



# INTRODUCTION



Congratulations on the purchase of our finest scale heli fuselage to date. This famous Ecureuil fits Thunder Tiger Raptor 50, the light fuselage comes factory pre-painted with all necessary hardware. It is very easy to assemble and only takes you a few hours of enjoyable installation to put this scale body on your helicopter. This replica Ecureuil is just like a real thing, hovering this Ecureuil that will definitely make you stand out on the flying field.

## PRE-ASSEMBLY NOTES

Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures. By following these instructions carefully and referring to the corresponding pictures, the assembly of your model will be both enjoyable and rewarding. The result will be a well built, easy to assemble scale model, which you will be proud to display. This Ecureuil is designed for intermediate to advanced pilots, and this manual assumes a basic knowledge of R/C model construction.

## BEFORE YOUR ASSEMBLY

1. Before you start to assemble this fuselage on your helicopter, we suggest you to first fine tune your helicopter in the air.
  2. Double-check all screws, then secure and Loctite all the loose screws.
  3. The instruction manual is written for Raptor 50, if user should choose to install it on other branded helicopters, we would suggest you to study the manual thoroughly and see how it installed on a Raptor 50.
- Before you begin, check the entire contents of your kit against the parts list and photos to make sure that no parts are missing or damaged. This will also help you to become familiar with each component of your model. If you find that any of the parts are either missing or damaged, please contact your local Thunder Tiger authorized distributors for replacements. Neither your dealer nor Thunder Tiger authorized distributor can accept kits for return if construction has begun. Trial fit each part before gluing it in place. Make sure you are using the correct part and that it fits well before assembling.

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# ECUREUIL AS355

## RECOMMENDED TOOLS & MATERIALS

**Adhesives:**  
 Instant setting Cyanoacrylate adhesive (thin CA)  
 Slow setting Cyanoacrylate adhesive (thick CA)  
 10 Minute Epoxy (fast) 20~30 Minute Epoxy (slow)

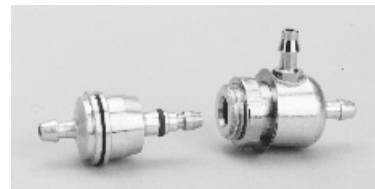


You will need two types of adhesives for the Ecureuil Epoxy and Instant (cyanoacrylate) adhesives. We recommend that you purchase both 5-minute and 30-minute epoxy to cut down on assembly time, but you can get by with only 30-minute epoxy if time is not important. You will also need a small bottle of both "Thick" and "Thin" instant CA adhesive.

## ITEMS YOU MAY NEED



No. AT6078  
Remote Glow Plug Extension Wire



No. 1115 - Precision Fueler Valve

**R/C System:**  
 6 Channel Heli radio req'd  
 GYRO system req'd

**Helicopter:**  
 Raptor 50 Titan Suggested

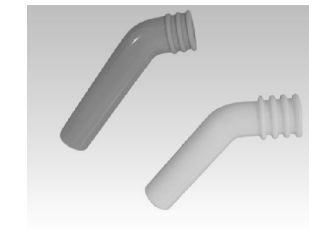
TTR4853 - Raptor 50 Titan

# ITEM YOU MAY NEED

**Tools:**  
 Model Knife, 1/2" MASK Tape, Small & Medium Screwdrivers, Scissors, Long nose Pliers, Drill and Drill Bits (1/32", 1/16", 1/8", 5/64"), 150 Grid Sand Paper, Rat Tail and half-round file, Fine Felt Tip Pen & Soft Lead Pencil, Reamer, Hex Wrenches.



Model assembly can be much easier if the proper tools are used. Therefore, we have included in our checklist to the left, a complete listing of all the tools we used to assemble our prototype models.



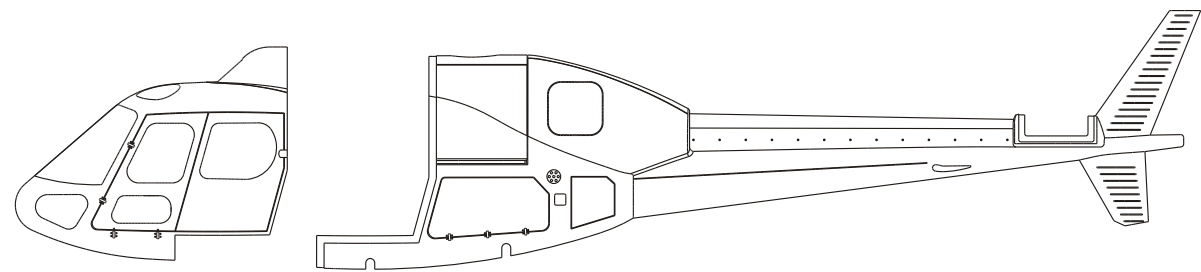
No. 1114, No. 1114-Y  
Exhaust Diverter, 10MM



No. 2980  
4-cell 3600mAh Battery

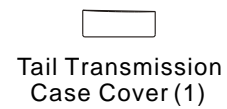
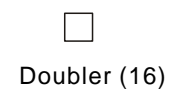
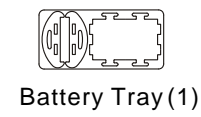
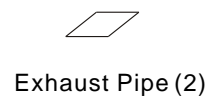
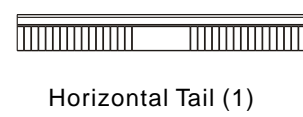
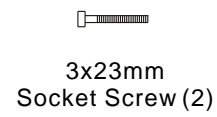


