

# AMT

## Avant Mostro 700 Electric Assembly Manual Version 1.07



**MOSTRO**  
UNLEASH THE MONSTER INSIDE

Latest Assembly Manual is located at:  
<http://www.AvantRC.com/Products/Mostro/e700MostroManual.pdf>



## LIABILITY DISCLAIMER

This kit is for a radio controlled (RC) helicopter. RC Helicopters are not toys. Moving parts can present a hazard to operators, bystanders and anyone or anything that could be reached by the RC helicopter. Improper operation, maintenance or assembly can potentially cause a helicopter to pose a danger to persons or objects including but not limited to the possibility of causing serious physical injury and even death. After leaving its facilities the manufacturer has no way of maintaining control or supervision over the assembly and/or operation of the helicopter therefore the manufacturer and/or its agents assume no responsibility or liability whatsoever for any damages including but not limited to ones generated by incidental or consequential damages. The operator of the helicopter assumes all responsibility and liability that could be result from the correct or incorrect operation of the helicopter.



This product is intended to be used by experienced adult radio control helicopter pilots under controlled safety conditions and on locations properly authorized and setup for safe flying and away from other people. This product must not be operated without reasonable Liability Insurance.



Under no circumstance should a minor be allowed to operate this or any radio controlled helicopter without the approval, supervision and direction of his parent or legal guardian who takes full responsibility for the minor's actions.



Do not operate an RC helicopter within the vicinity of homes, trees, electrical lines during inclement weather or rain or near crowds of people.



## Before you start assembling:

Get the latest manual: It's highly recommended that you get the latest version of the manual. Please download a copy by clicking below:

<http://www.AvantRC.com/Products/Mostro/e700MostroManual.pdf>

and use that copy instead of this one.

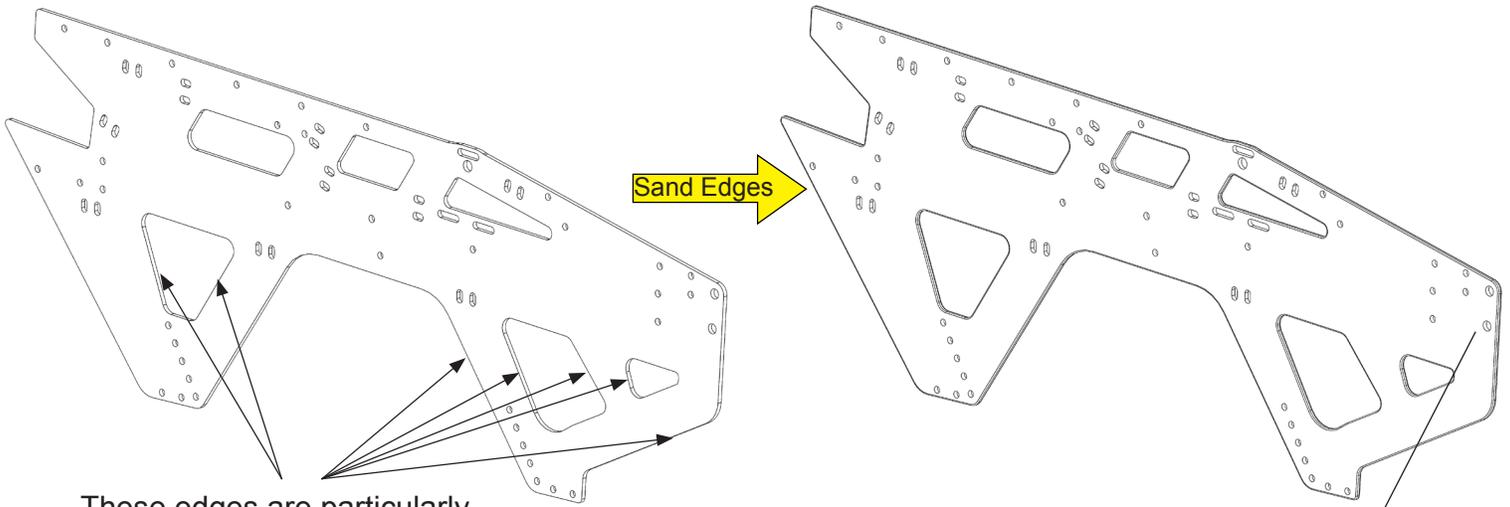
## Preparation of ALL Carbon parts.



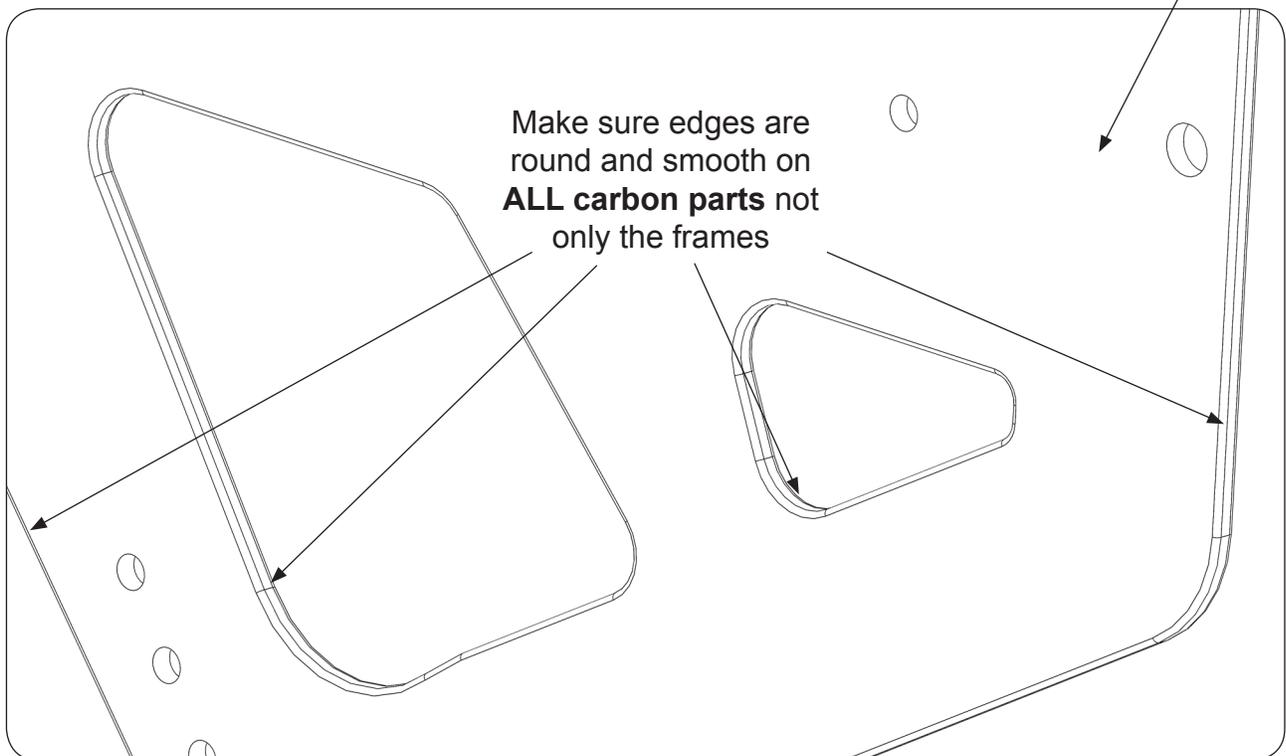
Important: Using a piece of sanding paper sand and round the edges of **ALL** the carbon fiber pieces.



Sharp edges can cut into the electric wires and since carbon fiber is conductive it can possibly create an electrical shortcut. Sharp edges can also cut into control and power wires creating shorts that could make the motor and or electronics operation fail. Whenever you're ready to install a carbon fiber piece make sure to sand all its edges to prevent wire chafing and a possible electrical short circuit.



These edges are particularly important to round because they can cut the battery pack wires.



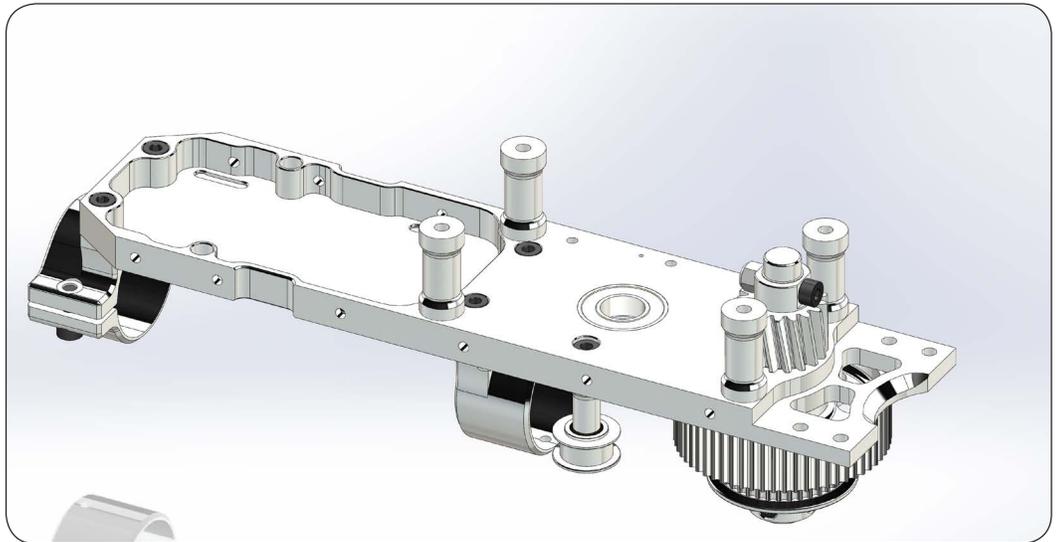
Make sure edges are round and smooth on **ALL carbon parts** not only the frames

## Step 1: Bottom gear plate assembly.

### HARDWARE BAG CONTENTS

#### Qty Description

- 2 - M3x6mm Round Head Screw
- 4 - M2.5x8 or 10mm Socket Head Cap
- 5 - M3x6mm Socket Head Cap Screw
- 1 - M3x16mm Round Head Screw
- 1 - M3x12mm Socket Head Cap Screw
- 4 - M4x8mm Socket Head Cap Screw
- 5 - M4x10mm Socket Head Cap Screw
- 2 - M4x12mm Socket Head Cap Screw
- 1 - M4x18mm Socket Head Cap Screw
- 1 - M4 Locknut
- 1 - 10x12x1 Bearing Spacer
- 1 - Idler Pulley Arm Torsion Spring



Unless directed otherwise **ALWAYS USE BLUE LOCTITE** on all threads except for locknuts. Failure to do so can make parts come lose during flight creating hazardous and dangerous conditions.



### IDLER PULLEY ARM

Attach the short post to the tensioner idler pulley Arm.

Install the idler pulley.

Install the arm stopper M3X6 screw.

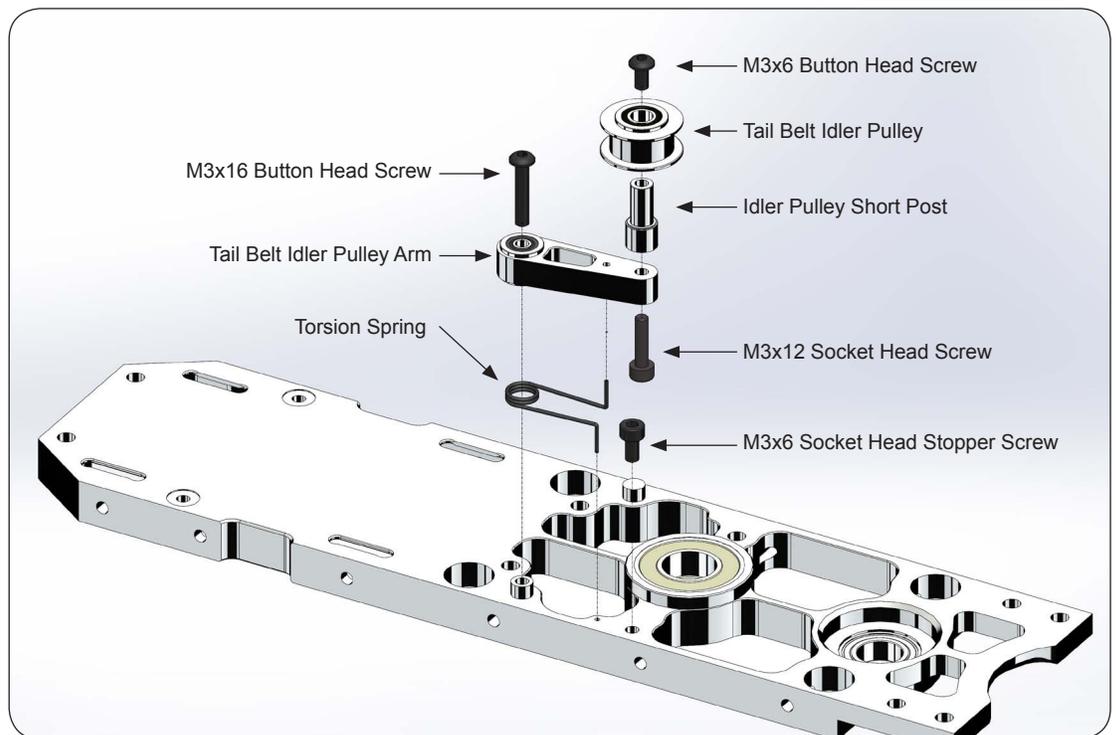
Place the torsion spring inserting one end into the bottom gears plate.

Insert the arm into the torsion spring.

Insert screw to hold arm in place.

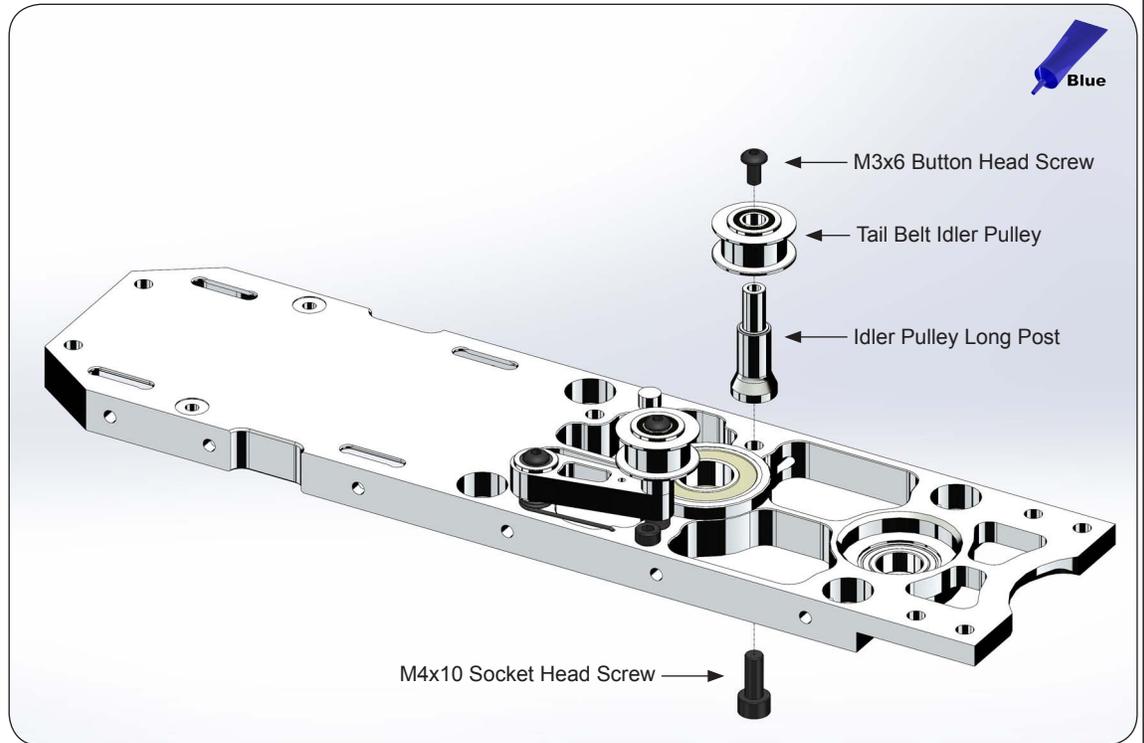
Rotate the arm between the stopper screw and the bearing edge and slide it down the screw and then tighten the screw.

Make sure the arm moves freely between the stopper screw and the bearing seat wall.



## Long idler pulley post

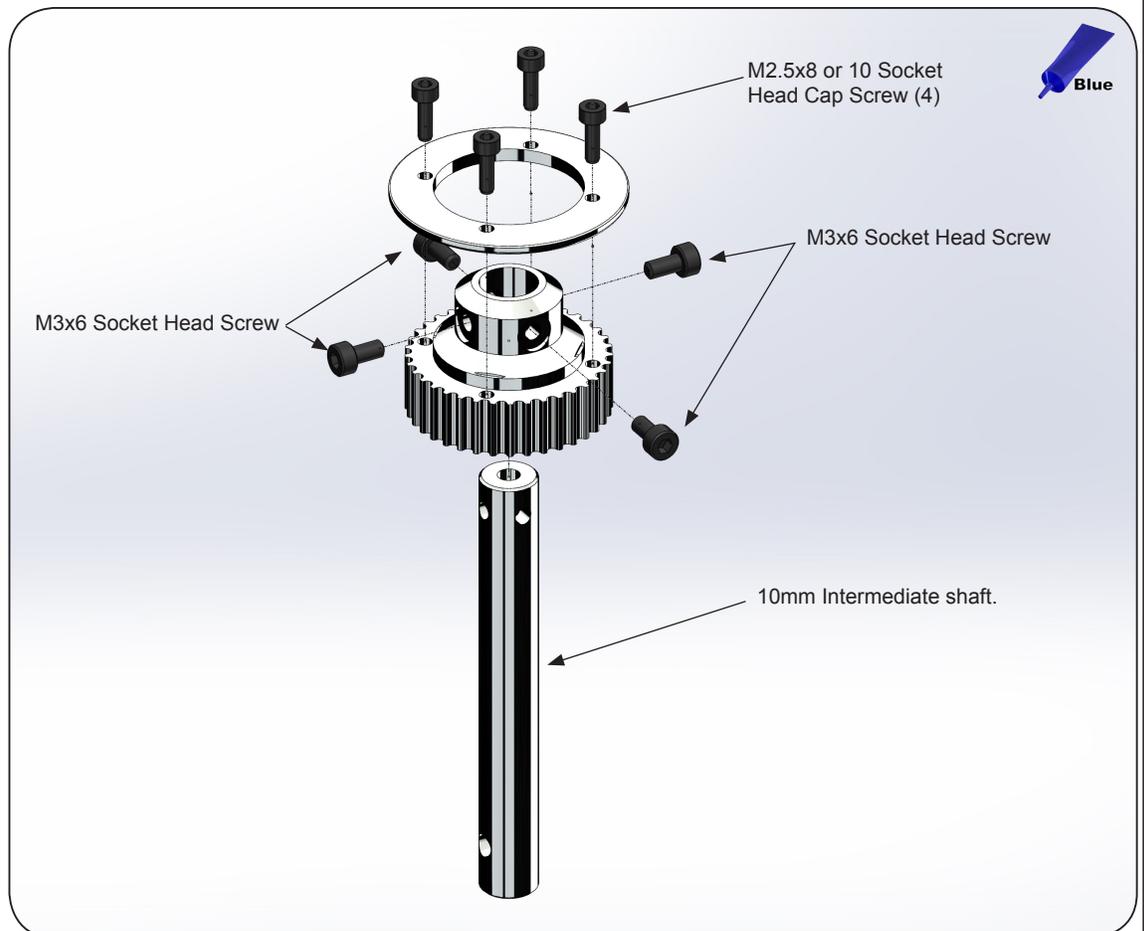
Install the long idler pulley post with the M4 screw.  
 Post in place.  
 Install the pulley using the M3 screw.



## CONICAL PULLEY

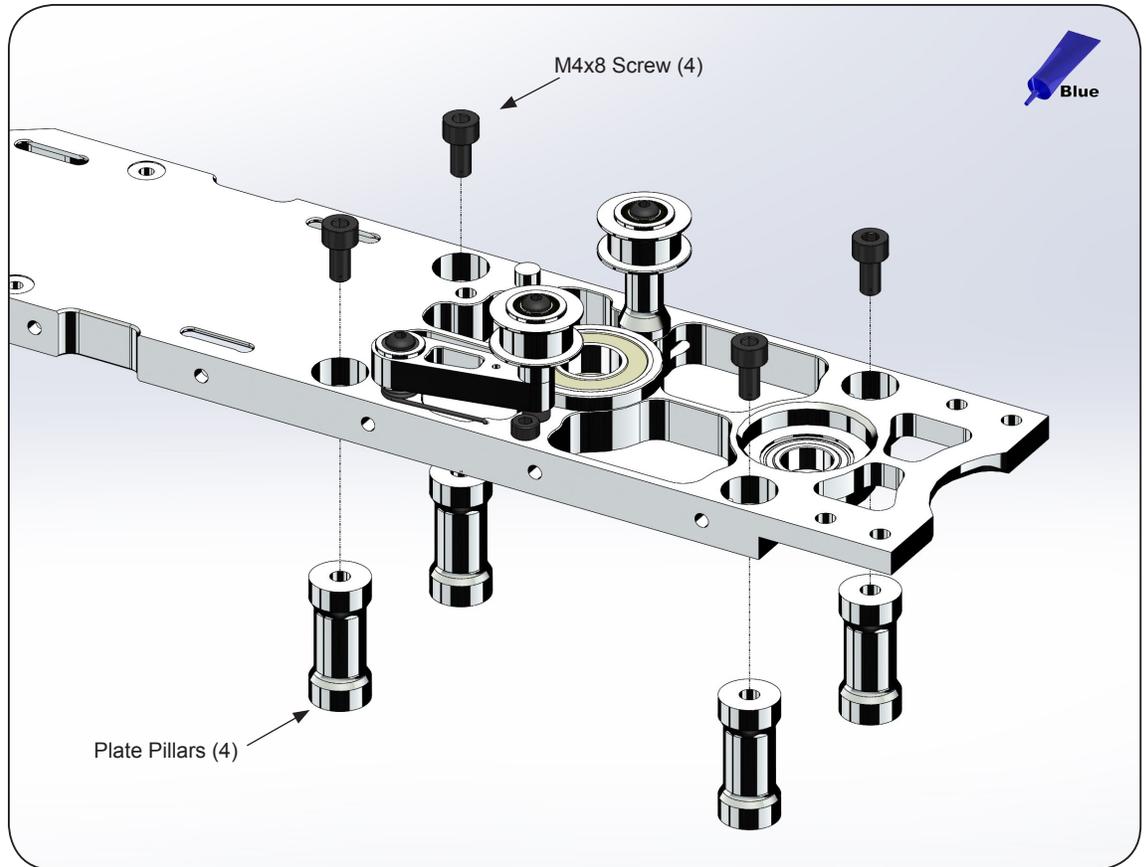
Install the side plate with four M2.5x8 or 10mm socket head cap screws.

Attach the conical pulley to the shaft with four M3x6mm socket head cap screws.



## PLATE PILLARS

Install the four Pillars as shown using the M4 screws.

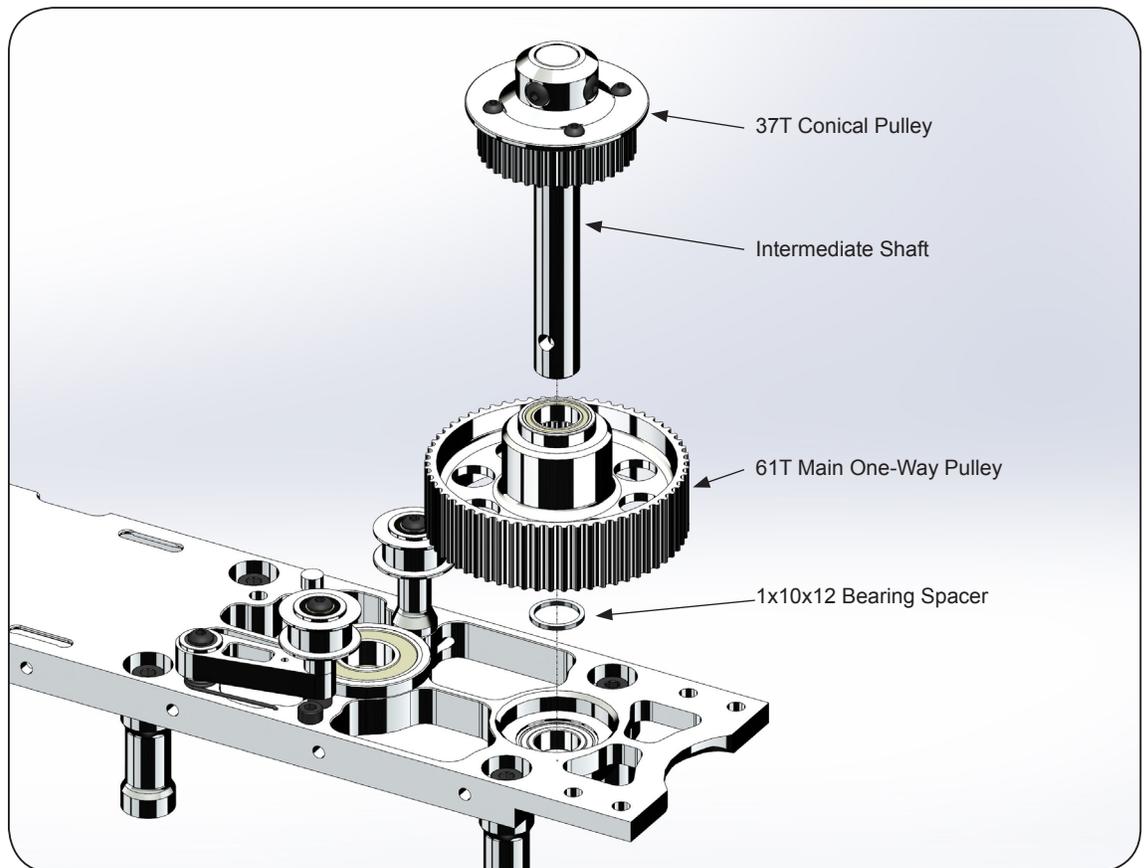


## MAIN ONE-WAY PULLEY

Slide the intermediate shaft into the one-way clutch main pulley. Notice the side that goes into the conical pulley.

Use light oil to lubricate the one-way bearings.

Slide the 1mm bearing spacer onto the intermediate shaft.



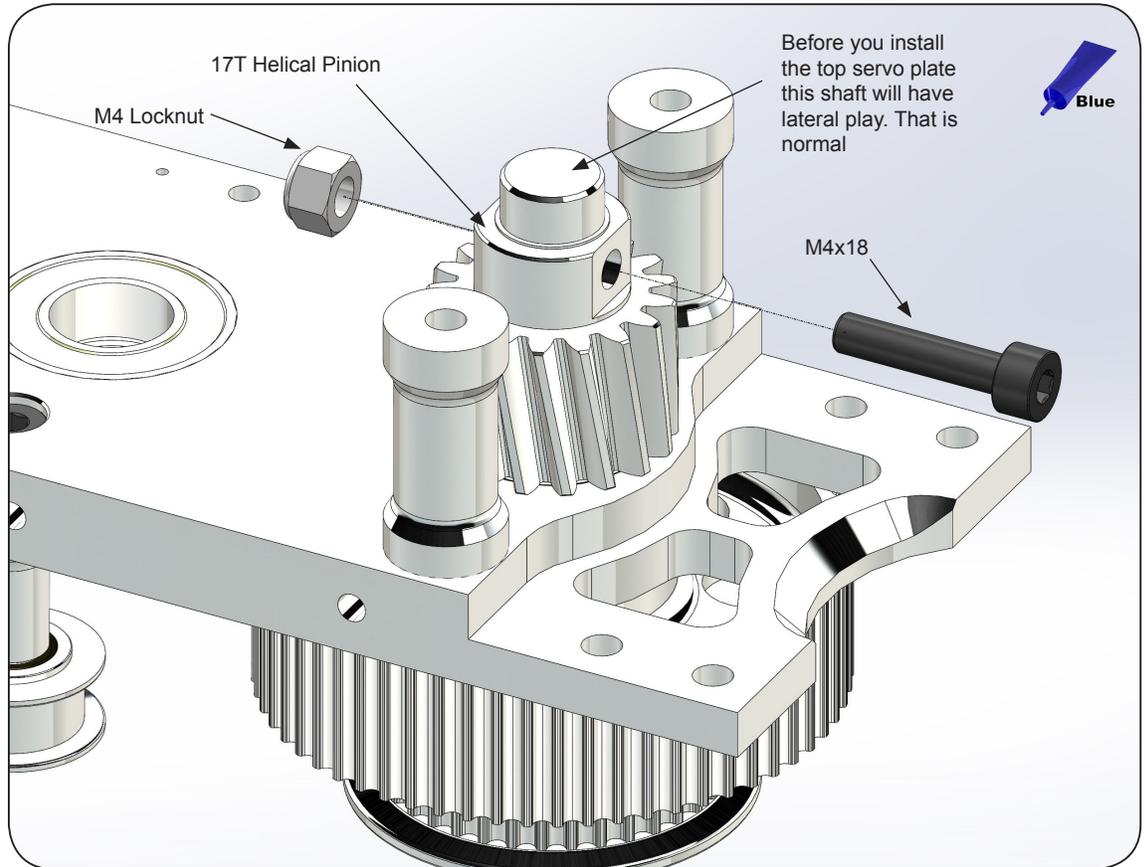
## 17T PINION

Insert the 17T helical pinion and install the M4 screw and locknut.

This screw needs to be tightened very hard.



