

MANUAL GOBLIN COMET

SAB HELI DIVISION



Please read this user manual carefully, it contains instructions for the correct assembly of the model. Please refer to the web site www.goblin-helicopter.com for updates and other important information.

VERY IMPORTANT

In the Manual bag you will find a product card with your serial number. Please take a moment to register your kit online via our web site at:

http://www.goblin-helicopter.com

It is extremely important that you take a moment to register your helicopter with us. This is the only way to ensure that you are properly informed about changes to your kit, such as upgrades, retrofits and other important developments. SAB Heli Division cannot be held responsible for issues arising with your model and will not provide support unless you register your serial number.

The Serial number is also engraved in the Aluminum Top Plate.

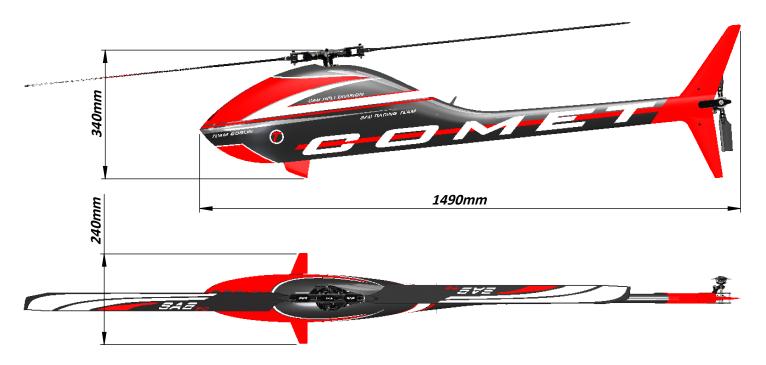
Thank you for your purchase, we hope you enjoy your new Goblin helicopter!

SAB Heli Division

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SPECIFICATIONS



Main rotor diameter: 1626mm (with 720mm Blades)

Tail rotor diameter: 282mm (with 105mm Tail Blades)

Motor size: Maximum 64mm diameter, maximum height 80mm.

Main Battery compartment: 2x 165x55x55mm.



IMPORTANT NOTES

- *This radio controlled helicopter is not a toy.
- *This radio controlled helicopter can be very dangerous.
- *This radio controlled helicopter is a technically complex device which has to be built and handled very carefully.
- *This radio controlled helicopter must be built following these instructions. This manual provides the necessary information to correctly assemble the model. It is necessary to carefully follow all the instructions.
- *Inexperienced pilots must be monitored by expert pilots.
- *All operators must wear safety glasses and take appropriate safety precautions.
- *A radio controlled helicopter must only be used in open spaces without obstacles, and far enough from people to minimize the possibility of accidents or of injury to property or persons.
- *A radio controlled helicopter can behave in an unexpected manner, causing loss of control of the model, making it very dangerous.
- *Lack of care with assembly or maintenance can result in an unreliable and dangerous model.
- *Neither SAB Heli Division nor its agents have any control over the assembly, maintenance and use of this product. Therefore, no responsibility can be traced back to the manufacturer. You hereby agree to release SAB Heli Division from any responsibility or liability arising from the use of this product.

SAFETY GUIDELINES

- *Fly only in areas dedicated to the use of model helicopters.
- *Follow all control procedures for the radio frequency system.
- *It is necessary that you know your radio system well. Check all functions of the transmitter before every flight.
- *The blades of the model rotate at a very high speed; be aware of the danger they pose and the damage they may cause.
- *Never fly in the vicinity of other people.

LIMITED WARRANTY.

SAB Heli Division reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied. (a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER This warranty covers only those Products purchased from an authorized SAB Heli Division dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims.

(b) Limitations- SAB HELI DIVISION MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NONIFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- SAB Heli Division's sole obligation hereunder shall be that SAB Heli Division will, at its option, replace any Product determined by SAB Heli Division to be defective In the event of a defect, this is the Purchaser's exclusive remedy. Replacement decisions are at the sole discretion of SAB Heli Division. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance or attempted repair by anyone

DAMAGE LIMITS.

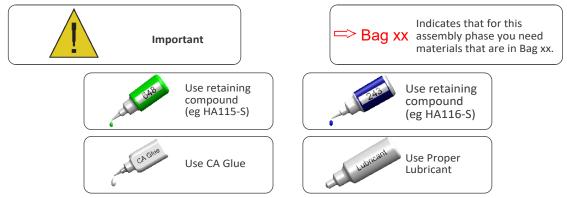
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NOTES FOR ASSEMBLY

Please refer to this manual for assembly instructions for this model. Follow the order of assembly indicated. The instructions are divided into chapters, which are structured in a way that each step is based on the work done in the previous step. Changing the order of assembly may result in additional or unnecessary steps.

Use thread lockers and retaining compounds as indicated. In general, each bolt or screw that engages with a metal part requires thread lock.

It is necessary to pay attention to the symbols listed below:





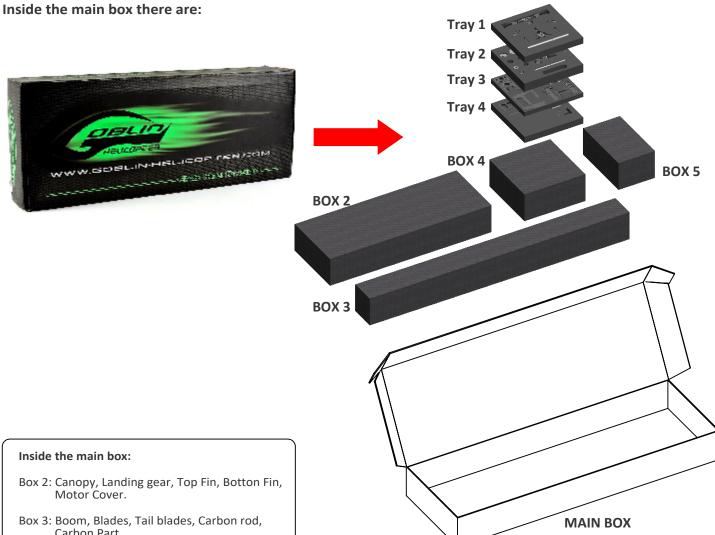
ADDITIONAL COMPONENTS REQUIRED

- *Electric Motor: 12S 480/600Kv, 14S 450/560Kv Maximum diameter 64mm, Maximum height 80mm, Pinion shaft diameter 8mm
- *Speed controller: minimum 160A but in according with setup
- *Batteries: 12S 5000/5500mAh, 12S 4300/5000mAh
- *1 flybarless 3 axis control unit
- *Separate radio power system: 2S Lipo 2500 mAh
- *3 cyclic servos
- *1 tail rotor servo
- *6 channel radio control system on 2.4 GHz

(See configuration examples on page 8)

TOOLS, LUBRICANTS, ADHESIVES

- *Generic pliers
- *Hexagonal driver, size 1.5, 2, 2.5, 3, 4, 5mm
- *4mm T-Wrench
- *5.5mm Socket wrench (for M3 nuts)
- *8mm Hex fork wrench (for M5 nuts)
- *Medium threadlocker (eg. Thread Locker Medium Strength HA116-S)
- *Strong retaining compound (eg. Retaining Compound High Strength Bonding HA115-S)
- *Spray lubricant (eg. Try-Flow Oil)
- *Synthetic grease (eg. Tri-Flow Synthetic Grease)
- *Grease (eg. Vaseline grease)
- *Cyanoacrylate adhesive
- *Pitch Gauge (for set-up)
- *Soldering equipment (for motor wiring)

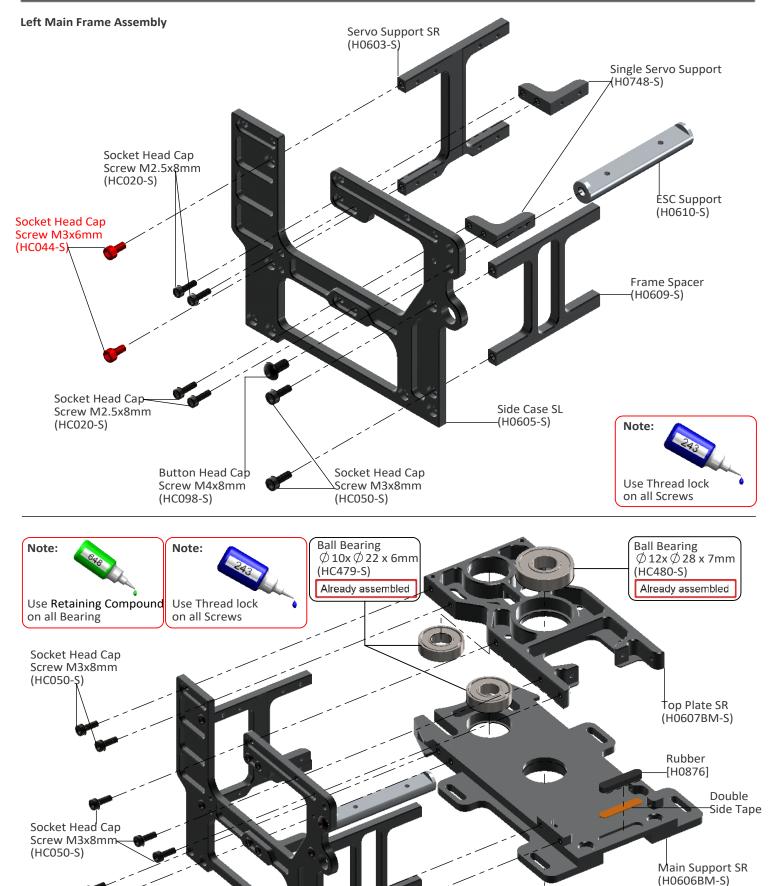


- Carbon Part.
- Box 4: Mechanical parts in 4 trays:
- Tray 1: Head System.
- Tray 2: Transmission
- Tray 3: Aluminum Main Frame
- Tray 4: Tail System and Battery System

Box 5: Bags

The assembly process is described in the following chapters. Each chapter provides you with the box, bag and/or foam tray numbers you will need for that chapter. The information is printed in a green box in the upper right hand corner of the page at the beginning of every chapter.