**PV6039 Fuselage**

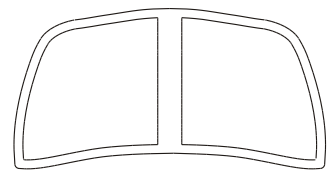


Front Fuselage (1)

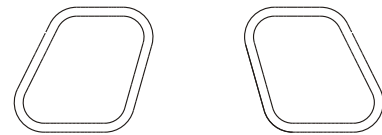
Rear Fuselage (1)



**PV6040 Windshield**



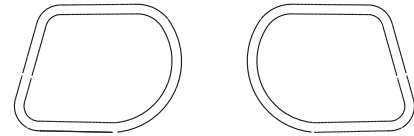
Front Windshield (1)



Front Window (L/R)



Sunroof (L/R)



Rear Window (L/R)



Bottom Window (L/R)



Front Lower Window (L/R)



Air Inlet (L/R)



2x5mm Wood Screw (52)

**PV6041 Decoration Set**



Wiper (2)



Wiper Strut (2)



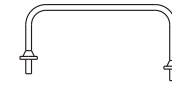
Wiper Mount (2)



H/F Antenna (4)



2.3x12mm Washer  
Wood Screw (1)



L/F Antenna (2)



Pitot Tube (2)



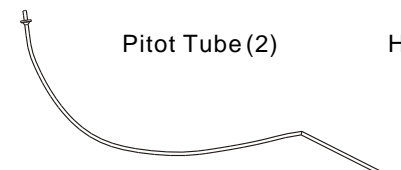
Handlebar (4)



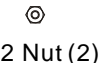
LED (1)



Retaining  
Collar (18)



Tail Skid (1)

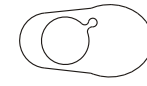


M2 Nut (2)



2x6mm Screw (2)

**PV6042 Foam Retainer**



Tail Boom  
Foam Retainer (1)



Plastic Tube (1)

**PV6043 Retaining Set**



Post (2)



Silicon Grommet (2)



3x10mm  
Washer Screw (2)

**PV6044 Landing Skid**



Step Ladder (1)



Skid Pipe  
End Cap (2)



Skid Joiner (4)



Step Bar  
Retainer (1)



Foam Tape (8)



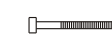
3x4mm  
Setscrew (10)



M3 Locknut (5)



3x14mm  
Socket Screw (2)



3x30mm  
Socket Screw (2)



3x15mm  
Self-tapping  
Screw (4)



3x20mm  
Self-tapping  
Screw (4)



2x5mm  
Wood Screw (1)



3x15mm  
Screw (1)



Front Mounting  
Strip (2)



Rear Mounting  
Strip (L/R)



Skid Adaptor (F,2)



Skid Adaptor (R,2)



Step Bar (1)



Brace A (1)



Brace B (1)



Skid Pipe (2)





**Kit Contents**

**Fuselage**

- Front Fuselage (1)
- Rear Fuselage (1)
- Horizontal Tail (1)
- Tail Transmission Case Cover (1)
- Exhaust Pipe (2)
- Battery Tray (1)
- Plywood (16)
- Rudder Band (2)
- 2x8mm Wood Screw (16)
- 3x23mm Socket Screw (2)

**Windshield**

- Front windshield (1)
- Front Window (L/1,R/1)
- Sunroof (L/1,R/1)
- Rear Window (L/1,R/1)
- Bottom Window (L/1,R/1)
- Front Lower Window (L/1,R/1)
- Air Inlet (L/1,R/1)
- 2x5mm Wood Screw (52)

**Decoration Set**

- Wiper (2)
- Wiper Strut (2)
- Wiper Mount (2)
- Retaining Collar (18)
- L/F Antenna (2)
- Pitot Tube (2)
- Handlebar (4)
- LED (1)
- H/F Antenna (4)
- 2.3X12mm Washer Wood Screw (1)
- Tail Skid (1)
- 2x6mm Screw (2)
- M2 Nut (2)

**Foam Retainer**

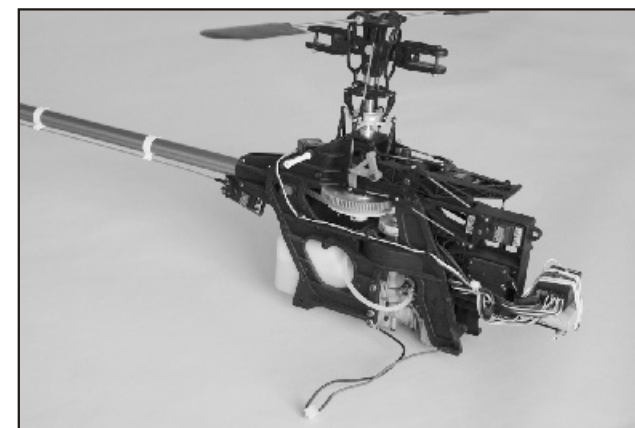
- Tail Boom Foam Retainer (1)
- Plastic Tube (1)

**Retaining Set**

- Post (2)
- Silicon Grommet (2)
- 3x10mm Washer Wood Screw (2)

**Landing Skid**

- Step Ladder (1)
- Skid Pipe End Cap (2)
- Skid Adaptor (F,2)
- Skid Adaptor (F,2)
- Front Mounting Strip (2)
- Rear Mounting Strip (L/1,R/1)
- Skid Joiner (4)
- Foam Tape (8)
- Step Bar Retainer (1)
- Step Bar (1)
- Brace A (1)
- Brace B (1)
- Skid Pipe (2)
- M3 Locknut (5)
- 3x4mm Setscrew (10)
- 2x5mm Wood Screw (1)
- 3x15mm Screw (1)
- 3x15mm Self-Tapping Screw (4)
- 3x20mm Self-Tapping Screw (4)
- 3x14mm Socket Screw (2)
- 3x30mm Socket Screw (2)



