

RADIO CONTROL MODEL / RC FLUGMODELL

# NORTH AMERICAN HARVARD AT-6

BUILDING INSTRUCTIONS / MONTAGEANLEITUNG



## SPECIFICATIONS

Wingspan	1540mm
Length	1030mm
Flying weight	Approx 2700g
Electric Motor	650 Watt
Glow Engine	6,5cc 2T / 8,5cc 4-T
Radio	7 Channel / 8 Servos

## Technische Daten

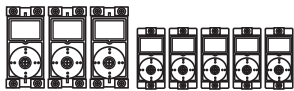
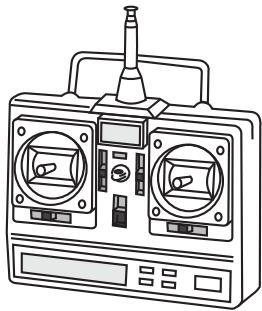
Spannweite	1540mm
Länge	1030mm
Fluggewicht	2700g
Elektroantrieb	650 Watt
Verbrennerantrieb	6,5cc 2T / 8,5cc 4T
Fernsteuerung	7 Kanal / 8 Servos

**NEXA**

**WARNING!** This radio controlled model is NOT a toy. If modified or flown carelessly it could go out of control and cause serious human injury or property damage. Before flying your airplane, ensure the air field is spacious enough. Always fly it outdoors in safe areas and seek professional advice if you are unexperienced.

**ACHTUNG!** Dieses ferngesteuerte Modell ist KEIN Spielzeug! Es ist für fortgeschrittene Modellflugpiloten bestimmt, die ausreichende Erfahrung im Umgang mit derartigen Modellen besitzen. Bei unsachgemäßer Verwendung kann hoher Personen- und/oder Sachschaden entstehen. Fragen Sie in einem Modellbauverein in Ihrer Nähe um professionelle Unterstützung, wenn Sie Hilfe im Bau und Betrieb benötigen. Der Zusammenbau dieses Modells ist durch die vielen Abbildungen selbsterklärend und ist für fortgeschrittene, erfahrene Modellbauer bestimmt.

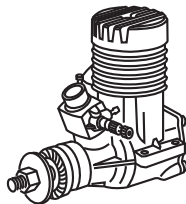
## REQUIRED FOR OPERATION (Purchase separately) BENÖTIGTE KOMPONENTEN FÜR DEN ABFLUG (Nicht enthalten)



Minimum 7 channel radio with 8 servos  
Motor x1. Aileron (mini servo)x2.  
Flap (mini servo)x3. Elevator x1. Rudder x1



10.5x6 for .40 - 2 cycle engine  
11x6 for .46 - 2 cycle engine  
11x7 for .52 - 4 cycle engine  
12x7 ~13x6 - Electric Motor

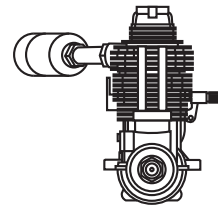
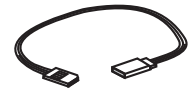


.40 ~ .46 - 2 cycle

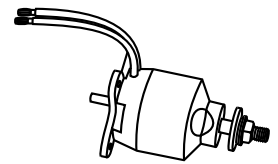
Silicone tube



Extension for aileron, flap servo and power-pack.



.50 ~ .52 - 4 cycle



650Watt  
Brushless Motor

### SAFETY NOTES BEFORE ASSEMBLING

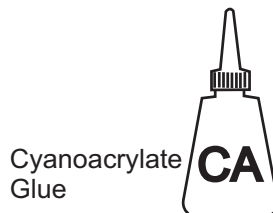
This model is highly pre-fabricated and can be built in a very short time. However, the work which you have to carry out is important and must be done carefully.

The model will only be strong and fly well if you complete your tasks competently - so please work slowly, accurately and check every joints, maybe apply more glue to be safe.

### GLUE (Purchase separately)



Silicon sealer




Cyanoacrylate  
Glue



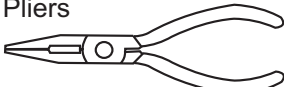
Epoxy Glue ( 5 minute type)  
Epoxy Glue (30 minute type)

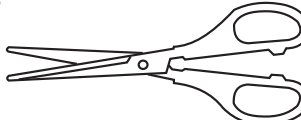
### TOLLS REQUIRED (Purchase separately)

Hobby knife 

Phillip screw driver 


Hex Wrench 

Needle nose Pliers 

Scissors 

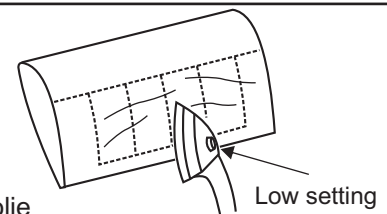
Awl 

Sander 

Wire Cutters 

Masking tape - Straight Edged Ruler - Pen or pencil - Rubbing alcohol - Drill and Assorted Drill Bits

If exposed to direct sunlight and/or heat, wrinkles can appear. Storing the model in a cool place will let the wrinkles disappear. Otherwise, remove wrinkles in covering film with a hair dryer, starting with low temperature. You can fix the corners by using a hot iron.



Bei Sonneneinstrahlung und/oder Wärme kann die Folie erschlaffen bzw. Falten entstehen. Verwenden Sie ein Warmluftgebläse (Haartrockner) um evtl. Falten aus der Folie zu bekommen. Die Kanten können Sie mit einem Bügeleisen behandeln. Nicht zuviel Hitze anwenden !

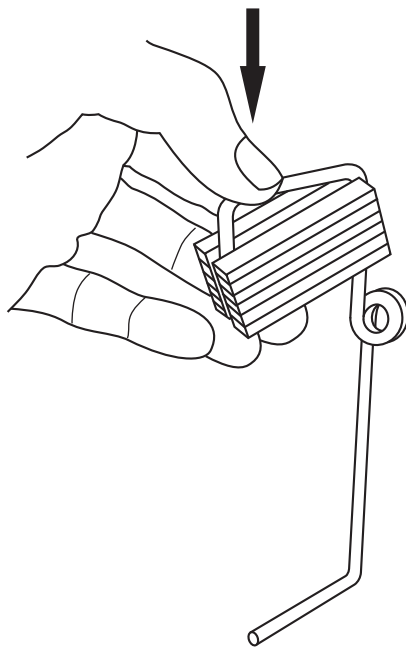
Symbols used throughout this instruction manual, comprise:

 Drill holes using the stated size of drill (in this case 1.5 mm Ø)	 Take particular care here	 Hatched-in areas: remove covering film carefully	 Check during assembly that these parts move freely, without binding
 Use epoxy glue	 Apply cyano glue	 Assemble left and right sides the same way.	 Not included. These parts must be purchased separately

 Löcher bohren mit dem angegebenen Bohrer (hier 1,5 mm)	 Hier besonders aufpassen	 Schraffierte Stellen, Bespannfolie vorsichtig entfernen	 Während des Zusammenbaus immer prüfen, ob sich die Teile auch reibungslos bewegen lassen
 Epoxy-Klebstoff verwenden	 Sekundenkleber auftragen	 Linke und rechte Seite wird gleichermaßen zusammengebaut	 Nicht enthalten. Teile müssen separat gekauft werden.

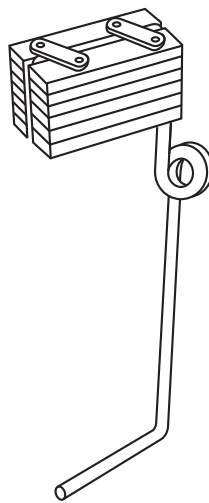
# AT-6 TEXAN 1- Wing: Fixed gear assembly

TOP VIEW



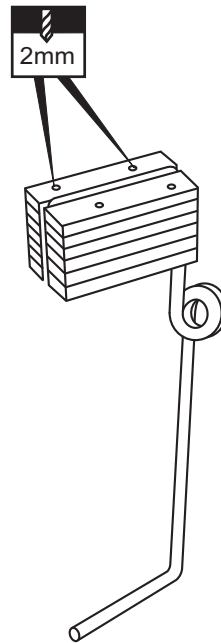
**1A**

Slide the landing gear onto the plywood gear mount and push the landing gear as shown.



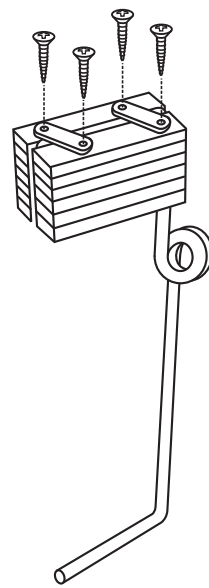
**1B**

Using the nylon gear strap as a template, mark the plywood gear mount where the four holes to be drill.



**1C**

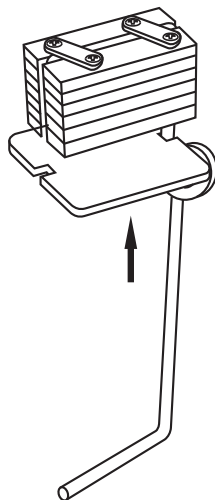
Remove the nylon gear strap and drill a 2mm hole at each of the four marks marked.



**1D**

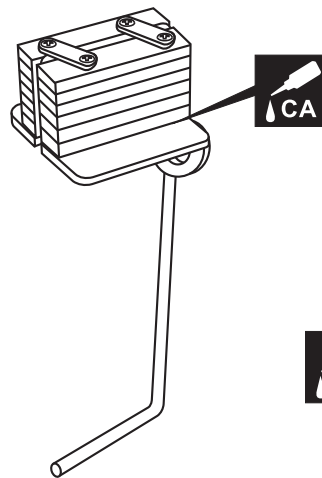
Reposition the nylon gear strap and secure them in place using four 3x20mm screws.

BOTTOM VIEW



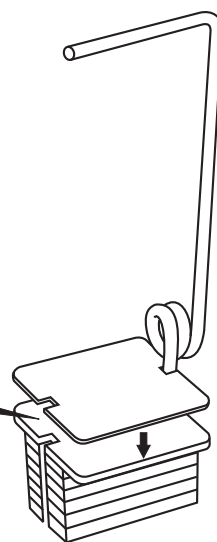
**1E**

Attach the ply gear mount plate to the plywood gear mount



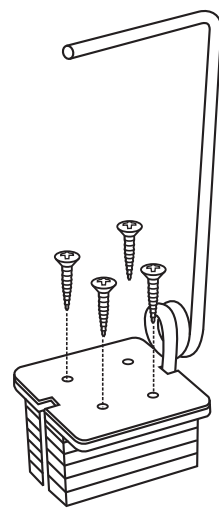
**1F**

Secure the ply gear mount plate in place using CA glue.



**1G**

Attach the square plastic onto the ply gear mount, secure it in place using CA glue.



**1H**

Drill a 2mm holes through the square plastic and ply gear mount plate. Secure the ply gear mount using four 3x20mm screws.

3x20mm screw .....16

Nylon gear strap .....4



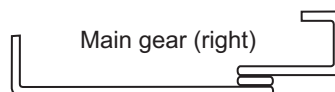
Plywood Gear mount x 2



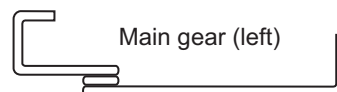
Square plastic x2



Ply gear mount plate x 2

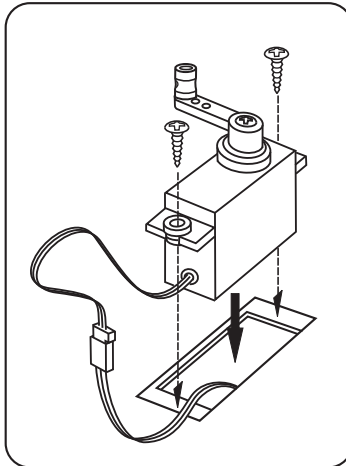
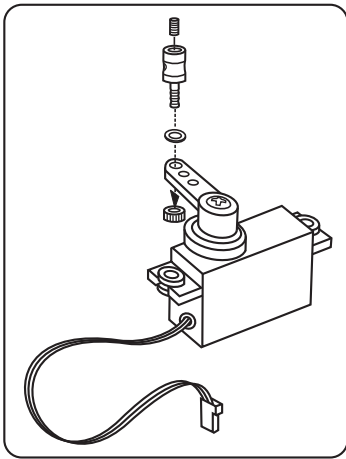




Main gear (right)

