



A perfect, easy-flying autogyro for your backyard or local gym

by Thayer Syme

PHOTOS BY WALTER SIDAS



# LIGHTFLITE Twirl Autogyro

## AIRBORNE

Skipping straight to dessert, the Twirl is hands-down the easiest to fly autogyro I have tried. I agree with LightFlite's claim that if you are comfortable with a 3-channel trainer, you should be just fine with the Twirl. The secret here is that the rotors have very little inertia, and they rapidly spin up to speed. Because of this, ground takeoffs are easy, so you won't need to run and hand-launch this autogyro. The Twirl has a wide CG range, and as with conventional models, I recommend a forward balance point for your first flights. An aft CG can cause the model to pitch up vertically on takeoff, making those first few seconds pretty exciting.

As soon as you throttle up, the rotor blades start to spin in the propwash. Keep the power on, and the Twirl rapidly accelerates and is soon off and flying. There is plenty of thrust available, and the Twirl can hover and climb vertically. You can quickly gain altitude, which is great if you like to do extended power-off autorotations. I have made a few flights with the RAM3 recording altimeter from Soaring Circuits on my Twirl and found that with full up-elevator it stabilizes in a vertical descent at about 575 feet per minute. Pushing the stick forwards lets it glide forwards, if you want to steer it around a bit.

The Twirl is capable of stall turns, loops and sloppy barrel-rolls with my guidance. It is initially quite alarming to see the rotors slow and even stop when unloaded in these maneuvers and vertical climbs, but don't worry: they spin right back up as soon as you load them with a bit of up-elevator. Cruising down low is just as much fun with the Twirl, and banking through turns really shows off the striped rotor disks.

Landings are easy. The rotors provide great stability and keep the Twirl upright when flying with moderate power or gliding, so all you have to do to land is slowly reduce power and steer it away from obstacles. A touch of power and up-elevator will stop it right before touchdown. Couple these zero-rollout landings with a vertical autorotation descent, and you can land the Twirl anywhere. I regularly fly it from our cul-de-sac and over the trees as I walk back to the house before bringing it down on our postage-stamp-size front yard.

**A**l Foot published the plans for his Twirl autogyro in England in December 2005, and with typical forum buzz, it was soon introducing many new pilots to this unique aircraft. Of course, with just plans available, you would have to source all the supplies and build it. I was immediately captivated by Al's design and videos, but I knew that I wouldn't get to building one from the plans anytime soon. Fortunately, Ron Usenza of LightFlite came to the rescue and arranged with Al to kit this marvelous design. Along the way, Ron incorporated several modifications and improvements, making it easier to build and more durable.

The LightFlite kit maintains the original's Depron construction and incorporates laser-cut parts and an abundance of carbon fiber for the landing gear and airframe bracing. Although it might be a stretch to call this kit an ARF, construction goes quickly and very smoothly. Ron put together a very clear manual that will help you complete the autogyro in just a few evenings. Ron recommends UHU Por adhesive and includes a tube in the kit. UHU is a contact adhesive, so most of the assembly involves spreading a thin film over the parts, letting them air-dry briefly and then putting them together. The adhesive remains slightly flexible and provides long-lasting durable glue joints. The kit also includes a roll of Blendederm tape for hinging the control surfaces, along with the motor mount, wheels and full hardware package.

## SPECS

**PLANE:** Twirl Autogyro

**MANUFACTURER:** Lightflite

**DISTRIBUTOR:** Lightflite

**TYPE:** 3-channel twin-rotor sport autogyro

**FOR:** Everyone

**WINGSPAN:** 31.25 in.

**WING AREA:** 377 sq. in., rotor disks; 60 sq. in., fixed wing

**WEIGHT:** 6.4 oz.

**WING LOADING:** 2.11 oz./sq. ft. (combined area)

**LENGTH:** 26 in.

**RADIO:** 3-channel required; flown w/Futaba 10C transmitter w/TM-10 FASST 2.4GHz module, Futaba R617FS receiver, 2 Tower Pro S-50 servos

**POWER SYSTEM:** LightFlite custom-wound 1100Kv brushless motor, GWS 10x6 prop, LightFlite 10A speed control, LightFlite 2S 430mAh LiPo battery

