

Compass

LEADING THE WAY

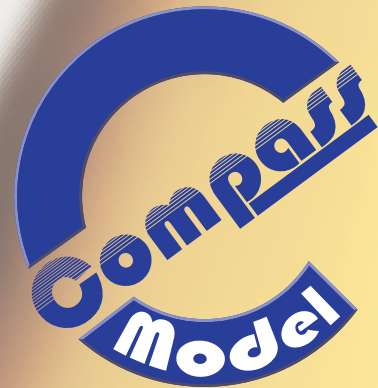
700 CLASS
ELECTRIC HELICOPTER

ZHV

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



www.compassmodel.com

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°

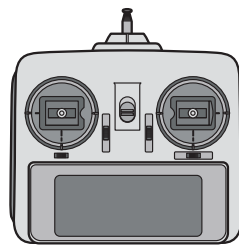
Guidelines for Safe R/C Helicopter Flight

- 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.

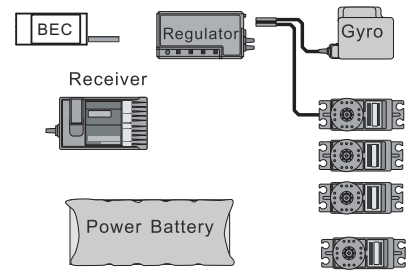
Necessary Items

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 or Receiver Battery

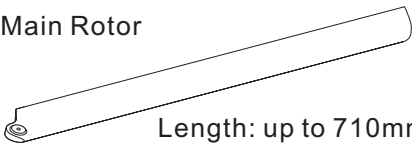


Transmitter



Standard Servos

Main Rotor



Length: up to 710mm



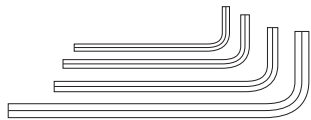
Threadlock



Grease



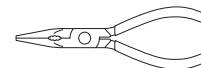
Bearing Retainer



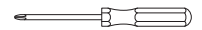
Hex Wrench Set
(1.5mm, 2mm, 2.5mm, 3mm, 5mm)



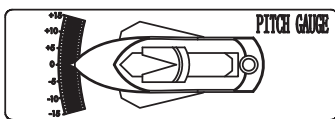
Cutter Knife



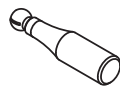
Needle Nose Pliers



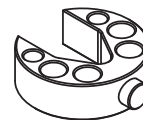
Phillips Screw Driver



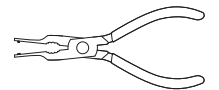
Pitch Gauge



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 assembly 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



Caution

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

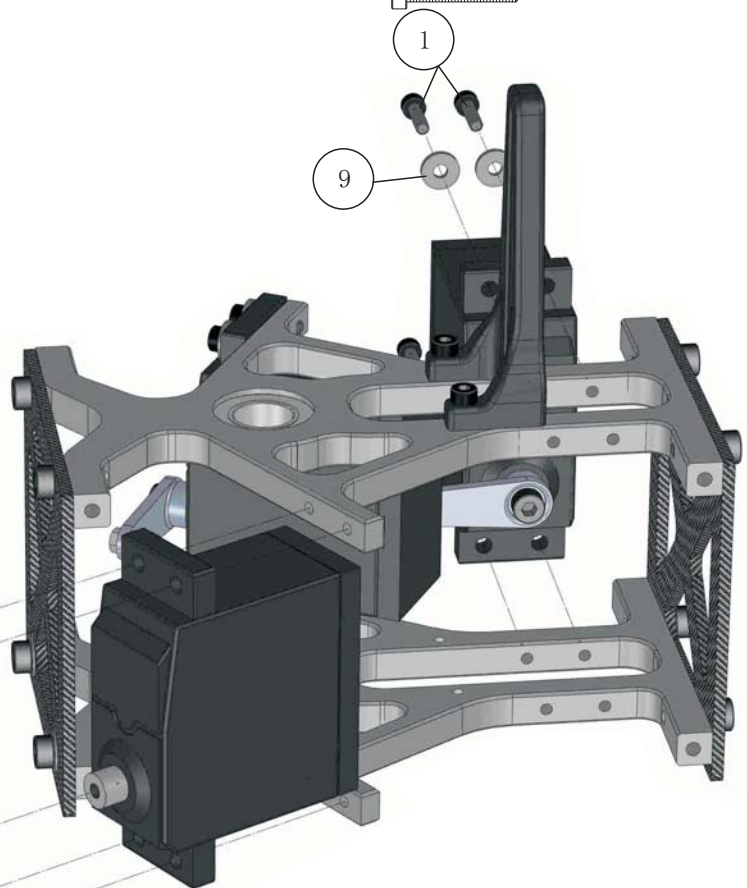
- * Always apply blue Threadlock when fixing Bolts on Metal parts.
- * Always apply green retainer where bearings has to be fit into metal parts.
- * Do not over-tighten self tapping screws into plastic parts or you will strip the threads!

1

Servo

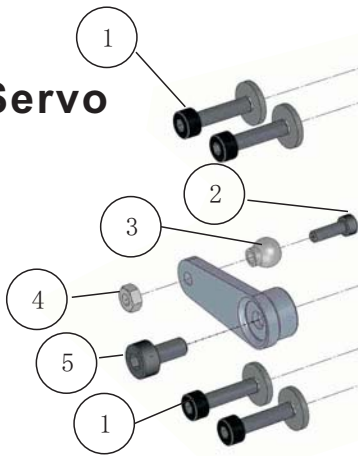


Pos	Description	Qty
1	M2.5x10 Socket Head Bolt	12
1	M2.5x12 Socket Head Bolt	12
2	M2x8 Socket Head Bolt	4
3	Stainless Ball	4
4	M2 Nut	4
5	Servo Bolt	4
6	Servo Spacer	2
7	M2.5x20 Socket Head Bolt	4
8	Servo Nut	2
9	2.5mm Washer	12



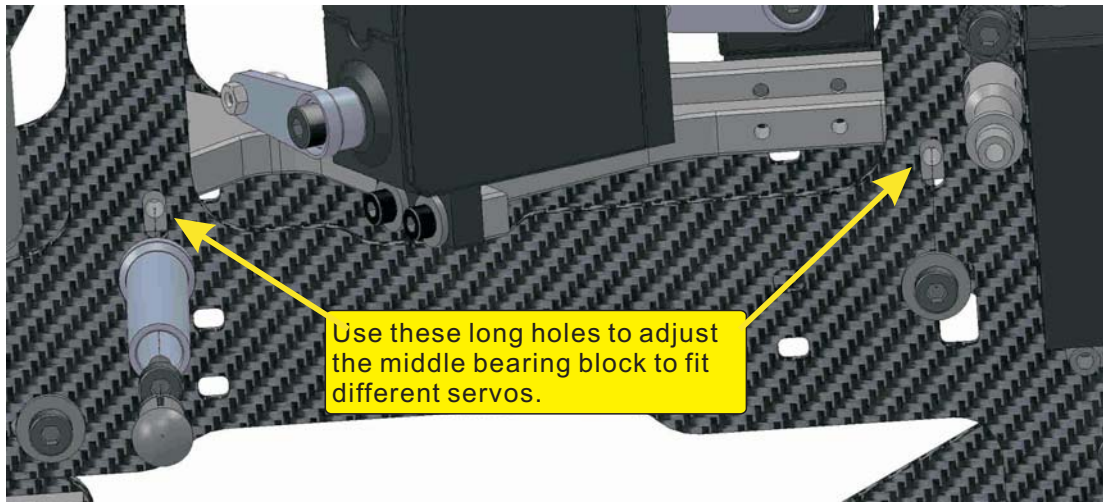
Caution Use medium threadlock on all screws going into metal parts

Swashplate Servo Installation



The Servo installation is done without the supplied Servo Rubbers. If you want to use the Rubber, please use M2.5x12 Bolts, instead of M2.5x10.

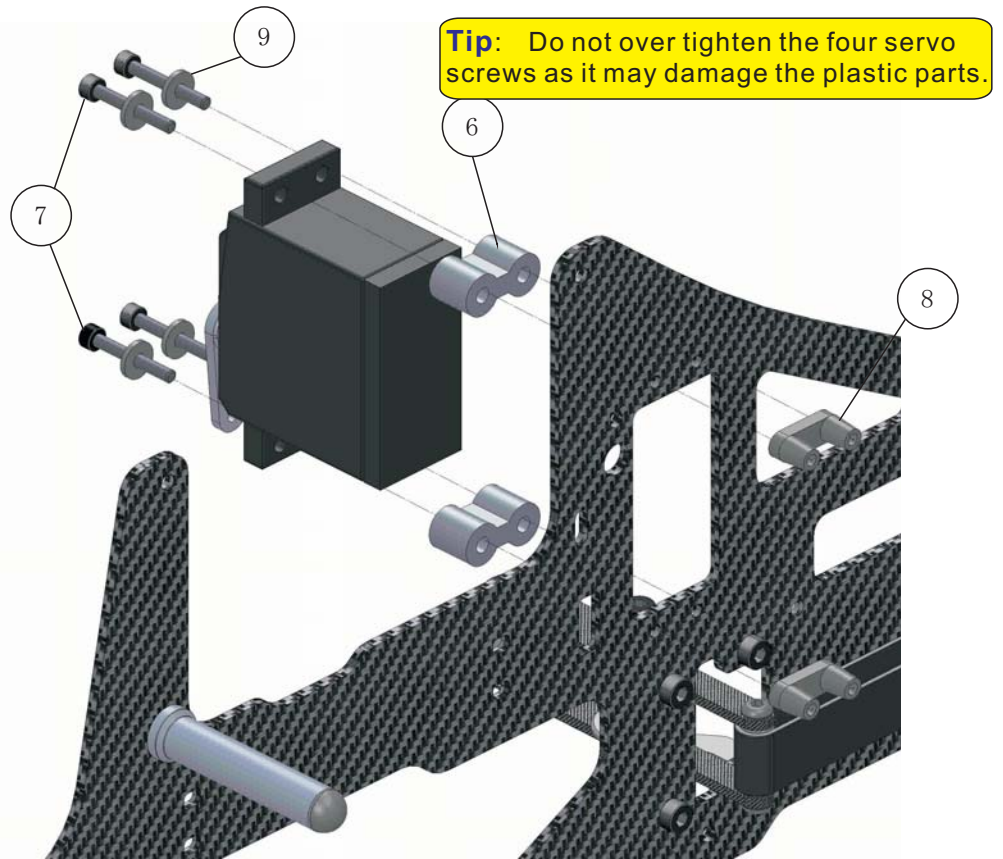
For mounting the swashplate servos to the bearing blocks, tighten all bolts of the upper bearing block with medium threadlock. Fix the servos at the upper bearing block. Install the main shaft through all bearing blocks and push the middle bearing block up against the bottom of the cyclic servos. Tighten 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!



Use these long holes to adjust the middle bearing block to fit different servos.

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

Tail Servo Installation



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

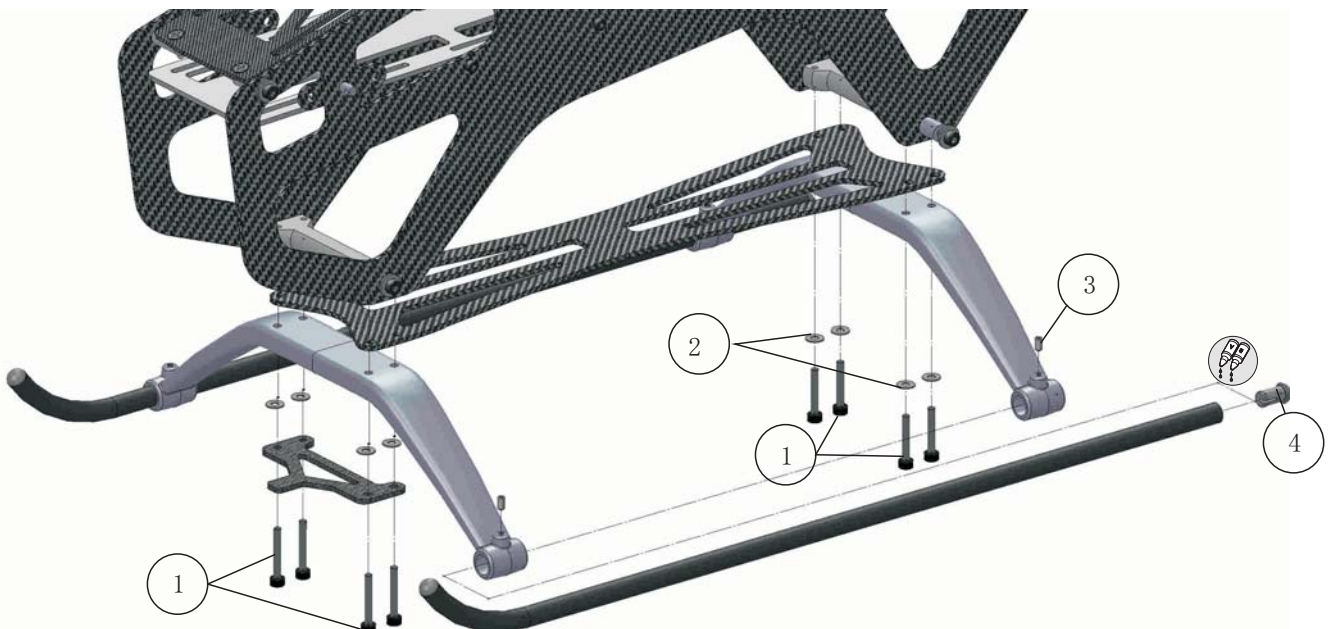
Tip: Do not over tighten the four 3 x 5mm set screws as it can damage the landing struts.



