

# ZERO /

INSTRUCTION MANUAL

# THUNDER BOLT P-47 / SPITFIRE / YAK-9D



**0.25-0.32 cu. in. displacement 2-stroke**  
**Requires : 4-channel radio w/ 4 standard servos**

## Specifications

Wing Span	48.0 in / 1220mm
Wing Area	437 sq in / 28 sq dm
Flying Weight	3.0 lbs / 1400g
Fuselage Length	41.0 in / 1040mm

\* 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.

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FACTORY PRE-FABRICATED  
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# ZERO / THUNDER BOLT P-47 / SPITFIRE / YAK-9D INDEX

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## BEFORE YOU BEGIN

- 1 Read through the manual before you begin, so that you can 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.



Apply thread locker

**L/R**

Assemble left and right sides the same way.



Peel off shaded portion covering film.



3mm

Drill holes with the specified diameter (here: 3mm).



Pay close attention here!

**C.A**

Apply instant glue  
(C.A.glue, super glue.)

**N.I.**

Must be purchased separately!



Ensure smooth non-binding movement while assembling.



Cut off shaded portion.

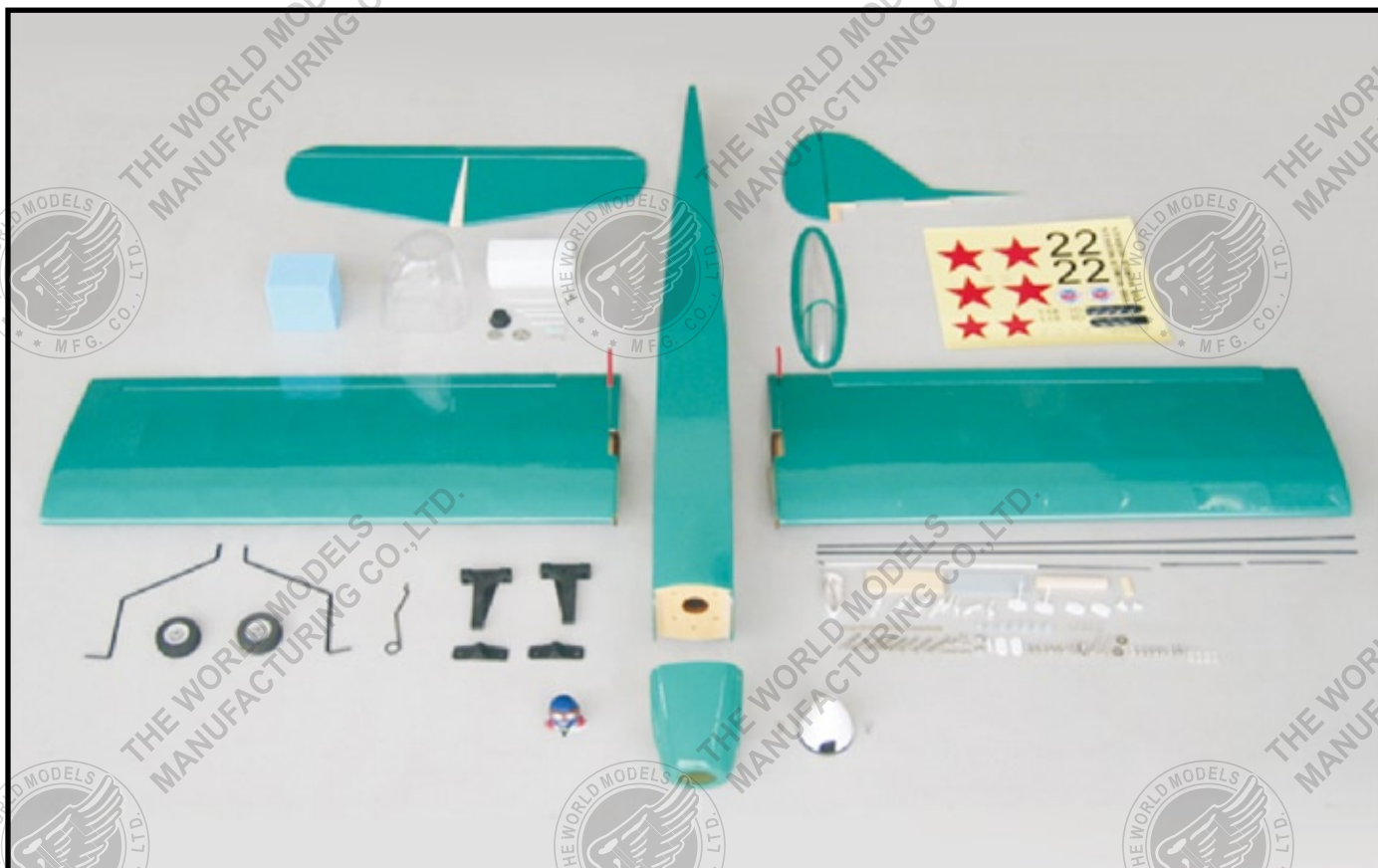


Pierce the shaded portion covering film.



**Warning!**

Do not overlook this symbol!



