MANUAL V 1.0.1

TRON PERFORMANCE HELICOPTER 7.0

Index

About Tronhelicopters

The company Tronhelicopters was founded 2019 in Switzerland by Dario Neuenschader, Ricky Yin and Joachim Etter. (EMT team)

About us:

Dario Neuenschwander.
Dario has long been known in the RC helicopter scene for many years.
He was heavy involved in the designs of the 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 to FPV racing. He did well and took the official FPV-FAI world champion title in 2017.

Joachim Etter
The head behind many projects. He is known for his business ideas and his ability to make products a success with his designs. Before that, he was closely associated with various manufacturers, for whom he did designs and business consultancy. Joachim was also the main founder, designer and builder of the xnovamotors brand.

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.

Features.

1. WIDE BATTERY COMPARTMENT WITH QUICK LOCK AND RELEASE SYSTEM.
2. LIGHT, YET VERY STIFF AND ROBUST.
3. INNOVATIVE FBL TRAY. (ADJUSTABLE DAMPENING HARDNESS)
4. DRY WEIGHT= (2190) GRAMS WITHOUT BLADES AND ELECTRONICS.
5. 12MM HOLLOW MAIN SHAFT.
6. 10MM FEATHERING SHAFT.
7. MAIN GEAR =155 T MOD. 1 / TAIL DRIVE FRONT PULLEY = 127 T AND 27 T ON TAIL ASSEMBLY.
8. REAL FULL CARBON MAINFRAME.
9. MOTOR MOUNTING DESIGN REDUCING OVERALL WEAR ON THE POWER SYSTEM AND DRIVE TRAIN.
10. MOTOR SIZES, 4030, 4035, 4525, 4530, 4535 (6MM SHAFT REQUIRED MIN. LENGHT = 20MM) 520 - 560KV.
11. 16 T MOTOR PINION INCLUDED IN KIT. (6MM BORE DIAMETER)
12. OCTA BOOM DESIGN WITH OVAL SIDE SHAPES, NO BOOM SUPPORTS NEEDED.
13. CAPABLE TO USE A WIDE RANGE OF LIPO BATTERIES. 6S - 14S . (12S - 5000MAH TO 5500MAH RECOMMENDED).
14. PERFECTLY THOUGHT-OUT SERVO LAYOUT IN CONJUNCTION WITH THE FBL SYSTEM AND ESC.
15. EASY CABLE ROUTING WITH VARIOUS OPTIONS TO ENSURE A CLEAN SETUP.
16. HIGH VISIBILITY CANOPY FOR PERFECT ORIENTATION IN FLIGHT.
17. RECOMMENDED MAIN BLADE SIZE 685 - 720 MM. TAIL BLADE SIZE 95 - 115 MM
18. SUSTAINABLY PRODUCED

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.

Safety notice

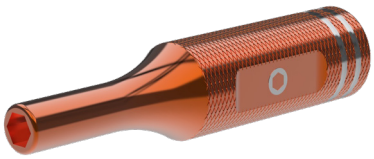
CAUTION:
This radio controlled helicopter is not a toy.
The product is not suitable for children under 14 years of age.

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.

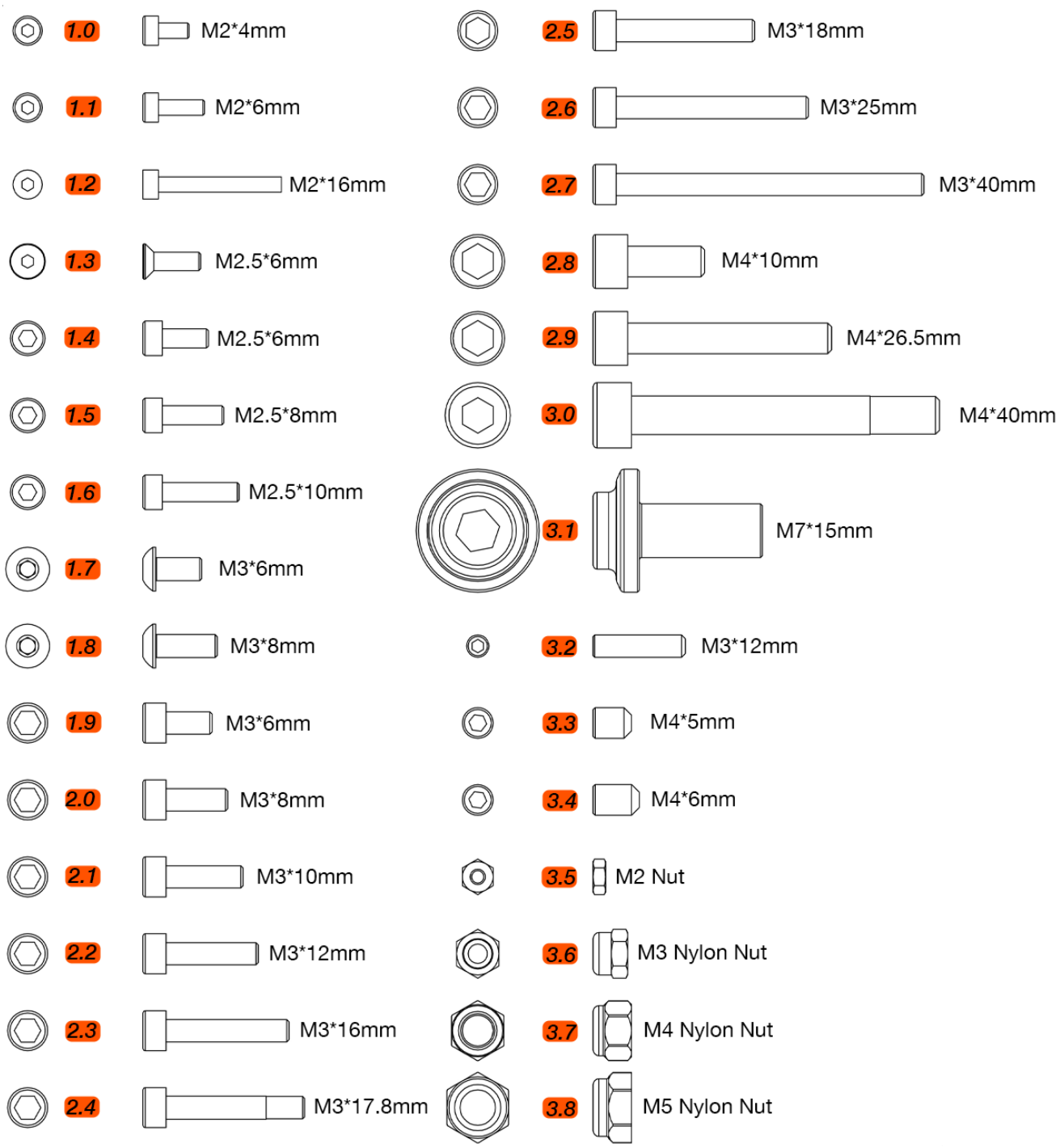
Tools required

	2 component epoxy
	Loctite 243 / medium strength
	Grease
	2x 7mm Wrenches for tail shaft nut
	Hex screwdriver 1.5mm/2mm/2.5mm/4mm/5mm
	TR-XXXXX Pair of customized nut wrench for tail shaft assembly. Optionally available at your Dealer.

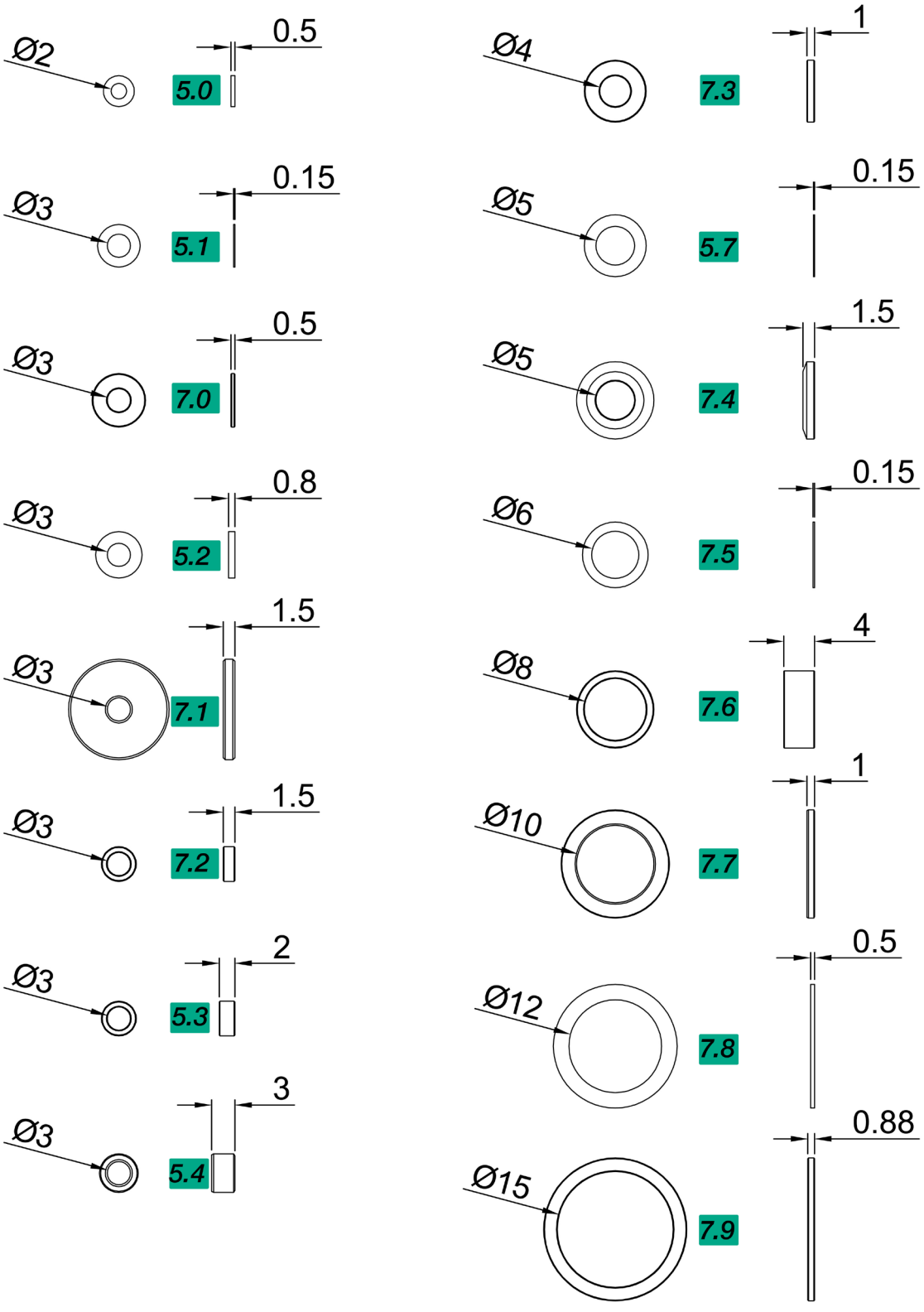
Electronics required

	3x full size servo for swashplate
	1 full size servo for tail
	BL motor. 4030-4535 /500-560KV
	ESC 6S-12S 112A-205A
	FBL device and receiver with 6 channel transmitter.

Screws and nuts



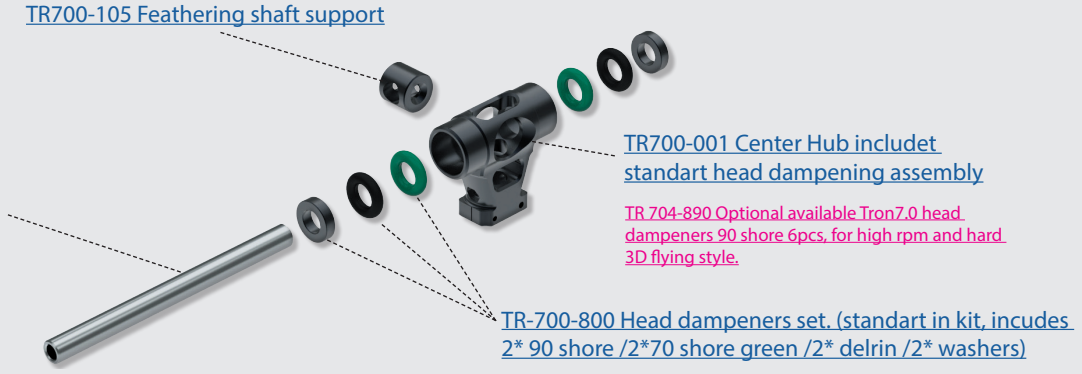
Shims and washers.



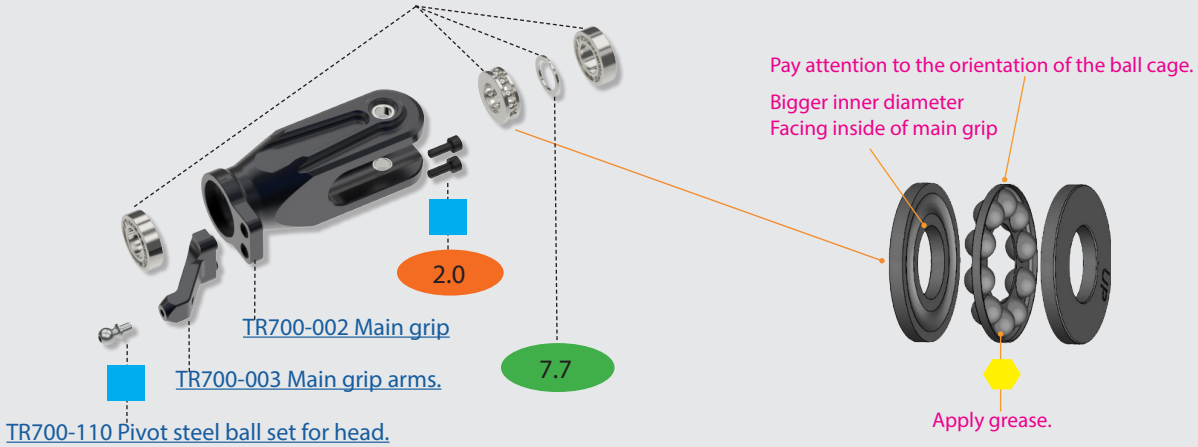
TRON PERFORMANCE HELICOPTER 7.0

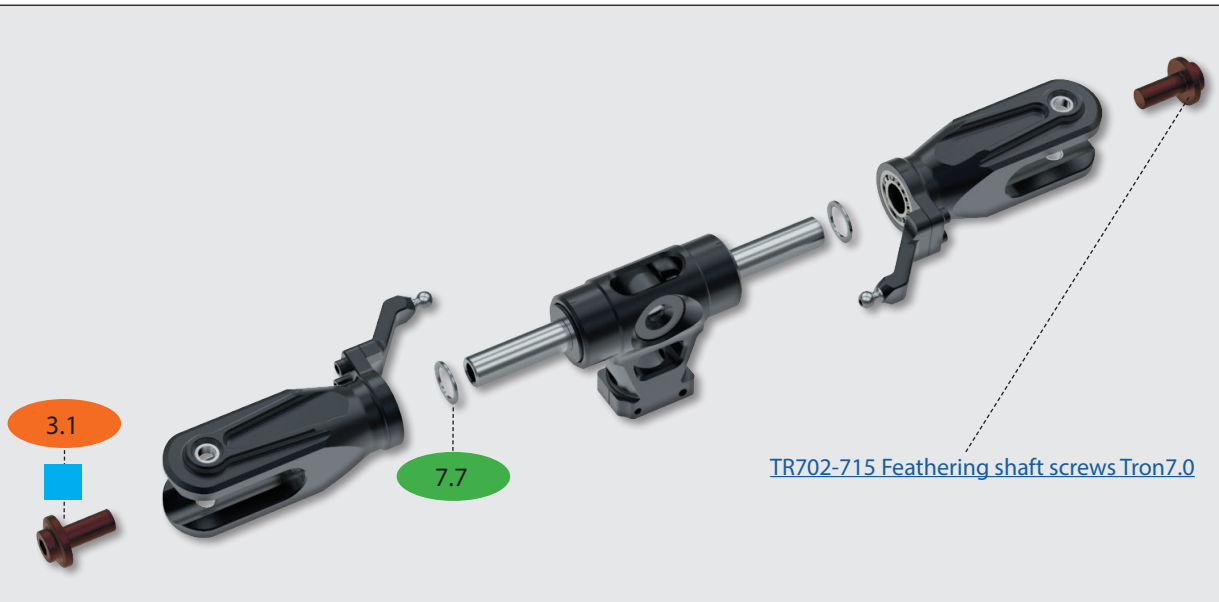
You will need:
Loctite 243 = blue
Grease = yellow

Head assembly



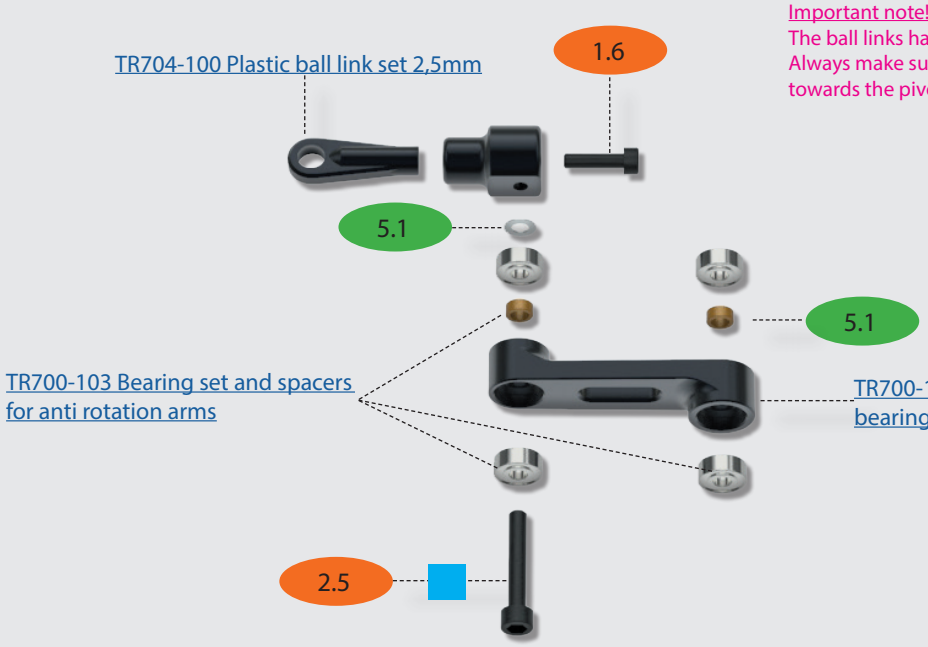
TR700-107 Main grip bearings set, with thrust bearings and shims.





