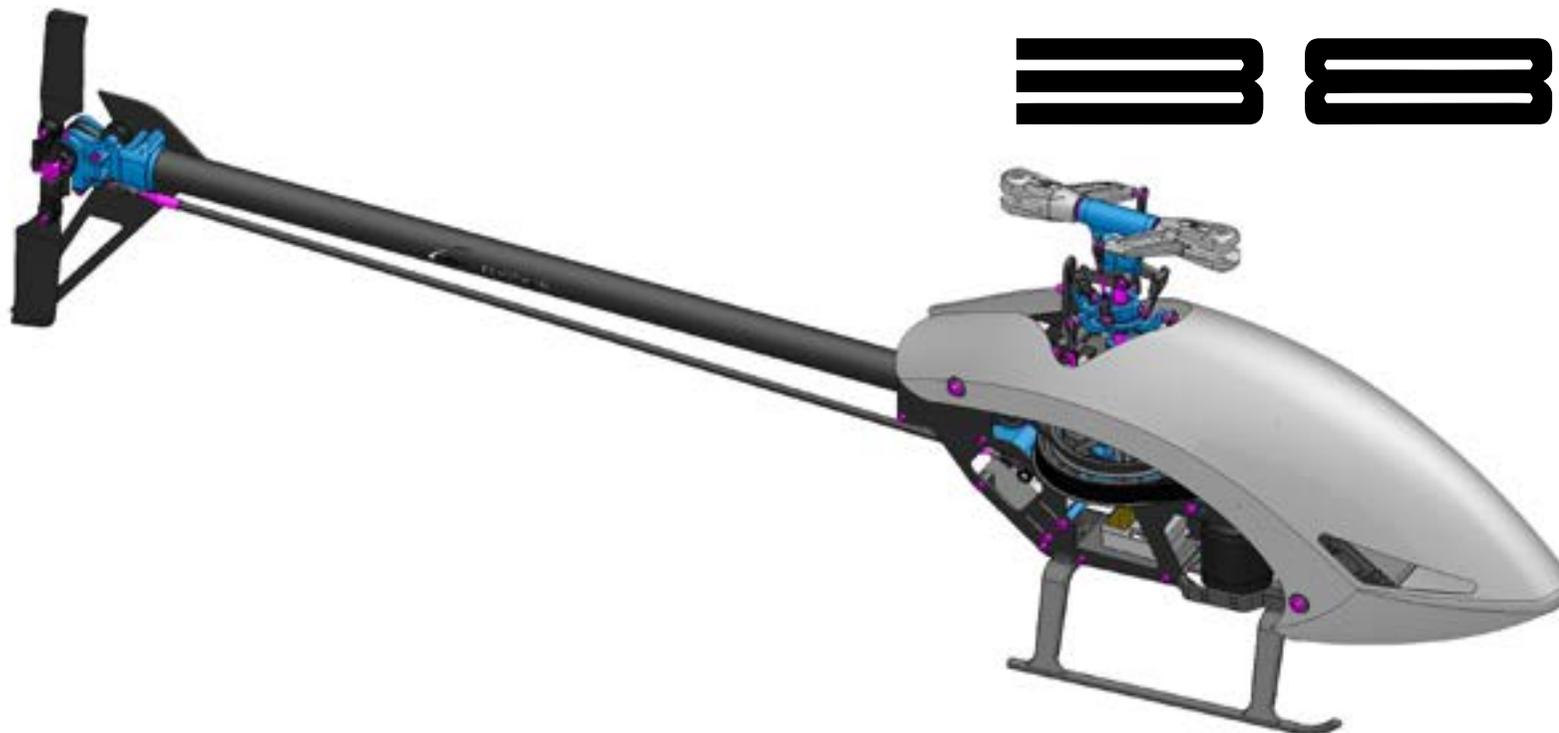


PRÔTOS



Main rotor diameter.....	864mm (380mm blades)
Tail rotor diameter.....	181mm (67mm tail blades)
Length without main blades.....	800mm
Length with main blades.....	1003mm (380mm blades)
Overall height.....	235mm
Tail rotor-Main rotor ratio.....	4,27
Main pulley.....	120T
Autorotation pulley.....	94T
Tail pulley.....	22T

Release 1.3.1

Always check on www.msheli.com for a more recent version of this manual

Pages	Content
3	safety rules
4	tools required for assembly
5	R/C equipment required to complete
6	how to read this manual
7	motor pinion teeth choice
8-26	main frame assembly
27-35	head assembly
36-50	tail assembly
51	ESC, BEC
52 - 56	canopy installation
57	battery installation
58	Gyro installation
59	Alu main blade holder set (optional)



Always follow these rules for safety



Operate the helicopter in open areas with no people nearby.

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 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 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.

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

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

While adjusting, stand at least 10 meters

Novice R/C helicopter pilots should always seek advice from experienced pilots to obtain hints with assembly and for pre-flight adjustments.

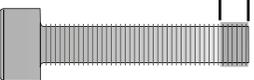
Note that a badly assembled or insufficiently adjusted helicopter is a safety hazard!

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

MSHeli Srl
Italy

Tools required for assembly



 <p>Hexagon screw drivers : 1,5mm 2,0mm two 2,5mm (spindle)</p>	 <p>Thrust bearing grease</p>
 <p>where indicated use Thread lock MEDIUM</p> 	 <p>Slow curing EPOXY</p>



Tools required for assembly



<p>Swashplate servos supported: all micro servos (qnty. 3)</p>	
<p>Tail servo supported: all micro and mini servos (qnty. 1)</p>	
<p>Main blades: standard full carbon blades 380mm</p>	

<p>Battery pack: LiPo 6s 1800mAh</p>	
<p>Trasmitter Receiver/satellite Flybarless unit</p>	
<p>ESC : at least 50A</p>	

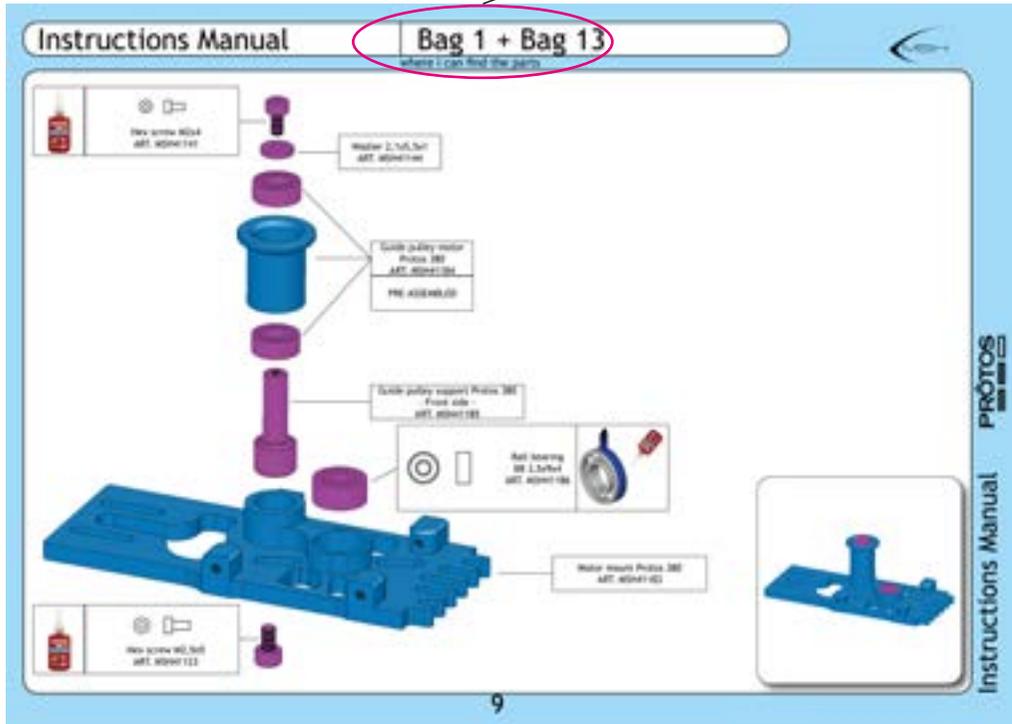


How to read this manual



1

Box and bag where you can find washers, bearings, screws and parts



3



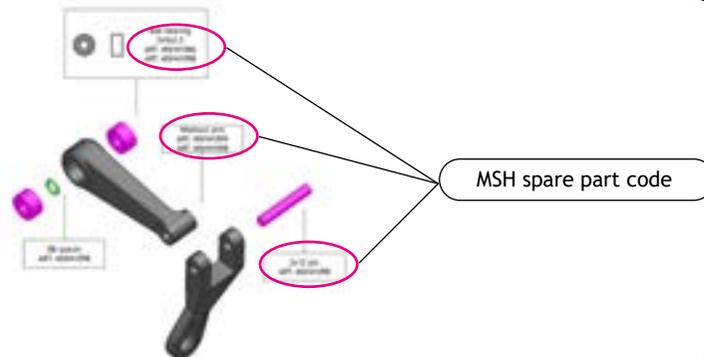
Apply a thin layer of threadlock on the external part of the ball bearing

4



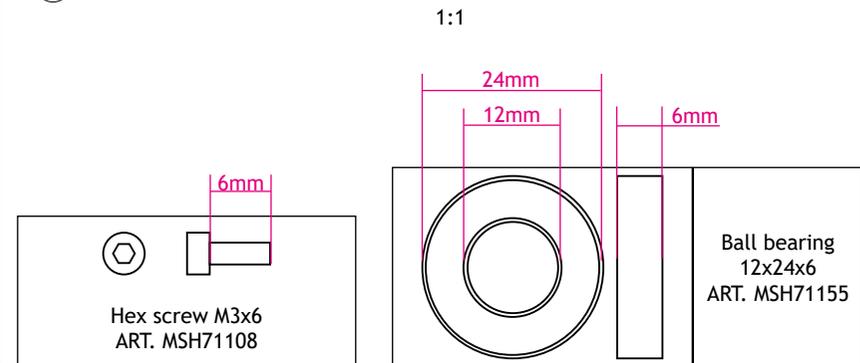
Pay attention to the instruction step behind this icon

2

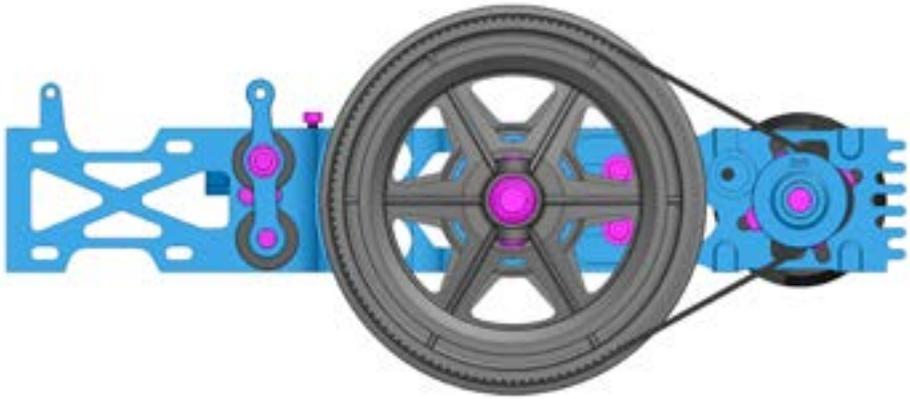


MSH spare part code

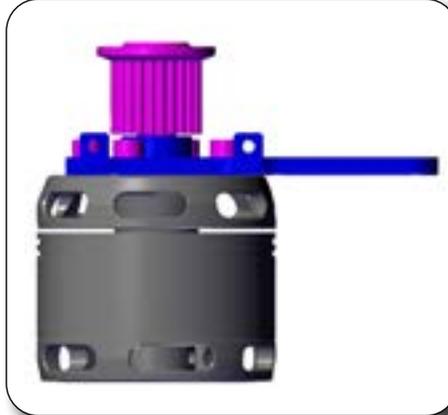
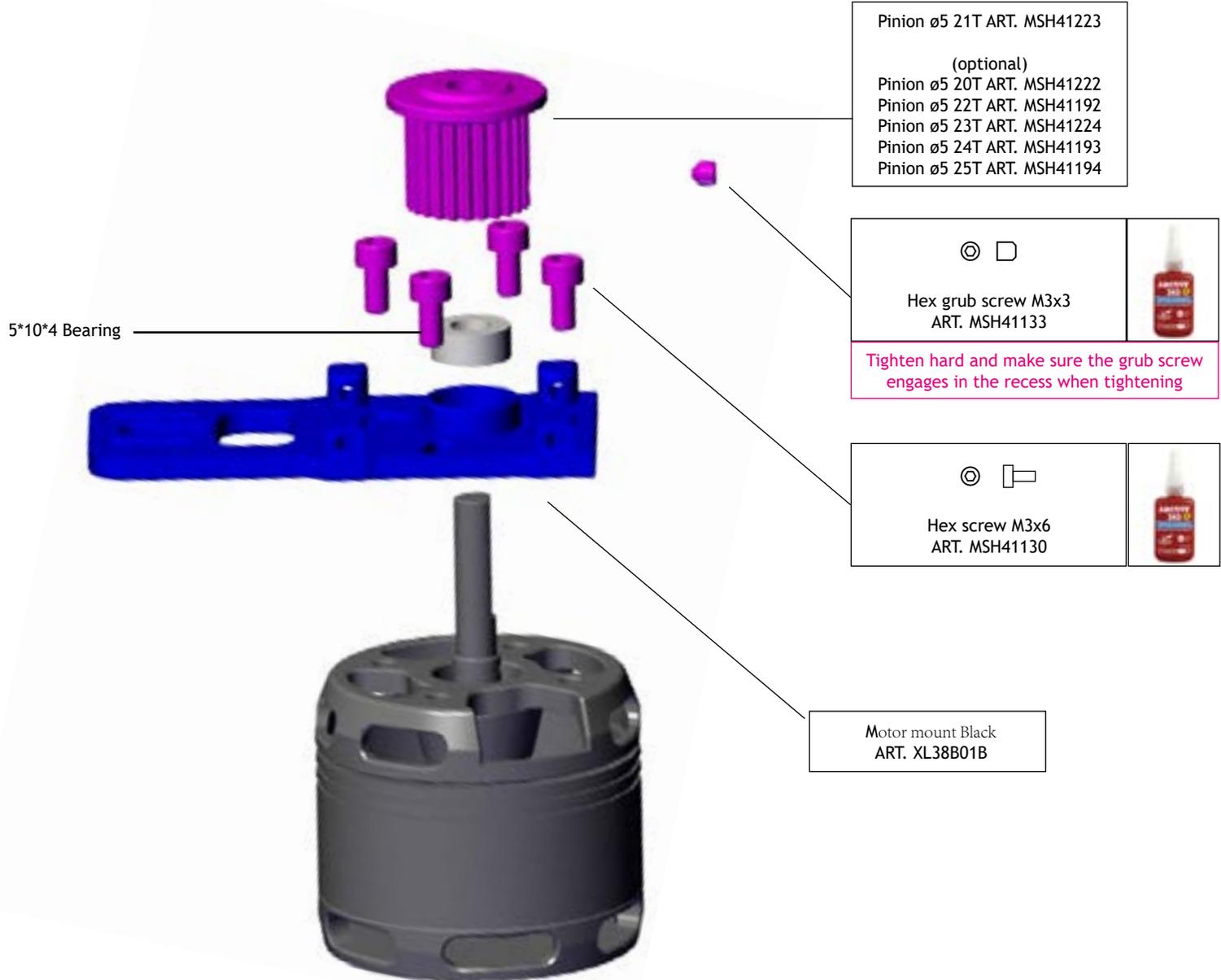
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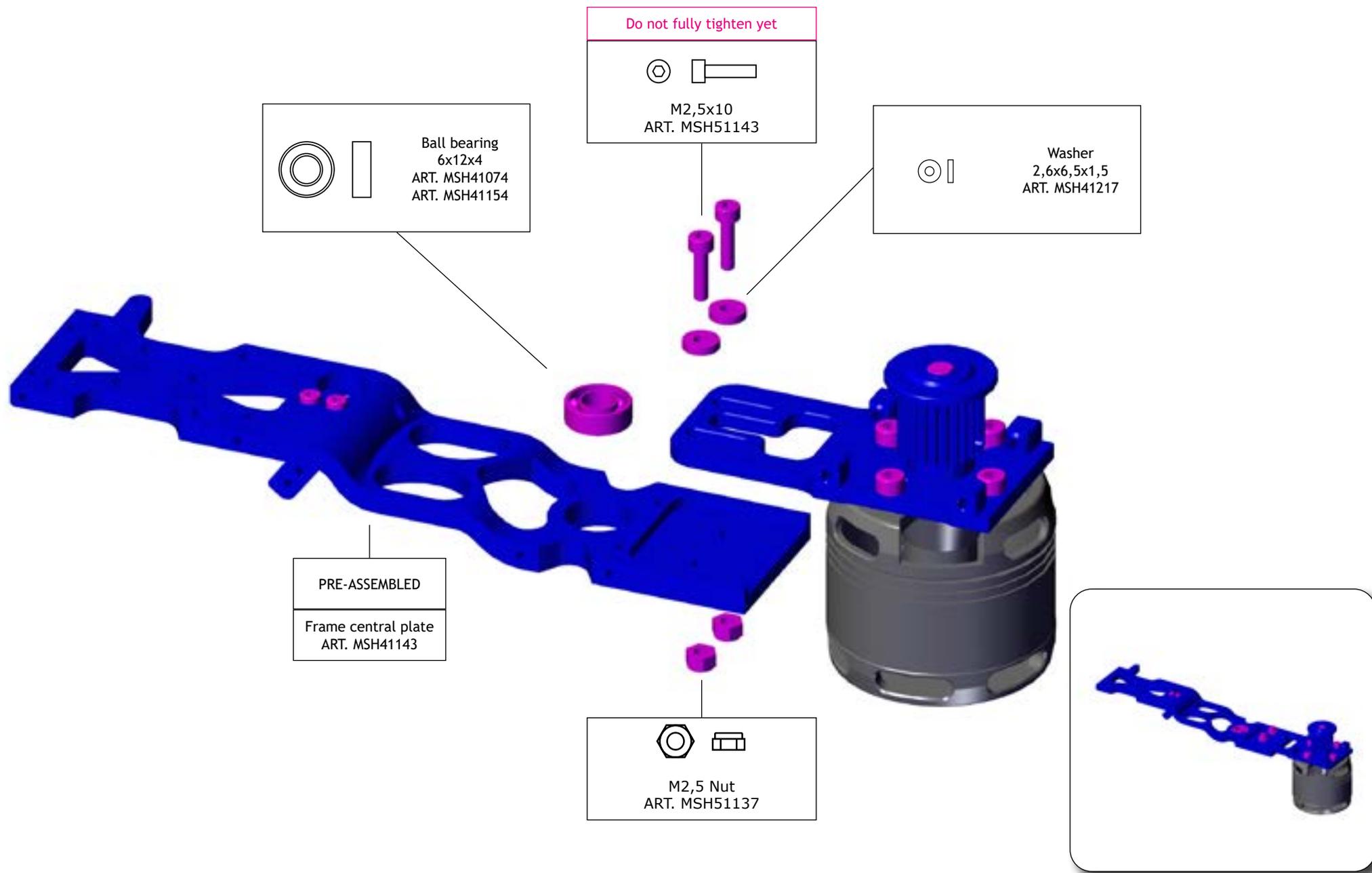


Motor pinion teeth choice

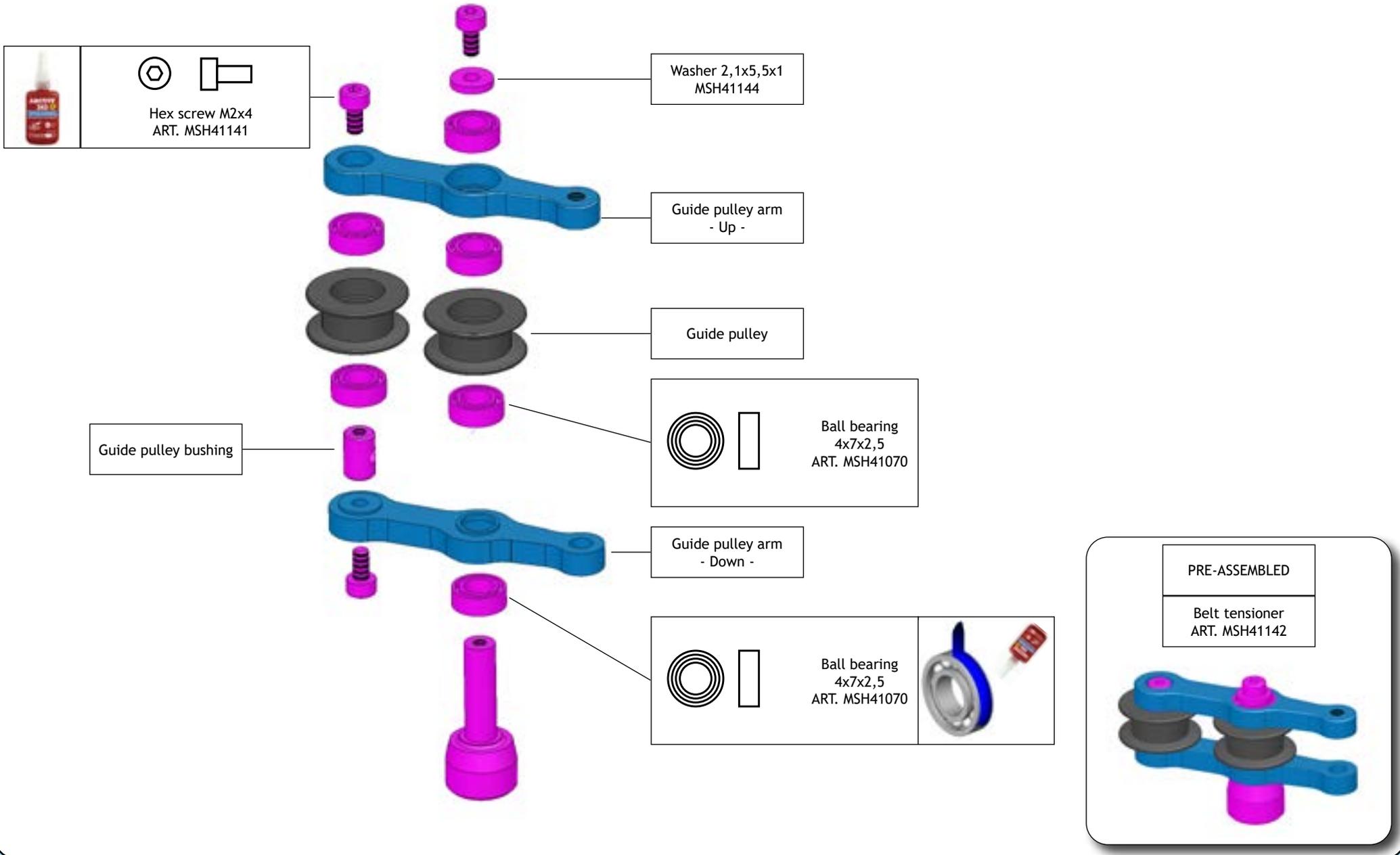


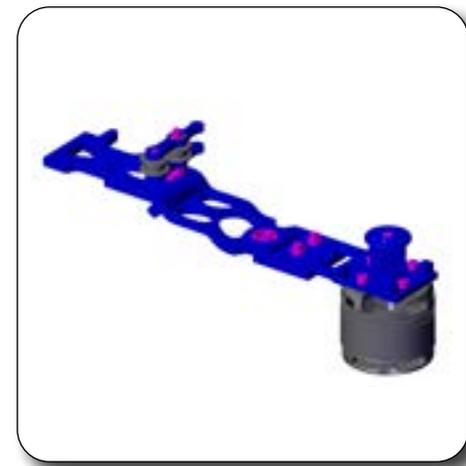
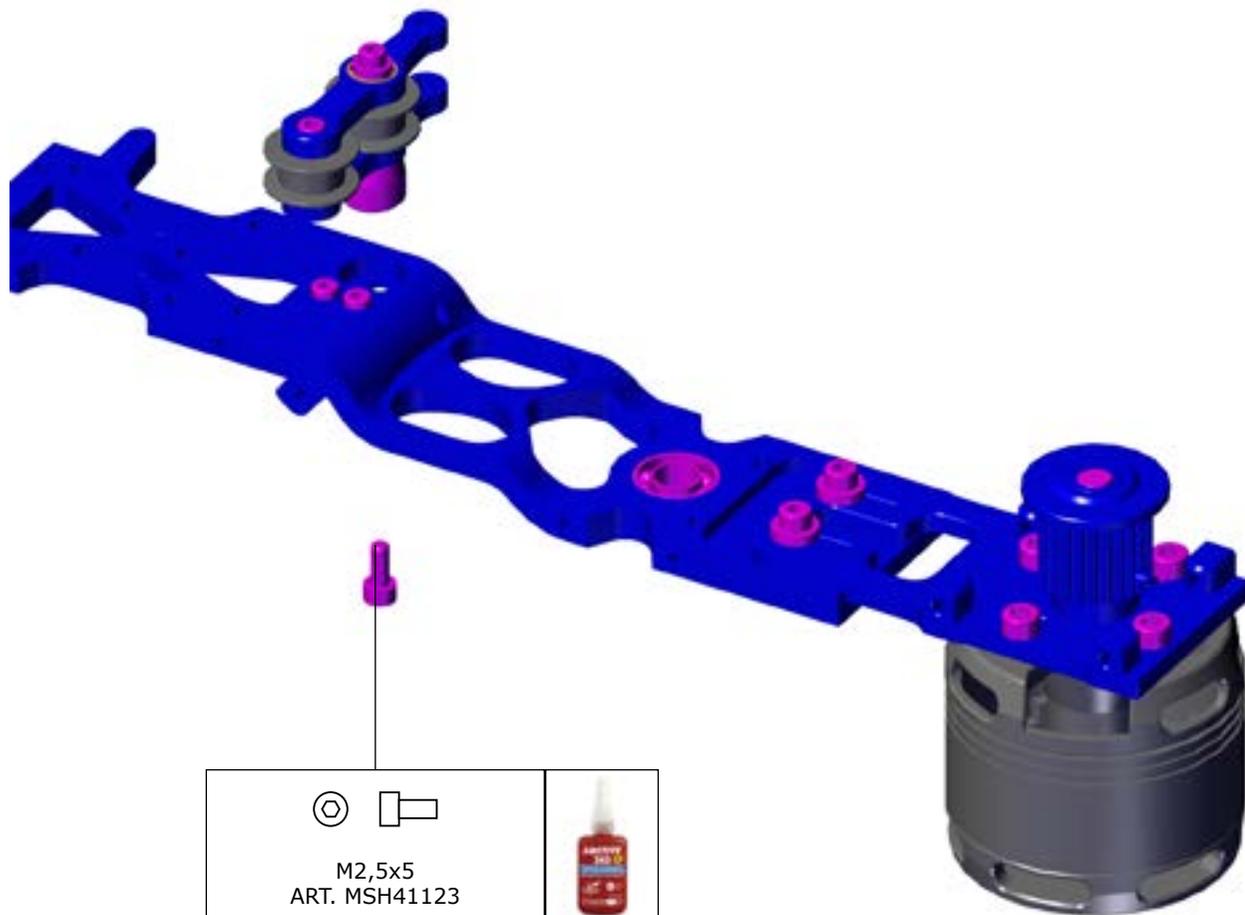
	Stock	Sport	Hard 3D	Extreme 3D
920 Kv ø 5mm	21T	20-22T	23-24T	25T





where I can find the parts





where I can find the parts

Oneway hub

Oneway hub

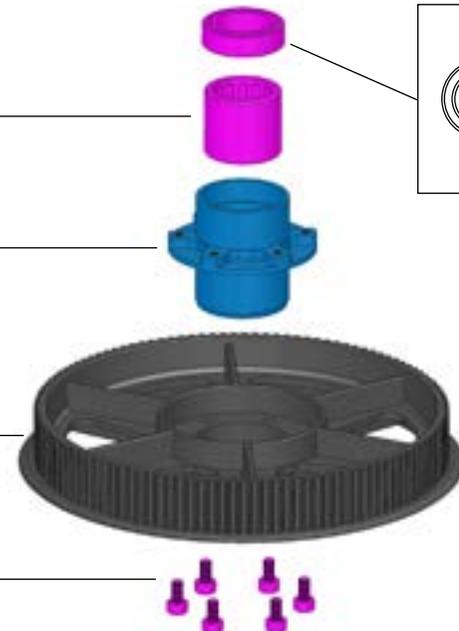
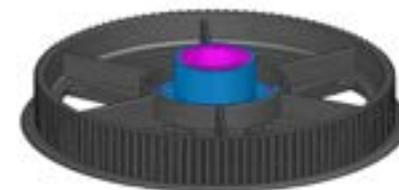
Main pulley
ART. MSH41146

