1.60 cubic inch displacement 2-stroke(glow)
Requires: 6-channel radio w/ 7 standard servos and 2 low profile retract servos

<table>
<thead>
<tr>
<th>Specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>80 in / 2030 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>1138 sq in / 73.4 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>13 lb / 5850 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>68 in / 1730 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 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 on 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.

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** — 1 pair

2. **RETRACTABLE LANDING GEAR** — 1 set
   - RETRACTABLE LANDING GEAR COVER — 1 set
   - PUSHROD Ø1.8x45mm (For Retractable) — 2 pcs
   - MAIN WHEEL Ø103mm — 2 pcs
   - COLLAR Ø5.7mm w/set screw — 2 sets
   - SCREW PM2x8mm — 8 pcs
   - SCREW PWA2.3x8mm — 8 pcs
   - WASHER Ø2x0.5mm — 16 pcs
   - COVERING FILM 45x75mm — 2 pcs
   - PLYWOOD 3x28x62mm — 2 pcs

3. **Screw PB2x14mm** — 6 pcs
   - SCREW PB2x25mm — 6 pcs
   - SCREW PWA2x8mm — 16 pcs
   - FUEL TUBE Ø6x5mm — 8 pcs
   - CLEVIS PL4112103 — 4 pcs
   - STRAPER PL4112102 — 4 pcs
   - TRI-HORN M3x14mm(L) PL4111185 — 4 sets
   - PUSHROD Ø1.8x105 w/Threads (For Aileron Servos) — 2 pcs
   - PUSHROD Ø1.8x110 w/Threads (For Flap Servos) — 2 pcs
   - SERVO MOUNTING PANEL 2x8x78mm — 2 pairs

4. **STABILIZER & ELEVATOR** — 1 set
   - SCREW PA3x12mm — 2 pcs
   - WASHER Ø3x0.7mm — 2 pcs
   - STABILIZER TUBE Ø9.5x257mm — 1 pc.

5. **VERTICAL FIN & RUDDER** — 1 set
   - SCREW PB2x25mm — 6 pcs
   - SCREW PWA2x8mm — 16 pcs
   - FUEL TUBE Ø6x5mm — 8 pcs
   - CLEVIS PL4112103 — 2 pcs
   - TRI-HORN M3x14mm(L) PL4111185 — 2 sets
   - PUSHROD Ø1.8x778mm w/Threads (For Elevator) — 2 pcs

6. **ENGINE MOUNT** — 1 pc.
   - SOCKET HEAD SCREW M6x30mm — 4 pcs
   - BLIND NUT M6x18mm — 4 pcs
   - 3. **FUEL TANK 800cc PL1111810G** — 1 set
   - CABLE TIE 1.5x50mm — 2 pcs
   - DOUBLE-SIDE TAPE 40x160mm — 2 pcs
   - PLYWOOD 3x42x125mm — 1 pc.
   - Balsa 8x8x42mm (For Throttle Servo Stand) — 2 pcs
   - 4. **ENGINE MOUNT SUPPORT** 1x10x77mm — 1 pc.

7. **THROTTLE PUSHWIRE Ø2.1mm** — 3 sets
   - LINKAGE CONNECTOR Ø2.1mm — 3 sets
   - PLYWOOD 6x62x125mm (For Elevator Servo) — 1 pc.
   - PLYWOOD 6x62x125mm (For Rudder Servo) — 1 pc.
   - PLYWOOD 3x12x119mm (For Plastic Tube) — 1 pc.
   - BALSA 8x8x62mm (For Elevator & Rudder Servos Stand) — 4 pcs
   - SPONGE 60x70x125 (For Radio Equipment) — 1 pc.
   - FUEL TUBE Ø6x6mm — 1 pc.
   - STRAPER PL4112102 — 1 pc.
   - TRI-HORN M3x14mm(L) (w/o-Base For Rudder) — 2 sets
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
   - Y-CONNECTOR PL4410010 — 1 set

8. **PLYWOOD 6x62x125mm** — 1 pc.
   - PLYWOOD 6x62x125mm — 1 pc.
   - PLYWOOD 3x12x119mm — 1 pc.
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs

9. **COWLING** — 1 pc.
   - TRANSFER MOTOR PL1210402 — 1 pc.
   - TRANSPARENT 3D TEMPLATE — 1 pc.
   - SCREW PWA2 x12mm — 4 pcs
   - SCREW PWA2 1/22mm — 4 pcs
   - SCREW KM3x20mm — 8 pcs
   - WASHER Ø4x12mm — 8 pcs
   - NYLON INSERT LOCK NUT M3 — 8 pcs
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
   - GROMMET d1.5xD6.5mm — 4 pcs
   - QUICK RELEASE NYLON RIVET PL1208042 — 10 pcs
   - SCREW M3x0.5mm — 10 pcs
   - WIRE Ø4x0.4mm — 2 pcs
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
   - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs

10. **COWLING** — 1 pc.
    - DOUBLE SIDED TAPE 6x800mm — 1 pc.
    - SCREW PWA2 3x8mm — 4 pcs
    - PLACE TUBE Ø2.5x3.2x8mm — 2 pcs
    - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
    - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
    - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs
    - COPPER TUBE Ø2.5xD3.2x8mm — 2 pcs

11. **DECALS**: A154PO29381404

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**COVERING:**

TOUGHON STL 100 WHITE
TOUGHON STL 203 LIGHT GRAY
TOUGHON STL 351 DARK BLUE
TOUGHON STL 340 OLIVE DRAB

A154PO29381404 P.2
1. **Flap & Aileron**

   - Aileron Servo lead

2. **Landing gear & Retract Servos**

   - PM2x8mm Screw (x8)
   - PWA 2.3x8mm Screw (x8)
   - M2 Nut (x8)
   - d2xD5 Washer (x16)

