

2014 ALTERNATIVE ENGINE BUYER'S GUIDE!

KITPLANES

YOUR HOMEBUILT AIRCRAFT AUTHORITY



Affordable Adventure



Sonex to Alaska

OLD SCHOOL FLIGHT REVIEW

The Original Homebuilt

WOODEN PROPS

Still Holding Their Own

IN THE SHOP

- To Bead or Not to Bead?
- Brake Pad Replacement

APRIL 2014
www.kitplanes.com

Northward Ho!

Alaska and back in a plansbuilt Sonex.

BY ROBERT E. BARBER





N157SX, aka “Sexy Hexy,” the most fun I have ever had with a small stack of aluminum.

There are few things in life that compare with successfully building and test flying your own homebuilt aircraft. I discovered this after completing my plans-built Sonex. But discovering what is possible with that little homebuilt continues to impress and inspire me. Ever since I completed the project in March 2009, I’ve had a Sonex bucket list: fly to AirVenture, fly to State College, PA to visit my daughter, and fly to Alaska. After four years of flying (around 480 hours), the opportunity came up for me to fly to Alaska to attend a conference in Anchorage. Let the planning begin!

After some thought, I planned a route that took me along the Alaskan highway, starting at Fort St. John, British Columbia. While in Alaska, I planned to fly down to the coast in the south (I had heard what a beautiful place Seward is), and up through Denali National Park, and then somewhere north of the Arctic Circle (I chose Fort Yukon, AK).

I read numerous accounts of similar trips and studied AOPA and FAA advice regarding customs and international flying. I wanted to be as prepared as possible.

Day 1: June 8, 2013

Arriving at my home airport, Coulter Airfield in Bryan, Texas, I found that I had a following of sorts: My boss and three other friends and coworkers showed up to send me off. My boss even

gave me a lime, to which I responded, “Margaritas?” with a bit of doubt about the hour (8:00 a.m.) and the situation (about to fly an airplane). He quipped, “No, it’s to prevent scurvy, should you get stranded somewhere without an adequate source of vitamin C.” He was joking, of course, but this seemed to be the dominant attitude about this trip: Are you crazy? Build your own airplane in your garage, test-fly it, and now you are going to fly it to Alaska?

Yep, I suppose I am. I kissed my doubtful wife goodbye, and I departed for the Great White North.

On the way north, my first adventure occurred in Stanton County, Kansas, where I met Jacob Nix. Nix loaned me his pickup to get some lunch. When I returned, I found my canopy gone—not broken or bent, but gone! A panic of sorts set in, and I frantically looked around for it. I found it about 100 yards downwind in a ditch. It had an 18-inch crack and was badly scratched up from sliding on the concrete ramp. I brought it back and removed the hinge strip that was still on the plane.

How had it happened? When I left for lunch, the winds were light and variable; when I returned, they were around 20 mph, and apparently swirling around the main hangar. I had closed the canopy, but not latched it. After beating myself up appropriately for such a stupid

mistake, I went in and found Nix, and we both went about patching it up.

As it turns out, the rivets simply pulled out of the half-inch square tube aluminum canopy frame—lucky, in a twisted sort of way. We concluded that we could drill out the holes a small amount and apply sheet metal screws to hold the hinge strip and acrylic in place. It worked quite well. With Nix’s help, we repaired the canopy with screws, copious amounts of Gorilla Tape (aka 200 mph duct tape), and stop-drilled numerous cracks. We reattached the cable and reinstalled the canopy, all in about 45 minutes.

Nix would not accept any payment. On top of that, I flew off with his truck key and he still was accommodating. What a guy! He simply said, “Drop it

N157SX: Sexy Hexy

First flight: March 29, 2009

Empty Weight: 670 lbs

Engine: Jabiru 3300

Cruise (high end): 150 mph IAS

Cruise (low end): 100 mph IAS

Stall Speed (clean): 45 mph

Stall (flaps): 40 mph

Fuel burn (low cruise): 3.5 gph

Fuel burn (high cruise): 6.5 gph

Range: 300 miles w/45 min reserve

Range with custom seat tank (6 gallons): 450 miles



Canopy fix. It looks a little ugly, but it's sturdy.



