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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.



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, OS 15HZII Gasser.
- 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



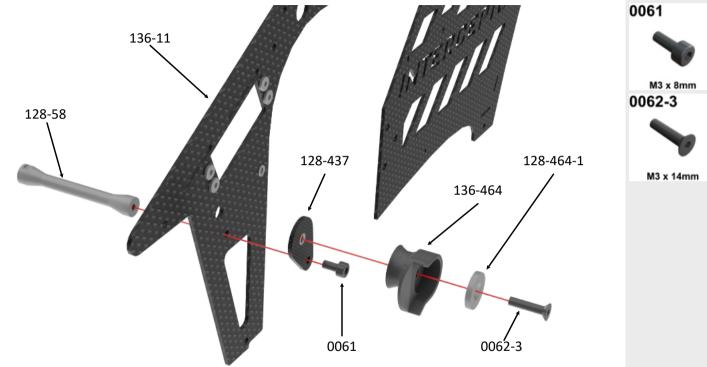
Important Assembly Tips

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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INTERCEPTOR MANUAL

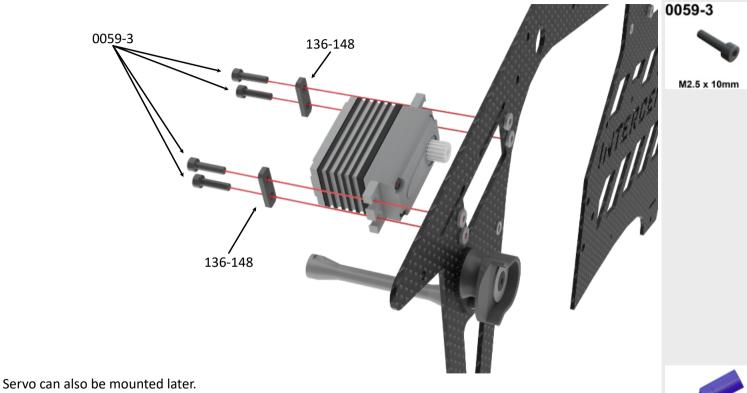


Assembly Tips:

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.

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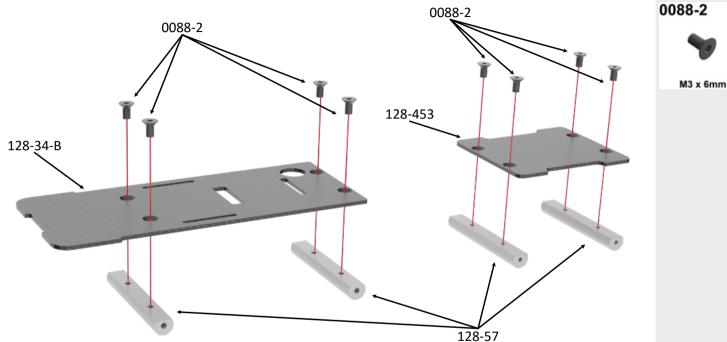




Apply a small amount of medium thread lock when threading into metal parts.

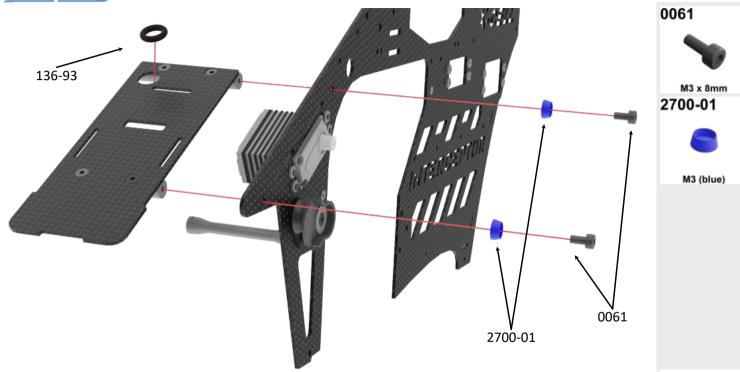
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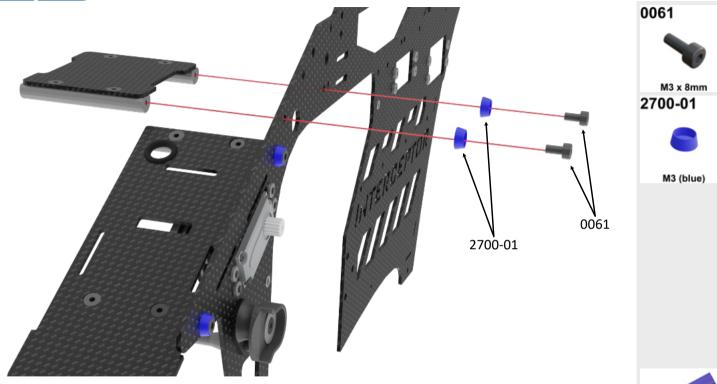
Apply a small amount of medium thread lock when threading in to metall parts.



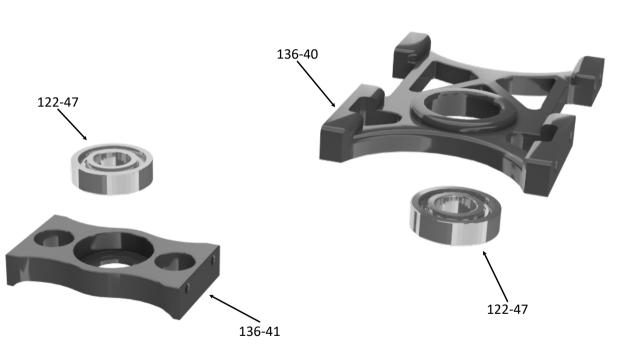


The caps (2700-01) are also available in red and green. Color shipped wit the kit depends on the canopy design.









Factory Assembled



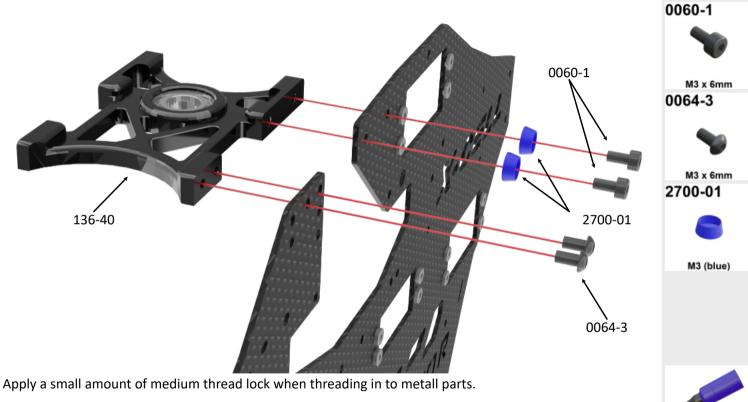
122-47

M10 x 22 x 6

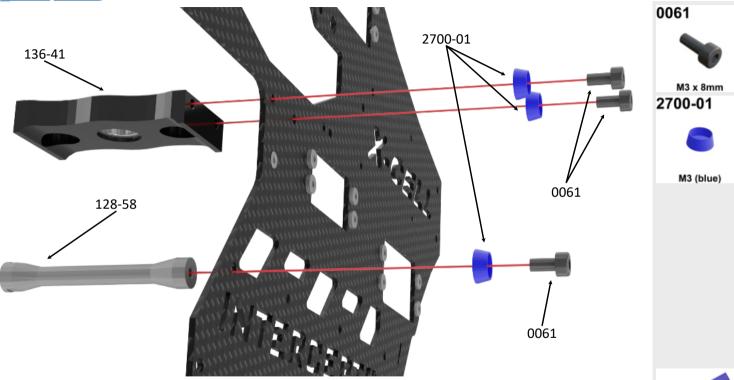
Sealed Bearing

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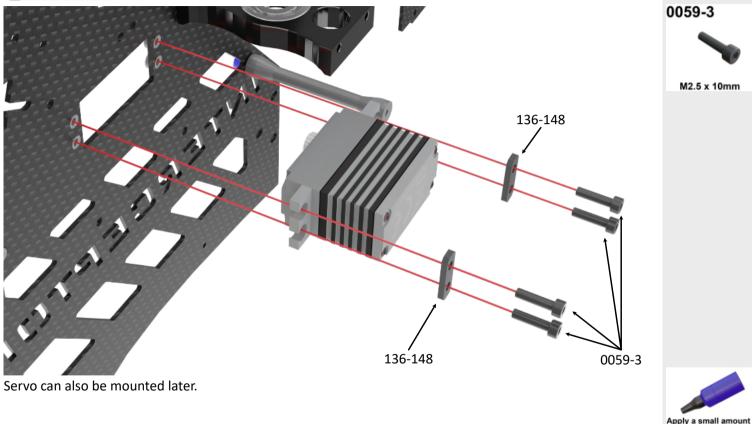




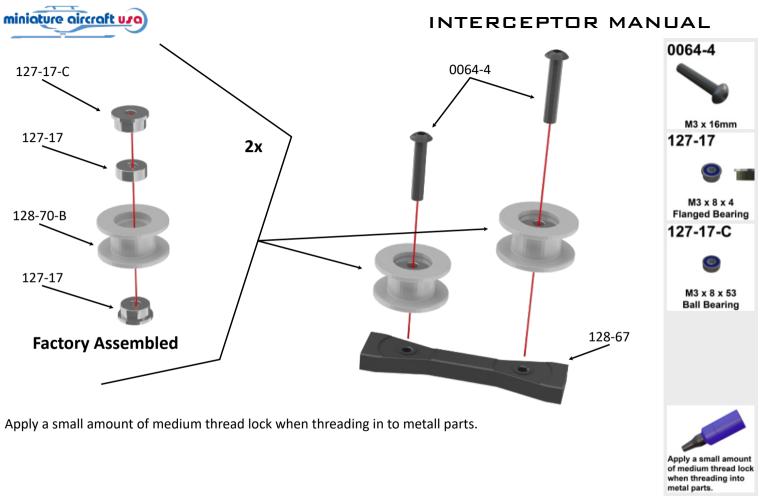
Apply a small amount of medium thread lock when threading in to metall parts. For this assembly step put the mainshaft into both bearing blocks temporarily to ensure that the bearing blocks are aligned well.



