

INTRUDER 90R



**Required : 0.60 cu.in. displacement 2-stroke
0.91 cu.in. displacement 4-stroke
4-channel radio w/ 5 standard servos**

Specifications

Wing Span	63.0 in / 1600 mm
Wing Area	688 sq in / 44 sq dm
Flying Weight	6.8 lbs / 3100 g
Fuselage Length	59.0 in / 1500 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
Manufacturing Co., LTD.
www.theworldmodels.com

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

A050RPO28881306

INTRUDER 90R

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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



Ensure smooth non-binding
movement while assembling.



Assemble left and right
sides the same way.



Cut off shaded portion.



Peel off shaded portion
covering film.



Must be purchased separately !



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



Pierce the shaded portion
covering film.



Pay close attention here!



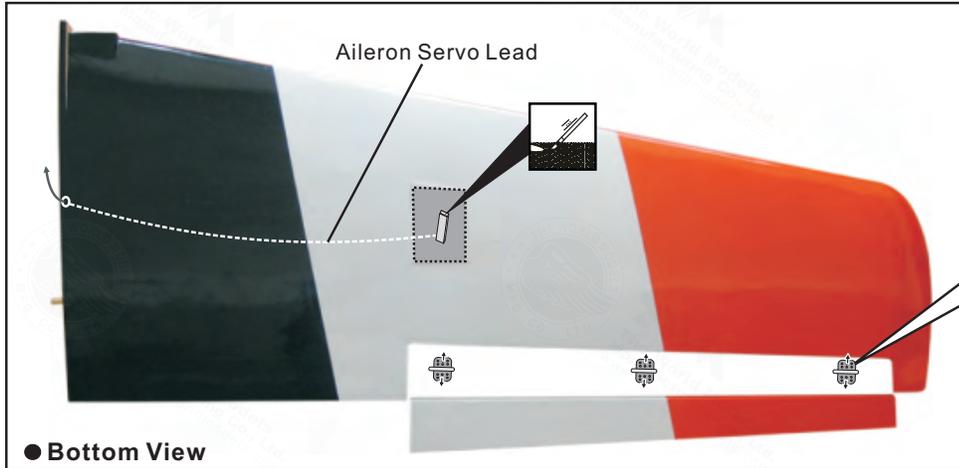
Do not overlook this symbol !



Parts List

1. MAIN WING – 1 pair
 2. SCREW PB2x16mm – 2 pcs
SCREW PB2x18mm – 4 pcs
SCREW PWA2x8mm – 8 pcs
FUEL TUBE Ø6x5mm – 4 pcs
STRAPER PL4112102– 2 pcs
CLEVIS PL4112103 – 2 pcs
TRI-HORN M3x14mm PL4111185 – 2 sets
PUSHROD Ø1.8x115mm w/ Threads (For Aileron) – 2 pcs
SERVO MOUNTING PANEL PL5310000 – 1 pair
 3. WING TUBE Ø25.4x234mm – 1 pc.
 4. MAIN LANDING GEAR – 1 set
SCREW PA3x12mm – 8 pcs
WHEEL Ø52mm PL3111520 – 2 pcs
COLLAR Ø4.1mm w/ set screw – 4 sets
PLATE 12x20mm (For Main Landing Gear) PL4114020 – 4 pcs
 5. FUSELAGE – 1 pc.
STABILIZER & ELEVATOR – 1 set
SCREW PWA3x12mm – 2 pcs
STABILIZER TUBE D9.5x296mm – 1 pc.
WIRE Ø3x97mm – 1 pc.
 6. VERTICAL FIN & RUDDER – 1 set
 7. ENGINE MOUNT (PL5111070) – 1 set
SOCKET HEAD SCREW M4x25mm – 4 pcs
WASHER d4xD12mm – 4 pcs
 8. FRONT LANDING GEAR – 1 set
COLLAR Ø4.1mm w/ set screw – 4 sets
WHEEL Ø52mm PL3111520 – 1 pc.
STEERING ARM Ø4.1mm PL4112401 – 1 set
 9. FUEL TANK 320cc PL1111320 – 1 set
BALSA 10x10x89mm (For Fuel Tank Position Fixing) – 1 pc.
 10. SOCKET HEAD SCREW M4x30mm – 4 pcs
WASHER d4xD9mm – 8 pcs
M4 NUT – 8 pcs
 11. SCREW PB2x22mm – 6 pcs
CLEVIS PL4112103 – 2 pcs
FUEL TUBE Ø6x5mm – 2 pcs
TRI-HORN M3x14mm (L) PL4111185 – 2 sets
PUSHROD Ø1.8x760mm w/ Threads (For Elevator) – 2 pcs
 12. SCREW PB2x16mm – 3 pcs
FUEL TUBE Ø6x5mm – 1 pc.
CLEVIS PL4112103 – 1 pc.
TRI-HORN M3x14mm (L) PL4111185 – 1 set
PUSHROD Ø1.8x870mm w/ Threads (For Rudder) – 1 pc.
 13. LINKAGE CONNECTOR Ø2.1mm HW7111060 – 2 sets
 14. STRAPER PL4112102 – 2 pcs
FUEL TUBE Ø6x5mm – 2 pcs
SPONGE 60x70x90mm (For Radio Equipment) – 1 pc.
FRONT WHEEL PUSHROD Ø1.4x375mm – 1 pc.
PLASTIC TUBE d2.5xD4x330mm – 1 pc.
THROTTLE PUSHWIRE Ø1.2x425mm – 1 pc.
PLASTIC TUBE d2xD3x330mm – 1 pc.
PUSHROD Ø1.8x80mm (For Elevator) – 1 pc.
PUSHROD CONNECTOR 4x9x20mm PL4410010 – 1 set
 15. SOCKET HEAD SCREW M4x30mm – 2 pcs
WASHER d4xD15mm – 2 pcs
SCREW PWM3x13mm – 1 pc.
PLYWOOD 2x24x68mm (Wing Protection) – 1 pc.
BELLY PAN – 1 pc.
 16. COWLING – 1 pc.
TRANSPARENT 3D TEMPLATE – 1 pc.
SCREW PWA2.6x12mm – 4 pcs
SILICON GROMMET d1.5xD6.5mm – 4 pcs
SPINNER Ø70 PL2111070 – 1 set
 17. CANOPY – 1 pc.
SCREW PWA2.3x8mm – 3 pcs
SILICON GROMMET d1.5xD6.5mm – 3 pcs
 18. DECALS A050RDEC – 1 set
- **COVERING:**
TOUGHLON STL 100 WHITE
TOUGHLON STL 201 BLACK
TOUGHLON STL 320 ORANGE

