

# Pulsar 4000e Assembly Guide

from

**HyperFlight**

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## Warning, this is not a toy!

If you are new to the hobby of flying RC model airplanes, DO NOT attempt to fly this model by yourself! There are hundreds of BMFA (British Model Flying Association) clubs in the UK. Ask your local hobby shop for the location of the nearest club in your area, or check out the [www.bmfa.org.uk](http://www.bmfa.org.uk) (or your national modelling organisations) web site. Many clubs often have qualified instructors to teach you how to fly. If you are an accomplished pilot then you should have no problem in flying this model. However the Pulsar 4000e is potentially a lethal object. Do fly responsibly, and make sure your third party liability (eg BMFA) insurance is valid.

## Limit of Liability

All Starflight products are constructed to the highest standard and made strong enough for reasonable usage by an experienced and responsible r/c aircraft pilot. By keeping this model you confirm that the parts have not been structurally damaged and are fit for purpose as received.

The craftsmanship, attention to detail, and actions of the builder/flyer of this model airplane kit will ultimately determine the airworthiness, flight performance, and the safety of the finished model. You confirm that you take full responsibility for the safe usage, construction, and maintenance of the model, and you will not hold HyperFlight.co.uk or its owners, staff, agents, contractors, or helpers in any way responsible for any damages or injury that may occur as a result of operating or flying this model. HyperFlight's sole obligation shall be to replace those parts of the kit proven to be defective or missing. If you are not willing to agree to this binding condition of sale please return the model in as-received condition to Hyperflight for a refund.

## Model Specifications

Pulsar 4000e Specification		
Wing span	3.98 m	157 in
Wing area	104.5 dm <sup>2</sup>	1620 sq in
Length	1.78 m	70 in
Typical flying weight	1900 g	67 oz
Wing loading	18.2 g/dm <sup>2</sup>	6.0 oz/sq ft
Dihedral (EDA)	3 degrees	
Aspect ratio	15.2	
Wing airfoil	AG26	
Centre of Gravity	119 mm from wing leading edge	
Controls	Elevator, rudder, flaps, ailerons	

## Main Parts

Wing tips (2)  
Wing centre panel  
Fin & rudder  
Tailplane  
Boom with TP mount  
Pod & nosecone



## Small Parts

5 servo covers with fairings  
1 elevator servo cover  
2 larger horns (flaps)  
3 smaller horns (ail, rudder)  
10 clevises  
2 flap pushrods  
2 aileron pushrods  
1 rudder pushrods  
Wing mounting bolts  
Tail mounting bolts



## R/C Functions

Left & right aileron  
Left & right flap  
Elevator  
Rudder  
Throttle

To maximise the model's potential a computer radio is highly recommended.

## Suggested Servos

Recommended Servos	
Elevator & rudder	Hyperion DS 09-AMD, MKS DS6100
Flap	KST DS125, MKS DS6125 Mini, Futaba S3150, Hyperion DS095
Aileron	KST DS115, MKS DS6100, Hyperion DS 09-AMD

### Recommended Powertrains

Kontronik Kira 500-30 with 6.7:1 box, 18x10 prop, 4S 3ah LiPo (62A, 3300 fpm)

Hacker B50 9S with 6.7:1 box, 17x10 prop, 3S 2.5ah LiPo (84A, 2900 fpm)

Hacker B50 9S with 6.7:1 box, 16x10 prop, 3S 2.5ah LiPo (69A, 2400 fpm)

Kontronik Kira 500-36 with 6.7:1 box, 17x11 prop, 3S 2ah LiPo (63A, 2400 fpm)

Kontronik Kira 500-36 with 6.7:1 box, 16x13 prop, 3S 2ah LiPo (59A, 2050 fpm)

Kontronik Kira 500-36 with 6.7:1 box, 16x10 prop, 3S 2ah LiPo (47A, 1900 fpm)

Hyperion Gs3032-08 direct drive, 16x10 prop, 3S 2.5ah LiPo (74A, 2400 fpm)

