

Balsa Basics Spitfire - Building Instructions.



Fuselage Construction

Build the motor and battery inner fuselage box.

1. If the standard 'B' type VMC* motor is being used (or similar), locate the motor mount 'F2-B' and former/mount 'F2-C' from Sheet 2. If the more powerful type 'C' VMC* motor is being used only 'F2-C' will be required.

If using the 'B' type motor, insert the four supplied captive 'T' nuts into the pre-drilled holes from the rear of 'F2-B'. Alternatively, if utilising the 'C' type motor insert the 'T' nuts into the pre-drilled holes from the rear of 'F2-C'.

* 'B' Type motor length is 28mm (min) to 33mm as measured from the back of the motor mount to the face of the propeller mount, and the 'C' type motor is 37mm (min) to 41mm.

2. Locate and remove plywood formers 'F1', 'F3', 'F4', 'F5', 'F6', 'F7' 'HF1', 'HF2', 'HF3', 'HF4', servo tray 'ST' and the two plywood front fuselage sides from Sheet 1 and Sheet 2.

3. Dry assemble, (**DO NOT APPLY ANY GLUE UNTIL INSTRUCTED TO DO SO**) 'HF3' (Battery Tray) onto formers 'F4' and 'F5', then slot 'HF2' onto 'F4' and 'F5'.

4. While holding the parts together, place the assembly onto a plywood fuselage side ensuring that the tabs fit into their respective slots.

5. Slot 'HF4' onto 'HF5' with its tab locating in the slot at the top of the fuselage side.

6. Add 'HF7' to the rear of 'HF4' as well as into the vertical slot in the fuselage side and slot 'HF1' onto the front of 'F4'.

7. Add 'F3' locating it on the front of 'HF4' and the vertical slot in the fuselage along with the motor mount 'F2-B' into vertical slot 'B' (if required) and 'F2-C' into slot 'C' ensuring that the base of the captive nuts are facing towards the rear.

8. Insert the servo tray 'ST' with the etched 'F' facing to the front into horizontal slot in the fuselage side to the rear of 'F7'.

9. Place the second fuselage side into position ensuring all the tabs on formers 'F4' to 'F7' and servo tray 'ST' are correctly located in their slots.

10. Weight or clamp the fuselage side together from 'F4' to the servo tray 'ST'. Make sure everything is square and that the sides are aligned before wicking Cyano (CA) glue into all the joints and tabs – **DO NOT APPLY GLUE TO ANY FORMERS FORWARD OF 'F4'**.

11. When the glue has fully set, bring the front fuselage side together ensuring that the tabs on 'F3' and 'F2-B' (if used) and 'F2-C' are positioned in their slots. Add former 'F1' to the front and clamp or tape the front together. Check that everything is square and aligned and wick CA into the joints and around the tabs and allow the glue to fully set before removing the clamp/tape.

12. Locate 'F6' and stick the former into the slot on the top of 'HF4'. The inner fuselage box is complete.

Fuselage Build

1. Locate and remove the following formers – 'F9' from Sheet 2, 'F8', 'F10' and 'F11' from Sheet 3 and the right and left hand balsa fuselage sides from Sheets 7 and 8.

2. Dry assemble the balsa fuselage sides onto the inner fuselage box, ensuring that the right and left sides are correctly positioned (each is marked with a 'L' or 'R'). Clamp or tape in place.

3. Dry assemble formers 'F9' (with 'F' facing the front) and 'F10' into their slots and then bring the rear of the two fuselage sides together and insert former 'F11' (tail plane mount). Ensure that the sides are correctly aligned with each other before wicking CA into the rear joint and around the formers 'F10' and 'F11'.
4. Check that the tabs on 'F9' and the sides are fully seated against the fuselage sides and stick into place.
5. At the front of the fuselage, check that the balsa fuselage sides are correctly located on the former tabs and that they are in full contact with the plywood inner box. Wick CA into all the joints, tabs and along the top and bottom where the balsa and plywood sides meet.
6. Locate and remove keel formers 'K2-B' (or 'K2-C'), 'K3' and 'K4' from Sheet 4. Insert 'K1' into the top centre slots on formers 'F1' to 'F3' and stick into position. Stick 'K3' into the top centre slots of 'F4' and 'F5'.
7. Remove former 'F8' from Sheet 4 and insert into the top slots of the fuselage behind 'F7' and at the same time insert keel 'K4' into the top centre slots on 'F8', 'F9' and 'F10' and wick CA into the joints to secure.
8. Stick $\frac{3}{32}$ nd sq. stringers from 'F1' to 'F3'. Stick a stringer on each side from 'F5' to 'F10' in the first slot above the fuselage side. Stick the four remaining stringers between 'F5' and 'F6'.
9. At the rear, stick a stringer on each side from 'F7' to 'F10' and also the remaining two that run from 'F8' to 'F10'.

