All’s Well That Ends Well: Record Flying in the Great Basin During the Summer of 2016

by Mitch Polinsky

Above: Ely, NV area scenery looking north. (Photo by Ingo Andresen.)

I n an article I wrote in these pages about a year ago, I reported that “Most Great Basin soaring pilots considered the summer of 2015 to be the worst season of the past five or ten years.” That statement was accurate at the time. But the summer of 2015 now stands as the second worst season in recent memory. The present article reports on the worst season.

I spent eleven consecutive weeks last summer living at the Ely, NV airport in a pop-up camper on the back of my Ford F-150 pickup truck. That it is quite comfortable and cozy is important to this story, because I was on the ground 50 of the 77 days I was there. I arrived the first week of June and left after the third week of August. The first really good day of soaring was June 27th. The next was July 25th. The rest were July 27th, August 6th, and August 14th. Most Great Basin soaring pilots consider mid-July to mark the end of the “good soaring” in the Great Basin, because after that there tends to be a lot of monsoonal moisture and overdevelopment. Most Ely soaring pilots left by mid-July. A few stayed. I was lucky to be one of them.

Here is my report on the five “really good” soaring days I experienced at Ely last summer. All of my flights were done in a Binder EB29 that I acquired last spring and flew for the first time last May. It is a truly amazing plane and surprisingly easy to fly given its wingspan (25.3 or 28.3 m) and weight (900 kg max gross weight). It is a single-seat self-launching glider with

a 62/1 or 66/1 glide ratio, depending on which tips are used. I've fallen in love with this plane. (See Centerfold this issue.)

### June 27, 2016: Triangle speed, 1,000 km; failed to complete task

It might seem odd to report on a day on which I failed to complete my task, but this was truly one of the most exciting flights of my life. My passion is for flying big triangles, and I hoped during the summer of 2016 to fly my second 1,250 km FAI triangle. The forecast for June 27th was very promising, but the strong areas did not appear extensive enough to support a 1,250 km triangle attempt. So I declared a 1,000 km triangle task with the goal of beating the existing speed record of 138.99 kph in the single-seat motorglider class, which would require me to fly 139.99 kph. My wildest dream was to chase Bill Gawthrop's 1,000 km triangle speed record of 148.12 kph, set in the open class in 2015, which would require me to fly 149.12 kph.

With the help of my ground assistant, Caleb Parish, I got the plane ready for a relatively early takeoff. But after raising the mast to inspect the engine and propeller, I noticed a warning light on the engine control unit on my panel that indicated that the engine temperature sensor had failed. Bummer! Back to my truck camper with the engine and flight manuals to read about how to troubleshoot this problem. Twenty minutes later I went back to the plane, pushed the reset button, and retracted and extended the propeller mast again. Same problem. Luckily, my friend Andrzej Kobus from NH had recently arrived and was parked next to me with his ASH 31Mi. He suggested starting the engine at my parking spot, turning it off, and then checking to see if the

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2 This amazing flight in unlikely conditions is wonderfully described by Bill in “An Attempt at Recovering My Mojo,” Soaring, July 2016, pp 37-39.
sensor worked. It did! I lost forty minutes dealing with this problem, which turned out to be really significant at the end of this flight.

I started the task at a remote point 22 km to the southeast of Ely, at 12:51 pm (see Figure 1). Conditions were very good on my 227 km first leg to Brian Head, just east of Parowan, with lots of cu’s and a slight tailwind, resulting in my averaging 176 kph on this leg. I didn’t expect this good fortune to last because the next leg of 290 km to the west should by all logic be into a headwind. But luck was with me; the wind shifted to a crosswind or slight tailwind and I was able to average 167 kph on the second leg. I was starting to become very optimistic about the day because my third and longest leg of 346 km to the northeast was chosen so that I would have a tailwind. The tailwind turned out to be very well aligned with my flight path for most of this leg, and there was excellent cloud streeting, which allowed me to average 196 kph on the third leg to my last turnpoint at Spruce Peak, with only 5% circling on this leg.