Left Main Frame Assembly

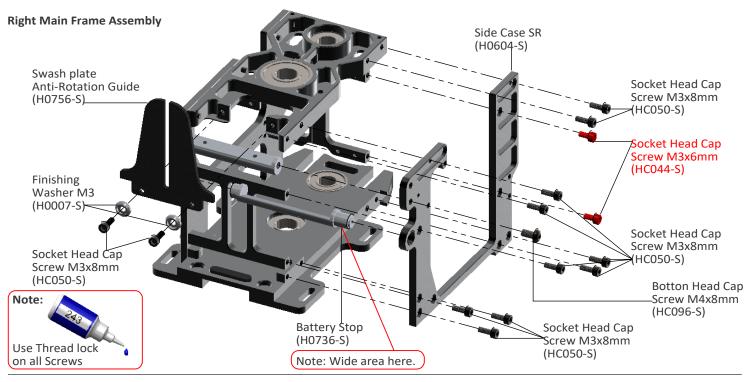
Socket Head Cap

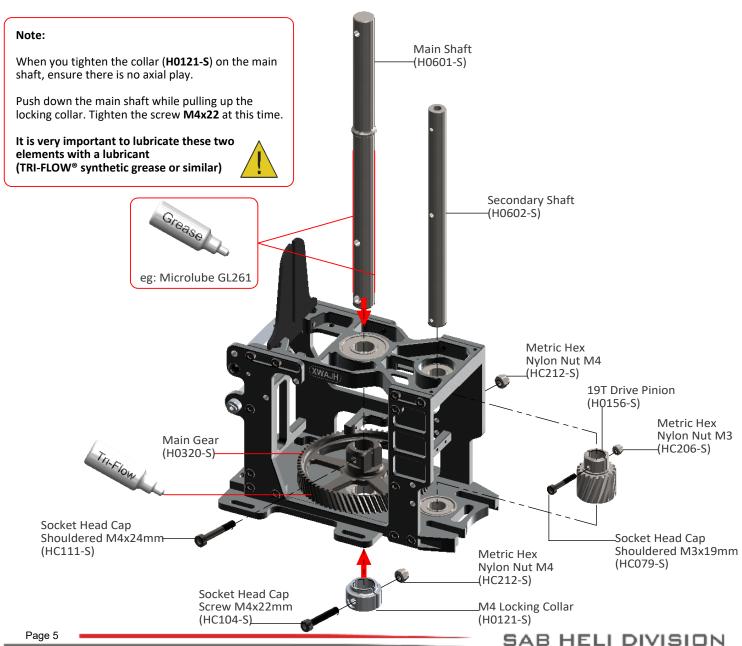
Screw M3x8mm (HC050-S)

Already assembled

(HC426-S)

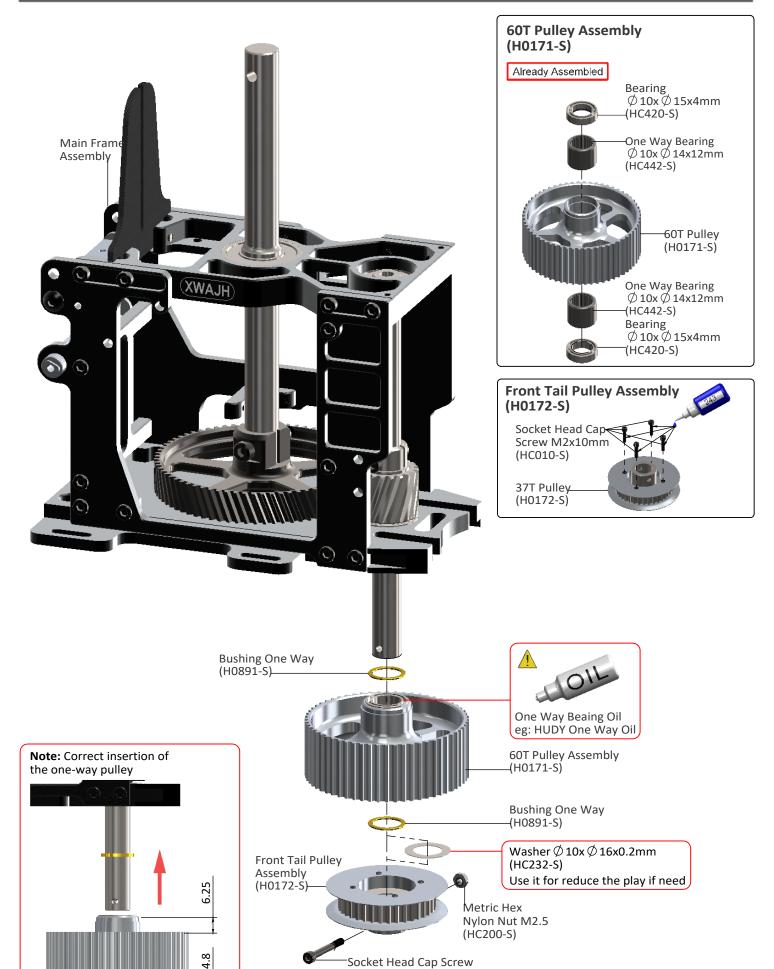








SAB HELI DIVISION



Shouldered M2.5x19mm

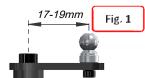
(HC033-S)

Page 6



INSTALLATION OF SWASHPLATE SERVOS

The linkage ball must be positioned between **17-19 mm** out on the servo arm (Figure 1). We recommend metal servo horn the 120° placement of the servos inside Goblin means the arms are difficult to access. For this reason it is advisable to ensure alignment of the servo arms (and sub trim set) before installation of the servos in the model. Proceed with installation following the instructions below.

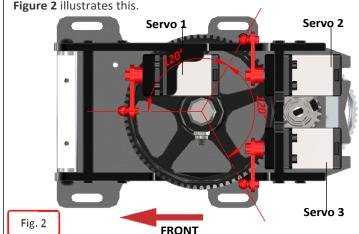


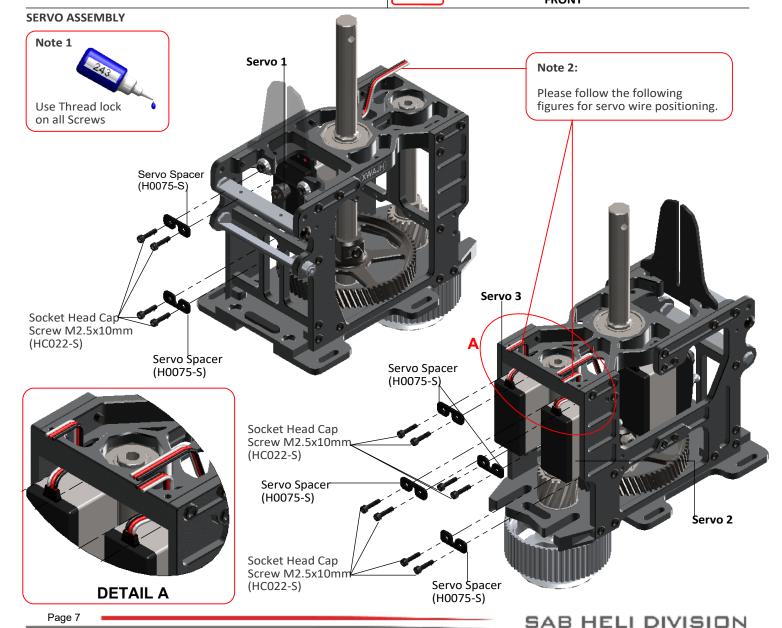
SERVO ASSEMBLY 1, 2, 3



ASSEMBLY OF THE BALL ON THE HORN.

The rods going from the servos to the swash plate must be as vertical as possible. Not all servos are equal, so to better align them you can choose to use the supplied spacer H0031.







CHOICE OF THE MOTOR PULLEY

It is important to choose the right reduction ratio to maximize efficiency based on your required flight performance.

It is recommended to use wiring and connectors appropriate for the currents generated in a helicopter of this class.

If you are using a head speed calculator which requires a main gear and pinion tooth count, use **214** teeth for the main gear (this takes into account the two stage reduction) and the tooth count of your pulley as the pinion count.

Below is a list of available reduction ratios:

H0175-18-S - 18T	Pinion = ratio	11.9:1	H0175-22-S - 22T	Pinion = ratio	9.8:1
H0175-19-S - 19T	Pinion = ratio	11.3:1	H0175-23-S - 23T	Pinion = ratio	9.3:1
H0175-20-S - 20T	Pinion = ratio	10.7:1	H0175-24-S - 24T	Pinion = ratio	8.9:1
H0175-21-S - 21T	Pinion = ratio	10.2:1	H0175-25-S - 25T	Pinion = ratio	8.6:1

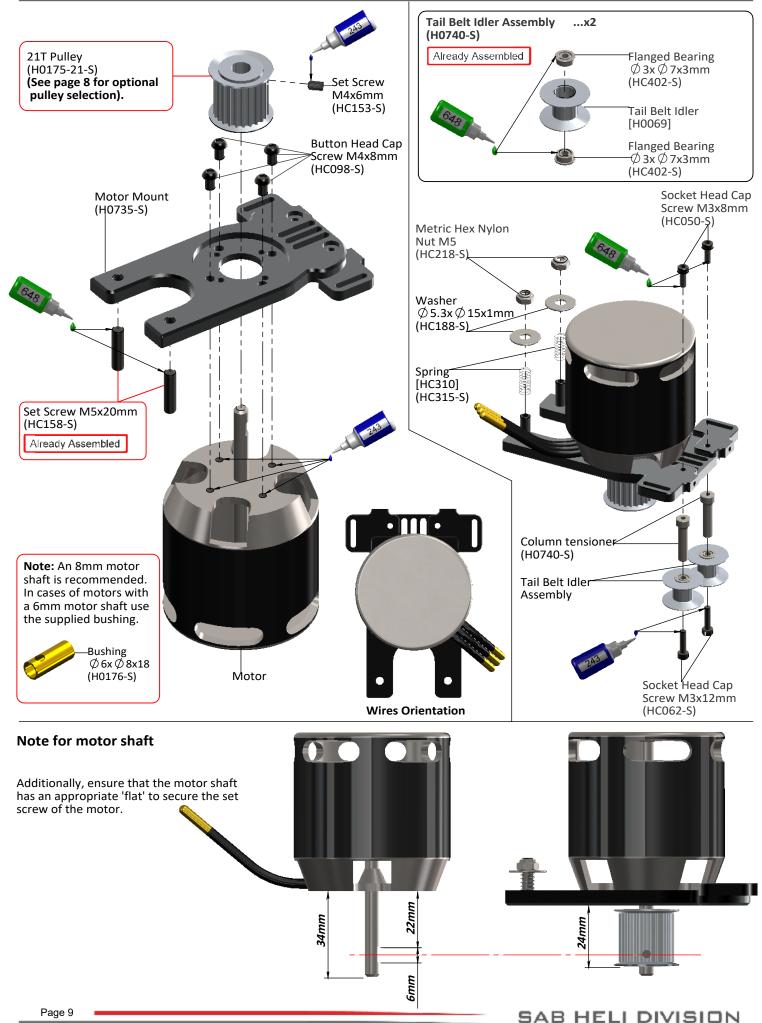
Some example configurations:

GOBLIN COMET CONFIGURATIONS								
Battery	Motor	Motor Pulley	RPM Max	Pitch				
Sport and Acrobatic Flight								
	-	23	2200	±13				
	Kontronik Pyro 850-500 Scorpion HK-4535-500KV	24	2280	±13				
125	3corpion 11k-4333-300kV	25	2350	±13				
5000/5800 mAh		22	2150	±13				
	Xnova 4535-520KV	23	2250	±13				
		24	2300	±13				
	Mantanail Duna 050 500	20	2150	±13				
	Kontronik Pyro 850-500 Scorpion HK-4535-500KV	21	2250	±13				
145	3001 pion 1110 4333 300 KV	22	2350	±13				
4300/5000 mAh		19	2150	±13				
	Xnova 4535-520KV	20	2250	±13				
		21	2350	±13				
		Speed Flight						
		22	2400 *	-10 / +16				
	Kontronik Pyro 850-500	23	2500 *	-10 / +16				
	Scorpion HK-4535-500KV	24	2600 *	-10 / +16				
		21	2400 *	-10 / +16				
	Xnova 4535-520KV	22	2500 *	-10 / +16				
14S		23	2600 *	-10 / +16				
4300/5000 mAh		23	2400 *	-10 / +16				
	Kontronik Pyro 1000-480	24	2500 *	-10 / +16				
		25	2600 *	-10 / +16				
	V F0 F3FI/) /	22	2550 *	-10 / +16				
	Xnova 50xx-535KV Scorpion HK-5040-530KV	23	2650 *	-10 / +16				
	255. p.o 111. 30 10 3301.	24	2750 *	-10 / +16				



The high RPM flight condition should only be used while away from the pilot (at least 30 meters). Speed passes should always be made longitudinally to the pilot and spectators and always at a safe distance.

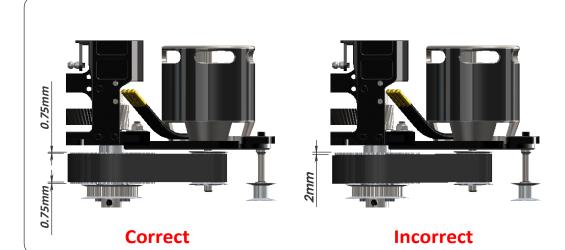






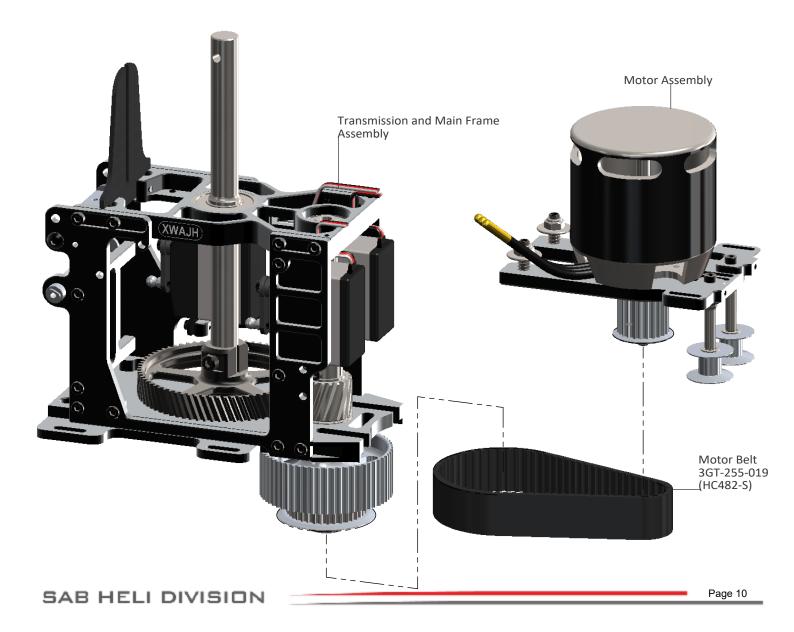
MOTOR BELT TENSION

- *Assemble the motor and pinion to its mounting plate.
- *Fit the motor assembly into position.
- *With the minimum centre distance it is easy to install the belt. First put the belt on the motor pinion.
- *Then put the belt around the big pulley.
- *Rotate the motor several times by hand.
- *The belt must be tight. The motor plate will start to bend abit (until 0.5mm is normal).
- *Lock all screws.



Note

Check for vertical alignment of the motor pulley. To do this, turn the motor several times and check to you see if the belt is aligned with the big pulley (one way bearing pulley). If the belt is riding too high, simply loosen the motor pulley and drop it a small amount, if it is riding too low, loosen the motor pulley and raise it a small amount.





ESC INSTALLATION

The speed controller (ESC) is installed in the front of the helicopter.

Figure 1: Shows the installation of the ESC support.

Note: We recommend de-burring the edges to minimize the risks of electrical wire cuts, etc. Very important in red line zone.

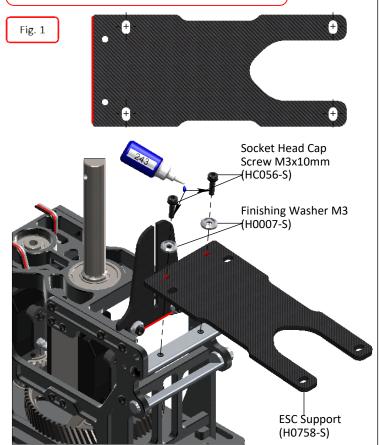


Figure 2: Shows the installation of the ESC.

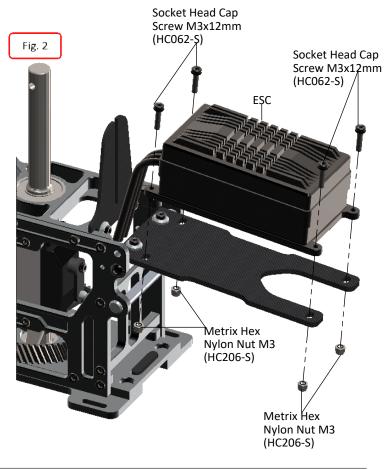
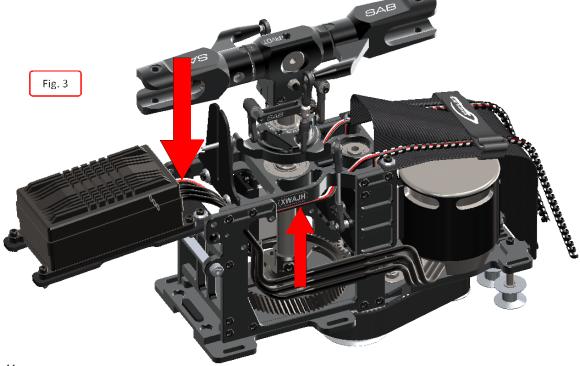
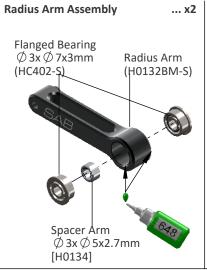


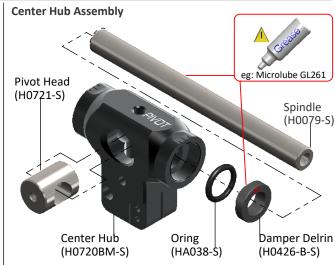
Figure 3: You can see the wiring for connecting the ESC to the central unit.

Route the ESC throttle wire as shown, It is recommended to use cable ties to keep the wire in place.



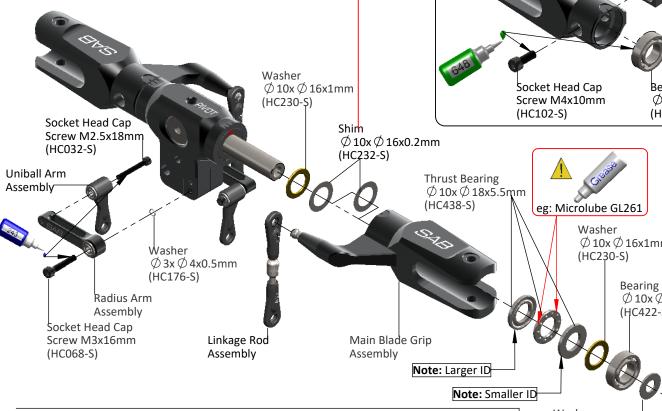


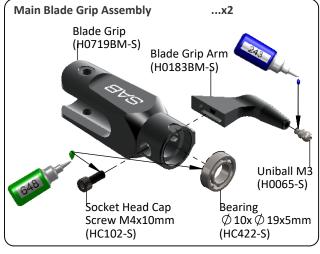




Note:

The HPS head should be assembled with one, 1mm shim (HC230) and one, 0.2mm shim (HC232) on each side. The blade grips must move freely, but they should not move just under their own weight. If the blade grips are too tight, you can remove the 0.2mm shim (HC232) from each side. After approximately 10/20 flights, please check preload, you can add one or two 0.2mm shim (HC232) if preload has changed.



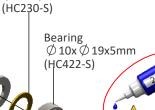


Washer

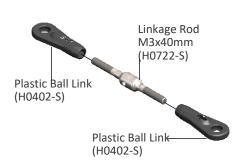
Washer

Ø 6x Ø 14 x1.5mm

Ø 10x Ø 16x1mm



Linkage Rod A Assembly ...x2

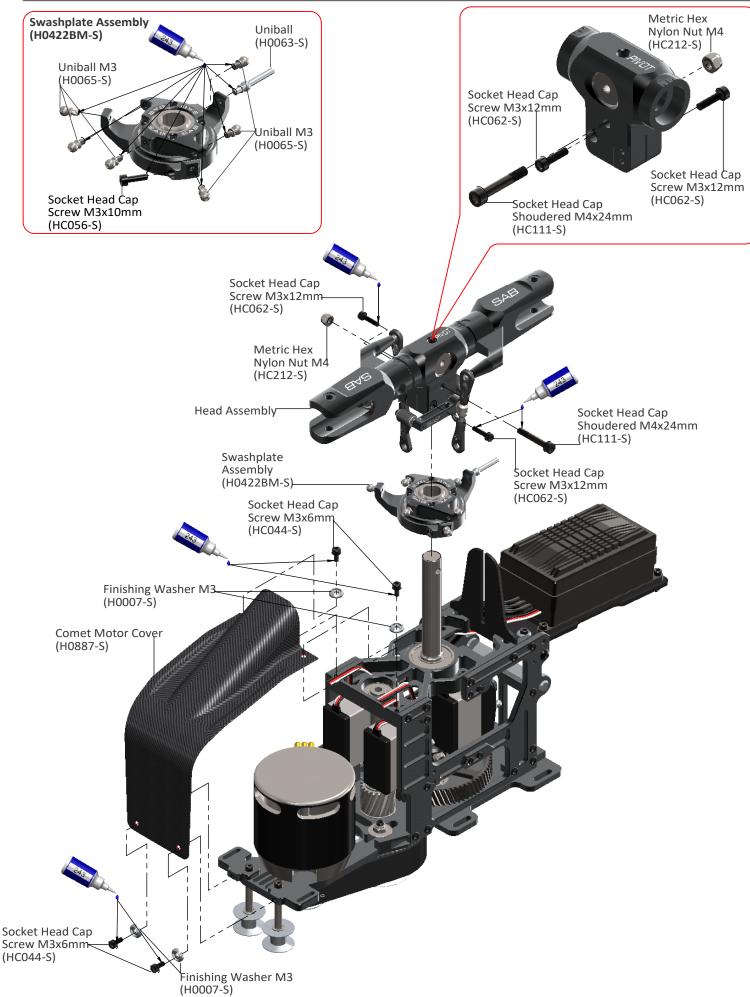




(Initial length for the rods from the swashplate to the Blade Grip.)

