

SPITFIRE -60



0.60 -0.75 cubic inch displacement 2-stroke (glow)
0.70 -0.81 cubic inch displacement 4-stroke (glow)
Requires: 6-channel radio w/ 6 standard servos
and 1 low profile retract servo

Specifications

Wing Span	63.0 in / 1600 mm
Wing Area	704 sq in / 45.5 sq dm
Flying Weight	7.5 lb / 3300 g
Fuselage Length	53.5 in / 1350 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.



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

FACTORY PRE-FABRICATED
 ALMOST-READY-TO-FLY (ARF) SERIES
 MADE IN CHINA

SPITFIRE -60

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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 : -



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).



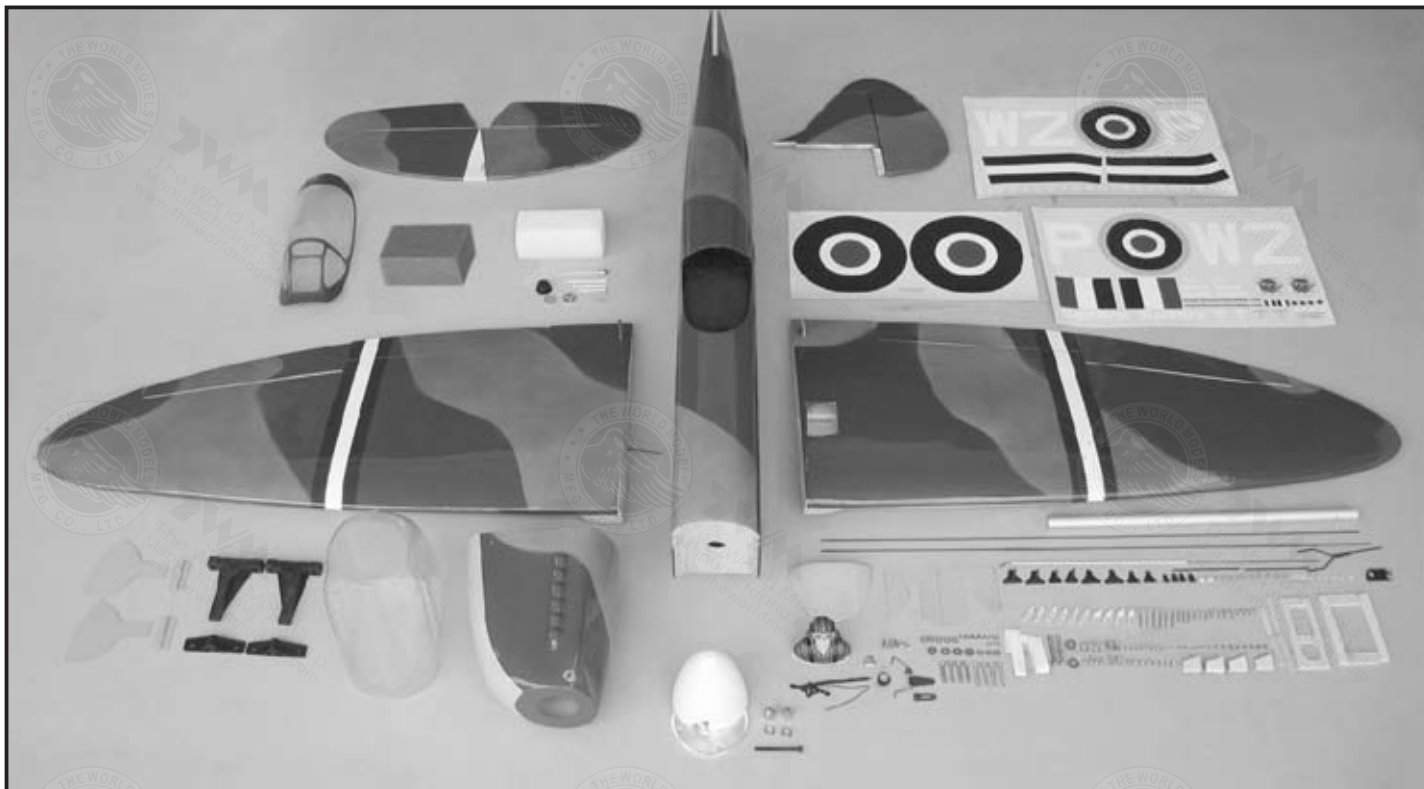
Pierce the shaded portion
covering film.



Pay close attention here!



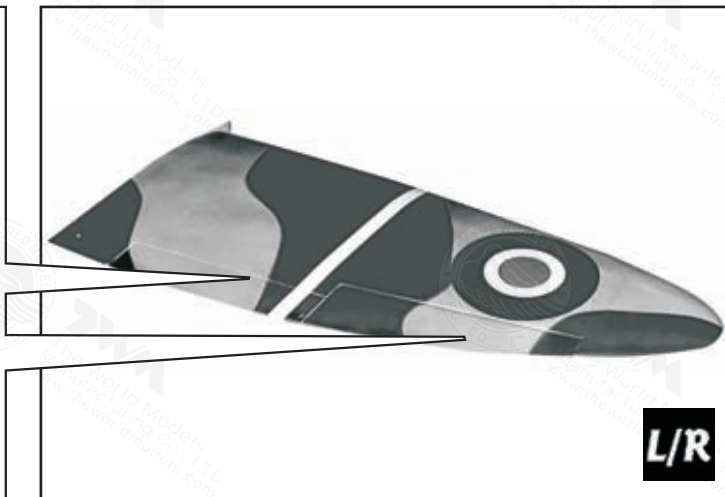
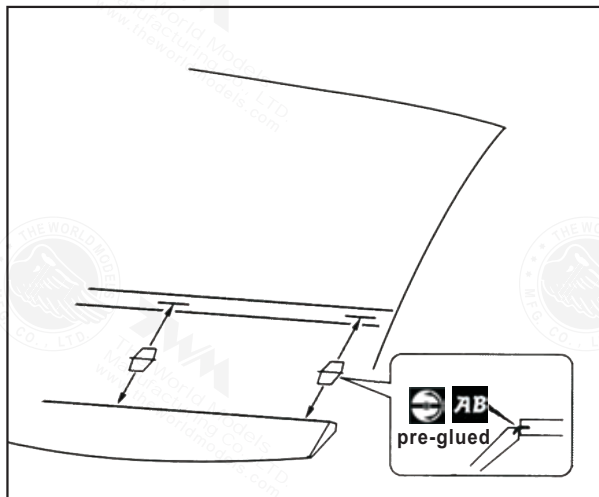
Do not overlook this symbol!



