MANUAL FOR THE FURY 57 Super N

FURY 57 Super N

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

INFORMATION

Kit Introduction

Thank you for purchasing the X-Cell Fury 57 Super N 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 Fury 57 Super N 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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INFORMATION

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.

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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

INFORMATION

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Kit Assemmbly

Your Fury57Super N 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 Fury 57 Super N 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, O.S. 55HZ-R
- Helicopter style muffler suited to the engine you choose.
- 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
- R/C helicopter starting and fueling equipment.
- R/C helicopter engine governor with magnetic sensor (recommended).
- Tail Blades 95 to 97mm in length

INFORMATION

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.

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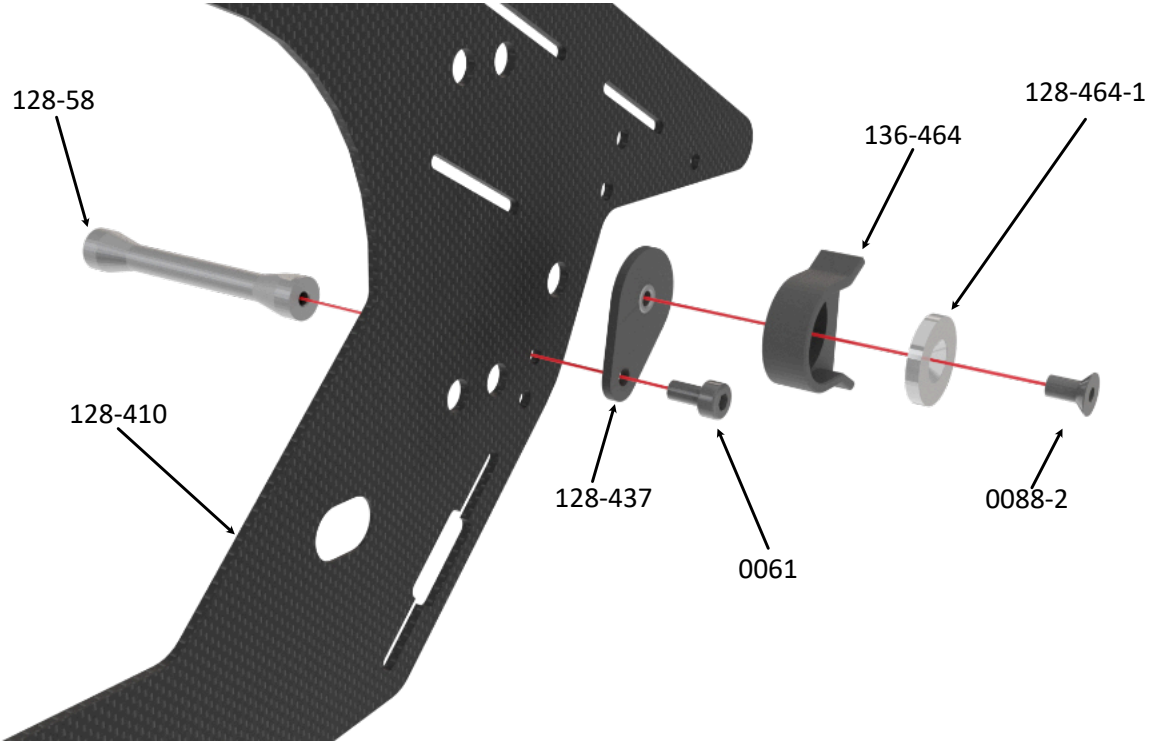

Assembly Tip: Align the opening of part 128-464 to the front of the helicopter.

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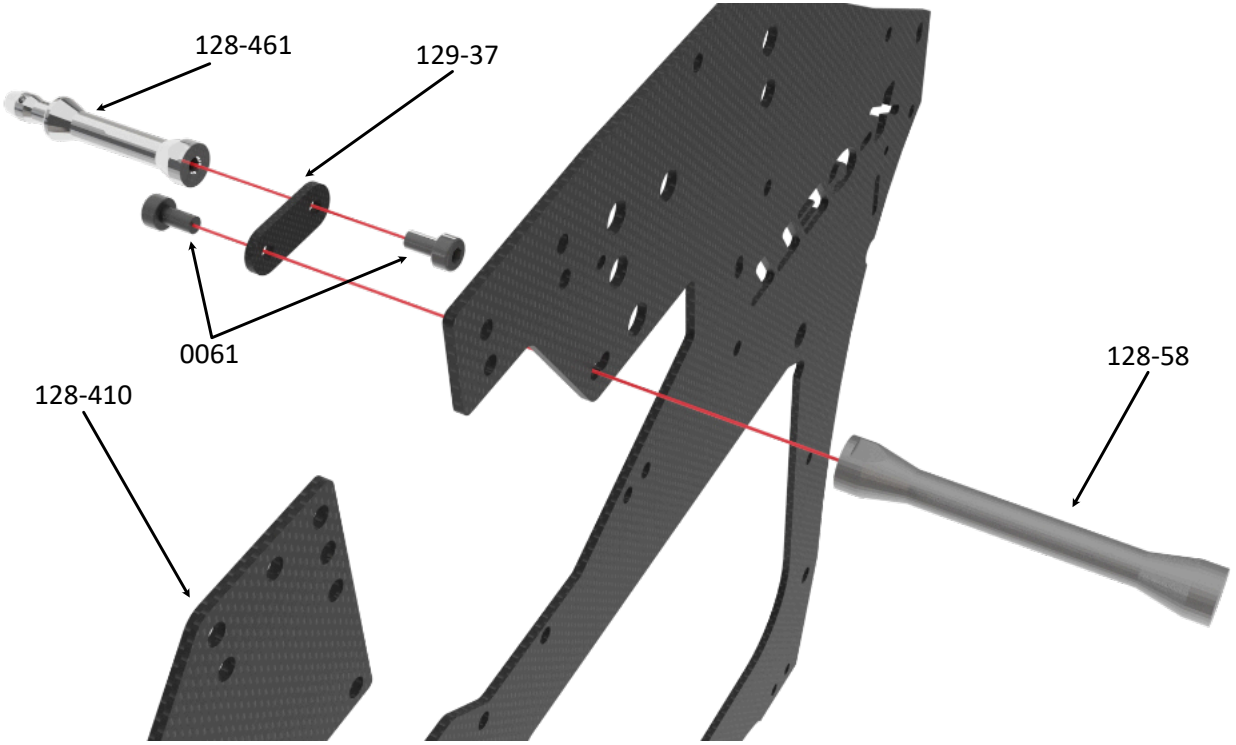
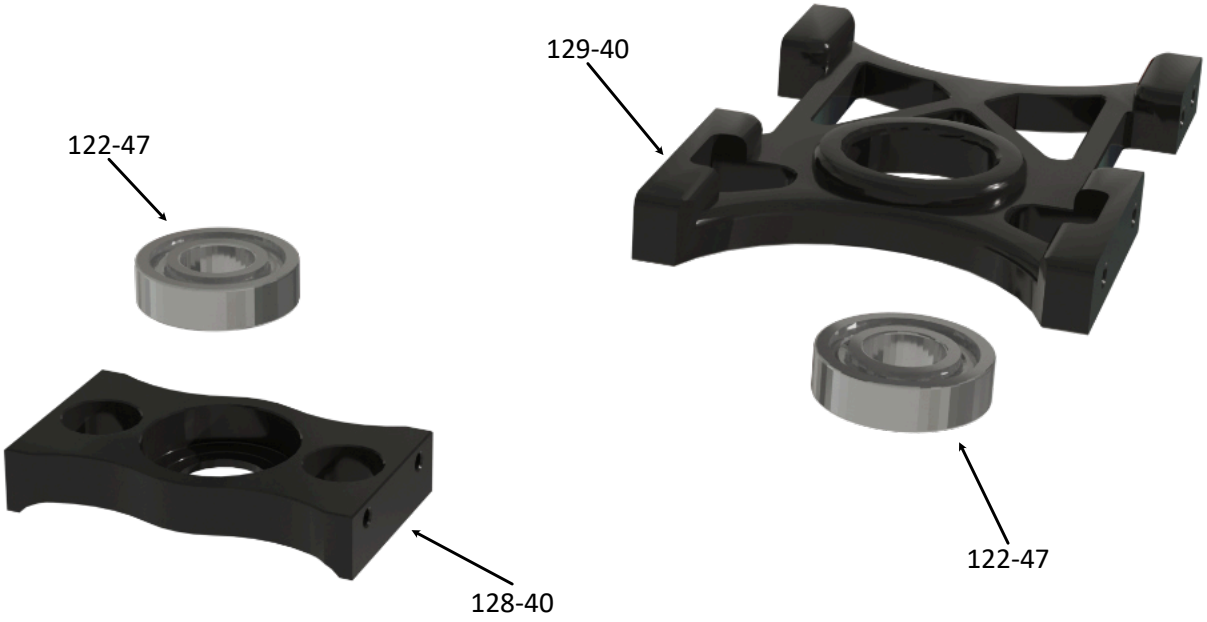


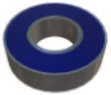
Assembly Tip: Take care about the orientation of the canopy mount 128-461 that the small bore for the splint is correctly positioned that you can insert the splint the way you like it.

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



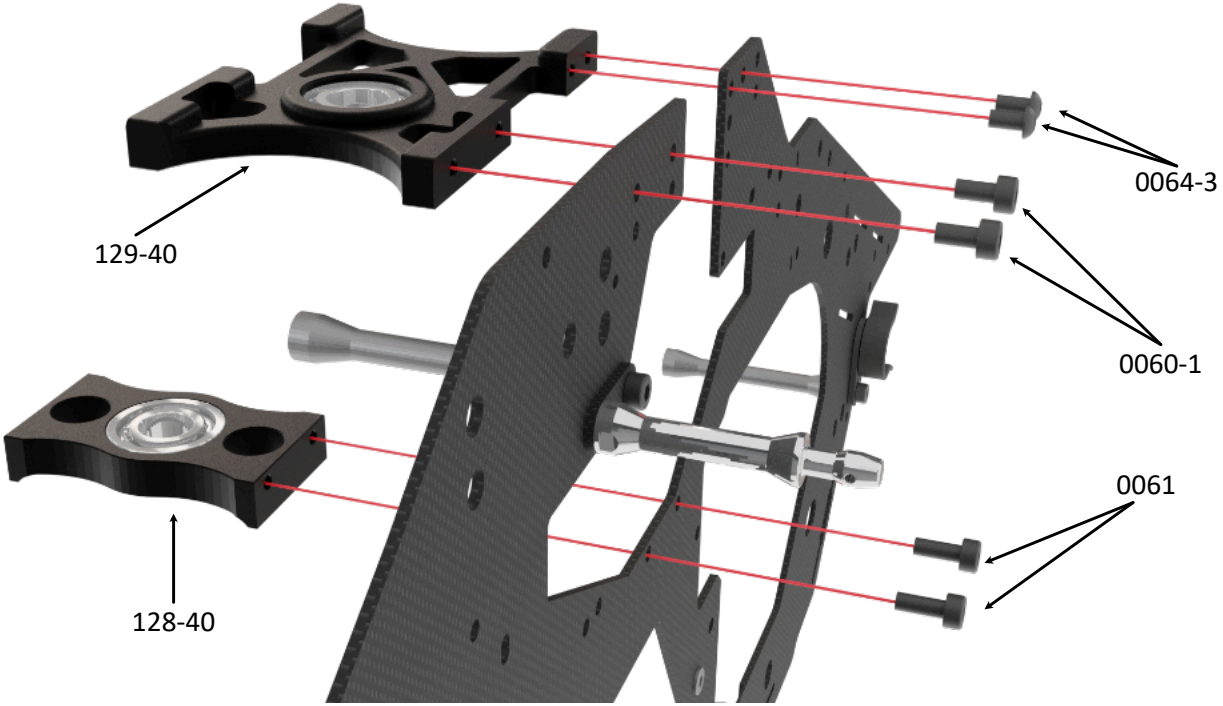
Factory Assembled

122-47

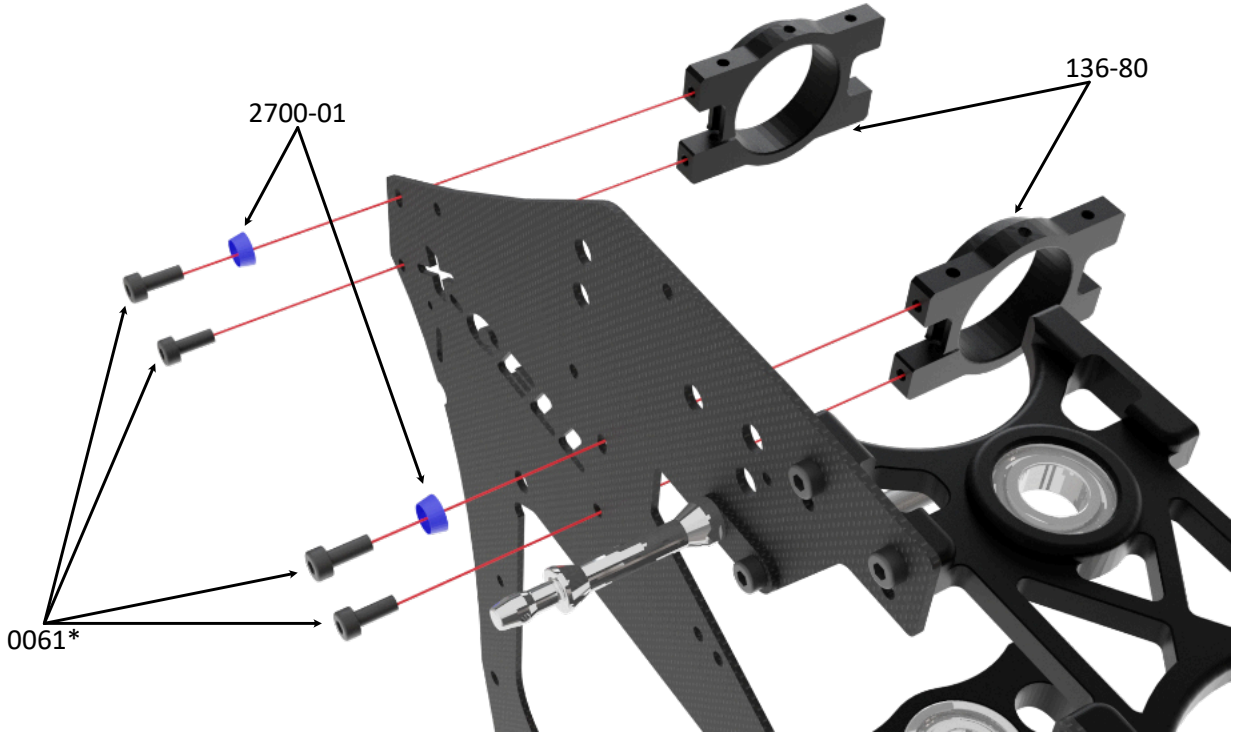


M10 x 22 x 6
Sealed Bearing

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.



0061

M3 x 8mm

2700-01

M3 (blue)

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

* NOTE: THE TWO UPPER BOLTS ARE NOT TIGHT AT THIS TIME

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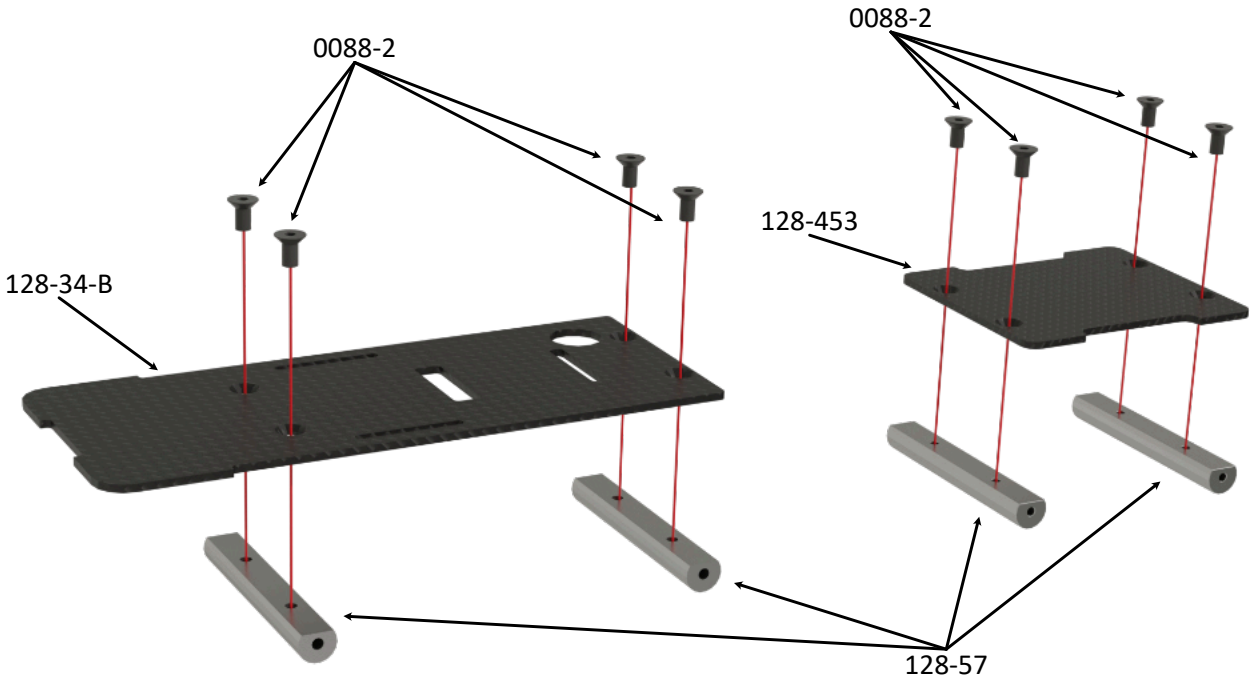
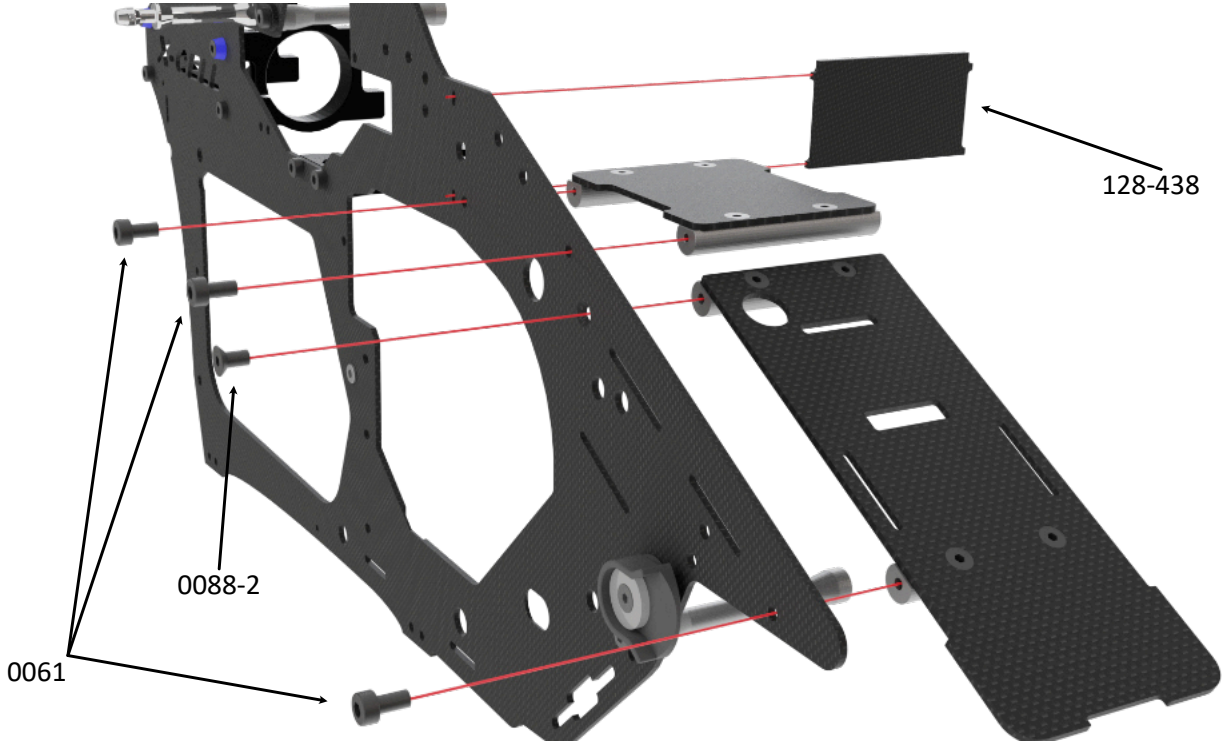


0088-2

M3 x 6mm

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.



