



Panic Instruction Manual

Introduction

It's hard to believe that the original Avicraft Panic was designed over 39 years ago, yet it's as relevant now as it was back in 1982 when creator, Phil Newman, took pen to upturned wallpaper and began draughting. The result was a superficially simple yet ingeniously cunning biplane sportster that could not only fly the book and take the knocks but offered immense versatility from its eclectic choice of engines. Fast forward four decades and the Panic remains as entertaining as ever. Modified by the team at JP to meet the exacting requirements of today's performance-savvy pilots, this new ARTF version of the club favourite is not only light in weight and beautifully built, it caters for both i.c. and electric power plants and anyone with a thirst for 3D flight.

Recommended electric set-up

- EnErG 60 IC brushless motor (4445810).
- ZTW 80A brushless ESC (ZTW3080201). If used the main power lead will need extending.
- APC 13X8 electric propeller (APCLPB13080E).
- Radiant 4s 5000mAh 50C LiPo (RDNB50004S50H).

Recommended i.c. set-up

- Force 52 ABC two-stroke glow engine (FORE-5201).

Recommended servos

- Hitec HS5645MG (2217620) or HS5625MG (2217610).

Additional items required

Please note that glues, suitable radio control equipment, servo extension leads and some good-quality tools will be required to complete this model. Since the ARTF Panic is not a beginner's aircraft, these additional items are left to the discretion and experience of the builder.

Build tips

- Before commencing the build, use a covering iron with a covering sock to carefully tighten any wrinkles that may be evident as a result of temperature changes during shipping.
- Always test / dry fit items before glueing.
- Ensure that no gaps are visible when attaching the control surfaces.
- When fitting control horns always make sure the pin hole for the clevis is positioned directly over the hinge line.
- Measure twice, cut once.

- Most importantly, enjoy the build!

Box contents

Before you commence building, please check that you have all the relevant pre-built parts and accessories listed below.

Pre-built and covered parts

- 1x Fuselage
- 2x Wing panels
- 1x Tailplane
- 1x Vertical fin
- 2x Interplane struts

Accessories

- 1x Engine mount
- 4x M4 x 20 bolts
- 4x M4 blind nuts
- 4x M4 x 25 bolts
- 4x M4 self-lock nuts
- 4x Washer for M4 screw
- 1x Throttle pushrod 2mm x 550mm
- 1x Nylon clevis
- 1x Swing keeper
- 23x Control surface hinges
- 3x Single control horns
- 1x Double control horn
- 1x Closed loop wire
- 2x 2mm Closed loop rod adjusters
- 2x 2mm nuts
- 2x 2mm metal clevises
- 4x Brass ferrules
- 2x 2mm aileron pushrods
- 2x 2mm metal clevises
- 2x Aileron pushrod swing keepers
- 2x 3mm aileron pushrods
- 4x 3mm metal clevises
- 4x 3mm nuts
- 4x Composite aileron link rod horns
- 8x Press stud sets for interplane struts
- 1x Undercarriage (prefabricated)
- 4x Undercarriage saddle clamps and screws
- 2x Wheels (2.5")
- 4x Wheel collets
- 1x Tail skid
- 1x Elevator pushrod (carbon)
- 2x 2mm pushrods
- 2x 2mm metal clevises
- 2x 2mm nuts
- 2x Closed loop tubes
- 4x Electric motor stand-offs
- 4x Motor stand-off washers
- 1x Fuel tank
- 4x Wing dowels
- 4x 3mm ply parts for EP set-up

Please read these instructions fully before commencing your build

Build steps

Assembling the wings

- 1. Insert the Mylar hinges into the pre-cut slots in the four aileron control surfaces, as shown. Make sure that exactly half of the hinge is pushed into the slot.



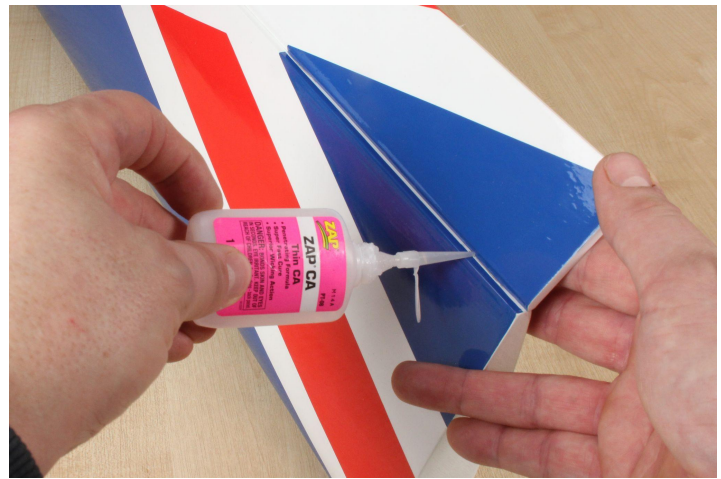
- 2. Hold each aileron vertically and run thin cyano along the first hinge so that the glue wicks into both the balsa and the hinge. Repeat on the reverse side and then repeat the process again for all the other hinges. Allow to dry.



- 3. Starting with the top wing, insert the ailerons as shown. Ensure that each aileron is pushed as close to the trailing edge of the wing as possible, so there is no gap. Ensure, also, that the outboard end of the aileron is flush with the wing tip.



- 4. Hold the wing as shown and, using thin cyano, wick the glue into the hinge and balsa in exactly the same way as you did in Step 2.



WARNING! The ailerons on the lower wing are tapered towards the tip and, therefore, handed. Check carefully that you have them correctly orientated so that the shorter chord length is positioned outboard with the longer chord length closest to the fuselage.

- 5. Slot the ailerons into the lower wing and glue them in place in exactly the same way as you did in Step 3 and 4.



DECISION TIME! Your Panic has been designed to cater for either a two or four servo aileron installation. Now is the time to decide which option you'll be using. For the purpose of this instruction manual we'll be detailing a two servo installation using the supplied link rods to connect the upper (free floating) and lower (servo driven) aileron control surfaces.

□ 6. Positioned 115mm away from the inboard end of each aileron is a slot for the aileron link rod horn. Remove the film that covers this slot from the underside of the top wing (as shown) and remove the four link rod horns from the card.



□ 7. Using a sanding block, key the glueing surface of each horn on both sides.



□ 8. Insert a horn into each of the holes cut on the underside of the top aileron and glue in place. Use medium cyano or epoxy for this.



□ 9. Identify the upper side of the bottom wing. This is evident by the two covered servo lead holes that are drilled in the centre-section of the panel. Once the holes have been located, remove the film to open them out. Once again, measure 115mm from the inboard edge of the aileron to find the aileron link rod horn location. Remove the film and repeat the link rod horn installation procedure as carried out in steps 7, 8 and 9.



□ 10. Locate one of the servo holes on the underside of the lower wing, remove the film, locate the drawstring and ensure that the tape holding it in place is firmly secured.



