

# **CML**

## **CML DISTRIBUTION**

### **F/A 18 HORNET RTF**



#### **Specifications**

Wing span	716mm (30")
Length	940mm (37")
Weight	585 g (21 Ounces)
Radio	4 function 35Mhz PPM 4 Qty micro servos
Motor	25 Amp brushless ESC Brushless in runner 5 blade ducted fan 500g static thrust 11.1v 1300mAh LiPo battery





## **Congratulations on purchasing the Top Gun F/A 18 Hornet RTF**

CML Distribution are proud to present this high performance ducted fan sport scale model of the F/A 18 Hornet. Supplied in three versions, TGP0080 is a Ready to Fly package with transmitter, receiver, LiPo flight battery and charger, TGP0081 is an Almost Ready to Fly package without transmitter and receiver and TGP0082 is an Airframe only with ducted fan and motor.

This model has been designed with the utmost care and attention to detail to produce a light weight, strong, and realistic looking model aeroplane with excellent flying characteristics. We feel that this model emulates the style, performance and character of its full size counterpart.

This model is a high performance miniature aircraft that allows intermediate to advanced model pilots to perform both scale and aerobatic manoeuvres. The light weight, large wing area and powerful ducted fan motor assembly allow the model to fly both fast and slow, with high speed rolls and tight turns while maintaining full control.

These instructions assume a reasonable level of competence for both building and flying and we recommend that the model is flown at a recognised club with frequency control measures and suitable third party insurance.

The owner – pilot of this model should take note of regulations, and local bylaws before flying this aircraft.

Please take time to read through these instructions before commencing assembly. We list operations in order of works to reduce the risk of damage during assembly.

Please read through the warnings before use.

An 11.1V 1300 mAh lithium polymer (LiPo) battery and charger is included as part of this package and these cells must be operated with care to prevent the risk of fire.

LiPo Batteries are soft cased and can be easily damaged by sharp items, puncturing of the soft casing can cause fires and we recommend that they are stored and handled carefully.

Use only a LiPo rated charger, set to a maximum of 3 cells (11.1v) and no more than 1 amp charge current.

Remove battery from the aircraft and charge on a non flammable, non conductive surface

**Due to continual and ongoing product development the parts shown in the manual may differ from those supplied.**

## Section 1: Kit Contents And Description

KC1



1. Fuselage with ducted fan, motor, Electronic Speed Control (ESC) receiver, elevator servos and aileron servo with pushrods.
2. Fuselage nosecone section with - steering servo, pushrods and nose wheel.
3. Clear cockpit canopy.
4. Two wing panels with factory hinged ailerons
5. Two horizontal stabiliser panels with factory hinged elevators
6. Two vertical stabiliser-fin panels
7. Two main undercarriage assemblies with wheels and mounting hardware
8. Four function fully proportional 35Mhz transmitter
9. Pushrods, control horns, linkage and fixing hardware
10. Tube of adhesive
11. LiPo Battery 3 cell 11.1V 1300 mAh (15c)
12. Mains power 3 cell LiPo charger
13. Self adhesive decals.
14. Drop tanks

## Section 1: Kit Contents And Description Continued

Main fuselage assembly.

Supplied complete with ducted fan unit using high performance brushless in runner motor.

25Amp Electronic Speed Control (ESC) pre-wired to motor with extended leads to forward battery box and hinged cover.

35mhz 6 channel receiver installed inside hinged compartment and pre-wired to aileron and twin elevator servos.

KC1.1



Kc1.1a

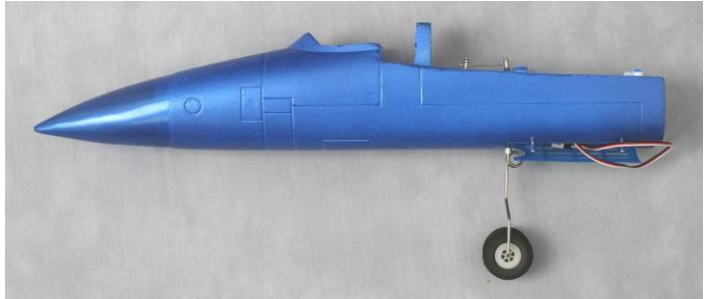


Forward fuselage assembly.