0061

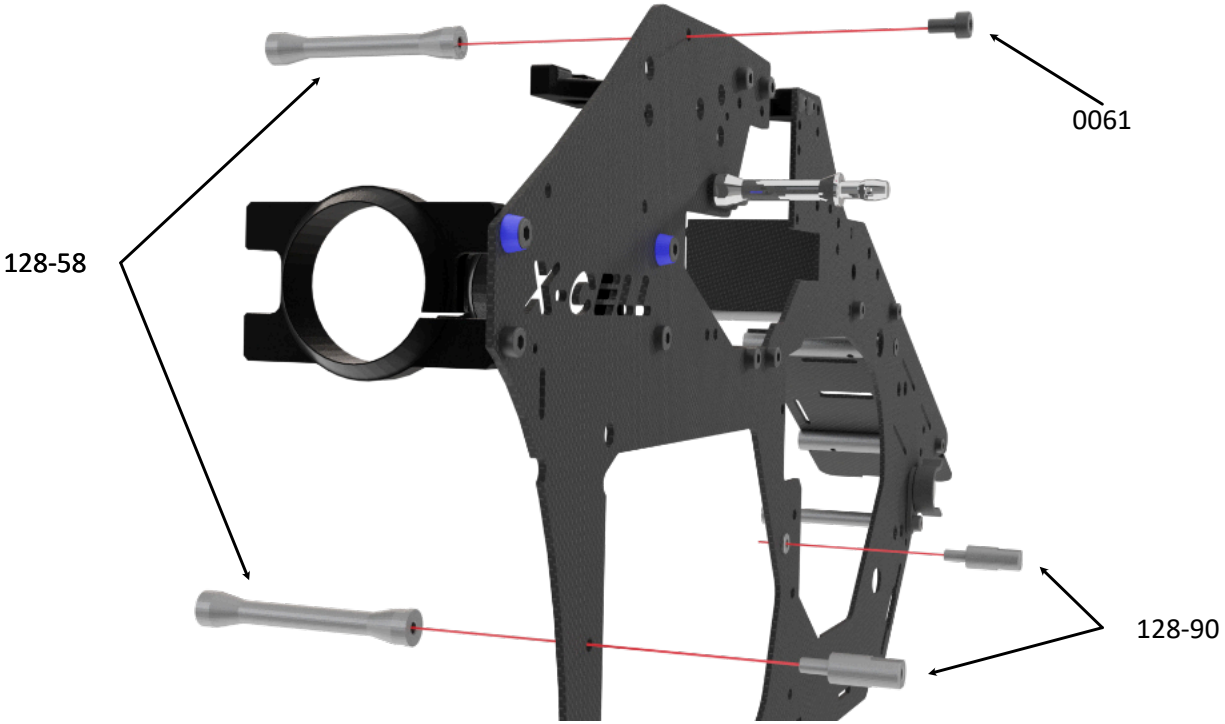
M3 x 8mm

0088-2

M3 x 6mm

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

Assembly Tip: The protective plate 128-438 can be installed later when left main frame will be assembled. Use some small amount of silicone to fix the plate at the bores of the main frames.

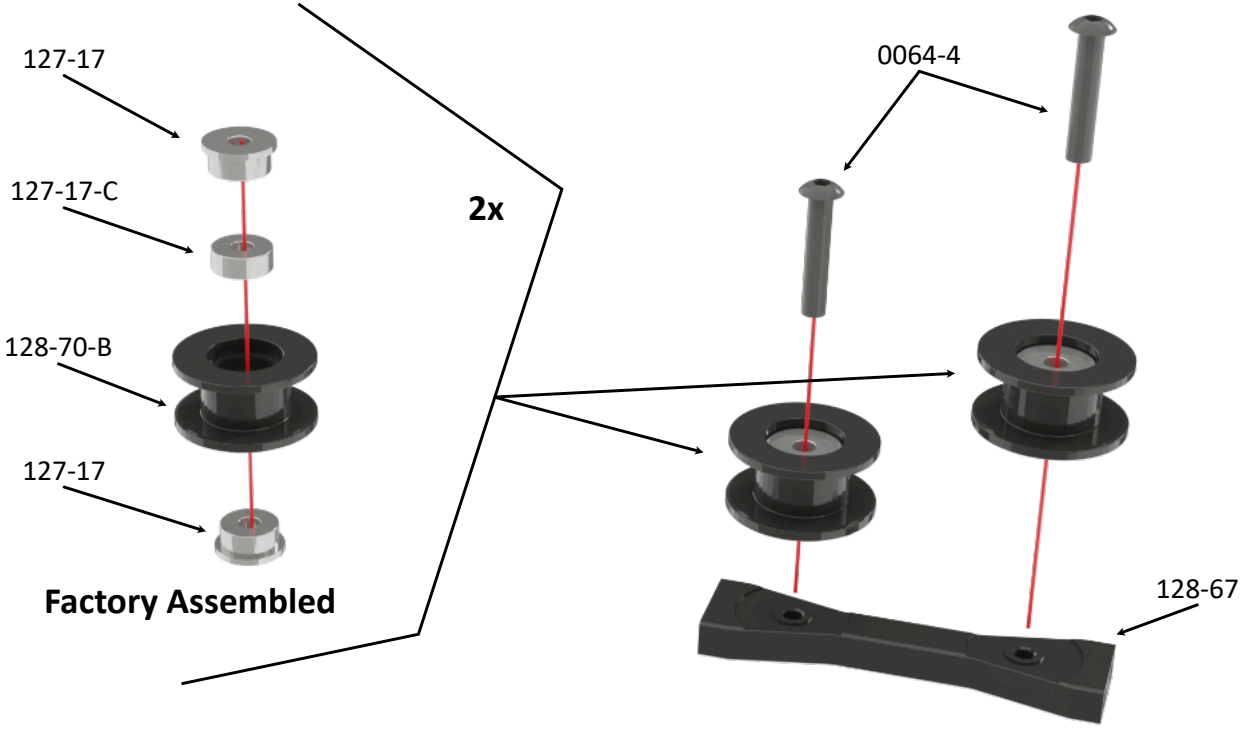


0061

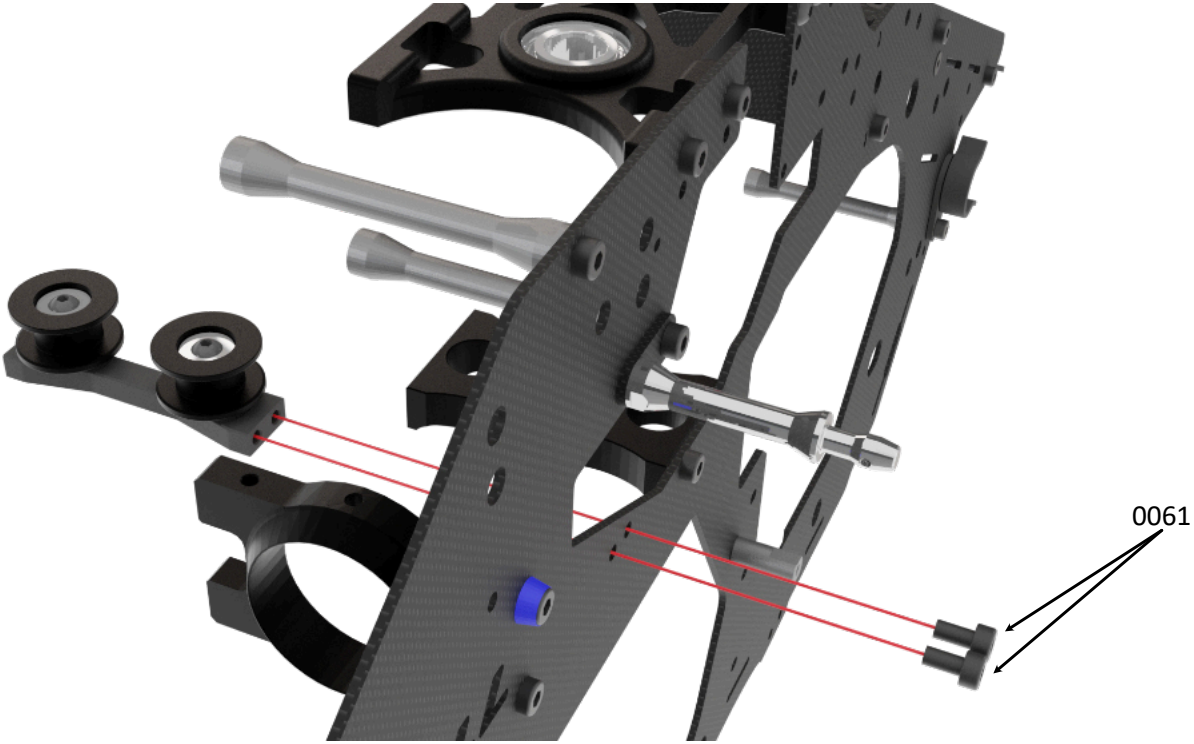
M3 x 8mm

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.



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

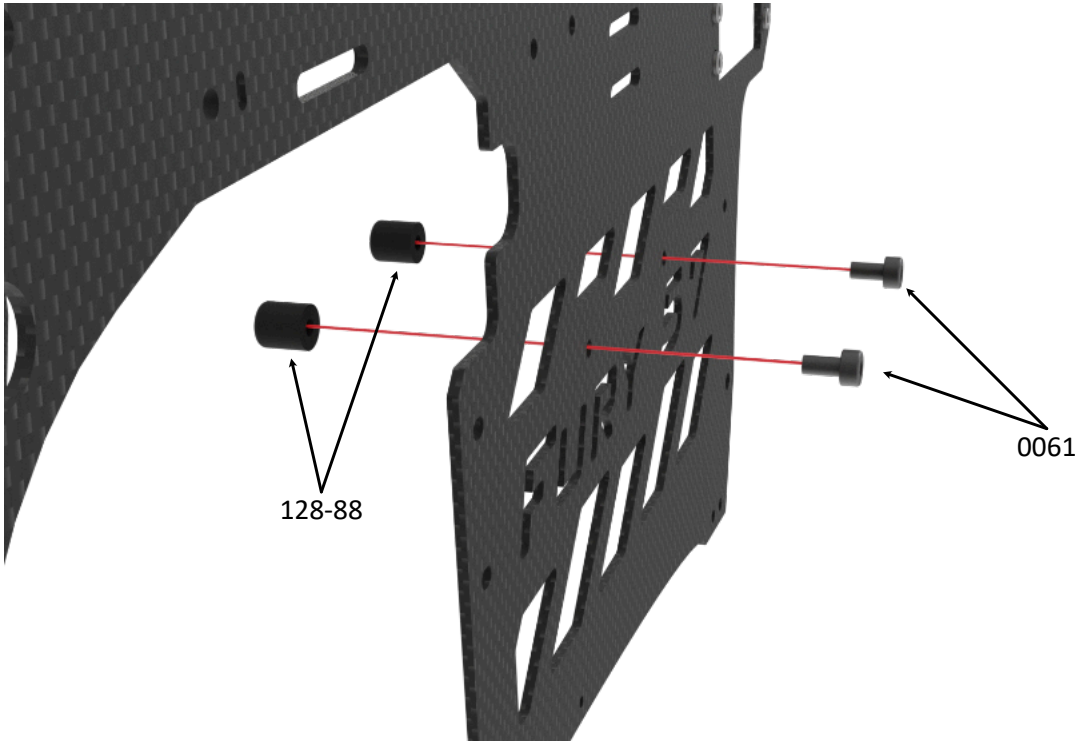


0061

M3 x 8mm

Assembly Tip: Align the the belt idler mount that the belt idlers are parallel to the main shaft.

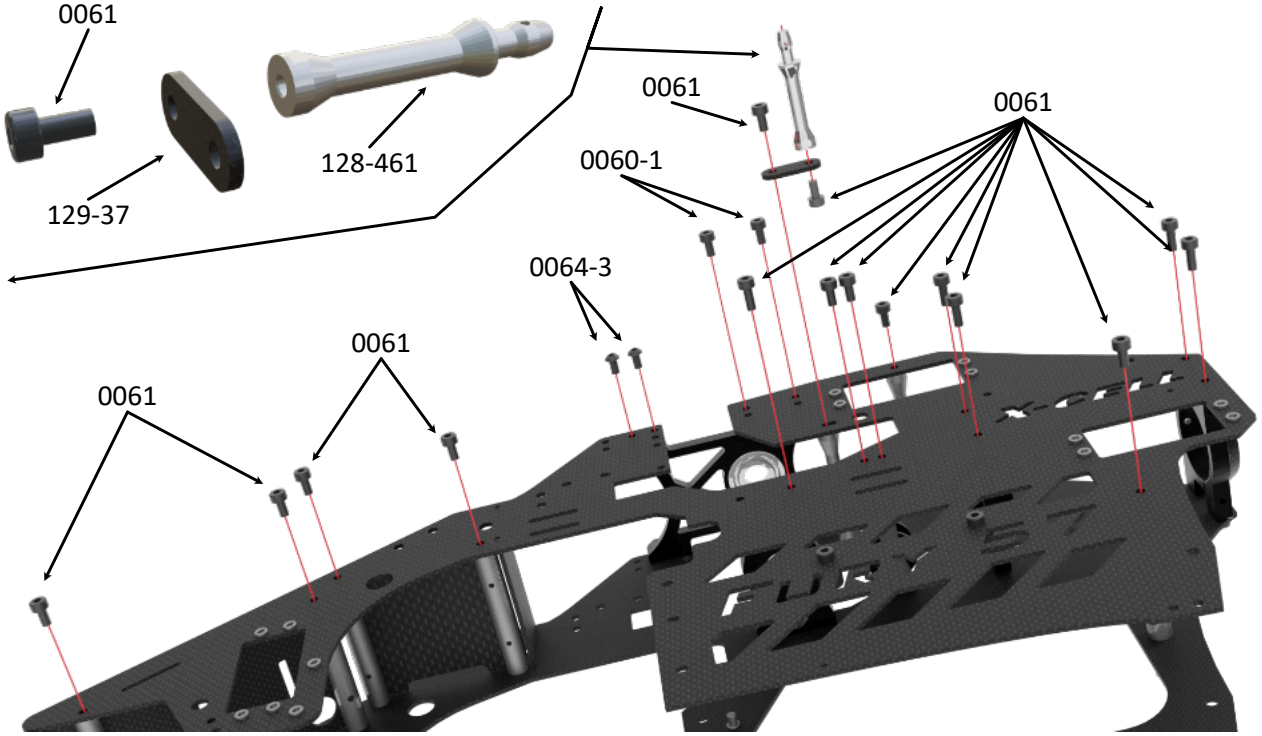
Apply a small amount of medium thread lock when threading into metal parts.



0061

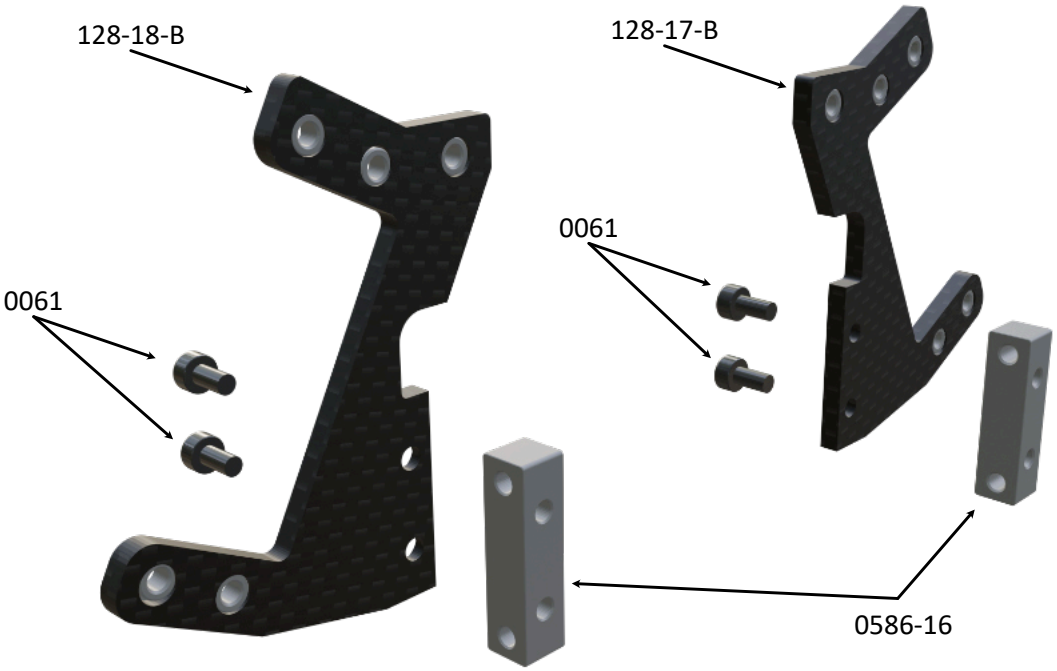
M3 x 8mm

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



Assembly Tip: Take care about the orientation of the canopy mount 128-461 that the small bore for the splint is correctly positioned that you can insert the splint the way you like it.

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

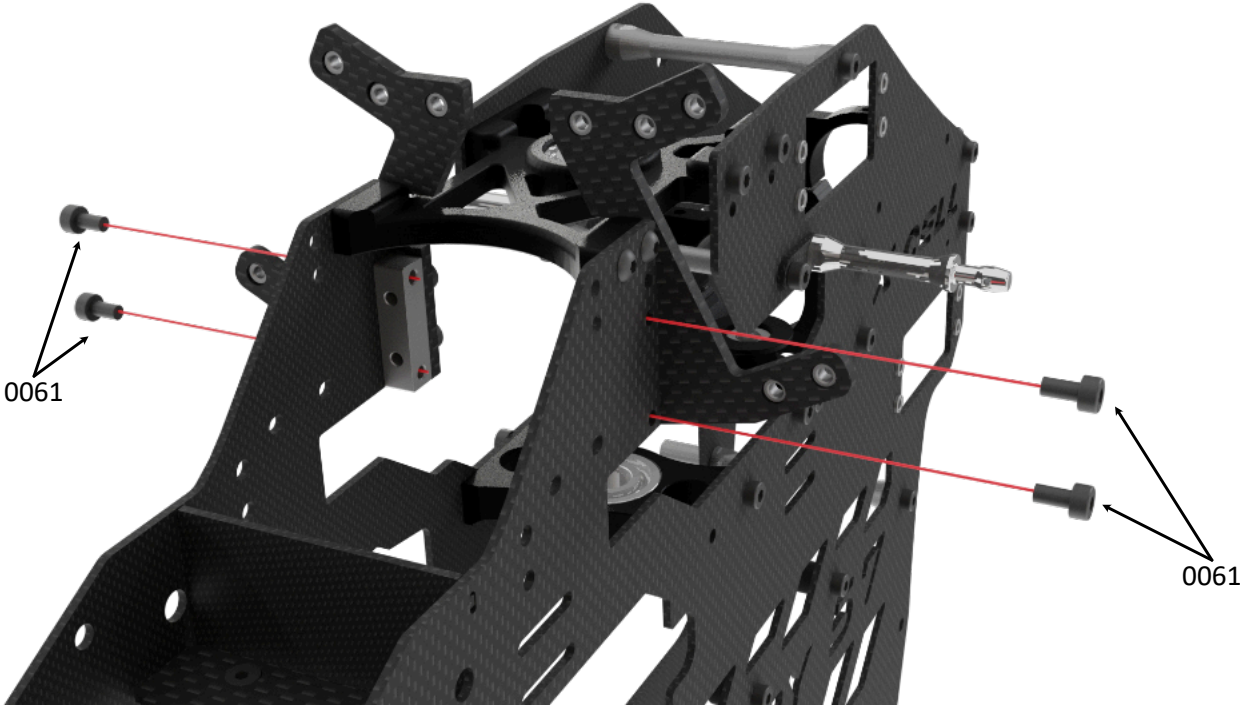


0061

M3 x 8mm

Assembly Tip: Do not tighten bolts 0061 completely at this step. After installing part 128-316 check alignment of all parts and then tighten all bolts.

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

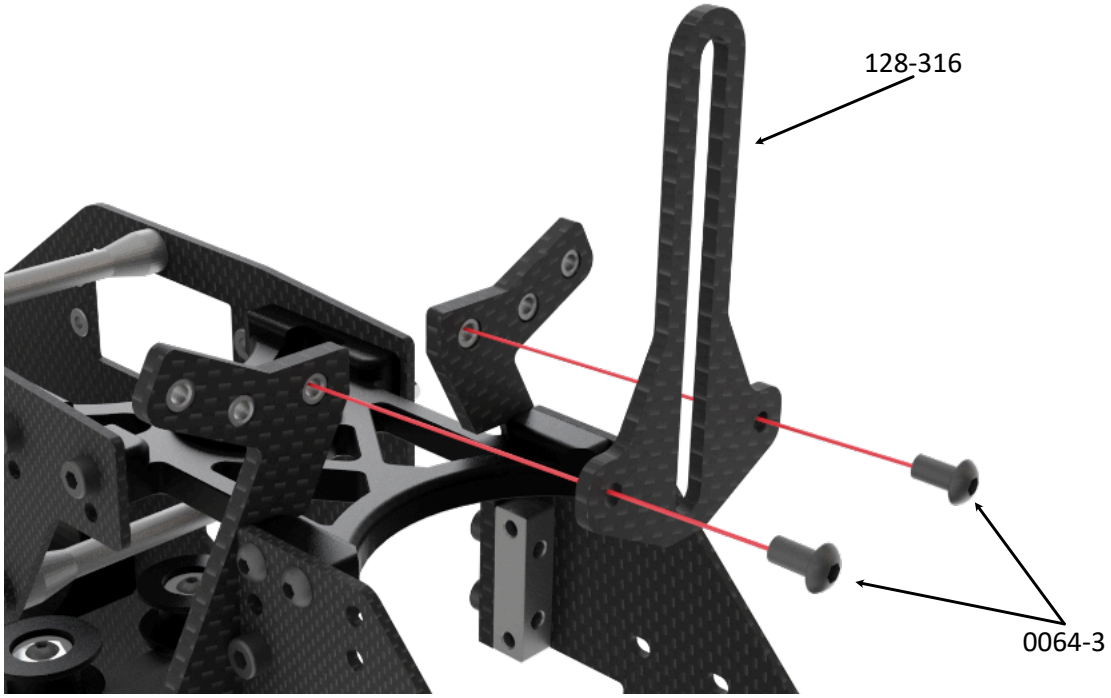


0061

M3 x 8mm

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

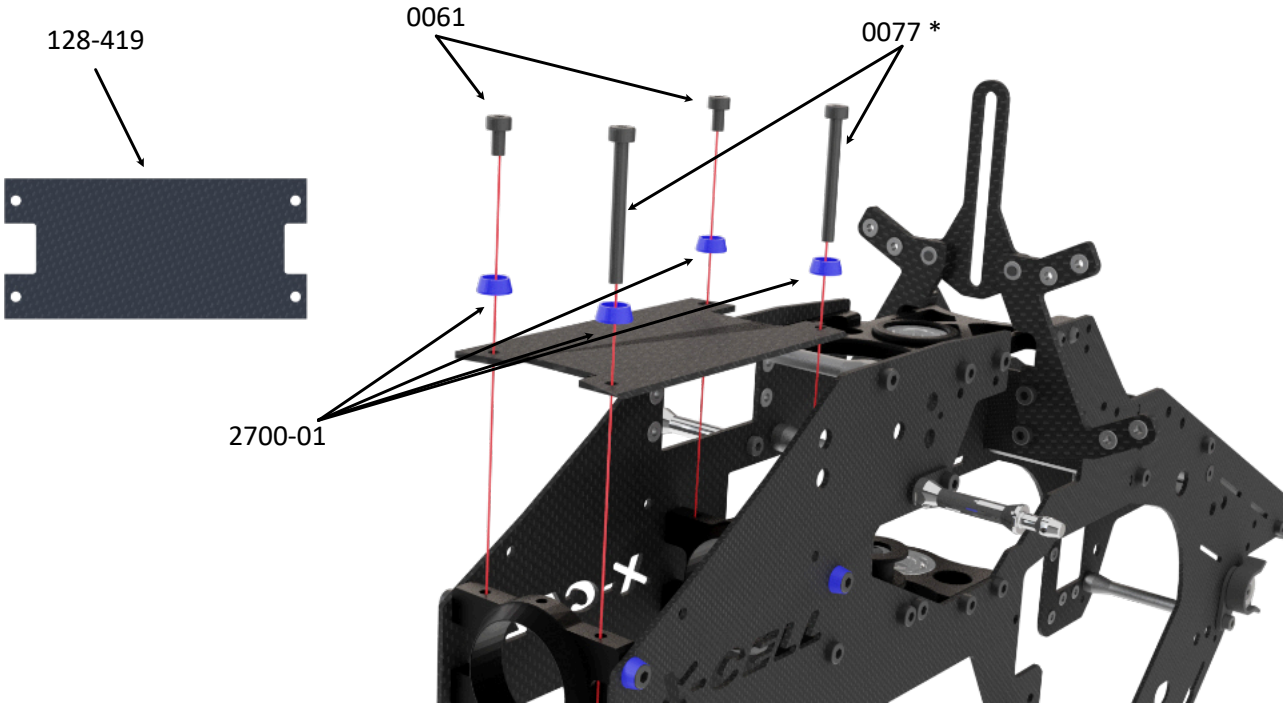
Apply a small amount of medium thread lock when threading into metal parts.



