



# **ORION** PERFORMANCE HELICOPTER **5.5** *ORION / GEMINI*

# Index

<b>Pages</b>	<b>Content</b>
3	Safety Notice
4-5	Features and About
6-7	Introduction
8-10	Tools, Motor, ESC, Blade and Batterie Compartment
11-15	Head Assembly
15-24	Tail Assembly
24-34	Upper Main Frame Assembly
30	Motormount and Pinion
35-38	Lower Main Frame Assembly
39	Landing Gear Assembly.
40-41	Aileron Servo Assembling.
41	Battery Tray
42	Main Drive Preparation
43	Assembling Rotorhead to Frame.
44	Anti Rotation Guide.
45	Tail Boom to Main Frame Assembly.
37	Head and Main Drive to Frame
38	Anti Rotation Guide
39	Rotation Direction and Canopy
40	Final Setup, Canopy and Pre-Flight Check
41	Dimensions and Weight
42	Gear Ratios



## Safety notice

*Operate the helicopter in open areas with no people nearby.*

*Follow your countries air regulation rules.*

*You may need to join a local club and become a member before you can fly the model.*

*Do NOT operate the helicopter in the following places and situations (or else you risk severe accidents).*

*In places where children gather or people pass through, in residential areas and parks, indoors and in limited space, in windy weather or when there is rain, snow, fog or other precipitation. If you do not observe these instructions you may be held liable for personal injury or property damage!*

*Always check the R/C system prior to operating your helicopter.*

*Keep in mind that other people around you might also be operating a R/C model. Never use a frequency which someone else is using at the same time. Radio signals will be mixed and you will lose control of your model. If the model shows irregular behavior, bring the model to a halt immediately and disconnect the batteries. Investigate the reason and fix the problem. Do not operate the model again as long as the problem is not solved, as this may lead to further trouble and unforeseen accidents. In order to prevent accidents and personal injury, be sure to observe the following: Before flying the helicopter, ensure that all screws are tightened. A single loose screw may cause a major accident.*

*Replace all broken or defective parts with new ones, as damaged parts lead to crashes. Never approach a spinning rotor. Keep at least 5 meters/yards away from a spinning rotor blades. Do not touch the motor immediately after use. It may be hot enough to cause burns. Perform all necessary maintenance.*

**PRIOR TO ADJUSTING AND OPERATING YOUR MODEL, OBSERVE THE FOLLOWING**

*Operate the helicopter only outdoors and out of people's reach as the main rotor operates at high rpm!*

*Note that a badly assembled or improperly adjusted helicopter is a safety hazard!*

*In the beginning, novice R/C helicopter pilots should always be assisted by an experienced pilot.*

**SAFETY FIRST! ALWAYS.**

Tronhelicopters  
3. Ke Yuan South Road, Guang Cheng  
Qu. Dongguan City.  
Dongguan 523009.  
China.

## Features.



- Recommended main blade size 550mm. (550mm - 560mm possible). Tail blade size 86 - 98 mm.
- Supersonic canopy mounts included in kit. ( Backside )
- Fusion edition design included in kit. ( colored boom and tailfin )
- Wide battery compartment with quick lock and release system.
- Light, yet very stiff and robust.
- Dry weight= (1400) grams without blades and electronics.
- Full-size tail servo.
- Motor mounting features a bearing block supported pinion, reducing overall wear on the power system and drive train.
- Compatible with a wide range of motor sizes. 4020, or 4025 series (1100KV-1200KV) recommended for 6s ( 6mm shaft diameter with min 15mm length required )
- 14T/6mm motor pinion included. (13,14,15,17T optional available)
- POM-CNC machined main gear 136T / which provides very efficient operation.
- Heavy duty one way bearing and hub design.
- Innovative FBL tray. ( Adjustable dampening hardness)
- Octa boom design with oval side shapes, no boom supports needed.
- Battery typical: 6S. ( 6S-4500mAh to 5500mAh.)
- Perfectly thought-out servo layout in conjunction with the FBL system and ESC.
- Easy cable routing with various options to ensure a clean setup. Modern, sporty and functional design.
- High visibility canopy for perfect orientation in flight. 2 styles available. Orion or Gemini

**Pre-assembled parts streamline the packing process with less waste and facilitate a quicker build.**

**This approach ensures assembling the helicopter is fast and straightforward. Additionally, it guarantees a high standard of quality control, ensuring all components fit precisely without any unexpected issues or missing parts.**

**The provided drawings serve as references for part identification and clarification. Screws requiring checking or loctiting are clearly labeled in the manual. Only remove these designated screws, apply Loctite 243 as instructed, and securely tighten them back into place.**



# About Tronhelicopters

## Ricky Yin

Ricky is deeply involved in the manufacture, development and production of RC model helicopters for a very long time. That goes back to the beginnings of Synergy Helicopters, which he took over in 2010 after Stephen Fan passed away.

## Dario Neuenschwander.

Dario has long been known in the RC helicopter scene. Dario can look back on a long career with well-known manufacturers, where he was involved in the development and testing of products. To name one, the MSH Protos Helicopters series and the development of the famous MSH Brain FBL unit. Dario also did R&D work for SpinBlades where he is a longtime Factory Pilot. In 2017 Dario took a break from RC Helicopters to get involved in FPV racing. He did well and took the official FPV-FAI world champion title in 2017.

## Joachim Etter

Known for his business ideas and his ability to make products a success in combination with his designs. Before that, he was closely associated with various manufacturers, for whom he did designs and business consultancy. Joachim was also the key founder, designer and builder of the xnovamotors brand.

### CAUTION:

This radio controlled helicopter is not a toy.  
The product is not suitable for children under 14 years of age.

### SAFETY PRECAUTIONS:

This kit includes some preassembled components. Please check for any loose screws and tighten them before you proceed with assembly. Use loctite where required as shown in this manual!

You are responsible for assembly, safe operation, maintenance, inspection and adjustment of the model.

Before beginning assembly, please read these instructions thoroughly.  
Check all parts. If you find any defective or missing parts, contact your local dealer.

For the USA market, The Academy of Model Aeronautics (AMA) is a national organization representing modelers in the United States. Please refer to the National Model Aircraft safety code from Academy of Model Aeronautics.

# TRON

PERFORMANCE HELICOPTER 5.5 ORION / GEMINI

## ORION AND GEMINI. What is the philosophy behind it and what are the differences?

The two models are completely identical in terms of mechanics. The purpose is to provide you with a variety of style choices.

For the first time, a manufacturer is presenting the option to select from two distinct design aesthetics.

The Orion and Gemini feature different styles of canopy and uniquely shaped lower frames. You can easily alter your helicopter's appearance by simply swapping the lower frames and repositioning the front canopy stand-off mounts to fit either the Gemini or Orion canopy mount locations.

This feature allows for a fresh new look for your Tron 5.5 whenever desired.



**Tron 5.5 GEMINI style**

The new Tron 5.5 Gemini and Orion styles offer the latest advancements in RC helicopter design, quality, and performance. They set new standards for flight characteristics and precision in the true 550 class. With unmatched customization options and all possible upgrades included, these models deliver an exceptional flying experience.

**Experience the next level of RC helicopter design and performance!**



**Tron 5.5 ORION style**

## Tron 5.5 GEMINI style






Upgrades? No need!

- 2 high quality CNC battery trays included.
- 70 shore AND 90 shore head dampeners included.
- The innovative belt tensioner from Tron Helicopters is included.
- 2nd belt idler bearing system for tail box included which improves tail performance! ( can be also purchased seperately for Tron 5.5/ Nitron90/Dnamic/Nitron 50)
- Color boom included
- Supersonic canopy qick release system included. (backside)
- Color tail fin included.








## Tron 5.5 ORION style

# Tools required

	<p>2 component epoxy</p>
	<p>Loctite 243 / medium strength</p>
	<p>Grease</p>
	<p>2* 5.5mm Wrenches for tail shaft nut</p>
	<p>Hex screwdriver 1.5mm/2mm/2.5mm- /3mm/4mm/5mm</p>
	<p>TR501-518 Pair of customized nut wrench for tail shaft assembly. Optionally available at your Dealer.</p>
	<p>SPRAG GREASE (SUCH AS ISOFLEX LDS18 Special A)</p>
	<p>Adjustable Wrench</p>
	<p>Canopy Reamer</p>



# Electronics required

	<p>3*mini size servos for swashplate</p>
	<p>1* mini or full size servo for tail</p>
	<p>4020-4025 size motor (1100-1200kv)</p>
	<p>80A-160A ESC (6S-8S)</p>
	<p>FBL unit</p>

## Information on equipment

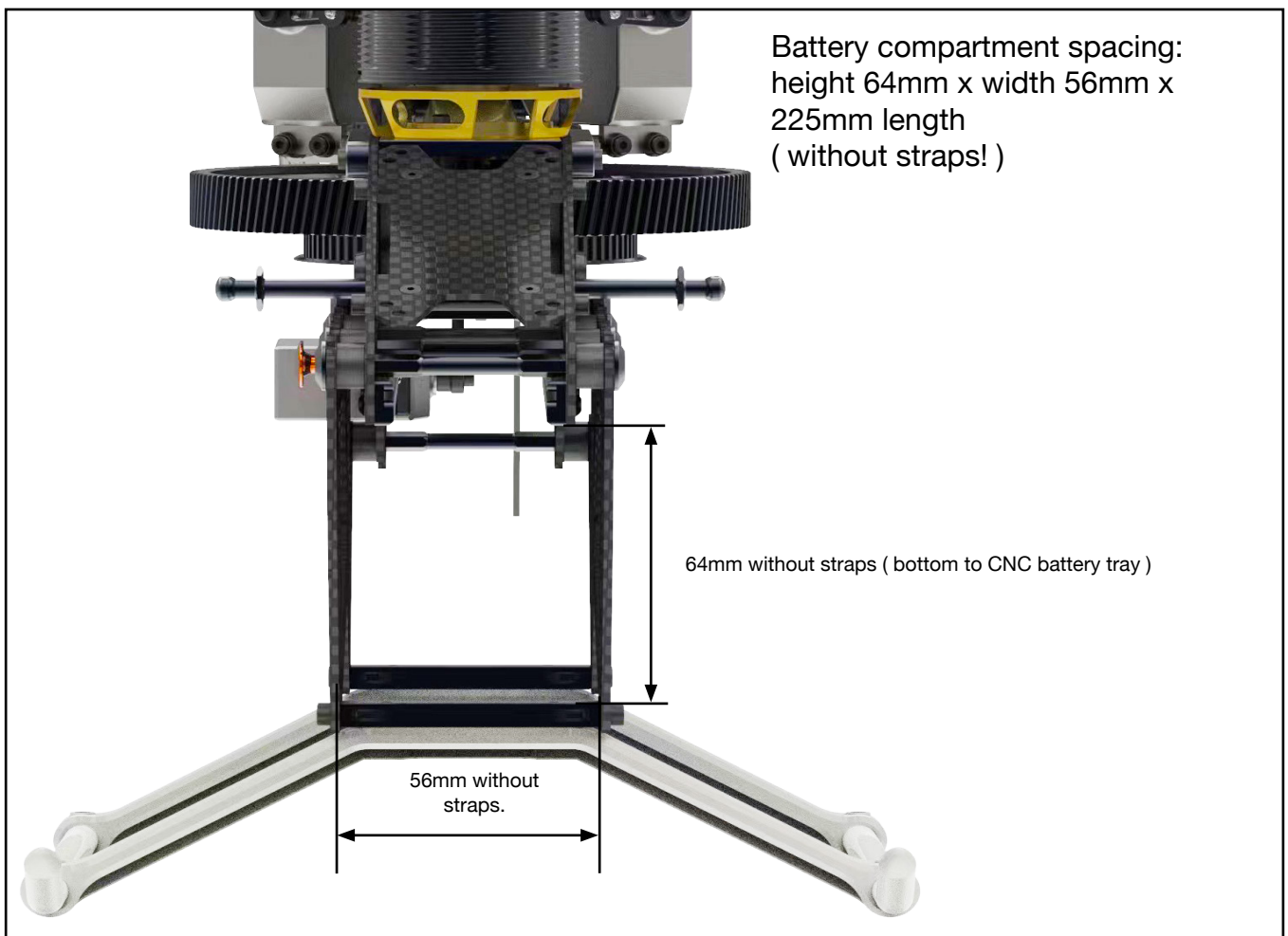
### Motor and ESC recommendation for Tron 5.5 ( 550- 560mm blade length )

- Motor: 4020-4025 size / 1100-1200kv for 6S /6mm shaft with 15mm min length. ( not included)
- Main gear tooth count 136T / Available motor pinion 13/14/15/16/17T ( 16T included in kit)
- ESC: 80-160A / 6-8S.
- Battery: 6S-4500-5600mah
- 3\* mini type for cyclic servo and 1\* mini or full size for tail servo

### Main blade recommendation for Tron 5.5 (550mm-560mm length).



### Tail blade recommendation for Tron 5.5 (85mm-97mm length).



**You will need:**  
Loctite 243 = blue

## Head assembly

The center hub assembly has been pre-assembled at the factory.

**Disassembly is not required if you use FIGURE 1 = medium as the default dampening configuration!**

This makes building the helicopter quick and easy. You also benefit from a high level of quality control, ensuring that all parts fit together correctly, with no unpleasant surprises or missing parts.

The following drawings are for reference and parts clarification. We have clearly identified screws that still need to be checked and/or loctited. Only remove screws labeled in the manual, apply Loctite 243, and screw them back in.

### FIGURE 1 / MEDIUM Stock configuration



If you prefer to use FIGURE 2, please exchange the green O-rings (70 shore) with the black O-rings (90 shore), which are also included in the kit.

### FIGURE 2 / HARD For hard 3D flying



**You will need:**  
Loctite 243 = blue

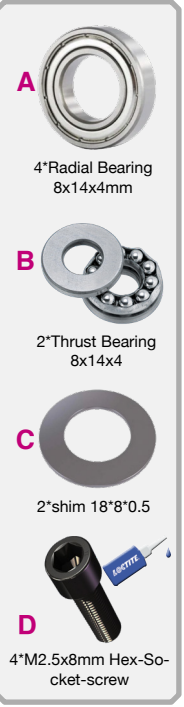
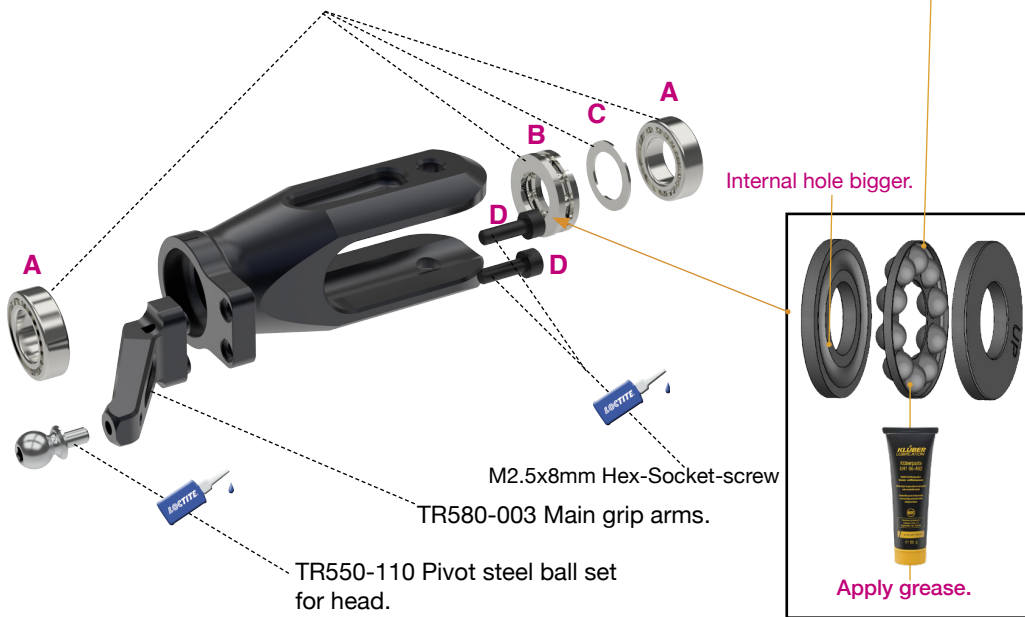
## Main blade grip assembly

1. Remove the bearings to apply grease to the thrust bearings.
2. Reassemble them in the order shown in the render below.
3. Assemble the main grip arms and apply Loctite 243 to screws labeled as **D**.
4. Assemble the pivot balls and apply Loctite 243.

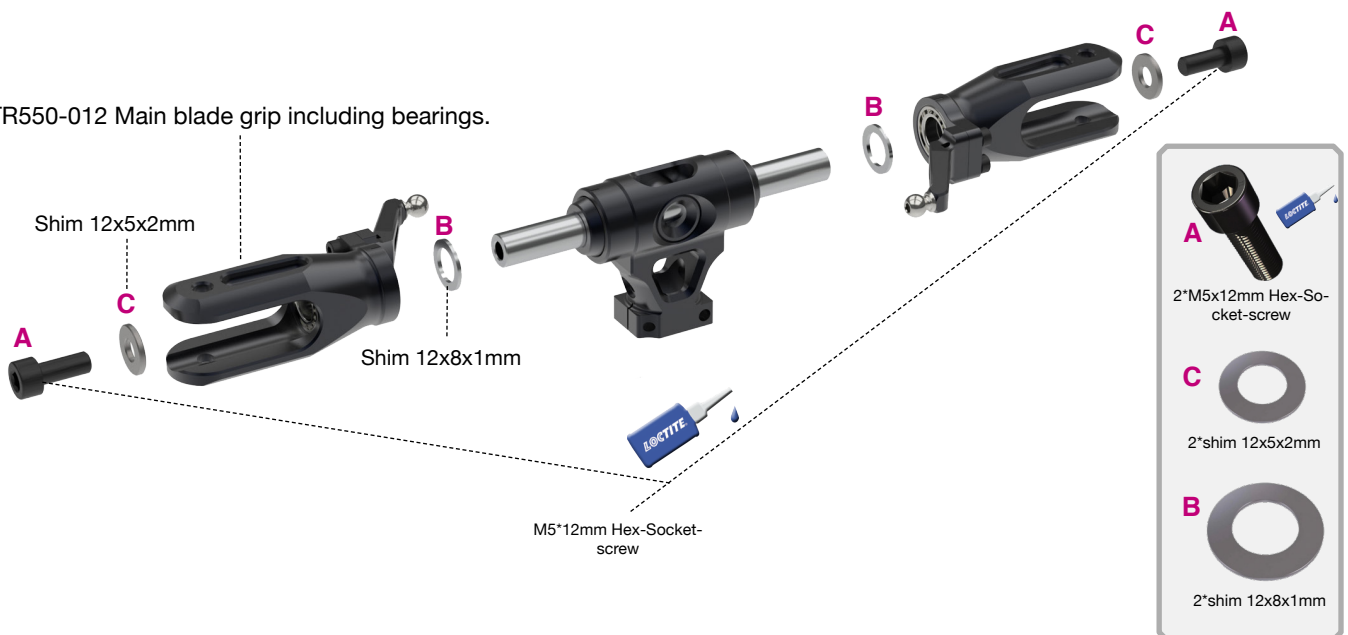
The blade grip have been pre-assembled at the factory. Disassembly is required to apply grease to the thrust bearings.

Pay attention to the orientation of the ball cage.

TR550-805 Main grip bearings set, with thrust bearings and shims.



TR550-012 Main blade grip including bearings.

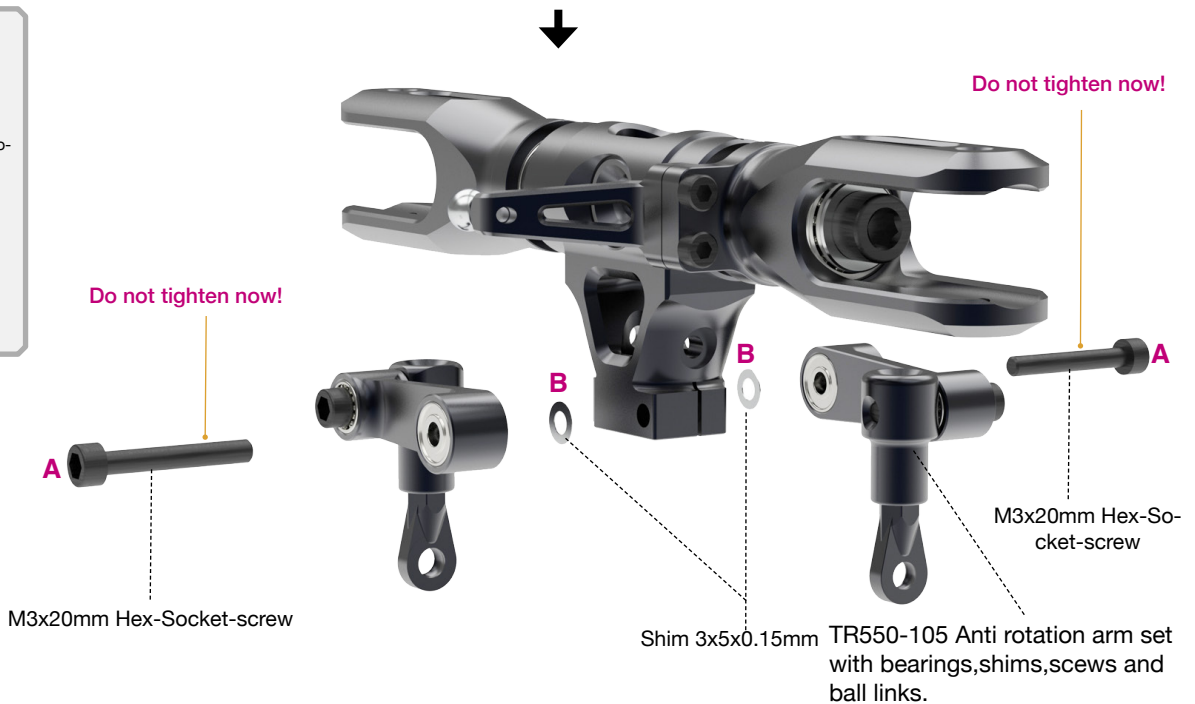
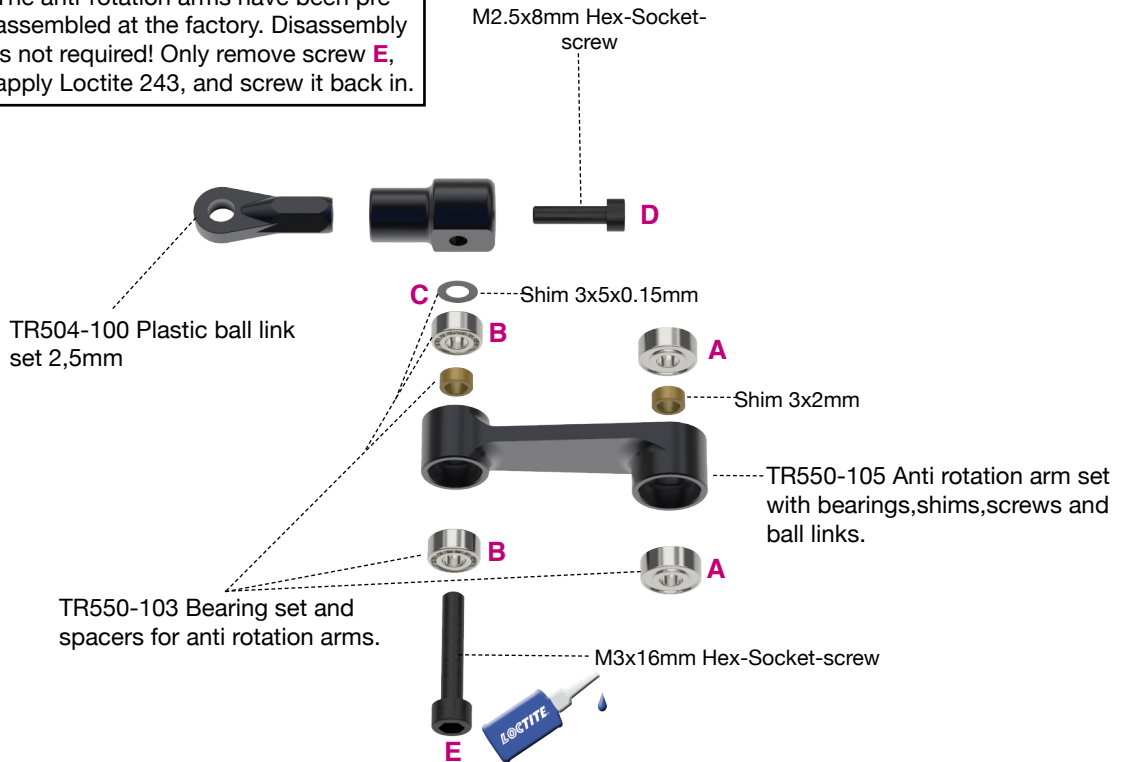


**You will need:**

Loctite 243 = blue

## Head assembly

The anti-rotation arms have been pre-assembled at the factory. Disassembly is not required! Only remove screw **E**, apply Loctite 243, and screw it back in.