Parts List

1. MAIN WING -- 1 pair
 2. PLYWOOD 2x58x84mm (For Aileron Servo) -- 1 pair
BALSA 8x18x21mm (For Aileron Servo Stand) -- 4 pcs
STRAPER -- 2 pcs
TRI-HORN M3x14mm (S) -- 2 sets
FUEL TUBE Ø6x5mm -- 4 pcs
CLEVIS -- 2 pcs
PUSHROD Ø1.8x85mm w/ Threads (For Aileron) -- 2 pcs
SCREW PWA2x8mm -- 8 pcs
SCREW PB2x20mm -- 6 pcs
 3. WING TUBE Ø16x404mm -- 1 pc.
Y-TYPE PUSHROD Ø1.8x110mm (For Flap) -- 1 pc.
STRAPER -- 1 pc.
CLEVIS -- 2 pcs
RING Ø2.5mm -- 2 pcs
FUEL TUBE Ø6x5mm -- 3 pcs
 4. RETRACTABLE LANDING GEAR -- 1 pair
MAIN LANDING GEAR COVER -- 1 pair
RETRACTABLE LANDING GEAR COVER -- 1 pair
1mm PVC PLATE -- 2 pcs
SCREW PWA2.3x8mm -- 8 pcs
SCREW PM2x6mm -- 8 pcs
WASHER d2xD5mm -- 16 pcs
M2 NUT -- 8 pcs
MAIN WHEEL Ø76mm -- 2 pcs
COLLAR 4.6mm w/ set screw -- 2 sets
 5. STABILIZER & ELEVATOR -- 1 set
FUSELAGE -- 1 pc.
 6. VERTICAL FIN & RUDDER -- 1 set
 7. PUSHROD Ø1.8x645mm w/ Threads (For Elevator) -- 2 pcs
TRI-HORN M3x14mm (L) -- 2 sets
CLEVIS -- 2 pcs
FUEL TUBE Ø6x5mm -- 2 pcs
SCREW PB2x16mm -- 6 pcs
 8. PUSHROD Ø1.8x725mm w/ Threads (For Rudder) -- 1 pc.
TAIL LANDING GEAR -- 1 set
TAIL WHEEL Ø25mm -- 1 pc.
TRI-HORN M3x14mm (L) -- 1 set
CLEVIS -- 1 pc.
FUEL TUBE Ø6x5mm -- 1 pc.
SCREW PM2x12mm -- 1 pc.
SCREW PA3x14mm -- 2 pcs
SCREW PB2x16mm -- 3 pcs
AL. REINFORCEMENT PLATE -- 1 pc.
M2 NUT -- 1 pc.
COLLAR Ø2.1mm w/ set screw -- 1 set
 9. FUEL TANK 380cc -- 1 set
PLYWOOD 2.7x37x99mm (For Fuel Tank Position Fixing) -- 1 pc.
 10. ENGINE MOUNT PL5111070 -- 1 set
SOCKET HEAD SCREW M4x25mm -- 4 pcs
WASHER d4xD12mm -- 4 pcs
 11. SOCKET HEAD SCREW M3.5x30mm -- 4 pcs
WASHER d3.5xD8mm -- 8 pcs
M3.5 NUT -- 8 pcs
THROTTLE PUSHWIRE Ø1.2x290mm -- 1 pc.
Plastic tube d2xD3x120mm -- 1 pc.
 12. COWLING -- 1 pc.
TRANSPARENT 3D TEMPLATE -- 1 pc.
SCREW PWA2.6x12mm -- 4 pcs
SILICON GROMMET d1.5x6.5mm (For Cowling) -- 4 pcs
SPINNER Ø89mm (w/ alu. back plate) -- 1 set
 13. LINKAGE CONNECTOR Ø2.1mm -- 3 sets
 14. PUSHROD CONNECTOR 4x9x20mm -- 1 set
PUSHROD Ø1.8x85mm (For Elevator) -- 1 pc.
BALSA 5x5x37mm (For Throttle Servo Stand) -- 2 pcs
STRAPER -- 2 pcs
FUEL TUBE Ø6x5mm -- 2 pcs
SPONGE 60x70x90mm -- 1 pc.
 15. WING PROTECTION 16.2x80x103mm -- 1 pc.
SOCKET HEAD SCREW M4x40mm -- 2 pcs
WASHER d4xD15mm -- 2 pcs
 16. CANOPY -- 1 pc.
SCREW PWA2.3x8mm -- 4 pcs
SILICON GROMMET d1.5x6.5mm (For Canopy) -- 4 pcs
DOUBLE-SIDED TAPE 800mm -- 1 pc.
PILOT (PC13057A3) -- 1 pc.
 17. DECALS -- 1 set
- **COVERING:--**
TOUGHLON STL203 LIGHT GRAY
TOUGHLON STL 340 OLIVE DRAB
TOUGHLON STL351 DARK BLUE
TOUGHLON STL100 WHITE

1 Aileron



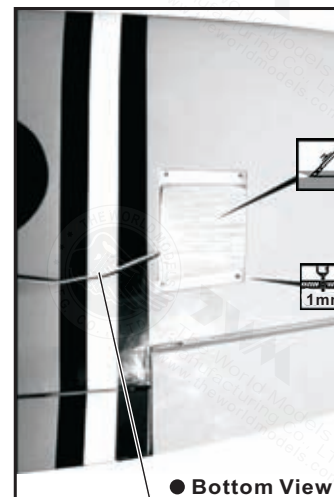
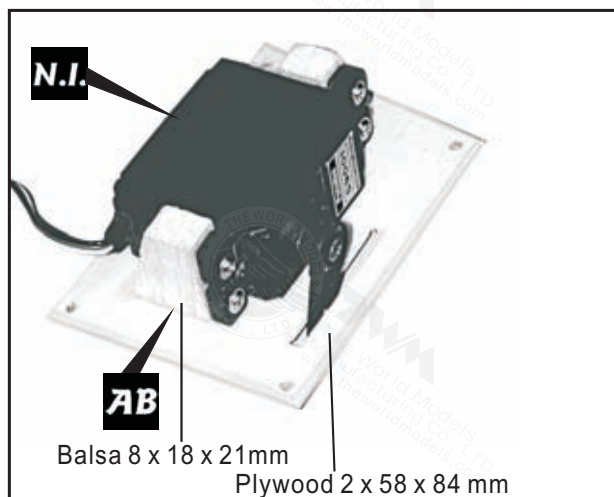
2 Aileron Servo

PWA2 x 8mm Screw

8

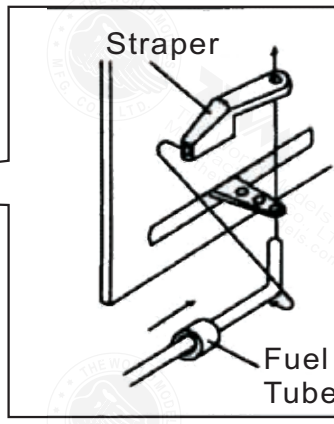
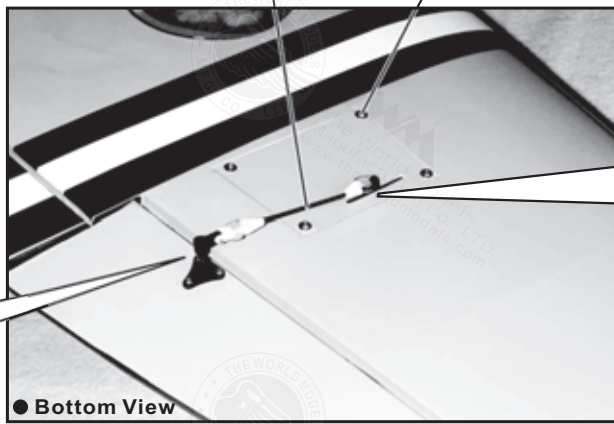
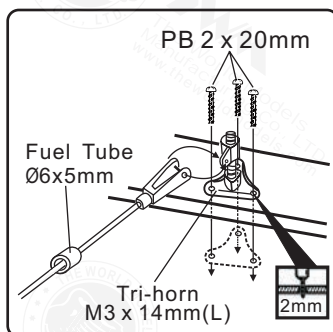
PB2 x 20mm Screw

6



Pushrod Ø1.8 x 85mm PWA 2 x 8mm

Lead to Aileron Servo

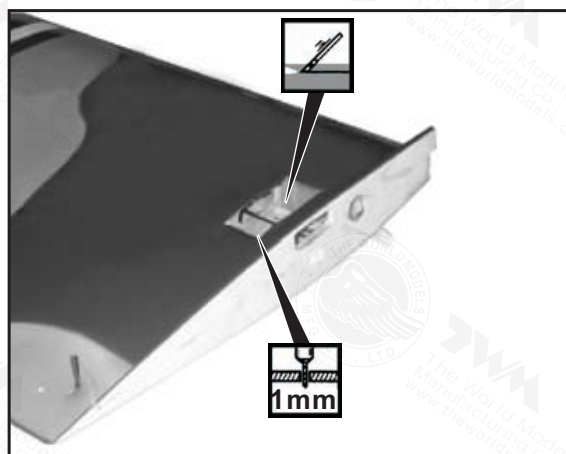
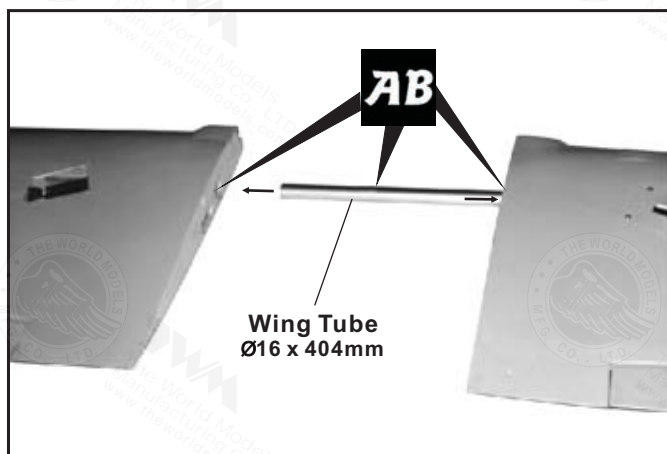


● Ø1mm pilot holes for World Models control horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

