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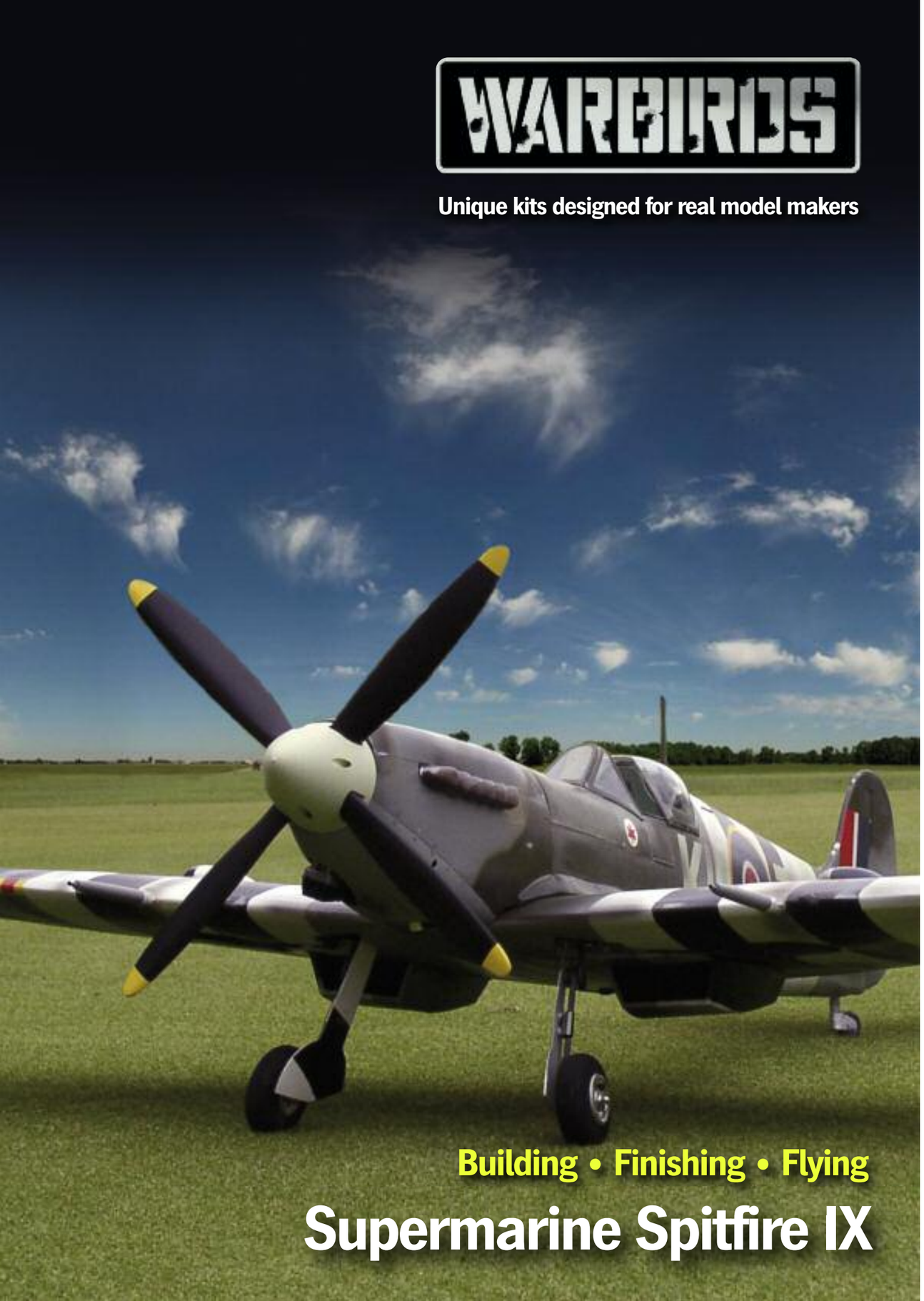
Unique kits designed for real model makers



Building • Finishing • Flying

Supermarine Spitfire IX

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Thank you for choosing this top quality Warbird Replicas Spitfire IX kit, which we know will bring you many hours of flying pleasure as well as an enjoyable building experience.

From the earliest Warbird kits over two decades ago, through to the present, all of our kits have earnt a solid reputation for straightforward construction and exceptional flying qualities. Our current range covers the models our customers have asked us for, with the latest kits fast establishing themselves as winners.

Our unique total design philosophy produces a near scale model whilst still suitable for everyday use.

As testimony to our achievement, all press reviews have confirmed that our models would make excellent first low wing trainers. However, we consider the greatest compliment comes from fellow modellers, who after buying one Warbird kit tend to keep coming back for more!

Total design

Total design means that we don't just sell you a kit and then leave you to find all the difficult accessories. Each kit includes a range of optional [but strongly recommended] extras including decals, retract packs complete with comprehensive instructions, wheels & wheel wells and pilot & cockpit sets. The latest addition to our accessory range is a custom made, in-cowl exhaust system suitable for most 52 size 4-stroke motors. Exclusive to Warbirds these exhaust systems can further enhance the scale appearance of your finished model.

Create something individual

Feedback we have received over the years has shown us our customers are capable of going much closer to scale and crave more detail, so although all major components are contained within the kit, the covered airframe is very much a blank canvas, ready to accept your own ideas on painting, weathering and scale detailing.

The Osprey series of publications are an excellent resource for detailing, covering a wide range of WWII marques. Mk IX Spitfire ISBN 1-84176-266-o

Warbird Replicas Online

Build tips and advice, covering & painting, video downloads, model gallery, online shop and much more, are all available at the Warbird replicas website - **www.warbirdreplicas.co.uk**

What next?

Do a little research, familiarise yourself with all stages of construction, dry fit components as you progress and you will be well on your way to creating a model that stands out from the usual crowd!

The legendary Supermarine Spitfire, designed by R.J.Mitchell was a direct descendant from the Schneider Trophy winning sea planes from the same factory. With such a distinguished pedigree nothing less than a true thoroughbred could result.

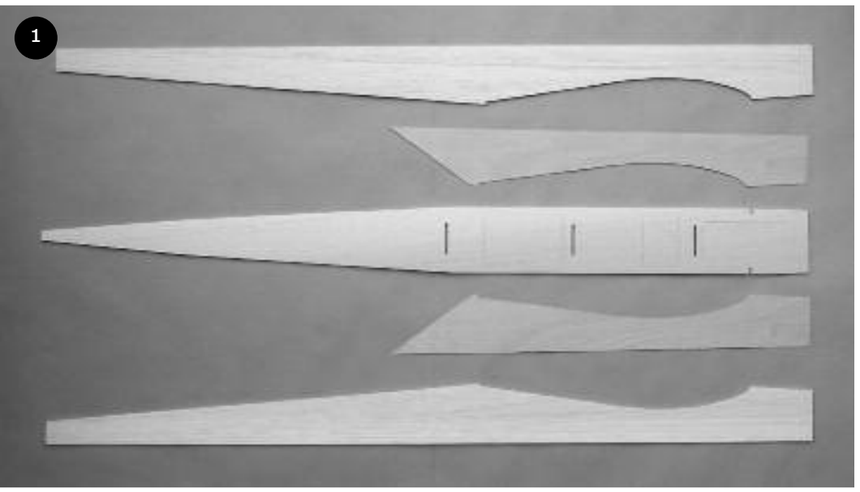
The design was so advanced that it could be developed way beyond that of its contemporaries, the Hurricane and ME109, and was competitive right through to the end of the war. The Spitfire won the hearts of all who flew her, and the respect of those who fought against her in combat.

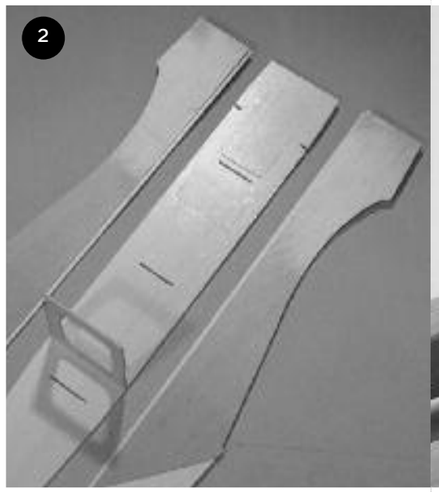
Our model faithfully reproduces the look of a Mk IX Spitfire. The flight characteristics are delightful, it has no real vices, and is a real lady right down to the stall, which incidentally is a non-event. Like the full size, the model has been designed to operate from relatively short grass runways, giving everyone the opportunity to become a Spitfire Ace.

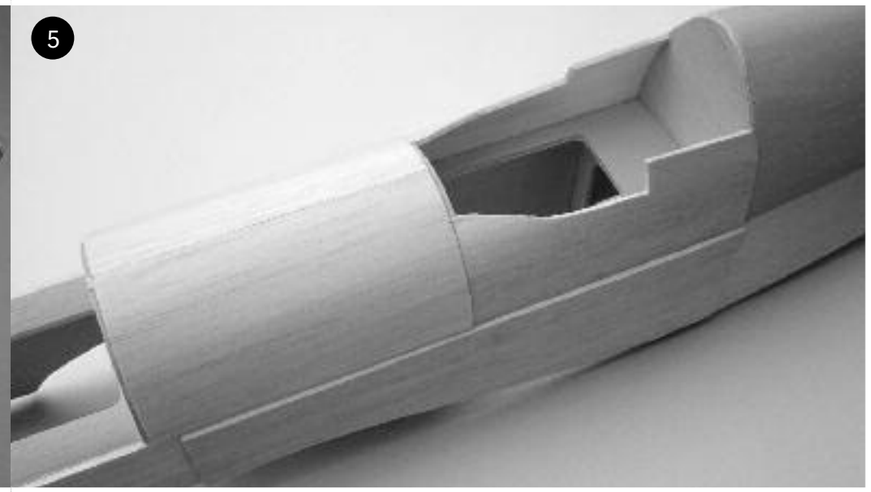
Our British designed and manufactured model was destined from the outset to be a winner, as was the original. Whether you choose IC or electric power, built as intended, you will soon be won over by its impeccable manners and hopefully converting other 'box' flyers to models that look like the aircraft that really made them aviation enthusiasts in the first place.

