MANUAL FOR THE

INTERCEPTOR 620 Electric

INTERCEPTOR

Moser-Saege 5 - 83674 Gaissach - Germany - minair@miniatureaircraft.de

Kit Introduction

Thank you for purchasing the X-Cell Interceptor by Miniature Aircraft. This model is the culmination of years of designing and manufacturing R/C helicopters. It is designed with the highest standards and will provide years of enjoyment. Whether this is your first R/C model helicopter or you are an advanced R/C helicopter modeler, the X-Cell Interceptor is a fantastic choice for a "600 size" model.

RC Helicopter Safety

A radio controlled model helicopter is not a toy, but rather a technically complex device that must be built and operated with care. It is also a fascinating and challenging part of the R/C sport, the mastery of which is very rewarding. A model helicopter must be built exactly in accordance with the building instructions. The kit manufacturer has spent much time and effort refining his product to make it reliable in operation and easy to build. The essentially bolt together construction can proceed quite rapidly, giving the builder a strong sense of accomplishment that encourages hasty progress from one construction phase to the next, so that the completed model can be more quickly seen and enjoyed. It is essential to recognize and guard against this tendency.

Follow building instructions exactly.

Vibration and stress levels are high and all fasteners and attachments must be secure for safe operation.Note that this is the first use of the word SAFETY in these comments. Previously the kit manufacturer's efforts to ensure reliable operation were mentioned. That is ALL that he can do.

Safe operation is the responsibility of the builder/flyer and starts with careful construction and continues with selection and installation of reliable radio equipment and engine.

The need for safety is nowhere greater than at the flying field. A number of guidelines for safe flight have been developed by experienced flyers and are set down here. It is urged that they be read, understood and followed.

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Warning! – Risk of Death or Serious Injury

Remote Control ("R/C") Helicopters can be dangerous. Inexperienced pilots of R/C Helicopters should be trained and supervised by experienced operators. All operators should use safety glasses and other appropriate safety equipment, and exercise necessary precautions when fueling, repairing, maintaining, flying and storing R/C Helicopters, and when using or storing R/C Helicopter accessories, equipment, fuels, and related materials. R/C Helicopters should be used only in open areas free of obstacles, and far enough from people to minimize the possibility of injury from the helicopter or any of its components falling or flying in unexpected directions.

This helicopter is not a toy, but a complex flying machine that must be assembled with care by a responsible individual. Failure to exert care in assembly, or radio or accessory installation, may result in a model incapable of safe flight or ground operation. Rotating components are an ever present danger and source of injury to operators and spectators. Since the manufacturer and his agents have no control over the proper assembly and operation of his products, no responsibility or liability can be assumed for their use.

General Guidelines for Safe RC Helicopter Flight

- Fly only at approved flying fields and obey field regulations.
- Follow frequency control procedures. Interference can be dangerous to all.
- Know your radio. Check all transmitter functions before each flight.
- Be aware that rotating blades are very dangerous and can cause serious injury.
- Never fly near or above spectators or other modelers.
- If you're a beginner, get help trimming the model first and flight training later.
- Don't "track" the main blades by holding the tail boom. This is a temptation to builders who cannot hover yet and is very dangerous.
- Follow all recommended maintenance procedures for model, radio and engine.

Academy of Model Aeronautics

Miniature Aircraft highly recommends joining the Academy of Model Aeronautics (AMA).

- AMA is the Academy of Model Aeronautics.
- AMA is the world's largest model aviation association, representing a membership of more than 150,000 from every walk of life, income level and age group.
- AMA is a self-supporting, non-profit organization whose purpose is to promote development of model aviation as a recognized sport and worthwhile recreation activity.
- AMA is an organization open to anyone interested in model aviation.
- AMA is the official national body for model aviation in the United States. AMA sanctions more than a thousand model competitions throughout the country each year, and certifies official model flying records on a national and international level.
- AMA is the organizer of the annual National Aeromodeling Championships, the world's largest model airplane competition.
- AMA is the chartering organization for more than 2,500 model airplane clubs across the country. AMA offers its chartered clubs official contest sanction, insurance, and assistance in getting and keeping flying sites.
- AMA is the voice of its membership, providing liaison with the Federal Aviation Administration, the Federal Communications Commission, and other government agencies through our national headquarters in Muncie, Indiana. AMA also works with local governments, zoning boards, and parks departments to promote the interests of local chartered clubs.
- AMA is an associate member of the National Aeronautic Association. Through NAA, AMA is recognized by the Fédération Aéronautique Internationale (FAI), the world governing body of all aviation activity, as the only organization which may direct U.S. participation in international aeromodeling activities.

For more detailed information, contact the Academy of Model Aeronautics
5161 E. Memorial Drive, Muncie, Indiana, 47302
or telephone (800) 435-9262.
You may also visit the AMA website at www.modelaircraft.org

Kit Assemmbly

Your Interceptor kit will require a number off different dupplies and tools to ensure the best final result. They are as follows:

Required Lubricants and Compounds:

- Medium Strength Thread Locking Compound – Loctite 243
- Synthetic Oil (MA3200-12)
- Synthetic Grease (MA3200-11)

Required Tools:

- m4 Nut Driver
- m5 Nut Driver
- m5.5 Nut Driver
- m7 Nut Driver
- 1.5mm Allen Driver
- 2.0mm Allen Driver
- 2.5mm Allen Driver
- 3.0mm Allen Driver
- Needle Nose Pliers
- Phillips Screwdriver #1
- Flat Screwdriver 2.5mm
- Razor Knife (X-acto)
- Snap Ring Pliers

Optional Tools:

- Swashplate Leveling Tool (MA3000-10)
- Pitch Gauge
- Crankshaft Locking Tool (MA3000-34)

Other Required Components:

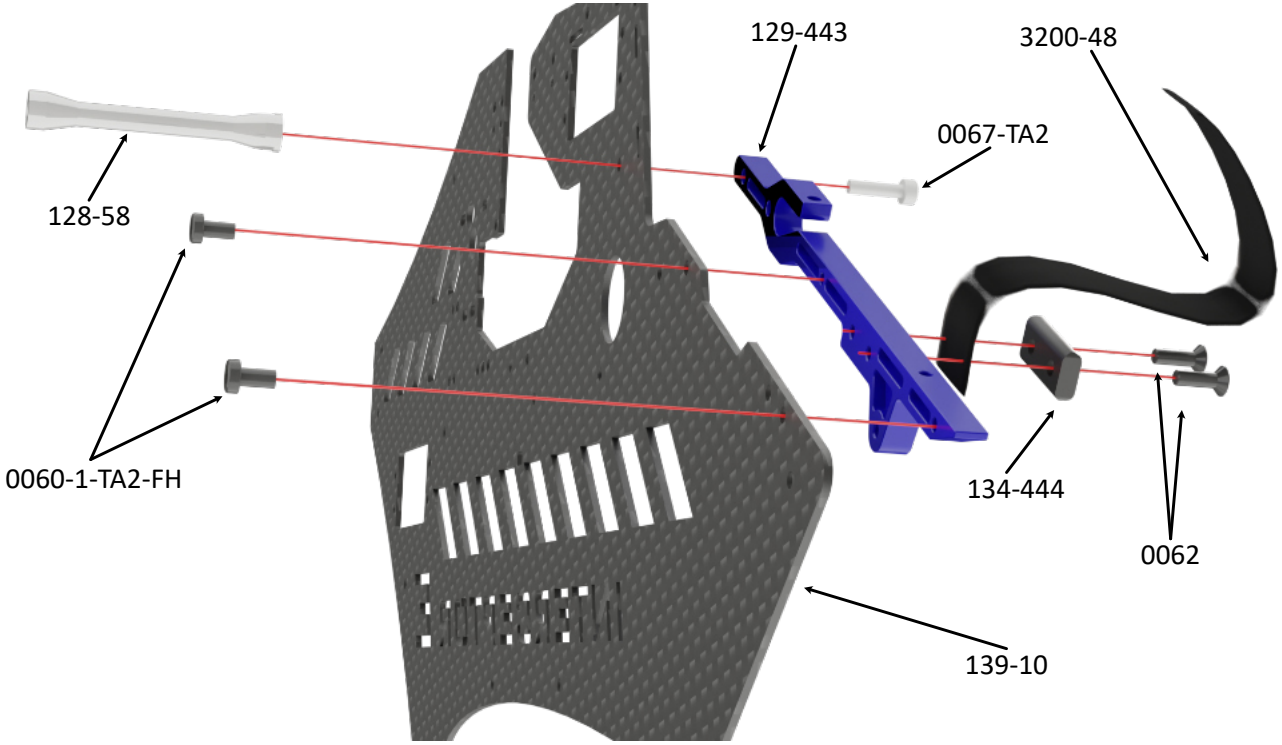
The X-Cell Interceptor is an airframe kit. To complete the model, several other items are required but are not included with the kit. There are many choices for these other required components, and any competent hobby retailer with RC helicopter experience will be happy to make suggestions. You will need:

- Engine
- ESC
- Cyclic servos (Miniature Aircraft recommends high quality cyclic servos).
- Tail servo (Miniature Aircraft recommends high quality tail servo)
- Throttle servo (Miniature Aircraft recommends a high quality ball bearing servo)
- Main rotor blades of 600-620mm in length.
- R/C helicopter transmitter with at least 7 channels.
- R/C helicopter FBL Gyro
- Tail Blades 95 to 97mm in length

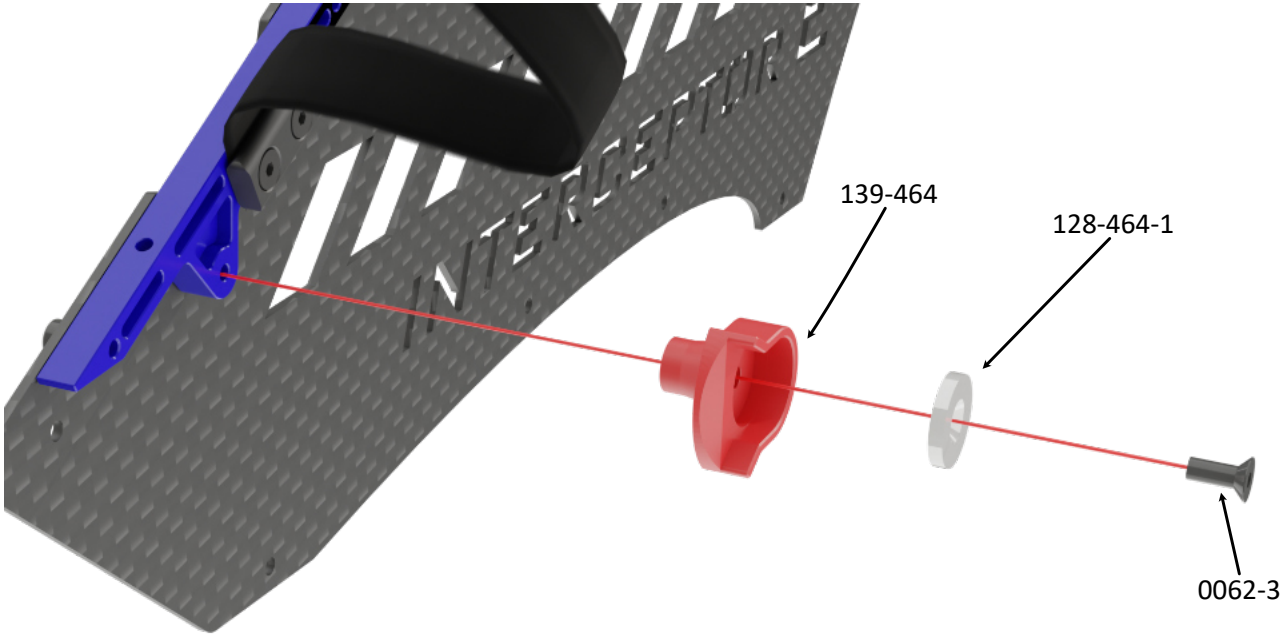
Important Assembly Tips

PEASE READ

- Follow the instructions. The methods of construction documented in this manual have been proven to work.
- Do not rush the build of your model! You have purchased a world class model helicopter kit, take your time and realize that the final result is now up to you. Take the time to fully understand each step, if you are unsure please contact Miniature Aircraft.
- Follow the order of assembly. The instructions have been organized into major sections and have been written in such a way that each step builds upon the work done in the previous step. Changing the order of assembly may result in unnecessary steps.
- Clean all metal parts: All of the steel parts in this kit are coated with a lubricant to prevent them from rusting. This coating can interfere with the adhesives and thread locks needed for assembly. Use a solvent such as alcohol to clean the various metal parts, especially threads.
- Use thread lock as indicated. Generally, any bolt or screw that threads into a metal part requires thread lock. Model helicopters are subject to vibration and failing to use thread lock on any non-locking assembly may result in a part becoming loose or falling off.

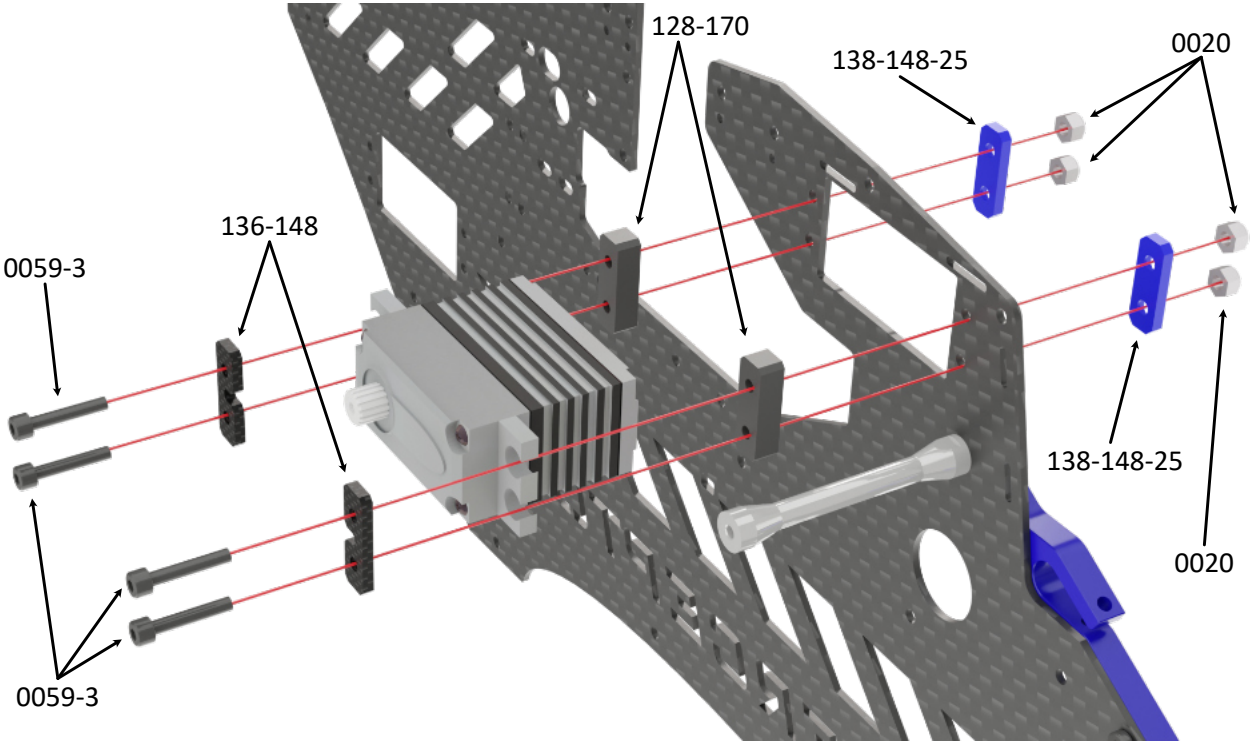


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



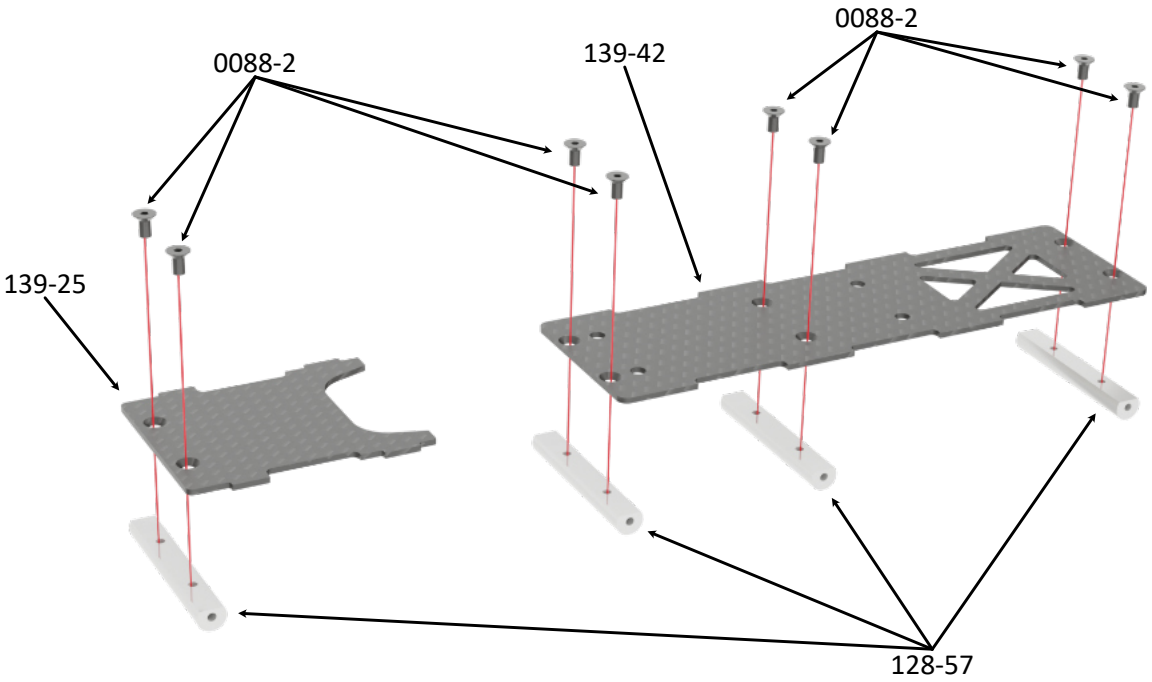
Assembly Tips:

Align the opening of part 136-464 to the front of the helicopter.
Apply a small amount of medium thread lock when threading in to metall parts.

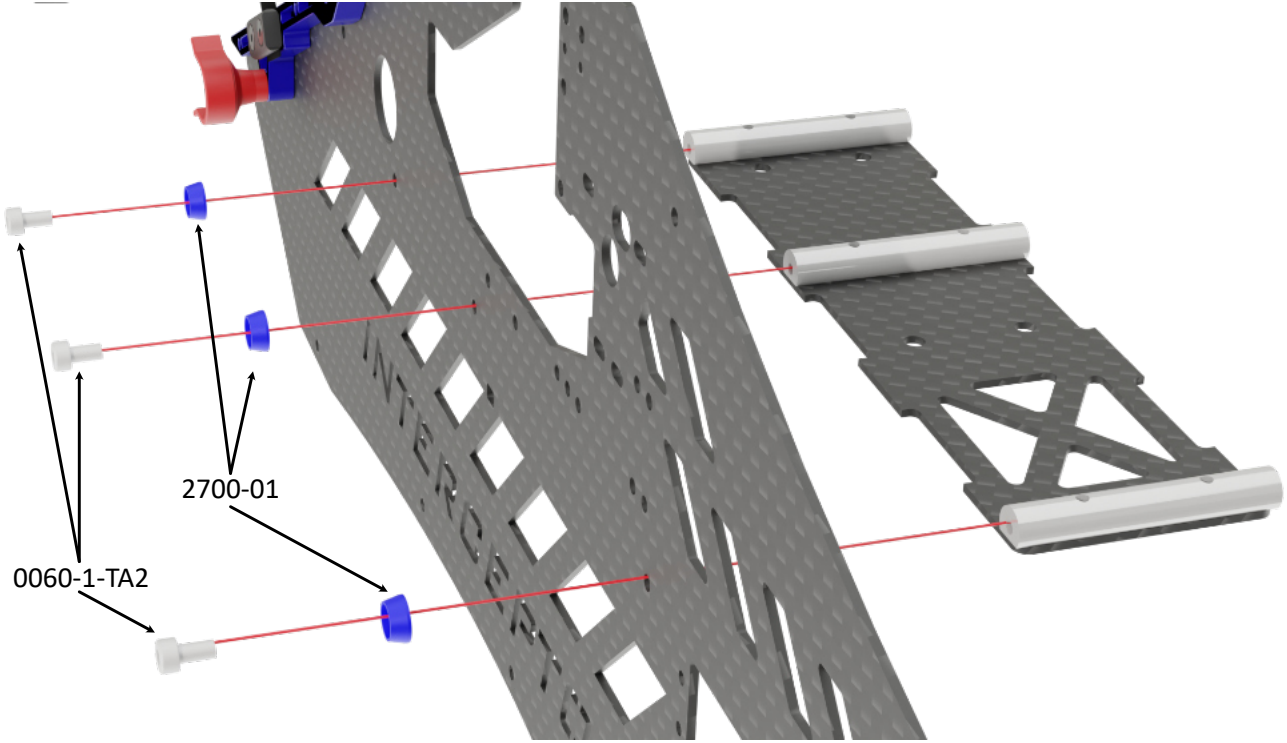


Servo can also be mounted later.

Apply a small amount of medium thread lock when threading into metal parts.



Apply a small amount of medium thread lock when threading in to metall parts.



0060-1-TA2

M3 x 6mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

The caps (2700-04) are also available in blue and green. Color shipped wit the kit depends on the canopy design.