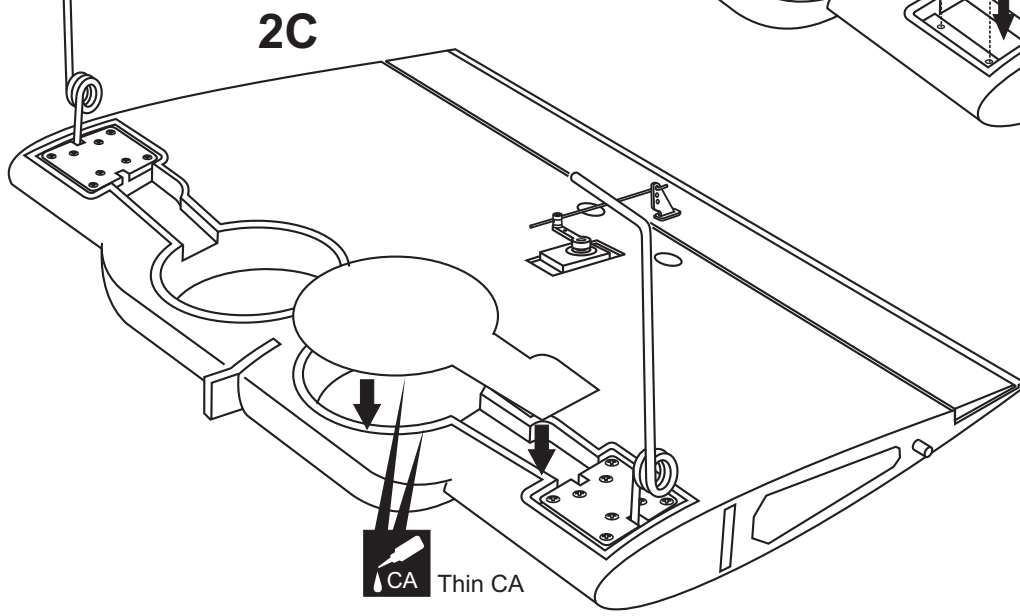
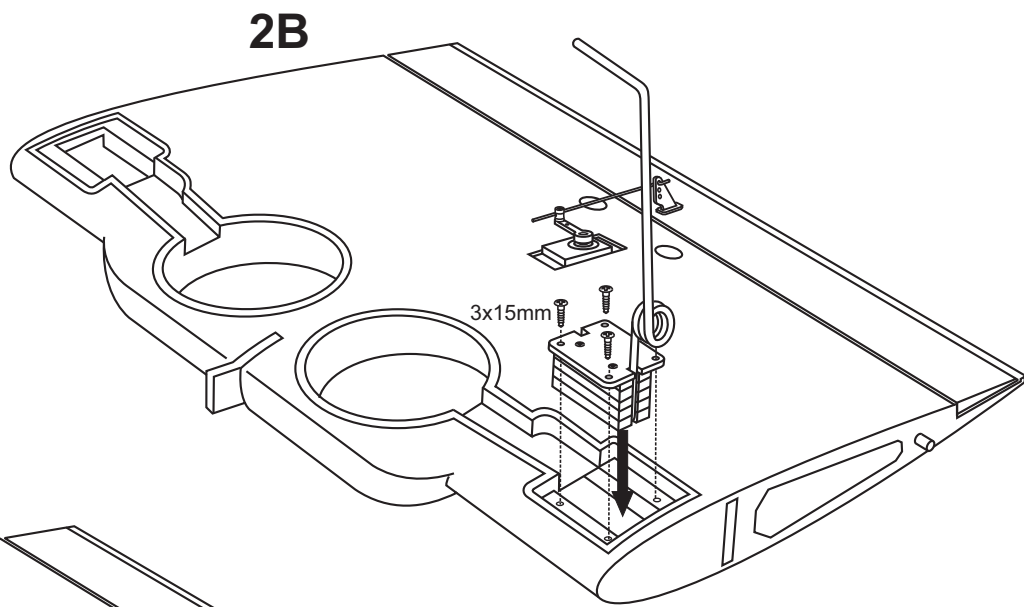
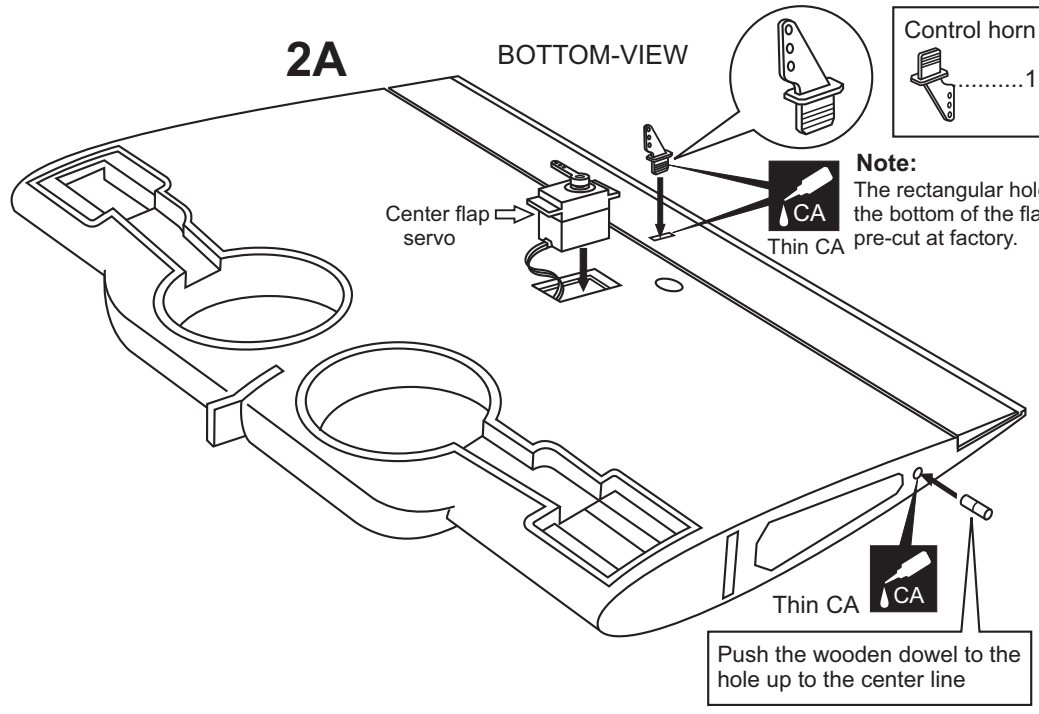


Main gear (left)

# AT-6 TEXAN 2- Wing: Servo & fixed gear installation

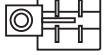




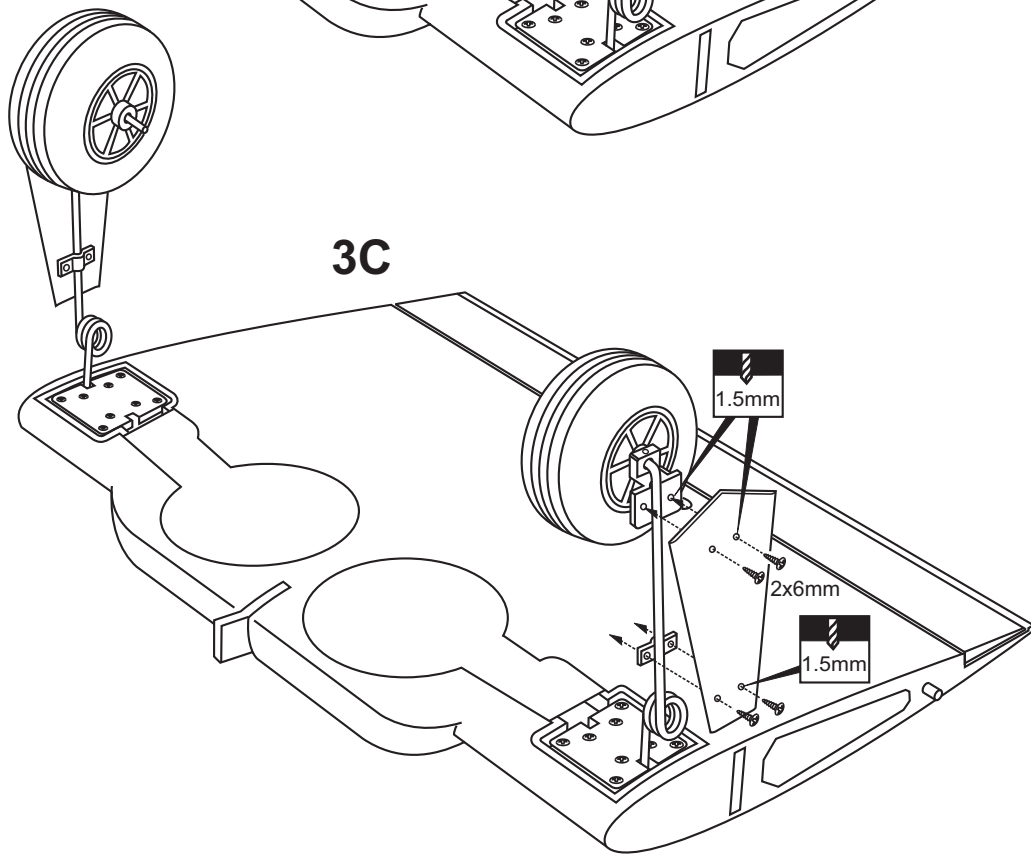
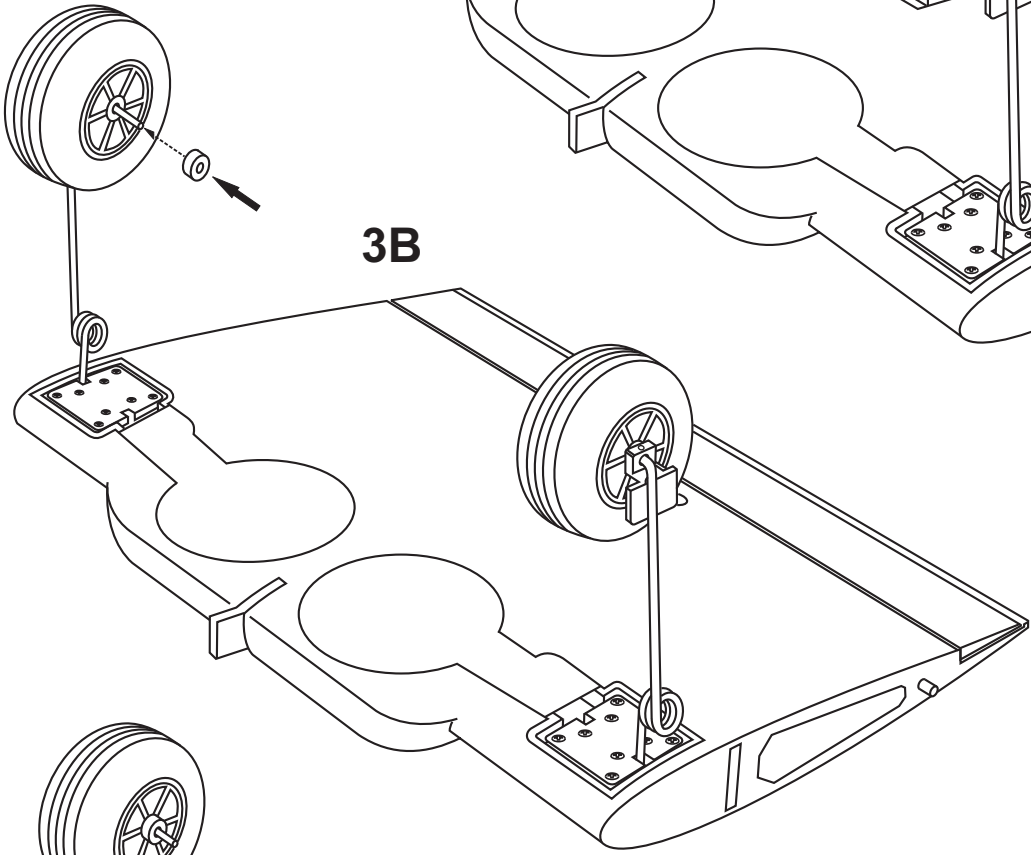
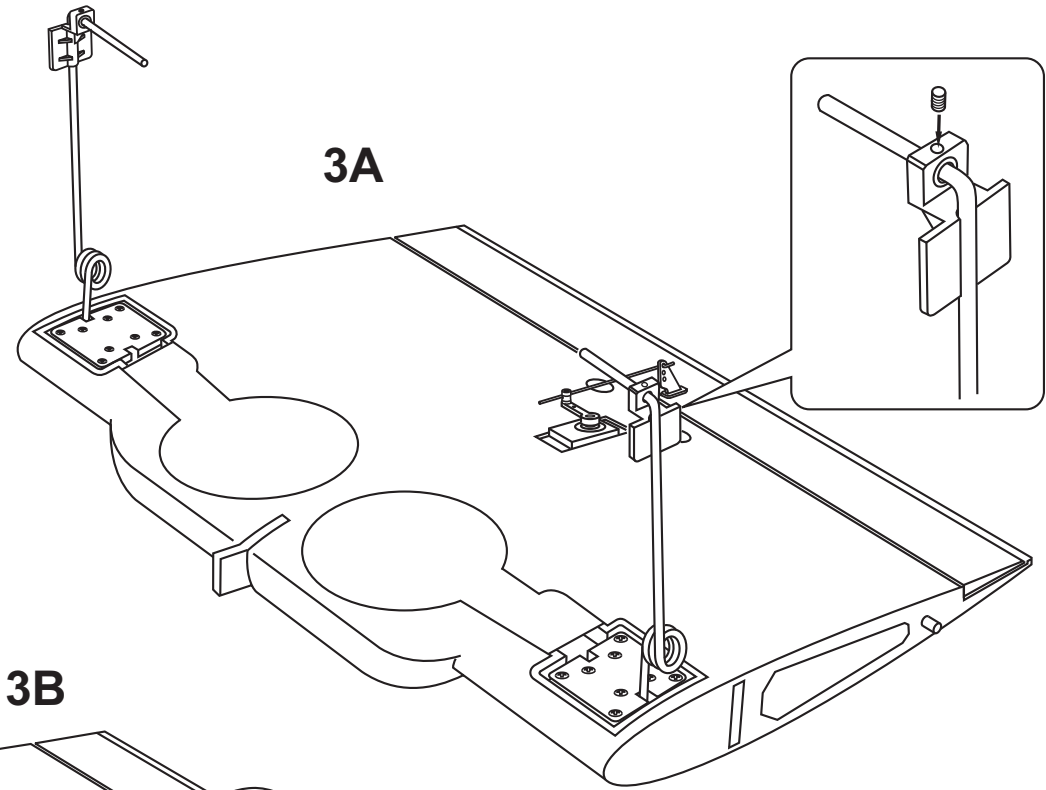
- Connector  
 ..... 1  
 1.2x150mm Flap push rod  
 ..... 2





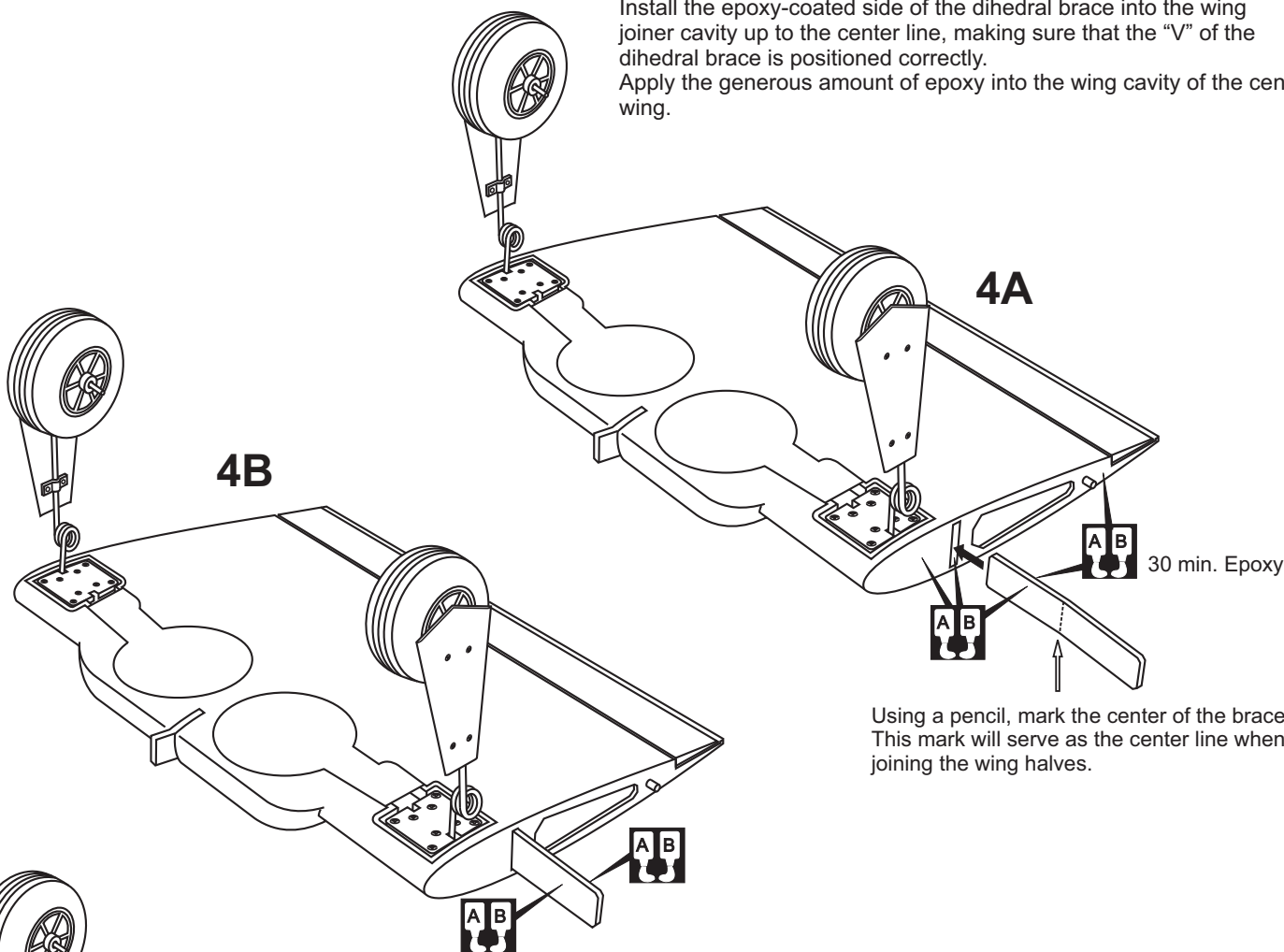
# AT-6 TEXAN 3-Wing: Wheel

-  ....2
- 4mm collar
-  ....2
- Plastic strap
-  ....2



# AT-6 TEXAN 4- Joining the wing

Coat one half of the dihedral brace with epoxy up to the center line. Install the epoxy-coated side of the dihedral brace into the wing joiner cavity up to the center line, making sure that the "V" of the dihedral brace is positioned correctly. Apply the generous amount of epoxy into the wing cavity of the center wing.

