

# HM Review

Dennis Andreas

## Heli-Max 100 FP and CP

*Two micro helis with updated electronics.*

A couple of months ago we reviewed two beginner types from Revell. These are typical of the coaxial and fixed pitch varieties widely available. They fly fine and are good for those enthusiasts who are just starting. The Revell machines react slower and for the most part just bounce when the pilot gets into trouble, saving him the frustration of constantly having to repair his helicopter.

The two new micro helicopter models reviewed this issue are from the Heli-Max Axe series as distributed by Hobbico. They are a natural next step for the more experienced pilot and also make a great second helicopter for the flier aspiring to advance.

The models are packaged in brightly colored and informative boxes which have the popular carrying handle, so the box can double as travel containers when making the trip to a flying site. The included instruction manuals are very informative and with a combination of exploded views and detailed parts descriptions they provide the end user with a very nice "how to" maintenance section.

The first heli fly was the 100FP. As the initials suggest, it is a fixed pitch design but a little different than other offerings in this category. The first items you will notice, and this should be pointed out to the potential customer, are the main rotor blades, the same ones Heli-Max uses on its collective pitch model. Usually a fixed pitch micro heli uses a heavily undercambered main rotor blade.

A characteristic of undercambered blades is that they typically produce a lot of lift thereby using a lower rotor speed. The low rotor speed and high-lift of an undercambered blade makes it easy for a beginner to get off the ground and begin to hover, but unfortunately this is also the limitation of the design. Once the modeler has hovered successfully, there is little



*The helicopters are available in either a ready to fly version or transmitter ready.*



*The canopies of the Heli-Max helicopters are brightly colored to aid in orientation.*



room for progression. By using the same blade as the collective pitch helicopter, Heli-Max is able to take the performance of the 100FP to a higher level.

Looking beyond the main rotor, the little heli has a fixed pitch tail rotor powered by its own separate motor. There are two 1.9 gram servos used, one each for pitch and roll. The all-in-one control board contains the receiver and motor controls plus a TAGs (Triple Action Gyro stabilization) system. The 100FP is a flybarless design, which is a huge leap in fixed pitch technology.

Included in the box with the 100FP was a single 1S 150mAh 3.7V lithium flight battery, a JIS (Japan Industrial Standard) screwdriver and a USB style battery charger. The review model was the Tx-R (Transmitter Ready) version so no transmitter was included. There is no external power supply included, but charging the battery with the included USB charger is easily done with any electronic device that will accept a standard USB connection. For the evaluation a left-over cell phone charger was pulled out of the junk drawer.

The Heli-Max line is controlled by the Tactic line of SLT (Secure Link Technology) radio control systems, which means either a dedicated Tactic transmitter can be used or, in this case, an AnyLink adaptor was installed on a compatible JR Spektrum DX7 transmitter. The instruction manual has a complete section on programming and the DX7 is listed, so programming the transmitter for flight was simple, something that makes all pilots, new or experienced happy.

With the flight battery charged the 100FP was linked to the JR transmitter then placed on a level surface. New pilots may need to be reminded to allow several seconds of time, usually 10 to 15, for the TAGs to initialize

before flight can commence.

As throttle was applied, the first thing noticed was the head speed is at least two-times faster than the typical fixed pitch micro helicopter. This was a really nice, although completely unexpected, feature as when flying model helicopters, higher head speed translates to faster control response. The 100FP flies and reacts to control input similar to many micro collective pitch models. I was pleasantly surprised that minimal trim was needed to maintain straight and level flight. This can certainly be attributed to the effective 3-axis gyro system.

In no time I was flying about the living room of my house. The 100FP was positive in all aspects of control. There was no “zooming” with the application of throttle and the gyro was effective, but not over aggressive and limiting to control inputs.

Once the weather allowed, the little heli was taken outdoors. With the higher head speed there was sufficient control, although this is a very light weight helicopter and even the slightest wind would blow the machine around. With all helicopters there are always a few bounces and the 100FP has endured and continues to fly on all of the original parts.