**WARNING!** Make sure the top side of the locknut is flat and parallel to the top of the pinion otherwise there will be binding when the top servo plate is installed. Before you install the top servo plate the intermediate shaft will have lateral play. That is normal



## Boom Clamps

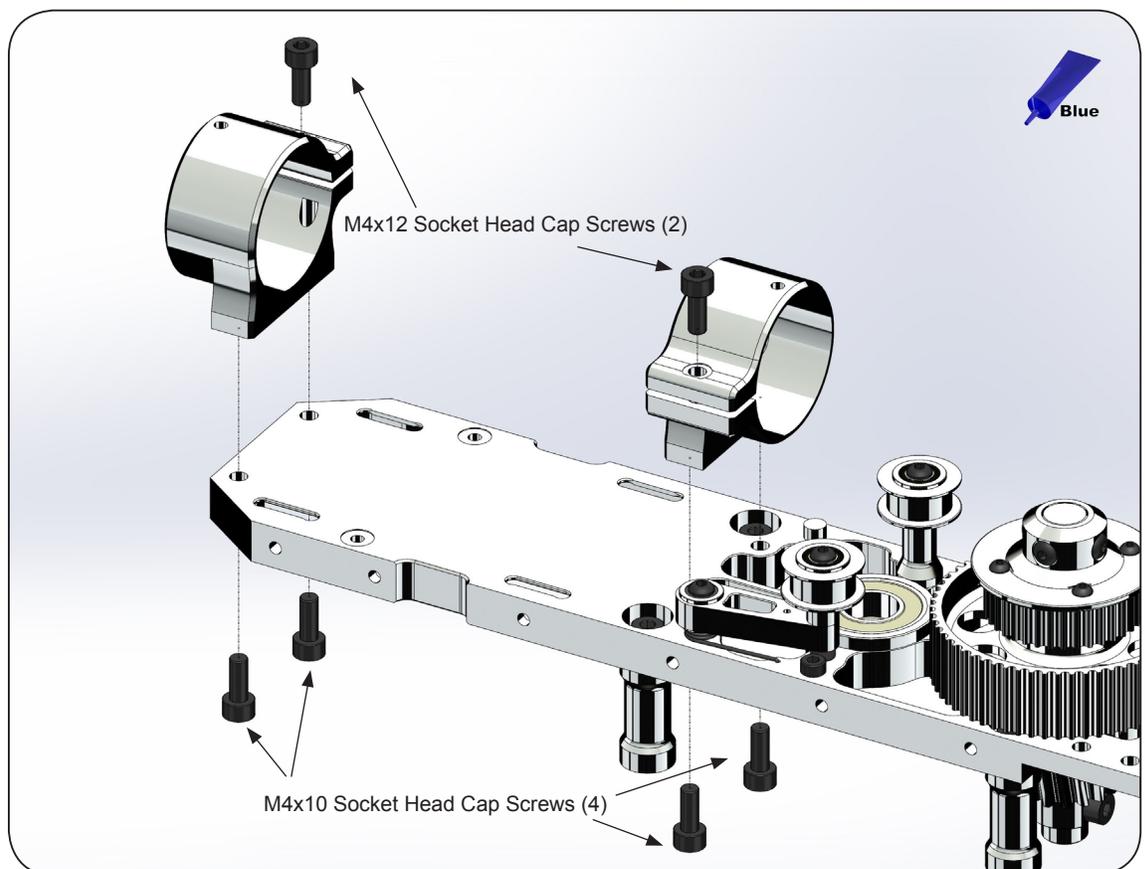
Install the clamps as shown but don't tighten the screws that hold them against the plates yet.

Temporarily insert the boom in place to be used for alignment.

Lightly tight the clamps around the booms while still allowing the boom to rotate.

Now that the boom clamps are aligned tighten the screws that hold the clamps to the plate.

This guarantees that the clamps won't mar the boom when tightened. After this is done remove the boom again.

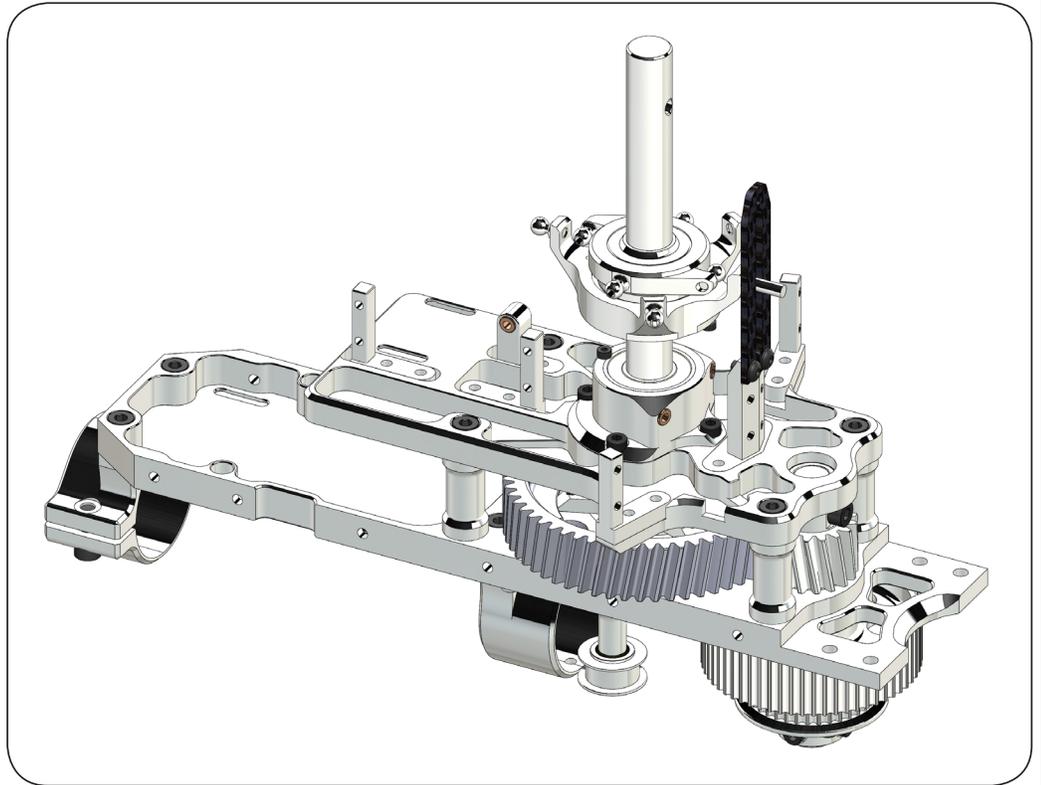


## Step 2: Top Servo plate assembly.

### HARDWARE BAG CONTENTS

#### Qty Description

- 2 - M3x6mm Round Head Screw
- 17 - M3x8mm Round Head Screw
- 4 - M3x8mm Socket Head Cap Screw
- 1 - M3x12mm Socket Head Cap Screw
- 4 - M4x8mm Socket Head Cap Screw
- 1 - M4x24mm Shouldered Screw
- 1 - M4 Locknut.

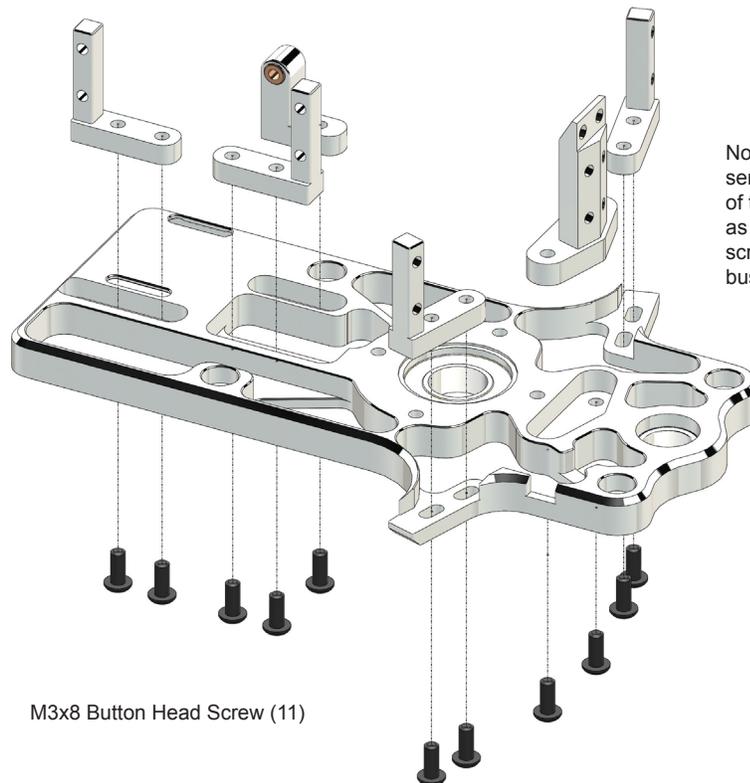


### Servo posts installation

Install the Servo posts, CCPM Guide Post and the Elevator Servo Bushing post using the eleven M3x6 round head screws provided.



It's strongly recommended to use a servo at this point to size the spacing of the sliding servo posts and centering of the servo arm screw with pin into the bushings.



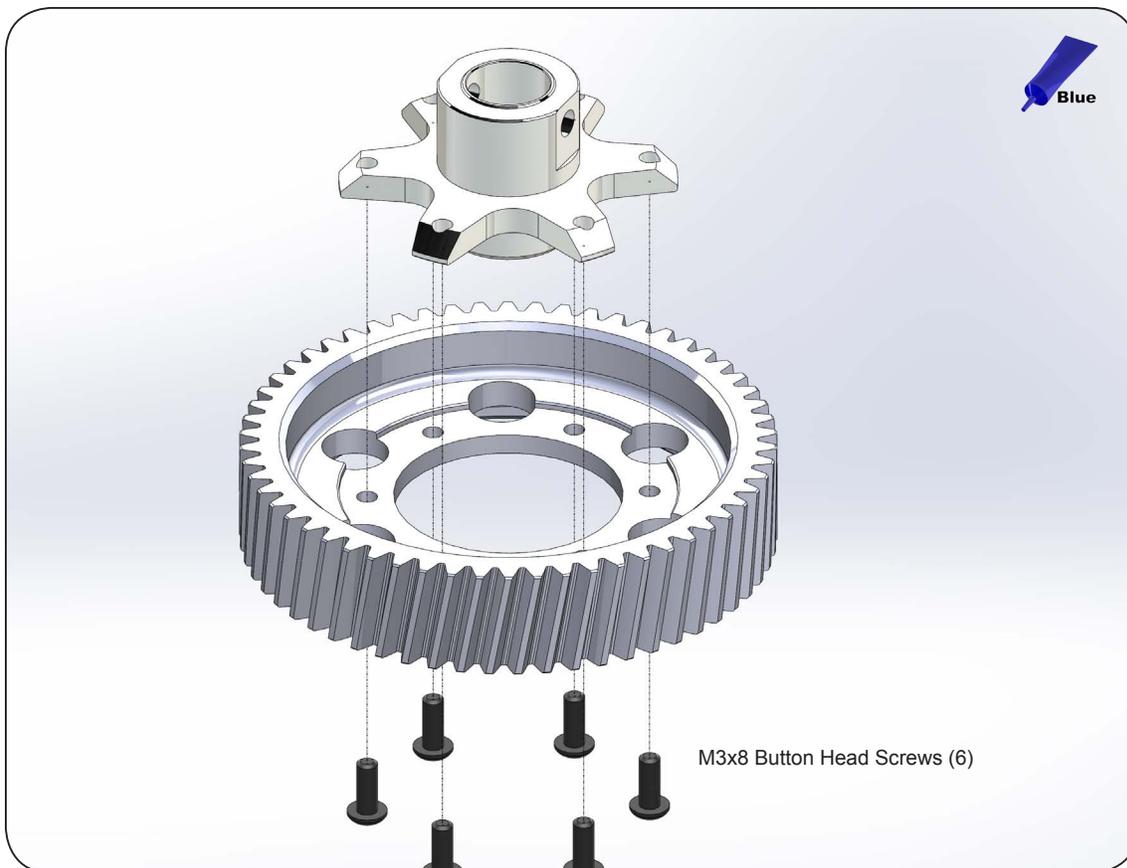
Note: Use one of the servos to set the location of the sliding servo posts as well as the center arm screw with pin into the bushings.

M3x8 Button Head Screw (11)

## Main gear assembly

Using a suitable wrench align the gear holes and the gear hub threaded holes and slide the gear hub in place.

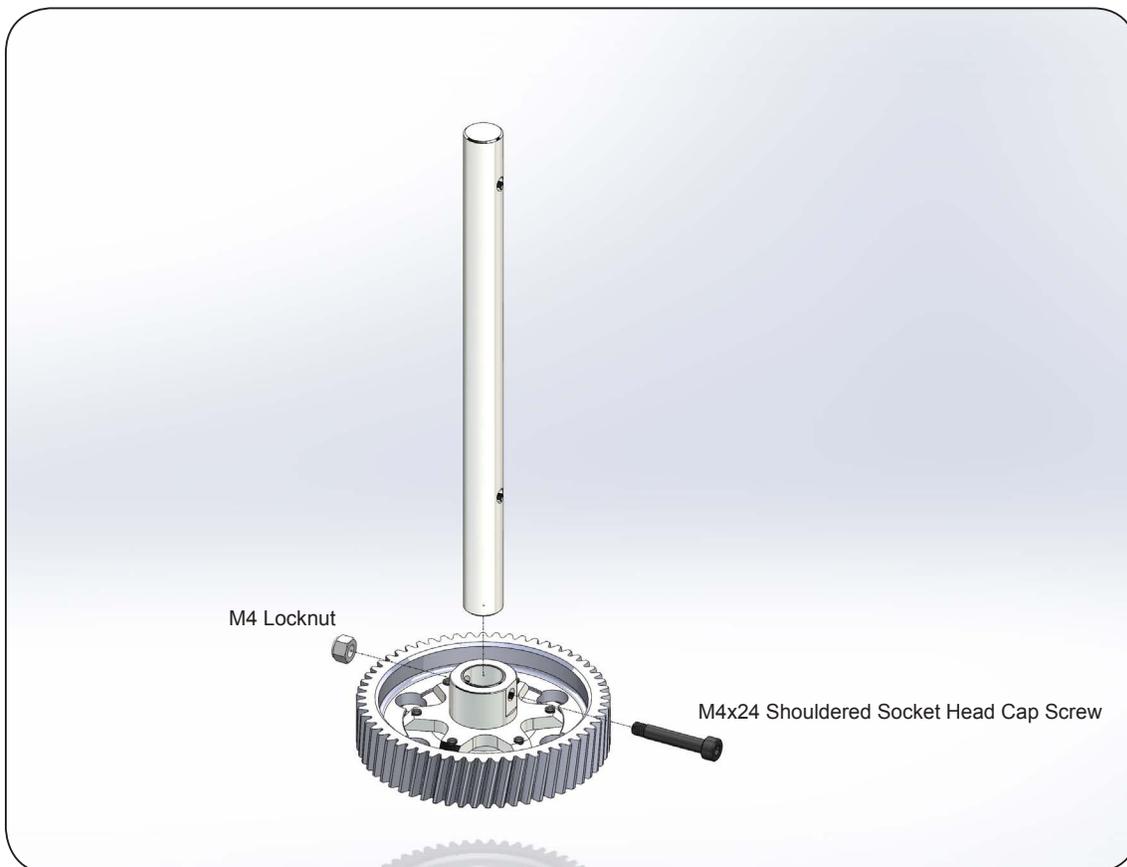
Install the six M3 screws that hold the main gear to the gear hub.



## Installing the main shaft

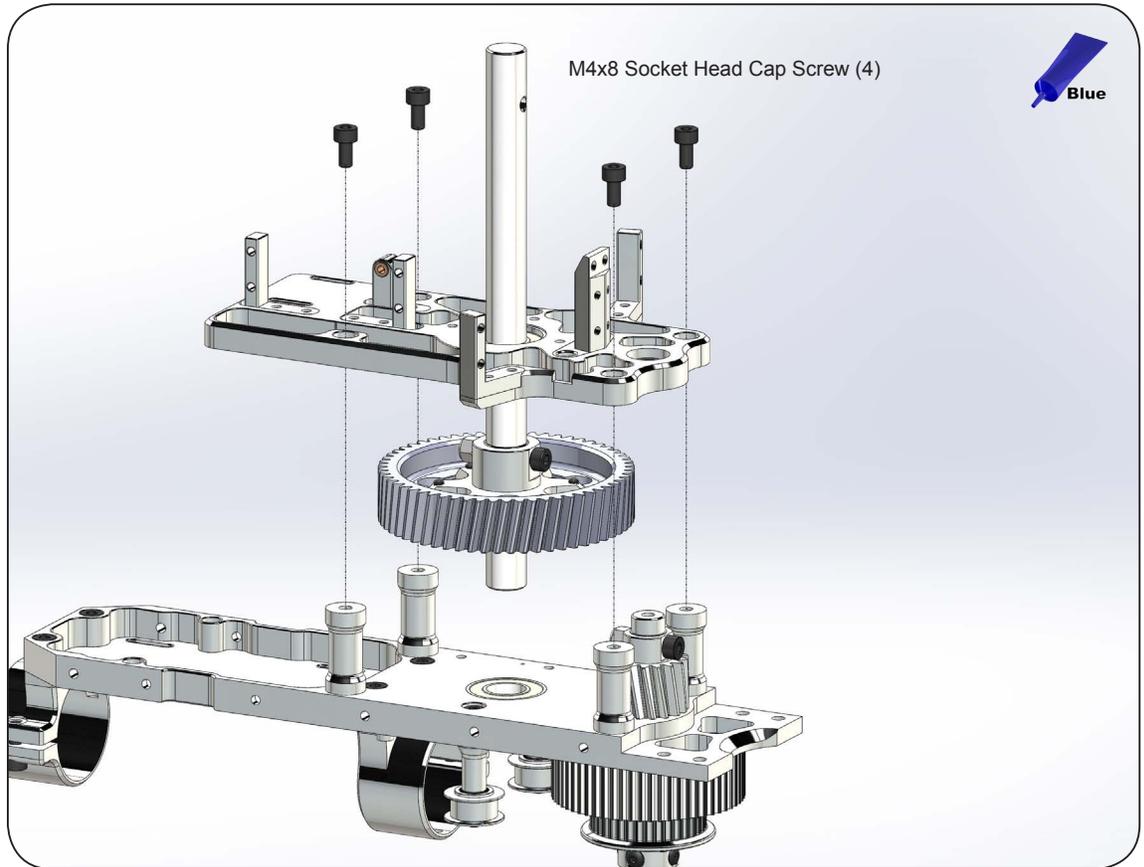
Slide the main shaft into the hub and insert the shouldered screw in place.

Notice that the hole used here is the one that's farther away from the shaft end.



## Top Servo Plate assembly

Attach the Top Servo Plate to the Bottom pillars using four M4X8 screws.



## Main shaft collar

The collar allows the main shaft to be held in place precisely by sandwiching the two main shaft bearing mounted on the plate between the main gear hub bottom and the shaft collar.

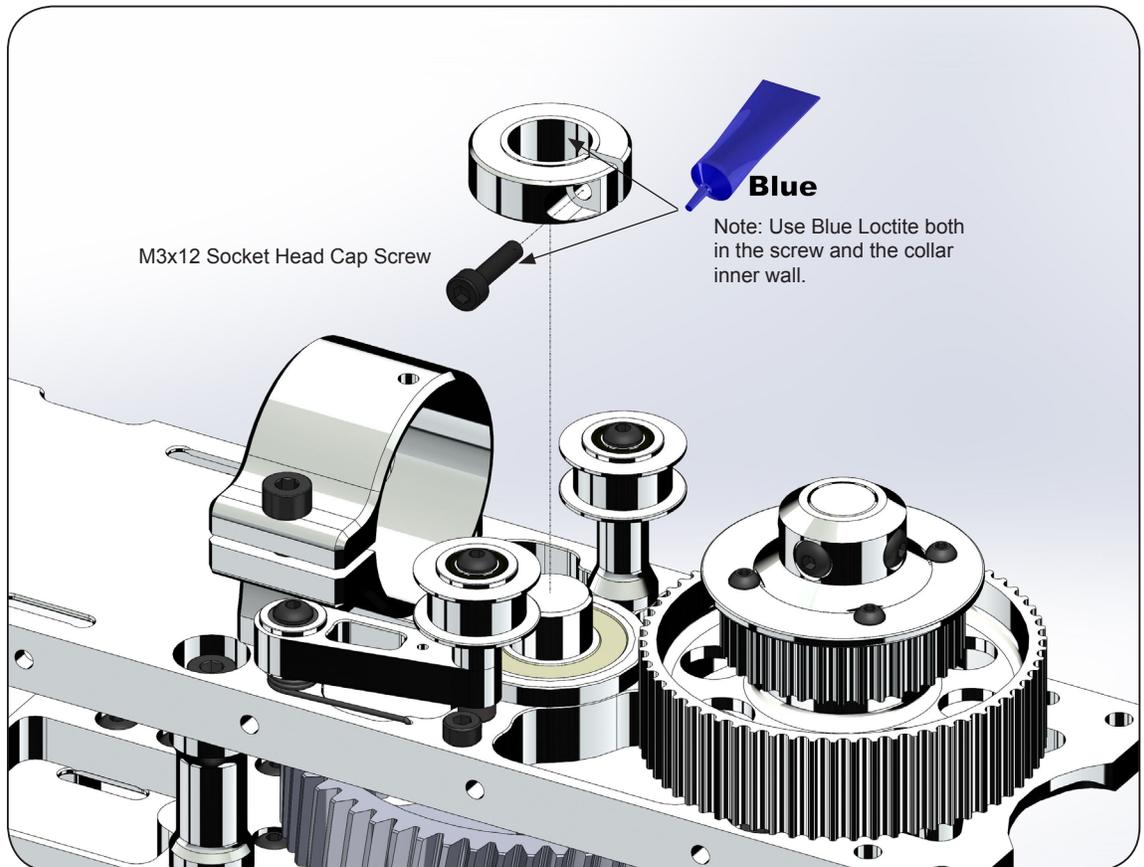
In order to secure it even more use blue loctite as extra insurance.

That being said the main gear hub is also held in place securely because it's itself sandwiched between the bottom plate bearing and the top servo plate bearing.

This gives redundant security but the collar is the one that gives precision.

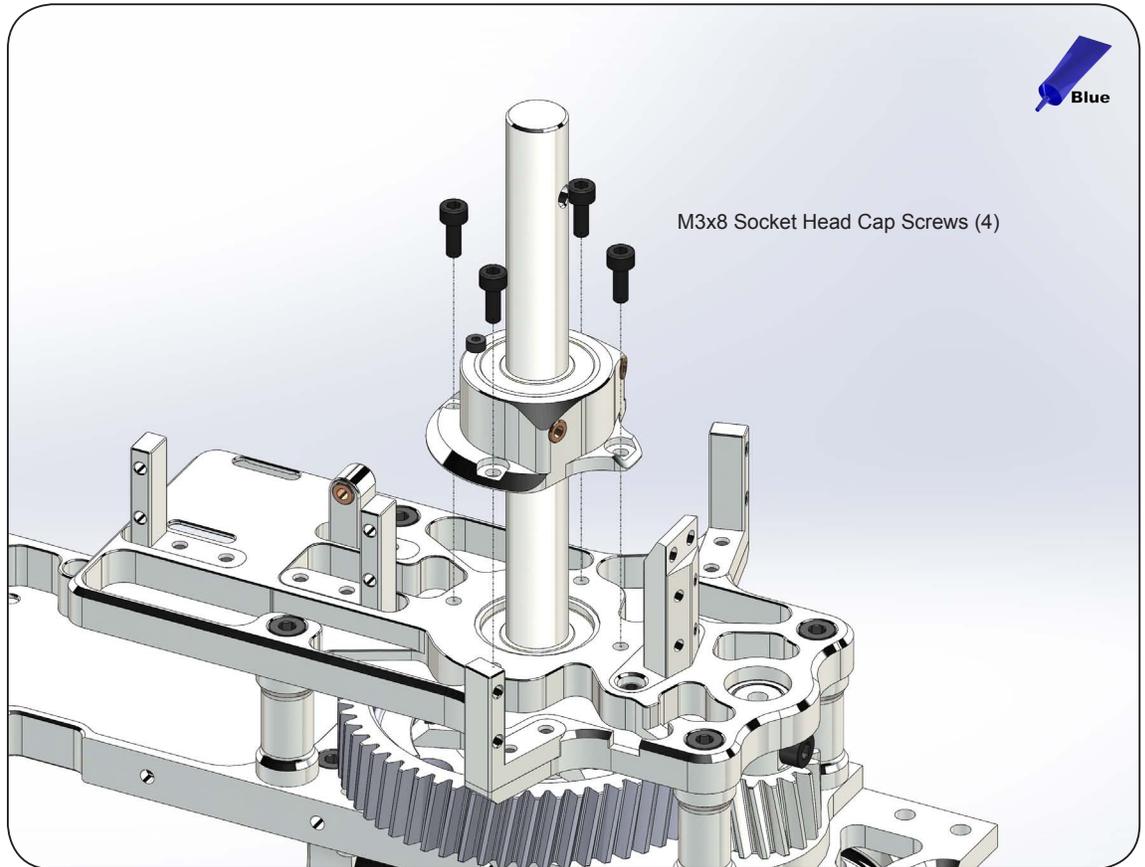
Spread a drop of blue loctite inside the collar and wipe any excess so that it won't contaminate the bearing.

Install the collar and press the main shaft into the bearing while pressing the collar into the opposite bearing so that there is no up-down play left whatsoever.



## Main Shaft Top Round Bearing Block

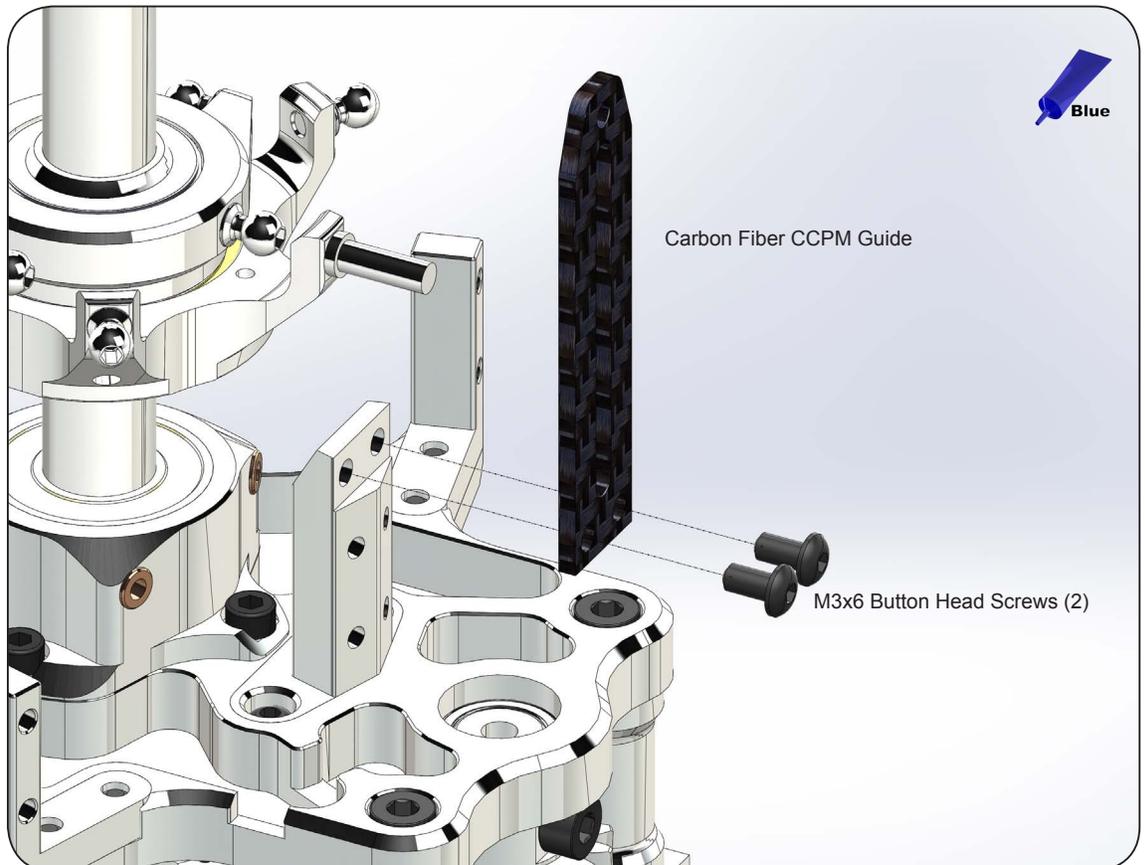
Slide the Main shaft top round bearing in place.  
Install the four M3 socket head cap screws.



## CCPM Guide

Slide the swashplate in place and align the CCPM guide pin toward the front.

Install the CCPM guide carbon plate with the M3x6m round head screws.

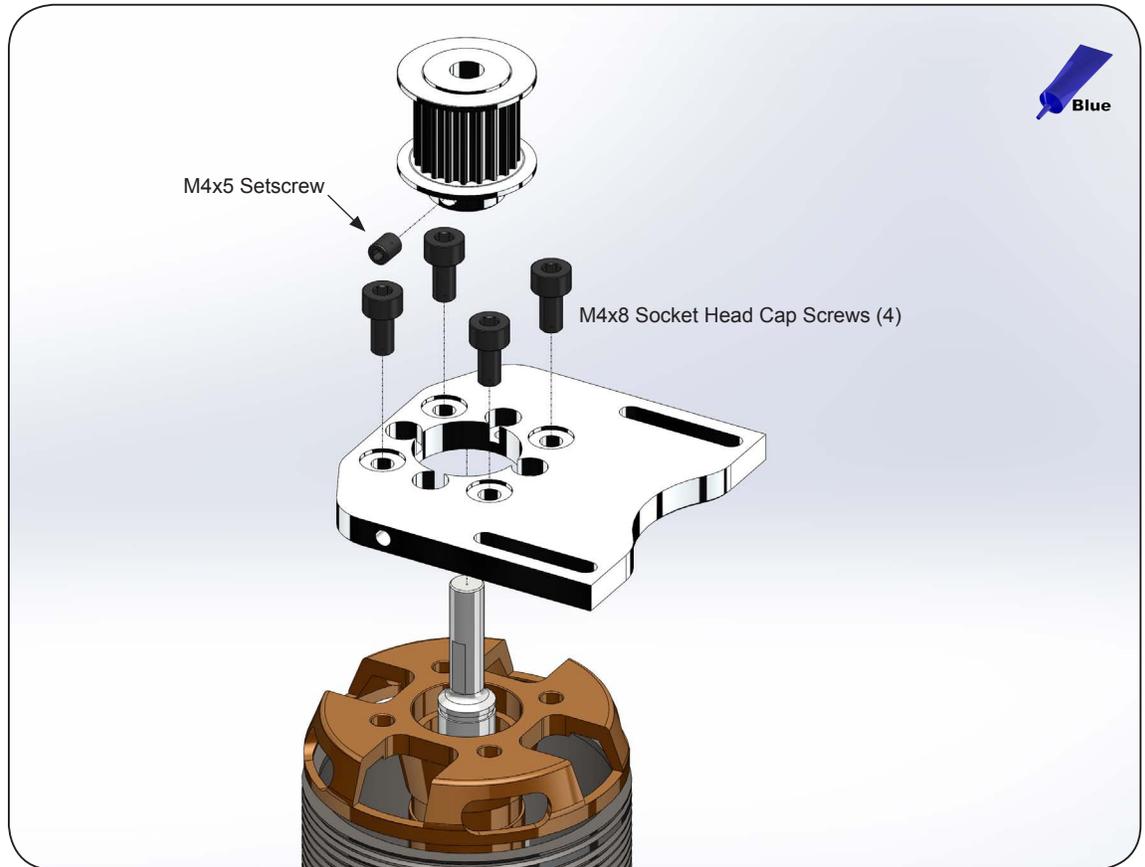


## Motor Installation

Install the four supplied screws.