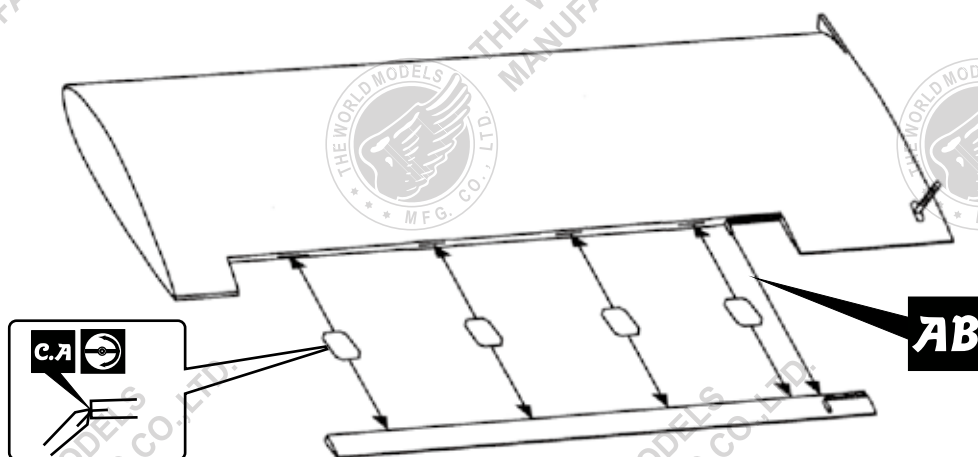
## Parts List

1. MAIN WING -- 1 pair
  2. WING JOINER 77.5x23.8x5.8mm -- 1 pc.  
RING Ø2.3mm(For Aileron)--2 pcs
  3. PLYWOOD 3x25x80mm(Wing Protection) -- 1 pc.
  4. PLYWOOD 3x8x22mm(For Aileron Servo) -- 1 pc.
  5. FUEL TUBE Ø6x5mm--4 pcs  
STRAPER --2 pcs  
CLEVIS--2 pcs  
PUSHROD Ø1.8x90mm w/ Threads(For Aileron Servo) --2 pcs
  6. MAIN LANDING GEAR --1 set  
FUSELAGE --1 pc.  
MOUNTING PLATE 12x20mm --2 pcs  
SCREW PA3x10mm --4 pcs
  7. MAIN WHEEL Ø45mm --2 pcs  
COLLAR Ø3.1mm/ set screw -- 2 pcs
  8. STABILIZER & ELEVATOR --1 set  
SCREW PWA2.3x12mm --2 pcs  
TAIL LANDING GEAR -- 1 pc.  
MOUNTING PLATE PL4114015 --1 pc.
  9. VERTICAL FIN & RUDDER --1 set
  10. FUEL TANK 200cc -- 1 set  
BALSA 8x8x72.5mm(For Fuel Tank Position Fixing)--1 pc.
  11. ENGINE MOUNT PL5111-030 -- 1 set  
SOCKET HEAD SCREW M3x25mm --4 pcs  
WASHER d3xD7mm --4 pcs
  12. SCREW PM3x25mm --4 pcs  
WASHER d3xD7mm --8 pcs  
M3 NUT --8 pcs  
THROTTLE PUSHWIRE Ø1.2x340mm -- 1 pc.  
PLASTIC TUBE d2xD3x220mm --1 pc
  13. COWLING --1 pc.  
TRANSPARENT 3D TEMPLATE --1 pc  
SPINNER Ø52mm --1 pc  
SILICON GROMMET d1.5x6.5mm(For Cowling) --4 pcs  
SCREW PWA2.6x12mm -- 4 pcs
  14. SCREW PM2x12mm --2 pcs  
FUEL TUBE Ø5x6mm --1 pc.  
CLEVIS --1 pc.  
HORN --1 set  
PUSHROD Ø1.8x575mm w/ Threads(For Elevator Servo)--1 pc.
  15. SCREW PA2x12mm --2 pcs  
FUEL TUBE Ø5x6mm --1 pc.  
CLEVIS --1 pc.  
HORN --1 set  
PUSHROD Ø1.8x575mm w/ Threads(For Elevator Servo)--1 pc.
  16. PLYWOOD 3x77x119mm(For Fuselage Servo)--1 pc.  
BALSA 5x5x116mm(For Fuselage Servo) --1 pc.
  17. LINKAGE CONNECTOR Ø2.1mm--1 set
  18. FUEL TUBE Ø6x5mm --2 pcs  
STRAPER --2 pcs  
SPONGE 10x80x200mm --1 pc.
  19. CANOPY--1 pc.  
SCREW PWA2.3x12mm --4 pcs  
SILICON GROMMET d1.5xD6.5mm --4 pcs  
PILOT PC001065B --1 pc.
  20. SCREW PM3x25mm --2 pcs  
WASHER d3xD12mm --2 pcs
  21. DECALS:  
A091DEC (For ZERO)  
A092DEC (For THUNDER BOLT P-47)  
A093DEC (For SPITFIRE)  
A094DEC (For YAK-9D)
- COVERING:--
- ZERO: LIGHTEX SGX 203 LIGHT GRAY  
LIGHTEX SGX 340 OLIVE DRAB  
LIGHTEX SGX 331 CUB YELLOW  
LIGHTEX SGX 311 FERRARI RED
- P-47: LIGHTEX SGX 203 LIGHT GRAY  
LIGHTEX SGX 351 DARK BLUE  
LIGHTEX SGX 311 FERRARI RED
- SPITFIRE: LIGHTEX SGX 203 LIGHT GRAY  
LIGHTEX SGX 340 OLIVE DRAB  
LIGHTEX SGX 331 CUB YELLOW
- YAK-90: LIGHTEX SGX 203 LIGHT GRAY  
LIGHTEX SGX 240 GREEN



# 1 Aileron

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



# 2 Main Wing

Peel off shaded portion covering film.

Wing Joiner  
77.5x23.8x 5.8mm

## ! Warning!

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.

Peel off shaded portion covering film.

