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>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
<td>120 in / 3050 mm</td>
</tr>
<tr>
<td>Wing Area</td>
<td>2402 sq in / 155 sq dm</td>
</tr>
<tr>
<td>Flying Weight</td>
<td>27.5 lbs / 12500 g</td>
</tr>
<tr>
<td>Fuselage Length</td>
<td>90.5 in / 2300 mm</td>
</tr>
</tbody>
</table>

* Specifications are subject to change without notice. *
Read through the manual before you begin, so you will have an overall idea of what to do.

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:-

![Apply epoxy glue.](image)
![Apply instant glue (C.A.glue, super glue.).](image)
![Apply thread locker](image)
![Must be purchased separately!](image)
![Assemble left and right sides the same way.](image)
![Ensure smooth non-binding movement while assembling.](image)
![Peel off shaded portion covering film.](image)
![Cut off shaded portion.](image)
![Drill holes with the specified diameter (here: 3mm).](image)
![Pierce the shaded portion covering film.](image)
![Pay close attention here!](image)
![Warning! Do not overlook this symbol!](image)
# Parts List

## 1. MAIN WING
- 1 pair
- **Covering:** TOUGHLON STL 331 CUB YELLOW
- TOUGHLON STL 201 BLACK
- TOUGHLON STL 251 SKY BLUE
- TOUGHLON STL 312 BRIGHT RED
- TOUGHLON STL 100 WHITE

## 2. SERVO MOUNTING PANEL (For Aileron)
- 1 pair
- **Covering:** TOUGHLON STL 331 CUB YELLOW
- HEAVY DUTY CLEVIS PL4112200 -- 4 sets
- SCREW PM4x40mm -- 2 pcs
- M4 NYLON INSERT LOCK NUT -- 2 pcs
- SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets
- HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
- HEAVY DUTY SERVO HORN PL4120300 -- 2 sets
- PUSHROD Ø2.3x129mm w/ Threads (For Aileron) -- 2 pcs
- SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets

## 3. SCREW PM4x20mm
- 12 pcs
- COPPER CLIPPER 0.5mm -- 8 pcs
- MAIN WING STRUTS -- 1 pair
- WING STRUT WIRE D4mm -- 2 pcs
- M4 NYLON INSERT LOCK NUT -- 4 pcs
- WASHER d4x9mm -- 4 pcs
- WASHER d4x12mm -- 4 pcs

## 4. FUSELAGE
- 1 pc.
- STABILIZER & ELEVATOR -- 1 set

## 5. VERTICAL FIN & RUDDER
- 1 set

## 6. TAIL GEAR ASSEMBLY (PL3410022)
- 1 set
- COPPER PLATE (For Stays on Tail Fueslage Bottom) 1.5x10x60mm -- 1 pc.
- SCREW PA3.5x16mm -- 3 pcs
- SCREW PAW2.5x12mm -- 3 pcs

## 7. MAIN LANDING GEAR
- 1 set
- SCREW PM4x30mm -- 2 pcs
- SCREW PA3x14mm -- 12 pcs
- SCREW PA4x25mm -- 2 pcs
- WASHER d4x12mm -- 2 pcs
- WASHER d4x9mm -- 2 pcs
- MOUNTING PLATE 12x20mm -- 6 pcs
- ALUMINUM PLATE 3x15x77mm -- 2 pcs

## 8. SCREW PA1.7x8mm
- 6 pcs
- SCREW PM3x12mm -- 8 pcs
- WASHER d3x07mm -- 16 pcs
- M3 NUT -- 8 pcs
- COLLAR Ø1.1mm w/ set screw -- 4 sets
- LARGE SCALE CAPTIVE AIR WHEELS Ø140mm -- 2 sets
- PLYWOOD 2x211.5x193.5mm (Main Landing Gear Cover) -- 1 pair
- COPPER CLIPPER 0.5x12x20mm -- 8 pcs

## 9. BLIND NUT M6
- 4 pcs
- WASHER d6x15mm -- 4 pcs
- SOCKET HEAD SCREW M6x30mm -- 4 pcs

## 10. COWLING
- 1 pc.
- **Coverage:** TOUGHLON STL 312 BRIGHT RED
- TOUGHLON STL 100 WHITE
- TRANSPARENT 3D TEMPLATE -- 1 pc.
- SCREW PWA3x12mm -- 4 pcs
- SILICON GROMMET d2.5xD8.5mm -- 4 pcs
- DUMMY ENGINE COVER -- 1 pair

