

Manual

Mikado
Model Helicopters

www.mikado-heli.de

LOGO 400 V-STABI



Safety Instructions

OPERATING YOUR MODEL SAFELY

Operate the helicopter in spacious areas with no people nearby.

! Warning: Do NOT operate the helicopter in the following places and situations (or else you risk severe accidents):

in places where children gather or people pass through
in residential areas and parks
indoors and in limited space
in windy weather or when there is any rain, snow, fog or other precipitation

If you do not observe these instructions you may be held liable for personal injury or property damage!

Always check the R/C system prior to operating your helicopter.

When the R/C system batteries get weaker, the operational range of the R/C system decreases. Note that you may lose control of your model when operating it under such conditions.

Keep in mind that other people around you might also be operating a R/C model.

Never use a frequency which someone else is using at the same time. Radio signals will be mixed and you will lose control of your model.

If the model shows irregular behavior, bring the model to a halt immediately. Turn off all power switches and disconnect the batteries. Investigate the reason and fix the problem. Do not operate the model again as long as the problem is not solved, as this may lead to further trouble and unforeseen accidents.

! Warning: In order to prevent accidents and personal injury, be sure to observe the following:

Before flying the helicopter, ensure that all screws are tightened. A single loose screw may cause a major accident.

Replace all broken or defective parts with new ones, as damaged parts lead to crashes.

Never approach a spinning rotor. Keep at least 10 meters/yards away from a spinning rotor blades.

Do not touch the motor immediately after use. It may be hot enough to cause burns.

Perform all necessary maintenance.

PRIOR TO ADJUSTING AND OPERATING YOUR MODEL, OBSERVE THE FOLLOWING

! Warning: Operate the helicopter only outdoors and out of people's reach as the main rotor operates at high rpm!

! Warning: While adjusting, stand at least 10 meters/yards away from the helicopter!

Novice R/C helicopter pilots should always seek advice from experienced pilots to obtain hints with assembly and for pre-flight adjustments. Note that a badly assembled or insufficiently adjusted helicopter is a safety hazard!

In the beginning, novice R/C helicopter pilots should always be assisted by an experienced pilot and never fly alone!

Throttle channel should be in motor OFF position while powering up.

When switching the R/C system ON or OFF, always proceed in the following order:

When switching ON:

Position the throttle control stick (on transmitter) to a position where the LOGO 10 motor does not operate.

Turn on the transmitter.

Turn on the receiver.

Connect the motor battery.

Operate your model.

When switching OFF:

Turn off the motor (move throttle control to a position where motor does not operate).

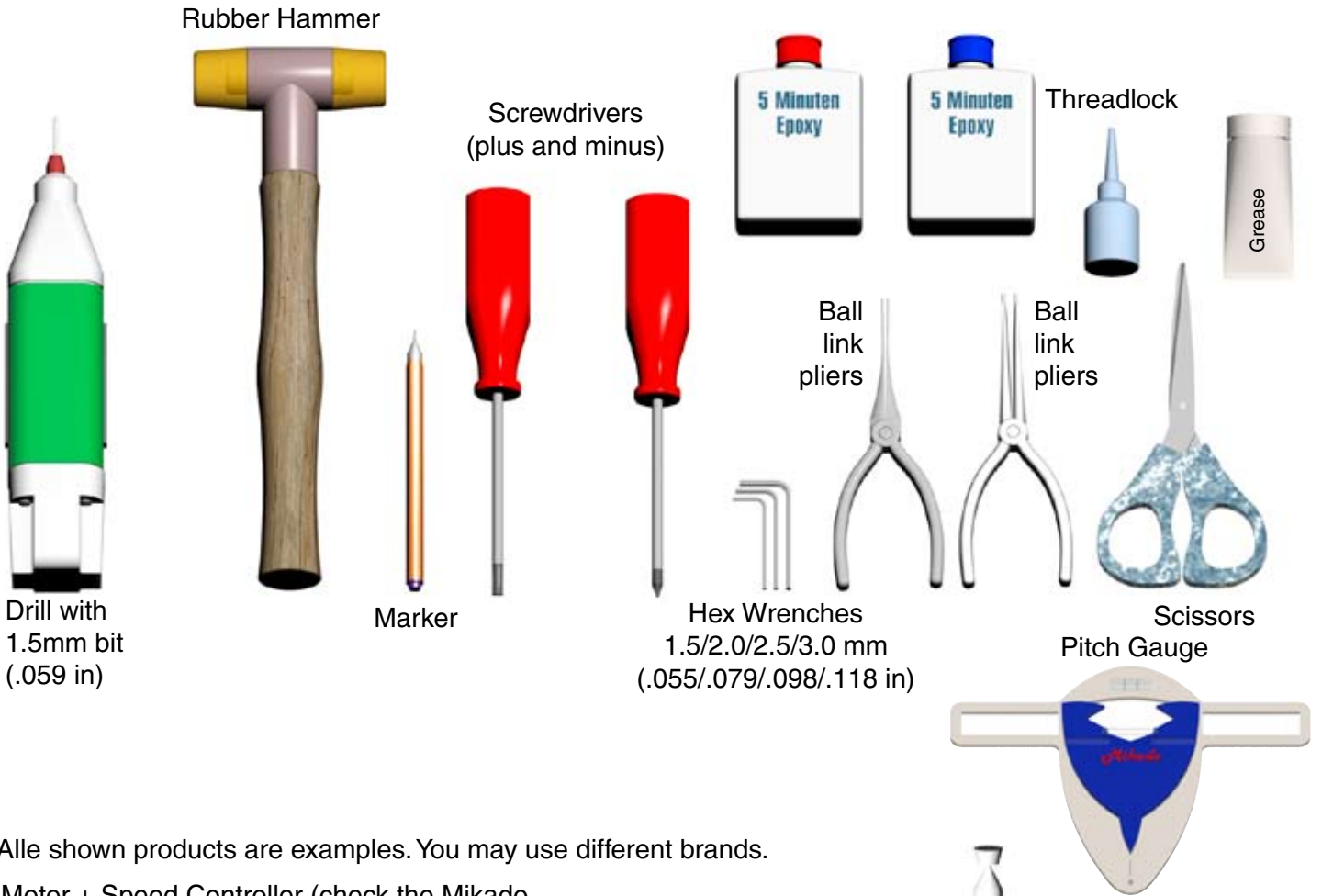
Wait until the rotor head has stopped spinning.

Disconnect the motor battery.

Turn off receiver.

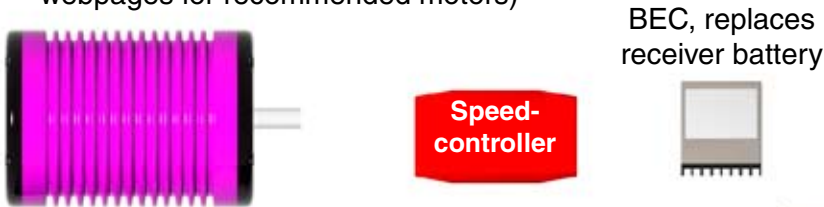
Turn off transmitter.

Tools for Assembly & R/C Equipment

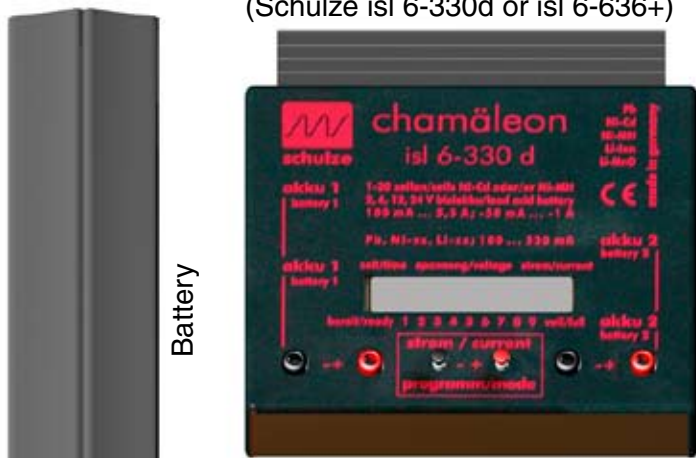


Alle shown products are examples. You may use different brands.

Motor + Speed Controller (check the Mikado webpages for recommended motors)



Fast Charger (Schulze isl 6-330d or isl 6-636+)







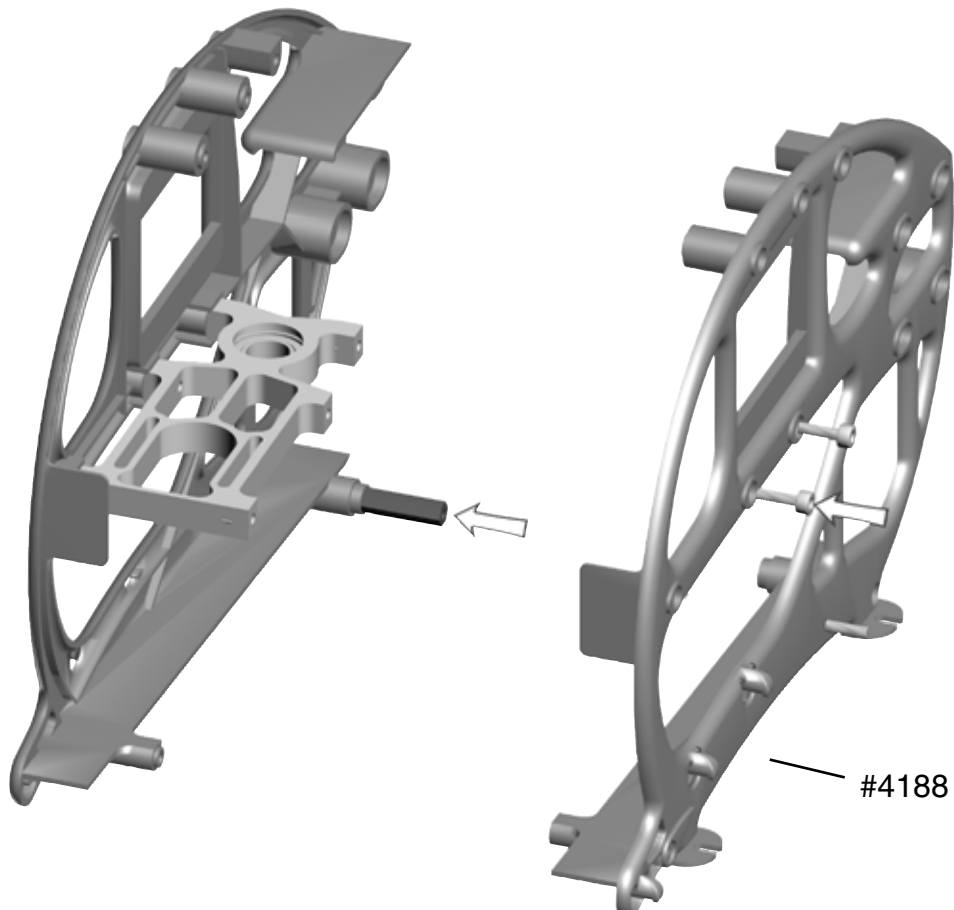
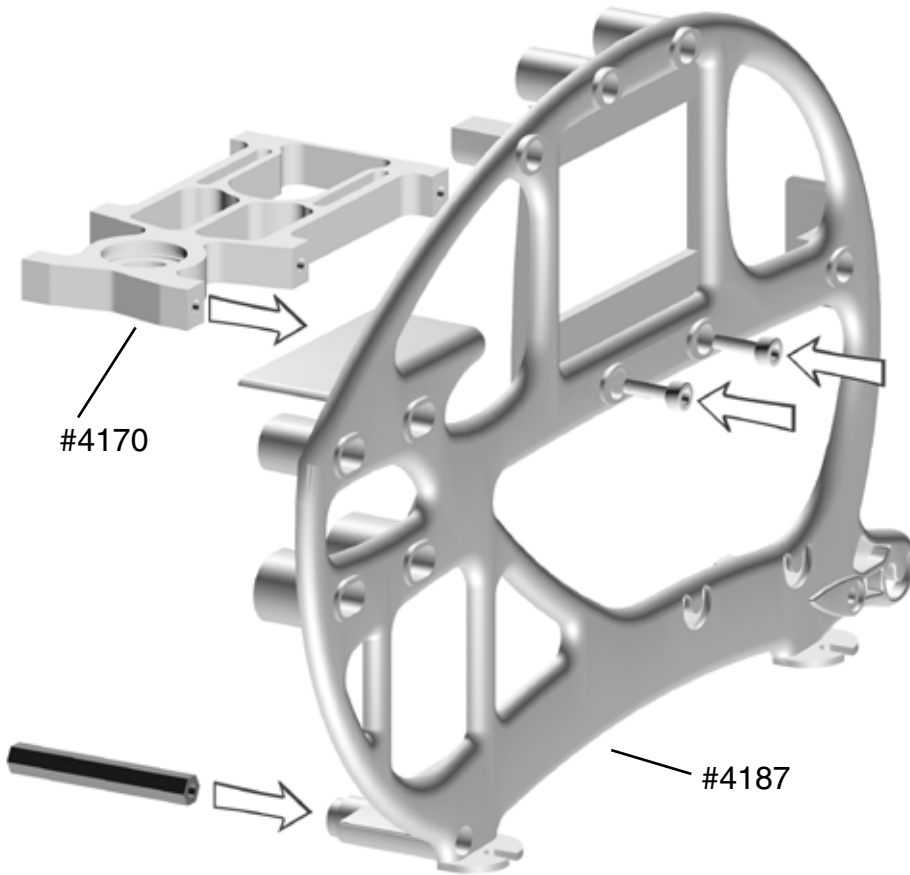
Receiver (Graupner DS 19 or SMC 19 SPCM)



1 Main Frame

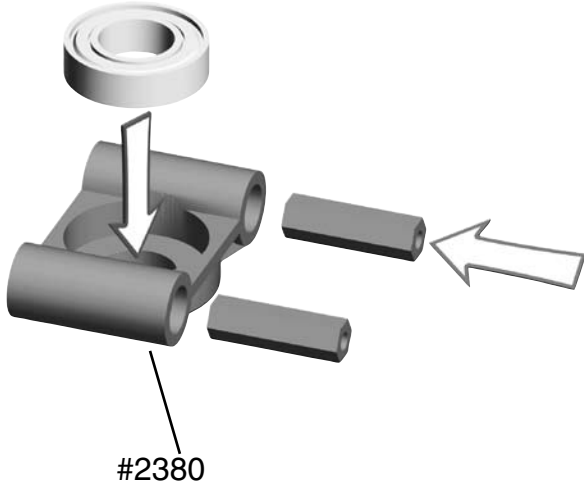
1.1 Main Frame
Bag 1 • Bag 12




4x			M3x10	#1953
1x			38 mm	#2370

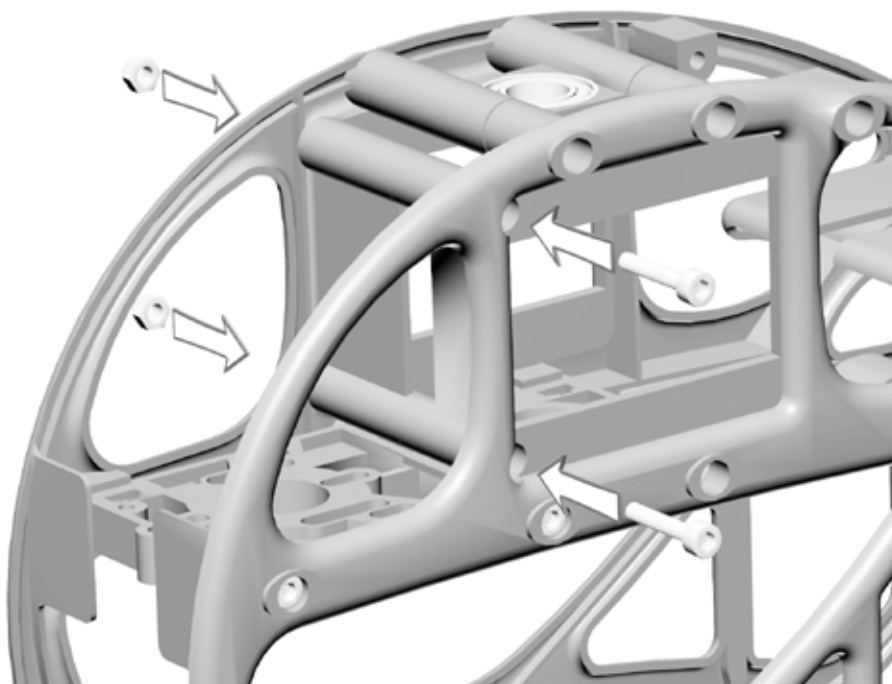
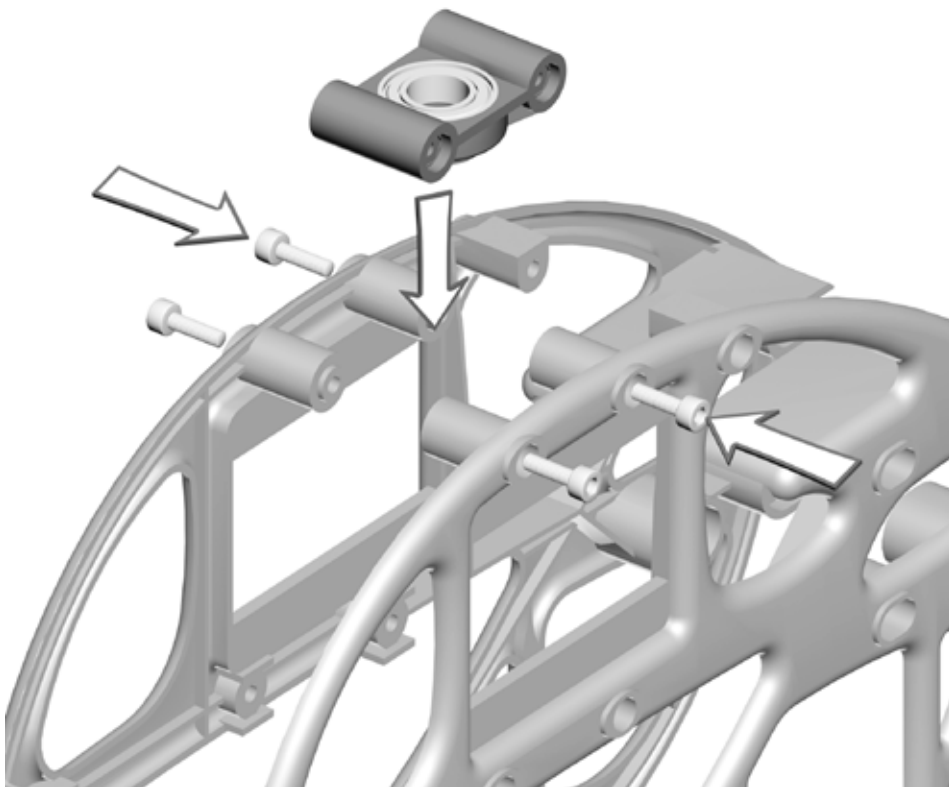






1 Main Frame

1.2 Bearing Case Bag 1 • Bag 10 • Bag 12



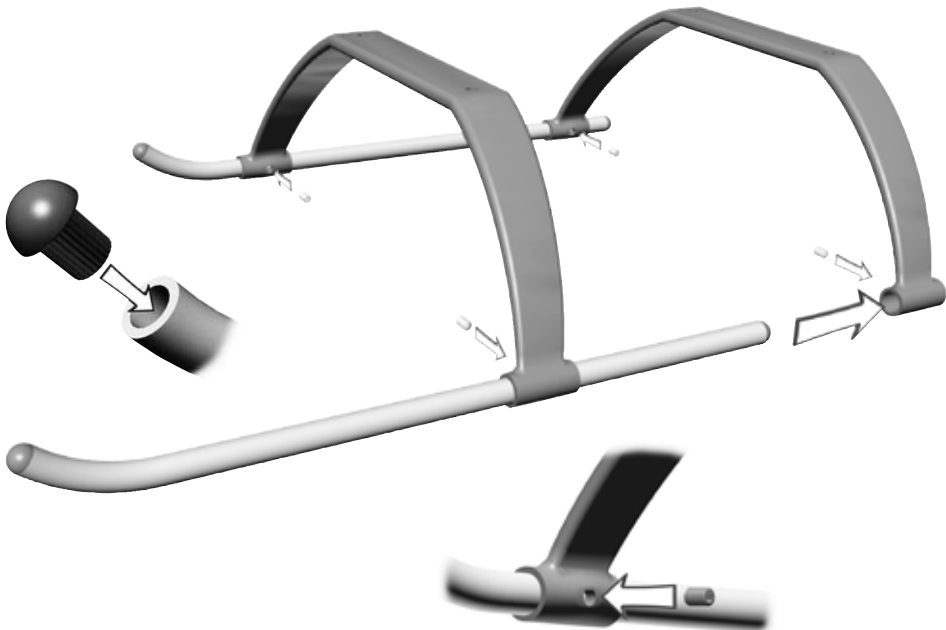
1x		10x19x5	#1329
2x		19 mm	#2370
4x		M3x10	#1953