Supplied complete with sprung steerable nose wheel assembly and steering servo.

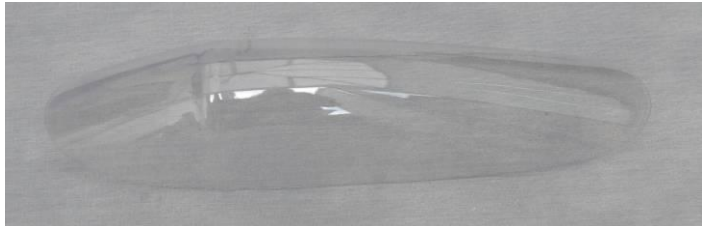
Hinged battery compartment.

KC1.2



Clear vacuum formed canopy.

KC1.3



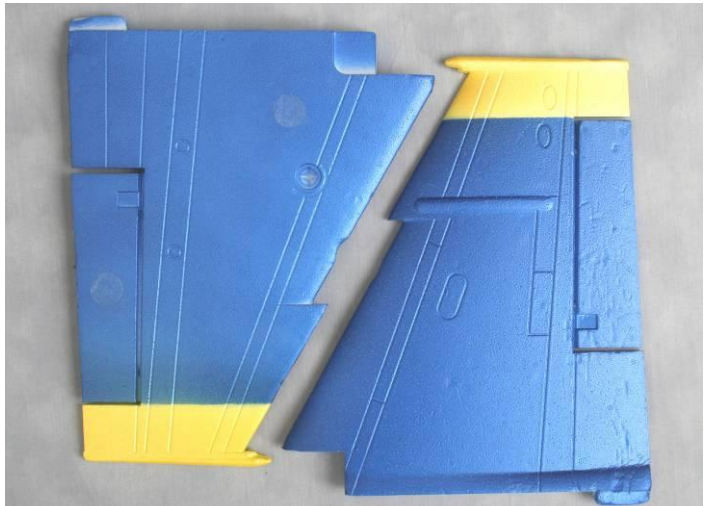
Wing Panels .

Supplied as two halves.

Each wing half includes factory hinged aileron

Wing underside has moulded aperture to receive moulded pivot point for aileron bell crank.

KC1.4

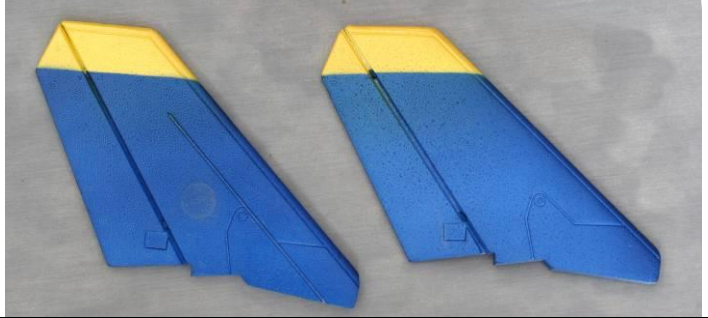


## Section 1: Kit Contents And Description Continued

Two horizontal stabiliser panels with factory hinged elevators

Note left and right panels are identified by circular moulding marks on underside..

KC1.5



Two vertical stabiliser-fin panels.

Lower section mates to fuselage upper corner.

