Manual

Mikado
Model Helicopters
www.mikado-heli.de

LOGO 500 DX • LOGO 500 3D
LOGO 600 DX • LOGO 600 3D

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Index

Manual for Mikado helicopter models LOGO 500 DX, LOGO 500 3D, LOGO 600 DX and LOGO 600 3D

Note: There is no bag 4. The bags are numbered 1 to 12, with the exception of 4.

Max. rotorhead rpm LOGO 500: 2100 U/min
Max. collective range: +/- 12°

Max. rotorhead rpm LOGO 600: 2000 U/min
Max. collective range: +/- 12°

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 reliable 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

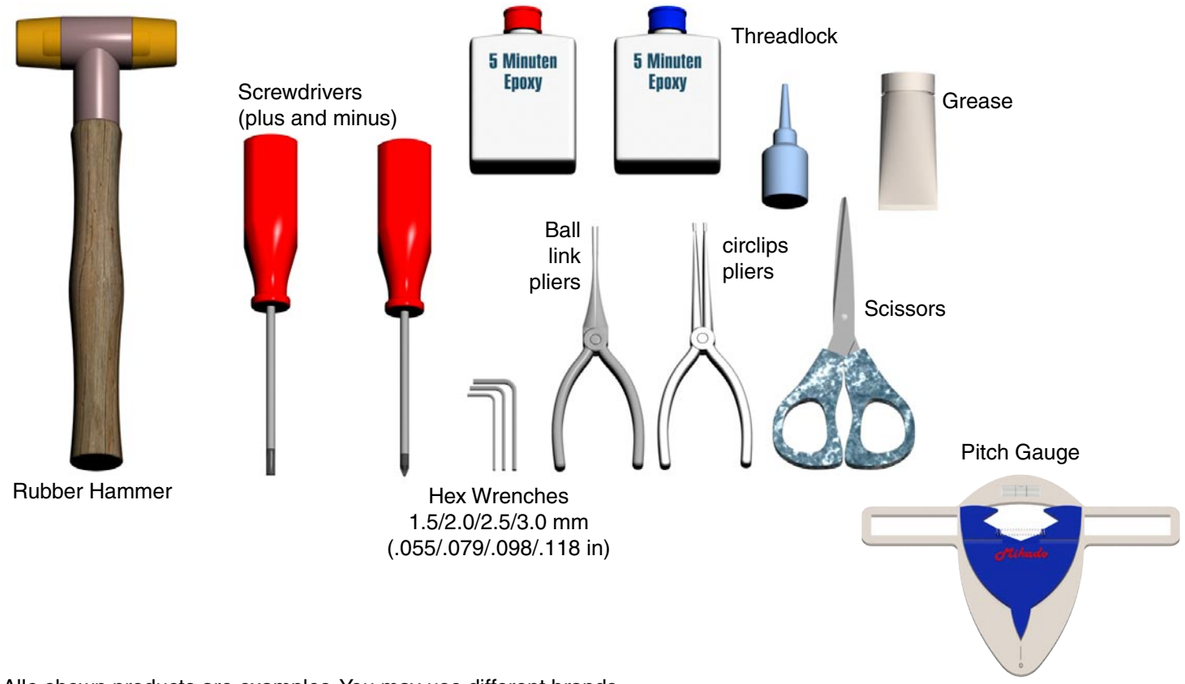
!Warning: Operate the helicopter only outdoors and out of people's reach as the main rotor operates at high rpm!

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

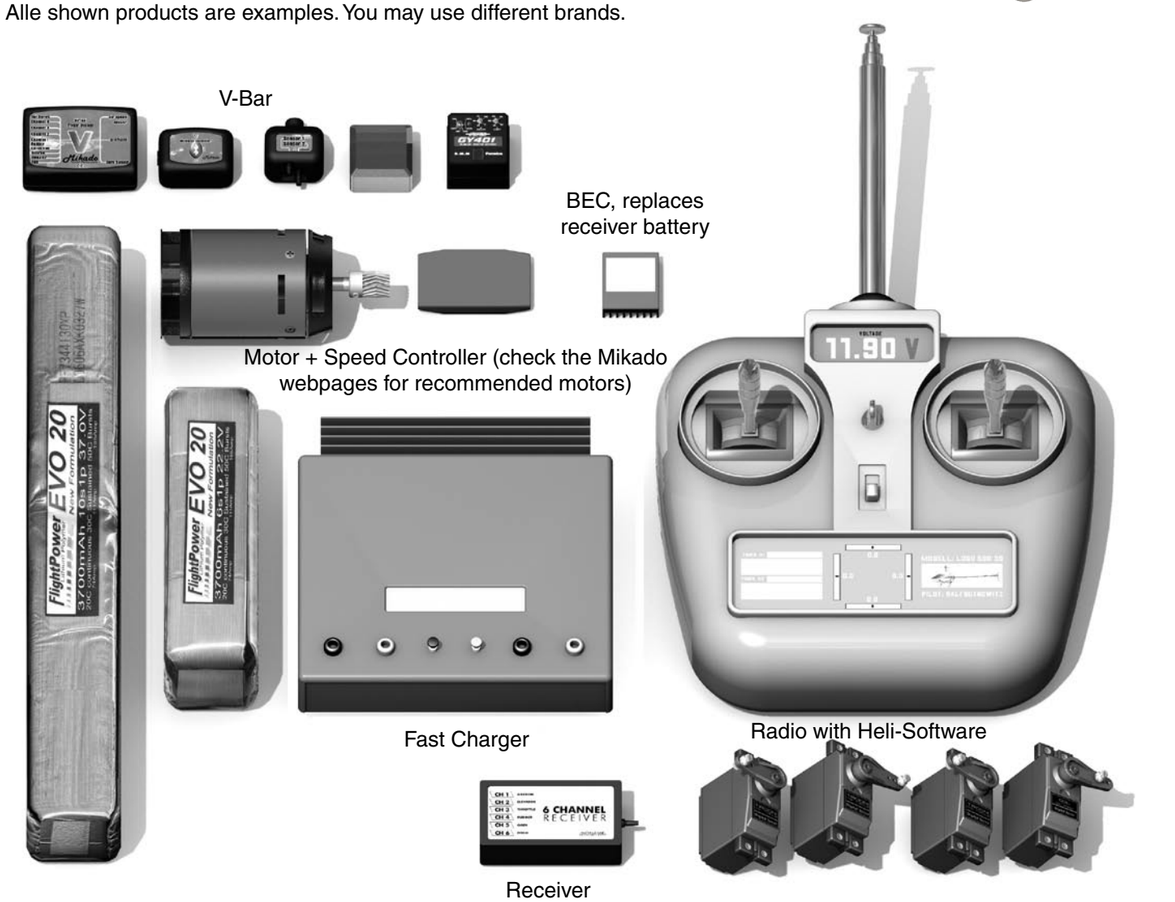
Novice R/C helicopter pilots should always seek advice from experienced pilots to obtain hints with assembly and for pre-flight adjustments. Note that a badly assembled or insufficiently adjusted helicopter is a safety hazard!

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

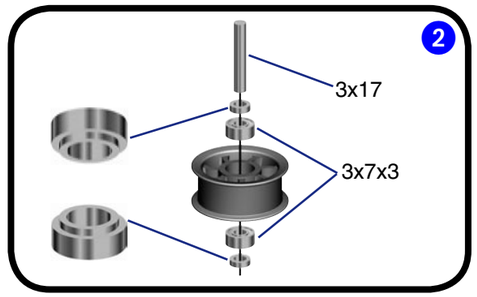
Tools for Assembly & R/C Equipment



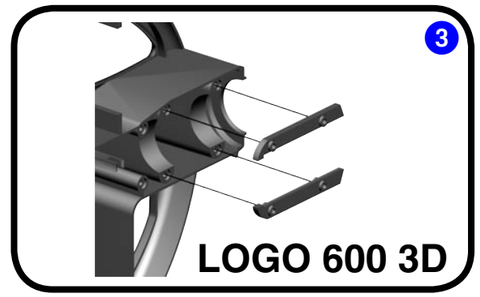
Alle shown products are examples. You may use different brands.



Using the rod M2.5x60, position all 14 nylon nuts in the right side frame.



Before you combine the two sides of the main frame, attach the two belt tensioners (#4089, bag 6).



Spacers for 25 mm tail boom (LOGO 600 3D).

You may install the four servos into the main frame either now or later. If you wish to install the servos now, please go to page 10, before you continue here.

Bag 1

14x M2,5
4x M2,5
3x SW5x59
1x M2,5x60

Bag 6

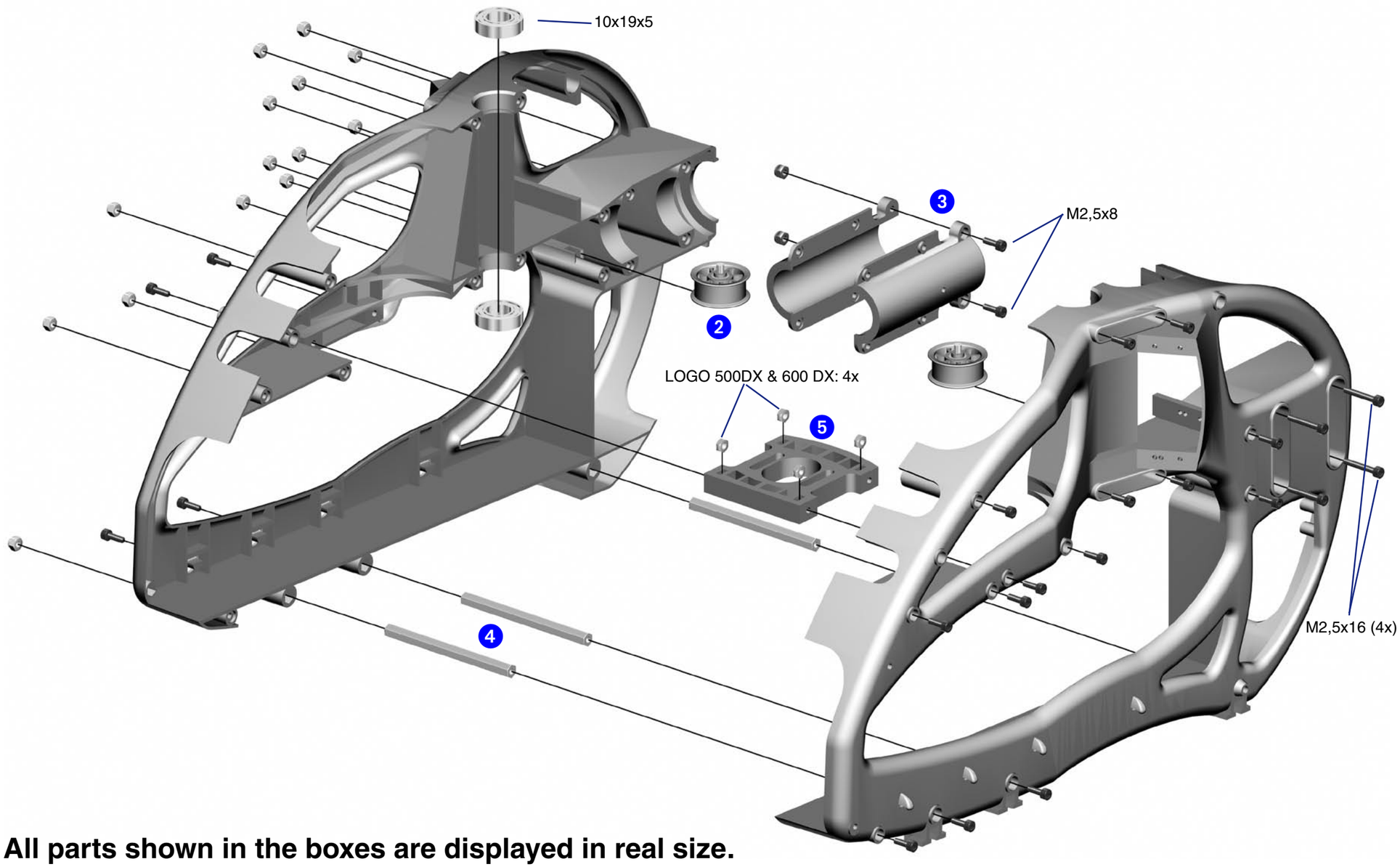
2x 3x17
4x 3x5x2,5
2x M2,5x8
(LOGO 500 DX/3D, LOGO 600 DX)
2x M2,5
(LOGO 500 DX/3D, LOGO 600 DX)

Bag 10

4x 3x7x3
2x 10x19x5

Bag 12

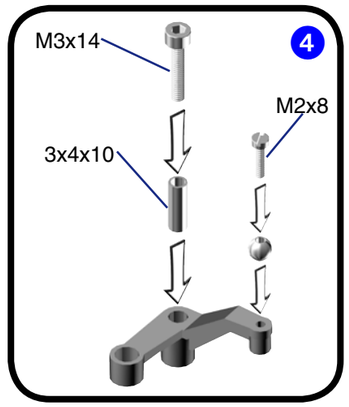
14x M2,5x10
4x M3x10
4x M2,5x16

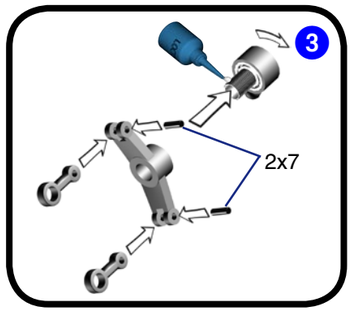


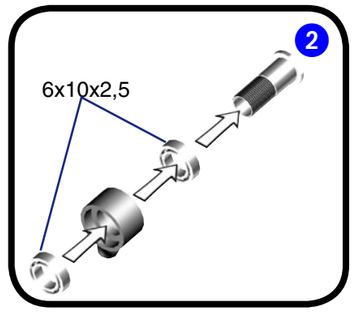
All parts shown in the boxes are displayed in real size.

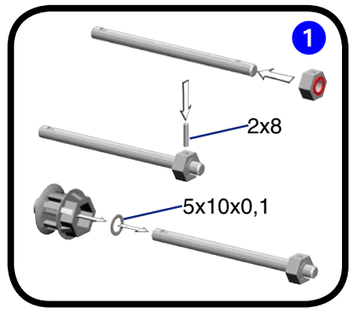
2 Tail Rotor & Tail Boom 500/600 DX

Bag 5 • Bag 6 • Bag 9 • Bag 10 • Bag 11

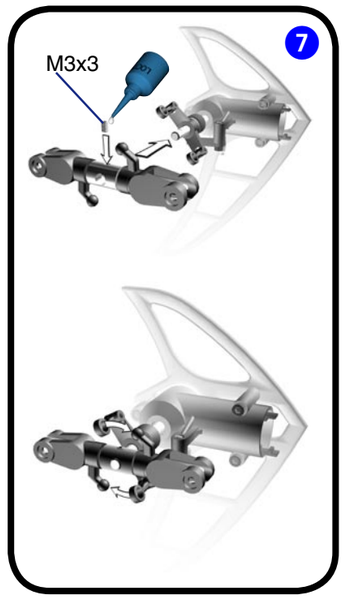


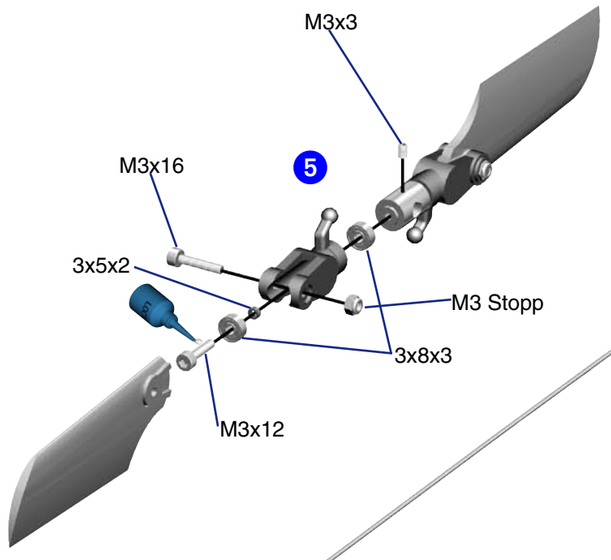


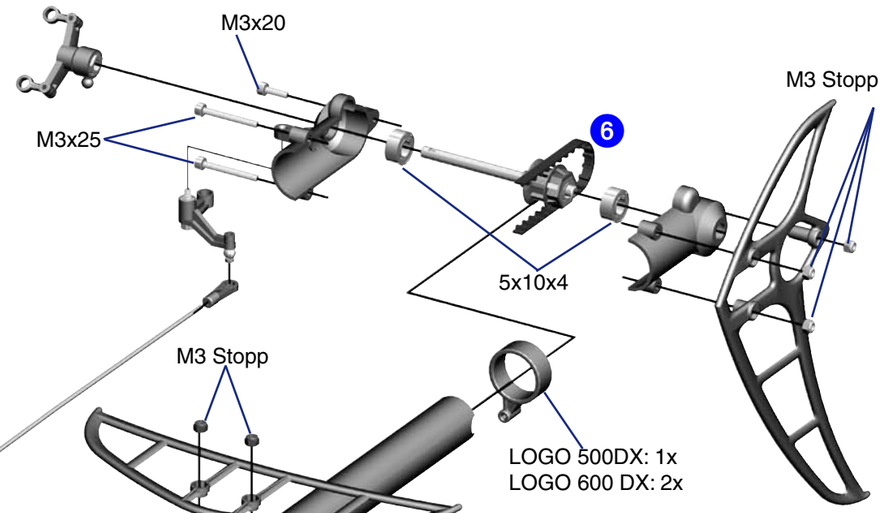


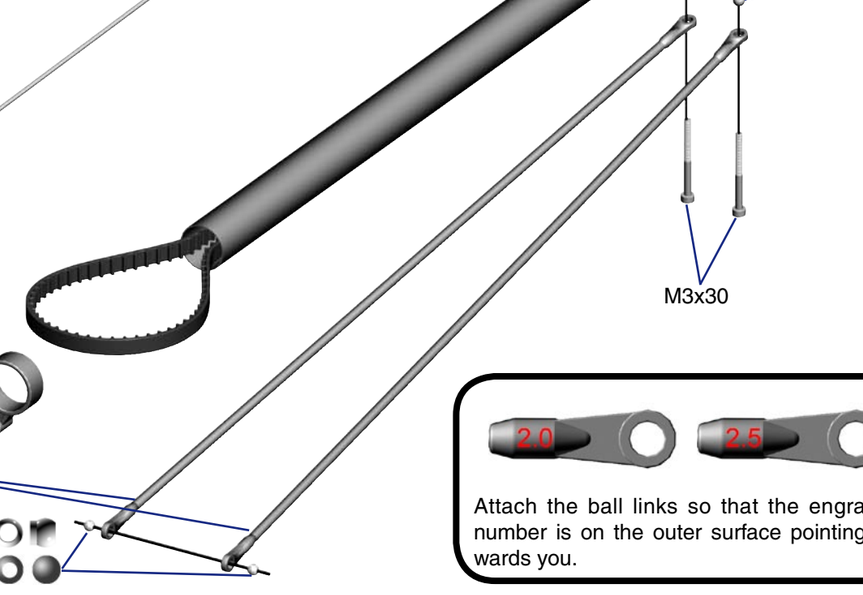


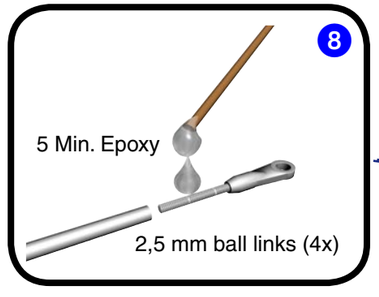
If the tail rotor shaft shows axial play after closing the two halves of the tail rotor case, use one or two of the washers.











LOGO 600 DX:
LOGO 500 DX:

Attach the ball links so that the engraved number is on the outer surface pointing towards you.