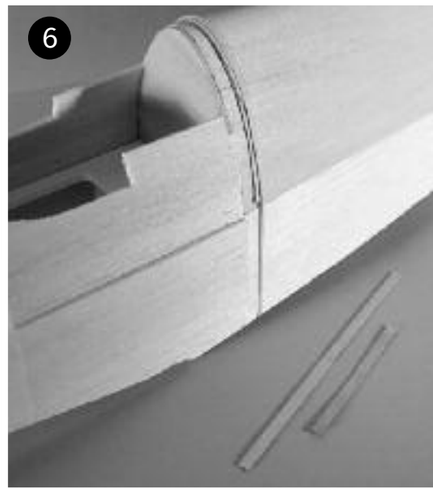
The model shown here is powered by an SC52 4-stroke, a flying weight of only 6lb was achieved

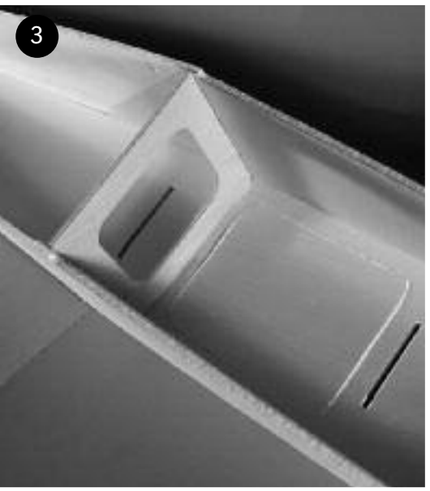
Fuselage - Supermarine Spitfire IX

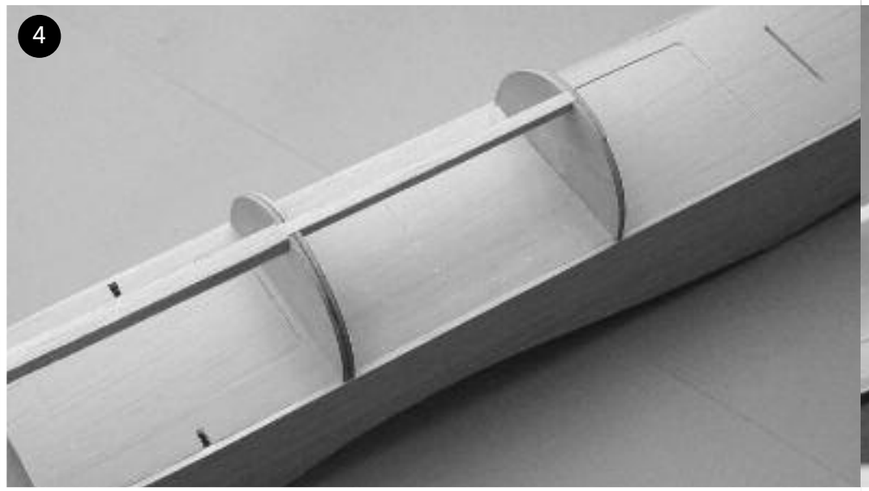


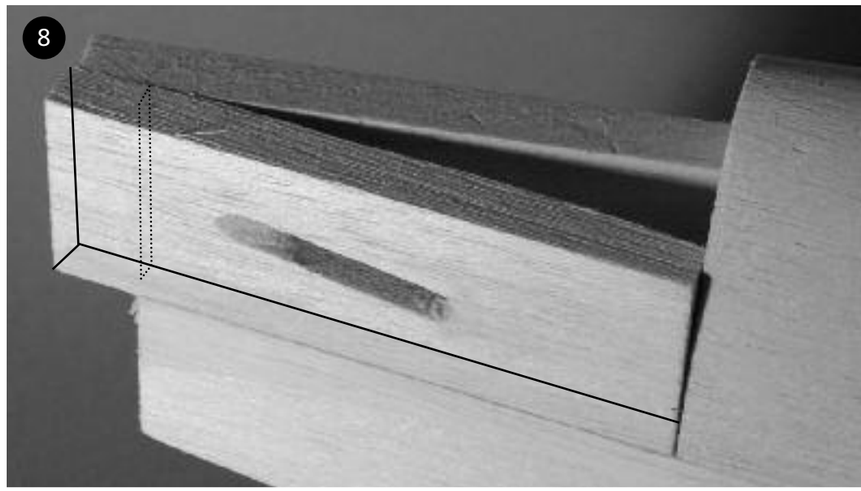












HINTS & TIPS

[1] Aliphatic or PVA glue has been used throughout the construction unless indicated otherwise.

[2] Tack gluing scrap blocks of 3mm balsa to top edge of fuselage helps to correctly position ply doublers 3mm from top. Remove scrap blocks after gluing.

1. Central crutch, x2 ply doublers & x2 fuselage sides. Cut control rod hole in central crutch as show on plan.

2. Glue[1] ply doublers to fuselage sides in the correct positions[2] as shown on the plan, clamp flat and leave to dry, the ply doublers should face each other on the inside of the fuselage, this will ensure a left and right hand pair. **Do not glue within 150mm of the front edge** [shaded area shown in pic 1], this will help in shaping the fuselage later in the build. Glue in F3 in the position marked on the plan, ensuring it is square and upright.

3. Once well dry, place on a flat surface and glue both fuselage sides squarely to central crutch using clamps and low tack tape to hold in position while glue sets.

4. Glue the front deck formers F3, F4, F5 & F6 to the central crutch, tabs are provided for ease of positioning [see pic 4]. Glue in place the 1/4" balsa stock between F3/4 & F5/6. Position and trim the 1/2" ramin stock between F1 and F3/F4. Epoxy in place. Finally, drill pilot hole and add securing screw through F1 as shown on the plan.

5. Sheet front deck with 1/8" balsa[1]. Glue in position rear cockpit former F6 using the precut tabs, ensuring it is upright. The cockpit sides can now be added[2]. Fix the foam rear deck in position using clamps and low tack masking tape until glue dries. The foam deck should be flush to the fuselage sides with no overhang. The fuselage cheeks can now be added in the position marked on the plan, clamp flat until glue dries.

6. Make the canopy support by cutting 2 x 1/4" wide strips of 1/32" ply (grain running across the width) 1 x 8" inch strip and 1 x 4" inch strip in length,

7. glue the shorter strip centrally on the outside of the longer one. Pic 6 shows the support temporarily clamped against the rear deck with an elastic band[3] ensuring it dries to the correct profile. Glue in place inside cockpit as shown in pic 7.

8. Cut the pushrod exit slots in the 3 x 1" balsa tail mount blocks in the position as shown on the plan. Make a cut 1/8" deep on both blocks in the position shown in pic 8 by the dotted line [this will greatly help with step 13] and glue blocks in place.

HINTS & TIPS

[1] Dampening the balsa on one side [non glued side] is essential to bend it without splitting.

[2] Cyano glue may be used for this step as the quicker drying properties can be helpful.

[3] Masking tape and elastic bands can be used effectively when clamping awkward shaped pieces whilst waiting for the adhesive to dry.

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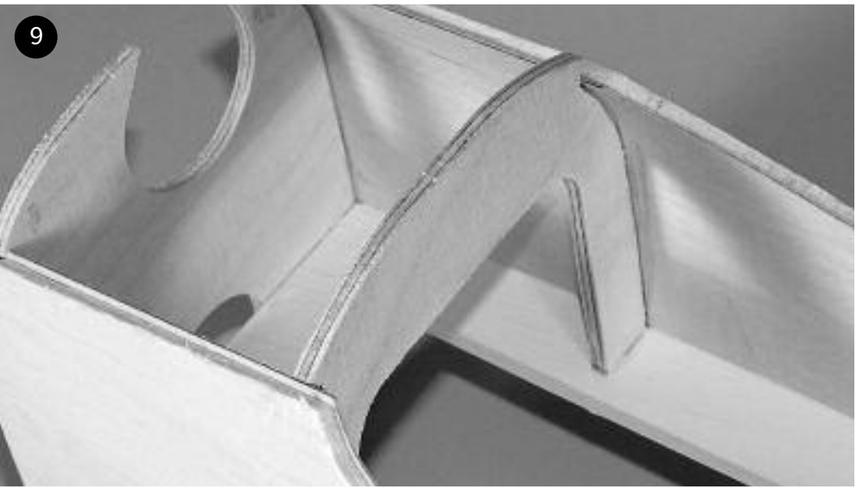