2x			M3x14	#1955
2x			M3 Stopp	#2074

2 Landing Gear

Bag 8 • Bag 12



4x			M3x12	#1954
4x			M3	#2074
4x			M3x3	#1920



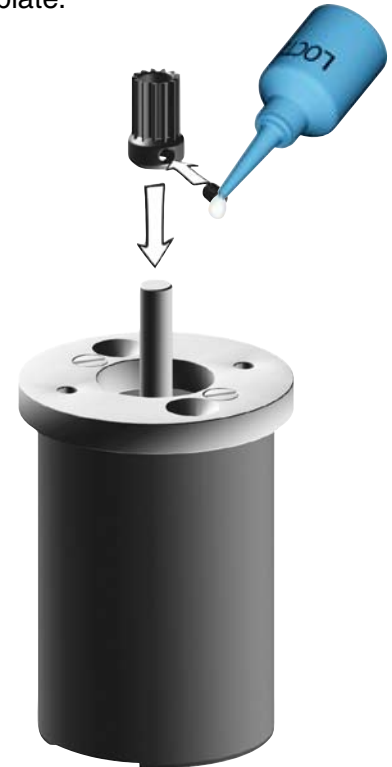
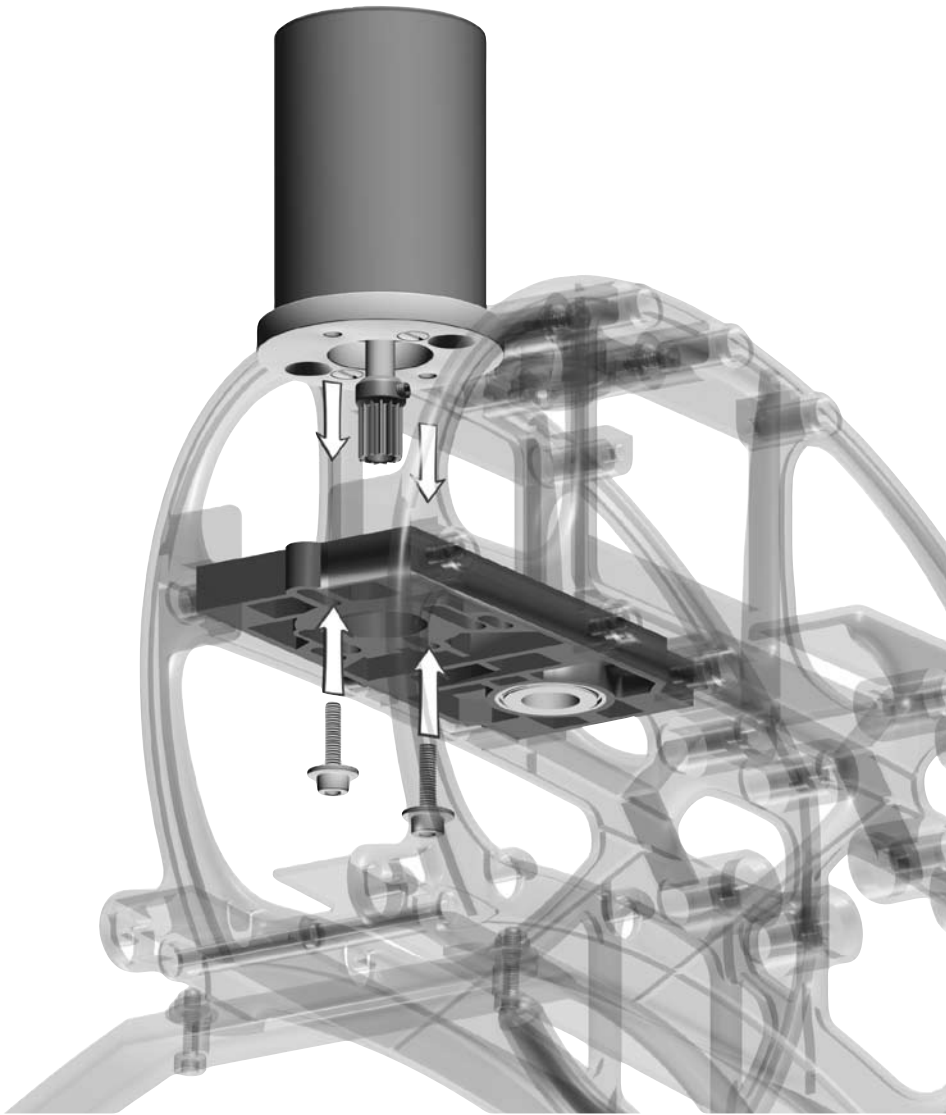
3 Motor Installation

3.1 Motor Attachment

Bag 1 • Bag 12



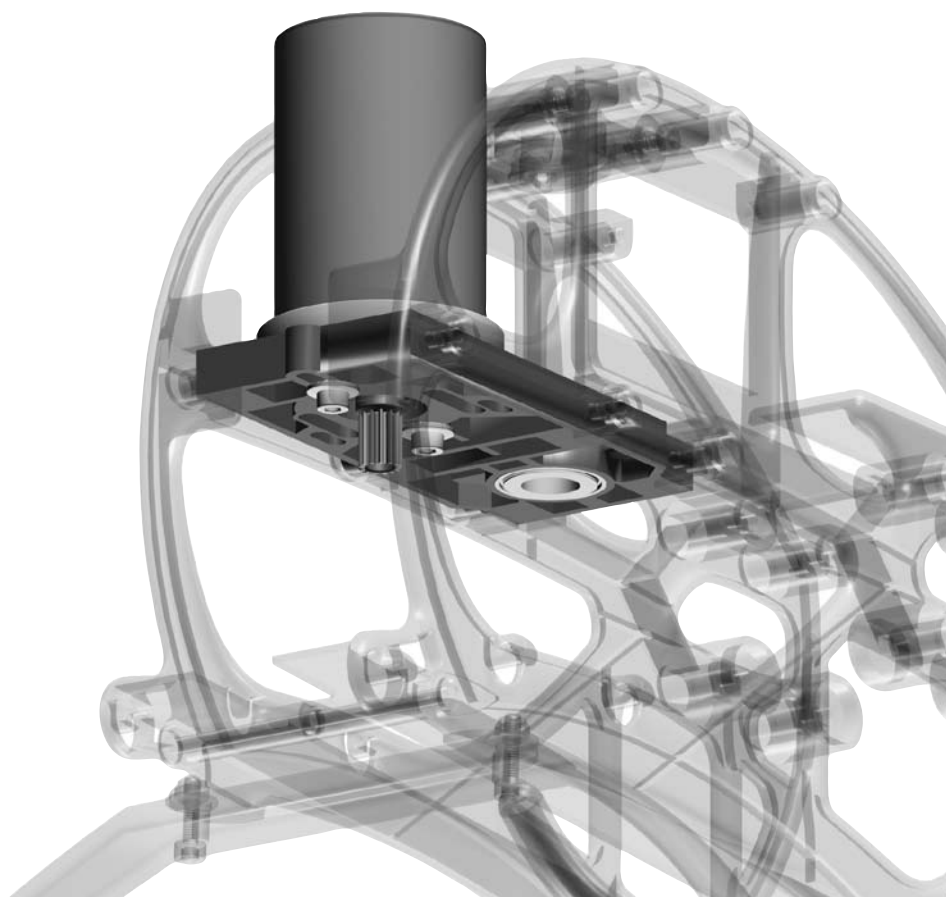
When installing the motor, tighten the socket head cap screws only slightly, making sure that the motor can still be moved on the motor plate.



Do not tighten the set screw fully until the final position of the pinion on the motor shaft is determined. This is done after installing the main gear. There are two options for attaching the pinion:

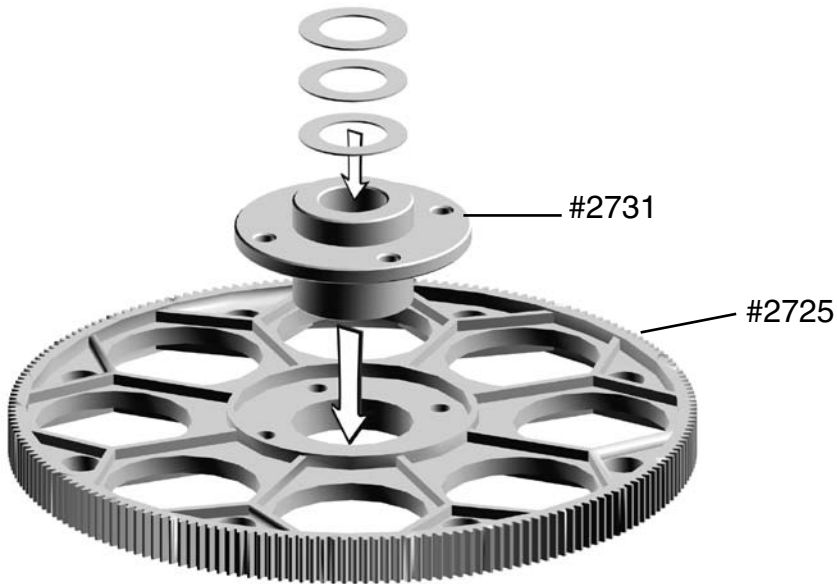
1. For securing the pinion, you may flatten the motor shaft where the set screw meets the motor shaft - without making a flat surface on the motor shaft.



2. Alternatively, you may screw the set screw directly onto the motor shaft. For this it is required that the set screw has an appropriate rim for engaging the motorshaft (all Mikado pinions have this rim). Note, however, that after attaching the set screw once, the rim becomes blunt and may not be used again.



4 Main Gear

4.1 Hub Bag 2

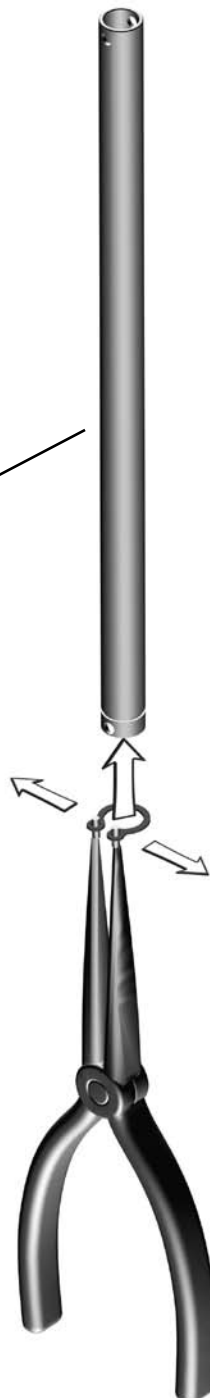
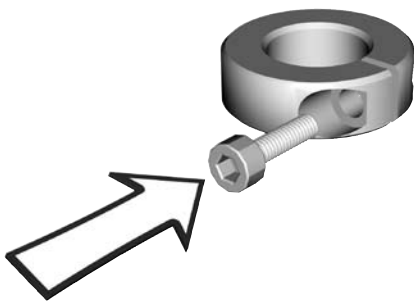


4x		M3x8	#1915
4x		10x16x0.5	#2010

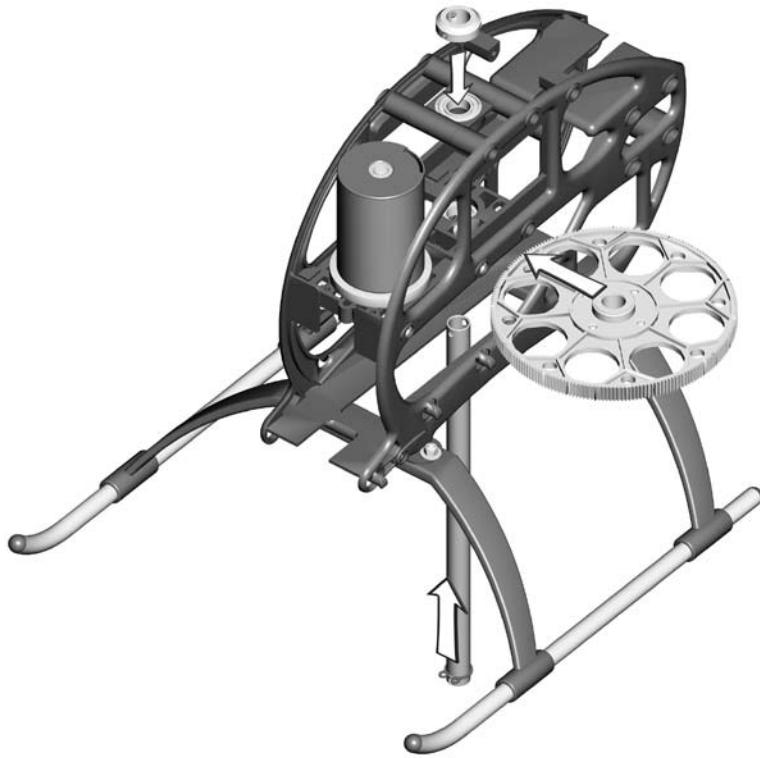


#04177

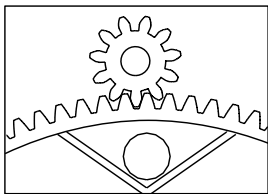
1x		M,5x8	#1940
1x			#1344



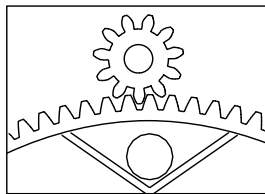
4 Main Gear



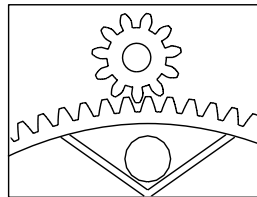
After having attached the freeway hub of the main gear to the rotor shaft, pull the rotor shaft slightly upward and simultaneously push the main shaft collar down onto ball bearing. Next tighten the set screws. The rotor shaft should turn easily and it should not have any axial play.



too much backlash



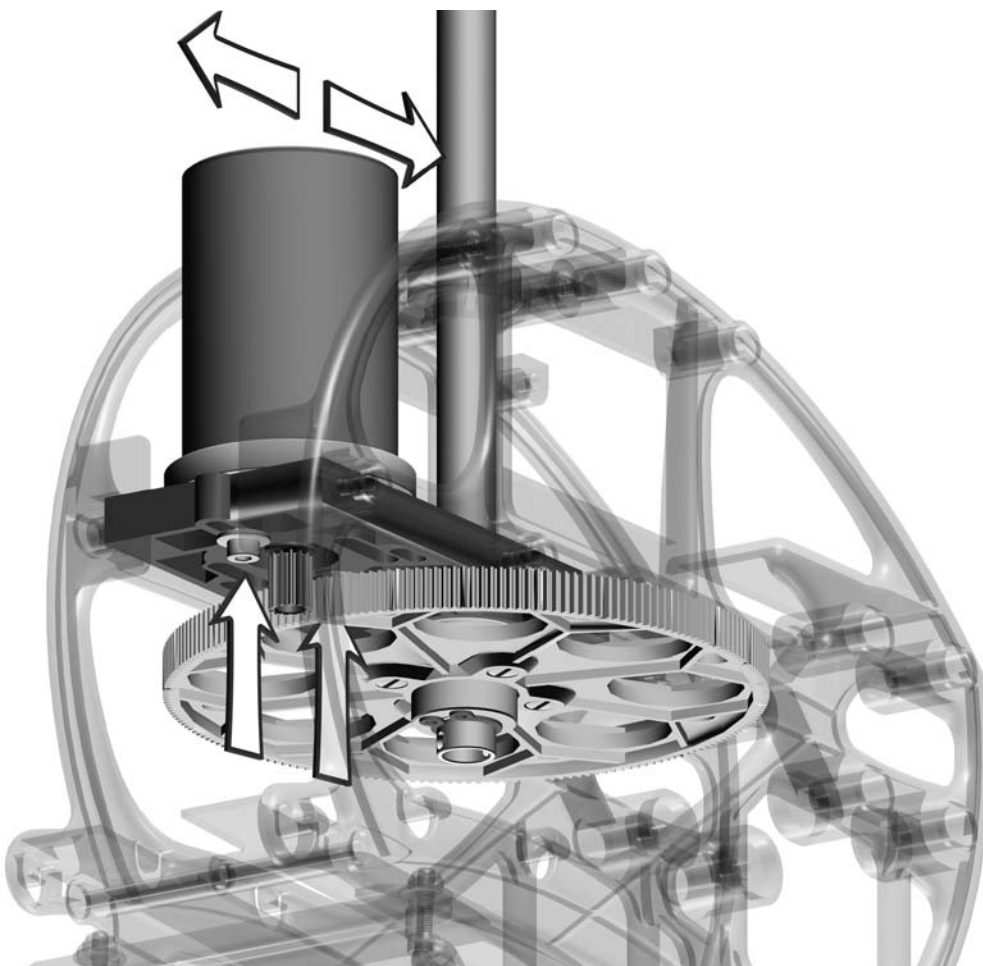
correct backlash



too little backlash

4.2 Adjusting Gear Backlash

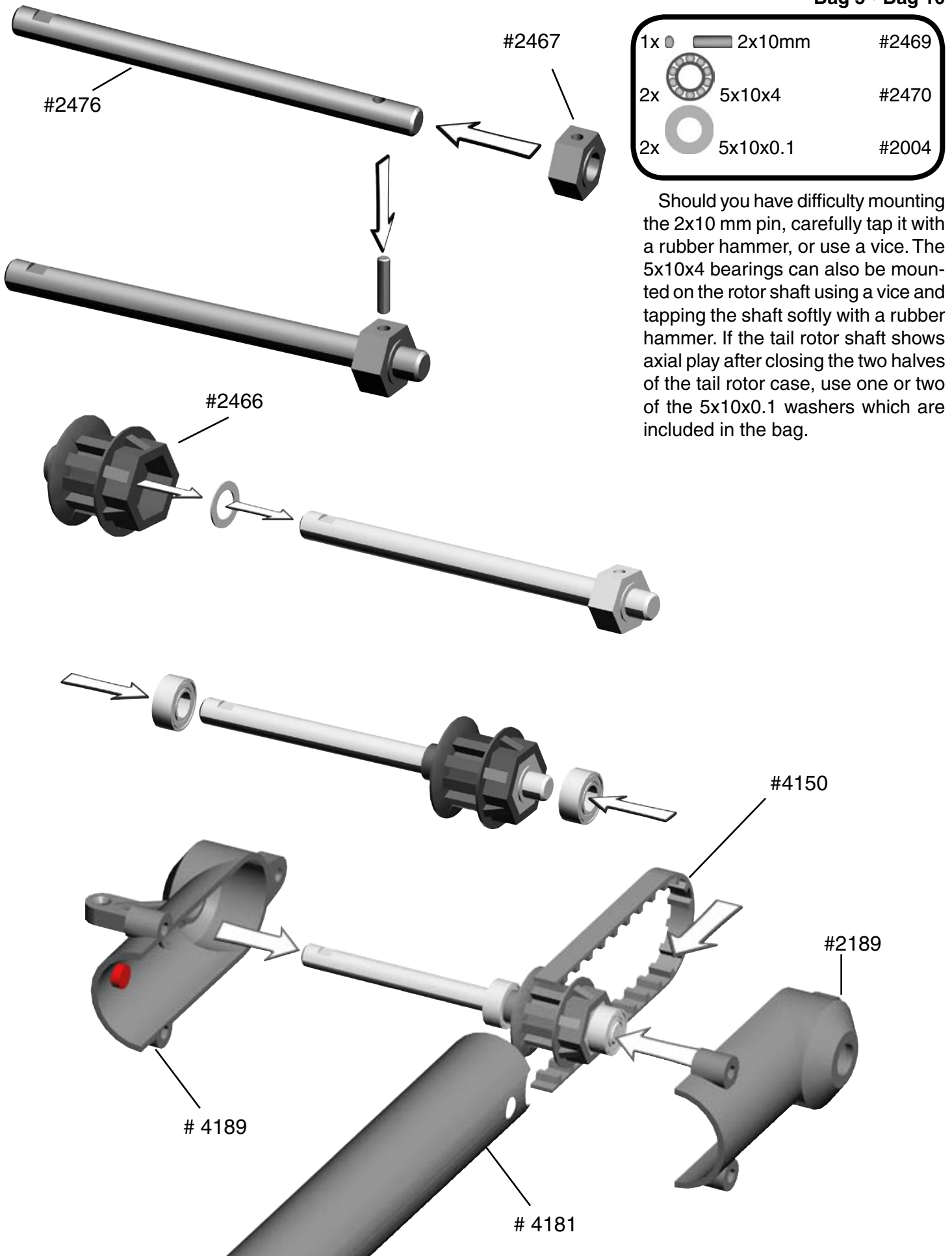
The gear backlash must be adjusted (see drawings). Excess backlash can cause premature wear of the main gear and will lead to shorter flight times.