Bag 5

- 1x 2x8
- 2x 5x10x0,1
- 2x 2x7
- 1x 3x4x10
- 1x M2x8
- 1x Kugel/ball/Rotule Ø4,8x2
- 2x 3x5x2
- 5x M3
- 1x M3x3

Bag 6 (LOGO 500 DX)

- 2x Kugel/ball/Rotule Ø4,8x3
- 2x Kugel/ball/Rotule Ø4,8x2,5
- 2x M3

Bag 6 (LOGO 600 DX)

- 4x Kugel/ball/Rotule Ø4,8x3
- 2x M3

Bag 9 (LOGO 500 DX)

- 4x M2,5x30

Bag 9 (LOGO 600 DX)

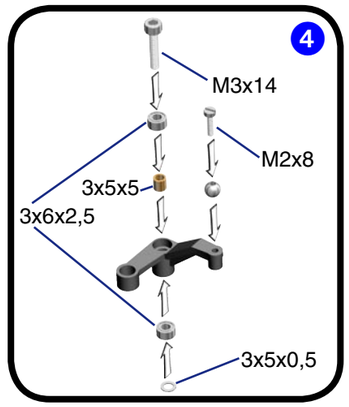
- 4x M3x30

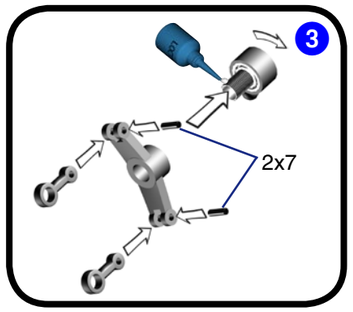
Bag 10

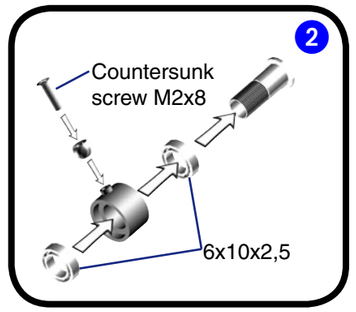
- 2x 6x10x2,5
- 2x 5x10x4
- 4x 3x8x3

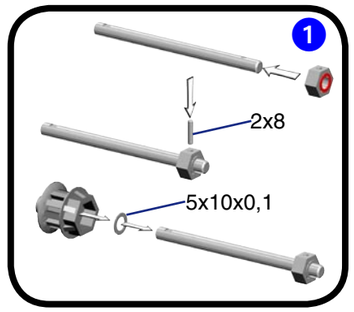
Bag 12

- 2x M3x12
- 1x M3x14
- 2x M3x16
- 1x M3x20
- 2x M3x25
- 2x M3x30

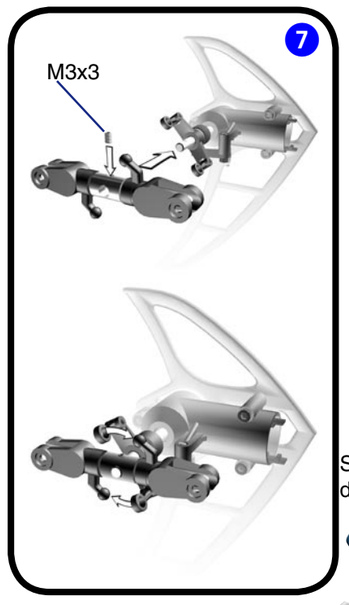


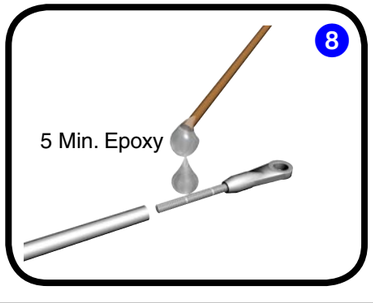






If the tail rotor shaft shows axial play after closing the two halves of the tail rotor case, use one or two of the washers.





Attach the ball links so that the engraved number is on the outer surface pointing towards you.

Bag 5

- 1x 2x8
- 2x 5x10x0,1
- 1x M2x8
- 1x Ø4,8x2
- 2x 2x7
- 1x 3x5x5
- 1x M2x8
- 1x Ø4,8x2
- 1x 3x5x0,5
- 2x 5x8x0,5
- 2x M2,5x6
- 2x 2,5x6x0,5
- 2x 4x8x3
- 2x 4x8x2
- 2x M3x16
- 2x 4x8x3,5
- 5x M3
- 1x M3x3
- 1x 3x12

Bag 6

- 2x Ø4,8x3
- 2x Ø4,8x2,5
- 2x M3
- 1x M2x6
- 1x M2

Bag 9

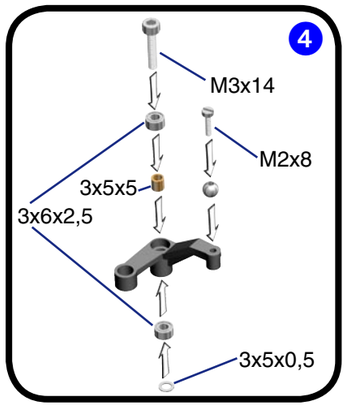
- 6x M2,5x30

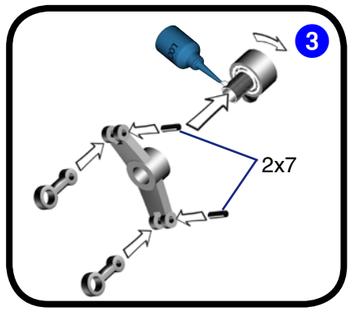
Bag 10

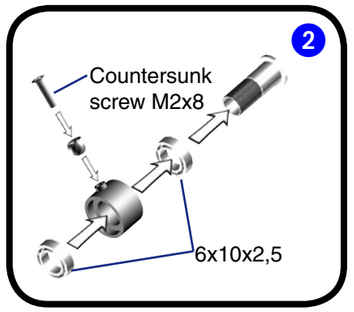
- 2x 6x10x2,5
- 2x 5x10x4
- 4x 3x6x2,5

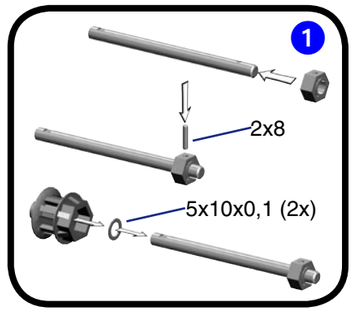
Bag 12

- 1x M3x14
- 1x M3x20
- 2x M3x25
- 2x M3x30









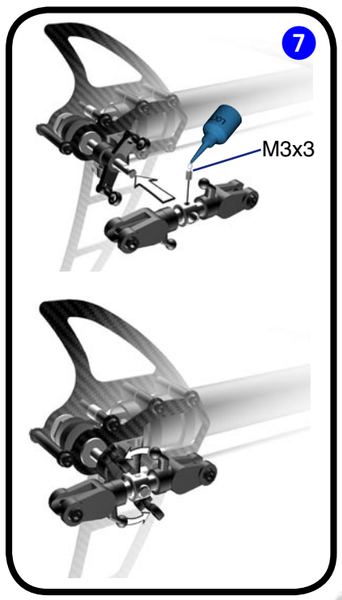
Bag 12

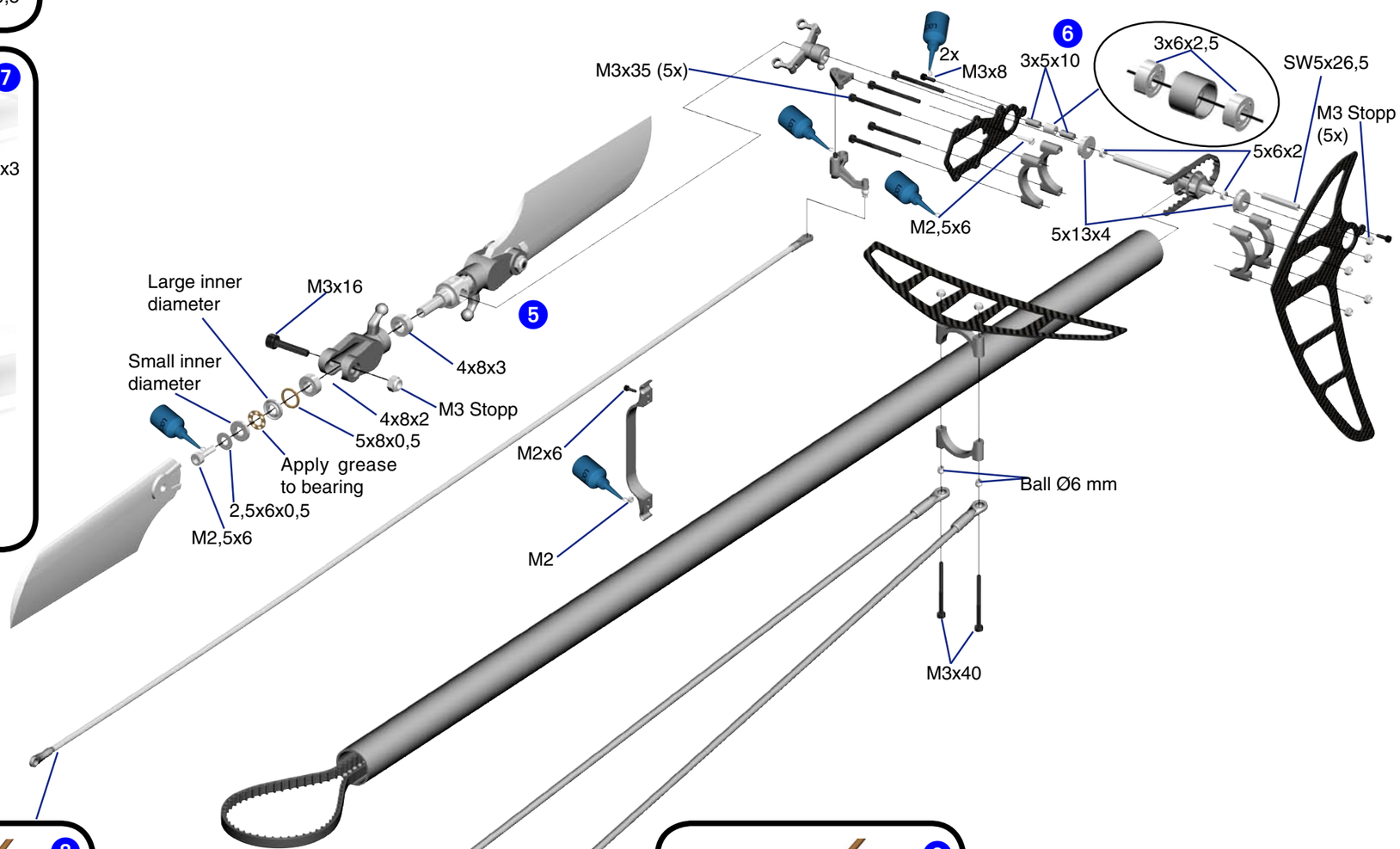
1x	M3x14	
2x	M3x8	
2x	M3x40	
5x		M3x35

Bag 5

1x	2x8
2x	5x10x0,1
1x	M2x8
1x	Kugel/ball/Rotule Ø4,8x2
2x	2x7
1x	3x5x5
1x	M2x8
1x	Kugel/ball/Rotule Ø4,8x2
1x	3x5x0,5
2x	5x8x0,5
2x	M2,5x6
2x	2,5x6x0,5
2x	4x8x3
2x	4x8x2
2x	M3x16
2x	4x8x3,5
5x	M3
1x	M3x3
1x	3x12
2x	M2,5x6
2x	3x5x10
2x	5x6x2
1x	5x26,5
4x	Kugel/ball/Rotule Ø6x3

If the tail rotor shaft shows axial play after closing the two halves of the tail rotor case, use one or two of the washers.





Bag 6

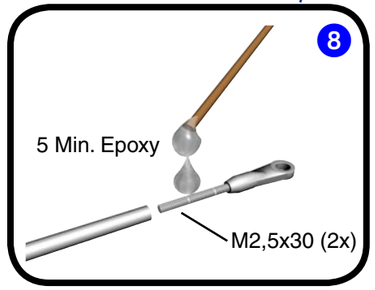
2x	M3
1x	M2x6
1x	M2

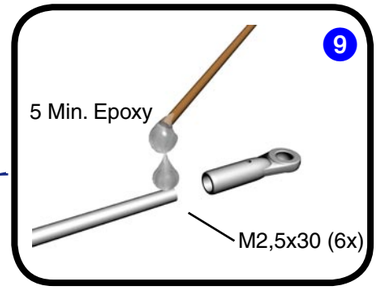
Bag 9

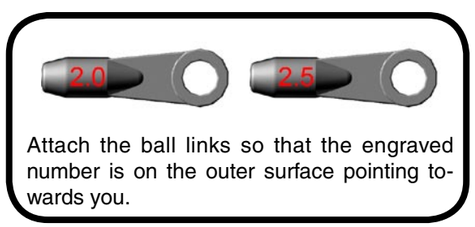
2x	M2,5x30

Bag 10

2x	6x10x2,5
2x	5x13x4
4x	3x6x2,5





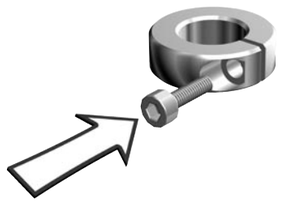


Attach the ball links so that the engraved number is on the outer surface pointing towards you.

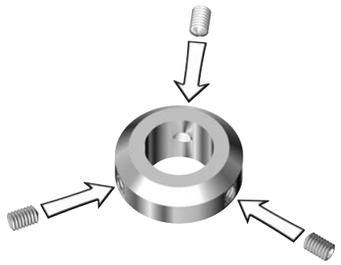
5 Main Gear & Tail Rotor Assembly

Bag 2 • Bag 8 • Bag 12

LOGO 500 3D 1



LOGO 500 DX 1



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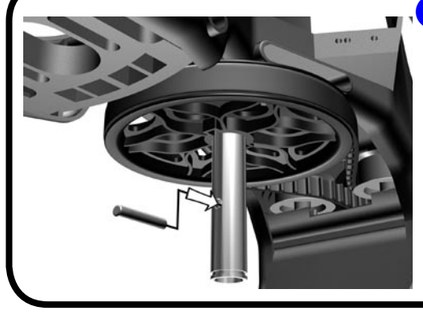

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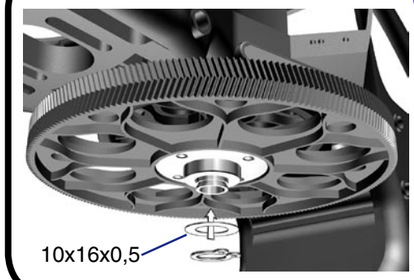
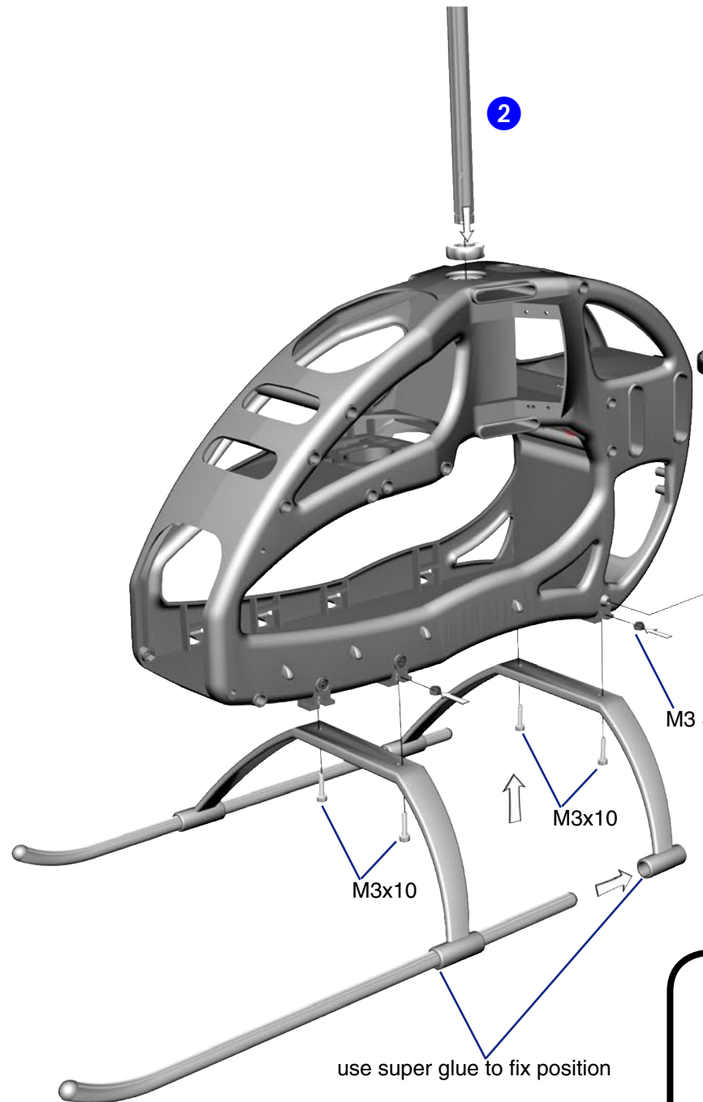
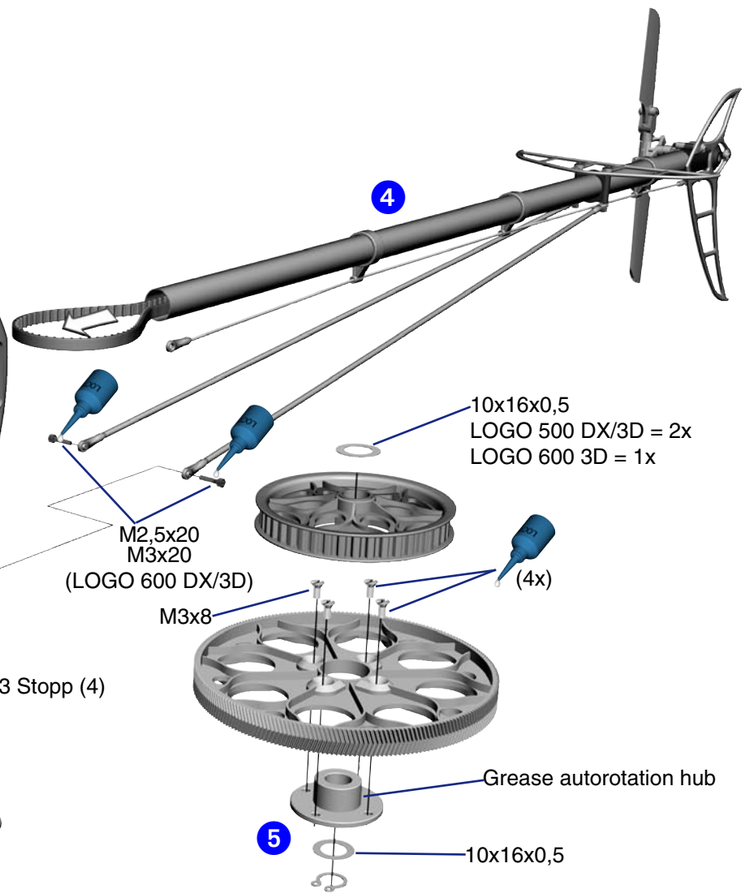


LOGO 500 7

LOGO 600 7





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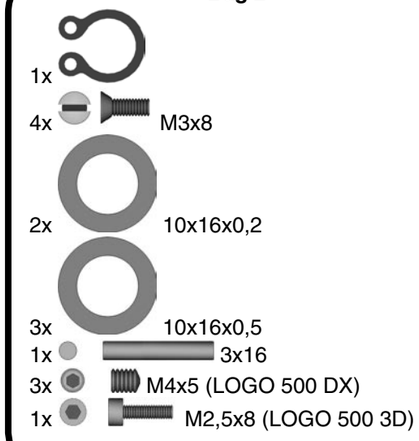
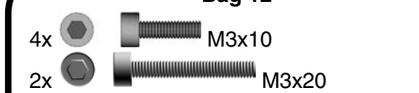


Bag 8

Bag 12



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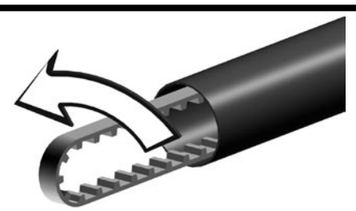
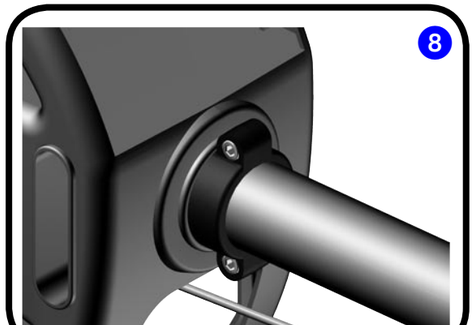
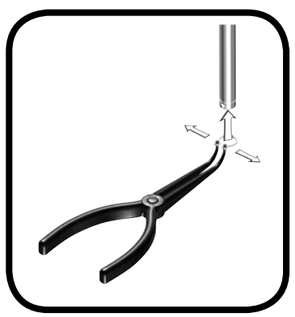


Check direction of rotation of the tail rotor!
See page 20, item no. 3.

8

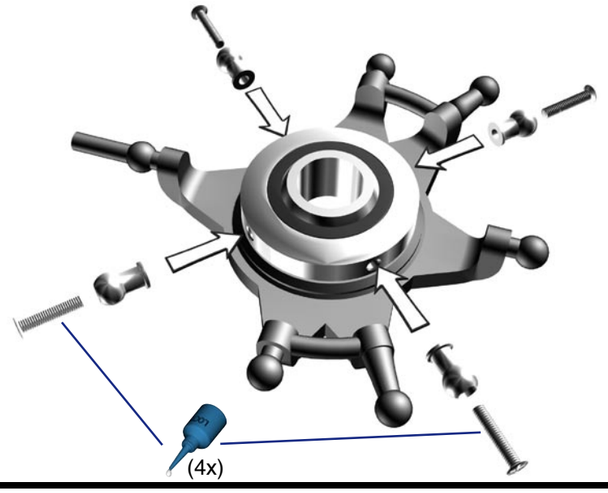


Tighten tooth belt:
Pull tail boom backwards and tighten screws



Bag 3 • Bag 10

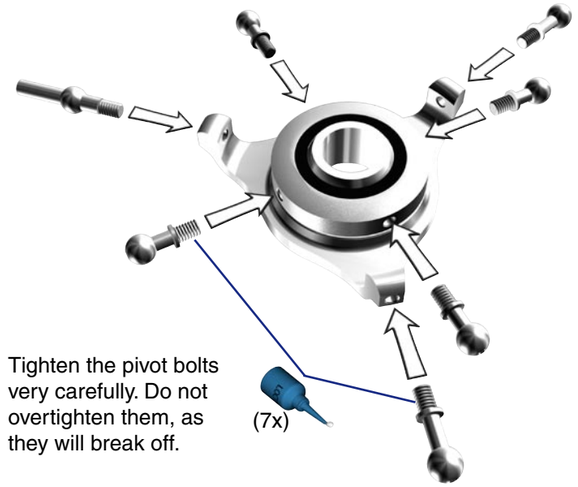
500 DX



Bag 3

- 2x M2x8
- 2x Kugel/ball/Rotule 4,8
- 2x 3 mm
- 4x 3 mm
- 2x 3x11
- 4x M2x10
- 4x Kugel/ball/Rotule Ø4,8x7

600 DX

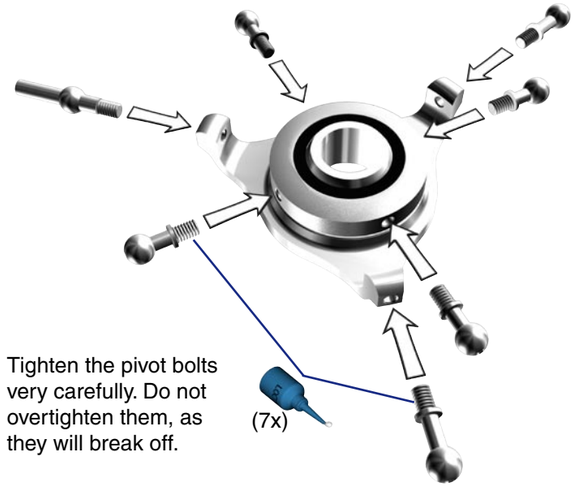


Tighten the pivot bolts very carefully. Do not overtighten them, as they will break off.

