

27% *Ultimate*



Requires : 50 c.c. engine, 4 - channel radio w/ 8 high torque servos.

Specifications

Wing Span	63 in / 1600 mm
Wing Area	1420 sq in / 91.6 sq dm
Flying Weight	13-15 lbs / 5900-6810 g
Fuselage Length	66.5 in / 1690 mm

* 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.



TWM
The World Models
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FACTORY PRE-FABRICATED
 ALMOST-READY-TO-FLY (ARF) SERIES
 MADE IN CHINA

27% Ultimate

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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.
- 3 Symbols used throughout this instruction manual comprise of the following :-

AB

Apply epoxy glue.

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

Apply thread locker

N.I.

Must be purchased separately!

L/RAssemble left and right
sides the same way.Ensure smooth non-binding
movement while assembling.Peel off shaded portion
covering film.

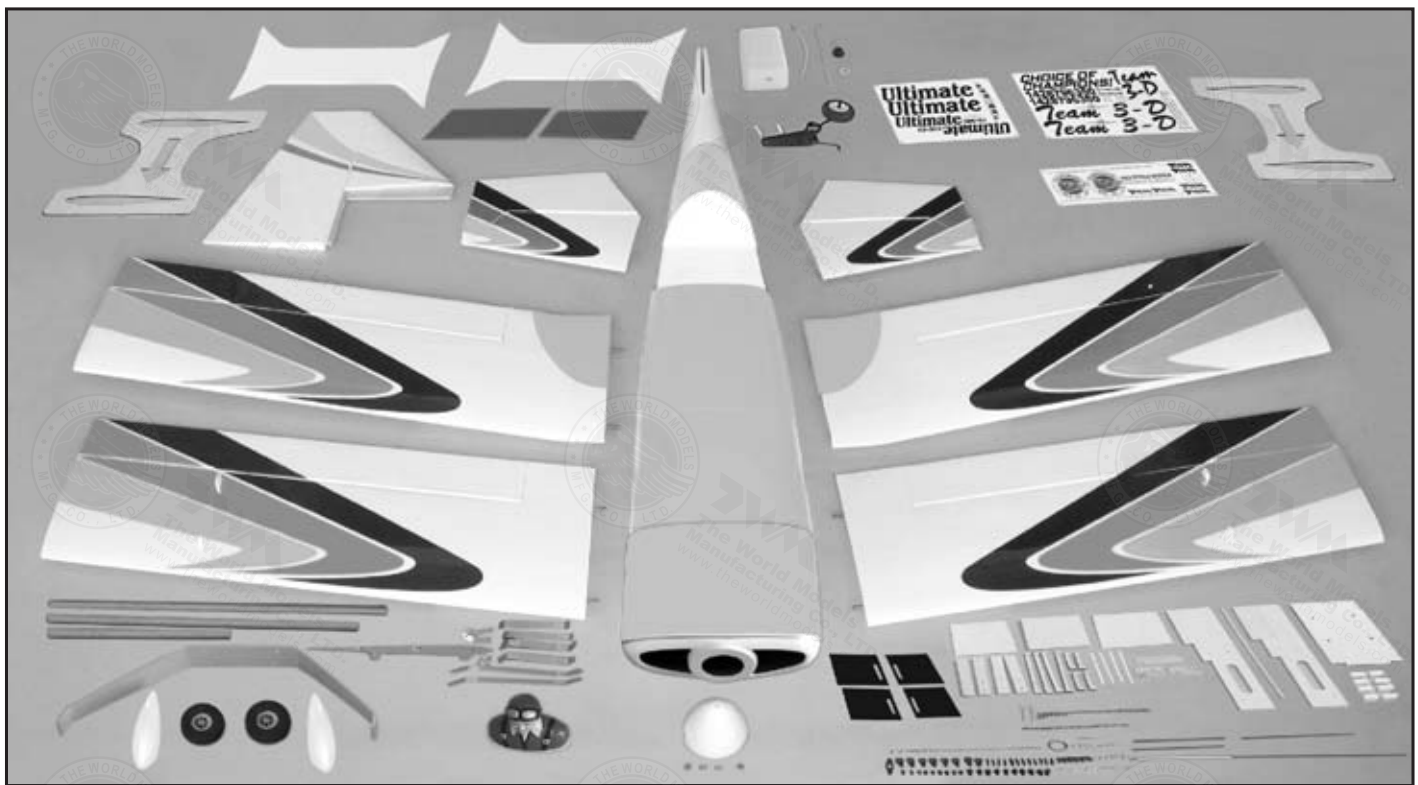
Cut off shaded portion.

Drill holes with the specified
diameter (here: 3mm).Pierce the shaded portion
covering film.

Pay close attention here!

**Warning!**

Do not overlook this symbol!



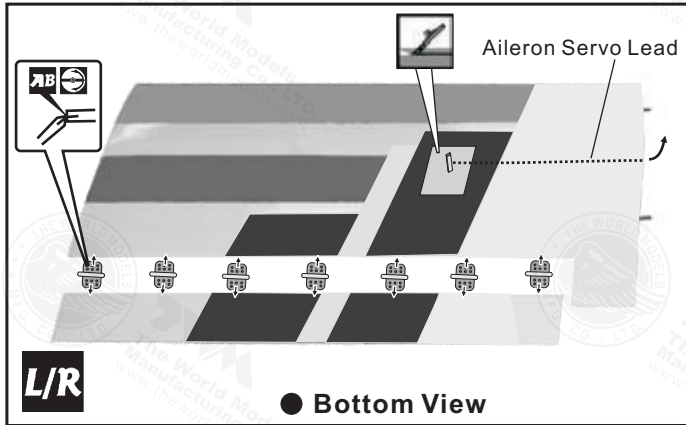
Parts List

1. MAIN WING (Upper Wing) -- 1 pair
MAIN WING (Lower Wing) -- 1 pair
METAL HINGES -- 28 pcs
2. SERVO MOUNTING PANEL (For Aileron Servo) -- 1 pair
HEAVY DUTY SERVO HORN PL4120350 -- 2 sets
SCREW PM4x50mm -- 2 pcs
SCREW PWA2x12mm -- 8 pcs
M4 NYLON INSERT LOCK NUT -- 2 pcs
HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
HEAVY DUTY CLEVIS PL412200 -- 4 sets
SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets
PUSHROD Ø2.5x70mm w/Threads (For Aileron) -- 2 pcs
3. SERVO MOUNTING PANEL (For Aileron) -- 1 pair
HEAVY DUTY SERVO HORN PL4120350 -- 2 sets
SCREW PM4x50mm -- 2 pcs
SCREW PWA2x12mm -- 8 pcs
M4 NYLON INSERT LOCK NUT -- 2 pcs
HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
HEAVY DUTY CLEVIS PL412200 -- 4 sets
SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets
PUSHROD Ø2.5x70mm w/Threads (For Aileron) -- 2 pcs
4. STABILIZER & ELEVATOR -- 1 set
FUSELAGE -- 1 pc
STABILIZER TUBE Ø14.5x319mm -- 1 pc.
SCREW PWA3x12mm -- 2 pcs
WIRE Ø3 x186mm -- 1 pc.
METAL HINGES -- 8 pcs
5. VERTICAL FIN & RUDDER -- 1 set
METAL HINGES -- 5 pcs
6. TAIL LANDING GEAR -- 1 set
RUDDER WHEEL Ø30mm -- 1 pc.
COLLAR 2.6mm w/set screw -- 1 set
SCREW PA3x12mm -- 2 pcs
7. SCREW PM3x13mm -- 8 pcs
M3 NYLON INSERT LOCK NUT -- 8 pcs
WASHER d3xD7mm -- 16 pcs
FIRE WALL 6x115x120mm (F9) -- 1 pc.
ENGINE BOX SIDE PLATE 4x90x361.5mm (F8) -- 1 pc.
ENGINE BOX SIDE PLATE 4x90x366.5mm (F8') -- 1 pc.
LOWER PLATE 3x120x135.5mm (F8B) -- 1 pc.
BALSA 5x5x80mm (F9A) -- 1 pc.
BALSA 5x5x129.5mm (F9B) -- 2 pcs
BALSA 5x5x123.7mm (F9B') -- 2 pcs
BALSA 5x5x90mm (F9C) -- 2 pcs
BALSA 5x5x80mm (F9D) -- 1 pc.
PLYWOOD 4x15x153.5mm (F48) -- 4 pcs
PLYWOOD 4x15x64mm (F49) -- 4 pcs
BAMBOO D3.5x380mm -- 1 pc.
PLYWOOD 4x20x134mm (F26) -- 2 pcs
PLYWOOD 4x20x134mm (F26A) -- 2 pcs
BALSA 5x5x50mm (F53) -- 2 pcs
BALSA 6x6x112mm (F53A) -- 1 pc.
8. CENTER WING CABANE -- 1 set
SCREW PM3x13mm -- 5 pcs
SCREW PM3x16mm -- 1 pc.
WASHER d3xD7mm -- 12 pcs
M3 NYLON INSERT LOCK NUT -- 6 pcs
BALSA 6x6x241.1mm (F18B) -- 2 pcs
BALSA 6x6x246.7mm (F18C) -- 2 pcs
9. MAIN LANDING GEAR -- 1 pair
SOCKET HEAD SCREW M5x16mm -- 4 pcs
AXLE SHAFT Ø4x54mm -- 2 pcs
WHEEL PANTS -- 1 pair
SCREW PA3x12mm -- 4 pcs
WHEEL Ø76mm -- 2 pcs
M8 NYLON INSERT LOCK NUT -- 2 pcs
COLLAR Ø4.1mm w/set screw -- 4 sets
10. SCREW M4x80mm -- 1 pc.
M4 NYLON INSERT LOCK NUT -- 2 pcs
EYE SCREW M2.5x8x25mm w/Threads (For Rudder) -- 2 pcs
HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
HEAVY DUTY CLEVIS PL4112400 -- 2 sets
SWIVEL CLEVIS HORN FAIRING PL4610020 -- 2 sets
COPPER TUBE d2.5xD3.2x8mm (For Rudder) -- 2 sets
WIRE Ø1x800mm (For Rudder) -- 2 sets
11. SCREW PM4x70mm -- 2 pcs
M4 NYLON INSERT LOCK NUT -- 2 pcs
HEAVY DUTY HORN BRACKET PL4112400 -- 2 sets
HEAVY DUTY SERVO HORN PL412035 -- 2 sets
HEAVY DUTY CLEVIS PL4112200 -- 4 sets
SWIVEL CLEVIS HORN FAIRING PL4610010 -- 2 sets
PUSHROD Ø2.5x145mm w/Threads (For Elevator) -- 2 pcs
12. FUEL TANK 650cc PL11165G (Gasoline Fuel) -- 1 set
FUEL TANK HOLD DOWN PLATE 3x95x281mm (F2A) -- 1 pc.
SCREW PM3x12mm -- 2 pcs
WASHER d3xD7mm -- 2 pcs
SPONGE 10x80x200mm -- 1 pc.
CABLE TIE 400mm (For Fuel Tank) -- 2 pcs
13. BLIND NUT M6 -- 4 pcs
SOCKET HEAD SCREW M6x20mm -- 2 pcs
WASHER d6xD15mm -- 4 pcs
UPPER CONNECTOR 3x120x129.5mm (F8C) -- 1 pc.
LINKAGE CONNECTOR Ø2.1mm -- 1 set
THROTTLE PUSHWIRE Ø1.2x520mm -- 1 pc.
w/Plastic Tube d2xD3x300mm -- 1 pc.
14. HEAVY DUTY SERVO HORN PL4120800 -- 1 set
HEAVY DUTY CLEVIS PL4112200 -- 2 sets
EYE SCREW M2.5x8x25mm w/Threads (For Rudder) -- 2 pcs
COPPER TUBE d2.5xD3.2x8mm (For Rudder) -- 2 pcs
SPONGE 10x80x200mm -- 1 pc.
15. WING TUBE Ø14.5x806mm -- 1 pc.
SCREW PM3x16mm -- 1 pc.
SCREW PA3x16mm -- 1 pc.
WASHER d3xD7mm -- 2 pcs
16. WING TUBE Ø14.5x645mm -- 1 pc.
SCREW PM3x16mm -- 1 pc.
SCREW PA3x16mm -- 1 pc.
WASHER d3xD7mm -- 2 pcs
17. PLYWOOD (OUTER WING CABANES) -- 1 pair
PLYWOOD 3x330.8x388.6mm (Wing Incidence Angle Template) -- 2 pcs
SCREW PM3x18mm -- 8 pcs
WASHER d3xD7mm -- 16 pcs
M3 NYLON INSERT LOCK NUT -- 8 pcs
18. CANOPY -- 1 pc.
COCKPIT -- 1 pc.
PILOT PC001085A/B -- 1 pc.
SCREW PWA 2.3x8mm -- 4 pcs
SCREW PM3x16mm -- 2 pcs
WASHER d3xD7mm -- 2 pcs
SILICON GROMMET d1.5xD6.5mm -- 4 pcs
19. COWLING -- 1 pc.
SPINNER (w/alu. back plate) Ø89mm -- 1 set
SCREW PA3x12mm -- 5 pcs
WASHER d3xD7mm -- 5 pcs
SILICON GROMMET d2.5xD8.5mm -- 5 pcs
20. DECALS -- 1 set
 - COVERING:--
 - PURPLE COLOR SCHEME:
TOUGHLON STL 100 WHITE
TOUGHLON STL 201 BLACK
TOUGHLON STL 561 PEARL PURPLE
TOUGHLON STL 370 SILVER
 - YELLOW COLOR SCHEME:
TOUGHLON STL 100 WHITE
TOUGHLON STL 201 BLACK
TOUGHLON STL 330 CADMIUM YELLOW
TOUGHLON STL 370 SILVER