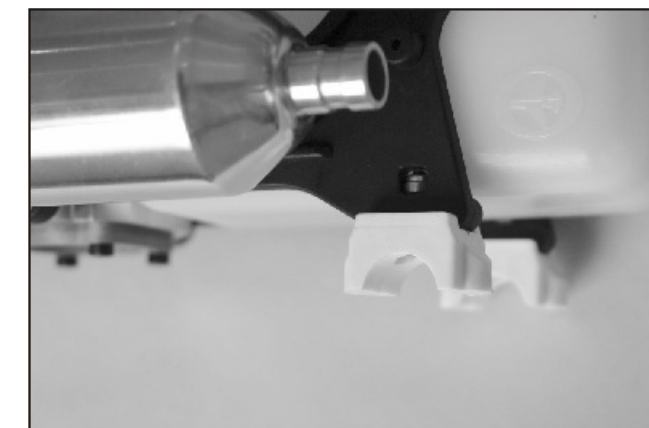
1. Test flight your Raptor before the assembly. Once done the testing and adjusting your Raptor, remove the canopy, landing skid, tail fins, boom supports and tail rotor assembly.



2. Replace the new body posts



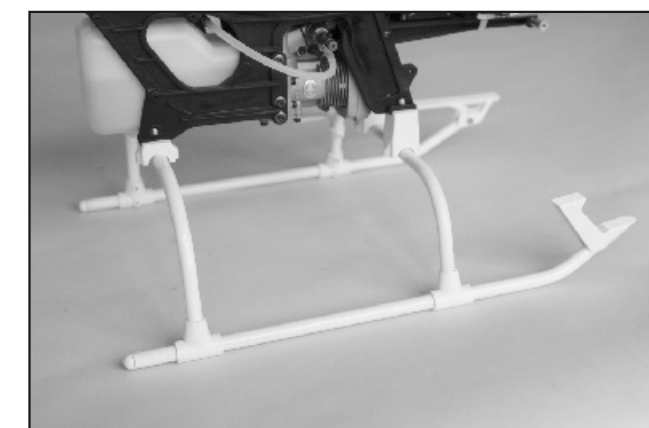
3. Locate the front skid adaptor then secure the front skid adaptor in place with 3x30mm socket screw and M3 locknut.



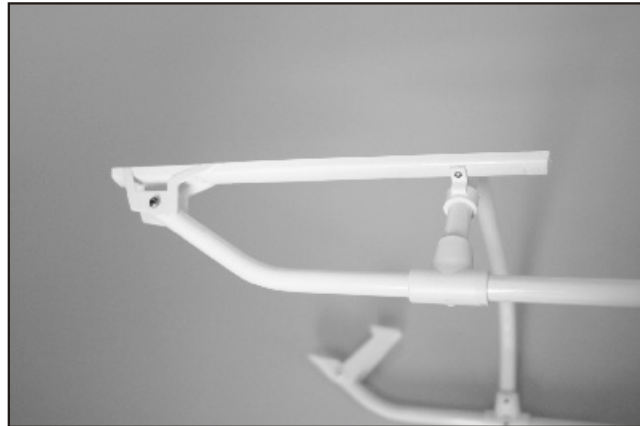
4. Same way to secure the rear skid adaptor in place with 3x14mm socket screw and M3 locknut.



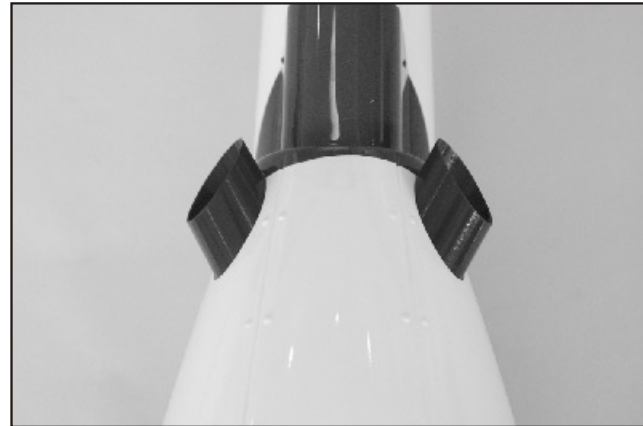
5. Temporarily assemble the landing skid as shown. Remember to install the bar retainer on left front brace. Install the foot step at right skid front end with 3x4mm set screw. Install the foot bar at left skid front end with 3x15mm screw and M3 locknut. Adjust the bar retainer so the foot bar is parallel with the skid then secure the bar retainer with 3x4mm setscrew. Insert the skid cap at the rear end of skid.



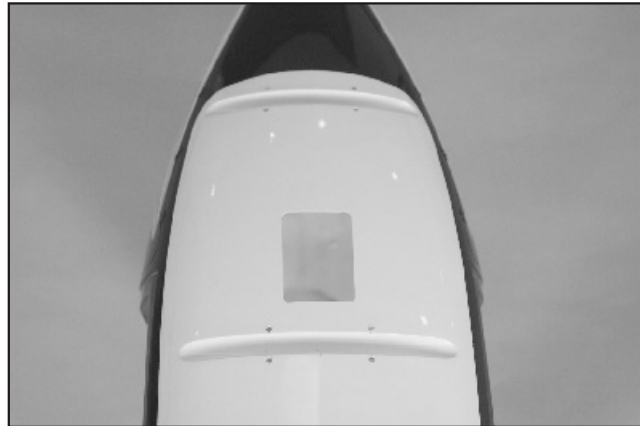
6. Let Raptor sit on the landing skid. Before you secure the joiners make sure the skids and joiners are adjusted properly. Secure the joint in place with 3x4mm setscrews. Hint: Do not over-tighten the setscrews on the joiner.