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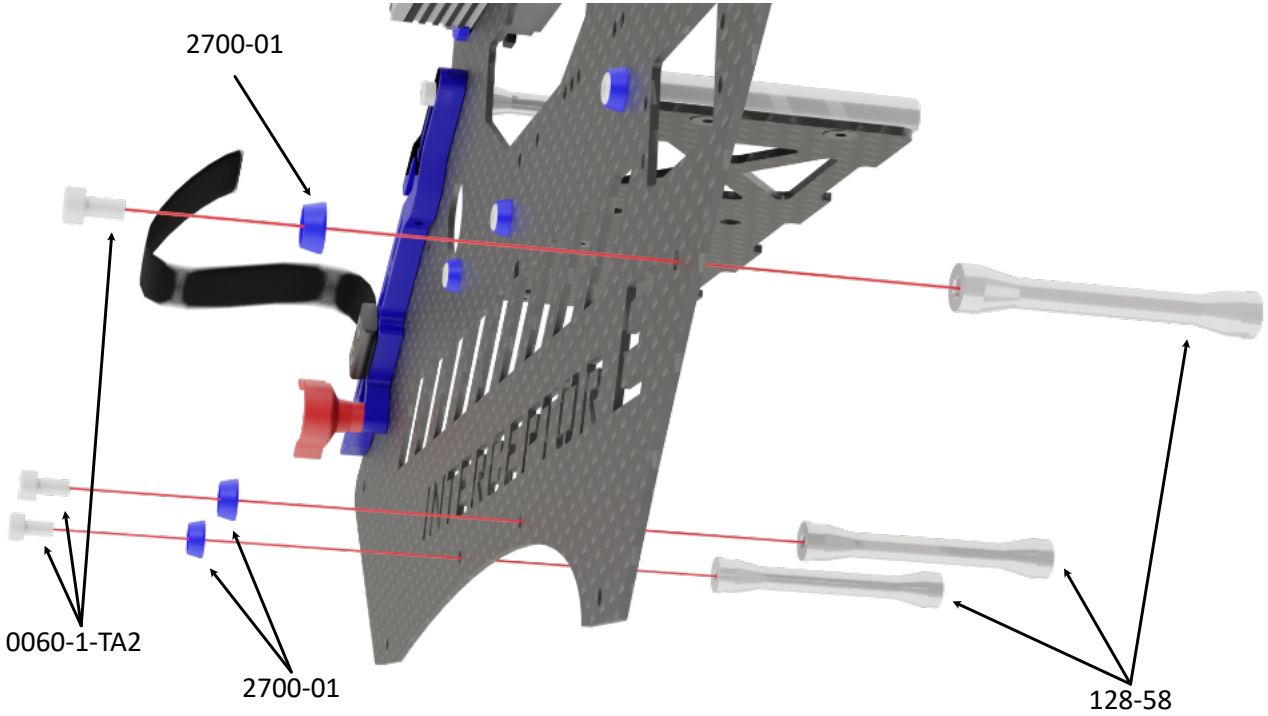


Apply a small amount of medium thread lock when threading in to metall parts.

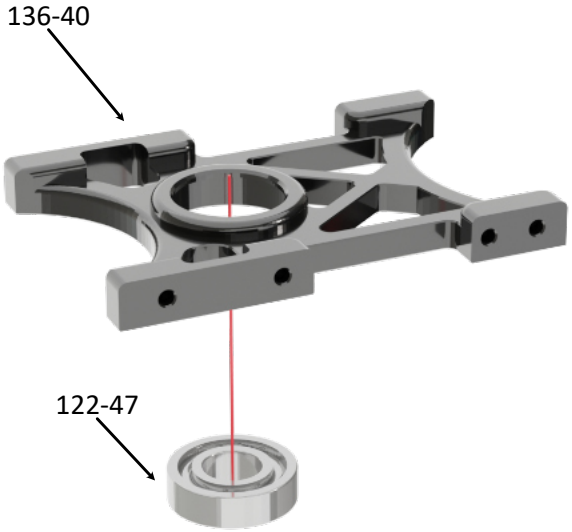
0060-1-TA2

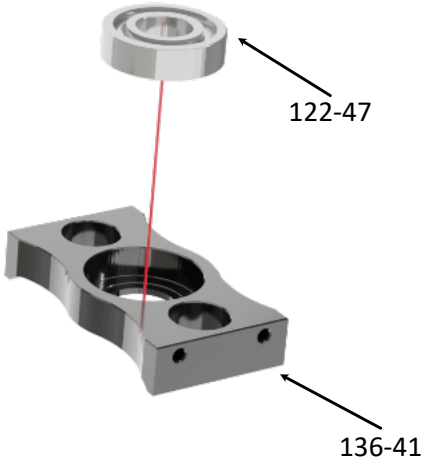
M3 x 6mm

2700-01

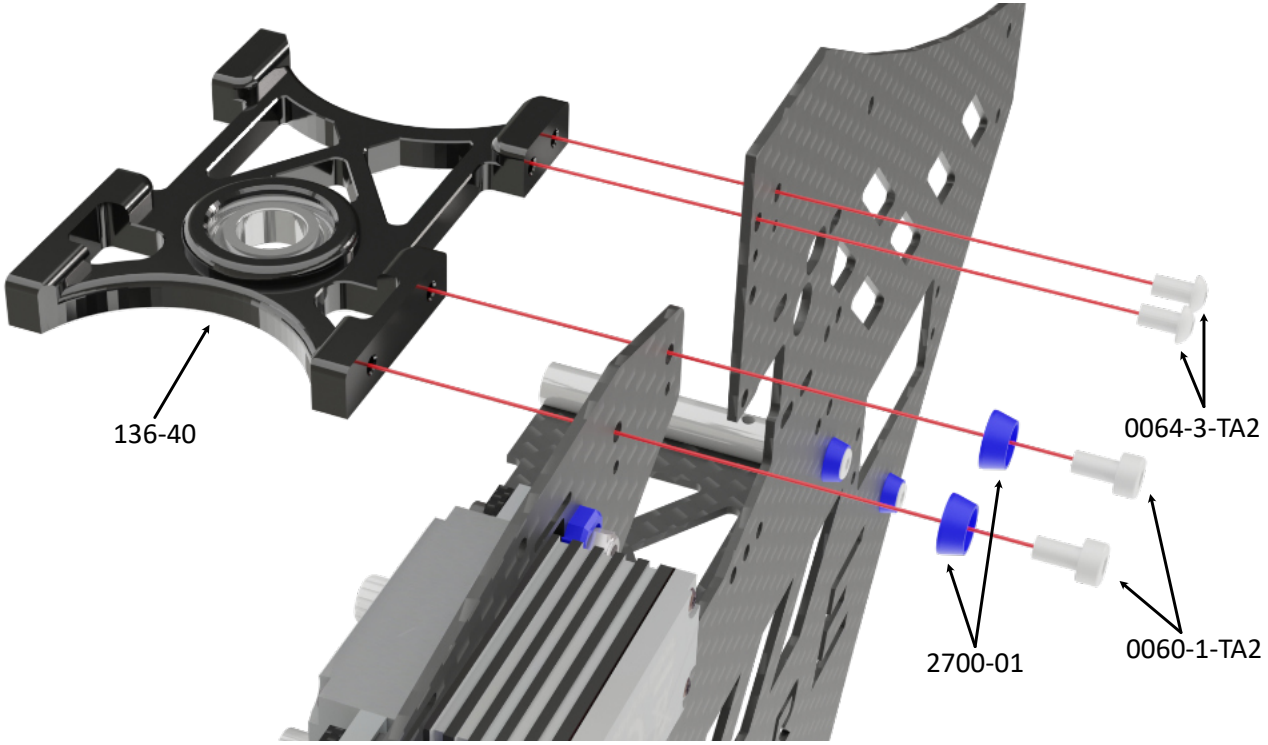
M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.





Factory Assembled



Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

0064-3-TA2

M3 x 6mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

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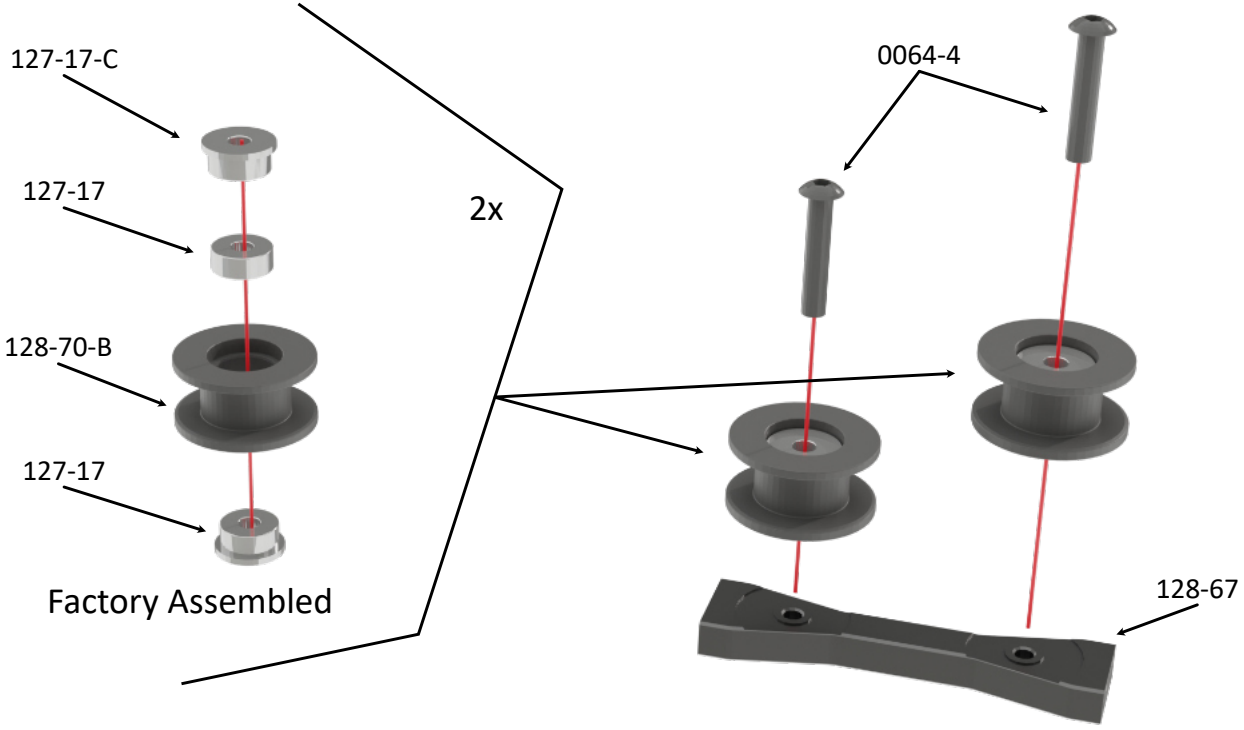

0064-4

M3 x 16mm

127-17

M3 x 8 x 4
Flanged Bearing

127-17-C

M3 x 8 x 53
Ball Bearing

Apply a small amount of medium thread lock when threading in to metall parts.

Apply a small amount of medium thread lock when threading into metal parts.

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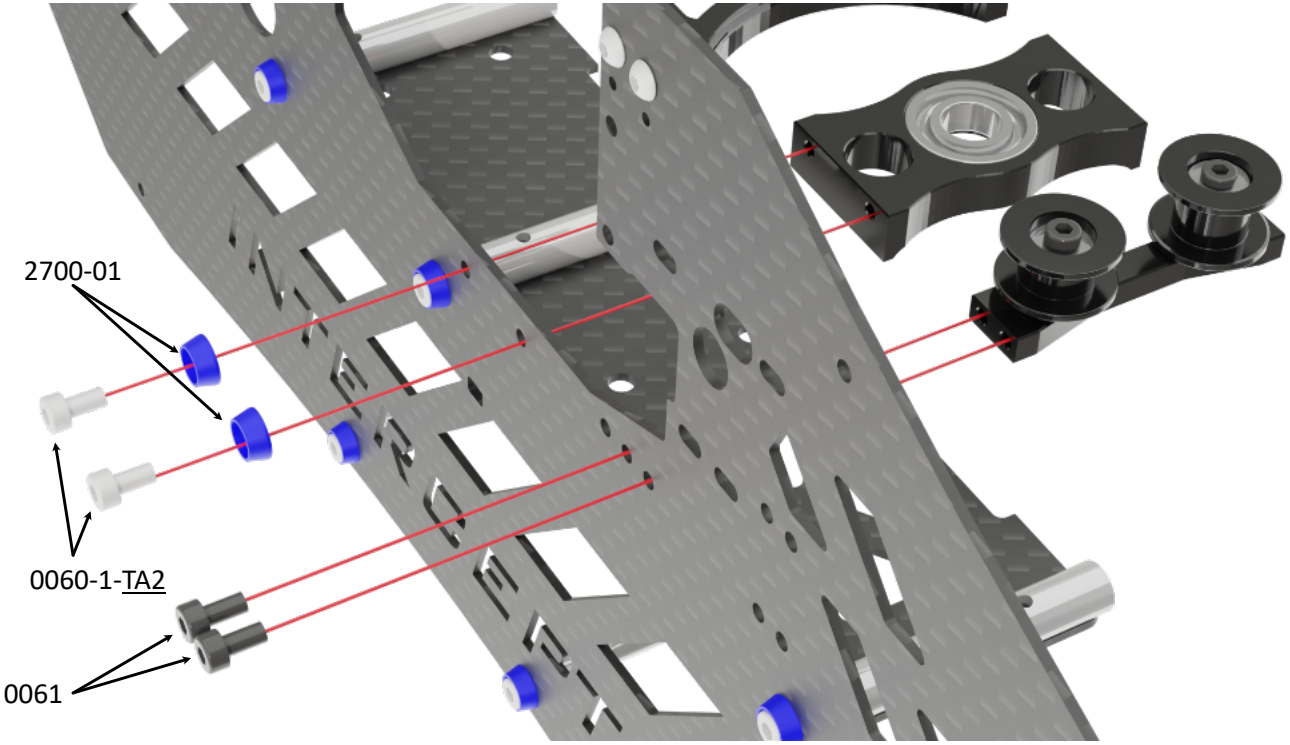


Apply a small amount of medium thread lock when threading in to metall parts.
For this assembly step put the mainshaft into both bearing blocks temporarily to ensure that the bearing blocks are aligned well.

0061

M3 x 8mm

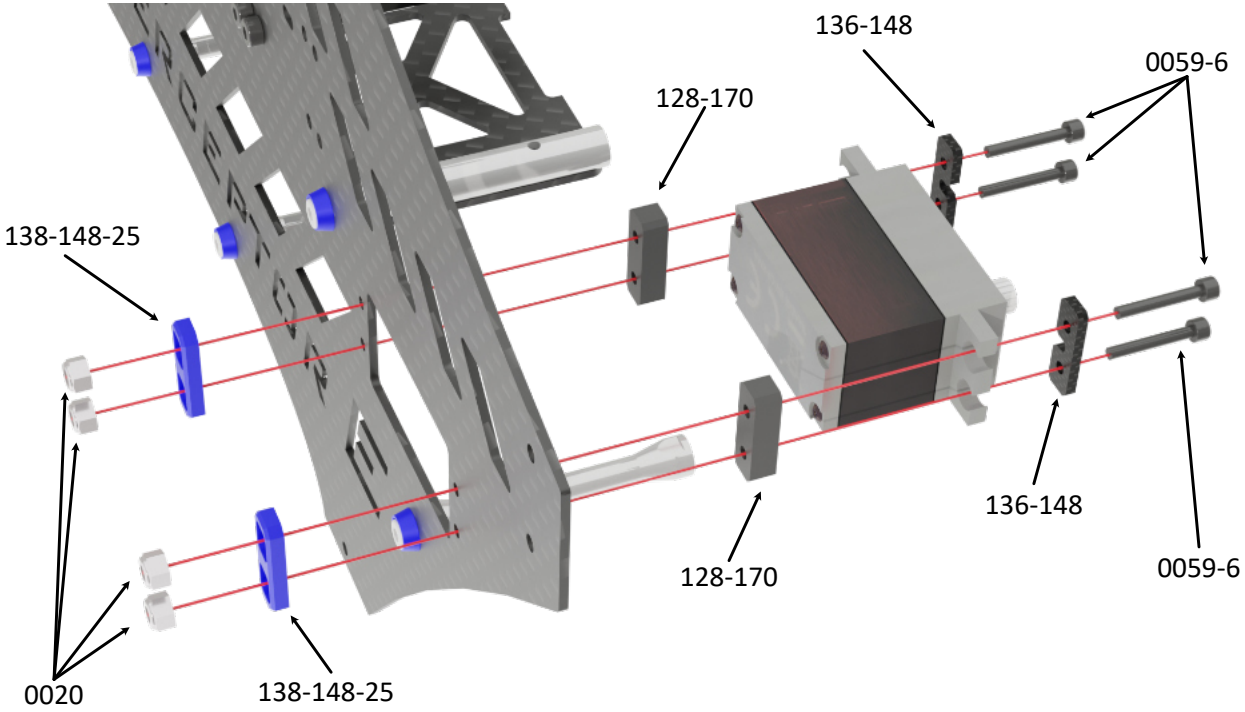
0060-1-TA2

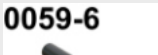
M3 x 6mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.





Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Servo can also be mounted later.

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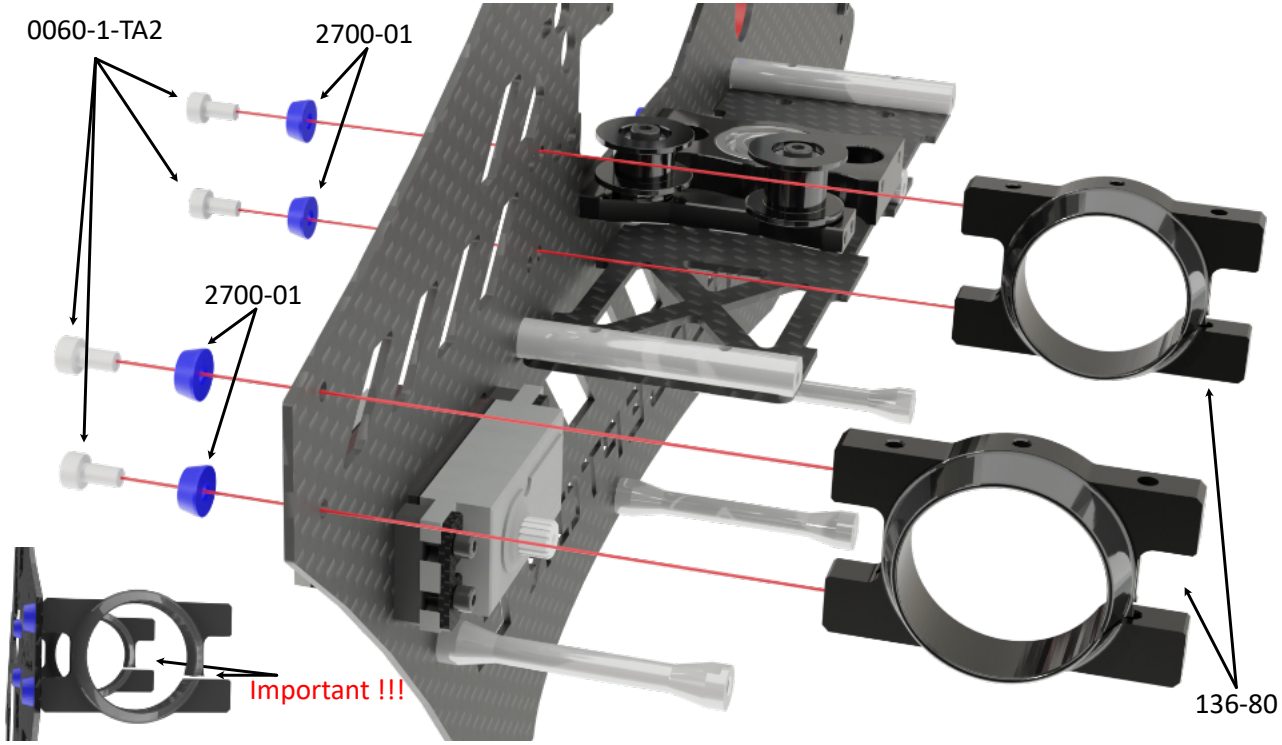

0060-1-TA2

M3 x 6mm

2700-01

M3 (blue)

Assembly Tip:
Apply a small amount of medium thread lock when threading in to metall parts.
Temporarily install tial boom at this assembly step that the boom clamps will be aligned well.

Apply a small amount of medium thread lock when threading into metal parts.