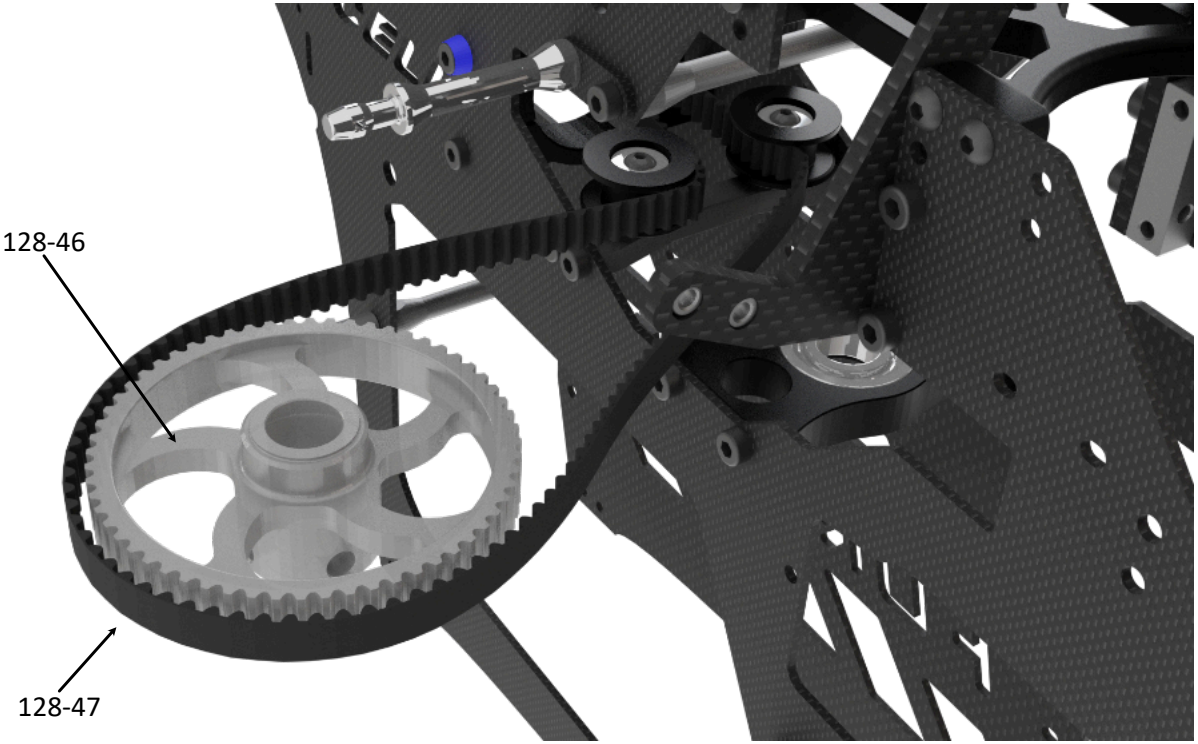
0064-3

M3 x 6mm

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

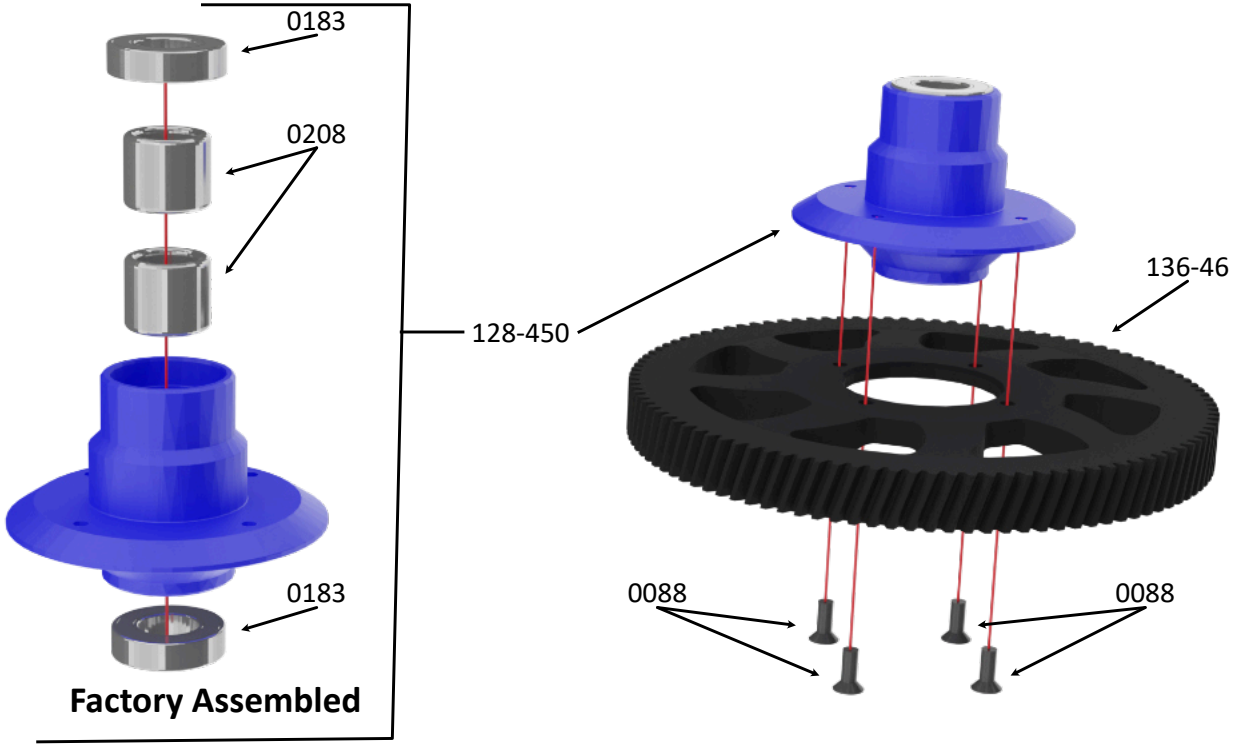


* NOTE: 0077 BOLTS ARE NOT TIGHT AT THIS TIME



Assembly Tip: M5 threads of pulley face to the bottom of the helicopter.

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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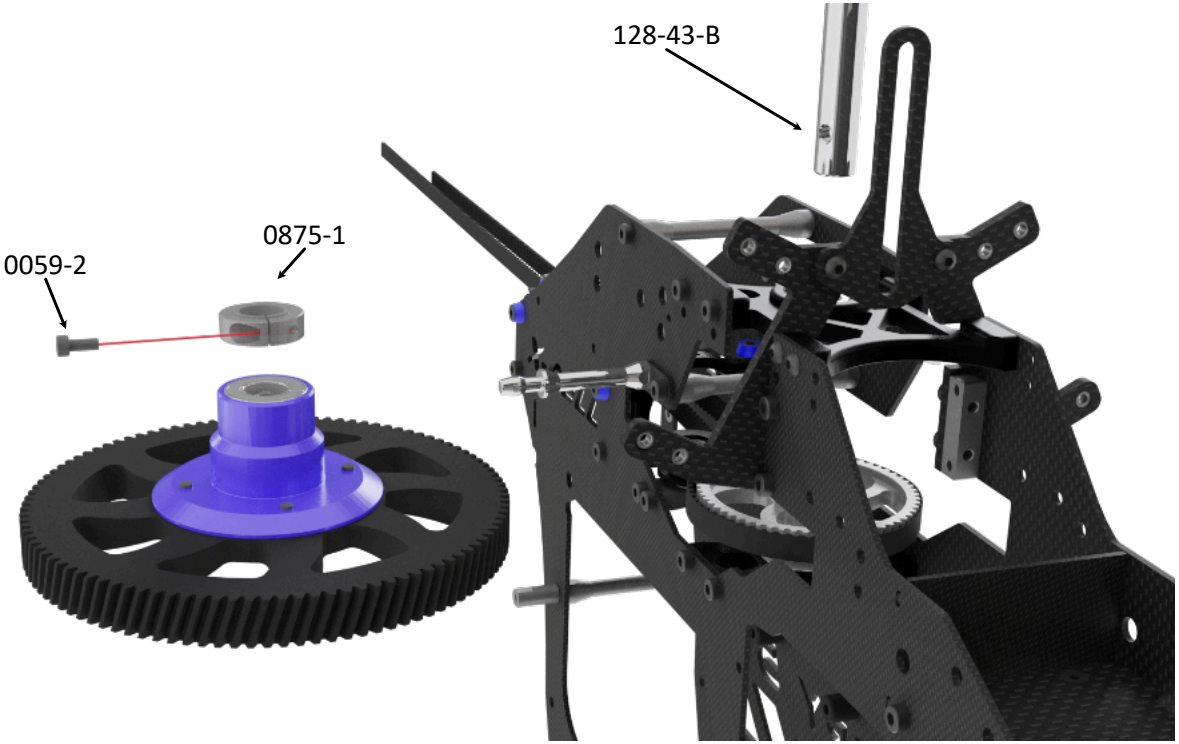
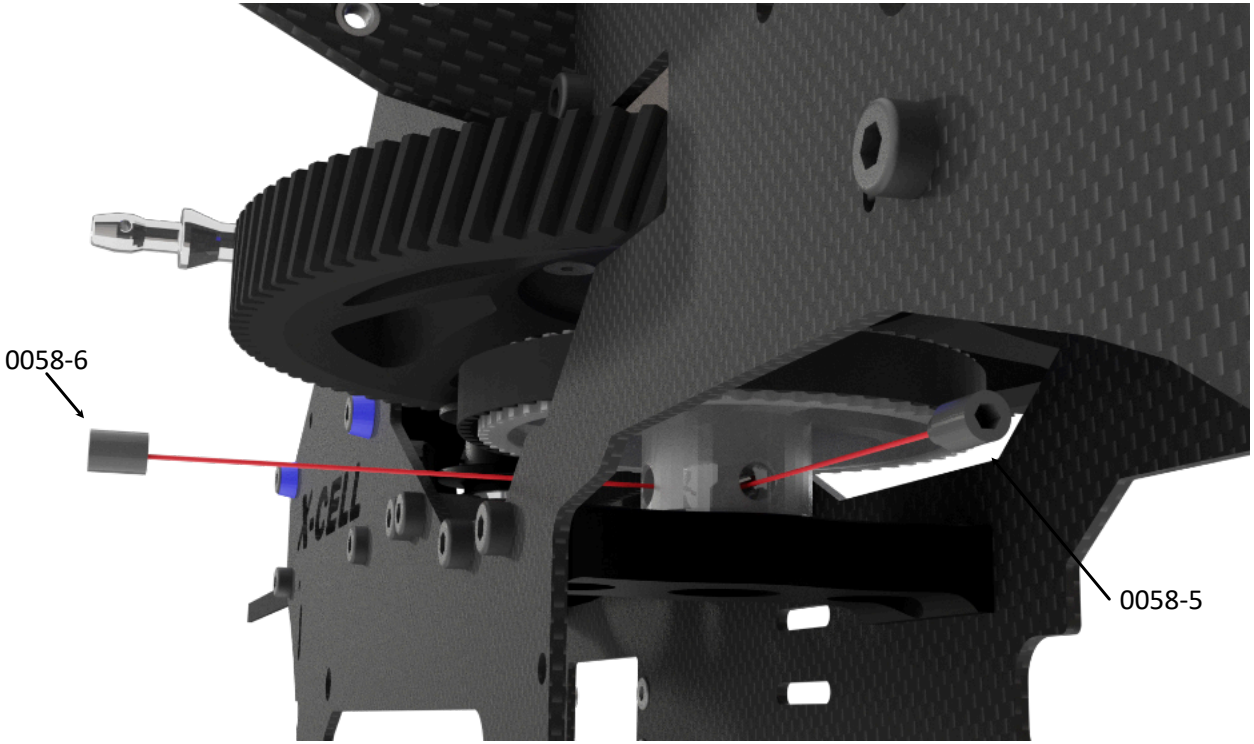


0059-2

M2.5 x 8mm

Assembly Tip: put a small amount of synthetic grease into the one way bearings of part 128-450 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

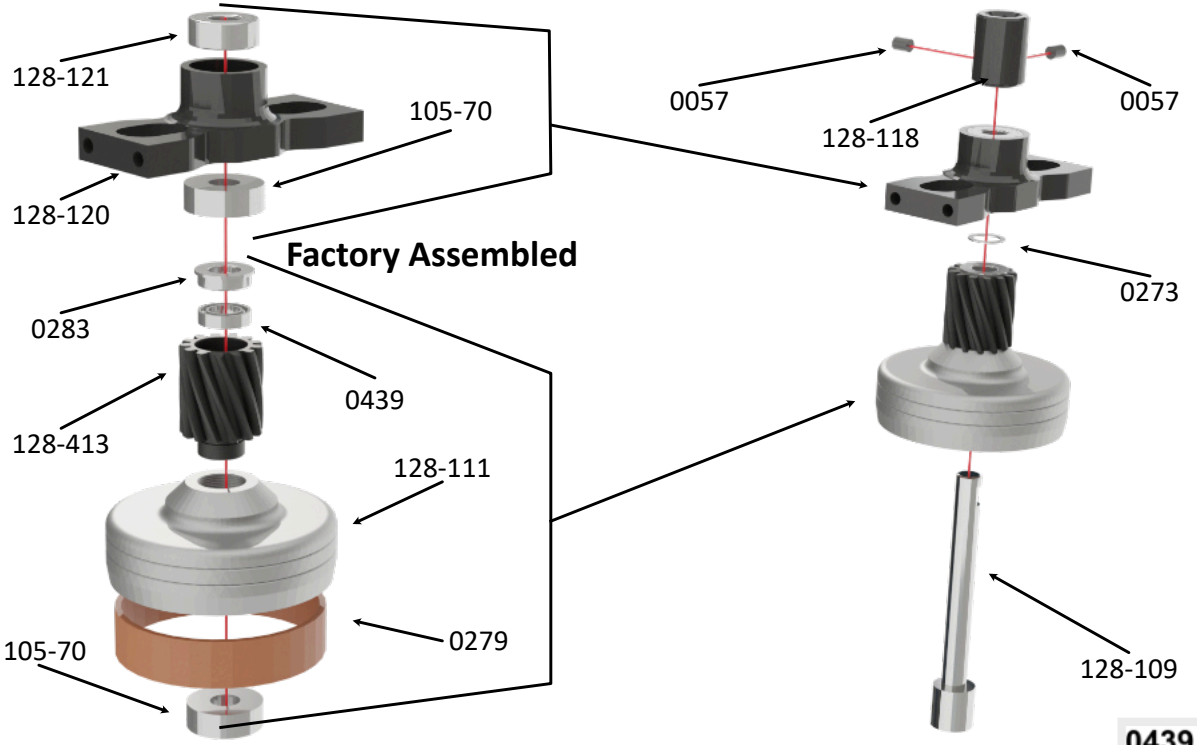
M5 x 6mm

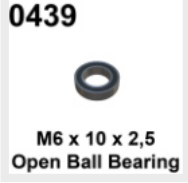
0058-6

M5 x 5mm

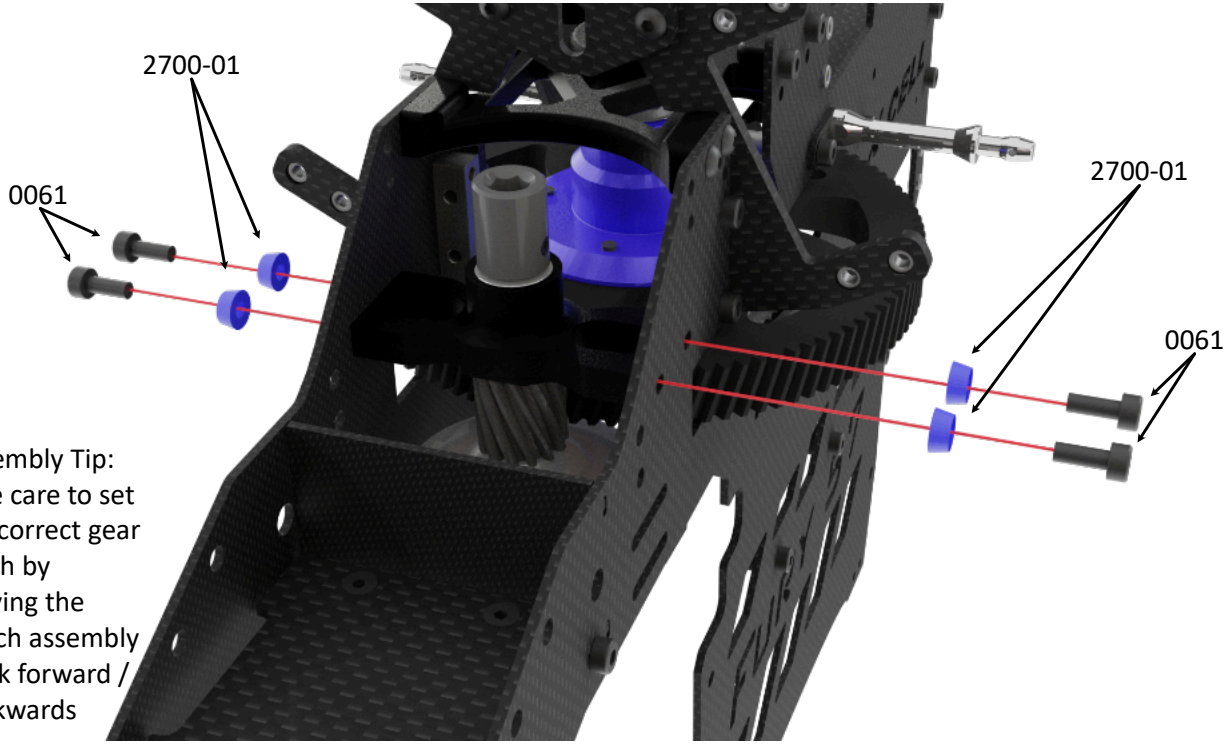
Apply a small amount of medium thread lock when threading into metal parts.

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.





Assembly Tip: Take care that one of the socket screws 0057 will settle at the flat spot of the 128-109 start shaft. Tighten this screw first.
Take care that there is no vertical play of the shaft / clutch bell.



Assembly Tip:
Take care to set the correct gear mesh by moving the clutch assembly stack forward / backwards

The main gear may expand during flight so it is very important that the drive train has a correct set gear mesh. You can use a small piece of standard printer paper and put it between the two gears. Then press the pinion against the main gear and tighten the screws 0061.Take care that the start shaft is parallel to the main shaft. Remove the paper. Then you should find the gear mesh set correctly.

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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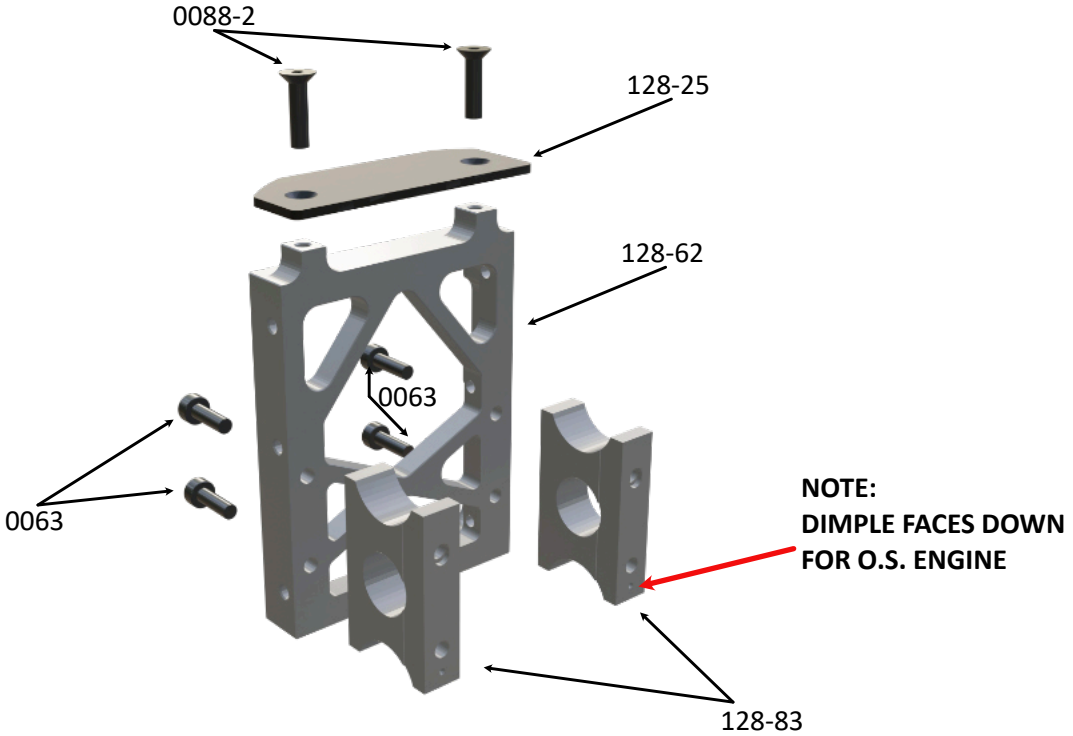

Assembly Tip: take care of the orientation of the motor mount blocks 128-83.
At one side they have a small dimple. The dimple shall be facing to the engine.
For O.S. engines the dimples should be facing 'down'.