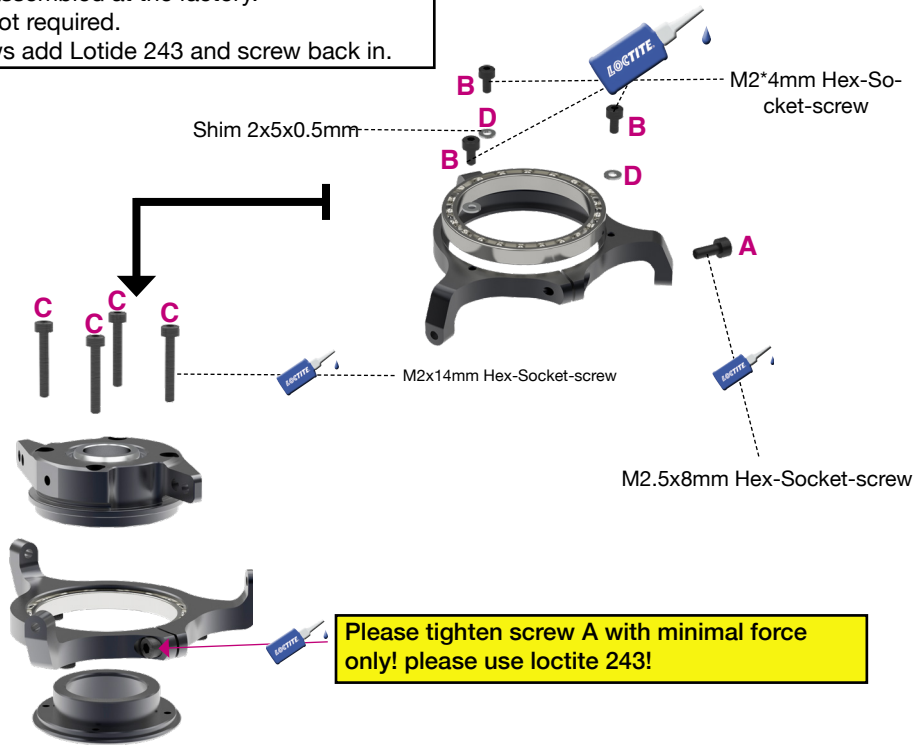


**Important note!**  
Do not tighten the M3\*20mm screws here. Apply Loctite 243 and tighten them after assembling the main shaft to the center hub.

**You will need:**  
Loctite 243 = blue

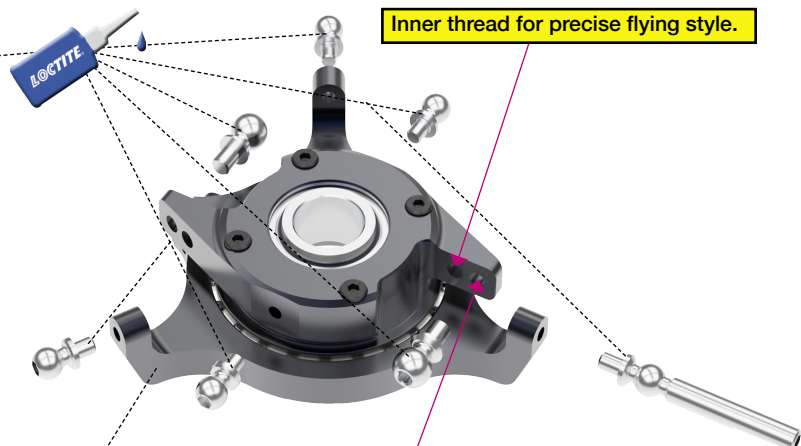
## Head assembly

Swashplate is preassembled at the factory.  
Disassembling is not required.  
Only remove screws add Lotide 243 and screw back in.



Swashplate is preassembled at the factory.  
Disassembling is not required.  
Please use loctite 243 on all pivot ball threads.

TR580-110 Pivot steel ball set  
for head. (16pcs.)



TR550-108 Complete swashplate assembly. (included pivot ball)

**You will need:**  
Loctite 243 = blue

## Head assembly

1. Insert main shaft into center hub first.
2. Tighten screw **B** to lock nut **D**.
3. Tighten the screws **A = M3x20mm** which are shown on page 13 left and right step by step (use loctite 248). Make sure the shim A do not fall out.

Swashplate to main grip.

(15mm)

(19mm)

Servo to swashplate

TR502-230 Linkage rod set. Contains 3\* rod for linkage of swashplate servo or swasplate to main grip. (Rod for servos to swashplate and swashplate to grip arms are identical)

M3x20mm Hex-socket-screw

1\* Lock nut M3

TR704-100 Plastic ball link

2\* Linkage rod, swashplate to main grip.

CW thread!

12mm

Kepp shim E in a save place! You will need it at page 44

TR582-104 Hollow main shaft

2\*M3x12mm Hex-socket-screw

Do not tighten yet!

**Important note!**  
The ball links have a larger and a smaller diameter. Always make sure the larger diameter is pointing towards the pivot ball when assembling!

**E**  
1\* Shim 1x10x0.3mm

**A**  
1\*M3x20mm Hex-socket-screw

**B**  
2\*M3x12mm Hex-socket-screw

**D**  
1\* Lock nut M3

**You will need:**

Loctite 243 = blue

## Tail assembly

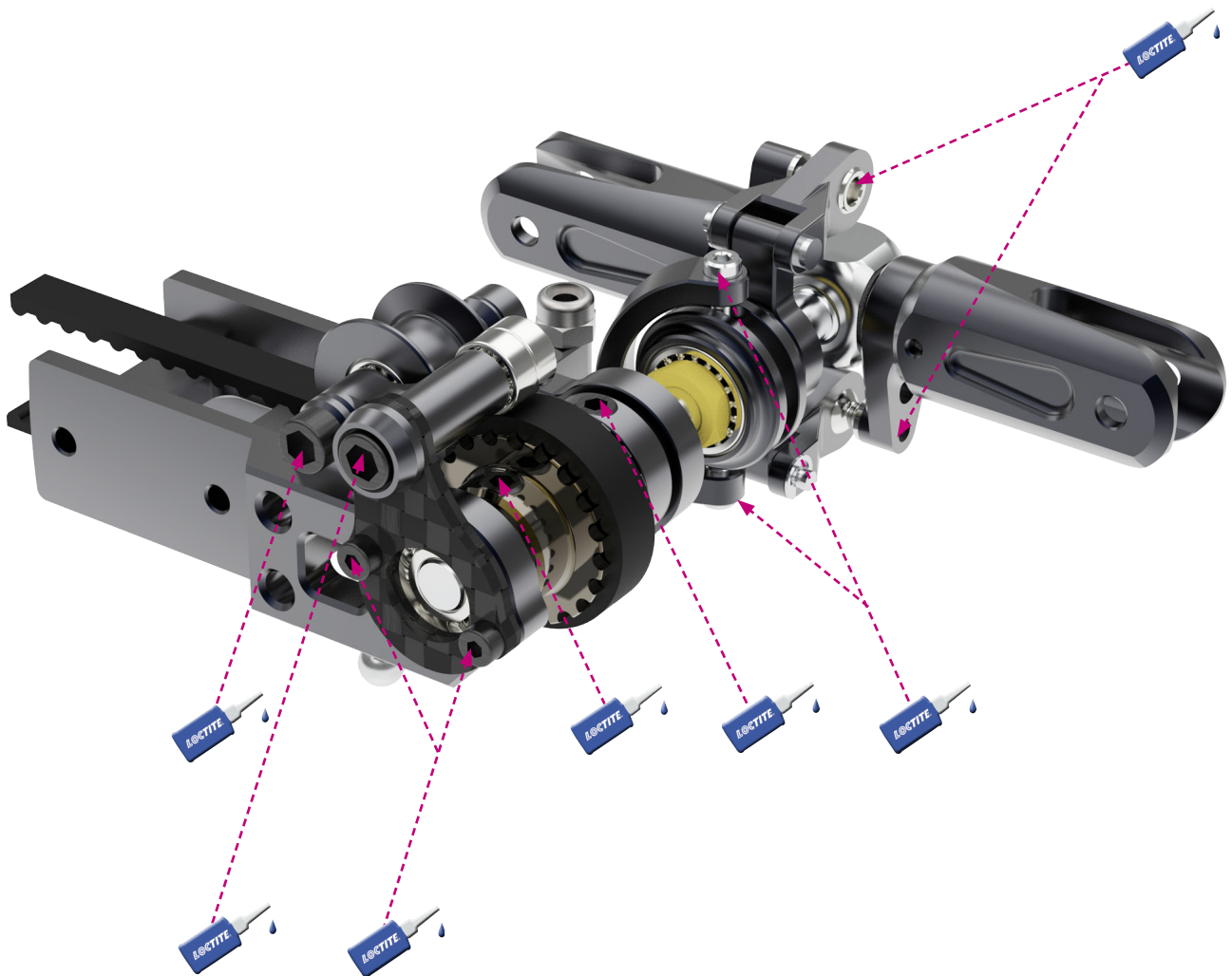
The tail housing assembly have been pre-assembled at the factory.

**Removal of screws to add locktite is necessary!**

This makes the helicopter build very quick and easy. You also benefit from a high level of quality control as we ensure all parts fit together correctly, eliminating unpleasant surprises and missing parts.

**The tail thrust bearings have been greased by the factory! If you are building a new kit, it is not necessary to remove the tail blade holders to add grease to the thrust bearings!**

**Pay attention to the two M2.5x8mm (A) screws that hold the tail pitch arm support, as shown on page 17. These screws need to be loctited as well!**



 =Remove screw, add loctite and screw it back in



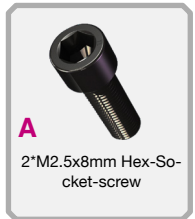
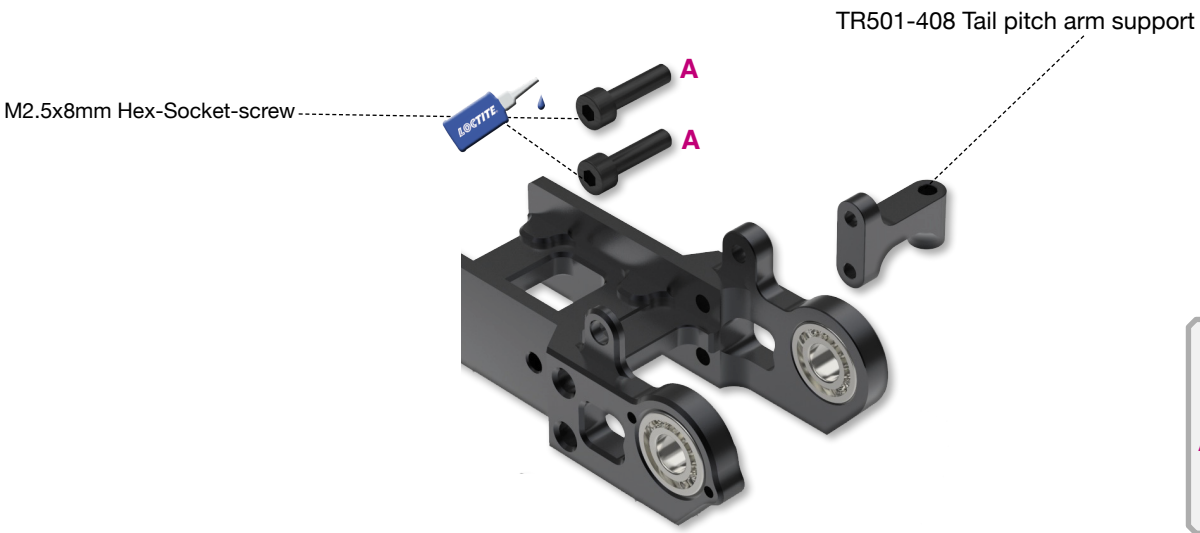
**You will need:**  
Loctite 243 = blue

## Tail assembly

1. The following drawings showing the tail drive housing are for reference and parts clarification.
2. Keep in mind that when purchasing spare parts separately, you should add Loctite where specified!



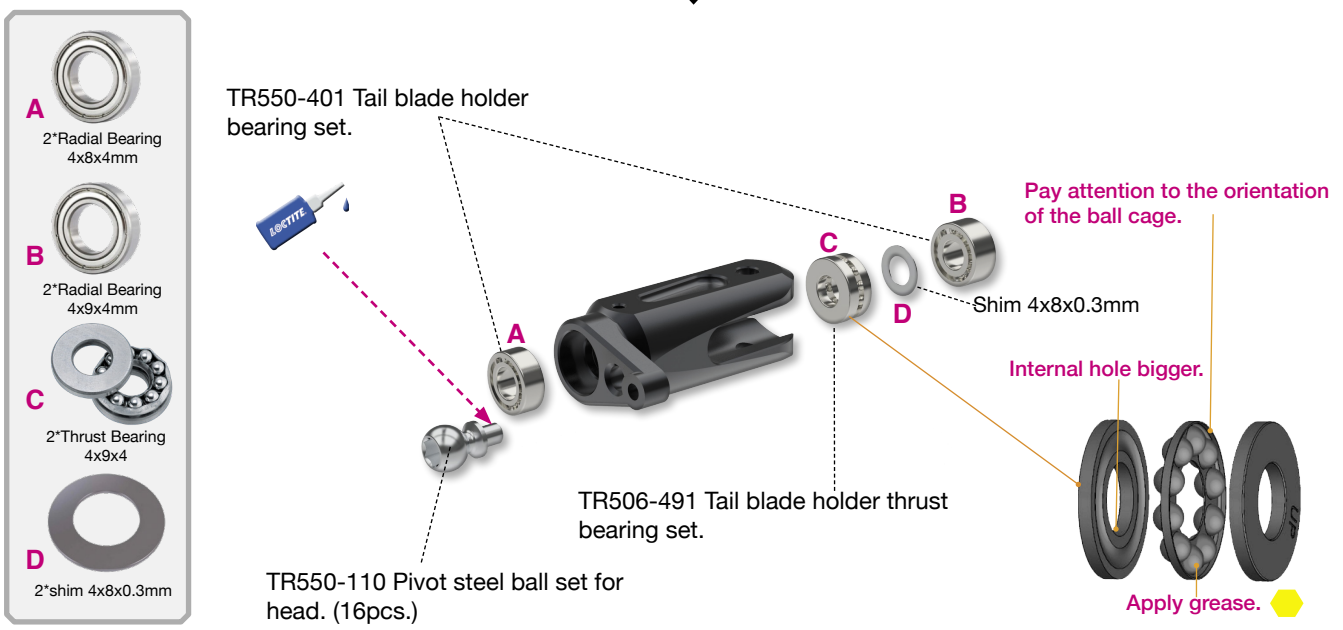
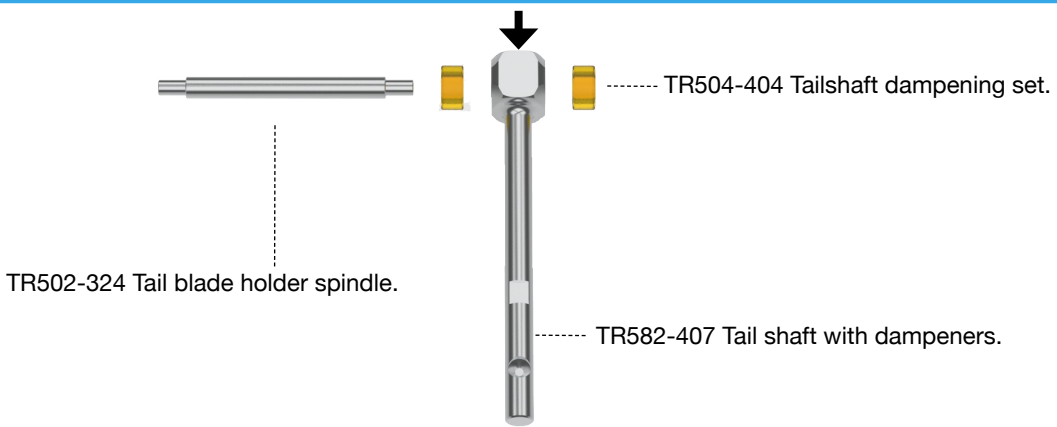
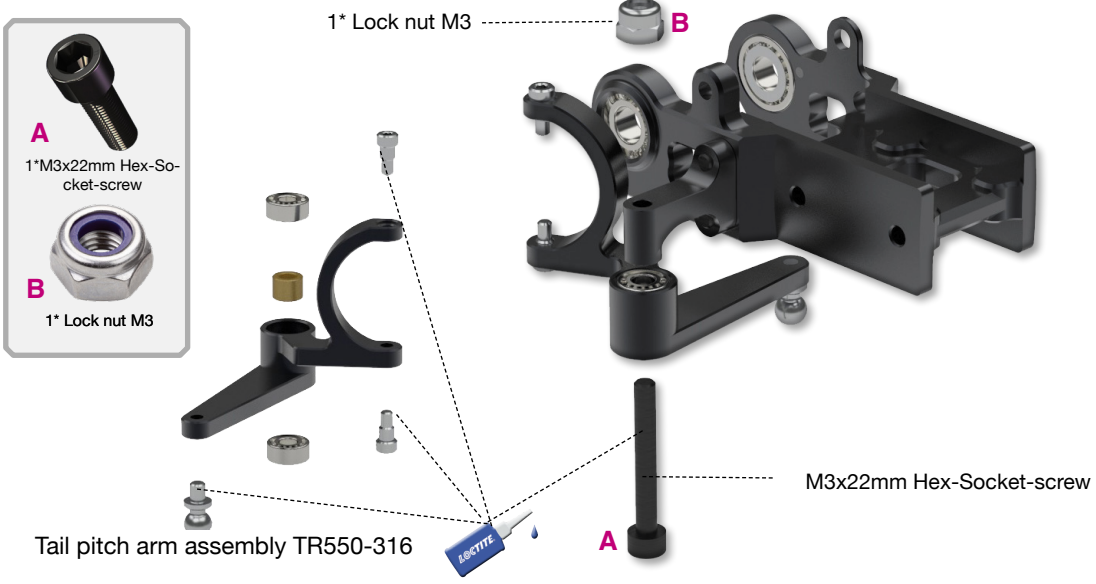
The tail case bearings are assembled at the factory. Disassembly is not required.



Keep in mind that when purchasing spare parts separately, you should add Loctite where specified!

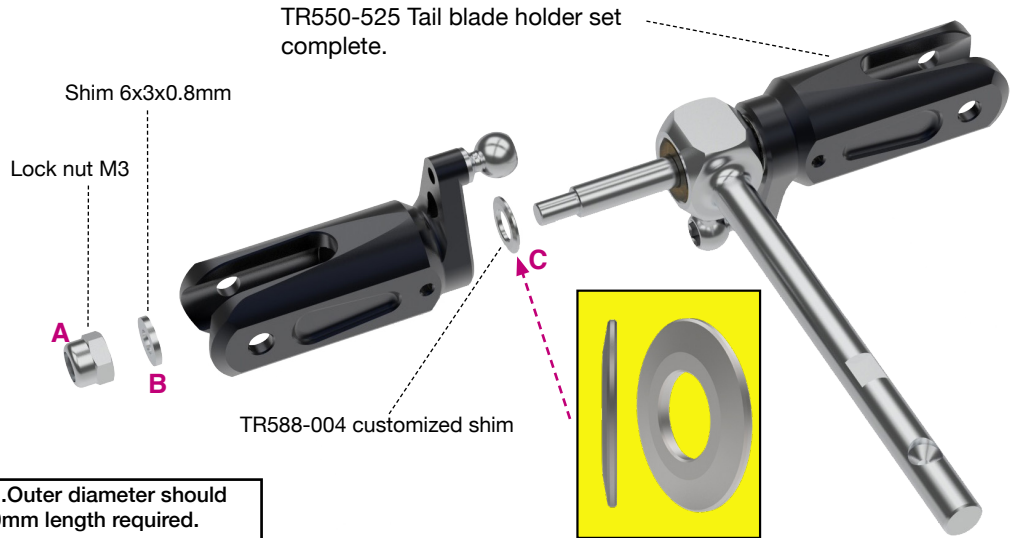
**You will need:**  
Loctite 243 = blue

## Tail assembly



**You will need:**  
Loctite 243 = blue

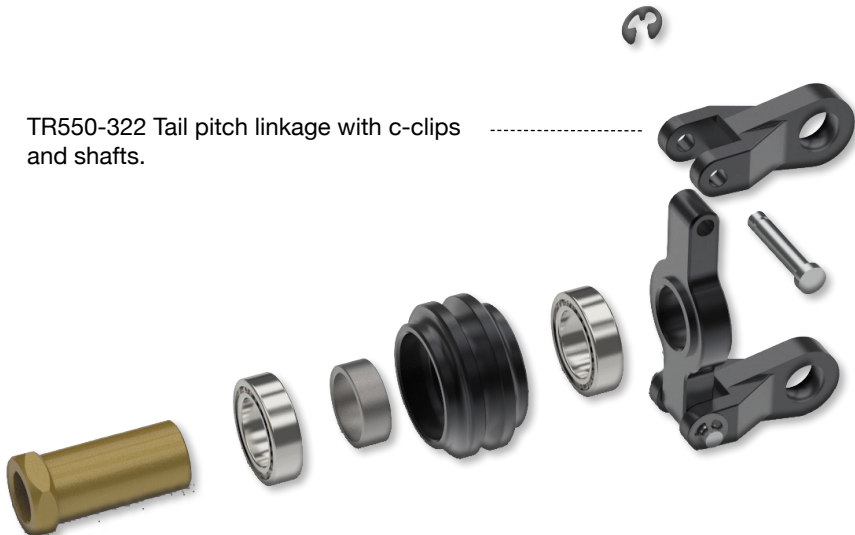
## Tail assembly



Wrench size for nut B = 5.5mm. Outer diameter should not exceed 9.2mm and min. 20mm length required. Optional ( TR:501518 )



The tail pitch slider is assembled at the factory. Disassembly is not required.