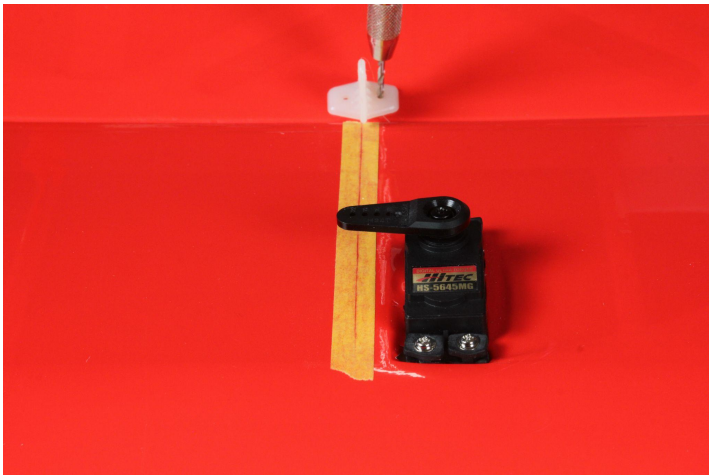
□ 11. Locate the respective drawstring in the upper side centre-section of the wing and gently pull it through the hole. This will require some long nose pliers, a steady hand and an element of patience. Be careful not to pull too hard and detach the servo end of the string.



□ 12. Using your chosen servo (Hitec HS5645MG recommended), attach the servo lead to the drawstring and gently pull it through the wing and out through the hole on the upper side. Secure the servo with the output arm closest to the trailing edge.



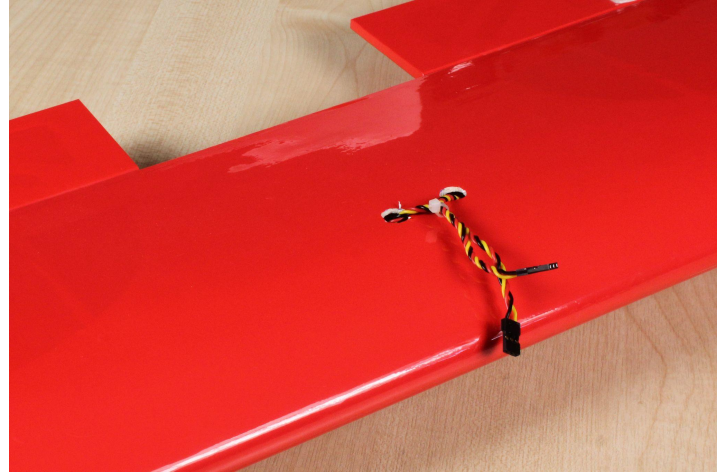
□ 13. With your servo in the 90° neutral position, draw a line (over some masking tape) from the 22mm hole position in the servo horn, to the aileron. This line pinpoints the centre line of the aileron control horn. Attach the control horn and backing plate using the 2mm nuts and bolts. Ensure that the clevis attachment point is positioned directly over the hinge line as this keeps the aileron movement geometrically correct.



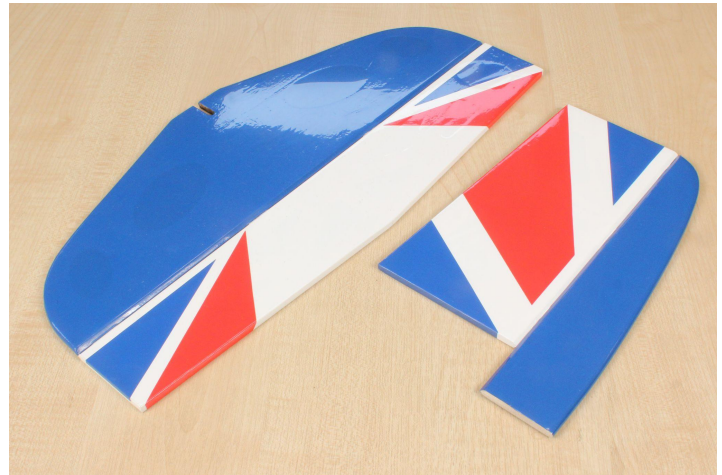
□ 14. Using a metal clevis, 2mm pushrod, 2mm nut, and swing keeper, fabricate the aileron pushrod and connect it to the servo and control horn. Ensure that your servo and the aileron remain in the neutral position throughout the process. Repeat Steps 11 to 15 for the other aileron servo.



□ 15. Once complete use a small cable tie to hold the two servo leads together. Cut away any excess bolt thread projecting through the nut on the aileron control horn backing plate and use a small dab of glue on top of the nut to ensure that it doesn't come loose.

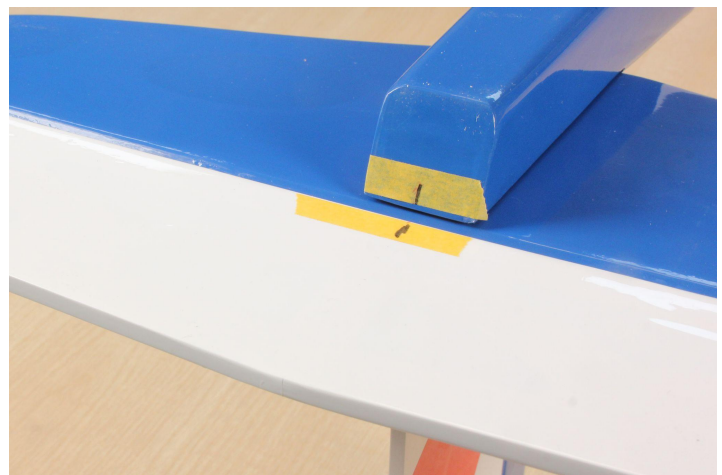


□ 16. Using the remaining 7 Mylar hinges, attach the rudder (3 hinges) and elevator (4 hinges) using the same procedure as the ailerons. Don't forget, the smaller the gap between the control surface and the trailing edge, the better.



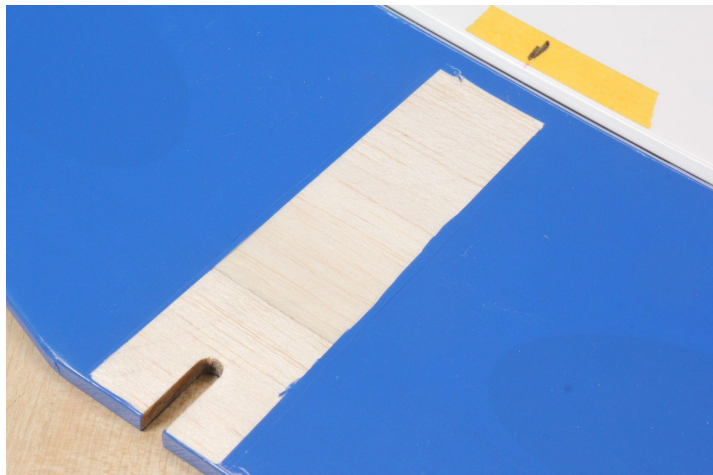
Assembling the fuselage

□ 17. Locate the fin slot at the rear of the fuselage and carefully remove the film that covers it. Dry-fit the fin in the slot then slide the tailplane in place. Flip the fuselage upside-down and use masking tape to mark the centre position of the fuselage and the elevator. Holding both items firmly in position, mark the location of the fuselage sides on the underside of the tailplane.

