

Ultimate EP



**Requires : 4-channel radio w/ 4 micro servos,
Outrunner Motor w/ Propeller Adaptor
20A Brushless ESC, 3 cells 11.1V
2100mAh Li - Po battery & charger.**

Specifications

Wing Span	36 in / 910 mm
Wing Area	440 sq in / 28.4 sq dm
Flying Weight	27 oz / 770 g
Fuselage Length	38 in / 970 mm

Specifications are subject to change without notice.

Warning! This model is not a toy.

It is designed for maximum performance. Please seek advice if one is not familiar with this kind of electric powered precision model. Operating this model without prior preparation may cause injuries. Remember, safety is the most important thing. Always keep this instruction manual at hand for quick reference.



The World Models
Manufacturing Co., LTD.
www.theworldmodels.com

FACTORY PRE-FABRICATED
ALMOST-READY-TO-FLY (ARF) SERIES
MADE IN CHINA

Ultimate EP

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BEFORE YOU BEGIN

- 1 Read through the manual before you begin, so you will have an overall idea of what to do.
- 2 Check all parts. If you find any defective or missing parts contact your local dealer. Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement. The manufacturer will replace any defective parts, but will not extend to the parts that are good before gluing to defective parts during assembly. Warranty will not cover any parts modified by customer.
- 3 Symbols used throughout this instruction manual comprise of the following :-



Apply epoxy glue.



Apply instant glue
(C.A.glue, super glue.)



Apply thread locker



Must be purchased separately !



Assemble left and right
sides the same way.



Ensure smooth non-binding
movement while assembling.



Peel off shaded portion
covering film.



Cut off shaded portion.



Drill holes with the specified
diameter (here: 3mm).



Pierce the shaded portion
covering film.



Pay close attention here!



Warning!

Do not overlook this symbol !

