

Hurricane 550

ASSEMBLY INSTRUCTION



3D

Specification :

Overall Length: 1060 mm

Main Rotor Diameter: 1110 mm

Tail Blade Length: 80 mm

Overall Height: 305 mm

Tail Rotor Diameter: 222 mm

Flybar Paddle: 84x45x6 mm

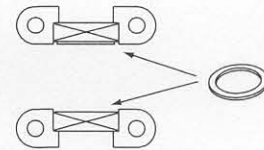
Overall Width: 85 mm

Main Blade Length: 500~550 mm

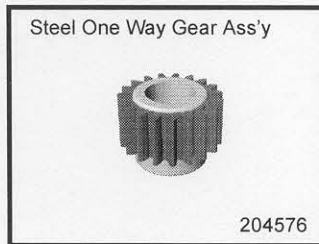
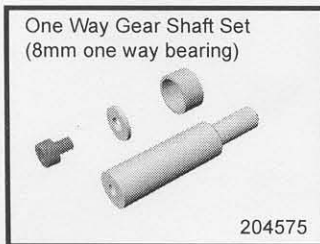
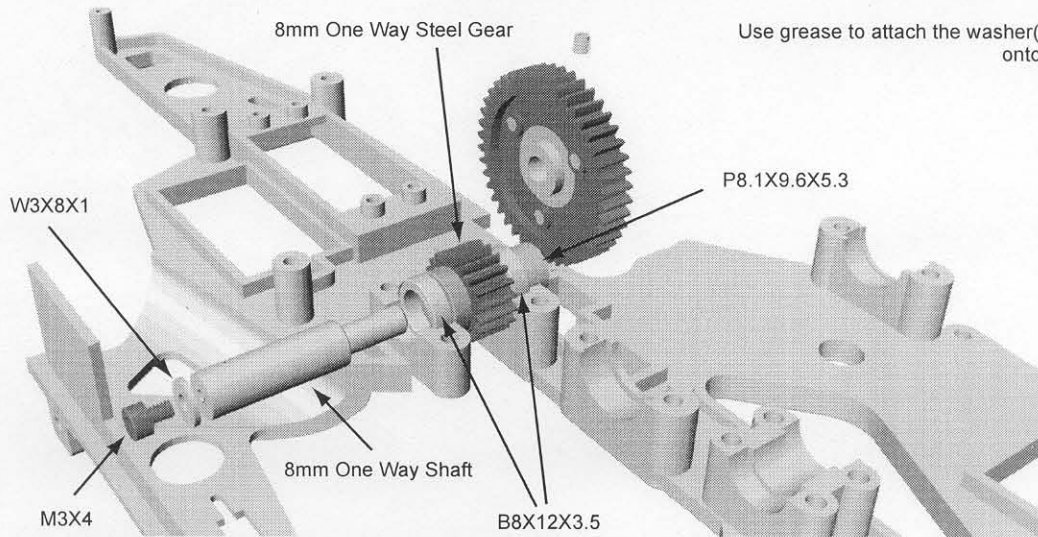
Flying Weight: < 2000g

Correction

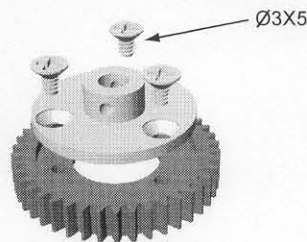
1. New diagram for step 6 (page 2), the size of the new One Way Gear Shaft and Bearing is 8mm dia. (6mm original)



Use grease to attach the washer(W8X10.5X0.5) onto the position.



2. The new plastic gear that will bear 250°C heating (Better rigidity and durability). Use the $\varnothing 3 \times 5$ tap screws instead of the original machine screws. (Be sure not to use the original machine screws, that will break the new plastic gear)



3. With the new standard BL-Motor (KV-850) and the 22.2V battery, the maximum motor speed is around 18870rpm ($11.1 \times 2 \times 850$). With the STD 14T Steel Motor Gear (15T and 16T are optional), the gear ratio is 9.63 ($61/19 \times 42/14$), the maximum headspeed will be 1960rpm ($18870/9.63$).

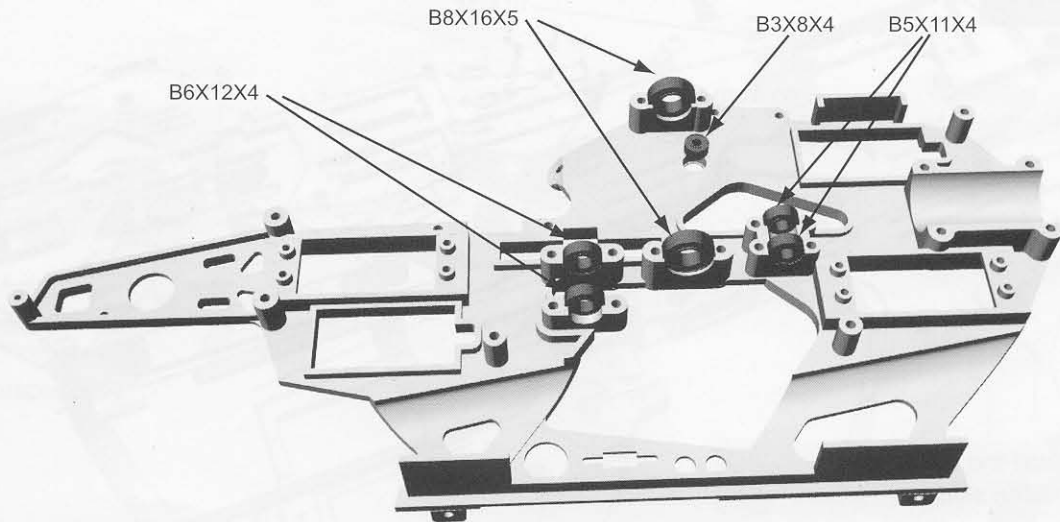
4. ESC Setting: Initial setting is for Li-Po battery and helicopter mode.

A. Initial setting: Turn on the power of transmitter, move the throttle stick to the low position, turn on the power of receiver (the servos should be able to be controlled now), connect the 22.2V battery and the ESC, it is ready for flying after hearing the acknowledge tones.