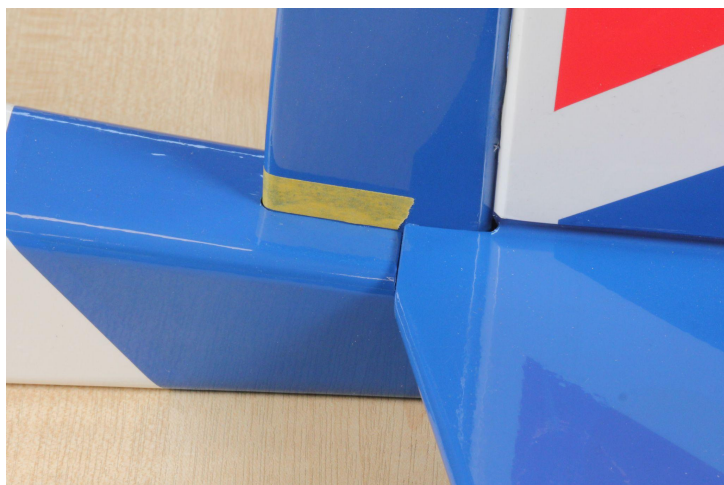


WARNING! Take great care in the next step not to cut into the balsa when removing the film as this could seriously compromise the structural integrity of the tailplane.

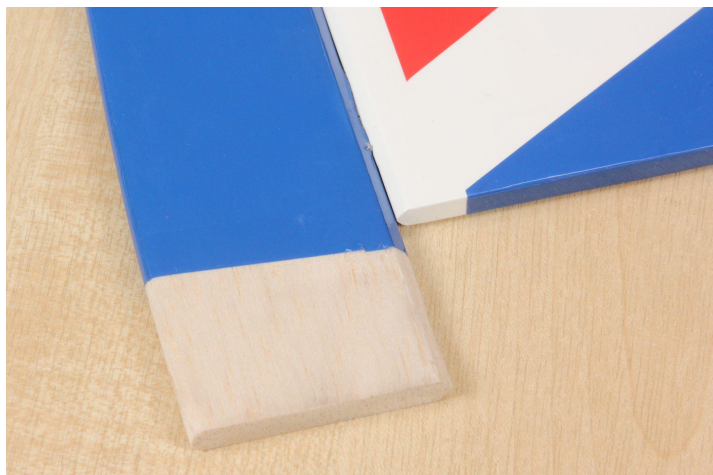
- 18. Remove the stabiliser from the fuselage and carefully cut the film away using the previously marked lines as a guide. Make sure to cut very slightly inboard of the lines to avoid slivers of exposed wood. Remember, DO NOT cut into the wood.



- 19. Slide the stabiliser back into position and make sure the fin is pushed all the way down, mark (with tape) the position of the fuselage top deck on the surface of the fin.



- 20. Remove the fin and, as before, very carefully cut away the film, ensuring NOT to cut into the wood.



- 21. As a guide for permanently attaching the tailplane and fin you'll need to mount the bottom wing. To do this, locate the wing dowel holes in the lower fuselage, carefully remove the film that covers them, then slide the dowels in place. Note: For i.c. engine installations the dowels can be permanently glued in position now. For electric power installations the forward dowel should remain unglued to enable the ESC to be located. Only when this is done can the forward dowel be glued in place. Now attach the lower wing, refit and align (with the wing) the tailplane and fin and, when happy, glue both the fin and tailplane in place using a slow setting epoxy or waterproof PVA. Periodically check the alignment with the lower wing while the glue sets.

Electric power system installation

Steps 22 to 33 cover electric motor installation only. If you plan to fit an i.c. engine, skip to Step 34.

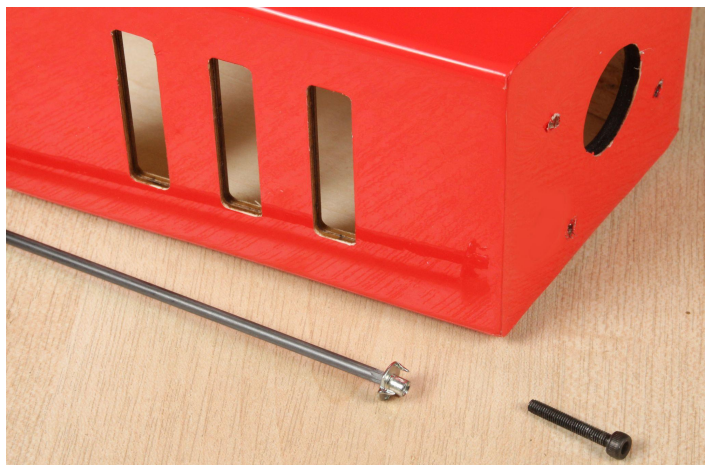
- 22. Cut away the film from the vents in the undercarriage plate and the centre hole in the firewall.



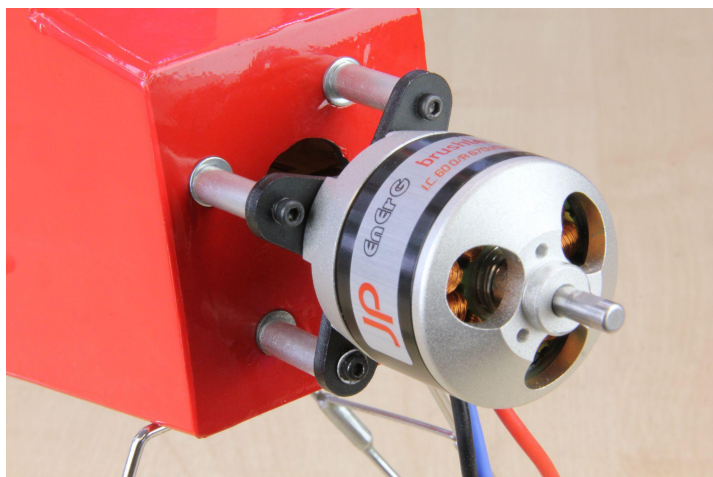
NOTE: The weight of your chosen motor will affect the model's Centre of Gravity (C of G). We fitted a JP EnErG IC 60 and at 300g no additional balance weight was required to achieve the recommended C of G position.

- 23. Using the hole in the firewall as a centre reference, mark the mounting hole positions for your chosen motor mount bracket.

□ 24. Drill the holes and secure the captive nuts in the back of the firewall. A top tip to facilitate this is to use a length of rod that the captive nut can be pushed onto. The rod can then be used to press the nut against the back of the firewall whilst threading the bolt from the front. With the nut threaded on the bolt, pull the rod off the back of the captive nut and screw the bolt in until the nut is fully seated into the rear of the firewall. When happy, remove the bolt and repeat the procedure for the other three nuts.



□ 25. Attach your motor to the firewall using the supplied motor stand-offs and washers.