You will need:
Loctite 243 = blue

Head assembly

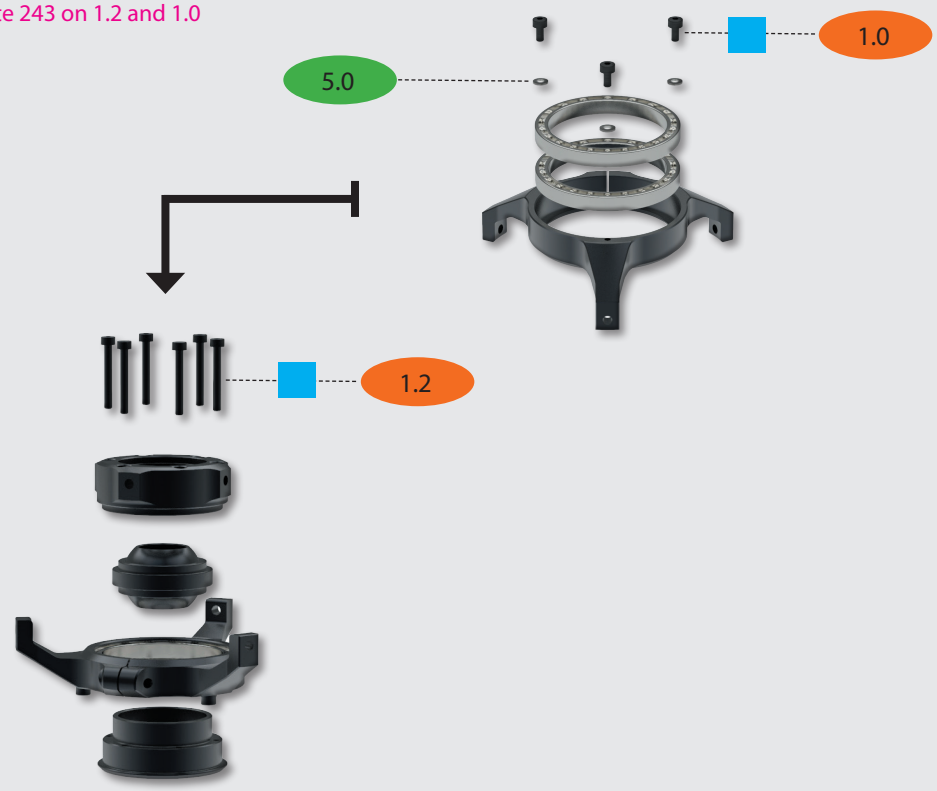


Important note!
The ball links have a larger and a smaller diameter. Always make sure the larger diameter is pointing towards the pivot ball when assembling!

You will need:
Loctite 243 = blue

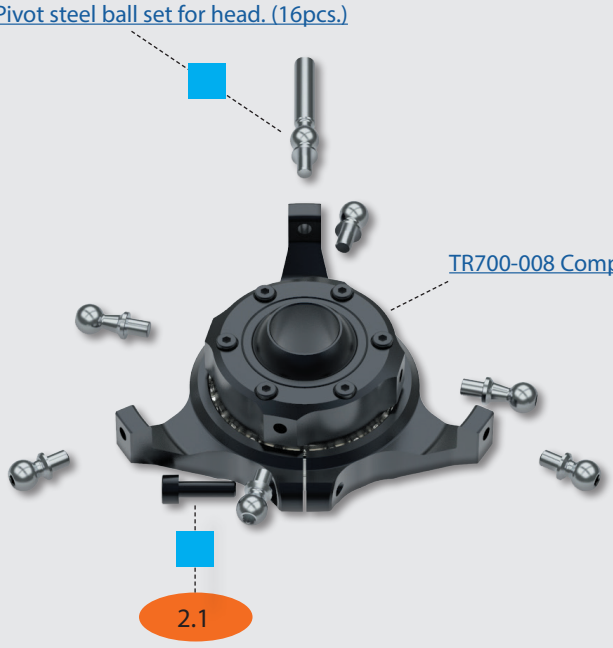
Head assembly

Swashplate is preassembled in factory.
Please use loctite 243 on 1.2 and 1.0



TR700-110 Pivot steel ball set for head. (16pcs.)

TR700-008 Complete swashplate assembly.

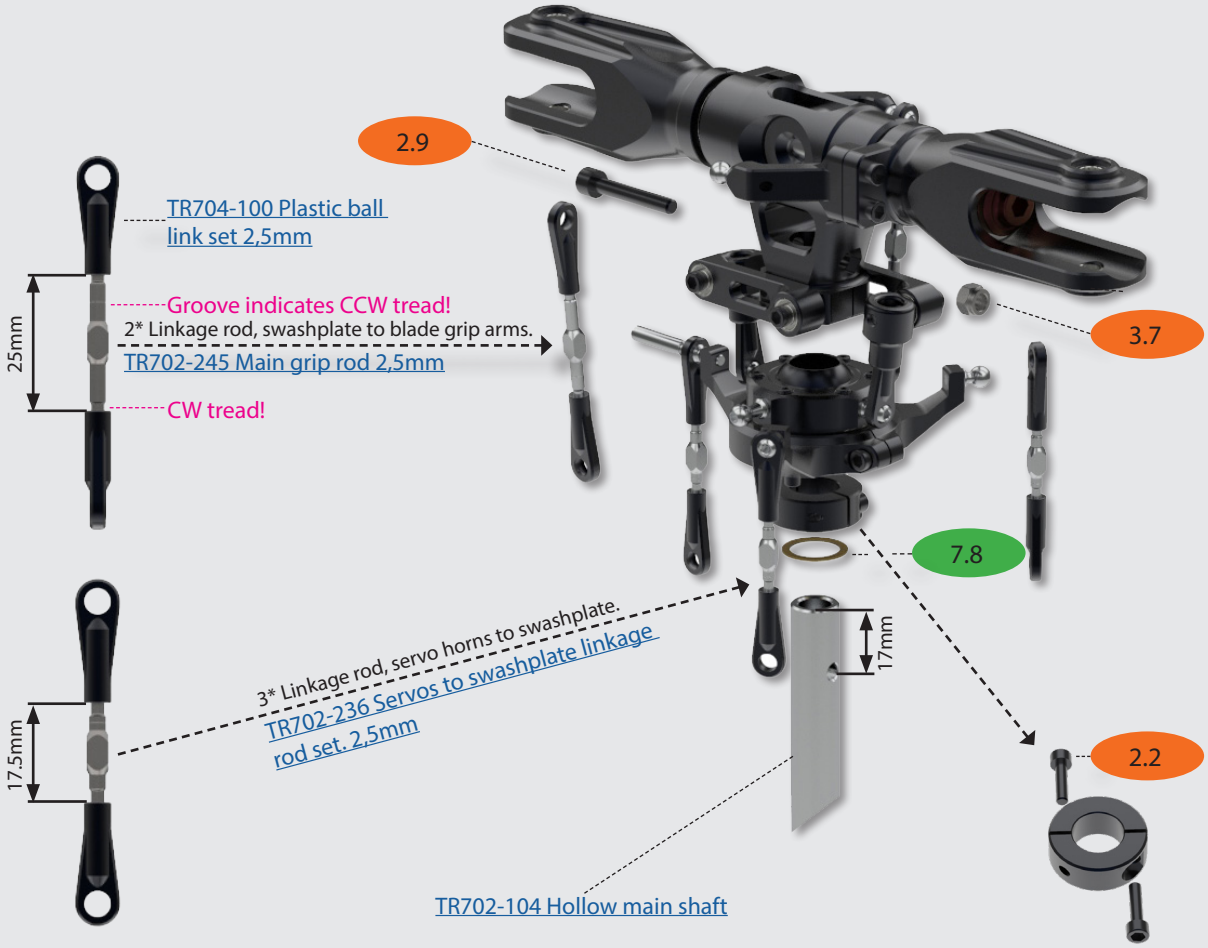


Pay special attention when tighten the screw. Apply only a little force. Overtighten of the screw may result in swahsplate bearing damage.

You will need:
Loctite 243 = blue

Head assembly

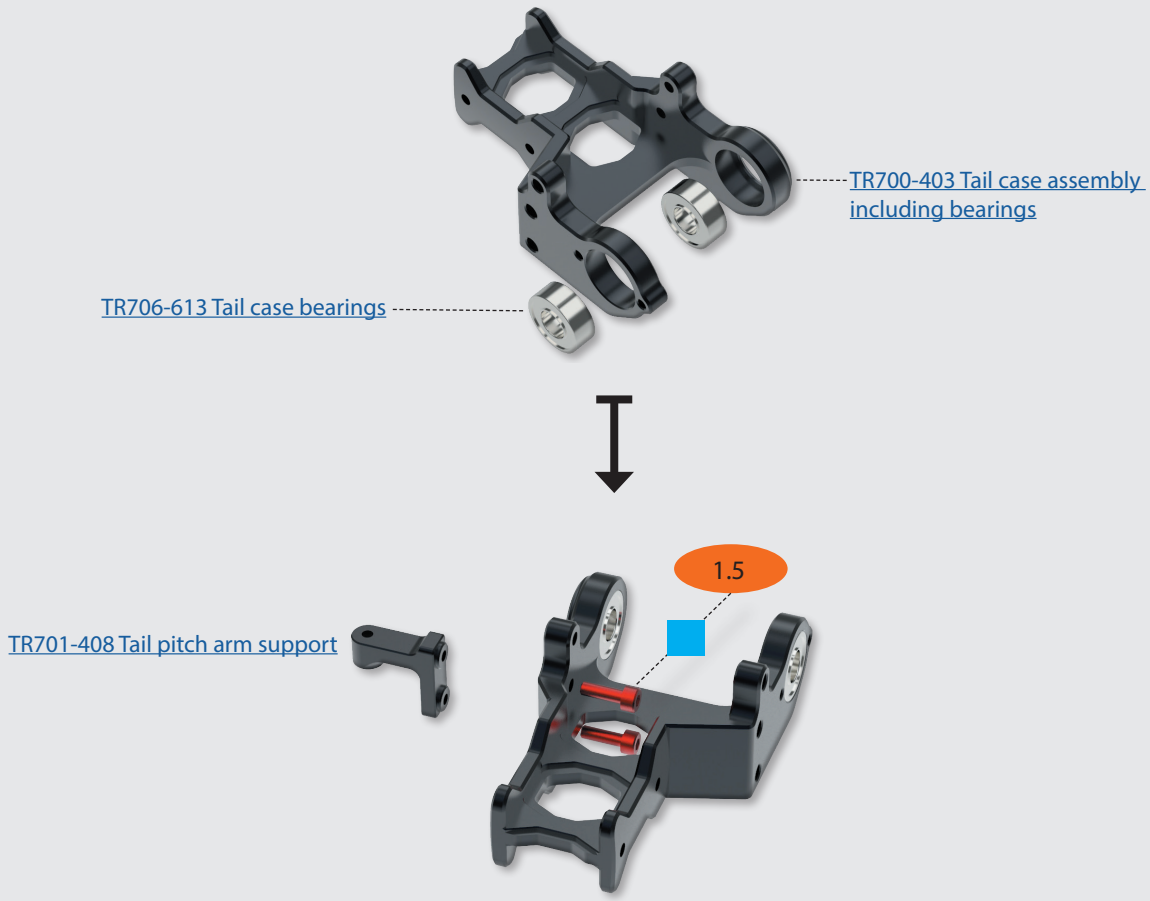
1. Insert main shaft into center hub first.
2. Tighten screw 2.9
3. Tighten screw 2.6 left and right step by step (use loctite 248).Make sure the shim 5.2 do not fall off. (page 12)

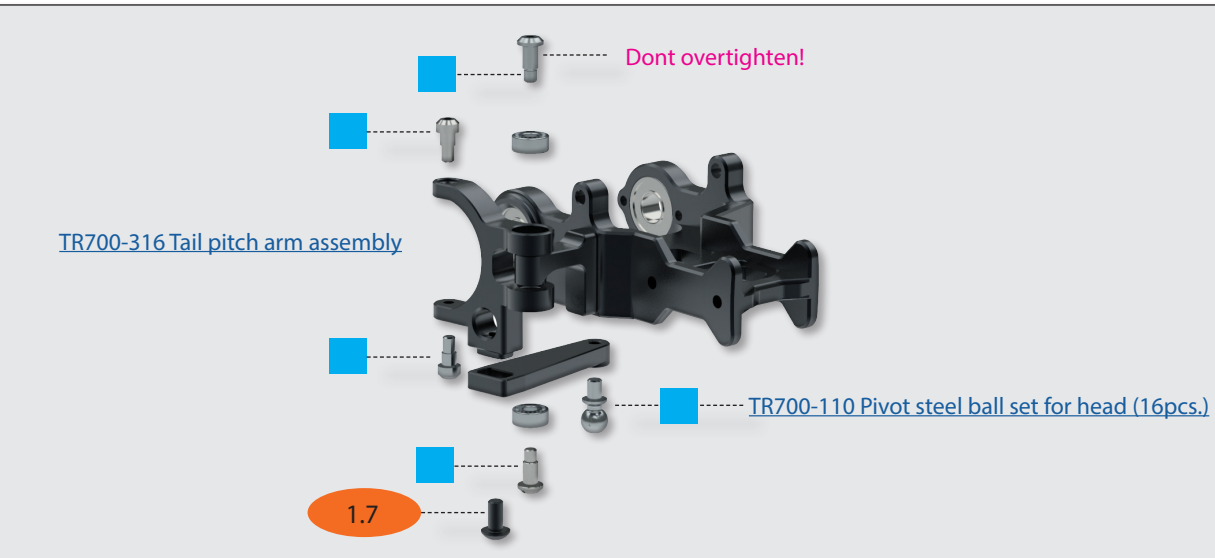


Important note!
The ball links have a larger and a smaller diameter. Always make sure the larger diameter is pointing towards the pivot ball when assembling!