(HC194-S) Socket Head Cap Screw M6x10mm (HC124-S)





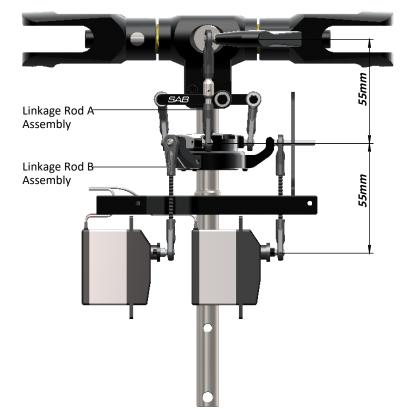


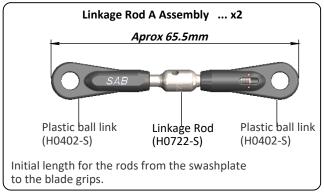


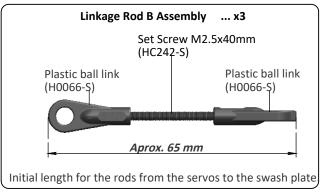
Head Preliminary Setup

Adjust the linkage as shown. The linkage Rod A has thead right/left.

Note: For Speed flight you can consider assimetrical pitch setup (ex: -10 $^{\circ}$ / +16 $^{\circ}$).





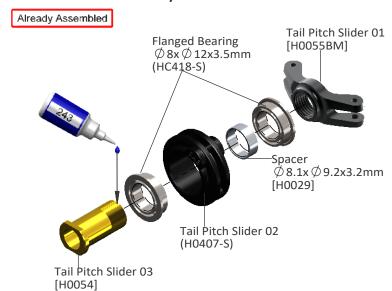


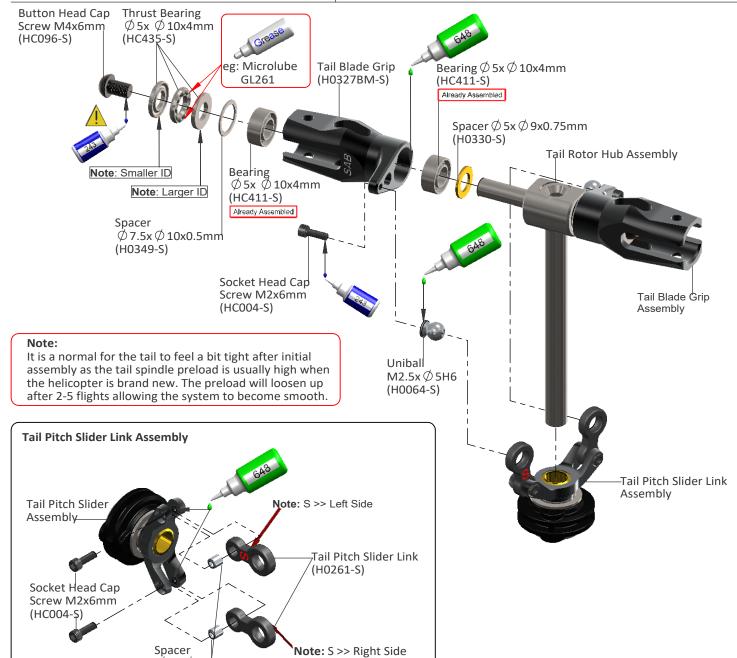


Tail Rotor Hub Assembly



Tail Pitch Slider Assembly

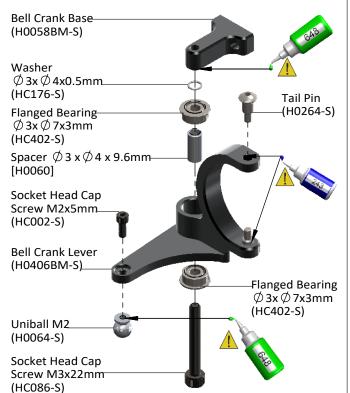




 \bigcirc 2x \bigcirc 3x3mm (H0076-S)

