

**Outrage**

# Fusion 50

www.outragerc.com



## Features of the Fusion 50

- Fully adjustable head allowing multiple setups from high stability to maximum agility making it perfect for the beginner to advanced pilot.
- Extra long washout base for increased lever stability.
- Dual ball raced 120 CCPM swash plate.
- Achievable pitch range of +15/-15 degrees.
- Ultra compact frame technology for superior frame rigidity.
- High quality fiber reinforced injection molded plastics.
- Adjustable servo mounts for various size and brand servos.
- Adjustable drive train for optional gear ratios.
- Ultra high strength injection molded drive gears.
- Zero pitch alignment points for easy head setup.
- Optimal servo positions for increased accuracy in control.
- Battery tray removable for fast battery changes.
- Suitable for 6 - 12 cell battery packs.
- Wide variety of usable motor KV's and motor dimensions.
- Light weight fiberglass canopy construction.
- High quality Canomod painted canopy.
- New tail pitch control system for smooth precise control.
- Torque tube design for efficiency.
- Ultra high strength Injection molded torque tube gears.
- High quality Carbon 95mm tail blades.
- Length: 1207mm Height: 368mm Width: 203mm
- Main Rotor Blade Size 600-640mm
- Main Rotor Diameter: 1345mm - 1425mm
- Tail Blade Length: 95mm
- Tail Rotor Diameter: 250mm
- STD Main Gear: 129T 0.8 Mod
- STD Pinion: 13T (5 and 6mm included)
- STD Drive Gear Ratio: 1:10.75:4.58/1:9.21:4.58/1:8.05:4.58
- Approximate Weight: 1410g (without electronics)



# Introduction

## Please Read Before Beginning Assembly

Thank you for purchasing this Outrage RC product. The Fusion 50 radio controlled helicopter is designed with easy to use features and is capable of a multitude of flight characteristics and styles – from beginner, basic, to advanced 3D aerobatic rotary flight. In order to use this product safely, please read and understand this manual before flying the helicopter. Please fly the helicopter safely, observing all rules and instructions after having fully understood the flight precautions, the unit's capabilities, and the best way to fly the helicopter. Be sure to retain this manual for future reference, routine maintenance, and tuning.

### Meaning of symbols

(!) Caution:	Mishandling due to failure to follow these instructions may result in serious harm.
(!) Warning:	Mishandling due to failure to follow these instructions may result in severe injury or death.
⊘ Forbidden:	Do not attempt under any circumstances.

### **This radio controlled helicopter is not a Toy!**

Radio controlled helicopters use various high tech electronic technologies and products. Improper use of this product can result in serious injury, or even death. Please read this manual carefully before flying the Fusion 50, and make sure to be conscious of your own personal safety and the safety of others. Be conscious of your surroundings and environment when operating Outrage products. Outrage RC, affiliated groups, and the seller assume no liability for the operation or use of this product. The user/purchaser is responsible for common knowledge and implantation of one's personal safety, and the safety of others, that may be affected by the use of the product, be they a participant or spectator. This radio controlled helicopter is intended for use only by adults with experience flying radio controlled helicopters at a legal flying field. After the sale of this product, we cannot maintain any control over its operation or usage. We recommend that you obtain assistance from an experienced pilot before attempting to fly our products, and to help verify proper assembly, setup, and flight of your model for the first time. This Outrage helicopter is a consumer item that requires a certain degree of skill to operate. 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. For issues with your Outrage helicopter or product, please contact us for technical assistance.

### **Safety notes:**

#### **Choose a legal flying field**

- Verify the airfield has ample space, flat, and smooth ground.
- Clear the airfield from debris and obstacles.

#### **Do not operate**

- In strong winds, at night, or in the rain.
- If model has been in contact with rain, moisture, or contaminants.
- In cold climate conditions - plastics are very susceptible to damage due to cold climates.
- If model has been in contact with fire or high heat - plastics are very susceptible to damage or deformation due to heat.
- In crowded areas.
- Near homes, schools, or hospitals.
- Near roads, railways, or power lines.
- Near another radio controlled unit that uses the same frequency.
- Do not allow children to operate.
- If tired, sick, or under the influence of drugs or alcohol.
- If a beginner or individual(s) planning to operate a borrowed helicopter without being familiar with the model or safety instructions.

#### **Inspect all parts**

- Before each flight, check for damaged parts and verify all parts operate normally with all functions in order.
- Adjust the positioning of movable parts and check that all nuts, bolts, screws are fastened correctly in accordance to this instruction manual.
- Verify all parts are installed correctly.
- Verify that there are no abnormalities that would adversely affect the flight of the helicopter.
- Verify all batteries on board the helicopter and transmitter are to a sufficient level of charge.
- Exchange or repair damaged or worn parts using only parts shown in this instruction manual, or via the Outrage catalog.
- Verify there is no introduction or exposure to water or moisture in any form.

#### **During operation of the helicopter**

- Always be aware of your surroundings.
- Maintain safe distances from aircraft and rotating main/tail rotor blades.
- Be conscious of your actions.
- Wear appropriate clothing that does not interfere with transmitter or helicopter.
- Never leave your model unattended.
- Maintain eye contact during all aspects of flight.

# Flybar Rotor Head Assembly

Main Bag 1A

R50N904B-SS

R50N983-SS

Ball Bearing 3x6x2.5mm .....x2

Double Linkage Ball 4.75x11mm .....x2

Shouldered Cap Screw M3 .....x2

Ball Bearing 4x7x2.5mm .....x4

Very Stable  
Less Stable (Advanced)

Start here first  
SeeSaw

Note: Refer to page 6 for detailed settings on linkage ball placements and rod lengths

Ball Bearing 3x6x2.5mm (R50N904B-SS)  
Already assembled by factory

Double Linkage Ball 4.75x11mm (R50N904B-SS)

SeeSaw (R50N904B-SS)

Phasing Pin (R50N983-SS)  
Already assembled by factory

Double Linkage Ball 4.75x11mm (R50N904B-SS)

Ball Bearing 4x7x2.5mm (R50N983-SS)  
Already assembled by factory

Shouldered Cap Screw M3 (R50N983-SS)

(!) Important Note

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

Main Bag 1A, 9A

R50N901-SS

R50N903-SS

Cap Screw M2x8mm .....x4

Set screw M4x4mm .....x2

Linkage Rod (B) Note: Drawing Not To Scale

15mm .....x2

Note: Refer to page 6 for detailed settings on linkage ball placements and rod lengths

Please ensure the flybar is centered in the seesaw - refer to the diagram on the bottom of page 3.

(!) Important Note

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

Flybar Rod 400mm

Set Screw M4x4mm

Cap Screw M2x8mm

Flybar Carriage Base (R50N903-SS)

Flybar Control Rod (R50N903-SS)

Plastic Ball Link

Linkage Rod M2x15mm

Slower Less Sensitive Reaction

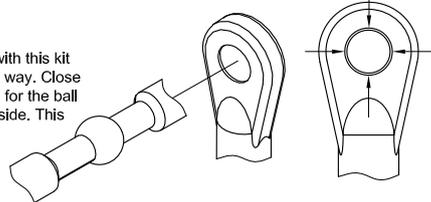
Faster Sensitive Reaction (Advanced)

Flybar Carriage Base

Note: Refer to page 6 for detailed settings on linkage ball placements and rod lengths

Note regarding ball link direction:

Please be aware that the plastic ball links supplied with this kit are directional and should only be fitted to the balls one way. Close inspection will reveal one side has a slightly bigger hole for the ball than the other - and a molded ring can be seen on this side. This side with the bigger hole should push onto the ball first.



**Main bag 2A**

**R50N906-SS**

Ball Bearing 3x8x3mm .....x4

Ball Bearing 2 x5x2.3mm Flanged .....x4

Brass Bearing Spacer .....x2

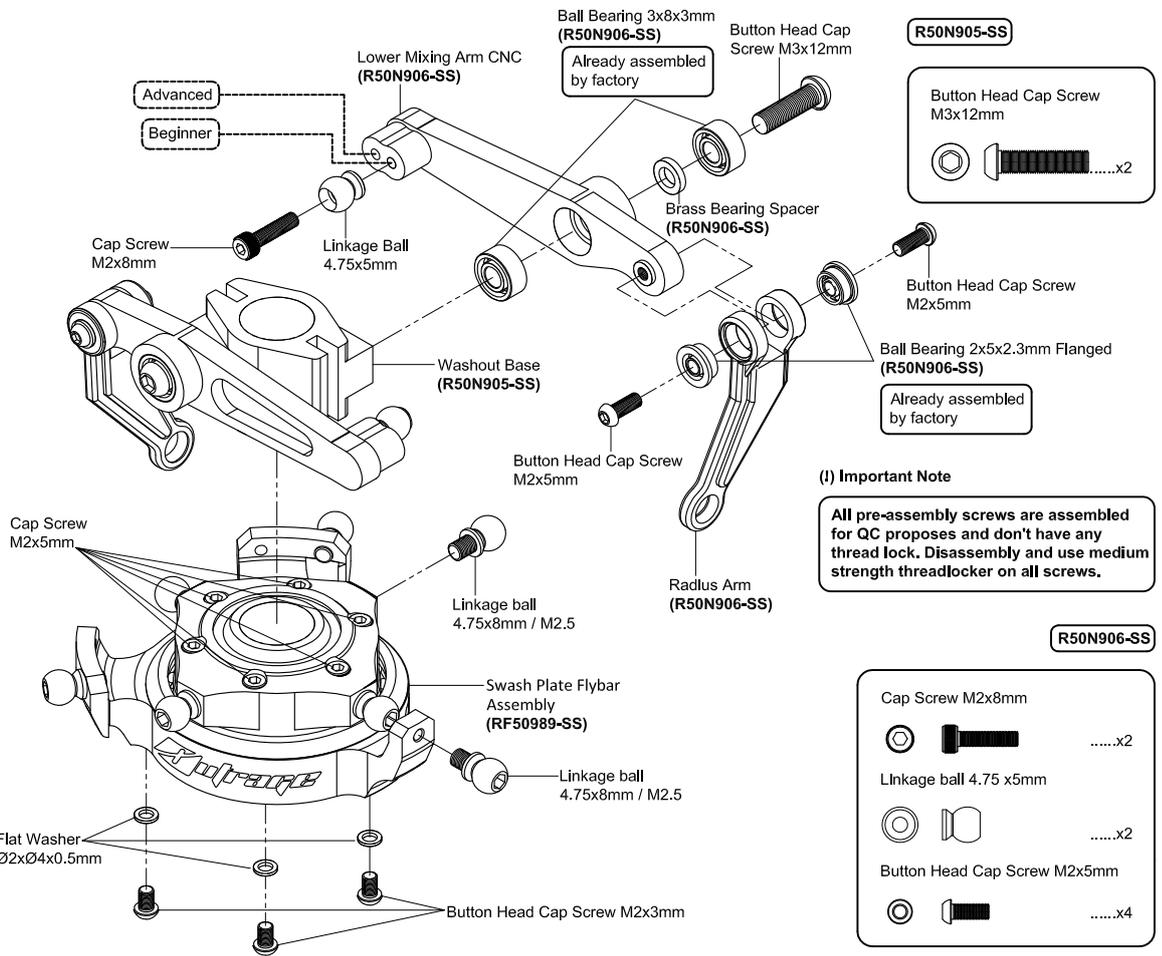
**RF50989-SS**

Cap Screw M2x5mm .....x6

Button Head Cap Screw M2x3mm .....x3

Flat Washer Ø2xØ4x0.5mm .....x3

Linkage Ball 4.75x8mm / M2.5 .....x7

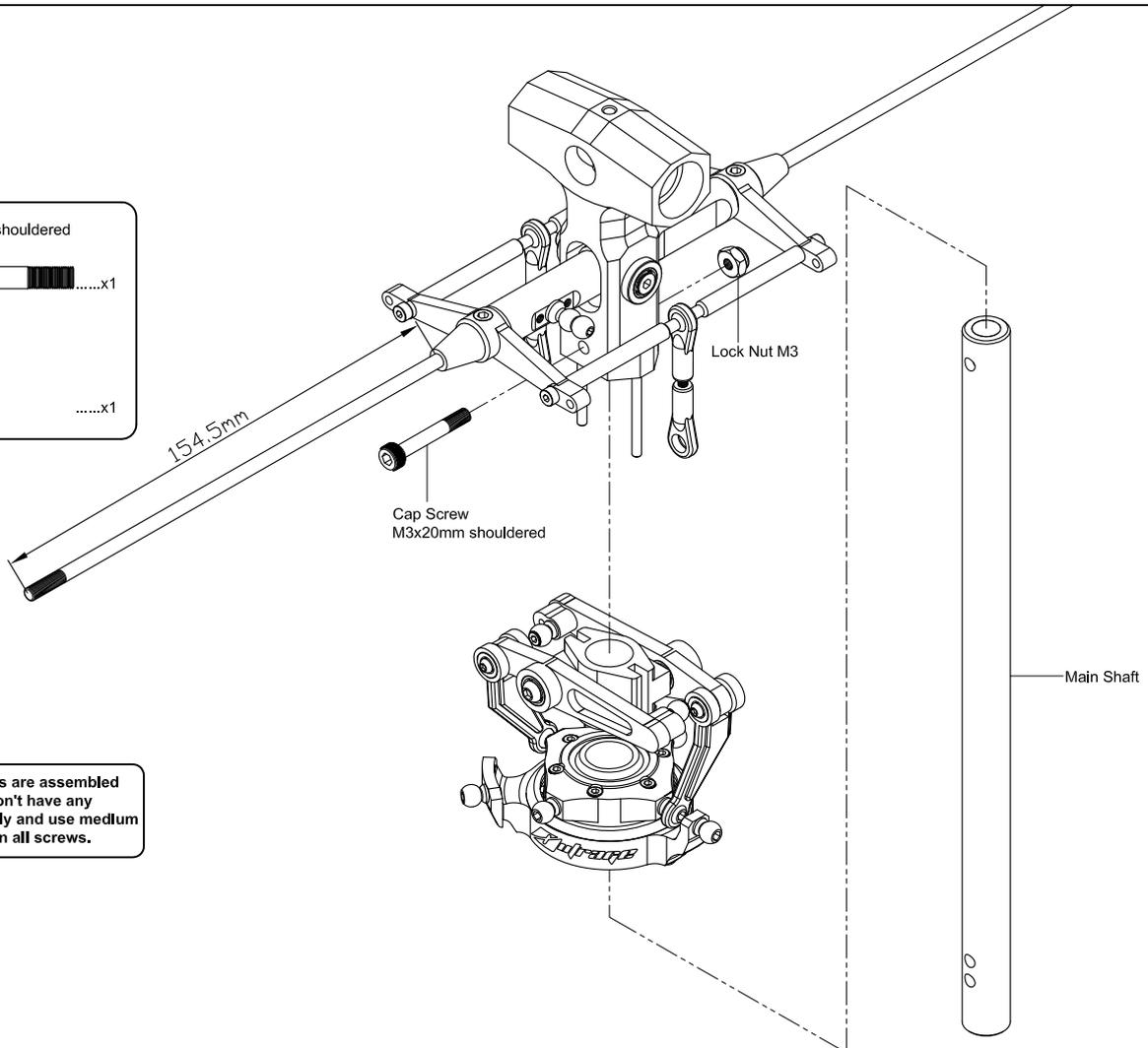


**Main bag 1A, 2A**

**R50N983-SS**

Cap Screw M3x20mm shouldered .....x1

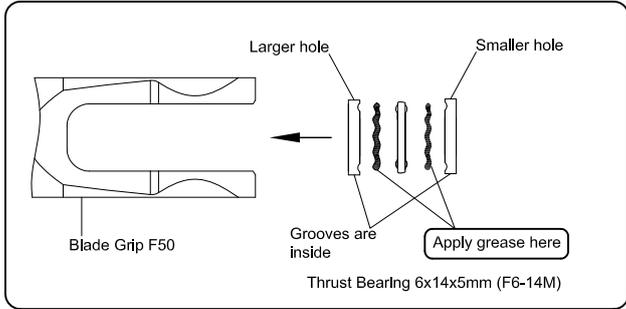
Lock Nut M3 .....x1



**(!) Important Note**

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

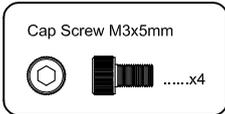
(!) Caution:



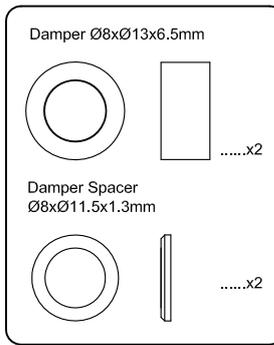
(I) Important Note

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

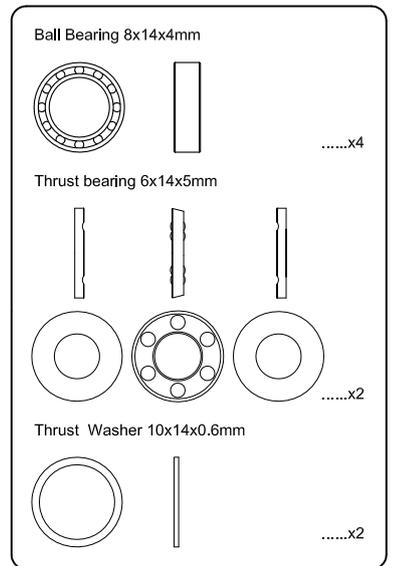
RF50829-SS



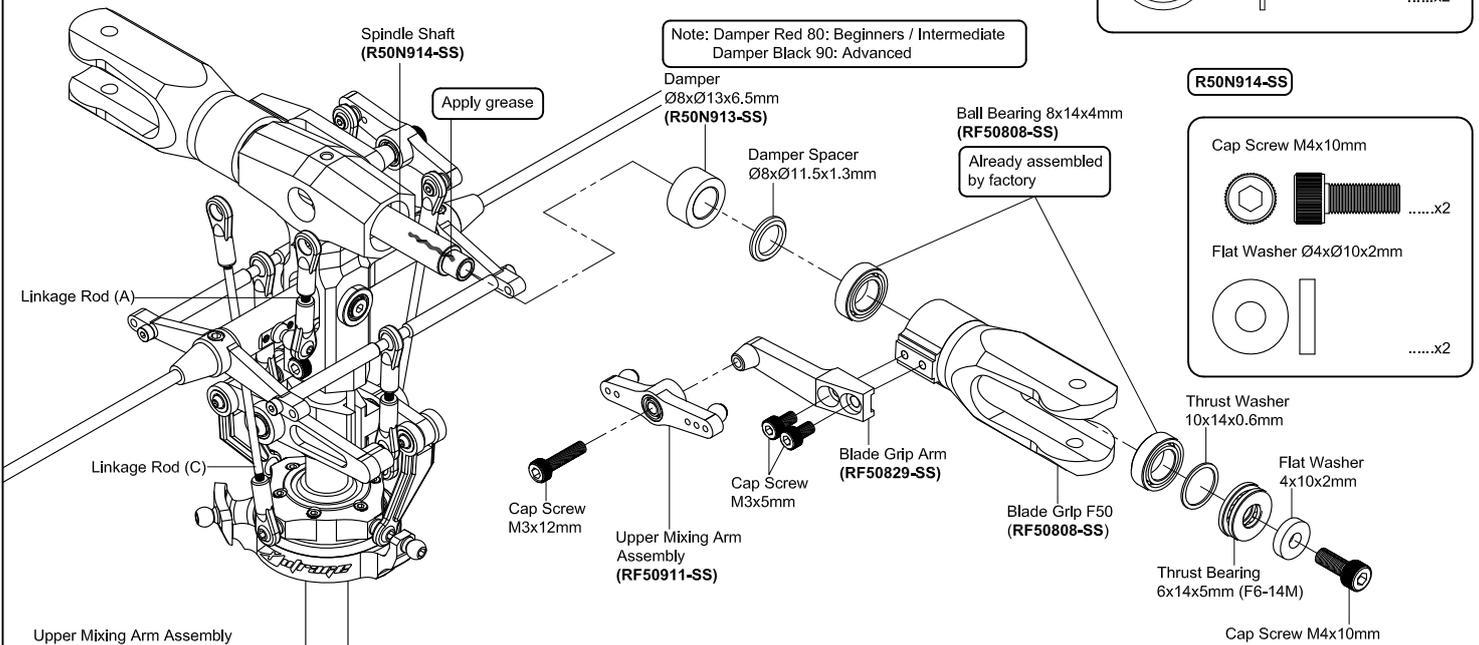
R50N913-SS



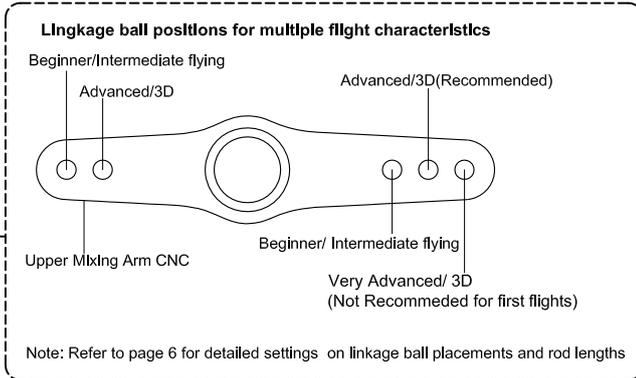
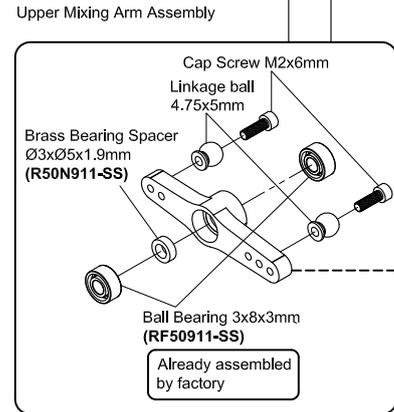
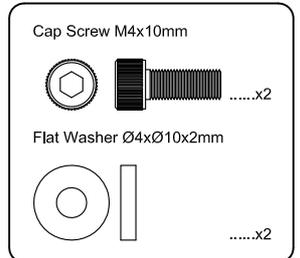
RF50808-SS



