Compass

LEADING THE WAY

700 CLASS
ELECTRIC HELICOPTER

7HV

Instruction Manual

- Length: 1372mm
- Height: 403mm
- Rotor diameter: 1560mm
- Gear ratio: 13T: 10.46:1:4.8
- Take off weight: ca. 4.3 - 5.1kg
- Battery size: LiPo 12S (2 x 6S) 4000-6000mAh
- Rotor blade size: 690-710mm

Compass Model

www.compassmodel.com

Manufactured By:
COMPASS MODEL LTD.

Fly at your own RISK!

Always use proper safety procedures when using RC aircraft

Introduction

Congratulations on your purchase of the Compass Model Atom 7HV Electric Powered Helicopter. This model has been designed using the latest in state-of-the-art design technology. To achieve the best performance and reliability from this model, please read through these instructions carefully so you become familiar with the contents of this kit before assembly.

AMA Information

We strongly encourage all prospective and current R/C aircraft pilots to join the Academy of Model Aeronautics. The AMA is a non-profit organization that provides services to model aircraft pilots. As an AMA member, you will receive a monthly magazine entitled Model Aviation, as well as liability insurance plan to cover against possible accident or injury. All AMA charter aircraft clubs require individuals to hold a current AMA sporting license prior to operation of their models. For further information, you can contact the AMA at:

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN47302

Warning

The radio-controlled model helicopter contained in this kit is not a toy, but a sophisticated piece of equipment. This product is not recommended for use by children. Radio-controlled models such as this are capable of causing both property damage and/or bodily harm to both the operator/assembler and/or spectator if not properly assembled and operated. Compass Model Ltd. assumes no liability for damage that could occur from the assembly and/or use/misuse of this product. Although the Atom 7HV is powered by a quiet, smooth-running electric motor, it should be assembled and operated with the same care as glow engine helicopters. When operating your Atom 7HV, please exercise caution and safety.

Warranty

The warranty covers defects in material or workmanship or missing components to the original purchaser for 30 days from the date of purchase. Compass Model Ltd. will replace or repair, at our discretion, the defective or missing component. Defective components must be returned to our Distributor prior to replacement.
Any part, which has been improperly installed, abused, crash damaged or altered by unauthorized agencies is not covered. Under no circumstances will the buyer be entitled to consequential or incidental damages. The components used in this kit are made from special materials designed for special applications and design strengths. We recommend that all replacement parts be original parts manufactured by Compass Model Ltd. to ensure proper and safe operation of your model. Any part used which was manufactured by any firm other than Compass Model Ltd. VOIDS all warranties of this product by Compass Model Ltd.

Warranty Procedures

Mail all warranty information within 15 days of original purchase date. If service is required, send the component in question (if not missing) together with a photocopy of your bill of sale and an accurate description of the problem and part. Ship components fully insured and prepaid. Compass Model Ltd. is not responsible for any shipping damages. We will, at our discretion, notify you of any costs involved, or ship it COD. You are required to pay all postage, shipping and insurance charges.

R/C Helicopter Safety

A model helicopter must be built exactly in accordance with the assembly instructions. Compass Model Ltd. has spent much time and efforts refining this product to make it reliable in operation and easy to build. Vibration and stress levels are high and all fasteners and attachments must be secure for safe operation. Safe operation is the responsibility of the builder/flyer and starts with careful construction and continues with selection and installation of reliable radio equipment and motor/engine. The need for safety is nowhere greater than at the flying field. A number of guidelines for safe flight have been developed by experienced flyers and are set down here. It is urged that they be read, understood and followed.

Attention: each country has its own security application which cannot be laid down here so prior to any flight request the rules to apply in your country/Flying field.

Attention Atom 7HV Limitations:
Atom 7HV Max. rotor head rpm: 2100 U/min
Atom 7HV Max. collective pitch range: +/- 12°

Guidelines for Safe R/C Helicopter Flight

- Fly only at approved flying fields and obey field regulations.
- Follow frequency control procedures. Interference can be dangerous to all.
- Obtain assistance from experienced pilots.
- The Guidance provided by experienced pilots is valuable and sometimes necessary.
- Know your radio. Check all transmitter functions before each flight.
- Be aware that rotating blades are very dangerous and can cause serious injury or even death.
- Never fly near or above spectators other modelers or animals.
- Do not fly r/c helicopter models near buildings, high voltage cables, trees or other obstacles.
- If you are a beginner, get help trimming and adjusting the model before you start the flight training.
- Don't "track" the main blades by holding the tail boom. This is a temptation to builders who cannot hover yet and is very dangerous.
- Follow all recommended maintenance procedures for model, radio and motor.
- Only turn off the radio after the brushless motor is disconnected.

Necessary Items

In order to operate this model, you need to purchase the following items not kit-included.

6 channel or up radio and receiver.

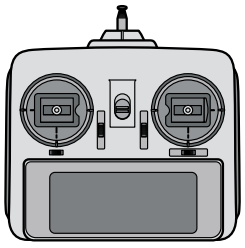
3 standard servos.

1 rudder servo.

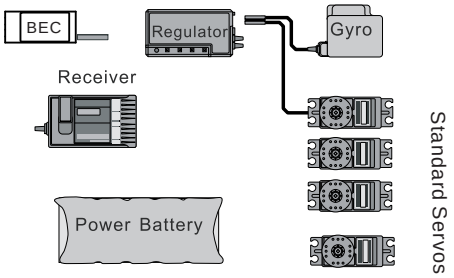
1 Flybarless Unit

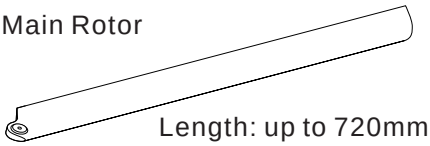
1x LiPo Battery 12S or 2 6s Packs

1x HV BEC



Transmitter





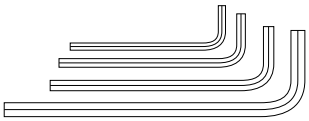
Main Rotor

Length: up to 720mm

Threadlock

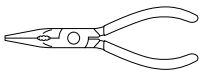
Grease

Bearing Retainer

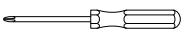


Hex Wrench Set
(1.5mm,2mm,2.5mm,3mm, 5mm)

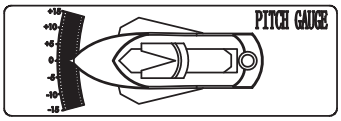
Cutter Knife



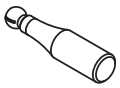
Needle Nose Pliers



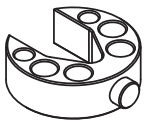
Phillips Screw Driver



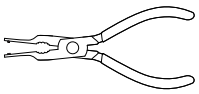
Pitch Gauge



Ball Link Sizing Tool



Swash Plate Tool



Ball Link
Plier

Pre-assembly Information

When first opening your Atom kit, you will notice that all of the parts are packaged and numbered to coordinate with the assembly step numbers of this instruction manual. All small hardware (nuts, bolts, washers, etc.) for each step are packaged separately within the main parts bags. When beginning a section, you will need to open only the bag with the corresponding number to the section you are about to start. It is suggested that you place all of the hardware in an open container (e.g., servo case) during assembly so as not to lose any of the small parts. It may also be helpful to familiarize yourself with the various sizes of screws, bolts, nuts, etc., as illustrated in the appropriate assembly section before you begin assembly. In most cases, at the end of each assembly section, there should be no parts remaining. Great care has been taken in filling the bags with the correct quantity of parts and hardware for each section. However, occasional mistakes happen. In the event that you find a parts shortage or are in need of technical assistance, please contact your local Compass Model parts dealer.

In The Box

This model is packed according to assembling steps. Do not open all the bags at one time.
Open only one bag for each step of assemply when building.

Frame Set

Step 1

Step 2

Step 3

Tail Set

Step 4

Motor Set

Rotor Set

Swash Set

Linkages

Blades

Canopy

Symbols & Assembling

Mishandling due to failure to follow these instructions may result in damage, personal injury or danger.

Use Blue Threadlock

Use Grease

Use AB Glue

Use Bearing Retainer

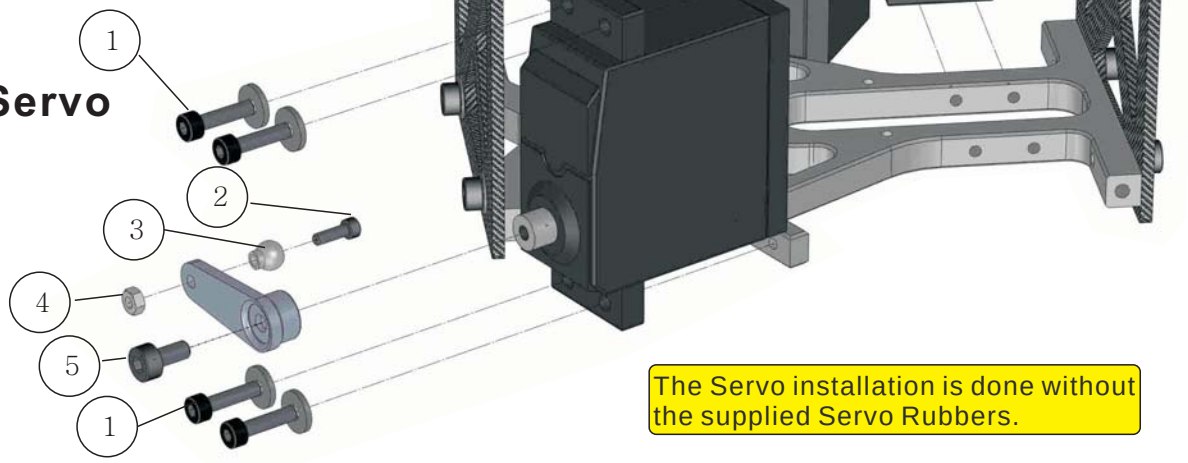
* Always apply blue Threadlock when fixing Bolts on Metal parts.
* Always apply green retainer where bearings has to be fit into metal parts.
* Do not over-tighten self tapping screws into plastic parts or you will strip the threads!