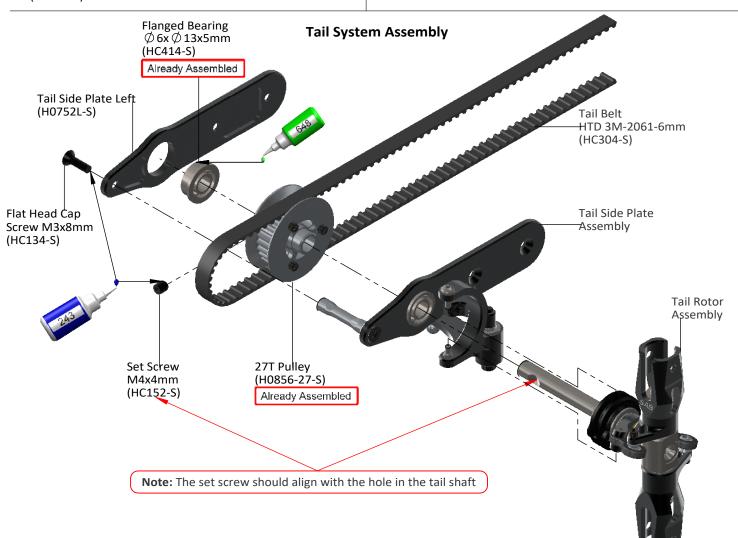


Bell Crank Lever Assembly

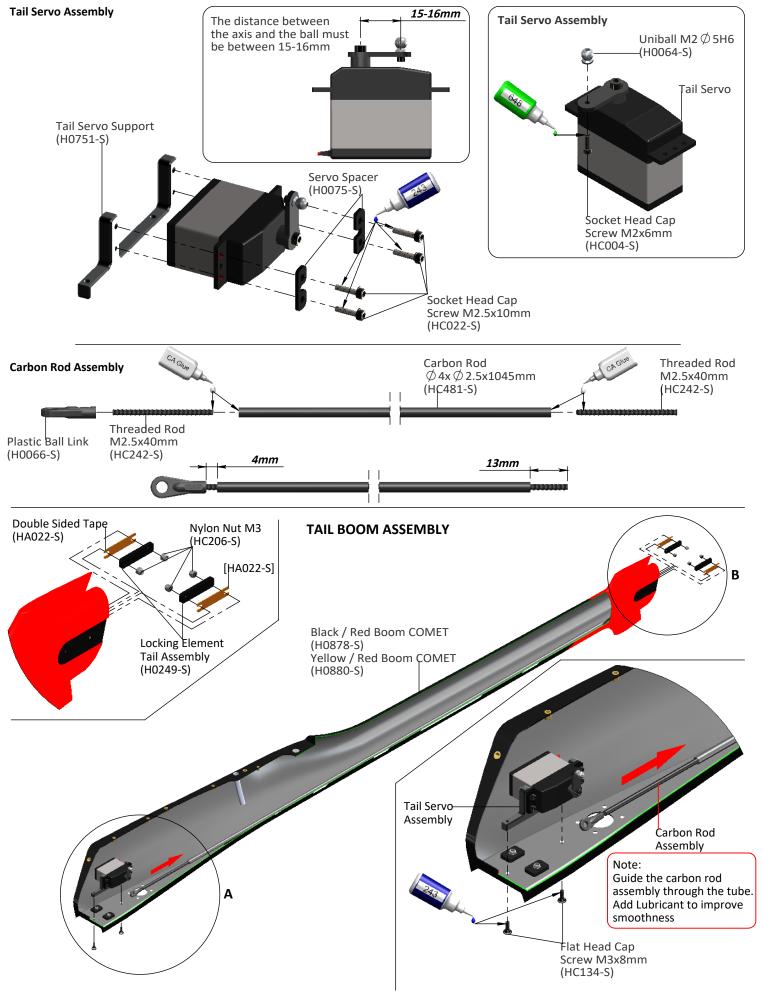


Tail Side Plate Assembly



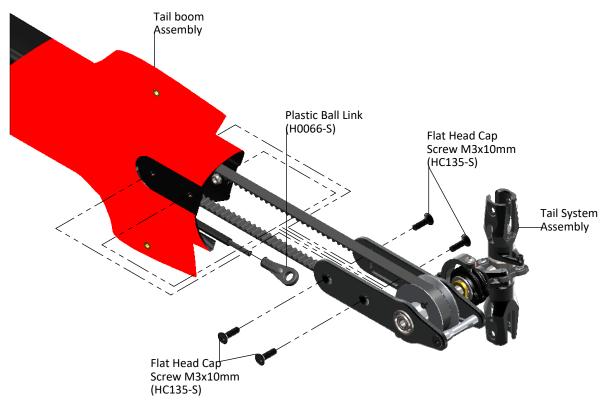


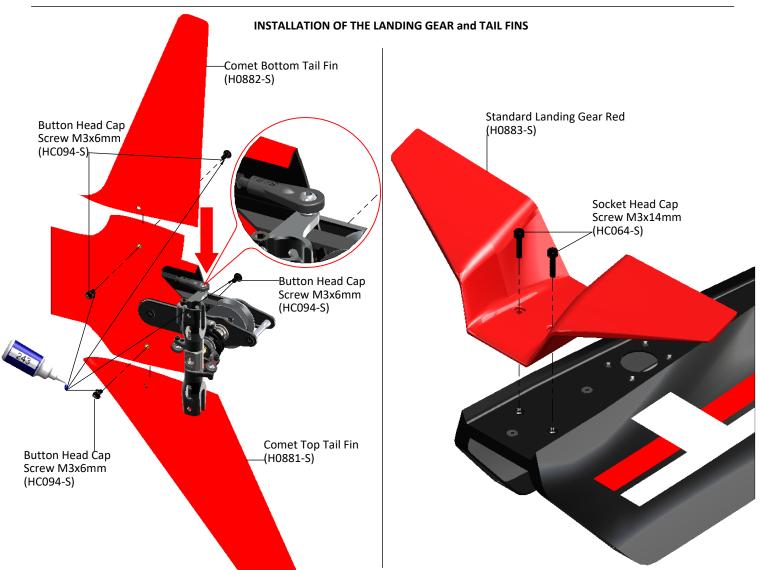








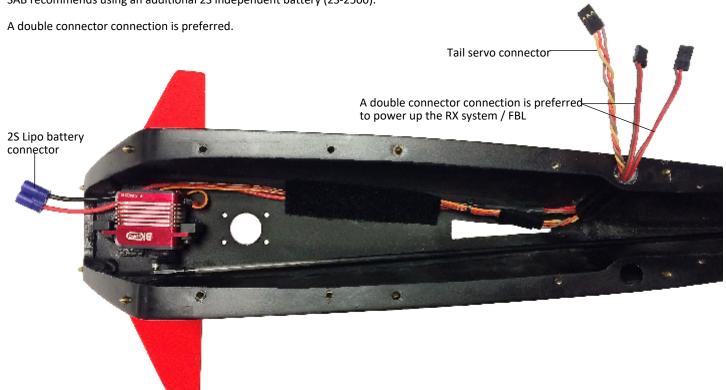


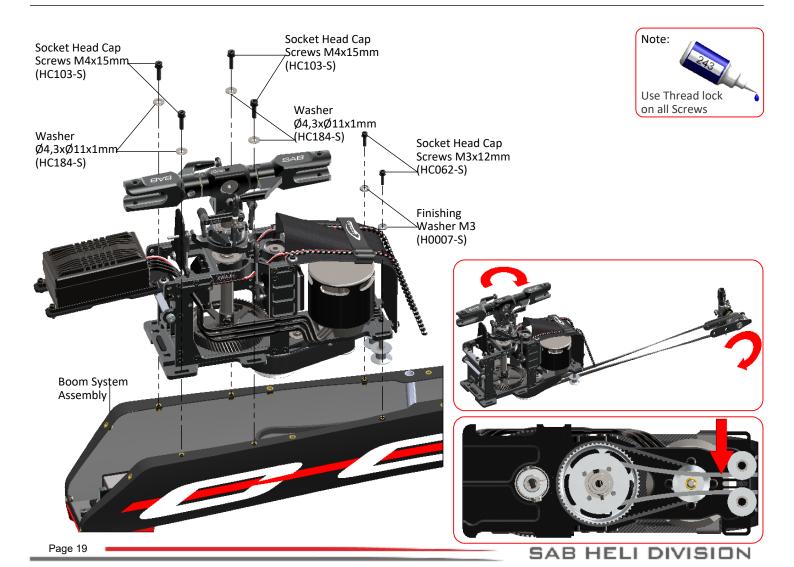




TAIL SERVO / RX BATTERY WIRES

Before assembling the transmission module, it is necessary to set up the connection of the servo and 2S power supply SAB recommends using an additional 2S independent battery (2S-2500).

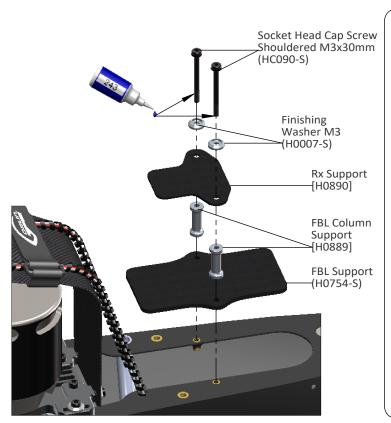






FLYBARLESS SYSTEM

The FBL unit have to be installed on the FBL support H0754. Please check the following picture.









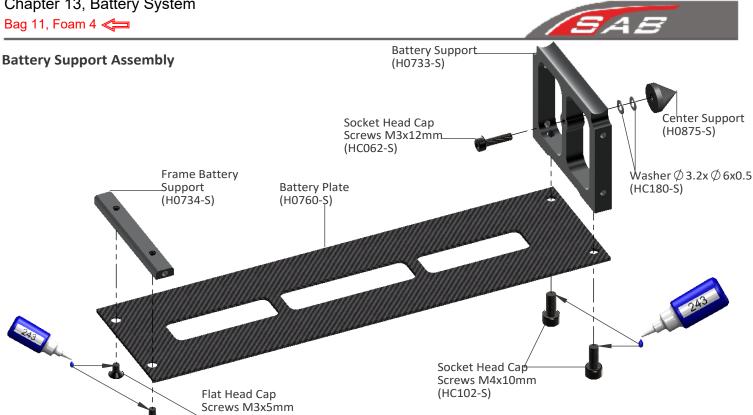
The COMET canopy uses a magnetic locking system. Use the lever to remove it.

Fit the canopy starting from the bottom pins. (See the pics)

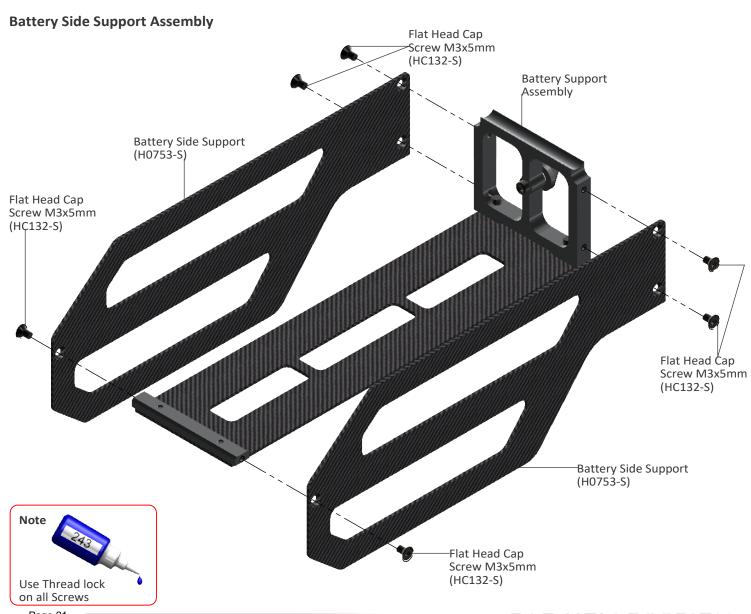
During the "Speed flight" (Very important during the setup flight) we recommend the use of elastic to hold the canopy in position.

Performing a hard upward pitch may cause the fuselage to deform making it high risk that the canopy will move from it's original position.

The boom zone uses a "carbon sandwich" solution. Excessive localized pressure can damage the structure internally. Please be careful, for example, do not crush with your hands.



(HC132-S)

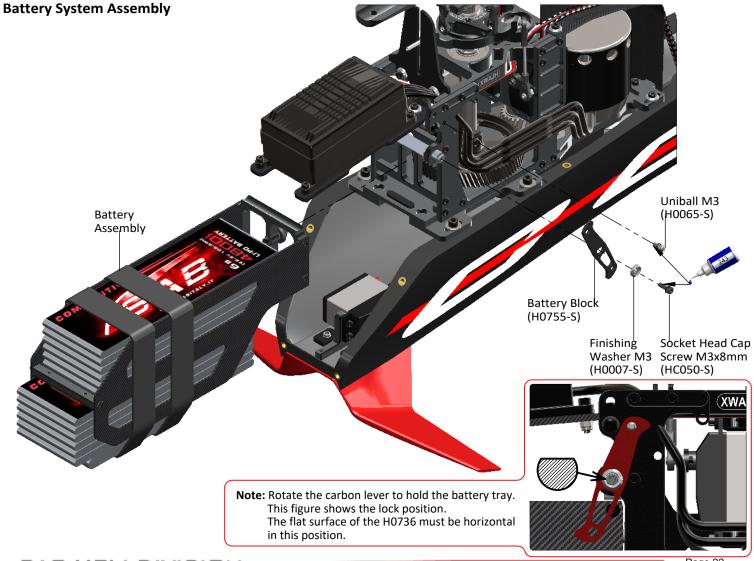








Use 2 Straps (HA023) to keep the batteries in position .





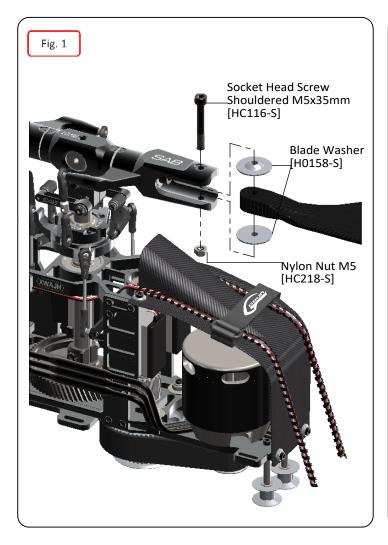
OPERATIONS BEFORE FLIGHT

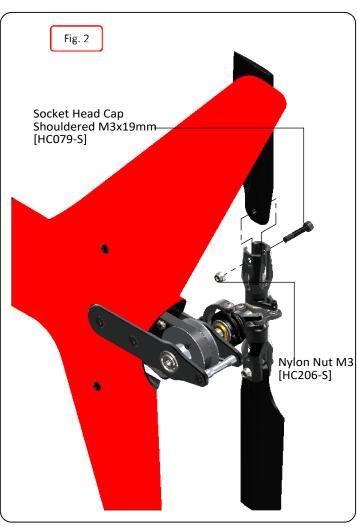
- *Check the CENTER of GRAVITY. For high-speed flight, the model should never be nose-up.
- *Set up the remote control and the flybarless system with utmost care.
- *It is advisable to test the correct settings of the remote and flybarless system without main blades or tail blades fitted.
- *Check that all wiring is isolated from the carbon/aluminum parts. It is good practice to protect them at the points where they are at most risk.
- *It is recommended to use wiring and connectors appropriate for the currents generated from your setup.



*Be sure of the gear ratio, verifying carefully the motor pulley in use. The forces acting on the mechanics increase enormously with increasing of rpm.

*Fit the main blades and tail blades. (Fig.1 and Fig.2)





- *Please make sure the main blades are tight on the blade grips,
- *Check the collective and cyclic pitch. We recommend 16° of collective pitch for speed flying. Exceeding 16°-17° will simply cause loss of efficiency, which will in turn "rob" power without increasing forward speed.
- *We recommend cyclic servos with at least 20 kg of torque.
- *It is important to check the correct tracking of the main blades.



*Perform the first flight at a low head speed, 1800 RPM.

After this first flight, do a general check of the helicopter. Verify that all screws are correctly tightened.





"SPEED" Flying

A high-speed helicopter requires a good balance between power, aerodynamic efficiency, blade efficiency and stabilization system (flybarless unit). The SAB Speed blades are designed specifically for this purpose; they combine the easy of flight while maintaining stability at high speeds.