1 Main Wing

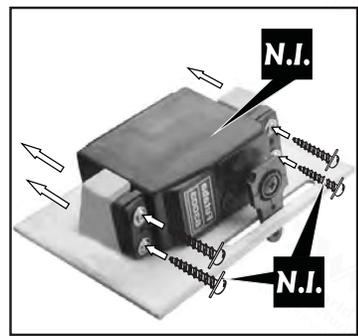
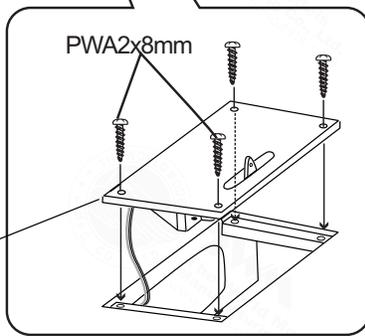
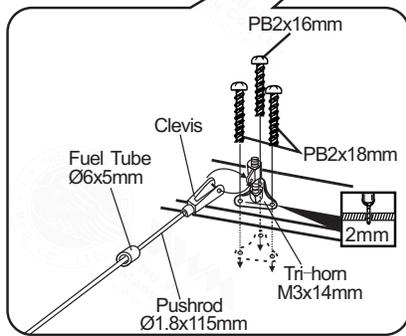
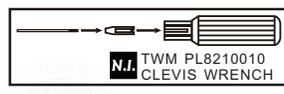
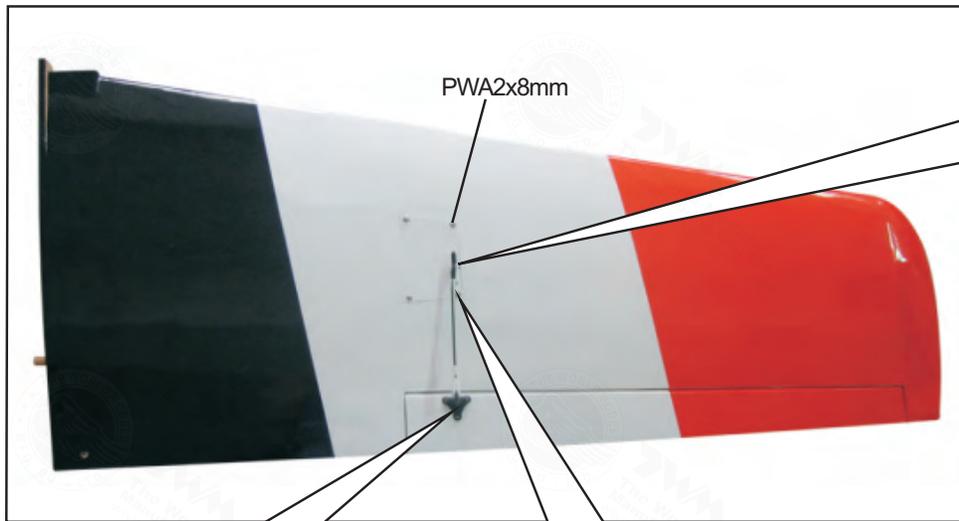


