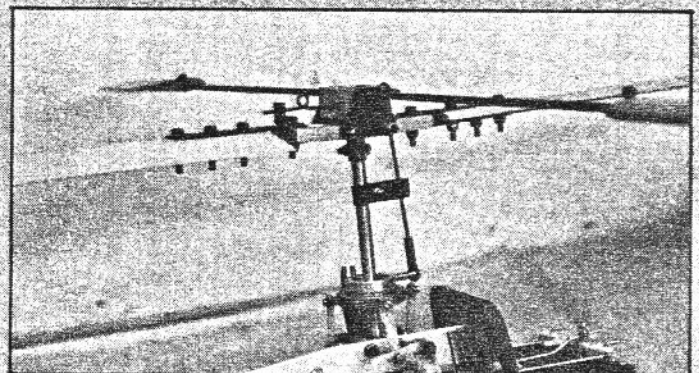
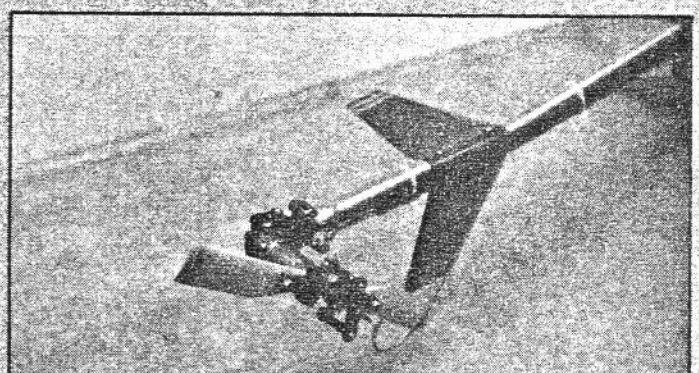
GMP CRICKET

A novice tries his hand at GMP's low-cost helicopter, the Cricket, and finds the experience rewarding.

Field & Bench
REVIEW



Rotor head and fly bar assembly. Main problem our reviewer had was learning the terminology for helicopters.



Tail rotor assembly as installed on the finished Cricket. It was a first-time effort for the author and it all worked out.

by Ben Strasser

● This review about Gorham Model Products' low cost, .25 powered Cricket helicopter will be somewhat different from other reviews you may already have read about the well-known machine. Articles I've read about it were written by experienced helicopter pilots. In my case, this was my first step into building and trying to learn to manage the whirling wings.

Over the years I've seen many fixed-wing R/C pilots like myself trying to learn to fly a helicopter. Each time out seemed to end abruptly with some costly damage. You know, you've watched them. Before the Cricket came on the scene, you had to have magic thumbs, lots of determination, and a machine shop at home, and be independently wealthy to keep buying replacement parts. Not so with the Cricket. What turned me on to this simple building machine was seeing average fixed-wing pilots making their first flights. They'd put several tanks of fuel through the machine as they were learning to hover and would return home with the aircraft in one piece! Now, that looked good to me. It rekindled my interest in trying to learn to fly a model helicopter. If they could do it, perhaps I could too.

As I pointed out, all I know about building and flying an R/C helicopter is what I've learned from the Cricket. I consider myself to be an average Sunday flier. I've been flying sport models for about 20 years, from the RCM Trainer .05 to the 12 ft Evra-powered Telemaster, with lots of others in between. I'm