Battery Hatch Construction

1. Locate and remove the following formers from Sheet 1 – 'B1', 'B2', and 'B3', from Sheet 2 – plywood base 'B4' and keel part 'K2' from Sheet 4.
2. Lay the plywood base 'B4' on a couple of 3mm scrap plywood pieces removed from the formers on a flat surface.
3. Stick former 'B3' into the slot and the closed end of 'B4' ensuring that it is at a right angle to 'B4'.
4. Dry assemble formers 'B1' and 'B2' with the keel 'K2' onto 'B4' and 'B3', check they are square and correctly located into their slots before wicking CA into the joints.
5. Stick $\frac{3}{32}$ nd sq. stringers into the slots to complete the construction of the battery hatch.
6. The hatch is designed to be held in place using four 3mm diameter Neodymium magnets. If they are being used then insert one magnet into the former 'F3' on the fuselage so that it is flush with the face of the former. Wick CA into the hole in 'F3' behind the magnet, and stick into place. Repeat the process to stick a magnet into former 'F5'.
7. Take another magnet, check that it is correctly oriented so that it is attracted (and not repulsed) to the one in 'F3' and insert it into former 'B1' on the battery hatch so that it is flush with the surface of the former. Do the same for 'F5' / 'B3'. Check that the battery hatch fits with both magnets holding it in place. If all is okay remove the hatch and wick CA into the holes to the rear of the magnets on 'B1' and 'B3'.
8. Stick some self-adhesive Velcro® type tape onto the battery tray. The other piece is attached to the battery.
9. Cut a piece of 20mm wide Velcro® type battery strap to a length of 15cm and from the top pass it through an outer slot of the battery tray and loop it round and from underneath pass it through the opposite slot.

Install Servos, Electronic Speed Controller (ESC), Receiver and Motor

1. Mount the servos on to the servo tray from the underside of the fuselage with the servo arms fitted with pushrod connectors pointing to the centre line of the fuselage and fix with the supplied screws. Run the servo leads back through the central hole in the servo tray and forwards through the slot in 'F5'.

2. Stick the ESC with double sided servo tape to the fuselage side between formers 'F3' and 'F4' passing the motor leads through the hole in the motor mount and the battery lead up through the battery tray. Ensure that the motor leads can be easily reached at the front to allow the motor to be connected.
3. The motor can be installed now using the M3 screws or later after the fuselage has been covered.
4. Insert the rudder and elevator pushrods from the rear via the slots in the fuselage feeding them through the holes in 'F9' and 'F7' and into the pushrod connectors on the servos. Lightly tighten the pushrod connector screws to hold the pushrods in place.
5. The receiver can be mounted now or after the fuselage is covered. The receiver can be mounted under the battery tray, or on a fuselage side behind the servo tray using double-sided servo tape. Please note that the receiver should be mounted in such a way that connecting the 'Y' aileron servo lead to the receiver is straight-forward.

Complete the Fuselage Build

1. Locate and remove the 2 pieces of sheeting for the underside of the nose from Sheet 6. Start at the nose and line up the correct part against 'F1'. Stick the edge of the sheet to 'F1' and allow the glue to set.
2. Gently wrap the sheet around the curve of the nose a little at a time whilst applying CA to hold in place, continue until the whole of the sheet is stuck into place. Take the second sheet and stick it to the first and follow the same procedure to stick into place.
3. The rear under side is covered using four sheet pieces located on Sheet 4. Stick them into place starting with the sheet next to the rear of the wing saddle and working towards the rear.
4. Using sand paper round off the edges of the underside sheeting where they meet the fuselage sides. Also give the sides a gentle sanding to remove any rough edges or excess glue at the joints. The fuselage and battery hatch are now ready for covering. Please note: do not cover the tail plane mounting base.

