

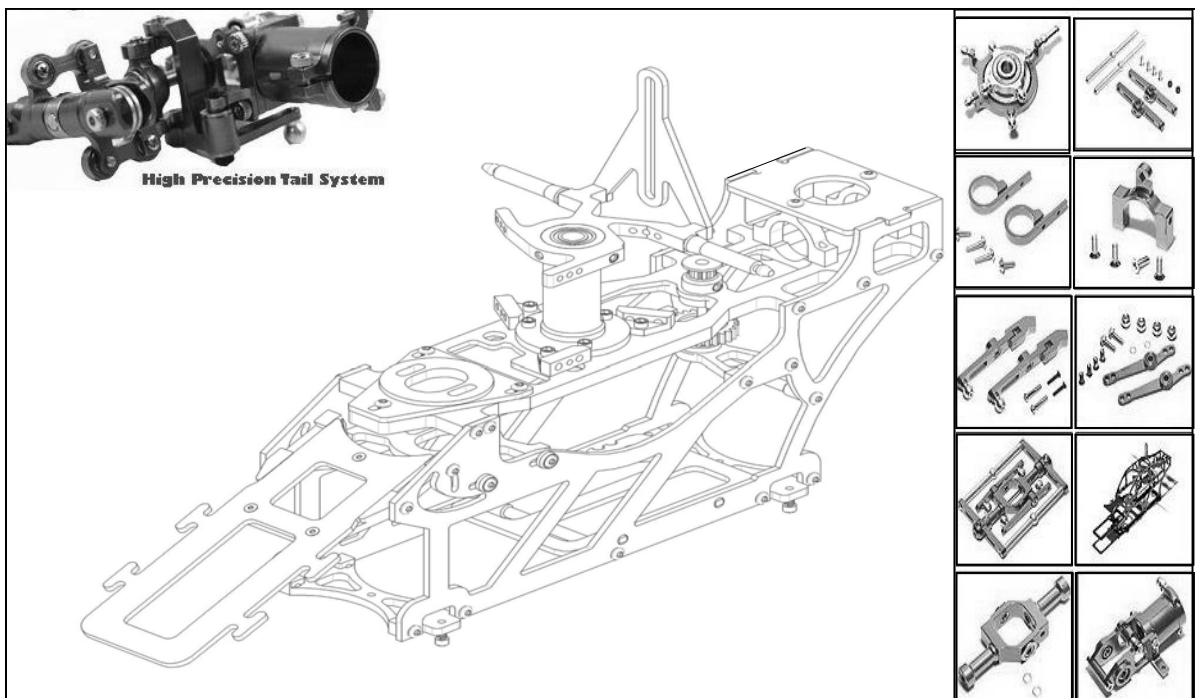
3DX 450 BSE V3

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Instruction Manual

Author: Per Backman

Date: 10/30/2006



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Note's Before Starting

Page 2

WELCOME TO SONIX R/C MODEL PRODUCTS

Thank you for buying our Products. The 3DX 450 BSE Helicopter is designed as 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 3DX 450 BSE is a new product developed by us. It features the best design available on the Micro-Heli market to date, providing flying stability for beginners, full aerobic capability for advanced fliers, and unsurpassed reliability for customer support

IMPORTANT NOTES

R/C helicopters, including the 3DX 450 BSE 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 RIC 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 R/C products.

When used properly, our R/C products will provide years of R/C entertainment. 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 3DX 450 BSE 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.

SAFTY 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 simulated flying software.)

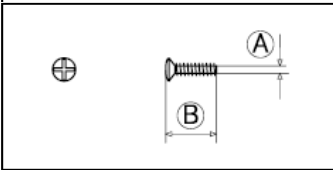
3. Always be aware of the rotating blades:

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.

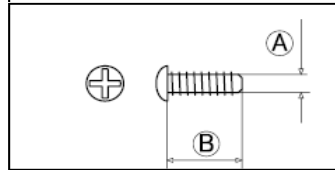
Hardware Identification

WELCOME TO SONIX R/C MODEL PRODUCTS

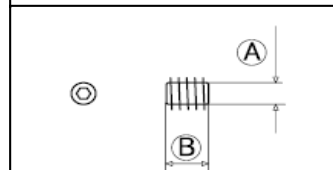
M2x8mm Philips Head Screw



M2x8mm Self tapping Screw



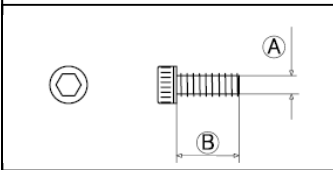
M3x3mm Set screw



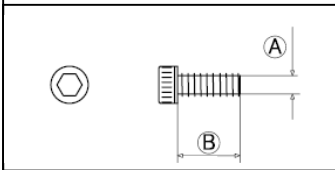
A = Diameter

B = Length

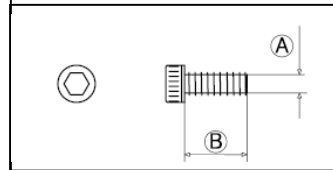
M4x20mm Socket Head Screw



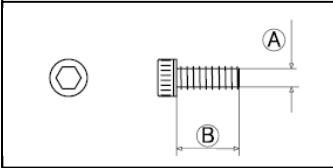
M2x8mm Socket Head Screw



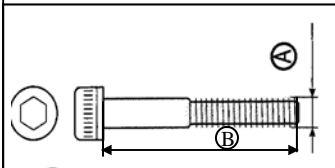
M2x10mm Socket Head Screw



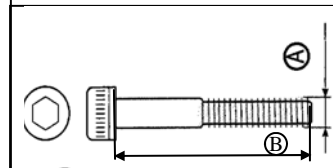
M2x12mm Socket Head Screw



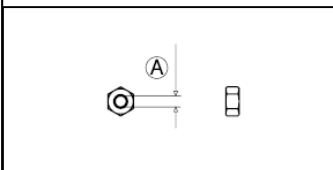
M2x20mm Socket Head Screw



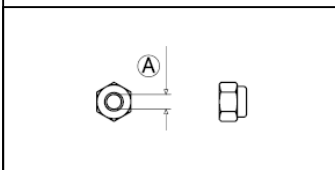
M2x30mm Socket Head Screw



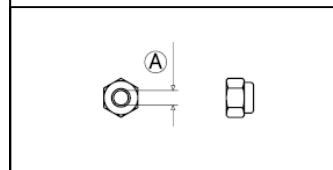
M2 Hex Nut



M2 Lock Nut

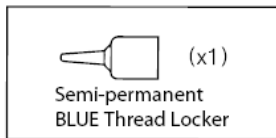


M4 Lock Nut



Very Important!

Thread Locker Is Used To Keep Assemblies Tight As Vibration May Cause Them To become Loose



Due to the vibrations caused by operation, nuts, bolts, and set screws may have a tendency to loosen. Repeated tightening is not the solution, instead, the careful application of thread locker is required. Thread locker works something like a glue. There are various types of thread locker, from permanent types which are usually RED in color, to semi-permanent types which are usually BLUE in color. BLUE thread locker is what is recommended. Thread locker is not needed with nylon-lock nuts, nor where metal screws thread into plastic. Finally, be careful to remove all traces of oil or grease by applying a degreaser or acetone to bolts prior to assembly - clean with a paper towel until all traces are gone.

NOTE: Use care when using thread locker near bearing areas as contamination may ruin the bearing and cause it to seize. Never use thread locker on metal to plastic

Tools needed for assembly

- Phillips Screw Driver
- Nut Drivers (2mm/3mm/4mm)
- Allen Drivers (0.050in/1.5mm/2mm/3mm/4mm)
- Small Hammer
- Lexan Scissors
- Hobby Knife
- Needle-nose Pliers
- Ruler (metric) Greater Than 30cm
- 4-way Wrench

Optional Tools for assembly

- Dial Indicator
- Ball Link Pliers
- Calipers
- one sheet of thin typing paper
- Pitch Gauge

Assembling the Head & Tail

As you see the head and tail will come 100 % pre-assembled.

I do recommend you go over each screw to make sure they are secured with Thread Lock , if needed unassembled the part that is lose and use blue Thread Lock. On areas where you are exposed to ball bearings and moving parts, make sure no Thread Lock goes on any ball bearings.

We have supplied a detailed assembly instruction if for any reason you need to take the head or tail apart See page 6 to 8 for the Head Assembly & page 13 to 15 for the Tail Assembly

Assembling of the Frame

1. Starting on Page 9 - Frame Assembly:

- Continue to mount all parts on the left side first before mounting the right side.
- Make sure to use the spacers (optional) and Thread Lock all areas
- Mount all parts on for the upper servo mount

2. Continue on Page 10 with the Right side frame:

- Continue with the upper CNC frame, make sure all screws are secure with thread Lock.
- Now you have to decide if you are going to use the lower or upper motor mount.
- Continue with the Tail gear as pictured.
- You need to mount the main gear and shaft at this stage (see page 12 for main gear)
- Assemble the frame from page 9 and the CNC upper frame together.

3. Starting on page 12 Lower Frame Assembly:

- Continue and mount the landing gears to the main frame

4. Starting on page 12 Main Gear Assembly:

- Make sure the Main shaft and Head are secure see page 4 part 25 and that is Thread Locked down.
- Make sure the small spacer 69 is on place and place the gear so the main shaft goes in
- Use the proper screw and use a nut with Thread Lock
- Mount a collar and use Thread Lock on the lock screws

Assembling the Head, tail & boom & linkage's

1. Starting on page 13 - Boom/Tail assembly:

- Use a tie-wrap on the end of the belt
- Put the belt through the boom and secure the tail assembly to the boom
- Mount the boom to the frame, and place the belt over tail drive gear.
- Turn the gear clockwise and make sure tail is turning anti clock wise, if not turn the belt 180 degrees and try again, then stretch the belt and secure the boom.
- Assemble all parts on page 12 and make sure all metal to metal areas are Thread Locked properly.

2. Starting on page 16 - Main Cabin assembly:

- Cute the cabin out and if you like you can also cut the window and mount the dark window

3. Starting on page 17 - Linkage:

- At this stage the you have assembled the frame and you have 3 servo's installed
- Make the O & N links Should be the same length.
- Make sure all 3 servos have the same style servo arms and the balls are at the same place.
- Connect the receiver to the servos and turn it on, after the servos are in neutral change the servo arms to be completely horizontal.
- Mount the arms to the swash plate and make sure the swash plate, washout arms and flybar & mixer arms and the blade grips are all horizontal.

