

MONTANA TRIP NOTES

This trip was undertaken as an attempt to fly some of the route taken by the Lewis and Clark expedition during their 1804-06 trip to the Pacific coast. The intent was to fly the upper portion of the Missouri River from Bismarck, ND to its headwaters at Three Forks, Montana; to follow the route of the Clark party from Three Forks down the Gallatin and Yellowstone rivers to Billings, Montana; and to visit Pompey's Pillar about 30 miles east of Billings, on the south side of the Yellowstone River; an important landmark signed by William Clark (whose signature can still be seen on the Pillar) as the Clark party passed by on their way to the junction of the Yellowstone and Missouri rivers, at which point they were to rejoin the Lewis party and complete their journey together. Our return trip was intended to include the Custer Battleground, the Devils Tower, the Black Hills and the Badlands. The upper reaches of the Missouri lie in the mountains, and the trip would involve an introduction to flying in high terrain at what was hoped would be minimal risk. I flew an RV-9A, a two-seat experimental airplane which I built, with Bill Simpson as a co-pilot and fellow adventurer.

First day – Friday, May 29

First leg – From YIP around the bottom of Lake Michigan to Dubuque, Iowa. Landed RY 36 at the Dubuque Regional Airport; exited on second taxiway (admittedly close to the approach end of RY 36, but also close to the FBO I intended to use); the tower controller was angry that I exited there. Apparently I was supposed to taxi to the end of the runway and exit. No info on ATIS, in A/FD, or anywhere on airport regarding this local practice. Lunch at nice small cafeteria in airline terminal a short walk from Dubuque Aviation. Folks at Dubuque Aviation were very accommodating. Recommend asking Approach inbound, “Any preferences on the taxiway to use after landing?”

Second leg – Dubuque to Aberdeen, SD

Very long, hot and bumpy ride. Lots of evidence of very high floodwater; small to huge water ponds in fields. Saw one river completely flooded – only evidence of original water course was tops of trees on presumed original banks wandering through floodwaters. Made a short comfort/rest stop enroute at SW Minnesota Regional (MML); nice FBO, clean bathrooms, pleasant cool lounge. Ahhh!! Bought 10 gals of fuel to thank the folks at MML for their hospitality and we wearily crawled back inside a hot airplane to resume the Flight Across Nowhere. The Northern Great Plains seem to stretch to the end of the world.

Saturday, May 30

Aberdeen – Great Falls, MT

Departed Aberdeen, stopped at Mandan Airport for fuel. Neat little airport; several cropduster airplanes on ramp, good fuel price. I found that I had left my Visa debit/credit card back at the hotel in Aberdeen. Panicked calls to bank to get the card cancelled. It was, thank goodness, open on a Saturday morning. A hugely long leg lay ahead, so we decided to stop again for fuel at Williston. In retrospect, a very smart move. Approaching Williston, saw a two-tone green military C-130 way down low in the weeds over the Missouri River, SE bound. Was asked at the FBO “Did you see the 130?” “Yeah! Wow!

What was that about?" Found out it was a ND ANG machine spraying a chemical to reduce the number of mosquitoes this summer. We were told that in about three more weeks Williston will be the Summertime Mosquito Capital of the World. Note to self – don't come back through here.

Refuel at Williston; lunch at interesting nearby restaurant; full of iron traps, canoes, stuffed animals and birds. Back to airport and off on longest leg of trip with no fuel options once past the Glasgow Airport. Just 250 miles of the Missouri River to the Great Falls Airport – no viable alternates (i.e., with fuel) within 100 miles of GTF. Very few places to land, except for the river. Signs of modern life slowly disappear; no more boats, roads, houses - the river is surrounded by wilderness. Now there is no place to land except for the river itself. We enter the fabled Missouri Breaks. Wow! Bluffs and deep ravines on both sides of the river. The terrain was much more rugged than the sectional chart implied (the first of many instances of this – my first introduction to the differences between the depiction on the sectional and the view out the window in rugged terrain). The scenery was beautiful – and totally hostile in the event of a forced landing. In that event, we ditch in the river.

Stephen Ambrose writes of this area in his book Undaunted Courage "It remains one of the most isolated parts of the United States, a stretch of almost 160 miles from the western end of today's Fort Peck Lake to today's Fort Benton, Montana, that has been designated a Wild and Scenic River by Congress and is the least changed part of the Missouri. The first (eastern) section is called the Missouri River Breaks, the second portion is designated the White Cliffs Area. The river continues to run mostly west-east through the breaks, then flows almost straight south and then southeast through the cliffs – for Lewis that meant traveling west, then northwest, then north, then finally southwest".