Hex screw M2x4
ART. MSH41141

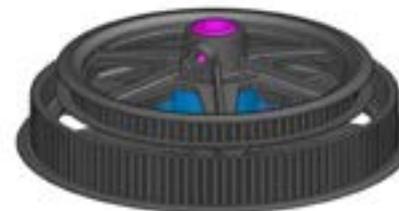
Ball bearing
10x15x4

Autorotation pulley
ART. MSH41147

Oneway shaft

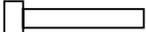


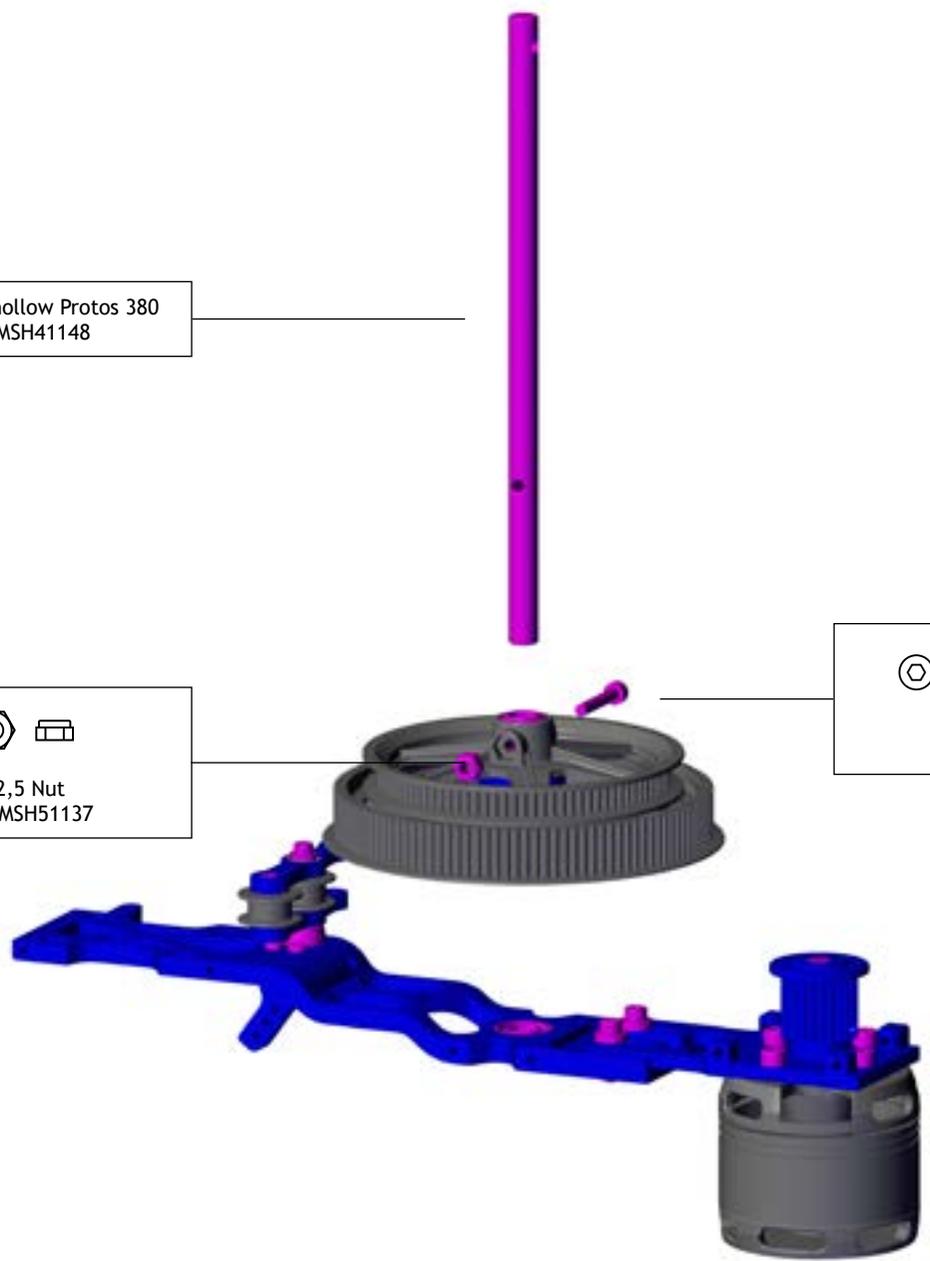
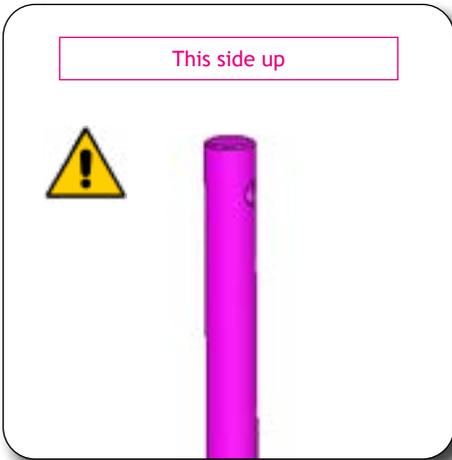
Main pulley assembly
ART. MSH41145

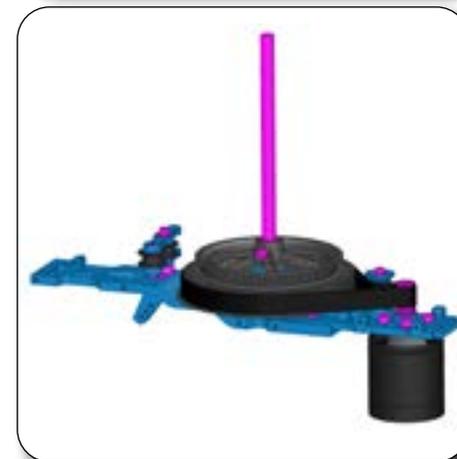
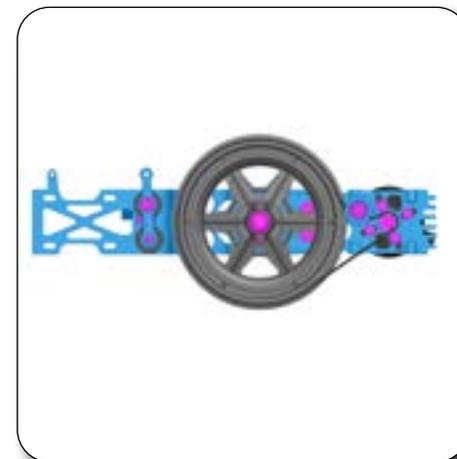
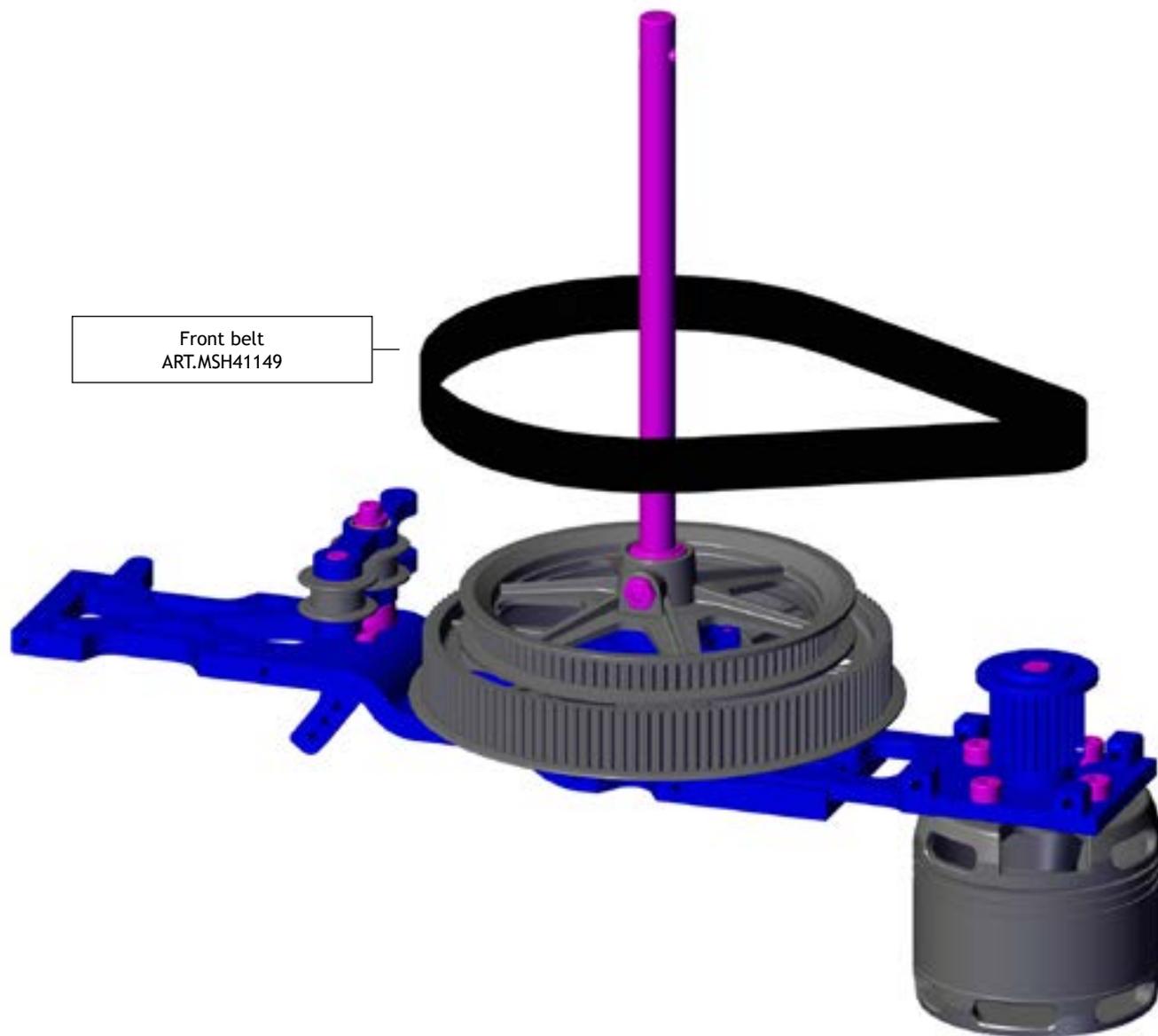


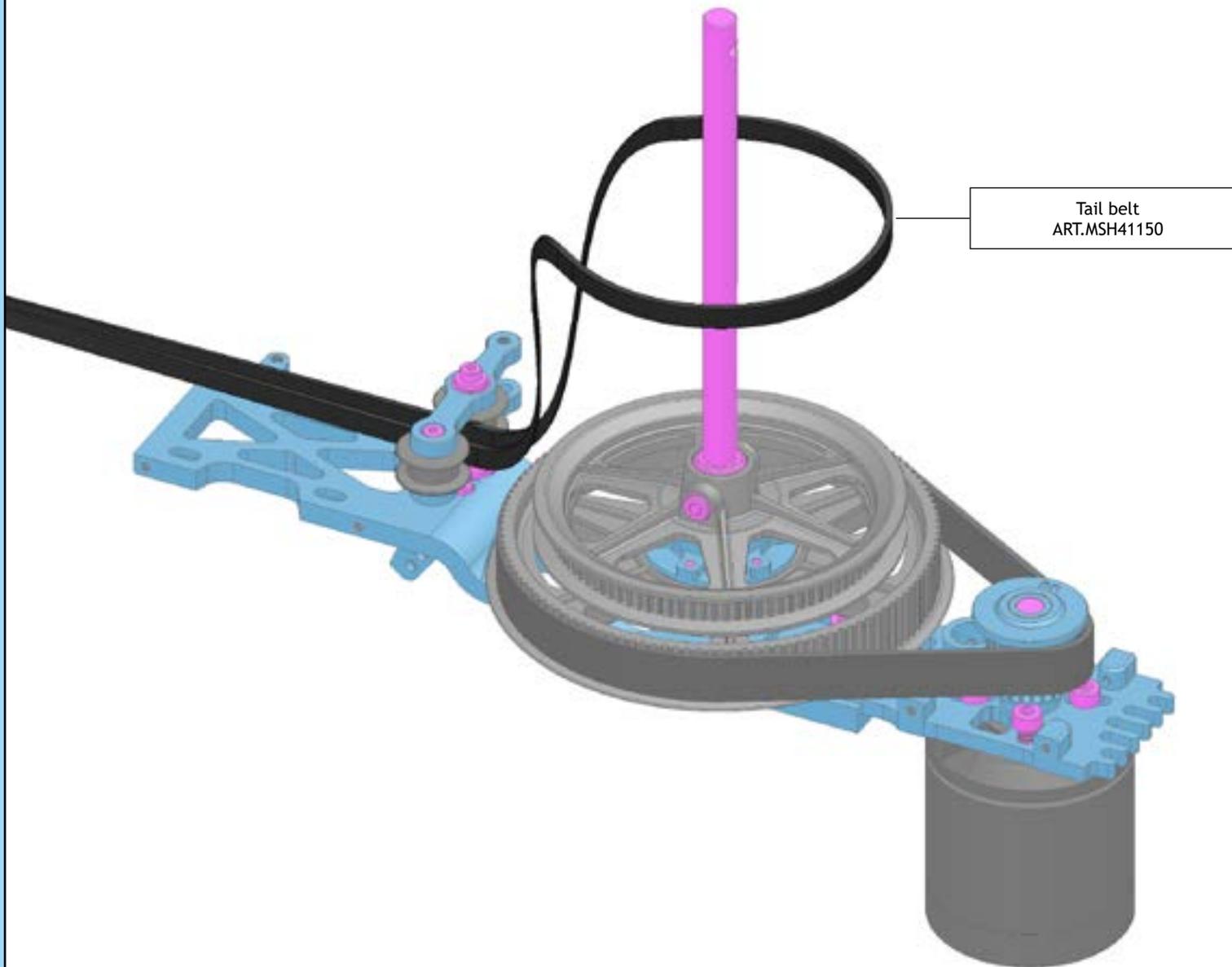
Main shaft hollow Protos 380
ART.MSH41148