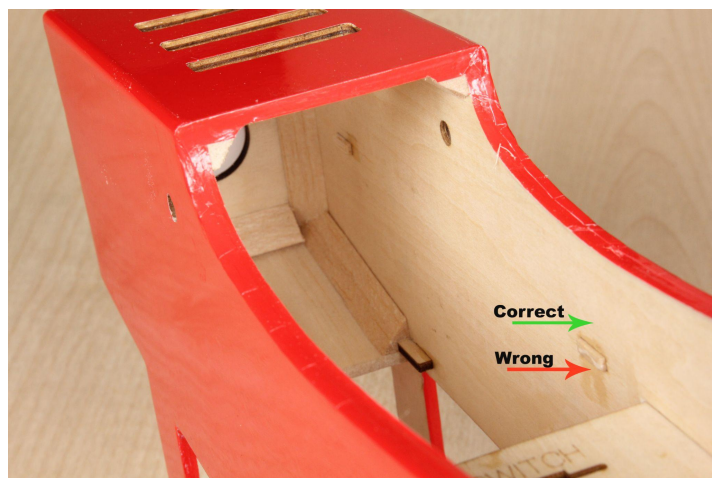
□ 26. Attach the undercarriage using the four saddle clamps and eight screws. Note: The saddle clamp fixing holes have been pre-marked under the covering. To find them, locate the undercarriage centrally over the mounting plate and their position will become evident.



□ 27. Glue together the parts for the battery and ESC tray, as shown.

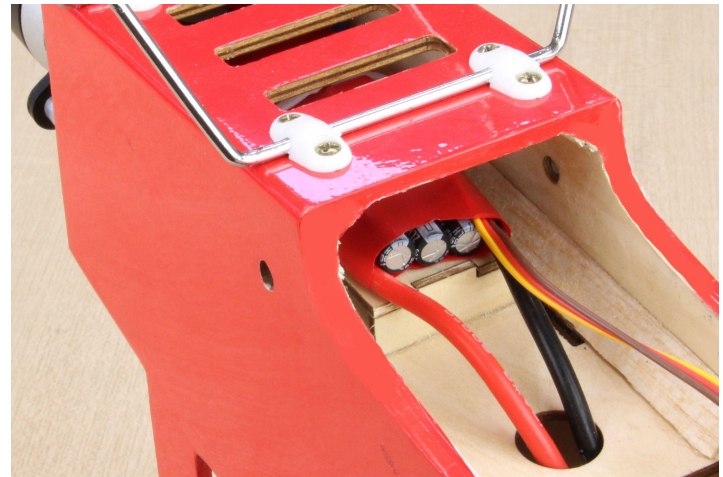
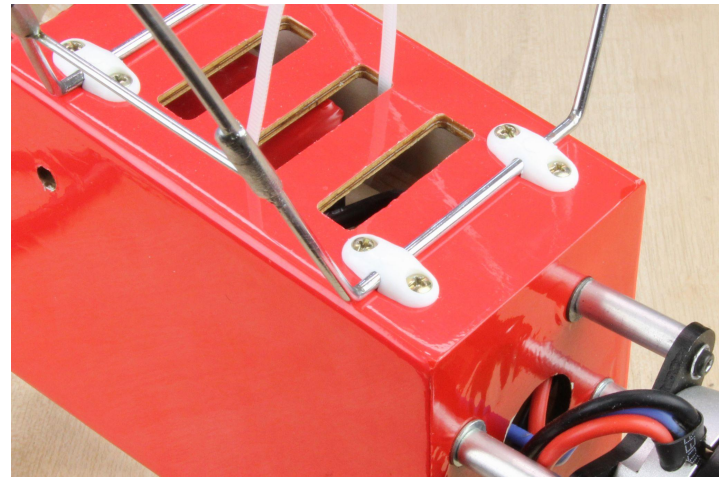
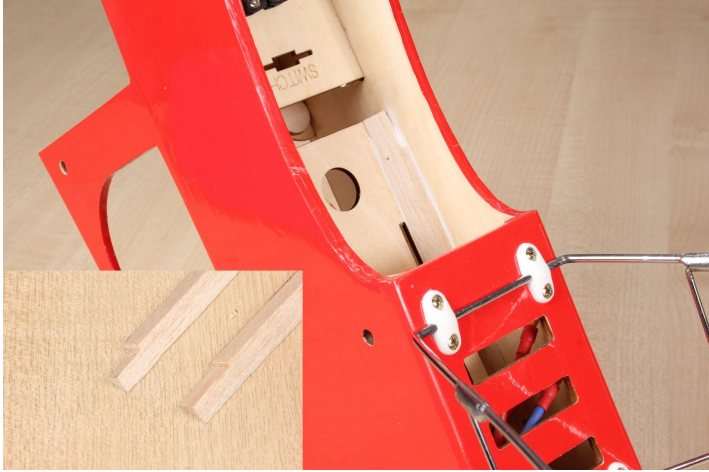


□ 28. Turn the fuselage upside-down and rest the battery and ESC tray on top of the pre-installed locating pegs. **DO NOT GLUE YET.**



NOTE: Placing the tray on top of the pegs (fuselage inverted) allows maximum room in the battery bay which, in turn, will facilitate the use of a battery suitable in size to achieve the recommended C of G. When the model is on its wheels, access to the battery tray is via the removable hatch located between the cabane struts.

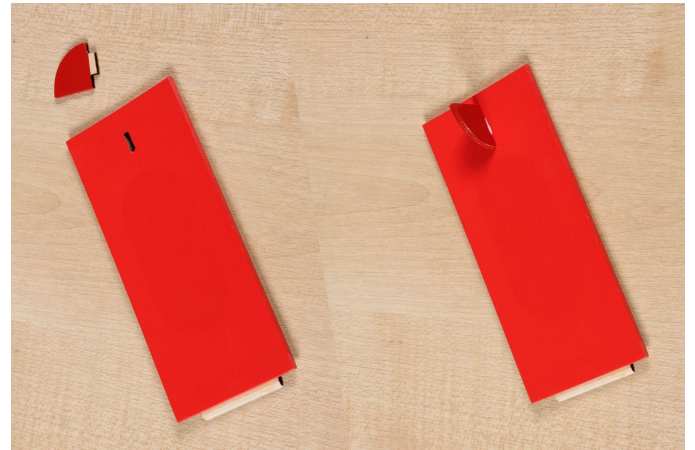
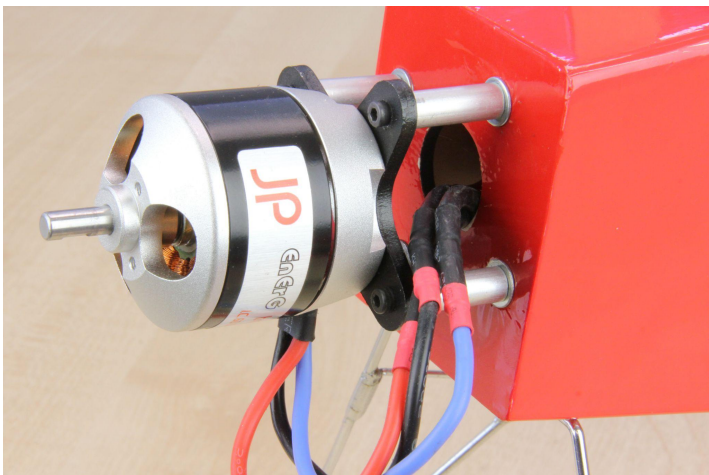
□ 29. With the battery tray in place, positioned so that the ESC tray is located closest to the firewall, run some slow cure glue along the mating surfaces. This is best done by lifting one side up whilst the tray is in place, running the glue along the edge, then pushing the plate back down to locate on the pegs, before repeating the process on the other side of the tray. Once completed the tray should be located centrally over the pegs. With the tray securely glued in position, cut the supplied triangular balsa stock and reinforce the joints.



