Adventures in Flight

By Robert J. Miller

Introduction

The greatest thing a human soul
Ever does in this world
Is to see something
And tell what he saw
In a plain way.

Hundreds of people can talk
For one who can think,
But thousands can think
For one who can see.

To see clearly
Is poetry,
Prophecy,
And religion
All in one.

–John Ruskin

There have been countless books written about the heroic bush pilots who opened up the Alaskan frontier, military flying aces who challenged the Red Baron, and the early airline pilots who paid the ultimate price when creating the nation's air transportation system. Few have been written, however, about average working slugs like me who discovered a way to incorporate his love for flying into his business life.

I had been a road warrior all of my adult life, traveling weekly on commercial airliners to visit clients in various cities throughout the United States. I had been averaging over $20,000 annually in commercial airline tickets. At that rate, it did not take much to convince me to join the corporate jet set and buy and fly my own airplane. This would be far more comfortable than being crunched around crowded airports and rushing to arrive on time for continually delayed flights. The term *corporate jet set*, used here, is a euphemism for anybody who travels in a private airplane, regardless of its size, shape, form of power, or speed.

By joining the corporate jet set, I quickly found myself becoming a part of the major leagues of aviation. Instead of standing in line at airline ticket counters with harried travelers , I soon sat at the controls of my own airplane in conga lines of heavy jets on a taxiway waiting for departure in the busiest airports in the nation. My airplane, however, was not a sleak jet. Rather, it was a single engine, propeller driven light airplane with six seats. And unlike those in the cockpits of jumbo jets and sleek Lears and Gulfstreams, I was not a professional pilot. Instead, I was a businessman with a private pilot license. It is these two differences that makes the adventures in flight I will be sharing with you so interesting.

While pilots, particularly private pilots with fantasies of flying bigger, faster airplanes, will find this book fascinating, so will their wives, parents, children and friends who are curious about aviation. Much of the mystery of aviation will be unlocked. They will discover that aviation is a lot like life, only not so obvious. In life, like aviation, the unexpected is always just around the corner. But when the unexpected happens at 17,000 feet above the ground in a craft not much larger than a pickup truck, there are no second chances. You either perform or you die.

So why would people like me, with a wife and children and lots of business responsibilities, fly these little airplanes? Do we have a subconscious death wish? Are we attention grabbing thrill seekers? Is it some sort of middle age crisis response? Are we wealthy people who do not know what to do with our money?

The answer, for me, was an emphatic "no" on each count. I learned to fly for the same reason I own and operate a copy machine, a fax machine, and a computer. Private airplanes are facilitators for 21st century business people and families. To me, the airplane represents a more enjoyable way to get from point "A" to point "B". . . when I want to go, the way I want to go, less expensively, with greater schedule reliability, and with more peace of mind than by more conventional conveyance. Contrary to popular belief, private airplanes are neither dangerous nor outrageously expensive. They are easy to learn to fly, reliable to own, and, unlike an automobile or boat, they appreciate in value.

But aviation is a lot more than a tool. It is a manifestation of life itself. It represents the next step in man's divinely inspired emergence from the womb, to the cradle, to the floor, to the sidewalk, to the playground, to the highway, and eventually into the sky. Breaking the bonds of earth by one's own control and to fly like a bird is no different than overcoming any other seemingly insurmountable challenge in life. Like all life's challenges, the potential to fly an airplane and make it serve as a tool is in all of us. Aviation, too, gives us insight into why relatively few of us ever achieve to our maximum potential. There are only 700,000 licensed pilots in the United States. This is less than one-half of one percent of the nation's entire population!

My aim with this book is to bring you to a better understanding of the real world practical aspects of aviation. I hope to unlock the mysteries of this new frontier, remove the unnecessary fears, and to demonstrate that once understood, flying, like any other challenge, can be mastered and made to serve us.

For the recreational pilot who flies only in clear weather on weekends in rented airplanes, like I did for nearly ten years, I will demonstrate the merits of instrument flight and the whole world of

opportunity that creates. For the novice instrument pilot, I will expose you to the world of affordable high performance, high altitude single engine piston airplanes. For the fledgling flight instructor eagerly building hours to qualify for that airline job, I will show you that there is more to flying than having four stripes on your shoulder and driving somebody else's airplane. Lastly, I will prove to the airline flying road warriors, those captains of industry who are tired of stale peanuts and oppressive body searches, that general aviation represents one of the most dynamic of all 21st century business tools.