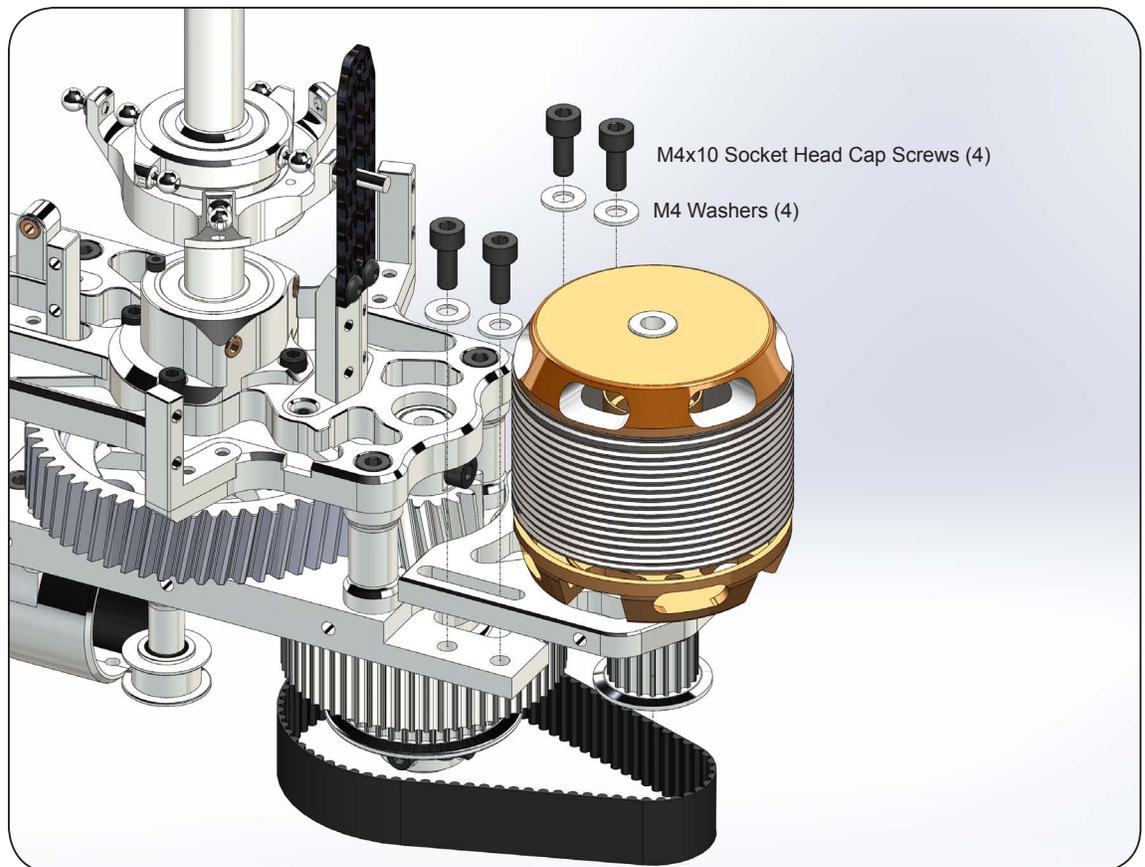
**WARNING!** Be VERY careful to make sure that the screws don't go too deep into the motor damaging the windings. If too long source adequate length screws for that purpose.



## Sliding Motor Plate

Install the belt and motor sliding plate using the four M4 screws from the top.

Leave them lightly tightened so that they can be tightened after the frames are installed.

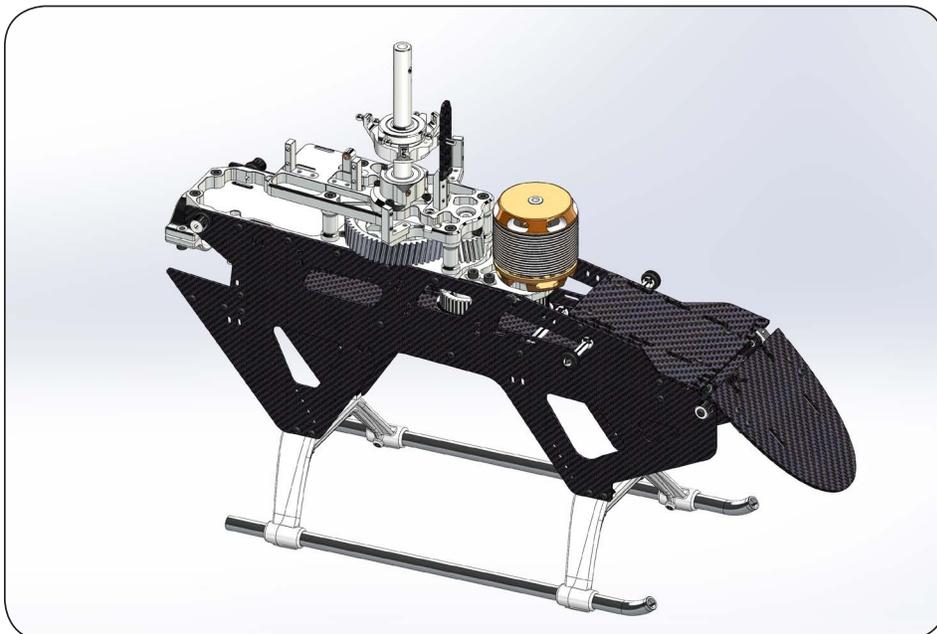


## Step 3: Frames assembly.

### HARDWARE BAG CONTENTS

#### Qty Description

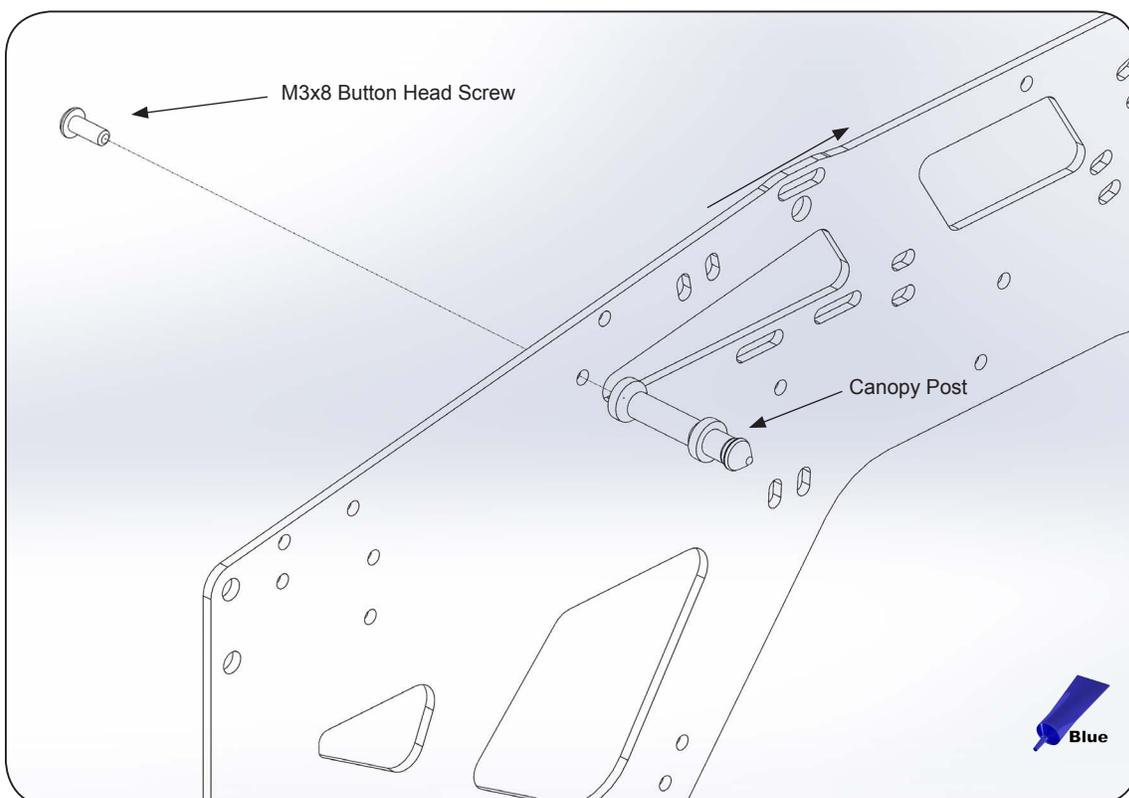
- 38 - M3x6mm Round Head Screw
- 16 - M3x8mm Round Head Screw
- 5 - M3x16mm Round Head Screw
- 4 - M3x20mm Round Head Screw
- 1 - M3x8mm Round Head Screw
- 2 - M3x10mm Round Head Screw
- 4 - M4x8mm Socket Head Cap Screw
- 4 - M4x10mm Socket Head Cap Screw
- 3 - M3 Washer
- 1 - M3.5 Washer
- 4 - M4 Washer
- 1 - M3 Locknut
- 5 - M4x5mm Setscrew
- 4 - M3 Threaded Inserts
- 1 - Idler Pulley Arm Torsion Spring



### Canopy posts

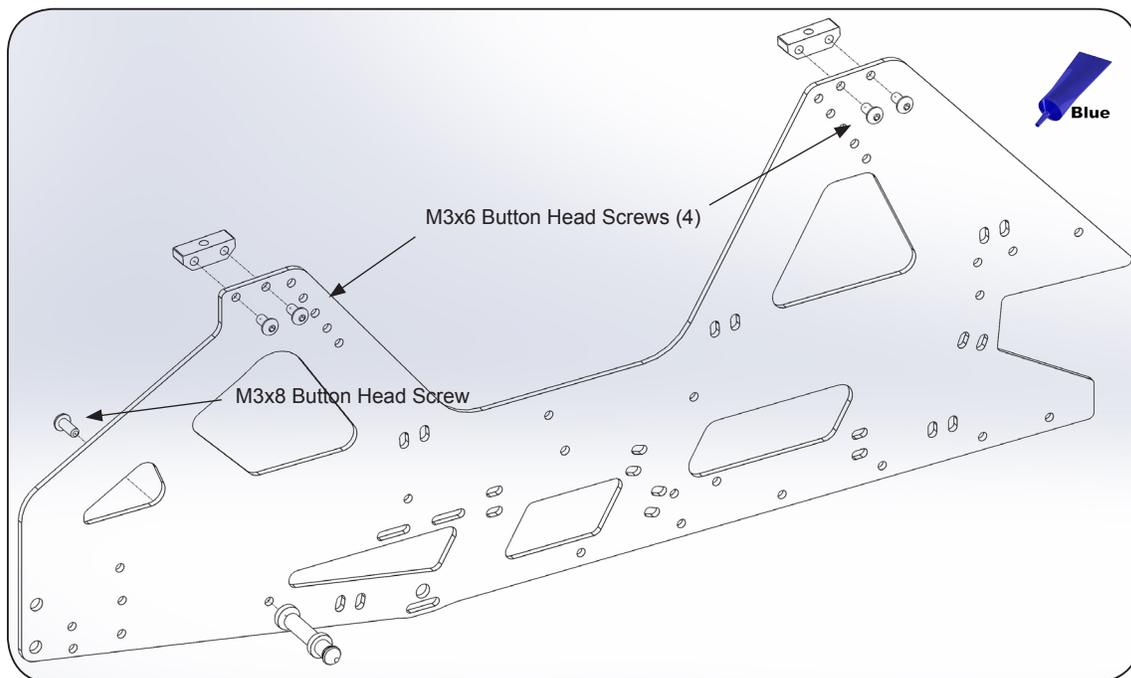
Install the canopy post in place as shown using the M3x8mm screw.

Repeat for the other side.



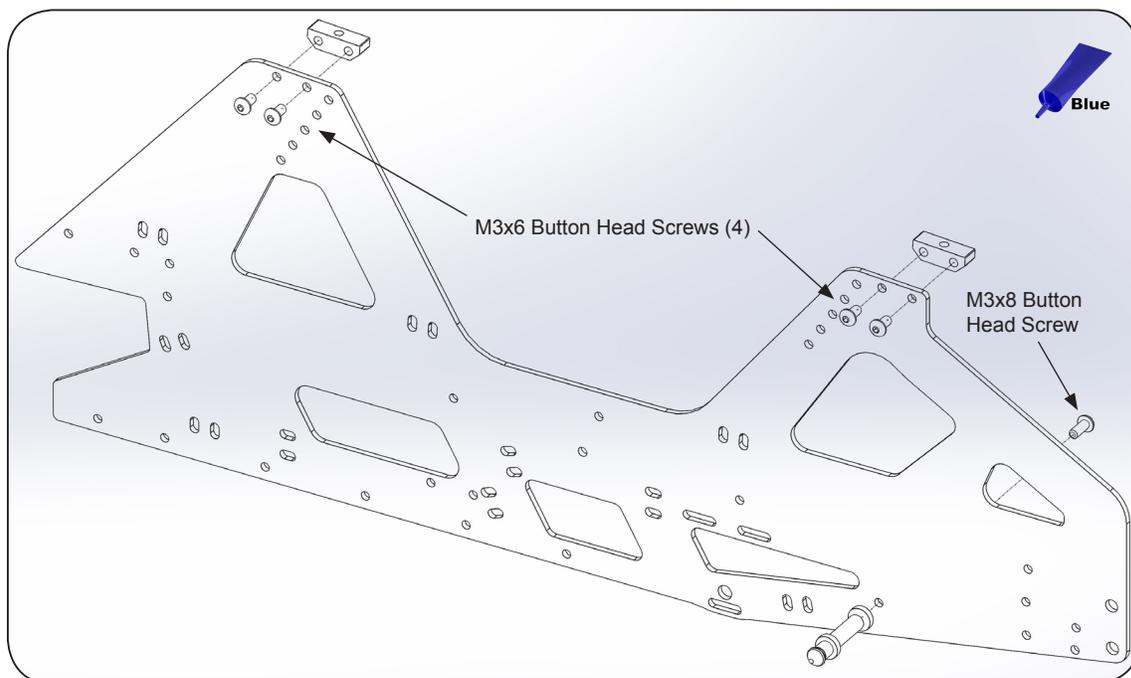
## 90 degree blocks right frame

Install two 90 degree blocks in the right frame using the four M3x6mm round head screws provided.



## 90 degree blocks left frame

Install two 90 degree blocks in the left frame using the four M3x6mm round head screws provided.



## Locking bracket and Threaded inserts

Insert the torsion spring's hook into the frame hole and then install the bracket spacer post in place with the M3 round head screw.

Install the locking bracket in place making sure the spring's hook is inserted into the bracket's hole.

Install the M3.5 washer and M3 locknut to hold the bracket in place.

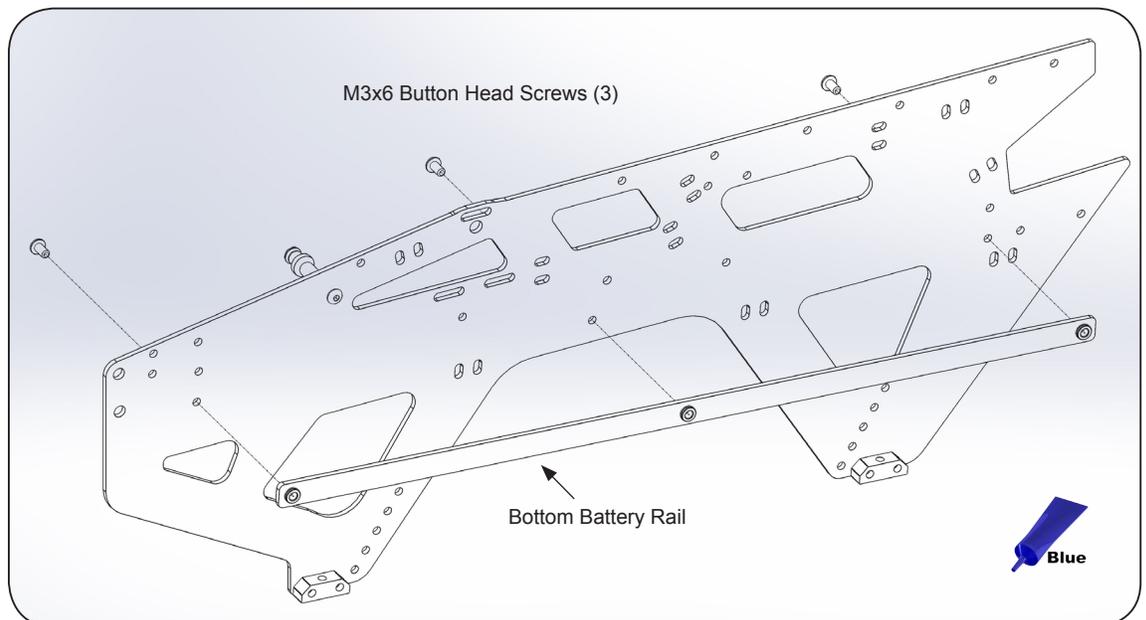
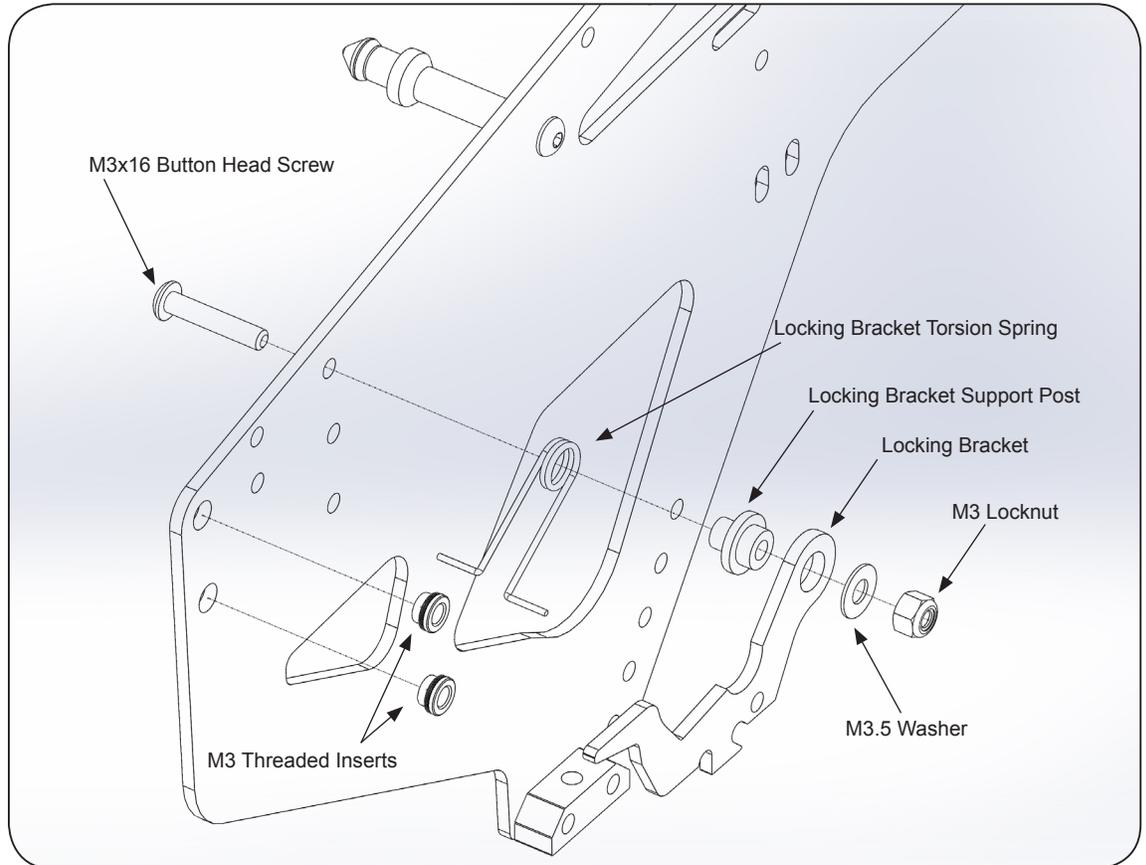
In the Mostro the two frames are interchangeable so you don't need to keep stock of left and right frames. In order to do this the user needs to install the M3 threaded inserts into the locations that are needed depending on whether the frame is used on the left or on the right.

In the holes indicated place a threaded insert in one side and using an m3 washer insert the extra M3x8mm socket head cap screw in place.

Once it's in place use a wrench and tighten it making it be press-fit into place. Once in place remove the screw and washer. The insert is now in place.

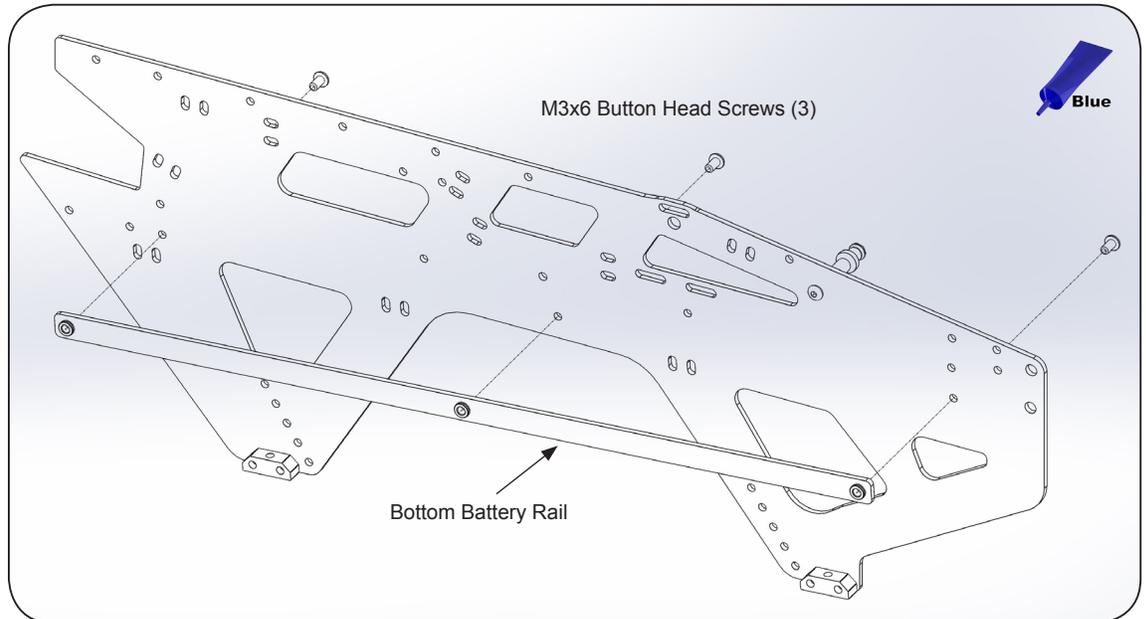
## Bottom Battery Rail

Install the bottom battery rails in place using three M3x6mm round head screws for each side as shown.



## Bottom Battery Rail

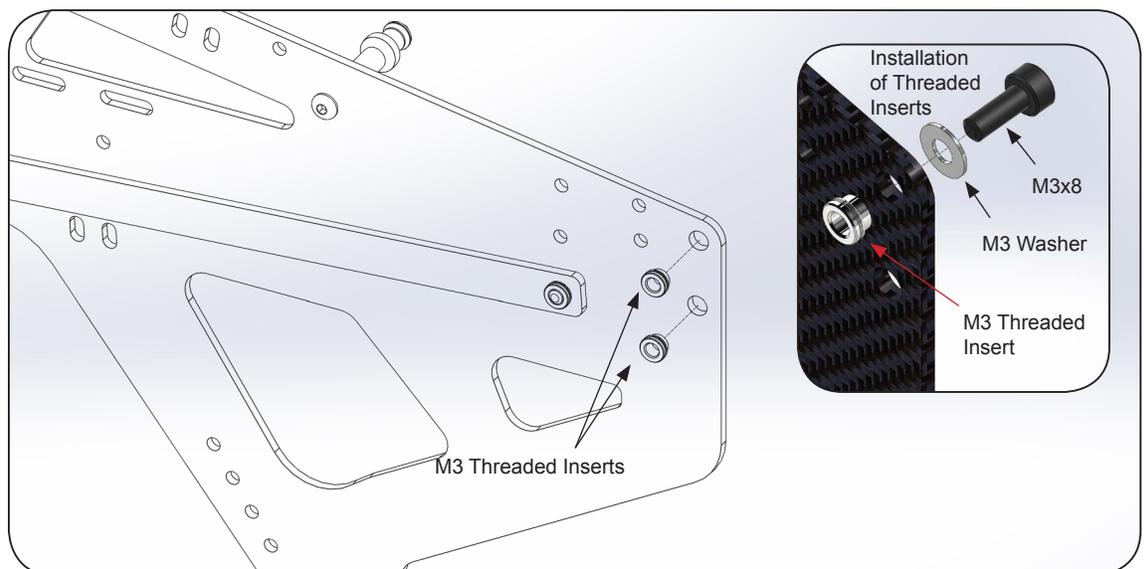
Install the bottom battery rails in place using three M3x6mm round head screws for each side as shown.



## Threaded inserts

In the holes indicated place a threaded insert in one side and using an m3 washer insert the extra M3x8mm socket head cap screw in place.

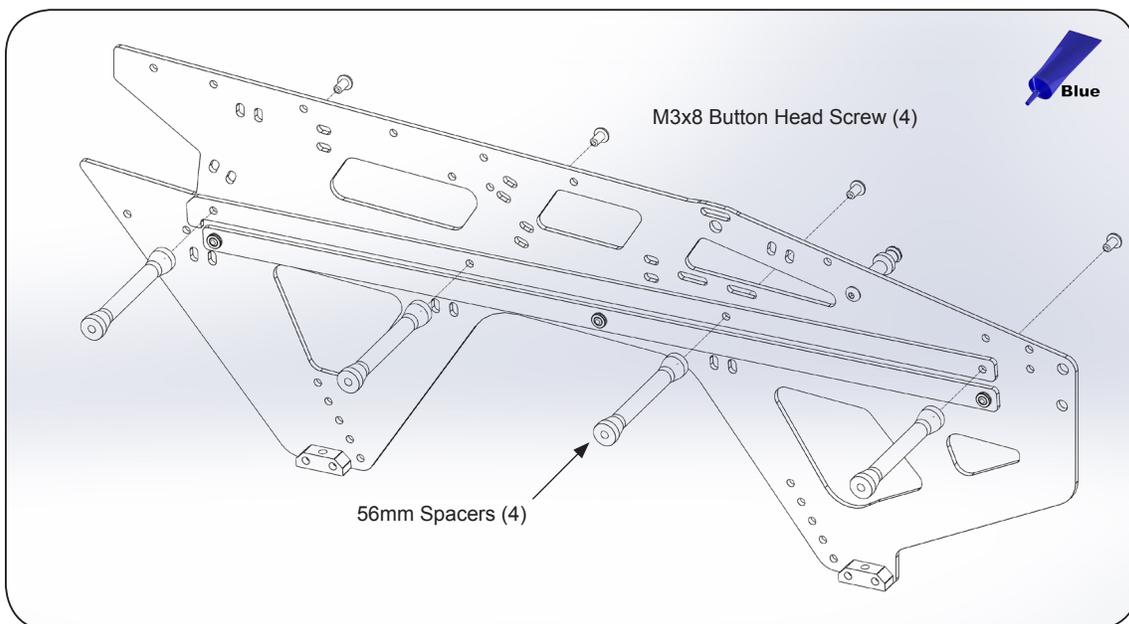
Once it's in place use a wrench and tighten it making it be press-fit into place. Once in place remove the screw and washer. The insert is now in place.



## Top Battery Rail Left and Frame Spacers

Install four spacers holding the top rail with four M3x8mm round head screws.

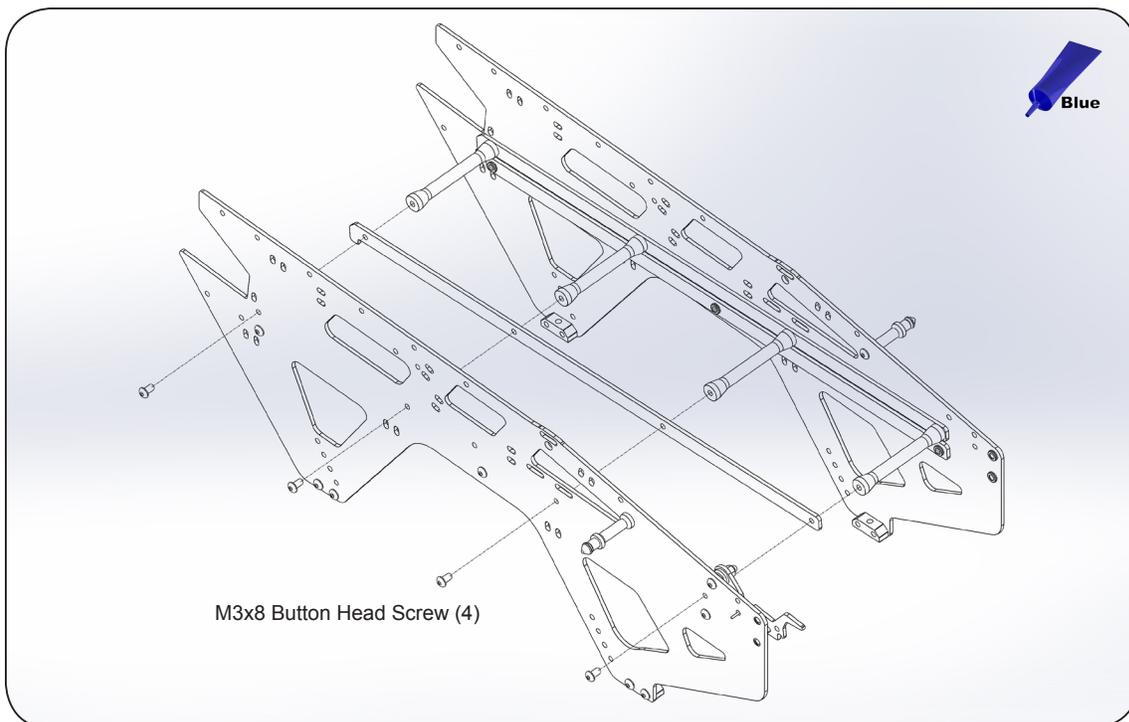
Notice the orientation of the battery plate stopper end so that it blocks the travel of the battery plate.



## Top Battery Rail Right Frame

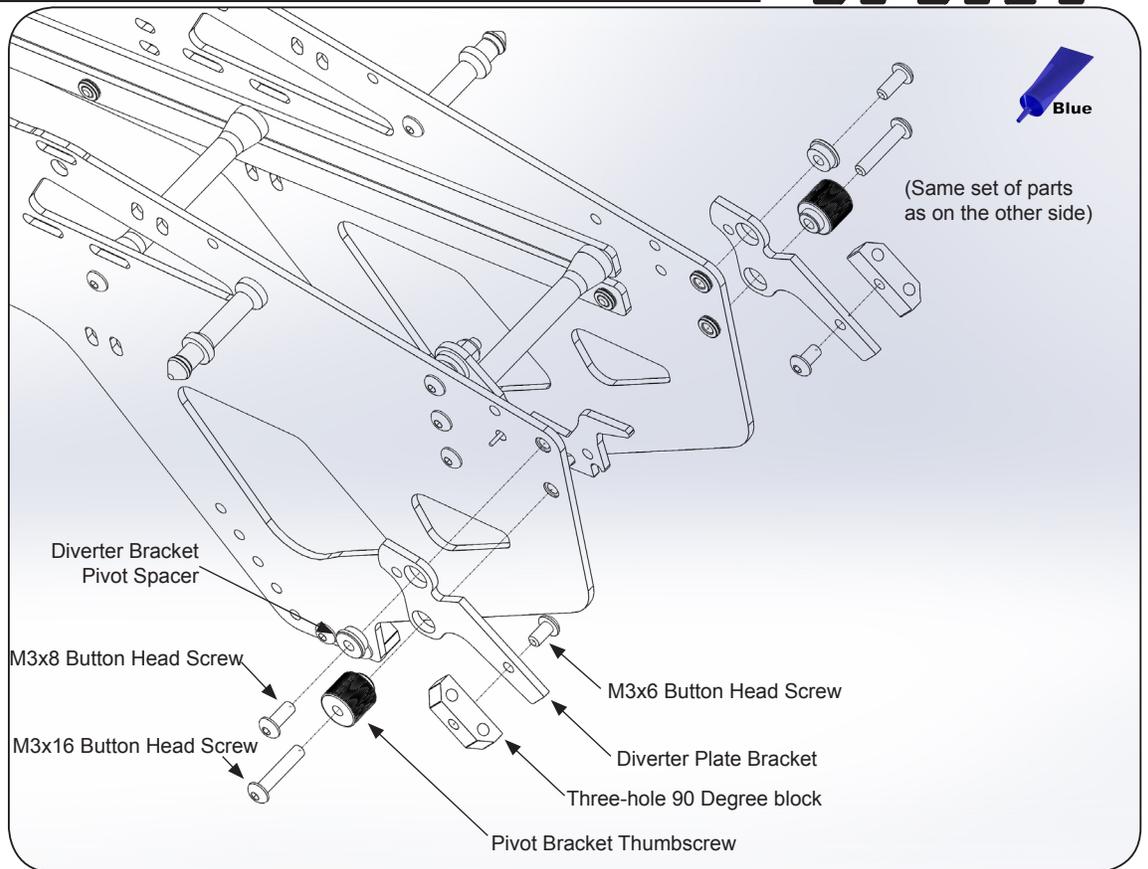
Install The right frame into the spacers holding the top rail with four M3x8mm round head screws.