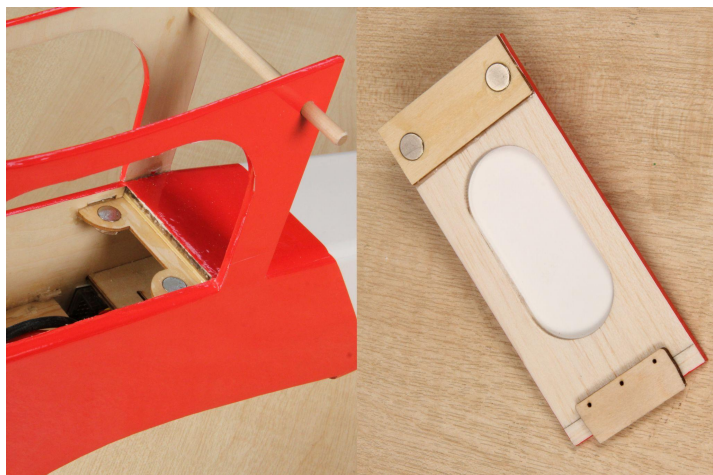
□ 30. Before installing the ESC check to ensure that its main power lead is long enough to pass through the designated hole into the battery tray area and is easily able to be connected to the battery with the model's wings attached. If the lead is too short you will struggle to connect the battery. Slide the ESC into its tray and poke the relevant cables out through the hole in the firewall. Connect the cables and test the motor direction. When you're happy, draw the ESC slowly aft, pulling the wires back through the hole. Push the ESC forward again so the cables are bunched behind the firewall and the ESC is correctly positioned. Pass a cable tie through the vent hole, around the ESC tray and secure the ESC to the tray.

WARNING! Double check that the ESC and cables are not making contact with the motor or shaft.

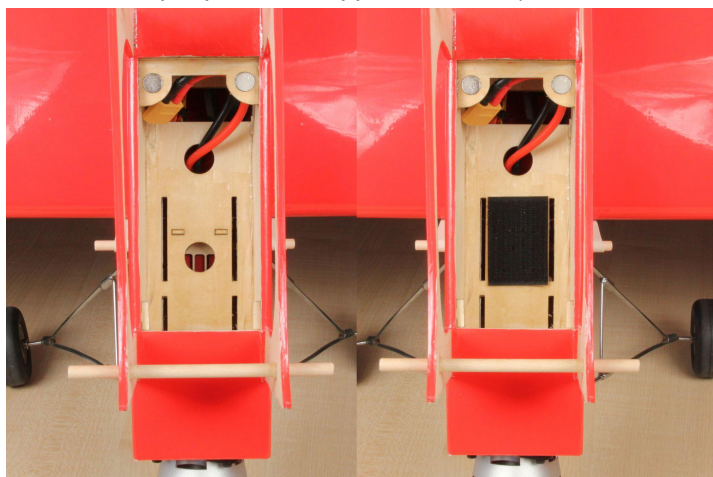
□ 31. Remove the film from the lifting tab fixture point and the film from the battery hatch so the tab can be inserted. Glue into place on the battery hatch.



- 32. The battery hatch cover is held in place with pre-installed magnets. Note that these are purely intended for holding the hatch cover on and are not to be used as the only means of holding your flight battery in place.



- 33. Smear a small skim of epoxy on the battery tray in the area of the hook and loop tape that will eventually secure the battery. Allow to dry and then attach the tape. Note: Hook and loop tape is not supplied in the kit).

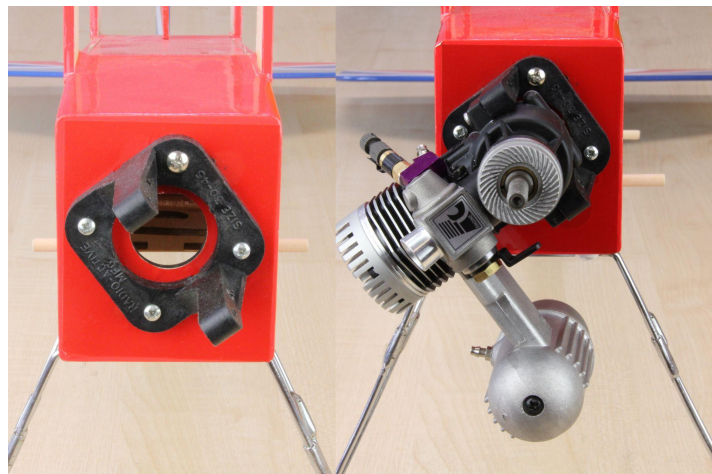


This completes the electric power system installation. Note that the battery tray can hold up to a 4S 5000mAh LiPo and that you can also use hook and loop straps to hold the battery in place. Should this be your preferred option we'd recommend using a slip mat beneath the battery instead of the double-sided hook and loop as the latter limits space in the battery compartment to the point that you may not be able to put the hatch on.

IC engine installation

Our recommended engine for regular club flying is a Force 52 two-stroke. In the past people have fitted .90cu. in. engines to their Panics however this isn't recommended without taking measures to reinforce the firewall. If you fit a 90, you're on your own!

- 34. Attach the undercarriage as detailed in Step 26 then bolt your chosen engine mount to the firewall. Before doing this, orientate the engine on the firewall so that the exhaust exits between the undercarriage legs, as shown in the image. Once happy, drill the holes and use the M4 captive nuts and bolts to secure the mount in place.



- 35. Mark the point at which the supplied throttle pushrod passes through the firewall, drill a suitable hole, pass it through, then connect it to the throttle arm using the supplied plastic clevis.



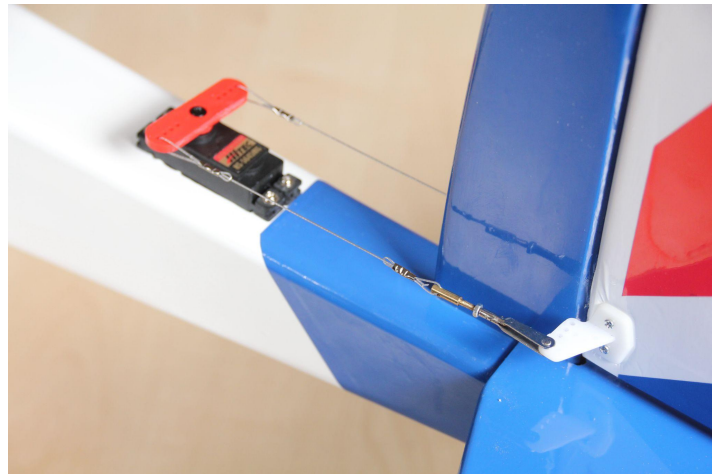
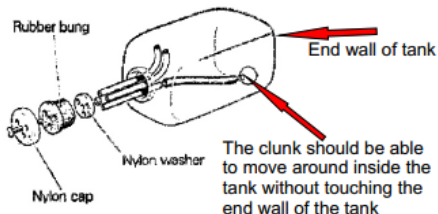
- 36. Having chosen to power your Panic with an IC engine, the battery hatch cover between the cabane struts should be permanently glued in place and reinforced with the supplied triangular stock balsa. Do this now before installing the fuel tank.

- 37. Assemble the fuel tank in accordance with the illustration below.