- * It is recommended to have at least 2 flight conditions (idle up modes), one for take off and landing and another for flight condition at much higher RPM for speed flight.
 - The high RPM flight condition should only be used while away from the pilot (at least 30 meters).
 - Speed passes should always be made longitudinally to the pilot and spectators (left to right or right to left) and always at a safe distance.
- * The main and tail blades included with the Goblin COMET are not suitable for 3D flight, they are optimized for sport and speed flying ONLY. If you would like to perform 3D maneuvers with your Goblin COMET, we recommend using other blades designed for this application.
- *We recommend a rotor speed of approximately 2400 to 2600 RPM max. Using higher rotor speeds can potentially exceed 0.7 to 0.8 mach speed for the blade tips, which will decrease efficiency.
- * During the " Speed flight " (Very important during the setup flight) we recommend the use of elastic to hold the canopy in position. Performing a hard upward pitch may cause the fuselage to deform making it high risk that the canopy will move from it's original position. (see page 20)

MAINTENANCE

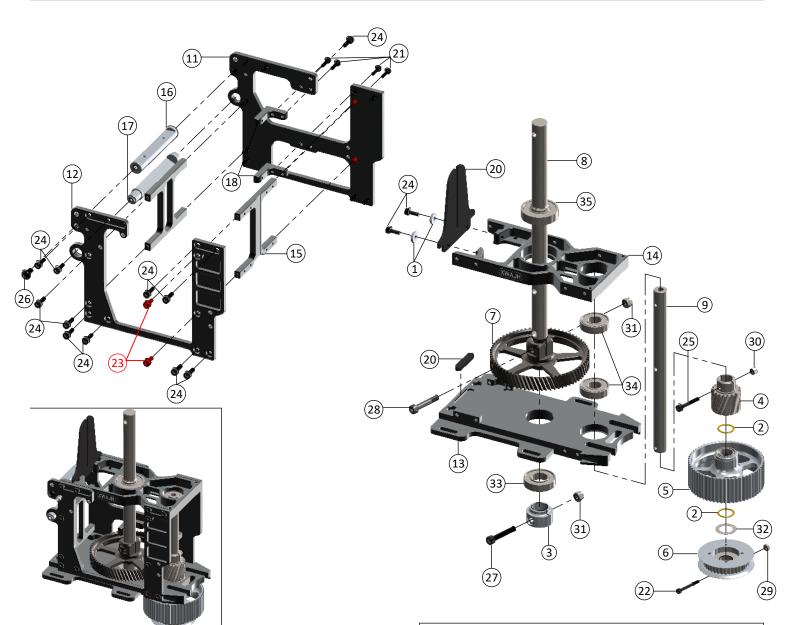
- *On the COMET, areas to look for wear include:
 - Motor belt
 - Tail belt
 - Damper
 - Main gear and pinion

The lifespan of these components varies according to the type of flying. On the average, it is recommended to replace the above mentioned parts every **100** flights.

- *The rotor head tends to lose rigidity after a while. Check this condition every **20** flights. Preloading with precision shim washers, it is possible to vary the rigidity of the head.
- *Check all uniballs often.
- *The most stressed bearings are definitely those of the tail shaft. Check them frequently.
- *Periodically lubricate the tail slider and its linkages, as well as the swashplate and its linkages.
- *Lubricate the main gear.
- *To ensure safety you should do a general inspection of the helicopter after each flight. You should check:
 - Proper tail and motor belt tension.
 - The proper isolation of wires from the carbon and aluminum parts.
 - That all screws remain tight.

If you fly Speed with the Comet, over 2500 RPM, you should check your model very accurately. The machine has a lot of stress and you should take care of all details very carefully.

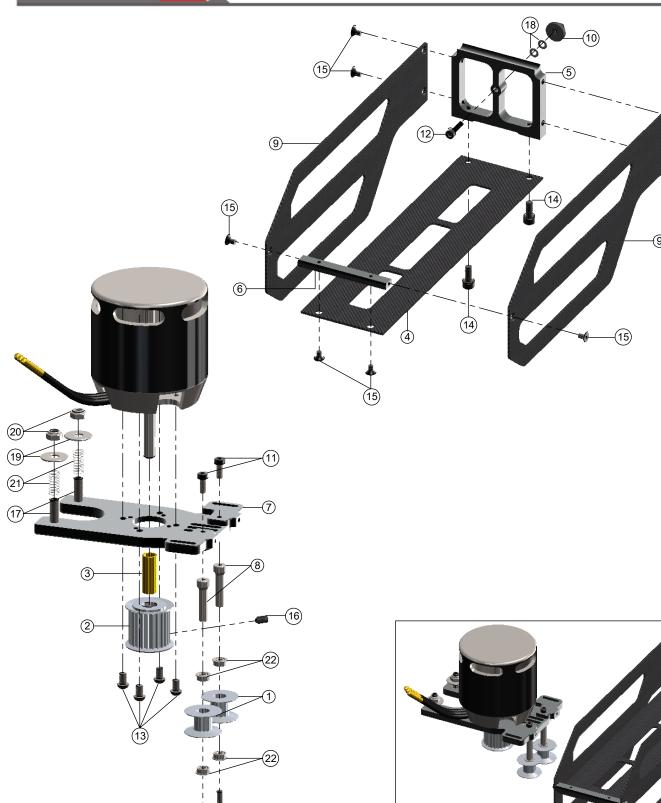




	Aluminum Frame and Transmission Assembly						
POS COD		Name	Specification	Quantity			
1	H0007	Finishing Washer M3	Aluminum	2			
2	H0891	Bushing One Way	Brass	2			
3	H0121	M4 Locking Collar	Aluminum	1			
4	H0156	19T Drive Pinion	Steel	1			
5	H0171	One Way Pulley	Aluminum	1			
6	H0172	Front Tail Pulley	Aluminum	1			
7	H0320	Main Gear	Steel	1			
8	H0601	Main Shaft	Steel	1			
9	H0602	Secondary Shaft	Steel	1			
10	H0603	Servo Support SR	Aluminum	1			
11	H0604	Side Case SR	Aluminum	1			
12	H0605	Side Case SL	Aluminum	1			
13	H0606	Main Support SR	Aluminum	1			
14	H0607	Top Plate SR	Aluminum	1			
15	H0609	Frame Spacer	Aluminum	1			
16	H0610	ESC Support	Aluminum	1			
17	H0736	Battery Stop	Aluminum	1			

	Aluminum Frame and Transmission Assembly							
POS	COD	Name	Specification	Quantity				
18	H0748	Single Servo Support	Aluminum	2				
19	H0756	Anti-Rotation Guide	Carbon Fiber	1				
20	H0876	Rubber Preload	Rubber	1				
21	HC020	Socket Head Cap Screw	M2.5x8mm	4				
22	HC033	Head Cap Shouldered	M2.5x19mm	1				
23	HC044	Socket Head Cap Screw	M3x8mm	4				
24	HC050	Socket Head Cap Screw	M3x8mm	23				
25	HC079	Head Cap Shouldered	M3x19mm	1				
26	HC098	Button Head Cap Screw	M4x8mm	2				
27	HC104	Socket Head Cap Screw	M4x22mm	1				
28	HC111	Head Cap Shouldered	M4x24mm	1				
29	HC200	Metrix Hex Nylon Nut	M2.5	1				
30	HC206	Metrix Hex Nylon Nut	M3	1				
31	HC212	Metrix Hex Nylon Nut	M4	2				
32	HC232	Shim ø10xø16x0.2mm	Steel	1				
33	HC426	Bearing ø12xø24 x 6mm		1				
34	HC479	Bearing ø10xø22 x 6mm		2				
35	HC480	Bearing ø10xø28 x 7mm		1				

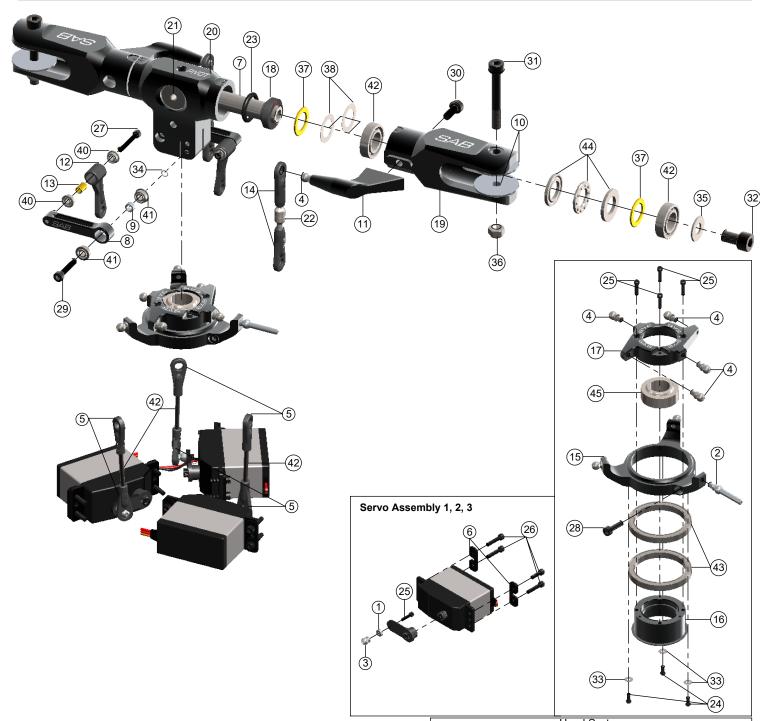




MOTOR MOUNT SYSTEM and BATTERY SYSTEM						
POS	Specification	Quantity				
1	H0069	Tail Belt Idle	Aluminum	2		
2	H0175-21	Motor Pulley	Aluminum	1		
3	H0176	Motor Bushing	Brass	1		
4 H0760		Battery Plate	Carbon Fiber	1		
5	H0733	Batter Support	Aluminum	1		
6	H0734	Frame Battery Support	Aluminum	1		
7	H0735	Motor Mount	Aluminum	1		
8	H0740	Column Tensioner	Steel	2		
9	H0753	Battery Side Support	Carbon Fiber	2		
10	H0875	Center Support	Derlin	1		
11	HC050	Socket Head Cap Screw	M3x8mm	2		
12	HC062	Socket Head Can Screw	M3v12mm	3		

MOTOR MOUNT SYSTEM and BATTERY SYSTEM						
POS	COD	Specification	Quantity			
13	HC096	Button Head Cap Screw	M4x6mm	4		
14	HC102	Socket Head Cap Screw	M4x10	2		
15	HC132	Flat Head Cap Screw	M3x5mm	7		
16	HC153	Set Screw	M4x6mm	1		
17	HC158	Set Screw	M5x20mm	2		
18	HC180	Washer	Ø5.3xØ15x1mm	2		
19	HC188	Washer	Ø5.3xØ15x1mm	2		
20	HC218	Metrix Hex Nylon Nut	M5	2		
21	HC310	Spring	de 5.8 / df 0.3	2		
22	HC402	Flanged Bearing	Ø3xØ7x3mm.	4		

