

Simon Delaney offers another simple to build scale design, designed for .20 - .32 size engines

The Bf 108 'Taifun' was the result of a contract awarded to Willy Messerschmitt for a sporting aircraft for the 1934 Challenge de Tourisme Internationale. It was probably the most modern four seater aeroplane built anywhere in the world before World War II and featured a spacious, well appointed cockpit and retractable undercarriage. Powered by the reliable Argos 240hp inverted V8 engine, the Luftwaffe were soon using it for light communication and liaison duties. Having similarities to its more famous successor, the Bf109, the Taifun's elegant 1930's lines could be found in all theatres that the Luftwaffe operated in so the options for paint finishes vary from pre-war civilian livery to Eastern and Western front camouflage, as well as the desert scheme which the prototype model received.

I used foam wings for my model, although built up ones could be easily substituted. Undercarriage is optional as the 108 is a good size for hand-launching. I fitted an undercarriage which could be removed and formed some finger grips on the underside of the wing to help with the hand launch. This way both options are covered - although not on the same flight!

The outline of the model is as near to scale as I could make it and therefore should be thought of as a scale model, not semi-scale or fun scale. The amount of detail you wish to add is up to you but remember to watch the weight.

A great send off

Assuming that you opt for the foam wing version, the first thing to do is

send off for your ready veneered wing panels. These sharply tapering wings are quite thick at the root but thin out considerably at the tip. This is as per the full size aircraft and should not be viewed with any concern by those used

to thicker tip sections. Two degrees of wash-out are shown on the plan which covers any tendency to drop a wing at low speeds.

the forward fuselage sides. Make up all the parts for the fuselage and tailplane. The formers are all from $\frac{1}{8}$ th balsa with F1 and F2 from $\frac{1}{4}$ and $\frac{1}{8}$ ply respectively. Make up the fuselage doublers also, and note that they finish $\frac{1}{4}$ " behind the balsa fuselage side. This is to self-align F1. Otherwise the doubler follows the same lines as the fuselage side until it terminates behind F3. Mark

to thicker tip sections. Two degrees of wash-out are shown on the plan which covers any tendency to drop a wing at low speeds.

Build your kit

Whilst you wait for your wings to arrive you can get on with the fuselage. The construction uses $\frac{1}{8}$ th

balsa sides and bottom with a block 'spine' glued on the top of the rear deck. A $\frac{1}{16}$ th ply cockpit floor is utilised to strengthen an otherwise weak area and $\frac{1}{16}$ th ply is also employed as doublers to 'beef up'

all formers with a centre line and also mark where the fuselage side is glued to them to guide you during alignment.

Once all the parts have been cut out accurately to the plan, glue the ply doublers to the balsa sides with contact adhesive. To get these lined up properly (you only get one go with contact glue!) I tack glued a scrap piece of $\frac{1}{4}$ " square on the front of the balsa side to simulate F1 and lined the top edges of the balsa and ply against the worktop. Once glued, the scrap balsa was then broken away to leave the correct width for F1 to fit.