You will need:
Loctite 243 = blue

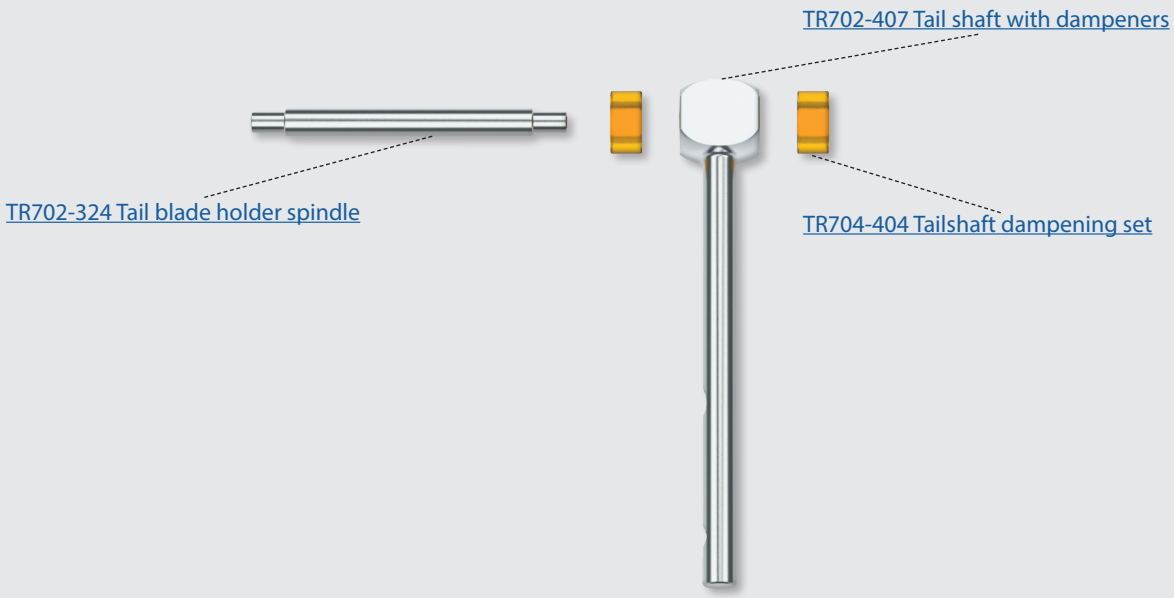
Tail assembly

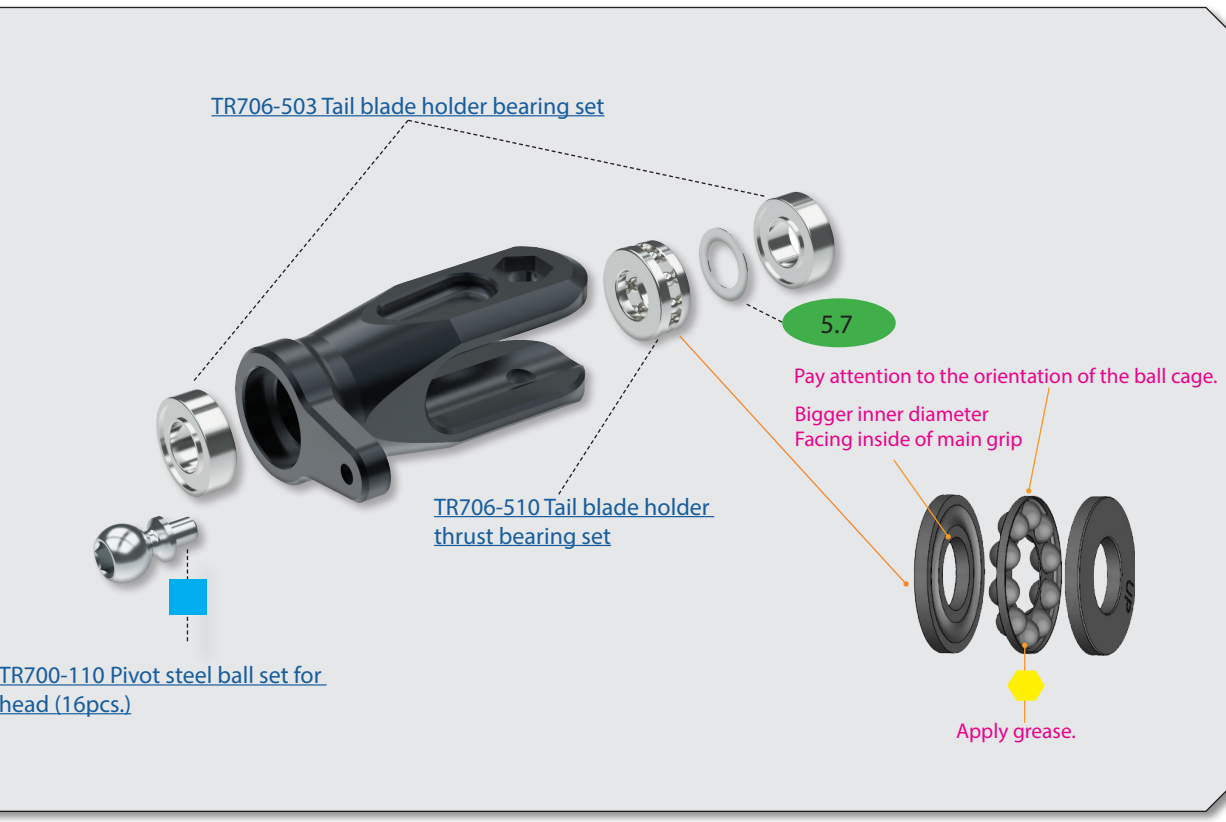




You will need:
Loctite 243 = blue
Grease = yellow

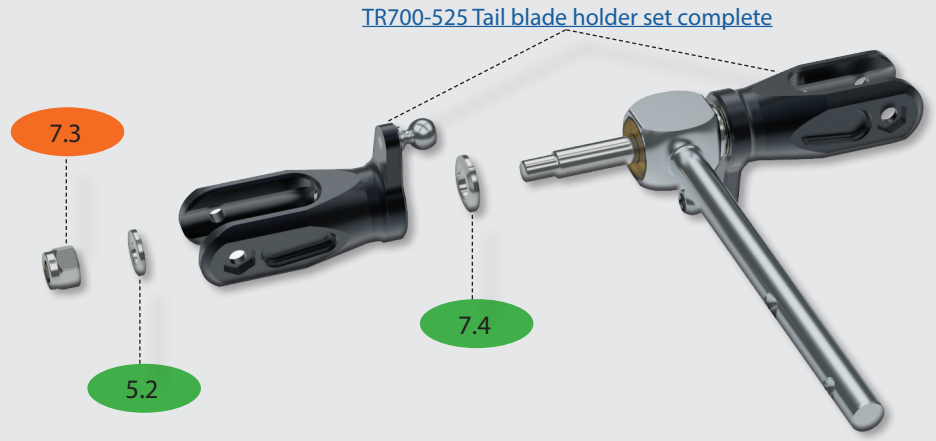
Tail assembly

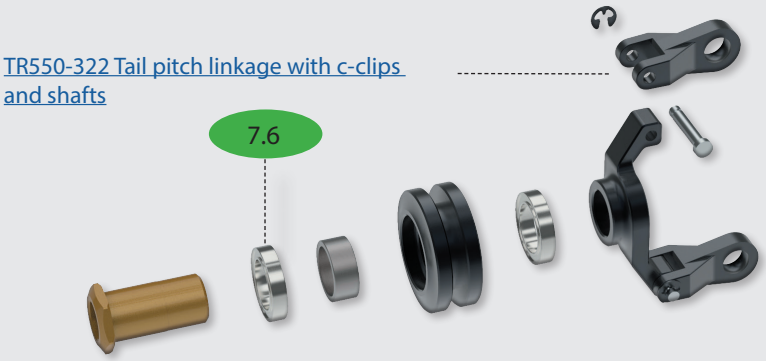


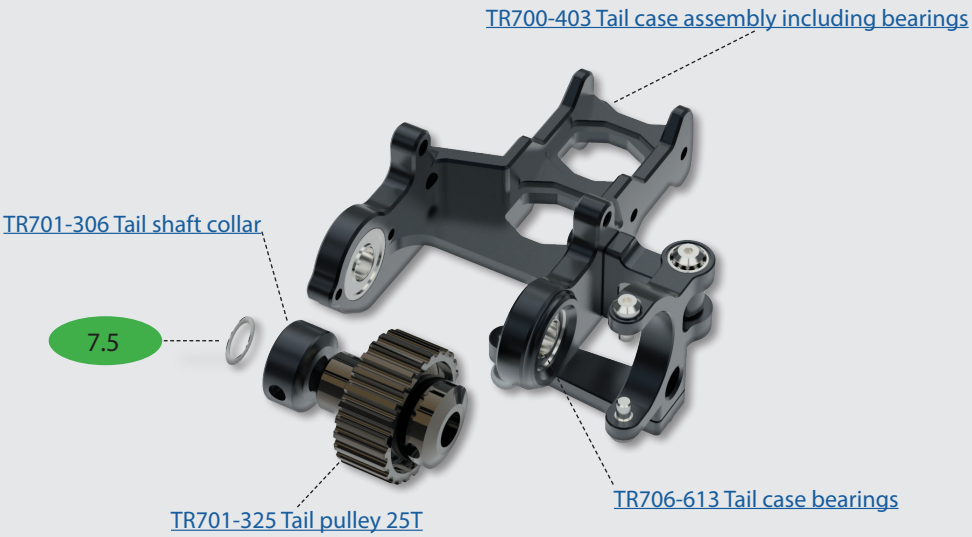


You will need:
Loctite 243 = blue

Tail assembly



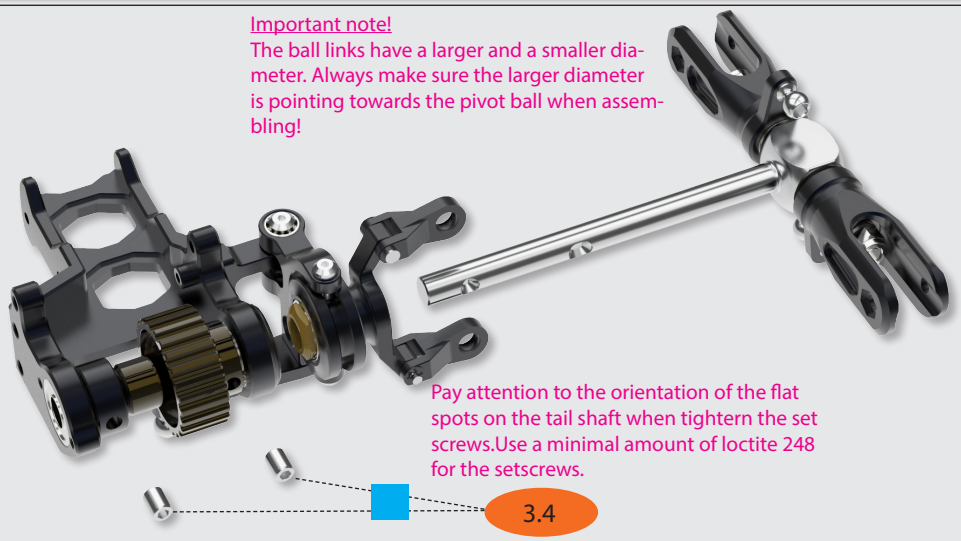




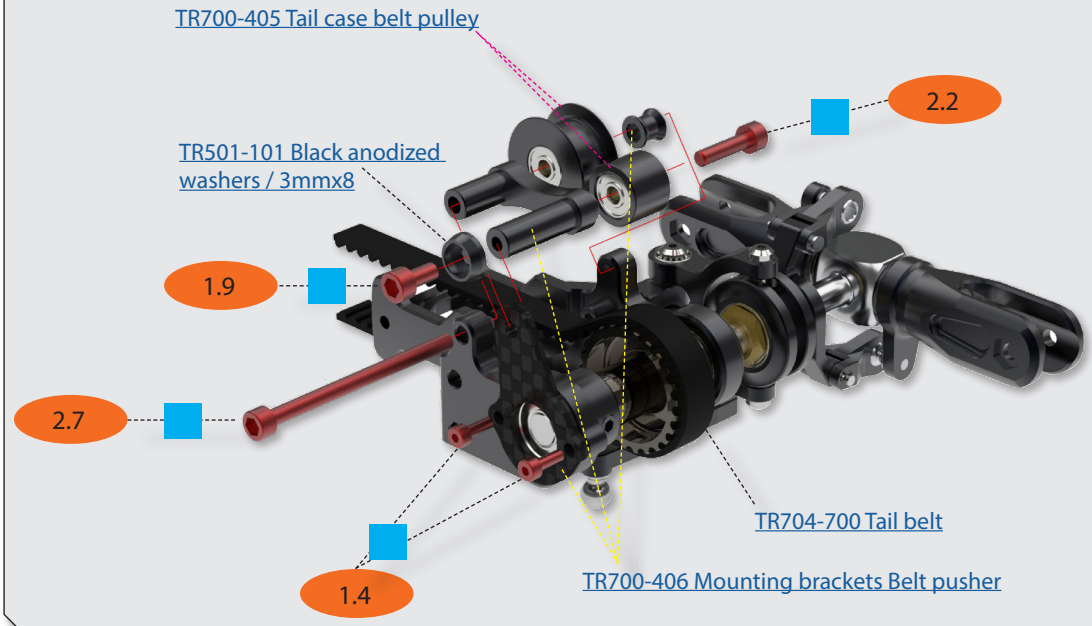
You will need:
Loctite 243 = blue

Tail assembly

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!



Pay attention to the orientation of the flat spots on the tail shaft when tightern the set screws.Use a minimal amount of loctite 248 for the setscrews.

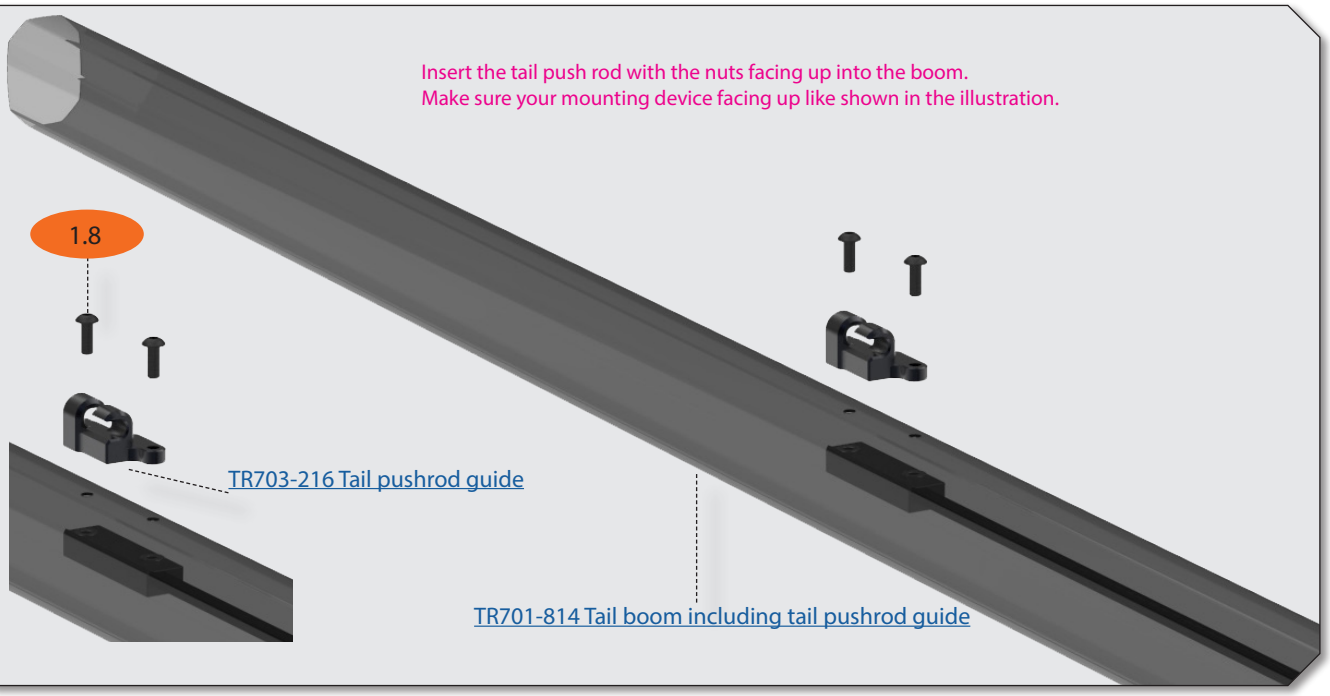


You will need:
A little bit of patience when assembling it for the first time

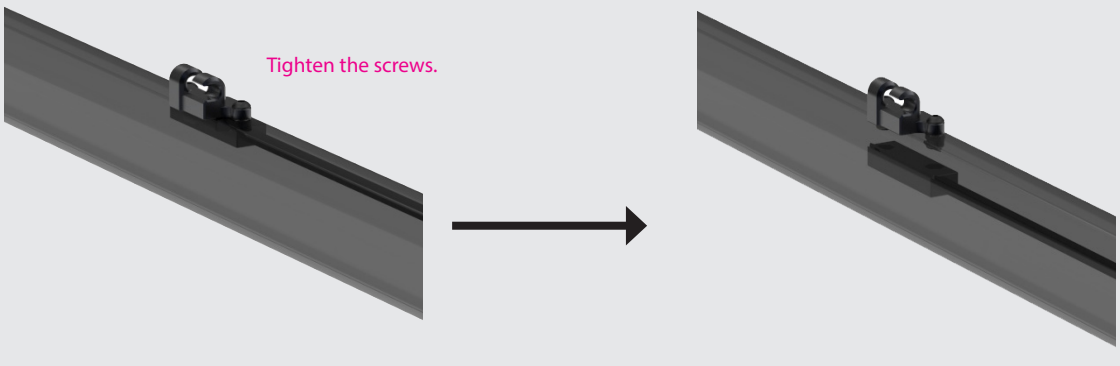
Tail assembly

Insert nuts into the tail pushrod mounting device.
Use the same direction as shown in the illustration.

