

## GENIE and related PICS (May 5, '09)

By Harley Michaelis



I started developing the scratch-buildable, state-of-the-art Genie line of sailplanes in '92. To be sure the line continues beyond my longevity, I've turned over providing plans and a few hardware items to Genie builder/enthusiast Michael "Augie" McKibben of Crystal, MN, who'll also post web pages updates.

Further along below, you'll find pics and stories by Augie ([Augie\\_mrcss@comcast.net](mailto:Augie_mrcss@comcast.net)) and Loren Blinde ([lblinde@neb.rr.com](mailto:lblinde@neb.rr.com)). They're also available to answer builder's questions.



This is the 12' span "Big Genie" wing on the original fuselage as shown full size in profile on the plans. I built 29 of these for my personal use.

After this late afternoon pic was taken at the Walla Walla Community College grounds, I had a 19:24 minute flight near sundown working light lift from 100 to 200 feet cruising around over adjacent paved roads, parking lot and tennis court. Its weight is 94 oz. The ability to stay up in light lift is uncanny.

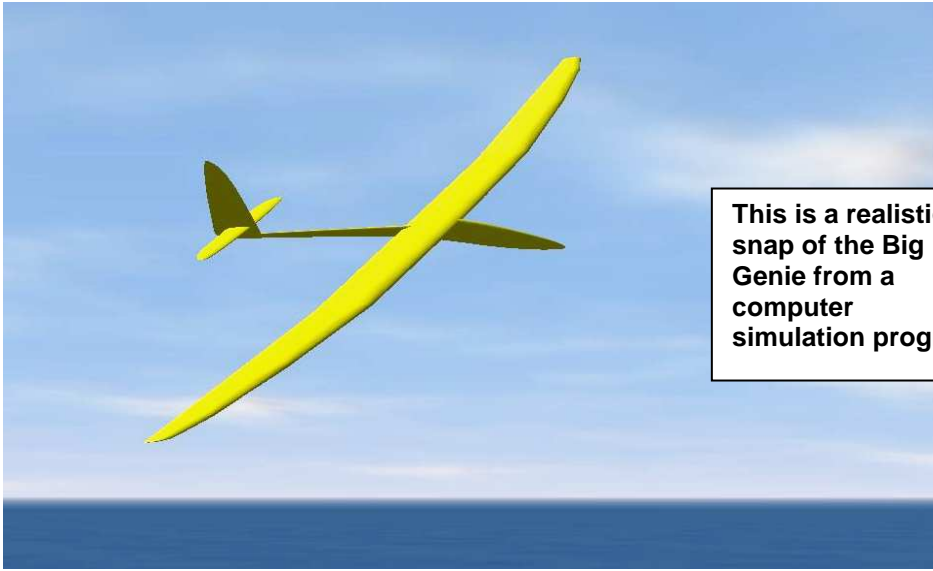
Machinist Walt Dimick (below) of Portland, OR, who makes a line of accessories for the RDS, now owns this one.



Big Genie wing span is 145-1/2". Wing area is 1,260 square inches (8.75 sq. feet). The pic below is of the classic Big Genie, featuring the fuselage with the deep profile as shown on the plans. Careful wood selection to keep the tail feathers and the "boom" area light is a key to keeping overall weight down and getting prompt response in the pitch axis.



The business ends of Genie ships are sleek, curvy & rugged. A removable, single tooth skid of 1/8" aluminum seats into a slot in the nose. The "droop snoot" enables the skid to dig in & stop the ship for precision landings without spearing. The rear end of the canopy is contoured to fit around the LE of the wing. An internal stop block prevents gouging the wing.



This is a realistic snap of the Big Genie from a computer simulation program.



After the 29th Big Genie, I got interested in doing a 130" span version using the same fuselage. This was called the "Genie Pro". These came in at about 85 oz. I began thinking about designing a lower profile fuse to reduce weight using micro servos for R & E.



