SPITFIRE EP (40)

450W Motor System

Requires: 5-channel radio w/ 5 mini servos, Outrunner Motor KM374810, w/ Propeller Adaptor HW2340102, 40A Brushless ESC with 11x8E proepller, 4 cells 14.8V 3200 mAh Li - Po battery & charger.

Specifications

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Wing Span</td>
<td>50 in / 1270 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>446.4 sq in / 28.8 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>3.6 lb / 1640 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>42 in / 1065 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.
# SPITFIRE EP (40)

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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:

   - ![AB] (Apply epoxy glue.)
   - ![C.A] (Apply instant glue (C.A.glue, super glue.))
   - ![N.I.] (Must be purchased separately!)
   - ![L/R] (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!)

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**Warranty will not cover any parts modified by customer.**
Parts List

1. MAIN WING -- 1 pair

2. PLYWOOD 2x48x48mm (For Aileron Servo) -- 1 pair
   Balsa 7x8x13mm (For Aileron Servo Stand) -- 4 pcs
   Pushrod Ø1.4x70mm w/ Threads (For Aileron) -- 2 pcs
   Horn PL4113102 -- 2 sets
   Clevis PL4112105 -- 2 pcs
   Fuel Tube Ø2xD4xD4mm -- 4 pcs
   Screw PB2x14mm -- 4 pcs
   Collar Ø3.1mm w/ set screw -- 2 sets
   M2 Nut -- 1 pc.

3. WING JOINER 6x16x208mm -- 1 pc.
   Linkage Connector 2.1mm -- 2 sets
   Clevis PL4112105 -- 2 pcs
   Fuel Tube Ø2xD4xD4mm -- 2 pcs
   Screw PB2x14mm -- 4 pcs
   Horn PL4113102 -- 2 sets

4. RETRACTABLE LANDING GEAR -- 1 pair
   Main Landing Gear Cover -- 1 pair
   Retractable Landing Gear Cover -- 1 pair
   Screw PWA2x8mm -- 8 pcs
   Main Wheel Ø50mm PL3111500 -- 2 pcs
   Collar Ø3.1mm w/ set screw -- 2 sets
   Screw PWA2x8mm -- 8 pcs
   Nuts -- 2 pcs

5. STABILIZER & ELEVATOR -- 1 set
   Fuselage -- 1 pc.
   Collar Ø2.1mm w/ set screw -- 2 sets

6. VERTICAL FIN & RUDDER -- 1 set

7. TAIL LANDING GEAR -- 1 set
   Tail Wheel Ø23mm PL3111230 -- 1 pc.
   Aluminum Reinforcement Plate 0.3x8x22mm -- 1 pc.
   Collar Ø2.1mm w/ set screw -- 1 set
   Screw PA2.6x12mm -- 1 pcs
   Screw FM2x10mm -- 1 pc.
   M2 Nut -- 1 pc.

8. PUSHROD Ø1.4x610mm w/ Treads (For Elevator) -- 2 pcs
   Horn PL4113102 -- 2 sets
   Clevis PL4112105 -- 2 pcs
   Fuel Tube Ø2xD4xD4mm -- 2 pcs
   Screw PB2x10mm -- 4 pcs

9. PUSHROD Ø1.4x646mm w/ Treads (For Rudder) -- 1 pc.
   Horn PL4113102 -- 1 set
   Clevis PL4112105 -- 1 pc.
   Fuel Tube Ø2xD4xD4mm -- 1 pc.
   Screw PB2x10mm -- 2 pcs

10. SOCKET HEAD SCREW M3x12mm -- 4 pcs
    Screw PWA2.3x8mm -- 4 pcs
    Washer d3x8mm -- 4 pcs
    Cowl -- 1 pc.
    Spinner Ø70mm PL2111070 -- 1 set

11. STRAPER PL4112106 -- 2 pcs
    Fuel Tube d2xD4x4mm -- 2 pcs
    Sponge 10x50x150mm -- 1 pc.
    Battery Tie 200mm -- 1 pc.
    Double-sided Tape 30x35mm -- 1 pc.
    Pushrod Ø1.4x42mm (For Elevator) -- 1 pc.
    Pushrod Connector PL4410020 -- 1 set

12. SOCKET HEAD SCREW M2.5x30mm -- 2 pcs
    Washer d2.5xD8mm -- 2 pcs
    Balsa (Wing Protection) -- 1 pc.

13. PILOT PC101050A -- 1 pc.
    Canopy -- 1 pc.
    Screw PWA2x8mm -- 4 pcs

14. DECALS:E311XMDEC -- 1 set

COVERING:
- Lightex SGX 100 White
- Lightex SGX 203 Light Gray
- Lightex SGX 340 Olive Drab
- Lightex SGX 351 Dark Blue
1 Aileron
- Apply instant type CA glue to both sides of each hinge.