Notice the orientation of the battery plate stopper end so that it blocks the travel of the battery plate.



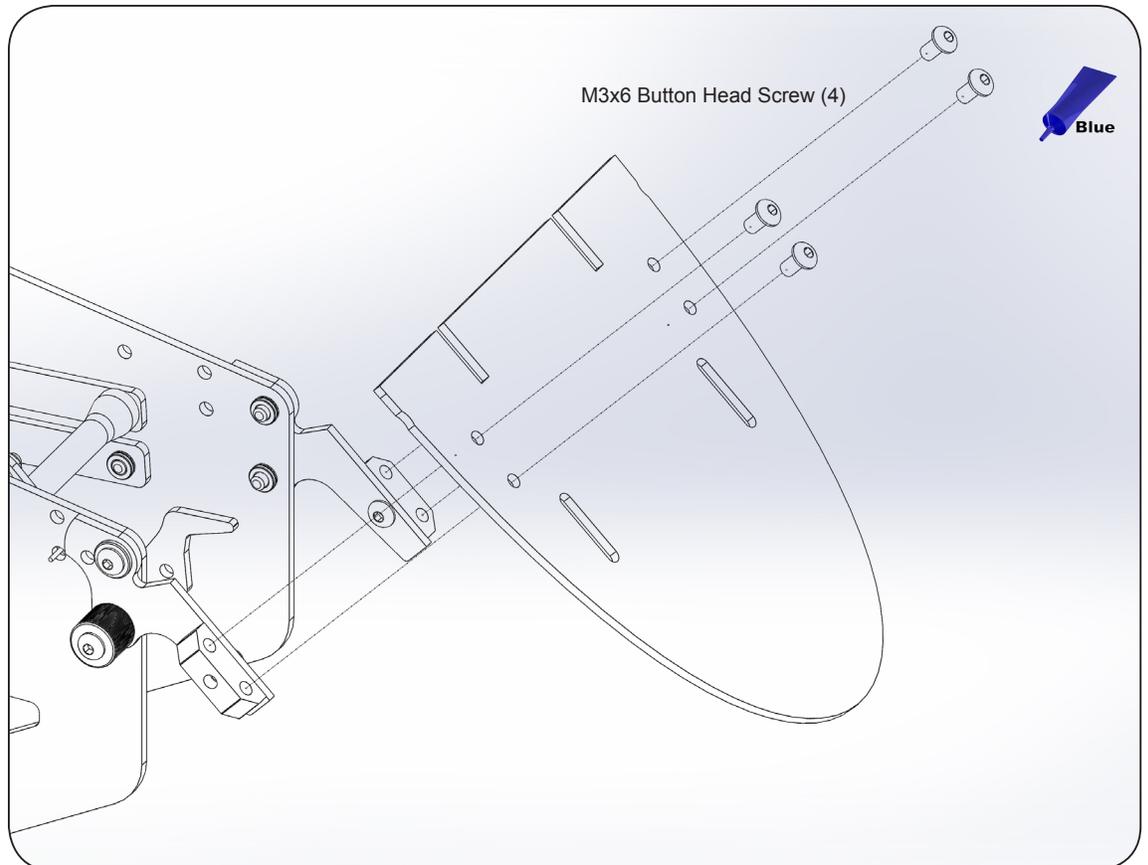
## Air Diverter Plate brackets.

Install the parts as seen in this picture.



## Diverter Plate

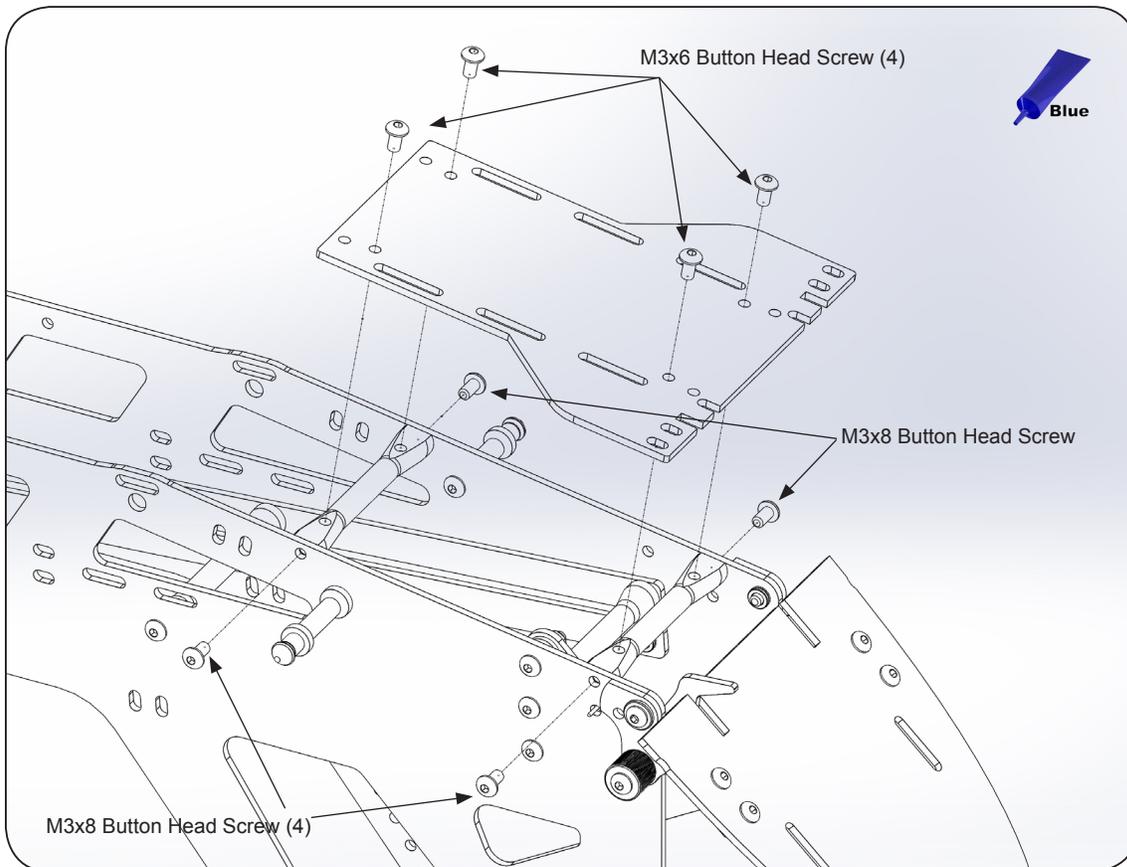
Attach the Diverter Plate to the brackets using four M3x6 round head screws.



## ESC Plate

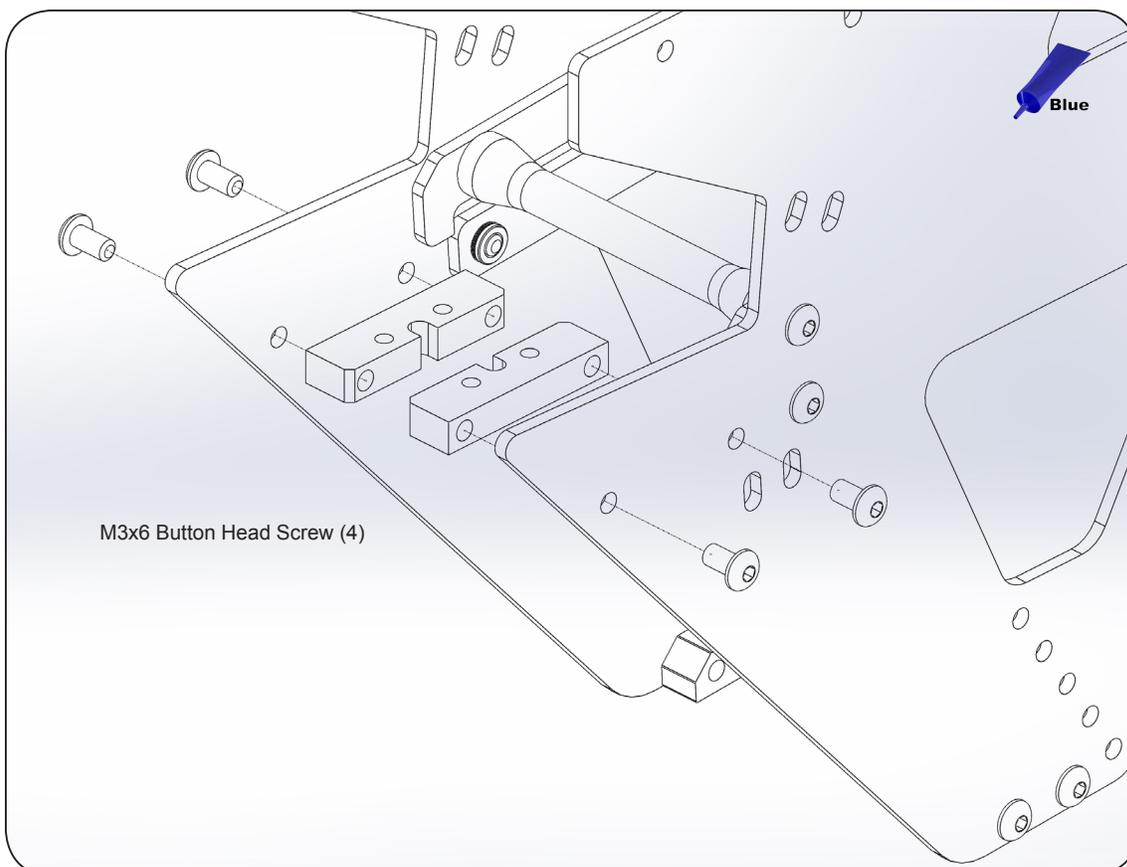
Install the mounting spacers in place using four M3x8mm round head screws.

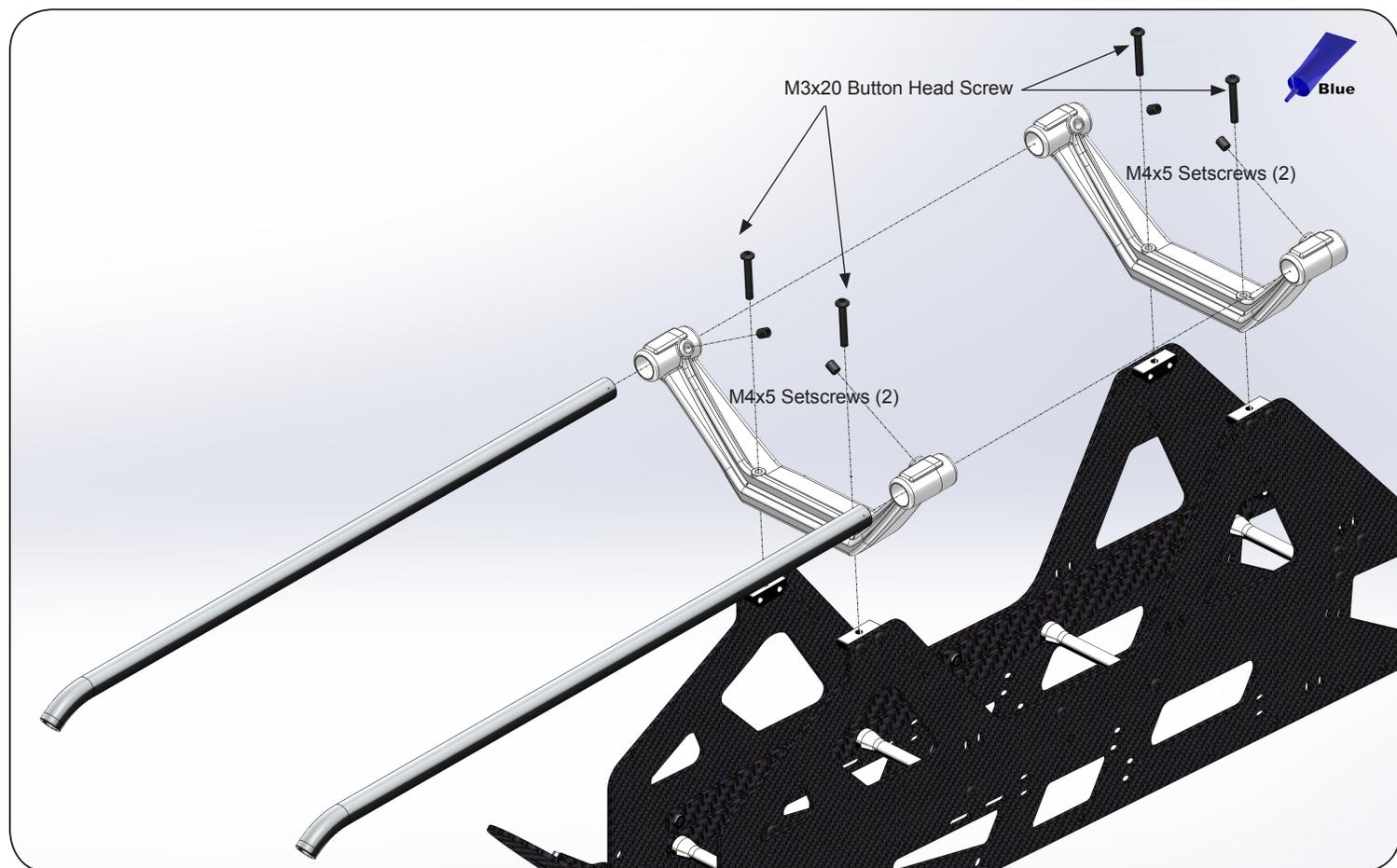
Once mounting spacers are installed. Attached the plate to the spacer by using four M3x6mm screws.



## Tail Servo Blocks

Install the tail servo blocks using the four M3x6mm round head screws provided.

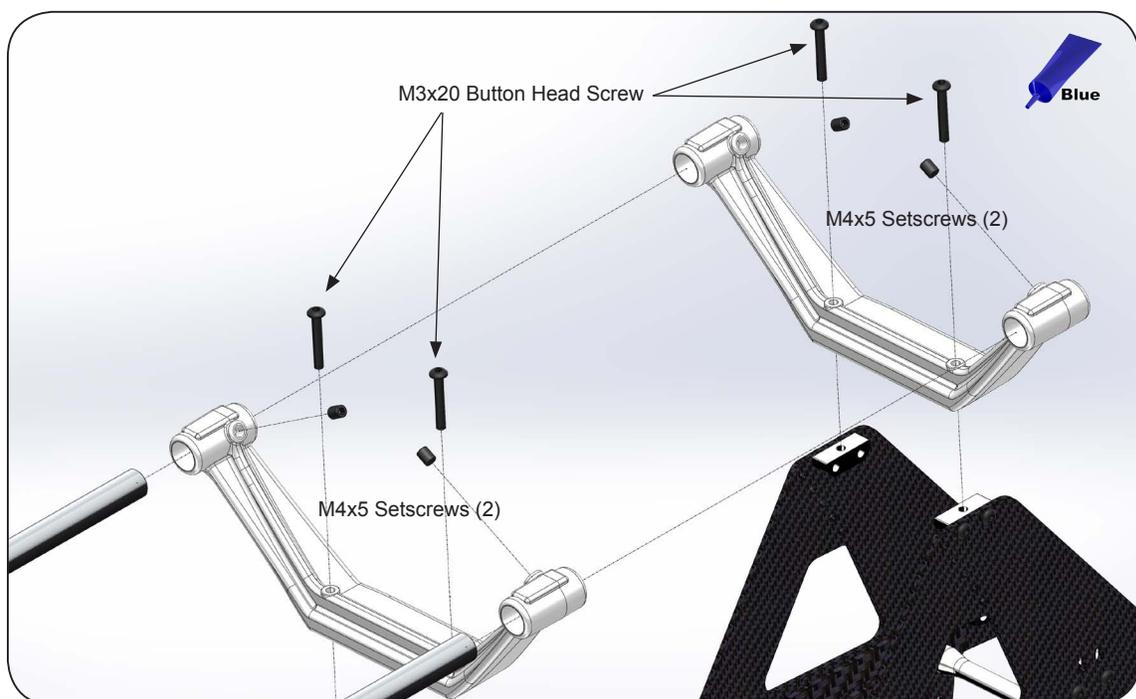




## Landing Gear

Install the landing gear with the M3x20mm round head screws.

Slide the landing skids in place and secure them with four M4 setscrews.

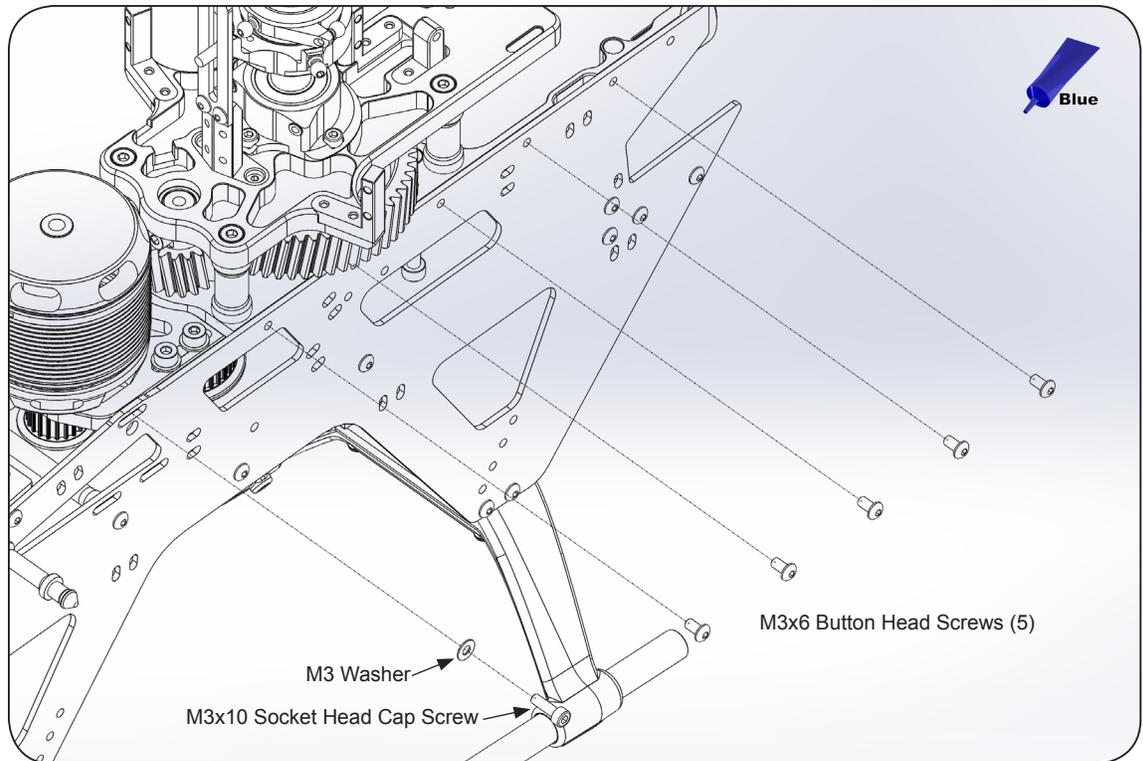


## Installation of the Monoblock into the frames

### Left Frame

Using five M3x6mm round head screws affix the left frame to the Monoblock as seen in this picture.

Install also the M3x10 Screw and washer to the Sliding Motor Plate but do not tighten it yet.



### Right Frame

Using five M3x6mm round head screws affix the right frame to the Monoblock as seen in this picture.

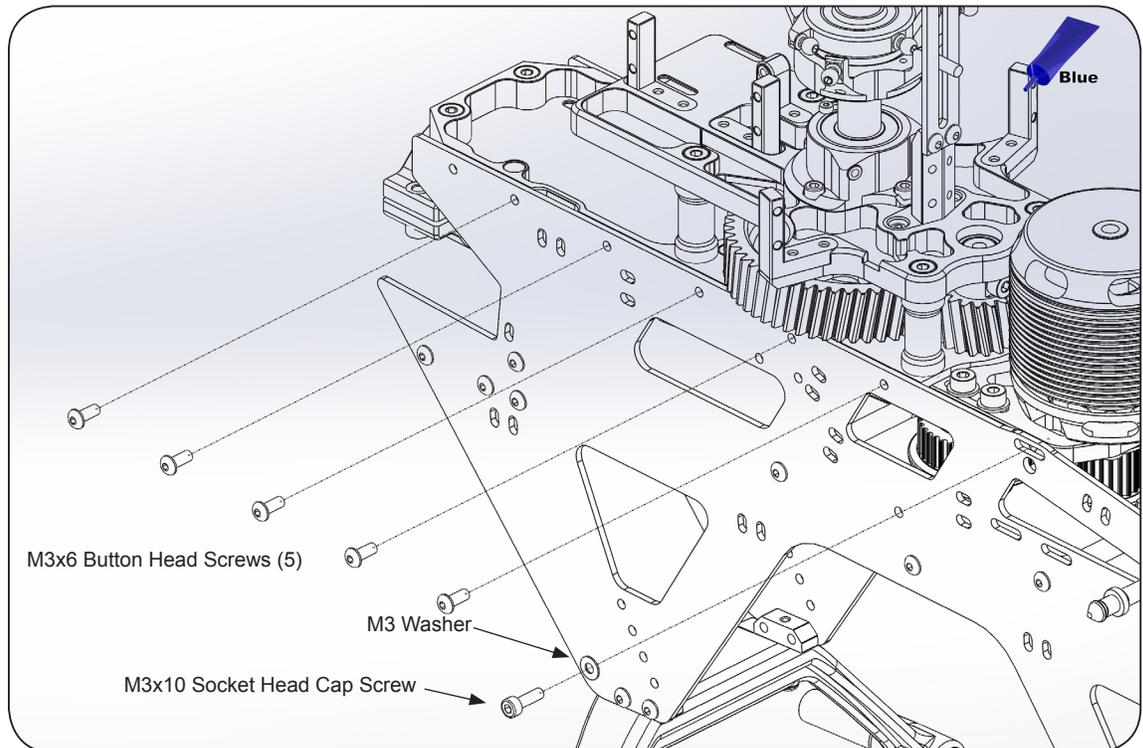
Install also the M3x10 Screw and washer to the Sliding Motor Plate but do not tighten it yet.

### Motor Tightening

Loosen the four M4 screws that hold the motor sliding plate.

Pull the motor forward very tightly and tighten the M3x10 sliding plate side screws.

After those are tight then tighten the four M4 screws on the top.

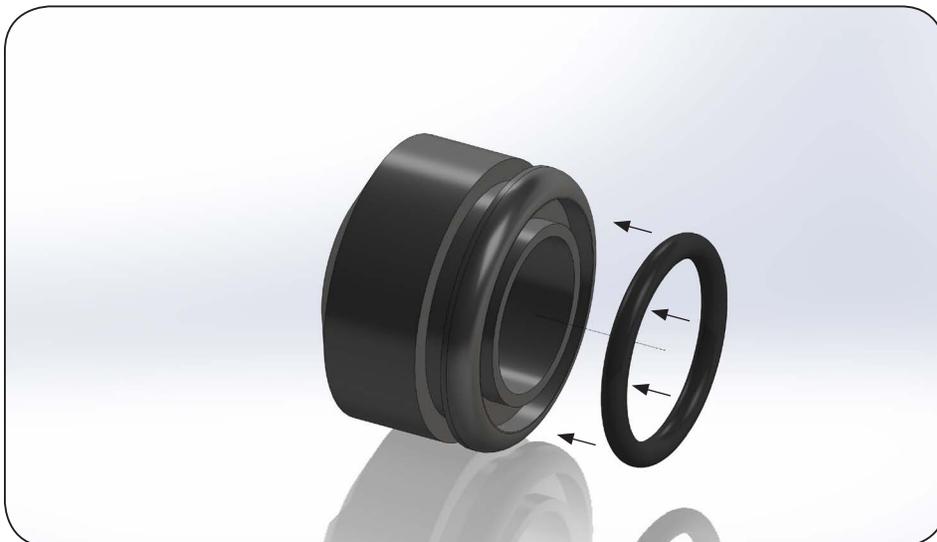


## Step 4: Head

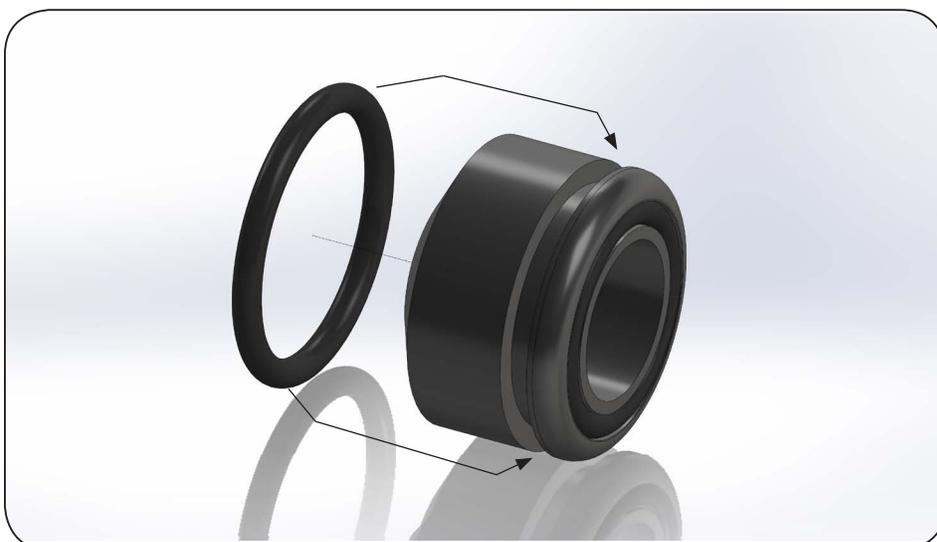
### Preparation of the RigidCore Dampeners

Insert the small O-Ring into the front circular groove.

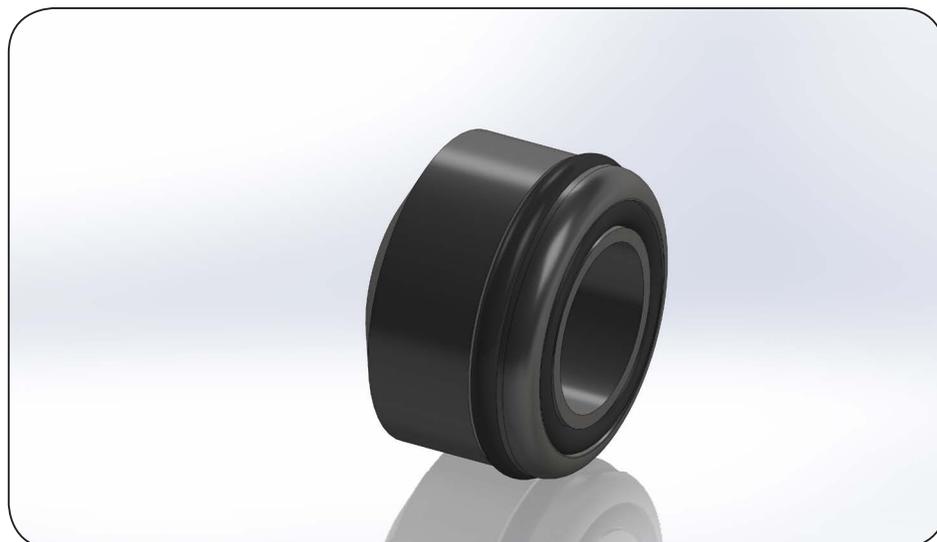
Note: The inner dampener O-Ring is used only if you want pre-loading of the grips or if you feel they're too loose. On the other hand if you feel it's too tight or don't like using pre-loading there is no need to install it. There is really no difference performance wise.



Slide the large O-Ring around the dampener until the outside groove is reached.



Completed RigidCore Dampener



## HARDWARE BAG CONTENTS

### Qty Description

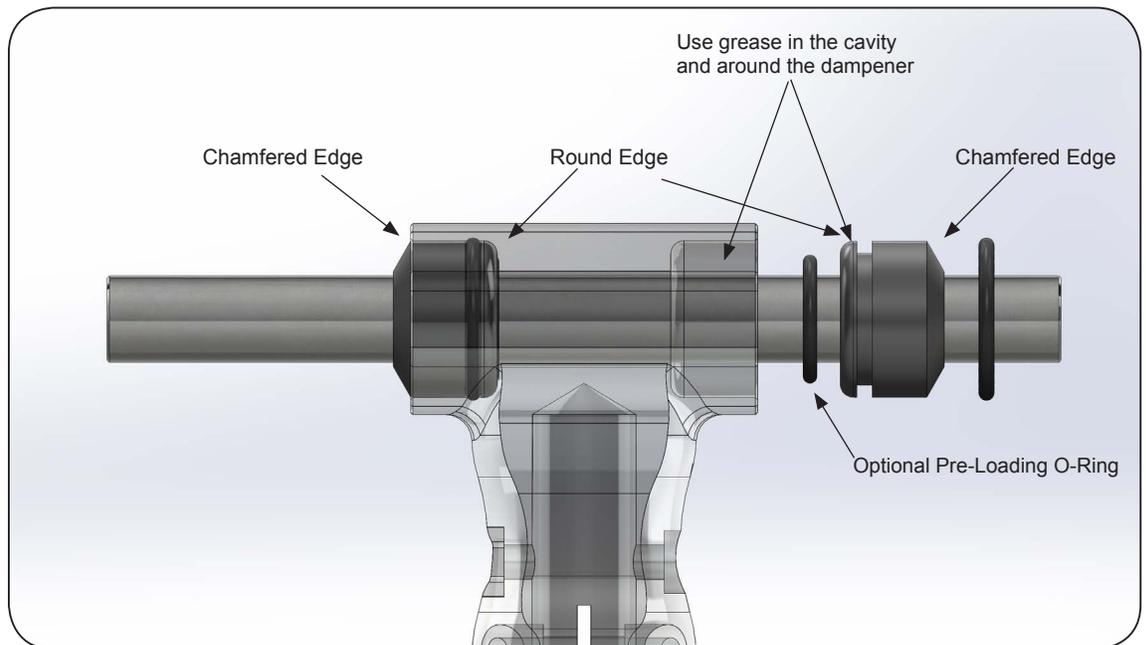
- 2 - M3x8mm Round Head Screw
- 2 - M3x10mm Socket Head Cap Screw
- 2 - M3x12mm Socket Head Cap Screw
- 2 - M3x14mm Socket Head Cap Screw
- 2 - M6x16mm Socket Head Cap Screw
- 1 - M4x24mm Shouldered Screw
- 2 - M6 Washer
- 1 - M4 Locknut.
- 2 - 16mm OD x 1mm Bearing Spacer
- 2 - 18mm OD x 10mm ID Thrust Bearing
- 4 - M5 ID Stainless Steel Blade Bushing
- 2 - M5 Alloy Steel Shouldered Blade Bolts
- 2 - M5 Locknuts
- 2 - M2.6x16mm threaded rods
- 2 - Thick Ball Links



## Spindle and Dampeners

Install the dampeners in the orientation shown in the picture.

