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SUPERIOR EDITION HELICOPTER
T-REX 450SE
INSTRUCTION MANUAL



STANDARD EQUIPMENT :

- ★ T-REX 450SE Kit x 1set
- ★ 325 PRO Blade x 1set
- ★ 325 Blade x 1set
- ★ 430X Brushless motor(3550KV) x 1pc
- ★ 11.1V 2100mAh/20C Battery x 1pc
- ★ RCM-BL35X 35A Brushless ESC(Governor Mode) x 1pc

Contents

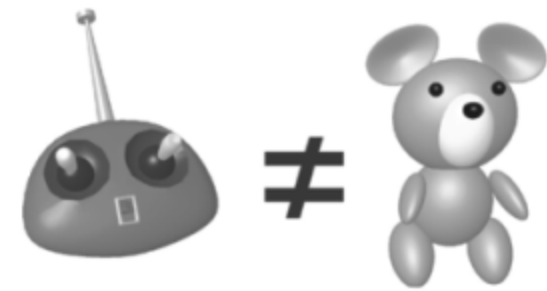
1~2	Safety Notes
3~14	Assembly Section
15~18	Adjustment Section
19	Regular Maintenance
20~22	Spare Parts and Tools

Thank you for buying **ALIGN** products. The **T-REX 450SE** is the latest technology in Rotary RC models. Please read this manual carefully before assembling and flying the new **T-REX 450SE** helicopter. We recommend that you keep this manual for future reference regarding tuning and maintenance.

Thank you for buying ALIGN Products. The T-REX 450SE Helicopter is designed as an easy to use, full featured Helicopter R/C model capable of all forms of rotary flight. Please read the manual carefully before assembling the model, and follow all precautions and recommendations located within the manual. Be sure to retain the manual for future reference, routine maintenance, and tuning. The T-REX 450SE is a new product developed by ALIGN. It features the best design available on the Micro-Heli market to date, providing flying stability for beginners, full aerobatic capability for advanced fliers, and unsurpassed reliability for customer support.

IMPORTANT NOTES

R/C helicopters, including the T-REX 450SE are not toys. R/C helicopters utilize various high-tech products and technologies to provide superior performance. The rotating blades on the model spin at high speed and can cause potential risk or injury if used improperly. It is mandatory that you observe all R/C safety rules and adhere to local laws as applicable. We recommend that you contact your local hobby store and inquire about safety, rules, regulations, and local laws and statutes regarding R/C model operation in your area. Please make sure to be conscious of your own personal safety and the safety of others and your environment when operating all ALIGN products. When used properly, ALIGN R/C products will provide years of R/C entertainment.



It is not a Toy!

We recommend that you obtain the assistance of an experienced pilot before attempting to fly our products for the first time. A local expert is the best way to properly assemble, setup, and fly your model for the first time.

The T-REX 450SE requires a certain degree of skill to operate, and is a consumer item. Any damage or dissatisfaction as a result of accidents or modifications are not covered by any warrantee and cannot be returned for repair or replacement. Please contact our distributors for free technical consultation and parts at discounted rates when you experience problems during operation or maintenance.

Note: Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as of a result of R/C aircraft models.

SAFETY NOTES

1. Locate an appropriate location:

R/C helicopters fly at high speed, thus posing a certain degree of potential danger. Choose an appropriate flying site consisting of flat, smooth ground, a clear open field, or a large open room, such as gymnasium or warehouse without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others, and your model. Do not fly your model in inclement weather, such as rain, wind, snow, or darkness.

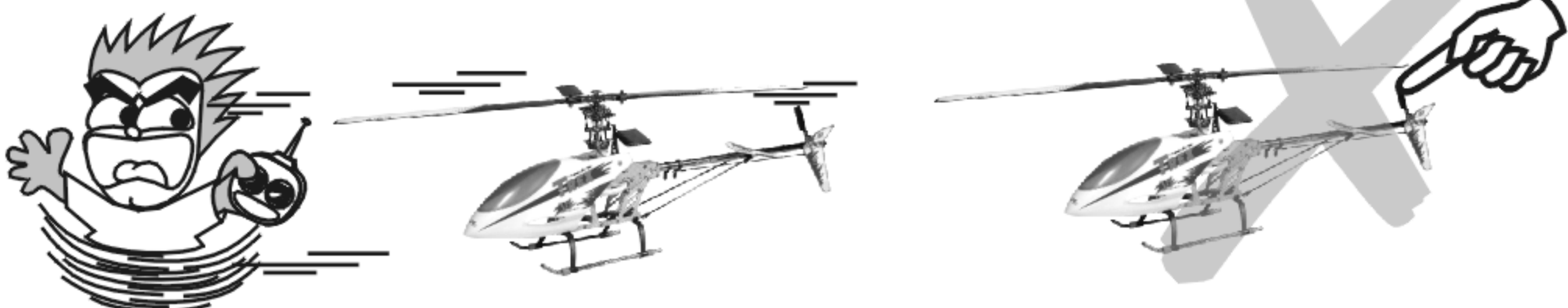


2. Obtain the assistance of an experienced pilot:

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight. (Recommend you to practice with computer-based flight simulator.)

3. Always be aware of the rotating blades:

During the operation of the helicopter, the main rotor and tail rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage to the environment. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.



PREVENT MOISTURE

R/C models are composed of many precision electrical components.

It is critical to keep the model and associated equipment away from moisture and other contaminants.

The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash.



Do not operate or expose to rain or moisture.

KEEP AWAY FROM HEAT

R/C models are made up various forms of plastic.






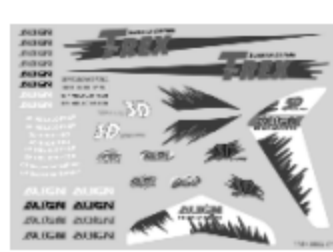



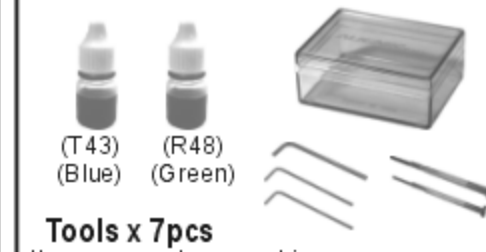
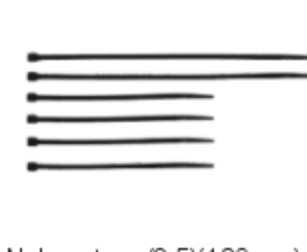
Plastic is very susceptible to damage or deformation due to heat.

Make sure not to store the model near any source of heat such as an oven, or heater.







It is best to store the model indoors, in a climate-controlled, room temperature environment.







STANDARD EQUIPMENT

 <p>T-REX 450SE EP-Helicopter Kit x 1set</p> <p>1</p>	 <p>325 Blade x 1 set 325 PRO Blade x 1 set Main Blade x 2sets</p> <p>2</p>	 <p>430X 3550KV Brushless motor x 1pc</p> <p>3</p>	 <p>RCE-BL35X Brushless ESC x 1pc</p> <p>4</p>	 <p>11.1V 3S 2100mAh/20C Battery x 1pc</p> <p>5</p>	
 <p>Decal x 1pc</p> <p>6</p>	 <p>Hook & Loop Fastening Tapex 1pc Main blade holder x 1pc</p> <p>7</p>	 <p>Motor pinion gear x 2pcs M3x3 Set Screw x 1</p> <p>8</p>	 <p>Hardware Bag x 1pc</p> <p>9</p>	 <p>Tools x 7pcs Hexagon wrenches, screw drivers anaerobics retainers, thread lock, parts case x 1pc</p> <p>10</p>	 <p>Nylon strap (2.5X160mm)x2 Nylon strap (2.5X100mm)x4</p> <p>11</p>

RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY

 <p>Transmitter (6-channel, helicopter system)</p>	 <p>Receiver (6-channel or more)</p>	 <p>Gyro</p>	 <p>9g Micro Servo x3pcs(Movements) 6g Micro Servo x1pc(Tail rudder)</p>
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TOOLS REQUIRED FOR ASSEMBLY

 <p>Scissors</p>	 <p>Cutter Knife</p>	 <p>Grease</p>	 <p>CA</p>	 <p>Diagonal Cutting Pliers</p>	 <p>Needle Nose Pliers</p>
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ADDITIONAL POWER SYSTEM RECOMMENDATION FOR STANDARD POWER EQUIPMENT

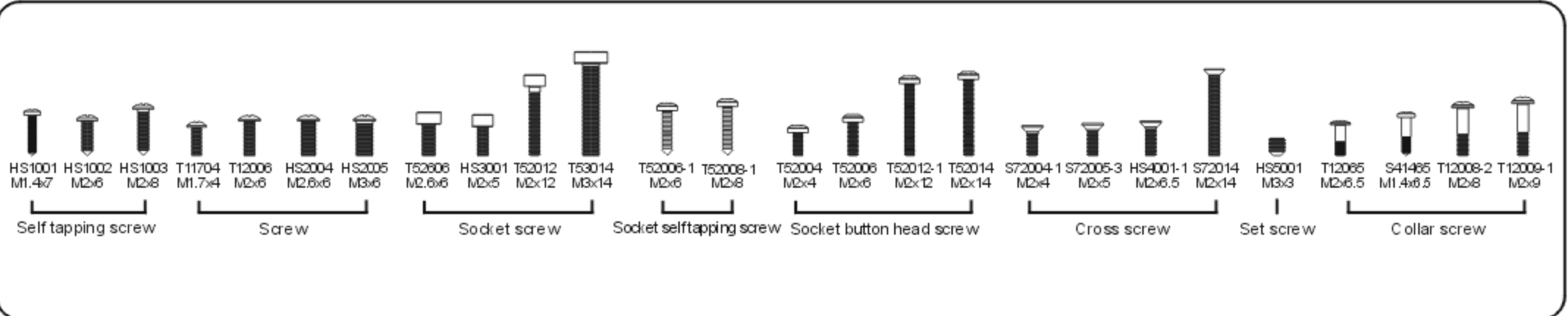
Align RCM-BL430X 3550KV high efficiency brushless motor
 When Hovering flight, recommend to use motor gear 12T, rotor blade 315 or 325mm, and Max. Pitch +9°~+10° for beginner/intermediate pilot.
 For high power 3D flight, recommend to use motor gear 13T, rotor blade 315 or 325mm and Pitch setting at ±9°.

Each section of the manual has its associated parts bag. Each bag is labeled accordingly. Make sure to only open the bags as indicated in the instructed manual and place them into the provided parts cases. Do not open all the bags at once, or out of order to avoid confusion and difficulty assembling the model.

Start assembling the model by beginning with the main rotor head. We will build the model from the rotor head, out to the rest of the model. Apply silicon lubricant in the inside and outer edges of the o-rings, then insert them into the main rotor head. The flybar ends must be the same length on each side of the rotor head. Measure the distance between the edge of the flybar paddle and the flybar control arm; make this distance the same on both sides. The flybar control arms must be parallel to each other. The flybar paddles must be locked in the same position, exactly horizontally level with the swashplate. Use an angle of attack ruler on each flybar paddle and adjust the angles so that they are the same, and have the correct angle. It may become necessary to apply some glue on the screws to properly tighten them. The screws must be tightened snugly, but be careful to not overtighten them as it will strip the threads and cause the assembly to become loose.

Note: After tightening the flybar control arms and paddles, check for free movement and minimal gaps between the surfaces. All rotor head assemblies should be assembled tightly snug, without any binding or slow movement.

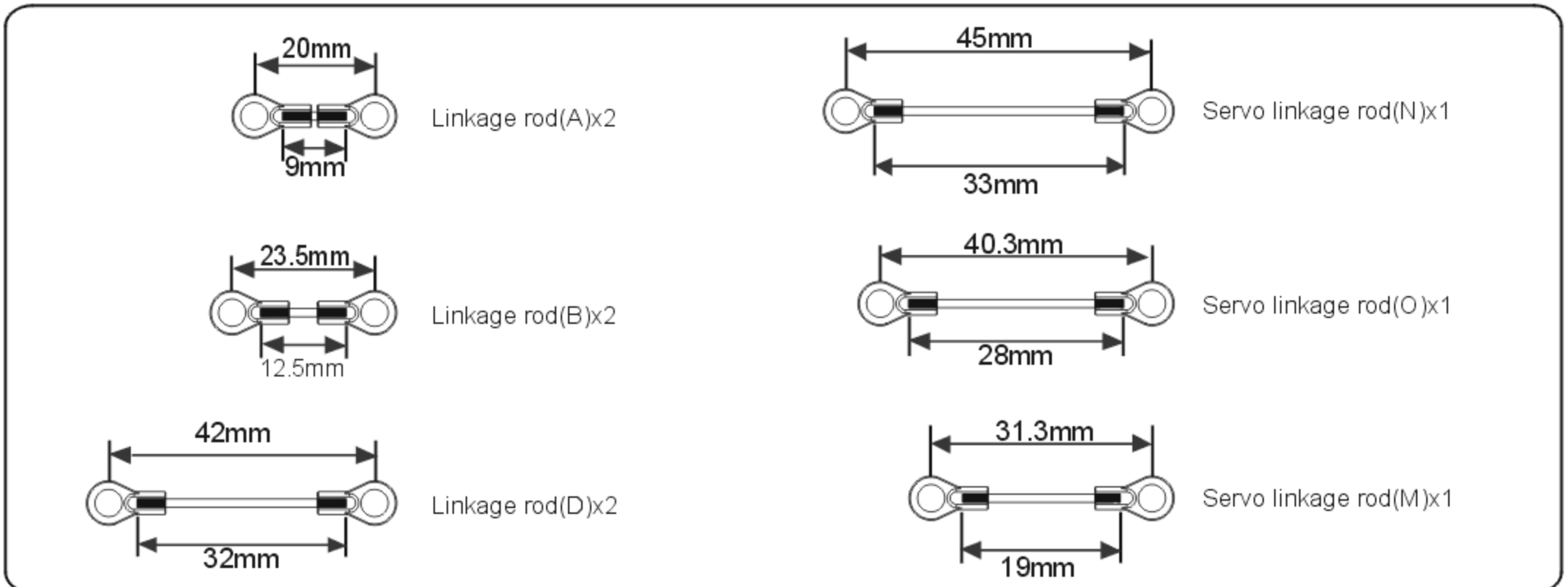
SCREW SPECIFICATION



Parts kit No.HZ

NO.	PN.	Parts No	Description	Q' TY	Specification	NO.	PN.	Parts No	Description	Q' TY	Specification
1	HZ0	HZ009	Ball link(Long)	18		5	HZ0	HZ037-1	Servo linkage rod(M)	1	φ 1.3X19mm
2	HZ0	HZ001-1	Linkage rod(A)	2	φ 1.3X9mm	6	HZ0	HZ038-1	Servo linkage rod(N)	1	φ 1.3X33mm
3	HZ0	HZ002-1	Linkage rod(B)	2	φ 1.3X12.5mm	7	HZ0	HZ039-1	Servo linkage rod(O)	1	φ 1.3X28mm
4	HZ0	HZ003-1	Linkage rod(D)	2	φ 1.3X32mm						

LINKAGE ROD

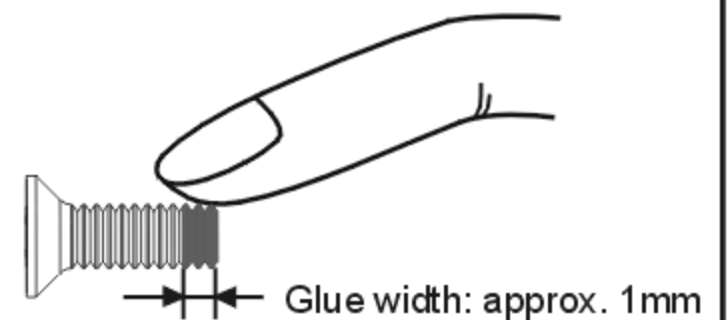
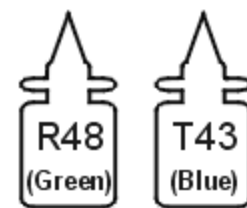


When you see the marks as below, please use glue or grease to ensure flying safety.



CA: Apply CA glue.
R48: Apply anaerobics retainer to fix.
T43: Apply thread lock.
OIL: Add grease.

When assembling ball links, make sure the "A" character faces outside.

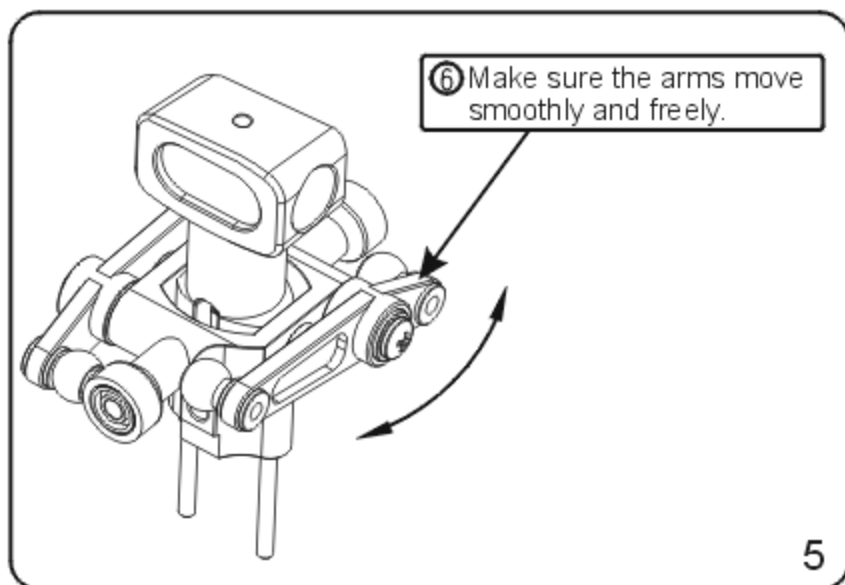
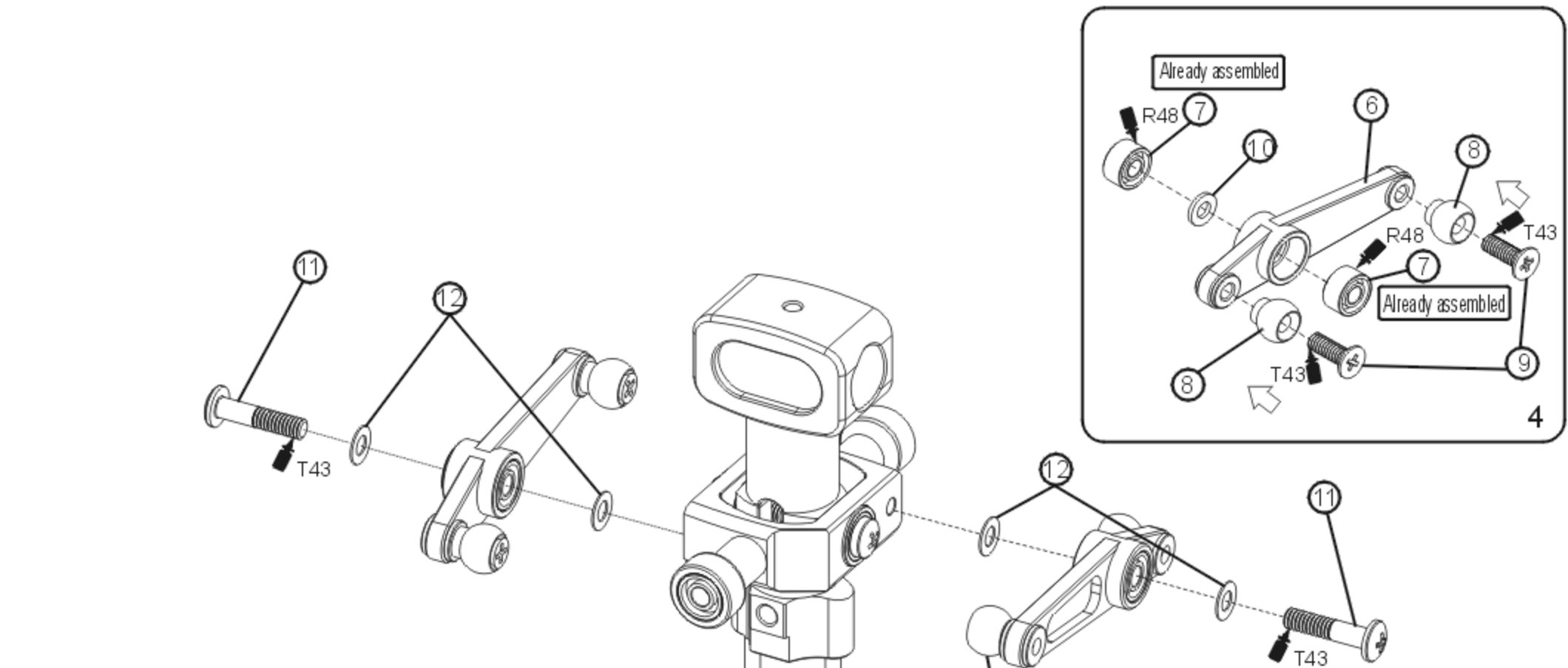
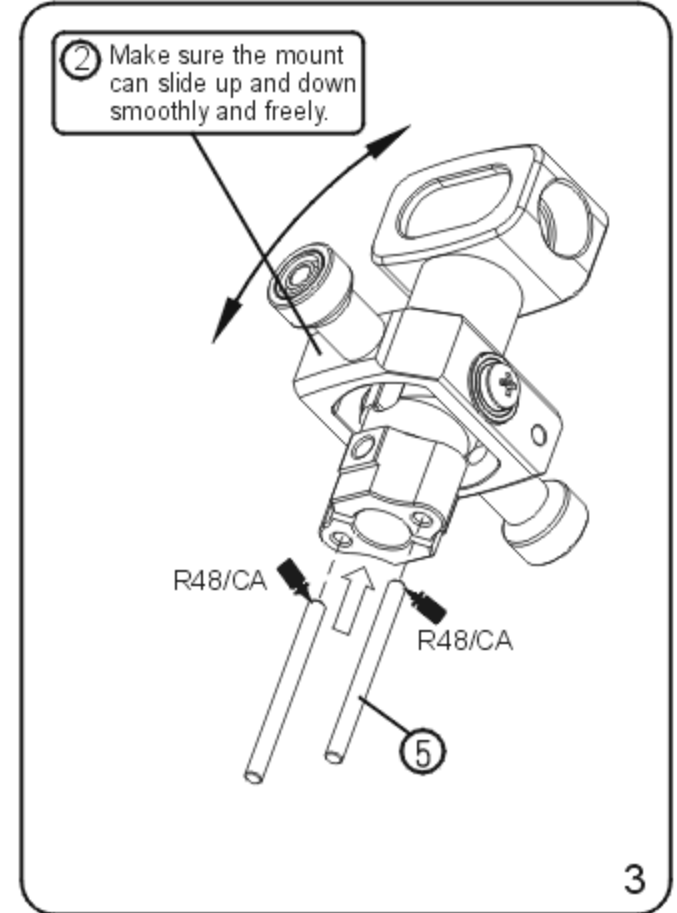
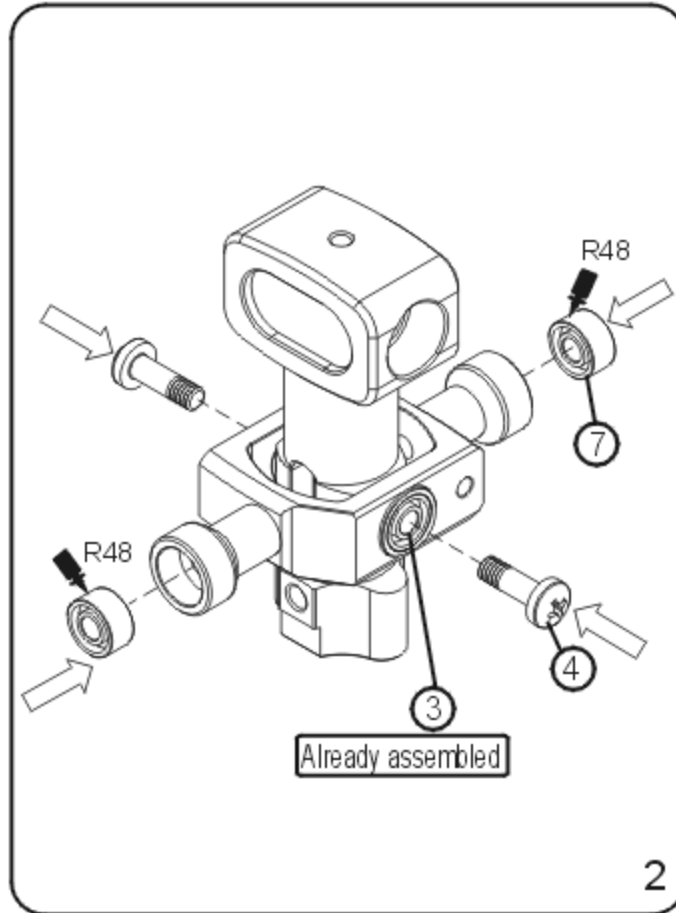
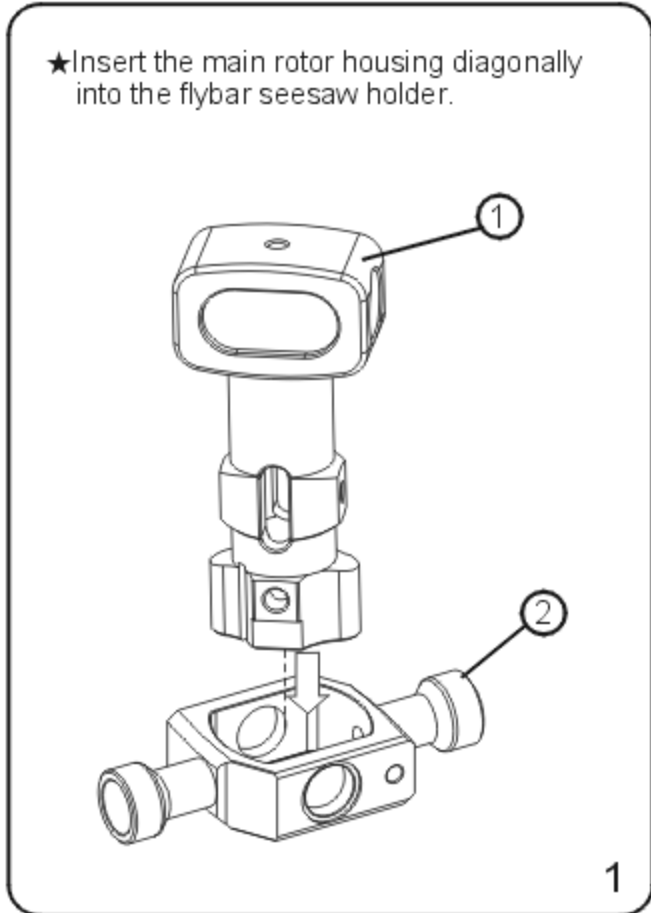


R48 metal tubular adhesive (eg. Bearings), T43 thread lock, apply a small amount on screws or metal parts and wipe surplus off. When disassembling, recommend to heat the metal joint about 15 seconds.