Use the tail pushrod temporary.



Insert the tail push rod with the nuts facing up into the boom.
Make sure your mounting device facing up like shown in the illustration.



Tighten the screws.

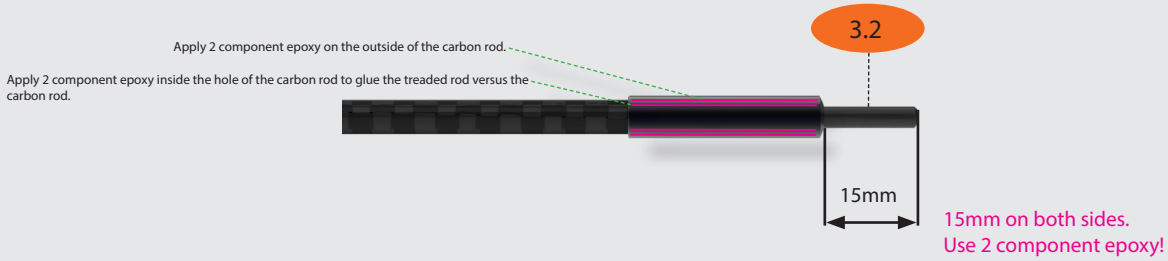
Pull the mounting device out from the nuts.

You will need:
2 component epoxy

Tail assembly

-Pre assemble the threaded rod and the shell.
-Adjust the threaded rod to a length of 15mm. (same as shown in the illustration below
-Glue the tread into the tail push rod and the shell on the outside of the rod. Use 2 component epoxy!

please let it dry overnight to achieve 100% strength



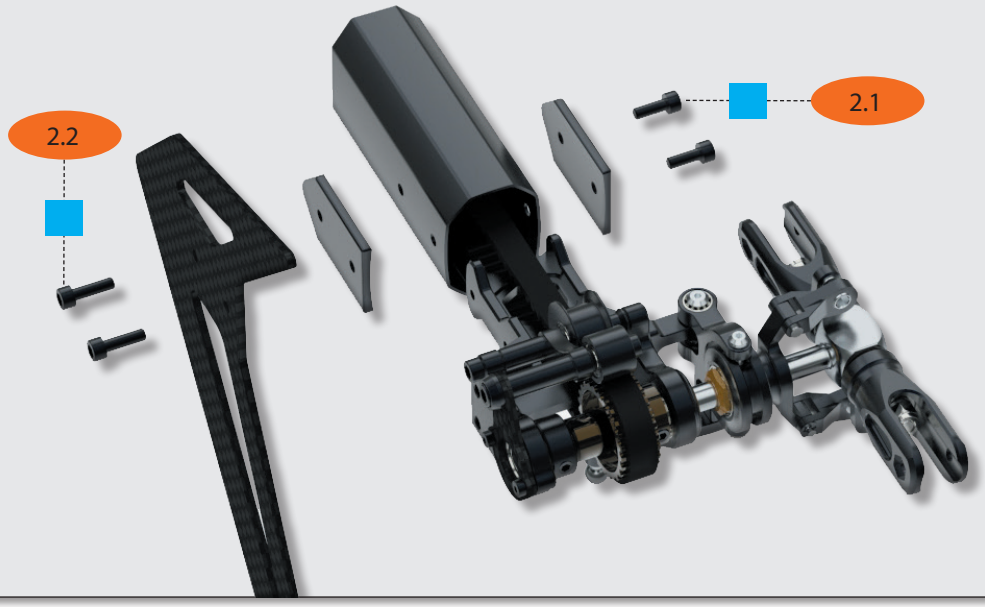
15mm on both sides.
Use 2 component epoxy!

TR704-100 Plastic ball link set 2,5mm

TR700-513 Tail pushrod set

You will need:
Loctite 243 = blue

Tail assembly

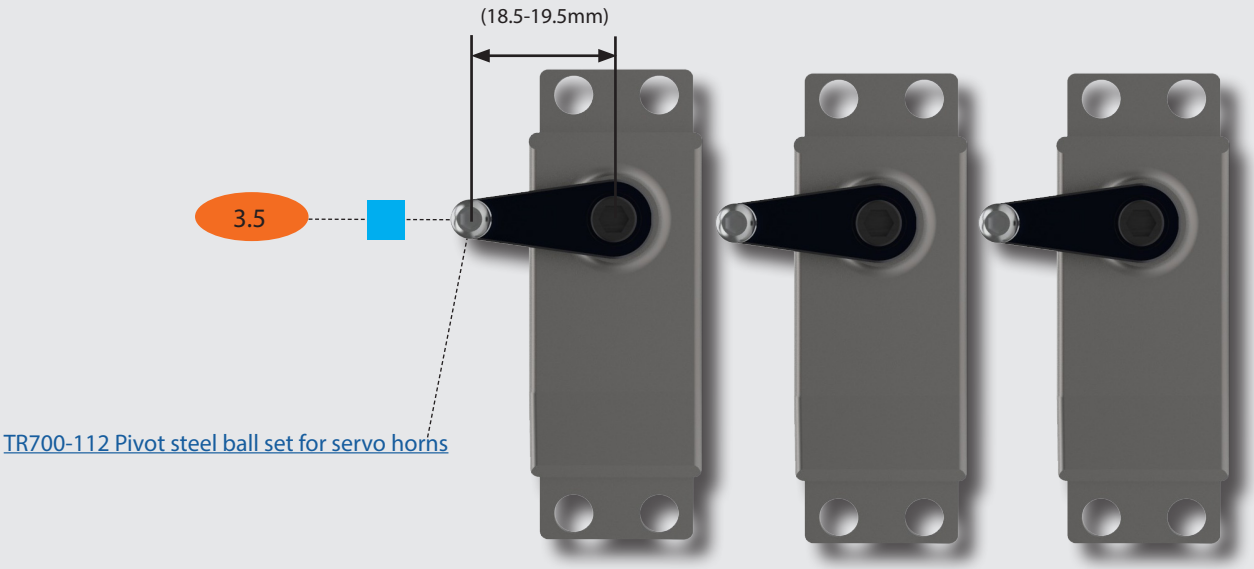


For best tail authority performance adjust center position of your FBL controller (tail servo) same as shown in the illustration (90*) degree.

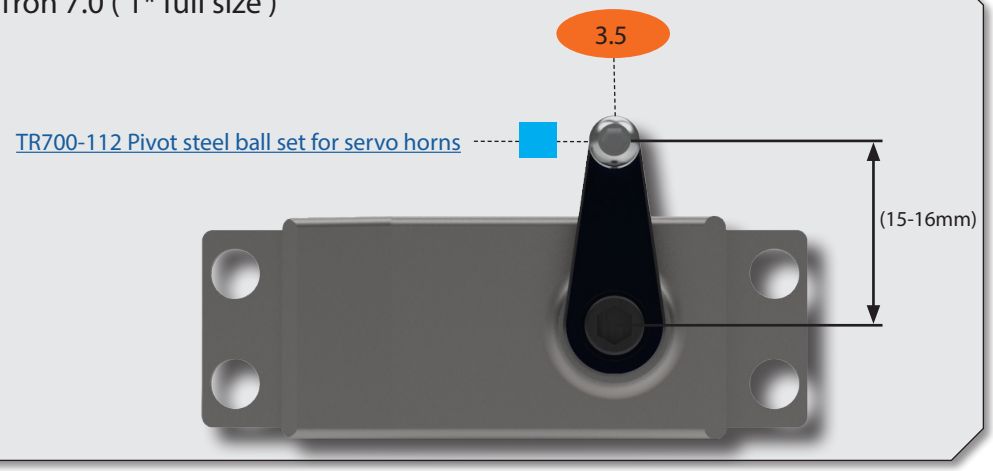
You will need:
Loctite 243 = blue

Servos preparation

Cyclic servo arm lenght for Tron 7.0 (3* full size)



Tail servo arm lenght for Tron 7.0 (1* full size)