Caution Use medium threadlock on all screws going into metal parts

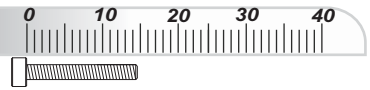


Use AB Glue



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	3
7	Boom Support Collar	2
8	M2.5X6 Socket Head Bolt	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.



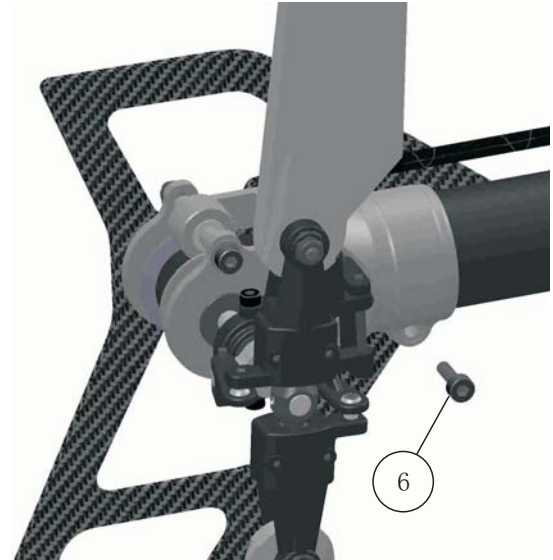
Crimping the belt damages the tensile cords and will result in premature failure!



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 (⑧) 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: Do not tighten the bolt of the belt idler pulley yet, it will be adjusted later.



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

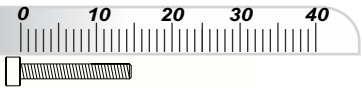


Be careful not to over tighten the bolts when attaching the tail rotor blades. The tail blades should be able to move with a slight amount of resistance within the tail blade holders.

Take special care to get the boom long enough into the tail assembly for correct tail length before you tight this bolt.

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.



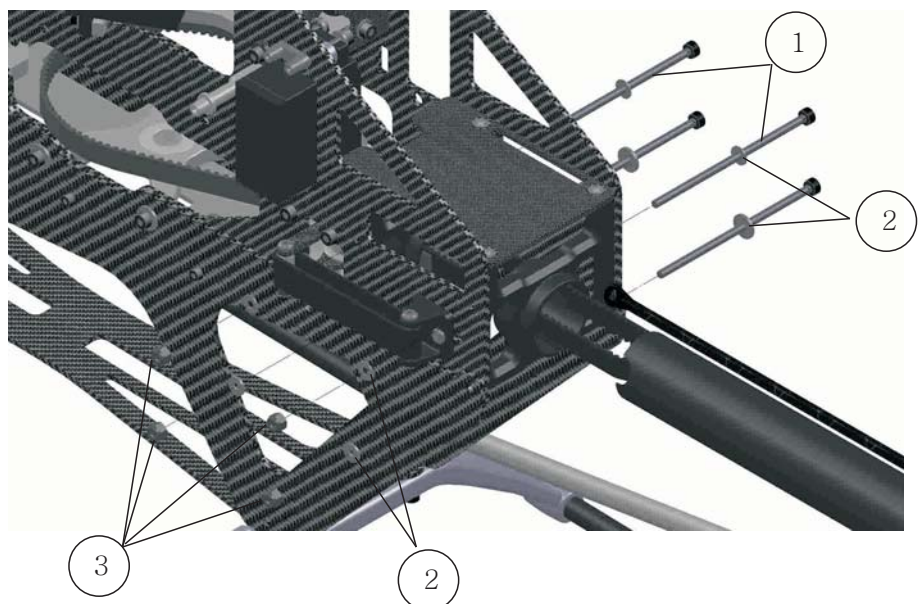
Caution Twist the tail belt 90° to the right before inserting it between the idler pulleys.



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

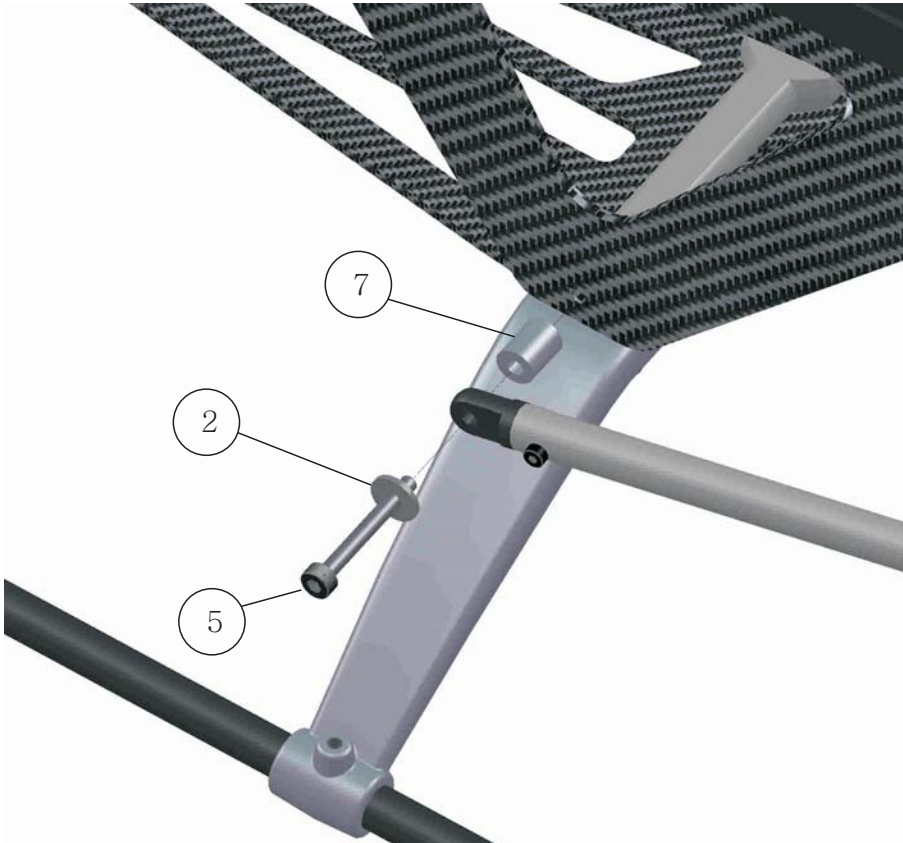


Caution Do not crimp the tail belt and be sure that it is not turned in the wrong direction or more

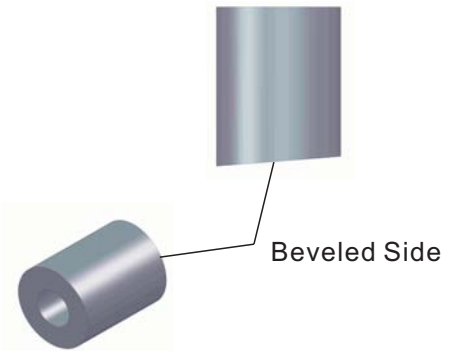




Use medium threadlock on all screws going into metal parts



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.

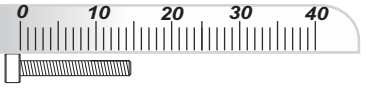


Tip: Clip on the ball link on the tail control arm. Look which part of the tail control rod slides in the guide of the tail boom clamp to get the correct position for the heat shrink. Clip it off again and pull the tail control rod as far as possible to the rear. Slide the heat shrink over the tail control 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
6	M4x10 Socket Head Bolt	2



Caution Use medium threadlock on all screws going into metal parts

rim



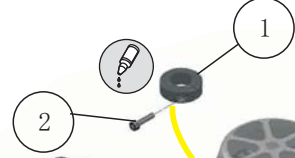
3

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

11mm

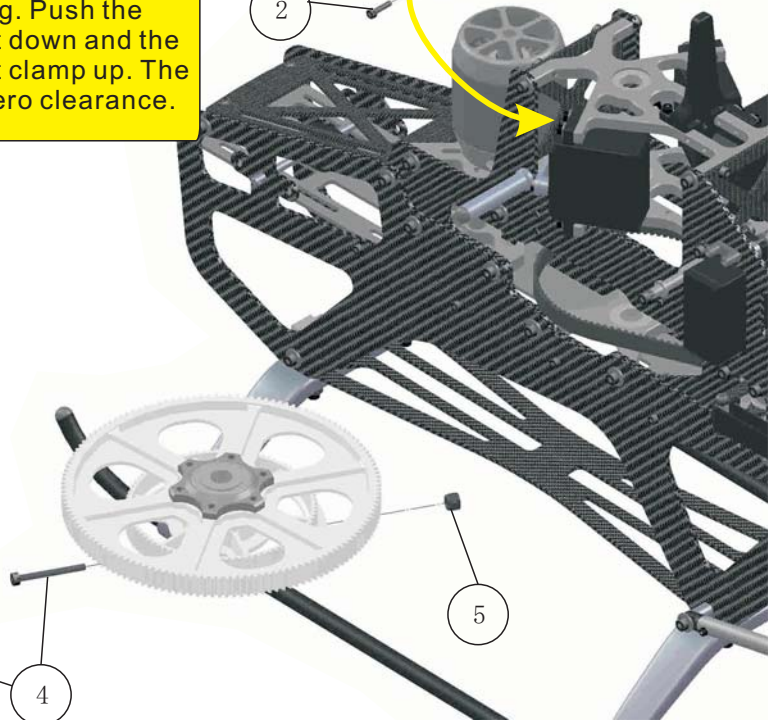
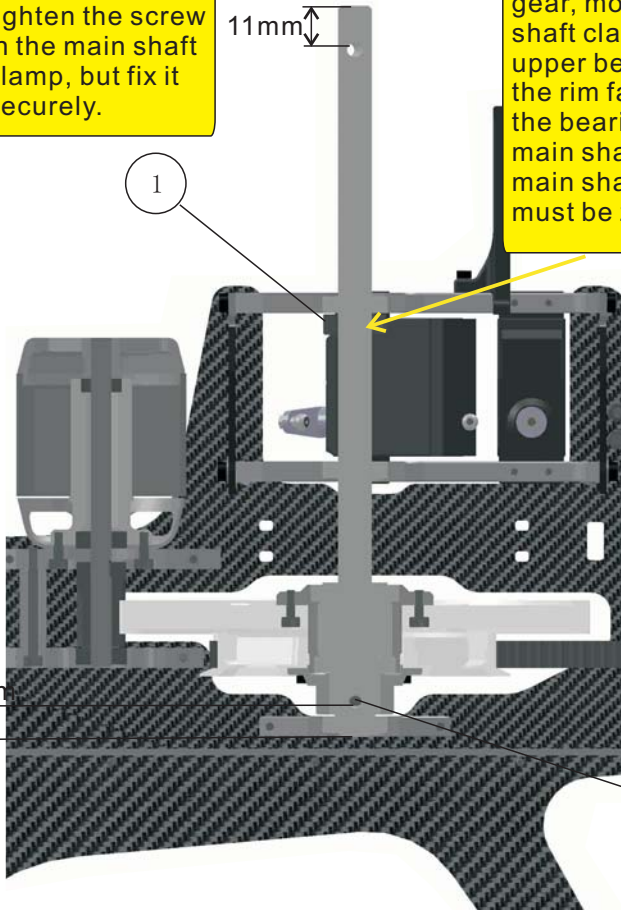
After installing the main gear, mount the main shaft clamp below the upper bearing block with the rim facing towards the bearing. Push the main shaft down and the main shaft clamp up. The must be zero clearance.

1



2

8.5mm



4

5

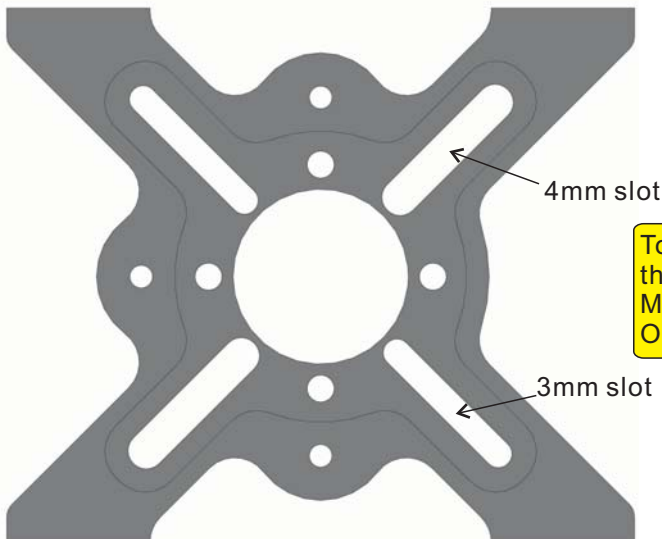
If you have to change the main gear, do not overtighten the bolts going into the hub or it may draft the main gear. Tighten the bolts in a cross pattern.

To install 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.

6



2 extra M4x10 Bolts are equipped here in case for optional motors.



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



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 main gear 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“.