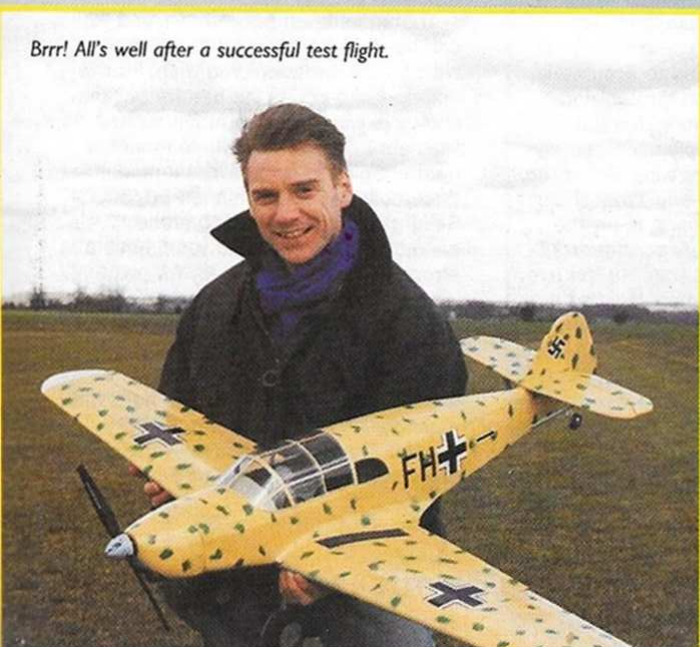
Next, glue F2 and F3 to one fuselage

Messerschmitt Bf 108

Taifun



Brrr! All's well after a successful test flight.



The large expanse of 'glass' on the 108 may look involved, but is perfectly straightforward to build.

side making sure that they are square. Glue the other side to the formers checking their position over the plan. If you get this bit wrong nothing else will line up so check everything twice. The cockpit 'floor' is made from laminated $\frac{1}{16}$ th ply and $\frac{3}{32}$ nd balsa. This piece fits flush with the top of the fuselage and is strengthened by strips of $\frac{3}{8}$ th triangular balsawood against the fuselage side. Once dry, this makes the fuselage very strong between F2 and F3, and stops any unwanted movement when pulling in the nose and tail ends to their required shape.

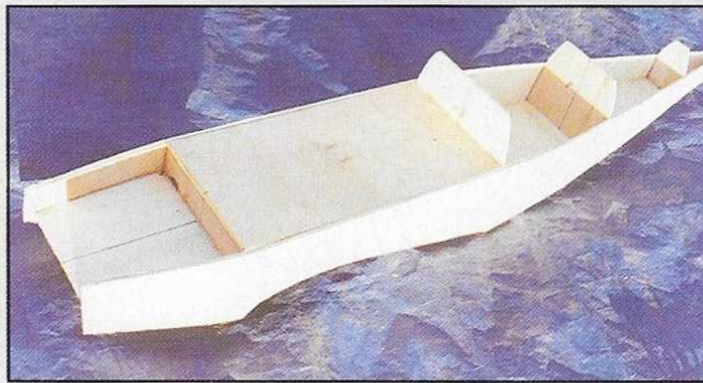
Pull in the tail end of the fuselage and after chamfering the inside edge, glue and hold together with a small bulldog clip or similar. Slide in the two rear formers F4 and F5 and check their position with a straight edge along the top. This means that the spine will make contact with all the formers correctly. Line up the centres of the formers with the plan and glue them in place. You can sheet the underneath of the rear fuselage with $\frac{1}{8}$ th balsa now, with the grain running crosswise. F1 is added by pulling in the fuselage sides and twisting them slightly off the vertical to take the correct profile of the 108's nose. I wetted the balsa and dry fitted F1 using rubber bands to hold the whole thing in shape whilst the balsa dried overnight. Drill F1 for the engine mount and fuel pipes. Use epoxy to glue F1 in position and add the $\frac{3}{8}$ triangular strip to beef up the joint. Make a floor for the fuel tank bay from $\frac{1}{16}$ th sheet. This further strengthens the nose area.

Plumb in the tank (I used silicone sealant to hold it in place) and sheet between F1 and F2 with $\frac{1}{8}$ th sheet on the top only. Fit your preferred control runs inside the fuz. I used a snake for the elevator and closed loop system for the rudder to keep the tail end as light as possible. Add the upper fuselage sides and the top block. The cockpit side strips are also added at this point. Plane and sand away the top decking until the correct profile is reached. I also hollowed the front of the block away to give more room in the rear cabin area. Add the tailplane seat from block and blend into the rear fuselage shape.