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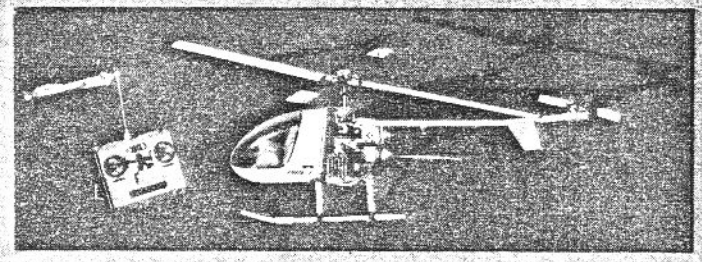
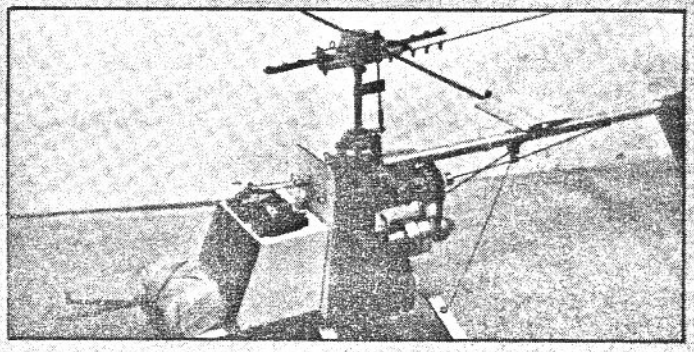
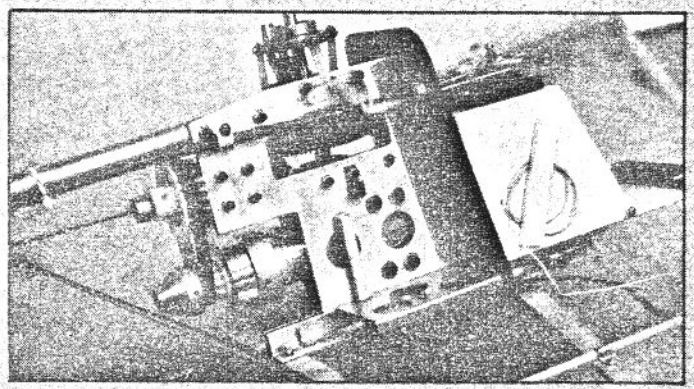


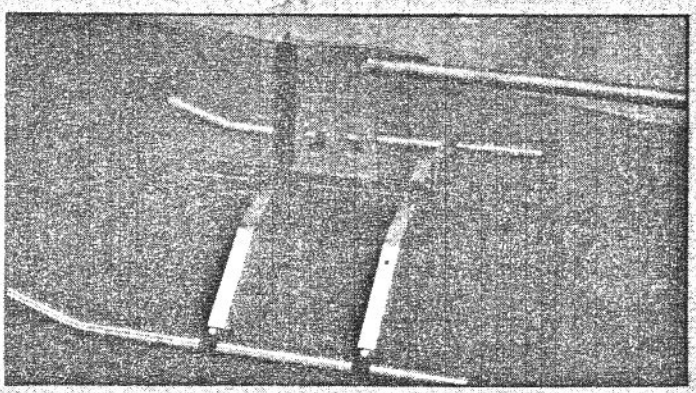
Completed Cricket and the Futaba radio that handled control inputs through S-20 servos; Super Tigre .25 engine for power.



Basic assembly has been completed here and the equipment has been installed preparatory to slipping on the cabin housing.



The backbone of the machine is a sturdy aluminum main frame that is warranted for crash damage; Loctite bonds the screws.



Skids and basic frame before any of the mechanics have been added. Cricket is simple in design and easy to maintain.

also flying the nice and easy pattern ships such as Bridi's Kaos, Super Kaos, and Dirty Birdy. About the only contests I've flown are an occasional fun-fly at our local R/C club. The point I want to make is that I'm no pro when it comes to R/C. Rather, I'm one of the gang who gets out just about every Sunday to do my thing. And I have a good time at it.

In addition to being a helicopter that a beginner can learn to fly (we've even met fellows doing a really good job flying the machine for whom the Cricket was their first venture into R/C), the relatively low cost makes it a good model to start with. Everything you'll need to build the unit except the engine, muffler, and air cleaner, heat sink, R/C unit, glue, and paint are provided in the kit, including a Kraft fuel tank. While the model was originally designed to fly with an OS .25 or Super Tigre .25, Gorham Model Products has also flown the Cricket with an HR Gold Cup .20, K&B 3.5, K&B .40 Standard (off to the moon!), Super Tigre X21 car and OPS 3.5 Speed car engines. With some of these engines, such as the K&B 3.5, the only modification you'll have to make is to drill some new holes in the aluminum frame for the engine mounting bolts. Make sure that the clutch pulley lines up with the rotor drive gear train pulley.