L/R

2 Aileron Servo

- PB2 x 16mm Screw — 2
- PB2 x 18mm Screw — 4
- PWA2 x 8mm Screw — 8

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



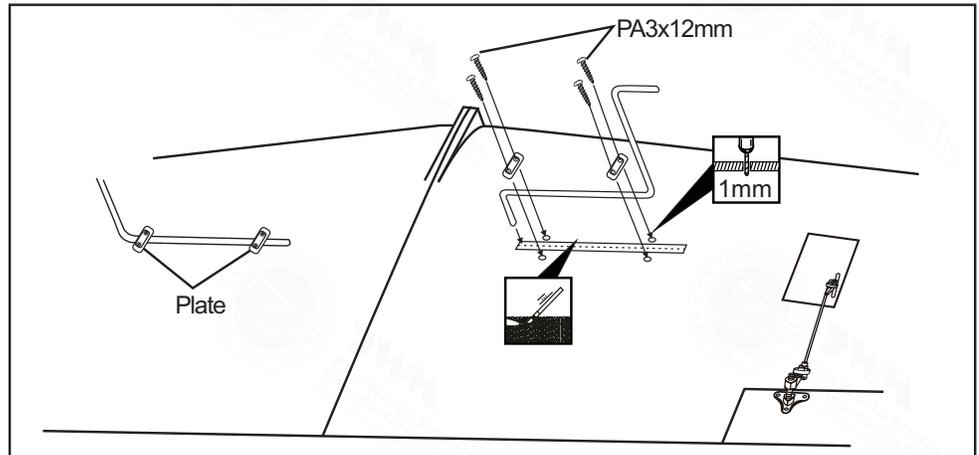
L/R

3 Main Wing



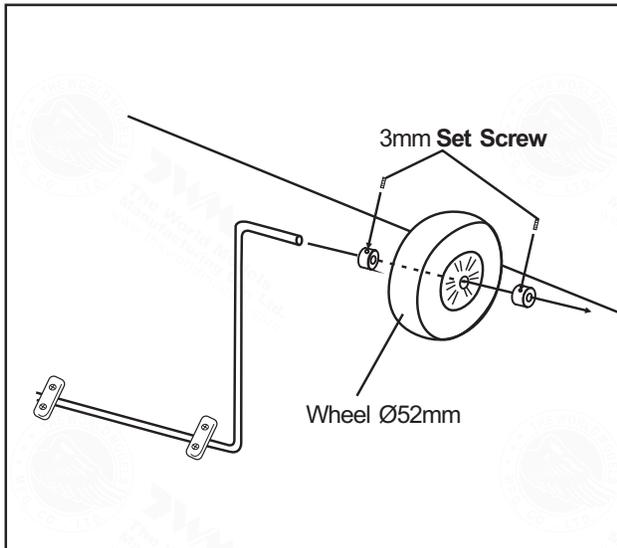
4 Main Landing Gear

- PA3x12mm Screw 8
- 3mm Set Screw 4
- 4.1mm Wheel Collar 4



L/R

● Bottom View



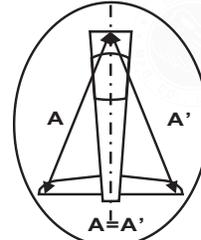
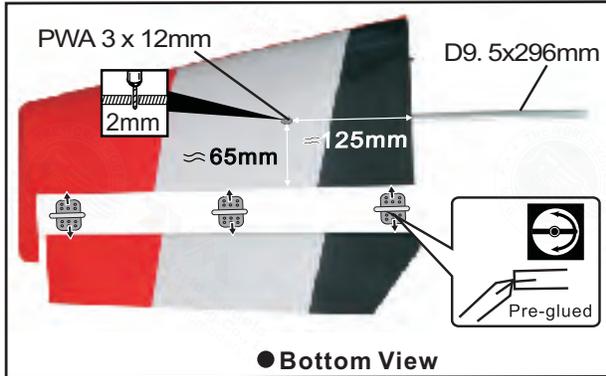
● Bottom View



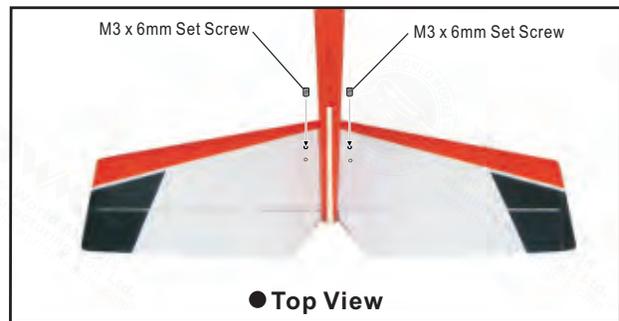
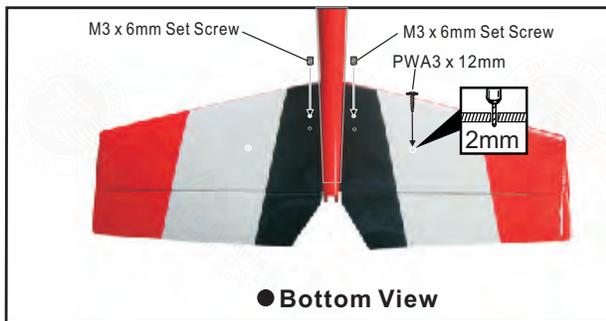
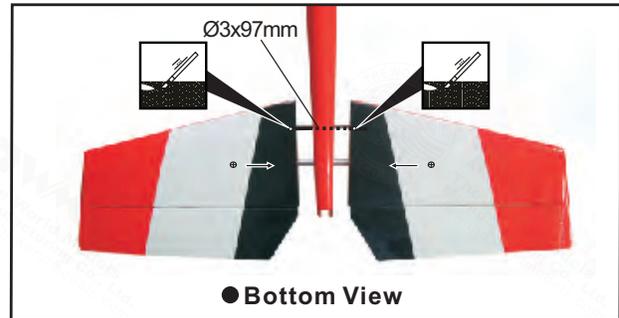
● Completed

5 Stabilizer & Elevator

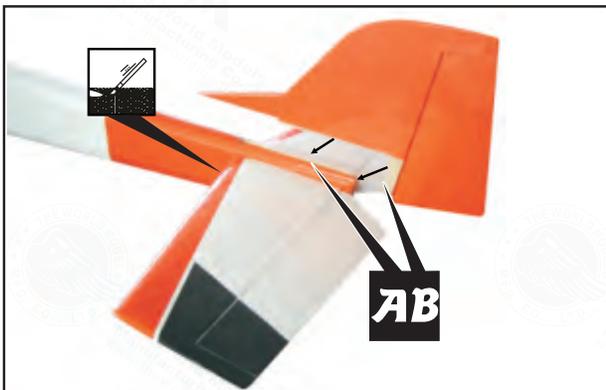
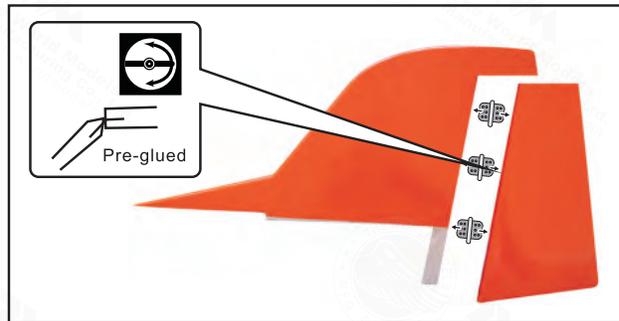
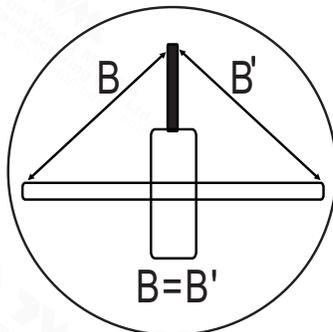
PWA 3 x 12mm Screw