① Servo

Pos	Description	Qty
1	M2.5x10 Socket Head Bolt	12
2	M2x8 Socket Head Bolt	4
3	Stainless Ball	4
4	M2 Nut	4
5	Servo Bolt	4
6	Servo Spacer	2
7	M2.5x20 Socket Head Bolt	4
8	Servo Nut	2
9	2.5mm Washer	12

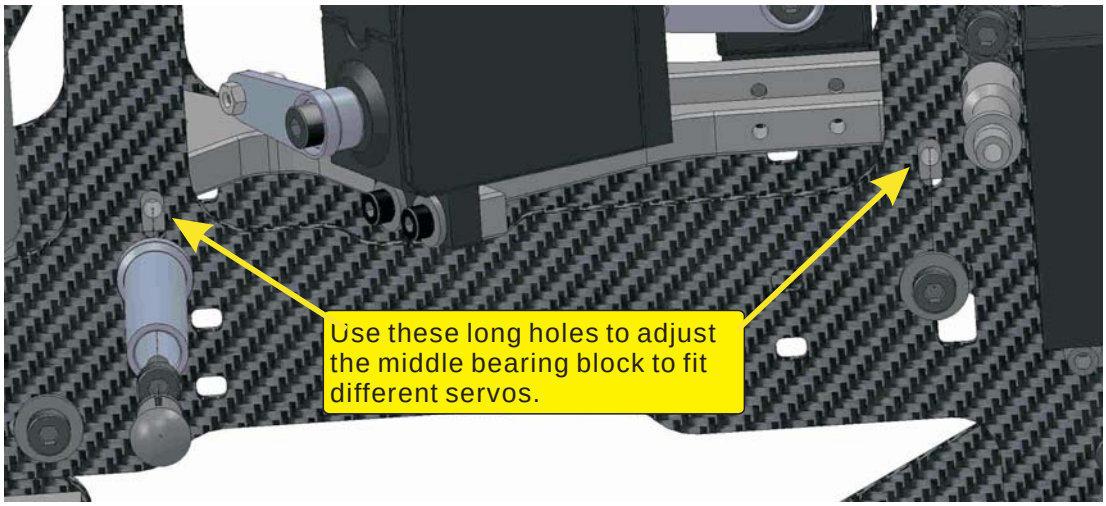
Caution Use medium threadlock on all screws going into metal parts

Swashplate Servo Installation



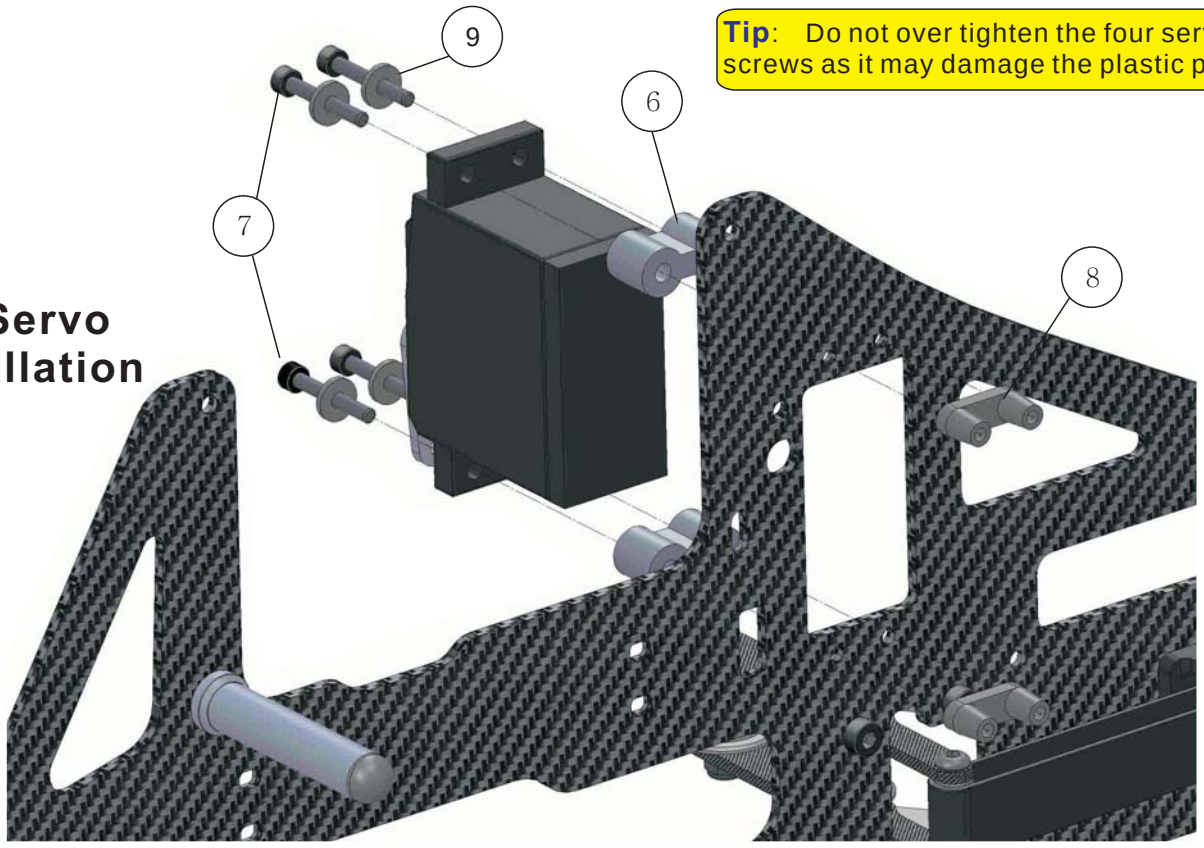
The Servo installation is done without the supplied Servo Rubbers.

For mounting the swashplate servos to the bearing blocks, tighten all bolts of the upper bearing block with medium threadlock. Fix the servos at the upper bearing block. Install the main shaft through all bearing blocks and push the middle bearing block up against the bottom of the cyclic servos. Tighten the four screws in the X-shaped parts that secure the middle bearing block. Now slide the main shaft up and down to make sure the bearing blocks are all aligned. If the main shaft doesn't slide freely, loosen the screws of the bearing blocks and tight them in a cross pattern. The bearing blocks must be aligned parallel to each other. You can control this by comparing the height of the bearing block in the long holes of the side frame. Do not forget to apply new threadlock when loosened a screw!



Remove the black cap of the canopy standoff to loosen and tighten the screw for adjusting the bearing block.

Tail Servo Installation



Tip: Do not over tighten the four servo screws as it may damage the plastic parts.

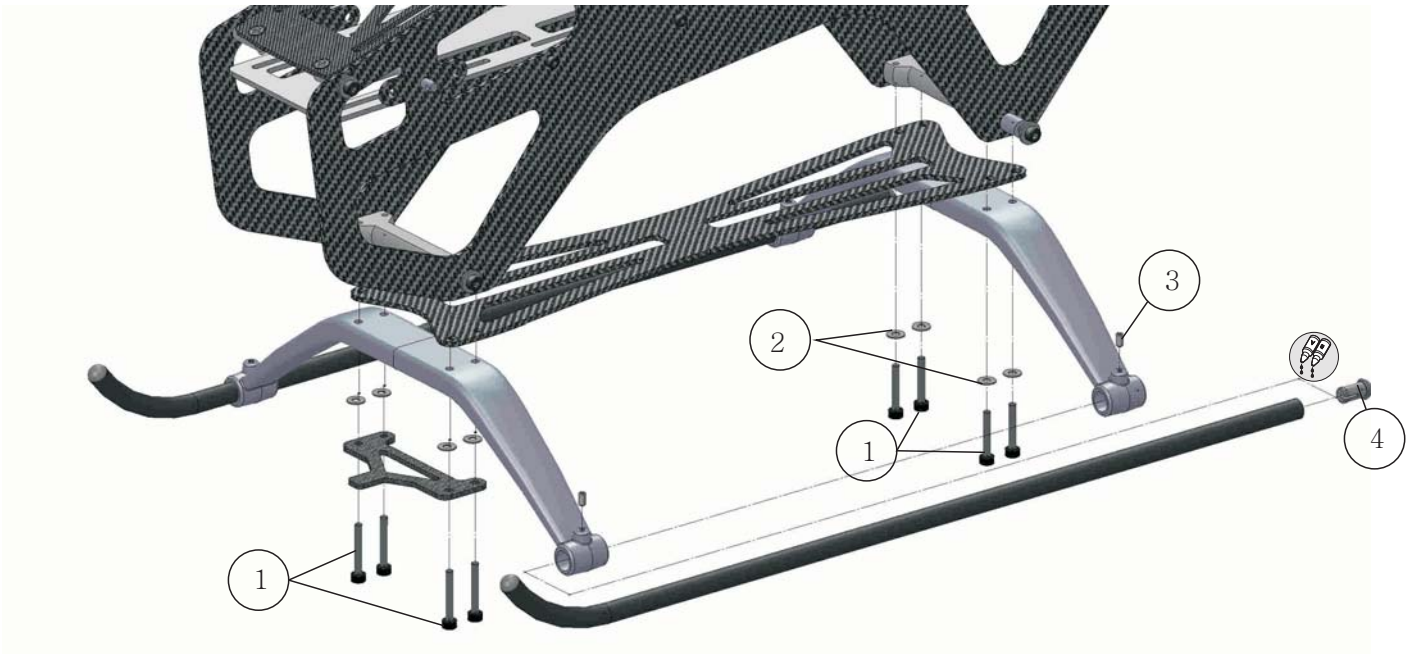
② Landing Gear

Pos	Description	Qty
1	M3x20 Socket Head Bolt	8
2	3mm Washer	8
3	3x5mm Set Screw	4
4	Skid Caps	4

Tip: Do not over tighten the four 3 x 5mm set screws as it can damage the landing struts.

Caution Use medium threadlock on all screws going into metal parts

Use AB Glue



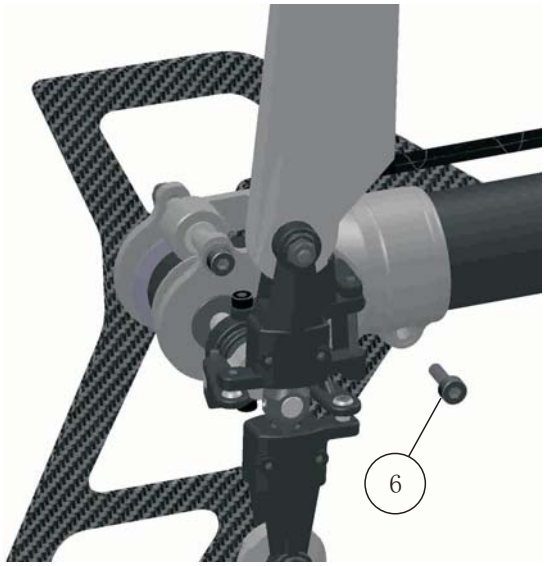
③ Boom & Tail Rotor

Pos	Description	Qty
1	M3x75 Socket Head Bolt	4
2	3mm Washer	11
3	M3 Nylon Nut	8
4	M3X16 Socket Head Bolt	2
5	M3X25 Socket Head Bolt	3
6	M3X10 Socket Head Bolt	1
7	Boom Support Collar	2

To pull the belt through the tail boom, slide a cord through the boom and fix the belt very carefully at the cord. You can also use a strand and bend a hook at one of the ends.