(NOTE: Keep plastic parts away from heat.)

Parts kit No.HH

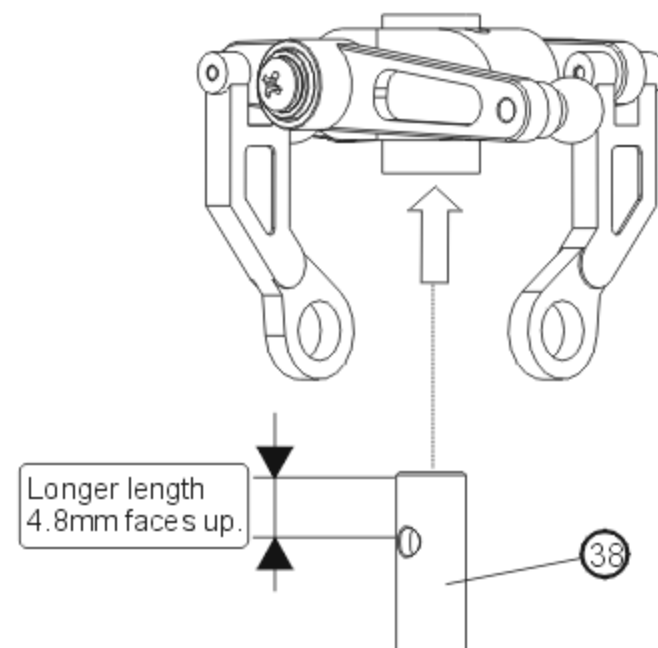
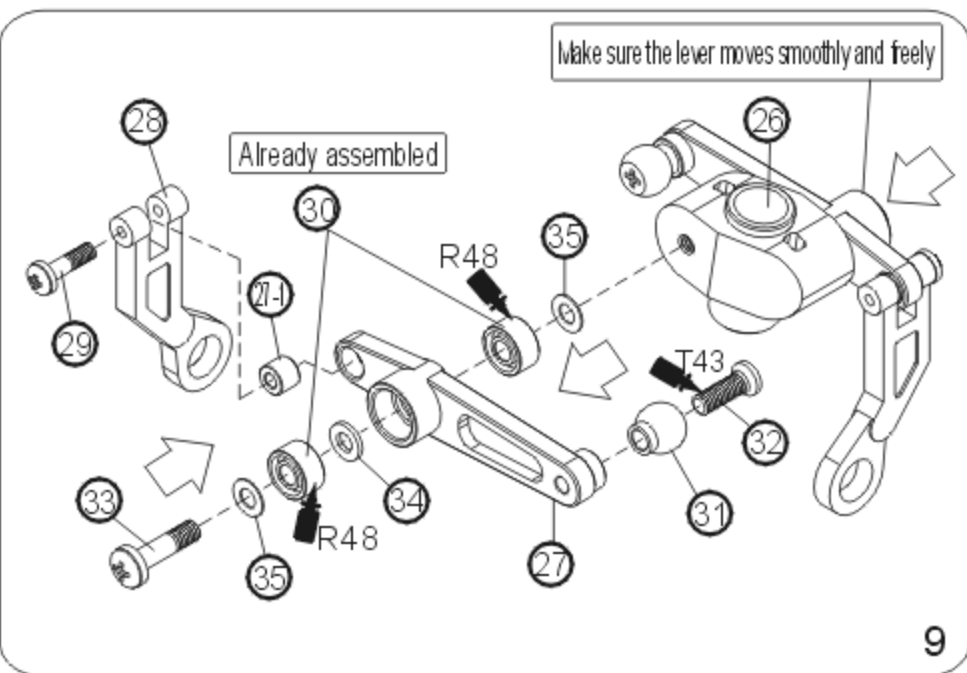
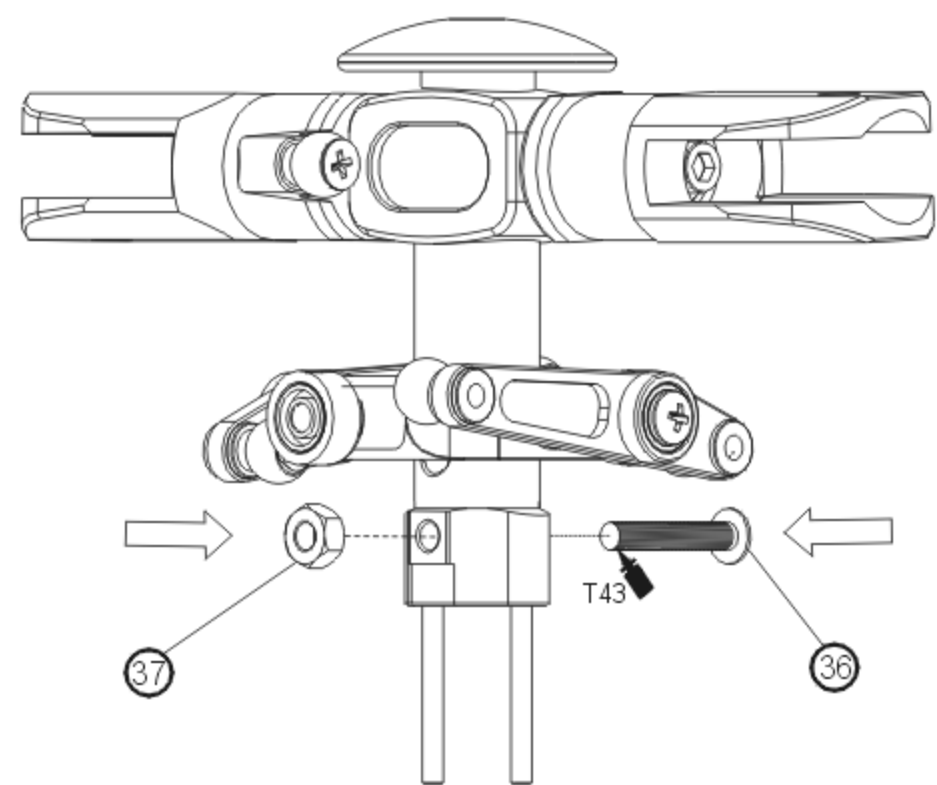
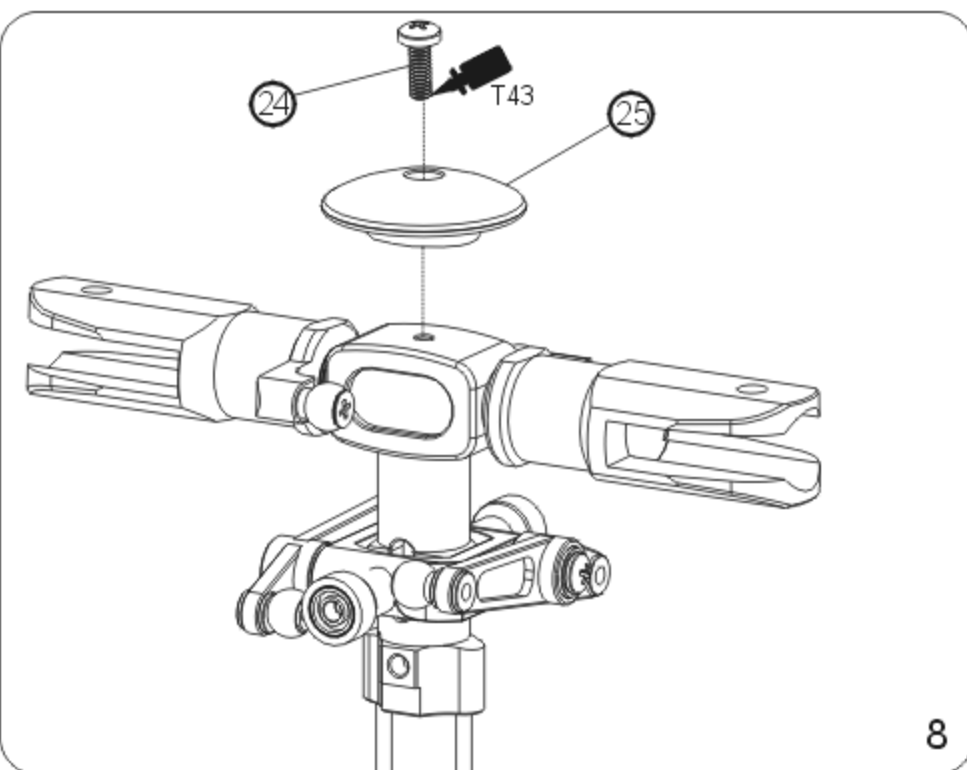
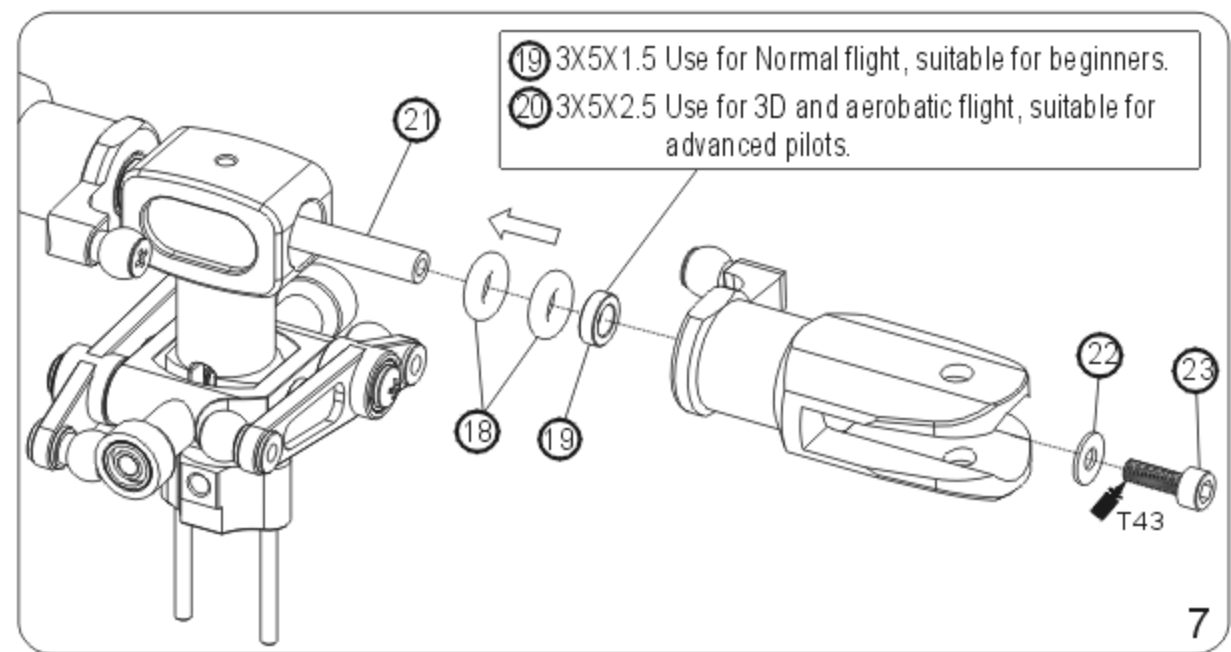
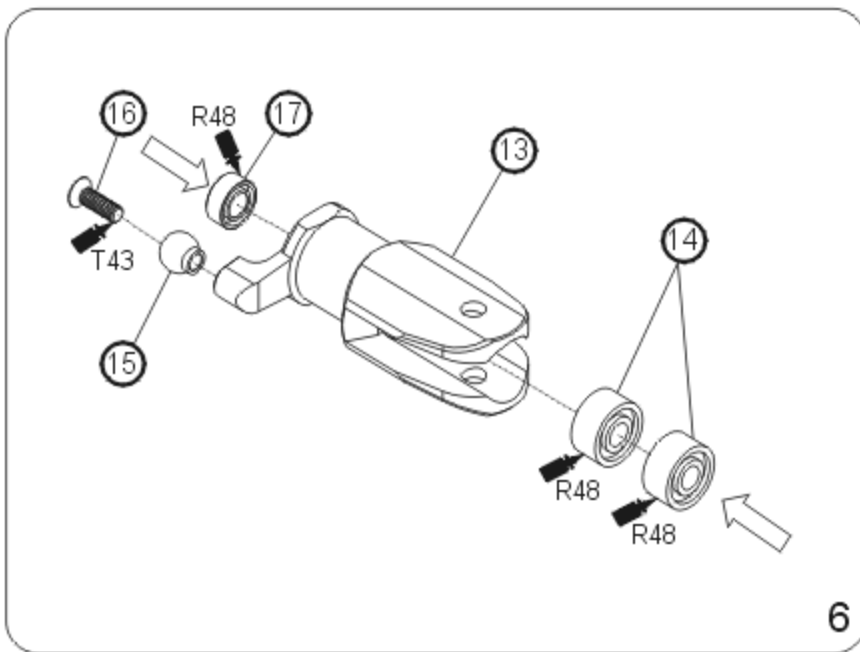
N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
1	HH	HH2002L	Metal main rotor housing	1	17X37.5X11mm	7	HH	HMR52ZZ	Bearing MR52ZZ	6	φ 2X φ 5X2.5mm
2	HH	HH4002L-1	Metal flybar seesawholder	1	36X14.6X6mm	8	HH	HH4006S	Stainless steel linkage ball	4	φ 4.75
3	HH	HMR52ZZ	Bearing FMR52ZZ	2	φ 2X φ 5X2.3mm	9	HH	HS4001-1	Cross screw	4	M2X6.5mm
4	HH	T12065	Collar screw	2	M2X6.5mm	10	HH	W10020-2	Washer	2	φ 2X φ 3.6X0.5mm
5	HH	HH2003-1	Pin	2	φ 1.5X18.7mm	11	HH	T12008-2	Collar screw	2	M2X8mm
6	HH	HH4005AL	Metal SF mixing arm	2	31.45X5.5mm	12	HH	W10020-1	Washer	4	φ 2X φ 3.6X0.2mm



Make sure the linkage balls are tightly secured.

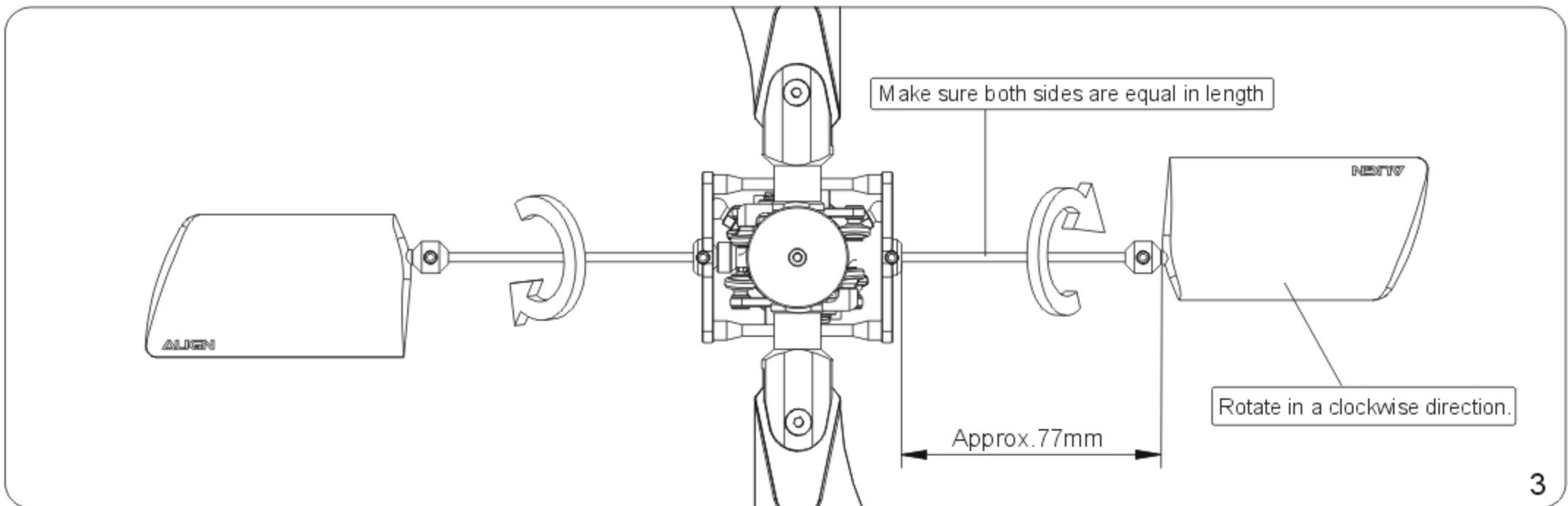
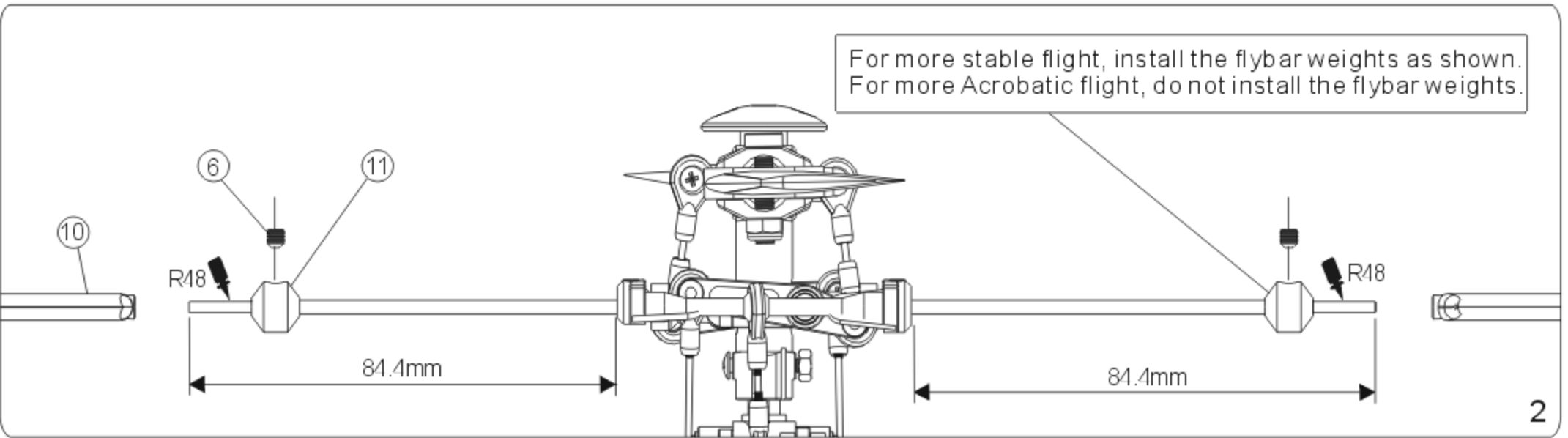
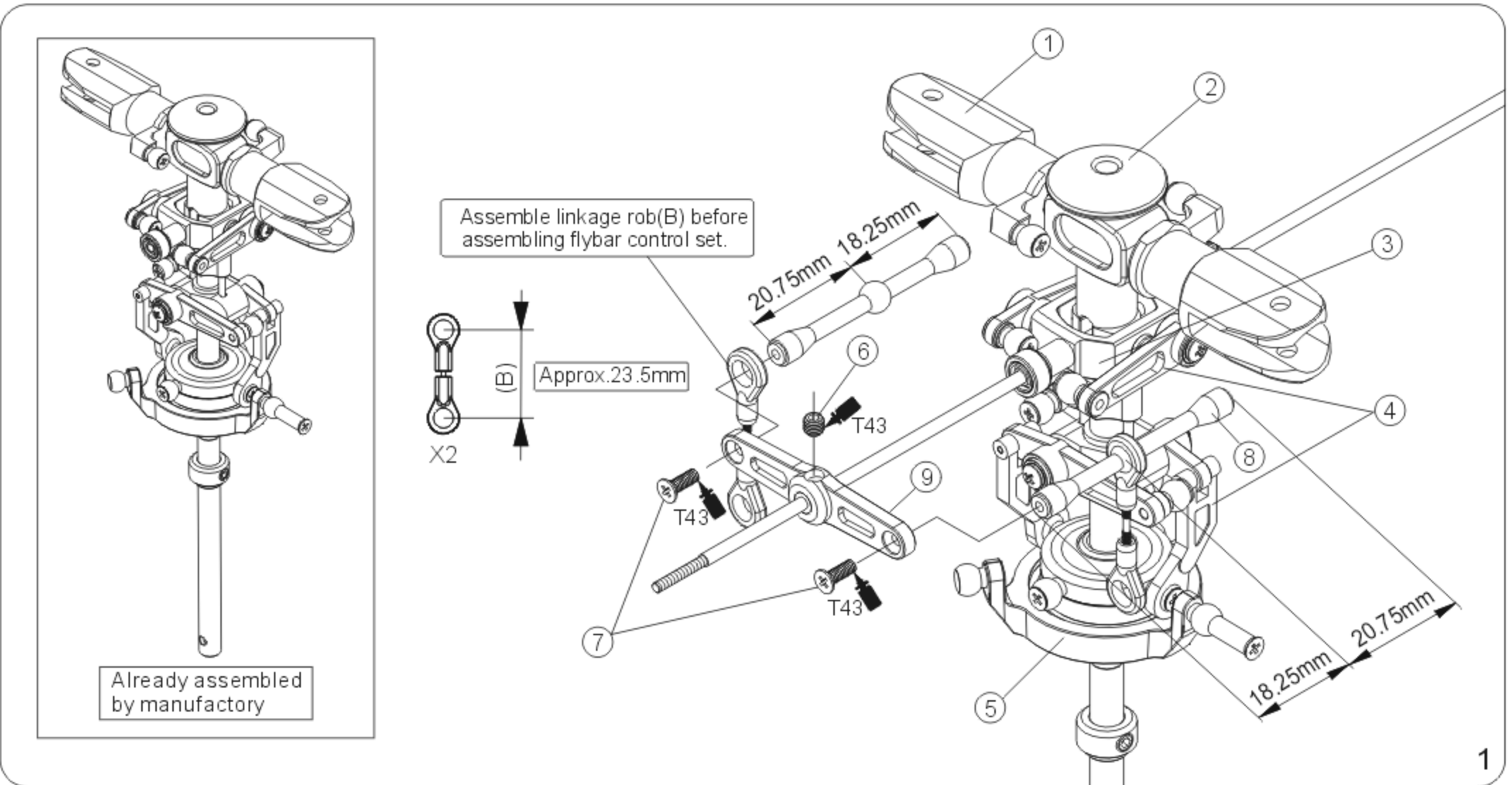
Parts kit No.HH