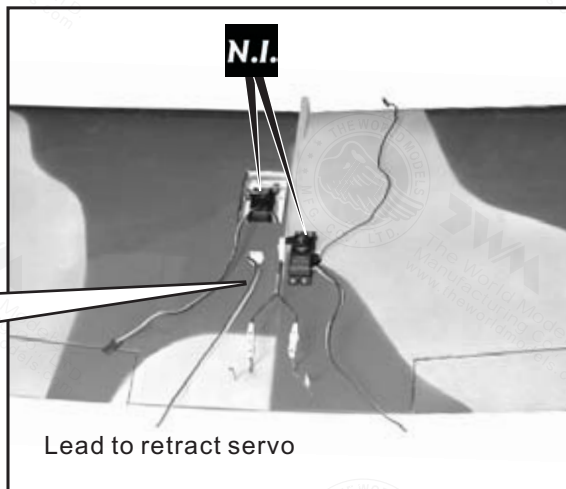
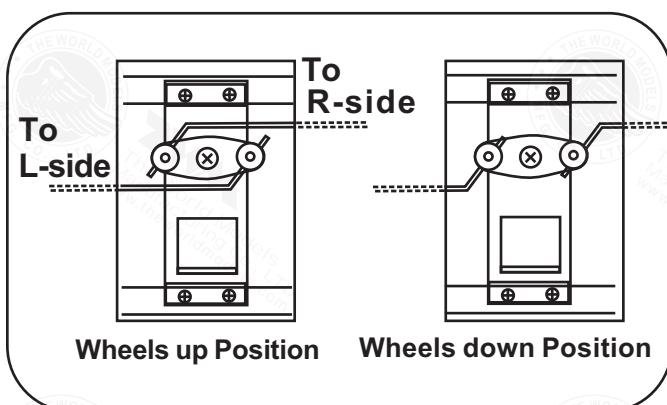
L/R

3 Flap and Retract Servos

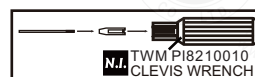
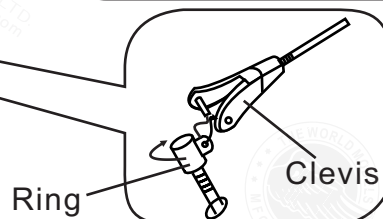
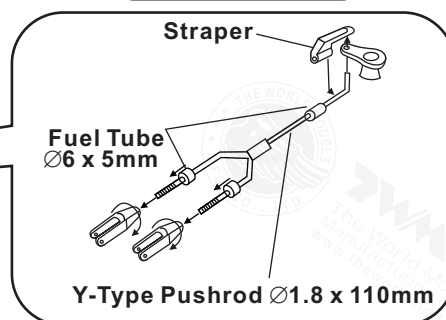
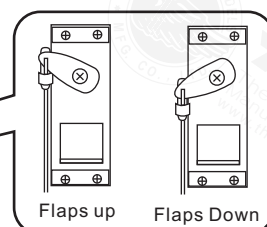
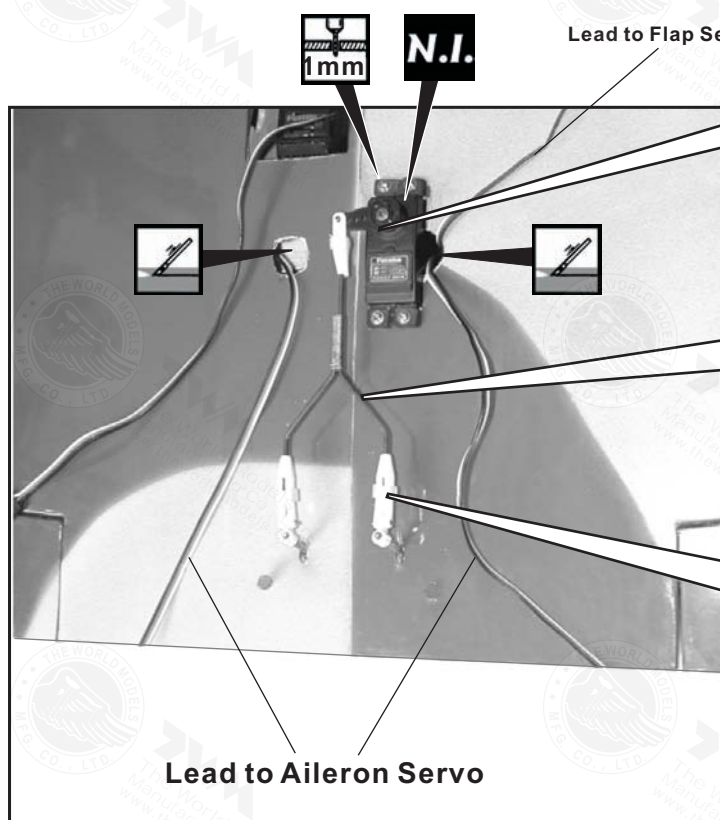
● Please apply glue to all surfaces of wing joiner



! Please refer to attached sheet for linkage connector installation



● Select the servo horn that will give 26mm travel when rotates through 180°.



4 Retractable Landing Gear Cover

PWA 2.3 x 8mm **Screw**



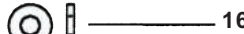
8

PM 2 x 6mm **Screw**



8

d2xD5mm **Washer**



16

M2 **Nut**



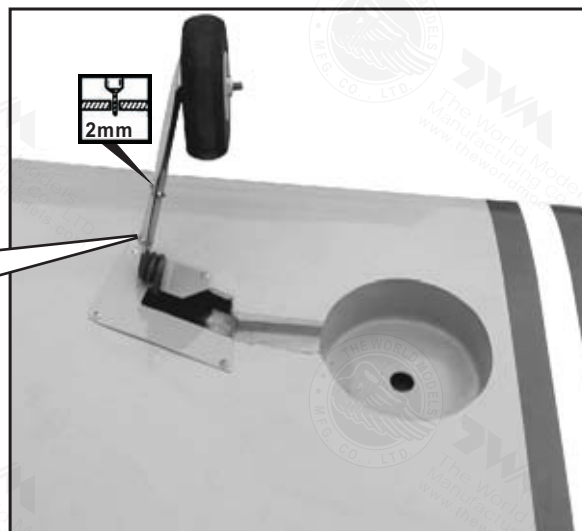
8

RETRACTABLE
LANDING GEAR COVER

PM 2 x 6mm

M2 Nut

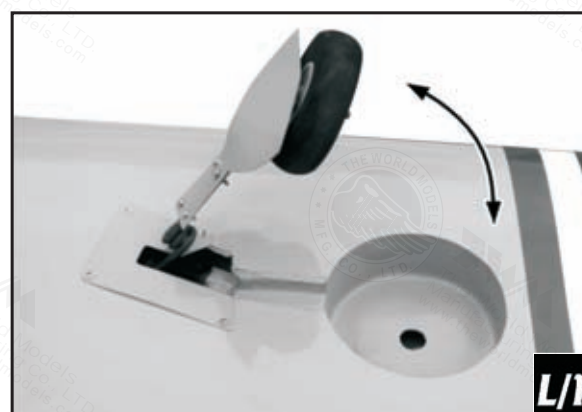
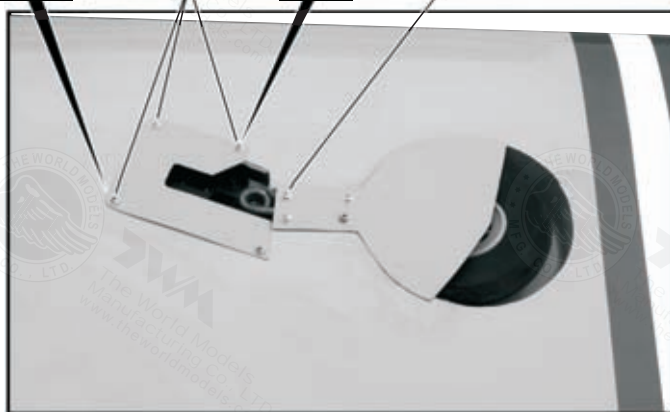
d2 x 5mm Washer



PWA 2.3 x 8mm

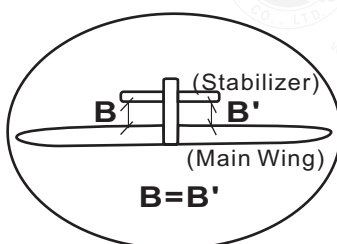
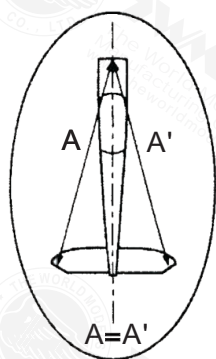