To my astonishment, when I rounded my last turnpoint at Spruce Peak, I had averaged 180.57 kph over a course distance thus far of 863.6 km. I had 174.1 km left to fly to my finish line (because of the dogleg character of my course, my task distance was 1,037.7 km, while the triangle size was 1,004.2 km). All I had to do was to fly the last 174.1 km at half of the speed I’d achieved for the first 863.6 km and I’d beat Bill Gawthrop’s record. Put more dramatically, all I had to do was finish the task without stalling and I’d beat his record.

But after rounding the turnpoint at Spruce Peak a wild idea crept into my head. I vaguely remembered that the World open class record for a 1,000 km triangle was around 169 kph. Since I had averaged more than 180 kph for 83% of my task distance, this target didn’t seem so far-fetched. (The record actually was 169.72 kph, which would have required me to average 170.72 kph to break it.) I had a big decision to make. Fly conservatively and almost for sure break Bill’s record and thereby set U.S. National and North American Continental records, or fly aggressively and try for the World record. (I subsequently calculated that I needed to average 121.86 kph on this last leg to break the World record.)

There were three significant obstacles to going for the World record, despite the speed I had achieved up to my last turnpoint at Spruce Peak. First, the day was overdeveloping in an area south of my last turnpoint that I needed to transit in order to get to my finish line. Second, I would finally have a leg in which I had a nontrivial headwind component. And third, because of my late start due to the engine temperature sensor problem, it was already 5:38 pm when I rounded Spruce Peak and the day was starting to get soft. I nonetheless decided to try for the World record, at the risk of losing all of the records.

How did things turn out? I succeeded in losing all of the records. I barely made it through the area of overdevelopment, flying at best glide speed and milking every bump of lift to stay as high as possible. When I got to the sunlight on the other side of this dark area, the cumulus cloud that looked so

Figure 1: 1,000 km triangle task (did not complete), June 27, 2016. (SeeYou.)
promising was in the process of decaying. I was getting relatively low but refused to stop under it, hoping to get something stronger, since stopping to climb in weak lift would quickly jeopardize my chance at the World record. The hoped-for strong clouds never materialized, and I eventually did stop to climb under the last weak cloud about 55 km before my finish line. By then I knew that the World record was out of reach, and I turned to trying to salvage the U.S. and North American records. But the day was dying too quickly and I couldn't get high enough to make it to my finish line with sufficient altitude for a legal finish. At 4 km from my finish line and about 1,000 ft below my required finish height, with no prospect of any local lift (it was now 6:58 pm), I called it quits and headed back to the Ely airport. Damn that engine temperature sensor!

But it wasn't so bad. I still got to participate in a celebration of a World record that evening! Sibylle Andresen, flying her ASH 31Mi that day out of Ely, flew a 500 km triangle at 163.10 kph, breaking the World open class Feminine speed records for 500 km and 300 km triangles. It was a sweet way to end the day.

**July 25, 2016:**
**Triangle speed, 750 km; 153.79 kph**

It wasn't until four weeks after my aborted 1,000 km triangle attempt that the next really good soaring day at Ely presented itself. The forecast on July 25th was quite promising, but again the area of strong conditions was not extensive enough to support a 1,250 km triangle, or even a 1,000 km triangle. So I chose to fly the largest triangle for which I had a reasonable chance of breaking a U.S. single-seat motorglider record – a 750 km triangle. The existing U.S. record for this size triangle had been 150.72 kph, which would require me to fly 151.72 kph to beat it. That became my goal for this day.