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
13	HH	HH2010	Metal main rotor holder	2	36.65X10.5mm	27	HH	HH5003AL-1	Metal flybar control lever	2	31.45X5.5mm
14	HH	H693ZZ	Bearing 693ZZ	4	φ 3X φ 8X4mm	27-1	HH	HH5008	Collar	2	φ 1.4X φ 2X2.4mm
15	HH	HH4006S	Stainless steel linkage ball	2	φ 4.75	28	HH	HH5003B-3	Washout linkage	2	
16	HH	HS4001-1	Cross screw	2	M2X6.5mm	29	HH	S41465	Collar screw	2	M1.4X6.5mm
17	HH	HMR63ZZ	Bearing MR63ZZ	2	φ 3X φ 6X2.5mm	30	HH	HMR52ZZ	Bearing MR52ZZ	4	φ 2X φ 5X2.5mm
18	HH	HH2004	O-Ring	4	φ 3X φ 6.5X2mm	31	HH	HH4006S	Stainless steel linkage ball	2	φ 4.75
19	HH	HH2005-1	Aluminum collar	2	φ 3X φ 5X1.5mm	32	HH	HS4001-1	Cross screw	2	M2X6.5mm
20	HH	HH2013	Aluminum collar	2	φ 3X φ 5X2.5mm	33	HH	T12008-2	Collar screw	2	M2X8mm
21	HH	HH2007	Feathering shaft	1	φ 3X40mm	34	HH	W10020-2	Washer	2	φ 2X φ 3.6X0.5mm
22	HH	HS8001	Washer	2	φ 2X φ 5X0.4mm	35	HH	W10020-1	Washer	4	φ 2X φ 3.6X0.2mm
23	HH	HS3001	Socket screw	2	M2X5mm	36	HH	T52012	Socket screw	1	M2X12mm
24	HH	T12006	Screw	1	M2X6mm	37	HH	HS7001	Nut	1	M2
25	HH	HH2012L	Metal head stopper	1	φ 18X6mm	38	HH	HH6002-2	Main shaft	1	φ 5X116mm
26	HH	HH5002L-1	Metal washout base	1	16X13X8mm						



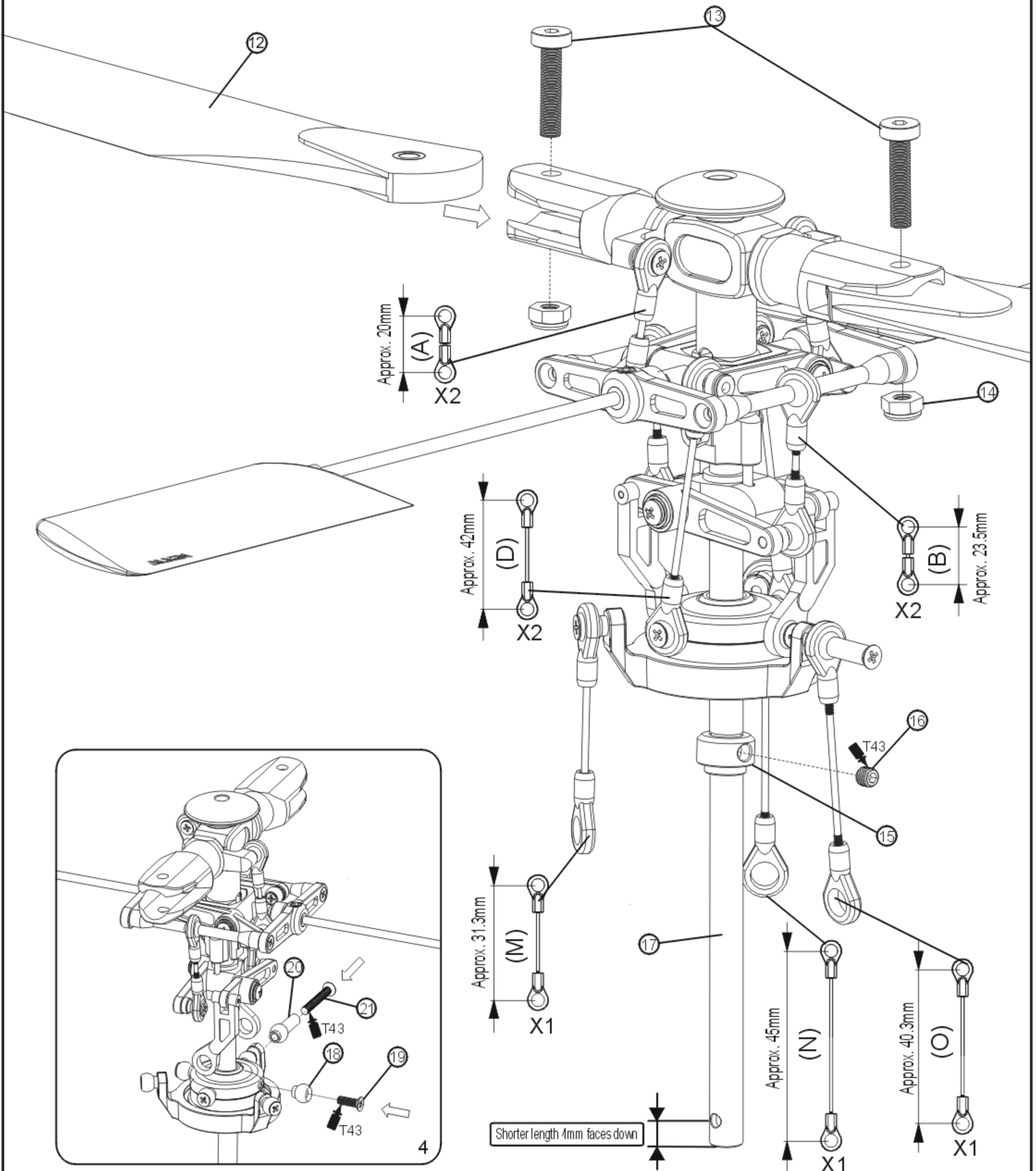
Parts kit No.HH

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
1	HH	HS1065	Metal main rotor holder	1		7	HH	S72005-3	Cross screw	4	M2X5mm
2	HH	HS1080	Metal main rotor housing	1		8	HH	HH4012S	Control rod	2	φ 4.3X39mm
3	HH	HS1207	Metal flybar seesawholder	1		9	HH	HH4014	Metal T type control arm	2	38.3X4.5mm
4	HH	HS1215	Metal control lever	1		10	HH	HH4022	Flybar paddle	2	
5	HH	HS1111	CCPM Metal swashplate/New	1		11	HH	HH4018	Flybar weight	2	φ 7.5X8mm
6	HH	HS5001	Set screw	4	M3X3mm						



Parts kit No.HH

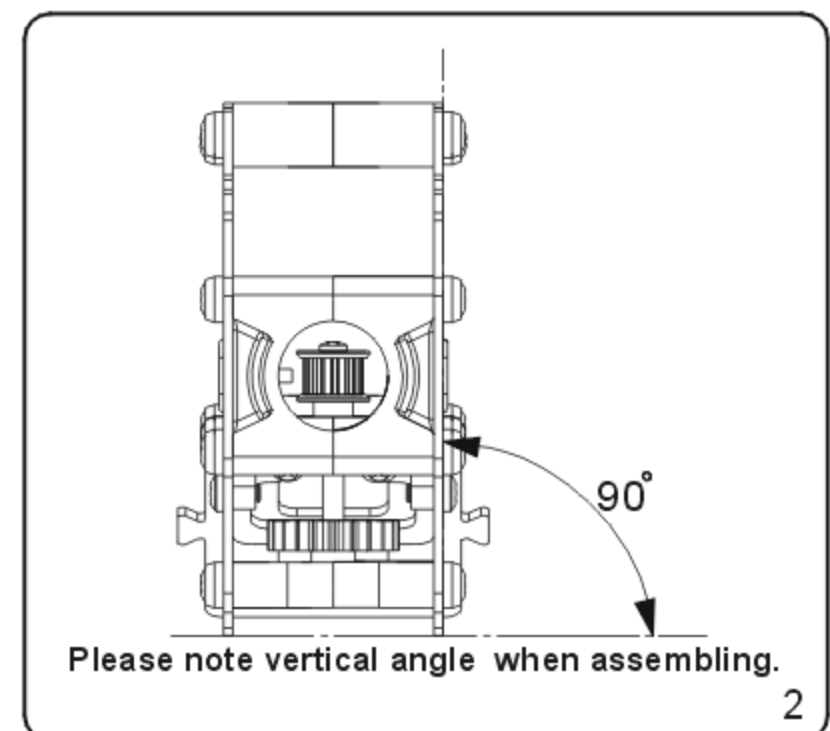
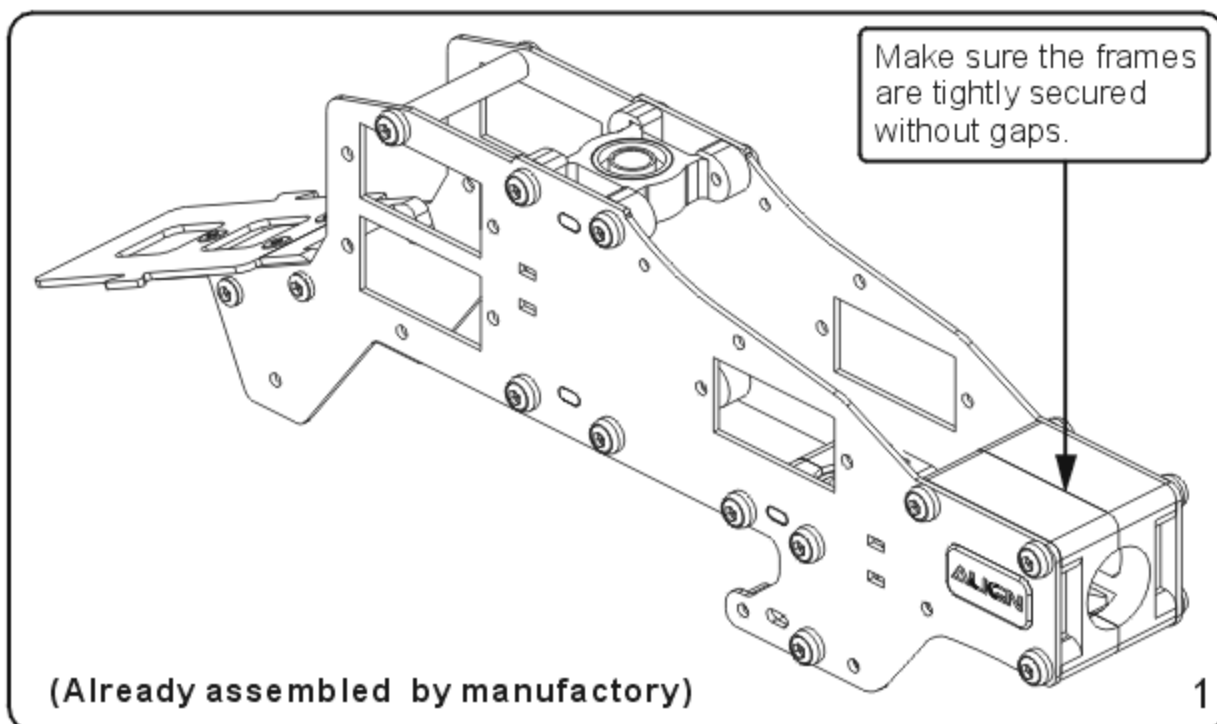
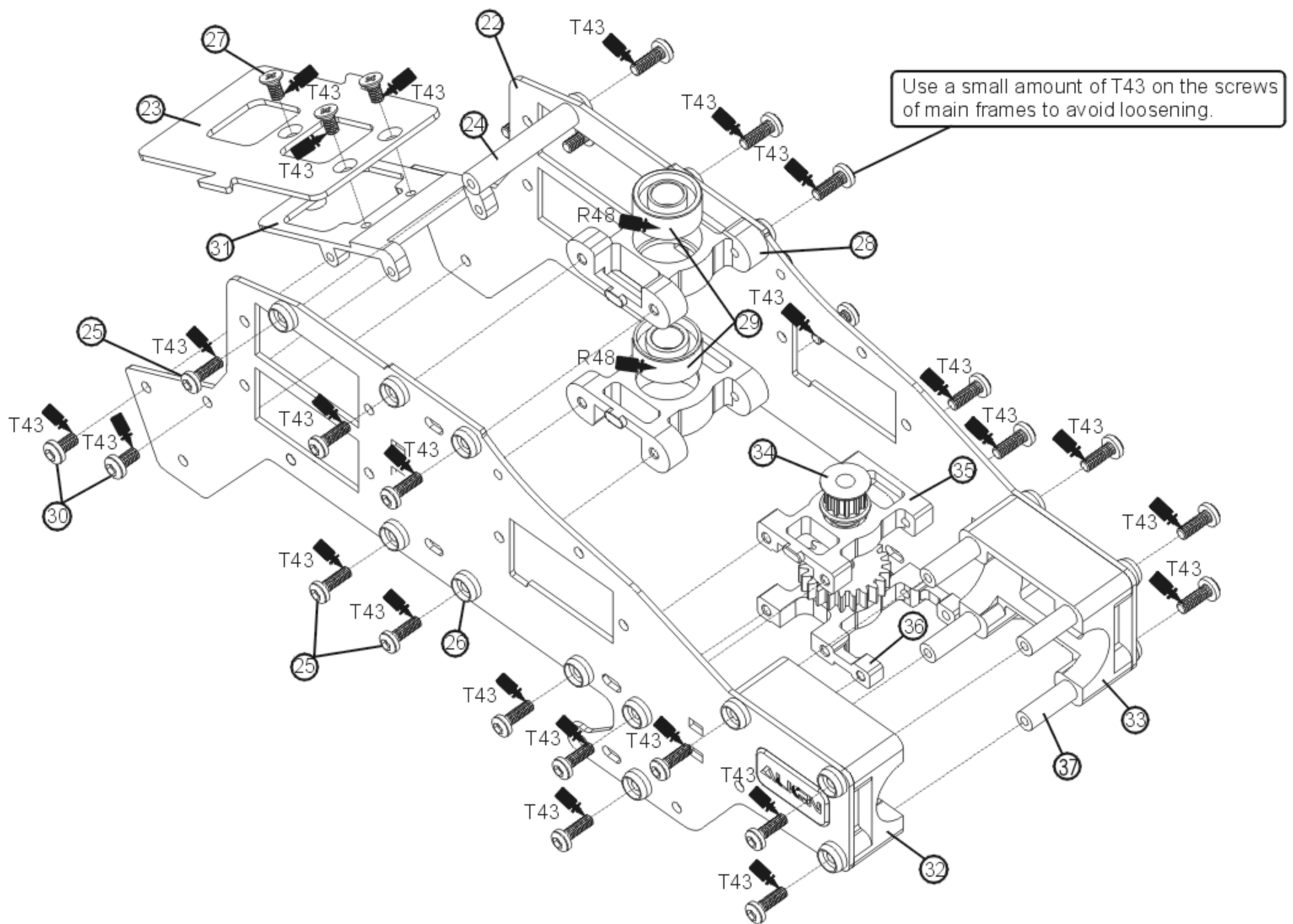
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12	HH3	HS1162	Blade	2	325mm	17	HH	HH6002-2	Main shaft	1	φ 5X116mm
13	HH3	T53014	Socket screw	2	M3X14mm	18	HH	HH4006S	Stainless steel linkage ball	6	φ 4.75
14	HH3	HS7002	Nut	2	M3	19	HH	HS4001-1	Cross screw	6	M2X6.5mm
15	HH	HH6003	Main shaft lock ring	1	φ 5X6mm	20	HH	HH4011S	Stainless steel long linkage ball	1	φ 4.75X11.5mm
16	HH	HS5001	Set screw	1	M3X3mm	21	HH	S72014	Cross screw	1	M2X14mm



The screws must be firmly tightened, but not over tightened, or they will strip and become loose. Apply thread lock where screws are tightened into metal objects.

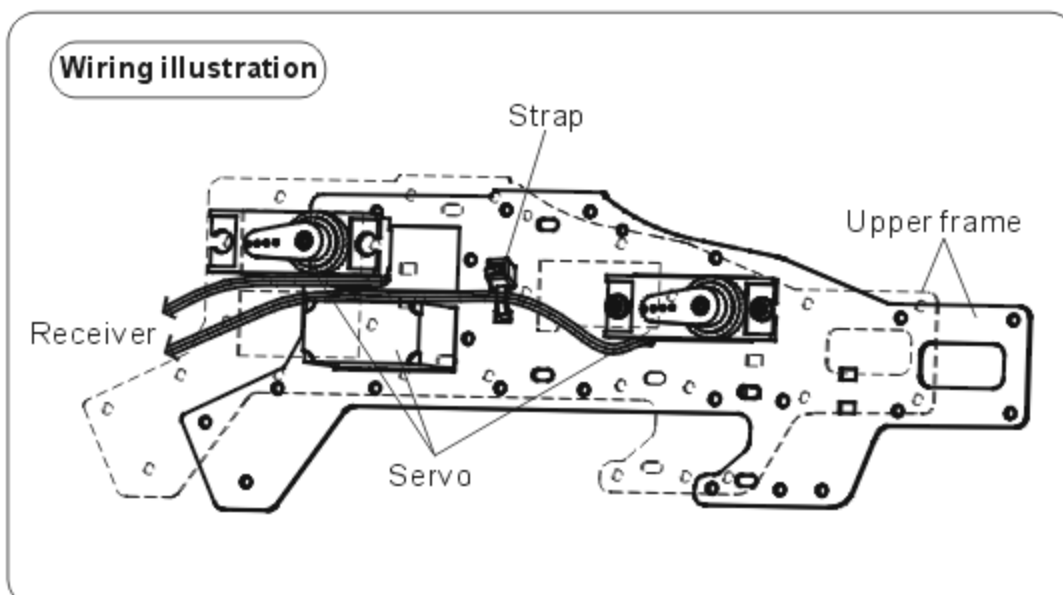
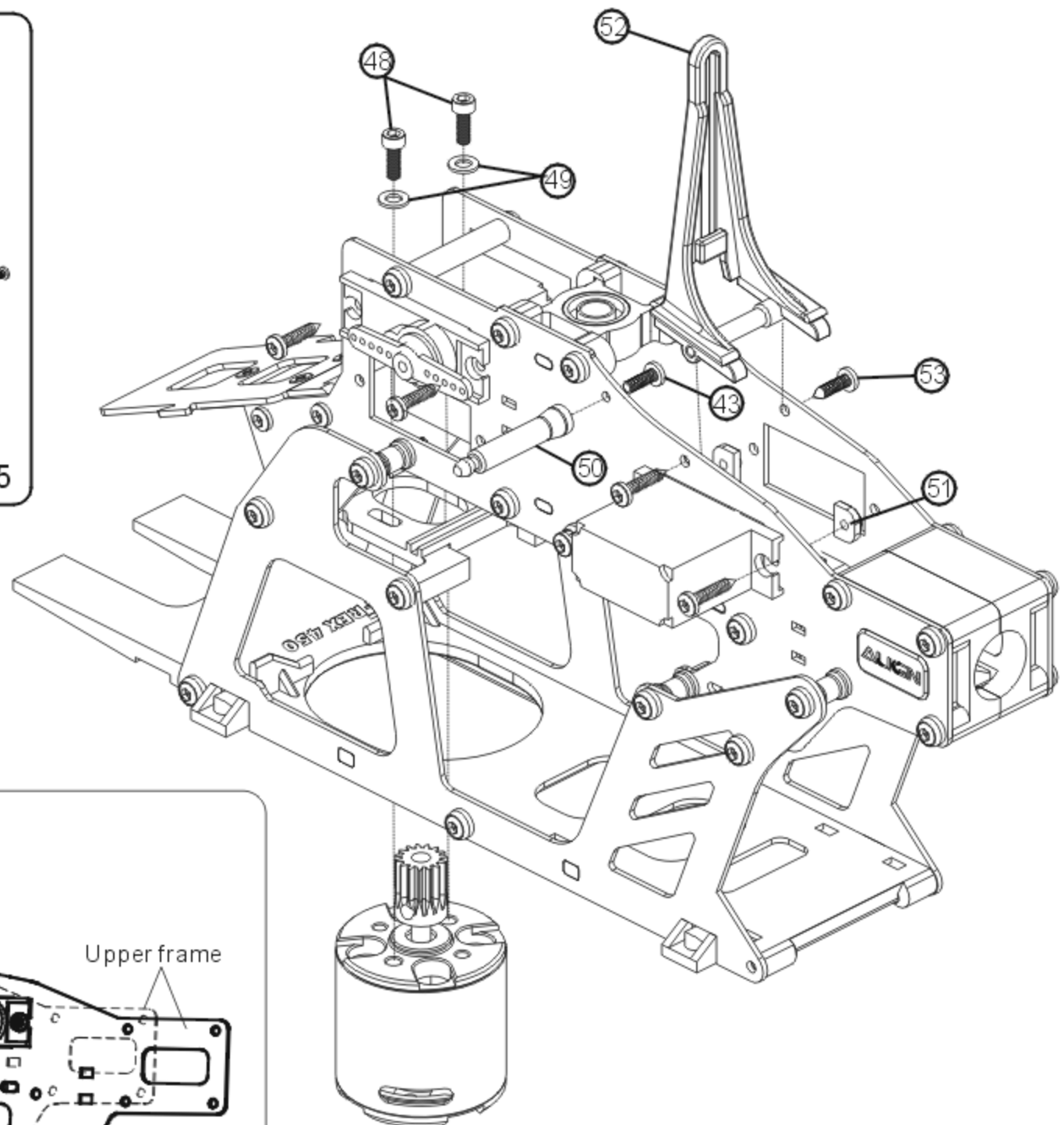
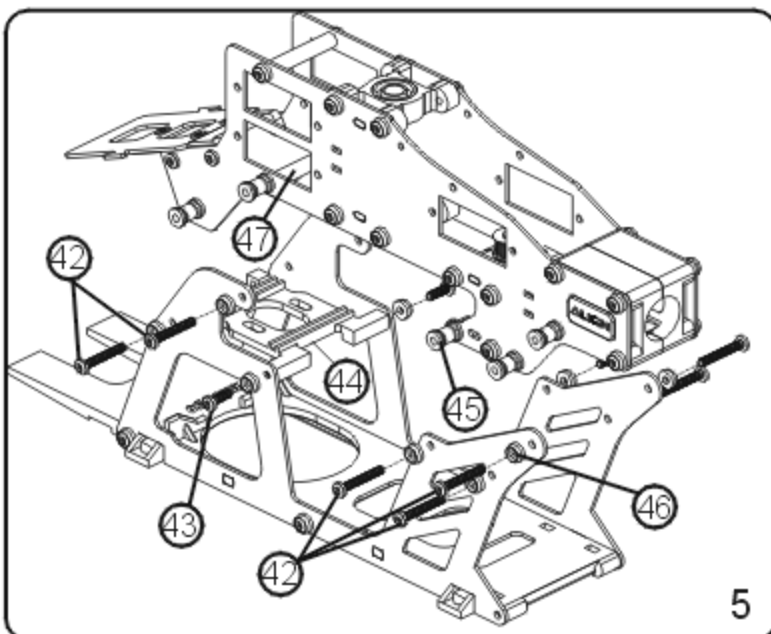
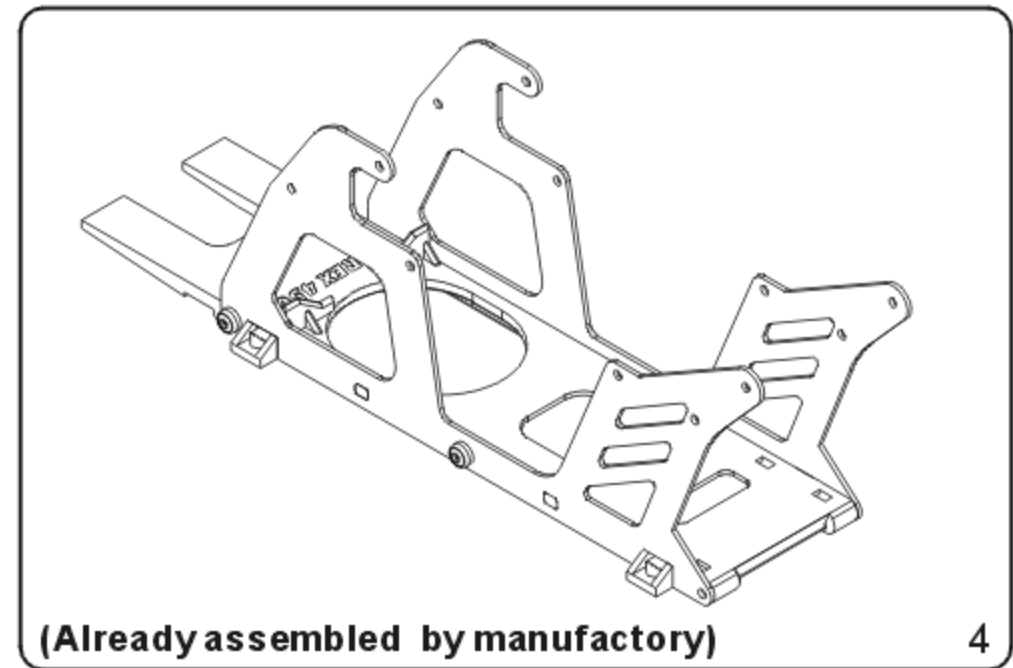
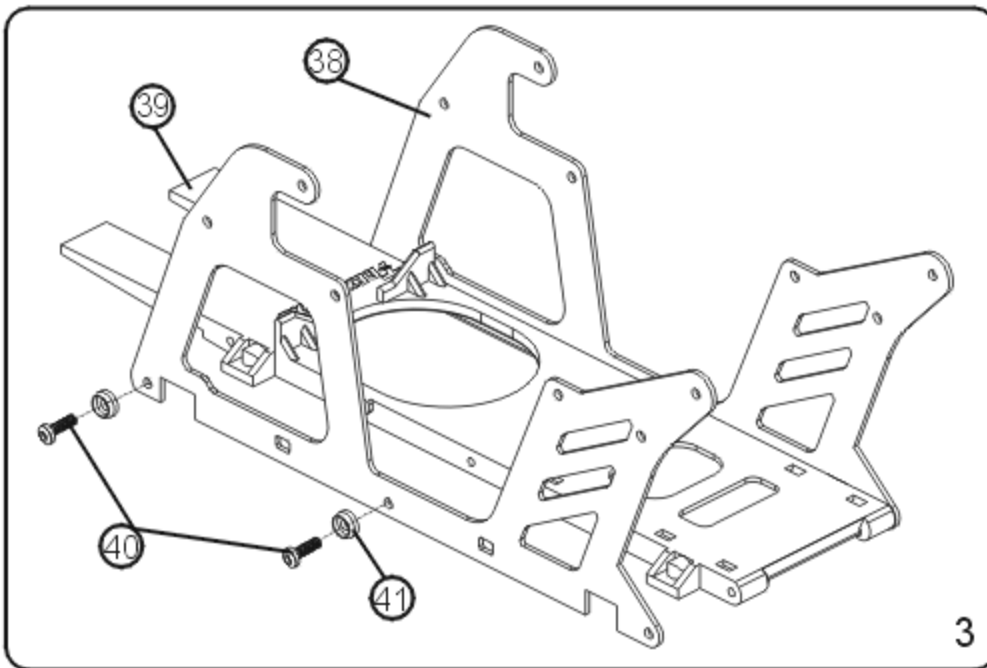
Parts kit No.HB