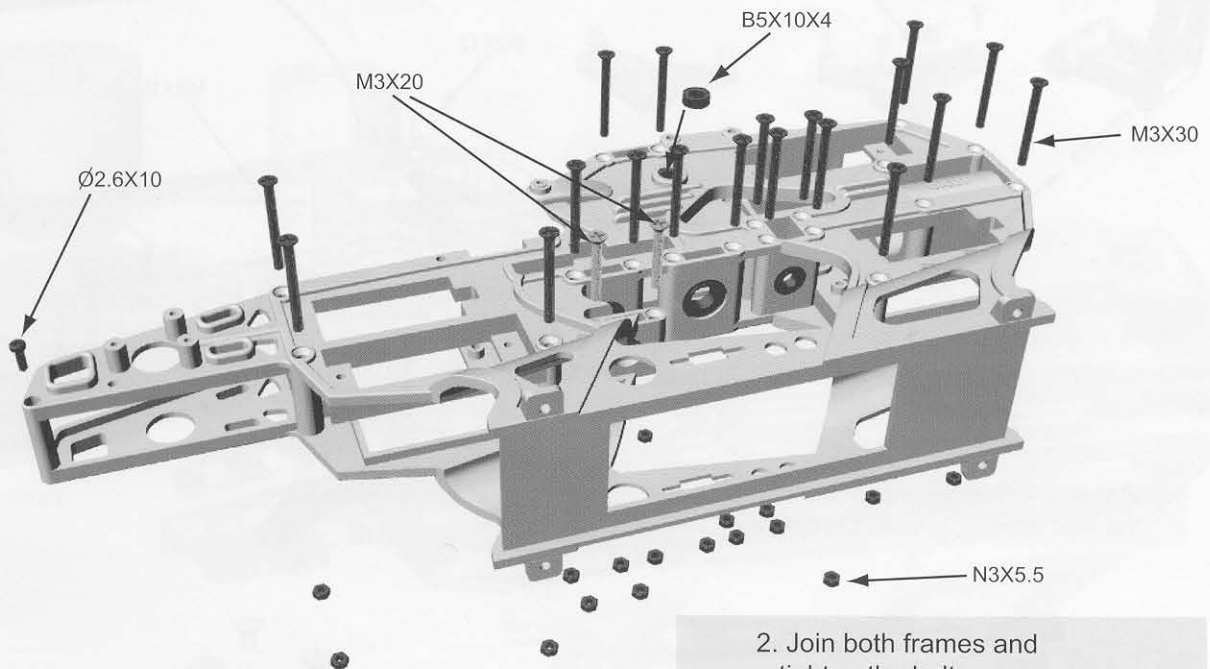
B. Manual setting: Turn on the power of transmitter, move the throttle stick to the high position, turn on the power of receiver, connect the 22.2V battery and the ESC, you will hear the acknowledge tones bi--bi--bi--bi--bi--bi, move the throttle stick to the low position, after hearing the acknowledge tones bi--bi--bi--bi, it is ready for manual setting and get into function-1 directly, and then comes the acknowledge tones bi--bi (Li-Po battery mode), if you use the Li-Po battery, move the throttle stick to the high position now, you will hear the acknowledge tones bi--bi--bi--bi (You had get into Li-Po battery mode already), or leave the stick at the low position and wait until hearing the acknowledge tones bi--bi-bi (NiMH battery mode), then move the throttle stick to the high position to get into NiMH battery mode. Now it will get into function-2 directly, if you intend to choose the option of Helicopter with Governor, wait until hearing the acknowledge tones bi-bi--bi-bi-bi-bi and move the throttle stick to the high position, disconnect the 22.2V battery and ESC, turn off the power of receiver (You had get into Governor mode already).

The Throttle Curve must be over than 80% if you choose the option of Helicopter with Governor.

Assembly 1

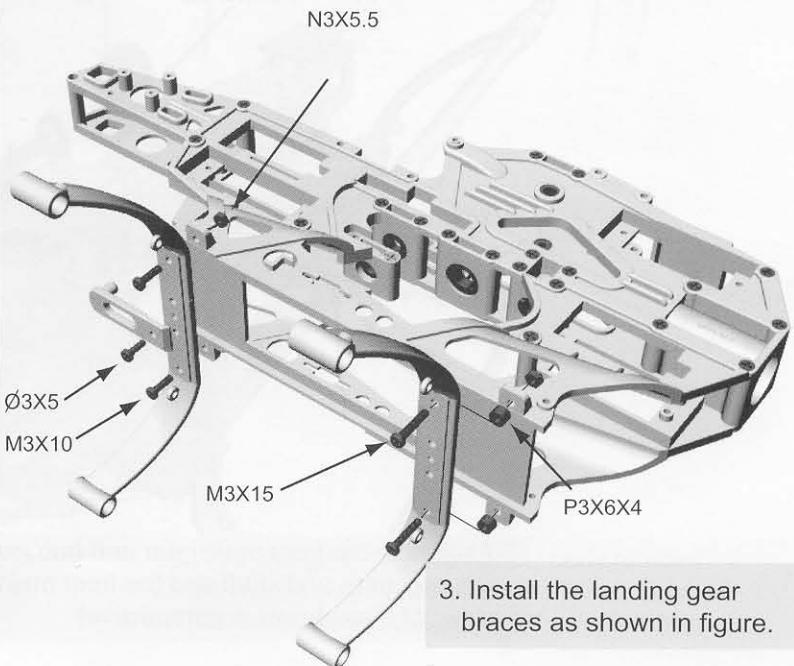


1. Install the bearings onto the frame.



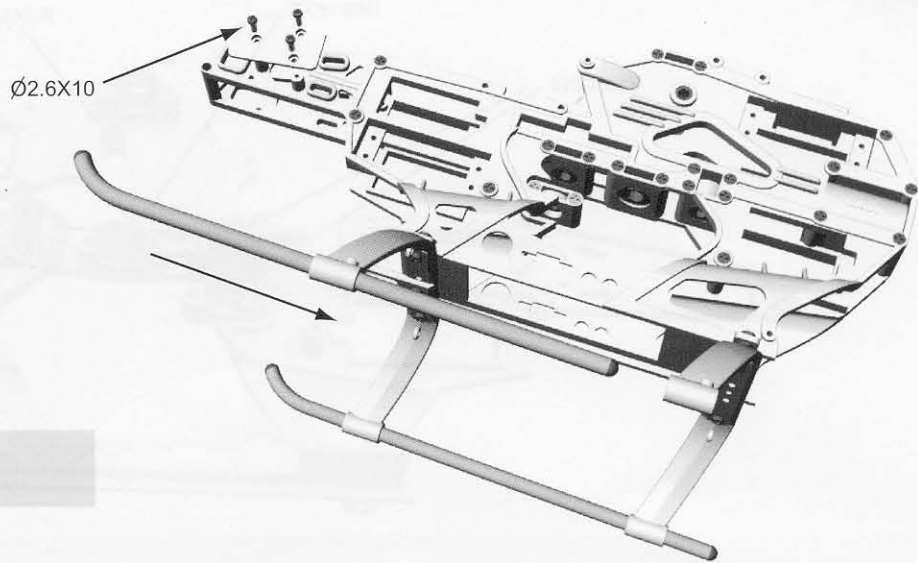
2. Join both frames and tighten the bolts.

Mark	Indication (mm)
B-Bearing	B(Dia.in)x(Dia.out)x(Thickness)
Ø-Tap Screw	Ø(Dia.out)x(Length)
M-Machine Screw	M(Dia.out)x(Length)
N-Nut	N(Dia.in)x(Width)
P-Tube Pillar	P(Dia.in)x(Dia.out)x(Length) P(Dia.out)x(Length)
W-Washer	W(Dia.in)x(Dia.out)x(Thickness)