Tail Plane and Elevators

1. From sheet 10, remove the two lozenge shaped parts, it is recommended that the tail plane part is not removed from Sheet 10 at this stage. Remove the lozenge shaped areas from the tail plane and discard. Place the tail plane in its carrier sheet onto a flat surface protected by plastic sheet or grease-proof paper (to prevent the parts being stuck to the surface) and if possible weigh it down. Press the two lozenge parts into the tail plane, ensure that they are pressed home and flush with the tail plane's surface, before wicking CA into joins. Allow the glue to fully dry before removing the tail plane part from the carrier sheet.
2. Four slots for the Mylar hinges need to be cut into the trailing edge (TE) of the tail plane. To do this make a mark on the left-hand side TE of the tail plane 25mm from the centre of the tail plane and then make another mark 20mm from the first. Then make another mark 95mm from the centre with another mark 20mm from that.. Repeat the process for the right-hand side of the tail plane.
3. Draw a line along the midpoint of the trailing edge between the 1st and 2nd marks and the 3rd and 4th marks on each side. Using the lines as a guide and using a sharp knife **CAREFULLY** cut slots into the edges to a depth of approximately 13mm, keeping the knife vertical to the edge to avoid the blade from cutting through to the surface. Check that the Mylar hinge can be inserted to about half its length.
4. Sand the LE of the tail plane to a rounded profile.
5. Locate and remove the four elevator parts from Sheet 10 and the plywood elevator joiner from Sheet 3.
6. Use sandpaper to round the leading edge of the plywood joiner.
7. On a protected flat surface assemble the elevator tips onto the elevator parts and stick into place with CA.
8. Stick some thin clear tape along the TE of the tail plane. Assemble the two elevators and the plywood joiner against the TE of the tailplane. This helps to ensure that the elevators and joiner are built straight. Hold the

elevator parts in place and stick the elevators to the joiner with CA and hold until the glue has set. Remove the tape from the tail plane.

9. Use the hinge marks on the tail plane to mark the position of the hinge slots onto the elevators, and cut the slots using the same method as for the tail plane.

10. Bevel the LE of the elevators aiming to produce a point along the middle of the edges in line with the hinge slots that have been cut to allow for the elevators to move freely.

11. Round the trailing edges of the elevators as well the leading edges of the angled elevator tips. Gently sand the surface of the parts to remove any excess glue and rough edges etc.

12. The tail plane and elevators are ready to cover. **Please note:** Do not cover the lower central area of the tail plane where it sits on the fuselage. It is suggested that you mark the area not to be covered by assembling the fin and tail plane onto the fuselage and use a pencil to mark the area to be left uncovered.

Fin and Rudder

1. Locate and remove the three rudder parts from Sheet 10.

2. On a protected flat surface assemble the lower rudder part (with slot) to the main rudder part. Hold the parts in place and wick CA into the join and allow the glue to set.

3. Cut two Mylar hinge slots - along the LE measure 20mm from the top of the rudder and make a mark. From that mark measure another 20mm and make a mark. Then measure 65mm from the top of the rudder and mark. From that mark make another mark 20mm from it.

4. Cut the slots in the LE in the same way as used for the elevators, and after cutting them bevel the LE in line with the hinge slots.

5. On a protected flat surface assemble the rudder top and the rudder assembly and wick CA into the join. Sand the TE edge and the top edges to a rounded profile.

6. Remove the fin part from Sheet 10. Sand the LE to a rounded profile.

7. Place the LE of the rudder into position against the fin and mark the position of the hinge slots on the fin and cut the slots in the TE of the fin.

8. Gently sand the surfaces of the fin and rudder, and they can now be covered.

Wing Construction

The wings should be built on a protected (with thin plastic or grease-proof paper or similar to prevent sticking the wing to the build surface) flat surface. **DO NOT APPLY ANY GLUE UNTIL INSTRUCTED TO DO SO**

1. Remove the plywood main spar from Sheet 3. Also remove the ribs 'W2' to 'W11' from Sheets 6 and 8.

2. Insert ribs 'W2' to 'W11' onto the main spar on one side only.

3. Locate and remove one balsa main spar doubler from Sheet 5 and carefully slot it onto the assembled ribs behind the plywood main spar.

4. Remove one rear balsa spar from Sheet 6 and insert the assembled ribs into its slots.

5. Locate and remove one trailing edge (TE) piece from Sheet 5 and slot into position on the rear of the ribs 'W2' to 'W5' with the two tabs located in the slots in the rear spar.