This day’s flight turned out to be the mirror image of the June 27th flight, meaning that I wasn't in great shape at the end of the first three legs, but made up for it on the last leg (again there were four legs because the triangle was started on a leg). I crossed the start line at 12:49 pm and flew eastward with a tailwind, averaging 172.24 kph on the first leg. The second leg of 191.6 km was to the southwest with a headwind component, resulting in my averaging only 129.67 kph, 22 kph below my target speed. The third leg of 263.1 km was to the northwest, mainly with a crosswind, allowing me to accomplish a decent 143.93 kph on this leg, but still 8 kph below my target speed. In sum, when I rounded the third turnpoint and headed for the finish line, I had flown 587 km at an average speed of 144.27 kph, still 7 kph too slow.

I had two advantages, however, on the last leg of 165.6 km: a significant tailwind component and a reserve of 4,738 ft above my required finish height. My flight computer said that I needed to average 187 kph on this leg to achieve my speed goal. The tailwind and height advantages on this leg resulted in a leg speed of 203 kph and my finishing the task four minutes earlier than I needed to. My task speed was 153.79 kph, 2 kph faster than my goal. But I didn't end up submitting this flight for a record claim due to what happened on my next flight, two days later.

**July 27, 2016:**
**Triangle speed, 750 km; 171.74 kph**

I was really excited about the soaring conditions for July 27th. The lift was forecast to be quite strong and lots of cu’s were predicted. The only problem for a big triangle was the one that I had become accustomed to this summer – the good conditions weren't extensive enough to support a fast flight for more than a 750 km triangle. Having flown at record speed for this size triangle just two days earlier, I was more interested in trying a different task. But a 1,000 km triangle...
didn't seem feasible and a 500 km triangle seemed like a waste of a good 750 km triangle day. So I decided to try another 750 km triangle, with the goal of working on flying faster (for example, using a less conservative McCready setting). Given the good outcome two days earlier, it wouldn't matter much if I made some mistakes and ended up having to take some weaker thermals to get high again, thereby eliminating any chance of beating my earlier speed. The goal for the day was to practice flying faster than I usually do. Happily, I got a lot of practice.

My plan was to go south from Ely a short distance so that I wouldn't have to go too far north for my last turnpoint, keeping my last turnpoint in the mountain range east of Wells, NV. After my first turnpoint I would head west-southwest to a second turnpoint just west of Mt. Jefferson near Ely, NV, and then fly my longest leg from there to my last turnpoint east of Wells. Given the forecast winds, I expected not to do too well on the first two legs, then to make good time on the third leg, and then to struggle a bit against an anticipated headwind component on the last leg home. Just for fun, I programmed my flight computer to tell me how fast I had to fly the remainder of the task in order to beat by 1 kph the North American Continental 750 km triangle open class speed record set by Terry Delore and Steve Fossett in an ASH 25Mi in 2003. Since they flew their task at 171.30 kph, I would have to fly at 172.30 kph in order to achieve the Continental record.

I started the task at 1:14 pm over the Ely airport, rounded my first turnpoint 24.6 km south of the airport, and headed in a westerly direction (see Figure 2). Twenty minutes into the flight, after having flown just 42 km of the task, I started hearing occasional chirping noises in my cockpit. But none of my instruments indicated any problem. After several audible warnings of this sort, I realized that the sounds were coming from my Mountain High EDS oxygen controller. I wasn't worried because I had a second completely independent oxygen system that I could switch to. Making this switch was a bit distracting but, luckily, I was cruising across a valley flying straight and level rather than steeply banked in a thermal. I got back to concentrating on flying and decision-making until, two or three minutes later, the audible warnings started again. It was the second oxygen controller doing this, the one I had switched to. Now I was getting concerned about continuing the flight since both oxygen controllers were acting up and I was at 14,300 ft and planning to go much higher. I recycled the second controller off and on and the chirping started again. I thought, 'Bad luck, but at least it's only 35 km straight back to Ely.' I actually started to turn back but then thought I'd try one last thing – change the batteries between the two controllers. (I didn't have an easily accessible spare set of fresh batteries because, with two independent oxygen controllers, I couldn't imagine both would fail at the same time.) While continuing to fly I swapped the batteries, and then switched back to my original oxygen system, and, for reasons I didn't understand, it now worked! And it continued to work for the rest of the flight. I was back in business, but realized that I hadn't been flying very efficiently for the past five minutes.