Slide the spindle into the dampeners.



**You can watch a video on how to install and how to remove the dampeners here:**

**Insertion:** <http://www.AvantRC.com/Products/Mostro/DampenerInsertion.html>

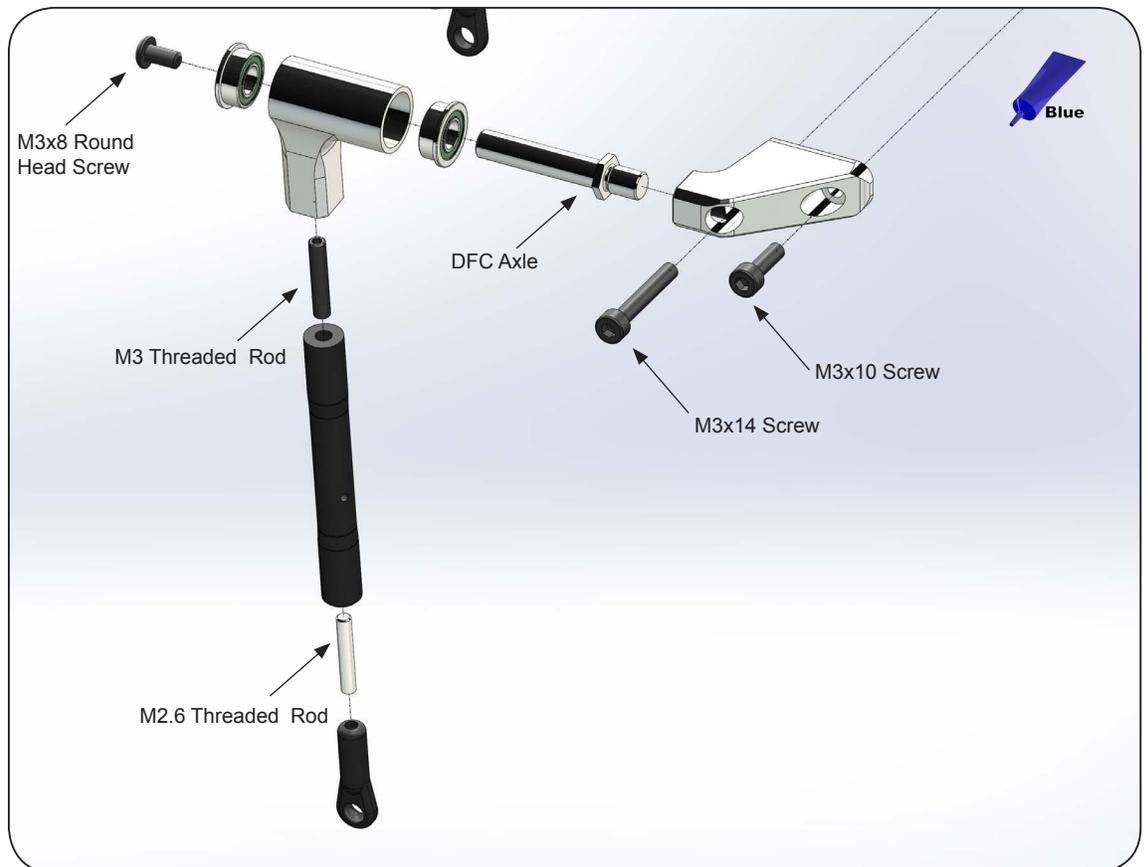
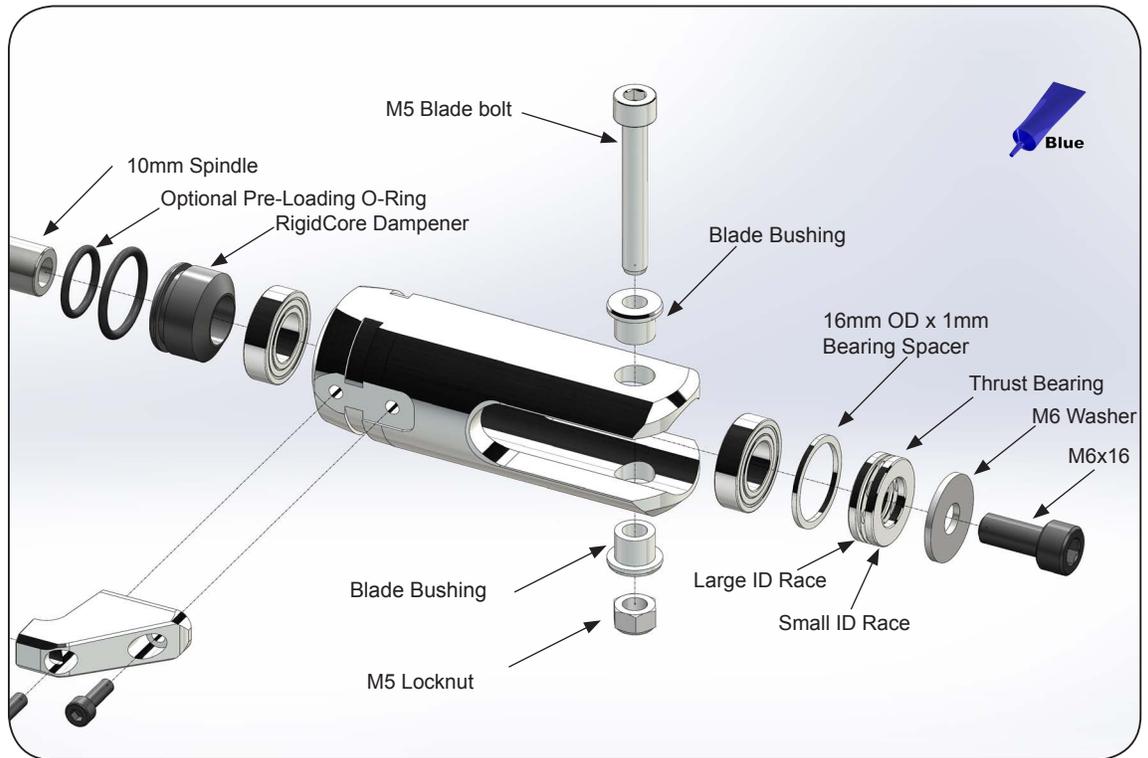
**Extraction:** <http://www.AvantRC.com/Products/Mostro/DampenerExtraction.html>

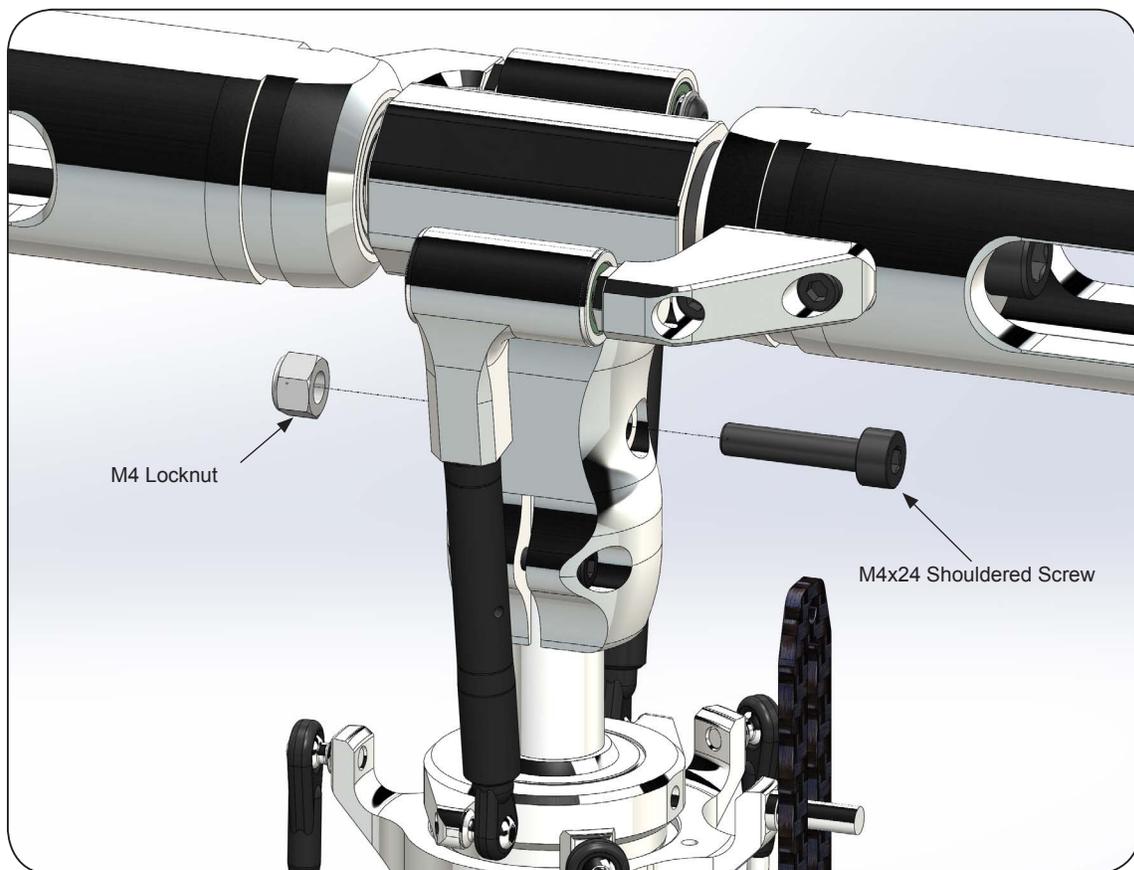
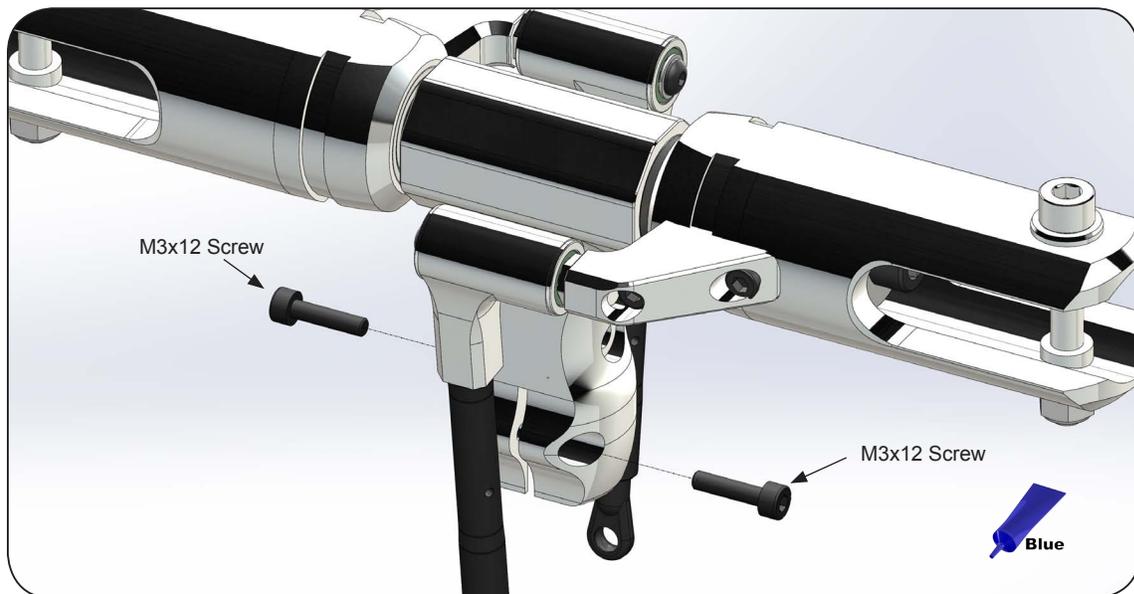
## Blade grip



Pay attention to the correct way to set Thrust bearing inner diameters.

The larger ID race needs to go first into the spindle. The smaller ID race goes next to the M6 Washer.





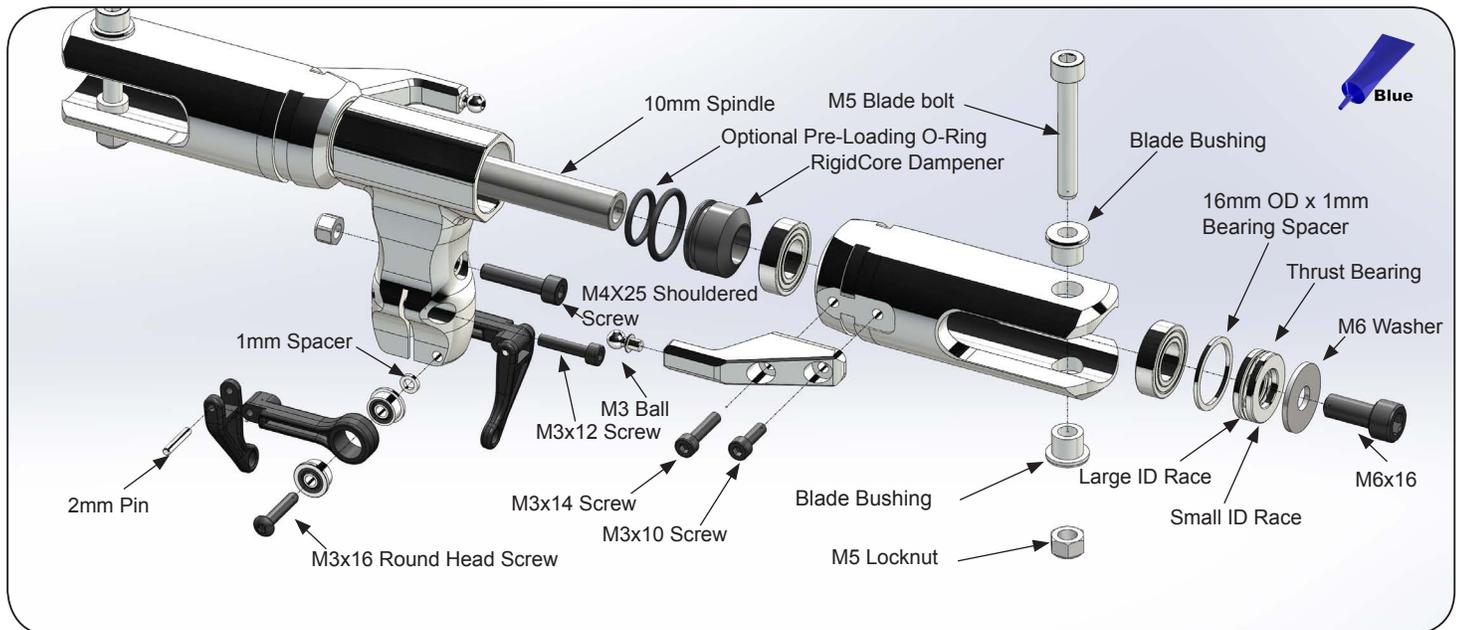
## HARDWARE BAG CONTENTS

### Qty Description

- 2 - M3x10mm Socket Head Cap Screw
- 2 - M3x12mm Socket Head Cap Screw
- 2 - M3x14mm Socket Head Cap Screw
- 2 - M6x16mm Socket Head Cap Screw
- 1 - M4x24mm Shouldered Screw
- 2 - M6 Washer
- 1 - M4 Locknut.
- 2 - 16mm OD x 1mm Bearing Spacer
- 2 - 18mm OD x 10mm ID Thrust Bearing
- 4 - M5 ID Stainless Steel Blade Bushing
- 2 - M5 Alloy Steel Shouldered Blade Bolts
- 2 - M5 Locknuts
- 2 - M3x16 Round Head Screw
- 4 - Thick Ball Links
- 2 - 60mm Turnbuckle Rods.
- 2 - 2mm pins
- 2 - Y-Links
- 2 - Follower Arms with bearings
- 4 - M3 Balls



Note: The inner dampener O-Ring is used only if you want pre-loading of the grips or if you feel it's too loose. If you feel it's too tight or don't like using pre-loading there is no need to install it.

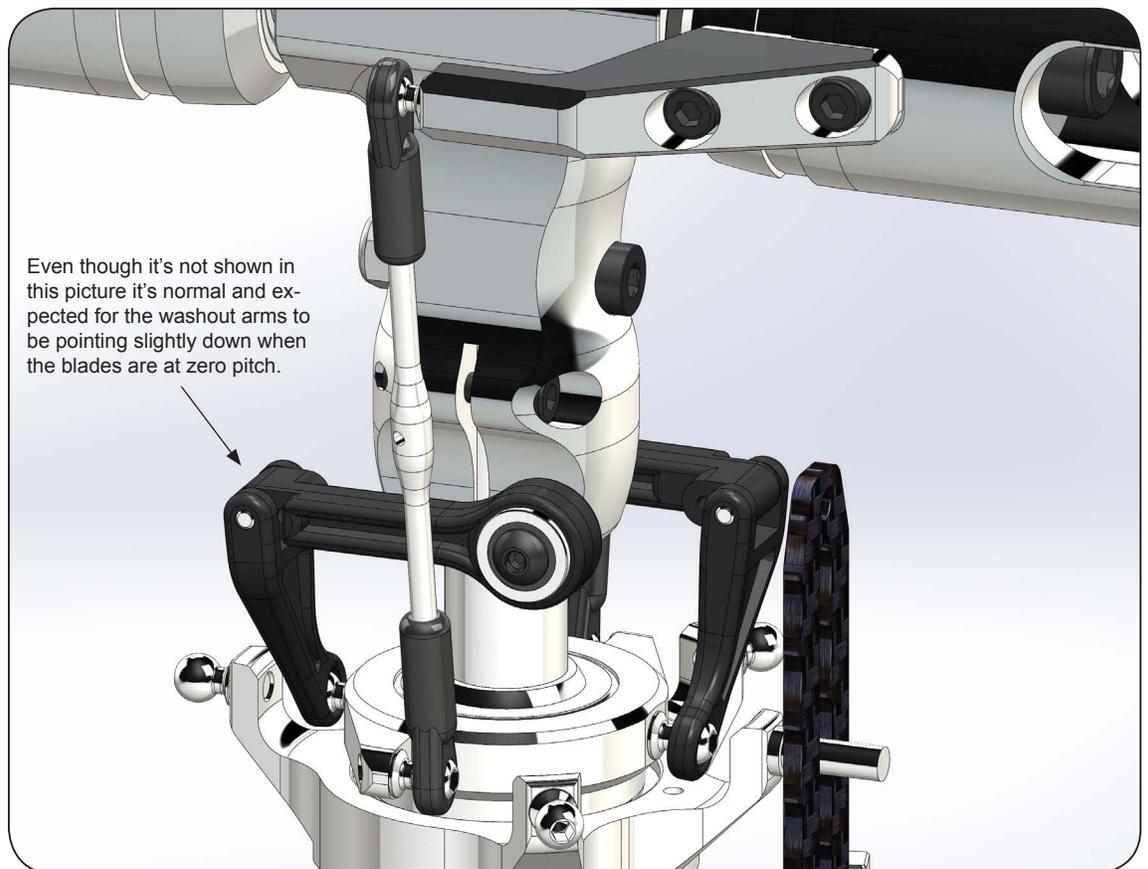
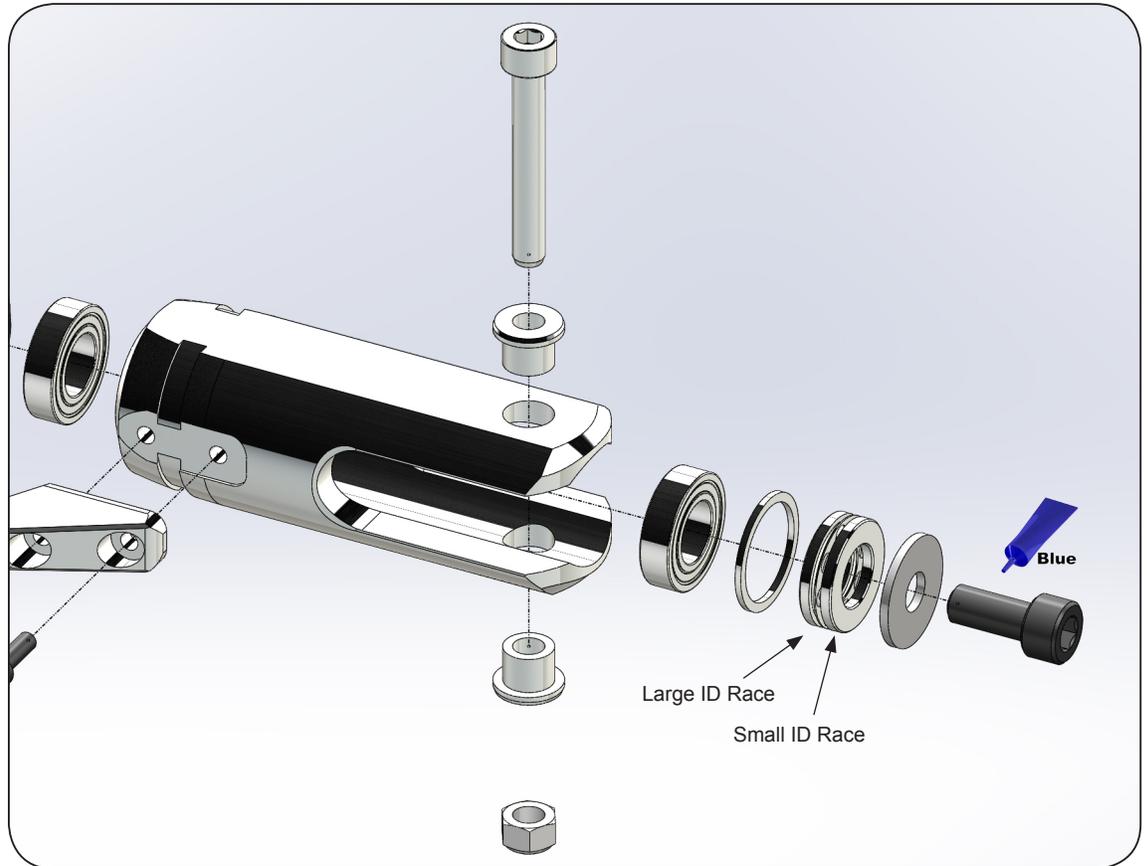


## Blade grip



Pay attention to the correct way to set Thrust bearing inner diameters.

The larger ID race needs to go first into the spindle. The smaller ID race goes next to the M6 Washer.



## Step 5: Tail assembly.

### HARDWARE BAG CONTENTS

#### Qty Description

- 3 - M3x6mm Round Head Screw
- 3 - M3x8mm Round Head Screw
- 2 - M3x10mm Round Head Screw
- 1 - M3x16mm Round Head Screw
- 2 - M3x8mm Socket Head Cap Screw
- 2 - M3x20mm Socket Head Cap Screw
- 2 - M3 Washer
- 2 - M3 Locknut
- 2 - M3x4mm Setscrew
- 1 - M4x4mm Setscrew
- 1 - 2mmx12mm Pin
- 2 - 10mm OD x 0.3 Bearing Spacer
- 2 - 3mm ID x 1mm Bearing Spacer
- 2 - 10mm OD x 5mm ID Thrust Bearing
- 3 - M2 Balls

Parts that might be already installed in the boom:

- 1 - M2.5x8mm Socket Head Cap Screw
- 1 - M2.5 Washer

Parts that might be already installed in the Tail Slider

- 2 - 2mmx10mm Pin
- 1 - M3 Ball

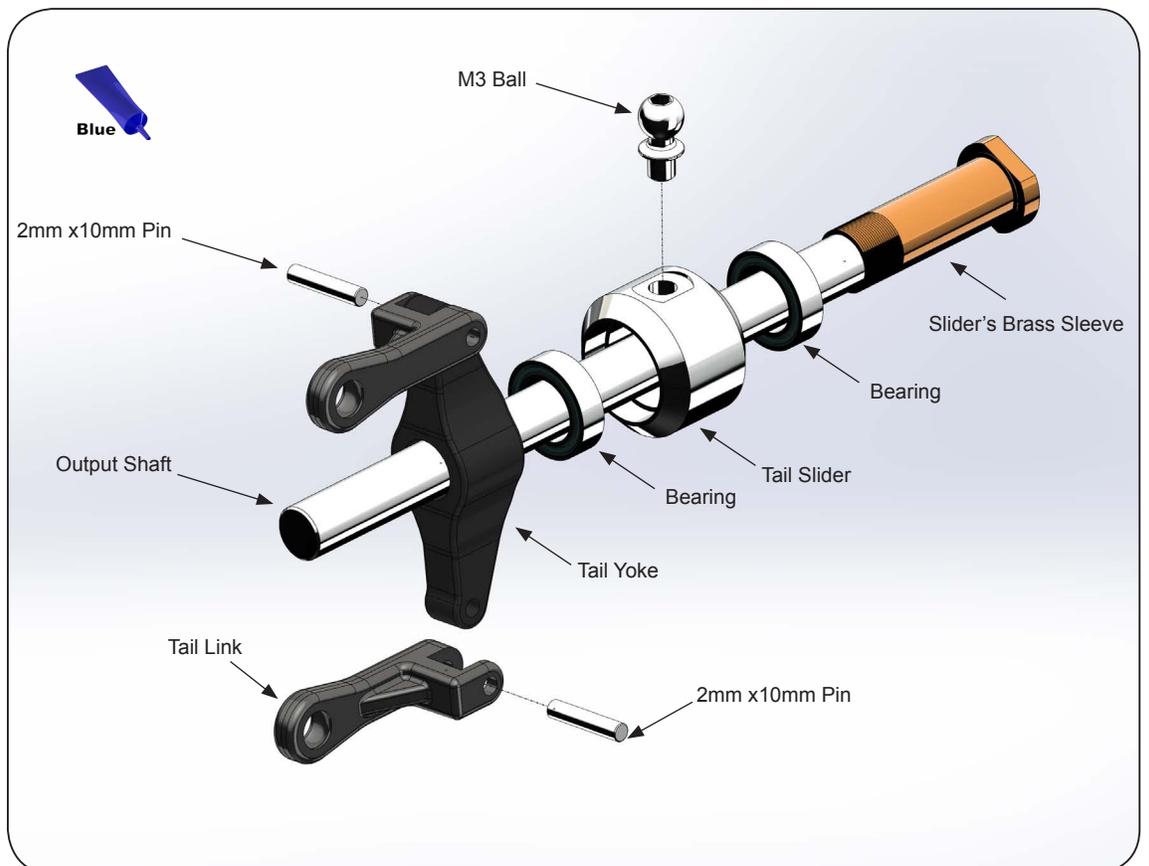


### Tail Pitch Slider Assembly

Install the M3 ball into the tail slider.

Insert the tail output shaft into the brass slider sleeve then the tail slider and the plastic tail yoke.

Using the 2mm pins install the tail links in place as shown.

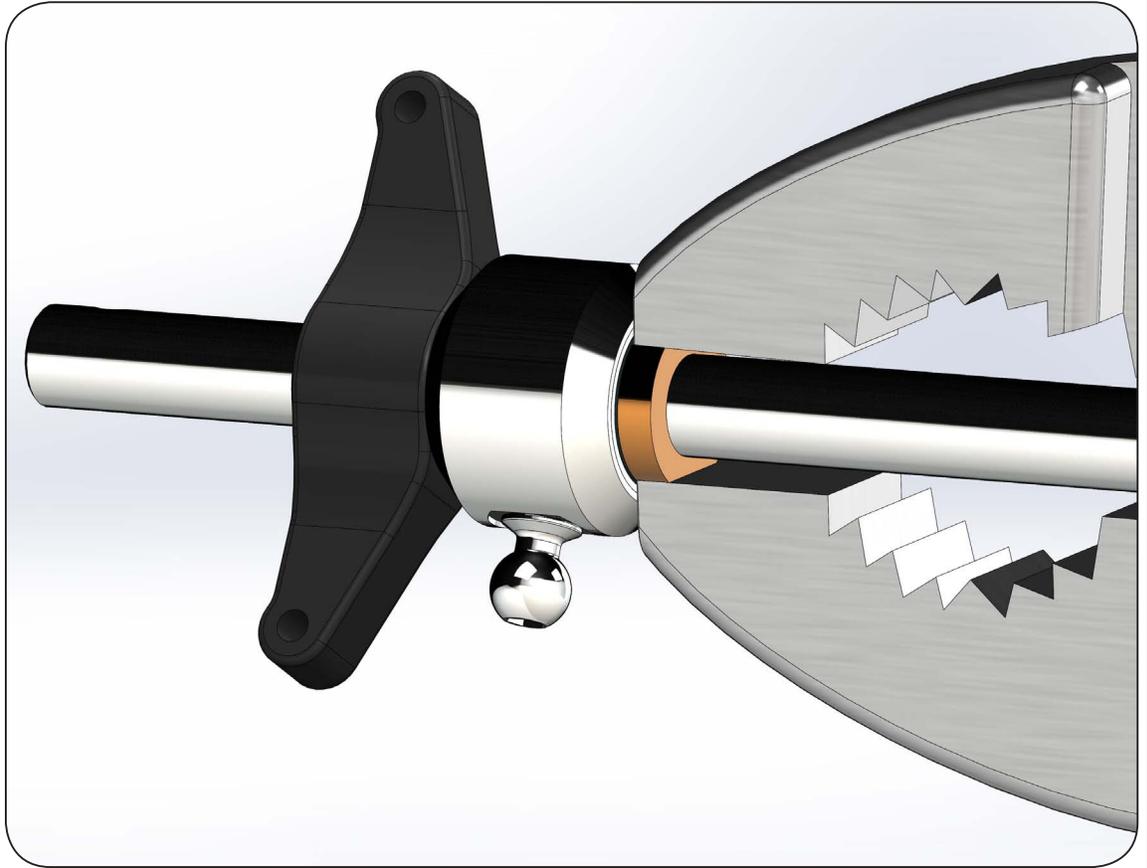


## Tail yoke Insertion

Using either a small vise or a set of pliers insert the output shaft into the sleeve and slider and hold the end of the slider brass sleeve while screwing in the tail yoke.



Warning. Tighten only up to the point where the slider won't have any play. Don't overtighten the yoke into the sleeve because the bearings will bind and the slider won't operate correctly.