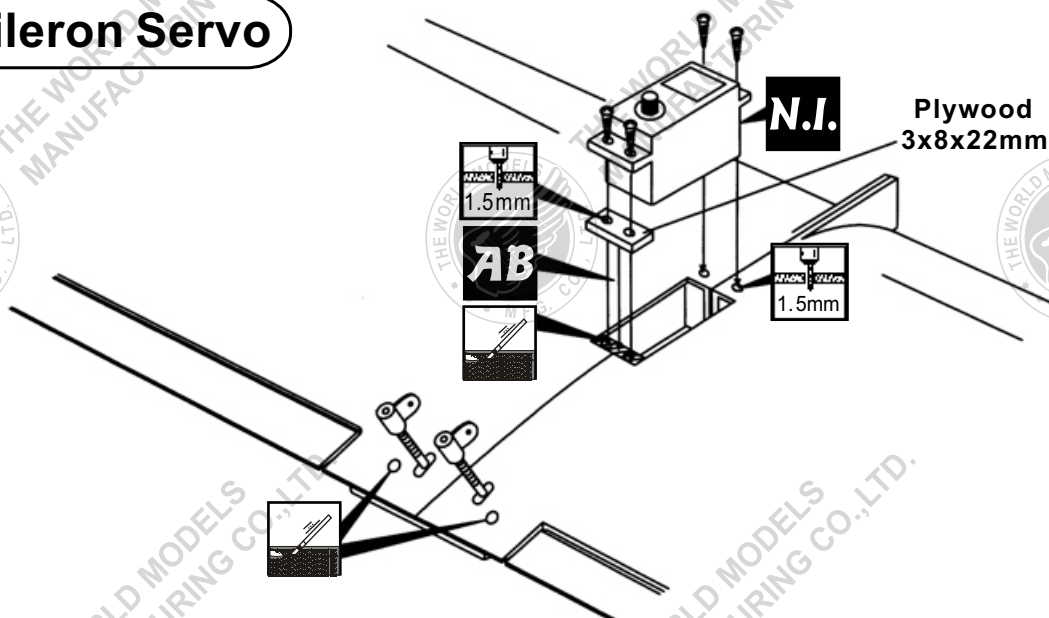
# 3 Main Wing

Peel off shaded portion covering film.

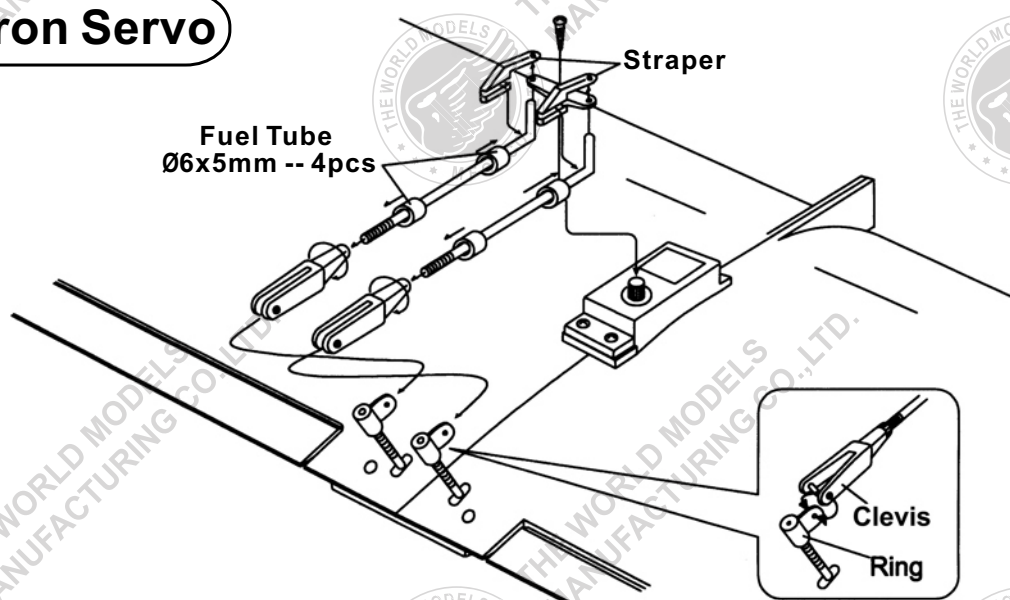
Plywood  
3x25x80mm

● Bottom View

## 4 Aileron Servo

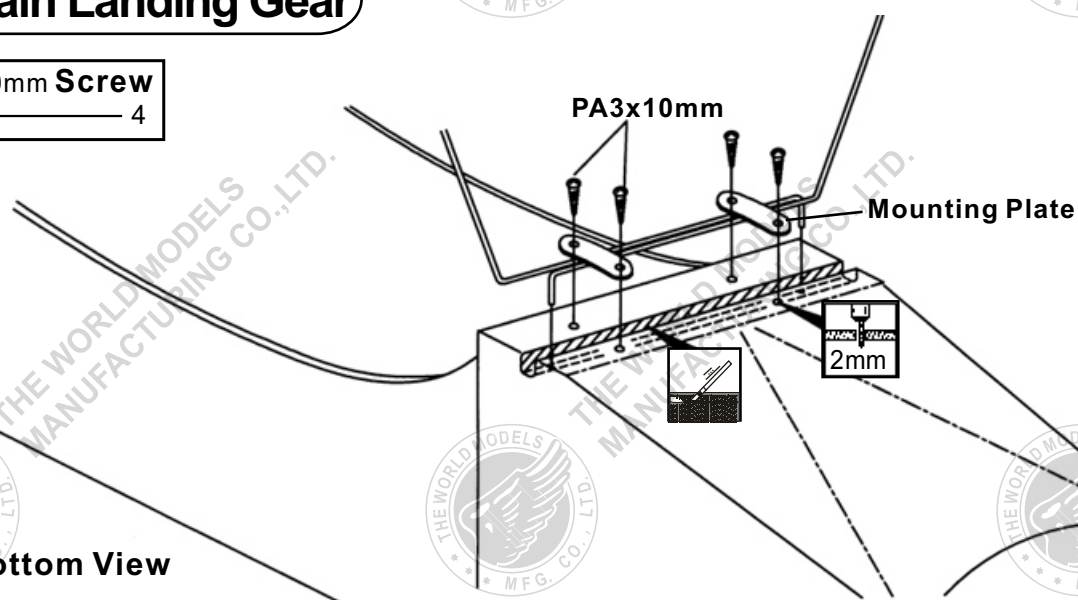


## 5 Aileron Servo



## 6 Main Landing Gear

PA3 x 10mm **Screw**  
4



● **Bottom View**

## 7 Main Wheels

3mm **Set Screw**



2

3.1mm **Collar**



2

3.1mm Collar

3mm Set Screw

Wheel  
Ø45mm

**L/R**

● **Bottom View**

## 8 Stabilizer & Elevator

PWA2.3 x 12mm **Screw**



2

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

PWA2.3 x 12mm

Mounting Plate



1mm



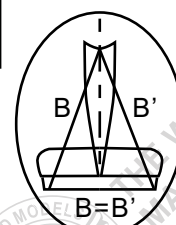
C.A

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

**AB**

**AB**

● **Bottom View**



B=B'