All the small parts in the heavy cardboard box are neatly packaged in plastic bags, with each bag numbered according to the easy-to-follow, step-by-step assembly instructions. The only problem we had was one of terminology. Terms new to use such as "swashplate," "T lever," and "swashplate locating bracket" added some chuckholes in the smooth road of assembly, but the several photos and diagrams provided along with the instructions enabled us to figure out what they were talking about. With the exception of locating the swashplate "O" ring incorrectly during assembly (our fault, not the instructions), we got everything screwed, bolted, and glued together OK. In addition to detailing the radio installation, the instructions also covered checking out the linkage and adjusting it properly for our triumphant first flights—a lift-off to about ½" for a second or two.

For those who like some details, a few comments about the machine. The backbone of the aircraft is a sturdy aluminum main frame (which has a factory warranty for crash damage, with a replacement available for only a small handling charge), aluminum tail boom, struts, and skids. In addition to providing a strong airframe, the aluminum main frame along with the aluminum engine mounting blocks conducts heat from the engine so no power-robbing cooling fan and shroud are required. The engine needs only a heat sink to keep within its operating temperature range. (For safety sake in the event of a lean run we add a bit of Lubricin as extra lubricant to each tank of fuel.) All the aluminum parts have a clear alodine finish to give them a nice silvery look. High grade, double-shielded aircraft bearings are used throughout. The tail rotor gear box, which comes factory assembled and uses two spiral bevel gears and six ball bearings, is driven by a piano wire drive shaft for reliable, positive, no-need-to-adjust operation.

Regarding the main and tail rotor blades, GMP cuts their own. Both of the main blades are cut from one length of light hardwood and are virtually balanced at the factory. They are well sanded and need be only covered with a length of vinyl contact paper provided in the kit. With our blades a few lengths of striping tape applied to the lighter blade was all the weight needed to get them to balance perfectly. The tail rotor blades are also machined from light hardwood to minimize inertia when they spin at their 6,000 rpm.

Perhaps the best feature of the Cricket is not found in the box or in the design of the aircraft. It's the service that's available, including quick shipment of replacement parts, building and flying advice, and updating mods. To check their response for replacement parts, we had a friend call in an order on Tuesday. He received the parts by Thursday. Sure, sending parts across the country will probably take a bit longer, but the point is that they ship quickly. The Cricket and replacement parts are also now stocked in over 400 hobby shops throughout the U.S. And, many hobby shop owners are now learning to fly the Cricket due to a special promotional program offered by GMP, so you'll have help available nearby. If you have some questions about building and flying that can't be answered by your local dealer, give GMP a call. Their telephone number and address are listed at the end of this article.

What we like most, though, are the Cricket Bulletins. Send in the registration form that comes with the kit and you'll be on their mailing list. The bulletins include comments about learning to fly and suggested modifications intended to make the flying better or easier. And the bulletins are sent out at no cost! We want to point out, though, that sending out bulletins such as these is not meant to imply that the original design of the machine was faulty. Beginners find problems that aren't there for those who know how to fly a helicopter. If a problem does show up for the new folk, John Gorham and his staff work out a solution and let those of us who purchased a kit know about it. And each kit includes all bulletins published as of the date the kit is packaged. It's a super service, suggesting the sincerity of John Gorham's comment, "We want you to fly, not just buy a Cricket." In our view, GMP is doing just about everything a reputable manufacturer can do: provide a well-designed, complete and easily built kit, quick service for replacement parts, and help in building and flying if you need it.

Assembly. Building the Cricket took only a weekend of leisurely and enjoyable work. Because building a helicopter was all new to me, I didn't snug down the bolts and nuts for each step until I had all the parts in place, just to make sure that I wouldn't have anything left over! Then I'd go back, review the instructions, and snug down the bolts and nuts, adding the blue Loctite where suggested. The engine is mounted for easy access for starting (with an insert in your airplane starter). No starting belts are needed. The carb needle valve and plug hang right out there so you can make adjustments easily if needed. I use a Super Tigre .25 with a heat sink and air cleaner on my machine.

