### Spot-on Aerobatics 50

#### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Measurement</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>5.3 lb / 2400 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>57 in / 1450 mm</td>
</tr>
</tbody>
</table>

* Specifications are subject to change without notice.*

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**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.
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 thread locker
- Assemble left and right sides the same way.
- Peel off shaded portion covering film.
- Drill holes with the specified diameter (here: 3mm).
- Pay close attention here!
- Warning! Do not overlook this symbol!
### Parts List

1. **MAIN WING** – 1 pair
2. **WING TUBE Ø16x285mm** – 1 pc.
3. **SCREW PB2x22mm** – 4 pcs
   - **PUSHROD Ø1.8x90mm w/ Threads (For Aileron)** – 2 pcs
   - **CLEVIS** – 2 pcs
   - **STRAPER** – 2 pcs
   - **FUEL TUBE Ø6x5mm** – 4 pcs
   - **HORN** – 2 sets
   - **SERVO MOUNTING PANEL 2x68x78mm (For Aileron Servos)** – 1 pair
   - **SCREW PWA2x8mm** – 8 pcs
4. **STABILIZER & ELEVATOR** – 1 set
   - **FUSELAGE** – 1 pc.
5. **VERTICAL FIN & RUDDER** – 1 set
6. **TAIL LANDING GEAR Ø2mm** – 1 set
   - **SCREW PA3x12mm** – 2 pcs
   - **COLLAR Ø2.1mm w/ set screw** – 1 set
   - **TAIL WHEEL Ø25mm** – 1 pc.
7. **PUSHROD Ø1.8x730mm w/ Threads (For Elevator)** – 2 pcs
   - **SCREW PB2x14mm** – 4 pcs
   - **CLEVIS** – 2 pcs
   - **FUEL TUBE Ø6x5mm** – 2 pcs
   - **HORN** – 2 sets
8. **RIGGING COUPLER Ø1.8x27mm w/ Threads (For Rudder)** – 2 pcs
   - **WIRE Ø1x880mm (For Rudder)** – 2 pcs
   - **COPPER TUBE d2.5x3.2x8mm (For Rudder)** – 2 pcs
   - **SCREW PM2x20mm** – 2 pcs
   - **M2 NUT** – 2 pcs
   - **CLEVIS** – 2 pcs
   - **FUEL TUBE Ø6x5mm** – 2 pcs
   - **HORN (Without Base, For Rudder)** – 2 sets
9. **MAIN LANDING GEAR** – 1 pair
   - **COLLAR Ø4.1mm w/ set screw** – 4 sets
   - **SOCKET HEAD SCREW M2.5x12mm** – 6 pcs
   - **SCREW PM4x38mm** – 2 pcs
   - **SCREW PA2.6x6mm** – 4 pcs
   - **WASHER d2.5xD8mm** – 6 pcs
   - **WASHER d3xD7mm** – 4 pcs
   - **WASHER d4.5xD9mm** – 4 pcs
   - **M4 NUT** – 2 pcs
   - **MAIN WHEEL Ø55mm** – 2 pcs
   - **WHEEL PANTS** – 1 pair
   - **ALUMINUM PLATE 1mm** – 1 pair
10. **ENGINE MOUNT PL5111050** – 1 set
    - **SOCKET HEAD SCREW M4x25mm** – 4 pcs
    - **WASHER d4.5xD9mm** – 4 pcs
11. **FUEL TANK 320cc** – 1 set
    - **Balsa 8x12x94.5mm (For Fixing Fuel Tank)** – 1 pc.
12. **LINKAGE CONNECTOR Ø2.1mm** – 1 pc.
13. **SOCKET HEAD SCREW M3.5x30mm** – 4 pcs
    - **M3.5 NUT** – 8 pcs
    - **WASHER d3.5xD8mm** – 8 pcs
    - **THROTTLE PUSHROD Ø1.2x480mm** – 1 pc.
    - **PLASTIC TUBE d2xD3x300mm** – 1 pc.
14. **PUSHROD Ø1.8x110mm (For Elevator)** – 1 pc.
    - **RIGGING Z BEND Ø1.8x27mm (For Rudder)** – 2 pcs
    - **COPPER TUBE d2.5x3.2x8mm (For Rudder)** – 2 pcs
    - **FUEL TUBE Ø6x5mm** – 1 pc.
    - **STRAPER** – 1 pc.
    - **PUSHROD CONNECTOR 8x9x20mm** – 1 set
    - **SPONGE 60x70x90mm (For Radio Equipment)** – 1 pc.
15. **SOCKET HEAD SCREW M4x35mm** – 2 pcs
    - **WASHER d4xD15mm** – 2 pcs
    - **BELLY PAN** – 1 pc.
16. **CANOPY** – 1 pc.
    - **SCREW PWA2.3x8mm** – 4 pcs
    - **SILICON GROMMET d1.5xD6.5mm** – 4 pcs
    - **DOUBLE-SIDED TAPE 900mm** – 1 pc.
17. **COWLING** – 1 pc.
    - **TRANSPARENT 3D TEMPLATE** – 1 pc.
    - **SCREW PWA2.6x12mm** – 4 pcs
    - **SILICON GROMMET d1.5xD6.5mm** – 4 pcs
    - **SPINNER Ø62mm** – 1 pc.
18. **DECALS**: A249N DEC – 1 set

### Covering:
- TOUGHON STL100 WHITE
- TOUGHON STL351 DARK BLUE
- LIGHTEX SGX251 SKY BLUE
- LIGHTEX SGX311 FERRARI RED
- LIGHTEX SGX313 PINK
- LIGHTEX SGX331 CUB YELLOW
**Main Wing**