Fort Morgan, CO windsock. Winds were 25 gusting to 35 at 35 to 40 degrees to the runway. Cheyenne reported 35 gusting to 40, so I concluded this was a good choice to stop. The scratched canopy really messes up picture quality.

off on the way back and give me a call from the Arctic Circle if you get that far.” (I’m not sure if he intended to cast doubt.) Anyway, if you find yourself in the area, I highly recommend stopping by for a visit. Nix will loan you his personal vehicle to get lunch (don’t forget to return the key!), and I assure you that you will feel welcome and at home there.

The next leg was from Stanton County to Cheyenne, WY—296 miles—or so I thought. I ran into a 35 mph headwind and some very harsh turbulence. It made for a brutal flight that I decided to end early for two reasons: I was really tired of being beat around, and the fuel situation had become a bit of a safety issue. I landed in Fort Morgan, CO for a total of 220 miles, about 80 miles shy of Cheyenne, the intended next stop.

The winds on the ground were 25 gusting to 35 at around 35 to 40 degrees to the runway when I landed. As you can imagine from the picture of the windsock, the landing was not for the faint of heart—especially in such a light aircraft.

Day 2: June 9, 2013

The next morning, I departed for Cheyenne without incident. The same can be said for the trip to Johnson Co. airport at Buffalo, WY. Again, turbulence and headwinds robbed me of range, so I diverted to Stanford, MT, as it was reported to have mogas across from the hangars. This turned out to be true, but there was a caveat—across from the hangars also meant across a highway and down a bit!

I walked to the nearby Sinclair gas station and was told to “just taxi on over.” This required taxiing down the highway, intersection and all, in town, about 100 yards, and into the gas station. I could think of many legal or bureaucratic reasons why this might be a bad idea, but not one physical reason. So I did it. Sure enough, many heads turned and a Montana Highway Patrolman had to stop when he saw my plane at the gas pump. He thought I had landed on the highway. The lady at the gas station came out and explained that the airport was just across the street, and this was, well, sort of normal. That’s just how they roll in Montana. So, after taking some photos for his own amusement (I did, too), the highway patrolman left, I added five gallons, taxied back across the road, and departed for Great Falls. I was now very aware that my Sonex does not have blinkers and taillights.

Day 3: June 10, 2013

The following morning, I logged on to eAPIS (<https://eapis.cbp.dhs.gov>) and set up my border crossing, deciding to do the final stuff at Sweetgrass, MT, as suggested by a friend.

I departed Great Falls without issue, heading to Sweetgrass 108 miles away. On landing, I found there were 10 or more inches of grass, which for a Sonex is deeper than the wheelpants are tall, and no one was there. I checked the list of people to call and got a series of transfers that went nowhere. So, I loaded up and headed south 32 miles

Trip Essentials

Some things are required, some aren’t, but you may want them anyway:

- **Passport:** Required to go through Canada and back into the U.S.
- **Radio Operator Certificate:** Required by Canadian aviation regs.
- **SPOT Satellite GPS Messenger:** Not required, but makes for a nice security blanket.
- **Crash Kit:** I used Crashkit Alpha from Aircraft Spruce. It’s small, and contains a lot of survival necessities.
- **eAPIS Account:** Required by U.S. Homeland Security.
- **Your favorite tablet with electronic charts:** Not required, but handy.
- **Canadian Charts:**
 - Calgary
 - Edmonton
 - Ft. Nelson
 - Prince George
 - Alaskan Highway

I was told that I needed 12-inch registration numbers, but found that not to be the case if you do not fly into an ADIZ.



The cheapest gas of the entire trip. This is just not normal!

for Shelby, MT, where I modified my border crossing with U.S. Homeland Security and set up a Canadian (Can-Pass) arrival, and waited two hours, as required by Canadian customs. I finally took off for Lethbridge, Alberta as hoped and arrived around 3:30 p.m. I called Canadian Customs, and they cleared me while I was sitting in the plane on the phone. I fueled up (3.5 gallons), filed a flight plan, and took off to Edmonton, AB.

Day 4: June 11, 2013

The next morning, I found the same weather I had left the previous evening: 2000-foot ceilings and cold. And the weather at Slave Lake, AB was IFR to start. Later in the day, around 1:00 p.m., it had improved to VFR, so off I went. This was a short flight of 130 miles, with 2000-foot ceilings the last 30 miles or so. I topped off and

headed VFR direct to Fort St. John, BC, about 240 miles away, with plans to put down for the night. As it turned out, this was a bad choice for a place to stay. The large oil and gas plant there was in the middle of a turnaround, thus every room in town was already rented out for weeks. I pulled out my trusty tent and sleeping bag and went old school. I also discovered that an unimaginable amount of mosquitos were there! Moving double time, I set up the tent in record time, got inside, killed five or six mosquitos that followed me in, and tried to go to sleep. It was hard to go to sleep when full dark no longer came at a reasonable hour, and this kept me awake. I finally got to sleep around midnight, only to be awakened when the sun was full up at 4:00 a.m. I covered my head as best as possible, sleeping off and on for another hour and a half.