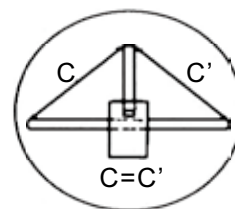
## 9 Vertical Fin & Rudder



C.A

**AB**

**AB**

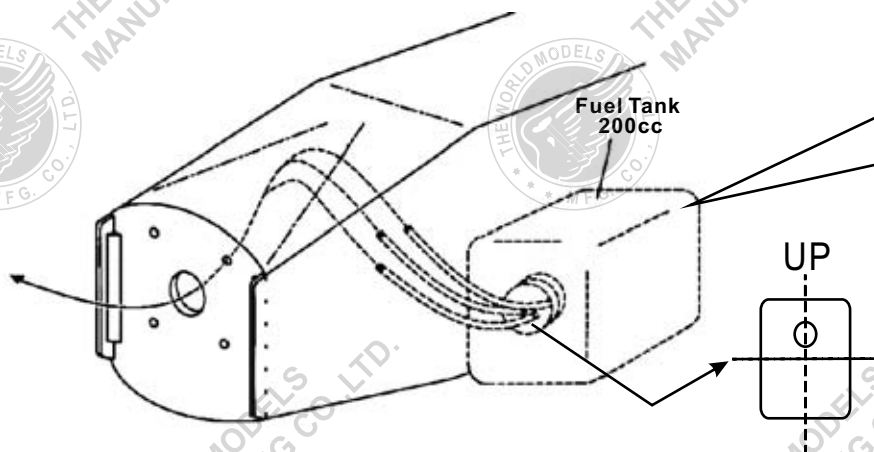


C=C'

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



## 10 Fuel Tank



Install Balsa 8 x 8 x 72.5mm  
(For Fuel Tank Position Fixing)

Fuel Tank

AB

● Bottom View

## 11 Engine Mount

M3x25mm Socket Head Screw

4

d3xD7mm Washer

4

Engine Mount  
PL 5111030

Washer  
d3xD7mm

M3x25mm  
Socket Head Screw



Blind nuts are off-centered to keep the spinner at the fuselage axis.

## 12 Engine

PM3 x 25mm Screw

4

d3xD7mm Washer

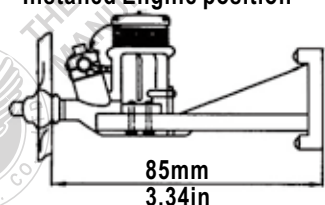
8

M3 Nut

8



Installed Engine position



PM3x 25mm

Washer  
d3xD7mm



Illustration is for upright mount. You can mount your engine inverted or sideways simply by rotating the engine mount without affecting the thrust angle.

AB



Throttle Pushwire  
Plastic Tube



Washer  
d3xD7mm

N.I.

Washer  
d3xD7mm

## 13 Cowling

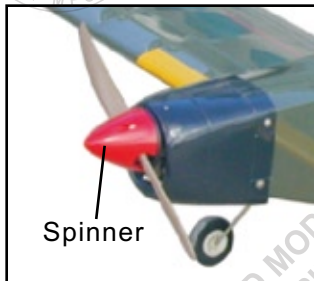
- Please refer to the attached sheet for usage of the transparent 3D template.
- First insert the grommet to the cowling then apply screw.