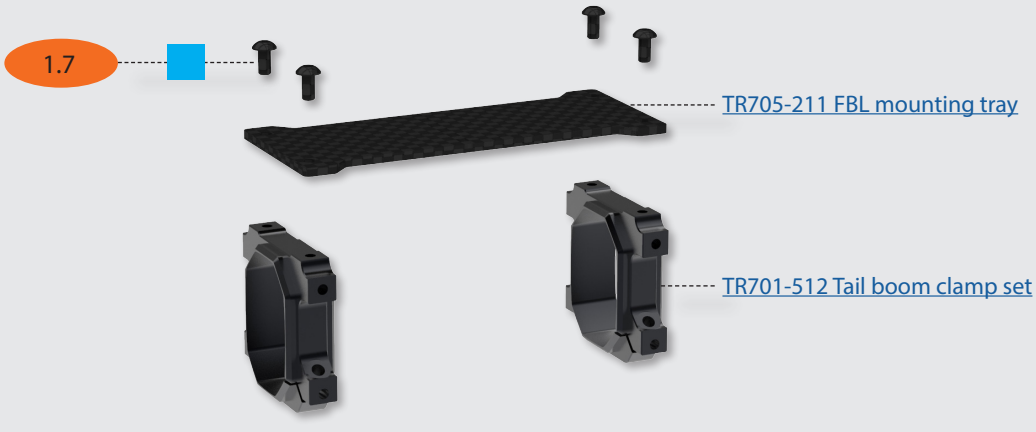


You will need:
Loctite 243 = blue

Battery tray

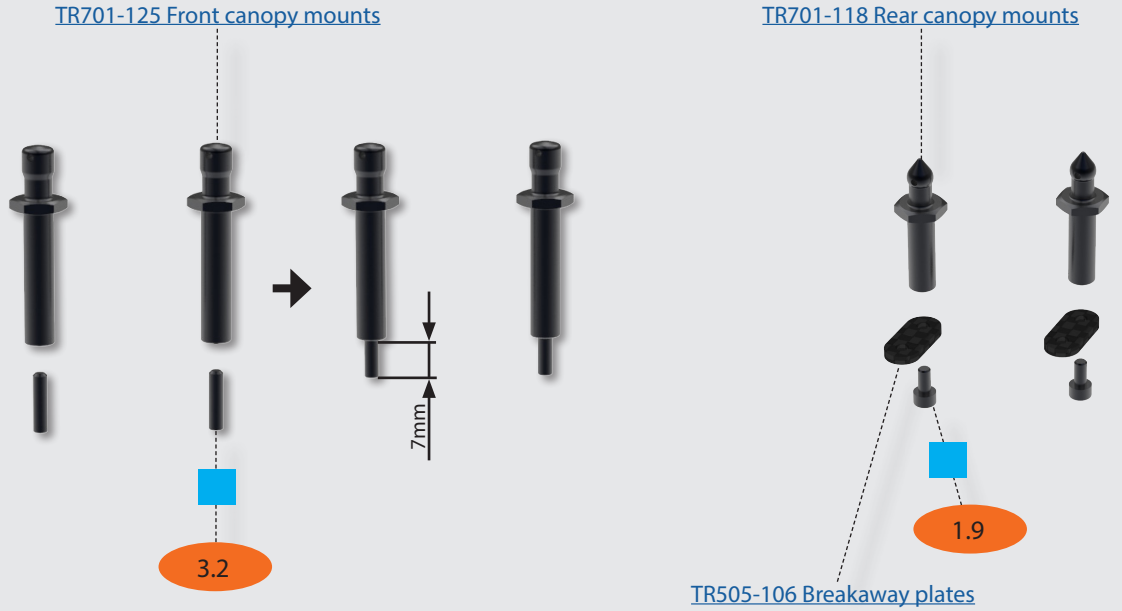
You will need:
Loctite 243 = blue

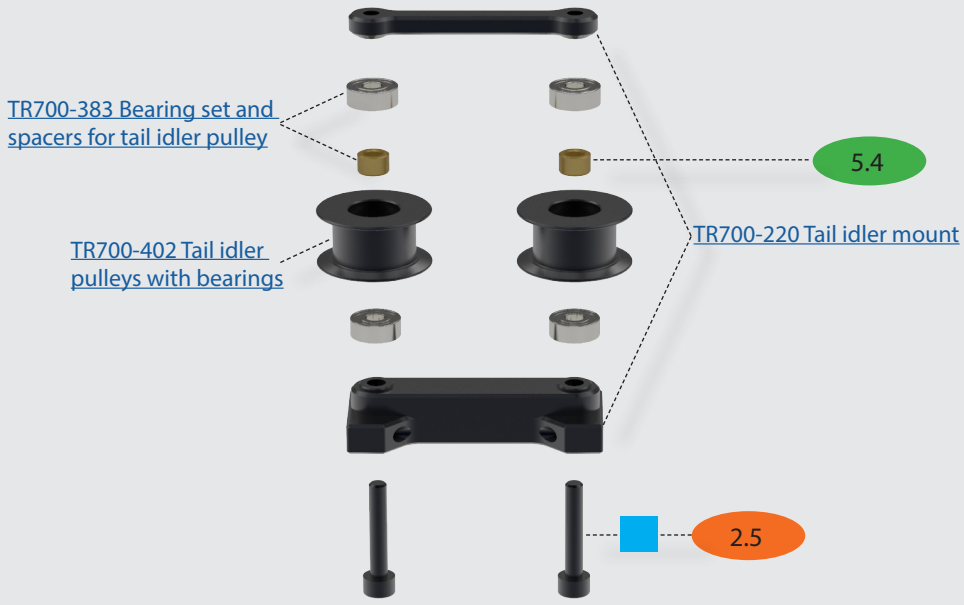
Upper main frame assembly



You will need:
Loctite 243 = blue

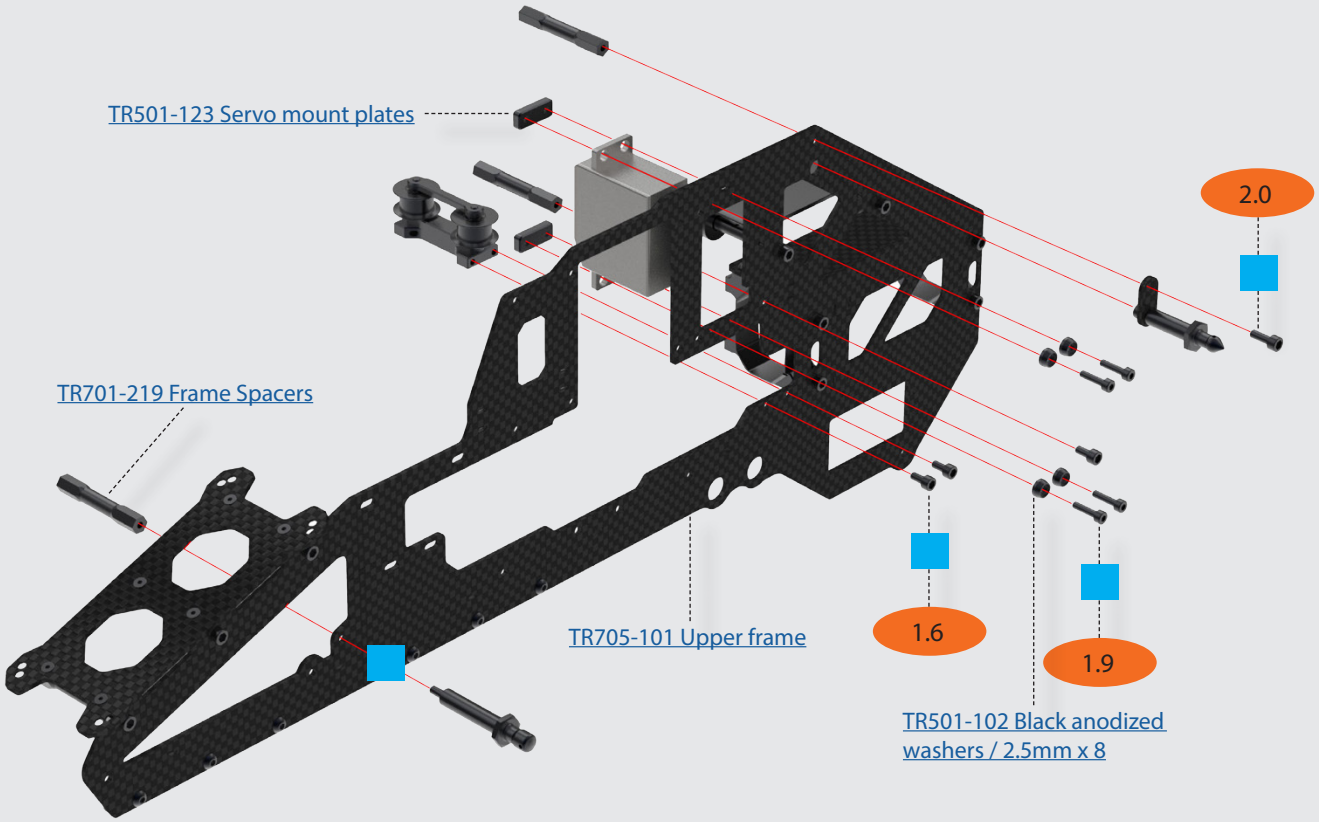
Upper main frame assembly



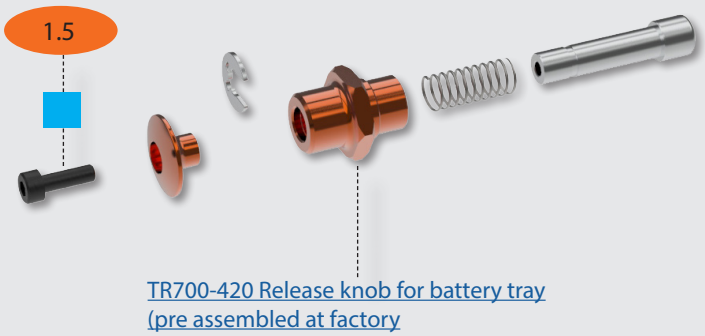


You will need:
Loctite 243 = blue

Upper main frame assembly

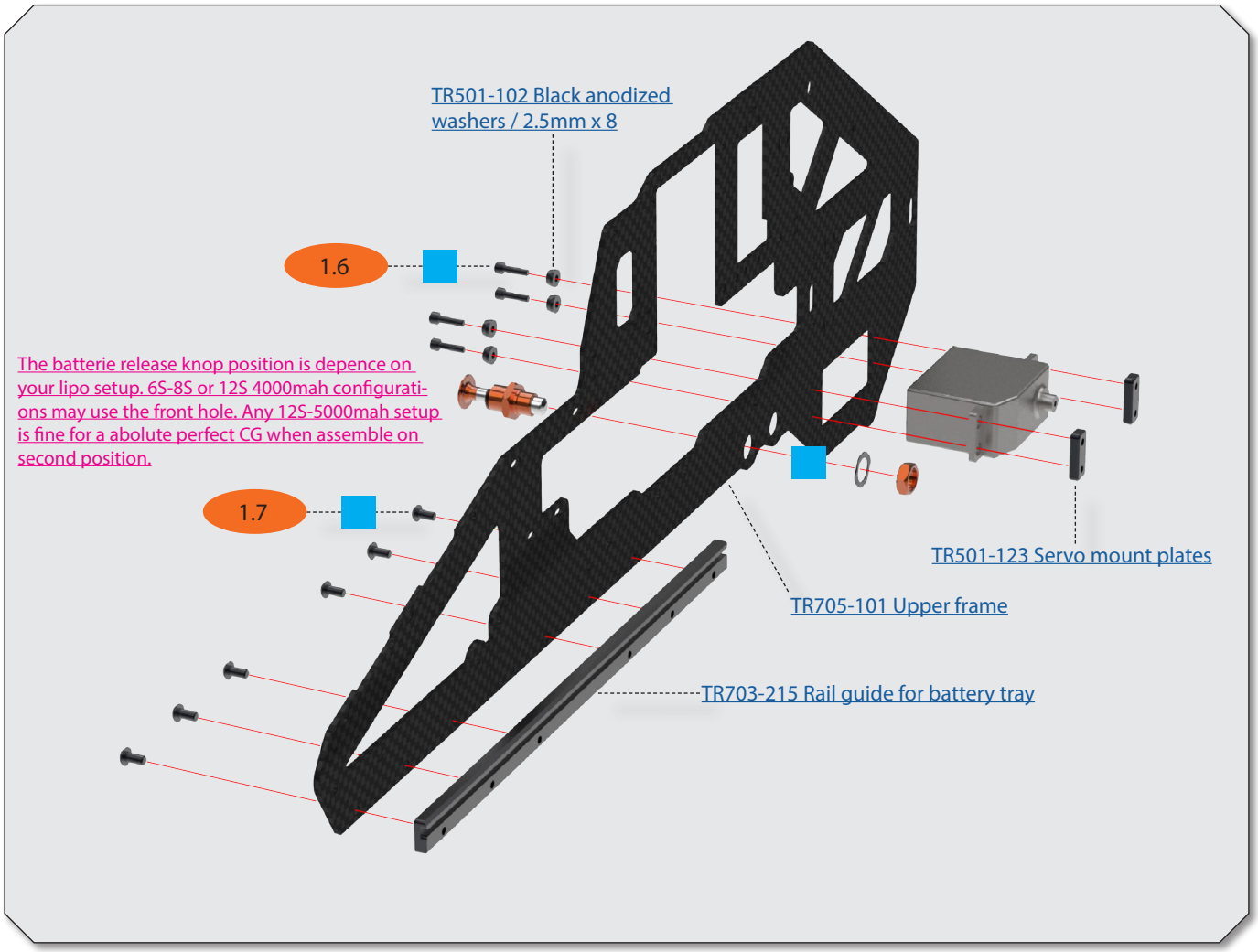


Pre-assembled by factory.



You will need:
Loctite 243 = blue

Upper main frame assembly

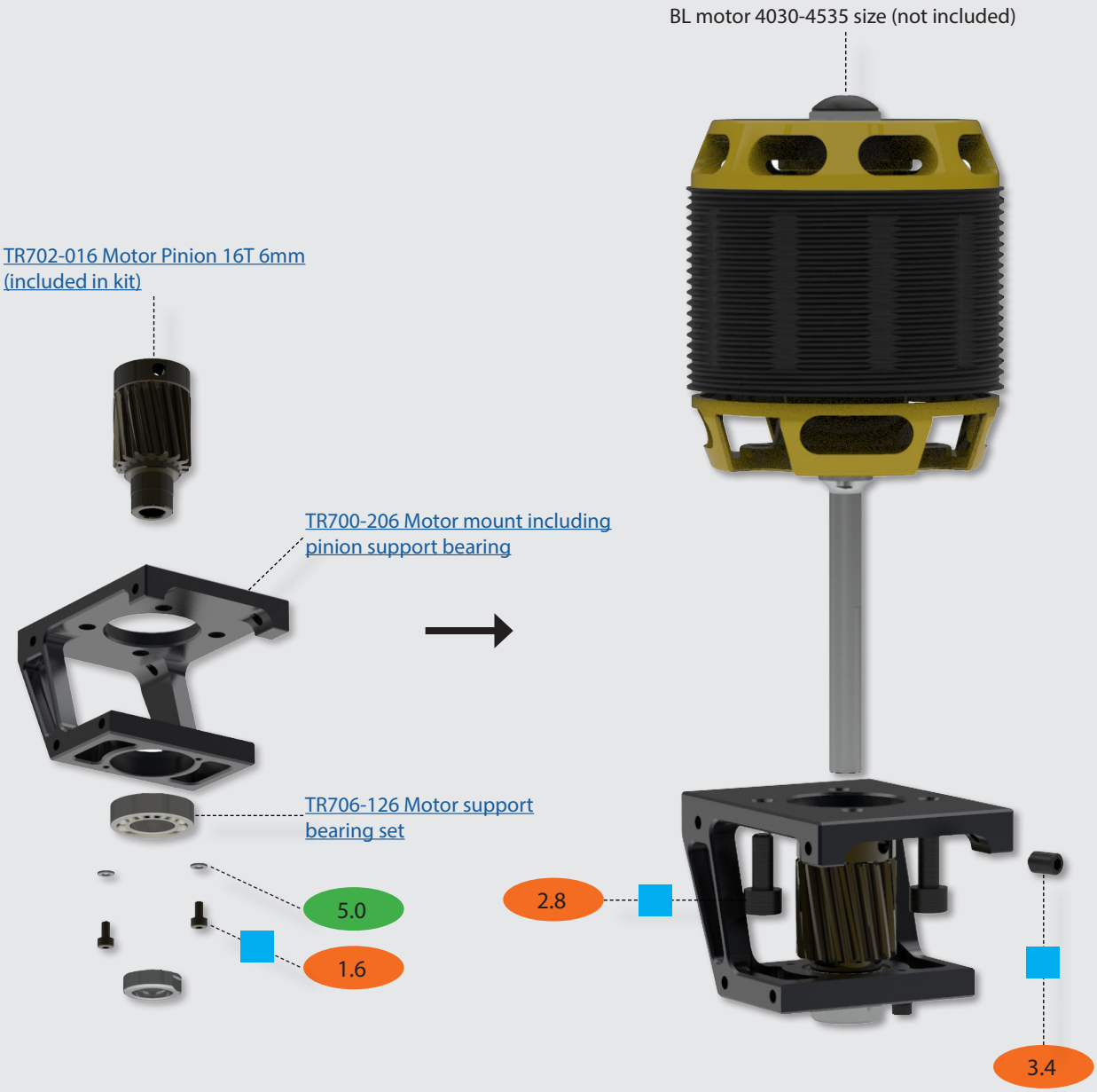


You will need:
Loctite 243 = blue

Motor mount and pinion

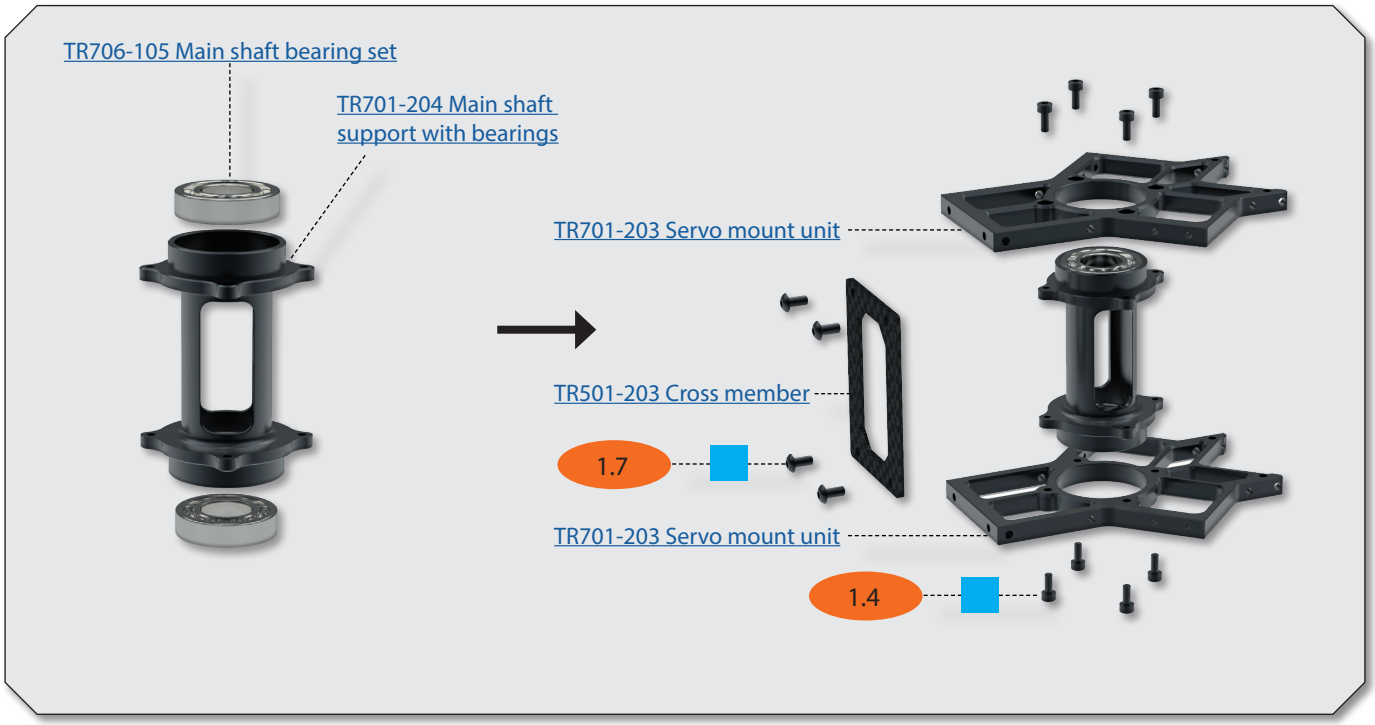
Available pinions for Tron 7.0

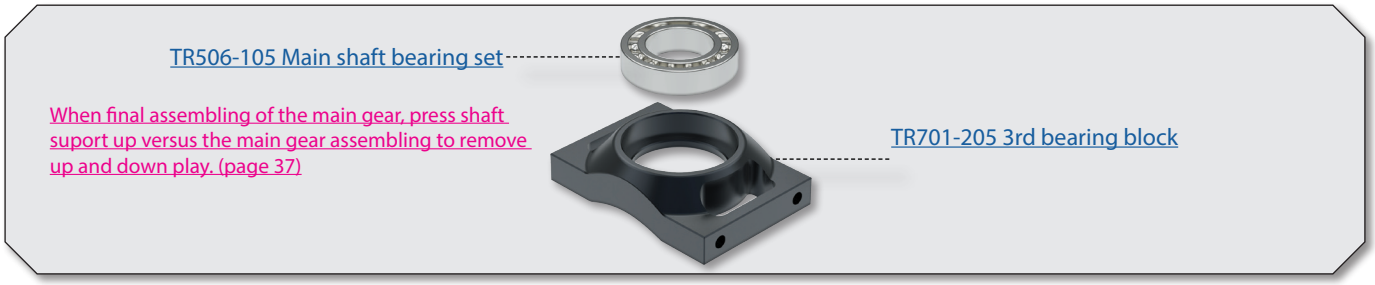
- 15T 6mm = TR702-015
- 16T 6mm = TR702-016
- 17T 6mm = TR702-017
- 18T 6mm = TR702-018