ASSEMBLY INSTRUCTIONS FOR R/C CLUNK TANK

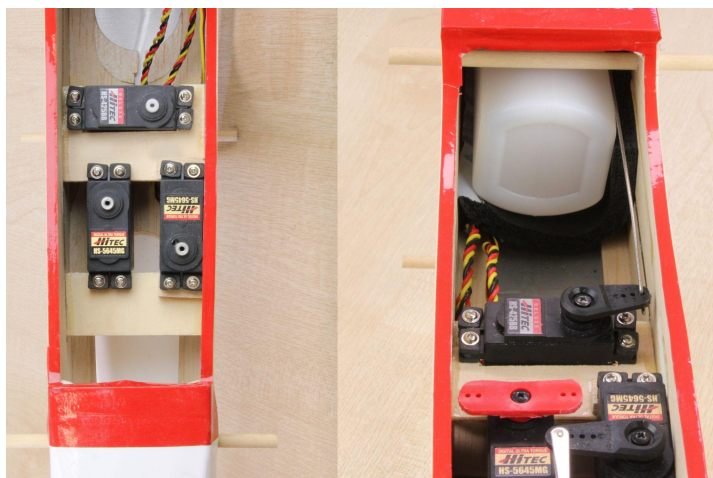
Assemble the parts of the kit as shown in the diagram but do NOT tighten up the nut and bolt before inserting the assembly into the neck of the bottle.

After insertion tighten up the bolt which will result in the rubber bung expanding in the bottle neck and making a perfect leak-proof seal.



□ 38. Fit the fuel tank to the fuselage allowing the throttle cable to pass unrestricted beneath it. This can be facilitated using some packing sponge.

□ 39. Cut a slot in the forward servo mounting tray to accommodate your chosen throttle servo, then install the servo as shown. The slot is easily cut using a razor saw and knife. With the servo installed, attach the pushrod to the servo horn using the supplied plastic swing-keeper.

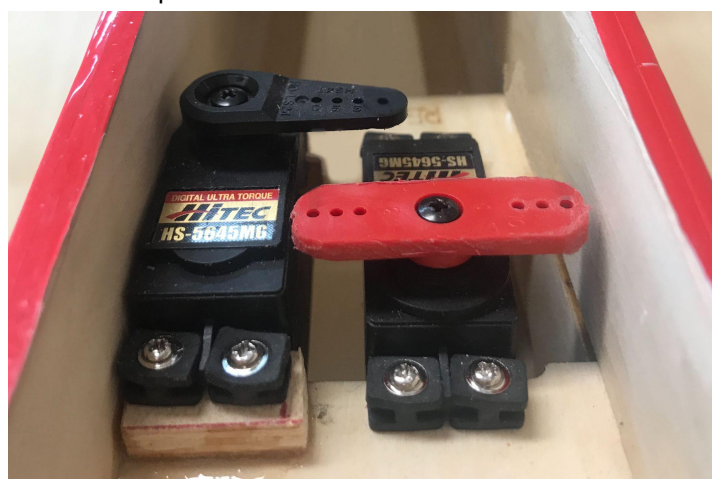


WARNING! In order to facilitate numerous servo sizes the rear servo mounting plate, inside the fuselage, is not glued in place. You must, therefore, glue it in place once you have made your servo choice. We highly recommend Hitec's HS5625MG servo.

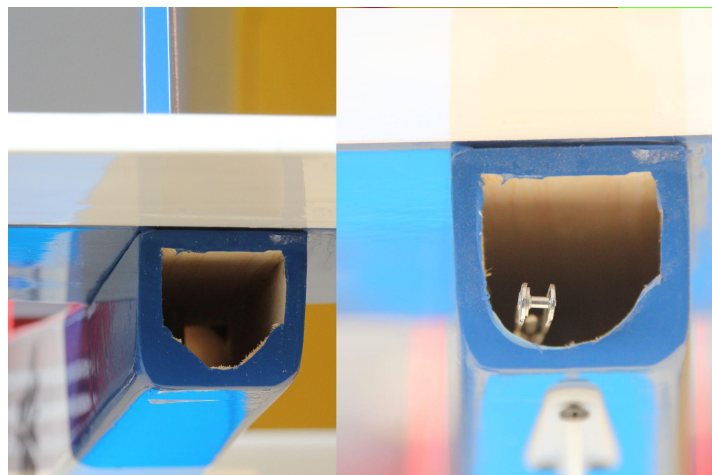
□ 40. Use epoxy to glue the two elevator servo blocks in place. Once the blocks are secure, install the elevator servo with the control arm in the rearmost position. Now secure the rudder servo centrally between the elevator servo and the side of the fuselage with the control arm in the forwardmost position.

Elevator and rudder servo installation

Electric power systems: Installing both servos in the tray inside the fuselage (as below) avoids you having to add lead weight to achieve the correct C of G.



□ 41. With a sanding drum, round out the triangular section in the left corner to allow the elevator pushrod to reach the horn without touching the fuselage side.



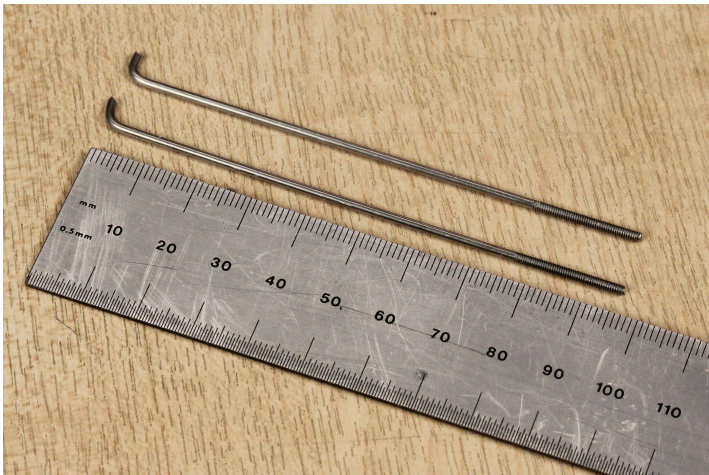
IC engines: If you fit an oversize (90cu. in.) engine then you may find it useful to install the rudder servo in the optional rear tray just forward of the fin. This will greatly assist you in achieving the correct C of G.

□ 42. Using the supplied items shown in Step A below, follow Steps A – D and make the elevator pushrod. At the end of the process the pushrod should measure approximately 610mm from the elevator servo clevis pin to the elevator control horn clevis pin.

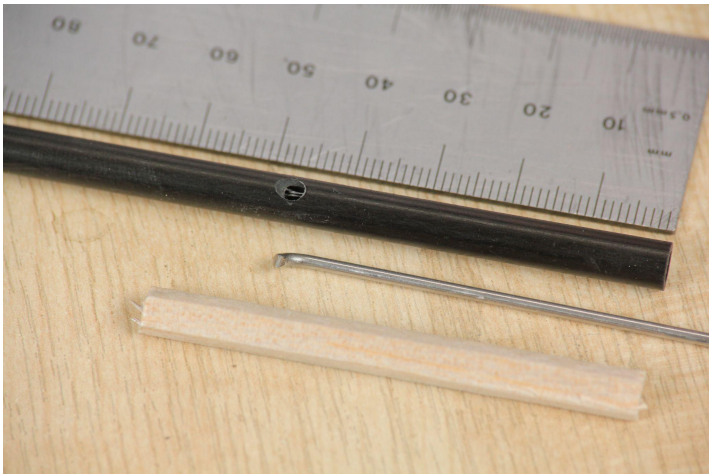
□ A. Cut the central carbon elevator pushrod tube to a length of 480mm.