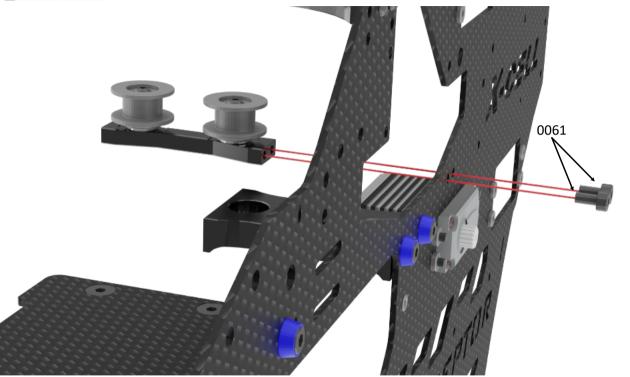
of medium thread lock when threading into metal parts.



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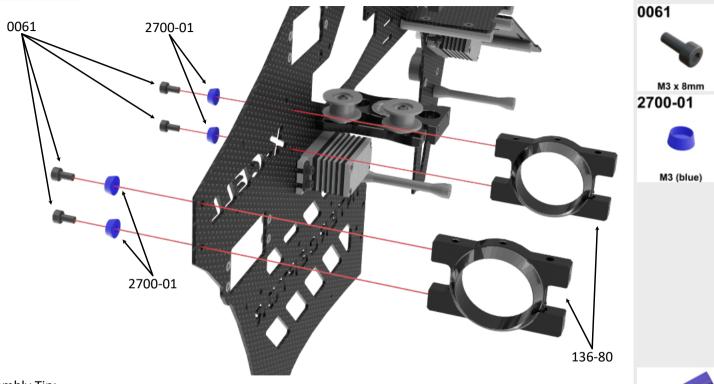
Assembly Tip: Align the belt idler mount that the belt idlers are parallel to the main shaft.



0061

M3 x 8mm



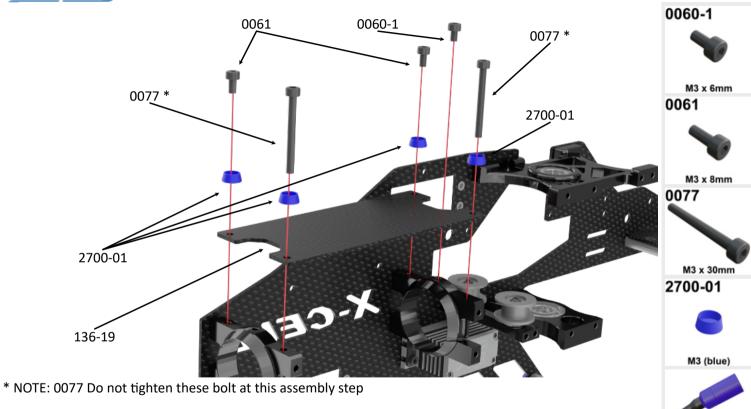


Assembly Tip:

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.

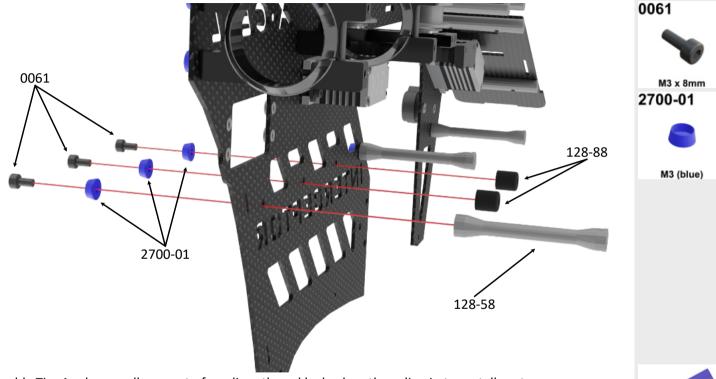
Apply a small amount of medium thread lock when threading into metal parts.





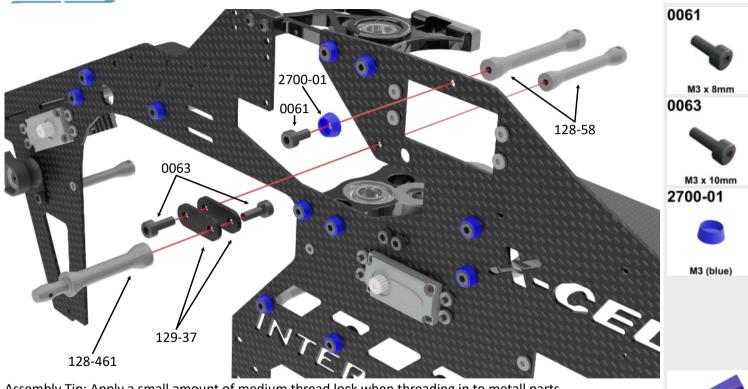
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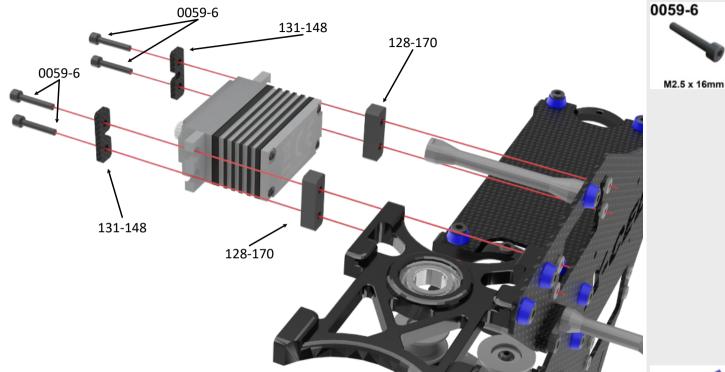
Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.





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

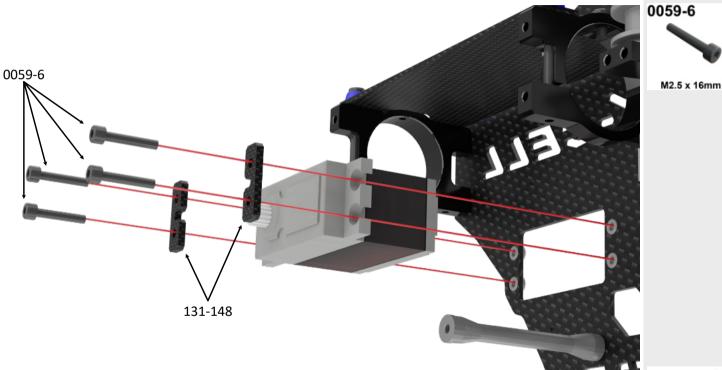




Servo can also be mounted later.



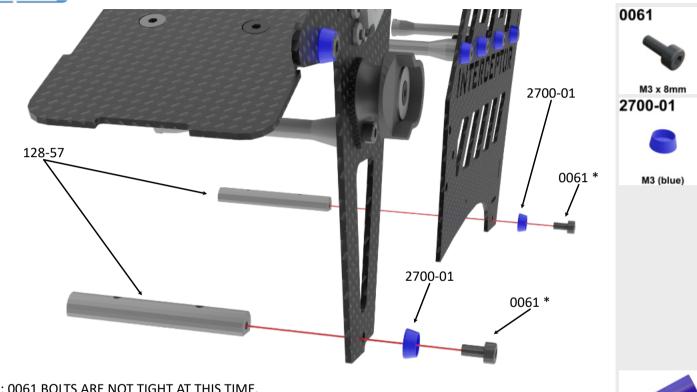




Tail Servo can also be mounted later.