Main Bag 1A, 3A

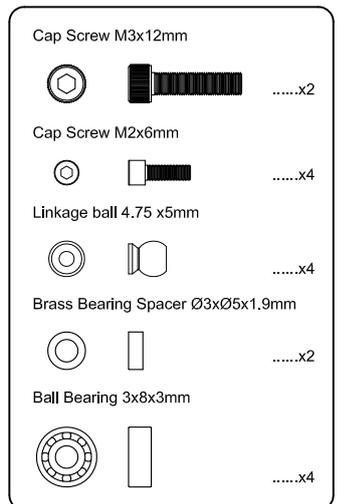


R50N914-SS

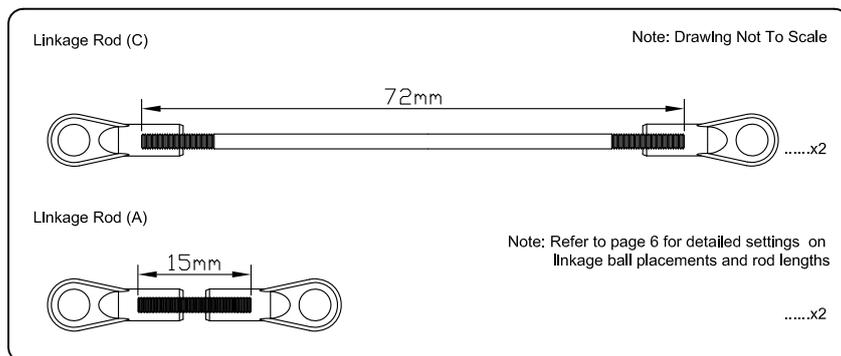


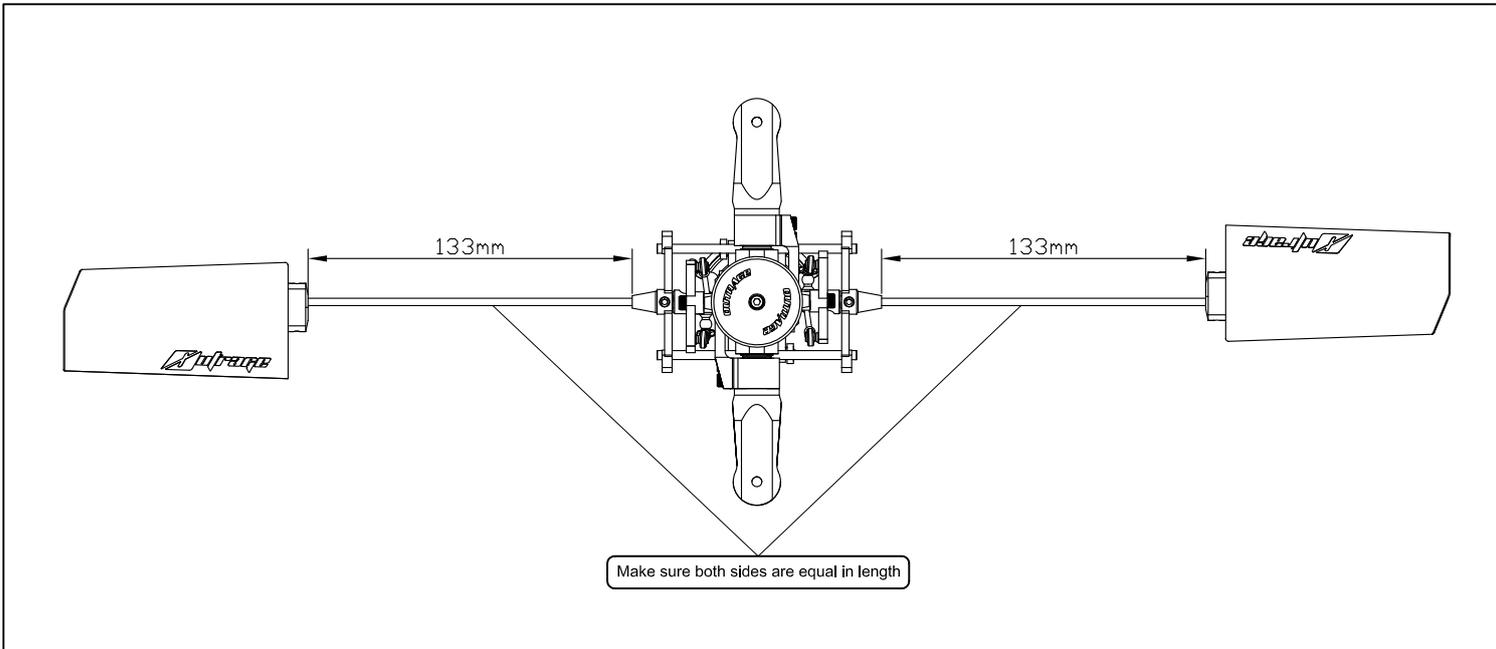
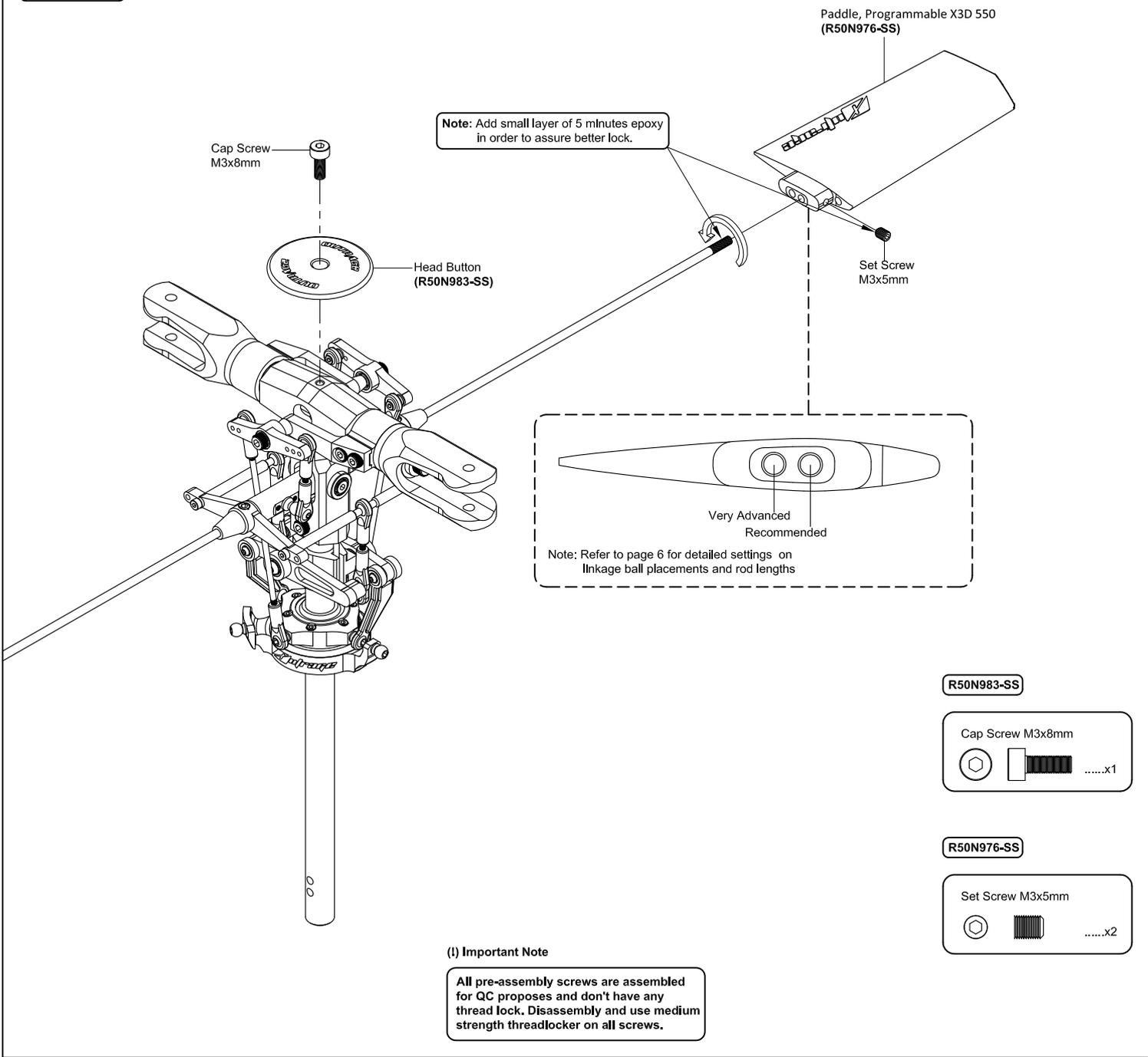
Note: Use strong thread lock compound on this screw.

RF50911-SS



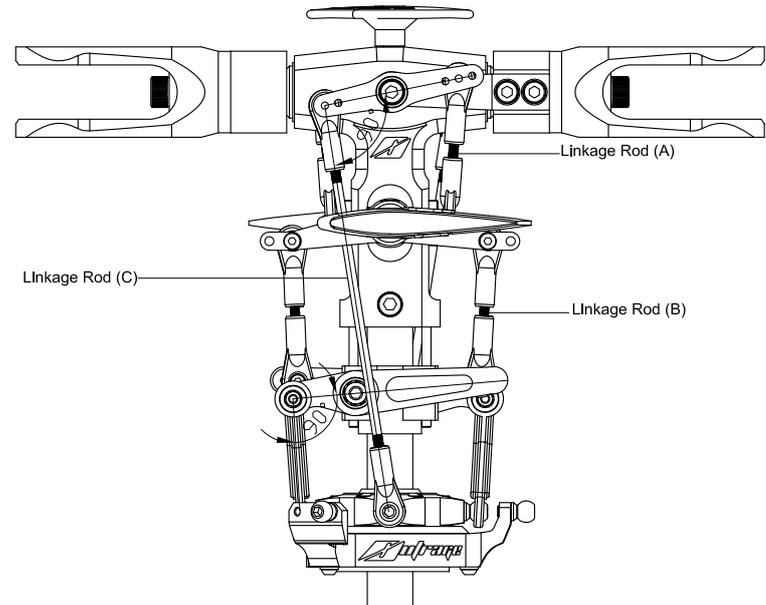
R50N901-SS





**Basic setup configurations for beginner, intermediate, and advanced flying skills**

In the diagram below we supply three basic mechanical setting possibilities of this rotor head. There are many other achievable setups all providing different results. Adjust these settings to suit your flying style. Some of the settings can produce binding. Ensure that servo travel settings in the radio and linkage rod adjustments are made to eliminate binding. This is important to achieve good performance of the rotor head.



These are Basic recommended Programmable Head Configurations

**Beginner settings:**

Use locations noted in component boxes

S1	1800 RPM Target Head Speed.
E1	
B1	Aileron and Elevator Pitch 4 Degree
M1	
H1	Pitch Settings +9 Degree - 2 Degree
Linkage rod lengths	
A: 2 mm	
B: 1.5 mm	
C: 60 mm	

**Intermediate settings:**

Use locations noted in component boxes

S2	2000 RPM Target Head Speed
E1	
B2	Aileron and Elevator Pitch 6 Degree
M2	
H1	Pitch Settings + 10 Degree - 10 Degree
Linkage rod lengths	
A: 3 mm	
B: 1.5 mm	
C: 60 mm	

**Advanced settings:**

Use locations noted in component boxes

S2	2100 - 2200 RPM Target Head Speed
E2	
B3 to outside ball on dual ball on seesaw	Aileron and Elevator Pitch 7 - 8 Degree
M2	
H2	Pitch Settings +12 Degree - 12 Degree
Linkage rod lengths	
A: 2 mm	
B: 1.5 mm	
C: 59.75 mm	

**Basic How To For Head Tuning**

Linkage Rod A:

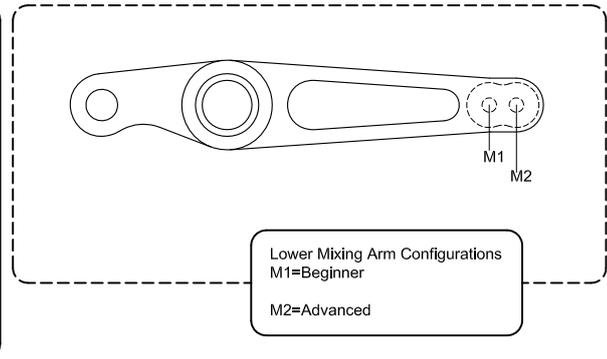
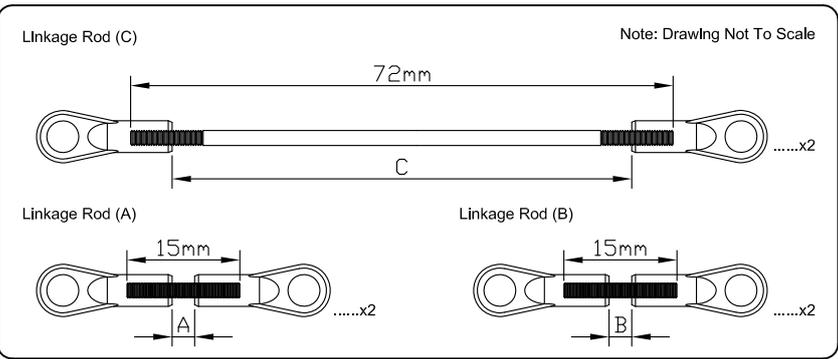
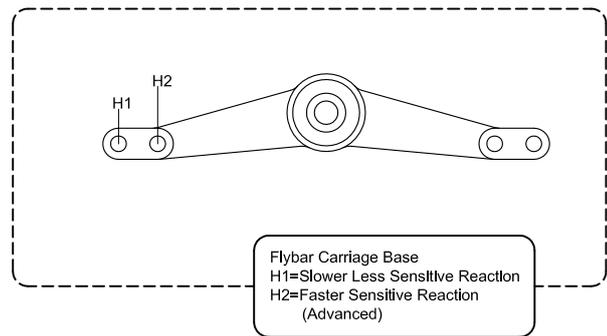
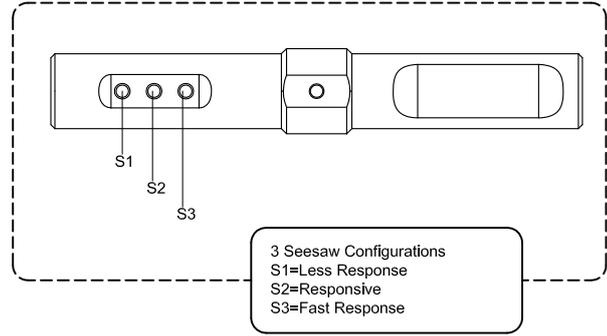
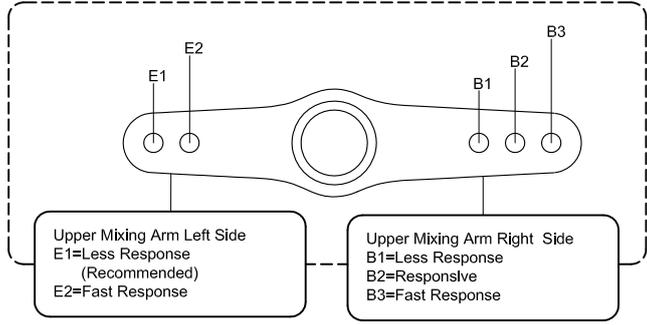
Adjustments to this linkage rod will change balance between positive and negative pitch ranges. Example: You have + 13 and - 11 degrees of pitch to achieve equal pitch range for both + and - sides you will change length of this rod to achieve proper balance.

Linkage Rod B:

Adjustments to this rod should not vary from key setup object is to maintain approximate 90 degree relation with plastic radius arms and lower mixing arm as noted in diagram above.

Linkage Rod C:

Adjustments to this linkage rod are for initial setup of zero degree pitch when set at center stick on your transmitter also for minor blade tracking corrections. Excessive length variations between both blade grips may be a sign of other problems such as 1. Improperly matched set of blades 2. A result from a crash or hard landing verify no parts are bent or damaged

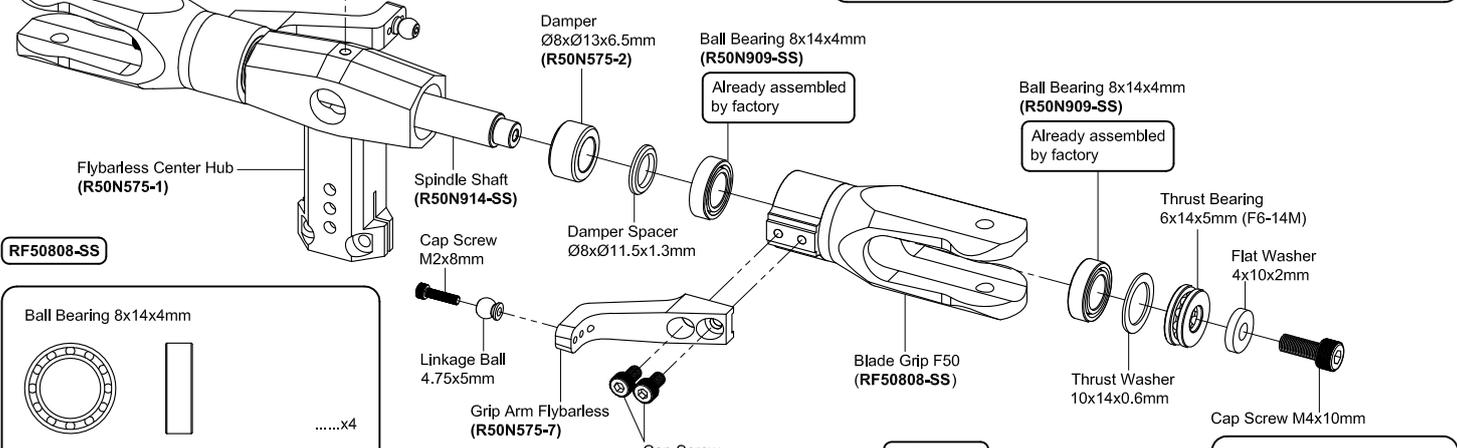
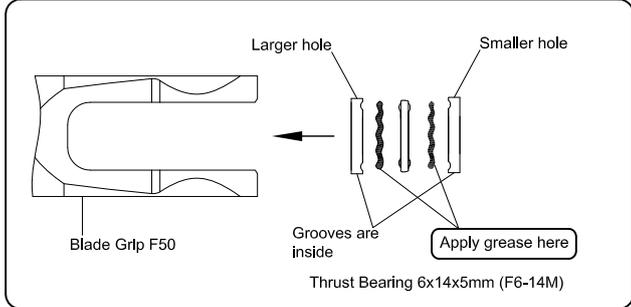
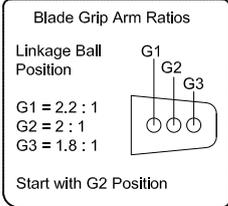
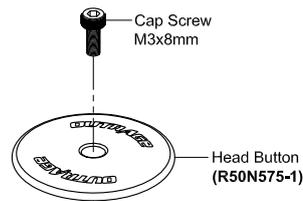
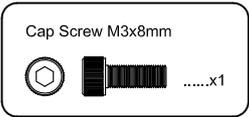


# Flybarless Rotor Head Setup

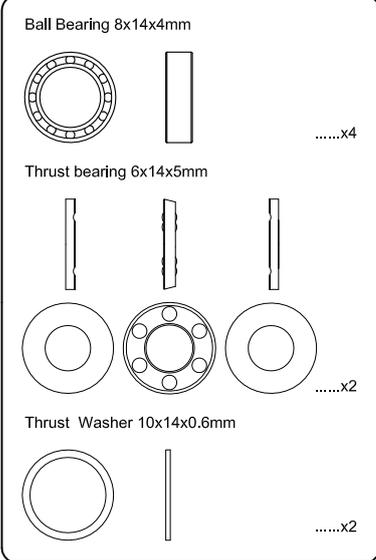
The next two pages describe assembly of the optional flybarless head components

(!) Caution:

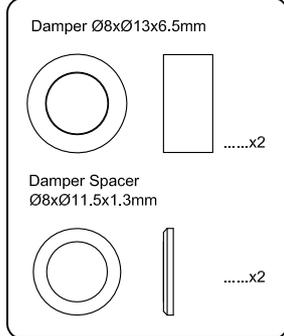
**R50N575-1**



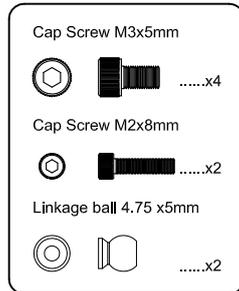
**RF50808-SS**



**R50N913-SS**

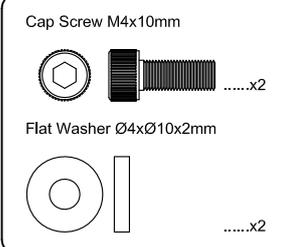


**R50N575-7**



Note: Use strong thread lock compound on this screw.

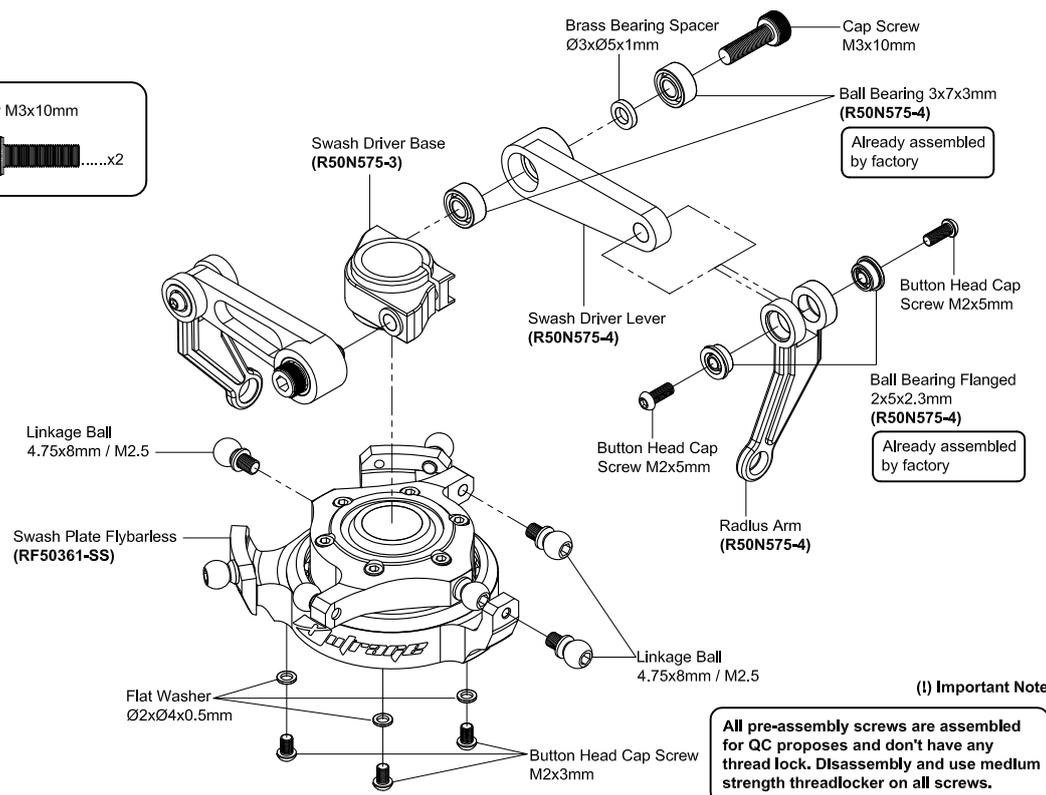
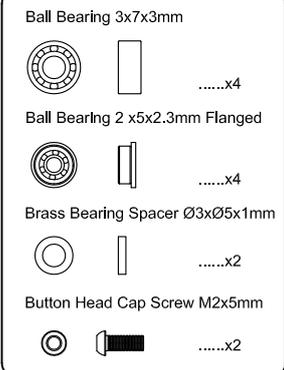
**R50N914-SS**



**R50N575-3**



**R50N575-4**



(!) Important Note

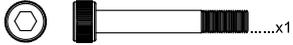
All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