0088-2

M3 x 6mm

0063

M3 x 10mm

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

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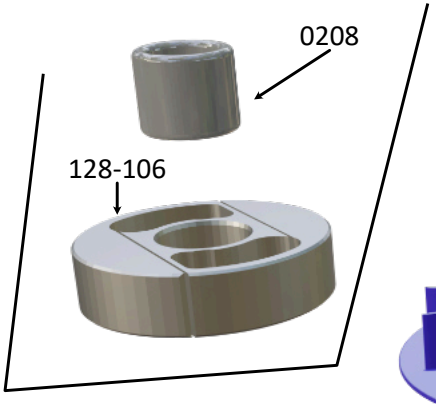
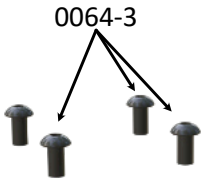
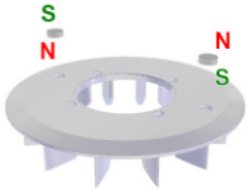
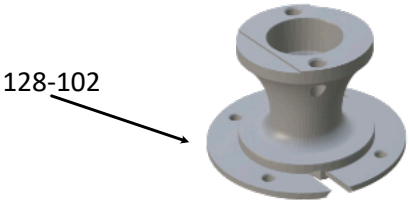






OPTIONAL STEP!
only needed if you will mount the rpm sensor!



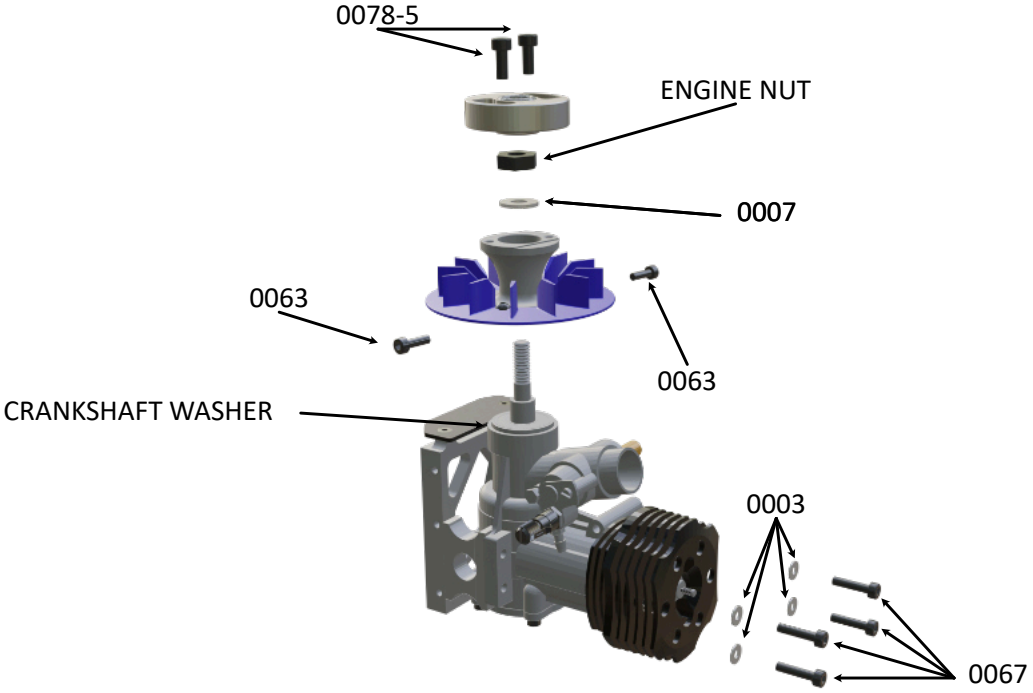
0064-3

M3 x 6mm

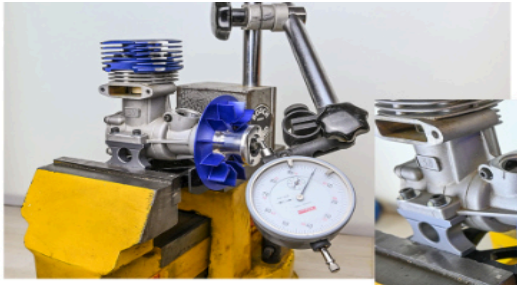
0208

M10 x 12 One Way Torrington

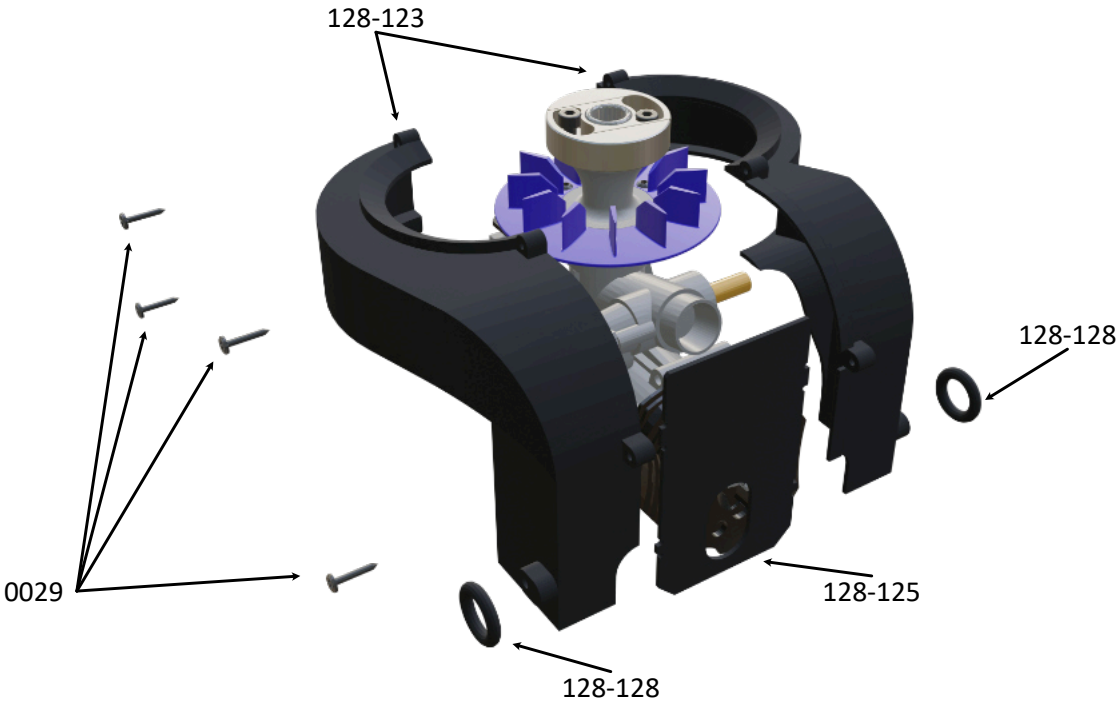
Assembly Tip: If using a governer, install the magnets at the fan. Take care of the orientation. One shall face "north", the other shall be facing up "south".
Use high-quality two-component epoxy like UHU 300 and let it hardening.
The magnets are included in the Fury 57 Super N kit.

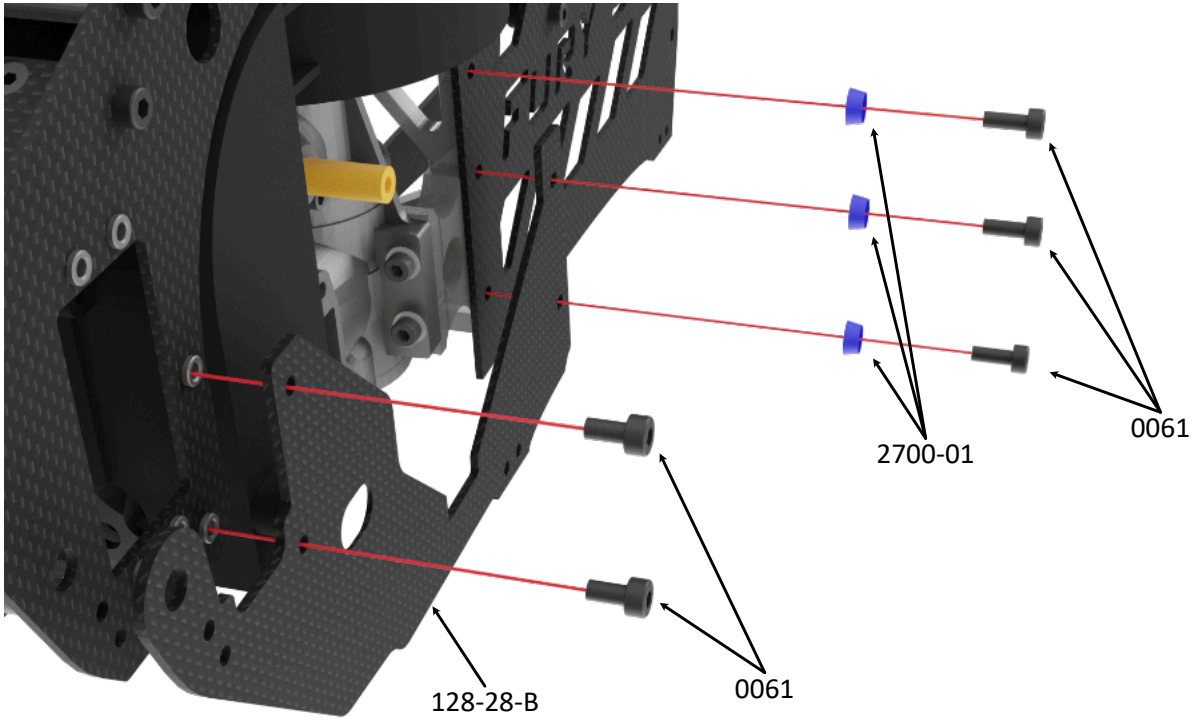


When installing the fan assembly to the engine then first apply a small amount of medium thread lock to the engine nut and tighten it slightly that 136-117 will be pulled down to sit on the aluminum disk of the engine. Then tighten bolts 0063 (also use medium thread lock at these bolts). Then tighten motor nut. Do not interrupt these steps to avoid drying of the thread lock applied to the nut before it finally has been tightened.



Installing the prepared fan hub: to install the fan hub you should use a crankshaft locking tool. To use it you have to remove the back plate of the engine. Take care about the orientation and correct use of the tool (see engine manual). Ohterwise you can damage the piston / engine. Do not use a piston stopper which is installed at the glow plug bore.
Don't forget to install the whasher between the hub and the engine which is included with the engine. Put a very small amount of thread lock on the engine nut and tighten it slightly. Take care that the crankshaft has no axial play - this is very important. Then tighten the screws 0063 alternately and check runout of the hub by using a dail gauge touching the inner diameter of the fan hub. The total runout shall be less than 0.025mm or 0.001". You can adjust the runout by alternately thightening / releasing the srews 0063. If the runout is okay then tighten the engine nut carefully.
Before installing the clutch put a very small amount of synthetic greas into the one way bearing. Mount the engine at the motor mount but do not tighten the screws at this point completely. It should be possible to move the engine whithin the mounting bores.





Assembly Tip: Do not thighten the three screws which hold the motor mount at this point.

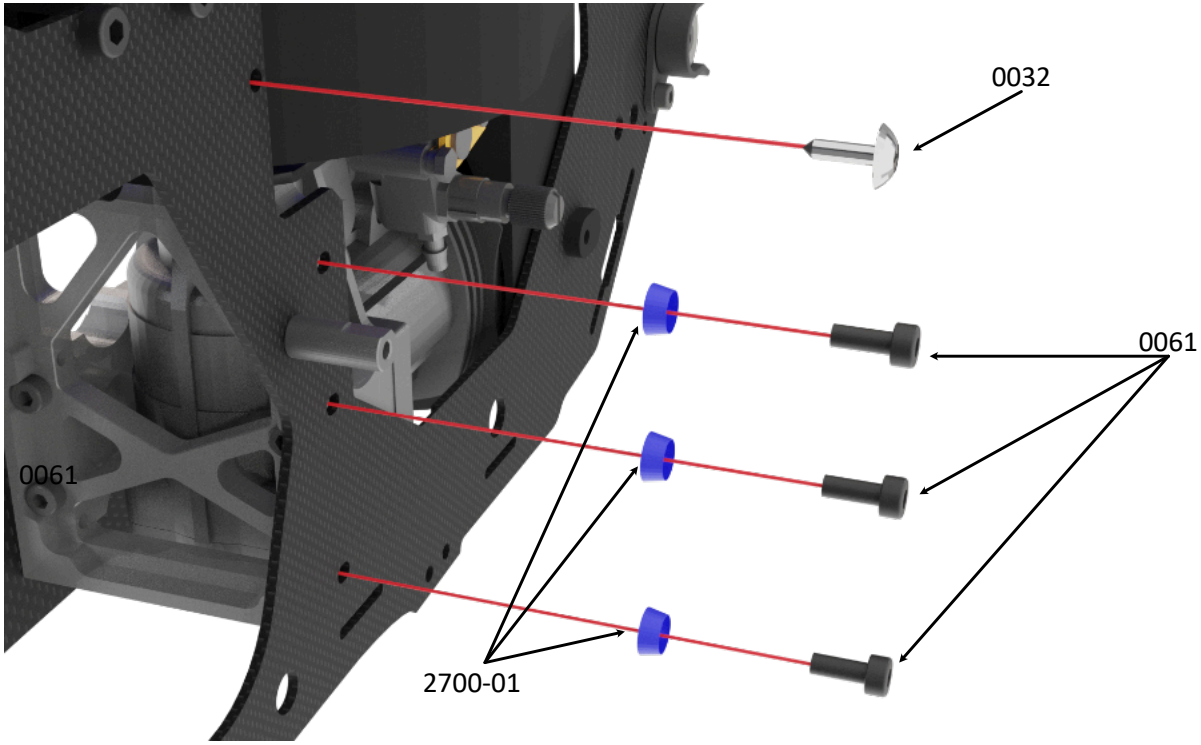
0061

M3 x 8mm

2700-01

M3 (blue)

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



0061

M3 x 8mm

0032

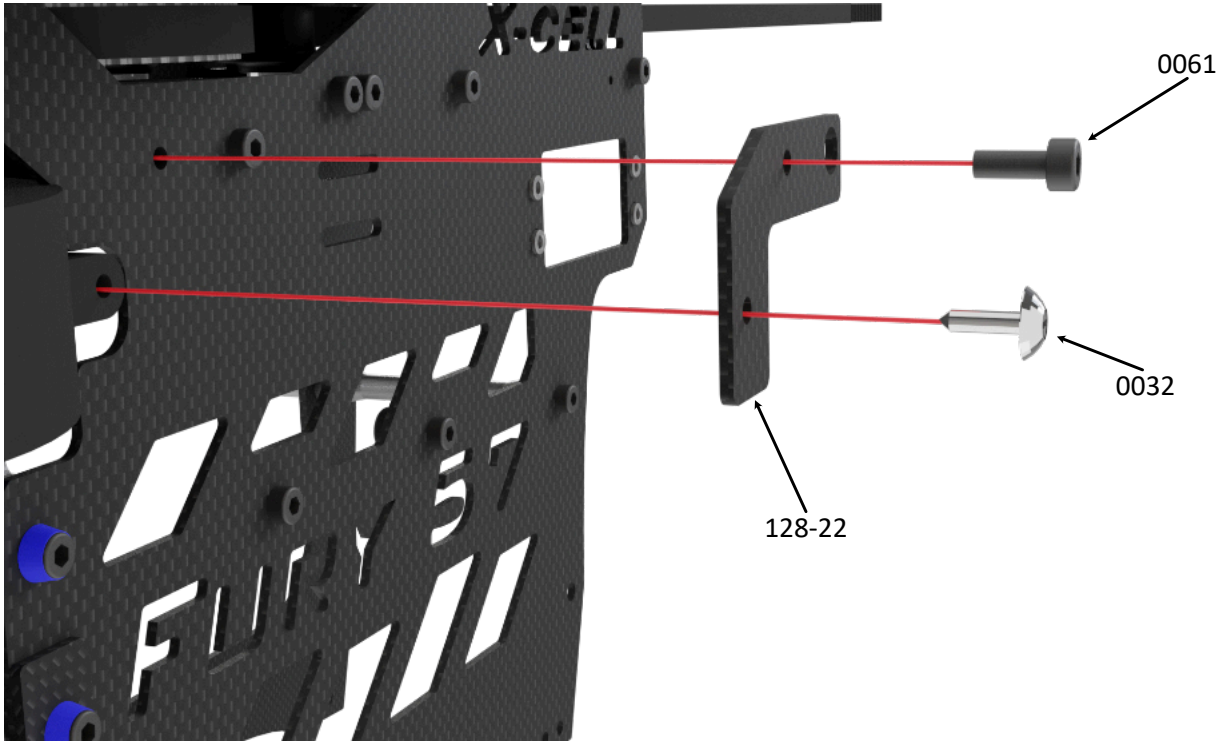
M2.9 x 9.5mm

2700-01

M3 (blue)

Before tightening the screws which hold the motor mount please check the alignment of the engine by rotating the start shaft clock wise.Move the complete engine forward / backward to find aosition where the start shaft can be rotated easily. Then tigthen the engine screws and the screws which hold the motor mount. Check the start shaft again and repeate this procedure if the start shaft cannot be rotated clockwise freely.