 
M2,5 Nut
ART. MSH51137

 
M2,5x16
ART. MSH51145







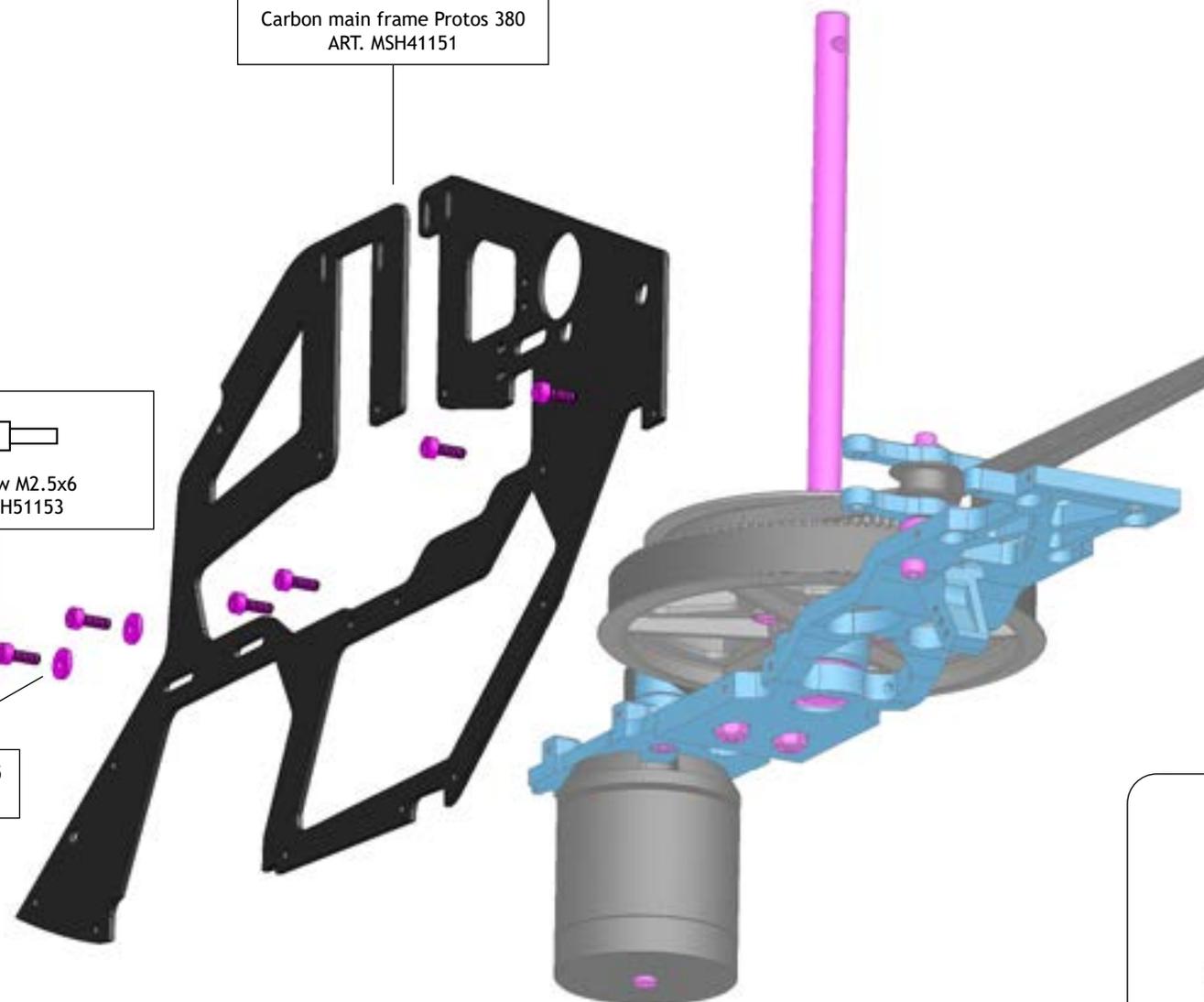
where I can find the parts

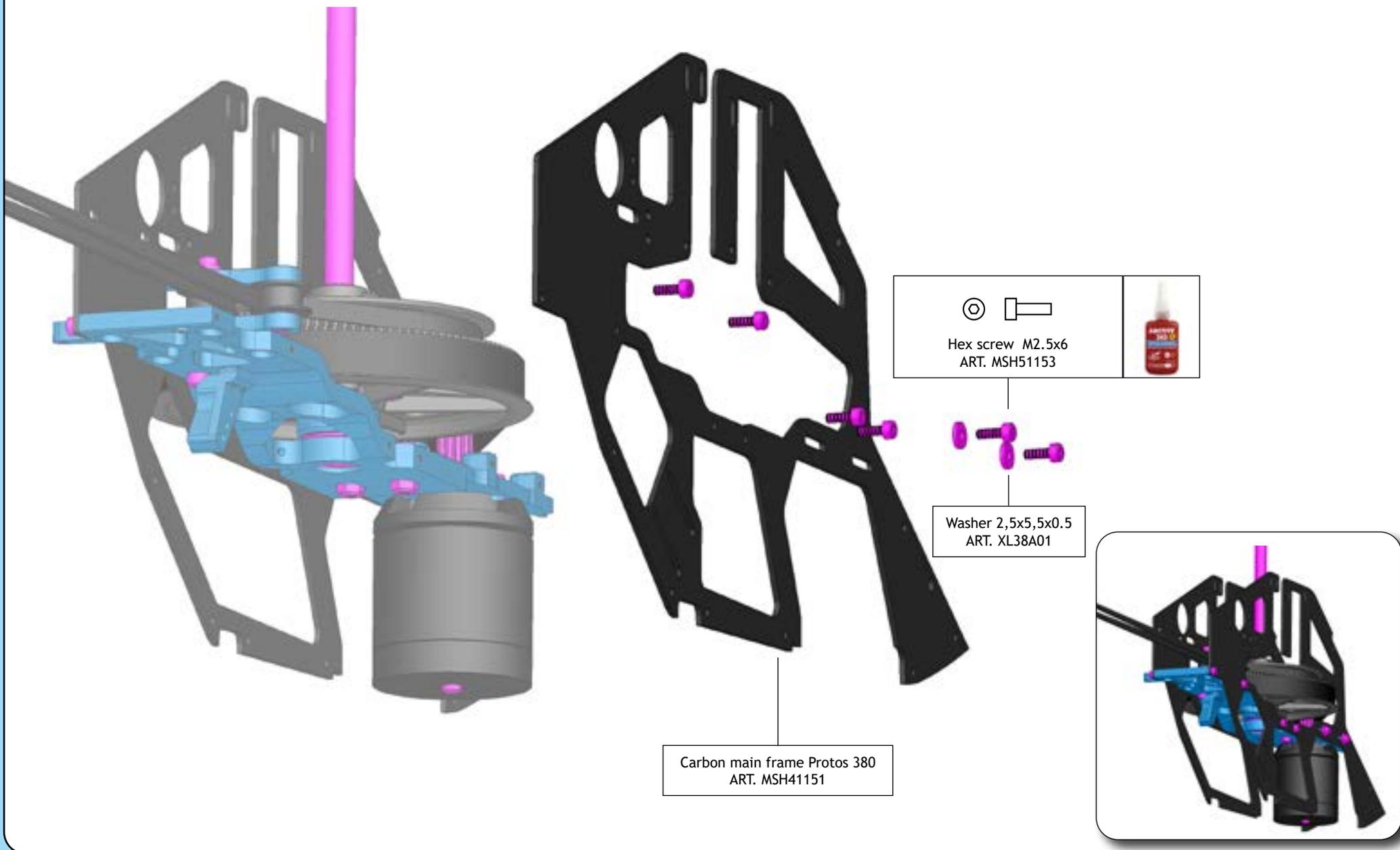


Carbon main frame Protos 380
ART. MSH41151



Washer 2,5x5,5x0.5
ART. XL38A01



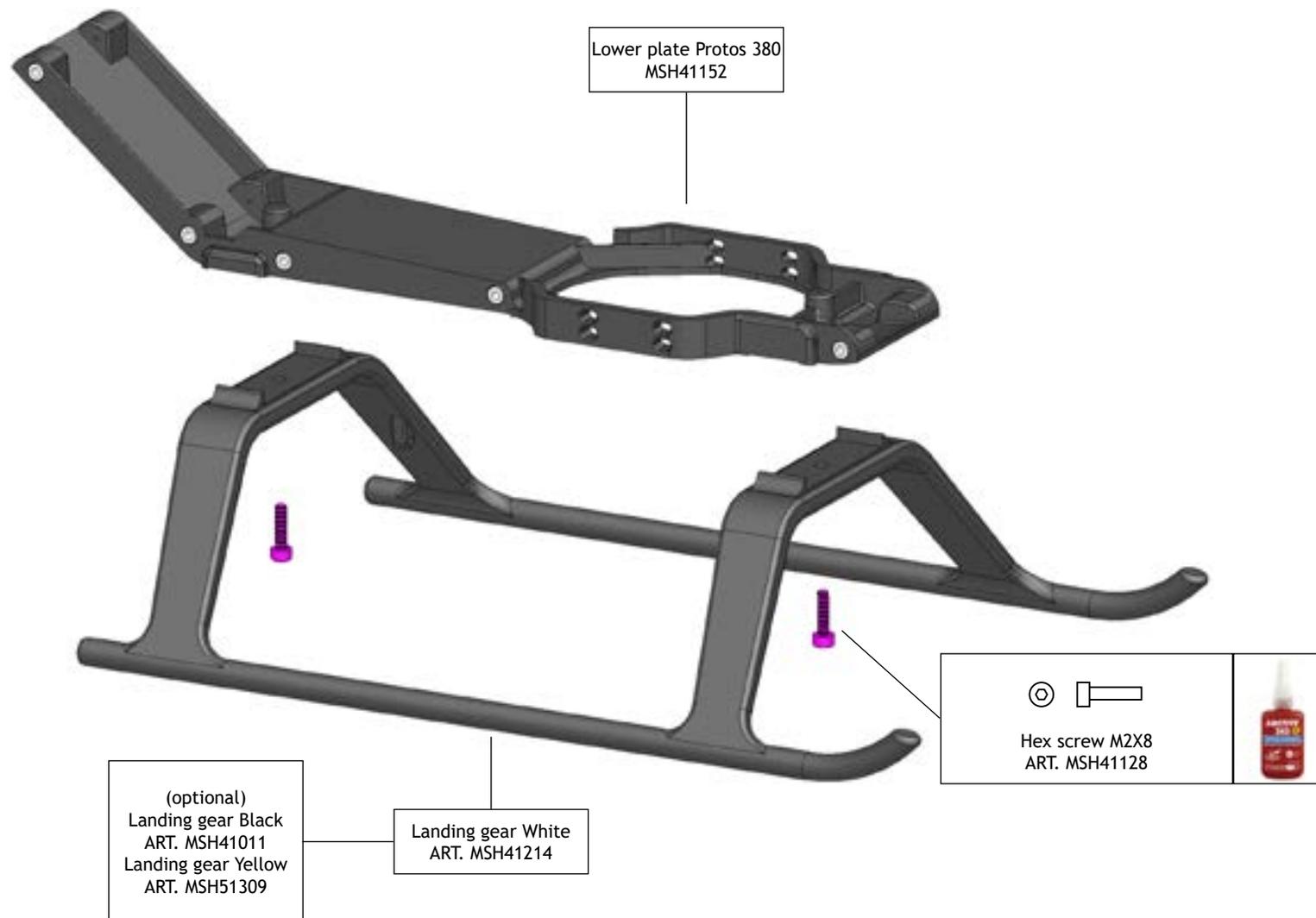


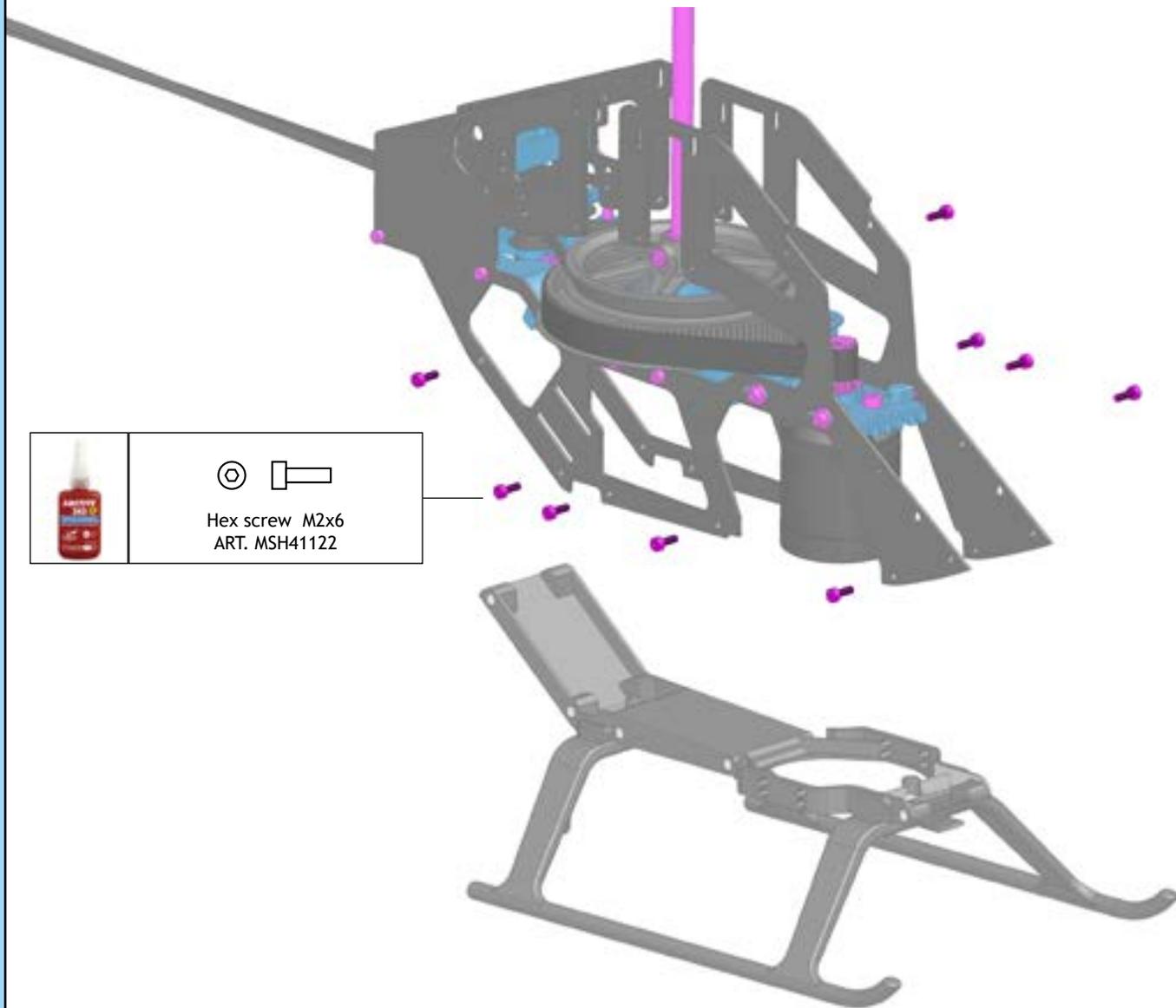
Carbon main frame Protos 380
ART. MSH41151

Hex screw M2.5x6
ART. MSH51153

Washer 2,5x5,5x0.5
ART. XL38A01







Hex screw M2x6
ART. MSH41122



2X

Ball bearing
6x12x4
ART. MSH41074
ART. MSH41154



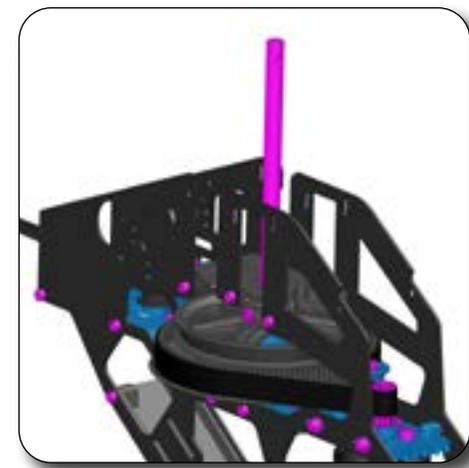
Servo frame Protos 380
ART. MSH41154

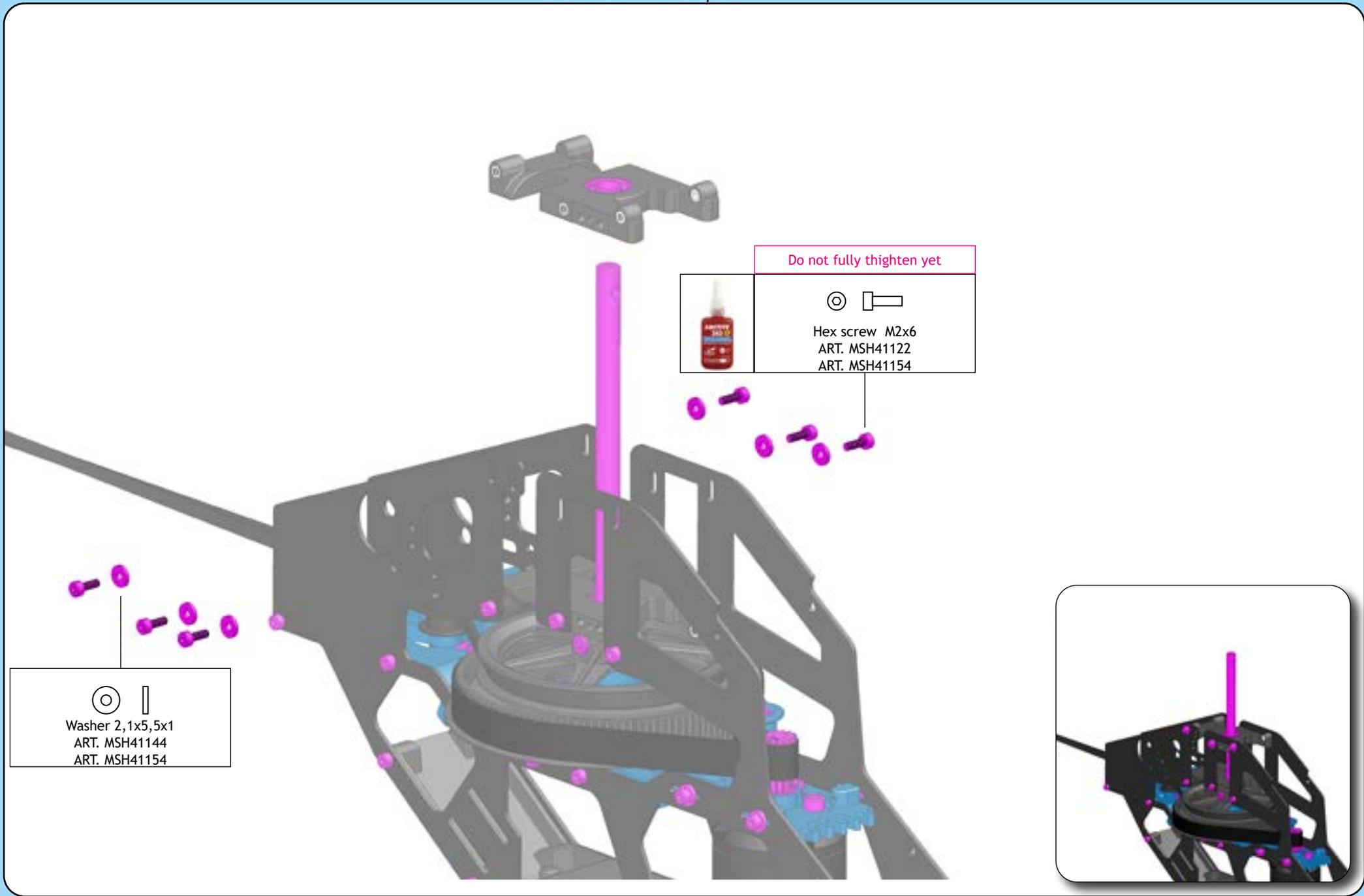


Servo frame Protos 380
ART. MSH41154



Hex screw M2x6
ART. MSH41122
ART. MSH41154

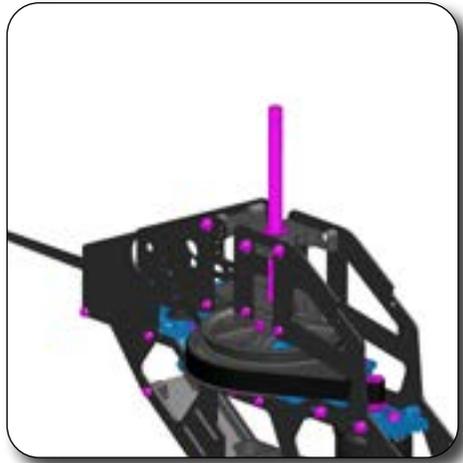




Do not fully tighten yet

Hex screw M2x6
ART. MSH41122
ART. MSH41154

Washer 2,1x5,5x1
ART. MSH41144
ART. MSH41154



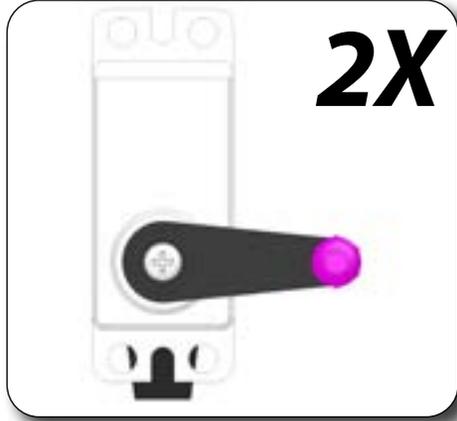
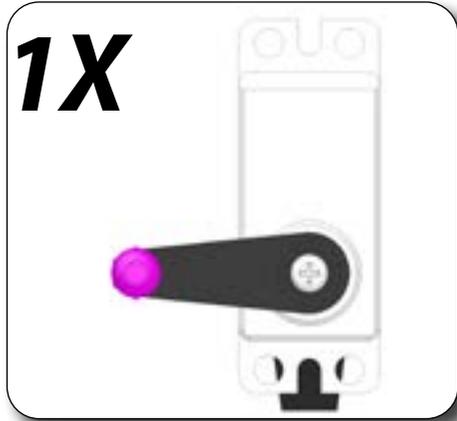
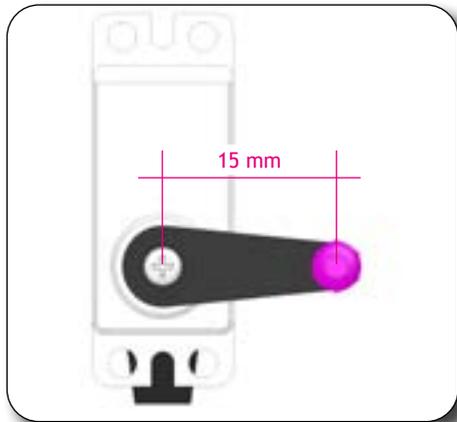
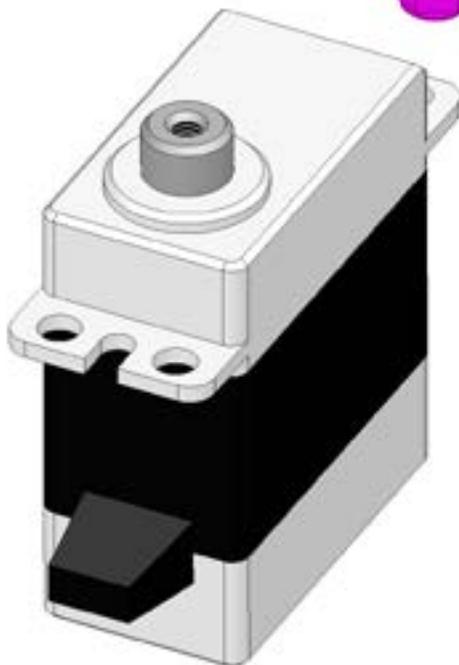
Servo arm
ART.XL38B08
NOT INCLUDED

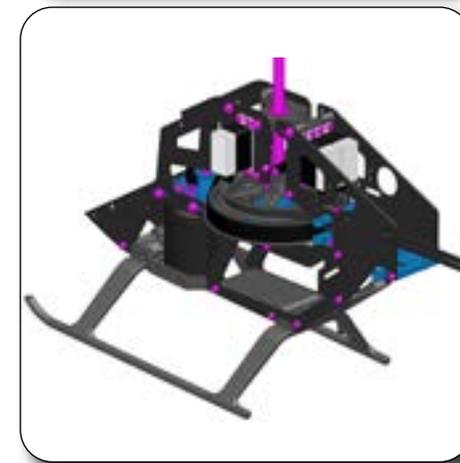
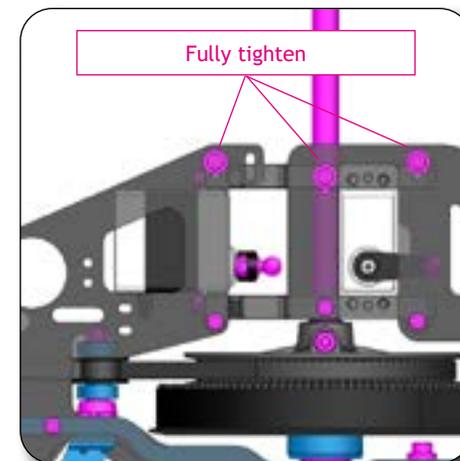
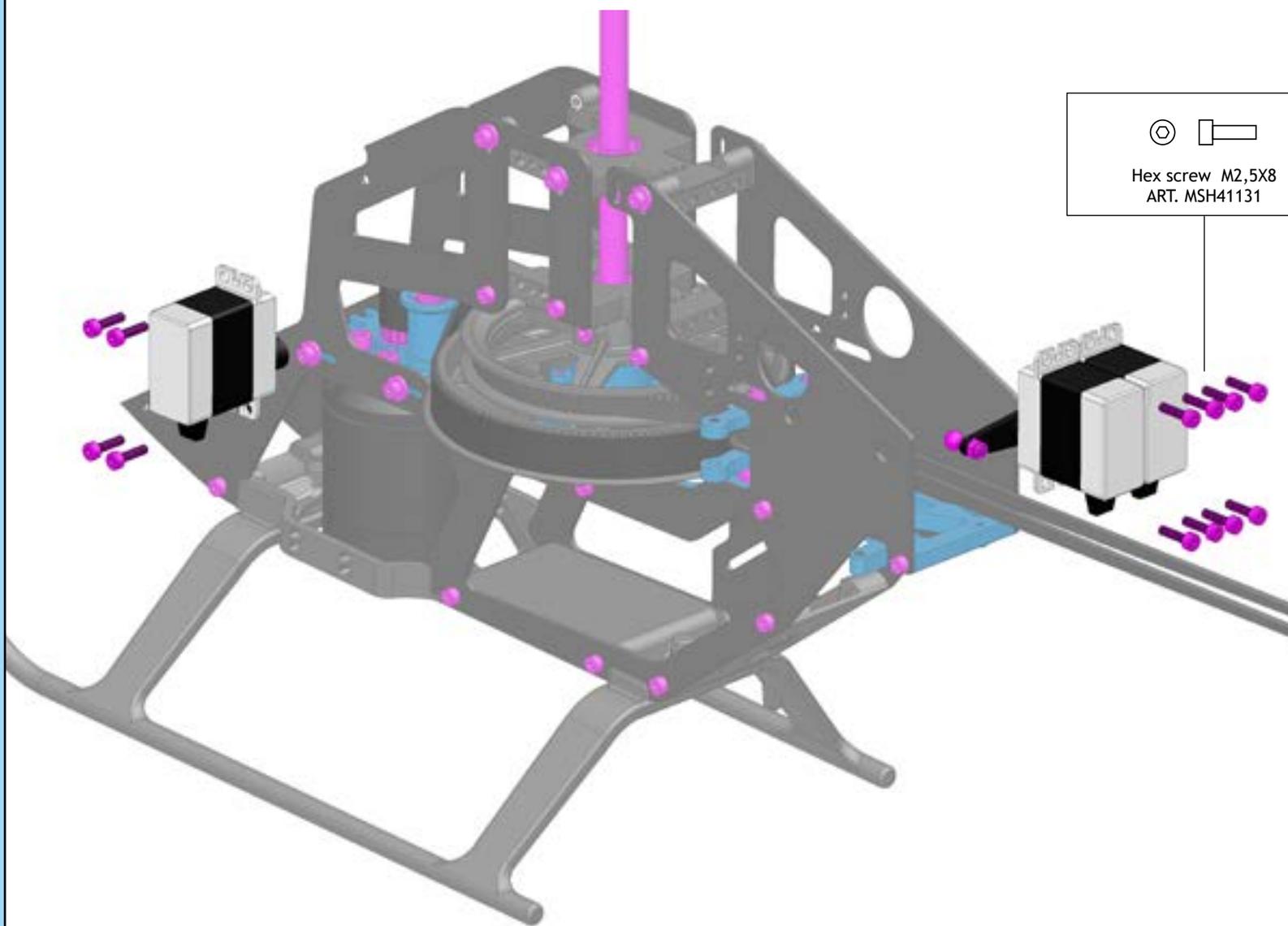


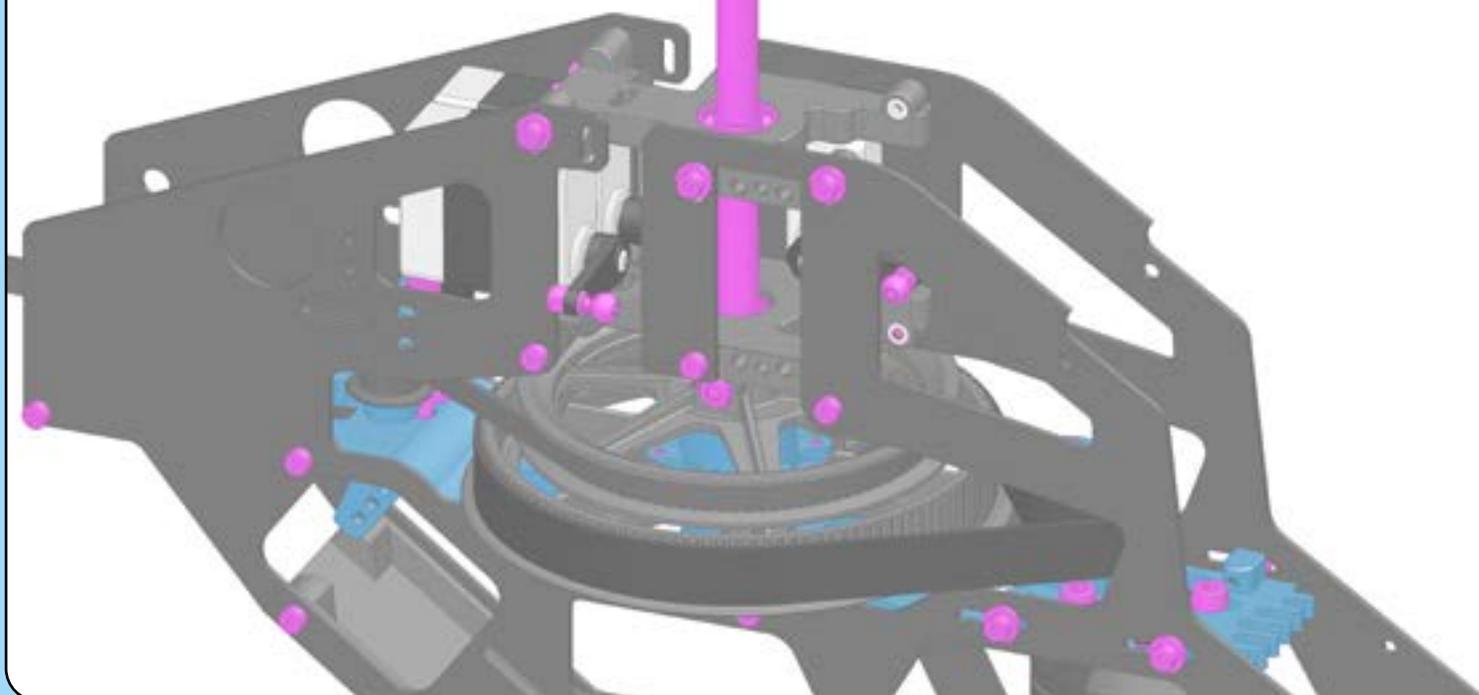
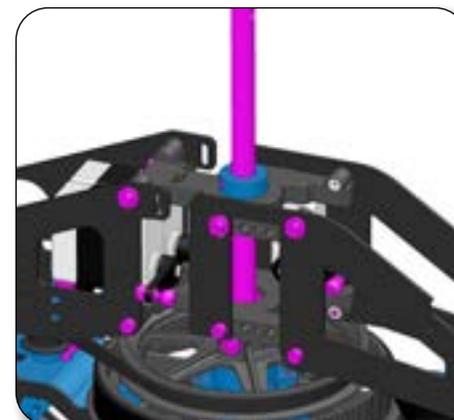
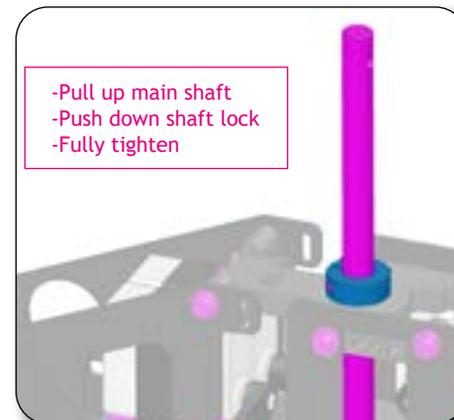
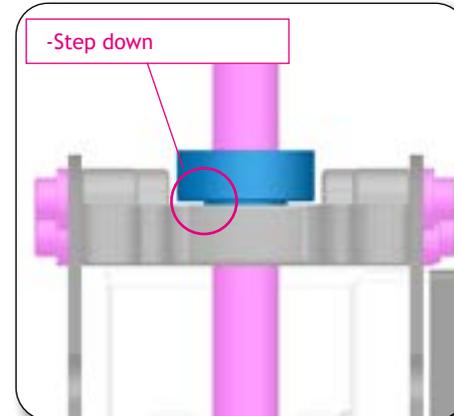
 
