



HORIZON MODEL CRAFT'S "HORIZON"

by Jeff Baker

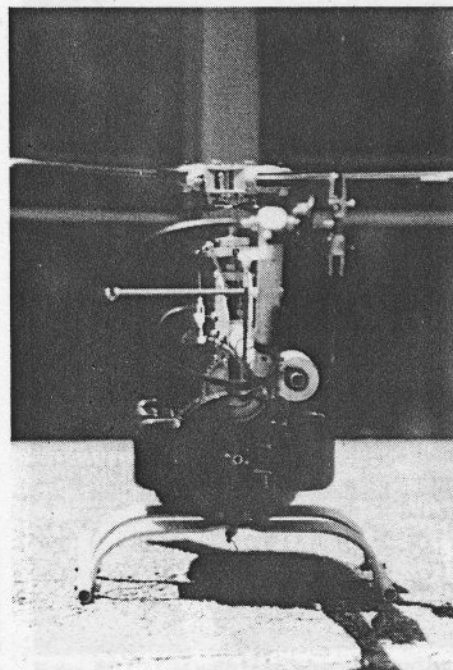
"A great flying, aerobatic machine that has minimal mechanical and maintenance problems . . . a real pilot- and crowd-pleaser."



Horizon is very stable and it reacts to controls predictably and instantaneously.

ONE OF THE NEWEST, most beautifully styled, and innovative R/C helicopters on the market is the Horizon. After seeing it and watching Hubert Bitner's fantastic flights at the 1981 MAC's show in Long Beach, California, I had to have one of my own. Manufactured by Horizon Model Crafts, Inc., 3625 E. Lockwood, Houston, TX 77026, the .60-powered beauty with rigid rotor head retails for \$450.00. The main rotor spans 54", and ready-to-fly, the Horizon weighs in at 11¼ lb.

On opening the kit, I found it extremely

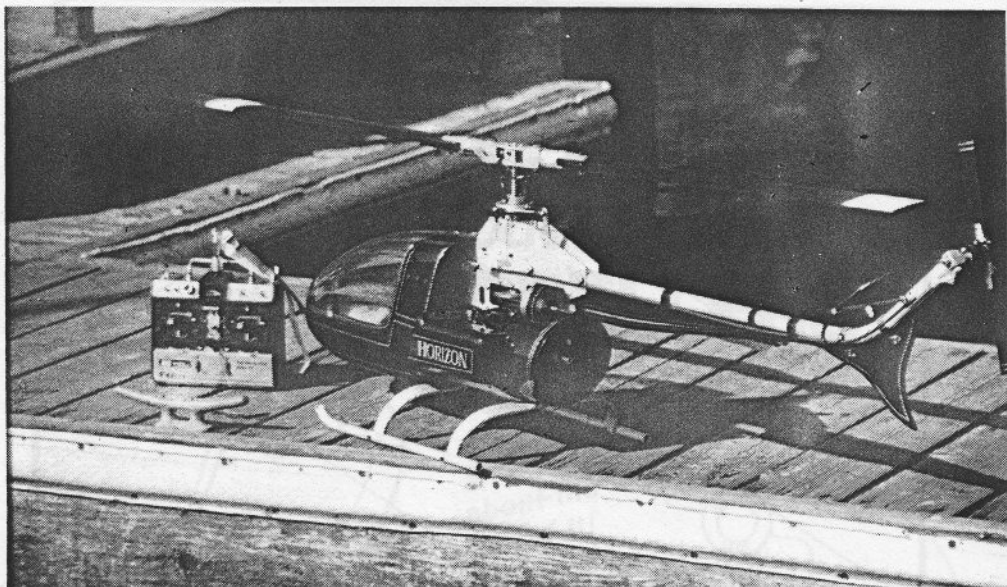


The tornado prop cooling system for the Enya .60GX is unique and works very well.

well packaged in a thick cardboard box with internal retainers to keep everything in its place. And everything you'll need is there except, of course, the engine, radio, paint and adhesives. They not only supply the Loctite you'll need, but an extra miscellaneous parts bag is also included which contains many spare parts, nuts, bolts, and so on. These extra parts come in handy if you drop a nut or bolt in the carpet and would otherwise spend hours trying to find it. This extra parts bag turned out to be a real time-saver for me.