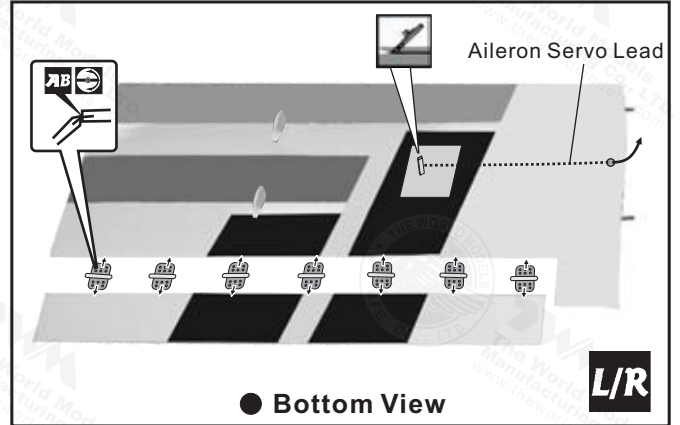
1 Main Wing

● Replace CA hinges by metal hinges. Glue the metal hinges to wing and aileron by epoxy.

Main Wing (Lower)

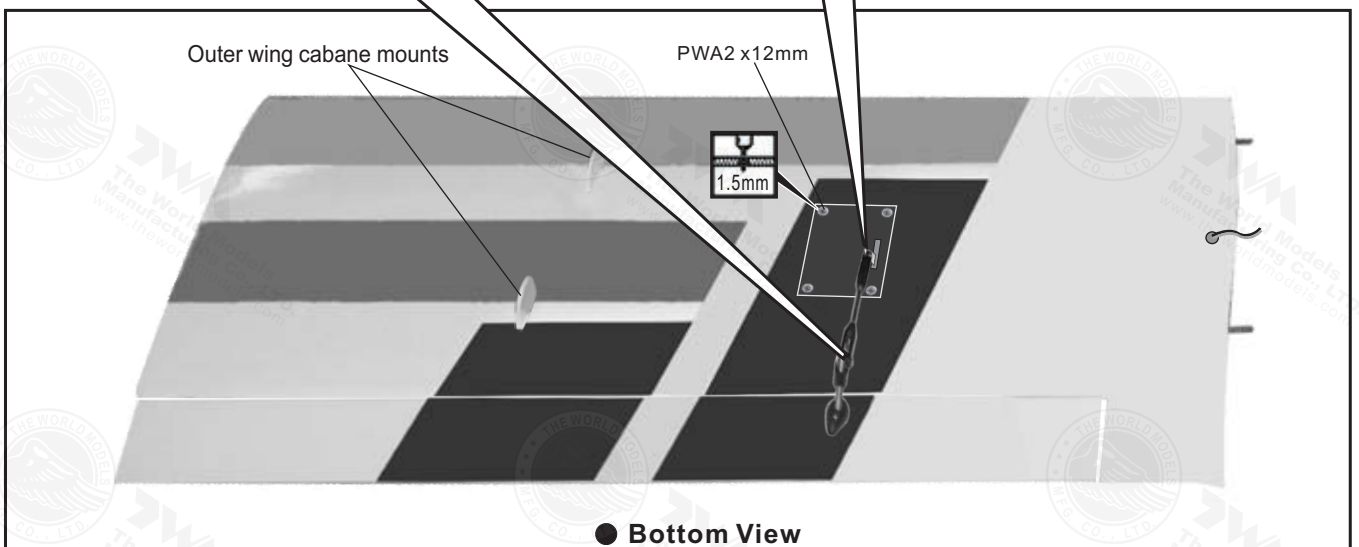
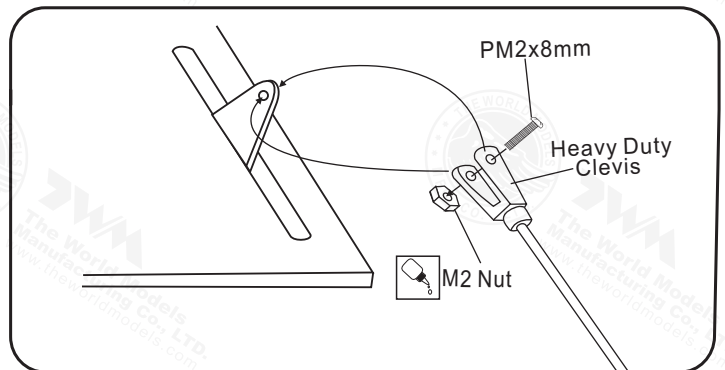
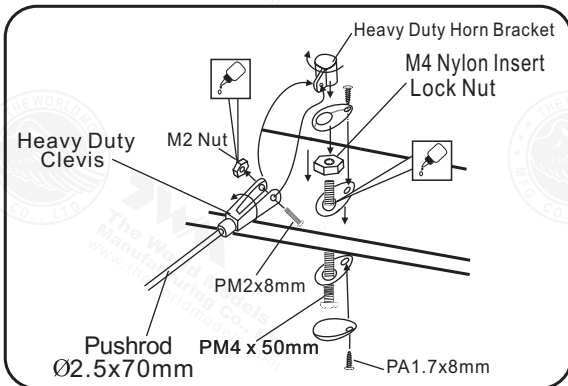
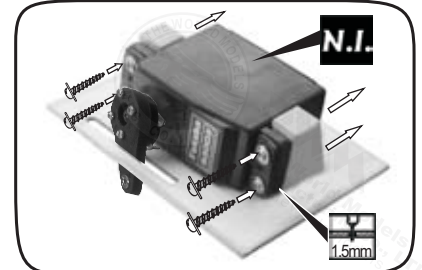
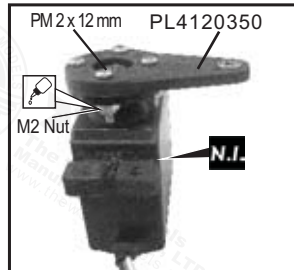


Main Wing (Upper)



2 Aileron Servo (Upper Wing)

- PM4x50mm Screw 2
- M4 Nylon Insert Lock Nut 2

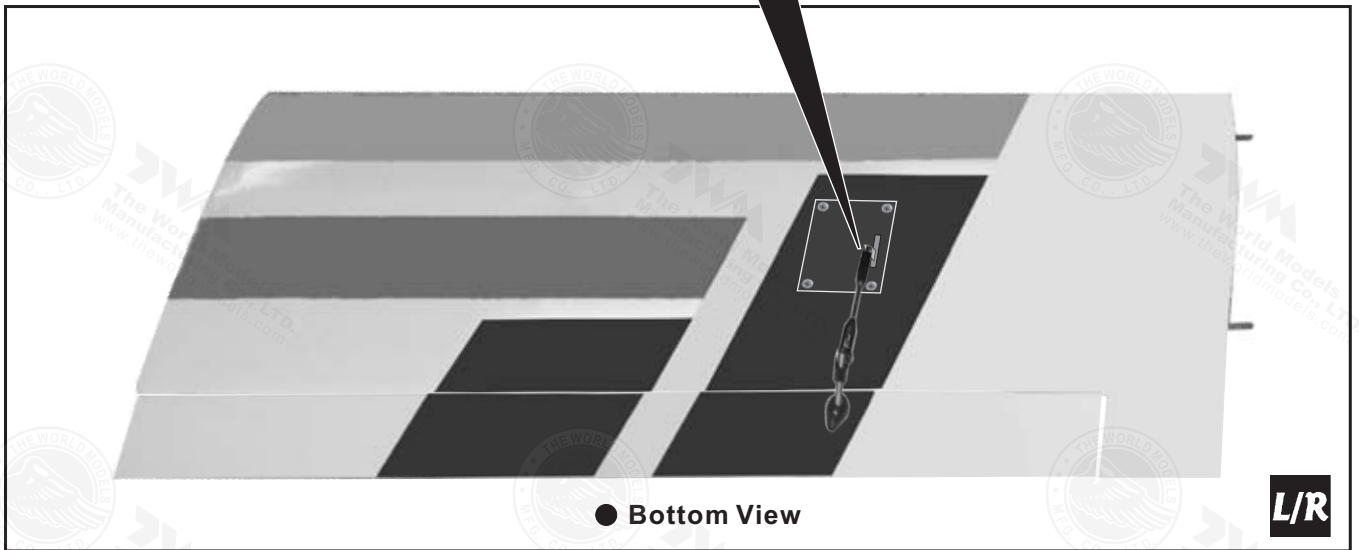
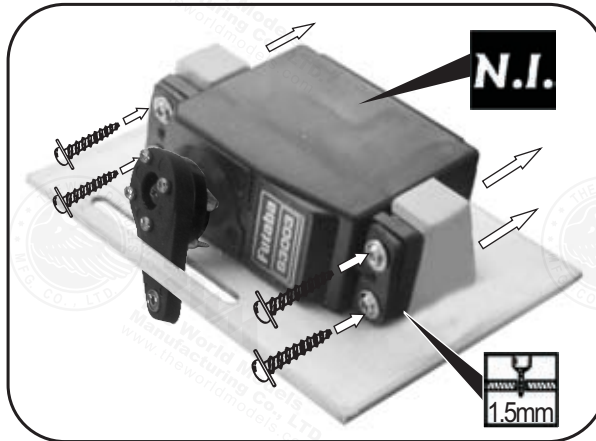