KC1.6



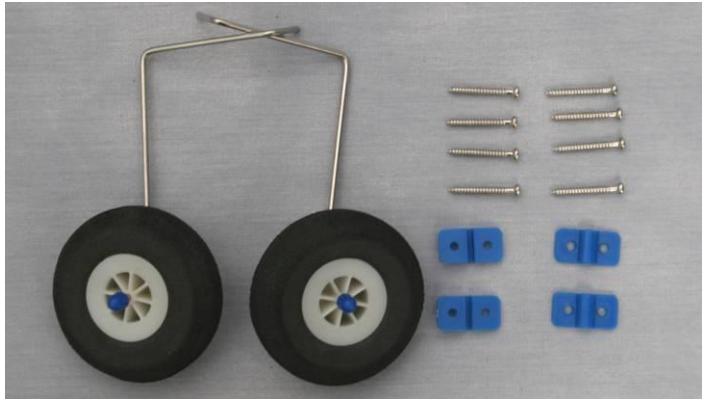
Main Undercarriage assemblies.

Two sets of lightweight wheels fixed onto wire torque rod undercarriage.

Four clamp plates and 8 fixing screws for securing to wing plates.

Steerable nose gear is pre fitted to fuselage.

KC1.7



4 function fully proportional 35Mhz transmitter.

Available on 5 alternate 35 MHz frequencies.

35.030 Channel 63

35.070 Channel 67

35.100 Channel 70

35.140 Channel 74

35.180 Channel 78

Kc1.8

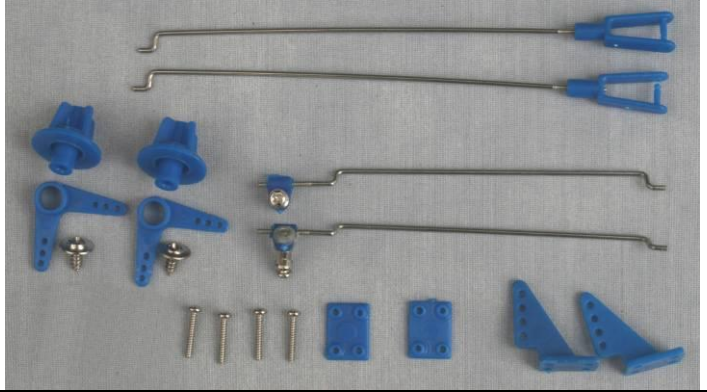


## Section 1: Kit Contents And Description Continued

Aileron pushrods, control horns, linkage and fixing hardware.

Two short pushrods with clevis connector.  
Two pushrods with clamp type connector.  
Two pivot mouldings,  
Two bell cranks,  
Two bell crank fixing screws.  
Two Control horns with back plates and fixing screws.

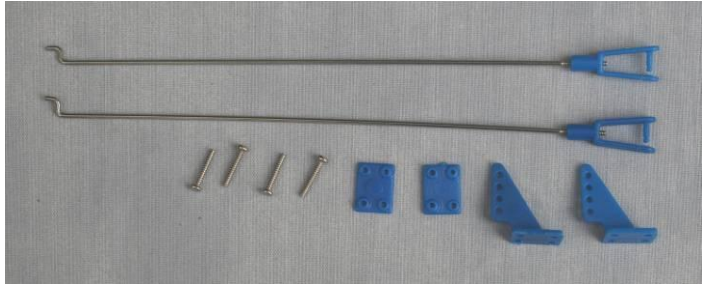
Kc1.9



Elevator pushrods, control horns, and fixing hardware.

Two long pushrods with clevis connector  
Two Control horns with back plates and fixing screws.

Kc1.9a



Battery and Charger

11.1V (3 cell) 1300mAh (C) LiPo Battery rated at 15C max discharge. Fitted with 3.5mm gold plug and socket.

110v to 240v 50-60hz Mains input 0.5 A output 2-3 hour fast charger for 3 cell packs. Fitted with 3.5mm gold plug and socket.

Kc1.10



Adhesive

5ml tube of foam safe adhesive.

Note pierce end of tube with pin in screw on lid.

Kc1.11



## Section 1: Kit Contents And Description Continued

### Decals

Self adhesive decals for final decoration of model.