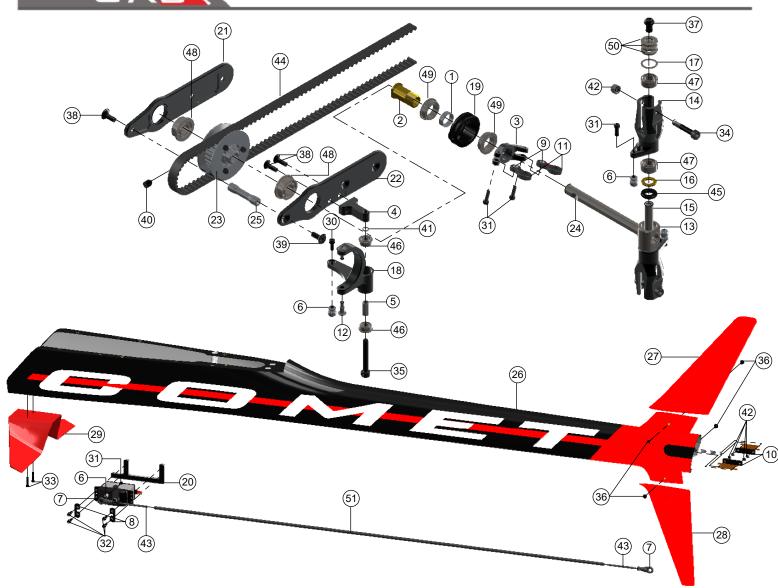




Head System						
Pos	Code	Name	Specification	Quantity		
1	H0031	Uniball Spacers	Aluminum	3		
2	H0063	Uniballs	M3x4 Ø 5 H18	1		
3	H0064	Uniballs	M2.5 Ø 5 H6	3		
4	H0065	Uniball M3	Steel	8		
5	H0066	Plastic Ball Linkages	Plastic	6		
6	H0075	Servo Spacers	Carbon Fiber	6		
7	H0079	Spindle	Steel	1		
8	H0132BM	Radius Arm	Aluminum Black Matte	2		
9	H0134	Spacer Arm		2		
10	H0158	Blade Washers	Aluminum	4		
11	H0183BM	Blade Grip Arm	Aluminum Black Matte	2		
12	H0205	Uniball Radius Arm	Plastic	2		
13	H0253	Spacer Arm		2		
14	H0402	Uniball M3	Plastic	4		
15	H0420-01BM	Swashplate 01	Aluminum Black Matte	1		
16	H0420-04BM	Swashplate 04	Aluminum Black Matte	1		
17	H0422-02BM	Swashplate 02	Aluminum Black Matte	1		
18	H0426-B	Damper Delrin	Pom black	2		
19	H0719BM	Main Blade Grip	Aluminum Black Matte	2		
20	H0720BM	Center Hub	Aluminum Black Matte	1		
21	H0721	Pivot Head	Steel	1		
22	H0722	Main Linkages	Steel	2		

Head System						
Pos	Code	Name	Specification	Quantity		
23	HA024	Oring		2		
24	HC005	Button Cap Screws	M2x5mm	3		
25	HC008	Head Cap Screws	M2 x 8mm	7		
26	HC020	Head Cap Screws	M2.5x10mm	12		
27	HC032	Head Cap Screws	M2.5x18mm	2		
28	HC056	Head Cap Screws	M3x10mm	1		
29	HC068	Head Cap Screws	M3x16mm	2		
30	HC102	Head Cap Screws	M4x10mm	2		
31	HC116	Head Cap Shoulder	M5x35mm	2		
32	HC124	Head Cap Screws	M6x10mm	2		
33	HC170	Washers	Ø2 x Ø5 x 0.5mm	3		
34	HC176	Washers	Ø3x Ø4x0.5	2		
35	HC194	Washers	Ø6xØ14x1	2		
36	HC218	Nylon Nut	M5	2		
37	HC230	Washers	Ø10x Ø16x1mm	4		
38	HC232	Washers	Ø10x Ø16x0.2mm	2		
39	HC242	Threaded Rods	M2.5x40mm	3		
40	HC400	Flanged Bearing	Ø2.5x Ø6x2.5mm	4		
41	HC402	Flanged Bearing	Ø3x Ø7x3mm	4		
42	HC422	Bearing	Ø10x Ø19x5mm	4		
43	HC430	Bearing Rads	Ø30 x Ø37 x 4mm	2		
44	HC438	Thrust Bearing	Ø10x Ø18x5.5mm	2		
45	HC447	Spherical Bearing	Ø12x Ø22x7mm	1		





TAIL SYSTEM							
POS	COD	Name	Specification	Quantity			
1	H0029	Spacer	Ø8.1 x Ø 9.2 x 3.2mm	1			
2	H0054	Tail Pitch Slider 02	Aluminum	1			
3	H0055BM	Tail Pitch Slider Link	Aluminum Black Matte	1			
4	H0058BM	Bell Crank Base	Aluminum Black Matte	1			
5	H0060	Spacer	Ø3 x Ø4 x 9.6mm	1			
6	H0064	Uniballs	M2.5 Ø 5h6	4			
7	H0066	Plastic Ball Links	Plastic	2			
8	H0075	Servo Spacer	Carbon Fiber	2			
9	H0076	Spacer	Ø2xØ2x3mm	3			
10	H0249	Tail Locking Element	Carbon Fiber	2			
11	H0261	Tail Pitch Slider Link		2			
12	H0264	Pin M3	Steel	2			
13	H0326	Tail Hub	Steel	1			
14	H0327BM	Tail Blade Grip	Aluminum Black Matte	2			
15	H0329	Tail Spindle Steel		1			
16	H0330	Spacer	Ø5xØ9x0.75mm	2			
17	H0349	Spacer	Ø7.5x Ø10x0.5mm	2			
18	H0406BM	Tail Bell Crank	Aluminum Black Matte	1			
19	H0407	Tail Pitch Slider 02	Plastic	1			
20	H0751	Tail Servo Support	Aluminum Black Matte	1			
21	H0752L	Tail Side Plate Left	Aluminum Black Matte	1			
22	H0752R	Tail Side Plate Right	Aluminum Black Matte	1			
23	H0859	Tail Pulley	27T	1			
24	H0860	Tail Shaft	Steel	1			
25	H0861	Tail Case Spacer	Aluminum	1			
26	H0878	Black / Red Boom Comet	Carbon Fiber	1			
20	H0880	Yellow / Red Boom Comet	Calboll Fibel	'			

TAIL SYSTEM								
POS	COD	Name	Specification	Quantity				
27	H0881	Comet Top Tail Fin	Carbon Fiber	1				
28	H0882	Comet Botton Tail Fin	Carbon Fiber	1				
29	H0883	Standard Landing Gear	Carbon Fiber	1				
30	HC002	Socket Head Cap Screws	M2 x 5mm	1				
31	HC004	Socket Head Cap Screws	M2 x 6mm	5				
32	HC022	Socket Head Cap Screws	M2.5 x 8mm	4				
33	HC064	Socket Head Cap Screws	M3 x 14mm	2				
34	HC079	Socket Head Cap Screws Shoulder	M3 x 18mm	2				
35	HC086	Socket Head Cap Screws	M3 x 22mm	1				
36	HC094	Button Head Cap Screws	M3 x 6mm	4				
37	HC096	Button Head Cap Screws	M4 x 6mm	2				
38	HC128	Flat Head Cap Screws	M2.5x8mm	2				
39	HC134	Flat Head Cap Screws	M3x8mm	2				
40	HC152	Set Screws	M4 x 4mm	1				
41	HC176	Washer	Ø3x Ø4x0.5mm	1				
42	HC206	Metrix Hex Nylon Nut	M3	6				
43	HC242	Set Screws	M2.5 x 40mm	2				
44	HC304	Belt Gates 2061-3GT-06		1				
45	HC335	Tail Oring		2				
46	HC402	Flanged Bearings	Ø3 x Ø7 x 3mm	2				
47	HC411	Bearings	Ø5xØ10x4mm	4				
48	HC414	Flanged Bearings	Ø6 x Ø 13 x 5mm	2				
49	HC418	Flanged Bearings	Ø8 x Ø 12 x 3.5mm	2				
50	HC435	Thrust Bearings	Ø5x Ø10x4mm	2				
51	HC481	Carbon Rod Ø2.5 x Ø4 x 1015mm		1				



- 1 x 18T Pulley. - 1 x Set Screw M4x4mm. - 1 x 19T Pulley. - 1 x Set Screw M4x4mm. - 1 x 21T Pulley. - 1 x Set Screw M4x4mm.

- 1 x 20T Pulley. - 1 x Set Screw M4x4mm.



22T Pulley [H0175-22-S]



- 1 x 22T Pulley. - 1 x Set Screw M4x4mm.

23T Pulley [H0175-23-S]



- 1 x 23T Pulley. - 1 x Set Screw M4x4mm.

24T Pulley [H0175-24-S]



1 x 24T Pulley.1 x Set Screw M4x4mm.

25T Pulley [H0175-25-S]



1 x 25T Pulley.1 x Set Screw M4x4mm.

Blade Grip Arm [H0183BM-S]



2 x Blade Grip Arm. 2 x Socket Head Cap Screw M4x10mm. 2 x Uniball M3x4 Ø5 H3.5. Uniball Radius Arm [H0205-S]



- 2 x Uniball Radius Arm.

Tail Locking Element [H0249-S]



- 2 x Locking Element Tail . - 2 x Double Side Tape. - 4 x Socket Head Cap Screw M3x10mm.

- 4 x Metric Hex Nylon Nut M3.

Plastic Tail Linkage [H0261-S]



2 x Plastic Tail Linkage.2 x Grip Link Bushing.2 x Head Cap Screws M x Head Cap Screws M2x6mm.

Steel Main Gear [H0320-S]



- 1 x 68T Main Gear

1 x Socket Head Cap Screw M4x24mm.
1 x Metric Hex Nylon Nut M4 H5.
1 x 19T Drive Pinion.

1 x Socket Head Cap Screw Shouldered M3x22mm.
1 x Metric Hex Nylon Nut M3H4.

Aluminum Tail Blade Grip [H0327BM-S]



2 x Aluminum Tail Blade Grip.

- 2 x Aluminum Tall Blade Grip.
- 4 x Bearing Ø5xØ10x4mm.
- 2 x Thrust bearing Ø5xØ10x4mm.
- 2 x Button Head Cap M4x8mm.
- 2 x Socket Head Cap M2x6mm.
- 2 x Washer Ø5xØ8.9x0,75mm.
- 2 x Washer Ø7.5xØ10x0,5mm.