Bag 3

- 2x 3x11
- 2x 3 mm
- 4x 3 mm
- 2x M2x8
- 2x Kugel/ball/Rotule

500/600 3D



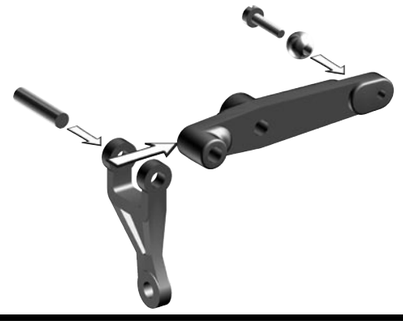
Tighten the pivot bolts very carefully. Do not overtighten them, as they will break off.

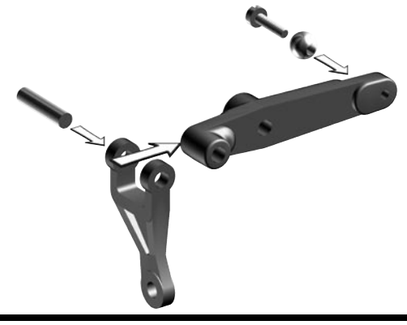
Bag 3

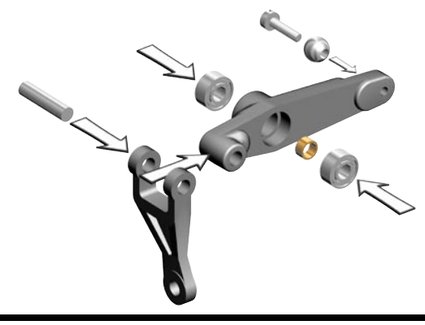
- 2x 3x11
- 2x 3x5x2,1
- 2x M3x14
- 2x 3x5x0,5
- 2x M2x8
- 2x Kugel/ball/Rotule

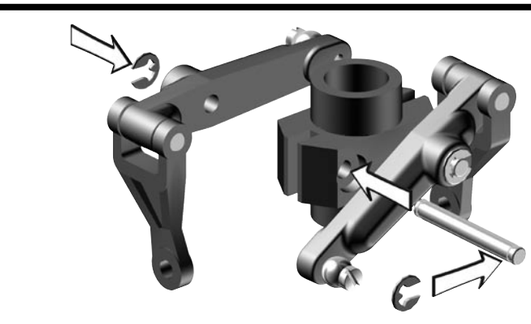
Bag 10

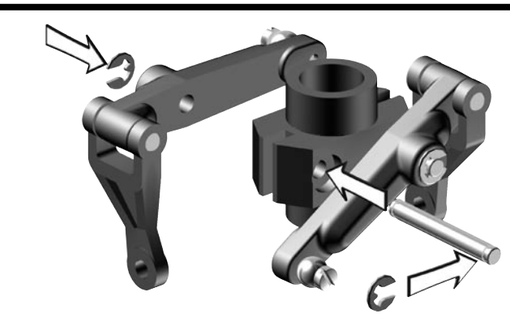
- 4x 3x7x3

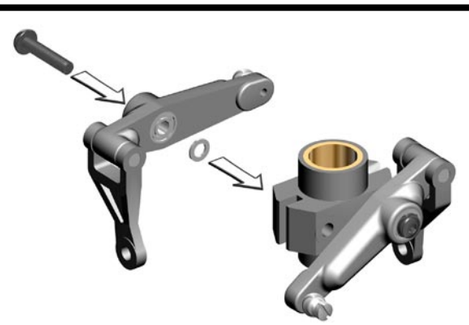




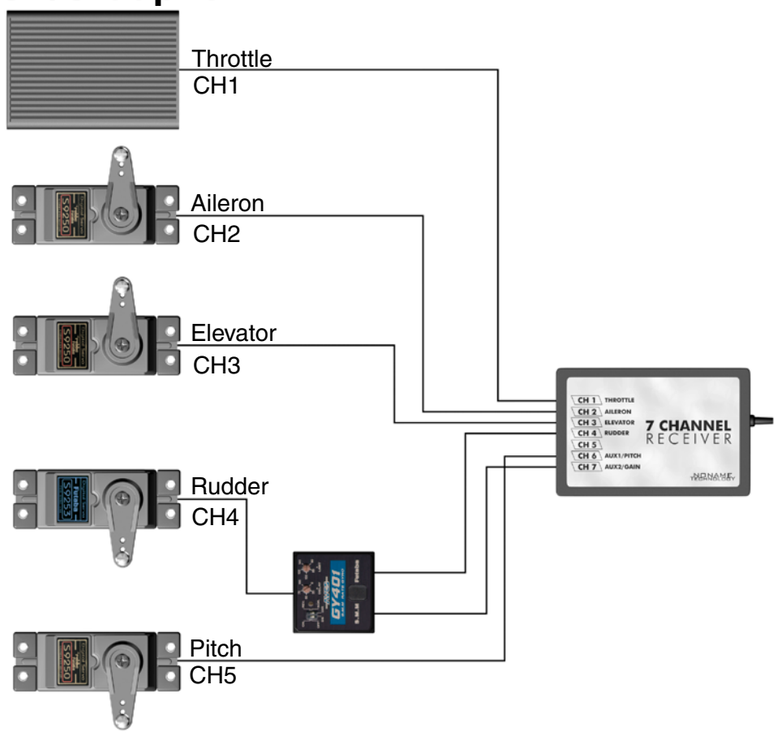




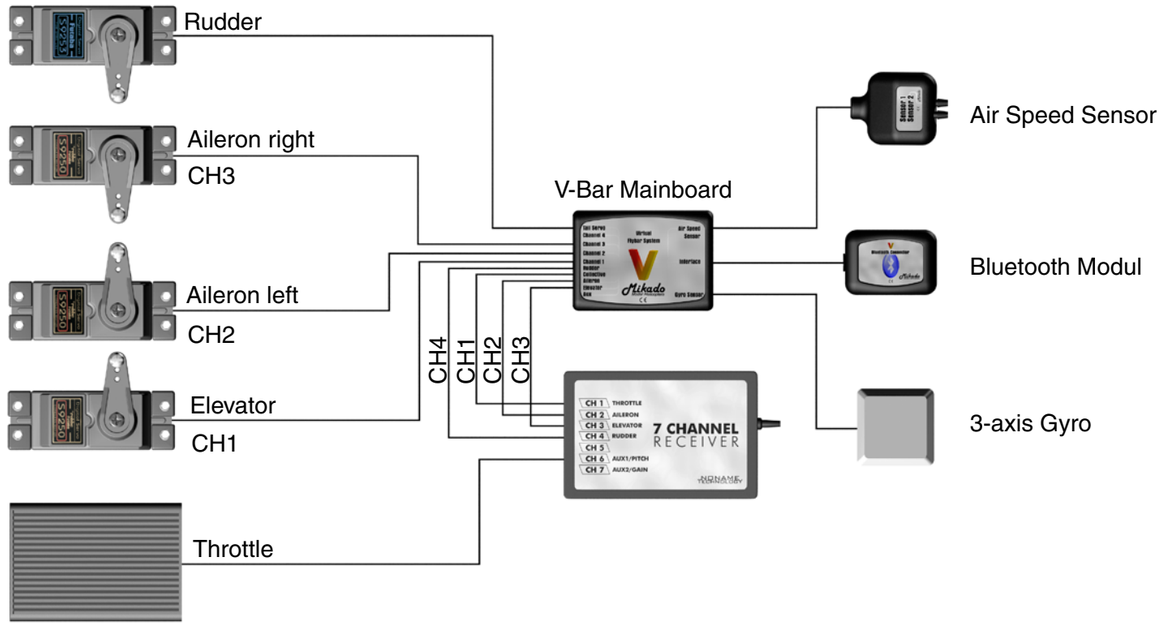




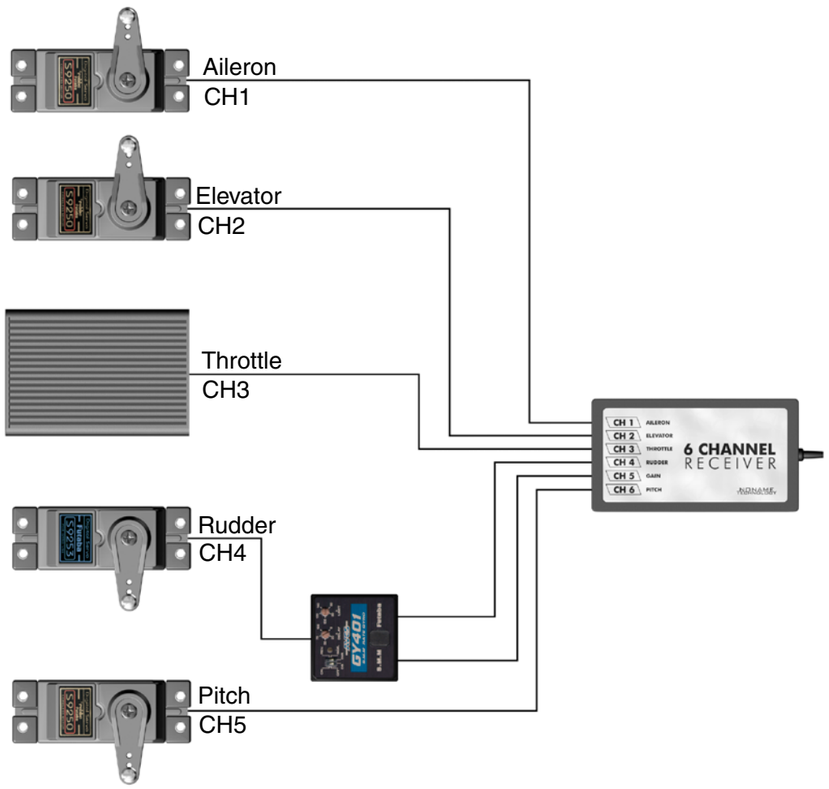
JR/Graupner



JR/Graupner with Virtual Flybar

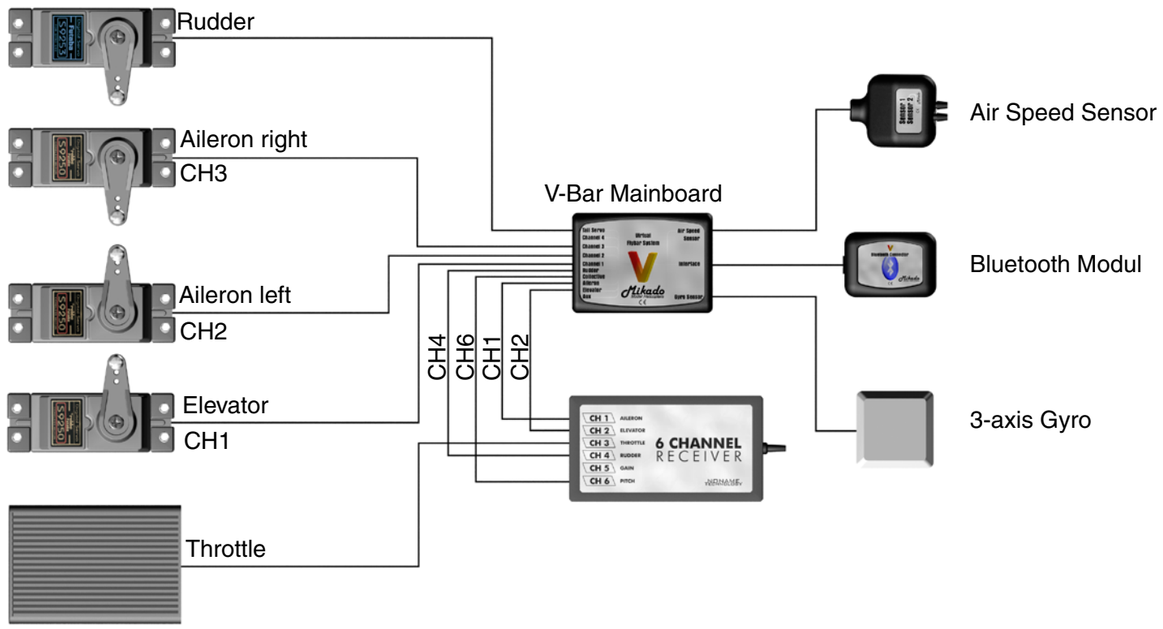


Futaba/Hitec



Futaba with Virtual Flybar

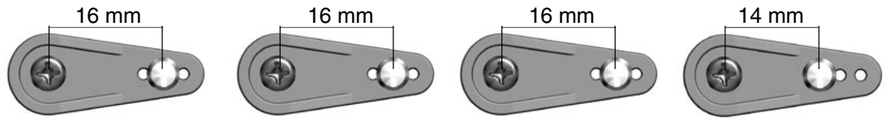
for Futaba G3 receiver check the V-bar manual



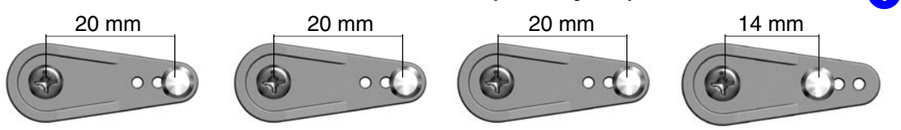
8 Servo Installation

Bag 1 • Bag 9 • Bag 12

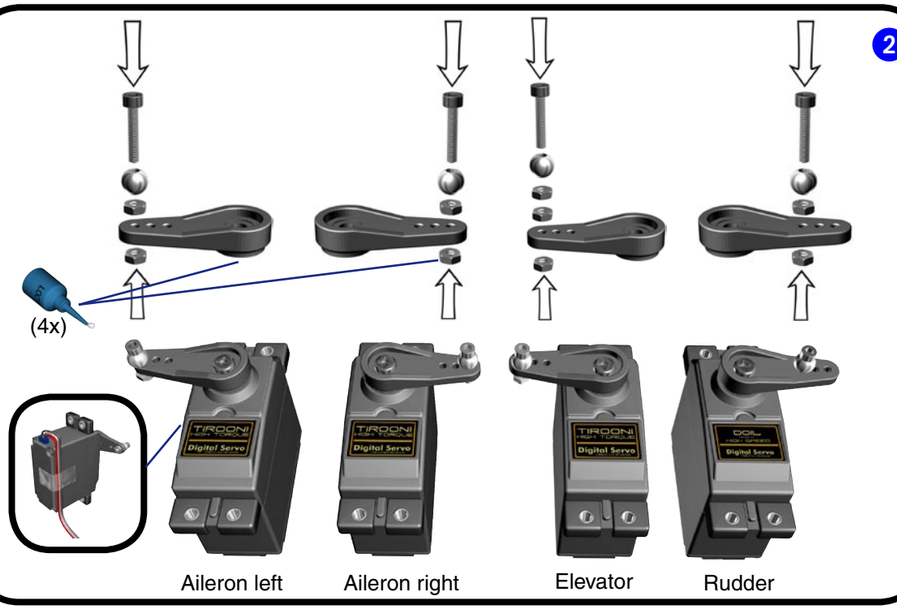
1 **LOGO Rotor Head (V-Stabi, flybarless head)**



1 **LOGO Rotor Head (with flybar)**

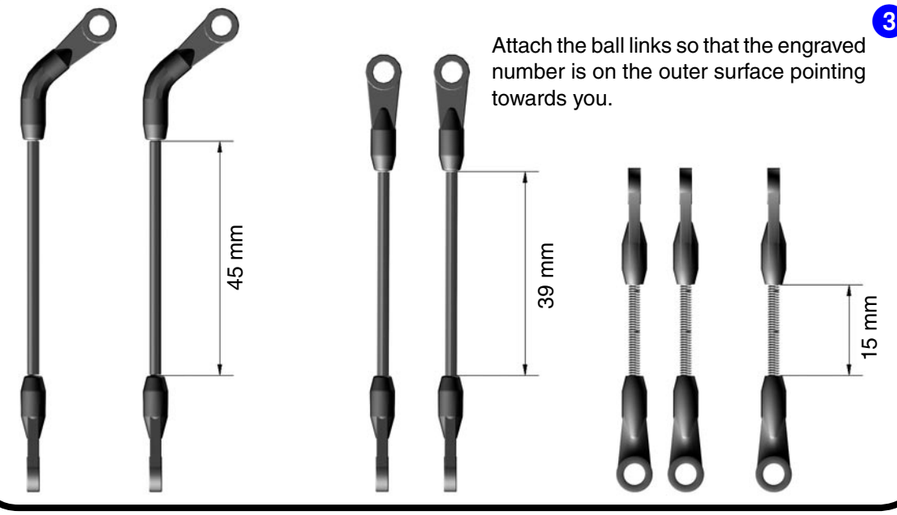


2

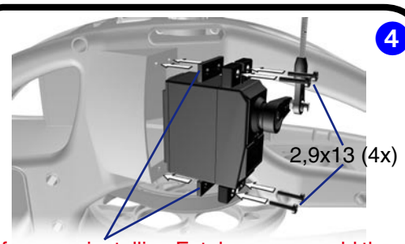


3

Attach the ball links so that the engraved number is on the outer surface pointing towards you.

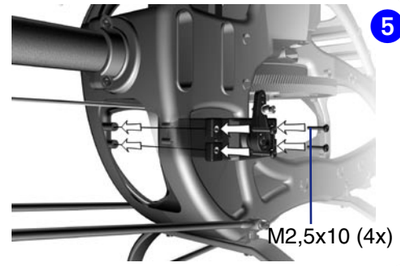


4

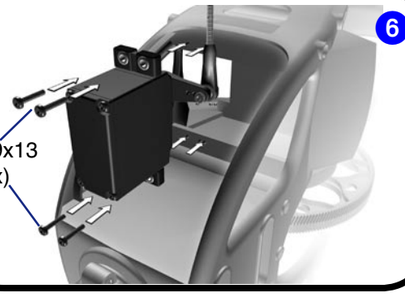


If you are installing Futaba servos, add the distance plate for the two aileron servos.