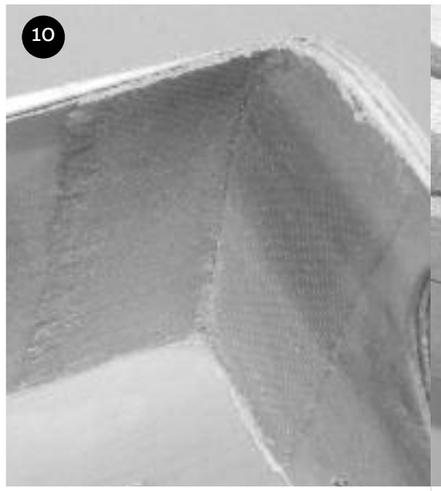

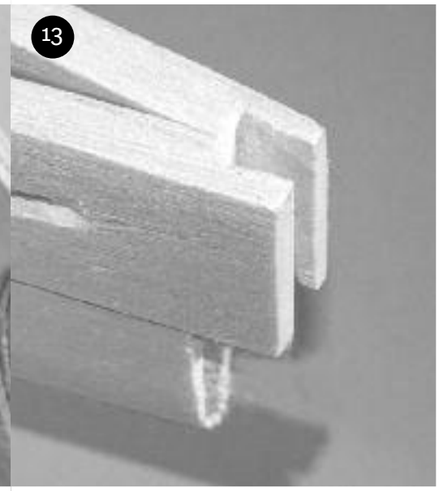

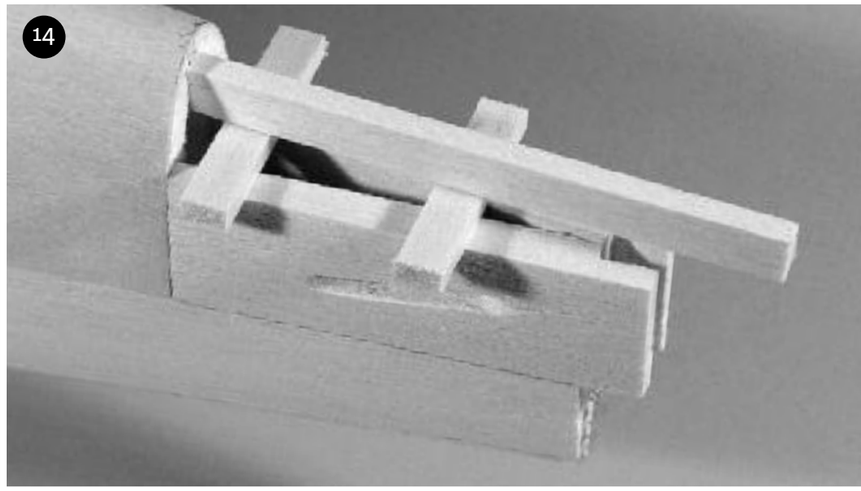

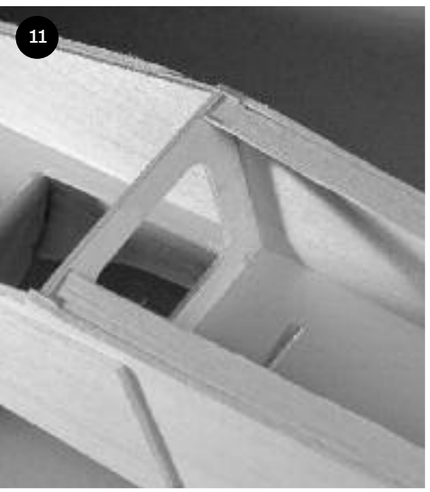

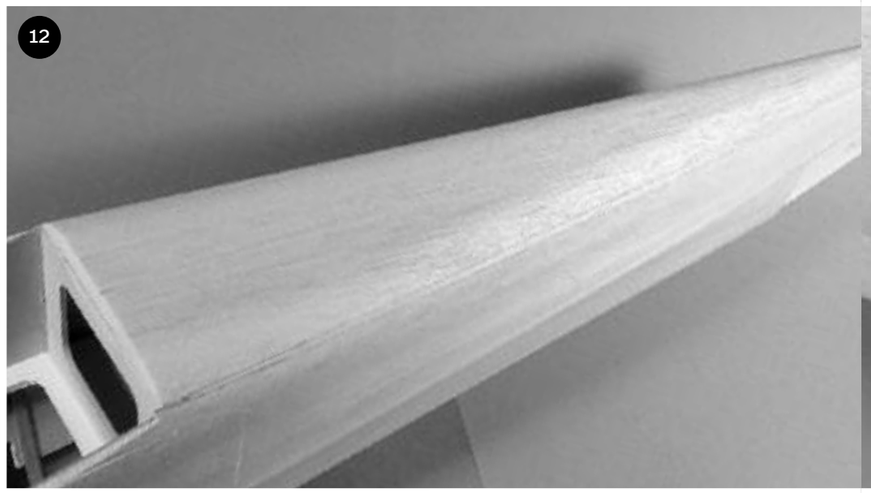

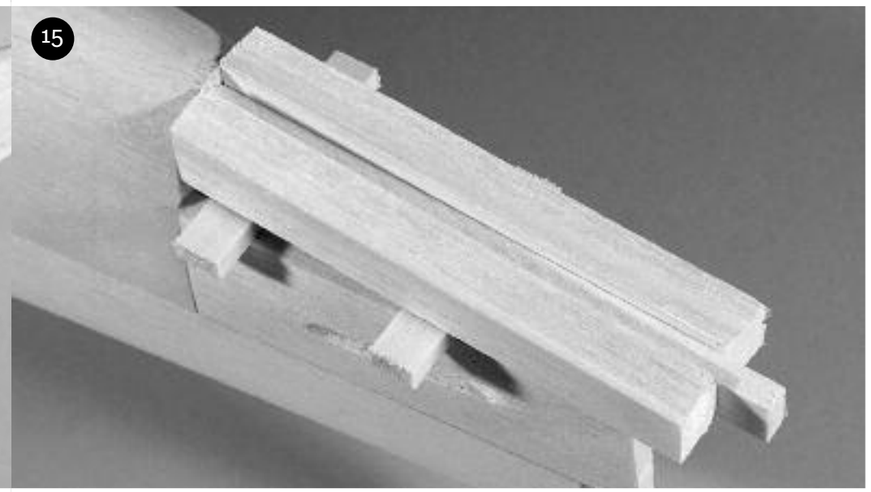

HINTS & TIPS

[1] Follow the manufacturers instructions for mixing and application instructions

9 Glue in place F1 and F2 using epoxy glue. PVA glue the 150mm of the fuselage ply doublers left unglued in step 2 and fix in position with tape

10 until dry. Fibreglass tape has been supplied to further strengthen the internal join between F1 and the fuselage sides[1], fuel proof the whole of this area if using IC power.

11 Glue the triangular fillet the entire length of the rear fuselage and clamp.

12 Glue together the 2 precut pieces of 3/8 balsa to form the entire lower rear fuselage sheeting. Glue and tape in place until dry, sand to shape as shown. It is necessary to expose some of the triangular fillet along the length of the fuselage to obtain the correct rounded profile.

13 Cut a vertical 1/4" wide slot to accept T5 [stern post], but do not fit yet[1].

14 Using scrap 1/4" balsa, tack glue[2] in place 3 pieces as shown, ensure the piece running parallel to fuselage is in exact alignment as this will create the angle for the vertical stabiliser.

15 Tack glue in place 2 further blocks of 1/2" balsa, these will become the tail fillets after sanding.

16 Sand the 1/2" blocks to the correct shape then carefully cut the shaped fillets away from the scrap. Now remove and discard the scrap.

HINTS & TIPS

[1] Ensure this slot is accurate or an off vertical tail will result

[2] Use glue sparingly

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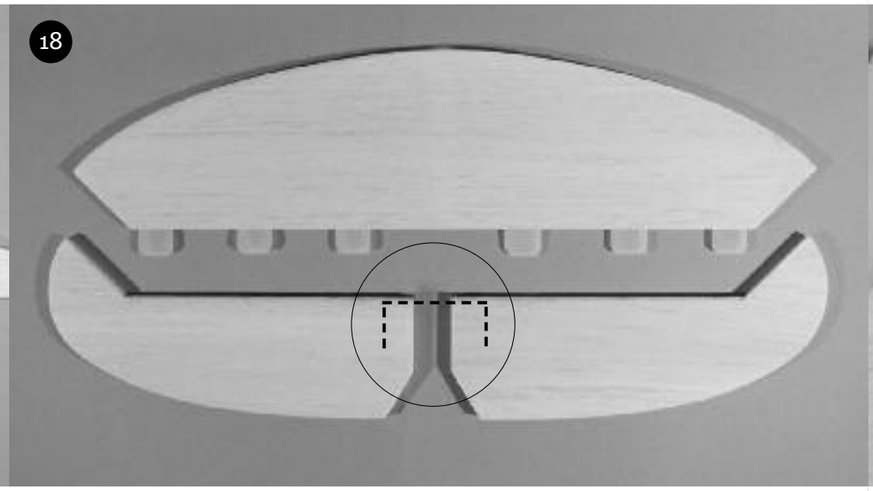

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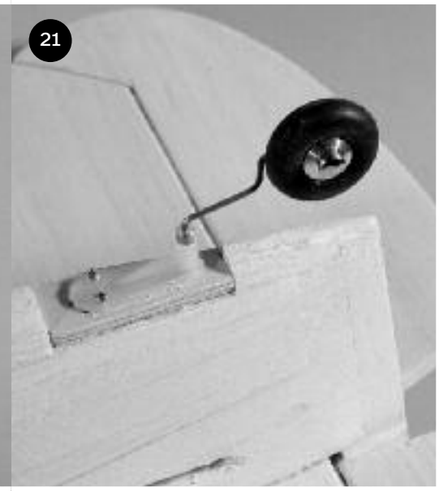

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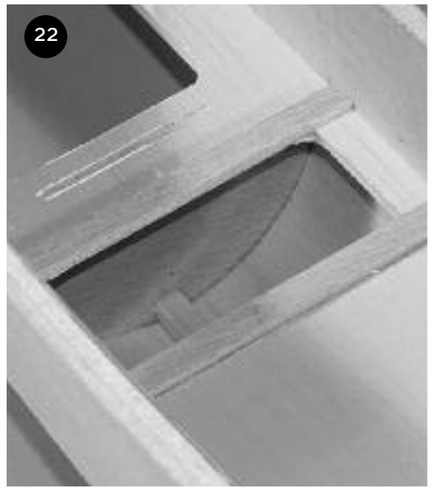

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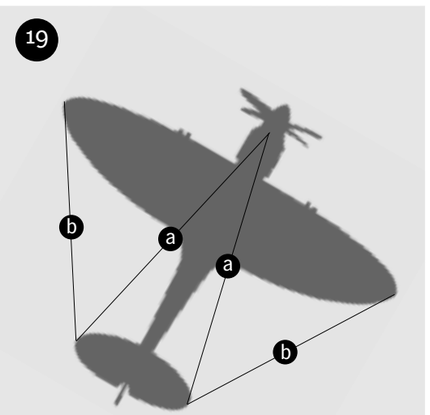

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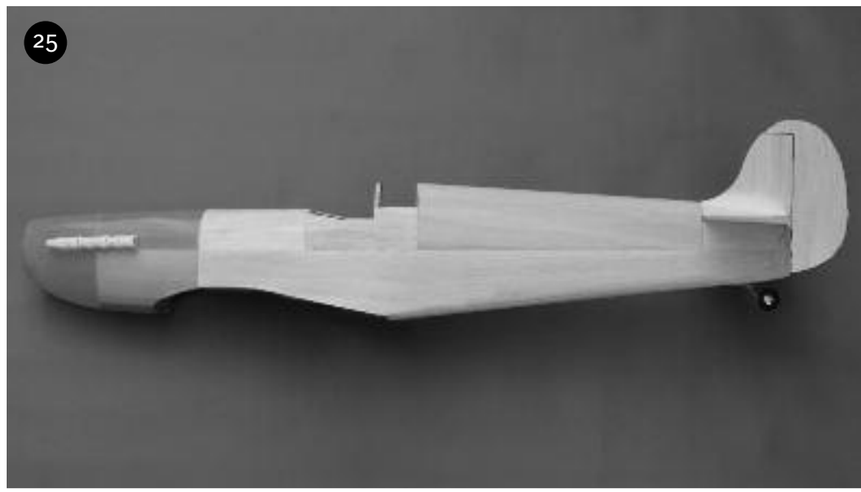

HINTS & TIPS

[1] Nipping off the corners of the mylar stops the hinges snagging upon insertion

[2] Cut slots using a sharp blade, at regular intervals in corresponding positions on the faces to be hinged. Make the width just wider than the cut mylar hinges. For added strength always glue [cyano] and pin both sides of each hinge - cocktail sticks work well for pinning

3 Ensuring measurements marked A are equal and measurements marked B are equal as shown in pic 19, should ensure tail and wing and correctly aligned

17 The fin is assembled from parts T4 & 5. The top section of T4 & 5 are then removed and glued to T6 as shown on the plan, to form the aerodynamic balance. Give all the control surface edges a light sanding to give a slightly rounded edge profile. Do not fix the rudder at this stage, leaving it detachable will make covering easier! Cut the mylar strip[1] and hinge the rudder in 3 places[2]. File a recess in the tail support post in the position shown [pic 17] to allow the elevator joiner to operate smoothly.

18 Hinge the elevator as shown[2]. Bend the elevator joiner rod (2mm steel rod) through 90 in 2 positions as indicated by the dotted line in pic 18. Mark joiner position, drill both elevators, insert and epoxy in place, ensure elevators are in perfect alignment whilst adhesive cures.

19 Glue the vertical stabiliser to the horizontal stabiliser ensuring it is correctly aligned. Epoxy glue the completed tail unit to the tail mounting blocks, ensure it is correctly aligned to the fuselage whilst it cures[3].