Regular Maintenance instruction

Regular maintenance is required to keep the HDX450 SE 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 Check List

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 30 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.
3. **Drive Belt:** We are using 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.

Tail Rotor System

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 Right 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.

Linkage Rods & Connection Parts

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.

Main Head Installation

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.

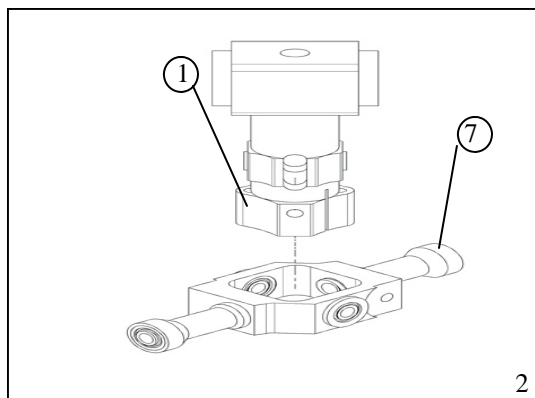
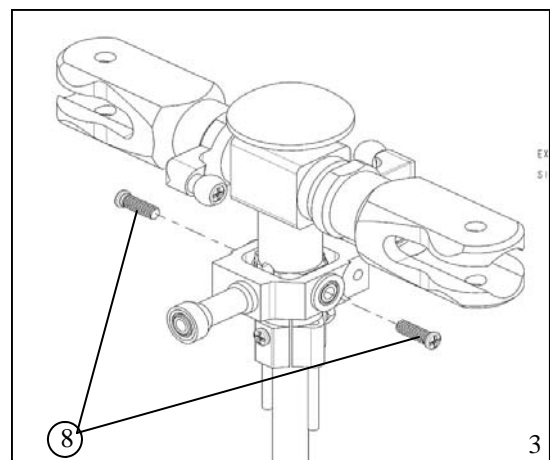
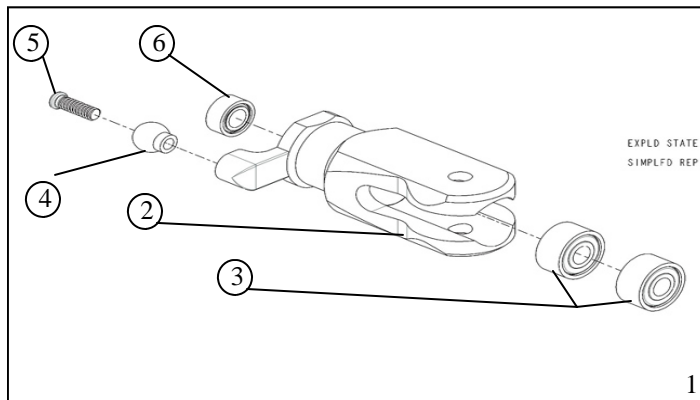
Start assembling the model by beginning with the main rotor head. We will build the model from the rotor head, out to the rest of the model. Apply silicon lubricant in the inside and outer edges of the o-rings, then insert them into the main rotor head. The flybar ends must be the same length on each 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 swash plate. 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 over tighten 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.

Note: The head and Tail assembly is already pre-built from the factory

Parts for Rotor head									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
1		Rotor Housing	1		5		Cross screw	2	M2x7
2		Rotor Holder	2		6		Bearing	2	3x6x2.5
3		Bearing	4	3x8x4	7		Seesaw Holder	1	
4		Link ball	2	4.75	8		Seesaw Screw	2	M2x7

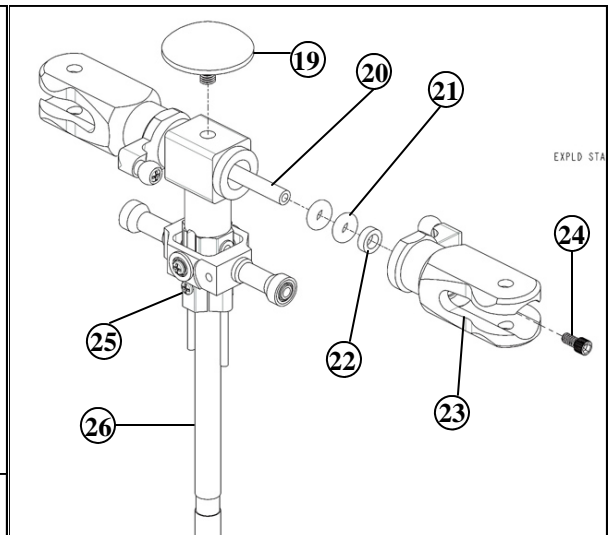
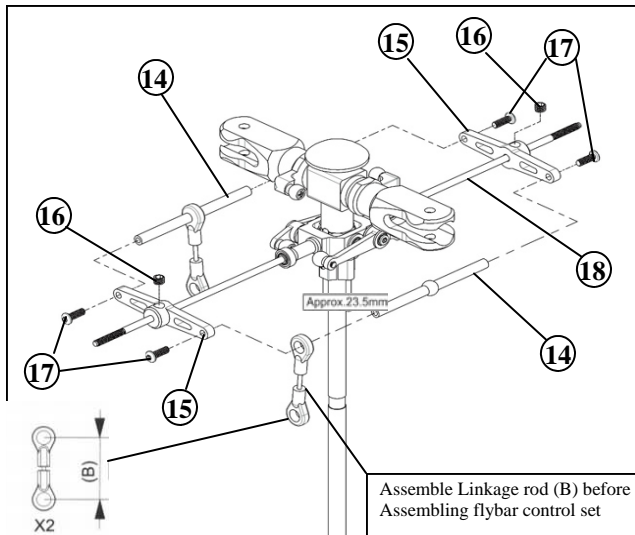
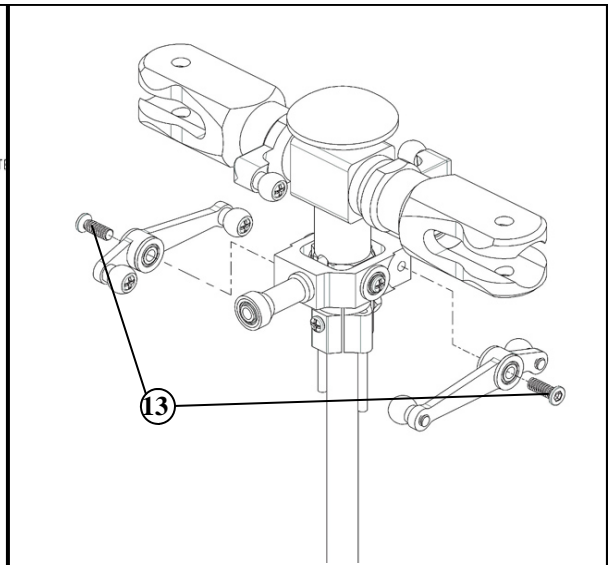
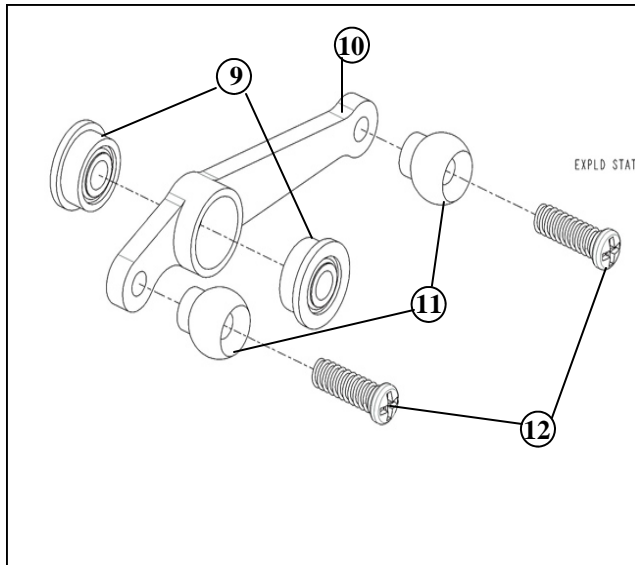


Use Thread Lock on all metal to metal area's.
Use oil on all bearings

Main Head Installation

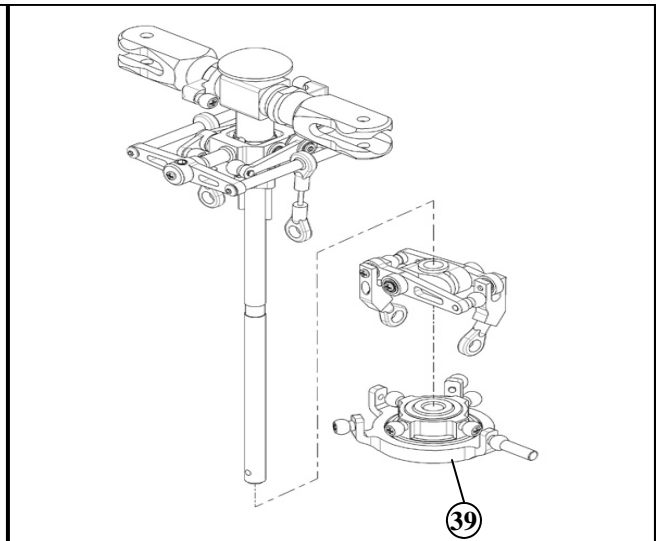
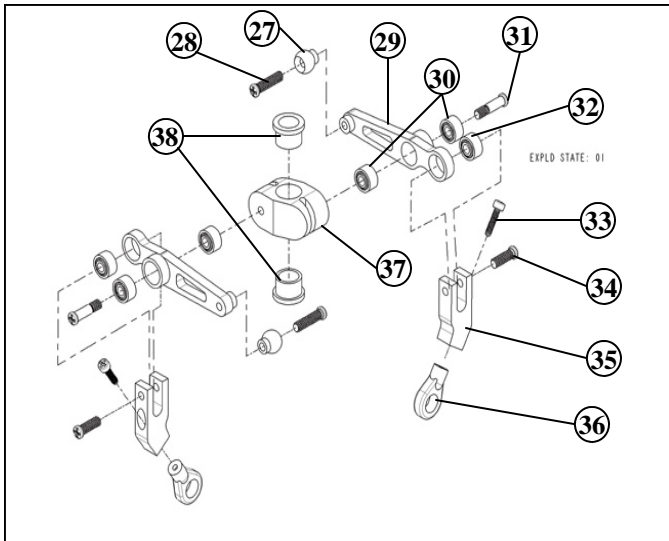
Parts for Rotor head