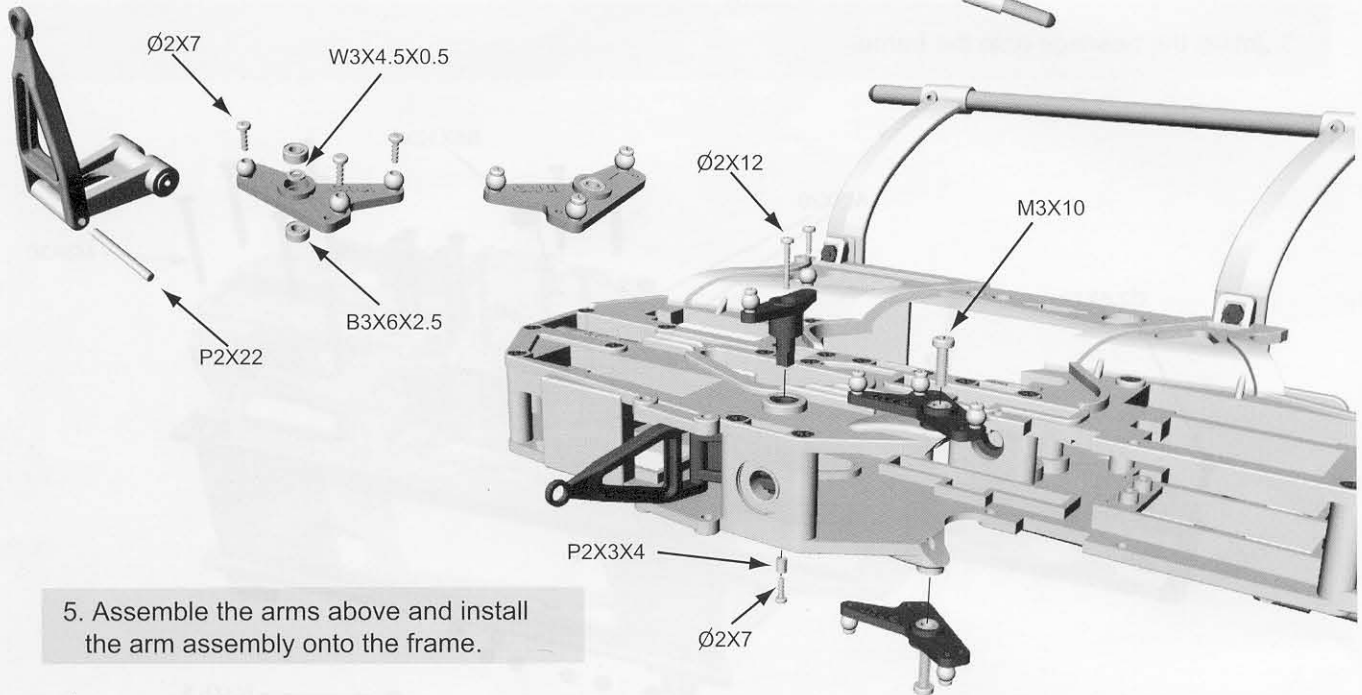


3. Install the landing gear braces as shown in figure.

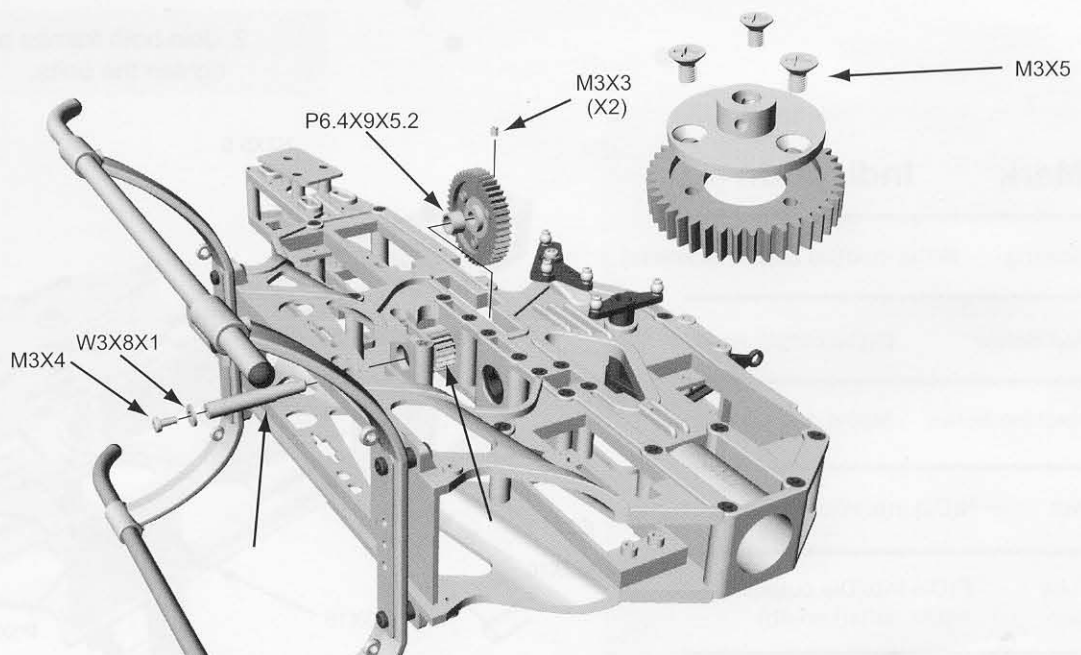
Assembly 2



4. Install the ESC mount and the skids.

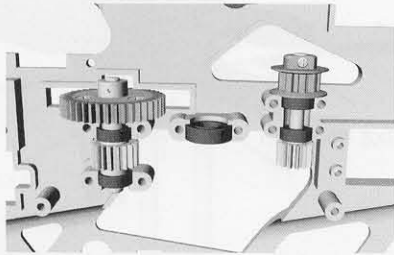


5. Assemble the arms above and install the arm assembly onto the frame.

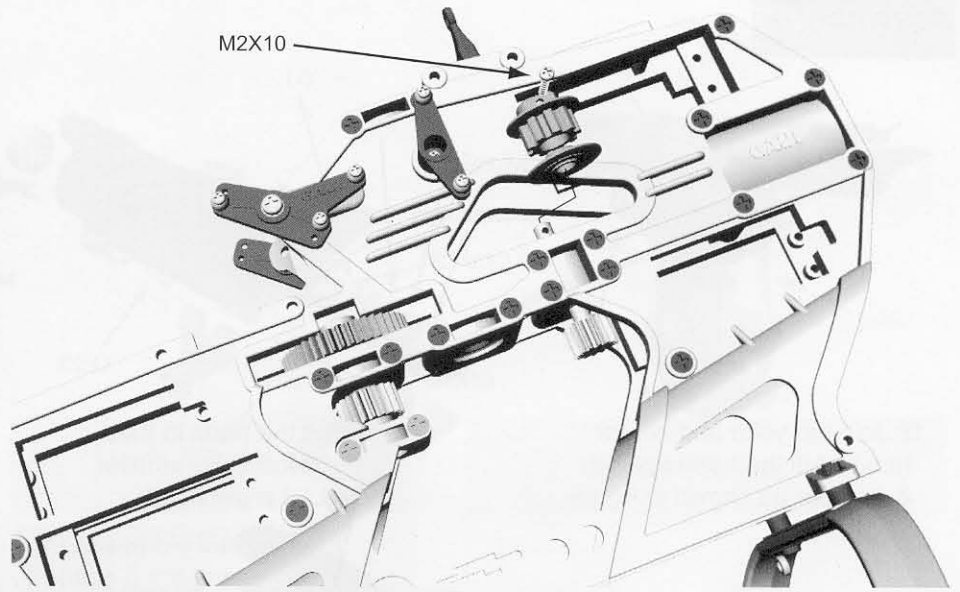


6. Assemble the front main gear and hub, join the one way gear and shaft and the front main gear assembly. (as shown in perspective)