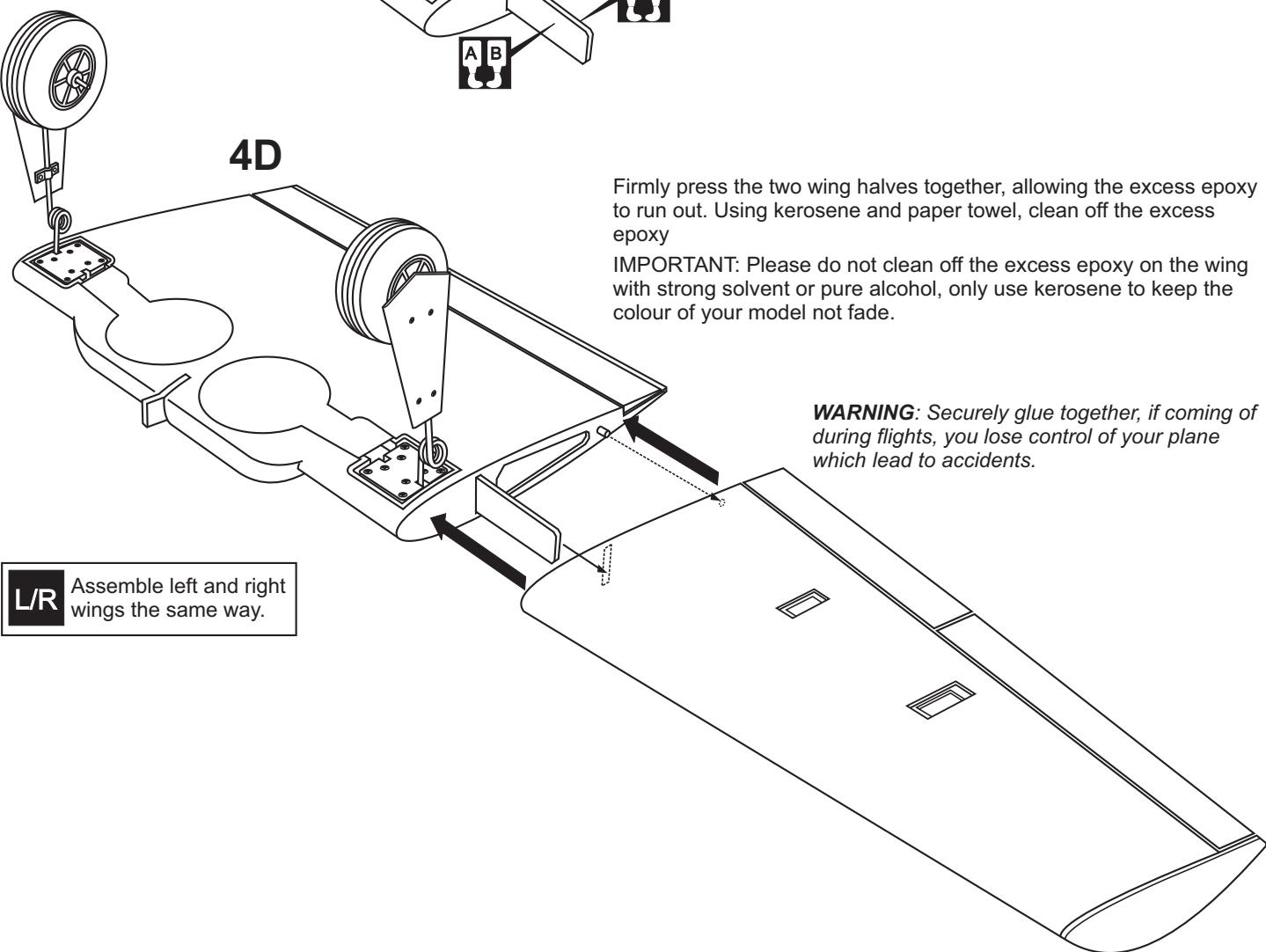


Using a pencil, mark the center of the brace. This mark will serve as the center line when joining the wing halves.

Firmly press the two wing halves together, allowing the excess epoxy to run out. Using kerosene and paper towel, clean off the excess epoxy.

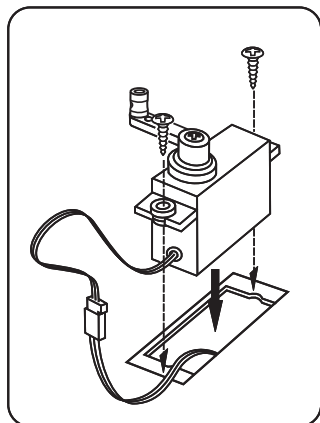
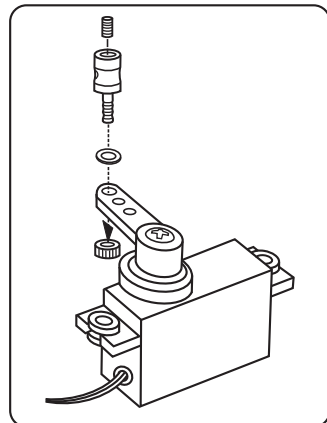
**IMPORTANT:** Please do not clean off the excess epoxy on the wing with strong solvent or pure alcohol, only use kerosene to keep the colour of your model not fade.

**WARNING:** Securely glue together, if coming of during flights, you lose control of your plane which lead to accidents.




**L/R** Assemble left and right wings the same way.

# AT-6 TEXAN 5- Servo and linkage

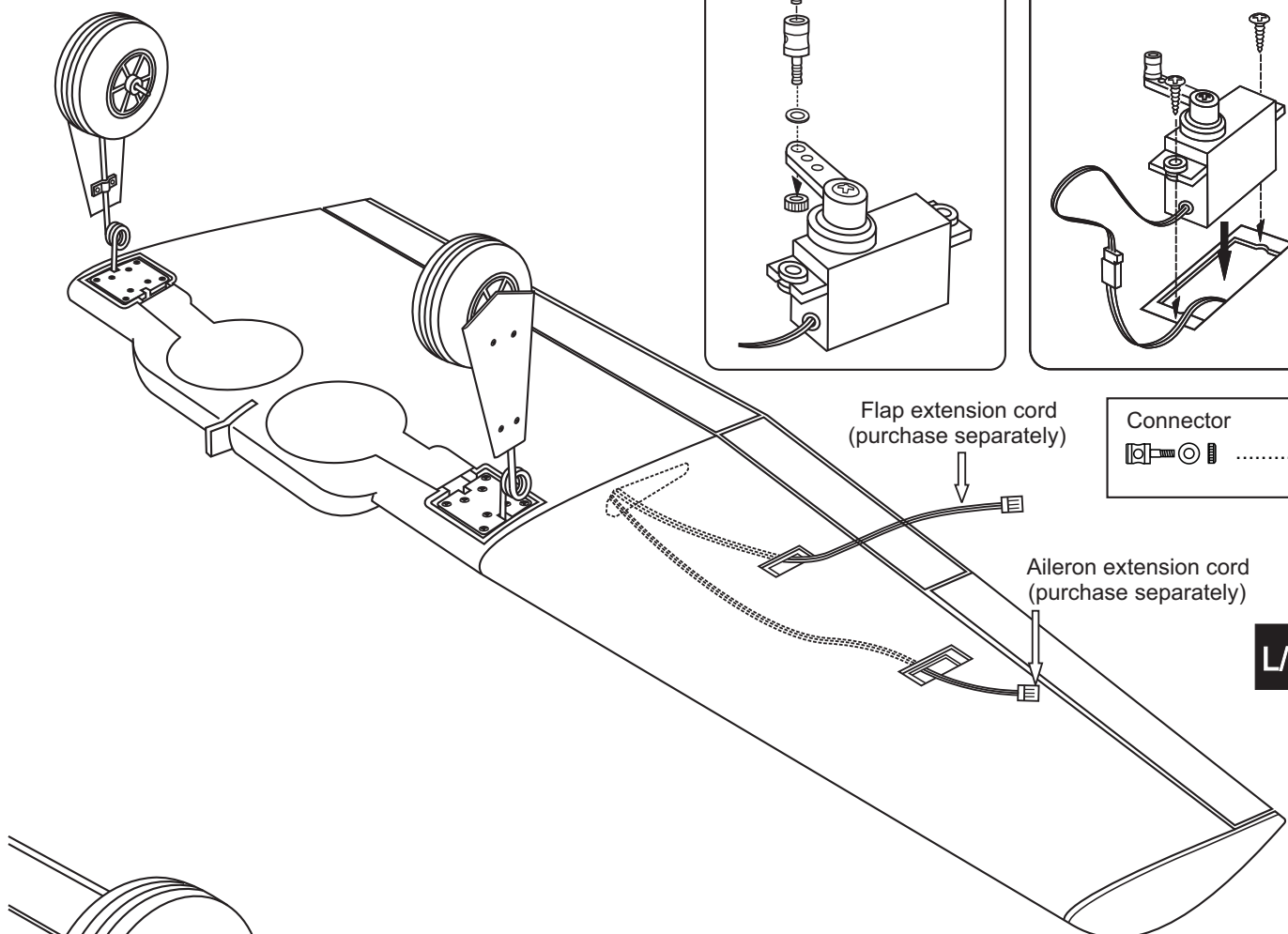


Flap extension cord  
(purchase separately)

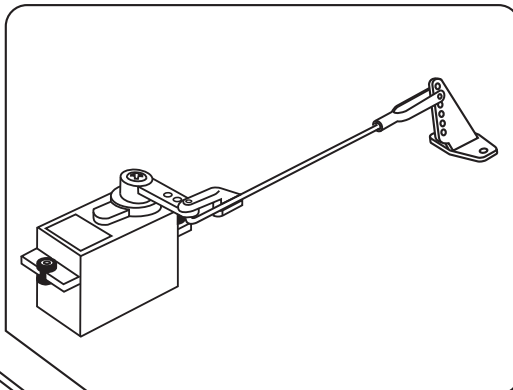
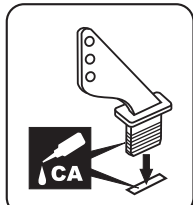
Aileron extension cord  
(purchase separately)

Connector  
 .....1

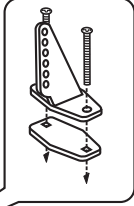
L/R



**Note:**  
The rectangular hole on the bottom of the flap is pre-cut at factory.



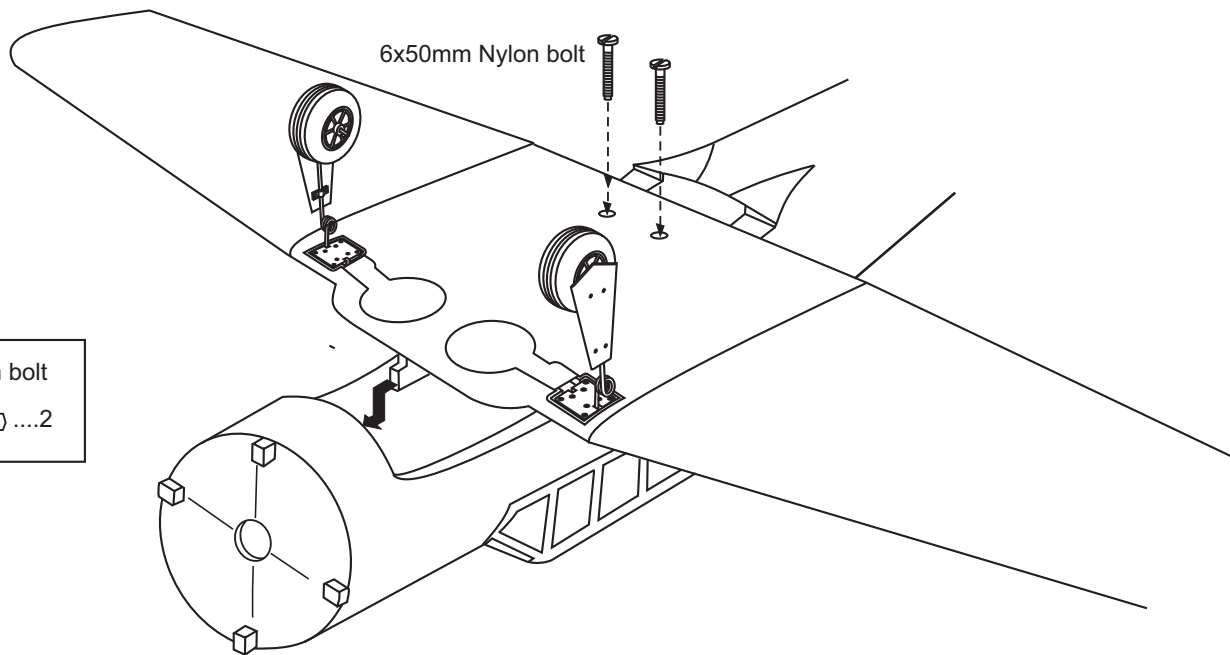
L/R



- Plastic control horn .....2 set
- 2x20mm screw .....4
- Plastic control horn .....2 set

- 1.2x150mm Flap push rod .....2
- 2x175mm Aileron push rod .....2
- EZ link .....2