Overall the 100FP feels and handles like a larger helicopter. It will definitely challenge the new flyer who has mastered the slower coaxial and single rotor fixed pitch models which use undercambered blades. It will also entertain a more seasoned flyer who wants a snappier indoor heli but is not a master of 3-D flight.

The next step up on the Heli-Max 100 series is the 100CP. This is a fully aerobatic collective pitch version. At first glance many of the parts appear interchangeable, and some are but there are many differences. Since this is an aerobatic collective pitch helicopter there are three 1.9 gram servos, one each for pitch and roll, and a third is used for collective. As expected, there is a different blade grip and swashplate arrangement.

As previously mentioned, the 100CP shares the same main blades with the 100FP and the tail rotors and drive motors are also the same. This is a huge asset to a dealer who must maintain a repair parts inventory as it prevents the all too common doubling and tripling of parts for individual models offered by the same manufacturer.

The 100CP includes an adjustable charger with wall power supply, two 1S 200mAh 3.7V flight batteries, extra main rotor blades, swashplate links, JIS screwdriver and an instruction manual.

When we look under the hood, the control board looks



*The 100FP differs completely in design from previously released fixed-pitch helis as it shares the same rotor blades as the collective pitch version.*

similar but, as mentioned, there is a third servo connection. We also see a robust motor with an attached heat sink and the flight battery is larger to handle the flight loads. Just like its fixed pitch brother, the 100CP uses TAGs for stability. Also noted is the main gear and drive pinion are larger and have deeper teeth. This is a nice feature as it helps prevent stripping of the main gear.

The reviewed 100CP is also a Tx-R version so I used the same AnyLink on my Spektrum DX7 as with the 100FP, only having to select an unused model memory. After programming I was ready to link the 100CP to the transmitter, the procedure is the same as with the 100FP.

So how does this one fly? I will admit I'm not a 3-D master by any means, but that doesn't mean I won't push things a bit. I always start out in throttle-up mode to see how any new model handles, and the first impression of the 100CP resulted in a smile. Throttle response was positive, with more than enough power to play. The TAGs was solid, as with the 100FP, the 100CP gyro holds it in a nice hover but when you want to move it, the little heli goes in a hurry.

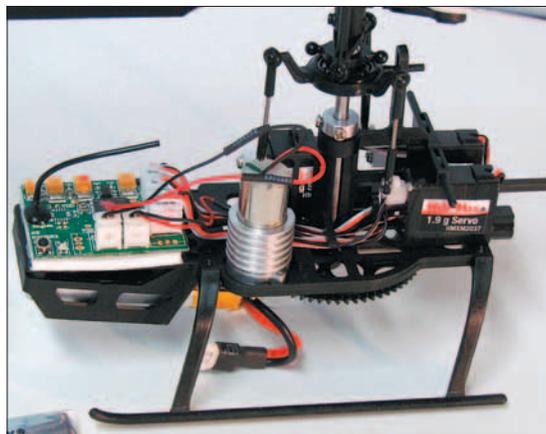
Stopping is just as quick. The high main rotor speed makes the helicopter very crisp. I had to limit myself though as the outside temperature was about 40 degrees. Cold temperatures and plastic don't mix and usually this means broken parts.

I can see where the 100FP and the 100CP will be a blast in a large indoor venue or outside on a calm day where they can really be rung out. Both helicopters are pretty tough and repair parts are inexpensive, so a pilot can push himself to the next level flying. Although the canopies are small, the colors are bright, making orientation easy.

The micro helicopter market seems to be saturated and to make a product stand out as a worthwhile investment in time and money the product has to take quality and innovation up another notch, and Heli-Max has done this with the 100 series of micro helicopters.

Like all Heli-Max products, the 100FP and 100CP are available exclusively through Great Planes Distributors.

*Editor's note: Dennis was hoping to have some additional flight photos, but as a result of Hurricane Sandy many of the indoor flight venues in Dennis' area were converted, and are still being used as relief locations for those left homeless by the hurricane. One of the two local outdoor flying fields is closed for safety reasons and the other flying site just re-opened for public use but as of this evaluation, the weather has refused to cooperate. HM*



*The FP and CP share a similar layout, but the collective version (shown) uses three servos, the third needed for pitch control.*