PM 2 x 6mm

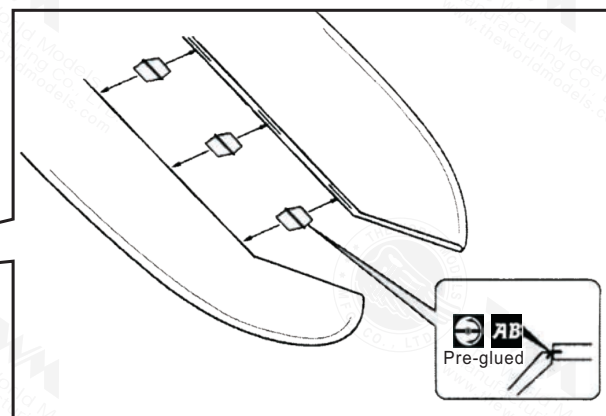
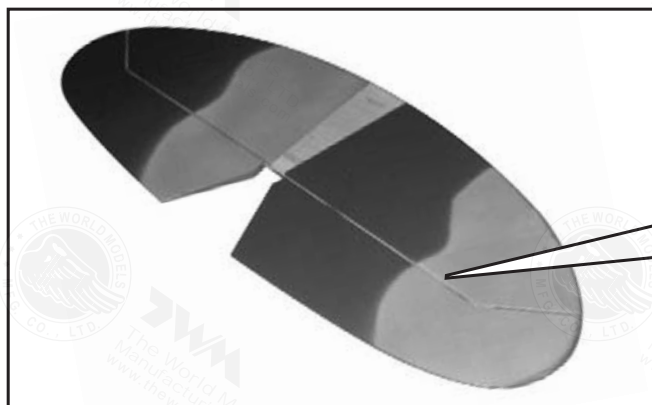
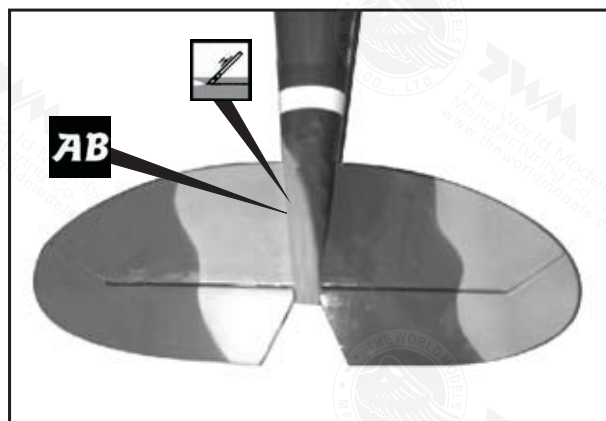


L/R

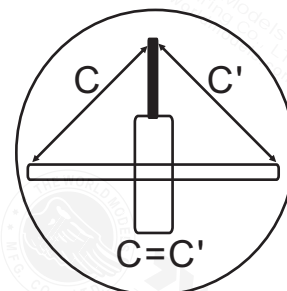
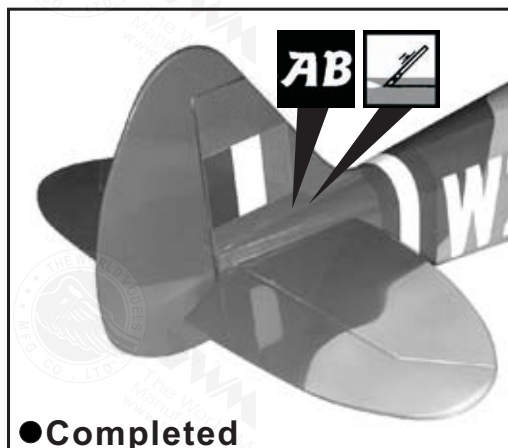
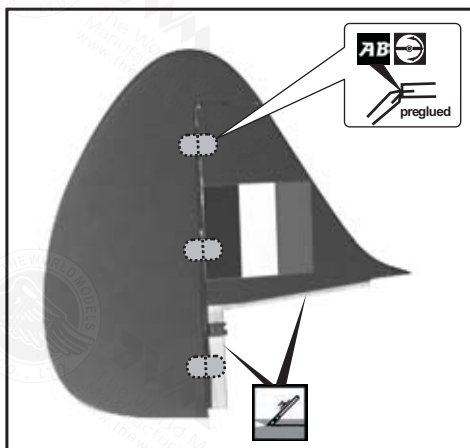
5 Stabilizer / Elevator



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



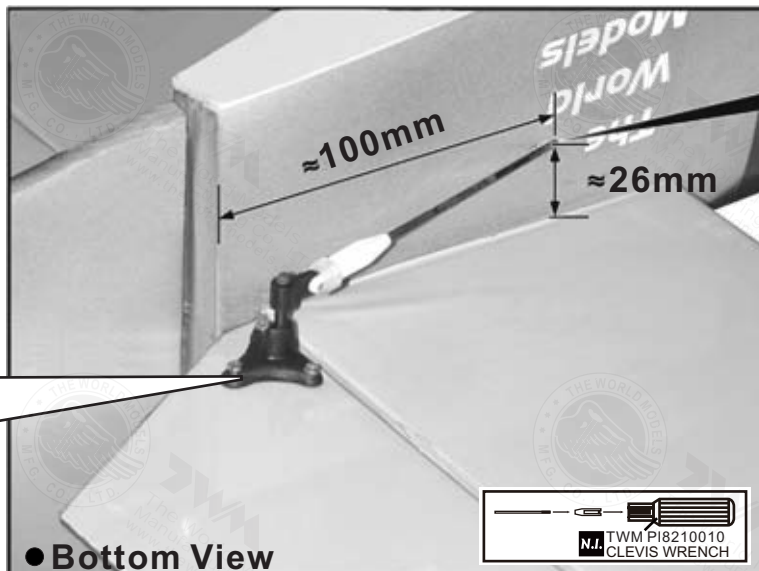
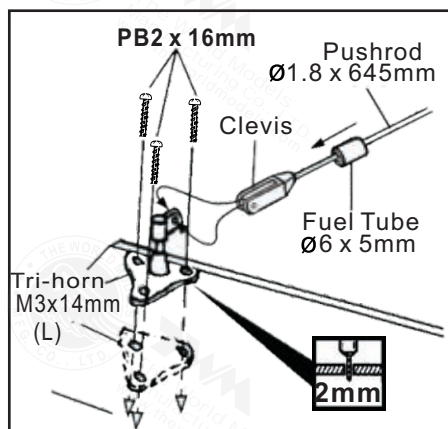
6 Vertical Fin / Rudder



7 Elevator Pushrod

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

PB2 x 16mm Screw
6

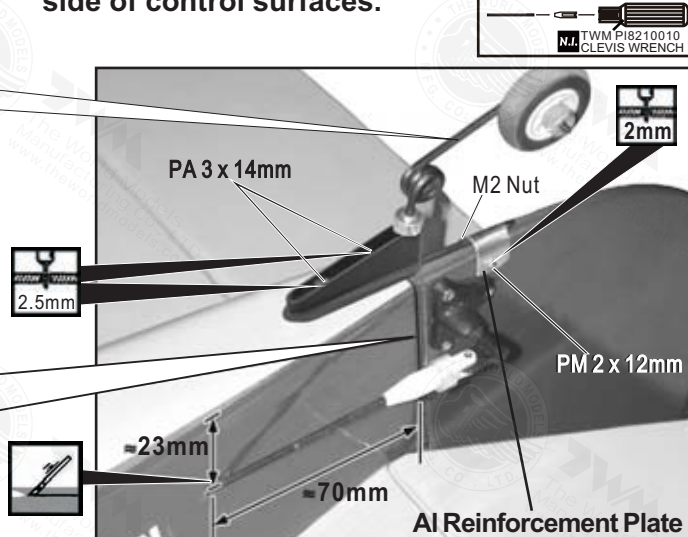
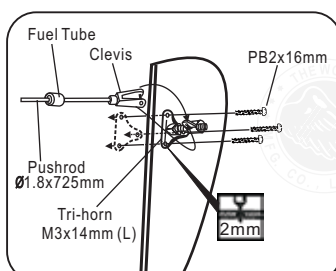
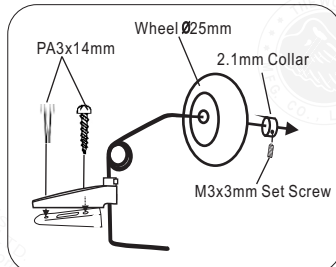


