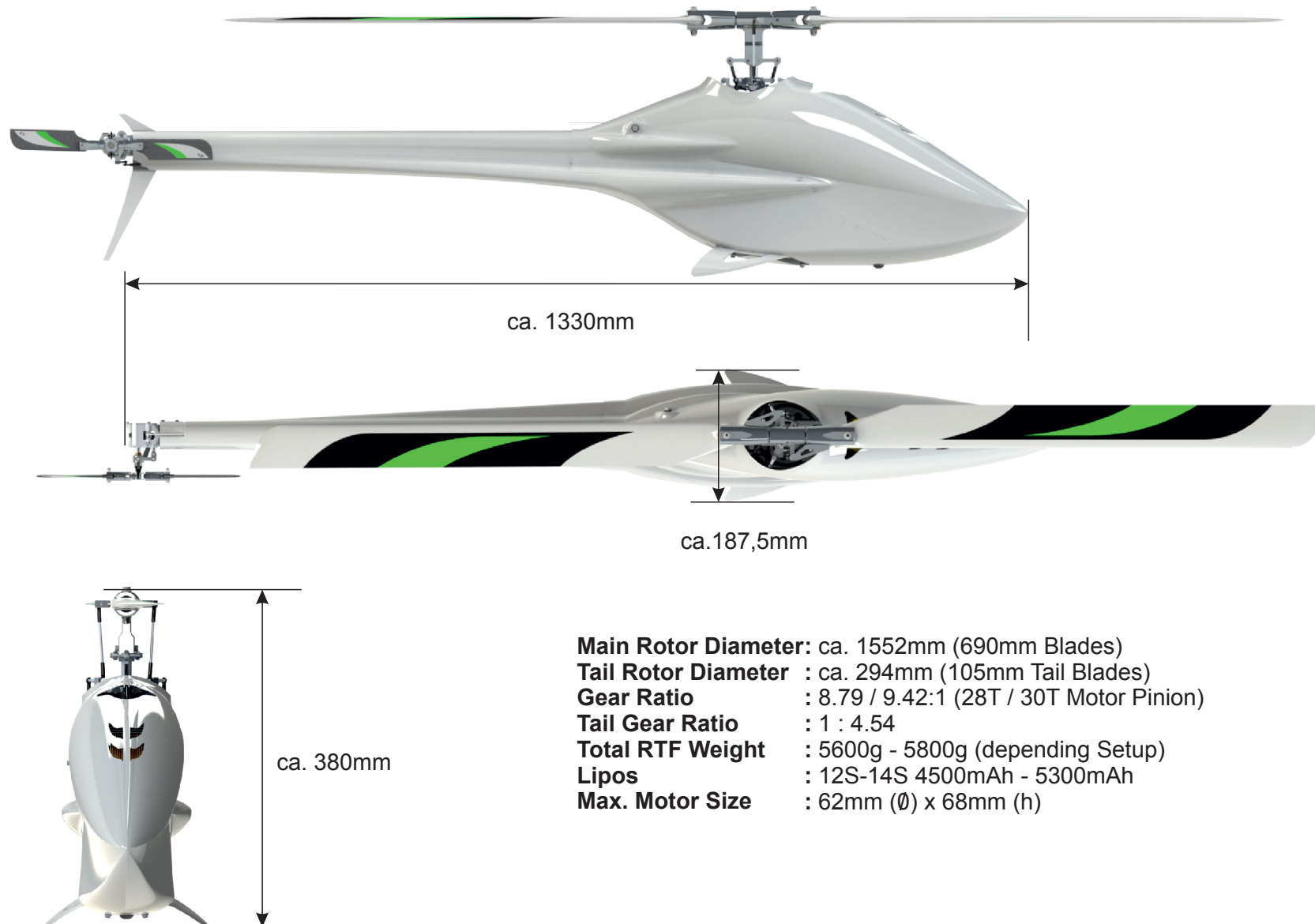




VECTOR

TECHNICAL DETAILS



Main Rotor Diameter: ca. 1552mm (690mm Blades)
Tail Rotor Diameter : ca. 294mm (105mm Tail Blades)
Gear Ratio : 8.79 / 9.42:1 (28T / 30T Motor Pinion)
Tail Gear Ratio : 1 : 4.54
Total RTF Weight : 5600g - 5800g (depending Setup)
Lipos : 12S-14S 4500mAh - 5300mAh
Max. Motor Size : 62mm (Ø) x 68mm (h)

IMPORTANT

Assembly Manual of the RJX VECTOR 700

For the correct assembly and safe flying of your RJX VECTOR 700 Model, this manual uses this  symbol where special attention is required. Failing to carry out the instructions at this point in the assembly will result in an electronic and/or mechanical failure or possible injury.

HOW TO USE THIS INSTRUCTION MANUAL

This manual contains the detailed instructions to build and set up the RJX VECTOR 700. Please follow it to ensure that you achieve the best performance and mechanical integrity from your finished kit.

For those of you who already have experience with model helicopters, we strongly suggest that you assemble and adjust your model according to these instructions for the best results. Please keep this manual in a safe place and refer to it when replacing spare parts or upgrading.

DISCLAIMER

While every effort has been made to supply the proper information in this manual, the Manufacturer and Distributor cannot guarantee that the consumer will interpret or follow these instructions as intended and therefore the Manufacturer and Distributor cannot assume any liability for damage or claims occurring from the misuse of our product.

This product is intended for advanced users. It may look easy when watching an experienced pilot flying his model, but it takes dedication and numerous hours of practice to be able to operate this model safely and efficiently.

Beginners are encouraged to seek help from an experienced pilot to assist in the first test flights. We encourage you to practice frequently and enjoy the experience of RC rotary flight!

WARNING

LiPo batteries need special care. Improper storage, handling or charging may cause fire or damage your Helicopter and possibly to yourself. Contact your dealer or supplier for more information.

1. Check your charger settings before charging your LiPo battery to insure they are correct for the specifications of the battery.
2. We recommend storing and charging LiPo batteries in a Lipo sack or porcelain container. If kept in a metal container or ammo case, the batteries may explode if the storage containers are sealed and the gases are not able to vent. We recommend using the original Lipo Sack from the USA since it was designed to contain the jet flames discharged from a failing Lipo battery.
3. Please keep LiPo Batteries away from sources of heat.
4. Never store LiPo Batteries fully charged.
5. NEVER SHORT OUT LiPo Battery wires.
6. Before connecting your LiPo battery to the Helicopter, make sure your transmitter is turned ON and all sticks and switches are set properly.

IMPORTANT

TO PREVENT LOOSE SCREWS AND BOLTS

Regardless how tightly nuts, bolts and screws are tightened, they slowly loosen over time due to vibration of the helicopter. Should this happen, you will lose control of the helicopter which may cause severe damages or very potential dangerous situation.

We strongly recommend that you apply thread lock to any nuts, bolts or screws. There are two types of thread lock, blue (medium) and red (hard).

Clean the nuts, bolts and screws with Alcohol (or similar) before you apply the thread lock.

Use blue thread lock on screws that have to be removed regularly, and

Red thread lock for screws that should be fixed permanently.

1. **Use CA:** (Super glue or similar) at this point
2. **LOCTITE 243 (BLUE) - LOCTITE 648 (RED):**
Remove oil and grease then apply shown thread lock. (This applies throughout the manual)
3. **GREASE:** Remove oil and grease. (This applies throughout the manual)

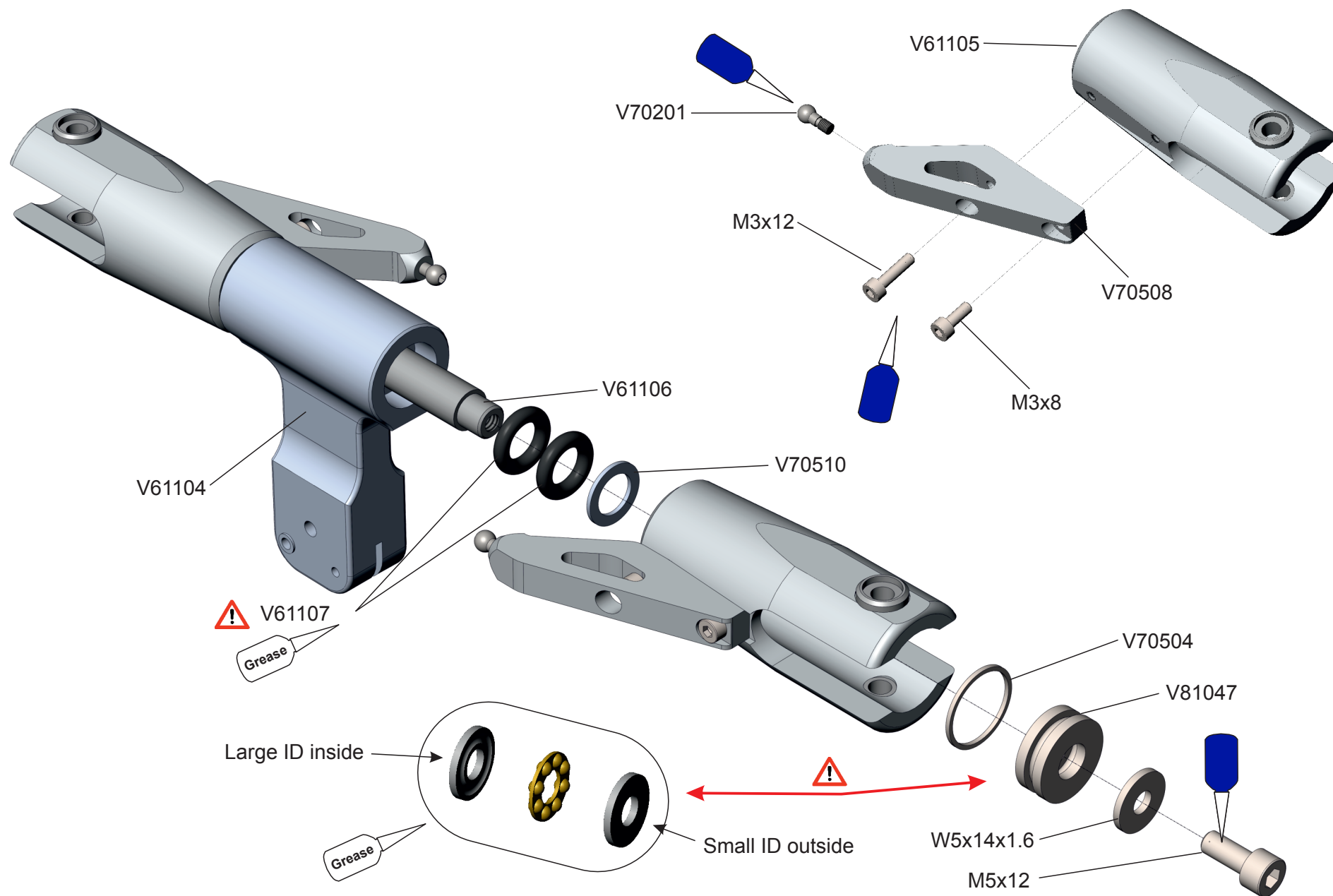
Items required to complete the RJX VECTOR 700

- CCPM compatible PCM or 2,4 Ghz Radio System with 4 x Standard Servo
- 3 Axis Virtual Fly bar System
- A 500 kV to 560 kV Brushless Out runner Motor with 8mm Motor shaft (if not delivered)
- LiPo Pack 12S-5000 up to 5200 mAh (depending on setup)
- 160A ESC (if not delivered)
- CF FBL Main Blades 690 mm (if not delivered)
- LiPo Charger

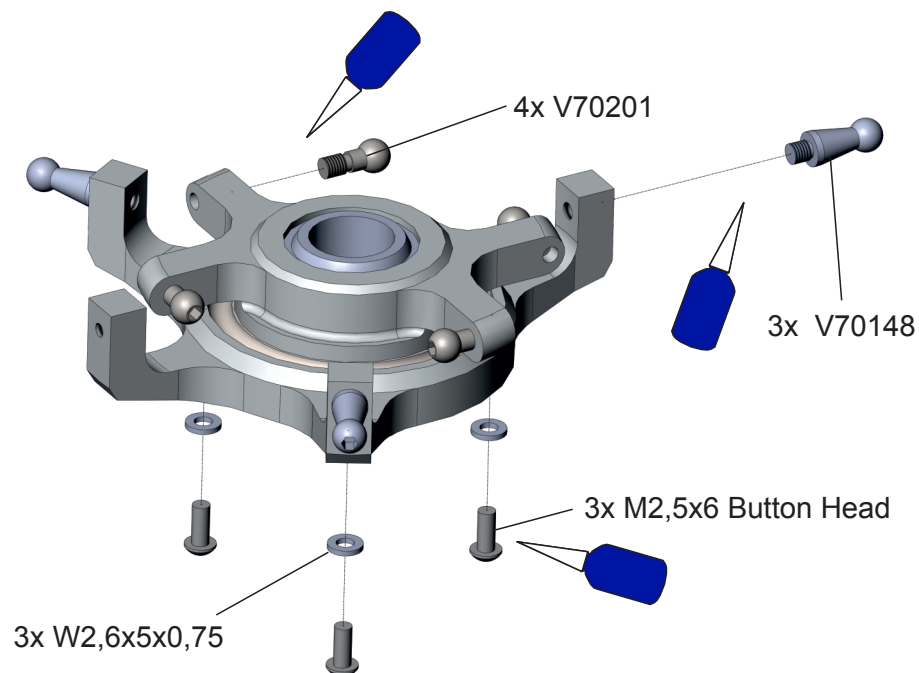
Tools required (not included)

- Allen Drivers 15 mm - 2 mm - 2,5 mm - 3 mm - 4 mm
- Philips Drivers large - middle - small
- Nut Drivers 4,5 mm - 5,5 mm - 7 mm
- Cutter
- Universal Pliers
- Scissors
- Sandpaper
- Ball Link Plier
- Metric Ruler
- Pitch Gauge digital
- Cyanoacrylate (CA - Superglue)
- Grease
- Ball Link Driver
- EPOXY

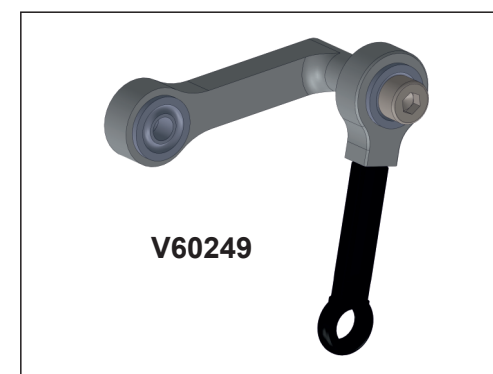
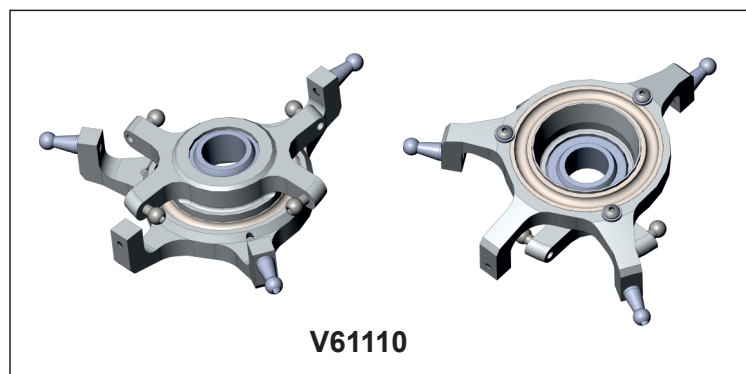
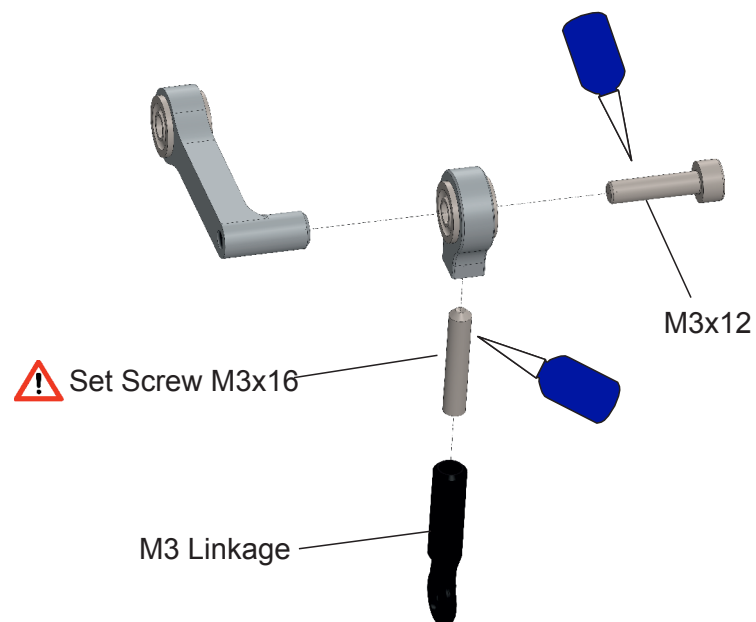
ROTORHEAD ASSEMBLY