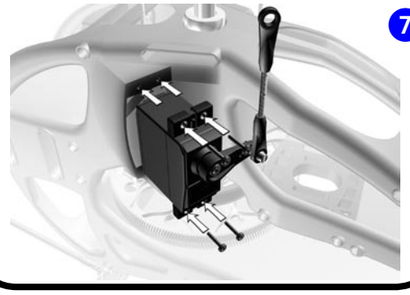
5

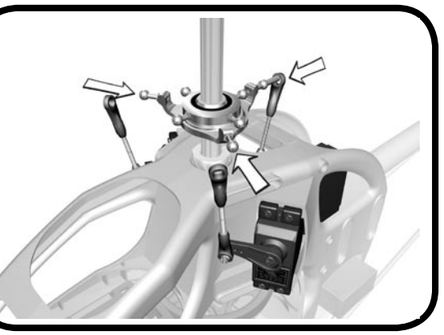


6



7





Bag 9

4x M2x10
1x M2x12
4x
9x M2
3x M3x30

Bag 1

12x 2,9x13
2x M2x14

Bag 12

4x M2,5x10

Bag 1 LOGO 500 3D

2x 3x5x2
1x M3x55

Bag 1 LOGO 600 3D

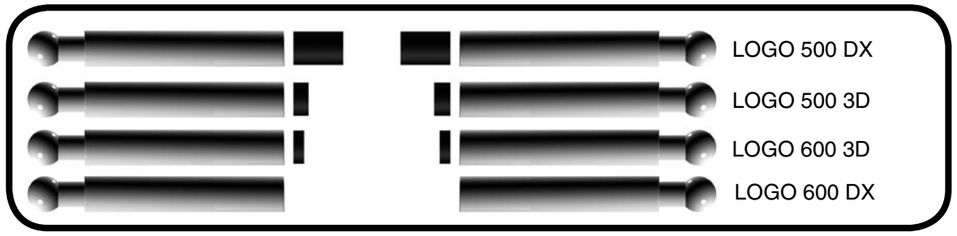
2x 3x5x1
1x M3x45

Bag 1 LOGO 500 DX

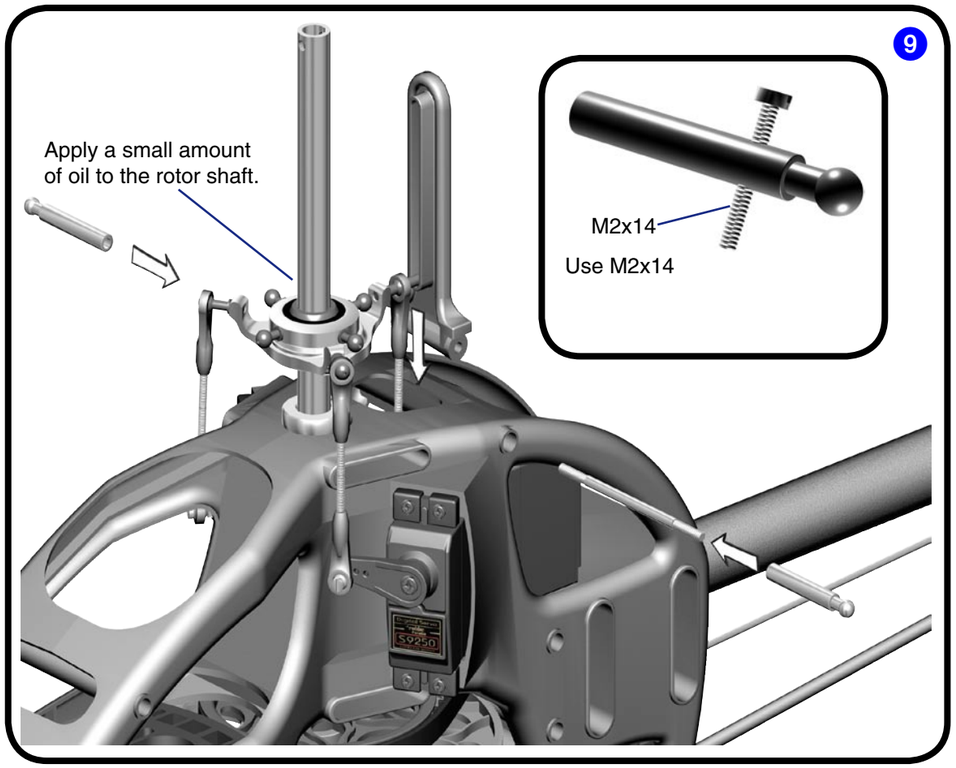
2x 3x5x7
1x M3x65

Bag 1 LOGO 600 DX

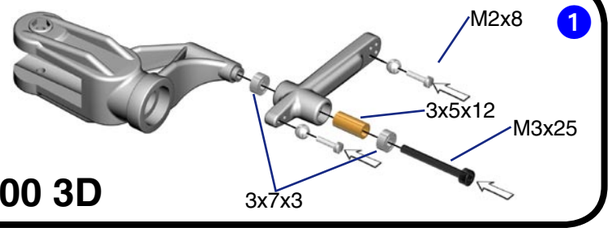
1x M3x45

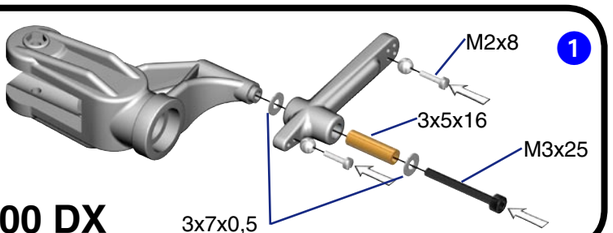


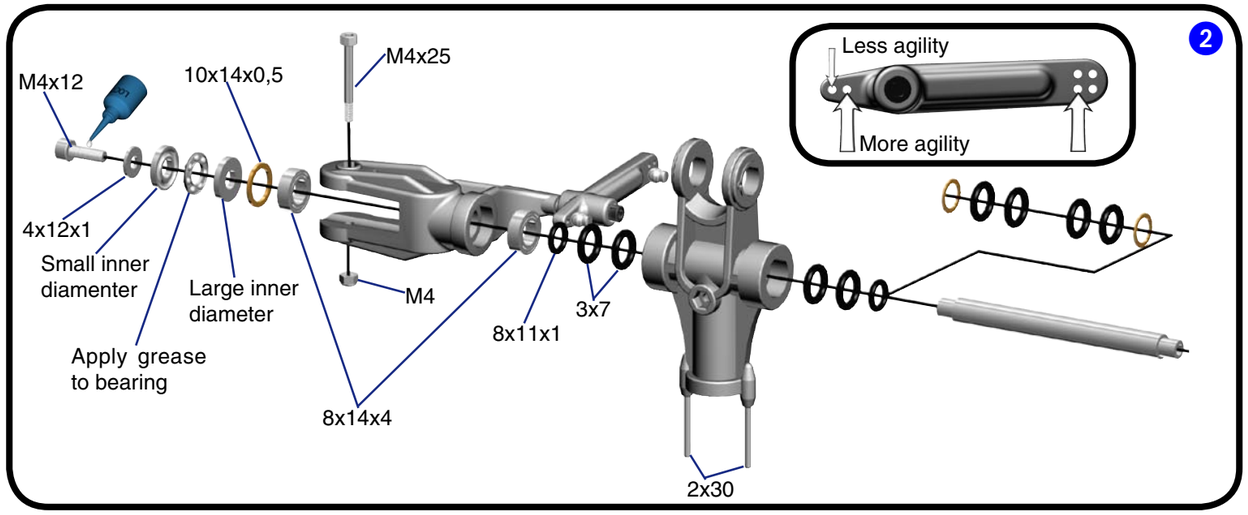
9

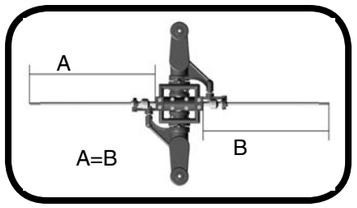


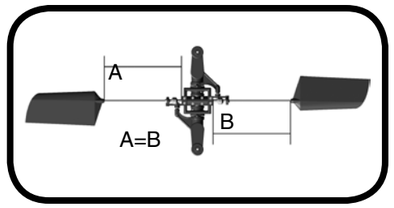
Bag 7 • Bag 10 • Bag 12

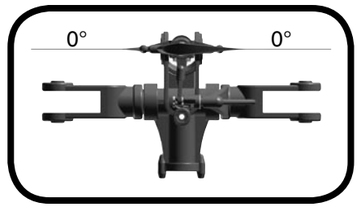


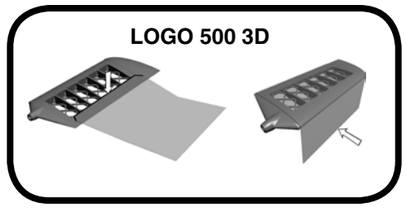


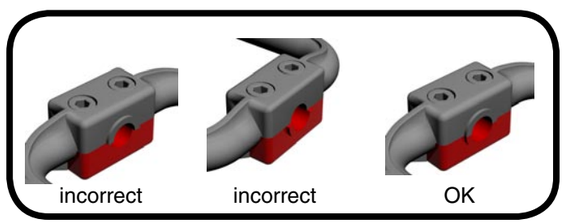


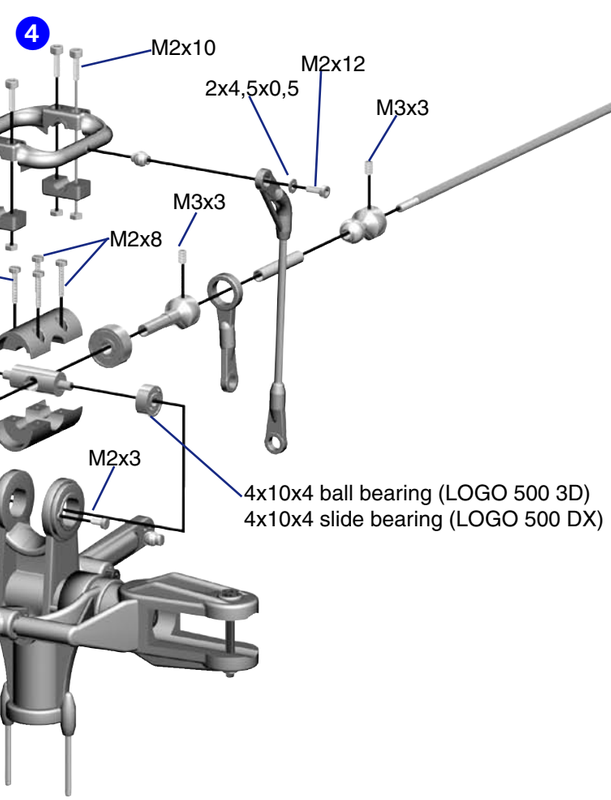


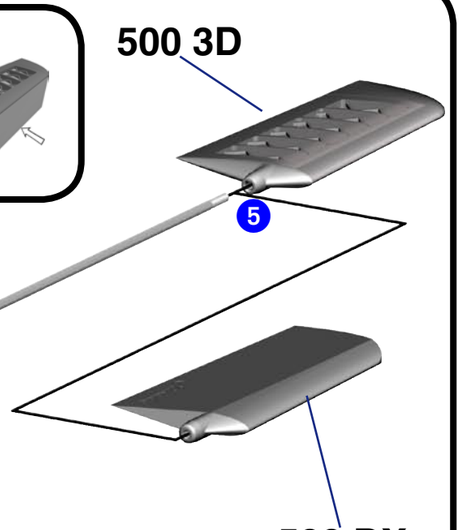












Bag 7

- 8x M2x8
- 4x 4,8
- 2x 3x5x12 (LOGO 500 3D)
- 2x 3x5x16 (LOGO 500 DX)
- 4x 3x7x0,5 (LOGO 500 DX)
- 4x 3x7
- 2x 8x11x1
- 2x 2x30
- 2x 10x14x1
- 2x M4x12
- 2x 4x12x1
- 2x M2x3
- 4x 4x10x4 (LOGO 500 DX)
- 4x M2x10
- 4x M2
- 4x M3x3
- 2x M2x12
- 2x 4,8
- 2x 2x4,5x0,5
- 2x M4
- 2x M4x25

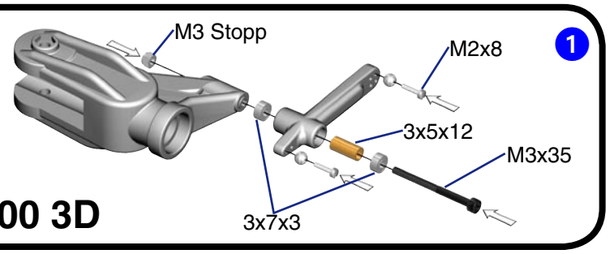
Bag 10

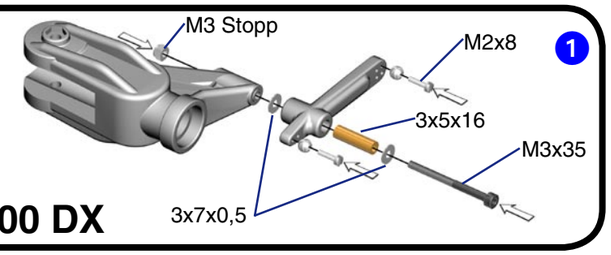
- 4x 8x14x4
- 4x 3x7x3 (LOGO 500 3D)
- 2x 4x13x5
- 2x 4x10x4 (LOGO 500 3D)
- 2x 6x14x5

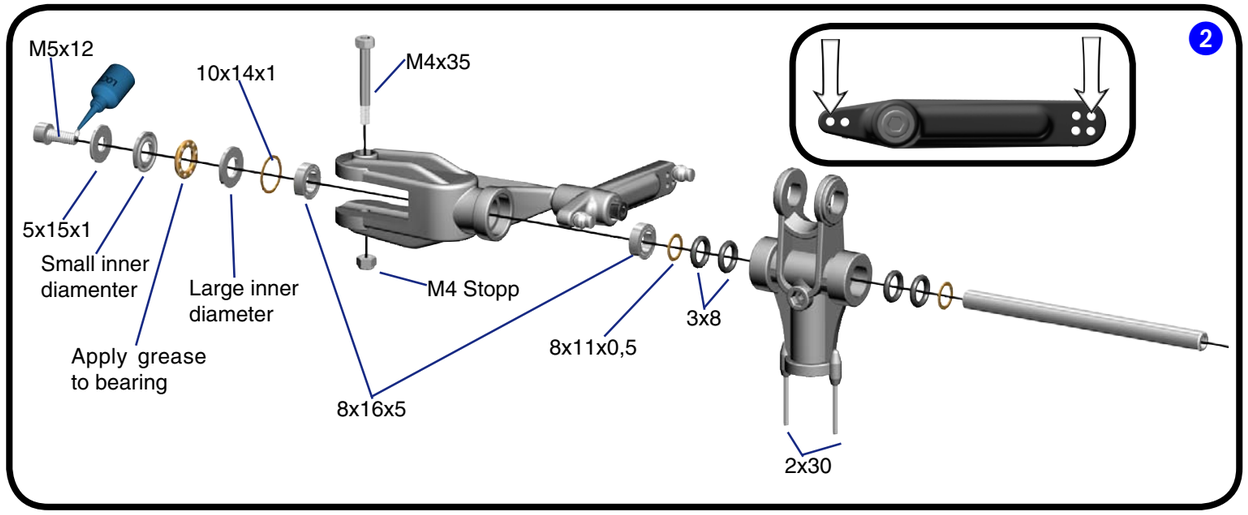
Bag 12

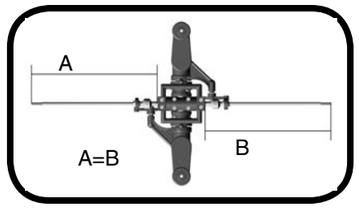
- 2x M3x25

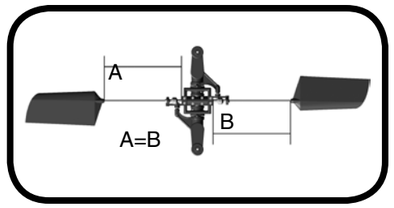
Bag 7 • Bag 10 • Bag 12

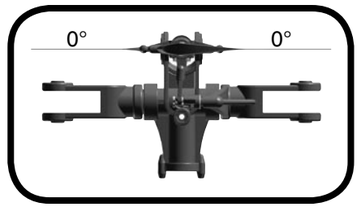


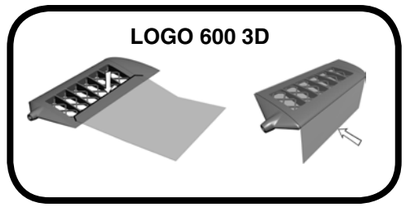


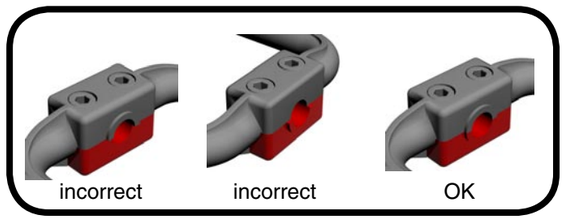


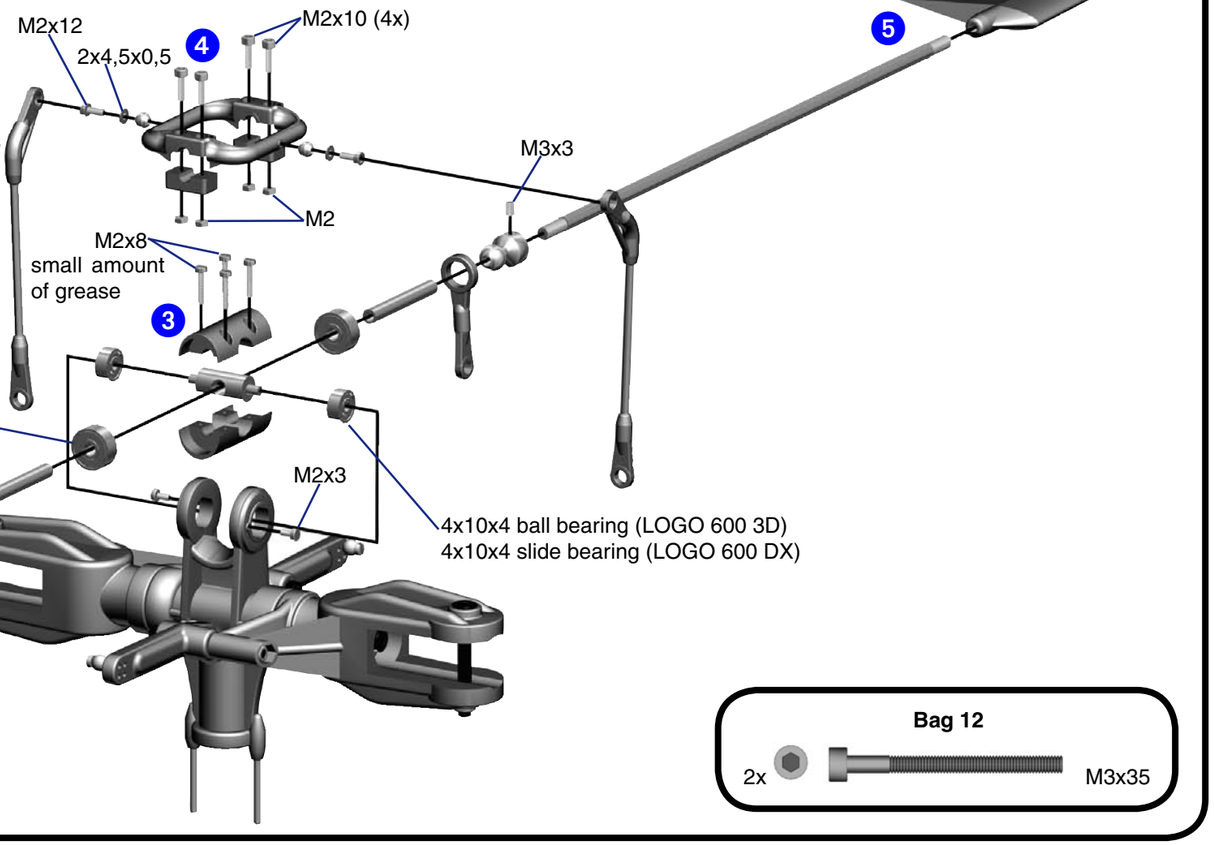


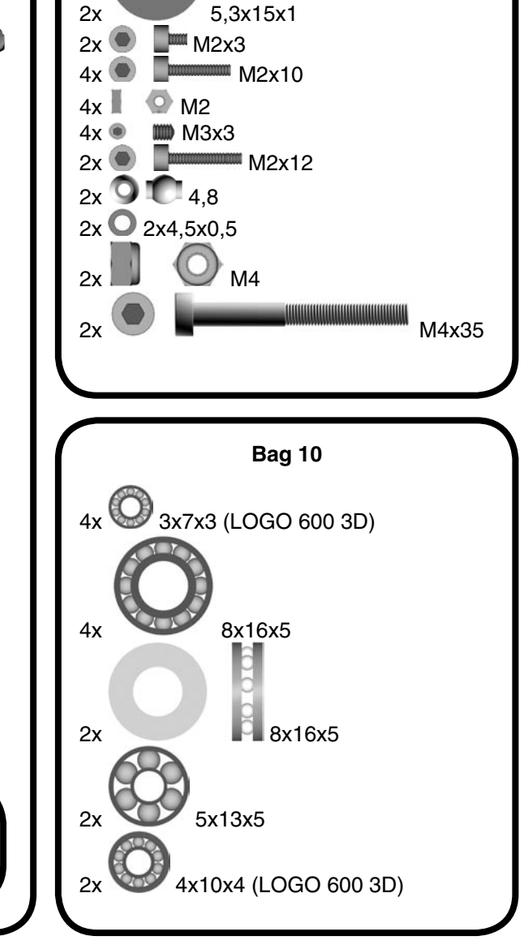












Bag 12

2x M3x35

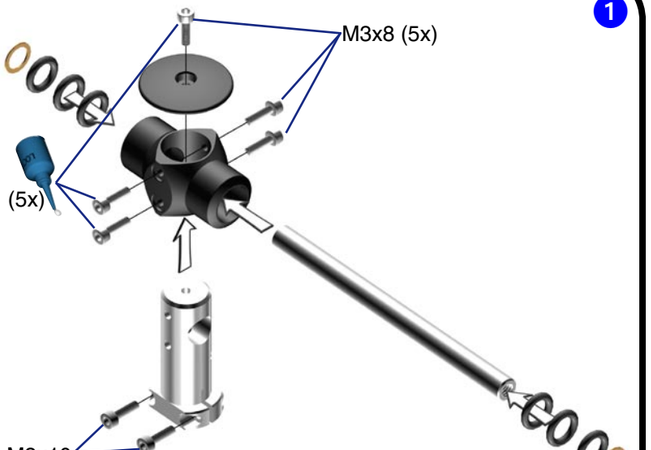
Bag 7

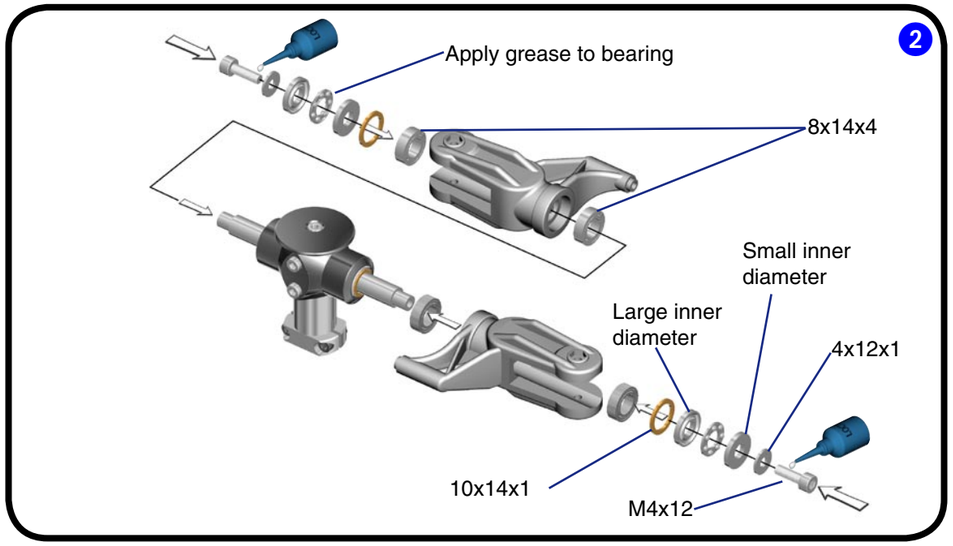
- 8x M2x8
- 4x 4,8
- 2x 3x5x12 (LOGO 600 3D)
- 2x 3x5x16 (LOGO 600 DX)
- 4x 3x7x0,5 (LOGO 600 DX)
- 4x 3x8
- 2x 8x11x0,5
- 2x 2x30
- 2x 11,5x15,8x1
- 2x M5x12
- 2x 5,3x15x1
- 2x M2x3
- 4x M2x10
- 4x M2
- 4x M3x3
- 2x M2x12
- 2x 4,8
- 2x 2x4,5x0,5
- 2x M4
- 2x M4x35