As well as reducing the fuse profile, I lengthened the tail moment arm. Handling in the pitch axis was notably smoother & the whole ship more elegant. I named it the "Smooth Genie Pro" shown here. This is the 2nd of 5 built.

With careful wood choices, micro-servos & one-piece nose block to hollow out for lead shot, these came in at 80 oz.

See the Supplemental Smooth Genie Pro file for more info.



The next inspiration was to mate the Big Genie wing to an SGP fuselage. This combination makes the "Big Smoothie". Under adverse weather conditions on 3/28/09 I had a first flight on it. One witness took this superb left bank flying shot that nicely displays its elegant lines. 2 days later I suffered a neck injury that prevents me flying this super-sleek, stealthy ship 3-6 months.

With the new glassed-over fuse, the all-up flying weight came in at 87.5 oz. vs. 94-96 oz. with the original glassed-over fuse. The glassed-over fuselages can be refurbished to look like new. See the file "Anatomy of A Fuse Repair".





This is John Hayes of Londonderry, NH with his just finished Big Smoothie. Clearly John's skills are impeccable. The fuselage is one I built which he acquired along with a set of Anker Berg-Sonne cores I had on hand.

Do note the slimmed down fuselage possible when building "according to the script".

I am looking forward to stories about his flying experience with this ship.



This is Doug Wallace of Kelowna, BC with his "Smooth Genie Pro" (the 130" wing on the SGP fuse). I'm awaiting flight reports.

Doug did several neat hardware innovations which can be seen in pictures posted in the Yahoo Genie Builders Group.

**Note: For the Big Genie or Genie Pro wing, mating them to the glassed-over SGP fuselage makes the sleekest looking, nicest handling combinations. The slab side pattern is on the plans. Text details exactly how to make the fuse. A molded canopy comes in the parts pack Augie provides.**

The pic below is of the light & smaller version; the 10' span Genie LT/S. It's another outstanding



choice for either thermal competition or sport flying. Being up to a pound lighter than the larger ships & with wing servos in the center, as in all the Genie ships, it is very agile. Expect spectacular zooms from high tension launches on the typical contest winch. The blended airfoil combination, with only aerodynamic washout, makes for great stall characteristics and great legs, too. Performance of this ship just sparkles. It's perfect for thermal competition. See the Supplemental Genie LT/S file for more information.

The fuse in above picture was made with one-piece 48" slab sides. Other options include 2-piece SS's and a composite fuselage with longer tail moment arms.

Genie line bagged wing thermal ships take high tension launches, are agile and scoot along at speeds that allow covering a lot of ground. Liberal flaps slow them well for landing. Full TE camber/reflex can be programmed in. Using RDS, all wing servos are in the center. Nothing hangs out of a Genie wing. Genies move with stealth and a barely audible "whoosh".

Those who've finished & flown one or more speak highly of the performance and handling. I've received a few good pictures but more are certainly welcome.

The picture below is of Colin Heyes of Blackburn, Lancashire, England and his Smooth Genie Pro built the 2007-2008 winter. See comments and other pics below. The workmanship looks excellent and I'm looking forward to a flying report. Love that simple, but eye-catching tip trim! Colin says:



Hi Harley. . Well, the SGP is finally finished, and, as promised, I've attached a couple of pics of yours truly with the ship. As you'll notice, the tips have lost their forward sweep of the TEs, as I mentioned in a previous email. Apart from that, and a slightly stretched hatch, everything else is per plan.

The weather here in England is just starting to warm up, so I expect to test fly her anytime soon. I have no doubt she will fly as gracefully as you have designed her.

Harley, many, many thanks for all your time and trouble in replying to my questions. It has been a delight to build the Genie, especially to be instructed by someone who has probably forgotten more than I will ever know about soaring and sailplanes.

With kind regards, Colin



I managed to hook a couple of decent thermals that passed through, and although I'll never win any prizes for my flying ability, the plane made me look better than I am. It was rock-steady with no sign of any nasty surprises. The other thing to note is how distinctive it looks in the sky. There should be no more flying someone else's!!