L/R

3 Aileron Servo (Lower Wing)

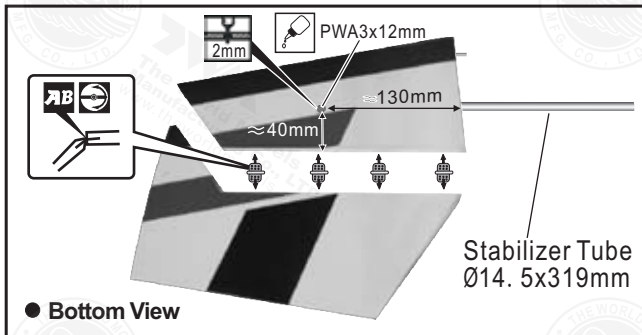
- PM4x50mm Screw — 2
- M4 Nylon Insert Lock Nut — 2

Similar installation as upper wing.

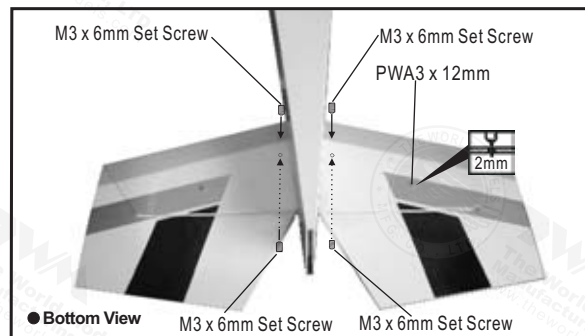
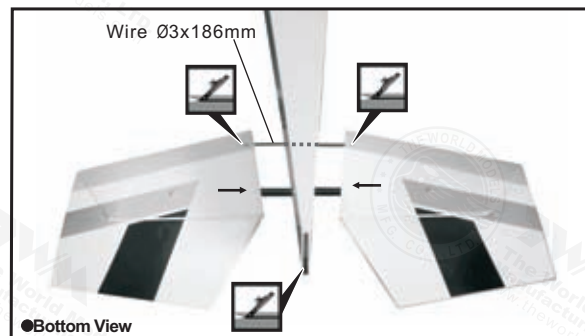


4 Stabilizer & Elevator

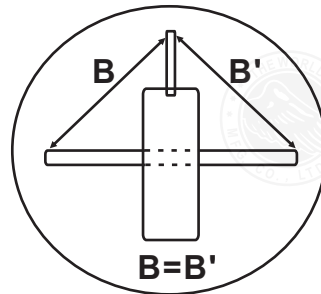
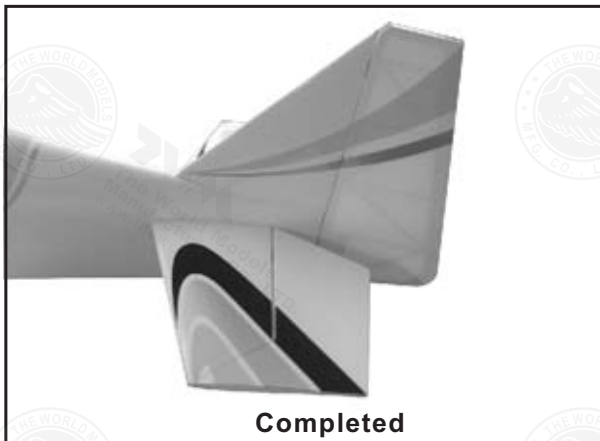
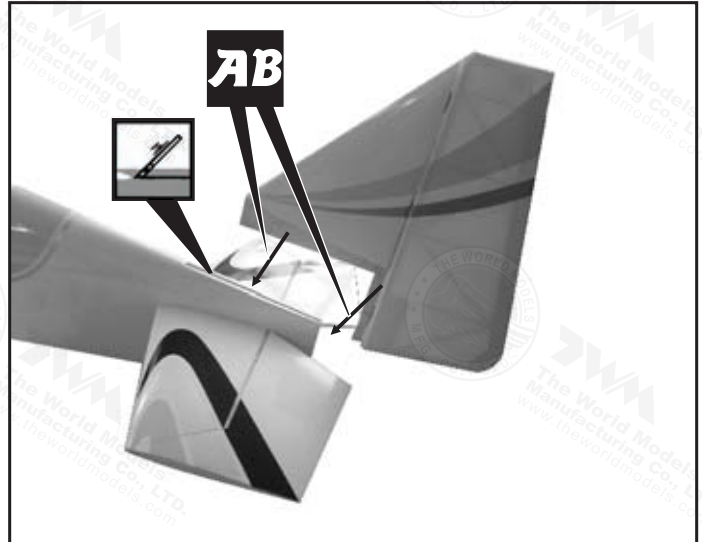
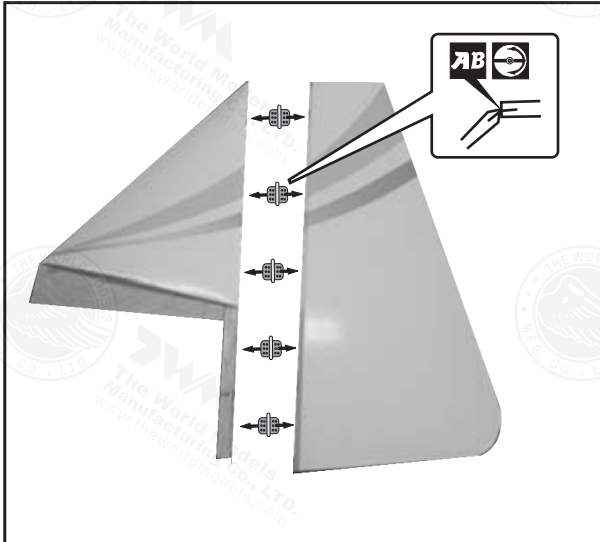
- PWA3 x 12mm Screw — 2



● Replace CA hinges by metal hinges. Glue the metal hinges to stabilizer and elevator by epoxy.



5 Vertical Fin & Rudder



- Replace CA hinges by metal hinges. Glue the metal hinges to vertical and rudder by epoxy.

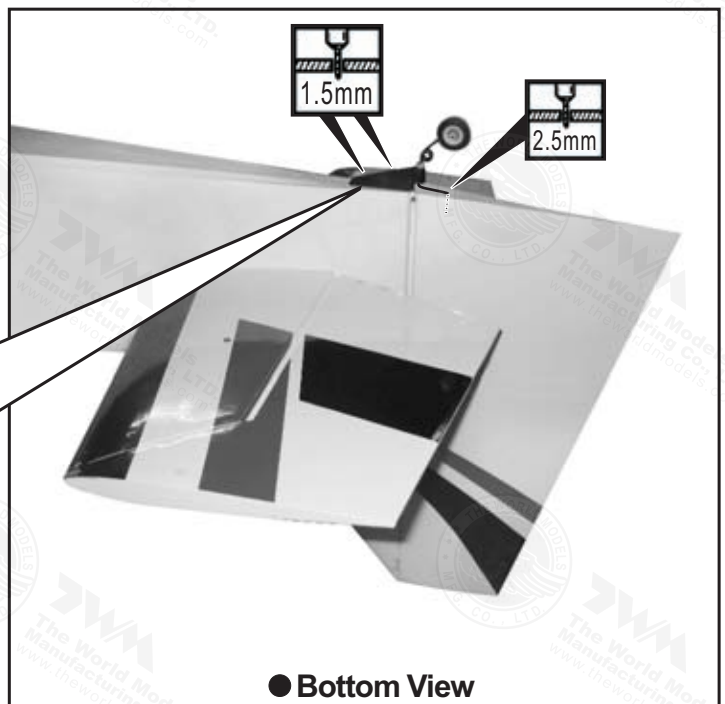
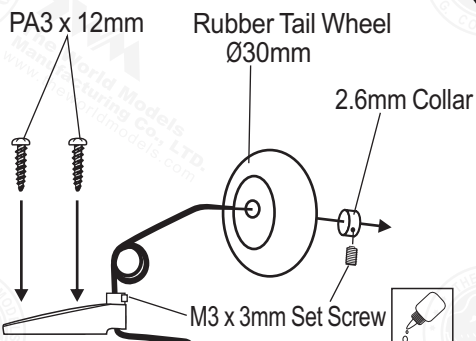
6 Tail Landing Gear