20 Glue tail fillets in position and fare-in with lightweight filler if necessary.

21 Drill then file a slot to the required size in the supplied plywood tailwheel mounting plate and screw the tailwheel into position[1]. Remove the required length of balsa from the fuselage down to the 1/2" triangular stock and epoxy in place. Use scrap balsa and/or lightweight filler to make good the profile.

22 Cut 2 x servo bearers from scrap lightply and glue to either side of the pre-cut servo bay in the central crutch. The exact position depends on the size of servo being used. It is vital for safety that all servos are securely fixed.

23 Cut 2 x 3/4" square blocks from the supplied 1/2" plywood. Drill a 6mm dia. hole through the centre of each and lightly tap the supplied captive nut into place. Epoxy each block into position as shown.

24 Trim and trial fit the epoxy cowl[2]. Do not trim the cowl exactly to size, this will need to be done with the wings fixed in place. Trim to shape the supplied exhaust mouldings, fill with scrap balsa and fix to cowl using epoxy[3].

25 Sand the fuselage to the final profile[4].

HINTS & TIPS

[1] The tailwheel can either be castoring or fixed, full instructions are provided on the tailwheel packaging, although we recommend the fixed option

[2] Modellers scissors and glass paper should be sufficient to shape the cowl

[3] Lightly roughen the cowl surface to ensure a solid bond

[4] Do not sand the fuselage around the wing fillet area as this will make fitting of the wing fillets more difficult

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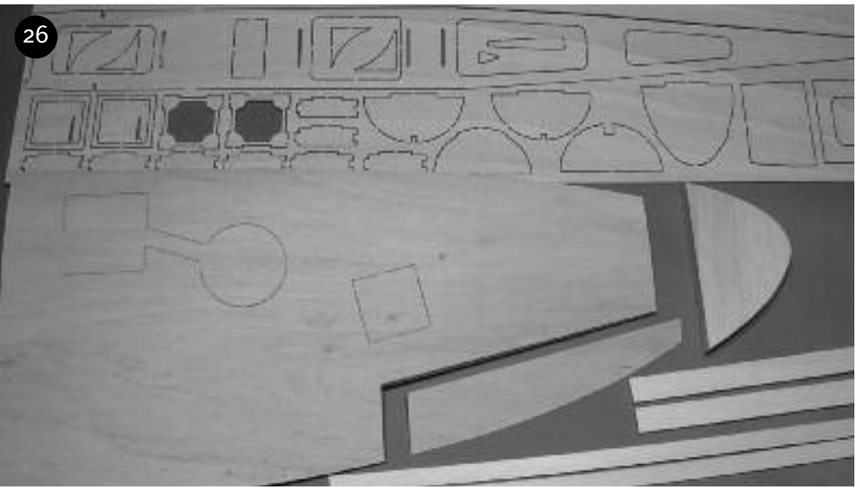

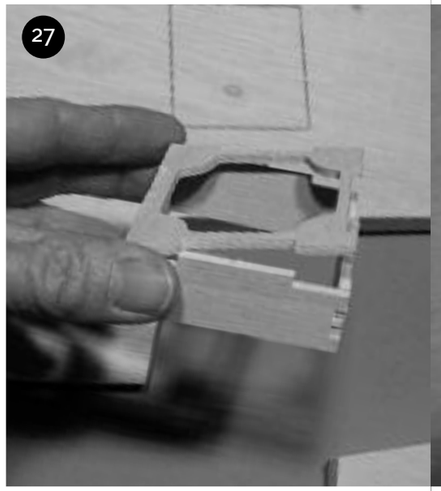

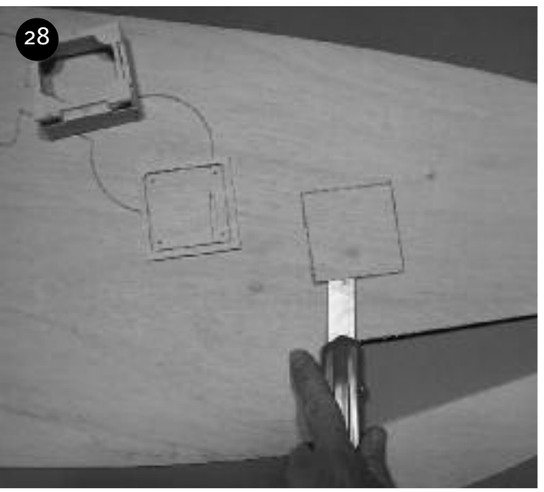

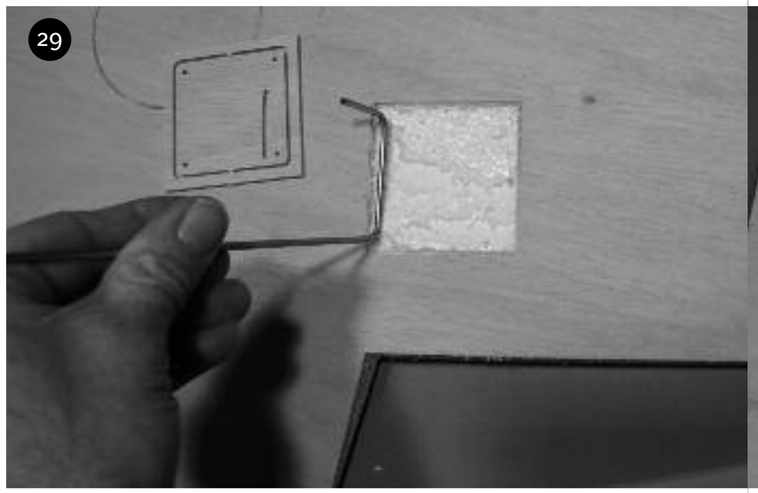

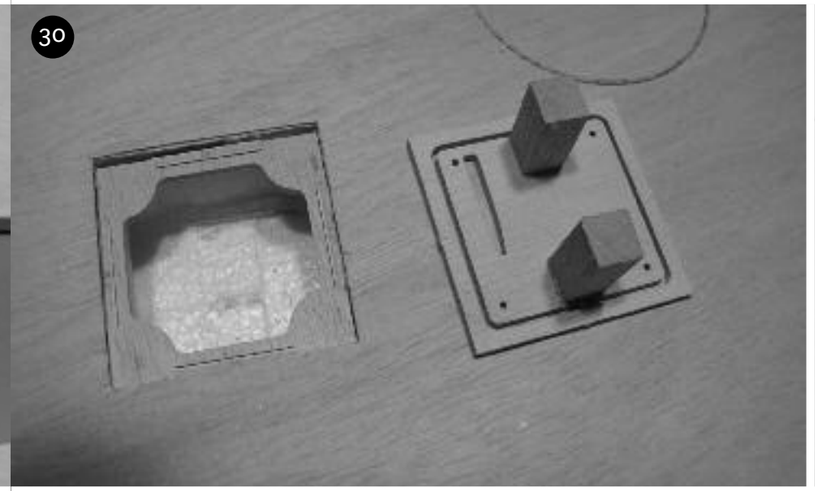

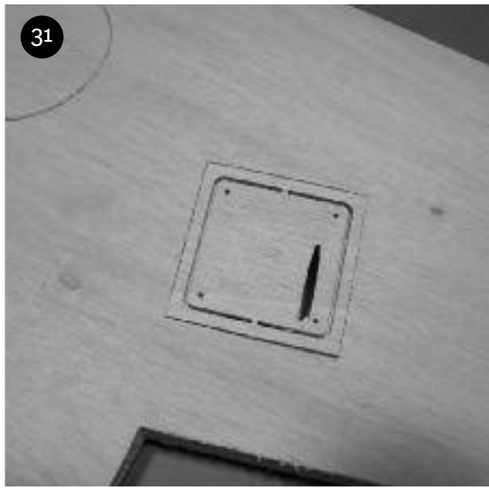

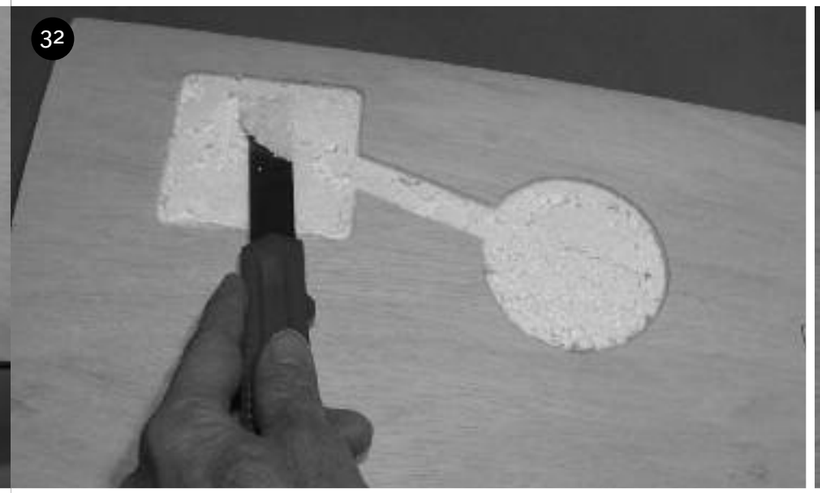

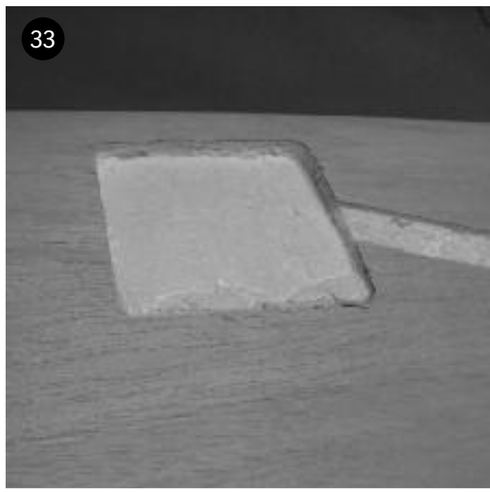

HINTS & TIPS

The Warbirds Spitfire features a computer cut foam cored wing requiring very little work to complete. Lightweight materials have been used in its fabrication.

[1] A thick push rod wire that can be bent into a square “U” shape, then heated over the cookers gas ring to remove the unwanted foam gives a good result!

26 Component parts of entire wing assembly, aileron servo box parts can be found on the CNC cut light ply panel. For the following operations you will need a long broad bladed utility knife and some wire to remove the unwanted foam[1].

27 Assemble the servo box from the 5 pre-cut lite ply parts.

28 Remove the veneer skin on the servo box location. The location of the wing servo box and retract installation have been routed into the wing skin.

29 Heat the bent pushrod wire and use to carefully scoop the foam out to a depth of 25mm, avoid going all the way down to the veneer as this will weaken the wing surface.

30 Before gluing in position, make a hole in the side of the servo box to correspond with the servo lead tunnel in the wing then glue the box in place with PVA and secure the inner lid with four small screws.