5 Tail Rotor

5.1 Tail Rotor Shaft

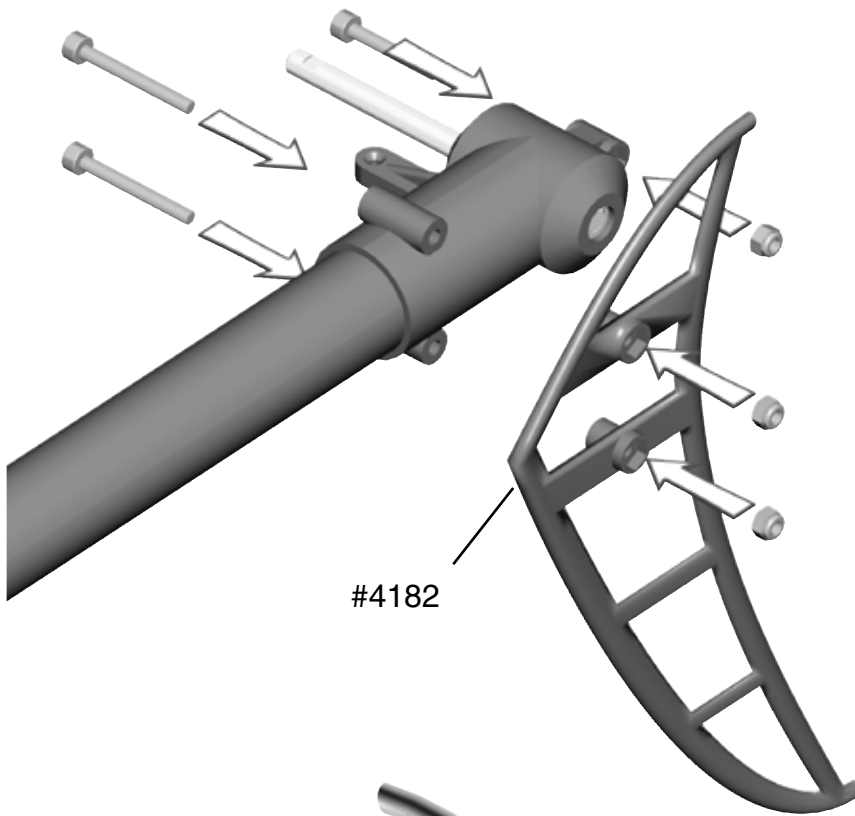
Bag 5 • Bag 10









5 Tail Rotor

5.2 Vertical Fin

Bag 5 • Bag 12



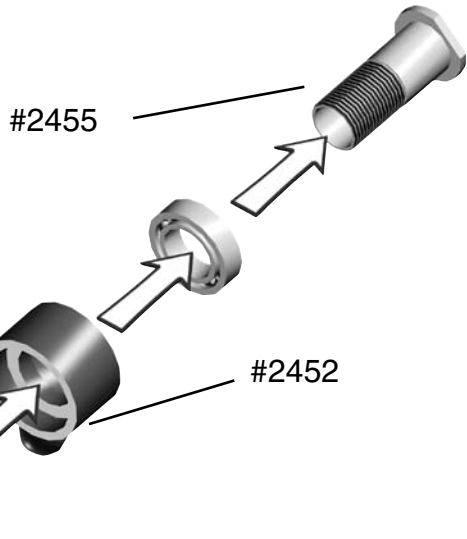
2x			M3x25 #1958
1x			M3x10 #1953
3x			M3 #2074




5 Tail Rotor

5.3 Pitch Slider

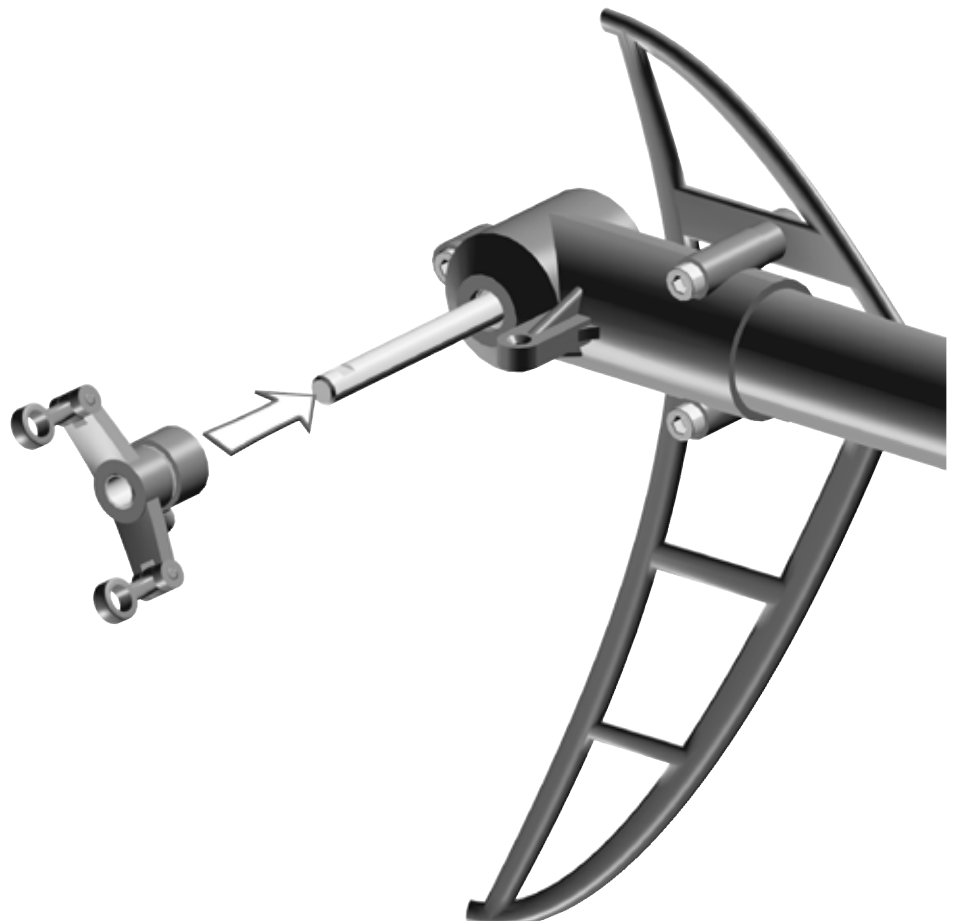
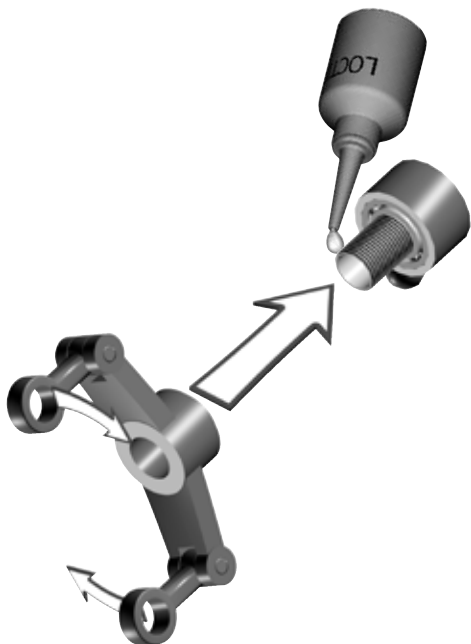
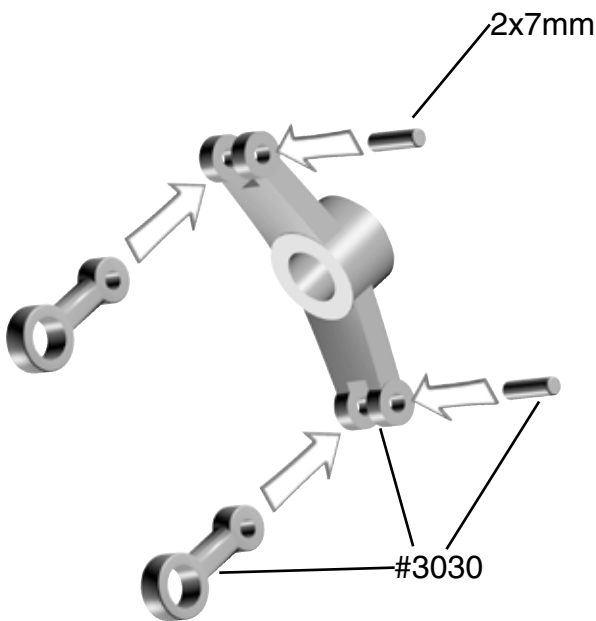
Bag 5 • Bag 10



2x  6x10x2,5 #1440

It is important that the tail pitch plate #3030 is aligned properly on the control sleeve #2455. In the case of misalignment, the control sleeve may become deformed.







The mounted tail pitch plate should be able to move on the tail rotor shaft with little resistance.



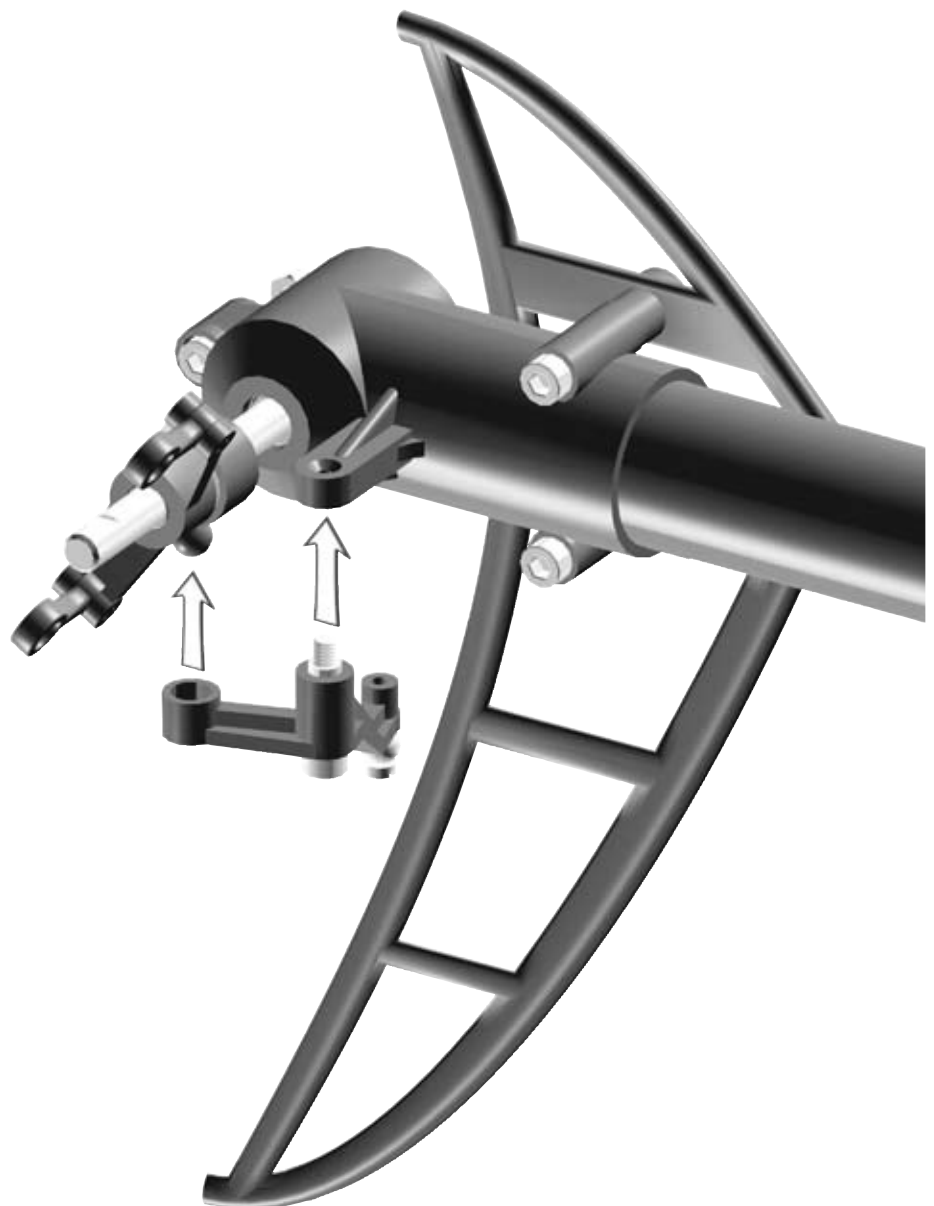
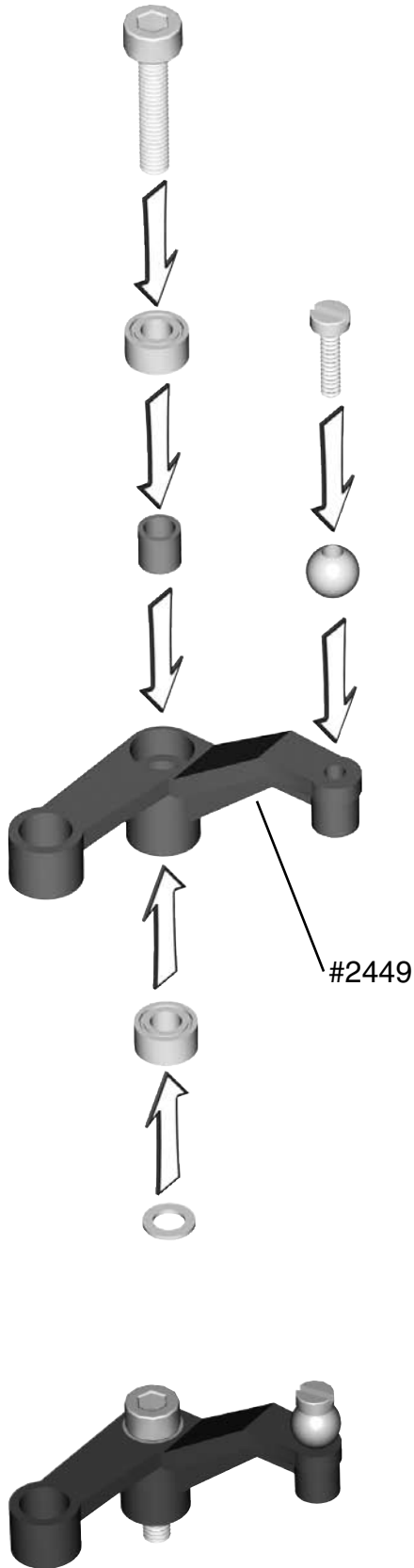
5 Tail Rotor

5.4 Tail Rotor Lever

Bag 5 • Bag 12

2x		3x6x2,5		#2330
1x			M3x14	#1955
1x			M2x8	#1902
1x				#1570
1x			3x5x5	#2448
1x			3x5x0,5	#2002

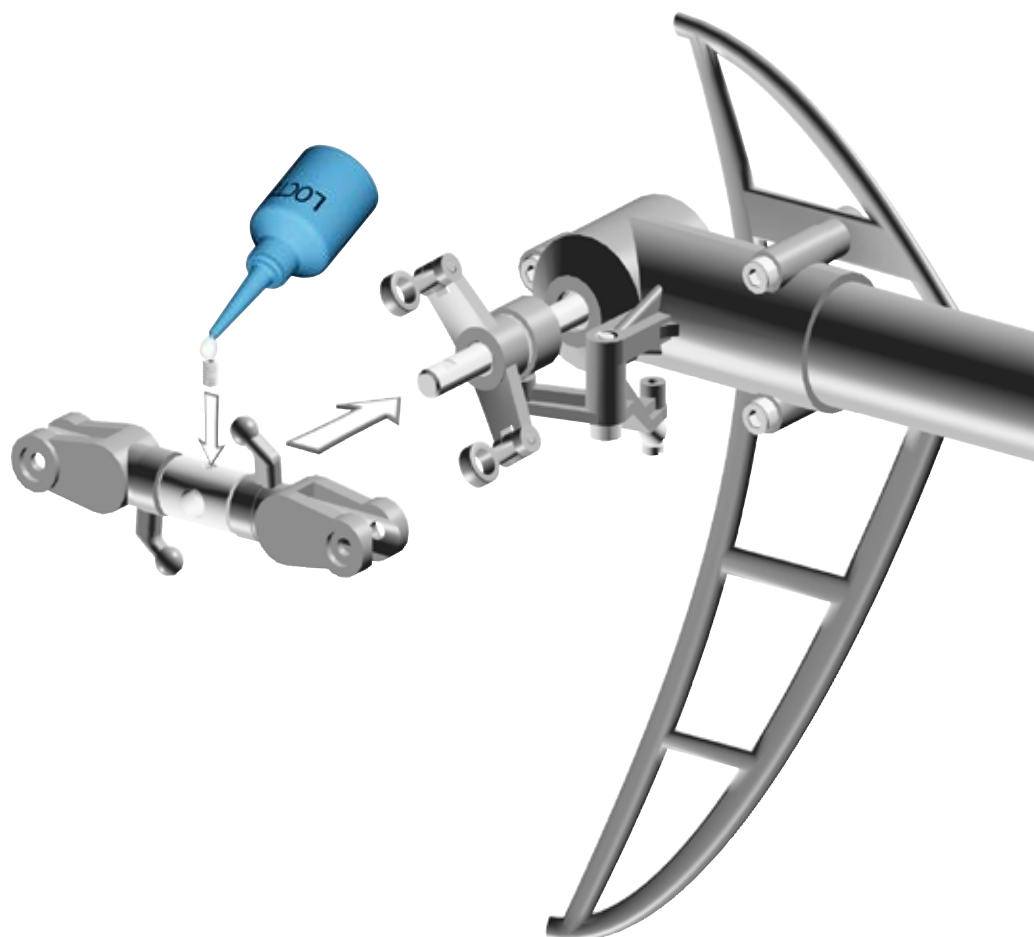
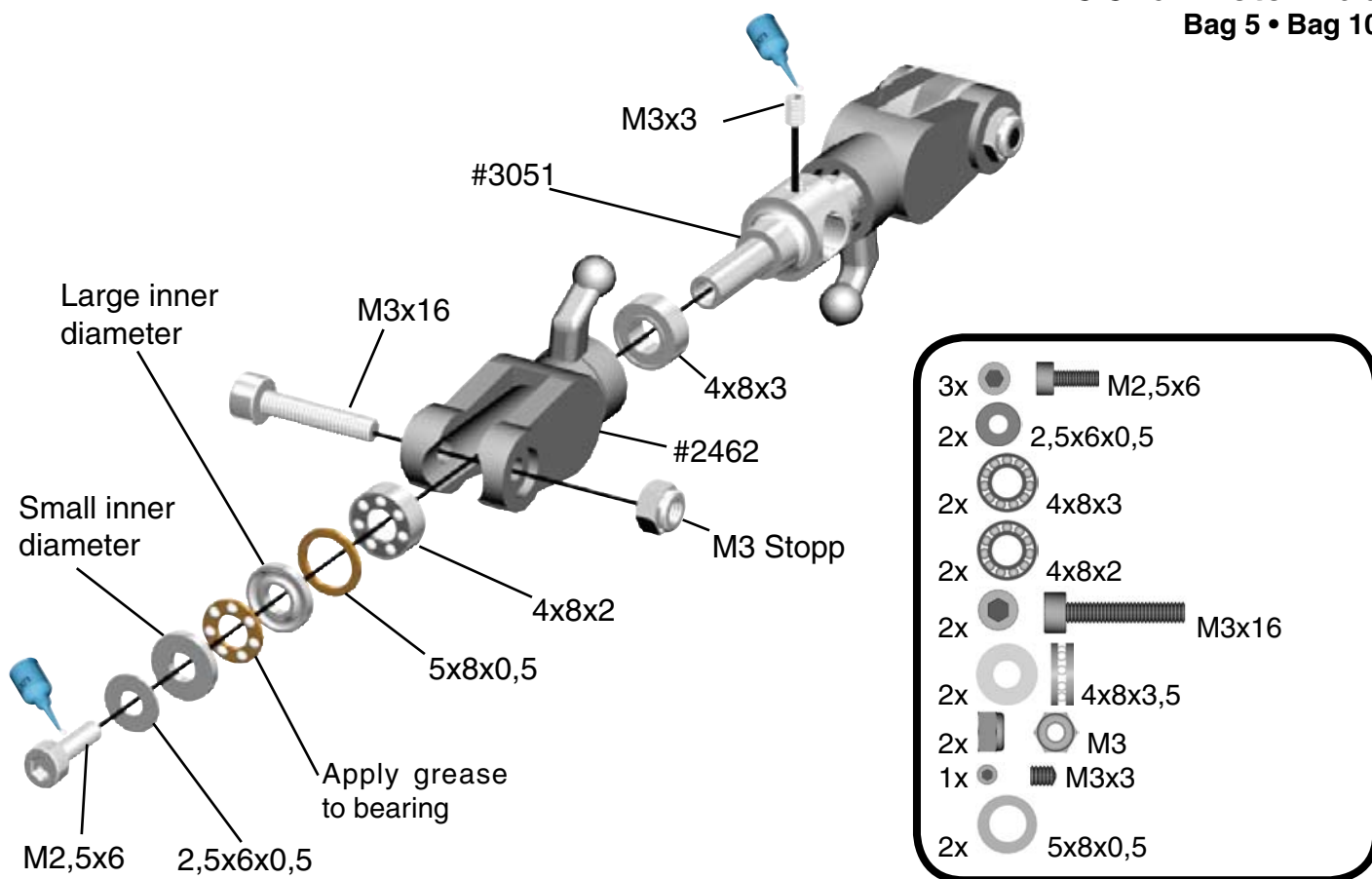
The mounted tail rotor lever should be able to move with little resistance.