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22	HB2	HB2024	450V2 Upper frame	2	161.95X58.25X1mm	30	HB2	T52004	Socket button head screw	4	M2X4mm
23	HB2	HB2026	450V2 Battery mounting plate	1	54X34X1mm	31	HB2	HB1002CF	Aluminum battery mounting plate	1	34.2X22X5.75mm
24	HB2	HB2005CF	Frame mounting bolt	1	φ4X22mm	32	HB2	HB1108CF	Tail boom stiffener(L)	1	27.5X21.7X12.5mm
25	HB2	T52006	Socket button head screw	22	M2X6mm	33	HB2	HB1109CF	Tail boom stiffener(R)	1	27.5X21.7X12.5mm
26	HB2	HB2015CF	M2 specialty washer	22	φ2Xφ5X2mm	34	HB3	HB3002	Metal tail drive gear assembly	1	
27	HB2	S72004-1	Cross screw	3	M2X4mm	35	HB2	HB1110SE	Upper bearing case	1	22X17X4.5mm
28	HB2	HB9001CF	Main shaft mount	2	23X22X7mm	36	HB2	HB1111CF	Lower bearing case	1	25X22X4mm
29	HB2	H685ZZ	Bearing 685ZZ	2	φ5Xφ11X5mm	37	HB2	HB9002CF	Aluminum tube	4	φ3.5X19.7mm



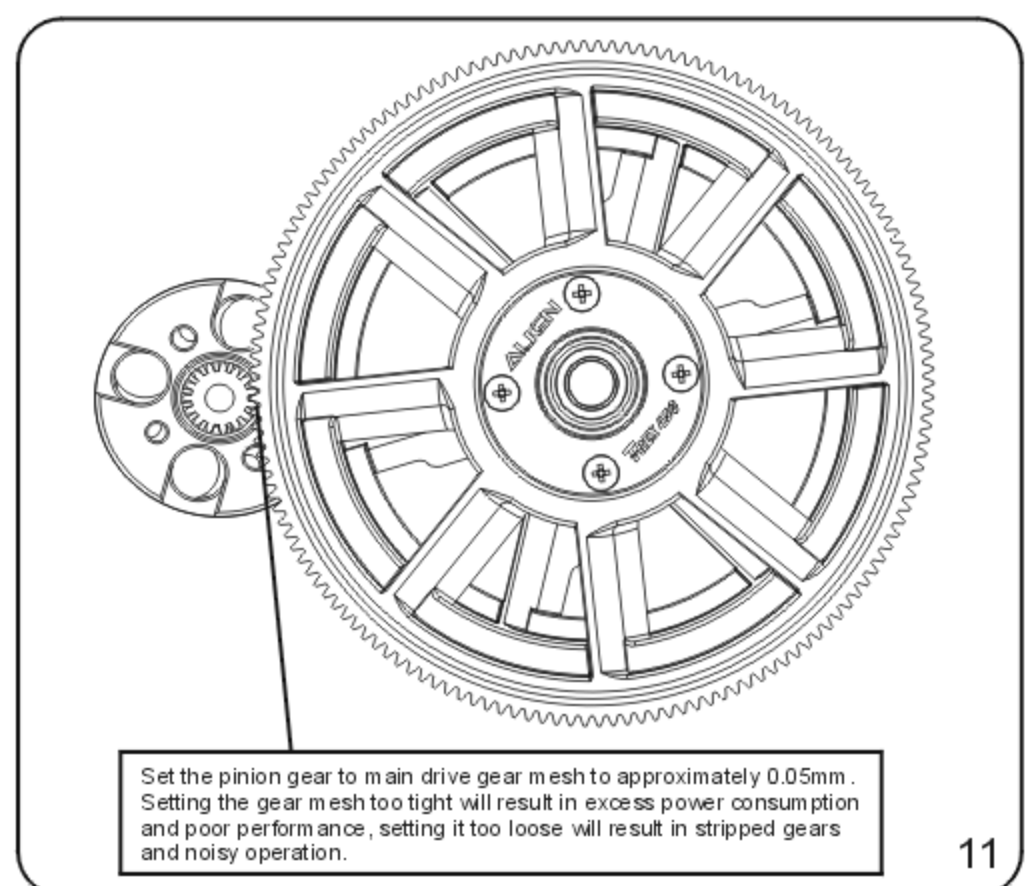
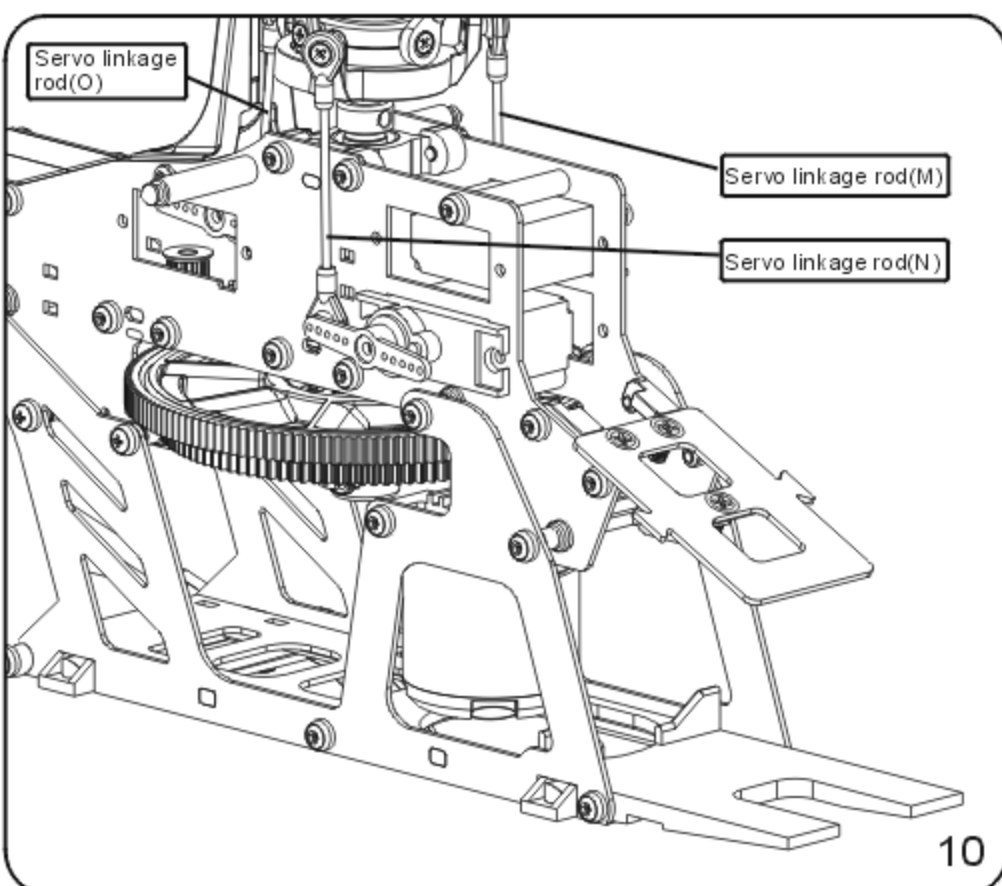
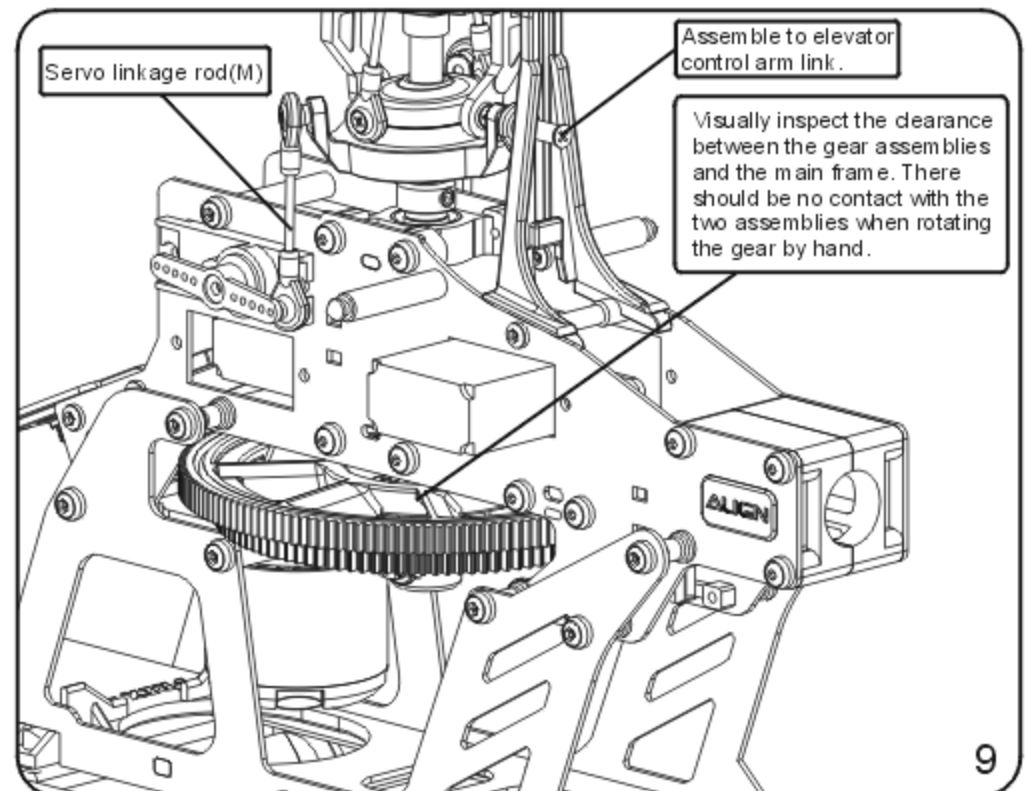
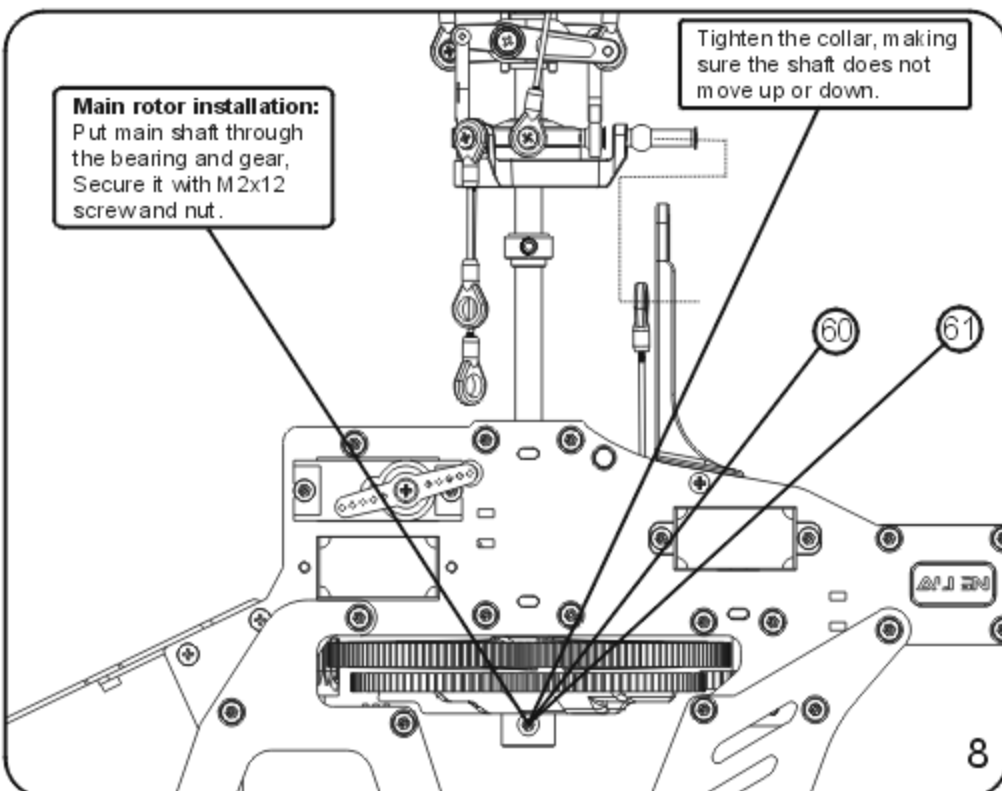
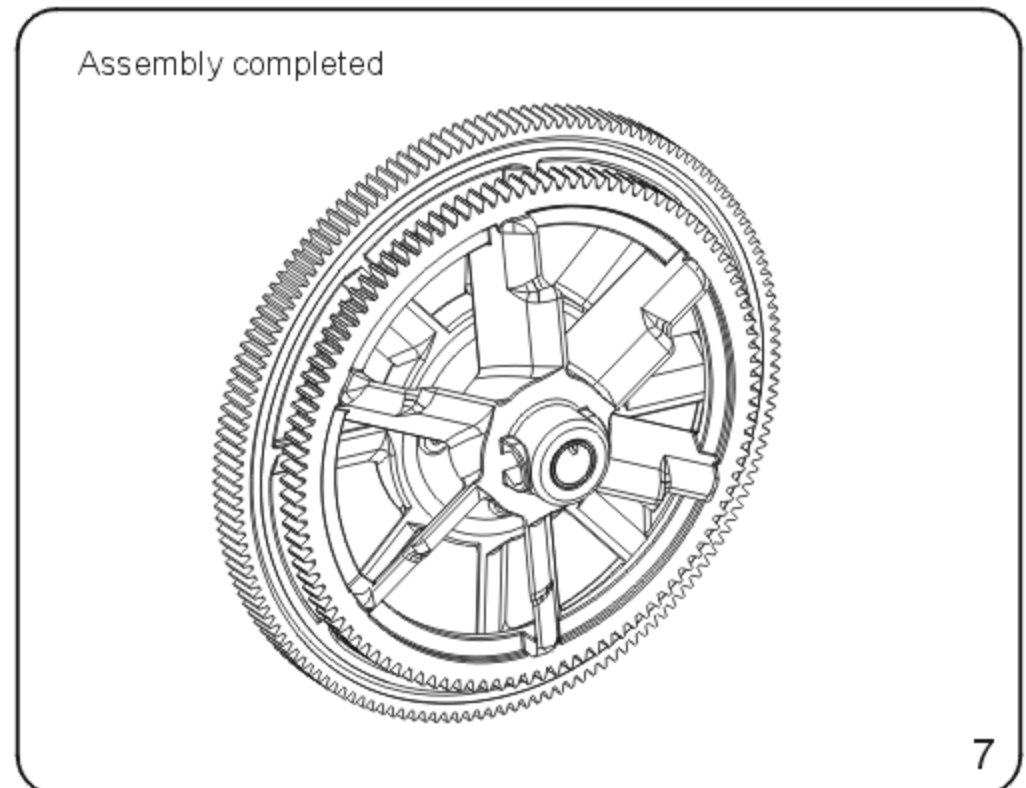
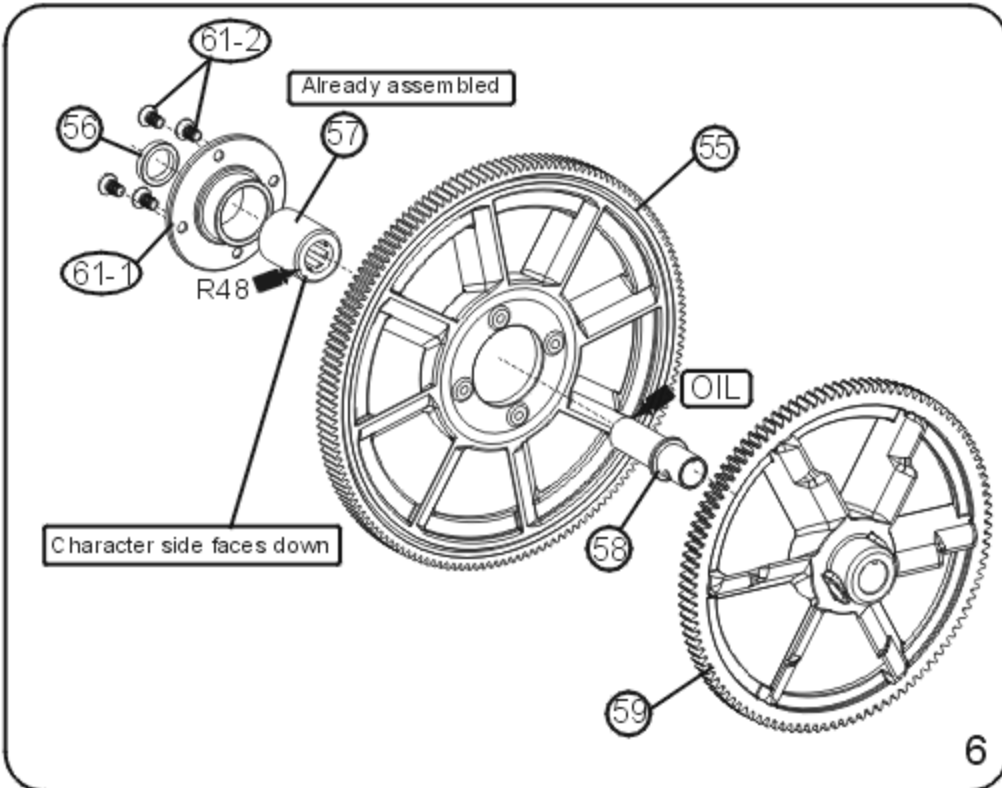
Parts kit No.HB

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
38	HB2	HB2025	450V2 Lower frame	2	147X62.5X1mm	46	HB2	HB2015CF	M2 specialty washer	12	φ 2X φ 5X2mm
39	HB2	HB1106CF	Bottom plate	1	172.5X39X5mm	47	HB2	HB2005CF	Frame mounting bolt	1	φ 4X22mm
40	HB2	T52006-1	Socket self tapping screw	4	M2X6mm	48	HB4	T52606	Socket screw	2	M2.6X6mm
41	HB2	HB2015CF	M2 specialty washer	4	φ 2X φ 5X2mm	49	HB4	HS8002	Washer	2	φ 2.6
42	HB2	T52014	Socket button head screw	10	M2X14mm	50	HB2	HB2006CF	Canopy mounting bolt	2	φ 5X24.5mm
43	HB2	T52006	Socket button head screw	4	M2X6mm	51	HB2	HB2016CF	Plastic nut	6	6X2.6mm
44	HB2	HB1001CF-1	Metal motor mount	1	36.4X39mm	52	HH7	HB4007-1	Anti rotation bracket	1	
45	HB2	HB2014CF	Aluminum link	10	φ 5X φ 2X7.5mm	53	HH7	T52006-1	Socket self tapping screw	2	M2X6mm



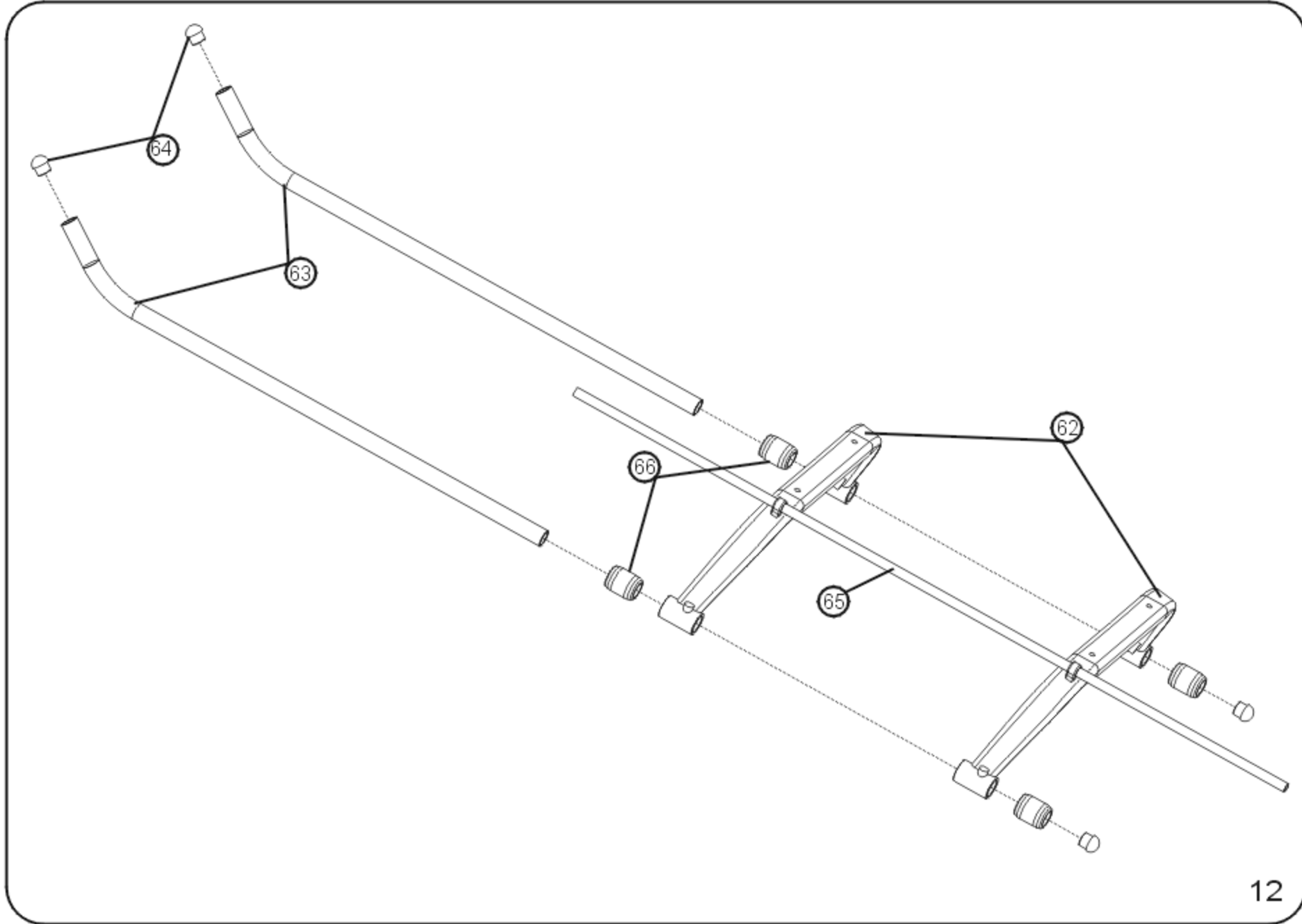
Parts kit No.HB

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
55	HB6	HB6006	New main drive gear	1	150T	60	HB6	T52012	Socket screw	1	M2X12mm
56	HB6	HB6003-2	Shaft ring	1	φ6Xφ8X1.6mm	61	HB6	HS7001	Nut	1	M2
57	HB6	HF0612-1	One-way bearing	1	φ6Xφ10X12mm	61-1	HB6	HB6008	450 Main gear case	1	φ10Xφ21.5X7.8mm
58	HB6	HB6002	One-way bearing shaft	1	φ5Xφ6X21.5mm	61-2	HB6	S72004-1	Cross screw	4	M2x4mm
59	HB6	HB6007	New autorotation tail drive gear	1	106T						

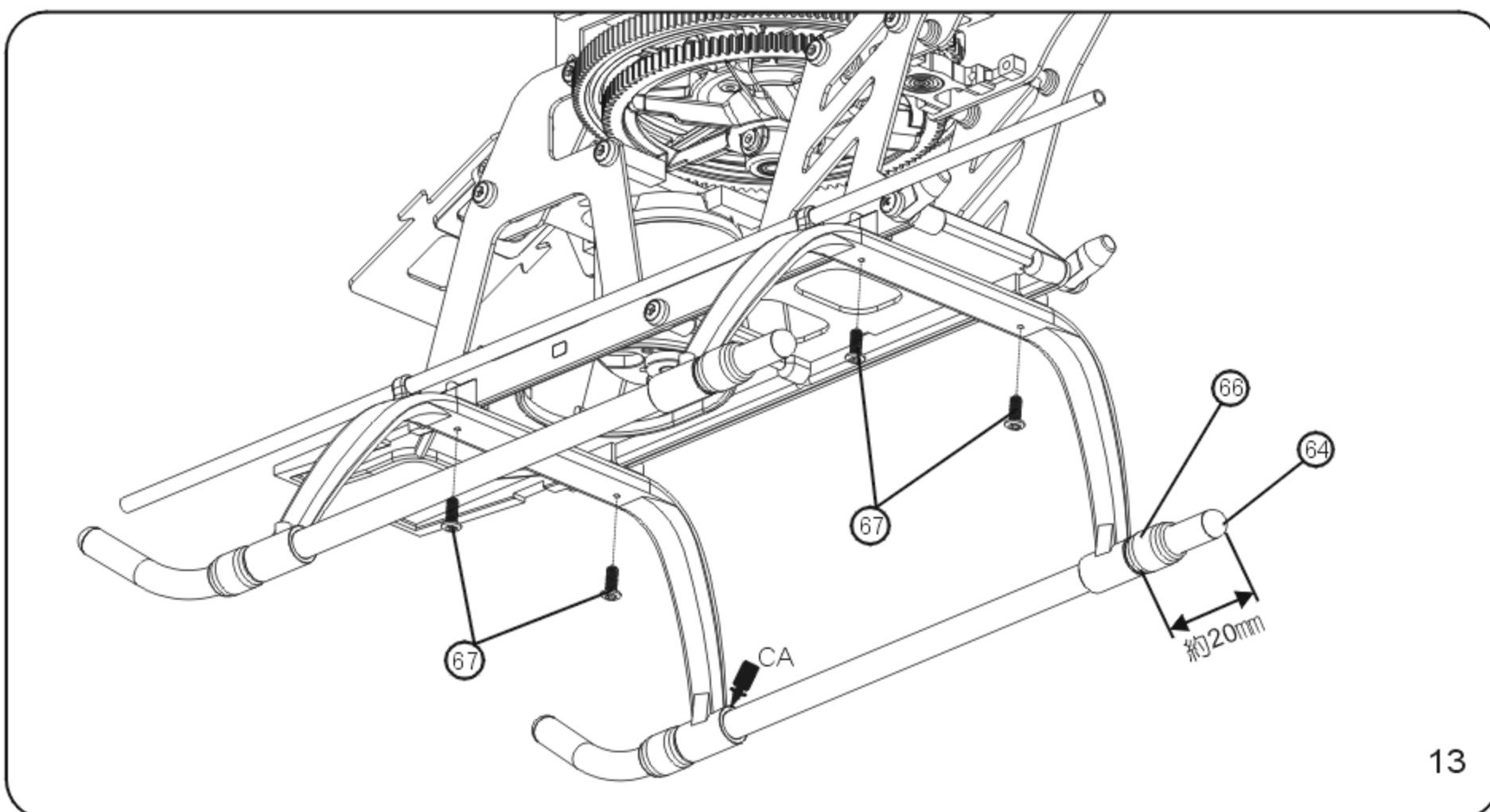


Parts kit No.HF

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
62	HF2	HF2002-1	Landing skid	2		65	HT9	HF2007	Antenna pipe	1	φ3X330mm
63	HF2	HF2003	Skid pipe	2	Aluminum	66	HF2	K10181-1	Landing skid nut	4	φ8.5X φ5X10mm
64	HF2	HF2004	Skid pipe end cap	4	PA66+G5%	67	HF2	T52008-1	Socket self tapping screw	4	M2X8mm



12



13

Follow the instructions carefully and in order. Look for key points on each procedure.

