

MODEL 110 HELICOPTER

LITE MACHINES

"Lite as a feather, Tough as nails." This quote comes right from a piece of literature about the 110 helicopter.

When Model Retailer offered me the chance to do this review, I very clearly pointed out that I had no helicopter experience. I have flown fixed-wing aircraft for many years, but helicopters are a different breed. Lite Machines claims that this is a beginner's helicopter, so we shall see!

KIT CONTENTS

The complete helicopter (except for the radio) comes in a simple but attractive box. Upon opening the box, it was clear that a lot of thought had gone into the packaging and design of the helicopter. Sixteen bags of parts, as well as the major components, make up the contents. Allen wrenches, grease and even lubricating oil are included.

Also included are an instruction manual (which covers operation, beginning flight instructions and the helicopter's specifications) and operator's guide (loaded with text and illustrations that help the builder understand the basics of helicopter flying). Safety cautions are repeated throughout.

I followed the construction manual to the letter. I cannot emphasize enough how well the instructions are written. A great deal of work went into putting together not only the written word, but the illustrations as well. The only annoyance was that, in many cases, the illustration referred to in an instruction was shown on the next page or the previous page, causing me to constantly flip pages.

CRUTCH CONSTRUCTION

Construction began with some general building guidelines. At the beginning of each section, a short paragraph explains the purpose of each part about to be assembled, offering a better understanding of its operation. Also included is a page on fastener identification. This really helped as assembly progressed; I referred to it often.

Assembly began with construction of the crutch assembly, the primary structure for the Model 110. All the wood parts were finished extremely well and everything fit like a glove.

After gluing the crutch assembly, the builder can choose his or her finish. I gave this Model 110 several coats of red fuel-proof dope. It provided a very glossy finish that really looked nice once assembly was complete.

By following the step-by-step instructions, assembly went without a hitch.

CANOPY

Assembling the canopy was probably the most challenging part of building this helicopter. It wasn't hard, but it was necessary to work carefully and follow the instructions closely. The end result looked great. Not only that, but with the included decals, painting was not necessary. That's the part I liked best!

MECHANICAL ASSEMBLY

Lite Machines has given the assembly sequence a lot of thought and consideration. I did not stray from the sequence and everything went together as the manual said it should.

I especially liked the illustrations and drawings. Everything was clearly labeled and identified. Also included are instructions on how to balance the main rotor and flybar assembly.

All Lite Machines helicopters have a feature called the Arlton Gyro stabilizer. Most modern model helicopters require some sort of tail rotor stabilizer to make them controllable by the average pilot. Normal electronic gyros have been found to be too heavy for the small size of the Lite Machines helicopter. The mechanical Arlton Gyro

stabilizer is built into the tail rotor assembly and takes the place of an electronic unit. Assembly of this mechanical gyro was extremely simple.

ENGINE

The first Lite Machines helicopters came with Cox .051 engine. An owner of one of the earlier Lite Machines said it flew OK, but that a little more power might make it fly better.

This new version comes with a Vmax-6 helicopter engine, which takes away that *"lack of power"* issue. A better muffler, more-reliable throttle arrangement, and the ability to use 15 to 25 percent nitro fuel combine to make this engine an ideal power plant. While the Norvel still has the high-pitched whine of a small two-cycle, the overall noise level seems to be diminished.

The engine is a bushing-type engine and, because of its helicopter configuration, is installed with the output shaft facing down. This provides natural lubrication for the clutch, as the front bearing allows excess oil to drip out.

I installed the engine without any problems.

FINAL ASSEMBLY

The final assembly process puts together many of the sub-assemblies that have been built to this point. I placed the skids, tail boom, main rotor assembly, fuel tank; and all the gears and mechanics into position, then adjusted them.

Radio installation, like all the other processes, moved right along without a hitch. Clear, concise instructions - coupled with great drawings - gave me the confidence that everything was going to work the way it should when I was finished. Push rod lengths were given two ways - in decimal inches and metric.

FINAL CHECK

If the builder has done everything right up to this point, the final systems check should not take very long. I found that the check was a good process to follow because, as careful as I was, a few little things still needed tweaking.

Just to be on the safe side, I took the helicopter to a friend who flies helicopters and also has a Lite Machines heli. He took a good look at it and made a few minor suggestions. One was that I add a bit of nose weight. He said he had found that Lite Machines flew best when the nose hung down about 1/4 inch when balanced by the flybars. Having not flown a heli before, I didn't question his advice. I also took Lite Machines' advice and built the training gear as suggested in the operator's guide. This is an easy job: a trip to the hardware store for dowels, Ping-Pong balls and nylon ties. About 20 minutes later, my training gear - two crossbars tied to the landing skids, with a Ping-Pong ball attached to each end of the bars - was installed.

FLYING - OR RATHER, THE ATTEMPT

Starting the engine and making adjustments were simple. I spent a very long time with the heli just sitting there running. It sounded neat and looked good with the rotor circling. Slowly I mustered the courage to open the throttle. As I did, I saw the heli become light on its feet. There was a slight breeze and I was on asphalt so, as the machine became lighter, the tail boom wanted to weathervane with the wind. I compensated using tail rotor stick movement. Being a small heli, this - like any small fixed-wing aircraft - susceptible to the wind. I think however, because of its small size, it is the ideal heli for those early evening flights when the day's weather has calmed down. Heck, I could even fly it in my back yard!

With a little practice I was able to hover the Model 110 a couple of inches off the ground for a short amount of time. I know one thing is for sure: Flying a helicopter may be a lot of fun but, for me, it's going to take a lot of practice.

FINAL THOUGHTS

I think Lite Machines has developed a fine beginner kit. It is well thought out. The instructions are not only excellent, but contain information to help the builder understand each component.

The quality of all the parts is the best I have seen in a long time, and everything fits well. I would not hesitate to recommend this kit to anyone.

- Ron Eigenschink

SPECIFICATIONS

Packages: The basic package includes the Lite Machines Model 110 with Gyro, Vmax-6 engine, throttle/muffler, heat sink and Freedom XL Glow plug. The Standard Package includes the Basic Package, plus a 1/4-ounce tube of Lite Lube grease, 14.8ml of Lite Lube heavy oil and a two-piece whip antenna. The Servo Combo adds four HS-80 micro servos to the Standard Package; the Super Starter Combo adds a Hitec Focus 4H-M micro radio to the Servo Combo Package.

Stock numbers and suggested retail prices: Helicopter alone, 1-00110, \$199; Basic Package, 1-00510, \$259.99; Standard Package, 1-00410, \$274.99; Servo Combo, 1-00310, \$379.00; Super Starter Combo, 1-00210, \$494.99.