No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
9		Bearing	4	2x5x2.5mm	19		Housing Hat	1	
10		SF Mixer Lever arm	2		20		Feathering Shaft	1	3x47mm
11		Linkage Ball	4	4.75	21		O-ring	4	3x6.5x2mm
12		Cross Screw	4	M2x10mm	22		Collar	2	3x5.2.5mm
13		Collar Screw	2	M2x10mm	23		Rotor Holder	2	
14		Control Rod	2		24		Screw	2	M2x8mm
15		Control Arm	2		25		Socket Screw & Nut	1	M2x12 M2mm
16		Set Screw	2	M3x3mm	26		Main Shaft	1	5x116mm
17		Cross screw	4	M2x8mm					
18		Flybar	1						

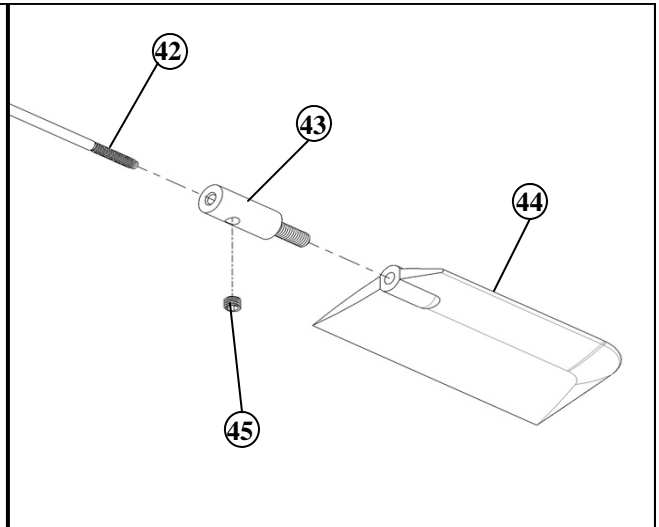
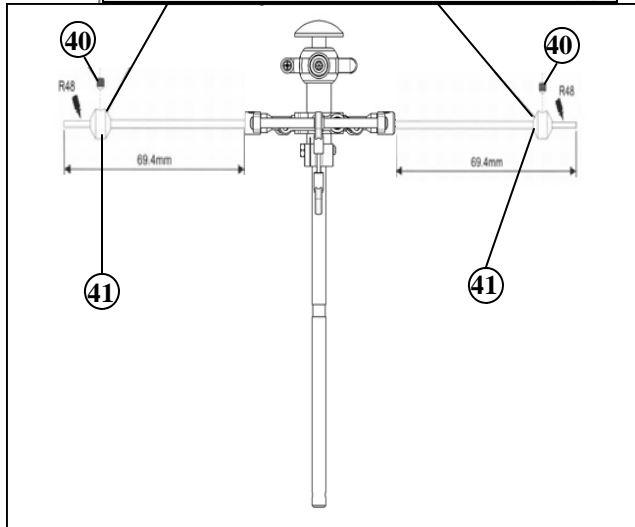


Main Head Installation

Parts for Rotor head									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
27		Linkage Ball	2	4.75	37		Washout Base	1	
28		Cross Screw	2	M2x8mm	38		Washout Base bushing	2	
29		Flybar Control Lever	2		39		CCPM Swashplate	1	
30		Bearing	4	2x5x2.5mm	40		Set Screw	2	M3x3mm
31		Collar Screw	2	M2x8mm	41		Flybar weights	2	Optional
32		Bearing	2	2x5x2.5mm	42		Flybar	1	
33		Ball Linkage Screw	2	M2x10mm	43		Flybar Paddle Holder	2	
34		Collar Screw	2	M2x10mm	44		Flybar Paddle	2	
35		Washout Linkage	2		45		Set Screw	2	M3x3mm
36		Ball Linkage	2						

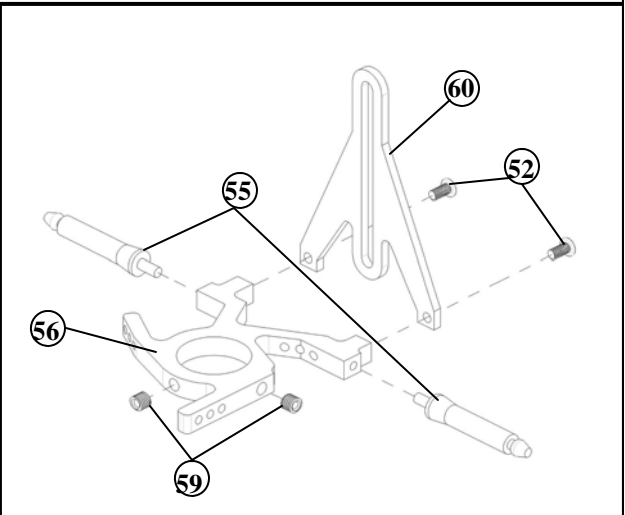
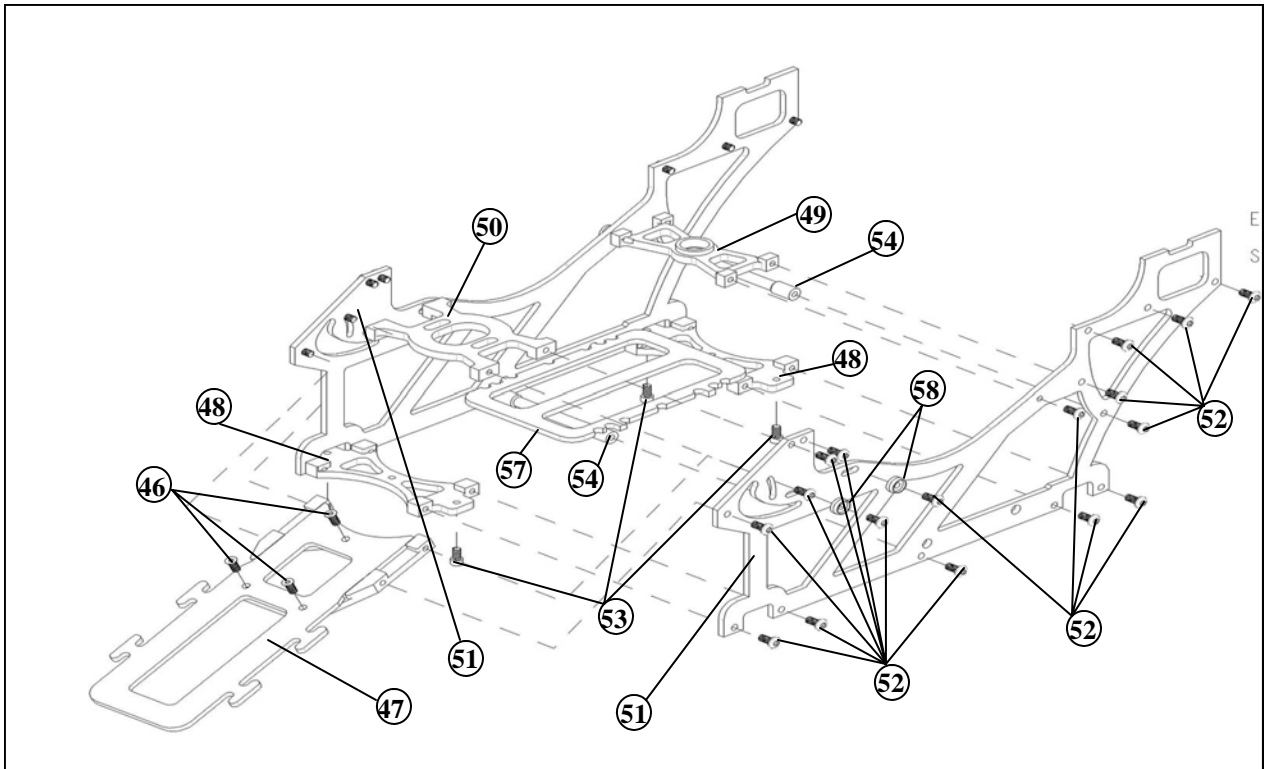


For more stable flight, install the flybar weights as shown.
For more Acrobatic flight, do not install the flybar weights.



Main Frame Installation

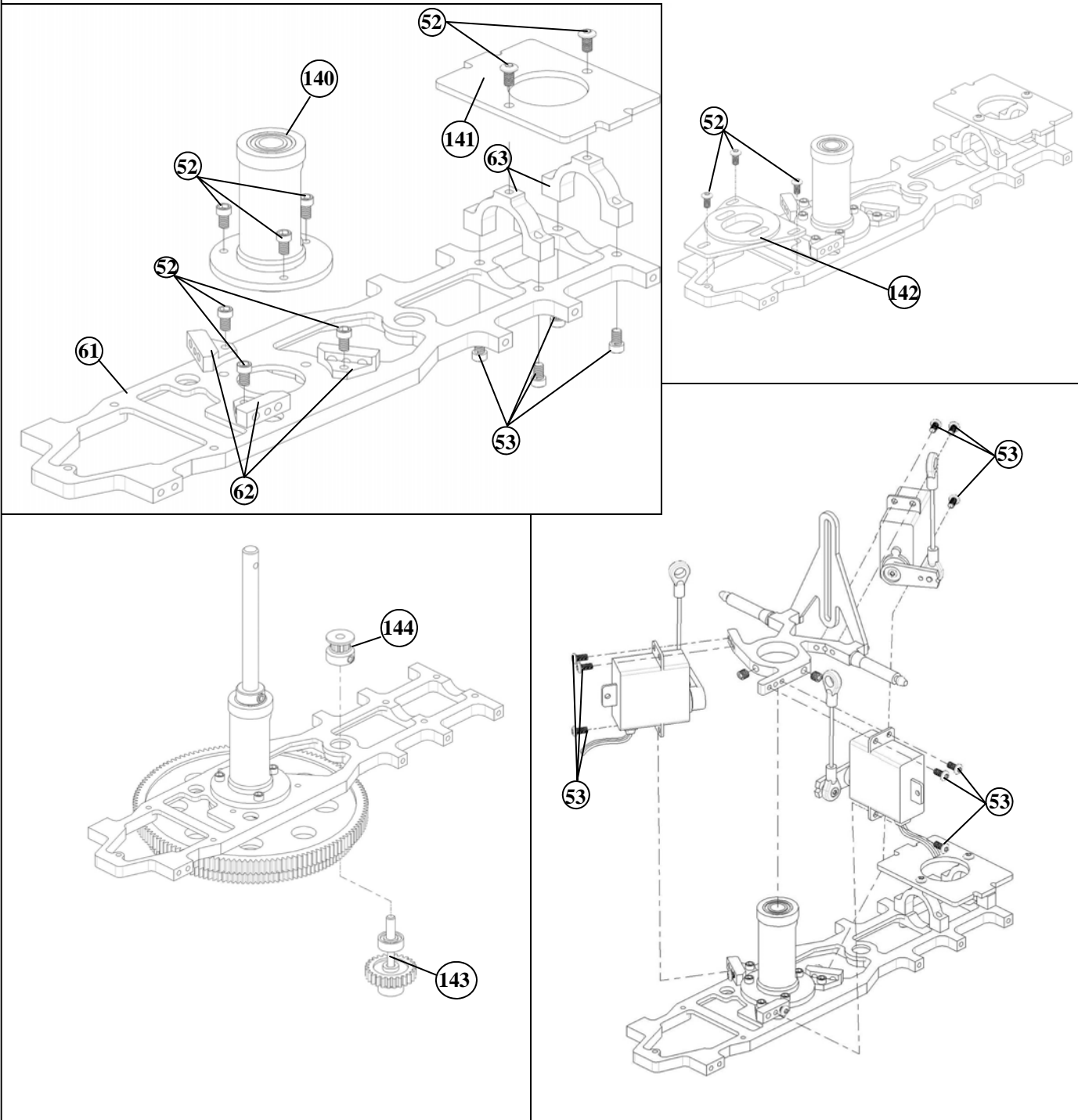
Parts for Frame installation									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
46		Countersink screw	3	M2x4mm	55		Canopy Mount	2	
47		Front Radio Tray	1		56		Upper Servo Mount	1	
48		CNC Landing Brace	2		57		Rear Radio Tray	1	
49		Lower Bearing Case	1		58		Washer	4	
50		Lower Motor Mount	1	Optional	59		Lock Screw	2	M3x3mm
51		Main Frame Side	2		60		Autorotation Support	1	
52		Cap Screw	38	M2x8mm					
53		Cap Screw	4	M2x10mm					
54		Side Frame Support	2						