   - Covering Film

   - Pre-glued

   - Plywood 3x28x62mm
3 Flap & Aileron Servos

- PB2x14mm Screw x 6
- PB2x25mm Screw x 6
- PWA2x8mm Screw x 16

**L/R**

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

- The existing slots are for 2 channels (mixing) operation of the flaps.
4 Stabilizer & Elevator

- **Screw**: PA3x12mm
- **Washer**: d3xD7mm

Stabilizer Tube: D9.5x257mm

Completed

5 Vertical Fin & Rudder

- **Mark**: AB
- **Pre-glued**

Completed
6 Tail Landing Gear

- PA3x12mm Screw: 2
- 3mm Set Screw: 1
- 2.6mm Collar: 1

7 Elevator Pushrod

- PB 2x25 mm Screw: 6
- 3x3 mm Set Screw: 1

- Ø1mm pilot holes for World Model. Tri-horn are pre-drilled. Please look for pin-hole marks at undersides of control surfaces.
Blind nuts are off-centered to keep the spinner at the fuselage axis.

---

**8 Rudder Pullwire**

- **PM 2x30mm Screw**: 3
- **M2 Nut**: 3

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

---

**9 Engine Mount**

- **M6x30mm Screw**: 4
- **d6xD15mm Washer**: 4
- **M6xD18mm Blind Nut**: 4

- Apply thread locker to screws.
- Blind nuts are off-centered to keep the spinner at the fuselage axis.
10 Fuel Tank

- Fuel Tank 800cc
- Plywood 3x42x125mm
- Balsa 8x8x42mm

11 Engine

- M4 x 35mm Screw 4
- KM3 x 20mm Washer 8
- M4 Nylon Insert Lock Nut 4
- M3 Nylon Insert Lock Nut 8
- d4 x D12mm Washer 8

Illustration is for inverted mounting. You can mount the engine upright or sideways simply by rotation the engine mount. Thrust angles will not be affected.

- M4 Nylon Insert Lock Nut
- d4 x D12mm
- M4 x 35mm
- Plastic Tube d2 x D3 x 170mm Ø1.2 x 350mm

Anti-Vibration Mount Installation

Make sure the rounded edges are facing the shock absorbing SILICON PAD.

- KM3 x 20mm
- M3

Completed

Completed

Install Engine position

152mm 6.0in
12 Servo Set

- Set Screw 3x3mm
- Linkage Connector
- Nut M2
- Washer 2mm

Included with the radio Set.

Please refer to attached sheet for linkage connector installation.

13 Servos

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

Front

- Plywood 3x12x119mm
- Throttle Servo
- Rudder Servo
- Throttle pushrod Ø1.2x350mm
- Plastic Tube d2xD3x170mm
- Battery
- Switch
- Balsa 6x62x125mm
- Balsa 8x8x62mm
- Elevator Servo

Bottom View

- Fuel Tube Ø6x5mm
- Rudder Servo
- Balsa 8x8x62mm
- Balsa 8x8x62mm
- Elevator Servo
14 Cowling

- PWA2.6x12 mm Screw x 4
- d1.5xD6.5 mm Silicon Grommet x 4
- Quick Release Nylon Rivet x 10
- KA2.3x8mm Screw x 10

First insert the grommet to the cowling then apply screw.

15 Main Wing

- PM3x75mm Screw x 2
- d3xD7mm Washer x 2
- d4xD15mm Washer x 2
- HM4x40mm Screw x 2
- M3x15mm Screw x 2
- M3 Nylon Insert Lock Nut x 2
- M3 Nut x 2

Bottom View

- Wing Tube D25.4x670mm
- Wing Tube D9.5x325mm

Up

Down

Cowling

PWA2.6x12 mm Screw

Quick Release Nylon Rivet
KA2.3x8mm

Cowling

Wing Tube D25.4x670mm

Wing Protection

Wing Tube D9.5x325mm

First insert the grommet to the cowling then apply screw.
16 Canopy

- First insert the grommet to the canopy then apply screw.

17 Wing Setting

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

A = A'  B = B'  C = C'
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 **116mm (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.

If you are converting this model to electric, please move the C.G. forward 10% of current C.G. distance from leading edge to compensate for weight of fuel.

**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 G.S.** is specially designed to be powered by 1.60 2 stroke glow 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.
- Check and re-tighten up all factory assembled screws, use thread locker if applicable.
- When Flaps are lowered, nose of model will rise. The nose-up varies with the speed at which the model is flying when you lower the flaps and the extent to which they are lowered. Check effect of flaps at higher altitude to avoid surprises during landing. You may apply down trim of the elevator to compensate for the nose-up effect when lowering the flaps. Taking off with flaps lowered is not recommended, as the increased drag may require a longer runway and more engine power for the model.

[Image of SPITFIRE G.S.]

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**18 Control Throws**

- **Elevator**: 25mm
- **Rudder**: 55mm
- **Flaps (near fuselage)**: 35mm
- **Ailerons (away from fuselage)**: 20mm

**Warning!**

Measure C.G. with the wheels in retracted position

ADDENDUM

LINKAGE CONNECTOR

HW7111030 & HW7111060

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.

Landing Gear
Should you need to bend the landing gear wire, use the radio control to open or close the gear to 25% from fully retracted position and switch off the receiver. It is safer to bend the wire in this position. Bending the wire in fully open position may damage the supporting structure.
Should you require to bend the anding gear wire, please insert a round metal bar into the spring coil and apply force there as leverage. Bending the wire directly may damage the mounting block structure.
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 Air Borne 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.

A154PO29381404