Ball M2x4.8
ART. MSH41009

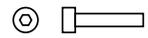
 
M2 Nut
ART. MSH41119

NOT INCLUDED





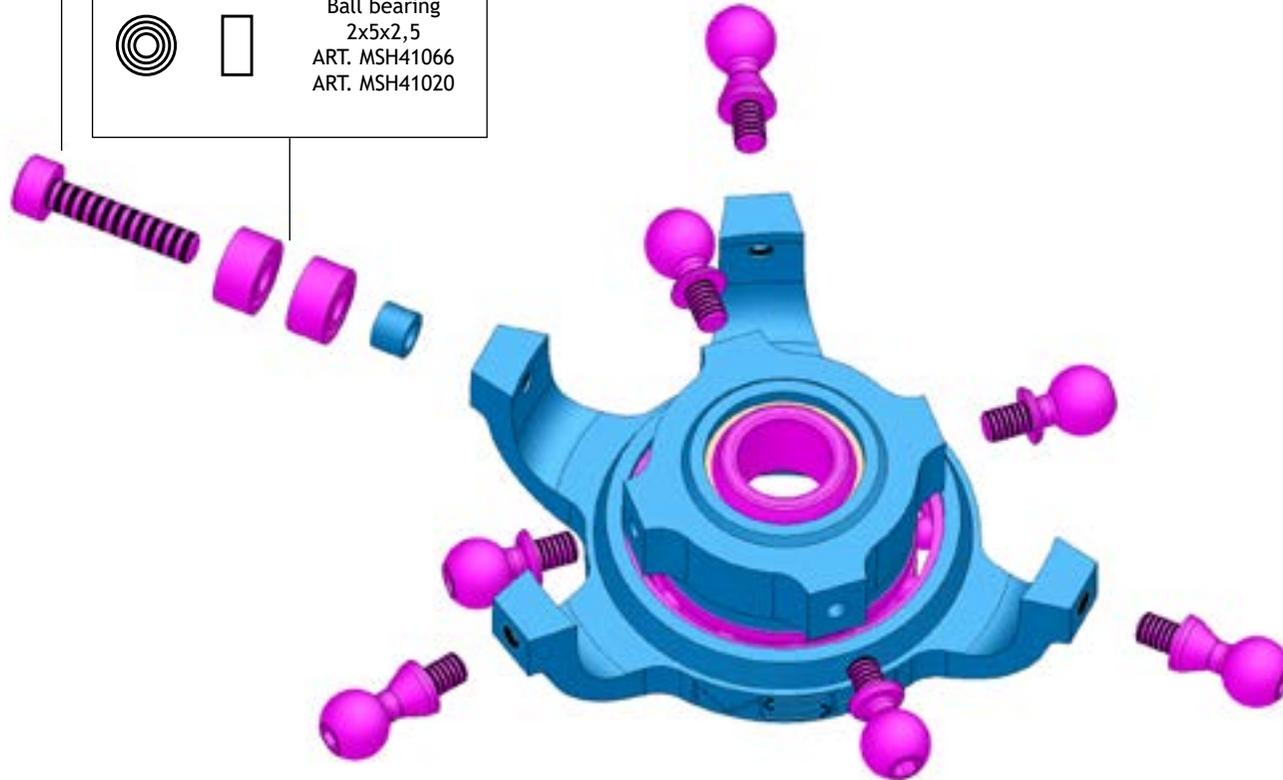




M2x10
ART. MSH41121
ART. MSH41020



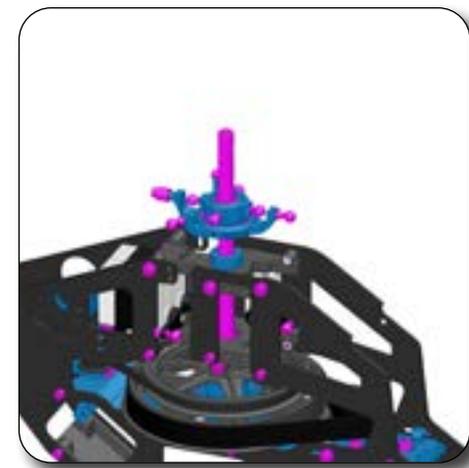
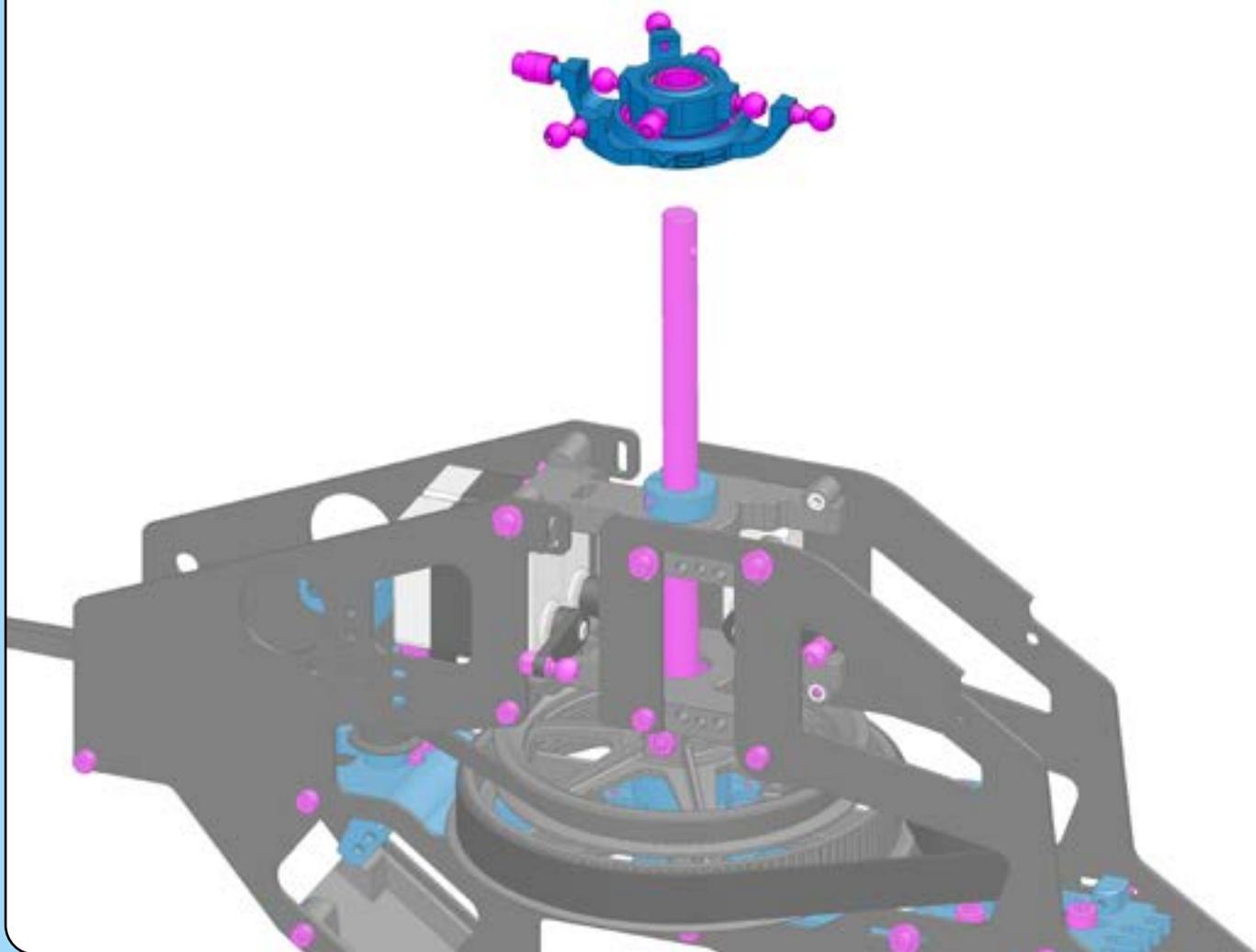
Ball bearing
2x5x2,5
ART. MSH41066
ART. MSH41020

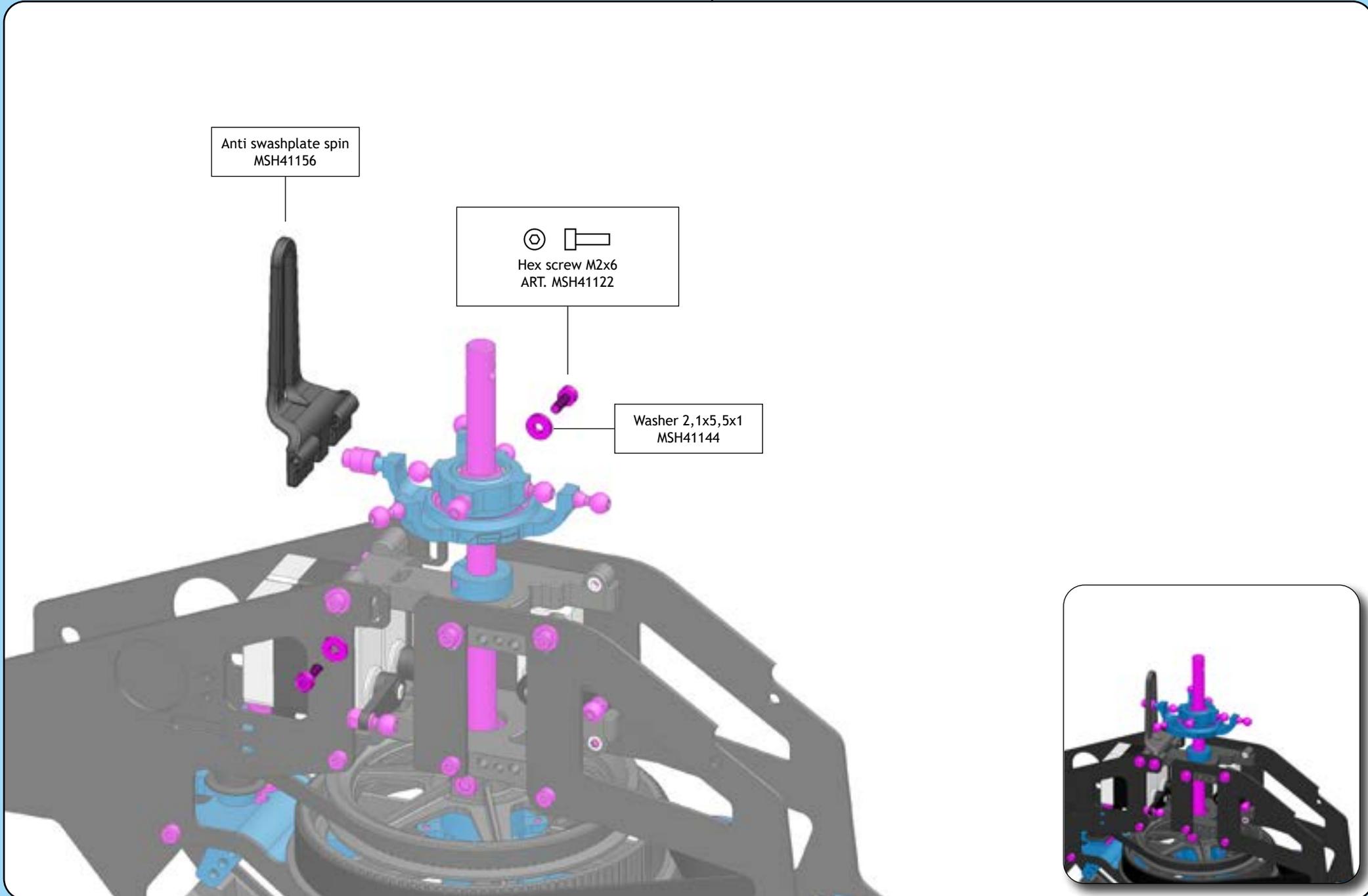


Ball M2x2.8
ART. MSH41010
ART. MSH41020

Swashplate
ART. MSH41020



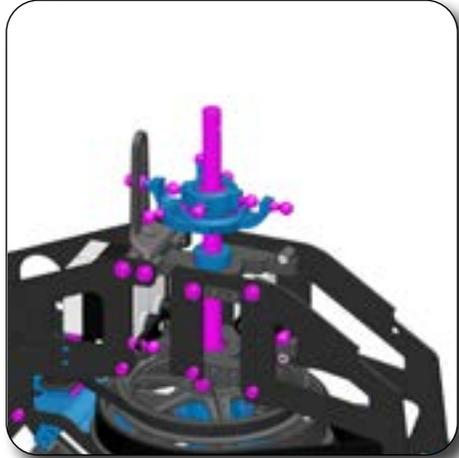




Anti swashplate spin
MSH41156

⊙ ⊔
Hex screw M2x6
ART. MSH41122

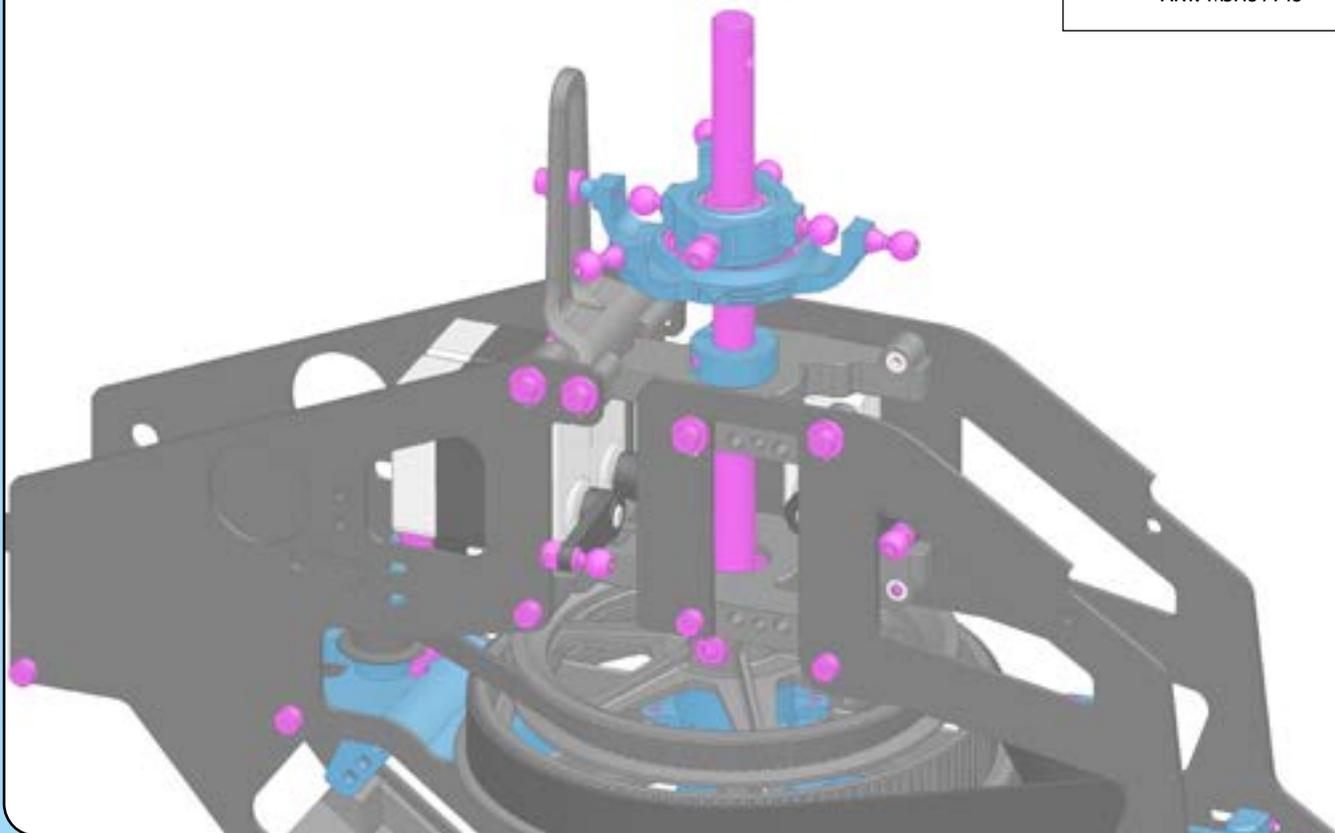
Washer 2, 1x5,5x1
MSH41144



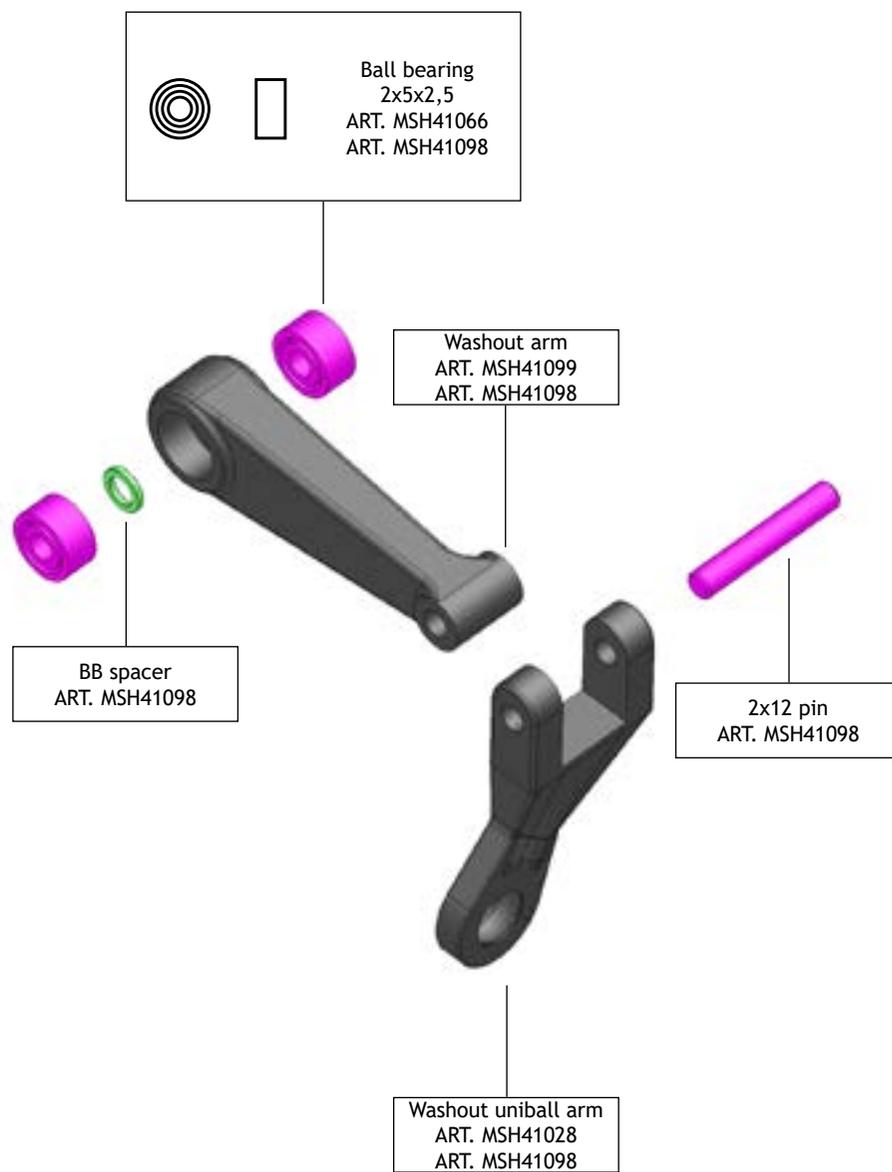
Main hub Protos 380
ART. MSH41157

 
M2,5 Nut
ART. MSH51137

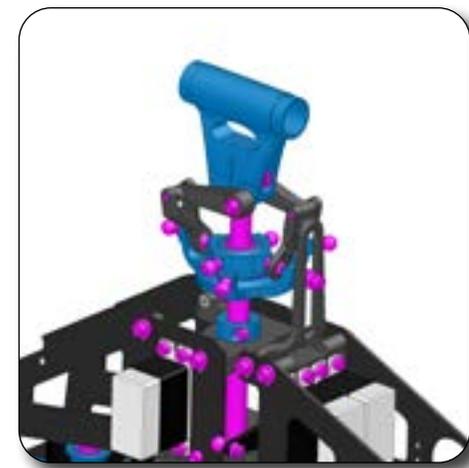
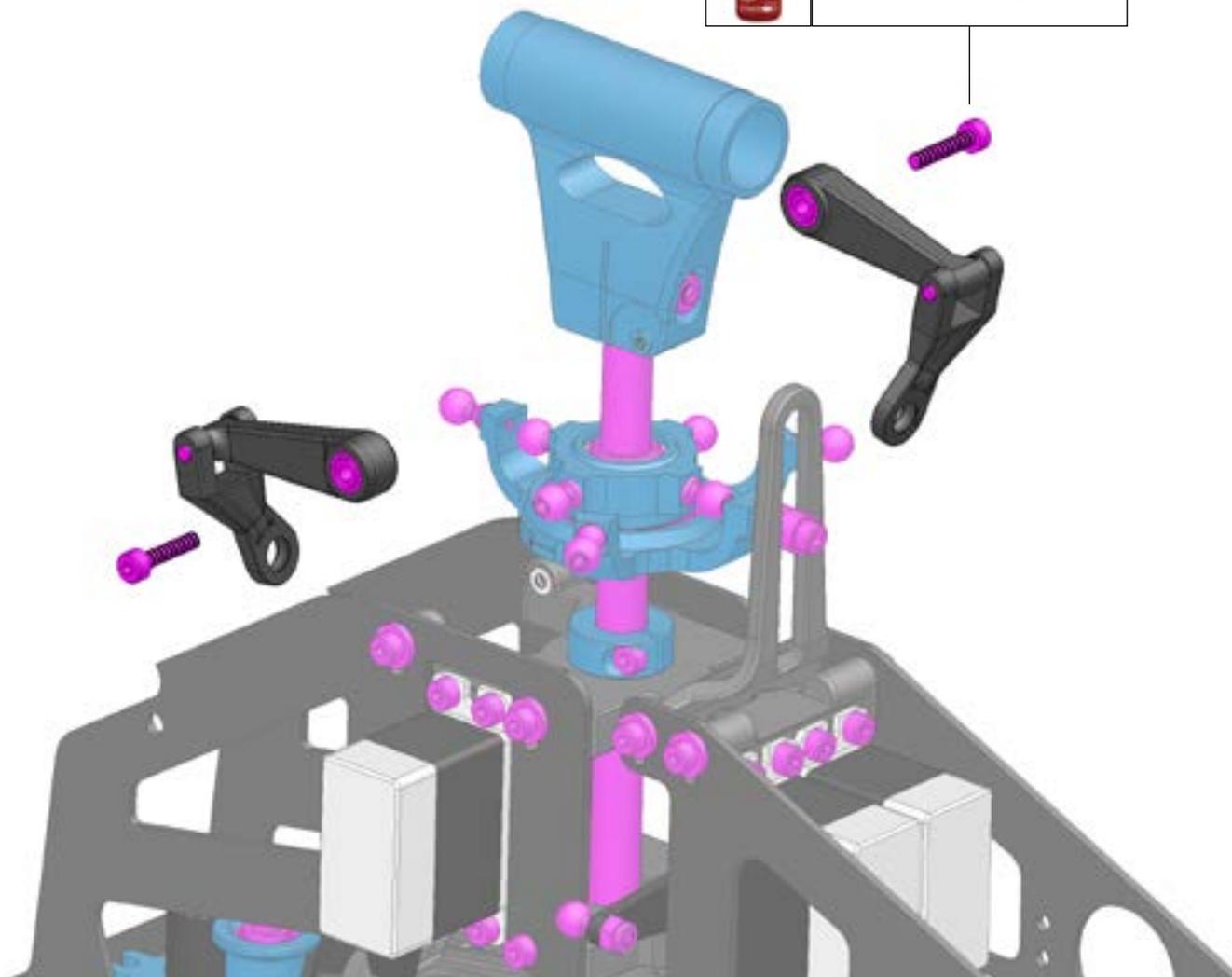
 
Hex screw M2,5x16
ART. MSH51145



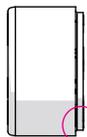
2X



	 Hex screw M2x10 ART. MSH41121
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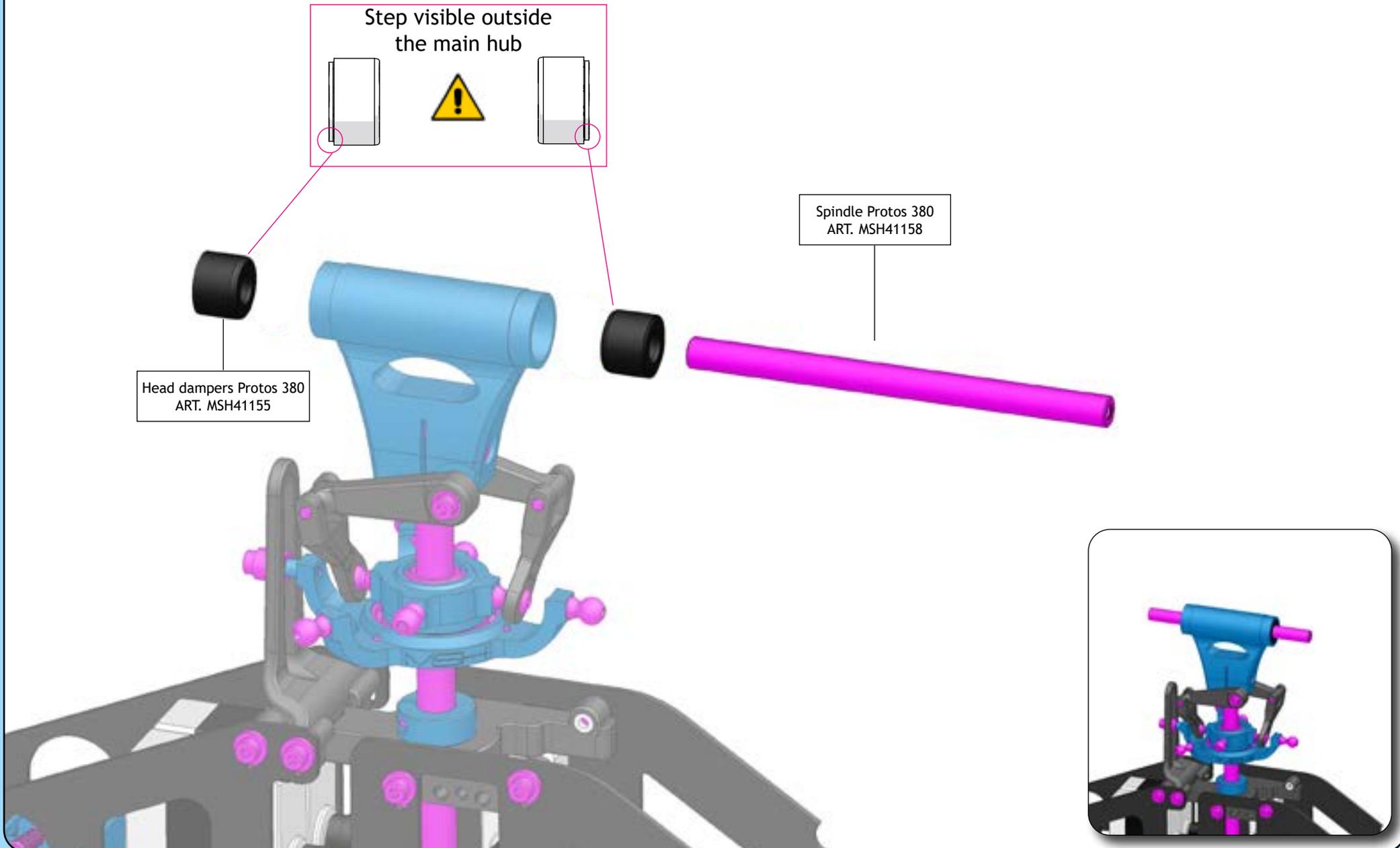