PA3 x 12mm Screw

2

2.6mm Collar

1



7 Engine Box

PM3x13mm **Screw**

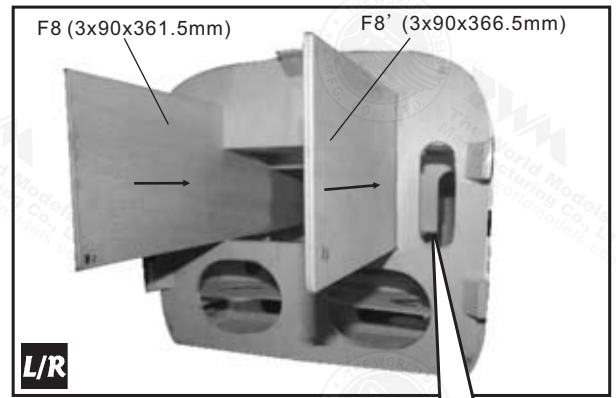
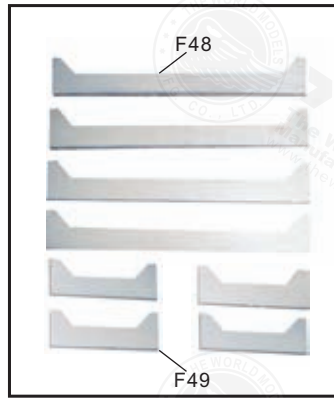
M3 Nylon Insert Lock Nut

d3xD7mm **Washer**

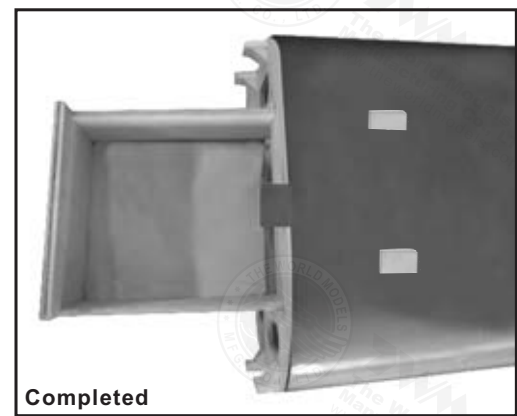
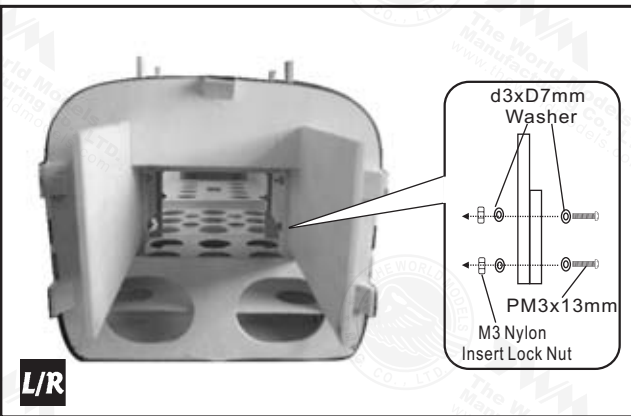
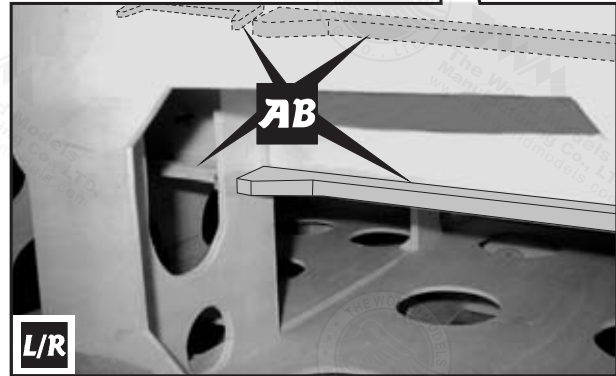
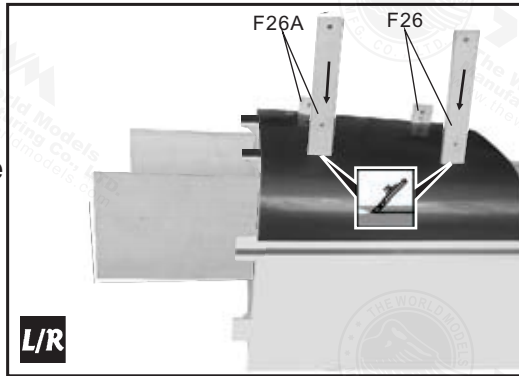
d3xD7mm **Washer**

d3xD7mm **Washer**

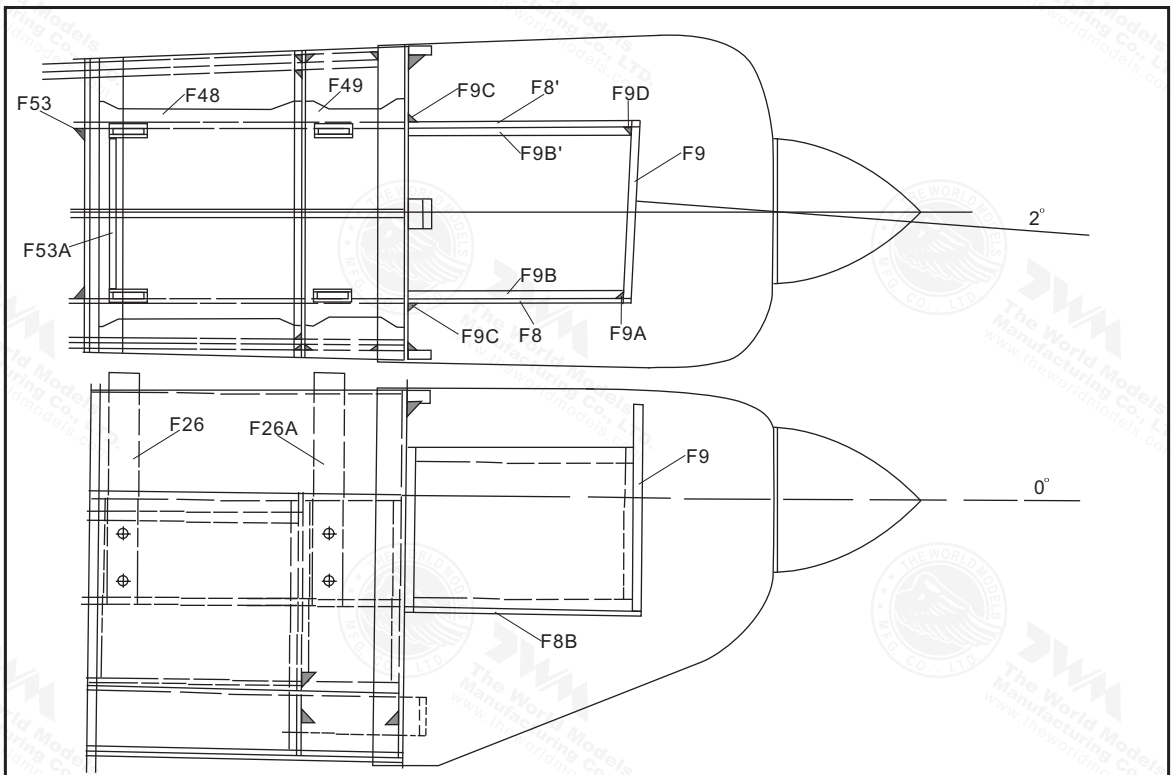
d3xD7mm **Washer**



!
Please note
right thrust
angle of
firewall.

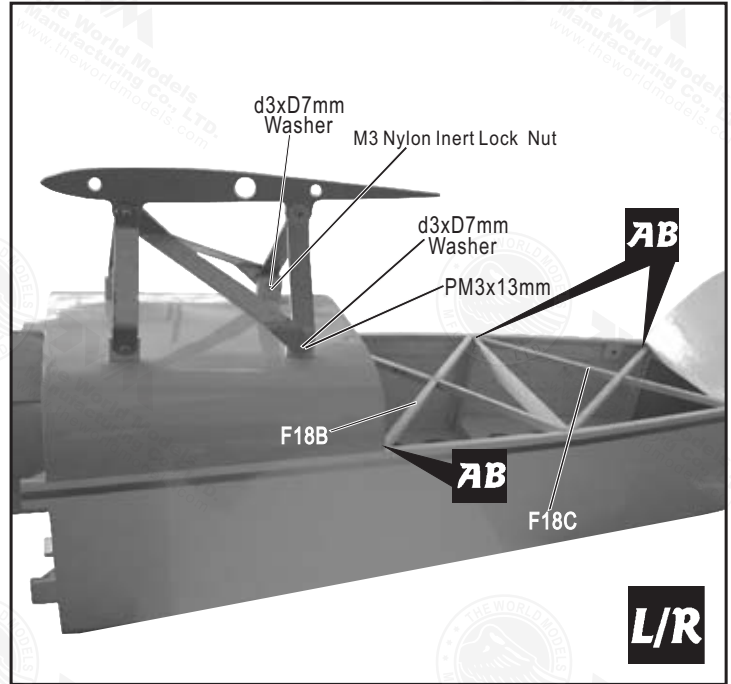
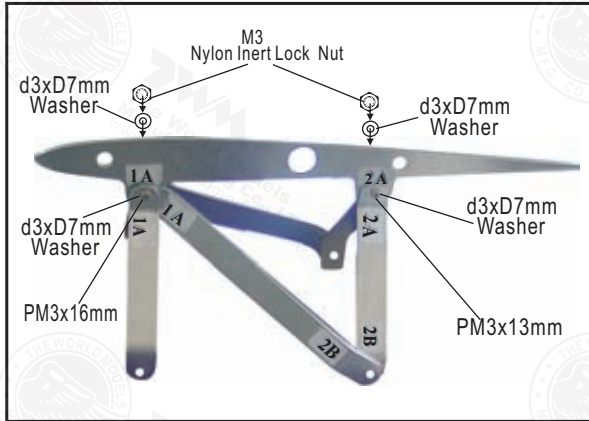


● Use epoxy to glue all parts together.