□ B. Cut and bend the two piano wire ends as shown. The finished measurement should be 95mm.



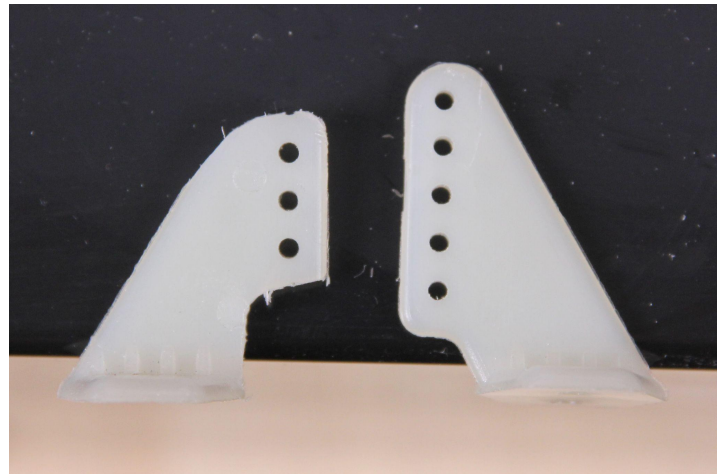
□ C. Drill a 3mm hole, 50mm from each end of the central carbon pushrod tube.



□ D. Carefully slide the bent end of the piano wire section inside the carbon tube and locate it in the 3mm hole. Slightly angling the bend on the end of the piano wire can help make this process easier. Once in place, slide a balsa shim inside the tube, locking the piano wire in place, then wick thin cyano between the wood and tube to hold it firm. Attach the 2mm nut and the clevis. Repeat the process at the other end of the carbon pushrod.



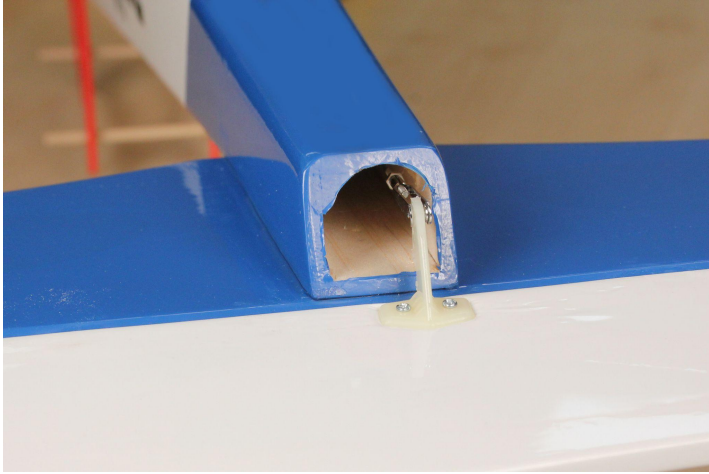
□ 43. Take one of the control surface horns and modify it to match the version shown on the left. This will allow full unobstructed deflection of the elevator, when fitted.



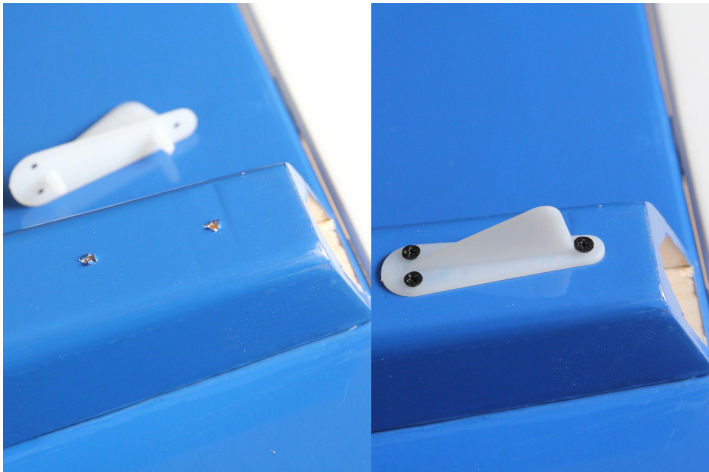
□ 44. Pass the elevator pushrod through the fuselage and connect to the elevator servo control arm.



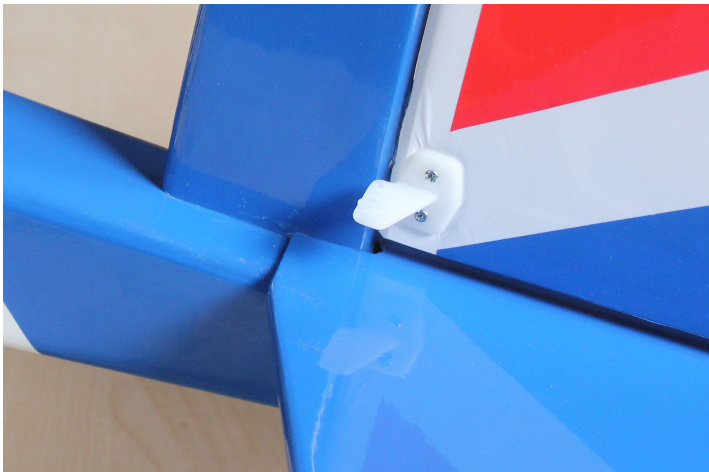
□ 45. Using the pushrod to align the control horn on the elevator, mark the positions of the fixing holes whilst making sure that the pushrod is clear of the fin post that sits in the middle of the fuselage. As before, make sure that the clevis attachment point is directly above the hinge line. When happy, secure the control horn using the 2x 2mm bolts, a backing plate and 2mm nuts. Cut off any excess thread that projects beyond the nuts and apply a small amount of glue to lock the nuts in position.



□ 46. Attach the tail skid as shown using 3x small screws (not supplied). For ultimate strength add some slow cure glue to the screw threads to lock them into the balsa.



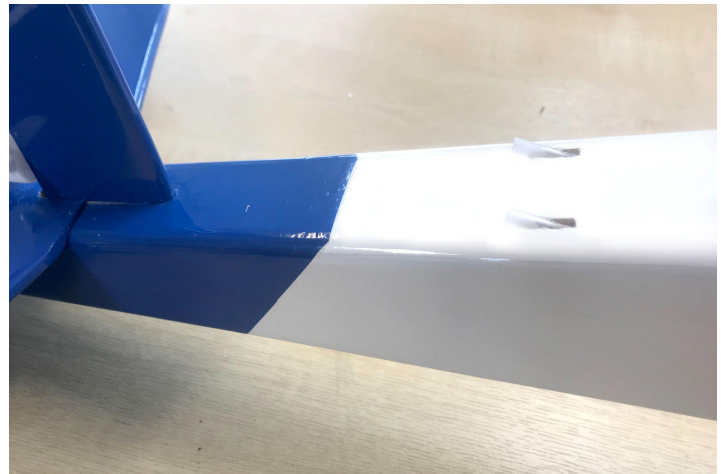
□ 47. Fit the two rudder control surface horns using the supplied 2mm bolts and 2mm nuts. Once again ensure the clevis attachment point is directly over the hinge line and, as before, cut off any excess thread and apply a small amount of glue to lock the nuts in position.