The aluminum main frame is so nicely finished that I could not find even a small scratch on any of the parts. The rotor head, side frames, tail blade holders, and landing gear are as rugged as you'd want them. The fuselage and canopy are made of a durable plastic, which has proved to hold up very well. All of the plastic parts are scribed for easy cut-out, which is a real time-saver during assembly. For insurance I usually begin by cutting these parts a bit oversize, then whittle and sand away bit by bit until the parts fit properly. With this kit I ended up trimming them down to the scribe lines for a perfect fit.

Complete with photos, and safety and flying tips, the easy-to-follow instruction book helps add to the pleasure of assembling the kit. The book also includes a pre-flight checklist and a trouble-shooting guide. The construction and order of operations recommended are well thought out. For example, at the beginning of the building instructions there is a list of all of the parts that will need to be painted if you plan to finish the model totally with paint. This saves you the trouble of assembling the model first, then disassembling it when you're ready to get out the spray gun. The radio installation is also outlined in detail and the recommended amount of control response is easily obtained. I in-



Horizon's beautiful styling is evident in this photo. Eight-channel JR radio with JR 4000 heavy-duty servos with ball bearings; compact size easily fitted Horizon.

stalled a separate collective servo to take full advantage of my 8-channel JR helicopter radio. This modification took only 10 extra minutes and was a breeze!

Some other unique features of this kit are a hinged servo tray for collective and tail rotor mixing, a tornado prop cooling system, and a flex tail rotor drive with flared-up tail. The tornado prop cooling system is a special three-bladed prop that is mounted on the engine output shaft. It draws cool air through the front air scoop and exhausts it out the rear, and it provides sufficient cooling for any engine you'd want to use. Unlike many other R/C helicopter kits that use either a piano wire or belt drive, the Horizon kit includes a speedometer flex tail rotor drive. It needs no lubrication and operates extremely smooth with minimal drag. The rigid rotor head utilizes CG corrected blades with

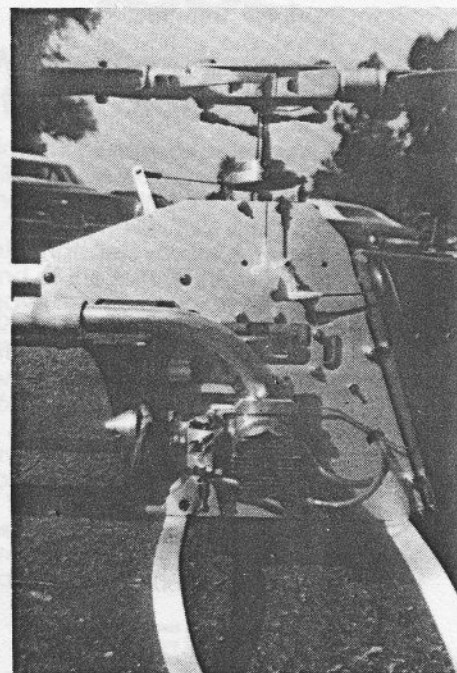
weight epoxied into cutouts provided. Two pieces, tongue and grooved, are joined together to insure that the weights cannot break loose. The addition of an extra spring to the clutch shoes makes autorotation possible. The swashplate controls are linked directly to the blades, which eliminates the need for a flybar and also makes the appearance very sleek.

For power I chose to try out the new Enya .60XG GM and Mac's header and tuned pipe. The engine and fuel tank are enclosed by two side cases that are mounted to the side frames with nylon bolts for fast and easy access, especially when a plug fails. I am very pleased with the performance of the Enya. It has a new, long-awaited, mid-range carburetor adjustment feature, which I've found extremely valuable. On the test stand I could fine-

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Our reviewer installed a separate collective servo; Horizon features a hinged servo tray for collective and tail rotor mixing. Also has a flex tail rotor drive.