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



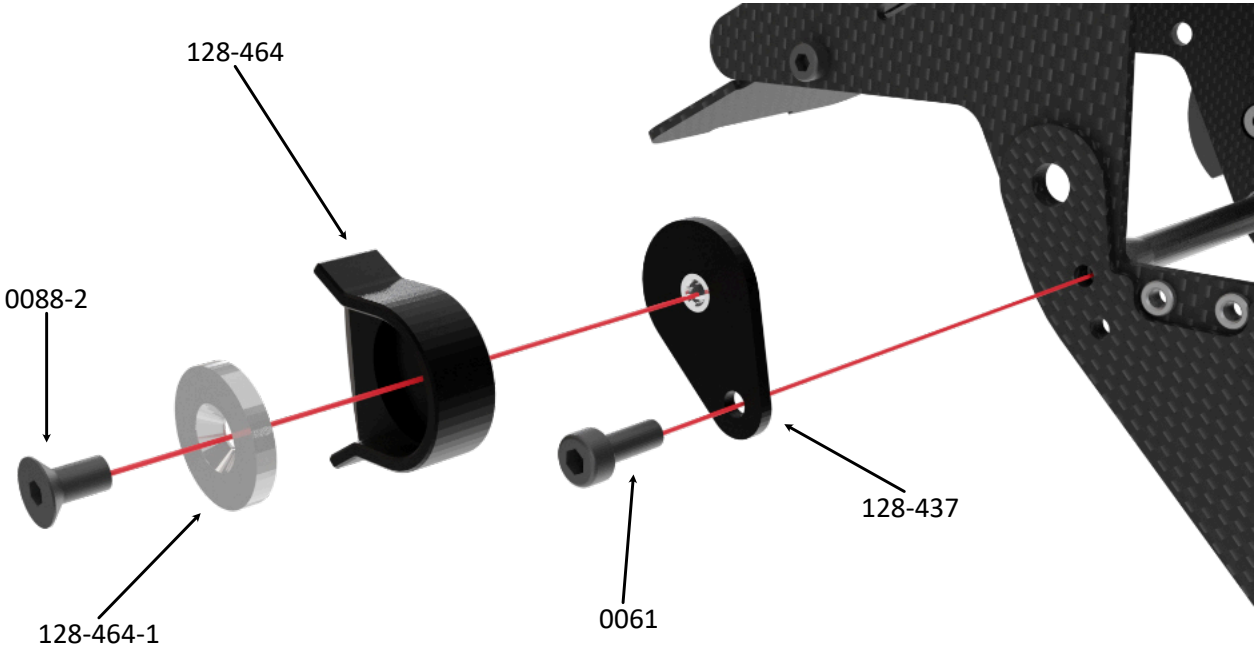
0061

M3 x 8mm

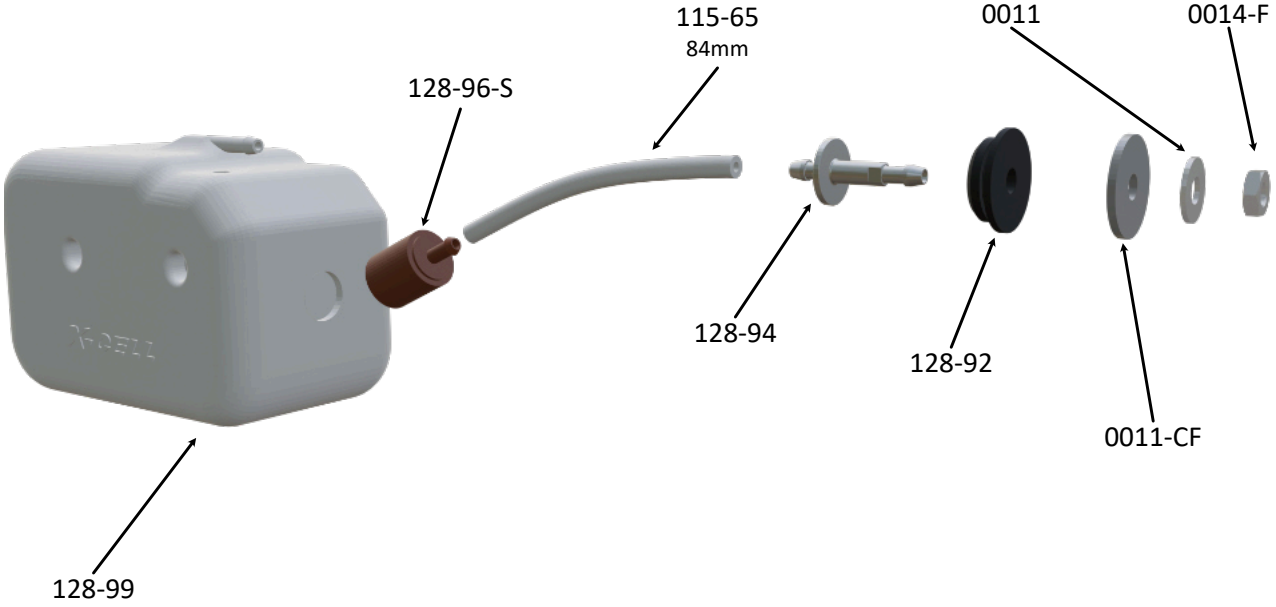
0032

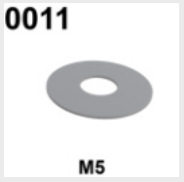
M2.9 x 9.5mm

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

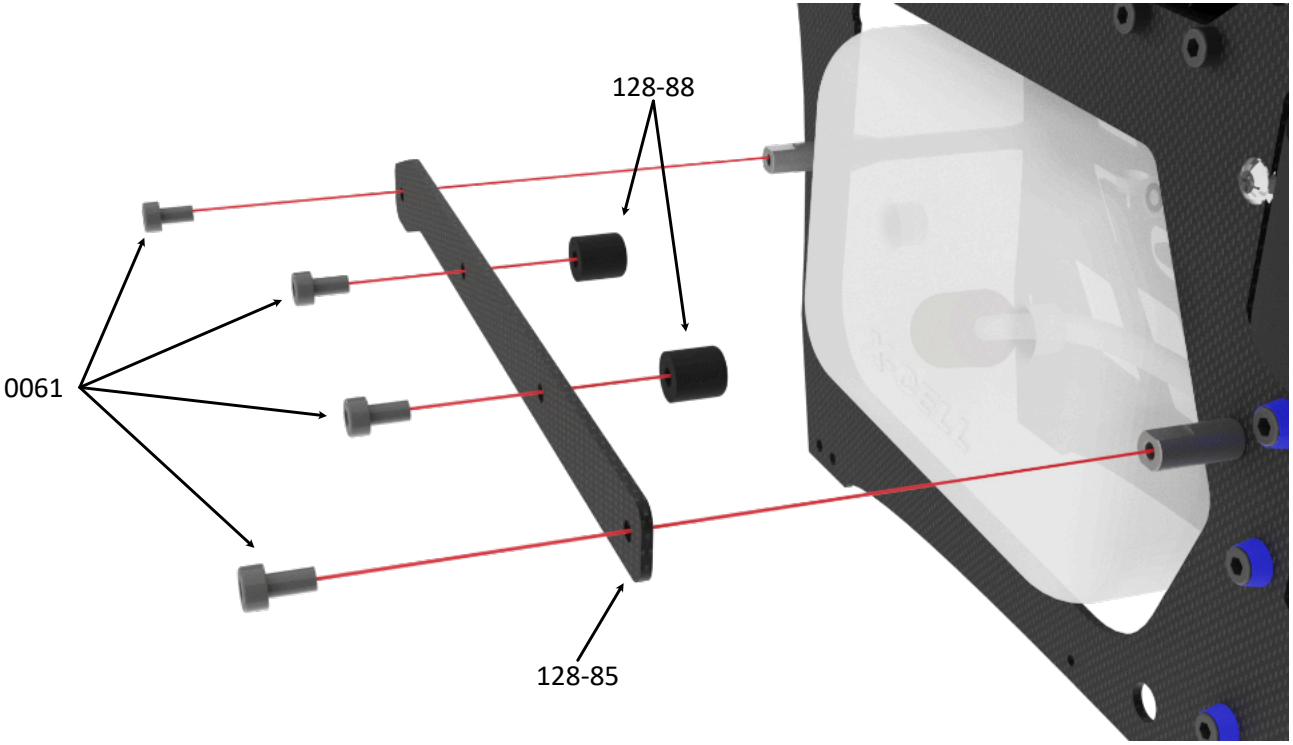


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.





Assembly Tip: Do not apply thread lock to the nut 0014-F.
Do not overtighten If the tank starts leaking at this opening just tigthen the nut about 1/2 or 1 turn.



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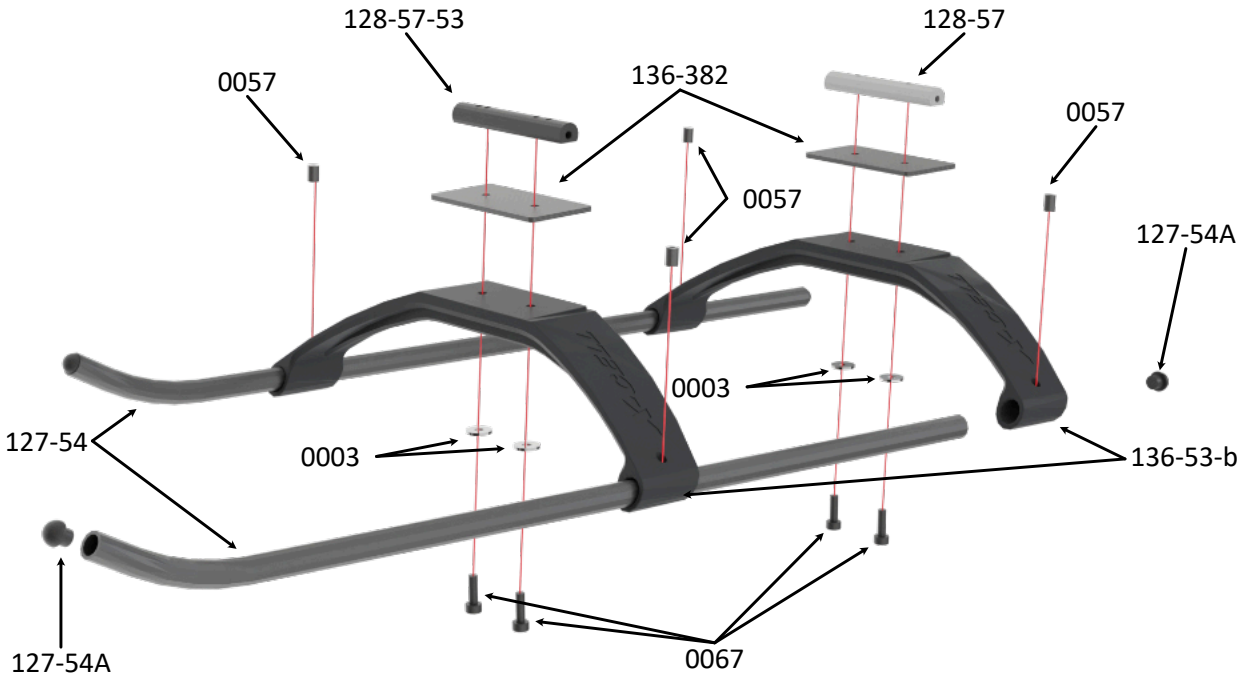
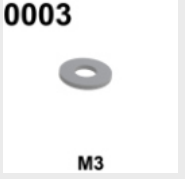
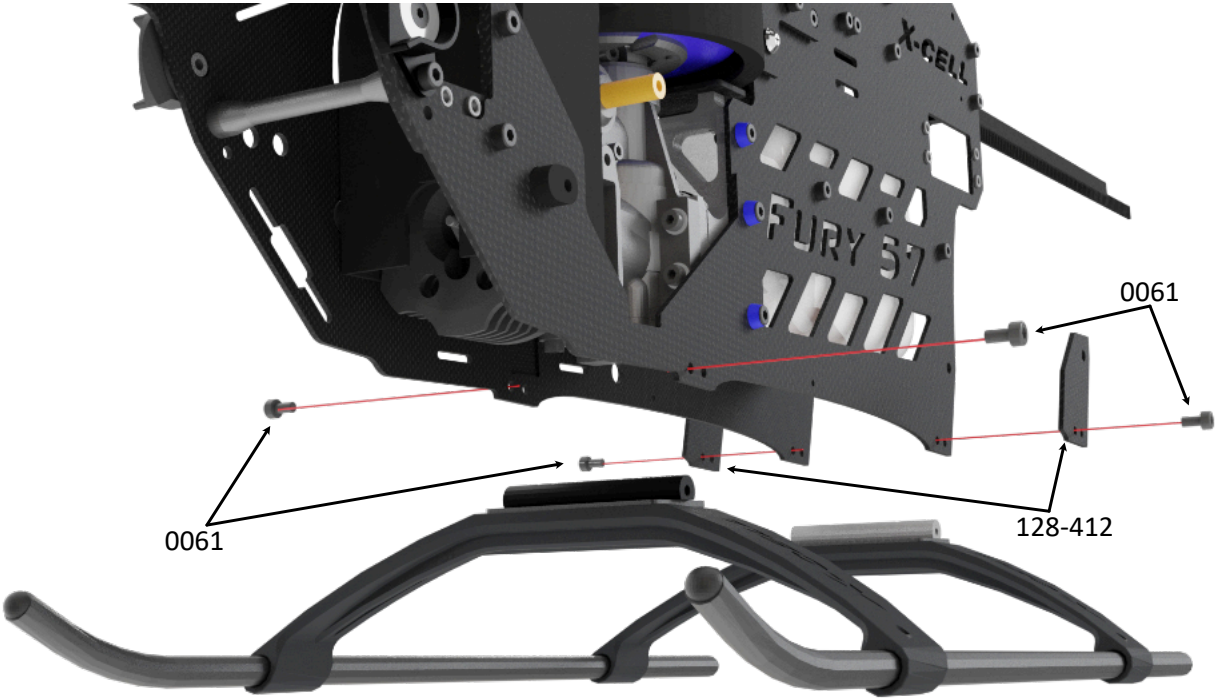




The color of the skids and strutts which will be shipped with the kit depends on design of the canopy.

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



0061

M3 x 8mm

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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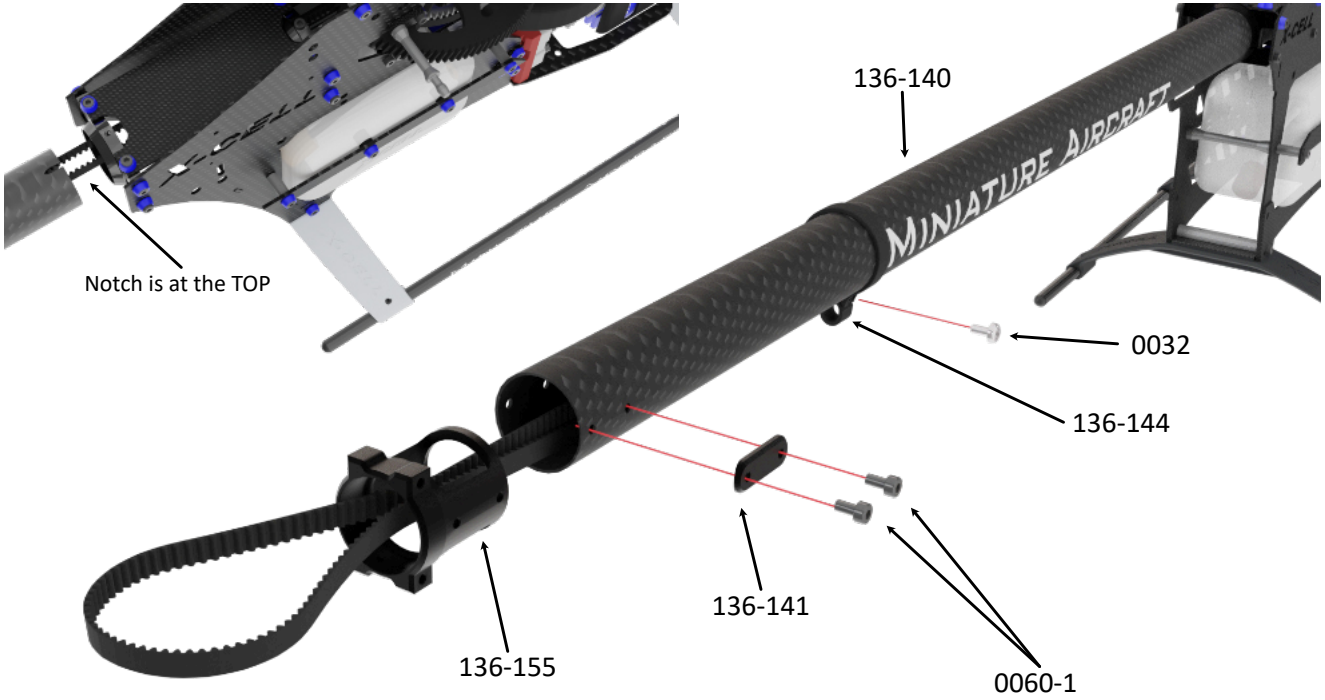
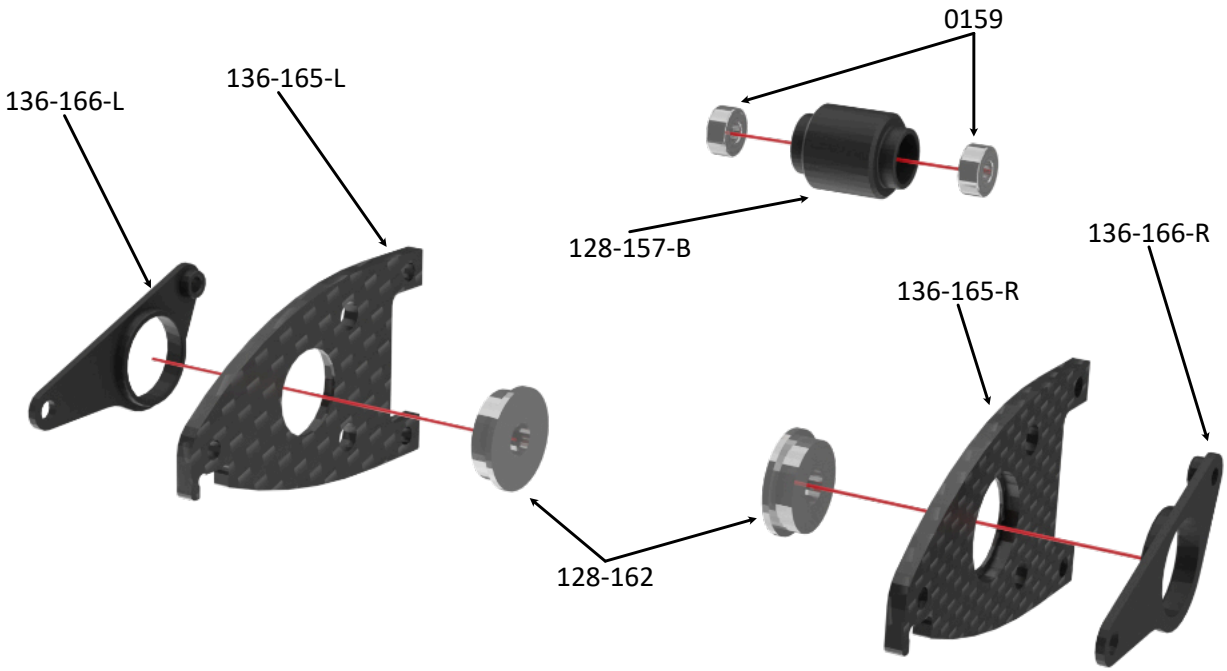


Assembly Tip: Notch is at the TOP



0159

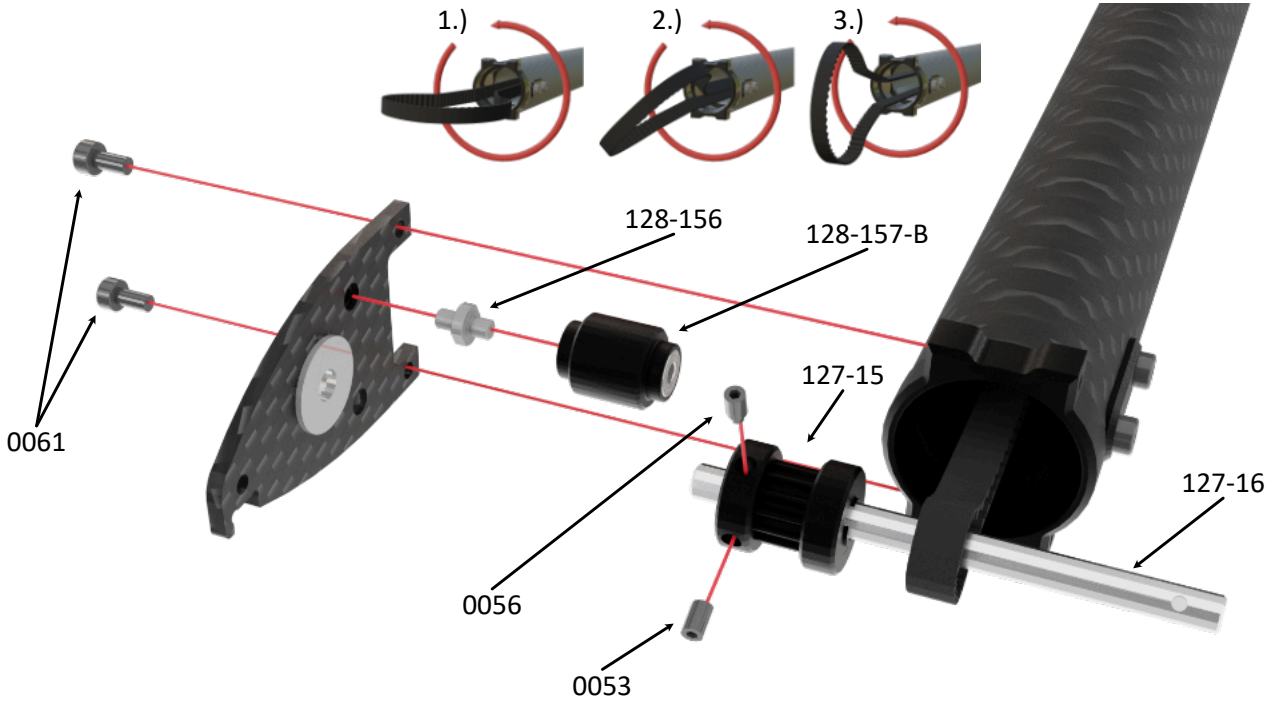
M3 x 7 x 3
Ball Bearing

128-162

M5 x 13 x 4
Flanged Bearing

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

Factory Assembled
This parts will needed for the next 2 steps



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

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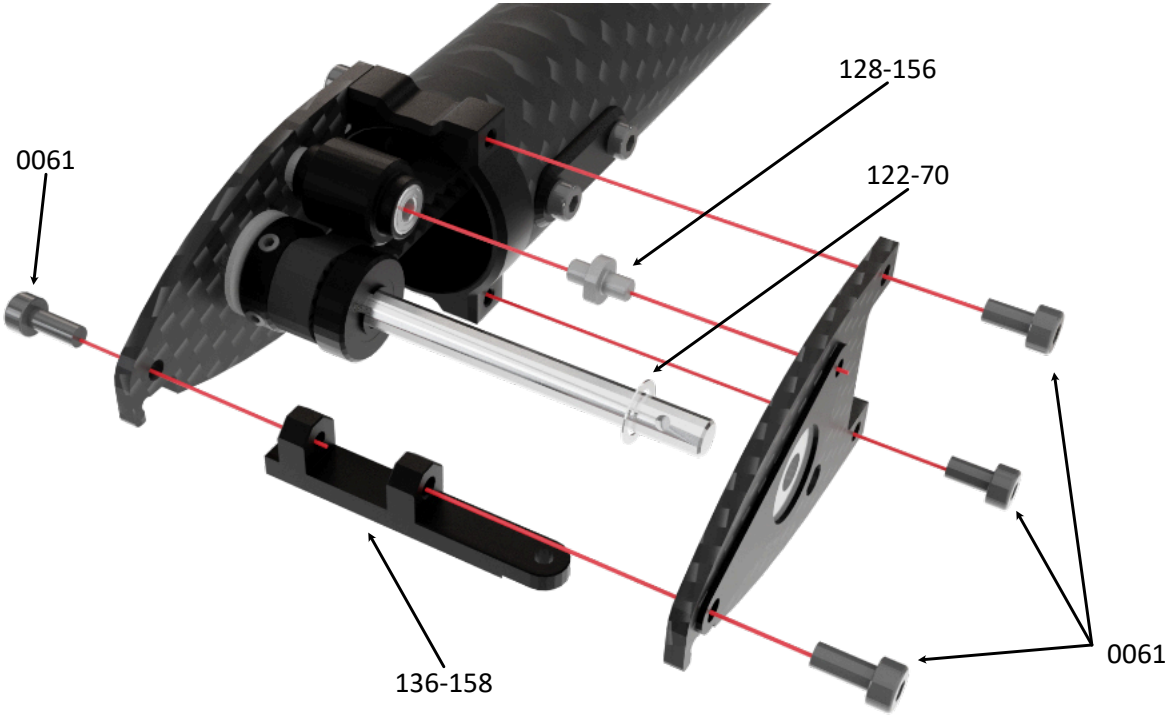
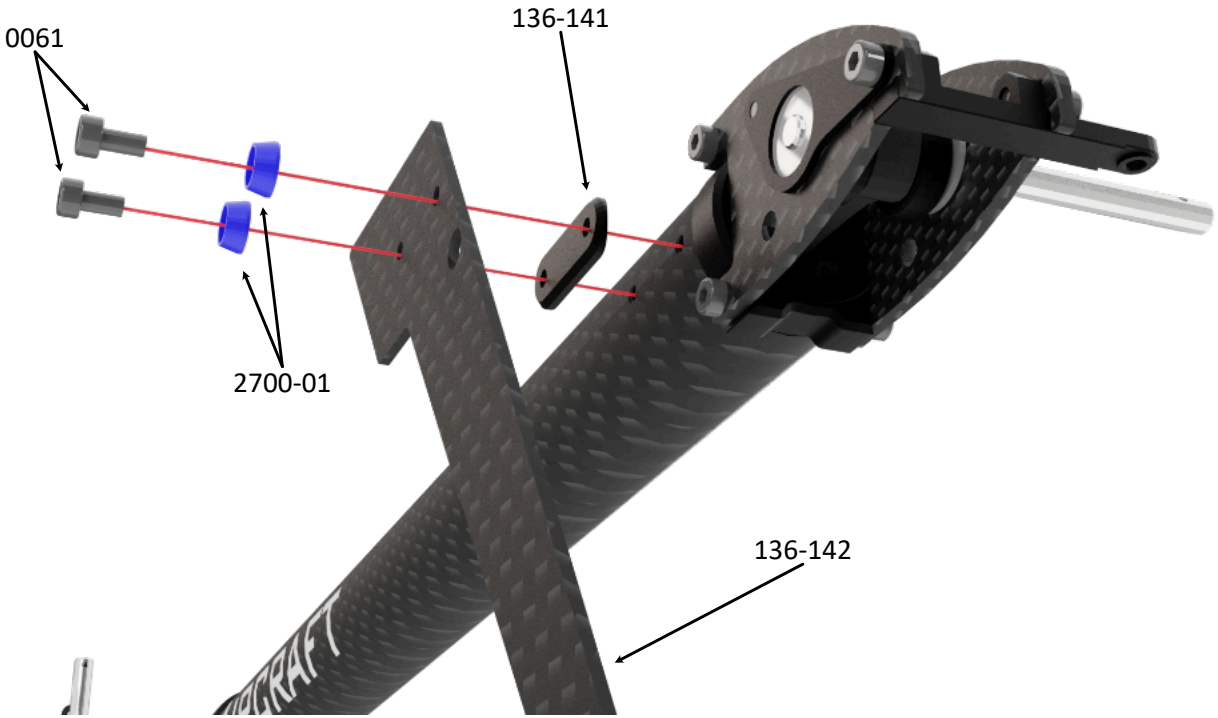