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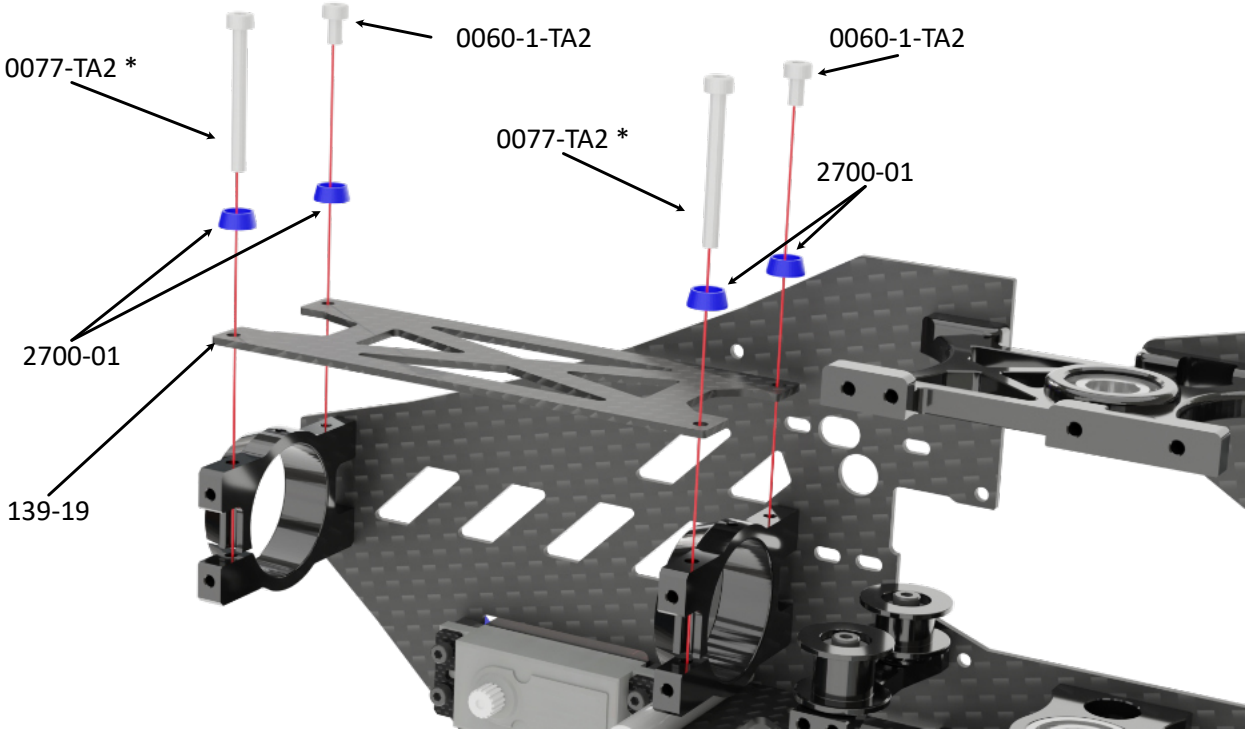

0060-1-TA2

M3 x 6mm

0077-TA2

M3 x 30mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

* NOTE: 0077-TA2 Do not tighten these bolt at this assembly step

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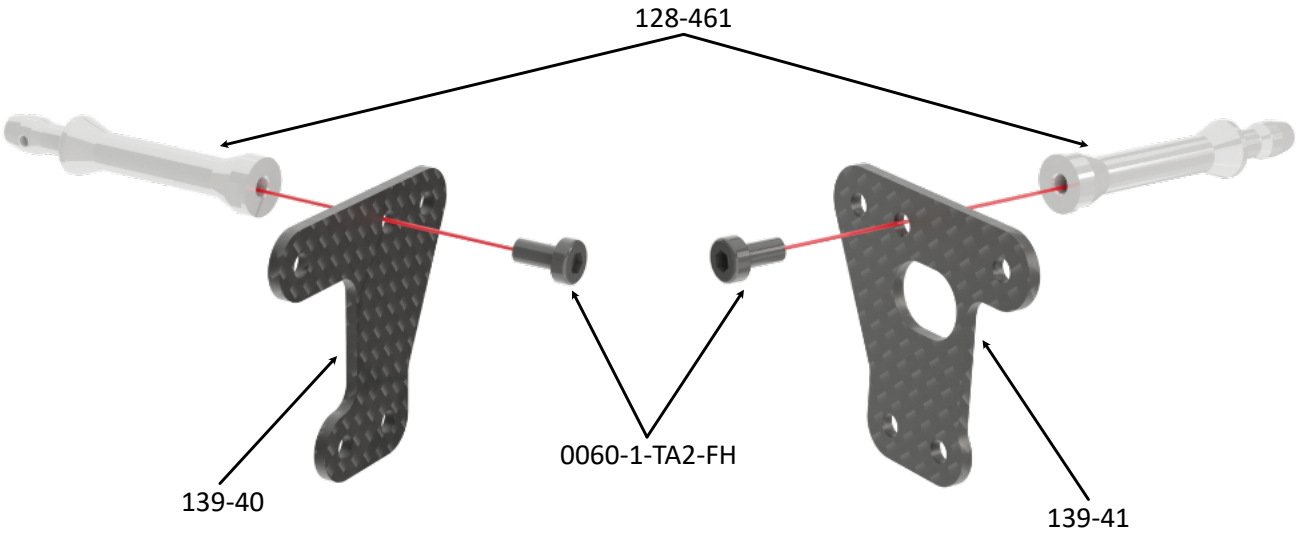

0060-1-TA2-FH

M3 x 6mm

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Apply a small amount of medium thread lock when threading into metal parts.

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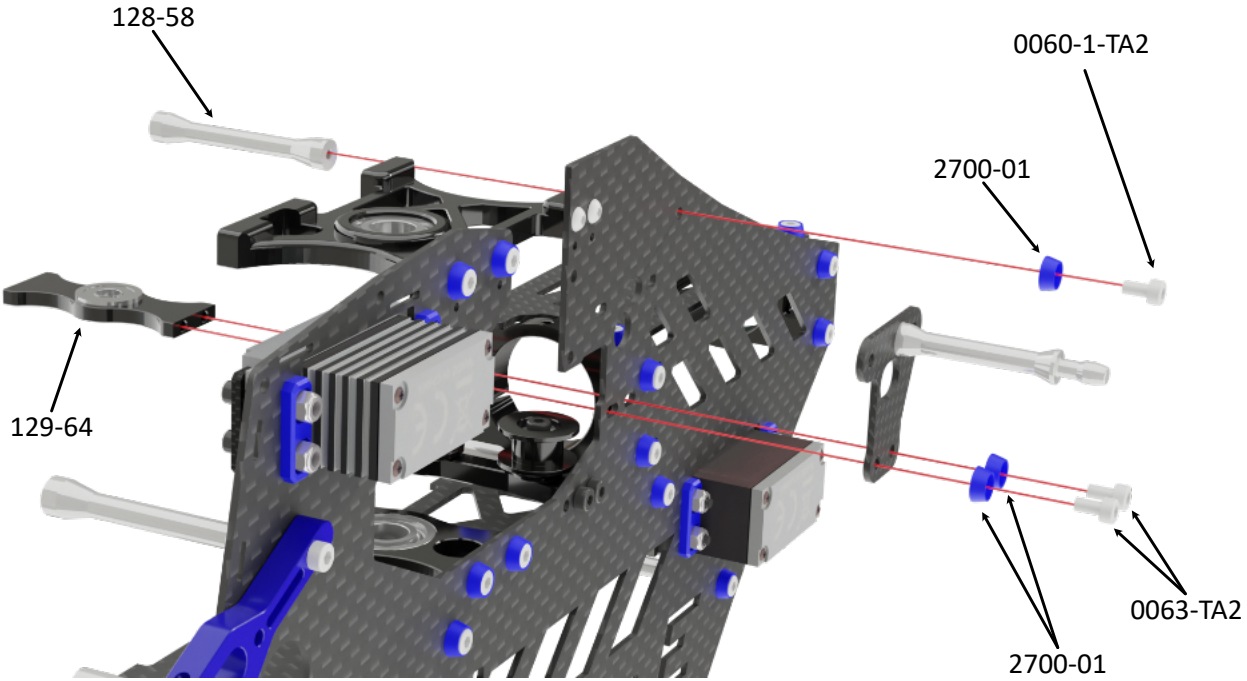


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

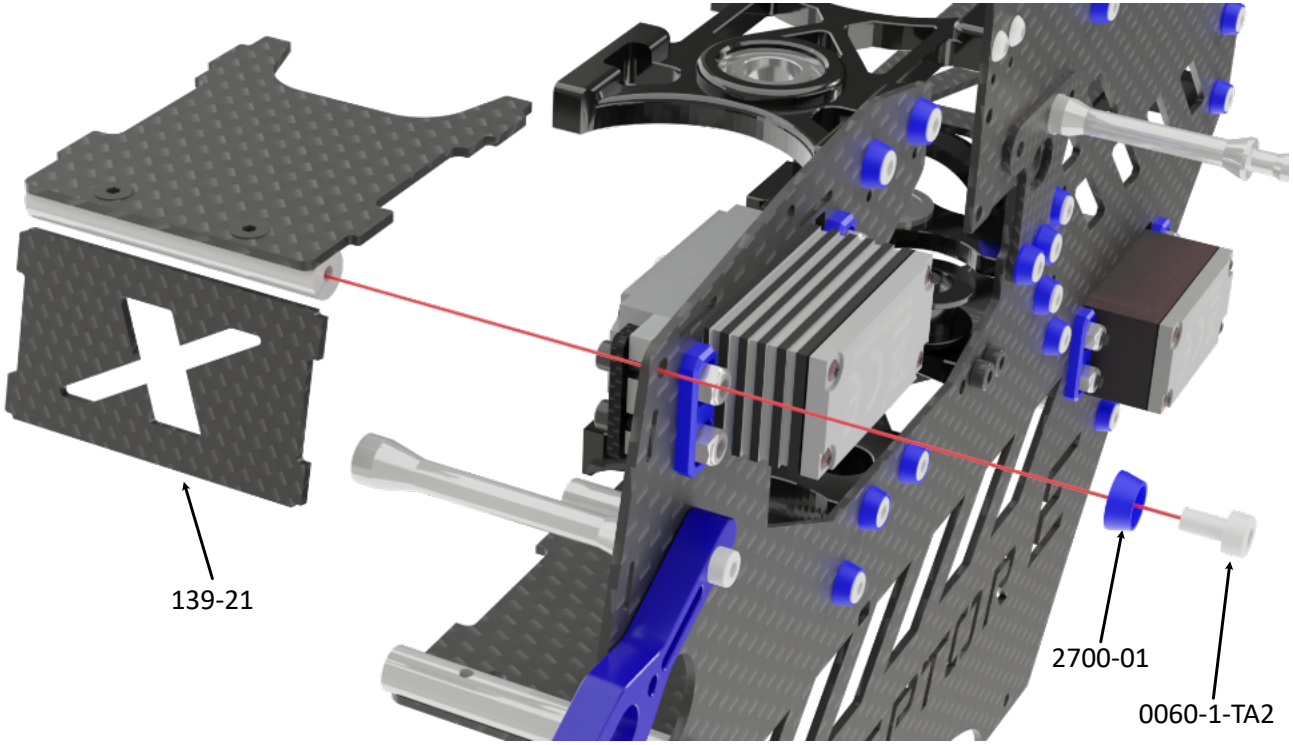
0063-TA2

M3 x 10mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.



0060-1-TA2

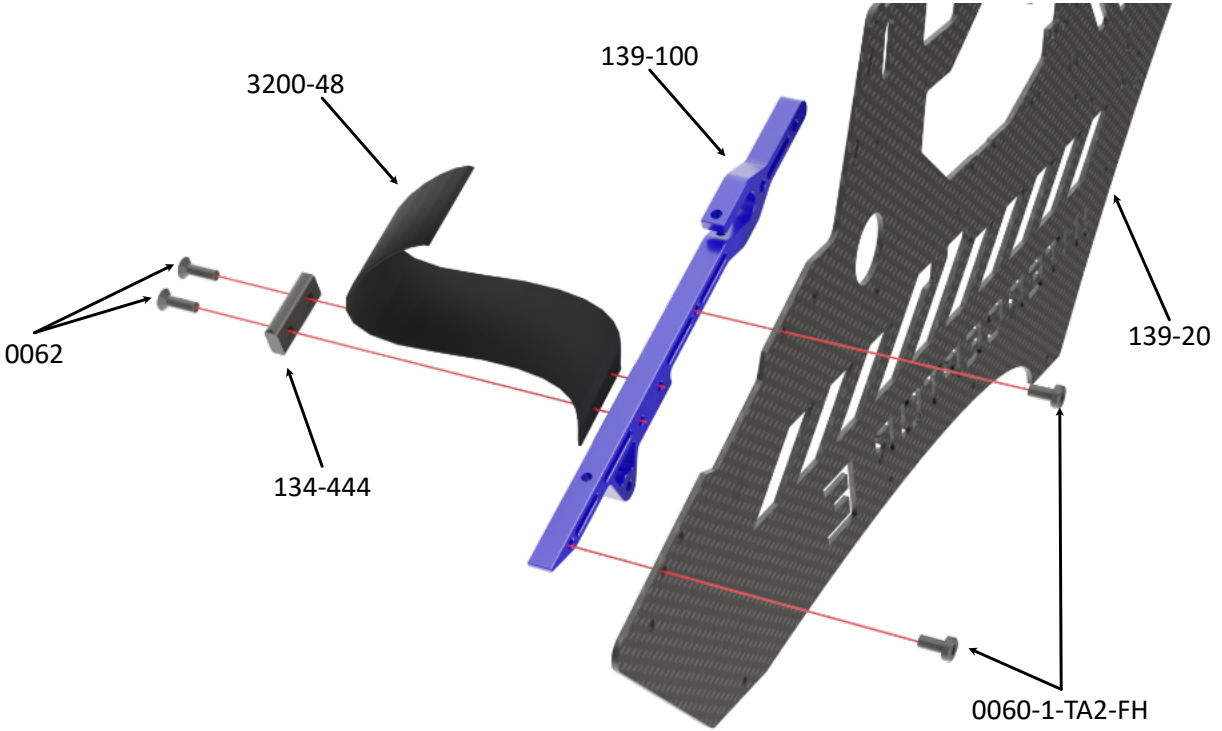
M3 x 6mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

Servo can also be mounted later.



0060-1-TA2-FH

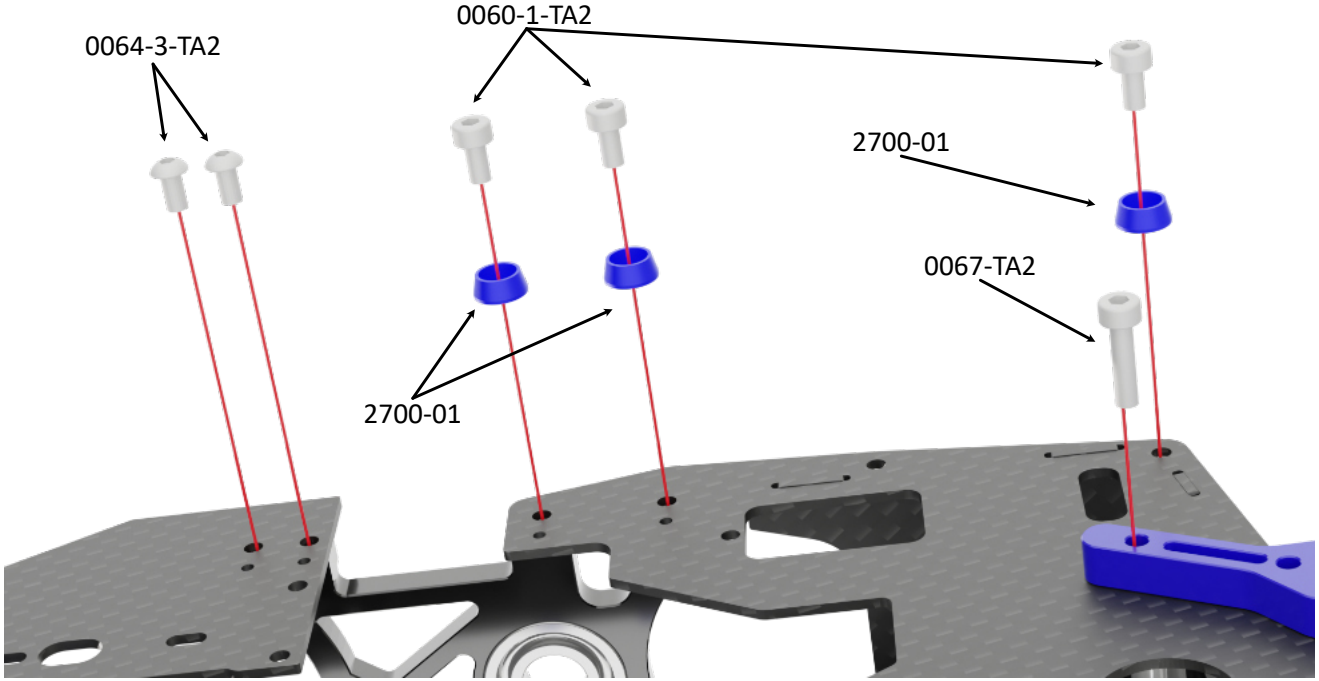
M3 x 6mm

0062

M3 x 10mm

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

0064-3-TA2

M3 x 6mm

0067-TA2

M3 x 14mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

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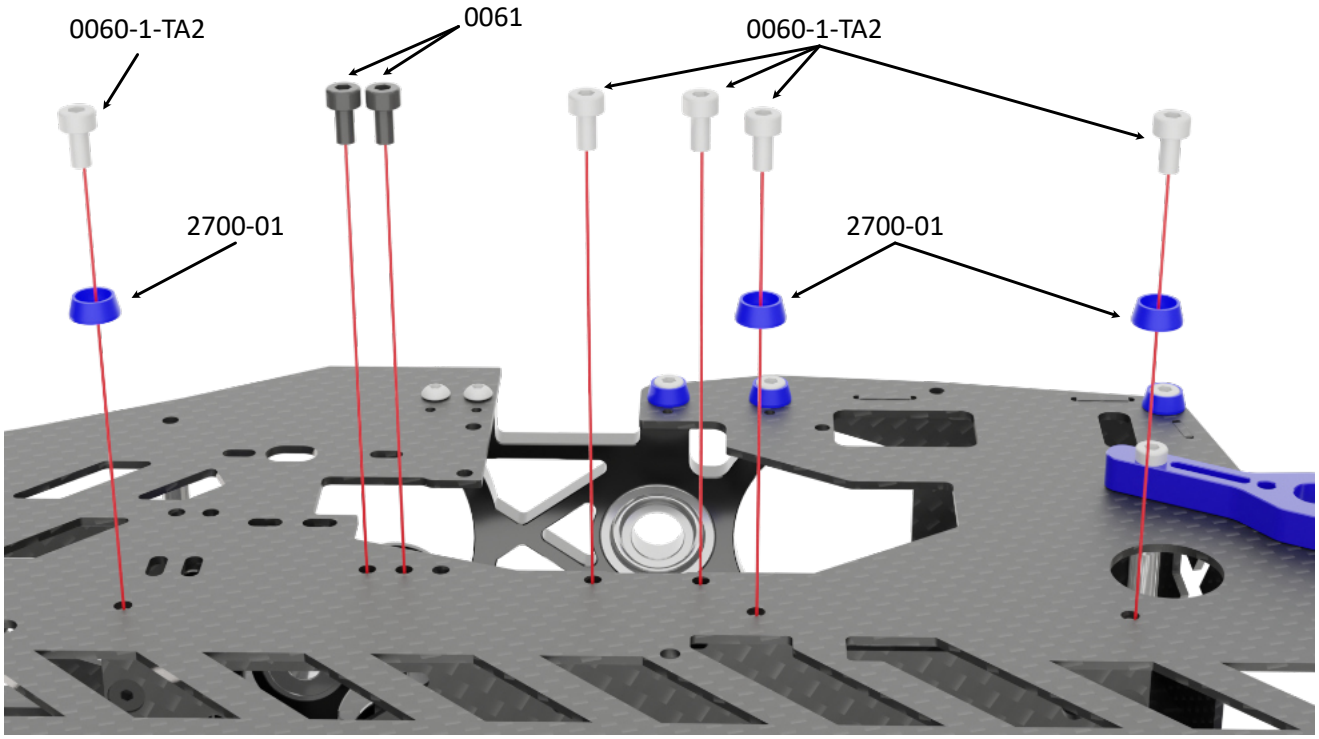

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

0061

M3 x 8mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

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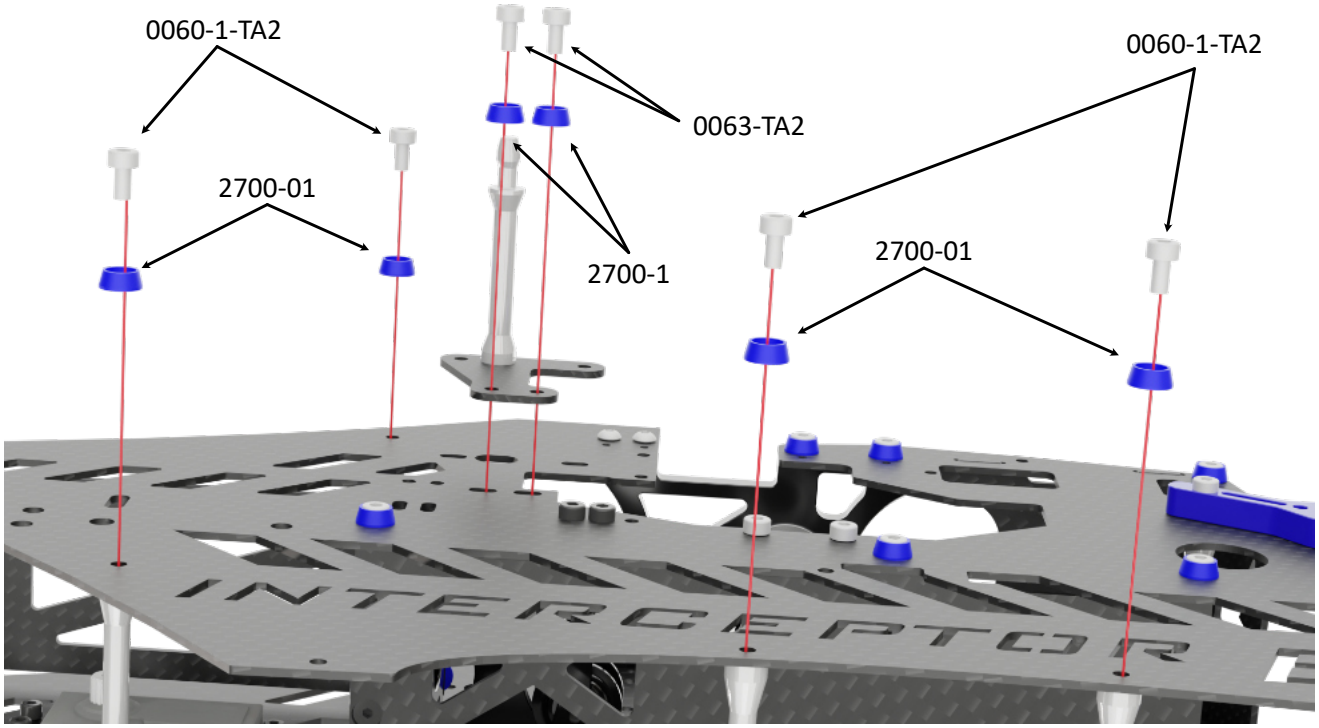


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

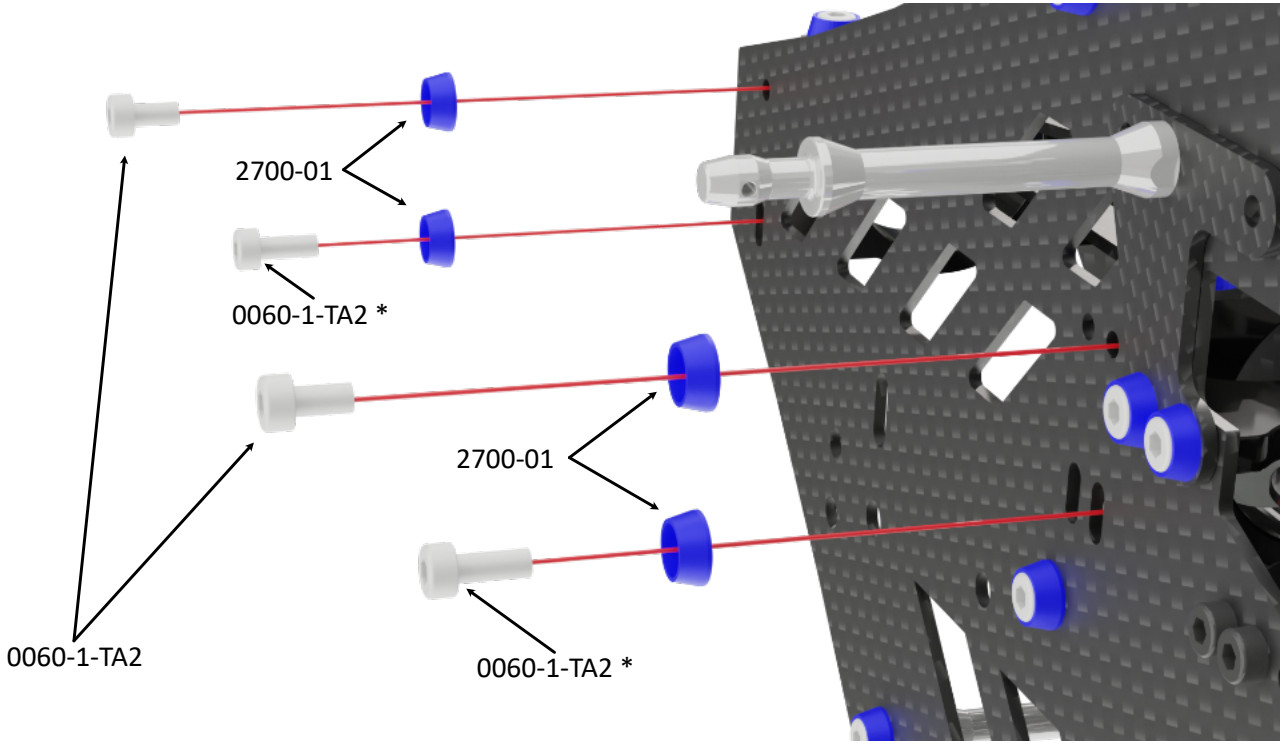
0063-TA2

M3 x 10mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.