5 Tail Rotor

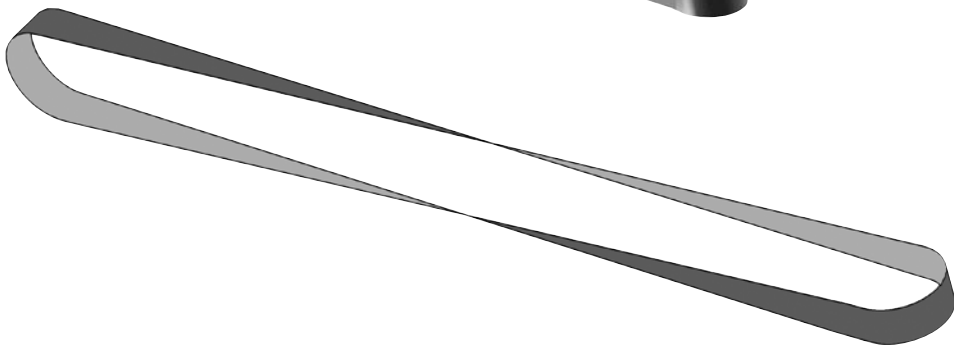
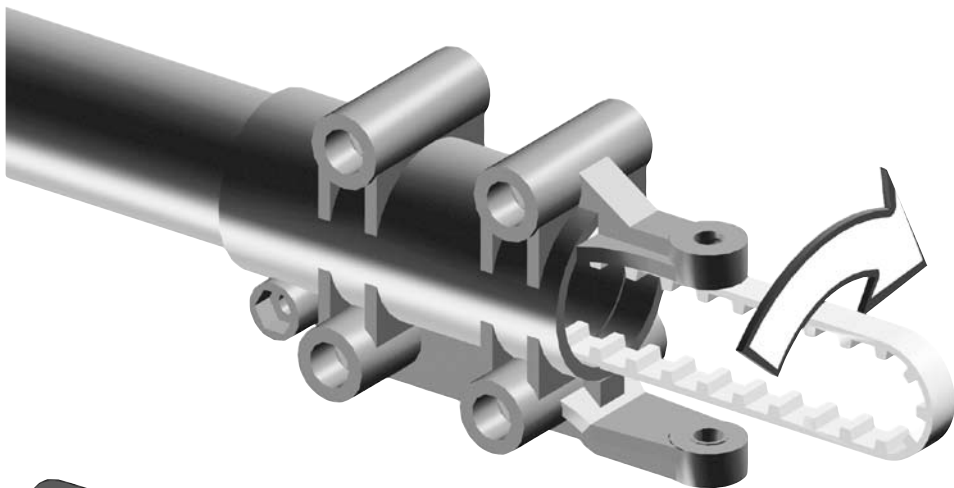
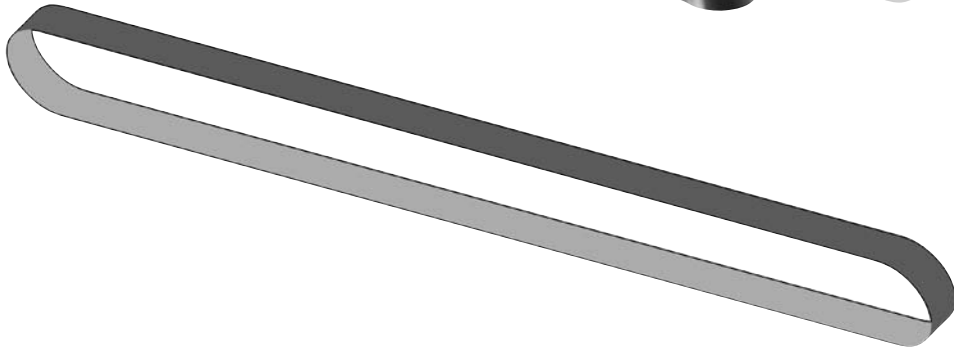
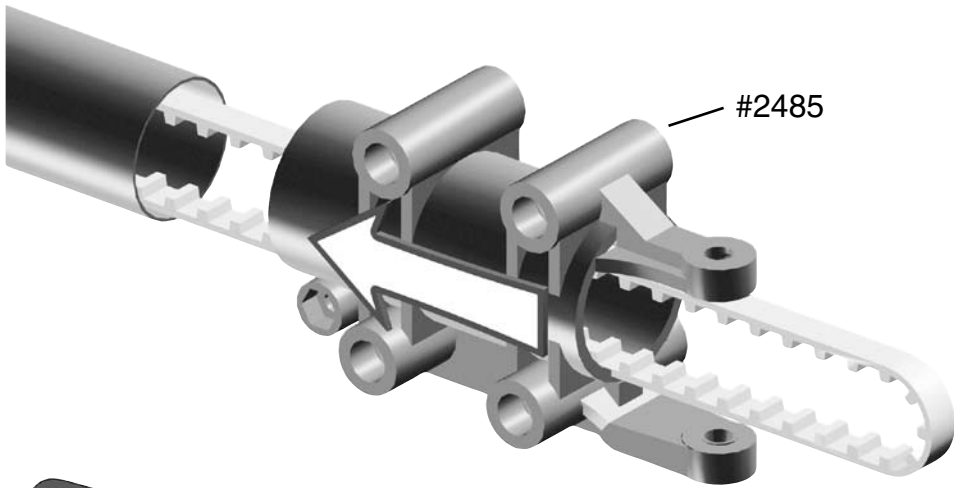
5.5 Tail Rotor Hub

Bag 5 • Bag 10



6 Tail Boom

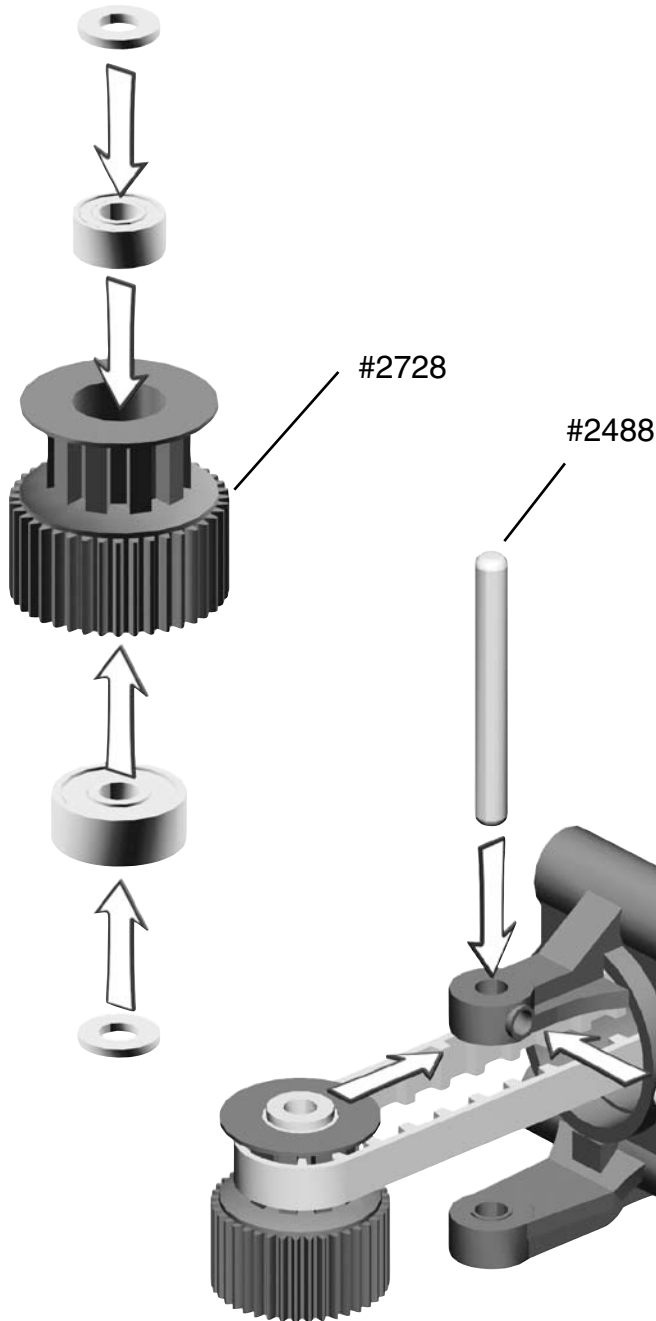
6.1 Tail Boom Holder Bag 6



6 Tail Boom

6.2 Tail Drive Pulley

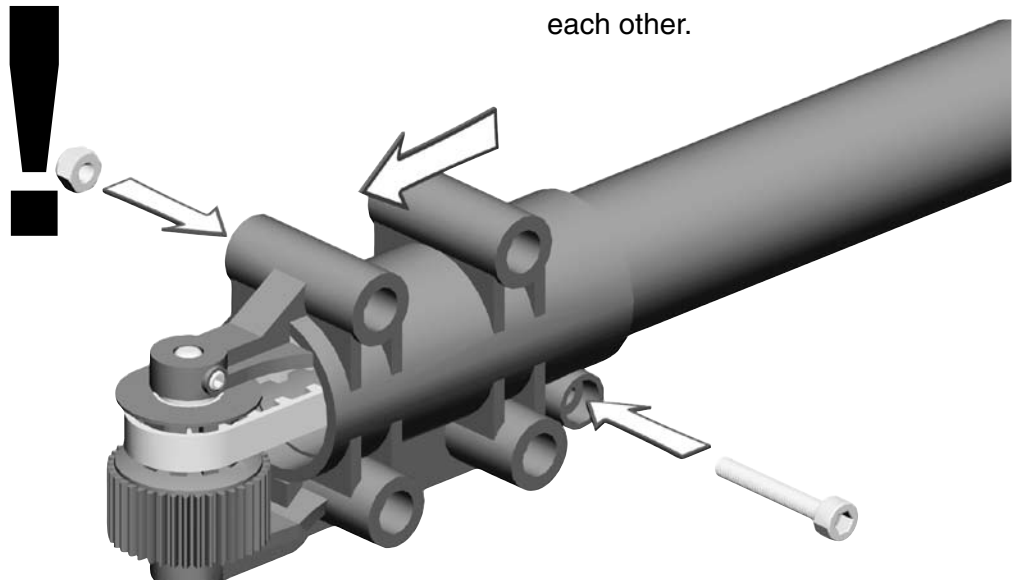
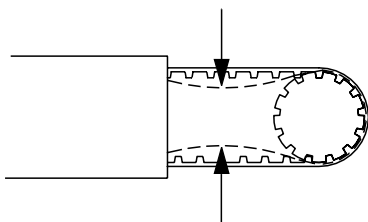
Bag 6 • Bag 10 • Bag 12



1x		4x13x5	#937
1x		4x9x4	#2489
2x		4x8x1	#2013
1x		3x5	#1921
1x		M3x18	#1965
1x		M3	#2074

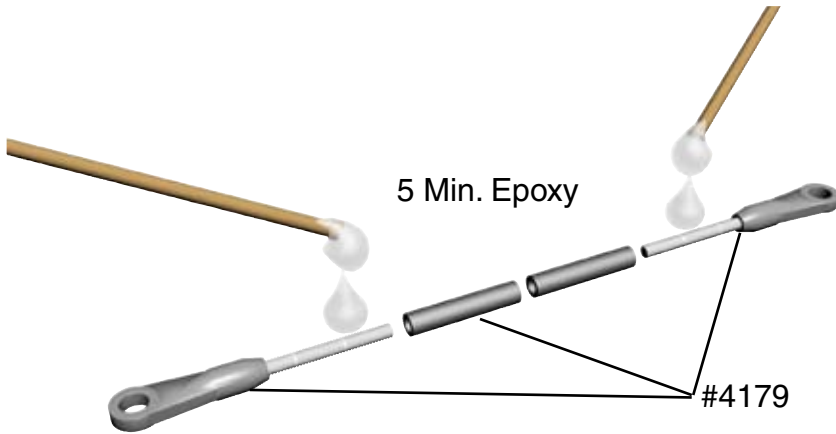
For tightening the belt pull the tail boom holder toward the front. Belt tension is fixed with the M3x18 socket head cap screw for tightening the tail boom holder to the tail boom. The belt should be tight. When pressing with your fingers, both sides of the belt should not come in contact with each other.

Important: Check belt tension prior to every flight. Incorrect belt tension can cause disturbances for your model R/C system. Incorrect belt tension can lead to a situation where you lose control of the tail rotor of your helicopter.

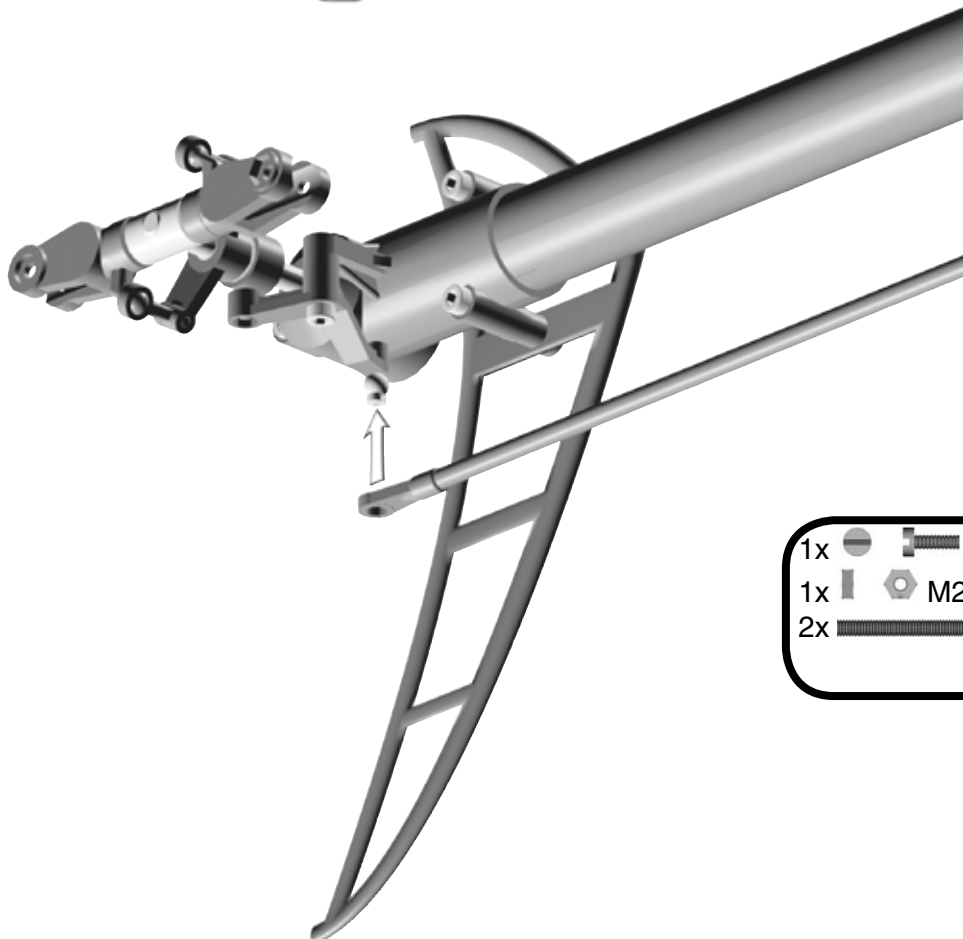
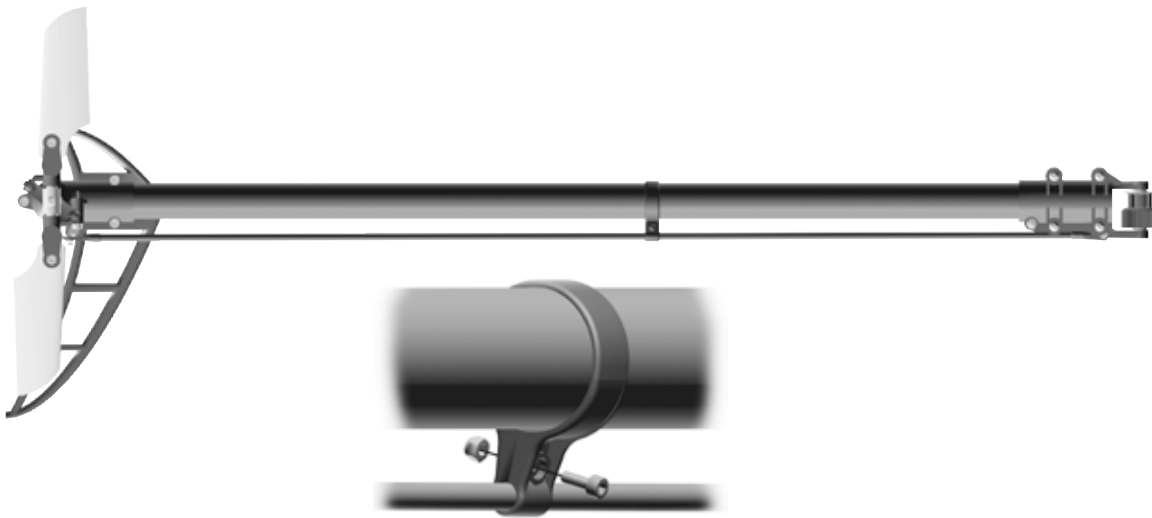





6 Tail Boom

6.3 Tail Control Rod Bag 6



Screw the two 2 mm ball links onto the control rods. Their exact positions are of no importance at this point. The ball ends are attached to the balls more easily when the text on them is pointed away from the helicopter.

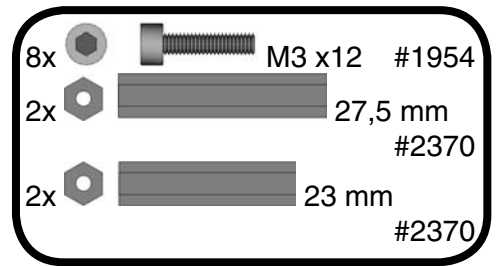


1x		M2x6	#1901
1x		M2	#2070
2x		M2,5x30	#2770

6 Tail Boom

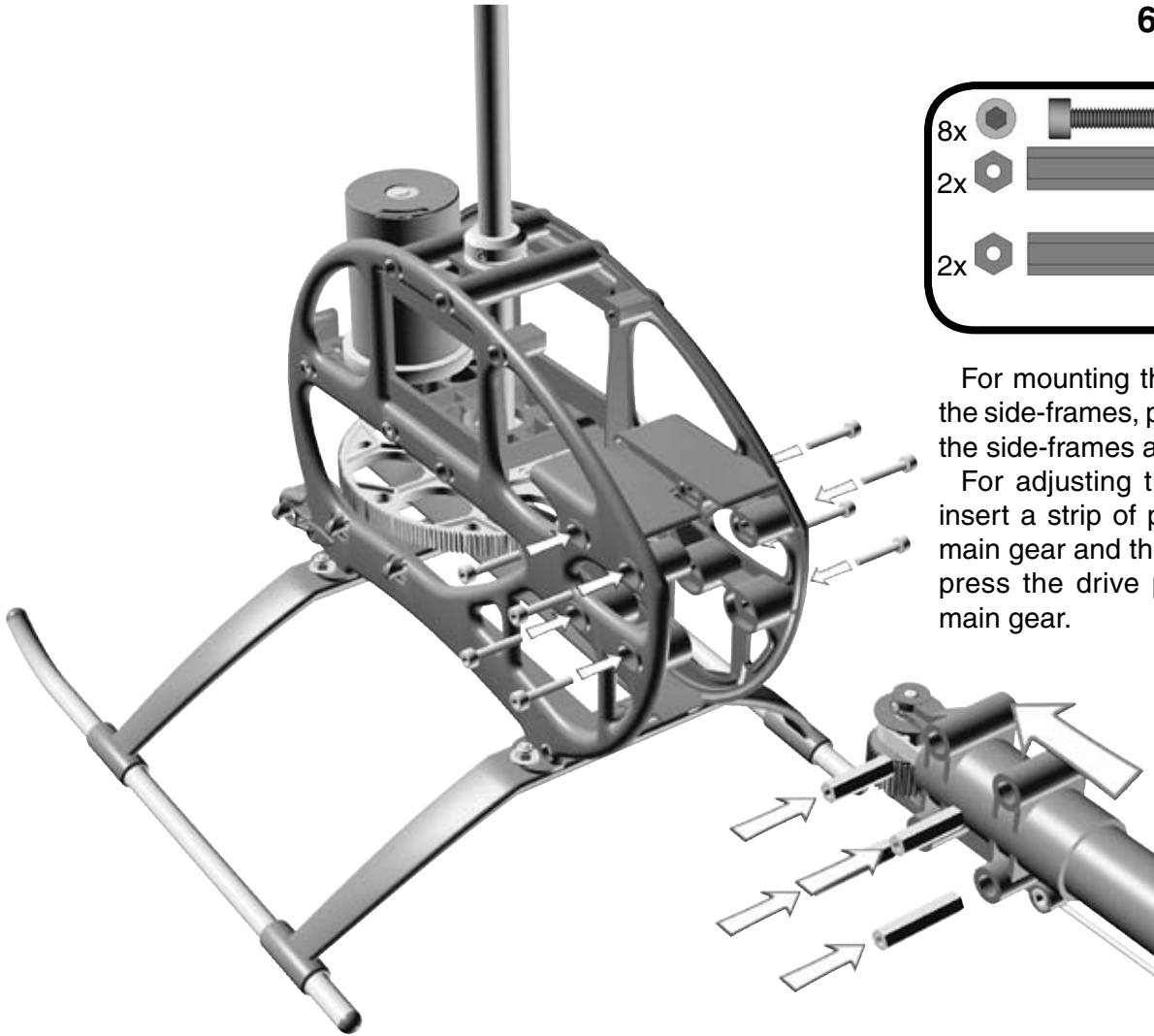
6.4 Installation

Bag 6 • Bag 12



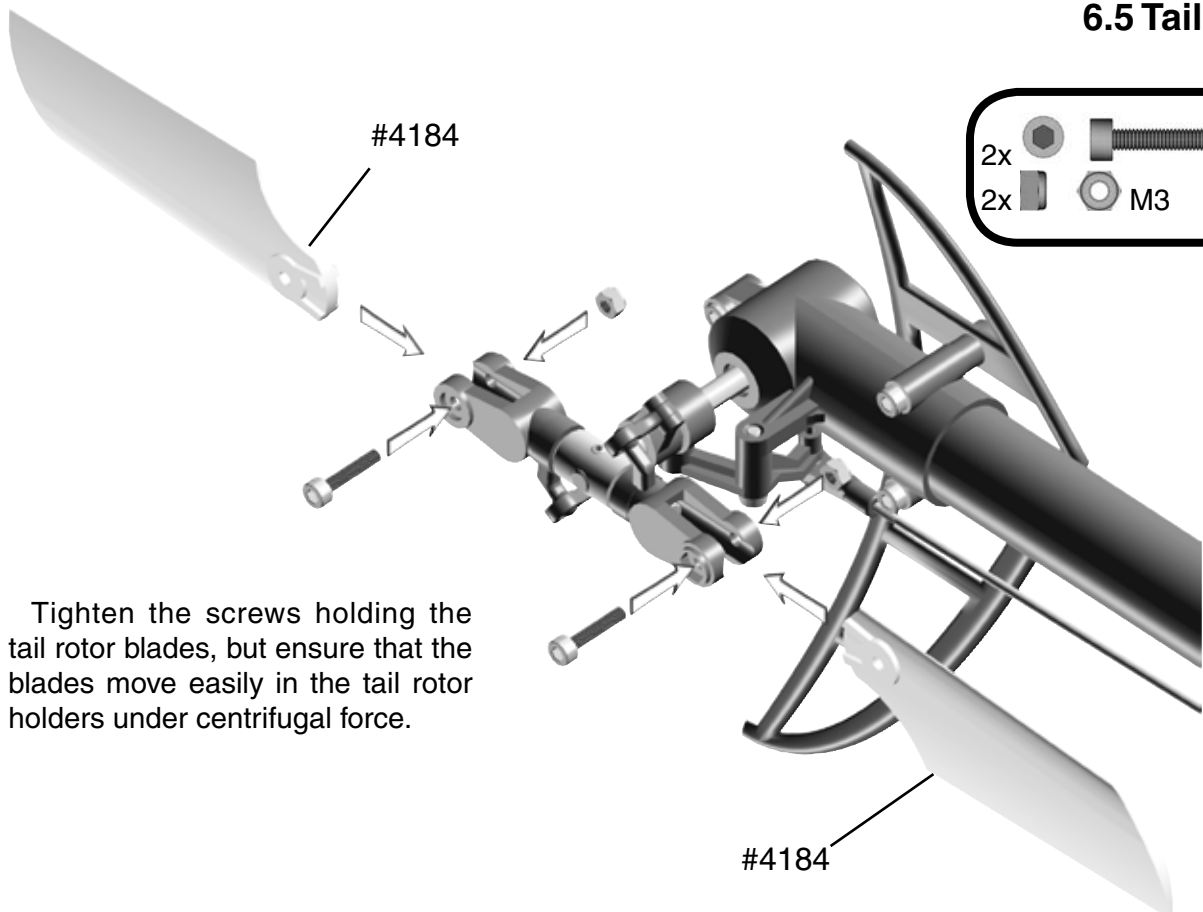
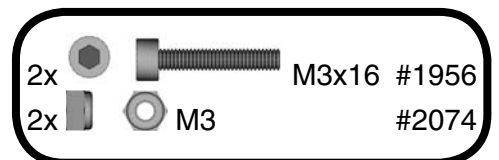
For mounting the tail assembly in the side-frames, pull the rear ends of the side-frames apart.