The factory-cut ply cabin parts were assembled with Carl Goldberg's super Super Jet. The cabin and canopy were primed and painted with blue dope. Some Bridi Striping Tape was used to jazz up the job. The only modifications I made in the assembly were with my Futaba radio with small S-20 servos. Because I didn't like the switch actuating arm extending up through the top of the canopy as shown on the plans, I mounted the switch on the bottom of the cabin floor. With the body of the switch wrapped in a bit of plastic kitchen wrap to keep it free of goop, it is actuated by a length of Nyrod attached to the bottom of the fuel tank support. The charging plug is mounted on the cabin back above the fuel tank for convenient access without removing the canopy.

The instructions suggest mounting the receiver to the cabin floor with some double-stick foam tape. In anticipation of some hard touchdowns, I added a partition along the inside of the throttle servo to form a receiver compartment. The

receiver was placed in a nest of foam rubber, as is normally done in fixed-wing aircraft.

Flying. After the craft was assembled, blades balanced and their incidence adjusted using the simple device provided in the kit, I was ready to fire it up and hang on. Incidentally, I had run four tanks of fuel through my new Super Tigre .25 engine on my bench, with a prop hung on the front. Not normally too nervous on first flights of my planes, I must admit that it took me three weeks to get up the guts for the first time out. During this period of contemplation I received a phone call from *M.A.N.*, asking if I would be interested in writing this review of the Cricket. While I originally had planned to take the completed helicopter down to John Gorham's shop to have him check it out and trim it for me (he runs a Saturday morning session weekly at a flying site to provide that service for new Cricket owners in the area), it seemed more appropriate for this product review if I put myself in the place of some of you who are too far away to get this type of expert help. A truer test of the machine and instructions. So, I resisted the temptation and went ahead by myself—armed, of course, with the written material provided in the kit about making final adjustments and those first flights.

I decided to take the Cricket out to our club flying field on a nice quiet windless day—for two reasons. First, I could use the 40 ft wide cross runway; and second, because of the much needed psychological support of other fliers at the field. With all the ball joints and tail rotor shaft oiled as recommended, I turned on the radio, grabbed hold of the main rotor, checked to assure that the engine was set at an idle, and fired it up. The eager machine was carefully carried out to the center of the runway as other club members cheered me on. I set it down, stepped back, and very, very slowly advanced the throttle. As the main rotor picked up speed the helicopter started shaking as though it was as nervous about the whole thing as I was. When I throttled back down to an idle, eyeballing the main blades and paddles suggested that the paddles were not properly aligned despite my care at the work bench. With the engine stopped, we made the necessary readjustment. When fired up again the main rotors picked up speed smoothly. As the Cricket got light on its skids it wanted to move its tail for me, so I throttled down and adjusted the tail rotor trim. With other trim adjustments carefully made on the pitch and roll controls, I gradually fed in the power and it lifted off—about an inch or so. (Later I found that the trim controls would have to be readjusted for the hover rather than the lift-off, but adjusting them for the lift-off at first made it seem easier on the nervous system.) That's when I first experienced the realities of flying an R/C helicopter. The first and most difficult thing we have to learn is how to react; how to say "no" when the helicopter exerts its own will—which is each time you fly.

Since trying to work all those controls at the same time was beyond my SQ (stress quotient), and since I find it easier to concentrate on one thing at a time until it becomes habit, I first worked on keeping the nose in line. Got to learn to fly the nose, they say—not the tail. So I practiced standing alongside the helicopter rather than behind it. I'd lift off to a glorious altitude of an inch or so and concentrate on keeping the nose in line, throttling down as recommended in the flying instructions when it got away from me. And it did.

Then, after a few flights when working the tail rotor became somewhat more comfortable, I directed my attention to the pitch axis (which, I understand, is helicopter talk for moving forward and backward). Of course, you can't lift off without also giving some right correction in the roll axis as well, but for the most part I'd let it drift while moving out of the way as needed and working on operating the tail rotor and pitch controls. Finally, on my fourth time out I felt somewhat comfortable with the yaw and pitch controls so I started concentrating on the roll axis—with the aileron stick. Most of these lift-offs continued to be relatively short in duration, beginning with only a few seconds to perhaps a minute or so (a real accomplishment that felt like an hour!), and usually to an altitude of only 6 to 8 inches.

