

Quick 50

Pro/Sport

Assembly & Parts Listing



Exclusively distributed by:

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Websites:

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Support)

Quick Learner Pre-Assembly Information

Quick Worldwide & Hobbies & Helis International:

Quick of Japan and Hobbies & Helis International teamed up to make parts 6 years ago. In the beginning, our specialty was the manufacturing of various upgrade parts for many of the plastic helicopters on the market.

After four years of distributing numerous upgrades and crash parts for other helicopters, we decided to develop our own line of helicopters. That's when the notion of the Quick Learner was conceived. As the development of the kit began, initial designs were approved, proto-types were made and flown - all to ensure that the design was flawless. No minor details were over-looked. After countless hours of hard work and dedication, Quick-World-Wide is proud to release the first in a new standard in Helicopters - the Quick Learner.

Warning:

The radio-controlled model helicopter contained in this kit is not a toy. Rather, it is a sophisticated piece of equipment. This product is not recommended for use by children, without adult supervision. 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. Hobbies & Helis assumes no liability for damage that could occur from the assembly and/or use/misuse of this product.

AMA:

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 a 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 the operation of their model.



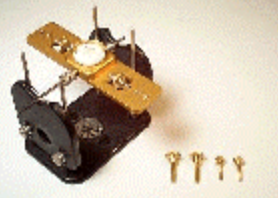







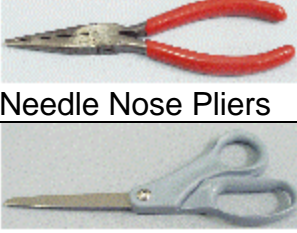
Pre-Assembly Information:

Quick Helicopters are put together with care and quality topping our priority list. A recommendation when you are ready to begin building this model is that you examine the kit and understand the contents of the packages and read thoroughly before starting the assembly process. Purchase a parts box for all the nuts, bolts, and other small parts. We take great care to ensure all parts are in the box.

Quick 50 Features


- 1. Frame Construction:** Quick 50 frames are made of the highest Quality Black G-10 Frames or Carbon Fiber. These frames are not only rigid but will provide excellent vibration absorption.
- 2. One-Way Hex Start Shaft System:** The one-way bearing allows the engine to continue to run after the starter motor has been stopped.
- 3. Constant Tail Rotor Drive System:** The constant tail system will provide full tail authority during engine off maneuvers.
- 4. Belt driven Tail:** Belt Driven tail is not only a reliable way to drive a tail, but is also very smooth and low maintenance.
- 5. High Quality Ball Bearings:** Quick 50 offers ball bearings on all moving parts.
- 6. EMS Collective System:** The EMS Collective design allows ease of setup with fewer moving parts. EMS constitutes overall design simplicity and represents the future of helicopter technology.
- 7. Heavy-Duty Clutch System:** Based on the same design as our famous heavy-duty clutch upgrade that fits most popular machines, this clutch will give many years of problem free operation.
- 8. Control Linkages:** The control linkages that are provided with the Quick Learner Kit are high quality 2.3mm stainless steel rods and the rod ends are made of a high quality Delrin.
- 9. Single Blade Axle Design:** The single blade axle design is simple very responsive system, with very consistent flight characteristics.
- 10. Advanced Airfoil Fly-bar Paddles:** These paddles will provide the best both kind of flight characteristics for both 3D & Sport flying. Not only do they provide smooth forward flight, they also provide quick response upon demand.
- 11. Rearward facing Engine Design:** This design provides quick access to the glow plug and is advantageous for easy engine removal.

Tools Needed to Assemble the “Quick 50”

 <p>Phillips Screw Driver</p>	 <p>Ball End Drivers HHI7050</p>	 <p>Bubble Blade Balancer HHI7010 High Point Balancer DUB499</p>
 <p>Piston Head Lock HHI7020</p>	 <p>HHI7320 – 6pc Nut & Allen Driver Set</p>	 <p>Pitch Gauge HHI7001</p>
 <p>Composite Paddle Gauges HHI7000</p>		 <p>Universal FlybarLock HHI7040</p>
 <p>Ruler</p>	 <p>Hobby Knife</p>	 <p>Needle Nose Pliers Scissors</p>

Hardware & Accessories

Engines (These are our Recommended Motor but others will work)

 <p>OS50SX</p>	<p>All OS compatible 50-size engines will work with this helicopter.</p>
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Glues & Thread Lockers

 <p>Ca Glue. ...GBG1</p>	 <p>JB Weld...JBW8265S</p>	 <p>Locktite.PT40</p>
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Exhaust Systems

 <p>HHI 30 Size Tuned Muffler</p>	 <p>HHI 50 Size Two-piece Muffler</p>
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Glow Plugs

 <p>OS #8 Glow Plug. ...OSMG2691</p>

Fuel System Accessories

 <p>Fuel Filter... QUI9002</p>	 <p>Tube Ends.... QUI9001</p>
 <p>Mini Cock Straight... TET4321</p>	 <p>Fuel Tubing.... PRA7092</p>
 <p>Triangle Joint. TET4301</p>	

Radio Mounting Accessories

 <p>Single Sided Foam Tape... HHI2008</p>	 <p>Receiver Hold Down Straps HHI55** \$4.99 2 Per Bag & Colors: Red, White, Purple, Black</p>
 <p>Receiver Strong Box... HHI2200</p>	 <p>Spiral Wrap HHI2809 & HHI2810</p>
 <p>Wire Ties...HHIWT01</p>	

Other Optional Accessories

 <p>Landing Gear Dampeners...HHI2004</p>	 <p>3mm Fly-bar Stiffeners...HHI402*</p>
 <p>60Size Skid Stops HHI200* Available in many Colors See website or Call for Detail</p>	 <p>Quick 50Servo Arm Set</p>
<p>3mm Finishing Caps HHIM111* Available in Blue, Silver, Gold, & Purple</p> <p>4mm Finishing Caps Available in Blue, Silver, Gold, & Purple</p>	 <p>Base Load Antenna HHI53** Available in Blue, Gold, Purple & In 40, 50, 72mhz</p>
 <p>Throttle Extension OS50/60</p>	

Radio Requirements

Radios:

Hobbies & Helis & its distributors carry various lines of helicopter radios. Any radio that supports EMS/CCPM Mixing will work fine.

Servos:

This is the single most important function of the helicopter. Any sport servo will offer acceptable performance. However due to the nature of EMS collective we suggest the use of digital servos to enhance and ensure matched servo timing without servo interaction.

Introduction:

Please read through the entire manual before starting your construction of the Quick 50 if there are any question or concerns regarding the assembly of the Quick 50 you can Call Hobbies & Helis International (610)-282-4811 or Email the any of the following techs.

Technical Support Personnel:

Stefan – Stefan@ewtech.com

ET – ET@ewtech.com

Jon – Jon@ewtech.com

Loctite Warning (Very Important):

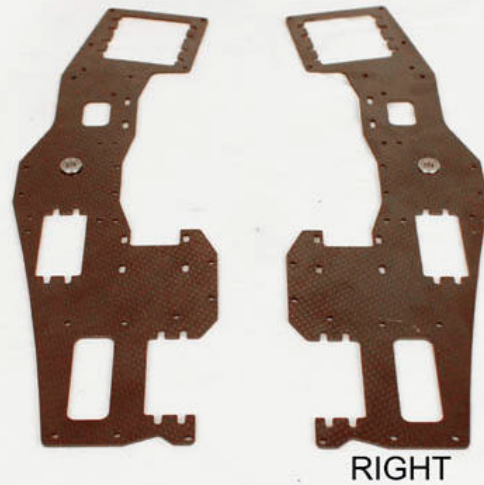
This is a general warning about the use of Loctite and it's importance. Loctite must be used anywhere that a metal fastener i.e. (M2, M3, M4 Cap Head Bolts, Set Screws etc.) are threaded into a metal part i.e. (Bearing Blocks, Cross-members, etc.). The Failure to use Loctite can result in parts falling a part and possible loss of control of the model, which can lead to a crash.

Section 1 – Bags and Components

<p>Bag 1</p> <ul style="list-style-type: none"> Inner Elevator Control Arm (1) Outer Elevator Control Arm (1) Elevator Control Shaft (1) 32mm Cross Member (3) Main-shaft Bearing Blocks (2) Counter Gear (1) Counter Gear Shaft (1) Tail Drive Bearing Block (2) Counter Gear Pulley (1) Pulley Gear Plate (1) Pulley Gear Lock Pin (1) Clutch Bell (1) Clutch Lining (1) Start Shaft Bearing Block (1) Start Shaft (1) Hex Start Coupler (1) Left Aileron (1) Right Aileron Lever (1) 5 X 10 X 4 Flanged Bearing (2) M2 X 8 Shim Ball Screws (2) M3 X 8 Cap Head Bolts (24) M3 X 12 Cap Head Bolts (14) M3 Locknuts (12) Shim Balls (2) M3 X 3 Set Screws (2) M4 X 4 Set Screws (1) M3 X 4 Pivot Ball Studs (6) M3 X 6 Pivot Ball Studs (1) M4 E-Clip (2) 	<p>Frame Bag (Pro)</p> <ul style="list-style-type: none"> Bulk Head (1) Upper Frame Carbon (2) Front Frame Carbon (2) Rear Lower Frame Carbon (2) Lower Frame Angle (2) Radio Tray Metal (1) Gyro Plate Metal (1) Tail Case Side Plate Carbon (1) <hr/> <p>Frame Bag (Sport)</p> <ul style="list-style-type: none"> Bulk Head (1) Upper Frame G-10 (2) Front Frame G-10 (2) Rear Lower Frame G-10 (2) Lower Frame Angle (2) Radio Tray Plastic (1) Gyro Plate Plastic (1) Tail Case Side Plate G-10 (1)
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Section 1 - Upper Frame Assembly

Install (2) 5 X 10 X 4 flanged bearings into (2) Carbon or G-10 Upper Frames.
Note: The flange of the bearing will be on the inside of the frames when they are complete.



Install (1) Inner Elevator Control Arm to (1) Elevator Control Shaft using (1) M3-3 Set Screw



Install Elevator Control Shaft Assembly through the bearing on the Left frame half. Install outer elevator control arm using (1) M3-3 Set Screw



Install (1) M3-6 Pivot ball stud to the Inner Elevator control arm



Install (2) Shim balls using (2) M2-6 Shim Ball Screws to the outer elevator Control Arm.



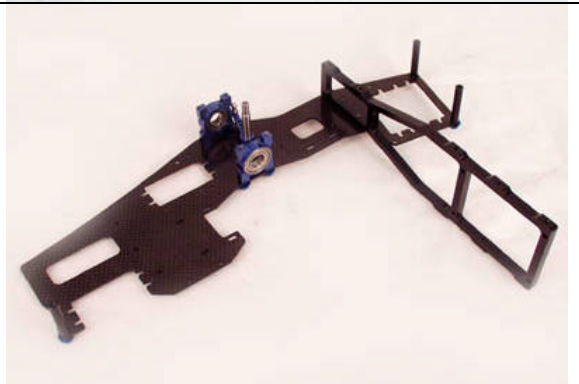
Install (1) Frame Support (Bulk Head) to Left upper Frame using (2) M3-8 Cap head bolts.



Install (3) 32mm Cross-members to the left upper frame using (3) M3-8 Cap Head Bolt.



Install (2) Main-shaft bearing blocks to the left upper frames using (4) M3-8 Cap head bolts.



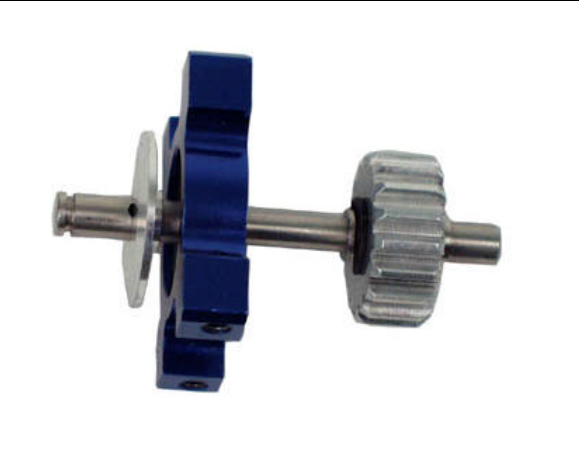
Install (1) Counter Gear to (1) Counter Gear shaft using (1) Counter Gear lock Pin and M4 E-clip
NOTE: Make sure reduced portion of the shaft faces down.