Harley, I never doubted for one moment that it would perform as it did, given how popular the Genie-line of aircraft has become. The usual tweaking of the set-up now needs to be done.

I deliberately made it nose heavy (for my flying style) for the initial flights - erring on the side of caution. The flap to elevator compensation needs adjusting slightly and maybe some play around with the aileron differential. The only sad part of the day was when I thought of those who've only flown ARTF ships. To fashion a pile of various materials into a beautiful, graceful flying machine is a feeling of sheer pride and joy."

Colin is representative of a conscientious Genie line builder. He took his time, stuck to the construction procedure, e-mailed me when questions arose and has a ship that should live up to expectations.



The pic to the left is of Roy Walton of Mobile, AL and his LT/S built with the composite fuselage. Looks like very nice work.

The pic below is of Don Grisham of Winter Haven, FL with his first completed big Genie using the composite fuselage. He's also completed a 2<sup>nd</sup> one. Don's a flight instructor at Brown's Seaplane Base there. This was his first vacuum bagging project and he pulled it off beautifully. He used Phil Barnes' video along with the instructions in the CD that comes with the plans and parts package. His ship weighs 85 oz. RTF. That's less than 10 oz. / sq. ft. loading and it's a big, rugged ship that can quickly cover a lot of sky.



Don says "The ship flew exceptionally well, with very few adjustments needed. The first flight was about 20 minutes and the 2nd was about 30! We put it on tow after just 2 hand tosses. Needless to say, I was very pleased with the results. Again, I want to thank you for all your help & patience".

Below, Doug Coleman does a “gorilla” launch with SGP #3 at Lewiston, Idaho on May 11, 2008 (Harold Ochs photo)



It's comforting to know you have a ship with a wing that can handle those spirited launches with impunity. Doug is rapidly learning how to wring the most performance out of an SGP. I count a full 5 seconds in the zoom after release. The cruising speed is noticeably greater than most other state-of-the-art thermal ships, so a lot of ground can be covered looking for lift.

The pics below are of Greg Klein of Watertown, SD and his Genie LT/S built during the 2005-2006 winter months, using the Pacific Sailplanes composite fuselage. I'm taking the liberty of including a couple of e-mails he sent to me.



“Harley, 3 miles NE of Watertown, SD on 4-25-06 I made 5 test toss flights. Several notches of down trim were needed to find the stabilator neutral point. All tosses were followed by soft landings with short ground-slides. The grace, beauty, and elegance of the ship were evident. The first winch launch, with the tow hook very conservatively positioned a generous distance forward of the CG and no flaps, saw the ship track up the line straight as an arrow. Half way up to apogee my mind told my heart that Genie was going to take good care of me and that the pulse rate could relax.

Some trimming was required on the first flight, which didn't have much height to begin with because it was a soft, gentle launch. It was easy to see how nicely the ship reacted to vertical air movements, though. After about 4 launches, each one a little more aggressive, I was spellbound by it's potential and took it home with no repairs necessary and some transmitter programming assignments for myself.

Thanks for all your support, Harley! You've designed a masterpiece!

Regards, Greg Klein





Greetings from Watertown, SD. I've still got paint and finish details left to make my Genie show-worthy, but the end of our winter build season and the beginning of the spring flying season has put finish work on the back burner and flying at the forefront. I haven't had very many good thermal condition opportunities to fly in yet, but I am totally amazed at how this Genie responds to the slightest hint of lift! I've hardly scratched the surface of programming all the flight configurations and CG tweaking. But with the way I've got it configured now, launches are no-brainers and I've been enjoying the way it effortlessly loiters even in dead air. Can't wait to spend some time with it during the middle of a puffy cumulus day. Regards, Greg Klein



This is Jay Decker with the prototype LT/S. Jay uses 15 to 20 degrees of down ailerons mixed with down flaps to increase lift and slow the LT/S way down for landing. Jay chose to fly an LT/S over a fully molded Pike Superior made by SAMBA Model Products in the Czech Republic. Jay says that the LT/S launches and flies as well as the Pike in AMA TD events and lands easier. And, he also likes to fly the LT/S to prove that you do not have to buy a \$1,000 plus molded plane to be competitive in TD.