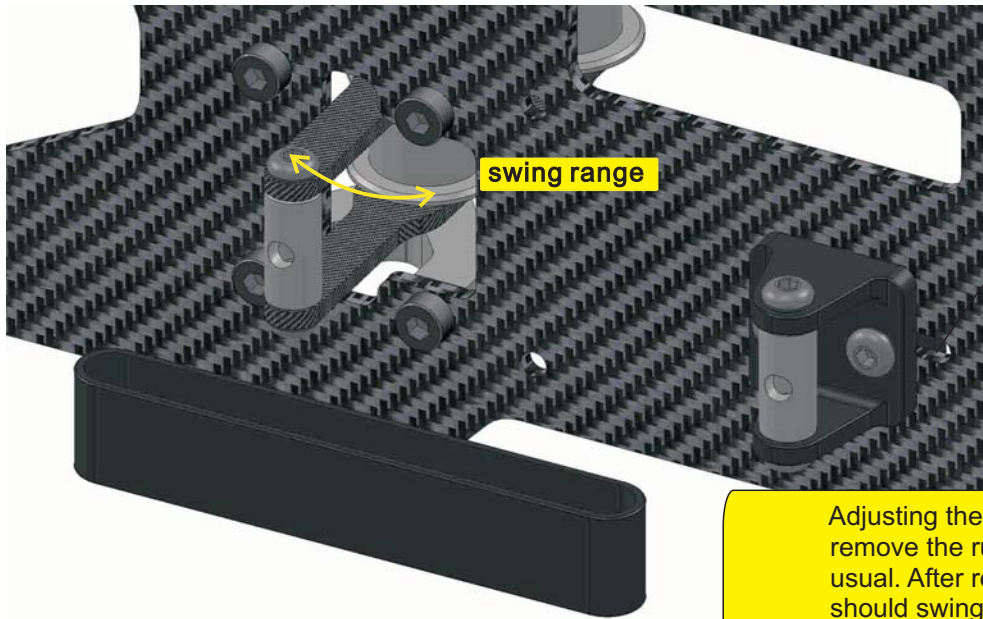
Tip: Choose a low kv motor so you can use 14t or higher pinion for good contact with the main gear to prevent excessive wear on the main gear.

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.



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.

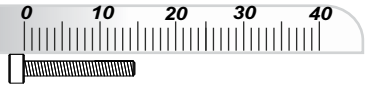
Tip: Fix the tail boom clamp later, so you can adjust the angle for a perfect smooth running tail control.



Adjust the belt idler 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



Caution Use medium threadlock on all screws going into metal parts

Mount the main rotorhead using the upper hole

VERY IMPORTANT:



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!

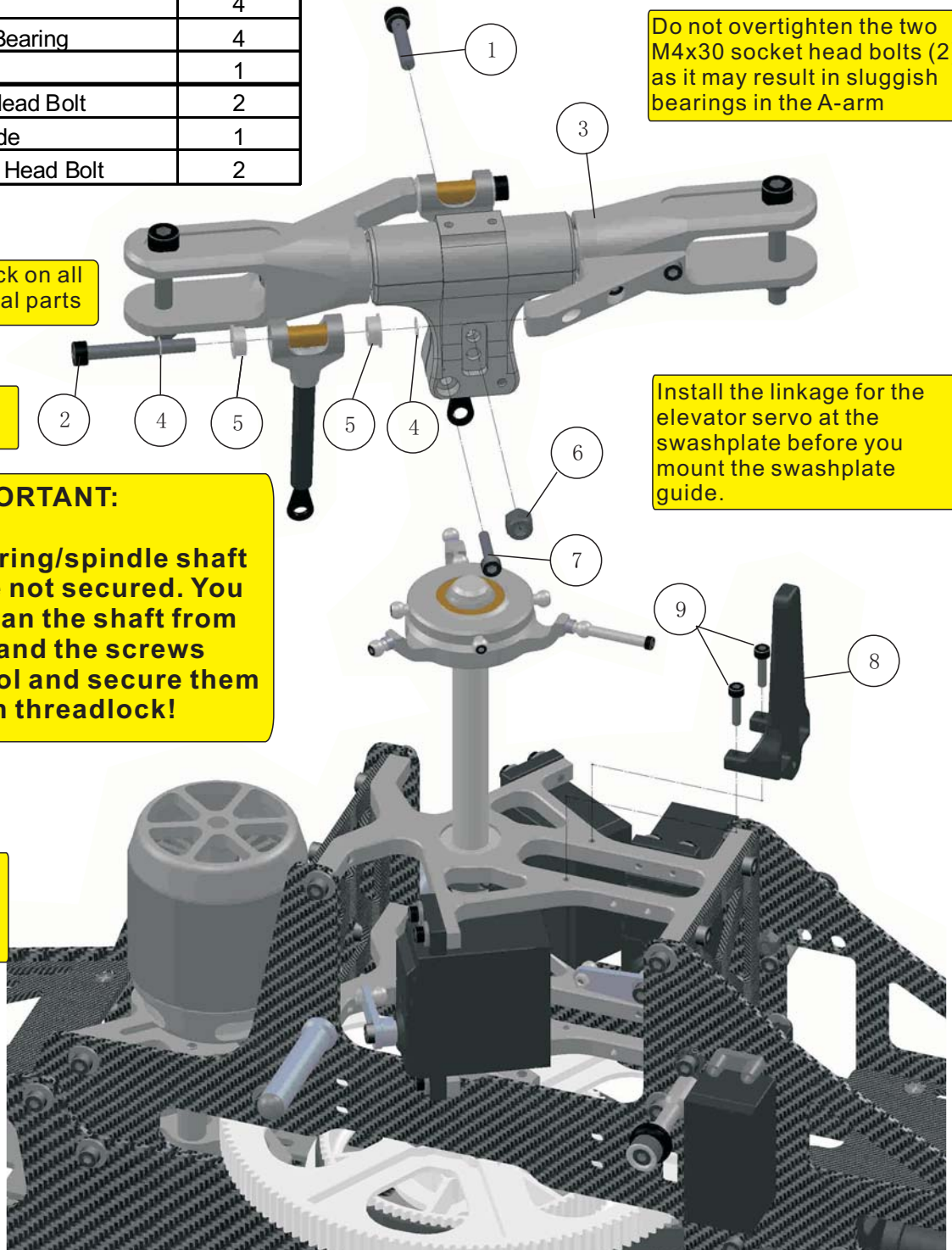
Use some light oil on the main shaft for a smooth travelling swashplate and clean it regularly.

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 too much force.

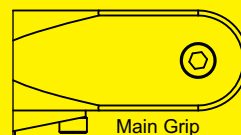
Do not overtighten the two M4x30 socket head bolts (2) as it may result in sluggish bearings in the A-arm

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

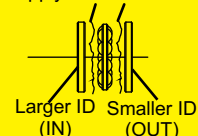


Thrust Bearing Direction

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.



Apply Grease Here

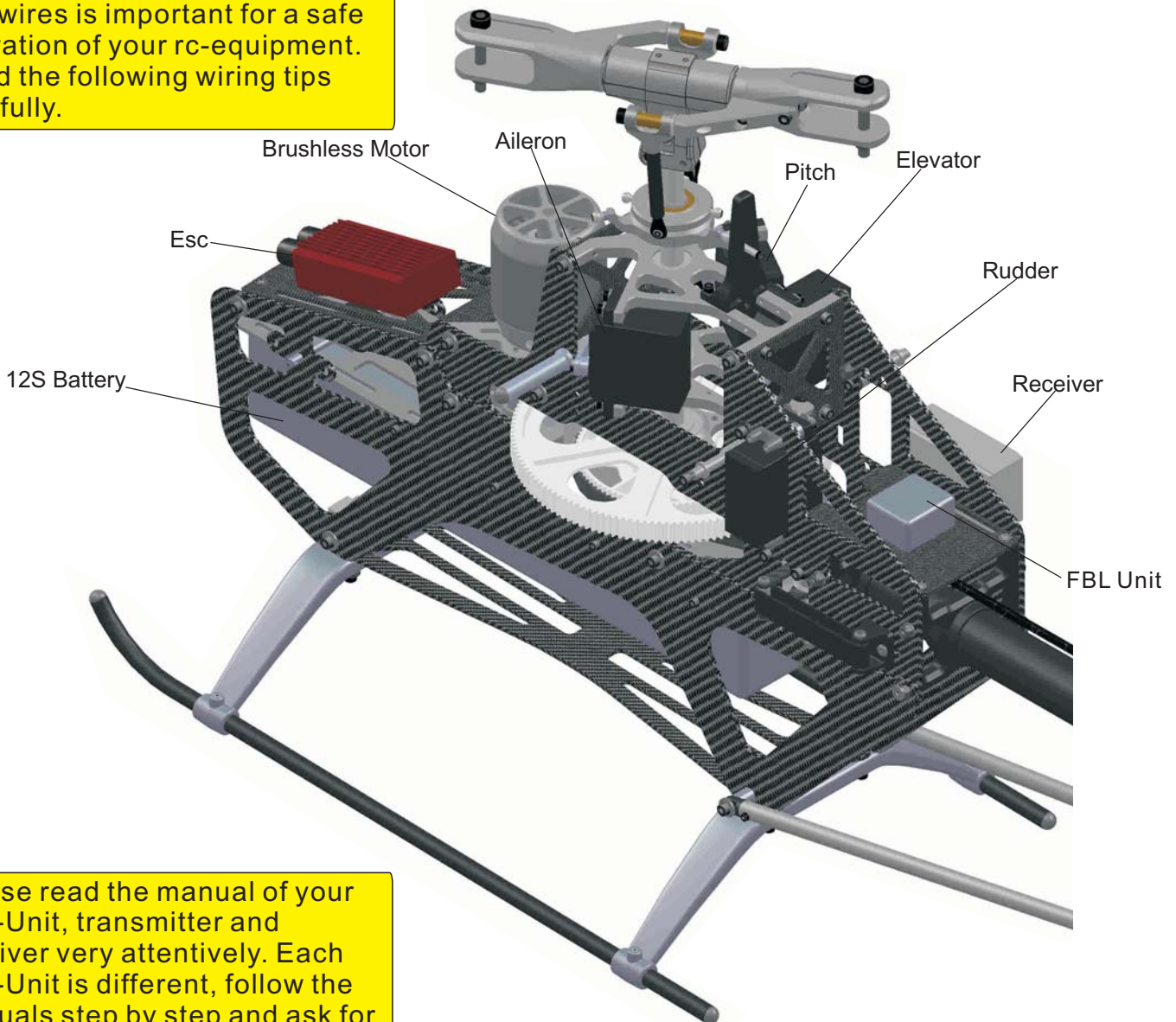


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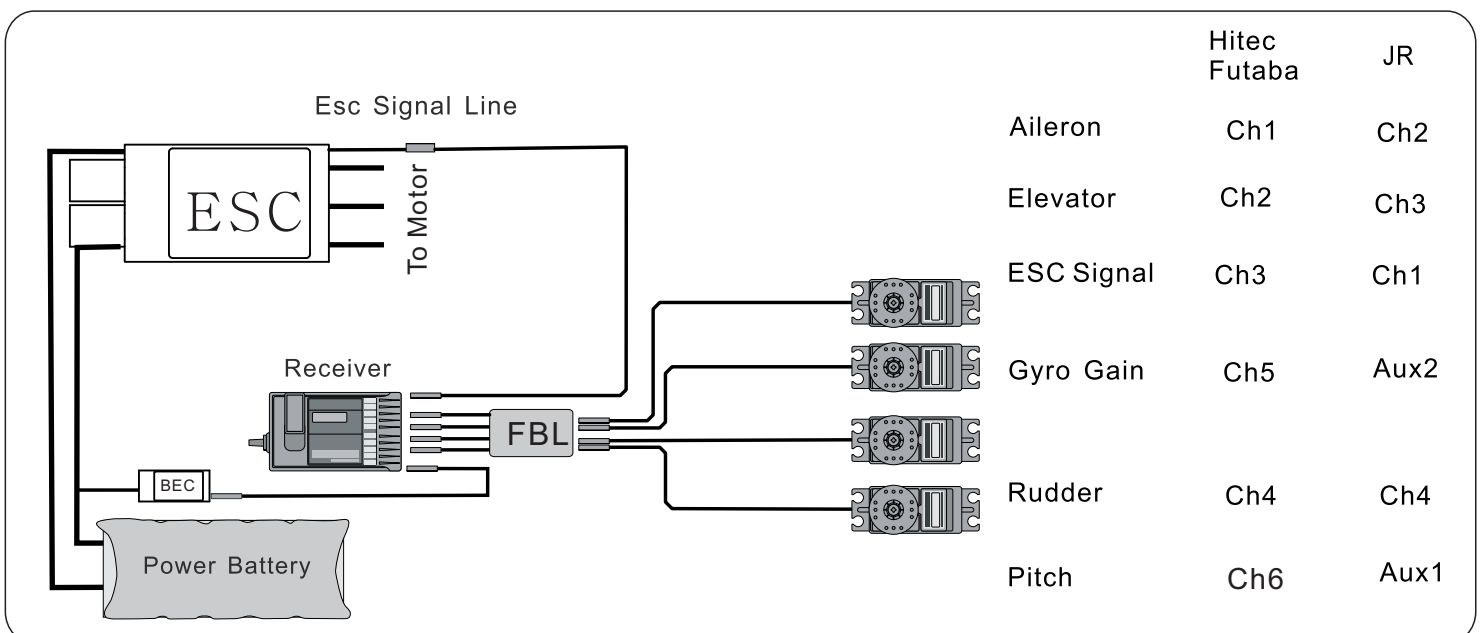
Suggested Equipment Position



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.