Install counter shaft assembly into (1) counter gear bearing block with bearing block flange facing up.



Install (1) pulley gear plate onto the counter gear shaft Assembly.



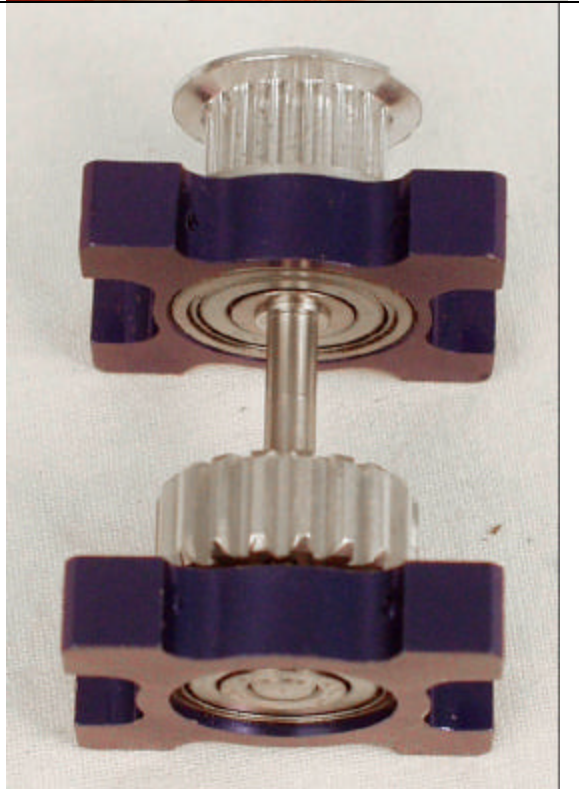
Install (1) pulley gear lock pin onto Counter gear shaft



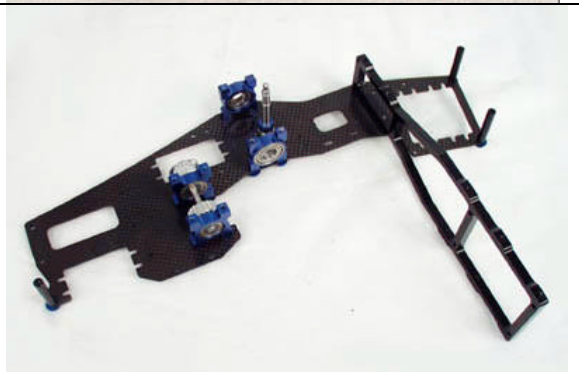
Install (1) pulley gear onto counter gear shaft and retain assembly with (1) M4 E-clip.



Complete the tail transmission by inserting lower reduced portion of the shaft into the fully exposed side of the bearing block.



Install complete tail transmission onto left upper frames using (4) M3-8 cap head bolts.



Install (1) Clutch Lining into (1) Clutch bell. **Note:** The recommended adhesives for installing the clutch lining are JB Weld or 10 Min + Epoxy. Prepare the clutch bell by scuffing the interior with an x-acto blade or sand paper. Apply the adhesive thin and even and finish the installation by inserting and finishing the clutch lining.



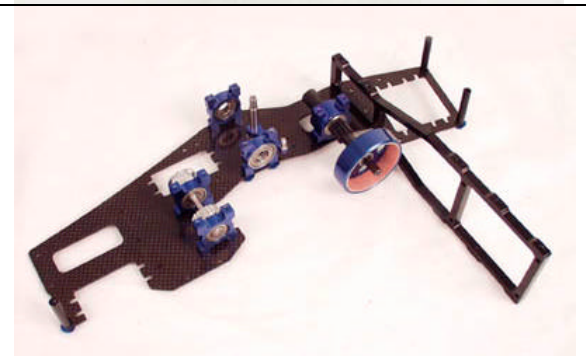
Install the clutch bell assembly into (1) Clutch bell bearing block



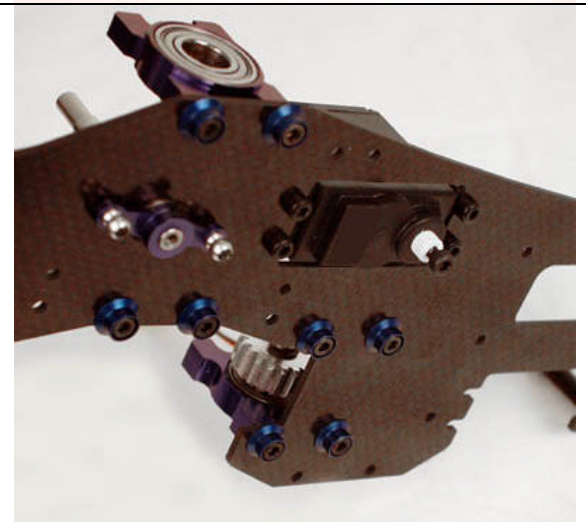
Install (1) Start Shaft into Clutch Bell Assembly and retain with (1) Start Coupler and (1) M4-4 Set Screw.
Note: Allow no up or down play in the Start Shaft when the start coupler is installed and setscrew is tight.



Install complete clutch bell assembly onto left upper frame.

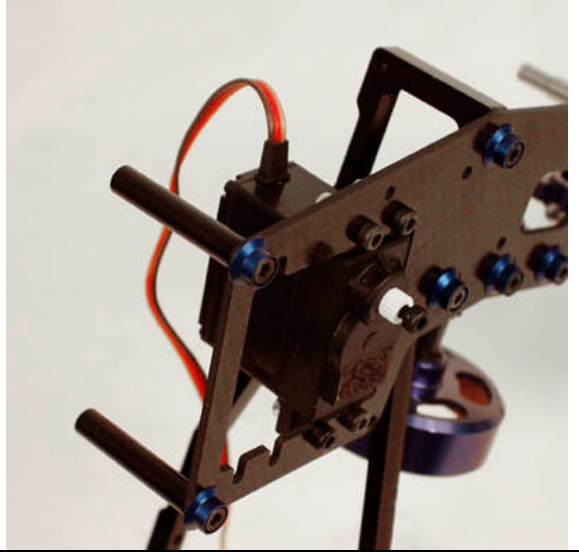


Install Rear Elevator Servo using (4) M3-12 Cap head bolts and (4) M3 Locknut. Install the servo with the mounting flange to the inside of the frames and the spline towards the rear of the helicopter.
Note: Be sure the use the rubber grommets that are provide by the servo manufacture.



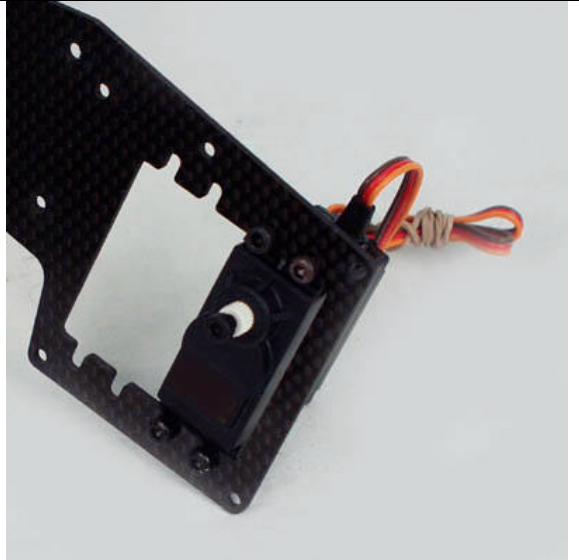
Install front aileron servo using (4) M3-12 Cap head bolts and (4) M3 Locknuts. The left aileron servo will take the mounting hole closest to the frame support bulkhead and the mounting flange on the servo will be on the inside of the frames.

Note: Be sure the use the rubber grommets that are provide by the servo manufacture.

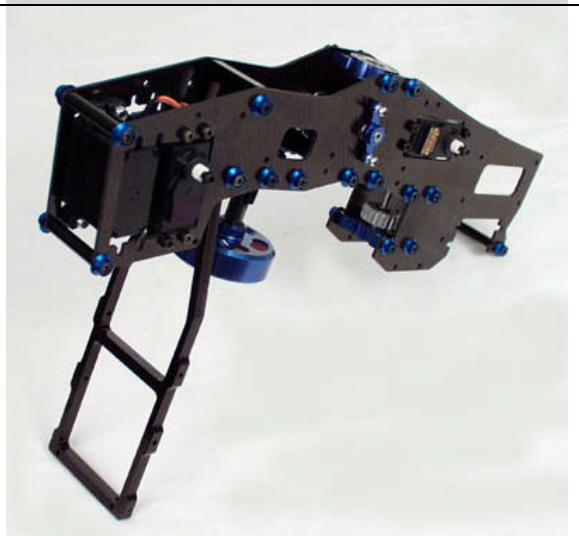


Install Right front aileron servo using (4) M3-12 Cap head bolts and (4) M3 Locknuts. The right front aileron servo is attached the servo hole closest to the front of the upper frames.

Note: Be sure the use the rubber grommets that are provide by the servo manufacture.



Attach the right frame half to the left frame using (15) M3-8 Cap head bolts.



Install (3) M3-4 Pivot ball studs to (1) left aileron control lever.



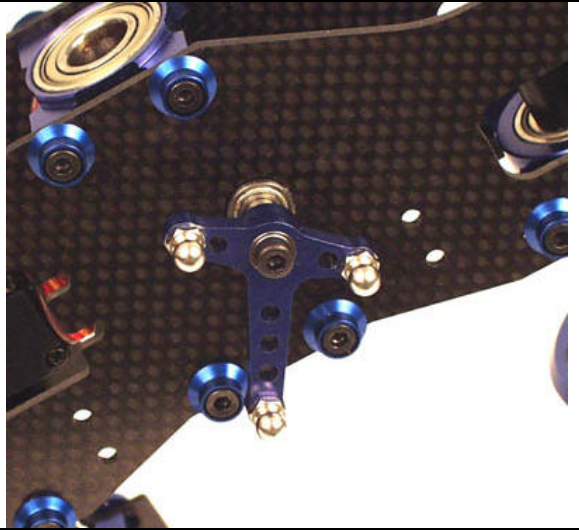
Install complete left aileron lever to elevator control shaft using (1) M3-12 cap head bolt and (1) M3-5-3 Spacer.



Install (3) M3-4 Pivot ball studs to (1) right aileron control lever. Install complete right Aileron control lever to the elevator control shaft using (1) M3-12 cap head bolt.



Install complete right aileron lever to elevator control shaft using (1) M3-12 cap head bolt.



Section 2 – Bags and Components

Bag 2	Bag 6
60 mm Cross member (1) 32mm Cross Member (3) Fuel Tank Cross Member (1) Rear One-Piece Cross Member (2) M3 x 5 x 3 Black Spacer (10) M3 x 8 Cap Head Bolt (6) M3 x 10 Cap Head Bolt (10) M3 x 12 Cap Head Bolt (4) M3 x 20 Cap Head Bolt (6) M3 Locknut (4)	Fuel Tank w/ Accessories

Section 2 – Lower Frame Assembly

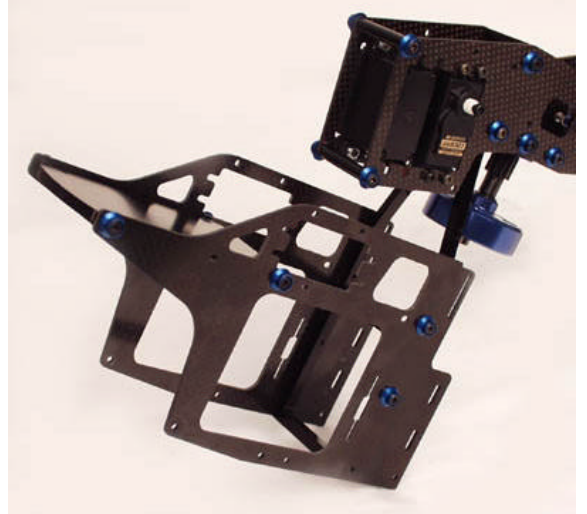
Install (1) Radio Bed to (1) Left lower front frames using (2) M3-5-3 spacers and (2) M3-10 cap head bolts.