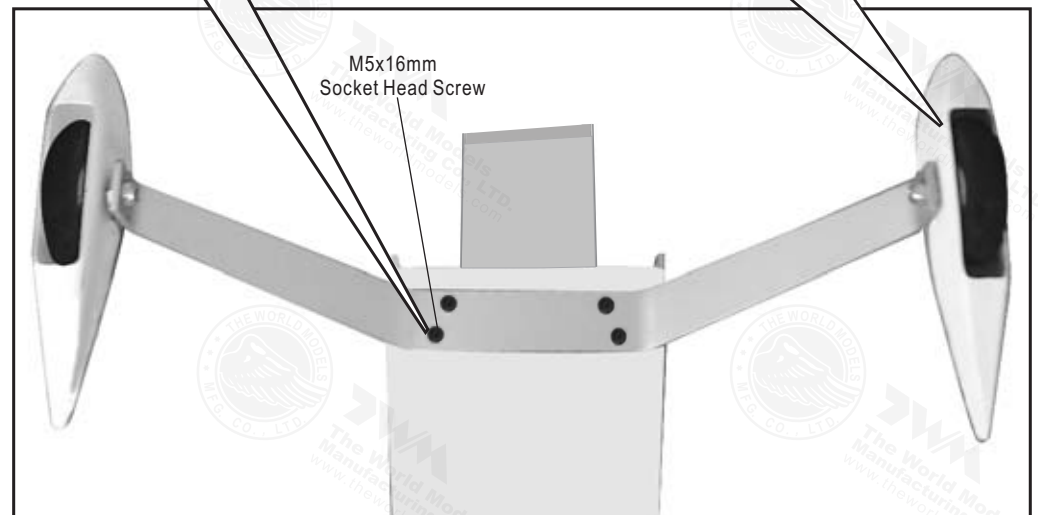
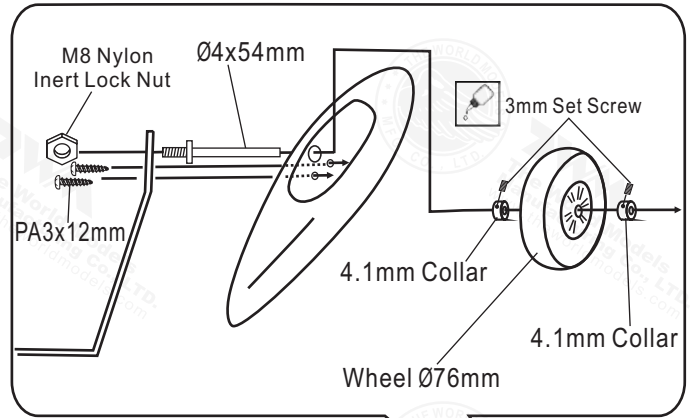
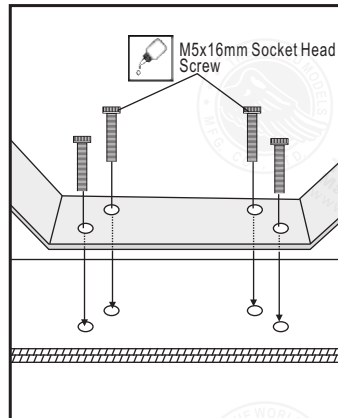
8 Wing Cabane

PM3x 13mm Screw	5
PM3x 16mm Screw	1
d3xD7mm Washer	12
M3 Nylon Inert Lock Nut	6



9 Main Landing Gear

Ø4x54mm Axle Shaft	2
M5x16mm SOCKET HEAD SCREW	4
PA3x12mm Screw	4
4.1mm Collar	4
M8 Nylon Inert Lock Nut	2



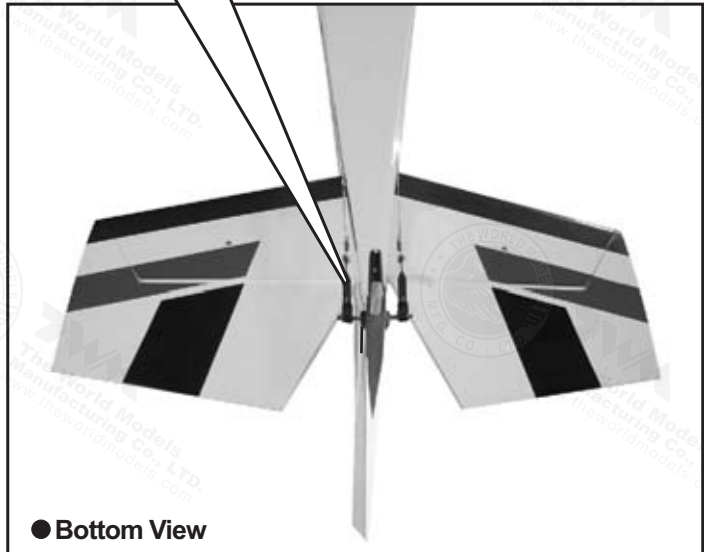
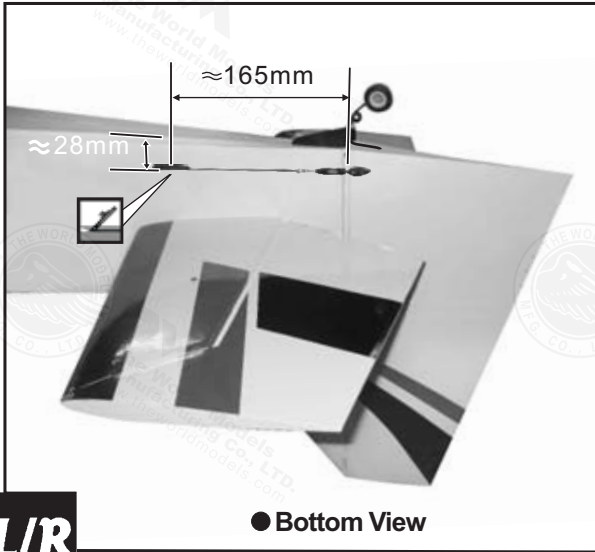
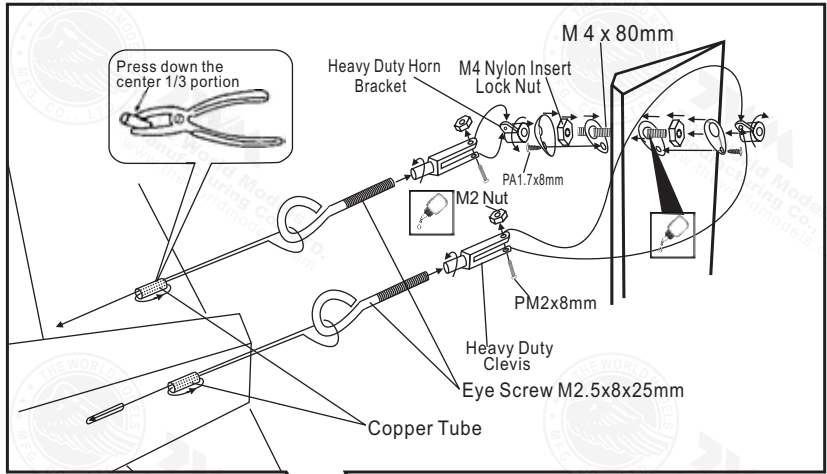
L/R

10 Rudder Pullwire

M 4 x 80mm Screw

M4 Nylon Insert Lock Nut

1
2

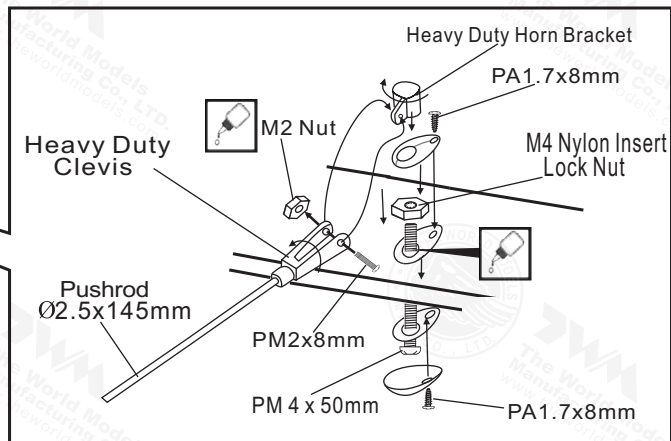
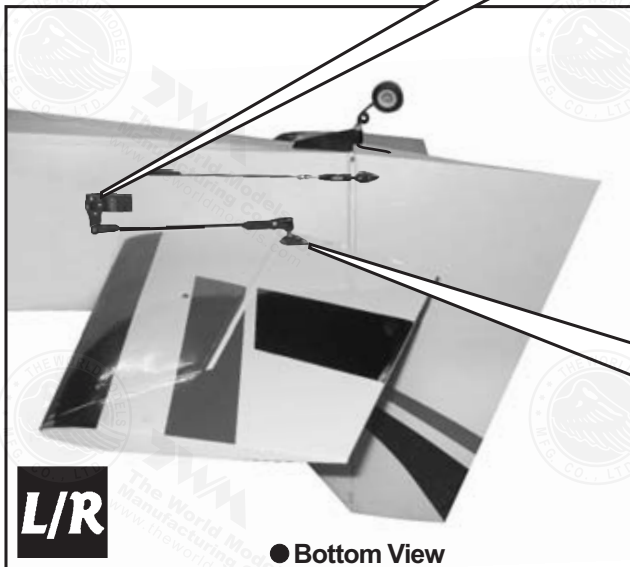
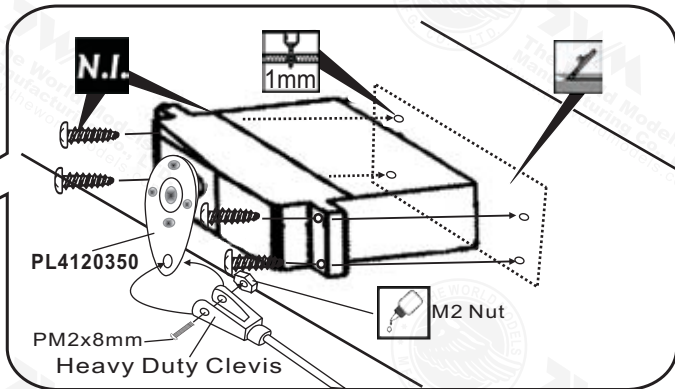


11 Elevator Pushrod

PM 4 x 50mm Screw

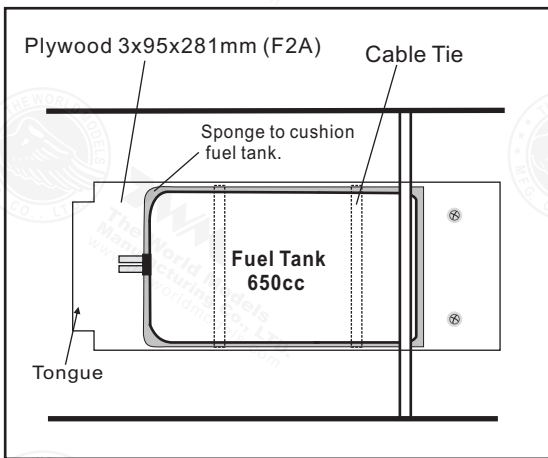
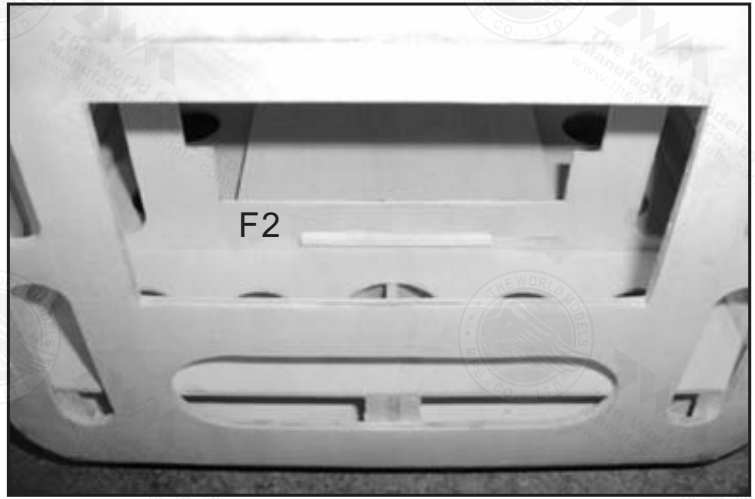
M4 Nylon Insert Lock Nut