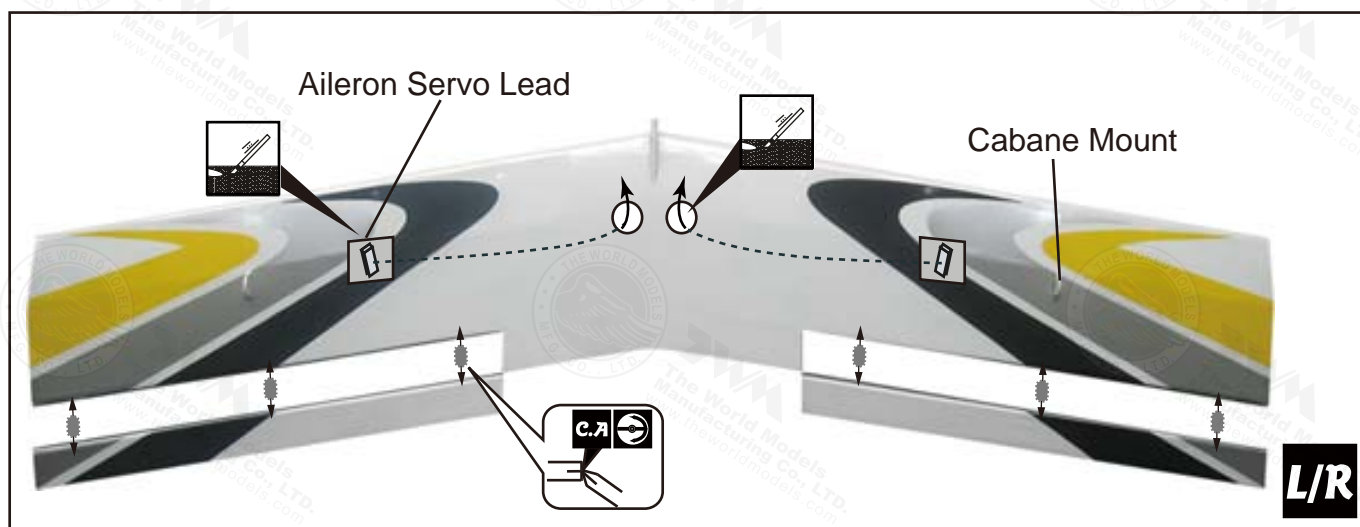


Parts List

1. MAIN WING (Lower) -- 1 pc.
 2. SERVO MOUNTING PANEL -- 1 pair
SCREW PA1.7x8mm -- 8 pcs
SCREW PB2x12mm -- 4 pcs
FUEL TUBE d2xD4x4mm -- 4 pcs
STRAPER -- 2 pcs
CLEVIS -- 2 pcs
HORN -- 2 sets
PUSHROD Ø1.4x48mm w/ Threads (For Aileron) -- 2 pcs
 3. MAIN WING (Upper) -- 1 set
 4. STABILIZER & ELEVATOR -- 1 set
FUSELAGE -- 1 pc.
SCREW PB2x8mm -- 2 pcs
ELEVATOR LINK PL4510010 -- 1 pc.
BALSA 4x12x33.5mm -- 1 pc.
 5. VERTICAL FIN & RUDDER -- 1 set
 6. TAIL LANDING GEAR -- 1 set
TAIL WHEEL Ø23mm -- 1 pc.
PLASTIC COLLAR d1xD5x2mm -- 2 sets
SCREW PA2x8mm -- 2 pcs
SCREW PM2x8mm -- 1 pc.
M2 NUT -- 1 pc.
ALUMINUM PLATE 0.3x8x22mm -- 1 pc.
 7. SCREW PB2x10mm -- 2 pcs
CLEVIS -- 1 pc.
FUEL TUBE d2xD4x4mm -- 1 pc.
HORN -- 1 set
PUSHROD Ø1.4x513mm w/ Threads (For Rudder) -- 1 pc.
 8. FUEL TUBE d2xD4x4mm -- 1 pc.
CLEVIS -- 1 pc.
PUSHROD Ø1.4x473mm w/ Threads (For Elevator) -- 1 pc.
 9. FOLDING PROPELLER SET PL6314020 -- 1 set
SCREW PWA2x8mm -- 4 pcs
SCREW PM3x6mm -- 4 pcs
WASHER d3xD7mm -- 4 pcs
COWLING -- 1 pc.
SPINNER Ø45mm -- 1 set
 10. MAIN LANDING GEAR -- 1 pc.
MAIN WHEEL Ø40mm -- 2 pcs
WHEEL PANTS -- 1 pair
SCREW PM2x6mm -- 3 pcs
SCREW PM3x25mm -- 2 pcs
WASHER d3xD7mm -- 4 pcs
 - WASHER d2x5mm -- 3 pcs
M3 NUT -- 2 pcs
SCREW PWA2x6mm -- 4 pcs
COLLAR Ø3.1mm w/ Set Screw -- 2 sets
COPPER TUBE d3.1xD4x4mm -- 2 pcs
ALUMINUM PLATE 0.5mm -- 2 pcs
 11. STRAPER -- 2 pcs
FUEL TUBE d2xD4x4mm -- 2 pcs
SCREW PM2x10mm -- 1 pc.
WASHER d2xD5mm -- 1 pc.
M2 NYLON INSERT LOCK NUT -- 1 pc.
BATTERY TIE -- 1 pc.
SPONGE 10x50x150mm (For Radio Equipment) -- 1 pc.
DOUBLE-SIDED TAPE 30x35mm -- 1 pc.
MOUNTING PLATE 5x15mm PL4114015 -- 1 pc.
PLYWOOD 2x56x96mm -- 1 pc.
 12. CANOPY -- 1 pc.
SCREW PWA2x8mm -- 4 pcs
PILOT (050A) -- 1 pc.
 13. NYLON BOLT M2.5x20mm -- 2 pcs
NYLON WASHER d2.6xD9mm -- 2 pcs
PLASTIC PLATE 1x25.5x63.7mm (Wing Protection) -- 1 pc.
 14. SCREW PWA2.3x12mm -- 4 pcs
SCREW PM2x14mm -- 2 pcs
SCREW PM2x8mm -- 4 pcs
WASHER d2xD5mm -- 12 pcs
M2 NYLON INSERT LOCK NUT -- 4 pcs
PLYWOOD 3x53x170mm (Side Cabane) -- 2 pcs
FOAM 3x204x209mm (Wing Incidence Angle Template) -- 2 pcs
ALUMINUM PLATE (Brace: Fueslage to Wing) -- 1 set
 15. SCREW PB2x8mm -- 8 pcs
HORN -- 4 sets
CLEVIS -- 4 pcs
FUEL TUBE d2xD4x4mm -- 4 pcs
PUSHROD Ø1.4x138mm w/ Threads (For Aileron to Aileron) -- 2 pcs
 16. DECALS: E251XMDEC -- 1 set
- COVERING:--
PURPLE COLOR SCHEME:
LIGHTEX SGX100 WHITE
LIGHTEX SGX201 BLACK
LIGHTEX SGX312 BRIGHT RED
LIGHTEX SGX370 SILVER
LIGHTEX SGX561 PEARL PURPLE
YELLOW COLOR SCHEME:
LIGHTEX SGX100 WHITE
LIGHTEX SGX201 BLACK
LIGHTEX SGX312 BRIGHT RED
LIGHTEX SGX370 SILVER
LIGHTEX SGX330 CADMIUM YELLOW

1 Main Wing (Lower)

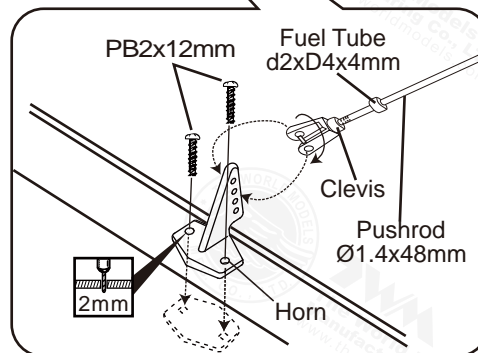
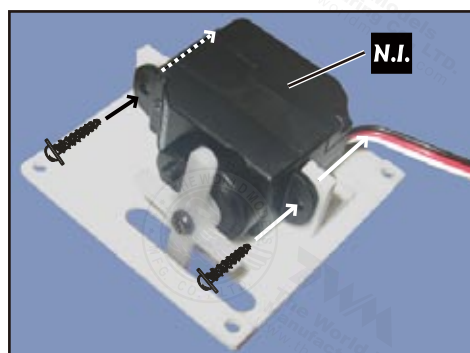
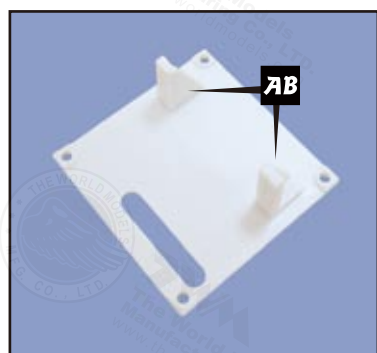
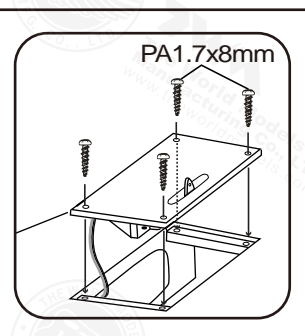
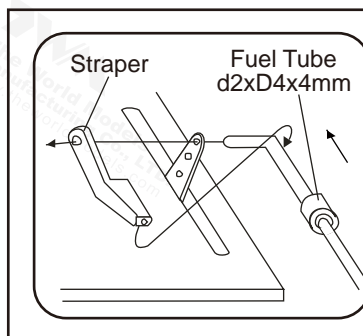
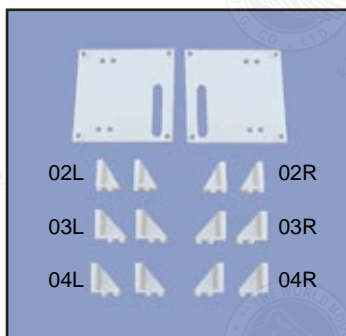
● Apply instant type CA glue to both sides of each hinge.