Assembly 3

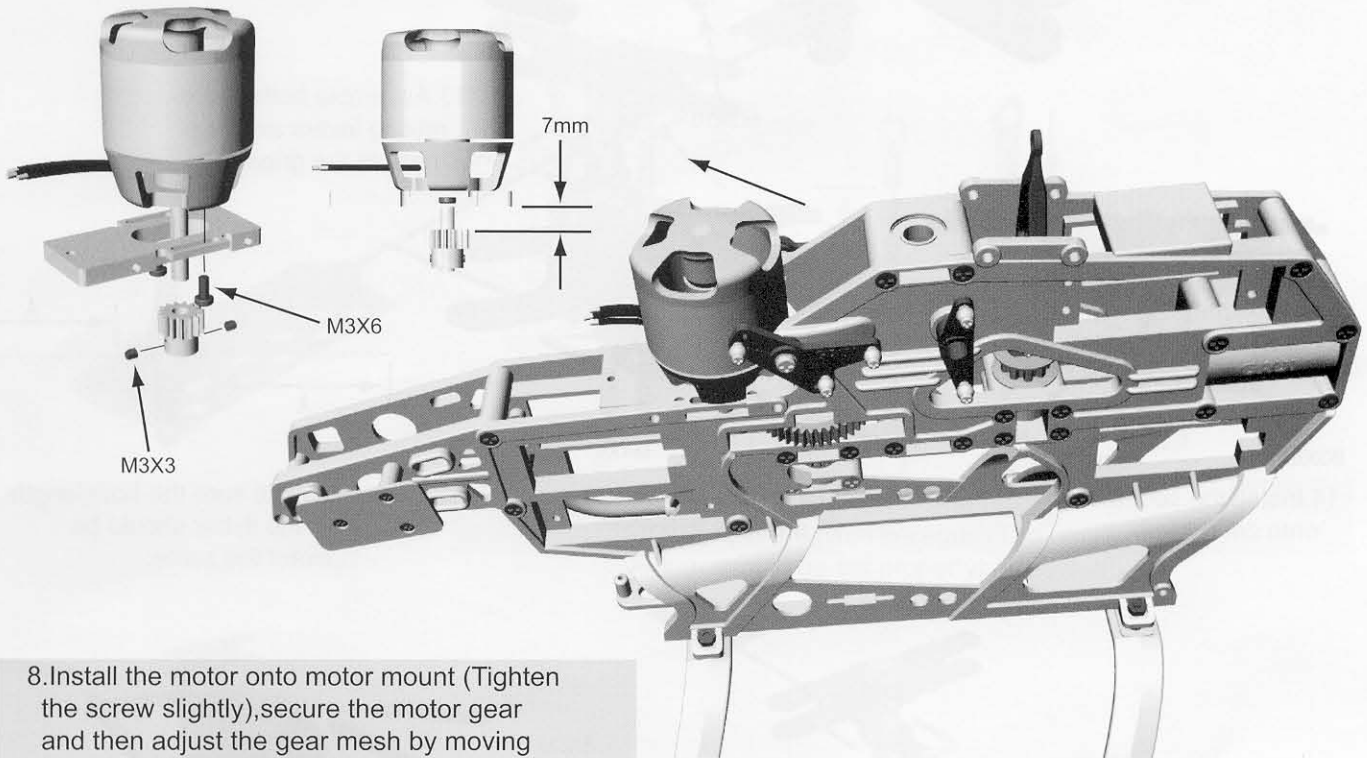


(Perspective)



M2X10

7. Install the pulley shaft and the front pulley, tighten the screw (M2x10) at the flat side of the pulley race. (as shown in perspective)

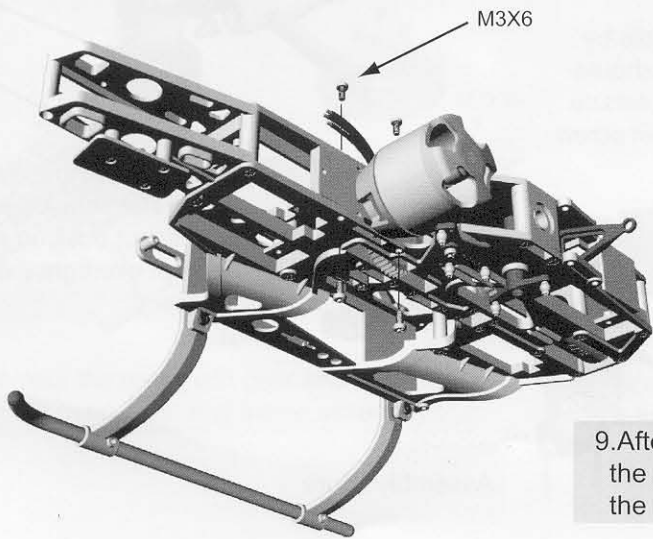


7mm

M3X6

M3X3

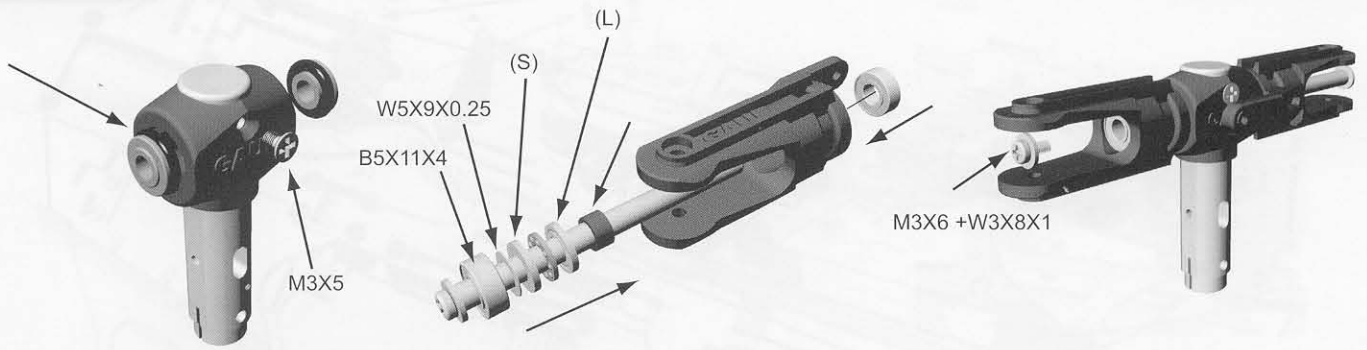
8. Install the motor onto motor mount (Tighten the screw slightly), secure the motor gear and then adjust the gear mesh by moving the motor forward or backward.



M3X6

9. After the gear mesh is set properly, remove the mount (with motor and gear), then tighten the motor screws and install them onto frame.

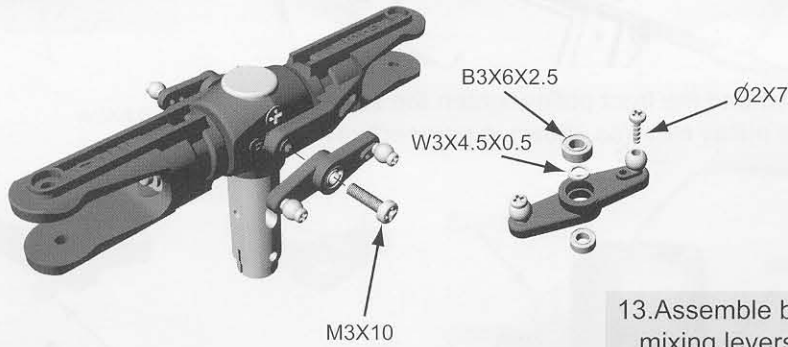
Assembly 4



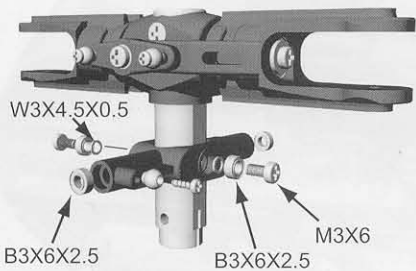
10. Join the yoke and center hub, install the head spacer & damper as shown in figure.

11. Install the parts in that order. (Notice: S - smaller hole, L - Larger hole)

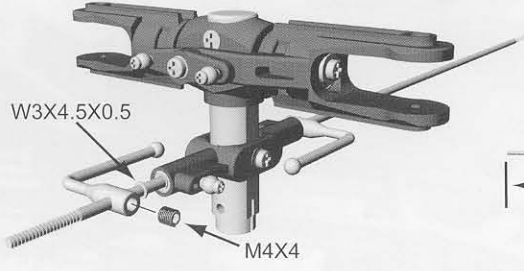
12. Assemble grips and yoke, tighten the two screws of spindle shaft.



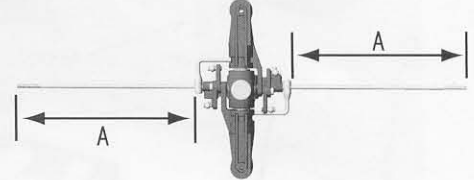
13. Assemble both of the mixing levers and join them to the grips.



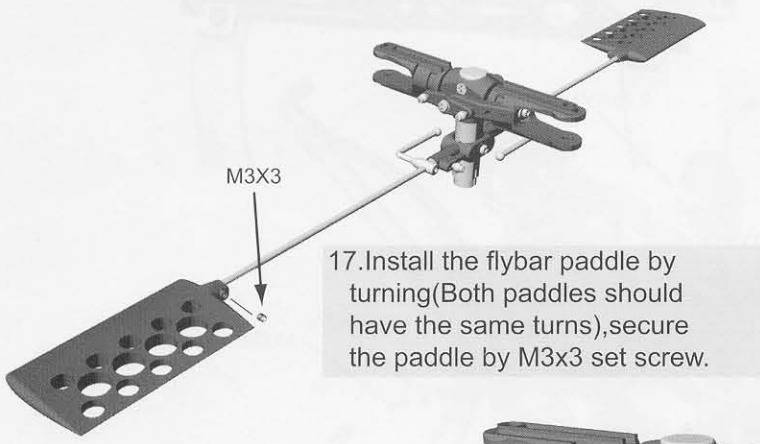
14. Install the seesaw onto center hub.