2
2



12 Fuel Tank

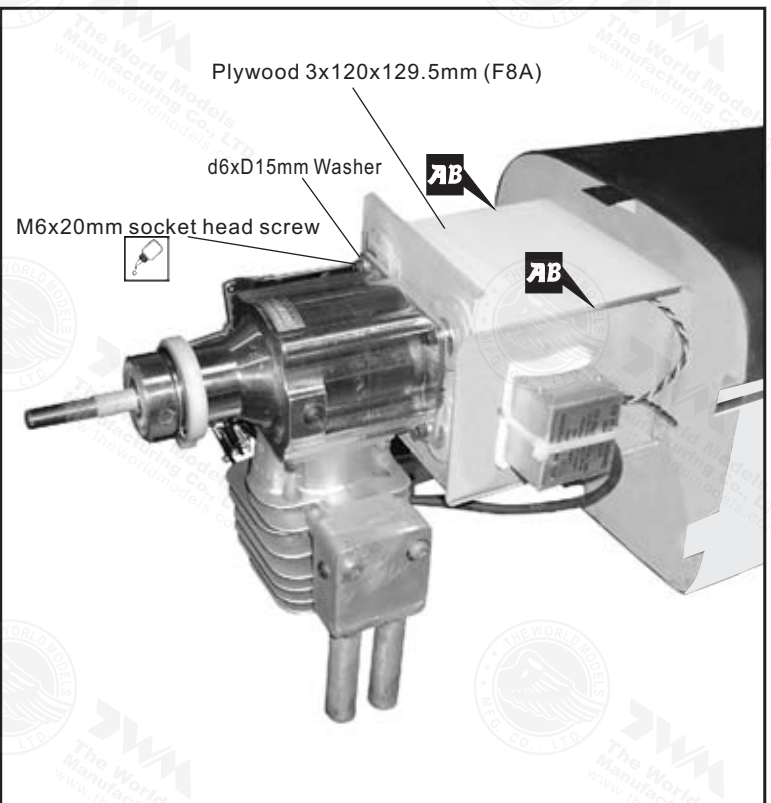
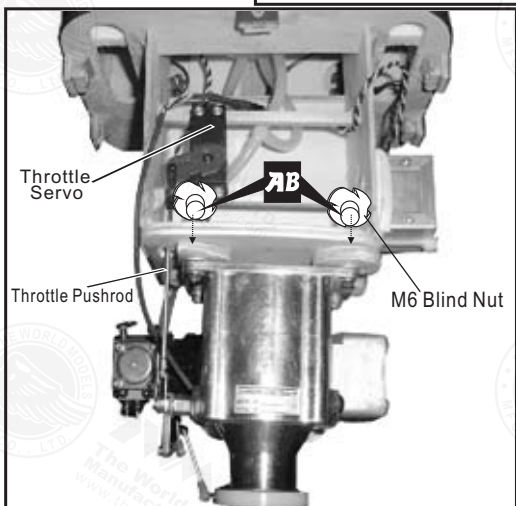
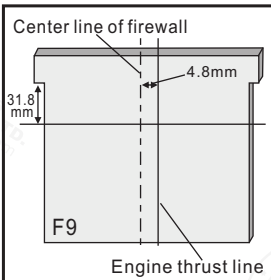
- PM3x12mm Screw — 2
- d3xD7mm Washer — 2



● Make sure that tongue on front of fuel tank hold down plate slides into slot of F2.

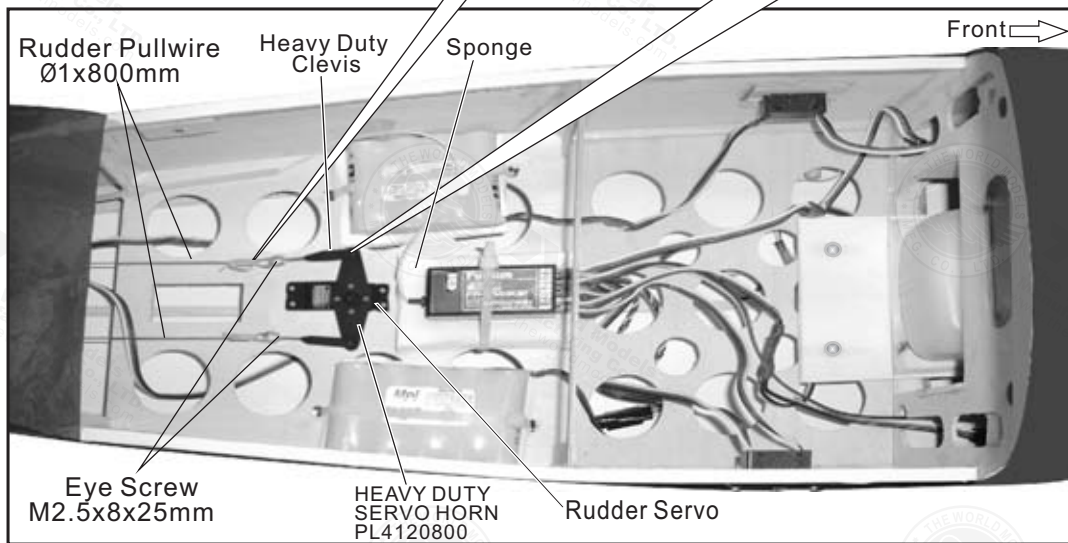
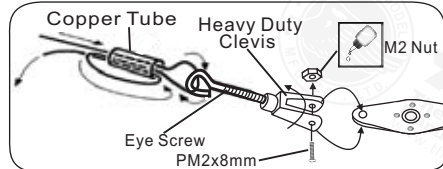
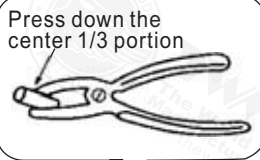
13 Engine

- M6 Blind Nut — 4
- M6x20mm SOCKET HEAD SCREW — 4
- d6xD15mm Washer — 4



14 Radio Equipment

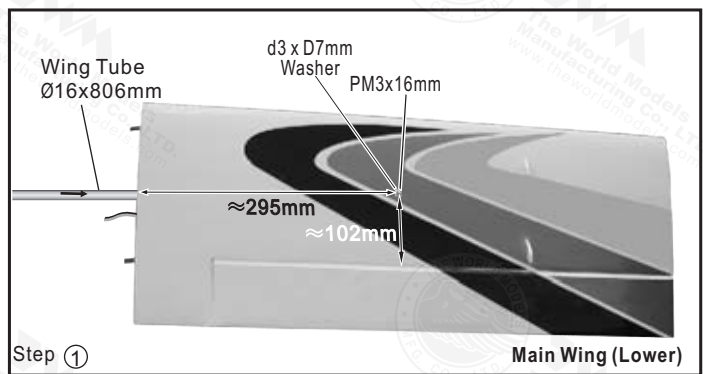
● Install and arrange the servo as shown in the diagram.



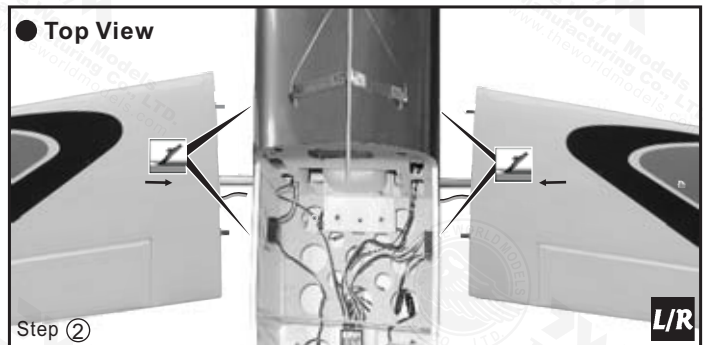
15 Main Wing (Lower)

- PM3x16mm Screw — 1
- PA3x16mm Screw — 1
- d3 x D7mm Washer — 2

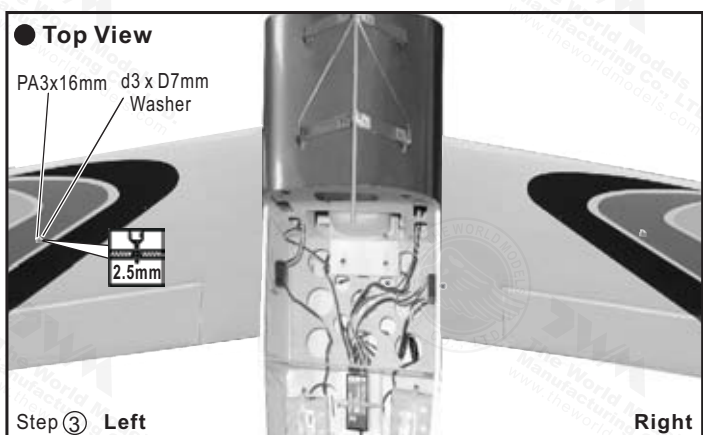
Step1. Insert aluminum wing tube (Ø16x806mm) with the pre-drilled hole end into the right wing (lower). Align the lines marked at the wing root and wing tube, then apply the PM3x16mm machine screw through the pre-drilled hole on top of the wing. (please confirm the alignment of the hole by putting a 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 PM3 screw, the set up 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 2mm hole at top of left wing, and drill along with 2mm drill bit until it passes through the wing tube. Apply the PA3x16mm self-tapping screw.

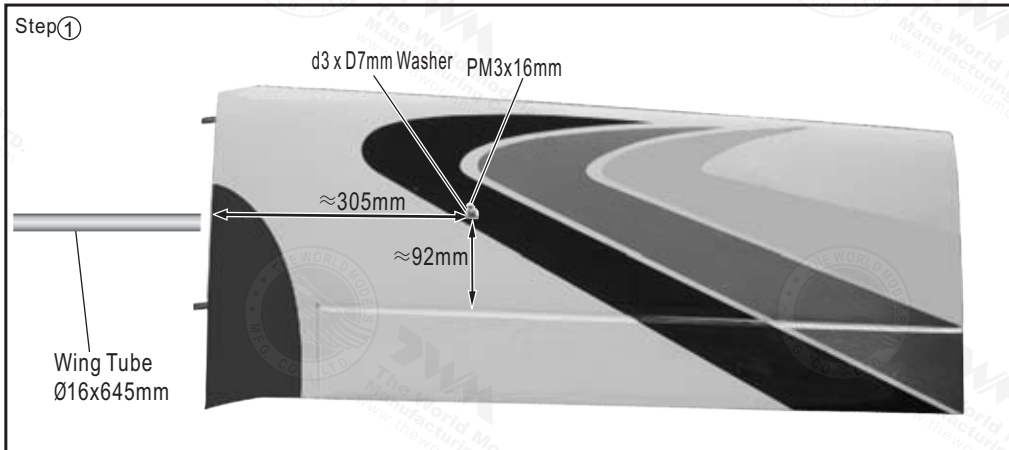


Note : It is recommended that the wing tube stays with the left wing. Removal of the wings could be achieved by removing the right wing machine screw, the right wing then the left wing with wing tube. If removal of wing tube from left wing is also required, it is recommended that instead of applying self-tapping screw in step 3, you pre-tap with M3 thread cutter and apply M3 machine screw.