Main Frame Installation

Parts for Frame installation

No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
52		Tap Screw	11	M2x8mm	141		Upper Gyro Mount	1	
53		Tap Screw	4	M2x10mm	142		Upper Motor Mount	1	Optional
61		Main Frame upper	1		143		Tail Gear	1	
62		Front Servo Mount	3		144		Tail Gear Pulley	1	
63		Tail Boom Bracket	2						
140		Main Shaft Tower	1						

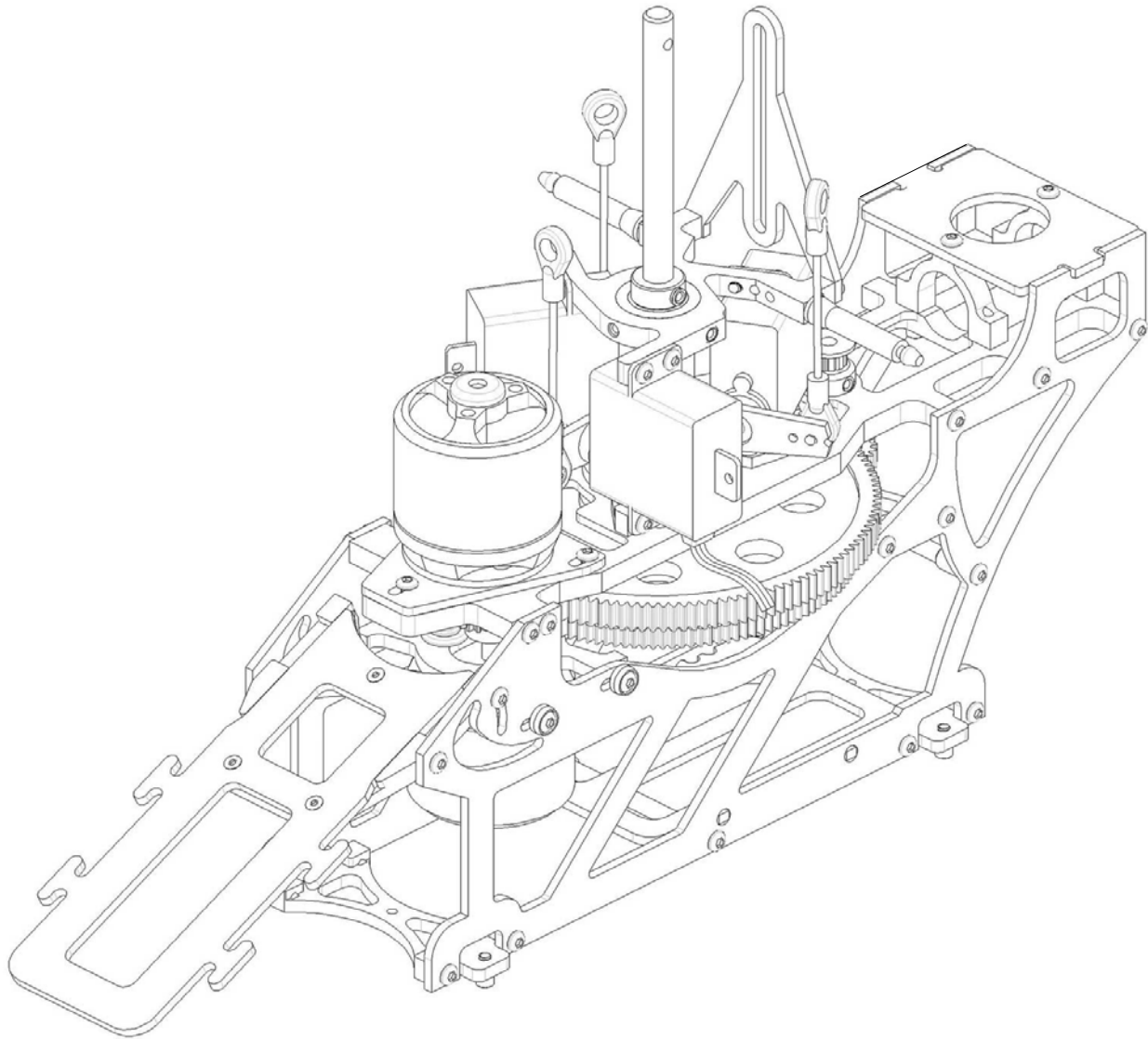


Main Frame Installation

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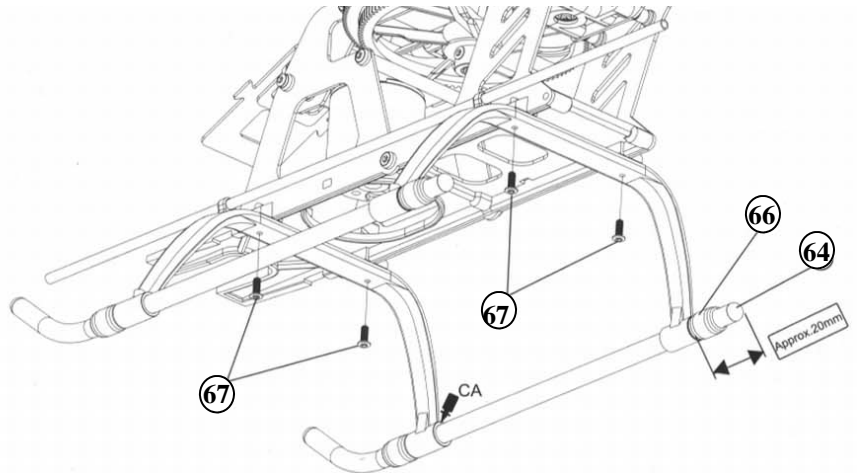
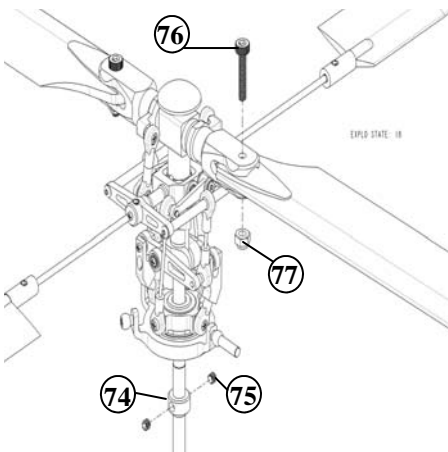
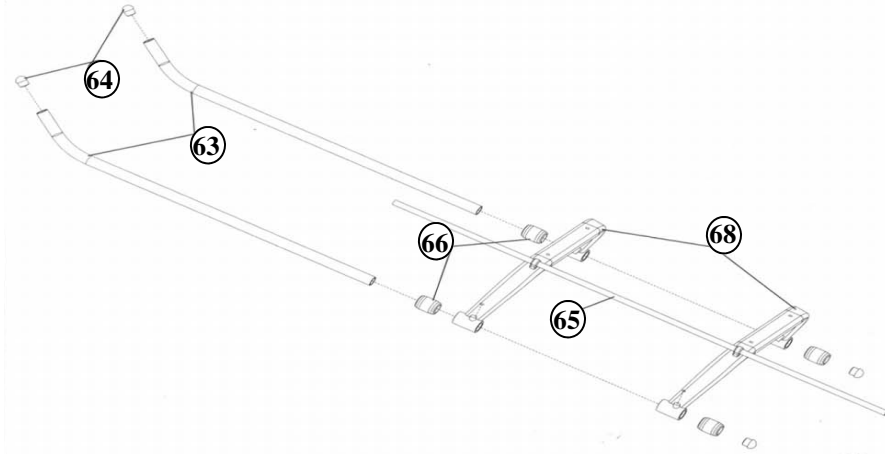
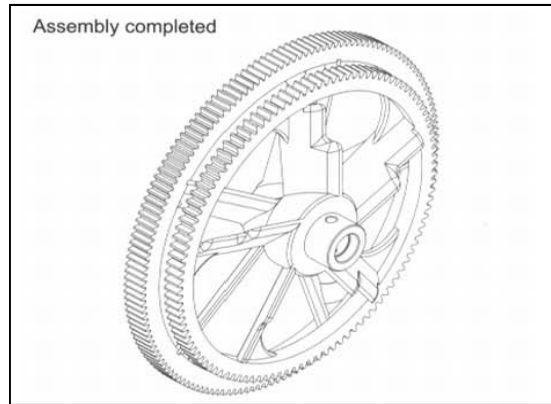
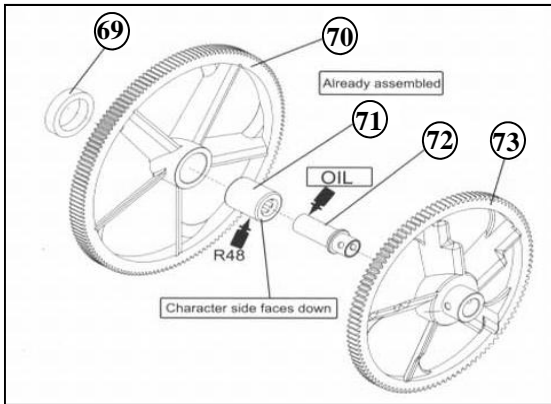
Parts for Frame installation