Day 5: June 12, 2013

The next morning, I disassembled the tent and packed it up in “outrun the mosquitos” mode, loaded up, and bought 9.4 gallons of fuel. I got an early start and was off to Fort Nelson, BC, 240 miles away, loosely following the highway. Then it was on to Watson Lake, Yukon Territory (235 miles, straight line), as suggested by people who have done this before, and finally into Whitehorse, YT (269 miles along the highway). The trip from Watson Lake to Whitehorse was a beautiful flight, with snow-capped peaks as far as I could see on my left wing. Clear sky and smooth weather made it even more pleasant. I had to stop at Whitehorse, as there were thunderstorms with hail moving into the area. So, I quit early (again) and spent the night, setting up another border crossing (back into the U.S.) for the next morning.

Day 6: June 13, 2013

I got up early, did not even stop for breakfast, and went to the airport. Sexy Hexy was just not going to turn over in 35° F weather. I got a jump and she fired right up. I added an additional 2.5 gallons of gas for safety to my backup tank (should have been 5 gallons) after she warmed up a bit, then took off. It looked like this was a no-brainer, flying at 8500 feet along the Alaskan Highway. Beautiful scenery abounds!

But 125 miles into the leg, I had to drop down to 3500 ft agl to see the highway. I continued to follow the highway

Canadian Rockies off the left wing between Fort Nelson and Whitehorse. I finally feel like I am in the Great White North!



The first half of the trip to Northway, Alaska from Whitehorse. Nice!



The weather getting crappy...

another 35–40 miles, and as I did so, the ceiling got lower and lower.

As I approached the airspace normally dedicated to crop dusters and plows, I concluded it was stupid to keep pushing. On top of that, it had started to rain.

I passed a radio tower that the Canadian equivalent to a sectional states is 350 feet tall. Using this as a scale, I was only about 200 feet above the highway and skimming the cloud base. So, I made a U-turn and headed back to Burwash Airport, YT, called customs to explain, and waited another two hours. Customs at the nearest border crossing had to drive 50 miles to meet me at the Northway (Alaska) Airport, and they didn't particularly care for people not arriving as planned—but they did seem to understand that getting killed by trying not to inconvenience them is unacceptable.

Burwash is little more than a well-maintained gravel strip with a manned weather station. There's no fuel, but there is a restroom, a place to sit, and a phone for contacting Canadian FSS, U.S. customs, etc. I waited two hours, called to set up a flight plan and a meeting with customs, and departed around 2.5 hours after landing.

I pumped the 2.5 gallons of reserve fuel into the main tank, and it was clear there was enough to make Northway safely, but they didn't have fuel. I needed to make it to Tok Junction Airport, AK, 35 miles farther on. I landed at Northway with about 3 gallons left (after wasting about 30 minutes of fuel going back to Burwash). Would I have made it to Tok Junction? Yes. Thirty-five miles is less than 15 minutes, or about 1.5 gallons in Sexy Hexy, even

if I am not trying to conserve fuel. Normal fuel burn at high-speed cruise is between 6 and 6.5 gph, so I should have needed only about 1–1.5 gallons if I took my time. Should I have tried? No. There is a service at Northway that will drive the fuel out to you for a fee. Apparently I am not the first. This service cost a whopping \$150 *plus* the fuel price. But this was definitely a case where such a cost was worth it for peace of mind.

After they arrived with the fuel (only 5 gallons), I took off for Tok Junction, landed after what seemed to be a puddle jump, and filled up for the final leg. After grabbing a bite to eat, I was back in the plane and off for the last leg—to Merrill Field in Anchorage. This leg started off crummy, as I found myself flying again in rain. It turned out to be

Crossing the Border into Canada

To leave the U.S., you must log on to eAPIS and fill out the online form with the details of the flight. Allow at least one hour for departure for U.S. Customs. To enter Canada, you must call 1-888-CanPass, announce your intentions to cross, departure point, destination point (port of entry), etc. Wait two hours, then cross the border, land at the chosen port of entry, and call CanPass again. After entry, proceed as normal. Not too bad, but to the uninitiated, perhaps a bit intimidating.