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

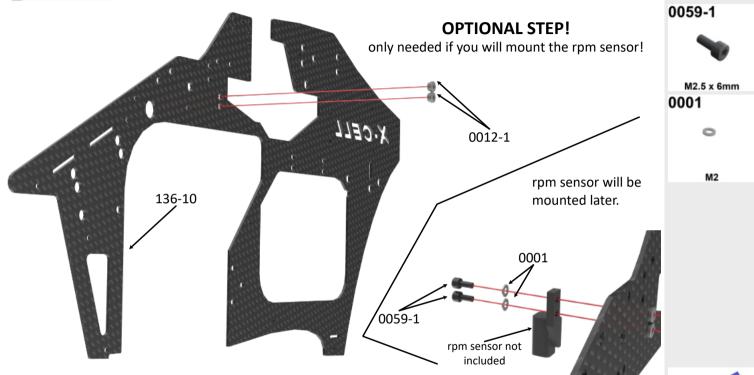




* NOTE: 0061 BOLTS ARE NOT TIGHT AT THIS TIME.

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It is highly recommended to use a governor.

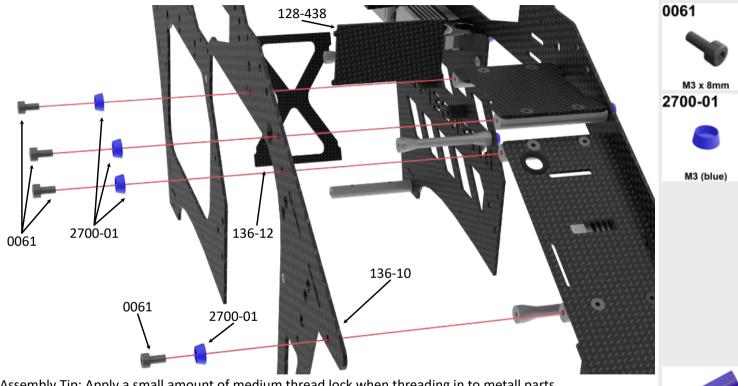
To install a rpm sensor press in the pem nut inserts into the right frame.

The rpm sensor will be mounted later.

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

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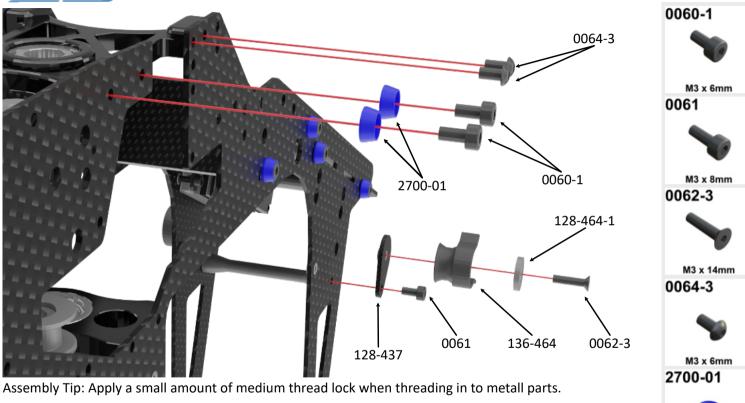




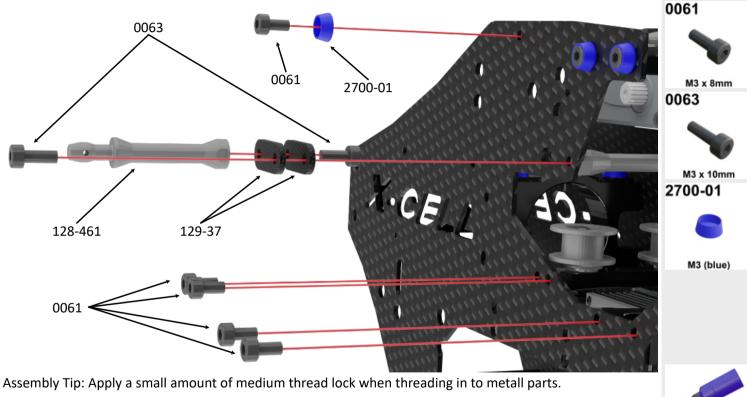
Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



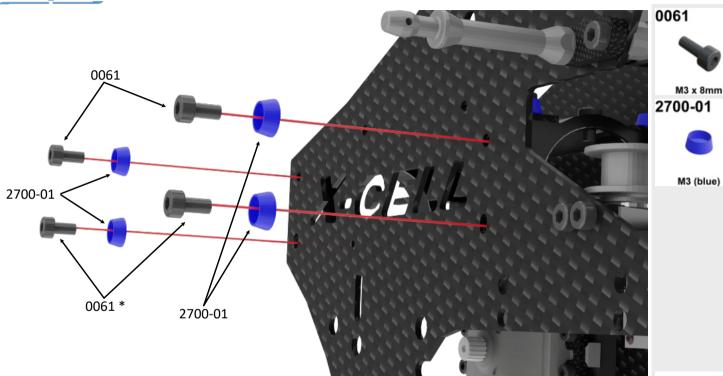
M3 (blue)





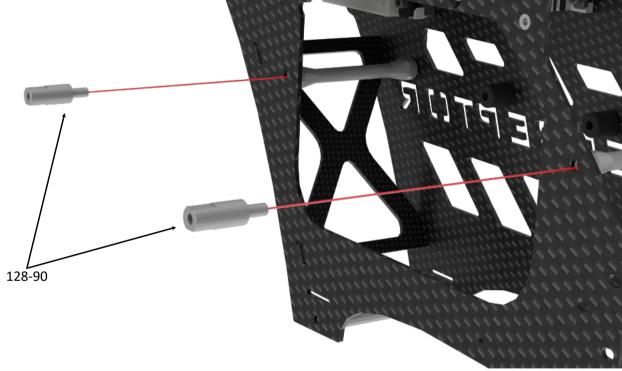






* NOTE: 0061 BOLTS ARE NOT TIGHT AT THIS TIME. Remove later to install boom if necessary.

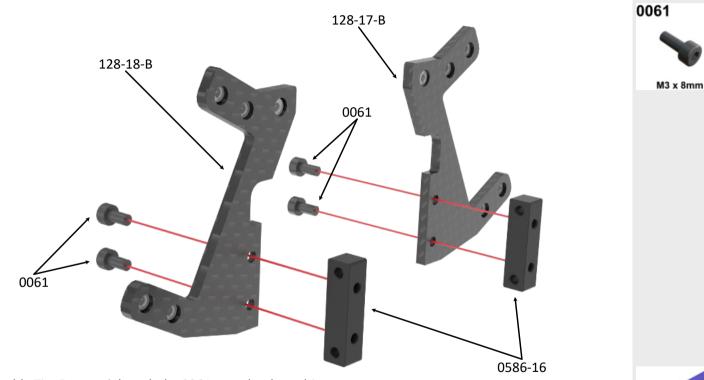




Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

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

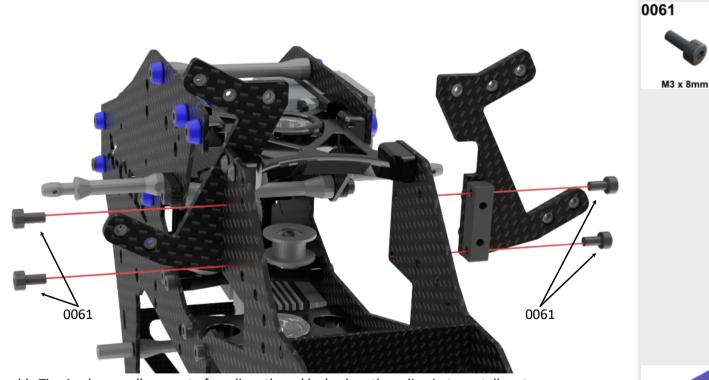




Assembly Tip: Do not tighten bolts 0061 completely at this step. After installing part 128-316 check alignment of all parts and then tighten all bolts.

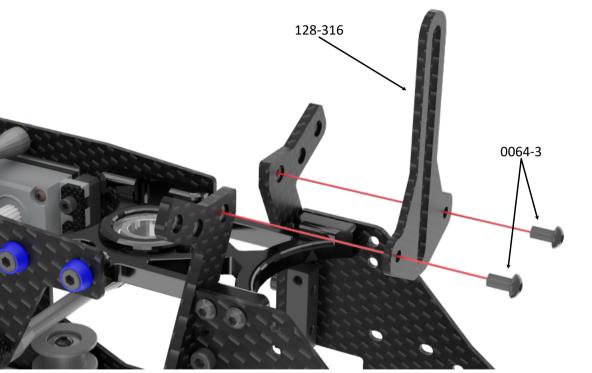
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Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.