Caution

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



Caution

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 built 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 its 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

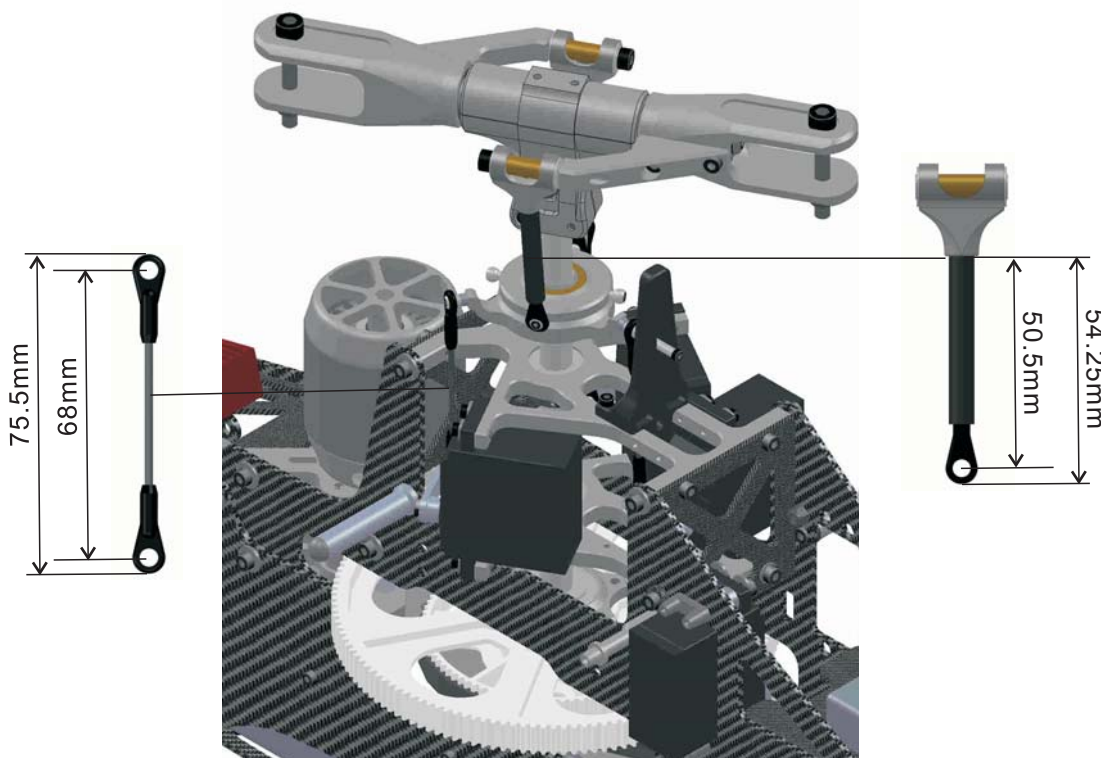
All ball links must be clipped on the balls with the Compass writing facing to the outside.



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.

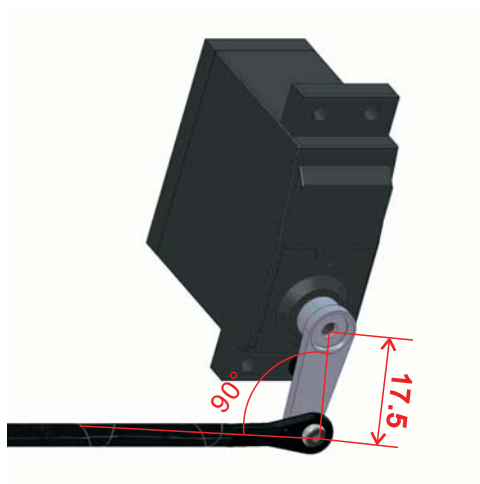
Linkage Lengths:

Servo Horn to Servo center: about 17.5mm

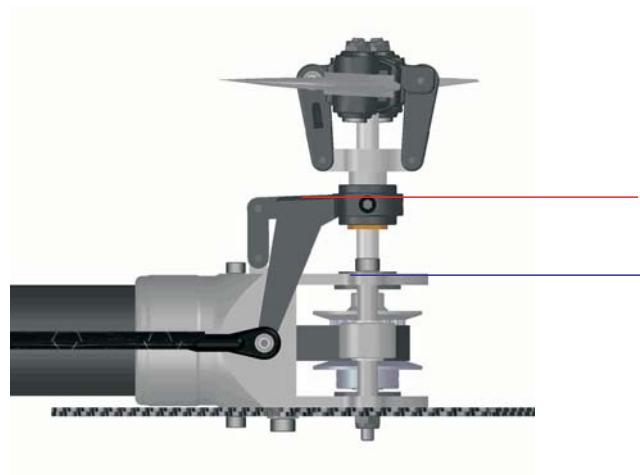
Servo to Swash: about 57mm inner edge to inner edge

Swash to A connector: 58mm inner edge to inner edge as per picture.

Tail Setup

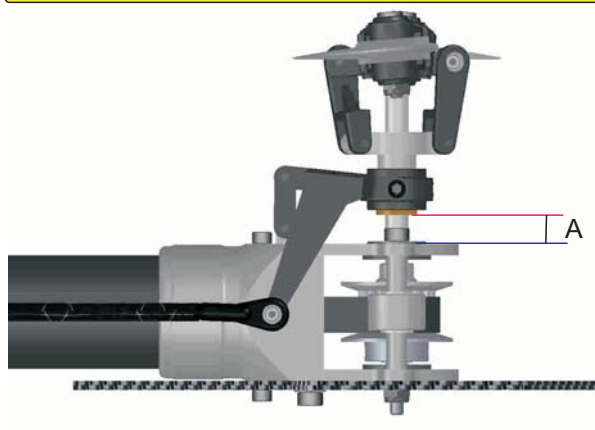


At zero position, the servo arm should be at 90°. Use the best fitting servo arm and read the manual of your FBL-Unit how to adjust the servo mid-position.



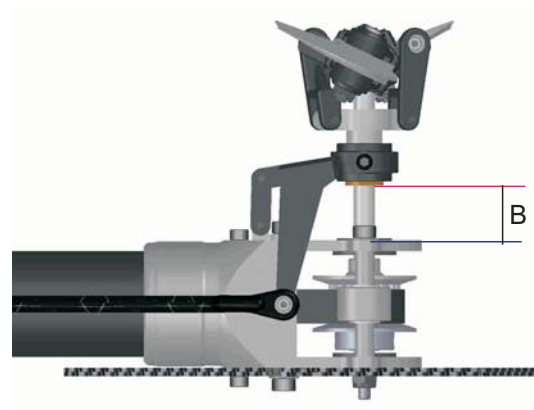
Adjust the linkage length so that the slider is parallel to the tail case side wall.

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 A from slider to bearing. The table below gives the value of A for different blades and rotor head rpm. With the tail pitch slider in this position, the helicopter will turn clockwise.



Counter Clockwise Position

Set the limit of the tail servo to B from slider to bearing. The table below gives the value of B for different blades and rotor head rpm. With the tail pitch slider in this position, the helicopter will turn counter clockwise.

	Headspeed 1400-1800		Headspeed 1800-2100	
	Travel A	Travel B	Travel A	Travel B
Stock Plastic	2mm	17mm	2mm	16.5mm
KBDD 104mm	2mm	17mm	2mm	16.5mm
Compass 115mm	3.5mm	16mm	4mm	16mm
Most CF 105mm	3mm	17mm	3mm	16.5mm

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.

Double check this step!

Wiring Tips



Caution

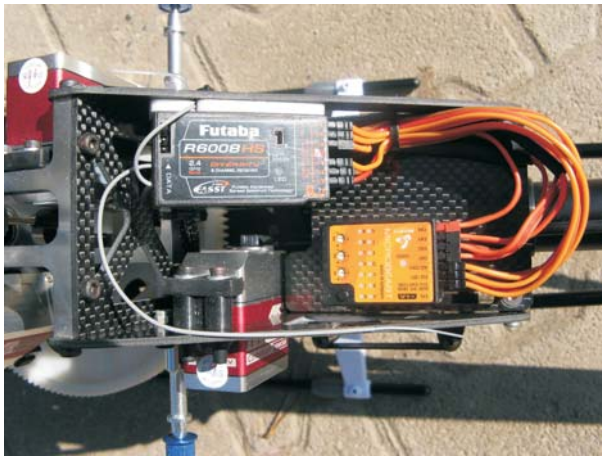
Never use RC-components with damaged wires. Check all wires for damaged isolation and breakage. Control all servo connectors for a tight fit and be sure no wire is loose in the connector.



Caution

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.

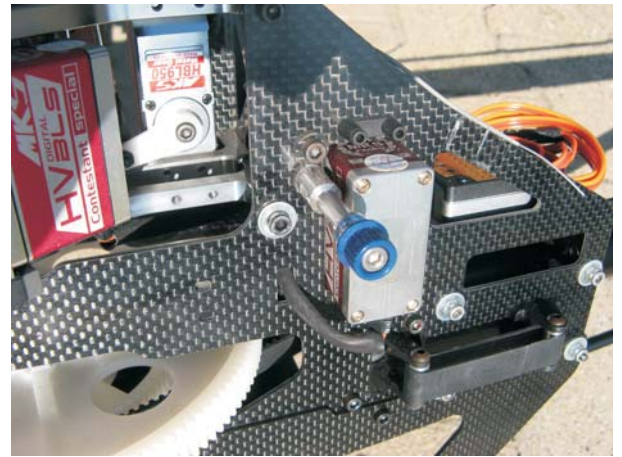
Tip: Cut open a piece of fuel line to cover sharp edges. You can also use fuel lines to cover zip ties to prevent them from damaging the wires.



Caution

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

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 use heat shrink to protect wires where zip ties overlie.



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.



Caution

Do not pull out connectors by pulling at the wires!



Caution

Do not fold any wire, place them in curves.



Caution

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

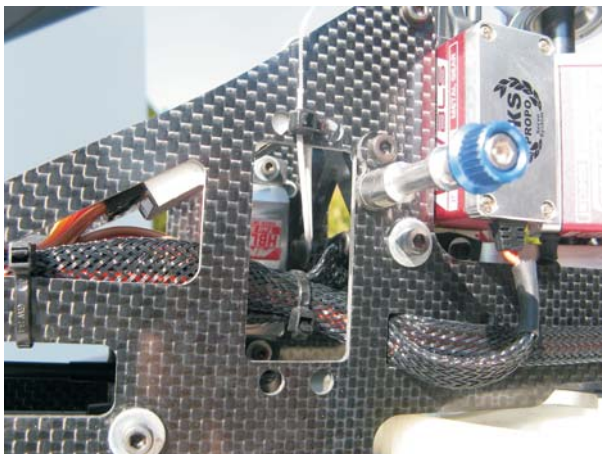
Tip: Secure connectors with heat glue at the receiver and FBL-Unit. Avoid contact of the glue with stickers and the wires. The glue is easy to remove.

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



Caution

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.



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: 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 servo mount behind the servos. With this trick you can easily use the pitchgauge to check the collective and cyclic angles.



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, therefore read the manual of your FBL-Unit and follow the instructions!

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 too 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 radio tray 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 piro-manouvers.



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

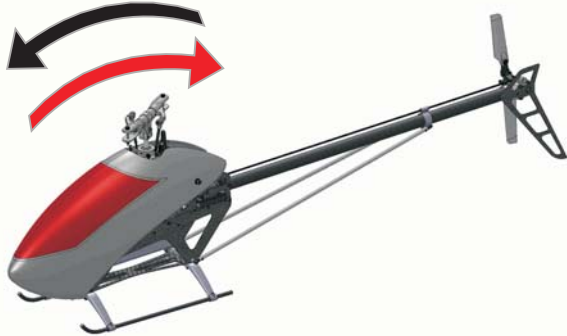


Caution

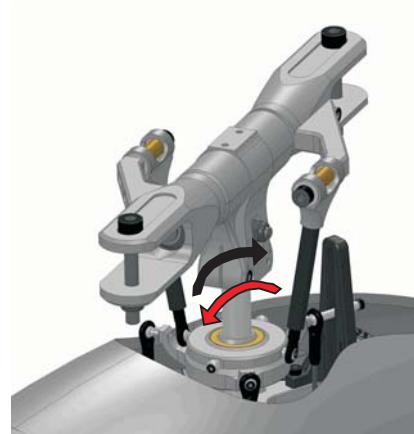
Double check the gyro directions of your fbl unit!
Incorrect gyro directions will cause a crash!

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.

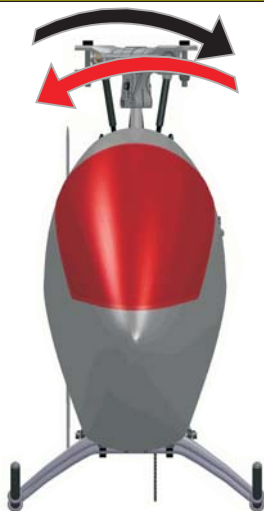


Tilt the helicopter forwards as shown in the picture. The swasplate must tilt backwards.