31 Ensure that the lid fits flush with the wing skin.

32 Using the long knife[1], carefully slice away slivers of the foam surface. A gentle sawing motion will produce the best result. Work from the back of the wing with the blade flush with the surface of the veneer.

33 We are trying to achieve a smooth flat surface with a slight gradient which will make the surface almost untouched at the back, but 6mm below the veneer at the front. This will give the wheel legs a forward rake when completed.

HINTS & TIPS

[1] Using a new blade will reduce tearing and make the cutting much easier

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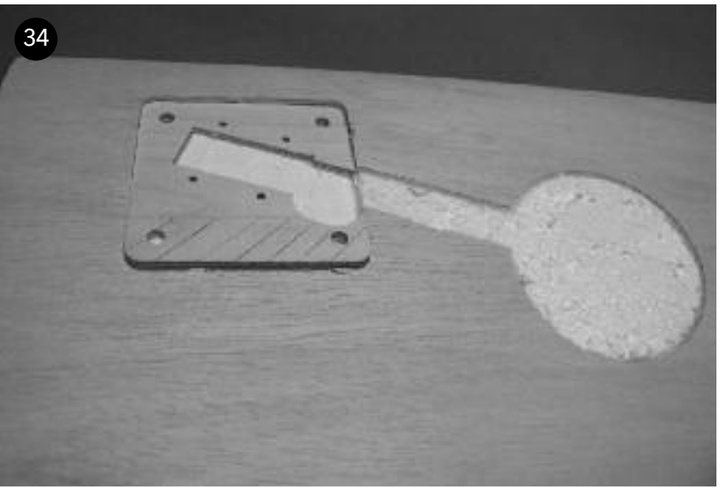
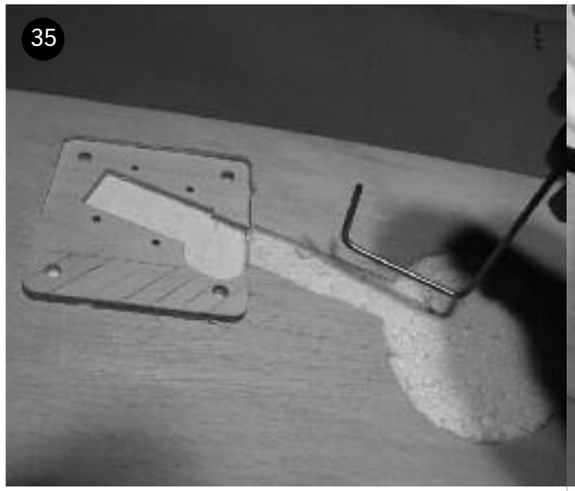
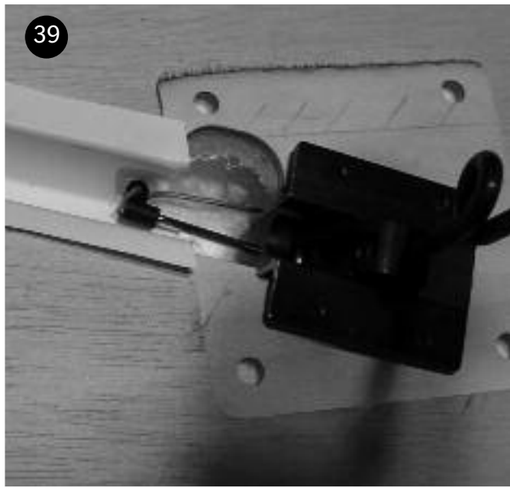
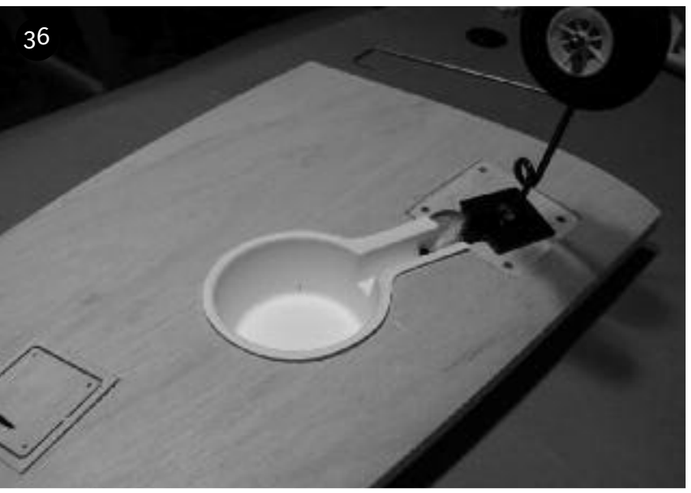
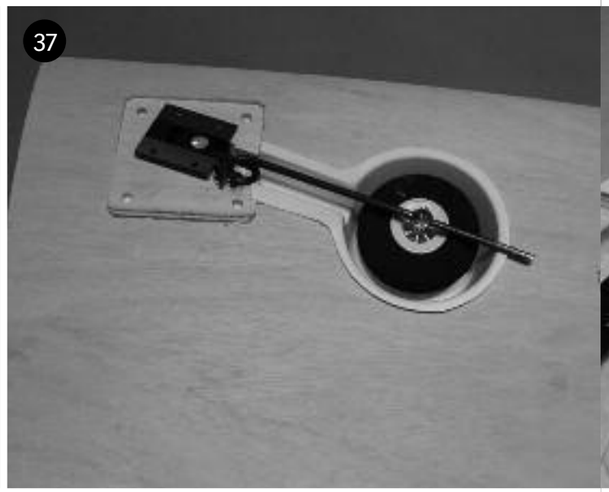
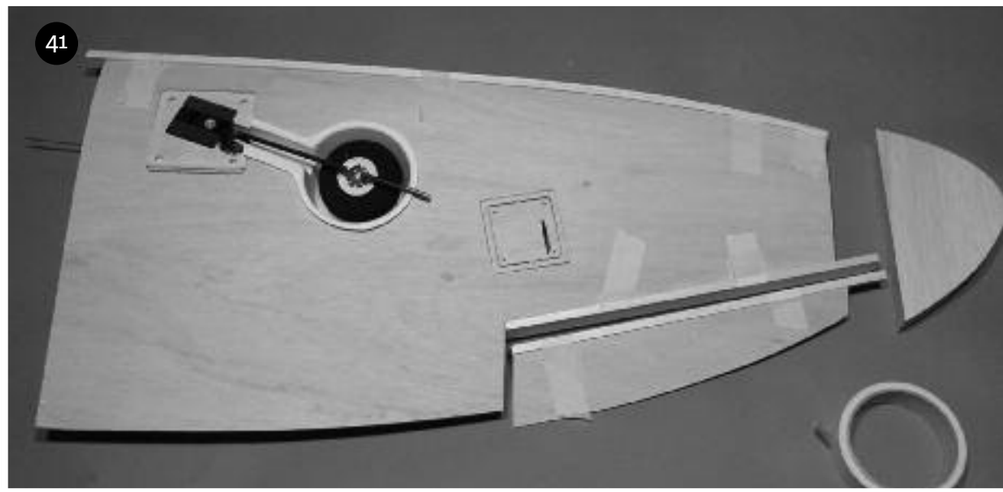












HINTS & TIPS

[1] Quite often the undercarriage leg has a burr at the axle end, smooth the last 10mm of the leg with a small file before attempting to fit the axle

34 Dry fit the plywood plate and you will notice that the rear of the plate is proud of the wing surface. Mark the high area with a pen as shown, remove the plate and roughly sand a chamfer on the top surface with a block and course sand paper. Don't glue the plate in place till the very end of your installation.

35 Heat your piece of wire and scoop out the foam from the wheel well and centre of the retract plate. Try to leave a thin layer of foam in the bottom of the well to avoid creating a "flat " on the upper skin.

36 Dry fit the retract unit. Trim the plastic wheel wells to leave a slight lip. Using the hot wire burn a hole for the pushrod which runs along side the retract unit [as shown on the plan]. Try to leave plenty of foam on the surface where the ply plate seats.

37 Slide the wheel and axle unit onto the undercarriage leg[1], ensuring it is centered in the wheel well, Cut off the surplus undercarriage using a hacksaw, the legs are made of hardened steel and may require some effort!

38 Using the 200mm pushrods supplied [x2], at the non threaded end create a Z bend[1]. Refer to the layout shown on the plan and create a 45 degree bend approx 12mm away from the Z bend

39 Fig 39 shows the pushrod running along side the retract unit. To achieve this, foam must be removed to allow the pushrod to move freely. Try not to damage the foam surface where it will support the plywood plate.

40 Using the supplied 8 x 25mm dowels, Sharpen one end of each 6mm dowel so that they will pierce the foam easily[2]. Now dry fit the whole assembly and ensure that the retract mechanism works smoothly.

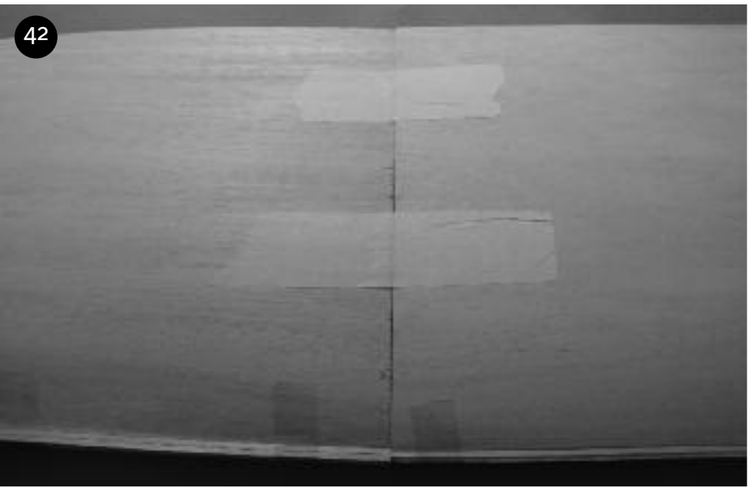
41 Add the 2 x 3mm balsa leading edges to each wing using PVA and tape in position until dry. Follow the same procedure with the 6mm aileron facings. Trim off any overhang flush with foam face. Glue on the balsa wingtip and tape in position until dry. When dry sand to shape as shown on plan. Hinge the aileron [see step 18] using 3 mylar hinges each, do not glue at this stage. The aileron will be finally fixed, glued and pinned later, after covering