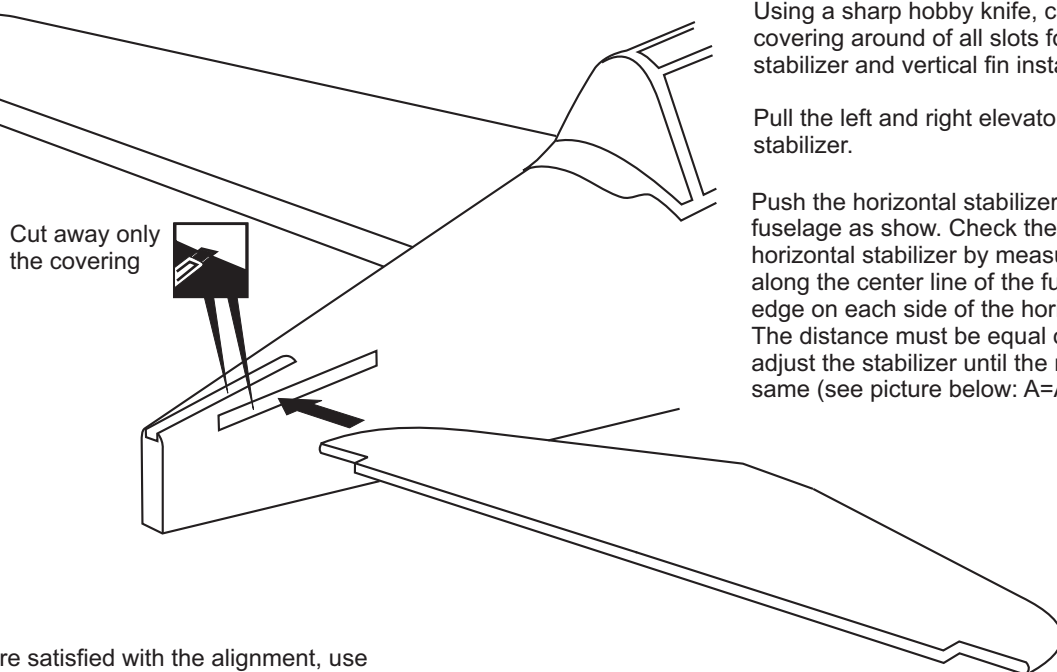
## AT-6 TEXAN 6- Wing mounting



6x50mm nylon bolt

.....2

## AT-6 TEXAN 7- Horizontal stabilizer



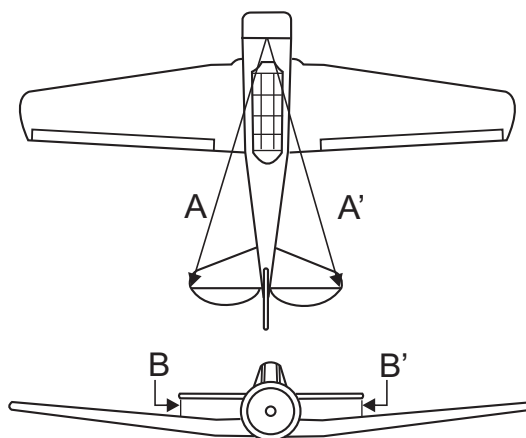
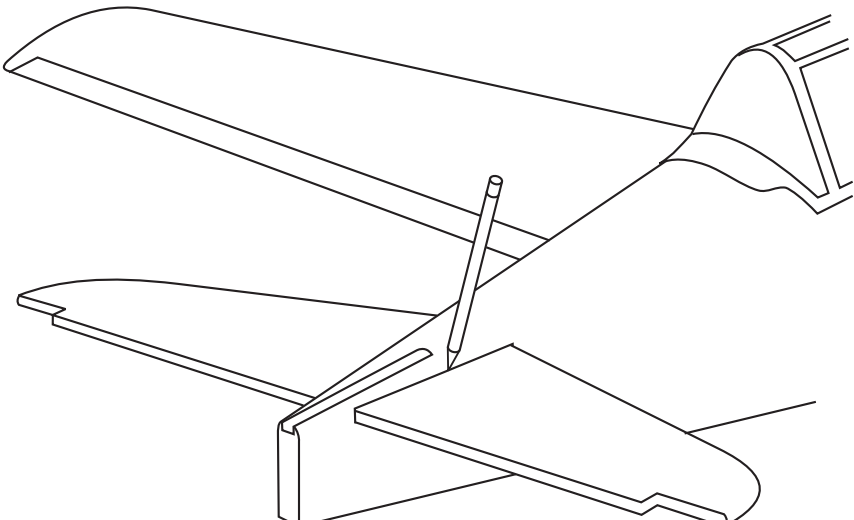
Cut away only the covering

Using a sharp hobby knife, carefully cut away the covering around of all slots for the horizontal stabilizer and vertical fin installation.

Pull the left and right elevator out of the horizontal stabilizer.

Push the horizontal stabilizer into the slot on the fuselage as show. Check the alignment of the horizontal stabilizer by measuring from a fixed point along the center line of the fuselage to the leading edge on each side of the horizontal stabilizer. The distance must be equal on both sides . If not, adjust the stabilizer until the measurements are the same (see picture below:  $A=A'$ ).

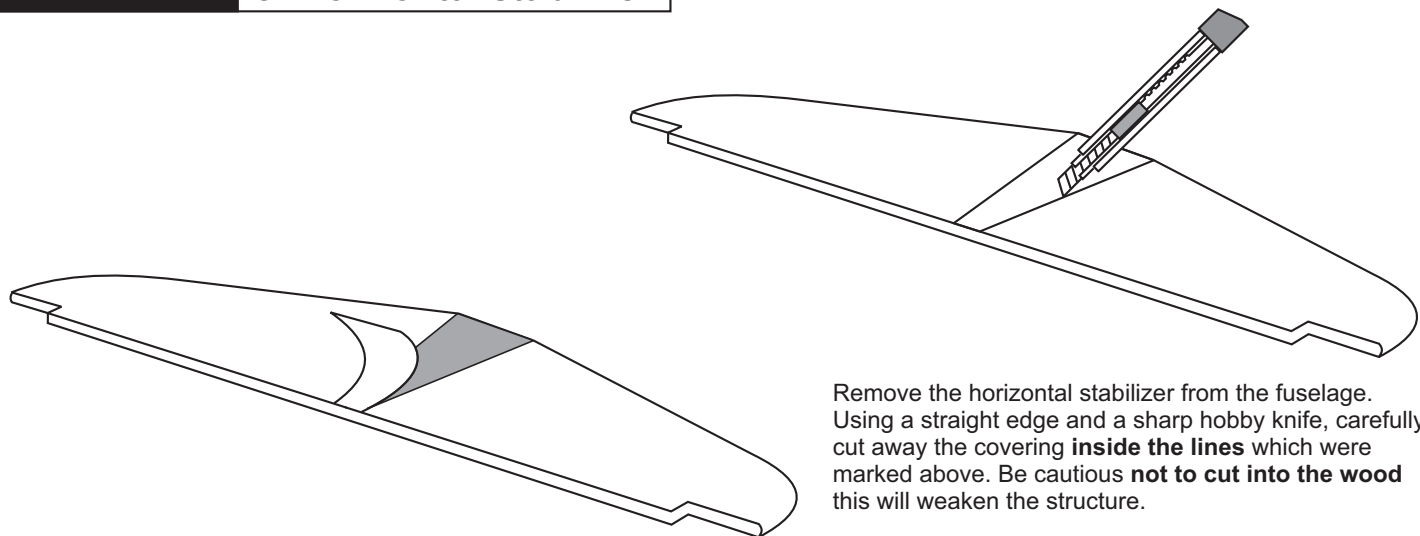
When you are satisfied with the alignment, use a pencil to trace around the top and bottom of the stabilizer where it meets the fuselage.



$A=A'$

$B=B'$

## AT-6 TEXAN 8- Horizontal stabilizer



Apply thin CA glue into the slot where the fuselage meet the horizontal stabilizer,

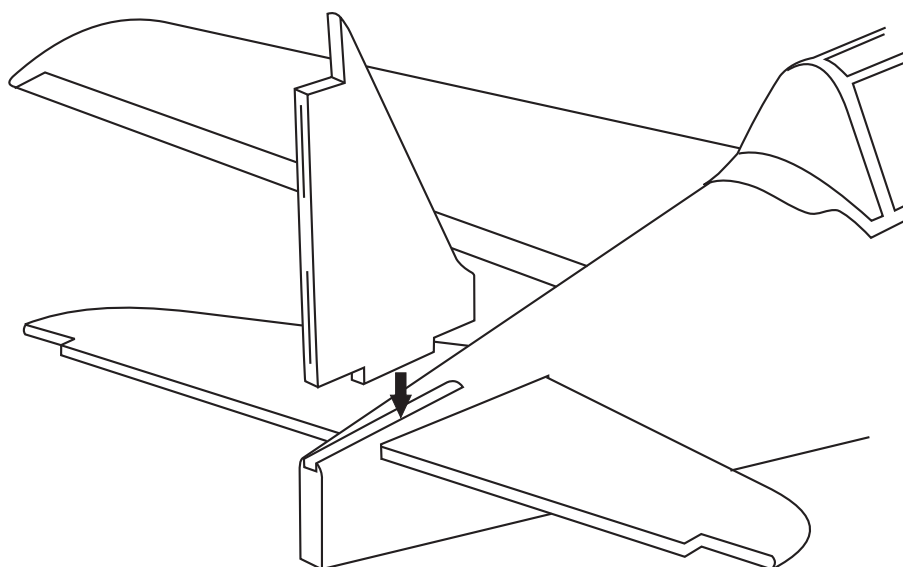


Apply thin CA glue both side

Install the horizontal stabilizer onto the fuselage and adjust the alignment as described in previous step. Note: it is important to ensure that the horizontal stabilizer is also level in regards to the fuselage. Apply the thin CA along the area where the covering was removed in the previous step and to the fuselage where the horizontal stabilizer mounts.

**! Securely glue together. If coming off during fly, you lose control of your air plane.**

## AT-6 TEXAN 9- Vertical stabilizer



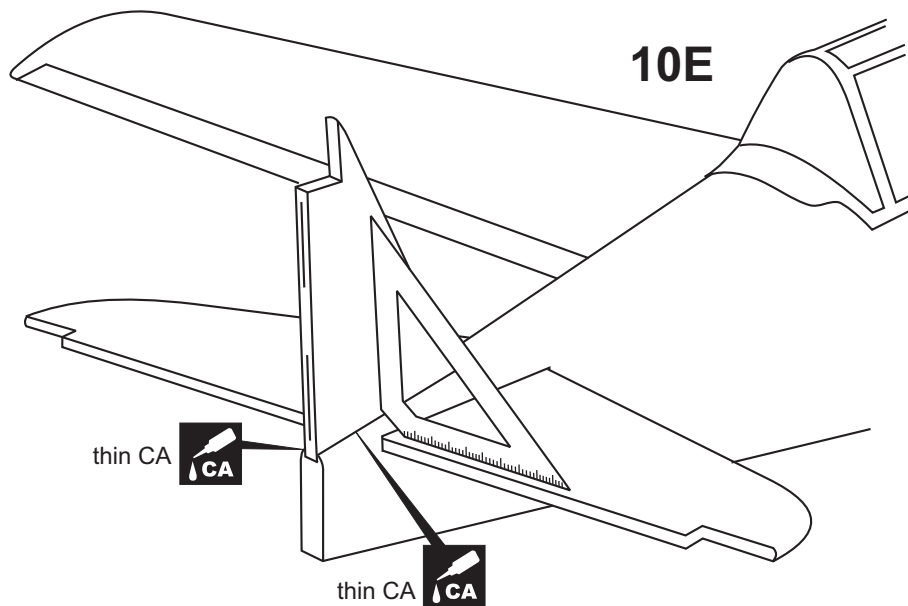
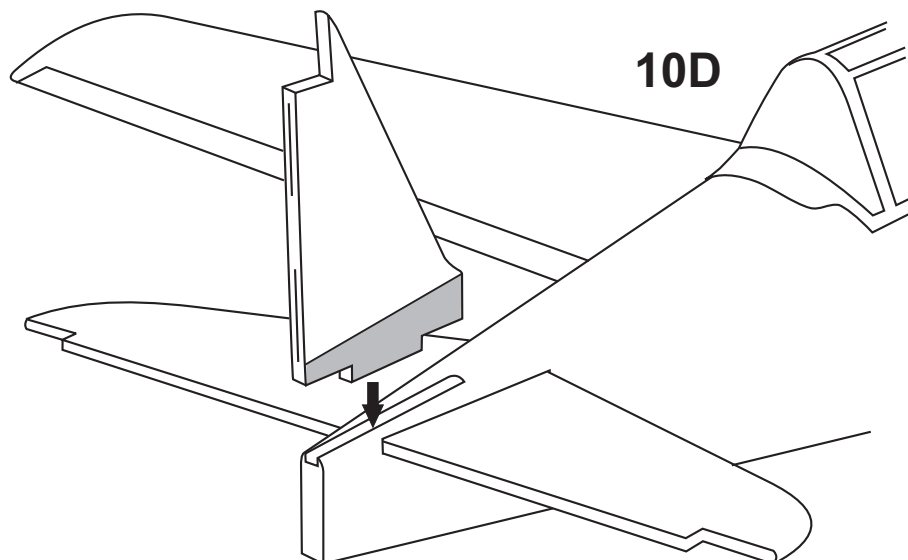
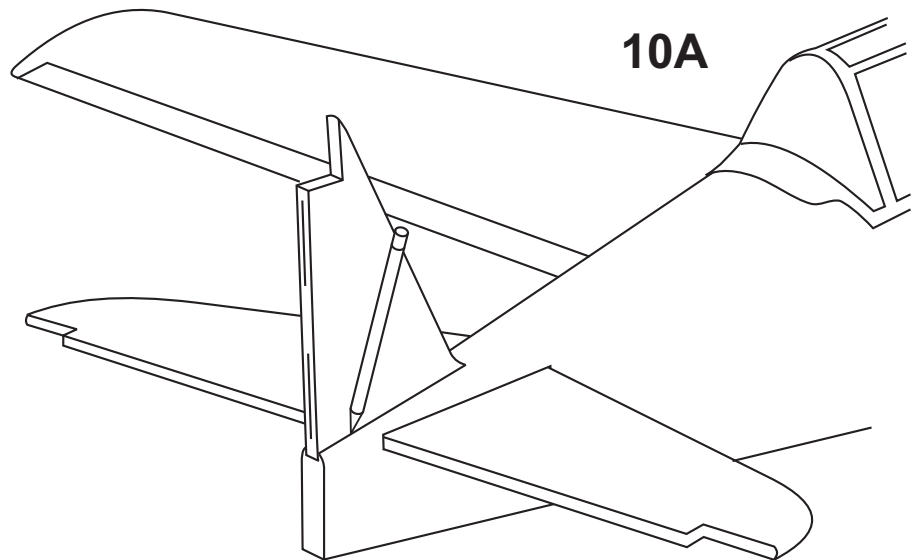
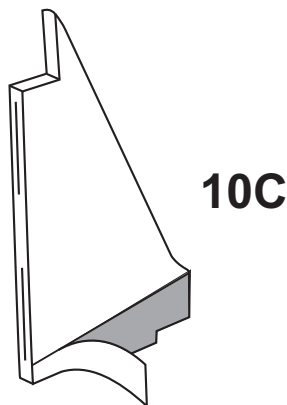
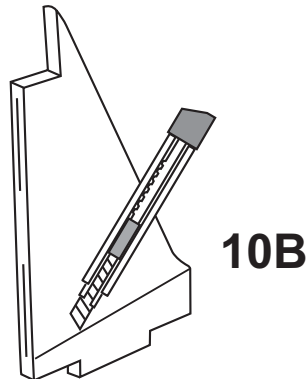
Pull the rudder out of the vertical fin.