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

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



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



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

8

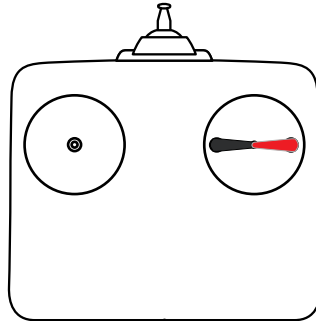
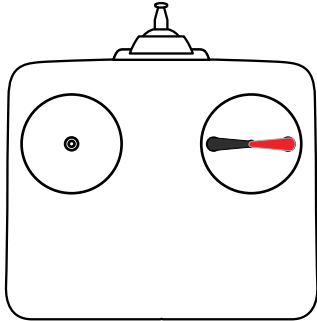
Control Check

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

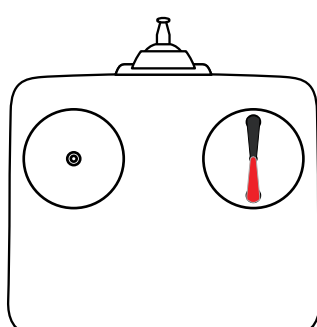
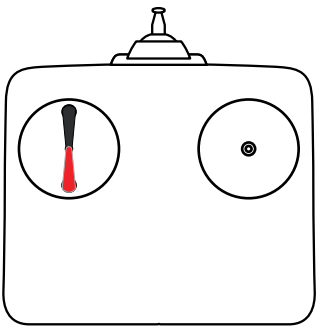
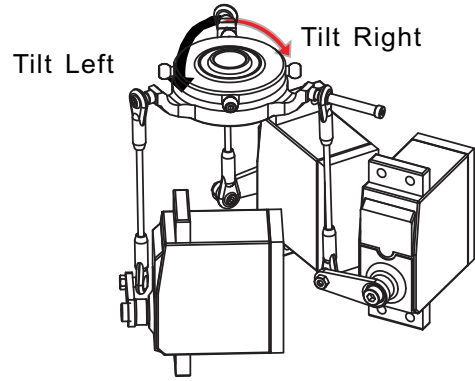
Mode 1

Mode 2

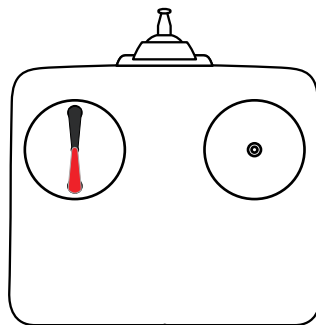
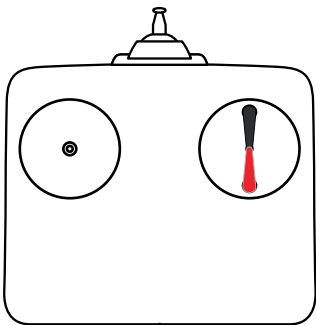
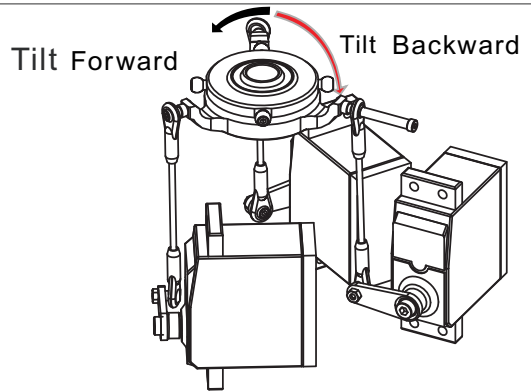
Swashplate Reaction



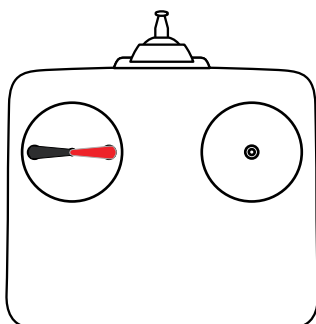
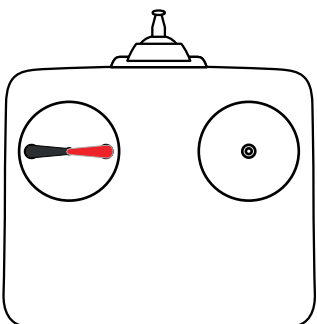
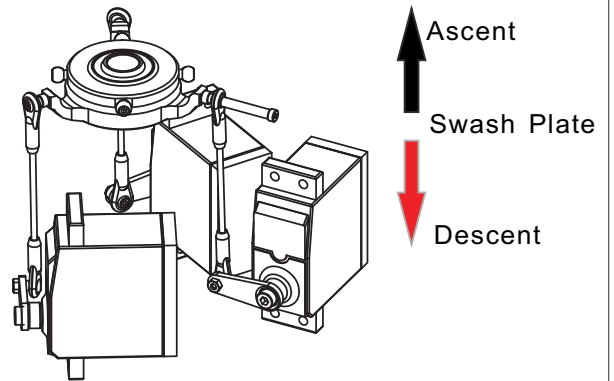
Aileron Check



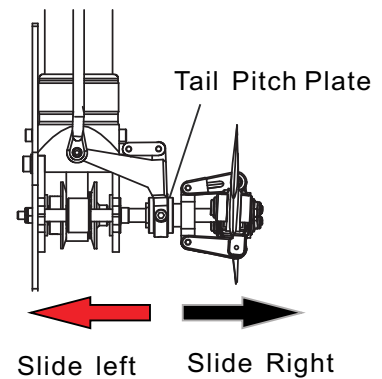
Elevator Check



Pitch Check

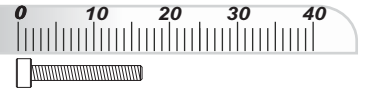


Rudder Check



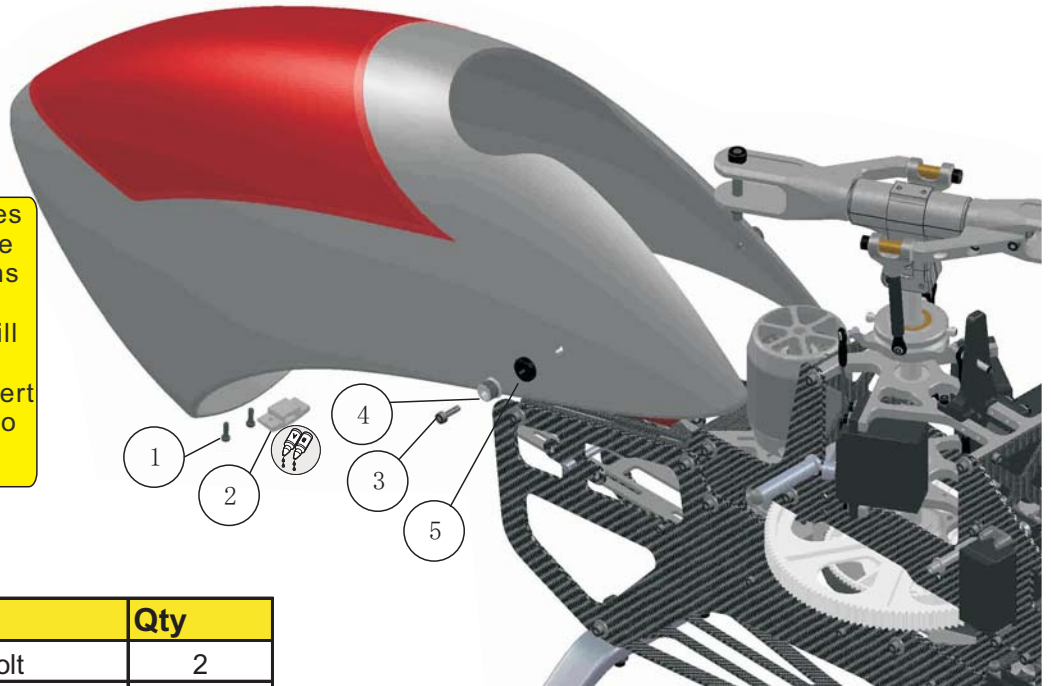
9

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

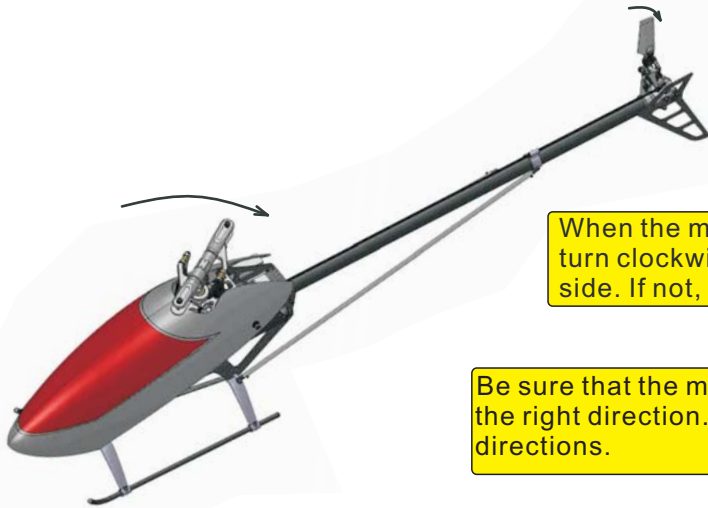


Belt-driven tailrotors can produce a high amount of electricity. The discharge can cause a blockage of the radio signal and the RC-Components. If you have transmission problems and/or problems like hard tail kicks and lockouts during flight, you have to ground the tail. We recommend to ground each helicopter 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.



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 tighten the blades much stronger than this and use the washers delivered with the blades.



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



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

To 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 another 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 gets 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.



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



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



Read the following pages before you go to test this!

Caution

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



COMPASS MODEL (HK) LIMITED

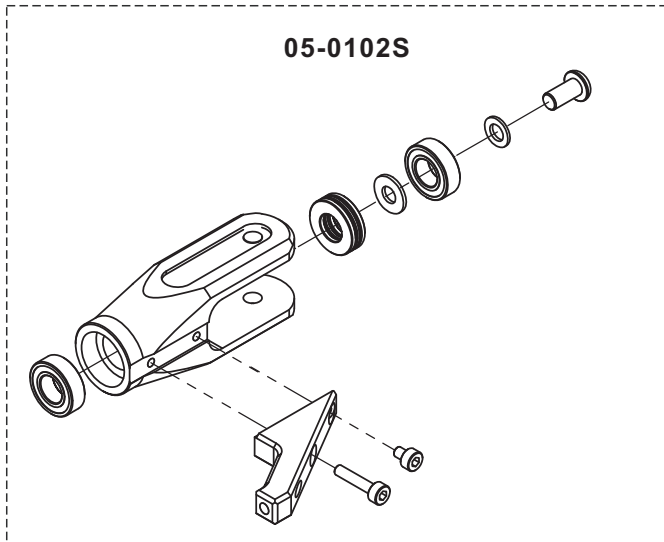
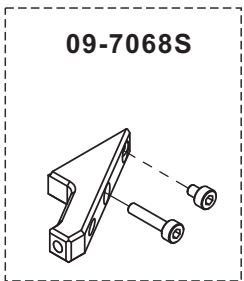
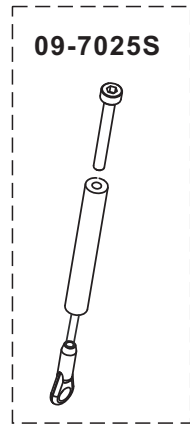
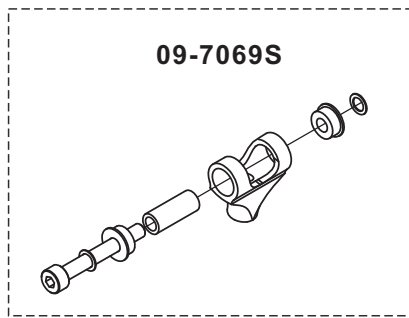
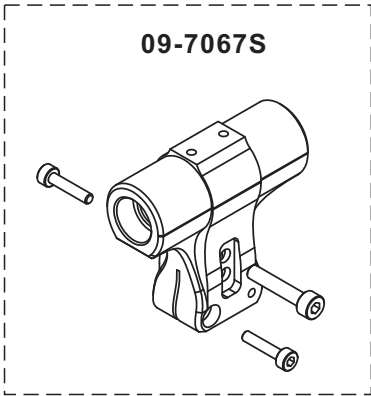
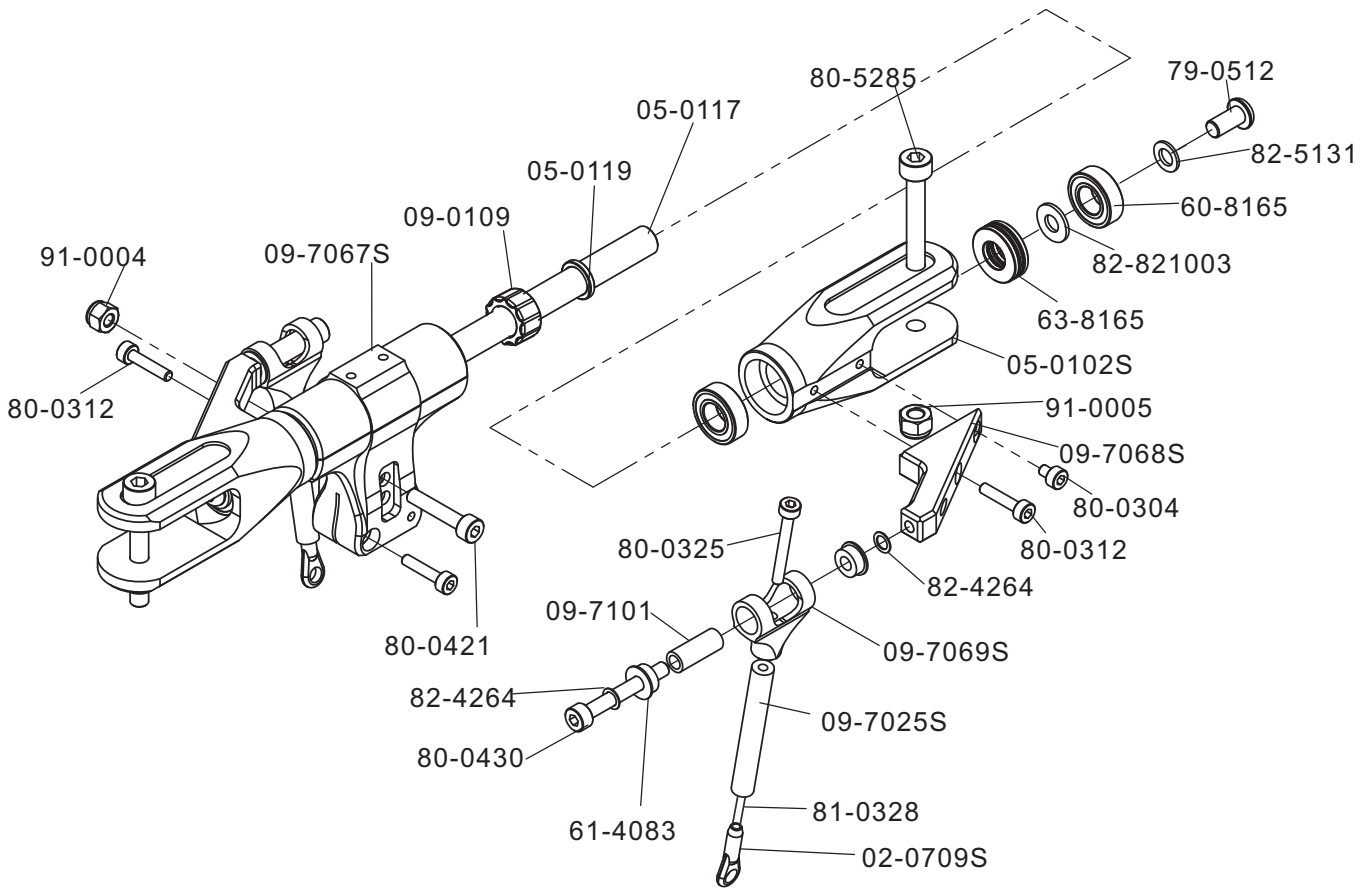
www.compassmodel.com



