

# Helicopters for Rank Beginners

ie: Helicopters 101

## Part 1

This is a story that started a couple of months ago as I was browsing through the web I came across an ad from Nitro Models For a EXI "450 LE" size helicopter that was (and I quote) "100%" Compatible To the Align Trex 450 helicopter. The price? \$70.00 plus shipping. Shipping was about \$8 dollars. As I played with the website I discovered that if you bought two of them the shipping was only a couple of bucks more for a pair of them. Since I figured that I was going to need a few spare parts, I bought two and had them shipped to me.



When they arrived and I opened the box I was pleased at the appearance of what was inside. The EXI 450 helicopter frame appeared to be very well made from Aluminum, and all the parts for the Helicopter were in there minus the servos, the motor, a pinion gear, and as I was to discover later you would also need a Gyro and Gyro servo. I let them sit on the shelf for several weeks as I was preparing For the FEAR fly and then November Nonsense. While I was waiting, I found that Hitec HS65MG servos would work quite well in a helicopter, so I ordered four. Then I discovered that the tail servo needed to be a special, ultra fast servo that would work with a gyro.

**So back on the web I go for a gyro and gyro servo. I located the gyro from a web site in China for \$65.00 + shipping which came to about \$75 total and then I found out that Hitec made a gyro specific Servo for \$55, so I ordered one of those also. I already had an Airtronics radio that had built in Helicopter functions and I was planning on using one of the 2.4 Ghz. 8 channel receivers in the helicopter. (more on this a little later in the story)**

**After the club events for the year were over and after talking to several of the helicopter pilots at the field I felt that I had enough information to proceed.**

**Now I had all the parts that I should need and I started to put it together after the middle of November. I was taking my time and trying to get it right the first time. Making sure that the arms on the servos were in the right position and that the links were as vertical as I could get them. Then I bench tested the helicopter by holding on to the landing gear and bringing up the throttle. Everything seemed to be working so what's next?. Lets take it out to the driveway and see what happens. Disaster, It rolled off To one side and messed up the top blades. At this point I decided that I needed to get a little more expert help. I had been talking to Richard Owen about how to set it up, but had told him that I didn't understand what all the parameters in the radio were for. He agreed to come over and help me set it up. About that time he was in the process of moving to another house so there was a delay before he could come over. When he did, and after a few minutes of trying The various controls a determination was made that my tail servo or gyro wasn't acting right and I would have to send it back. I packaged up the tail servo and sent it back to Tower for replacement and received another one in just a few days. The servo was a Hitec HSG5083. A fast servo designed for tail rotor use.**

As I was opening the servo box this time there was a sticker on the side of the box that said " This servo is designed to work with the Hitec HG5000 Gyro. Off to the hobby shop to find a servo compatible with the gyro that I had, an Assan GY410. I bought a Futaba S9560 Tail rotor servo, brought it back home and plugged it in With the same results. The tail rotor wasn't following or compensating for tail movement properly. At this point Richard, who was on his second or third trip over To help me thought that the gyro was the problem from the start. After a few emails to my source and the manufacturer in China the gyro went back for replacement. I also found out that the gyro had been upgraded to the "PRO" version and all stock was being replaced with the newer version. Figuring that this was going to take several weeks to be resolved, I went back online and ordered the entire Hitec Helicopter setup combo pack. The Gyro, Tail Servo, and three HS65MG servos. That arrived just a few days later. Once again I had Richard come over and we/he spent an hour or so setting up the radio after I had changed the radio/receiver combination to a Futaba setup that I had and Richard was familiar with. The 6EX with the 7 channel receiver In 2.4 Ghz. Taking it out on the driveway Richard tested it made several adjustments more suited to what I was trying to accomplish, hovering and then he had to go home. I got a new battery and setting it in the street started bringing up the motor and all it would do was skid sideways down the street. After several resets of the gyro I decided that I was being to timid with the throttle and this time I gave it a little more and watched as it rose from the ground and started a little slide to the left again, but this time it was about five or six feet in the air. As I was bring it back towards me I realized

That it was headed straight for me, so I ducked, pulled the throttle down and bounced it rather hard and broke the carbon fiber training gear. So I replaced it with good old fashioned wooden dowel training gear. Since it was still in one piece and I had to start packing for a trip to Indiana I decided that I would take it with me and if I got a chance to practice on the trip I'd give it another try. Long story short, There was only one day on the trip that I was able to get it out. I put it in the slightly tall grass in the field across from my sisters and gave it the power. The tail rotor started chopping grass and it rose off the ground at an angle. Thirty seconds later (maybe) Crash. This time it took out the top rotor blades and damaged the rotor head pretty badly. So I stuffed it back in the car for the trip home. I had also purchased a new metal head that I had at home and figured I would repair it later. Home again a few days later and after looking the helicopter over a little closer I discovered that there was more than just blade damage. I had broken the rotor blades, the blade holders, bent the main shaft, the tail boom holders and put a nice sized crease in the tail boom. Good thing that I had ordered two of the helicopters originally so I had plenty of spare parts. After I had repaired everything and replaced the plastic head with the metal head, installed new blades and checked everything that I could think of I took it out to the field for a test flight. Guess what? Crash (again!) this time it needed another set of blades, and a new main shaft as I had bent it again. Oh yes, I had also bent the Tail Rotor blades And holder. Once again back to the spare parts helicopter which is starting to look like I found it at a yard sale. There aren't too many parts left on it. Whoops, the Tail Rotor set had gotten bent in an earlier crash. Fortunately when I had bought the Metal Main Rotor Head I had also bought a new metal Tail Rotor Set.

**But I'm thinking that I'm going through a lot of parts maybe I had better order some more spares.**

**On the Internet, Xheli. com seems to have the right parts at the best prices, But, there isn't to much information about what each part will fit. After a few emails about dimensions I finally placed an or for new main shafts, Top Blades, Gears, and a few other things**

**Like spare screws and washers and while I was at it I also ordered a 1.5mm, 2mm, and a 2.5mm Ball hex drivers with some handles on them to make them easier to handle as the short metric hex wrench is making my fingers sore.**

**So, as of right now, I'm waiting for a new shaft, blades, gears, and some other parts and I will once again try my hand at helicoptering.**

**Frank Mattox**

**PS: You would be amazed at how much this little adventure has cost so far.**