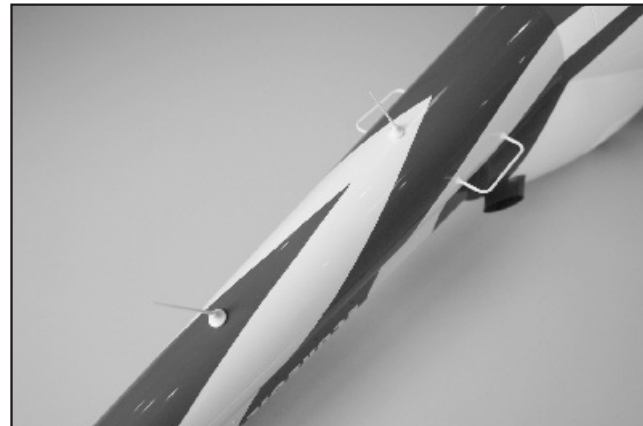
7. Remove the Raptor mechanism then drill a 1.5mm pilot hole on foot bar. Do not drill through the foot bar. Next secure the bar with 2x5mm wood screw.



10. Epoxy the exhaust pipe in the fuselage as shown.



8. Locate and trim the molded marks for the engine cooling openings at the bottom of the fuselage. Enlarge the eight pre-drilled pilot holes to 3mm in diameter.



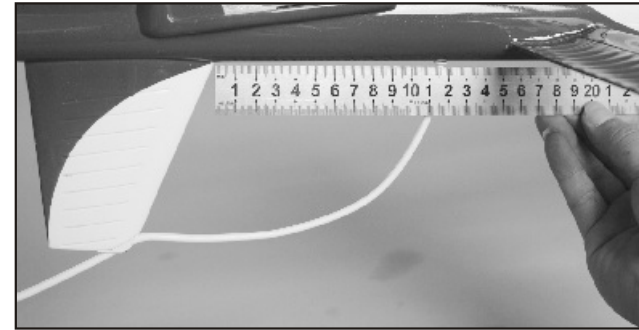
11. Drill 2mm (5/64") holes for antennas at position as photos shown. Install the antenna and use the retaining collar to secure the antenna in place. Apply CA on the collar to prevent it from loose.



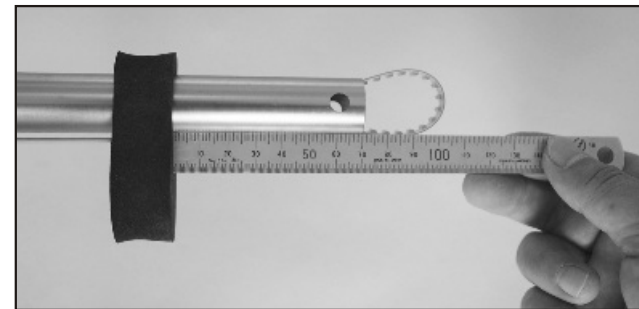
9. Apply foam tape at the mounting area of the landing skid.



12. Drill the hole on the molded dot. Next enlarge the hole at about 8mm in diameter. Insert the silicon grommet in the hole.



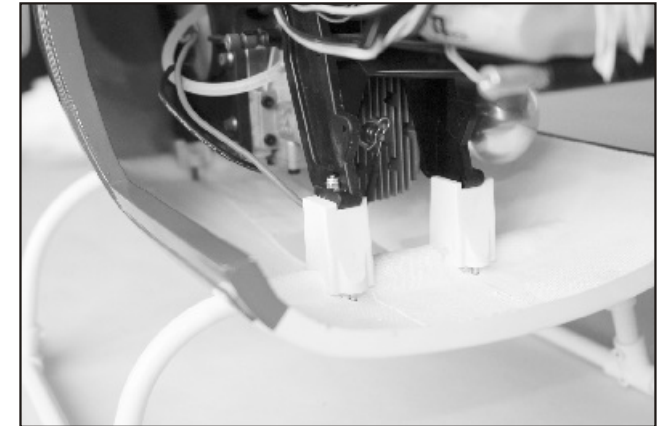
13. To install the tail skid in place, first drill 2mm(5/64") hole at the bottom fin then secure the tail skid with 2.3x12mm wood screw. Next drill another 2mm(5/64") hole at the center bottom line about 115mm(4 1/2") in front of the bottom fin. Apply epoxy to glue the front end of tail skid in place.