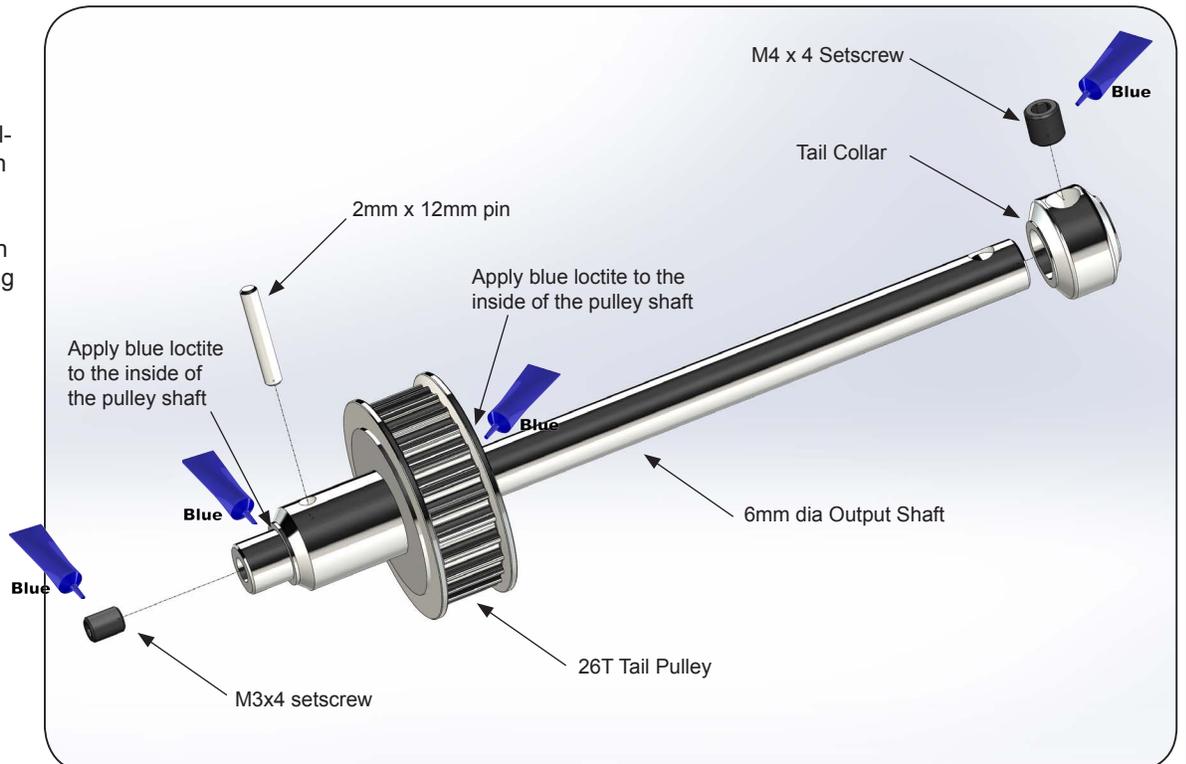


## Tail Pulley

Insert the 2mm pin into the pulley making sure it goes through the shaft.

Insert the setscrew and tighten it to prevent the pin from sliding out.

Slide the collar into the output shaft but don't tighten it yet.

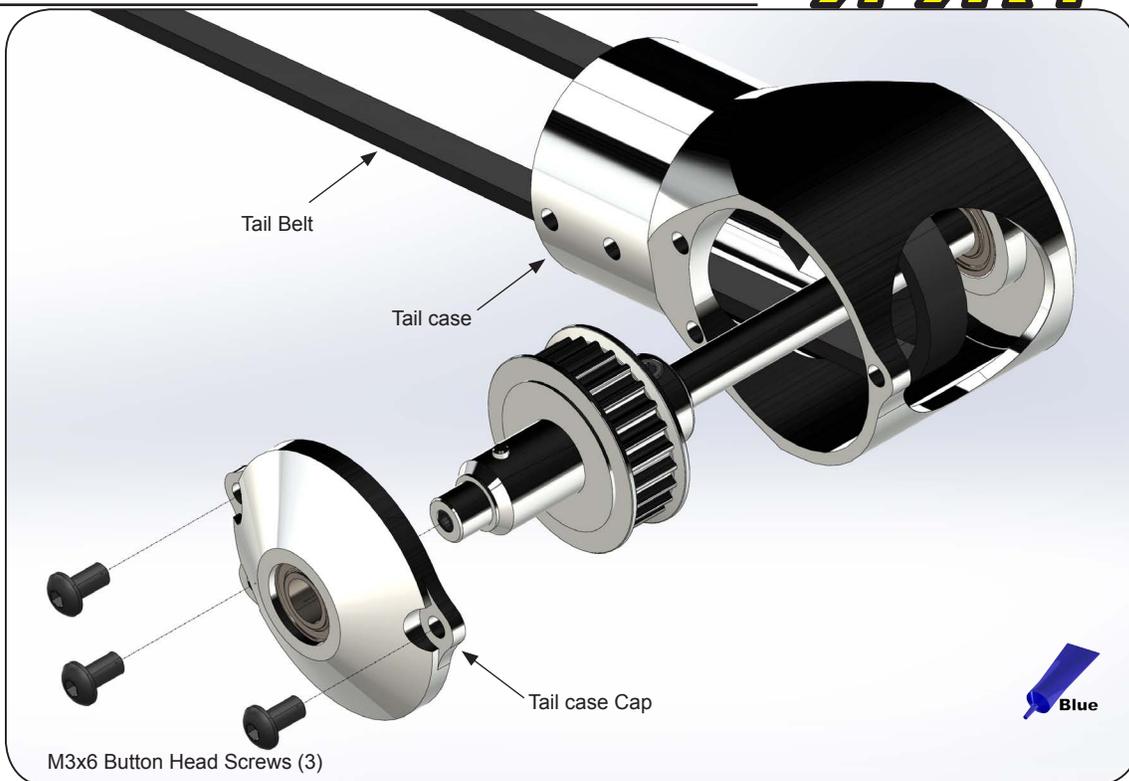


## Tail Case

Insert the tail belt into the tail case.

Slide the tail pulley assembly into the case.

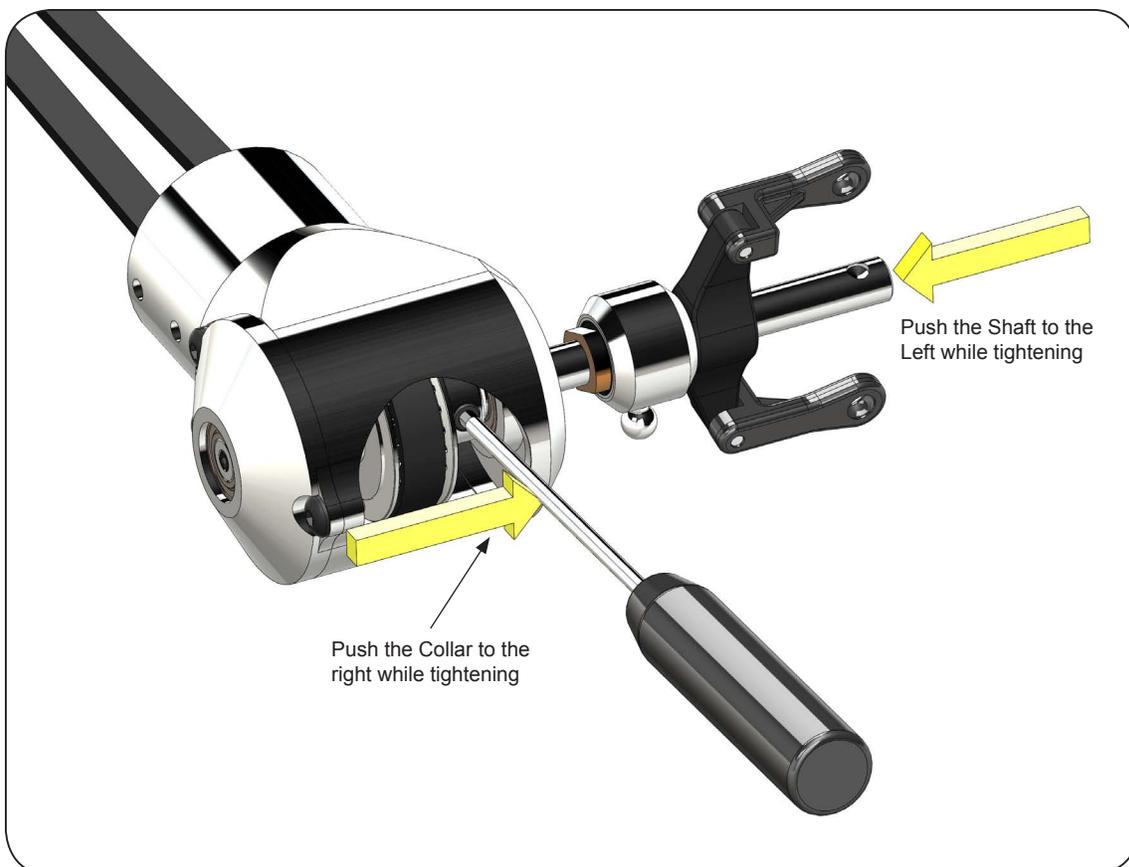
Install the tail case cap in place using three M3x6mm round head screws.



## Tail Pulley tightening.

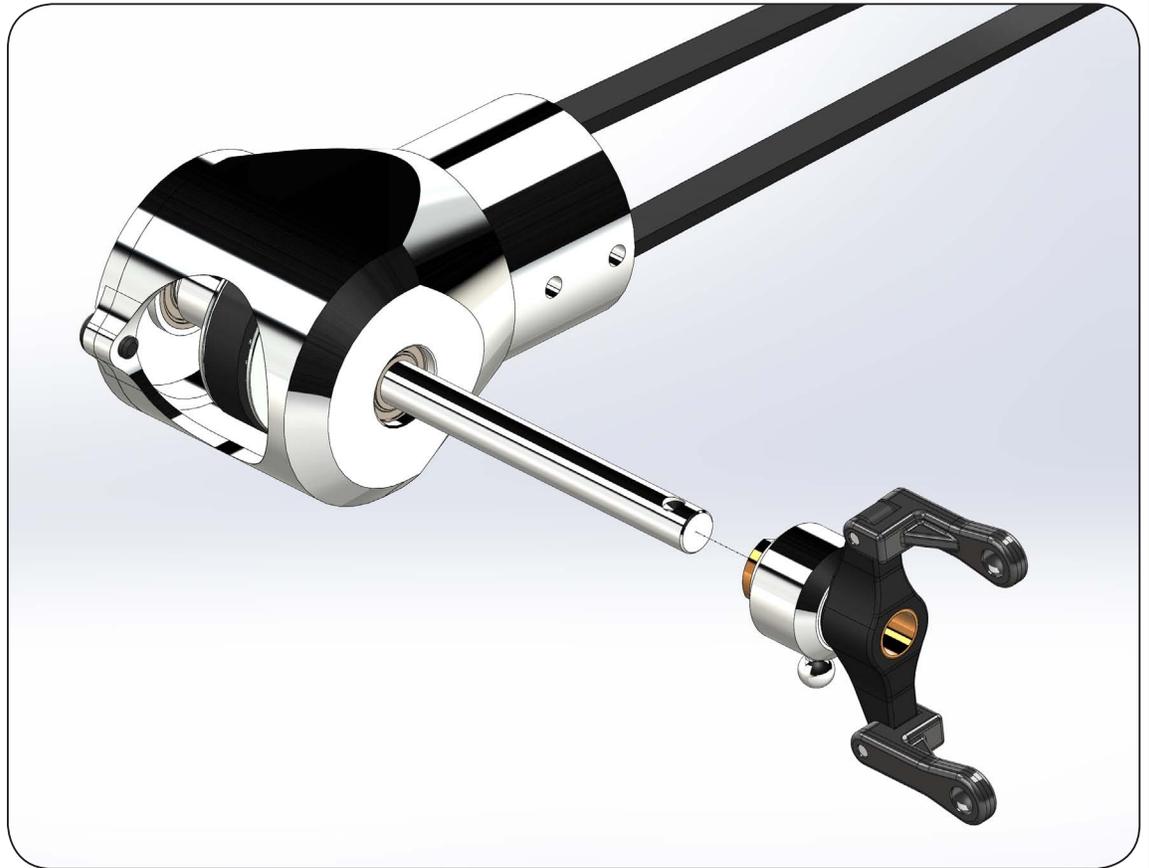
While pushing the output shaft into the cap push the collar in the opposite direction and then tighten the setscrew.

This will eliminate any play in either direction of the shaft.



## Tail Slider

Insert the output shaft into the tail as shown.



## Tail Blade grips Assembly

Install the M2 balls in place.

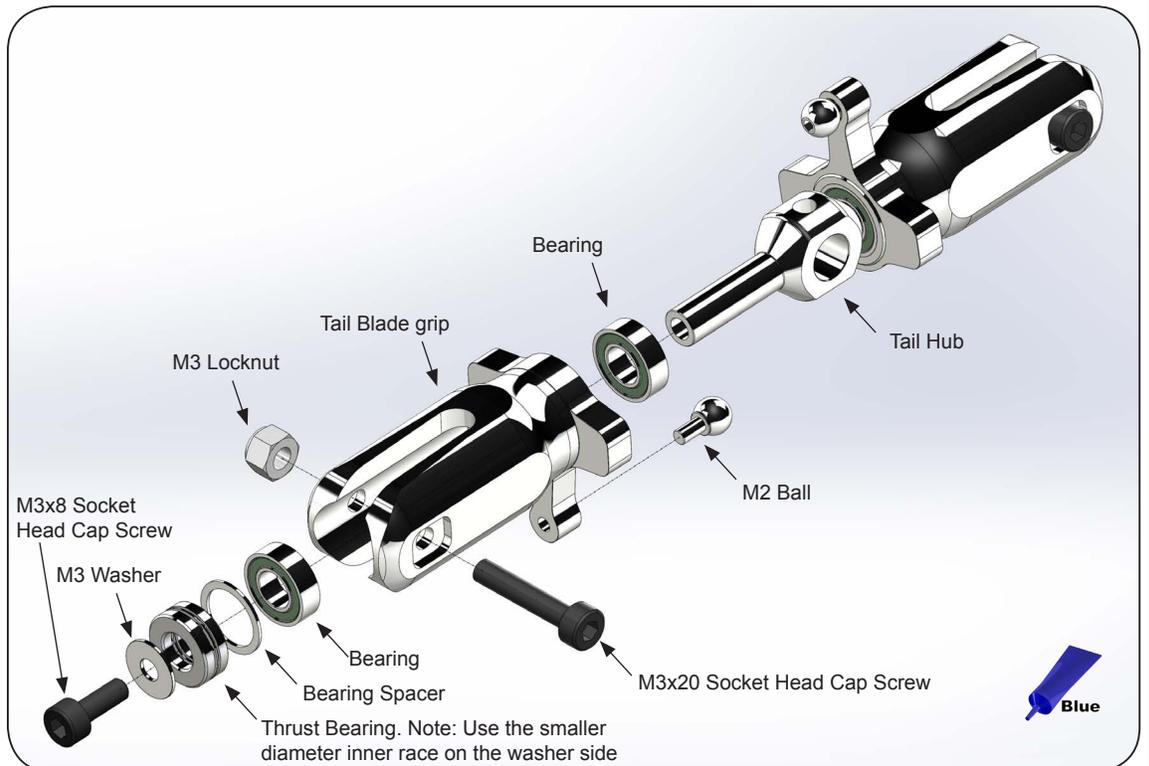
Use highly sticky grease such as AVANT's high permanence red grease to grease the tail thrust bearing balls.

Set the components into a wrench in this order: Bearing spacer, Thrust bearing with larger inner hole, ball's cage, Thrust bearing race with smaller inner hole, M3 washer and M3x8mm socket head cap screw.

Insert the tail hub into the tail blade grip and slide the components in the order previously mentioned and tighten the M3 screw.

Secure the tail hub to the shaft with an M3 setscrew.

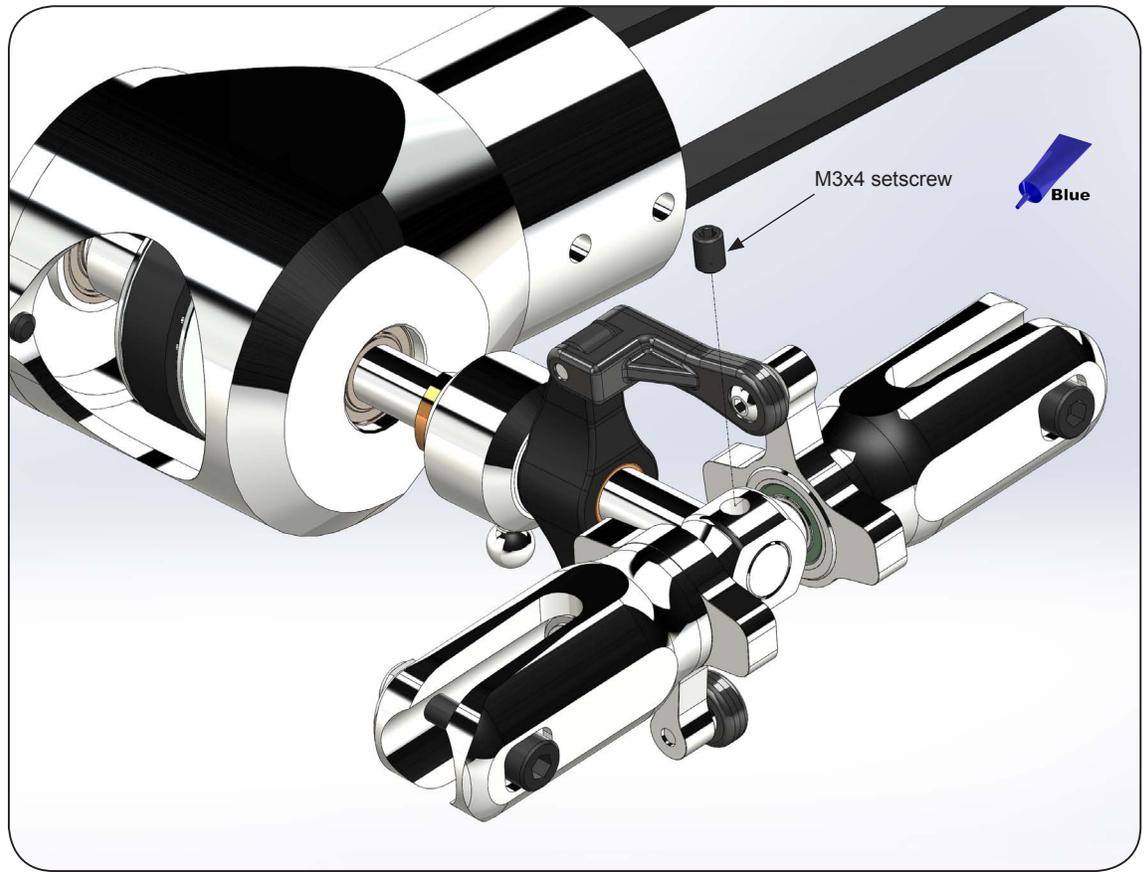
Install the links into the balls.



## Tail hub

Secure the tail hub to the shaft with an M3 setscrew.

Install the links into the balls.



## Tail hub

Install the L-Lever support in place using two M3x8mm round head screws.

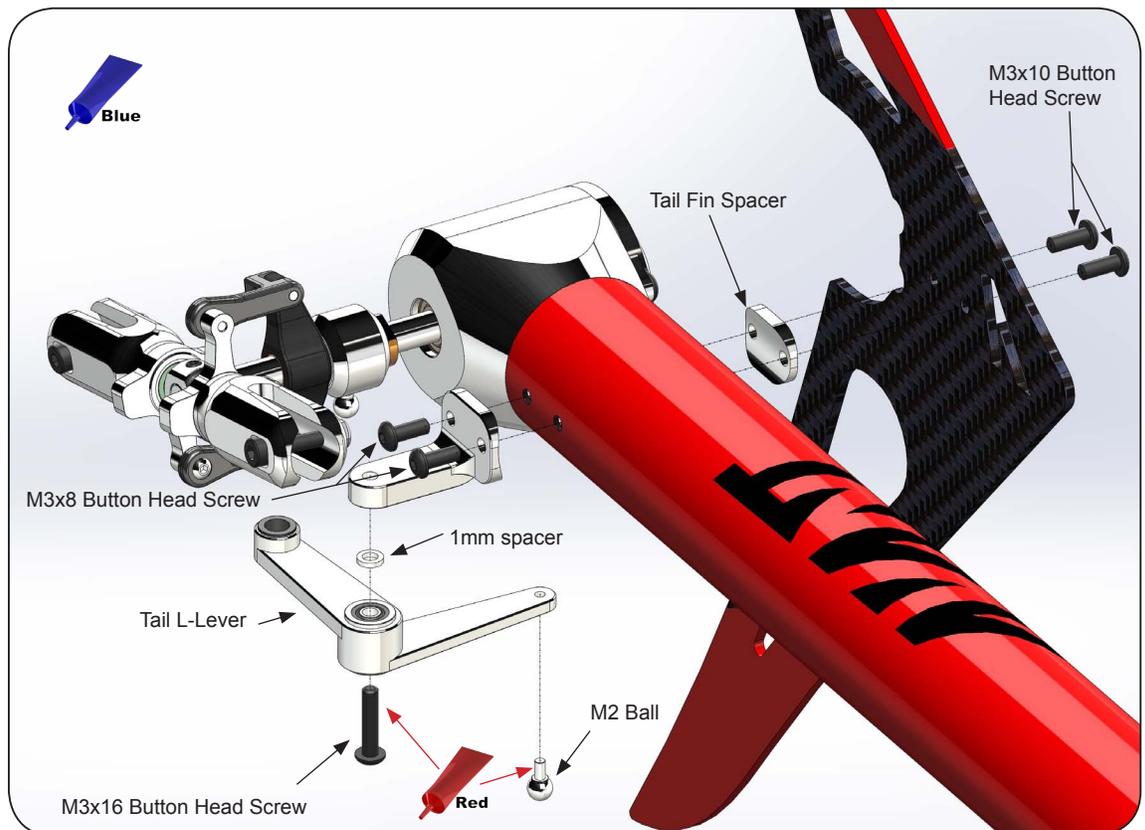
Place the boom-to-fin spacer on the tail fin and slide two M3x8mm round head screws in place. Apply blue loctite.

Install the tail fin with the spacer on the boom with two M3x10mm round head screws.

Install the M2 ball as shown.

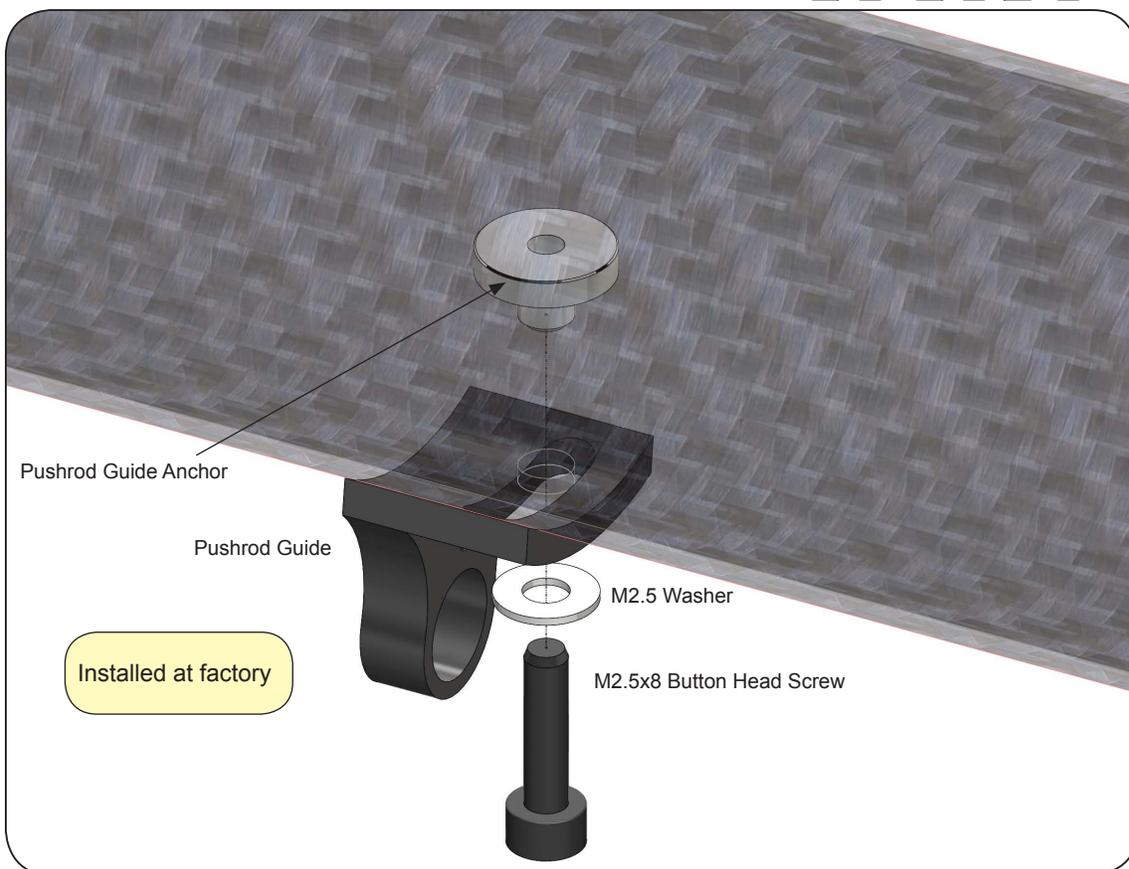
Slide the M3 screw in place and add a 1mm spacer to it.

Install the L-Lever making sure the black polymer-lined hole matches the M3 ball from the tail slider.



## Pushrod Guide

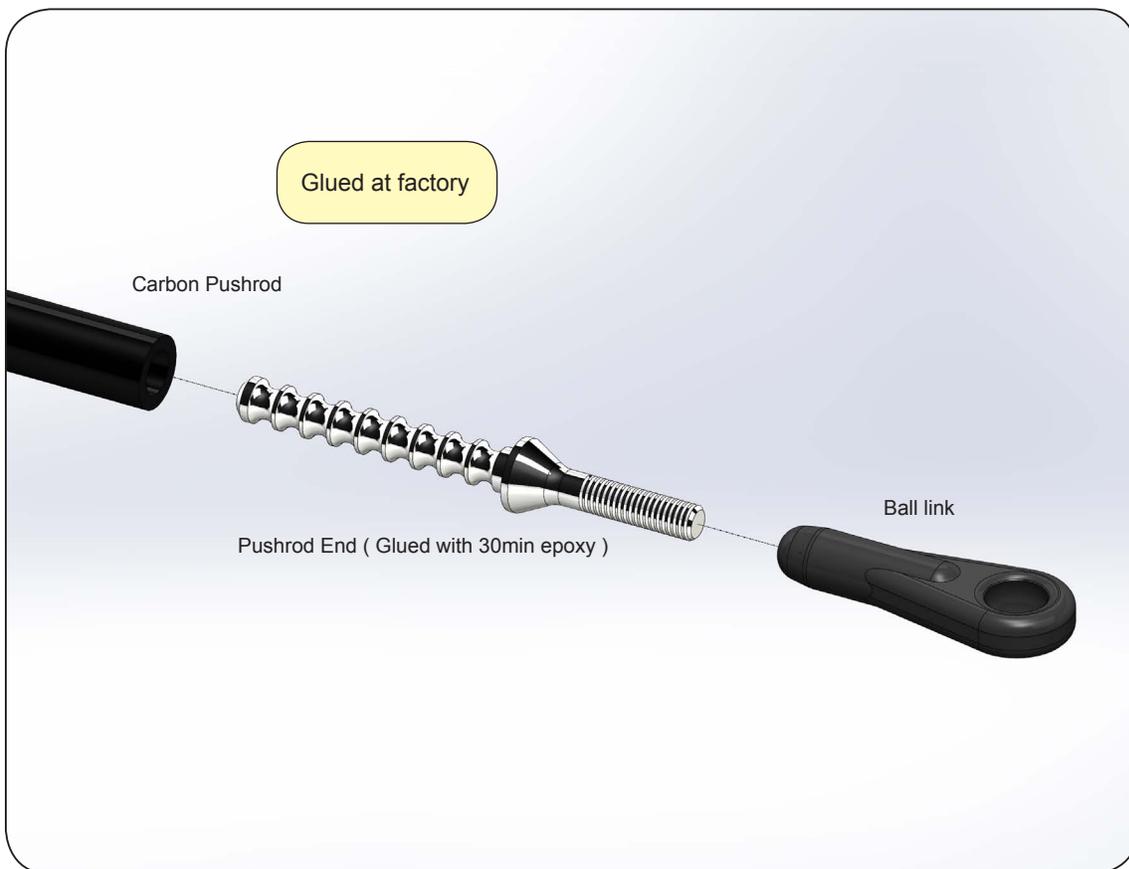
Insert the anchor in place (already installed at the factory) and then use an M2.5 screw and washer to secure the pushrod guide in place.



## Pushrod Ends

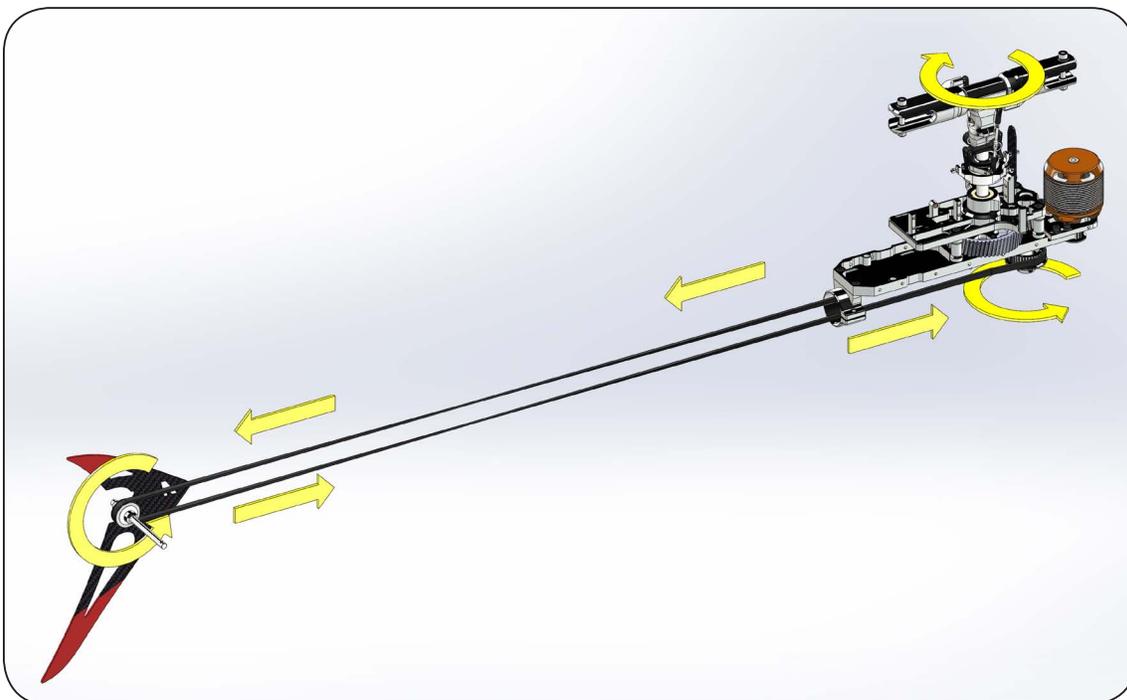
Glue the pushrod ends to the pushrod using 30 minute epoxy or JB-Weld.

Install the ball links on both ends.



## Belt rotation direction

Make sure the tail rotation is as shown on this diagram.