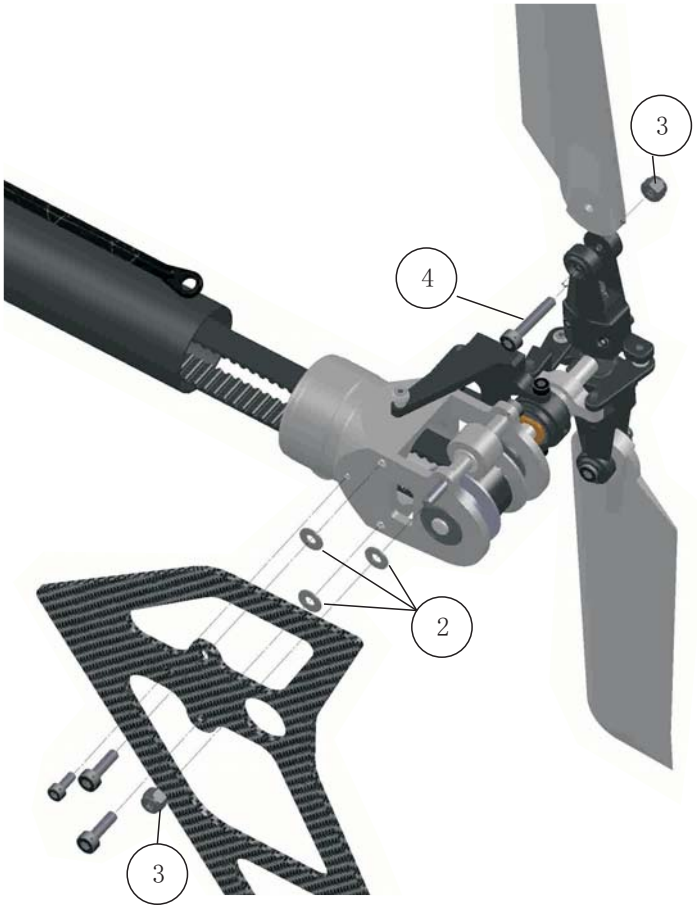
Caution Crimping the belt damages the tensile cords and will result in premature failure!

Caution Use medium Threadlock on all screws going into metal parts



Slide the tail case completely onto the boom, align it to the Compass writing and fix it with the clamp on the rear side. The two locking bolts must be screwed completely into the case to pierce the boom. After this step, the angle of the writing can not be adjusted any more!

Tip: You can use a very small drop of thin CA glue to secure the pin in the tail pulley.

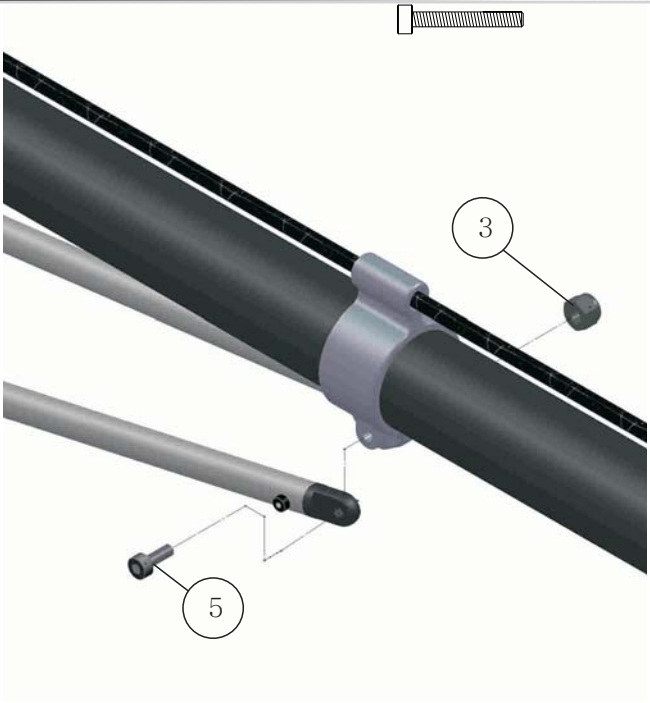


Tip: Do not tighten the bolt of the belt tensioner pulley yet, it will be adjusted later.

Caution Be careful not to over tighten the bolts when attaching the tail rotor blades. The tail blades should be able to move with a slight amount of resistance within the tail blade holders.

③ Boom & Tail Rotor

Tip: Slide the tail boom clamp over the boom. Unscrew one of the ball links on the tail control rod. Screw it back on the control rod after installing it.

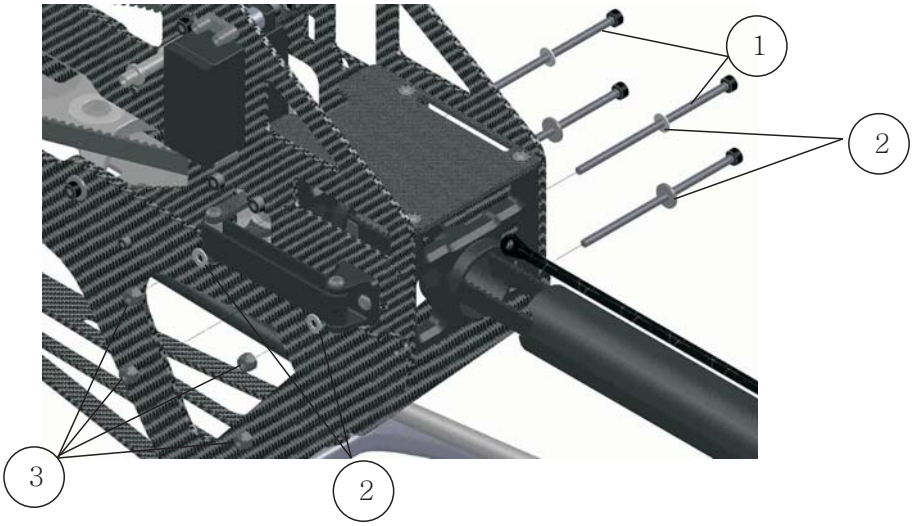


Tip: Just install the screw, struts and nut temporary without tightening them to much.

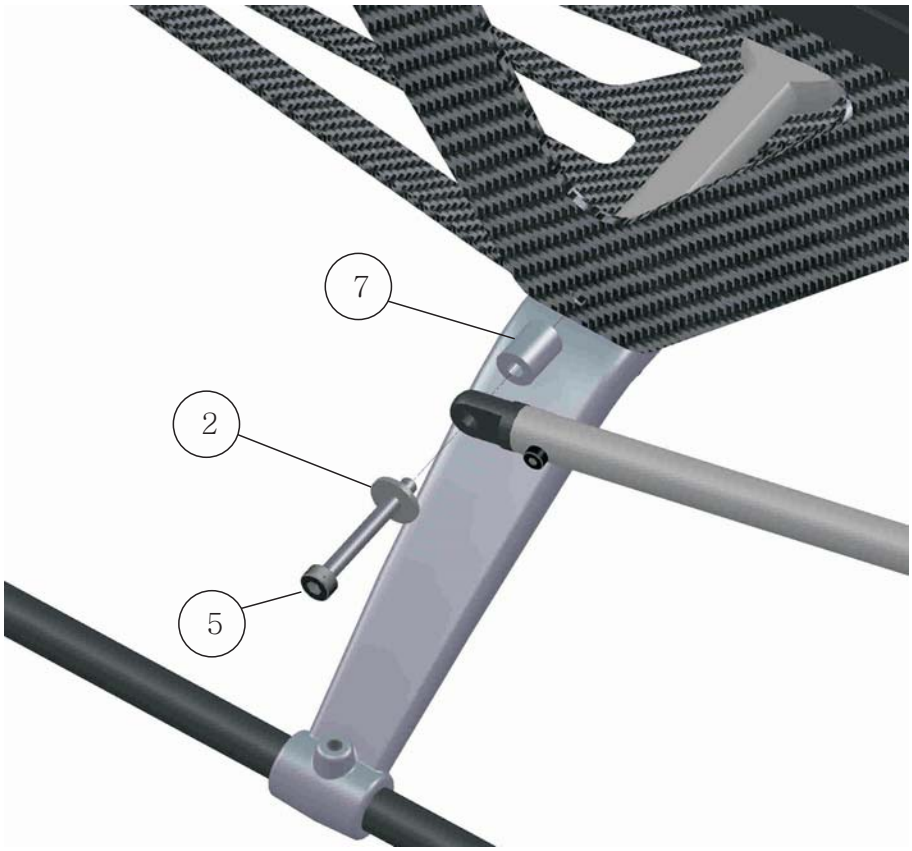
Caution Twist the tail belt 90° to the right before inserting it between the idler pulleys.

Slide the Tail Boom through the tail boom mount and between the idler pulleys

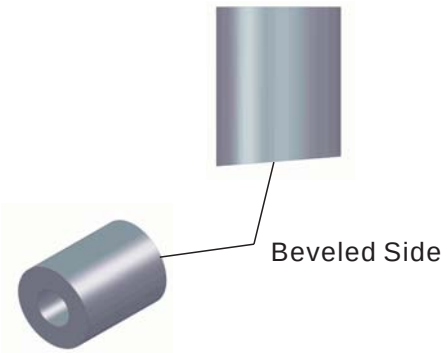
Caution Do not crimp the tail belt and be sure that it is not turned in the wrong direction or more



Use medium threadlock on all screws going into metal parts



The boom support collar (7) has one beveled side. This must face outside. Be careful when fixing the tail boom braces and arrange the collars to them.

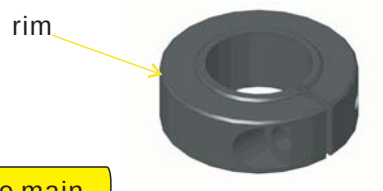


Tip: Clip on the ball link on the tail control arm. Look which part of the tail control rod slides in the guide of the tail boom clamp to get the correct position for the heat shrink. Clip it off again and pull the tail control rod as far as possible to the rear. Slide the heat shrink over the tail control rod and shrink it carefully with a lighter.