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

2. Please apply glue to all surfaces of wing tube.

3. Make sure to glue securely. If not properly glued, a failure in flight may occur.
3 Aileron Servo

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

4 Stabilizer / Elevator

* Also refer to step 18 Wing Setting

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.
5 Vertical Fin & Rudder

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

6 Tail Landing Gear

- **PA3 x 12mm Screw**
  - 2
- **2.1mm Collar**
  - 2

Bottom View
7 Elevator Pushrod

PB2 x14mm Screw

Ø1.8x730mm Fuel Tube

Clevis

8 Rudder Pullwire

PM2 x20mm Screw

M2 Nut

Ø6x5mm Fuel Tube

Copper Tube d2.5xD3.2x8mm

9 Main Landing Gear

M2.5x12mm Socket Head Screw

PM4x38mm Screw

PA2.6x6mm Screw

c3xD7mm Washer

c2.5xD8mm Washer
c4.5xD9mm Washer

M4 Nut

4.1mm Collar

Wheel Ø55mm
d4.5xD9mm Washer

3mm Set Screw

PM4x38mm

M4 Nut

Plate 1mm

4.1mm Collar

Socket Head Screw M2.5x12mm

d2.5xD6mm Washer
10 Engine Mount

- M4x25mm Socket Head Screw
- d4.5xD9mm Washer
- Blind nuts are off-centered to keep the spinner at the fuselage axis.

11 Fuel Tank

- Balsa 8x12x84.5mm (For Tank Position Fixing)
- Bottom View

12 Servo Set

- 3x3mm Set Screw
- Linkage Connector
- M2 Nut
- 2mm Washer
- Please refer to the attached sheet for linkage connector installation.
13 **Engine**

- Engine Components:
  - M3.5x30mm Screw (4)
  - M3.5 Nut (8)
  - d3.5xD8mm Washer (8)

- Engine Mounting:
  - Installed Engine Position (Inverted Mount)
  - 115mm (4.5 in.)
  - M3.5 Nut
  - d3.5xD8mm Washer
  - Throttle Pushrod Ø1.2x480mm
  - Plastic Tube d2x0.3x300mm

14 **Radio Equipment**

- Install and arrange the servos as shown in the diagram.

- Radio Equipment Components:
  - Elevator Servo
  - Elevator Pushrod Ø1.8x110mm
  - Copper Tube Ø1.8x27mm
  - Switch Harness
  - Charge Receptacles KP0041300
  - Battery
  - Sponge 60x70x90mm

- Installation Diagrams:
  - Front View
  - Bottom View

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P.8
15 Main Wing

- M4 x 35mm Screw
- d4 x D15mm Washer

First insert the grommet into the canopy then apply screw.

16 Canopy

- PWA2.3 x 8mm Screw
- d1.5 x D6.5 mm Silicon Grommet

First insert the grommet into the canopy then apply screw.

17 Cowling

- PWA2.6 x 12mm Screw
- d1.5 x D6.5 mm Silicon Grommet

Please refer to the attached sheet for usage of the transparent 3D template.
First insert the grommet into the cowling then apply screw.
Wing Setting

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

\[ A = A' \quad B = B' \quad C = C' \]
19 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**: 18mm / 18mm
- **Rudder**: 45mm / 45mm
- **Ailerons**: 10mm / 10mm

20 C.G.

The ideal C.G. position is 117mm (4.6 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.

- **C.G. Position**: 117mm (4.6 in.)

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.
  
  # is specially designed to be powered by 4C 0.52 0.70 engine, using a more powerful engine does not mean better performance. In fact, over powered engine may cause severe 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.
  
  # 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.
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.

A249NPO27251110
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.

2

3

4
Optional Parts

(ACCESSORIES)

180mm Extension

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

<table>
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<th>Code No.</th>
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<tbody>
<tr>
<td>PL8110030</td>
<td>15 x 22 x 49mm</td>
<td>1 x 1 pc</td>
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180mm Y-Cord

<table>
<thead>
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<th>Size</th>
<th>Package</th>
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</thead>
<tbody>
<tr>
<td>KW0021800</td>
<td>180mm</td>
<td>1 pc</td>
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Clevis Wrench

<table>
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<th>Size</th>
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<tbody>
<tr>
<td>PL8210010</td>
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<td>1 set</td>
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Charge Receptacles

<table>
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<th>Package</th>
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<tbody>
<tr>
<td>KP0041300</td>
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</table>

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

Field Stand

<table>
<thead>
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<th>Code No.</th>
<th>Size</th>
<th>Package</th>
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<tbody>
<tr>
<td>MS9111430</td>
<td>600 x 240 x 310mm</td>
<td>1 pc</td>
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Standard Servo

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Speed @4.8V</th>
<th>Speed @6.0V</th>
<th>Torque @4.8V</th>
<th>Torque @6.0V</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV4031</td>
<td>0.14 sec / 60°</td>
<td>0.17 sec / 60°</td>
<td>3.2kg.cm / 44.8 oz - in</td>
<td>4.1kg.cm / 57.4 oz - in</td>
<td>40.6 x 20 x 37mm / 1.60 x 0.79 x 1.46 in</td>
<td>39.4 g / 1.39 oz</td>
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</tbody>
</table>
Ducted Fan  Pattern
Warbirds  Funfly
Scale  Electric
Sports  Glider
Trainer  Boat
Accessories
Covering
(Lightex / Toughlon)

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