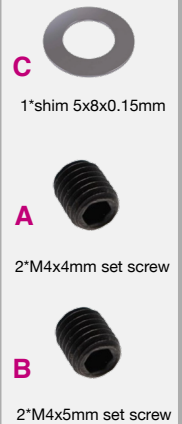
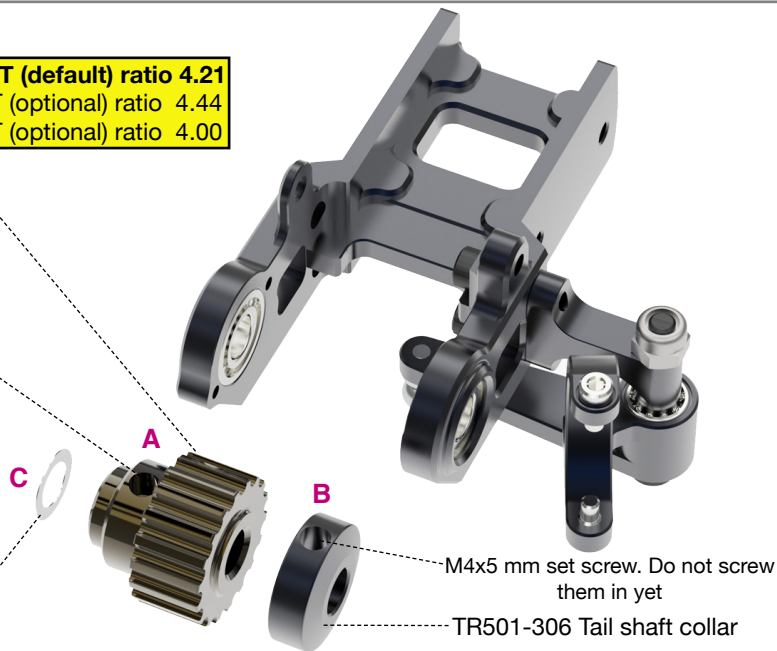
**You will need:**  
Loctite 243 = blue

## Tail assembly

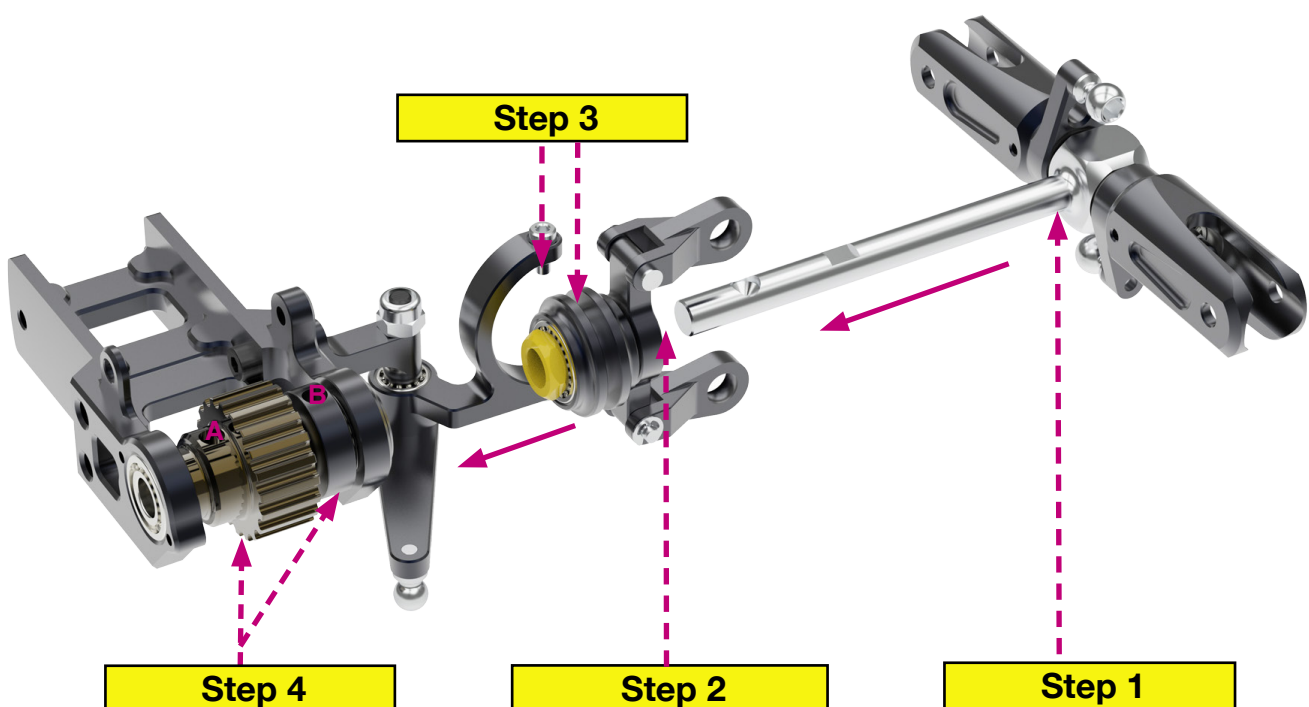
TR501-319 Tail pulley 19T (default) ratio 4.21  
TR501-318 Tail pulley 18T (optional) ratio 4.44  
TR501-320 Tail pulley 20T (optional) ratio 4.00

M4x4 mm set screw  
Do not screw them in yet

Shim  
5x8x0.15mm



1. Insert the tail shaft (step 1) into the tail pitch slider (step 2). Ensure the pulley aligns with the pitch pins (step 3) then slide the tail shaft into the tail housing bearings, tail shaft collar, tail pulley, and the shim (12x8x0.5 / C) Step 4.
2. Align the flat spot on the tail shaft with the set screws.
3. Slightly tighten the 2 set screws (A-B) on the pinion and collar. **DO NOT APPLY LOCTITE TO THEM IN THIS STEP. REFER TO PAGE 22!**

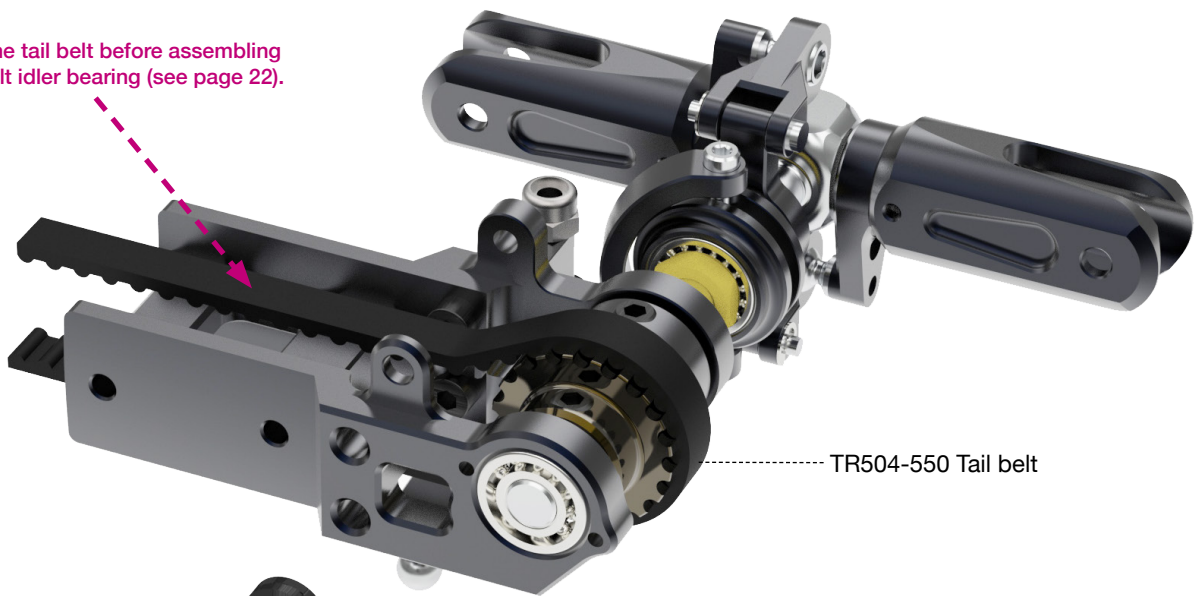


**You will need:**  
Loctite 243 = blue

## Tail assembly

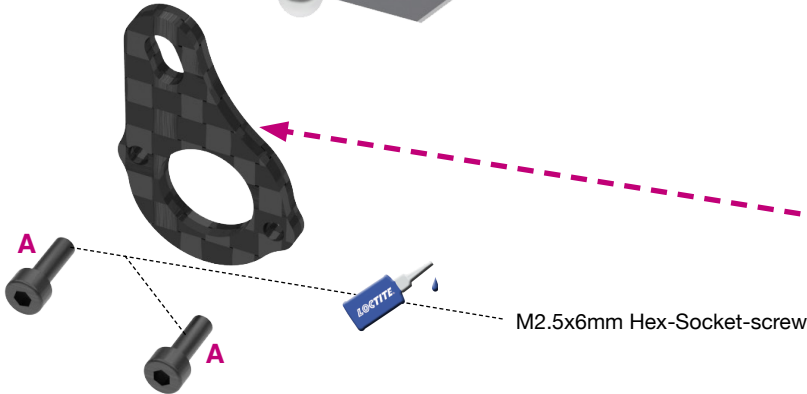
1. Attach the tail slider pitch links to the tail blade grip pivot balls. Refer to the render below for the correct order.
2. Assemble the carbon tail idler plate (Figure 1).
3. Add tail belt.

Add the tail belt before assembling the belt idler bearing (see page 22).



TR504-550 Tail belt

**Figure 1**



M2.5x6mm Hex-socket-screw

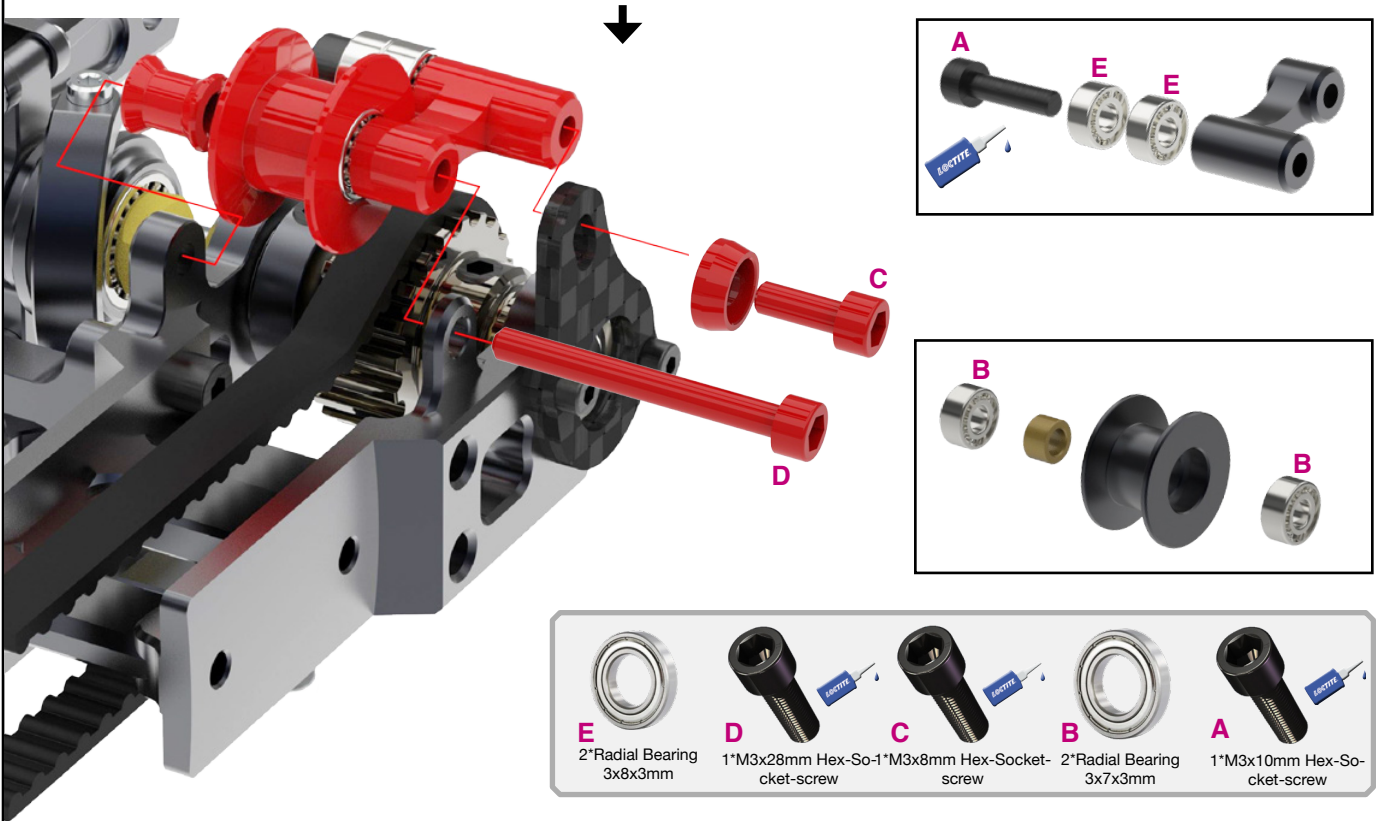
TR550-406 Mounting brackets Belt pusher / complete assembly

This tail performance upgrade can be used for Tron 5.5 V1 / Nitron 50 and 90 / Tron 5.8 and Tron 7.0 DNAMIC



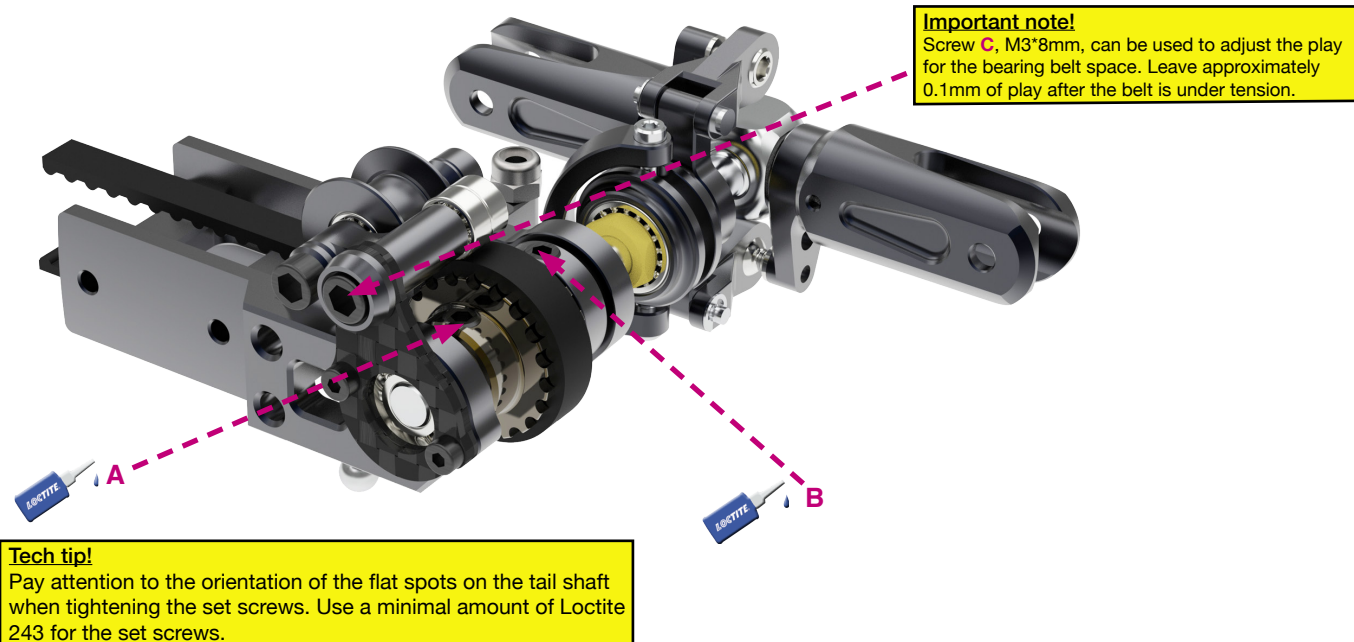
**You will need:**  
Loctite 243 = blue

## Tail assembly



The collar design is to remove tail shaft lateral play.

1. After tighten the pulley set screw **A**, slightly push the collar to the right while pushing the tail shaft to the left side.
2. Then tighten the set screw **B** on the collar.



**Important note!**  
Screw **C**, M3\*8mm, can be used to adjust the play for the bearing belt space. Leave approximately 0.1mm of play after the belt is under tension.

**Tech tip!**  
Pay attention to the orientation of the flat spots on the tail shaft when tightening the set screws. Use a minimal amount of Loctite 243 for the set screws.

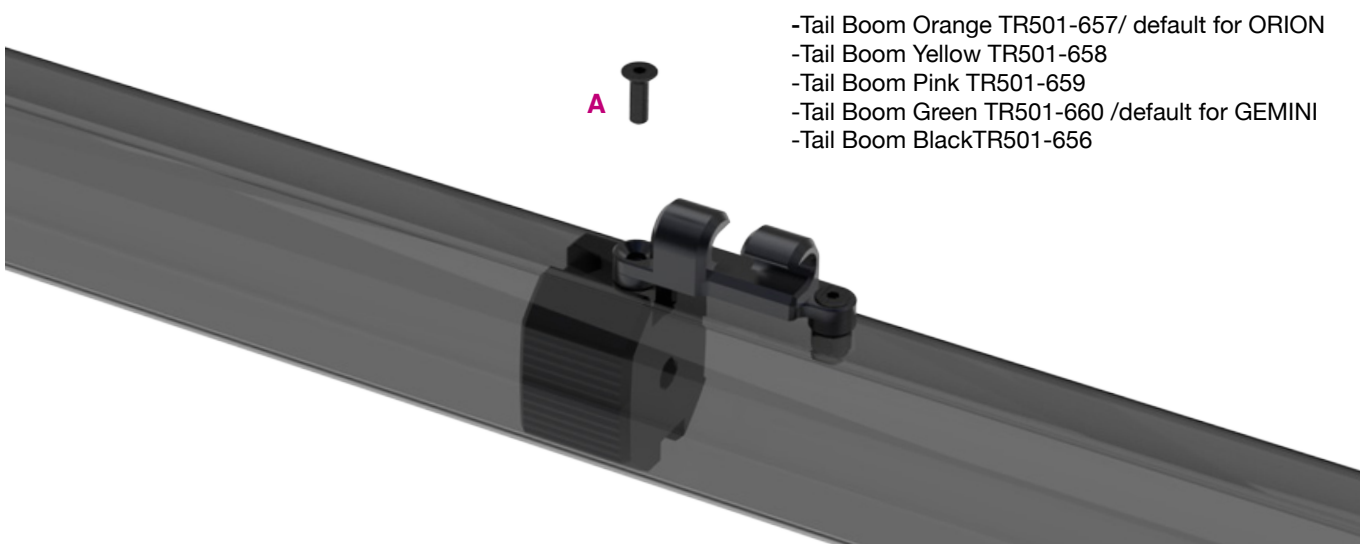
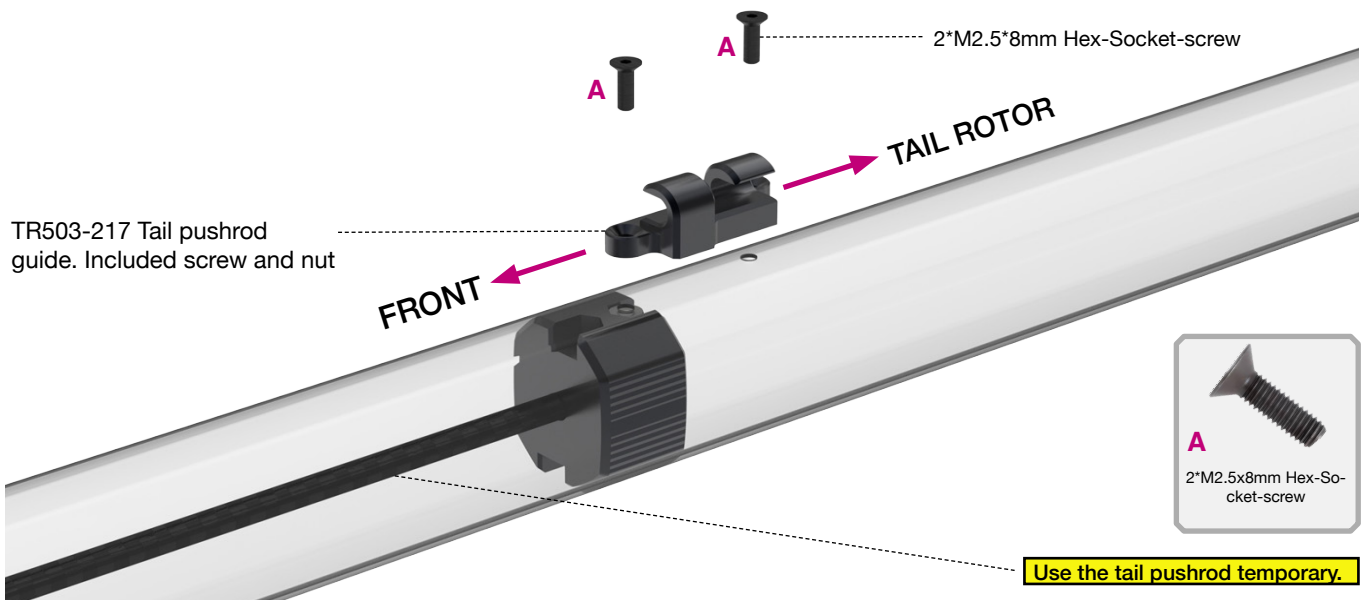
## Boom assembly



TR504-501 New tail pushrod assembly tool for T5.5/5.8/Nitron



Insert the tail push rod with the nuts facing up into the boom. Ensure that when you tighten the screws for the tail push rod guide, your mounting device faces up as shown in the illustration.



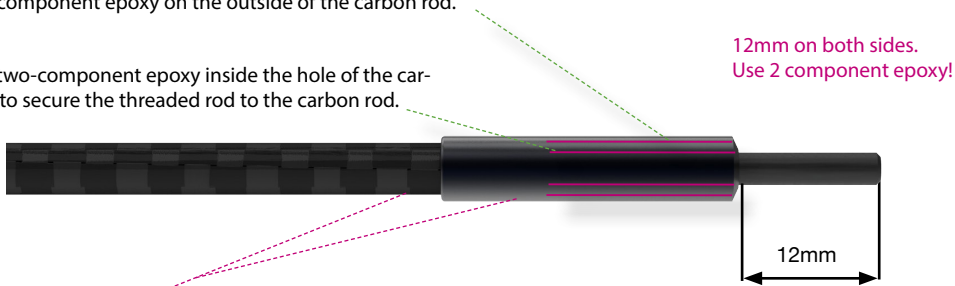
**You will need:**  
2 component epoxy

**Tail assembly**

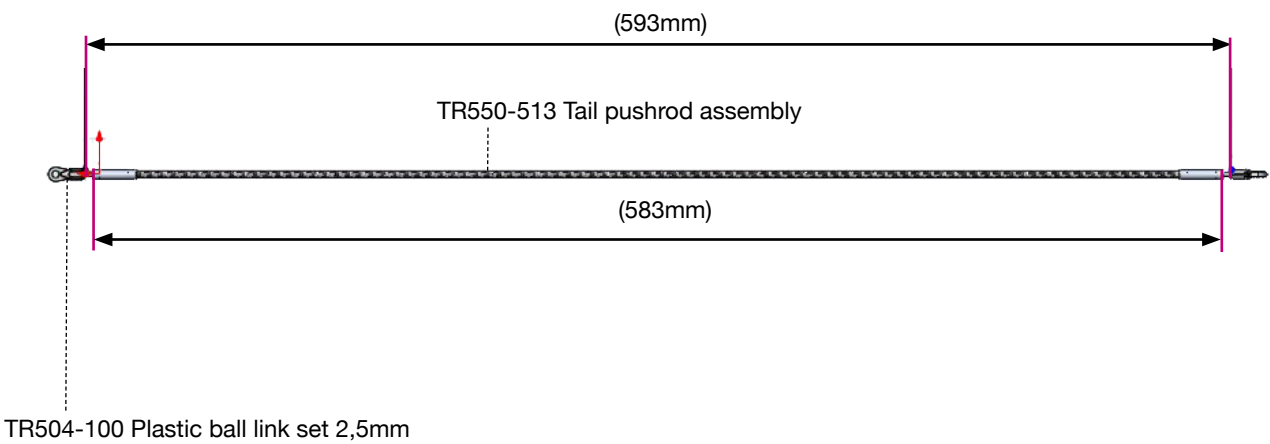
Apply a two-component epoxy to glue the thread into the tail push rod and the shell on the outside of the rod. This double safety measure ensures that the thread cannot turn if you adjust the ball-link after the assembly has fully hardened.