0060-1-TA2

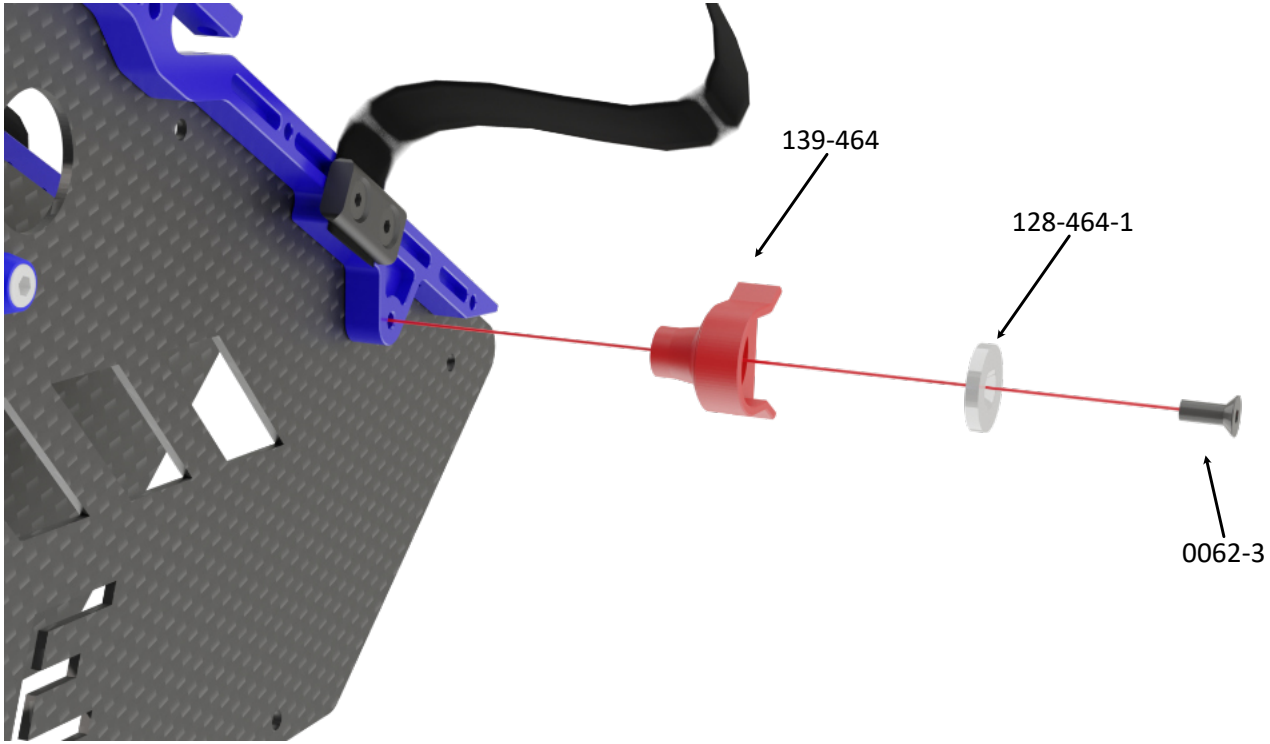
M3 x 6mm

2700-01

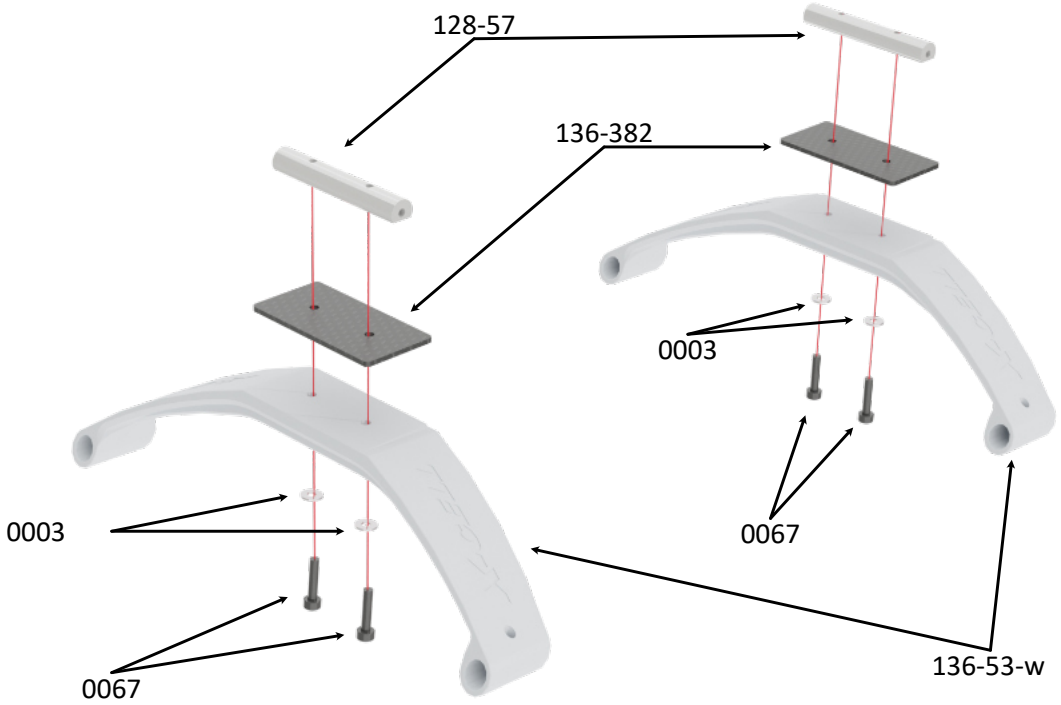
M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

* NOTE: 0060-1-TA2 Do not tighten these bolt at this assembly step



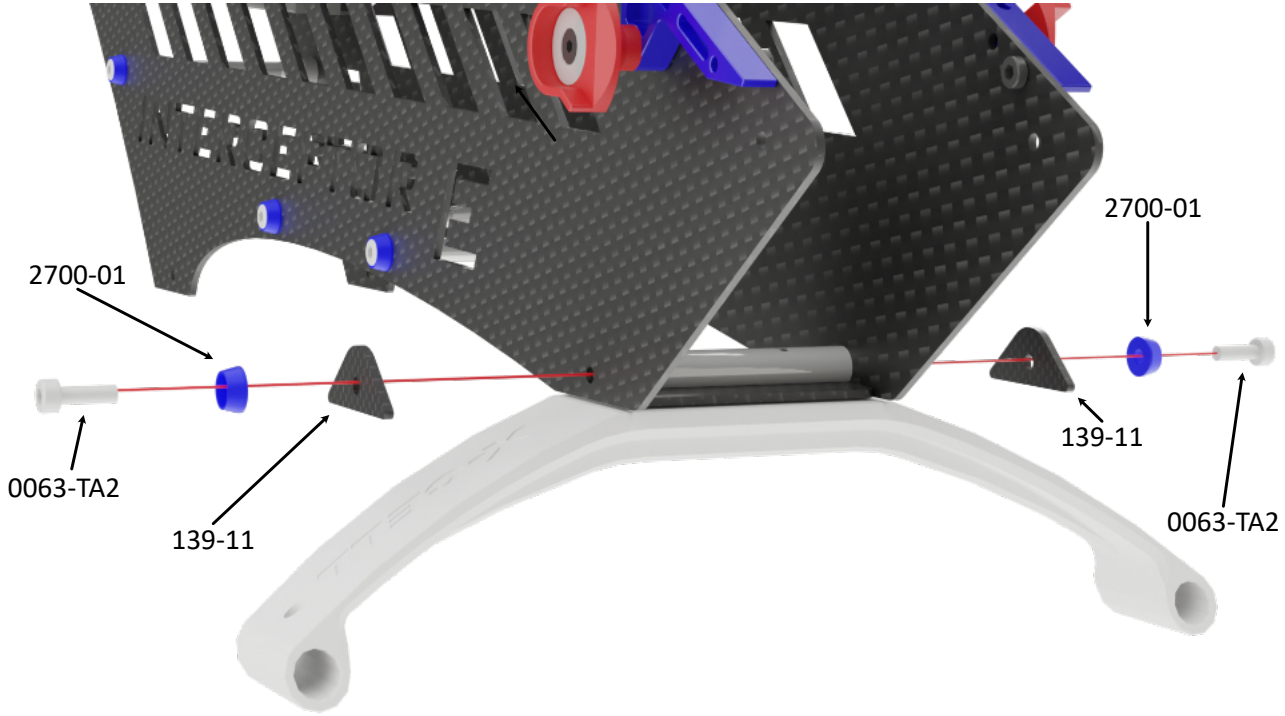
Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

The color of the skids and strutts which will be shipped with the kit depends on design of the canopy.



0063-TA2

M3 x 10mm

2700-01

M3 (blue)

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Apply a small amount of medium thread lock when threading into metal parts.

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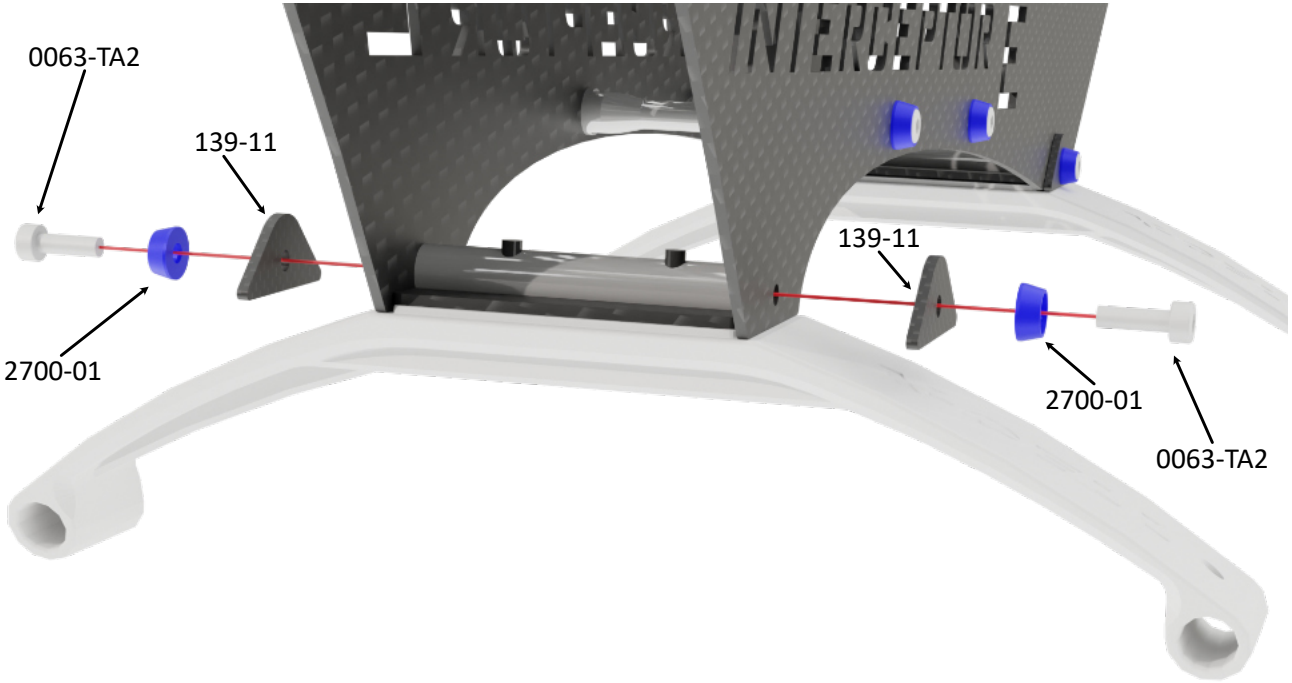


0063-TA2

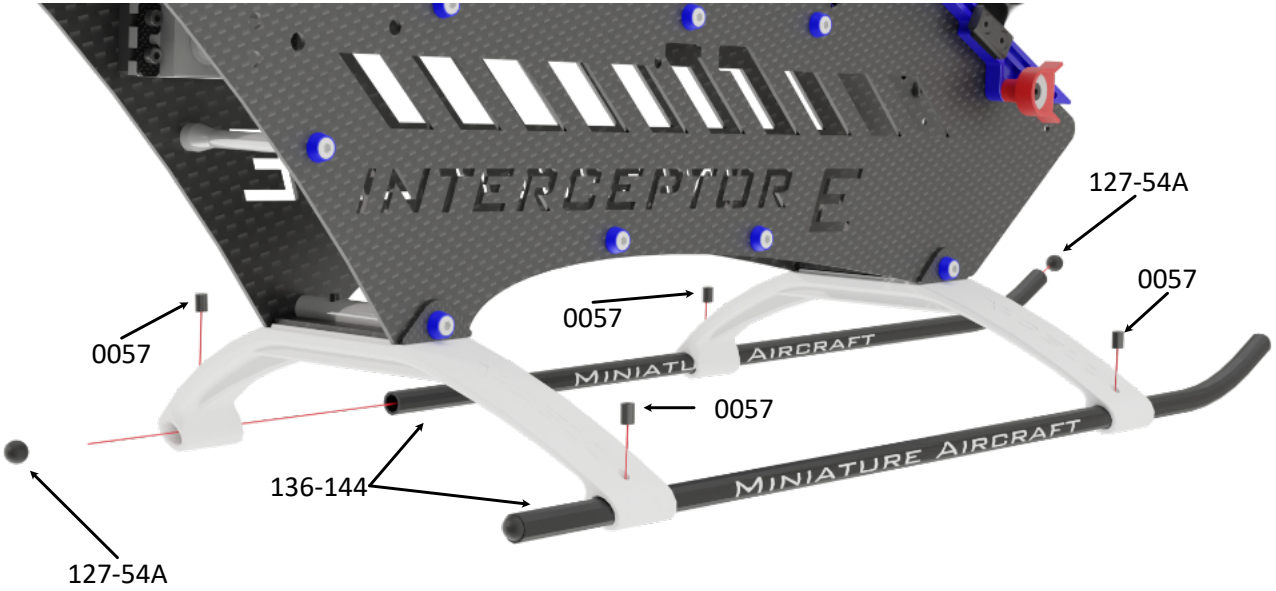
M3 x 10mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.

* NOTE: 0061 BOLTS ARE NOT TIGHT AT THIS TIME. Remove later to install boom if necessary.



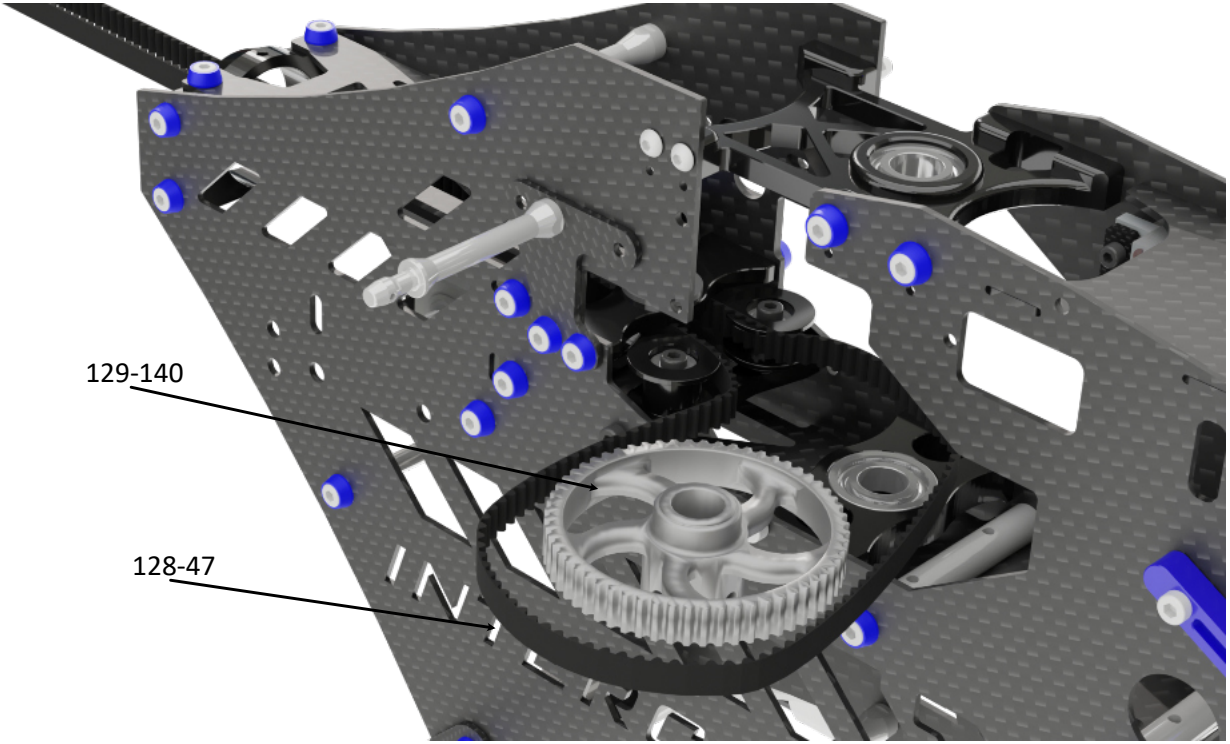
0057

M4 x 4mm

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

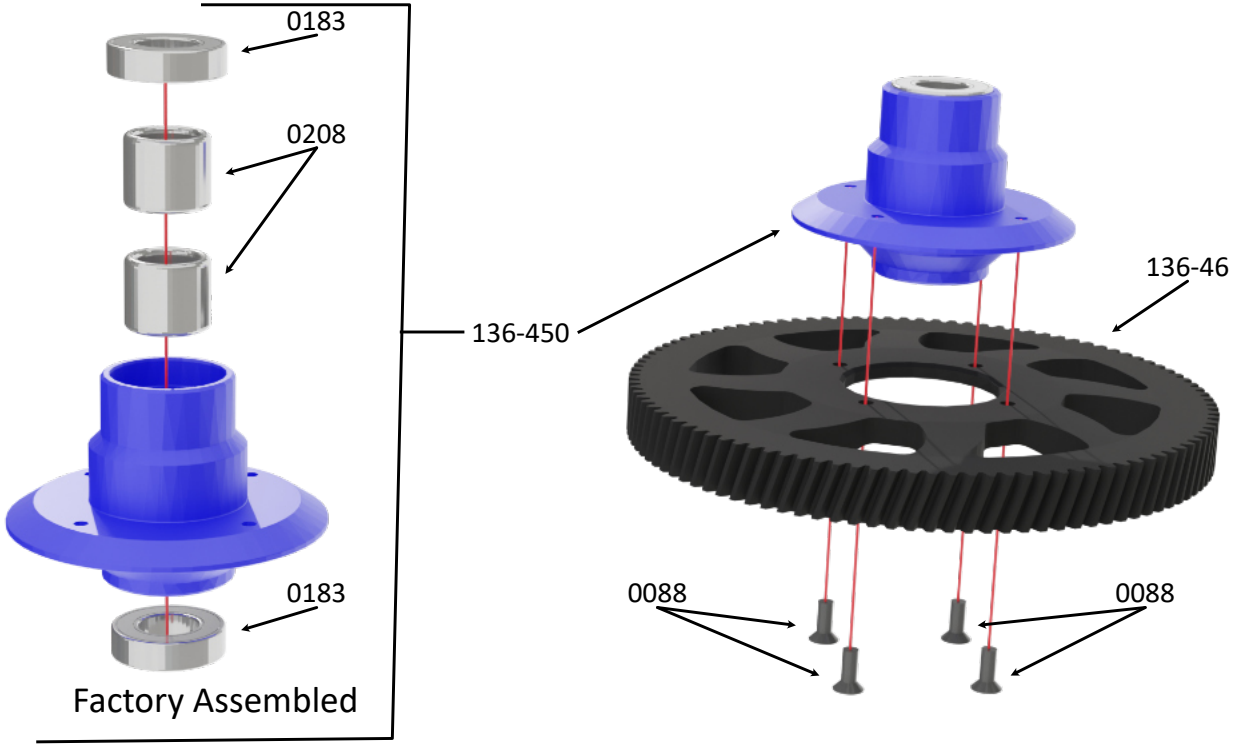
The color of the skids and strutts which will be shipped with the kit depends on design of the canopy.