1. The set screw on the tail rotor housing must point towards the tail rotor blades and be tightened firmly.

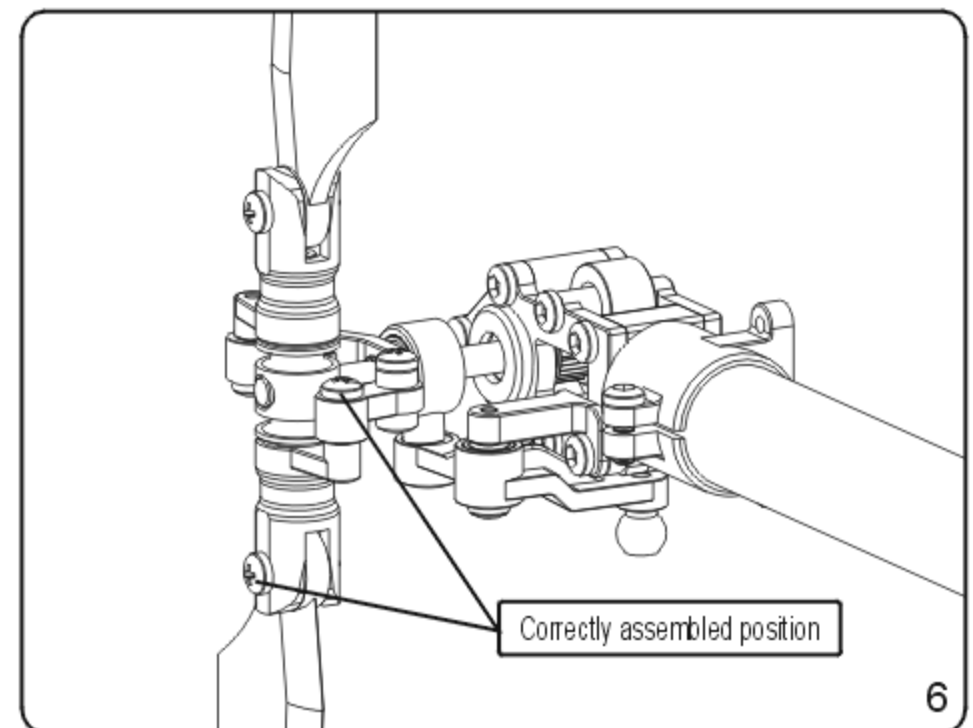
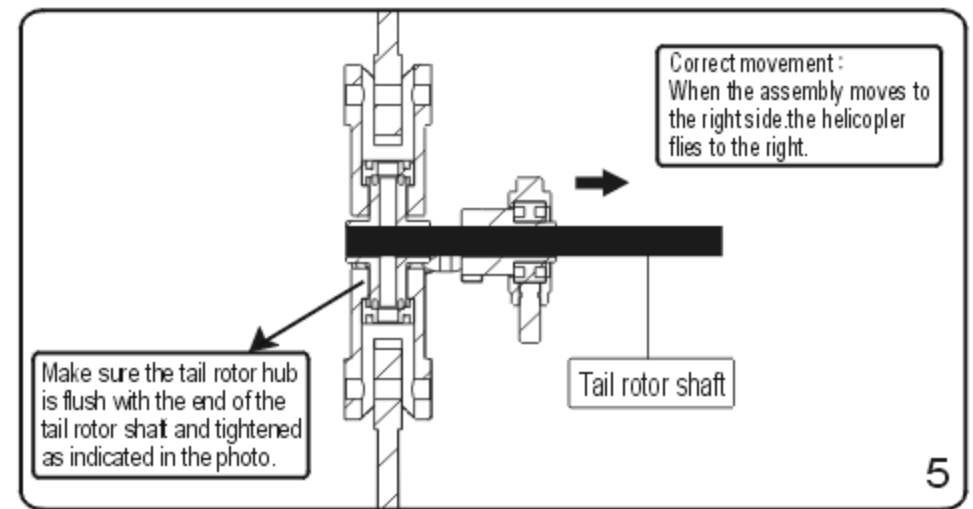
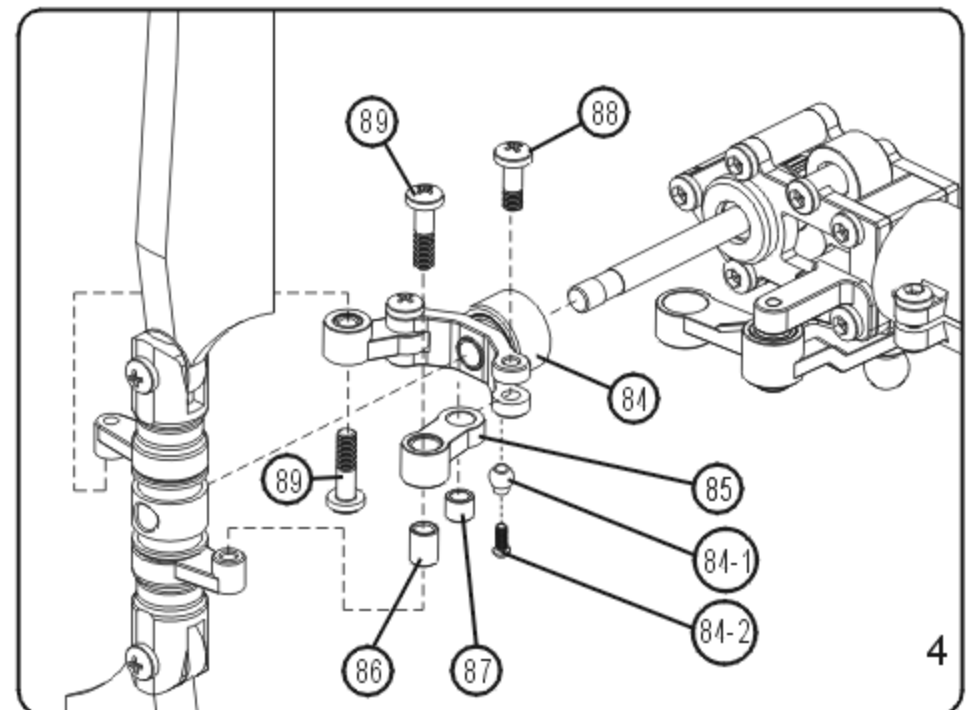
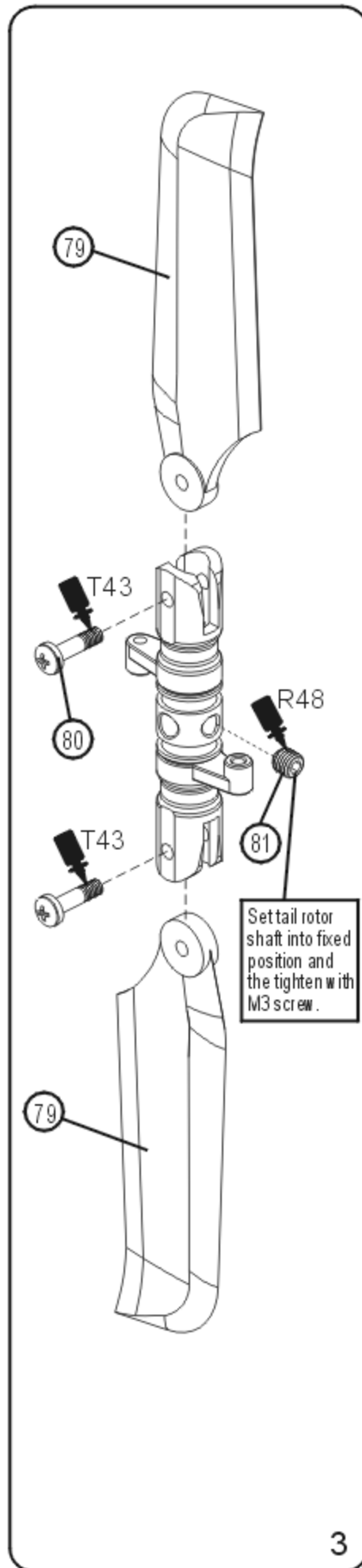
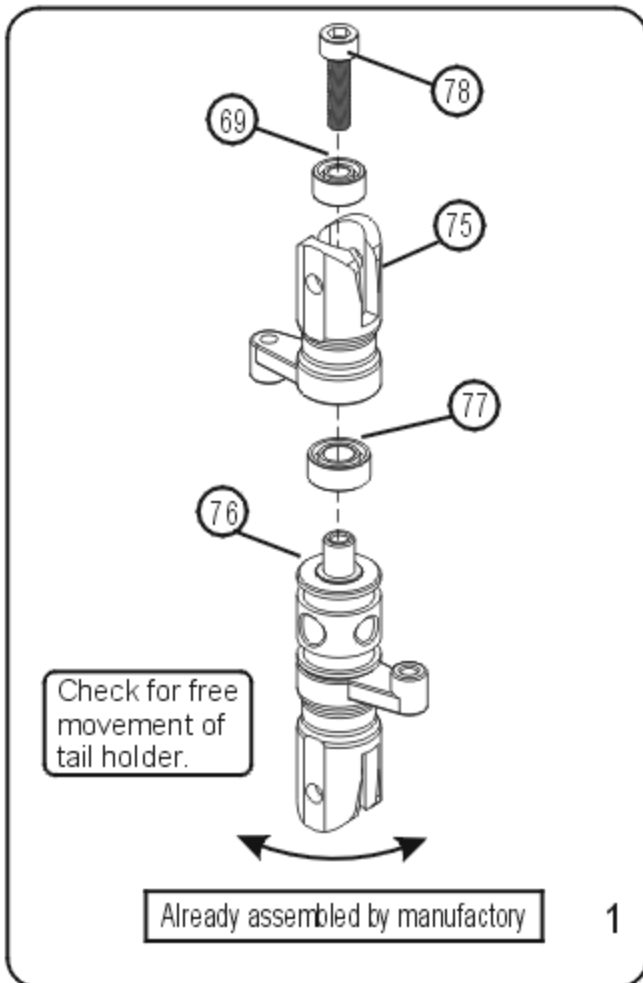
2. When assembling the tail boom and fuselage, make sure to turn the belt 90 degrees as illustrated in the diagram 10.

Mount the belt around the drive pulley, mount the other half of the tail case and tighten it, leaving it loose enough to rotate on the boom with some effort. Adjust belt tension by moving the tail case further back on the boom. Once the belt has the proper tension, make sure the tail rotor blades are perpendicular to the ground when looking at the helicopter from behind.

Tighten the screws to lock into this position. Check often and re-adjust as needed.

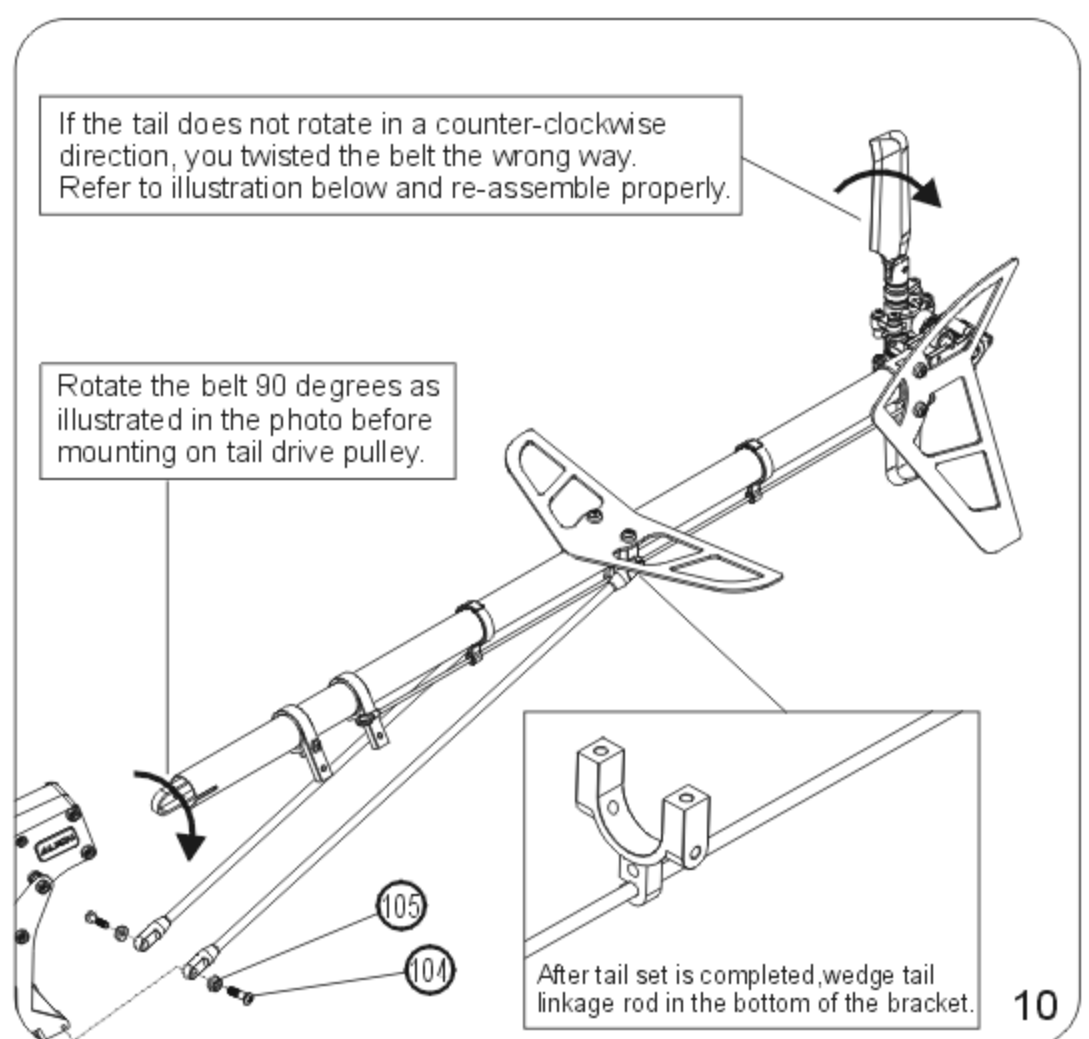
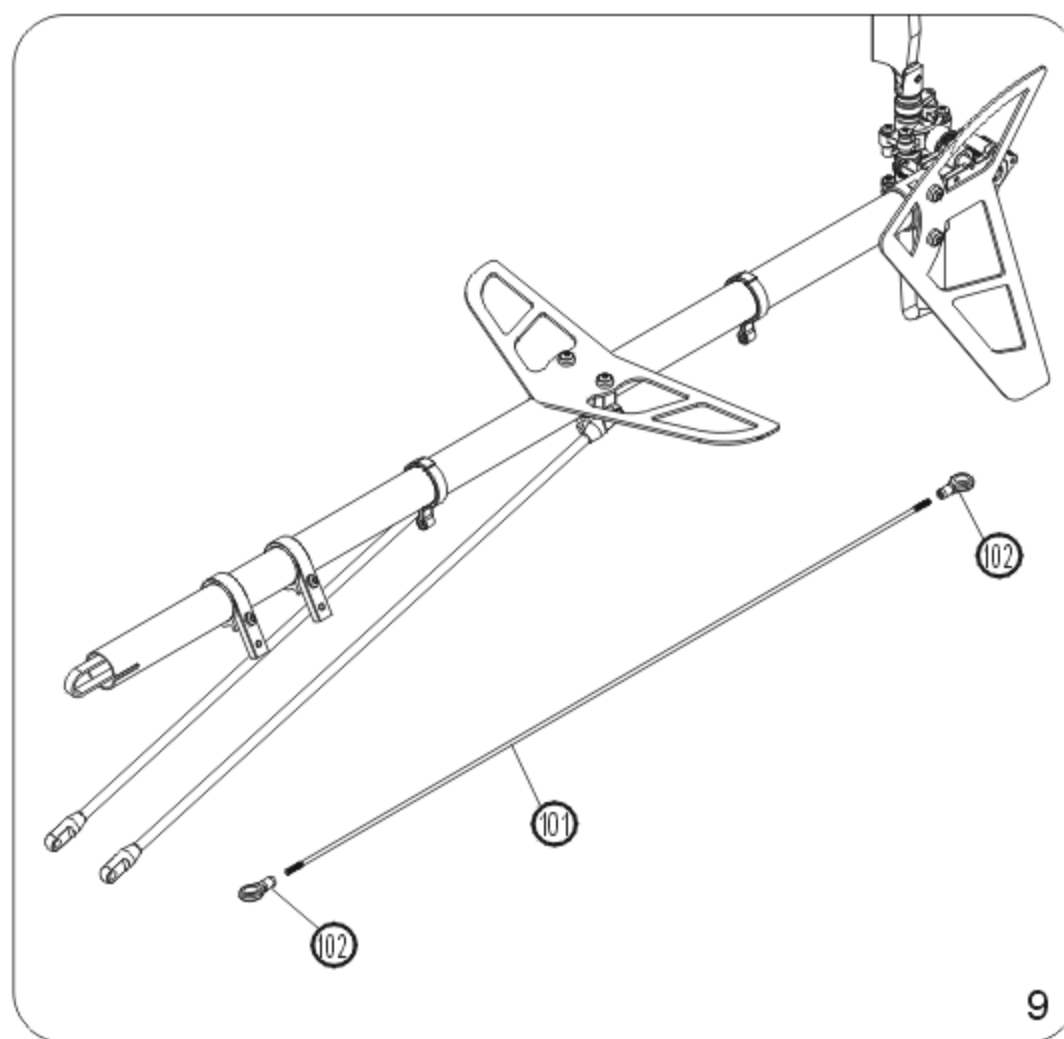
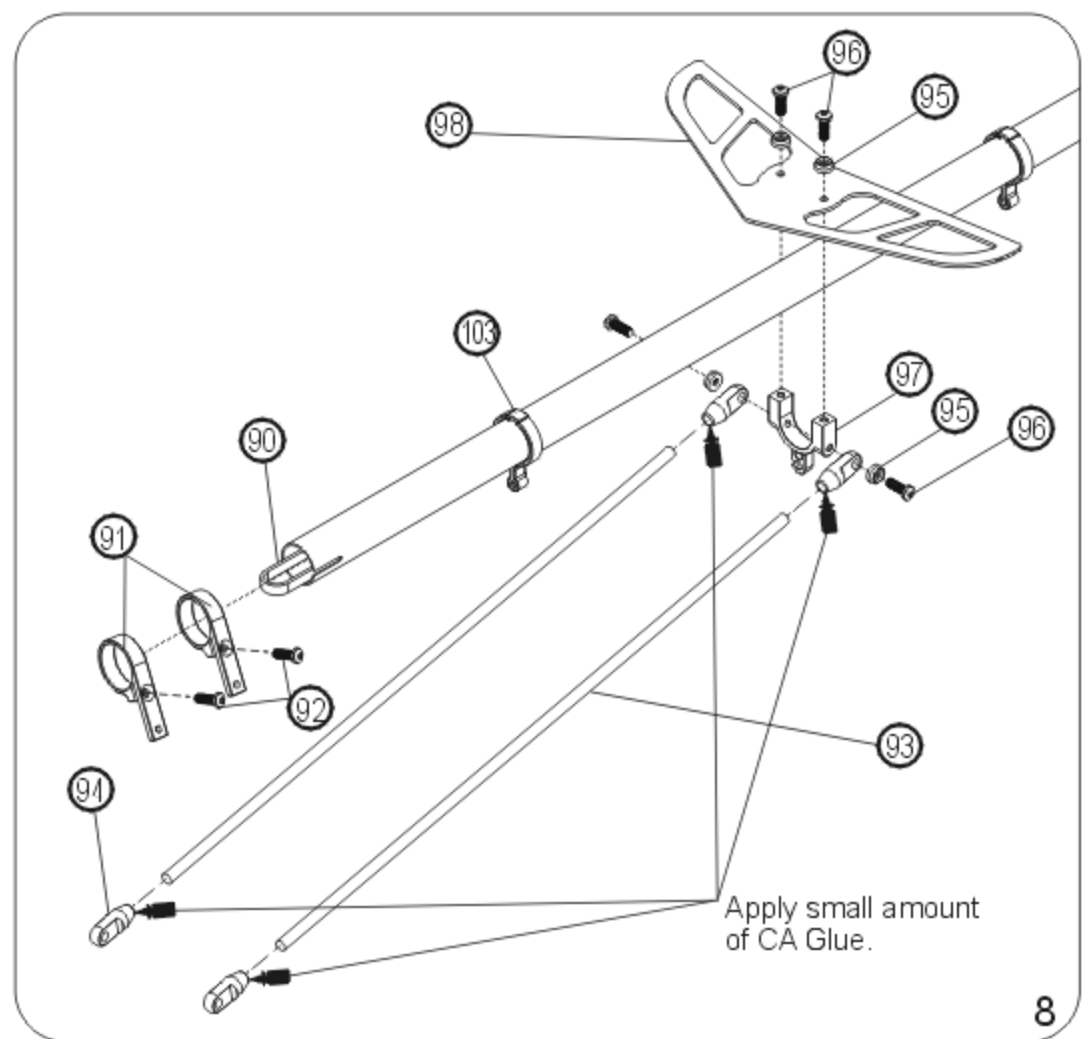
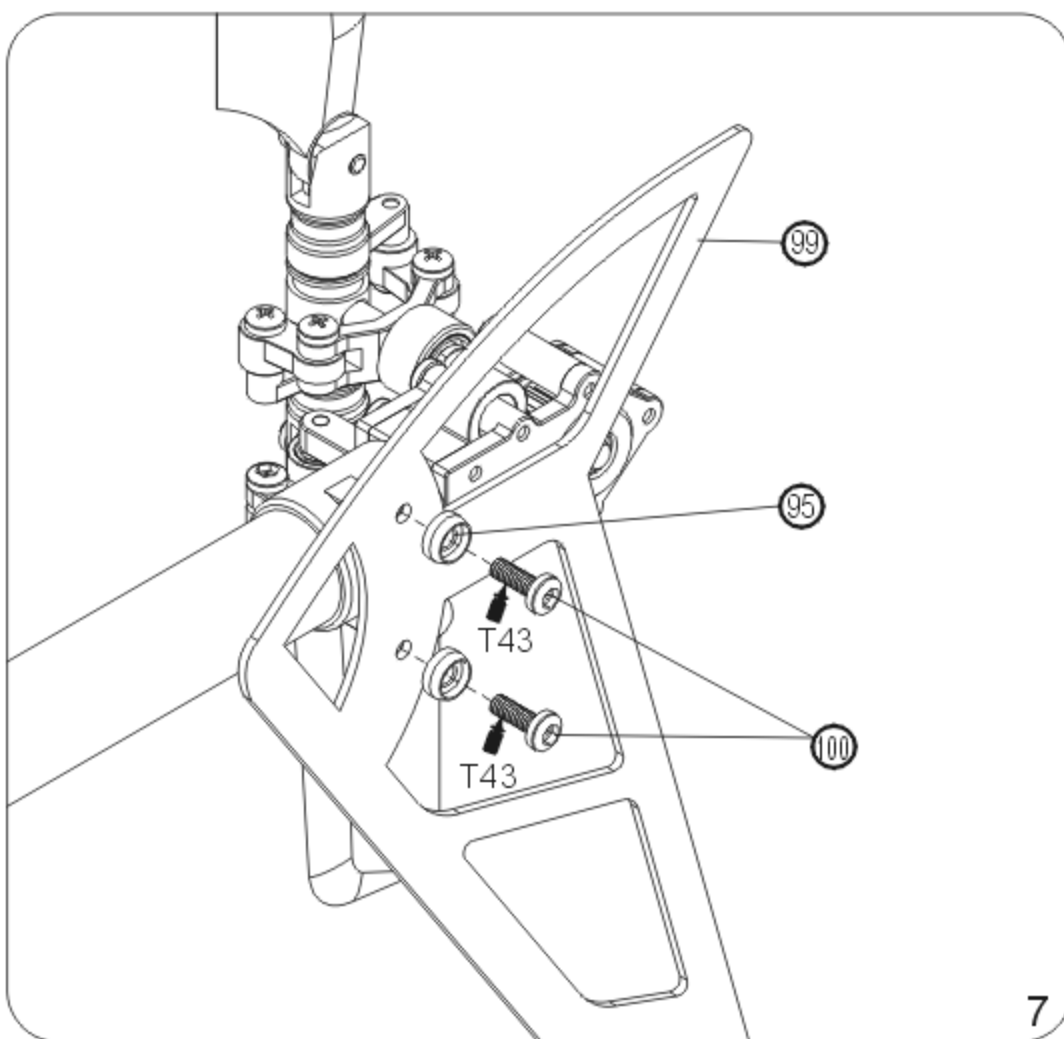
Parts kit No HT