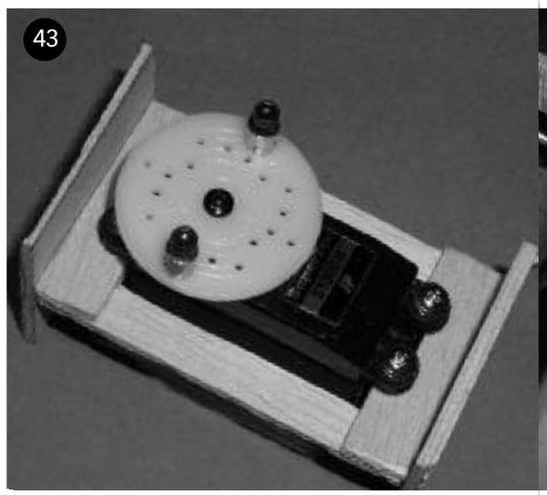
HINTS & TIPS

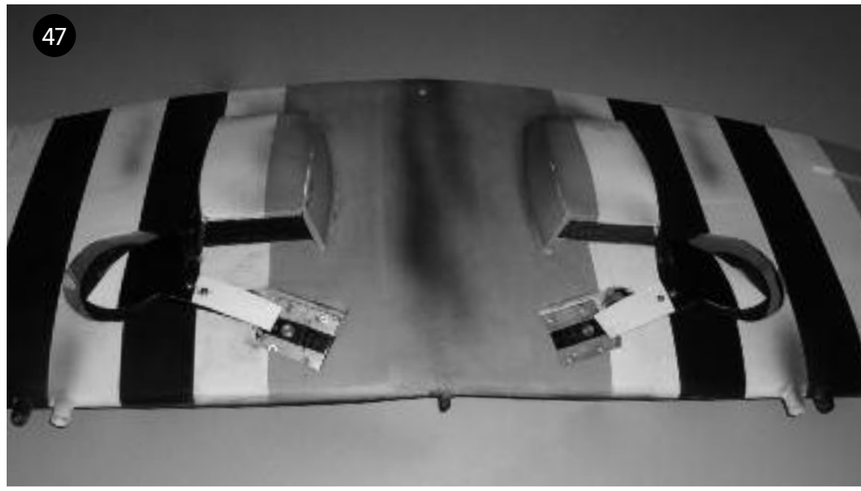
[1] A useful addition to any modellers toolbox is a pair of z bend pliers, making this tricky job easier

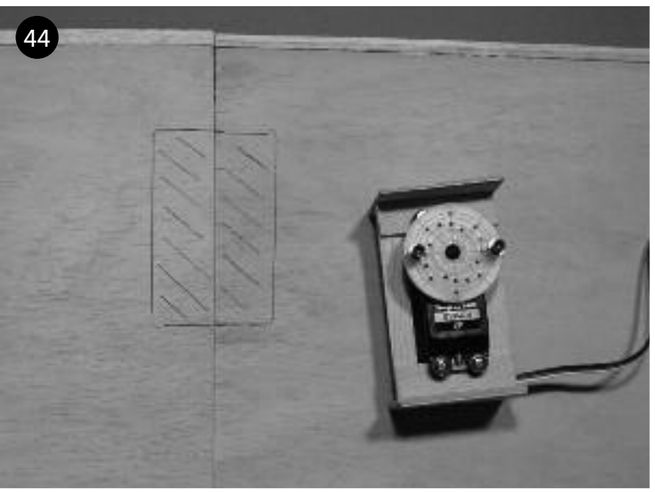
[2] A pencil sharpen works well or secure in a power drill and use a sanding block to chamfer to a point

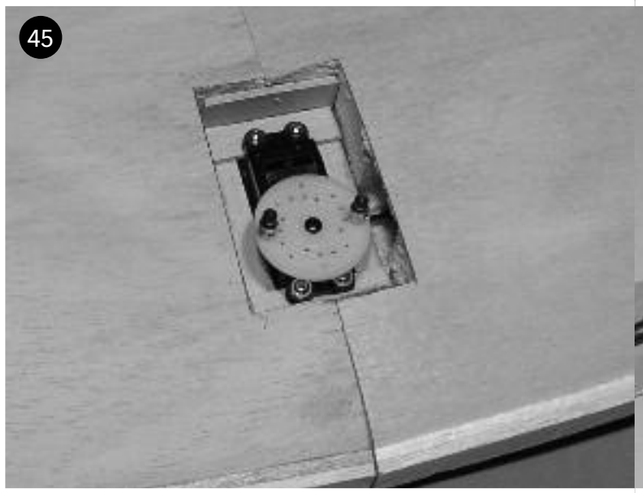
WARBIRDS

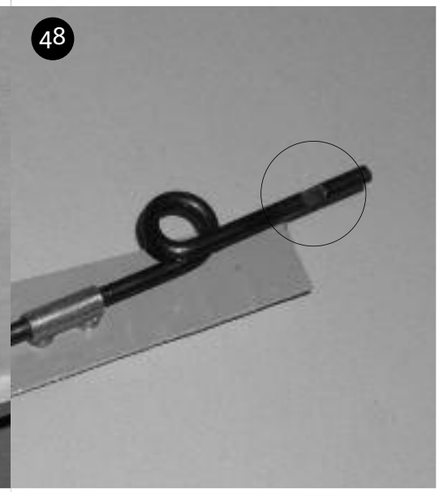


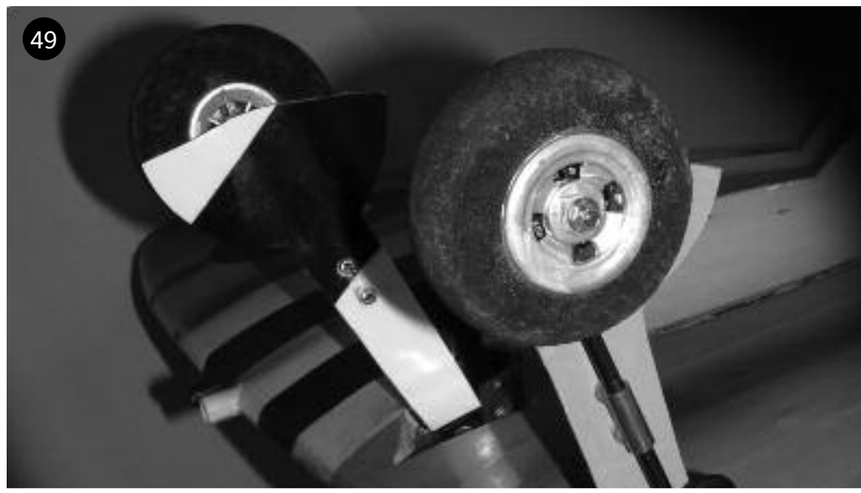












HINTS & TIPS

[1] Try to get the servo to sit as low as possible in the the wing so that the pushrods run comfortably below the upper wing skin. You may have to trim off some of the bottom of the servo box to achieve this.

If you intend fitting retracts other than the type supplied by Warbird Replicas, please refer to the manufacturers instructions regarding their installation.

42 Join both wings using 24hr epoxy, tape in position using masking tape until fully cured.

43 Construct the retract servo mounting box using PVA or cyano glue and then screw the servo in place. With the servo arm removed, turn on radio, connect retract servo to RX channel 5. Flick retract switch on TX so servo turret reaches its maximum extent anti-clockwise. Securely fix the turret connectors so that each connector measures 12.5mm from the centre of the servo turret. Now push the servo disk into place on to the servo turret exactly in the position shown.

44 Mark the position of the retract servo box on the top of the wing in the position show on the plan. Carefully cut through and remove the wing skin, then cut away the required amount of foam[1]

45 Securely glue the servo retract servo mounting box into position using epoxy

46 Further strengthen the wing joint using the 75mm fibreglass tape supplied, and resin[1] [not supplied]. Follow the resin manufacturers guide for mixing and application instructions.

47 Connect the retract rods to the tower connectors and adjust both sides as necessary to ensure smooth operation, ensuring they lock, in both the up and down positions. Cycle the retracts by hand initially before operating via the servo. Fig 47 shows the completed installation

48 Once you are happy with the position and angle of the wheels, mark the position of the retaining grub screw and file a flat onto the leg in that position, this will stop the wheels rotating on the legs in the event of a hard landing [if fitting the optional u/c covers do not fix the wheels yet]. Cut the u/c wheel covers to shape[1] using template shown on plan and fix the covers to the legs[2].

49 Fix the axles to the u/c legs and fit the wheels. Fig 49 shows how the completed units should like once assembled and painted

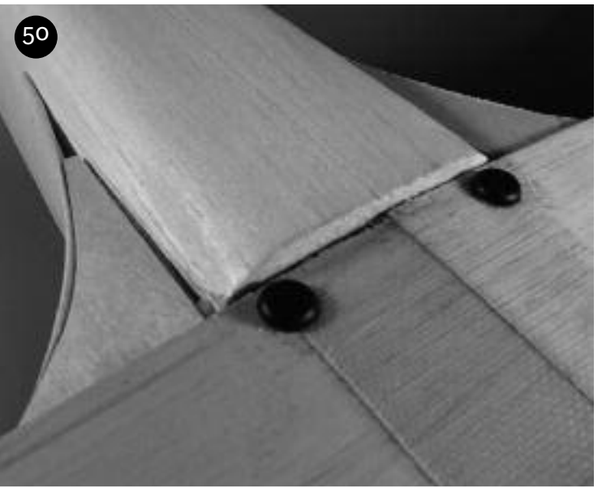
HINTS & TIPS

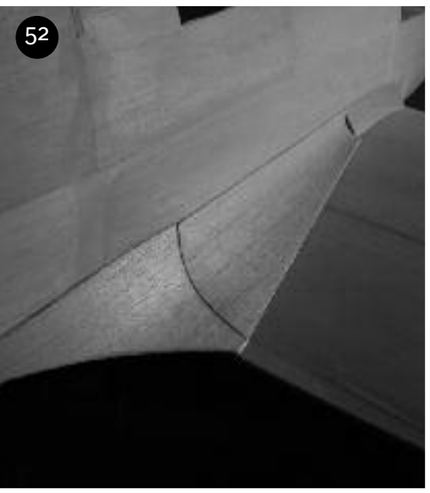
[1] Epoxy glue will also do the job well, gently warm the 2 seperate components prior to mixing will ensure it isnt too thick to brush on

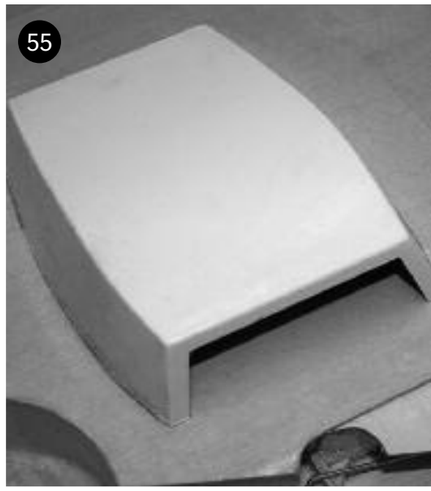
[2] Aluminium litho plate or plastic card are both suitable materials for the u/c covers