Kc1.13



## Section 2: Battery And Charger

### Warning

A lithium polymer (LiPo) battery rated at 15C (19.5A) discharge and fast charger is included as part of this package, these cells must be operated with care to prevent the risk of fire.

LiPo Batteries are soft cased and can be easily damaged by sharp items, puncturing of the soft casing can cause fires and we recommend that they are stored and handled carefully.

Use only the supplied balance charger or a LiPo rated charger set to a maximum of 3 cells (11.1v) and less than 1 amp charge current.

Remove battery from the aircraft and charge on a non flammable, non conductive surface

### Battery and Charger

The kit includes a high performance 11.1V (3 cell) 1300mAh LiPo Battery rated at 15C (19.5 amp) max discharge.

This must be charged using the dedicated 110v to 240v 50-60hz Mains input 0.5 A output 2-3 hour fast charger for 3 cell packs.

KC1.10



Plug the battery charger in to a suitably rated mains outlet (use an approved adaptor if necessary).

Connect the 3.5mm gold plug and sockets of the charger and battery, ensuring that correct polarity is observed. Red is positive (+) and Black is Negative (-).

The Red and the Green LED's will illuminate. When the battery is full, the Red LED will switch off. Disconnect battery immediately.

An empty battery will take between 2 and 3 hours to fully charge.

## Transmitter

The FM4DP is a fully proportional 4 function 35Mhz transmitter

The transmitter is supplied in a Mode 2 configuration. Mode 2 is also known as Throttle Left.

The left stick controls Throttle and rudder movement.

The right stick controls aileron and elevator movement.

Battery state is indicated by a green and red bank of coloured LED.

A flashing red LED and audible alarm indicates dangerously low voltage. The model should be landed immediately to replace batteries before all control is lost.

Frequency control is by removable crystal, The transmitter frequency is identified on the crystal holder located on the front of the transmitter.

8 off AA size dry cells or high capacity Nimh batteries (not included) must be inserted before operation.

Remove the rear cover and install batteries into the battery tray as directed by the moulded in polarity (+ & -) markings.

A small panel of four small slide switches is set on the front panel of the transmitter.

These are electronic servo reversing switches and should be adjusted to give the correct control surface deflections relative to stick movements.

TX1



TX2



TX3



## Section 3: Assembly

Locate the main and forward fuselage assemblies and dry fit together ensuring that the grooves and notches locate together.

Apply adhesive to the contact faces, notches and grooves and press firmly together and use pins, tape or bands to hold in place.

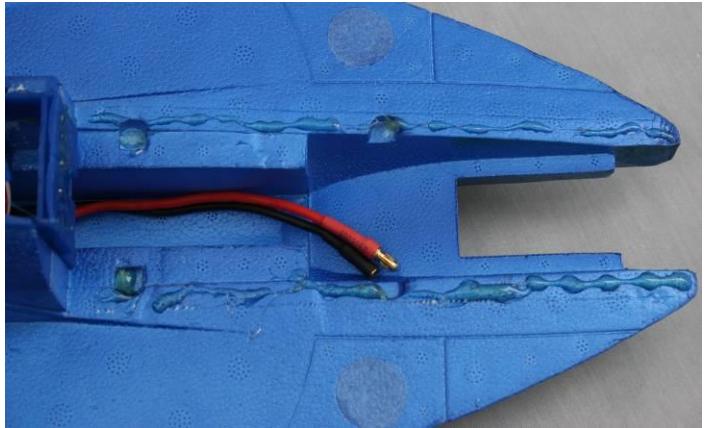
Ensure that the battery leads extend forward from the main fuselage into the forward fuselage battery bay.

Also ensure that the steering servo lead passes from the forward mounted servo into the main fuselage radio bay.