...and worse! And it continued to get even worse.

100% GENUINE LYCOMING PARTS
NO SURPRISE PRICING
ABSOLUTE ZERO-TIME ENGINE
UNMATCHED QUALITY STANDARDS
LESS DOWNTIME, MORE AIRTIME



No one knows your factory engine better than the factory that built it in the first place. Only Lycoming can rebuild your engine to factory-new specifications that come with a zero-time log book, a two-year factory warranty, and increases to your airplane's value. There is no comparison.

Visit your local distributor or call Lycoming at 1-800-258-3279 and ask how you can save up to \$5,000 on a rebuilt engine*. Learn more at Lycoming.com



*Certain restrictions apply. Exchange engine core requirements will be dependent upon the selected offer. Contact your distributor or visit Lycoming.com for more details. Offer subject to change or end at any time.
© 2013 Avco Corporation. All rights reserved.

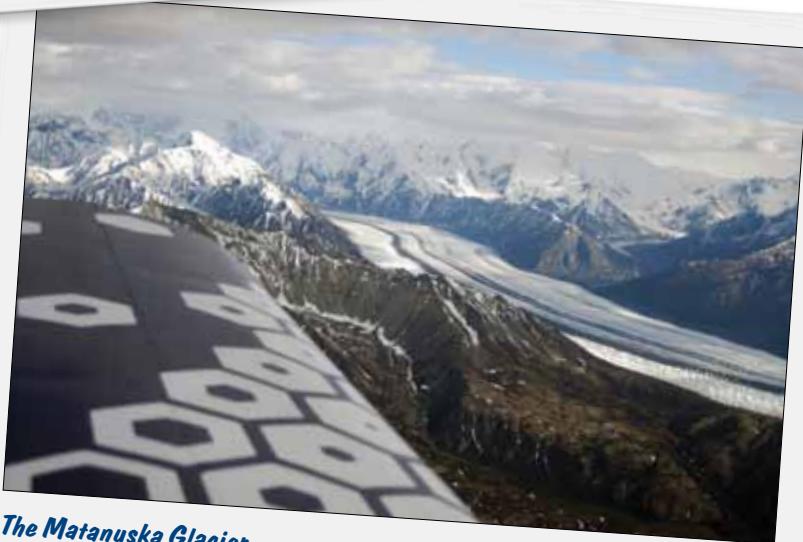
LYCOMING



Mount Sanford. Even at 35 miles, quite impressive.



The Nelchina Glacier.



The Matanuska Glacier.

Flying in Canada

Flying in Canada is similar to flying in the U.S. with a few exceptions:

- Filing a flight plan is mandatory for 25 miles or greater. However, your flight plan is opened and closed by the airport tower (or the guy in the terminal building), pretty much automatically. You can get a flight briefing and file a plan by calling 1-888-CANPASS. It helps if you let them know you are new at this, and they will guide you along (there may be some snickering...).
- All airports have a "mandatory frequency." This is the frequency used when you approach the airport, like you would a towered airport. Be sure to point out that you are a newbie, and they will help with any additional frequencies you should monitor.
- Canadian charts must be purchased. As far as I know, no digital versions exist. They are expensive, compared to the U.S. equivalents. The Alaskan Highway is flown so frequently, there is a special sectional.
- Fuel is much more expensive; I found about \$7.40 per gallon up to \$9.00 U.S. at a time when most airports in the U.S. were charging about \$5.00 per gallon.
- More information was compiled and placed here: www.sarangon.org/aviation/articles/Canada.pdf.

only a short shower, and the rain was behind me in less than five minutes. What came after the rain was absolutely amazing for this Texas boy. I came out into a wide valley with 16,000-foot, snow-capped Mount Sanford off my left wing. There are several glaciers running away from it—a spectacular sight, even from 35 miles away.

I continued onward along Highway 1 towards Anchorage, and found glacier after glacier feeding into the Matanuska River below. As you can see in the pictures, it was a beautiful sight to behold from any platform, but to see it from my plansbuilt Sexy Hexy was simply amazing.

Arriving at Merrill Field, I was directed to transient parking, and I tied down. It all began to sink in. There is an extraordinary aviation heritage in Alaska, and Merrill Field showcases this well. Sexy Hexy was the oddball here. It was smaller, but faster than most of the surrounding aircraft and drew considerable attention.