Apply a small amount of medium thread lock when threading into metal parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Apply a small amount of medium thread lock when threading into metal parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0088

M3 x 8mm

0183

M10 x 19 x 5
Ball Bearing

0208

M10 x 12 One Way
Torrington

Apply a small amount of medium thread lock when threading into metal parts.

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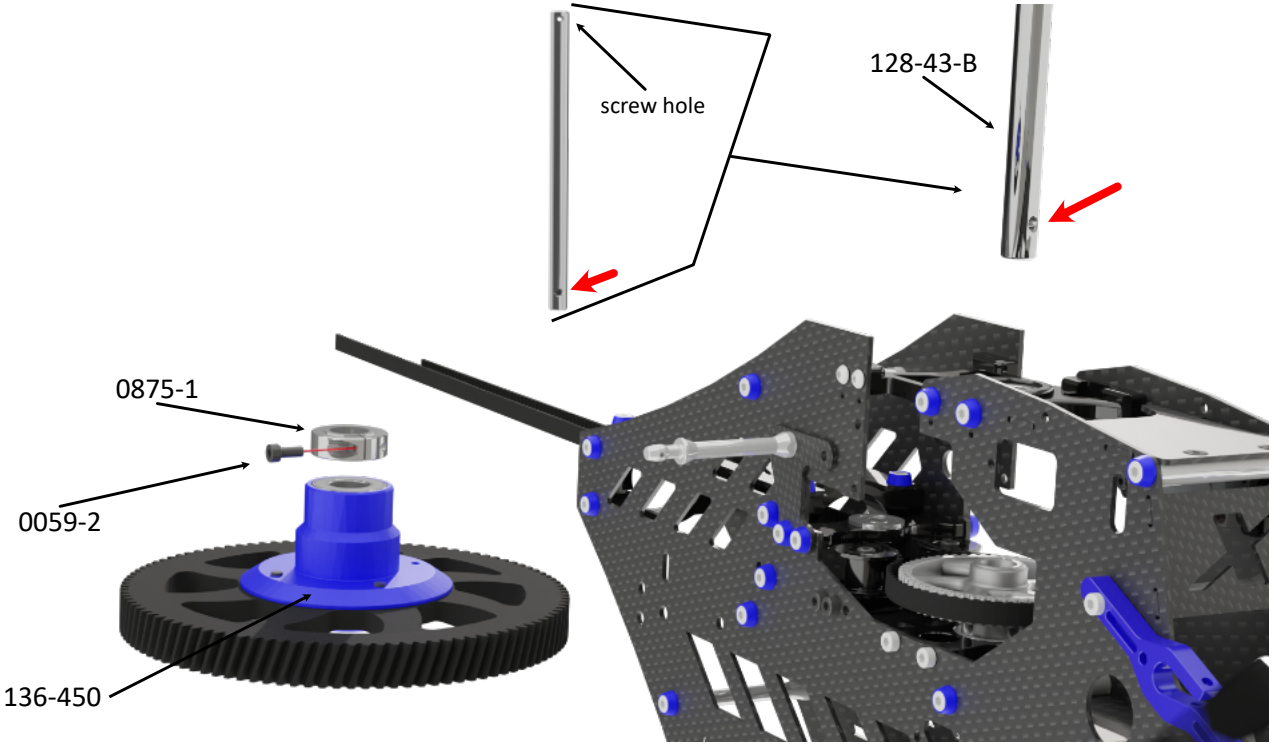
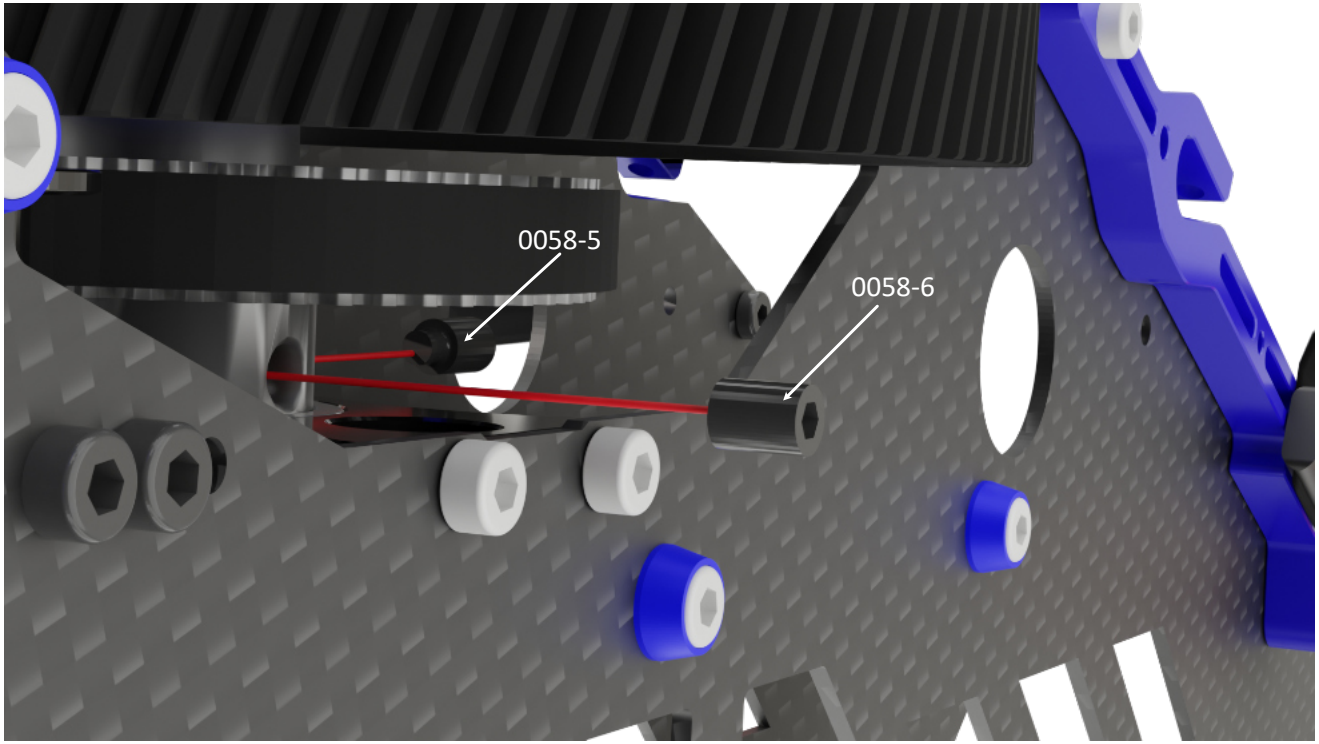


0059-2

M2.5 x 8mm

Assembly Tip: put a small amount of synthetic grease into the one way bearings of part 136-450 before installing the main shaft. Take care about the orientation of the main shaft. The through hole faces to the top of the helicopter.

Apply a small amount of medium thread lock when threading into metal parts.



0058-5

M5 x 6mm

0058-6

M5 x 5mm

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip:
Take care that the dog point socket set screw 0058-5 will settle at the dimple of the main shaft.
Tighten this screw first. Press the mainshaft down and the collor up.
Then tighten the screw of the collar.
A small up and down play of the main gear hub is normal.

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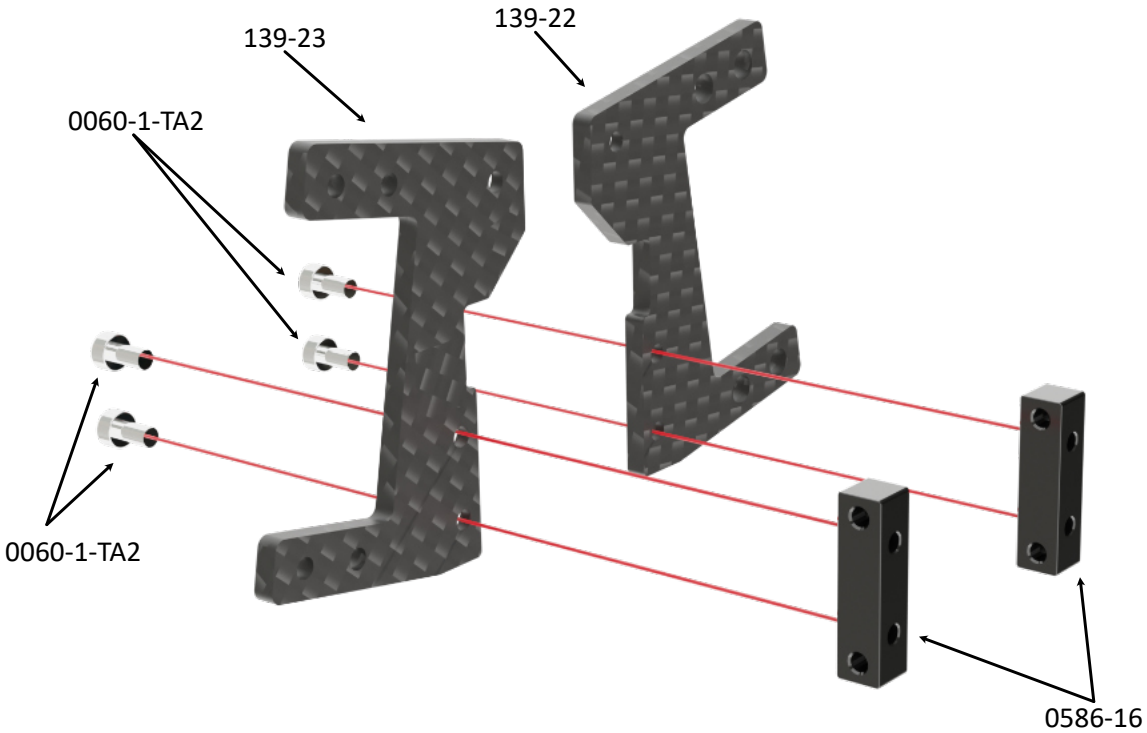
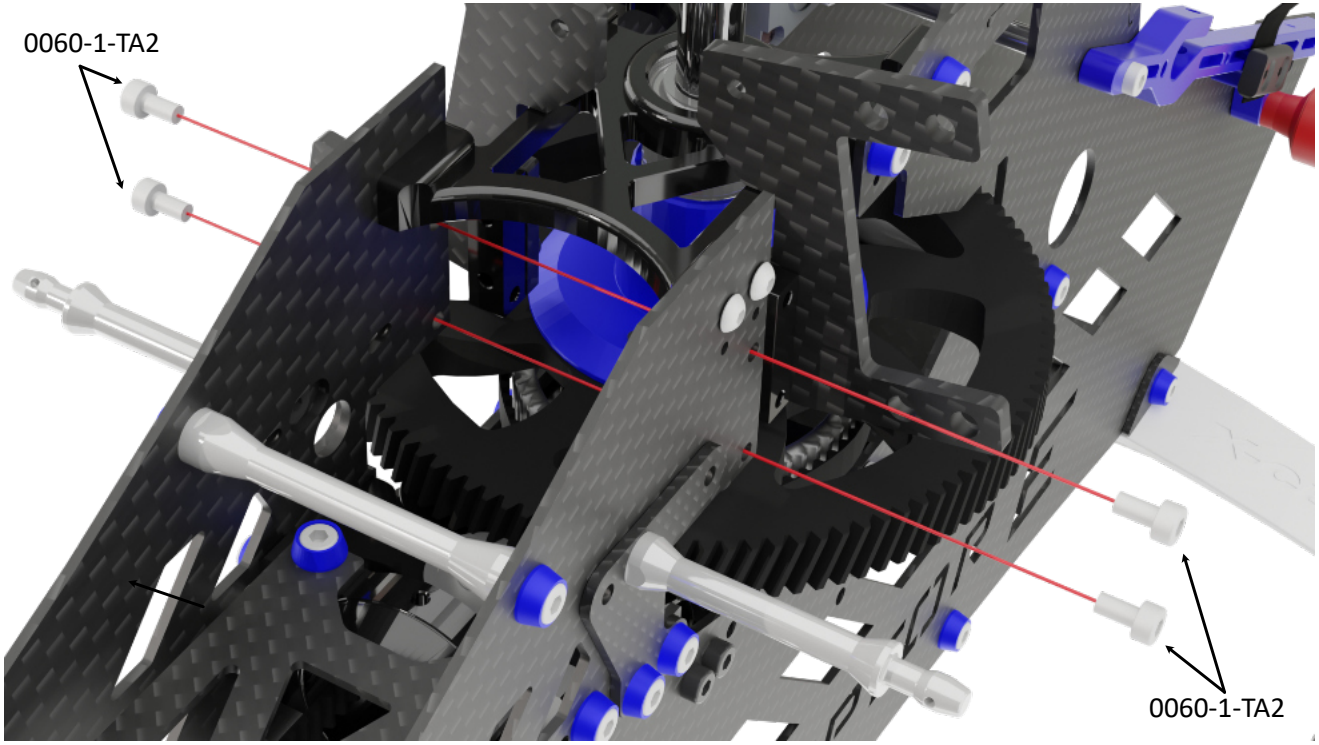


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

Apply a small amount of medium thread lock when threading into metal parts.

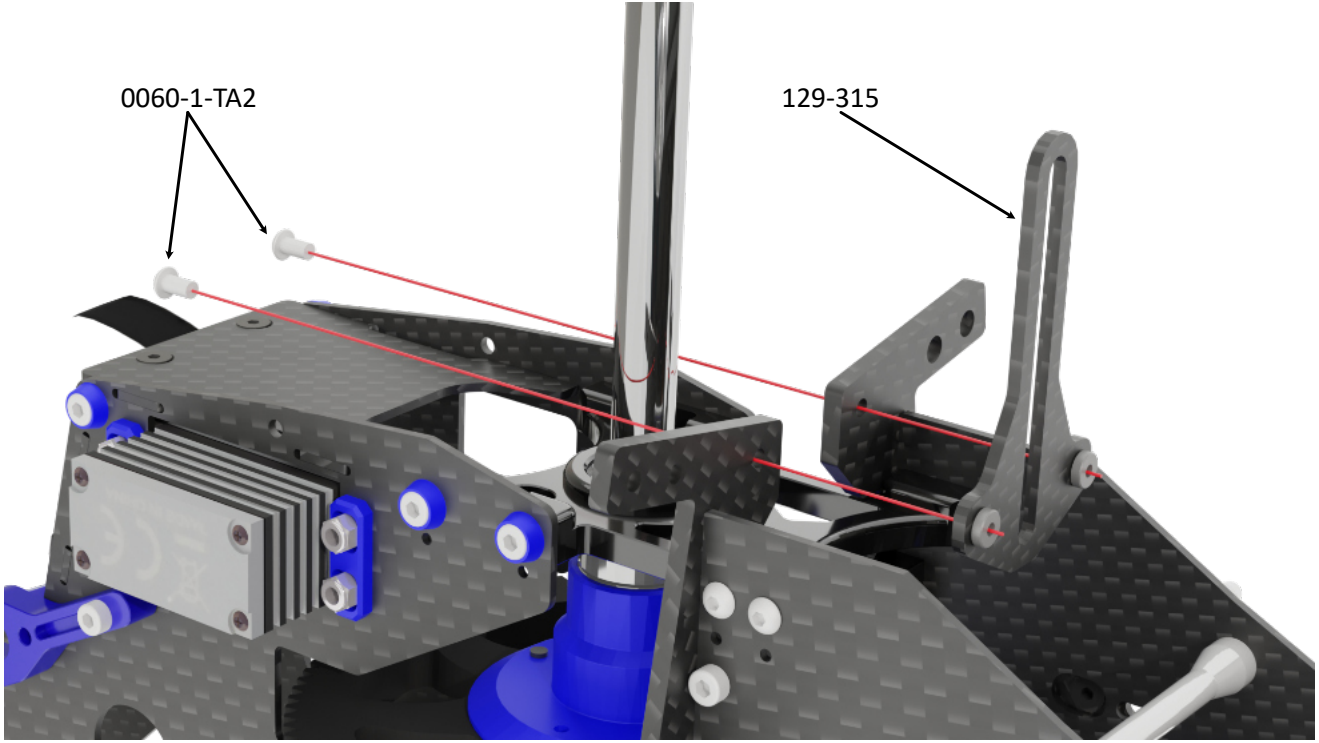


0060-1-TA2

M3 x 6mm

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Apply a small amount of medium thread lock when threading into metal parts.

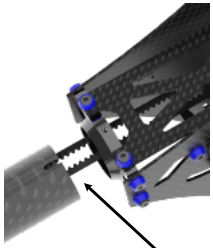


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

0060-1-TA2

M3 x 6mm

Apply a small amount of medium thread lock when threading into metal parts.



Notch is at the TOP

Assembly Tip: Notch is at the TOP

Apply a small amount of medium thread lock when threading into metal parts.

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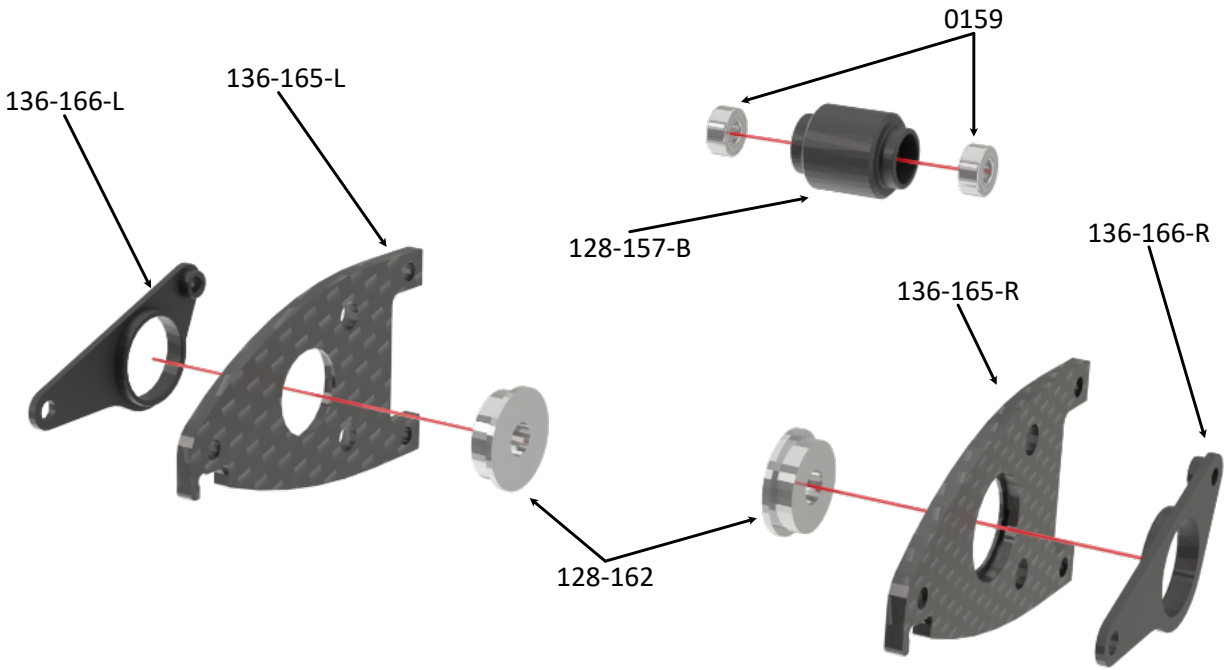


Factory Assembled
These parts will be needed for the next 2 steps.
Factory assembled.

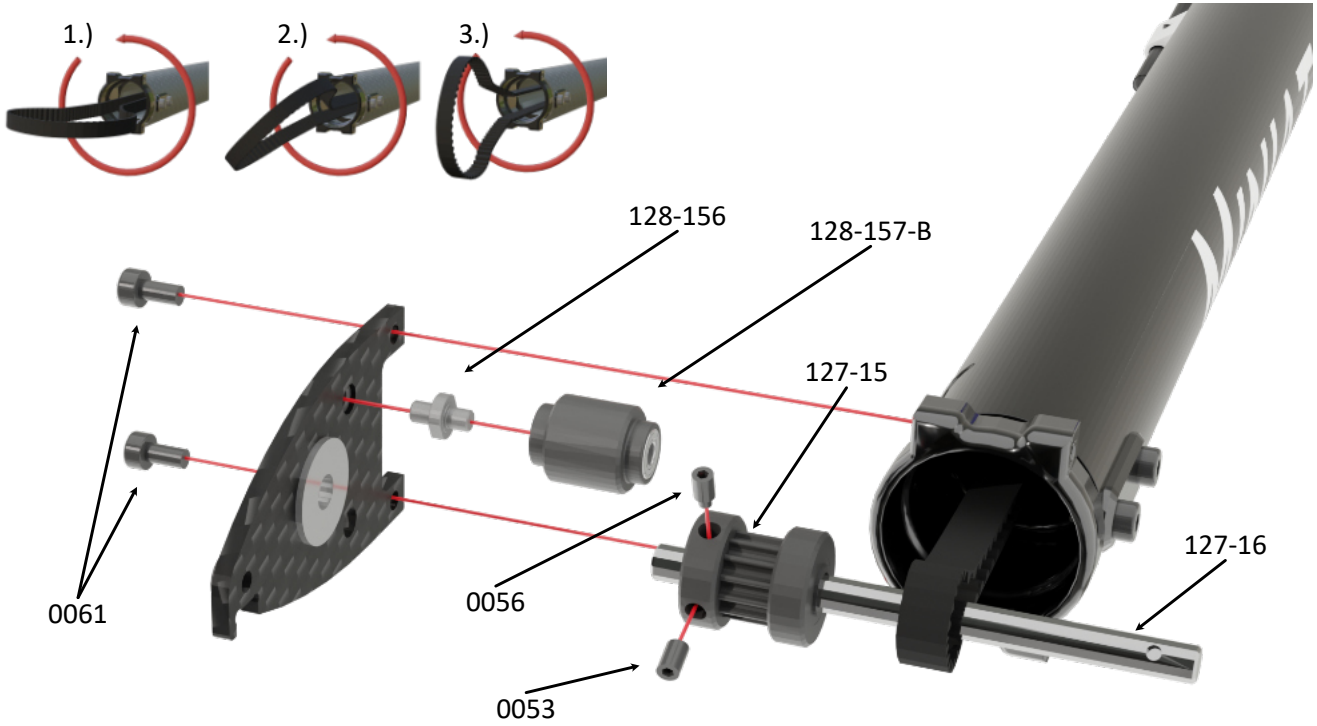
0159

M3 x 7 x 3
Ball Bearing

128-162

M5 x 13 x 4
Flanged Bearing

Apply a small amount of medium thread lock when threading into metal parts.