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

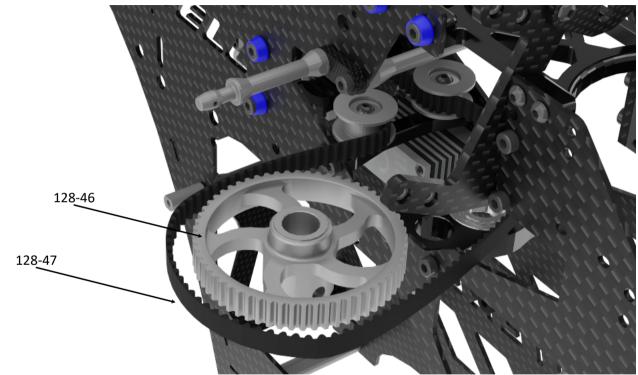


0064-3

M3 x 6mm

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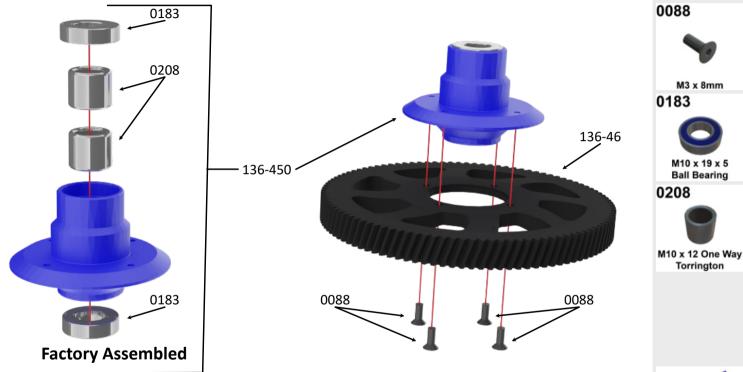




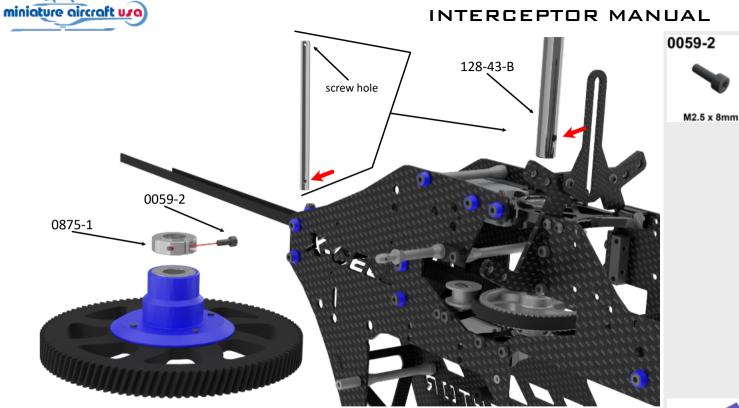
Assembly Tip: M5 threads of pulley face to the bottom of the helicopter.

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

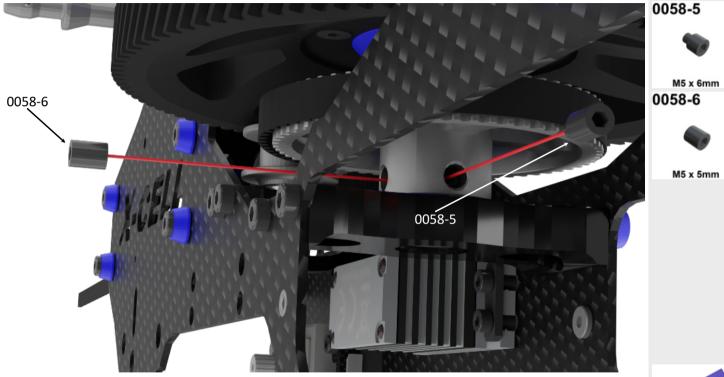


Assembly Tip: put a small amount of synthetic grease into the one way bearings of part 136-450 before installing the main shaft. Take care about the orientation of the main shaft. The through hole faces to the top of the helicopter.



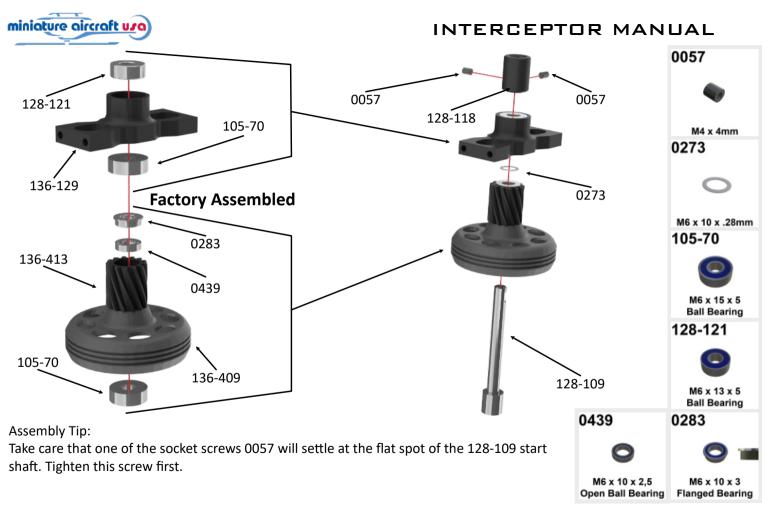
Apply a small amount of medium thread lock

when threading into metal parts.



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.



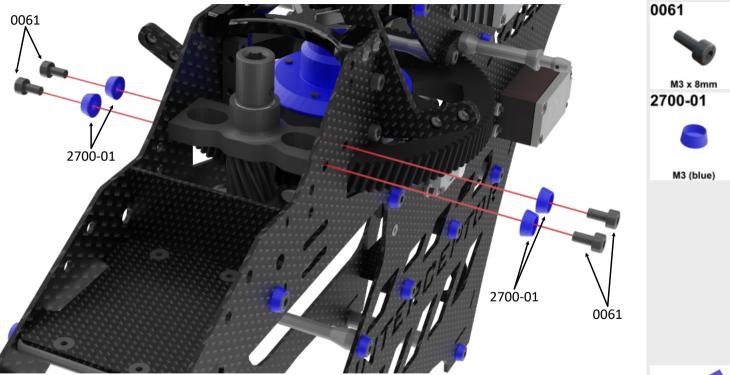
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Apply a small amount of medium thread lock

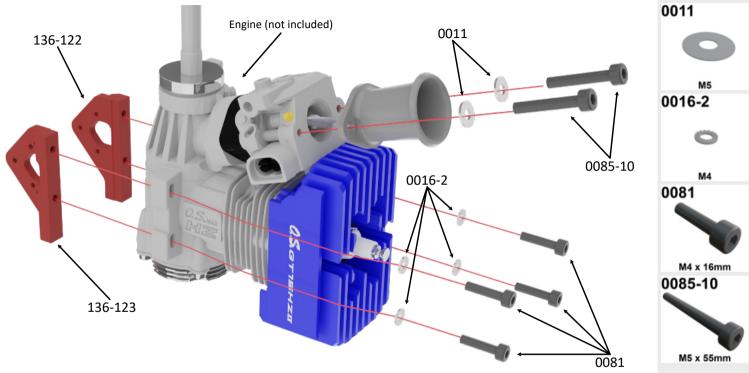
when threading into

metal parts.



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.



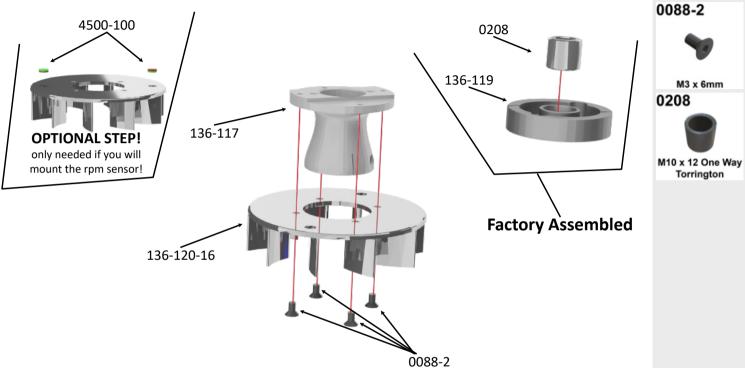


Assembly Tip:

Do not apply thread lock at 0085-10 screws of the carburetor.

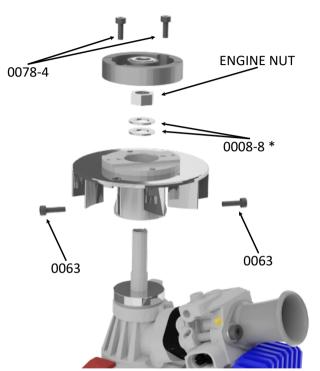
Do not tighten bolts 0081 at this assembly step. The parts 136-12x shall sit on the on the engine without play but still be moveable up and down.





If using a governor sensor install the magnets at the fan. Take care of the orientation. On shall be facing up "North" the other shall be facing up "South". Use some high quality two-component epoxy like UHU 300 and let it harden. The magnets are included in the Interceptor kit. Always install both magnets to ensure a well balancing.





Use crankshaft clamp tool O.S. 71530530 to hold crankshaft while tightening.

Take care for correct orientation of the tool to not damage the piston of the engine.

Follow instructions of the engine manual.

* 0008-8 second shim is optional.