Apply 2 component epoxy on the outside of the carbon rod.

Apply a two-component epoxy inside the hole of the carbon rod to secure the threaded rod to the carbon rod.



Ensure that the assembly remains stationary while drying. Secure it on both sides to prevent any movement.

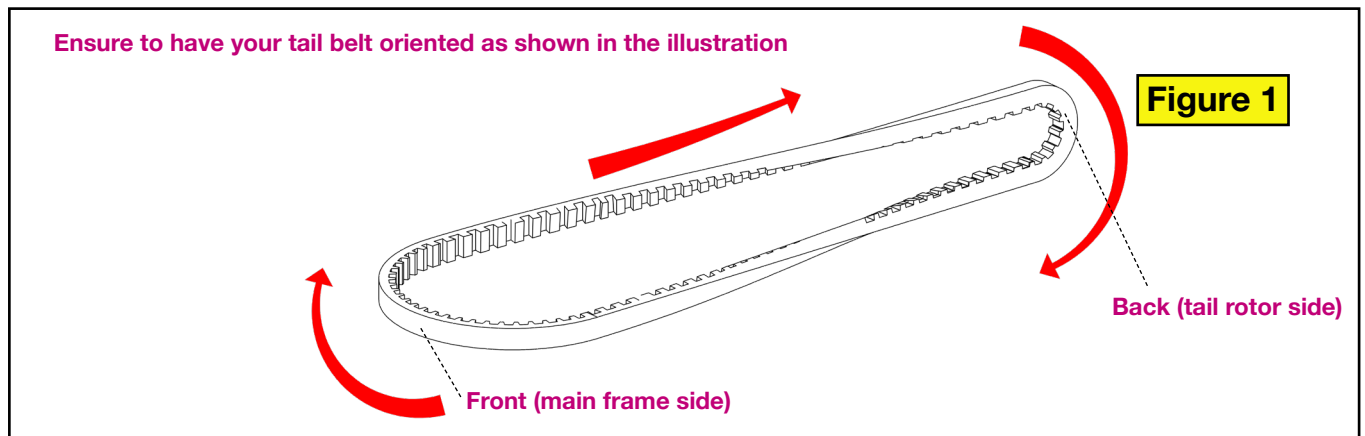
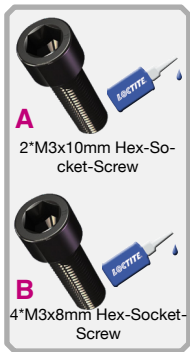
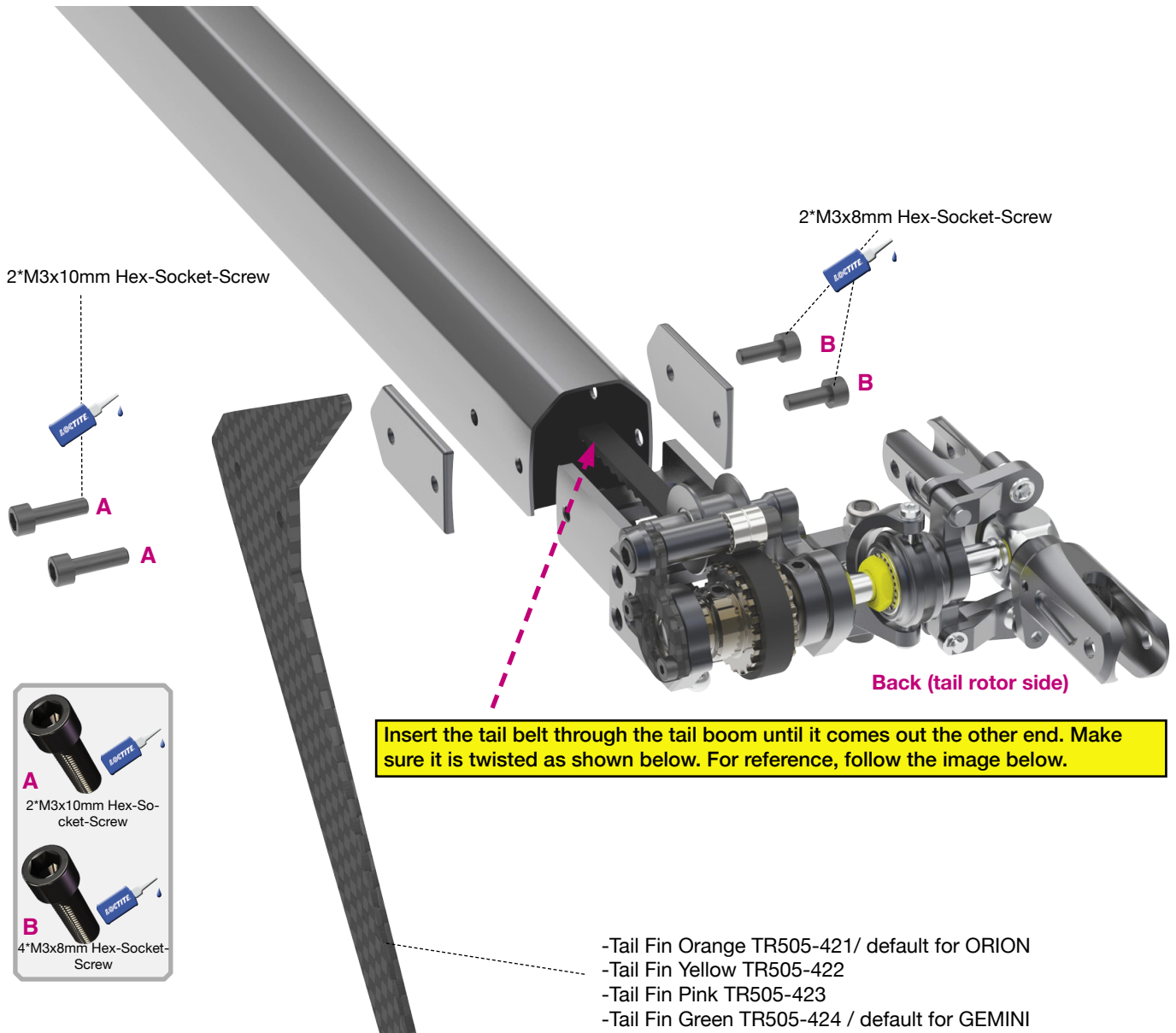




**You will need:**  
Loctite 243 = blue

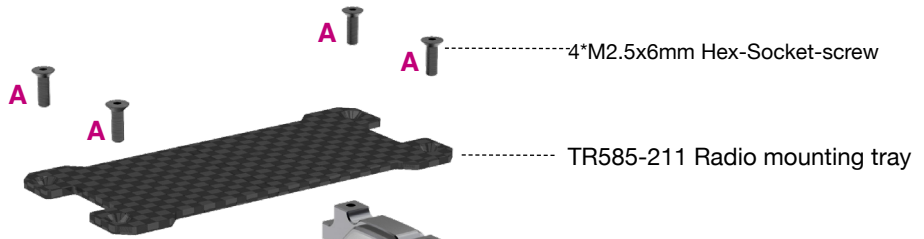
## Tail assembly

Front (main frame side)

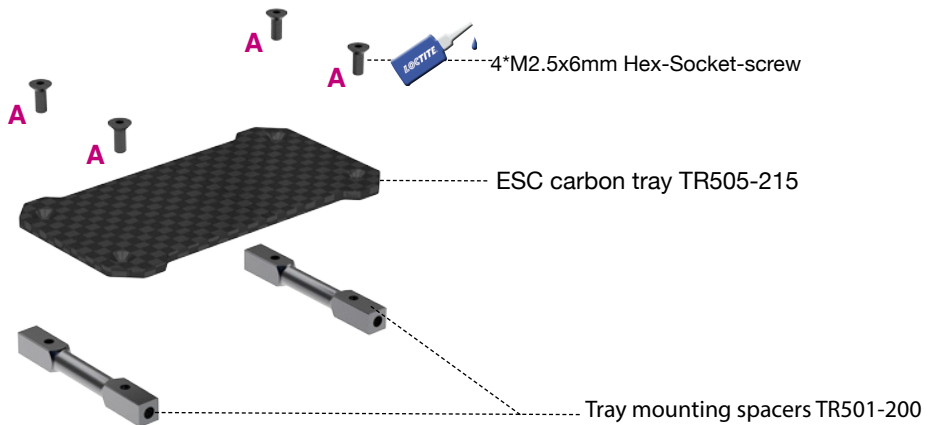
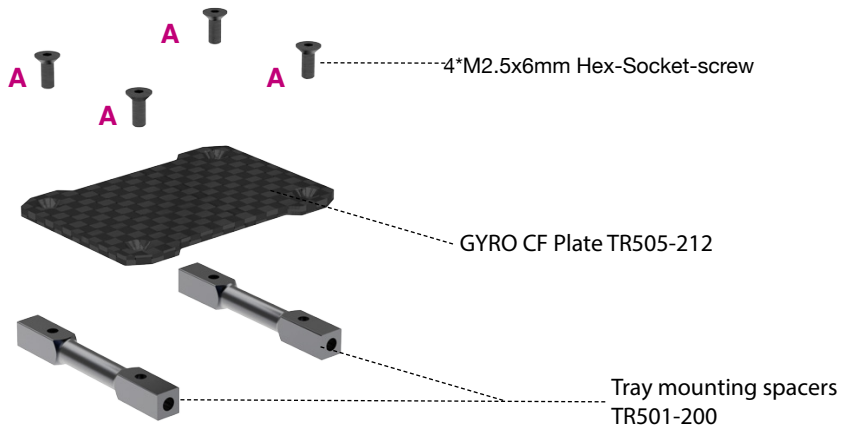
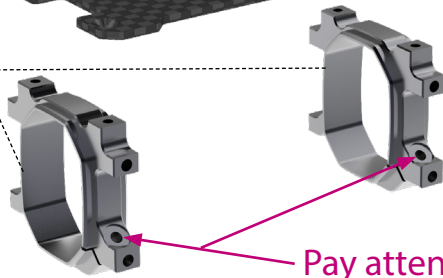


**You will need:**  
Locktite 243 = blue

## Upper main frame assembly



TR501-512 Tail boom clamp set



**You will need:**  
 Locktite 243 = blue

## Belt tensioner and battery lock assembly

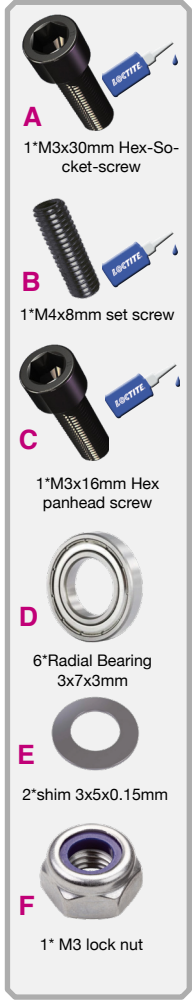
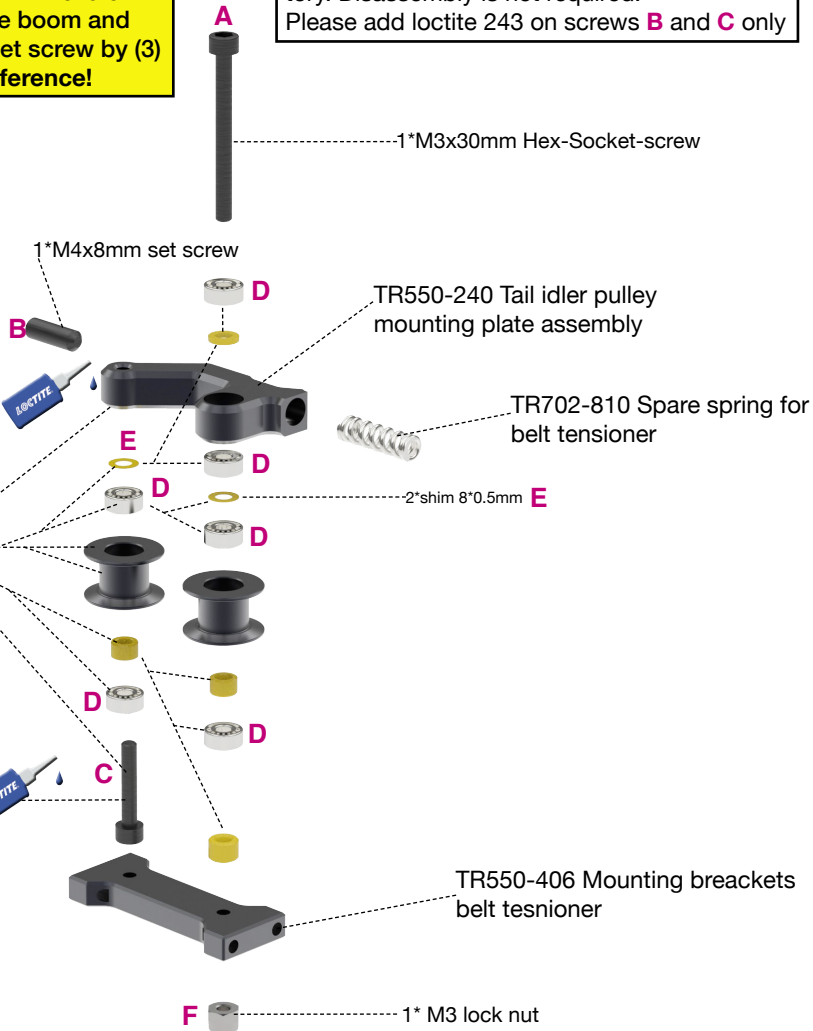
**Tech tip!**  
 Ensure the spring is aligned with the idler arm during assembly. After the boom and belt are in place, tighten the set screw by (3) turns. Refer to page 51 for reference!

The belt tensioner is preassembled at the factory. Disassembly is not required. Please add loctite 243 on screws **B** and **C** only



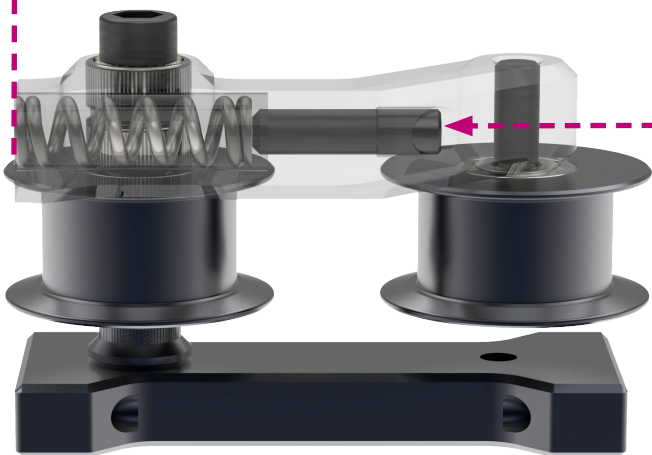
TR550-240 Tron belt tensioner arm assembly

1\*M3x16mm Hex panhead screw

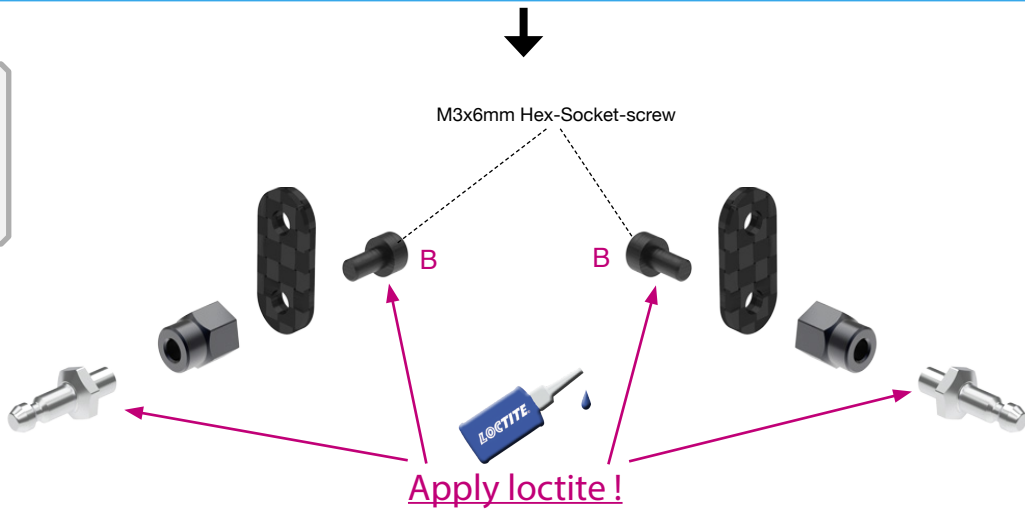
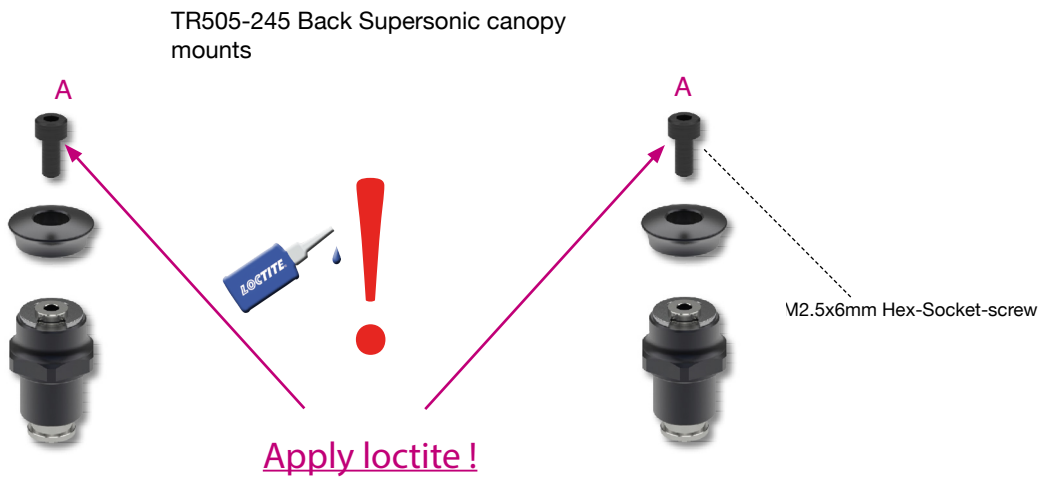


**Tech tip!**  
 Ensure the spring is aligned with the idler arm during the assembly of the helicopter.

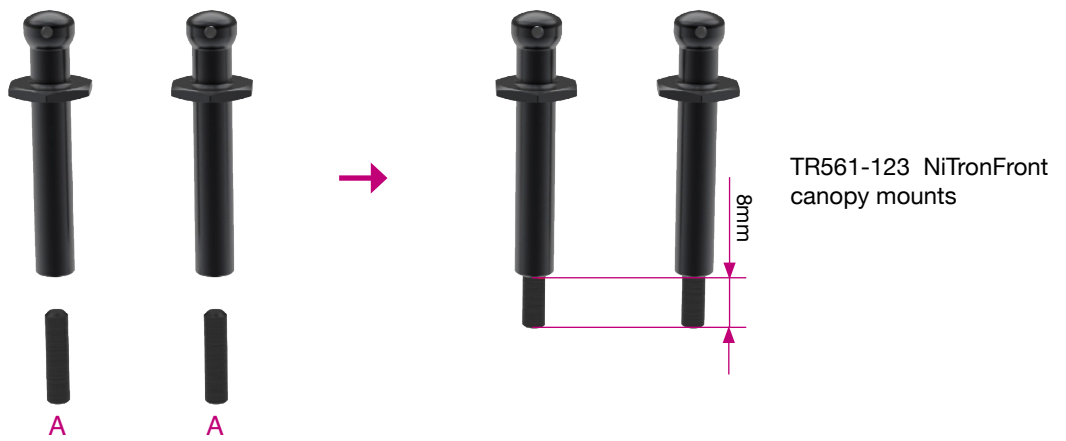
Adjust the set screw to load the belt tensioner by (3) full turns after the entire tail boom has been assembled to the main frame. Refer to page 51 for reference!



**You will need:** **Upper main frame assembly**  
 Loctite 243 = blue



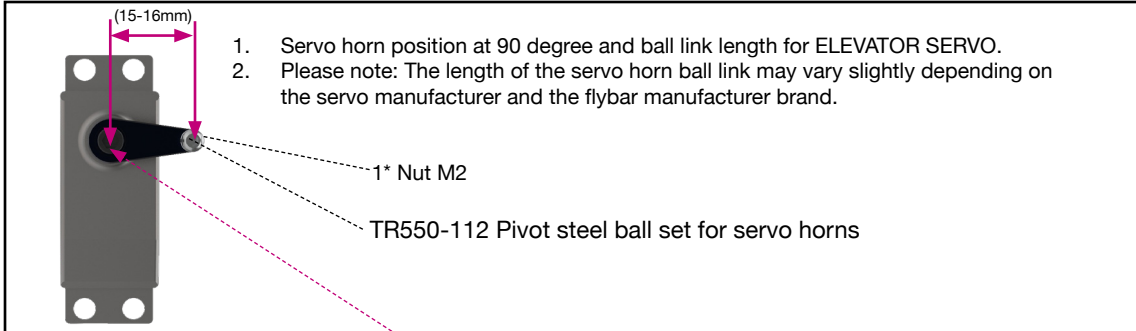
**Apply loctite!** **Gemini and Orion style front canopy standoff posts.**



**You will need:**

Loctite 243 = blue

## Upper left frame assembly Orion/Gemini

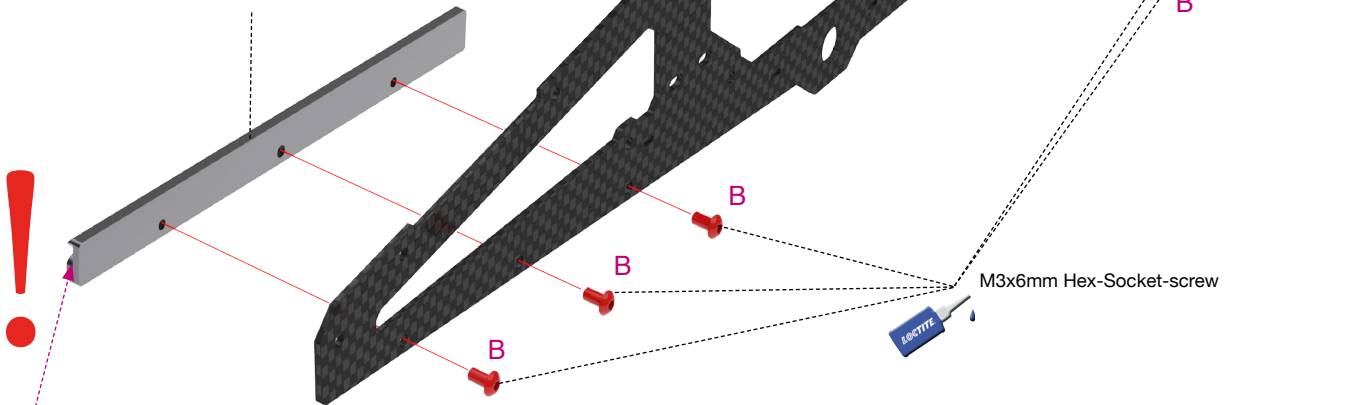


**Tech tip!**  
Pay attention to the orientation of the servo horn arm and the position of the spline when assembling to the frame!