④ Main Gear

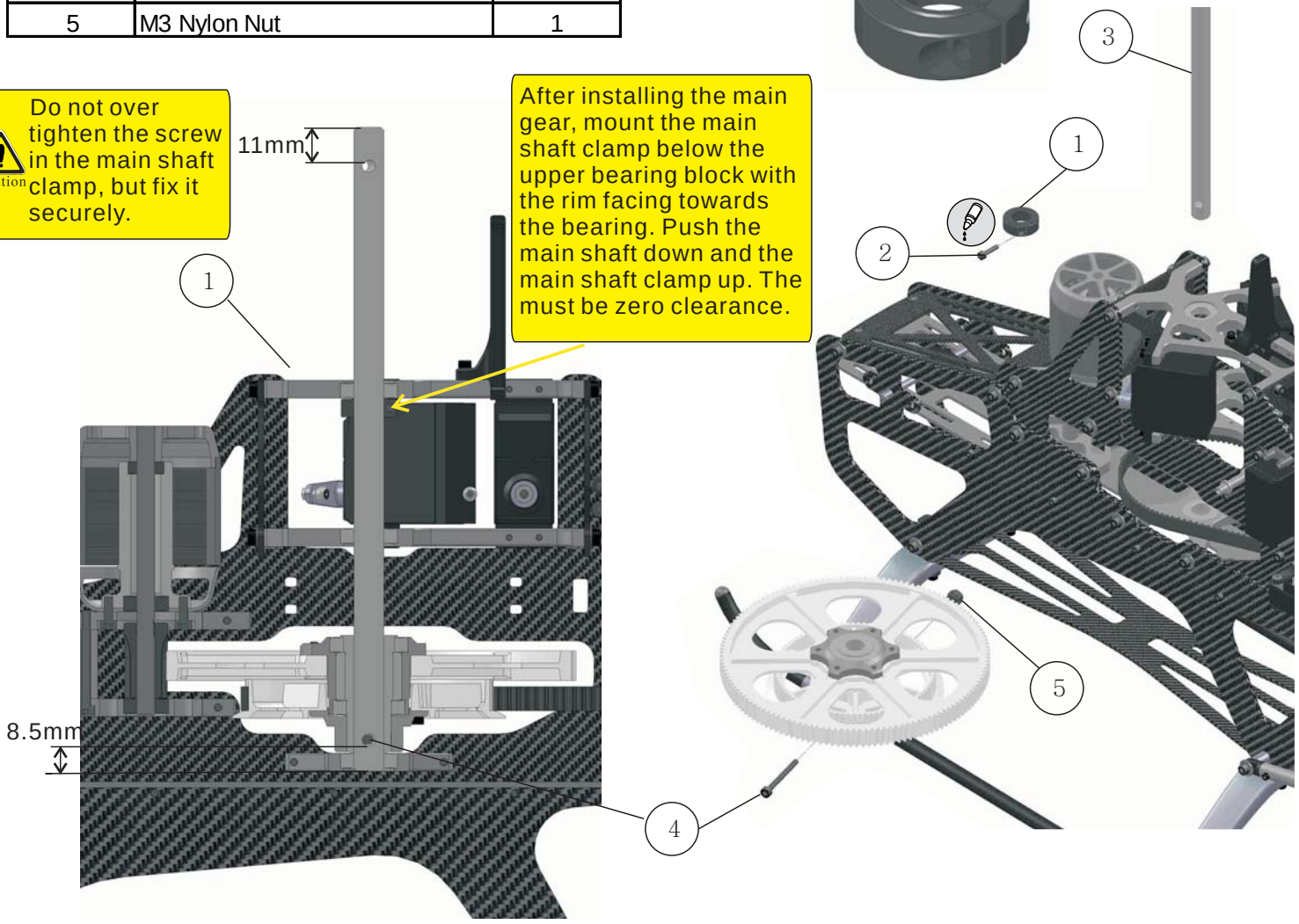
Pos	Description	Qty
1	Main Shaft Clamp	1
2	M2.5x10 Socket Head Bolt	1
3	Main Shaft	1
4	M3X30 Socket Head Bolt	1
5	M3 Nylon Nut	1

Caution Use medium threadlock on all screws going into metal parts



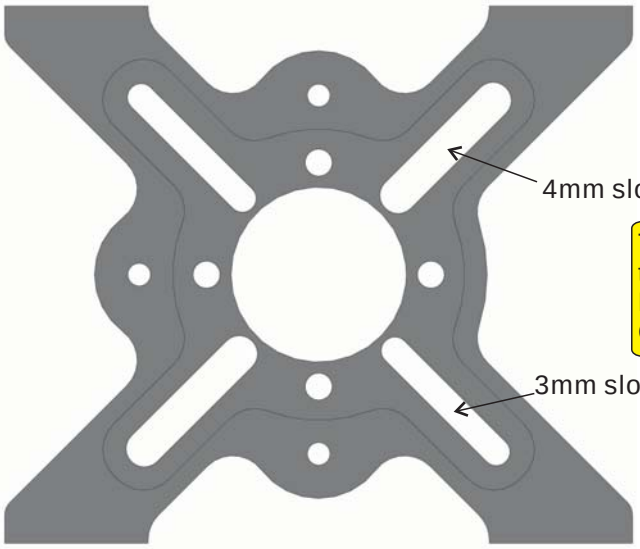
Caution Do not over tighten the screw in the main shaft clamp, but fix it securely.

After installing the main gear, mount the main shaft clamp below the upper bearing block with the rim facing towards the bearing. Push the main shaft down and the main shaft clamp up. The must be zero clearance.



If you have to change the main gear, do not overtighten the bolts going into the hub or it may draft the main gear. Tighten the bolts in a cross pattern.

To intall the main gear, push the tail boom all the way in. Pull the tail belt out at one side of the chassis and mount it on the main pulley. Then slide the main gear into the frame and align the holes over each other to fit the jesus bolt.



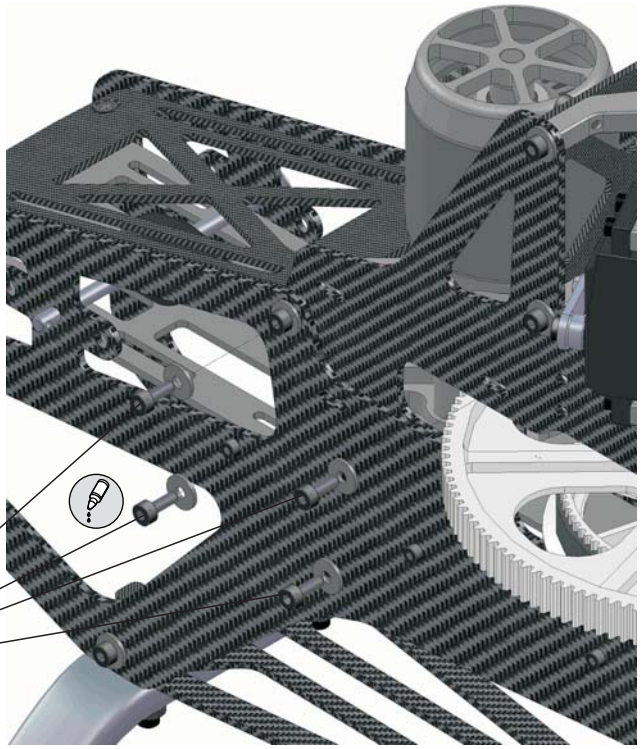
To mount Motors with different hole measurements, use 2 of the 4 slots in the motorplate. The 4mm slots for motors with M4 screws and the 3mm slots for motors with M3 screws. Only 2 screws are necessary in this case.

Motor And Drive Tips

Caution

Use medium threadlock on all screws going into metal parts

Gear backlash adjustment:
For smooth operation and performance, it is necessary to adjust the gear backlash properly. Excess gear backlash can cause premature gear wear and damage. Insufficient gear backlash can cause vibration, as well as overheating of the Motor and speed controller. Adjust the gear backlash by placing one piece of paper between the gears to set the distance. When the bolts are secure, remove the paper and test the gear backlash to insure that there is a slight amount of free movement between the gears.



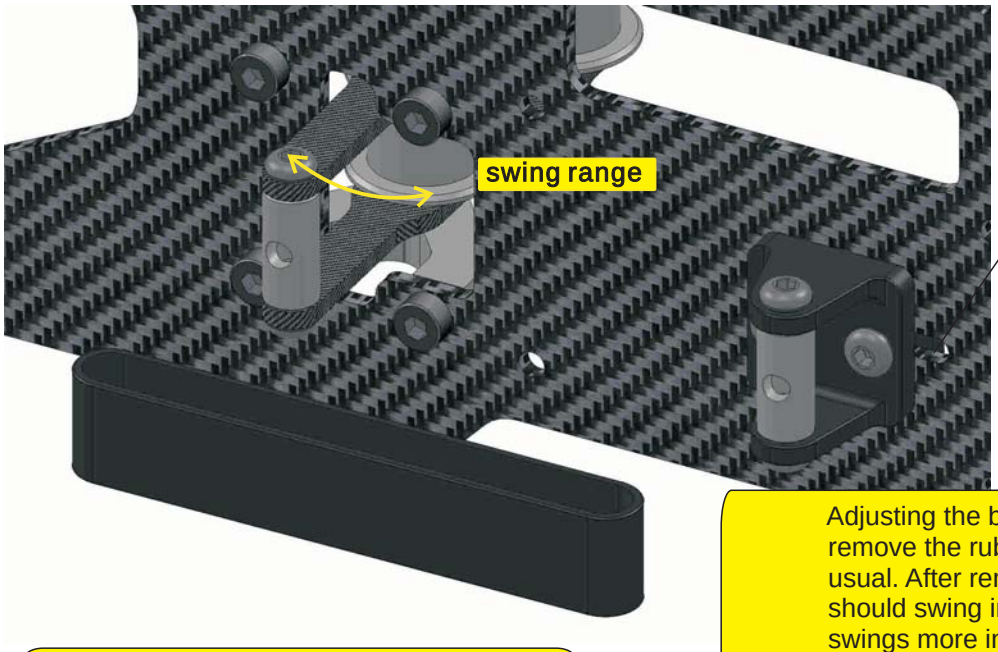
To adjust the correct backlash between the motor pinion and the main gear loose the 4 motor mount bolts on each side , then fix them tightly with threadlock.

Tip: Use a pressure resistant extra sticky grease on the maingear to reduce abrasive wear and noise. Grease it every five flights for the first 20 flights. Check the gear backlash especially in the first 20 flights. Apply some grease when you recognize that the main gear gets „dry“.