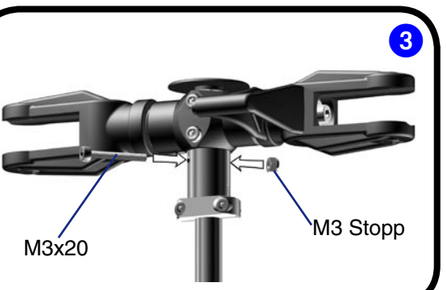
Bag 10

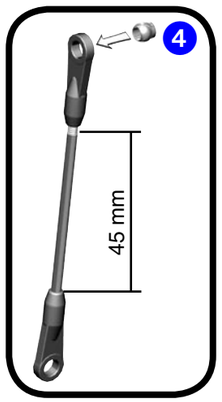
- 4x 3x7x3 (LOGO 600 3D)
- 4x 8x16x5
- 2x 8x16x5
- 2x 5x13x5
- 2x 4x10x4 (LOGO 600 3D)

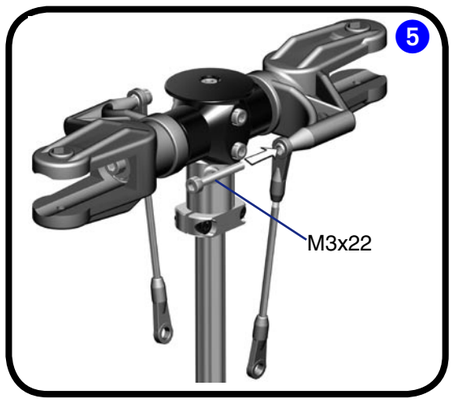
Bag 7

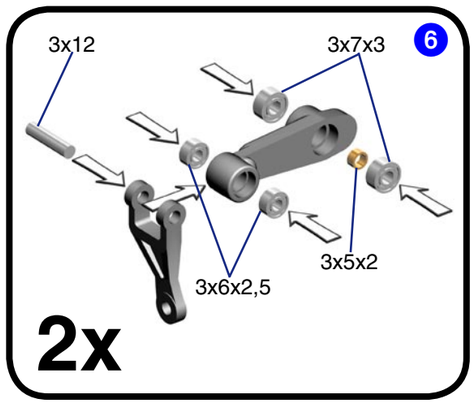

1
M3x8 (5x)
(5x)
M3x10

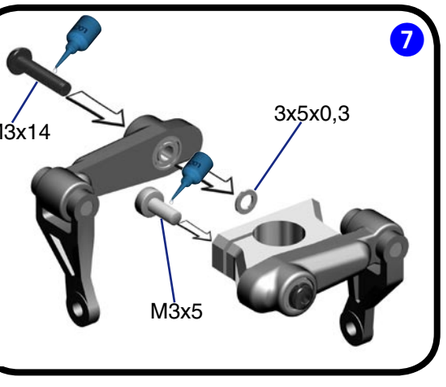

2
Apply grease to bearing
8x14x4
Small inner diameter
Large inner diameter
4x12x1
10x14x1
M4x12

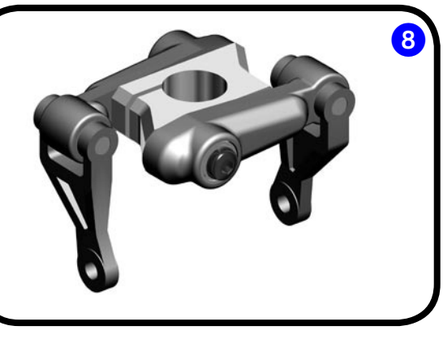

3
M3x20
M3 Stopp

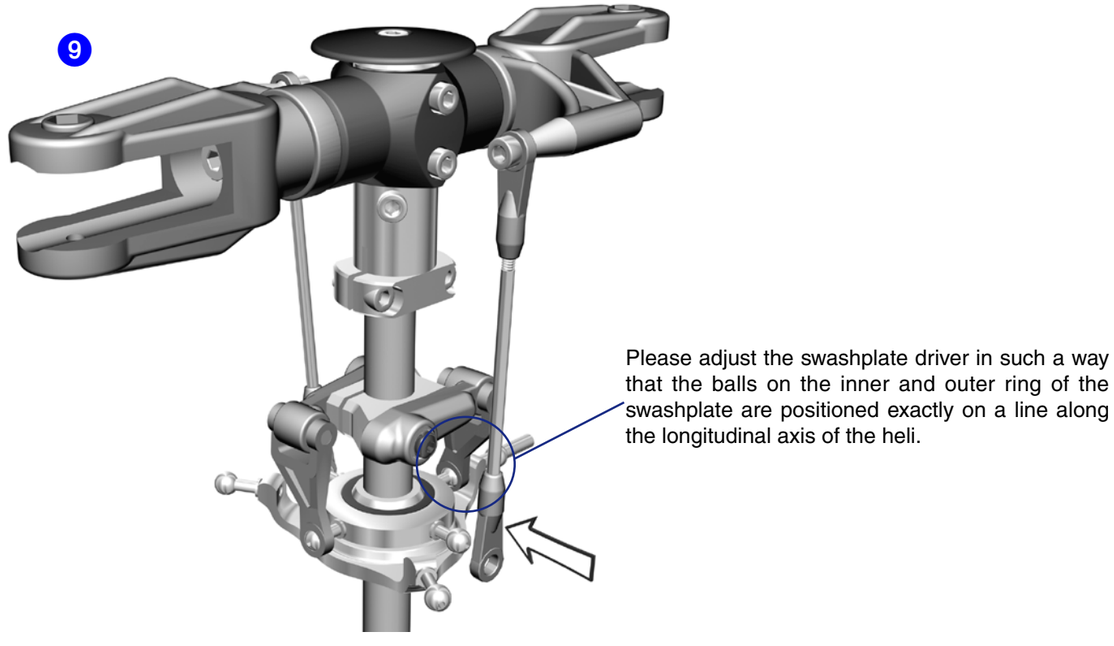

4
45 mm

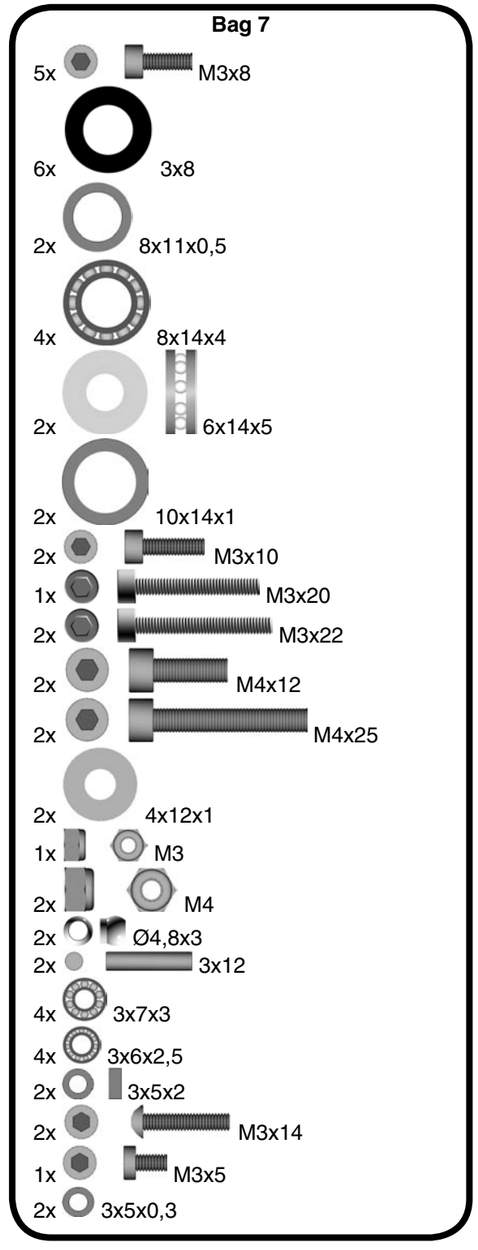

5
M3x22


6
3x12
3x7x3
3x5x2
3x6x2,5
2x

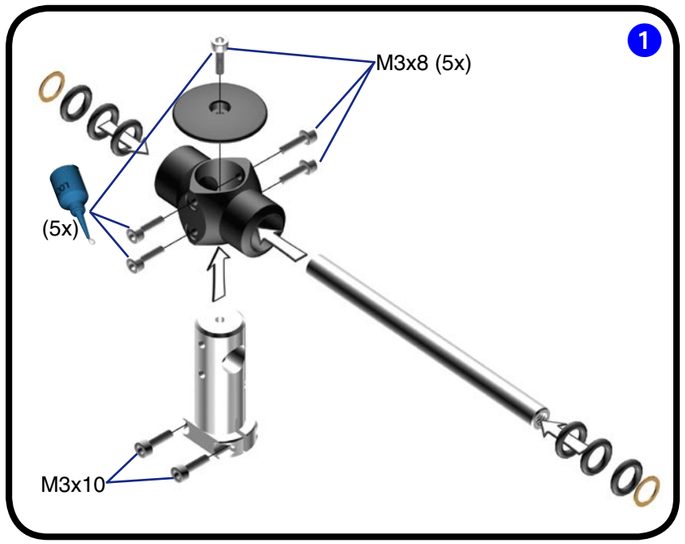

7
M3x14
3x5x0,3
M3x5

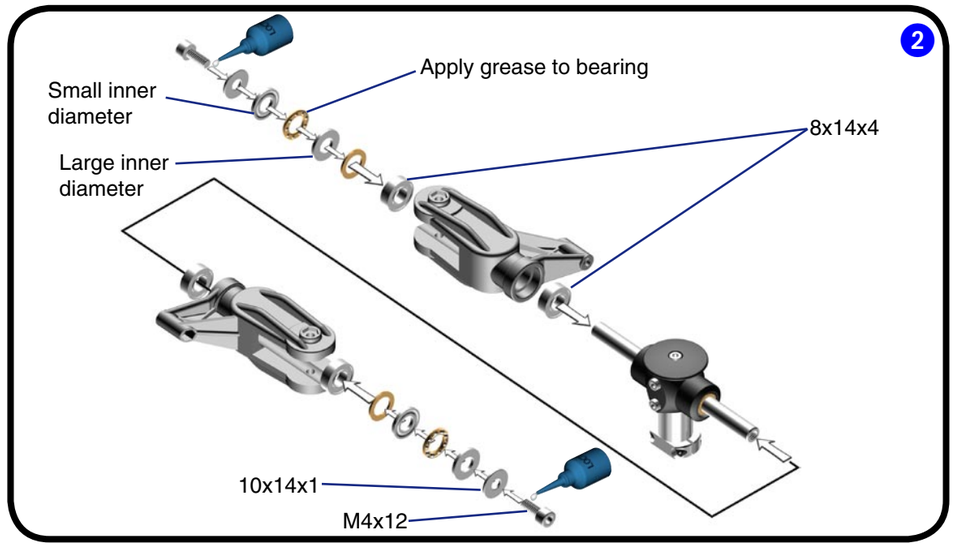

8

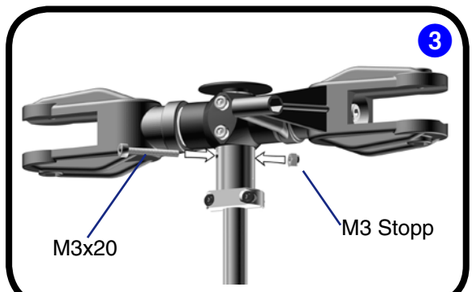

9
Please adjust the swashplate driver in such a way that the balls on the inner and outer ring of the swashplate are positioned exactly on a line along the longitudinal axis of the heli.

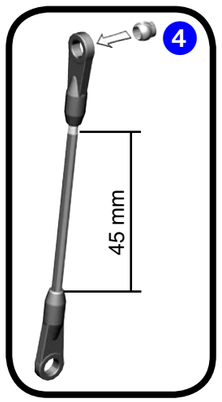

Bag 7
5x M3x8
6x 3x8
2x 8x11x0,5
4x 8x14x4
2x 6x14x5
2x 10x14x1
2x M3x10
1x M3x20
2x M3x22
2x M4x12
2x M4x25
2x 4x12x1
1x M3
2x M4
2x Ø4,8x3
2x 3x12
4x 3x7x3
4x 3x6x2,5
2x 3x5x2
2x M3x14
1x M3x5
2x 3x5x0,3

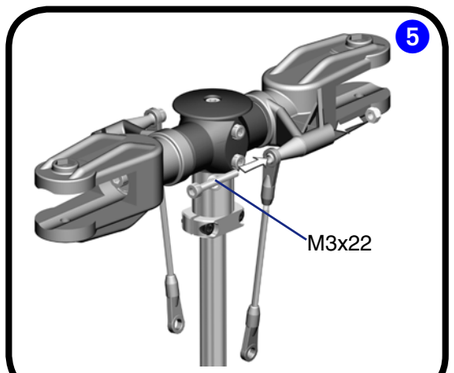
Bag 7

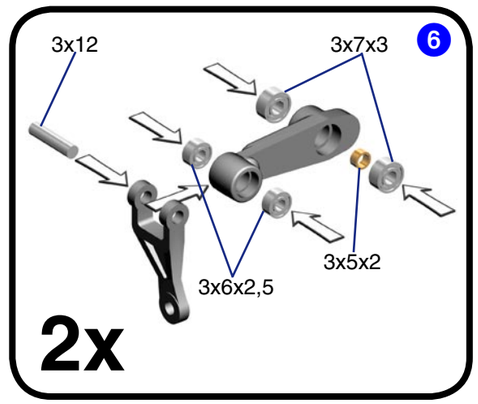


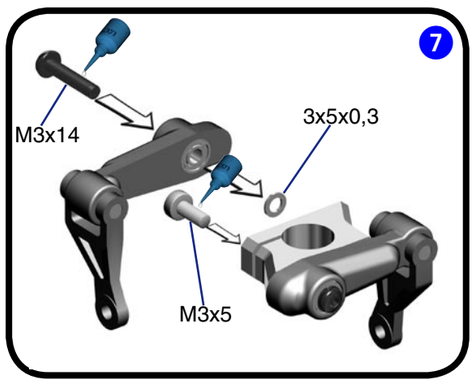


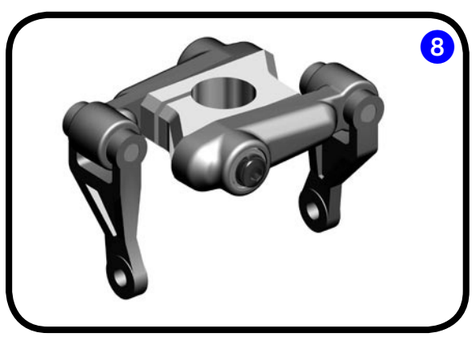


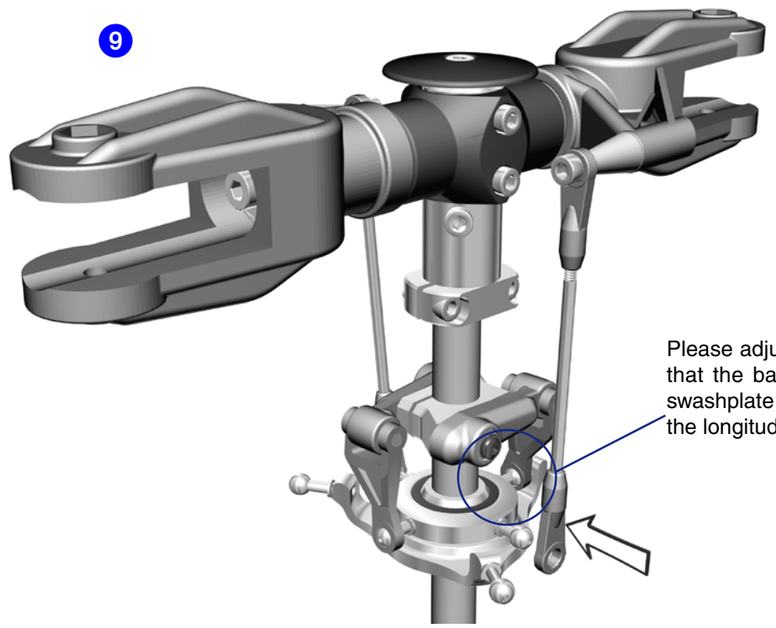












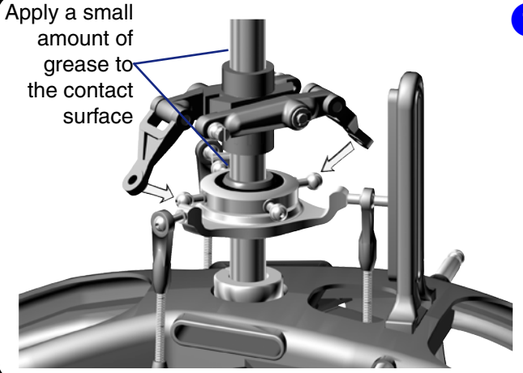
Please adjust the swashplate driver in such a way that the balls on the inner and outer ring of the swashplate are positioned exactly on a line along the longitudinal axis of the heli.

Bag 7

- 5x M3x8
- 6x 3x8
- 2x 8x11x0,5
- 4x 8x16x5
- 2x 8x16x5
- 2x 11,5x16x1
- 2x M3x10
- 1x M3x20
- 2x M3x35
- 2x M5x12
- 2x M4x35
- 2x 5x15x1
- 3x M3
- 2x M4
- 2x Ø4,8x3
- 2x 3x12
- 4x 3x7x3
- 4x 3x6x2,5
- 2x 3x5x2
- 2x M3x14
- 1x M3x5
- 2x 3x5x0,3

13 Rotor Head Assembly

Bag 7 • Bag 12

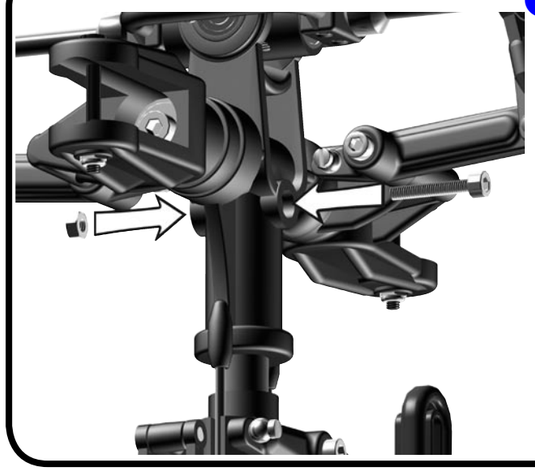


Bag 7

1x M3

Bag 12

1x M3x18



14 Mounting the Motor

Bag 1 • Bag 12

Bag 1

2x 3x9x1

Bag 12

2x M3x14

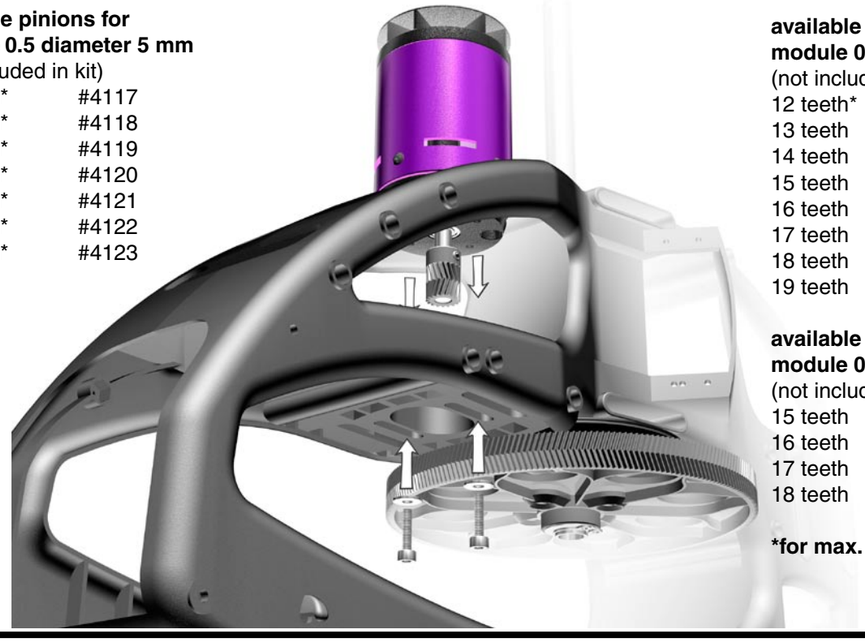
Installation of the Motor Pinion
Screw the motor pinion onto the motor shaft, making sure that it can still be moved. Now mount the motor on the motor plate and move the pinion so it is aligned well with the main gear. As visual help for aligning the pinion you may use the small ridge which separates the two parts of the pinion. When the pinion is aligned correctly it will easily engage with the main gear. If the pinion does not engage with the main gear, it is not correctly aligned. After the pinion is correctly aligned, take the motor out of the mainframe and tighten the set screw.