Carefully, push the vertical fin into the slot on the fuselage as shown.



## AT-6 TEXAN 10- Vertical stabilizer

Using a pencil, trace around the vertical stabilizer where it meets the fuselage. Remove the vertical stabilizer from the fuselage. Using a sharp hobby knife, carefully cut away the covering **below the lines** which were drawn in the previous step. **Do not cut into the woods** as this will affect the structural integrity of the stabilizer.



Trial fit the vertical fin in position. Using a 90 degree triangle, ensure that the vertical stabilizer is perpendicular to the horizontal stabilizer.

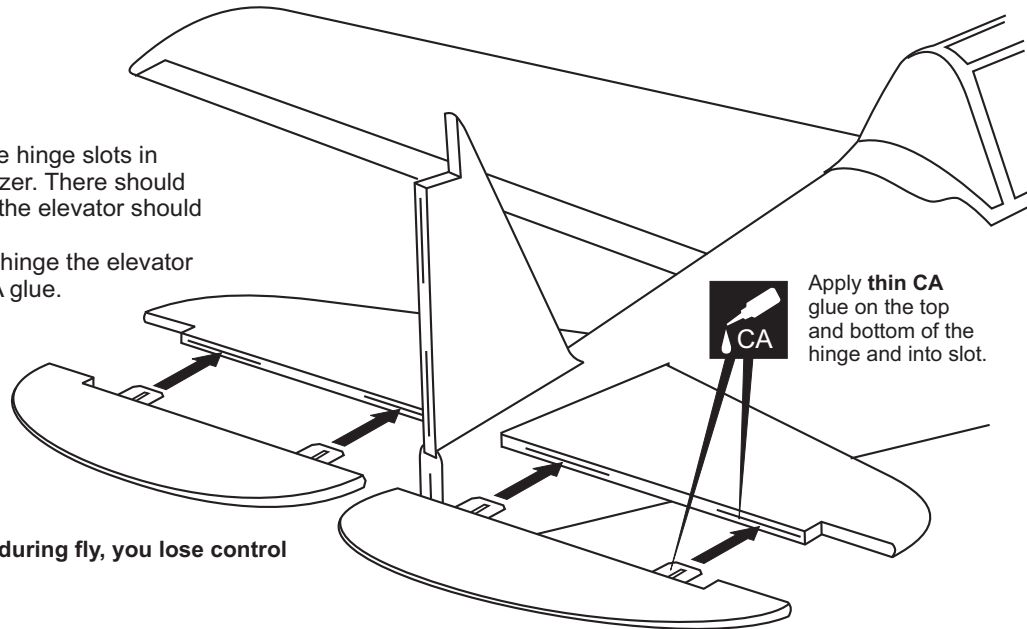
Apply the thin CA glue on the vertical stabilizer where it contacts the fuselage.

## AT-6 TEXAN 11- Elevator & Control horn

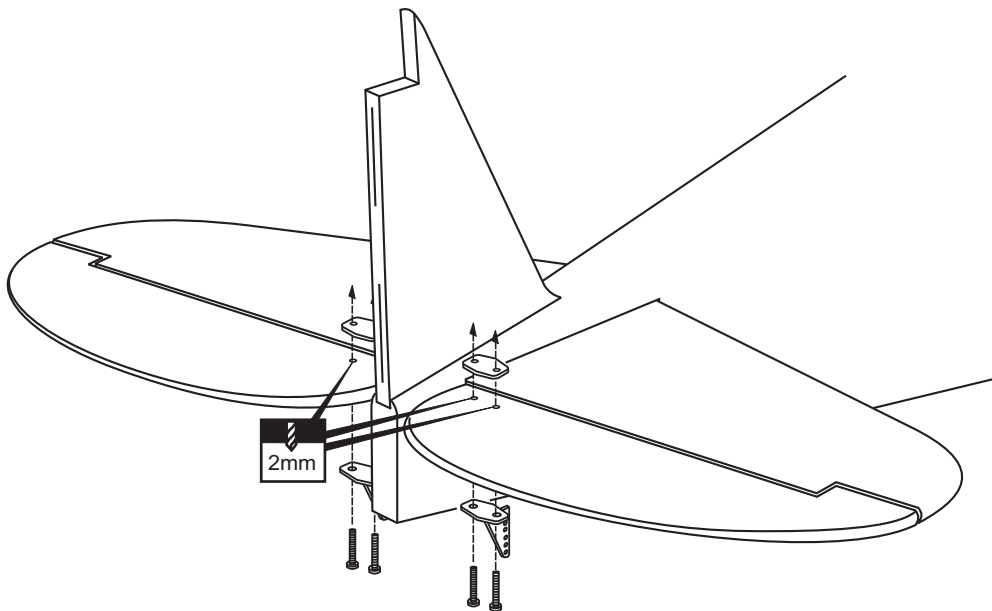
Push the elevator and its hinges into the hinge slots in the trailing edge of the horizontal stabilizer. There should be a minimal hinge gap and the end of the elevator should not rub against the horizontal stabilizer.

When satisfied with the fit and alignment, hinge the elevator to the horizontal stabilizer using thin CA glue.

Make sure to apply a thin layer of CA glue to the top and bottom of both hinges and to inside the hinge slots. Repeat the previous procedures to hinge the second elevator to the other side of the horizontal stabilizer.

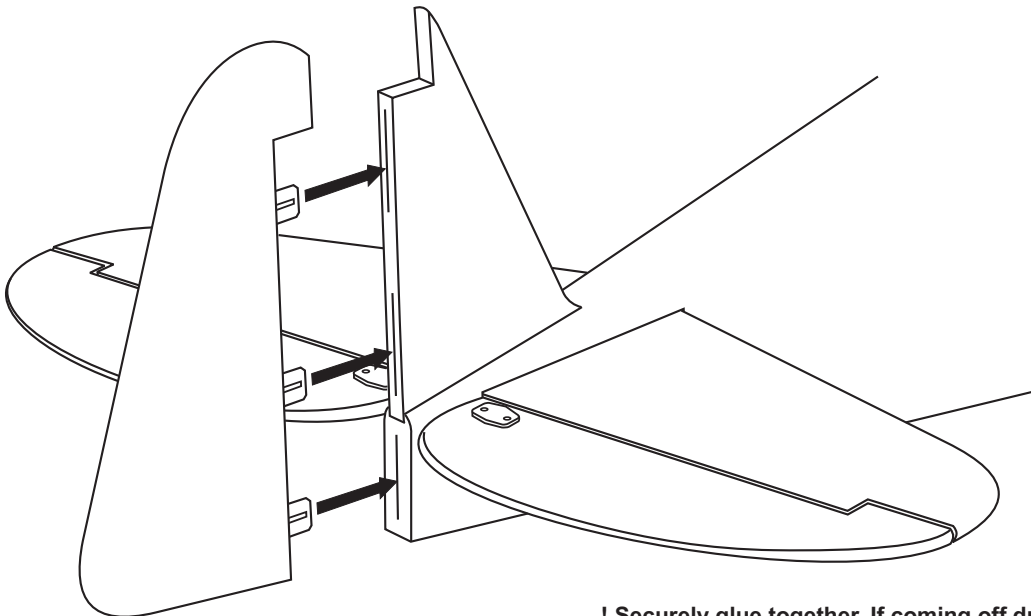


**! Securely glue together. If coming off during fly, you lose control of your air plane.**




Control horn	.....2
2x20mm screw	.....4

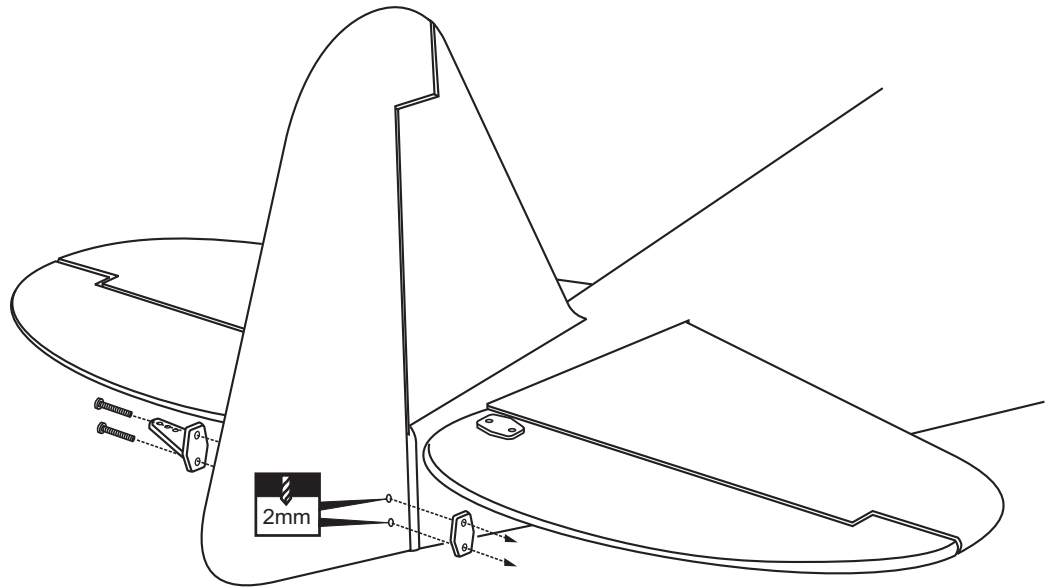
## AT-6 TEXAN 12- Rudder



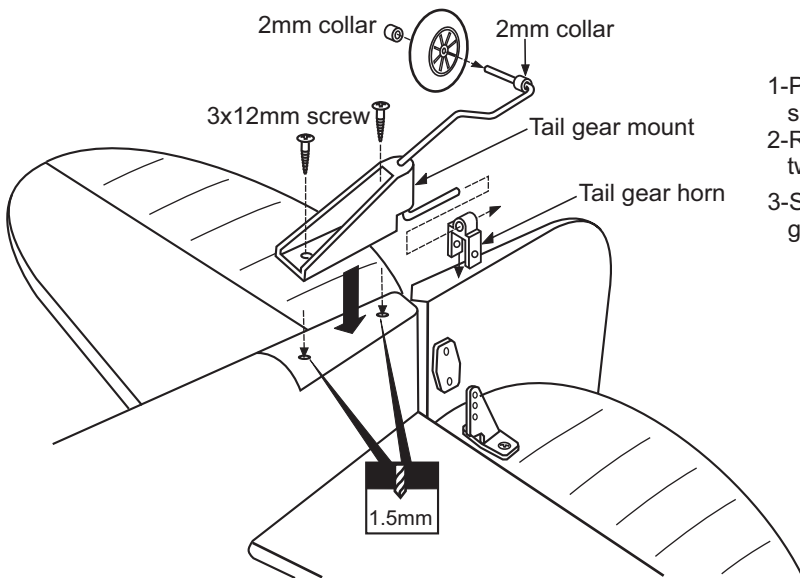
**! Securely glue together. If coming off during fly, you lose control of your air plane.**

# AT-6 TEXAN 13- Rudder control horn





-  .....1
- 2x20mm screw .....2

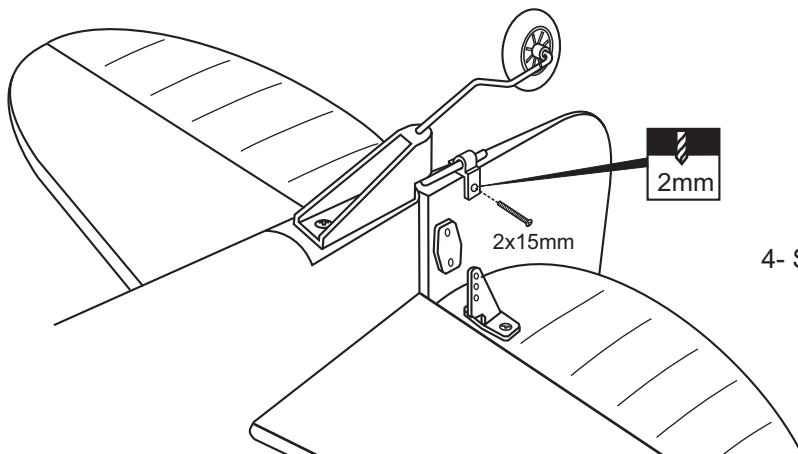


# AT-6 TEXAN 14- Tail wheel



- 1-Place the tail gear mount on the bottom of the fuselage as show, mark the mounting hole positions with a pencil.
- 2-Remove the tail gear mount from the fuselage, Drill the two mounting holes as marked.
- 3-Slide the tail gear into the tail gear horn. Secure the tail gear mount in place using the two 3x12mm screw.

- 3x12mm screw  
 .....2
- Tail gear horn  
 .....1
- 2x15mm bolt  
 .....1
- 2mm collar  
 .....2



- 4- Secure the tail gear horn in place using 2x15mm bolt.

# AT-6 TEXAN 15- Glow engine

5/32"x1"  
4x25mm screw



...4

5/32"(4mm)blind-nut



.....4

1/8"x51/64"  
3x25mm screw



...4

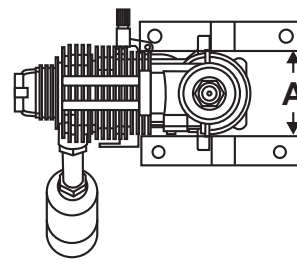
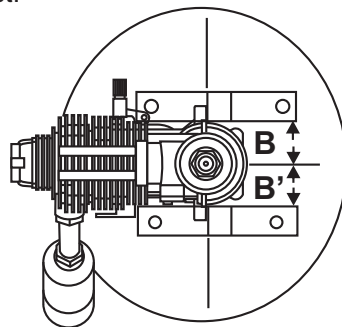
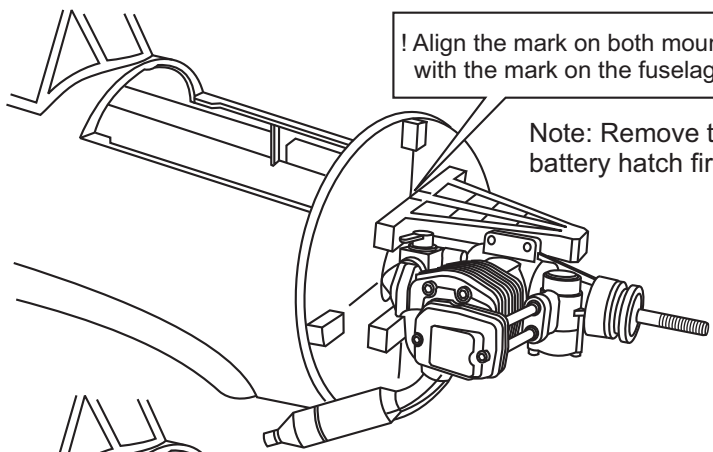
1/8"(3mm)nut



.....4

! Align the mark on both mounts with the mark on the fuselage

Note: Remove the magnetic battery hatch first.