No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec



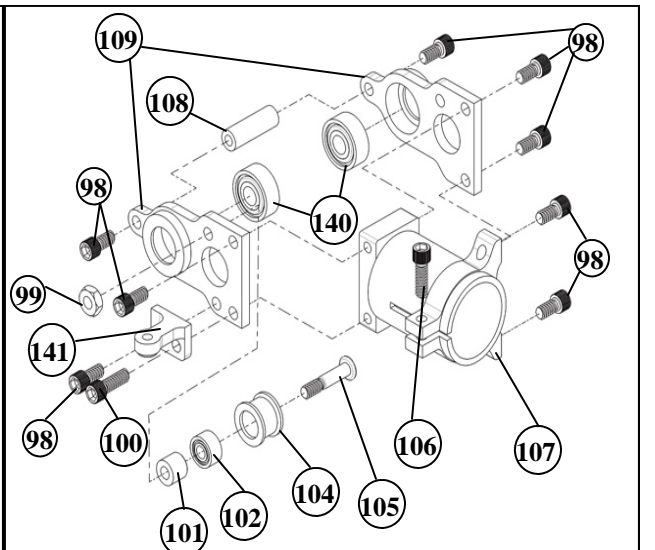
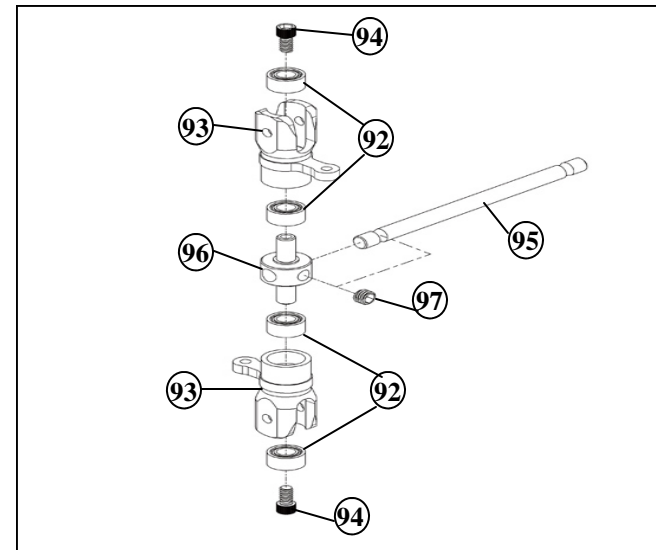
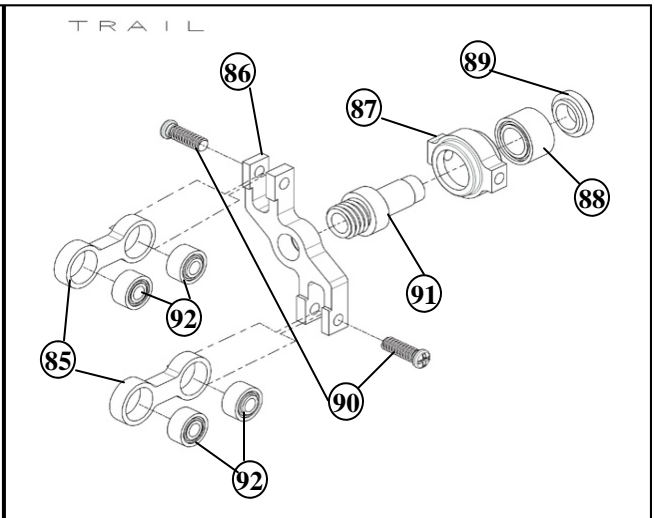
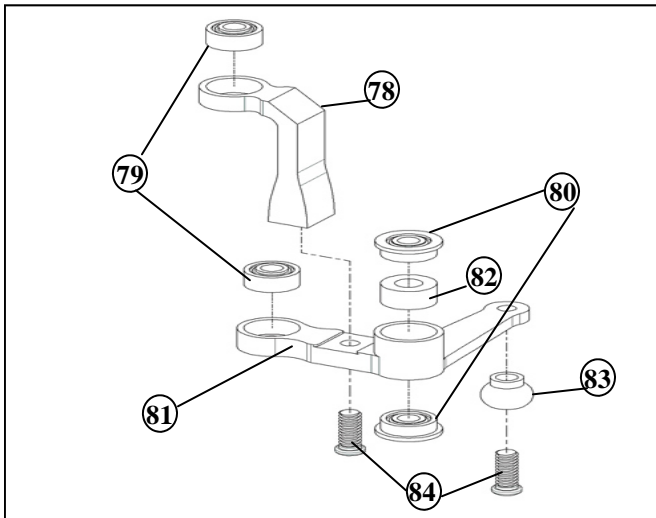
Main frame & Main Gear Installation

Parts for Frame installation									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
63		Skid Pipe	2		71		One Way Bearing	1	
64		Skid Pipe End Cap	4		72		One Way Bearing Shaft	1	
65		Antenna Tube	1		73		Auto Rotation Tail Gear	1	109T
66		Landing Skid Nut	4		74		Collar	1	
67		Socket Self Tap screw	4	M2x8mm	75		Lock screw	1	3x3mm
68		Landing Skid	2		76		Socket Screw	1	M2x12mm
69		Shaft Ring (short)	1		77		Lock Nut	1	M2
70		Main Drive Gear	1	150T					



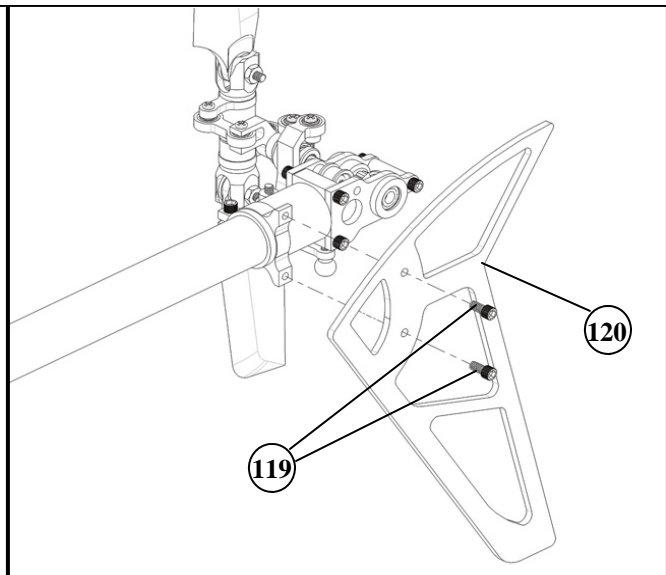
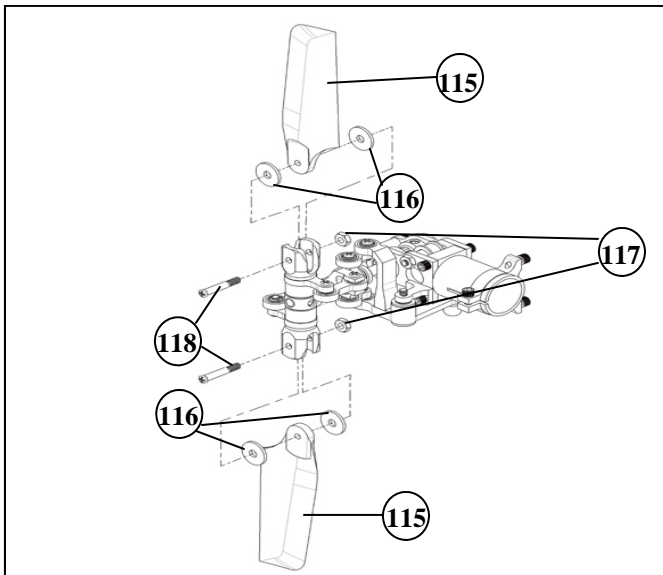
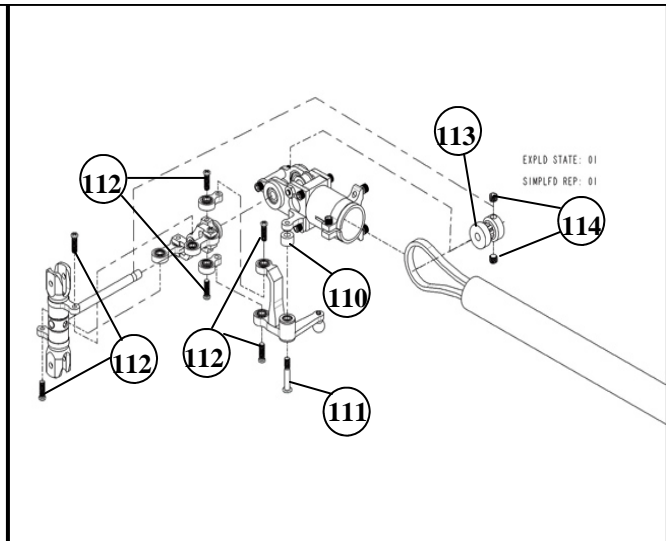
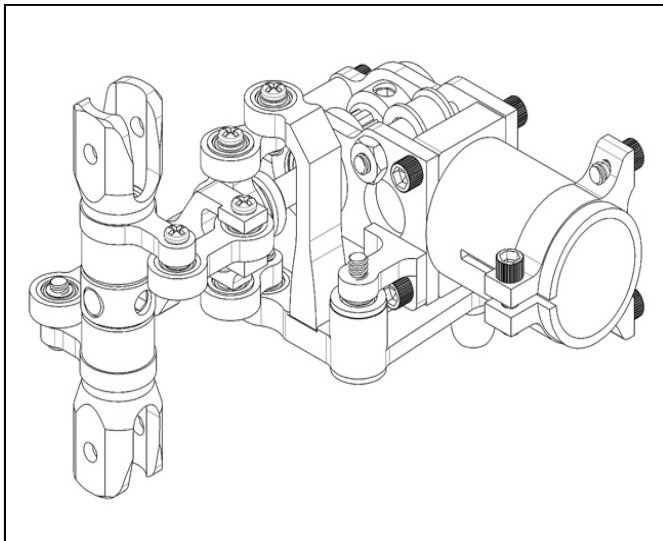
Tail Rotor & Boom Installation