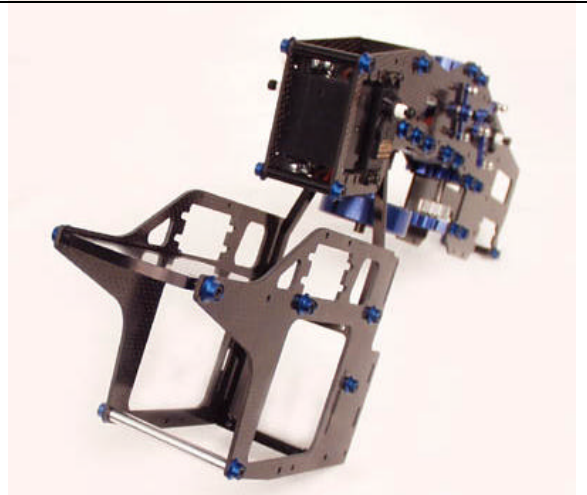
Attach left frame assembly to (1) right lower front frame using (2) M3-5-3 spacer and (2) M3-10 cap head bolts



Attach front frame assembly to the Frame support (Bulk Head) using (4) M3-8 Cap head bolts



Install (1) 60m Cross-member using (2) M3-8 cap head bolts



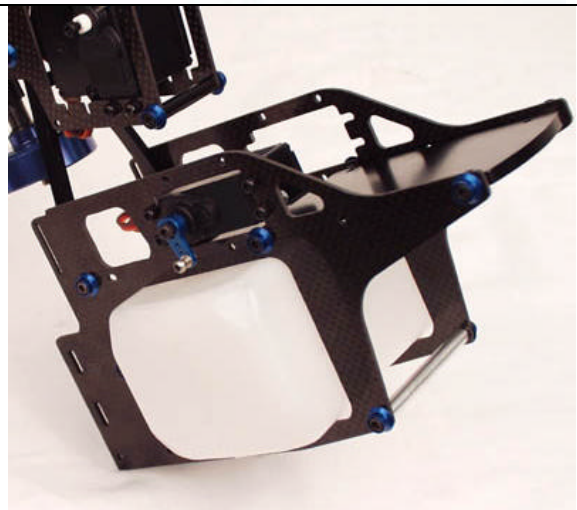
Install fuel tank using (1) Fuel Tank cross-member, (2) M3-5-3 Spacers and (2) M3-10 Cap head bolts. **Note:** Add a couple layers of double stick tape to the cross-member to help retain the fuel tank.



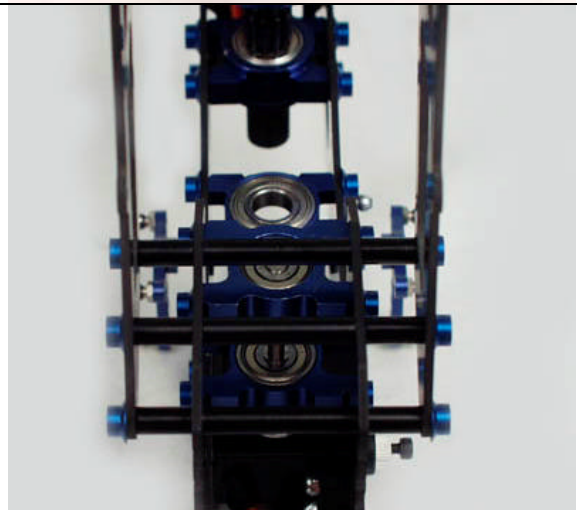
There are three (3) lines (Aluminum fuel tubing) that need to be constructed for the tank assembly. Depending on the engine you use, you may need only two (2) lines. One line is the fuel pick-up line and requires a length of silicon fuel tubing running from end of alum. Tube to clunk – which should be centered in tank. The other line is pressure-line, which should be bent to reach the top of the tank on the inside. The third line will generally be plugged. Tighten rubber stopper screw – but do not over tighten or you will ruin rubber stopper!



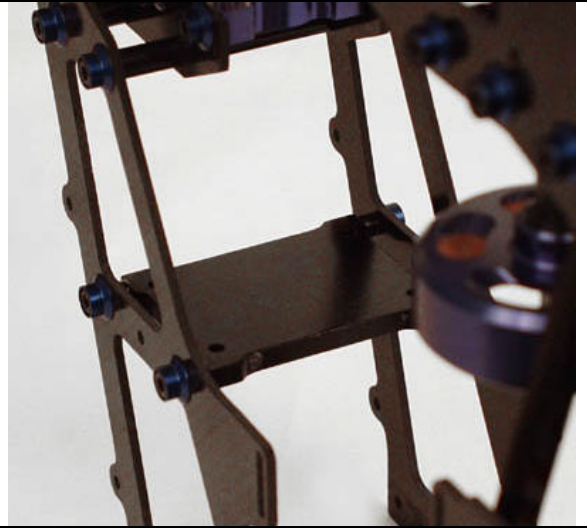
Install throttle servo on right front lower frame half with the spline towards the rear of the helicopter. Using (4) M3-12 cap head bolts and (4) M3 Locknuts. **Note:** Be sure the use the rubber grommets that are provide by the servo manufacture.



Install (2) Rear lowers frames using (3) 32mm cross-members, (6) 12mm Cross members, (6) M3-20 Cap head bolts.



Install (1) gyro plate using (4) M3-5-3 spacers (4) M3-10 Cap head bolts.



Section 3 – Bags and Components

Lower Main Gear 88T (1) Lower Main Gear Hub (1) Upper Main Gear 97T (1) Auto-Rotation Clutch - Metal (1) Main Shaft (1) Main Shaft Collar (1) Motor Mount (1) Q-50 Fan – Plastic (1) Fan Hub (1) Lower Fan Collet Spacer (1) Lower Fan Collet Tapered (1) Upper Fan Collet Tapered (1) Clutch (1) 60mm Cross member M3x6 Cap Head Bolt (8) M3x8 Cap Head Bolt (12) M3x10 Cap Head Bolt (8) M3x12 Cap Head Bolt (4) M3-22 Cap Head Bolt (1) M3 Locknut (11) M3x3 Set Screws (4) M3x6 Phillips Screw (4) M2.6x6 Self Taping Screws	Lower Main Gear 88T (1) Lower Main Gear Hub (1) Upper Main Gear 97T (1) Auto-Rotation Clutch – Plastic (1) Main Shaft (1) Main Shaft Collar (1) Motor Mount (1) Q-50 Fan – Plastic (1) Fan Hub (1) Lower Fan Collet Spacer (1) Lower Fan Collet Tapered (1) Upper Fan Collet Tapered (1) Clutch (1) 60mm Cross member M3x6 Cap Head Bolt (8) M3x8 Cap Head Bolt (12) M3x10 Cap Head Bolt (8) M3x12 Cap Head Bolt (4) M3-22 Cap Head Bolt (1) M3 Locknut (11) M3x3 Set Screws (4) M3x6 Phillips Screw (4) M2.6x6 Self Taping Screws
Loose In Box Q50 Fan Shroud (1) Landing Gear Skids (2) Landing Gear Struts (2) Landing Gear End Caps (4)	

Section 3 – Drive System Assembly

Install (1) Lower main gear to (1) Main-gear hub using (4) M3-6 cap head bolts.



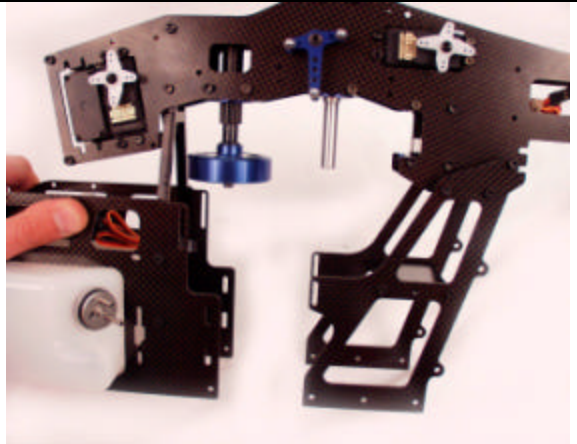
Install (1) Upper Main Gear to (1) Auto-rotation clutch using (4) M3-6 Phillips Screws



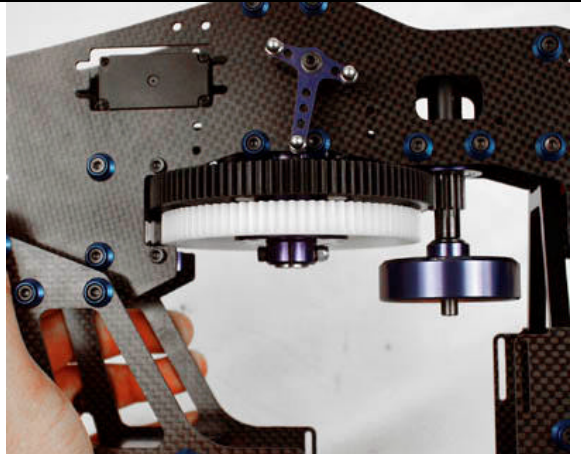
Slide lower main gear hub onto the auto rotation clutch sleeve making sure to line-up the holes.



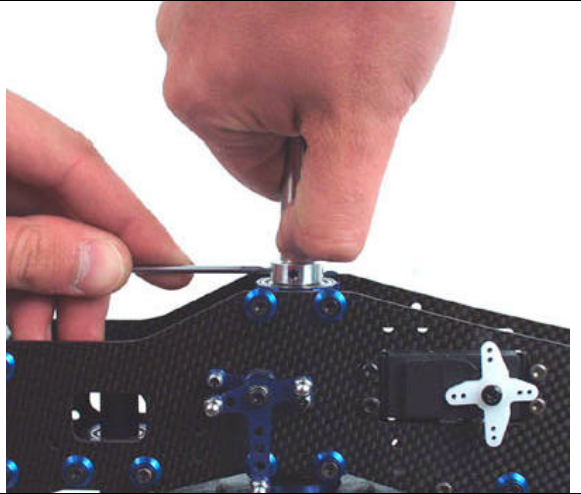
Slide (1) main shaft down through main shaft bearing blocks, with reduced portion of the shaft down.



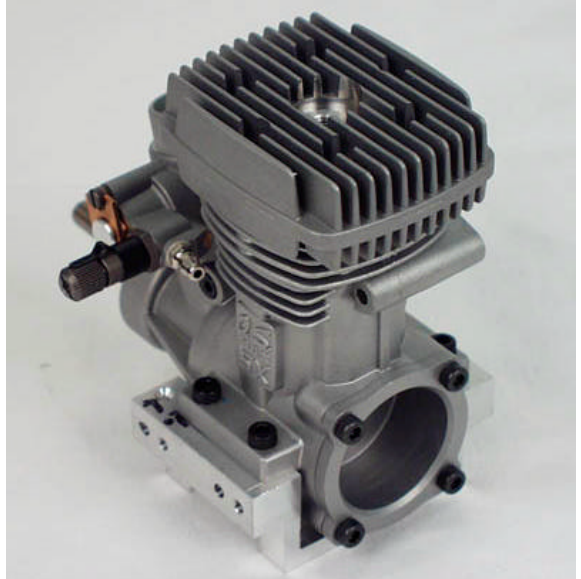
Insert the auto-rotation/main gear assembly into frames between the Clutch bell pinion and the counter gear assembly. Slide main shaft down through the unit, and secure with (1) M3-22 Cap head bolts and (1) M3 Locknuts.