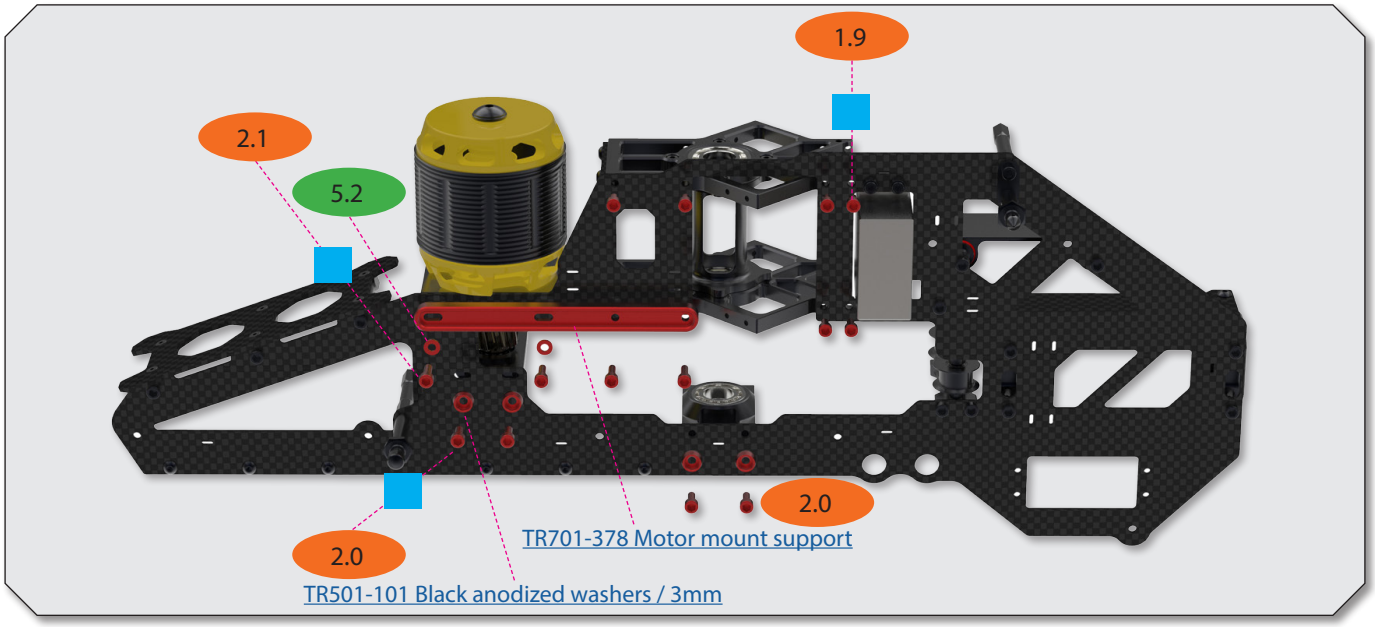


You will need:
Loctite 243 = blue

Servo frame and motor support

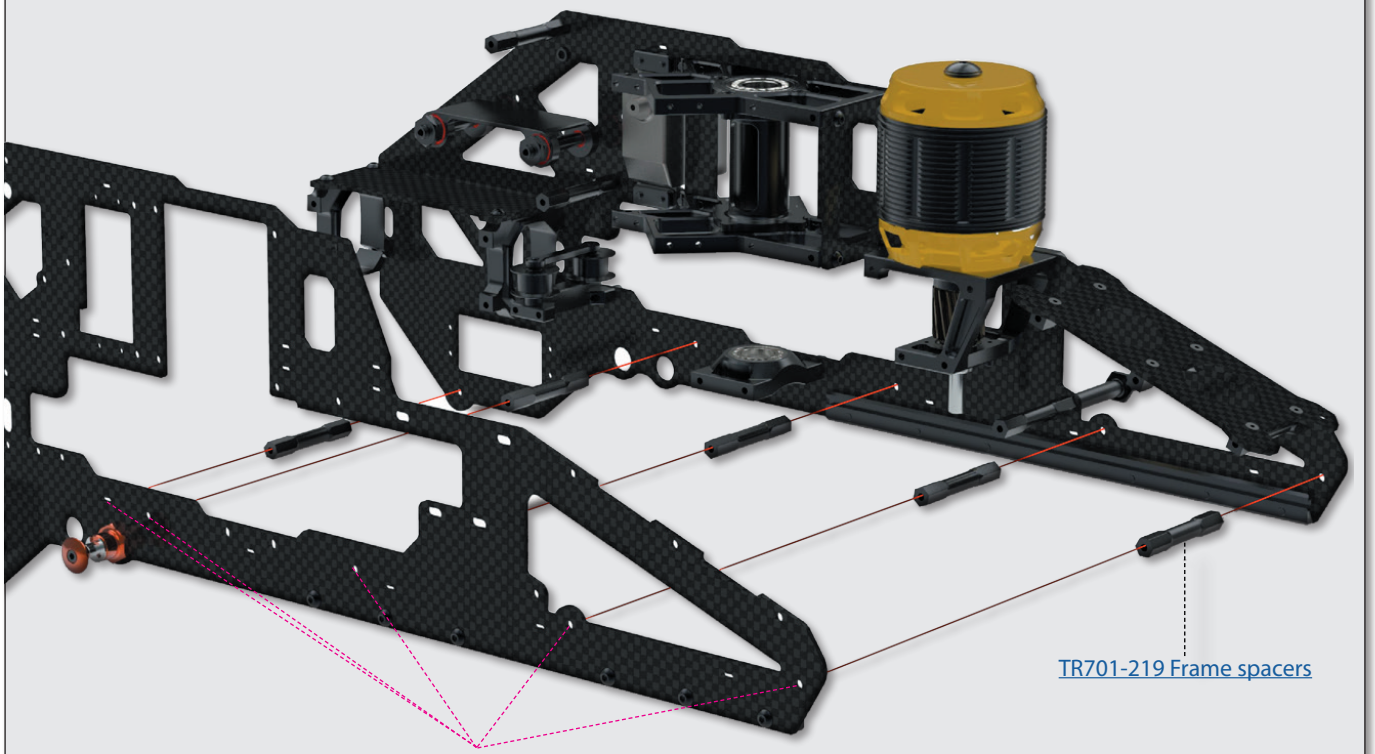






You will need:
Loctite 243 = blue

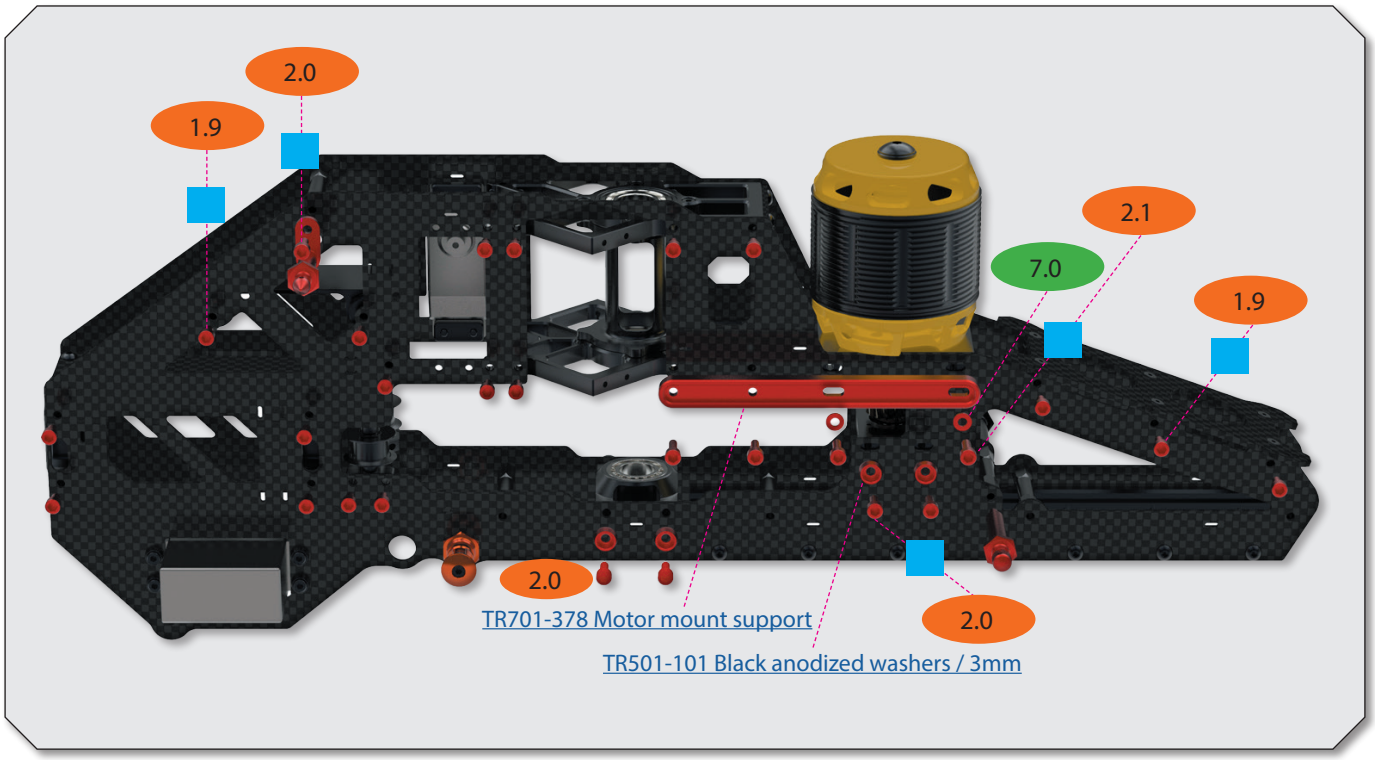
Upper and lower main frame assembly

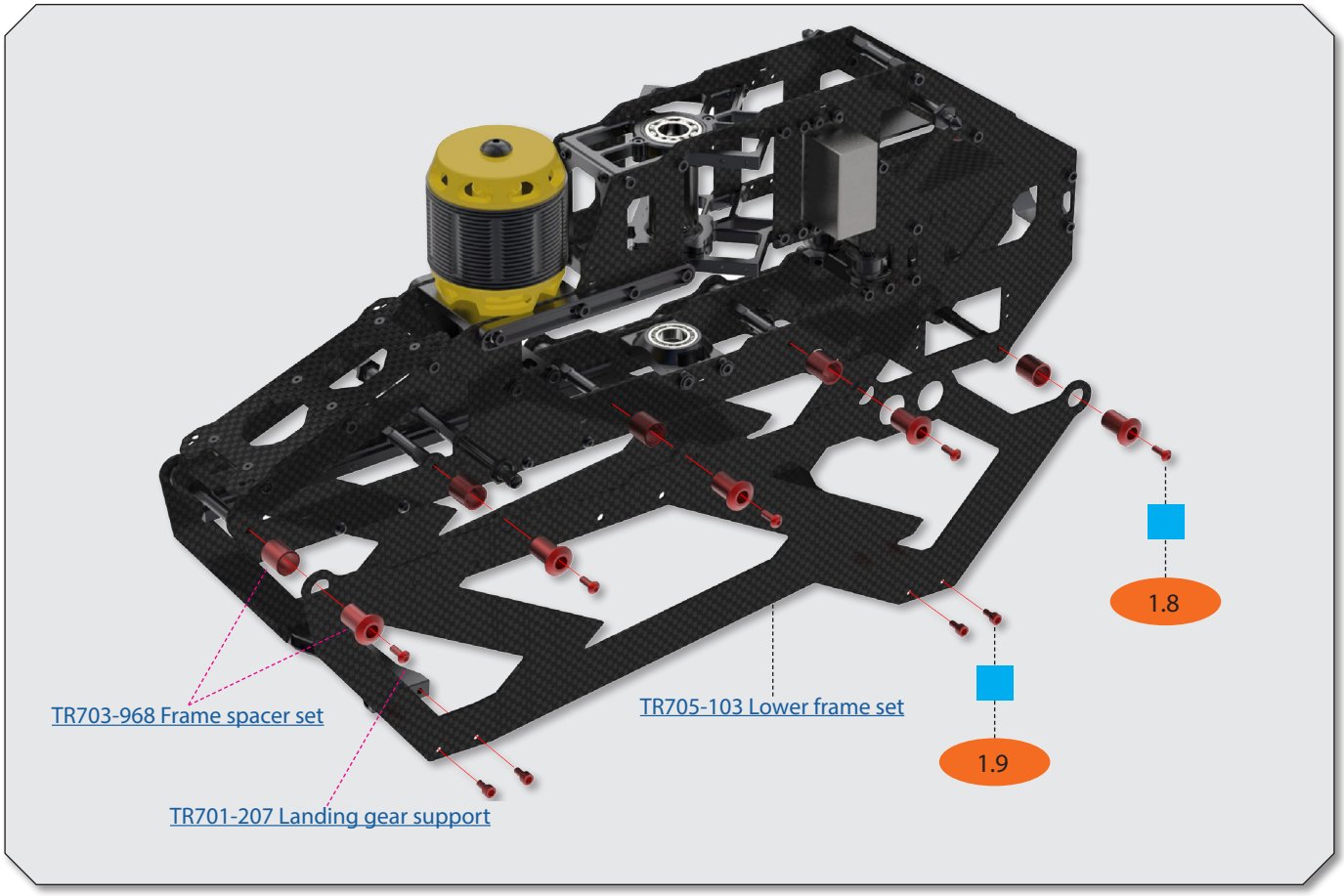


5 Frame spacer will be used for assembling the upper with the lower frame departed by the plastic breakaway frame spacers as shown on page 32.
1 Frame spacer will be used for the front canopy mount.