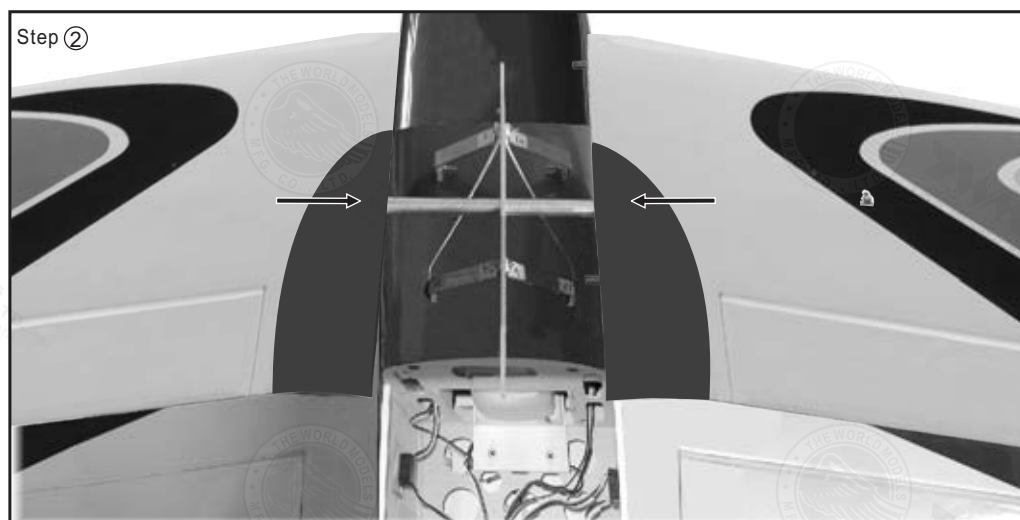
16 Main Wing (Upper)

Step 1. Insert aluminum wing tube (Ø16x645mm) with the pre-drilled hole end into the right wing (upper). Align the lines marked at the wing root and wing tube, then apply the PM3X16mm 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 hole before applying the screw) The hole on the wing tube is pre-threaded, do not over tighten the PM3 screw, the set up is for future removal of the wing.

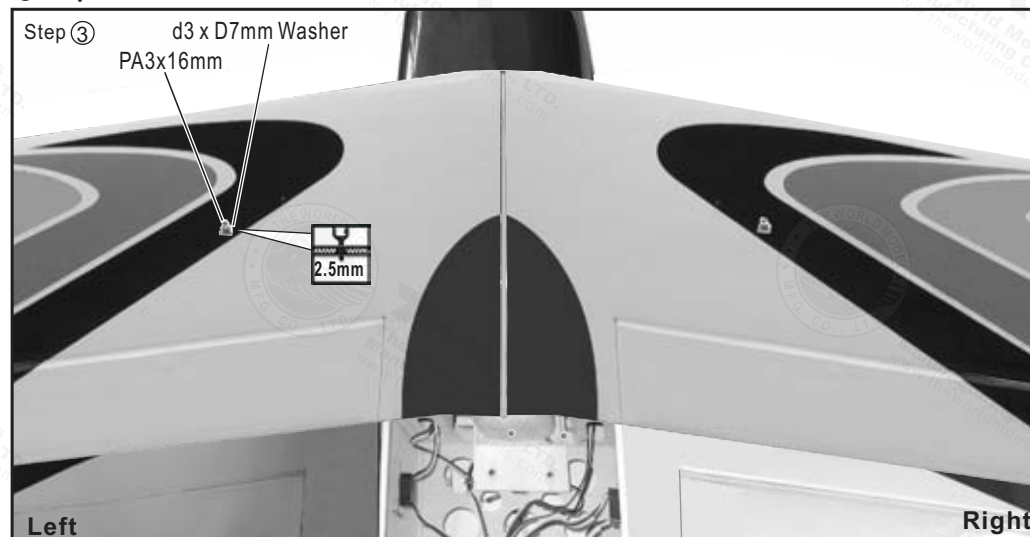
PM3x16mm Screw	1
PA3x16mm Screw	1
d3 x D7mm Washer	2



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






● Top View

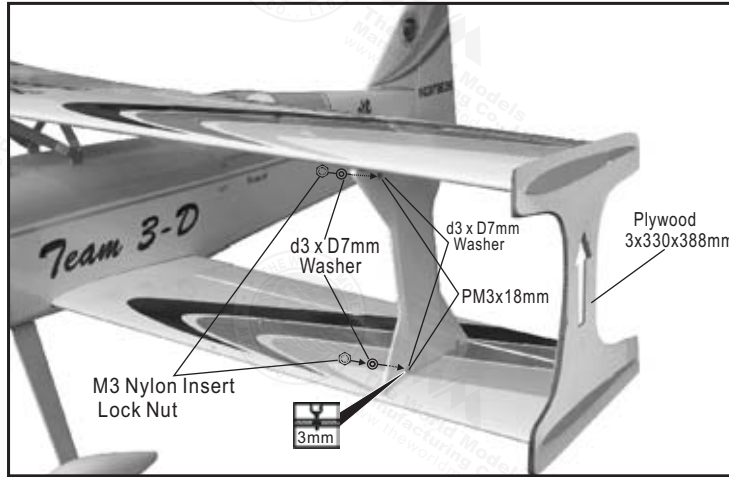


Step 3. Make sure the wings are resting against the center wing cabane tightly. Locate the pre-drilled 2mm hole at top of left wing, and drill along with 2mm drill bit until it passes through the wing tube. Apply the PA3x16mm self-tapping screw.

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.

17 Outer Wing Cabanes

	PM3x18mm Screw	8
	d3 x D7mm Washer	16
	M3 Nylon Insert Lock Nut	8







With the wing incidence angle template still in place, position the side cabanes, mark and drill the side cabane mounts and fasten with PM3x18mm screw and nut.

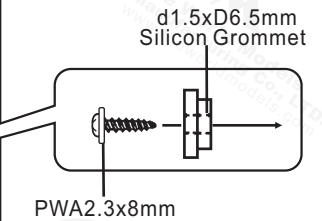
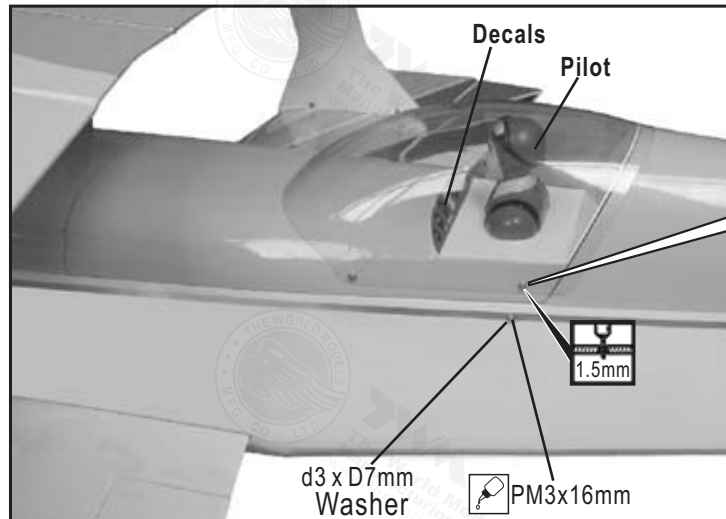
! Outer wing cabane should fit to the outside of outer wing cabane mounts.

L/R

18 Canopy

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




	PWA2.3x8mm Screw	4
	PM3x16mm Screw	2
	d3 x D7mm Washer	2
	d1.5 x D6.5mm Silicon Grommet	4

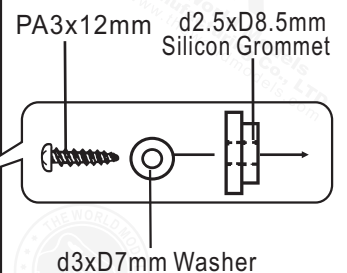
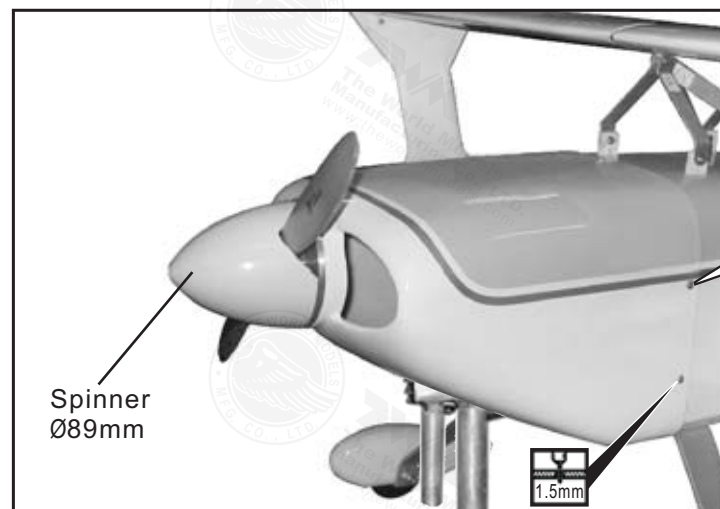


L/R

19 Cowling & Spinner

● First insert the grommet to the cowling then apply screw.