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
68	HT5	HT4009	Tail rotor control arm	1		80	HT5	T12008-2	Collar screw	2	M2x8mm
69	HT5	HMR52ZZ	BearingMR52ZZ	4	φ2X φ5X2.5mm	81	HT5	HS5001	Set screw	1	M3x3mm
70	HT5	W10020-2	Washer	2	φ2X φ3.6X0.5mm	82	HT5	HS1108	Metal tail unit	1	
71	HT5	W10020-1	Washer	1	φ2X φ3.6X0.2mm	83	HT2	HT2004	Tail boom	1	φ12x347mm
72	HT5	T12009-1	Collar screw	1	M2X9mm	84	HT5		Tail pitch assembly	1	
73	HT5	HH4006S	Stainless steel linkage ball	1	φ4.75	84-1	HT5	HH4025	Tail control arm linkage ball	1	φ4.75mm
74	HT5	S72007-1	Cross screw	1	M2X6.5mm	84-2	HT5	S72007-1	Cross screw	1	M2X6.5mm
75	HT5	HT6006L-2	Metal tail rotor holder	2		85	HT5	HT7003B	Control ball link	2	
76	HT5	HT6001S-2	Tail rotor hub	1	φ8X17.2mm	86	HT5	50T106	Collar A	2	φ2x φ3x4mm
77	HT5	HMR63ZZ	BearingMR63ZZ	2	φ3X φ6X2.5mm	87	HT5	HT7003C	Collar B	2	φ2x φ3x2.5mm
78	HT5	T52008	Socket screw	2	M2x8mm	88	HT5	T12006-1	Collar screw	2	M2x6mm
79	HT5	HT6011	Tail rotor blade	2	2X60mm	89	HT5	T12008-1	Collar screw	2	M2x8mm



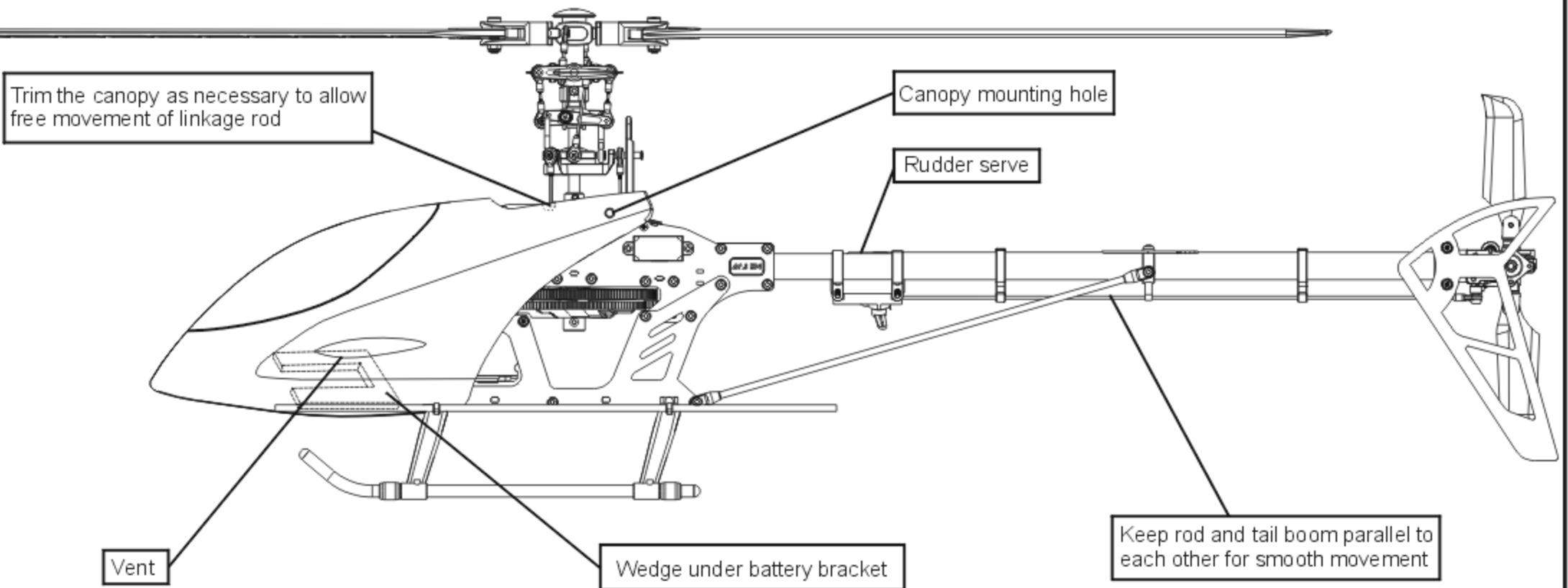
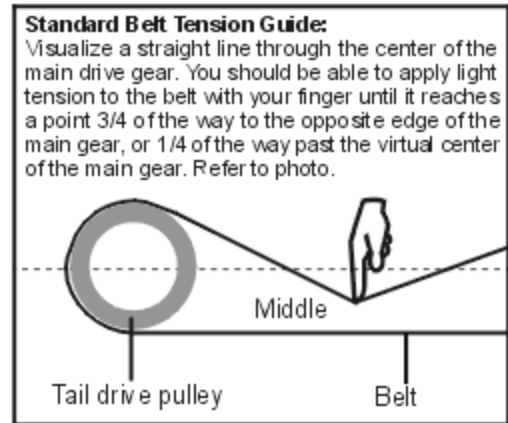
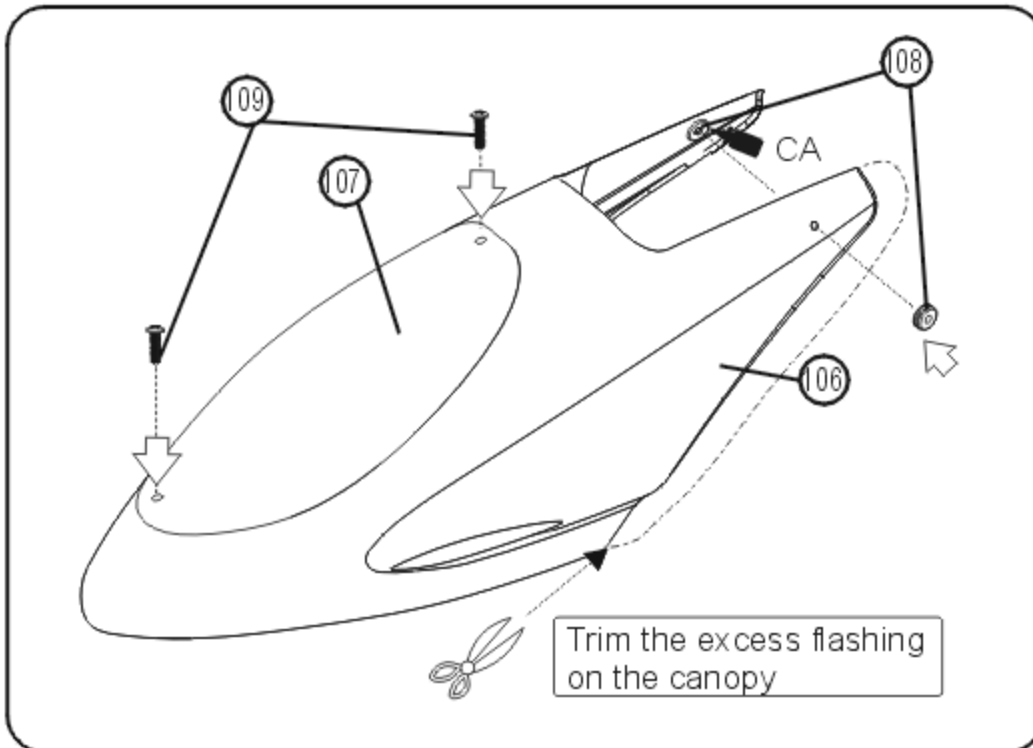
Parts kit No.HT.HB

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
90	HT5	HT1003	Tail rotor drive belt	1	397T	98	HT3	HT3006	3K Carbon horizontal stabilizer	1	42.84X120X1mm
91	HT2	HT2002CF	Metal tail servo mount	2		99	HT3	HT3007	3K Carbon vertical stabilizer	1	71X115X1mm
92	HT2	T52006	Socket button head screw	2	M2X6mm	100	HT5	T52006	Socket button head screw	2	M2X6mm
93	HT2	HT2003B	Tail boom brace	2	φ3X205mm	101	HT9	HT9003	Rudder control rod	1	φ1.3X280mm
94	HT2	HT2003S	Tail boom brace end	4		102	HT9	H2009	Ball link (Long)	2	
95	HT3	HB2015CF	M2 specialty washer	6	φ2X φ5X2mm	103	HT9	HT9004	Tail control guide	2	
96	HT3	T52008-1	Socket self tapping screw	4	M2X8mm	104	HB2	T12009-1	Collar screw	2	M2X9mm
97	HT3	HT3003	Bracket	1		105	HB2	HB2015CF	M2 specialty washer	2	φ2X φ5X2mm

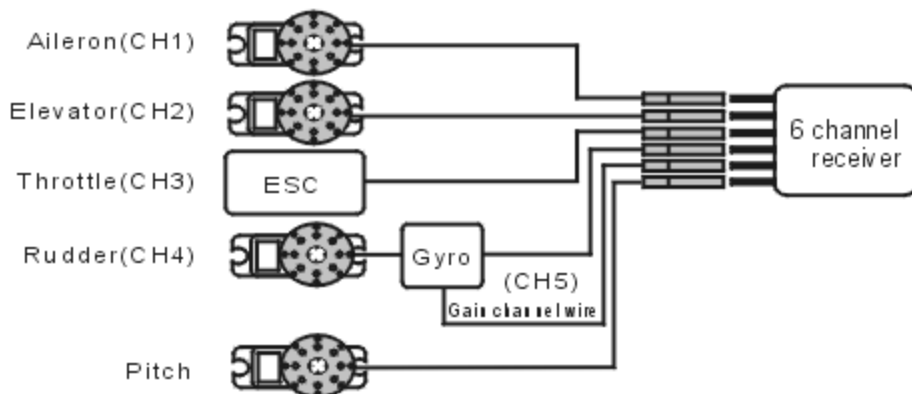


Parts kit No.HT - HB

N0.	PN.	Parts No	Description	Q' TY	Specification	N0.	PN.	Parts No	Description	Q' TY	Specification
106	HB8	HB8005	Canopy	1		108	HT12	HB8008-1	Canopy nut	2	φ2.3Xφ3.7Xφ7X3.6mm
107	HB8	HB8006	Canopy cover	1		109	HB8	HS1002	Selftapping screw	2	M2X6mm

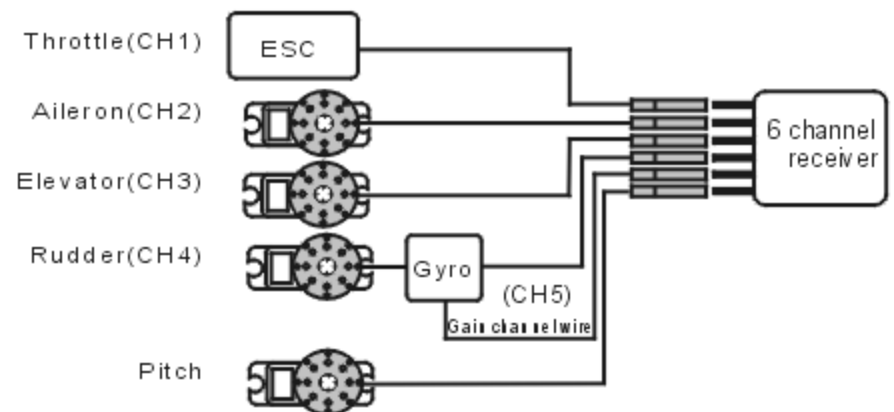


HITEC - FUTABA - ALIGN 6CH receiver wiring



6-Channel Receiver is adequate for the requirements of the T-REX heli. You will need the following channels at a minimum: Throttle, Rudder, Elevator, Aileron, and especially Pitch (Ch6) and Gyro (Ch5) controls.

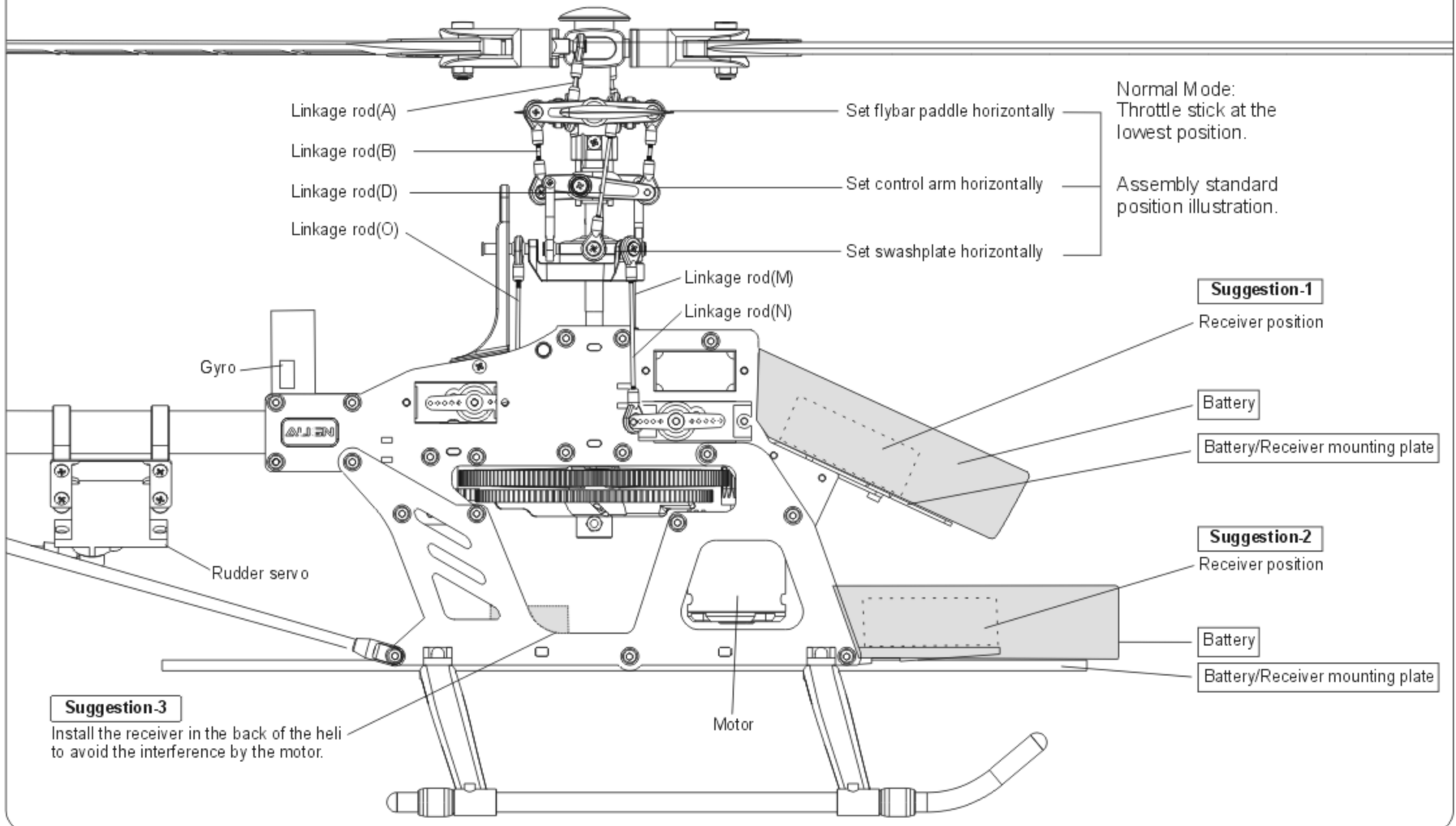
JR 6CH receiver wiring



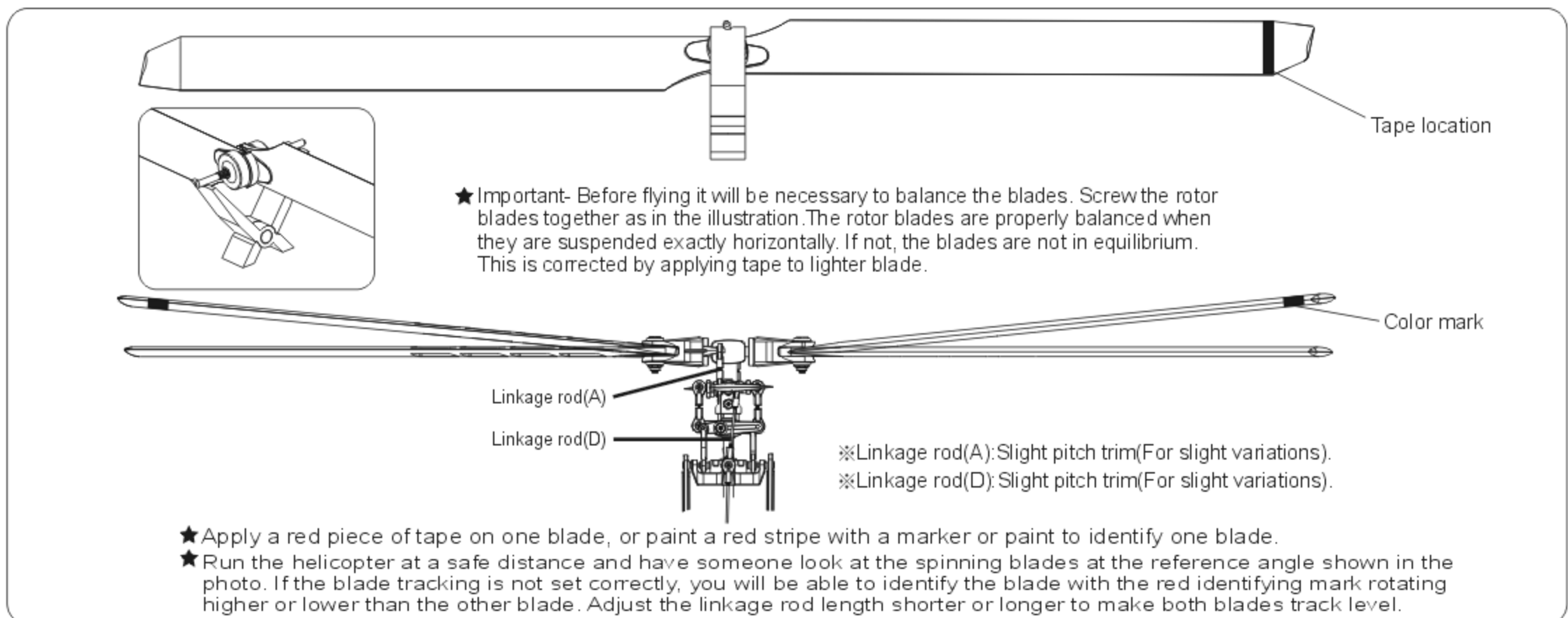
6-Channel Receiver is adequate for the requirements of the T-REX heli. You will need the following channels at a minimum: Throttle, Rudder, Elevator, Aileron, and especially Pitch (Ch6) and Gyro (Ch5) controls.

PARTS AND EQUIPMENT ASSEMBLY ILLUSTRATION

Illustration of Main Rotor's Pitch at 0 degree



MAIN ROTOR ADJUSTMENTS



TROUBLESHOOTING THE POWER SYSTEM

Please check the followings when the power or speed gets abnormally slow:

1. Check the battery is the correct specification for the helicopter and is fully charged.
2. Check if the pitch setting is too high.
3. Check the tightness of the main rotor blades. Blades should be tightened so that they do not move freely, but can be moved by applying slight pressure by hand.
4. Check for vibration on the main and tail rotors (vibration can be caused by main shaft/feathering shaft wear, damage, or loosens, check all linkages and bearings for excess play or wear).
5. Check for interference caused by improper gear mesh or belt tension.

JR Transmitter/Servo

Please note to set the subtrim neutral for the first trial flight. If the helicopter wags, please trim linkage rod(M)(N). Trim both rods simultaneously to adjust for forward/backward tilt. Trim rod(M) or (N) for right/left tilt.

If any interference caused by rod(N) and outer covering, please install the ball links inside.

Elevator:CH3
Aileron:CH2 Pitch:CH6
Pitch:CH6 Aileron:CH2

Positions of CH2、CH6 are exchangeable. After assembling as photo (Note: Set the transmitter under CCPM 120 degree mode), pull throttle stick(pitch) upward. If one swashplate servo (or two servos) moves downward, adjust reverse switch(REV) on the transmitter to make it moves upward. If three servo move downward, adjust the travel value(+/-) of SWASH CH6 on the transmitter to make them move upward. When the actions of Aileron and elevator are opposite, adjust travel values of SWASH CH2 and CH3.

FUTABA/HITEC Transmitter/Servo

Linkage rod(O)
Linkage rod(M)
Linkage rod(N)
Elevator:CH2
Aileron:CH1 Pitch:CH6
Pitch:CH6 Aileron:CH1

Positions of CH1、CH6 are exchangeable. After assembling as photo (Note: Set the transmitter under CCPM 120 degree mode), pull throttle stick(pitch) upward. If one swashplate servo (or two servos) moves downward, adjust reverse switch(REV) on the transmitter to make it moves upward. If three servo move downward, adjust the travel value(+/-) of SWASH CH6 on the transmitter to make them move upward. When the actions of Aileron and elevator are opposite, adjust travel values of SWASH CH1 and CH2.

PRE-FLIGHT CHECKLIST("MODE 1" CONTROLS)

This model helicopter is an electronically controlled mechanical device traveling at high speeds and altitudes, with high-speed rotating blades posing a potential dangerous risk. Please make it a habit to always perform a pre-flight check of the entire model prior to each flight. If you discover any broken, loose, or worn parts, do not fly the model. Repair or replace items immediately. After each flight, completely clean the model and check for damage or wear. Following these simple steps will provide for maximum enjoyment owning and operating the T-REX Helicopter.