- Keep the belt tensioner spring flush with the pulley arm.
- Use set screw M3\*16mm for adjusting.
- Preload spring after assembling the boom and belt to the main gear by ( 3 ) full turns. Page 46, step 7

TR505-202 Upper left frame mini servo

TR503-215 Rail guide for battery tray



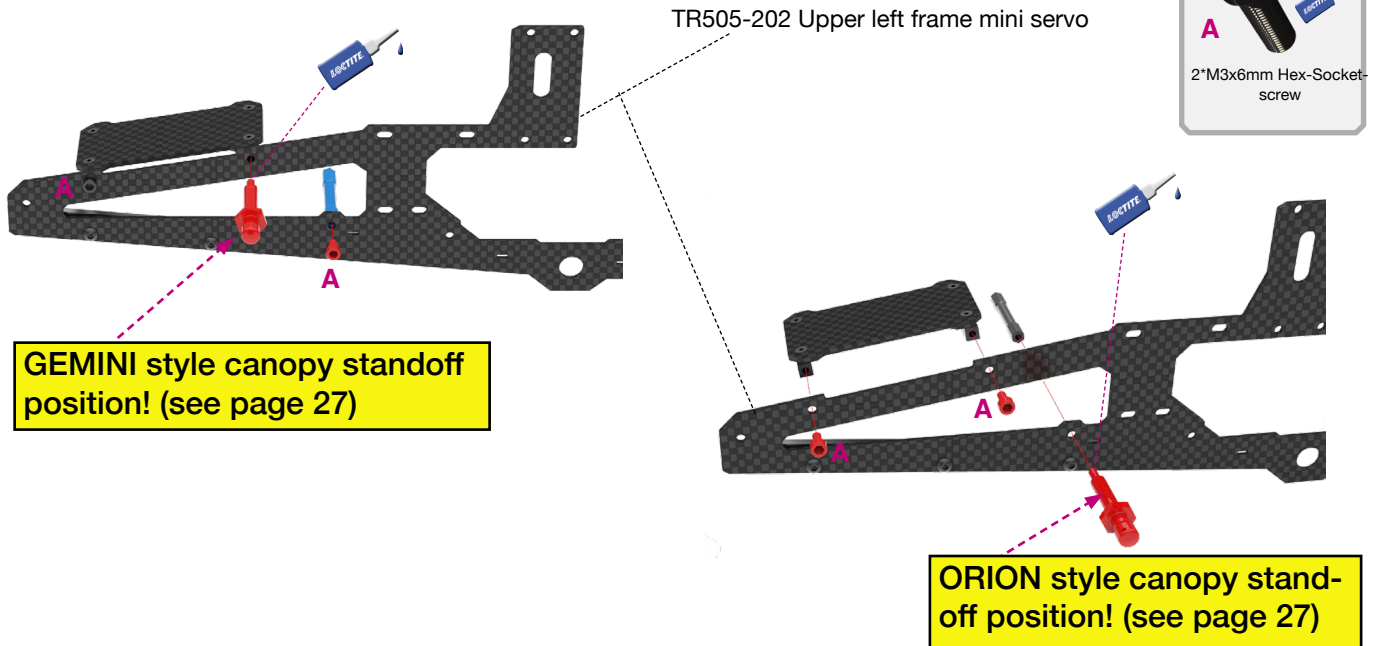
Note the orientation of the rail, which is facing towards the inside and the guide rail is facing up.



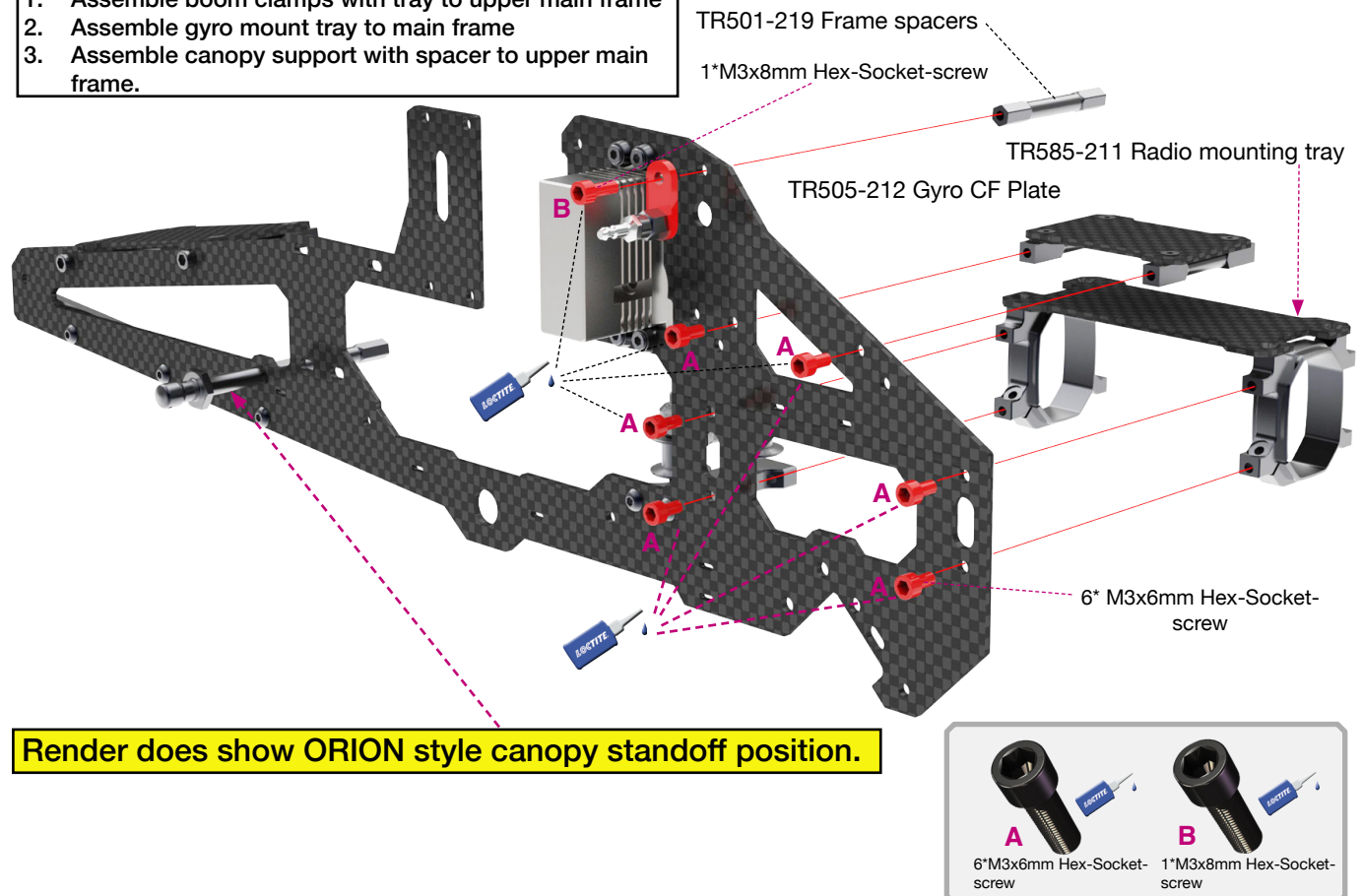
**You will need:**  
Loctite 243

## Upper left frame assembly Orion/Gemini

1. Assemble ESC tray to upper main frame.
2. Assemble canopy standoff to upper main frame.



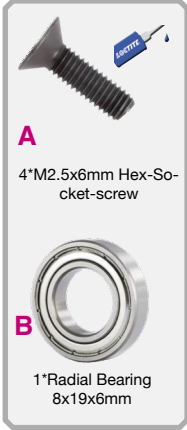
1. Assemble boom clamps with tray to upper main frame
2. Assemble gyro mount tray to main frame
3. Assemble canopy support with spacer to upper main frame.



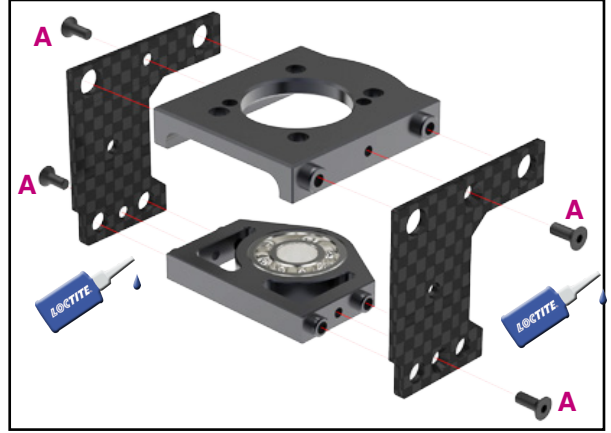
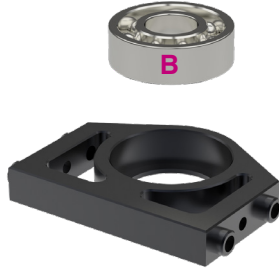
**You will need:**

Loctite 243 = blue

## Motor mount and pinion

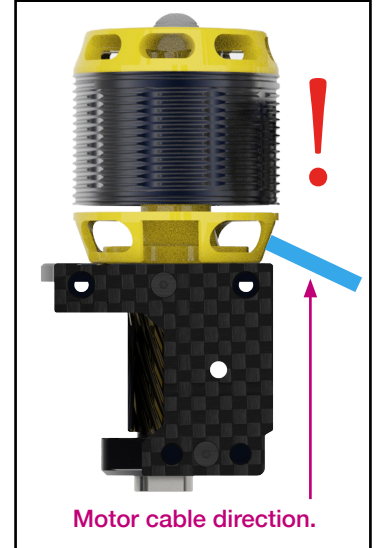
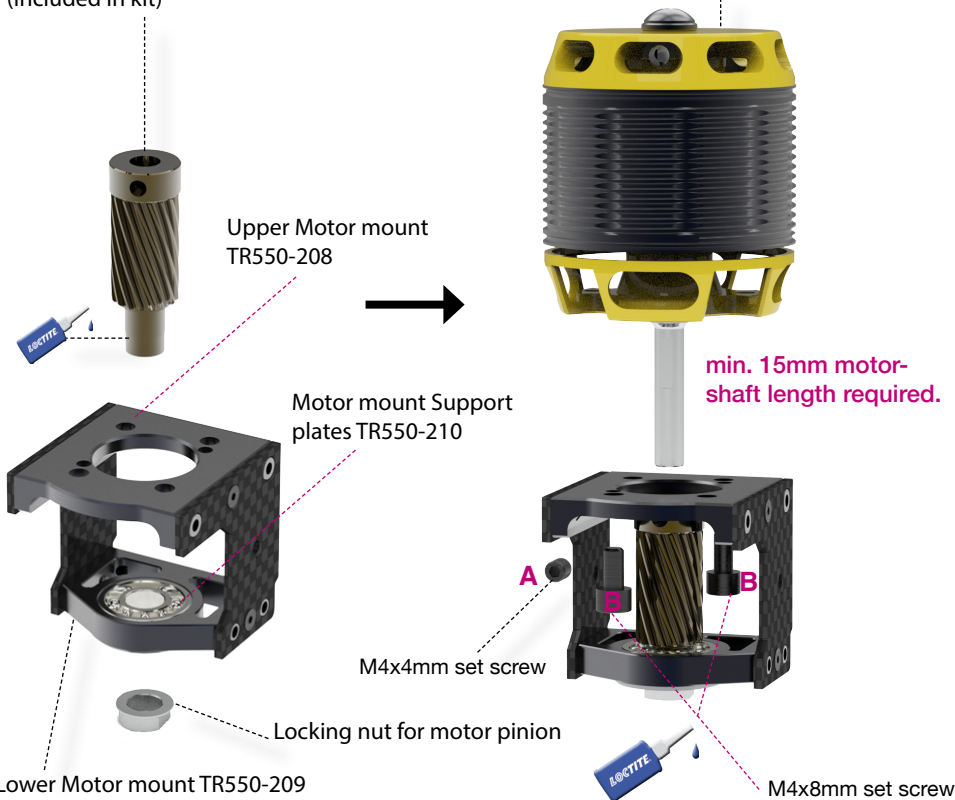


Motormount is preassembled at the factory. Disassembling is not required. Just remove 4\* M 2.5x6 screws, add loctite 243 and screw it back in.



TR582-016 Motor Pinion 16T 6mm (included in kit)

BL motor 4020-4025 size 1100-1200kv (not included)



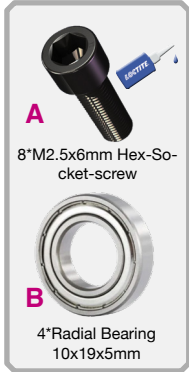
### Available pinions for Tron 5.5 Orion / Gemini

• 13T/6mm TR582-013 / included lock nut	10.46 ratio
• 14T/6mm TR582-014 / included lock nut	9.71 ratio
• 15T/6mm TR582-015 / included lock nut	9.06 ratio
• <b>16T/6mm TR582-016 ( default, included in kit )</b>	<b>8.50 ratio</b>
• 17T/6mm TR582-017 / included lock nut	8.00 ratio



**You will need:**  
Loctite 243 = blue

## Upper left frame assembly Orion/Gemini



TR506-105 Main shaft bearing set



4\*M2.5x6mm Hex-Socket-screw

TR501-205 Servo mount unit



TR501-206 Main shaft support with bearings.

TR501-205 Servo mount unit

4\*M2.5x6mm Hex-Socket-screw

The mainshaft support tube has been assembled at the factory. Disassembly is not required, and no Loctite is needed to secure the bearings. If the bearings need to be replaced, you may want to use a hair dryer to slightly heat up the support tube.

1. Assemble motor mount with motor support stiffener to the main frame. Do not tighten and loctite screws **A** and **B** yet.
2. Push motor support towards the leftside and slightly secure the motormount. This will be beneficial for convenient main gear assembling later on.
3. Assemble servo frame to the upper main frame.

TR501-102 Black anodized washers / 3mm x 8

2\*A = M3x12mm Hex-Socket-screw

4\*D = M3x6mm Hex-Socket-screw

2\*B = M3x8mm Hex-Socket-screw

**Render do show ORION style canopy standoff position.**

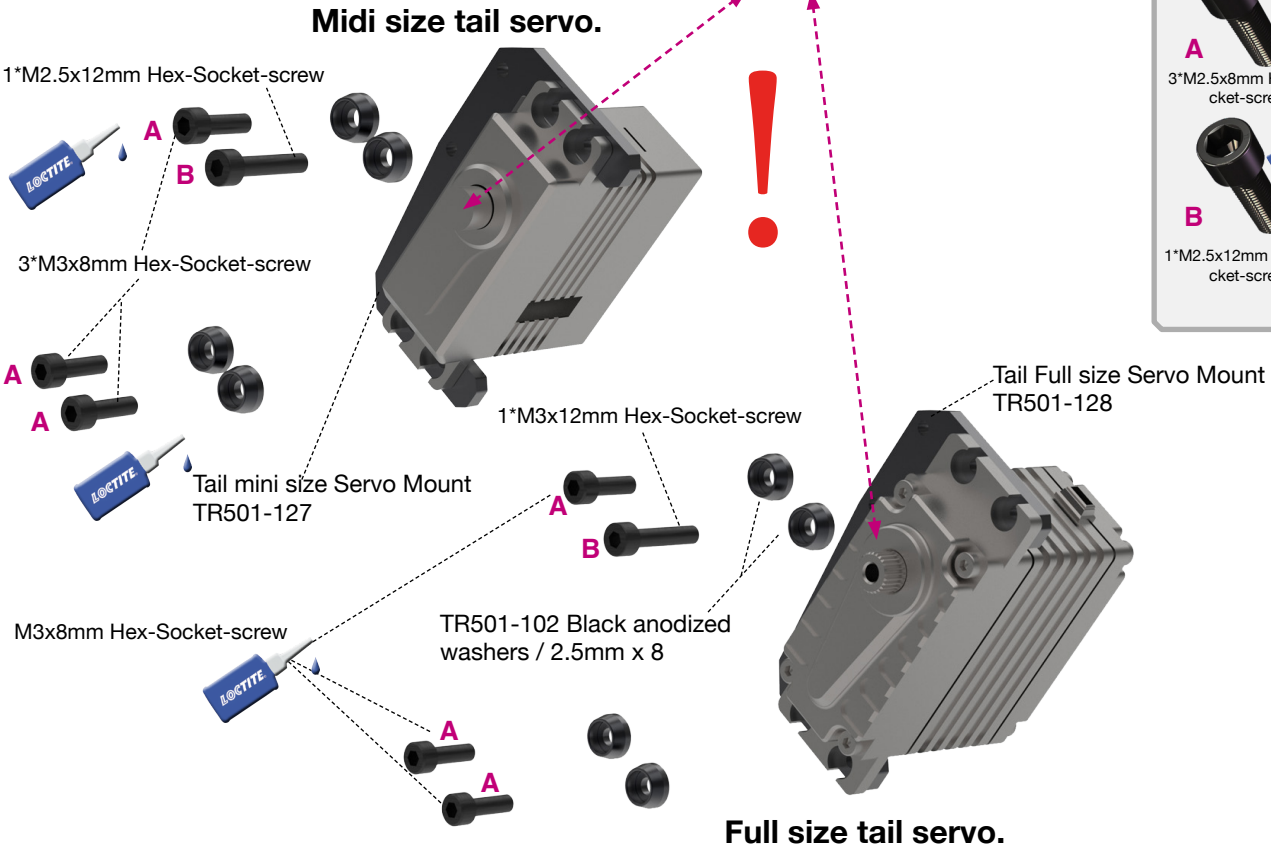




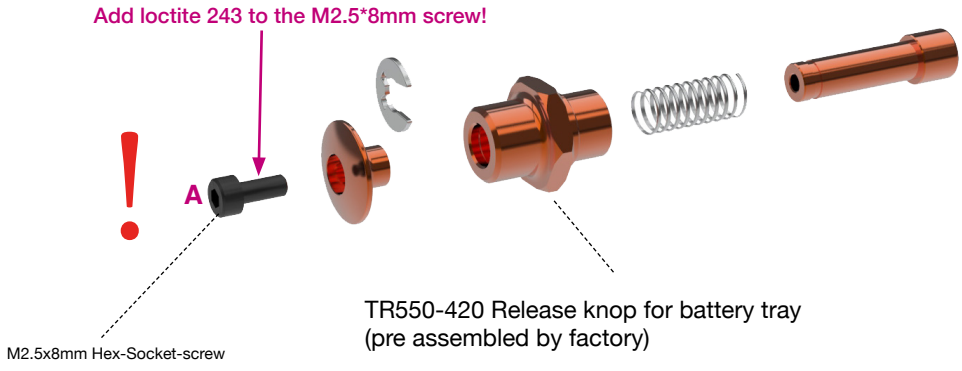
**You will need:**  
Loctite 243 = blue

## Tail servo mount / battery release knob

Pay attention to the orientation of the servo horn arm and the position of the spline when assembling to the frame!



Supersonic batterie release knob is pre assembled at the factory. Disassembling is not required. Only remove M 2.5\*8 screw, add loctite 243 and screw it back.



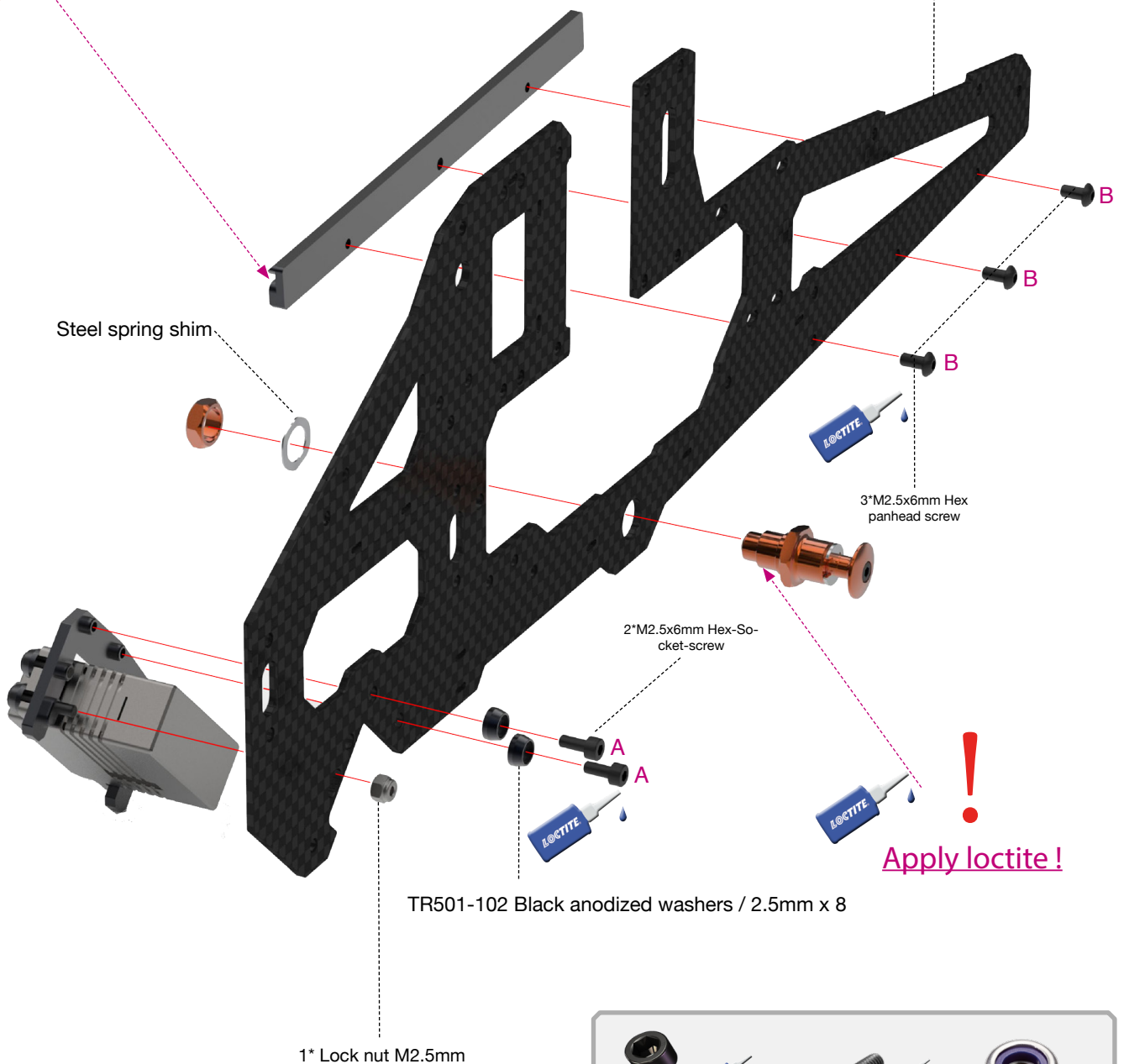
**You will need:**  
Loctite 243 = blue

## Upper right frame assembly Orion /Gemini

1. Assemble battery rail guide to the upper main frame. Pay attention to the correct way the guide is mounted!
2. Assemble battery release knob assembly to the main frame.
3. Assemble tail servo frame ( full size or mini ) with the tail servo assembled to the upper right main frame.

**Note the orientation of the rail, which is facing towards the inside and the guide rail is facing up.**

TR505-201 Upper right main frame.