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



0061

M3 x 8mm

2700-01

M3 (blue)

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

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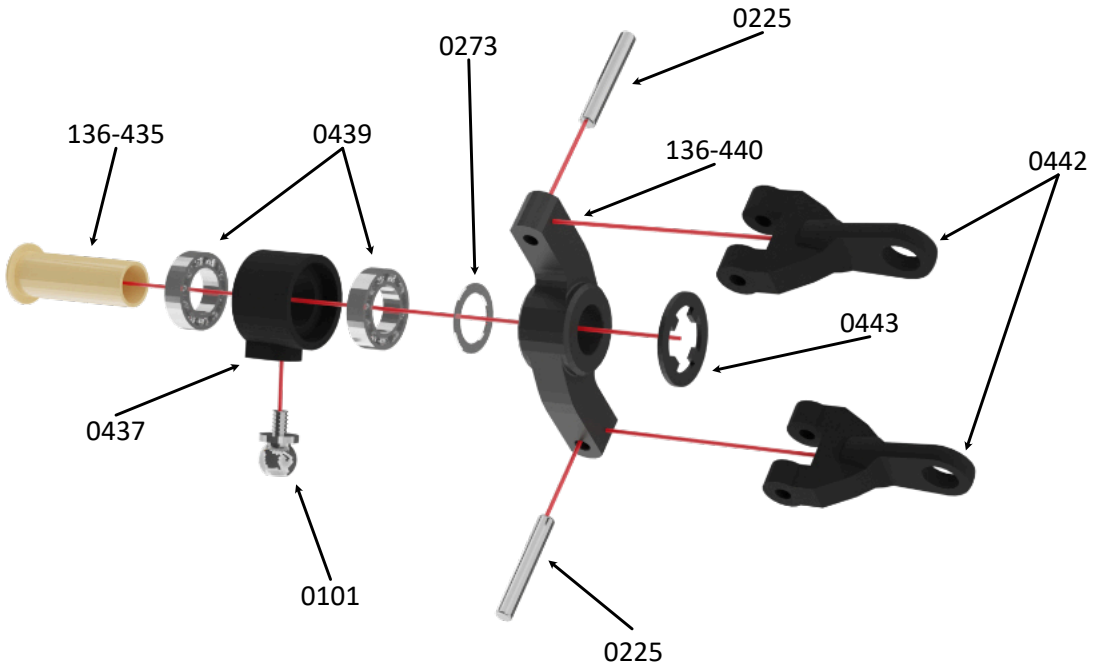


Factory Assembled

0101

M2 x 5.3mm

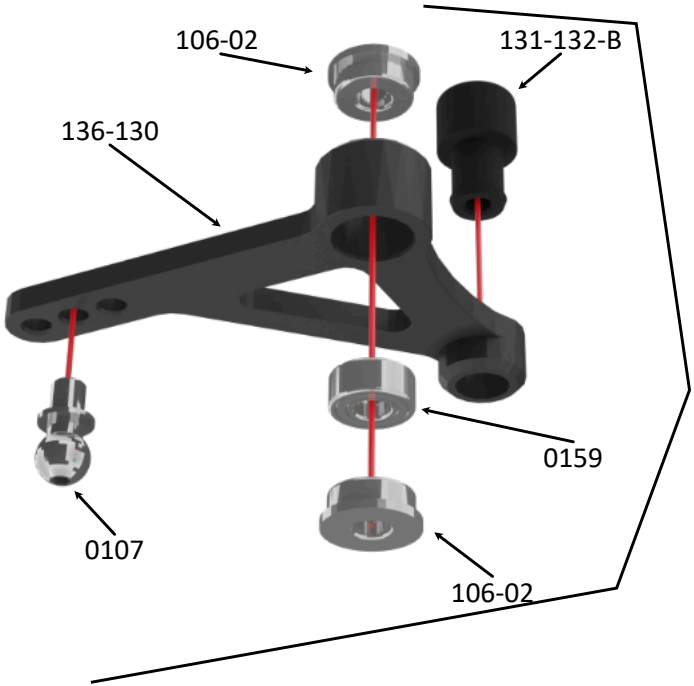
0273

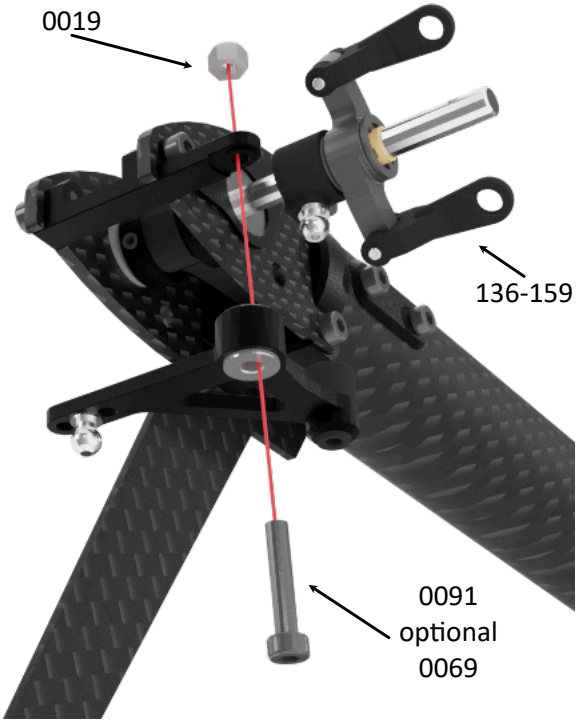
M6 x 10 x .28mm

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.

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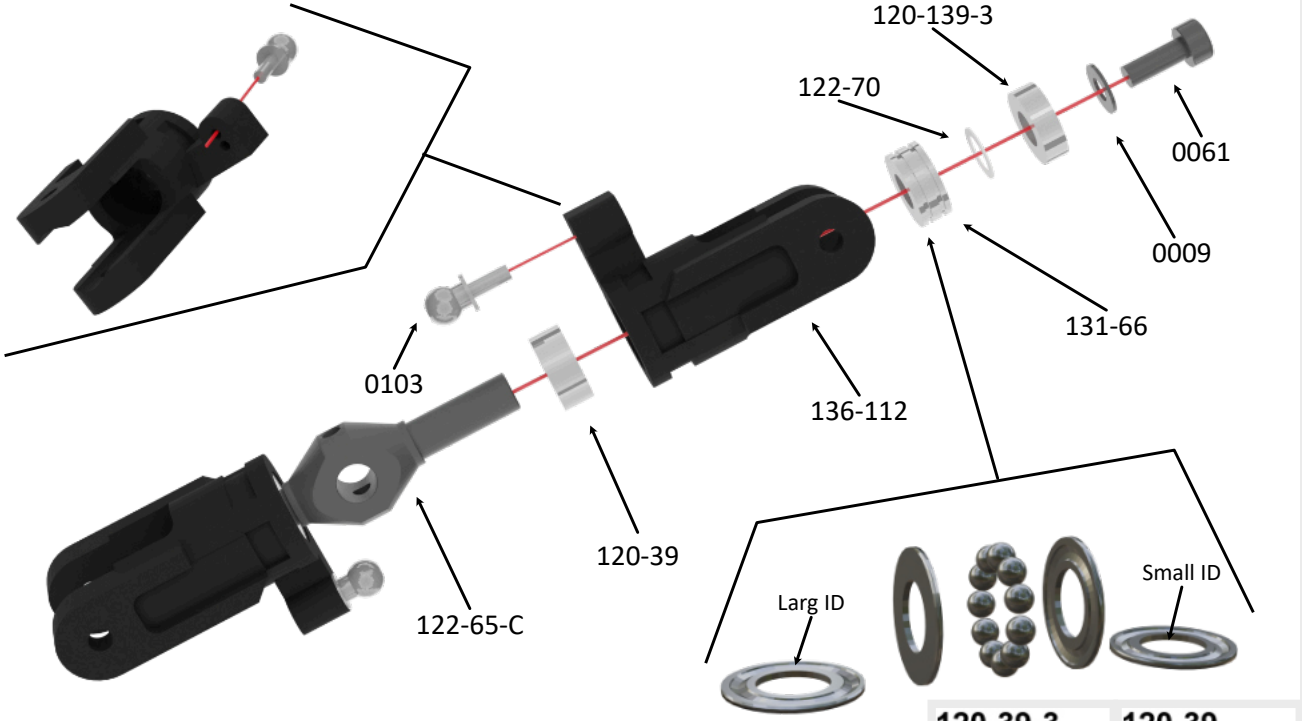

Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.
Apply some synthetic grease to 131-66 bearings.

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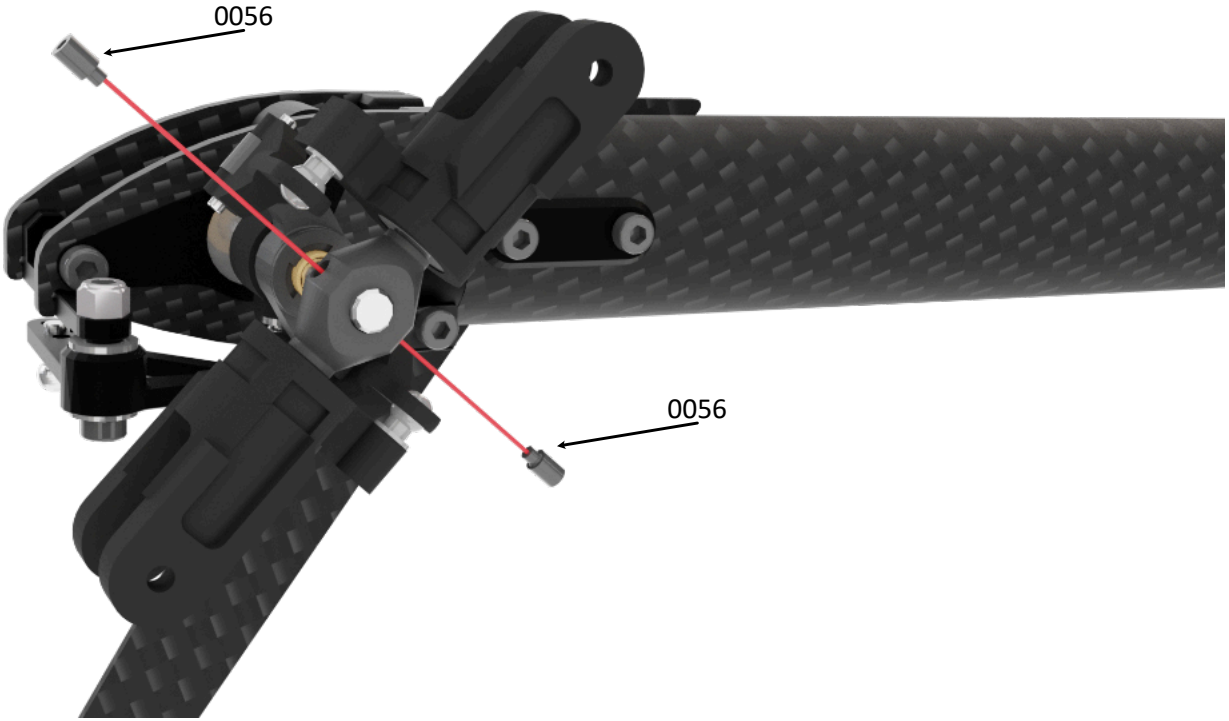
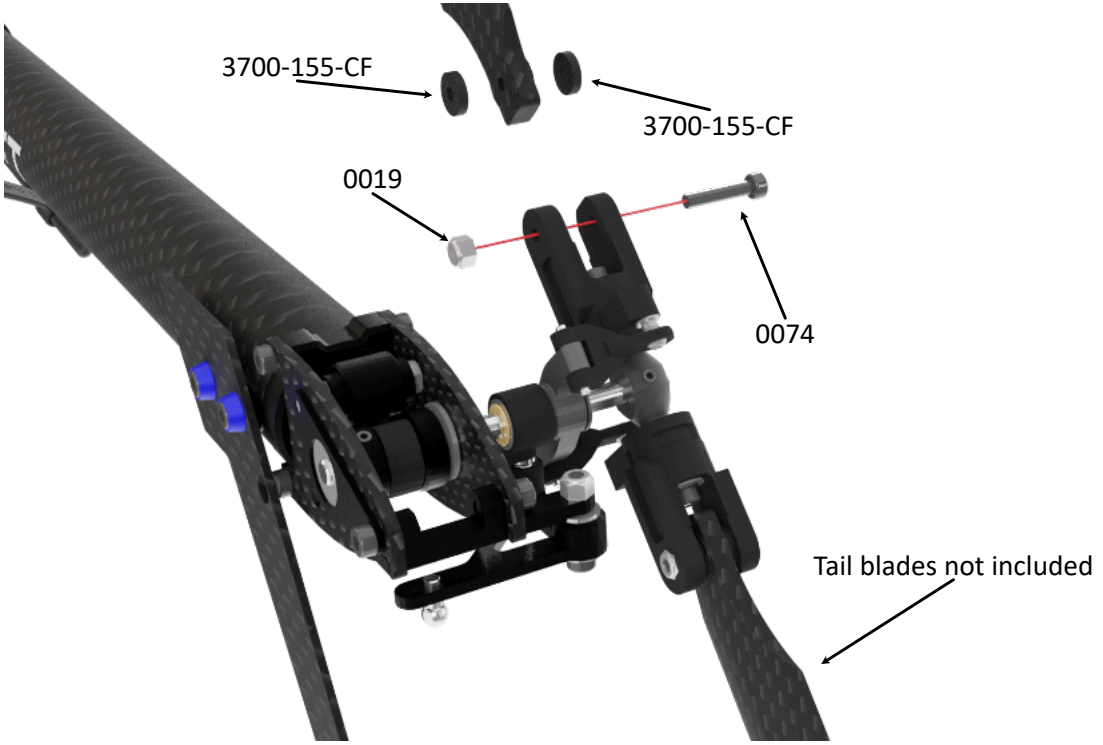


0056

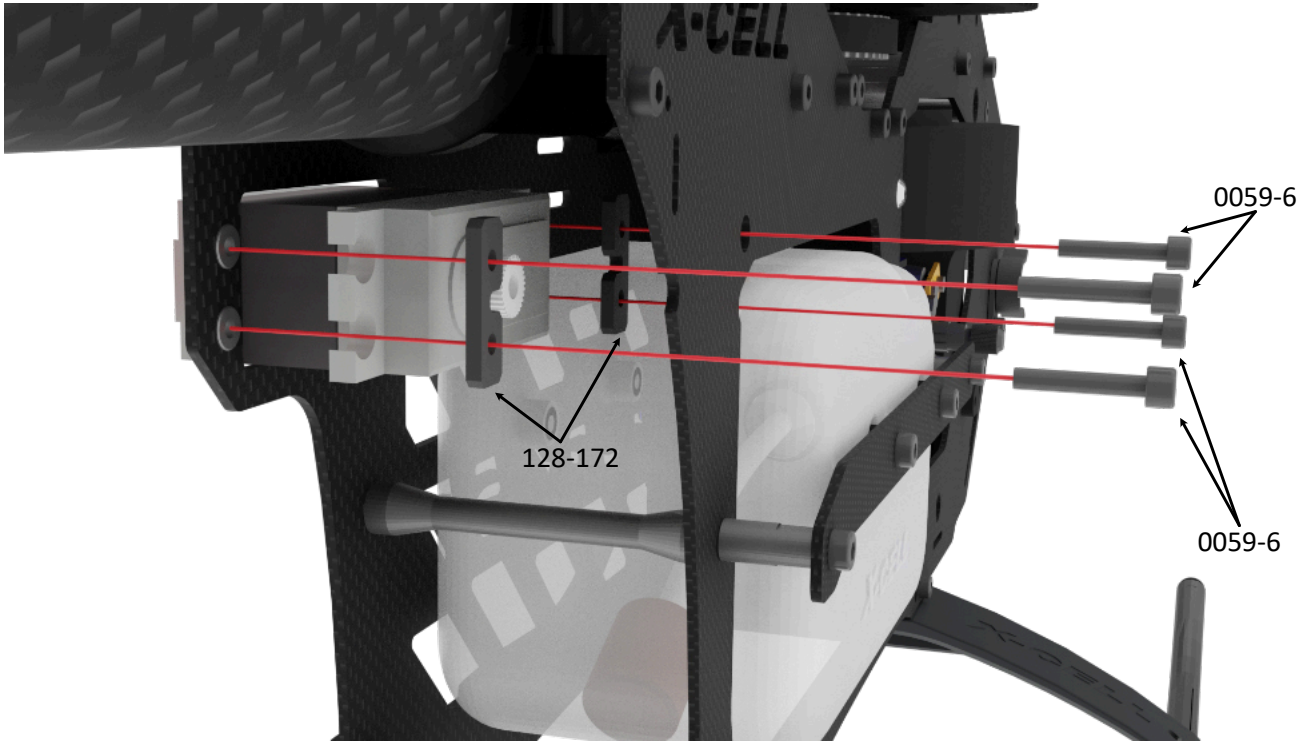
M3 x 5mm

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.



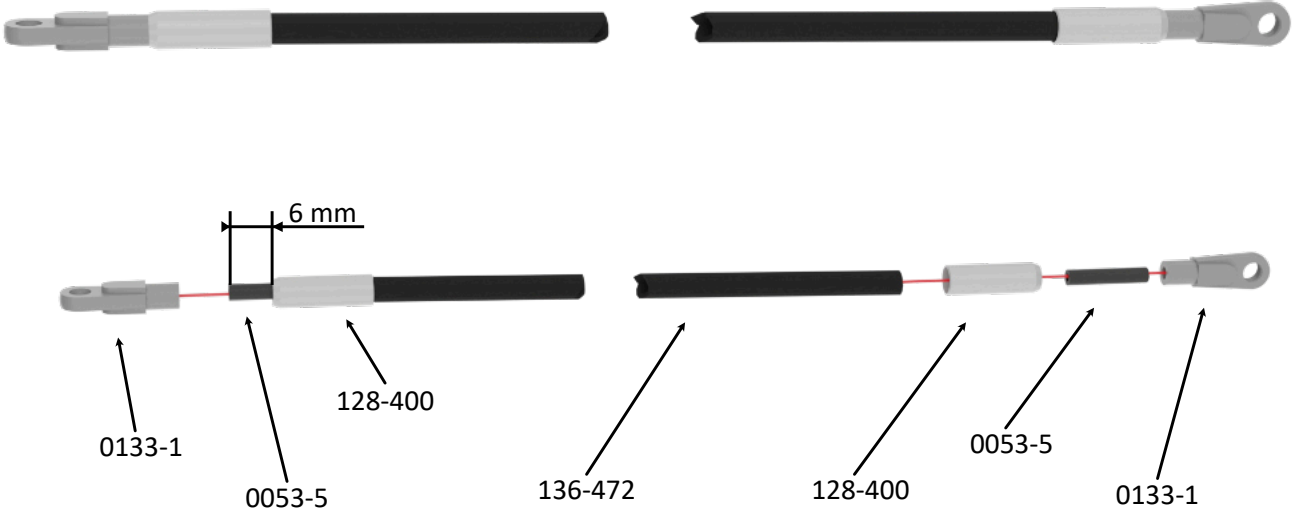
Apply a small amount of medium thread lock when threading into metal parts.