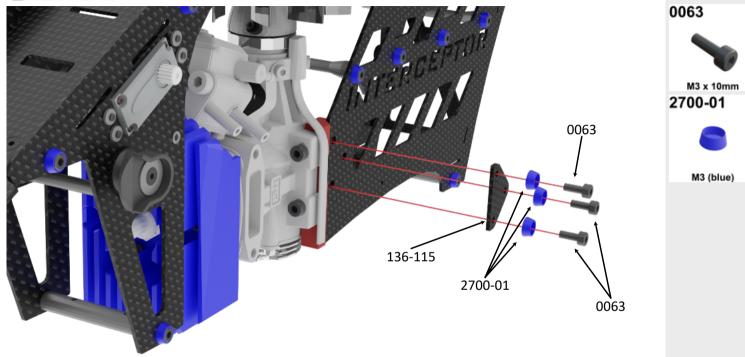
M3 x 10mm 0078-4



M4 x 8mm

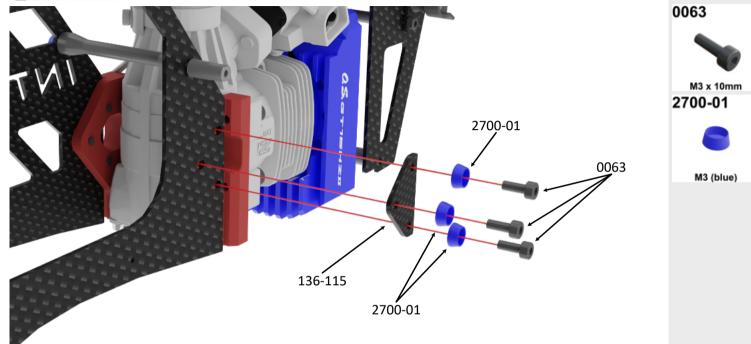
When installing the fan assembly to the engine then first apply a small amount of medium thread lock to the engine nut and tighten it slightly that 136-117 will be pulled down to sit on the aluminum disk of the engine. Then tighten bolts 0063 (also use medium thread lock at these bolts). Then tighten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





Assembly Tip: Do not completely tighten the bolts 0063 at this assembly step. The engine shall be still moveable forward and backward.

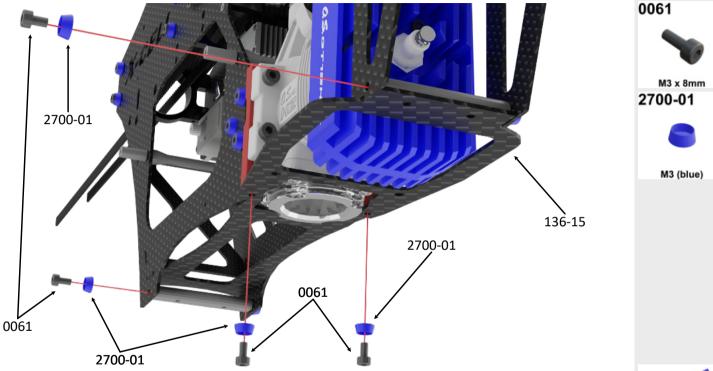




Assembly Tip: see previous page



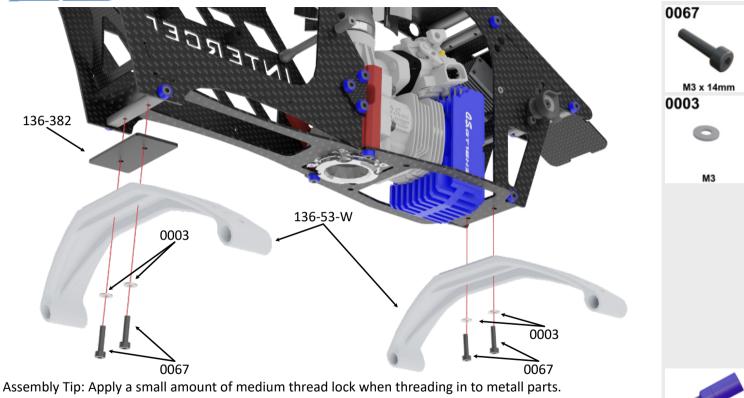




Assembly Tip: Do not completely tighten the bolts 0061 at this assembly step. The engine shall be still moveable forward / backward and up / down. Move the engine up til the clutch and clutchbell align. Tighten the bolts 0081. Turn the startshaft clockwise and move the engine forward/backward until the startshaft can be turned easy without force. Try to find the optiaml position. Then tigthen Bolts 0061 and 0063.

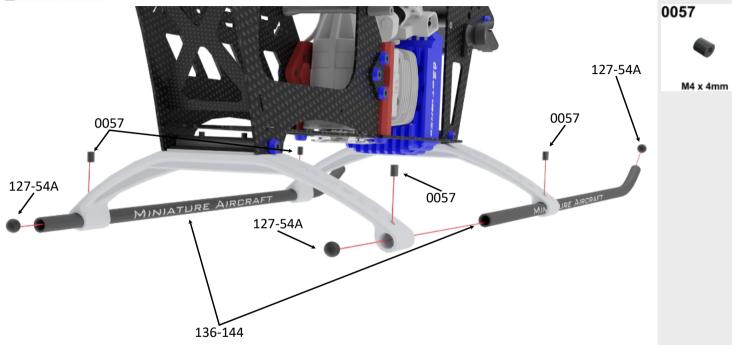
Apply a small amount of medium thread lock when threading into metal parts.





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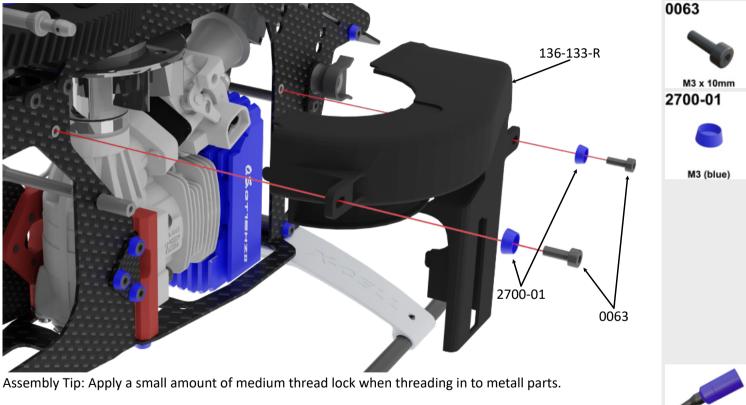




The color of the skids and strutts which will be shipped with the kit depends on design of the canopy

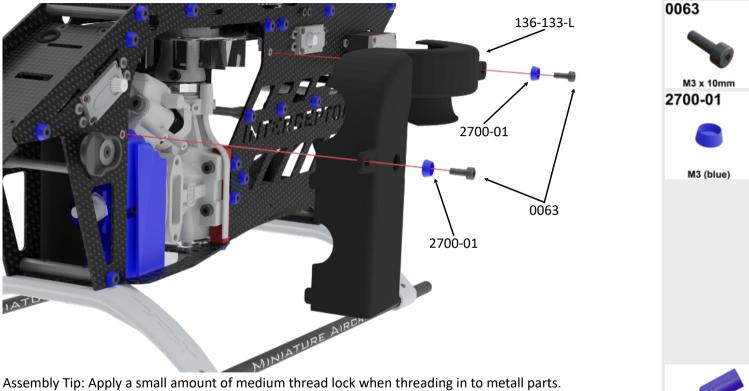






Check that fan shroud left and right fit together.

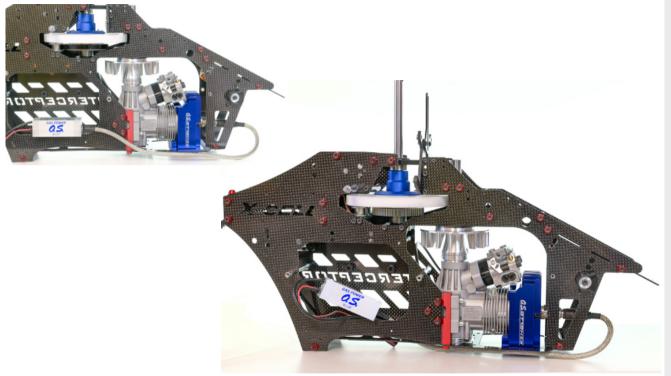




Check that fan shroud left and right fit together.







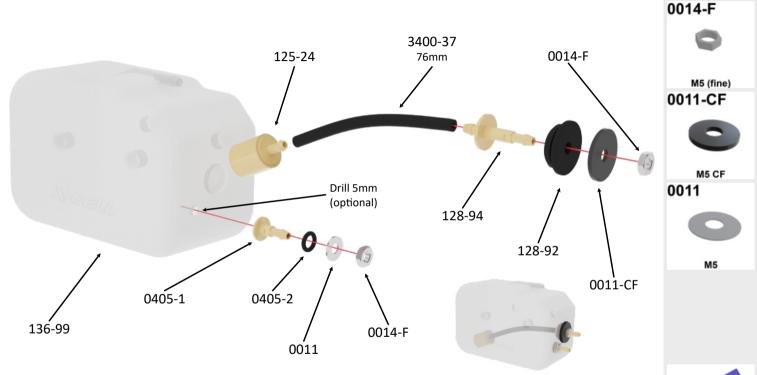
Assembly Tip: The ignition box will be mounted on the bottom platte using a thin douple sided adhesive tape.

Use a hook & loop tape to secure the ignition module.

Apply a small amount of medium thread lock

when threading into metal parts.