2 Aileron Servo (Lower)

● Ø1mm pilot holes for World Models horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

PB2x12mm Screw 4
PA1.7x8mm Screw 8



● Please choose either 02L & 02R or 03L & 03R or 04L & 04R that suits your servo.

3 Main Wing (Upper)

● Apply instant type CA glue to both sides of each hinge.

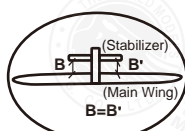


● Bottom View

4 Stabilizer & Elevator

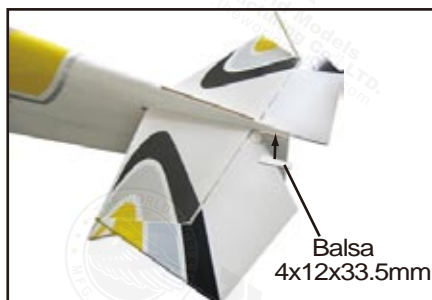
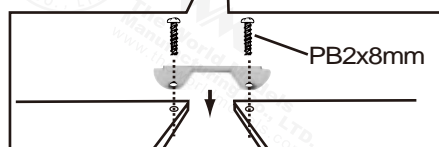
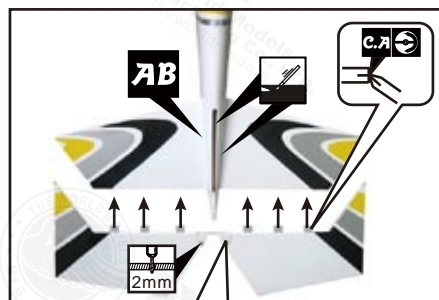
PB2x8mm Screw

2



Temporary install the main wing, adjust leveling of the stabilizer to make it as parallel to the main wing as possible.

*Also refer to step 13 Wing Setting

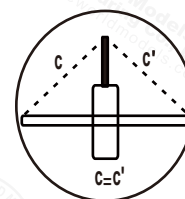
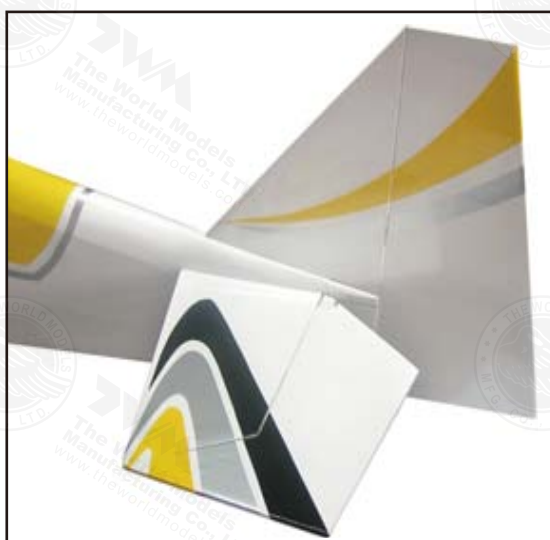
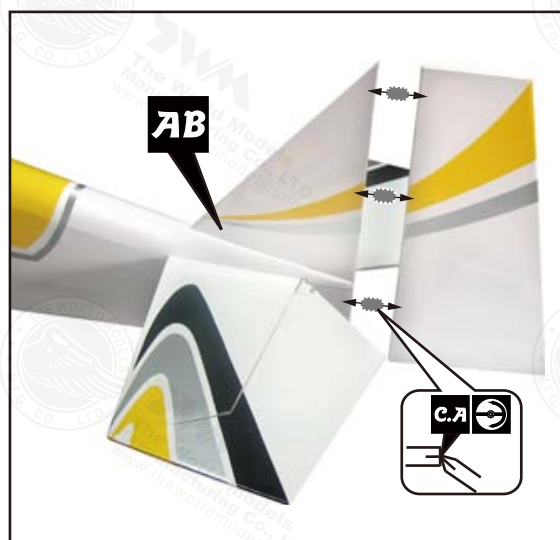


● Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at side of control surfaces.

● Apply instant type CA glue to both sides of each hinge.

5 Vertical Fin & Rudder

● Apply instant type CA glue to both sides of each hinge.