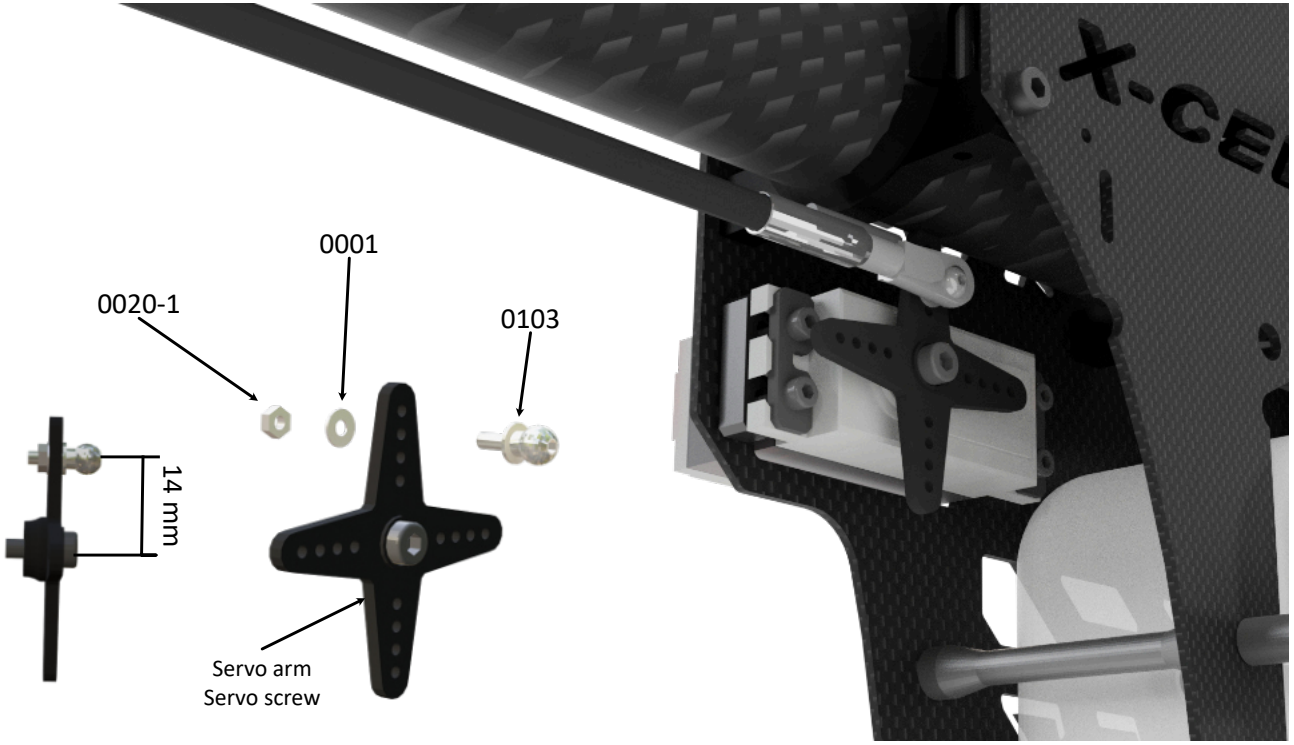

0059-6

M2.5 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.



0103

M2 x 5.3

0020-1

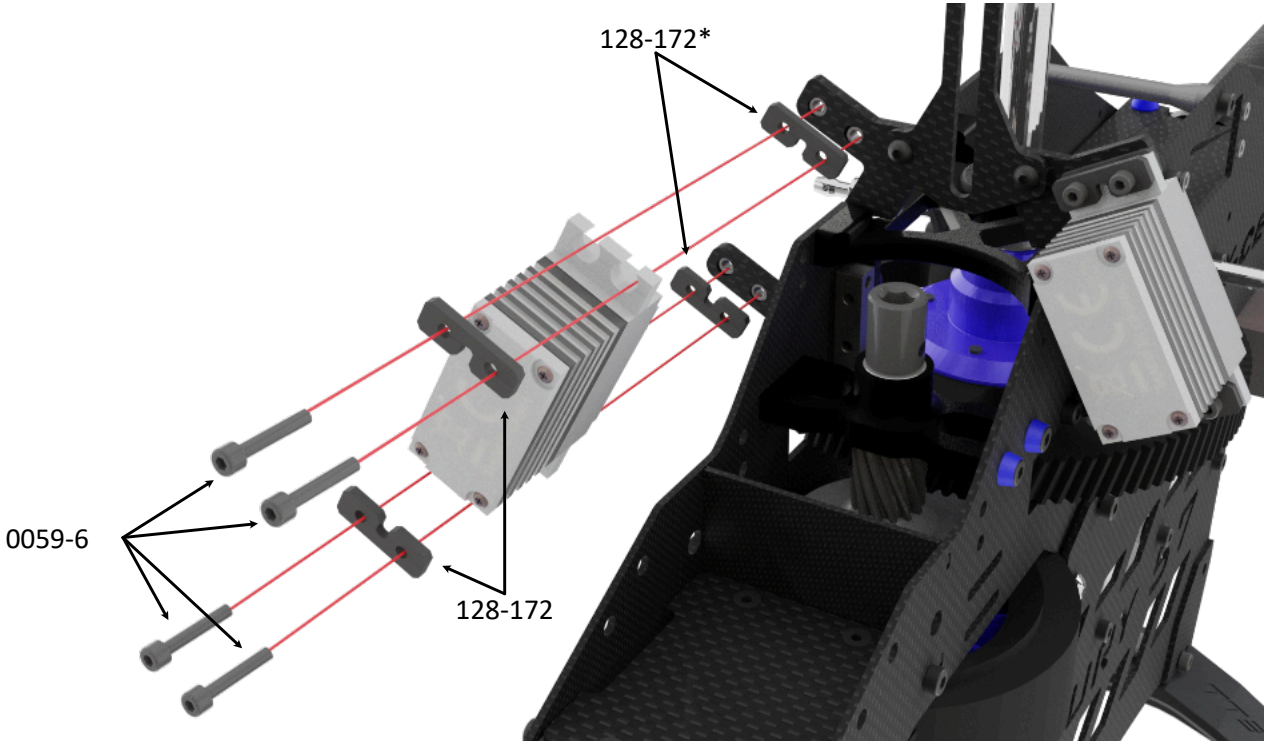
M2

0001

M2

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

Assembly Tip: Read servo manual for installing servo screw.

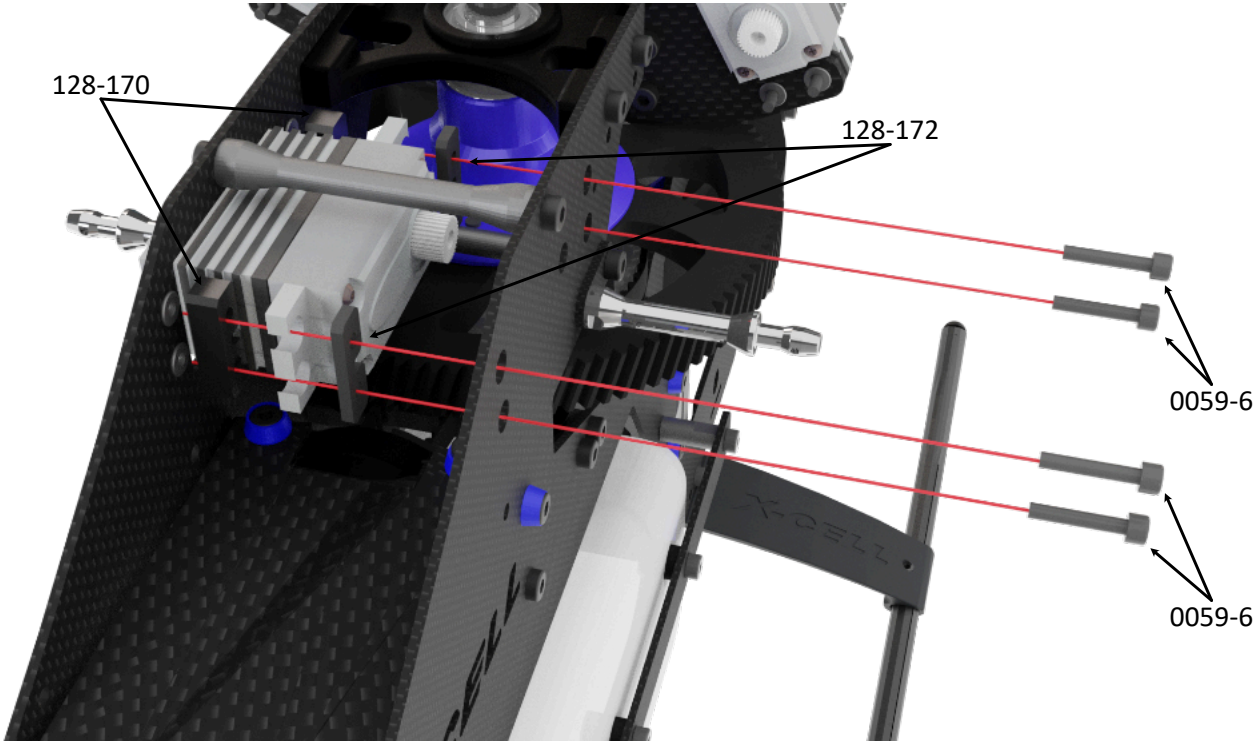


0059-6

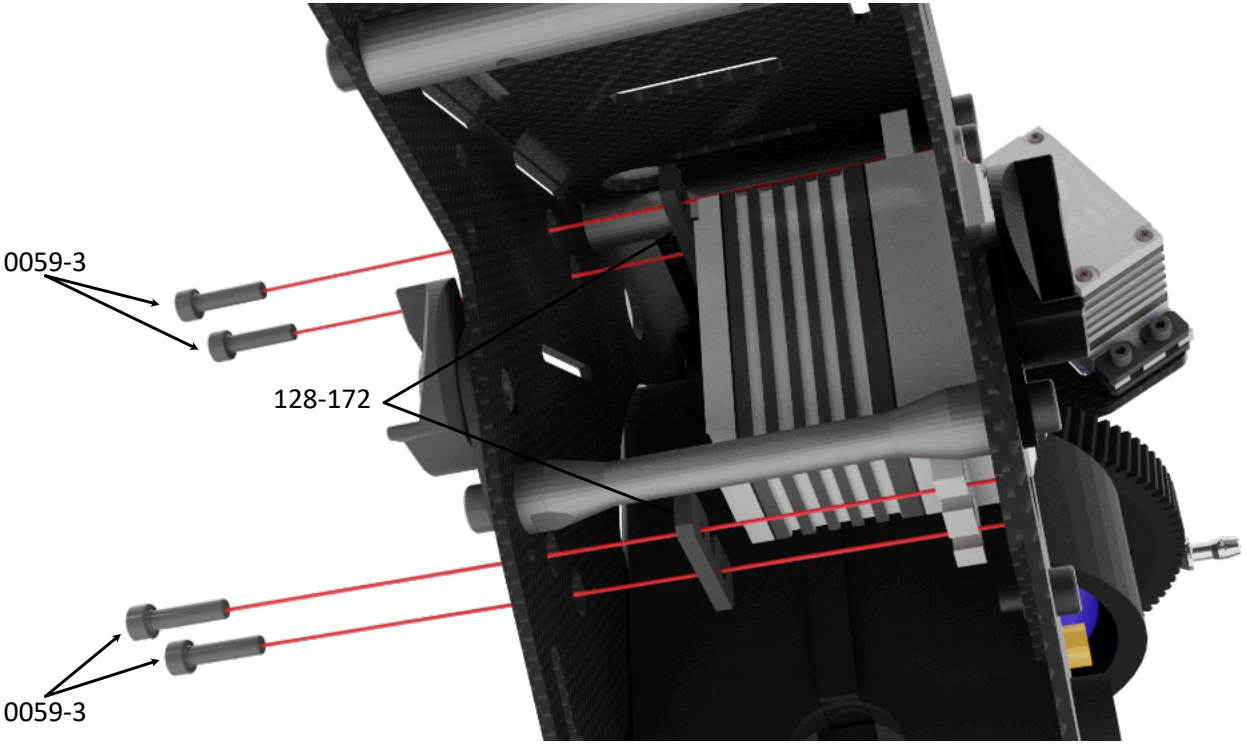
M2.5 x 16mm

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

* MA128-172 Servo Spacers are included for proper servo linkage alignment, if required.



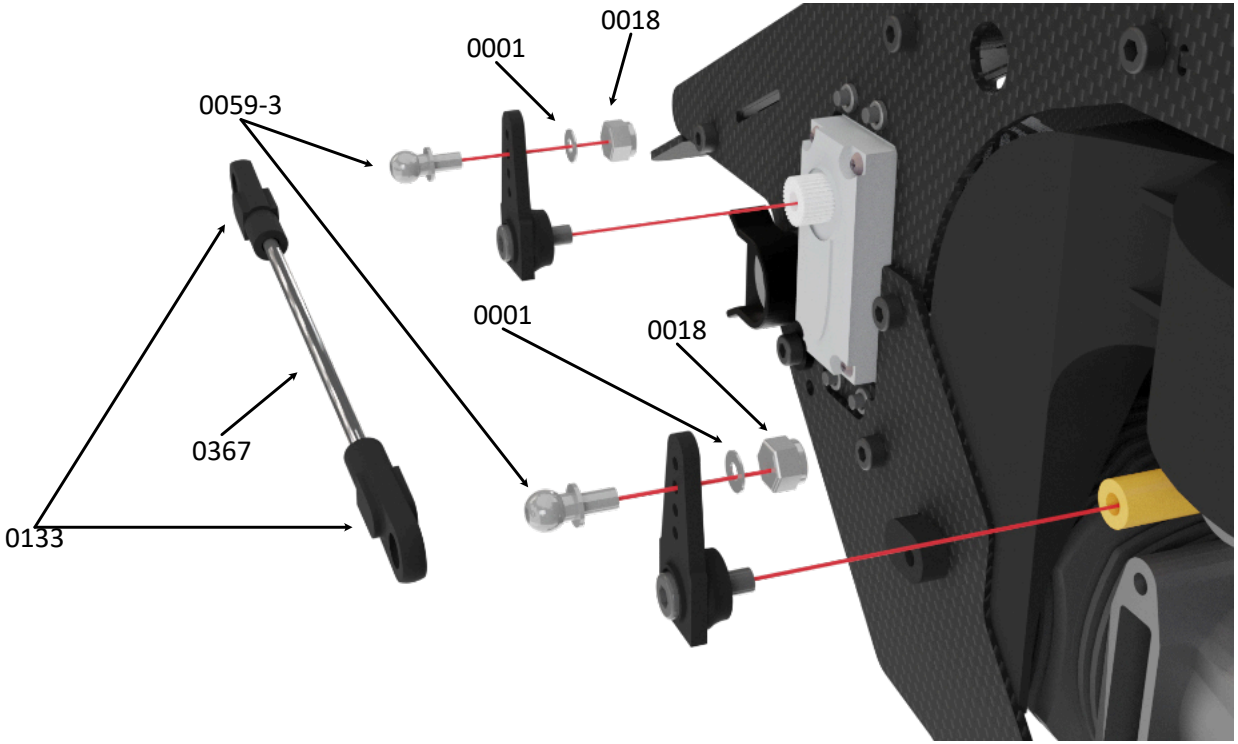

Apply a small amount of medium thread lock when threading into metal parts.



0059-3

M2.5 x 10mm

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



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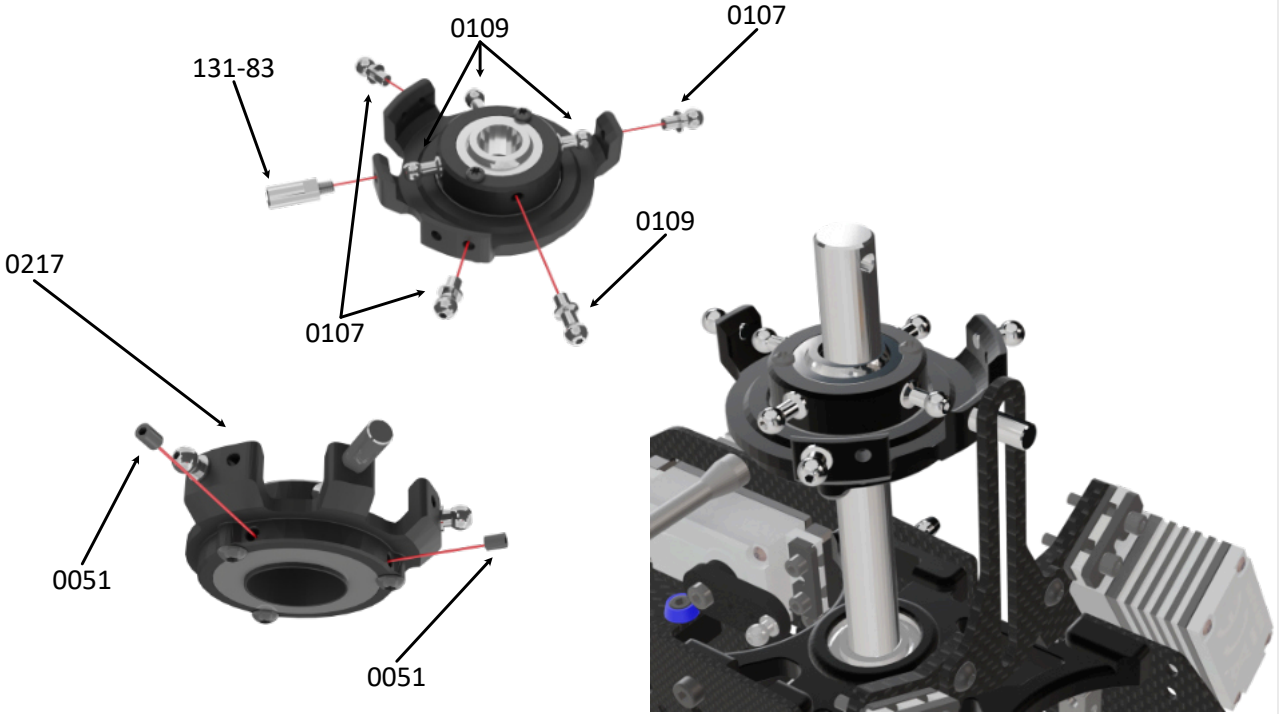
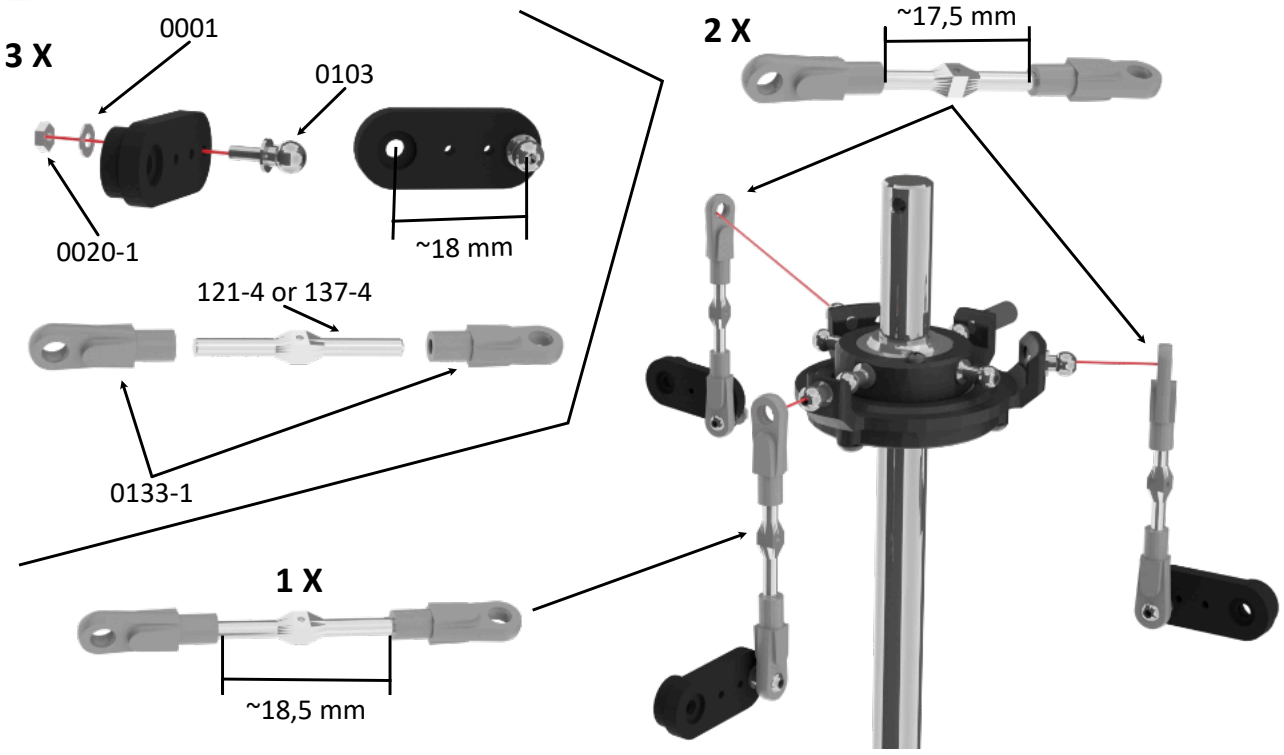
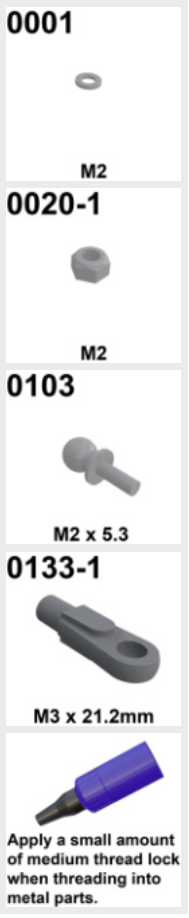
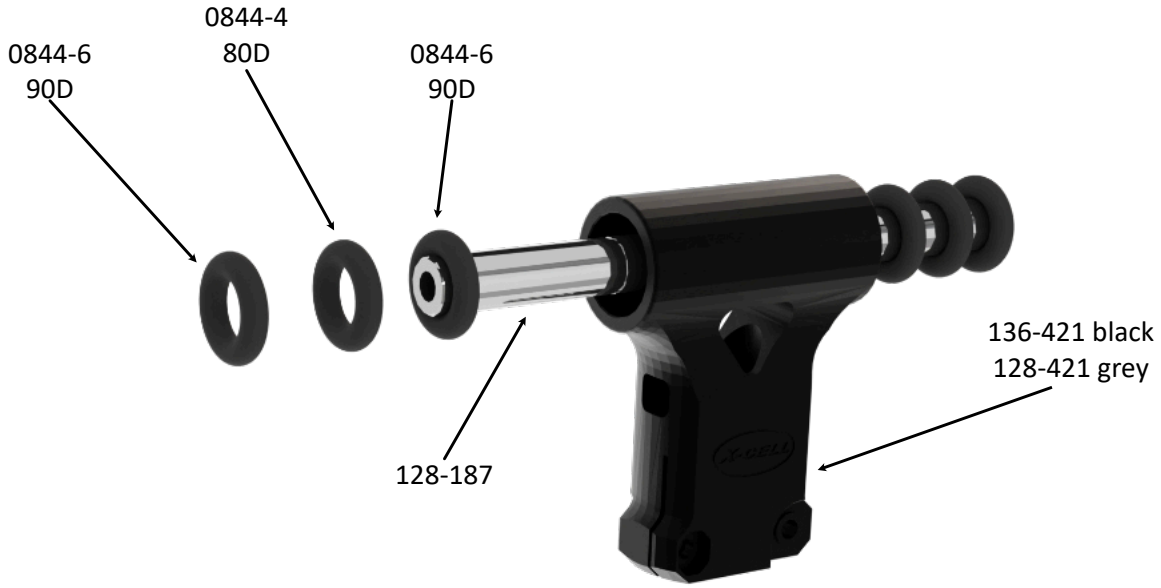


Thread in the MA0051 m3x3 socket set screwsinto the base of the swashplate only until they bottom out against the lower bearing. They are only used to apply slight pressure on the bearing to remove any play associated with bearing wear. If too much pressure is applied with the MA0051 m3x3 socket set screws, the bearing will feel.