The forecast of a north wind shifting to NE wind enroute (which would improve the GS in second half of the flight) did not materialize. The GS started coming down, not up. I become concerned, then restless and nervous, and abandoned the Missouri River at Wolf Creek, just before it began its great half-circle loop to the north. We would miss the area of greatest beauty; the last part of the Breaks and all of the White Cliffs Area. We went straight west to GTF over mostly forbidding terrain; now down to 120KGS and thinking that I was an idiot for not stopping at Glasgow for fuel. Great Falls at 12 o'clock! Big airport ahead! Nope – it's a closed military base – the former Malmstrom AFB. Keep on, finally land at GTF on the far side of town, taxi to Front Range Aviation. Refuel, listening to the fuel splashing on the bottom of each tank. Had 8 gallons of fuel left – enough for another hour of flight. Phew! Had I continued around the great half-circle of the Missouri River I would have had perhaps 4 (or less – I don't want to think about it) gallons of fuel remaining at landing – way too close for comfort.

I was subsequently told that the airspace above the White Cliffs Area is a No Fly zone; however, the sectional chart contains no such notation. I assume that this means that the "advice" contained in FAA AC 91-36C VISUAL FLIGHT RULES (VFR) NEAR NOISE-SENSITIVE AREAS is to be followed to the letter. I recommend that anyone flying this route ask FSS for clarification of the No Fly Zone during your wx brief. I also

strongly recommend getting fuel at Glasgow before launching for GTF. I further recommend that this leg be flown only in good wx with a solid good forecast. Any pop-up fuel problems, wx issues, or runway closures at GTF while enroute could change this leg from demanding to downright dangerous. There are only two runways available at Great Falls – the long (and only) runway at GTF that the airlines use, and the long closed one at Malmstrom AFB. If the runway at GTF is closed for some problem, the only option is the one at Malmstrom. There are no other landing fields (public or private) anywhere in the vicinity of GTF. Anyway, there is room to land at Malmstrom between the big yellow Xes on the runway. I checked as I flew over it.

Sunday, May 31

Great Falls – Billings, MT

We left GTF for Three Forks around 2PM, after a visit to the Great Falls Interpretation Center. Fortunately the day was sunny and cool, with very light winds. Followed the Missouri River into the mountains; passed through the “Gates of the Mountains,” so named by the Expedition. The terrain there was much more forbidding than anticipated. The Missouri River runs through a gorge. Steep cliffs loom above the river; in one area there are close-in steep canyon walls on both sides rising 1-2000 feet above the river. I thought it far too difficult and dangerous (as well as contrary to the advice in the Advisory Circular) to fly just above the river; we crossed over the tighter loops in river rather than flying just above the water. Several tour boats were seen in river. No place to land anywhere except in river. I estimate that winds of 15-20K in the gorge would have made the airplane very difficult to impossible to control.

The sectional chart shows a broad valley, and the terrain was much flatter beyond the Gates, but there were more bluffs and rocky terrain almost the entire rest of the way to Three Forks than anticipated.

Approaching Three Forks, found AWOS and CTAF on the same frequency! I somehow missed that detail during my trip prep. I landed at Three Forks (wind calm) totally confused, as the airport responded with ATIS every time I called. No one there – we were only airplane on ramp, or parked outdoors anywhere on the airport. I cannot understand where everyone is – Bill reminds me it’s Sunday. (Huh? How did it get to be Sunday?) Beautiful, historic, small terminal bldg; found bikes and a tire pump in rack, pumped up tires, made careful note of the of the access code (1+2, 1, 5) on the lock of the perimeter fence gate, and took bikes (squeak, squeak; bikes apparently left in rack all winter, appear to have never ever been oiled) into small town; classic dusty, 1950’s look, empty cattle corrals, grain silos, no traffic. Found ourselves at a golf course on N side of town. Asked young pro shop attendant if we could borrow his car for \$20 and he keeps my drivers license (Bill drives). He agrees after some prodding, we drive the 12 miles to the Headwaters Park – thank goodness for the car; the bike ride would’ve killed me. Look around; take some pix of this historic place, the object of our journey; 1500 miles from home. Return car to its owner at the golf course with grateful thanks, get my drivers license back, then back on the bikes to the airport. Found the access code written in pencil on the outside of the gate lock. Guess I didn’t need to write it down. The wx is