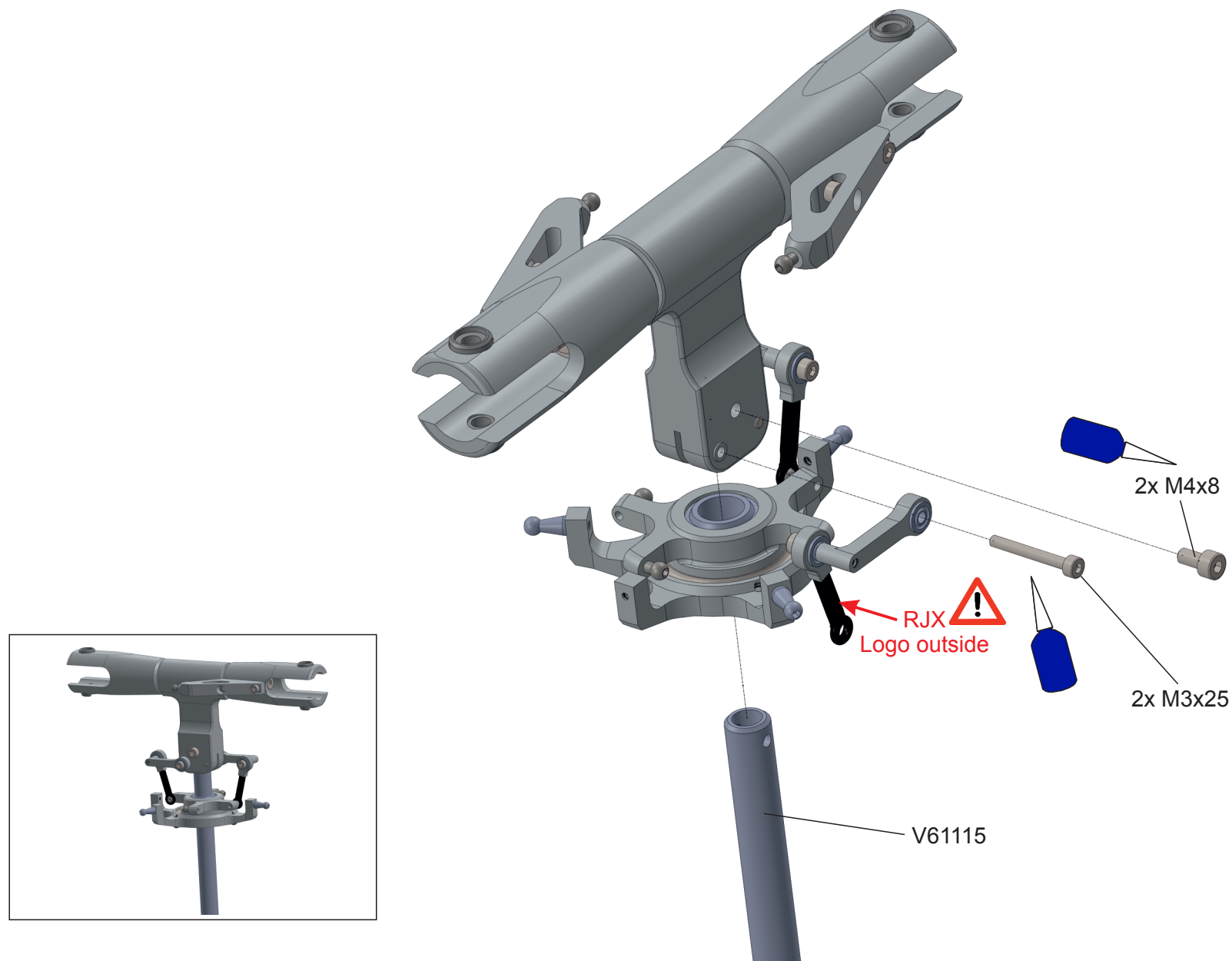
ROTOR HEAD ASSEMBLY



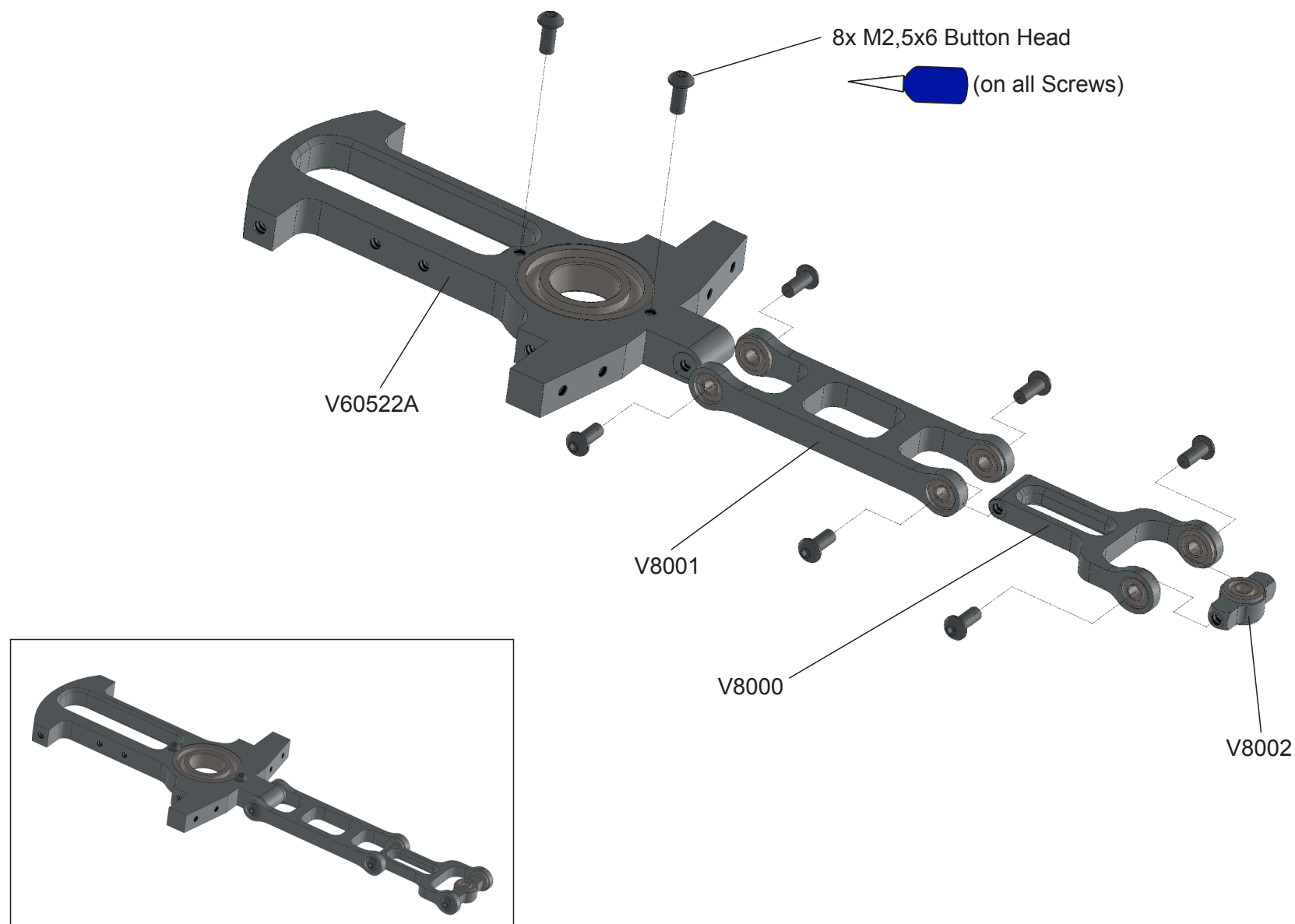
Assemble 2 Sets



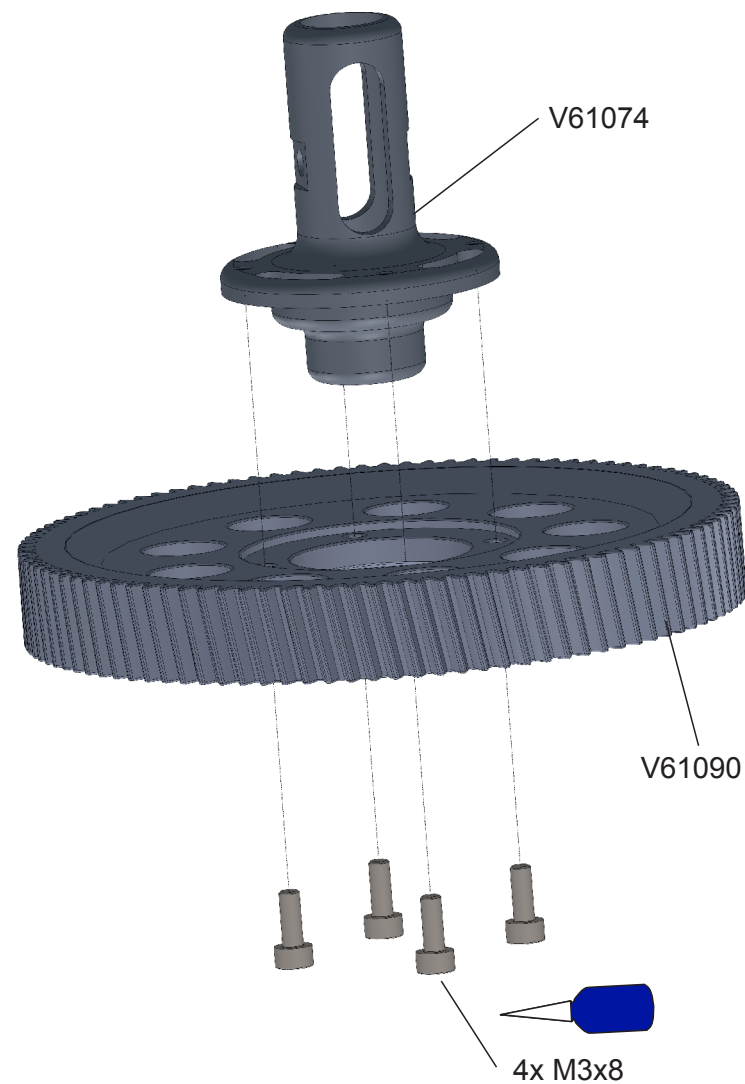
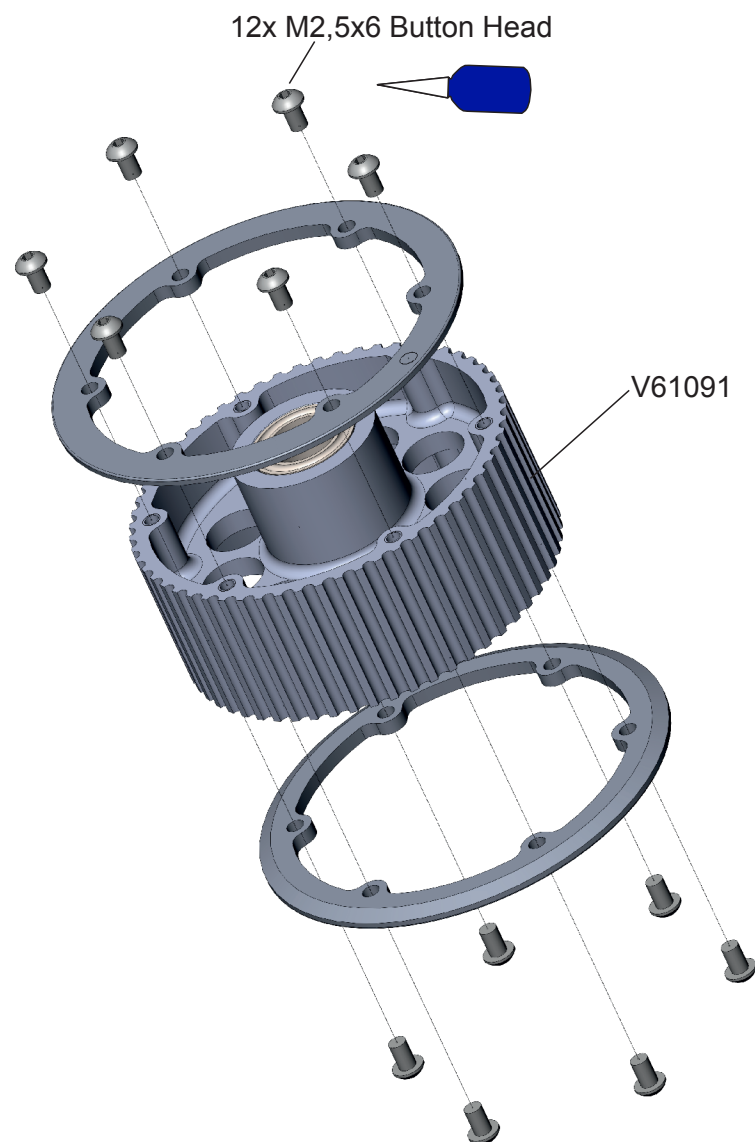
ROTOR HEAD ASSEMBLY



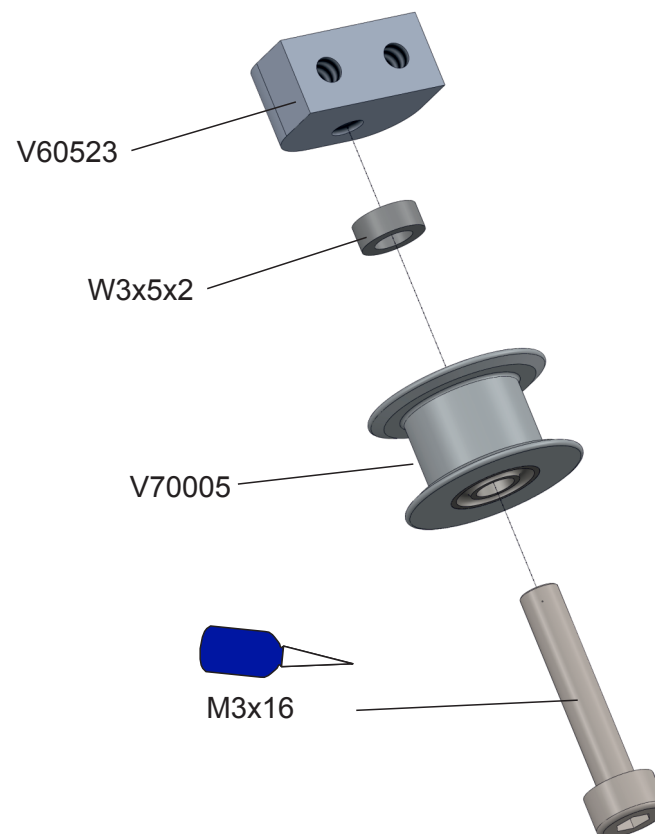
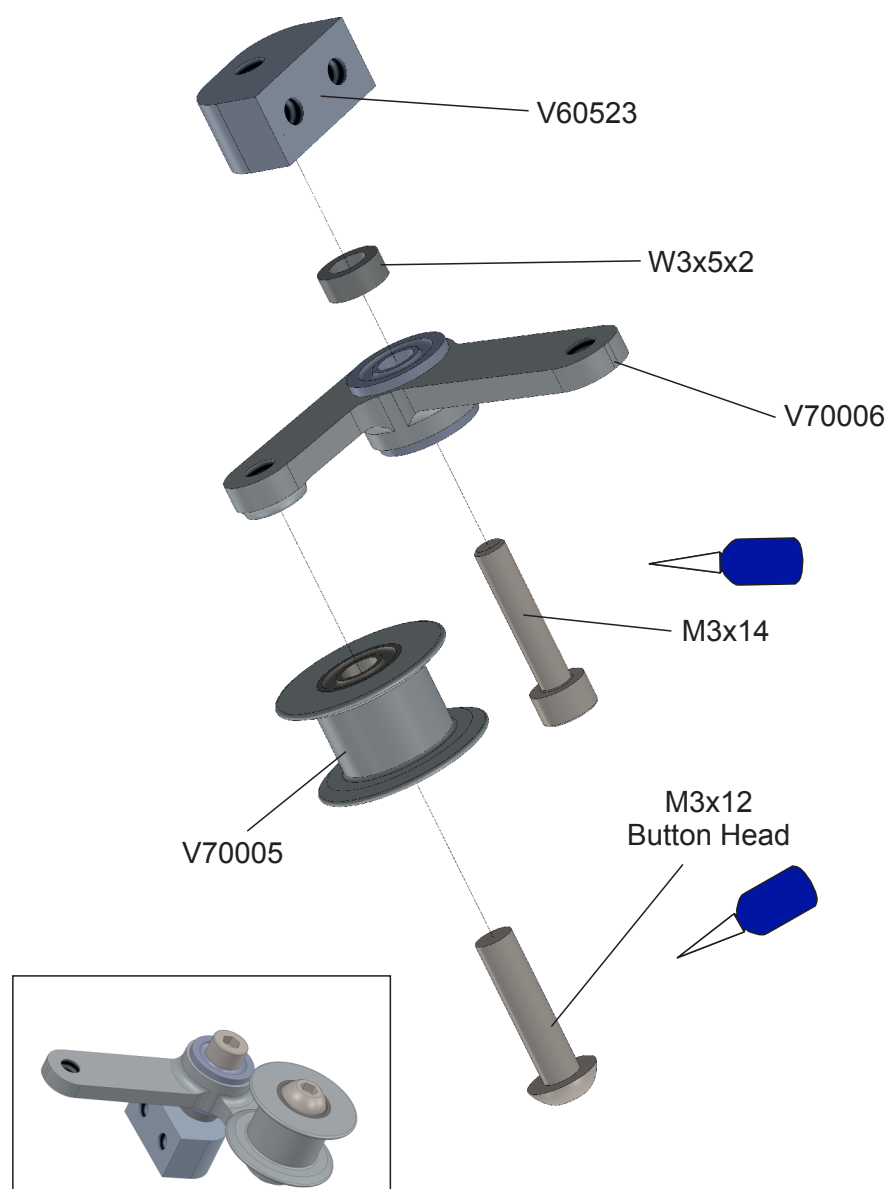
MAINFRAME ASSEMBLY



MAINFRAME ASSEMBLY



MAINFRAME ASSEMBLY

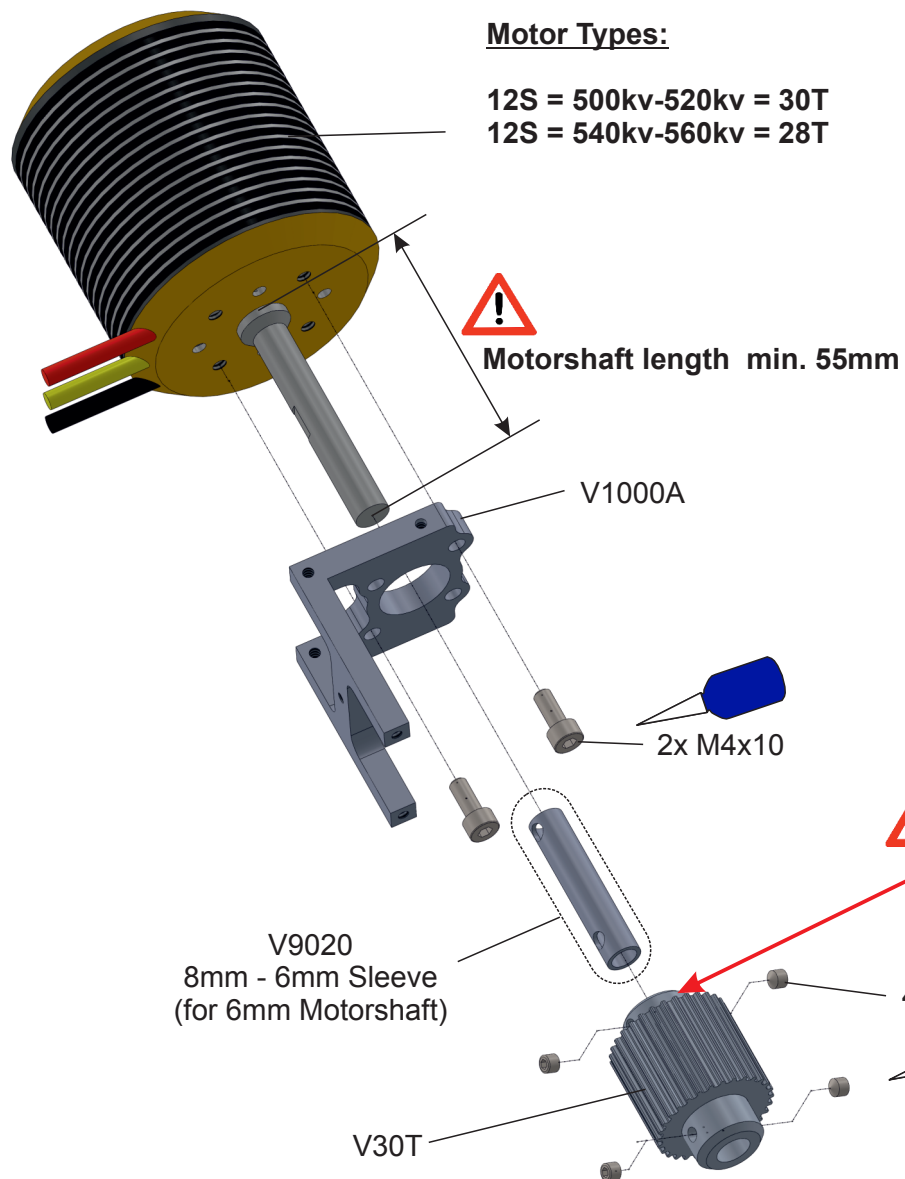


MAINFRAME ASSEMBLY

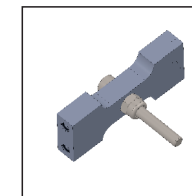
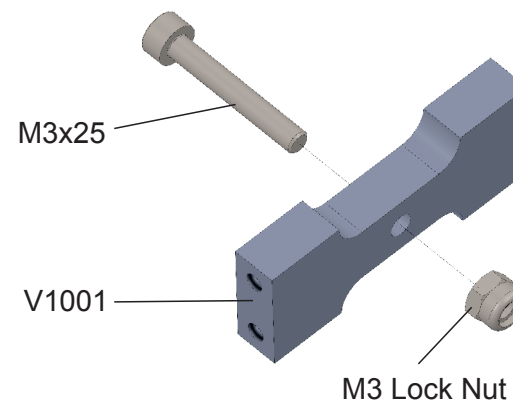
Motor Types:

12S = 500kv-520kv = 30T

12S = 540kv-560kv = 28T

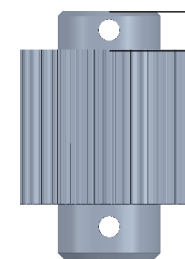


NOTE: Screw must be able to turn!



NOTE:

Shorter distance to motor

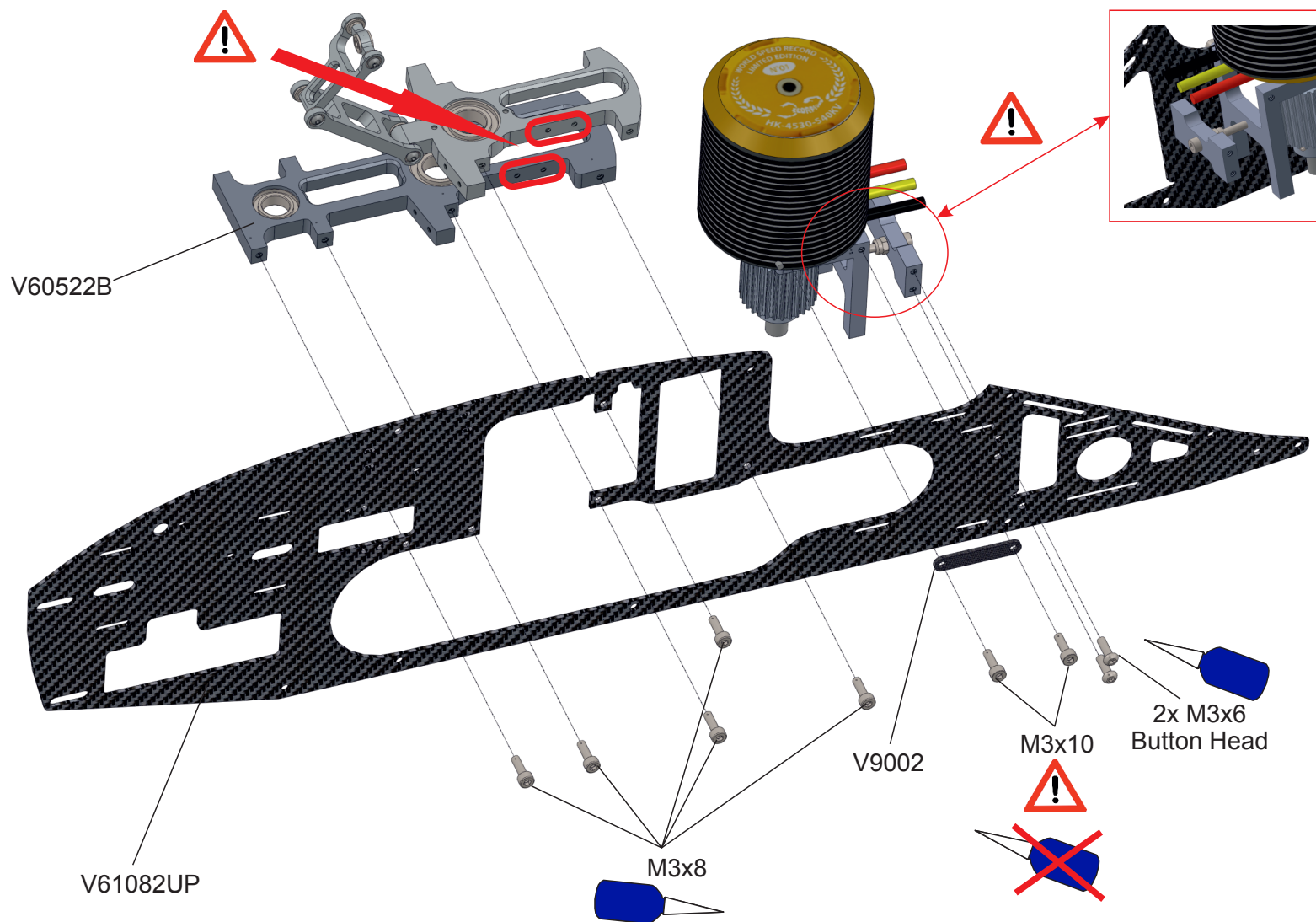


Gear Ratios:

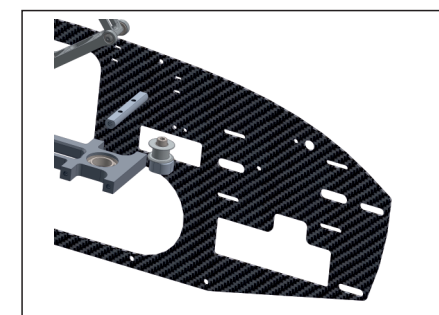
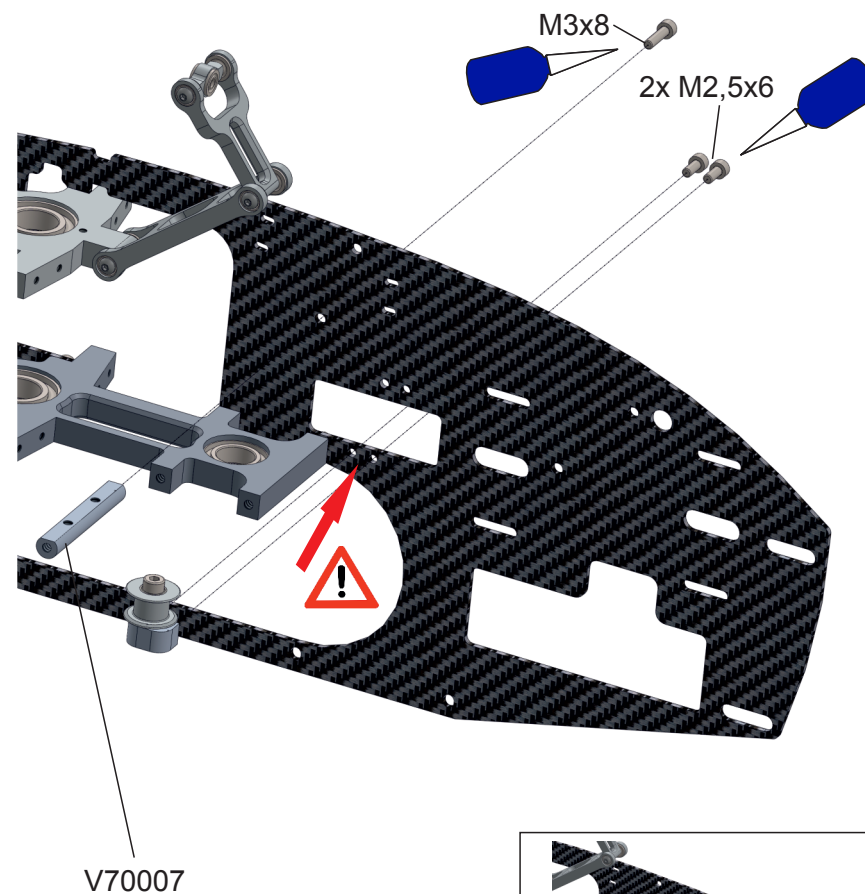
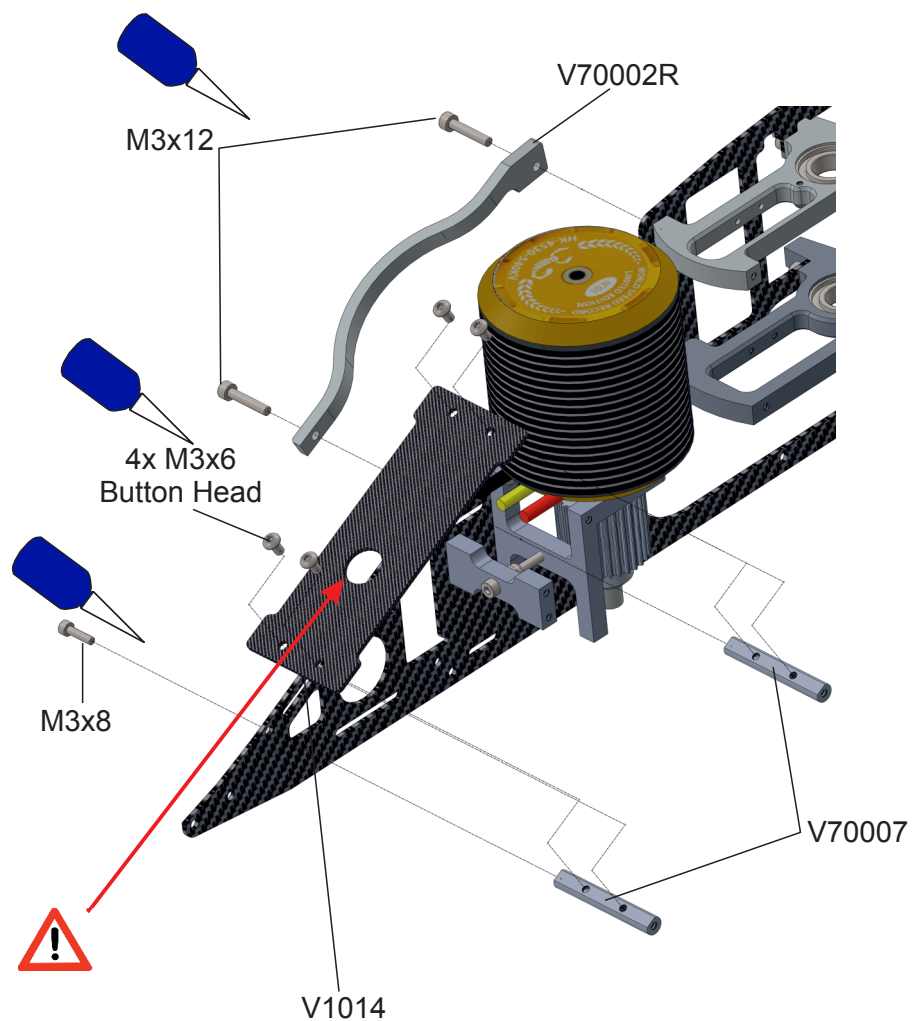
V28T = 9.42:1 (included)

V30T = 8.79:1 (included)

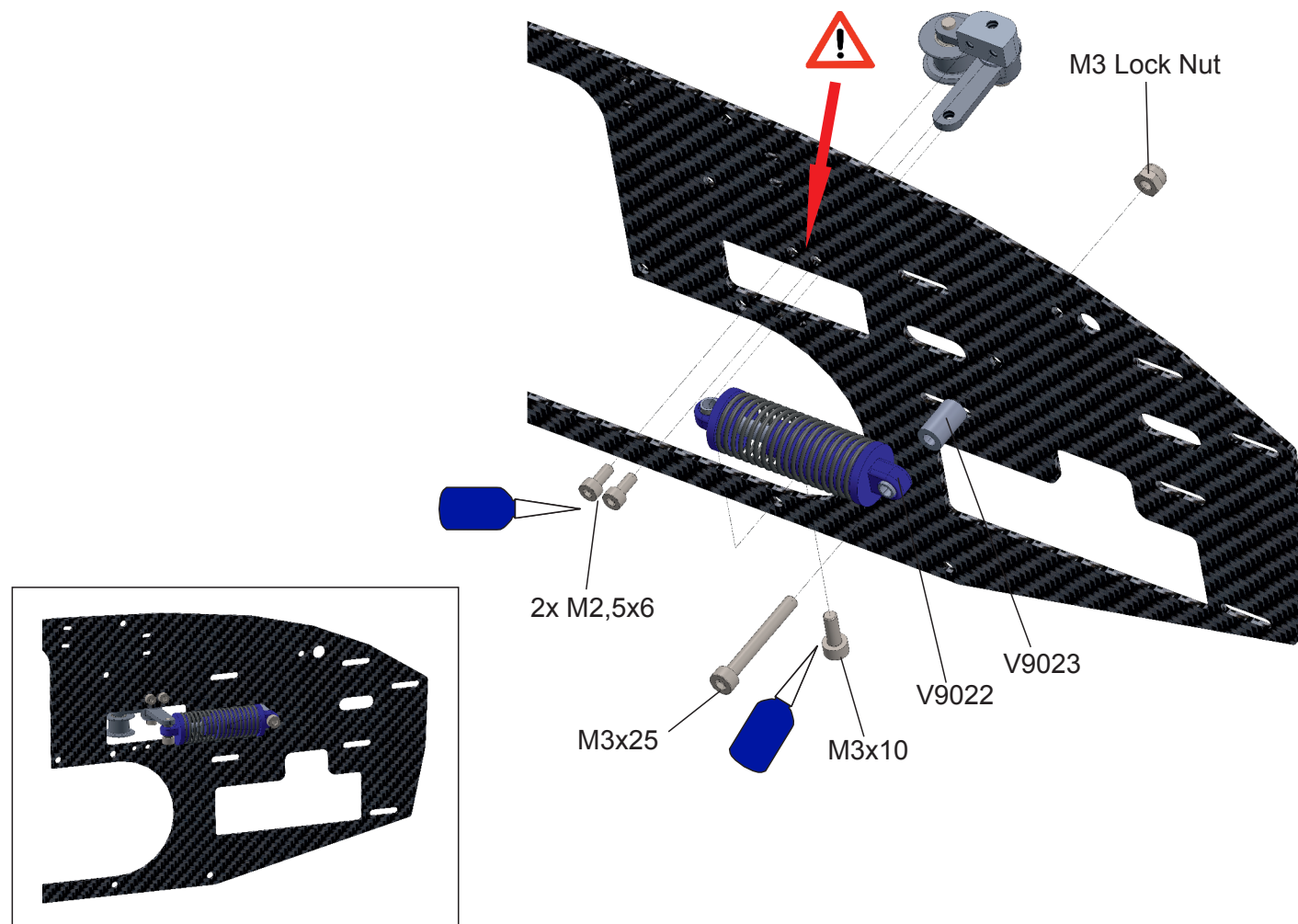
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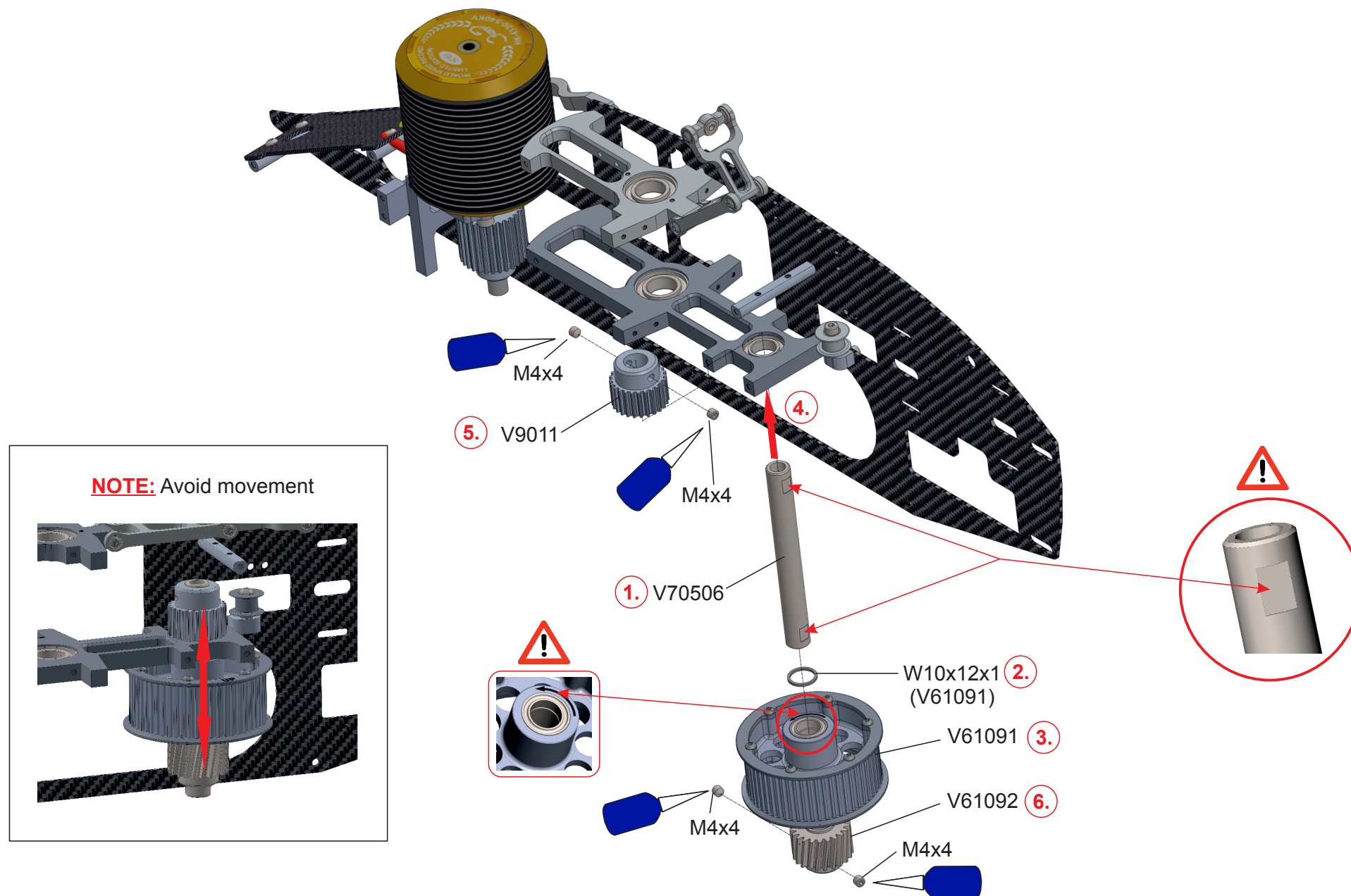
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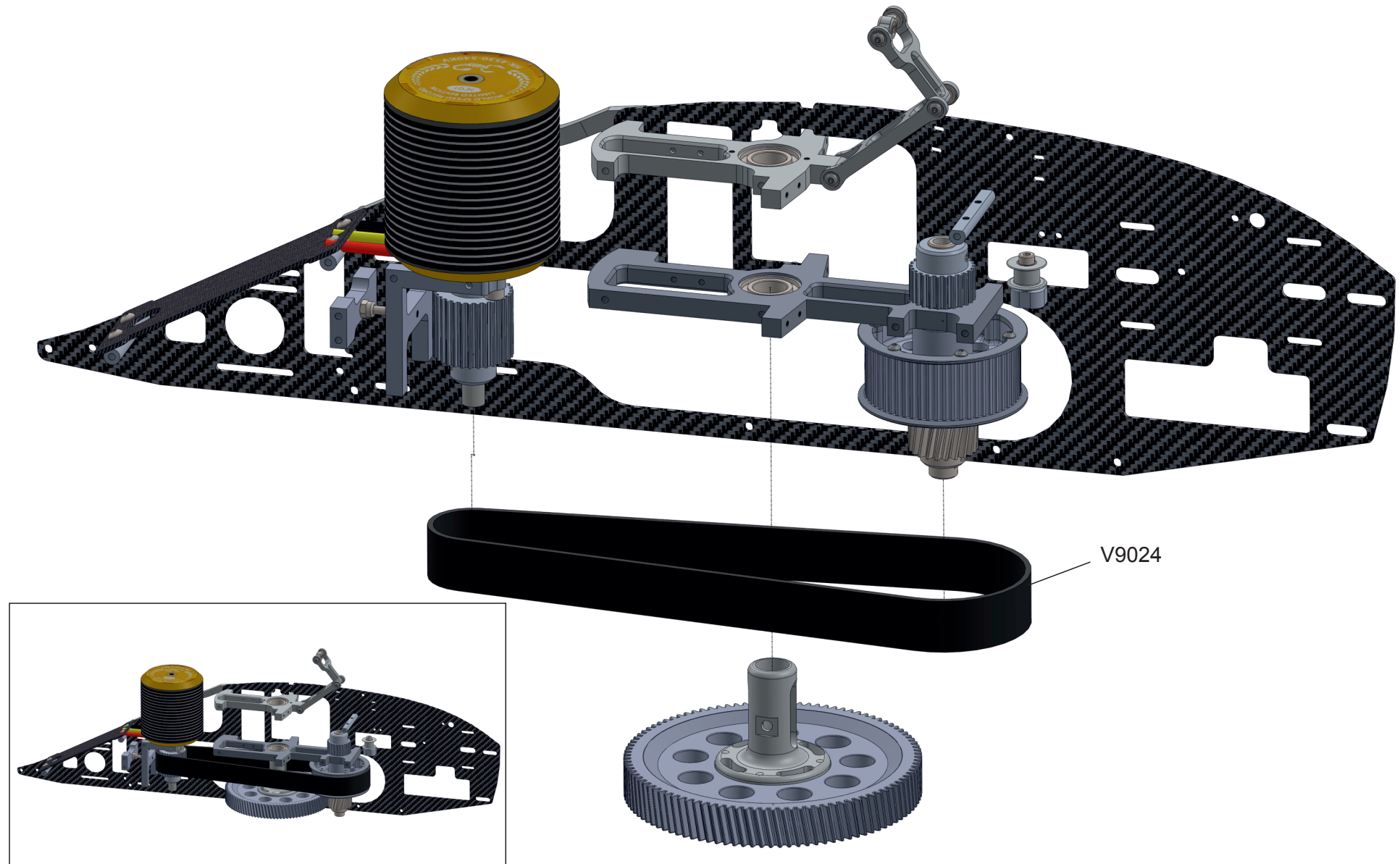
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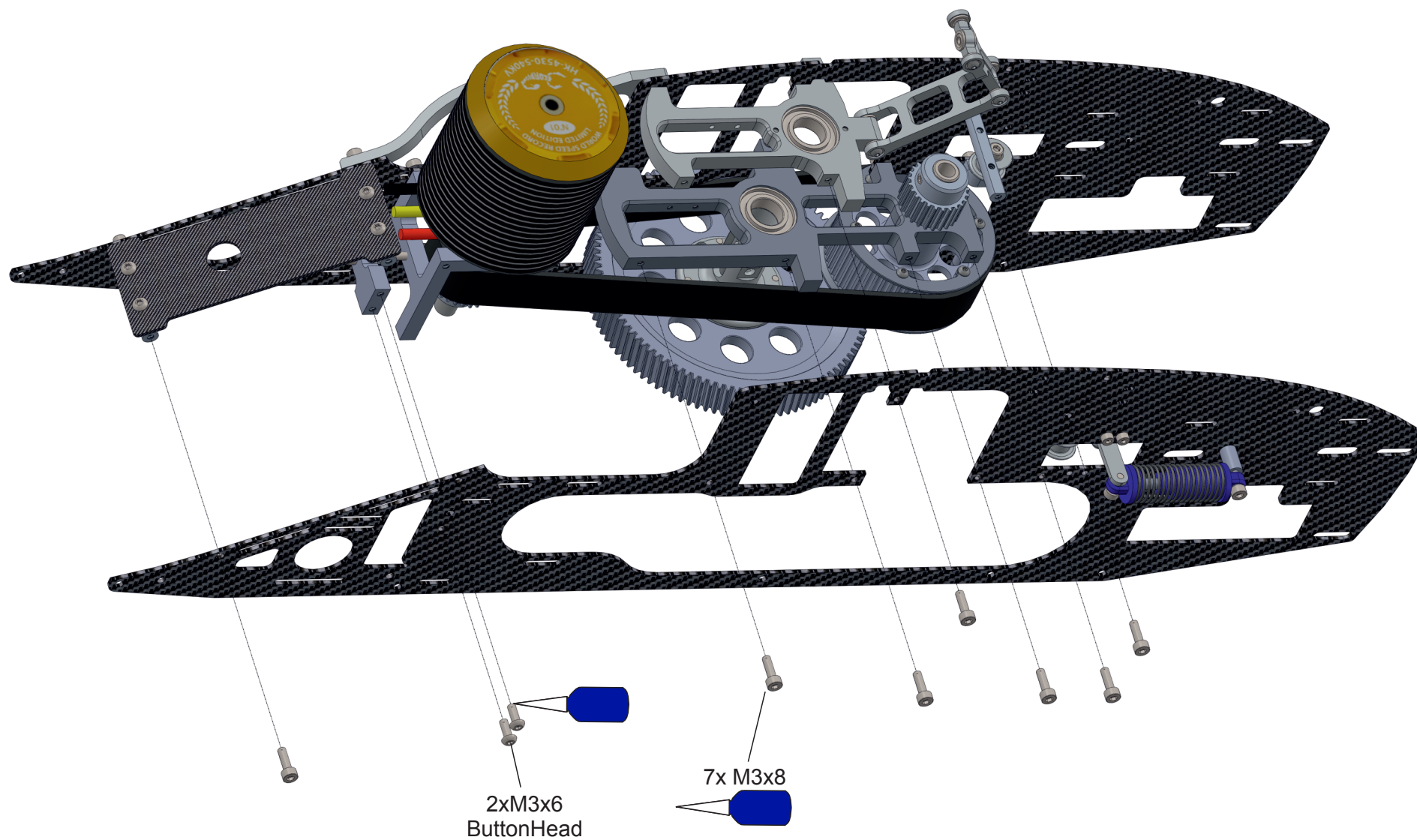
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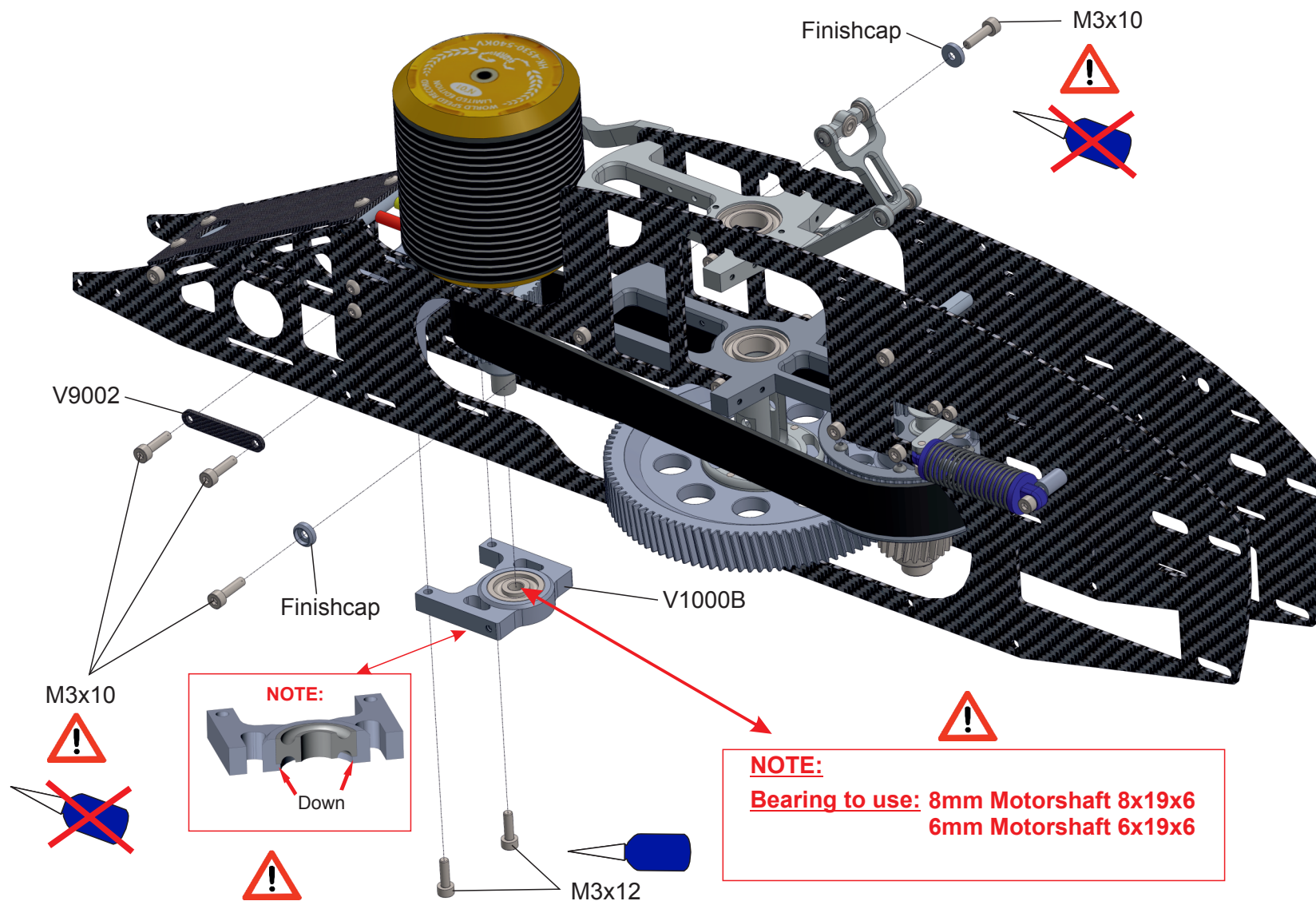
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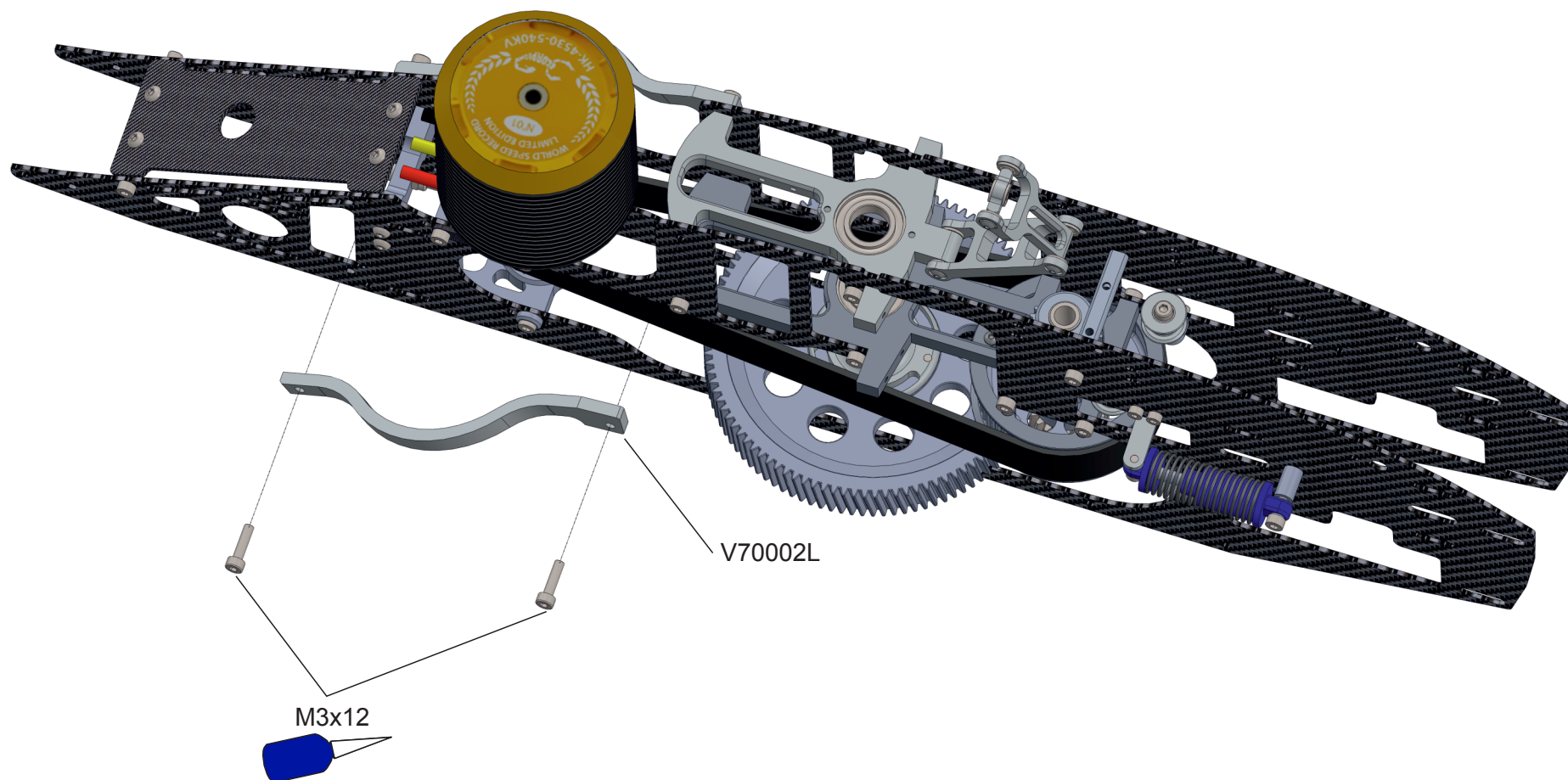
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MAINFRAME ASSEMBLY