Enya .60XG GM with Mac's header and tuned pipe is seen here; outstanding kit parts.

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tune the mid-range of the engine for peak performance, which is the range at which most helicopter flying is done. No modification is needed to install the tuned exhaust, which offers that extra bit of performance common to tuned pipes. The engine may be installed on either side of the helicopter, and I mounted it on the right side so the header pipe would exit through the top of the side case. Set up in this manner, the tuned pipe blends in with the sweeping futuristic lines of the helicopter.

The canopy is designed to break away easily, in case of a mishap, to minimize crash damage. Only a few nylon bolts have to be removed for maintenance or servo adjustment. The radio compartment assembly and installation is fast and easy. The JR 4000 heavy-duty servos with ball bearing output have proved to be reliable and very smooth in response. Their compact size left plenty of room for this 5-servo installation. Ease of set-up, plus all of the extras such as variable pitch curves, separate collective control and dual rates, makes me continue to appreciate all of the neat features of this fantastic R/C system.

Because of the beautiful styling of the Horizon, I decided it deserved the maximum effort for a custom paint job. A flashy, candy apple red, acrylic lacquer paint was selected. All of the plastic pieces were prepared by first sanding with 320-grit sandpaper, then I went over all of the parts with 400. All of the plastic and tail pieces were sprayed with automotive primer, and after a gold metallic base was applied, eight coats of candy were added. Finally, the paint job was sealed with a coat of clear acrylic lacquer—which was a big mistake.

As I prepared for the first flights, I spilled some raw fuel on the side case and the paint discolored. After wiping the fuel off as quickly as possible, I made a phone call to a modeler friend who paints cars to support his hobby. He told me that nitro in fuels will attack acrylic lacquers. The solution was to lightly sand the surface to remove the damaged paint and then reseal it with a clear acrylic enamel that uses a catalyst. That did the trick. Incidentally, while I highly recommend using acrylic lacquers with the acrylic enamel sealer, these paints should be used only in a well-ventilated area and a charcoal filter mask should be worn. My motto is, "If you can smell paint while spraying, stop." It means you'd best check the ventilation and the fit of your mask. Acrylic lacquers and enamels offer a wide range of beautiful and durable finishes for models, but no finish is worth the consequences of improper usage.

FLYING. After a careful step-by-step pre-flight, I was ready to test this new machine. The helicopter trimmed out very

fast, ending up with about 6 oz of nose weight for a smooth forward trim. When it reached a solid hover, there was minimal vibration and a very smooth response to the controls. The Horizon is very stable but also reacts to the controls predictably and instantaneously. The flared tail seems to contribute favorably to its fine handling.

After a few tanks of fuel and a careful reinspection, I was ready to transition to forward flight. Throughout the test flights, I encountered no unusual problems with the helicopter. I did, however, encounter a problem with the new Enya that I feel should be mentioned. On the Horizon the fuel tank is located higher than in most installations, which caused idle problems. I just could not lean the idle mixture enough. As a result, raw fuel would accumulate in the crankcase and flood out the engine when the throttle was opened. After trying everything and anything I could think of, I installed a different carburetor as a last resort, and the problem was solved. Later when I called the people at Enya about the problem, they suggested using a smaller size fuel line to alleviate the problem. That engine has plenty of power for quick vertical acceleration of the helicopter. The compression is so high that, with the small starting cone, you should be prepared to use a 24-volt starter to crank it over!

After many flights on the Horizon, I'm convinced that the simplicity of design really pays off in a great-flying aerobatic machine that has minimal mechanical and maintenance problems. The combination of styling and performance makes the Horizon a real pilot- and crowd-pleaser.

Since the first flights, I've received several factory bulletins with practical maintenance tips and some mods that may be incorporated for even better performance. I have also learned that a .40-size Horizon is under development. And later this year a scale Hughes 500 body will be available for the Horizon mechanics. A 4-bladed head will be offered as an option for the scale enthusiast. If these new machines look and fly as great as the .60 Horizon, you'll soon see lots of them at the local flying field. ■