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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>36 in / 910 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>440 sq in / 28.4 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>27 oz / 770 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>38 in / 970 mm</td>
</tr>
</tbody>
</table>

*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.
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.

Symbols used throughout this instruction manual comprise of the following:-

- **AB**: Apply epoxy glue.
- **CA**: Apply instant glue (C.A.glue, super glue.)
- **NI**: Must be purchased separately!
- **L/R**: Assemble left and right sides the same way.
- **3mm**: Drill holes with the specified diameter (here: 3mm).
- **Peel off shaded portion covering film.**
- **Pierce the shaded portion covering film.**
- **Warning!**: Do not overlook this symbol!

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.
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- **Warning!**: Do not overlook this symbol!
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 d1xD5x22mm -- 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 PROPPELLER SET PL6314020 -- 1 set
   SCREW PWA2x8mm -- 4 pcs
   SCREW PM3x6mm -- 4 pcs
   WASHER d3x7mm -- 4 pcs
   COWLING -- 1 pc.
   SPINNER Ø0.5mm -- 1 set
10. MAIN LANDING GEAR -- 1 pc.
    MAIN WHEEL Ø40mm -- 2 pcs
    WHEEL PANTS -- 1 pair
    SCREW PM2x6mm -- 3 pcs
    SCREW PMx25mm -- 2 pcs
    WASHER d3x7mm -- 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 d2xD9mm -- 1 pc.
    M2 NYLON INSERT LOCK NUT -- 1 pc.
    BATTERY TIE -- 1 pc.
    SPONGE 10x50x150mm (For Radio Equipment) -- 1 pc.
    DOUBLE-SIDED TAPE 30x25mm -- 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 3x55x170mm (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 Elevator 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 SGX61 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.

- 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.

4 Stabilizer & Elevator
- Temporary install the main wing, adjust leveling of the stabilizer to make it as parallel to the main wing as possible.
- 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.
6 Tail Landing Gear

- PA2x8mm Screw: 2
- PM2x8mm Screw: 1
- M2 Nut: 1

7 Rudder Pushrod

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

8 Elevator Pushrod

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

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

- Don’t over-tighten the PM3 screws, too much stress on the screws could split the firewall.

- Don’t over-tighten the PM2 screws, let the propeller blades align themselves when spinning.

- Completed

10 Main Landing Gear

- Bottom View

- Completed

- Optional Parts

- PM3x6mm Screw
- PM3x25mm Screw
- PWA2x8mm Screw
- M3 Nut
- d3xD7mm Washer
- d2xD5mm Washer
- 3.1mm Wheel Collar
- d3.1xD4x4mm Copper Tube

- L/R
11 Radio Equipment

- **PM2x10mm Screw**: 1
- **M2 Nylon Insert Lock Nut**: 1

**Bottom View**

- **Mounting Plate**: PM2x10mm
- **d2xD5mm Washer**: 1
- **PLYWOOD 2x56x96mm**: M2 Nylon Insert Lock Nut

Install and arrange the servo as shown in the diagram.

12 Canopy

- **PWA2x8mm Screw**: 4

**Bottom View**

- **Pilot**: 1

- **PWA2x8mm**: 1
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.

With the wing incidence angle template at upper wing center cabane mounts and fasten the center cabanes with PM2x14mm screw and nut. With the lower wing fastened to the fuselage, position the lower wing in position. Mark and drill 1.5mm pilot holes at the fuselage and fasten the center cabanes with PWA2.3x12mm screws.

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

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

15 Main Wing

PB2x8mm Screw (8)

16 Wing Setting

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

A=A' B=B' C=C' D=D' E=E' F=F' G=G'
**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.

- **Rudder**: 25mm (25mm)
- **Elevator**: 15mm (15mm)
- **Aileron**: 5mm (5mm)

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**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.

**89mm C.G. 3.5 in**

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

Drill 2mm hole at servo horn.

Insert linkage connector into servo horn.

Make sure shoulder of screw is cleared from servo horn. Add washer to reduce play if necessary.

Shoulder

Tighten up the round nut against the shoulder. Apply CA or permanent thread locker.

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

(ACCESSORIES)

3 - Pin EZ Connector

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KP0011310</td>
<td>40A Max. Current</td>
<td>1 set</td>
</tr>
</tbody>
</table>

-ideal for electric models

2 - Pin EZ Connector

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KP0011210</td>
<td>40A Max. Current</td>
<td>1 set</td>
</tr>
</tbody>
</table>

-ideal for electric models

Clevis Wrench

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI8210010</td>
<td></td>
<td>1 set</td>
</tr>
</tbody>
</table>

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

Propeller Adaptor

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW2340100</td>
<td>d3xD5</td>
<td>1 set</td>
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</tbody>
</table>

Outrunner 28/30

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KM0283010</td>
<td></td>
<td>1 pc</td>
</tr>
</tbody>
</table>

- 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)

Brushless ESC

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC2025A02A</td>
<td>24x45x11mm</td>
<td>1 pc</td>
</tr>
</tbody>
</table>

- 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.
Ducted Fan Pattern

Warbirds

Scale

Sports

Funfly

Electric

Glider

Trainer

Boat

Accessories

Covering
(Lightex/Toughlon)