This is Ed Jennings of Las Vegas with his big GENIE. Ed took his time and did an especially beautiful piece of work! This was his first bagged wing and except for a couple of e-mail questions he did it all independently just sticking to the script. Ed says it is an awesome ship and climbs like a homesick angel.

The next pic is of Ed launching his ship.





The picture below is of “Augie” McKibben of Crystal, MN and his first big GENIE. He took his time and was especially meticulous in his work. This was his first major wing bagging project although he had done some bagging of balsa skins on smaller ships. As he went along he sent me pics of his progress and I admired how carefully he proceeded, most conscientiously sticking to the script in all major areas. He even had a clean work bench, which is incomprehensible to me.



He says the wing went very easily. He spent most of the time on the fuselage, but agrees it's about the strongest structure he's ever dealt with as well as its being well-aligned using the simple system detailed in the instructions.



Caught just at release from the hand, Augie's Genie is off on a flight. He's had hour flights and a bunch of other lengthy ones.

I got the pic below in early July, 2007 of Augie with his newly finished, barely flown Genie Pro. Even Augie looks new, having peeled off 20 pounds and shaved the goatee. His next project is the Smooth Genie Pro. He's independently developing a RES Genie, too.

Below is long retired Otto Wiederkehr of Sonoma, CA with his first big GENIE. This was his first scratch-built, composite ship. He built it without asking me a single question. Otto says "the ship flies well and is beautiful." He's ordered parts for his 4<sup>th</sup> one!



He worked at it leisurely over 3 months, following instructions. All looks well done and nicely aligned. This site looks like a very nice one for slope soaring. It appears a considerable height above the fields below where that ribbon of a road is showing.





This is Loren Blinde's (Lincoln, NE) 60 oz. first LT/S, finished 3/21/05. He's had remarkable thermal flights with it and says it is just all too easy with this ship. Loren has finished a 2<sup>nd</sup> one, ready for 2006 and is talking about doing a 3<sup>rd</sup> with the composite fuse. After being out with it only twice, he was feeling at home with it and says that it is a sweet handling bird. Loren has an NSP Fusion and says it is equal to or better than it in its handling and performance.

He finds it is a remarkable plane for indicating lift and to do slow, tight turns without stalling. Says he wouldn't sell it for a thousand bucks.

After initial flying, Loren put out a post to the RCSE on 3/22. I was really touched by this unsolicited testimonial and I am taking the liberty of including it here.

"Back in November, I ordered the Genie CD from Harley Michaelis, mostly out of curiosity. I'd seen a few Genies at contests and wanted to see just what made them tick. What I got was a wealth of innovative building ideas and the realization of 'Hey, I could do this! So I did. I'd already seen the Phil Barnes bagging video several times and wanted a project to try the techniques. Soon after, I had the plans and hardware goodies from Harley and the nicest foam cores I've ever seen from Les Horvath. Since my hell-hole of a shop isn't all that big, and the Genies I've seen seemed bigger than the landing circle, I decided to build the 10' LT/S.

My only departure from plans was using a 2/3 carbon 1/3 Kevlar living hinge layup instead of all carbon with tape hinges. Also I couldn't quite bring myself to cut off Les' perfect core leading edges, so I left them intact instead of shaping a balsa LE.

I was a little uneasy with the idea of the RDS linkages, but did them anyway. With the skin hinges, they were a royal pain in the \*\*\* to install, but once they were done, it was well worth the effort. Absolutely slop free with a full range of motion.