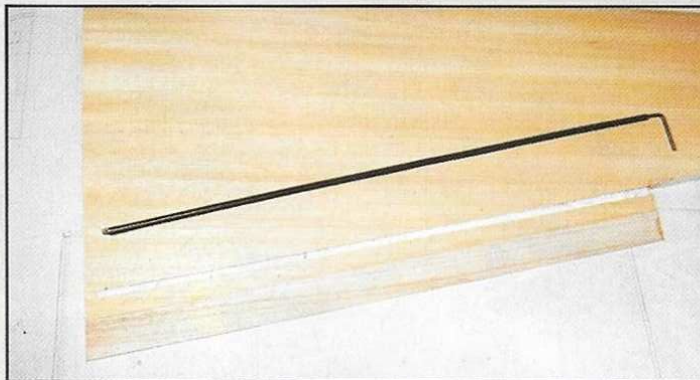
Air mail

Hopefully, by the time that you've got this far, your foam wing panels will have arrived. Start by sanding in the required dihedral which is 2" under each wing tip. The template provided on the plan should be cut from cardboard or $\frac{1}{16}$ th ply. Add the leading and trailing edges followed by the block wing tips and hold them all in place with masking tape until dry. Sand everything to the correct profile and mark the position of the ailerons on the top and bottom of each panel. Once removed, cut off the edges of the aileron to allow for the balsa cladding. This is made up from $\frac{1}{8}$ th and $\frac{1}{16}$ th sheet.

Make up the torque rods from 12 swg wire and plastic tubing (I used some old



Taifun features a standard box fuselage - it's just a bit wider than normal!



You'll need to make up some extra long torque rods for the ailerons.

snake outers). Cut a slot in the wing and glue the rods in with Deluxe Materials R/C Modellers glue. Cover the exposed tube with scrap balsa strip and sand it flush with the surface of the wing. You could make strip ailerons but they don't look right and are nothing like as efficient as the inset ones. Lastly, cut out the aileron servo box from each side of the wing root which is easy to do at this point.

Brace yourself!

From the plan you will notice that I didn't use a cloth bandage and epoxy to join the wings. Instead I opted to use two $\frac{1}{16}$ th ply braces which go the full depth of the wing and also make up the front and rear of the aileron servo box. In addition to this the rear of the undercarriage mounting plate sits on the lower edge of the front brace which neatly uses the available parts for maximum strength. If you decide to fit the braces you will need to accurately mark their positions on the top and bottom of the wing. Mark also the position of the $\frac{1}{8}$ th ply undercarriage plates. Cut through the wing with a razor saw or hacksaw and sand away enough foam to get a good sliding fit for the ply. Remove the veneer between the front brace and the leading edge for the u/c plates and sand the foam away so that the plate lies slightly below the bottom surface of the wing. I used a 1" square of scrap ply with a piece of 60 grade sandpaper glued to it which removed the necessary foam in a few seconds. A further hole needs to be dug out to locate the hardwood block which carries

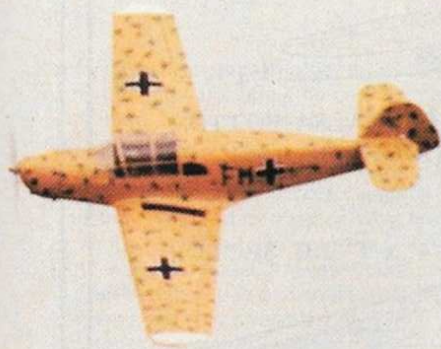
the end of the undercarriage leg. Once you are happy with the dry fit, glue the braces into one wing panel and leave to dry. Join the wings and add both u/c plates. I made the ply braces slightly undersize so that a smaller amount of filler was applied to the slots. This is much easier than trying to sand the ply down.