No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
78		L-Arm Bell Crank	1		95		Tail Shaft	1	48mm long
79		Bearing	2		96		Tail Rotor hub	1	
80		Flange Bearing	2		97		Set screw	1	M3x3
81		Bell Crank Base Arm	1		98		Screw	8	M2x10
82		Spacer	1		99		Nut	1	M2
83		Linkage Ball	1		100		Screw	1	M2x12
84		Cross screw	2	M2x8	101		Spacer	1	
85		Push Pulley Arm	2		102		Ball Bearing	1	
86		Pitch slider base Upper	1		103				
87		Pitch slider Tube	1		104		Roller	1	
88		Pitch Slider Base Lower	1		105		Screw	1	M2x12
89		Pitch Slider Bering Lock	1		106		Screw	1	M2x12
90		Cross Screw	2	M2x10	107		Tail Case	1	
91		Pitch Slider Tube	1		108		Spacer	1	
92		Ball bearings	4		109		Tale Case side's	2	
93		Tail Blade Grips	2		140		Tail Case Ball Bearing	2	
94		Screw	2	M2x8	141		Bell Crank Mount Arm	1	



Tail Rotor & Boom Installation

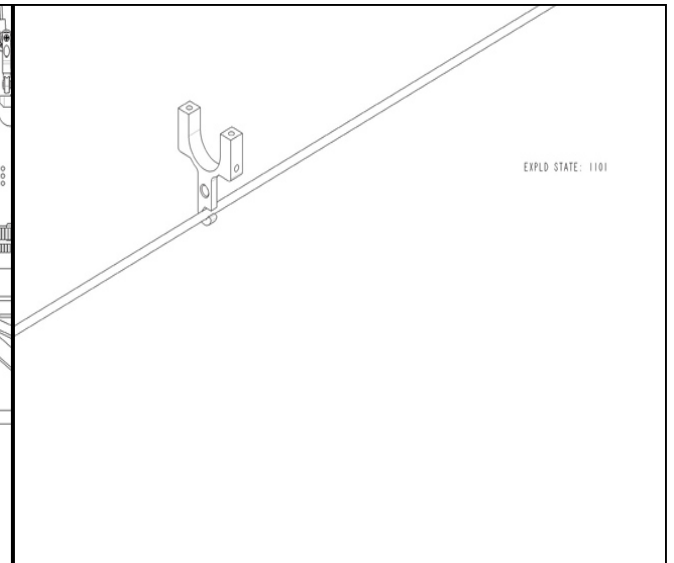
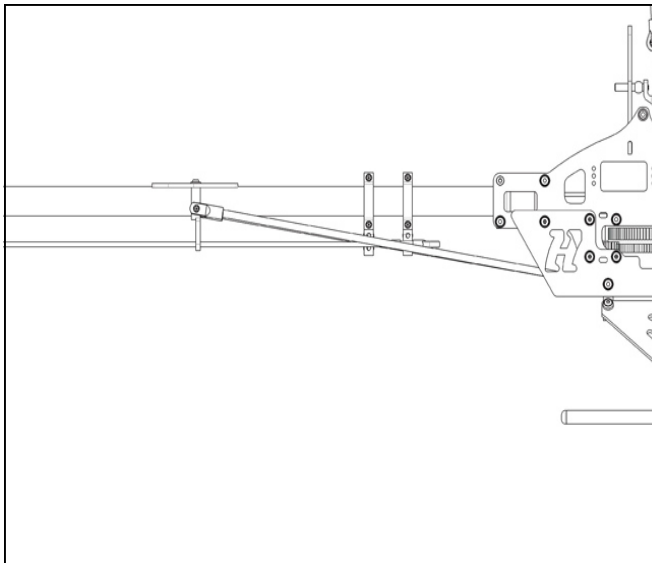
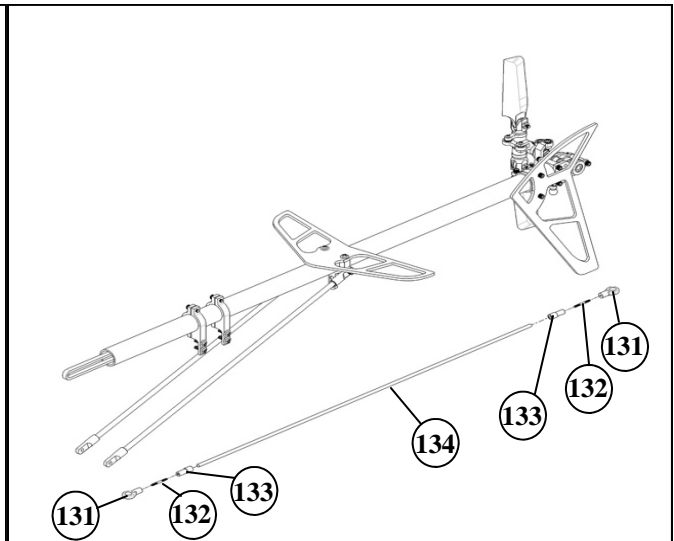
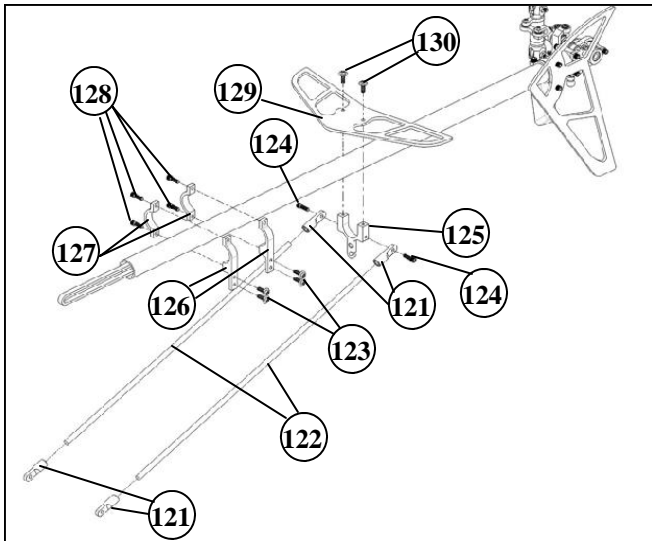
Parts for Tail Rotor head									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
110		Spacer	1		116		Tail Blade Washer	4	
111		Screw	1	M2x18	117		Nut	2	M2
112		Tail Pulley	1		118		Screw	2	M2x16
113		Cross Screw	6	M2x10	119		Screw	2	M2x10
114		Set Screw	2	M3x3	120		Vertical Fin	1	
115		Tail Blade	2						



Tail Rotor & Boom Installation

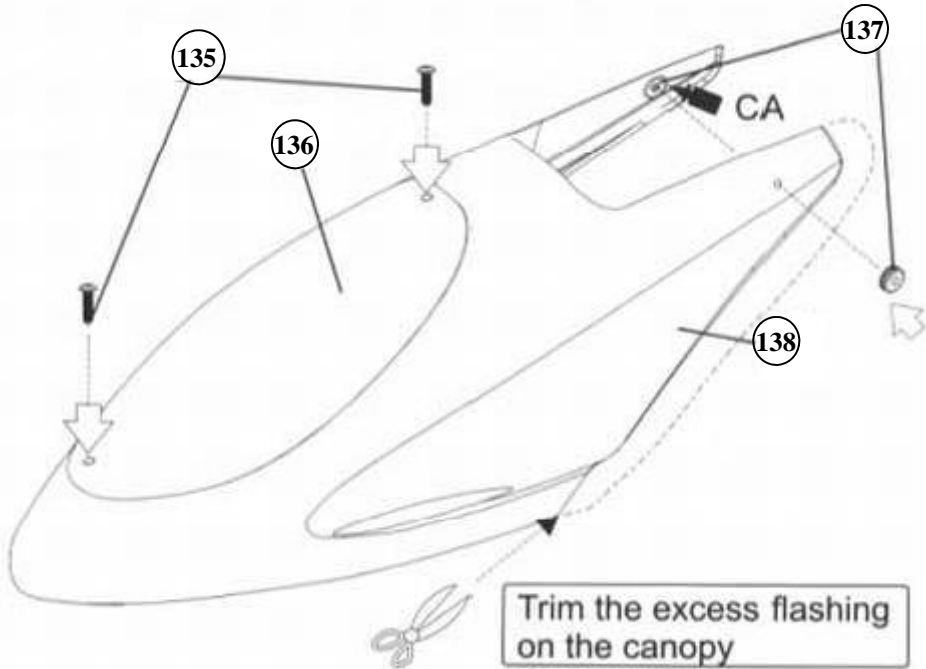
Parts for Tail Rotor head

No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
121		Support Rod Grips	4		128		Screw	4	M2x12
122		Tail boom support rod	2		129		Tail Fin	1	
123		Screw	4	M2x12	130		Screw	2	M2x10
124		Screw	2	M2x10	131		Ball Linkage Arm	2	
125		Boom Brace	1		132		Linkage Rod	2	
126		Left side Servo mount	2		133		Linkage Rod Cap	2	
127		Right side Servo mount	2		134		Tail Push Rod Link	1	