B=B'

- Using a pencil or felt tipped pen, mark the fire wall where the four holes are to be drilled



- Remove the engine mount and drill a 3/16"(5mm) hole through the fire-wall at each of the four marks made above



- Attach the four blind-nuts to the fire-wall as show

- Reposition the engine mounts on to the fire-wall and secure them with four 5/32X1"(4x25mm) screws.



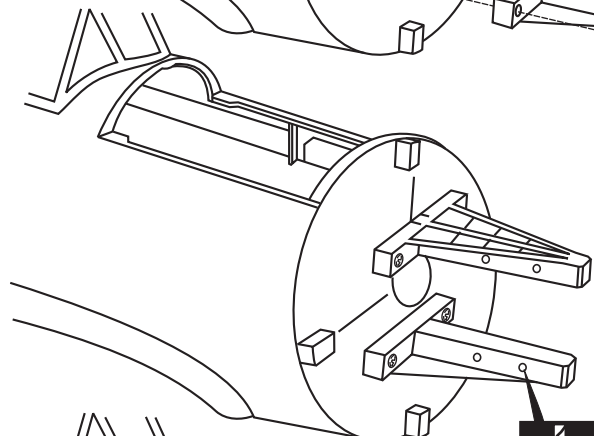
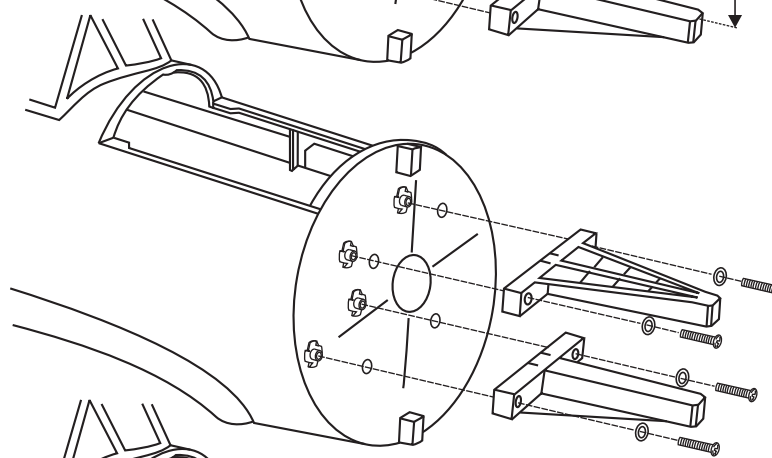
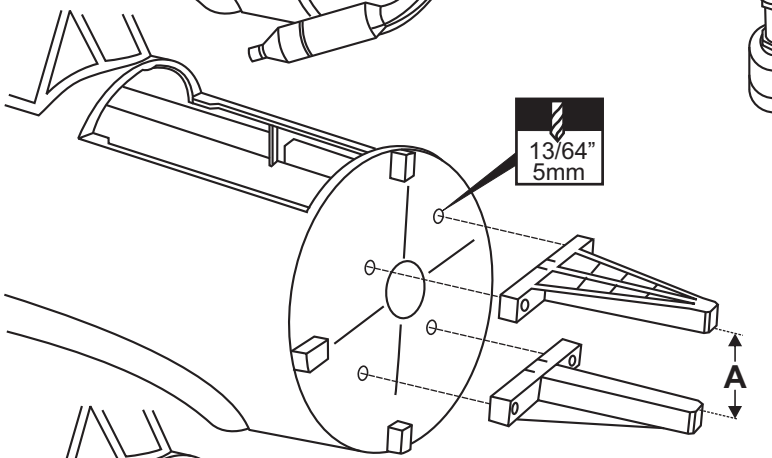
- Reposition the engine on the engine mount beams so the distance from the prop hub to the fire wall is 4"(103mm)

- Mark the engine mounting plate where the four holes are to be drilled.

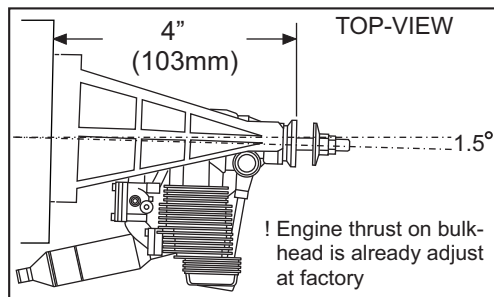
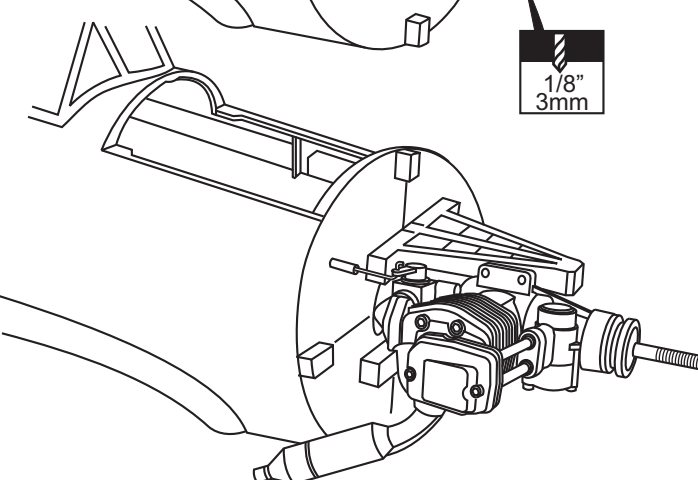
Note: Mark the mounting plate through the engine mounting flanges.

- Remove the engine and drill a 1/8"(3mm) holes through the beam at each of the four marks made above.

13/64"  
5mm



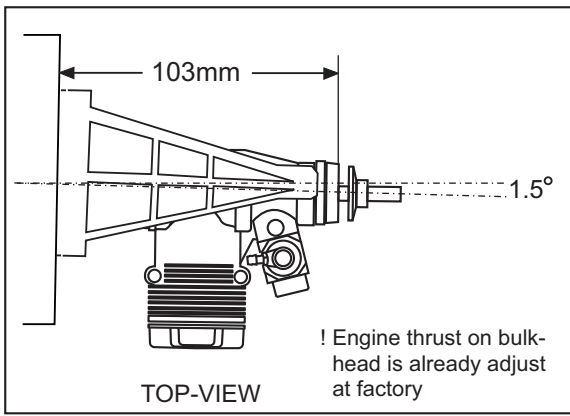
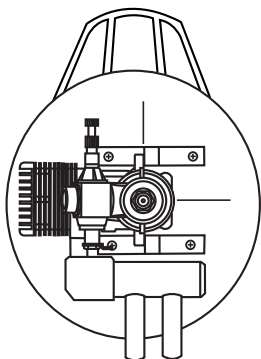
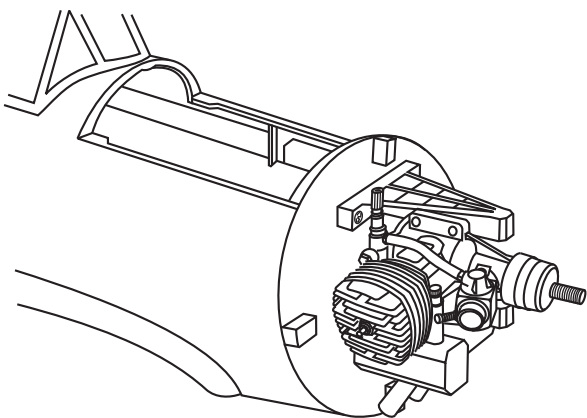
1/8"  
3mm



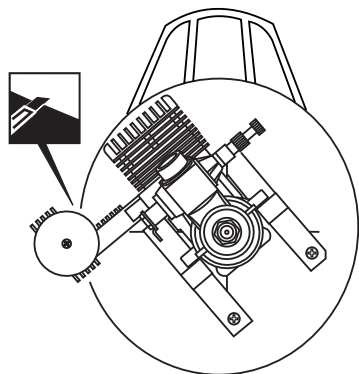
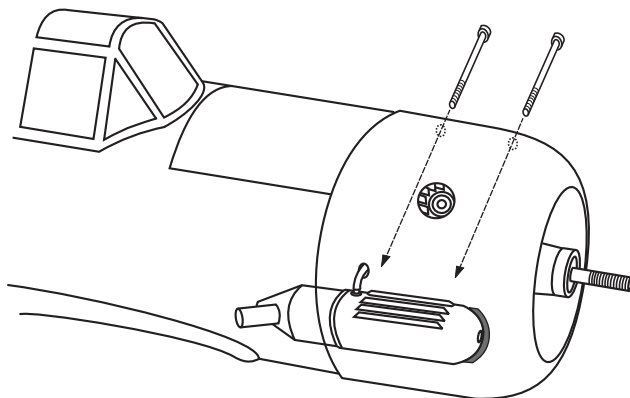
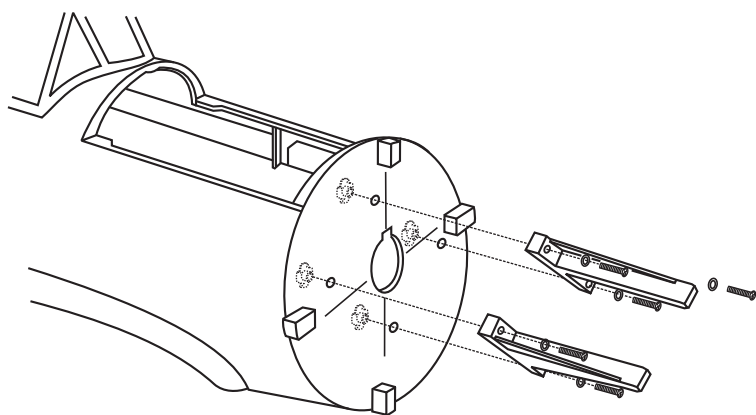
- Reposition the engine on the engine mount beams, aligning it with the holes. Secure the engine to the engine mount using four 1/8x51/64"(3x25mm) screws.

# AT-6 TEXAN 16- Glow engine

In case of two-Stroke engine with hang silencer (Pitts-style)

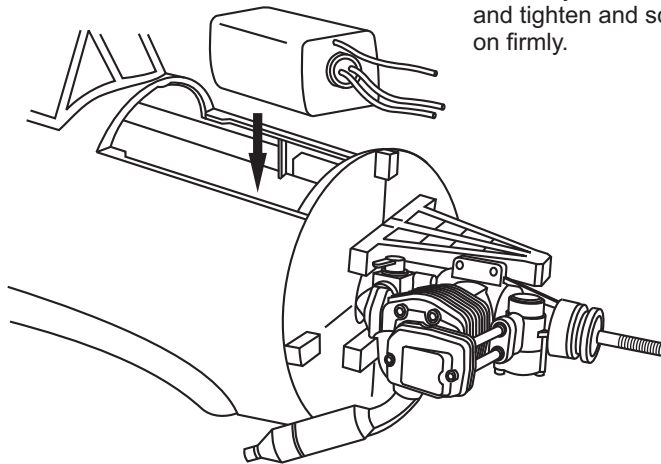
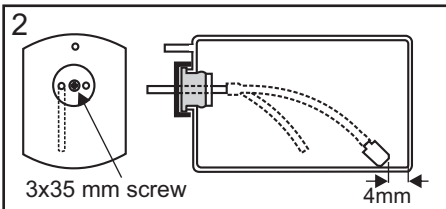
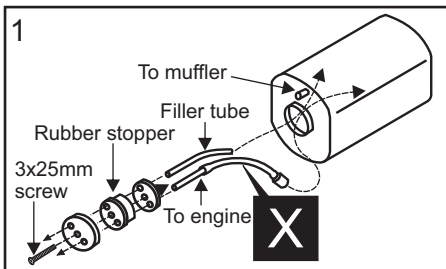


In case of two-Stroke engine with side silencer.



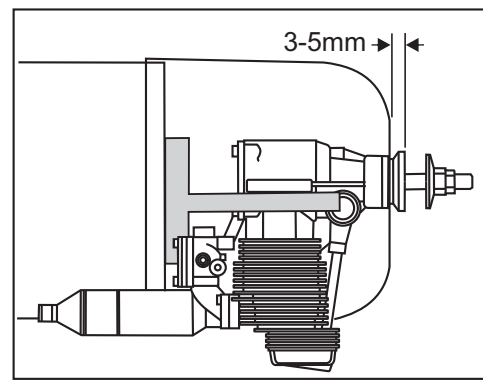
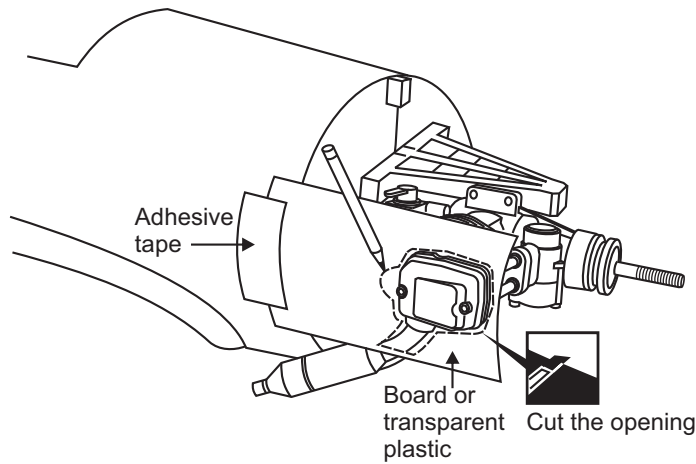
# AT-6 TEXAN 17- Glow engine

After confirming the direction . Insert this assembly, clunk end first, into the fuel tank and tighten and screw the fuel tank cap on firmly.