Afterwards, I got a hotel room and separated myself from Sexy Hexy for a few days in preparation for the conference.

Day 10: Technically a conference day, but... June 17, 2013

On Monday, the 17th, a colleague and I decided to go to Seward and take a day cruise. Obviously, the most efficient way to do this was via Sexy Hexy! Off we went for another spectacular flight, followed by a memorable cruise, and a spectacular return flight.



Sargent Ice Field on the Kenai Peninsula.



More snow-capped peaks on the Kenai en route to Seward.



The Harding Ice Field.



Resurrection Bay.



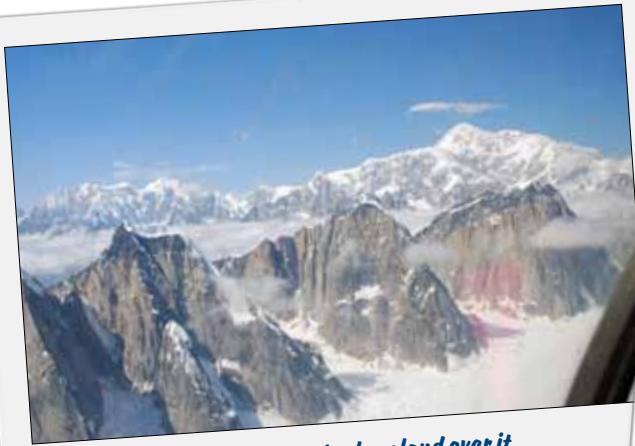
Sexy Hexy at Talkeetna, Alaska.



Bottom of the Ruth Glacier.

Flying up the Ruth Glacier.





Mount McKinley with a lenticular cloud over it.



Moose Tooth Peak, south side.



Mount McKinley with the East Buttress in the foreground and the beginning of Ruth Glacier.



Moose Tooth Peak, from the north side.

Entry into Alaska from Whitehorse along the Alaskan Highway.

Northway airport (PAOR) is the port of entry into the U.S. (Alaska). The interesting part is that the U.S. Customs office is 47 miles away from the airport at the Alaskan Highway crossing. The end result is that you must contact the customs office directly and arrange for them to meet you when you land. Set up your crossing using eAPIS, then call the customs office to meet you at Northway at your purported arrival time. Kind of awkward, but there it is. It's also important to note that no fuel is available at Northway, so be prepared.

The following week was devoted to the conference, with the following Friday devoted to shopping and planning for the planned trip to Fort Yukon via Denali. During the week, I spoke with a few fellow Sonex builders in Alaska.

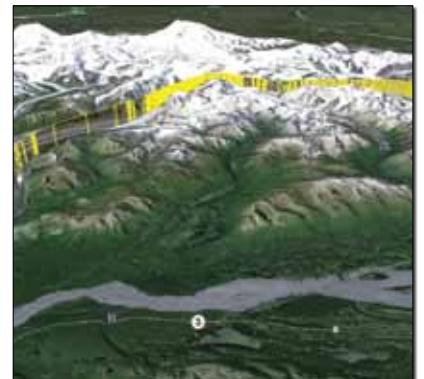
Day 15: Post conference, June 22, 2013

On Saturday, the 22nd, I departed around noon for Talkeetna, AK. This place is a launching point for many expeditions to Mount McKinley and Denali, for both climbing and hunting. I stopped there for fuel and advice about flying in Denali and was glad I did; the folks there were friendly and helpful. After a short briefing and filing a flight plan, off I went.

Soon after departure, I could see Mount McKinley, the East Buttress, and several other peaks in the distance. My plan was to fly up the Ruth Glacier,

turn and fly down the Eldridge Glacier, then follow the highway to Fairbanks. This worked as planned, with stunning results. It was the high point of the trip...literally.

After this, I flew to Fairbanks where I refueled and then took off to Fort Yukon. This was a short flight, taking only about 50 minutes. The trip was



The flight path through Denali.



Yeah, I'm happy!



The Eldridge Glacier. Back down I go...



Tundra near Fort Yukon (swamp, for lack of a better description).



Eight miles north of the Arctic Circle-Cool! In a Sonex!



Fort Yukon, Alaska.



Sexy Hexy at Fairbanks International aircraft camping.

Serene peace from a pilot's perspective.