PWA2.6 X 12mm Screw

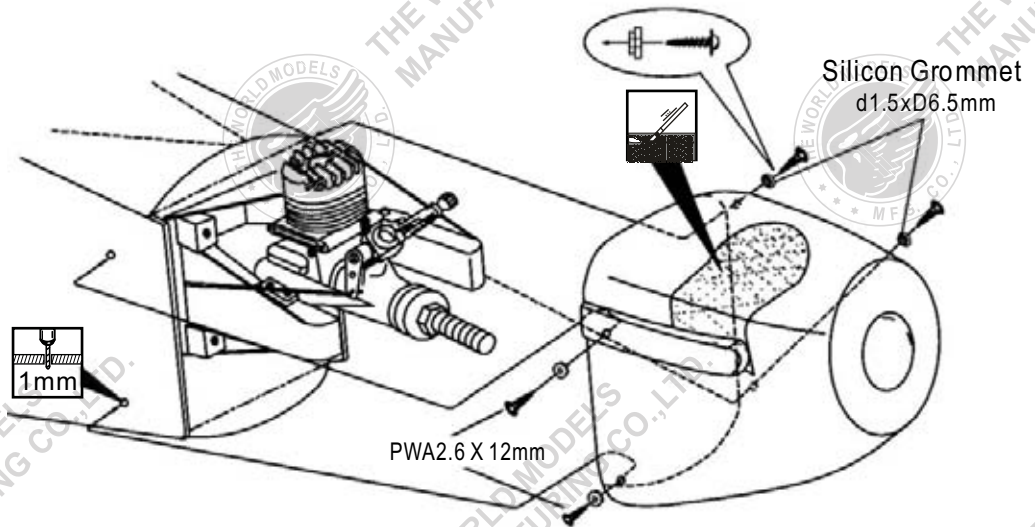
d1.5xD6.5mm Silicon Grommet

4

4



Completed

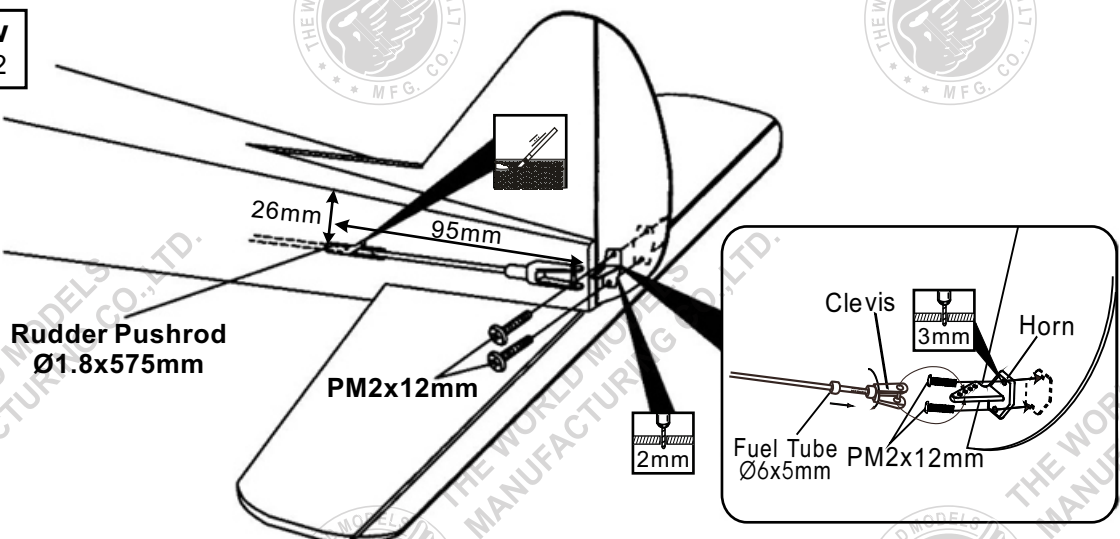


## 14 Rudder Pushrod

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

PM2 x12mm Screw

2

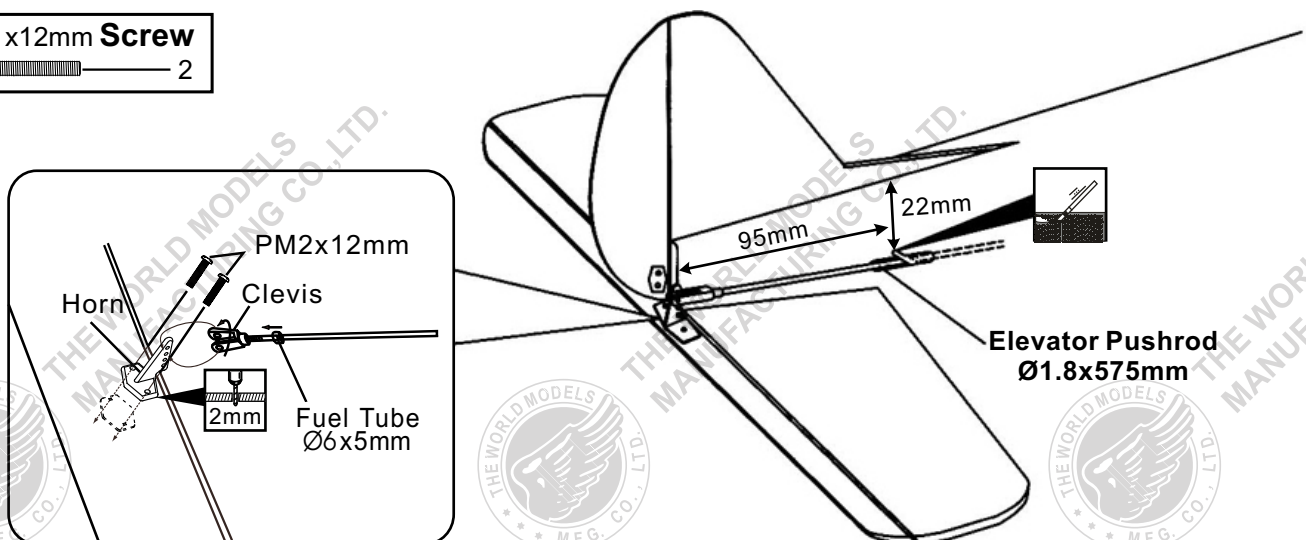


## 15 Elevator Pushrod

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

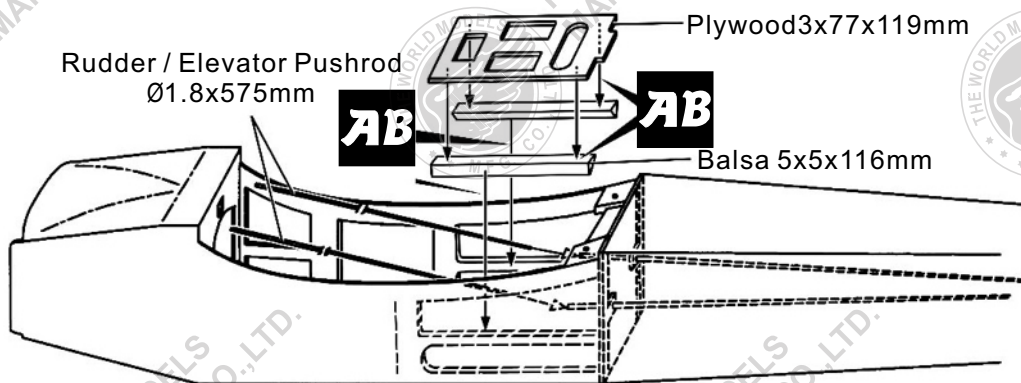