L/R

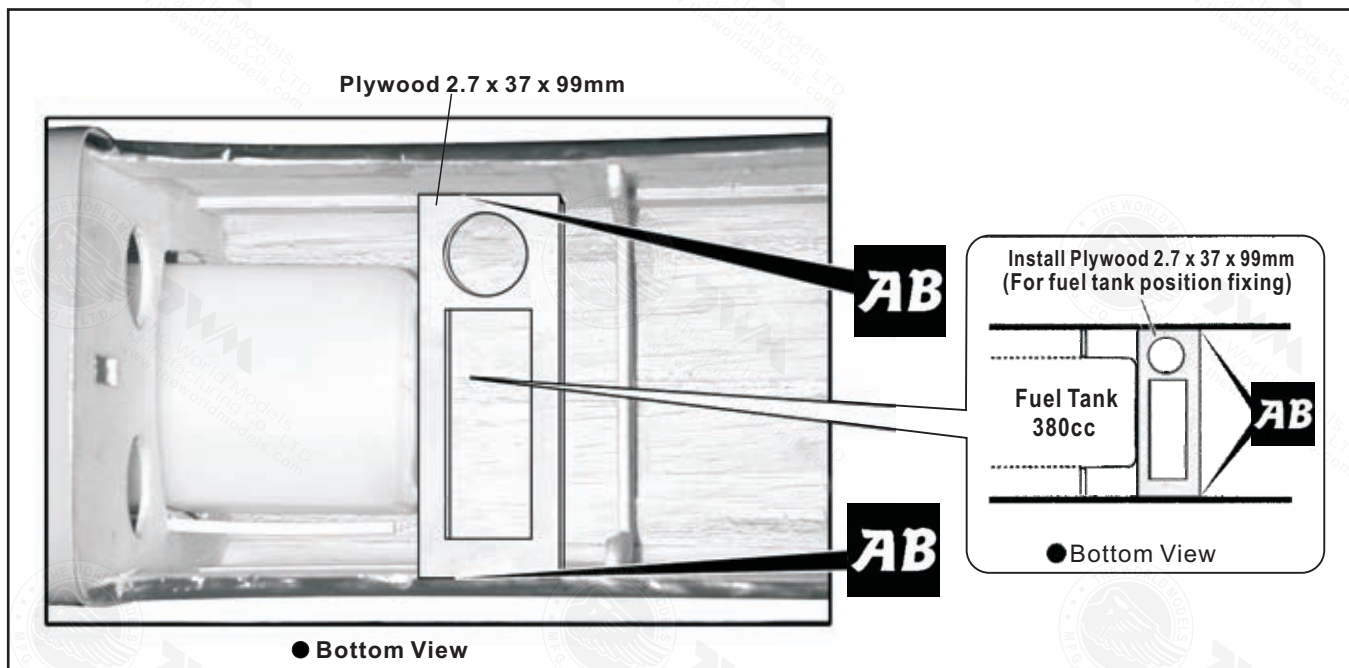
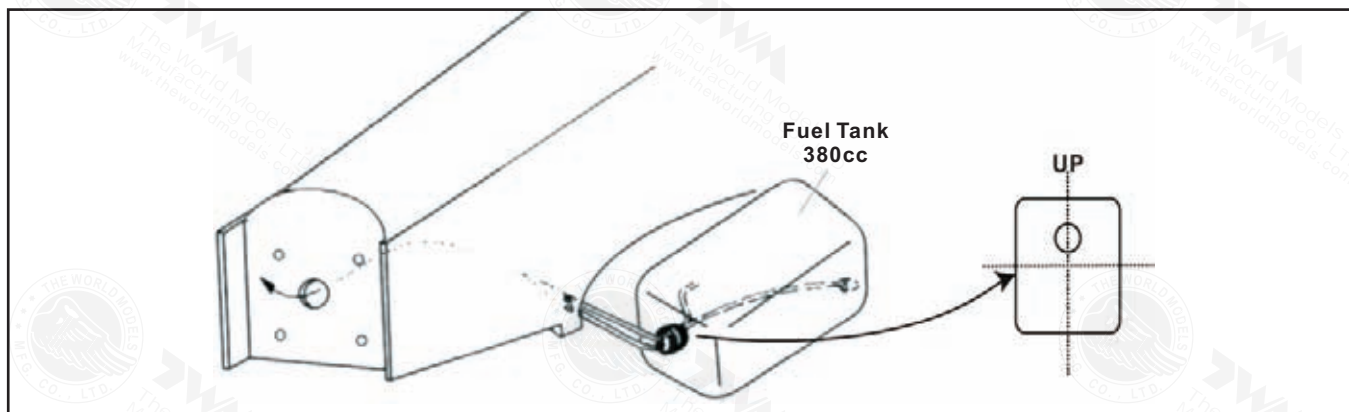
8 Rudder Pushrod / Tail Gear

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

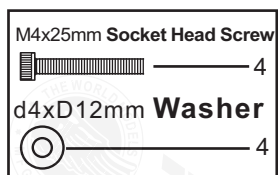
PM2 x 12mm Screw 1
PB2 x 16mm Screw 3
M2 Nut 1
PA3 x 14mm Screw 2
3mm Set screw 1
2.1mm Collar 1



9 Fuel Tank



10 Engine Mount

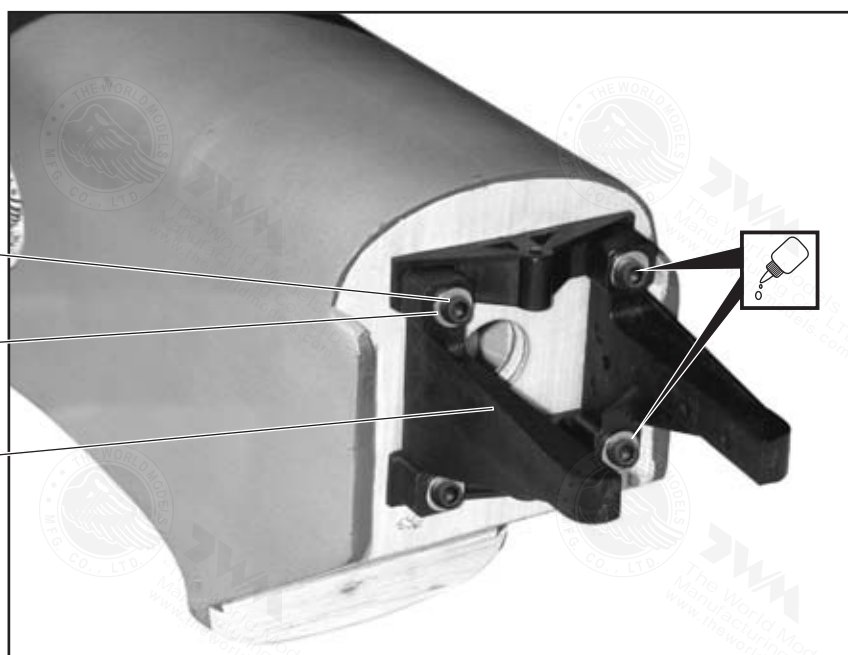


● Inverted Mount

M4 x 25mm

d4 x D12mm Washer

Engine Mount PL5111070



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

11 Engine

M 3.5 x 30mm Socket Head Screw



d3.5xD8mm Washer



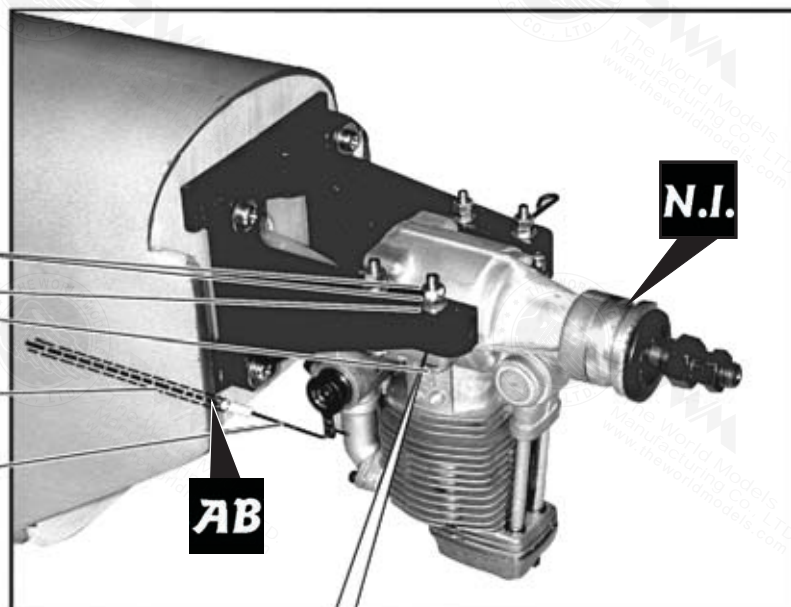
M3.5 Nut



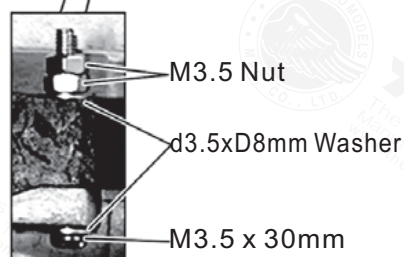
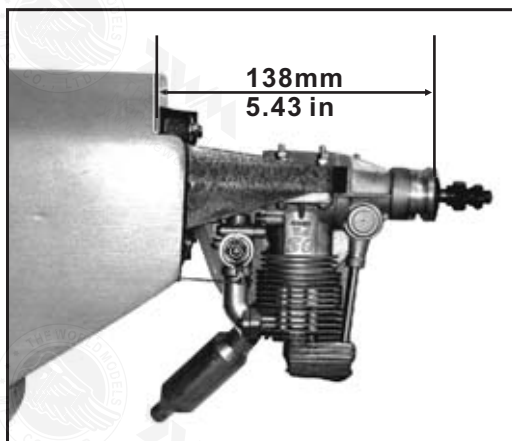
M3.5 Nut
d3.5xD8mm Washer
M 3.5 x 30mm

Plastic Tube
d2xD3x120mm

Throttle Pushwire
Ø1.2 x 290mm



● Installed Engine position



! 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.