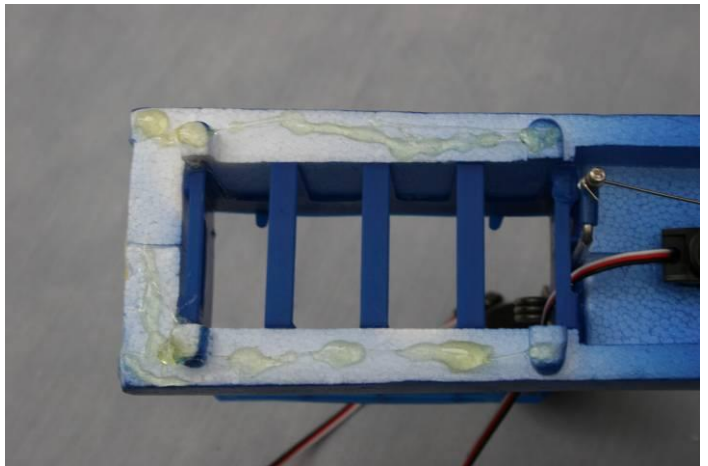
Wipe off any excess adhesive and allow to dry.

Connect the plug of the steering servo lead into the No 4 port on the receiver.

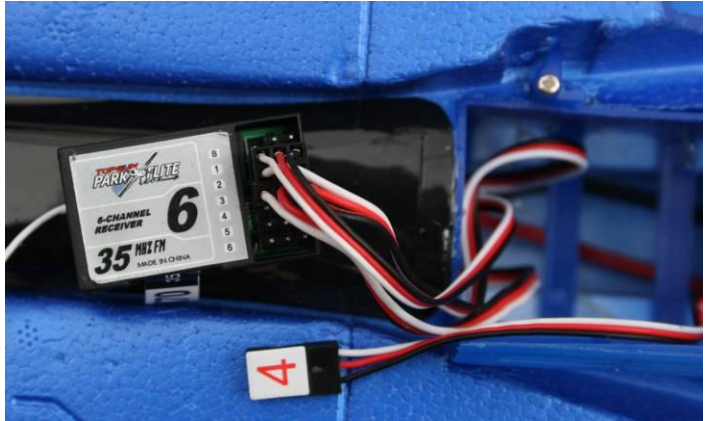
3.1



3.2



3.2a



## Section 3: Assembly

Locate the main undercarriage assemblies, clamp plates and fixing screws.

Insert undercarriage into mounting plate located in fuselage side and fix in place with saddles and four self tapping screws.

Note wheel is located towards rear of fuselage.

3.3



Locate the two vertical stabiliser-Fin panels and test fit onto rear of fuselage.

Apply adhesive to the contact faces and press firmly together and use pins or tape to hold in place.

Wipe off any excess adhesive and allow to dry.

3.4

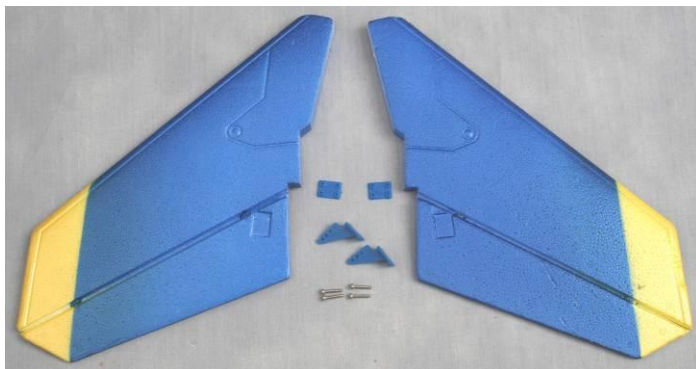


Locate the two horizontal stabiliser panels, control horns and fixings.