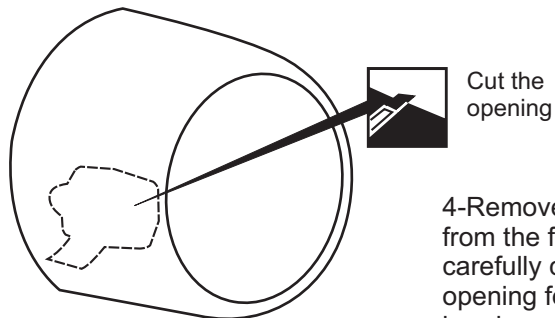
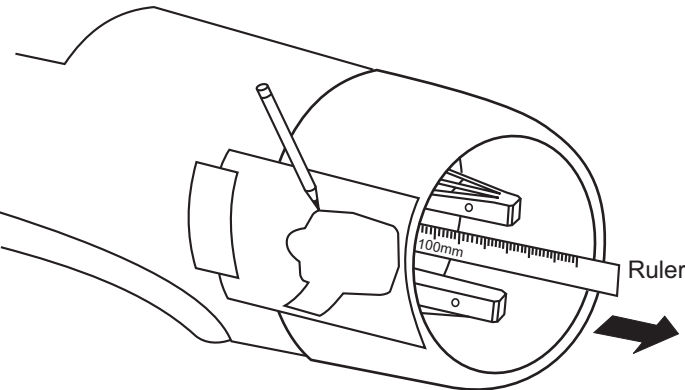




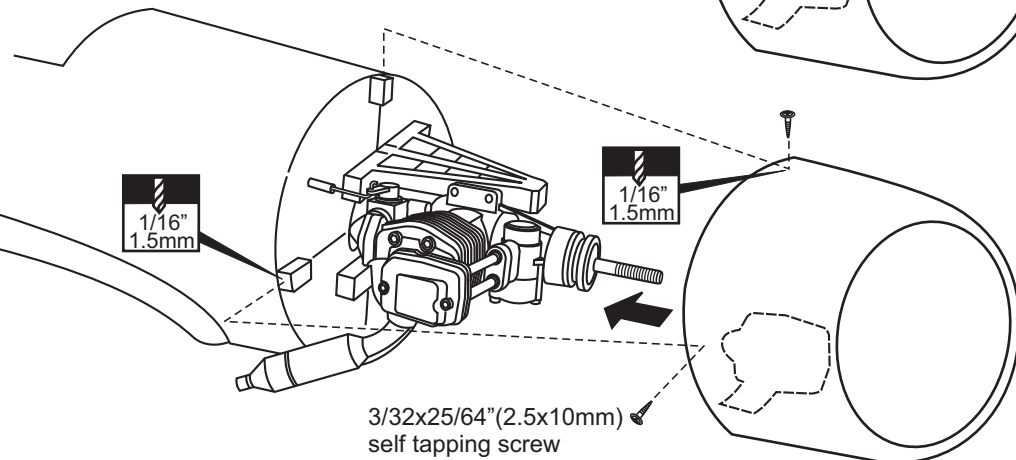
## AT-6 TEXAN 18- Cowling



- 1-Attach the board or transparent plastic on the side of the fuselage with the adhesive tape as show.
- 2-Using a pencil or felt tipped pen trace around the engine head where it meet the cowl. Cut the opening the board or transparent plastic for the engine head as marked before.
- 3-Remove the engine and insert the cowl on to the fuselage so the distance from the fire wall to the front of the cowl is 3.9"(100mm). Trace around inside the hole on the board or transparent plastic with a pencil.



- 4-Remove the cowl from the fuselage and carefully cut the opening for the engine head as marked above. Do the same way with the hole for needle-valve.

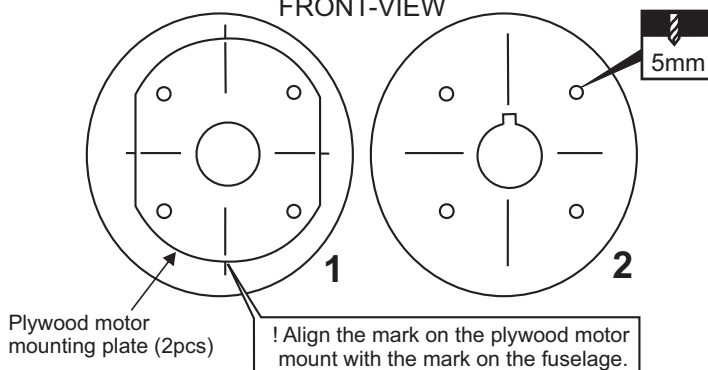


- 5-Again, insert the cowl on to the fuselage and secure it in place with four 3/32x25/64" (2.5x10mm) self tapping screws.

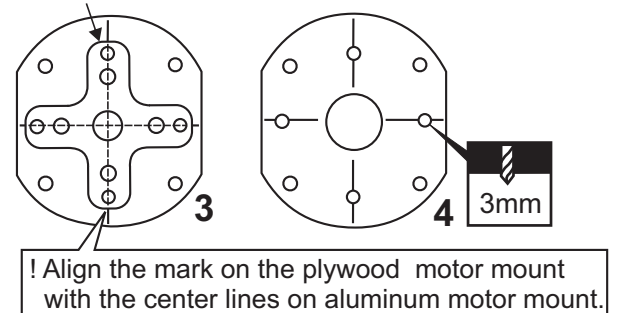
## AT-6 TEXAN 19- Electric motor

- Using a plywood motor mounting plate as a template, mark the fire wall where the four holes to be drilled (1).
- Remove the plywood motor mounting plate and drill a 5mm hole through the fire-wall at each of the four marks marked (2).
- Using an aluminum motor mounting plate as a template, mark the plywood motor mounting plate where the four holes to be drilled (3).
- Remove the aluminum motor mounting plate and drill a 3mm hole through the plywood at each of the four marks marked (4).

### FRONT-VIEW

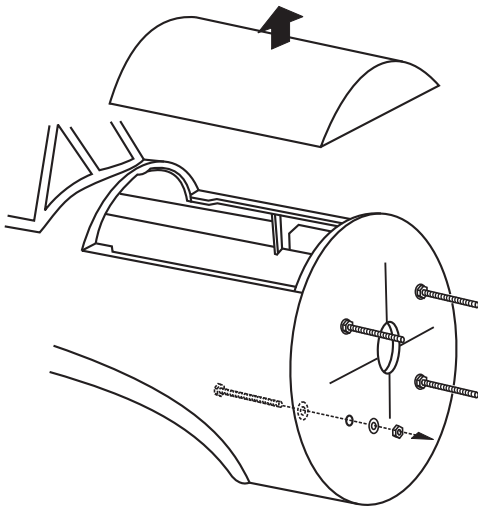


### Aluminum motor mounting plate

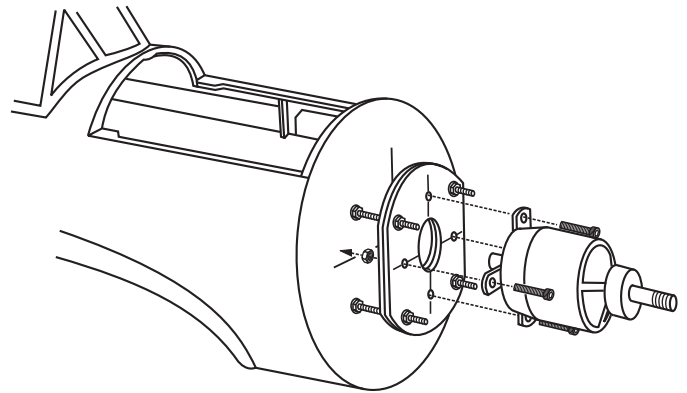


# AT-6 TEXAN 20- Electric motor

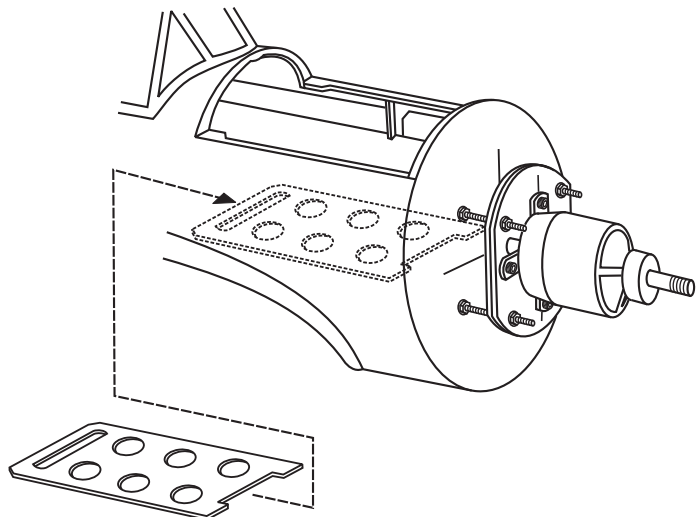
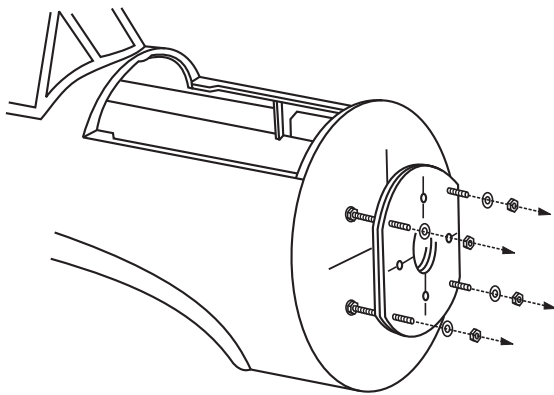
- Push the four 5x70mm bolts through the fire-wall as shown (5).
- Reposition the plywood motor mounting plate (2pcs) and secure it in place with eight 5mm nuts and washers (6). Note: B=B'(Side-view) and A=A'(Top-view)
- Attach the aluminum motor mounting plate on to the motor and secure it in place with four screws ( included with motor set) (7).
- Attach the motor on to the plywood motor mounting plate and secure it in place with four 3x15mm screws(8).



- 5x70mm.....4
- 5mm nut.....12
- 5mm washer...16

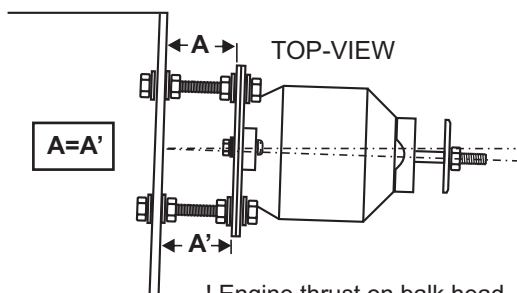
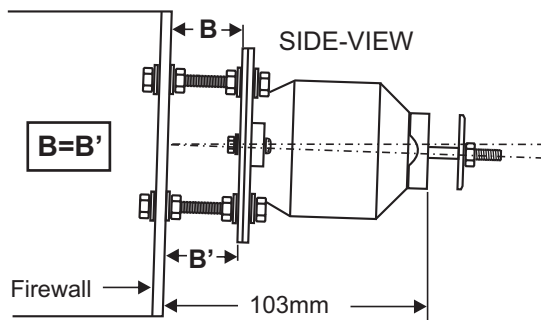


- 3mm hexagonal bolt ...4
- 3mm nut .....4



Battery stand (3mm plywood)

Insert the Battery stand into the fuselage ( In case of Electric power) and secure it in place with CA glue.



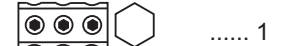
! Engine thrust on balk head is already adjust at factory

# AT-6 TEXAN 21- Linkages

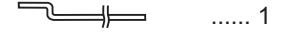
Connector



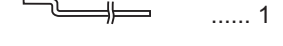
Connector



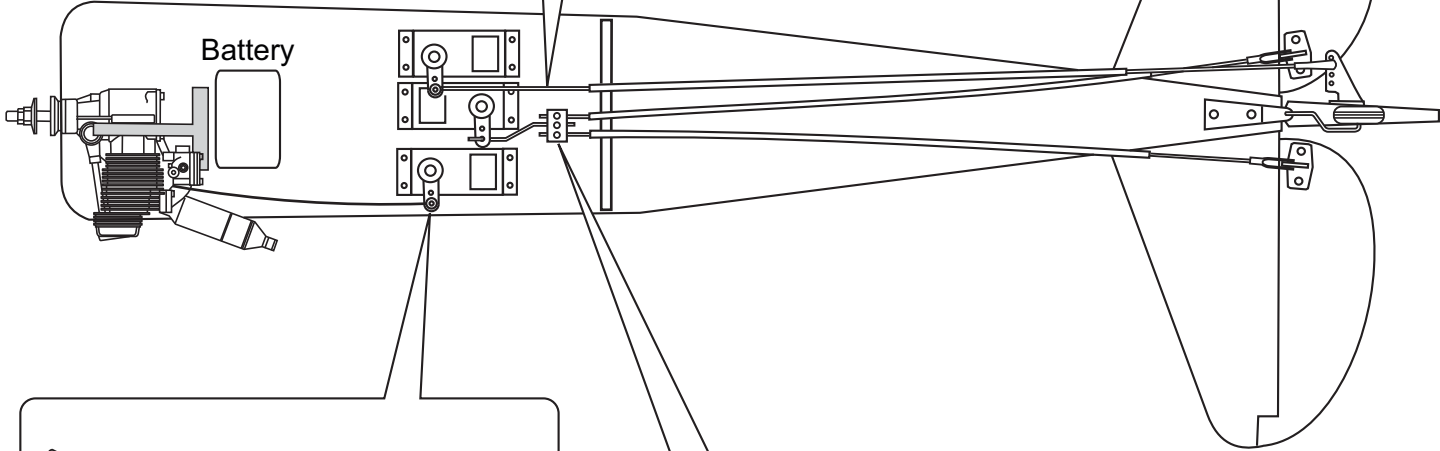
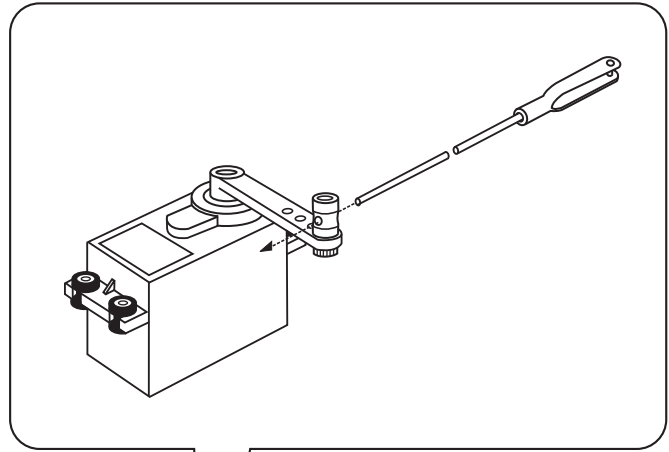
1.2x500mm throttle rod



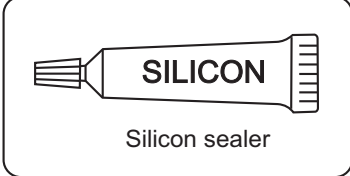
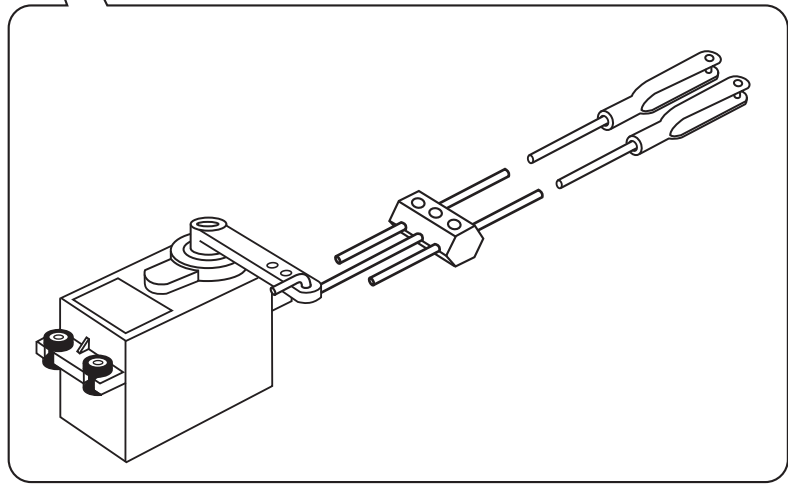
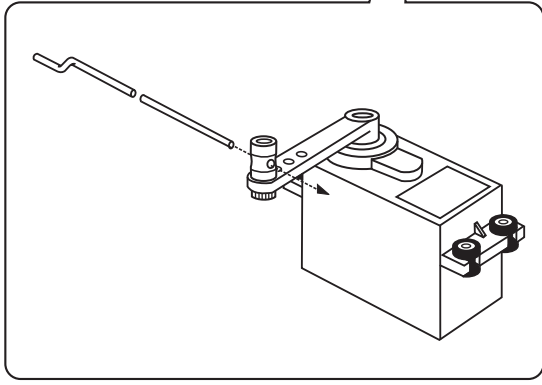
1.5x120mm Elev. rod