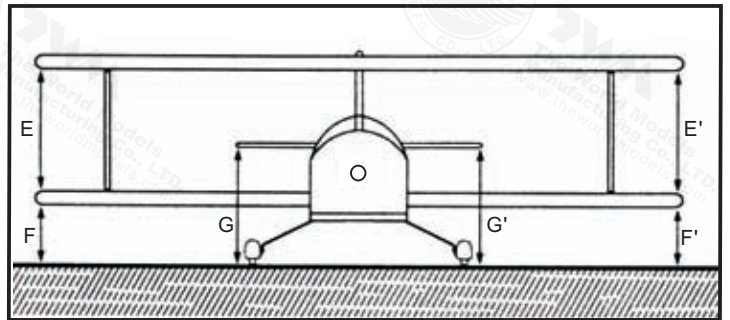
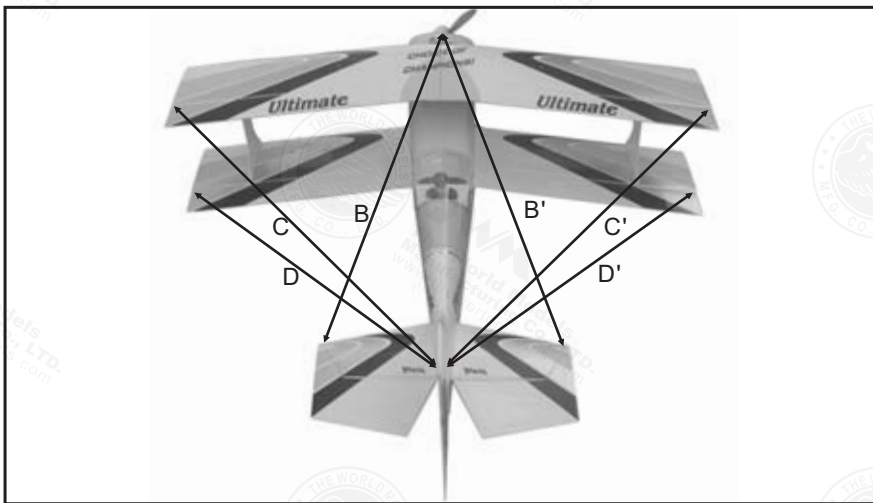
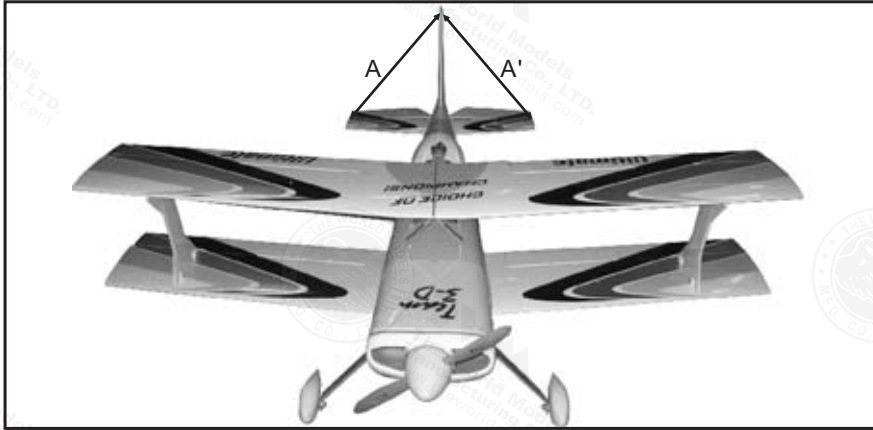
	PA3x12mm Screw	5
	d3 x D7mm Washer	5
	d2.5 x D8.5mm Silicon Grommet	5



L/R

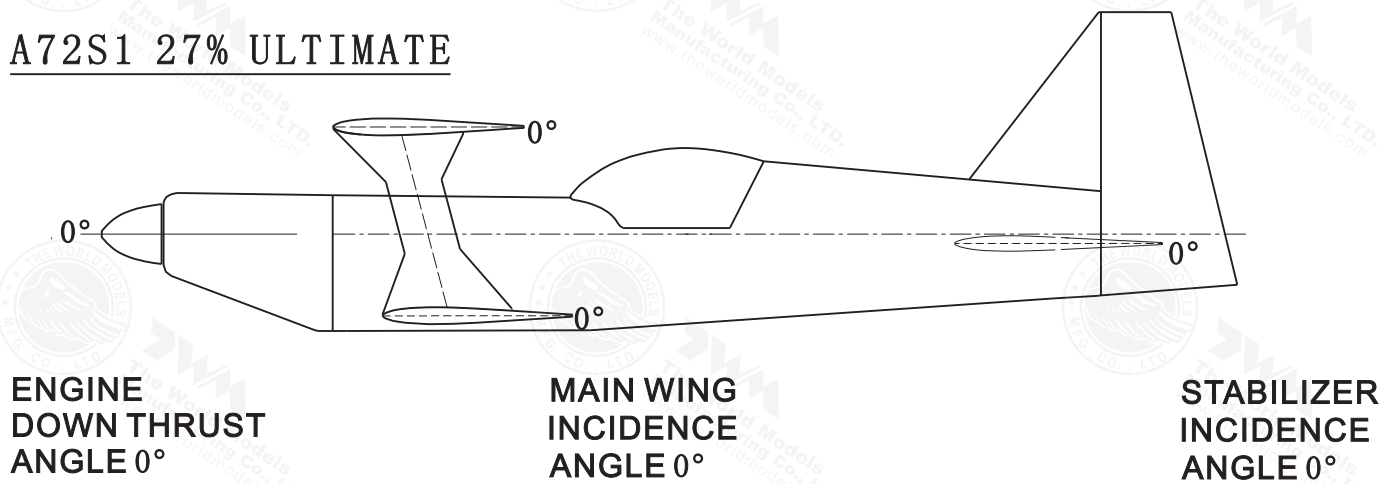
20 Wing Setting

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



A=A' B=B' C=C' D=D' E=E' F=F' G=G'

A72S1 27% ULTIMATE



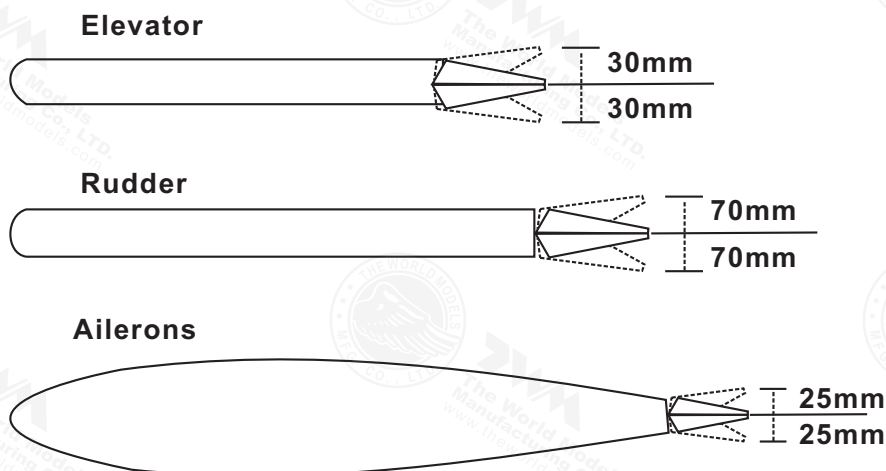
ENGINE
DOWN THRUST
ANGLE 0°

MAIN WING
INCIDENCE
ANGLE 0°

STABILIZER
INCIDENCE
ANGLE 0°

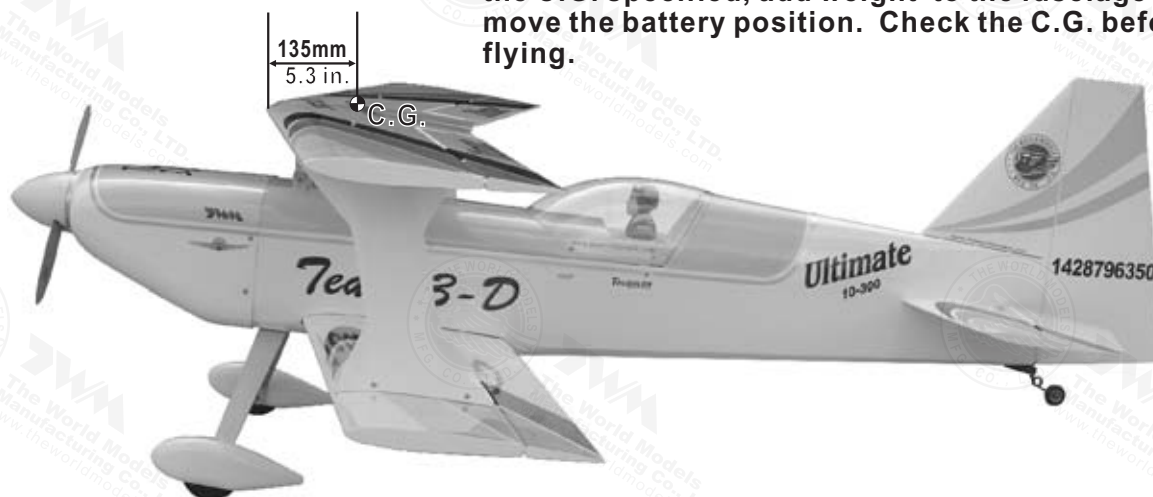
21 Control Throws

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



22 C.G.

The ideal C.G. position is at center of top wing tube. You can check the C.G. by hanging the plane with wire around the top wing tube. Unscrew the right wing bolt will leave a gap for the wire. In order to obtain the C.G. specified, add weight to the fuselage or move the battery position. Check the C.G. before flying.



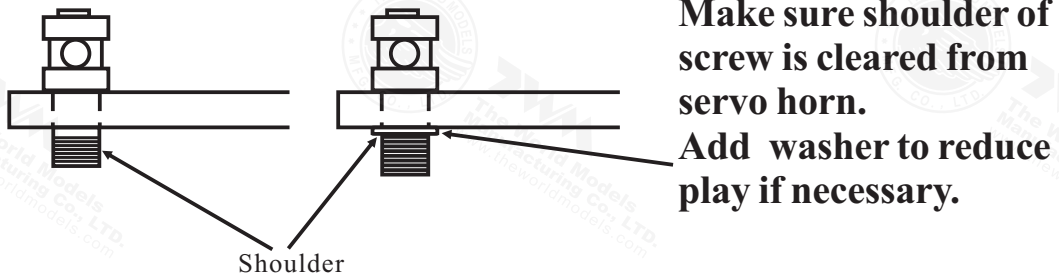
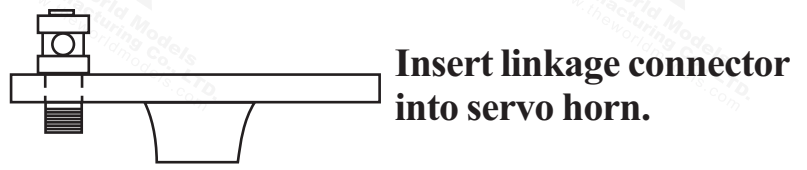
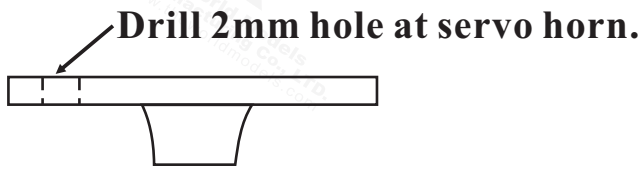
! Warning!

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.
- # **27% Ultimate** is specially designed to be powered by 50cc 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 applicable.

LINKAGE CONNECTOR

HW7111030 & HW7111060



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 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.