Get it together

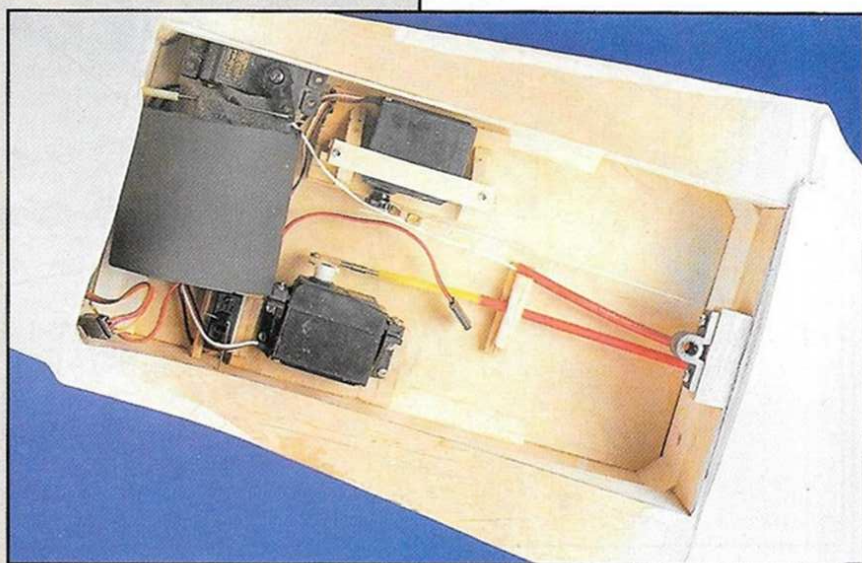
The wing can now be offered up to the fuselage and the wing mounting dowel hole drilled through F2 to ensure that it lines up correctly. I used one plastic bolt for the rear fixing point and this was mounted on a piece of $\frac{1}{2}$ " square hardwood and glued to the front of F3. In the case of a crash the damage would be minimised as the block would break off with the wing and could be easily repaired. Believe me, it works!

The underneath between F1 and F2 can be sheeted in now and a battery access hatch made if you wish. I cut a hole in F2 to get at the battery but the choice is yours. Before fitting the tail feathers I covered the whole model in natural Solartex and gave the model three coats of dope, thinned 50/50. Sand each coat with 1000 grade sandpaper used wet and you'll have a strong, smooth finish ready for painting.

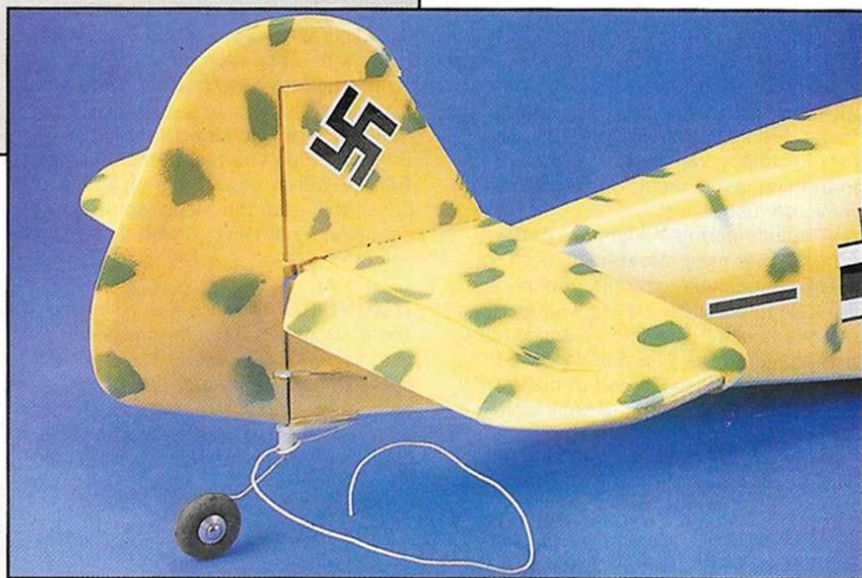
Hinge the elevators and fit a control horn. Before gluing the tailplane in place it is critical that you check that the tailplane is parallel to the top of the fuselage side. Any error made here will make for an interesting first flight! I sanded the tailplane seat to various angles until I got it right, so just keep



Taifun flies great and that's official, your Ed having had a ball with it at the recent Nexus Scale Rally.



Lots of room!