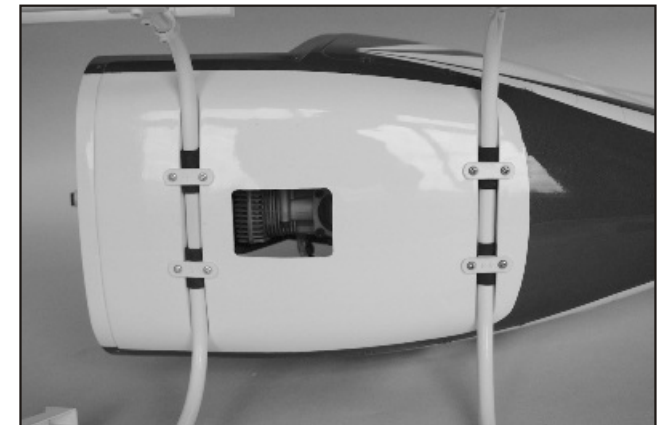
14. Unthread the ball link and install the sponge on the tail boom section where the plastic tube for the sponge insertion. CA the tube in the sponge but be careful not to apply any glue inside the plastic tube and make sure the pushrod can move freely. Thread the ball link back to pushrod at the original position. Glue the sponge on tail boom but make sure the sponge will tight-fit in the fuselage. If Raptor 50 Titan is used then the position of sponge is about 70mm(2-3/4") to the end of boom.



15. Place the Raptor into the fuselage, the post should be located near a molded dot on fuselage. Insert the tail boom into the fuselage and the skid adaptors sit in place, make sure the sponge is tightly fit in the tail and secure the tail boom firmly. Check the pushrod movement is freely without binding and adjust it if necessary. It is not necessary to glue sponge in the fuselage in case you had to remove the heli from fuselage.



16. Before securing the Raptor in place, attach the foam tape to the contact area of the skid adaptors. This is to protect the contact area.

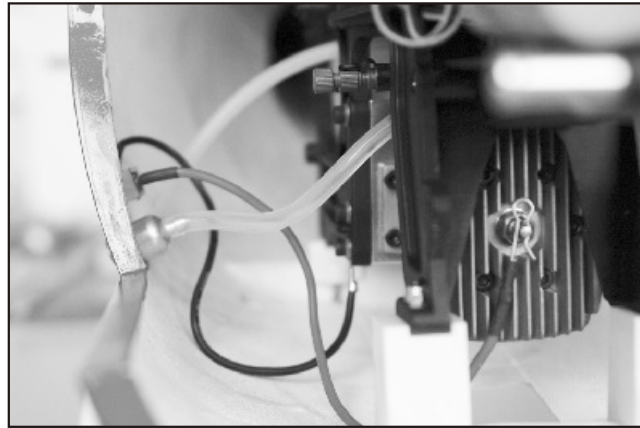


17. Attach the landing skid in place then secure with mounting strip. Note there are three kind of the mounting strips. Two for front skid brace and marked "F". For rear skid brace, one for right marked "R-R", the rest one is for left side. Secure the mounting strip in place with the self-tapping screws. 3x15mm is for the front and 3x20mm is for the rear.

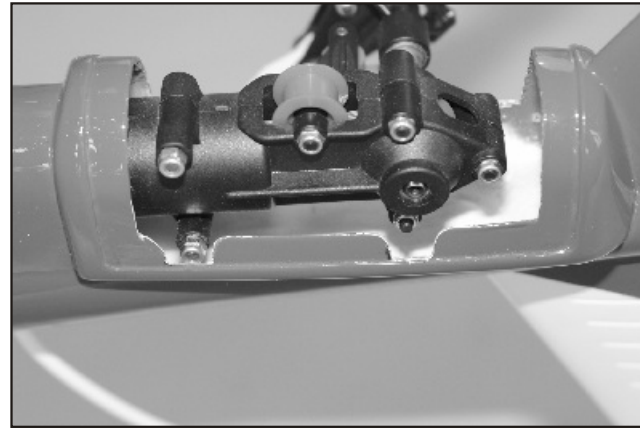


18. Secure the fuselage with 3x10mm washer self-tapping screw.

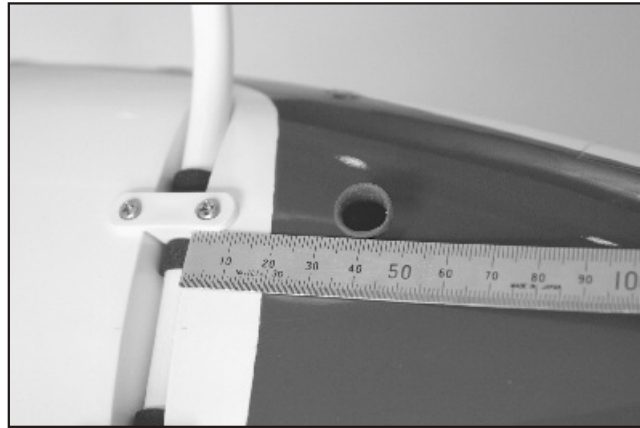




19. You may need to install the remote glow plug extension wire (No.AT6078) for easy igniting as well as the precision fueler valve (No.1115) for easy fueling.



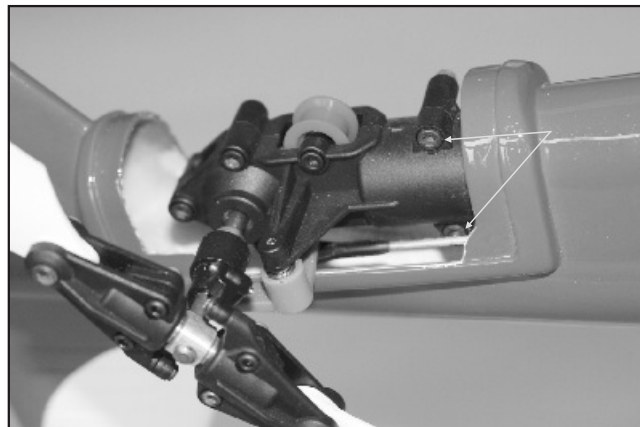
22. Same to the other side, trim away the fuselage where you may use tool to secure the locknut.