PM2 x12mm Screw

2







## 16 Rudder / Elevator Servo





### ● Bottom View

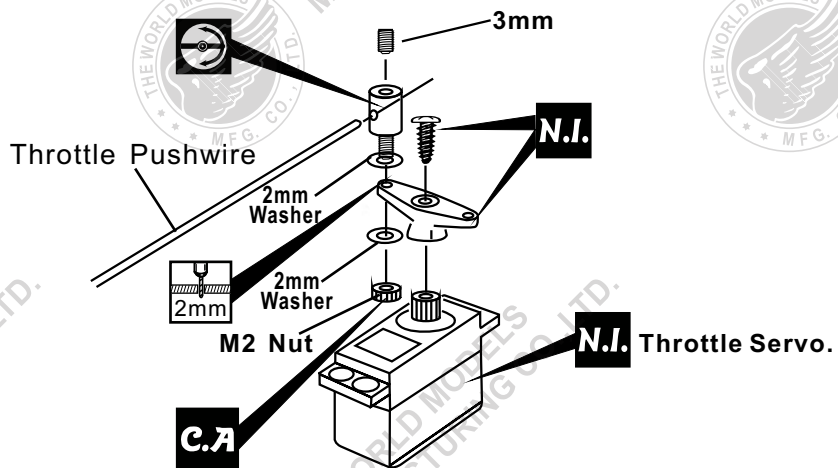
## 17 Servo Set

**3 x 3mm Set Screw**  
 \_\_\_\_\_ 1

**Linkage Connector**  
 \_\_\_\_\_ 1

**M2 Nut**  
 \_\_\_\_\_ 1

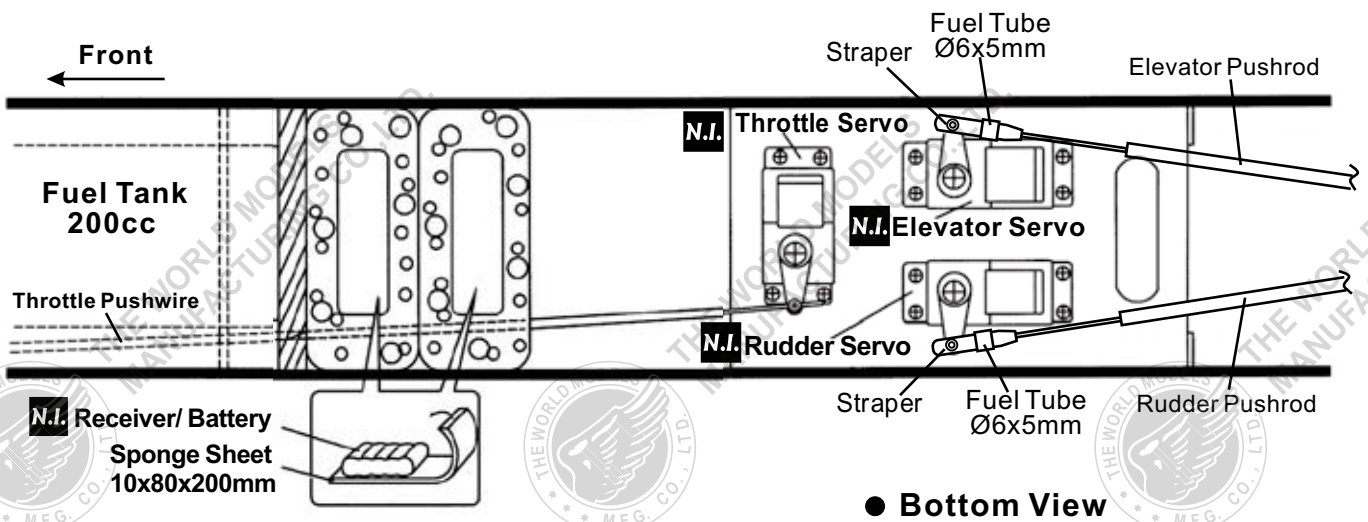
**2mm Washer**  
 \_\_\_\_\_ 2



**! Please refer to attached sheet for linkage connector installation.