0053

M3 x 5mm

0056

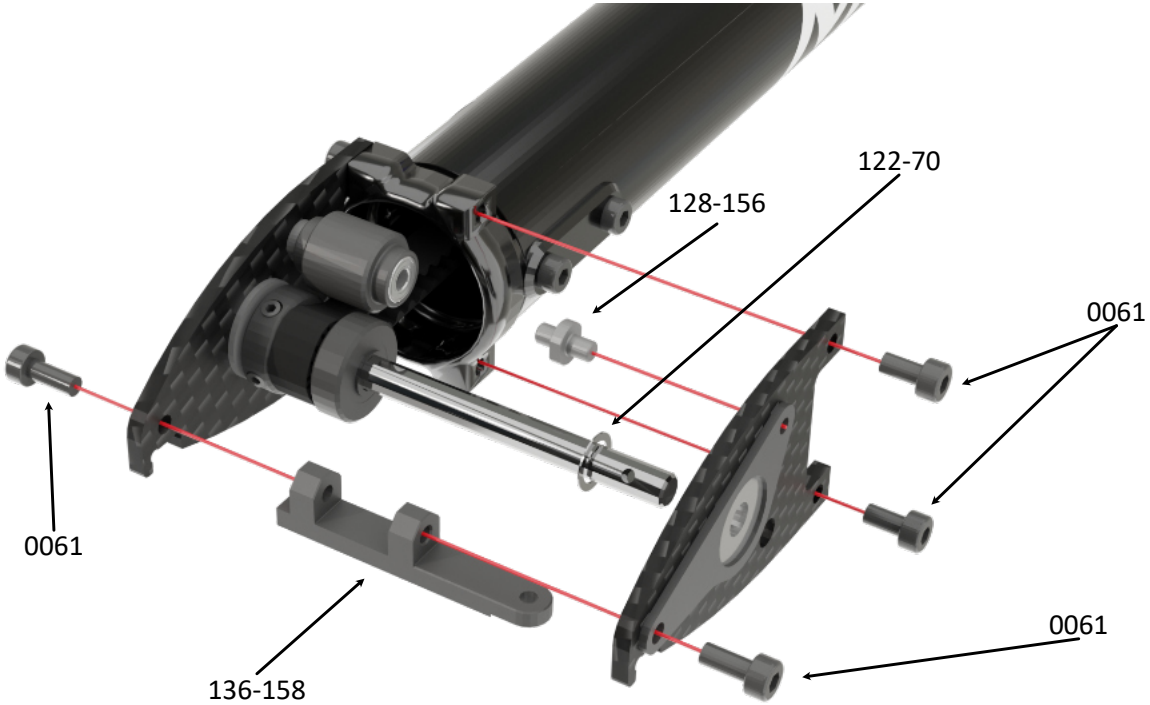
M3 x 5mm

0061

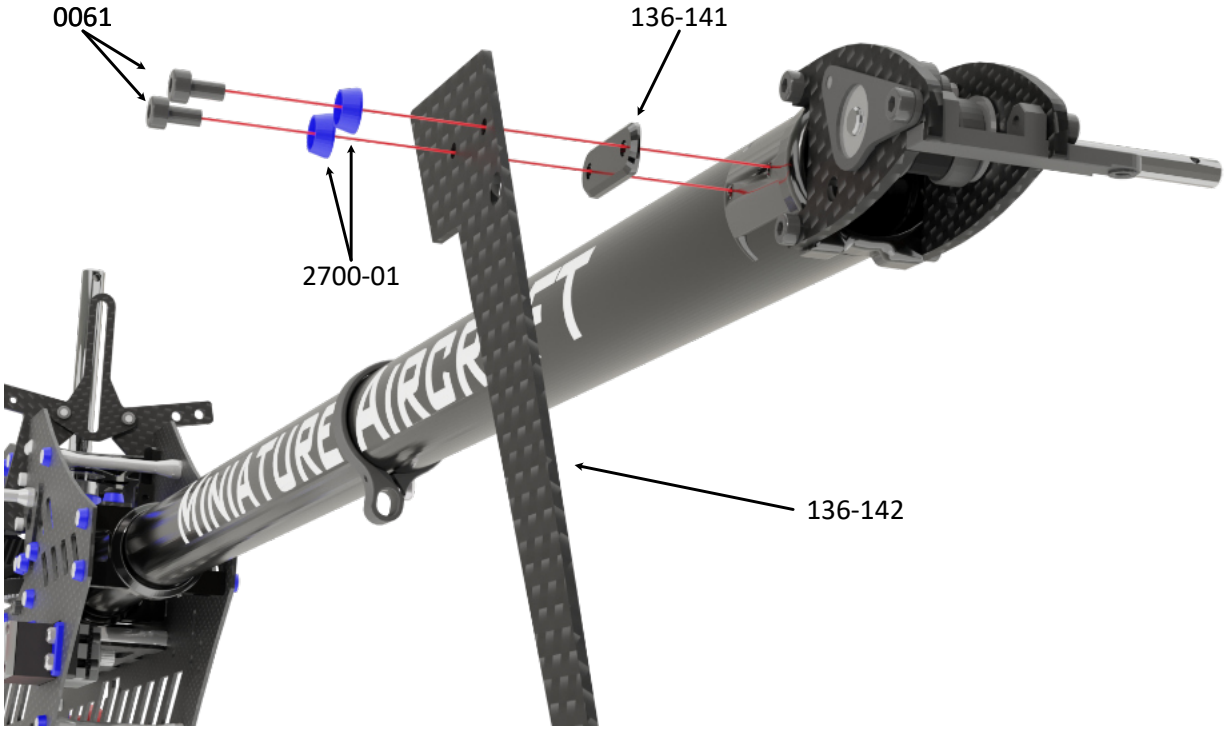
M3 x 8mm

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.
Attention: Turn the belt 90 degress counter clockwise.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

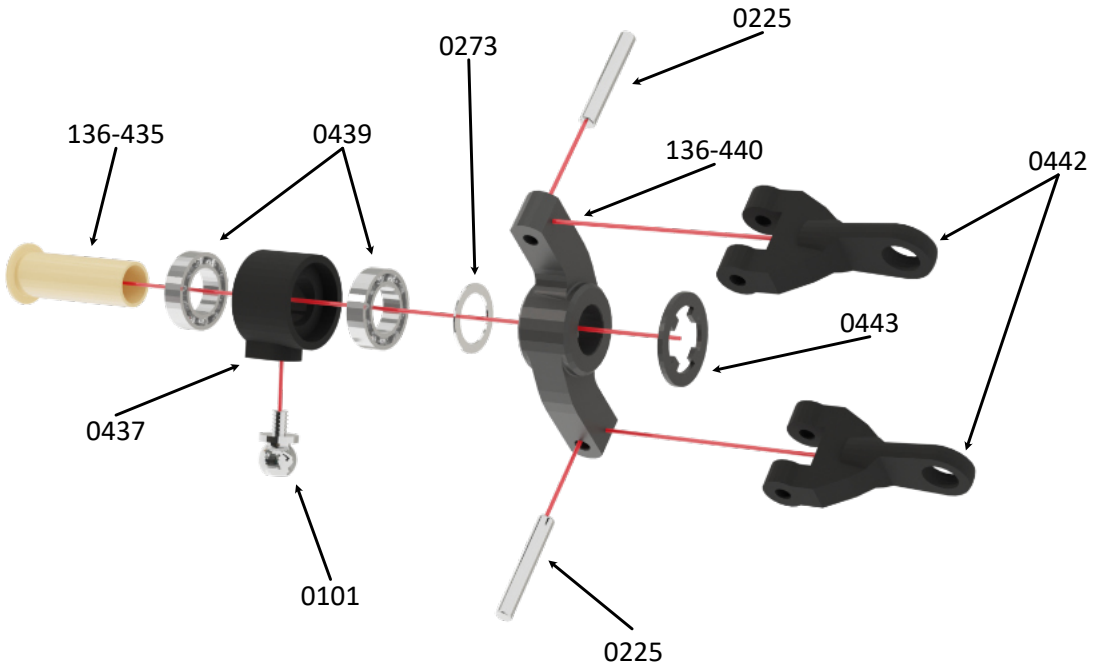
0061

M3 x 8mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.



Factory Assembled

0101

M2 x 5.3mm

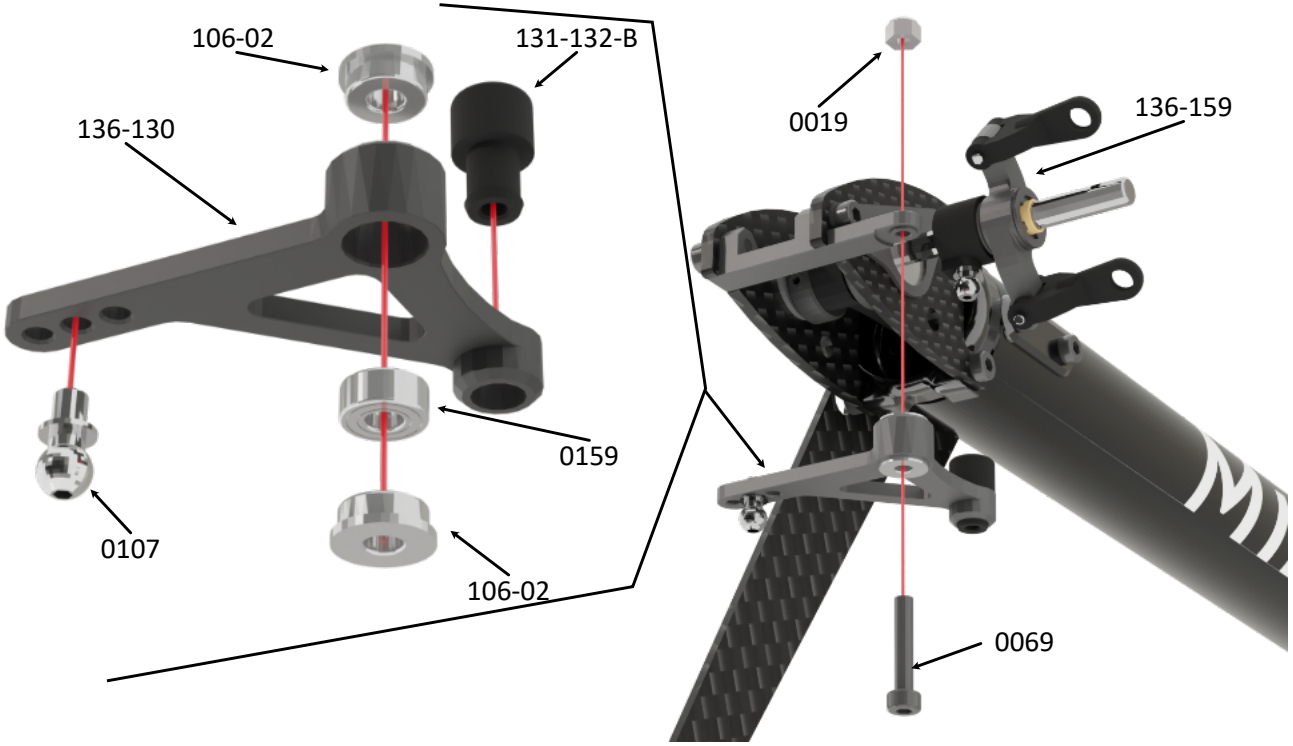
0273

M6 x 10 x .28mm

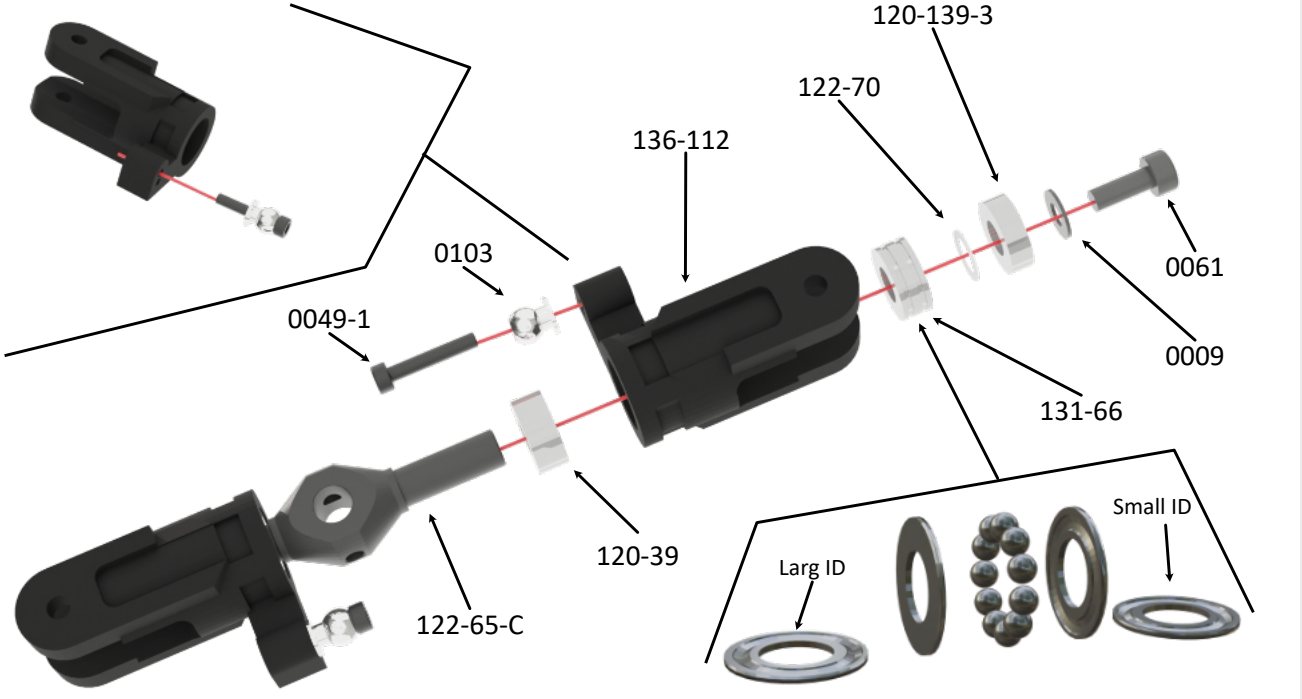
0439

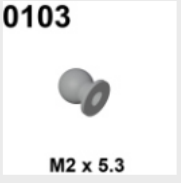
M6 x 10 x 2,5
Open Ball Bearing

Apply a small amount of medium thread lock when threading into metal parts.

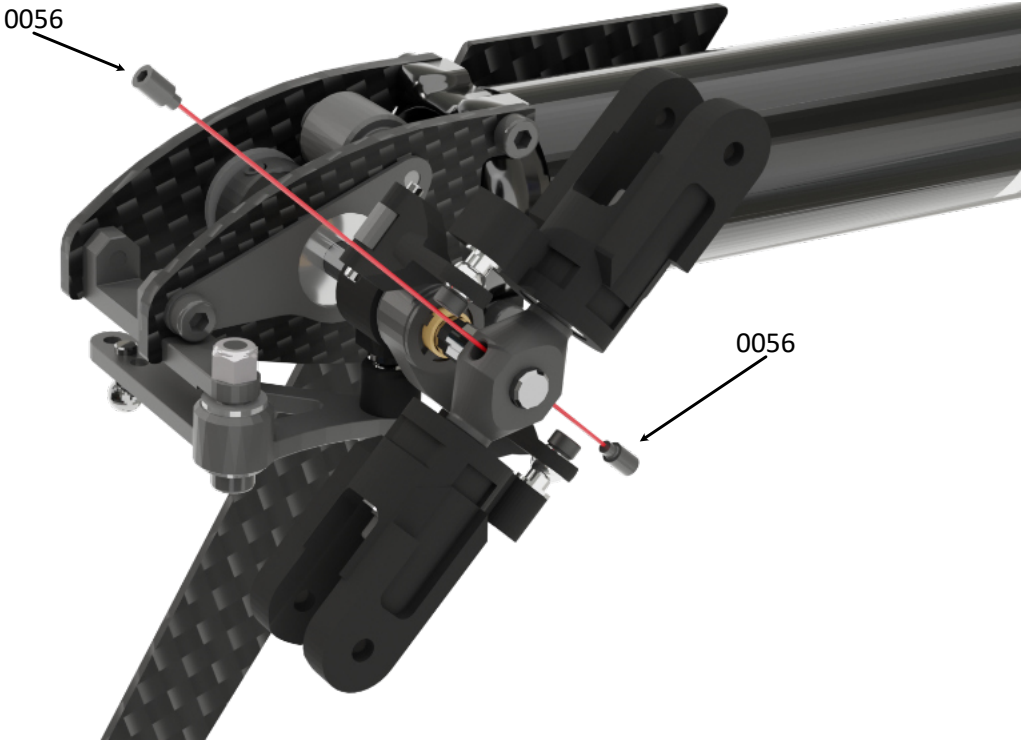


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.





Assembly Tip: Apply a small amount of medium thread lock whe
threading in to metall parts.
Apply some synthetic grease to 131-66 bearings.

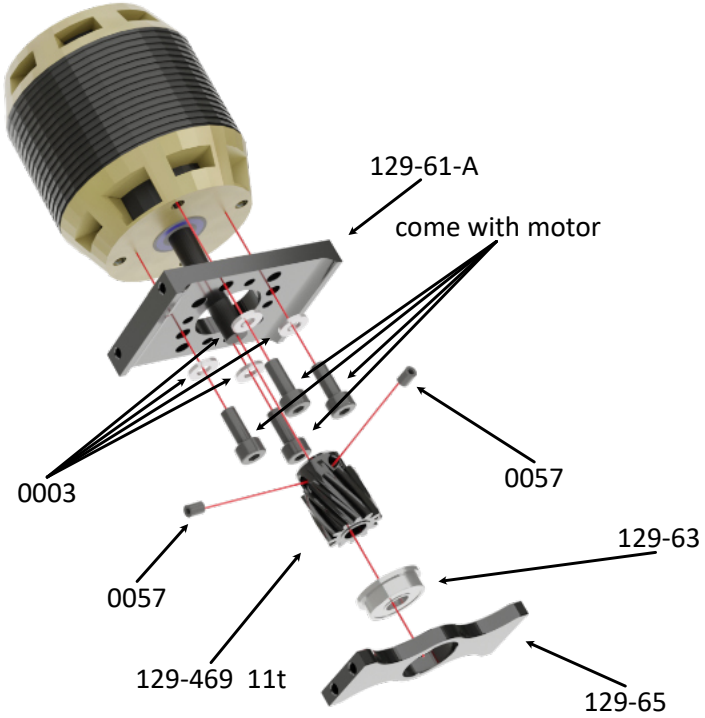


0056

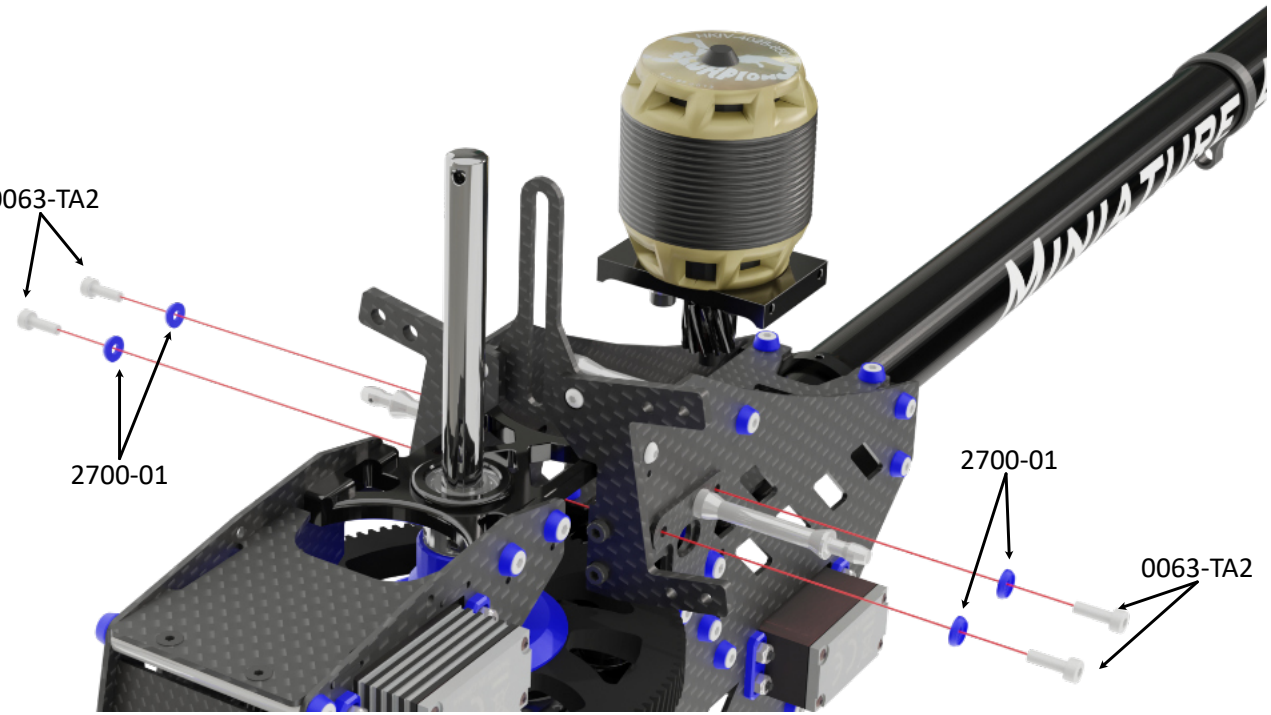
M3 x 5mm

Assembly Tip: Take care that the dog point socket set screws 0056 will settle at the dimples of the tail shaft.
First install the screws that they settle correctly at the dimples but do not tighten them.
Then tighten one of bolts firmly and then the other one slightly less.

