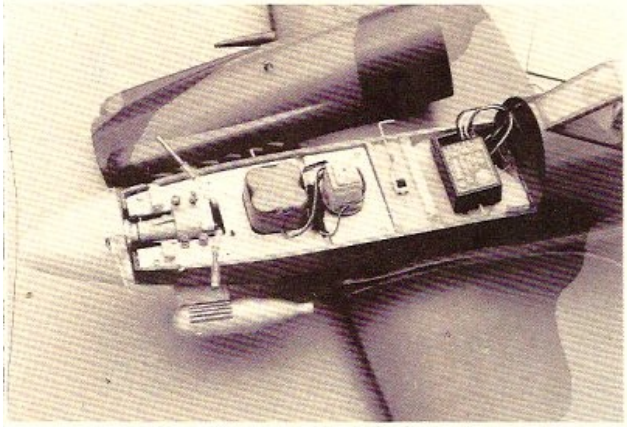
Elevator and aileron servo installation. Note that servos are set into the wing.



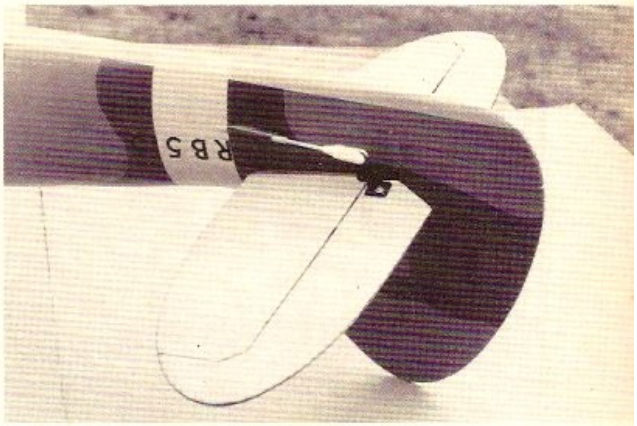
Ready for final assembly.

Finishing:

For finishing I used the old fashioned cellulose base method but **non** shrinking dope, as it will pull the planking in to give a starved horse effect. Visit your local car body repair shop and purchase some non-shrinking clear cellulose sometimes known as "blending clear." Use this as you would for sanding sealer and clear dope and your beautiful body stays in shape.



Ready to fuel up and go. Note the outstanding accessibility.



The tail group.

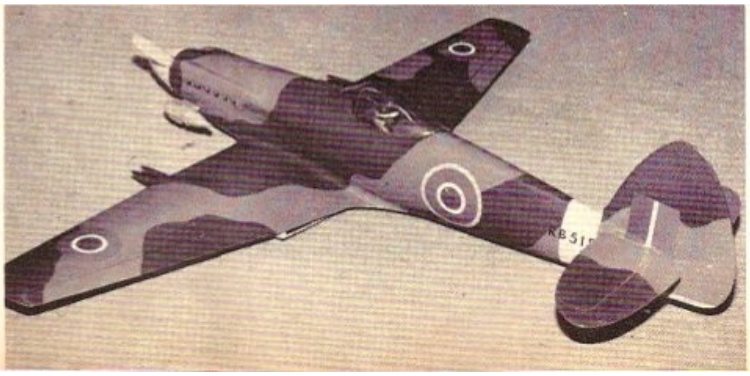
118

Please do not use plastic film as it gives a completely non-scale finish and looks like plastic. For painting you will need the following colours. Numbers in brackets are the Humbrol Matt Enamel references.

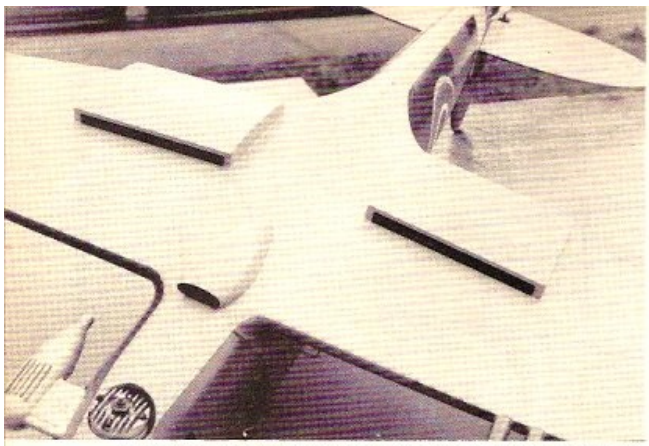
Dark Green (30); Medium Sea Grey (64); Dark Sea Grey (27) (this should be Ocean Grey for correct scale); Sky (90); Red (60); Yellow (24); Blue (25) plus black and white.

All the roundels on my model were painted using ink compasses (spring-bow) with hand in-fill. I had expected drawing the outline to be easy and the hand in-fill tricky. The opposite proved the case.