TR501-102 Black anodized washers / 2.5mm x 8

1\* Lock nut M2.5mm



**A**  
4\*M2.5x6mm Hex-socket-screw



**B**  
3\*M3x6mm Hex pan-head screw



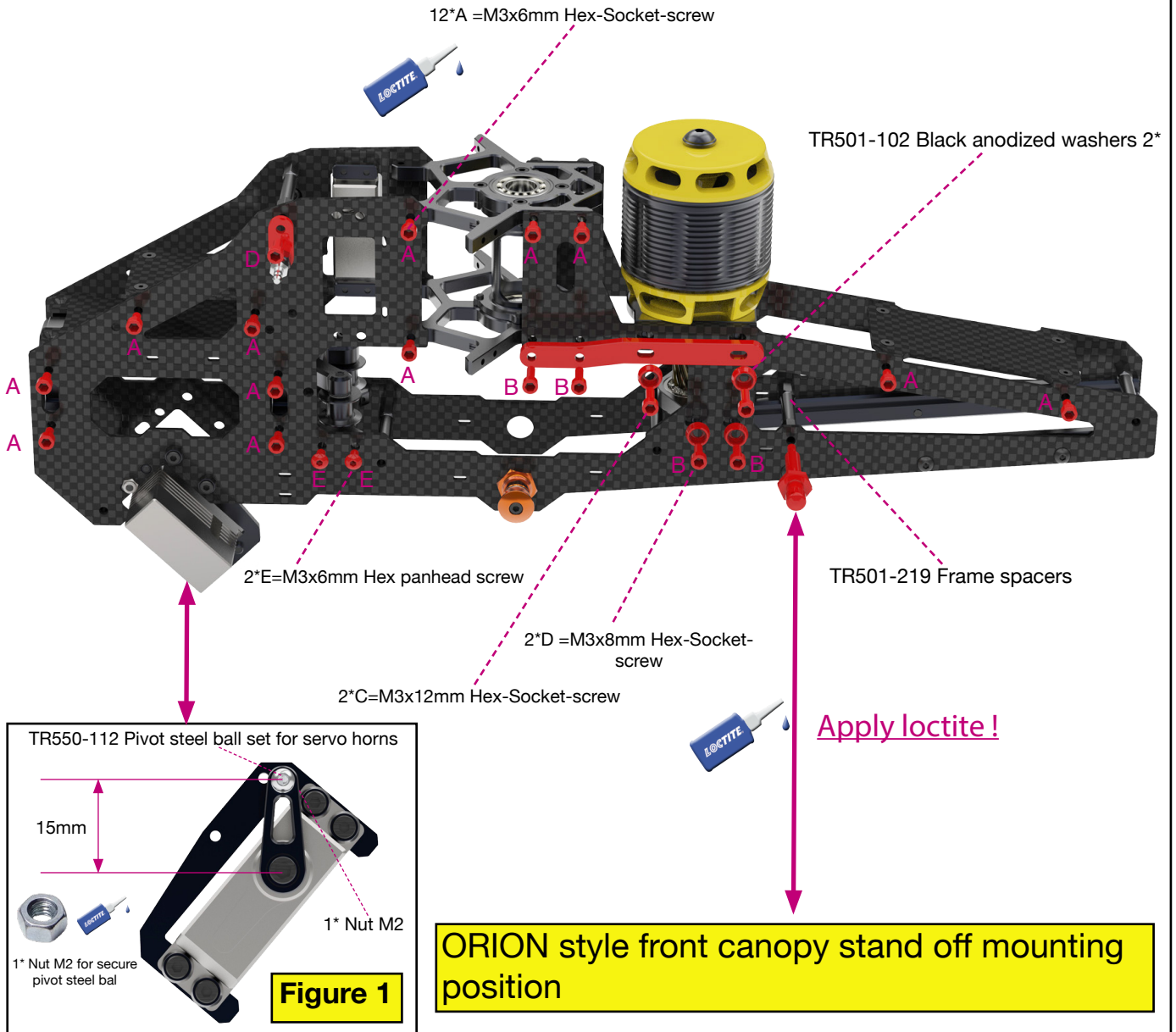
**C**  
1\* Lock nut M2.5mm

**You will need:**

Loctite 243 = blue

## Upper right frame assembly Orion/Gemini

1. Assemble motor support stiffener to the upper right main frame. Do not tighten and loctite screws A and B yet.
2. Push motor mounts support towards the right side and slightly secure the motor mount. This will be beneficial for convenient main gear assembling later on.
3. Assemble canopy stand-off for back and front (supersonic mounts backside)
4. Assemble tail servo horn accordingly figure 1.

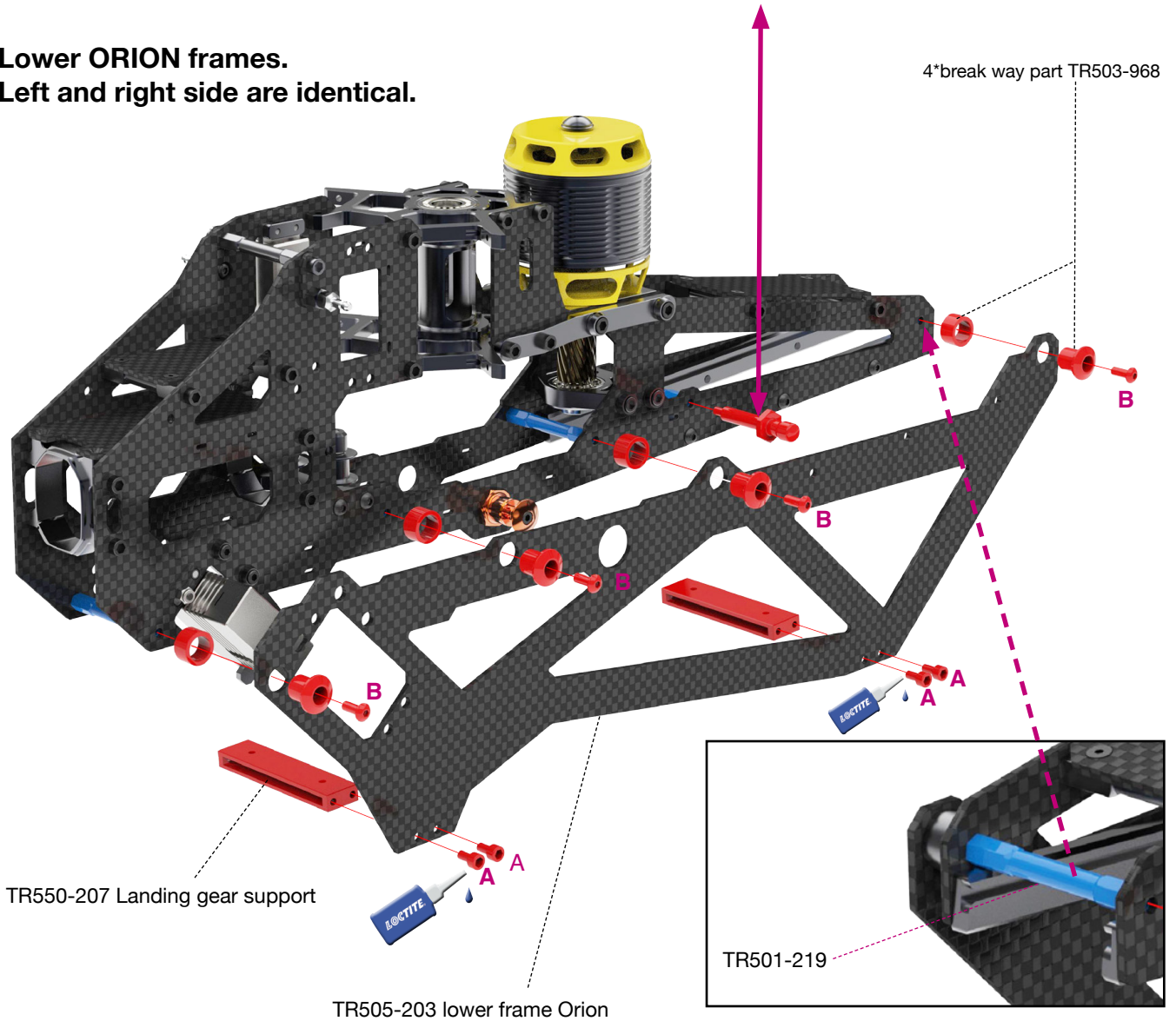


**You will need:**  
Loctite 243 = blue

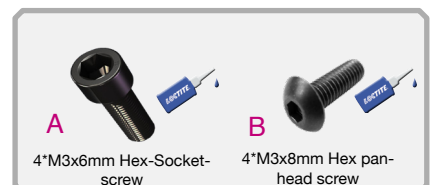
## Lower Orion frame assembly

ORION style front canopy stand off mounting position. Already assembled on page 35!

Lower ORION frames.  
Left and right side are identical.

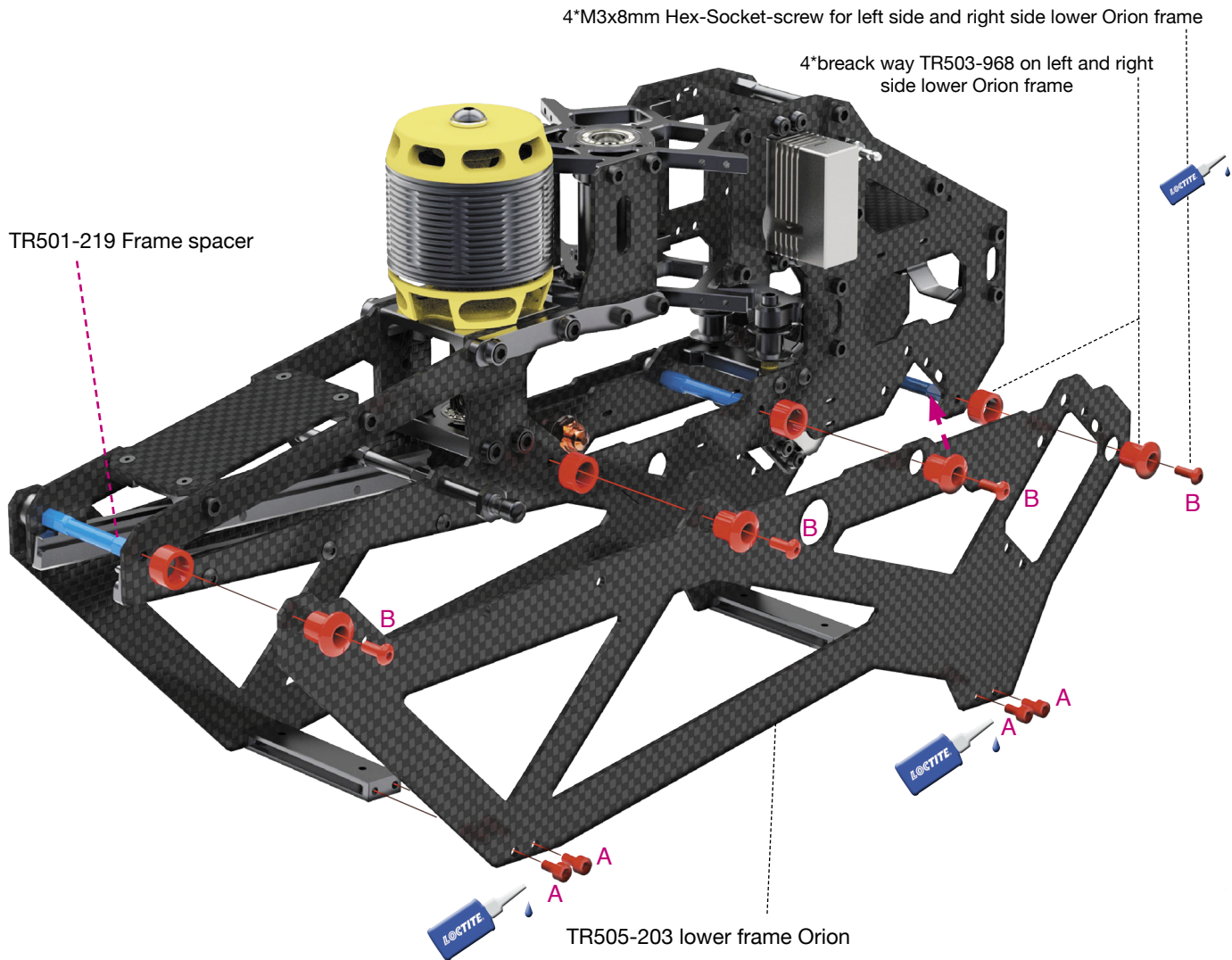


Pay attention to the 4 blue color frame spacers =TR501-219 which need to be added in this step to support the lower 2 side frames. Apply to Orion and Gemini.

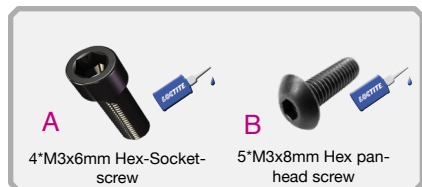


**You will need:**  
Loctite 243 = blue

## Lower Orion frame assembly



Pay attention to the 4 blue color frame spacers =TR501-219 which need to be added in this step to support the lower 2 side frames. Apply to Orion and Gemini.

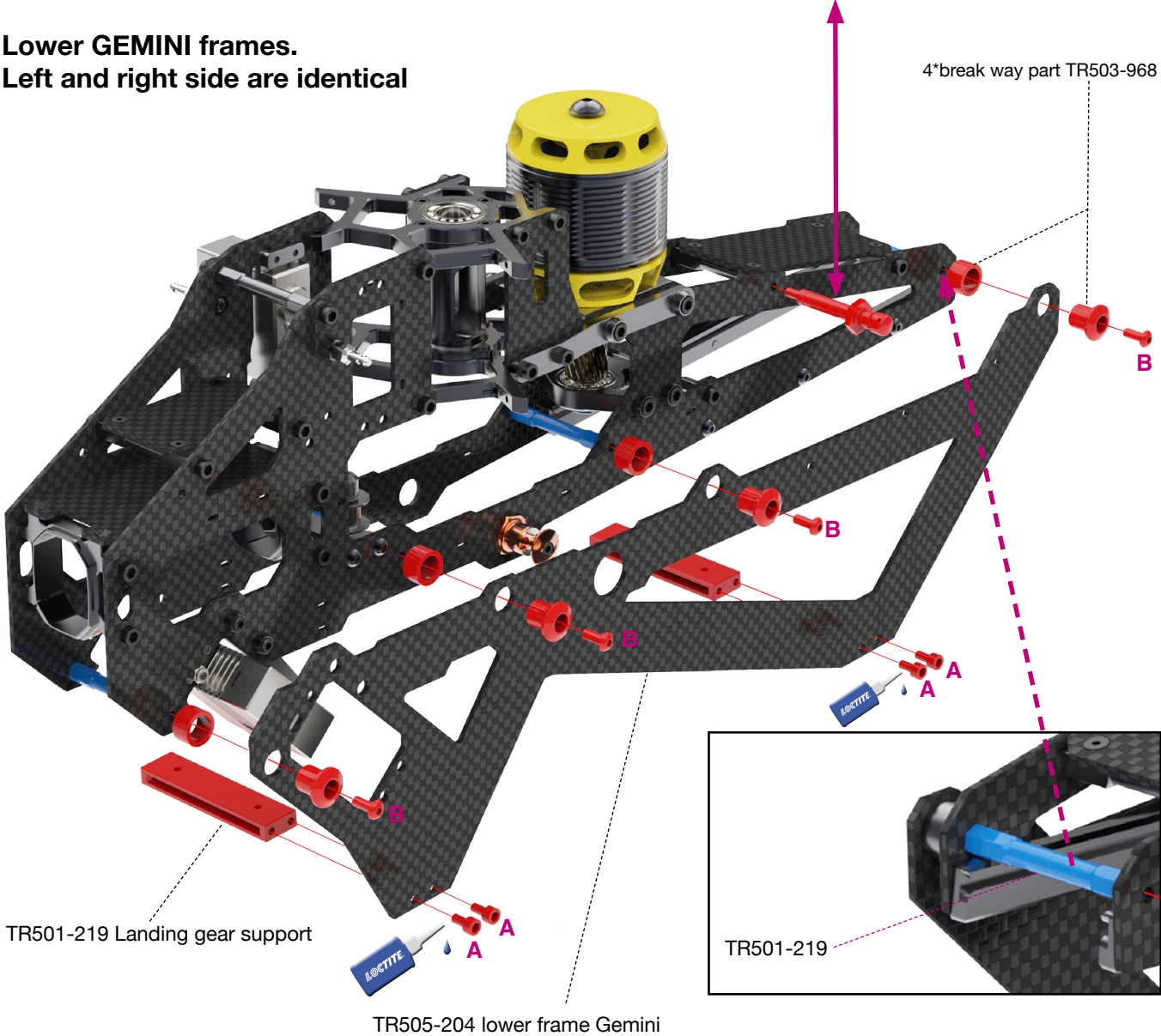


**You will need:**  
Loctite 243 = blue

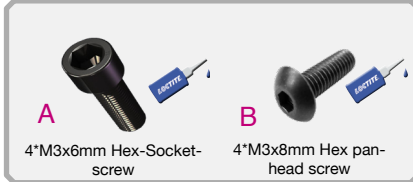
## Lower Gemini frame assembly

GEMINI style front canopy stand off mounting position.

Lower GEMINI frames.  
Left and right side are identical



Pay attention to the 4 blue color frame spacers =TR501-219 which need to be added in this step to support the lower 2 side frames. Apply to Orion and Gemini.



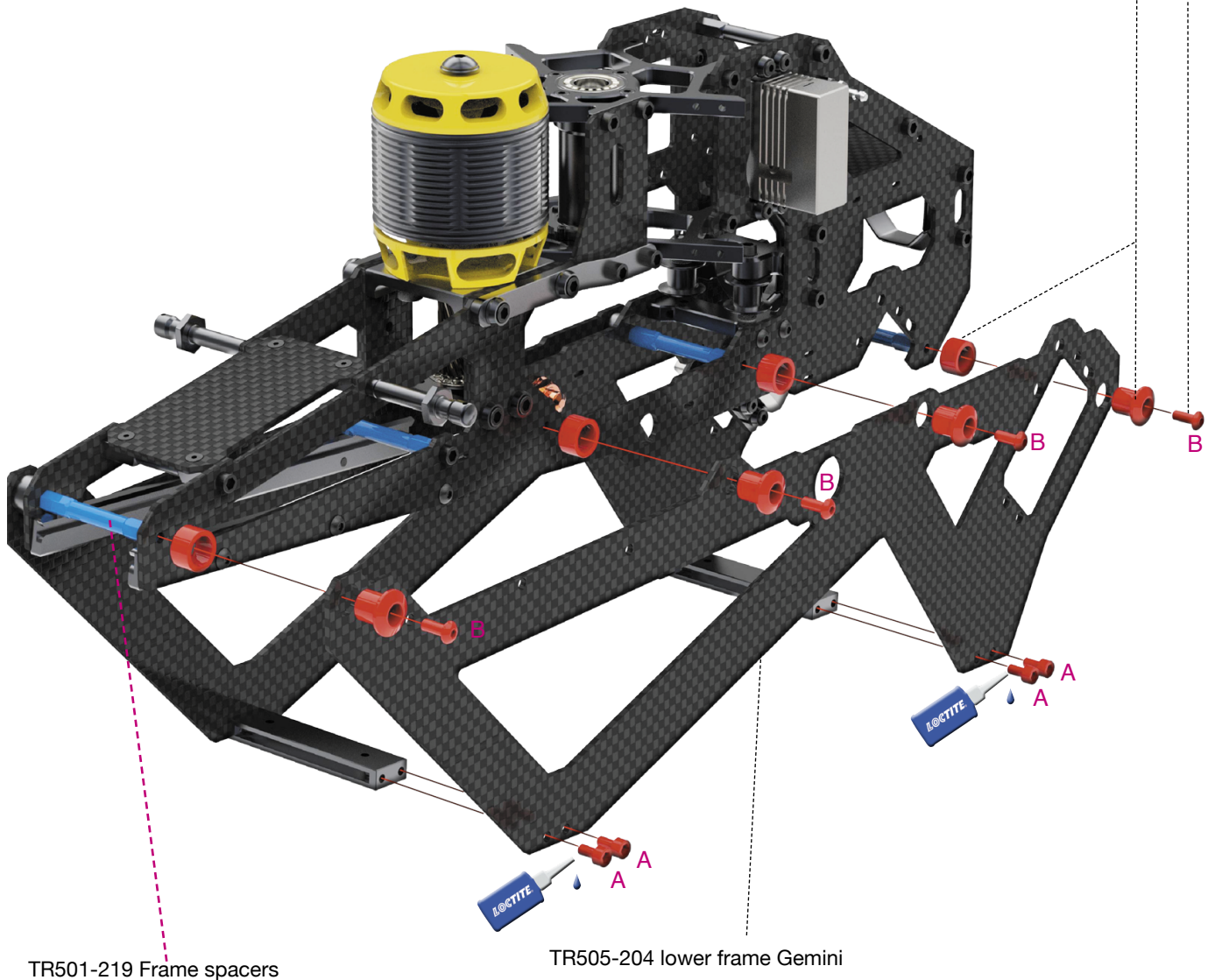
**You will need:**  
Loctite 243 = blue

## Lower Gemini frame assembly

**Assembling lower GEMINI frames.  
Left and right side are identical.**

4\*M3x8mm Hex-panhead-screw for left side and right side lower Orion frame

4\*break way TR503-968 on left and right side lower Orion frame



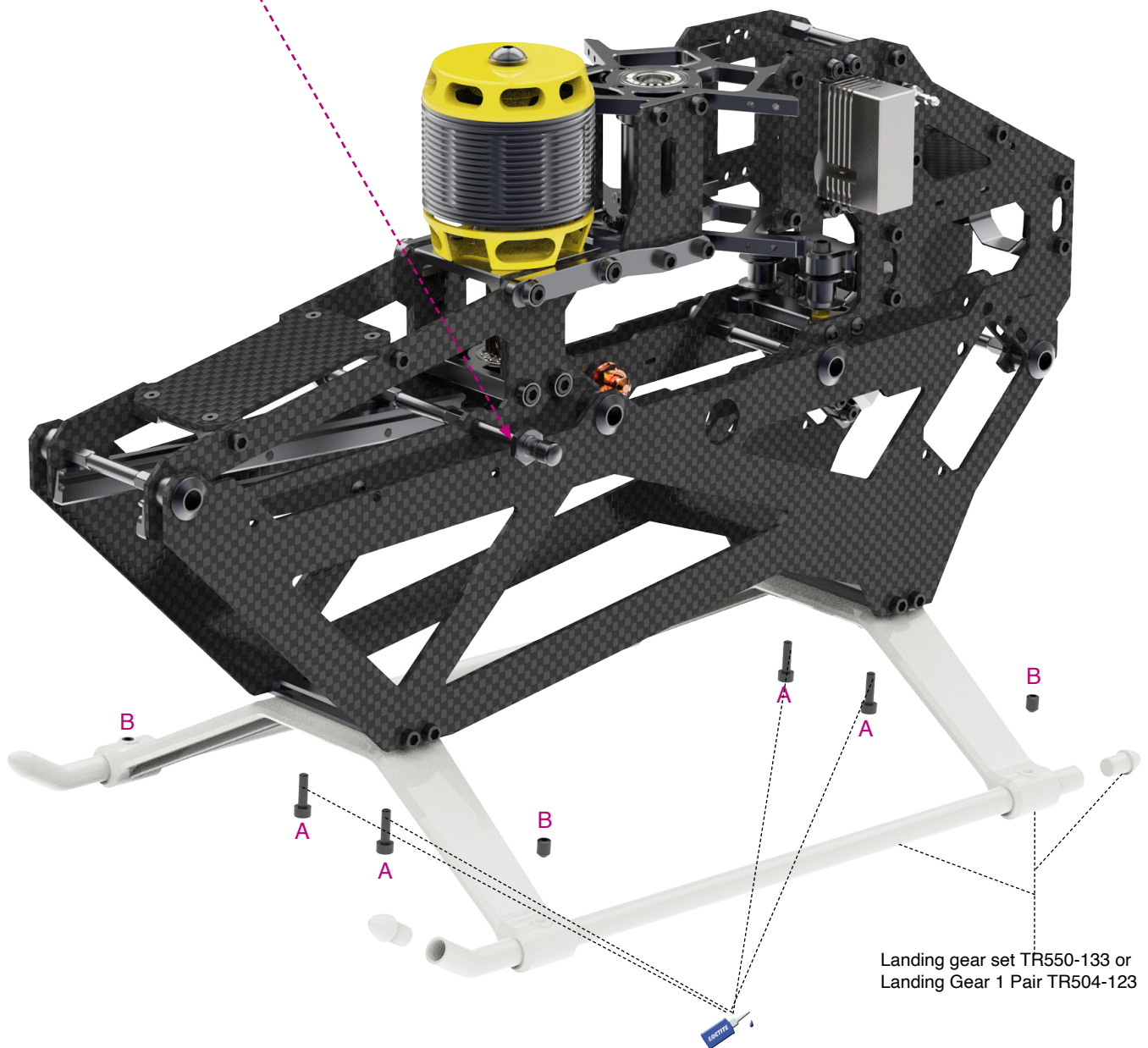
Pay attention to the 4 blue color frame spacers =TR501-219 which need to be added in this step to support the lower 2 side frames. Apply to Orion and Gemini.