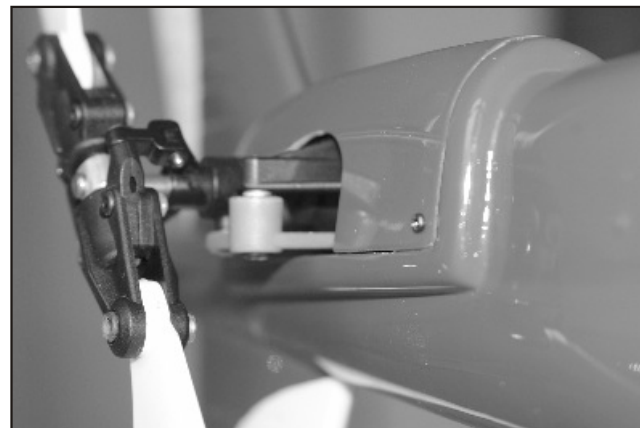
20. Install a diverter(No.1114 or 1114-Y) and drill an exit hole at the bottom of the fuselage as shown. You may extend the diverter to fuselage exhaust pipe to obtain a more scale-like look.



23. Trim the FRP case cover as shown to avoid any contact with the transmission case.



21. Install the tail transmission case and tail rotor, remember to replace 3x23mm Socket Screws as indicated. You may need to trim the fuselage for easy installation of the ball link in place and clear out the space for tail pitch control lever.



24. Glue the plywood doublers at four corners inside the fuselage. Place the cover in position then drill 1.5mm(1/16") pilot hole on case and fuselage. Next Secure the cover in place with 2x8mm wood screws.



25. Cut the LED legs and glue the LED on the Fin for scale look.



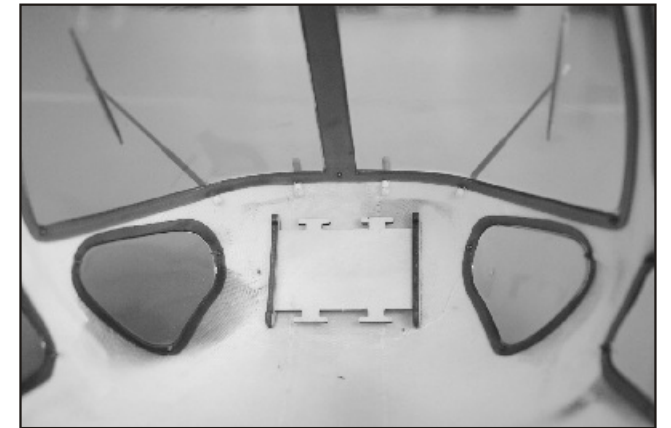
26. Trim windshield, sunroof and windows then trial fit in place. Carefully make drill marks on windshield (6 marks), sunroof (3 marks each), front side window (4 marks each), front lower window(4 marks each) and bottom window(3 marks each). Drill 1/16"(1.5mm) holes then secure the windows in place. Apply tiny Loctite or CA for each screw to prevent from loose. You may skip the installation rear side windows as it is easier for you in case of tuning engine or adjustment and it also gets better cooling.



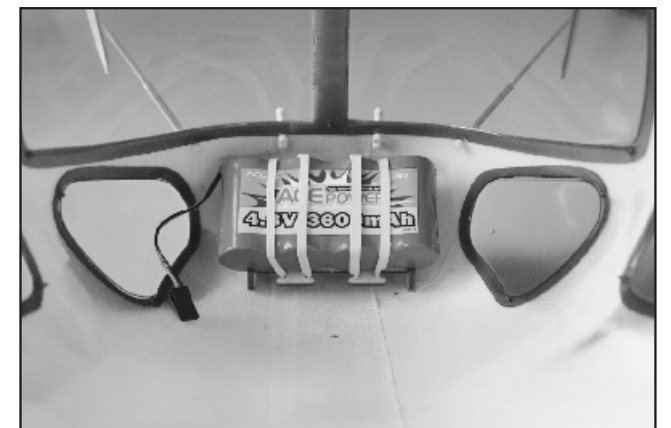
27. Install the fittings as shown includes wiper, pitot tube, antenna. Drill 2mm hole and use the retaining collar to hold the fitting in place. After adjusting the fitting properly, apply tiny CA on the collar to prevent it loosed. For wiper, secure the strut on the wiper mount with 2x6mm screw and M2 nut. Apply Loctite on the screw to prevent it from loose.



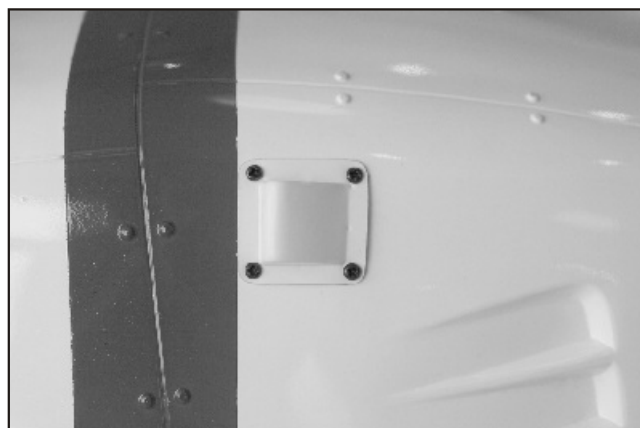
28. Drill two holes for handle bar one is 5/64"(2mm) and the other is 1/32"(1mm). Secure the handle bar in place with the retaining collar. Apply CA to prevent it from loose. Do the same way at the other side.