Motor Setup And Maintenance Tips: Use at least 5.5mm gold connectors with an even surface for your motor wires and ESC wires. Use heat shrink and look for a good isolation. Check all wires and connectors regularly for good fitting and damage. Damaged wires and connectors can cause severe damage to your model and equipment! Oil the motor bearings each 10 flights and change them if they make strange noises or when the motor gets clearance at the shaft or bell.

Soldering Tips: Use a soldering iron with atleast 80W and SN60PB40 brazing-solder. The temperature should be around 380°C. Use a non-conductive heat resistant surface and clamps or pliers to hold the connectors and wires. Do not heat the connectors and wires to long. The braze point must be shiny and even. If you have problems with the soldering, ask a experienced modeler for help. Due to extreme high currents of up to 200 Amps and mechanical stress to the connections, good soldering points are very important to guarantee a safe function of your power system.

Caution Use blue threadlock on all screws going into metal parts.



Tip: If the rubber gets older, you can increase the tension by opening the two screws in the holder and sliding it to the rear in the long holes.

Tip: Check the rubber from time to time for cracks and refractory material.

Adjusting the belt tensioner is pretty easy. Just remove the rubber ring and adjust the tension as usual. After remounting the band, the tensioner should swing in 1/3 of his possible travel– if it swings more in then the tension is to lose. Increase it by removing the band again and move the tail boom further to the rear. Use the four screws in the tail boom mount to fix the boom. Check the belt tension sometimes. Readjustments may be needed after a while or big temperature differences.

Tip: Fix the tail boom clamp later, so you can adjust the angle for a perfect smooth running tail control.

Adjust the belt tensioning pulley with a distance of 0.2-0.3mm to the tightened belt. Do not over tighten the screw as it may result in a bent tail case and sluggish bearings.

⑤ Rotor,Washout & Swashplate

Pos	Description	Qty
1	M4x25 Socket Head Bolt	1
2	M4x30 Socket Head Bolt	2
3	Preassembled Rotor Head	1
4	3mm Washer	4
5	4x8x3 Flanged Bearing	4
6	M4 Nylon Nut	1
7	M3x14 Socket Head Bolt	2
8	Swashplate Guide	1
9	M2.5x10 Socket Head Bolt	2

Be careful not to overtighten the two clamping screws (7) in the main rotor hub.

The Jesusbolt (6) just carries the torque. Tighten it firm but do not use to much force.

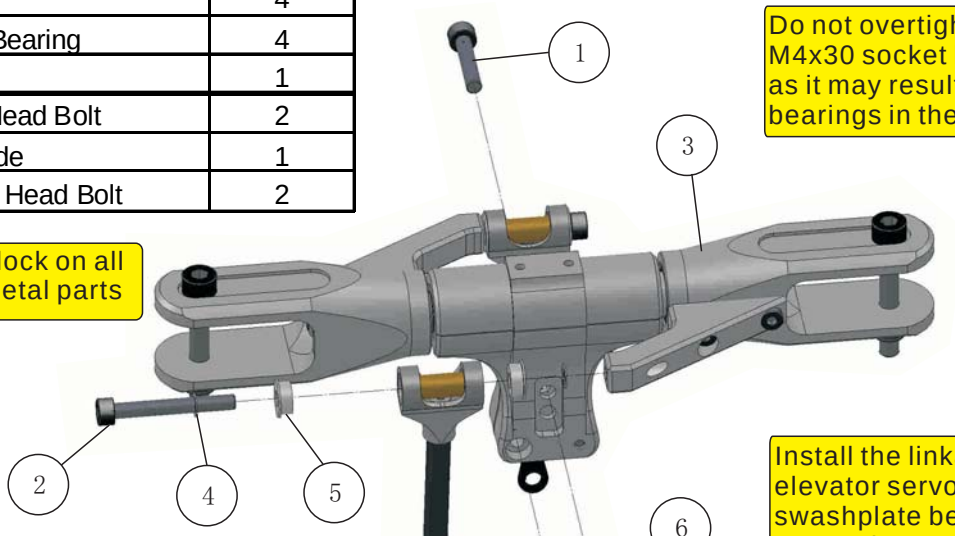
Do not overtighten the two M4x30 socket head bolts (2) as it may result in sluggish bearings in the A-arm

Use medium threadlock on all screws going into metal parts

Caution

Mount the mainrotorhead using the upper hole

Install the linkage for the elevator servo at the swashplate before you mount the swashplate guide.

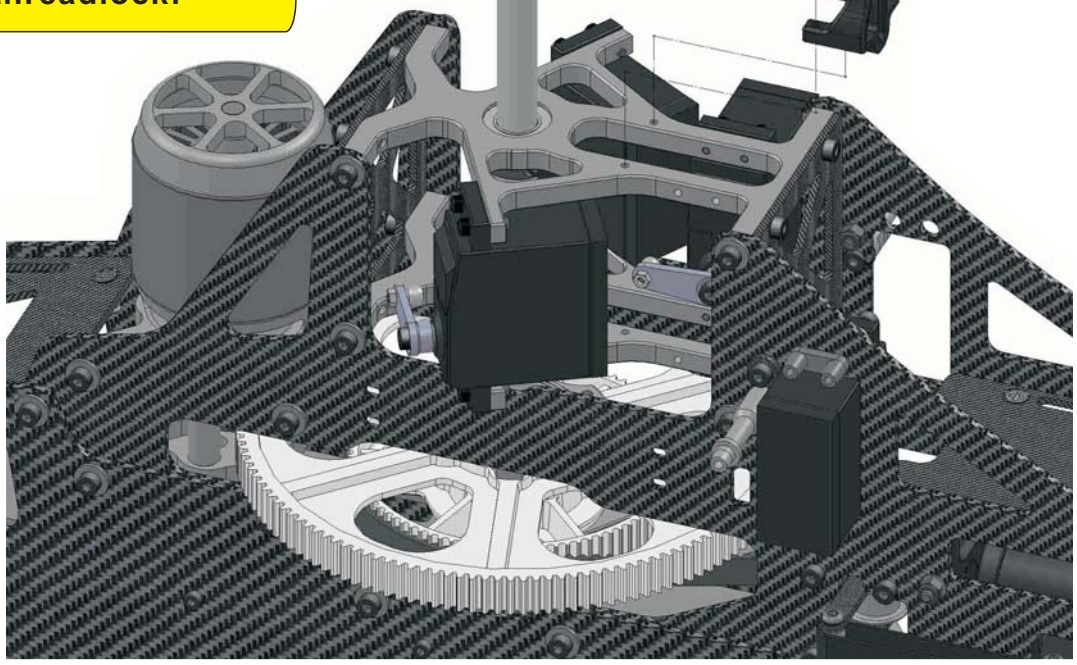


VERY IMPORTANT:

Caution

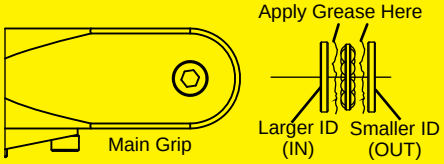
The feathering/spindle shaft screws are not secured. You have to clean the shaft from the inside and the screws with alcohol and secure them tightly with threadlock!

Use some light oil on the main shaft for a smooth travelling swashplate and clean it regularly.



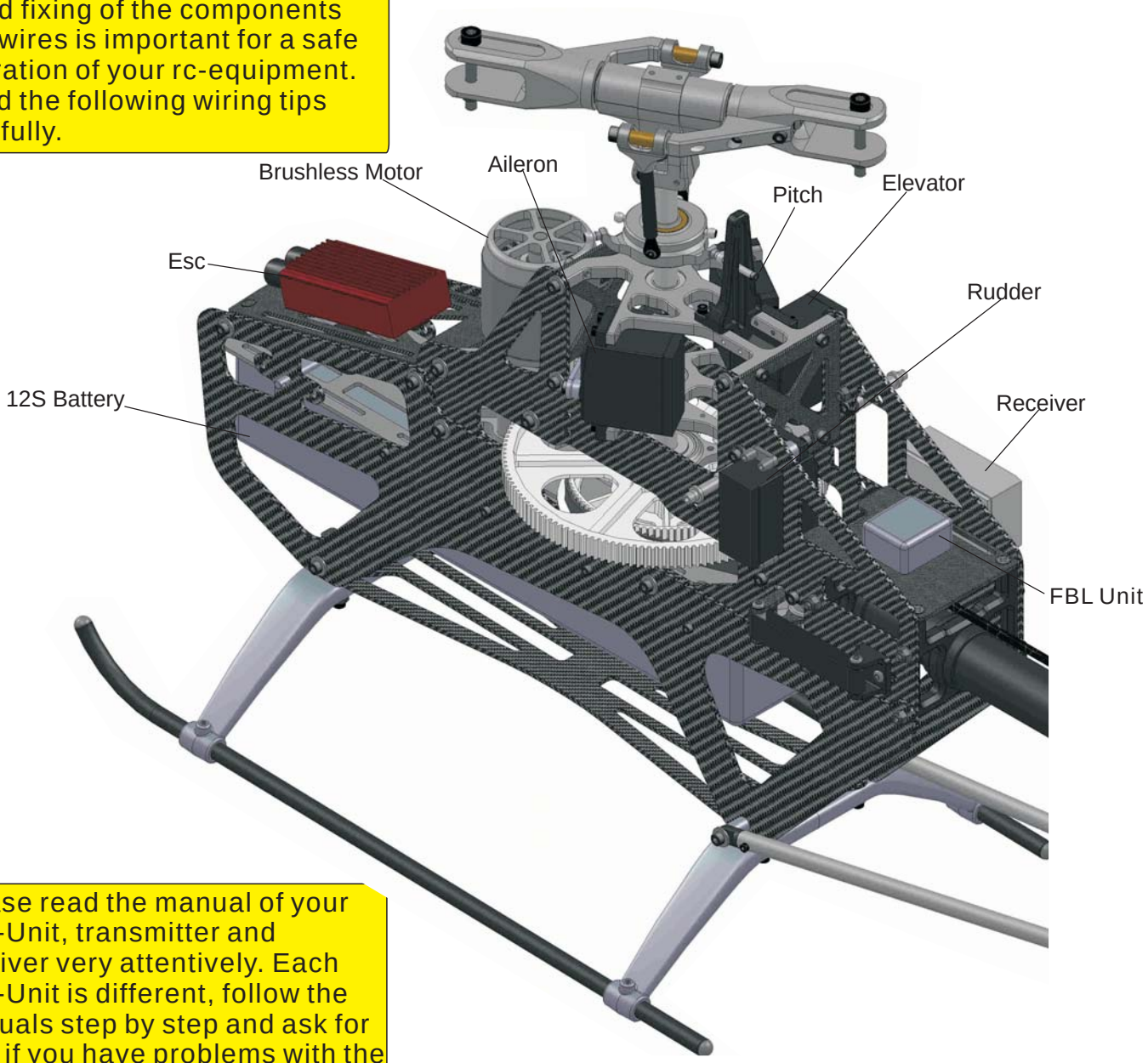
Thrust Bearing Direction

Main grips are factory preassembled; in case of reassembling make absolutely sure you use the correct “ID”(inner diameter) ring at the correct position. Place the large ID towards the main shaft and the small ID towards the blades during assembly.