L/R

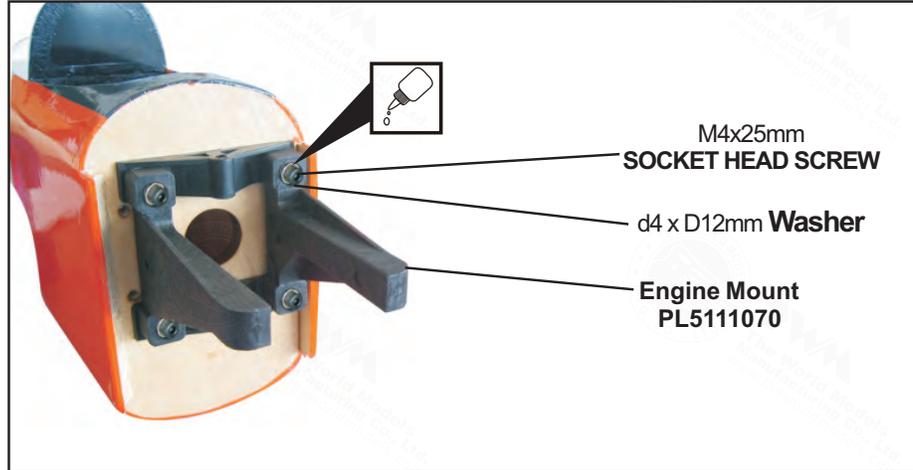


6 Vertical Fin & Rudder



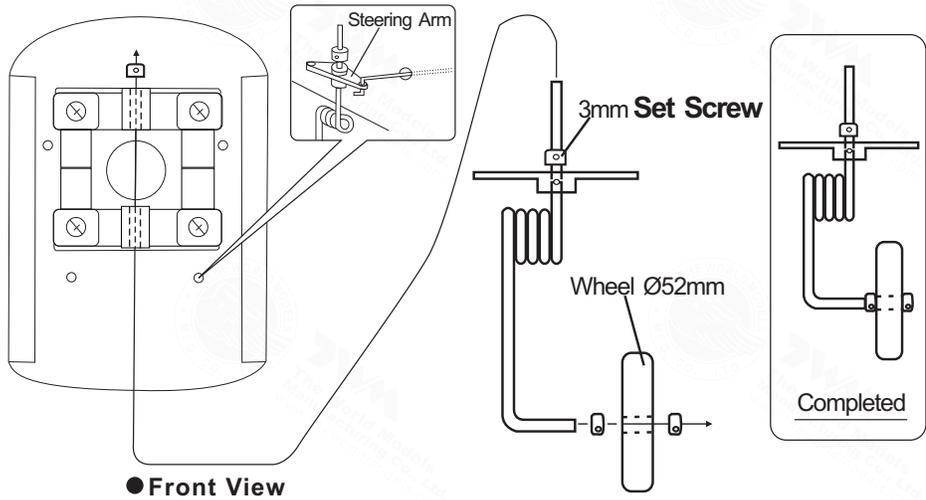
7 Engine Mount

M4x25mm Socket Head Screw — 4
 d4 x D12mm Washer — 4

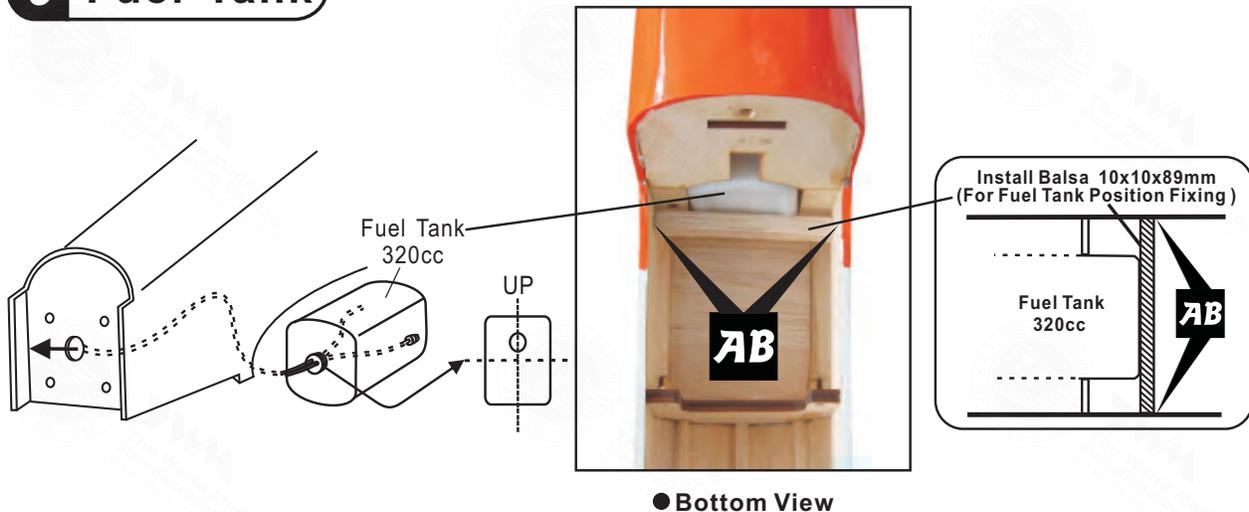


8 Front Landing Gear

3mm Set Screw — 4
 4.1mm Wheel Collar — 4

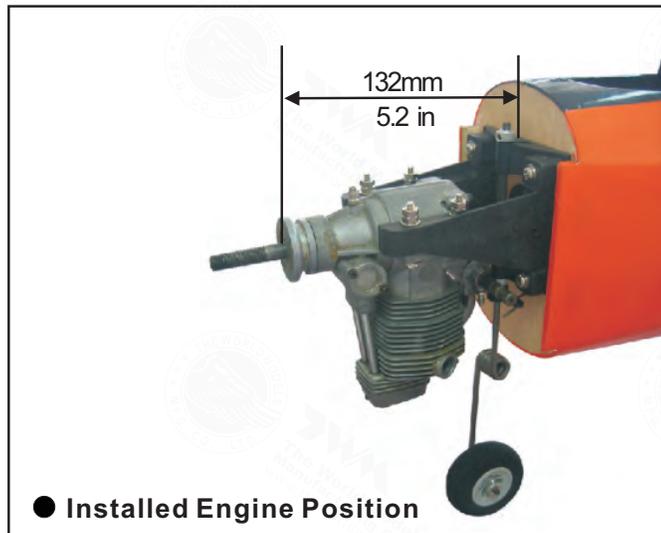
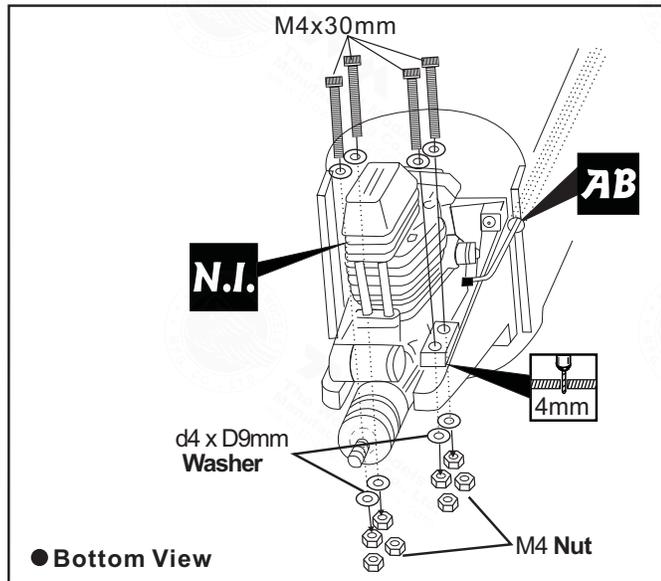


9 Fuel Tank



10 Engine