Install (1) main shaft collar using (4) M3-3 Set screws. Tighten set screws while you pull up on the main shaft and push down on the main shaft collar making sure when you are finished that there is no up or down play. **Note:** Be sure the ridge on the main shaft collar goes down.



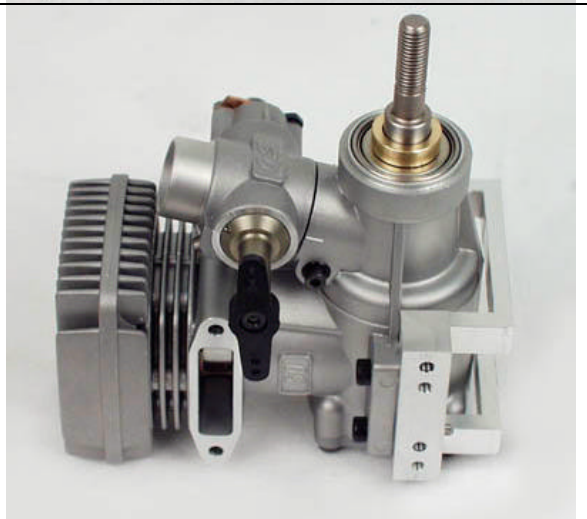
Install (1) motor mount to the motor using (4) M3-10 Cap head bolts. Note: pay close attention to the offset of the engine on the engine mount,



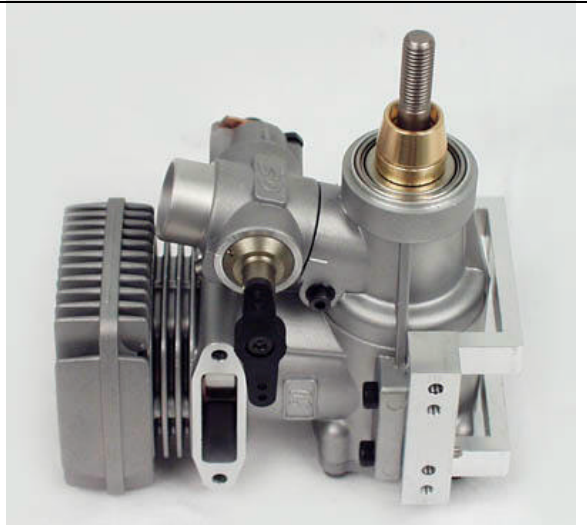
Install (1) fan to (1) Fan hub using (4) M3-6 Cap head bolts. **Note:** Fan will be metal in the pro kit and plastic in the sport kit.



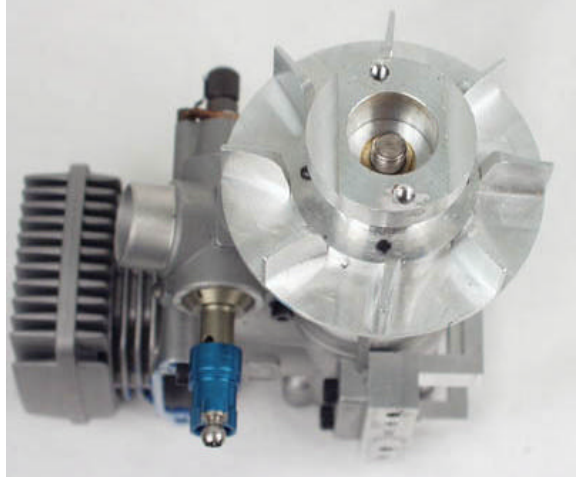
Install (1) lower fan collet spacer onto the crankshaft.



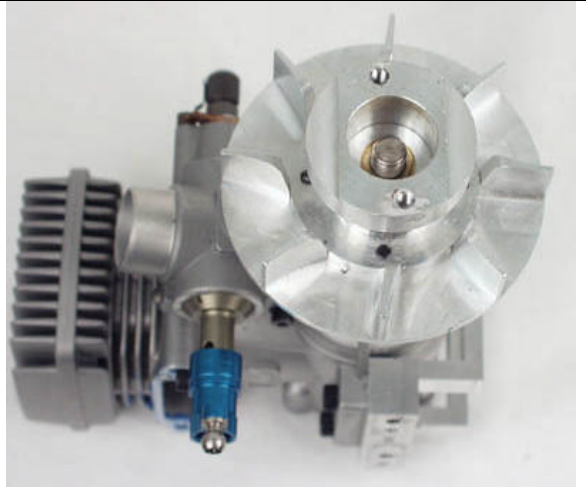
Install (1) Lower tapered fan collet onto the crankshaft.



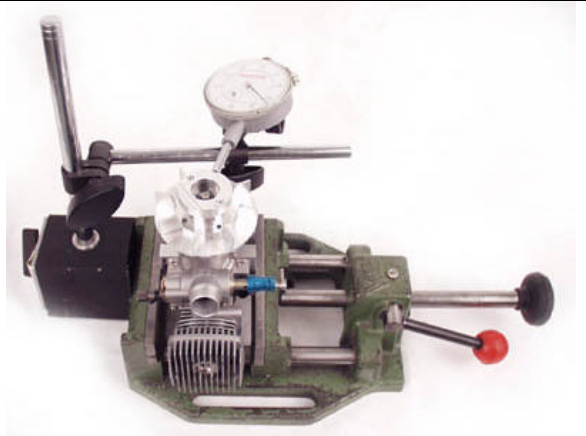
Install (1) Fan hub assembly onto the crankshaft.



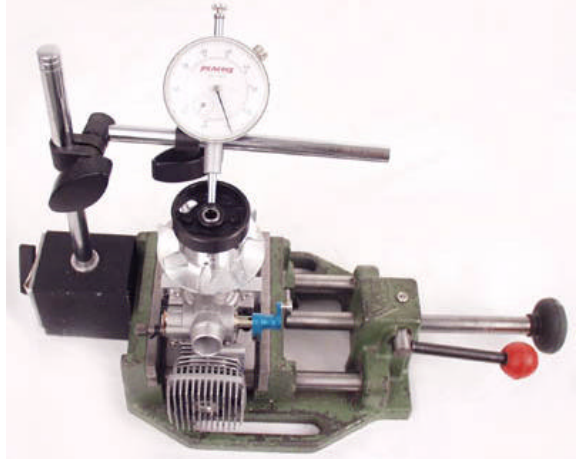
Install (1) Upper Fan Hub Tapered Collet onto the crankshaft.



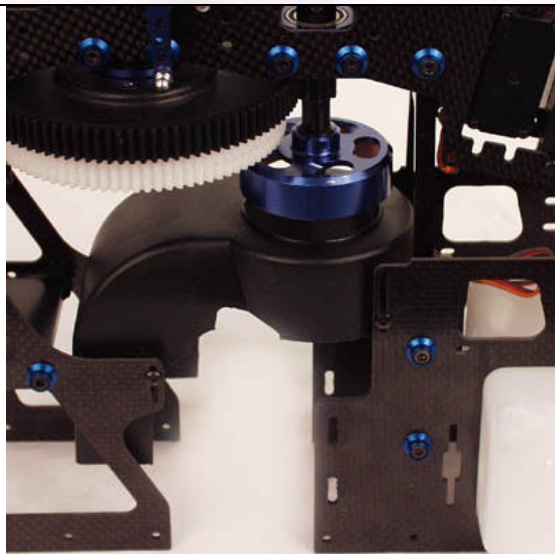
Install the prop-nut that was provided with the engine and check for run-out. **Note:** The run-out should be no more than .002-.004. This should be checked with a dial indicator. There are many techniques to get the fan hub and associated components with in the allotted tolerance. The most popular is to loosen the prop-nut and collets, fan hub, and clutch.



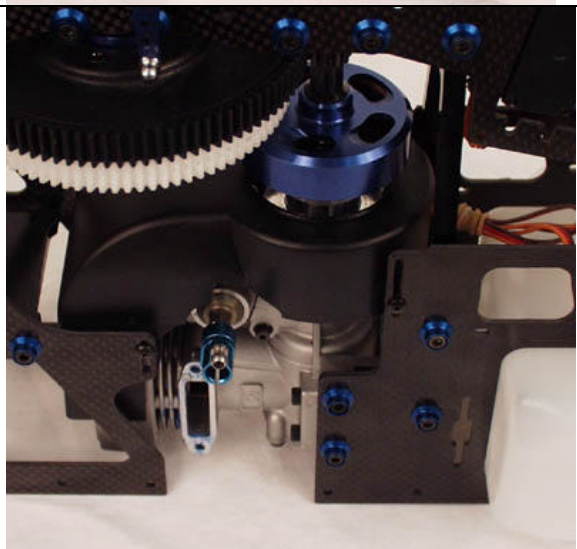
Install (1) Clutch using (2) M3-8 Cap head bolts.



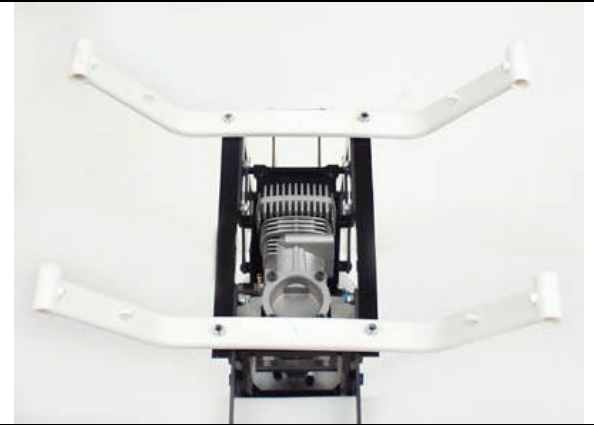
Install (1) Fan Shroud using (4) M2.6-6 self-taping screws.



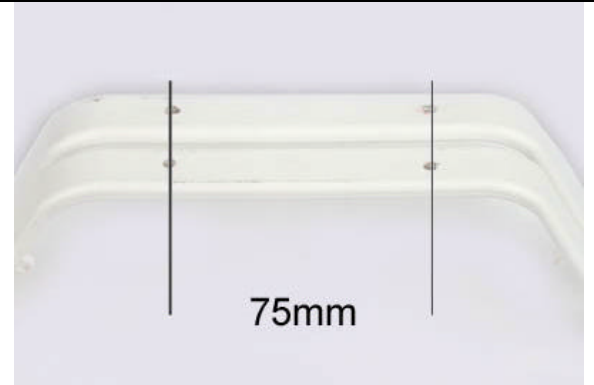
Install engine into frames using (4) M3-10 Cap Head Bolts



Install (2) Right Angle Frame Rails and (1) 60mm Cross Member using (10) M3-8 Cap Head Bolts and (6) M3 Locknuts



Drill (2) Landing Gear struts at a spacing of 75mm. **Note:** For good cosmetics as well as proper spacing make sure you center the measurement on the strut.



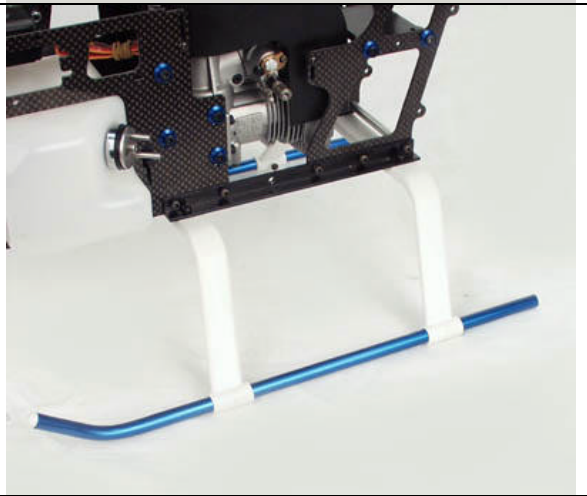
Install Drilled struts using (4) M3-12 Cap Head Bolts and (4) M3 Locknuts



Install (4) White skid pipe end caps using CA Glue.