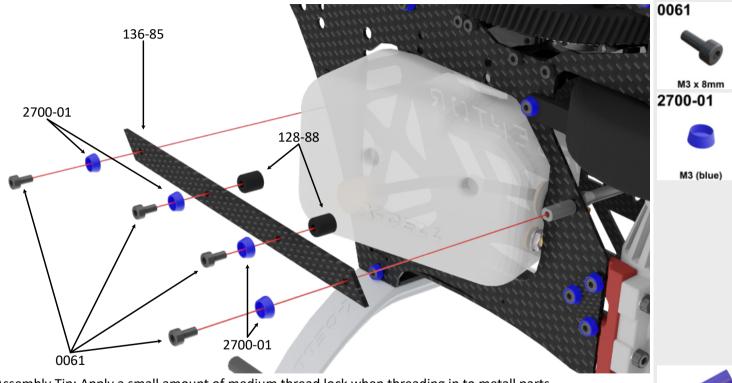


Assembly Tip: Do not apply thread lock to the nut 0014-F. Do not overtighten. If the tank starts leaking at this opening just tigthen the nut about 1/2 or 1 turn.

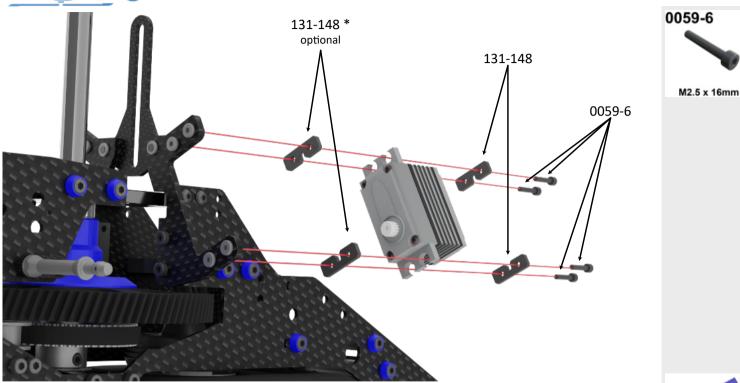
Remove burrs around the bore of the tank for part 128-92.

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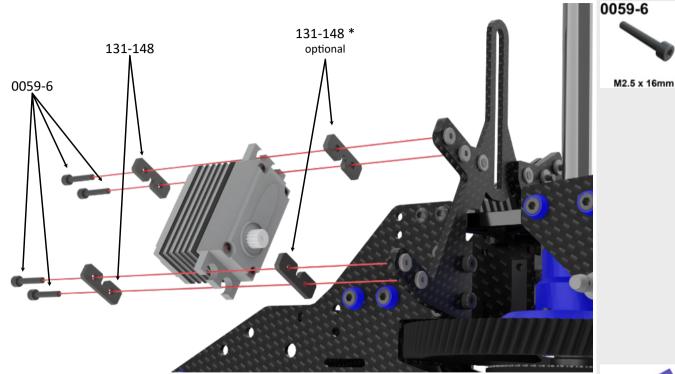
Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



* MA131-148 Servo Spacers are included. Add for proper servo linkage alignment, if required.

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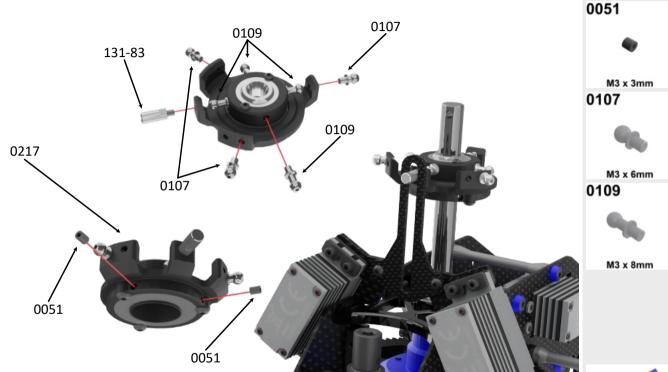




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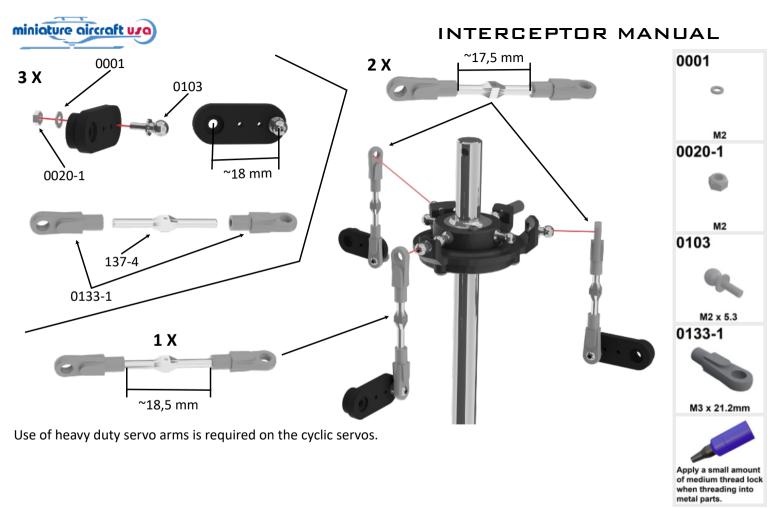
Apply a small amount of medium thread lock when threading into metal parts.



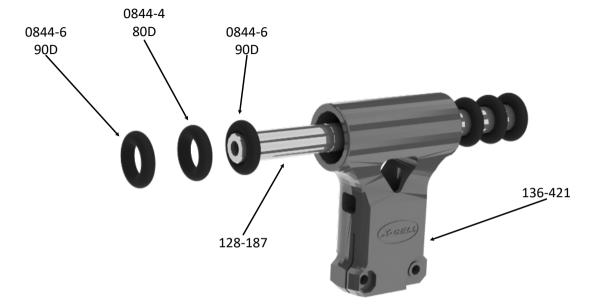


Thread in the MA0051 m3x3 socket set screws into the bottom ring of the swashplate until they touch the lower bearing. They are used to apply slight pressure on the bearing to adjust bearing play if needed. If too much pressure is applied with the MA0051 m3x3 socket set screws, the bearing will fail.

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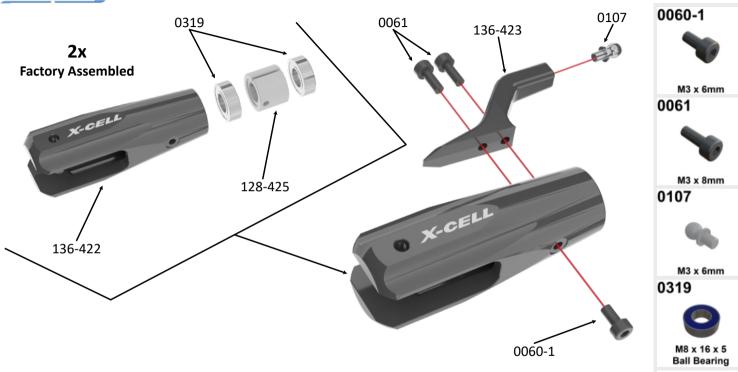




Assembly Tip: Apply some grease, vaseline or tallow to the o-rings and to the spindle shaft. The picture above shows a typical setup for dampening. If you do sport flying you can use two or three 80D o-rings on each side also.

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

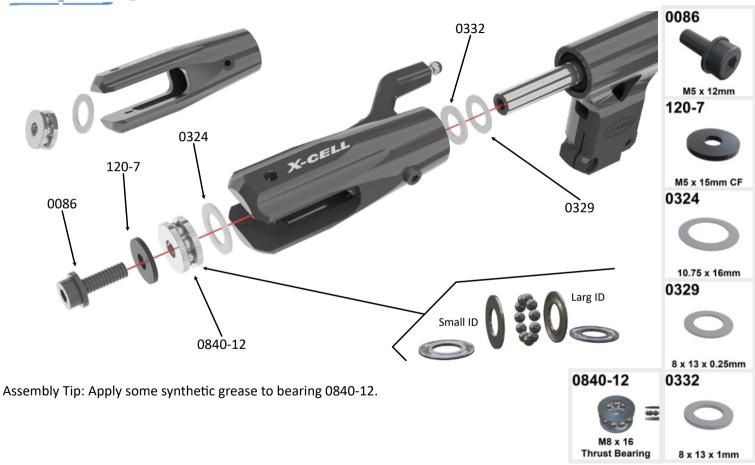




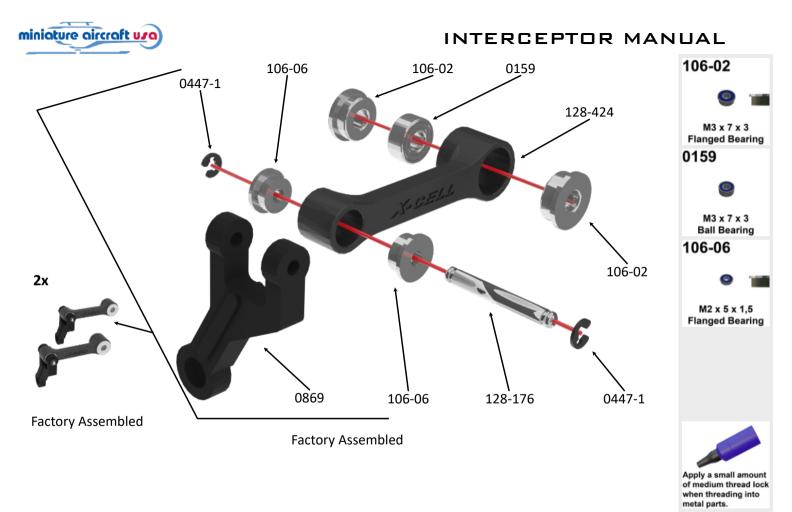
Assembly Tip: Take care about the orientation of part 128-425. Compare its orientation to fit part 136-422. First time Factory Assembled.