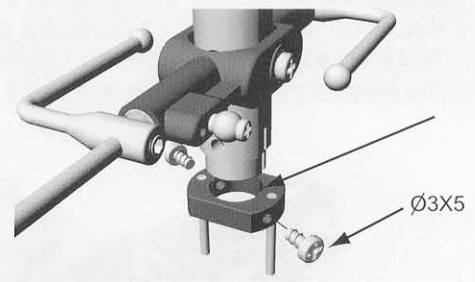
15. Install the flybar arms onto the flybar.



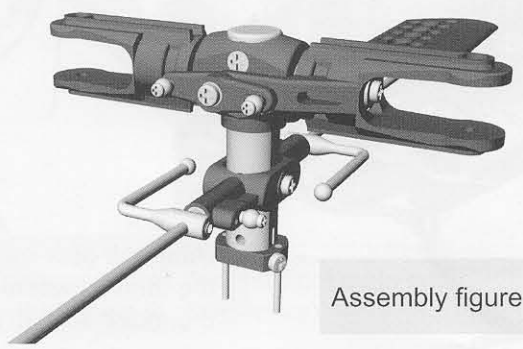
16. Make sure the both length of the flybar should be exact the same.



17. Install the flybar paddle by turning (Both paddles should have the same turns), secure the paddle by M3x3 set screw.



18. Install washout guide. (The slot should be in the exact position and do not overtight the screw.)

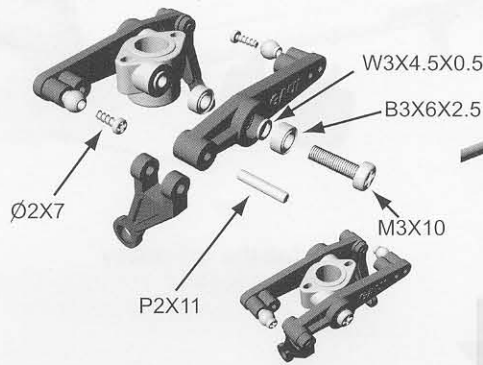


Assembly figure

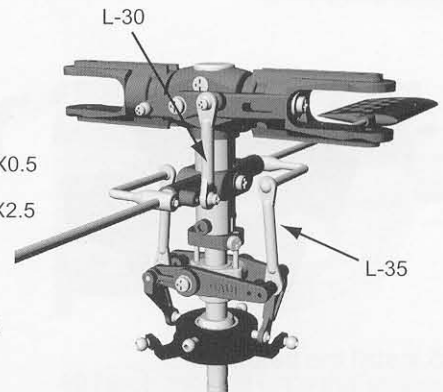
Assembly 5



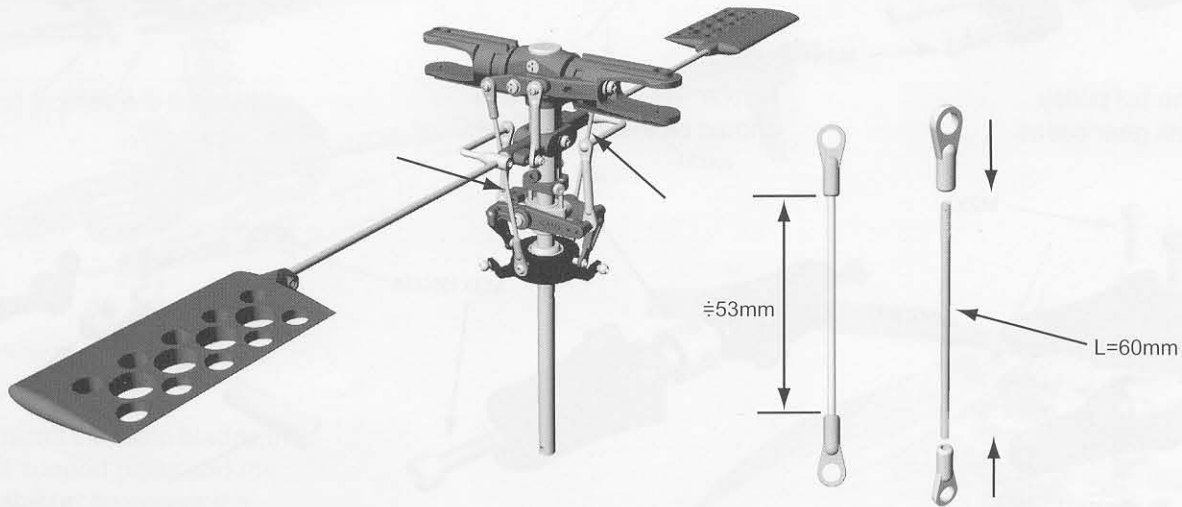
19. Install the main mast.
(Be sure not to install the mast up side down)



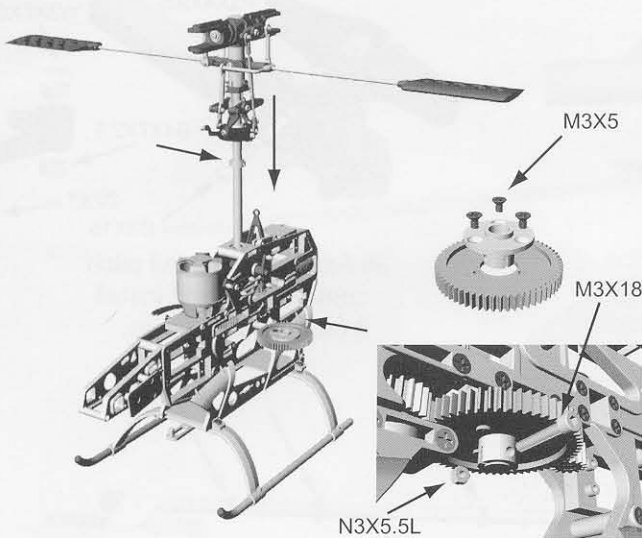
20. Assemble the washout base & the arms.



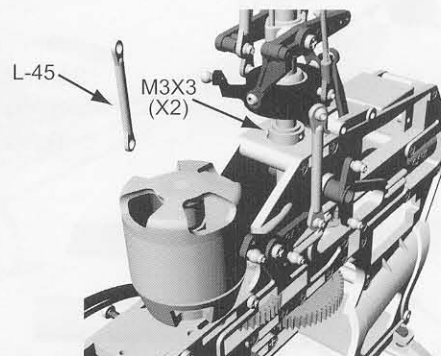
21. Install the double links.



22. Assemble the pitch linkages. (The length should be set properly)

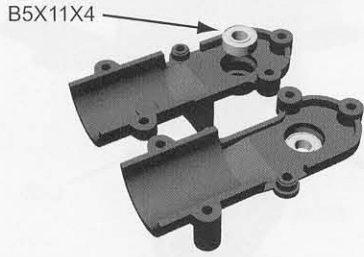


23. Assemble the rear main gear and hub, join it with the main mast and frame assembly.

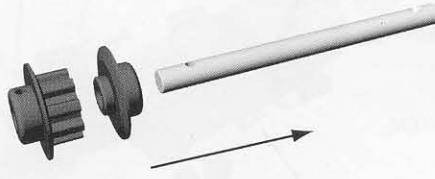


24. Install the mast collar and double link. The mast should not be able to be moved up and down.

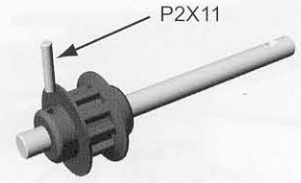
Assembly 6



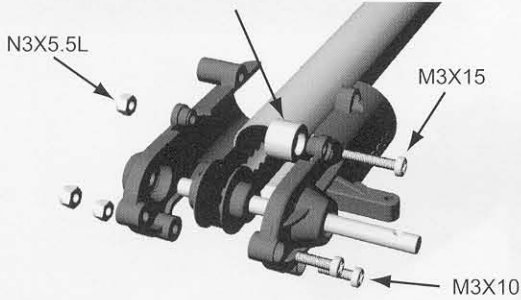
25. Install the bearings.