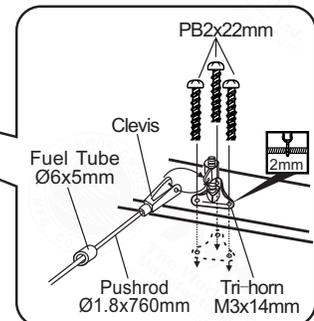
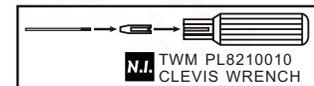
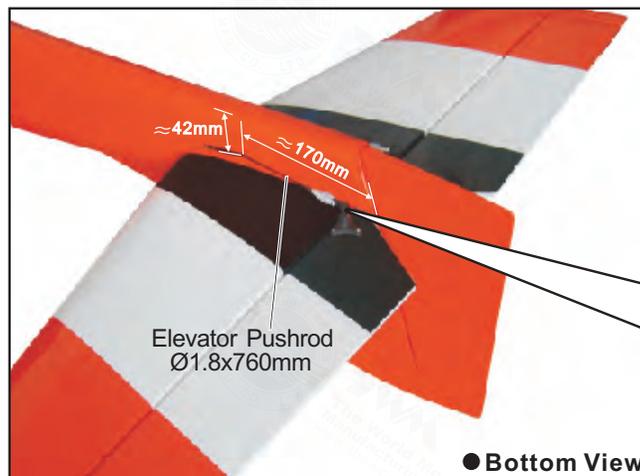
- M4x30mm Socket Head Screw 4
- d4 x D9mm Washer 8
- M4 Nut 8



11 Elevator Pushrod

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

- PB2 x 22mm Screw 6

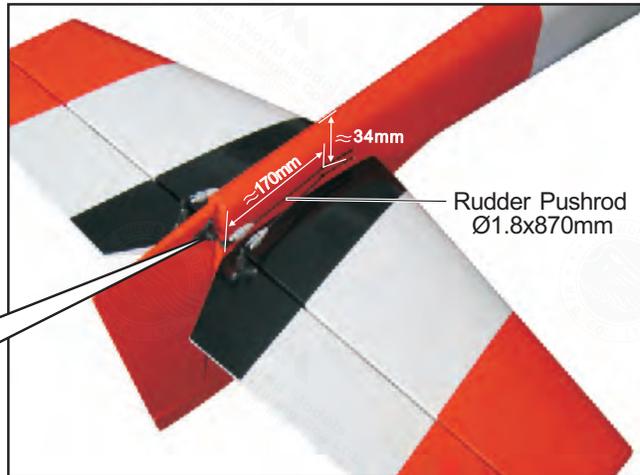
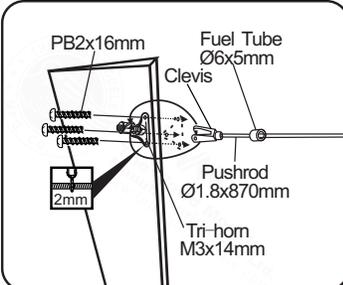
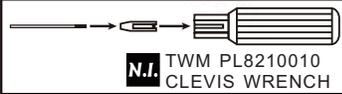