For adjusting the gear backlash, insert a strip of paper between the main gear and the drive pulley, then press the drive pulley against the main gear.



6.5 Tail Rotor Blades

Bag 5

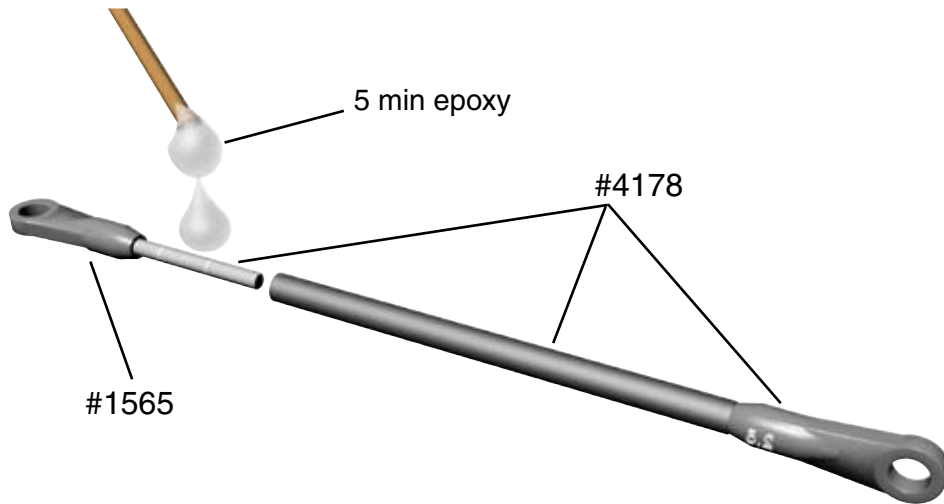


Tighten the screws holding the tail rotor blades, but ensure that the blades move easily in the tail rotor holders under centrifugal force.

6 Tail Boom

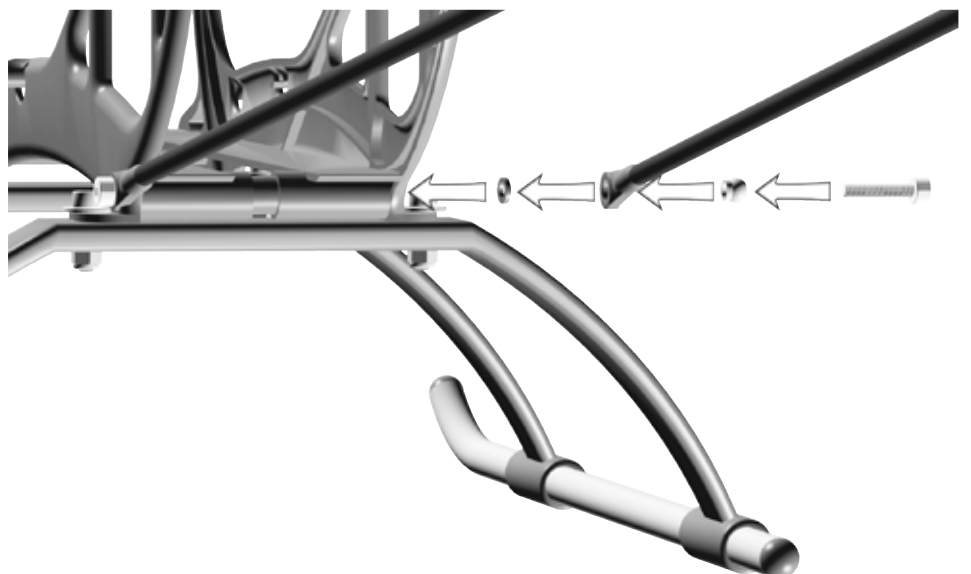
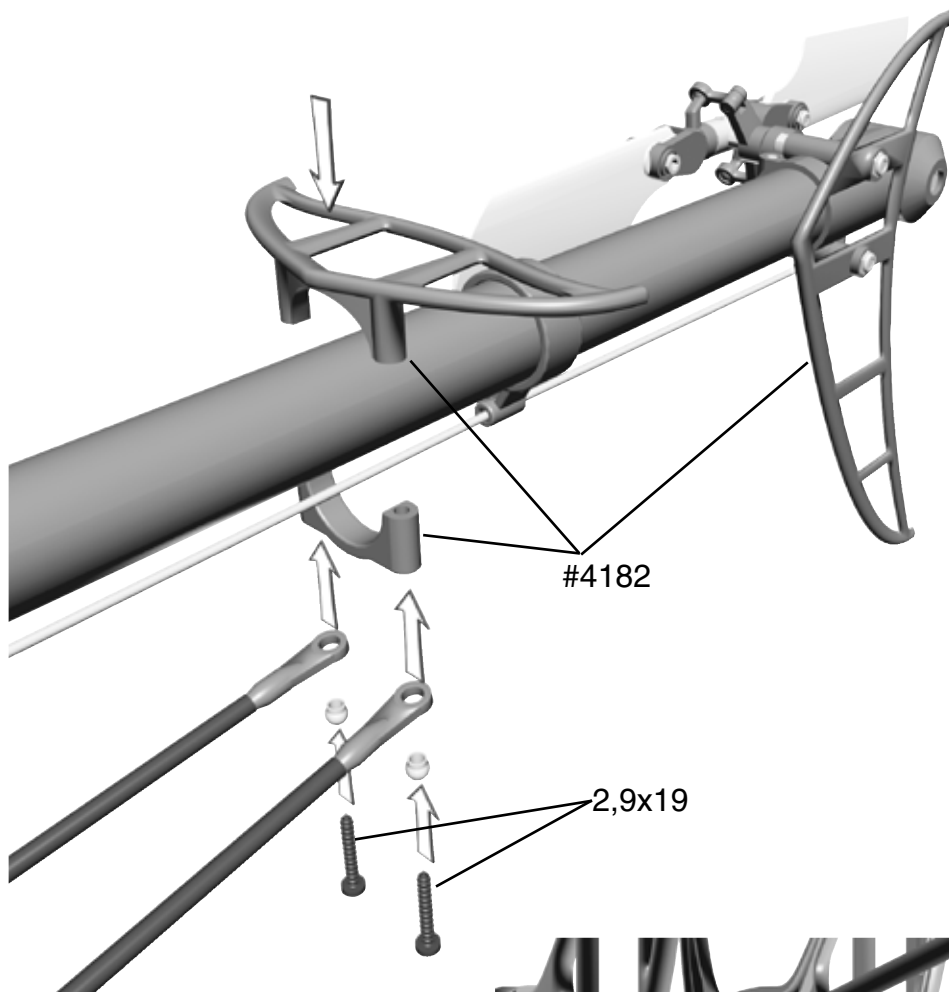
6.6 Tail Boom Brace

Bag 1 • Bag 6 • Bag 9

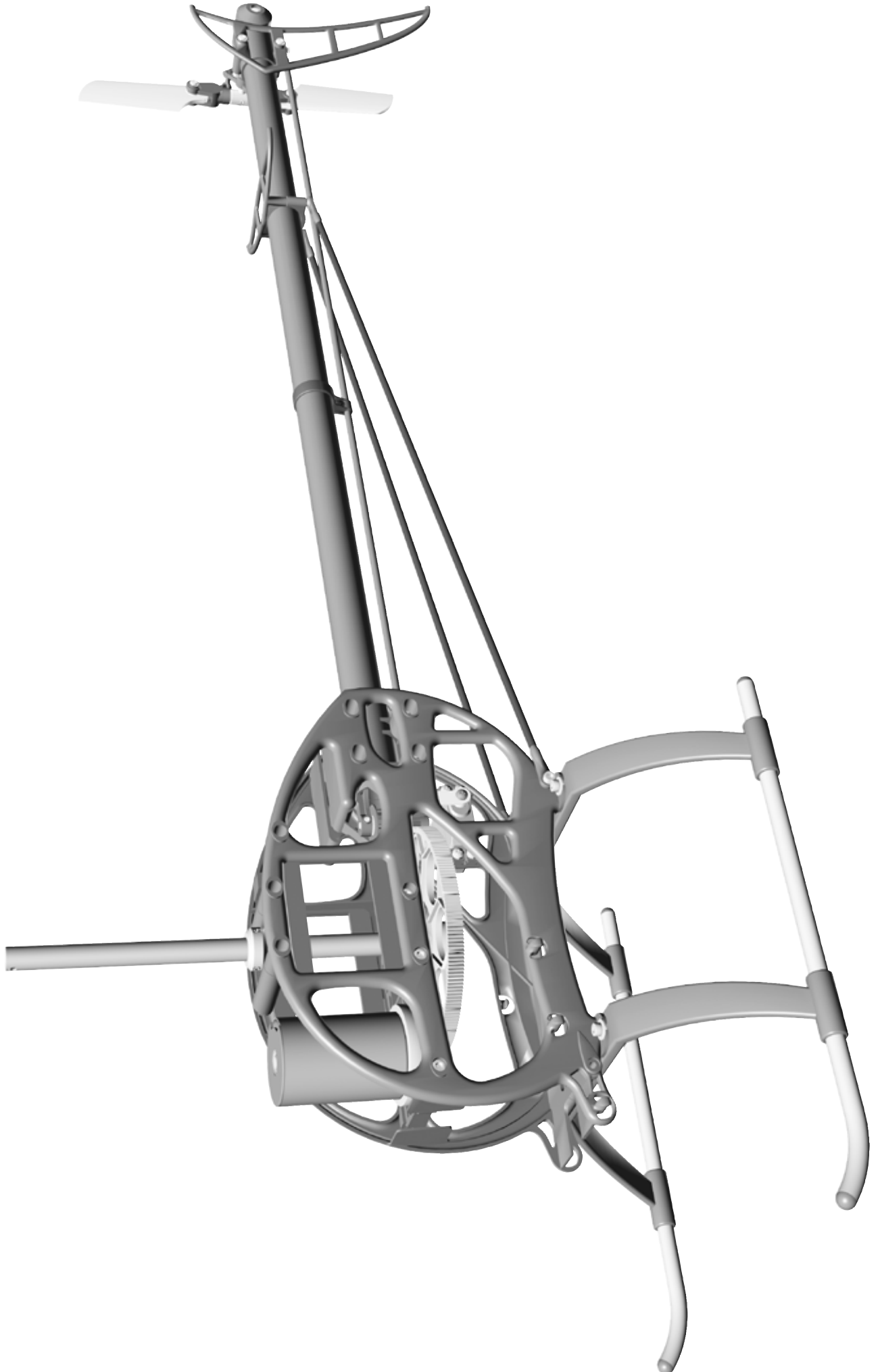


2x		2,9x19	
2x		M3	#2074
4x		4,8 mm	#1574
4x		M2,5x30	#2770
2x		M3x20	#1957
2x		3x5x2	#2463

The ball links should be screwed onto the control rod such that one is turned at 90 degrees with respect to the other.

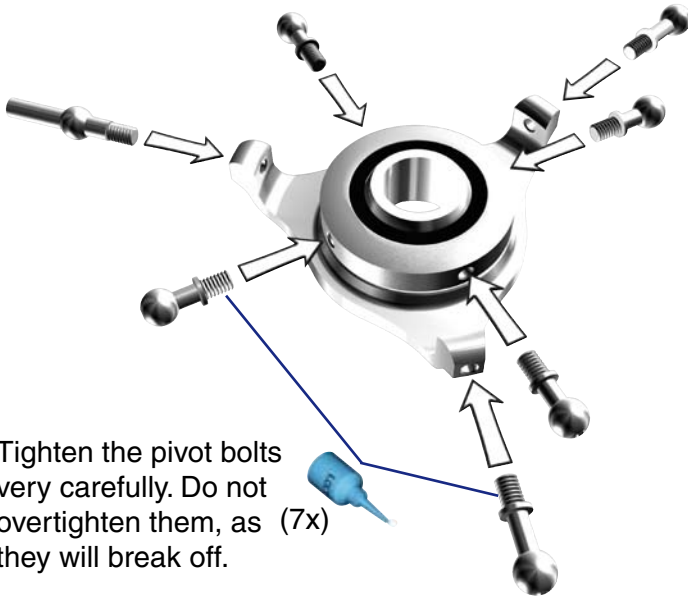


7 Finished Main Frame & Tail Boom



8 Swashplate

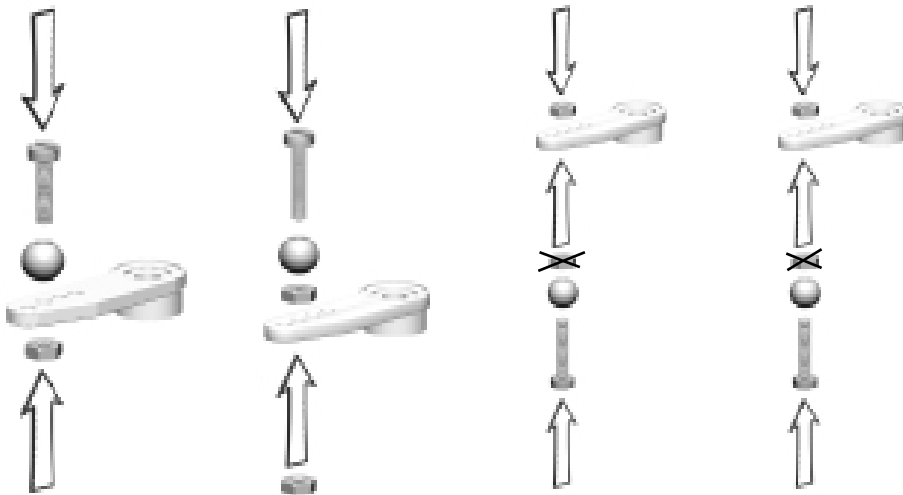
Bag 3



Tighten the pivot bolts very carefully. Do not over-tighten them, as (7x) they will break off.

9 Servo Arms Bag 9

2x		M2x8	#1902
2x		M2x10	#1903
6x		M2	#2070
4x		4,8	#1570

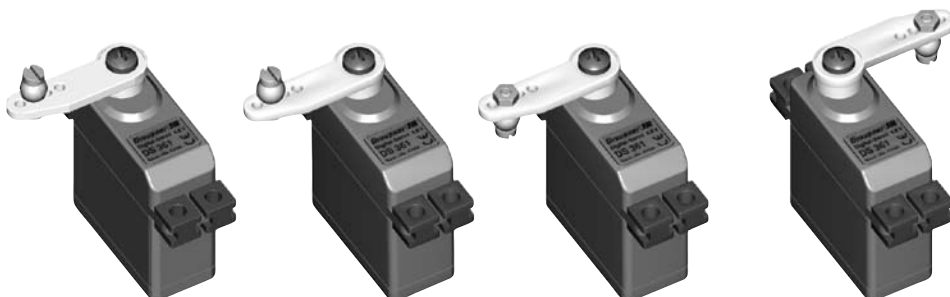
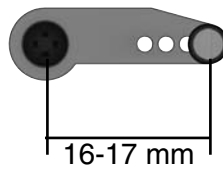
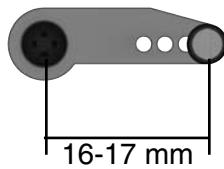
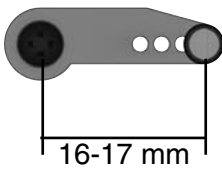
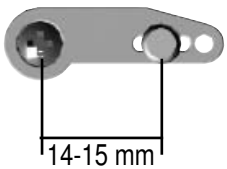


Rudder Servo

Elevator Servo

Aileron Servo

Aileron Servo



120° CCPM

Rudder Servo

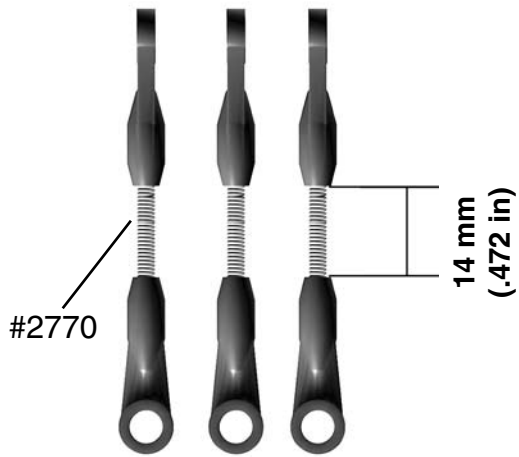
Elevator Servo

Aileron Servo left

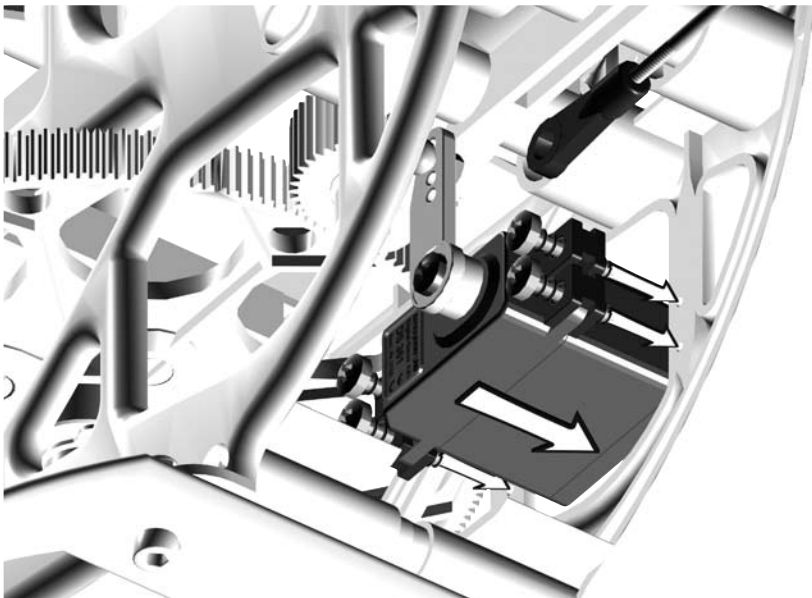
Aileron Servo right

10 Servo Installation

10.1 Linkage Bag 9



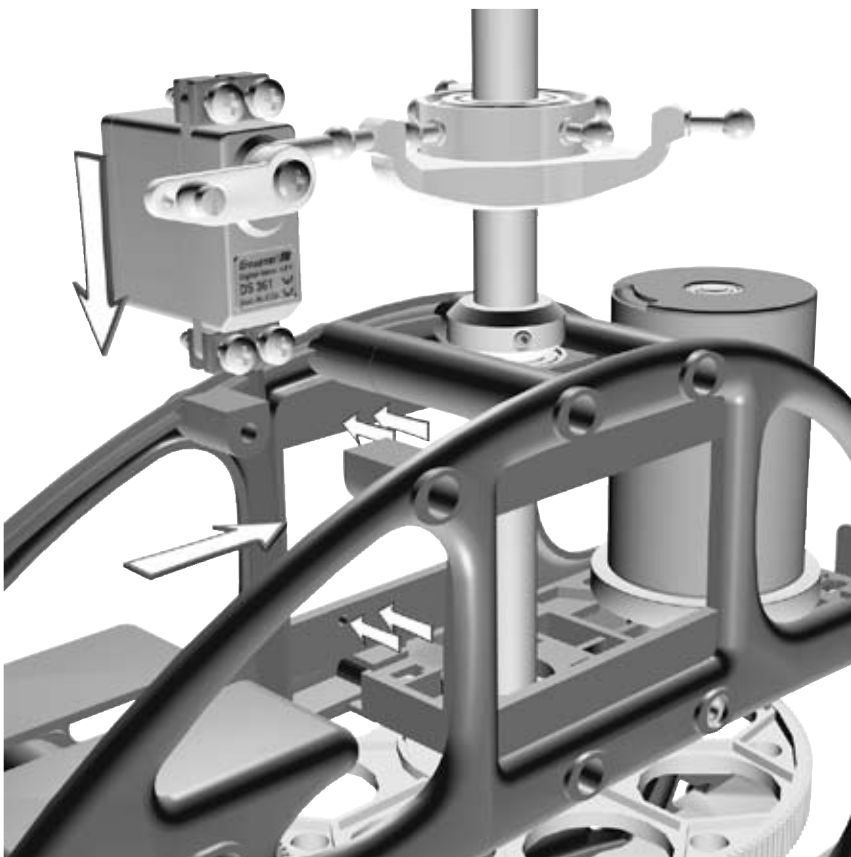
Linkage measurements for 3D pitch range (-12° to +12°)