Main Bag 1B, 2B

# Flybarless Rotor Head Setup

R50N575-1

Cap Screw M3x20mm shouldered



Cap Screw M3x8mm



Lock Nut M3



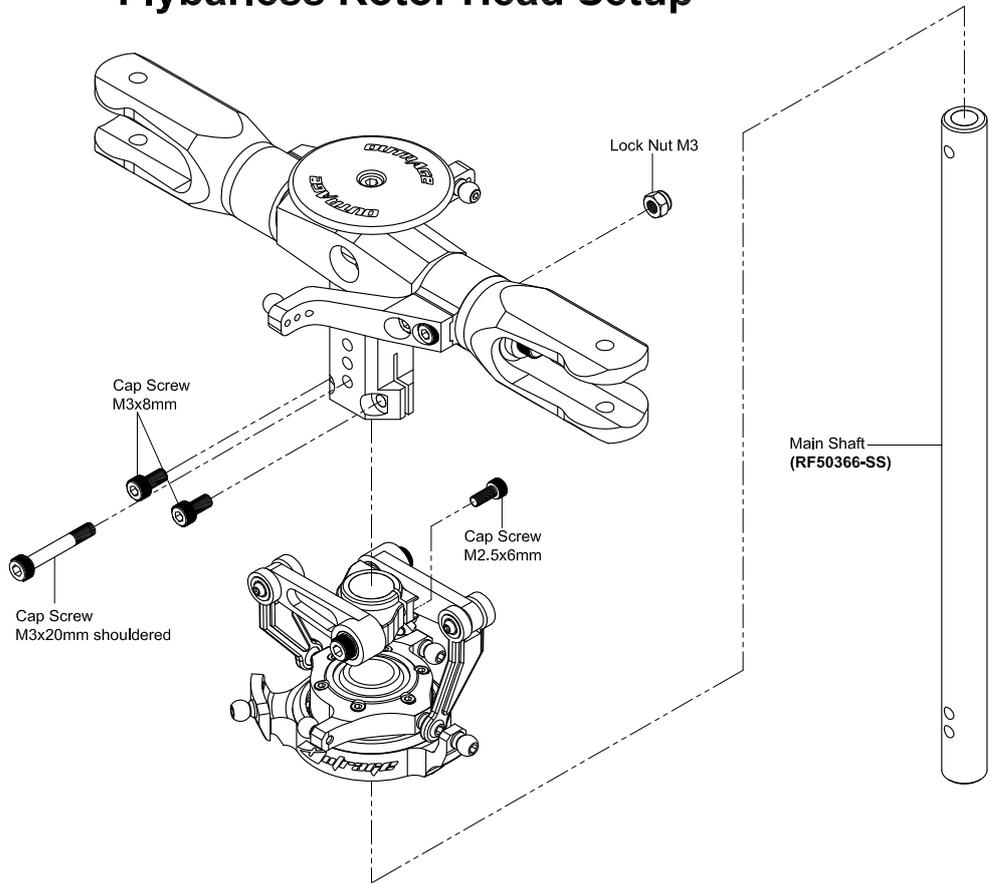
R50N575-3

Cap Screw M2.5x6mm

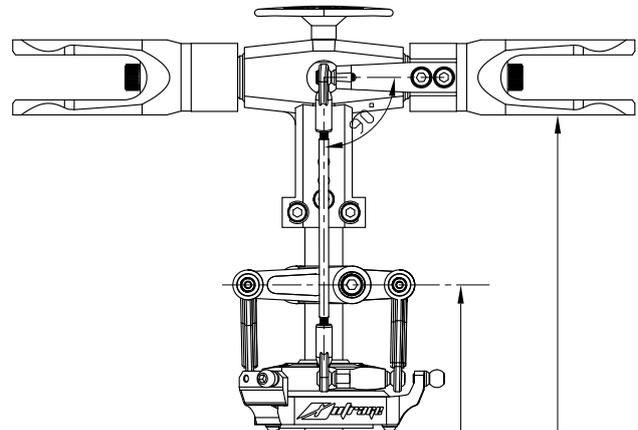
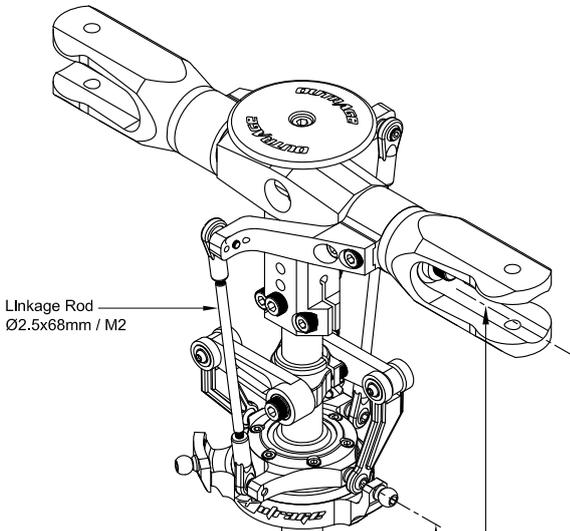


### (I) Important Note

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.



Main Bag 2B



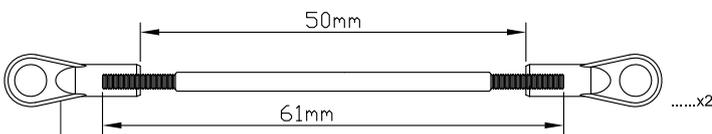
### FBL HEAD PHASING NOTE:

Rotate and adj. Swash Driver Base until Swash Plate Ball shown and Blade Grip will be perfectly aligned. Then lock Swash Driver Base with Cap Screw M2.5x6mm.

**NOTE:**  
Adjust Swash Driver Base vertical position in order to have Swash Driver Arm horizontal when collective pitch is 0 degree.

R50N575-9

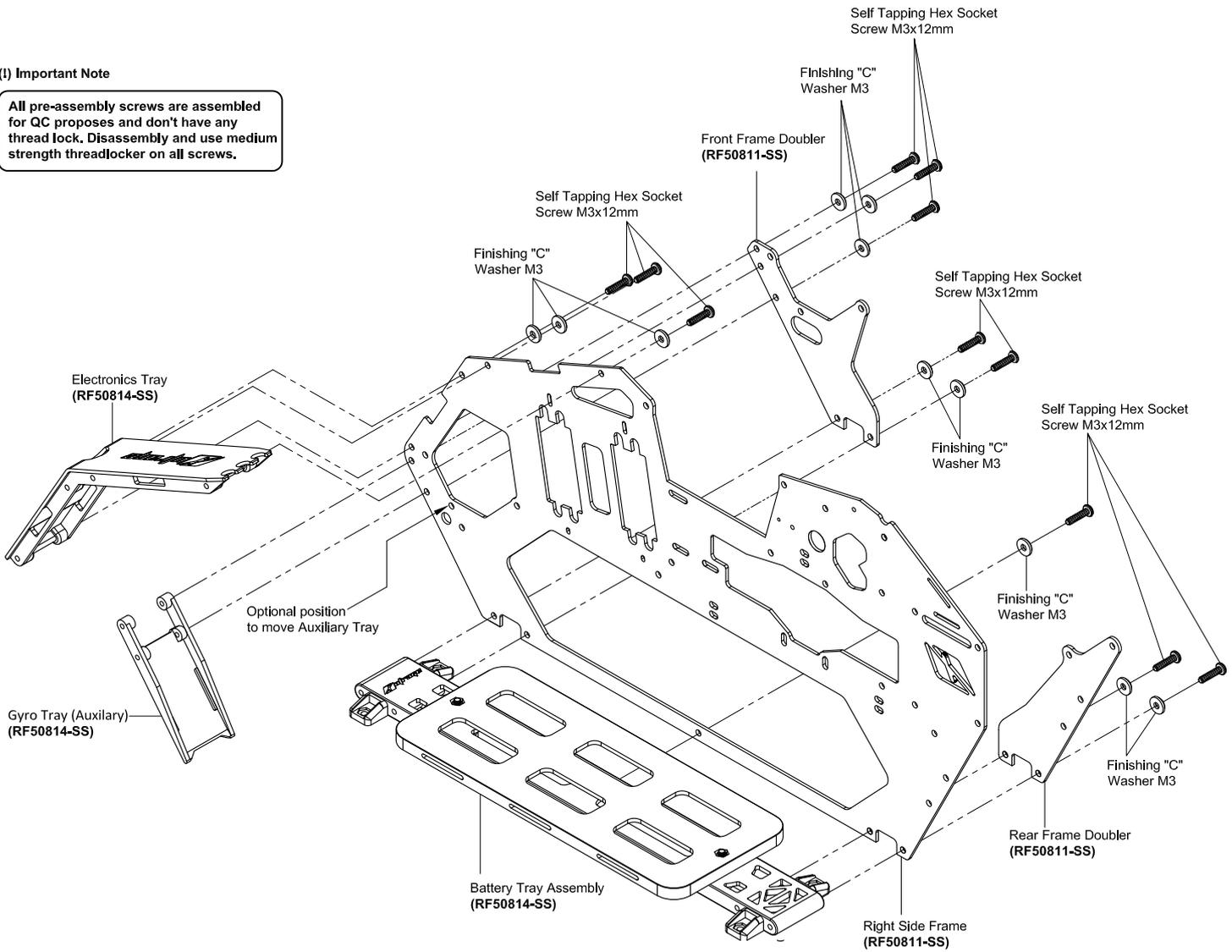
Linkage Rod Ø2.5x68mm / M2



# Assemble the right Side Frame

(I) Important Note

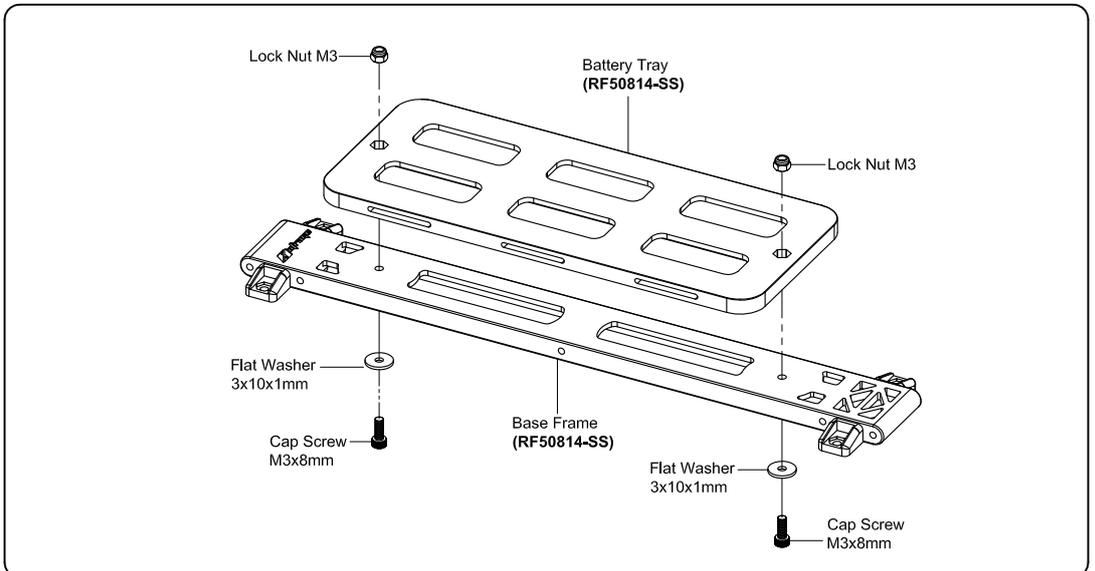
All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.



**RF50814-SS**

**Battery Tray Assembly (RF50814-SS)**

- Self Tapping Hex Socket Screw M3x12mm .....x22
- Finishing "C" Washer M3 .....x22
- Cap Screw M3x8mm .....x2
- Lock Nut M3 .....x2
- Flat Washer 3x10x1mm .....x2
- .....x2



# Assemble the right Side Frame

**RF50814-SS**

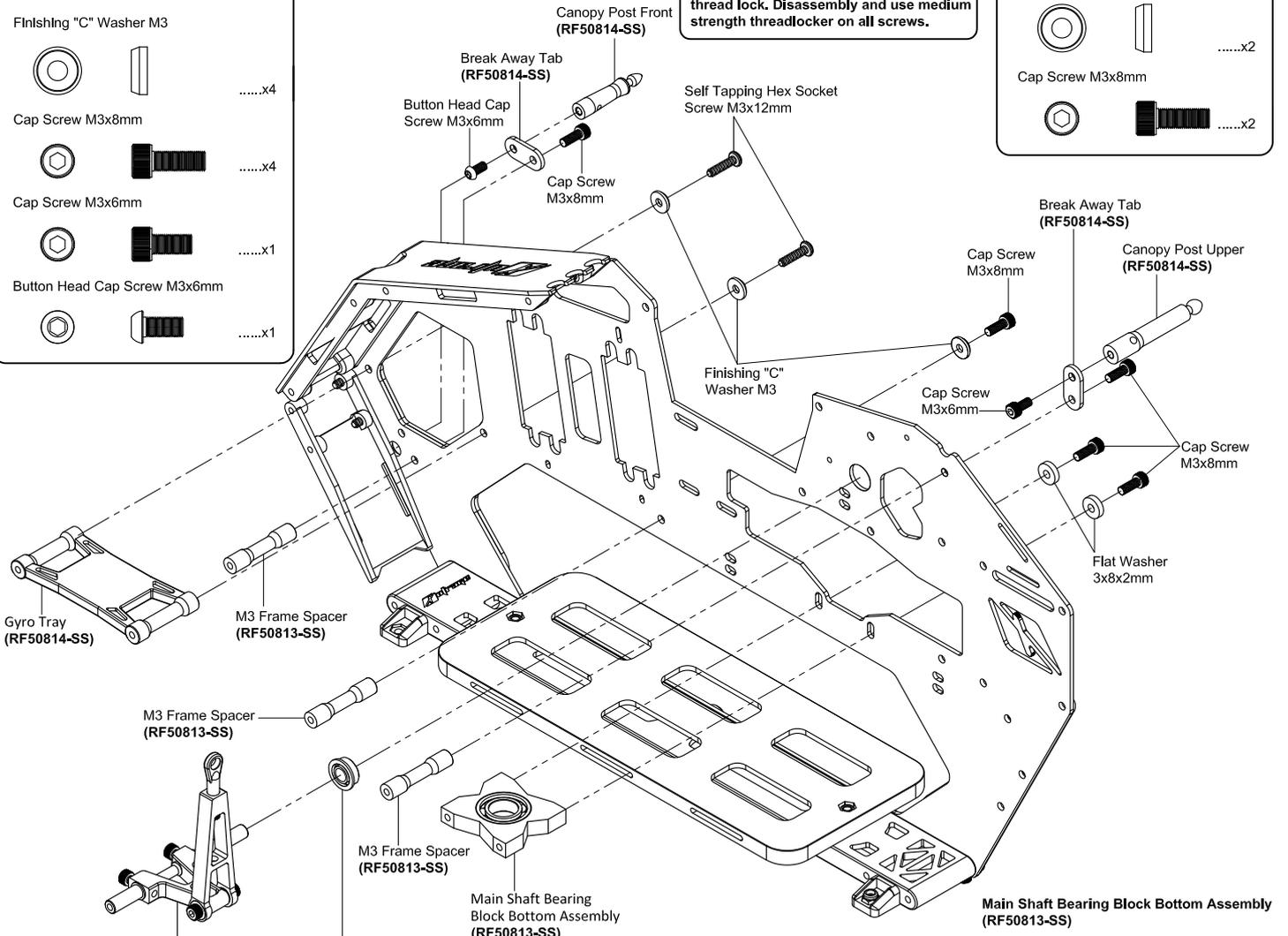
- Self Tapping Hex Socket Screw M3x12mm .....x4
- Finishing "C" Washer M3 .....x4
- Cap Screw M3x8mm .....x4
- Cap Screw M3x6mm .....x1
- Button Head Cap Screw M3x6mm .....x1

**(I) Important Note**

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

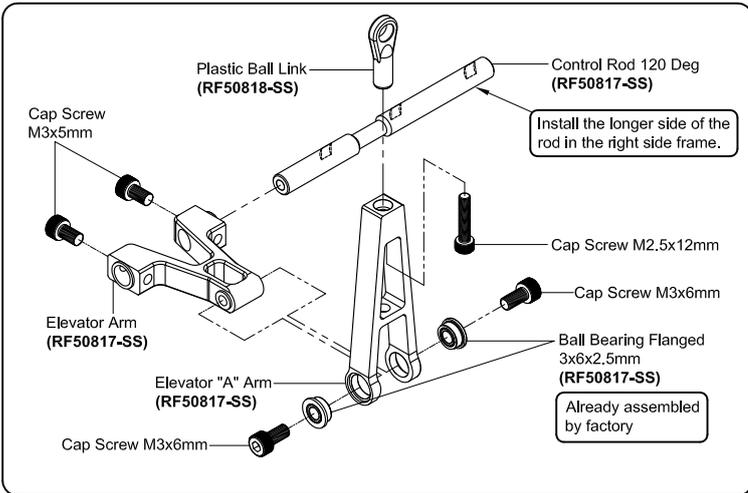
**RF50813-SS**

- Finishing "C" Washer M3 .....x2
- Cap Screw M3x8mm .....x2



Note: CA or Epoxy flanged bearing into frame panels please note direction of install flange is to be located on inside of frame assembly.

**Elevator "A" Arm Assembly**

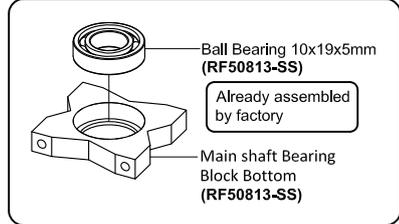


Install the longer side of the rod in the right side frame.

Already assembled by factory

**RF50811-SS**

- Ball Bearing 5x10x4mm Flanged .....x2



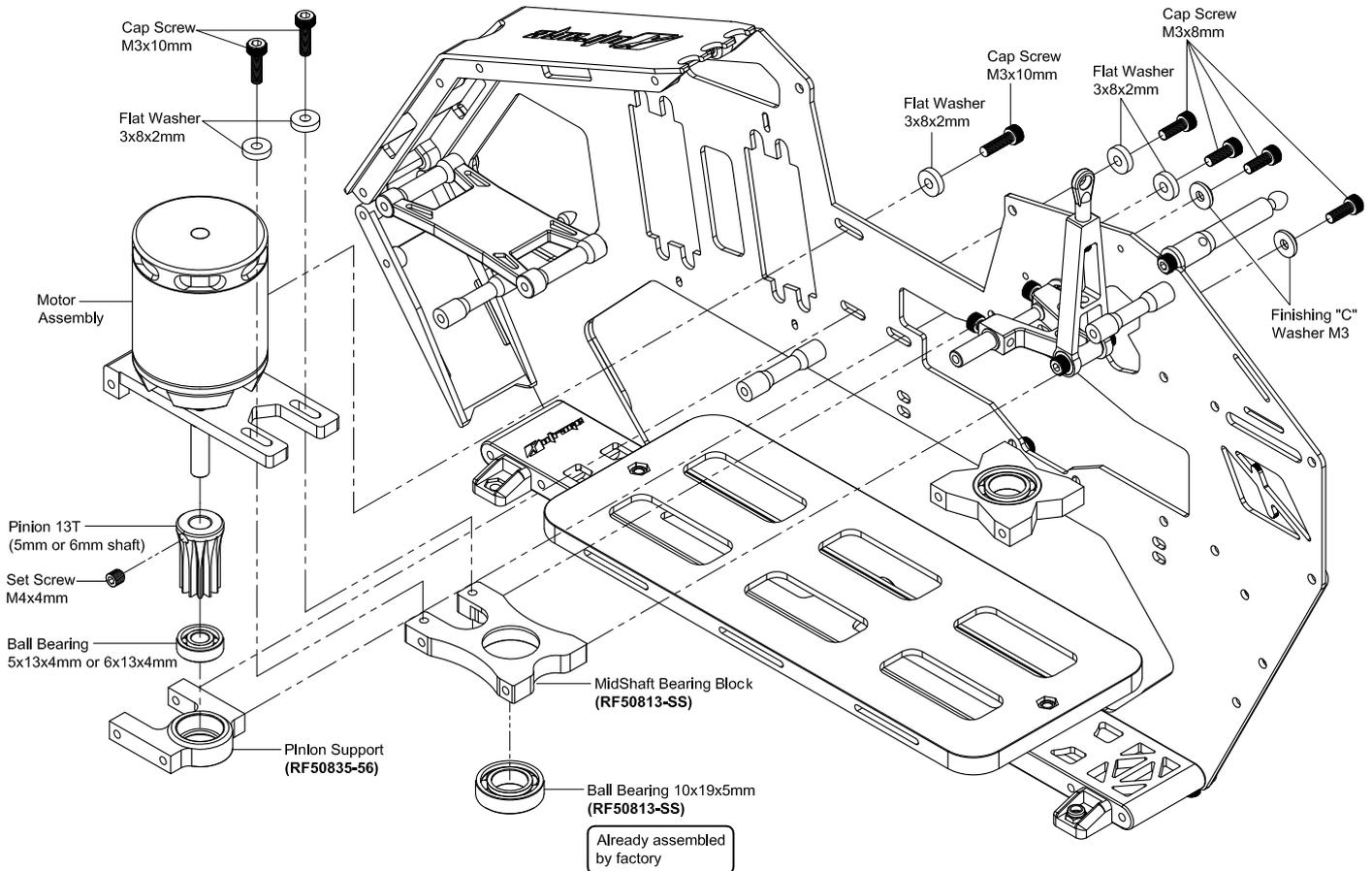
**RF50813-SS**

- Cap Screw M3x8mm .....x4
- Flat Washer 3x8x2mm .....x4
- Ball Bearing 10x19x5mm .....x1

**RF50817-SS**

- Cap Screw M2.5x12mm .....x1
- Cap Screw M3x6mm .....x2
- Cap Screw M3x5mm .....x2
- Ball Bearing Flanged 3x6x2.5mm .....x2

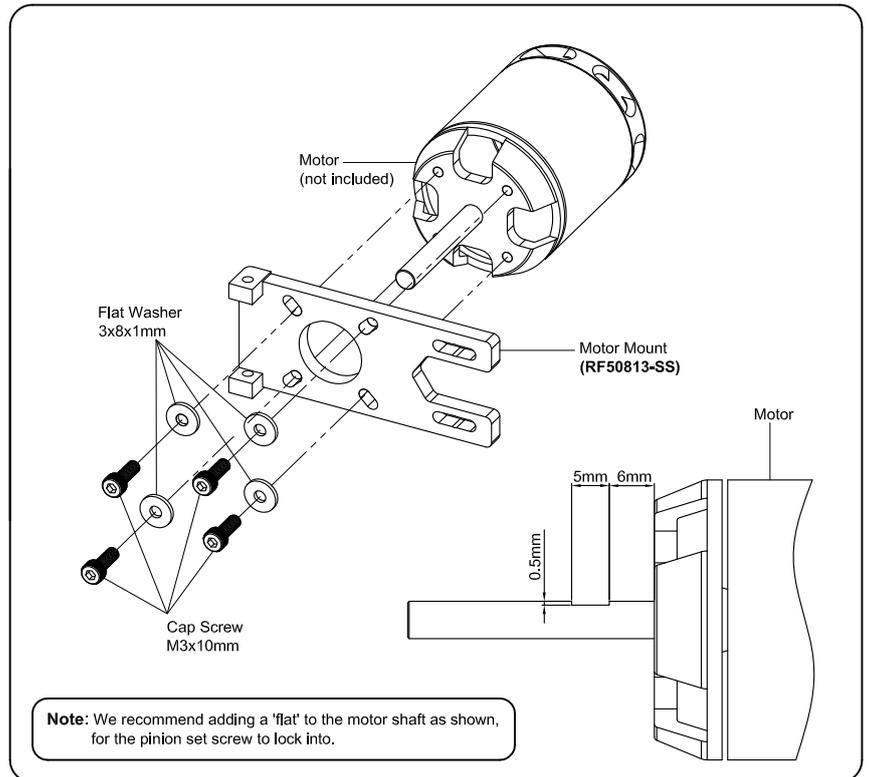
# Assemble the right Side Frame



**(I) Important Note**

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

**Motor Assembly**



**RF50813-SS**

- Cap Screw M3x10mm .....x8
- Cap Screw M3x8mm .....x8
- Set Screw M4x4mm .....x1
- Finishing "C" Washer M3 .....x4
- Flat Washer 3x8x2mm .....x8
- Flat Washer 3x8x1mm .....x4