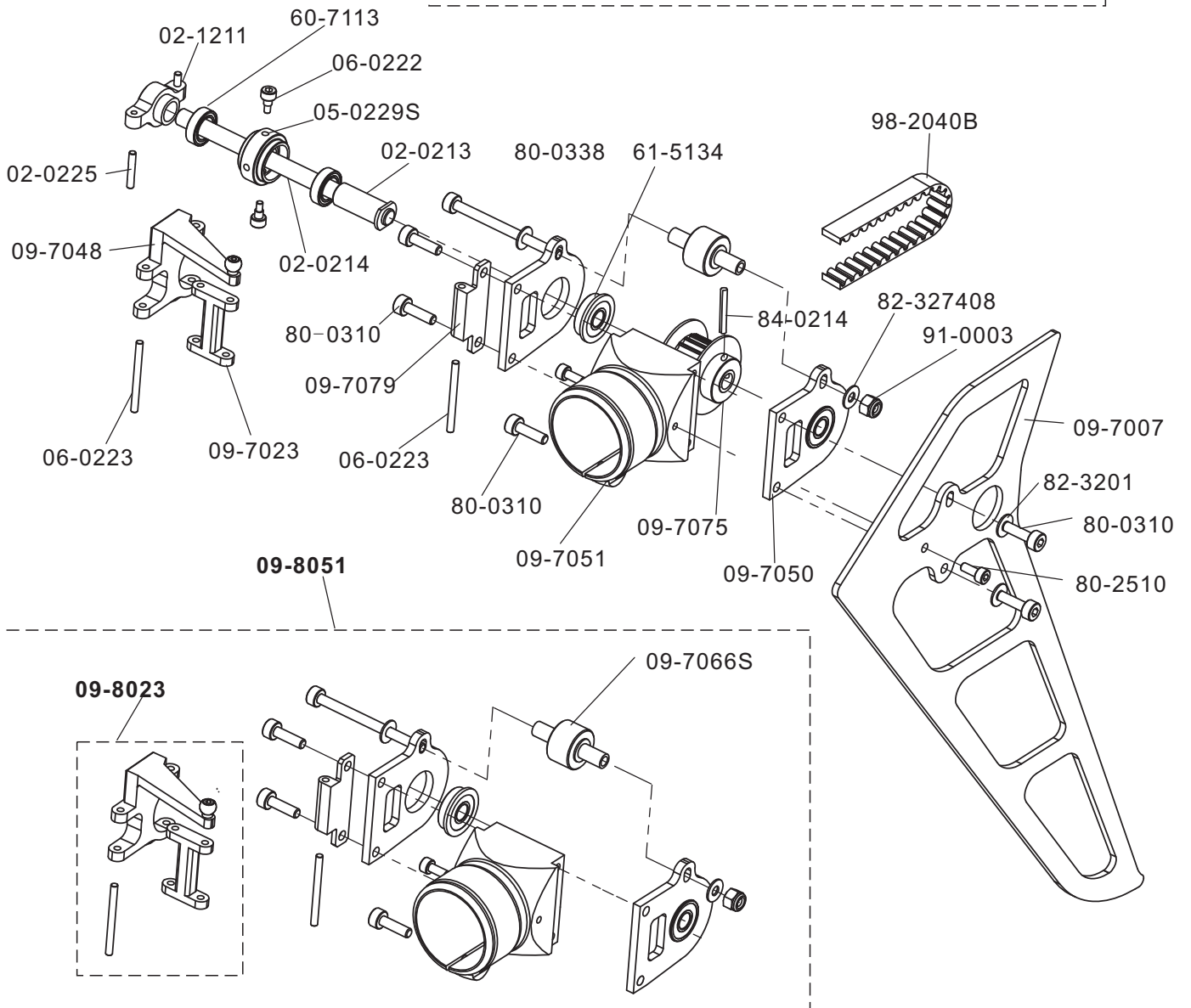
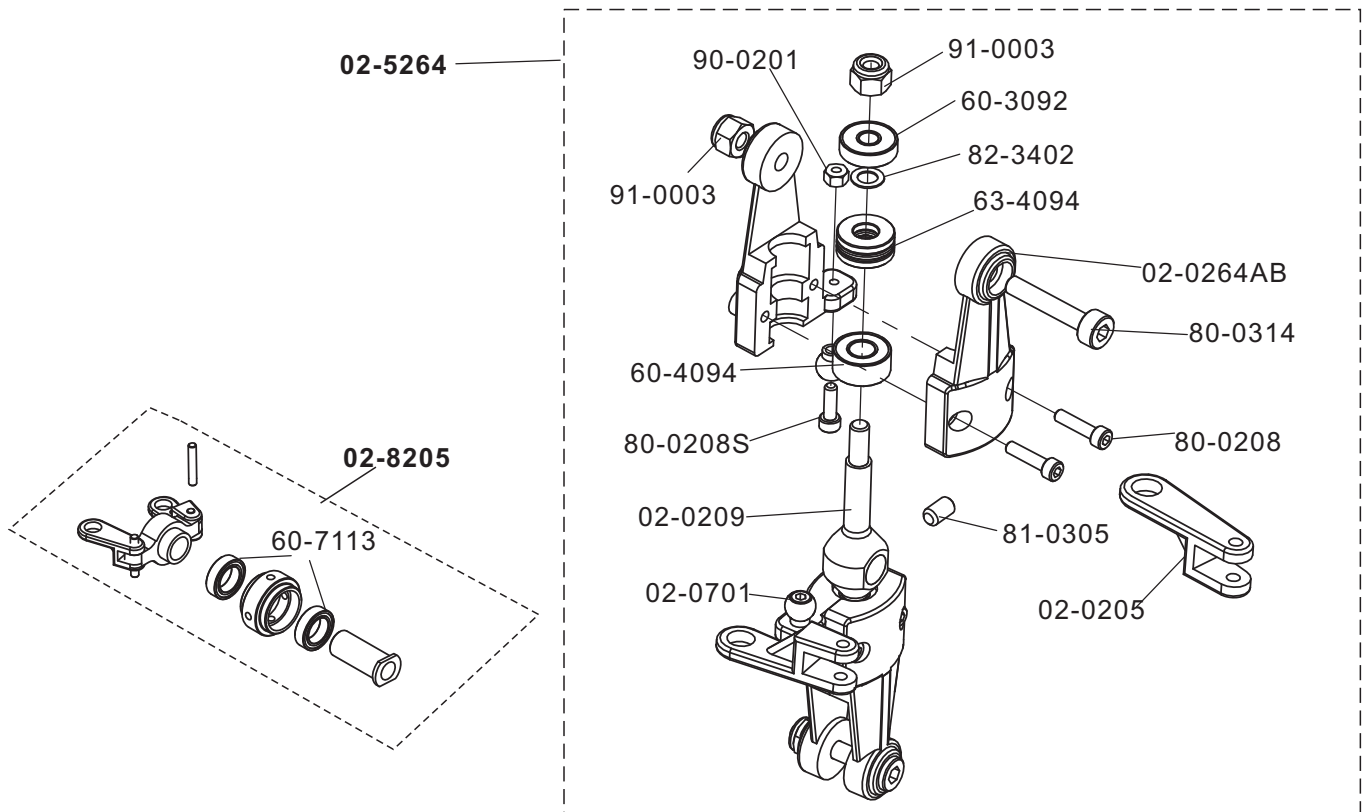
Parts List

7 HV

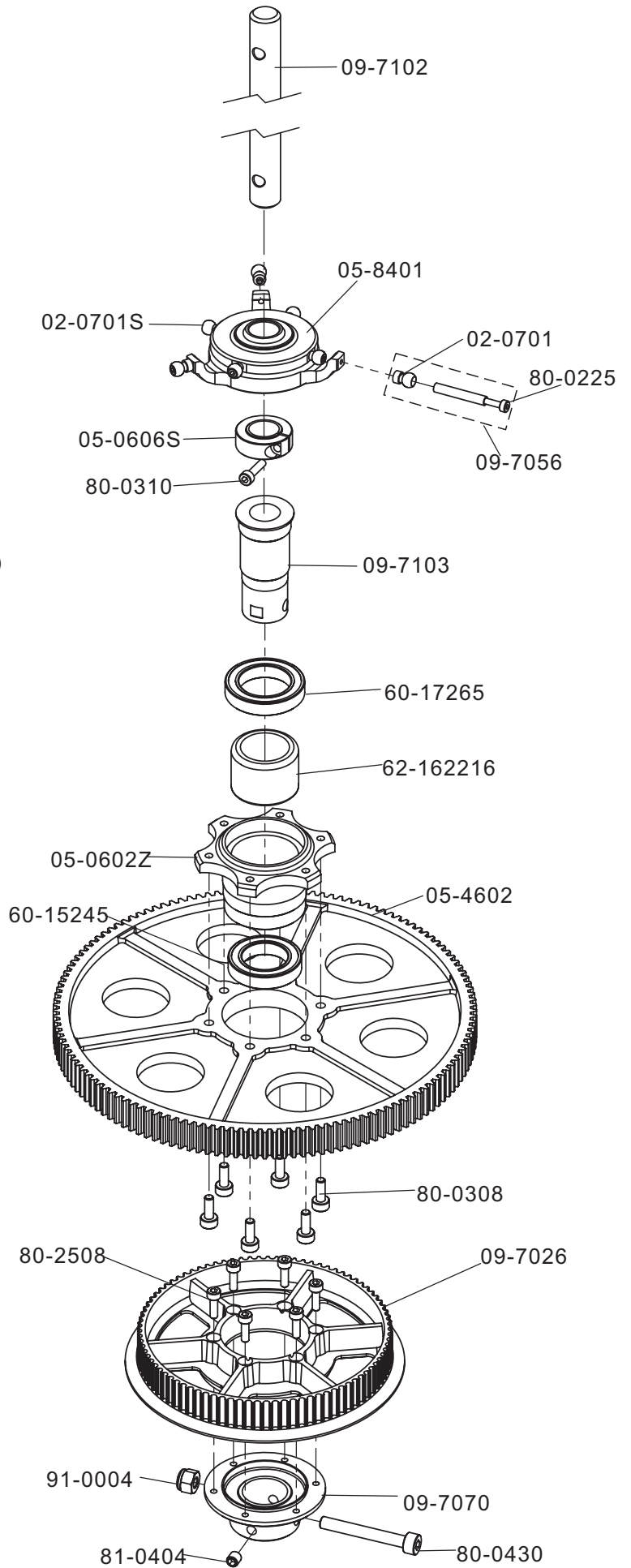
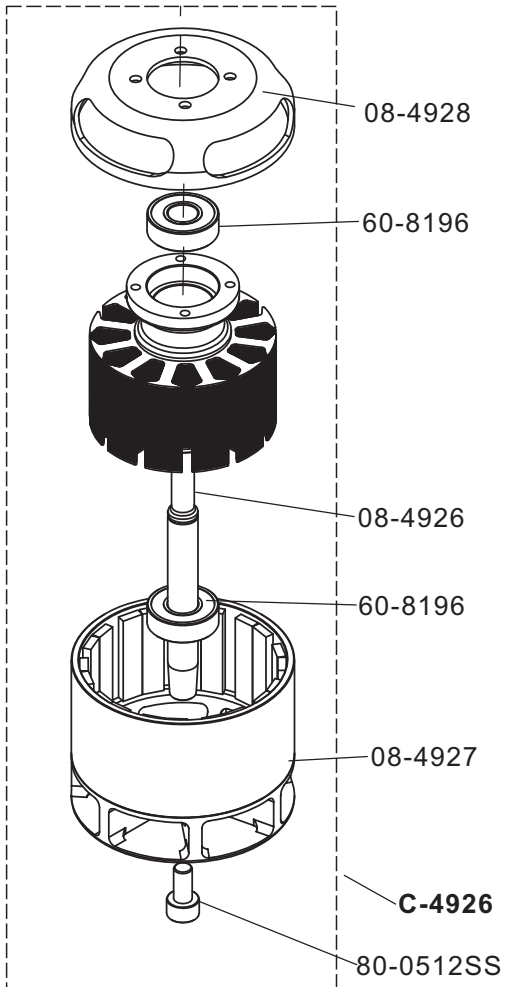
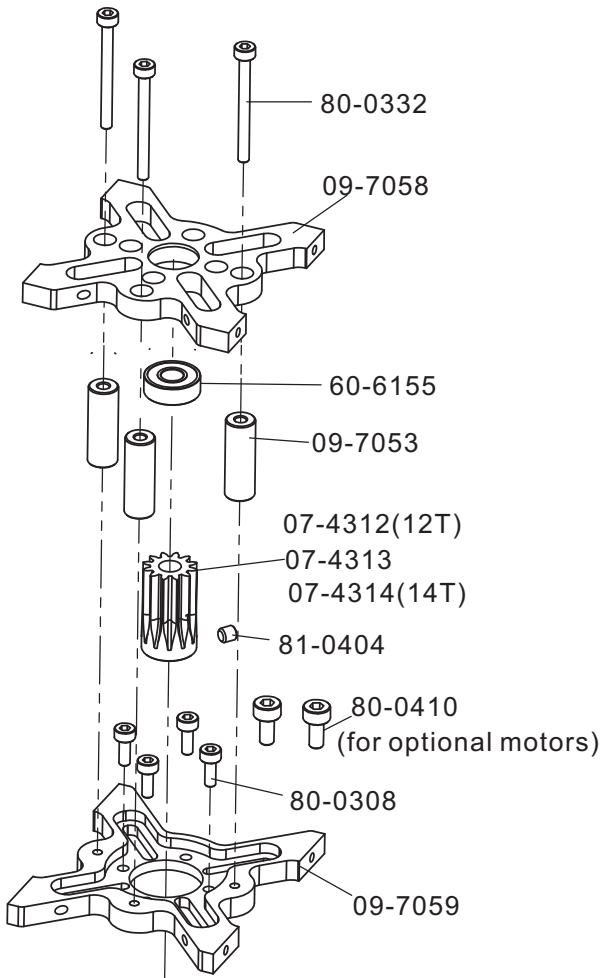
Version 3.0/2012