Aileron Control

Down Up
Tilt left Tilt right
Left Right

Flying control of Left/Right cyclic

Elevator Control

Up Down
Backward Forward
Forward Backward

Flying control of Forward/Backward cyclic

Throttle Control

Up Down
Ascent / acceleration High
Low
Descent / deceleration

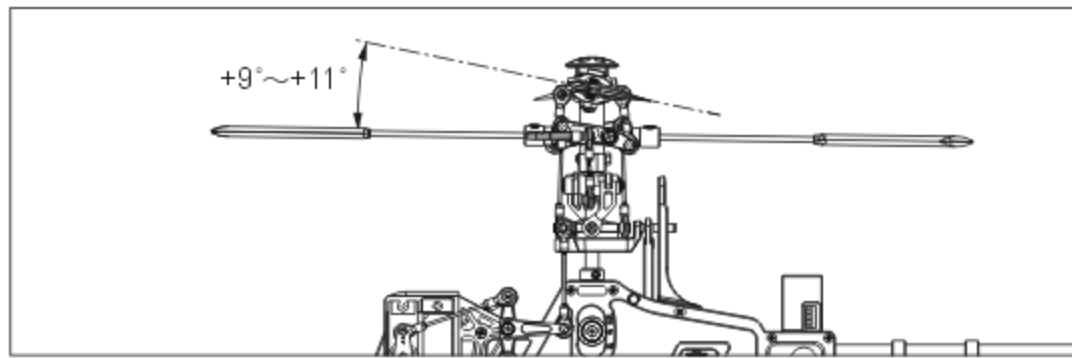
Flying control of ascent/descent

Rudder Control

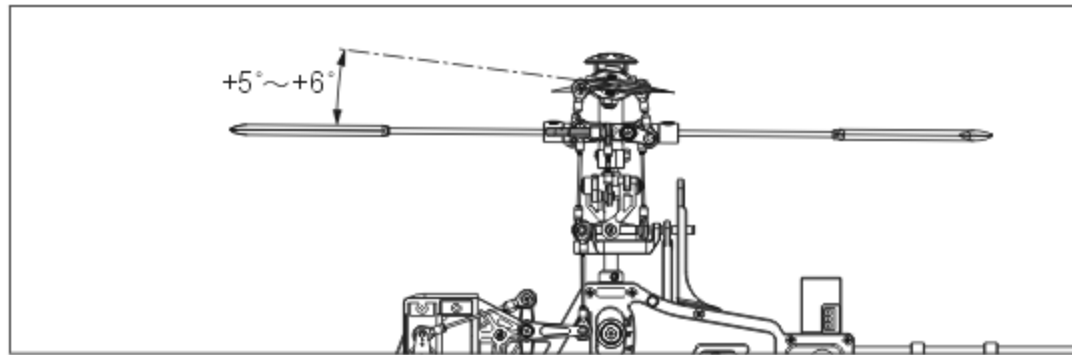
Right Left
Left Right

Flying control of right/left turn

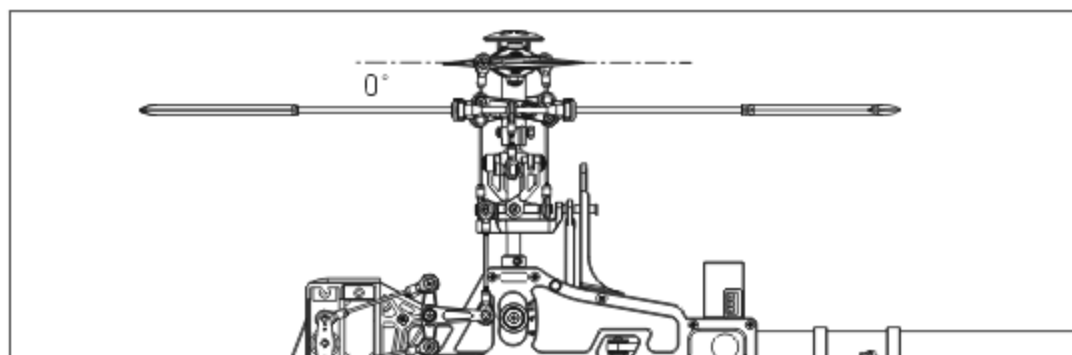
General Flight



Stick position at high/Throttle 100%/Pitch +9°~+11°



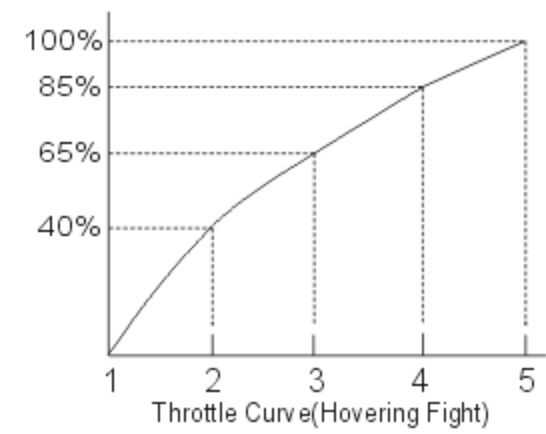
Stick position at Hovering/Throttle 65%~70%/ Pitch +5°~+6°



Stick position at low/Throttle 0%/Pitch 0°

GENERAL FLIGHT

	Throttle	Pitch
5	100% High speed	+9°~+11°
4	85%	
3	65%~70% Hovering	+5°~+6°
2	40%	
1	0% Low speed	0°

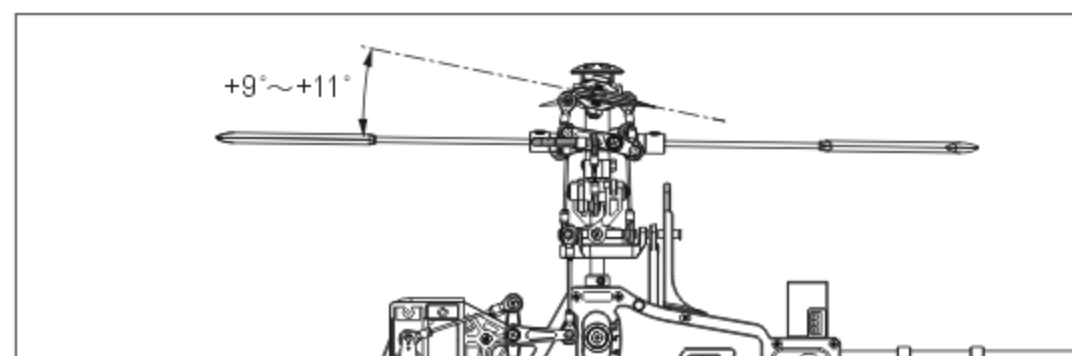


Pitch and Rotation Speed

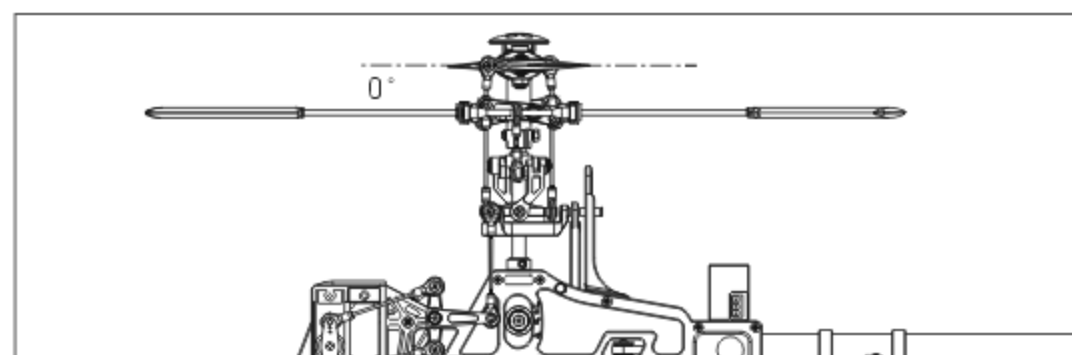
TIP:

It is recommended to use a lower pitch setting when using higher RPM Headspeed. This will allow for better power.

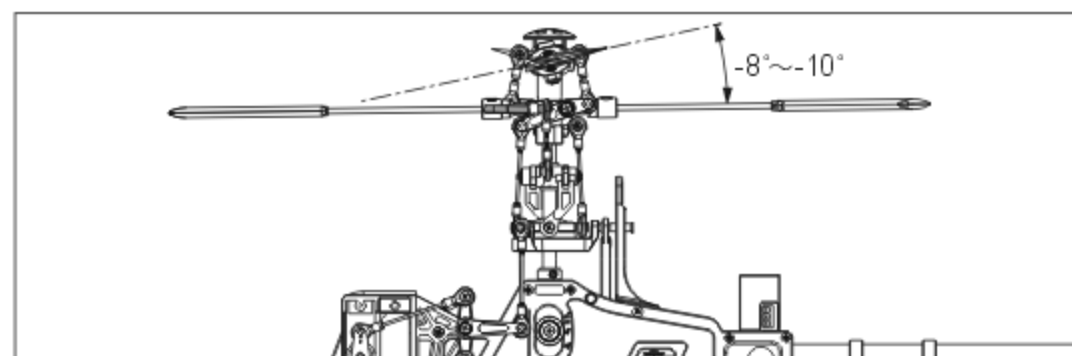
3D Flight



Stick position at high/Throttle 100%/Pitch +9°~+11°



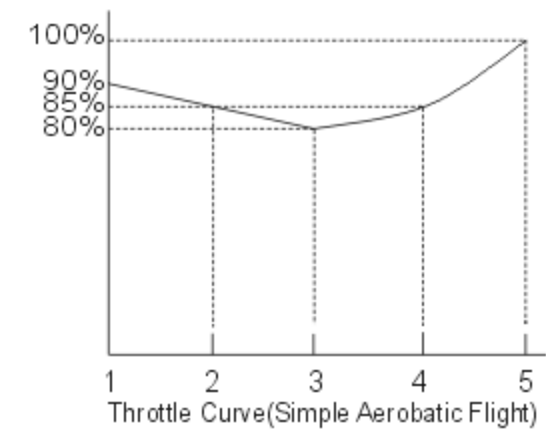
Stick position at middle/Throttle 90%/Pitch 0°



Stick position at low/Throttle 100%/Pitch -8°~ -10°

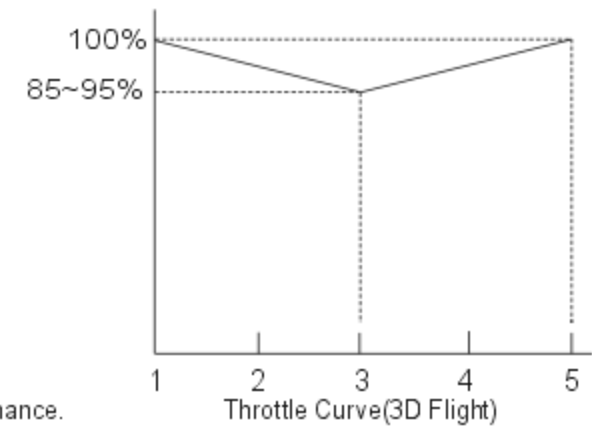
IDLE 1

	Throttle	Pitch
5	100%	+9°~+11°
4	85%	
3	80%	+5°~+6°
2	85%	
1	90%	-5°



IDLE 2

	Throttle	Pitch
5	100% High	+9°~+11°
3	90% Middle	0°
1	100% Low	-8°~ -10°



- Note!**
1. Pitch range: 25°
 2. If the pitch is set too high, it will result in shorter flight duration and poor motor performance.
 3. Setting the throttle to provide a higher speed is preferable to increasing the pitch too high.

Battery :ALIGN Li-Poly 11.1V 3S 2100mAh/20C

Motor Gear	Main Rotor Blade	PITCH		Current(A) approx.	Throttle Curve	RPM approx.
12T	325mm PRO Blade	Hover	+5°	7.8	0/50/70/85/100%	2160
		Idle 2	0°	9.7	100/100/100/100/100%	2950
			±9°	22.1		2350
13T	325mm PRO Blade	Hover	+5°	8.0	0/50/65/85/100%	2180
		Idle 2	0°	10.8	100/100/100/100/100%	3100
			±9°	24.0		2400
12T	315mm Blade	Hover	+5°	7.6	0/50/70/85/100%	2350
		Idle 2	0°	9.1	100/100/100/100/100%	3000
			±9°	19.8		2500
13T	315mm Blade	Hover	+5°	7.8	0/50/65/85/100%	2360
		Idle 2	0°	10.6	100/100/100/100/100%	3150
			±9°	21.5		2660

Note: Please use the pitch gauge to adjust the pitch value. Incorrect pitch setting may affect the helicopter performance and reduce ESC's life and battery's life.

RCE-BL35X ESC Setting suggestion

- ⊙ **Brake Option:** When flying helicopters, select "Brake disable(1-1)".
- ⊙ **Timing Option:** When using 6 pole or more brushless motor, select "Mid-timing(2-2) to get better efficiency. If select "High-timing(2-3) to increase power, it will increase current and cause power consumption.
- ⊙ **Battery Protection Option:** Will cause the motor to pulse, this notifies pilots of low voltage in battery. For 3D flight, recommend to select "Middle cutoff voltage protection (3-2)" to avoid low voltage to prematurely damage the battery; For beginner to practice hovering or do a general flight, recommend to select "High cutoff voltage protection (3-1)". To avoid the low voltage caused by battery over-discharging.

NOTE: Please use full-charged battery to fly. If the battery is not full-charged, ESC may erroneously set the cut-off voltage and cause the battery over-discharged.

- ⊙ **Aircraft Option:** Default setting is "Helicopter 1 (4-2)" and this option provides Soft Start. You can select "Norma Airplane (4-1)" to cancel this option, or select "Helicopter 2 (4-3)" and this option provides Soft Start and Governor Mode.
- ⊙ **Throttle response speed:** Default setting is "Quick throttle response (5-3)", suitable for 3D flight. The user can change to the other options according to the demand, "Standard throttle response (5-1)" or "Medium throttle response (5-2)" for soft response speed.

Regular maintenance is required to keep the T-REX 450SE helicopter in optimal and safe flying condition. The model requires precise configuration of the components and settings to be kept by the owner. Maintain regular maintenance on the model to avoid accidents or loss, and optimum performance.

MAIN ROTOR CHECKLIST

1. Main Rotor Housing: When the main rotor housing is worn or faulty, there will be obvious vibration and poor flight control. Check the main rotor, main shaft, and feathering shaft for wear or deformity. Replace parts as necessary to eliminate imbalance.
2. O-Rings: The O-Rings will lose their elasticity over time. This will cause excess play on rotor and cause instability. Replace as needed.
3. Main Rotor Holder: When the heli will not fly or reacts sluggishly, even after checking for proper setting of pitch and throttle, check the following items:

Plastic Parts	Bearings	Ball bearings	Rotor Blades
---------------	----------	---------------	--------------
4. Check for excess play or gaps between the surfaces, missing or broken parts, or binding or restricted movement. It is important to check for main rotor balance before each flight. Operating the model when out of balance will cause excessive wear and premature failure of parts, possibly resulting in a dangerous situation.
5. Control Arm Assembly: Check regularly for cracked, worn, bent or binding control arms and pushrods. Smooth movement of control arms and linkages is required for stable, vibration free flight.
Swashplate: Check for excess slop in the main ball where the main shaft rides on, and slop or looseness between the plastic and metal surfaces. Swashplate wear will result in poor stability and lack of control during flight. Replace as necessary.

FUSELAGE/CHASSIS

1. Main Shaft Bearing: Normal replacement interval for proper operation is between 60-100 flights. If flying 3D or extreme aerobatics often, inspect the bearing more frequently and shorten the interval as necessary.
2. One-way Bearing: One-way bearings have longer lifetimes. Failure is not common. To keep the one-way bearing in good operation, remove it to clean and lubricate after every 50 flights. If the main drive gear is loose, you should replace the one-way bearing (part # HB6002)
3. Drive Belt: ALIGN uses only top quality, stretch-proof belts. It is however, impossible to prevent the belt from stretching or wearing out. Check belt tension regularly, and check for the wear on the teeth. Replace as necessary.

LINKAGE RODS & CONNECTING PARTS

During assembly, take special care to keep the connecting parts in smooth operation, and avoid excess play or binding. Failure to do so will result in poor flight stability. The linkage rods and ends will break and wear due to normal usage, crashing, and poor maintenance and environment. Check for wear and proper operation regularly, replace as needed.

TAIL ROTOR SYSTEM

1. Tail Rotor Control Set: Check the tail rotor bearing regularly. If there is excess play or gaps replace immediately. Avoid any binding or improper contact on the tail components and bearings as this will cause excess wear and heat, potentially melting or deforming the tail system.
2. Tail Unit Assembly: Avoid flying in tall grass or weeds. If grass or weed becomes lodged in the tail rotor unit, it will interfere with the operation, and cause the helicopter to lose control. Always check for foreign objects in the tail and clean them off immediately. Avoid using lubricants on the exposed surfaces of the model as it will attract and collect dirt and debris, and cause failure.
3. Tail Rotor Housing: Disassemble Tail rotor housing for cleaning and maintenance after every 50 flights. If the tail does not operate smoothly or shows any signs of stress or wear, please replace immediately.
4. Tail Rotor: Check the Tail Rotor blades regularly for damage, especially if the helicopter ever strikes the ground while flying, or after hard landings. Damaged Tail Rotor blades can induce vibration.

NOTICE: Maintain regular maintenance on model to avoid accidents or loss.



1set

HS1160
315 Blade/Yellow



1set

HS1162
325 Blade/Yellow



1set

HS1159-01
315 PRO Blade/White



1set

HS1158-01
325 PRO Blade/White



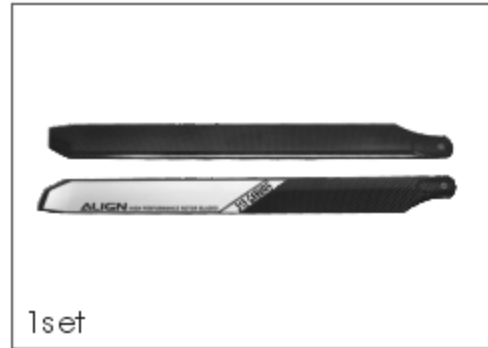
1set

HS1161-01
315 Fiber rotor blade/White



1set

HS1163-06
325 Fiber rotor blade/Yellow



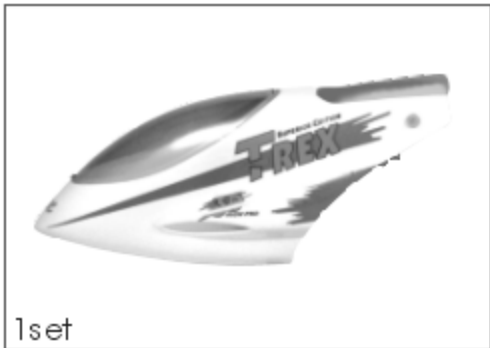
1set

HS1110-01
315 Carbon rotor blade/3K White



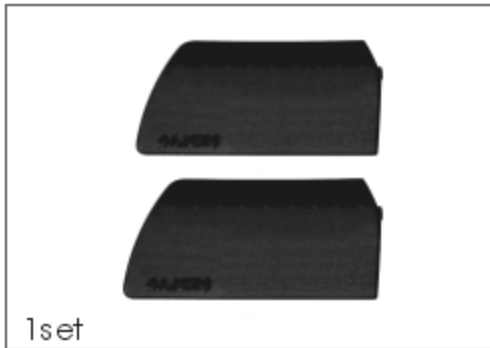
1set

HS1131
325 Carbon rotor blade/3K Yellow



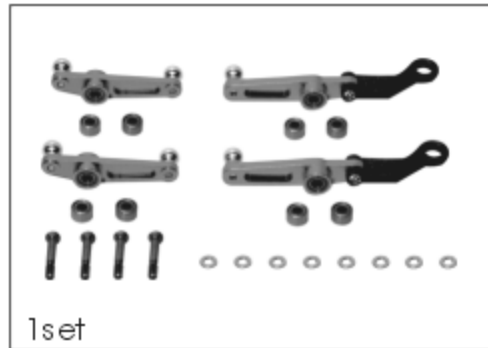
1set

HS1210
SE Canopy



1set

HS1191
Flybar paddle



1set

HS1215
Metal control lever



1set

HS1207
Metal flybar seesaw holder



1set

HS1065
Metal main rotor holder



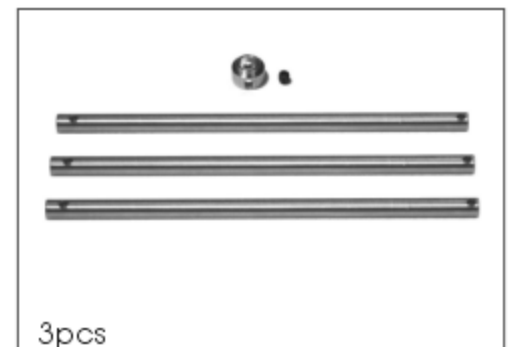
1set

HS1080
Metal main rotor housing



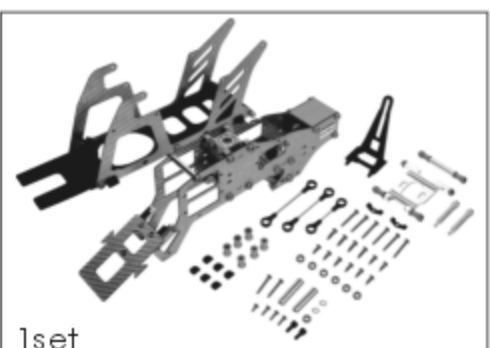
1set

HS1081
Metal flybar control set



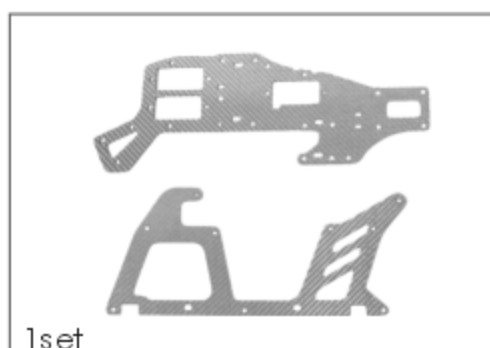
3pcs

HS1011-3
Main shaft



1set

HS1137-75
SE Main frame set/Silver



1set

HS1115-75
SE Main frame



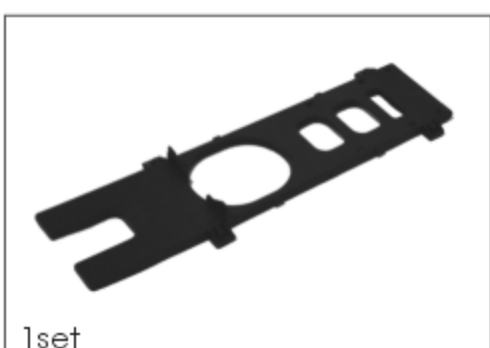
1set

HS1117
SE Metal Re-fitting components



1pc

HS1151
Motor mount



1set

HS1124
Bottom plate/SE,CF



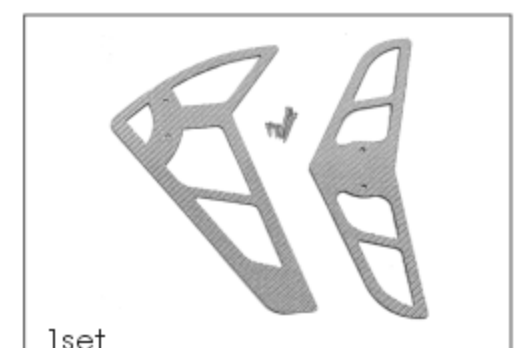
1set

HS1111
CCPM Metal swashplate/New



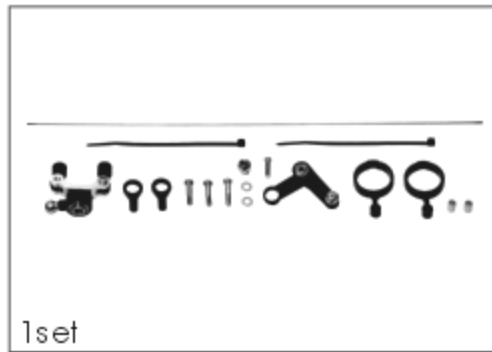
1set

HS1236
New anti rotation bracket

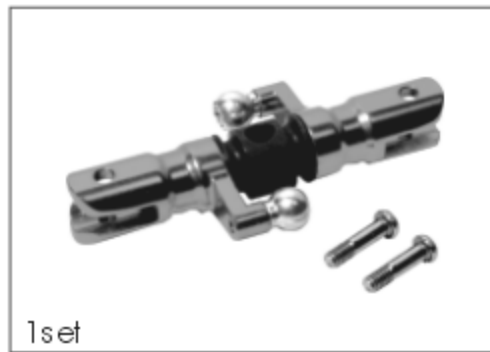


1set

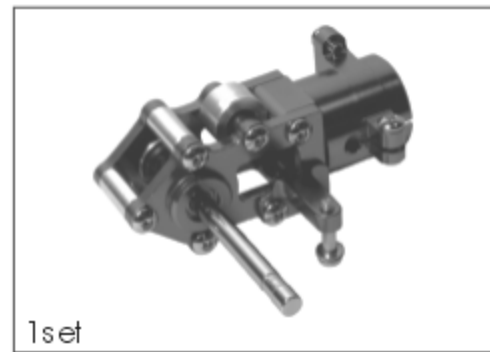
HS1064
Carbon stabilizer set/1K Silver



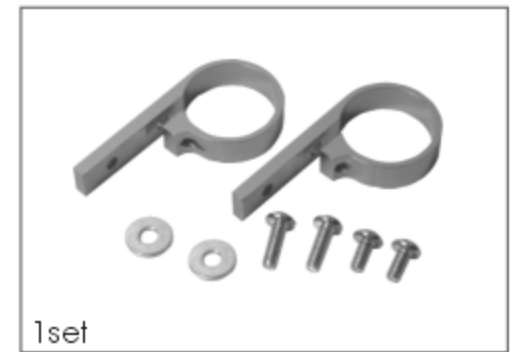
1set
HS1200
Metal tail pitch assembly/New