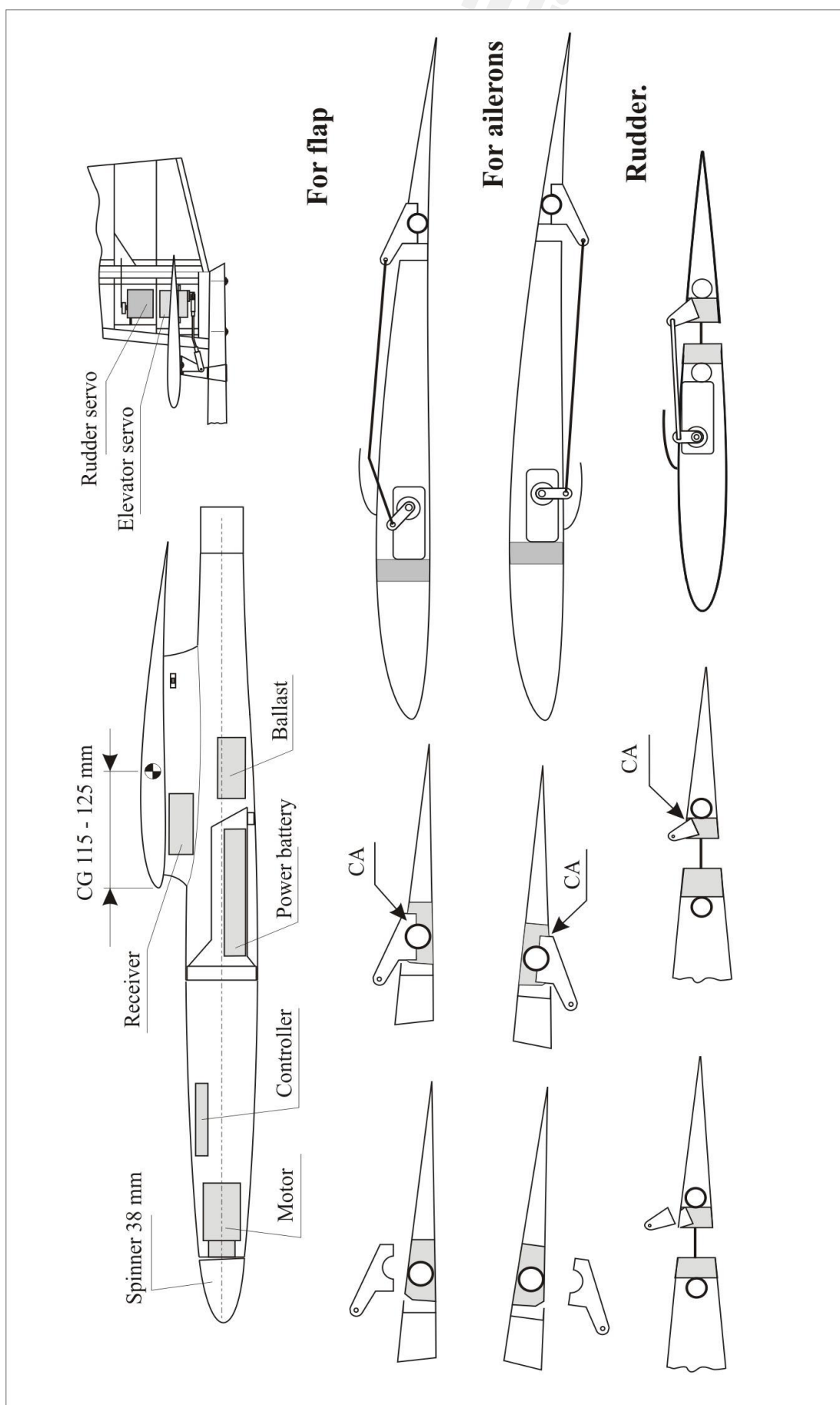
Hyperion Gs3032-08 direct drive, 16x8 prop, 3S 2ah LiPo (63A, 2200 fpm)

### Planning

Assemble the model temporarily and tape the R/C and motor components (or items of a similar weight) in place, and check the centre of gravity. It should be approx 119mm behind the wing LE. If you are using a lightweight motor & gearbox you will probably need to minimise tail weight. If necessary make up a very lightweight lead using 4 wires (positive, negative, two signal) of PC mouse cable or network/phone CAT6 cabling.

### Rudder and Elevator Linkages





**Pulsar 4000e Build Detail for Wings and Tail – by Clive Learwood**

The following should be read in conjunction with the attached pictures.

The following applies to all servo installations it's based on building many model types over a long period of time.

- Proprietary servo mounts are not used, nor are home made ones
- All servo and extension leads have plug / sockets removed. The two cables are then soldered together and sleeved appropriately. If you insist on plugging leads together then use one of the special plastic clips available from Ripmax, DO NOT use plastic or masking tape to hold the two together, it has a habit of coming off and the two items separating.