Step visible outside
the main hub

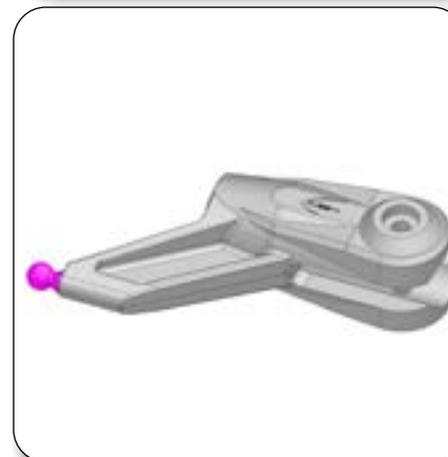
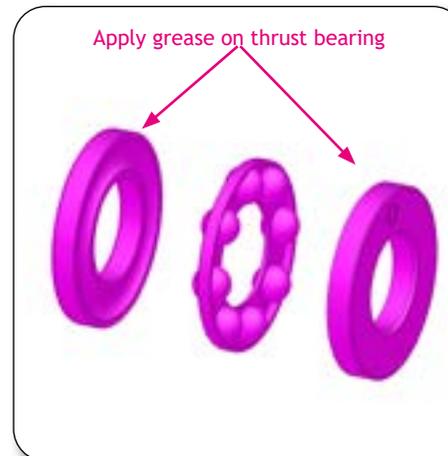
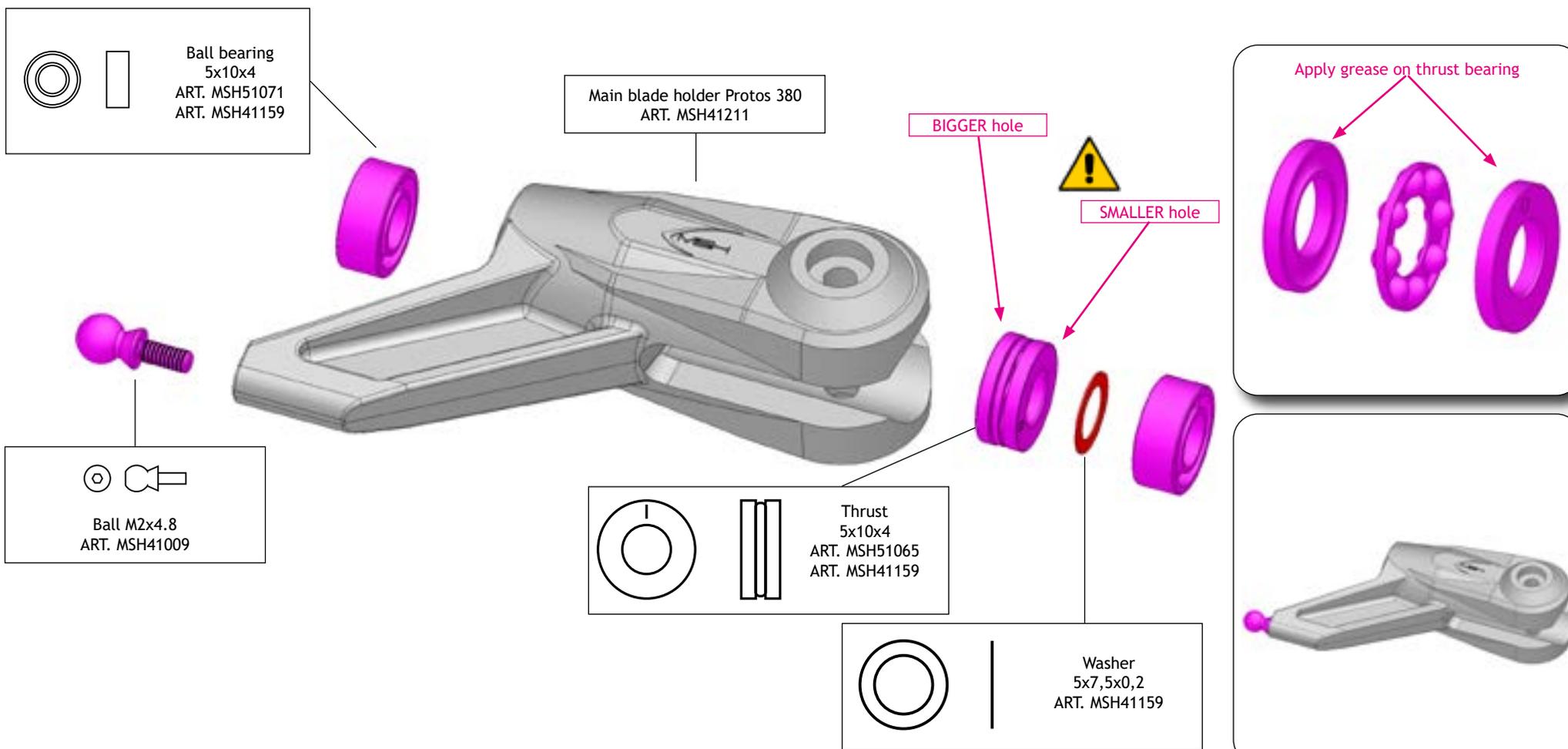


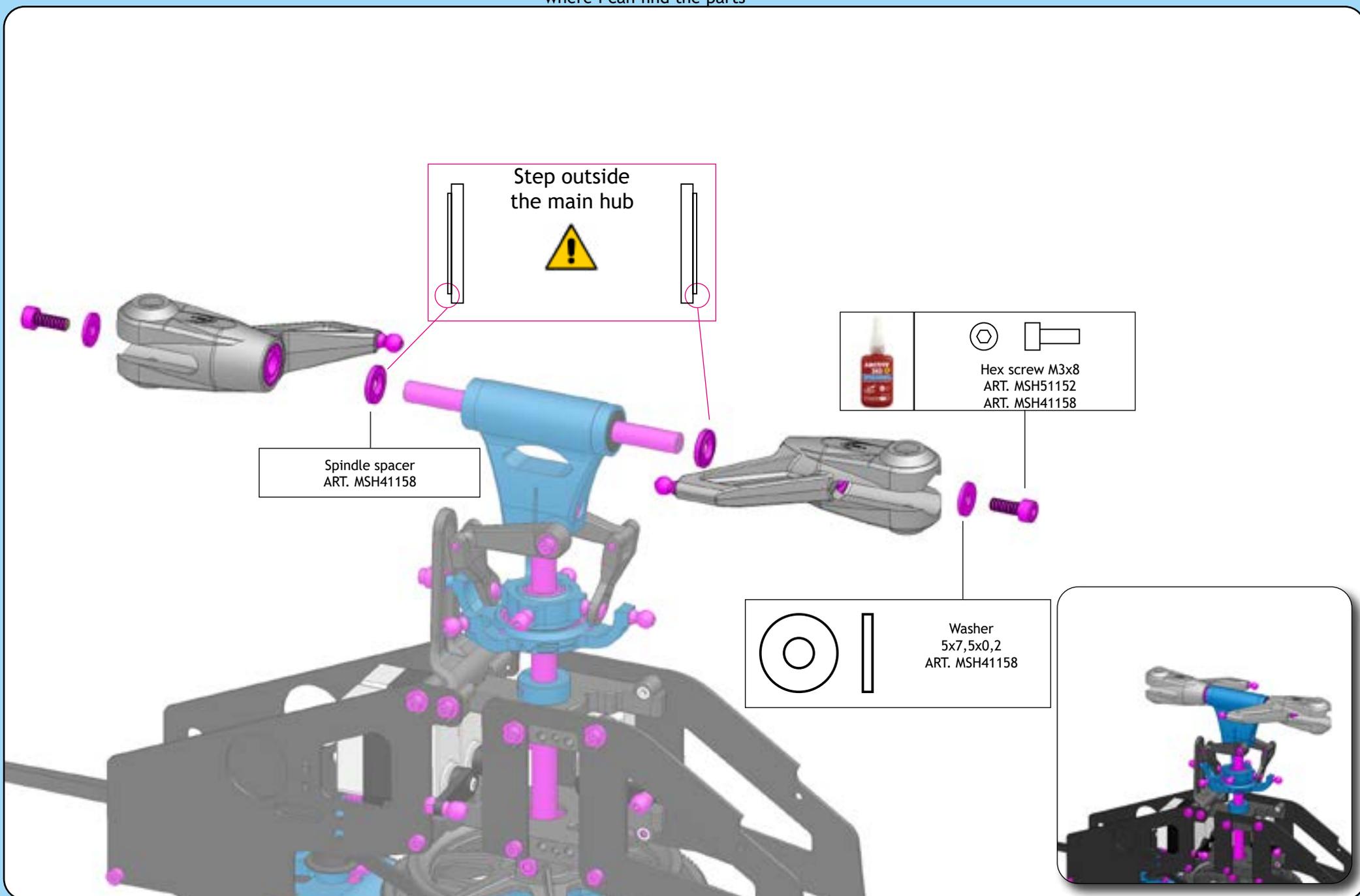
Head dampers Protos 380
ART. MSH41155

Spindle Protos 380
ART. MSH41158



2X



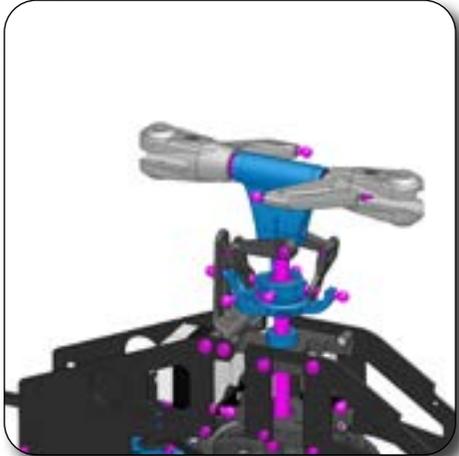


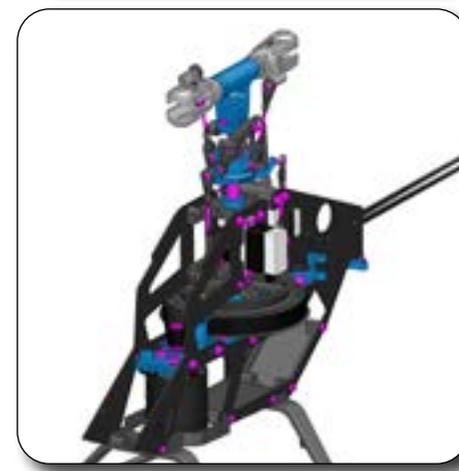
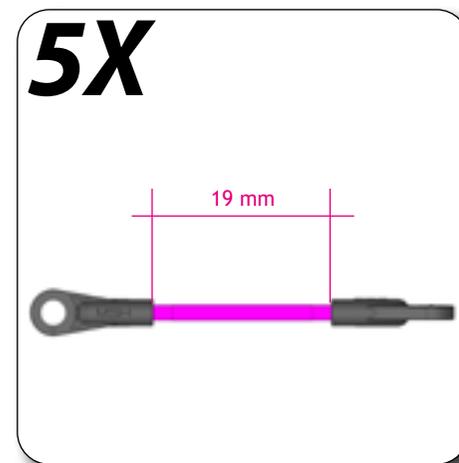
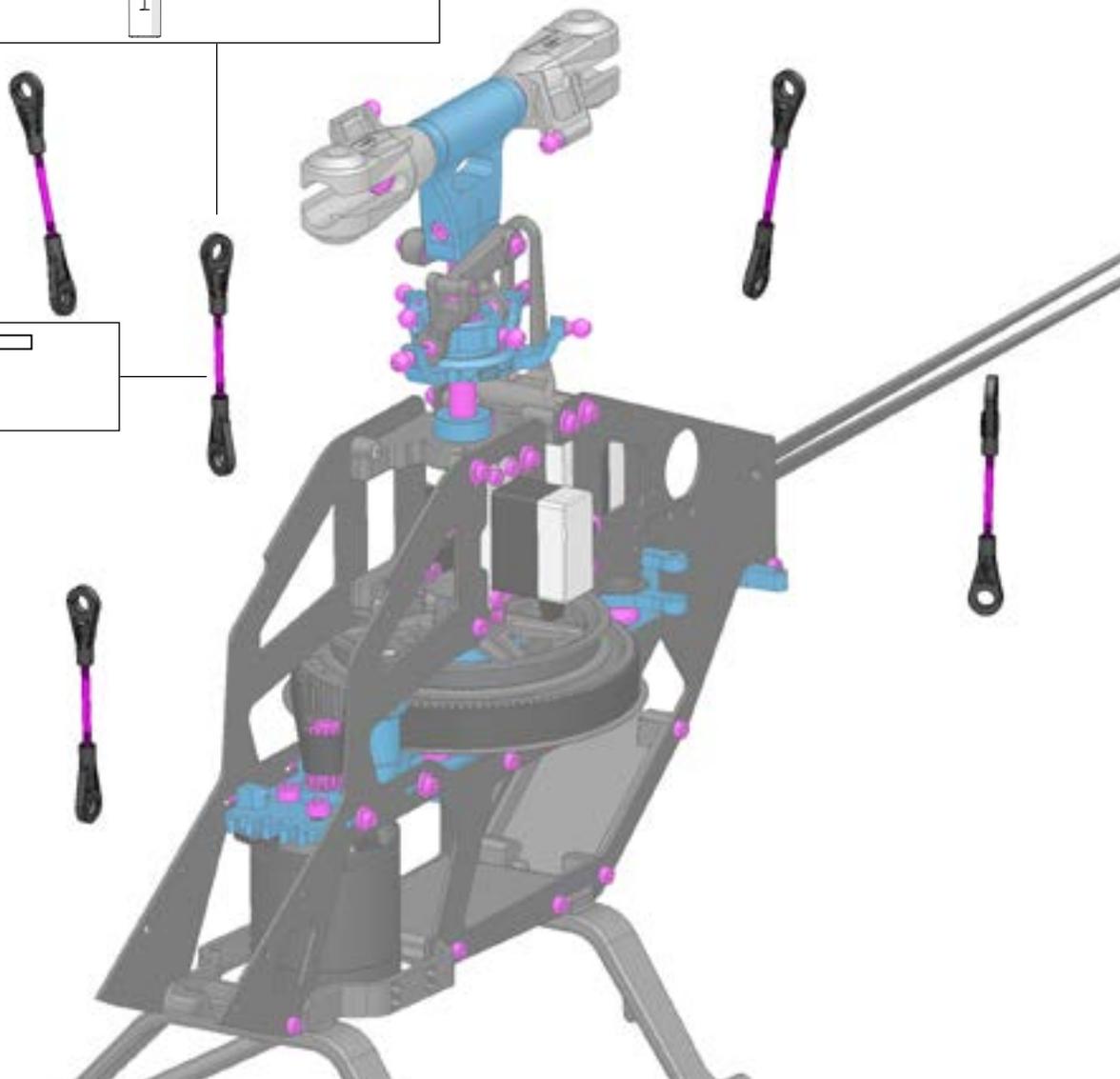
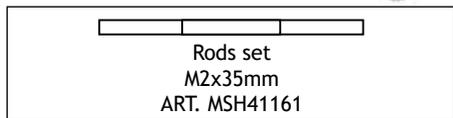
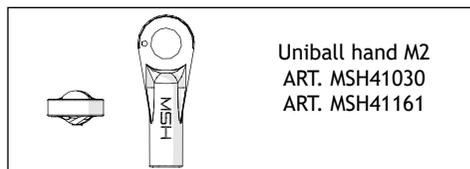
Step outside
the main hub

Spindle spacer
ART. MSH41158

Hex screw M3x8
ART. MSH51152
ART. MSH41158

Washer
5x7,5x0,2
ART. MSH41158







where I can find the parts

Only MSH41506 - MSH41507

Tail clamp frame side
ART. MSH41169

Pin antirotation frame
ART. MSH41170

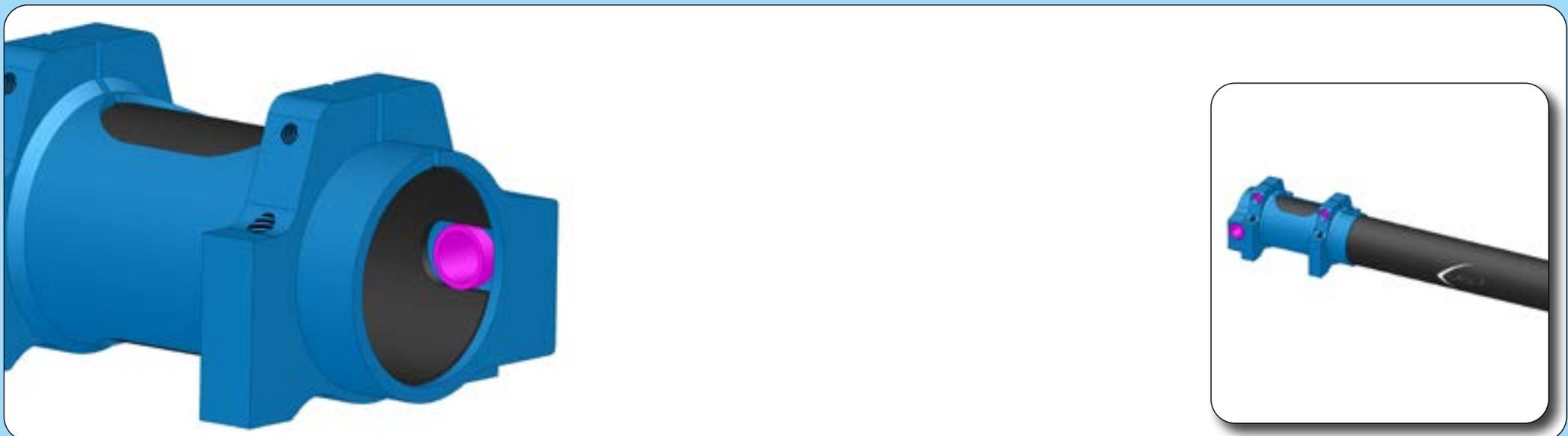
Hex grub screw
M3x5
ART. MSH51160

Do not overtighten.

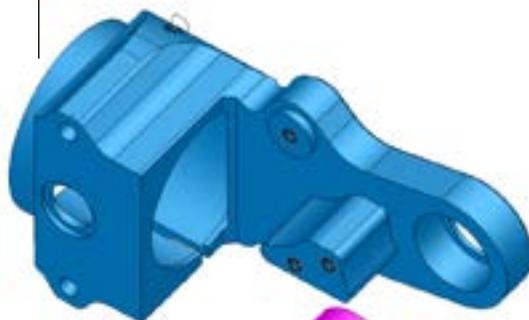
Hex screw M2x10
ART. MSH41121

Do not fully tighten yet

Boom Protos 380
ART. MSH41171



Tail box
ART. MSH41162



Tail pulley Protos 380
ART. 41164



		Ball bearing 4x9x4 ART. MSH41072 ART. MSH41162	
--	--	---	--

Tail shaft Protos 380
ART. MSH41163



Tail pulley bushing
Protos 380
ART. MSH41164



Pin 1,5x8
ART. MSH41164



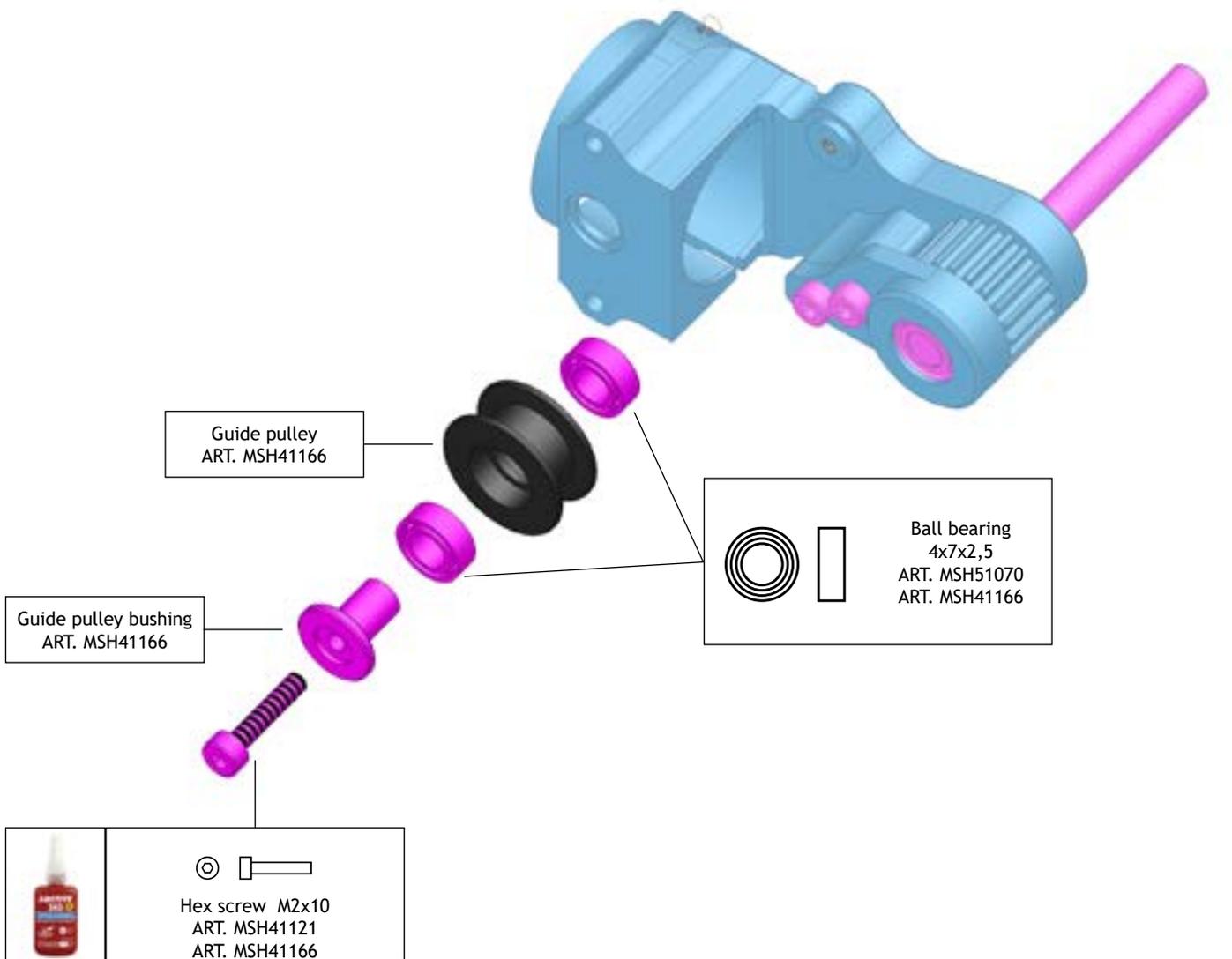
		Ball bearing 4x9x4 ART. MSH41072 ART. MSH41165	
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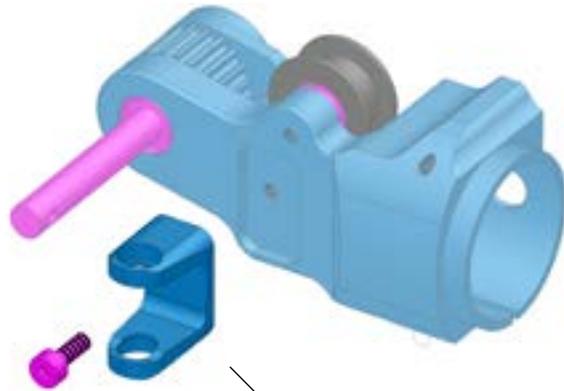
Tail box cover with BB
ART. 41165



		M2x6 ART. MSH41122 ART. MSH41165	
--	--	--	--







Tail pitch support
ART. MSH41167



 
 Hex screw M2x6
 ART. MSH41122
 ART. MSH41167



 
 Tail pitch lever screw M2,5x5
 ART. MSH41135
 ART. MSH41168



Tail pitch lever
ART. MSH41168

Tail pitch lever carbon
ART. MSH41168



 
 Hex screw M2x6
 ART. MSH41122
 ART. MSH41168

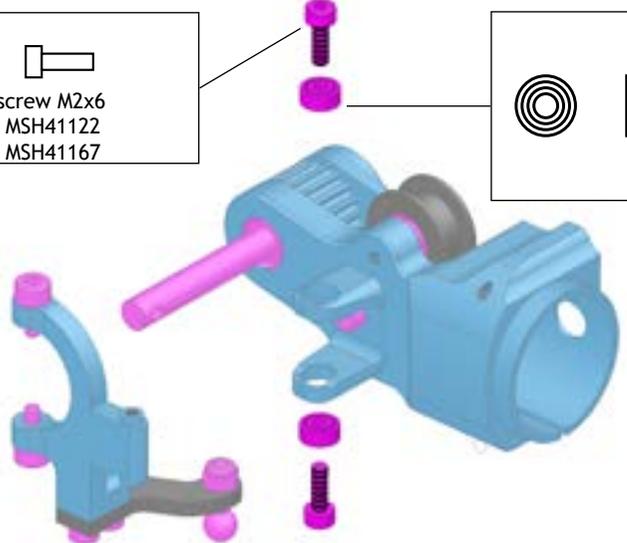
 
 M2 Nut
 ART. MSH41119
 ART. MSH41168

  
 Ball M2x4.8
 ART. MSH41009
 ART. MSH41168



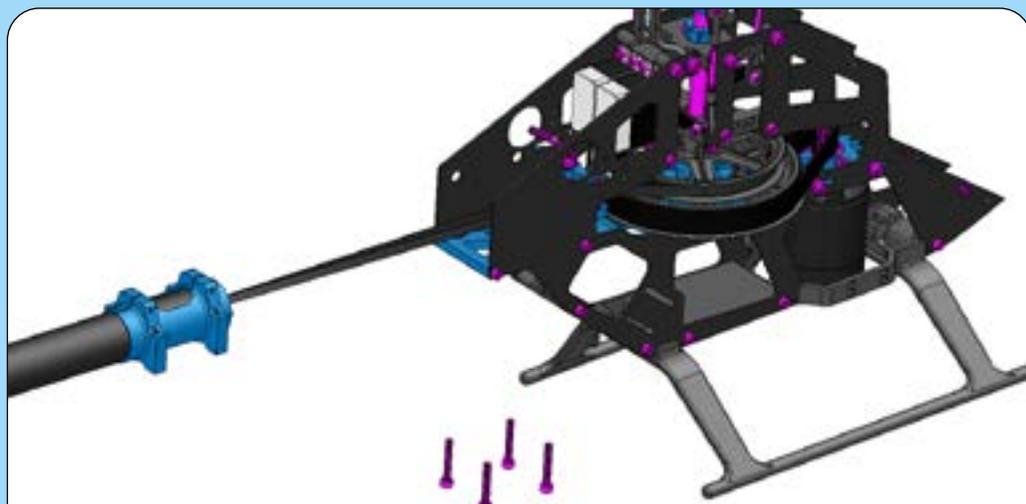
where I can find the parts

	<p>Hex screw M2x6 ART. MSH41122 ART. MSH41167</p>		<p>Ball bearing 2x5x2 ART. MSH41066 ART. MSH41167</p>		
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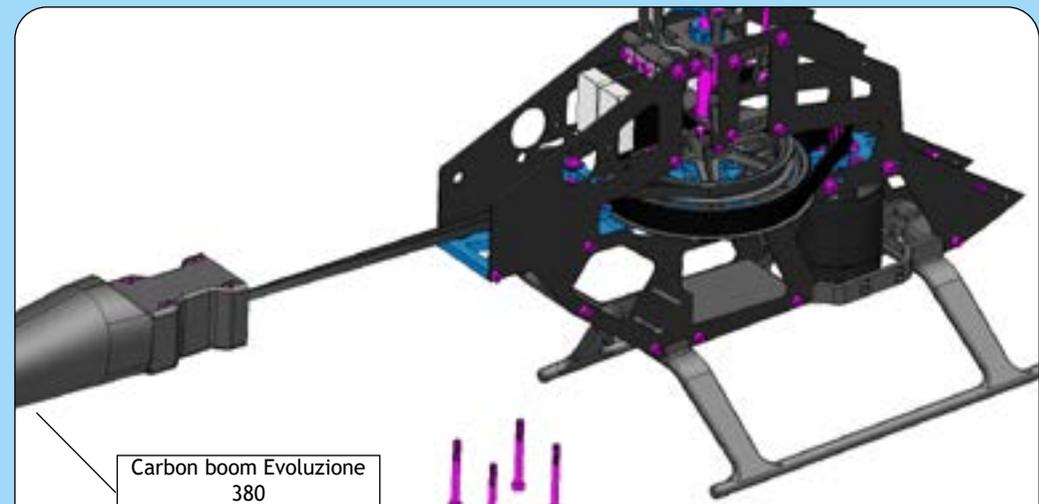


MSH41506 - MSH41507(Standard Version)