## Tail Boom installation

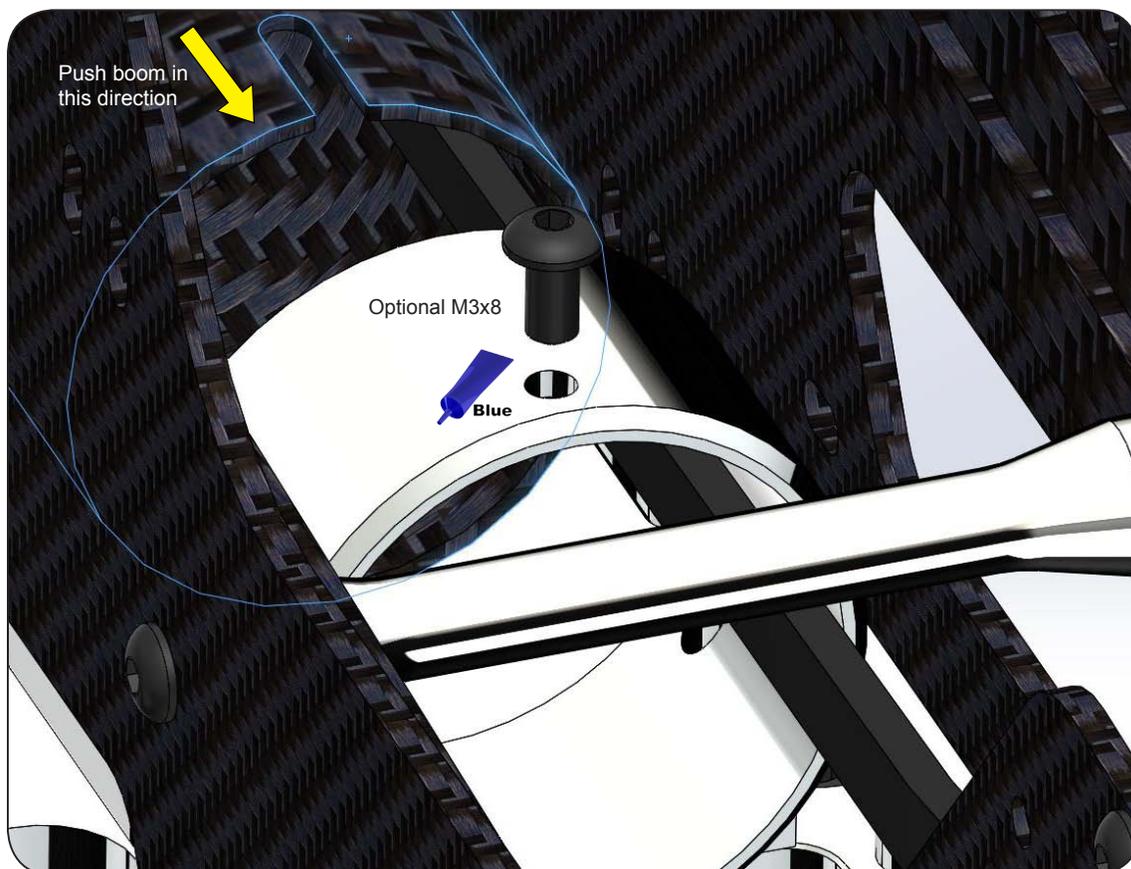
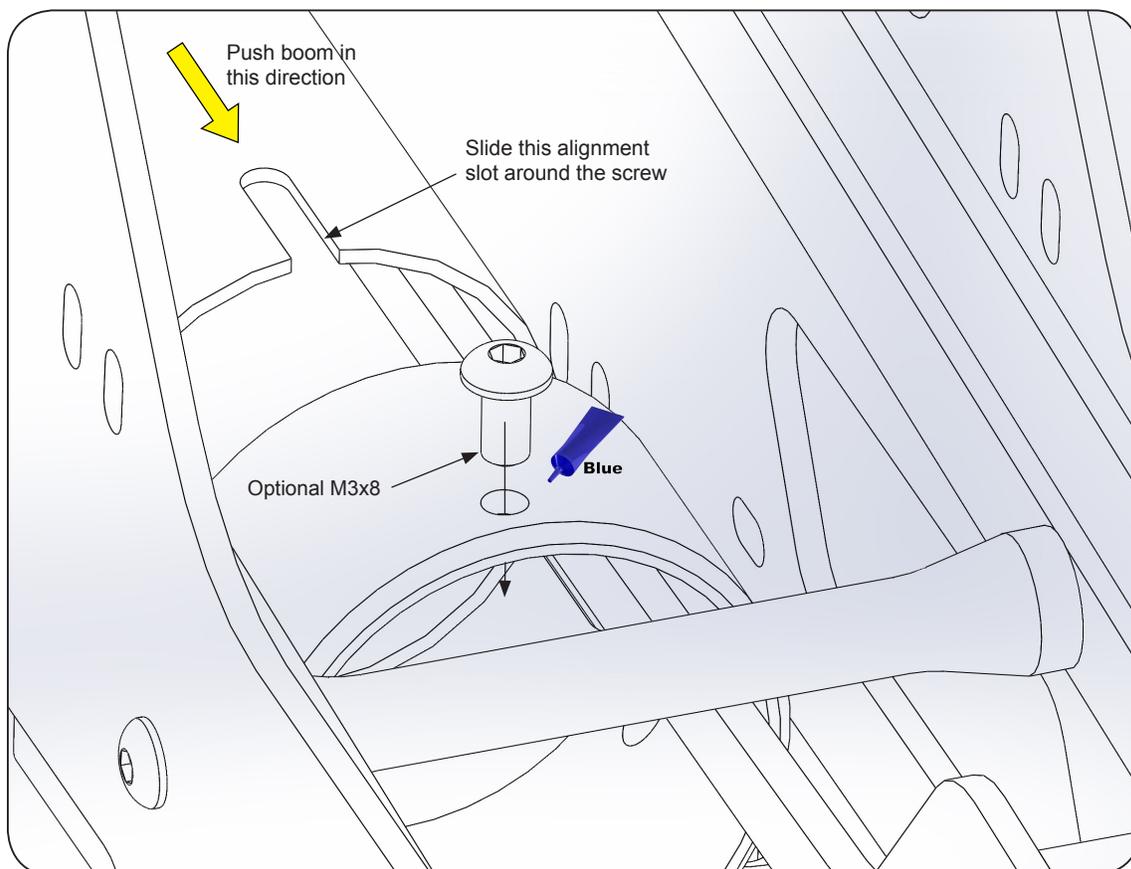
Once the belt direction is confirmed insert the boom in place and put the belt around the conical tail pulley.



## Tail Boom Guide Slot

Install the optional M3x8mm button head screw into the boom clamp that's cut the end of the boom. Use blue loctite to make sure it stays in place.

Insert the boom making sure the alignment slot matches the screw.



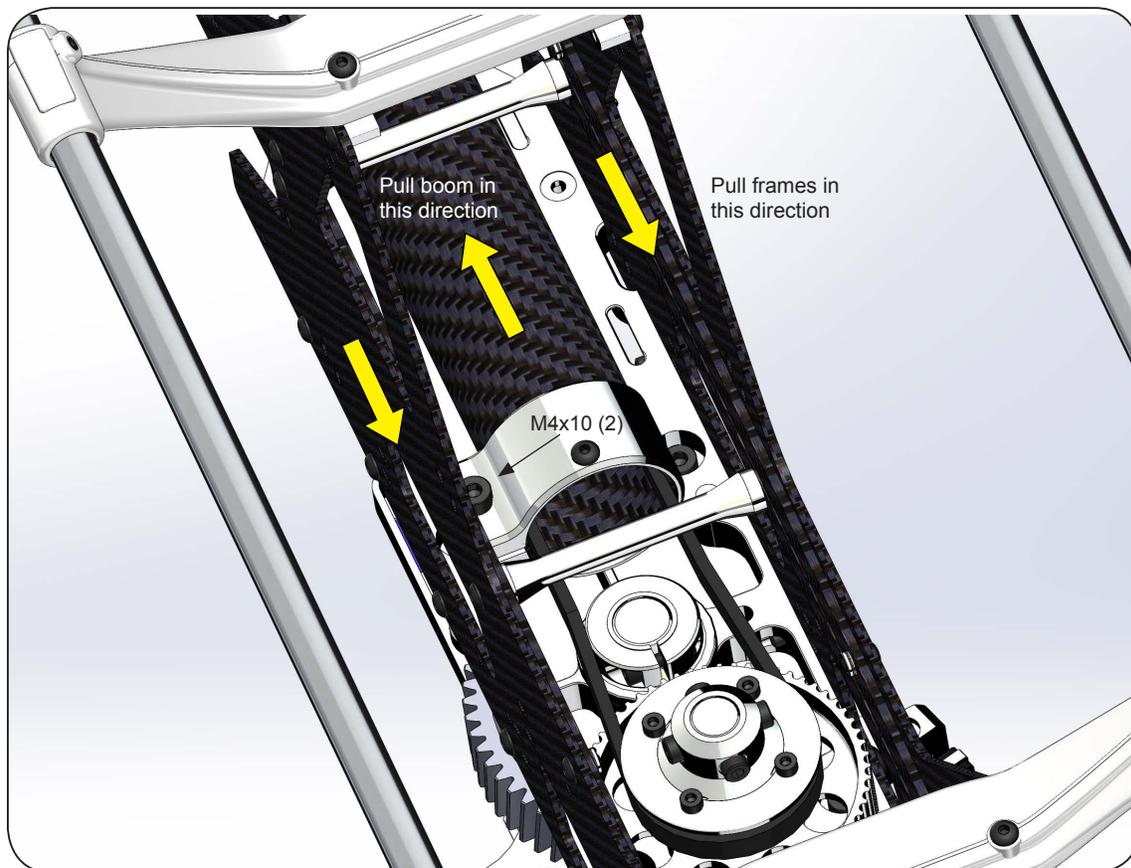
## Tail Boom Tightening

After inserting the boom into the clamps install the two M4x10 screws into the boom clamps.

Pull the boom away from the frames very tightly. Make sure the tensioner arm is all the way open and touching the stopper screw.

Make sure the Vertical fin is aligned parallel with the main shaft.

Tighten the boom clamp screws to secure the boom.

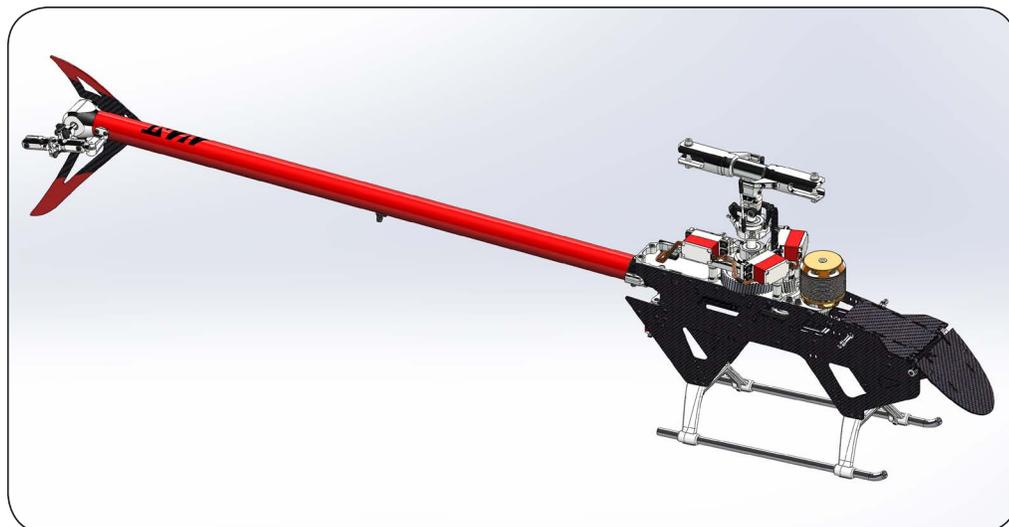


## Step 6: Servos, Tail pushrod and Canopy Installations

### HARDWARE BAG CONTENTS

#### Qty Description

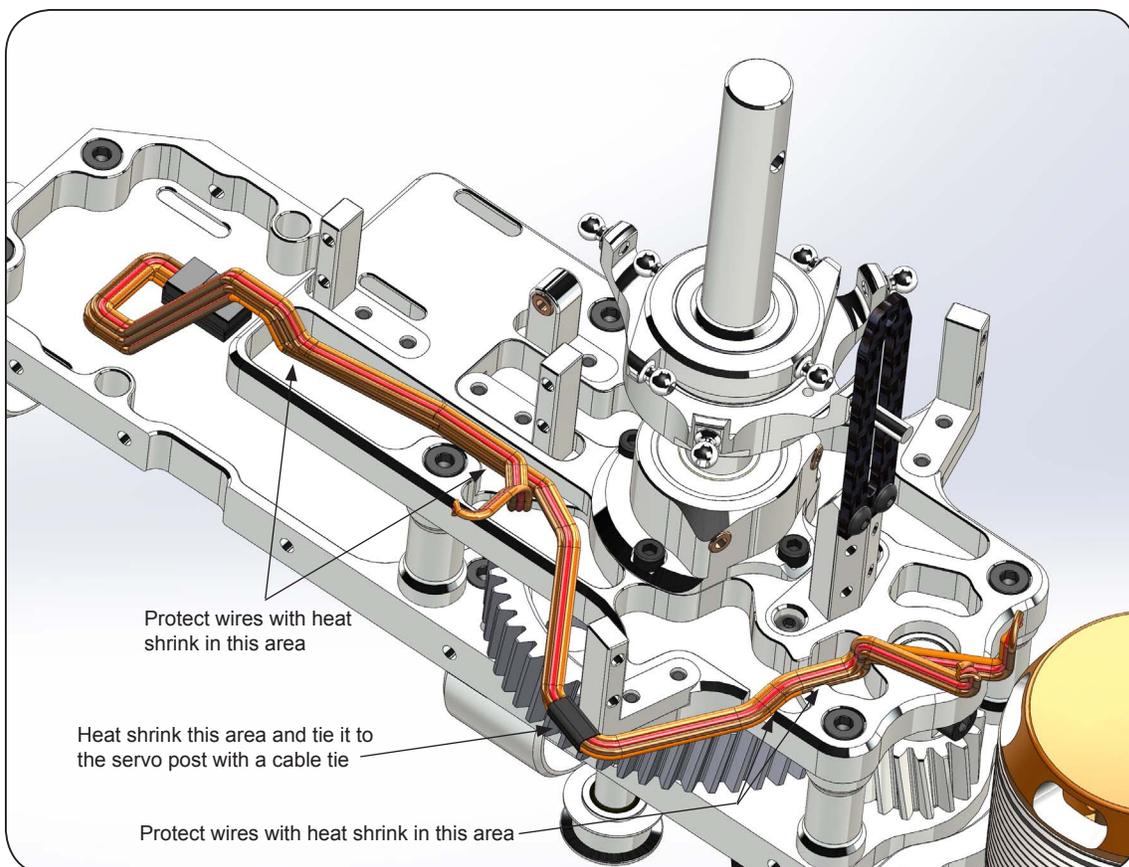
- 16 - M2.5x10mm Socket Head Cap Screw
- 16 - M2.5 Washers
- 4 - M2 Balls
- 4 - M2 Nuts
- 3 - M2.6x16mm threaded rods
- 8 - Standard Ball links
- 3 - Servo Arm M3 Screw With Pin (JR)
- 3 - Servo Arm M3 Screw With Pin (FUT)
- 1 - Heat Shrink Tube for Tail Pushrod
- 4 - Rubber Grommets for Canopy



### Servo Wires Routing

Based on this diagram plan your servo routing accordingly.

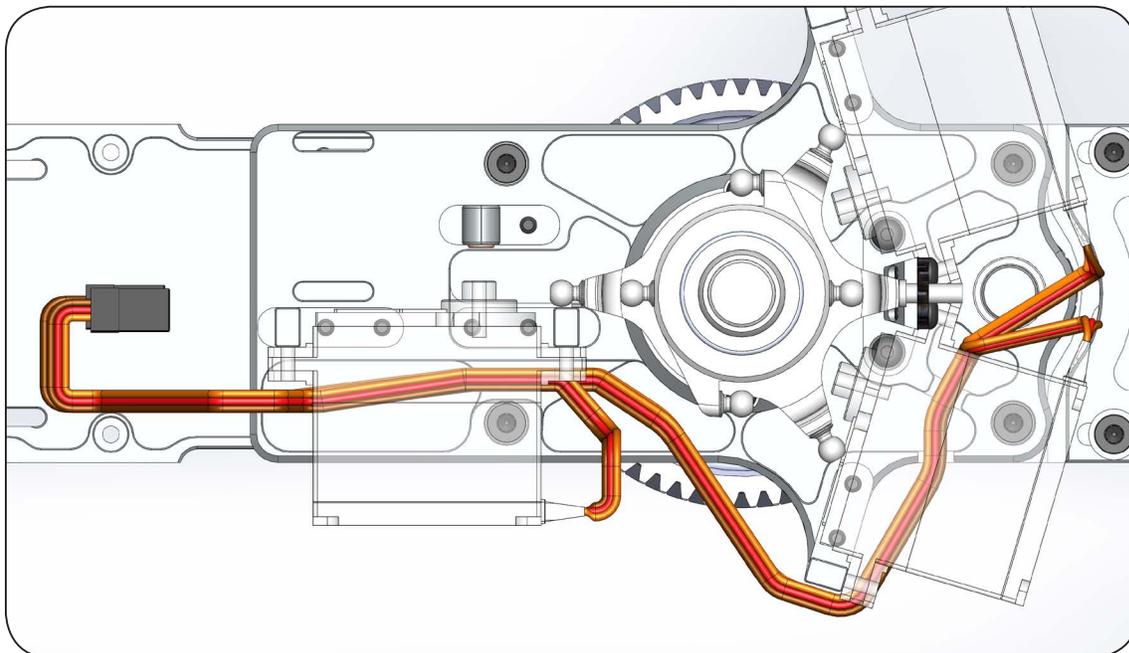
Please use heat shrink in the areas where the wires pass near metal edges and under the servos.



## Servo Wires Routing Top View

As explained in the previous picture based on this diagram plan your servo routing accordingly.

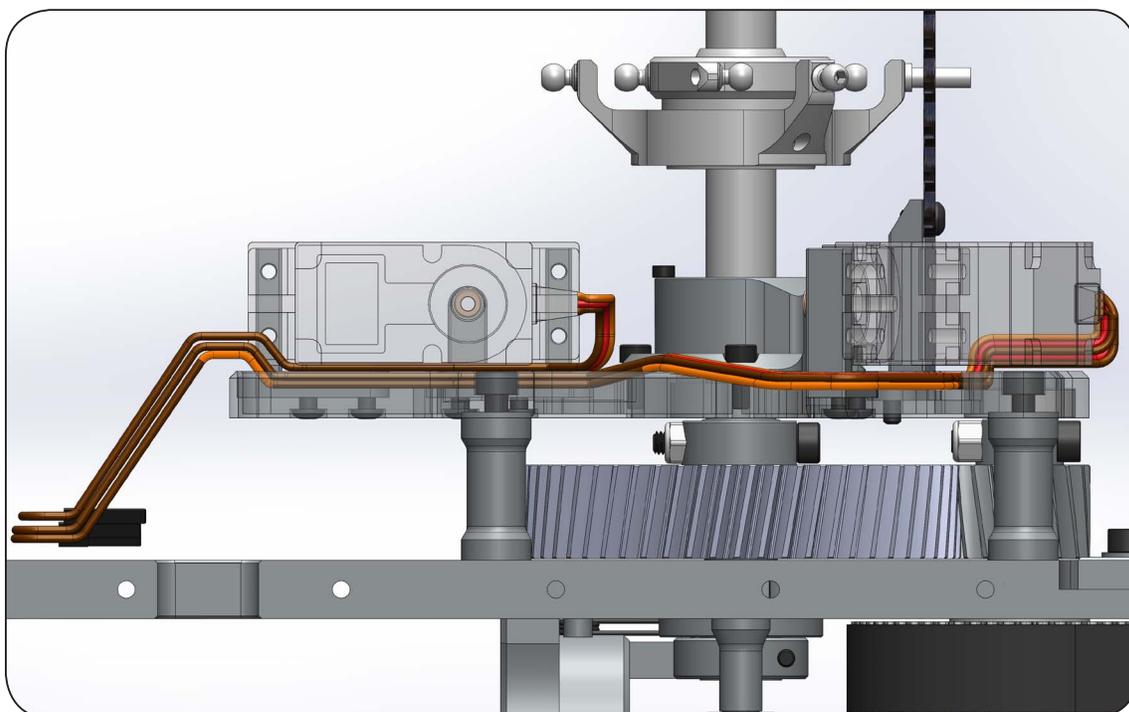
Please use heat shrink in the areas where the wires pass near metal edges and under the servos.



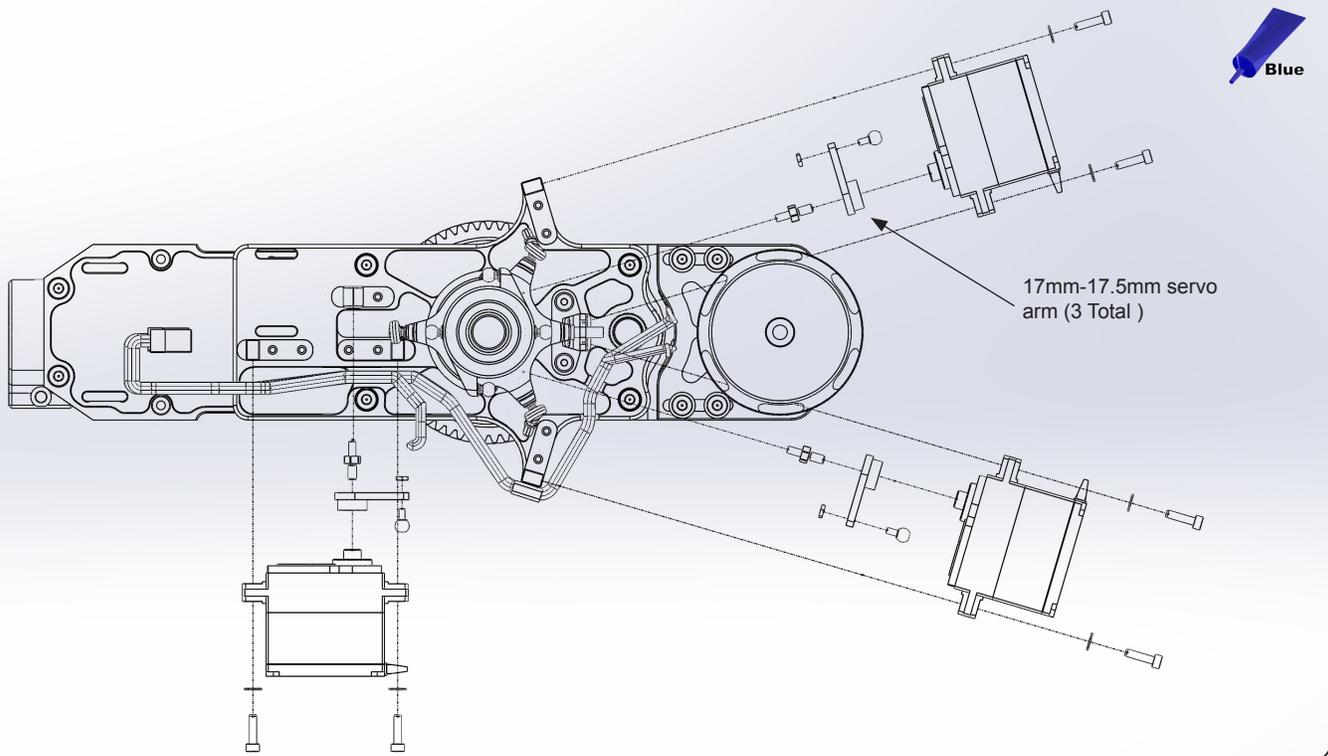
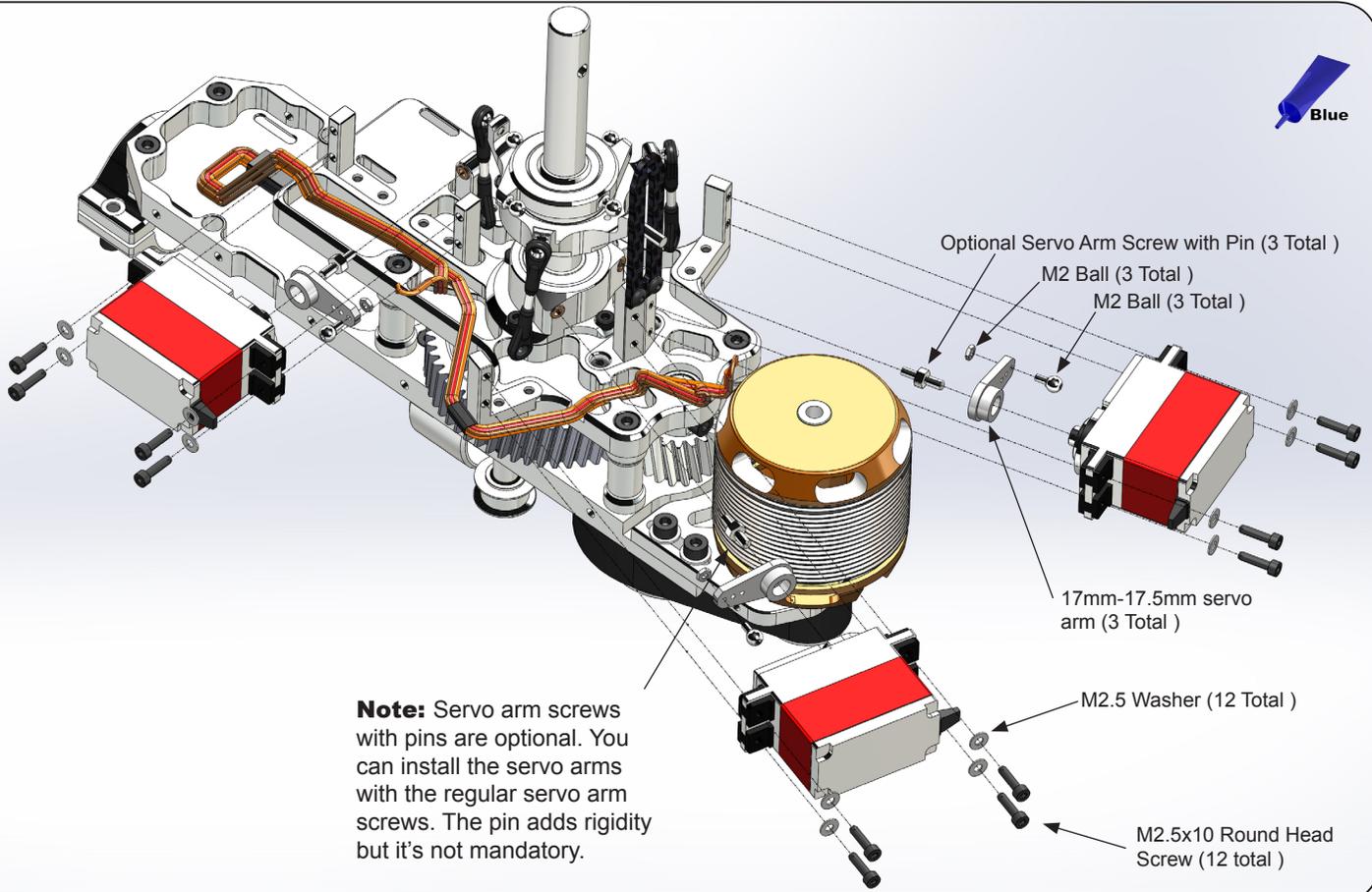
## Side view of Cyclic Servo Wires Routing



Use 17mm to 17.5mm servo arms in all the CCPM servos. You can use longer arms in the tail and throttle as needed by your fbl and governor system.

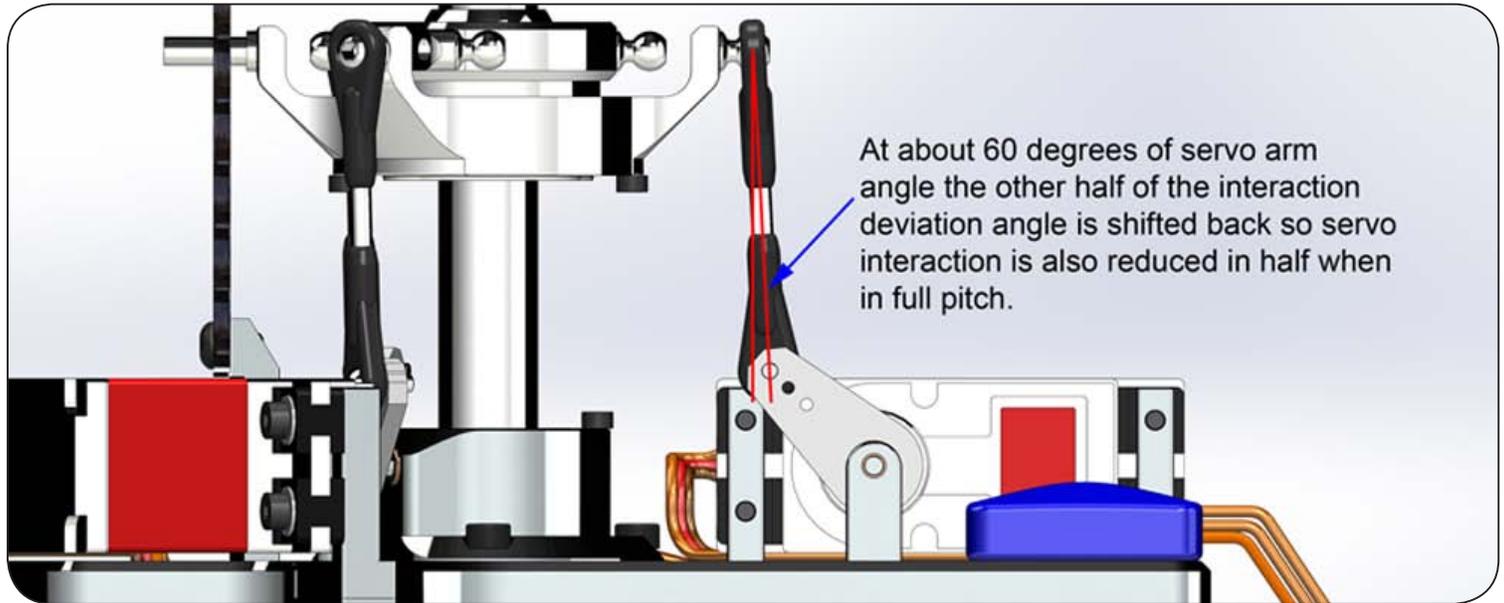


## Cyclic Servos Installation



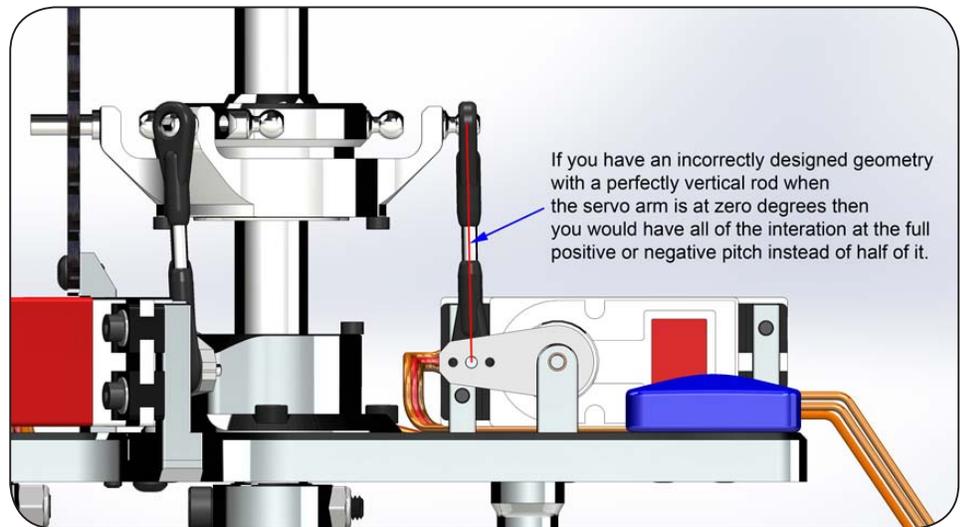


In this picture you can see that at full pitch the interaction angle now goes the opposite way and it's half of the total angle cutting in half the potential interaction at full pitch travel.