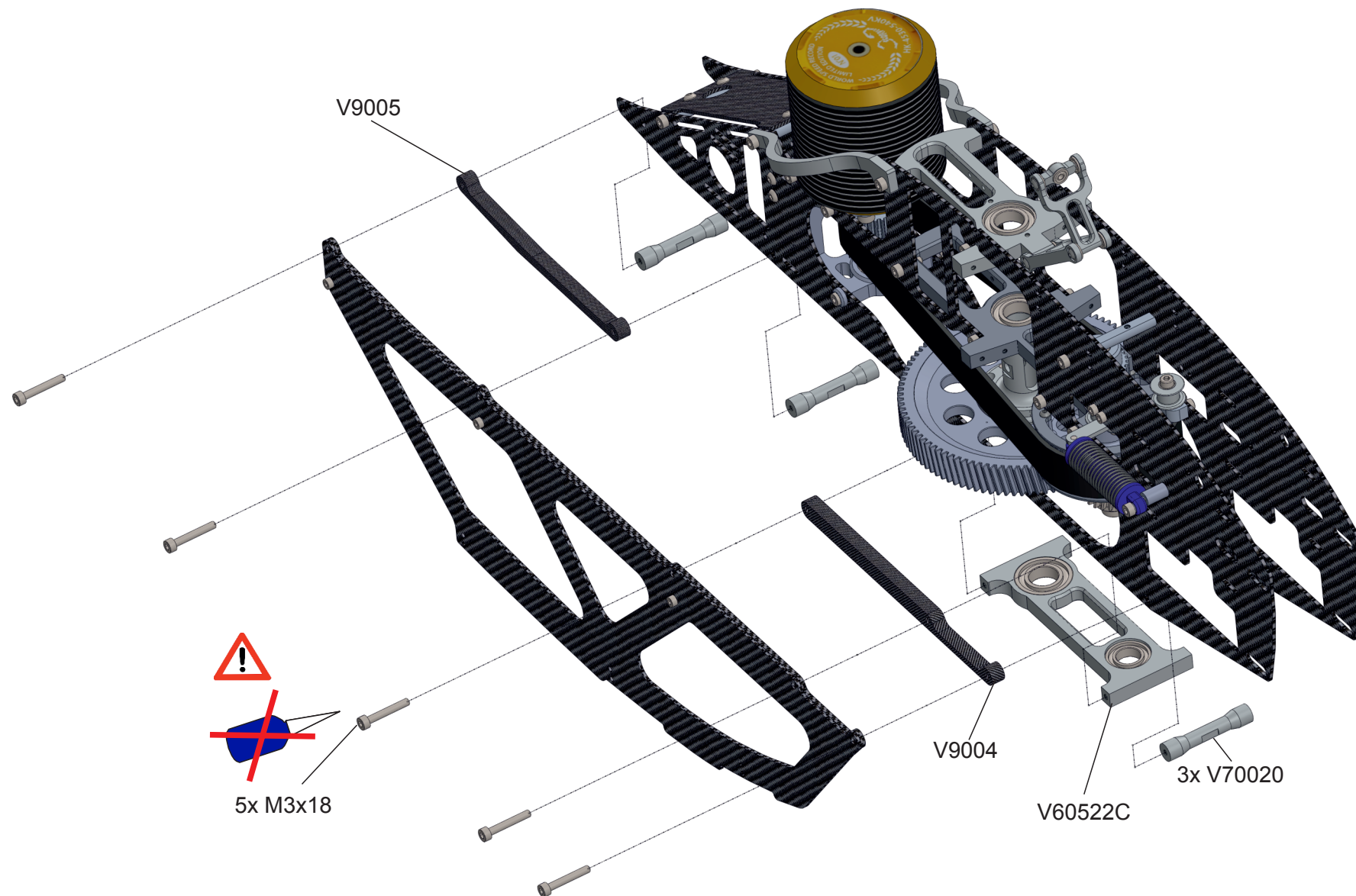
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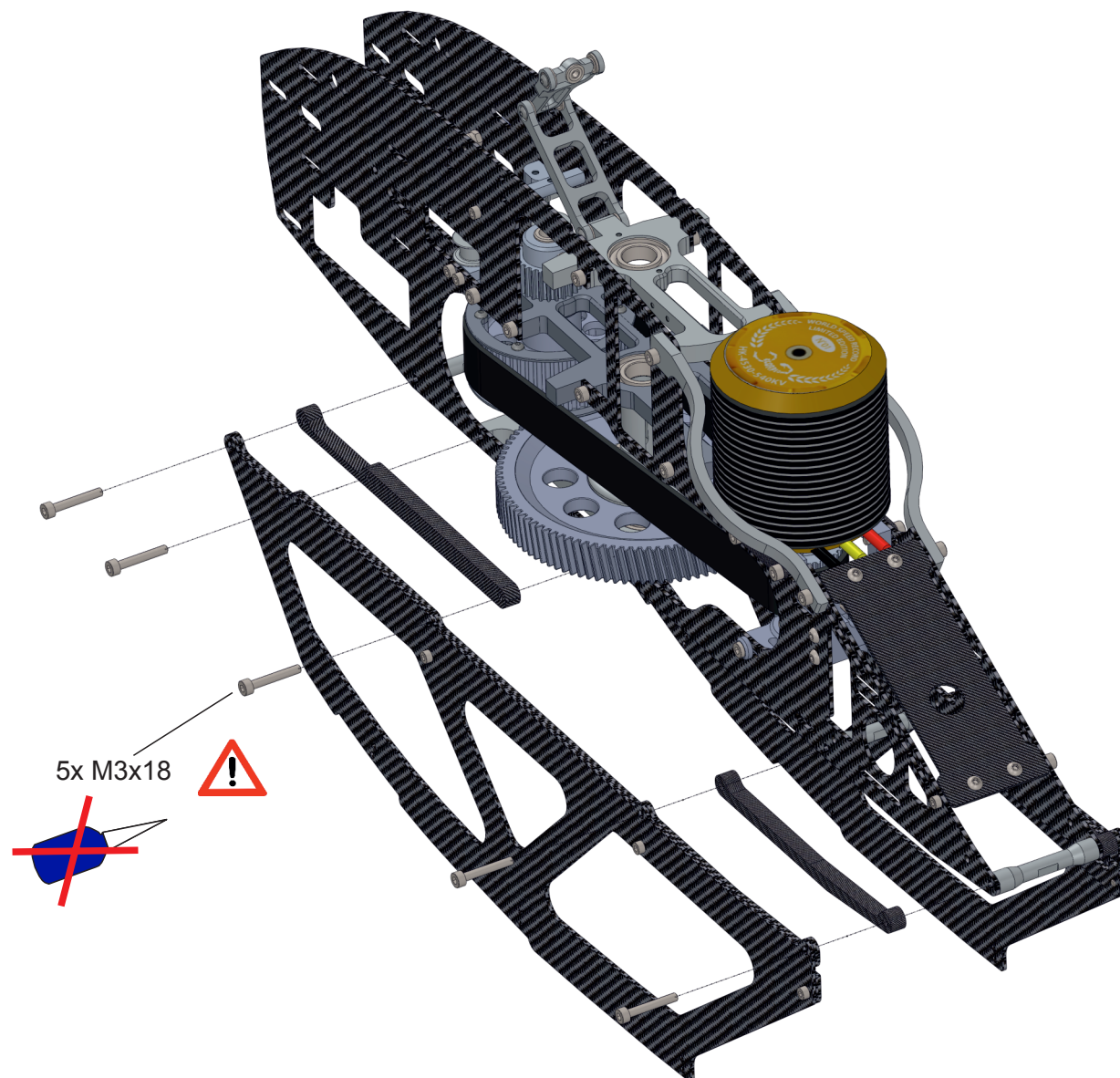
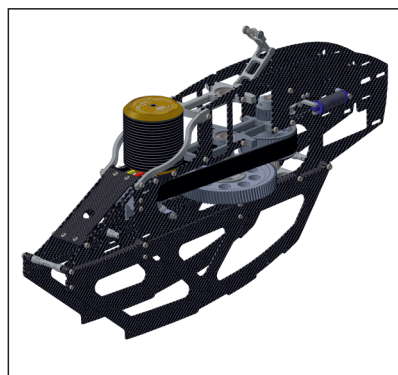
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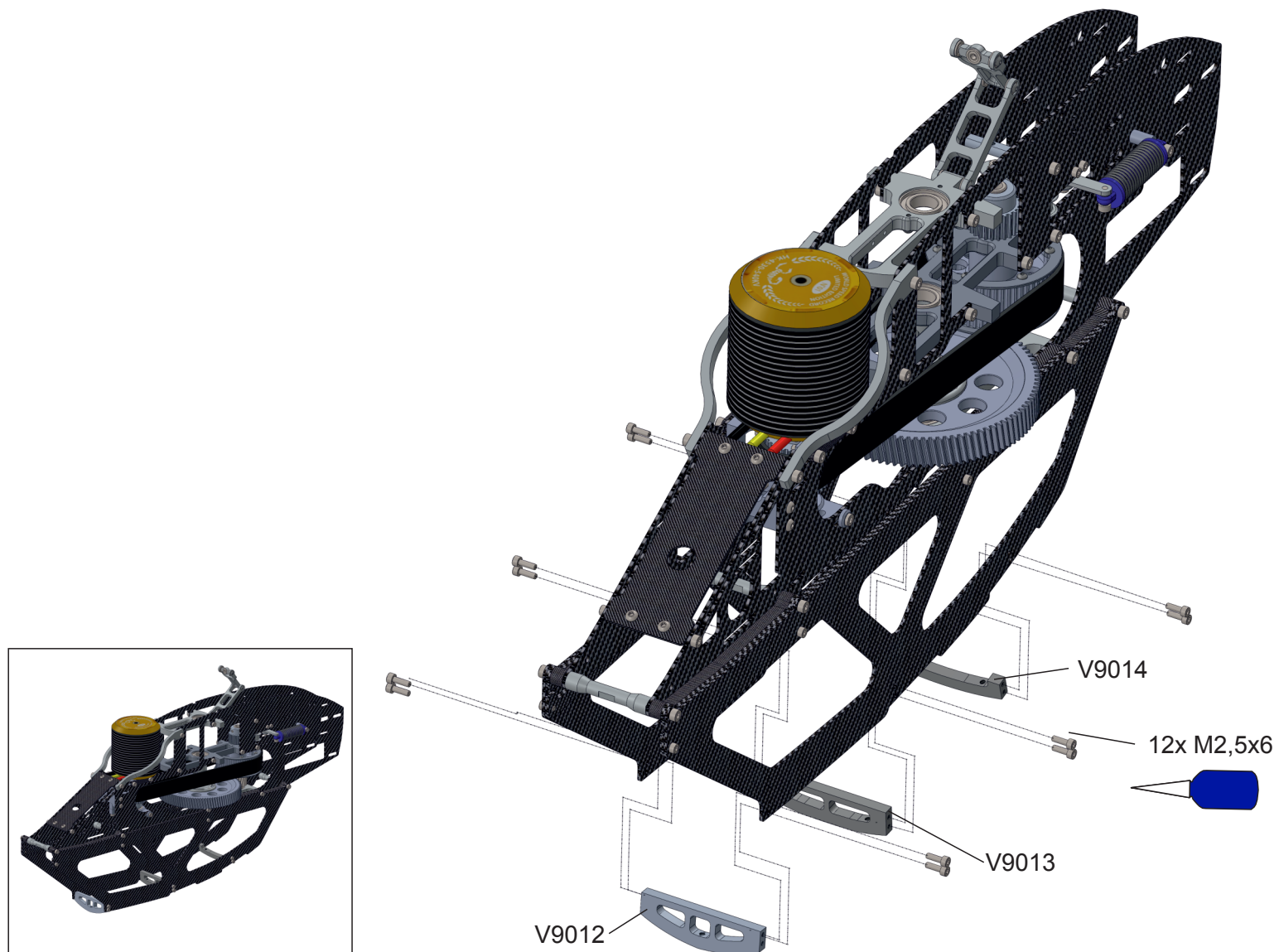
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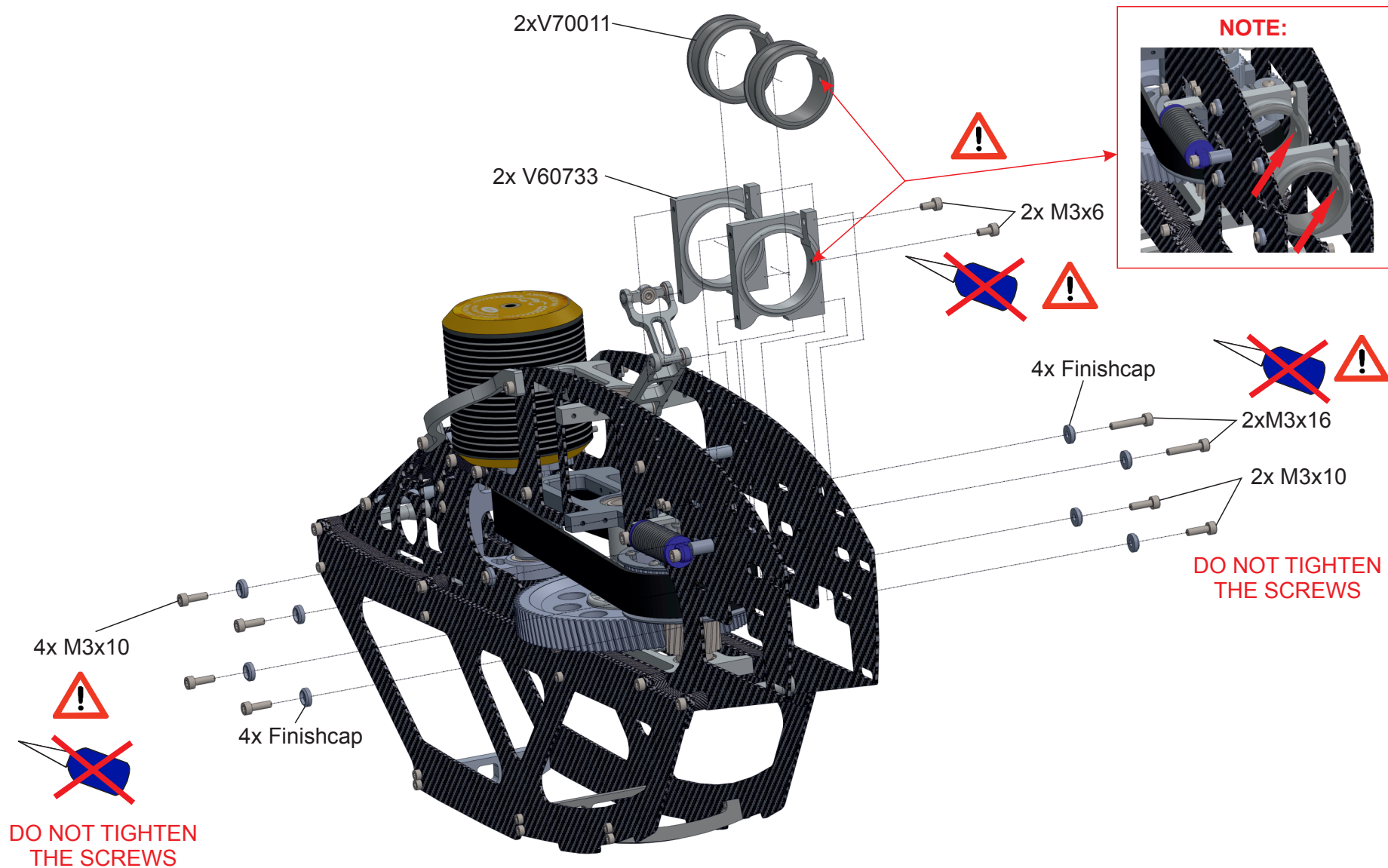
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MAINFRAME ASSEMBLY

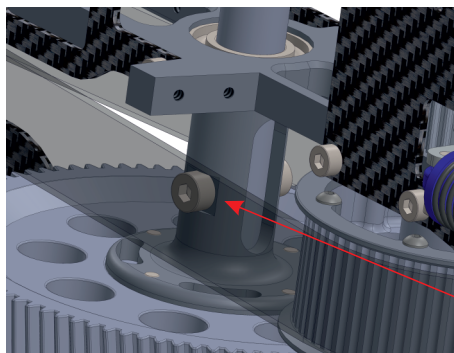


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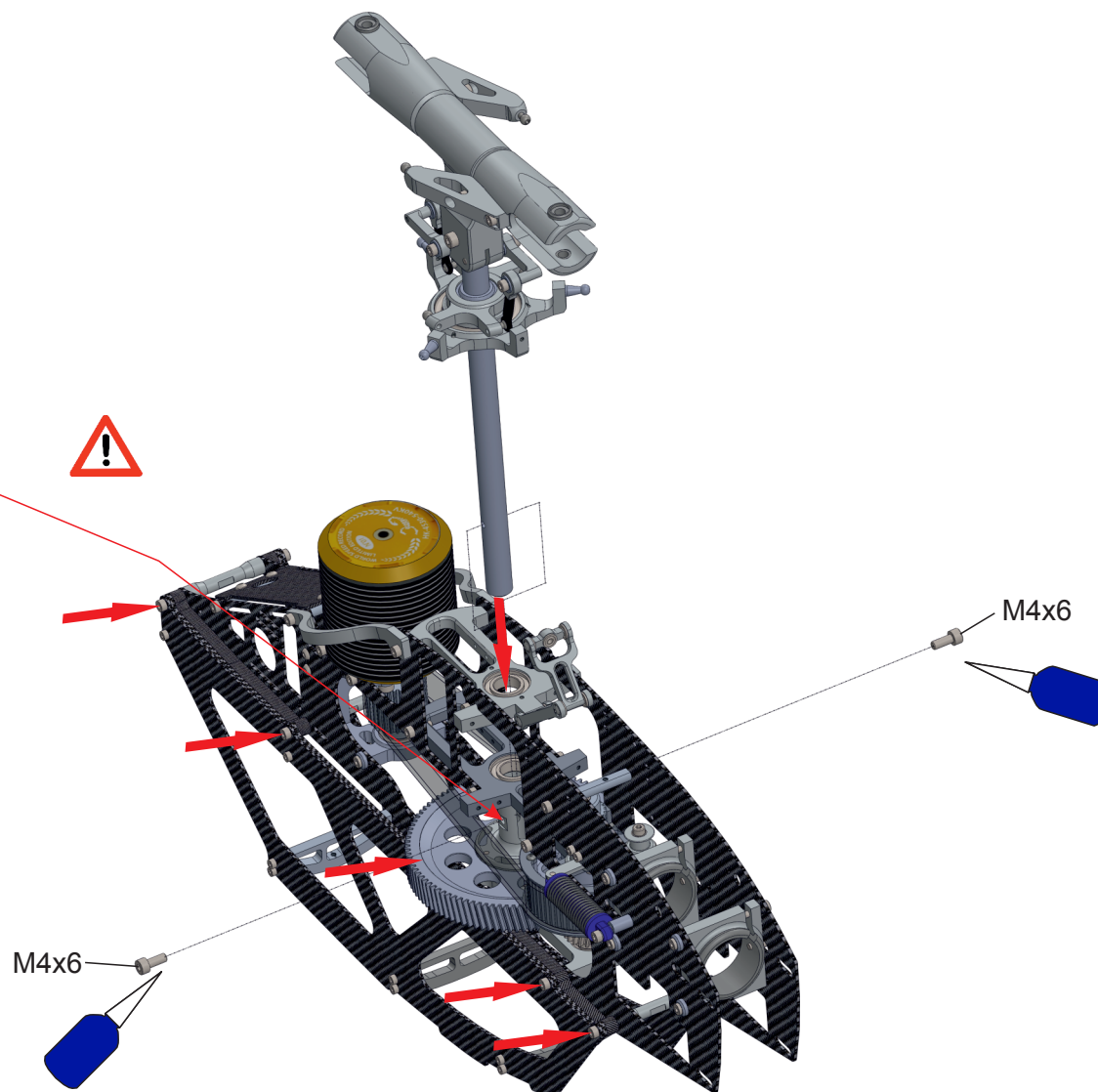
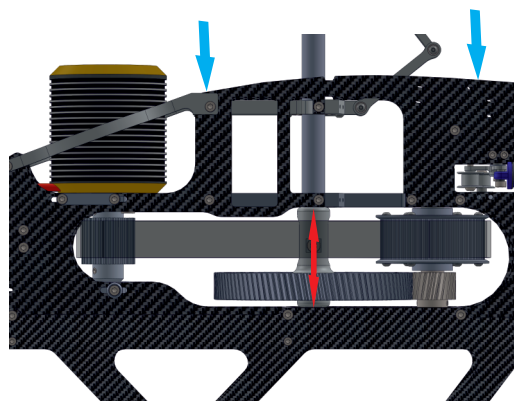
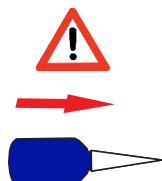
MAINFRAME ASSEMBLY