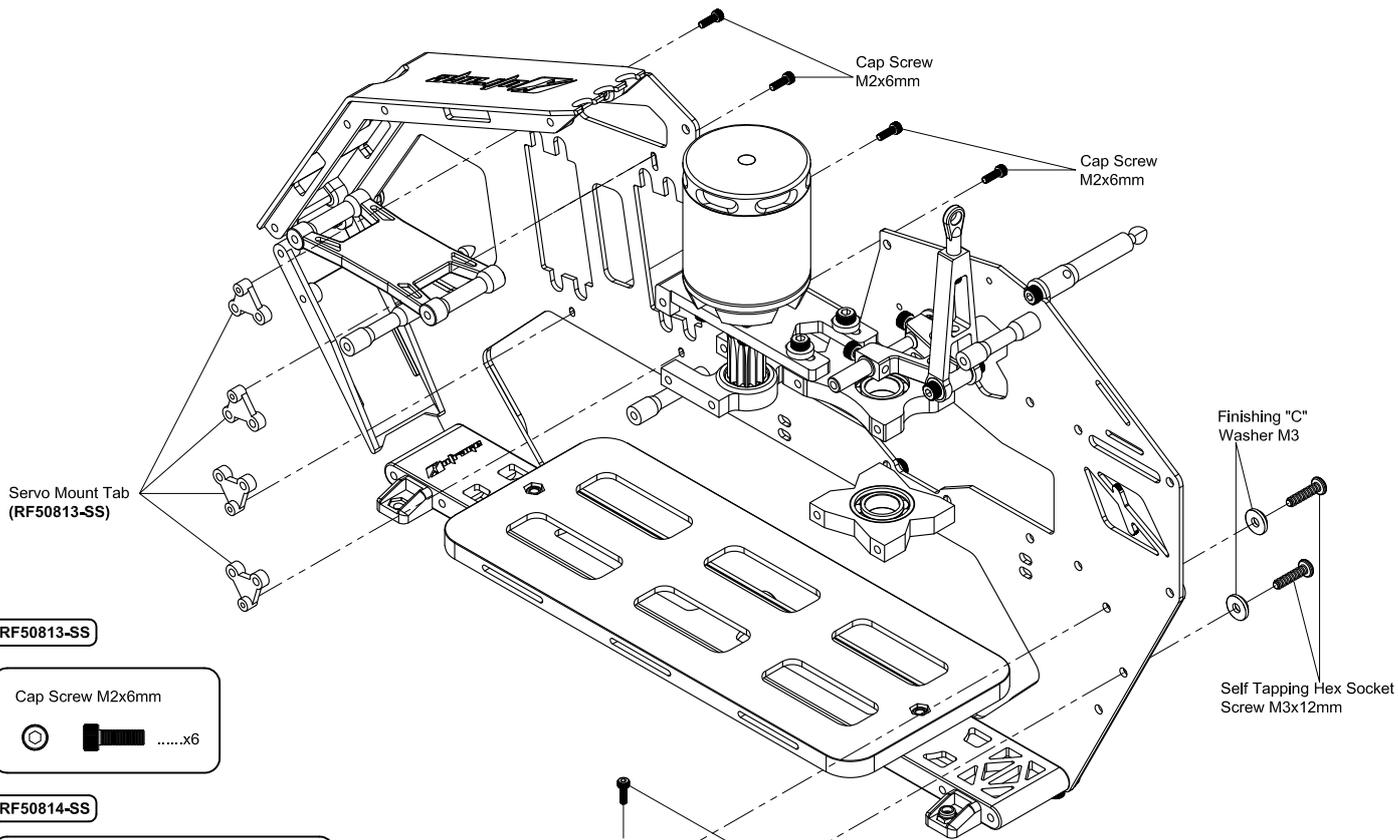
**RF50813-SS**

- Ball Bearing 10x19x5mm .....x1
- Ball Bearing 6x13x5mm .....x1
- Ball Bearing 6x13x5mm .....x1

**RF50836-5-SS**

**Note:** We recommend adding a 'flat' to the motor shaft as shown, for the pinion set screw to lock into.

# Assemble the right Side Frame



**RF50813-SS**

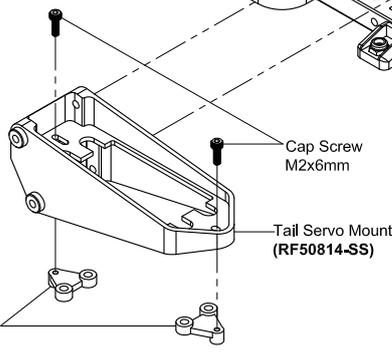
- Cap Screw M2x6mm .....x6

**RF50814-SS**

- Self Tapping Hex Socket Screw M3x12mm .....x4
- Finishing "C" Washer M3 .....x4
- Cap Screw M2x6mm .....x2

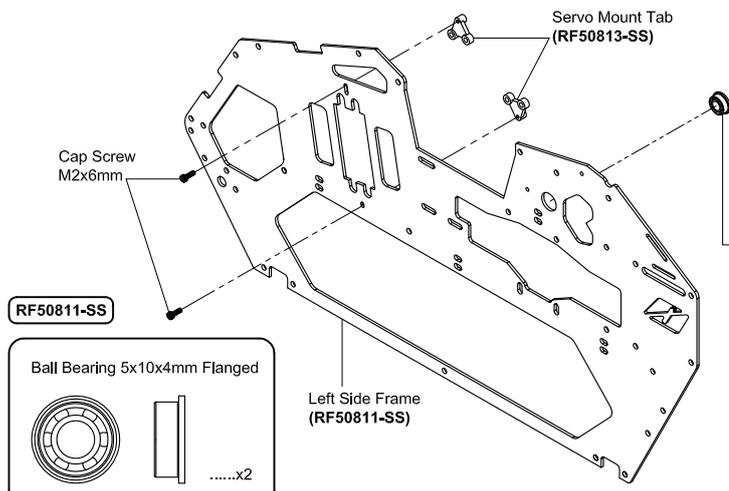
**(I) Important Note**

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.



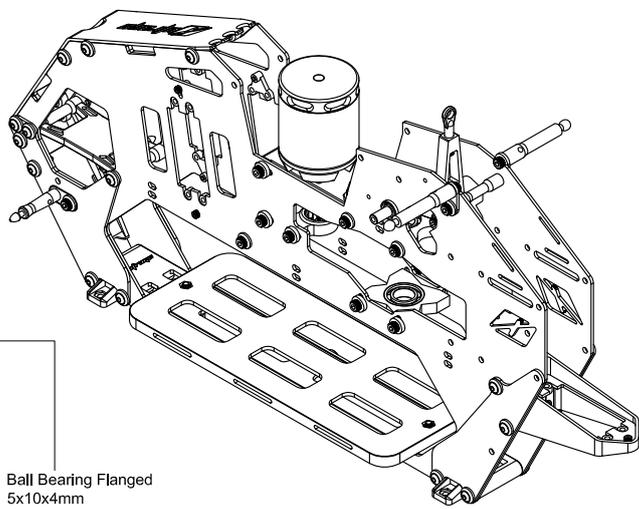
## Now attach the left side frame using the same bolt pattern as used for the right side frame.

**Note:** Attach the servo mount tabs



**RF50811-SS**

- Ball Bearing 5x10x4mm Flanged .....x2



Note: CA or Epoxy flanged bearing into frame panels please note direction of install flange is to be located on inside of frame assembly.

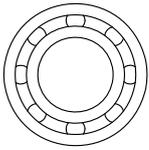
Main Bag 5A, 6, 8

RF50813-SS

RF50817-SS

RF50817-SS

Ball Bearing 10x19x5mm



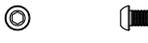
.....x1

Finishing "C" Washer M3



.....x4

Button Head Cap Screw M2x3mm



.....x4

Cap Screw M3x8mm



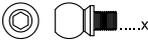
.....x6

Set Screw M3x3mm



.....x1

Linkage Ball  
4.75x8mm / M2.5



.....x8

Cap Screw M2.5x6mm



.....x1

Flat Washer Ø2.5xØ7x0.5mm



.....x1

Shim Washer Ø5xØ6.5x0.5mm



.....x2

Support Brace  
(RF50813-SS)

Cap Screw  
M3x8mm

Cap Screw  
M3x8mm

Main Shaft Bearing Block Top  
Assembly  
(R50N939-SS)

Finishing "C"  
Washer M3

Cap Screw  
M3x8mm

Finishing "C"  
Washer M3

Cap Screw  
M3x8mm

Linkage Ball  
4.75x8mm / M2.5

Set Screw  
M3x3mm

Linkage Ball  
4.75x8mm / M2.5

Elevator Bell Crank  
Assembly  
(RF50817-SS)

Aileron Bell Crank  
Assembly  
(RF50817-SS)

Shim Washer  
5x6.5x0.5mm

RF50814-SS

Cap Screw M3x14mm



.....x4

Flat Washer Ø3xØ8x1mm



.....x4

Lock Nut M3



.....x4

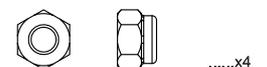
R90N884-SS

Cap Screw M2.5x8mm



.....x4

Lock Nut M2.5



.....x4

Cap Screw  
M3x8mm

Finishing "C"  
Washer M3

Finishing "C"  
Washer M3

Cap Screw  
M3x8mm

Linkage Ball  
4.75x8mm / M2.5

Shim Washer  
5x6.5x0.5mm

Cap Screw  
M2.5x6mm

Flat Washer  
Ø2.5xØ7x0.5mm

Cap Screw  
M2.5x8mm

Landing Gear Strut (White)  
(R90N884-SS)

Flat Washer  
Ø3xØ8x1mm

Cap Screw  
M3x14mm

Lock Nut M2.5

Cap Screw  
M2.5x8mm

Flat Washer  
Ø3xØ8x1mm

Cap Screw  
M3x14mm

Lock Nut M2.5

Strut Tube Cap ( White)  
(R90N884-SS)

Main Shaft Bearing Block Top  
Assembly  
(R50N939-SS)

Button Head Cap Screw  
M2x3mm

Ball Bearing 10x19x5mm  
(RF50813-SS)

Already assembled  
by factory

Main Shaft Bearing  
Block Top  
(RF50813-SS)

Note: Do Not over tighten M2.5 cap  
screws may damage landing gear.

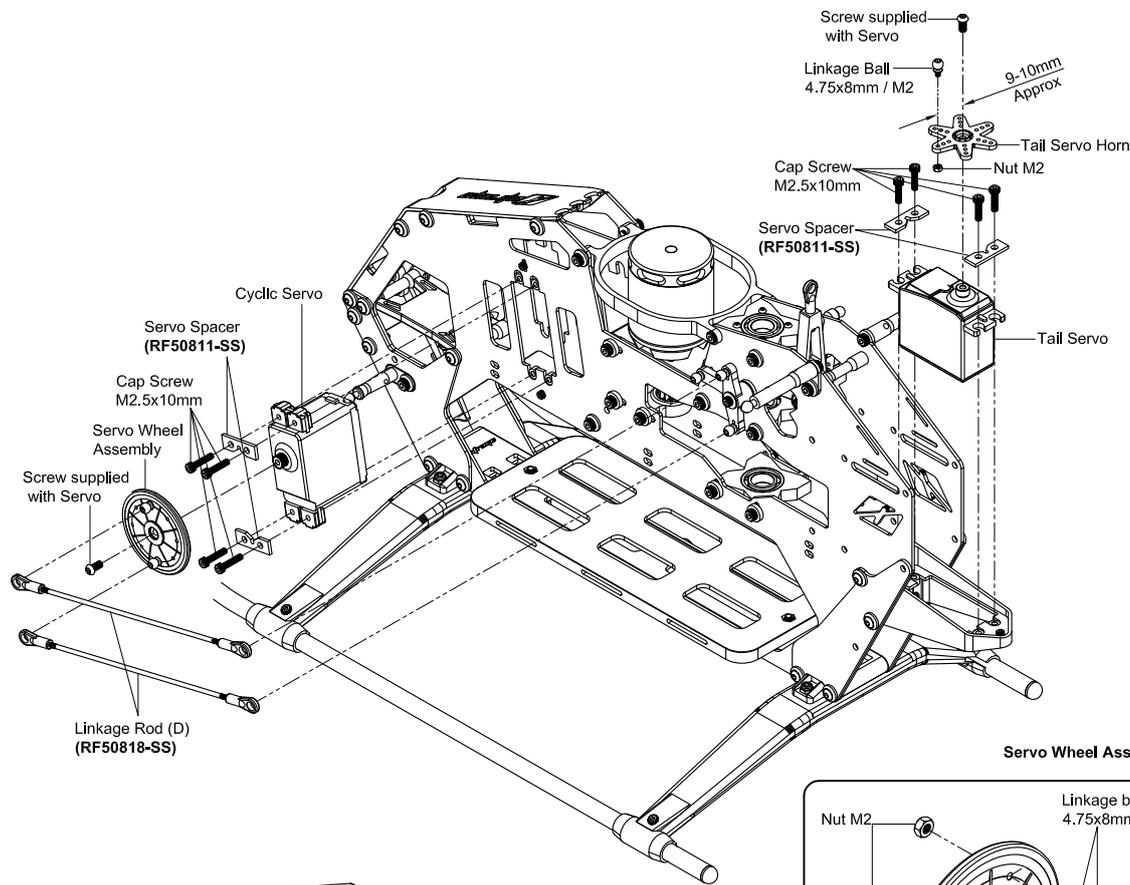
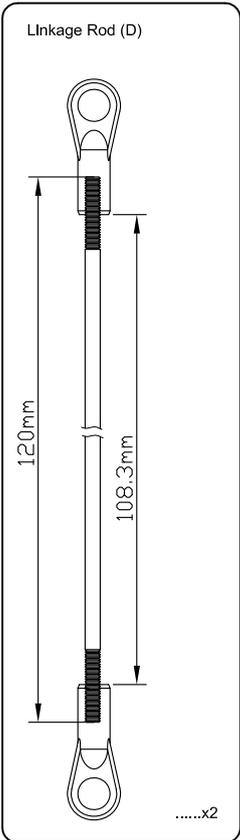
Landing Gear Strut Tube  
(R90N884-SS)

(!) Important Note

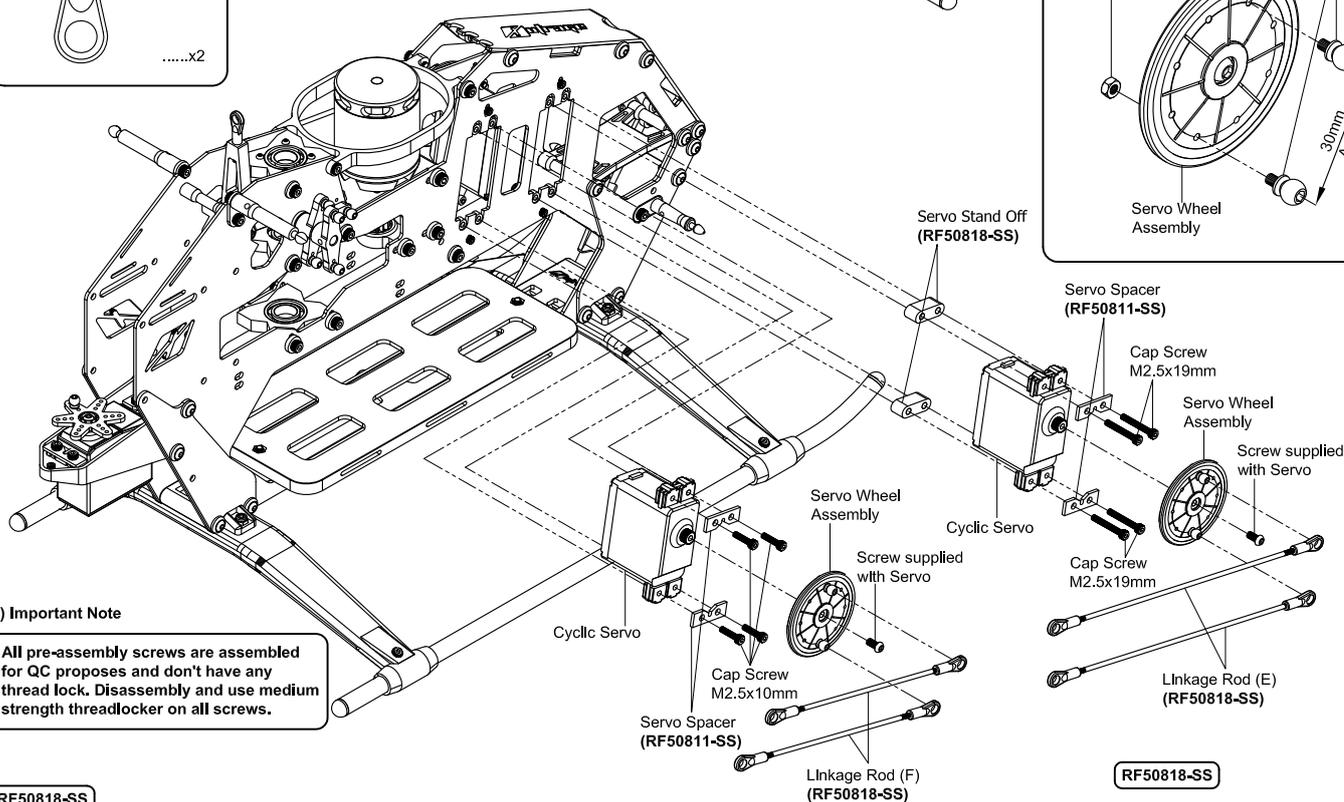
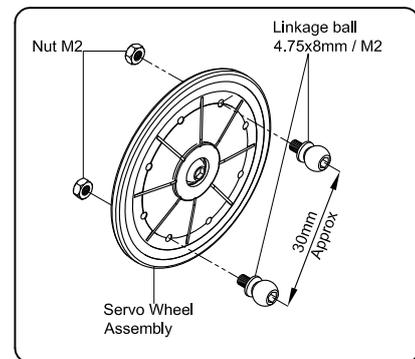
All pre-assembly screws are assembled  
for QC purposes and don't have any  
thread lock. Disassembly and use medium  
strength threadlocker on all screws.

**Main Bag 8**

**RF50818-SS**



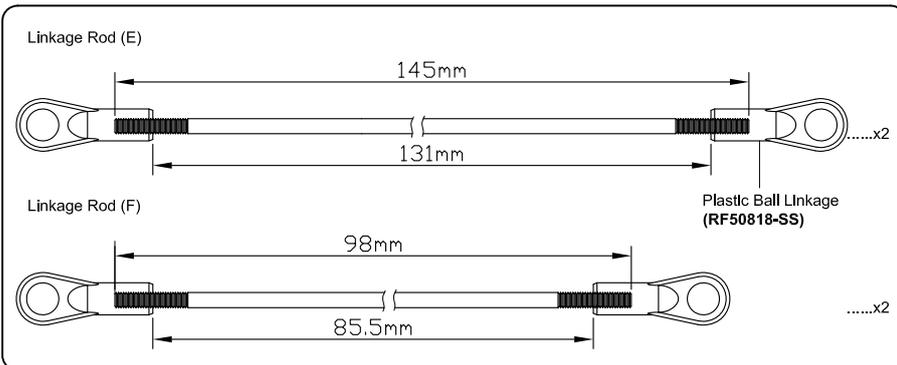
**Servo Wheel Assembly ....3**



**(I) Important Note**

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

**RF50818-SS**



**RF50818-SS**

- Cap Screw M2.5x19mm .....x4
- Cap Screw M2.5x10mm .....x12
- Linkage ball 4.75x8mm / M2 .....x7
- Nut M2 .....x7

Main Bag 4, 10

RF50820B-SS

Ball Bearing 12x18x4mm  
Already assembled by factory

.....x2

RF50820B-SS

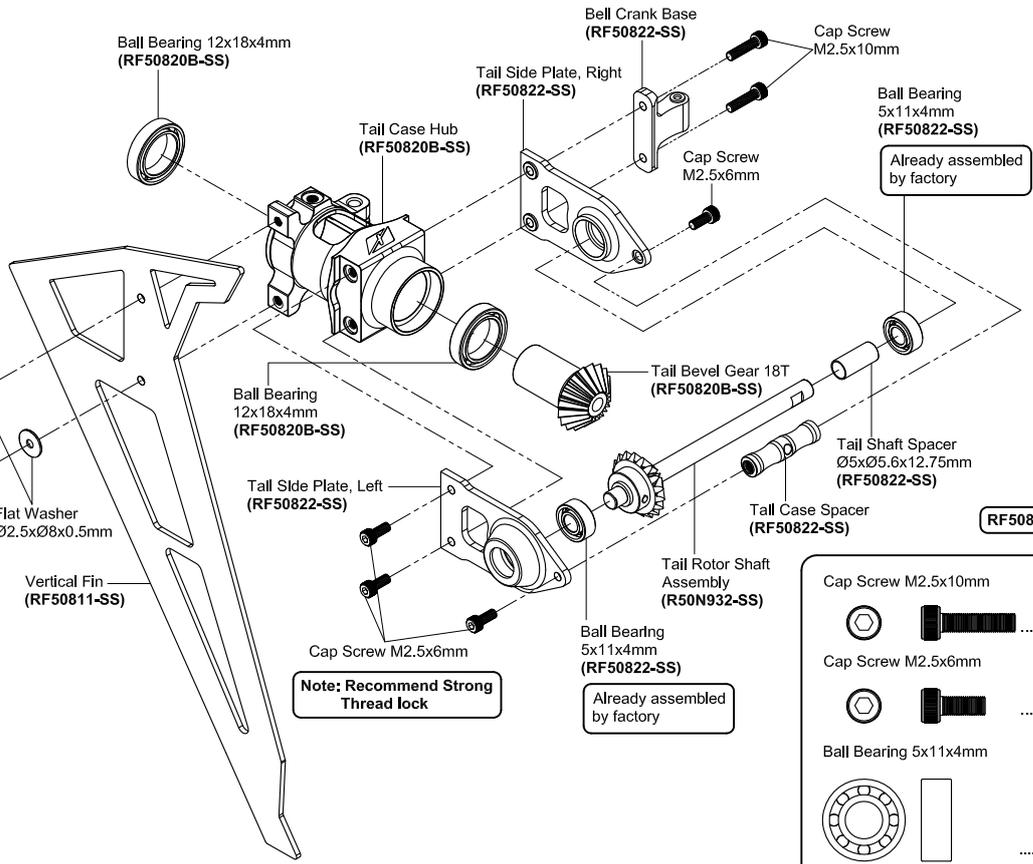
Cap Screw M2.5x8mm  
.....x2

Flat Washer Ø2.5xØ8x0.5mm  
.....x2

Vertical Fin (RF50811-SS)

(!) Important Note

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.