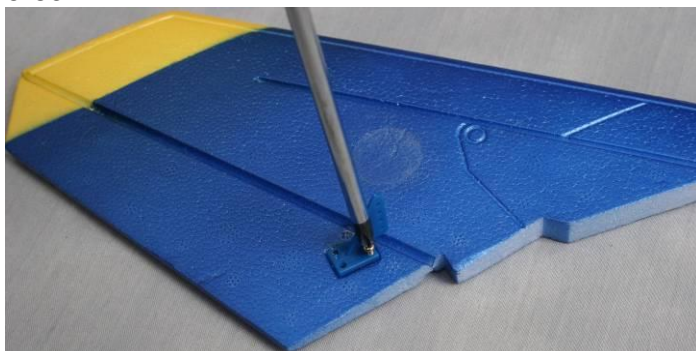
Position the control horn over the recess moulded in the elevator. Ensure that horn is on the bottom surface (a circular mould line is visible) and apply a drop of adhesive before pressing in place.

Allow to dry before drilling two 1.5mm holes through elevator and fixing in place with two screws and backplate.

3.5



3.5a



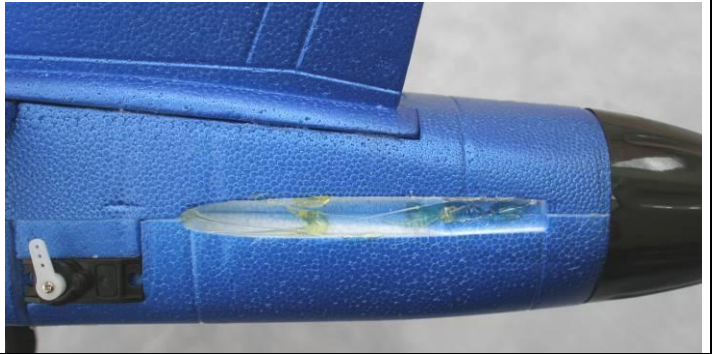
## Section 3: Assembly

Test fit the two horizontal stabiliser panels onto rear of fuselage with control horns on underside.

Apply adhesive to the recess in the fuselage contact faces and press firmly together and use pins or tape to hold in place.

Wipe off any excess adhesive and allow to dry.

3.6

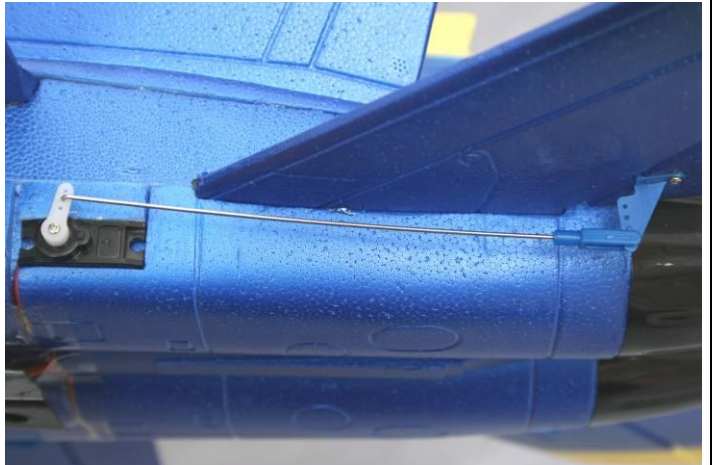


Locate the long elevator pushrods and slide the Z-bend through the middle hole in the servo arm.

Push the clevis connector into the hole in the horn furthest from the elevator surface.

Click the clevis connector closed.

3.7



Locate the two Wing Panels.

Apply a drop of adhesive to the moulded aperture and push the moulded pivot point for the aileron bell crank in place.

Position the control horn over the recess moulded in the aileron. Ensure that horn is on the bottom surface and apply a drop of adhesive before pressing in place.

Allow to dry before drilling two 1.5mm holes through aileron and fixing in place with two screws and the moulded backplate.

3.8



3.9



## Section 3: Assembly continued

Test fit the two wing panels onto the top of the fuselage 3.10

Apply adhesive to the contact faces on the wing and fuselage and press firmly together use pins or tape to hold in place.