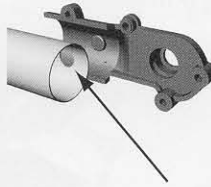
26. Install the tail pulley and the shaft.



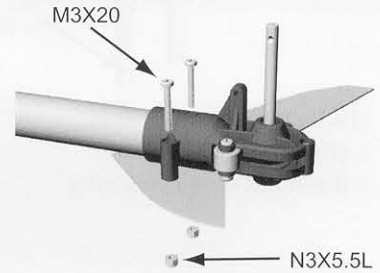
27. Secure the tail pulley with the pin.



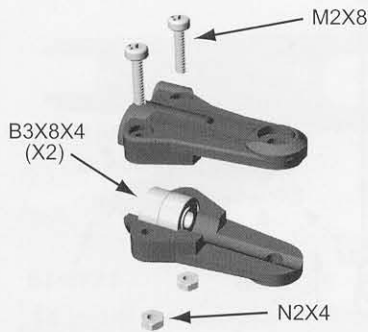
28. Install the tail pulley and the tail gear cases.



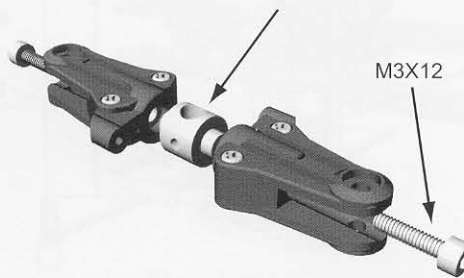
Notice: The tail gear case should be installed exactly.



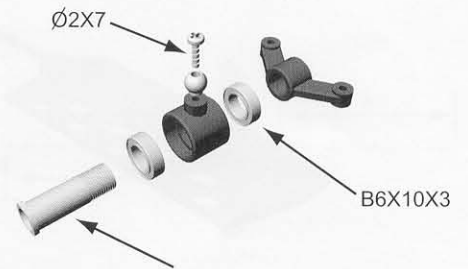
29. Install the vertical fin.



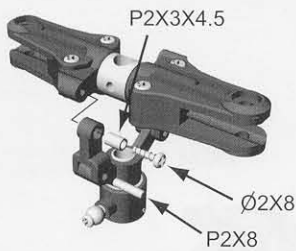
30. Assemble the tail rotor grips.



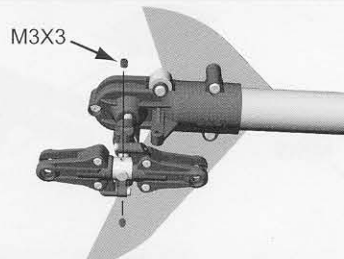
31. Assemble the grips and the hub.



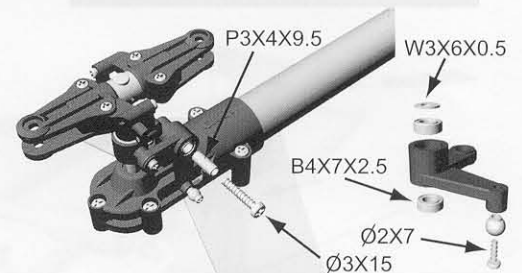
32. Assemble the tail pitch slider and the bush.



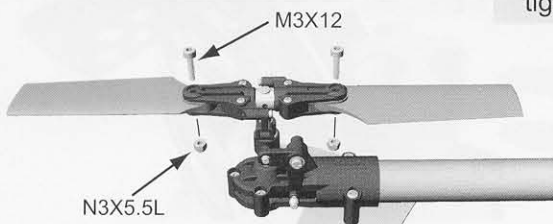
33. Assemble the grips assembly & the pitch slider assembly.



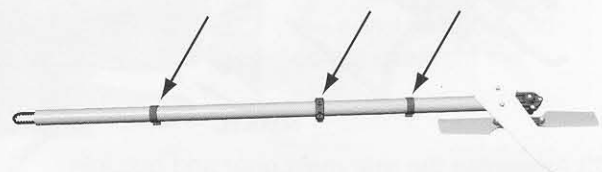
34. Install the grips & the pitch slider assembly, tighten the set screws.



35. Assemble the tail pitch control lever and install it onto tail gear case.



36. Install the tail rotor blades.

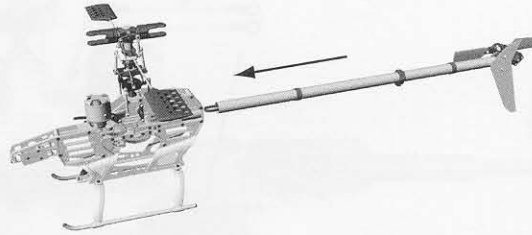


37. Install the tail support clamp and the rudder control guide.

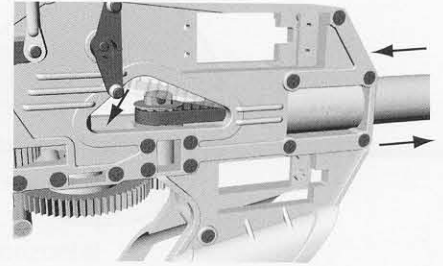
Assembly 7



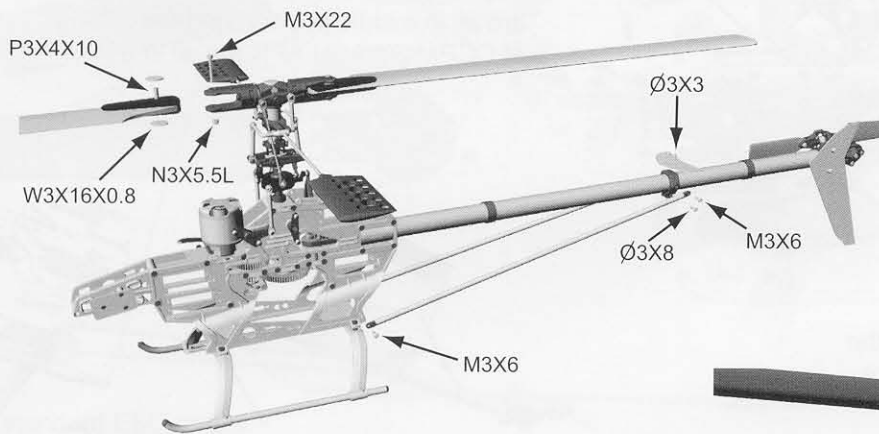
38. Make sure the belt is not winding in tail boom, rotate it 90 degrees clockwise. (Front view)