L/R

12 Cowling

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

PWA2.6 x 12mm Screw

d1.5xD6.5mm Silicon Grommet

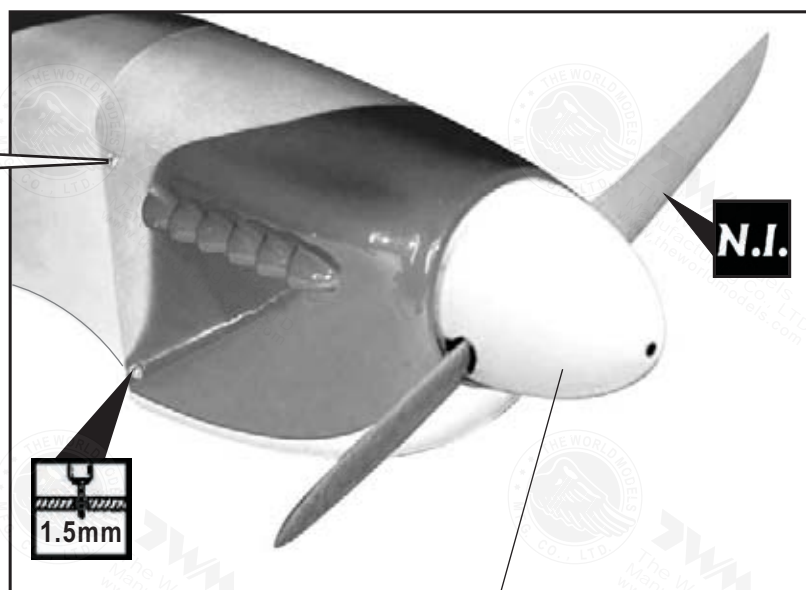
PWA2.6 x 12mm

PWA2.6 x 12mm

Silicon Grommet
d1.5xD6.5mm

● Please refer to the attached sheet for usage of the transparent 3D template.

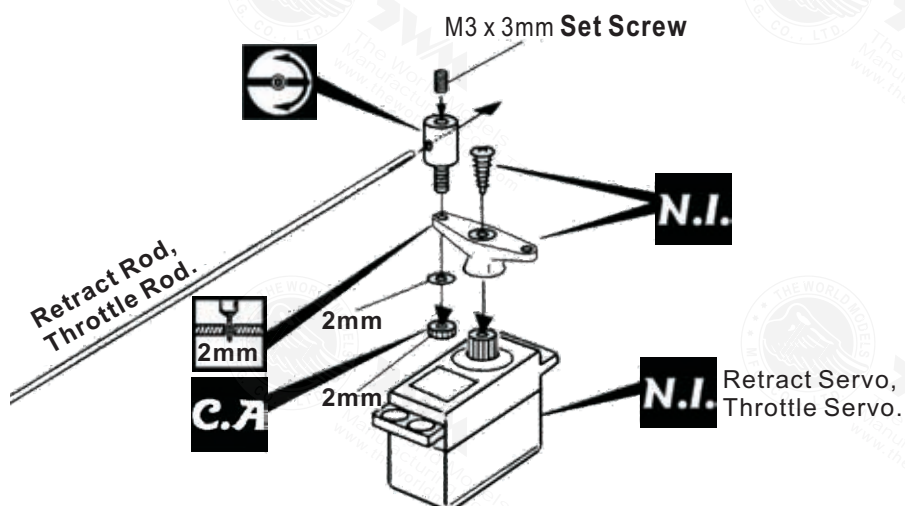
L/R



Spinner Ø89mm

13 Servo Set

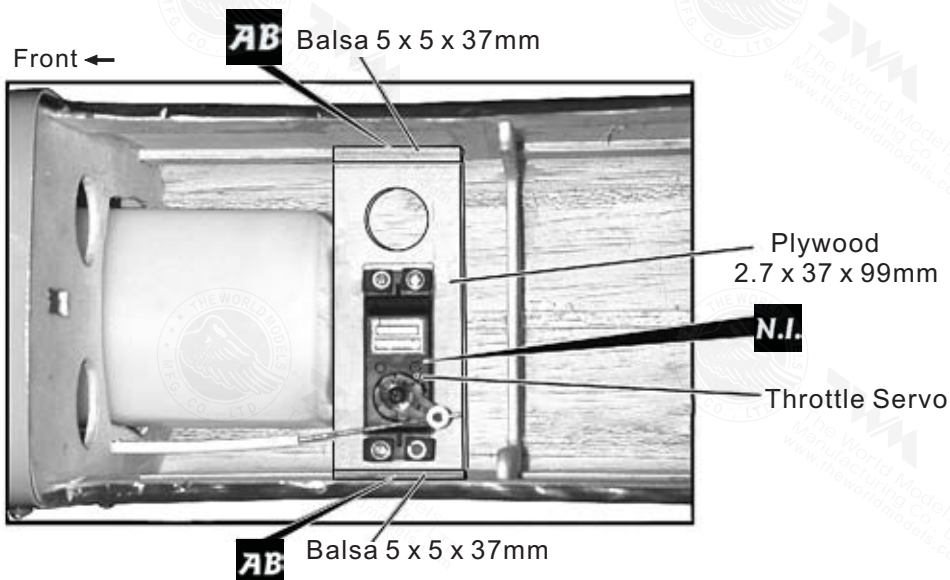
M3 x 3mm Set Screw	3
Linkage Connector	3
2mm Nut	3
2mm Washer	6



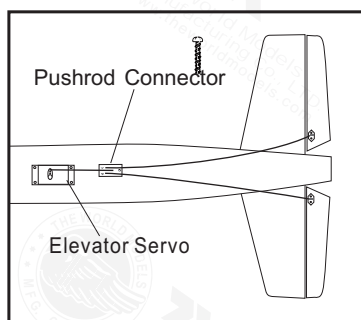
! Please refer to attached sheet for linkage connector installation.

14 Servos

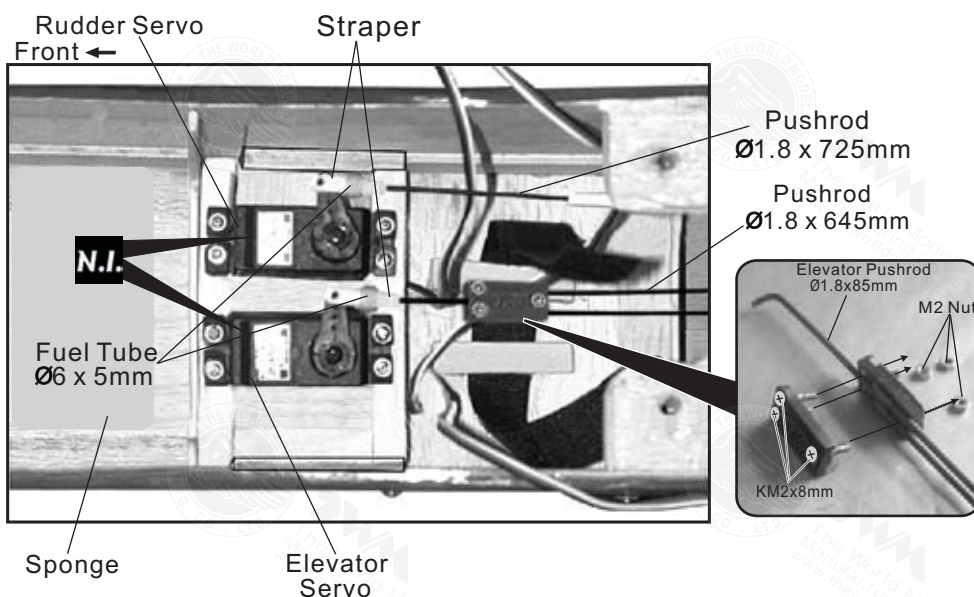
● Install and arrange the servo as shown in the diagram.