## 11. FUEL TANK 1500cc (PL1121500G-gasoline)
- 1 set
- WOOD 12x12x197mm (For Fuel Tank Position Fixing) -- 1 pc.

## 12. PUSHROD Ø2.3x215mm w/ threads (For Elevator)
- 2 pcs
- SCREW PM4x40mm -- 2 pcs
- M4 NYLON INSERT LOCK NUT -- 2 pcs
- SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets
- HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
- HEAVY DUTY SERVO HORN PL4120300 -- 2 sets
- HEAVY DUTY CLEVIS PL4112200 -- 4 sets

## 13. PUSHROD Ø2.3x170mm w/ Threads (For Rudder)
- 1 pc.
- SCREW PM4x20mm -- 1 pc.
- M4 NYLON INSERT LOCK NUT -- 1 pc.
- SWIVEL CLEVIS HORN FAIRING PL4610010 -- 1 set
- HEAVY DUTY HORN BRACKET PL4112400 -- 1 set
- HEAVY DUTY SERVO HORN PL4120300 -- 1 set
- HEAVY DUTY CLEVIS PL4112200 -- 2 set

## 14. SCREW PM3x18mm
- 3 pcs
- M3 NYLON INSERT LOCK NUT -- 3 pcs
- COLLAR D3.6mm w/ set screw -- 4 sets
- WIRE Ø1.5x1950mm -- 1 pc.
- PLATE (For Stays) 1x8x26mm -- 6 pcs
- COPPER TUBE d5xD.6X10mm (For Rudder) -- 4 pcs

## 15. SIDE WINDOWS
- 1 pair

## 16. LINKAGE CONNECTOR Ø2.1mm w/ set screw -- 1 set

## 17. PLYWOOD 3x10x160mm (For Fuselage Servos) -- 1 pc.
- PLYWOOD 3x10x160mm (For Fuselage Servo Stand) -- 2 pcs
- BALSA 10x10x288mm (For Fuselage Servo Stand) -- 2 pcs
- SPONGE 10x80x200mm -- 2 pcs
- THROTTLE PUSHWIRE D1.2x480mm -- 1 pc.
- PLASTIC TUBE d2xD3x300mm -- 1 pc.

## 18. PILOT PCB101110A
- 1 set
- SCREW PAW2x12mm -- 4 pcs
- COCKPIT BASE PANEL 3x196x444mm -- 1 pc.
- WOOD 10x10x443mm (For Cockpit Base Panel) -- 2 pcs

## 19. WIND SHIELD
- 1 pc.
- SCREW PWA2.3x12mm -- 4 pcs
- SILICON GROMMET d1.5xD6.5mm (For Wind Shield) -- 4 pcs
- M2 NYLON INSERT LOCK NUT -- 2 pcs
- DOUBLE-SIDED TAPE 8x1000mm -- 1 pc.
- SCREW PM2x14mm -- 2 pcs
- WASHER d2xD5mm -- 4 pcs
- MOUNTING PLATE 5x15mm -- 2 pcs

## 20. WING TUBE Ø22x931mm
- 2 pcs
- SCREW PM3x30mm -- 2 pcs
- SCREW PA3x30mm -- 2 pcs
- WASHER d3xD7mm -- 4 pcs
- MOUNTING PLATE Ø22x931mm -- 2 pcs

## 21. SCREW PM4x16mm
- 2 pcs
- M4 NYLON INSERT LOCK NUT -- 2 pcs
- WASHER d4xD12mm -- 2 pcs
- SOCKETS 8x1000mm -- 1 pc.
- MOUNTING PLATE 5x15mm -- 2 pcs

## 22. DECALS
- 1 set
- COVERING:
  - TOUGHLON STL 331 CUB YELLOW
  - TOUGHLON STL 201 BLACK
  - TOUGHLON STL 251 SKY BLUE
  - TOUGHLON STL 312 BRIGHT RED
  - TOUGHLON STL 100 WHITE