Install Skid Pipes into struts and secure with (4) M3-3 Set Screws



Section 4 – Bags and Components

<p>Bag #4 Pro</p> <ul style="list-style-type: none"> Tail Pitch Lever (1) Tail Pitch Lever Mount (1) Tail Pulley Gear – w/shoulder Tail Pulley Gear Side Plate (1) Tail Pulley Gear Lock Pin (1) Tail Output Shaft (1) Tail Case Cross-member (1) Tail Pitch Slider (1) Dual Bearing Tail Rotor Assembly (1) Tail Blades (2) Tail Blade Spacers (4) Tail Boom Clamp Metal (2) Alum. Boom Support Ends (4) 5x10x4 Flanged Bearings (2) M2x8 Phillips Screws (4) M3x6 Cap Head Bolts (6) M3x12 Cap Head Bolts (4) M3x16 Cap Head Bolts (1) M3x22 Cap Head Bolts (2) M3x40 Cap Head Bolts (4) M3 Locknuts (11) M3x5 Set Screws (1) M3x4 Pivot Ball Studs (2) M2.3 Short Ball Links (2) M3x5x1 Spacers (1) Shim Ball (2) 	<p>Bag #4 Sport</p> <ul style="list-style-type: none"> Tail Pitch Lever (1) Tail Pitch Lever Mount (1) Tail Pulley Gear – w/shoulder Tail Pulley Gear Side Plate (1) Tail Pulley Gear Lock Pin (1) Tail Output Shaft (1) Tail Case Cross-member (1) Tail Pitch Slider (1) Dual Bearing Tail Rotor Assembly (1) Tail Blades (2) Tail Blade Spacers (4) Tail Boom Clamp Plastic (2) Plastic Boom Support Ends (4) 5x10x4 Flanged Bearings (2) M2x8 Phillips Screws (4) M3x6 Cap Head Bolts (6) M3x12 Cap Head Bolts (4) M3x16 Cap Head Bolts (1) M3x22 Cap Head Bolts (2) M3x40 Cap Head Bolts (4) M3 Locknuts (11) M3x5 Set Screws (1) M3x4 Pivot Ball Studs (2) M2.3 Short Ball Links (2) M3x5x1 Spacers (1) Shim Ball (2)
<p>Loose In Box</p> <ul style="list-style-type: none"> Tail Boom (1) Carbon Boom Supp. Rods (2) 	<p>Loose In Box</p> <ul style="list-style-type: none"> Tail Boom (1) Glass Boom Supp. Rods (2)
<p>Bag 5</p> <ul style="list-style-type: none"> Horizontal Fin Mount (1) Vertical Fin Mount - A (1) Vertical Fin Mount - B (1) Horizontal Fin (1) Vertical Fin (1) M3x6 Cap Head Bolts (2) M3x8 Cap Head Bolts (2) M3x10 Cap Head Bolts (2) M3x30 Cap Head Bolts (2) M3 Locknut (4) 	

Section 4 – Tail Assembly

Install (1) Tail control lever mount to (1) Tail case side plate using (2) M2-6 Phillips screws. **Note:** The Pro kit comes with carbon tail case side plates and the sport kit comes with G-10.



Install (2) 5X10X4 Flanged bearings into (2) Tail case side plates.



Install Tail case plate w/Pitch lever mount to (1) Tail Boom with tail case holder



Install (1) Tail gear lock pin into (1) Tail output shaft.



Install (1) Tail pulley gear onto tail out put shaft and inter locking pin into the pulley gear.



Install (1) Pulley Gear side plate onto the pulley gear/shaft assembly with reduced portion of the plate away from the gear.



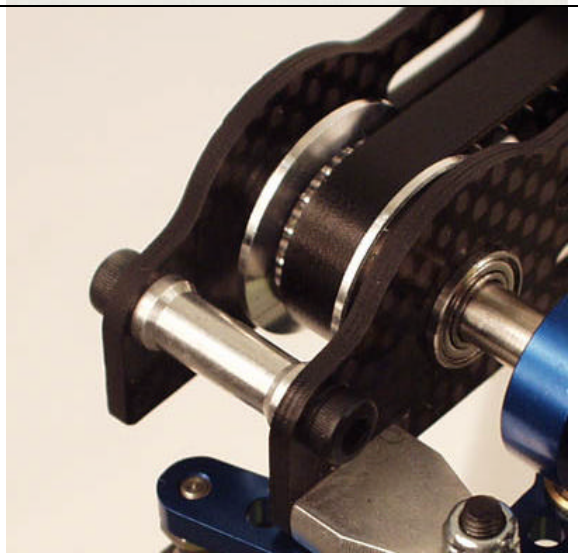
Install (1) Tail Drive Belt around the pulley gear and through the boom.



Install (1) Left Tail case side plate using (2) M3-6 Cap Head Bolts. Note: Both Flanged bearings should have the flange towards the inside of the tail case when complete.



Install (1) Tail Case cross member using (2) M3-6 Cap Head Bolts



Install (1) M3-4 Pivot Ball Stud and (2) 2.3 short Ball Links to (1) Tail Pitch Slider.



Install (1) M3-4 Pivot Ball Stud to (1) Tail Pitch Control Lever.



Install Completed tail Pitch Slider onto the tail output shaft.



Install Tail Pitch Control Lever using (1) M3-5-1 spacer, (1) M3-16 Cap Head Bolt, and (1) M3 Locknut. Couple the pivot ball from the tail pitch slide in the brass cup from tail pitch control lever and attach the lever using the above hardware with the spacer between the lever and the mount.

Note: Be sure not to over tighten the bolt for the tail pitch lever. Use the supplied nut to lock the bolt in place. The lever should rotate freely.



Install (2) Shim balls using (2) M2-6 Phillips Screws. Carefully note the holes the shim balls are installed in.



Install (1) Double Bearing Tail Rotor Assembly using (1) M3-5 Set screw.

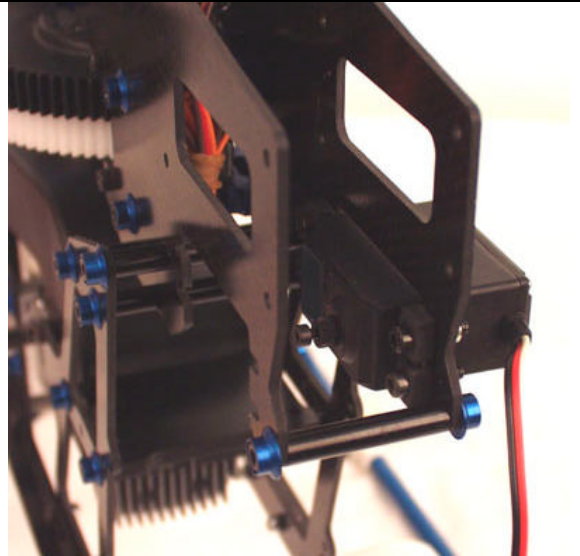


Install (2) Tail Blades using (4) Tail Blade Spacers, (2) M3-22 Cap Head Bolts and (2) M3 Locknuts.

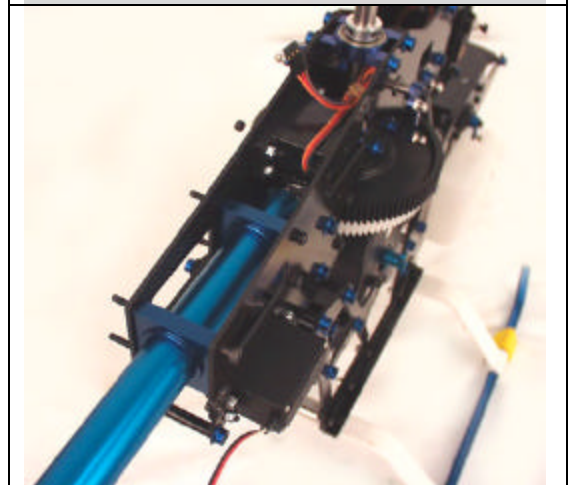
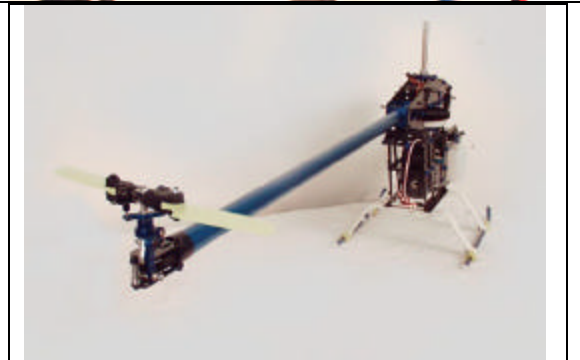


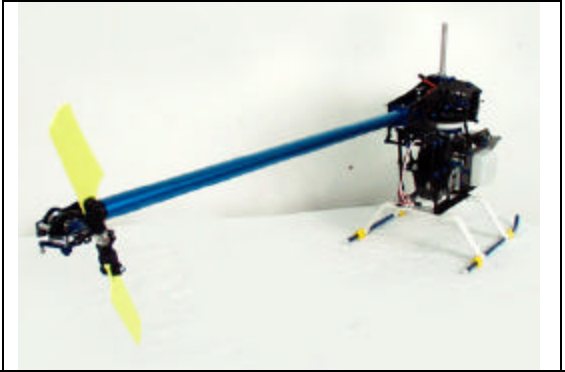
Install Rudder Servo using (4) M3-12 Cap head bolts and (4) M3 Locknut. Install the servo with the mounting flange to the outside of the frames and the spline towards the rear of the helicopter.

Note: Be sure the use the rubber grommets that are provide by the servo manufacture.



Install completed tail boom assembly into frames using (2) Tail Boom Clamps, (4) M3-40 Cap Head Bolts and (4) M3 Lock Nuts. **Note:** When installing the boom into the clamps keep tail rotor assembly pointing up. Slide the straight belt over the front pulley, Pull belt tight, rotate boom right till the tail shaft is perpendicular to the main-shaft.





Install (4) Boom support ends to (2) Boom Support rods using 5-minute epoxy. Make sure that the ends are parallel to one another.



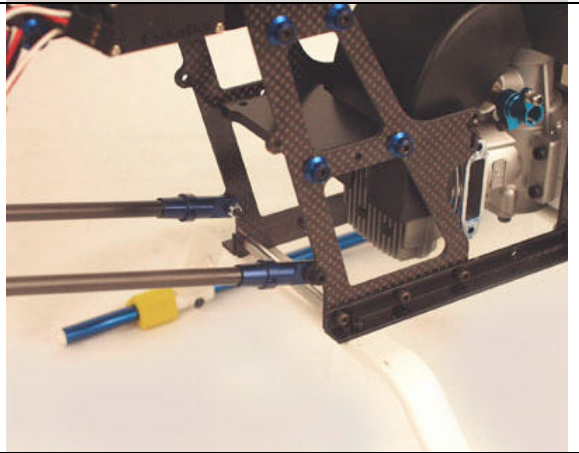
Install (1) horizontal Fin Mount and (1) horizontal fin using (2) M3-6 Cap Head Bolts.



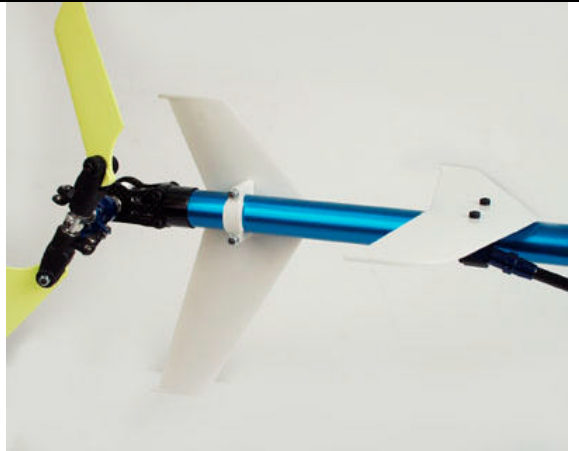
Install previously assembled tail boom supports to the fin mount using (2) M3-8 Cap Head Bolts



Install the boom supports to the frames using (2) M3-10 Cap head bolts and (2) M3 Locknuts.