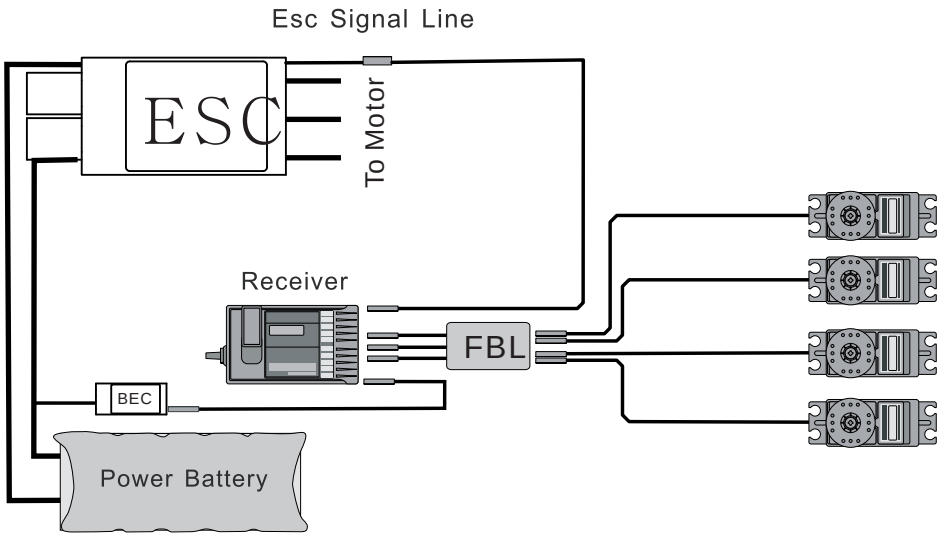


⑥ Suggested Equipment Position

Take some time for the wiring. Good fixing of the components and wires is important for a safe operation of your rc-equipment. Read the following wiring tips carefully.



Please read the manual of your FBL-Unit, transmitter and receiver very attentively. Each FBL-Unit is different, follow the manuals step by step and ask for help if you have problems with the programming and installation.



	Hitec Futaba	JR
Aileron	Ch1	Ch2
Elevator	Ch2	Ch3
ESC Signal	Ch3	Ch1
Gyro Gain	Ch5	Aux2
Rudder	Ch4	Ch4
Pitch	Ch6	Aux1

⑦ Linkage Length & Setup

Caution **Do not apply plier to resize Ball Links. Pliers could cause hidden damage to Ball Links and result in failure when operation.**

Use medium threadlock on all screws going into metal parts and nuts.

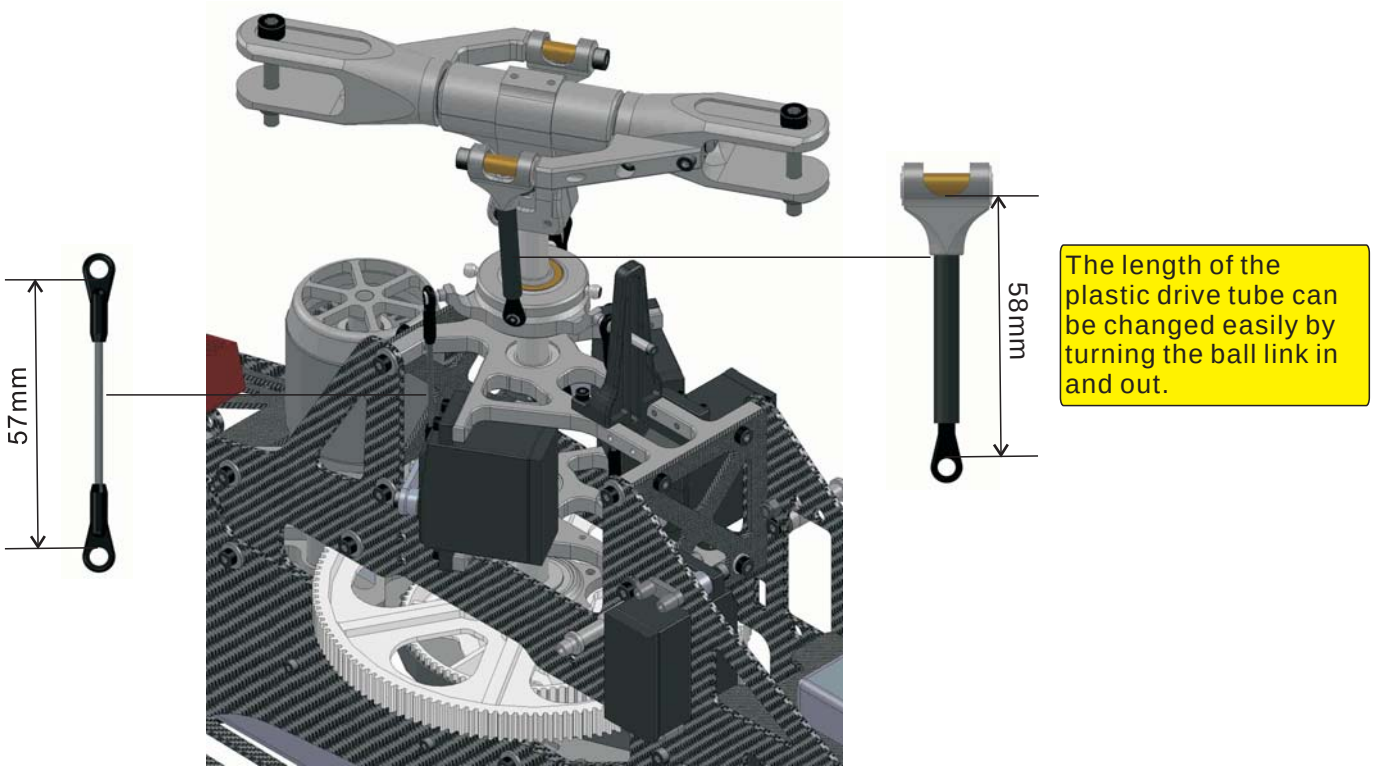
Caution Do not use pliers or screwdrivers to screw the ball links onto the linkages. It can damage the ball links and result in failure. Screw them on by hand or use special tools.

Compass Model ball links are build up on the tight side. This allows you to adjust them to your personal needs. Use a ball link sizing tool to adjust the ball links. Clip the ball link on the corresponding ball where it will be later and test if it moves freely. If not, clip it on the ball link sizing tool and rotate it a few turns in different angles. Test it again on the ball. When you level the whole linkage horizontally, the linkage should almost flip downwards by ist own weight. Do the resizing in small steps and test the fitting every time. If any ball link has clearance on the ball, change it and do not use it again.

Caution All ball links must be clipped on the balls with the Compass writing facing to the outside.

Caution Check all ball links for clearance and damages everytime you go flying and change worn ball links early.

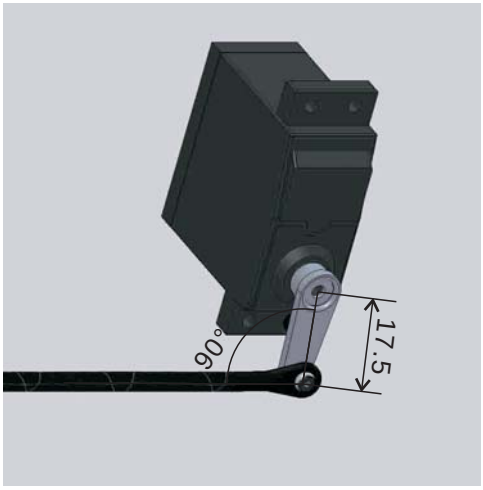
Tip: You can make your own ball link sizing tool. Just use a Dremel with a thin cutting wheel to cut two slots opposite to each other into a ball you don´t need. Stick a screw through the ball and screw a nut on the other side to fix the ball. You can clip ball links onto this tool and use it as described above.



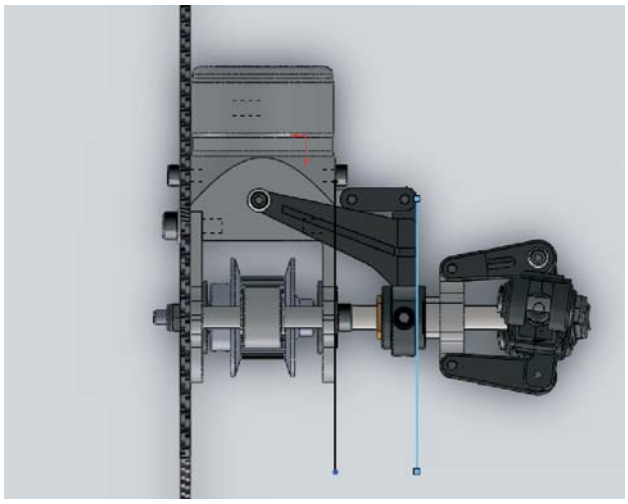
The length of the plastic drive tube can be changed easily by turning the ball link in and out.

Linkage Lengths:
Servo Horn to Servo center: about 17.5mm
Servo to Swash: about 57mm inner edge to inner edge
Swash to A connector: 58mm inner edge to inner edge as per picture.

Tail Setup

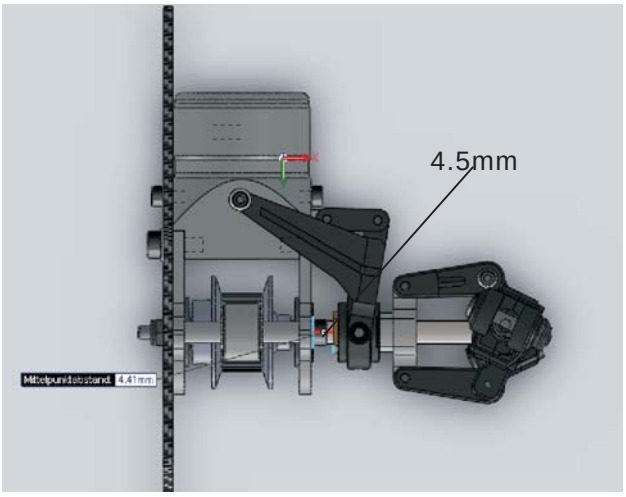


At zero position, the servo arm should be at 90°. Use the best fitting servo arm and read the manual of your FBL-Unit how to adjust the servo mid-position.