Part No.	Part Description	Qty,
02-0709S	Ball Links	10 pcs/bag
05-0102S	Metal Main Grips 7Hv	1 pcs/bag
05-0117	Spindle	2 pcs/bag
05-0119	Spindle Washer (90)	2 pcs/bag
09-0109	7Hv Dampner	2 pcs/bag
09-7025S	7Hv Fbl Drive Tube	1 pcs/bag
09-7067S	7Hv Center Hub	1 pcs/bag
09-7068S	7Hv Main Grip Arm	1 pcs/bag
09-7069S	7Hv Fbl Arm Connector	1 pcs/bag
09-7101	7Hv Fbl Connector Collar	2 pcs/bag
60-8165	Ball Bearings 8X16X5	2 pcs/bag
61-4083	Flanged Bearings 4X8X3	4 pcs/bag
63-8165	Thrust Bearings 8X16X5	2 pcs/bag
79-0512	Button Head Bolts M5X12	10 pcs/bag
80-0304	Cap Head Bolts 3X4	2 pcs/bag
80-0312	Cap Head Bolts M3X12	10 pcs/bag
80-0325	Cap Head Bolts M3X25	10 pcs/bag
80-0421	Cap Head Bolts M4X21	2 pcs/bag
80-0430	Cap Head Bolts M4X30	10 pcs/bag
80-5285	Shanked Bolts M5X28.5	2 pcs/bag
81-0328	Set Screws M3X28	10pcs/bag
82-4264	Washers 4.2X6X0.4	10 pcs/bag
82-5131	Washers 5.1X13X0.1	10 pcs/bag
82-821003	Washers 8.2X10X0.3	10 pcs/bag
91-0004	Nylon Lock Nuts M4	10 pcs/bag
91-0005	Nylon Lock Nuts M5	2 pcs/bag

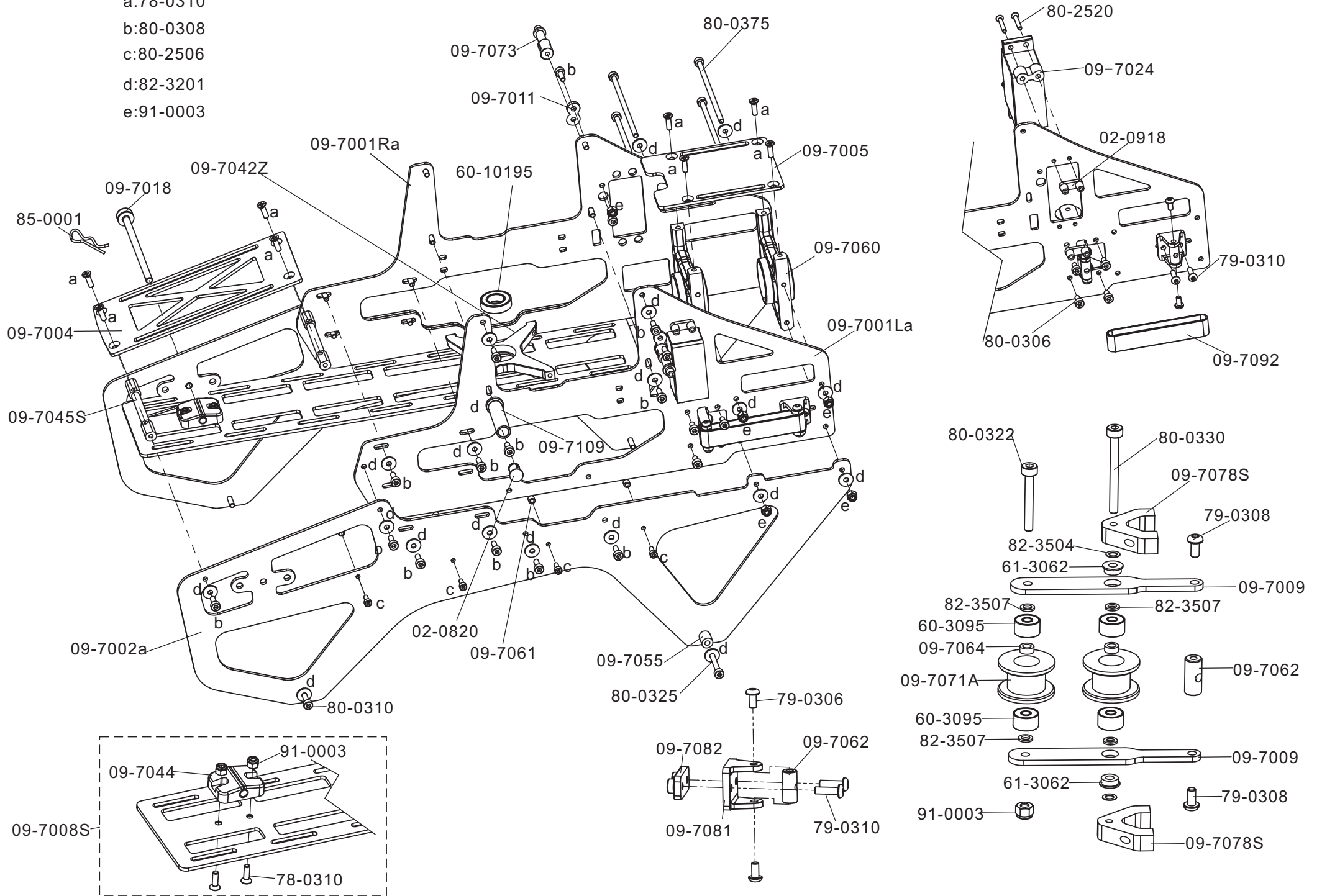


Part No.	Part Description	Qty,
02-0205	Tail Blade Links W. Pin	2 pcs/bag
02-0209	Tail Rotor Hub	1 pcs/bag
02-0213	Tail Pitch Slider	1 pcs/bag
02-0214	Tail Shafts	2 pcs/bag
02-0225	Grooved Pin 2X10	4 pcs/bag
02-0264AB	Tail Blade Holder Set	2 pcs/bag
02-0701	Stainless Link Balls	10 pcs/bag
02-1211	Tail Pitch Plate W, Bb	1 pcs/bag
05-0229S	Tail Pitch Slider W, Bb	1 pcs/bag
06-0222	Guide Pin Bolts	2 pcs/bag
06-0223	Pin 2X24	4 pcs/bag
09-7007	Tail Fin	1 pcs/bag
09-7023	Tail Pitch Connector	1 pcs/bag
09-7048	Tail Pitch Arm	1pcs/bag
09-7050	Tail Gear Box Frames	1 set/bag
09-7051	Tail Gear Box	1 pcs/bag
09-7066S	Tail Guide Wheel	1 set/bag
09-7075	Tail Pulley	1 set/bag
09-7079	7hv Tail Hinge	1pcs/bag
09-8023	7Hvtail Pitch Lever Set	1 set/bag
09-8051	7Hv Metal Gear Box	1 set/bag
02-8205	Tail Pitch Control unit	1 set/bag
02-5264	Tail rotor hub assembly (plastic)	1 set/bag
60-3092	Ball Bearings 3X9X2.5	4 pcs/bag
60-4094	Ball Bearings 4X9X4	5 pcs/bag
60-7113	Ball Bearings 7X11X3	2 pcs/bag
61-5134	Flanged Bearings 5X13X4	2 pcs/bag
63-4094	Thrust Bearings 4X9X4	2 pcs/bag
80-0206s	Cap Head Bolts 2X6	10 pcs/bag
80-0208	Cap Head Bolts M2X8	10 pcs/bag
80-0208S	Cap Head Bolts 2X8 special made for ball	10 pcs/bag
80-0310	Cap Head Bolts M3X10	10 pcs/bag
80-0314	Cap Head Bolts M3X14	10 pcs/bag
80-0338	Cap Head Bolts M3X38	10 pcs/bag
80-2510	Cap Head Bolts M2.5X10	10 pcs/bag
81-0305	Set Screws M3X5	10 pcs/bag
82-327408	Washers 3.2X7.4X0.8	10 pcs/bag
82-3402	Washers 3.3X5.2X0.3	10 pcs/bag
84-0214	Spring Pin 2X14	10 pcs/bag
90-0201	Nuts M2	10 pcs/bag
91-0003	Nylon Lock Nuts M3	10 pcs/bag
98-2040B	3M 8Mm Wide 2040 Belt	1 pcs/bag