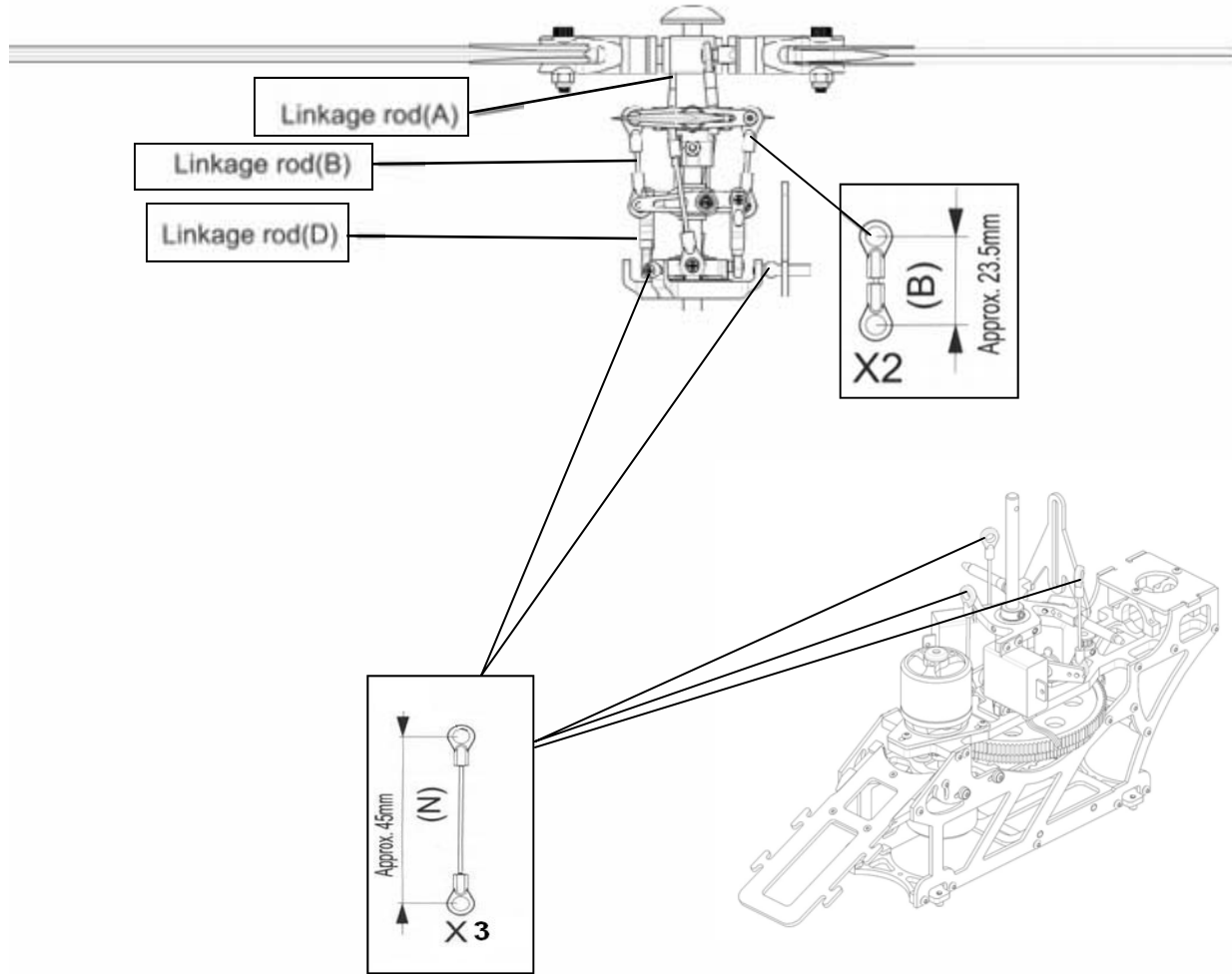
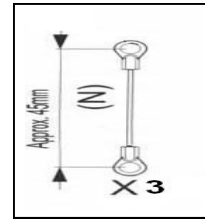
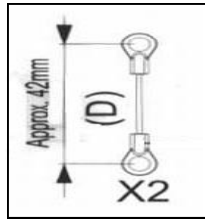
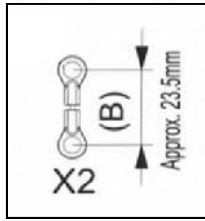
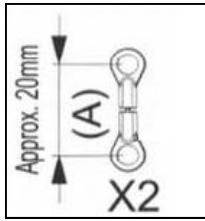


Finished Installation

Parts for Frame installation									
No	Parts No.	Description	qty	Spec	No	Parts No.	Description	qty	Spec
135		Self tap Screw	2	M2x8	137		Canopy	1	
136		Canopy Glass	1		138		Canopy Rubber Nut	2	



Linkage setup



Servo arm ball assembly

Aileron, elevator and pitch servo -
12-14 mm from center of servo to ball.

Tail servo -
6-8mm from center of servo to ball.

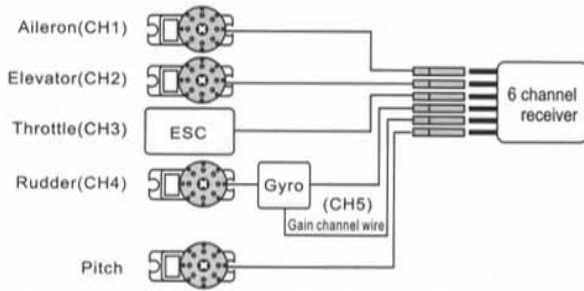
Note: The ball links have a front and a back. Install links with the larger opening toward the ball. The side with the larger opening is indicated by a circle surrounding the hole on the link.

Standard Belt Tension Guide:
Visualize a straight line through the center of the main drive gear. You should be able to apply light tension to the belt with your finger until it reaches a point 3/4 of the way to the opposite edge of the main gear, or 1/4 of the way past the virtual center of the main gear. Refer to photo.

Tail drive pulley Middle Belt

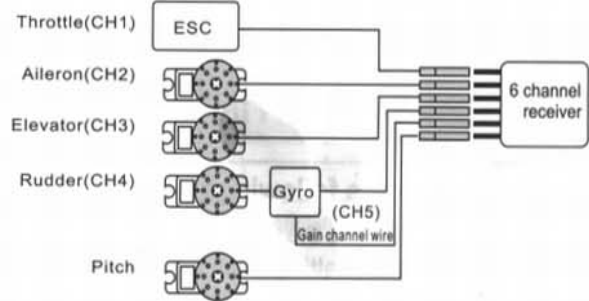
Radio setup

HITEC · FUTABA · ALIGN 6CH receiver wiring



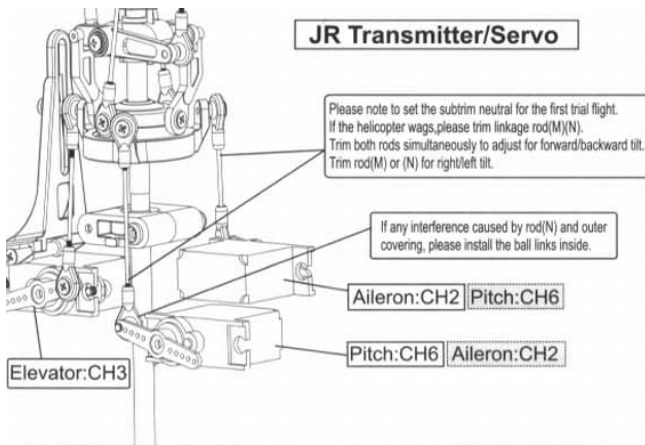
6-Channel Receiver is adequate for the requirements of the T-REX heli. You will need the following channels at a minimum: Throttle, Rudder, Elevator, Aileron, and especially Pitch and Gyro (Ch5) controls.

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 and Gyro (Ch5) controls.

JR Transmitter/Servo

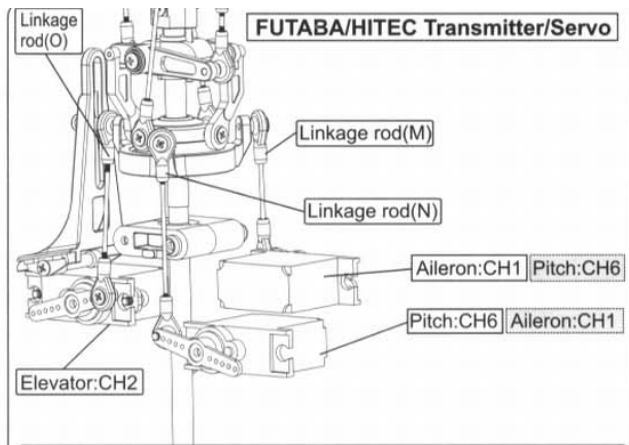


Please note to set the subtrim neutral for the first trial flight. If the helicopter wags, please trim linkage rod(M)(N). Trim both rods simultaneously to adjust for forward/backward tilt. Trim rod(M) or (N) for right/left tilt.

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

Positions of CH2 · CH6 are exchangeable · After assembling as photo (Note: Set the transmitter under CCPM 120 degree mode), pull throttle sticker(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.

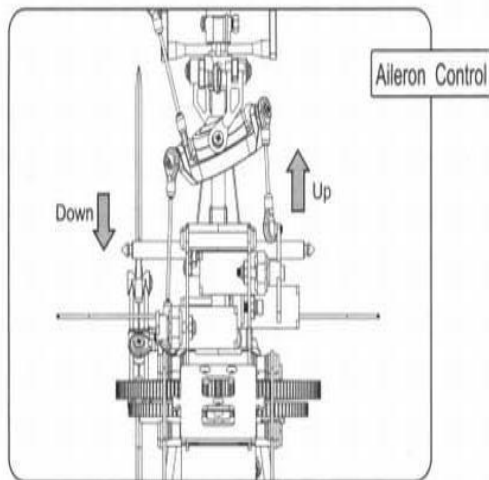
FUTABA/HITEC Transmitter/Servo



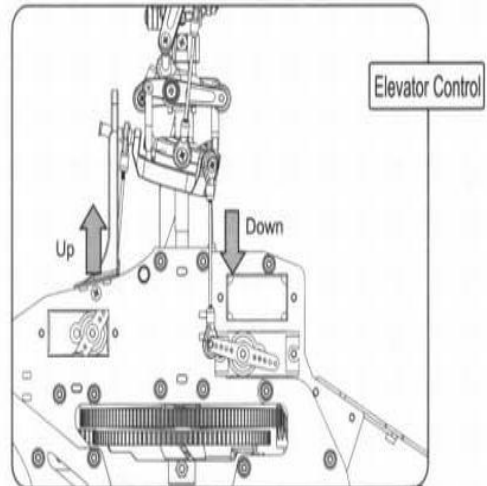
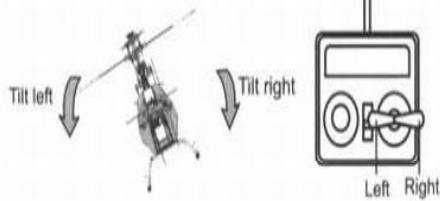
Positions of CH1 · CH6 are exchangeable · After assembling as photo (Note: Set the transmitter under CCPM 120 degree mode), pull throttle sticker(pitch) upward. If one swashplate servo (or two servos) moves downward, adjust reverse switch(REV) on the transmitter to make it moves upward. If three servo 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.