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Apply a small amount of medium thread lock

when threading into metal parts.



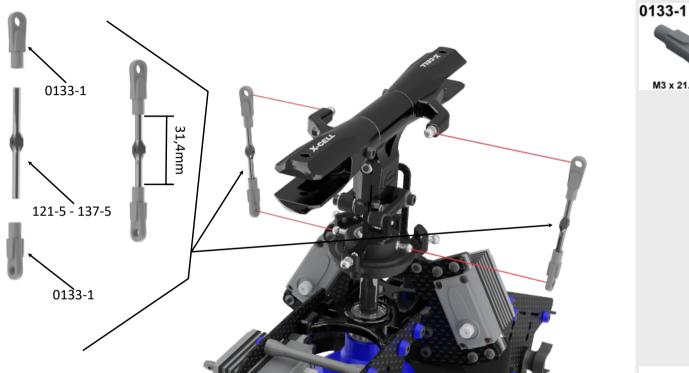


Assembly Tip:

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.



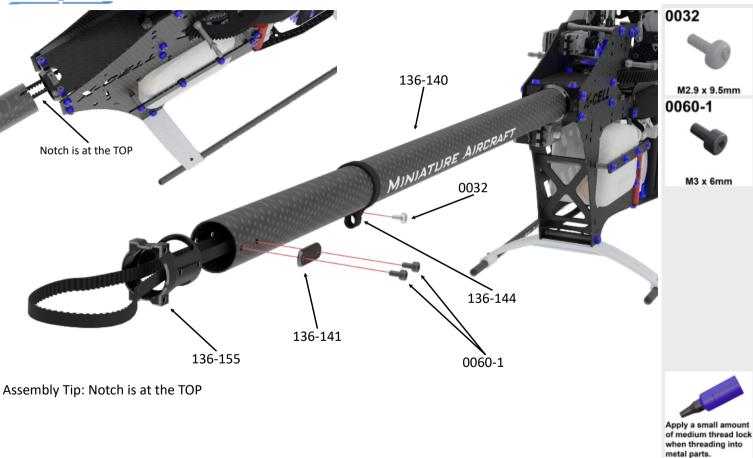




M3 x 21.2mm

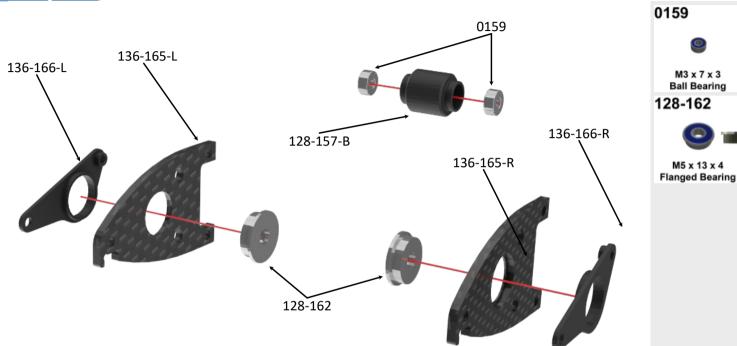
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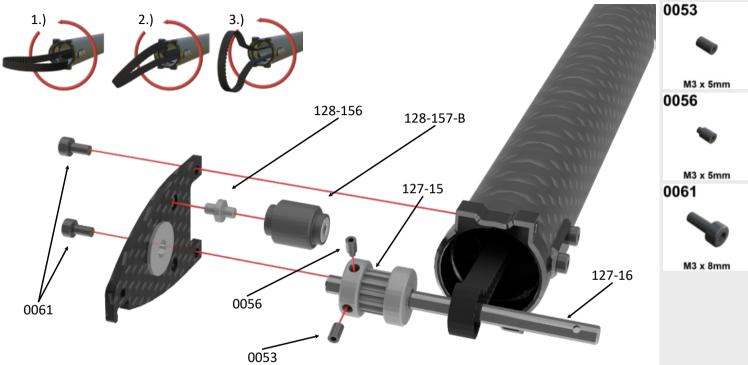




Factory Assembled These parts will be needed for the next 2 steps. Factory assembled.



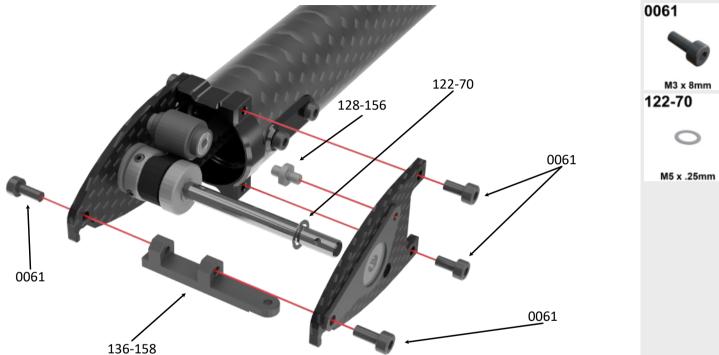
Apply a small amount of medium thread lock when threading into metal parts.



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

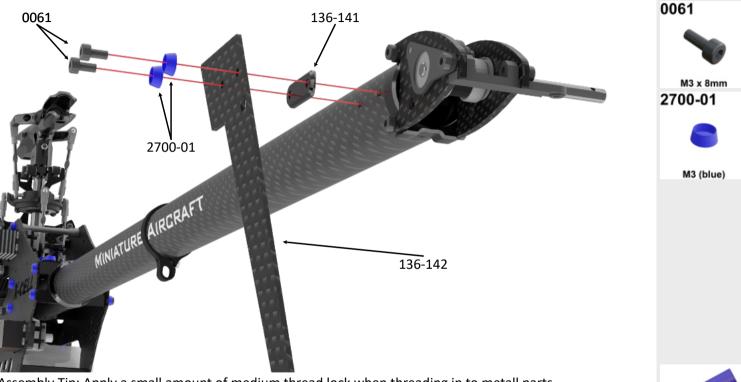
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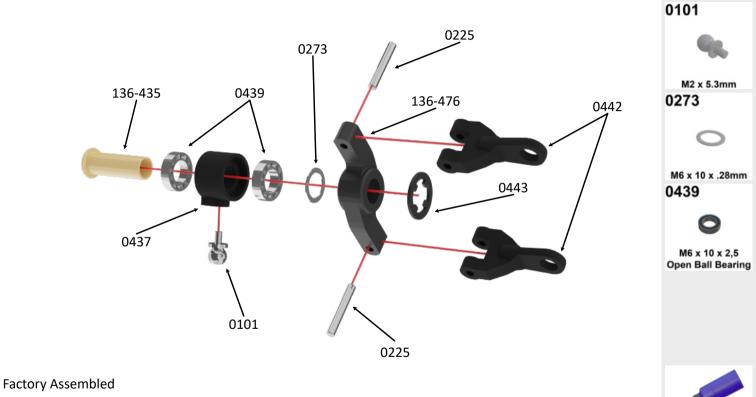
Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.