● Completed

6 Tail Landing Gear

PA2x8mm Screw

2

PM2x8mm Screw

1

M2 Nut

1

M2 Nut

PM2x8mm

Plastic Collar

C.A

C.A

1mm

1mm

PA2x8mm

7 Rudder Pushrod

PB2x10mm Screw

2

TWM PL8210010
CLEVIS WRENCH

Horn

Clevis

Pushrod
Ø1.4x513mm

Fuel Tube
d2xD4x4mm

PB2x10mm

● Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

Pushrod
Ø1.4x513mm

≈125mm

≈27mm

● Bottom View

8 Elevator Pushrod

TWM PL8210010
CLEVIS WRENCH

Clevis

Fuel Tube
d2xD4x4mm

Pushrod
Ø1.4x473mm

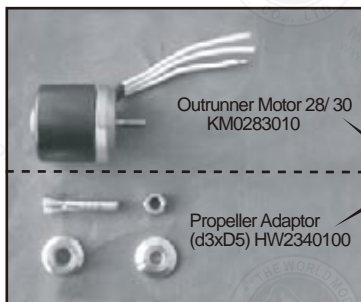
≈57mm

≈130mm

● Bottom View

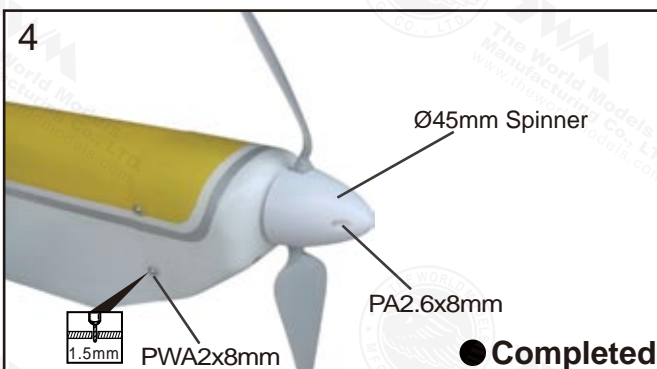
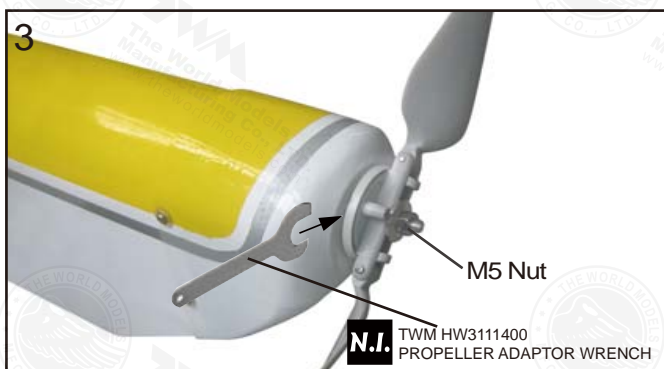
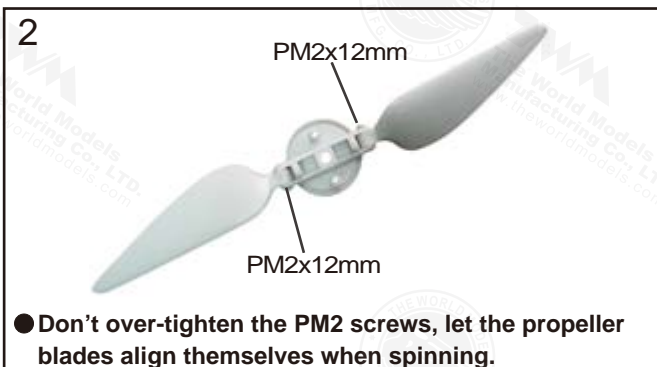
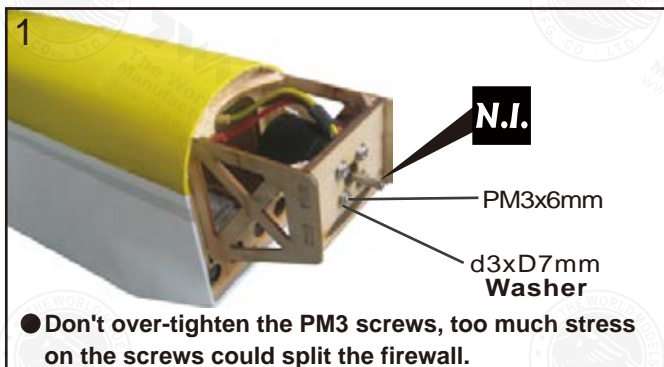
9 Outrunner Motor / Cowling

PWA2x8mm Screw	4
PM3x6mm Screw	4
d3xD7mm Washer	4
PA2.6x8mm Screw	2



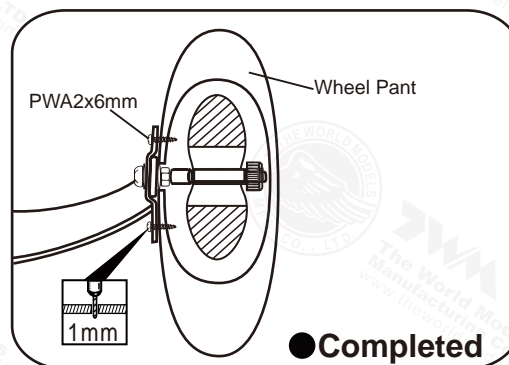
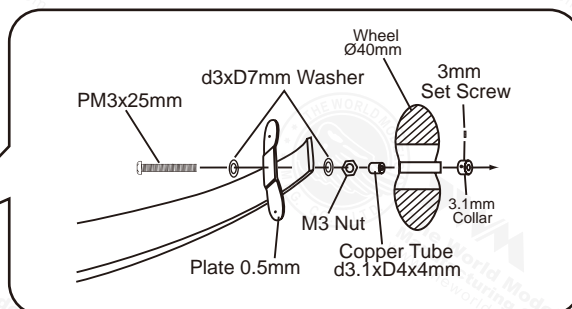
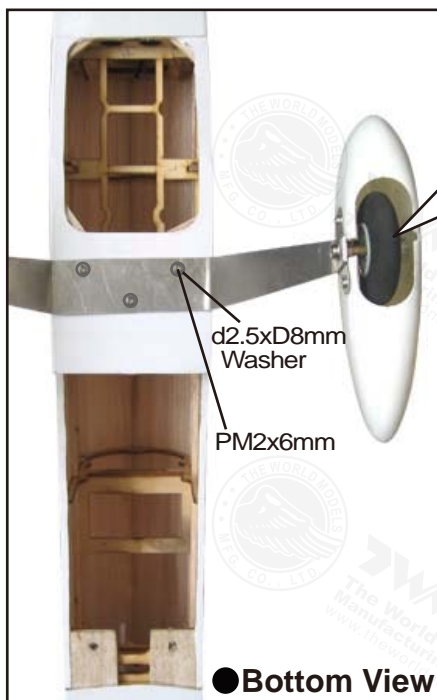
● Make sure rotating motor casing is not in contact with wirings or anything.