First flights were today and I was pleased. Strong, straight launches with an amazing zoom, great speed range, reads lift well and slows down nicely for landing. Pretty much what you'd expect from any current design. It slowly dawned on me that Harley's big "secret", why his planes fly so well, is drag reduction.

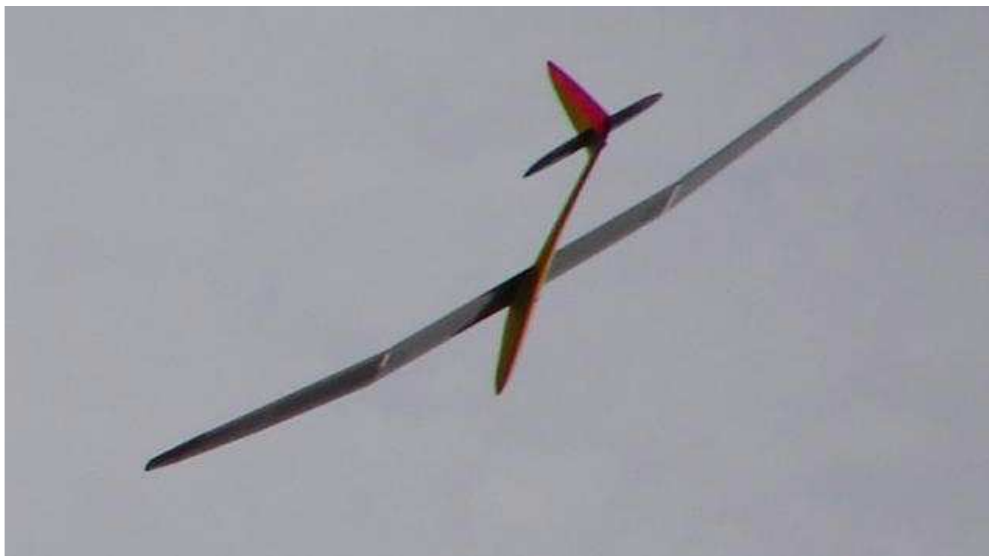
Along with the droop snout banana fuselage, there is nothing sticking out of this plane, other than the pull-pull rudder linkage. I did a very high speed pass at low altitude and that was the quietest "swoosh" I've ever almost heard. But the big intangible difference, the one that makes it fly just a little bit better, is that you didn't just buy it and install some servos, you BUILT it!

If you've done it, you know the feeling. If you haven't, you should. However, the best part of the project was getting to know Harley. I was amazed, gratified and humbled by this man's patience and concern for guiding me through the process. Thanks man! Loren Blinde

Below is Loren with his 2<sup>nd</sup> LT/S. It's a bit heavier and he claims he gets even better zooms. He has put this one to near 3,000 feet according to his on-board altitude recorder.



I'm not sure how this next shot was made, but it looks like a view from the underside in a diving turn. It's not clear where it is relative to the ground. In any event it provides an unusual viewpoint of the LT/S that nicely shows its lines.



Keep in mind no hardware hangs out of the wing. Along with the clean lines, it makes for a fast and very quiet airframe that does a spectacular zoom in a well-timed release from a gorilla launch!

Below is an excerpt from a 5/18/06 e-mail from Loren in which he comments on his observations on the differences between #1 and #2.



**“Hi Harley,**

**Just wanted to let you know that the long-delayed #2 was finally flown this evening. And it went well, so you can count one more in the fold. Four dead air 10 minute flights.**

**This one is 65 oz. compared to the 61 of the first one, likely because the wing is all carbon instead of 1/3 Kevlar. I used the same program settings and CG as #1, so it was dialed in right from the start. The only difference is I think 2 launches even higher than 1, probably because of the increased weight and the control surfaces are stiffer and not prone to the zoom-flutter I occasionally had with 1. The zoom was awesome and noticeably higher.... I think there is probably an optimum weight for zooming and this one is closer.**

**Loren”**