Gear Backlash
Move the motor with the pinion until it is limited by the gear. Tighten one of the M3x14 screws slightly. You must still be able to swivel the motor around its own axis. In this way you can easily determine the correct distance between the main gear and the pinion. There should be no (!) gear backlash. At the same time, the motor should not (!) exert any pressure onto the running surface of the main gear. After you have determined the correct distance, tighten the second M2x14 screw.

For very hard 3d flying counterbearing no. #4134 (5 mm) or #4148 (6 mm) should be installed. Please goto page 28.

available pinions for module 0.5 diameter 5 mm
(not included in kit)

17 teeth*	#4117
18 teeth*	#4118
19 teeth*	#4119
20 teeth*	#4120
21 teeth*	#4121
22 teeth*	#4122
23 teeth*	#4123



available pinions for module 0.7 diameter 5 mm
(not included in kit)

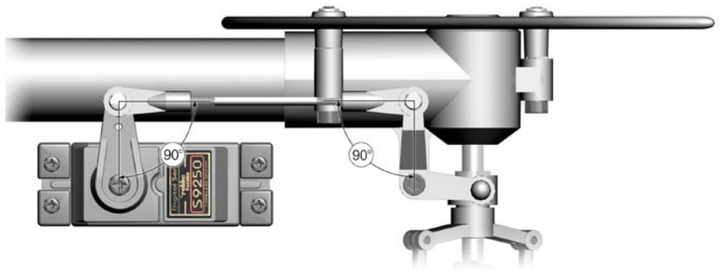
12 teeth*	#4212
13 teeth	#4213
14 teeth	#4214
15 teeth	#4215
16 teeth	#4216
17 teeth	#4217
18 teeth	#4218
19 teeth	#4219

available pinions for module 0.7 diameter 6 mm
(not included in kit)

15 teeth	#4315
16 teeth	#4316
17 teeth	#4317
18 teeth	#4318

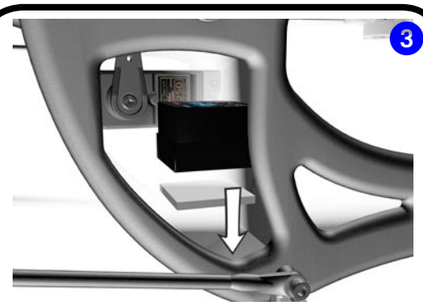
***for max. to 6S LiPo**

1



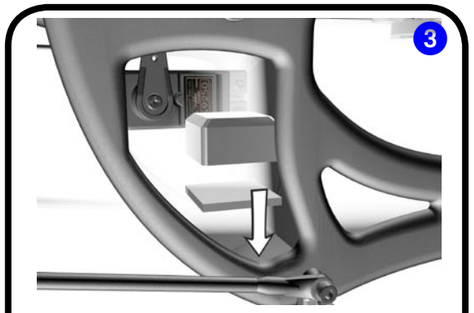
Position of servo arms for the tail rotor when sticks are centered

3



Position for mounting tail gyro

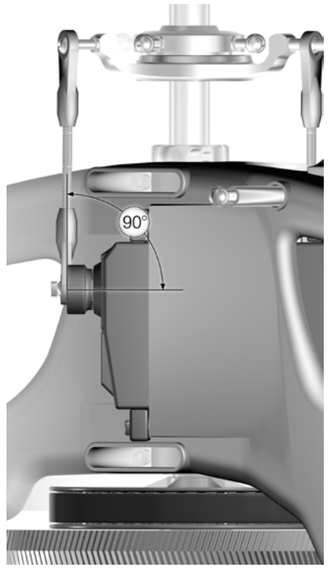
3



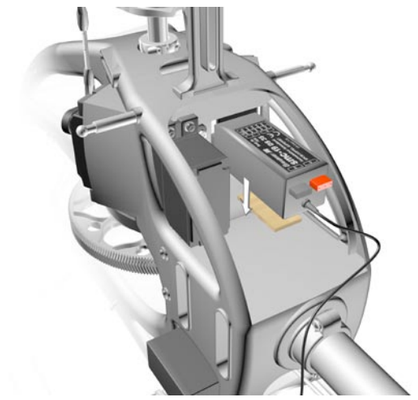
Position for mounting V-Bar gyro

2

Position of servo arms for the aileron servos when sticks are centered (0 deg. Pitch)

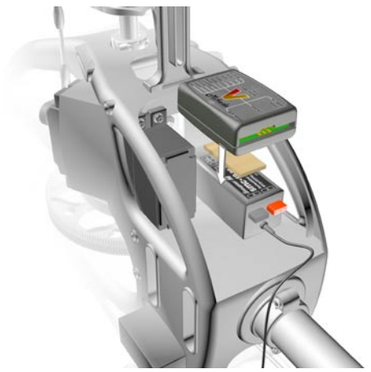


4



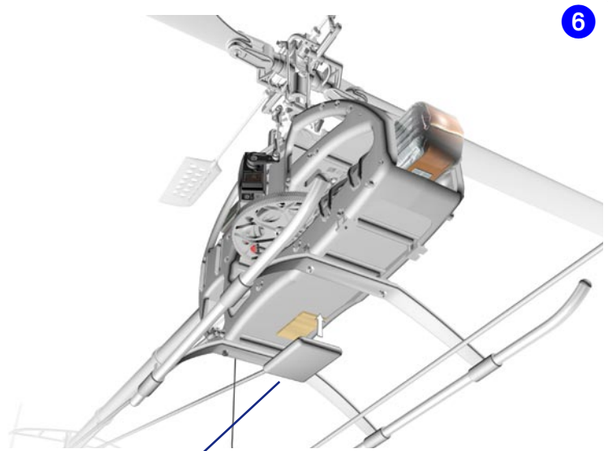
Receiver

5



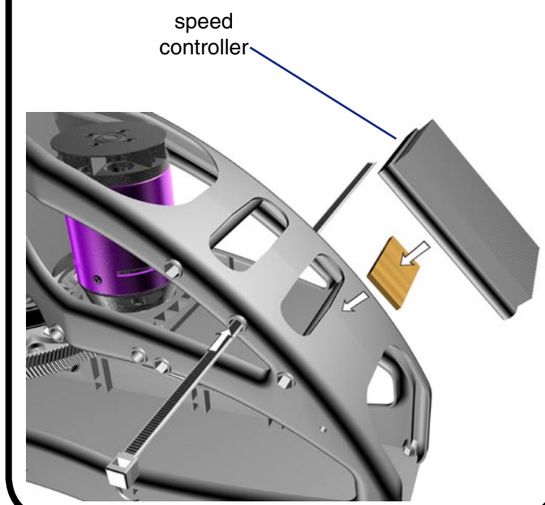
V-Bar Main board

6



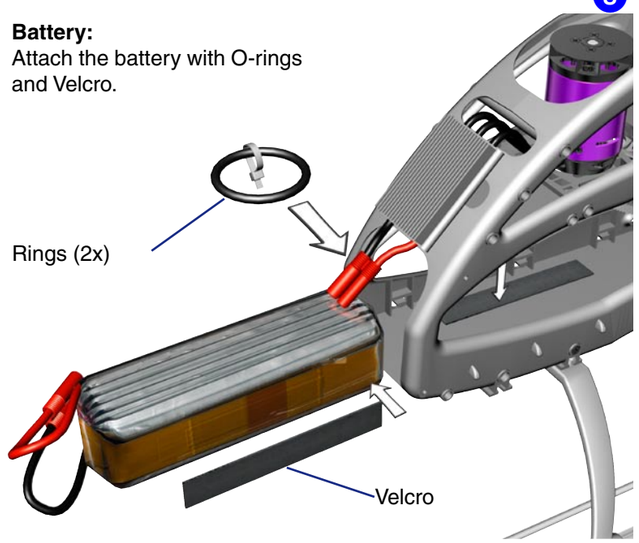
Position of LiPo battery
for the power supply of receiver.

7

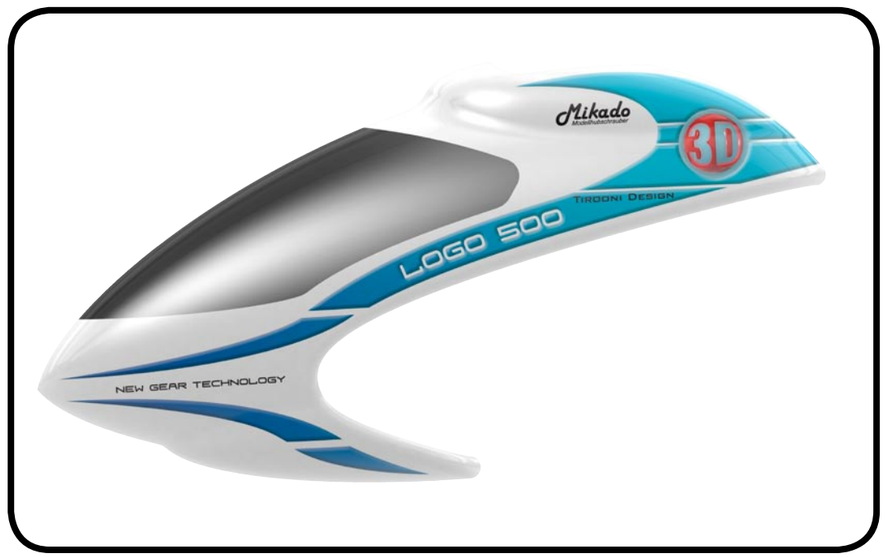


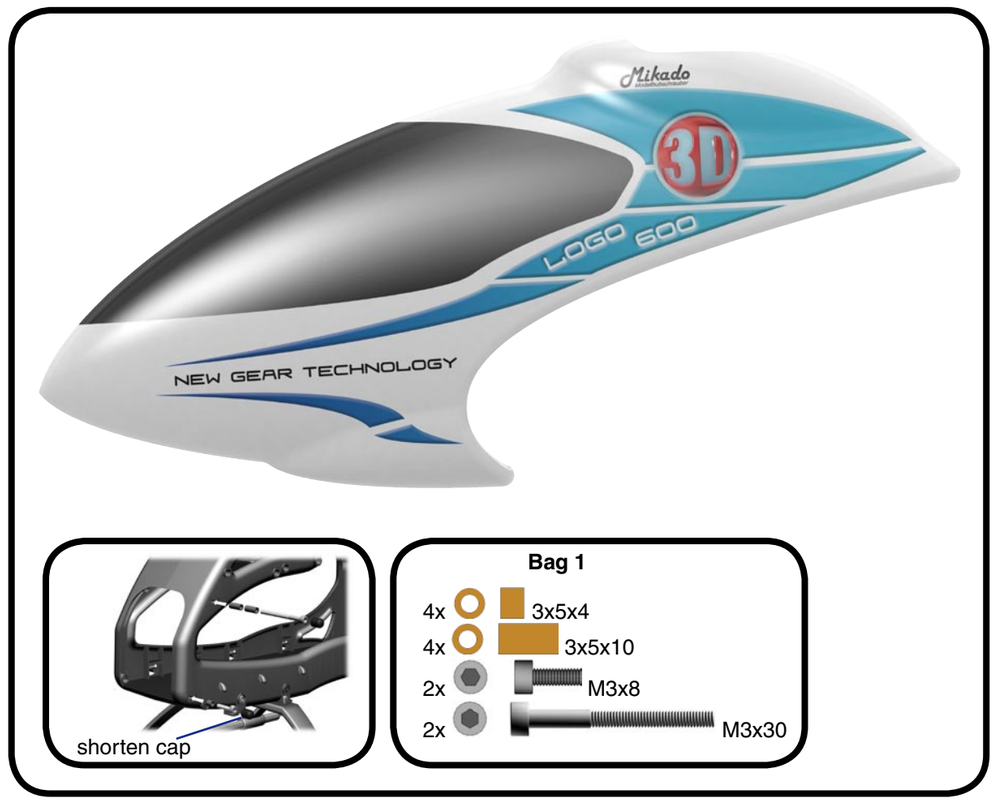
8

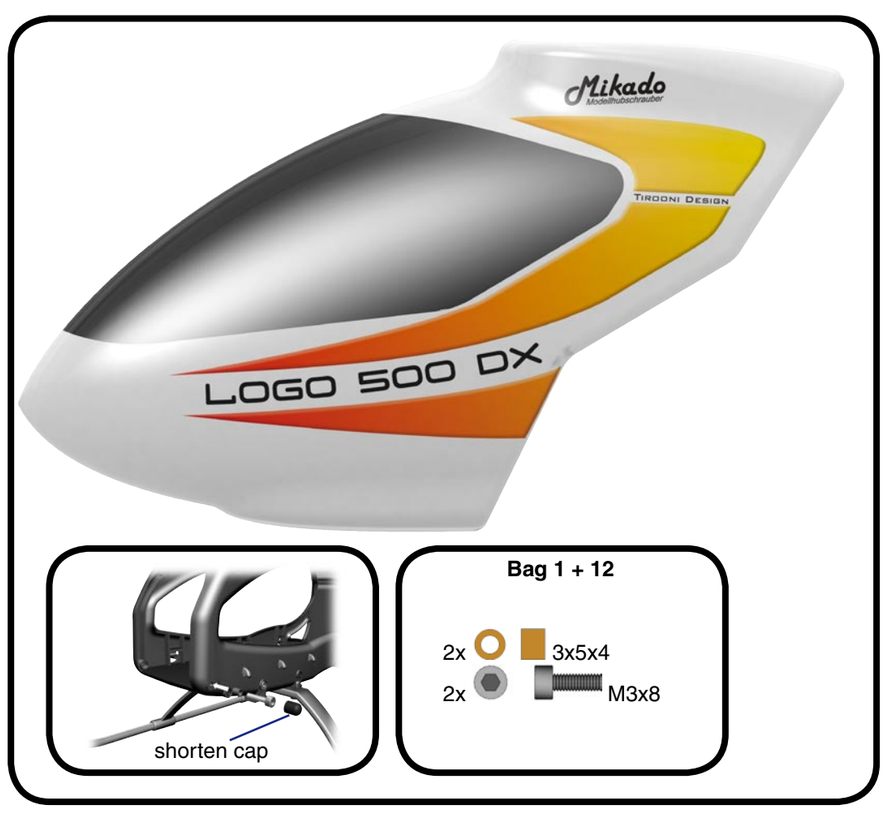
Battery:
Attach the battery with O-rings and Velcro.



16 Decal and Canopy Mounting







Bag 1

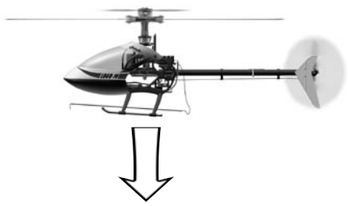
Mounting the Decal onto the Canopy

Use a scissors to cut out the individual elements of the decal pattern. Make sure that you leave a small edge (1 to 2 mm) at the rim. Corners should be cut out with a small radius to avoid unwanted peeling off.

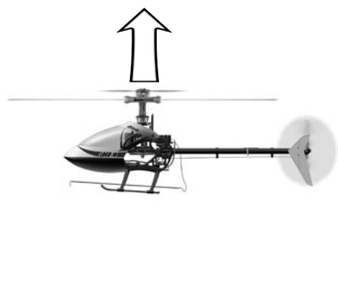
Attach the individual elements of the pattern in the following way: Prepare a bowl of water with a small amount of dish washing detergent. Apply some of this water to a cloth or fill up a squirt bottle with it. Using the cloth or squirt bottle, wet the surface of the canopy and the sticking surface of the decal element. Place the decal onto the canopy. You can still move the decal at this point. When you have found the correct position, use a hair dryer to secure the pattern. Be careful not to hold the dryer to close to the decal, as it will shrink if too much heat is applied.

120° Swashplate Mixing (120° CCPM)
The LOGO swashplate is designed to be controlled via electronic CCPM. Thus the corect control inputs of the three swash-plate servos are automatically mixed by the R/C transmitter. If you have never programmed 120° CCPM before, please read this introductory text carefully.

Collective (Pitch)
Pitch function is used to control the lift or sink of the helicopter. When pitch input is given, all three swash-plate servos travel together in the same direction and the same amount. As a result the swash-plate moves up or down on an even level.



Minimum Pitch



Maximum Pitch

Aileron (Roll)
Aileron (roll) is used to control the helicopter's movements around its longitudinal axis. When aileron (roll) input is given, the two roll servos (in the front of the swashplate) travel in opposite directions. As a result the swash-plate tilts to the right or to the left.

Roll to the right

Roll to the right (view from rear)

Elevator (Tilt)
For tilting the helicopter, use the elevator function. For tilting forward, the two aileron servos move downward and the backward elevator servo moves upward. The elevator servo moves twice as much as the two aileron servos.

Elevator forward

Elevator forward (view from side)

17 RC Programming

Programming 120° CCPM
As the programming procedure varies with different types of R/C systems, it is necessary for you to refer to the instruction manual of your R/C system. Here are only a few general guidelines which apply to most systems.

Servo Centering with Sub-Trim Function
As indicated in the above sections on mounting the servos, it is important that the servo arms are exactly centered. You should use the servo sub-trim function of your R/C system for this purpose.

Activating 120° CCPM
Likely, the 120° CCPM function is initially disabled in your R/C transmitter software and needs to be separately activated. Please refer to your R/C system manual, where you will also find information on which channels should be used for the elevator servo and the two roll servos. It is important that you stick with the requirements stated in the manual. Otherwise the 120° CCPM will not function properly.
Your R/C may support various different CCPM mixings. For the LOGO choose the 120° mixing with two roll servos in the front and one elevator servo in the back.
Use the relevant menus for setting the mixing proportions for roll, elevator and pitch functions. Begin by setting the mix values to 50% each. Higher mix values give higher servo travel for that function This can have the unwanted result that the swashplate reaches its mechanical limits and causes damage to the servos or rods or to the swashplate.
If necessary, you may use the CCPM menu to reverse the direction of the function. This is necessary, for example, if the swashplate tilts to the wrong side or the pitch function is inverted.
The menu for reversing servo functions can be used for reversing the movements of individual servo arms, but not for reversing the entire control function and of all the involved servos.

Servo Travel
It may be the case that all swash-plate servos do not travel the same distance at maximum deflection. Even small differences between the 3 servos can prevent the swash-plate from being level during collective pitch inputs and cause the heli to drift. In order to correct such servo travel differences, you must increase or decrease the servo travel setting accordingly. Use the menu ATV for adjusting the end points, if necessary. Do not get this menu mixed up with Dual/Rate. (Dual/Rate menu allows using multiple servo travel ranges and toggling between them during flight.)

Example:
If during maximum pitch the elevator servo travel is slightly smaller than travel of the two aileron servos, then the swash-plate will be tilted backwards, causing the heli also to drift backwards. In this case you should increase the travel of the elevator servo.

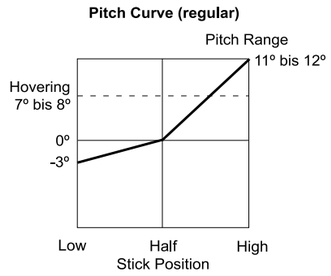
Increase servo travel of
elevator servo on one side

All servos travel the same
distance at maximum deflection

Setting Pitch Values
Please choose from two different pitch settings, depending on your flying style. The two settings are illustrated below. The standard range is for beginners and for pilots who will do some aerobatic flight without extended periods of inverted flight.
The final pitch values must be tested during test flying. Once set, the values will work with the rotor blades you used. In case you change over to a different set of rotor blades, the pitch values will have to be adjusted to the properties (size, profile etc.) of the new set.

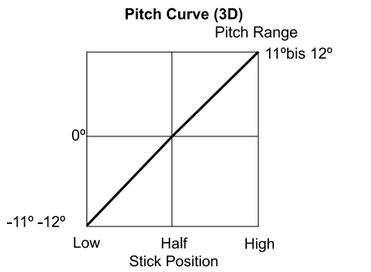
Pitch Values
The center position of the sticks in your R/C radio corresponds to 0° pitch of the rotor blades. At 0° pitch, all levers (servo arms, washout lever, mixing arms) should be in horizontal position. At 0° pitch, the swashplate is in center position, allowing the same travel in upward (positive pitch) and downward (negative pitch) direction. This setting results in a linear pitch curve, which is ideal for 3D-style flying. Pilots who wish to fly with less negative pitch should reduce the pitch curve to approx. -3° pitch. Note that with this latter set-up the sticks are not at center position for hovering.

Application	Low Pitch	Hovering (Stick Centered)	High Pitch
Standard	– 3º	7º to 8º	11º to 12º



If you are an experienced pilot and plan on flying inverted, select the 3D settings:

Application	Low Pitch	Stick Centered	High. Pitch
3D	– 10º bis – 12º	0º	11º to 12º



Minimum Pitch

0° - Pitch

Maximum Pitch

For setting the respective pitch values, please use a pitch gauge. The values for minimum and maximum can be specified in the menus of the transmitter.

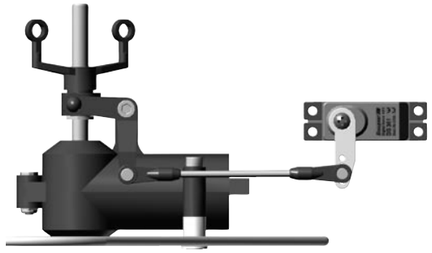
Aileron and Elevator Travel
The travel range of the aileron and elevator servos are limited by the swash-plate's mechanical limits. Please take care that the swash-plate does not hit the maximum of its travel. This can have the unwanted result that the swashplate reaches its mechanical limits and causes damage to the servos or rods to the swash-plate itself.
If you desire more agility for your helicopter, use lighter flybar paddles.