Radio setup

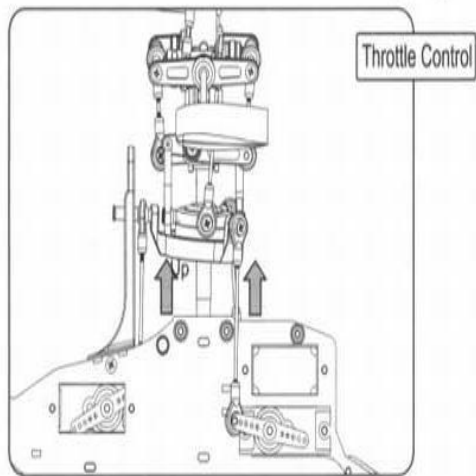
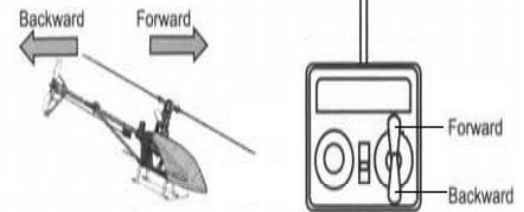
This model helicopter is an electronically controlled mechanical device traveling at high speeds and altitudes, with high-speed rotating blades posing a potential dangerous risk. Please make it a habit to always perform a pre-flight check of the entire model prior to each flight. If you discover any 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



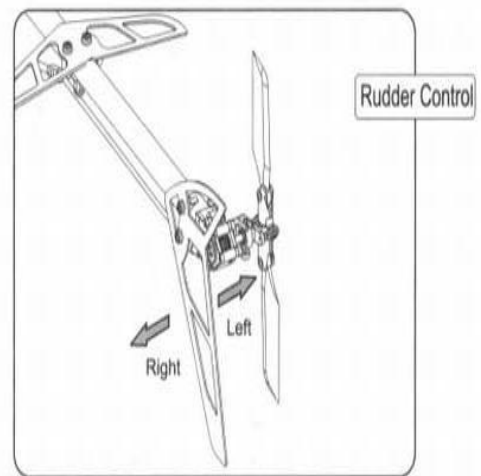
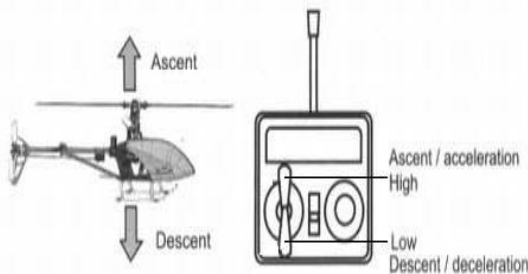
Flying control of Left/Right cyclic



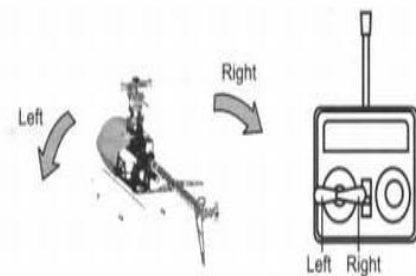
Flying control of Forward/Backward cyclic



Flying control of ascent/descent

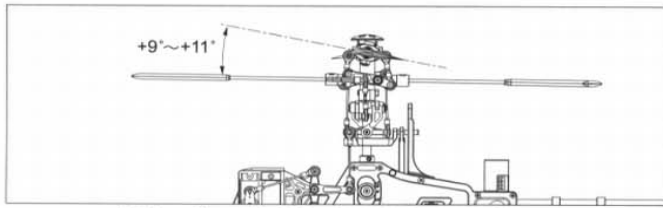


Flying control of right/left turn

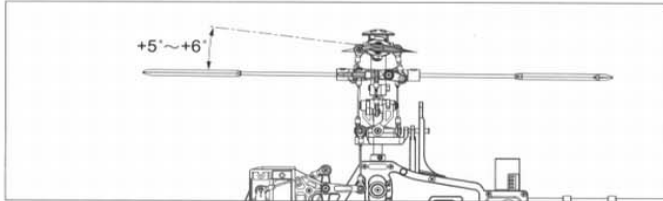


Radio setup

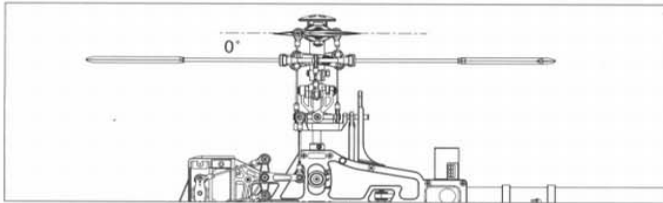
General Flight



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



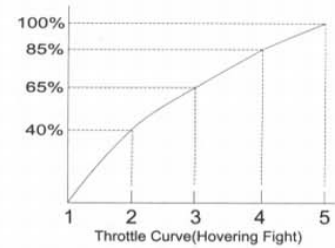
Stick position at Hovering/Throttle 65%~70%/ Pitch +5°~+6°



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

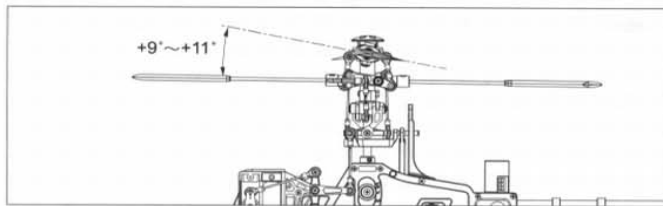
GENERAL FLIGHT

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

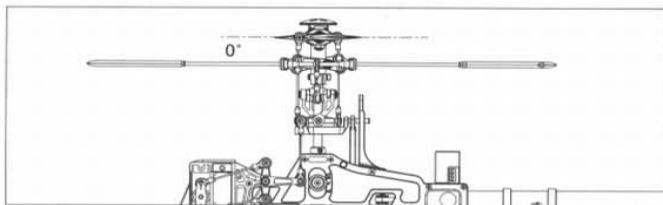


Pitch and Rotation Speed
TIP:
It is recommended to use a lower pitch setting when using higher RPM Headspeed. This will allow for better power.

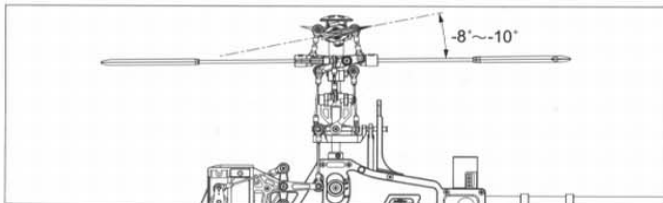
3D Flight



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



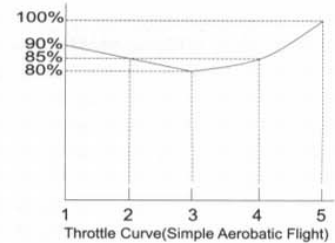
Stick position at middle/Throttle 90%/Pitch 0°



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

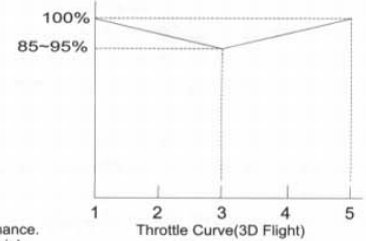
IDLE 1

	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°



1. Pitch range: 21°
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.

SPAREPARTS

						
UGT01 Precision Main Blade Grips	UGT02 CNC Main Rotor Hub	UGT03 Precision Flybar Control	UGT04 Precision CNC Tail Rotor	UGT05 120 CCPM Pro Swashplate	UGT06 Precision Tail Pulley	UGT07 Flybar Seesaw Holder
						
UGT08 Precision Upper Mixing Arms	UGT09 Precision Cyclic Levers	UGT10 Tail Servo Mount	UGT11 Horizontal Fin Holder	UGT12 Tail Pitch Slider	UGT13 CNC Bell Crank	UGT4/12/13 Tail Slider SE Combo
						
UGT3/7/8 Flybar Control Combo	UGTTS Complete Pro Tail System	UGTHS Complete Head System	UGTFA 120 eCCPM SuperFrame	UGTFA1 Frame All CNC components	UGTFA2 Frame all G10 components	UGTGS Precision CNC Main Gear Set
						
UGT-G01 Front Shaft Pulley Set	UGT-G02 CNC Pulley Set	UGT-G03 2 Pcs Tail Drive Gear	UGT-G04 2 Pcs Front Gear	UGT-G05 2 Pcs CNC Man Gear	UGTCM Aluminum Canopy Mount	UGT-S01 Tail Drive Gear Shaft
						
UGT-S02 2 pcs Flybar Rod	UGT-S03 3 pcs Spindle Shaft	UGT-S04 Main Shaft	UGT-S05 3 Pcs Tail Shaft	UGTPD Paddle + FlyBar Weights	UGTSP Aluminum Tail Boom Support	UGTTLR Tail Push Rod
						
UGTLK Metal Landing Skid	UGTLS Ball Link	UGTB 397T Drive Belt	UGTBM Blade Holder	UGTMG Motor Gear 13T	UGTM 3200KV Motor (S2.3mm)	UGTVH Tail Fin Round Set
						
UGTWMB 315 PRO Rotor Blade	UGTFS Hardware Bag	UGTTB Tail blade	UGTCP Canopy	UGTCMB 325mm Carbon Fiber Blades	UGTTB 2 Pcs Tail Boom	UGT-B01 One Way Bearing
						
UGT-B02 4 Pcs Man Shaft Bearings	UGT-B03 4 Pcs Washer Bearings	UGT-B04 4 pcs Main Grips Bearings	UGT-B05 4pcs Flange Bearings	UGT-B06 4pcs Tail Grips Bearings	UGT-B07 4pcs Bearings	UGT-B08 4pcs Pulley Case Bearings

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**The contents of this document are subject to change without prior notice
Every effort has been made to ensure that this manual is complete and correct.
Should any mistake be discovered by anyone please have the courtesy to inform us.**



Organization

Specifications & Equipment:

Length:	650mm
Height:	230mm
Main Rotor Diameter:	60/700mm
Tail Rotor Diameter:	150mm
Motor Drive Gear:	15T/13T/11T
Main Drive Gear:	150T
Autorotation Tail Drive Gear:	109T
Tail Drive Gear:	22T
Drive Gear Ratio:	1:10:4.9/1:11.5:4.95/1:13.6:4.95
Weight (w/o Power System):	365g
Weight (w/ Power System):	690g
Brushless Motor (incl.):	450HDX 3550KV/3800KV

Recommended Power and Radio Equipment (Not Included in Kit):

Li-Poly Battery:	2100mA 15C or better
Transmitter:	6 Channel or more (Helicopter System)
Receiver:	6 Channel or more (For FM use Dual conversion)
Gyro:	Telebee or Futaba 401
Servo:	3 x Hitec HS-56HB or Hitec HS-65HB/MG or HDS-877
Ruder Servo:	1 x Hitec HS-81MG or HDS-577
ESC:	1 x Otter 35A or Sonic 30A or Quark 33A