Tail Spindle [H0329-S]

Spacer Set for Tail Rotor TH0330-S1



1 x Tail Spindle. - 2 x Button Head Cap Screws M4x6mm.



2 x Washer Ø5xØ8.9x0,75mm.
2 x Washer Ø7.5xØ10x0,5mm.
2 x Tail Oring Damperner.

[H0407BM-S]

Plastic Ball Link TH0402-S1



- 5 x Plastic Ball Link.

Bell Crank Lever [H0406BM-S]



- 1 x Uniball M2.
- 1 x Uniball Spacer.
- 2 x Flanged Bearing Ø3 x Ø 7x3mm.
- 1 x Head Cap Screws M3x22mm.
- 1 x Head Cap Screws M2x8mm.
- 1 x Head Cap Screws M2x5mm.
- 1 x Washer Ø3 x Ø4 x 0.5mm.
- 1 x Spacer Ø3 x Ø4 x 9.6mm.

Tail Pitch Slider Set Black Matte [H0407BM-S]



SwashPlate Set Black Matte

x Swashplate Upper Cup.

1 x Swashplate Bottom Cup.
1 x Swashplate Base Cup.

- 1 x Swashplate Base Cup.
- 1 x Spherical Bearing Ø12xØ22x7.
- 4 x Socket Head Screw M2x8mm.
- 1 x Socket Head Screw M3x10mm.
- 2 x Bearings Ø30xØ37x4mm.
- 6 x Uniballs M3x4Ø5 H3.
- 1 x Uniball M3x4Ø5 H18.
- 3 x Socket Head Screws M2x5mm.
- 3 x Washer Ø2.2xØ5x0.3mm



Damper Delrin TH0426-S1

3 x CNC Delrin Dampener Type A

- 3 x CNC Delini Dampener Type A. - 3 x CNC Delrin Dampener Type B. - 3 x CNC Delrin Dampener Type C. - 3 x Steel Shims Ø10 x Ø16 x 1. - 3 x Steel Shims Ø10 x Ø16 x 0,2. - 3 x O-ring 3050.



- 1 x Socket Head Cap Screw Shouldered M4x24mm.
- Socket Head Cap Screws M4x22mm
- 2 x Metric Hex Nylon Nuts M4.

Secondary Shaft [H0602-S]



- 1 x Secondary Shaft M3.
 1 x Socket Head Cap Screw Shoulder M2.5x19mm.
 1 x Metric Hex Nylon Nut M2,5.
 1 x Socket Head Cap Shoulder M3x22mm.

- 1 x Metric Hex locknut Nut M3.



- 1 x Servo Support SR.1 x Frame Spacer.



- 1 x Side Case SR.



1 x Side Case SL.

Main Support SR [H0606BM-S]



- 1 x Main Support SR.

Top Plate SR [H0607BM-S]



1 x Top Plate SR.



- 1 x ESC Support. 1 x ESC Plate.
- 2 x Socket Head Cap Screw M3x10mm.
- 2 x Finishing Washer M3.

Blade Grips [H0719BM-S]



Battery Support [H0733-S] □

- 2 x Blade Grip.
 2 x Thrust Bearing Ø 10x Ø 18x5.5mm.
 4 x Bearing Ø 10x Ø 19x5mm.
 2 x Washer Ø 10x Ø 16x1mm.
 2 x Socket Head Cap Screws M4x10mm.

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Center Hub [H0720BM-S]



- 1 x Center Hub
- 1 x Pivot Head.
- 2 x Socket Head Cap Screw M3x12mm.
- 1 x Socket Head Cap Screw Shoudered M4x24mm. 1 x Metric Hex Nylon Nut M4.

Linkage Rod M3x40mm [H0722-S]



- 2 x Linkage Rod M3x40mm. 4 x Uniballs M3.

Motor Mount [H0735-S]



- x Motor Mount
- 1 x Motor Mount. 2 x Springs de 5.8/ df0.5 / LL9. 2 x Washer Ø 5.3x Ø 15x1mm. 2 x Metric Hex Nylon Nut M5. 2 x Set Screw M5x20mm.

Battery Stop [H0736-S]



- 1 x Battery Stop.
 1 x Battery Block.
 1 x Finishing Washer M3.
 1 x Head Cap Screw M3x8mm.

Column Tensioner [H0740-S]

- 1 x Battery Support. - 1 x Center Support.

1 x Frame Battery Support.
1 x Frame Battery Support.
1 x Battery Plate.
2 x Battery Side.
2 x Double tape side.
2 x Battery Velcro Strap.



- 2 x Column tensioner

- 2 x Head Cap Screw M3x8mm
- 2 x Tail Belt Idler. 4 x Flanged Bearing Ø3x Ø7x3mm. 2 x Head Cap Screw M3x12mm.

Tail Servo Support [H0748-S]

- 1 x Socket Head Cap Screws M3x12mm. - 2 x Socket Head Cap Screws M4x10mm. - 8 x Flat Head Cap Screws M3x5mm. - 2 x Washer Ø 3.2x Ø 6x0.5mm.



- 2 x Singel Servo Support.

- 1 x Tail Servo Support.

Tail Side Plate [H0752-S]



- 1 x Tail Side Plate Left.



- 1 x FBL Support.

- 1 x RX Support. 2 x Column. 2 x Finishing Washer M3.
- 2 x Head Cap Screw Shouldered M3x30mm.

Swashplate Anti-Rotation Guide [H0756-S]



- 1 x Swashplate Anti-Rotation Guide
 2 x Finishing Washer M3.
 2 x Socket Head Cap Screw M3x8mm.

26T Tail Pulley [H0859-26-S]



- 1 x 26T Tail Pulley
- 1 x Set Screw M4x6mm.

27T Tail Pulley [H0859-27-S]



1 x 27T Tail Pulley.1 x Set Screw M4x6mm.

Tail Shaft [H0860-S]



- 1 x Tail Shaft.
- 1 x Tail Hub.



Black / Red Boom COMET [H0878-S]







- 1 x Yellow / Red Canopy Comet.

Yellow / Red Boom COMET [H0880-S]



- 1 x Yellow / Red Boom Comet.
 2 x Tail Locking Element.
 4 x Metric Hex Nylon Nut M3
 2 x Double Side Tape.
 4 x Flat Head Cap Screw M3x10mm.



Comet Top Tail Fin [H0881-S]



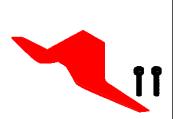
1 x Red Comet Top Tail Fin.2 x Button Head Cap Screw M3x6mm.

Comet Bottom Tail Fin [H0882-S]



- 1 x Red Comet Bottom Tail Fin. - 2 x Button Head Cap Screw M3x6mm.

Standard Landing Gear Red [H0883-S]



1 x Standard Landing Gear Red. - 2 x Socket Head Cap Screw M3x14mm

Comet Motor Cover [H0887-S]



- 1 x Comet Motor Cover.4 x Washer M3.4 x Head Cap Screw M3x6mm.



[HC003 8]	[HC004 S]	[HC008-S]	[HC018-S]	[HC020-S]	[HC022-S]
[HC002-S]	[HC004-S]	[HC008-5]	[нси18-5]	[нс020-5]	[HC022-5]
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- 8 x Socket Head Cap Screws M2x5mm.	- 8 x Socket Head Cap Screws M2x6mm.	- 8 x Socket Head Cap Screws M2x8mm.	- 8 x Socket Head Cap Screws M2.5x6mm.	- 8 x Socket Head Cap Screws M2.5x8mm.	- 8 x Socket Head Cap Screws M2.5x8mm.
[HC032-S]	[HC033-S]	[HC044-S]	[HC050-S]	[HC056-S]	[HC062-S]
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	- 4 x Socket Head Cap shouder M2.5x19mm.				
- 8 x Socket Head Cap Screw M2.5x18mm.	- 4 x Metrix Hex Nylon Nut M2.5.	 8 x Socket Head Cap Screws M3x6mm. 	- 8 x Socket Head Cap Screws M3x8mm.	- 8 x Socket Head Cap Screws M3x10mm.	- 8 x Socket Head Cap Screws M3x12mm.
[HC068-S]	[HC074-S]	[HC079-S]	[HC086-S]	[HC094-S]	[HC096-S]
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	- 2 x Socket Head Cap	- 2 x Socket Head Cap	•		
- 8 x Socket Head Cap Screws M3x16mm.	Shouder M3x16mm - 2 x Metrix Hex Nylon Nut M3.	Shouder M3x18mm. - 2 x Metrix Hex Nylon Nut M3.	- 8 x Socket Head Cap Screws M3x22mm.	- 8 x Buttom Head Cap Screws M3x6mm.	- 8 x Buttom Head Cap Screws M4x6mm.
[HC098-S]	[HC102-S]	[HC103-S]	[HC104-S]	[HC111-S]	[HC114-S]
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- 8 x Button Head Cap Screws M4x8mm.	- 8 x Socket Head Cap Screws M4x10mm.	- 8 x Socket Head Cap Screws M4x15mm.	- 8 x Socket Head Cap Screws M4x22mm.	- 8 x Socket Head Cap Shouder M5x30mm	- 2 x Socket Head Cap Shouder M5x30mm. - 2 x Metrix Hex Nut M5.
[HC124-S]	[HC128-S]	[HC132-S]	[HC134-S]	[HC153-S]	[HC158-S]
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- 8 x Socket Head Cap	- 8 x Flat Head Cap	- 8 x Flat Head Cap	- 8 x Flat Head Cap	- 8 x Cup Poin Set	- 8 x Cup Poin Set
Screws M6x10mm. [HC170-S]	Screws M2.5x8mm. [HC176-S]	Screws M3x5mm. [HC184-S]	Screws M3x8mm. [HC188-S]	Screws M4x6mm. [HC194-S]	Screws M5x20mm. [HC200-S]
[110170-0]	[[110104-0]	[.10100-0]	[110 104-0]	[.10200-0]
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- 10 x Washer Ø2,2xØ5x0,3mm.	- 5 x Washer Ø3xØ4x0,5mm.	- 5 x Washer Ø4.3xØ11x1mm.	- 5 x Washer Ø5.3xØ15x1mm.	- 5 x Washer Ø6.3xØ15x1mm.	- 10 x Metric Hex Nylon Nuts M2.5 H3.
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- Carefully check your model before each flight to ensure it is airworthy.
- Consider flying only in areas dedicated to the use of model helicopters.
- Check and inspect the flying area to ensure it is clear of people orbstacles.
- Rotor blades can rotate at very high speeds!
 Be aware of the danger they pose.
- Always keep the model at a safe distance from other pilots and spectators.
- Avoid maneuvers with trajectories towards a crowd.
- Always maintain a safe distance from the model.

GOBLIN COMET

Release 1.0 - June 2017

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