**You will need:**  
Loctite 243 = blue

## Landing gear assembly

Render do show ORION style front canopy mounting stands off position and ORION frame style. Landing gear assembly is identical for Orion and Gemini.

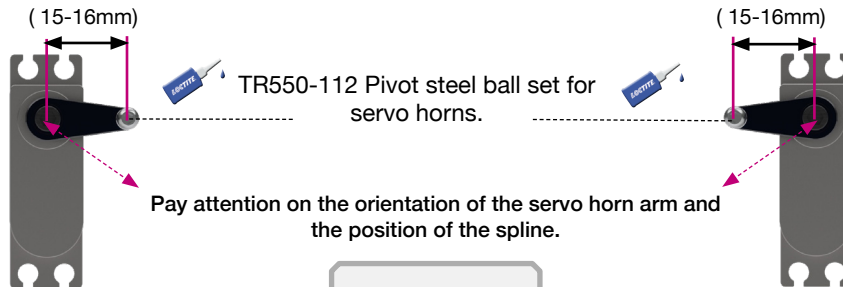




**You will need:**

Loctite 243 = blue

## Cyclic servo assembling



**Right cyclic servo ( Nr.3 / v-bar)**



**Left cyclic servo ( Nr.2 / v-bar)**

We added 2mm CF servo shims to the kit. For servos of certain brands with larger dimensions. This allows more clearance from the wires versus the main frame while mounting them to the servo frames. (CF plates can be found in the spare parts bag inside the kit)



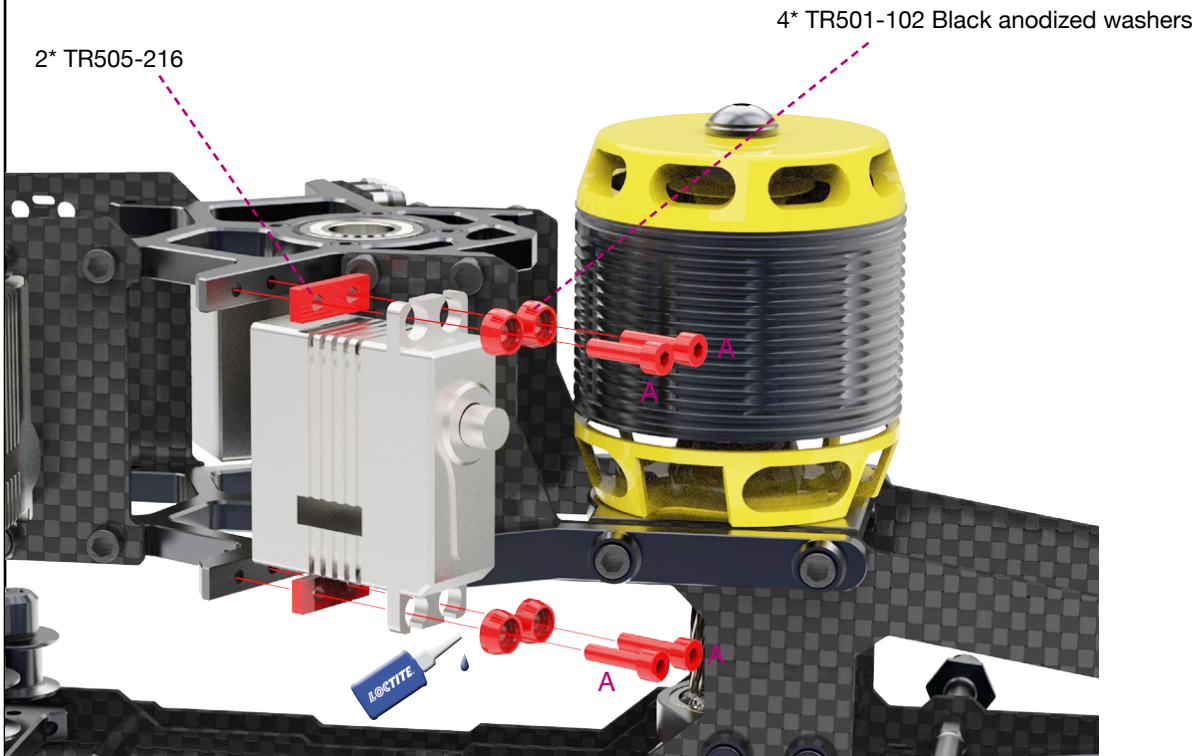
**Tech tip!**

Use 2\* M2.5\*6mm screws crosswise for easy centering by the screw head when align servo position. Assemble the M2.5 scw until the head enters the recess of the servo mounting holes. Then use the other 2 crossbars to fix the servo. Remove the temporary center screws and mount the remaining M2.5x10mm with the washer.

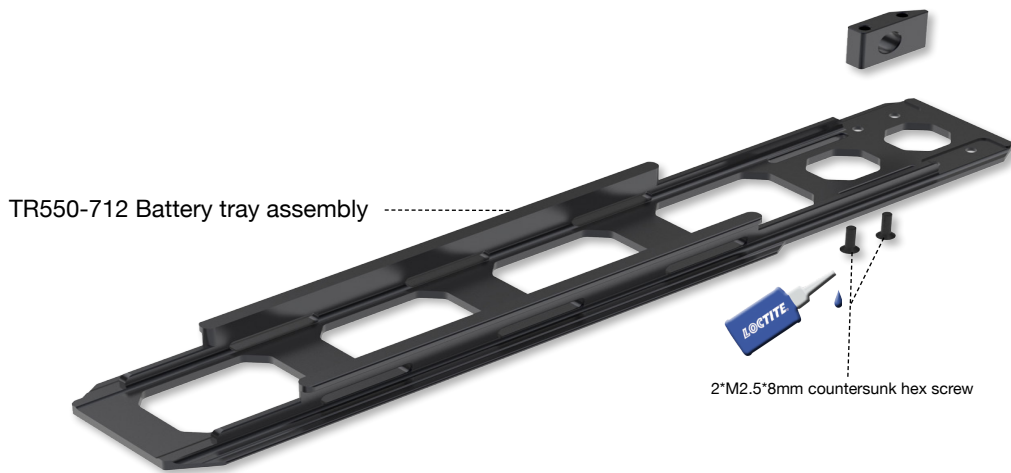


**You will need:**  
 Locktite 243 = blue

## Pitch servo assembling and battery tray



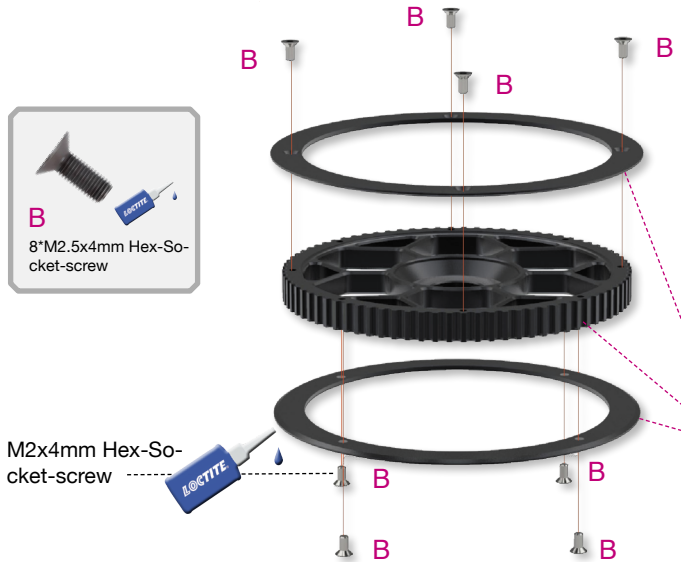
**Tech tip!**  
 Use 2\* M2.5\*6mm screws crosswise for easy centering by the screw head when align servo position. Assemble the M2.5 scw until the head enters the recess of the servo mounting holes. Then use the other 2 crossbars to fix the servo. Remove the temporary center screws and mount the remaining M2.5x10mm with the washer.



**You will need:**

- Loctite 243 = blue
- Grease or oil

## Main drive preparation



M2x4mm Hex-So-cket-screw

TR550-580 Tail belt front pulley.

One way drive assembly is preassembled at the factory. Disassembling is not required. Only add a few drops of oil to the one way bearing if you like.



Main drive assembly is preassembled at the factory. Disassembling is not required. Just remove 8\*A=M2.5x12mm screw and 8\*B=M2x4mm add loctite 243 and screw back.



TR501-304 One way bearing sleeve including 2 bushings

**Add a few drops of oil or grease.**

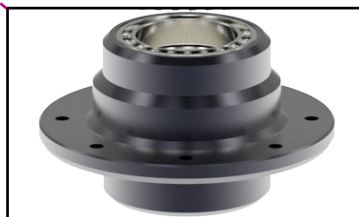
8\*M2.5x12mm Hex-So-cket-screw

**8\* A**

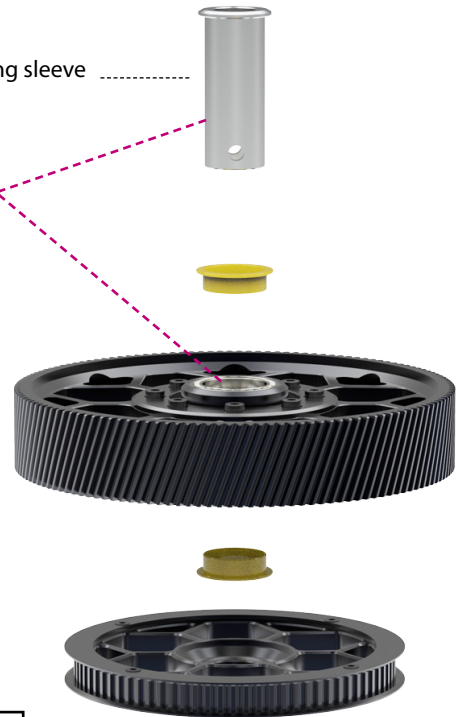


TR503-136 Machined delrin main gear 136T

HD oneway drive inclusive OWB TR550-524



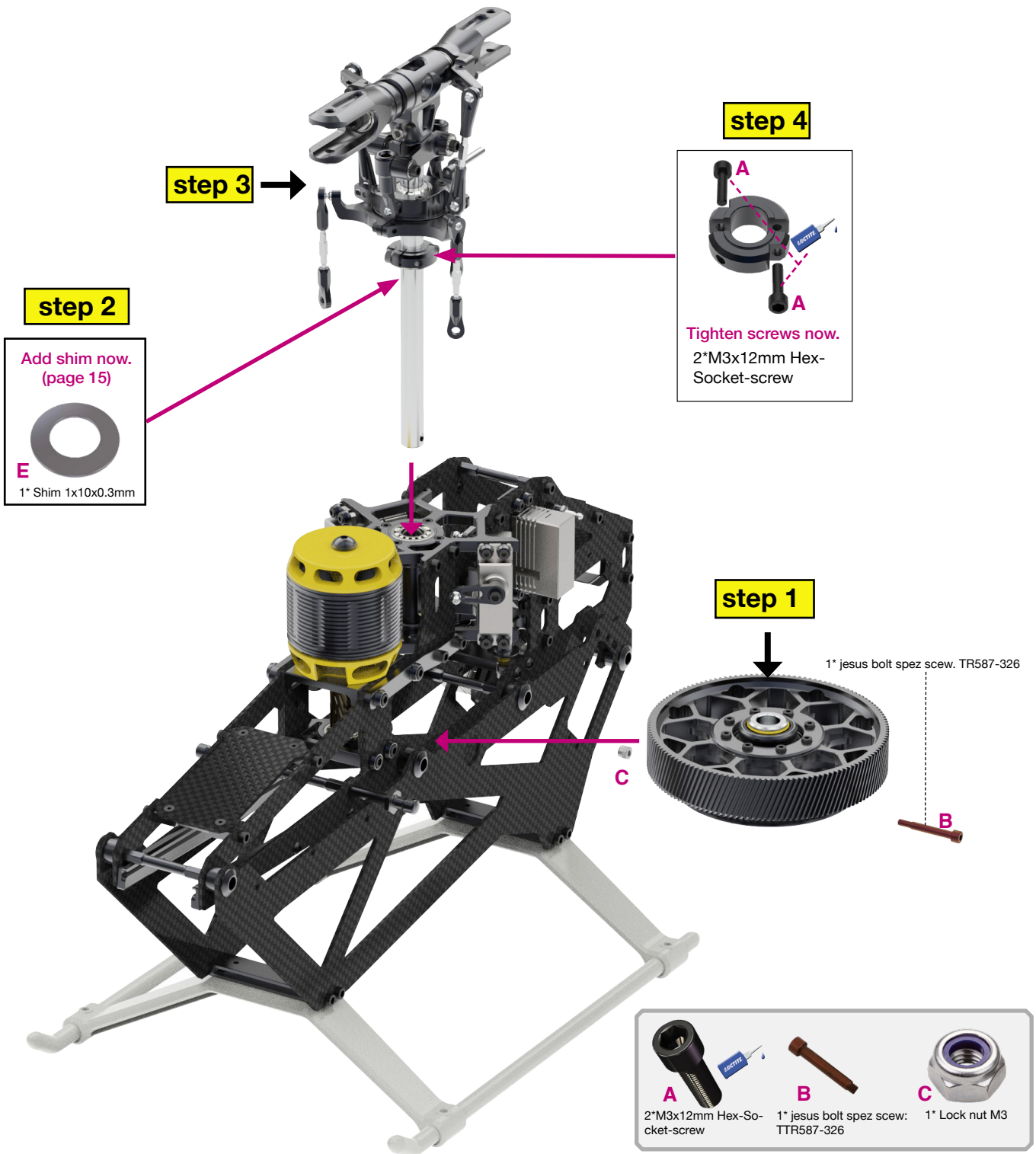
**Note orientation!**



**You will need:**  
Loctite 243 = blue

## Assembling head and maingear to frame

1. Insert main gear assembly into frame = step 1
2. Insert rotor head assembly through bearing support tube, dont forget to add shim **E** = step 2 and 3.
3. Make sure your main shaft glide true the one way bearing sleeve and line up with the jesus bolt screw holes.
4. Insert jesus bolt screw, **B** and secure it with the M3 nut lock, **C**
5. Move down the main shaft collar to have zero up and down play on the rotor head assembly, then tighten screw **A** step by step = step 4.
6. Make sure to have an equal gap on the collar to achieve best holding results for the main shaft= step 3

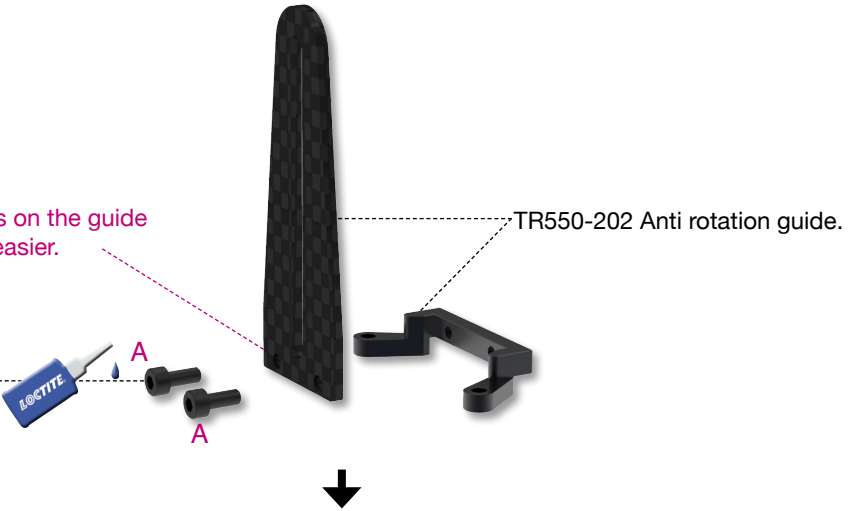


**You will need:**  
Loctite 243 = blue

## Anti rotation guide

Sanding the edges on the guide makes assembly easier.

M2.5x6mm Hex-Socket screw



**A**  
2\*M2.5x6mm Hex-Socket-screw



**B**  
2\*M2.5x8mm Hex-Socket-screw

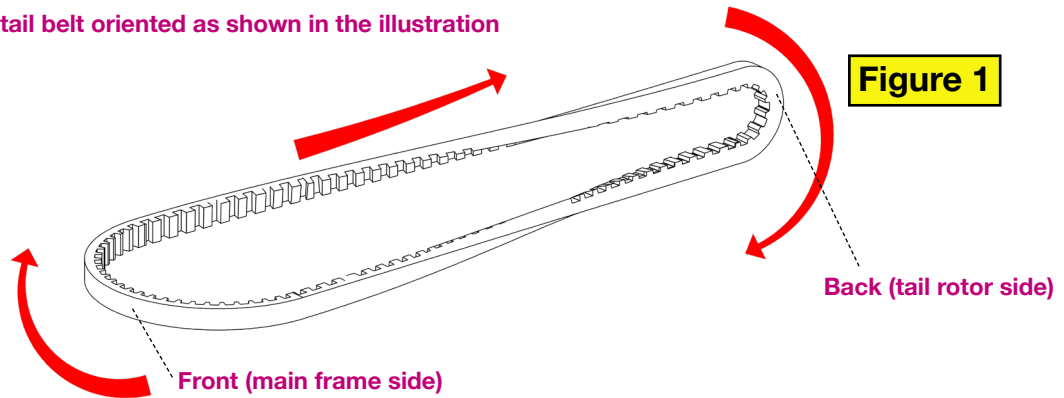


M2.5x8mm Hex-Socket-screw

**You will need:**  
Loctite 243 = blue

## Tail boom to main frame assembly

Ensure to have your tail belt oriented as shown in the illustration



1. Insert boom as shown into the tail boom clamps, pay attention to the correct orientation of the tail belt.
2. Slide the belt through the idler pulleys from the belt tensioner, use a cable tie for help.
3. Pull the tail belt over the front belt drive pulley.
4. Pull the boom backwards and apply tension to the belt.
5. Tighten the boom clamp screws with screw **A**. Add loctite 243 / blue!
6. Ensure the tail is rotation in the correct direction when turning the main rotor head clockwise. ( Figure1 )
7. Apply ( 3 ) turns on the belt tensioner set screw. See also page 51.

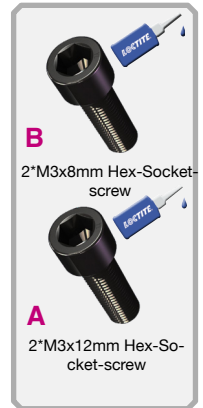
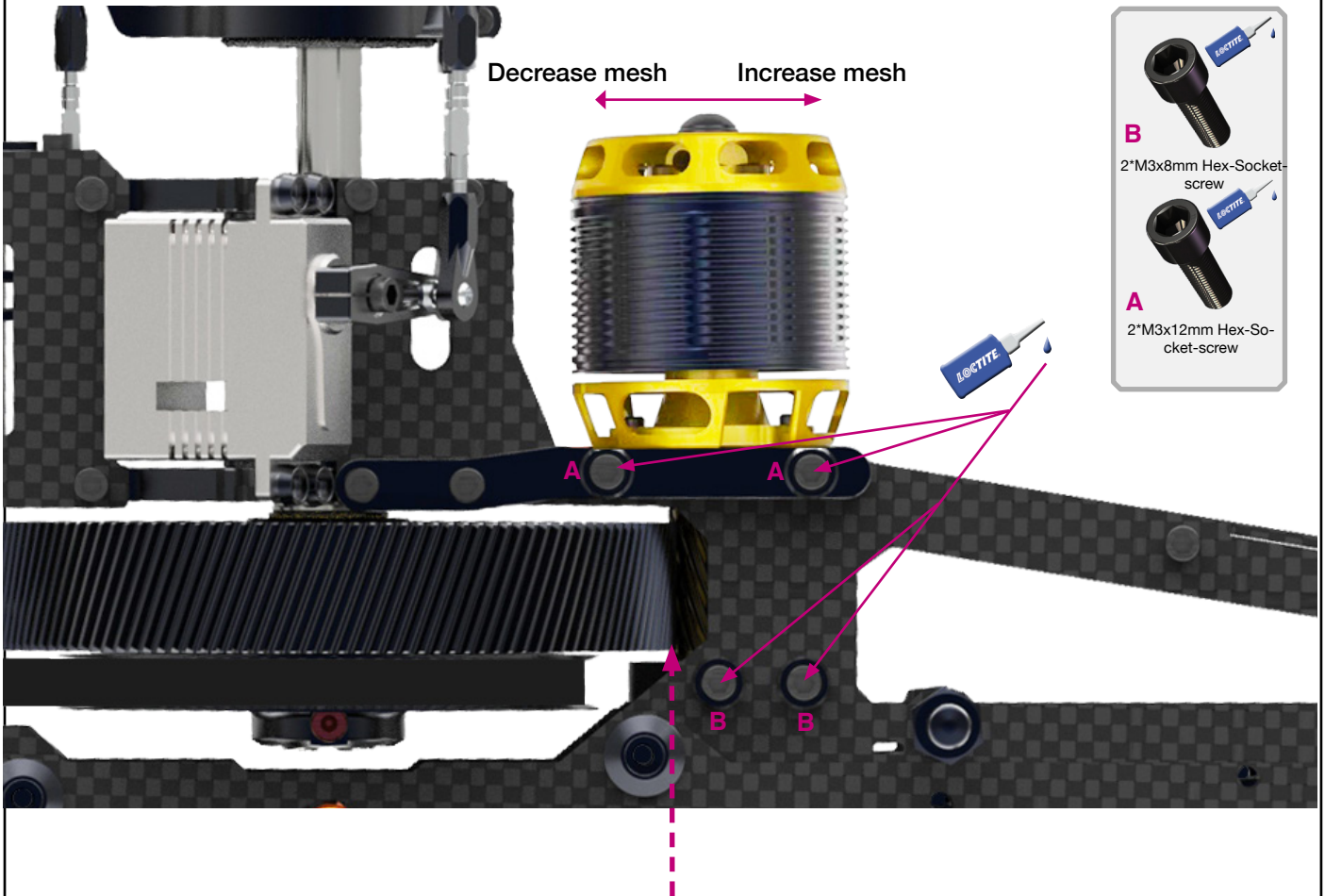


**You will need:**

Loctite 243 = blue

## Adjusting motor pinion versus main gear

1. Set gear mesh as shown below in the illustration ( 0,1mm gap )
2. Carefully tighten screws A crosswise left and right while you slightly pressing down the motor mount to have it 90 degree to the main gear. Use loctite 243 = blue on all A and B type screws!
3. Make sure after all A screws are tight the main gear turn free with a minimal gear play.



**Tech tip!**  
Ensure proper gear mesh by adjusting the gears until they engage smoothly without excessive play or tightness. Proper gear mesh is critical for optimal performance and longevity of the components.