NOTE:

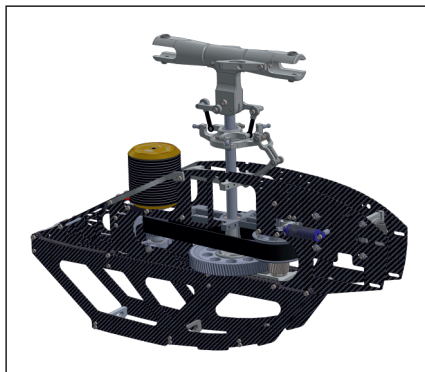
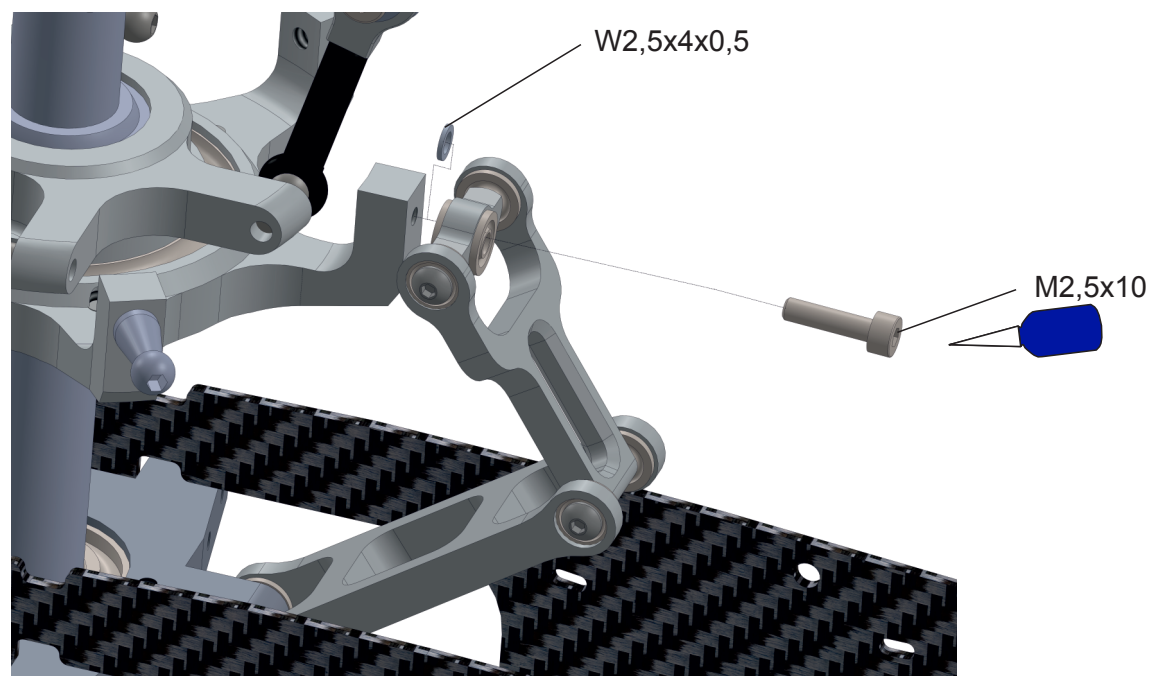


NOTE:

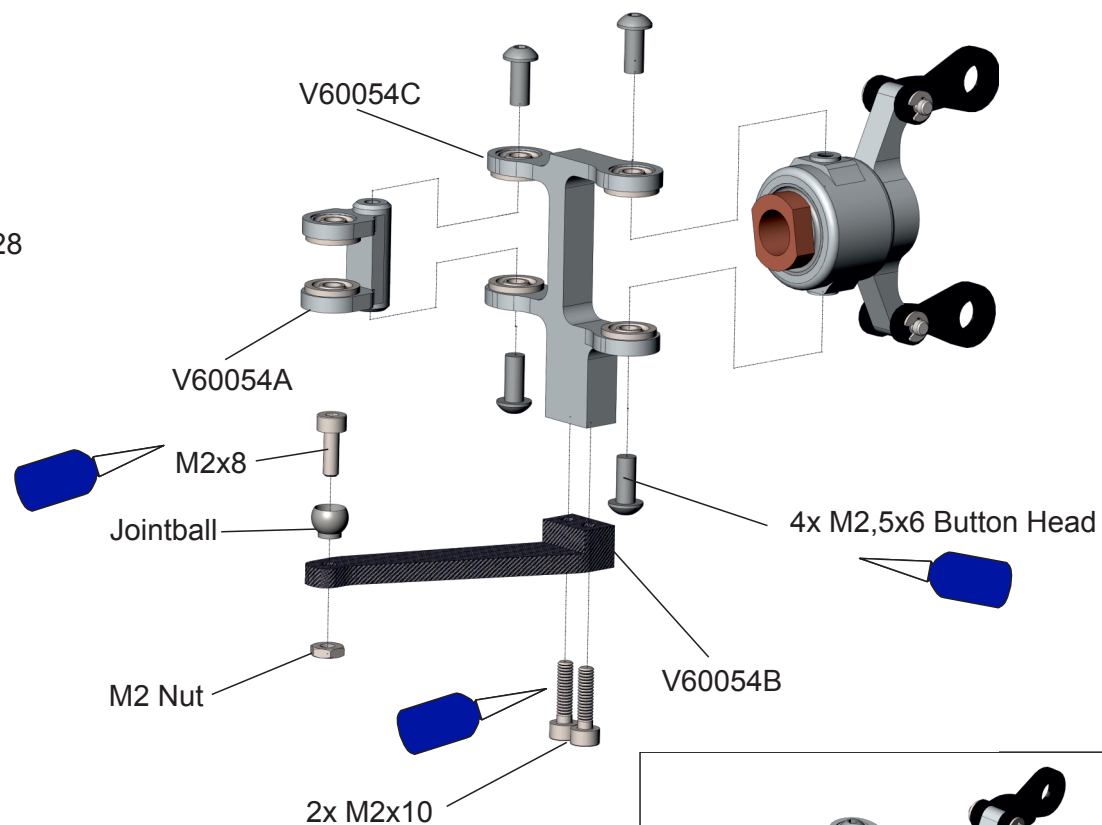
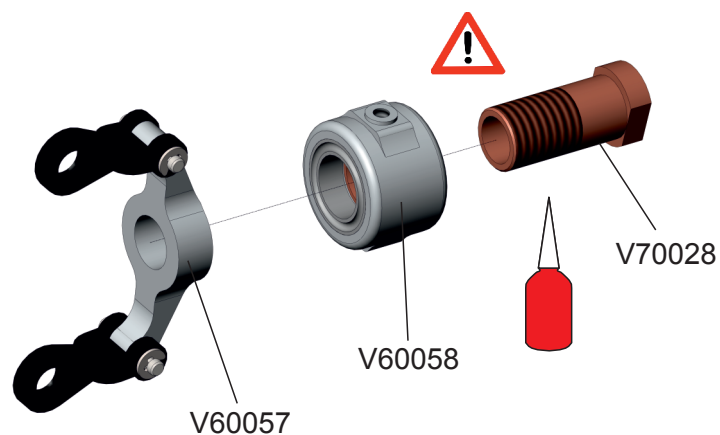
Pressing gently down the top frame and fix all M3x18 Screws (10) with thread lock will ensure there is no up/down play of the mainshaft.



MAINFRAME ASSEMBLY

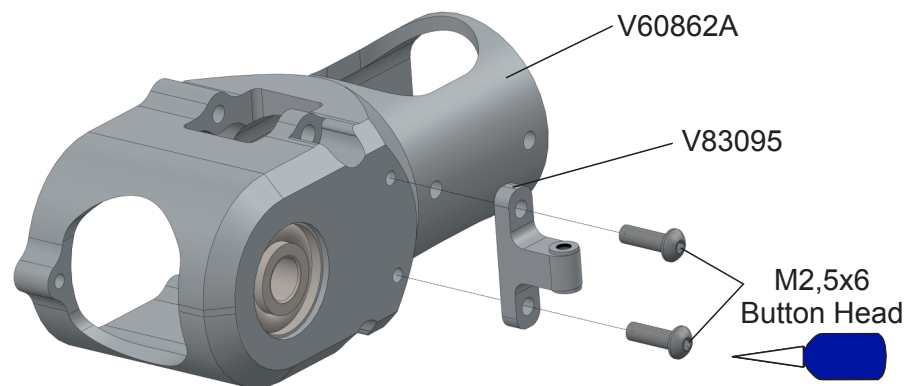


TAIL ASSEMBLY

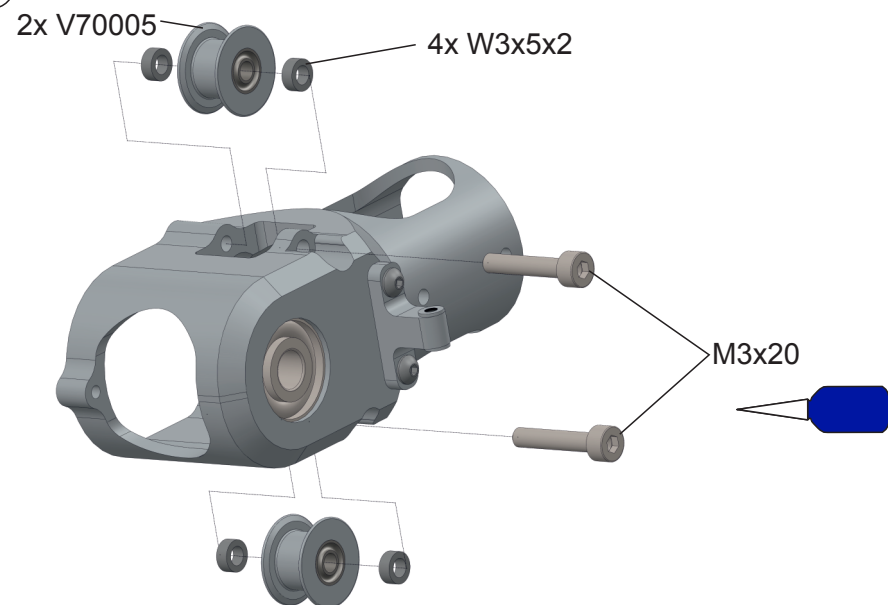


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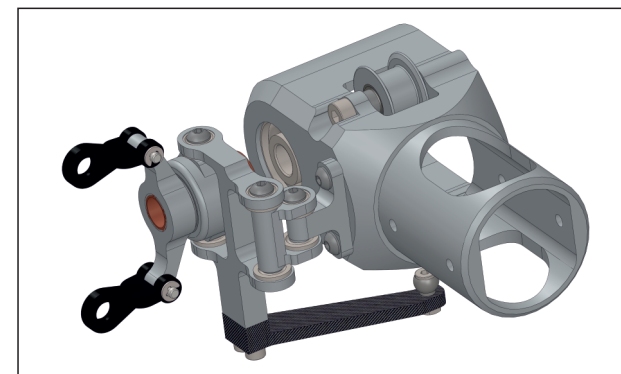
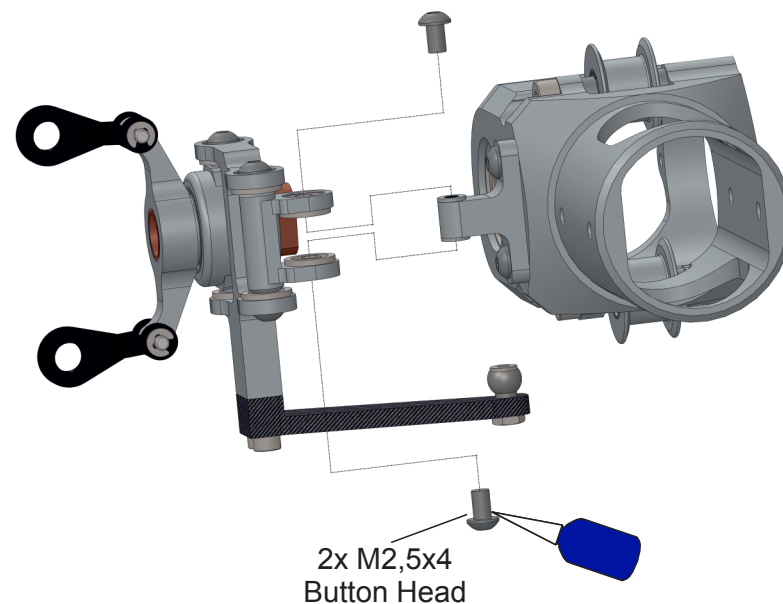
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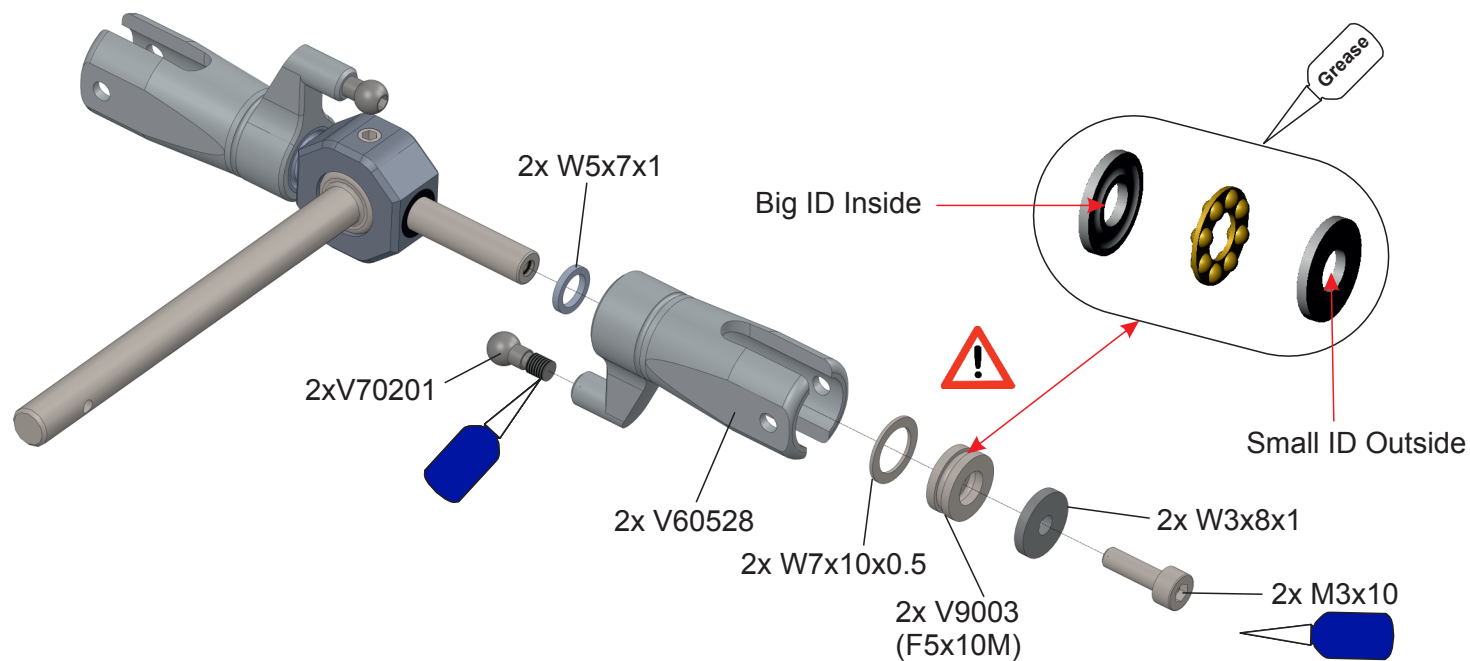
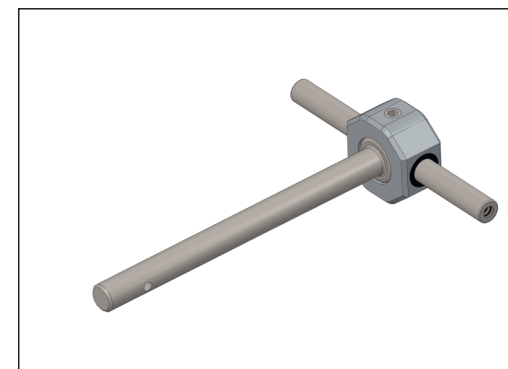
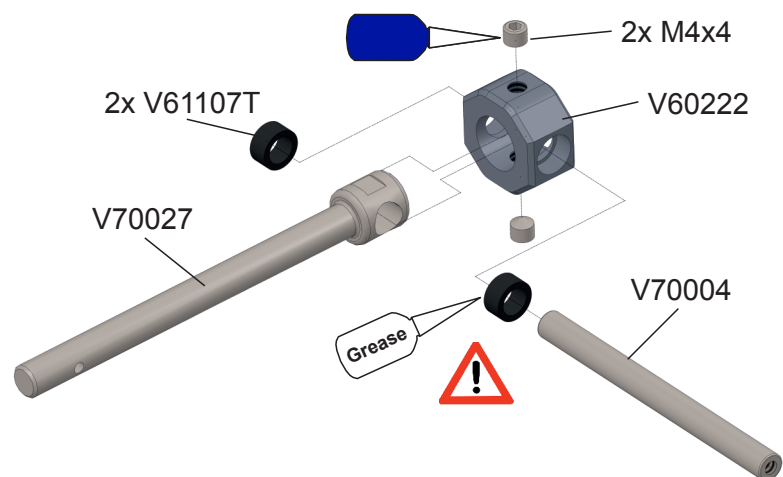
2.



3.

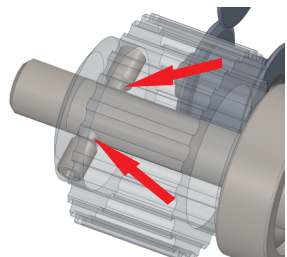


TAIL ASSEMBLY



TAIL ASSEMBLY

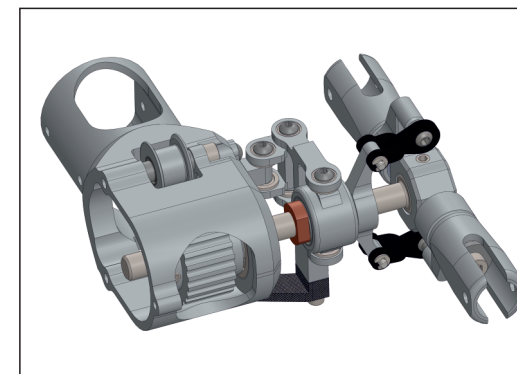
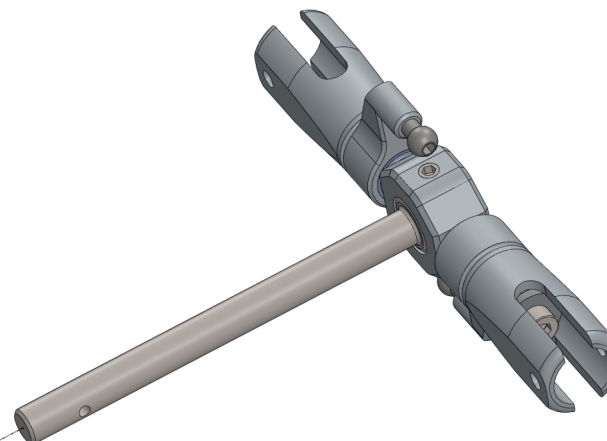
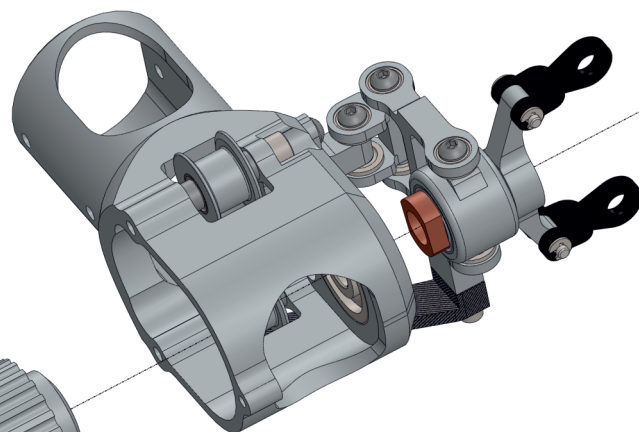
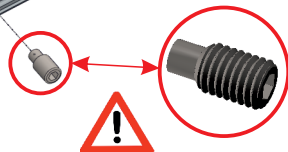
NOTE: Set Screws inside the holes of the Tailshaft