N.I. Optional Parts






10 Main Landing Gear

PM2x6mm Screw	3
PM3x25mm Screw	2
PWA2x6mm Screw	4
M3 Nut	2
d3xD7mm Washer	4
d2xD5mm Washer	3
3.1mm Wheel Collar	2
d3.1xD4x4mm Copper Tube	2



11 Radio Equipment

PM2x10mm Screw	M2 Nylon Insert Lock Nut
 1	 1
d2xD5mm Washer	
 1	

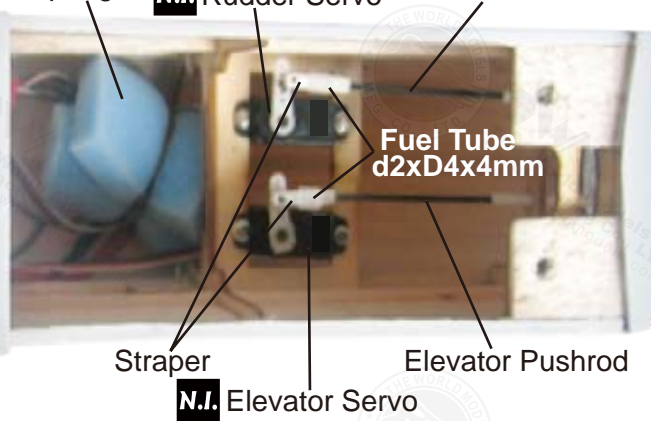
● Install and arrange the servo as shown in the diagram.

Front

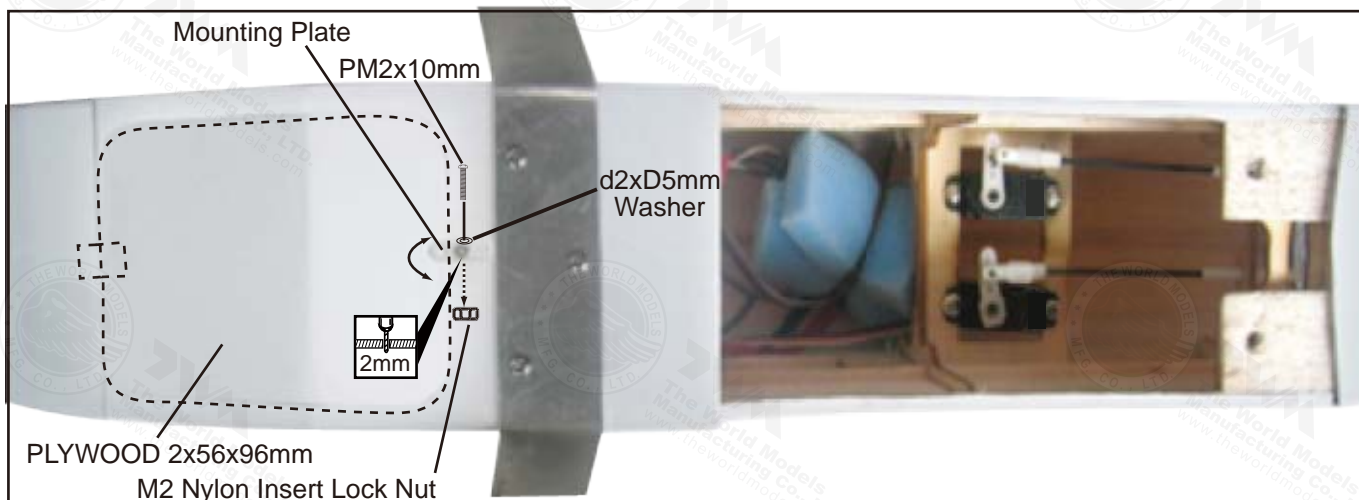
N.I. Battery Battery Tie



Sponge N.I. Rudder Servo Rudder Pushrod



● Bottom View

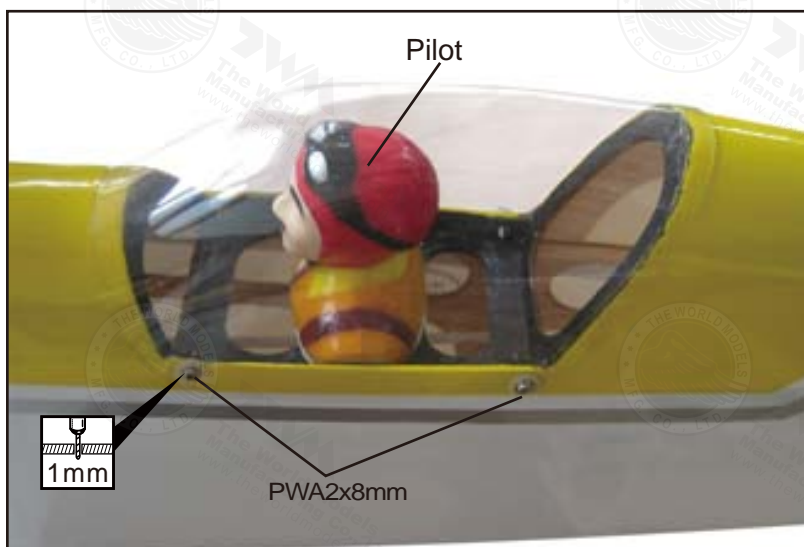


● Bottom View

12 Canopy

PWA2x8mm Screw

 4



L/R

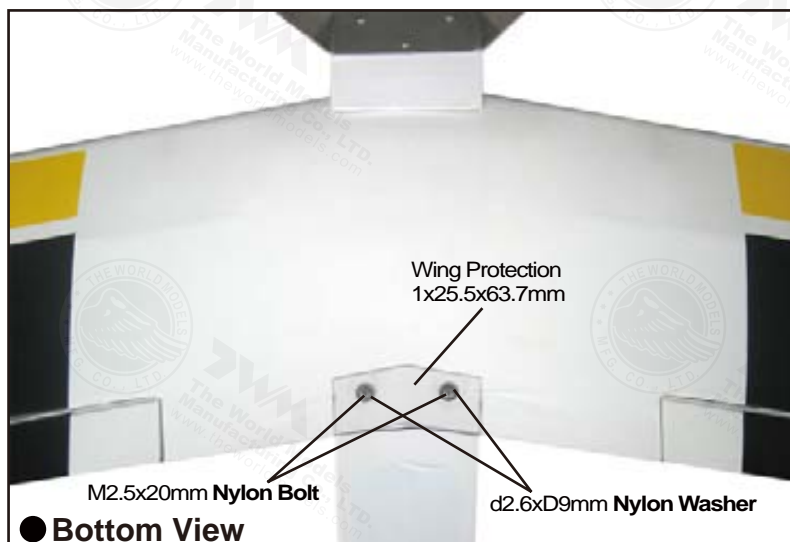
13 Main Wing (Lower)