● Bottom View



● Bottom View

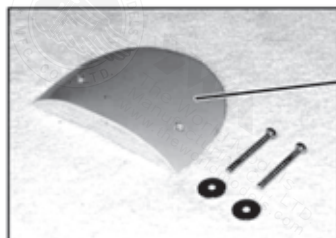


15 Main Wing

d4 x D15mm **Washer**



M4X40mm Socket Head Screw



Balsa 16.2 x 80 x 103 mm

M4x40mm
d4 x D15mm
Washer



16 Canopy

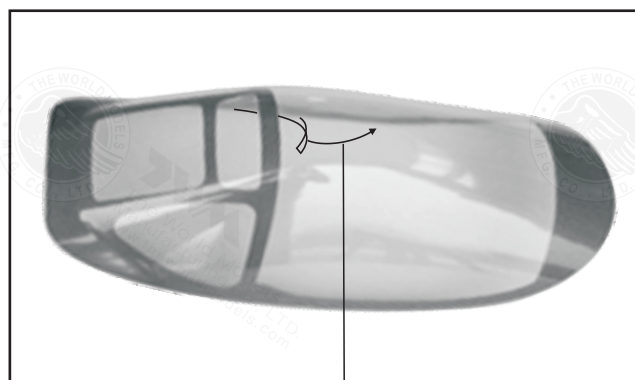
PWA 2.3 x 8mm **Screw**



d1.5xD6.5mm **Silicon Grommet**



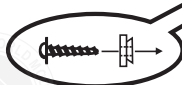
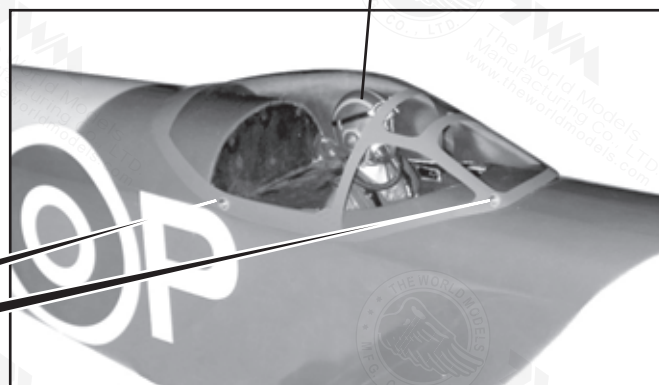
- Place canopy on fuselage and drill pilot holes.



Apply double-sided tape



Pilot



PWA 2.3 x 8mm

Silicon Grommet
d1.5xD6.5mm

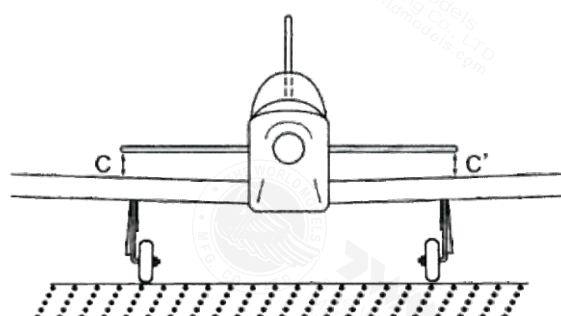
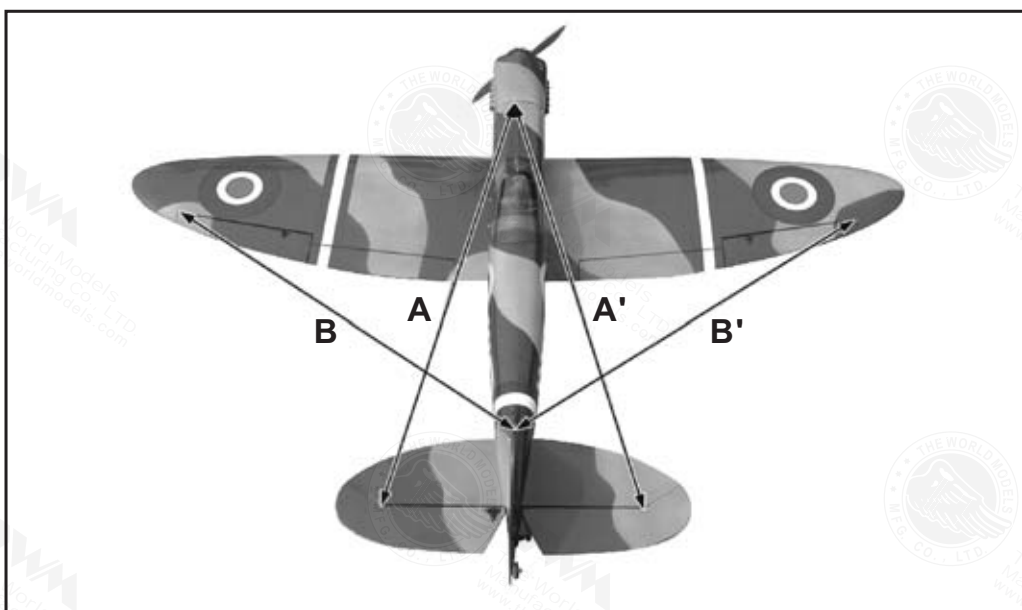
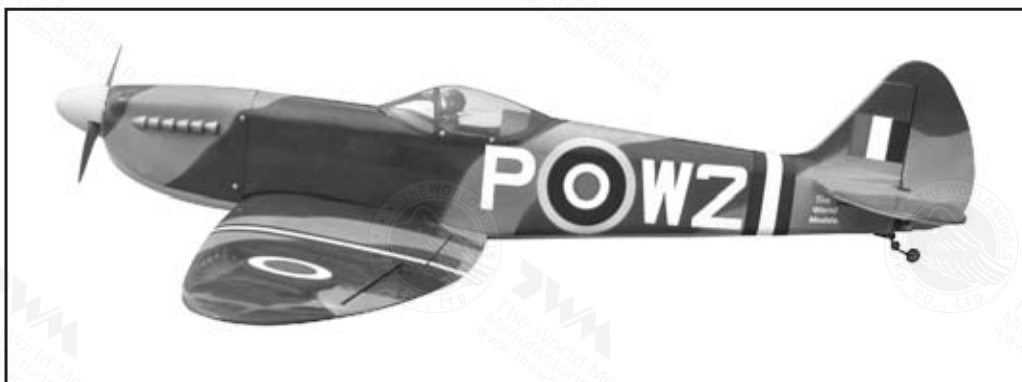


L/R

- First insert the grommet to the canopy then apply screw

17 Wing Setting

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

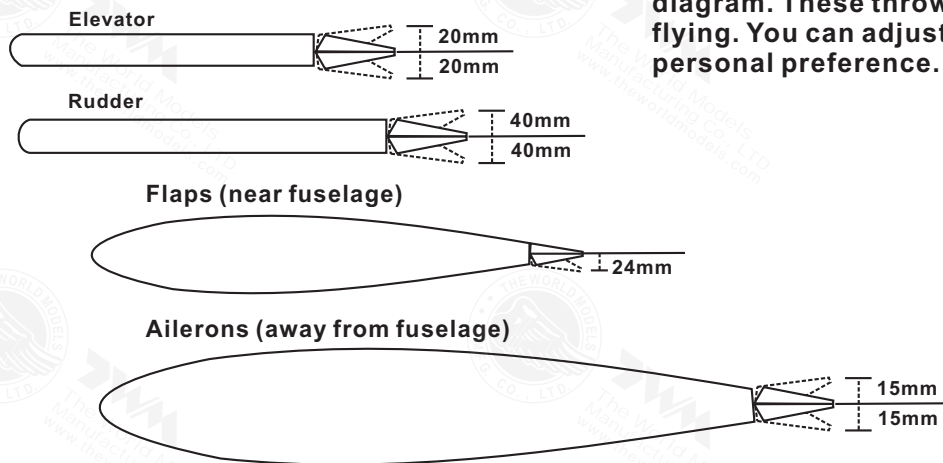


$A = A'$

$B = B'$

$C = C'$

18 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.

19 C.G.



The ideal C.G. Position is 102mm (4 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.

! Warning!

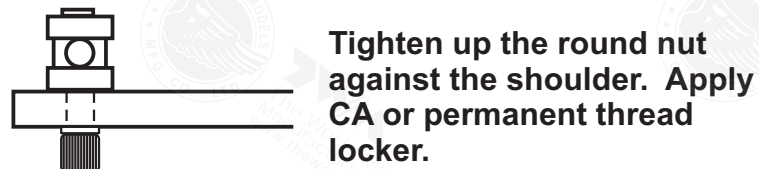
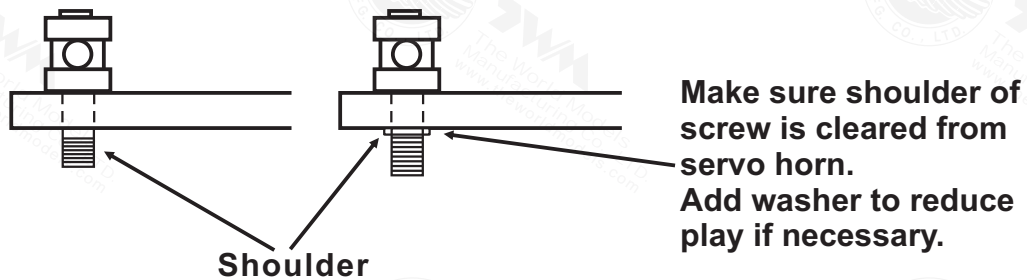
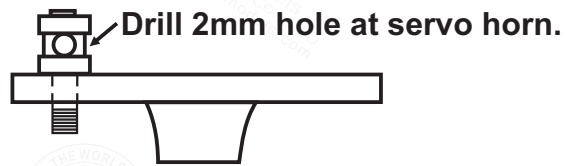
Important Safety Precautions

- # 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 -60** is specially designed to be powered by 0.60 -0.75 2 stroke or 0.70 -0.81 4 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 necessary.