Tail rotor settings
When the servo arm of the tail rotor servo is in the center, the tail rotor lever and the servo arm should be perpendicular with respect to each other. The tail rotor pitch lever should never reach its mechanical limits.

In case the servo travel is too large, you have the following options for correcting this:
1. Move the ball end of the tail rotor servo closer to the center of the servo arm.
2. Reduce the servo travel in your R/C system using ATV.
3. Reduce the servo travel in your gyro (not all gyros have this option).

17 RC Programming

In case the servo travel is too small, you have the following options for correcting this:
1. Move the ball end of the tail rotor servo further away from the center of the servo arm.
2. Increase the servo travel in your R/C system using ATV.
3. Increase the servo travel in your gyro (not all gyros have this option).
Ensure that the tail rotor servo turns in the correct direction. If necessary, reverse the direction of the tail rotor servo function in your R/C system.

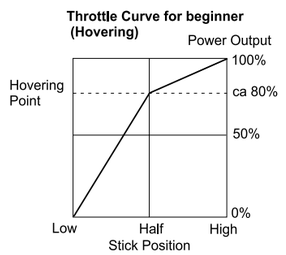


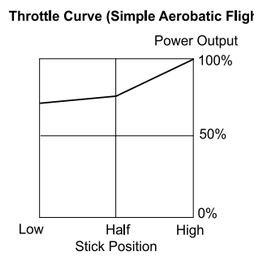
Adjust the tail rotor linkage in length such that the tail rotor servo arm and the tail rotor lever are at 90 with respect to each other.
All parts serving the tail rotor movements must move smoothly. When there is too much resistance, the tail rotor will not react to subtle input and the gyro's maximum sensitivity cannot be fully exploited.

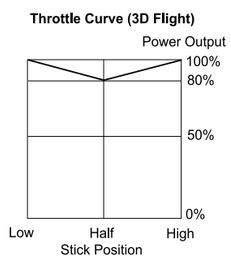
Revo-Mix/Gyro
It is necessary to compensate for the torque created by the motor during flight (but not during autorotation). This compensation is done by adjusting the tail rotor pitch. There are two options for achieving this:
1. Using normal gyro mode
Please refer to your R/C system manual for activating the revolution mixing function and for setting all parameters correctly. Final settings should be trimmed during test flights.2. Using a gyro in Heading-Hold mode
The Heading-Hold gyro mode compensates automatically the deviation caused by the motor torque. Therefore, if Heading-Hold mode is used, revo-mix should not be programmed additionally.
Important: Check to ensure that the tail rotor assembly moves smoothly and without play. Otherwise the gyro and servo will not compensate the torque properly.

Rotor Head RPM control
LOGO is designed to be flown with constant rotor head speed. Irrespective of flight attitude (ascending, descending, hovering), rotor speed should be kept roughly constant. There are two different methods for obtaining constant rotor speed:

Rotor speed control with speed controller
All speed controllers can be used in this mode. With speed controller it is necessary to program a throttle curve (see manual). Programming of throttle curve requires that you associate a given throttle value with a particular pitch value. In this way, the rotor speed is held almost constant with all pitch values.
Throttle curve programming depends on the type and quality of the R/C system. Simpler, inexpensive R/C systems designed for model helicopters usually have a 3-point throttle curve. High-end R/C systems typically have throttle curves with more configurable points (up to 9). Fine tuning of throttle curves will be necessary during test flights.



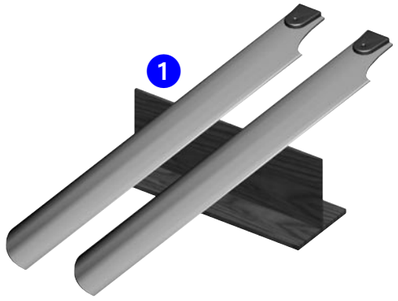




Note that an incorrectly programmed throttle curve reduces performance and can lead to overheating of the motor and the speed controller.

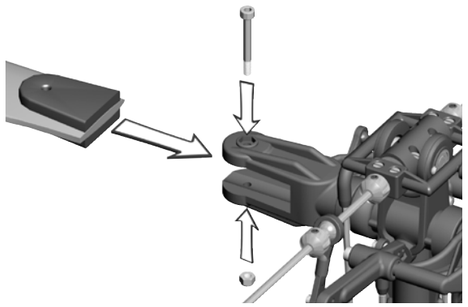
Rotor speed control with governor (RPM regulation mode)
A speed controller with governor function keeps the rotor head speed constant, independent of flight attitude (ascending, descending, hovering). It is not necessary to program a throttle curve. The head speed is simply controlled on the radio transmitter using a switch or lever.
Important:
1) Governor mode must be activated in the speed controller first (see manual of the speed controller)
2) In governor mode, the servo wire of the speed controller must not be connected to the throttle channel. Use a free channel in your radio to connect the servo wire.

18 Rotor Blades



Carbon Rotor Blades
Rotor blades made from glass-fiber-enhanced plastic or carbon are typically in ready-to-fly condition when new. It will only be necessary to adjust blade tracking.

Wooden Rotor Blades
Balancing of Rotor Blades (Center of Gravity)
Place each rotor blade over an edge as shown in picture (1). Adjust the blades so that they are in equilibrium. If the center of gravity is not in the same place in each blade, this needs to be corrected using tape. Apply as much tape as necessary until both blades show their center of gravity in the same place.



Static balancing
Screw the rotor blades together as shown in picture (2). The rotor blades are properly balanced when they are suspended exactly horizontally. If one of the rotorblades is not exactly horizontal, the blades are not in equilibrium.
This is corrected by applying tape to lighter blade.
When mounting the rotor blades to the blade holders, note the proper direction (clockwise rotation). Tighten the cap screws holding the rotor blades, so that the blades cannot move easily in the blade holders.

Direction of Main and Tail Rotation
Prior to the first flight, you must re-check the direction of rotation of the main rotor head and the tail rotor!

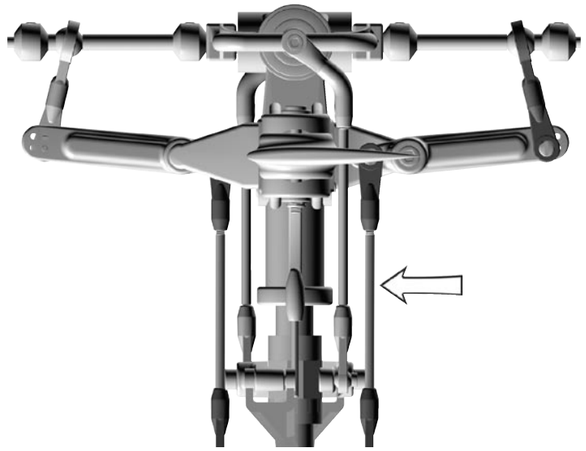
Incorrect

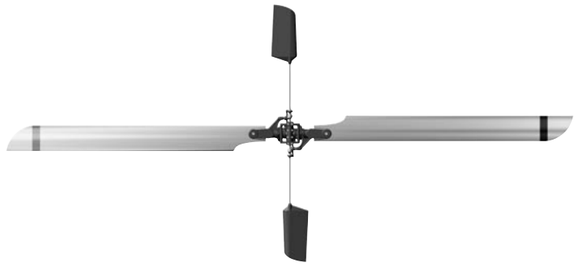
Blade Tracking Adjustment

O.K.

Prior to the first flight the tracking of the rotor blades needs to be adjusted. If the tracking is not adjusted properly, this can cause vibrations and lead to instability of the helicopter.
Apply colored tape to the tip of one of the rotor blades. Apply tape of a different color to the tip of the other rotor blade. When you are ready for your first flight, increase the rotor speed to just before lift-off. From a safe distance, check the rotor disk at eye-level. Very likely, one rotor blade will move below the other.
Make a note of the color of the low-moving blade. Then turn off the motor and wait until the rotor head has come to a halt. Lengthen the linkage (1) of the rotor blade which was moving low by unscrewing the ball links somewhat. Repeat the checking procedure until both rotor blades move on the same level.

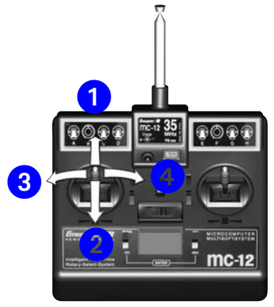
19 Pre-Flight Check



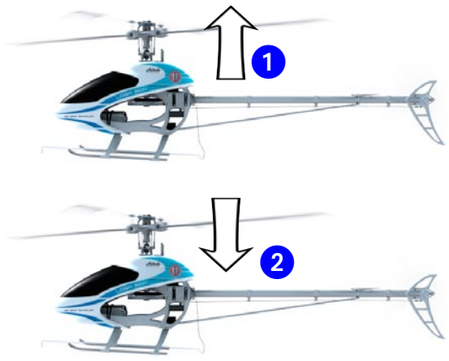


20 Operation During Flight

Rudder



Pitch/Throttle

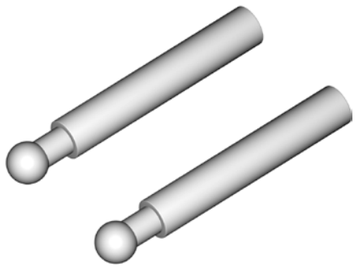


You may want to program a different stick mode than the one shown. Please check which stick mode is used by other local pilots. Use the same one, so fellow pilots can assist you on the field. **Important:** Flying a model helicopter requires many hours of training. During your first attempts, while familiarizing yourself with the different control movements, keep the helicopter low above the ground (just a few centimeters/a couple of inches.)

Aileron

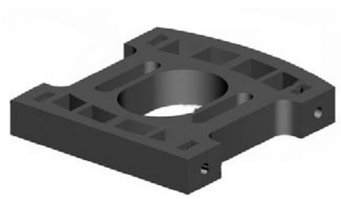
Elevator

Canopy holders #3038

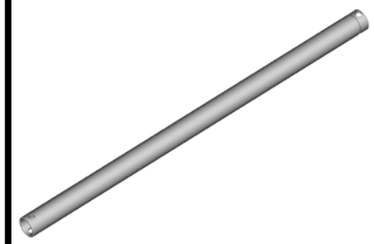


Carbon rotor blades 500 mm #2712
Carbon rotor blades 550 mm #1049
Carbon rotor blades 600 mm #1048

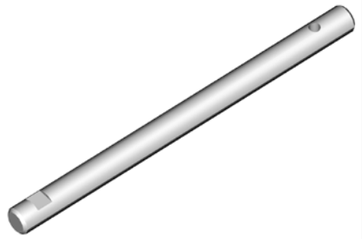
Alu motor plate #4088



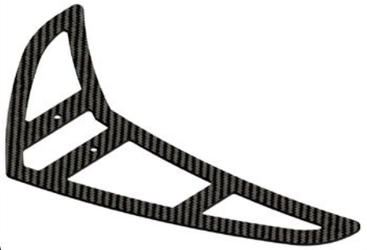
Hardened main rotor shaft #4075



Hardened tail rotor shaft #2475



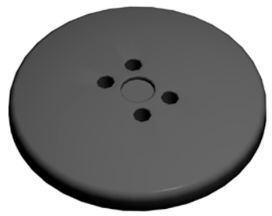
Carbon vertical fin
LOGO 500 DX / 3D #2780
LOGO 600 DX #2493



Carbon horizontal fin
LOGO 500 DX / 3D #2781
LOGO 600 DX #2494

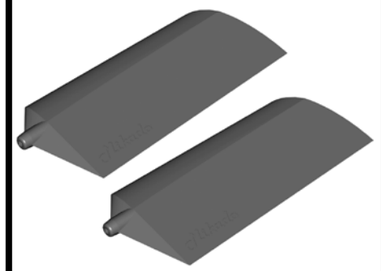
Tail rotor hub with
trust bearing #4069

Rotor disk #932



Clamp ring #2385

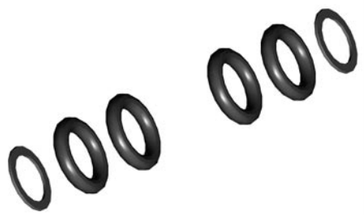
Heavy flybar paddles #2358



Light flybar paddles #2359

Tail servo holder #828

Dumper rubber set
extra hard #3092



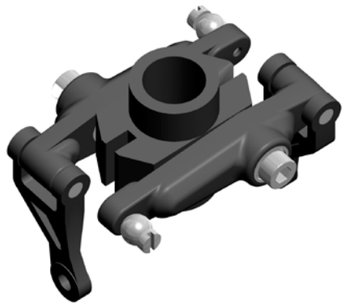
Alu washout unit #973

Carbon tail rotor upgrade #3062

Alu swashplate #2364

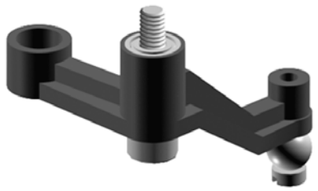
Mixing arms ball raced #4001

Washout fully ball-raced #970



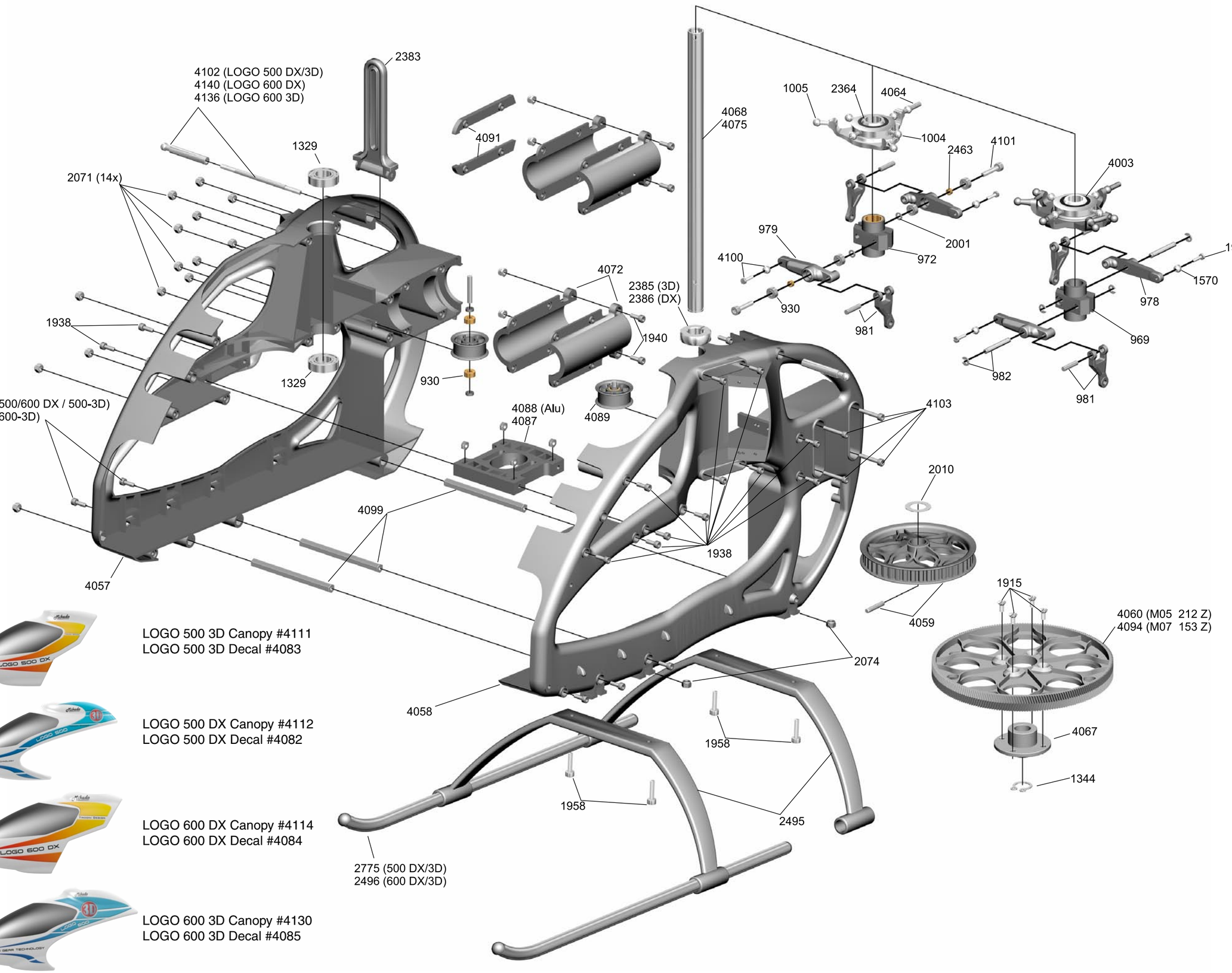
Washout fully ball-raced
with alu hub #971

Tail rotor lever ball-raced #2447



V-Bar #4010
V-Bar with pressure sensor #4011

Glass-fiber canopy
LOGO 500 3D #4109



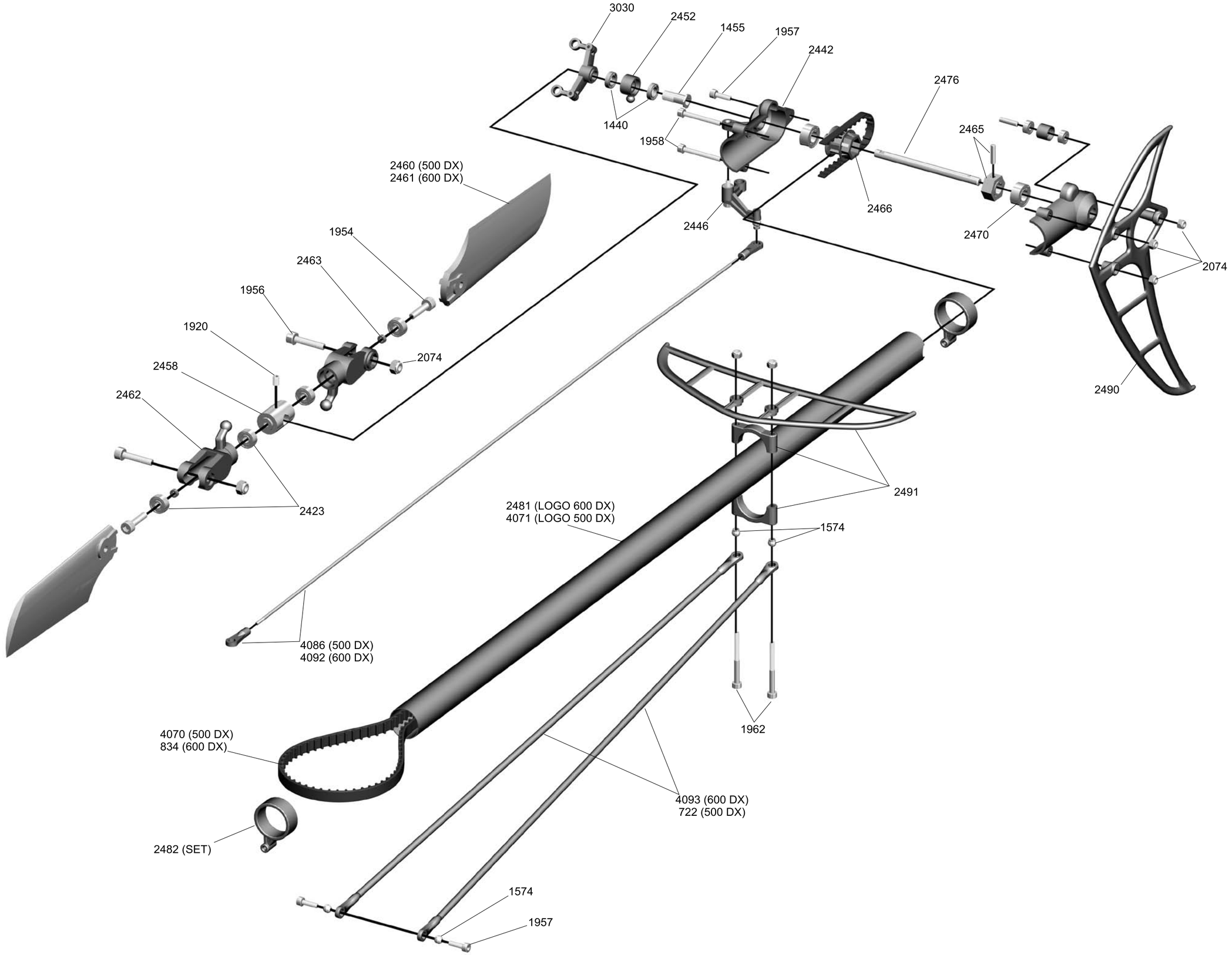
LOGO 500 3D Canopy #4111
LOGO 500 3D Decal #4083