The Taifun has a closed loop to the rudder and a steerable tailwheel.

replacing the lost wood until the measurement between the top of the block and the top of the fus side is the same at both ends, then glue the tailplane on! Don't forget the tailplane struts which form part of the Me 108's classic shape.

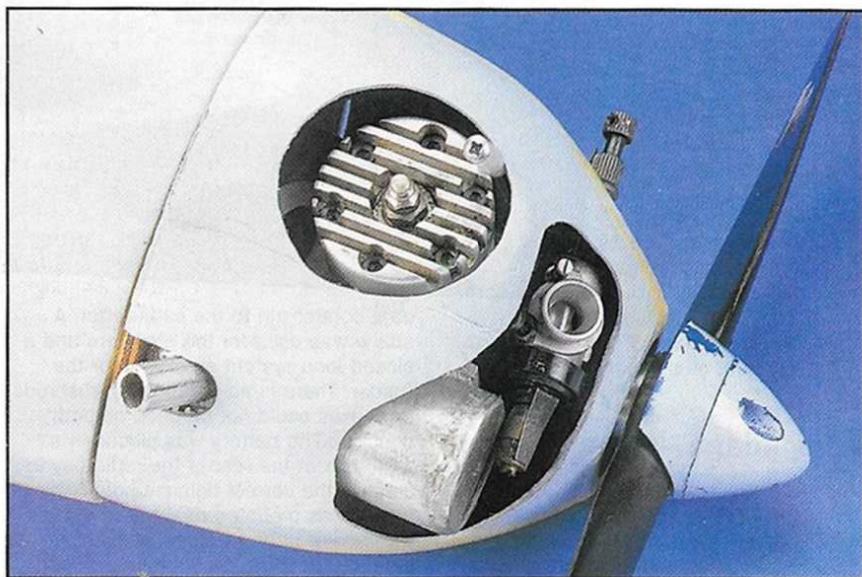
I also doweled the tailplane and fin together to add strength. After fitting the fin, hinge the rudder and note that the steerable tail wheel assembly is fitted at this point. I should say that the position of the tail wheel is the only real departure from scale as the full size aircraft had it mounted further forward. The method I used gave the lightest option with the minimum inconvenience.

The wing fairings are made by sliding 1/64th ply between the wing and the fus and zapping it in place. Make up some formers from 1/4" balsa to fit between the fuselage side and the ply base. Once glued in place these can be sanded to the concave profile required and another piece of 1/64th ply used as a top 'skin'.

The extreme front and rear portions of the fairing are built up from soft block.