With several flights (and no damage to

the machine) to my credit, my confidence grew and the lift-offs got up to an altitude of a foot or two—still throttling down immediately when the will of the helicopter was stronger than mine. It was about this time that I had my first accident, during my fifth flying session. My experience in flying the fixed-wing craft had trained me to give a bit of up-elevator on the takeoff and some up-elevator to flare out for the landing. Up-elevator on the lift-off didn't cause any problems other than the fact that the machine would move to the rear when it broke ground. I chuckled a bit when I realized what I was doing.

The problem came when I added up-elevator to flare out for a touchdown from an altitude of about a foot. The main rotor blades angled back, tipping the tail boom down as one would expect. The tail skid hit the ground—which pushed the tail boom up into the path of the main rotor blades. One main blade hit the tail rotor pushrod and bent it into the wildest design I had ever seen; sort of accidental creative art, which is now on display in my office. Other than doing an excellent job of smoothing the gears in the rail rotor servo and reshaping the tail rotor pushrod, this first pilot error made only a small dent in the main rotor blade. No big deal.

The second time (does that mean I'm a slow learner?) I pulled the same stunt from an altitude of about three feet, it cost me a set of main rotor blades and more servo gears, in addition to having a considerable straightening job to do on the aluminum tail boom. (Aren't you supposed to bang up the main rotor blades when learning to fly?) While making the necessary repairs, I received one of GMP's Cricket Bulletins in the mail. The bulletin outlined some modifications intended to alleviate the problem that I and apparently some other fixed-wing pilots had experienced. It recommended that the tail rotor pushrod be relocated under the stab, a loop be bent into the main rotor teeter spring, two shims be added under the main rotor block to restrict the tilt of the main blades, and the tail boom be dropped as far down as possible. That, coupled with my experience in learning to fly, has seemed to help. At least I haven't wiped out any more tail rotor servo gears or banged my boom. So far, so good. Thanks, John.

With a new set of main rotor blades installed and the tail boom and tail rotor servo repaired, the only remaining observable testimony to my efforts at learning to fly is that the skids are somewhat worn out from taxiing into the proper position for each lift-off. To solve that problem I've gotten a set of four, 2" long nylon skid tubes from Chuck Siegle's Hobby Hangar at 22718 Ventura Blvd., Woodland Hills, CA 91364. The tubes slide onto the skids to prevent wearing out the aluminum. At the cost of a buck for the set, I think that they're a good buy; a lot less expensive than replacing the skids.

As of this writing, I have had seven flying sessions with my Cricket and have enjoyed every moment. Well, every moment except when I flare out to land. On occasion I've been able to hover the craft within the area of about a 5 ft circle. And, I've even experimented with flying it forward and backward and slipping it to the right and left at 3 to 4 ft altitude while walking alongside and keeping the nose pointed in one direction during flights of several minutes. Fantastic!

But there are also the regressions to contend with. One time out I think I'm getting pretty good. Next time out I'm positive that the thing is alive and needs a good case of disciplining—or a teaspoonful of castor oil down its throat. Ah well, that's learning. Got to master me as well as the helicopter. At any rate, I'm convinced that with practice there's lots of fun ahead. Incidentally, as many experienced helicopter pilots will testify, the machine handles somewhat more easily when it is two or more feet off the ground than it does at an inch or two. Something to do with ground effect, they say. But, it's much safer to get down from two inches than from six feet when you find yourself hanging onto the box for dear life while jumping out of the way with the athletic prowess of the practiced broadjumper.

I've heard it said that flying a helicopter is like trying to balance a ball on top of a broomstick. What John Gorham has done with the design of the Cricket is to put a platform on top of that proverbial broomstick to make the trick somewhat easier and within our grasp. To sum it all up, I guess you could say that I've finally caught the bug I've been searching for—the Cricket. They multiply at Gorham Model Products, 23961 Craftsman Rd., Calabasas, CA 91302, phone (213) 992-0195. ■