6. Remove one leading edge (LE) from Sheet 6 and carefully insert it into the slots at the front of ribs 'W2' to 'W11'.

7. From Sheet 4 remove one wing tip part and assemble it into the slot on the end of the balsa main spar doubler and the rear spar.
8. Remove the small TE piece from Sheet 4 and insert its tab into the rear spar and onto the rear of the ribs 'W10' and 'W11'.
9. From the plywood Sheet 1 remove a servo tray 'WSP' and while holding the wing flat against the surface insert the servo tray into the space between 'W6' and 'W7' and flat against the build surface.
10. Ideally weigh down the assembled wing on the build surface. Ensure that the wing assembly is square and then apply CA to all the joints and joins and along the top and bottom of the join between the plywood and balsa main spars.
11. Start building the second wing panel by inserting wing ribs 'W2' to 'W11' onto the plywood main spar.
12. From Sheet 5 remove the other balsa main spar doubler and carefully slot it onto the assembled ribs behind the main spar.
13. Locate and remove centre rib 'W1' from Sheet 6, and insert into the centre slot on the main spar.
14. Then follow steps 4 to 10 to complete the second wing panel.
15. If the optional 'Xtra Detail Kit' has been purchased:- Insert the two wing radiator bases between ribs 'W2' and 'W3' making sure they are flush with the lower edges of the ribs and aligned against the TE, and stick into place.
16. Locate and remove the two TE plywood doublers from Sheet 11. Stick them into position on the underside of the two trailing edges either side of the centre line of the wing from 'W1' to 'W3'.
17. Screw into position the two wing servos, with the servo arm shafts facing to the rear of the wing. Feed the servo leads through holes towards the centre of the wing and connect them to a suitable 'Y' servo lead.
18. File the ends of the exposed servo mounting screws to remove the point to make them flush with the servo tray. Give the wing a gentle sand to remove any lumps or bumps, any excess glue and round the leading and trailing edges and wing tips. The wing is now ready to cover.

Construct the Ailerons

1. From Sheet 4 remove the two aileron bases and the leading edge spars. Build the two aileron together to ensure that a left and a right hand aileron is built!
2. Dry assemble the leading edge spars onto the aileron bases with the etched dotted line on the spar facing away from the base.
3. Locate and remove the aileron ribs 'W6A' to 'W10A' from Sheet 9. Dry assemble the ribs into the correct slots on the aileron bases and LE spars, ensuring that the end ribs 'W6A' and 'W9A' are at right angles to the base together with the LE spar.
4. Stick the end ribs to the base and the LE spar, and then stick the remaining ribs into place.
5. The leading edge of the ailerons need to be bevelled to allow them to move freely.
6. Stick masking (scotch) tape along the etched dotted line covering the lower part of the spar. Tape some fine sand paper onto a flat surface and sand the unmasked part of the spar to create a bevel that is flush with the front of the ribs.
7. Remove the tape and apply some more masking tape, this time covering the bevelled upper part of the spar and along the etched dotted line. Sand a bevel to the same angle as the top. Do this for both ailerons.

8. Gently sand the ailerons to remove any lumps and bumps and to round the trailing edges. Check that the aileron fits into its slot on the wing and can move freely. If it does not, then lightly sand the end ribs of the ailerons until they can move without interference. The ailerons are now ready to be covered.

Final Assembly and ' Xtra Detail Kit'

1. When all parts have been covered, start with assembling the fin and rudder. Insert two Mylar hinges into the slots cut previously (cut the covering if required) in the TE of the fin and make sure half the length of the Mylar hinge is in the slot. Test fit the rudder inserting the Mylar hinges into the slots and check that the rudder is aligned with the fin and about 0.5mm from the fin. Remove the rudder, and after making sure that the hinges are correctly located wick CA into the joint between the Mylar hinge and the fin. Allow to set. Then re-assemble the rudder into position and check its alignment etc. before wicking CA into the joint around the hinge. Gently flex the rudder for a few minutes while the glue sets to prevent the fin and rudder sticking together. Check that the fin and rudder is securely attached to both hinges.

2. Carefully cut the covering away from the control horn slot on the right-hand side of the rudder.

3. Repeat the process for the tail plane and elevator using four Mylar hinges (two each side). Make sure that the slot for control horn on the elevators is on the left-hand side.

4. Cut away the covering from control horn slot on the underside of the right-hand elevator, also cut away the covering from the central slot in the tail plane so that the slot at the bottom of the fin can fit through it.