Adjust the linkage length so that the slider is parelel to the tail case side wall.

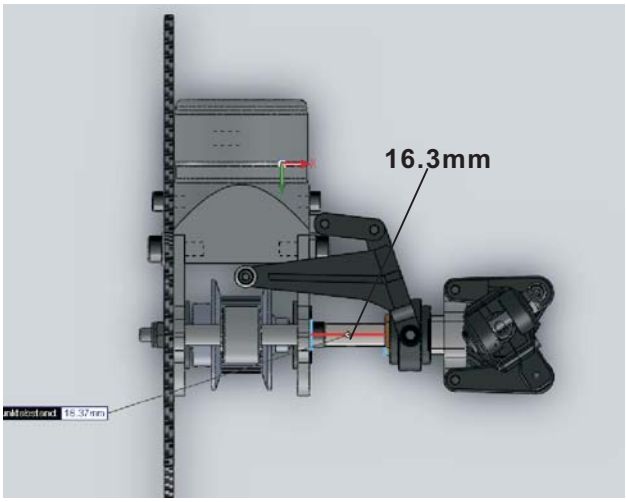
It is important to limit the servo travel to the endpoints of the slider shown below. Too much travel can cause a stall and lead to a loss of tail authority.



Clockwise Position

Set the limit of the tail servo to 4.5mm from slider to bearing.

With the tail pitch slider in this position, the helicopter will turn clockwise.



Counter Clockwise Position

Set the limit of the tail servo to 16.3mm from slider to bearing.

With the tail pitch slider in this position, the helicopter will turn counter clockwise.

Adjusting the gyro direction:
To adjust the gyro direction, read the manual of your fbl unit. Look at the heli from behind.

When you turn the nose to the left (counter clockwise), the tail pitch slider must go towards the tail rotor hub and away from the tail case.

When you turn the nose to the right (clockwise), the tail pitch slider must move towards the tail case and the bearing.

Doule check this step!

Wiring Tips

Never use RC-components with damaged wires. Check all wires for damaged isolation and breakage. Control all servo connectors for a tight fit and be sure no wire is loose in the connector.

All wires must be protected against damage through sharp edges of the carbon frame and metal parts. Zip ties can also cause damage to the wires.

Carbon fibre and metal parts are conductive. Open wires, contacts and open gaps between two contacts touching the frame can cause a short curcuit and damage to the RC-Equipment.

Tip: Cut open a piece of fuel line to cover sharp edges. You can also use fuel lines to cover zip ties to prevent them from damaging the wires.

Tip: The best way to protect your wires is to use braiding sleeve such as those used for computer wiring or casemodding. Seal the ends of the sleeve with heat shrink to prevent them from unraveling. You can also youse heat shrink to protect wires where zip ties overlie.

Be careful when heating heatshrink on wires, don´t heat it up to long or with to much heat or it may damage the isolation.

Keep all wires as short as possible. Avoid unnecessary extensions and connections, but use extensions if a wire is almost to short to avoid mechanical tension in the wiring. Never tighten a wire to much. Be sure that nothing pulls at a wire. It is very important to have zero tension between wires, plugs and RC-Components.

Do not pull out connectors by pulling at the wires!

Do not fold any wire, place them in curves.

Keep all wires away from rotating parts, linkages and servo arms.

Tip: Secure connectors with heat glue at the receiver and FBL-Unit. Avoid contact of the glue with stickers and the wires. The glue is easy to remove.

Tip: Use a plier to bend zip ties before you use them. It will be easier to get them around a corner.

Control all wires and connections regularly to discover hidden damages and defective contacts early. Never go flying if any failure occurs!

FBL Setup Tips

Caution

Please read the manual for the current software version of your FBL-Unit carefully and follow all instructions. We can't give you any specific tips because most brands of FBL-Units change their software from time to time and your setup depends on many other factors like used blades and servos. Please check our website to find some setups from our Teampilots.

Tip: All servo horns must be at 90° (horizontally). Try all possible positions of the servo horn to get as close as possible to 90° at neutral servo position. Keep all swashplate linkages at exactly the same length. Level the swashplate horizontally in all directions by using the subtrim, therefore read the manual of your FBL-Unit and follow the instructions!

Tip: For easy measurement of the pitch angles during the setup, please use something long and straight (like a flybar or CF-Tube) and put it on the upper servomount behind the servorods. With this trick you can easily use the pitchgauge to check the collective and cyclic angles.

Use the pad recommended by the FBL-Unit manufacturer. If you have vibrations it is better to find the source than using a softer tape. All wiring to the FBL-Unit must be done without tension and not to stiff. If you use some kind of cover to protect the wires, please remove it on the last 3-5cm to make sure that vibrations can't be carried to the unit – which will cause strange behaviour like unwanted movements of the helicopter.
Remove all kind of grease and oil from the radiotray and the bottom of the FBL-Unit with alcohol or something similar.
Please place your FBL-Unit extremely carefully in your helicopter. It is important that the unit is in a perfect 90° angle to all axes to get best performance. A wrong mounted unit can cause a wobble during piromanouvers.

Caution

A perfect CG (Center of Gravity) is very important to get a perfect flying model. The CG must be exactly under the mainshaft. Adjust the CG by positioning the battery to the front or to the rear on the battery tray. You can also change the position of the battery tray with the three mounting holes in the side frames. The CG should be measured with all parts including the canopy.

Tip: There are two methods to find out where the CG is. The first method is to hold the model under the main blade grips and look if it tilts forwards or backwards.

You can also hold the model at the main blade grips and fixed main rotor blades with the main shaft leveled horizontally. Look with the canopy facing to the right and then facing to the left (due to the free wheel) if the nose or tail tilts down.

If the nose tilts down, you have to put the battery more to the rear, do the opposite when the tail tilts downwards.

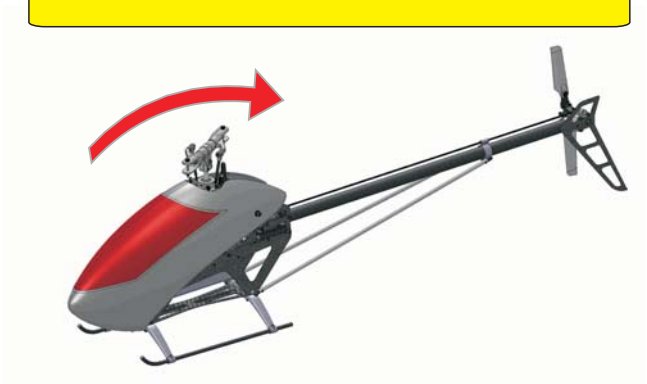
FBL Setup Tips 2

Caution

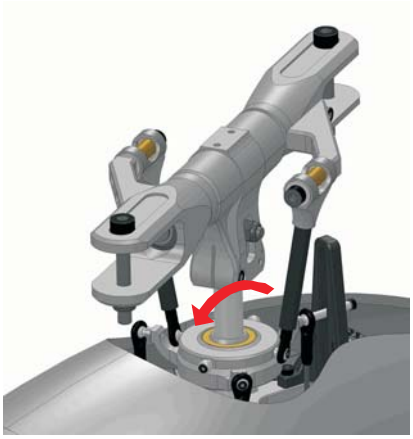
Double check the gyro directions of your fbl unit!
Incorrect gyro directions will cause a crash!

Checking the swasplate and tail gyro directions is a part of the preflight check!

Look at the helicopter from the side to test the **elevator** gyro direction.



Tilt the helicopter forwards as shown in the picture. The swashplate must tilt backwards.



Tilt the helicopter backwards as shown in the picture. The swashplate must tilt forwards.