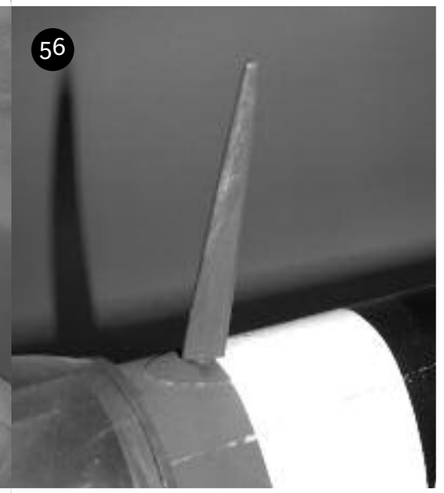
[3] The internal brass components from electrical connector blocks make excellent fixings. Use rings of scrap fuel tube as spacers and to give a flexible mount

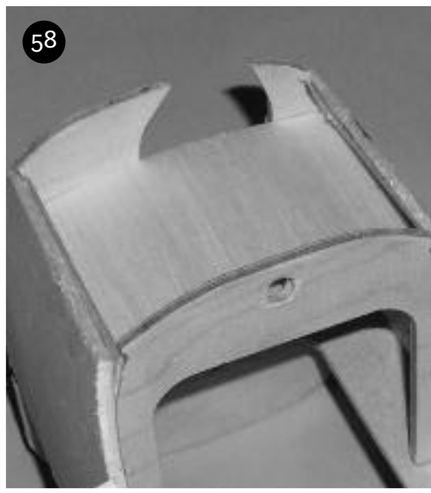
WARBIRDS











HINTS & TIPS

[1] To find the correct position for the clearance holes screw the 2 nylon wing bolts through the captive nuts [from inside the fuselage] until the pointed ends are just proud of the wing seat. Put a coat of tippex on the pointed end and carefully lower the wing into position. The tippex should now leave a mark in the correct position.

[2] Ensure no glue gets onto the wings!

[3] Make cuts along the underside of the triangular stock to help curve it around the wing. Dampening will also help.

50 Lay the wings into the wing seat, mark and drill a pilot hole in F2 to accept the wing locating peg. File hole to correct size and shape. Ensure the wings are aligned to the fuselage as well as the tail surfaces [as described and illustrated in step 19] and mark the position. Drill the clearance holes through the wing for the wing bolts[1]. With the wings screwed into position the cowl can now be further trimmed and fitted, the propshaft will need to be exactly centered when exiting through the front of the cowl to ensure correct alignment with the spinner. Secure cowl using 4 x self tapping screws into the hardwood blocks glued into the position shown on the plan.

51 Slacken off the wing bolts slightly and slide the plywood wing fairing bases into position, glue in place[2].

52 Glue in place the wing fillet former F10 at the position where the skins join. Cut the top skins [4 in total] from the supplied 1/16" sheet and fix in place. Add the forward fairings in the form of 1/2" balsa triangle[3]. The fairings can be extended onto the wing using the same technique if desired.

53 Use lightweight filler if required for final shaping

54 Thread both the elevator & rubber pushrod snakes through the fuselage and exit through the existing tailblock slots. Trim the pushrod outer sleeve flush with the exit hole and glue the outer sleeve in place. Temporarily fit both the elevator and pushrod posts. Screw the M2 threaded couplers into the end of each pushrod, and screw the clevises onto the couplers[1]. Trim the pushrods to correct length at the servo end once the servos are installed

55 Trim and epoxy in place radiator scoops and wing blisters as indicated on the plan. The wing blisters need to be trimmed to a depth of 4mm[2]. Fix instrument panel inside cockpit. Cover and fit rudder [see covering and painting], glue and pin **all** hinges. Trim and fit canopy using preferred method[3]

56 Shape [from scrap ply] and fit aerial mast as described on the plan.

57 Fuel tank in correct position, and held in place with foam rubber to avoid vibration.

58 Glue tank base F9 in position, thoroughly fuel proof as this area is subject to excessive oil penetration

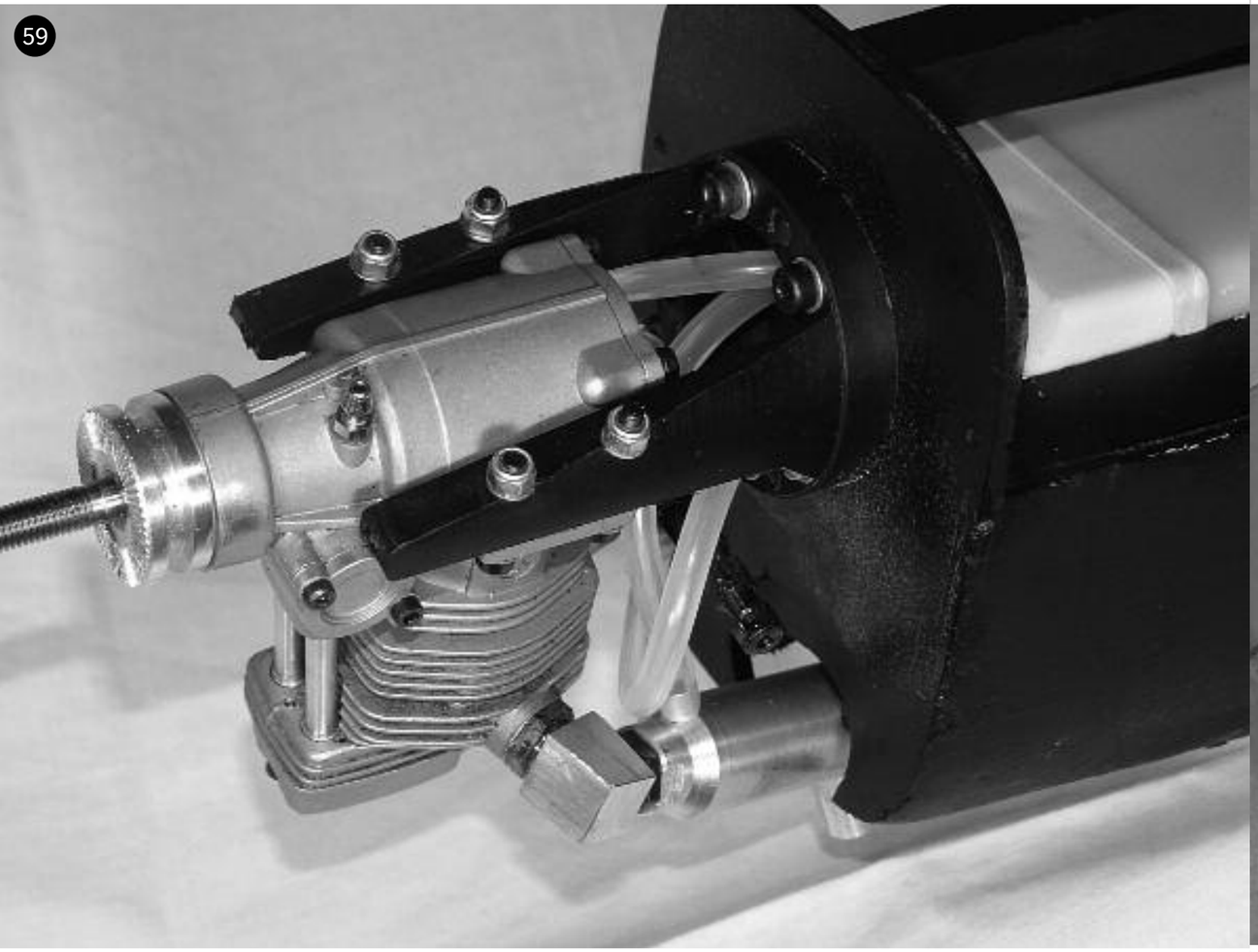
HINTS & TIPS

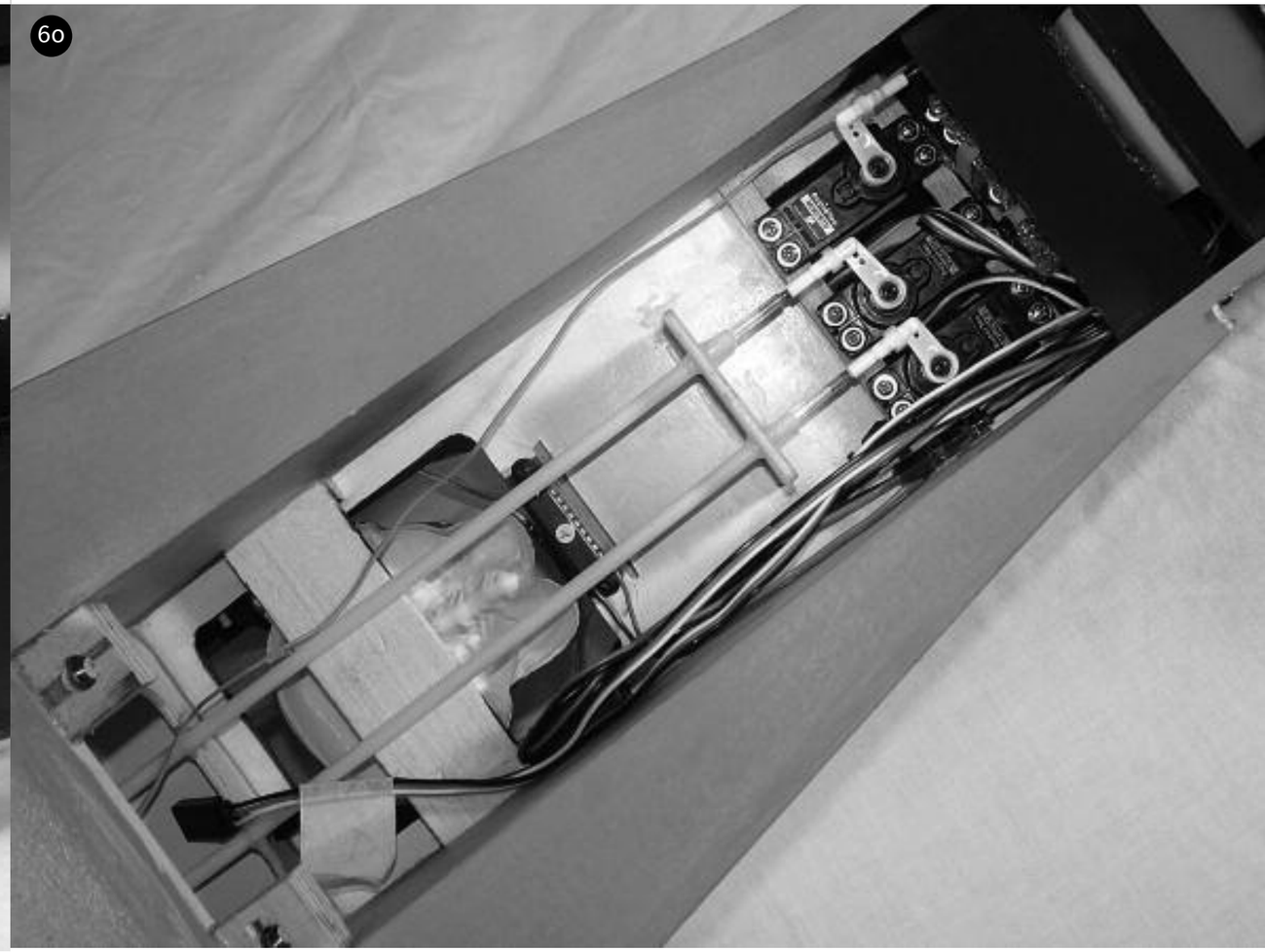
[1] It is good practice to use bands of scrap fuel tube pushed over the clevice to reduce the chances of the clevice springing open in operation, as shown in pic 40. For safety, fuel tube keepers should be used on all clevises.