**

## 18 Radio Equipment

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



### ● Bottom View

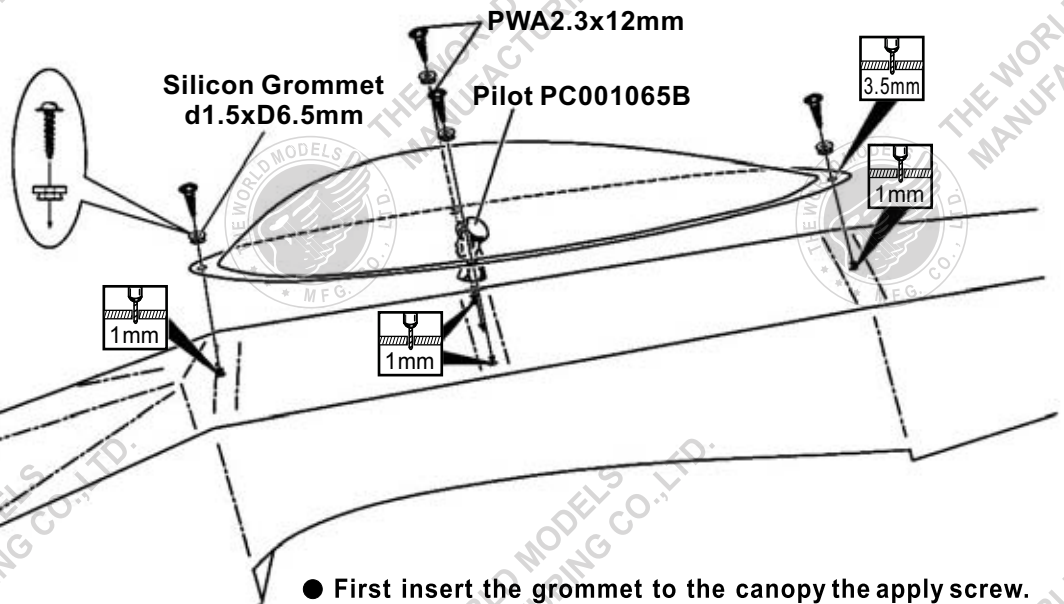
## 19 Canopy

PWA2.3x12mm Screw

4

d1.5xD6.5mm Silicon Grommet

4



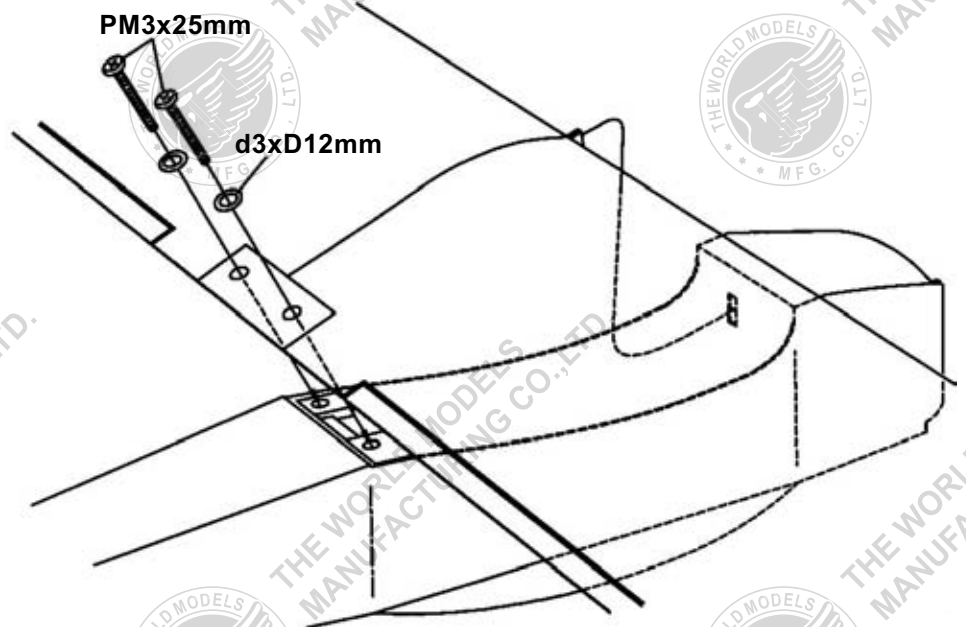
## 20 Main Wing

PM3 X25mm Screw

2

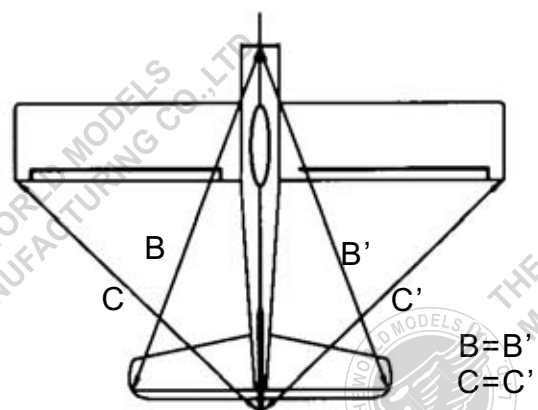
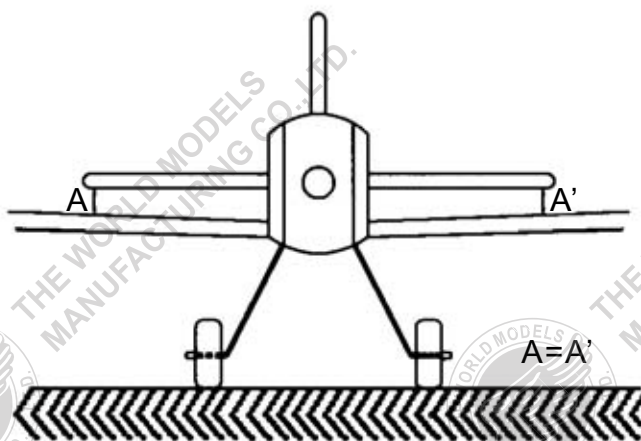
d3xD12mm Washer