12 Rudder Pushrod

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

PB2 x 16mm Screw

3



• Bottom View

13 Servo Set

3 x 3mm Set Screw

2

Linkage Stopper

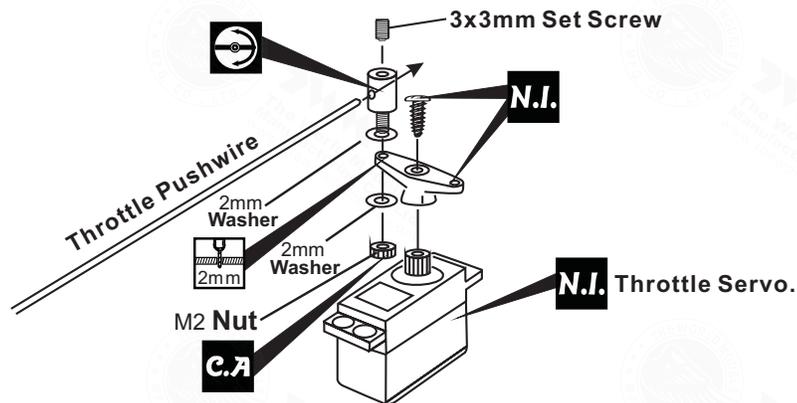
2

2mm Nut

2

2mm Washer

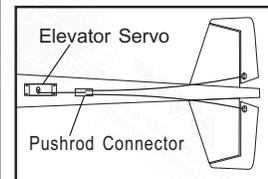
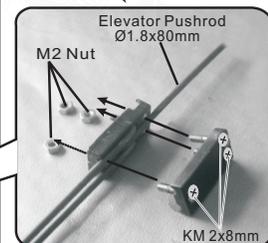
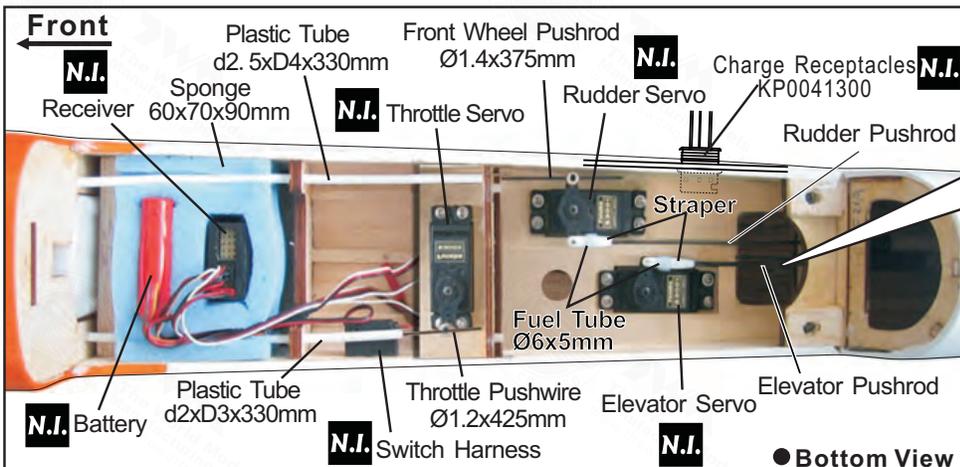
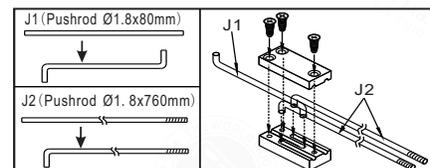
4



Please refer to the attached sheet for linkage connector installation.

14 Radio Equipment

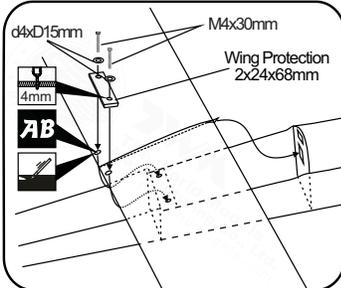
- Install and arrange the servo as shown in the diagram.



• Bottom View

15 Main Wing

M4x30mm Socket Head Screw — 2
 d4 x D15mm Washer — 2
 PWM3 x 13mm Screw — 1



● Bottom View

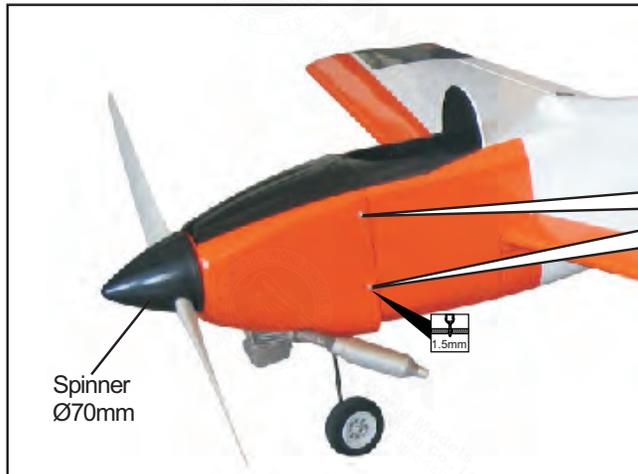


● Completed

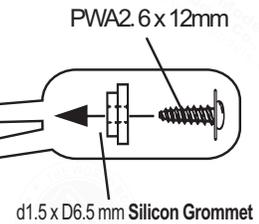
16 Cowling

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

PWA2.6 x 12mm Screw — 4
 d1.5 x D6.5 mm Silicon Grommet — 4



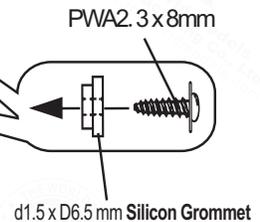
Spinner
 Ø70mm



17 Canopy

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

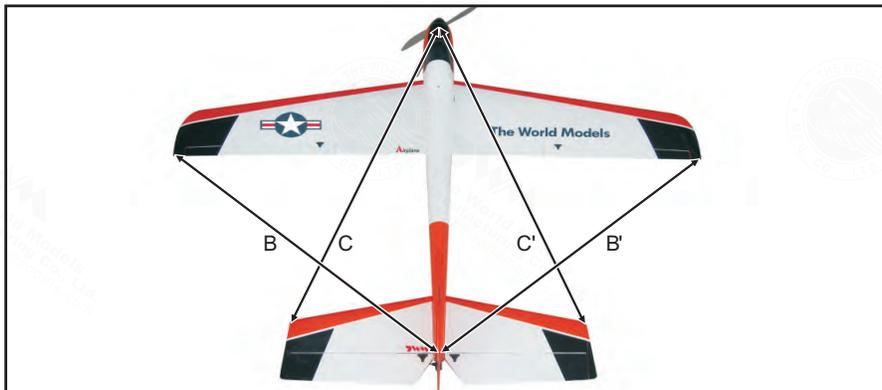
PWA2.3 x 8mm Screw — 3
 d1.5 x D6.5 mm Silicon Grommet — 3