You may never choose to become a pilot, but you will understand why that person in your life is, was, or wants to become a pilot. You will see the connection between man and his flying machine, and how that machine can serve as springboard to a whole new frontier - whatever that frontier happens to be in your life.

Allow me to set the stage a bit further. I am not an aviation writer or professional author, though I have written professionally in an entirely unrelated field for over 30 years. My full time endeavor is that of a grants consultant. This involves a great deal of technical writing designed to persuade organizations and government agencies that have money to give it away in the form of grants. In this capacity, I equate myself and people in my firm to modern day Robin Hoods who steal from the rich and give to the poor. My role in our grants consulting firm, aside from its sole owner and chief executive officer, is to act as its principal rainmaker. That is, I travel about the country generating new business and troubleshooting current client services.

While I like traveling I also like to be at home at night, every night. Raising a child with two employed parents, each working more than 100 miles from home on any given day, requires enormous flexibility. It requires far more flexibility than that afforded by commercial airline schedules. Getting the picture? Let me tell you the rest.

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Chapter 1: A Day in the Life . . .

I guess the essence of life for me is finding something you enjoy doing that gives meaning to life, and then being in a situation where you can do it.

– Issac Asimov

You really needed to be with me on my whirlwind itinerary that began on a cold Sunday afternoon in January. I maneuvered my briefcase and overnight bag into the backseat of my airplane. This task complicated by the fact that each of my arms were still in plaster casts as a result of broken bones suffered in ladder fall several weeks earlier. Still sore, I deemed myself sufficiently fit to fly this day.

I checked the weather on the computer in the flight planning room. Despite the frigid

temperatures, the weather along my planned route from Buffalo, New York to Celina, Ohio did not appear to be particularly challenging. Low stratus clouds covered the eastern end of Lake Erie with a cold front descending southward over Cleveland. The frontal passage could present some difficult weather, particularly if there was precipitation associated with it. The weather forecast was a bit vague in this regard. The forecast weather at my destination on the western side of Ohio would preclude a visual landing. The ceiling was down to about 900 feet with one mile visibility. Then again, weather forecasts are a lot like horoscopes - with numbers. It could be better when I arrived there, or it could be worse. Either way, I planned on making an instrument approach to landing and anticipated the possibility of needing to find a suitable alternate airport if the weather was worse than advertised.

I climbed aboard Centurian Four Seven Two Zero Yankee. Some have suggested I assign a name to my airplane like naming a horse or a boat. I thought about that but, frankly, my airplane is a working machine, more like a van or a truck. Like all pilot/owners, I have special reverence for my airplane, but it is still a tool. My airplane is known by the Federal Aviation Administration (FAA) as N4720Y. The "N" signifies it as a U.S. registered aircraft. The remaining numbers are nothing more than a license plate number. So when the control tower or other air traffic control facility calls my airplane, they refer to it as "November Four Seven Two Zero Yankee." They sometimes refer to it by its aircraft model name prefix, e.g., "Centurian Four Seven Two Zero Yankee. Most of the time, they simply call it "Two Zero Yankee" for short. So that is what I call it. It is still a long name but so is Josephine M. Rose. She is my wife and I love her even more than my airplane - though at times she may disagree.

I taxied to Buffalo's runway two three feeling somewhat frustrated for having to leave on a Sunday rather than on a normal Monday through Friday workday. My next day's business appointment had been scheduled for 7am so rather than getting up at 3am, I elected to leave the day before. Completing the normal pre-flight checks, I gave the tower controller a call on the radio.

Two Zero Yankee: *Tower, Centurian Four Seven Two Zero Yankee, ready for departure, runway two three.*

Buffalo Tower: *Centurian Four Seven Two Zero Yankee, winds two five zero at fifteen. Cleared for takeoff, runway two three.*

I maneuvered onto the center of the runway, pushed the throttle forward, then gave a gentle tug on the control yoke. Two Zero Yankee eagerly lifted off the runway as I quickly scanned the flight and engine monitoring instruments. Everything was running normally.