10.2 Tail Rotor Servo

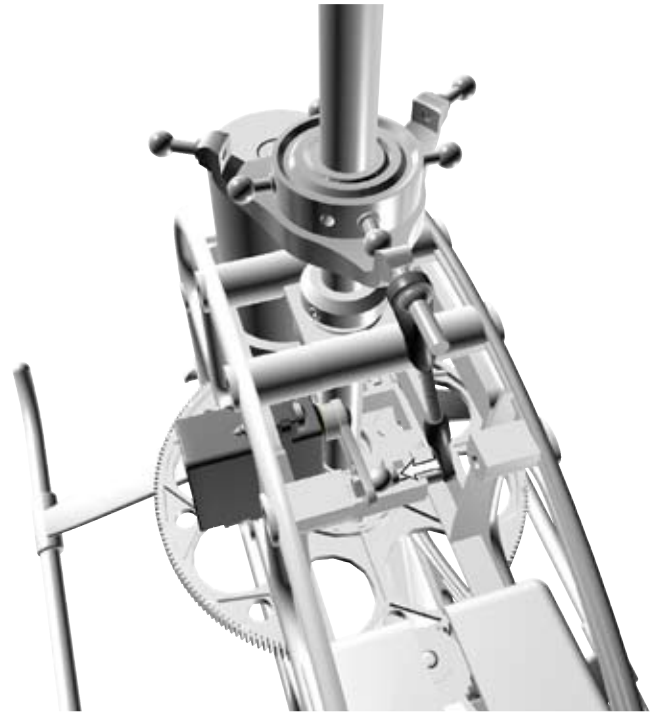
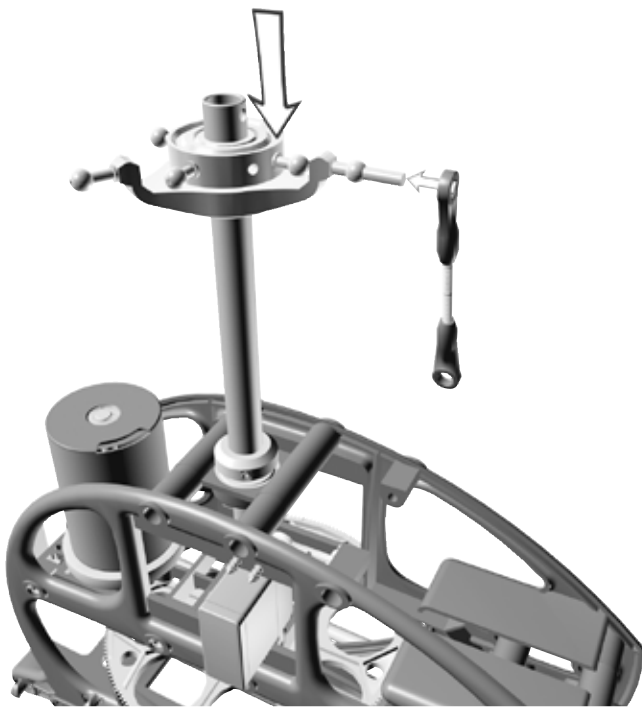
With LOGO 400 side-frames you can use two different sizes of tail rotor servos. A larger standard-size tail rotor servo can be mounted to the left side-frame, a smaller mini servo is mounted to right side-frame.

10.3 Elevator Servo

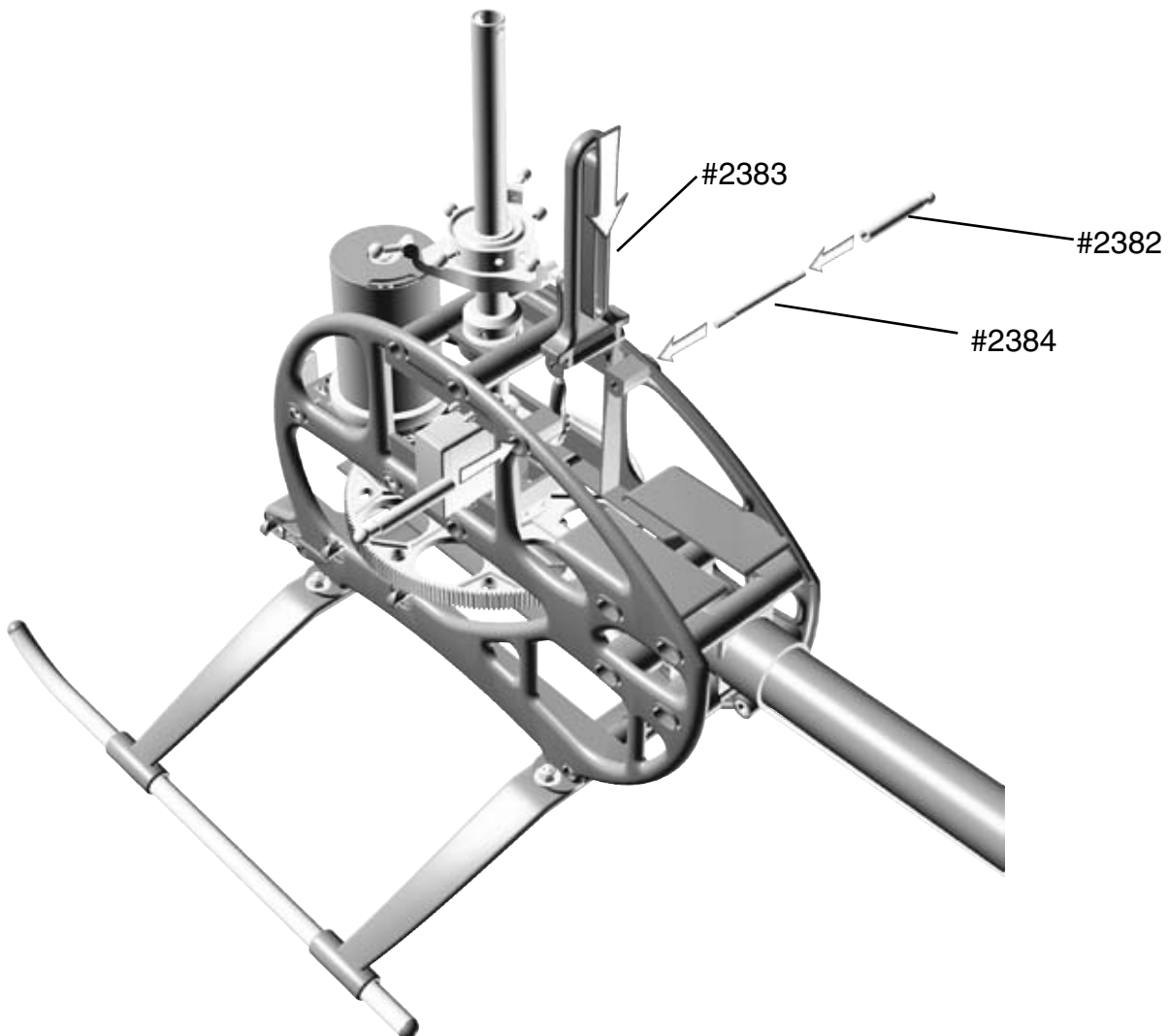


10 Servo Installation

10.4 Elevator Linkage/Swashplate

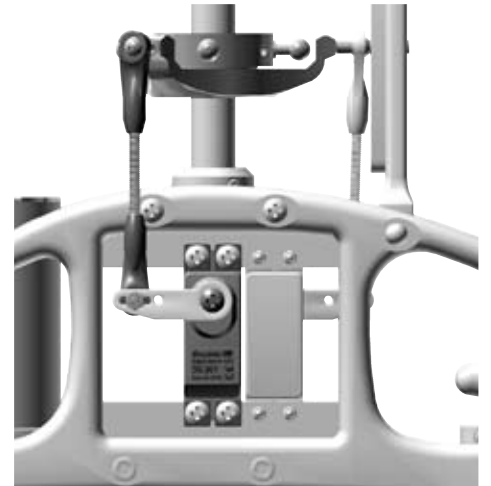
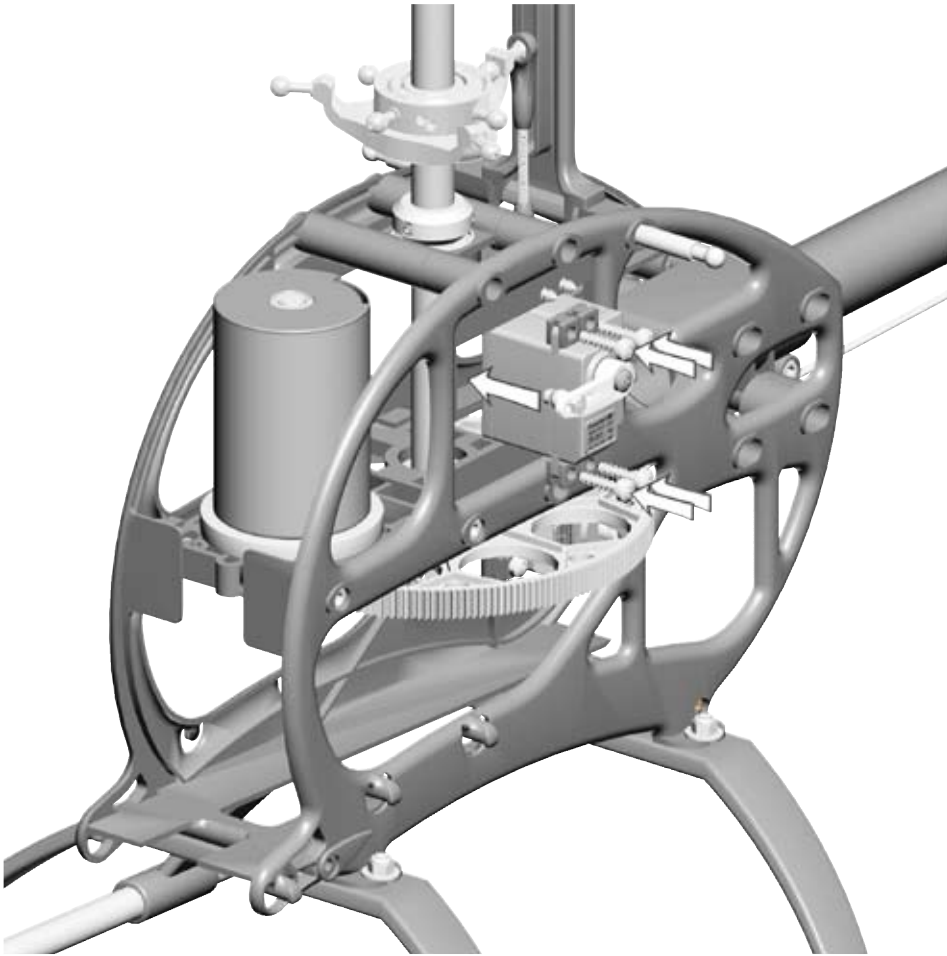


10.5 Canopy Fixing Bolts Bag 1

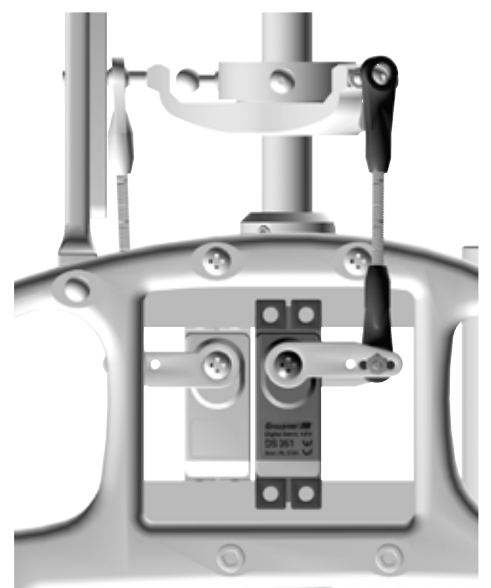
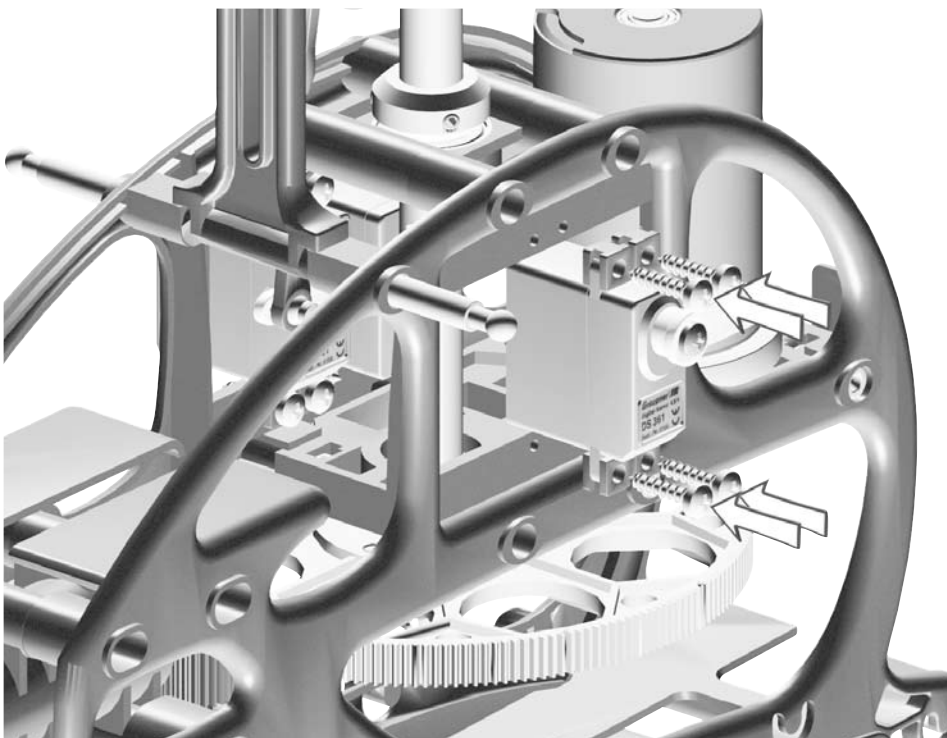


10 Servo Installation

10.6 Aileron Servo left

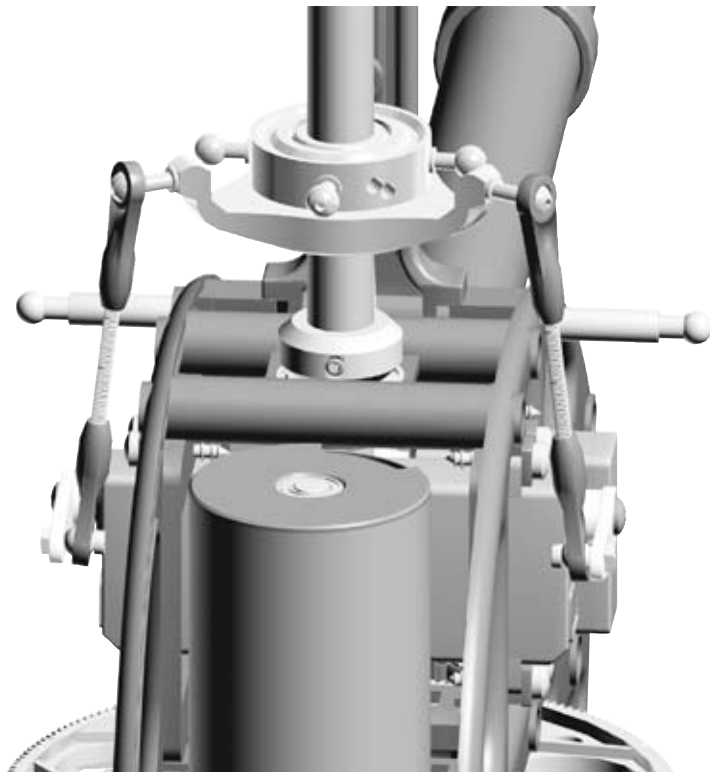
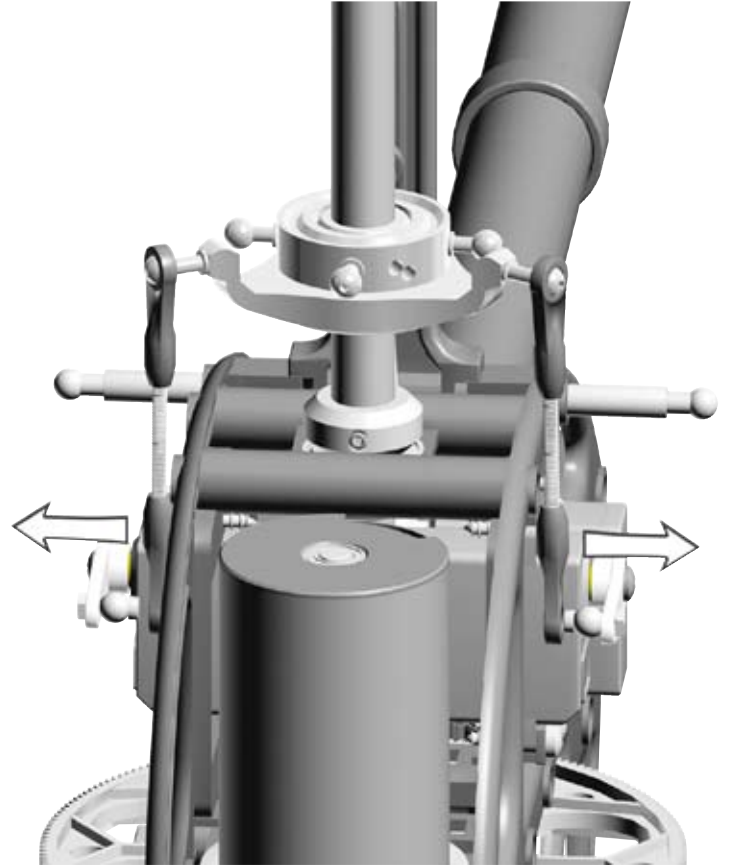
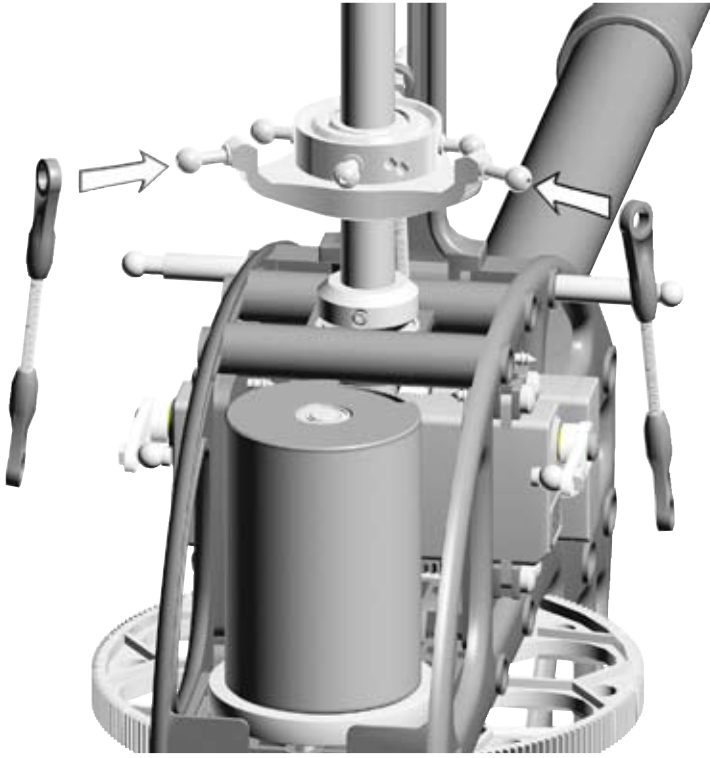


