

Hirobo Shuttle Challenge

LAST SUMMER, I decided to learn how to fly helicopters. As is typical of my luck, the tool to do that was invented this year. The Shuttle Challenge from Hirobo* is truly a breakthrough in providing an easy way into helicopters. Don't let its appearance fool you; it is much more than just a Shuttle sitting on training gear. It has been designed with the newcomer completely in mind and does a great job of giving confidence to the newbie heli pilot during the early steps of flying. What intrigues me is its potential to help me learn nose-in flying.

This helicopter comes in kit and ARF versions. I chose the ARF because I think that's how new heli guys are going these days. ARF's eliminate some of the early learning curve, though I do think this is overstated sometimes, as assembling a Hirobo kit is a breeze. I also wanted to see if the concepts of "ARF" and "helicopter" really go together, as helicopter assembly requires attention to detail, and I wondered whether a mass-produced product could address those details. Frankly, I didn't think it could, but I was in for a surprise.

ASSEMBLY

As the helicopter comes fully assembled, there is very little to do. I went over the heli, checking all the frame screws for tightness and all the ball links for binding and I checked the belt tension. To my surprise, I found only one screw that I wanted to tighten a bit more; all the ball links moved freely. I installed five JR* 531 servos and, as something of a challenge to the Challenge, did nothing but h I tend to use 2-ounce header tanks on all my helicopters but I didn't install one on the Challenge because I wanted to keep things as simple as possible, testing it more as a newcomer to the hobby. Besides, Hirobo includes a fuel filter in the fuel line which makes for a handy fuelling location in a no muss/no fuss way. I did, however, install a remote glow plug which makes the starting procedure so much more user friendly that it's just not worth it to scrimp here.

You must bolt the two landing gear supports to the frame. There are also four pieces of hardware that must be bolted to the centre piece of the gear. These receive the tallied ends of the long rods and act as the pivots for the gear as the helicopter lifts off the ground. The rods themselves are simply pushed through each of the gear struts and screwed onto the centre piece. This is handy, as you can just as easily unscrew the rods for transportation.

I usually balance the blades, clutch assembly, flybar, etc., but again I wanted to check the ARF-concept, and since all these parts come already assembled and on the helicopter, I just left them where they were.

One of the more time-consuming things about "building" a Challenge ARI is applying tile graphics. But a cup of coffee and a pair of scissors made it a pleasant task and when finished, the result is worth the effort.

I set up a memory on my JR 8103 heli radio but decided to try the Challenge initially with just the default pitch/throttle curves, thinking that this might be the first approach used by a newcomer. I had installed an Expert* EX-100 gyro, so I checked the direction of its response as well as those of the principal controls. I set the gain on the gyro fairly high, since I felt that this is how a trainer helicopter would be set up.

FLYING AND OPERATION

At this point, with the helicopter sitting on my shop bench in hl one piece, I realized that I had one "problem." I normally put a couple tanks of fuel through my engine before I ever put it into an aircraft. I could have pulled the engine out and (lone that, but that didn't seem to make much sense, so I took the machine into my front yard and fired it up.

The Challenge comes with a starting wand that you can stick handily into a standard electric starter cone. After fuelling up, I turned over the engine a few cycles using the top start feature and then attached a glow lead. Much to my surprise, the engine started immediately. Even more surprisingly, it was sitting there burbling away with a rich setting, just as you want with a new engine.

I spent the next few minutes bringing the head up to speed but without lifting off the ground, maintained that speed for a few more minutes, then dropped the throttle back down to idle for a minute. I repeated this process several times. The engine did quit on me once, suggesting that my caution was not unwarranted. Still, I was pretty impressed, as this was a brand-new engine. After getting about 10 minutes on the engine I could wait no longer, though if I was handing out recommendations, I would put at least a full tank through the engine, as described, before trying to leave the ground (this is especially true if you don't know what to do with the left stick if the engine dies). But I turned in the needle valve 'z turn and then brought the heli into a hover while leaving the gear balls touching terra firma (the gear drops considerably, so the heli can be at least a foot off the ground before you truly "break ground").

During the initial forays I had to add some right rotor trim and considerable right cyclic. Before I even started the heli, I had added some forward cyclic trim, as I had done another experiment: I had used a standard, 600mAh pack to drive the receiver. These packs come with the types of radio systems a beginner would use, but heli guys typically fit larger batteries into helicopters, and they are designed accordingly. Thus, I knew I would have something of a tail-heavy condition, and the forward trim setting compensated somewhat. But what really surprised me was that when I eventually brought the heli into a hover, it was very solid. There were no vibrations to speak of, so some balancing must have been done during the factory assembly. The controls were all responsive, suggesting that some care had been taken to make sure the linkages were free to move. I was impressed.

SO WHAT'S THE BIG DEAL?

So what is it about the Shuttle Challenge that has me saying that it's the training tool for entry-level helicopter fliers? What is it about this heli that allowed a steady stream of non-heli fliers getting stick time on it at last year's Hirobo Cup? The training gear is the most evident feature. The rods are long, and as I've said, you can hover a foot off the ground without actually leaving it. Initial baby steps in heli flying involve hovering the heli only an inch or two above the ground. You learn to hold the heli in one place in a hover then start moving it around a bit. But when you're this low to the ground, you also create a lot of turbulence because you're so low in ground effect. It's actually more difficult to fly this way, though the heli is less likely to require repair if you get confused. The longer rods of the Shuttle Challenge let you learn this stuff a bit higher in the air column and give a newbie some experience moving up and down as well as left and right without jeopardizing the machine. Also, each of the rods extends and moves independently, so if you hit the ground nose first, the front rods slide and cushion the blow, while righting the helicopter well in advance of the heli reaching the ground.

But while the gear is the clearest indicator that this is a trainer helicopter, training gear doesn't make a helicopter easier to fly, and it doesn't prevent boom strikes in the way that the Shuttle Challenge's engineering does. The head design is what does that, and it's crucial to providing the properties that make the Shuttle Challenge great.

The specially designed blade holders help prevent the blades from flexing downward and hitting the tail boom. The infamous "boom strike" is very hard to do with the Shuttle Challenge. Lest you think I'm overstating the importance of this feature, the so-called "repair kits" sold by heli vendors provide a set of blades, a new tail boom and some peripheral hardware to replace what tends to get bent during a boom strike. It's certainly the most common crash problem a newcomer faces.

But other differences make the Shuttle Challenge easier to fly; it comes with heavier, solid flybar paddles and stabilizer weights. This slows the fly bar's response to control. The see-saw design favours Hiller control (control of cyclic by adjusting the angle of the flybar paddles) over Bell control (control of cycle by adjusting the angle of the rotor blades directly). Most model helicopters use a mix of these two control methods. By favouring Hiller control and using heavier paddles, the Shuttle Challenge goes a long way toward solving the beginner problem of heli over control.

I should mention that the Challenge comes with a standard set of landing gear and that with two parts; the head can easily be upgraded to a conventional one. When you're ready for more advanced flying, you won't need to purchase a new helicopter. The Challenge also includes a starting wand, a blade holder and several tools to assist in setup and maintenance. It also comes with something unique: crash protection.

So to answer the question, "What's the big deal?": the Shuttle Challenge provides a training platform that is easier to fly and will also withstand considerable hard knocks. If you've been thinking of trying helicopters, now is the time; the tool has arrived.