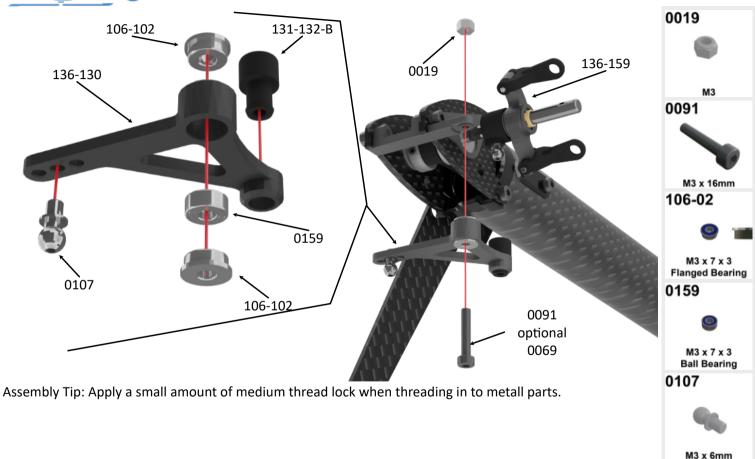


Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

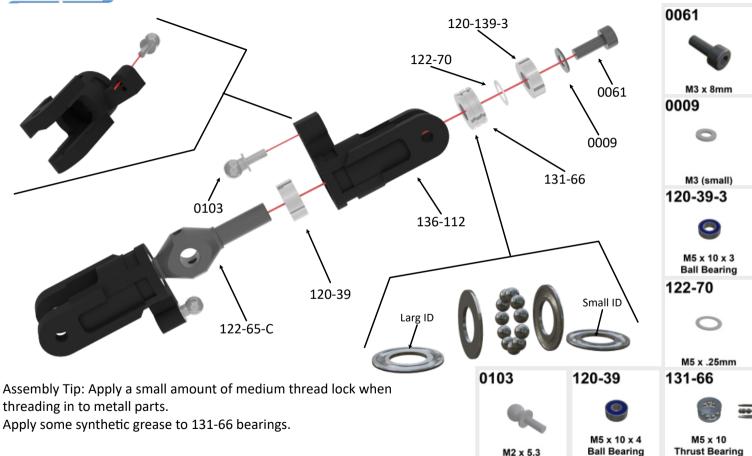












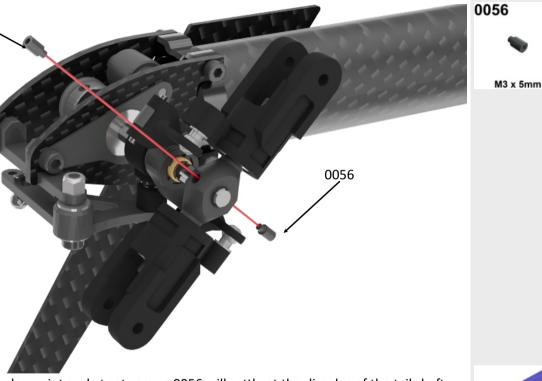
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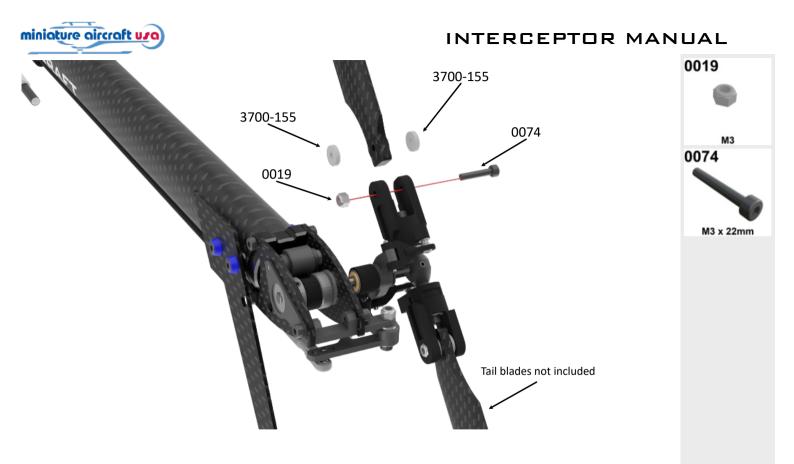


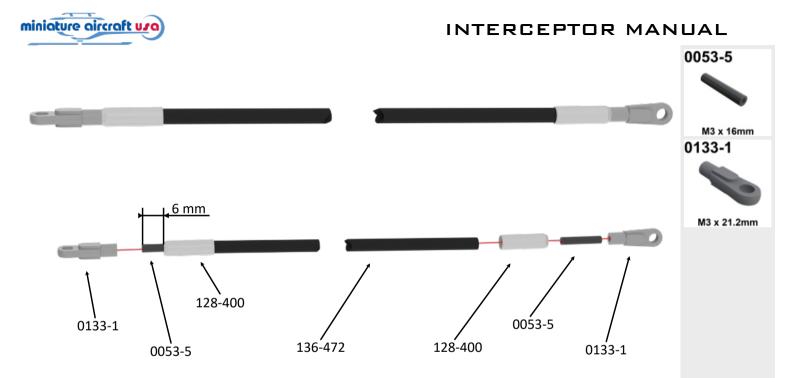
0056



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.

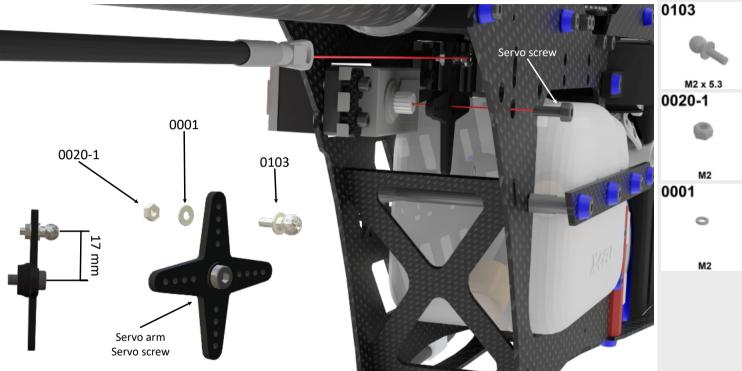






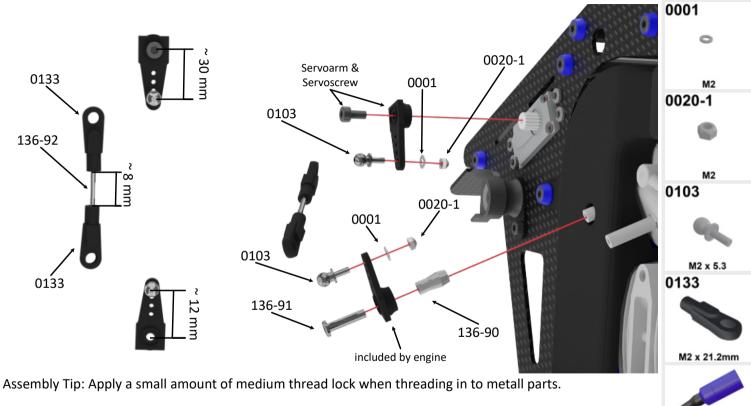
Assembly Tip: Put all parts together and check length of the push rod. Shorten carbon tube if nescessary. Install the 0053-5 set screws into the push rod ends using high quality epoxy. Use high quality epoxy to glue the push rod ends to the carbon tube. Put epoxy at the inside and the outside of the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

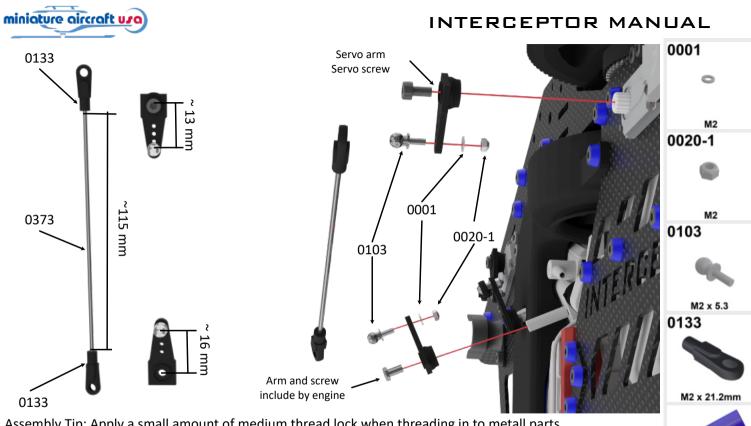




Assembly Tip: Read servo manual for installing servo screw



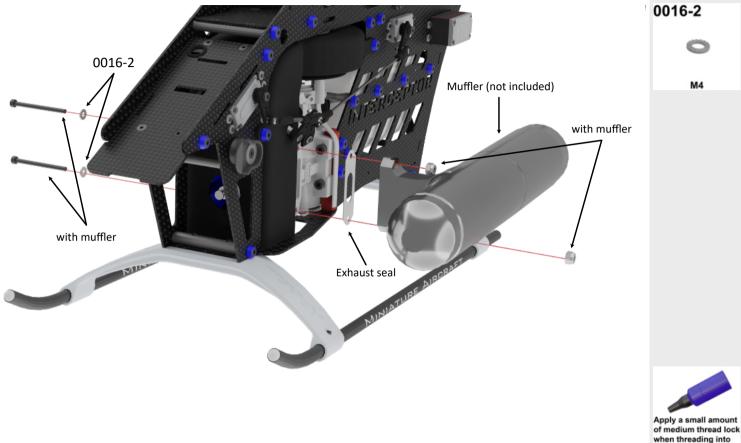




Assembly Tip: Apply a small amount of medium thread lock when threading in to metall parts.

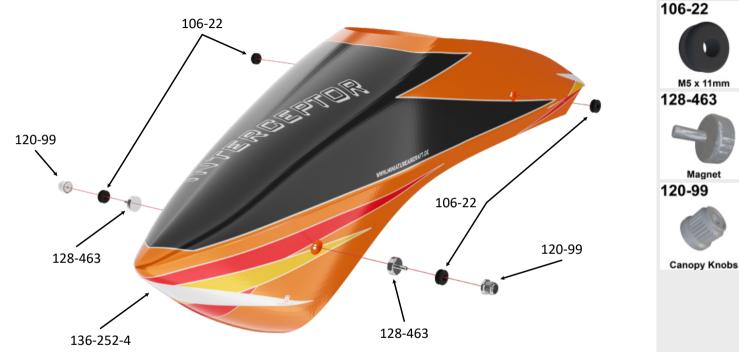


metal parts.



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.

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