good and the sun is still high in the sky; decide to keep going. Depart in light crosswind, follow the Gallatin River and Interstate 90 east over broad valley. The route takes us over the Bozeman Airport. The tower controller is busy with a conversation with some guy flying around locally named Charlie. I interrupt their conversation to ask for clearance through the Delta Class airspace. He OK's, returns to his conversation with Charlie. (Ya gotta love the West!) I didn't think to look for it, so missed seeing the Gallatin River join the Yellowstone at Livingston, MT, just east of Bozeman. Too busy looking for (and worried about getting through) the Bozeman Pass. A total non-event at our cruising altitude of 7000 MSL. The valley out of the mountains is broad and gently rolling. Totally an easy, smooth ride – sitting right on top of the Interstate and alongside the Yellowstone. Lots of places to land. Far off snow-covered mountains on both sides beyond the valley. Beautiful!! Follow the Yellowstone/Interstate east out of the mountains to the Laurel Airport and land, AWOS giving me a long message every time I called downwind, base, and final. The airport is built into the side of a hill; not a flat spot anywhere. Get out of your airplane and it rolls away. No one there. Must still be Sunday. Got into the Quonset airport terminal bldg and called all (three) local motels in the phone book. No motel willing to pick us up. No one we talked to had ever heard of the Laurel Airport. Briefly considered sleeping overnight on the floor. Decided to fill tanks with the cheapest fuel (SS) of the trip, and launch for Billings, just over the hill.

Land ten minutes later at Billings. "Where do you want to park?" sez Ground. I pull "Corporate Jet" out of my left ear. Get a progressive to their ramp, go inside, find no one there, and find ourselves locked inside. Two more people show up (one in an airplane, his female passenger in the parking lot). While we are figuring how to get the door to the parking lot open for the lady, the pilot walks in. The door closes behind him before we have the sense to react. After extensive conversation ref our options (the pilot recommends Edwards Aviation) and the likelihood of the TSA finding and jailing all of us, we hunt around, find an unlocked door to the ramp in the back of the office, and make our escape from the building. They head for their airplane; we walk across the ramp to ours, trying to look invisible. We get in the airplane, and ask for taxi to Edwards Aviation at the other end of airport. One ramp service person is on duty at Edwards. Hooray! Park, refuel, tie down, take shuttle to motel with pool and hot tub. Sounds great! On arrival, are told that pool and hot tub OTS due to floor upgrade. Wx check – massive bad wx system we have been looking at remains in central U.S. from the Rocky Mountains to the Great Lakes, with no apparent intention of moving on. Still no way to get home via the Black Hills. Went to sleep at the end of a very long and adrenaline-filled day without knowing how that issue would be resolved.

Monday, June 15, 2009

Checked wx . Still bad to the south. Decided to rent a car and visit the Custer Battleground and Pompey's Pillar. Strong north wind and very cold at the Custer Battleground. A great place to visit (my third visit, actually) but I was frozen by the time we left for Pompey's Pillar (also my third trip there) on the Yellowstone River. Found a beautiful Lewis & Clark Interpretive Center there; not there on my previous trips. The Yellowstone had a strong current (estimated by Bill as 8 knots) with tree branches

floating along. Evidently spring runoff. A cold north wind here also. Back to the motel to warm up. Wx throughout the planned route home still looks crummy.

Tuesday, June 16

Billings, MT – Brainerd, MN

Woke up to find it raining. Looked at the wx over breakfast. We are just on the north edge of a massive system of bad weather that is standing still. Decided that we had no chance today (and probably never, as the system was forecast to sit in place for the rest of the week) to get to the Devil's Tower or the Black Hills, and that we should abandon that plan and start for home by heading NE to Miles City, then E to Michigan's U.P., and then south. That entire route was good VFR, and was forecast to remain so. At the airport, the wx was VFR, with 4000 overcast and 8 miles viz in light rain. There was a pink line on the horizon to the north, and Miles City was reporting clear. We departed Billings in the rain; followed the Yellowstone river in rainy but VFR conditions to the NE; got some pix of Pompey's Pillar, and flew through a moderately heavy but brief snow(!) shower enroute to Miles City, where we found ourselves well to the north of the crummy weather, and landed for fuel. Continued in the clear with a strong N wind at altitude to Mandan (again; landed on their shorter grass crosswind runway this time, the only such landing on the trip) for fuel, then to Staples, MN for fuel, then the short trip to Brainerd, MN and RON. The Mandan-Staples leg was flown at 9500 MSL (the highest leg flown on the trip) to get above persistent turbulence. We burred along in the high sunlit silence in completely smooth air at 145 KGS, flying along over surprisingly barren, swampy and sparsely inhabited country. The wind continued out of the north, as it had done for the entire trip.