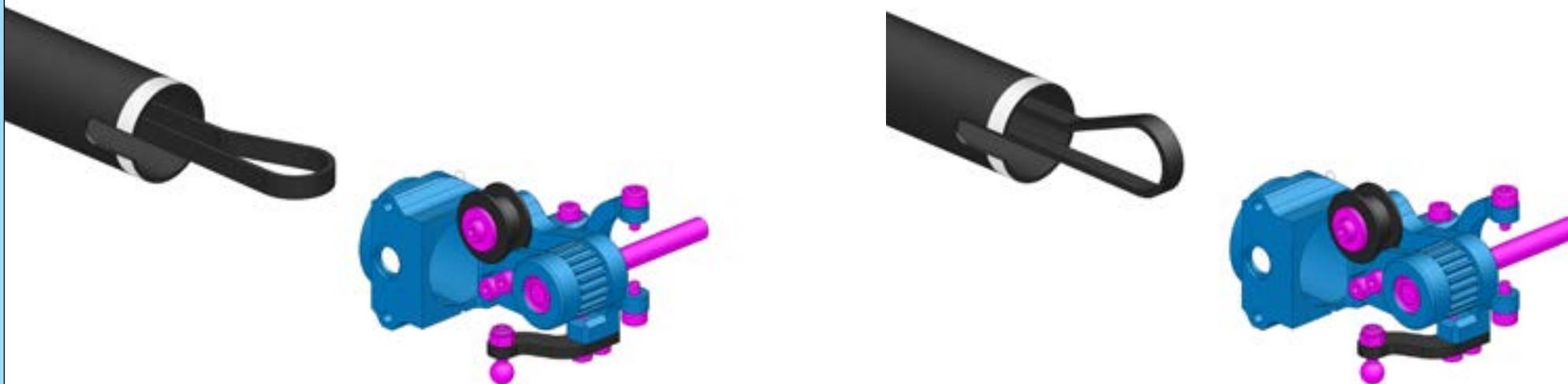
MSH41508 - MSH41509(EVO Version)



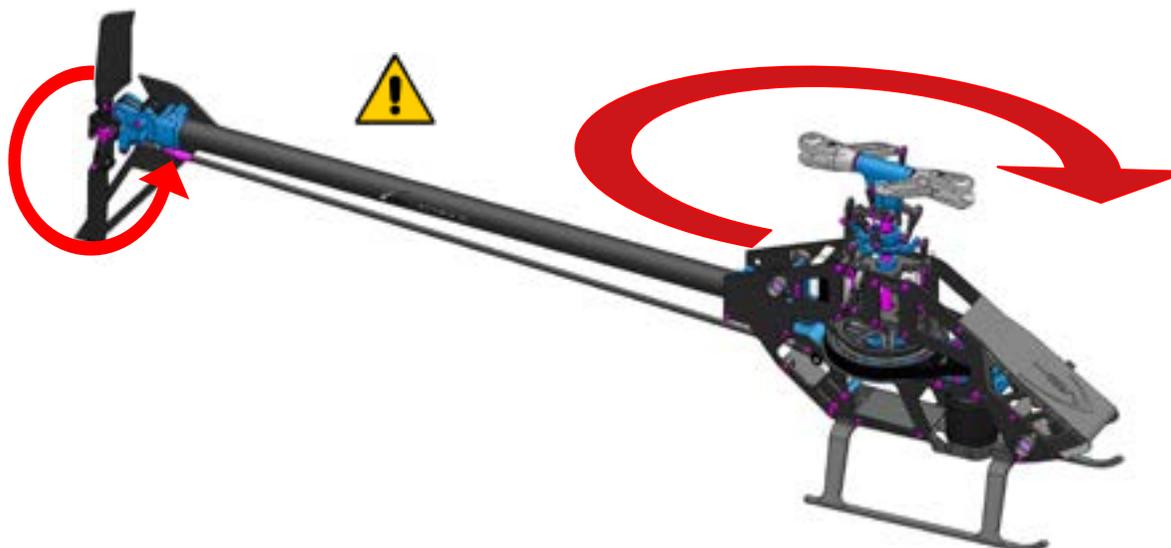
<p>Hex screw M2,5x16 ART. MSH51145</p>	
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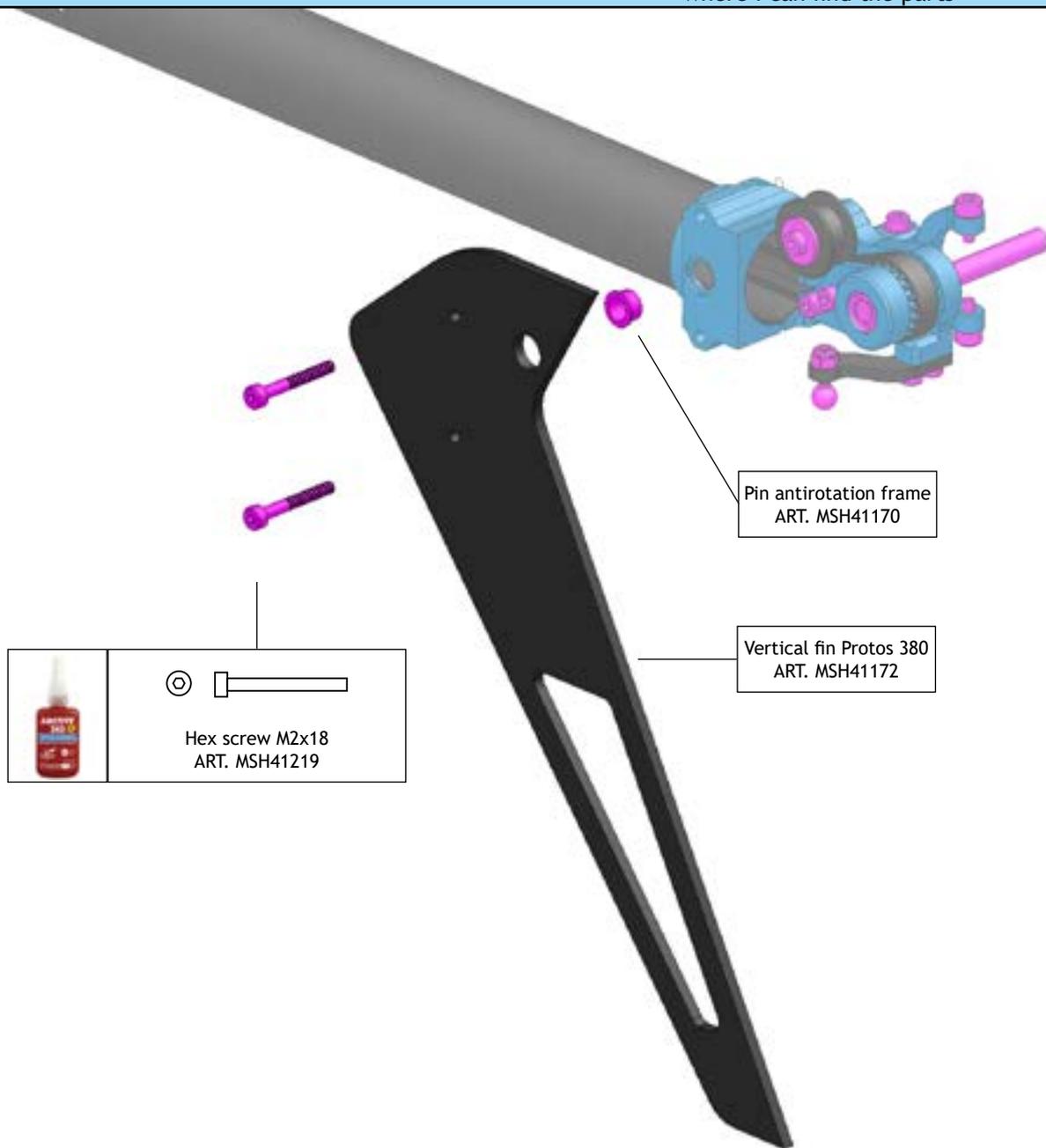


<p>Carbon boom Evoluzione 380 ART. MSH41200</p>	<p>Hex screw M2,5x25 ART. MSH51145</p>	
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Check the rotation direction during the installation of the belt



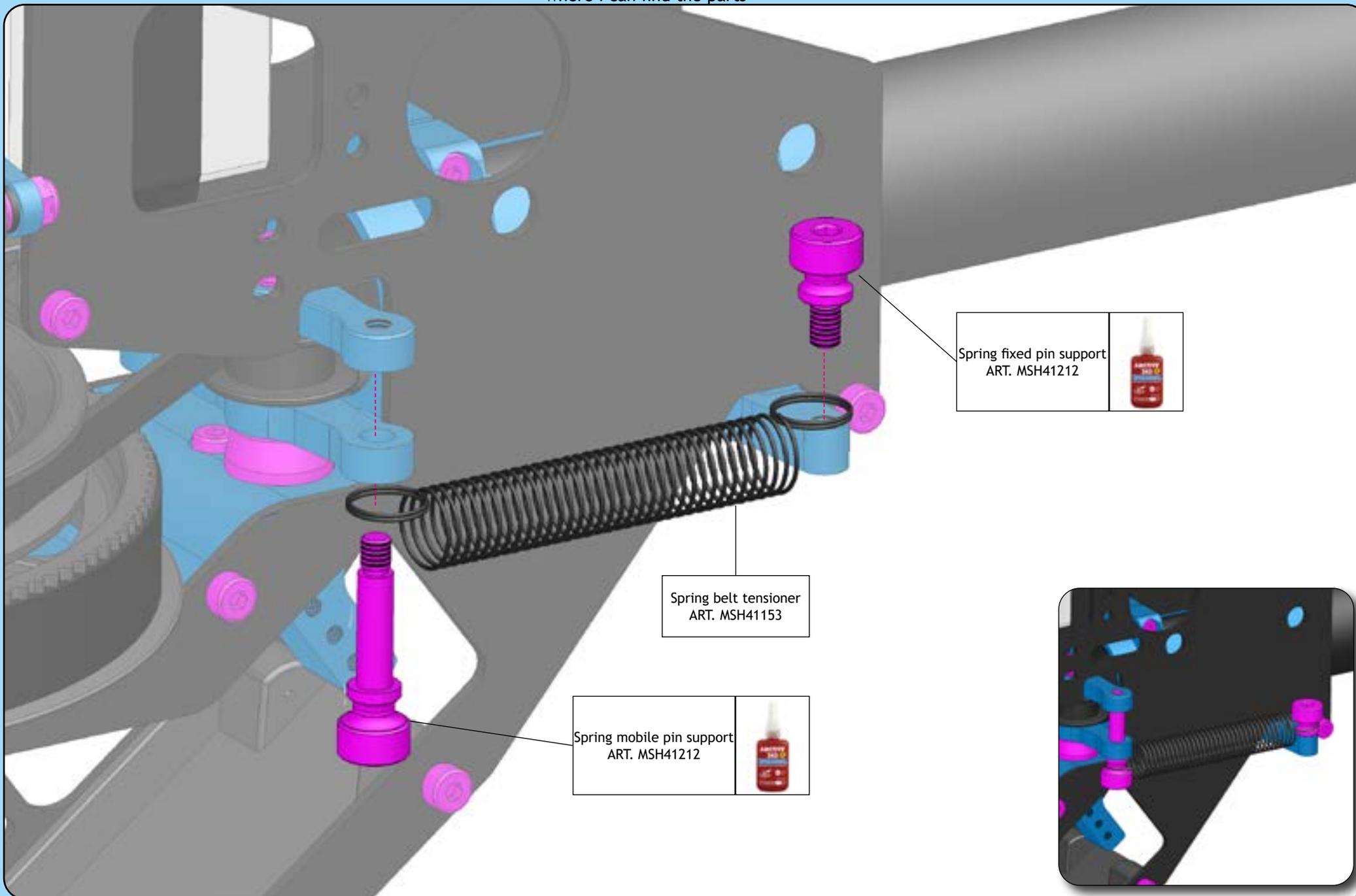


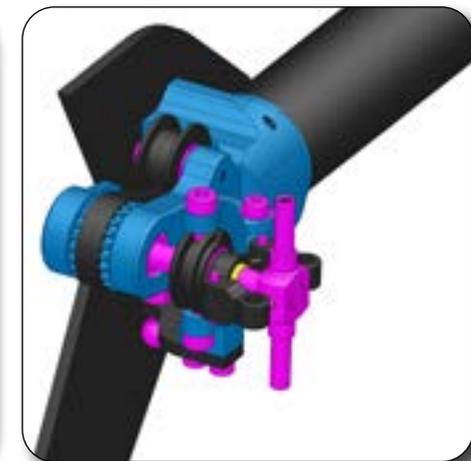
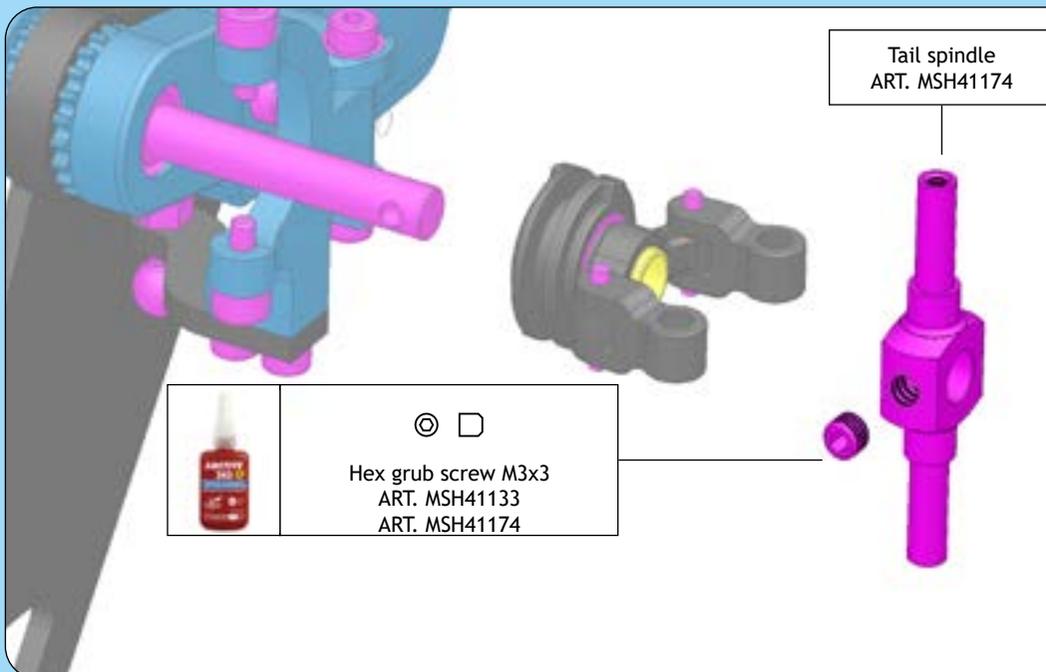
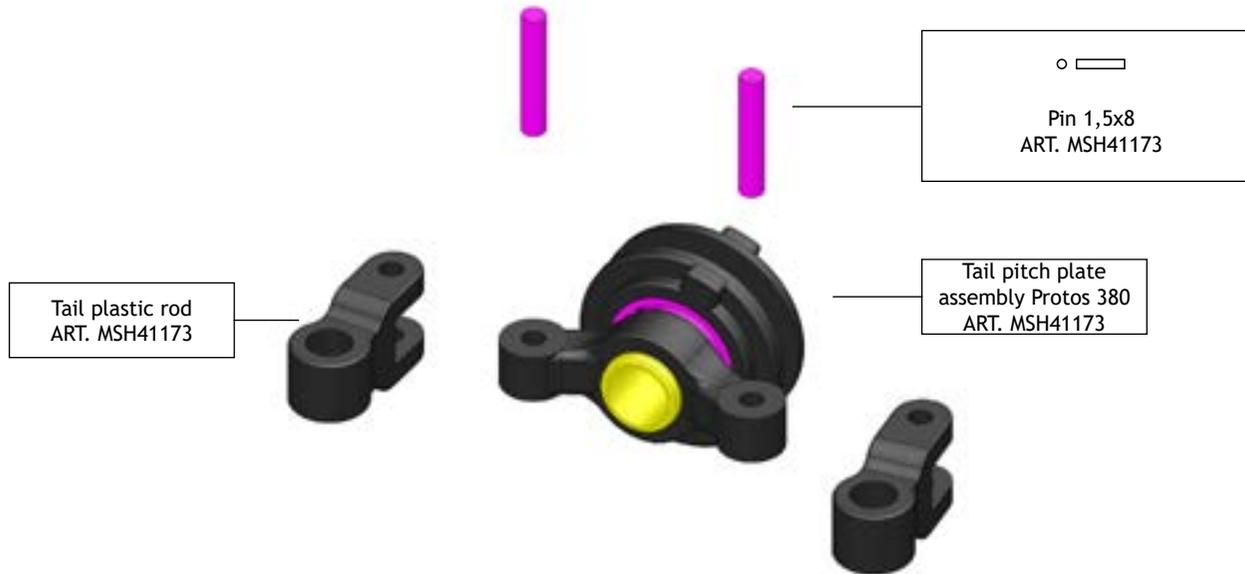
Pin antirotation frame
ART. MSH41170

Vertical fin Protos 380
ART. MSH41172

Hex screw M2x18 ART. MSH41219	

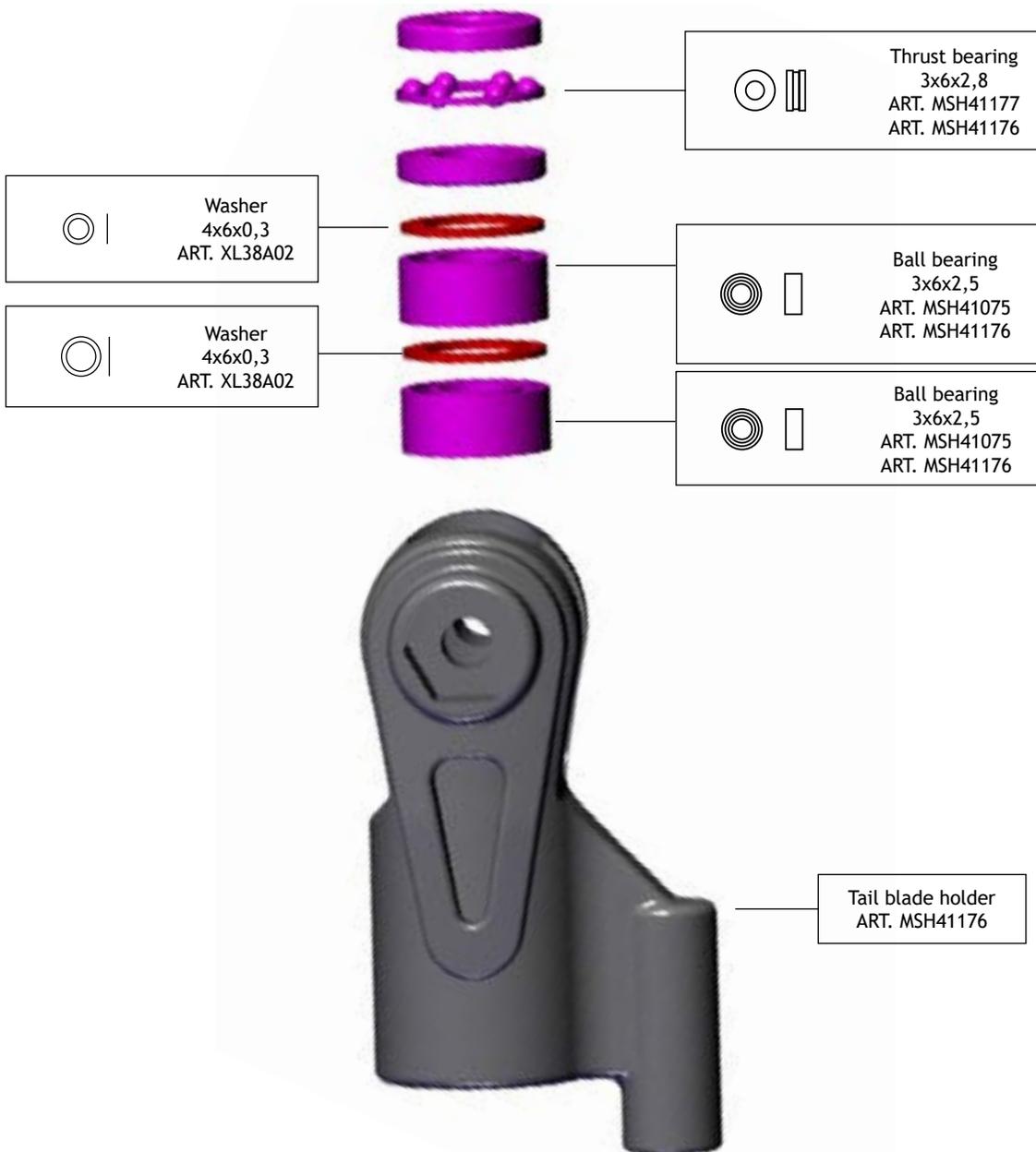








2X



Attention: bearing must be in place

Apply grease on thrust bearing

Internal hole SMALLER



Internal hole BIGGER





Hex screw M2x4
ART. MSH41141



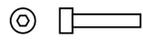
Special Washer
ART. MSH41176



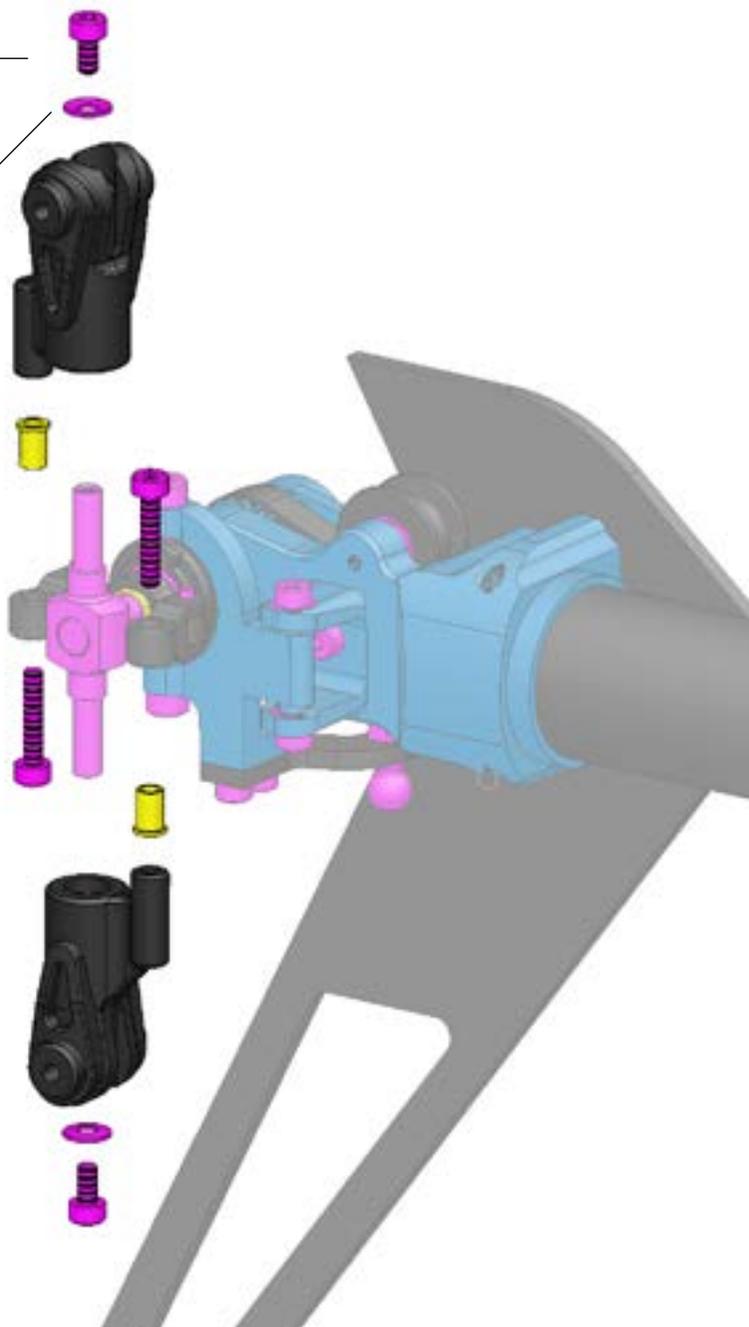
Tail pitch bushing
ART. MSH41176

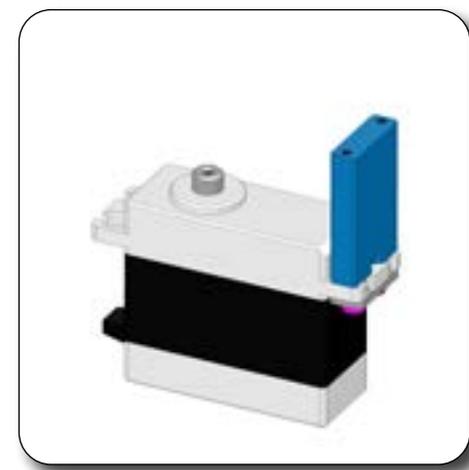
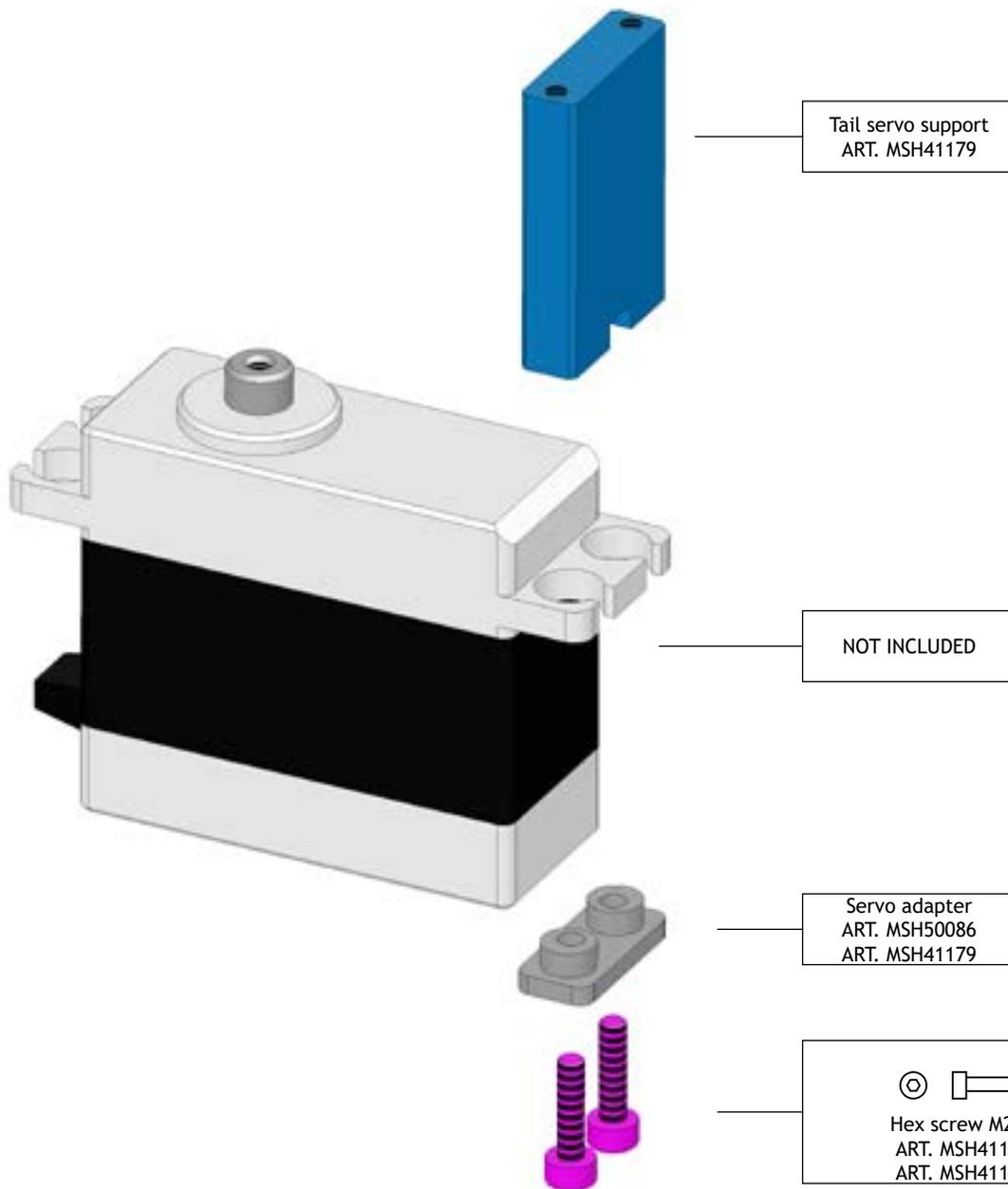