M2.5x20mm **Nylon Bolt**

— 2

d2.6xD9mm **Nylon Washer**

— 2



14 Main Wing

PWA2.3x12mm **Screw**

— 4

PM2x8mm **Screw**

— 4

PM2x14mm **Screw**

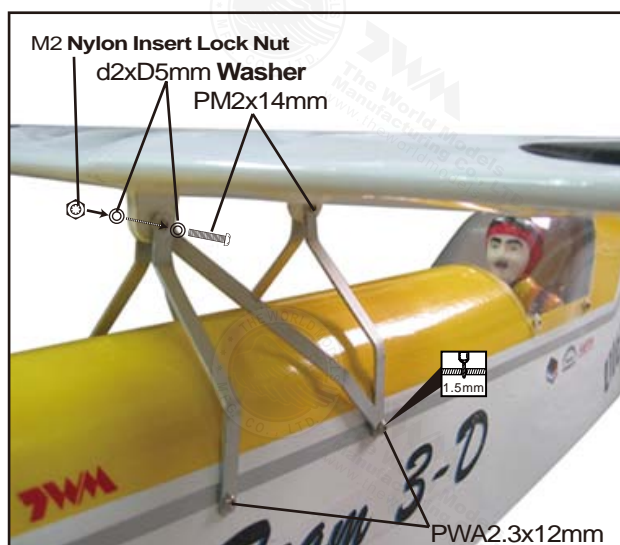
— 2

d2xD5mm **Washer**

— 12

M2 **Nylon Insert Lock Nut**

— 4

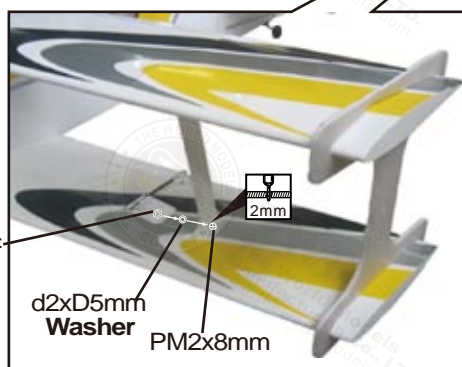


Pierce the two pre-drill holes at upper wing center cabane mounts and fasten the center cabanes with PM2x14mm screw and nut. With the lower wing fastened to the fuselage, insert the wing incidence angle templates to both sides of upper and lower wing to hold the upper wing in position. Mark and drill 1.5mm pilot holes at the fuselage and fasten the center cabanes with PWA2.3x12mm screws.

WING INCIDENCE ANGLE TEMPLATE
PLYWOOD 3x204x209mm

SIDE CABANE
PLYWOOD 3x53x170mm

L/R



! Side cabanes should fit to the outside of side cabane mounts.

With the wing incidence angle template still in place, position the side cabanes, mark and drill the side cabane mounts and fasten with PM2x8mm screw and nut.

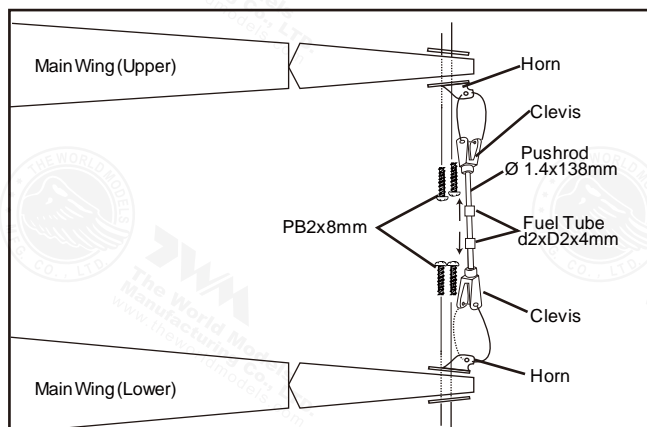
15 Main Wing

PB2x8mm Screw



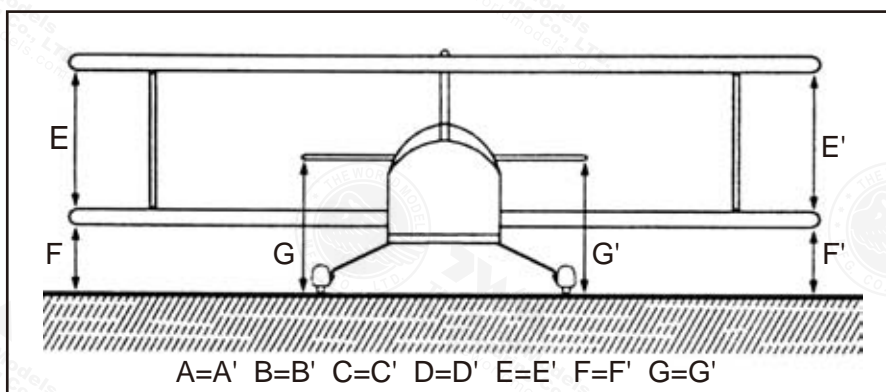
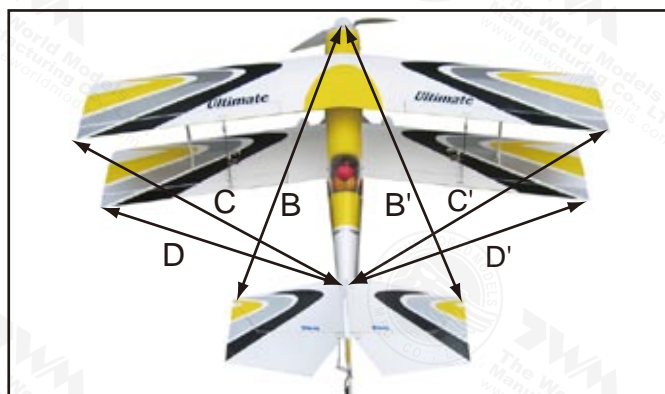
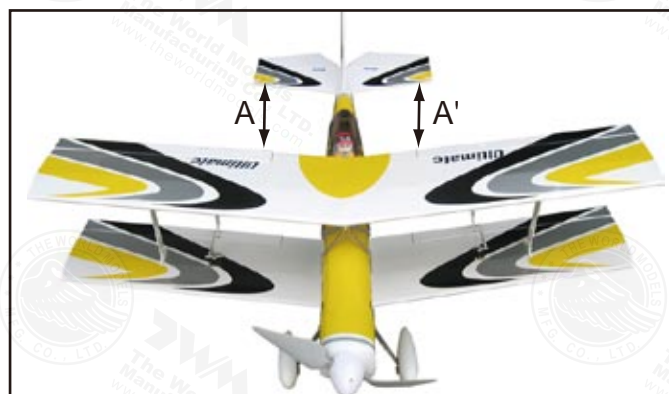
8

- Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.



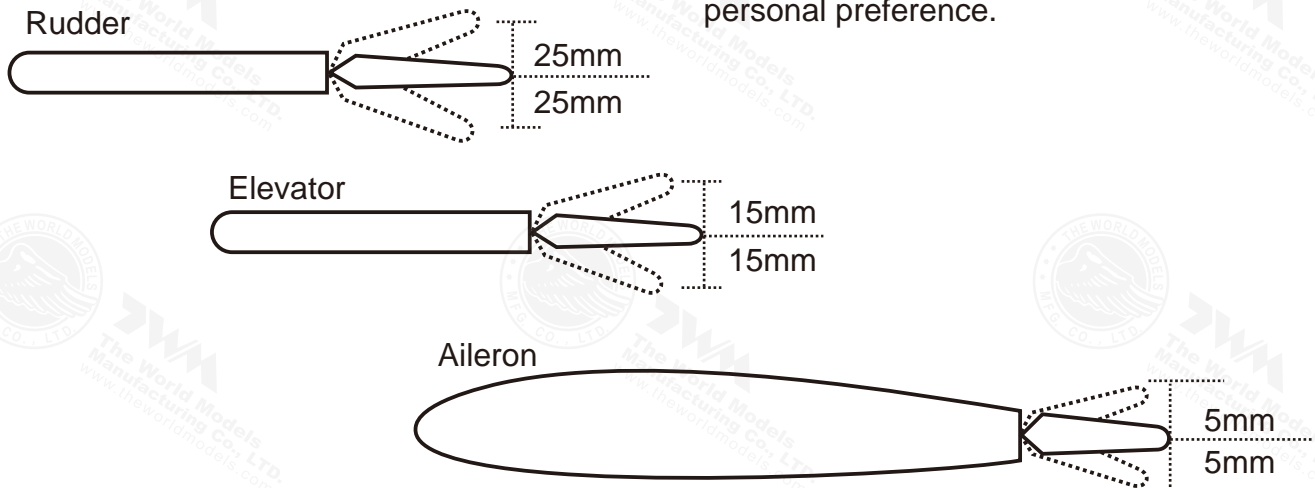
16 Wing Setting

- Adjust the wing and fuselage configuration as shown in the diagrams.



17 Control Throws

Adjust the control throws as shown in the diagram. These throws are good for general flying. You can adjust according to your personal preference.



18 C.G.

The ideal C.G. position is **89mm (3.5 in)** behind the leading edge measured at where the wing meets the fuselage. In order to obtain the C.G. specified, add weight to the fuselage or move the battery position. Check the C.G. before flying.



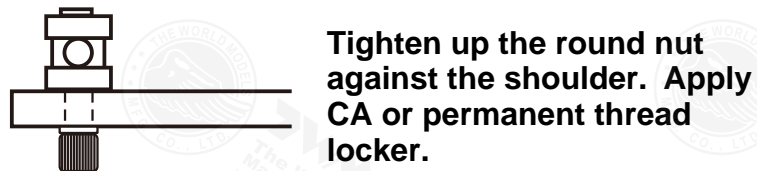
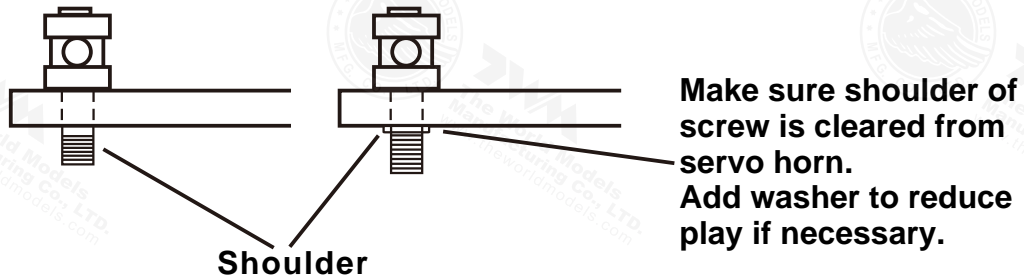
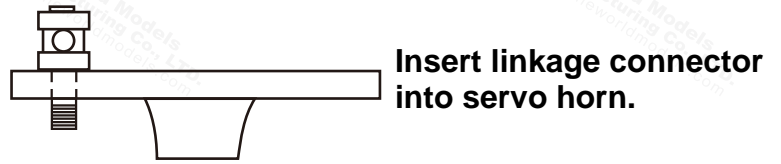
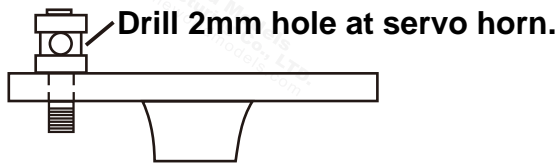
! Warning!