You will need:
Loctite 243 = blue

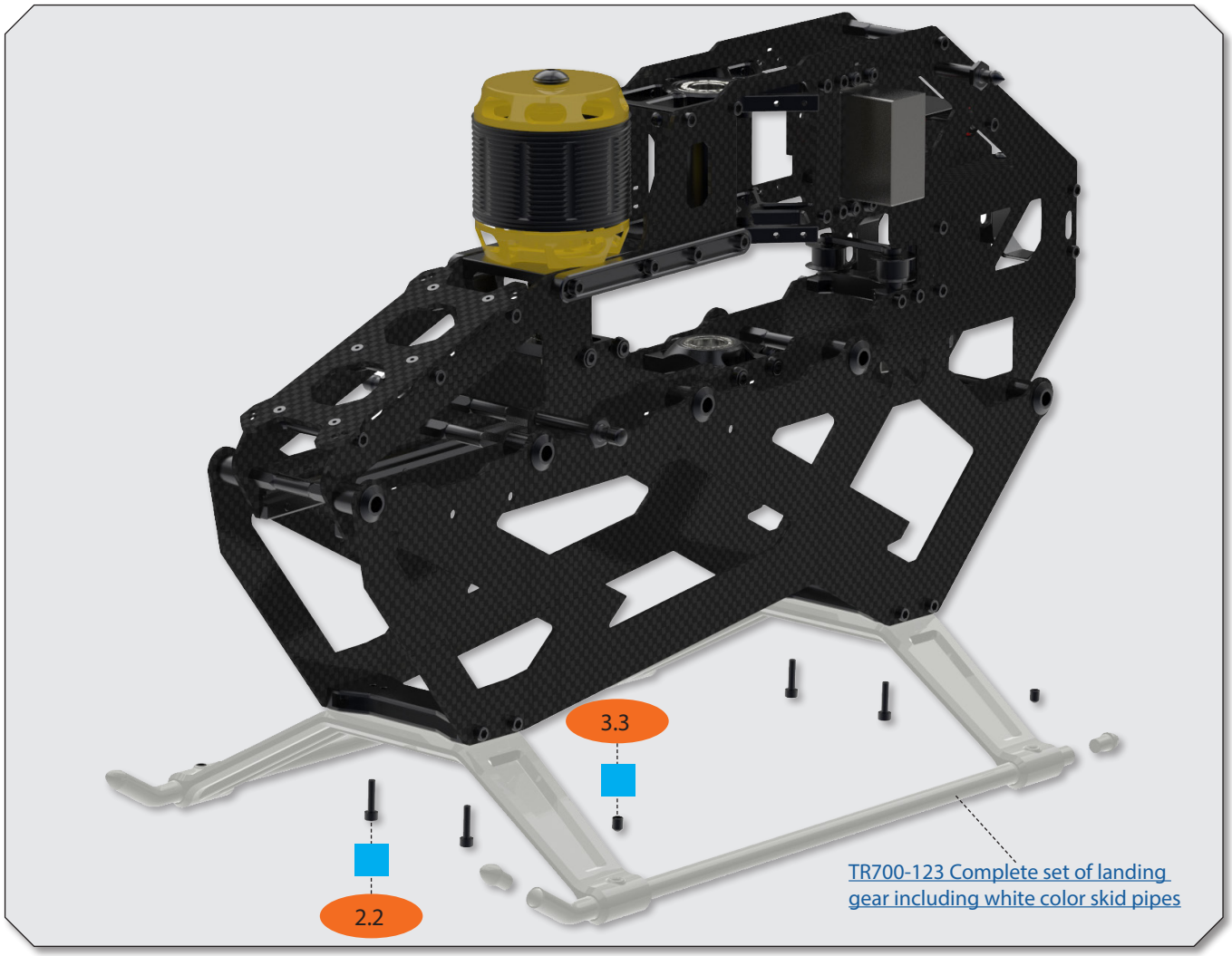
Upper and lower main frame assembly

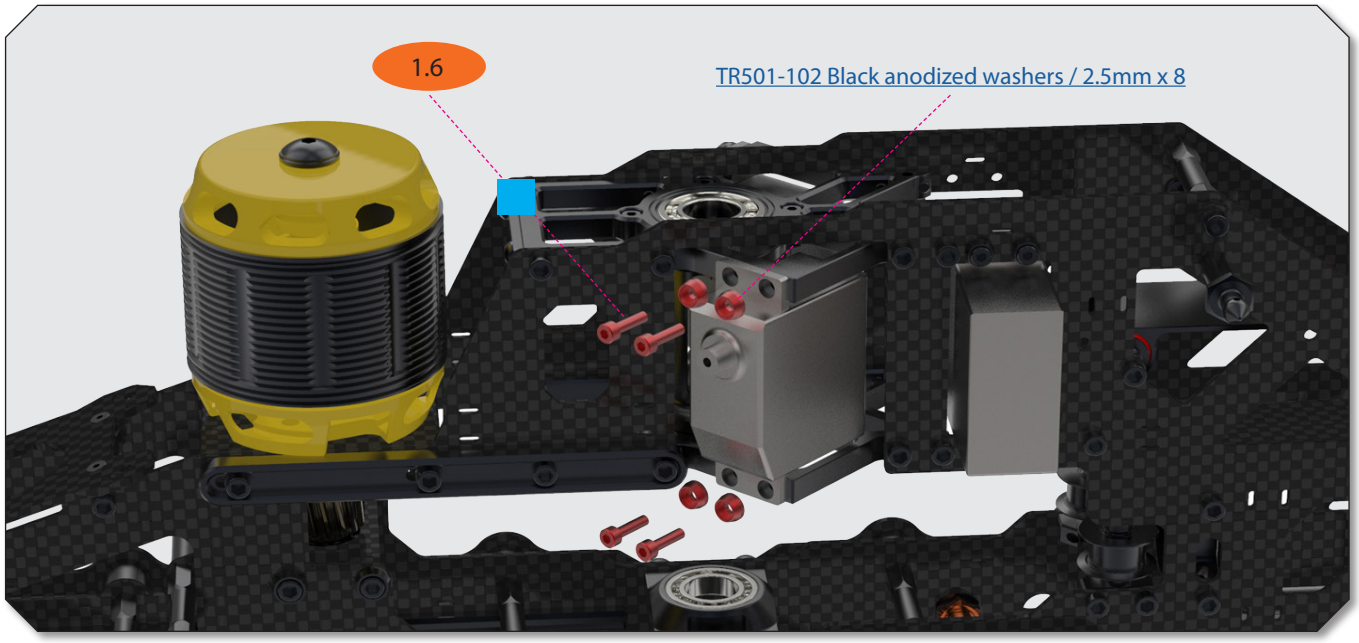




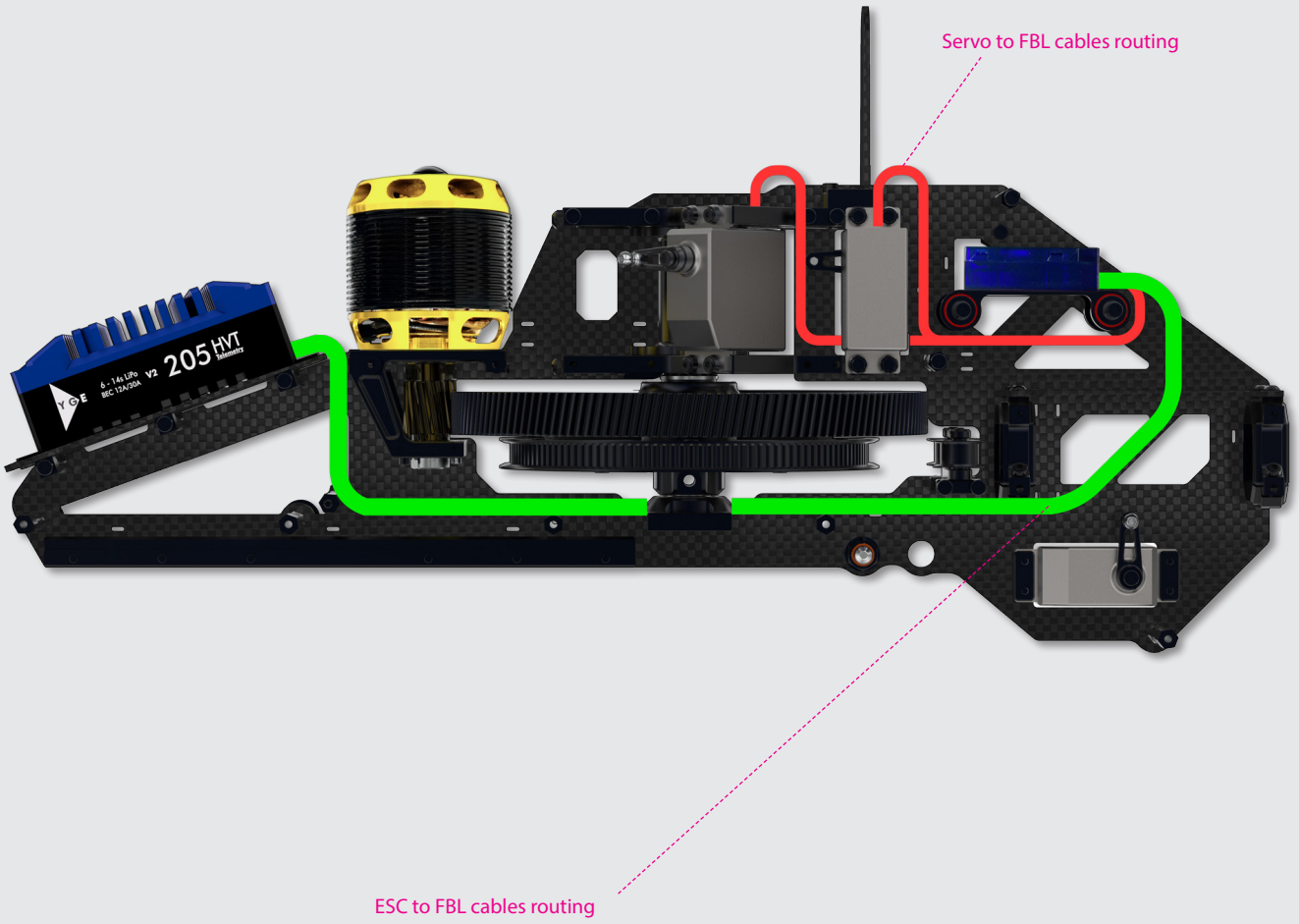
You will need:
Loctite 243 = blue

Landing gear and cyclic servos

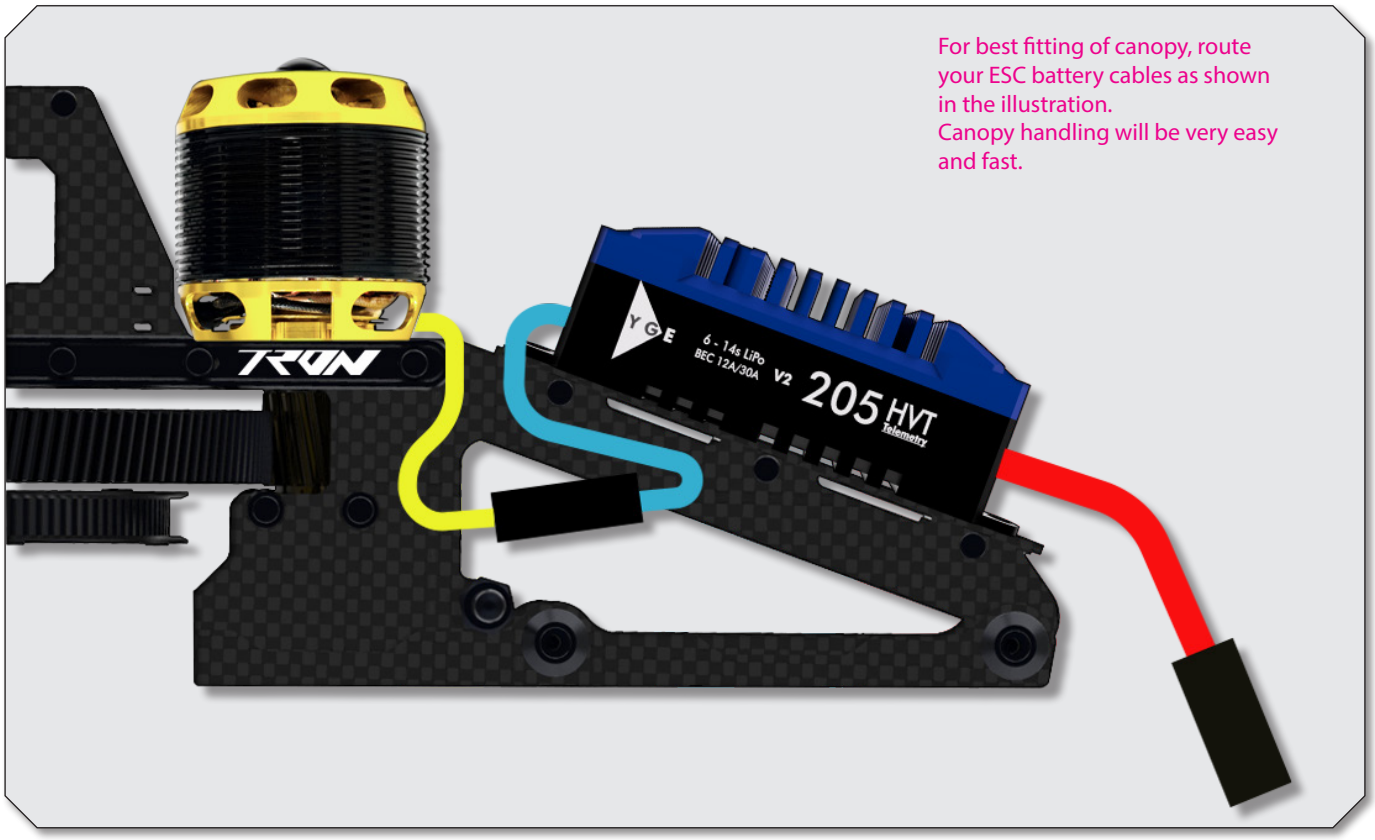




Additionally, you may want to use servo wire protection shrink tube to avoid cuffing or cutting on servo wires. Please make sure all edges on the frames which are in contact with wires are eased with sandpaper.



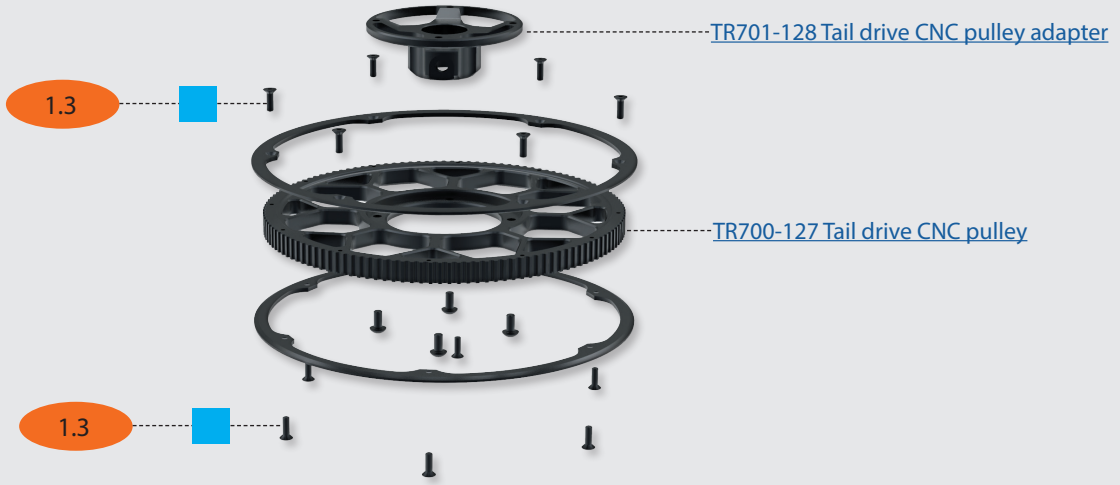
For best fitting of canopy, route your ESC battery cables as shown in the illustration.
Canopy handling will be very easy and fast.

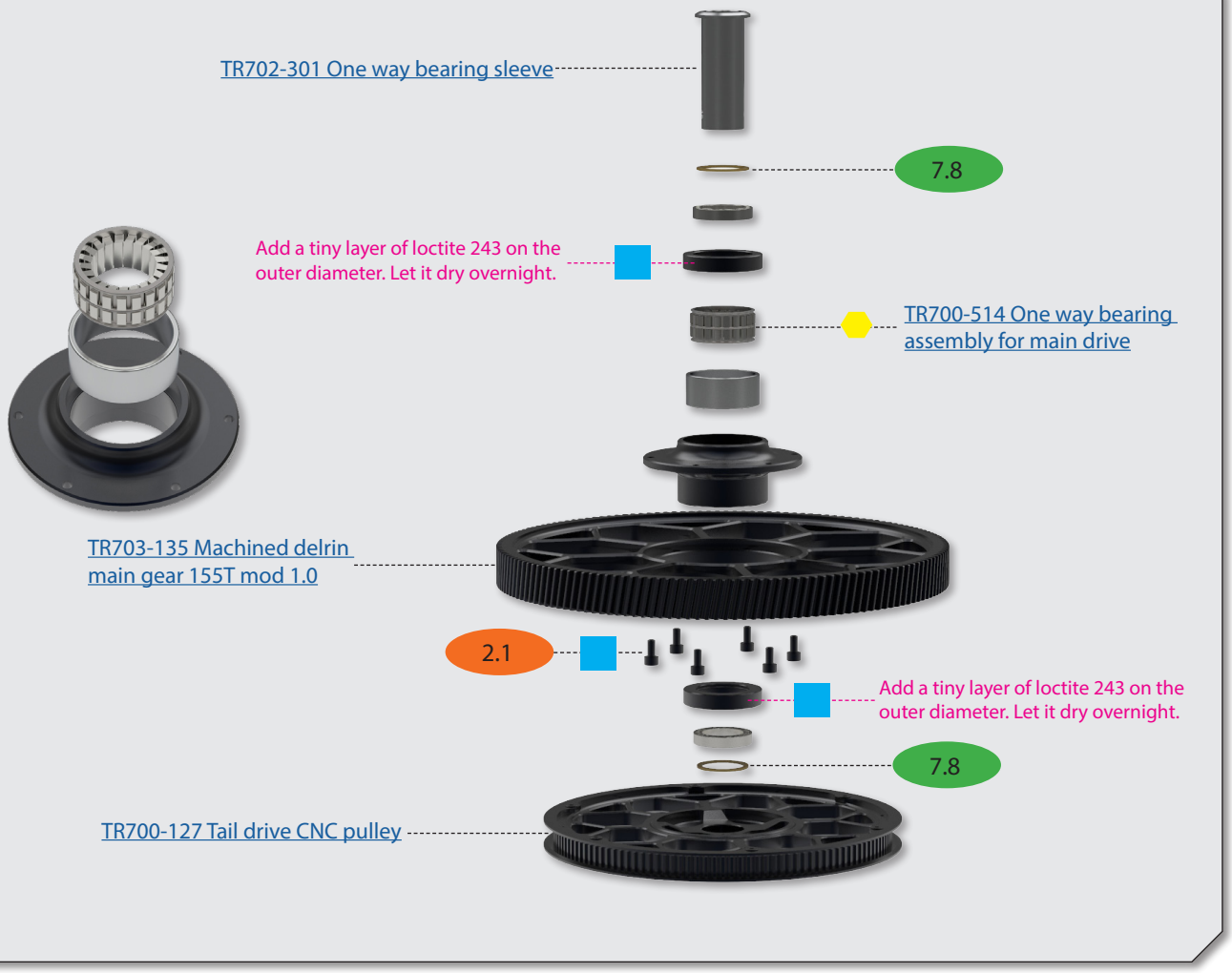


For best fitting of canopy, route your ESC battery cables as shown in the illustration.
Canopy handling will be very easy and fast.