In good company; the Citabrias on the left all flew from Buffalo, New York.



The east end of the Alaskan Range, on my way to Tok Junction.

uneventful, but it was different in two ways: there are no roads to Fort Yukon, and it is above the Arctic Circle. Other than that, it is not very photogenic. Two-thirds of the terrain on the way there was, well, a swamp. The remaining was small mountains or big hills. Nevertheless, I took a few pictures (the first Sonex to go north of the Arctic Circle—gotta record it), tried to make a few phone calls (there are no cell towers there), then returned to Fairbanks.

Arriving in Fairbanks, I taxied to the aircraft campground (yep, right there on the international airport is an aircraft campground) and set up camp. There were a couple of loaner bikes there, so I headed into town to get a burger. I also got some exercise with my burger—cool!

Day 16: June 23, 2013

The next morning, I packed up and loaded the plane, only to have Sexy Hexy fail to turn over with its usual zeal. I had to get another jump start. With a jump, it fired up with no hesitation. I gassed up

and headed for Tok Junction, my first stop on the way back.

At Tok Junction, I set up my entry back into Canada and departure from Alaska. After waiting two hours, I headed for Whitehorse. I had been carrying five gallons of fuel in my safety tank for the last two days, and I continued to do so, all the way home, since I never needed to use it. The flight to Whitehorse was beautiful when not covered with low clouds.

In Whitehorse, I cleared customs and eventually took off for Watson Lake, despite the Canadian briefer's warnings about thunderstorms. Apparently, what Canadians call thunderstorms, most in the South would simply call a rain shower.

Day 17: June 24, 2013

On the 24th, I continued my efforts to get home with a departure for Fort St. John. This time, I ignored the previous advice to not follow the highway, and I'm very happy I did. This is a beautiful flight, but it does take a path that goes high and through a somewhat narrow (1-2 miles) valley. I made it to Fort St. John and changed course for Grande Prairie, AB to avoid more threats of thunderstorms at Slave Lake, followed by direct (dodging rain showers) to Red Deer, AB. I spent the night there.

I met an AME who offered to give me a ride to the hotel, and he joined me for dinner. One of the things I really



The Elias Mountains from the north side.

Flight Statistics:

Approximate miles flown:	8000 miles
Total flight time:	53.3 hours
Total Hobbs time:	60.8 hours
Flight time to get there:	25.3 hours
Flight time to get back:	23.5 hours
Time flown exploring Alaska:	4.5 hours



Following the highway between Watson Lake and Fort St. John.

enjoyed on this trip was meeting such great people with a passion for flight.

Day 18: June 25, 2013

The following morning, the 25th, I departed for Lethbridge, where I had to set up my border crossing. After waiting the required hour (shorter time for entering the U.S.—perhaps better computers?), I departed for Great Falls, MT. I felt a sense of satisfaction as I crossed back into the U.S.A. I landed in Great Falls with strong winds (25 mph gusting to 30), and with the memory of the catastrophe from Kansas still fresh in my mind, I was ultra careful with

my fractured, beat up canopy. I cleared customs, grabbed a snack, refueled, and departed for Buffalo, WY. The rest of the trip went without incident, and I made it to Stanton County, KS by nightfall. I overnighted there, then headed home in the morning.

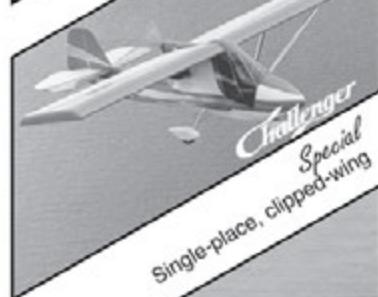
Although I built Sexy Hexy and flew to Alaska and back, I have to give thanks to the folks at Sonex for designing one great flying little airplane, my wife for her support, and my good friend Mike Singleton, who has helped me in so many ways.

What next, the Bahamas? So many choices... †



The path flown—yellow is going to Alaska, red returning home. Approximately 7700 miles.

"THE Challenger TEAM"



**ALL CHALLENGERS QUALIFY FOR
SPORT PILOT LICENSE**
Action-packed video (VHS or DVD) and
Information Package \$10.00

Celebrating 30 years building Challengers!

**QUAD CITY ULTRALIGHT
Aircraft Corp.**

P.O. Box 370, Moline, IL 61266-0370
(309) 764-3515
Fax: (309) 762-3920

www.quadcitychallenger.com