2x950mm rod

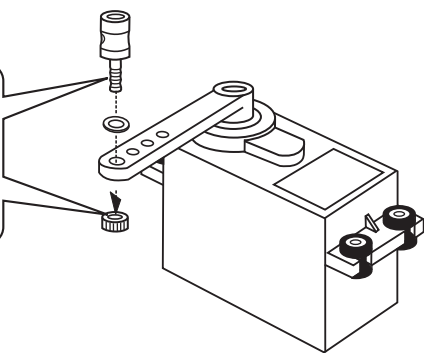


Battery

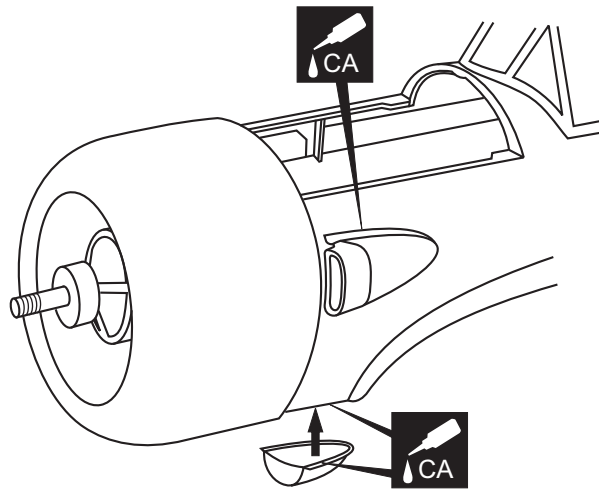


SILICON

Silicon sealer

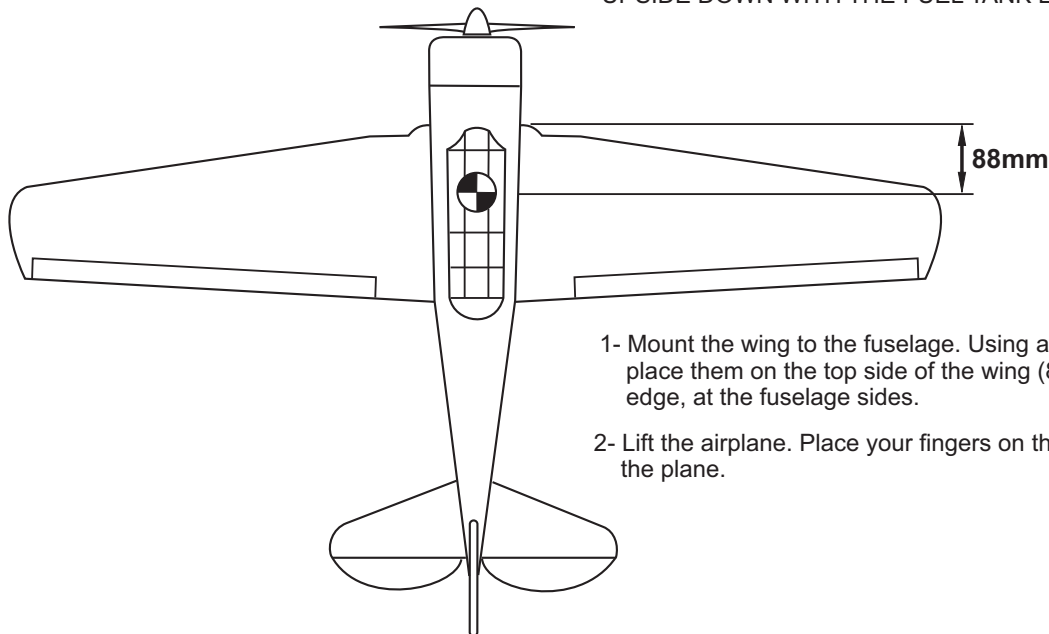


## AT-6 TEXAN 22- Air scoop



## AT-6 TEXAN 23- Balance

THE CENTER OF GRAVITY IS LOCATED 88mm BACK FROM THE LEADING EDGE OF THE WING, AT THE FUSELAGE. BALANCE A PLANE UPSIDE DOWN WITH THE FUEL TANK EMPTY.



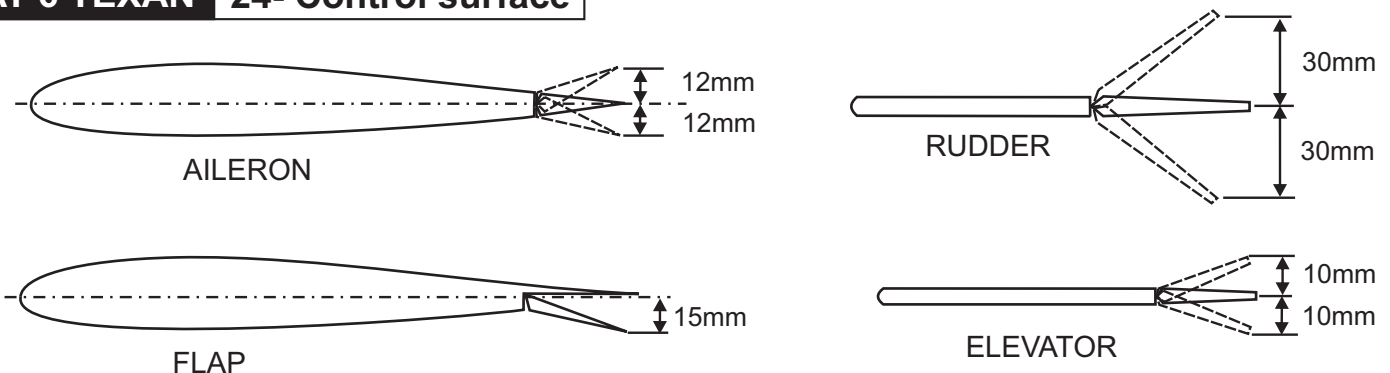
1- Mount the wing to the fuselage. Using a couple of pieces of masking tape, place them on the top side of the wing (88mm) back from the leading edge, at the fuselage sides.

2- Lift the airplane. Place your fingers on the masking tape and carefully lift the plane.

3- If the nose of the plane falls, the plane is heavy nose. To correct this, move the battery pack further back in the fuselage. If the tail of plane falls, the plane is tail heavy. To correct this, move the battery forward or if this is not possible, stick weight onto the firewall.

When balanced correctly, the airplane should level or slightly nose down when you lift it up with your fingers.

## AT-6 TEXAN 24- Control surface

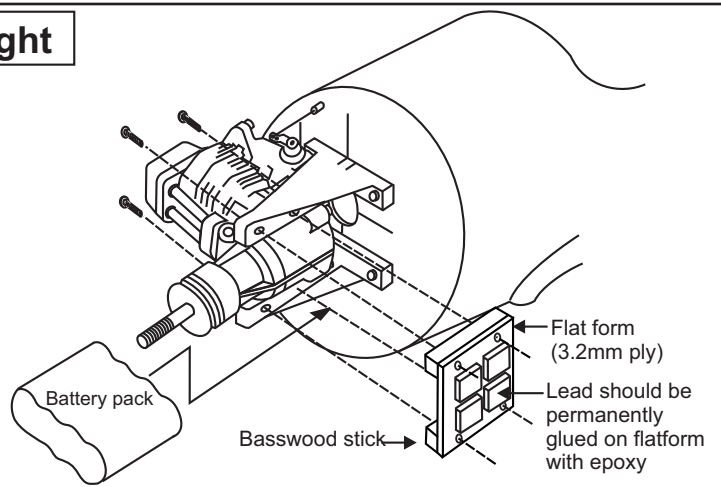


**IMPORTANT:** Flying your model at these throws will provide you with the greatest chance for successful first flights. If, after you have become accustomed to the way the AT-6 flies, you would like to change the throws to suit your taste that is fine. However, too much control throw could make the model difficult to control, so remember, "more is not always better".

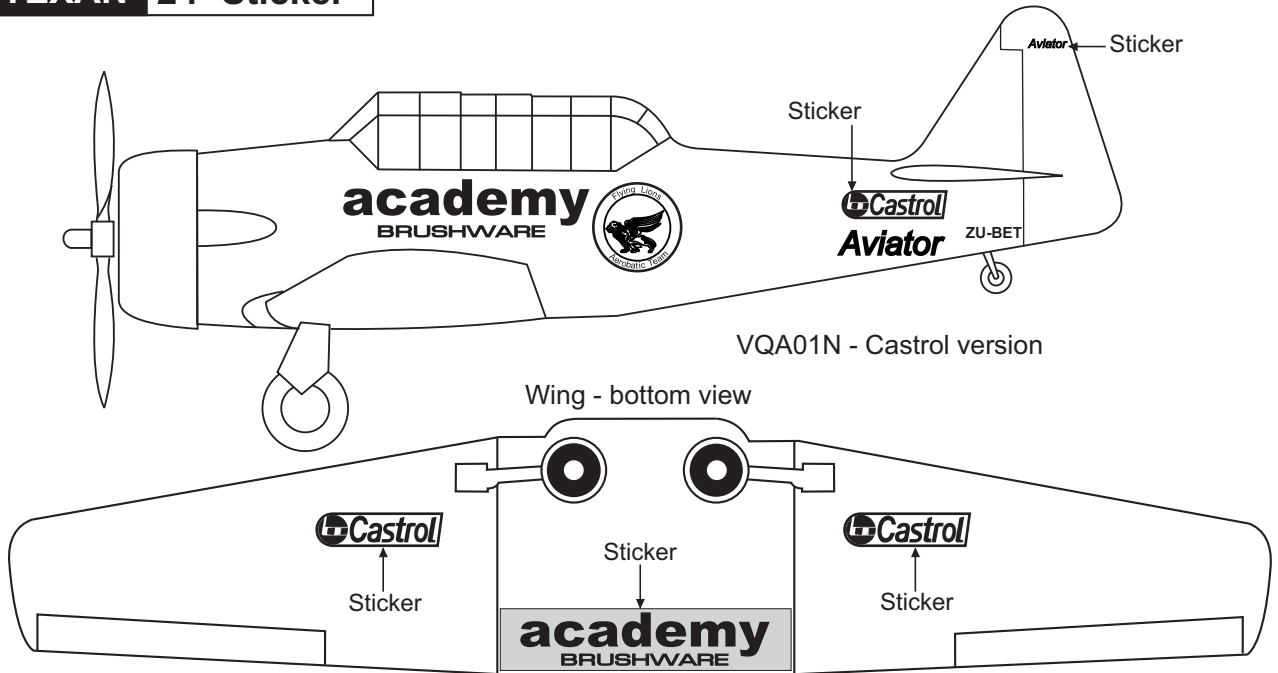
## AT-6 TEXAN 23- How to add noseweight

To get the correct C.G., Several strips of lead were required in the nose of this model . To minimize the amount of weight required, it is desirable to position the weight as far forward as possible. This can be done by making a platform form left over basswood stick and 3mm ply wood. Using 4x35mm bolts to mount the engine would also be long enough to mount the flat form. The lead should be permanently glued on with epoxy.

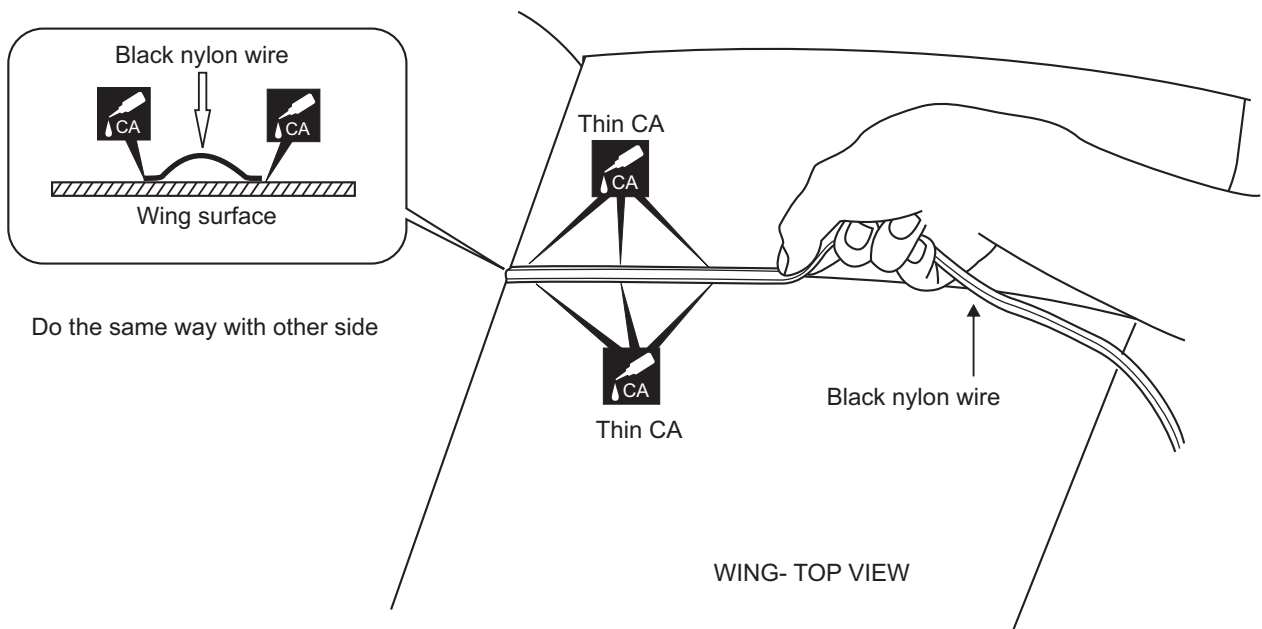
**IMPORTANT:** Recheck the C.G. After the weight has been installed.



## AT-6 TEXAN 24- Sticker



## AT-6 TEXAN 25- Decor





**IMPORTANT:** Please do not clean your model with pure alcohol, only use liquid soap with water or use glass cleaner to clean on surface of your model to keep the colour not fade.

#### CAUTIONS FOR SAFETY

Ensure the airfield is spacious enough.

Ensure the spinner and propeller are securely attached. Immediately disure defective propeller as well as deformed spinners.

Adjust the engine always from behind, but never from infront or the sides as rotating propeller may badly injure you.

Do not allow watching people to get too close to a rotating propeller.

Fully extend the transmitter and receiver antenna.

Always take off and landing your airplane into the wind.

Switch off the transmitter and receiver after landing.

Do not fly your airplane above people standing around.

#### BEFORE FLYING CHECK EVERYTHING

Before each flight, inspect the airplane for any loose parts. Check the hinges, make sure the pushrods are still firmly attached, and check the engine mounting bolts. In general, check everything on the plane that might possibly come loose.

**WARNING:** Do not put in a large-than recommended engine. A bigger engine does not necessarily mean better performance.