Wipe off any excess adhesive and allow to dry.



Locate the aileron pushrods and bell crank assembly. 3.11

Remove protective cap from aileron pushrod where it exits fuselage.

Slide clamp connector over wire and Z-bend into outer hole in bell crank.

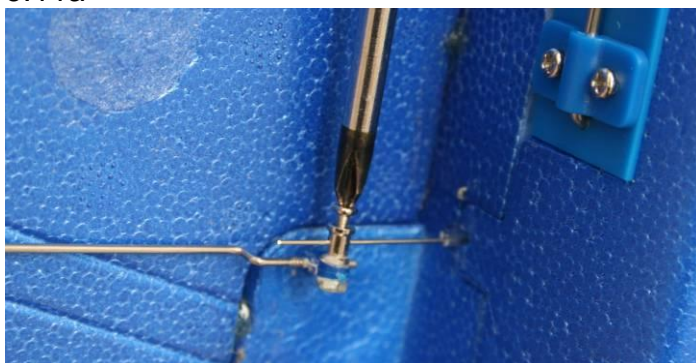
Connect Z-bend of short pushrod to outer hole I remaining arm of bell crank and clip clevis connector into hole in horn furthest from aileron.

Position bell crank over pivot and fit securing screw. Do not over tighten; the bell crank must rotate freely.

Gently tighten the screw in the clamp connector



3.11a



### WARNING

With the battery connected and the model switched on the motor is live. The Electronic speed controller (ESC) will go through its start up procedure and will emit a series of beeps while it configures throttle positions. The motor could start unexpectedly and we recommend that the model is restrained during handling.

Ensure that transmitter is switched on with throttle down and all trims central. Open the hinged battery bay door by turning the catches.

Insert into the battery and ensure that battery and ESC leads project out of the aperture. Connect the battery and ESC leads together Red-red and Black-Black and close the battery cover using the catches to lock it in place.

5.1



## Section 5: Final set up

Uncoil the receiver aerial and fully extend to hang off the rear of the aircraft.

Check that all controls operate in the correct manner and that all control surfaces are level.

Adjust surfaces if required by unclipping the pushrod clevis connectors and winding in or out to suit

5.2



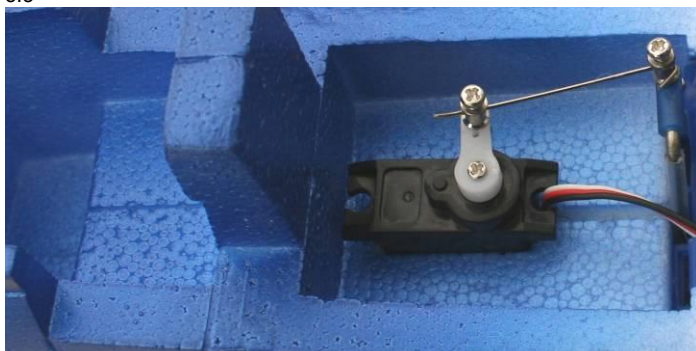
The steering servo and ailerons can also be adjusted on the clamp connectors.

Ensure that trims and sticks are central, loosen clamp screw and tighten down firmly when centralized.

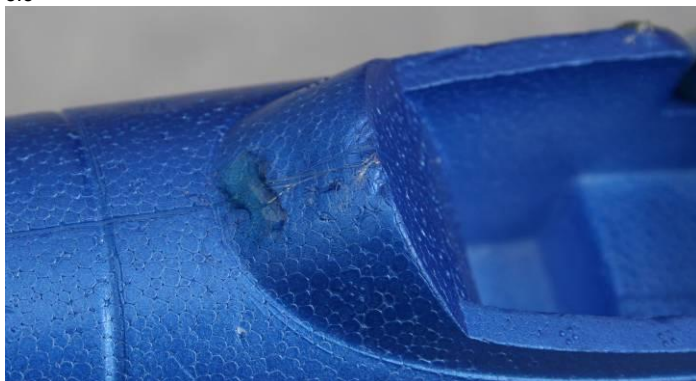
Run the aircraft along a smooth surface to confirm the steering is central.