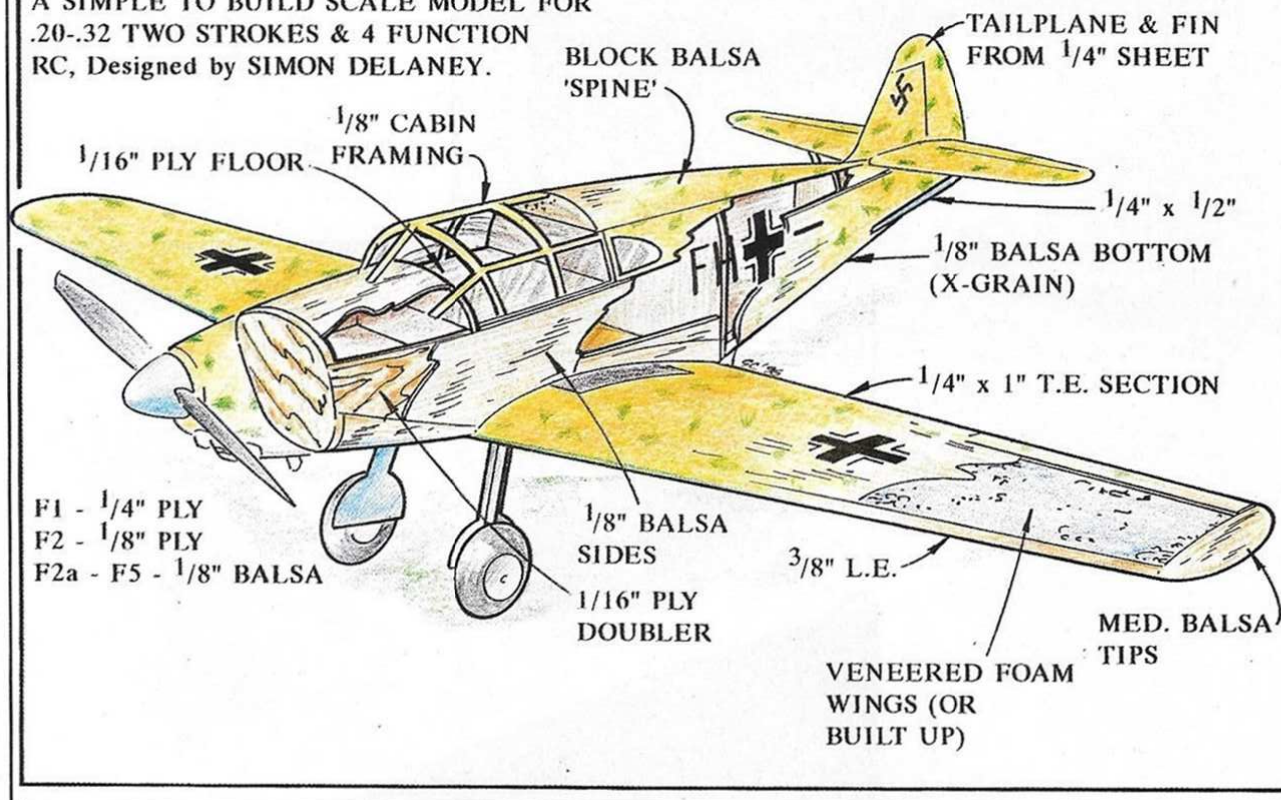
Greenhouse effect

The large expanse of glass area on the 108 may look involved, but is perfectly straightforward. Firstly, paint the inside of the cockpit with some black or grey paints. Next, make up the 1/16th ply frames and notch them to take the 1/8th hardwood strips. Fit a pilot and glue in an instrument panel to add a touch of detail then glue the first frame to the front of F3A, followed by the middle and front frames which are laminated with 3/32nd balsa. Add the hardwood strips and the



A dustbin silencer allows most of the engine installation to be kept within the cowl.

A SIMPLE TO BUILD SCALE MODEL FOR
.20-.32 TWO STROKES & 4 FUNCTION
RC, Designed by SIMON DELANEY.



cockpit is ready for its 'perspex'. I used R/C Modellers glue for this job and fixed the main section in stages, using pins and tape whilst the glue dried. The windshield was glued on in two halves with the join running down the centre frame. I used self adhesive metal tape for the canopy framing but strips cut from thin plastic sheet, or even card, would do just as well.

The undercarriage doors are made from 1/16th ply (grain running front to rear) with a couple of coats of dope and are held in place on the leg with some silicone sealant. The wheels are of fairly thin profile on the 108 and so I used some sponge ones, turned to the correct profile on a drill. The large hubs were discs of card painted silver. The cowl on the prototype was made from fibreglass by making a plug from blue foam, sanding it to the correct section and applying two coats of finishing resin. From this, a mould was produced and a super cowl emerged in due course! The method is fully explained in a separate article in this issue. This is a good point to thank Brian Thorn for his direction and assistance with the cowl moulding which wouldn't have been anything like as good if he hadn't helped me - cheers Brian. If you don't fancy the fibreglass route, the cowl could be fashioned from balsa with just as pleasing results.

Painting - classic or camouflage?

The Me 108 was sold to many countries during the 1930's and I was tempted by a scheme of silver wings and cream fuselage with the pre-war swastika on a

red background on the fin. However, the Afrika korps colour scheme won in the end. This is a very 'bright' finish which helps with orientation but I still fancy the other schemes - maybe next time. I used acrylic car spray paints, namely Ford's Sahara Beige, Meadow Green and Bermuda Blue and fuel proofed using Tufcote. I drew panel lines on with a pencil and gave the model some definition by dirtying up with some coloured chalks.

