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 engine 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.

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>53.5 in / 1360 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>538 sq in / 34.7 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>5.8 lb / 2650 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>57 in / 1450 mm</td>
</tr>
</tbody>
</table>

*Specifications are subject to change without notice.*
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 :-

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Apply epoxy glue.</td>
</tr>
<tr>
<td>CA</td>
<td>Apply instant glue (C.A.glue, super glue.)</td>
</tr>
<tr>
<td>L/R</td>
<td>Assemble left and right sides the same way.</td>
</tr>
<tr>
<td>N.L.</td>
<td>Apply thread locker</td>
</tr>
<tr>
<td>!</td>
<td>Pay close attention here!</td>
</tr>
<tr>
<td>! Warning!</td>
<td>Do not overlook this symbol!</td>
</tr>
<tr>
<td>!</td>
<td>Ensure smooth non-binding movement while assembling.</td>
</tr>
<tr>
<td>!</td>
<td>Cut off shaded portion.</td>
</tr>
<tr>
<td>!</td>
<td>Pierce the shaded portion covering film.</td>
</tr>
<tr>
<td>!</td>
<td>Must be purchased separately!</td>
</tr>
</tbody>
</table>

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.
## Parts List

1. **STABILIZER & ELEVATOR** -- 1 set  
   - **FUSELAGE** -- 1 pc.

2. **VERTICAL FIN & RUDDER** -- 1 set

3. **WIRE Ø1×1050mm (For Rudder)** -- 2 pcs  
   - **EYE SCREW HW4202101** -- 2 pcs  
   - **CLEVIS PL4112103** -- 2 pcs  
   - **SCREW PM2×20mm** -- 2 pcs  
   - **M2 NUT** -- 2 pcs  
   - **HORN PL4113102 (Without Base, For Rudder)** -- 2 pcs  
   - **FUEL TUBE D6×5mm** -- 2 pcs  
   - **COPPER TUBE d2.5x3.2x8mm** -- 2 pcs

4. **PURSHROD Ø1.8×832mm w/ Threads (For Elevator)** -- 2 pcs  
   - **SCREW PB2×14mm** -- 4 pcs  
   - **CLEVIS PL4112103** -- 2 pcs  
   - **HORN PL4113102** -- 2 sets  
   - **FUEL TUBE D6×5mm** -- 2 pcs

5. **TAIL LANDING GEAR** -- 1 pc.  
   - **TAIL WHEEL Ø25mm** -- 1 pc.  
   - **COLLAR Ø2.1mm w/ Set Screw** -- 1 set  
   - **SCREW PA3×12mm** -- 2 pcs

6. **MAIN LANDING GEAR HW2403137** -- 1 pair  
   - **COLLAR Ø4.1mm w/ set screw** -- 4 sets  
   - **OCKET HEAD SCREW M2.5×12mm** -- 6 pcs  
   - **SCREW PM4×38mm** -- 2 pcs  
   - **QUICK RELEASE NYLON RIVET PL1208042** -- 4 sets  
   - **WASHER d2.5xD8mm** -- 6 pcs  
   - **WASHER d4.5xD9mm** -- 8 pcs  
   - **M4 NUT** -- 2 pcs  
   - **MAIN WHEEL Ø55mm** -- 2 pcs  
   - **WHEEL PANTS PC198WWPA** -- 1 pair  
   - **ALUMINUM PLATE 1mm** -- 1 pair

7. **ENGINE MOUNT PL5111050** -- 1 set  
   - **OCKET HEAD SCREW M4×25mm** -- 4 pcs  
   - **WASHER d4.5xD9mm** -- 4 pcs  
   - **FUEL TANK 320cc PL1111320** -- 1 set  
   - **CABLE TIE 1.5×5x400mm** -- 1 pc.  
   - **DOUBLE-SIDED TAPE 40×100mm** -- 1 pc.  
   - **LINKAGE CONNECTOR Ø2.1mm HW7111090** -- 1 set  
   - **OCKET HEAD SCREW M3.5×30mm** -- 4 pcs  
   - **M3.5 NUT** -- 8 pcs  
   - **WASHER d3.5xD6mm** -- 8 pcs  
   - **THROTTLE PURSHROD Ø1.2×410mm** -- 1 pc.  
   - **PLASTIC TUBE d2×D3×180mm** -- 1 pc.  
   - **COWLING** -- 1 pc.  
   - **TRANSPARENT 3D TEMPLATE** -- 1 pc.  
   - **SCREW PWA2.6×12mm** -- 4 pcs  
   - **SILICON GROMMETS PL1265035 d1.5xD6.5mm** -- 4 pcs  
   - **SPINNER Ø62mm PL2111062** -- 1 set  
   - **SCREW PA3×12mm** -- 2 pcs

8. **MAIN WING** -- 1 pair  
   - **SCREW PWA2×8mm** -- 8 pcs  
   - **SERVO MOUNTING PANEL PL5310000** -- 1 pair

9. **PURSHROD Ø1.8×80mm w/ Threads (For Elevator)** -- 2 pcs  
   - **HORN PL4113102** -- 2 sets  
   - **SCREW PB2×22mm** -- 4 pcs  
   - **CLEVIS PL4112103** -- 2 pcs  
   - **FUEL TUBE D6×5mm** -- 4 pcs  
   - **STRAPER PL4112102** -- 2 pcs

10. **WING TUBE Ø16×465mm** -- 1 pc.  
    - **OCKET HEAD SCREW M3×20mm** -- 1 pc.  
    - **SCREW PA3×20mm** -- 1 pc.  
    - **WASHER d3xD7mm** -- 2 pcs

11. **FUEL TUBE D6×5mm** -- 1 pc.  
    - **STRAPER PL4112102** -- 1 pc.  
    - **SPONGE** -- 10×80×200mm -- 2 pcs  
    - **PURSHROD CONNECTOR PL4410010** -- 1 set  
    - **PURSHROD Ø1.8×65mm (For Elevator)** -- 1 pc.  
    - **RIGGING Z BEND Ø1.8×27mm (For Rudder)** -- 2 pcs  
    - **COPPER TUBE d2.5×3.2×8mm (For Rudder)** -- 2 pcs

12. **COCKPIT** -- 1 pc.