Main Bag 10

RF50828-SS

Cap Screw M2.5x8mm  
.....x2

Ball Bearing 5x9x3mm  
.....x4

Thrust Bearing 4x9x4mm  
.....x2

Flat Washer Ø3xØ8x1mm  
.....x2

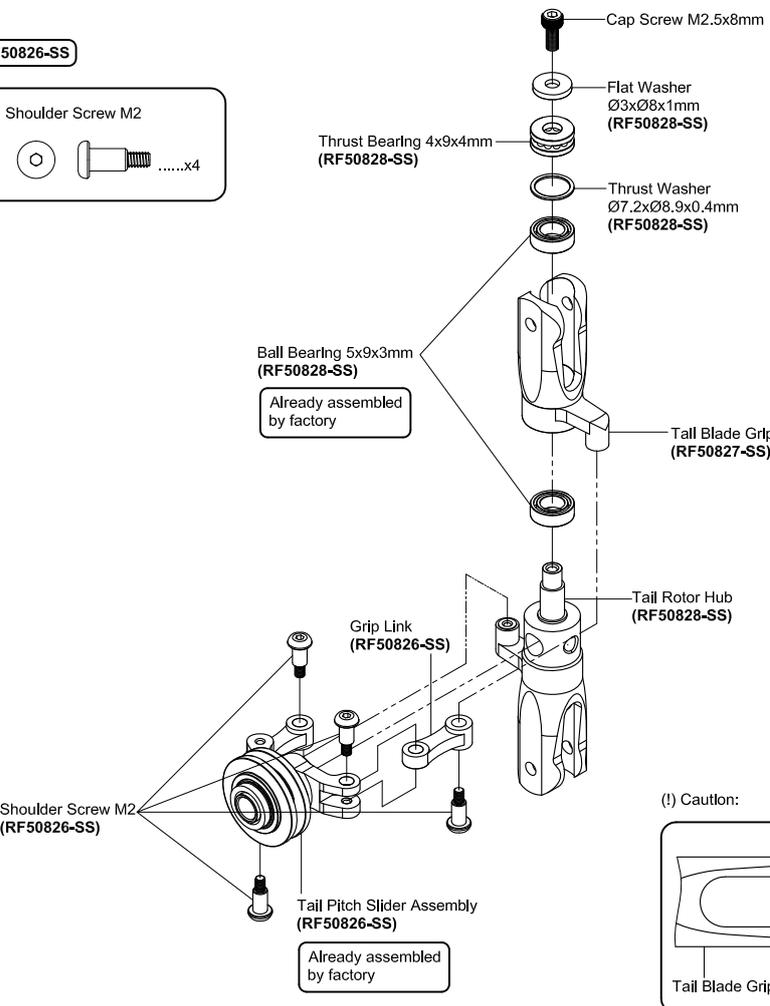
Thrust Washer Ø7.2xØ8.9x0.4mm  
.....x2

RF50826-SS

Shoulder Screw M2  
.....x4

(!) Important Note

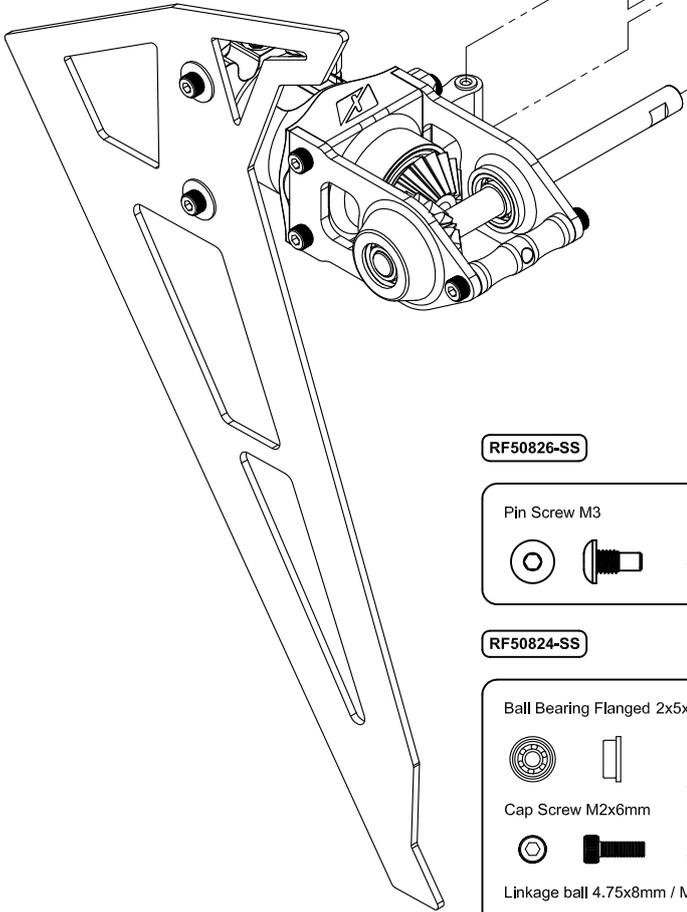
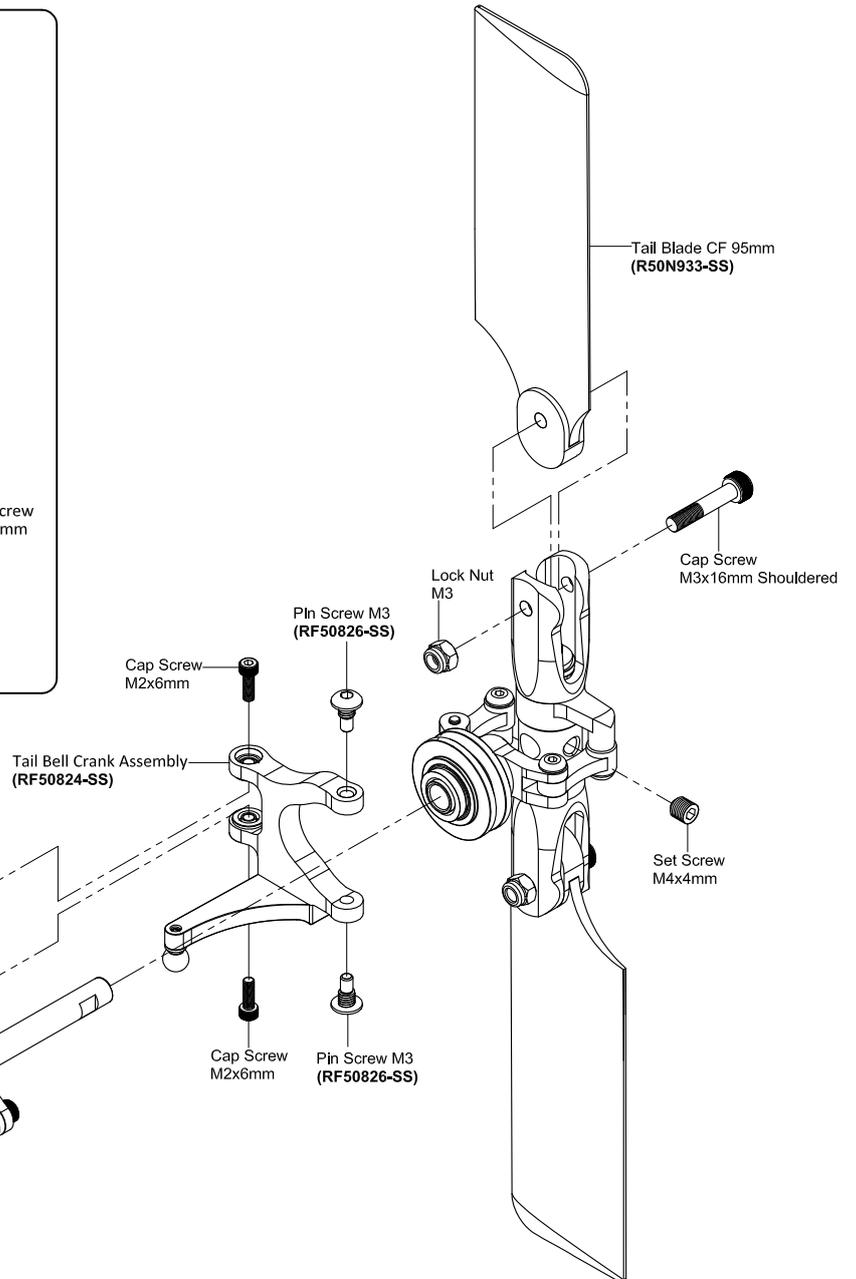
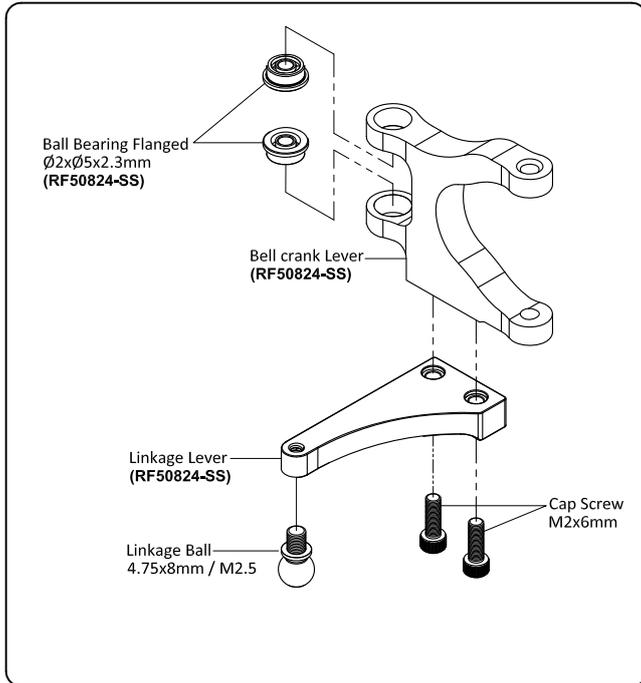
All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.



(!) Important Note

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

Tail Bell Crank Assembly (RF50824-SS)



RF50826-SS

Pin Screw M3

.....x2

RF50824-SS

Ball Bearing Flanged 2x5x2.3mm

.....x2

Cap Screw M2x6mm

.....x4

Linkage ball 4.75x8mm / M2.5

.....x1

RF50828-SS

Lock Nut M3

.....x2

Cap Screw M3x16mm Shouldered

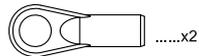
.....x2

Set Screw M4x4mm

.....x1

RF50929-SS

Plastic Ball Linkage



Boom Mount Assembly

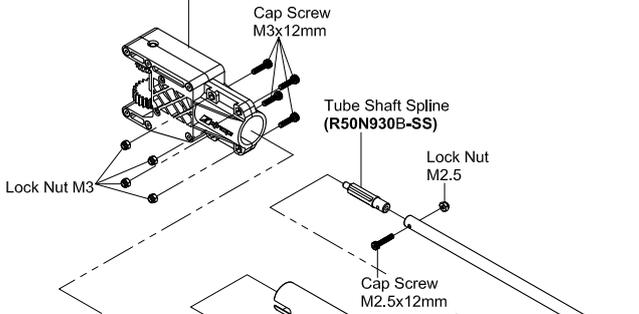
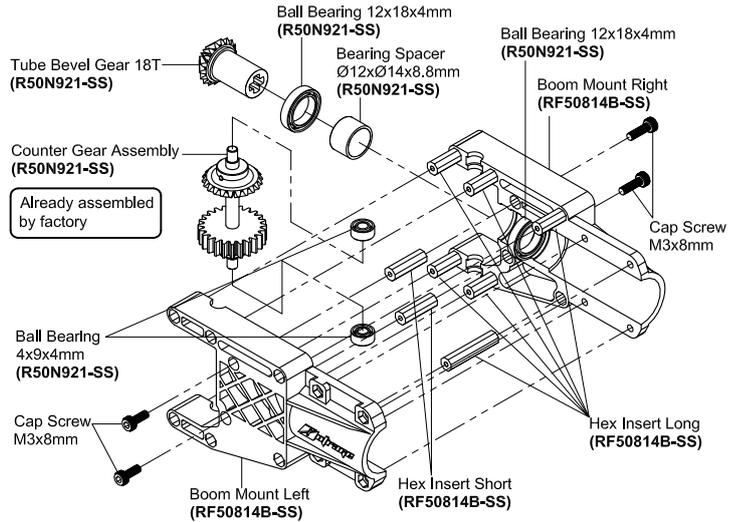
Already assembled by factory

Tube Bearing Support Assembly

Tube Bearing Support (R50N930-SS)



Boom Mount Assembly



Apply lite oil onto rubber bearing support surface for easy install into boom.

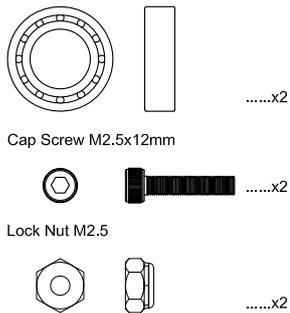
**Tail Case Install Note:**  
Align Tail Case and Lock it with M3x10. Later on install Pin Screw M3x8.

(I) Important Note

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

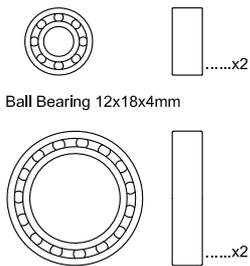
R50N930B-SS

Ball Bearing 8x14x4mm



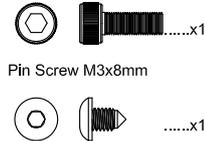
R50N921-SS

Ball Bearing 4x9x4mm



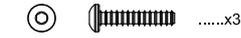
RF50820-SS

Cap Screw M3x10mm



RF50929-SS

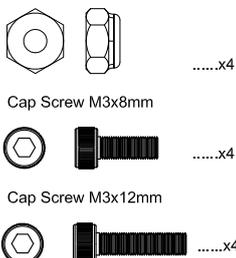
Self Tapping Hex Socket Screw M2x10mm



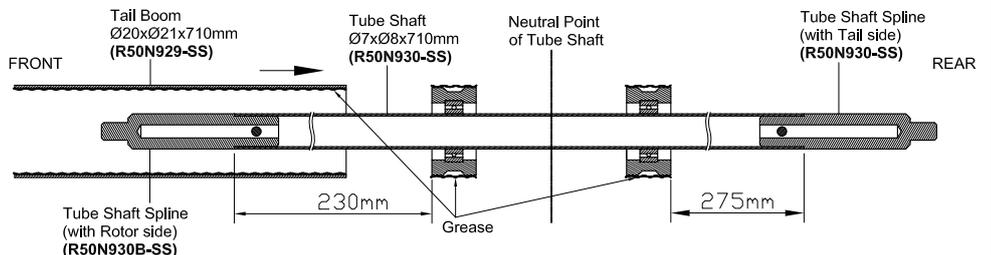
Note: Tube Shaft Assembly

RF50814-SS

Lock Nut M3



Set bearing positions using measurement below. Lock bearings in place using a small amount of 5 minute Epoxy only at inner race of bearing. Apply lite grease at opening of boom for first rubber bearing support installation then again prior to second support to allow support to slide in place easier. Do not use excessive force when pushing into place as this may cause bearings to unseat from supports. Once installed verify all bearings remain seated in place. After installing boom and tail case assemblies verify no binding on all bevel gears to prevent premature failure.



(!) Important Note

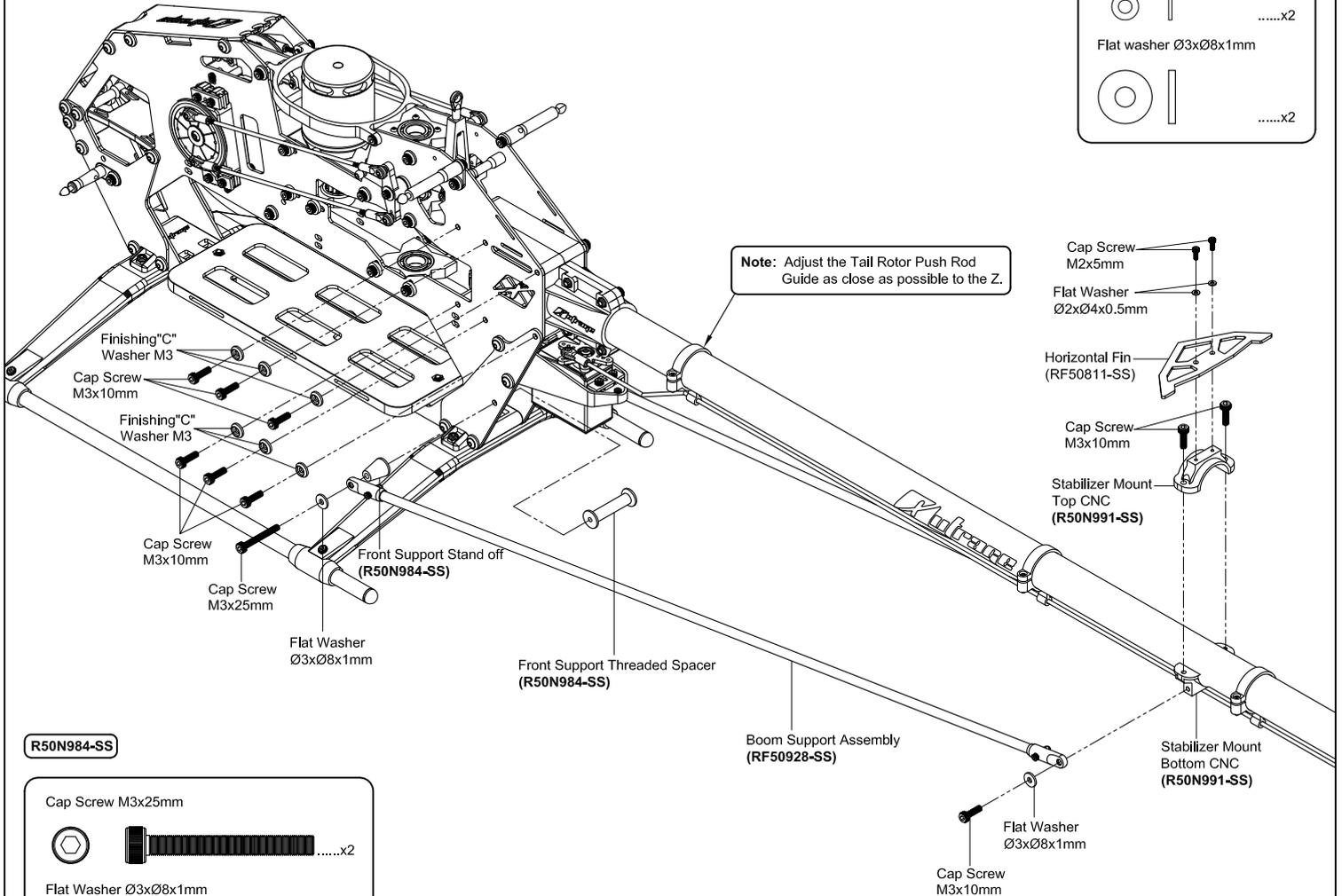
All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

RF50814-SS

- Cap Screw M3x10mm .....x12
- Finishing "C" Washer M3 .....x12

R50N991-SS

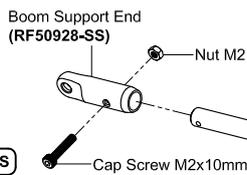
- Cap Screw M3x10mm .....x4
- Cap Screw M2x5mm .....x2
- Flat washer Ø2xØ4x0.5mm .....x2
- Flat washer Ø3xØ8x1mm .....x2



R50N984-SS

- Cap Screw M3x25mm .....x2
- Flat Washer Ø3xØ8x1mm .....x2

Boom Support Assembly (RF50928-SS)



RF50928-SS

- Cap Screw M2x10mm .....x2
- Nut M2 .....x2

Boom Support CF Rod (RF50928-SS)

.....x2

RF50815-SS

Cap Screw M3x20mm shouldered .....x1

Cap Screw M3x8mm .....x4

Lock Nut M3 .....x1

Shim Washer Stepped .....x1

Brass Bushing .....x1

RF50815-SS

Oneway Bearing 14x20x16mm .....x1

RF50818-SS

Swash Linkage Rod (RF50818-SS) .....x2

Plastic Ball Linkage (RF50818-SS) .....x2

40mm

29.3mm

RF50815-SS

Ball Bearing 12x21x5mm .....x1

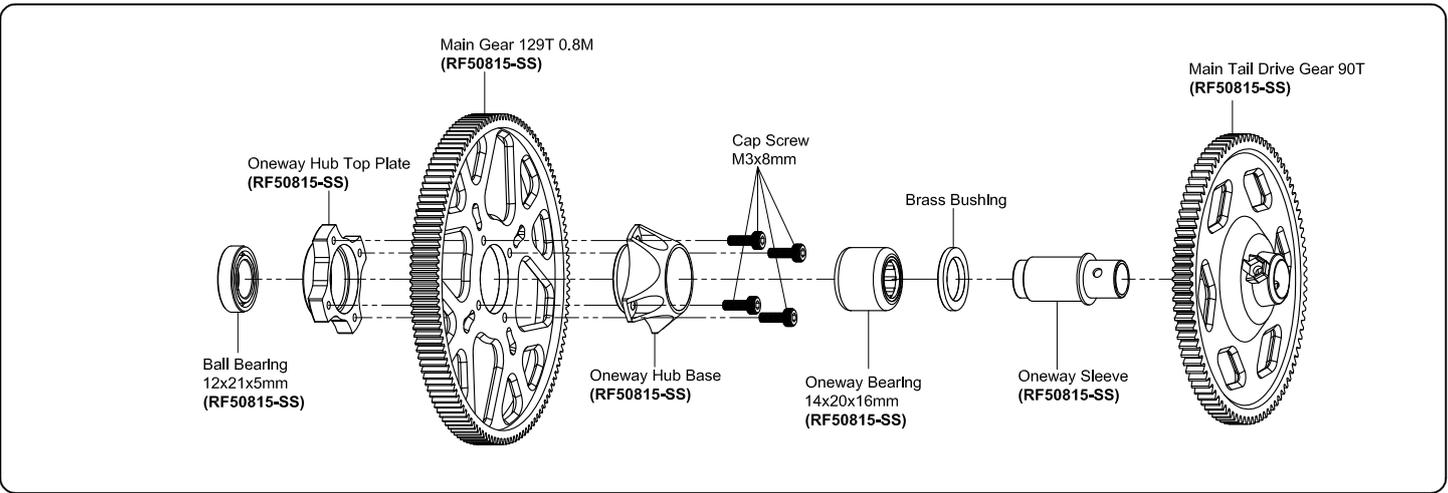
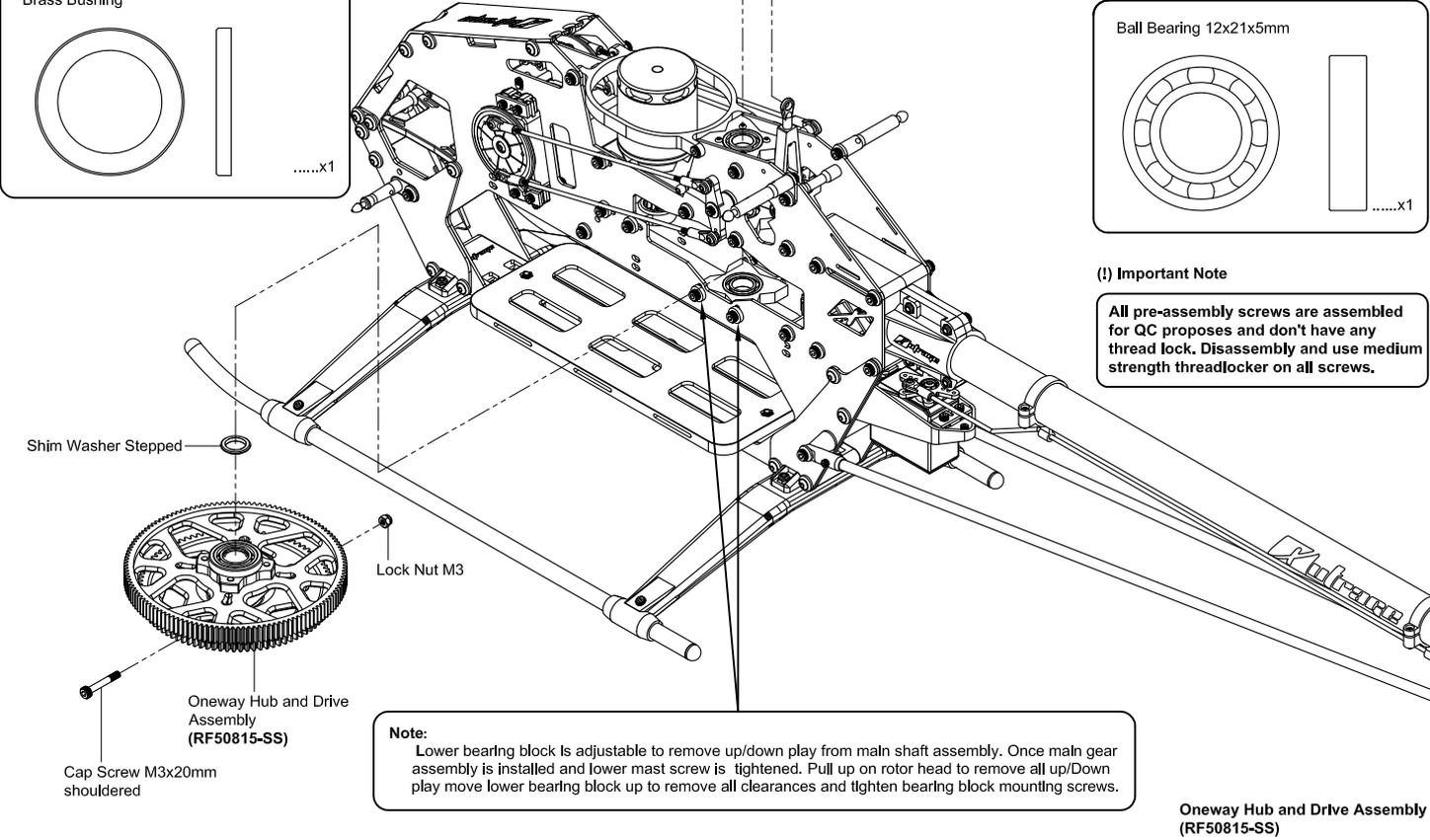
(!) Important Note