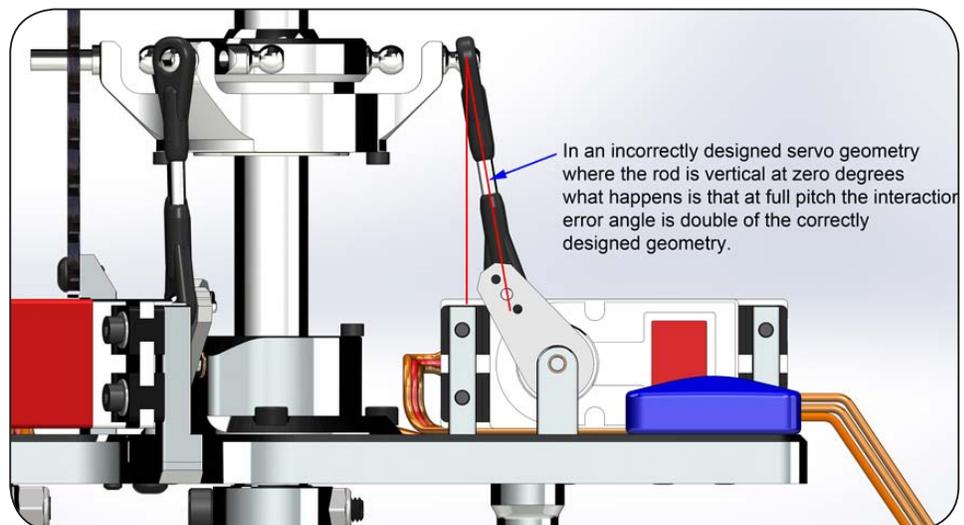


## INCORRECT DESIGN:

Compare this to a poorly designed geometry. In this case the rods are vertically aligned and we agree that it looks really pretty because it seems nice and aligned but that where the pretty stops because when full pitch is applied the error from interaction is doubled due to the unnecessarily excessive angle that the fbl system needs to fight against.

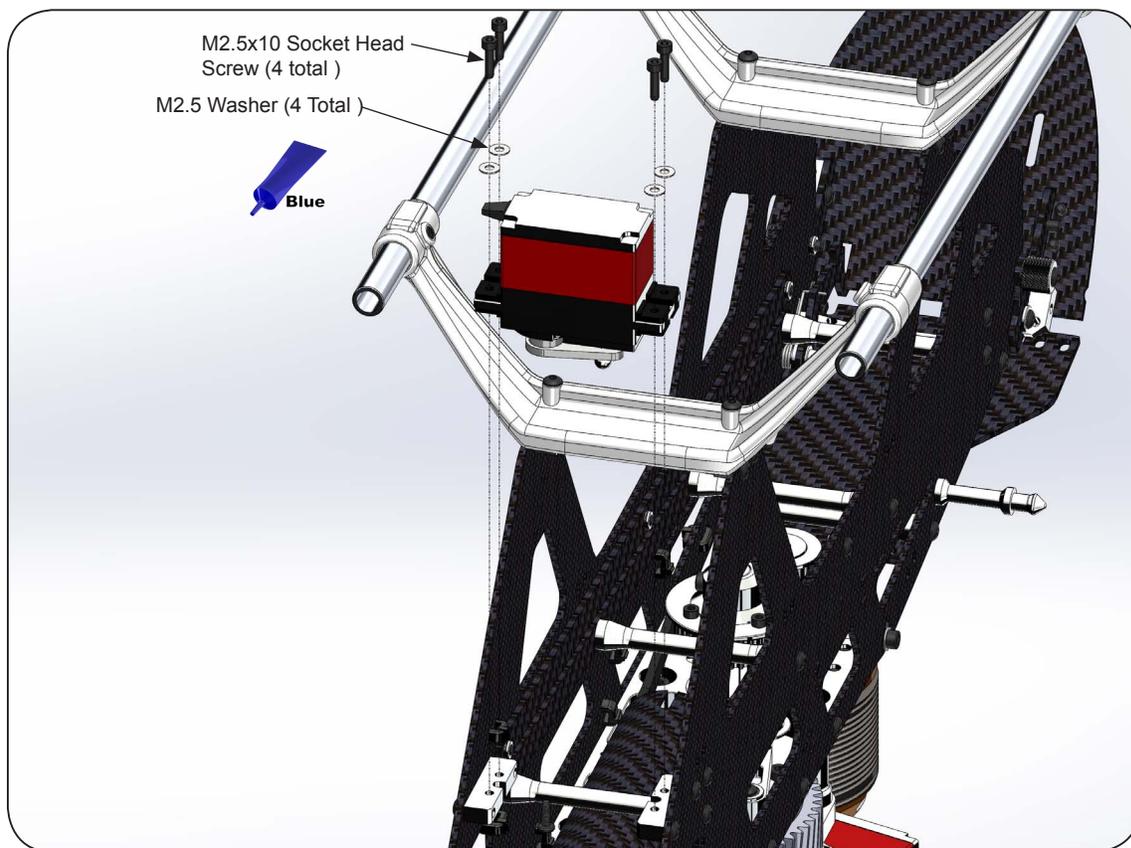


You can see in this picture how a poorly designed geometry can increase the interaction error to double what it could be.



## Tail Servo Installation

As shown in this picture install the tail servo as indicated using four M2.5x10 Socket Head Cap screws and Washers.

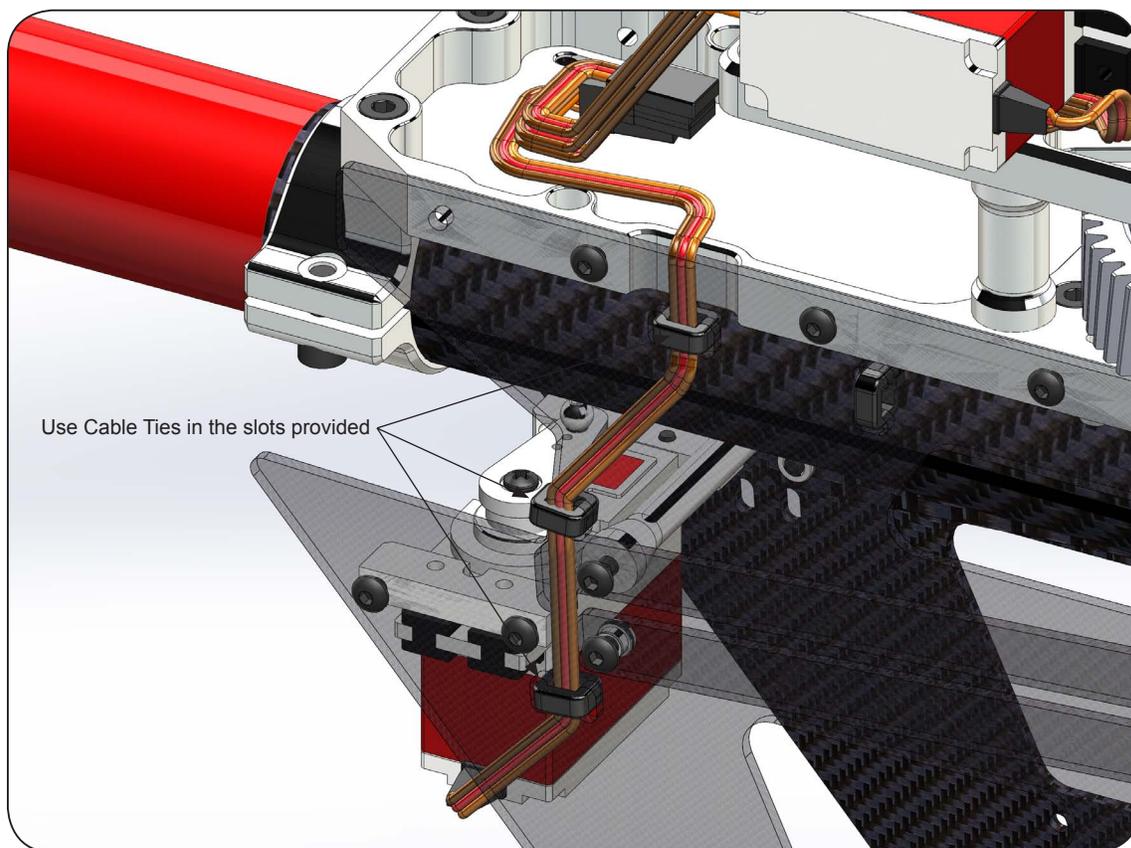


## Tail Servo Wires Routing

Based on this diagram plan your tail servo routing accordingly.

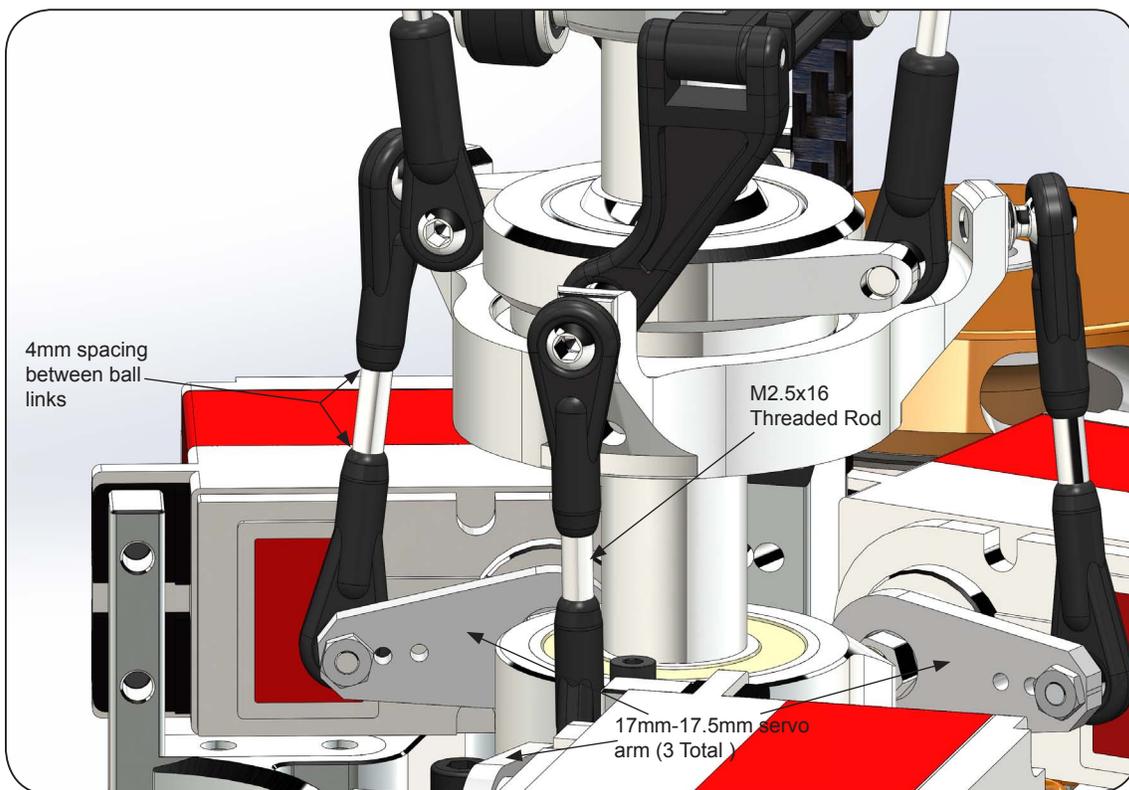
Please use heat shrink in the areas where the wires pass near metal edges.

Also notice the use to Cable Ties provided with the kit in the frame slots.



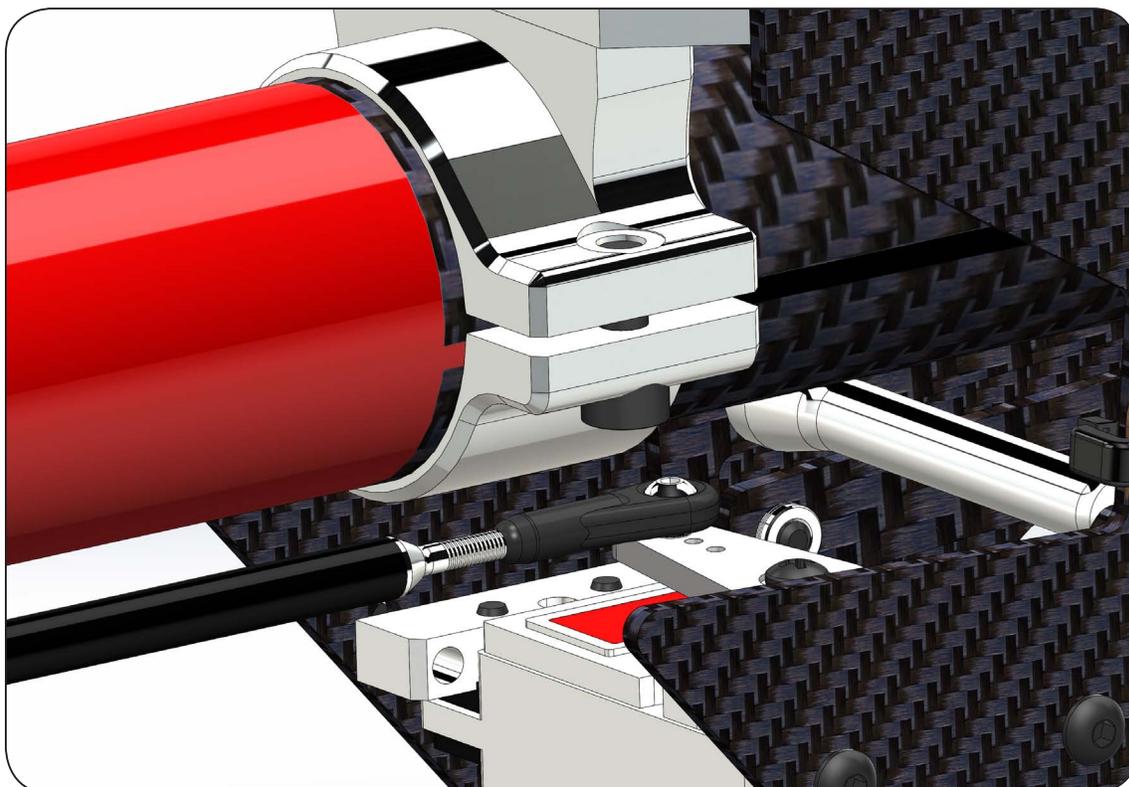
## Cyclic Servo Links

Insert the M2.6x16mm threaded rod into the links and adjust the distance to 4mm between the ball links. Install the three links into the CCPM servo arms as indicated in the picture.



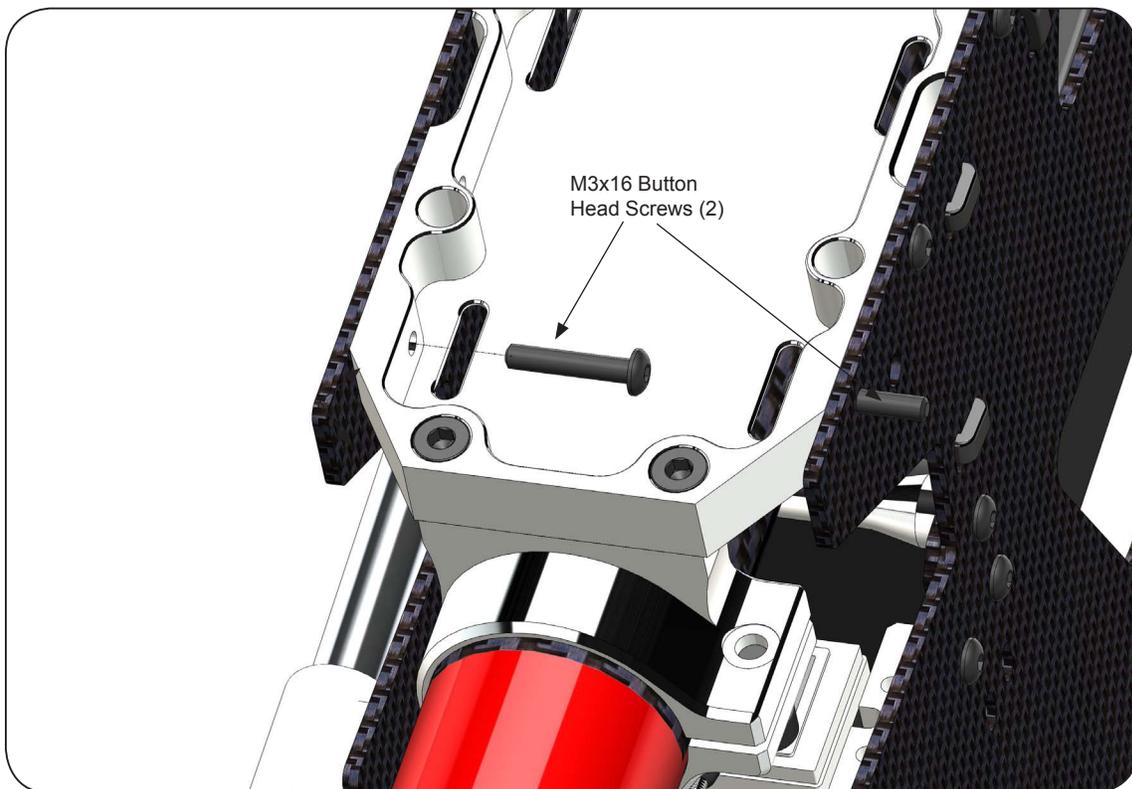
## Tail Pushrod Front Link

Install the front ball link into the tail servo ball.



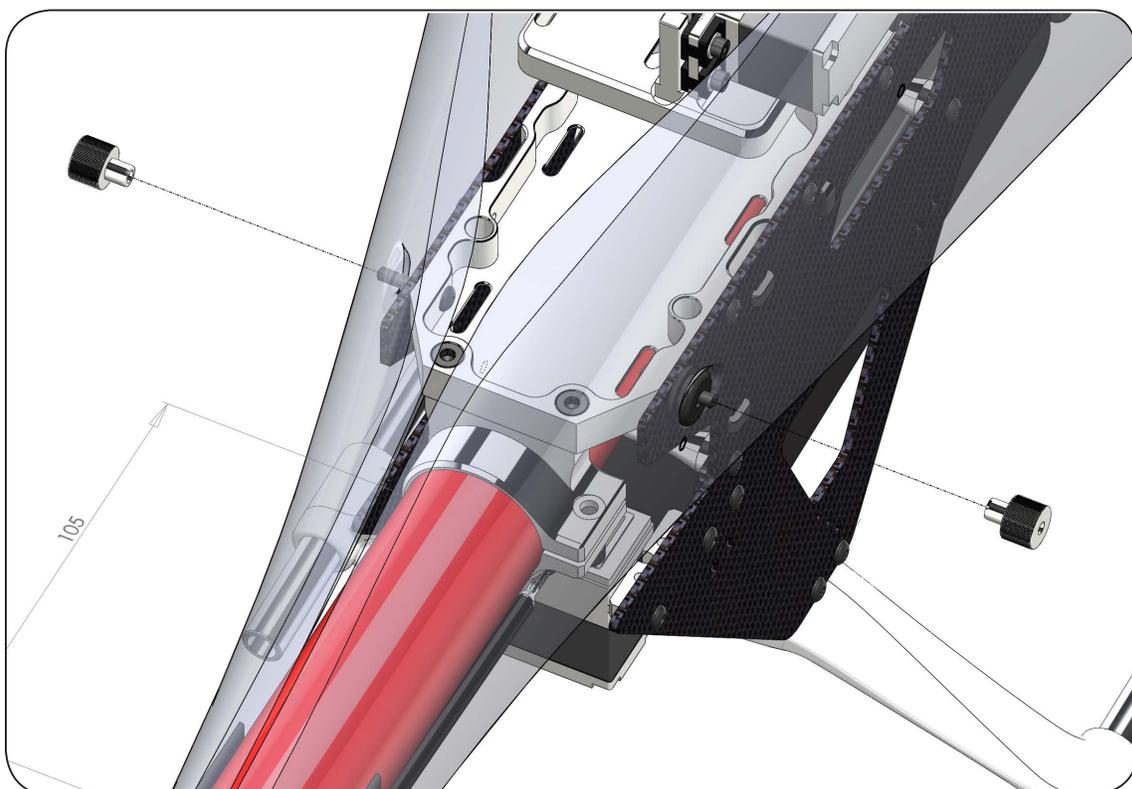
## Canopy Screws

Insert the M3x16mm screws from the inside toward the outside. Use blue loctite to make sure they stay in place when screwing the Thumbnuts.



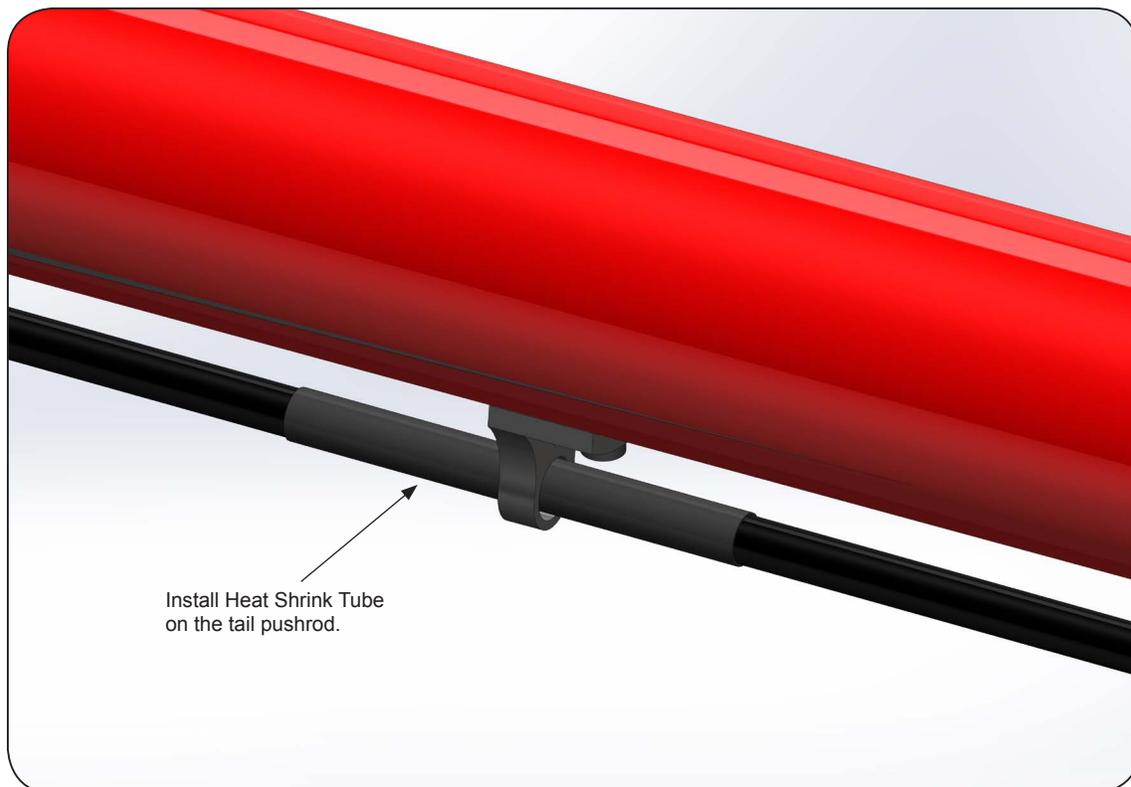
## Canopy Thumbnuts

When installing the canopy use the supplied Thumbnuts



## Tail Pushrod Back Link

Install the back ball link into the L-Lever ball.

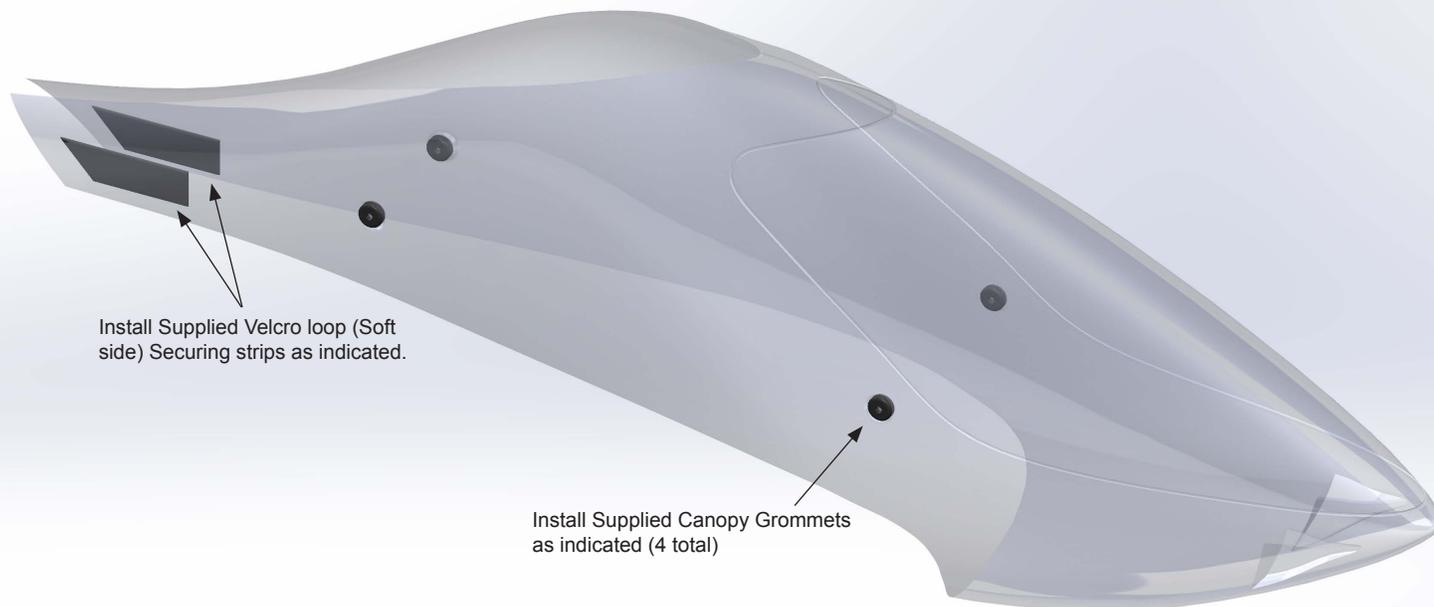


## Tail Pushrod Back Link

Install the back ball link into the L-Lever ball.

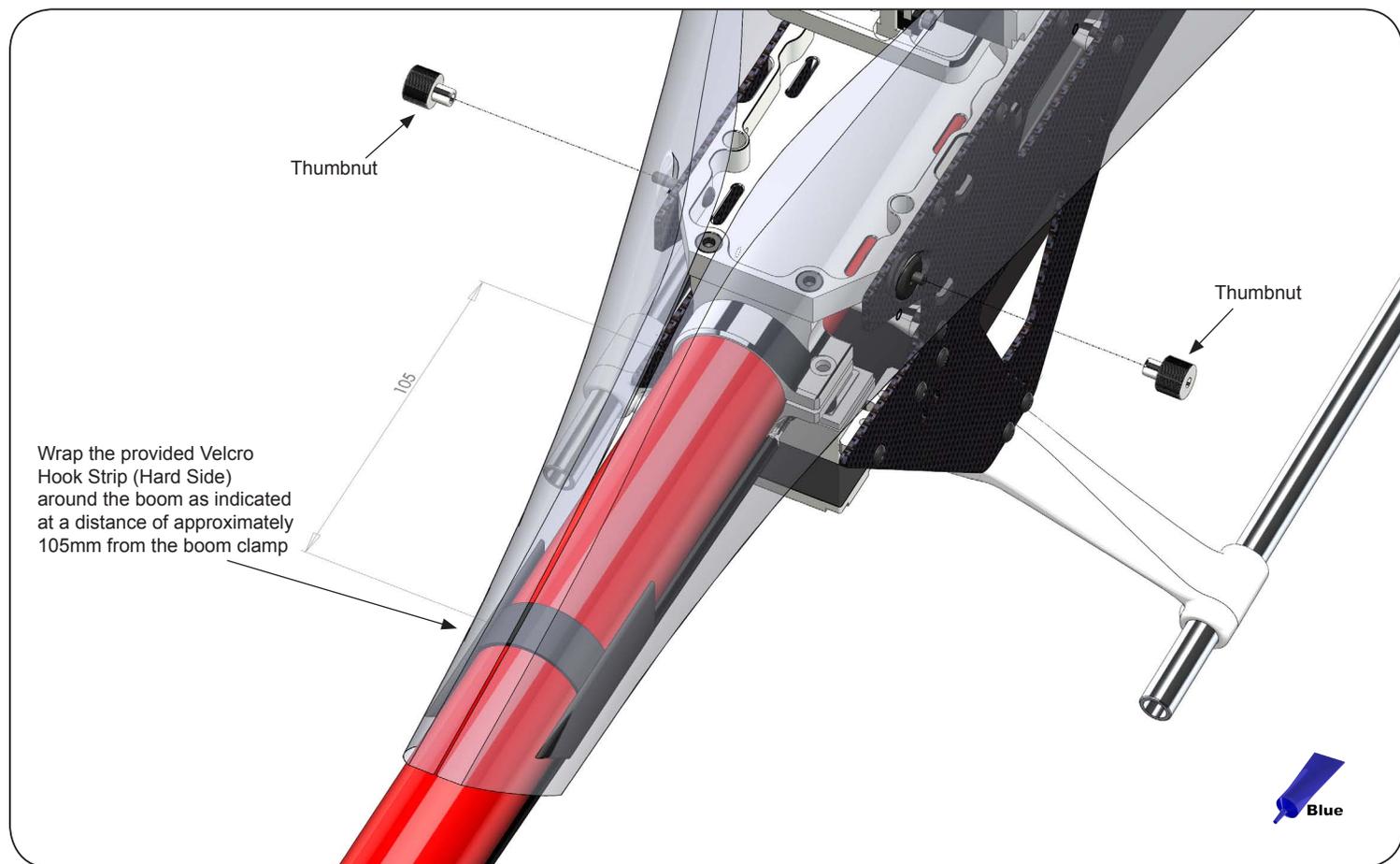


## Canopy Preparation



Rub some grease onto the inside of the canopy grommets to make it easier for the Thumbscrew and the front canopy posts to go into the grommets.

## Canopy Preparation





You can now proceed with Programming and setup of your electronics,

## Dimensions with 710mm blades