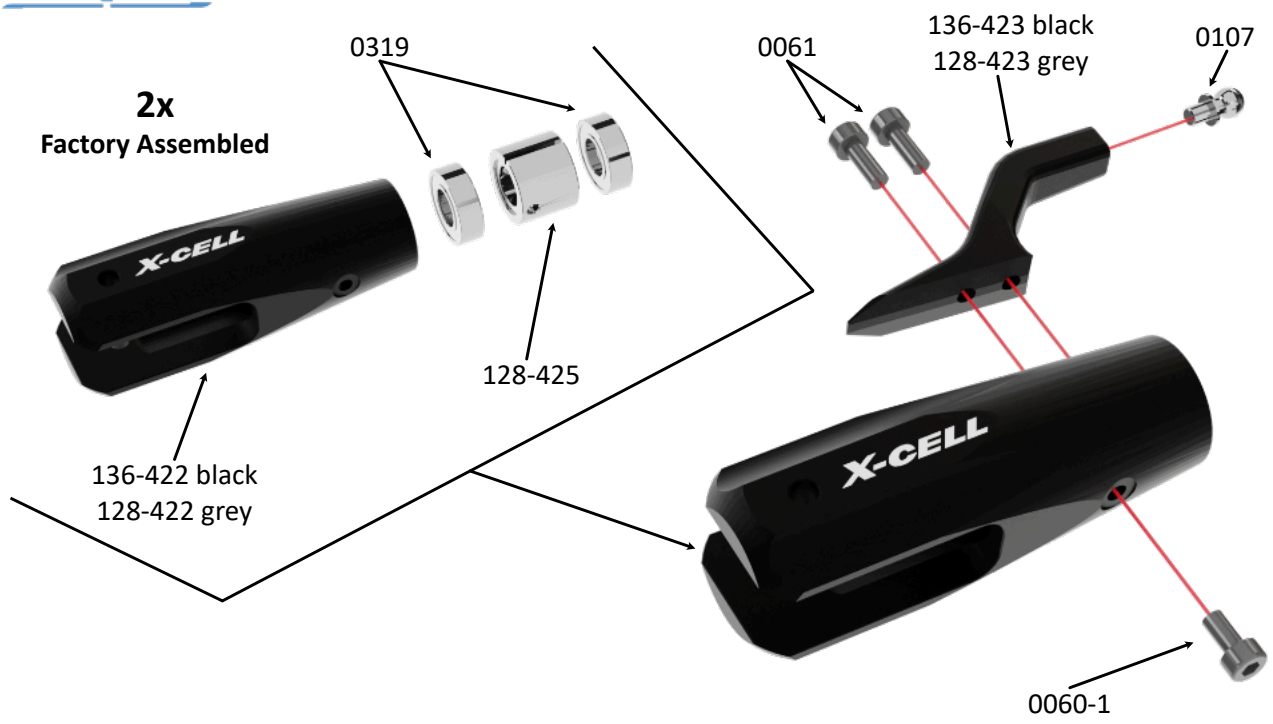




Use of heavy duty servo arms is required on the cyclic servos.
On the Fury it is very important to mount the threaded controll ball 19-20mm from the center of the servo spline.



Assembly Tip: Apply some grease, vaseline or tallow to the o-rings and to the spindle shaft. The picture above shows a typical setup for dampening. If you do sport flying you can use two or three 80D o-rings on each side also.



0060-1

M3 x 6mm

0061

M3 x 8mm

0107

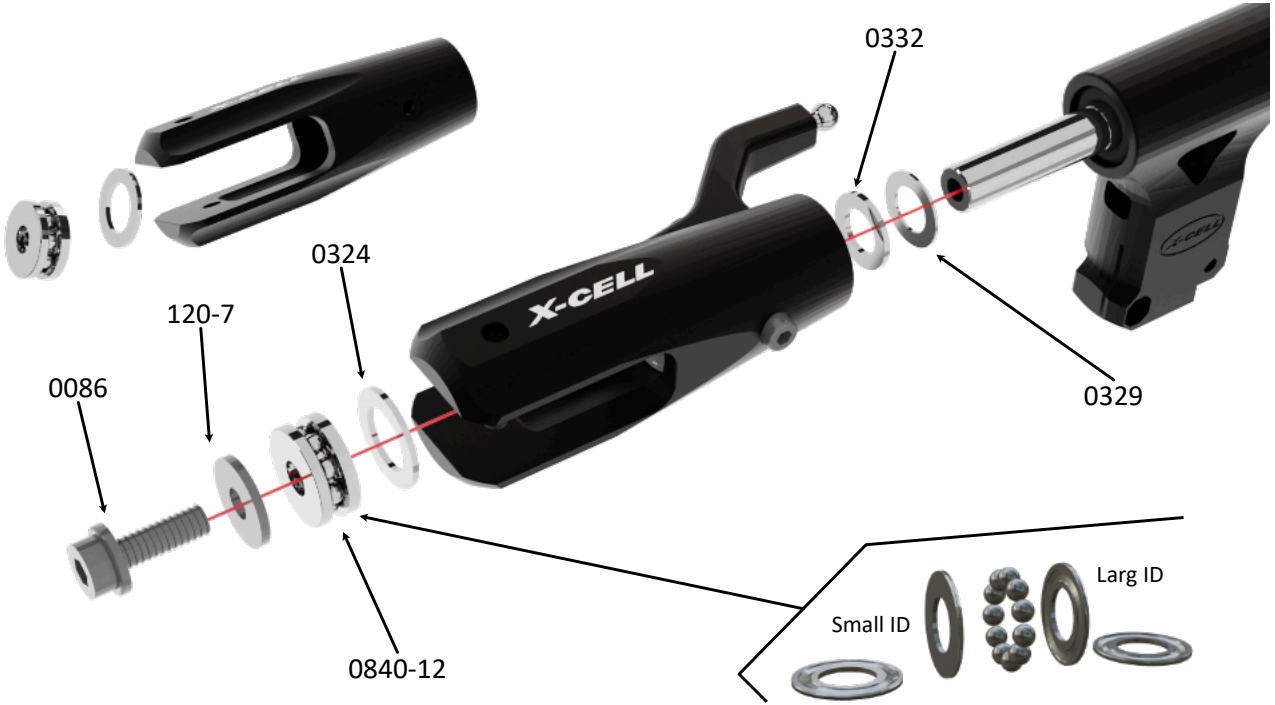
M3 x 6mm

0319

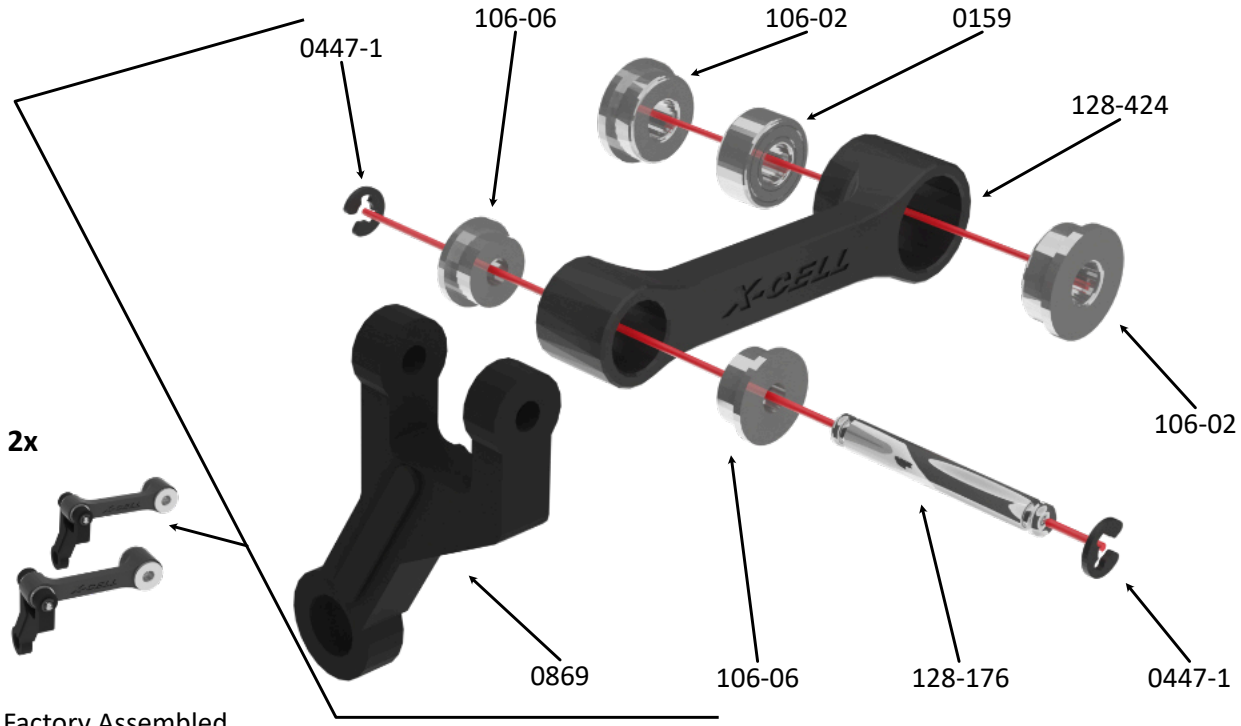
M8 x 16 x 5
Ball Bearing

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.



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



106-02

M3 x 7 x 3
Flanged Bearing

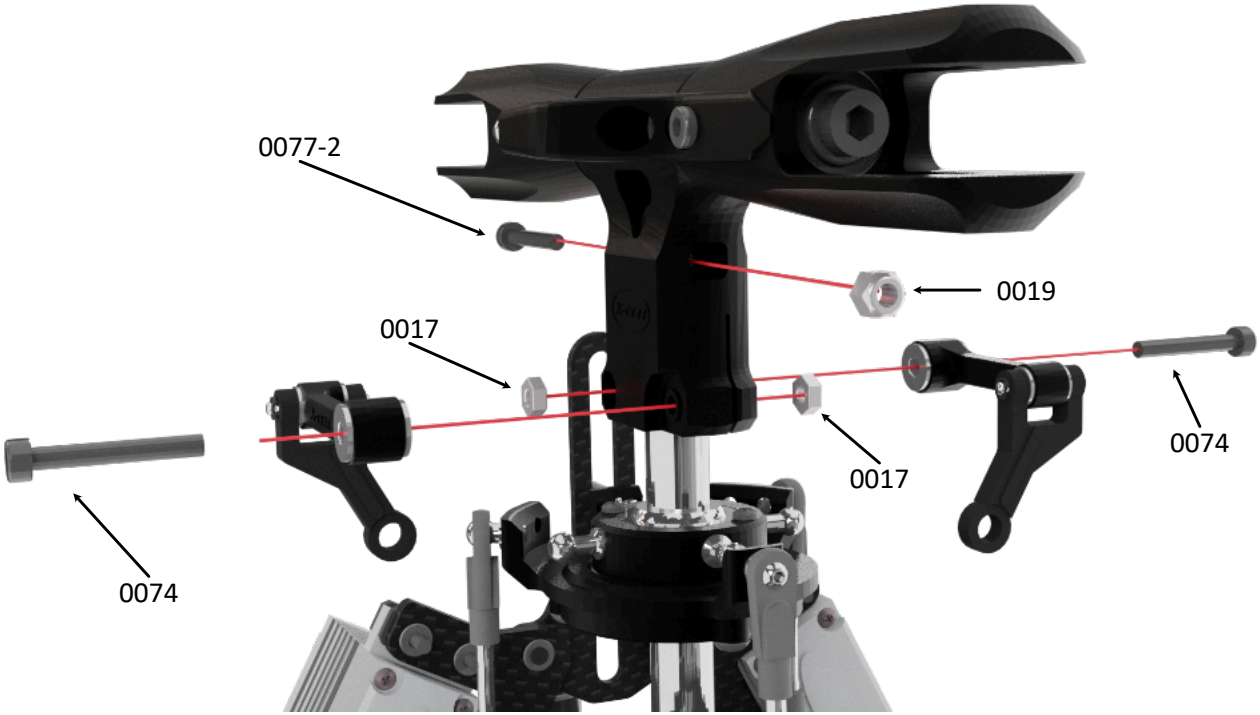
0159

M3 x 7 x 3
Ball Bearing

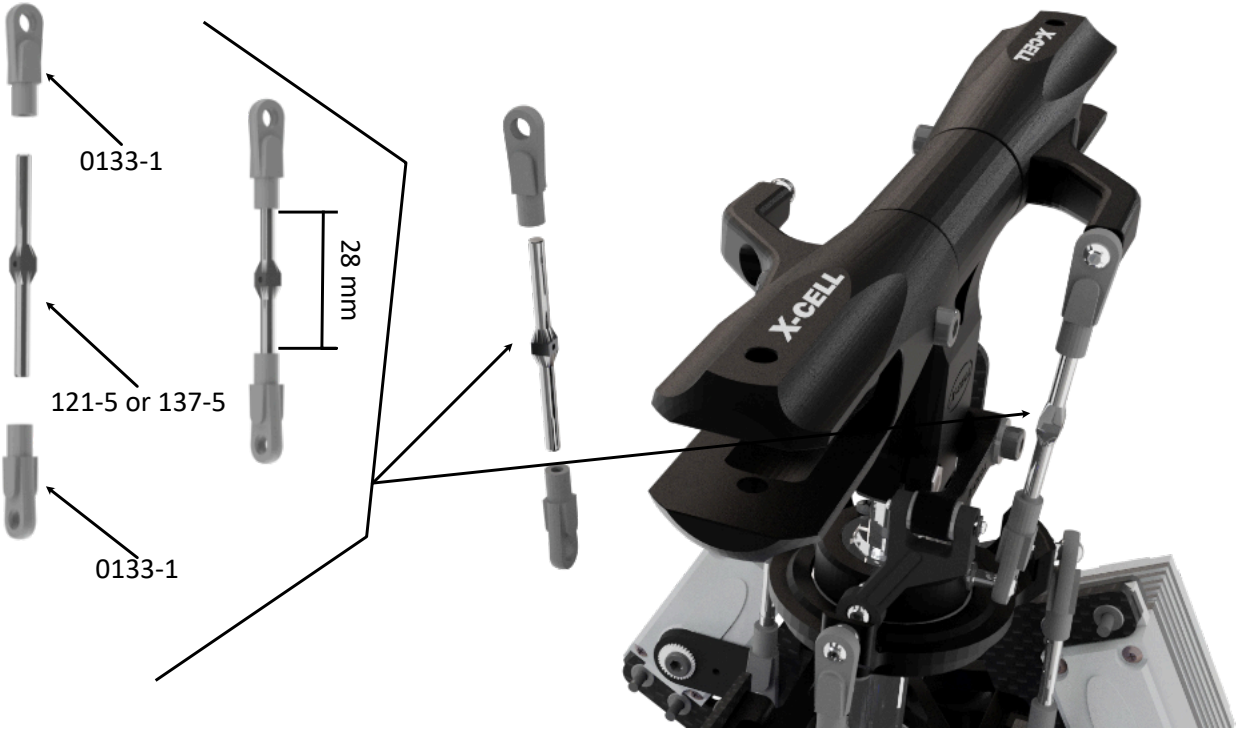
106-06

M2 x 5 x 1,5
Flanged Bearing

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



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.



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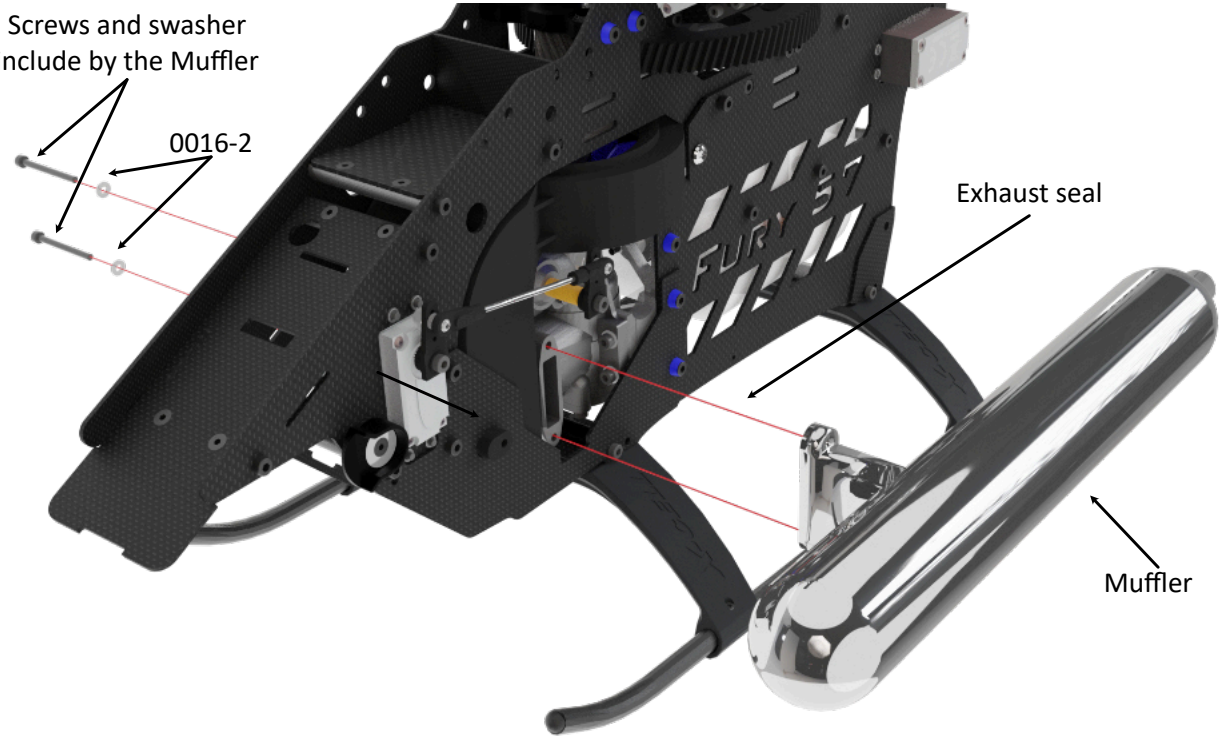
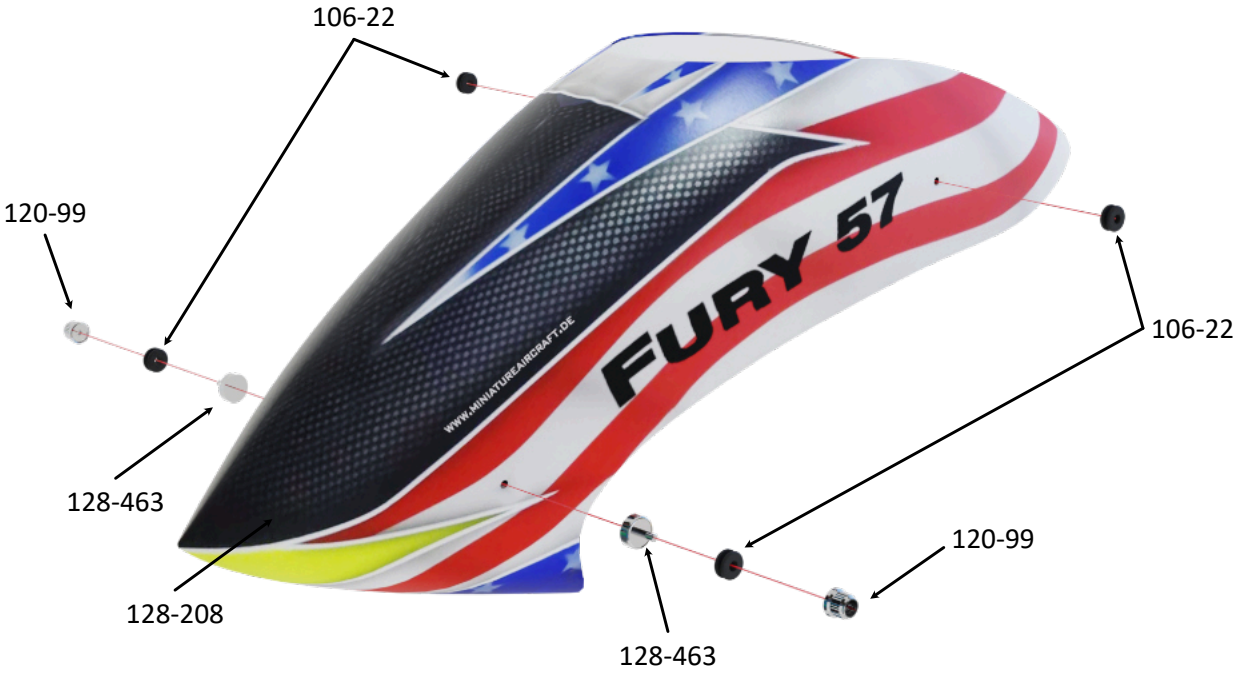


0016-2

M4

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.

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.