**FULL-THROTTLE POWER:** 7 amps, 49.8 watts, 8.1 W/oz., 129.7 W/lb.

**TOP RPM:** 5,010

**DURATION:** 8-10 min.

**MINIMUM FLYING AREA:** Ballfield or school gym

**PRICE:** \$75 (ARF), \$159 (Combo)

**COMPONENTS NEEDED TO COMPLETE:**

3-channel radio. Combo accessories include, in addition to the above, the LightFlite 1100Kv brushless motor, 12A brushless ESC, 2 TP-50 servos, a 450mAh 25C 2-cell 7.4V LiPo, 10x6 HD prop and all component connectors

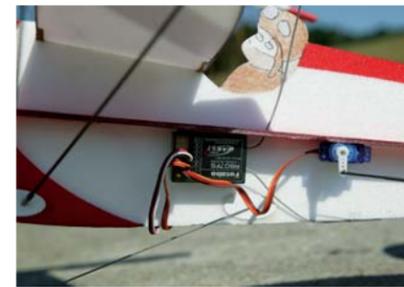
## LIGHTFLITE TWIRL AUTOGYRO

### TIPS FOR SUCCESS

If you plan to add any color, do so before you start to glue the pieces together. I used blue painters tape to mask the rotor blades while they were still in their carrier sheet, and before doing any assembly, I did all the other painting using Tamiya's polycarbonate RC car body paint from the hobby shop. I carefully weighed the fuselage doublers before and after painting and saw a .11-gram weight increase. A bit of color here and there will not noticeably change the Twirl's flying characteristics, so don't go crazy if you want to keep it light. Markers also work, and I used a black Sharpie on some edges for the pinstriping effect mentioned in the manual. A few artists markers were handy for the pilot.

I recommend the combo package if you don't already have a bunch of micro gear. Ron has carefully chosen the components for their performance and weight, and they work very well.

Do not glue the landing-gear components together. There is plenty of friction between the carbon rod and the clear tubing joiners. I have broken the main landing-gear bow twice—once when the Twirl hit a car and once when it landed crosswind in thick grass. It was easy to replace the main rod. If



**The Twirl features Depron sheet construction with carbon-fiber bracing. The laser-cut parts fit perfectly and go together without any trouble. Just be sure to do any painting first. The Twirl has a wide CG range, and the battery can be moved quite a bit to obtain the handling qualities you want. The Lightflite brushless outrunner provides great power, even with a 2S pack.**

your field hasn't been mown in a while, you may prefer to remove the gear and to hand-launch the Twirl—an easy option if the gear is not glued.

The rudder is very effective, so I dialed in a bunch of expo to tame the response and still retain enough authority for "evasive" maneuvers and when gliding.

### CONCLUSION

The whimsical Twirl also caught the eye of Steve Tillson of the Autogyro Co. of Arizona, which is primarily known as a source of much larger and heavier sport and scale autogyros. It is clear from several emails that even the serious guys enjoy this little model—so much so, in fact, that Steve has joined forces with Ron to market this little fun-flyer. The Twirl is available from both companies, and their collective knowledge of

building and flying autogyros will answer any questions you may have.

The Twirl is quick building, durable, fun and easy to fly. Thanks to Al, Ron and Steve, this is an unusual yet easily accessible model that is sure to make you smile. ☺

### Links

**Autogyro Co. of Arizona**,  
[www.autogyro-rc.com](http://www.autogyro-rc.com), (888) 783-0101

**Futaba**, distributed exclusively by Great Planes Model Distributors,  
[www.futaba-rc.com](http://www.futaba-rc.com), (800) 682-8948

**Lightflite**, [www.lightflite.com](http://www.lightflite.com),  
[info@lightflite.com](mailto:info@lightflite.com)

**Soaring Circuits**, [www.soaringcircuits.com](http://www.soaringcircuits.com),  
[soaringcircuits@epix.net](mailto:soaringcircuits@epix.net)

**Tamiya America Inc.**, [www.tamiyausa.com](http://www.tamiyausa.com),  
(800) 826-4922

For more information, please see our source guide on page 153.