Apply a small amount of medium thread lock when threading into metal parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

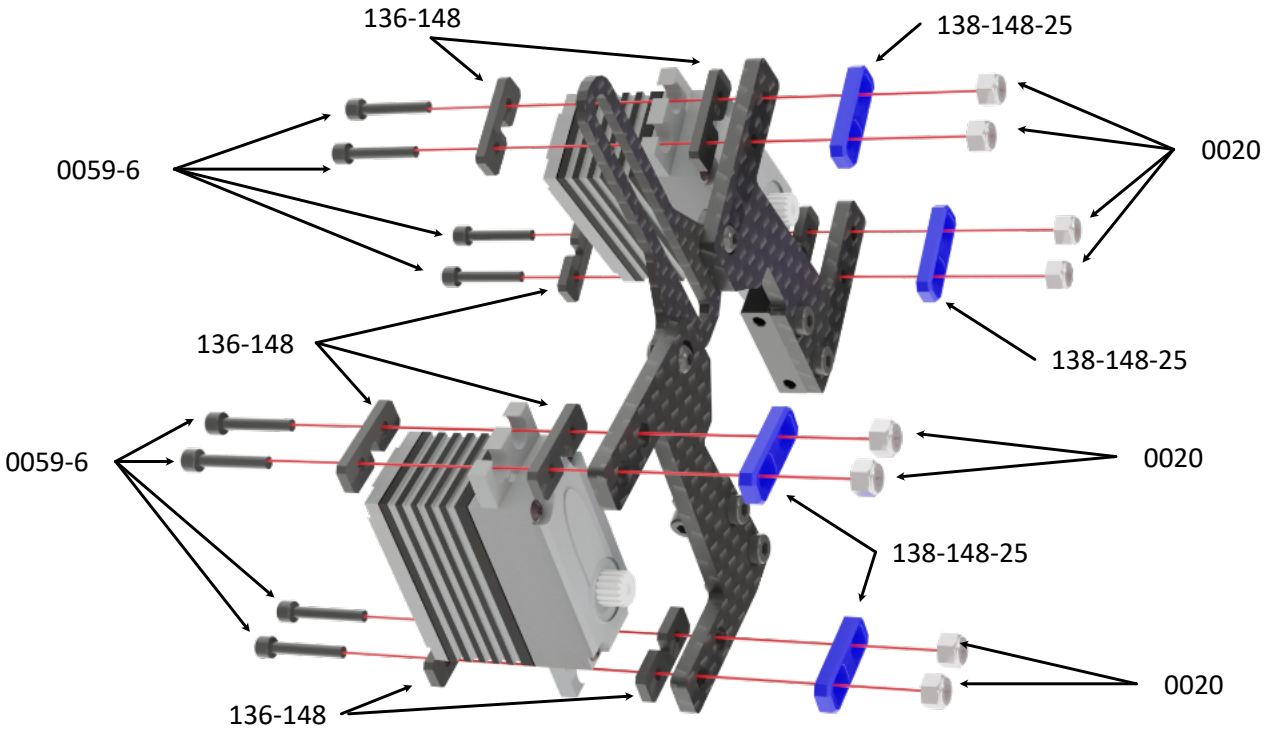
0063-TA2

M3 x 10mm

2700-01

M3 (blue)

Apply a small amount of medium thread lock when threading into metal parts.



Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

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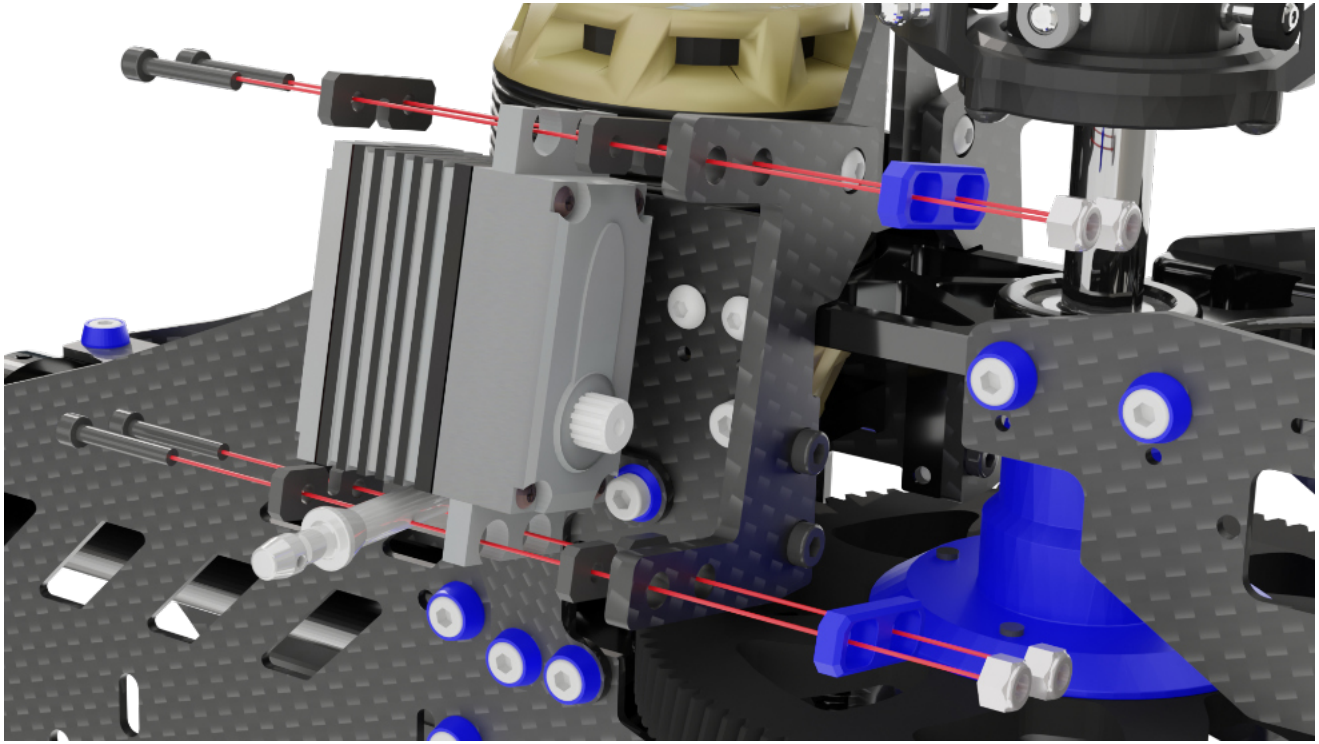

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

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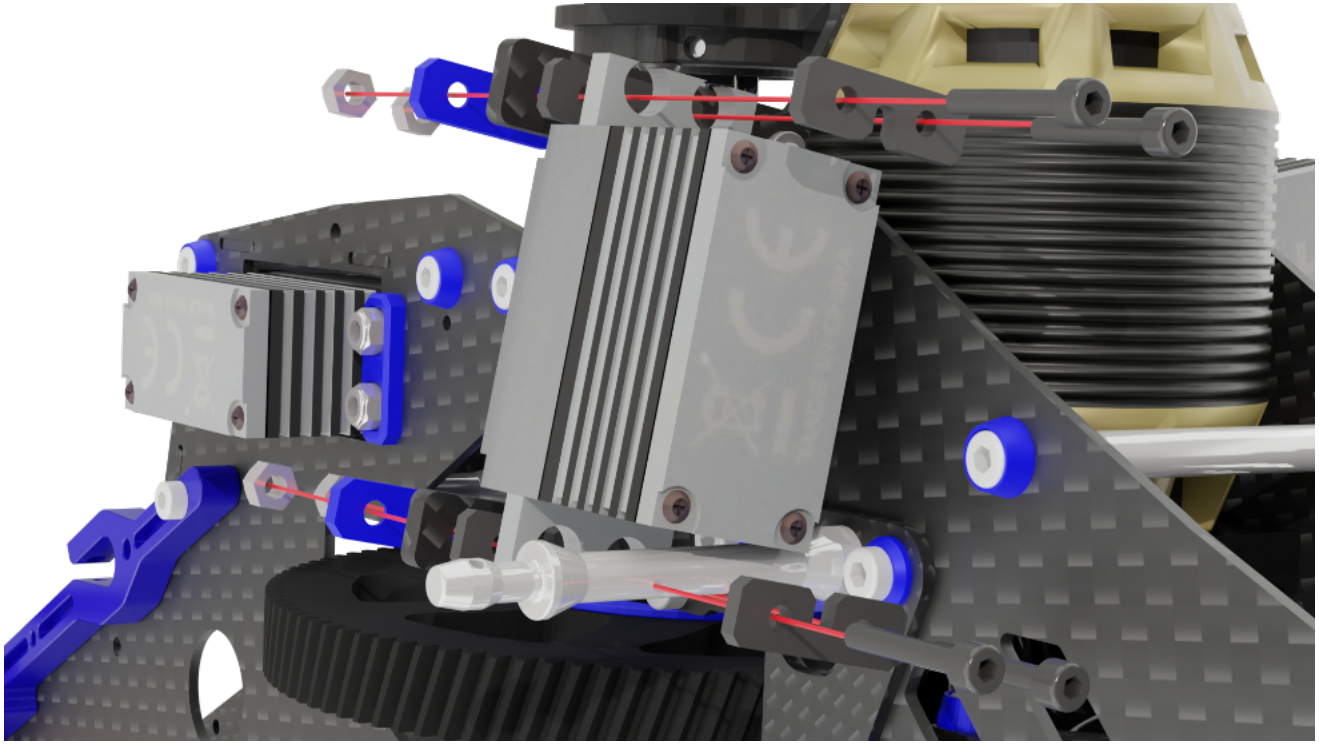
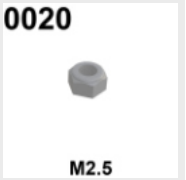


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



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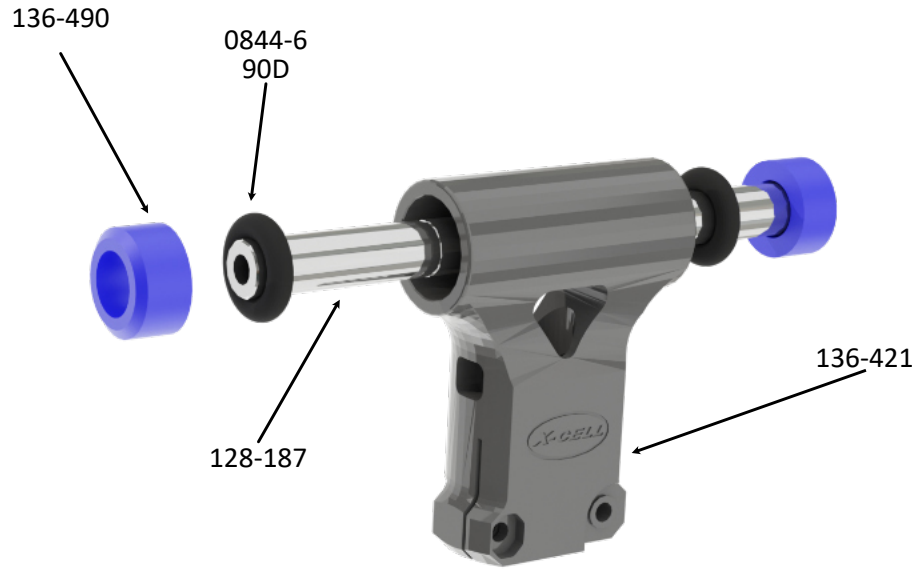
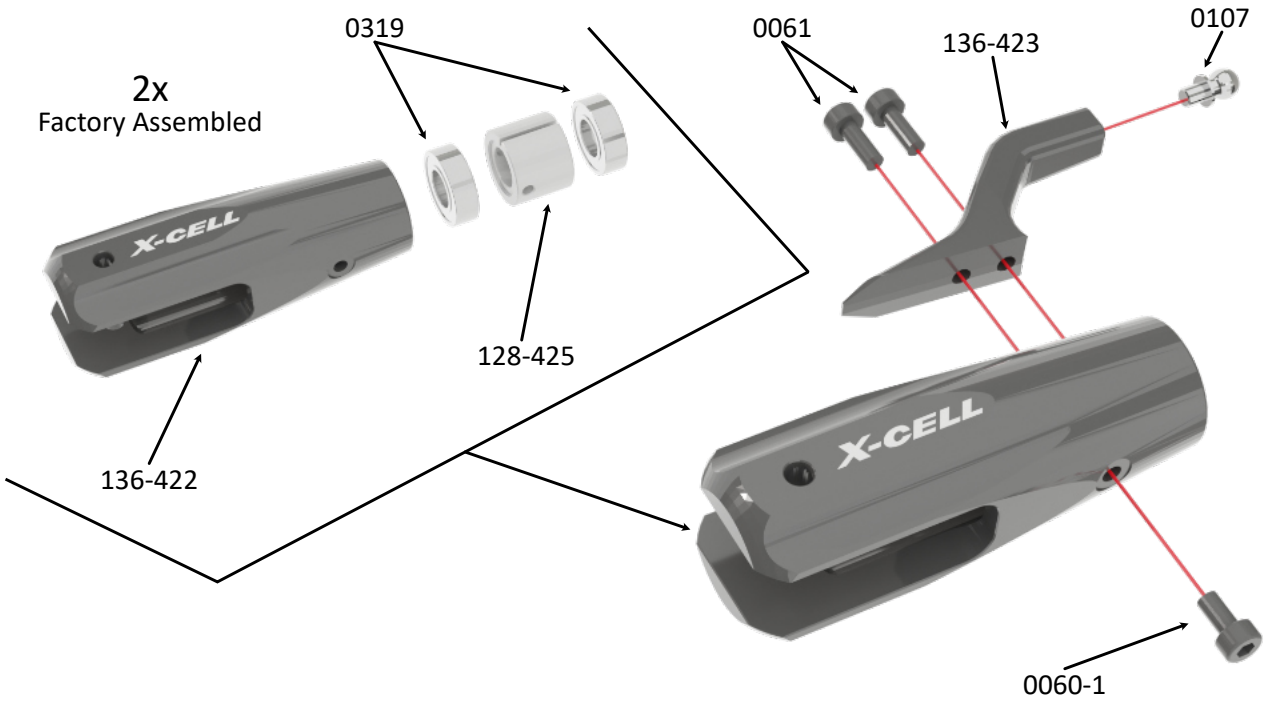


Assembly Tip: Apply some grease, vaseline or tallow to the o-rings and to the spindle shaft.



0060-1

M3 x 6mm

0061

M3 x 8mm

0107

M3 x 6mm

0319

M8 x 16 x 5
Ball Bearing

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Take care about the orientation of part 128-425. Compare its orientation to fit part 136-422. First time Factory Assembled.

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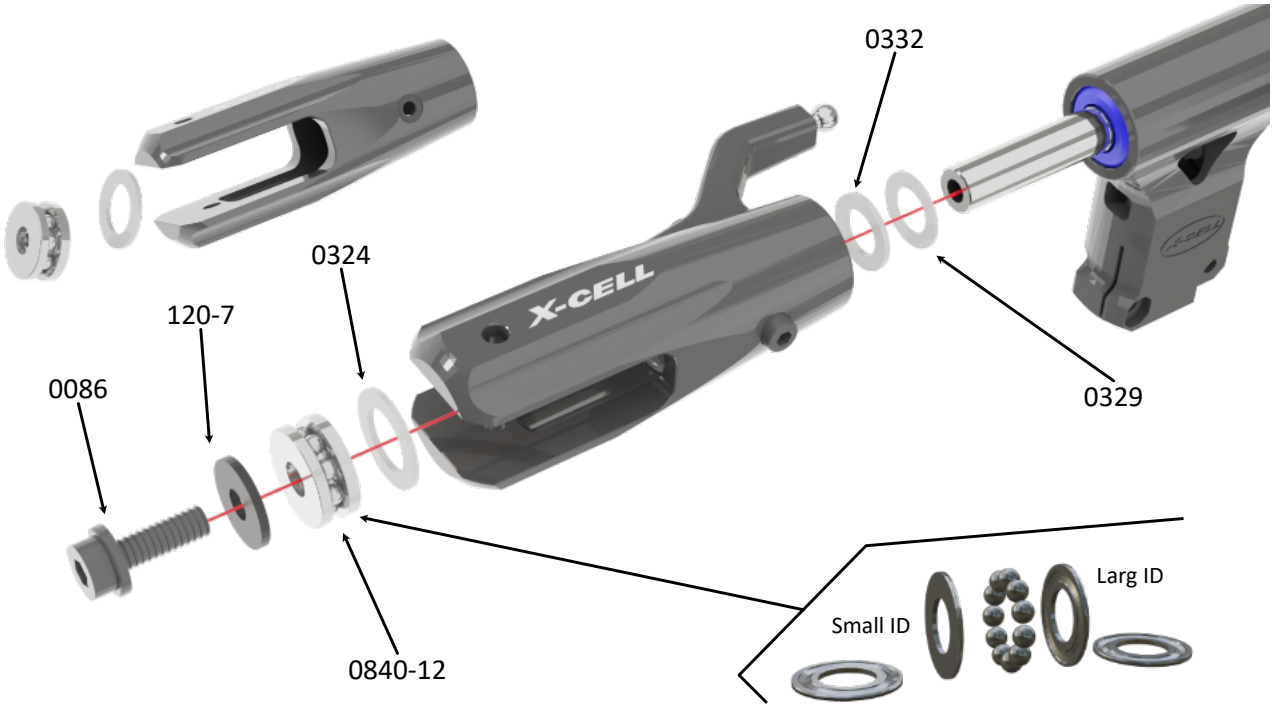
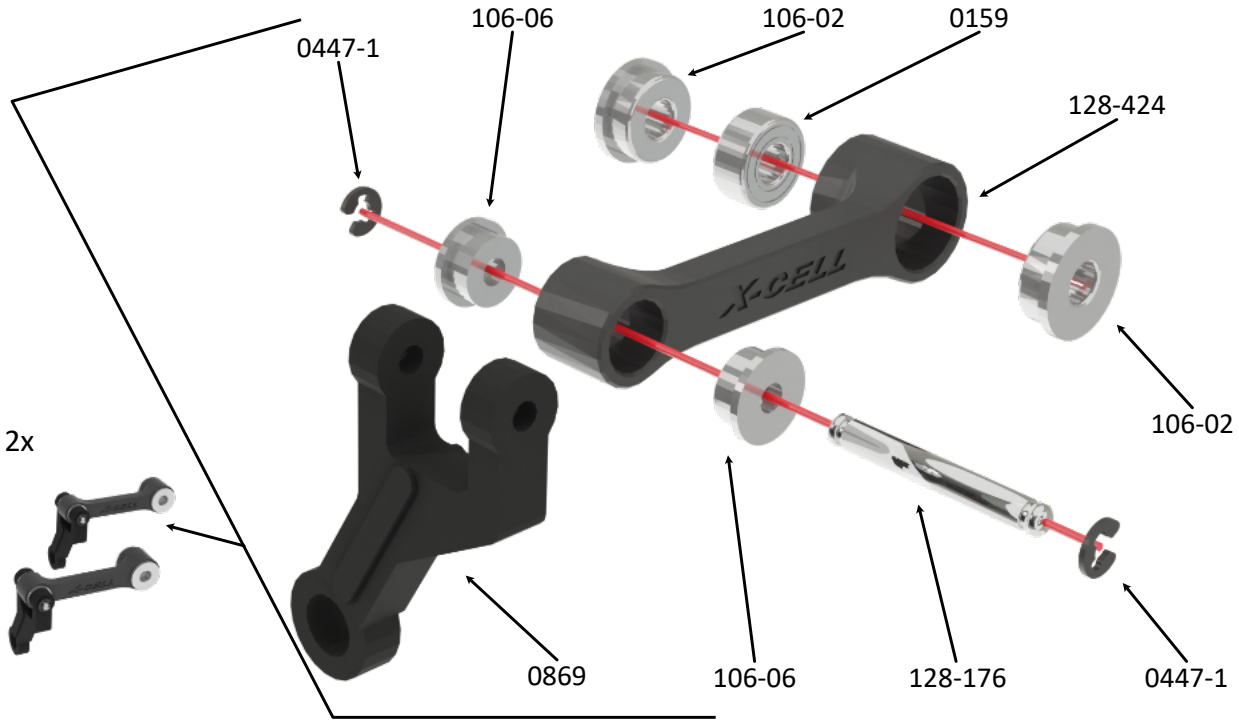


Assembly Tip: Apply some synthetic grease to bearing 0840-12.



Factory Assembled

106-02

M3 x 7 x 3
Flanged Bearing

0159

M3 x 7 x 3
Ball Bearing

106-06

M2 x 5 x 1,5
Flanged Bearing

Apply a small amount of medium thread lock when threading into metal parts.