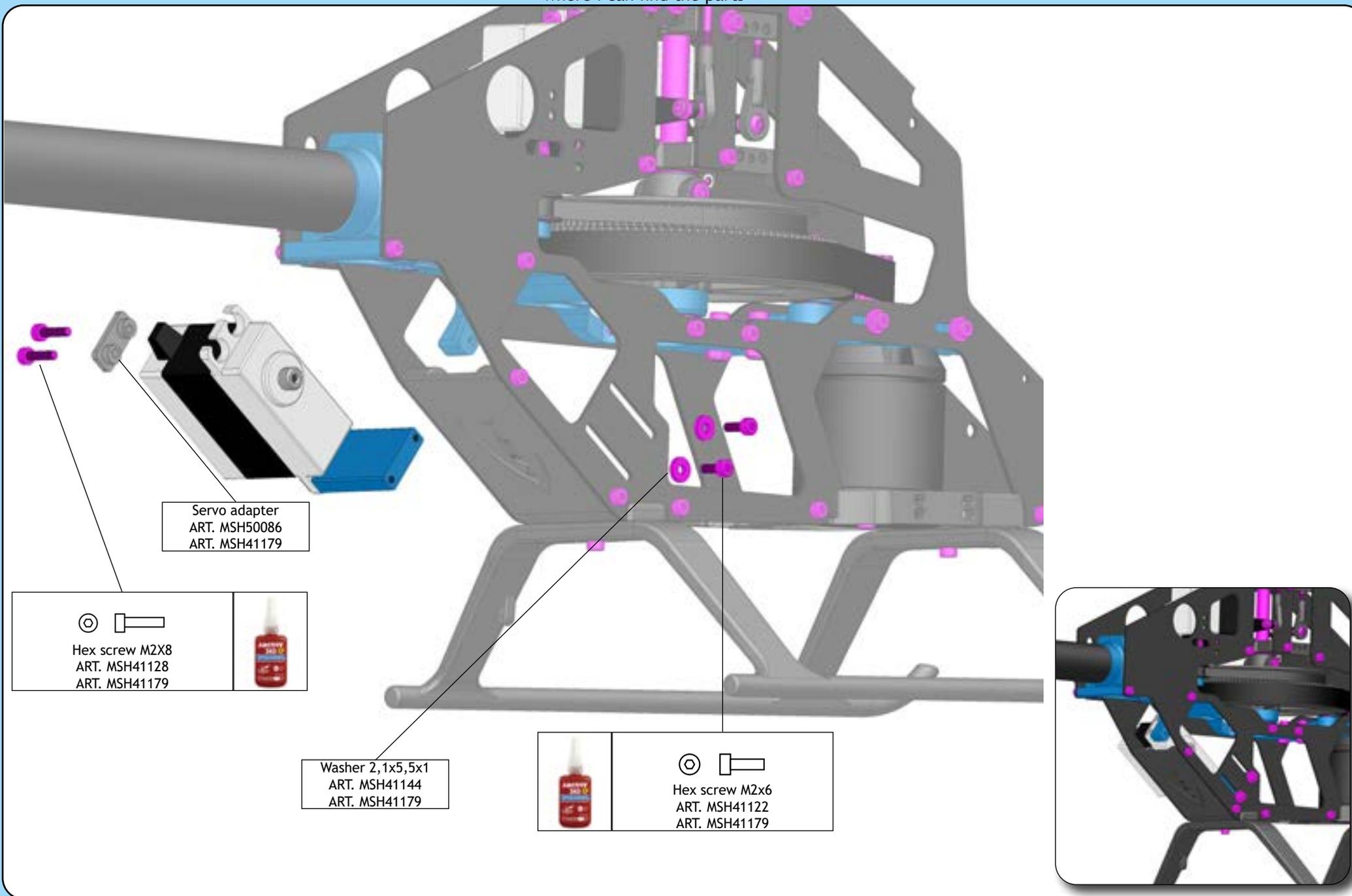
VERY IMPORTANT
Do not overtighten.



Hex screw M2x10
ART. MSH41121
ART. MSH41176





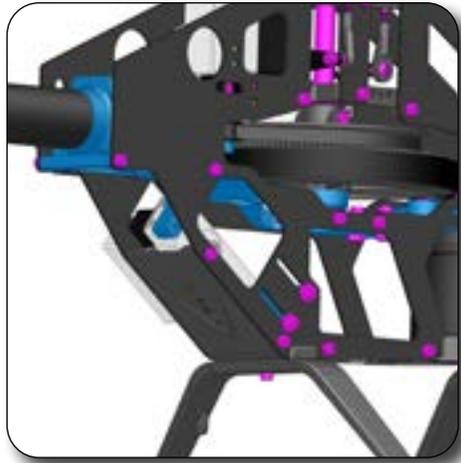


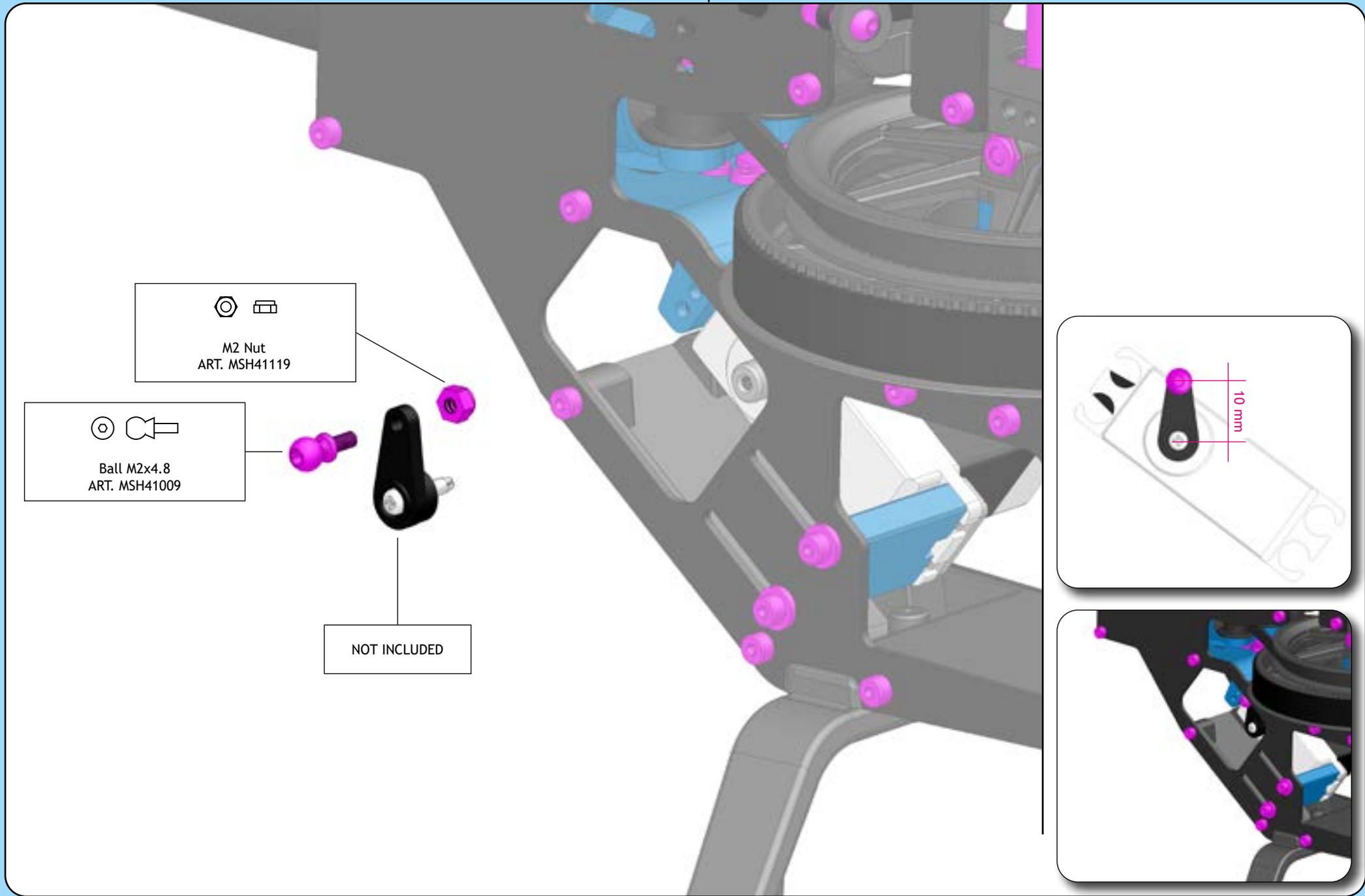
Servo adapter
ART. MSH50086
ART. MSH41179

Hex screw M2X8
ART. MSH41128
ART. MSH41179

Washer 2,1x5,5x1
ART. MSH41144
ART. MSH41179

Hex screw M2x6
ART. MSH41122
ART. MSH41179

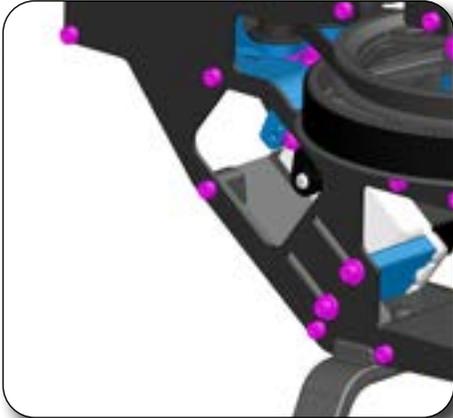
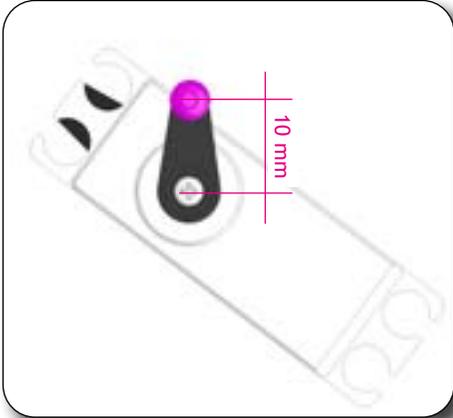




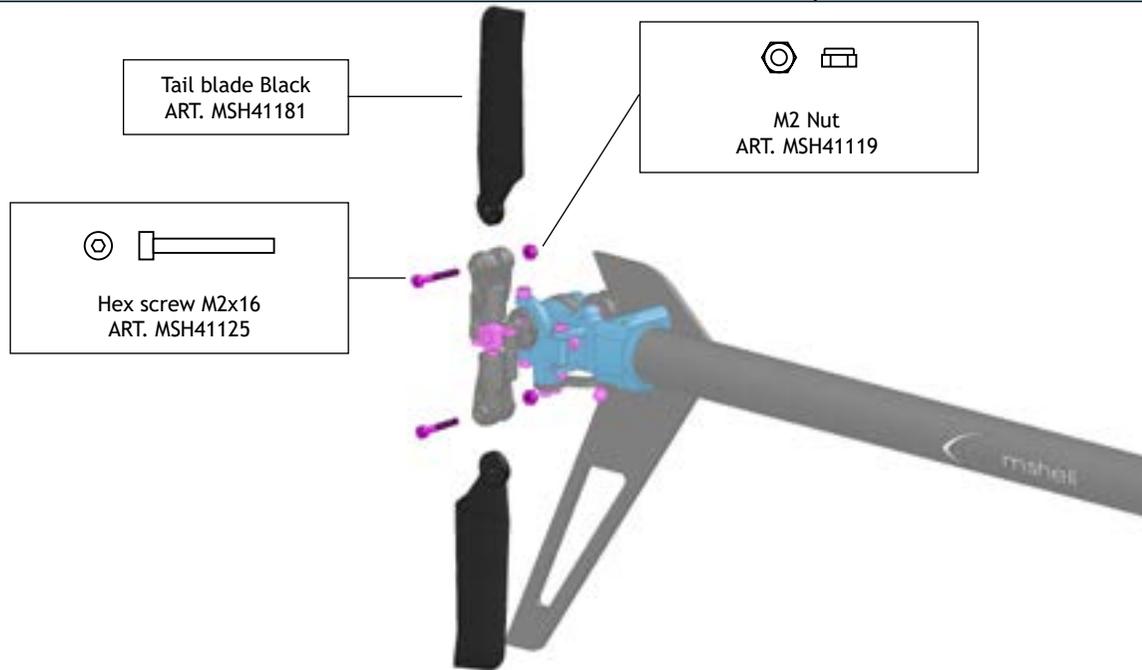
M2 Nut
ART. MSH41119

Ball M2x4.8
ART. MSH41009

NOT INCLUDED



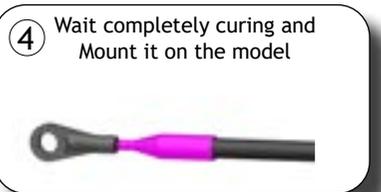
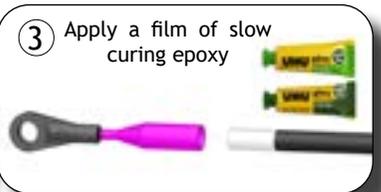
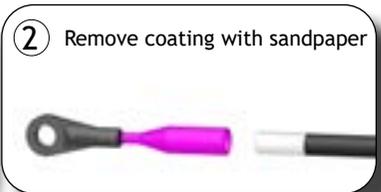
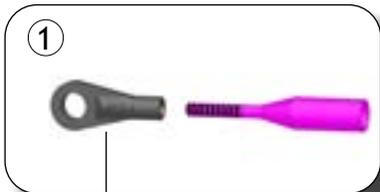
where I can find the parts



Tail blade Black
ART. MSH41181

M2 Nut
ART. MSH41119

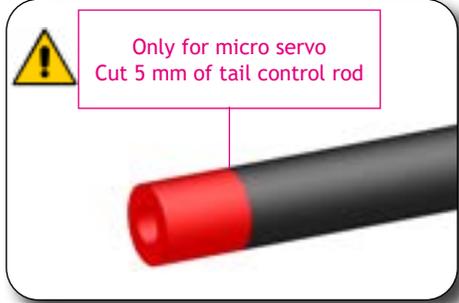
Hex screw M2x16
ART. MSH41125

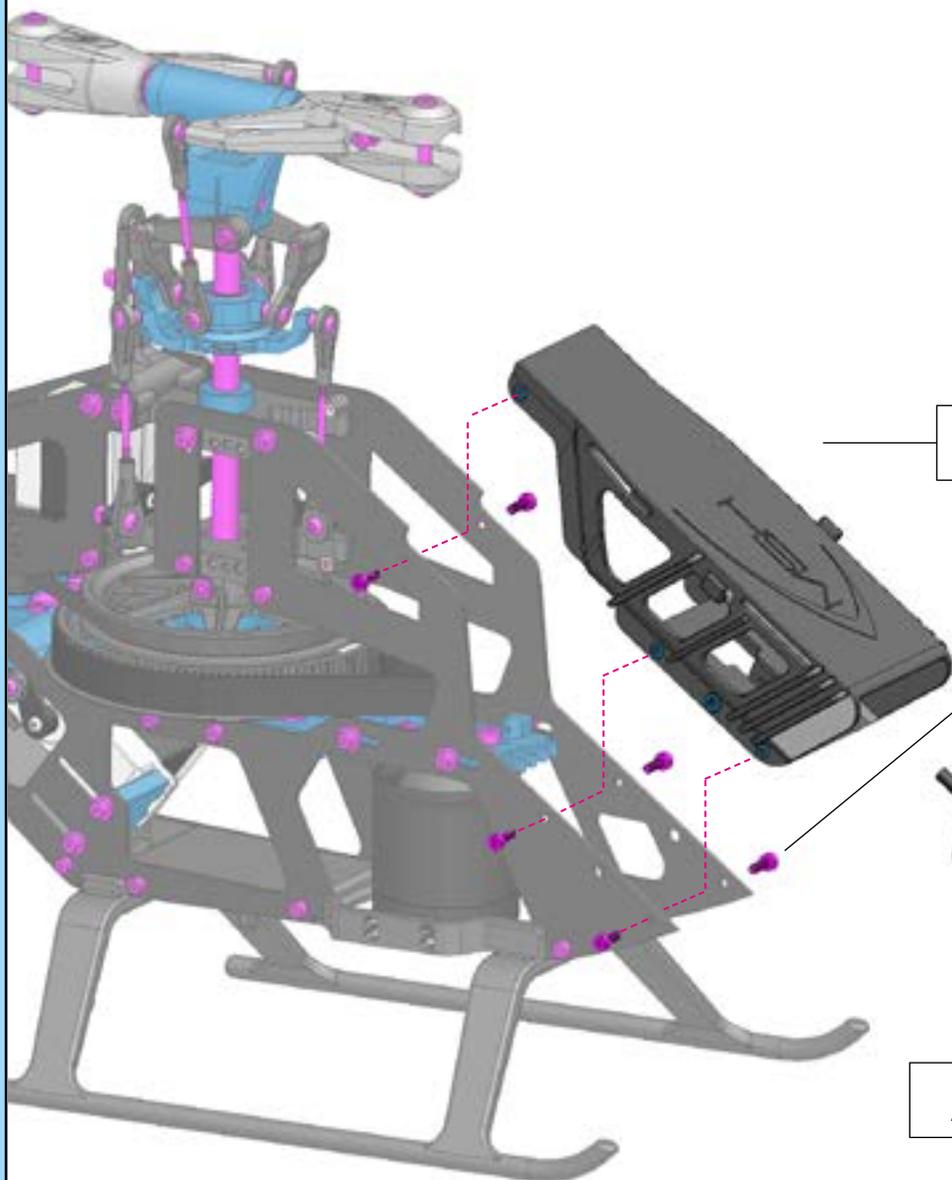


Uniball Link M2,5
ART. MSH41083

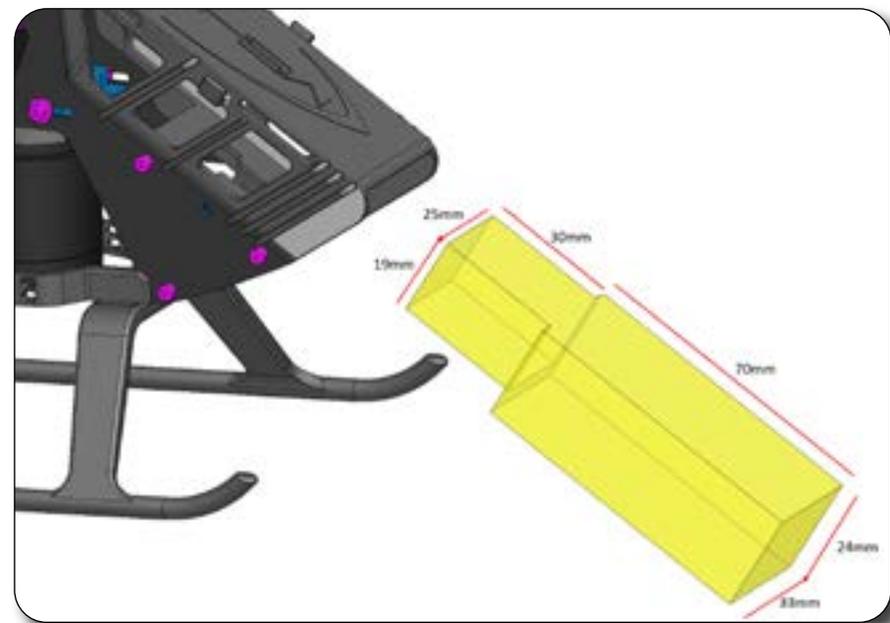


Tail control assembly
ART. MSH41178



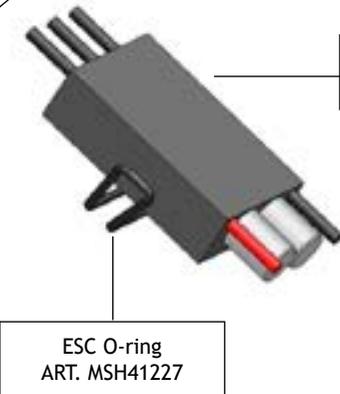


Battery and ESC support Protos 380
ART. MSH41180



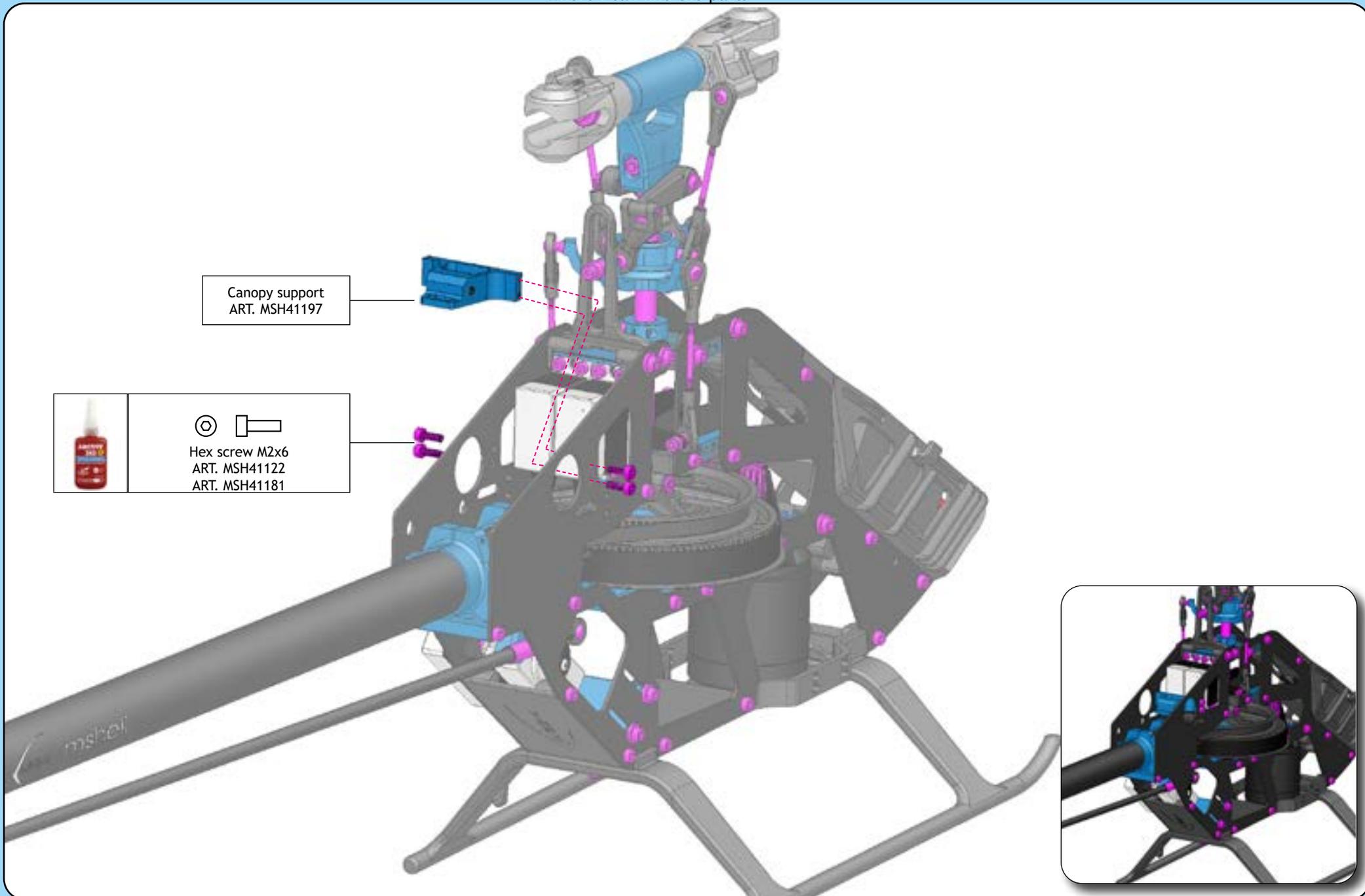
Hex screw M2x6 ART. MSH41122 ART. MSH41180		