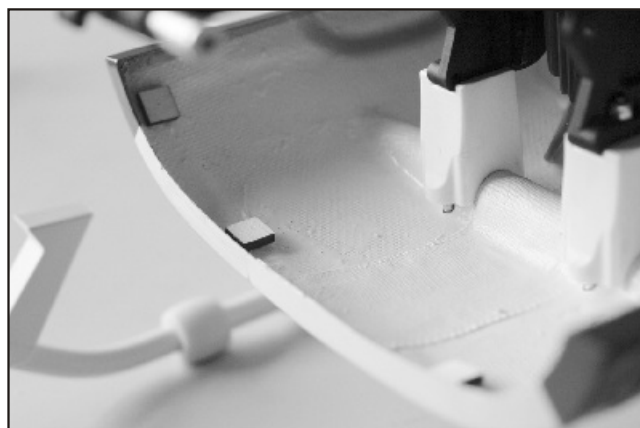
29. Locate a laser-cut plywood then assemble the battery tray as shown. Firmly secure the battery tray with epoxy inside the front fuselage at the very front end.



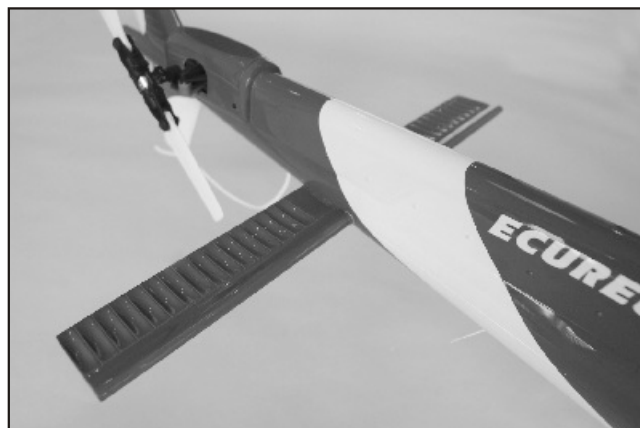
30. Suggest to use 4-cell 3600mAh NiMH battery (No.2890) for balance and longer flight time. Secure the battery in place with rubber band as shown.



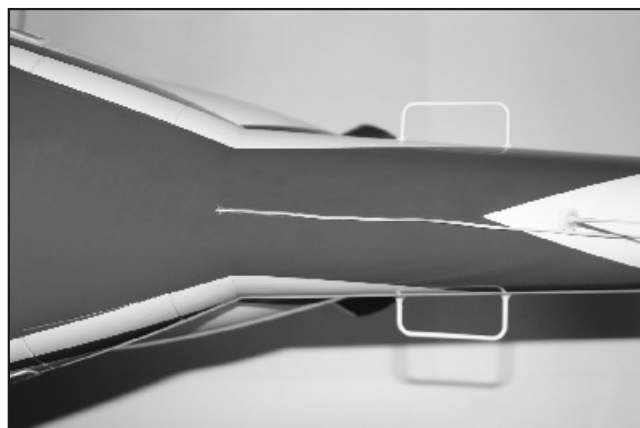
31. Locate the vacuum formed decoration and place it as shown. Drill four 1/16" (1.5mm) mounting holes and secure it with four 2x5mm wood screws.



34. Trail fit the front fuselage to the rear fuselage. Decide the mounting holes then make marks on the fuselage. First drill 1.5mm(1/16") pilot holes, next remove the front fuselage then epoxy the small plywood doublers inside the rear fuselage where you drilled. Use the hole as the guide then drill again on these doublers. Before you secure the front fuselage, get an extension cord to connect battery and switch harness. Finally secure the front fuselage in place with 2x8mm wood screws.



32. Locate and trim the molded cutting line at tail of side fuselage for the horizontal tail. Trial fit the horizontal tail in the fuselage and make sure it is centered then secure the tail with epoxy



33. Route the antenna to the tail and drill 2mm(5/64") hole at the center bottom fuselage then tape it along the tail as shown.

**Test Flight**

1. When hovering your Ecureuil, try to keep rotor speed at approximately 1600~1700 RPM.
2. Check the helicopter and fuselage to see if any screw loosened after each flight.
3. Trim the elevator when switch on the Idle for speed flight if necessary.



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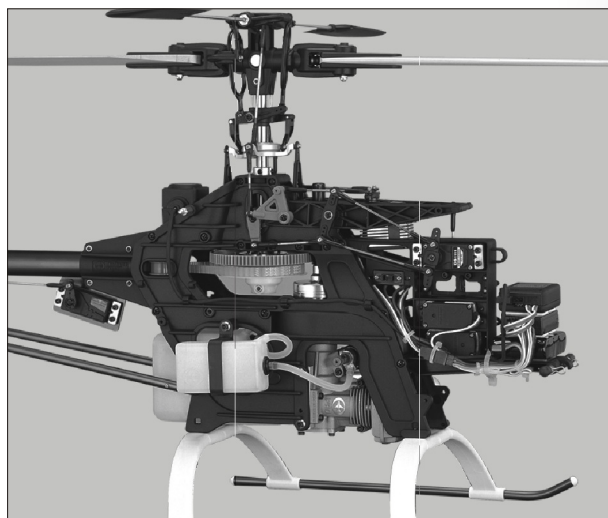