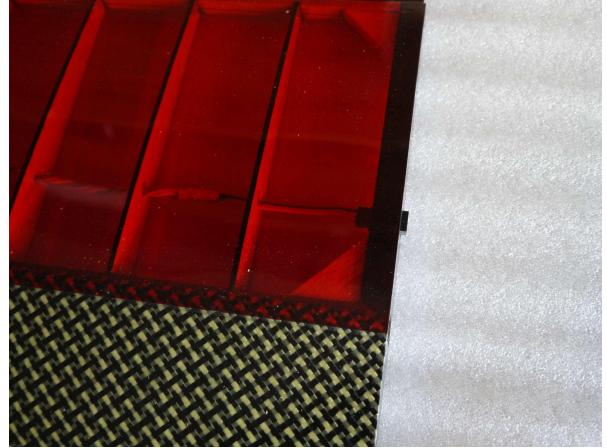
**Servo installation my method**

- Cut off the servo lugs as close the case of the servo as possible.
- Carefully file the remaining rough area as flat and clean as possible
- If the servo has a grommet where it comes through the case, carefully cut as much as possible away. Care must be taken not to cut or damage the servo leads
- Slip a piece of the appropriate size heat shrink sleeve over the servo body and leave a small amount of "over hang" top and bottom to enable the sleeve shrink around the top and bottom when heat is applied.
- Use your heat gun to shrink the sleeving reasonably tight around the servo.
- I usually then cut away a small piece of the sleeving where the servo lead is under the sleeving
- Before you glue the servo in place. Do a trial dry fit, with the servo arm in the correct position, the horn in the correct place and glued in and the push rod connected. I always then connect the servo (via an extension lead in the wing) to a receiver and power up TX and Rx. Test that all is OK.
- Gluing the servo in. I always use GOOP (preferably Household Goop, or Pacer Zap A-Dapa-Goo II if U cannot get GOOP). The advantage of using this method is that should you have a problem or the servo fails its easy to remove the servo and start again. You CANNOT do this if you use epoxy.

## Servo installation for Pulsar 4000e

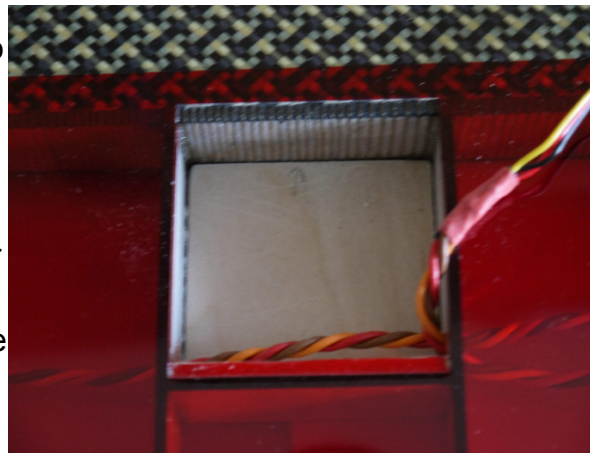
### Wing Center Section and Flaps

· I start by adding the aileron and flap servo wiring. I use twisted wire and solder a servo socket on the wire at the outer ends of the panel. The socket is then GLUED in place, saves you fishing for the end that disappeared into the wing when you go to assemble the model on the flying field. My convention is for the signal wire to be nearest to the wing joiner. Leave spare wiring in the center section to connect to a plug latter on.

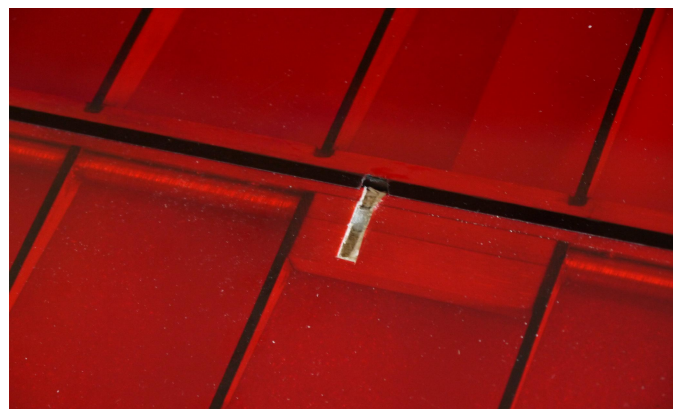


· Cut a piece of thin ply (1/32 or 1/64) and Cyano into the bottom of the servo well. (adds a bit of strength to the balsa plate)

Depending up the servo type used it may be necessary also to add an additional piece of 2 or 3mm light ply to raise the servo to the right height. (I used **HS85 MG** and a 2mm piece of lite ply)



· Before gluing the servo in cut the slot in the balsa inset in the flap for the horn to be glued into The photos show the horn filled to shape, and the slot in the flap).