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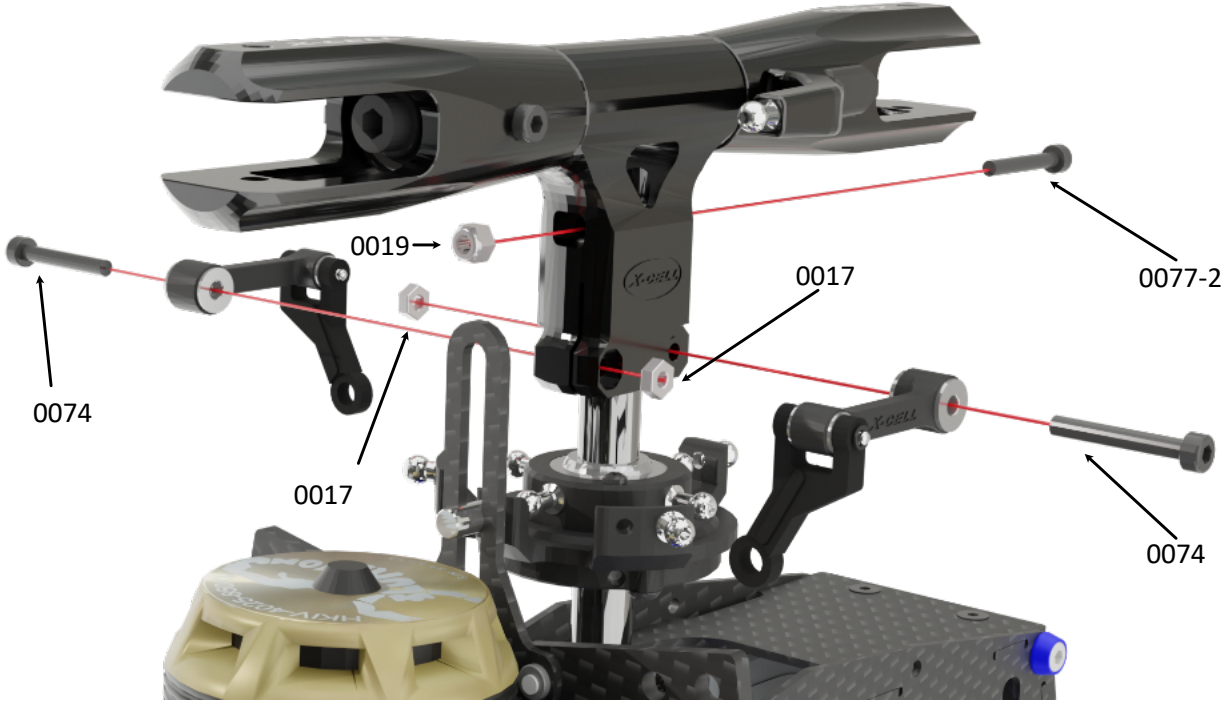
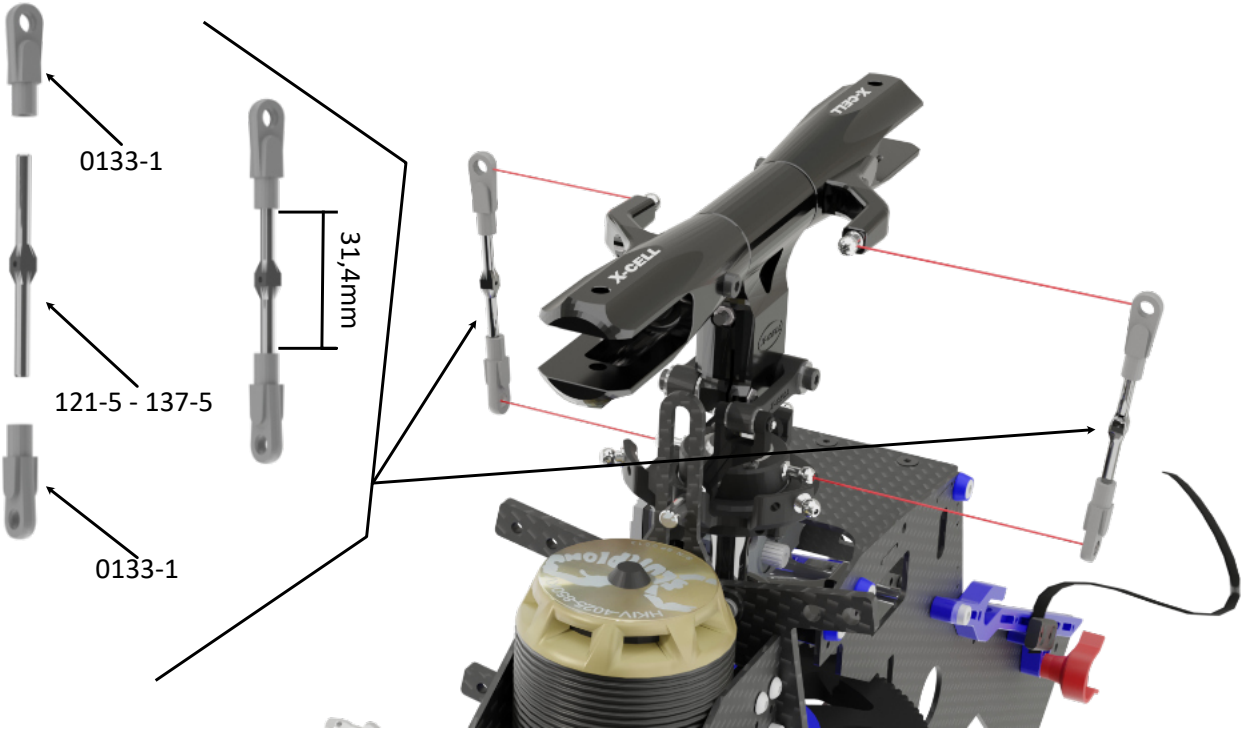
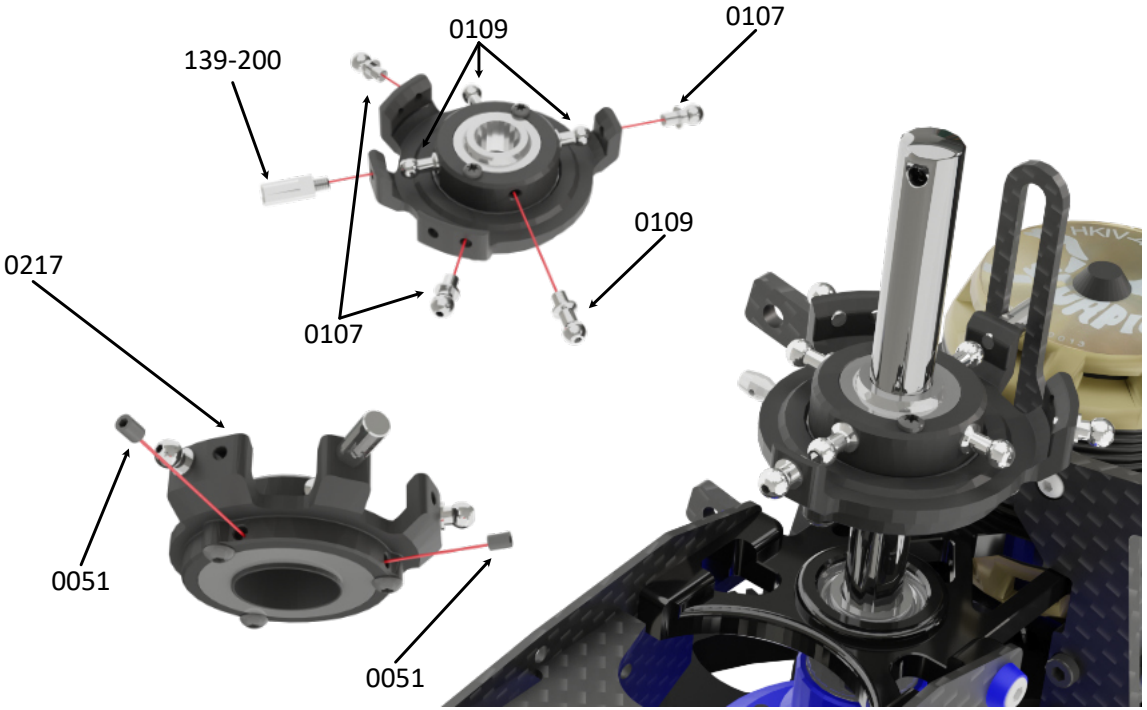
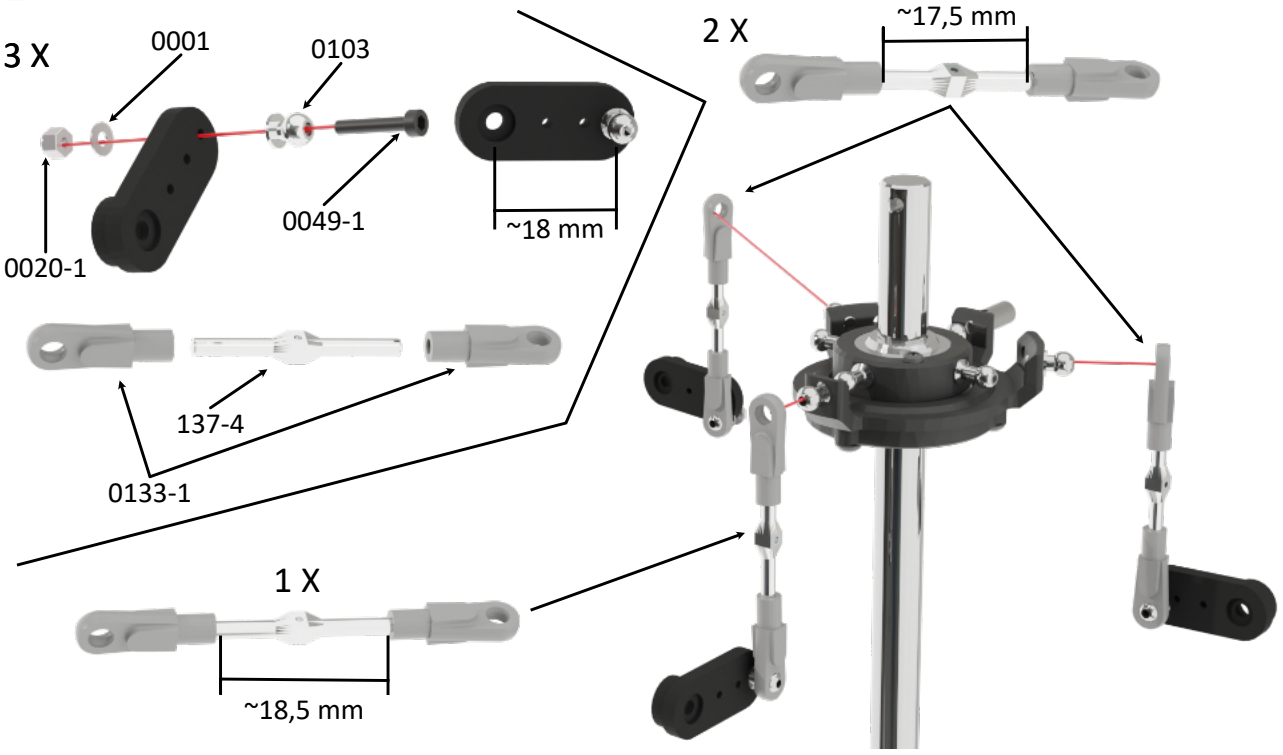


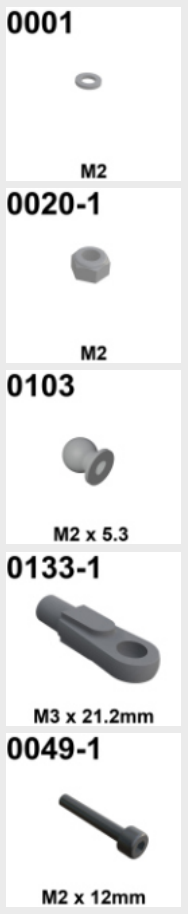
Assembly Tip:
Put head assembly on the main shaft and install screw 0077-2 first.
Insert nuts 0017 and install follower arms. Don't forget to apply thread lock to the nuts.
Careully tighten screws 0074 interlaced. The width of the two gaps shall be identical.



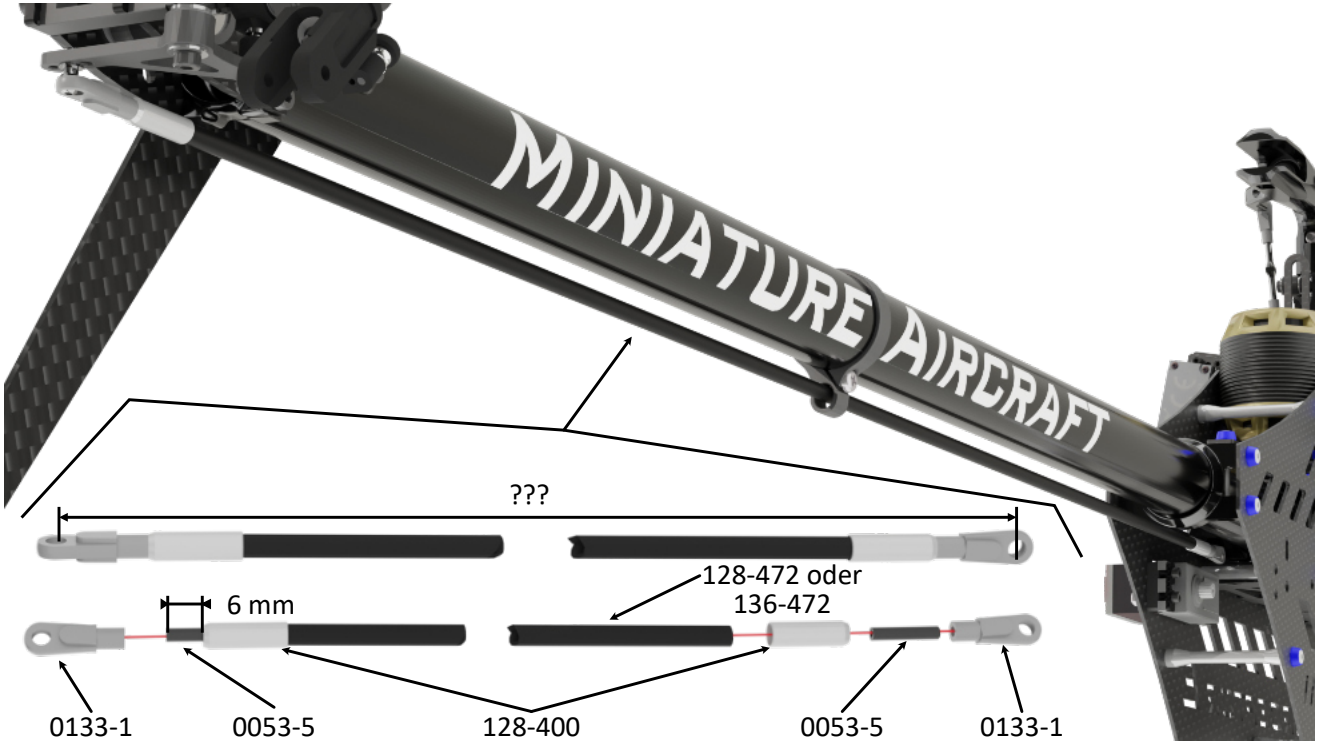


Thread in the MA0051 m3x3 socket set screws into the bottom ring of the swashplate until they touch the lower bearing. They are used to apply slight pressure on the bearing to adjust bearing play if needed.
If too much pressure is applied with the MA0051 m3x3 socket set screws, the bearing will fail.





Use of heavy duty servo arms is required on the cyclic servos.



0053-5

M3 x 16mm

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Put all parts together and check length of the push rod. Shorten carbon tube if nescessary.
Install the 0053-5 set screws into the push rod ends using high quality epoxy.
Use high quality epoxy to glue the push rod ends to the carbon tube.
Put epoxy at the inside and the outside of the carbon tube to glue the push rod ends on it.

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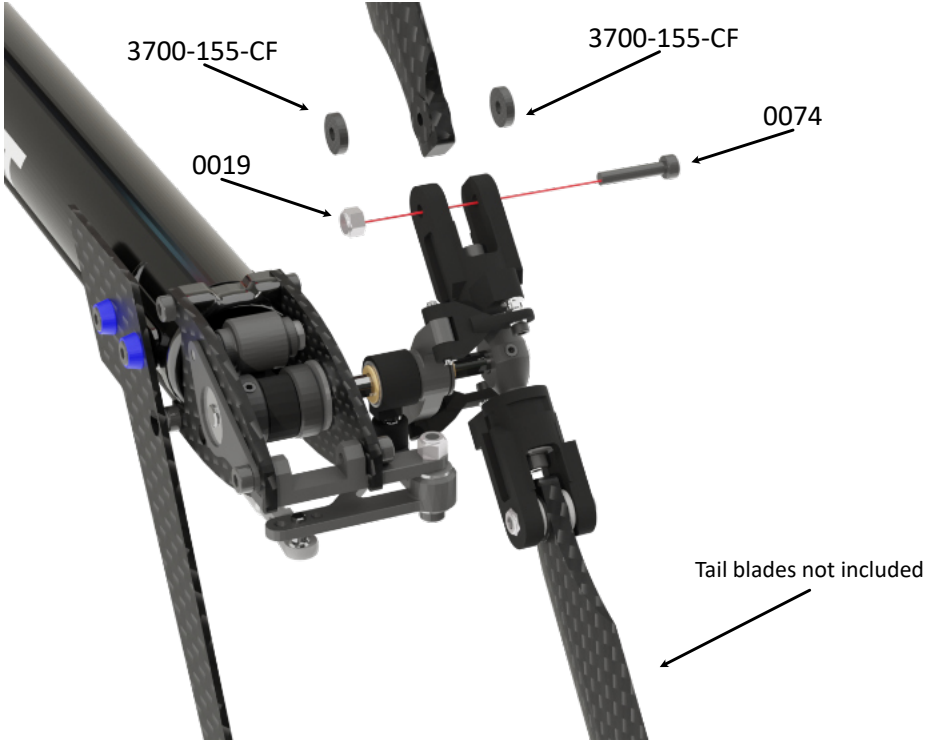
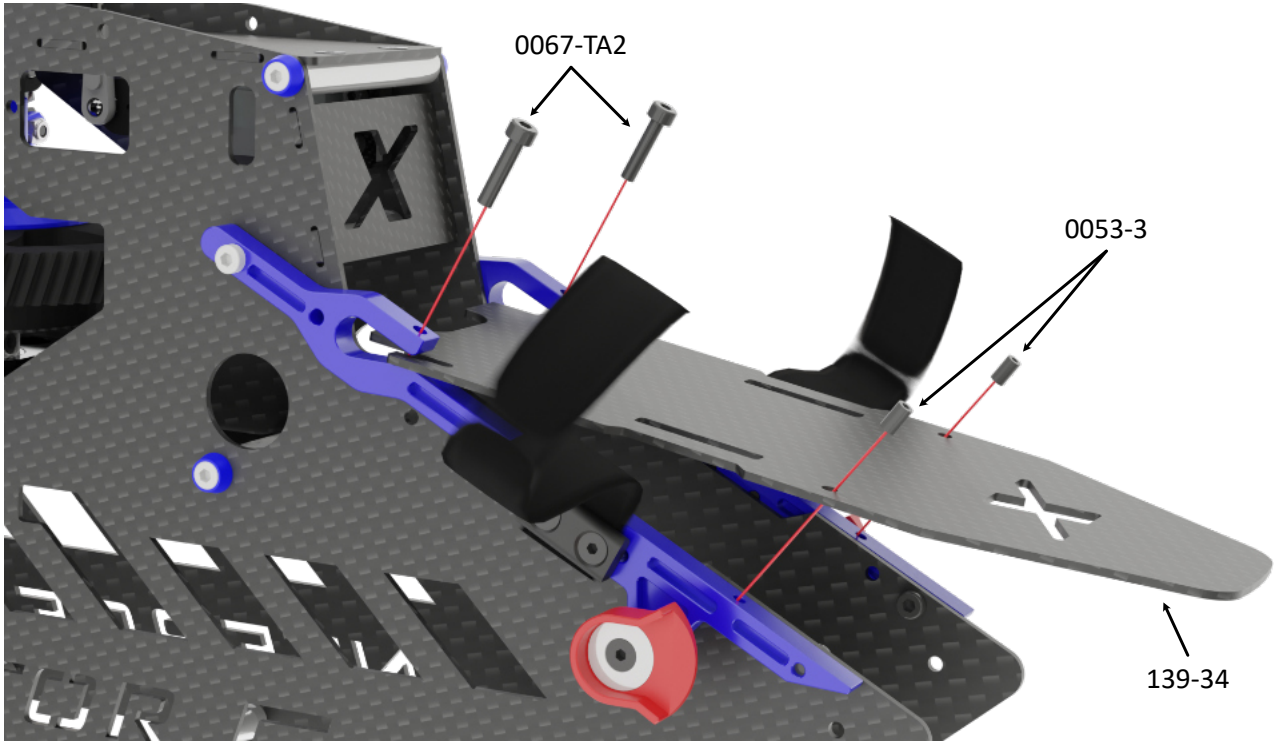




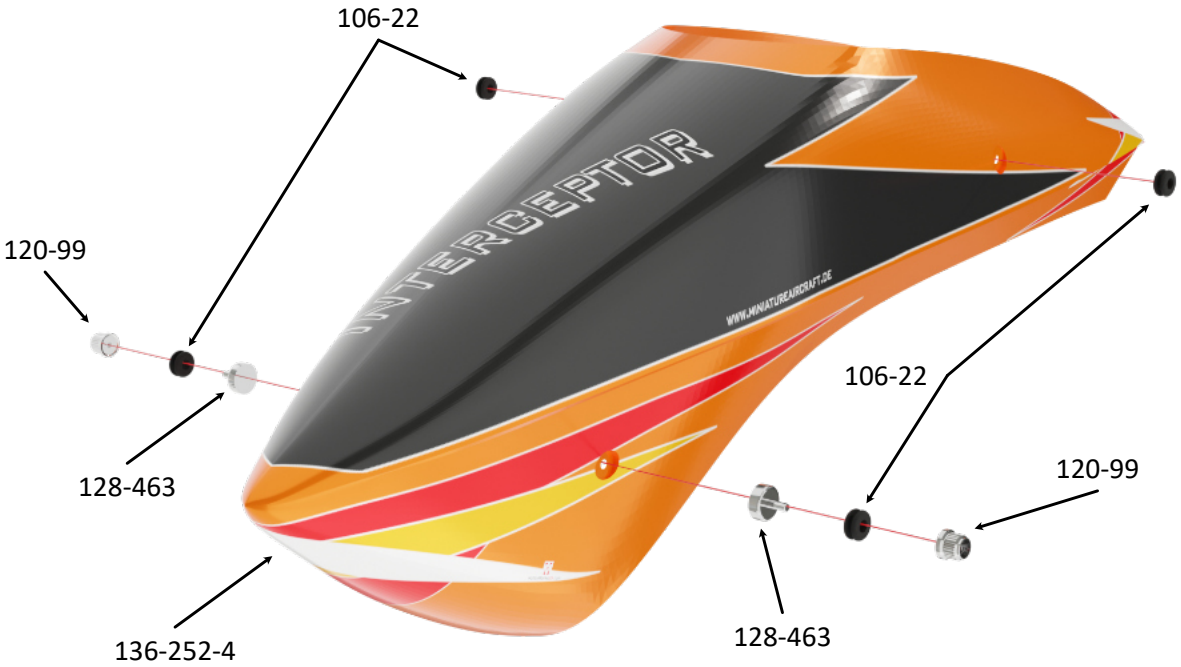
0061

M3 x 8mm

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

Calibri 11pt, pfeile 1 mit 1,1pt

Apply a small amount of medium thread lock when threading into metal parts.



106-22

M5 x 11mm

128-463

Magnet

120-99

Canopy Knobs

Apply a small amount of medium thread lock when threading into metal parts.

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

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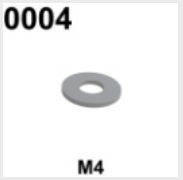

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