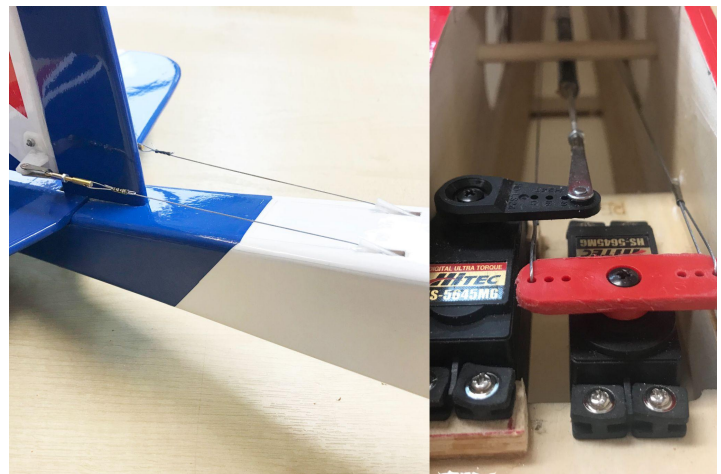
□ 48. Remove the film that covers the two holes just forward of the servo tray in the rear of the fuselage. With the holes exposed use a needle file to create a taper that allows the closed loop wire bearing tubes to slide in at an angle and, thus, guide the wires towards the rudder servo.



□ 49. Key the surface of the two plastic tubes and glue them in place.



□ 50. Connect the rudder to the servo using the closed loop accessories supplied.

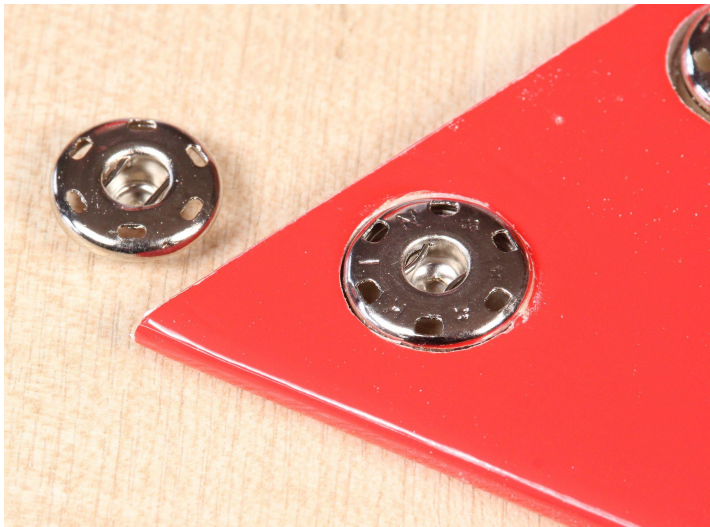
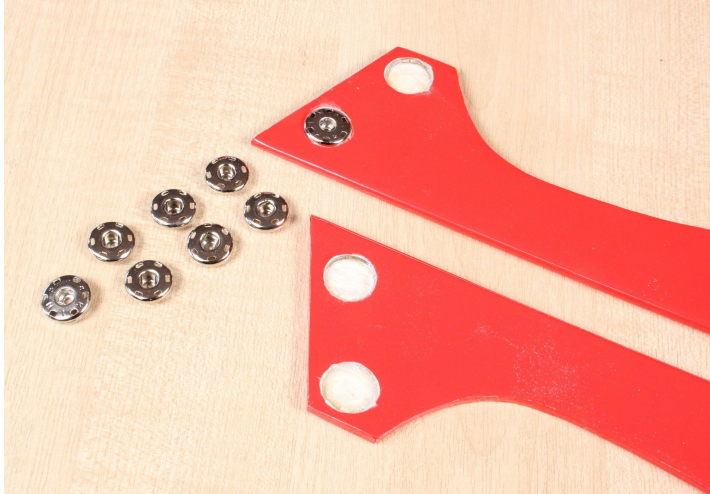


□ 51. Pass the closed loop wires through the tubes and fish them out at the servo end. Terminate at the servo arm in the usual fashion. Ensure there is no crossing of wires inside the fuselage and that their passage is free of the elevator pushrod. If needed, to make life easier, remove the elevator pushrod while doing this. With the servo arm attached to the servo and centred / locked, terminate the closed loop wires at the rudder end as in the photo. Note: Always fit the

clevis adjusters to the rudder end and not the servo end as this will enable the elevator and rudder servo to operate without interference.

Final assembly

- 52. Remove the covering and glue the plywood dowels centrally into the upper wing location points.
- 53. Remove the four circular patches of film (as shown) on the inner face of each wing strut. You should be able to feel the locations behind the film. Glue the female press stud ends into the wing struts using epoxy.



- 54. Fit both wings onto the fuselage (bands not supplied).

NOTE: For successful completion of Step 55 only tackle one wingtip at a time.

TOP TIP: When carrying out Step 56 set the assembled model on the floor with the wingtips on one side positioned against a wall. This way, when you apply pressure to the opposite wingtip the model will not move.

- 55. Keeping the wings perfectly square and with one set of tips resting against the wall, carefully align the wing strut and press it against the end of the wingtip. The imprint of the female studs will mark the exact location for the male studs. Once the position has been found, remove the wings, remove the film in the area of the imprints and slightly rebate the holes (using a sanding drum) into which

the male studs can be glued. Glue the studs in place with epoxy. When dry, refit the wings and attach the completed wing strut. When, and only when, the first strut is fitted should you repeat the process for the other wingtip.



- 56. Using the supplied 3mm pushrods and accessories, make up the aileron link rods as required. When adjusting the length of the rods, ensure that the bottom wing servos and ailerons are in the neutral position along with the top wing ailerons.



- 57. Install your receiver, securely connect all wires and ensure your receiver antenna is fixed in a low RF noise area, i.e. away from the ESC.



Pre-flight set-up

Suggested control throws

Intermediate pilots

Aileron	15mm (1/2") each way
Elevator	20mm (3/4") each way
Rudder	Up to 50mm (2") each way
Expo	15 to 25% on all surfaces

Experienced pilots

Aileron	25mm (1") each way
Elevator	40mm (1-5/8") each way
Rudder	Up to max unobstructed deflection each way
Expo	15 to 25% on all surfaces

Check the C of G (Centre of Gravity)

The C of G location, measured on the top wing, is 100mm (4") back from the leading edge. In order to obtain the correct C of G, move the Rx battery or flight battery inside the fuselage until you are happy, then secure it in place.

IMPORTANT! For the first flight it is recommended that you use rate switches. For all surfaces set low rates to 75% of the suggested control surface movement. Once you're totally comfortable with the flying characteristics you can switch the rates off for 100% control surface movement.

We sincerely hope you enjoy flying your Panic. For intermediate pilots it's a model that we're convinced you'll end up taking to the field more and more as your confidence and comfort levels build. Experienced pilots will love its agility, high-alpha capability and its ability to soak up any manoeuvre that's asked of it. Little wonder that this time-honoured all-rounder is still inspiring new pilots and entertaining old.



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