When I got to my second turnpoint west of Mt. Jefferson, I had flown 214 km at an average speed of 148 kph, far below the Delore-Fossett speed. But things should change for the better after I turned onto my third leg. On this leg I had a 13-15 kt tailwind component that also created a cloud street that stretched for more 200 km along my track, nearly two-thirds of this leg's distance of 336.4 km. The last third of this leg required me to fly mostly across valleys instead of along ridges. I slowed down so as to remain higher until I could get near my last turnpoint, where I would encounter some high ground again. When I arrived at this turnpoint, I had flown 550.4 km and, due to the miracle of the third leg, had raised my average speed on task to 169 kph, far above the Delore-Fossett speed. But I didn't exceed their speed of 171.74 kph, which, later determined more precisely to be 181.53 kph, significantly faster than my speed up until that point, in order to beat the Delore-Fossett record by the required 1 kph.

Did I do it? I'm going to waffle here and say, "Yes and no." I flew the last leg at 179.32 kph, which resulted in a task speed of 171.74 kph, and which, yes, was 0.44 kph faster than the Delore-Fossett speed. But I didn't exceed their speed by the 1 kph that was required to obtain the Continental record, so,
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no, I didn’t beat their record. I was 50 seconds too slow on a flight that lasted four hours and twenty-three minutes. Damn those batteries!

But the consolation prize, a U.S. single-seat motorglider record for this task at 171.74 kph, was totally satisfactory. And I got some good practice learning to fly faster than I usually do, which, after all, was my objective for the day.

The speed of my July 27th flight not only exceeded the U.S. single-seat motorglider speed record for a 750 km triangle, but also the speed records for 500 km and 300 km triangles. Accordingly, I submitted record claims for all three triangles based on this flight. On August 5th, I learned that my 500 km and 300 km triangle speed claims would not be considered for the following reason: For triangles of 750 km or longer, the shortest leg is permitted to be as low as 25% of the total length, but for triangles less than 750 km, the shortest leg cannot be less than 28%. The shortest leg of my July 27th triangle was greater than 25% but less than 28%. I thought that since I flew a 750 km triangle and satisfied the 25% rule applicable to that size triangle, I could use my speed for that triangle for the other claims, but I was wrong.

No problem, I thought. If I could fly a 750 km triangle at 171.74 kph, it should be easier to fly a 500 km or 300 km triangle at that speed. I was wrong again. My goal over the next two weeks was to break the speed records for both 500 km and 300 km triangles. This seemed like the perfect way to spend the last two weeks at Ely since the days in August were notably shorter and long tasks were harder to achieve.

So on August 6th, the day after my 500 km and 300 km triangle claims were rejected, I declared a 300 km triangle with the shortest leg exceeding 28%. The day’s conditions were strong for a few hours in the afternoon. I tried the task three times. On the first attempt, I aborted the task after 66 km because conditions weren’t strong enough to support a fast flight. On the second try I completed the task at 168.34 kph. I thought that now that I knew where conditions were best on course I might be able to do it even faster, so I started the task a third time. But by then the day was getting softer and I abandoned this attempt after 49 km. However, the speed on the second try was good enough for a U.S. single-seat motorglider and a North American open class record claim for 300 km triangle speed.3

With the exception of the next flight I’m about to describe, I spent my last two weeks at Ely chasing the 500 km triangle speed record, but didn’t come close to achieving it.

I’d have during the 2016 season to attempt a big triangle again. I had already flown four 750 km triangles that summer, the two fastest of which have been described here. I had failed to complete the one 1,000 km triangle that I had attempted on June 27th, also described above. I decided to try for a 1,000 km triangle one last time.