13. **CANOPY** -- 1 pc.  
    - **SCREW PWA2.3×8mm** -- 4 pcs  
    - **SILICON GROMMETS PL1265035 d1.5xD6.5mm** -- 4 pcs  
    - **DOUBLE-SIDED TAPE 900mm** -- 1 pc.

**COVERING:**  
- **TOUGHNON STL201 BLACK**  
- **TOUGHNON STL490002**  
- **STRIPE FER.RED / WHITE (6cm)**
1. **Stabilizer & Elevator**

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

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

2. **Vertical Fin & Rudder**

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

3. **Rudder Pushrod**

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

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

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

- **PB2x14mm Screw**
- **M2.5x12mm Socket Head Screw**
- **d2.5xD8mm Washer**

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

### Tail Landing Gear

- **PA3x12mm Screw**
- **2.1mm Collar**
- **PA3x12mm Screw**
- **2.1mm Collar**
- **3mm set screw**

### Main Landing Gear

- **M2.5x12mm Socket Head Screw** 6
- **PM4x38mm Screw** 2
- **KA2.3x8mm Screw** 4
- **M4 Nut** 2
- **4.1mm Collar** 4
- **d4.5xD9mm Washer** 8
- **d2.5xD8mm Washer** 6
- **Quick Release Nylon Rivet d2x8mm** 4

*Bottom View*
First insert the grommet to the cowling then apply screw.
Apply instant type CA glue to both sides of each hinge.

- Ø 1mm pilot holes for World Models horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.
Main Wing

| M3x20mm Socket Head Screw | 1 |
| PA3x20mm Screw | 1 |
| d3xD7mm Washer | 2 |

Insert carbon wing tube into right wing, apply the Socket Head Screw.

Insert the right wing tube through the Fuselage, and then install the left wing. Press the wings against the fuselage then apply PA screw to the left wing. It is recommended that the wing tube stays with the left wing. Removal of the wings could be achieved by removing the right wing machine screw, the right wing then the left wing with wing tube through the fuselage.
Radio

- Plug in the Aileron Servos wire to channel 1
- Plug in the Elevator Servo wire to channel 2
- Plug in the Throttle Servo wire to channel 3
- Plug in the Rudder Servo wire to channel 4

Cockpit

1/3 portion

Press down the center

Clamp

J1(Pushrod Ø1.8x65mm)
**13 Canopy**

- PWA2.3x8mm Screw
- d1.5xD6.5mm Silicon Grommet

**14 Wing Setting**

- A=A'
- B=B'
- C=C'
- Double-sided Tape
15 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.

Elevator

\[
\begin{array}{c}
\text{18mm} \\
\text{18mm}
\end{array}
\]

Rudder

\[
\begin{array}{c}
\text{45mm} \\
\text{45mm}
\end{array}
\]

Ailerons (away from fuselage)

\[
\begin{array}{c}
\text{10mm} \\
\text{10mm}
\end{array}
\]

16 C.G.

- The ideal C.G. position is 117mm (4.6in.) 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.

If you are converting this model to electric, please move the C.G. forward 5% of current C.G. distance from leading edge to compensate for weight of fuel.

# Important Safety Precautions

*Warning!*

- 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.

- Spot·on® 50 is specially designed to be powered by 4C 0.52-0.72 engine, using a more powerful engine does not mean better performance. In fact, over powered engine may cause structural damage and injuries.

- 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.

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

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.
Usage of the transparent 3D template

This transparent 3D template is used for position guidance of the actual cutting of the pre-painted cowling.

1. Simply cut the transparent 3D template to fit your engine and exhaust pipe, then slide onto the actual cowling and use as template to mark the openings required for final cutting.
## Optional Parts

### Clevis Wrench

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL8210010</td>
<td></td>
<td>1 set</td>
</tr>
</tbody>
</table>

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

### 180mm Extension

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW0011800</td>
<td>180mm</td>
<td>1 set</td>
</tr>
</tbody>
</table>

### 180mm Y-Cord

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW0021800</td>
<td>180mm</td>
<td>1 pc</td>
</tr>
</tbody>
</table>

### Field Stand

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS9111450</td>
<td>600 x 240 x 350mm</td>
<td>1 pc</td>
</tr>
</tbody>
</table>

### Charge Receptacles

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>KP0041300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Standard Servo

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV4031</td>
<td>40.6 x 20 x 37mm</td>
<td>1 set</td>
</tr>
</tbody>
</table>

- **Speed:** 0.17 sec / 60° @4.8V  
  0.14 sec / 60° @6.0V  
- **Torque:** 3.2kg.cm / 44.8 oz - in @4.8V  
  4.1kg.cm / 57.4 oz - in @6.0V  
- **Size:** 40.6 x 20 x 37mm / 1.60 x 0.79 x 1.46 in  
- **Weight:** 39.4 g / 1.39 oz

### Fuel Filler

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL8110030</td>
<td>15 x 22 x 49mm</td>
<td>1 x 1 pc</td>
</tr>
</tbody>
</table>

- **Size:** 15 x 22 x 49mm / 0.59 x 0.87 x 1.93 in
Ducted Fan

Pattern

Warbirds

Funfly

Scale

Electric

Sports

Glider

Trainer

Boat

Accessories

Covering

(Lightex / Toughlon)

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