When happy with the nose wheel alignment apply a few drops of adhesive around the canopy frame and press in place.

5.3



5.3



Check the Balance.

The model should sit level or slightly nose down when supported upside down from a point 260 mm from the wing trailing edge. This corresponds to a point midway along the top surface air brakes panel line.

**DO NOT ATTEMPT TO FLY WITH A REARWARD BALANCE POINT**

**NEEDS A DRAWING LIKE THE ORIGINAL MANUAL?**

**SIDE VIEW WITH DIMENSIONS??**

## **Section 6: First Flight**

### **Before the Test Flight**

On completion of the model take time to test the model in the workshop.

Switch on the transmitter, connect the battery and double check that all surfaces operate in the correct manner without stalled servos.

Check for adequate range with and without motor running.

If everything is okay, take it to the flying field and rig it up again.

Always follow the frequency control procedures of your local flying site and ensure that you have adequate third party insurance cover.

Repeat the full pre flight inspection before flying.

### **WARNING**

Do not advance the throttle unless the model is restrained. With the powerful motor-fan combination producing up to 500g of thrust, the model will accelerate across a smooth surface very quickly.

### **Flying**

The F/A 18 Hornet is capable of 5 to 10 minute flight times and can R.O.G (Rise Off Ground) from smooth metalled runways. A hand launch will be required if flying from grass. It is aerobatic and able to perform loops and rolls.

Due to its light weight it should not be flown in wind greater than 10mph.

Control throws set during assembly will produce a model capable of flying smooth scale like performance and medium to high speed aerobatic manoeuvres.

The control surface movements can be increased by moving the clevis connectors nearer to the control surfaces.

To reduce movements move the pushrod connections nearer to the servo on the output arms and further out along the control surfaces horns.

**ENJOY YOURSELF BUT ALWAYS FLY SAFE!**

# **ADDENDUM**

## **REMOVAL OF UNDERCARRIAGE**

For an improved in flight performance and appearance the tricycle undercarriage can be removed.

Removal of the undercarriage assemblies reduces both the weight and drag of the model increasing the power to weight ratio and top speed, the wing loading also drops slightly which improves manoeuvrability.

The decision should not be taken lightly though. Without an undercarriage the model must be hand launched firmly into wind and belly landings will be the norm.

While the main wheels can be removed and replaced, removal of the nose wheel requires 'surgery' and once removed the nose gear can not be reinstated.

We recommend that the model is assembled and flown with wheels initially to allow time to familiarise with the aircrafts performance.

Removal of the main gears is a simple task involving removal of the fixing screws, clamp plates and formed undercarriage assemblies.

Slide a thin modelling blade between the canopy and fuselage to break the glue joints and remove the canopy

Disconnect the nose gear steering servo from the receiver.

Disconnect the steering push rod and slide a thin modelling blade between the servo and fuselage to break the glue joints. Remove the servo

Using a rotary tool and cutting disk, remove the bent over arm of the top of the nose gear and pull the gear out from the underside of the fuselage. An alternative method is to remove the battery tray by sliding a long, thin modelling blade between the battery box and fuselage to break the glue joints. The nose gear can then be cut off using a hacksaw. Refit the battery box with a few drops of adhesive

Refit the canopy with a few drops of adhesive.



***CML DISTRIBUTION***

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Saxon House, Saxon Business Park, Hanbury Road, Bromsgrove, Worcestershire. B60 4AD. England

Tel: +44 (0) 1527 575349 Fax: + 44 (0) 1527 570536

E-mail: [info@cmldistribution.co.uk](mailto:info@cmldistribution.co.uk)

Web site: [www.cmldistribution.co.uk](http://www.cmldistribution.co.uk)