- # When Flaps are lowered, nose of model will rise. The nose-up varies with the speed at which the models 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.

LINKAGE CONNECTOR

HW7111050 & 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 AirBorne Models, 2403 Research Drive, Livermore, CA 94550 USA.

1.Name: _____

2.Address: _____

3.Phone #: _____ e-mail: _____

4.Model: _____

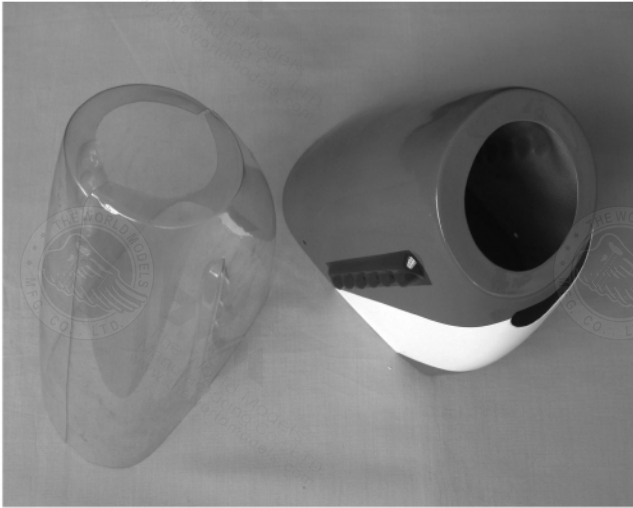
Wing QC# _____ Fuselage QC# _____
(QC numbers are stamped on wing and fuselage)

5.Date of Purchase: _____

6.Store Name: _____

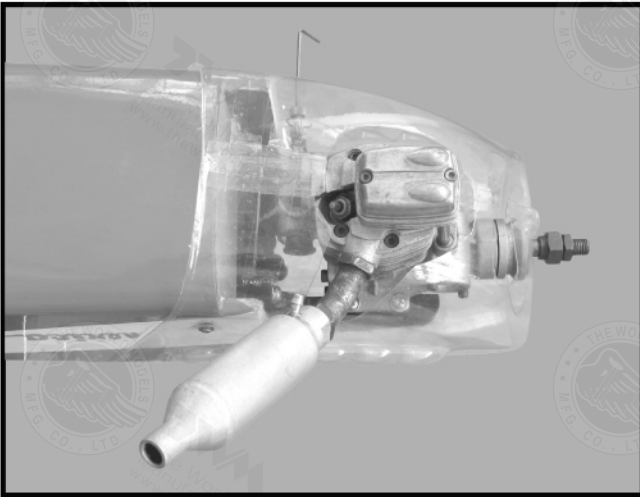
Please call AirBorne Models at 925 371 0922 for any assistance in filling this form.
Thank you very much for purchasing our product.

Usage of the transparent 3D template

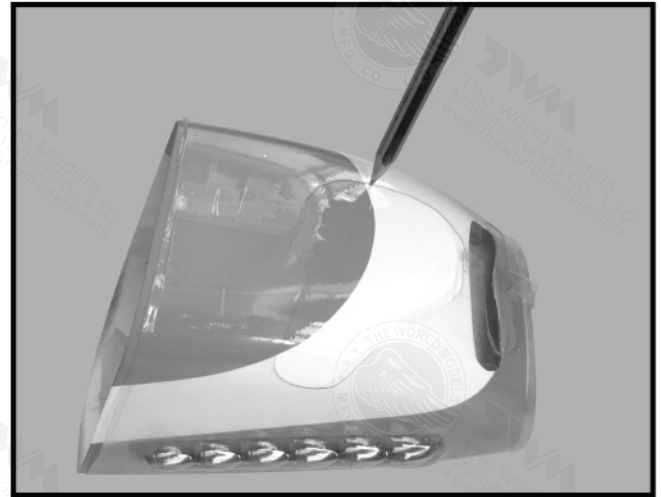


This transparent 3D template is used for position guidance of the actual cutting of the pre-painted cowling.

1



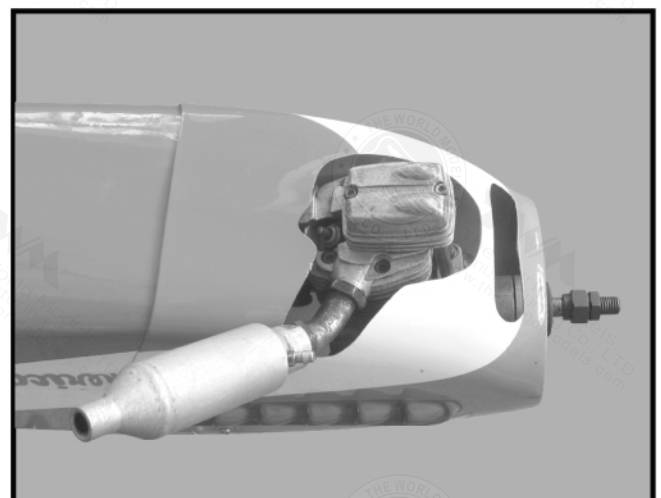
2



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.

Optional Parts

(ACCESSORIES)

180mm Extension For Park Flyer

Code No.	Size	Package
----------	------	---------

KW0011800 180mm 1 set



180mm Y-Cord For Park Flyer

Code No.	Size	Package
----------	------	---------

KW0021800 180mm 1 pc



For park flyers of small electric models

Charge Receptacles

Code No.	Size	Package
----------	------	---------

KP0041300



Field Stand

Code No.	Size	Package
----------	------	---------

MS9111430 600 x 240 x 310mm 1 pc



Fuel Filler

Code No.	Size	Package
----------	------	---------

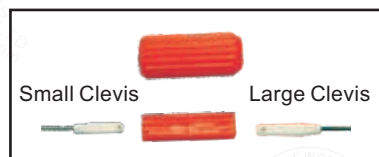
PL8110030 15 x 22 x 49mm 1 x 1 pc



Clevis Wrench

Code No.	Size	Package
----------	------	---------

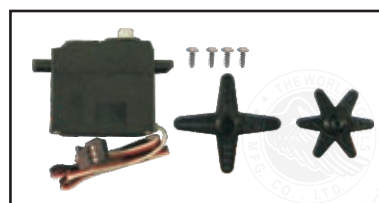
PL8210010 1 set



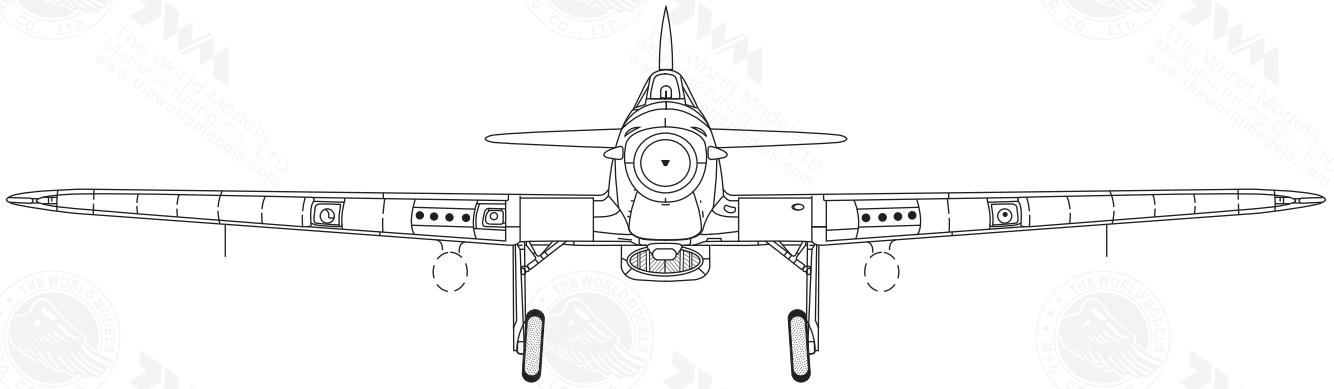
Special tool for clevis installation.
Suitable for standard and small (EP) clevis.

Standard Servo

Code No SV4031



Speed : 0.17 sec / 60° @4.8V
0.14 sec / 60° @6.0V
Torque : 3.2kg.cm / 44.8 oz - in @4.8V
4.1kg.cm / 57.4 oz - in @6.0V
Size : 40.6 x 20 x 37mm /
1.60 x 0.79 x 1.46 in
Weight : 39.4 g / 1.39 oz



Ducted Fan

Pattern

Warbirds

Funfly

Scale

Electric

Sports

Glider

Trainer Boat

Accessories

Covering

(Lightex / Toughlon)



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