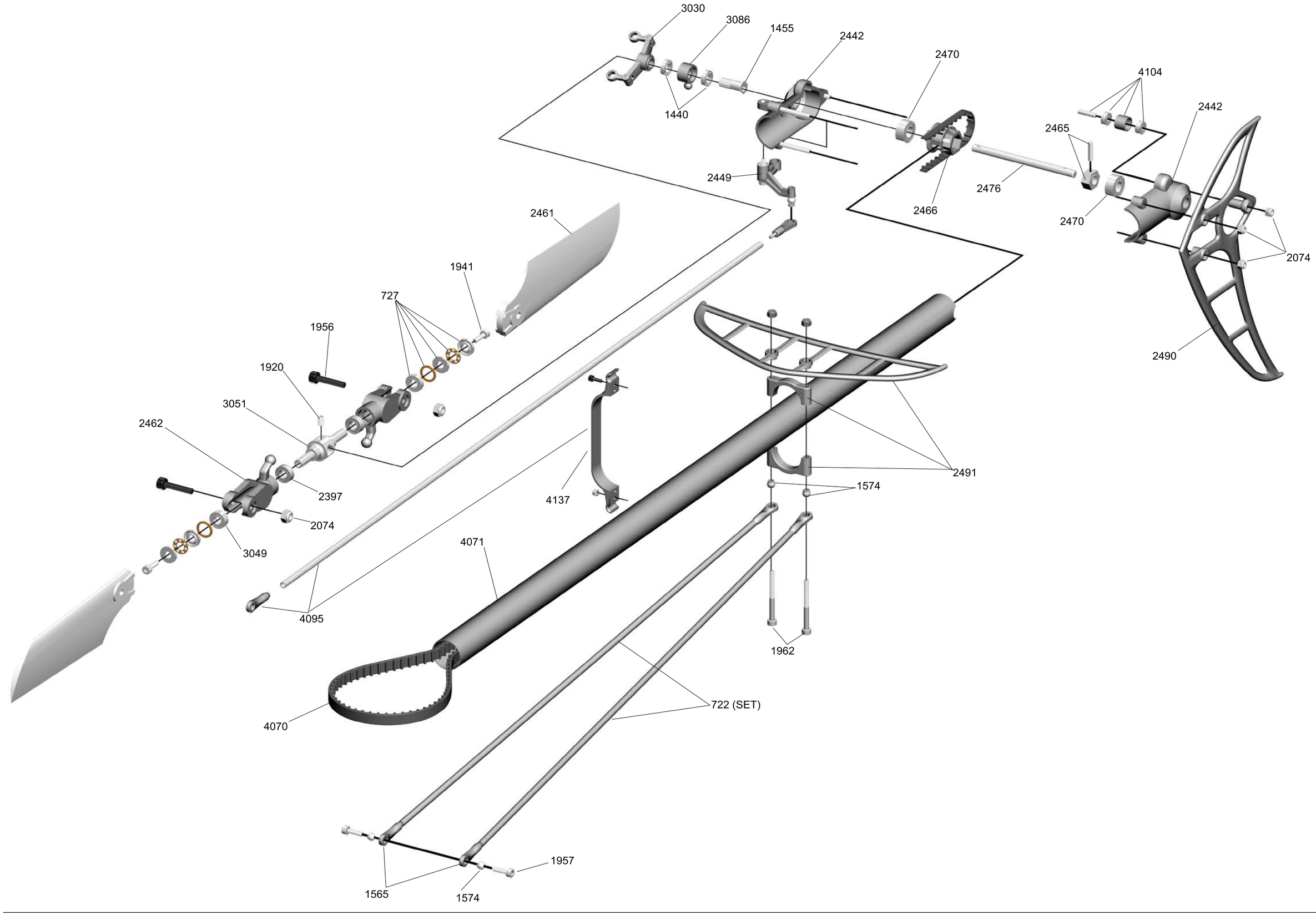
LOGO 500 DX Canopy #4112
LOGO 500 DX Decal #4082

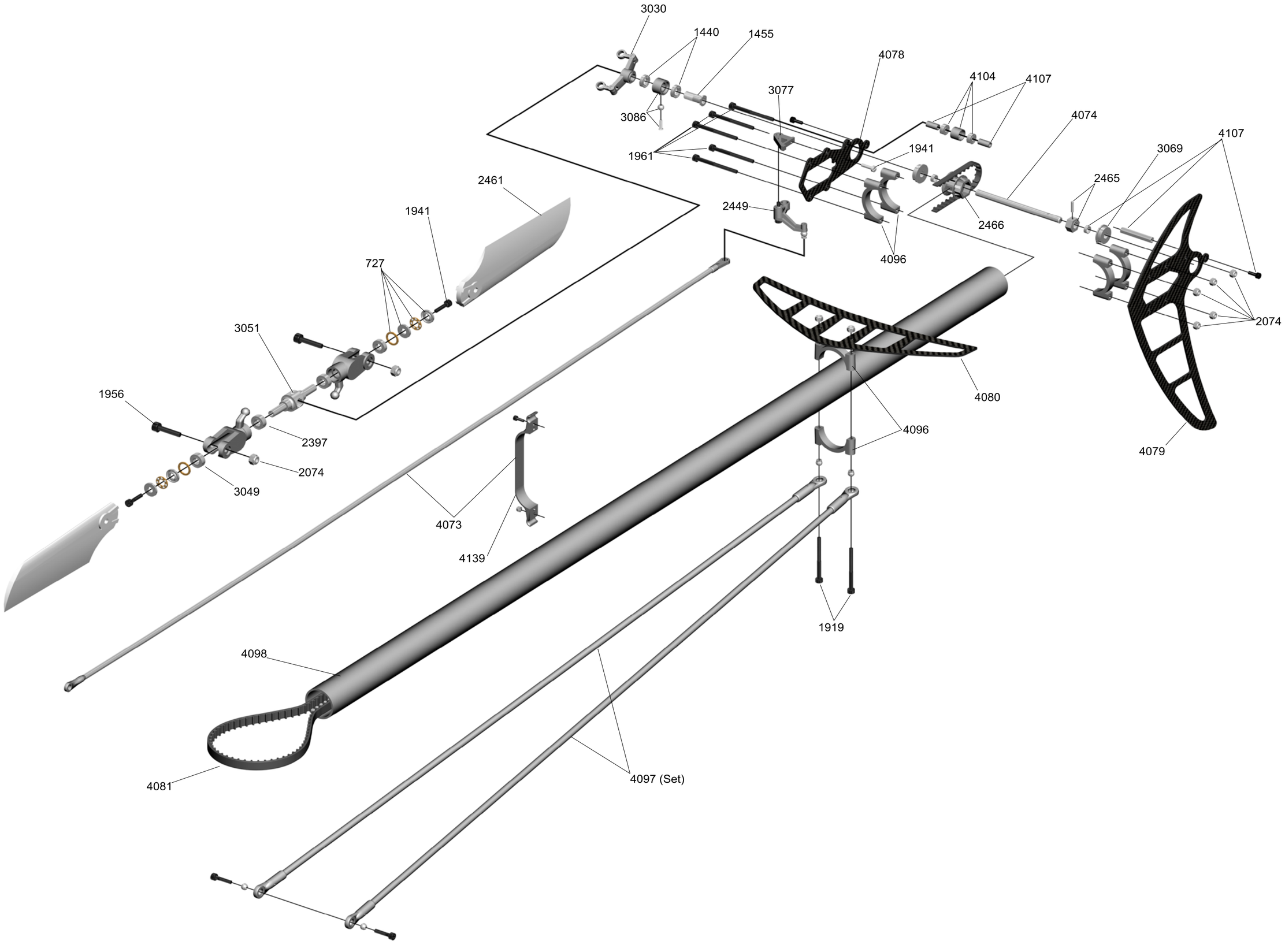
LOGO 600 DX Canopy #4114
LOGO 600 DX Decal #4084

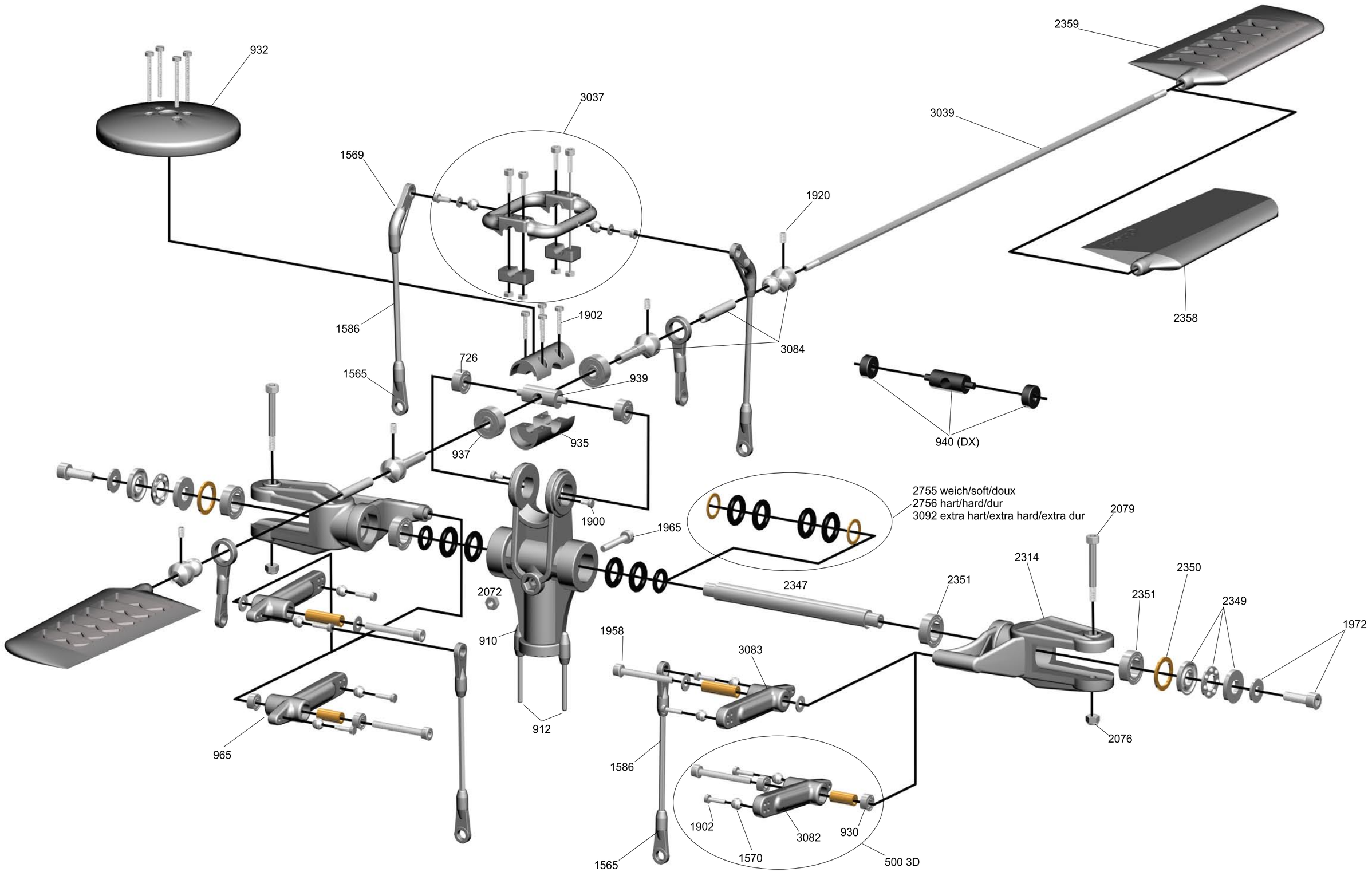
LOGO 600 3D Canopy #4130
LOGO 600 3D Decal #4085

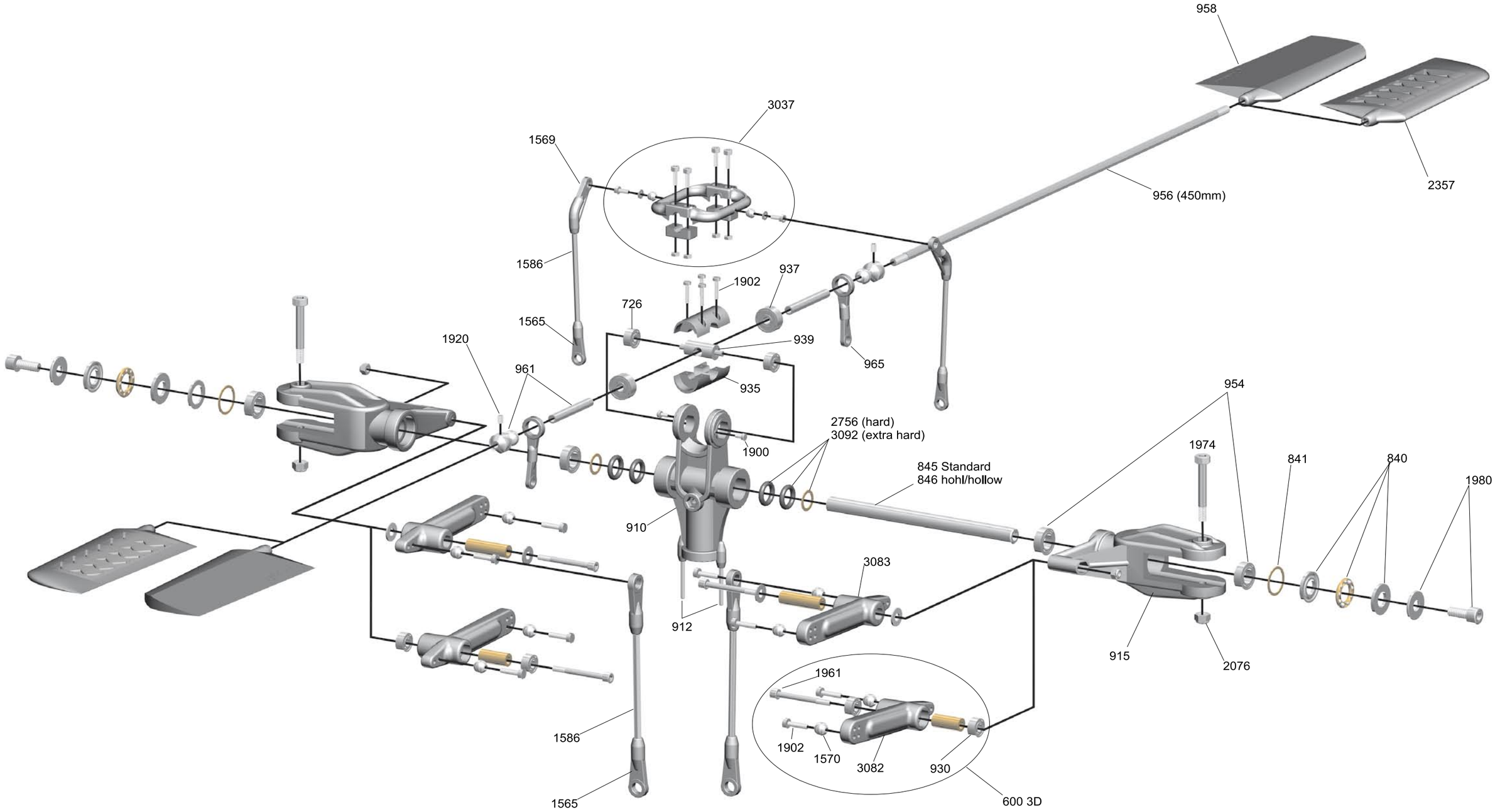
23 Overview Tail Rotor LOGO 500/600 DX

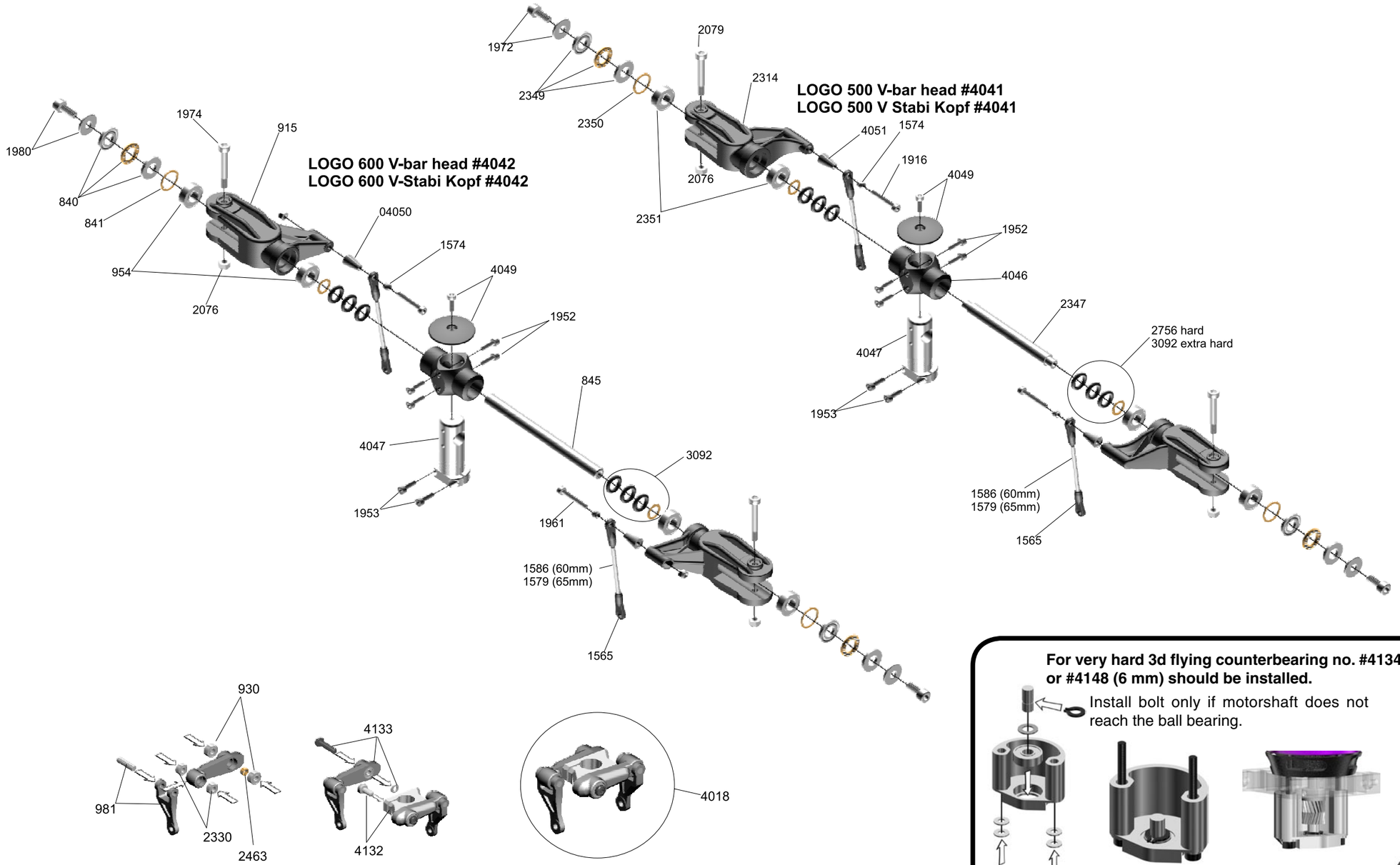



3030
3086
1455
2442
2470
4104
2442
2465
1440
2449
2476
2466
2470
2461
1941
2074
727
1956
2490
1920
3051
2462
2491
1574
2397
4137
2074
3049
4071
4095
1962
722 (SET)
4070
1957
1565
1574

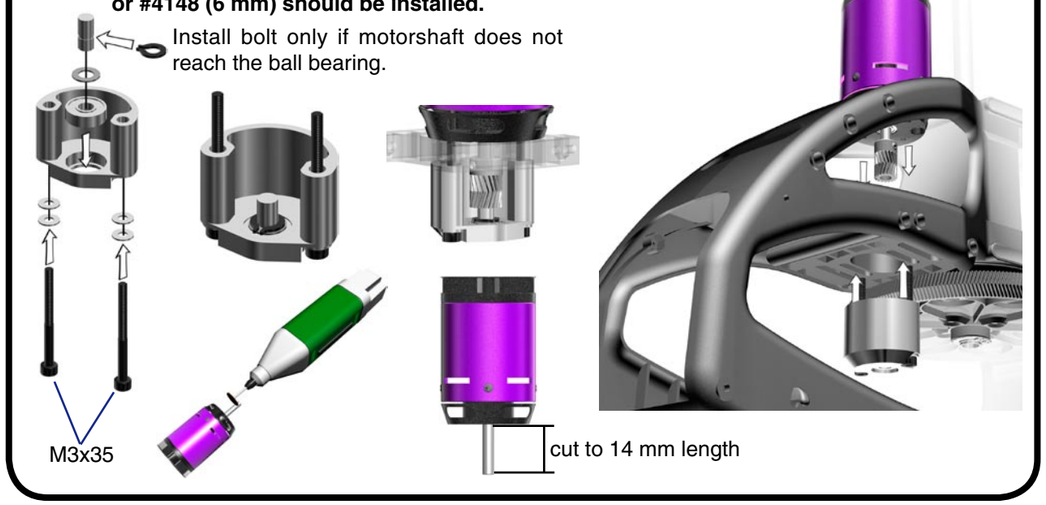

3030
1440
1455
4078
4104
4107
3077
3086
1961
1941
4074
4107
3069
2465
2461
1941
2449
2466
4096
727
2074
3051
4080
1956
4096
2397
2074
3049
4079
4073
4139
1919
4098
4081
4097 (Set)


932
3037
1569
1586
1902
726
1565
939
935
937
1900
1920
3039
2359
2358
3084
940 (DX)
1965
2072
910
912
965
2755 weich/soft/doux
2756 hart/hard/dur
3092 extra hart/extra hard/extra dur
2347
2351
2314
2079
2350
2349
1972
2076
1958
3083
1586
1565
1902
3082
930
1570
500 3D


958
3037
1569
2357
956 (450mm)
1586
1902
937
726
1565
939
1920
965
961
935
954
2756 (hard)
3092 (extra hard)
1974
1900
841
840
1980
845 Standard
846 hohl/hollow
910
3083
912
915
2076
1961
1586
1902
1570
3082
930
600 3D
1565



For very hard 3d flying counterbearing no. #4134 (5 mm) or #4148 (6 mm) should be installed.



Mikado Model Helicopters
www.mikado-heli.de

Construction & Rendering: Mehran Mahinpour Tirooni • Layout & Realisation: CDT-Berlin