10.7 Aileron Servo right



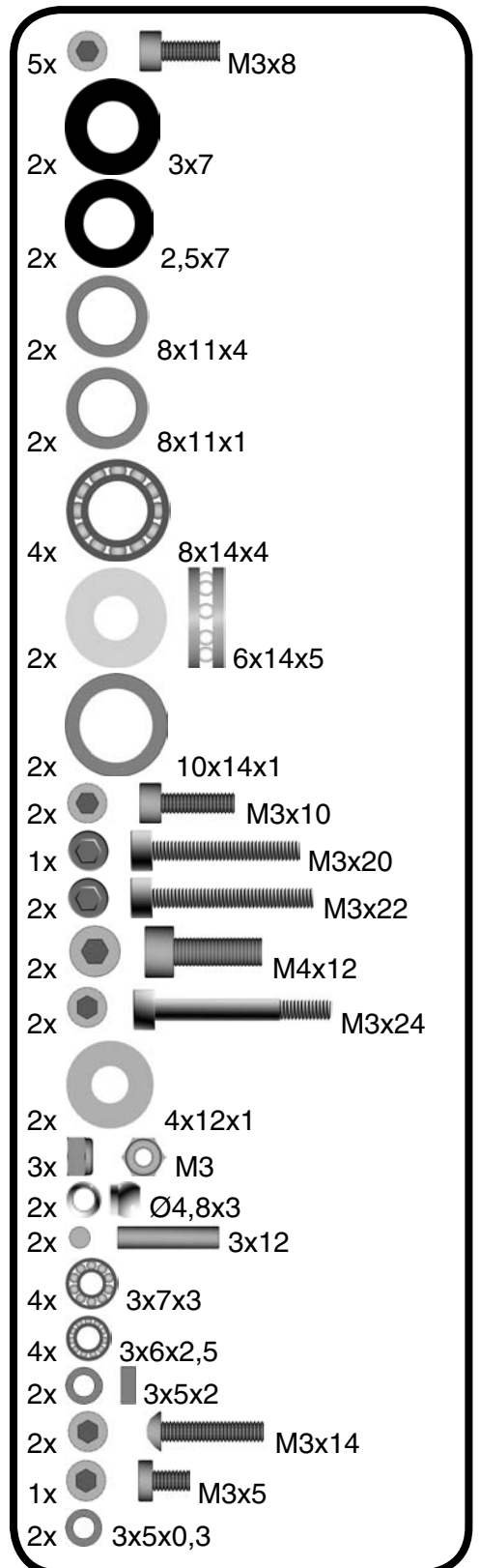
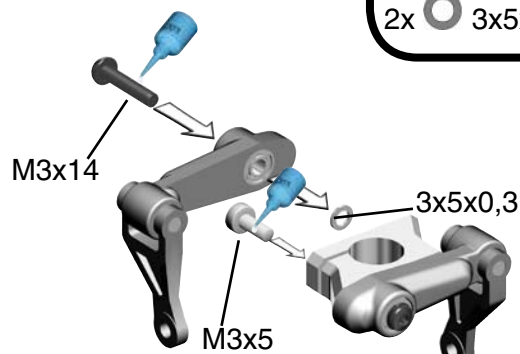
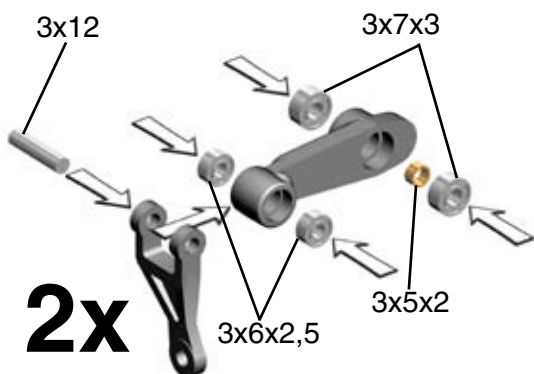
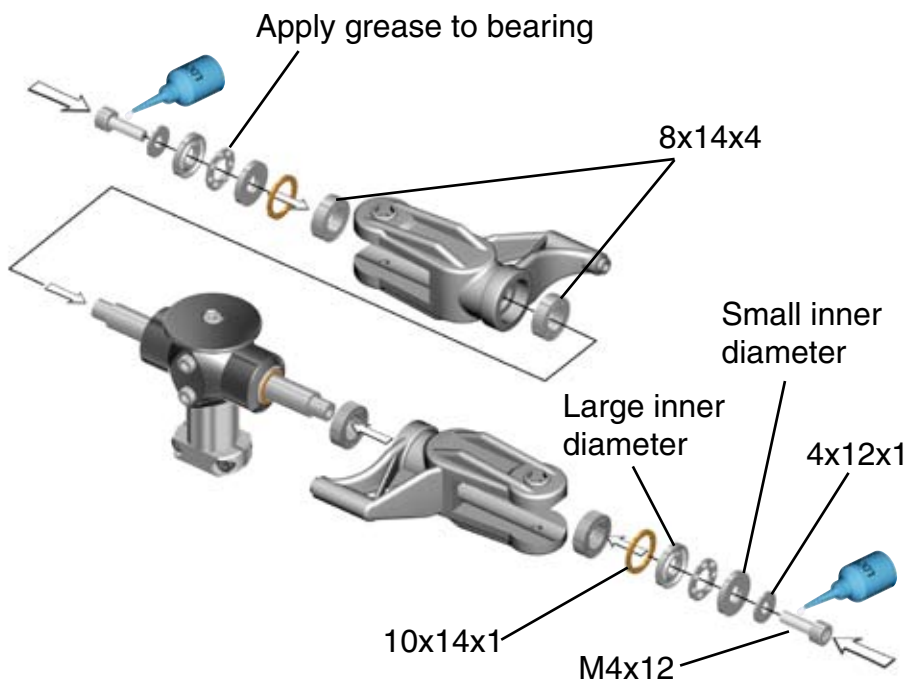
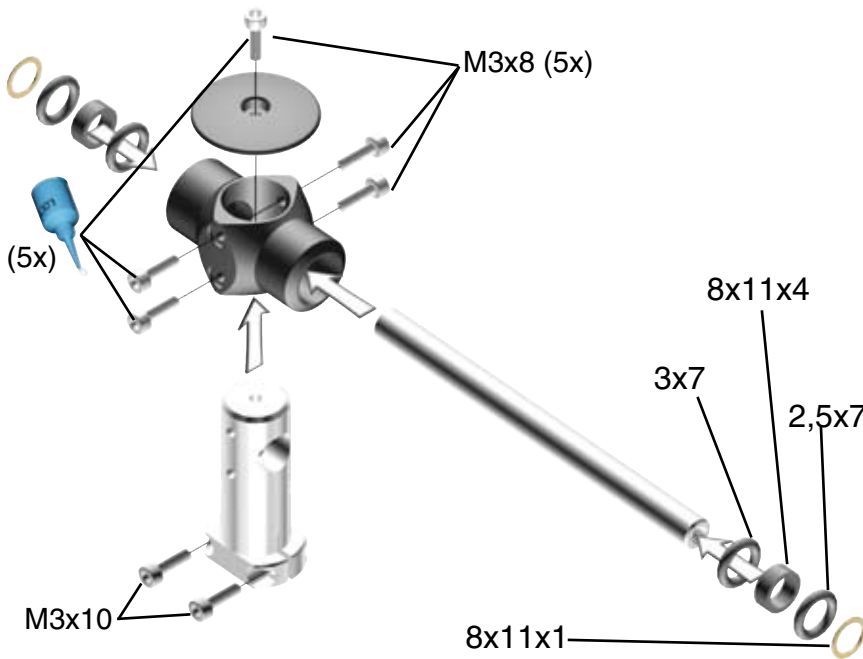
10 Servo Installation

10.8 Aileron Linkage

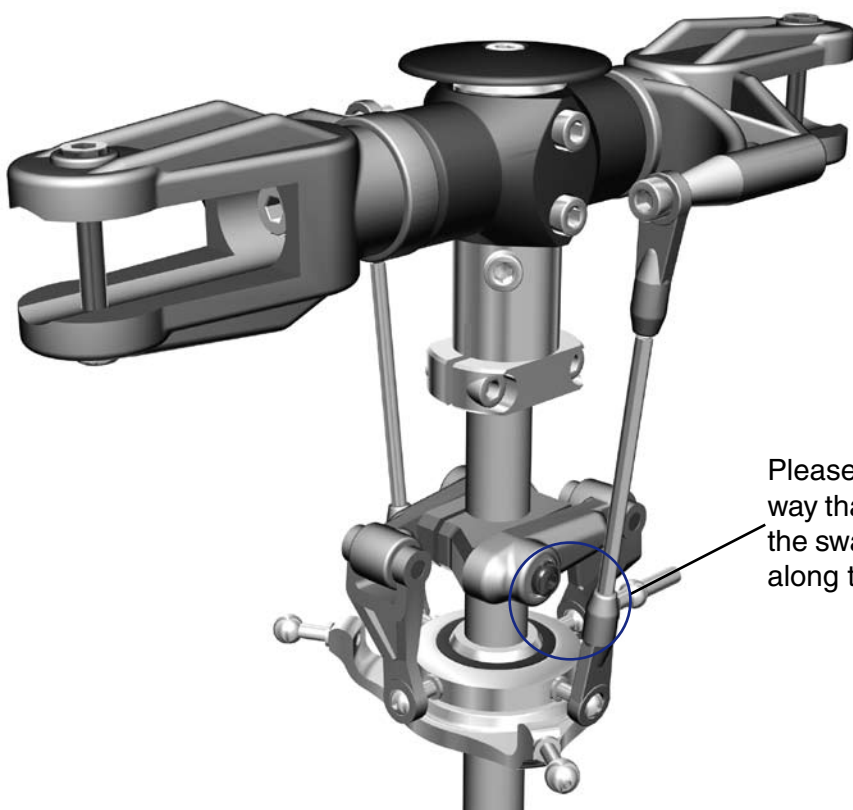
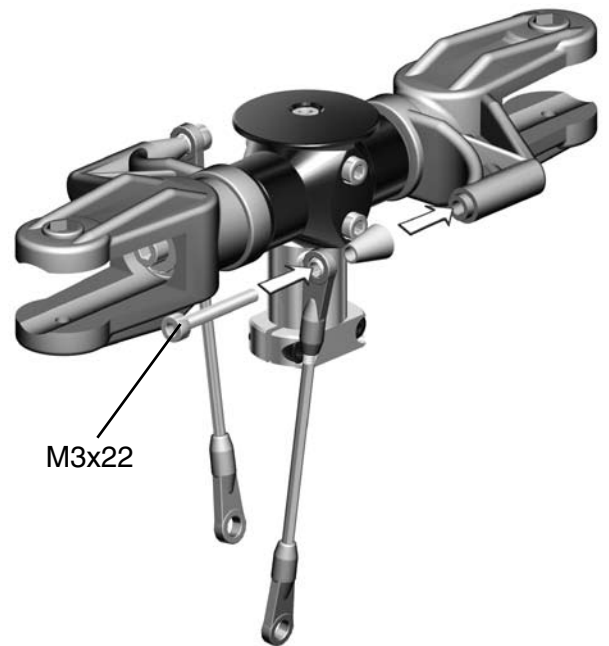
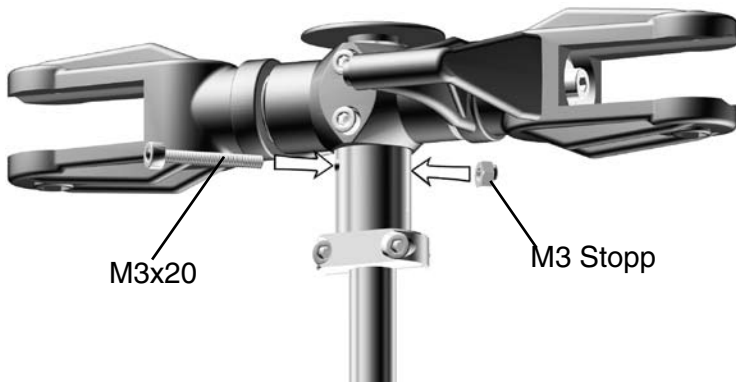
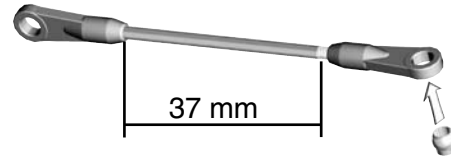
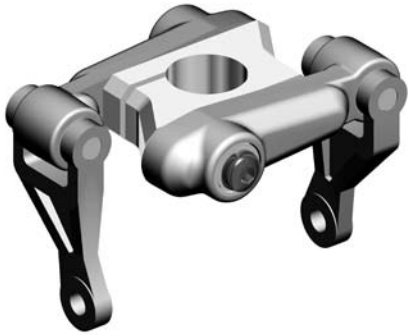


11 VBar Rotorhead

Bag 7



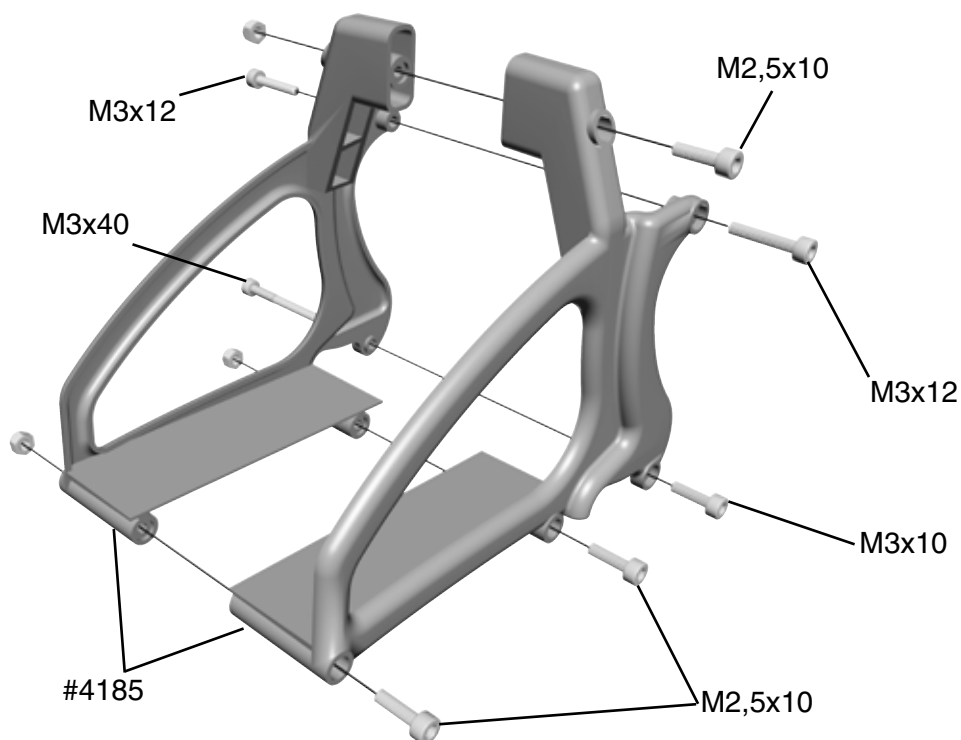
11 VBar Rotorhead



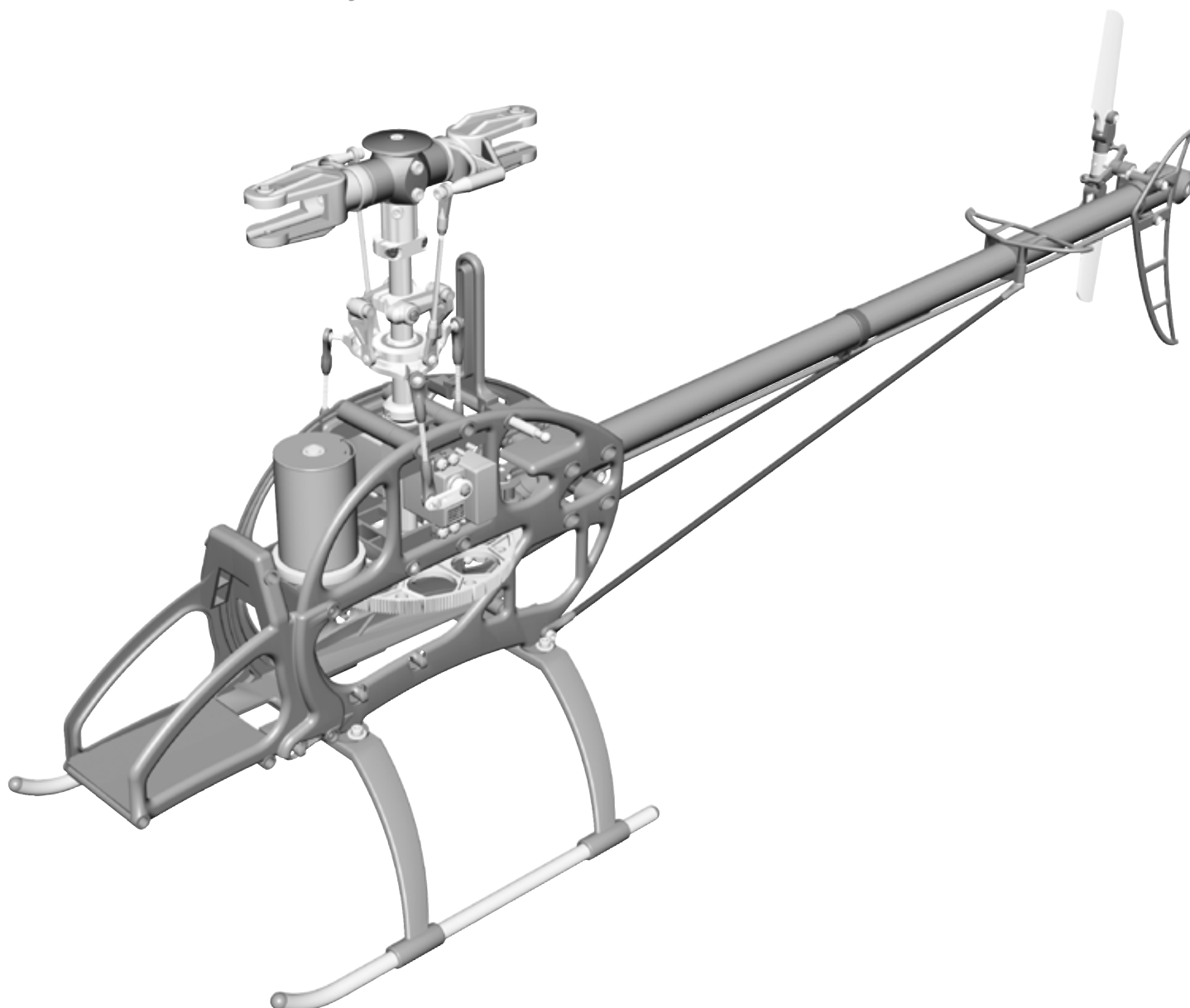
Please adjust the swashplate driver in such a way that the balls on the inner and outer ring of the swashplate are positioned exactly on a line along the longitudinal axis of the heli.