L/R

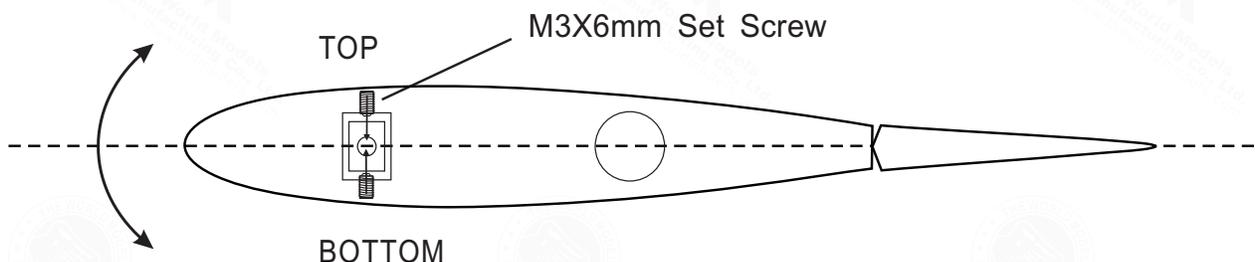
18 Wing Setting

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



A=A'
B=B'
C=C'

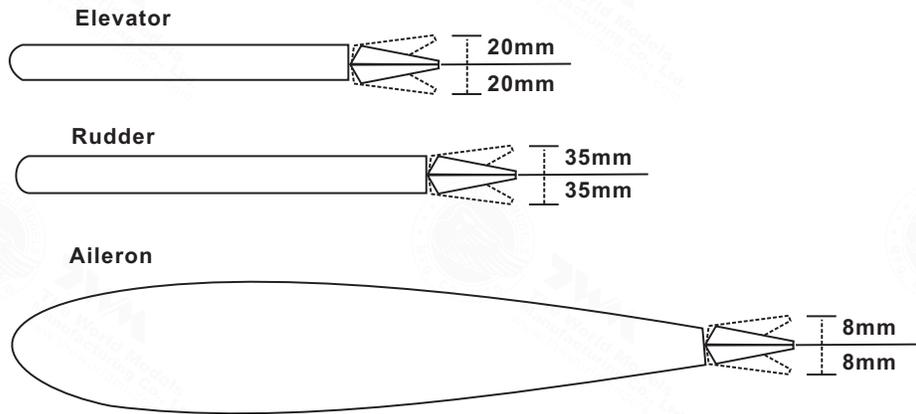
Stabilizer Setting



TO INCREASE INCIDENCE ANGLE, LOOSE BOTTOM SET SCREW AND THEN TIGHTEN TOP SET SCREW. TO REDUCE INCIDENCE ANGLE, LOOSE TOP SET SCREW AND THEN TIGHTEN BOTTOM SET SCREW. DON'T OVER TIGHTEN SET SCREWS AS THE INCIDENCE ANGLE ADJUSTERS ARE MADE OF PLASTICS.

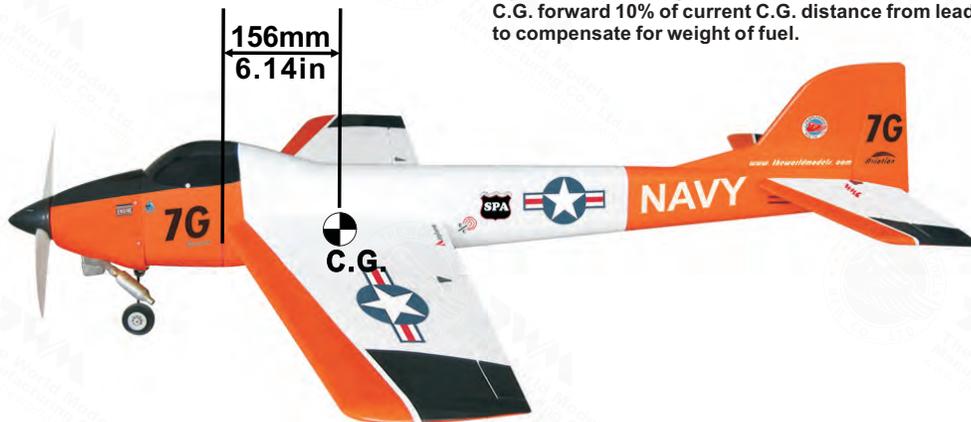
19 Control Throws

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



20 C.G.

The ideal C.G. position is 156mm (6.14in.) 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.



<http://www.theworldmodels.com/para/instruction/instructionManuals.php>

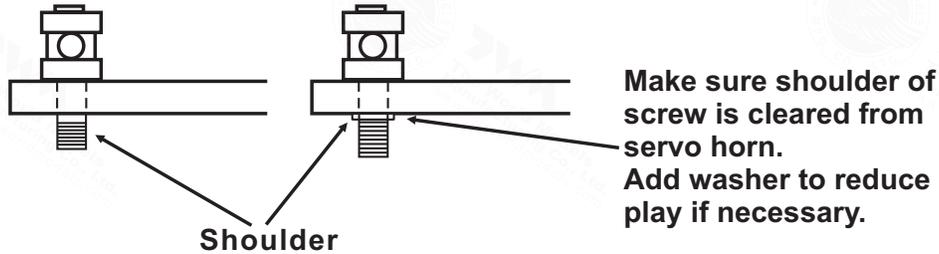
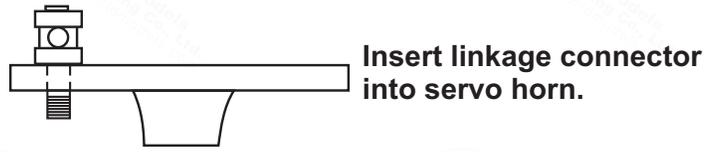
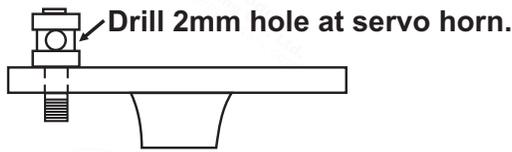
! Warning!