The weather patterns were quite unusual on this day, with mediocre conditions south and west of Ely, where one almost always has to go for big triangles. Conversely, the area north of the NV-ID border, which we almost never use for long flights from Ely, looked strong, though there was some risk of overdevelopment. Given the forecast, I decided that the best chance of completing a 1,000 km triangle would be by going north-north-east from Ely, transiting the northwest corner of UT into southern ID; flying westward across southern ID to

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3 The SSA record keeper, Rollin Hasness, has approved this record, but I have not been officially notified of its approval by the final arbiter of U.S. records, the NAA. The North American record is still pending at the FAI.
so southeastern OR; and then returning to Ely. If I completed this task, it would involve traversing four states on a triangle flight, something I had never done before.

On the first leg of 321.2 km to a turnpoint just south of Oakley, ID, I averaged 171 kph, with the help of a tailwind component and good cu’s starting about 100 km north of Ely (see Figure 3). The second leg of 290.6 km, to a turnpoint in southeastern OR, was flown at an average speed of 149 kph. The cu’s were good for the first half of this leg, though on the verge of overdeveloping, but then became sparse as I continued westward. I was slowly losing height as I progressed toward my second turnpoint, and I had a long stretch of unlandable terrain to traverse initially on my course from there toward Ely. When I got to my second and last turnpoint I had flown a total of 611.8 km and averaged 159.87 kph. As I noted above in the discussion of my June 27th flight, to beat Bill Gawthrop’s 1,000 km speed record I needed to fly at least 149.12 kph for the task. My final leg back to Ely was 390.2 km and my flight computer said I only had to average 135 kph on this leg to achieve this task speed.

Did I do it? This time I can give an unqualified “yes.” But there was one close call. I left my last turnpoint at 14,947 ft and proceeded southeasterly across a long stretch of unfamiliar and uninviting terrain in northwestern NV. After 33 km on course I was down to 13,389 ft with only a grass runway at Orovada, NV within gliding distance. Although changing direction to Orovada would mean flying nearly perpendicular to my course, I decided that for safety’s sake I had to do this rather than proceed on course. After flying 13 km towards Orovada I was down to 11,558 ft but finally found a cu and climbed in it up to 15,763 ft – “phew!” Now I could swing back on course towards Ely. About 60 km later I started connecting more regularly again with clouds, after which I had an uneventful trip to the finish line. My speed for this leg of the triangle was 142.73 kph, above what I needed.

My overall speed for the day’s task was 152.72 kph, good enough for a U.S. single-seat motorglider and a North American open class record claim for 1,000 km triangle speed. Also good enough, finally, to have beaten Bill Gawthrop’s 2015 record. Bill was one of my early mentors at the Parowan motorglider camps, where I got to observe, and benefit from, his competitive spirit. He won the motorglider competition there so many years in a row that he graciously withdrew from competing so that others could have a chance. He also won the U.S. National open class championship in 2015. I don’t expect my August 14th record to last very long!

As I noted at the outset, I spent 50 of the 77 days I was at Ely during the summer of 2016 on the ground. Five of the 27 days that I got to fly have been described here. Any one of them would have been enough to make my time at Ely feel worthwhile. That I had five such days during the worst Great Basin soaring season in recent memory was a blessing.

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About the author: Mitch has been flying gliders since 1979 except for a nine-year hiatus in the 1990s. He has owned a DG-400, an ASH 26E, an ASH 31Mi, and a Binder EB29 (his current plane). He has 2,750 hr of glider time and 200 hr of powered aircraft time. During the summers of 2013 through 2016, he set twenty-two U.S. National soaring records in the single-seat motorglider class and two North American Continental open class records (with two additional records still pending). When he is on the ground, he is a professor of law and economics at Stanford Law School.

*The statement made in the preceding footnote applies here as well.*