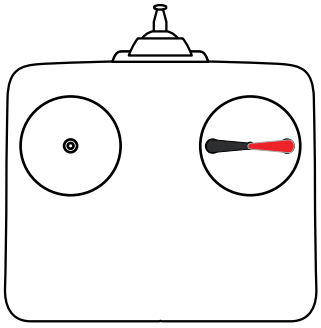
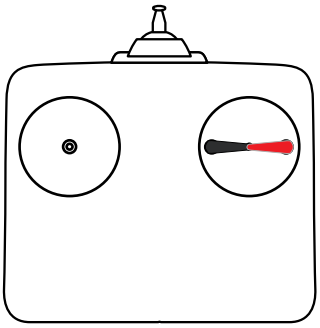
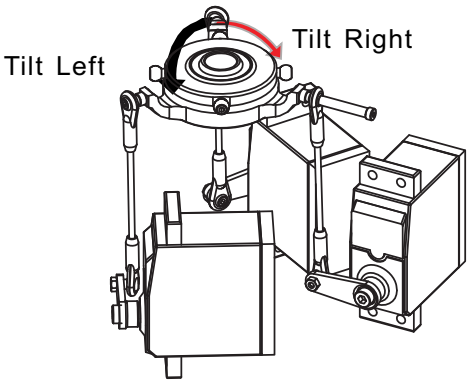
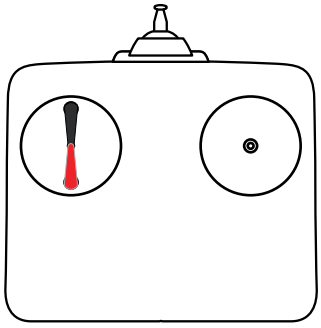
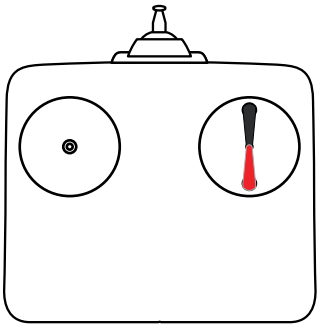
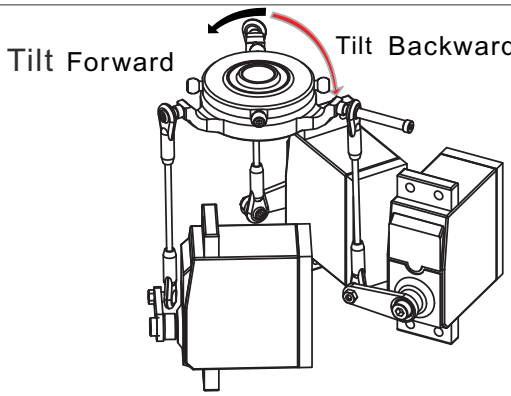
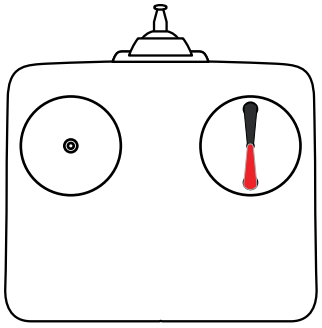
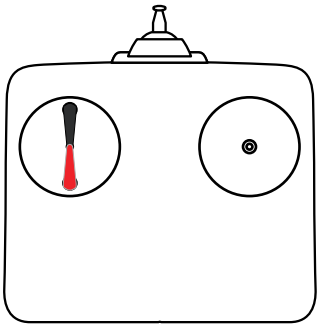
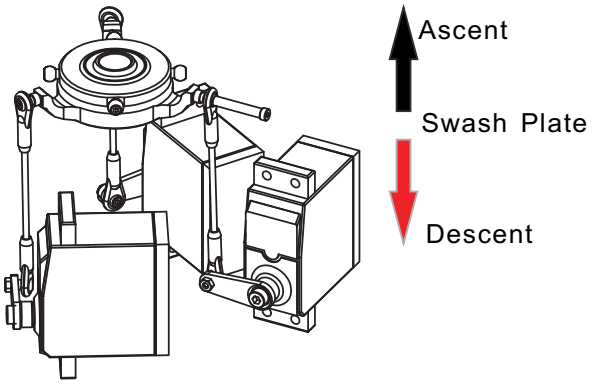
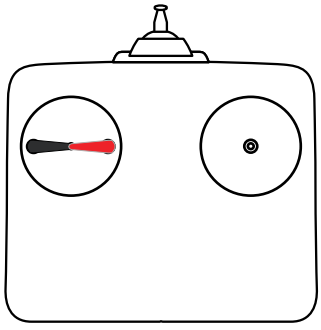
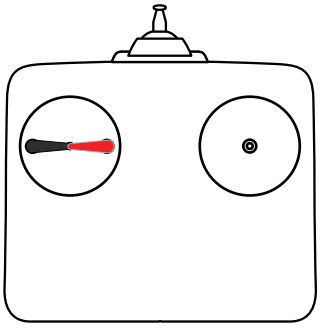
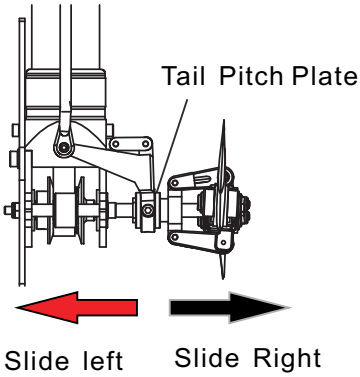
Watch the helicopter from the front/canopy to test the **aileron** gyro direction.

Tilt the helicopter to the left, the swashplate must tilt to the right as shown in the picture.

Tilt the helicopter to the right, the swashplate must tilt to the left as shown in the picture.

⑧ Control Check

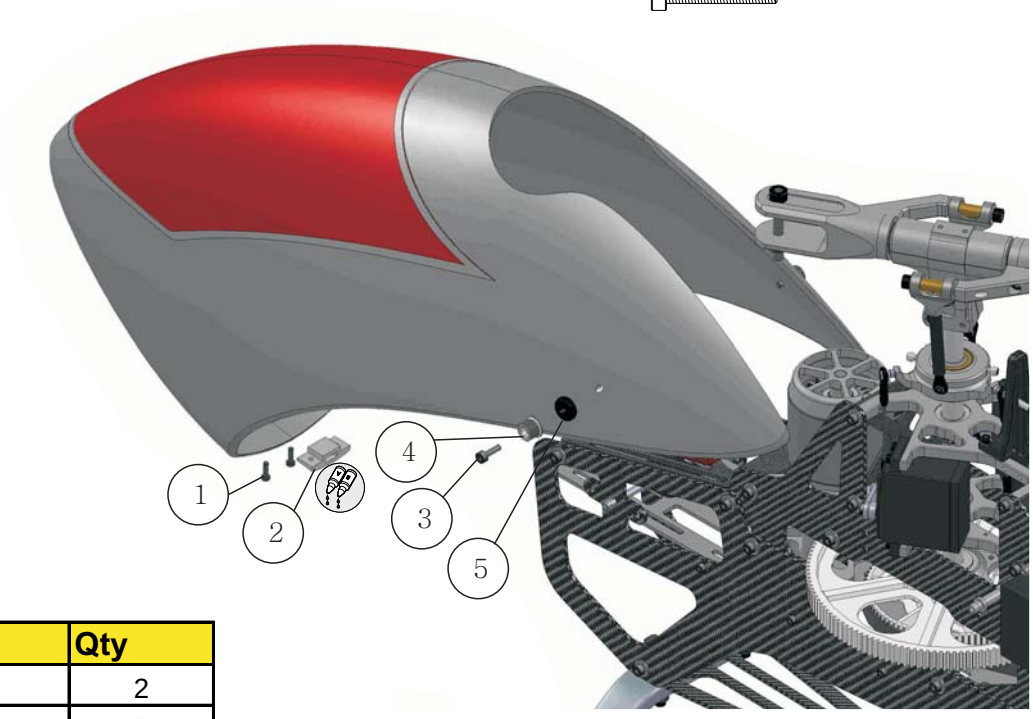
The picuture below shows how the swashplate has to move in mode 1 or mode 2.

Mode 1	Mode 2	Swashplate Reaction
		
Aileron Check		
		
Elevator Check		
		
Pitch Check		
		
Rudder Check		

⑨ Canopy

Use AB Glue

Place the canopy onto the frames and mark the right position of the canopy insert. Mark the positions of the holes in the anopy on the Insert for drilling. Use a 2mm drill and drill straight through the insert. Use AB glue to fix the insert and screw it from the outside into the canopy.



Pos	Description	Qty
1	M2.5x8 Self Tapping Bolt	2
2	Canopy Insert	1
3	M3x8 Socket Head Bolt	2
4	Thumb Screw	2
5	Canopy Rubber Grommets	2

⑩ Grounding

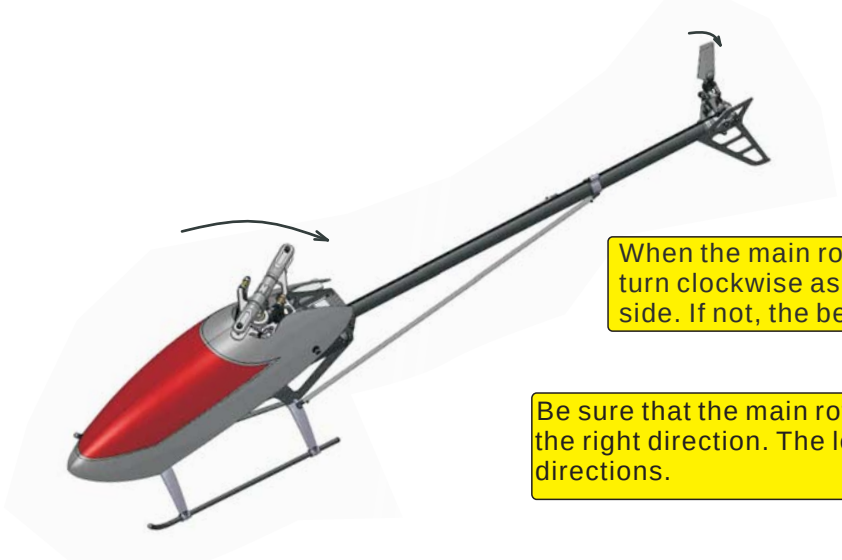
Belt-driven tailrotors can produce a high amount of electricity. The discharge can cause a blockage of the radio signal and the RC-Components. If you have transmission problems and/or problems like hard tail kicks and lockouts during flight, you have to to a grounding. We recommend to ground each helicopter for safety reasons if you are not sure if everything works without failures.

Caution

Do not use a file, rasp, knife or coarse sandpaper to remove the anodizing. Deep scratches will damage the structure of the tail boom and can cause a breakage of the tail boom!

To ground the helicopter, use a piece of fine sandpaper to remove a little bit of the black anodizing between the two tail boom clamps in the frame with care. Do not modify the tailboom behind the tail boom clamps! Use a piece of silicon wire with a diameter of at least 1mm² and skin one end. Attach the open end to the tail boom with one or two zip ties. Lay the wire to the motor, skin the other end and attach the wire to one motor screw by jamming the open end under the screw.

11 Rotor Direction & Blades



When the main rotor spins clockwise the tail blades should turn clockwise as well watching the tail rotor from the tail fin side. If not, the belt is twisted and has to be corrected.

Be sure that the main rotor and tail rotor blades are installed in the right direction. The leading edge has to show into the rotor directions.

Do not overtighten the blades. The main rotor blades should not be able to retract when you hold the helicopter sideways with the mainshaft and both blades horizontally. Do not thighten the blades much stronger than this and use the washers delivered with the blades.

Caution Do not grind the blades if they don´t fit. Ask the manufacturer for other washers.

Caution Use the same amount of washers with the same thickness over and under the blades!

12 Blade Tracking

The get a helicopter without vibration issues and, perfect flight abilities and low power consumption, you have to track the main rotor blades. The first step is to have identical lengths from the end of the ball link on the plastic drive tube to the metal arm.

In most cases, the blade tracking will be fine after doing this. To check it during the flight, get the help of an other pilot for safety reasons. Get in a hover and ask him to watch the rotor disk. Both blades must be in one line. If there are two disks or the blades appear thicker than they are, you have to readjust the blade tracking by turning in and out the ball links in the plastic drive tubes. Mark one blade or blade grip and turn in or turn out the ball link of this blade by one turn. Remember the direction. Hover the helicopter again, if it gets worse, turn back the ball link and rotate it one turn in. If it get´s better but is not perfect, turn the ball link of the other blade out by one turn and hover again. The blade tracking should be perfect now. If not, an issue with the rotor blades is likely. Do not fly with these blades. Also check all linkages, balls, ball links and the swashplate links for clearance.

Caution Do not check the blade tracking on the ground alone or with negative pitch.

Caution Read the following pages before you go to test this!

Caution Do not fix the helicopter to the ground or any object.

Keep some distance to the model and do not test this indoors!

COMPASS MODEL (HK) LIMITED

www.compassmodel.com