2



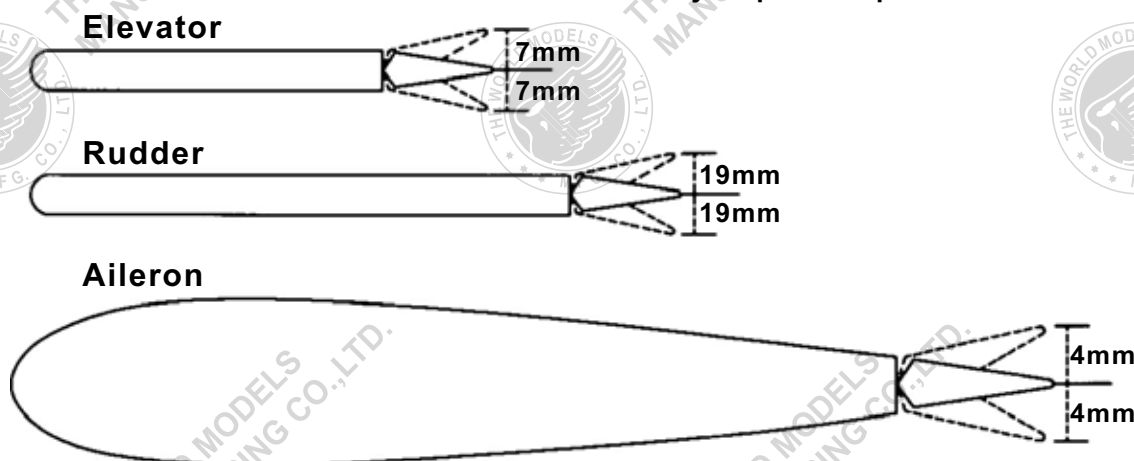
## 21 Wing Setting

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



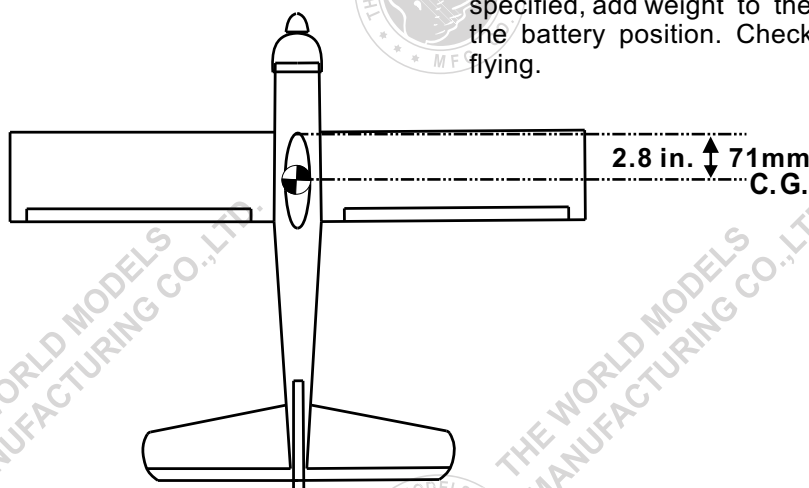
## 22 Canopy

Adjust the control throws as shown in the diagram. These throws are good for general flying. You can adjust according to your personal preference.



## 23 C.G.

The ideal C.G. position is **71mm (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.



## ! Warning!

### Important Safety Precautions

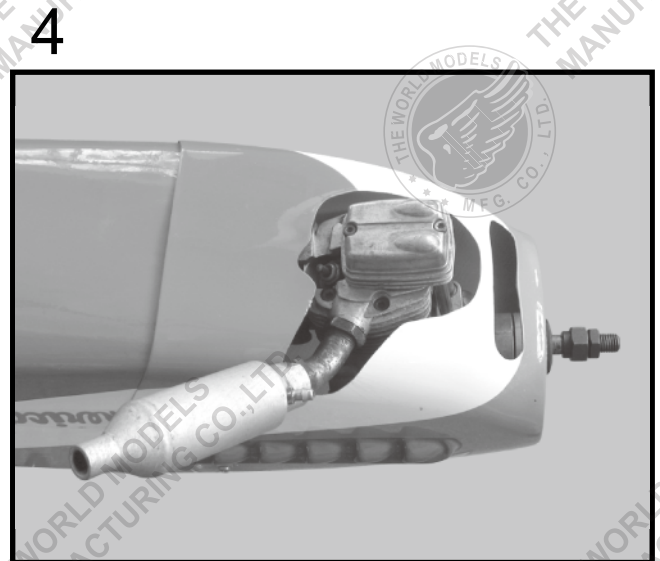
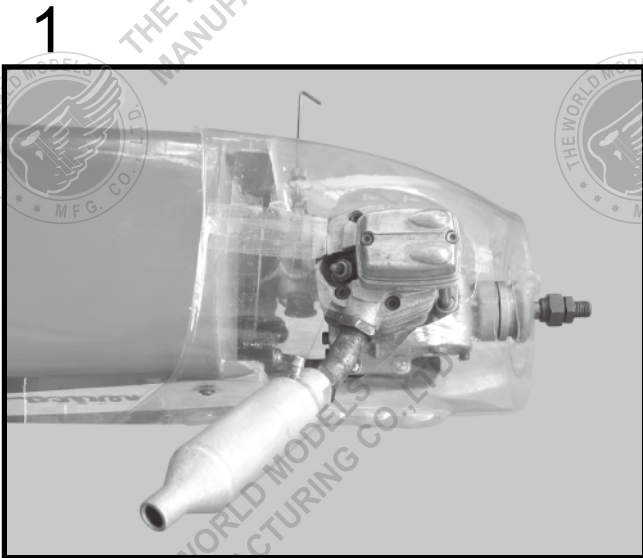
- #First time flyer should never fly by himself/ herself. Assistance from experienced flyer is absolutely necessary.
- #Pre-flight adjustment must be done before flying, it is very dangerous to fly a badly pre-adjusted aircraft.
- #ZERO / THUNDER BOLT P4-47 / SPITFIRE / YAK-9D is specially designed to be powered by 2C 0.25-0.32 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 neat 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.



# Usage of the transparent 3D template



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

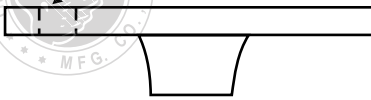


Simply cut the transparent 3D template to fit your engine and exhaust pipe, then slide onto the actual cowling and use as template to mark the openings required for final cutting.

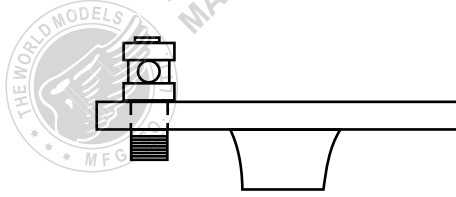
# LINKAGE CONNECTOR

## HW7111050 & HW7111060

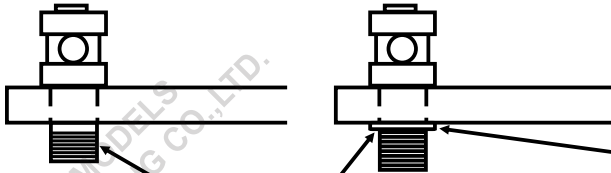
Drill 2mm hole at servo horn.



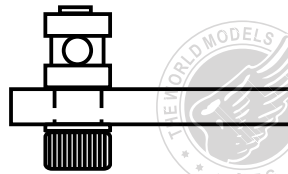
Insert linkage connector into servo horn.



Make sure shoulder of screw is cleared from servo horn.  
Add washer to reduce play if necessary.



Shoulder



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, 2403 Research Drive, Livermore, CA 94550 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.





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