Wednesday, June 17

Brainerd, MN - Home

We awakened to a clear day, with light sfc winds and a brisk wind out of the north aloft. We had breakfast with an old friend of Bill's in the Brainerd GA terminal restaurant, where we were told that this beautiful airport was the gateway to the Minnesota vacation country and is thick with airplanes large and small during the summer. First leg (mostly over more sparsely inhabited and swampy terrain) to Ironwood, MI for fuel and lunch in town. Second leg to Newberry for fuel (the cheapest in the U.P.) and a great hour of conversation with Jay Hollnagel, the airport mgr. A former career Marine Gunnery Sgt (32 years of service, I think he said), he entertained us with Tales of the North Woods, and invited us to fly up for one of their delicious Friday BBQ dinners. Just let us know when and we'll be up there, Gunny! The last leg was under a clear blue, glassy smooth sky with a N wind to YIP in two hours flat on the panel timer from take-off roll to rolling up to the hangar at home. Was showing around 155+KGS on the GPS the whole way. Finally, a tail wind!

LESSONS LEARNED

At the Three Forks and Laurel Airports (and many others, as I found when I later looked around the area on the sectional chart) the AWOS and CTAF were on the same frequency. A call to those airports on the CTAF frequency prompted a recorded response containing info on winds, runway in use, and other non-AWOS-type info about traffic patterns, avoiding the town, etc. I assumed that it was someone talking to me, and responded to the call, only to get the same recording repeated. Irritation – then confusion. I got the same message three times when I called downwind, base, and final. I was on the ground at Three Rivers before I realized that it was a recording. Good Grief! I can only imagine the pandemonium that would ensue if there were two or three airplanes calling their positions in the pattern at one of these airports.

Avoid the town (which is NW of the airport) when arriving at or departing from Three Forks. If you have a choice, it is recommended to arrive on RY 02 and depart on RY 20. On arrival, the light southeast crosswind favored RY 20. I made left traffic, and a too-close-in base to avoid the town as instructed (wow, is there a difference between TAS and IAS at altitude – not to mention that the crosswind was pushing me along) and wound up overshooting the runway centerline at low altitude, landing long, and using almost the entire length of the 4089 foot runway (blush!). On departure a few hours later the light crosswind had come around to the northwest and favored RY 02, so I reluctantly chose 02, made a right turn to avoid the town on departure (the terrain also appeared lower that way), and found myself in a turn over a large white-colored industrial plant of some kind at 300 feet AGL. I would have been a thousand feet high at that point had I been departing from Ann Arbor. There was only one problem - this wasn't Ann Arbor. Ah well . . . at least the plant parking lot wasn't full of cars, or employees shaking their fists at me.

Entering the mountains at 2-3PM out of GTF was stupid – we were saved by the protection sometimes awarded to fools and mountain flying novices. We had an almost totally windless clear and reasonably cool day for our foray into the mountains. Sheer good luck. We encountered light to occl moderate bumps while inside the mountains, moderate to heavy bumps in the gorge of the Gates of the Mountains (felt like a teeny tiny fly in a vast room of vertical hillsides pressing close to me on all sides). My airplane would not have been able to climb if it had been caught in a strong downdraft while in the canyon.

The Gates of the Mountains is a beautiful ride; the highlight of the trip for me. Stay 1000-1500 feet above the river, and do not try to stick with the river around its many loops (several appeared to me to require maneuvering at a 45-60 degree bank angle with the canyon wall right next to you). Enter the Gorge early in the morning on a clear, cool, windless day if possible. Bring a camera, and someone to use it. You will not be able to fly and take pix by yourself. The gorge begins about 20 miles inside the mountains. If you think you are in the Gates (and begin to think that this is a piece of cake) before you actually get to them, you will be scared silly when you come around the corner and enter them. Ask me how I know.