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.
- # **INTRUDER 90R** is specially designed to be powered by **2C 0.60 / 4C 0.91** 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 near 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.

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, 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.

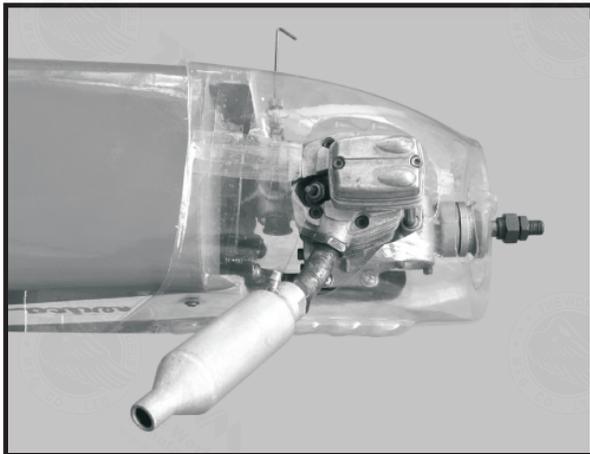
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Usage of the transparent 3D template



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

1



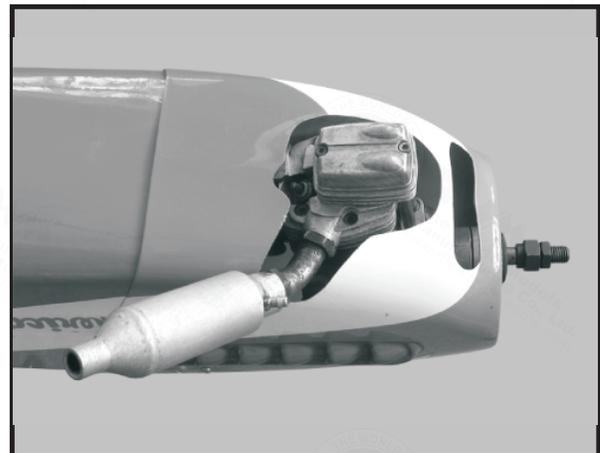
2



3



4



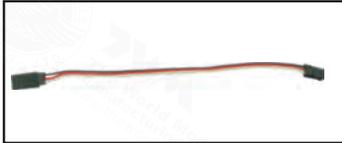
Simply cut the transparent 3D template to fit your engine and exhaust pipe, then slide onto the actual cowling and use as template to mark the openings required for final cutting.

Optional Parts

(ACCESSORIES)

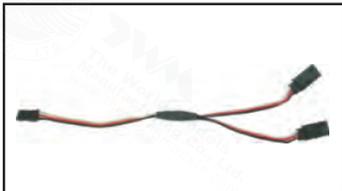
180mm Extension

Code No.	Size	Package
KW0011800	180mm	1 set



180mm Y-Cord

Code No.	Size	Package
KW0021800	180mm	1 pc



Charge Receptacles

Code No.	Size	Package
KP0041300		



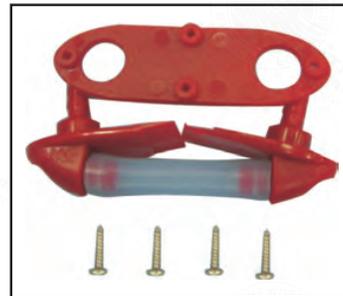
Field Stand

Code No.	Size	Package
MS9111430	600 x 240 x 310mm	1 pc



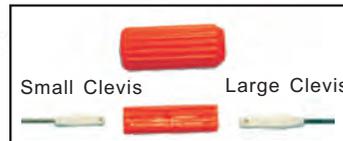
Fuel Filler

Code No.	Size	Package
PL8110030	15 x 22 x 49mm	1 x 1 pc



Clevis Wrench

Code No.	Size	Package
PL8210010		1 set



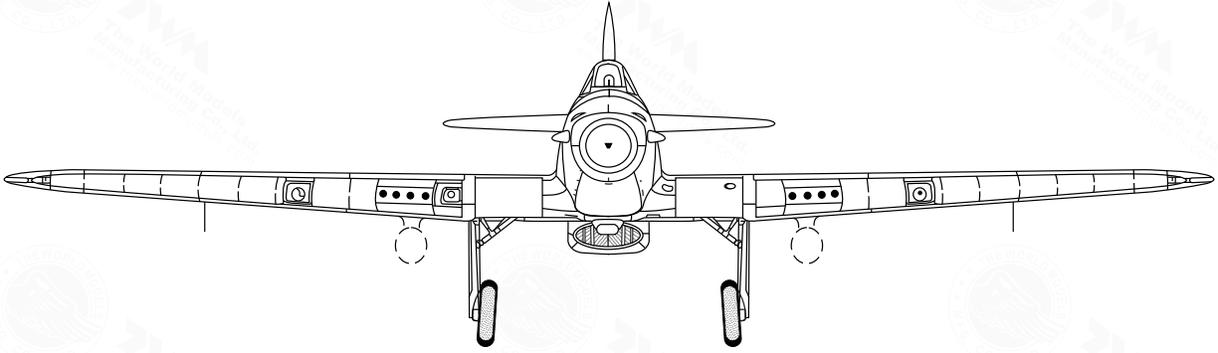
Special tool for clevis installation. Suitable for standard and small (EP) clevis.

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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