39. Loosen the 4 screws and install the tail boom.



40. Hook the belt onto the pulley, set the belt tension properly and retighten the screws.



41. Install the main blades, the tail support pipes and the stabilizer fin, secure the tail support clamp.

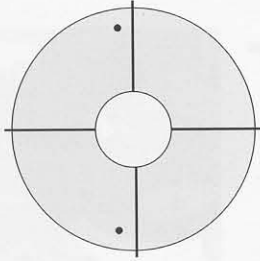


42. Install the body retainers and the dampers, join the body and helicopter.

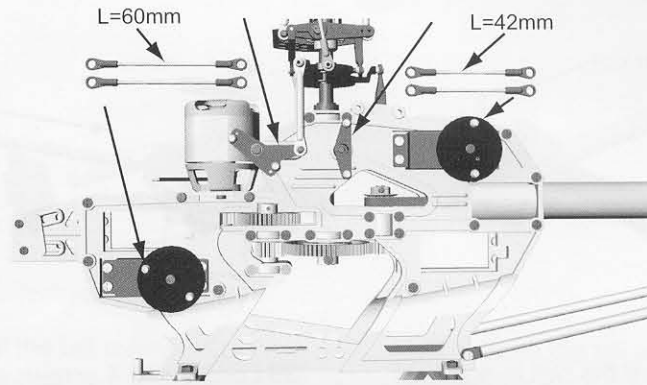


Assembly figure

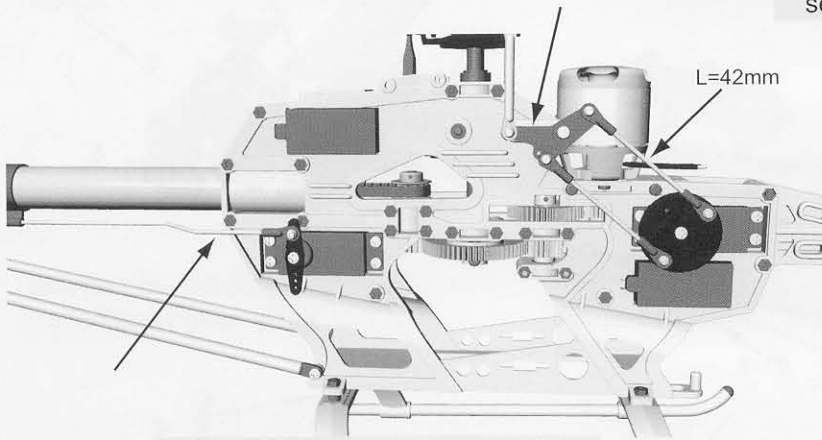
Servo and electrics installation



1. Cut off this diagram and drill two holes on servo horn, secure the metal balls onto the horn.

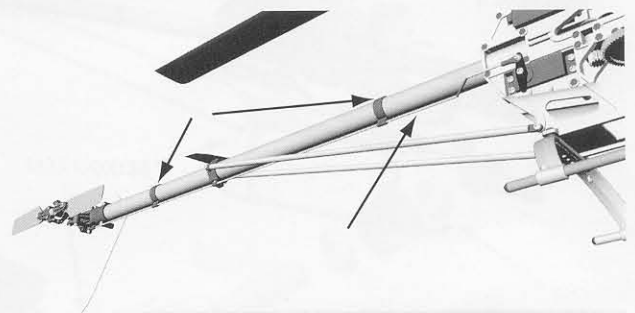


2. Install the servos and the linkages, the length of the linkage should be set exactly.

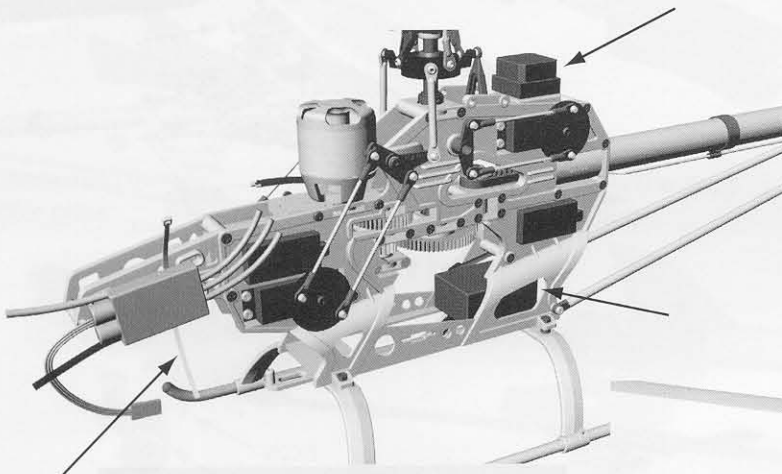


3. Install the rudder servo and the tail pushrod as shown in figure.

Notice: With the servo at its neutral position, make sure the four control sticks are all in middle position, and the setting of CCPM SWASH AFR are all in 50%.



4. The tail pushrod should be aligned with the tail boom, use C/A to adhere rudder control guide onto tail boom.



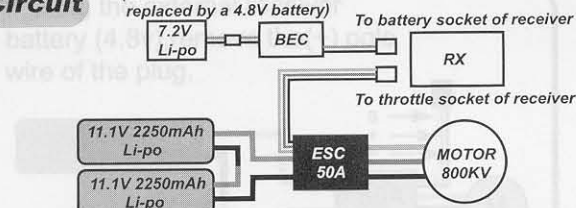
5. Install the gyro, receiver (Use the double side tape) and the ESC. (Use the cable tie)



6. Use the releasable cable tie to secure the batterie.

Circuit

(The 7.2V Li-Po & BEC can be replaced by a 4.8V battery)



Notice: Before flying, turn on the power of transmitter, then connect the 7.2V Li-Po battery & BEC (or the 4.8V battery) to the receiver, and finally connect the 22.2V battery to the ESC. Disconnect the circuit in reverse order after flying.

Setting

With the standard BL-Motor(KV-800) and the 22.2V battery(6s1p),the maximum motor speed is around 17760rpm. With the 15T pinion gear,the gear ratio is 8.99 $(61/99) \times (42/15)$,the maximum head speed is 1976rpm(17760/8.99). You can change the maximum head speed by replace the pinion gear.(14T or 16T)

Horizontal
Vertical

(Initial setting position with
0 pitch degrees)

Use the 61T main gear to replace
the 42T main gear for another
higher speed motor.

The standard ESC output
current is 50A(25V),refer
to the next page to change
the setting.(If necessary)

Initial pitch setting

Pitch Stick	100%	50%	0%
Normal	8°	3°	-3°
Idle	10°	0°	-10°

Cut out the air intake holes
for the better cooling.

The built in BEC is made for general cruising and hovering, if you are using digital servos or want to fly hard 3D (high current), external receiver battery (4.8~6V) is strongly recommended.

Product Functions

Battery Management System

It was a built in Battery Management System function of the speed controller. The power cut off timing was based on the cell number and continues output current of the battery. There were 2 options defined in the battery management system in all series controllers. 1 option were for Li-Polymer batteries and 1 option for using with NiMH battery. The battery management system allows you to protect your batteries from over discharge and moreover to extend the lifetime of your batteries.



Flying Mode

The flying mode offers you different options for different aircrafts. You could choose from airplane, Glider, helicopter without governor and helicopter with governor.

Set Up Procedure

1. To enter set up mode and throttle curve initiation

Due to the signal differentiation amount different remote control brands, it is strongly recommended to run the throttle curve initiation process whenever set up a new aircraft.

- I. Throttle position to the maximum
- II. Power on the transmitter
- III. Power on the speed controller, the motor will come up with acknowledge tones 
- IV. Throttle position to the minimum position, the motor will come up with acknowledge tones 

This procedure was to calculate the throttle range by the microprocessor in order to optimize the throttle curve and the smoothness of operation. When finish the initiation process, we could simply shut down the power in the system is intend to use other factory default settings. If not, simply waiting for 1 second. The system will enter the set up mode.

2. Battery Management System

Following by the brake mode, the system will enter battery management system. This section offers 4 options for using with either NiMH or Li-Polymer battery. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.


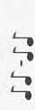


- o Standard discharge protection for Li-Polymer (Factory Default) 
- o +5V cut-off protection for Ni-MH 

When intend to choose one of above options, simply position the throttle stick from minimum to maximum after the indication tone. The next step is to position the throttle stick back to the minimum position to confirm. If there is no need to enter next set up section, you could simply shut down the power. The selection was stored into the microprocessor when the throttle stick was in confirmation position. If there is need to enter motor timing set up section, simply wait for the next tone.

3. Flying Mode

Following by the throttle sensitivity, the system will enter flying mode setting. This section offers 4

options. They were airplane, Glider and helicopter. The motor will come up the corresponding tones as indicator. The following is the indication with graphic reference.

- o Aircraft (Factory Default) 
- o Glider 
- o Helicopter without Governor 
- o Helicopter with Governor 

When intend to choose one of above options, simply position the throttle stick from minimum to maximum after the indication tone. The next step is to position the throttle stick back to the minimum position to confirm. Then you could simply shut down the power. The selection was stored into the microprocessor when the throttle stick was in confirmation position. The controller is now ready to fly.