All pre-assembly screws are assembled for QC purposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

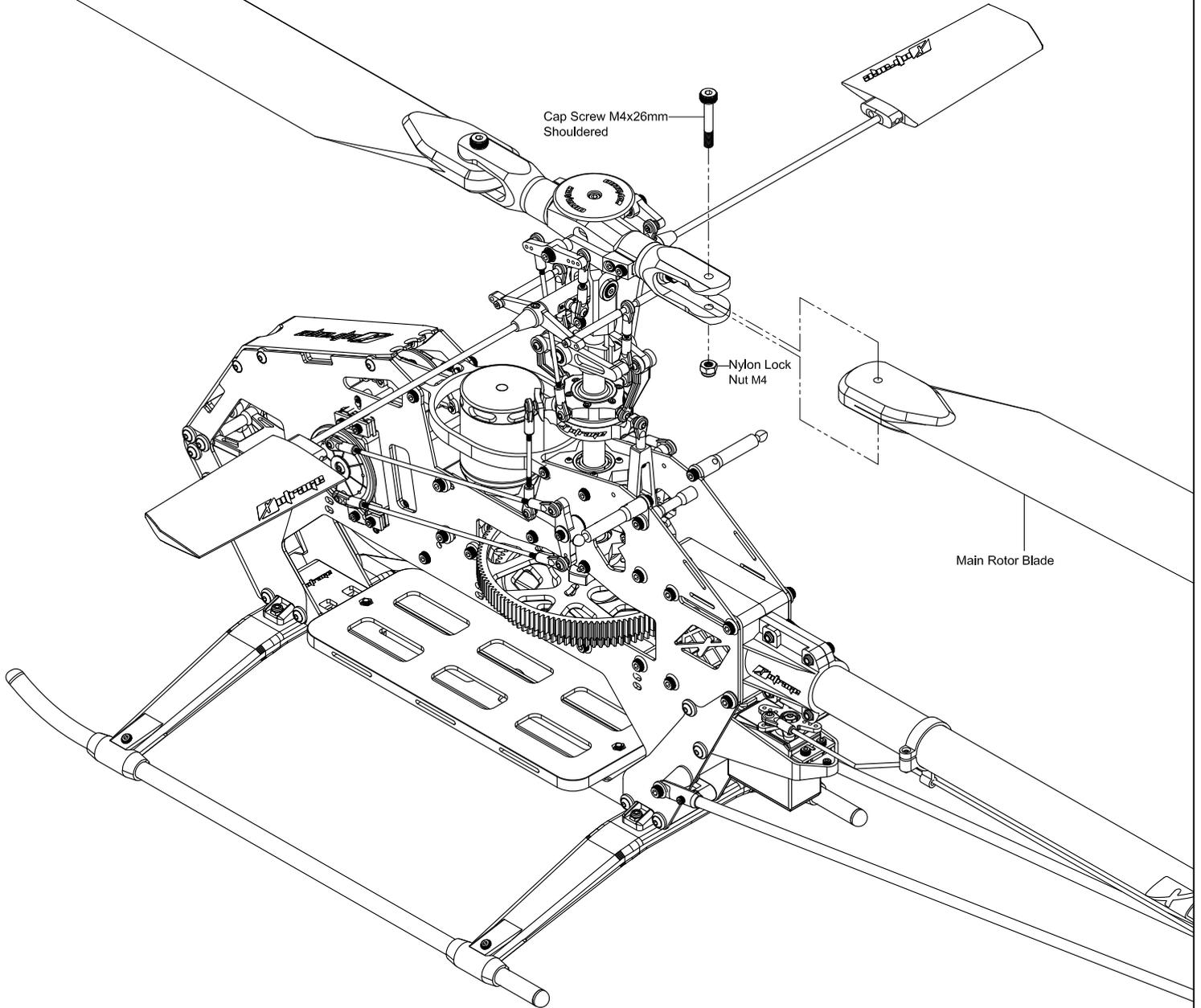
Note: Install mast screw in lower hole

Note: Lower bearing block is adjustable to remove up/down play from main shaft assembly. Once main gear assembly is installed and lower mast screw is tightened. Pull up on rotor head to remove all up/down play move lower bearing block up to remove all clearances and tighten bearing block mounting screws.

Oneway Hub and Drive Assembly (RF50815-SS)



At this point we recommend applying a small amount of lithium or silicone grease to all gears (main gear, tail drive gear, and front and rear bevel gears).

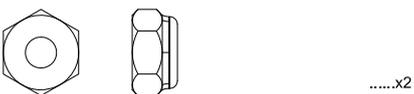


RF50808-SS

Cap Screw M4x26mm shouldered



Nylon Lock Nut M4



(!) Important Note

All pre-assembly screws are assembled for QC proposes and don't have any thread lock. Disassembly and use medium strength threadlocker on all screws.

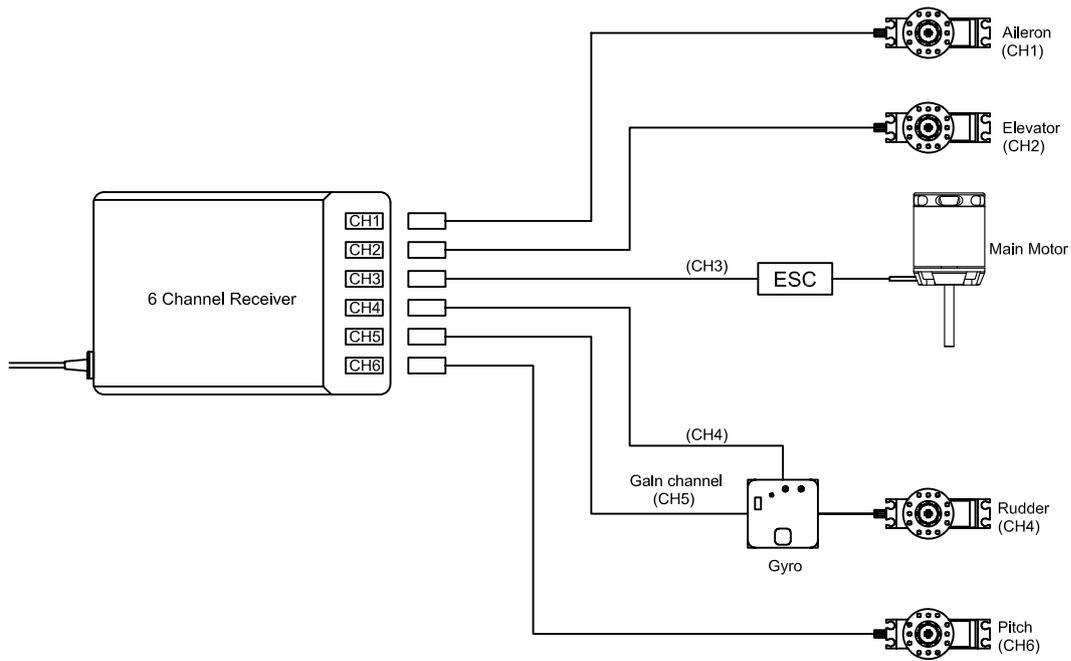


Diagram 1: FUTABA, HITEC 6CH receiver wiring

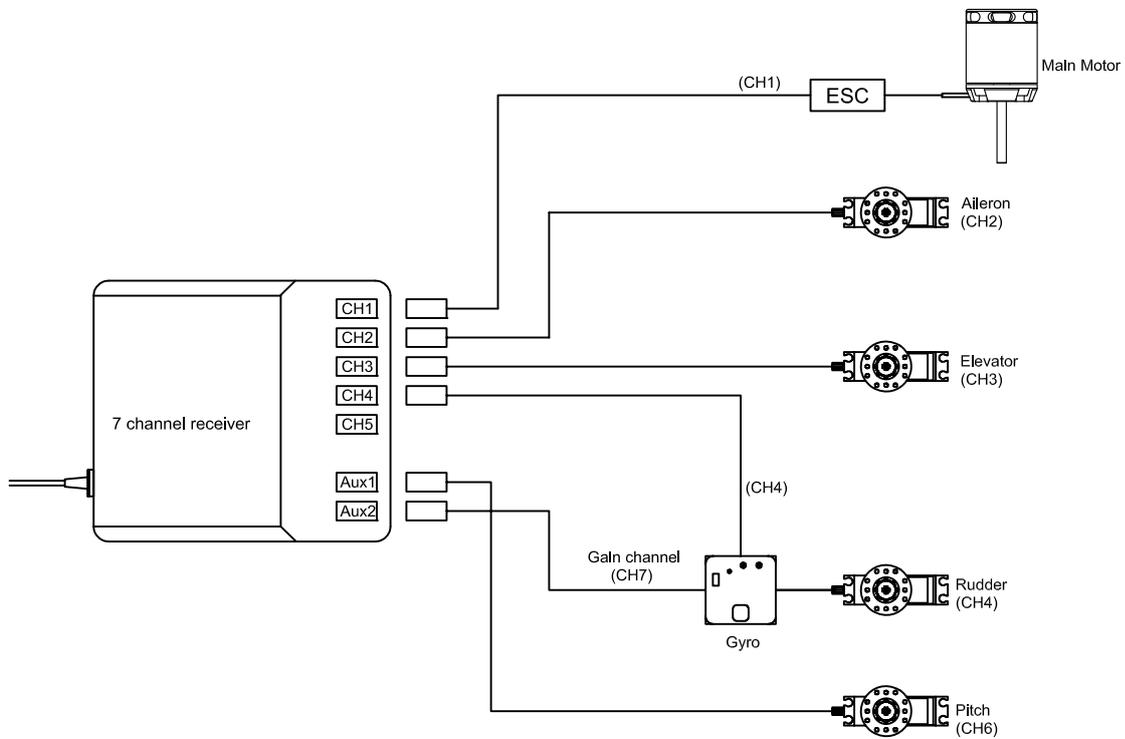
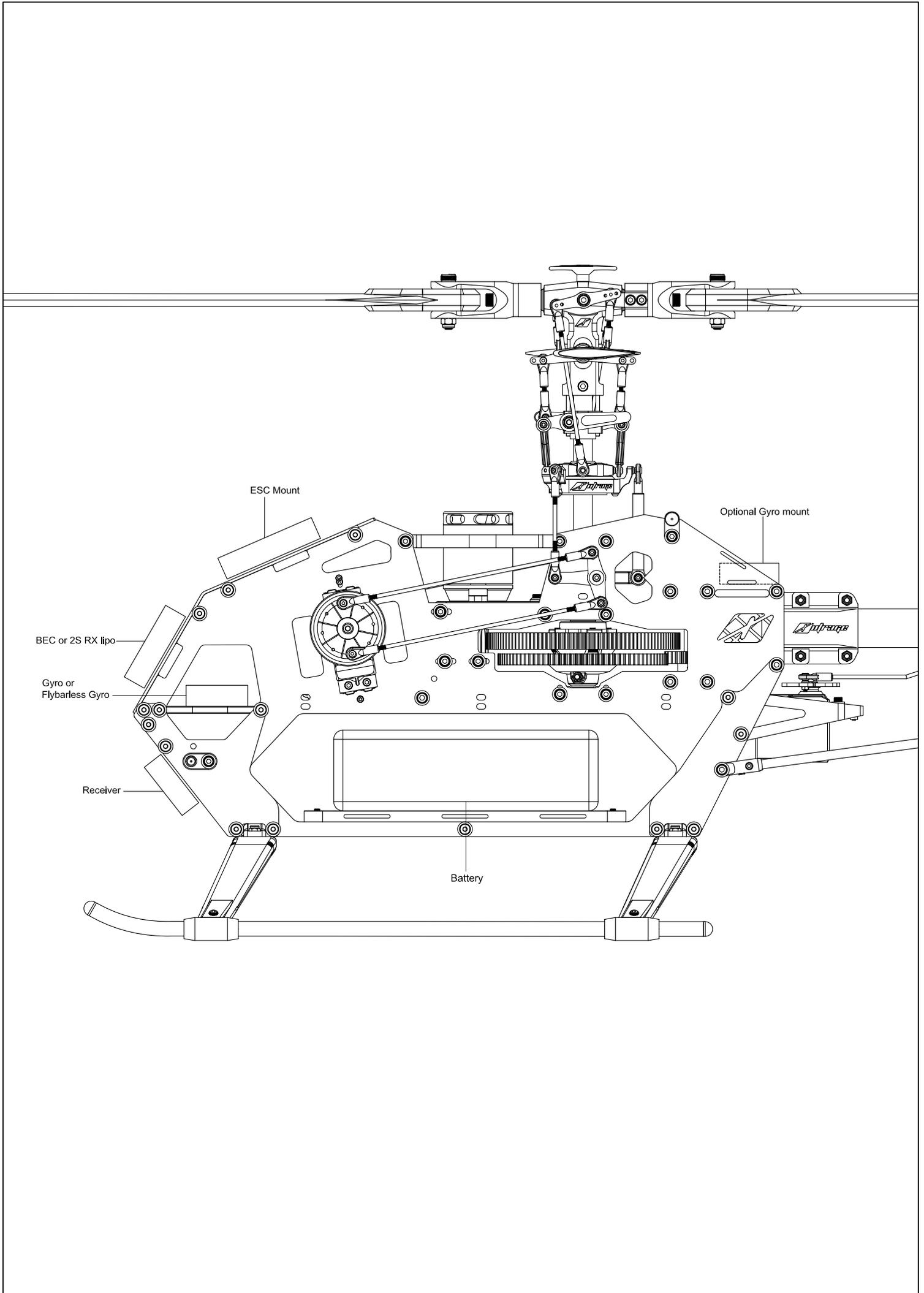
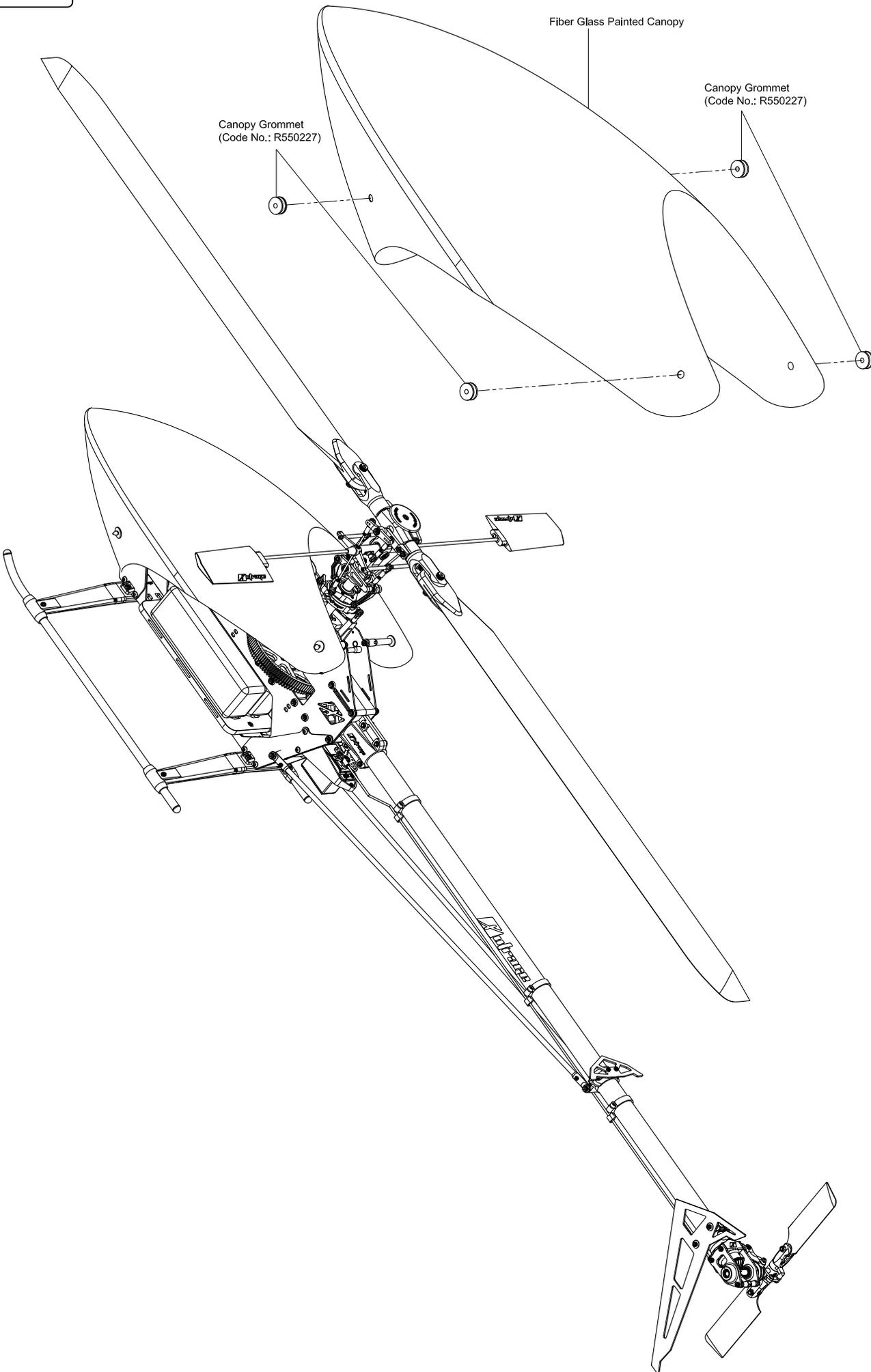


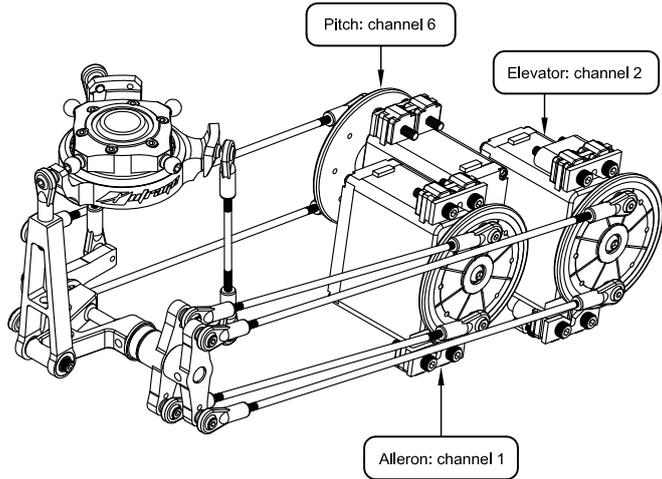
Diagram 2: JR 7CH receiver wiring





## Servo setting and adjustment

To perform servo setup and adjustment, turn on your transmitter and then power up the receiver



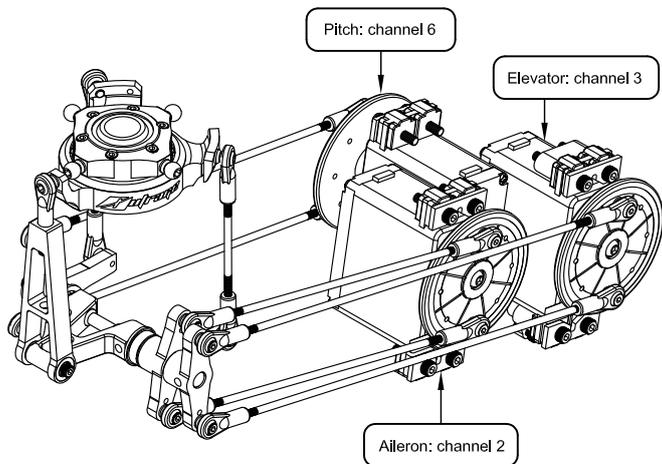
Futaba/Hitec transmitter servo position

Set transmitter to 120 (standard) or 140 (Optional, Upgrade) Degree CCPM mode, ensure all sub trims set to zero.

Set all servo travel values to 100. In the swash menu set values for pitch, Aileron, and Elevator to 50 initially (these values are only basic your final setup may vary). Move the throttle stick up and down all 3 servos must move together in the correct direction. If not use servo reverse or swash menu setting for proper operation. Move the Aileron / Elevator stick up / down, left / right if swash does not move in the correct direction reverse settings in the swash menu by dialing + or - values.

(Note: Channels 6 and 1 servos are interchangeable).

Level the swash plate using a leveling tool, and then add or subtract sub trim while the throttle stick is at center position. Move throttle stick to top use travel adjustment values to level swash. Move throttle stick down repeat travel adjustments.



JR/Spektrum transmitter servo position

Set transmitter to 120 (standard) or 140 (Optional, Upgrade) Degree CCPM mode, ensure all sub trims set to zero.

Set all servo travel values to 100. In the swash menu set values for pitch, Aileron, and Elevator to 50 initially (these values are only basic your final setup may vary). Move the throttle stick up and down all 3 servos must move together in the correct direction. If not use servo reverse or swash menu setting for proper operation. Move the Aileron / Elevator stick up / down, left / right if swash does not move in the correct direction reverse settings in the swash menu by dialing + or - values.

(Note: Channels 6 and 2 servos are interchangeable).

Level the swash plate using a leveling tool, and then add or subtract sub trim while the throttle stick is at center position. Move throttle stick to top use travel adjustment values to level swash. Move throttle stick down repeat travel adjustments.

## Adjustment for gyro and tail neutral setting

Note: We recommend using a heading hold gyro for best performance

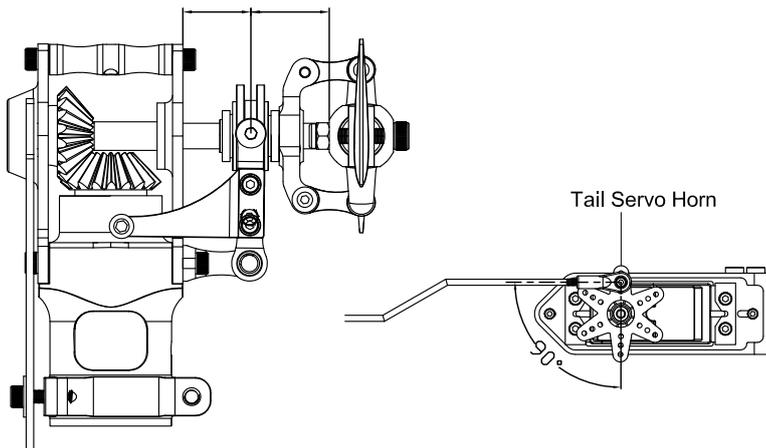
### Tail Neutral Setting

In your transmitter disable revolution mixing. Activate gyro mode in radio, set the gyro gain to a starting point of 65-75% this is a basic setting, results may vary depending on brand of equipment used reference manufacturers recommended settings.

When connecting power to helicopter reduce all movement to model, do not move transmitter rudder stick, and allow 3-5 seconds for gyro to initialize. Upon gyro initialization the servo horn should position itself to 90 degrees to servo center line. See diagram below.

Set tail blade pitch similar to diagram below by adjusting linkage rod length.