5. Assemble the fin/rudder and tail plane/elevator assembly onto the rear of the fuselage locating the fin tab through the tail plane into the slot on the fuselage. Check that the tail plane is horizontal and that the fin is lined up with the top keel and at right angles to the tail plane. Tack the assembly together with small amounts of CA. Check again that everything is lined up and square before wicking CA into the joints between the tail plane and fuselage and the fin and tail plane.

6. Remove two of the control horns from Sheet 11. Slacken the screws on the control rod connectors on the elevator and rudder servos so that the rods can be adjusted. Insert the rudder rod Z bend into the top hole of the control horn and insert the control horn into the slot on the rudder and stick with CA.

7. Repeat the process for the elevator control horn.

8. If the motor has been installed and connected, make sure the propeller has been removed. Switch on the transmitter and then connect the battery to the receiver. Check that the elevator and rudder trim switches are centred i.e. at 'zero' - no trim applied. With the rudder and fin aligned tighten the control rod connector, it is suggested that thread lock is used to secure the screw.

9. Repeat the process for setting up the elevators. Disconnect the battery and switch off the transmitter.

10. If the motor has not already been installed do so now and then check its operation and that it turns in the correct direction i.e. anti-clockwise when viewed from the front.

11. Aileron assembly. Cut three of the Mylar hinges in half length-ways creating six hinges each 10mm wide x 25mm long.

12. Insert the Mylar hinges into the slots on the rear wing spars, (3 each side) leaving approximately 12mm exposed. Ensure that they are square with the spar before wicking CA into joint between the hinges and the spars.

13. Cut away the covering from the control horn slots on the undersides of the ailerons.

14. Assemble the ailerons by inserting the Mylar hinges into the slots on the aileron spar. Adjust them so that there is approximately 0.5mm between the wing and aileron spar and that the aileron can be moved up and down without interference. When happy, wick CA into the joints between the hinges and the aileron spar. Gently flex the aileron up and down to check the alignment etc. and to prevent the aileron sticking to the wing. Repeat the process to assemble the other aileron. Check that both ailerons are fully secure.

15. Connect the servo 'Y' lead to the receiver and switch on the transmitter and connect the flight battery. Check that the aileron trim switch is centred i.e. at 'zero' - no trim applied. Attach the servo control arms and control rod connectors to the servos so that the arms point towards the wing tips and then secure the arms with the correct screws.

16. Locate the two remaining control horns and the two aileron control rods and insert the 'Z' bend of each rod into the top hole of the control horns. Then pass the rods through each of the servo connectors and insert the control horns into the slots on the underside of the ailerons and stick them into place.

17. Level the ailerons and tighten the screw on the control rod connectors, it is suggested that thread lock is used to secure the screws.

18. Carefully trim the vacuum formed canopy to fit. The rear of the canopy fits to former 'F8'. If required mask off the canopy framing and paint the frames. Stick the canopy in place using either a 'canopy glue' or a 'non-fogging' Cyano glue. Do not use ordinary Cyano as it will cause the canopy to fog. It is suggested that the glue chosen is tested on the trimmings from the canopy before using.

19. Exhaust stacks. The early type exhaust stacks as fitted to Mk1 to Mk8 Spitfires are included with the kit (later version exhaust stacks are available in the optional 'Xtra Detail Kit') and can be found on Sheet 10. Stick three of the pieces together to create each exhaust stack. Sand them to a rounded shape and paint as required. On each side remove the covering from the square slot on each side of the fuselage nose (approximately 45mm from the front and near the top of the sheeted side) and stick into place.

20. Remove the covering from the four holes at the front and rear of the wing saddle. Cut two pieces of $\frac{1}{8}$ th dowel to a length of 4 inches (100mm) and insert them into the holes so that the dowel has an equal amount (20mm) on each side of the fuselage and secure in place with CA.

Optional 'Xtra Detail Kit'

1. The 'Xtra Detail Kit' allows for some extra detail to be added to the basic Spitfire kit. It has the later exhaust stacks of the Mk9 to Mk 24. To make them, use four exhaust parts for each exhaust stack and stick them together. Sand them to a rounded profile and paint as required. They are fitted into the same square slots on the fuselage as the early type exhaust stacks.

2. Radiator options: The early marks of Spitfire (1 to 6) had one large radiator on the right-hand side and a smaller oil cooler on the left-hand side. Mark 7 to 24 Spitfires had two large radiators.