[2] Hold the blister on a flat surface and mark a line around its circumference by using a pencil lying flat on its side

[3] Fixing methods can include canopy glue, epoxy, self tappers or combinations of the above. Do not use cyano as this can fog the plastic

WARBIRDS





HINTS & TIPS

1 Take into account the final position of the cowl, keep the propshaft exactly centred

2 The fuel tank has 3 outlets - 1 x main feed to carburettor, 1 x filler [which must be plugged when engine is running] and 1 x connected to pressure nipple on exhaust

59 Align and fit the supplied engine mount in the position as shown on the plan[1]. Use shakeproof washers or nyloc nuts to stop the fixings vibrating loose. Pic 59 shows installation of a suitable size fourstroke, in this case an SC52, although this would be typical of many other makes.

A Warbird Replicas custom muffler has also been used to keep the scale lines of the Spitfire intact as much as possible.

Assemble and fit the supplied fuel tank. Position to ensure that the fuel feed outlet is as close to being in vertical alignment with the carburettor mixture screw as as possible. Connect fuel tubing[2]. Two strips of scrap balsa have been used to secure the fuel tank.

The entire engine area shown has been given several light coats of Flair black fuel proofer to slow down the penetration of oil.

Re-fit cowl, mark and drill for exhaust exit and access to mixture screw.

60 Although many experienced modelers may have their own preferences, shown is a typical radio installation. Suggested locations for all the components are shown on the plan.

General points include ensuring all connections are taped or wired, servos are securely mounted and fuel tube keepers employed on the clevises. The receiver and receiver battery should be wrapped in foam [to reduce the effects of vibration] and securely located in the positions as shown on the plan.

Elevator and rudder control snakes have been glued not only at the brace [made from scrap balsa] but also let-in and glued as they pass over F7.

Pic 60 also shows the worthwile addition of a lightweight on board rx battery indicator as well as the support and base of the optional pilot figure.

HINTS & TIPS

1 Keeping these controls as rigid and slop free as possible will produce more positive flight response

WARBIRDS

For a tough, cost effective covering that paints beautifully and is reasonably simple to do, we suggest the brown paper method, cheap and thin paper is best, about the consistency of christmas wrapping.

Cut each panel oversize, and coat the matt side with PVA glue[1]. Let the paper 'grow' for about 30 seconds and then lay it on the surface to be covered, smoothing with your hands. Using a medium hot iron, iron from the centre out towards the edges. As PVA is heat reactive, this step of the process is a lot like film covering. You will find it will go round quite convex shapes. Continue until all the surfaces are covered.

Allow 12 hours to dry then give it a coat of diluted non-shrinking dope [dilute with 30% cellulose thinners] followed by a light sanding with flour grade wet and dry.

You will need acrylic aerosols of white primer, grey primer, and matt black[2]. These types of paint go on very dry and are reasonably durable in their own right[3]

The white primer is for all of the underside and the invasion stripe areas [see plan] on the top surface. When dry, mask off the invasion stripe areas[4] and then grey primer the remainder of the upper surfaces.

The grey primer covers really well and should be used as the primer for the areas that will ultimately be green or grey.

We used Humbrol enamels for the remaining colours. The Green is "Dark Green" No 116, the two greys being "Ocean Grey" No 106 and "Medium Sea Grey" No 165 underneath.

Although the cans are very small[1], the colour is very accurate, and it does mean that should you need to touch up your plane in the future, colours will match. We would expect to use two tins of each colour if airbrushing.

Now pull the masking off of the invasion stripe area and using two inch masking tape spray on the black stripes with the remaining aerosol.

Once the main colours are dry, lightly rub off any dust with a sheet of plain paper, and add the decals[2]. You can add panel lines with an indelible felt tip pen and the impression of wear with a dry brush of silver. Pastel chalks are very effective for shading and have the advantage of being removable should you make a mistake.

Finally, fuel proof the whole plane[3].

HINTS & TIPS

[1] Dilute the PVA glue by about 10-15% with water

[2] Halfords [the car store] acrylic primers are excellent for this purpose

[3] Paint adds unwanted weight - always use the minimum amount possible

[4] The invasion stripes are approx 10" wide on each wing and fuselage

HINTS & TIPS

[1] Thinning the enamel using cellulose thinners will cover more area with less weight. Consistency of creamy milk is ideal if airbrushing

[2] You will find that one drip of liquid soap in a saucer will provide a good lubricant to the surface while you position each decal

[3] Although a satin finish is what we want, gloss fuel proofer is the most resistant, which we use in very vulnerable areas. Be warned, some dedicated fuel proofers can curl up the edges of decals

WARBIRDS

The 4 bladed prop shown is for static use only.

TEST PILOT BRIEFING

Control throws

Elevator & aileron - 3/4" each way

Rudder 1 1/2" each way

Centre of gravity

The centre of gravity as shown on the plan is 95mm back from the rear of F2

Projected all up weight

6 - 6.5lb

Important safety advice

Please take time to fully read through the safety notes regarding the operation and flying of model aircraft in general, at the back of this manual

The prototype has been flying for some time now, and so as long as your model has been constructed sensibly there is no reason to feel apprehensive at this stage. From our experience most incidents come from poor preparation.

You might need some ballast to get the balance point that far forward. The weight is easiest to place in the tank bay, but make sure it's going to stay there. Do not attempt to fly your Spitfire with a rearward C of G, it will be tolerant to a point, but why tempt fate?

We would really recommend making the test flights without the cowl, unless you have a well run in motor and have made a number of consistent static runs. Remember to add some temporary weight to compensate for the missing cowl. The advantage is that you can monitor the motor much easier, and there is no danger of overheating while you trim out the airframe.

If a model gets in trouble on take off it will always flick left because of the way IC motors run. We recommend that you aim your take off just right of the eye of the wind and on the test flight, wind in 1/8" of right trim.

Because the Spitfire has such powerful elevators, they must be treated with a little respect. The model is very friendly but bullying it will not be rewarded.

Hold in full up elevator to keep the tail down. Then as she starts rolling ease off the up and allow her to gather speed. Once she is bowling along with her tail up, ease in a little up and allow her to climb out at a shallow angle. Speed is your safety margin during the take off so let her pick up as much as possible before 'unsticking'.

Ignore all comments from the club experts, telling you that Spitfires are tricky to fly. This model is delightful, and once trimmed, will fly very slowly, so there is no need to come in like an express train. Be gentle with her and she will pretty well fly herself.

As a final note. If you have managed to add too much filler/glue/paint and your own additional strength (ie surplus weight). Don't panic. Sure, it won't fly quite as nice as it should have, if you had built it as we have designed it. But it does have a very sophisticated high lift wing which will tolerate a fair amount of extra weight.

PRE FLIGHT CHECKLIST

Check a few of the potential problem areas, to minimise the chance of an incident.

- Batteries checked before flight and range check complete?
- Flats filed on the top and bottom of the legs to prevent twisting?
- Fuel tube keepers on the clevises?
- Battery to receiver connecter taped or better - lock wired?
- Engine running slightly rich but consistent?
- Wheels retract without snagging?
- Hinges pinned?

WARBIRDS

Warbird Replicas, rediscover the pleasure of model making...

Whether you're a new or experienced builder, the current line-up of top quality kits from Warbird Replicas will give you the unique feeling of building and then flying something you have created. To make construction quick and easy, all kits feature CNC plywood parts, hand picked pre-cut balsa, foam veneer wings and top decks. Cowl, canopies, scoops, exhaust stacks, fixed undercarriage and tailwheel are also included. Unlike many other manufacturers every component has been included for its durability, performance and suitability not cost.

Recommended accessories available for all kits

Engines and exhausts

Super Custom (SC) 52 four stroke – £90.00

Warbird 2 stroke in-cowl silencer .40-.53 – £14.99

Warbird 4 stroke in-cowl silencer .52 – £19.99

Retracts

Mechanical Retract Pack – £49.95

Includes 1 pair of mechanical retracts plus undercarriage legs, vacuum formed wheel wells, retract servo and invaluable instruction sheet.

Pneumatic Air Retract Pack – £109.95

Includes 1 pair of pneumatic air retracts plus undercarriage legs, vacuum formed wheel wells and invaluable instruction sheet.

Servos

SuperTec mini/std servo (with accessories) – £9.95 each

SuperTec retract servo S136GH (with accessories) – £21.50 each

Miscellaneous

Pilot & cockpit set – £9.95

Decal set – from £12.95

Books

Scale Aircraft, Models for Everyday Flying *by Gordon Whitehead* - £18.00

Kit Postage

Mainland UK- £9.95

Overseas - contact us for international rates

Lavochkin LA7

GBP £119.95 inc VAT

Specifications
Kit difficulty rating ●●●●●
Wingspan: 1450mm [57"]
Radio: 4-5 channel
Motor: 40-46 2st or equivalent 4 stroke
Weight: 6lb approx

ME109

GBP £119.95 inc VAT

Specifications
Kit difficulty rating ●●●●●
Wingspan: 1400mm [55"]
Radio: 4-5 channel
Motor: 40-46 2st or equivalent 4 stroke
Weight: 6lb approx

Mustang P51B

GBP £149.95 inc VAT

Specifications
Kit difficulty rating ●●●●●
Wingspan: 1425mm [56"]
Radio: 4-5 channel
Motor: 40-46 2st or equivalent 4 stroke
Weight: 6lb approx

Optional extras:
Malcolm Hood style canopy [as shown above] – £4.95

Hurricane

GBP £129.95 inc VAT

Specifications
Kit difficulty rating ●●●●●
Wingspan: 1550mm [61"]
Radio: 4-5 channel
Motor: 53-60 2st or equivalent 4 stroke
Weight: 8.5lb approx

Optional extras:
Scale Robart wheels for above – £12.95

WARBIRDS

To purchase any kit or accessory please visit our website at **www.warbirdreplicas.co.uk**
Alternatively contact: Warbird Replicas, 17 Curzon Way, Chelmsford, Essex CM2 6PF England
Email info@warbirdreplicas.co.uk Telephone +44 [0]1245-284791 (9am-7pm only please)

Designed & manufactured in the UK