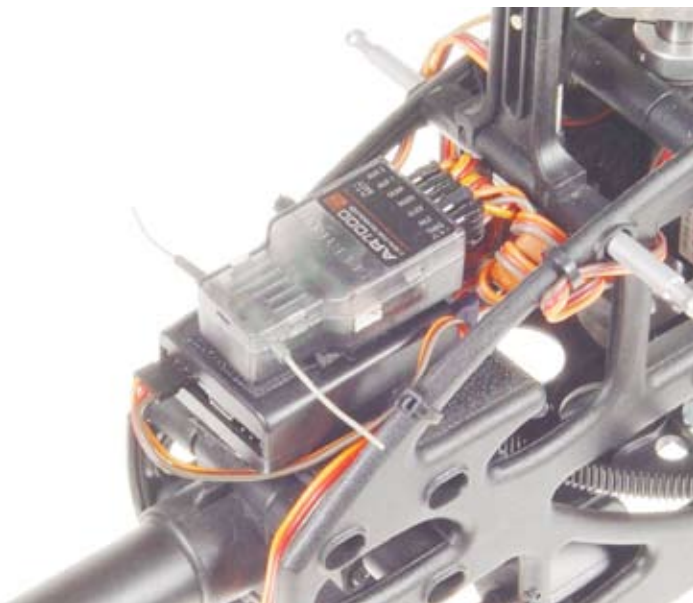
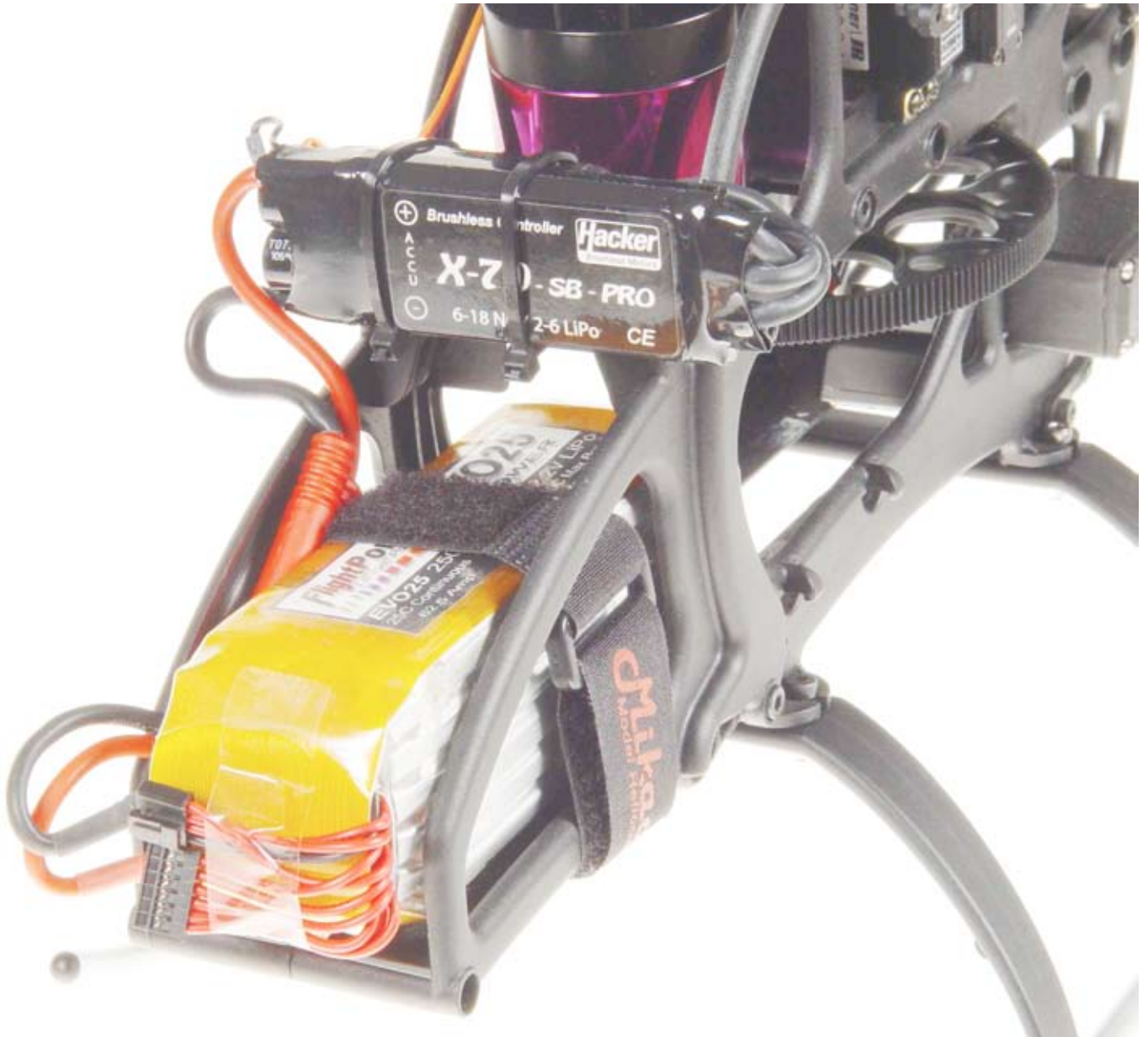
12 Battery Support

Bag 1 • Bag 12



1x			M3x40
2x			M3x12 #1954
1x			M3x10 #1953
3x			M2,5x10 #1938
3x			M2,5 #2071

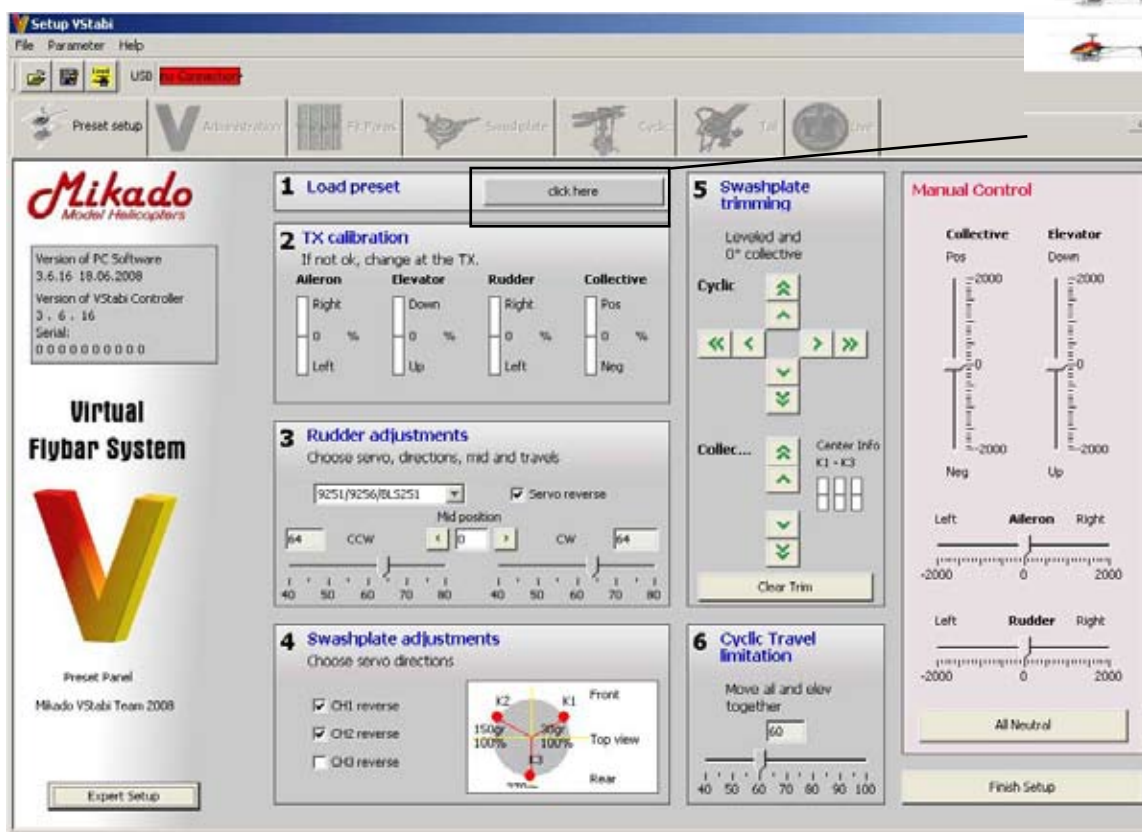




14 VBar Programming



No.	Model Name	Author
100000	Expert Setup for 400-400 Helicopter 7020	Aufbau: J&B-Hitec
100001	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100002	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100003	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100004	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100005	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100006	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100007	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec
100008	Expert Setup for 400-400 Helicopter 8120	Aufbau: J&B-Hitec



Set-up software for ready-to-fly model set-ups

With the ready-to-fly model set-ups for the LOGO Series and the T-Rex series it is now very simple to set up your model. There is just one menu for the basic parameters and the flight characteristics. It takes just a few minutes to program your VBar.

Prerequisites: Before you start, you must have the set-up software installed and opened successfully on your computer. Then connect the VBar with the receiver and the servos.

Click on "Start setup" in order to switch to the setup menu. In this menu follow steps 1 to 6 and then complete the setup by clicking on "Finish setup". During this procedure, a test mode is activated. You can check the individual control functions in the Manual Control box.

1) Click „load preset“. Choose your helicopter model. All relevant model-specific parameters and set-up data will be loaded into the VBar.

2) TX calibration (very important!). This step is necessary to check the effective direction of the radio. If necessary you need to switch the effective direction of your radio. Only after you have checked that all control channels of your radio are effective in correct direction you can proceed with the next step here. Note that your radio must be free of any pre-programming. It is used as a simple 4-channel radio.

3) This step chooses the tail servo you are using. Please adjust effective direction, servo center and servo travel.

4) Check the effective direction for cyclic, elevator and aileron here. Invert if necessary.

5) Swashplate Trimming: This step is to trim the swashplate. Note that at 0° pitch the stick is centered and the servo arms are in neutral.

6) Cyclic Travel Limitation: This lets you control the maximal cyclic travel. Ensure that the cyclic travel is set so that the swashplate never touches the main shaft.

By clicking on „Finish Setup“ you return to the page showing the setup parameters. At the same time the Manual Control mode is deactivated.

Performance Main Rotor

Pitch: Here you determine the total pitch travel.

Agility: Here you determine the agility (cyclic rate) of your heli.

Sensitivity: Here you determine how the gyro acts on the aileron and elevator servos. The more sensitivity, the better the stopping behavior of aileron and elevator.

Performance Tail Rotor

Rate: Here you determine the cyclic rate with respect to the vertical axis of the helicopter.

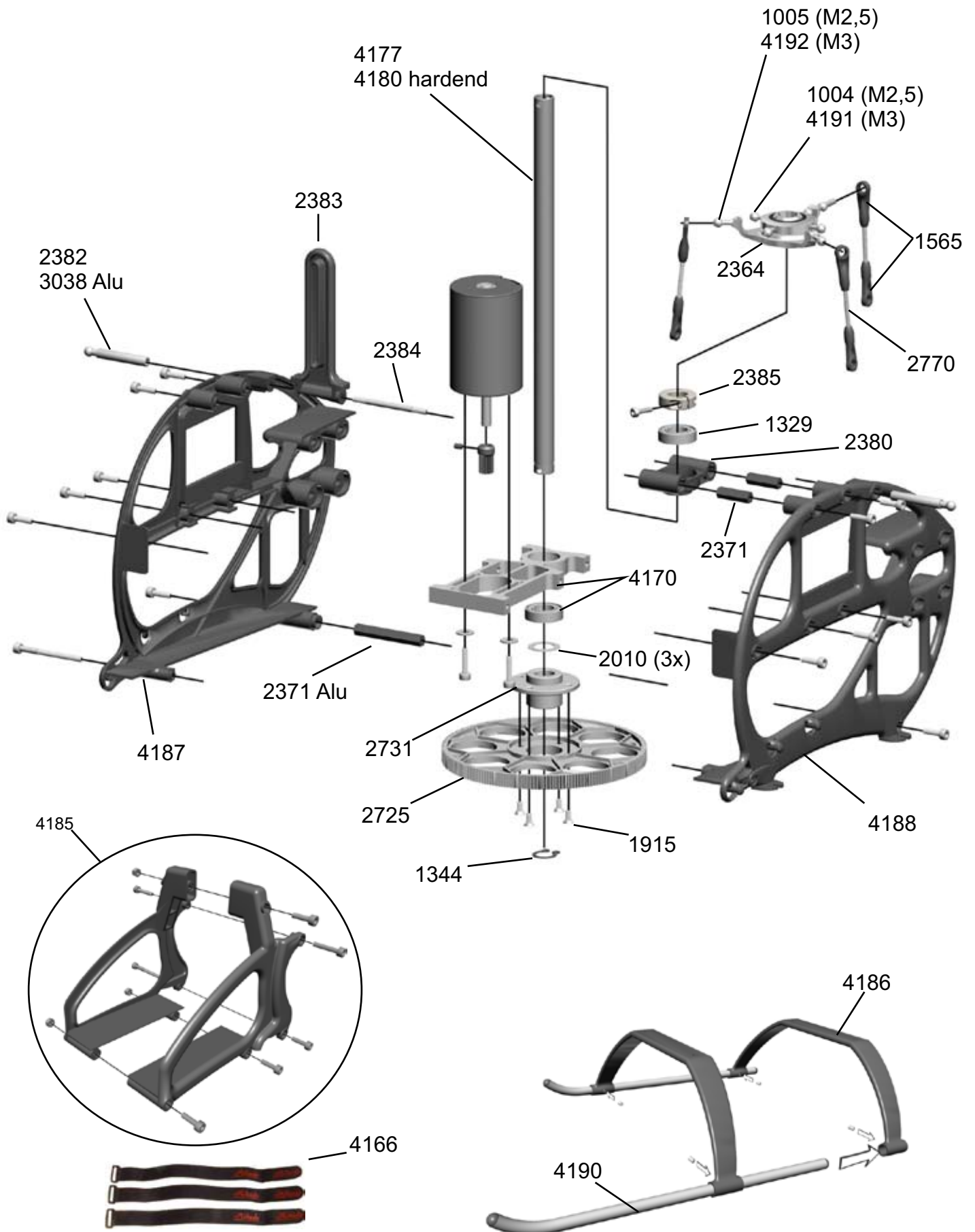
Sensitivity: Here you determine how the gyro acts on the servo. The more sensitivity, the better the stopping behavior.

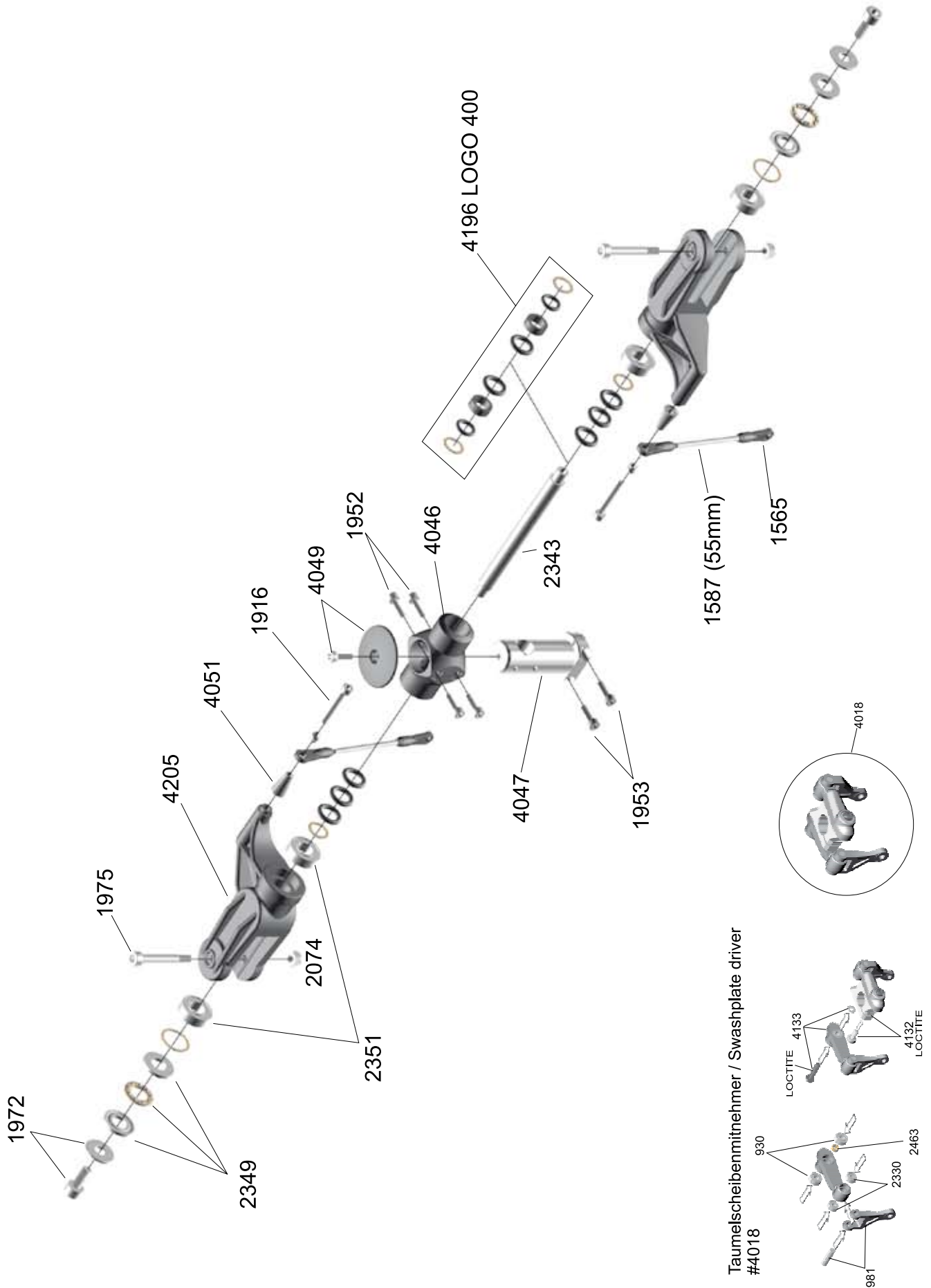
Every control bar has a pre-determined value. You can use these default values to fly. Note: Do not modify the values to lie in the red area, unless you are an experienced pilot. Never go directly to the red area. Always try out a value in the green area before you go to the red area. Use the "Reset" button to go back to the original default values.

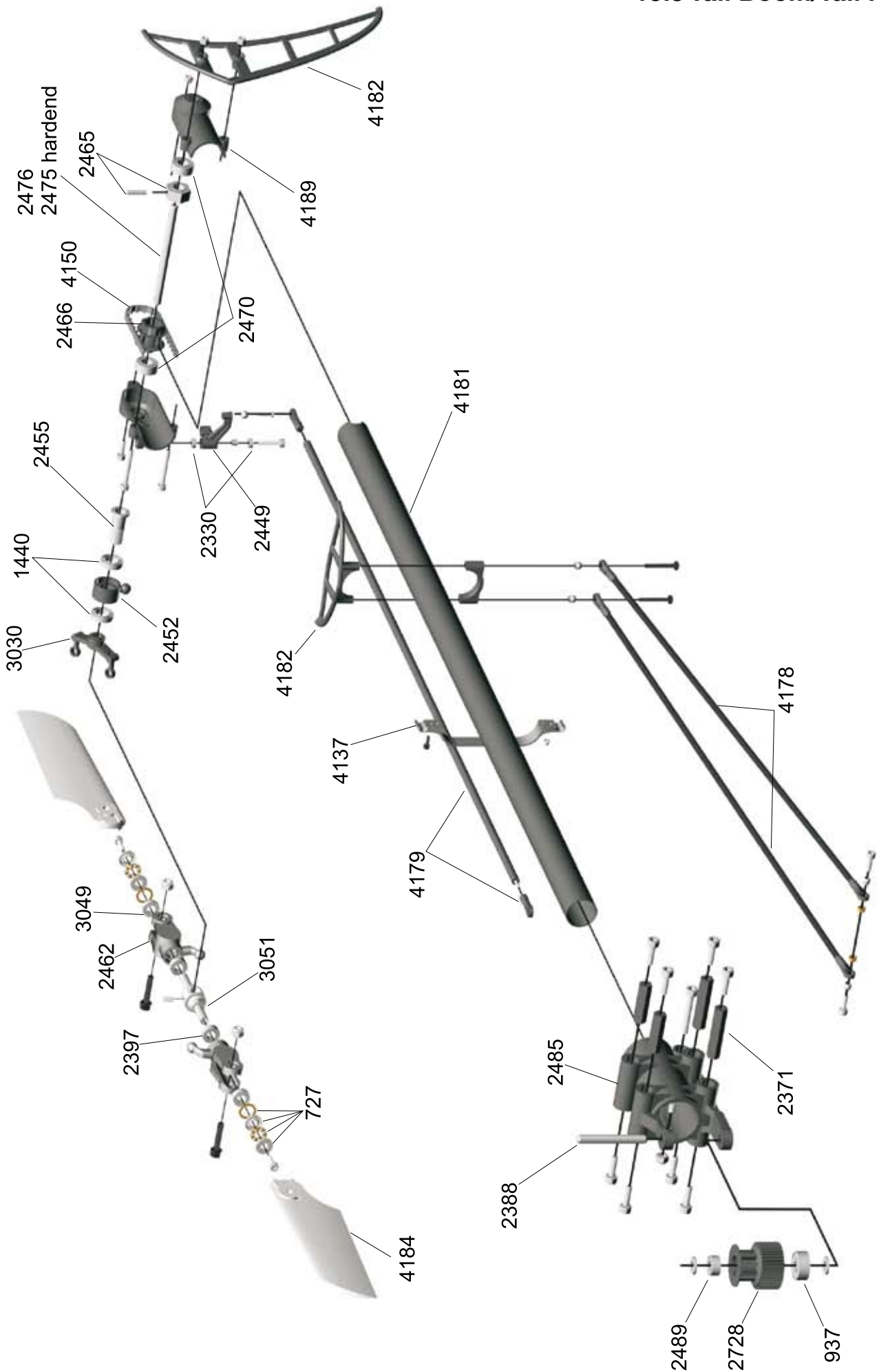
In addition you may activate the expo-function for aileron (15%), elevator (15%), and rudder (30%) in your radio. This also modifies the behavior of the helicopter.

15 Overview

15.1 Chassis

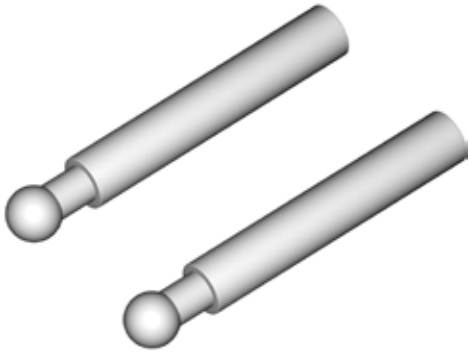




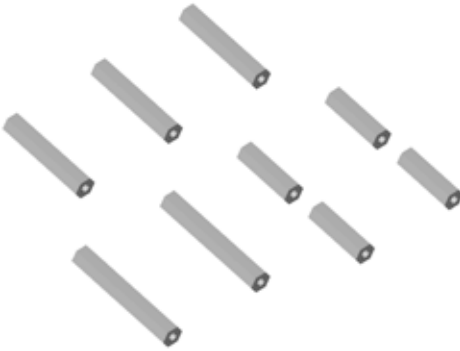


16 Tuning/Accessories

Alu canopy holders #3038



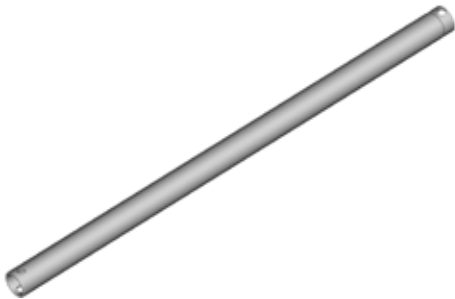
Alu hex bolts #2371



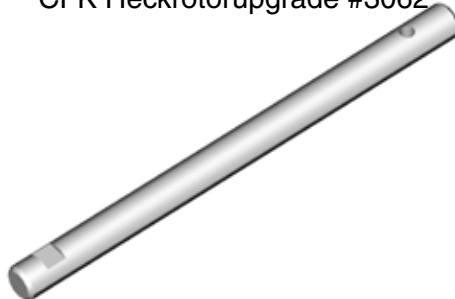
Carbon main rotor blades #4151



Main rotorshaft hardened #2741



Tail rotorshaft hardened #2475
CFK Heckrotorupgrade #3062



Carbon Tailcase Upgrade #3062



Carbon Battery Support #4007