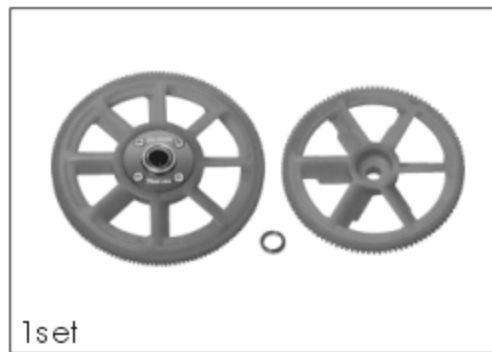
1set
HS1189
Metal tail holder set



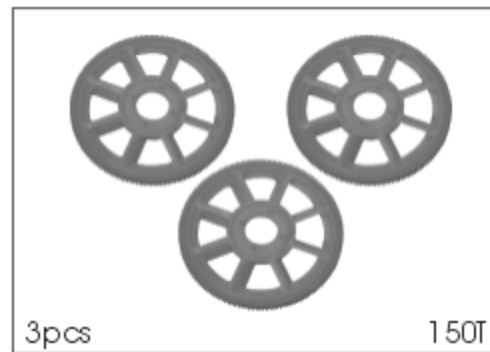
1set
HS1108
Metal tail unit



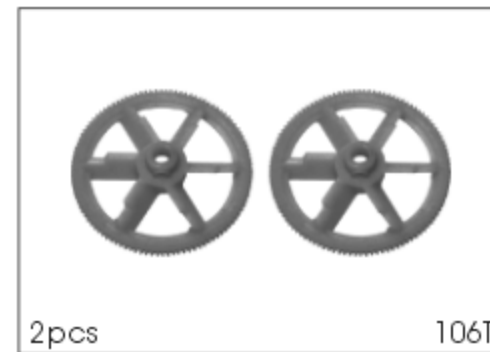
1set
HS1113
Metal tail servo mount



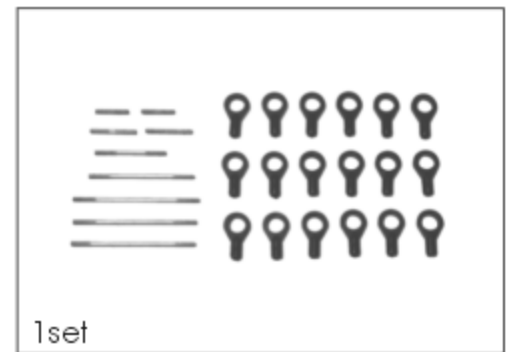
1set
HS1218
Main Gear



3pcs
HS1219
New Main Gear 150T



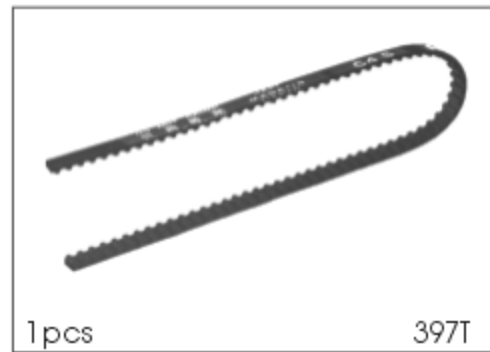
2pcs
HS1220
Autorotation tail drive gear 106T



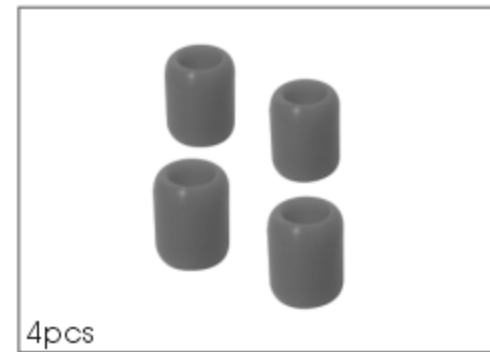
1set
HS1119
Linkage rod set/SE,CF



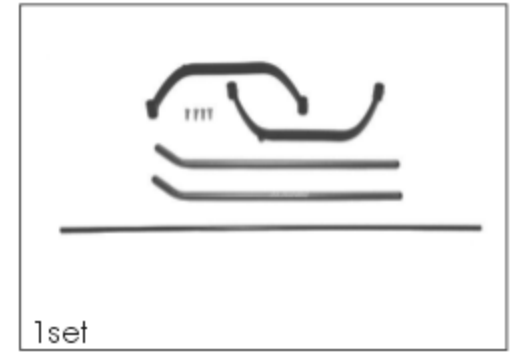
4set
HS1003
Feathering shaft



1pcs
HT1003
Drive belt/XL 397T



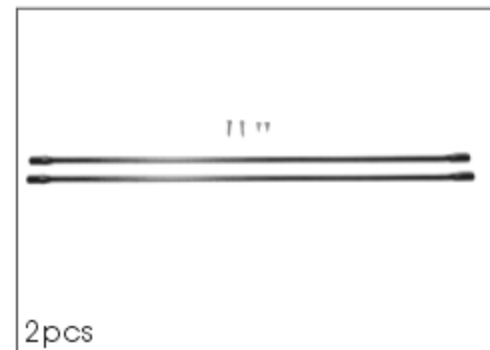
4pcs
HZ022
Landing skid nut



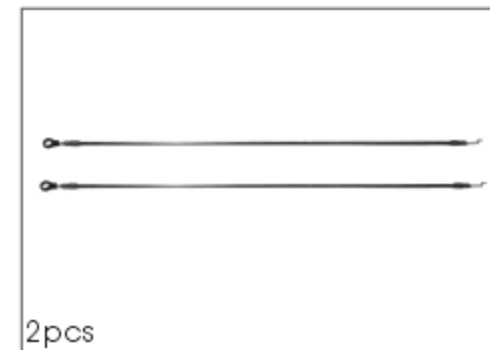
1set
HS1118
Landing skid set/Black



2pcs
HZ030
Tail boom/XL 99"



2pcs
HS1016
Tail boom brace 11"



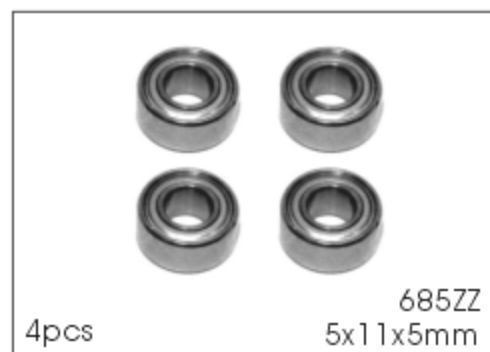
2pcs
HS1017
Tail linkage rod



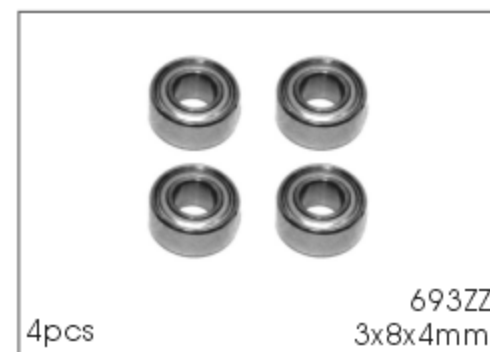
2pcs
HS1006
Flybar rod



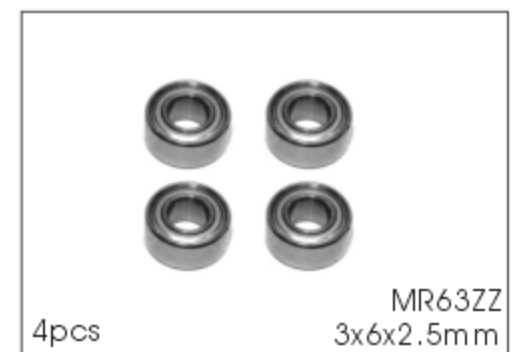
1pc
HS1229
One-way bearing 6x10x12mm



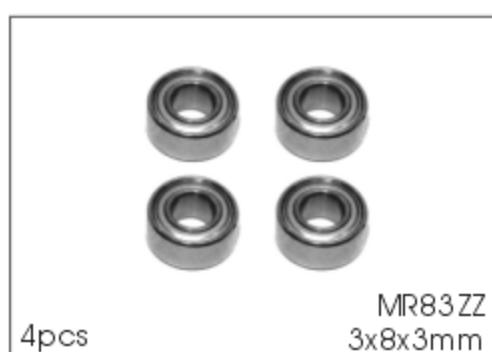
4pcs
HS1028
Bearings 685ZZ 5x11x5mm



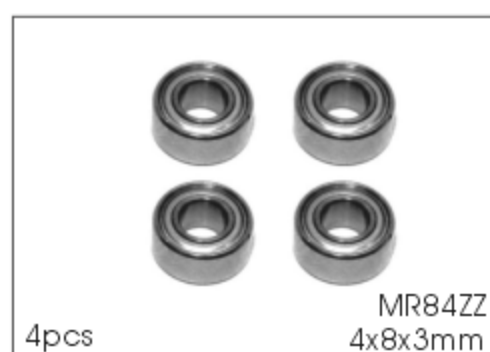
4pcs
HS1029
Bearings 693ZZ 3x8x4mm



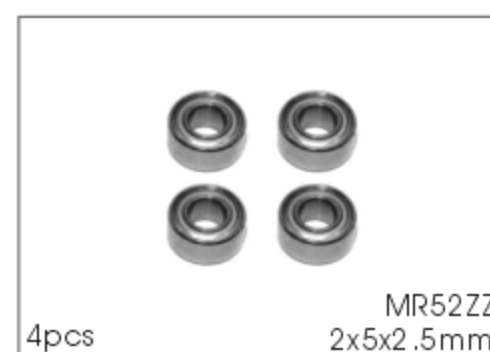
4pcs
HS1030
Bearings MR63ZZ 3x6x2.5mm



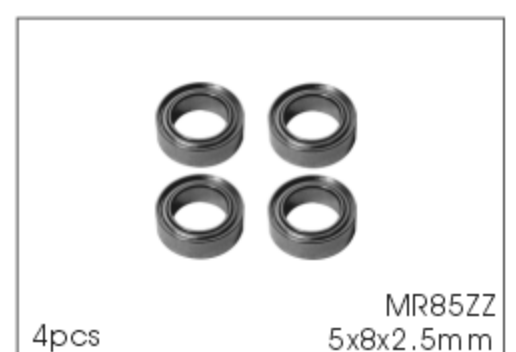
4pcs
HS1031
Bearings MR83ZZ 3x8x3mm



4pcs
HS1032
Bearings MR84ZZ 4x8x3mm



4pcs
HS1033
Bearings MR52ZZ 2x5x2.5mm

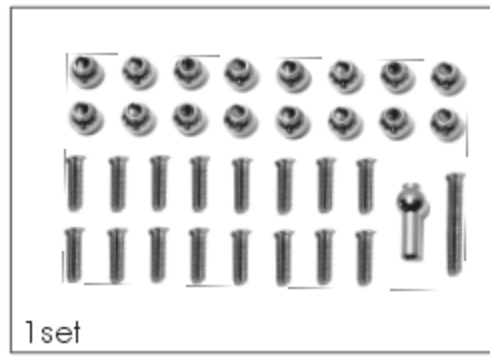


4pcs
HS1058
Bearings MR85ZZ 5x8x2.5mm



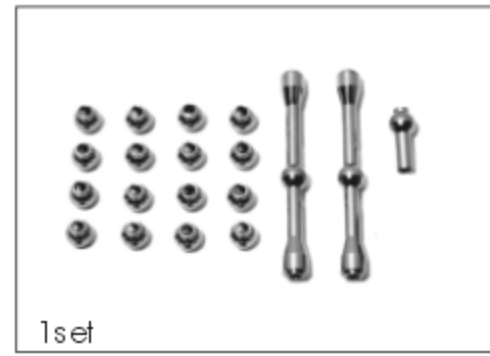
1pc MR6803ZZ
18.5x26x4mm

HS1209
Bearings



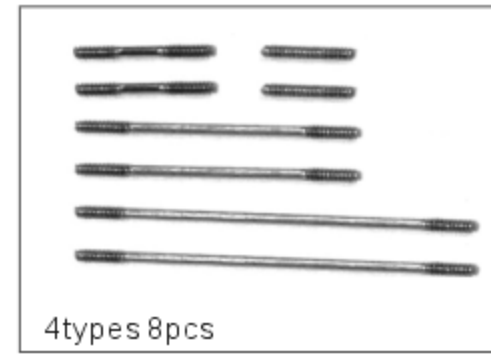
1set

HS1155
Stainless steel ball parts



1set

HS1180-75
Steel ball parts



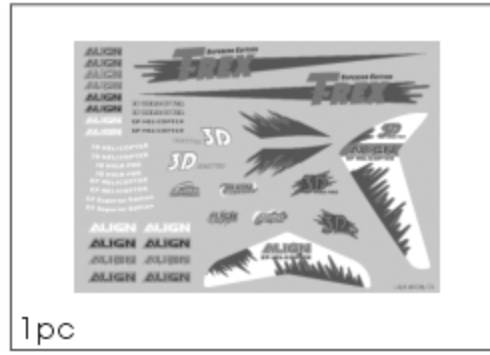
4types 8pcs

HS1034
Linkage rod



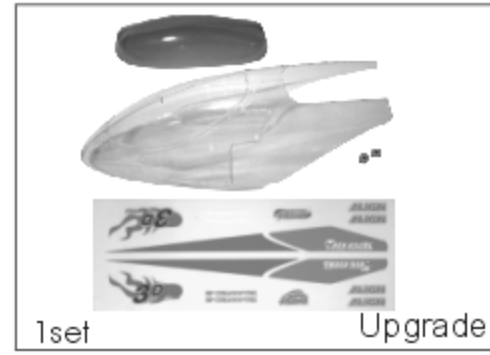
1pc

HS1181
Main blade holder



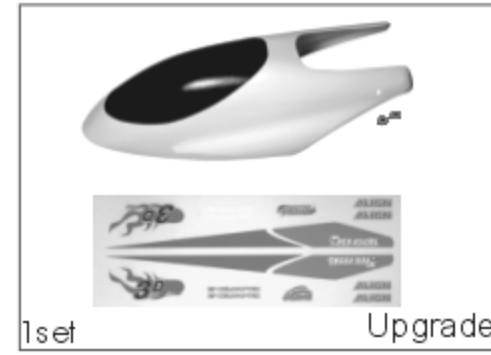
1pc

D03773
SE Sticker



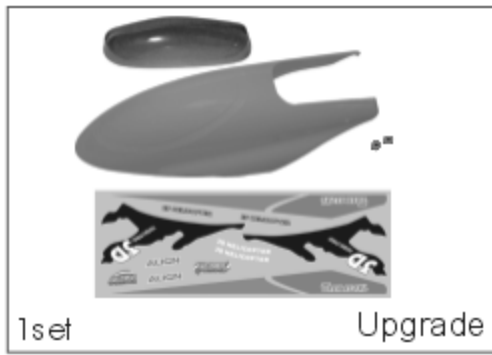
1set Upgrade

HS1068
XL Canopy/Pellucid



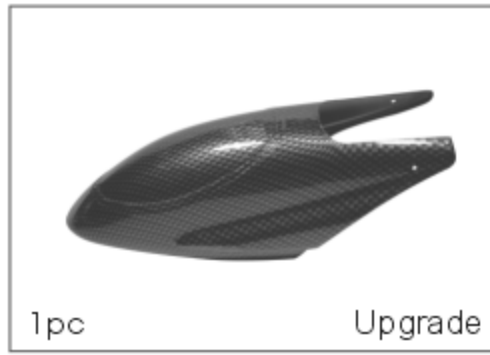
1set Upgrade

HS1088
XL Fiberglass canopy/White



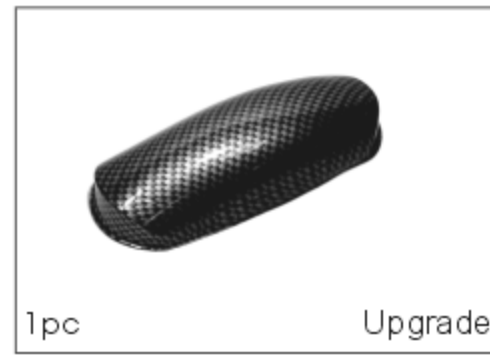
1set Upgrade

HS1100
XL Canopy/Yellow



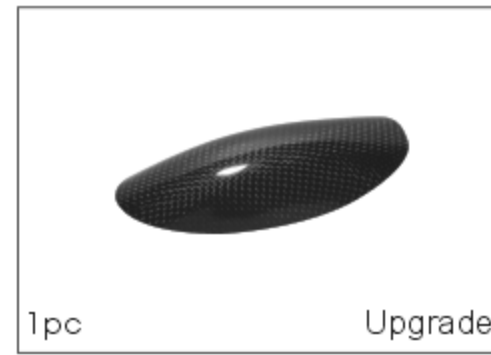
1pc Upgrade

HS1084
XL Canopy/3K



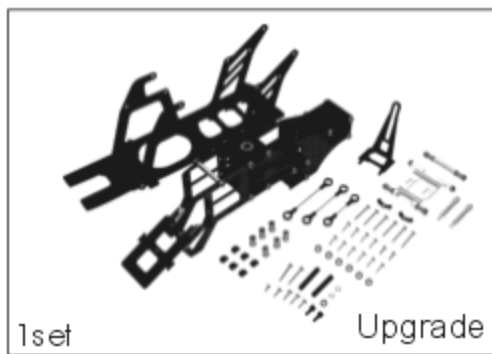
1pc Upgrade

HS1083
XL Canopy cover/3K



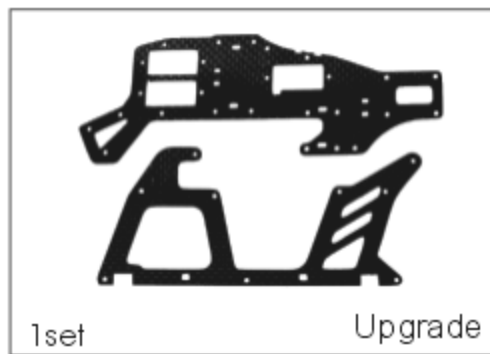
1pc Upgrade

HS1126
XL Carbon canopy cover/3K



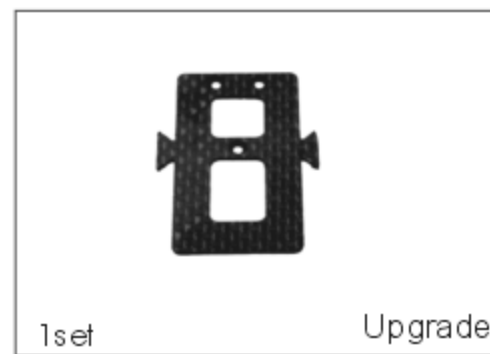
1set Upgrade

HS1107
CF Main frame set



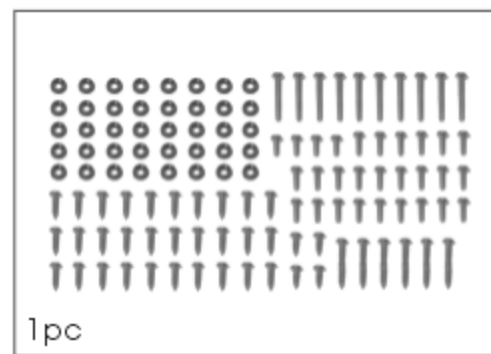
1set Upgrade

HS1115-00
CF Main frame



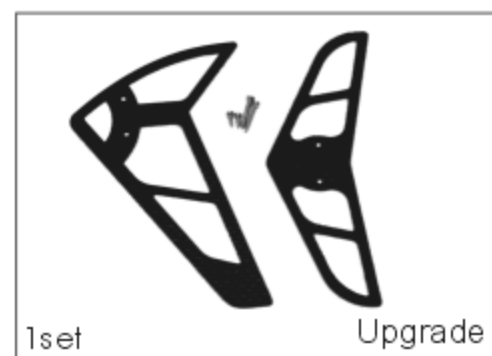
1set Upgrade

HS1123-00
CF Battery mounting plate



1pc

HS1122
Frame hardware bag/SE,CF



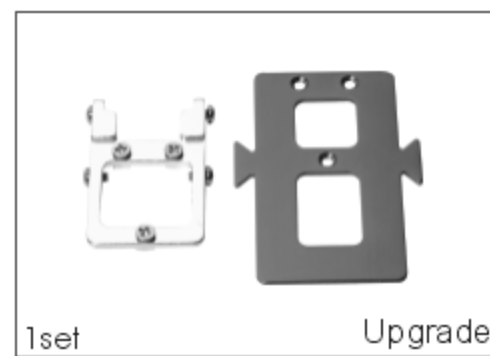
1set Upgrade

HS1055
Carbon stabilizer set/3K Black



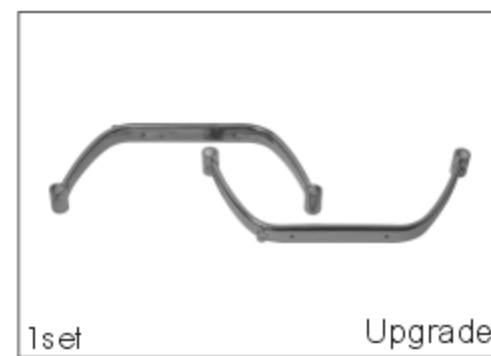
1set Upgrade

HS1132
Carbon tail rotor blade set/3K



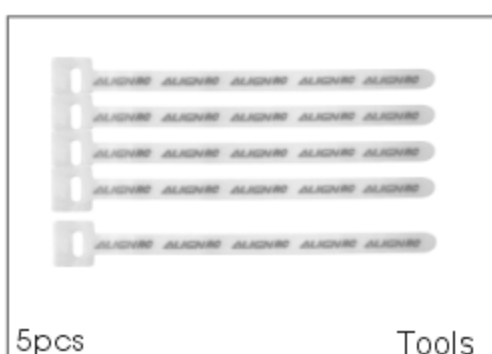
1set Upgrade

HS1145
Metal battery mounting plats set



1set Upgrade

HS1144-72
Bump resistance landing skid



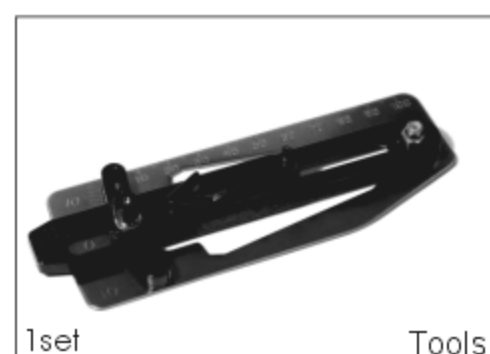
5pcs Tools

HS1066
Hook & loop fastening tape(5pcs)



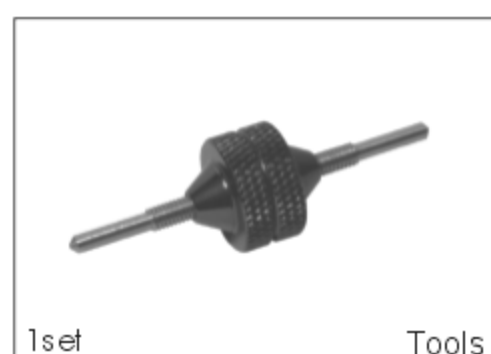
Tools

HZ040
New screw driver



1set Tools

K10180A
Micro heli pitch gauge



1set Tools

K10289A
Balancer

Specifications & Equipment:

Length: 650mm
Height: 230mm
Main Rotor Diameter: 680/700mm
Tail Rotor Diameter: 150mm
Motor Pinion Gear: 12T/13T
Main Drive Gear: 150T
Autorotation Tail Drive Gear: 106T
Tail Drive Gear: 25T
Drive Gear Ratio: 1:12.5:4.24/1:11.5:4.24
Weight(w/o Power System): Approx.370g(0.82 lbs)
Flying Weight: Approx.690g(1.52 lbs)

Recommended Power and Radio Equipment (Not included in kit):

Li-Poly Battery: DC11.1V(1900mAh/12C or more)
Transmitter: 6 channel or more(Helicopter System)
Receiver: 6 channel or more
Gyro: 1pc
Servo: 9g x3pcs
Rud servo: 6g x1pc

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