You will need:
Loctite 243 = blue
Grease = yellow

Main drive preparation

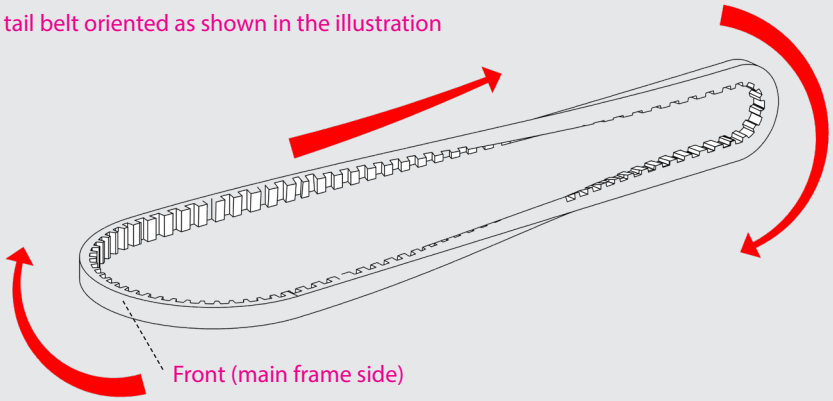


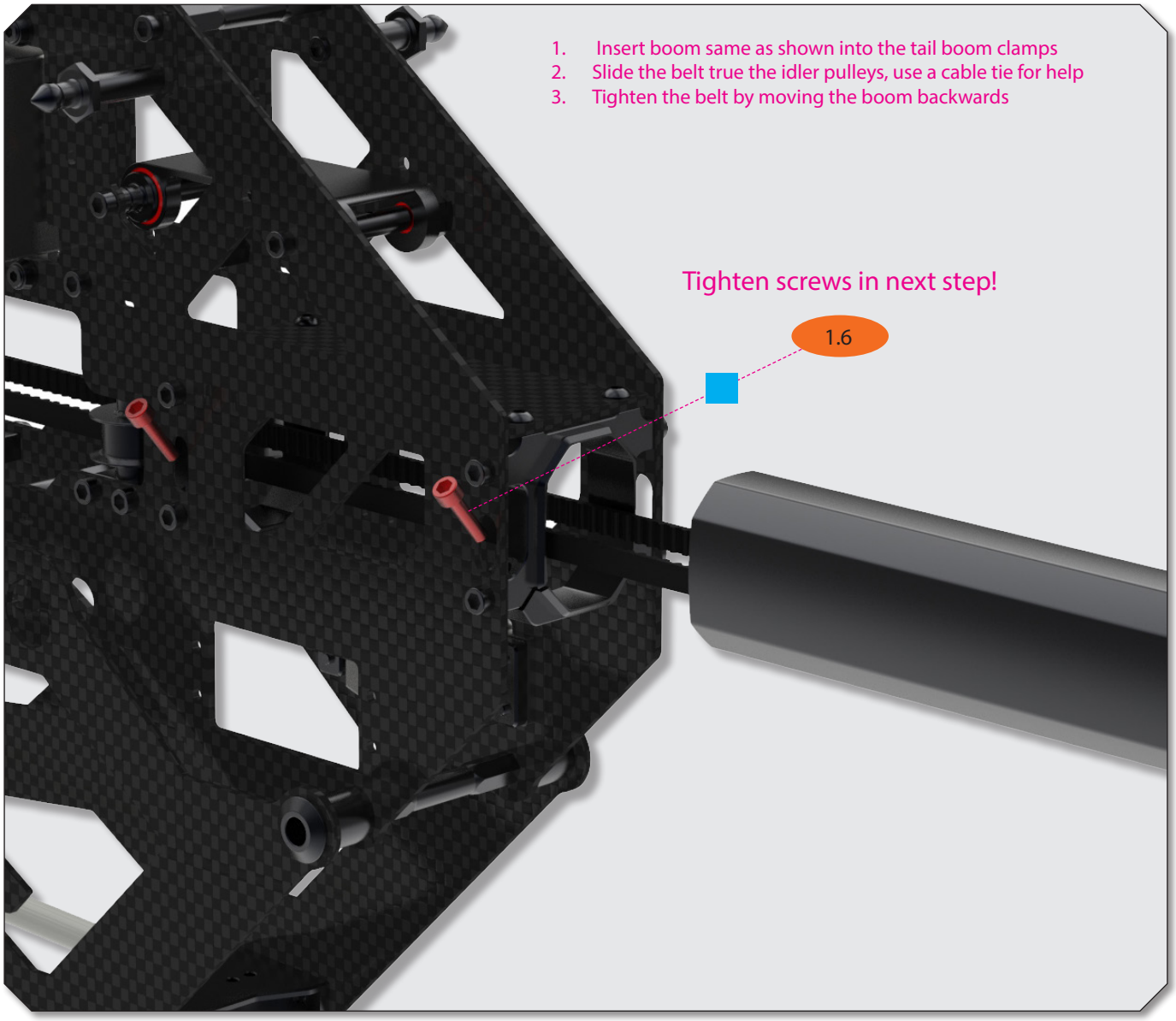


You will need:
Loctite 243 = blue

Tail boom to main frame assembly

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





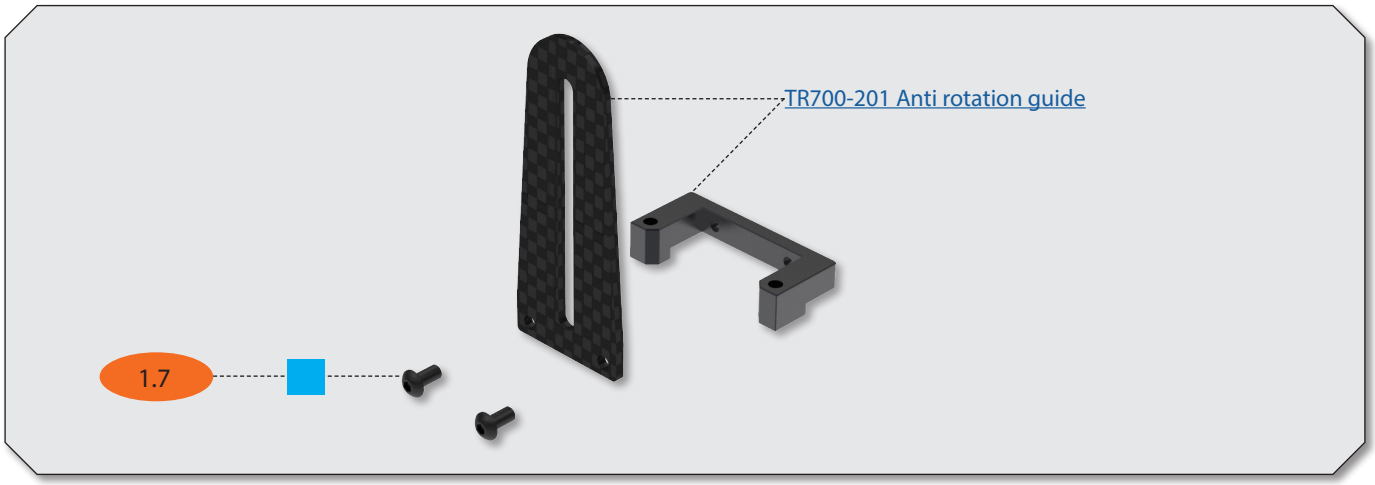
You will need:
Loctite 243 = blue

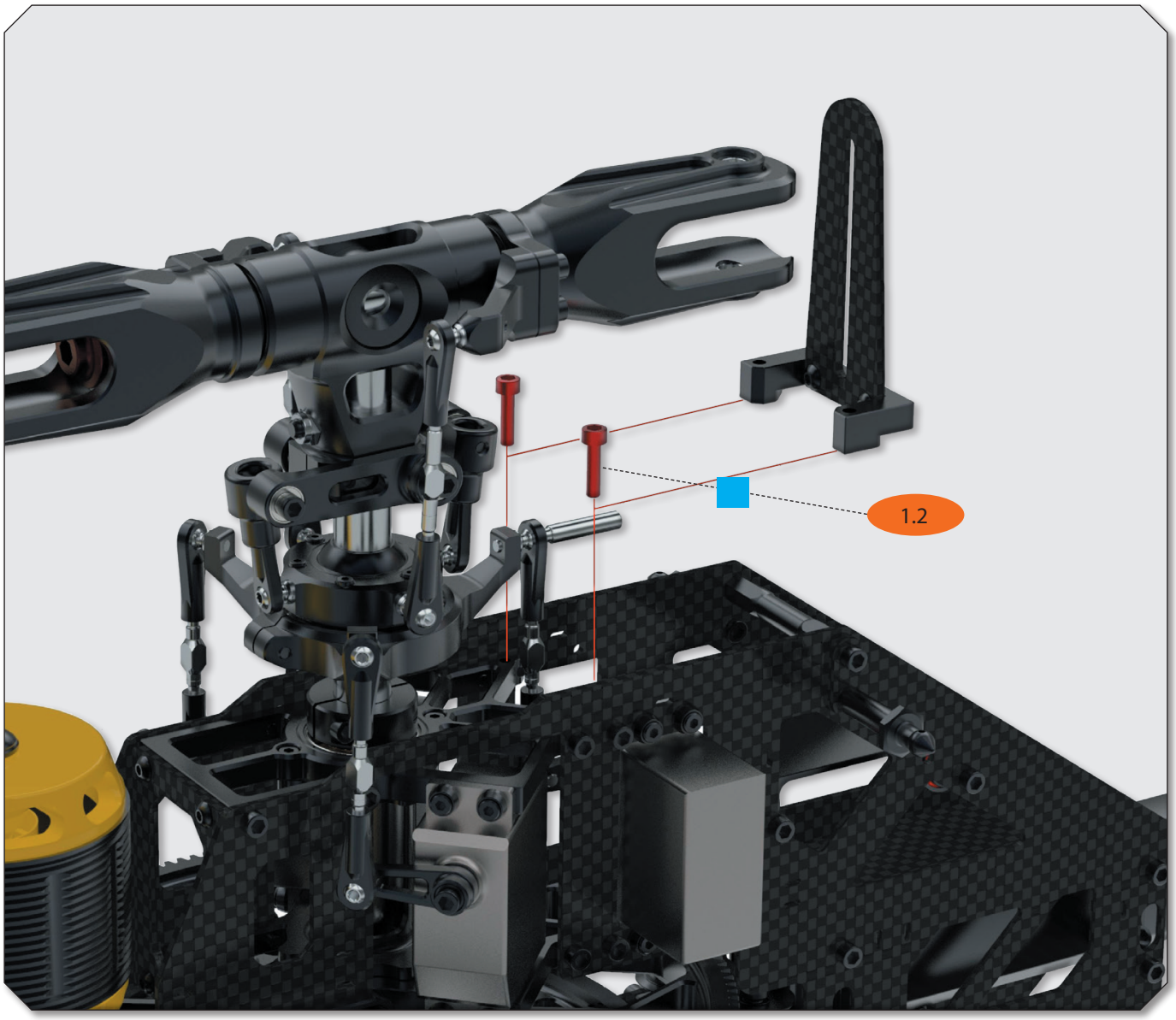
Head and main drive

1. Insert main gear assembly into frame while pulling tail belt over drive pulley
2. Insert rotor head assembly
3. Make sure your main shaft glide true the one way bearing sleeve and line up with the jesus bolt screw X.X
4. Move down the main shaft collar to have zero up and down play on the rotor head assembly, then tighten screws X.X step by step.
5. Make sure to have an equal gap on the collar to achieve best holding results for the main shaft.
6. Tighten the belt by moving the boom backwards
7. Tighten the boom clamp screws gently

You will need:
Loctite 243 = blue

Anti rotation guide





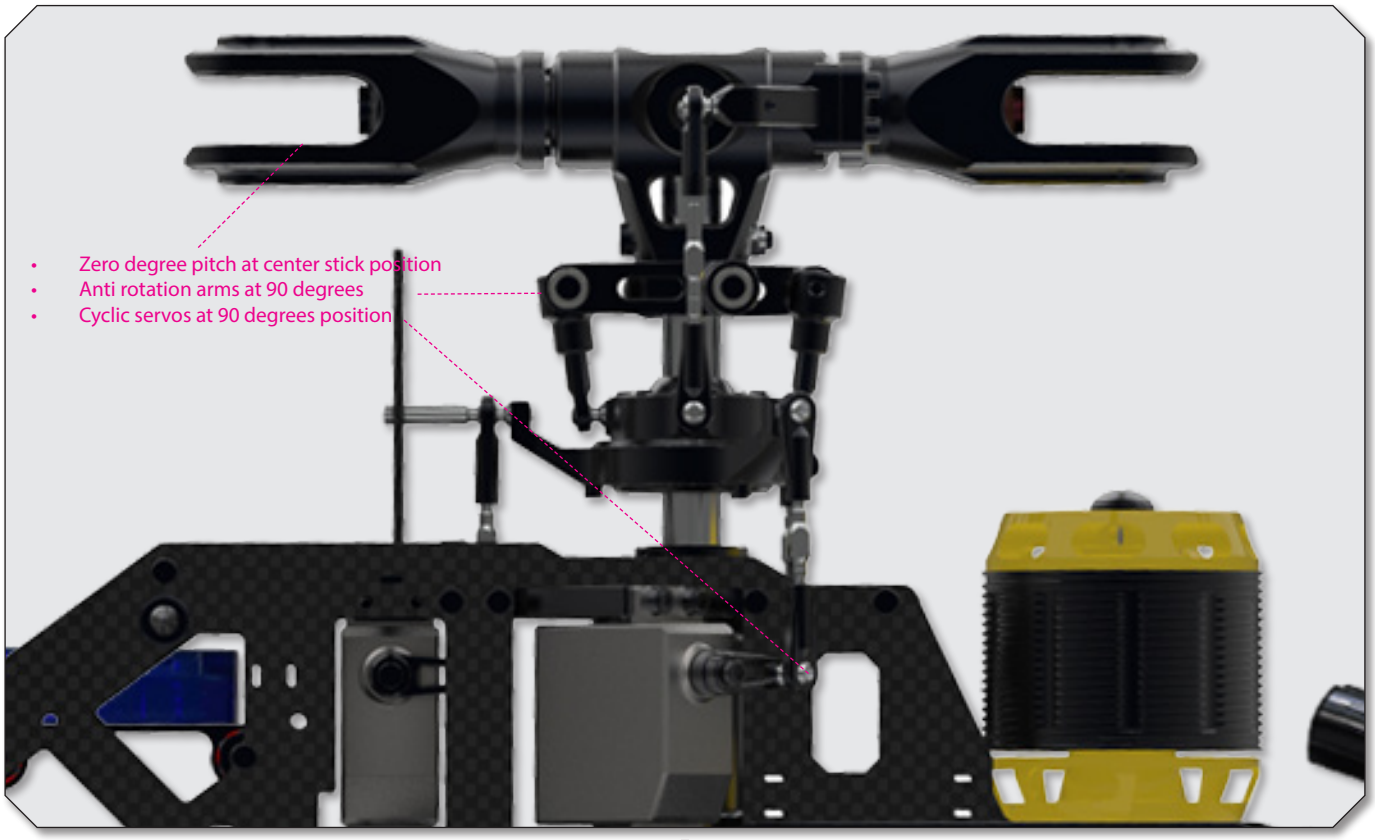
Tail rotation and canopy

Rotation direction of main rotor and tail rotor

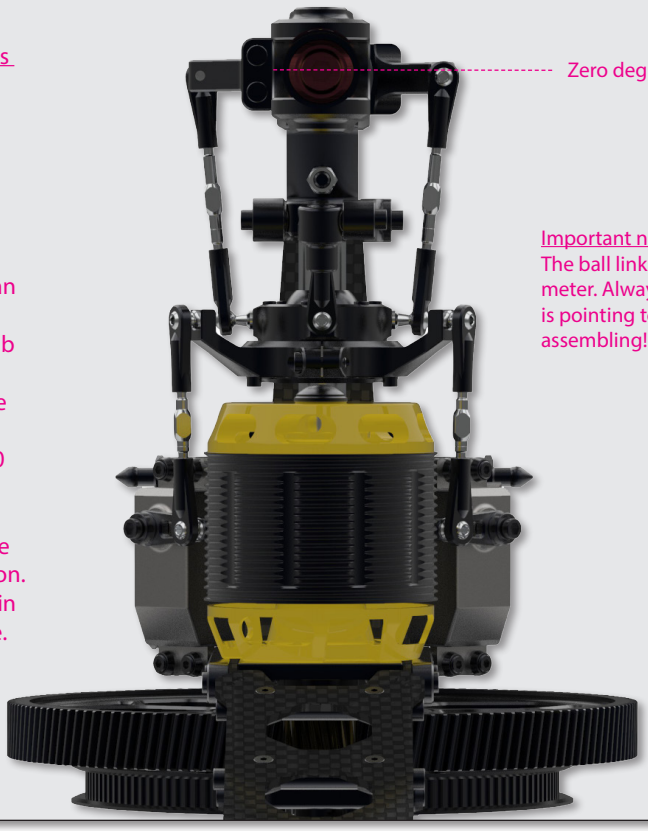
TR702-151 Canopy Tron 7.0 white black

TR504-008 Canopy grommets

Final setup and pre-flight check



1. Disconnect your Motor wires from the ESC!
2. FBL controller should be to 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.



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!

Pre-flight check and gear ratios

1. Make sure your battery tray is securely locked.Use 4 battery straps.
2. Inspect your blades for possible damage and if they are slightly tighten.
3. Inspect your linkages if they all in place and not have been popt off turing transport of your model.
4. Confirm that the FBL unit is correctly initialized.
5. Make sure your canopy is secured safely. (2 pins on backside are fine)
6. If you are a beginner, always seek advice by a expirianced pilot,specially for your first flight.

Recommended head speed.

Flying styles	Head speed
Beginner and sport flying.	1500-1900rpm.
Advanced sport, 3D flying.	1900-2200rpm.
Hardcore 3D flying.	2200-2400rpm.

Main and tail rotor gear ratios.

Main gear	Pinion	Ratio	Tail drive	Tail	Ratio
155/mod 1.0	14T	11.07	127T	25T	5.08
155/mod 1.0	15T	10.33			
155/mod 1.0	16T	9.69			
155/mod 1.0	17T	9.12			
155/mod 1.0	18T	8.61			

Make sure to check your model on regular basis, do a preflight check every time you plan to fly your model. Max. head speed for main rotor head must not exceed 2600 RPM!

Fly safe!

Contact:
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tronhelicopters.com