# Titan RAPTOR

## 50 Size 3D Heli



No. 4853

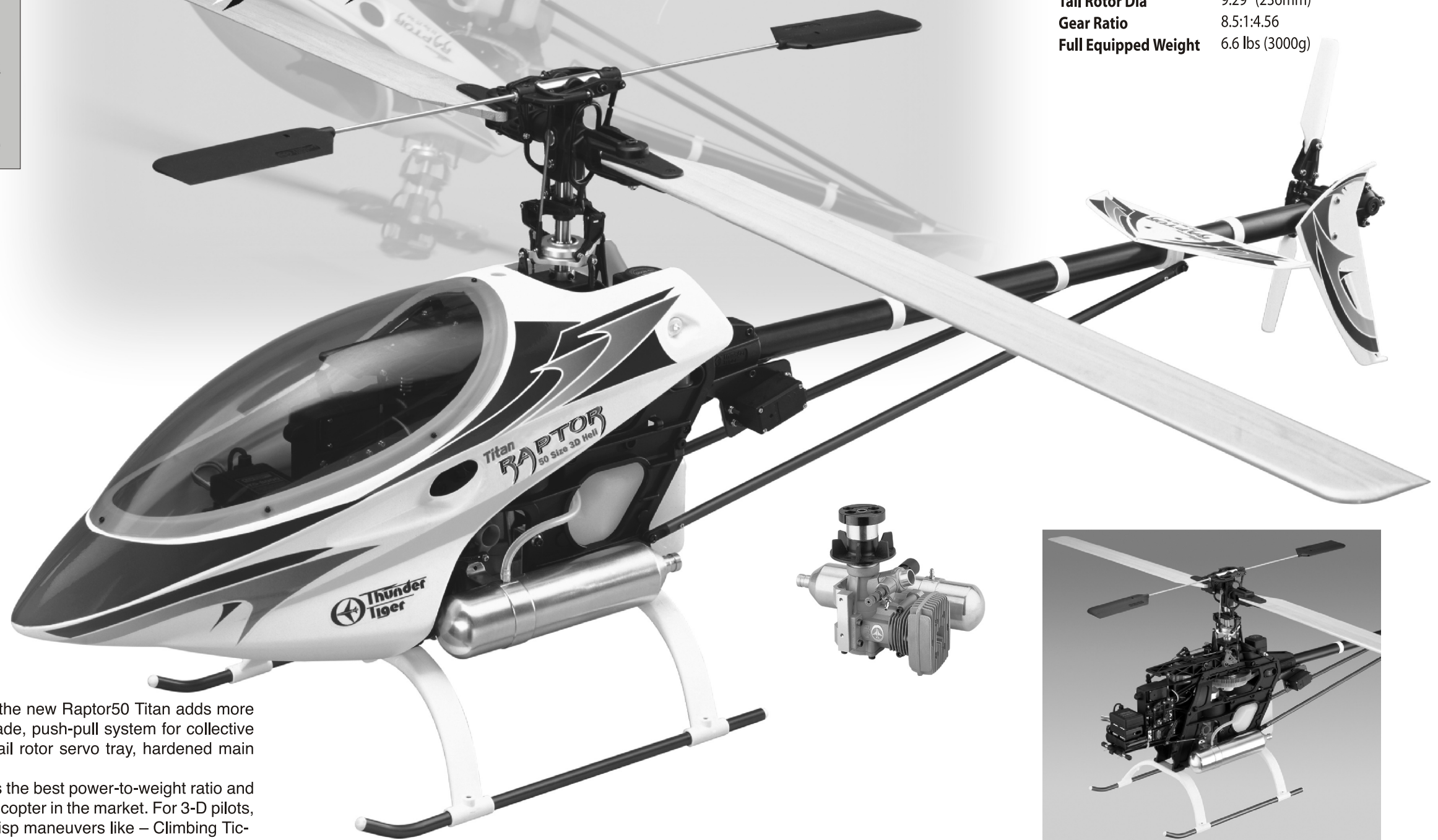
### Features:

- ▶ Metal Swashplate
- ▶ Hardened Main Shaft
- ▶ Metal Rear Servo Tray
- ▶ Pitch Push-Pull Lever System
- ▶ Elevator Push-Pull Lever system
- ▶ Longer Tail Boom
- ▶ Longer Tail Push Rod
- ▶ 686XL Tail Drive Belt
- ▶ SUS Flybar
- ▶ SUS Linkage Rod
- ▶ Heavy Duty Clutch Bell
- ▶ New Style Body Decal

Combined with all the features of Raptor50 V2, the new Raptor50 Titan adds more new features - longer tail boom to fit 620mm blade, push-pull system for collective pitch control & elevator control, rear mounted tail rotor servo tray, hardened main shaft, stainless flybar and linkage rod etc.

With all the new features, the Raptor50 Titan has the best power-to-weight ratio and most accurate control system of any 50 class helicopter in the market. For 3-D pilots, Raptor50 Titan will make you enjoy executing crisp maneuvers like – Climbing Tic-Toc, Chaos, Death Spirals and any radical maneuver that pilots can dream of.

Beginners and advanced 3-D fliers will be impressed with this new Raptor family member—Raptor 50 Titan.



### Specifications

<b>Full Length of Fuselage</b>	48.03" (1220mm)
<b>Full Width of Fuselage</b>	5.51" (140mm)
<b>Total Height</b>	15.74" (400mm)
<b>Main Rotor Dia</b>	52.95" (1345mm)
<b>Tail Rotor Dia</b>	9.29" (236mm)
<b>Gear Ratio</b>	8.5:1:4.56
<b>Full Equipped Weight</b>	6.6 lbs (3000g)