Install (1) Vertical fin using (1) Vertical fin mount half A, (1) Vertical Fin half B, (2) M3-30 Cap Head Bolts, and (2) M3 Locknuts.



Section 5 – Bags and Components

Bag 7 Pro	Bag 7 Sport
Swashplate Complete (1)	Swashplate Complete (1)
Washout Unit (1)	Washout Unit (1)
Washout Link (2)	Washout Link (2)
Washout Link Pin (2)	Washout Link Pin (2)
Washout Anti-rotation Guide – 2 Pin (1)	Washout Anti-rotation Guide – 2 Pin (1)
Swashplate Anti-rotation Guide A (1)	Swashplate Anti-rotation Plastic (1)
Swashplate Anti-rotation Guide B (1)	M3x10 Cap Head Bolt (4)
M3x6 Cap Head Bolt (2)	M3x40 Cap Head Bolt (2)
M3x10 Cap Head Bolt (4)	M3x5x3 Spacers – Black (4)
M3x5x3 Spacers – Black (4)	M3x8 Pivot Ball Studs (2)
M3x8 Pivot Ball Studs (2)	M3x3 Set Screws (6)
M3x3 Set Screws (6)	

Section 5 – Control System Assembly

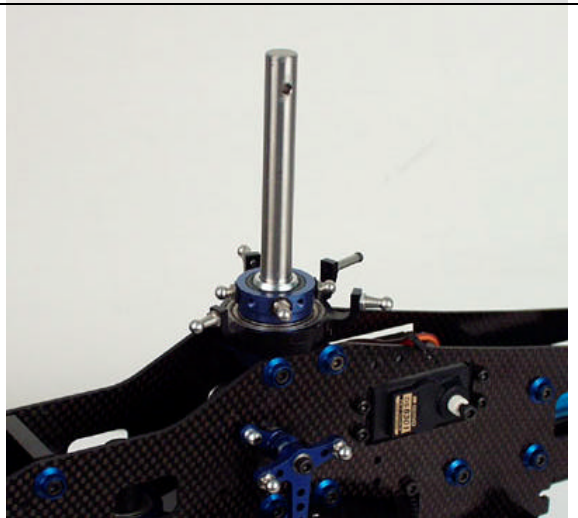
Install (3) M3-8 Pivot ball studs, (2) M3-6 Pivot ball studs and (2) M3-4 Pivot ball studs to (1) Swashplate using (4) M3 washers for the studs on the inner ring of the swashplate.



Install (1) Swash anti-rotation pin to the swashplate assembly using (1) M2-15 Cap head bolts.



Install completed swashplate onto the main-shaft.



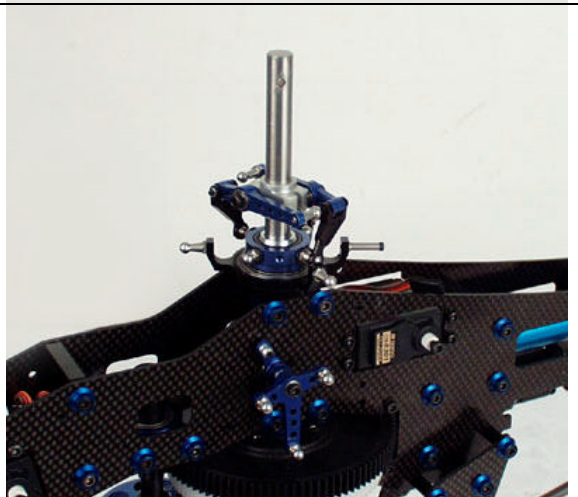
Install (2) Washout links using (2) Washout links pins and (2) M3-3 Set screws to the washout assembly.



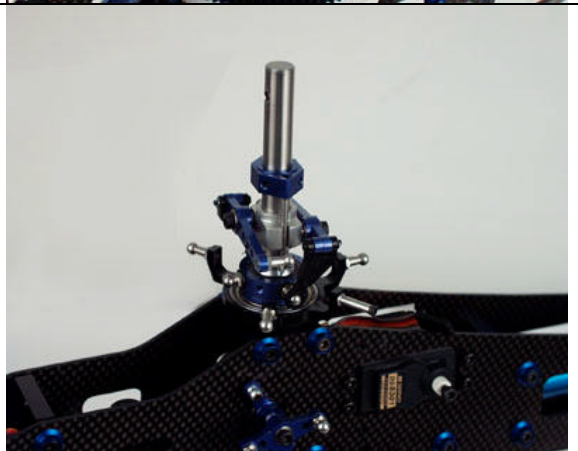
Install (2) M3-8 Pivot ball studs to the washout assembly.



Install complete washout assembly onto the main-shaft and connect the washout links to the M3-6 pivot ball studs on the swashplate.



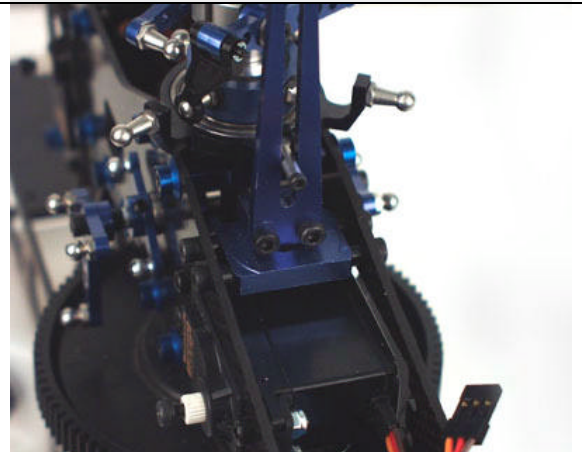
Install (1) Double pin washout anti-rotation guide using (4) M3-3 Set screws. Note: The final adjustments will be made in the linkage setup section later.



Install (1) Swash anti-rotation guide part A and (1) Swash anti-rotation guide part B using (2) M3-6 Cap head bolts. **Note:** This step is not necessary for the sport kit as the anti-rotation guide is one-piece plastic.



Install the swashplate anti-rotation guide using (4) M3-5-3 spacers and (4) M3-10 Cap head bolts.

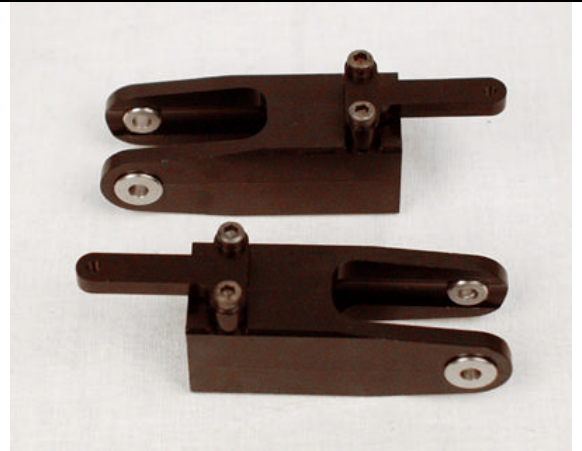


Section 6 – Bags and Components

Bag 8 - Pro	Bag 8 - Sport
Main Blade Grips -Metal (2)	Main Blade Grips -Plastic (2)
Pitch Arms (2)	Hiller Arms (2)
Hiller Arms (2)	Dampener O-rings (2)
Dampener O-rings (2)	Head Spindle “Thrust Bearing Type” (1)
Head Spindle “Thrust Bearing Type” (1)	Center Hub (1)
Center Hub (1)	Blade Grip Spacers (2)
Blade Grip Spacers (2)	Thrust Bearing Spacer (2)
Thrust Bearing Spacer (2)	Thrust Bearings (8 X 16 X 5) (2)
Thrust Bearings (8 X 16 X 5) (2)	M4 Blade Grip Retainers (2)
M4 Blade Grip Retainers (2)	Sea-saw 3mm Bearings (1)
Sea-saw 3mm Bearings (1)	Sea-saw collars (2)
Sea-saw collars (2)	Fly-bar Control Arm A (2)
Fly-bar Control Arm A (2)	Fly-bar Control Arm B (2)
Fly-bar Control Arm B (2)	M3 Fly-bar Paddles (2)
M3 Fly-bar Paddles (2)	M3-10 Cap Head Bolt (2)
M3-10 Cap Head Bolt (6)	M3-4 Pivot Ball Studs (2)
M3-4 Pivot Ball Studs (2)	M3-6 Pivot Ball Studs (2)
M3-6 Pivot Ball Studs (2)	M3-8 Pivot Ball Studs (2)
M3-8 Pivot Ball Studs (2)	M3-5-1 Spacers (4)
M3-5-1 Spacers (4)	M4-10 Cap Head Bolts (2)
M4-10 Cap Head Bolts (2)	M3-8 Cap Head Bolts (4)
M3-8 Cap Head Bolts (4)	M3-3 Sets Screws (2)
M3-3 Sets Screws (2)	M3-20 Cap Head Bolt (1)
M3-20 Cap Head Bolt (1)	M3 Locknuts (1)
M3 Locknuts (1)	

Section 6 – Rotor Head Assembly

Install (2) pitch arms to (2) blade grips using (4) M3-10 cap head bolts.



Install (2) M3-4 pivot ball studs in each (2) hiller arm base.



Install (2) M3-6 pivot ball studs in each (2) hiller arm base.



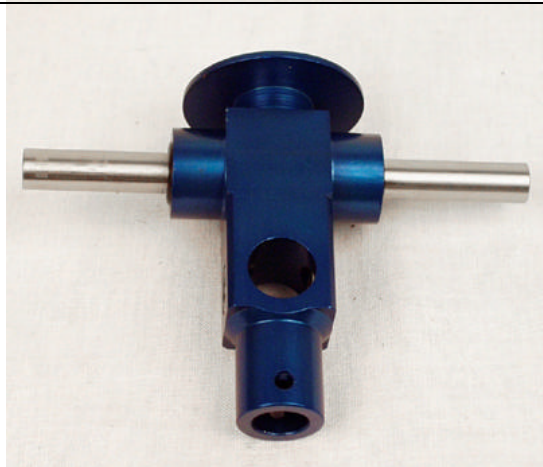
Install (2) complete hiller arms to (2) complete blade grips using (2) M3-5-1 spacers and (2) M3-10 cap head bolts.