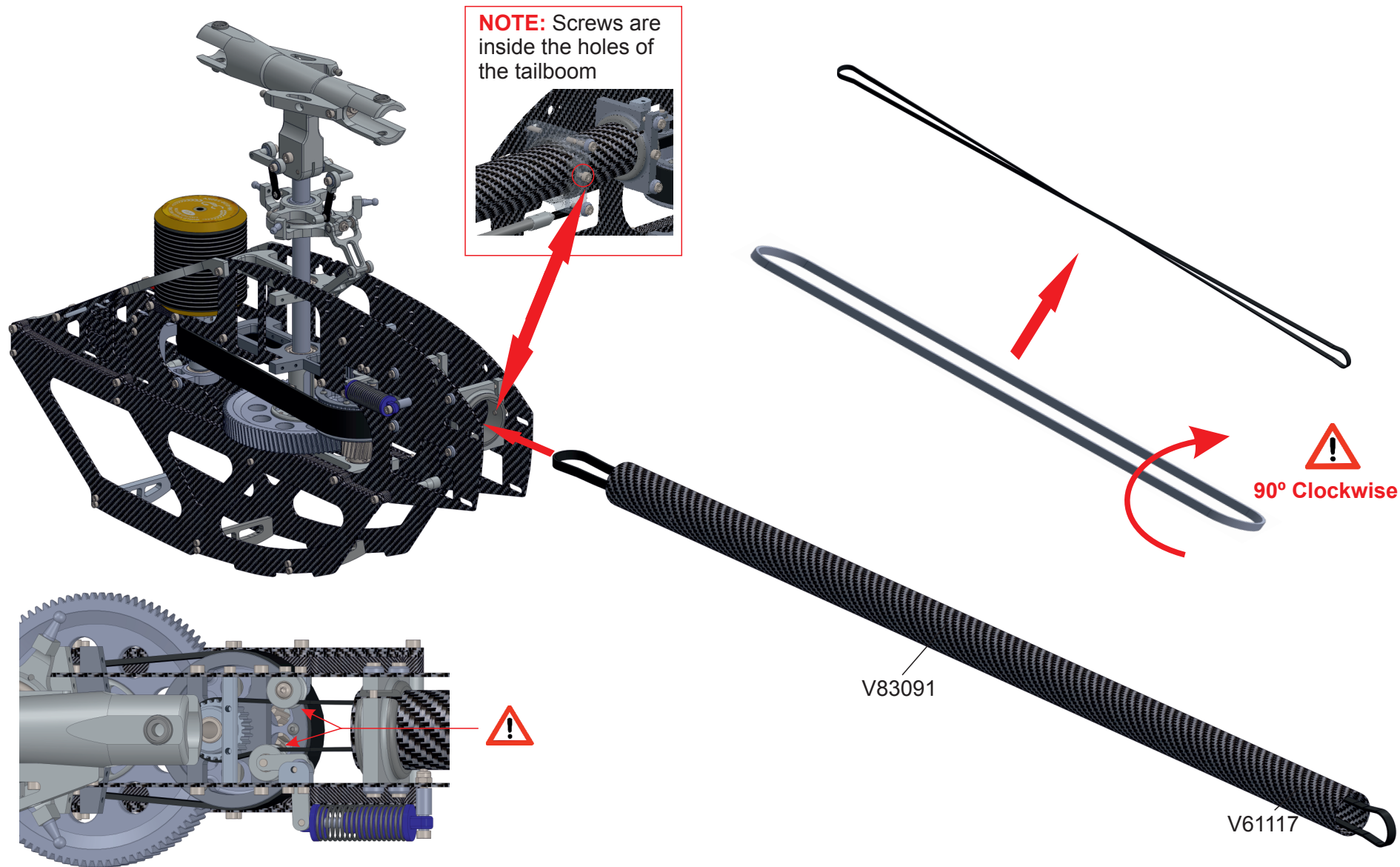
2x M3x6P



V70018

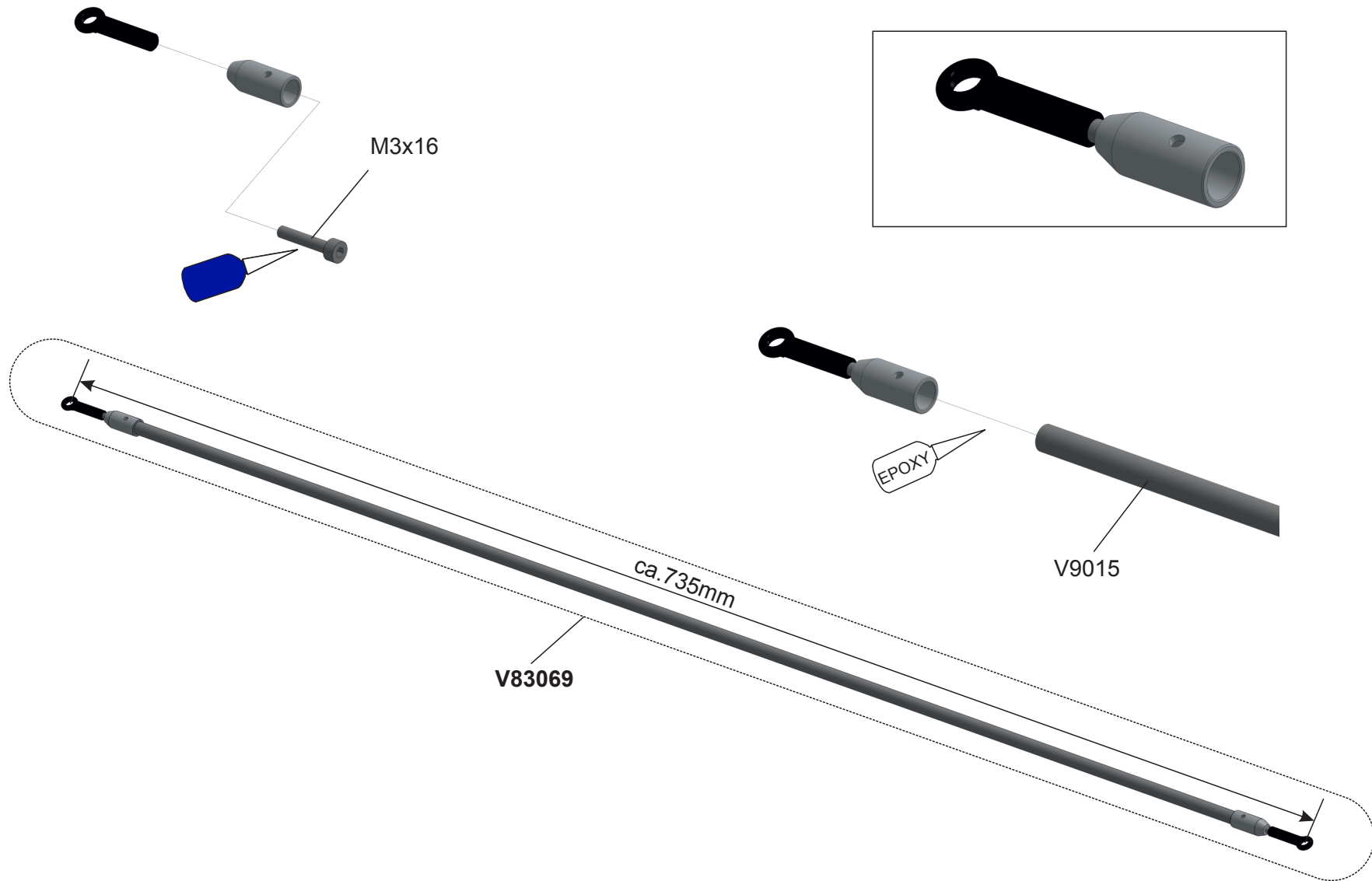


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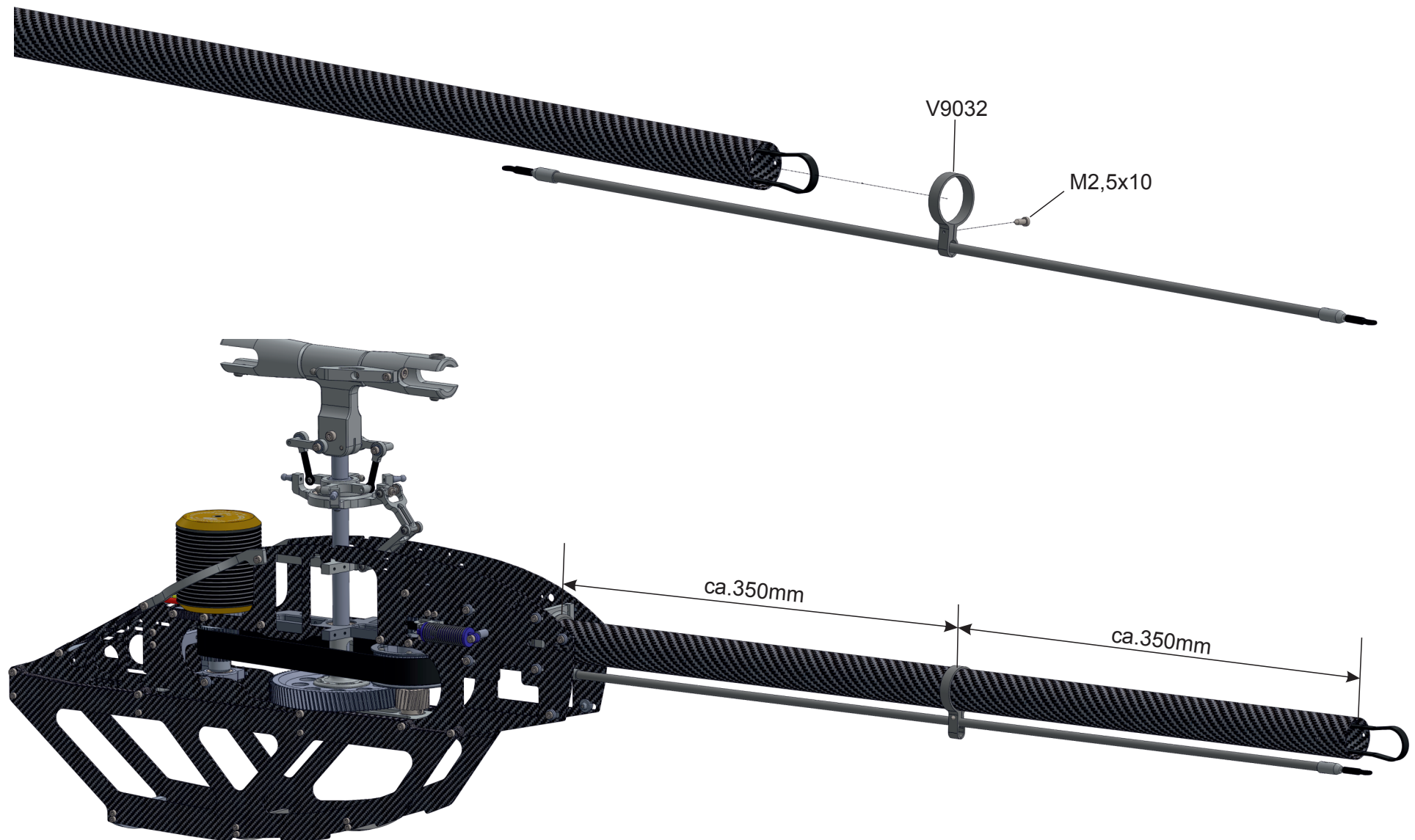


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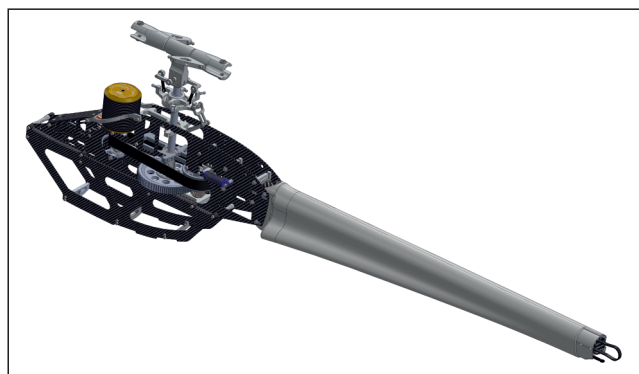
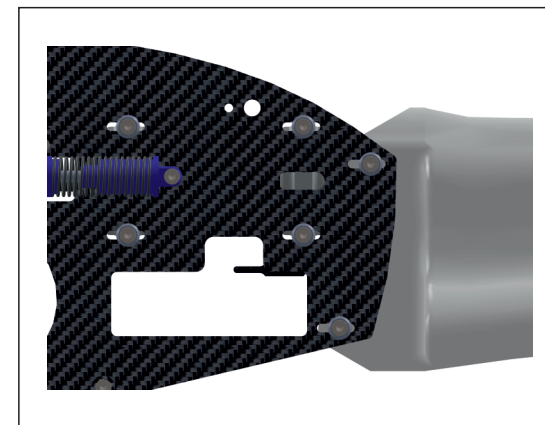
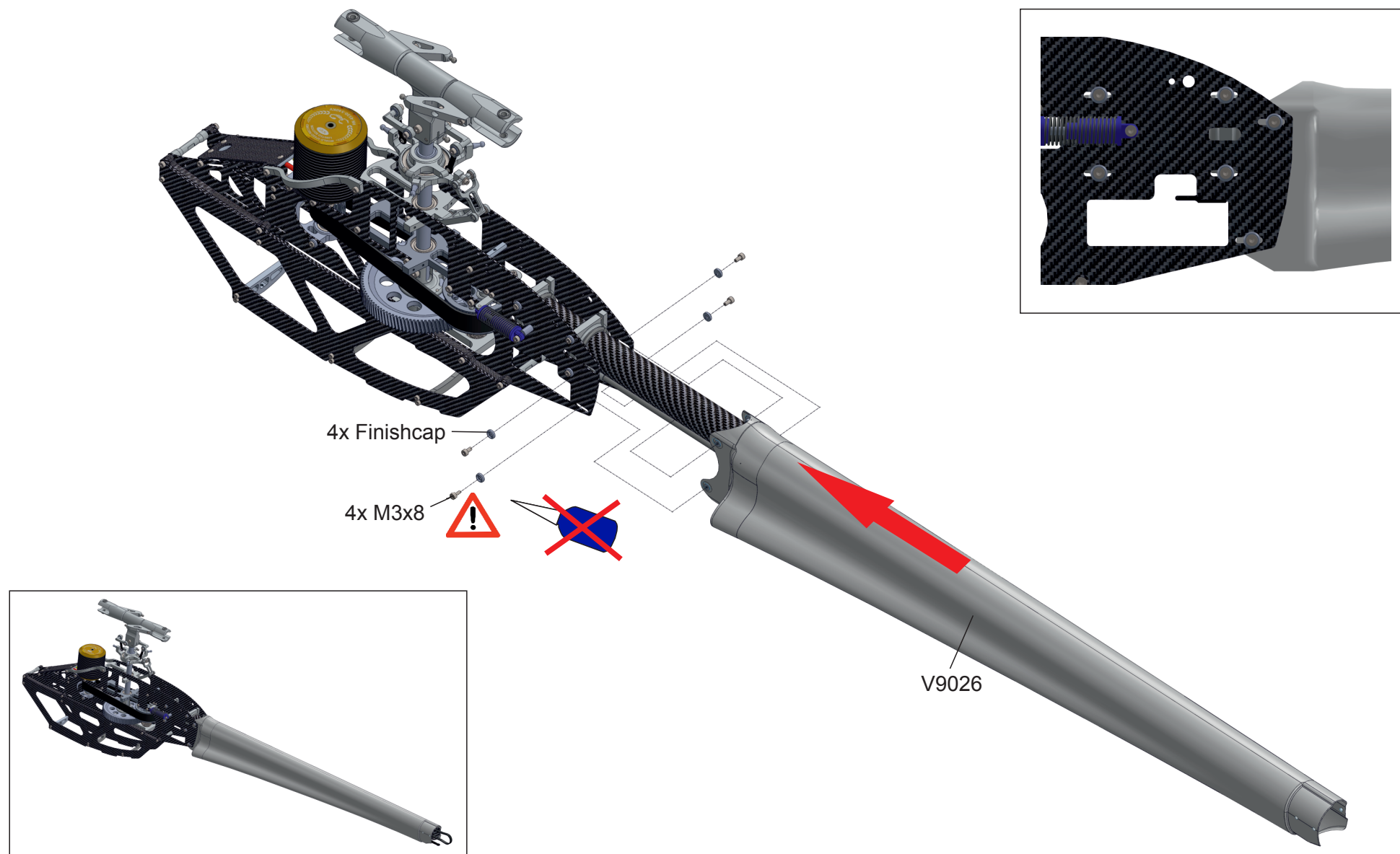
ASSEMBLE 2 SETS



TAIL ASSEMBLY

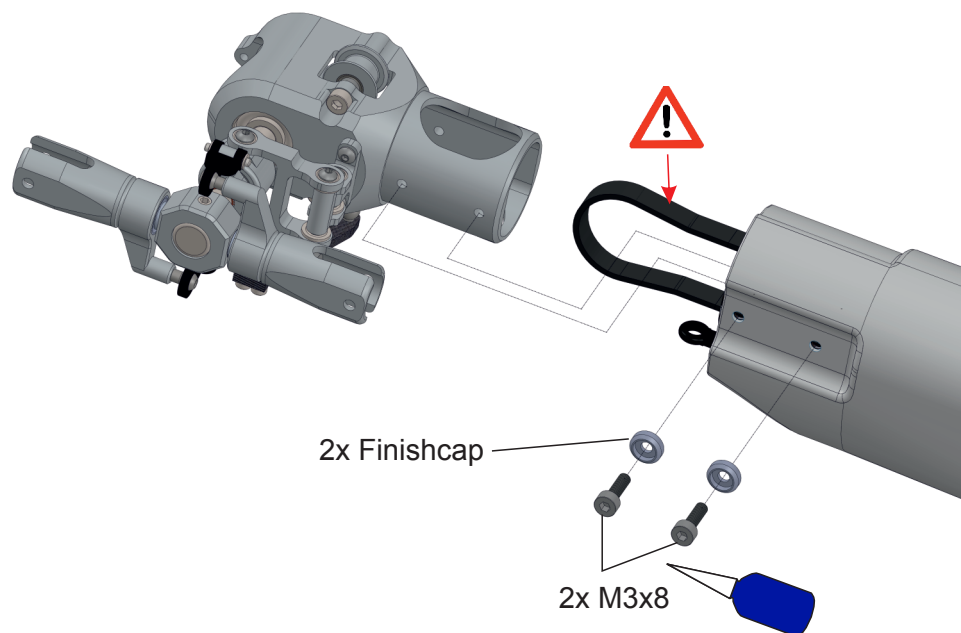


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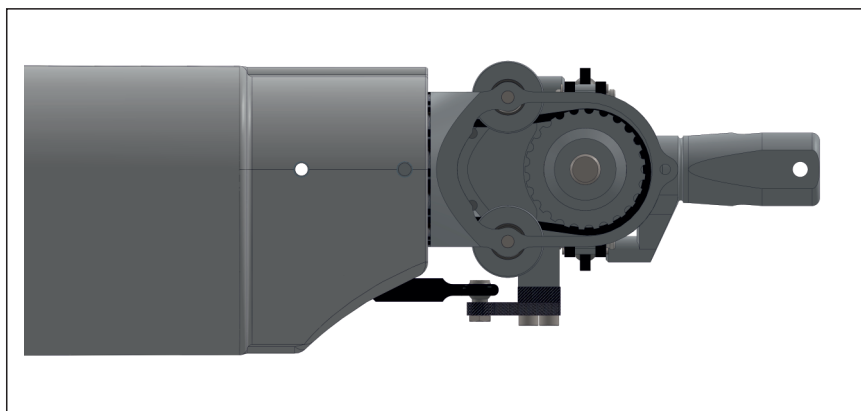
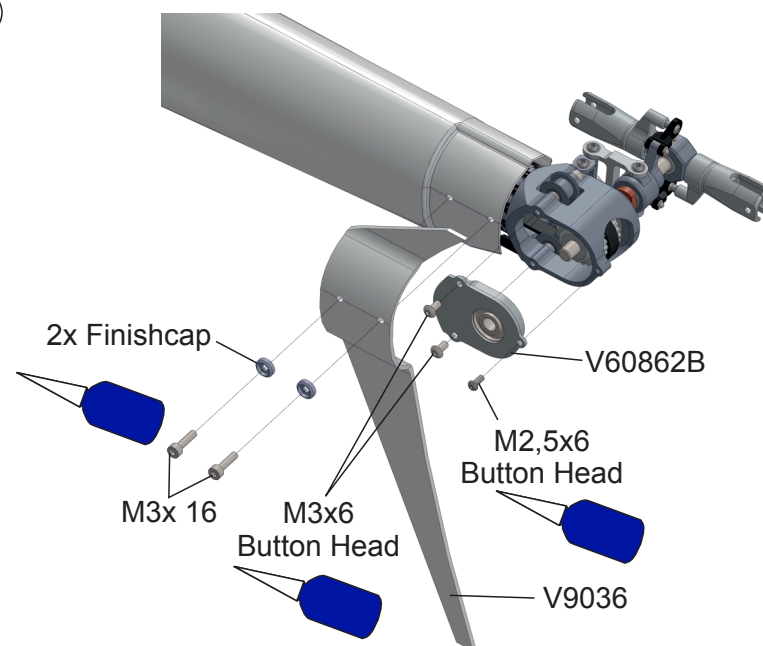


TAIL ASSEMBLY

1.

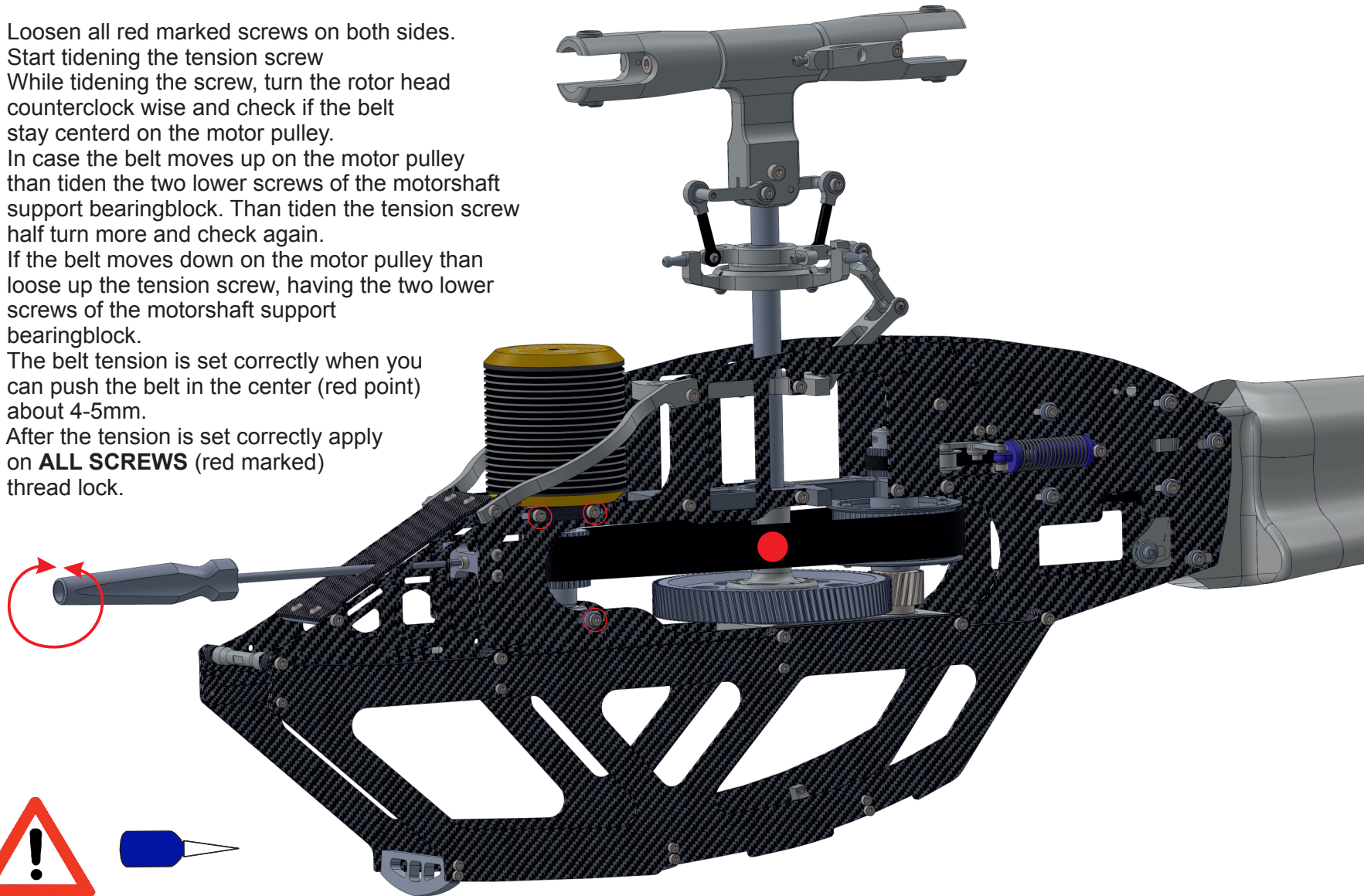


2.