Middle tail pitch assembly

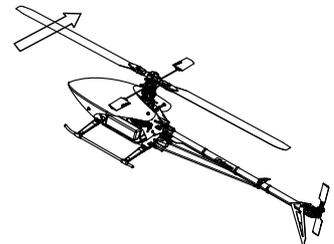


Next set the direction of the transmitter rudder function - when you move the rudder stick to the left, the ball on the tail rotor servo horn should travel toward the rear of the helicopter. Use the transmitter reversing function to correct this.

Now check the gyro responds to helicopter movement in the correct manner.

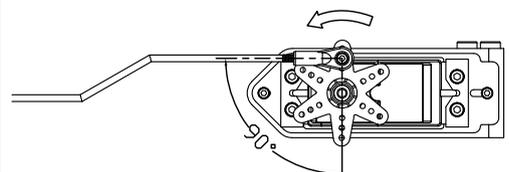
To check correct gyro setting turn the nose of helicopter right, the linkage ball on tail rotor servo horn should travel towards the rear of the helicopter.

If it does not, change direction switch (normal or reverse) on gyro (not in the transmitter).



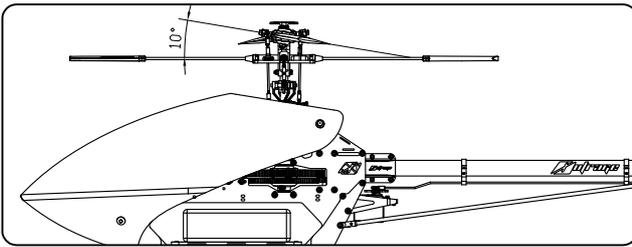
To test the gyro direction, move the nose of the helicopter right.

Trim direction for tail servo horn.

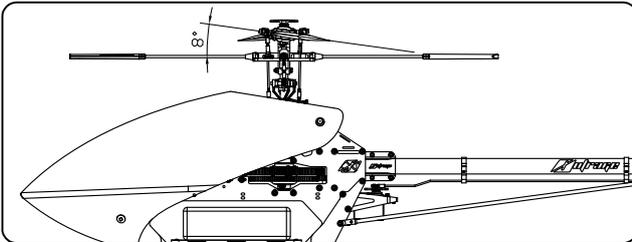


# PITCH AND THROTTLE SETTING

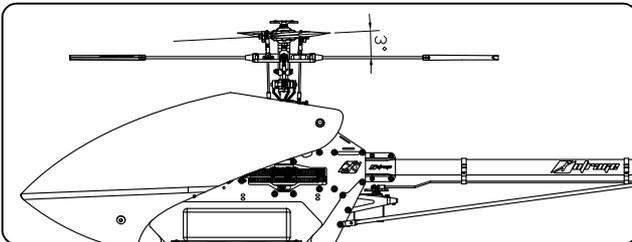
## General Flight



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

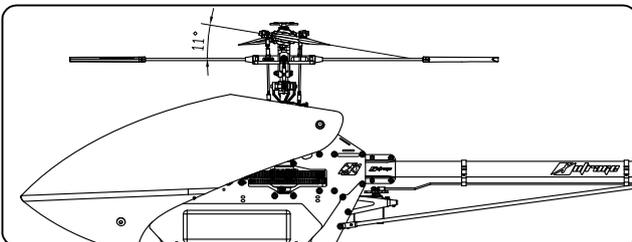


Stick position at Hovering/Throttle 70%~75%/Pitch +7°

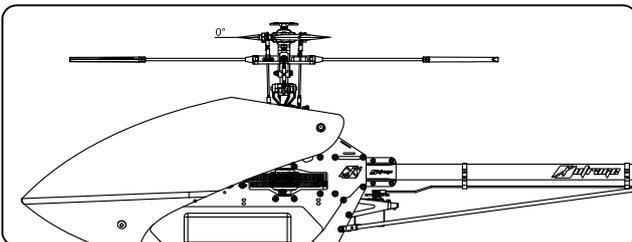


Stick position at low/Throttle 0%/Pitch -3°

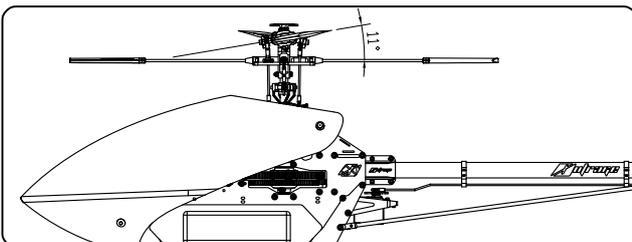
## 3D Flight



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



Stick position at middle/Throttle 80~85%/Pitch 0°



Stick position at low/Throttle 100%/Pitch -11°

### NOTE!

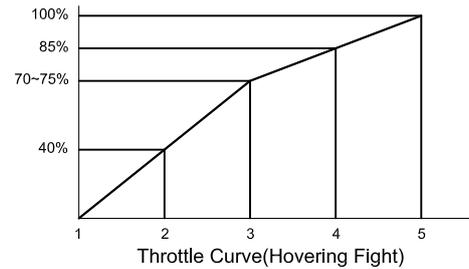
- Recommended Head speed for 3D flight 2150 RPM

! Caution: For safety of flight and helicopter structure. Main rotor speed should not Exceed 2250 RPM or maximum RPM set by rotor blade manufacturer.

### GENERAL FLIGHT

	Throttle	Pitch
5	100%High Speed	+10°
4	85%	
3	70~75%Hovering	+8°
2	40%	
1	0% Low Speed	-3°

Note: Recommend head speed for general flight for beginner / intermediate.



### Pitch curve setting

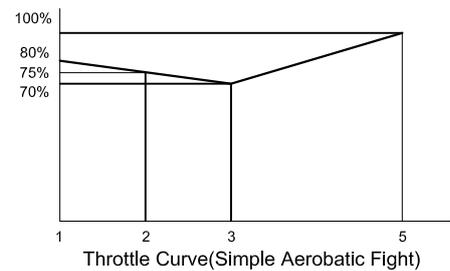
- Refer to your radio transmitter's instruction manual for specific curve setting descriptions.
  - Adjust your radio's pitch curve percentages so the following suggested pitch curve degrees are measured on your helicopter at low, mid and high points using a pitch gauge.
- Note: Flight results may vary depending on engine, servos, battery, etc...  
This data is to be used as a general guideline only.

### Throttle Curve Setting

Throttle curve may vary due to motor, pinion, ESC, Battery, weather, etc... graphs and data provided in this manual are basic starting points only and may require fine tuning after first flight has been made.

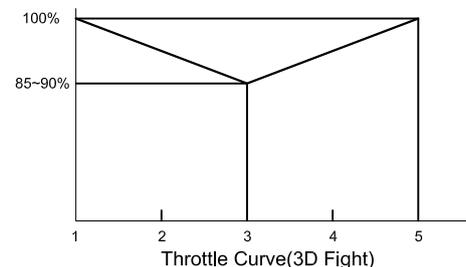
### IDLE 1: SPORT FLIGHT

	Throttle	Pitch
5	100%	+11°
4	75%	
3	70%	+5°~ +6°
2	75%	
1	80%	-6°~ -5°



### IDLE 2: 3D FLIGHT

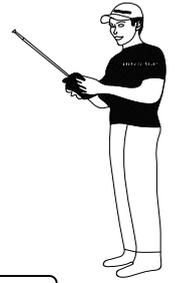
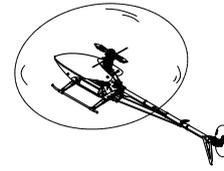
	Throttle	Pitch
5	100% High	+11°
3	85%~90% Middle	0°
1	100% Low	-11°



# GENERAL FLIGHT INFORMATION FOR BEGINNERS

For new pilots we highly recommend the use of computer aided flight simulation software. If you use such programs you will increase the chances of successfully flying your Helicopter. This software can aid any level of pilot - from beginner or intermediate to advanced 3D flight practice - all aiding to reduce crash costs!

For beginner pilots we recommend the use of flight Training gear to help reduce the possible of tipping the helicopter over on landings.



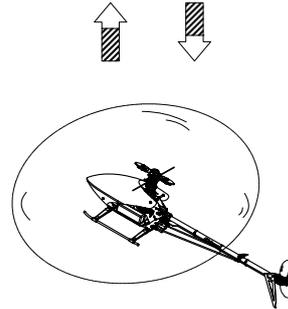
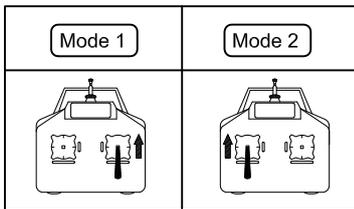
Please stand approximately 5m diagonally behind the helicopter.

### CAUTION

Make sure that there are no obstacles, animals or people are in the vicinity. You must first practice hovering. (keeping the helicopter in mid air in a fixed position) as a prerequisite to safe flying. This is a basic flight action.

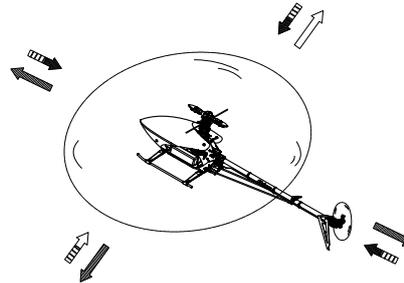
## Throttle Practice

1. Slowly increase the throttle - when the helicopter begins to lift off the ground, slowly lower the throttle stick and land the helicopter.
2. Continue to practice raising and lowering the helicopter from the ground until you feel comfortable with the procedure.



## Aileron and elevator practice:

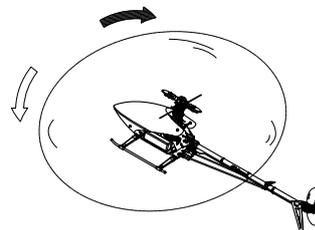
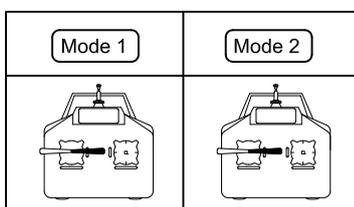
1. Slowly raise the throttle stick
2. If the Helicopter moves in any direction (forward, back, left, or right) gently move the aileron and elevator sticks in the opposite direction to return the Helicopter to its original position.



Mode 1	Mode 2	Illustration

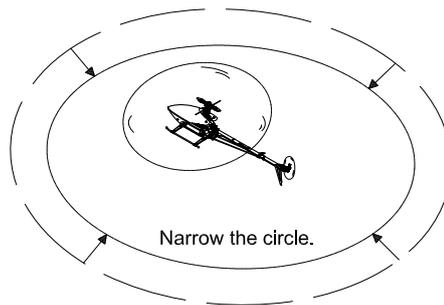
## Yaw practice:

1. Slowly increase the throttle to lift the helicopter from the ground.
2. If the nose of the Helicopter moves left or right, gently move the rudder stick in the opposite direction to get the nose of the helicopter back to its original position.



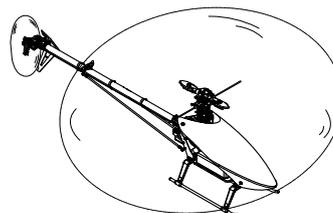
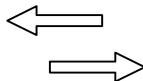
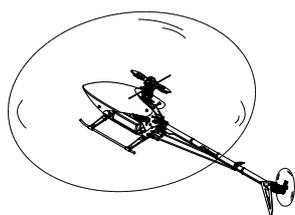
**Practice an Accurate Hover :**

After you feel comfortable with the above procedures, you can draw a circle on ground and practice flying the helicopter within that circle to increase your flying skills and accuracy. As your skill increases you can narrow the circle.



**Changing Helicopter Orientation During Hover:**

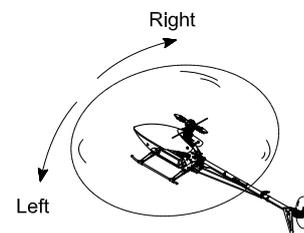
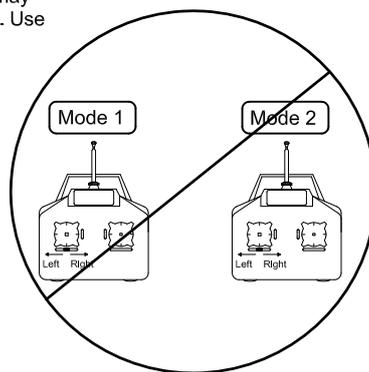
After you feel comfortable with the above practice procedures, stand and face the helicopters left side - hover in this position until comfortable. Next use rudder and turn helicopter so you are looking at its right side. After you are comfortable in these orientations slowly transition to a nose in hover. Achieve this by incrementally progressing to the point that the nose is pointing directly at you. Think of this as digits on a clock - You should be able to already fly comfortable with nose facing 12:00, 3:00, and 9:00 slowly turn nose of helicopter to 8:00, 7:00, 6:00. and also rotate from opposite 4:00, 5:00, 6:00. Practice this until you are comfortable and you are able to rotate helicopter 360 degrees in both directions either left or right.



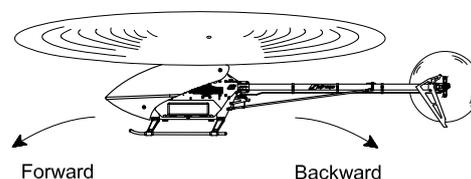
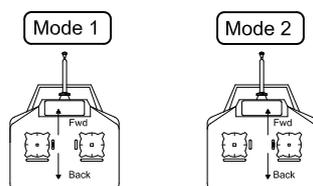
**ADJUSTMENT OF EACH TRIM**

-Performing trim adjustments is better achieved if there is little wind.  
 -Slowly increase the throttle and as helicopter lifts off the ground you may notice leaning towards one side or the other, or tilting forward or back. Use the trim levers on your transmitter to correct this as required.

1. Adjust of yaw (rudder) trim: With today's heading hold gyros th use of sub trim or slide action trims on transmitter is not needed nor recommended. Refer to the instructions provided by your gyro manufacturer for proper installation and setup (or seek assistance).

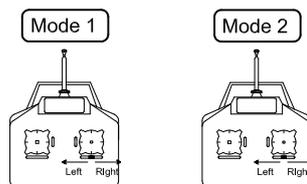


2. Adjustment for elevator trim. Just as the helicopter lifts - off, note if the nose moves forward or back. If the nose leans forward move the trim lever back toward you. If the helicopter moves backward move the trim lever forward (away from you).



3. Adjustment for aileron trim. Just as the helicopter lifts off note if the body leans left or right.

- For left movement move the trim lever toward the right.
- For right movement move the trim lever left.



**CAUTION**

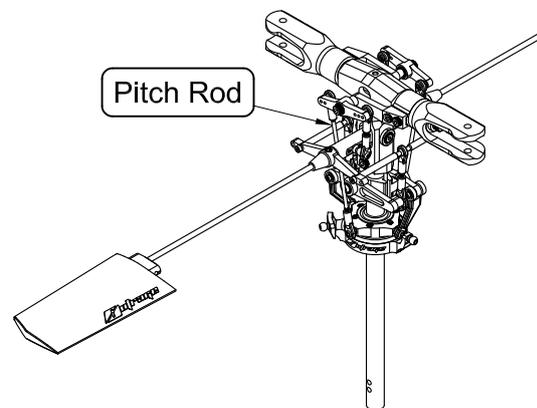
Blade tracking adjustment can be very dangerous, maintain a minimum distance of 5 feet from the helicopter while performing this action!

Prior to adjusting blade tracking we recommend affixing a piece of red tape (or using a permanent red marker) to mark one blade tip. Increase the throttle slowly and stop just before the helicopter lifts - off the ground. Carefully look at the spinning blades from the side of the helicopter - in particular look at the path of the tips of the rotor blades. If both blades rotate in same path forming a single disk no adjustment is necessary. If they do not travel in same path two blades will be seen. Look for the red tape or mark at the blade tip and note if it is higher or lower than the non marked blade.

-If it is higher decrease pitch rod length on marked blade.

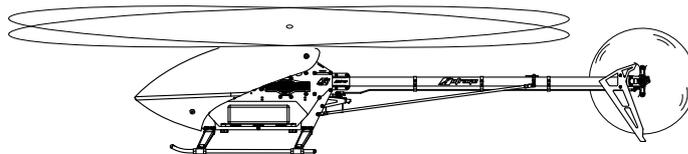
-If it is lower increase pitch rod length on marked blade.

For large variations in tracking adjustment of both blade pitch rods may be required - increasing the length of one and decreasing the length of the other.



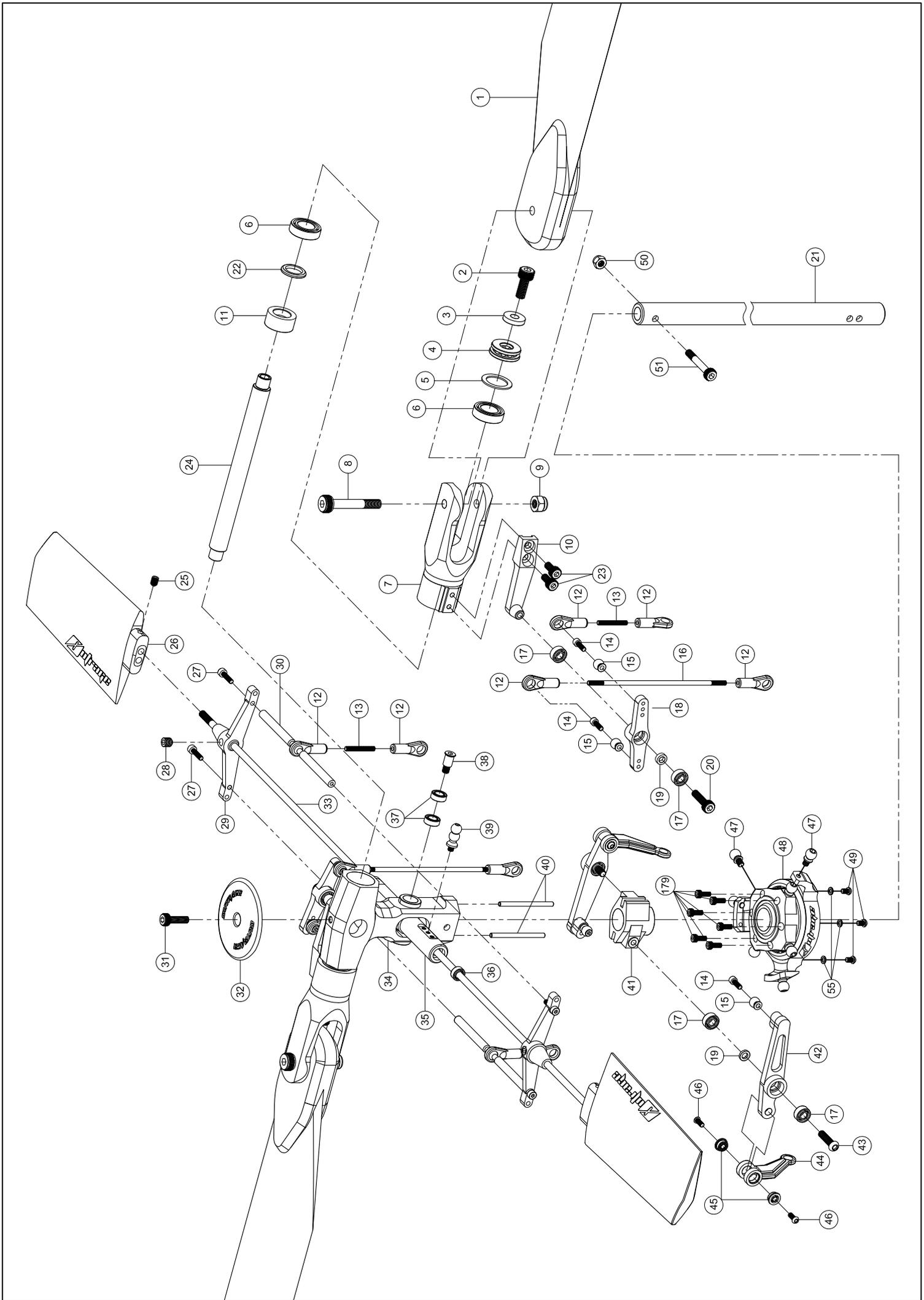
**CAUTION**

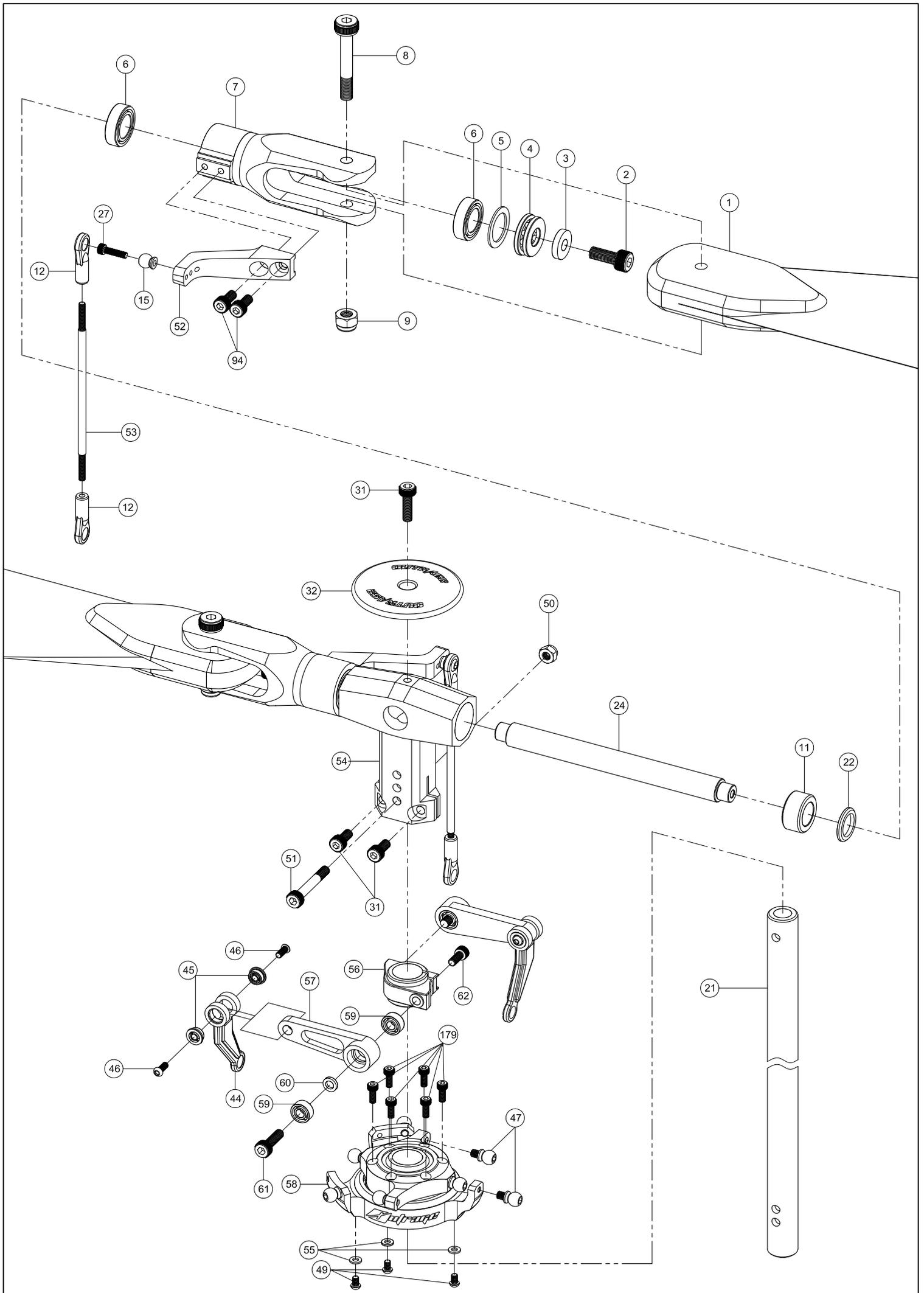
Incorrect tracking may cause vibration. Repeat the tracking adjustment until both rotor blades rotate in the same plane. After adjusting the tracking confirm the pitch angle while hovering remains at approximately +6 degrees.