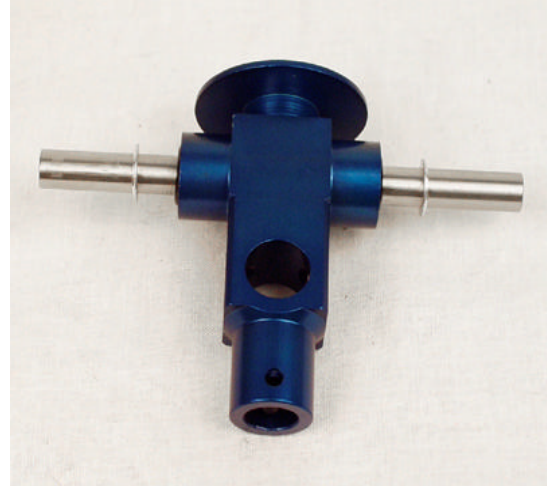
Install (2) dampener O-rings into (1) center hub



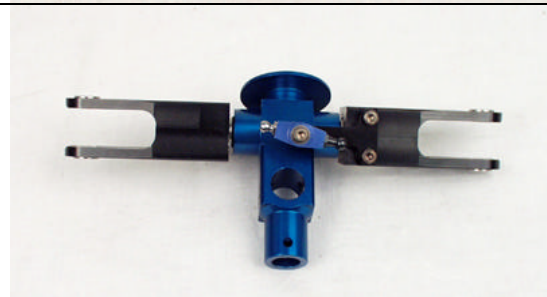
Install (1) spindle into (1) center hub



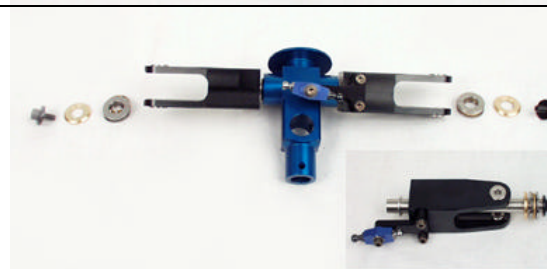
Install (2) Head Spindle spacers on each side on the spindle with the flat side toward the center of the rotor head



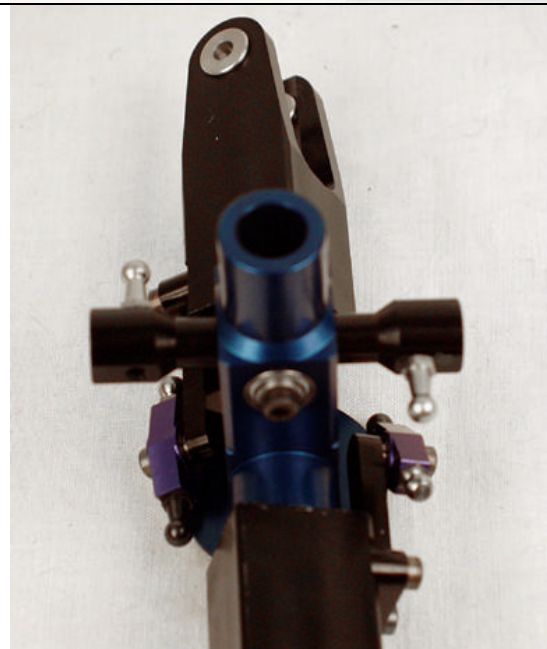
Slide (2) blade grips onto each side of the spindle



Install (2) thrust bearings spacers, (2) thrust bearings, (2) M4 blade grip retainers and (2) M4-10 cap head bolt

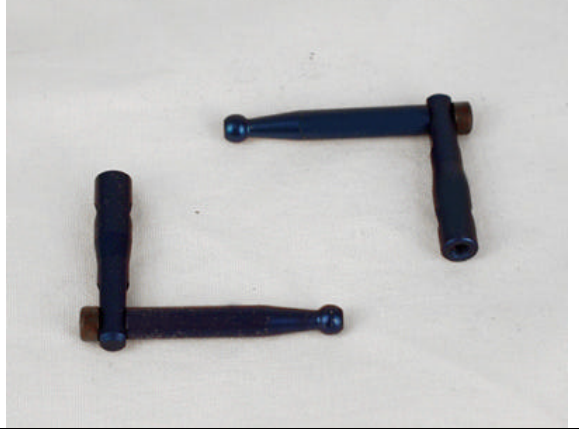


Install (1) sea-saw using (2) sea-saw collars and (2) M3-8 cap head bolts

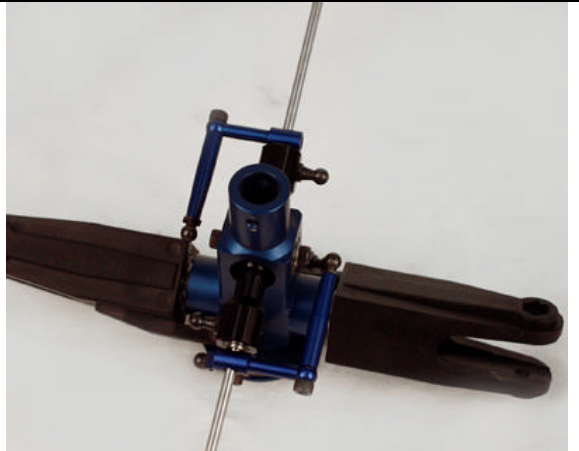


Install (2) M3-8 pivot ball studs to the installed sea-saw unit.
Note: Their extra 3mm holes on the sea-saw and are unused. The fly-bar should move freely once installed.

Install (2) Fly-bar control arm part A to (2) Fly-bar control arm part B using (2) M3-8 Cap Head Bolts.



Slide (1) M3 fly-bar through sea-saw centering it using a ruler.

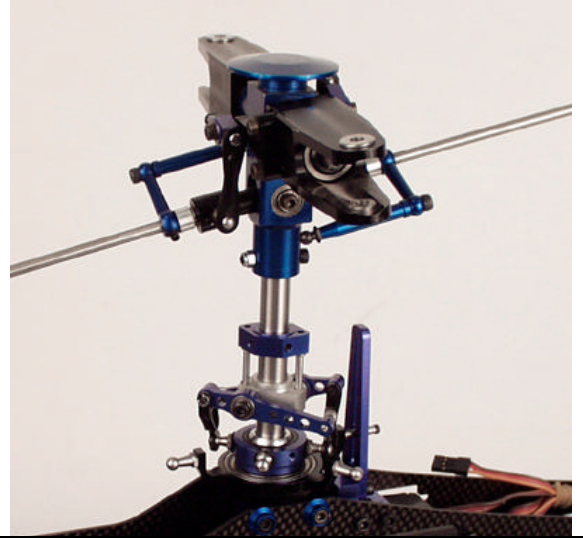


Install (2) M3-5-1 Spacer onto each end of the fly-bar

Install (2) complete fly-bar control arms using (2) M3-3 set screws. **Note:** The fly-bar control arms must be parallel to each other when the installation is complete and the setscrews are tight.



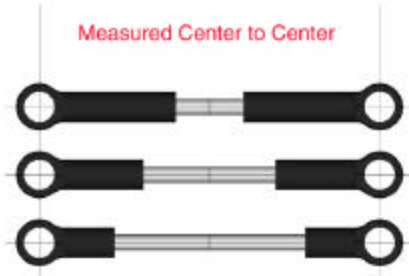
Install the complete rotor head Assembly to the main shaft using (1) M3-20 Cap Head Bolt and (1) M3 Locknut



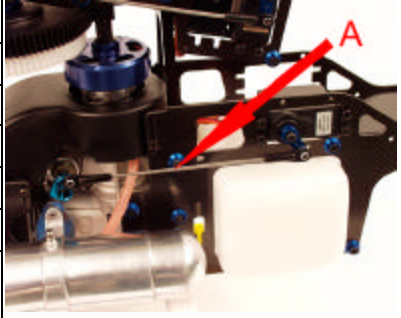
Section 7 - Bags and Components

Bag 9 Double Link (2) 2.3x35mm Linkage Rod (2) 2.3x40mm Linkage Rod (3) 2.3x45mm Linkage Rod (2) 2.3x70mm Linkage Rod (2) 2.3x90mm Linkage Rod (2) 2.3x110mm Linkage Rod (3) 2.3 Rudder Push Rod Ends (2) Rudder Push Rod Guide (2-Hole) (3) Rudder Push Rod Guide Insert (3) M2x10 Shim Ball Screw (10) Shim Ball (8) Short Canopy Standoff (2) Long Canopy Standoff (2) Canopy Grommets (4) M3x8 Cap Head Bolts (4) M3x16 Cap Head Bolts (4)	
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Section 7 – Linkage and Final Setup

<p>In the following table the linkages will be measured center to center as per the picture. The table explains the amount of rods you need to make and which ball links to use on each end. This will get the helicopter close to finished setup, as always you will need to make some final adjustments to maximize the performance of your Helicopter</p> <p>All Linkages available individually just know the size</p>	
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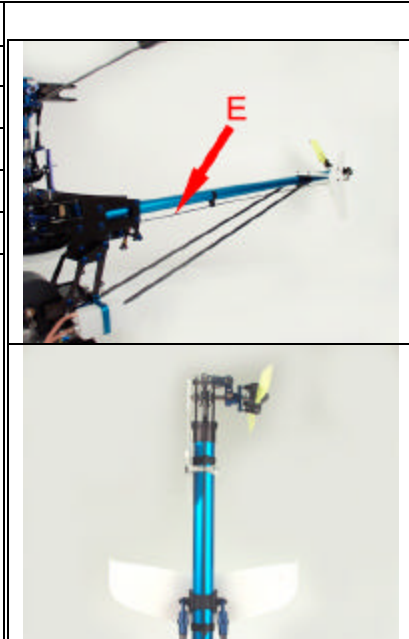
Install (8) Shim Balls using (8) M2-8 Phillips Screws. Install each Shim ball as close to the recommended distance for the center of the servo splice and the center of the shim balls.	Carburetor	11.75-13mm
	Throttle Servo	11.75-13mm
	Swashplate Servos	18-20mm
	Rudder Servo	11.75-13mm

Rod Use		
Linkage ID Letter	A	
# of Rods	1	
Rod Size	2.3-110	
Ball Link 1	Long	
Ball Link 2	Long	
Center to Center	125.50mm	

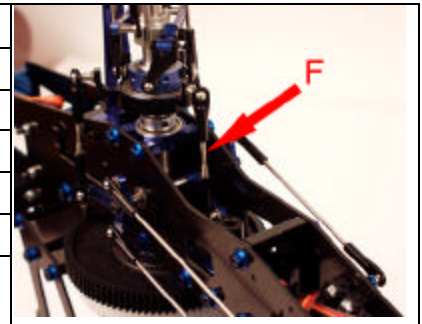
Rod Use		
Linkage ID Letter	B	
# of Rods	2	
Rod Size	2.3-45	
Ball Link 1	Long	
Ball Link 2	Long	
Center to Center	65.25	

Rod Use		
Linkage ID Letter	C	
# of Rods	2	
Rod Size	2.3-110	
Ball Link 1	Long	
Ball Link 2	Long	
Center to Center	131.10mm	

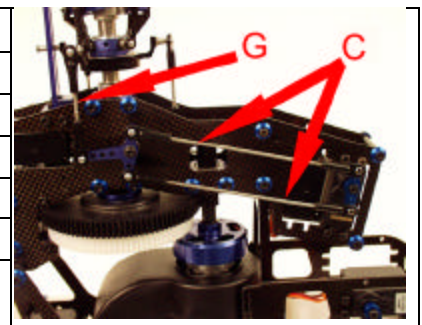
Rod Use		
Linkage ID Letter	D	
# of Rods	2	
Rod Size	2.3-90	
Ball Link 1	Long	
Ball Link 2	Long	
Center to Center	106.25mm	

Rod Use		
Linkage ID Letter	E	
# of Rods	1	
Rod Size	2mm Carbon Rod	
Ball Link 1	Long	
Ball Link 2	Long	
Center to Center	711.20mm	

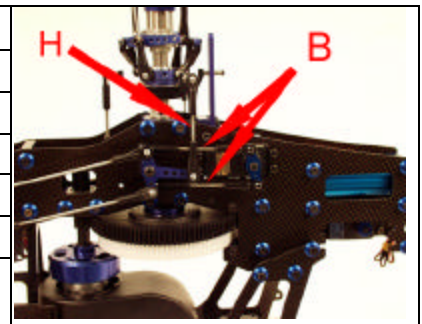
Rod Use	
Linkage ID Letter	F
# of Rods	1
Rod Size	2.3-40
Ball Link 1	Long
Ball Link 2	Long
Center to Center	60.00mm



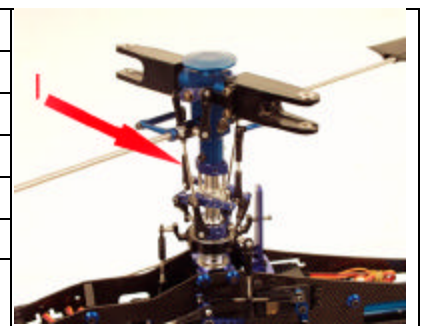
Rod Use	
Linkage ID Letter	G
# of Rods	1
Rod Size	2.3-40
Ball Link 1	Long
Ball Link 2	Long
Center to Center	60.00mm