NOT INCLUDED



ESC O-ring
ART. MSH41227

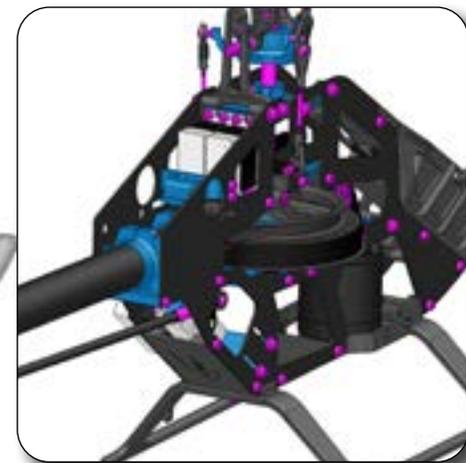




Canopy support
ART. MSH41197



Hex screw M2x6
ART. MSH41122
ART. MSH41181



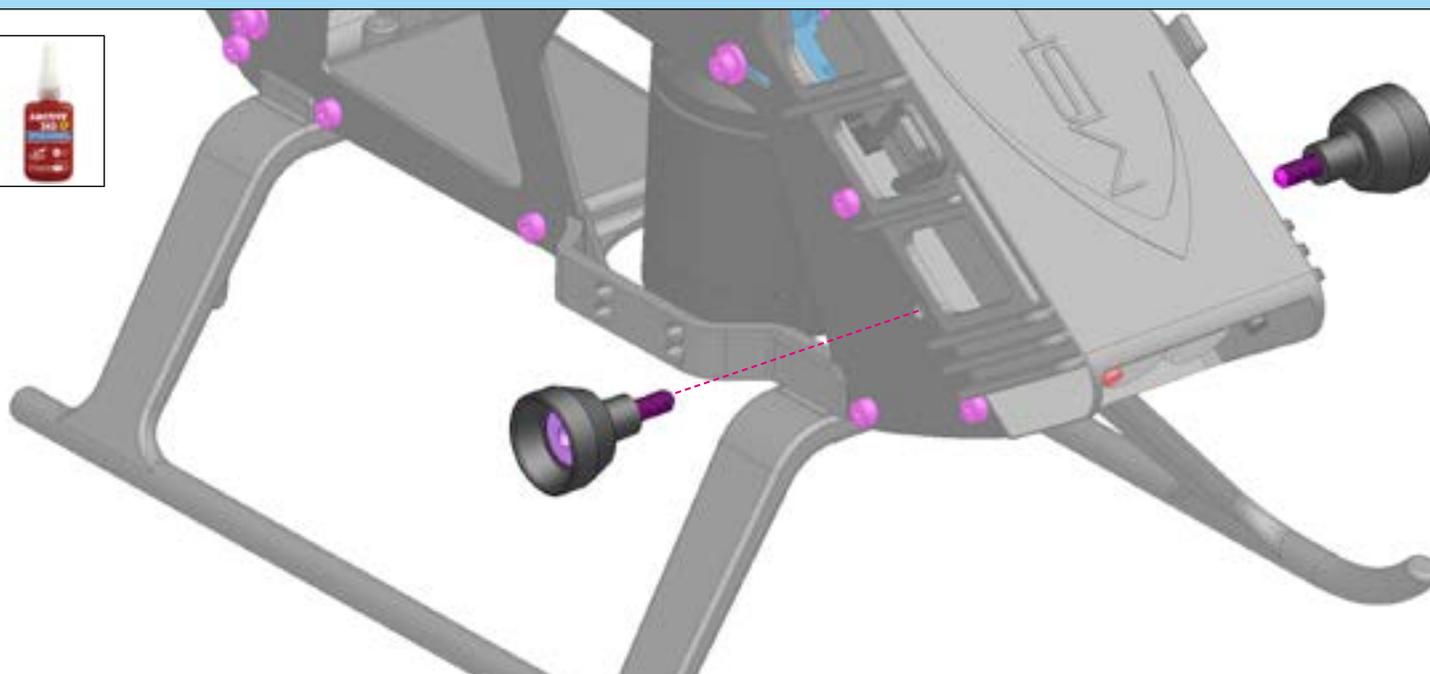
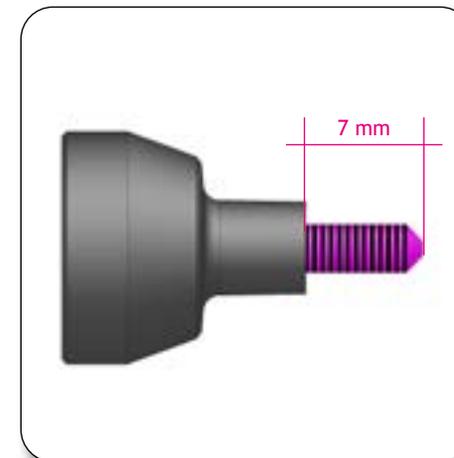
2X



Magnet canopy support
Protos 380
ART. MSH41182

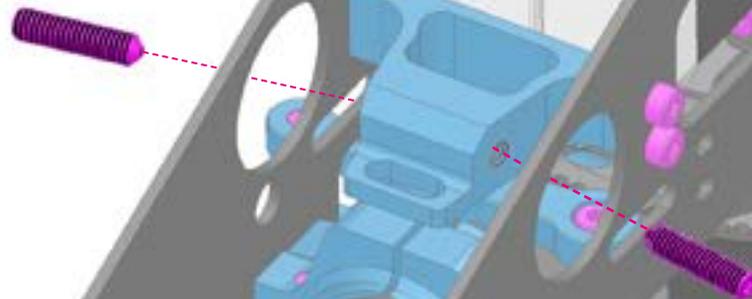


Grub screw M3x14
ART. MSH41218
ART. MSH41182

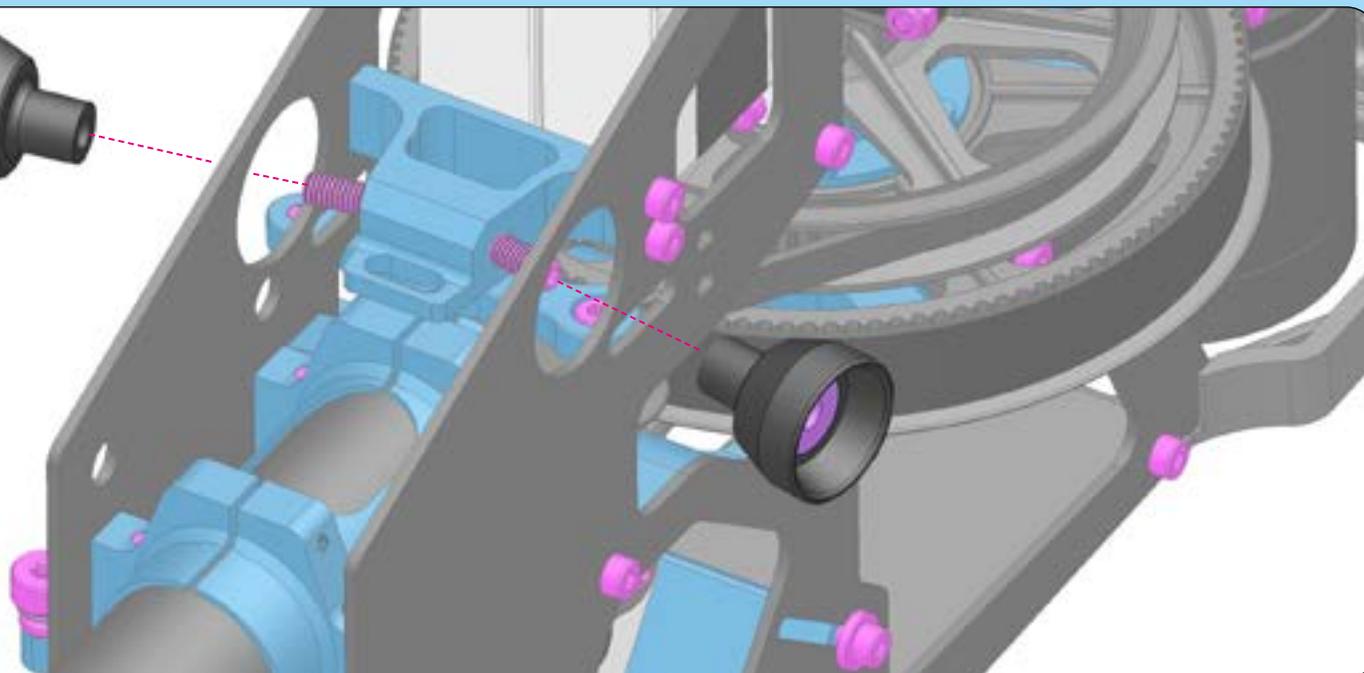




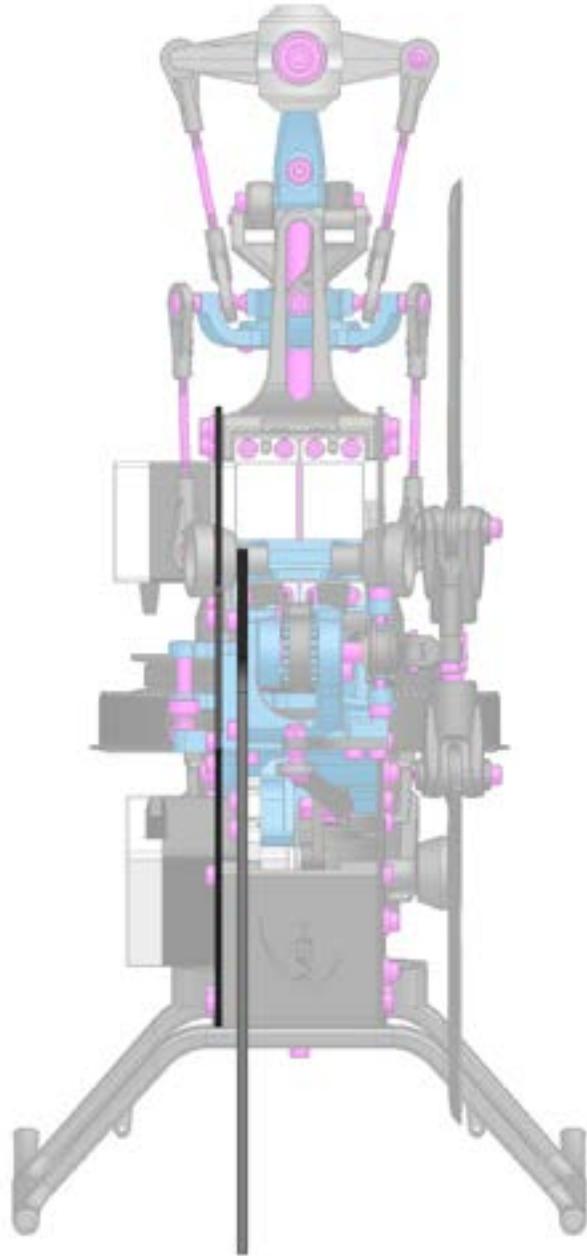
Grub screw M3x14
ART. MSH41218
ART. MSH41182



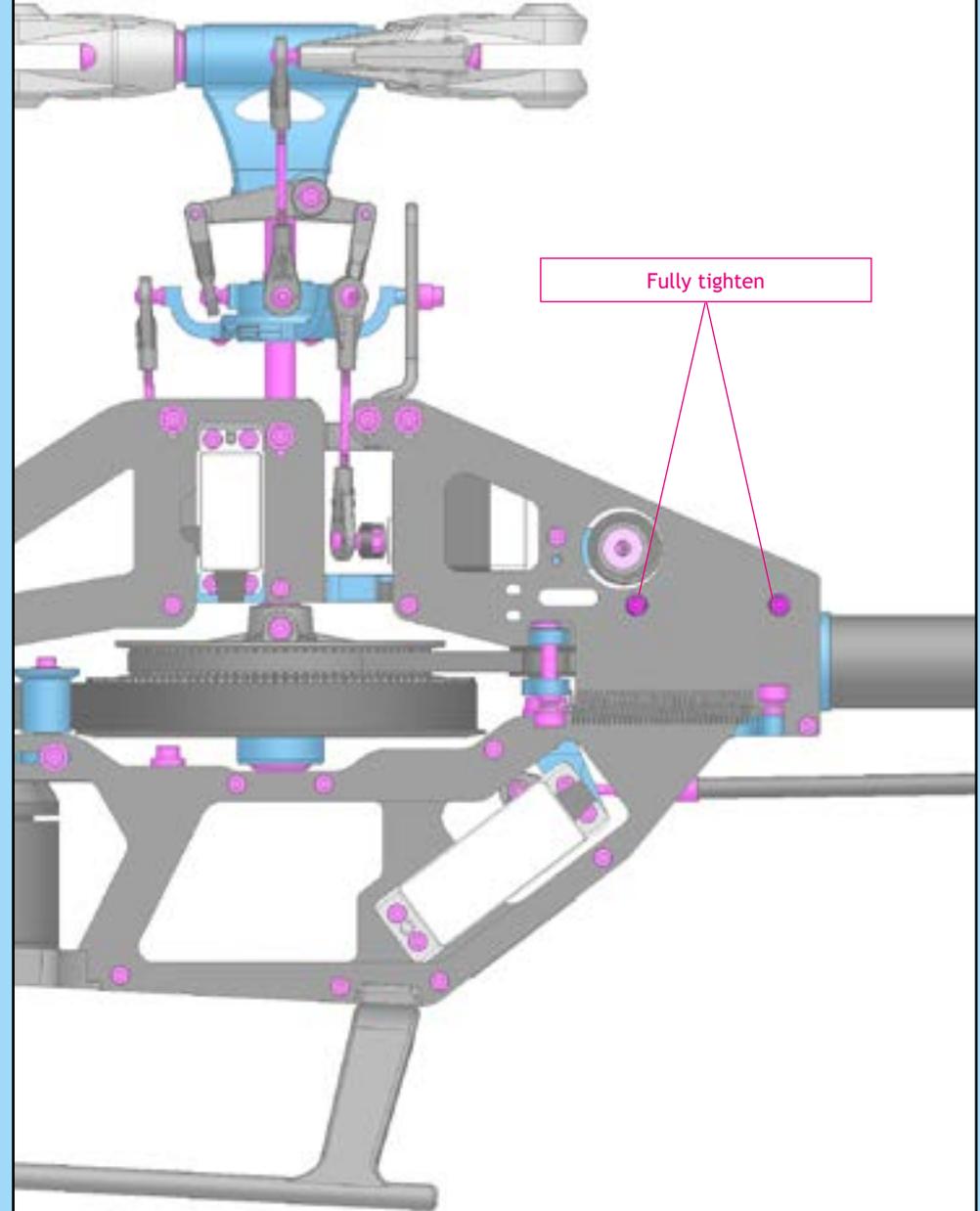
Magnet canopy support
Protos 380
ART. MSH41182



①

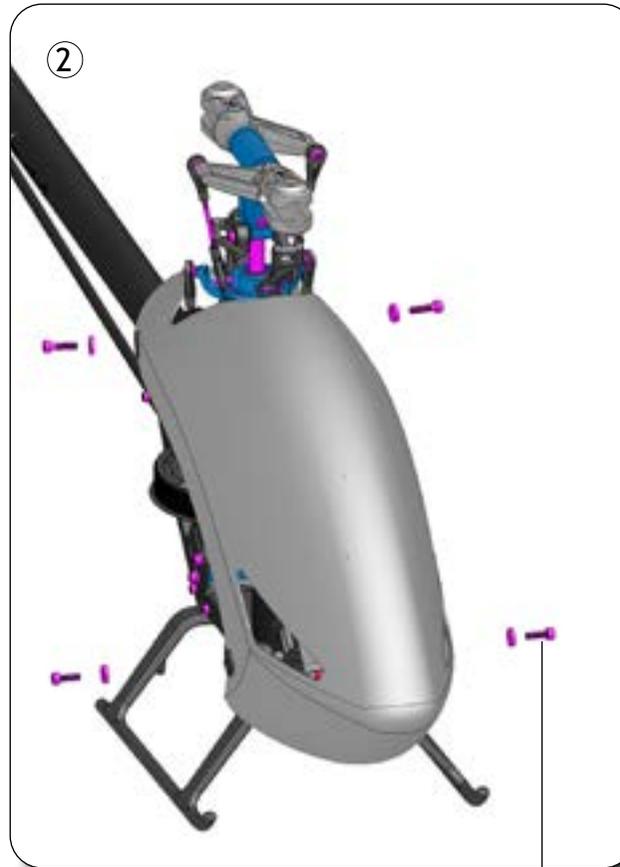


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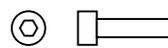




Magnet canopy support
Protos 380
ART. MSH41182



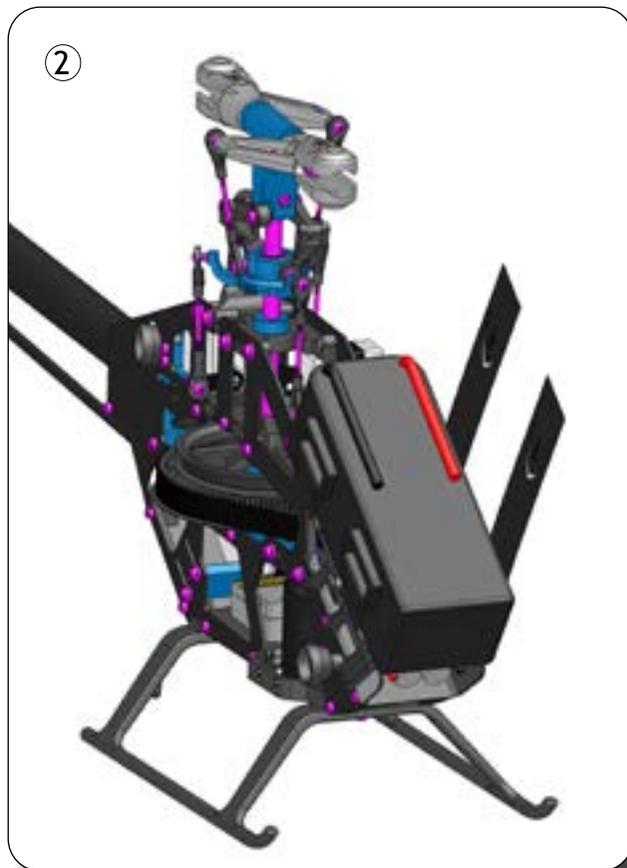
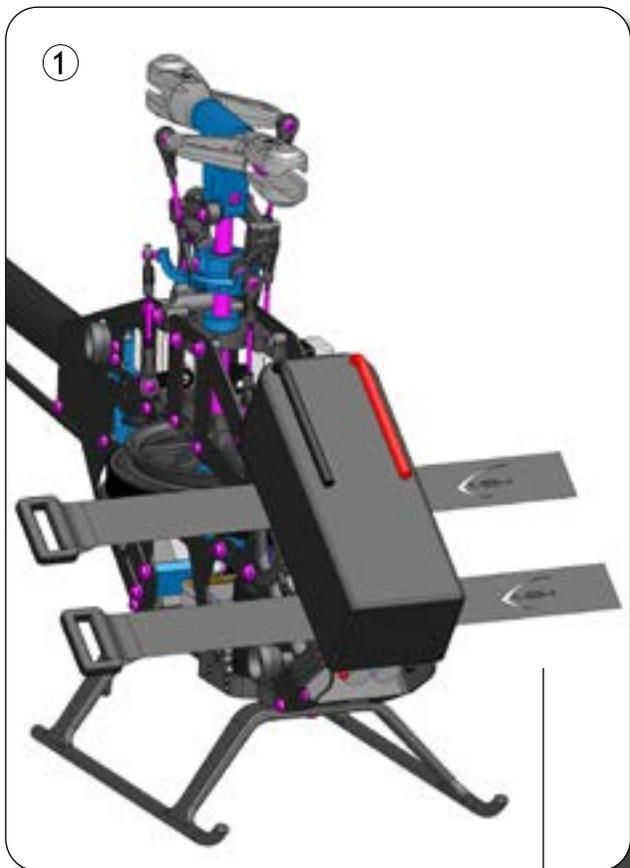
Washer 2,6x6,5x1,5
ART. MSH41217



Hex screw M2,5x10
ART. MSH51143

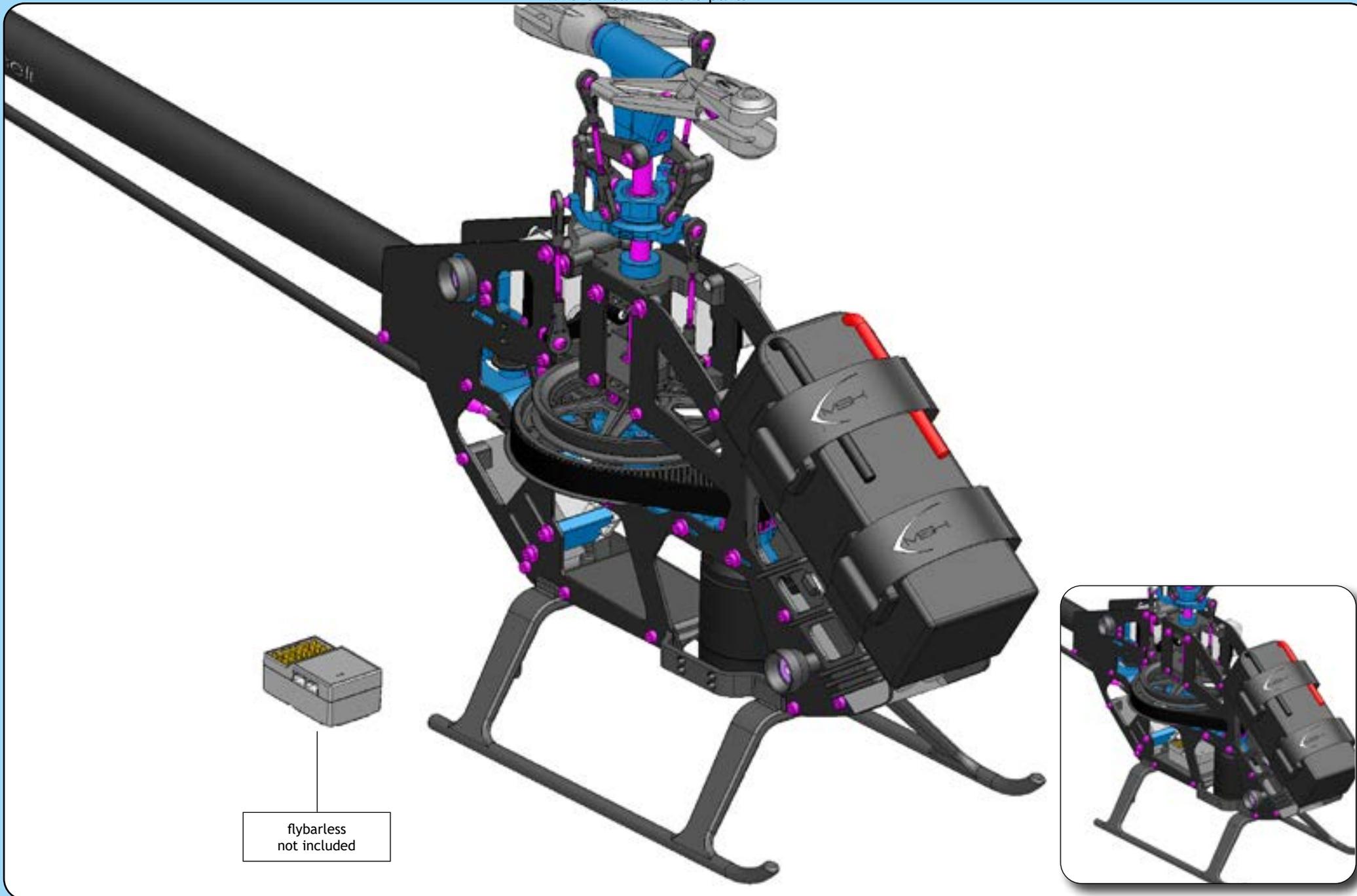


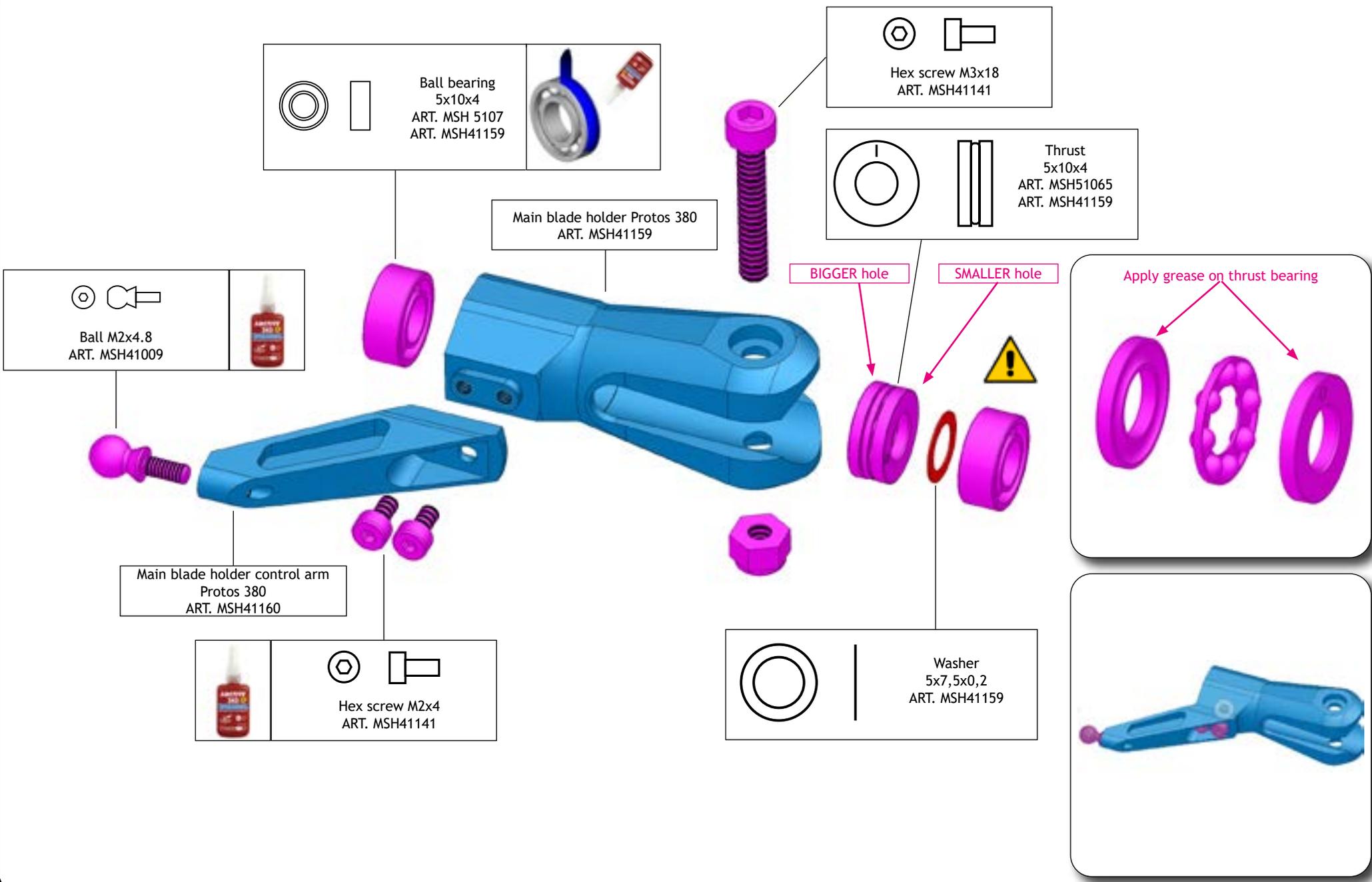
Painted canopy FG



Velcro loop
380
ART. MSH41209

where I can find the parts





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ITALY



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