3. The oil cooler is made by laminating the five pieces together, with the piece with the mounting tab at the centre. Sand the oil cooler to a rounded profile as required. When complete it is stuck into the slot on the left-hand radiator base nearest to the wing tip.

4. The larger radiator is built using four parts. Two sides – one with a 'notch' at the rear and two bottom sheet parts, one long and the other short. It is advised that the radiator is built 'in situ' on the radiator base fitted to the wing. If building an early version (Mk 1 to 6 with the small oil cooler) only remove the covering from the slots on the radiator base on the right-hand side of the wing.

Insert the two radiator sides into the slots. **Note:** that the radiator side part with a small 'notch' at the rear fits in the slot nearest to the centre line of the wing (the notch is there to allow it to fit over the plywood doubler). Assemble the two radiator sheet parts together (the long piece slotting into the shorter piece) and stick them together. Place the sheet onto the radiator sides so that the tabs fit into the slots with the front and rear edges of the sheet bottom lined-up correctly with the ends of the sides. Wick CA into the joints and stick them together. Remove the radiator from the wing and gently sand to round the edges and then cover. When complete stick into place.

If building a later version (Mk 7 to 24) build a second radiator on the left-hand wing instead of the oil cooler.

Recommended Steps before Flying Your Balsa Basics Spitfire

1. Balance the propeller. Do not miss this step; an out of balance propeller will considerably reduce the reliability and life span of the motor and other components.

It is recommended that a propeller balancer is used, there are a number available on the market, and it makes the job easier to do. If you need to fit a replacement propeller that too needs to be balanced before it is used.

Lightly sand the leading and trailing edge of the prop to remove any sharp flashings. Place the prop on the balancer. In most cases one side will drop, this is the heavy side. Rotate the prop by 180 degrees and see if the heavy side drops quicker or slower. If it drops quicker then rotate the prop by 180 degrees again, if it drops slower then keep it as it is.

To balance the prop, sand the trailing edge (not the leading edge) of the heavier side of the prop until the prop balances horizontally.

Once balanced fit to the motor prop adaptor with the spinner base and tighten the propeller nut.

2. Attach the wings to the fuselage with good quality rubber bands, use at least four (ideally six), forming a cross over the top of the centre section of the wing.

3. It is important that the model is correctly balanced if it is to fly correctly.

4. The Spitfire should be balanced using the main spar (64mm from the leading edge measured at the root rib 'W2') with the battery installed. Insert the battery into the battery compartment (do not connect it) and secure the battery with the battery strap wrapped around the battery. Adjust the battery's position - forward or back so that when the model is lifted at the main spar the model's wing and tail plane are horizontal.

Set up for Flight

Step 1. Check that the control surfaces – the rudder, elevator and ailerons travel in the correct directions. For instance, when you move the transmitter rudder control to the right the rudder moves to the right and that when you pull back on the elevator control the elevator moves up. If any of these are not correct follow the instruction for your radio set to reverse where required the direction of travel.

Step 2. Set the deflection distance for the control surfaces. Follow the instructions for your radio to set the initial recommended travel for both the rudder and elevator controls to:

- Rudder: 15mm left and 15mm right, measured at the trailing edge of the rudder.
- Elevator: 15mm up and 15mm down, measured at the trailing edge of the elevator.
- Ailerons: 20mm up and 20mm down, measured at the trailing edge of the elevator.

The travel can be increased once the first flights have been successfully completed to suit your style of flying.

Pre-Flight

This model is a relatively easy one to fly (for a 'war bird') **BUT IT IS NOT FOR BEGINNERS!** If you are new to low wing model or war bird flying it is suggested that for the first flights you get an experienced pilot to check the model and take it for its maiden flight so that it can be checked for trim and balance and make any adjustments so that the model will fly straight and level at a comfortable cruising speed.

Here is a suggested pre-flight check list to follow.

- Charge the flight battery(s) and check the transmitter batteries and change or charge if low.
- Check that the balance of the model with the battery installed is correct.
- Check control surfaces correctly centre, and for proper direction of travel, rate of throw, secure pushrod connections and hinges.
- Check the condition of the propeller, if there is any damage replace with a new balanced one.
- Check the airframe for damage, warps and attachment of flying surfaces.
- Keep clear of the propeller. When connecting the battery keep clear of the prop arc.
- Complete a Range check. Follow the radio manufacturer's instructions for performing a proper range check.