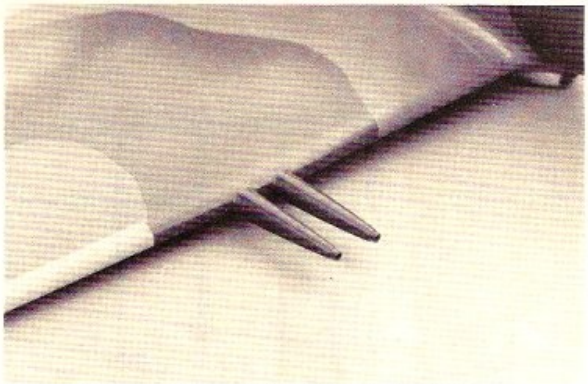
When the camouflage is thoroughly dry, carefully mark the roundel centers with a soft pencil. Build up 5 or 6 layers of masking tape over each center but keep the size smaller than the outer red diameter. Still using soft pencil, now lightly draw in the outer blue diameter, just a little smaller. This is a guide for



119



Radiators and oil cooler. Note the neat fit of the landing gear doors!



Wing cannon installation. Remember, this is a war plane.

painting the white, which should now be done. It is not necessary to use a compass for this but merely to ensure that the white area is covered. Next, using the compass, paint on the yellow outer diameter. (Do test runs first to get the right flow of paint from the compass. This is **critical**.) Hand fill in the yellow until this area is sufficiently covered. Let dry thoroughly (approximately 24 hours). Now paint on the blue outer diameters followed by the blue inner diameters and the red diameter. You can now safely remove the masking tape and hand fill in the blue and red areas. Points to watch:

a. When you commence to paint the outer circles, take your time and do **not** let the compass lift from the surface. It is impossible to "go over again" a missed gap. Let it dry before attempting to re-paint.

b. It is not necessary to paint the widest possible line with the compass. A narrow line is sufficient. The slight ridge produced will act as a stop when hand in-filling if care is taken. A narrow line is easier to paint with the compass.

c. The joining up of the circle is the difficult part as you can easily produce a blob. Take care and "only just" complete the circle.

d. Don't bother to try and in-fill the blue, whilst the outer rings are still wet. It is ideal, but using Humbrol Enamel (Matt) there is not sufficient time before it dries, and it is better to take the time to in-fill carefully.

For the serial number (RB515), I used black Letraset; however, mine are a little small as I could not get the correct size. The nearest to correct scale are:

a. News Gothic Bold 60 Pt. (use the I and not the 1).

b. Futura Medium 60 Pt. (again, use the I and not the 1).

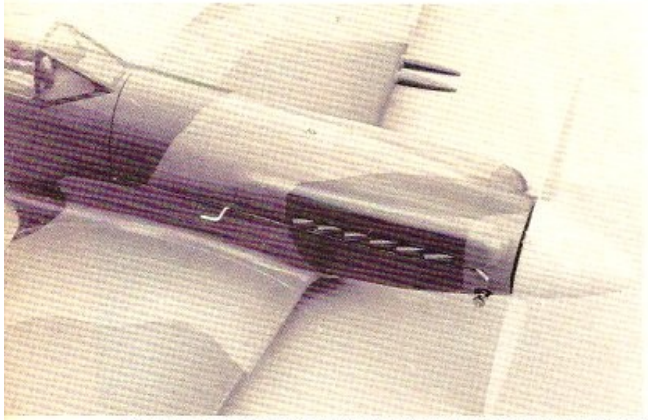
I used Ripmax Tufkote as a good fuelproofing base. To cut down the high gloss, I gave a further coat of Polykote Matt Clear which gave a final semi-gloss finish. It is still perhaps too glossy but for a sport scale model it is at least acceptable. The real airplane appears to be somewhat polished in the photos, possibly to help the efficiency of the Laminar flow wing, so a semi-gloss is perhaps the best. Total flat matt also looks wrong.

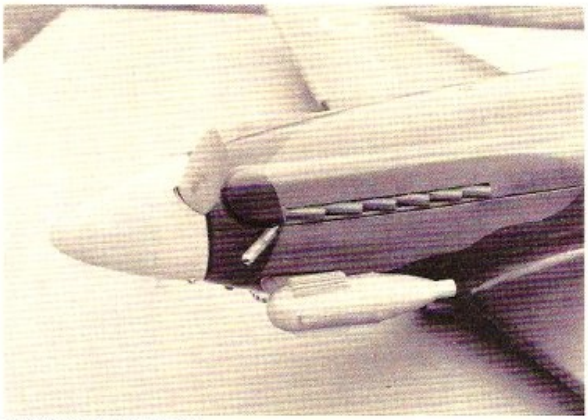
Flying:

Using an O.S. 10FSR on the original I found I needed to use the muffler exhaust stack extension to clear the fuselage side. As an alternative you could cut a channel in the side to clear the muffler. The weight of the finished airframe less R/C engine and muffler was just under 15 ozs. The final weight depends on your choice of gear and motor but should be between 25-30 ounces. At 27 ozs., the wing loading is around 18 ozs./sq. ft.

Flying is straightforward. Check that the C.G. and the controls are correct. For the first flights get a friend to hand launch for you so you are already "gripping the sticks" just in case. The model is great fun to fly. Try some low close runs (the pilot is very noticeable). This model is a change from the usual Spitfire shape whilst still retaining a connection. The building effort is minimal compared to the return you get when she is airborne. Read the books, study the plan and go to it!

□





Engine cowling showing cylinder bank fairing and exhaust stacks. Also note the wing fillet.