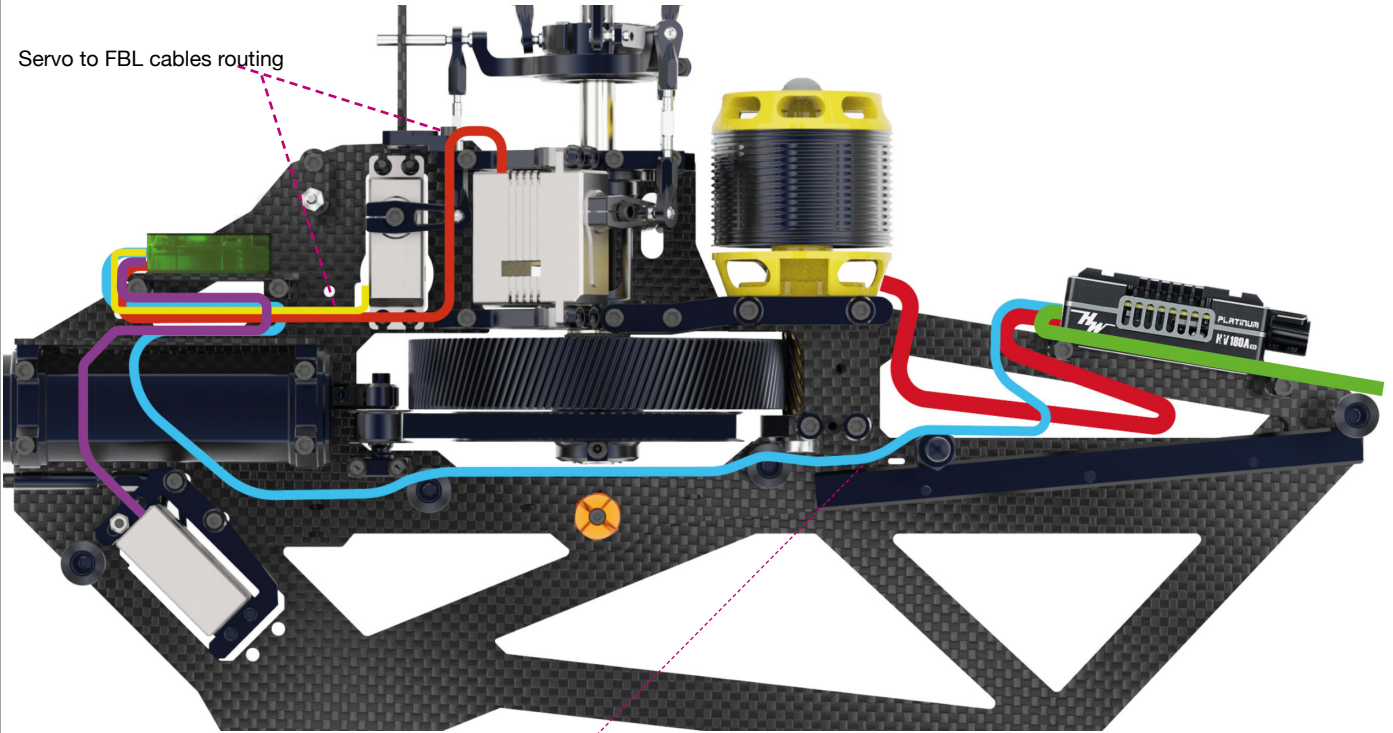
**Tipps!**

## Wiring electronics

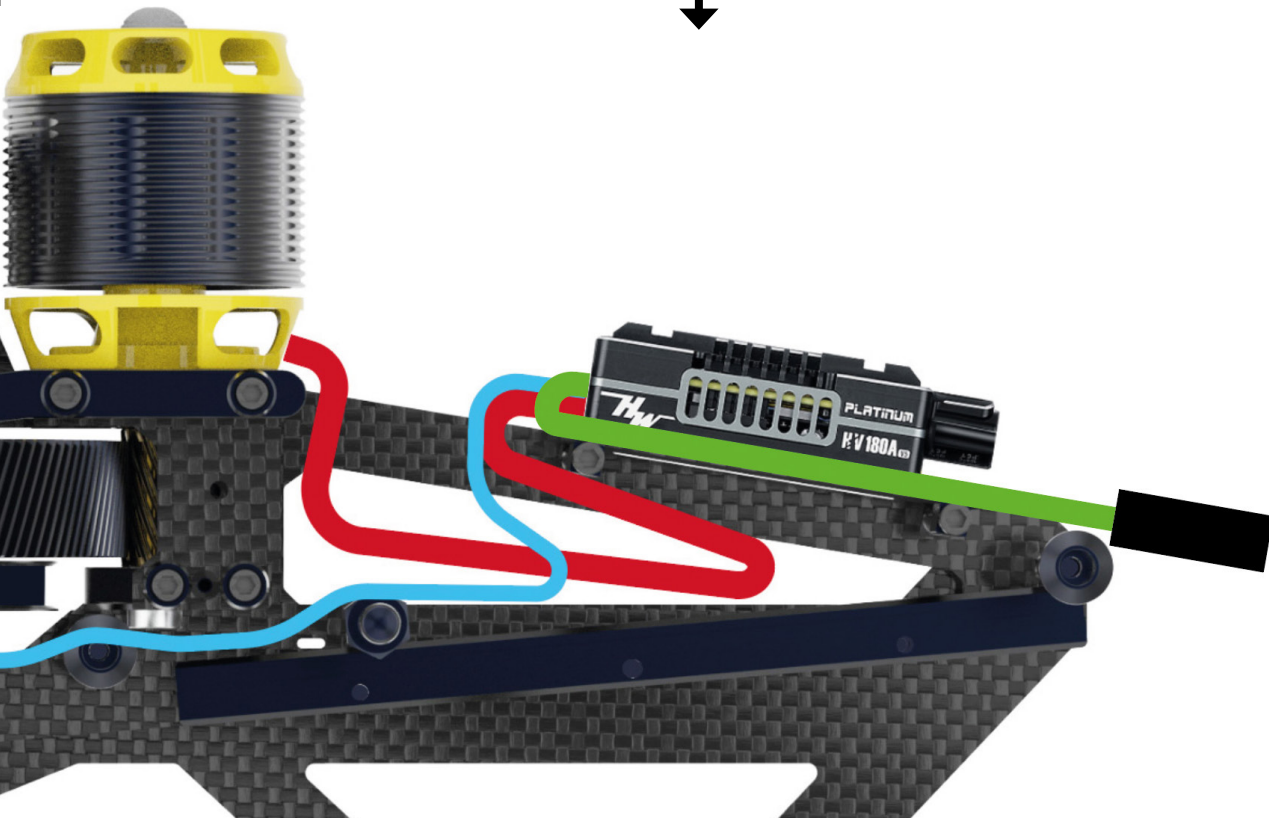
**Tech tip!**

You may want to use servo wire protection shrink tube to avoid cuffing or cutting on servo wires. Please make sure all edges on the frames which are in contact with wires are eased with sandpaper.

Servo to FBL cables routing



ESC to FBL cables routing ( routing can be done inside the frames)





# TRON

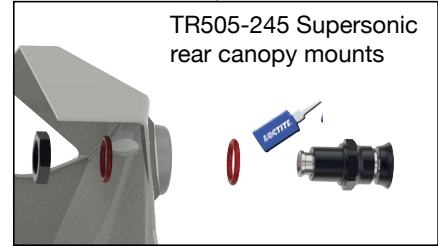
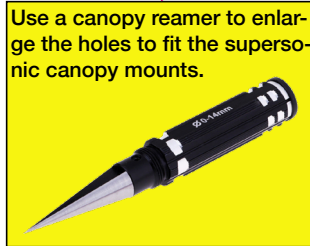
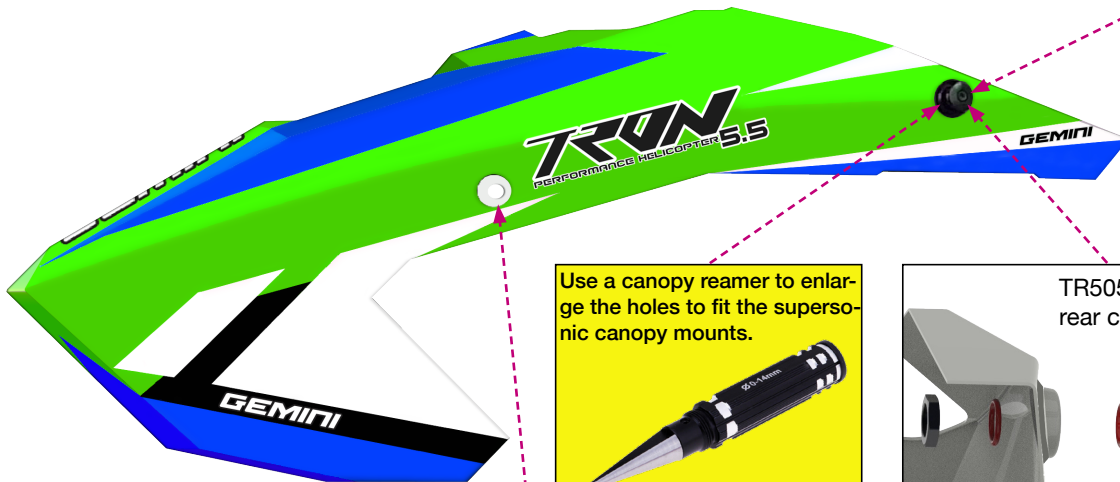
PERFORMANCE HELICOPTER 5.5 ORION / GEMINI

**You will need:**

Loctite 243 = blue

## Canopy

1. Enlarge the real canopy holes to (9mm) use a proper canopy reamer!
2. Assemble the supersonic mounts as shown in the illustration ( use loctite to secure the nuts )
3. Use the rubber grommets for the front holes.



**Tech tip!**

You may need to slightly enlarge the canopy mounting holes to perfectly fit the supersonic canopy mounts. Please use a proper canopy reamer and NOT an ordinary drill!!

Use CA glue for the two front canopy grommets. Slightly chamfer the front holes on the canopy for the grommets to extend their lifespan.



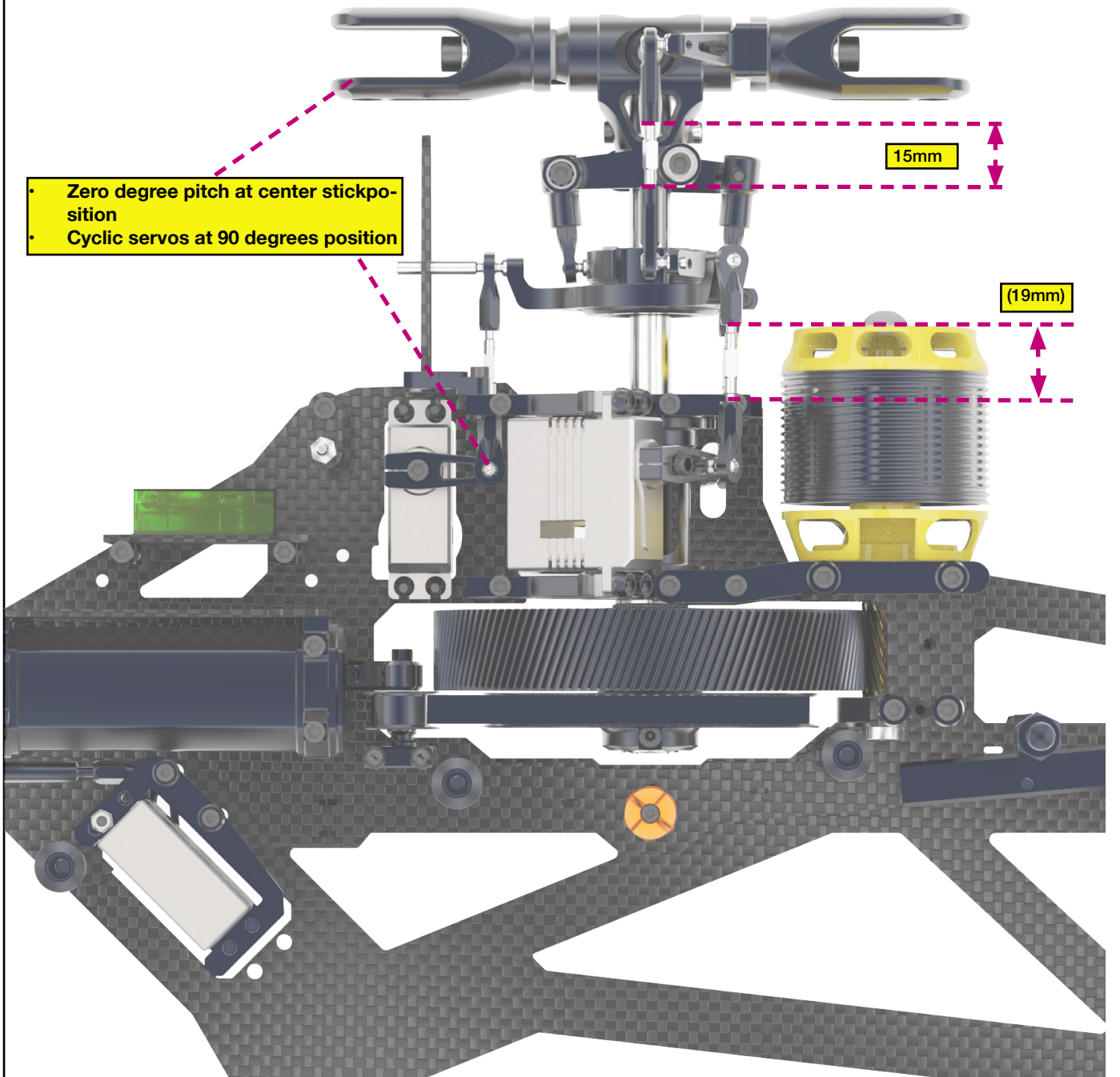
Orion Canopy orange black TR502-154



Gemini Canopy neongreen shockblue TR502-163



Final setup and pre-flight check



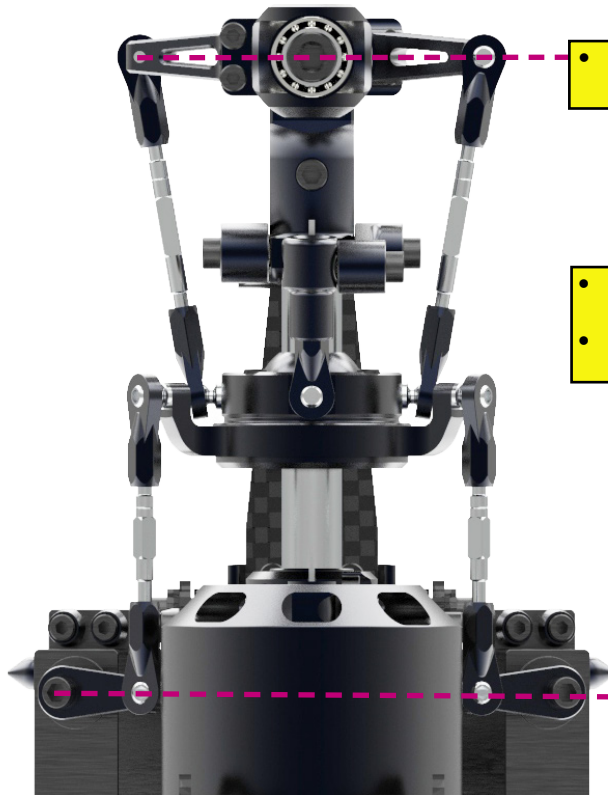
- Zero degree pitch at center stick position
- Cyclic servos at 90 degrees position

15mm

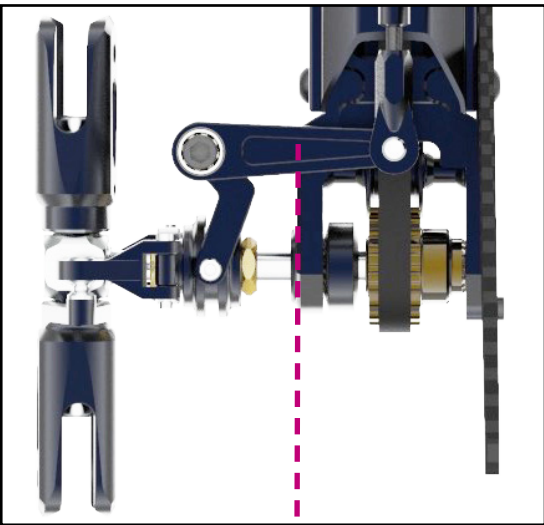
(19mm)

## Final setup and pre-flight check

1. **Disconnect your Motor wires from the ESC!**
2. FBL controller should be set to the mode where you can level your servo center position and, or swashplate level mode.
3. Fine tune your servo center position as precise as you can by the position of the servo horns. For finetuning use Sub trims in the FBL software.
4. Adjust your linkage from the servos to the swashplate as shown in the illustration. (90 degree)
5. Adjust your swashplate to Blade grip linkage to achieve 0 pitch at center stick position.
6. Continue setup as required in your FBL controller software.

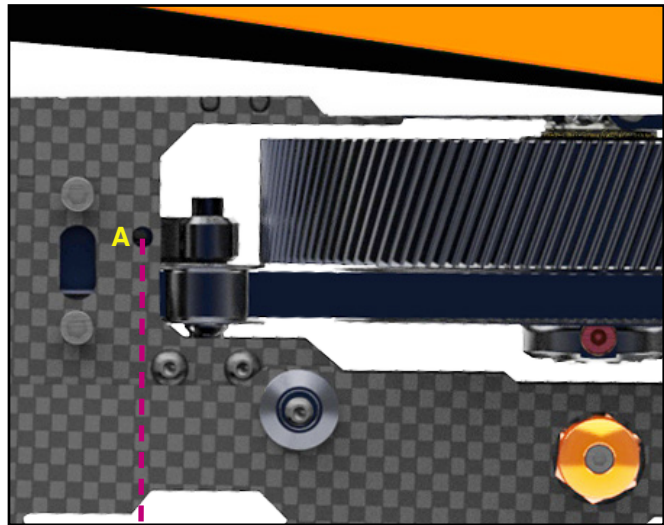


### Tail rotor linkage setup.



For best tail authority performance adjust center position of your tail pushrod linkage ( tail servo) same as shown in the illustration ( 90°) degree.

### Belt tensioner setup.

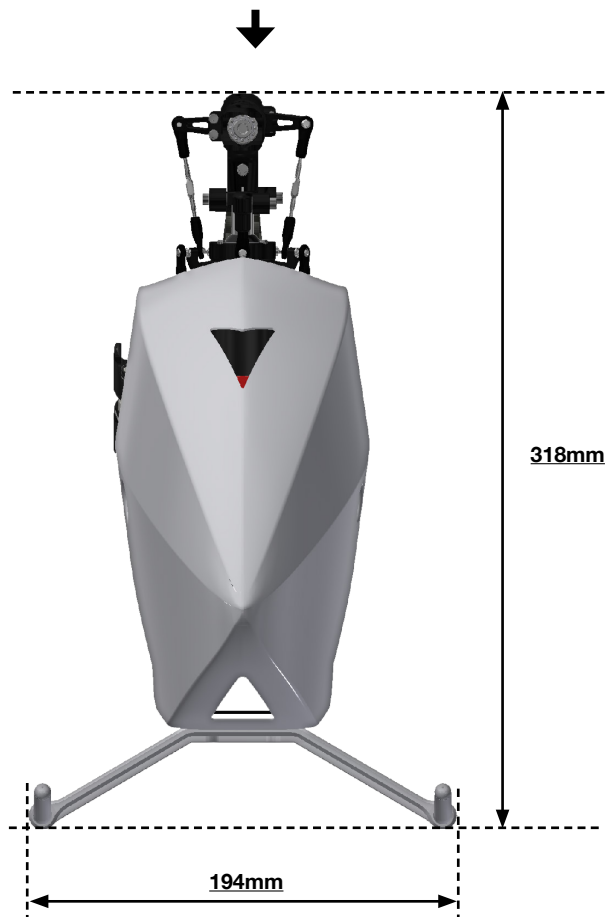
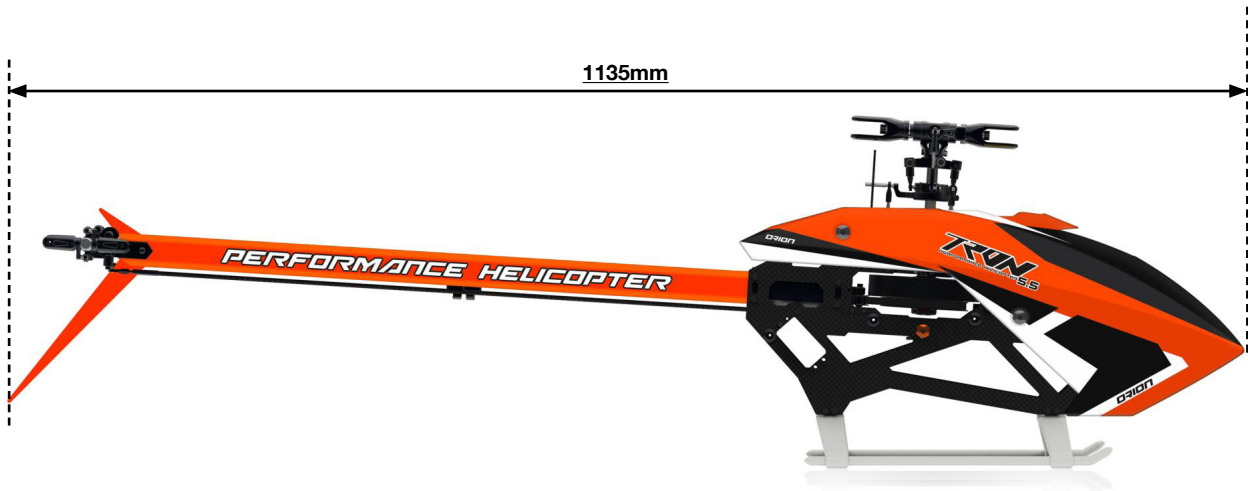


After tightening the tail belt by pulling the tail boom backwards, pre-load the set screw **A** on the belt tensioner with three full turns. No further adjustments are required after this step.

## Dimensions and weight

Tron 5.5 ORION and GEMINI have identical dimensions

1. Dry weight = 1630 gram without blades and electronics
2. With = 194mm
3. Height = 318mm
4. Length = 1135mm
5. Max main blade size = 560mm
6. Max tail blade size = 98mm



## Preflight check and gear ratios

1. Make sure your battery tray is securely locked. Use 2 -3 battery straps.
2. Inspect your blades for possible damage and if they are slightly tighten.
3. Inspect your linkages if they are all in place and not have been popped off turing transport of your model.
4. Confirm that the FBL unit is correctly initialized.
5. Make sure your canopy is secured safely.
6. If you are a beginner, always seek advice by a experienced pilot, especially for your first flight.
7. Do regular maintainance and inspect Ball links for wear and also Tail belt, main gear and bearings. Make sure your srcews remain save and tight.

### Recommended head speed.

Flying styles	Head speed
Beginner and sport flying.	1800-2400rpm.
Advanced sport, 3D flying.	2400-2600rpm.
Hardcore 3D flying.	2600-2800rpm.



### Main and tail rotor gear ratios.

Main gear	Pinion	Ratio	Tail drive	Tail	Ratio
136	13T/6mm	10.46	80T	18T	4.44
136	14T/6mm	9.71	<b>80T</b>	<b>19T</b>	<b>4.21</b>
136	15T/6mm	9.06	80T	20T	4.00
<b>136</b>	<b>16T/6mm</b>	<b>8.50</b>			
136	17T/6mm	8.00			

**INCLUDED IN KIT**

**INCLUDED IN KIT**

**Make sure to check your model on a regular basis, do a preflight check every time you plan to fly your model.**

**Max. head speed for main rotor head must not exceed 3000 RPM!**

**Contact:**  
 For sales: [sales@tronhelicopters.com](mailto:sales@tronhelicopters.com) / for support: [support@tronhelicopters.com](mailto:support@tronhelicopters.com)  
[tronhelicopters.com](http://tronhelicopters.com)