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P.2
1 Main Wing

Aileron Servo Lead

Bottom View

2 Aileron servo

PM4x60mm Screw 2
M4 Nylon Insert Lock Nut 2
PWA2x8mm Screw 8

Heavy Duty Horn Bracket
M4 Nylon Insert Lock Nut
M2 Nut

Heavy Duty Clevis
PM2x8mm

Pushrod Ø2.3x129mm
PM4x60mm
PA1.7x8mm

Bottom View

L/R
3 Wing Struts

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

4 Stabilizer & Elevator

5 Vertical Fin & Rudder

Completed

Completed
6 Tail Landing Gear
- PA3.5x16mm Screw
- PWA2.5x12mm Screw

7 Main Landing Gear
- PM4x30mm Screw
- PA3x14mm Screw
- PA4x25mm Screw
- d4xD12mm Washer
- d4xD9mm Washer

8 Landing Gear
- 3mm Set Screw
- PA1.7x8mm Screw
- D6.1mm Collar
- PM3x12mm Screw
- d3xD7mm Washer
- M3 Nut
9 Engine

- M6x30 SOCKET HEAD SCREW (4)
- d6xD15mm Washer (4)
- M6 Blind Nut (4)

10 Cowling

- PWA3x12mm Screw (4)
- d2.5xD8.5mm Silicon Grommet (4)

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

- Completed
**11 Fuel Tank**

- Fuel Tank 1500cc

**12 Elevator Pushrod**

- PM4x40mm Screw (PM2x8mm), M4 Nylon Insert Lock Nut (PM2x8mm)

**13 Rudder Pushrod**

- PM4x60mm Screw (PM2x8mm), M4 Nylon Insert Lock Nut (PM2x8mm)

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*Install Wood 12x12x197mm (For Fuel Tank Position Fixing)*

- Bottom View

*Completed*

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*Bottom View*

*Bottom View*
### 14 Flying Wire

- 3mm Set Screw: 4
- d3.6mm Collar: 4
- PM 3x18mm Screw: 3
- M3 NYLON INSERT LOCK NUT: 3
- Copper Tube: Press down the center 1/3 portion

![Diagram of flying wire setup](https://via.placeholder.com/150)

**Throttle Pushwire**
- 2mm
- 3mm

**M3 Nut**
- 2mm
- d5xD6.4x10mm
- M3x3mm Set SCREW

**15 Windows**

- **Window A**
- **Window B**

Securely glue the windows to the fuselage.

![Windows diagram](https://via.placeholder.com/150)

**Completed**

**16 Servo Set**

- 3x3mm Set Screw: 1
- Linkage Connector: 1
- M2 Nut: 1
- 2mm Washer: 2

**Throttle Pushwire**
- 2mm
- 3mm

**M2 Nut**
- 2mm

**Throttle Servo.**

---

Please refer to the attached sheet for linkage connector installation.
17 Radio Equipment

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

18 Pilot

- PWA 2x12mm Screw
- PWA2x12mm Screw
- PC101110A

19 Wind Shield

- PWA2.3x12mm Screw
- d1.5x6.5mm Silicon Grommet
- M2 NYLON INSERT LOCK NUT
- PM2x14mm Screw
- d2 x D5mm Washer
Step 1. Insert the aluminum wing tube with the pre-drilled hole end into the right wing. Align the lines marked at the wing root and wing tube and apply the PM3x30mm machine screw through the pre-drilled hole on top of the wing. (please confirm the alignment of the hole by putting a 2.5mm diameter rod through the pre-drilled wing hole before applying the screw) The hole on the wing tube is pre-threaded, do not over tighten the PM 3mm screw, the setup is for future removal of the wing.

Step 2. Install the right wing to the fuselage by inserting the wing tube (now attached to the right wing) through the fuselage, then install the left wing.

Step 3. Make sure the wings are resting against the fuselage tightly. Locate the pre-drilled 2.5mm hole at top of left wing, and drill along with 2.5mm drill bit until it passes through the wing tube. Apply the PA3x30mm self-tapping screw.

Note: 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. If removal of wing tube from left wing is also required, it is recommended that instead of applying self-tapping screw in step 3, you pre-tap with M3 thread cutter and apply M3 machine screw.
21 Wing Struts

PM4x16mm Screw 2
d4xD12mm Washer 2
M4 NYLON INSERT LOCK NUT 2

22 Wing Setting

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

A = A'
B = B'
C = C'
# 23 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**: 65mm
- **Elevator**: 50mm
- **Aileron**: 40mm

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# 24 C.G.

The ideal C.G. position is 150mm (5.9in) 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.

- **Aileron**: 65mm
- **Elevator**: 50mm
- **Rudder**: 40mm
- **C.G.**: 150mm (5.9in)

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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.**

- **1/3 CLIPPED WING CUB is specially designed to be powered by 80c.c. gasoline 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 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.

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.
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

2

3

4

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.
Ducted Fan Pattern

Warbirds Funfly

Scale Electric

Sports Glider

Trainer Boat

Accessories

Covering

(Lightex / Toughlon)