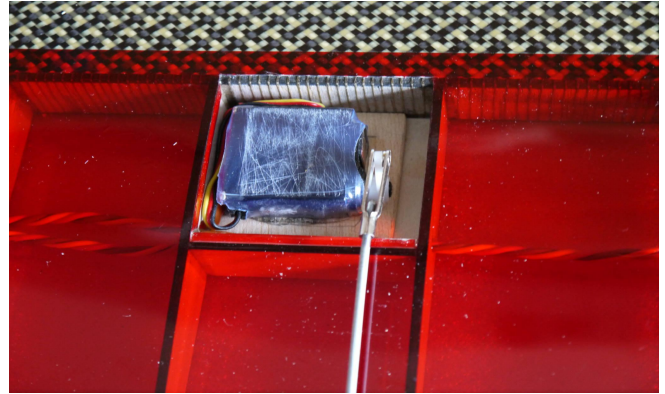


· Glue the horn in place and test the set-up as mentioned above (Servo installation my method)

· The photo shows the servo glued in place and linkage added, the 2mm lite ply plate can also be seen in this photo.

### Aileron Servo

- This is virtually the same as a flap servo except that the servo wiring is extended prior to gluing the servo in place, the plug with around 3 inches of wire is allowed to protrude through the root rib



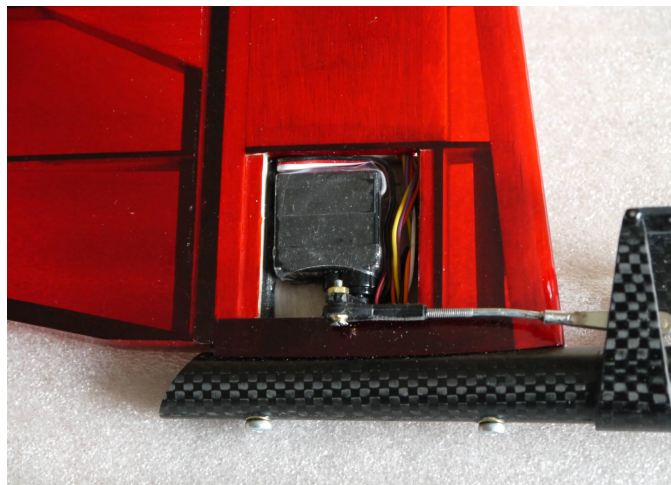
- For the ailerons I used a **Hyperion HP-DS13-TMB Digital servo**. Beware of using small lite servos. In a dive to loose height you could get aileron flutter causing the servo to break a gear, especially a plastic one. (YES it has happened to me on one of my Pulsar 3.2's a few years ago)

### Elevator Servo

- Generally as per aileron/flap servo's, but I used a socket and ball arrangement for connection to the servo.

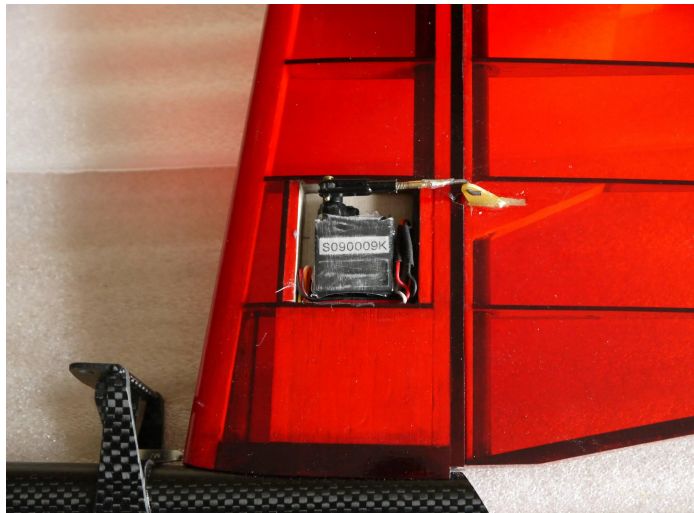
Connection to the elevator plate use a standard clevis with push rod soldered to the clevis

- Servo used was a **Hyperion HP DS09-AMD Digital servo**



### Rudder Servo

- Almost the same set up as the Elevator set up except the pushrod has to be very short so a “Z Bend” was used at the rudder horn. (see photo 125)
- Servo is the same as for the Elevator.



### Wing/plane connection

I always use the Multiplex six way “Green Connectors” for this. My choice for most of my planes is all the +’s at one end, all the –’s the opposite end. Two aileron connections one side and the flaps the opposite side