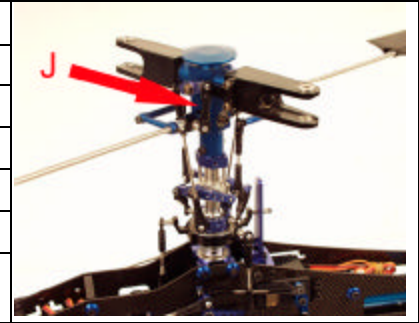
Rod Use	
Linkage ID Letter	H
# of Rods	1
Rod Size	2.3-40
Ball Link 1	Long
Ball Link 2	Long
Center to Center	60.00mm



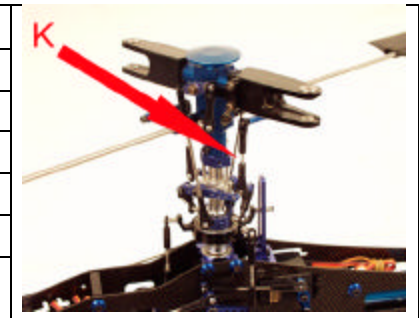
Rod Use	
Linkage ID Letter	I
# of Rods	2
Rod Size	2.3-70
Ball Link 1	Long
Ball Link 2	Long
Center to Center	96.00mm



Rod Use	
Linkage ID Letter	J
# of Rods	N/A
Rod Size	No Rod
Ball Link 1	Double Link
Ball Link 2	Double Link
Center to Center	Double Link (Fixed Length)



Rod Use	
Linkage ID Letter	K
# of Rods	2
Rod Size	2.3-35
Ball Link 1	Long
Ball Link 2	Long
Center to Center	52.00mm



Additional Push Rod Assembly Instructions

Construct the Rudder push rod with (2) Machined Carbon Push Rod Ends & (1) Carbon push rod cut the rod to length and epoxies the ends on finish with (2) Medium Ball Links. Use the (3) Tail Control Rod Guides, (3) Tail Control Rod Guides inserts, & (3) Tail Control Rod Guides inserts B. The three tail control rod guides are epoxies together to make complete assemblies. Space the assemblies evenly about the boom and use CA Glue to attach them.

Note:

- ?? The Carbon Rod will have to be cut to length.
- ?? The second end will have to attached after the rod is installed into the Guides

Replacement Part #:

Tail Control Rod – HHI4072

Tail Rudder Guide Set – HHI2900



Radio Setup

General Information:

First, change your radio to 3 Point, 120 Degrees swash-plate mixing. My advice is to read your radio manual for proper adjustment of the swash mixing. After you have the radio gear installed, the basic guidelines for proper setup of an EMS system is everything must be 90 Degrees and Parallel with all control sticks in the center. After all linkages are installed and everything meets the above requirements, you should have 0 degrees of main rotor blade pitch at center stick. Make the necessary adjustment to complete the setup.

Pitch Curve Setup:

Complete the following steps in the Pitch Curve Menu of the Radio. In Normal Mode make the Pitch curve the following: at Bottom-Stick, 0 to -2 Degrees; Mid-Stick, 5 to 6 Degrees, and Top-Stick, 9 to 10 Degrees. For Stunt 1 & 2: Bottom-Stick, -9 Degrees; Mid-Stick, 0 Degrees; and Top-Stick, 9 Degrees. Note: Stunt one; two should only be used by pilots, ready for forward flight and aerobatics. Do not use these settings until your skill level is ready.

Throttle Curve Setup:

Normal Mode, Bottom-Stick 20 Percent throttle;
Mid-Stick, 50 Percent Throttle, Top Stick 100 Percent Throttle. Stunt 1 & 2 Bottom-Stick 100 Percent; Mid-Stick, 35 Percent; Top Stick, 100 Percent.

Tail Rotor: Setup the Tail rotor limits so the throws that the tail pitch slider does not exceed a 5mm gap between the tail case and the tail pitch slider.

Mechanical Setup

Servo Arm Length: Servo arm Length should be as close to the T-levers and elevator control arm as possible. This will allow for best servo setup.

Orient the servo arms: With the collective stick is centered; ensure that the head servo arms are perpendicular to their control rods. If they are not rotate your arms to they are close and use your sub trims to fine-tune them.

Leveling the swash: Using a ruler measure from the bottom of the swash plate to the top main shaft-bearing block. Adjust all the connecting rods so that the swash plate is level. Equal all the way around the swash plate. Also Hobbies & Helis makes a nice swash-leveling tool to make this task easy.

Level the washout and mixer arms: With the collective stick centered and the fly-bar perpendicular to the main-shaft, ensure that the washout and mixer arms are perpendicular to the main-shaft. Adjust rods as necessary.

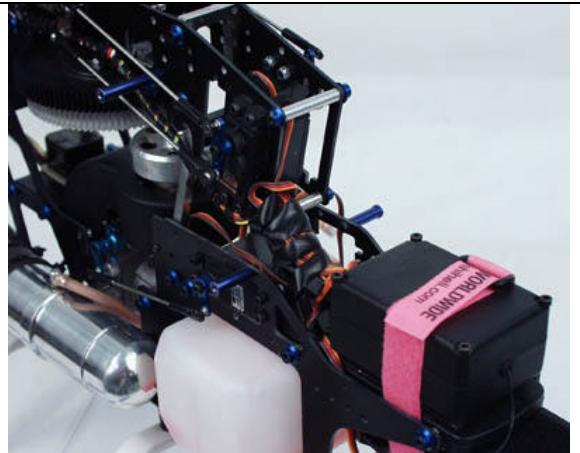
Additional tail rotor information: When you set up your tail rotor you need to make sure that your tail pitch slider is not going to hit your tail pitch control lever mount. With some gyros you can adjust this and others you can't. If you have a gyro that you can't adjust this all you need to do is take a piece of fuel tubing and slide it onto your tail output shaft. Spin your tail rotor to make sure the fuel tubing is long enough but not too long.

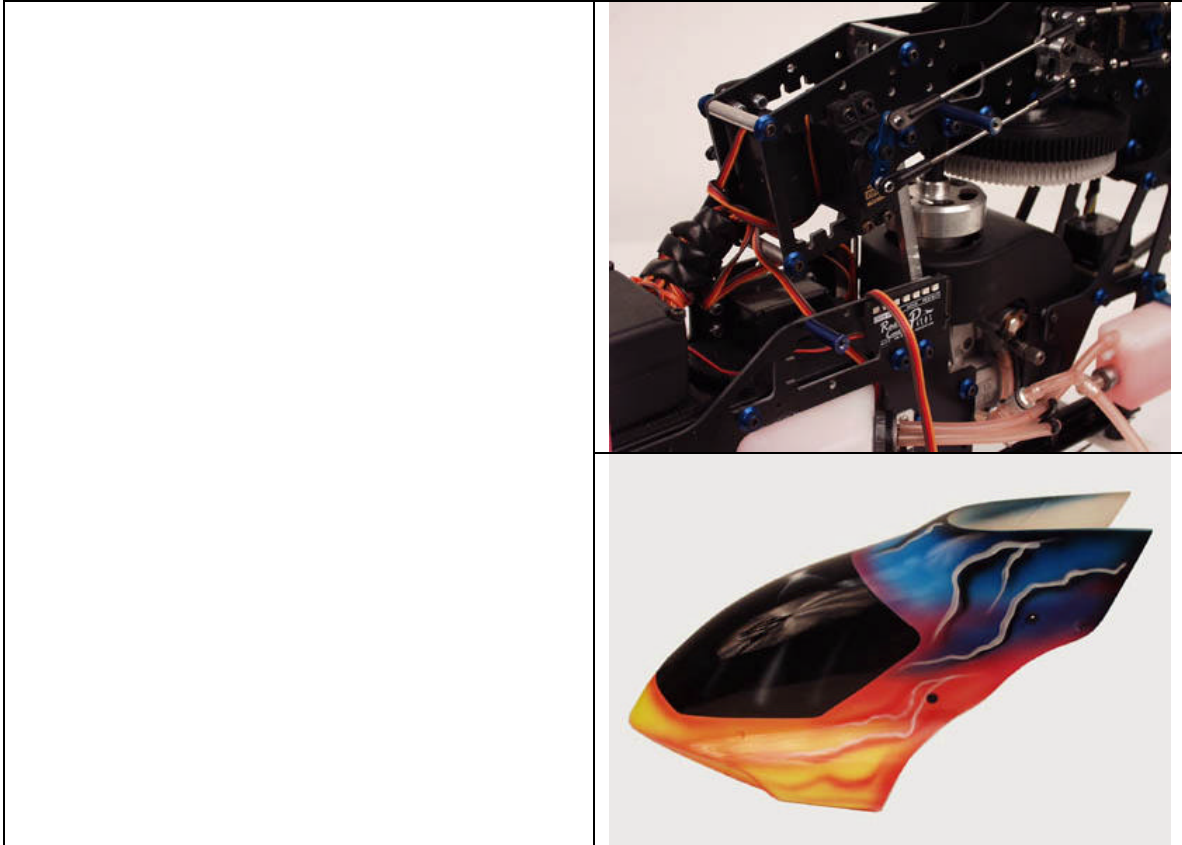
Helicopter Center of Gravity (CG): When the fly-bar is perpendicular to the tail-boom, pick it up and the nose should be just slightly heavier. If you need to just move your battery forward to get proper CG.

Washout Anti-rotation Pin: Leave the pin relatively loose until you have your radio equipment installed and your servos are operating correctly. Next, take your washout link and line it up with the anti-rotation guide. Rotate the head so that the main blades are parallel with the tail boom while the link is lined up. This is where the pin should be rotation wise. Next, Cycle you swashplate all the way to the top and tip it all the way in one direction. Rotate, the head and make sure the pin does not touch the swashplate at any point in the rotation. You should have the pin so that it is just barely not touching, but you want the pin as low as possible so you have plenty of pin left at full negative. Once you have the rotation and the height, just lock the pin down.

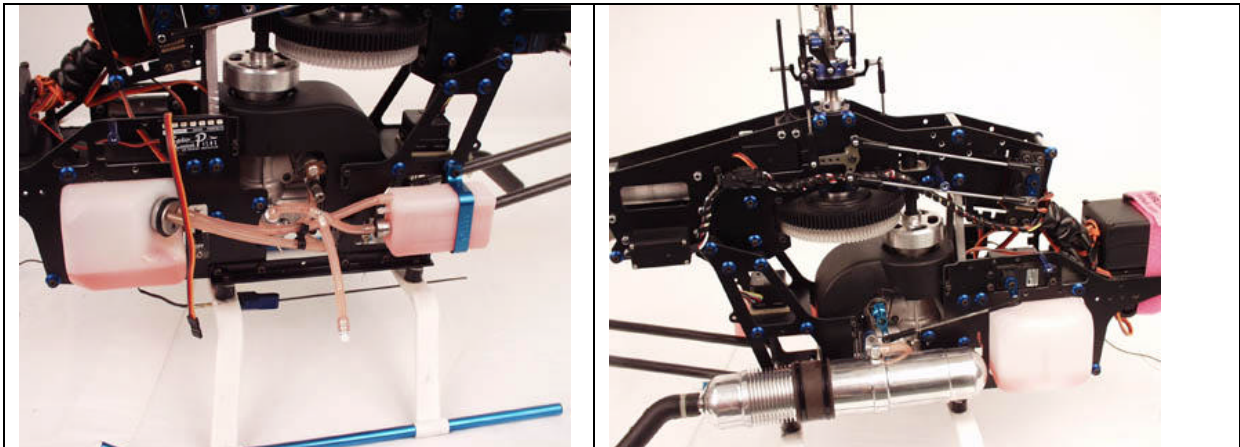
Canopy Mounting

Install (2) Long Canopy stand-offs and (2) Short Canopy stand-offs using (4) M3-8 Cap Head Bolts. After you have attached the canopy cross stand-offs you must place the canopy on the machine and mark the canopy for the locations of the standoffs. Drill a 1/4" inch hole in the previously marked position. After the 4 holes have been drilled insert (4) Canopy Grommets and attach the canopy to the helicopter using (4) M3-16 Cap Head Bolts.





Finalizing Everything before Flight



These pictures illustrate how every thing should be neatly wired up and strapped down before your helicopters first flights.