Radio bay

There is enough room for standard radio gear to be located under the large cockpit floor. The rudder and elevator servos were mounted on their sides and the throttle servo was placed upright against F2 which made for a short and

on the fuselage side does nothing to enhance the scale effect so it's worth fitting the switch internally.

Engine room

An ASP .32 engine was used on the prototype and a .25 or even a .19 size engine would have adequate power. I used 11 x 7 1/2 Master and 11 x 8 Graupner propellers which are very quiet and give plenty of power. The engine was mounted at the seven o'clock position which fitted in nicely with the cowl shape and a custom silencer was made from some 1 1/2" aluminium tube and assembled with aluminium solder. A standard silencer could be used if a cut out was made in F1 to allow the rear portion of the muffler to fit through.

Airborne at last

The narrow track of the undercarriage needs to be handled carefully as the model is prone to ground looping. With plenty of rudder movement the directional response was fine but, as expected, out of wind take-offs resulted in the model digging a wing tip into the ground. Set the rudder up for maximum movement and you'll be able to control the model on the ground with ease. Hand-launches are most easily accomplished by cutting two D shaped holes in the underside of the wing to give your index finger and thumb something to hold. Line the cut-outs with 60 grade sandpaper for extra grip.

Make sure the model balances at the correct point and don't go overboard with the control throws! The movements shown on the plan are perfectly adequate, at least for the initial flights. Trim in some up elevator to give a controlled climb out on the first hand launch and get an experienced person to do the launch. I found the prototype to be quite quick even with the ASP 32



neat control run to the carburettor. A snake was used for the elevators and a closed loop system employed for the rudder. There is no reason why pushrods or snakes could not be used on both controls. The battery was placed in a 1/4" box at the rear of the radio bay to achieve the correct balance point. The switch was mounted next to the servos with a wire fitted through the fuselage side to actuate it. Mounting the switch

Datafile

spinning an eleven inch prop. A .25 size would be just right and if no undercarriage was fitted a fixed rudder could be used and some weight saved, so a .20 size engine would be fine. The slow speed handling is very good with only a slight 'mushing' followed by a gentle wing drop to show that a stall has occurred.

Otherwise the model grooves around the sky with ease and is pleasantly aerobatic. Landings are very straightforward no problems encountered whatsoever.

The success of this model is also due to the help of George Milner-Smith, who took the photographs and checked out the original drawings, and Brian Thorn, who ruined a perfectly good jacket hand launching the model on its test flights! He also made the custom silencer and produced the cowl from my plug. My wife, Sally, also had to put up with '108 fever' for several weeks and was as enthusiastic as always. Thanks to all of you.

That's it! If you fancy an easy route into scale flying or just something a little out of the ordinary, the Me 108 may just fit the bill. Whatever reason you have for building it, make sure you have fun. ●

Plan Specifications

Name	Me108 Taifun
Designed By	Simon Delaney
Aircraft Type	1/8th semi-scale
Wingspan	51"
Wing Chord	11" root, 5" tip
Aerofoil	Modified Clark Y
Dihedral At Each Tip	2.1/2"
Fuselage Length	40"
Tailplane Span	16"
Tailplane Section	Flat plate
Fin Height	7.1/4"
Engine Range	20 -.35 cu.ins.
Fuel Tank	6 ozs.
Rec. Number of Channels	Four
Control Functions	Aileron, elevator, rudder, throttle
C.G. (from L.E.)	3.1/8" at wing centre
Elevator Throws	+/- 1/2"
Aileron Throws	+/- 3/8"
Rudder Throws	+/- 1.1/2"
Sidethrust	None
Downthrust	None

Materials Used in Construction

Fuselage	Balsa, ply
Wing	Veneered foam
Tail Surfaces	Balsa sheet