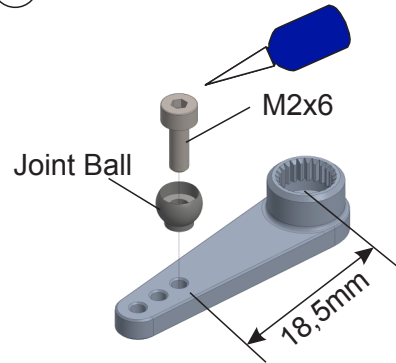
MOTOR BELT TENSION

1. Loosen all red marked screws on both sides.
2. Start tidening the tension screw
3. While tidening the screw, turn the rotor head counterclock wise and check if the belt stay centered on the motor pulley.
4. In case the belt moves up on the motor pulley than tident the two lower screws of the motorshaft support bearingblock. Than tident the tension screw half turn more and check again.
5. If the belt moves down on the motor pulley than loose up the tension screw, having the two lower screws of the motorshaft support bearingblock.
6. The belt tension is set correctly when you can push the belt in the center (red point) about 4-5mm.
7. After the tension is set correctly apply on **ALL SCREWS** (red marked) thread lock.



SERVO INSTALLATION

1. Metal Servoarms:

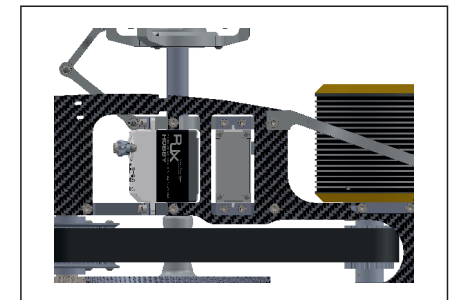
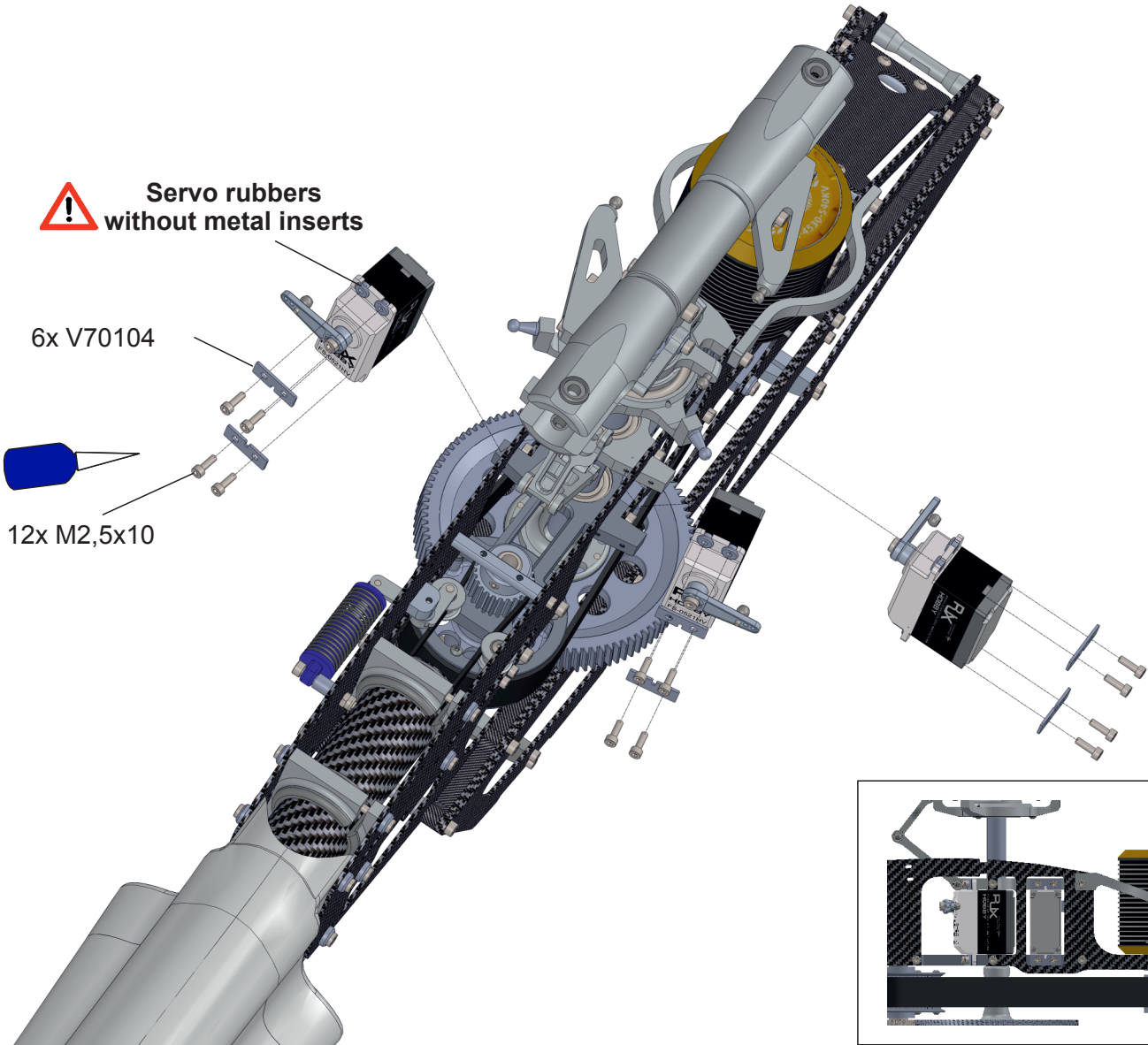
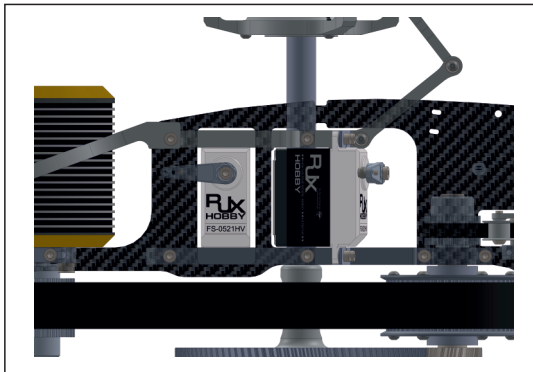


Assemble 3 Sets

 **Servo rubbers
without metal inserts**

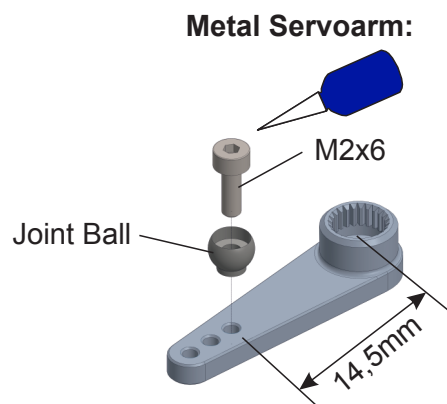
6x V70104

12x M2,5x10

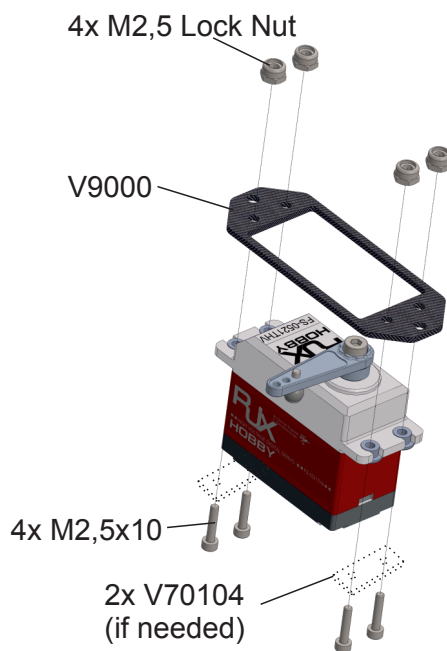


TAIL SERVO INSTALLATION

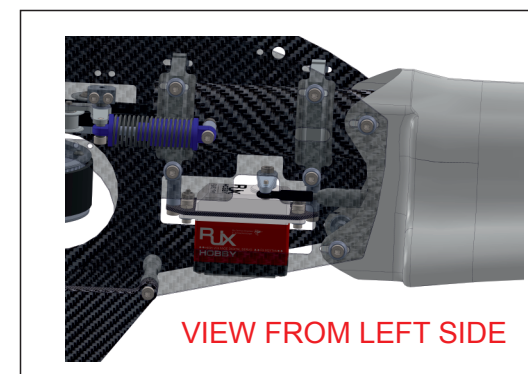
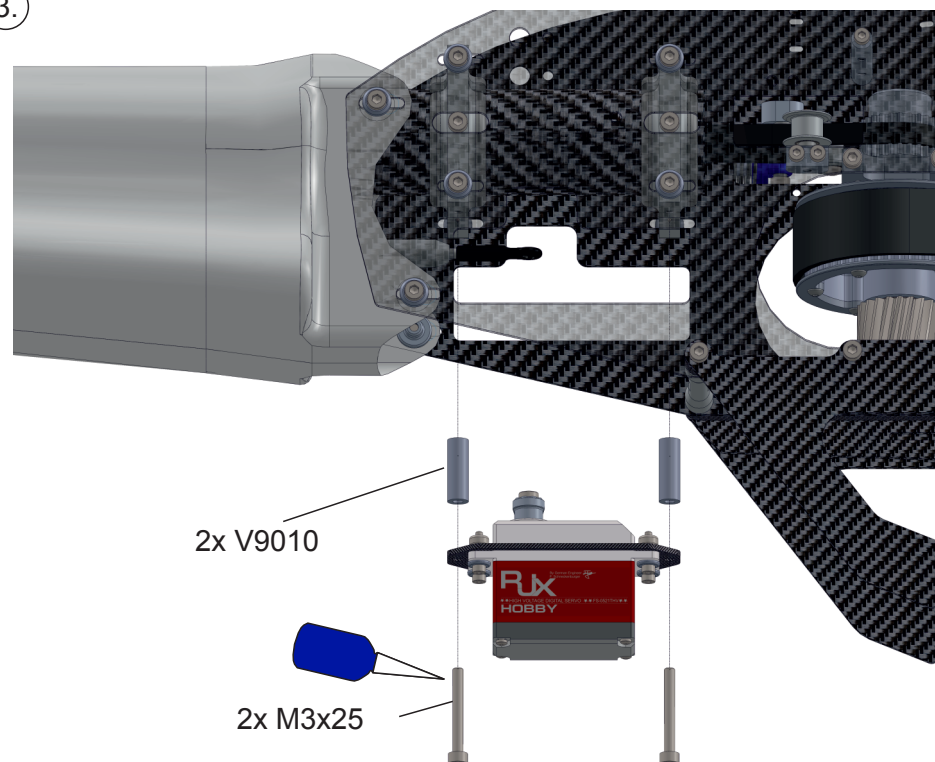
1.



2.

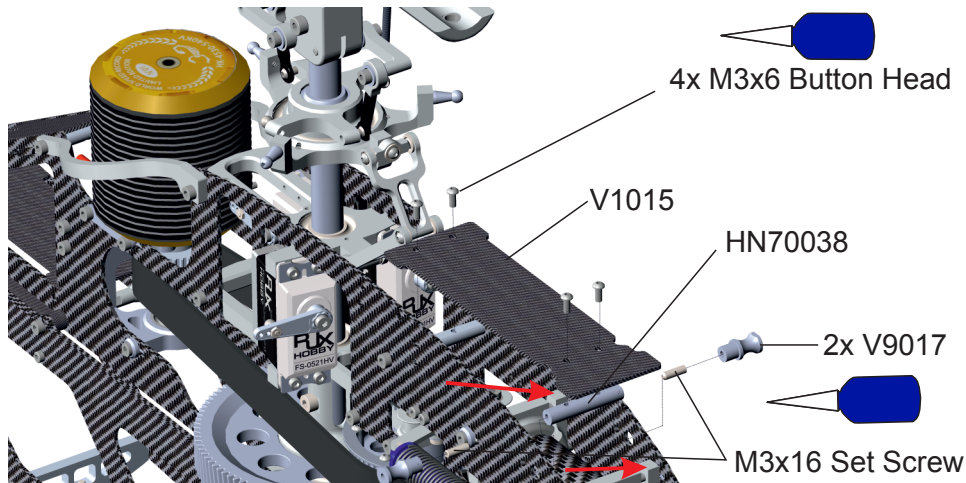


3.



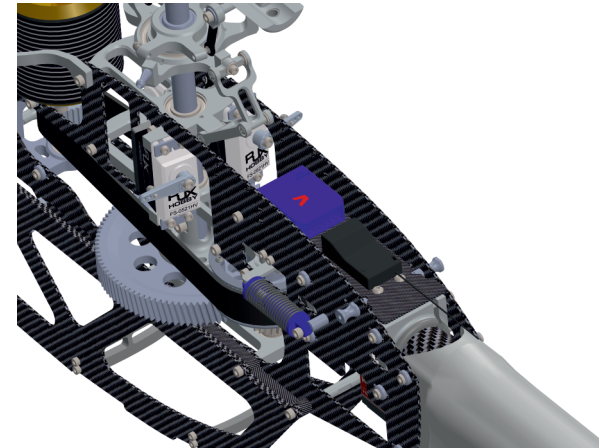
ELECTRONIC INSTALLATION

ELECTRONIC MOUNT

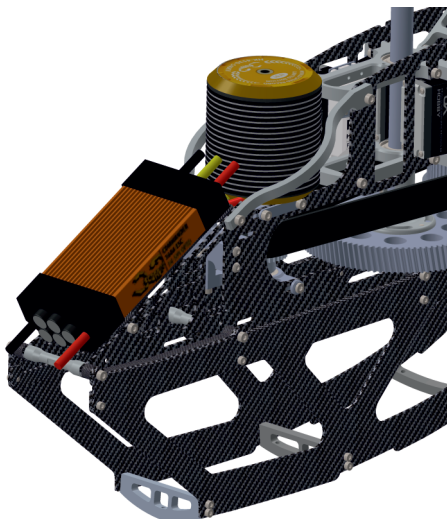


NOTE: Loosen the 2 top screws of the boom clamp helps to easy install the Gyromount.

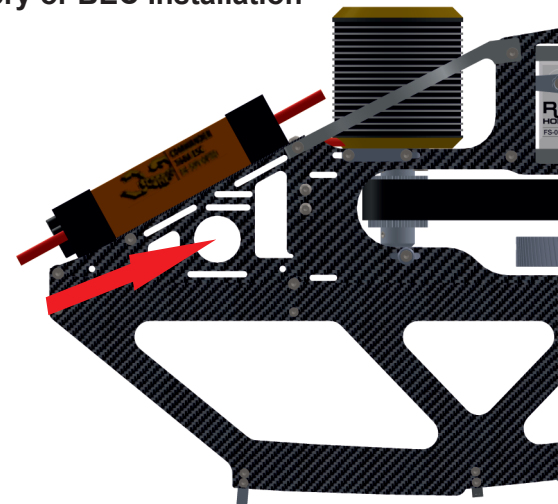
FBL UNIT AND RX INSTALLATION



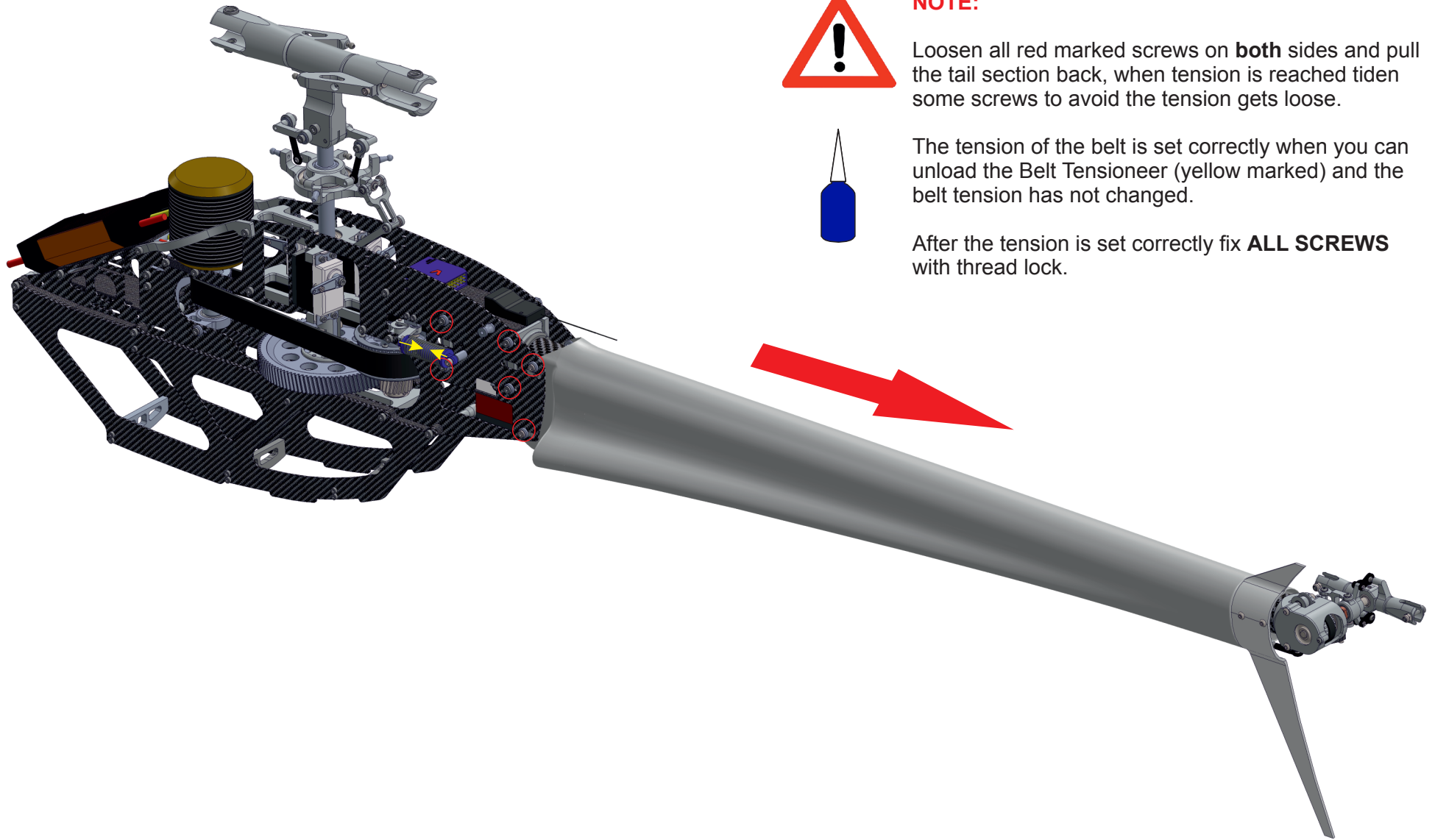
ESC Installation



RX Battery or BEC Installation



TAIL BELT TENSION



NOTE:

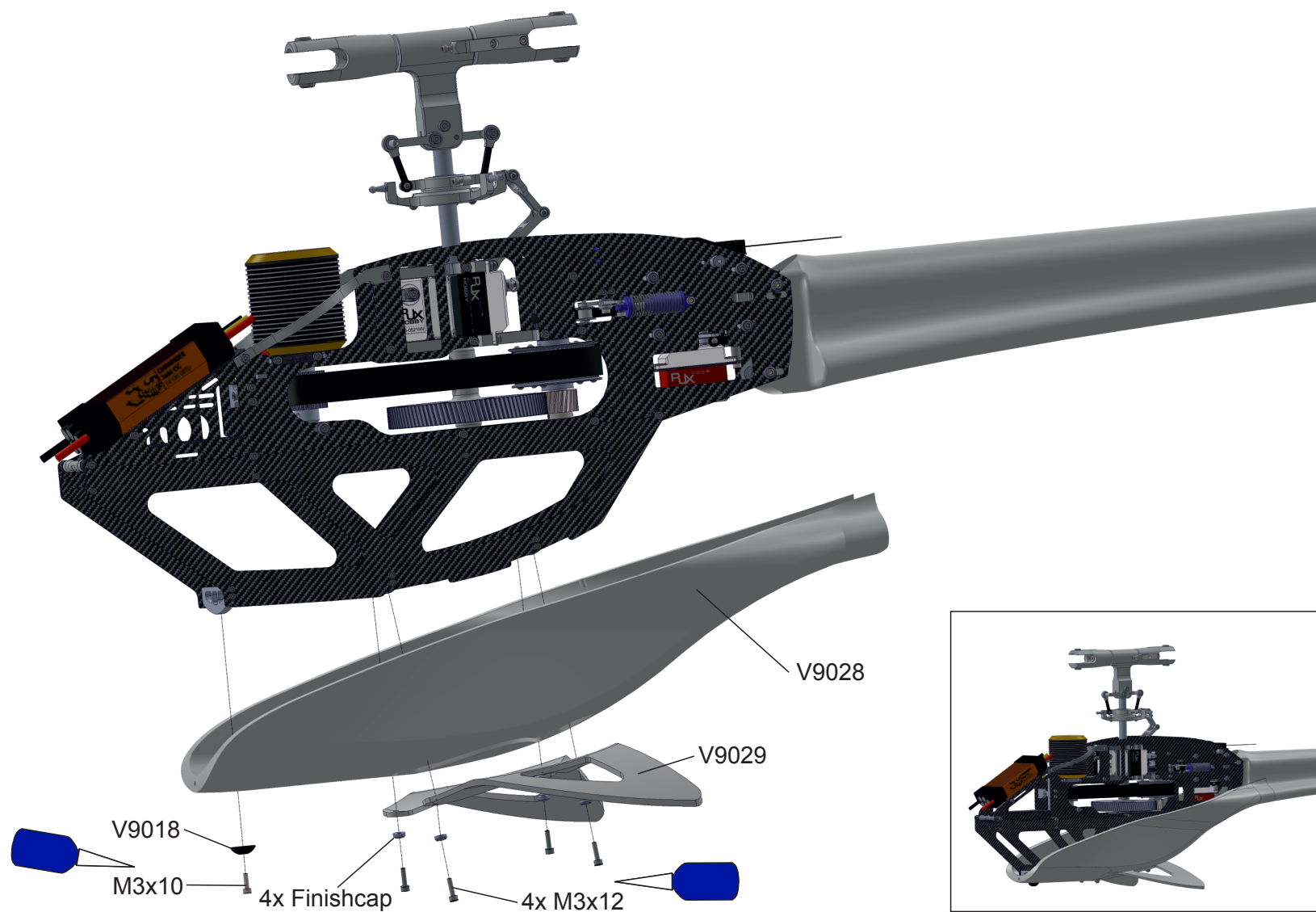
Loosen all red marked screws on **both** sides and pull the tail section back, when tension is reached tighten some screws to avoid the tension gets loose.



The tension of the belt is set correctly when you can unload the Belt Tensioner (yellow marked) and the belt tension has not changed.