Important Safety Precautions

- # First time flyer should never fly by himself / herself. Assistance from experienced flyer is absolutely necessary.
- # Pre-flight adjustment must be done before flying, it is very dangerous to fly a badly pre-adjusted aircraft.
- # **Ultimate EP** is specially designed to be powered by **KM0283010 Outrunner Motor**.
- # Make sure the air field is spacious, never fly the plane too close to people and never get too close to a running propeller. Extreme caution should be exercised when working with electric powered models. Make sure the propeller is cleared of all objects, especially your hands before connecting the battery to the model. Make sure you understand the operation of the ESC (Electronic Speed Control) by studying the ESC manual. Once you plug in the battery for electric powered model, always treat the propeller as a rotating one, as accidental movement of the throttle stick will spin the propeller and could cause injuries.
- # If you find wrinkles on the covering as a result of weather changes, you can use hot iron to remove the wrinkles. Please begin with lower temperature setting and gradually raise the temperature until the wrinkles are gone. Too hot an iron may damage the covering. Don't use hot iron near the seams or edges, hot iron will melt the glue and shrink the covering at the same time, causing the seams to pull away.
- # Check and re-tighten up all factory assembled screws, use thread locker if necessary.

LINKAGE CONNECTOR

HW7111050 & HW7111060



After fastening the round nut, make sure that the linkage connector can rotate freely.

Product Registration Form (US Customers)

We would like to share with you any relevant information regarding your model, including product news and free upgrade parts when applicable. Please fill in the following and send to AirBorne Models, 4749-K, Bennett Drive, Livermore, CA 94551 USA.

1. Name: _____

2. Address: _____

3. Phone #: _____ E-mail: _____

4. Model: _____

Wing QC# _____ Fuselage QC# _____
(QC numbers are stamped on wing and fuselage)

5. Date of Purchase: _____

6. Store Name: _____

Please call AirBorne Models at 925 371 0922 for any assistance in filling this form.
Thank you very much for purchasing our product.

Optional Parts

(TWM ACCESSORIES)

3 - Pin EZ Connector

Code No.	Size	Package
KP0011310	40A Max. Current	1 set



-ideal for electric models

2 - Pin EZ Connector

Code No.	Size	Package
KP0011210	40A Max. Current	1 set



-ideal for electric models

Propeller Adaptor Wrench

Code No.	Size	Package
HW3111400		1 pc



Brushless ESC

Code No.	Size	Package
KC2025A02A	24x45x11mm	1 pc



- Voltage Range : 5.6 ~ 16.8V
- Current : 25A continuous
- Current (Burst, >10 seconds): 35A
- Weight : 24 g
- (with wires and connector)
- BEC : 5V / 2A
- Low Voltage Cut-off : /
- Light weight with low internal resistance for high current operation
- BEC function for Li-ion / Li-poly
- 2 – 4 cells; Nimh / Nicd 5 – 12 cells operation.
- Low battery voltage auto cut off to reserve power to the servos.
- Safe start up motor.

Clevis Wrench

Code No.	Size	Package
PI8210010		1 set



Special tool for clevis installation.
Suitable for standard and small (EP) clevis.

Propeller Adaptor

Code No.	Size	Package
HW2340100	d3xD5	1 set

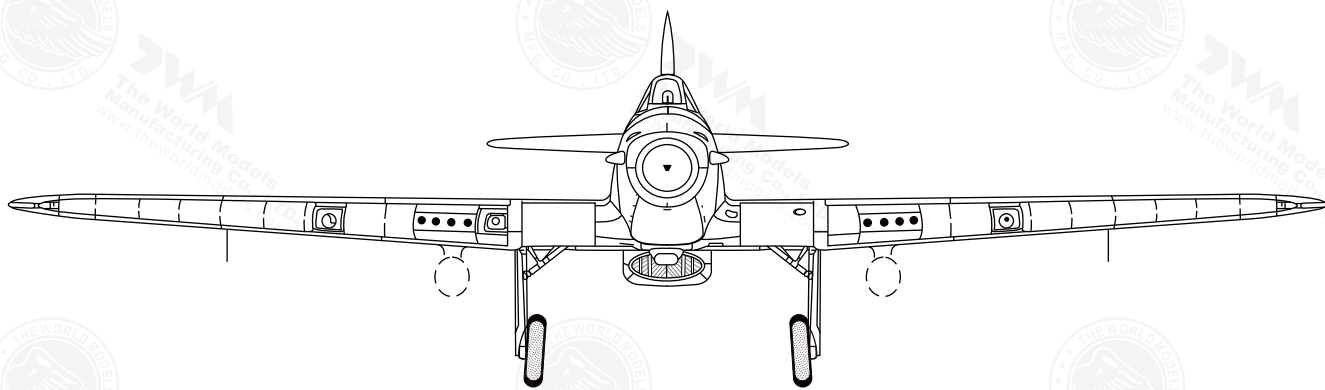


Outrunner 28/ 30

Code No.	Package
KM0283010	1 pc



- Max speed: 12000 rpm
- Kv (rpm/V): 1015
- Operating Power: 180W
- Operating Voltage: 6-12V
- Operating Current: 15A
- Peak Current: 20A (max. 15 sec.)
- Internal Resistance: 95 m ohms
- Diameter: 28mm
- Length: 30mm
- Weight: 60g
- Shaft Diameter: 3mm
- Shaft Length: 14.8 mm
- Mounting Screw: M3
- Distance of Mounting Holes: Front (16mm and 19mm)



Ducted Fan

Pattern

Warbirds

Funfly

Scale

Electric

Sports

Glider

Trainer

Boat

Accessories

Covering

(Lightex / Toughlon)



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