I had no real problems departing from 4000 MSL airports with a 4000 foot runway, no wind, and a DA of 4000-4500 feet, at gross weight. A longer takeoff roll (about twice), lower rate of climb (about half) than normal. Patience, patience. However, I have no doubt that a 5000+ foot DA on any runway would be the big leagues for my airplane; require serious planning, the right terrain, and a long hard surface runway. I also had no doubt that bumpy air would seriously impede my climb capability. I came up with a formula for my airplane, an RV-9A with a 150 HP Lycoming engine and a FP wooden propeller: MINIMUM length of runways (hard surface, light sfc winds, no elevation/obstacle higher than the runway for 2-3 miles along departure path, @ gross weight) – 3000 feet length at 3000 DA, 4000 feet length at 4000 DA; 6000 feet length at 5000 DA; 8000 feet length at 6000 DA. And I wouldn't even try the last two at gross, or if any condition pertaining to the runway or the departure path is not optimal, or if the DA is one foot higher than the field elevation.

It also became really clear to me that the performance problem doesn't go away after a slow climb from a high DA runway. It is not enough to assume your problem is over with when you leave the runway. It is just beginning. Plan for terrain clearance all the way to cruising altitude. The problems multiply with altitude; for example, your engine may overheat at >6000 MSL at Best Rate of Climb, but may not climb at all up there at the greater airspeed necessary for engine cooling. Also, when down to a 500 ft/minute rate of climb capability, my airplane would not climb at all in bumpy air. Toss in an OAT 10-20° F. over standard for your altitude (which I suspect could be common in the summertime) and you can get yourself into serious trouble just minutes after congratulating yourself for the successful take-off.

Elevation itself is no guarantee that the temps will be pleasantly low. It gets hot in the mountains! The time to visit them early in the year is mid May to mid June. The DAs would defeat my airplane later in the summer. The cards have to be stacked against anyone flying in the mountains in the heat of the summertime or in the crummy weather in the wintertime.

Flying in the mountains in good weather is demanding. In marginal conditions it has to be really dangerous. In poor weather it is insane.

Being in high and hot conditions at gross weight concentrates the mind wonderfully.

Fuel is life. It is also heavy. Find the golden mean.

Pack and carry some emergency stuff in the airplane. I would think water; a portable VHF transceiver, signal mirror, medical kit, sparking tool, and knife/saw for starters. I had a signal mirror and a medical kit in my airplane, and the worse the terrain got, the more I thought that I should have brought a bunch more stuff with me. Those opposing thoughts (emergency stuff also adds weight) occupied my mind constantly when I was over rough, high terrain. I subsequently learned that there are several neat emergency

kits available. Why did I only learn this after the trip? Guess I am a slow learner – and it's not getting any better with age.

Several Interpretive Centers were built along the L/C route for the bicentennial of the 1804-1806 expedition. The two we visited – one in Great Falls, and one at Pompey's Pillar – were absolutely beautiful, looked brand new, had great exhibits and movies to look at, knowledgeable staff to answer questions, and bookstores to browse in. Way cool! I highly recommend making time for them.

The opportunity to travel along a bit of the route of the Lewis and Clark Expedition was grand! If you ever decide to go, begin by reading Stephen Ambrose's book Undaunted Courage, and Along the Trail with Lewis and Clark, by Barbara Fifer and Vicky Soderburg. Or borrow my copies. Or ask me to come along!

Read, study, talk to people who have flown in the environment, and get some training before getting more than just your toe wet in the mountains. I acknowledge with gratitude the great advice offered by Art and Joyce Woods, both born and raised in the West, who both worked for Dow chemical in Midland for many years and are presently retired in Albuquerque, just a few hours away from their parents in their turbocharged Cessna 182.

The flight to the headwaters of the Missouri River was a great starter experience in flying over high terrain for me - a first baby step into the mountains. I believe that it provided very useful lessons at minimum risk. By no means did it make me an expert (or anything remotely close to it) in mountain flying. The experience was rewarding and instructive; it also enlarged my caution quotient considerably. We had the good fortune to fly at the right time of year, were blessed with light winds and cool days for that part of the flight over the highest terrain, had great weather overall, and were never faced with the need to fly over 7000 feet MSL. While I do not doubt that the trip could have produced far more difficult challenges than those we faced, I also think that the route we flew is a great introduction to mountain flying. I recommend it to anyone looking to put a toe into the mountains.

Curiously enough, I came away much more proud of my airplane than myself. I occasionally remind myself that I once had a flight instructor who told me "you are one hell of an average pilot." On this flight this average pilot had three great advantages – he had perfect weather in the mountains, a great copilot, and flew one hell of an outstanding airplane.