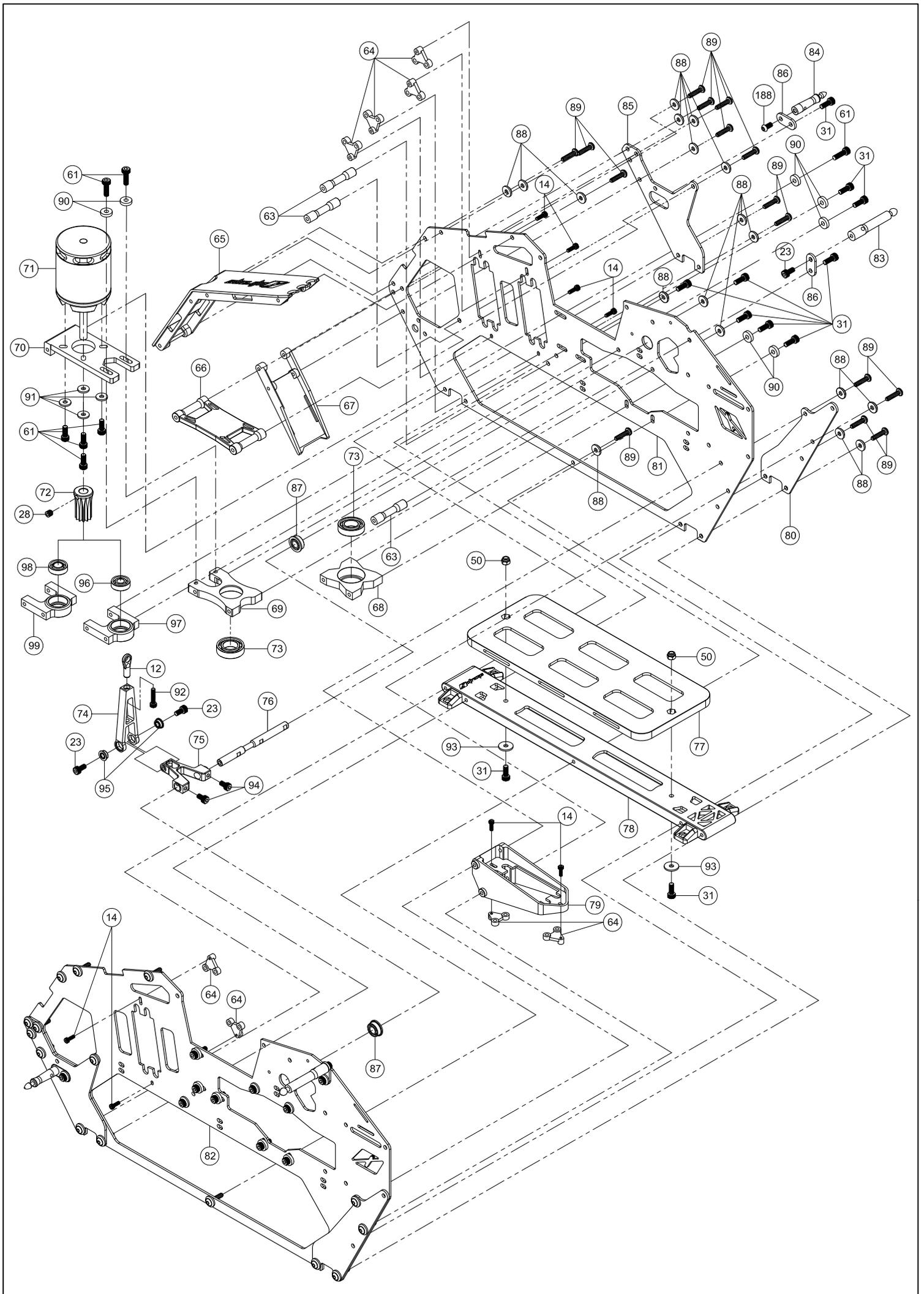


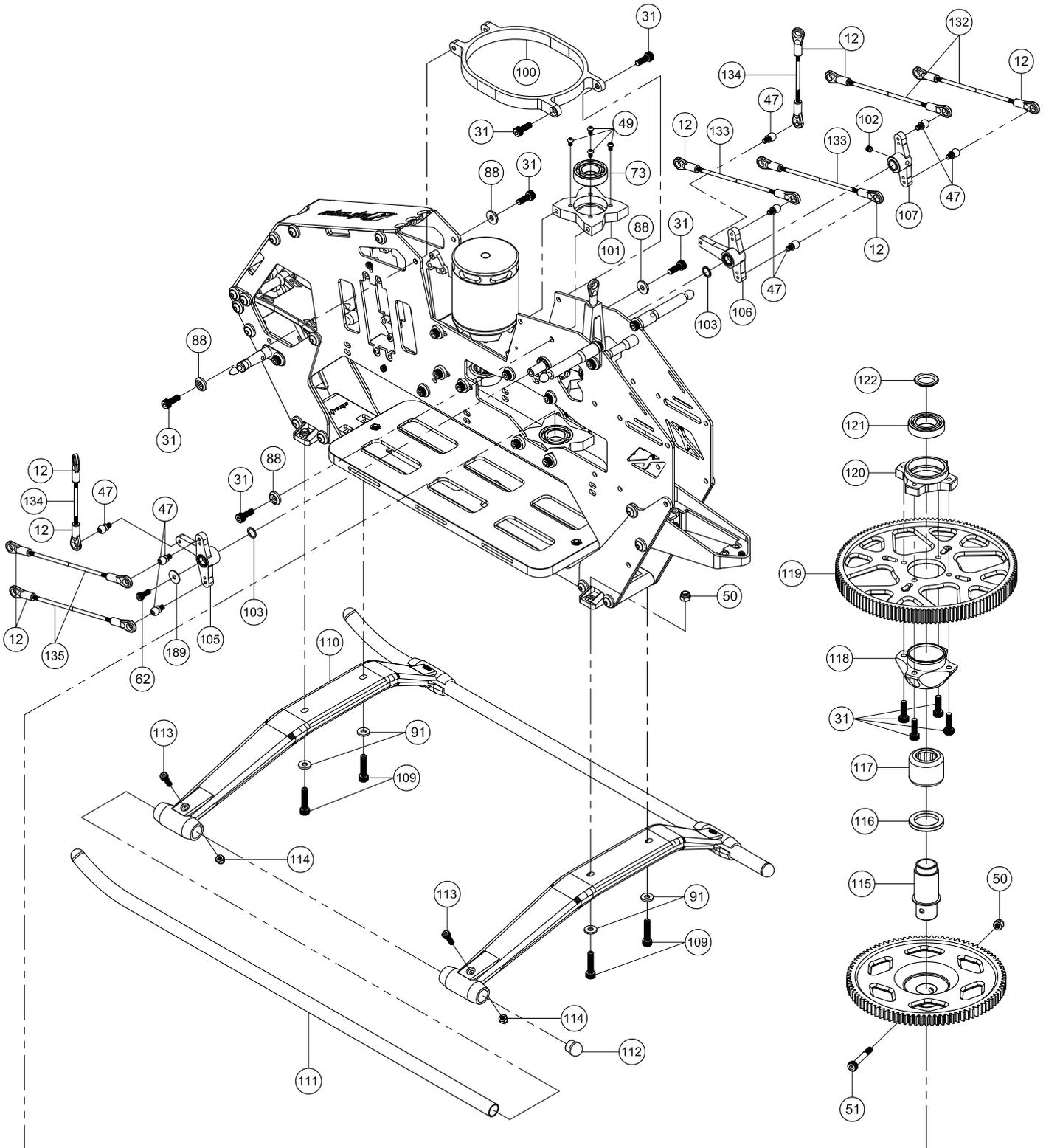
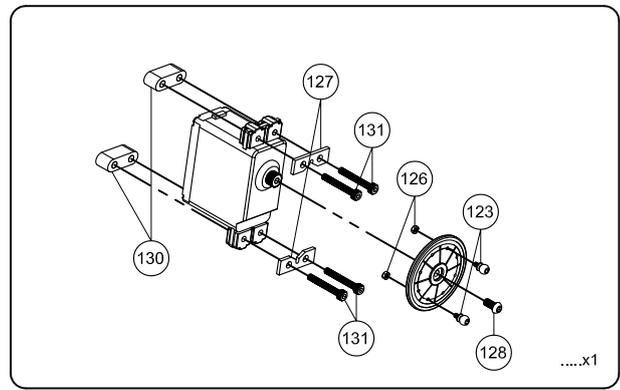
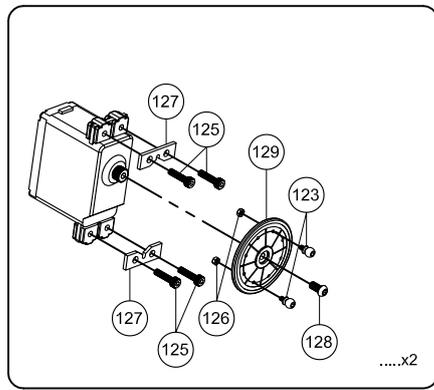
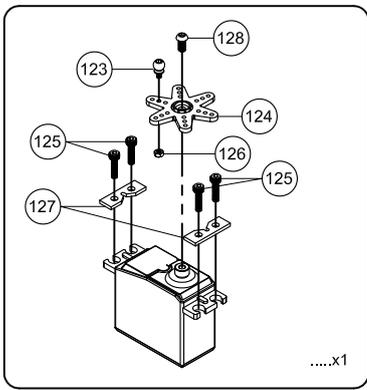
**TROUBLE SHOOTING DURING FLIGHT**

	Problem	Possible Cause	Possible fix
<b>Blade Tracking</b>	Blades out of track	<ul style="list-style-type: none"> <li>• Pitch rod adjustment has not been done.</li> <li>• Incorrect length of linkage rods.</li> <li>• Faulty or mismatched blade balance.</li> <li>• Damaged radial or thrust bearings.</li> <li>• Bent spindle shaft.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust pitch rod(s).</li> <li>• Verify rotor head linkage set up &amp; verify fly bar paddles are installed correctly.</li> <li>• Verify blade balance, install a new set of blades.</li> <li>• Replace the spindle shaft and replace the blade grip radial or thrust bearings as necessary.</li> </ul>
<b>During Hovering</b>	Low rotation speed of the main rotor	<ul style="list-style-type: none"> <li>• Main blade pitch is too high.</li> <li>• Throttle curve is too low during hovering.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower the pitch 5-6° during hovering (the rotor rpm should be about 2000 - 2,200rpm during hovering).</li> <li>• Increase the throttle curve at the hovering position.</li> </ul>
	High rotation speed of the main rotor	<ul style="list-style-type: none"> <li>• The pitch of main blades is too low.</li> <li>• The throttle curve is too high during hovering.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the pitch rod(the rotor rpm should be about 2000 - 2,200rpm during hovering).</li> <li>• Lower the throttle curve at the hovering position.</li> </ul>
<b>Tail rotor Stability</b>	During hover the tail moves or drifts one way.	<ul style="list-style-type: none"> <li>• Failure to set the tail neutral point.</li> <li>• The sensitivity of the gyro is low.</li> <li>• Improper gyro installation</li> </ul>	<ul style="list-style-type: none"> <li>• Reset the tail neutral point.</li> <li>• Increase the gyro sensitivity.</li> <li>• Use approved gyro mounting tape and verify gyro instructions as recommended by the gyro manufacturer.</li> </ul>
	The tail wags left and right during flight at hovering or full speed.	The sensitivity of the gyro is too high.	Decrease the sensitivity.











Exploded views contain both Flybar and Flybarless versions part quantities and included componets will vary depending on your chosen kit.

No.	Code No.	Name	Specification	Quantity	Remarks
1		Main Rotor Blade		4	
2	R550710	Cap Screw	M4 x 10mm	4	
3	R550711	Flat Washer	Ø4 x Ø10 x 2mm	4	
4	R50N402	Thrust Bearing (F6-14M)	Ø6 x Ø14 x 5mm	4	
5	R50N450	Thrust Washer	Ø10 x Ø14 x 0.6mm	4	
6	R50N401	Ball Bearing (MR148ZZ)	Ø8 x Ø14 x 4mm	12	
7	RF50010	Blade Grip		4	
8	R550714	Cap Screw Shouldered	M4 x 26mm	4	
9	R550715	Lock Nut	M4	4	
10	RF50011	Blade Grip Arm		2	
11	R550225	Damper Red 80	Ø8 x Ø13 x 6.5mm	4	
	R50N007	Damper Black 90	Ø8 x Ø13 x 6.5mm	4	
12	R550205	Plastic Ball Link		35	
13	R550411	Linkage Rod	M2 x 15mm	4	
14	R550732	Cap Screw	M2 x 6mm	18	
15	R550160	Linkage Ball	4.75 x 5mm	10	
16	R550410	Linkage Rod	M2 x 72mm	2	
17	RG50335	Ball Bearing	Ø3 x Ø8 x 3mm	8	
18	R550102	Upper Mixing Arm CNC		2	
19	R550152	Brass Bearing Spacer	Ø3 x Ø5 x 1.9mm	4	
20	R550728	Cap Screw	M3 x 12mm	6	
21	R550172	Main Shaft		2	
22	R50N450	Thrust Washer	Ø10 x Ø16 x 0.6mm	4	
23	R550724	Cap Screw	M3 x 6mm	4	
24	R50N008	Spindle Shaft		2	
25	R550727	Set Screw	M3 x 5mm	2	
26	R550209	Paddle, Programmable X3D 550		2	
27	R550717	Cap Screw	M2 x 8mm	8	
28	R550718	Set Screw	M4 x 4mm	4	
29	R550104	Flybar Carriage Base		2	
30	R550178	Flybar Control Rod		2	
31	R550722	Cap Screw	M3 x 8mm	38	
32	R550141	Head Button		2	
33	R50N003	Flybar Rod	M3 x 400 mm	1	
34	R50N002	Center Hub		1	
35	R550103	Seesaw		1	
36	R550610	Ball Bearing	Ø3 x Ø6 x 2.5mm	2	
37	R550609	Ball Bearing	Ø4 x Ø7 x 2.5mm	4	
38	R50N460	Shouldered Cap Screw	M3	2	
39	R550180	Double Linkage Ball	4.75 x 11mm	2	
40	R550183	Phasing Pin		2	
41	R50N005	Washout Base		1	

No.	Code No.	Name	Specifcation	Quantity	Remarks
42	R550108	Lower Mixing Arm CNC		2	
43	BSM3x12	Button Head Cap Screw	M3 x 12mm	2	
44	R550211	Radius Arm		4	
45	R550618	Ball Bearing Flanged	Ø2 x Ø5 x 2.3mm	10	
46	R550745	Button Head Cap Screw	M2 x 5mm	8	
47	R50N160	Linkage Ball	4.75*8mm / M2.5	23	
48	R50N512	Swash Plate Standard		1	
49	R550731	Button Head Cap Screw	M2 x 3mm	10	
50	R550729	Lock Nut	M3	15	
51	R550713	Cap Screw Shouldered	M3 x 20mm	2	
52	R50N013	Grip Arm Flybarless		2	
53	R50N014	Linkage Rod	M2 x 61 x 2.5OD mm	2	
54	R50N010	Flybarless Center Hub		1	
55	R550707	Flat Washer	Ø2 x Ø4 x 0.5mm	6	
56	R50N011	Swash Driver Base		1	
57	R50N012	Swash Driver Lever		2	
58	R50N511	Swash Plate Flybarless		1	
59	R550611	Ball Bearing		4	
60	R550161	Brass Bearing Spacer	Ø3 x Ø5 x 1mm	2	
61	R550738	Cap Screw	M3 x 10mm	27	
62	R550743	Cap Screw	M2.5 x 6mm	5	
63	R550122	Frame Spacer	M3	3	
64	R90N259	Servo Mount Tab CNC		8	
65	RF50313	Electronics Tray		1	
66	RF50314	Gyro Tray		1	
67	R550213	Gyro Tray (Auxiliary)		1	
68	R550121	Main shaft Bearing Block Bottom		1	
69	R550120	MidShaft Bearing Block		1	
70	RF50321	Motor Mount		1	
71		Motor		1	
72		Pinion (5mm motor shaft)	12T / 14T / 16T	1	
		Pinion (6mm motor shaft)	12T / 14T / 16T	1	
73	R550602	Ball Bearing	Ø10 x Ø19 x 5mm	3	
74	RF50325	Elevator "A" Arm		1	
75	RF50326	Elevator Arm		1	
76	RF50303	Control Rod 120 Deg.		2	
77	RF50316	Battery Tray		1	
78	RF50315	Base Frame		1	
79	RF50317	Tail Servo Mount		1	
80	RF50504	Rear Frame Doubler		2	
81	RF50502	Right Side Frame		1	
82	RF50501	Left Side Frame		1	
83	R50N253	Canopy Post Upper		2	

No.	Code No.	Name	Specfication	Quantity	Remarks
84	RF50311	Canopy Post Front		2	
85	RF50503	Front Frame Doubler		2	
86	R550066	Break Away Tab		4	
87	R90N407	Ball Bearing Flanged	Ø5 x Ø10 x 4mm	2	
88	R550721	Finishing "C" Washers	M3	58	
89	R550725	Self Tapping Socket Screw	M3 x 12mm	30	
90	W3x8x2	Flat Washer	Ø3 x Ø8 x 2mm	12	
91	R550723	Flat Washer	Ø3 x Ø8 x 1mm	14	
92	SM2.5x12	Cap Screw	M2.5 x 12mm	3	
93	W3x10x1	Flat Washer	Ø3 x Ø10 x 1mm	2	
94	RG50330	Cap Screw	M3 x 5mm	10	
95	R550615	Ball Bearing Flanged	Ø3 x Ø6 x 2.5mm	2	
96	R50N404	Ball Bearing	Ø5 x Ø13 x 4mm	1	
97	RF50108	Pinion Support		1	
98	RF50836-6-SS	Ball Bearing ( Option )	Ø6 x Ø13 x 5mm	1	
99		Pinion Support ( Option )		1	
100	RF50322	Support Brace		1	
101	R550113	Main shaft Bearing Block Top		1	
102	R550730	Set Screw	M3 x 3mm	1	
103	RF50319	Shim Washer	Ø5 x Ø6.5 x 0.5mm	2	
104	R550227	Flat Washer	Ø2.5 x Ø8 x 0.5mm	2	
105	RF50324	Pitch Bell Crank Assembly		1	
106	RF50328	Aileron Bell Crank Assembly		1	
107	RF50323	Elevator Bell Crank		1	
108	R550229	Foam Blade Holder		1	
109	R550223	Cap Screw	M3 x 14mm	4	
110	R90N250	Landing Gear Strut White		2	
111	R50N267	Landing Gear Strut Tube		2	
112	R90N251	Strut tube cap (White)		4	
113	R550712	Cap Screw	M2.5 x 8mm	8	
114	R90N479	Lock Nut	M2.5	6	
115	RF50103	Oneway Sleeve		1	
116	RF50106	Brass Bushing		1	
117	R50N409	Oneway Bearing	Ø14 x Ø20 x 16mm	1	
118	RF50104	Oneway Hub Base		1	
119	R50N111	Main Gear (Injection)	129T .8 Mod	1	
120	RF50101	Oneway Hub Top Plate		1	
121	RF50107	Ball Bearing	Ø12 x Ø21 x 5mm	1	
122	RF50105	Shim Washer Stepped		1	
123	RF50336	Linkage Ball	4.75 x 5mm / M2	7	
124		Servo Horn		1	
125	R550747	Cap Screw	M2.5 x 10mm	14	

No.	Code No.	Name	Specification	Quantity	Remarks
126	R550717	Nut	M2	11	
127	R550005	Servo Spacer		8	
128		Screw supplied with Servo		4	
129		Servo Wheel		3	
130	RF50318	Servo Stand Off		2	
131	RG50326	Cap Screw	M2.5 x 19mm	4	
132	RF50329	Linkage Rod	M2 x 145mm	2	
133	R50N201	Linkage Rod	M2 x 98mm	2	
134	R550404	Linkage Rod	M2 x 40mm	2	
135	R50N202	Linkage Rod	M2 x 120mm	2	
136	R50N301B	Boom Mount		1	
137	R50N258	Hex insert Short		2	
138	R50N255B	Hex Insert Long		6	
139	R50N262	Bearing Spacer	Ø12 x Ø14 x 8.8mm	1	
140	R50N406	Ball Bearing	Ø12 x Ø18 x 4mm	4	
141	R50N304	Tube Bevel Gear (C)	18T	1	
142	R550734	Roll Pin	Ø2 x 12mm	3	
143	R50N302	Tail Drive Counter Gear	24T	1	
144	R50N303	Tail Drive Bevel Gear (D)	22T	6	
145	R50N305	Counter Gear Shaft		1	
146	R50N405	Ball Bearing	Ø4 x Ø9 x 4mm	2	
147	R50N205	Tail Blade CF	95mm	2	
148	R550616	Thrust Bearing (F4-9)	Ø4 x Ø9 x 4mm	2	
149	R550155	Thrust Washer	Ø7.2 x Ø8.9 x 0.4m	2	
150	R550613	Ball Bearing	Ø4 x Ø9 x 3mm	4	
151	RF50728	Cap Screw Shouldered	M3 x 16mm	2	
152	RF50624	Blade Grip		2	
153	R550173	Tail Rotor Hub		1	
154	RF50613	Grip Link		2	
155	RF50616	Shoulder Screw	M2	2	
156	RF50826	Tail Pitch Slider Assembly		1	
157	RF50617	Pin Screw	M3	2	
158	RF50621	Bellcrank Lever		1	
159	RF50622	Linkage Lever		1	
160	RF50623	Bellcrank Base		1	
161	RF50620	Tail Side Plate, Right		1	
162	RF50619	Tail Side Plate, Left		1	
163	R550063-V	Vertical Fin	1.5mm	1	
164	R550063-H	Horizontal Fin	1.5mm	1	
165	R50N312	Tail Shaft Spacer	Ø5 x Ø5.6 x 12.75m	1	
166	R50N313	Tail Case Spacer		1	
167	R50N932	Tail Rotor Shaft Assembly		1	

No.	Code No.	Name	Specfication	Quantity	Remarks
168	R50N316	Tail Bevel Gear 18T		1	
169	R550612	Ball bearing	Ø5 x Ø11 x 4mm	2	
170	RF50618B	Tail Case Hub		1	
171	R50N317B	Tube Shaft Spline		2	
172	RF50601	Tail Push Rod	685mm	1	
173	R550220	Tail Rotor Push Rod Guide (Plastic)		3	
174	R50N456	Seft Tapping Hex Socket Screw	M2 x 10mm	3	
175	R50N321	Tail Boom	Ø20 x Ø21 x 710mm	1	
176	R50N509	Stabilizer Mount		1	
177	R50N318	Tube Bearing Support		2	
178	R550707	Flat washer	Ø2 x Ø4 x 0.5mm	2	
179	R550753	Cap Screw	M2 x 5mm	14	
180	R550717	Cap Screw	M2 x 10mm	4	
181	R50N508	Front Support Stand off		2	
182	R50N507	Front Support Threaded Spacer		1	
183	R550124	Boom Support End		4	
184	R50N459	Cap Screw	M3 x 25mm	2	
185	R550226	Boom Support CF Rod		2	
186	R50N315	Tube Shaft	Ø7 x Ø8 x 710mm	1	
187	E00006A	Screw Pin	M3 x 8mm	1	
188	R550451	Button Head Cap Screw	M3 x 6mm	2	