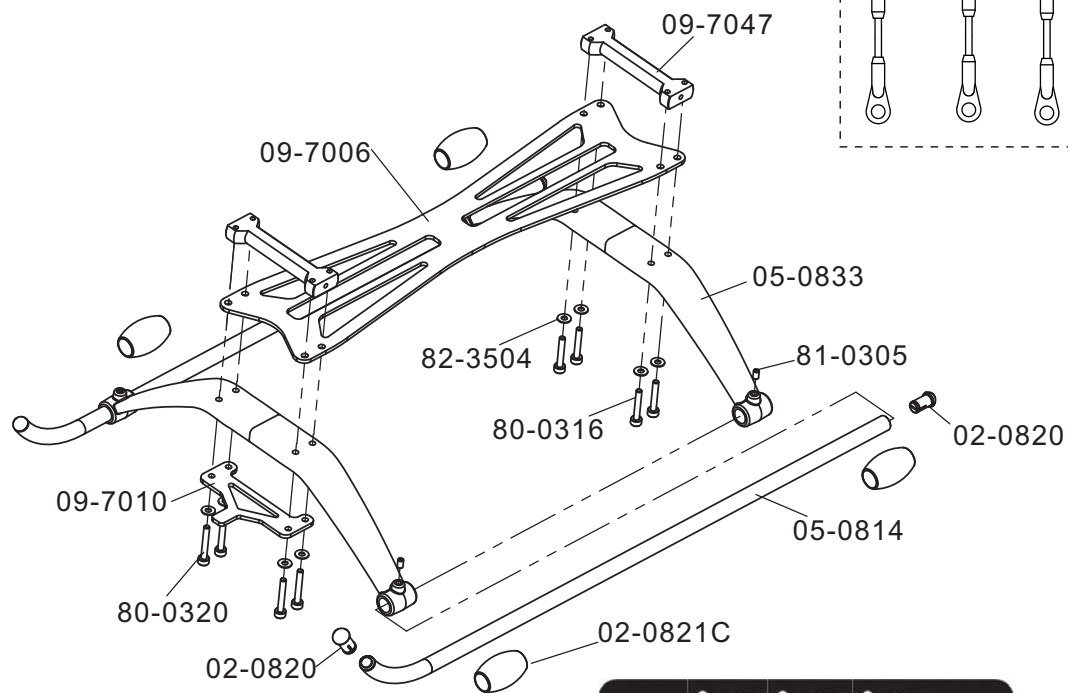
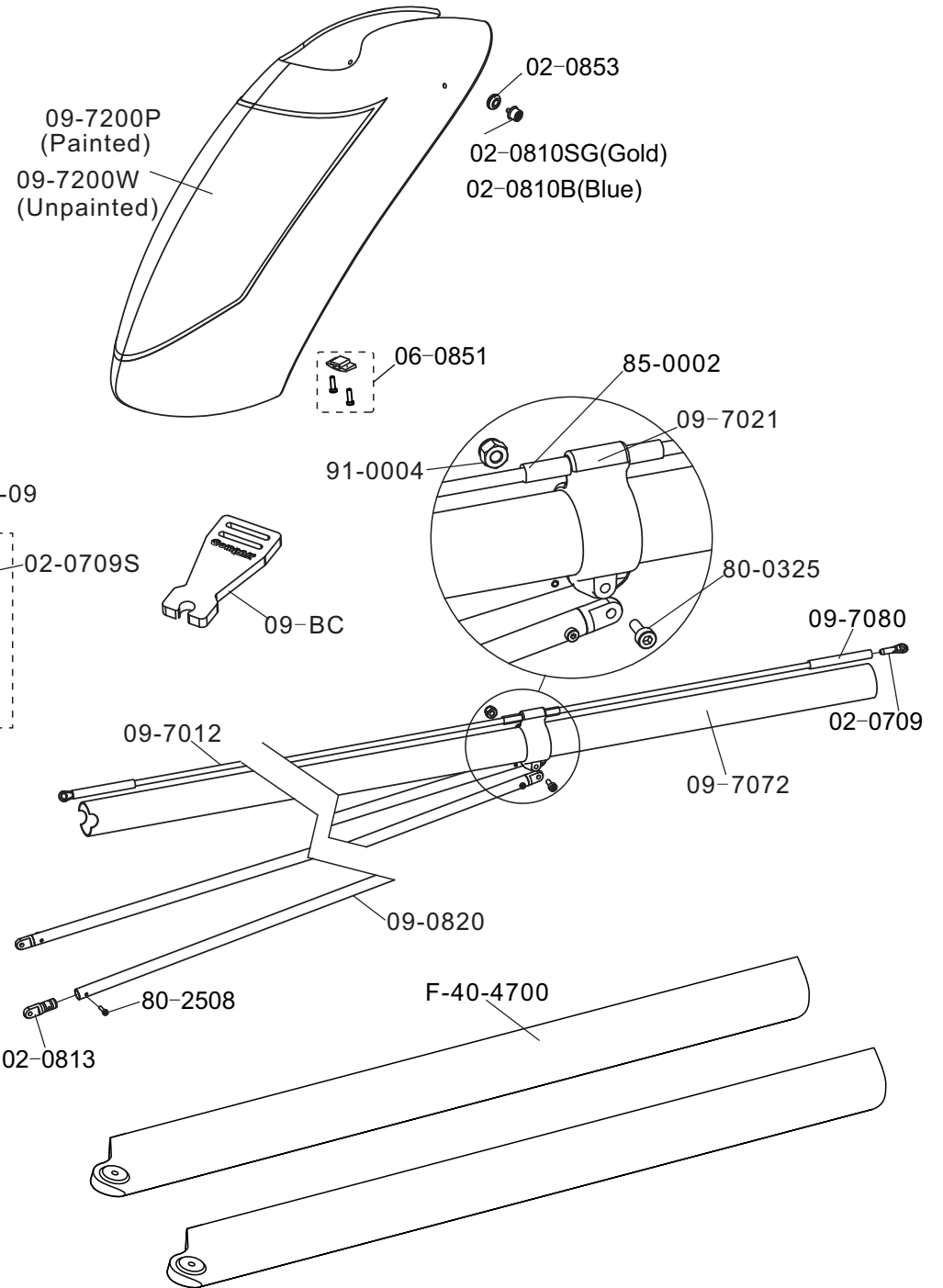
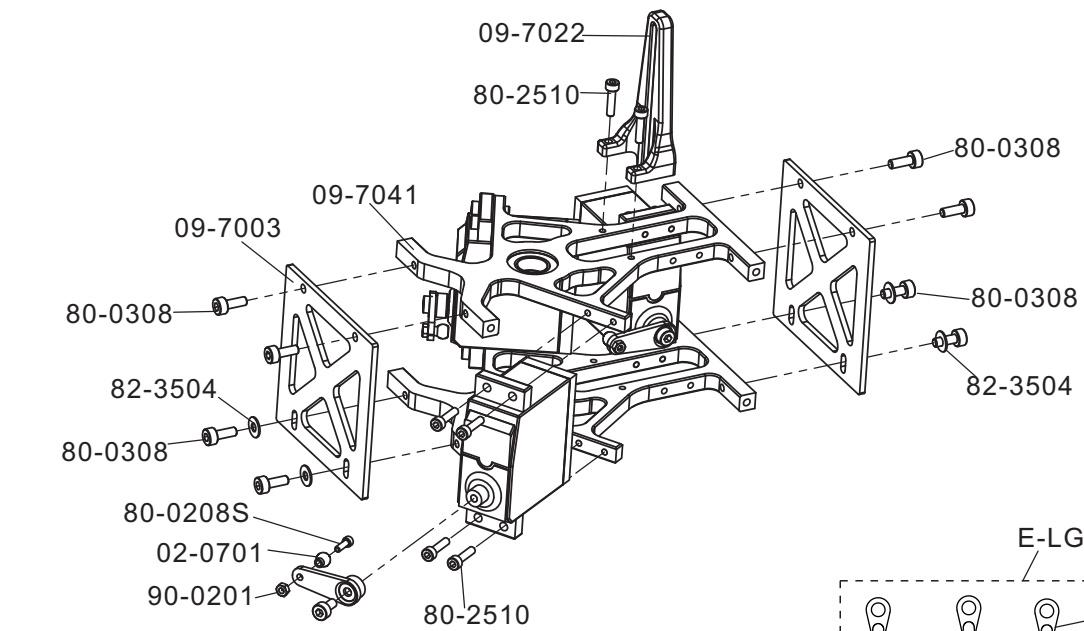


Part No.	Part Description	Qty,
02-0701	Stainless Link Balls	10 pcs/bag
02-0701S	Solid Link Balls	10 pcs/bag
05-0602Z	Autorotation Hub W,One Way Bearing	1pcs/bag
05-0606S	Mast Lock Clamp	1 pcs/bag
05-4602	Main Gear	1pcs/bag
05-8401	7Hv Swash Plate	1set/bag
07-4312	Pinion Gear (12T)	1 set/bag
07-4313	Pinion Gear (13T)	1 set/bag
07-4314	Pinion Gear (14T)	1 set/bag
09-7026	7Hv Main Pulley	1pcs/bag
09-7053	7Hv Motor Mount Spacer	3pcs/bag
09-7056	Swash Plate Pin	1set/bag
09-7058	7Hv Motor Mount Top	1 pcs/bag
09-7059	7Hv Motor Mount Bottom	1 pcs/bag
09-7070	Main Pulley Hub	1 pcs/bag
09-7102	7Hv Main Shaft	2pcs/bag
09-7103	Autorotation Sleeve	1pcs/bag
08-4926	Motor Shaft for 4926 motor	1pcs/bag
08-4927	Motor shell for SZ4926	1pcs/bag
08-4928	Motor cover for SZ4926	1pcs/bag
60-15245	Ball Bearings 15X24X5	2 pcs/bag
60-17265	Ball Bearings 17x26x5	2 pcs/bag
60-6155	Ball Bearings 6X15X5	2 pcs/bag
60-8196	Ball Bearings 8x19x6	2 pcs/bag
62-162216	One way bearing 16x22x16	1 pcs/bag
80-0512SS	Stainless Cap Head bolt M5x12	2 pcs/bag
80-0225	Cap Head Bolts 2X25	1pcs/bag
80-0308	Cap Head Bolts M3X8	10 pcs/bag
80-0310	Cap Head Bolts M3X10	10 pcs/bag
80-0332	Cap Head Bolts M3X32	10 pcs/bag
80-0410	Cap Head Bolts M4x10	10 pcs/bag
80-0430	Cap Head Bolts M4X30	10 pcs/bag
80-2508	Cap Head Bolts M2.5X8	10 pcs/bag
81-0404	Set Screws M4X4	10 pcs/bag
91-0004	Nylon Lock Nuts M4	10 pcs/bag
SZ4926	12S Motor for 7hv kv510	1 pcs/bag

- a:78-0310
- b:80-0308
- c:80-2506
- d:82-3201
- e:91-0003



Part No.	Part Description	Qty,
02-0820	Skid End Caps	4 pcs/bag
02-0918	Servo Nuts	5 pcs/bag
09-7001La	Upper Frame Left	1 pcs/bag
09-7001Ra	Upper Frame Right	1 pcs/bag
09-7002a	Lower Frame	1 pcs/bag
09-7004	Receiver Mount	1 pcs/bag
09-7005	7Hv Gyro Mount	1 pcs/bag
09-7008S	Battery Tray	1 set/bag
09-7009	Guide Wheel Frame	2 pcs/bag
09-7011	Canopy Break-Off	2pcs/bag
09-7018	Battery Lock	1 set/bag
09-7024	Servo Spacer	2 pcs/bag
09-7042Z	Bearing Block W, Bearing	1 set/bag
09-7044	Battery Tray Connector	1 pcs/bag
09-7045S	Receiver Stand Off	2 pcs/bag
09-7055	Boom Support Collar	2 pcs/bag
09-7060	7Hv Boom Clamp	2 pcs/bag
09-7061	Battery Tray Stand Off	2 pcs/bag
09-7062	Belt Tension Collar	2 pcs/bag
09-7064	Guide Wheel Collar	4pcs/bag
09-7071A	7Hv Belt Guide Wheel(new)	2 set/bag
09-7073	Canopy Stand Off	2 pcs/bag
09-7078S	Belt Tension Mount	1 set/bag
09-7081	Rubber Band Mount	1 pcs/bag
09-7082	Rubber Band Seat	1 pcs/bag
09-7092	Rubber Band	1 pcs/bag
09-7109	Canopy Spacer	1pcs/bag
60-10195	Ball Bearings 10X19X5	4 pcs/bag
60-3095	Ball Bearings 3X9X5	2 pcs/bag
61-3062	Flanged Bearings 3X6X2	4 set/bag
78-0310	Flat Head Bolts M3X10	10 pcs/bag
79-0306	Button Head Bolts M3X6	10 pcs/bag
79-0308	Button Head Bolts M3X8	10 pcs/bag
79-0310	Button Head Bolts M3X10	10 pcs/bag
80-0306	Cap Head Bolts M3X6	10 pcs/bag
80-0308	Cap Head Bolts M3X8	10 pcs/bag
80-0310	Cap Head Bolts M3X10	10 pcs/bag
80-0322	Cap Head Bolts M3X22	10 pcs/bag
80-0325	Cap Head Bolts M3X25	10 pcs/bag
80-0330	Cap Head Bolts M3X30	10 pcs/bag
80-0375	Cap Head Bolts M3X75	4 pcs/bag
80-2506	Cap Head Bolts M2.5X6	10 pcs/bag
80-2520	Cap Head Bolts M2.5X20	10 pcs/bag
82-3201	Washers 3.2X10X1	10 pcs/bag
82-3504	Washers 3.2X5.2X0.4	10 pcs/bag
82-3507	Washers 3.2X5.2X0.7	10 pcs/bag
85-0001	Clamp pin	2pcs/bag
91-0003	Nylon Lock Nuts M3	10 pcs/bag



Part No.	Part Description	Qty,
02-0701	Stainless Link Balls	10 pcs/bag
02-0709S	Ball Links 2.5Mm	10 pcs/bag
02-0810B	Thumb Screw (Blue)	4pcs/bag
02-0810SG	Thumb Screw (Gold)	4pcs/bag
02-0813S	Tail Boom Brace Connectors W, Bolts	4 pcs/bag
02-0820	Skid End Caps	4 pcs/bag
02-0821C	Skid dampener	4 pcs/bag
02-0853	Canopy Rubber Grommets	10 pcs/bag
05-0814s	Skids With Caps	2pcs/bag
05-0833	Struts	2pcs/bag
06-0851	Canopy Insert	1 set/bag
09-0820S	Boom Support W Terminal	2set/bag
09-7003	Spacer Frame	1pcs/bag
09-7006	Bottom Board	1pcs/bag
09-7010	Canopy Board	1pcs/bag
09-7012S	Tail Link Rod	1set/bag
09-7021	7Hv Tail Link Support	1pcs/bag
09-7022	7Hv Swashplate Guide	1pcs/bag
09-7041	Upper Servo Mount	1pcs/bag
09-7047	Strute Mount	1pcs/bag
09-7072	7Hv Tail Boom	1pcs/bag
09-7080	7Hv Tail Link Cap	2pcs/bag
09-7200P	7Hv Painted Canopy	1pcs/bag
09-7200W	7Hv White Canopy	1pcs/bag
09-BC	Blade Caddie (7Hv)	1pcs/bag
F-40-4700	Main Blade 700mm	1 set/bag
80-0208s	Cap Head Bolts 2X8	10 pcs/bag
80-0305	Cap Head Bolts M3X5	10 pcs/bag
80-0308	Cap Head Bolts M3X8	10 pcs/bag
80-0316	Cap Head Bolts M3X16	10 pcs/bag
80-0320	Cap Head Bolts M3X20	10 pcs/bag
80-0325	Cap Head Bolts M3X25	10 pcs/bag
80-2508	Cap Head Bolts M2.5X8	10 pcs/bag
80-2510	Cap Head Bolts M2.5X10	10 pcs/bag
81-0305	Set Screw 3x5	10 pcs/bag
82-3504	Washers 3.2X5.2X0.4	10 pcs/bag
85-0002	Heat Shrink Plastic	4pcs/bag
90-0201	Hex Nuts 2mm	10 pcs/bag
91-0004	Nylon Lock Nuts M4	10 pcs/bag
E-LG-09	7Hv Linkage Set	1 set/bag
VBT300	Velcro Tape 300Mm X 20Mm	4 pcs/bag



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