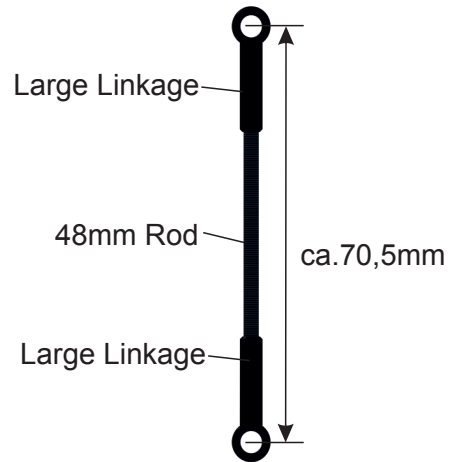
After the tension is set correctly fix **ALL SCREWS** with thread lock.

LOWER BODY INSTALLATION

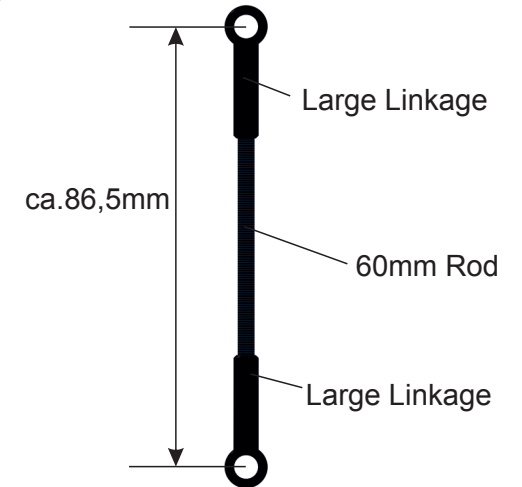


LINKAGE INSTALLATION

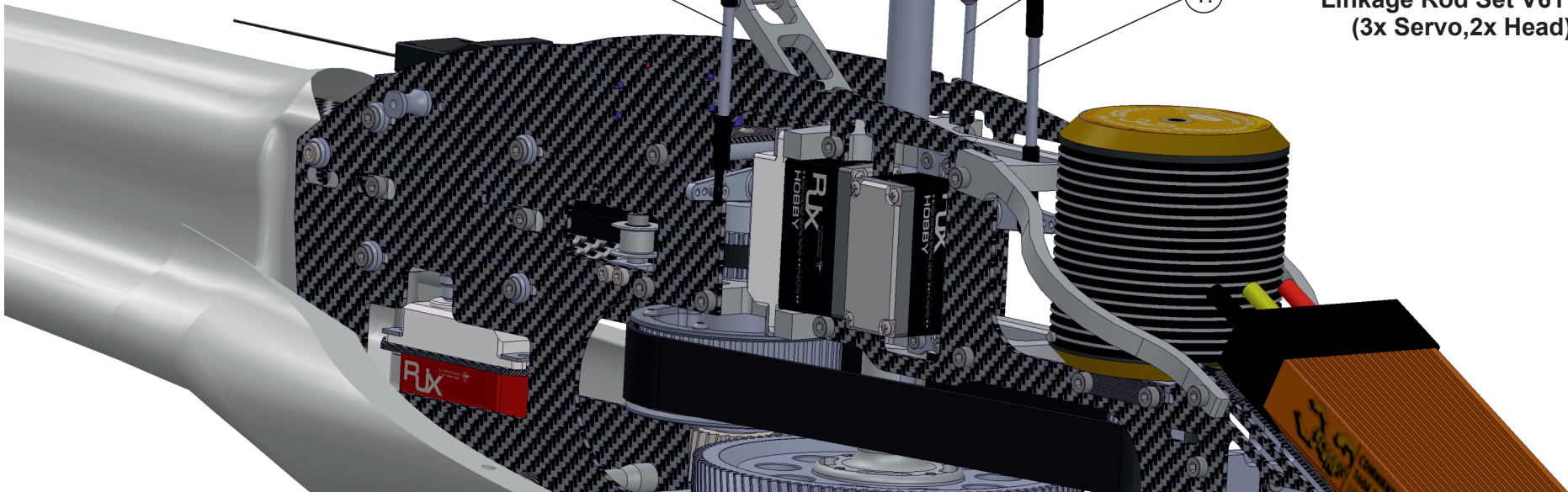
1. ASSEMBLE 3 SETS FOR SERVO



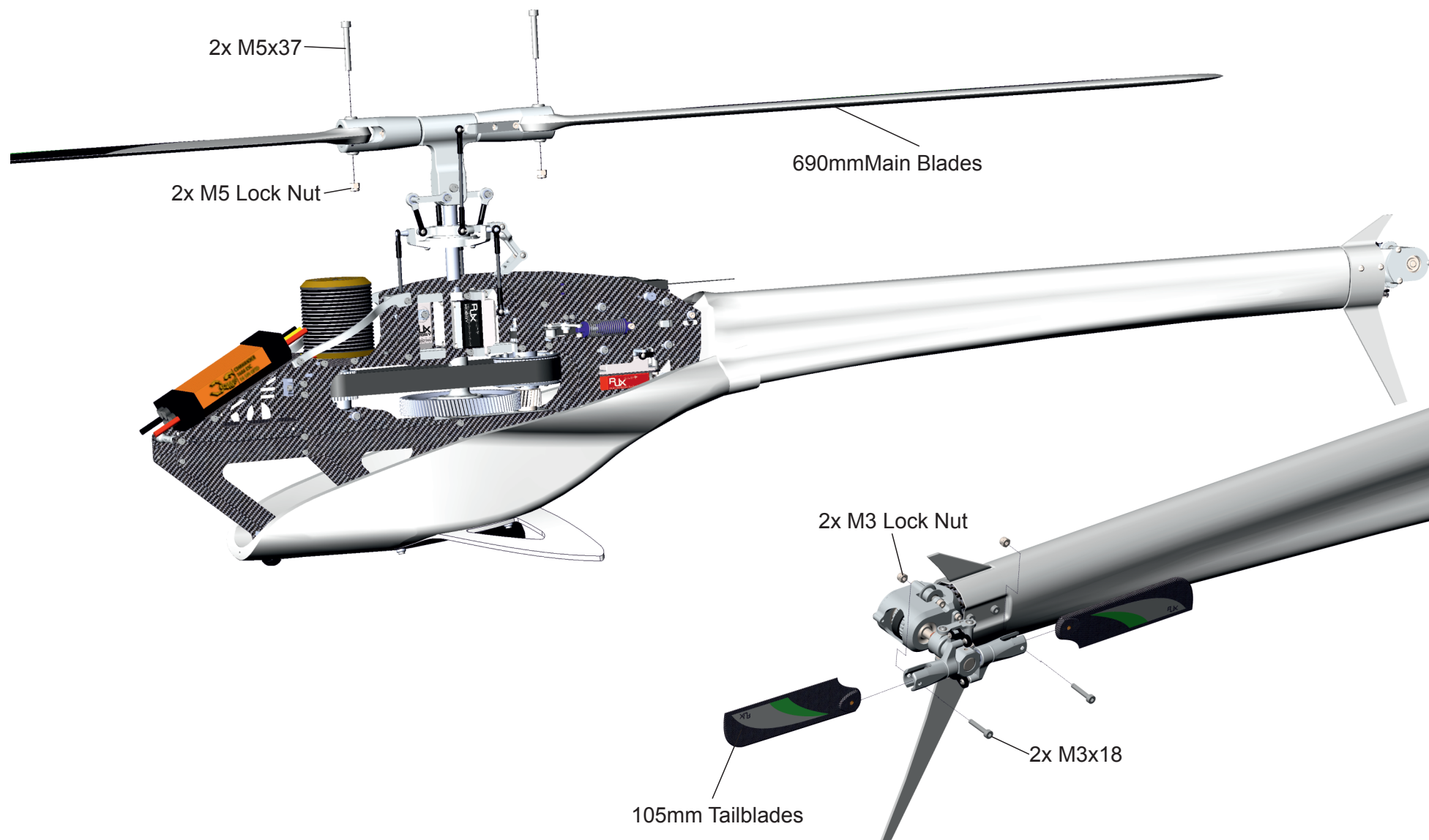
2. ASSEMBLE 2 SETS FOR HEAD



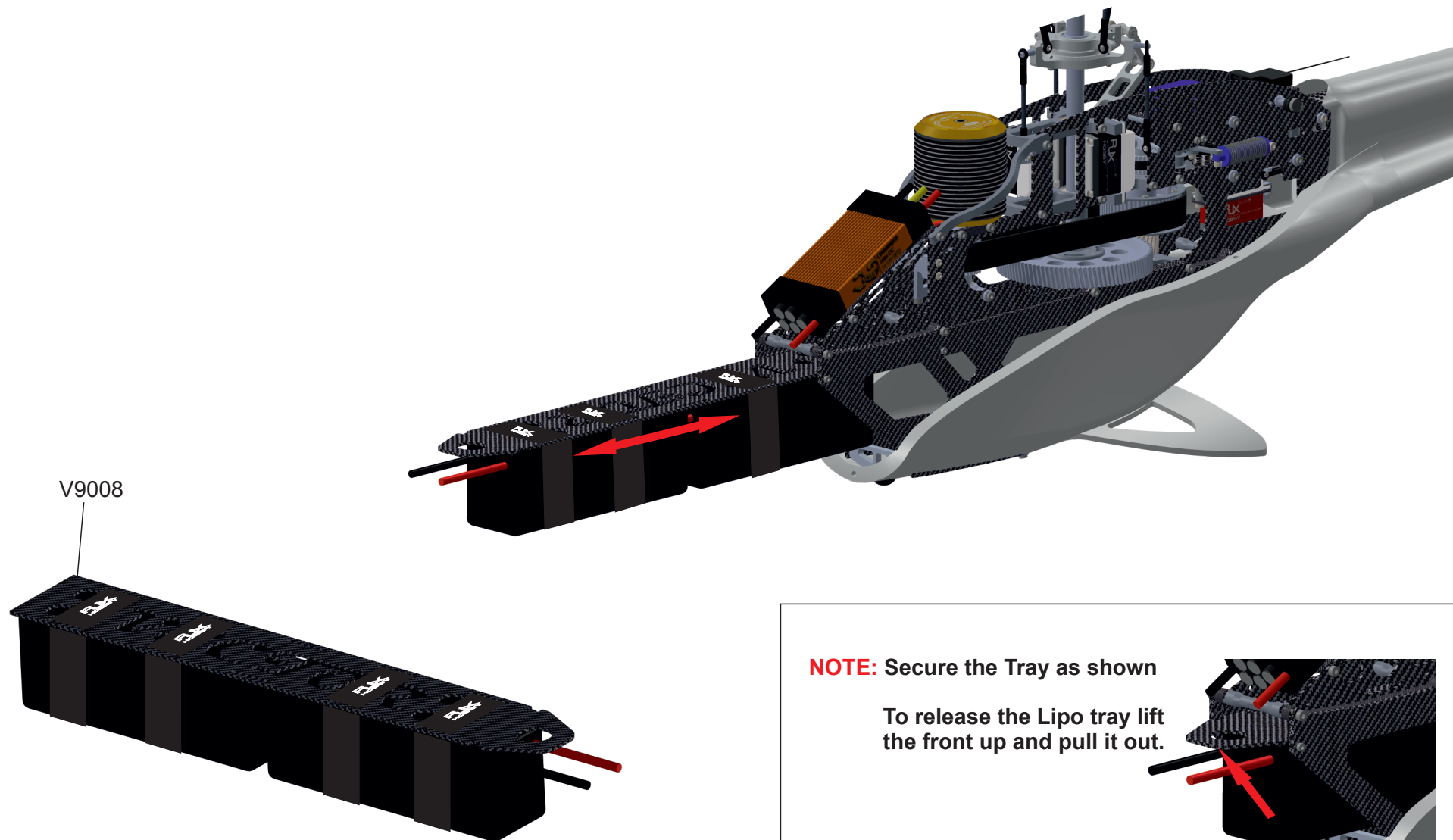
Linkage Rod Set V61112 (3x Servo, 2x Head)



BLADE INSTALLATION



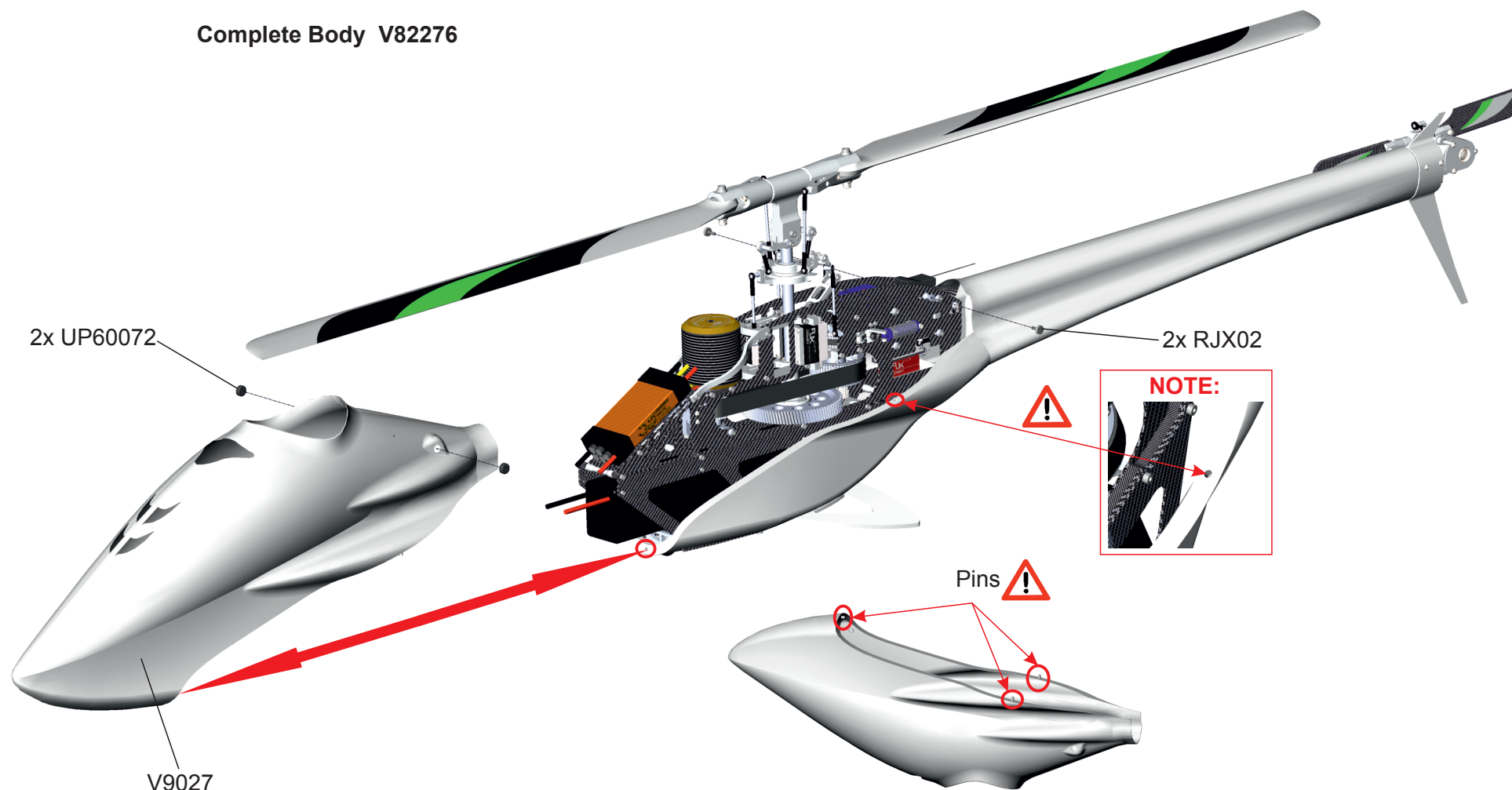
LIPO INSTALLATION



Fix lipo packs as shown on the Battery Tray

FINAL CANOPY INSTALLATION

Complete Body V82276



FINAL SETUP AND ADJUSTMENTS

Rudder and Throttle, Servo Adjustments

1. **Checking the servo rotation:** With the radio transmitter and receiver switched on, move the rudder and throttle sticks checking that each servo moves in the correct direction. If either Servo moves in the wrong direction, reset the servo using the appropriate reversing function on your transmitter.

2. **Travel Adjust:** Travel adjust settings are changed in conjunction with the settings in the Flybarless system settings.

NOTE: Try to get the mechanical set up as close as possible to the values given in this manual and you will find that final trimming will be much easier. Using the transmitter to correct a poor mechanical set up will result in a model that is very difficult to trim and fly.

3. **Sub Trim Function.** When the rudder stick and trim are in their mid-position, make sure that the servo horn and tail control rod are at 90°. If you cannot achieve the desired servo arm position, use the sub trim function to make minor adjustments.

NOTE: It is necessary to keep the sub trim values as close to zero as possible to make final setting up simple.

Now that the radio system is fully installed the following items require precise adjustment to achieve the best results.

1. **Dual Rates:** If dual rates are available for the aileron, elevator and rudder channels, then ensure they are all set to the same position for high and low i.e. all up or all down. Either

switch position may be selected as low or high rate. Please see your radio manual for further information.

2. **Exponential settings:** We suggest the exponential rate settings for the elevator and aileron to remain at zero during the initial test flights. When the model has been properly trimmed, adjust exponential values to achieve the control feel to suit you. When using a fast response gyro on the rudder, the exponential value should be adjusted to approximately 40% to 60% to improve control response.

3. **Sub Trim:** We suggest that the correct settings be achieved with the minimum use of this function. If the sub trim is used for the final adjustments, the values should not vary by more than +/- 10 from the neutral point. If the values need to be greater than the neutral point, then reset the sub trim to zero and recheck and/or re-adjust the control linkages.

4. **Throttle hold function:** When this switch is activated, the throttle channel is set to stop while still leaving the control of the collective pitch active. This is very useful when practicing autorotation landings.

5. **Flybarless system adjustment:** ensure the Flybarless system is setup per manual instructions. Incorrect setup can cause serious damage to your helicopter and to you. If you have

FINAL SETUP AND ADJUSTMENTS

never setup a Flybarless system before, ask an experienced pilot or your local hobby shop for assistance.

6. Gyro direction: The gyro direction has to be set correctly. An uncontrollable pirouette will occur on take-off if it is not. To set the gyro direction, turn on the radio system and move the rudder stick to the right noting in which direction the servo arm moves. Next, suspend the helicopter by the rotor head, watch the servo arm as you rotate the body of the helicopter counter clockwise. The servo arm should move in the same direction as. If the arm moves in the opposite direction, reverse the gyro direction and re-test.

NOTE: We recommend that a good quality high-speed servo be used for controlling the tail rotor. Please refer to the above gyro's instructions for further information.

7. Collective pitch setup: A pitch gauge will be required for this operation.

	LOW	MIDDLE	HIGH
Normal	-4°	+5.5°	+12°
Idle	-12°	0°	+12°
Autorotation	-12°	0°	+12°

The total pitch range of the RJX VECTOR 700 is approximately 30 degrees depending on your travel settings. [max +15° and min -15° degrees]. This means that the center value is 0 degrees. Attach a pitch gauge to one rotor blade and check that the collective pitch setting at center stick is 0 degrees. If the pitch value is slightly more or less, adjust the length of the connecting rod until the value is correct and then do the same for the other blade.

3D Settings: With the center pitch value now set to 0 degree, it will be necessary to set the maximum positive and negative values to those shown in the table above. If the values do not correspond, increase or decrease the pitch curve using the settings on your virtual flybal system, to increase or decrease without causing binding. If you still have difficulty in obtaining the maximum positive or negative pitch values shown in the table, re-check the pitch control rod lengths, and re-adjust as necessary.

8. Pitch Curve: This setting allows you to set the pitch of the main blades to the corresponding position of the collective stick. Adjust the main blades to give the settings shown in the chart below. You may find it necessary to make minor adjustments to these values to suit particular settings.

9. Throttle curve: It is very important to match the throttle curves to those of the main blades. **The rotor head should not exceed 2,300 RPM under any circumstance.**

NOTE: Throttle curve values can vary greatly due to transmitters, brushless motor and ESC combinations and so it's necessary to fine tune the settings by test flying to achieve the best results.

10. ESC Setup: For optimum results, it is important the ESC is set up to run properly, and since this depends on the Lipo packs used to reach the lowest amps. Possible do not damage the

FINAL SETUP AND ADJUSTMENTS

brushless motor, ESC or LiPo packs. Follow the instructions of the ESC Manual and set it up correctly.

11. *Final checks before attempting flights:* Before attempting to fly, please go through this manual and double check your work again.

1. Check that the main and tail rotor blades turn in the correct direction (main rotor clockwise, tail rotor counter-clockwise).
2. Check to ensure that all of the servos are operating smoothly and in the correct direction and that each servo is secured with a screw.
3. Ensure that the ESC and brushless Motor is working properly and in the correct direction.
4. Check that the virtual Flybar System is operational and compensating in the correct direction. Make sure that both the transmitter and receiver have been fully charged.
5. Check that the main and tail rotor blades are installed correctly.

CAUTION

Be sure to maintain a safe distance of at least 7 meters from the helicopter when observing the track of the main rotor disc. Blade tracking ensures that both of the main blades are set to the same pitch angle, and if done correctly, it will make your helicopter operate smoothly. Adjustment should be done using the following method: Increase the pitch of the low blade by extending its connecting link by one full turn.

NOTE: you can only make this adjustment in increments of one full turn. Otherwise, you will be trying to fit the link on the ball joint the wrong way (the mark on the link must face

outwards). Check the tracking again, if the tips of the rotor blades are in line, you have finished and ready for your first flight! If the blades still require adjustment then reduce the pitch of the high blade this time. Repeat this procedure until the blades are tracking true.

A check of the tracking should be part of your pre-flight check routine. If it has suddenly gone out, it is an indicator that something is wrong and needs immediate investigation. The RJX VECTOR 700 is the perfect choice of intermediate and expert level RC Helicopter pilots, however, radio controlled models such as this can crash and cause serious damage to people and property if not properly assembled and flown with great care. Please exercise the highest levels of caution and safety when operating this model and if you are a beginner, please seek help from an experienced RC helicopter pilot.

Pre-Flight

Check the battery voltages of the transmitter and receiver packs. Do not risk that "last flight", it really might be the last flight of the helicopter.

Check to ensure the main rotor and the tail rotor are free from damage. Do not fly with suspect components. Range-check the transmitter to a distance of at least 60 to 75 meters from the model with the transmitter antenna down, checking all control movements.

CAUTION

In- Flight.

Do not fly your RJX VECTOR 700 near any houses, high voltage wires or busy roads.
Be sure to fly within the range of your radio.
Always keep your eyes on your model when flying, it can change attitude or get out of sight in a very short time.
Never hover with the rotor at eye level. Be sure to keep the model at a safe height and altitude.
If you feel that something is wrong with your model while flying, land it immediately and check it over. Do not take any chances.

Post-Flight.

When the rotor speed has slowed sufficiently, use the palm of your hand on the center hub to bring it to stop. Check to ensure that nothing has come loose.
If the main rotor or other parts have made contact with the ground: **DO NOT take any chances.** Replace them before the next flight even if they look to be in good condition.
Make sure the receiver, battery and gyro are still secure.

Perform periodical checks of the helicopter to make sure there is no damage or loose screws. **Important screws like spindle or main shaft screws as example should be exchanged periodically.** Check all bearings to ensure they work smoothly - they can cause glitches if they are damaged.