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

PA1.7x8mm Screw

PB2x14mm Screw

Balsa Wood 7x8x13mm

Plywood 2x48x48mm

Straper d2x4x4mm

Fuel Tube d2x4x4mm

Clevis PB2x14mm

Pushrod Ø1.4x7.0mm

Horn

Bottom View

L/R

P.3
3 Main Wing and Retract Servo

Please dry fit wing joiner into left and right wing to make sure they fit with the proper dihedral angle, mark the wing joiner if necessary. Apply epoxy glue to both sides of all surfaces in contact. Use a stick to apply the glue to inner side of wing joiner sleeve, and apply the glue to wing joiner before putting them together. Wing joiner not glued properly will lead to wing failure and plane crash.

Wing Joiner 6x16x208mm

Aileron Servo

Please refer to attached sheet for linkage connector installation

To L-side  

To R-side

Wheels up Position  

Wheels down Position

4 Retractable Landing Gear Cover

PWA2x8mm Screw

L/R

Bottom View

Bottom View
5 Stabilizer & Elevator

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

6 Vertical Fin & Rudder

Apply instant type CA glue to both sides of each hinge.
7 Tail Landing Gear

- PA2.6x12mm Screw: 2
- PM2x10mm Screw: 1
- M2 Nut: 1
- 2.1mm Collar: 1

Bottom View

8 Elevator Pushrod

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

- PB2x10mm Screw: 4

Bottom View

9 Rudder Pushrod

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

- PB2x10mm Screw: 2

Bottom View
## 10 Outrunner Motor / Cowling / Spinner

### N.I. Optional Parts

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

### Diagrams

#### N.I. M3x12mm Socket Head Screw

<table>
<thead>
<tr>
<th>M3x12mm Socket Head Screw</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>d3xD7mm Washer</td>
<td>4</td>
</tr>
<tr>
<td>PWA2.3x8mm Screw</td>
<td>4</td>
</tr>
</tbody>
</table>

#### N.I. Outrunner Motor / Cowling / Spinner

- M3x8mm Socket Head Screw
- d3xD7mm Washer

#### N.I. Completed

- PWA2.3x8mm
- PA3x12mm
- Brushless ESC
- Double Sided Tape
- Cowling
Install and arrange the servo as shown in the diagram.

Front View:
- Rudder Servo
- Straper
- Rudder Pushrod
- Sponge 10x50x150mm
- Battery Tie 200mm
- Elevator Servo
- Fuel Tube d2xD4x4mm
- Receiver

Bottom View:
- Completed
12 Main Wing

- M2.5x30mm Socket Head Screw x 2
- d2.5xD8mm Washer x 2

- d2.5xD8mm
- M2.5x30mm

Completed

13 Canopy

- PWA2x8mm Screw x 4

- Pilot
- PWA2x8mm
14 Wing Setting

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

A=A'  B=B'  C=C'  D=D'

P.10
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.

- The ideal C.G. position is 72 mm (2.8 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.

- Measure C.G. with the wheels in retracted position.

16 C.G.

- 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.

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.

- SPITFIRE EP (40) is specially designed to be powered by 450W Motor System.
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.

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>
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<th>Size</th>
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</tr>
</thead>
<tbody>
<tr>
<td>KP0011210</td>
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</tbody>
</table>

-ideal for electric models

Propeller Adaptor Wrench

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW3111700</td>
<td></td>
<td>1 pc</td>
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</tbody>
</table>

Brushless ESC

<table>
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<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
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</thead>
<tbody>
<tr>
<td>KC2040A02</td>
<td>55x28x12mm</td>
<td>1 pc</td>
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</tbody>
</table>

-Clevis Wrench

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Size</th>
<th>Package</th>
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</thead>
<tbody>
<tr>
<td>PI8210010</td>
<td></td>
<td>1 set</td>
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</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>
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<tbody>
<tr>
<td>HW2340102</td>
<td>d5xD6</td>
<td>1 set</td>
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</table>

Outrunner 37 / 48 Deluxe

<table>
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<th>Package</th>
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<tbody>
<tr>
<td>KM0374810</td>
<td></td>
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</table>

-Max speed: 13860 rpm
-Kv (rpm / V): 770
-Operating Power: 450 W
-Operating Voltage: 8.5 - 18 V
-Operating Current: 30 A
-Peak Current: 30A (max. 15 sec.)
-Internal Resistance: 34 m ohms
-Diameter: 37.2 mm
-Length: 48.5 mm
-Weight: 172 g
-Shaft Diameter: 5 mm
-Shaft Length: 21 mm
-Mounting Screw: M3 (Front) and M2.5 (Back)
-Distance of Mounting Holes:
  25mm (Front) and 15.5mm (Back)

-Voltage Range: / 
-Current: 40A continuous
-Burst current (<10 seconds): 55A
-Weight: 33g (with wires)
-BEC output: 3A
-Input: Li-ion / Li-poly 2-5 cells;
Nimh / Nicd 5-15 cells operation
Ducted Fan Pattern

Warbirds Funfly

Scale Electric

Sports Glider

Trainer Boat

Accessories

Covering
(Lightex/Toughlon)

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