More about Battery Management System

This section is to give you more details of the smart design of battery management system in order to help you to utilize the function. Technically the power cut off timing was based on the cell number and continues output current of the battery. The microprocessor will calculate the timing and to cut the power with two steps. Because the late stage of each battery discharge cycle has quick voltage change, such function will provide a safe process during the operation.

- 1st step:** enabled when the single cell reaches the low point, the motor will be forced to lower the RPM by microprocessor
- 2nd step:** enabled when the single cell reaches the lowest point defined in the system, the motor will be completely cut off. To regain the power, the user needs to adjust the throttle stick to the "stop" position until the battery voltage comes back to the safe level.

The following were the detailed definition of each option in battery management system.

- o NiMH battery
- o +5.0 volt cut off
- o Li-Polymer standard discharge (Factory Default)
- o 1st step voltage @ 2.9V
- o 2nd step voltage @2.6V

Caution!

High power motor systems could be very dangerous. High current could generate heat on wires, batteries, and motors. Always follow the instruction and use proper tools to set up the system within safe range. Always fly at a designed field with caution even though this controller is equipped with safety arming program.


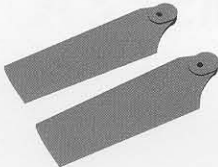




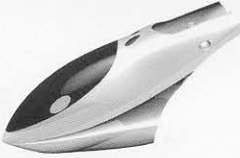

















Replacement Parts - 1

<p>Main Frame Set</p>  <p style="text-align: right;">204010</p>	<p>Brace & Skid Set</p>  <p style="text-align: right;">204180</p>	<p>ESC Mount</p>  <p style="text-align: right;">204511</p>	<p>Pitch & Roll Arm Set</p>  <p style="text-align: right;">204512</p>
<p>Elevator Arm (F&R) Set</p>  <p style="text-align: right;">204513</p>	<p>Elevator Lever</p>  <p style="text-align: right;">204514</p>	<p>Front Main Gear (42T)</p>  <p style="text-align: right;">204021</p>	<p>Rear Main Gear (61T)</p>  <p style="text-align: right;">204022</p>
<p>Front Gear Hub Set</p>  <p style="text-align: right;">204521</p>	<p>Rear Gear Hub Set</p>  <p style="text-align: right;">204522</p>	<p>Pulley shaft with Gear</p>  <p style="text-align: right;">204523</p>	<p>Front Pulley Set</p>  <p style="text-align: right;">204524</p>
<p>One Way Gear Assembly</p>  <p style="text-align: right;">204525</p>	<p>One Way Gear Shaft Set</p>  <p style="text-align: right;">204526</p>	<p>550 Brushless Motor</p>  <p style="text-align: right;">855501</p>	<p>Motor Mount Set</p>  <p style="text-align: right;">204527</p>
<p>Main Rotor Yoke Set</p>  <p style="text-align: right;">204528</p>	<p>Main Grip Set</p>  <p style="text-align: right;">204529</p>	<p>Head Spacer & Damper Set</p>  <p style="text-align: right;">204530</p>	<p>Spindle Shafts Pack</p>  <p style="text-align: right;">204531</p>
<p>Mixing Lever Set</p>  <p style="text-align: right;">204532</p>	<p>Seesaw</p>  <p style="text-align: right;">204041</p>	<p>Flybar Arms Set</p>  <p style="text-align: right;">204533</p>	<p>Flybar</p>  <p style="text-align: right;">204042</p>

Replacement Parts - 2

<p>Flybar Paddle Set</p>  <p style="text-align: right;">204534</p>	<p>Washout Guide Assembly</p>  <p style="text-align: right;">204535</p>	<p>Main Masts pack</p>  <p style="text-align: right;">204536</p>	<p>Washout Base</p>  <p style="text-align: right;">204051</p>
<p>Washout Arm Assembly</p>  <p style="text-align: right;">204537</p>	<p>Double Link (L-30)</p>  <p style="text-align: right;">204538</p>	<p>Double Link (L-35)</p>  <p style="text-align: right;">204539</p>	<p>Double Link (L-45)</p>  <p style="text-align: right;">204540</p>
<p>Adjust Rods Pack</p>  <p style="text-align: right;">204541</p>	<p>204542 Ball Links Pack</p> 	<p>Ball With Stand (4.8mm)</p>  <p style="text-align: right;">204543</p>	<p>Swash Plate Assembly</p>  <p style="text-align: right;">204544</p>
<p>Mast Collar Set</p>  <p style="text-align: right;">204545</p>	<p>Tail Gear Case Set</p>  <p style="text-align: right;">204546</p>	<p>Tail Pulley Set</p>  <p style="text-align: right;">204547</p>	<p>Tail Output Shaft</p>  <p style="text-align: right;">204123</p>
<p>Guide Wheel Assembly</p>  <p style="text-align: right;">204548</p>	<p>Tail Rotor Belt</p>  <p style="text-align: right;">865001</p>	<p>Tail Boom</p>  <p style="text-align: right;">204191</p>	<p>Fin & Stabilizer Set</p>  <p style="text-align: right;">204549</p>
<p>Tail Grip Set</p>  <p style="text-align: right;">204550</p>	<p>Tail Hub Set</p>  <p style="text-align: right;">204551</p>	<p>Tail Pitch Slider Set</p>  <p style="text-align: right;">204552</p>	<p>Tail Pitch Slide Bush</p>  <p style="text-align: right;">204141</p>

Replacement Parts - 3

<p>Tail Pitch Control Lever</p>  <p style="text-align: right;">204553</p>	<p>Tail Rotor Blade Set</p>  <p style="text-align: right;">204554</p>	<p>Tail Support Clamp</p>  <p style="text-align: right;">204555</p>	<p>Rudder Control Guide</p>  <p style="text-align: right;">204556</p>
<p>Tail Supporter Pipe</p>  <p style="text-align: right;">204557</p>	<p>Main Blades Pack (Wood)</p>  <p style="text-align: center;">500L--204302 550L--204303</p>	<p>Canopy & Body Assembly</p>  <p style="text-align: center;">(White) 204160</p>	<p>Body Retainers Pack</p>  <p style="text-align: right;">204558</p>
<p>Pinion Gear Pack</p>  <p style="text-align: center;">14T-- 901401 15T-- 901501 16T-- 901601</p>	<p>Ball Bearings Pack (3x6x2.5)x4</p>  <p style="text-align: right;">204560</p>	<p>Ball Bearings Pack (3x8x4)x4</p>  <p style="text-align: right;">204561</p>	<p>Ball Bearings Pack (4x7x2.5)x2</p>  <p style="text-align: right;">204562</p>
<p>Ball Bearings Pack (5x10x4)x1</p>  <p style="text-align: right;">805104</p>	<p>Ball Bearings Pack (5x11x4)x4</p>  <p style="text-align: right;">204563</p>	<p>Ball Bearings Pack (6x10x3)x2</p>  <p style="text-align: right;">204564</p>	<p>Ball Bearings Pack (6x12x4)x2</p>  <p style="text-align: right;">204565</p>
<p>Ball Bearings Pack (8x16x5)x2</p>  <p style="text-align: right;">204566</p>	<p>Thrust Bearings Pack (5x10x4)x2</p>  <p style="text-align: right;">204567</p>	<p>M3 Bolts Pack</p>  <p style="text-align: center;">+ --204568 ● --204569</p>	<p>M2 Bolts Pack</p>  <p style="text-align: right;">204570</p>
<p>Set Taping Screw (Ø2x7)</p>  <p style="text-align: right;">204571</p>	<p>M2 Nut</p>  <p style="text-align: right;">204572</p>	<p>M3 Nut</p>  <p style="text-align: right;">204573</p>	<p>M3 Nylon Lock Nut</p>  <p style="text-align: right;">204574</p>

550
Hurricane



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