Three hours later I began preparing for my landing at the Celina, Ohio airport. I dialed in the automatic weather observation service (AWOS) on my number two radio. A machine generated voice linked to weather reporting equipment on the ground at the Celina Airport advised that the cloud ceiling was now down to 300 feet and the visibility was less than one mile. This was below the minimum weather conditions I needed for an instrument approach into the Celina Airport, thus making it necessary to divert to my planned alternate airport in Findlay, Ohio, some 90 miles to the northeast.

As suspected, the reported weather conditions at Findlay had gone below the required minimums for an instrument landing there as well. It appeared that the cold front had picked up a lot of

moisture over the still unfrozen Lake Erie and deposited it in the form of fog and freezing rain over most of eastern Indiana, Ohio and southward into Kentucky. I was still above the clouds at 14,000 feet, thus clear of any weather problems aloft.

Where to go, I wondered? I could motor back to Buffalo, but that would consume nearly all remaining fuel, leaving me short of the necessary fuel reserves. The other option would be to fly 75 miles south to the Dayton, Ohio International Airport. Unlike Celina or Findlay Airports, Dayton International Airport had a precision instrument approach. This approach permits landings with clouds as low as 200 feet above the ground and minimum forward visibility of one-half mile. To make this possible, I had to first find Dayton Airport on my navigation charts, then locate the necessary approach plates that describe the details of this approach. Finally, I had to reprogram the Global Navigation System (GPS) navigation boxes.

Ever wonder why big airplanes have two pilots? That's because one is needed to fly the airplane while the other searches for navigation charts and approach plates. In single pilot operations, there is only one pilot available to do it all. Plus, at night, the lighting inside small private airplanes is typically not very good, so the chart searching requires one hand on the controls, one hand on the charts, and a small flashlight held securely between the teeth. In the midst of getting organized for a possible diversion to Dayton, ATC called.

Cleveland Center: *Two Zero Yankee. Do you have Celina weather?*

Two Zero Yankee: *Affirmative. I'm going to give it a try, but I may have to go Dayton if I can't get in.*

Cleveland Center: *Roger Two Zero Yankee. Descend and maintain 2,500 feet, contact Dayton Approach on one two six point five. So long.*

Two Zero Yankee: *Dayton Approach, Centurian Four Seven Two Zero Yankee, 12,000 descending 4,000.*

Dayton Approach: *Four Seven Two Zero Yankee, weather at Celina is reported to be 300 feet and three-quarter miles visibility. Say intentions.*

Two Zero Yankee: *Ahh . . . Dayton, Two Zero Yankee, I'm going to give it a try.*

Dayton Approach: *Roger, Two Zero Yankee. You are cleared for the GPS 28 approach at Celina. Descend and maintain two thousand five hundred until established on the final approach course. Cancel with me in the air or on the ground. Good luck.*

An experienced pilot spends a lot of time talking with air traffic controllers. They can often tell if a controller is having a good day or a bad day. They can tell if it is the beginning or the end of his shift. I listened carefully to the Dayton controller's voice and choice of words. What did he mean by saying, "Good luck?" Did he know something that I didn't on this cold, snowy night in Ohio?

The reported weather at Celina was the published minimums for the GPS approach. I wondered, should I continue with my planned approach and landing at Celina? First, that is where I wanted to go. Why fly 75 miles out of my way if I could possibly land at my intended airport? Second, automatic weather reporting equipment often lies. Not intentionally, but technology is never as good as what a pilot can see when he or she looks out the window. Third, there would be no real risk in

attempting the approach. If the required visibility was not present when I reached the minimum descent altitude (MDA), the standard procedure is to restore full power and climb back up in accordance with the published missed approach procedure. So, if there is nothing to lose by trying and a whole lot to gain if successful, then by all means try.

What I neglected to consider was the fact that the automatic weather observation system does not report the presence or absence of icing conditions in the clouds on the descent into the airport. The only way to learn about that is to obtain a report from another pilot ahead of you on the approach. In my case, there were no other pilots going into Celina Airport that night. Could this be another omen? Per ATC instructions, I descended to 2,500 feet and began to track the final approach course into the landing runway. The clear night sky I had been flying in quickly changed into a dark, murky mass as I descended into the icy cloud layer below. Glancing at the outside temperature probe, I observed ice building up on the wings and airframe. This happens almost anytime one flies in the clouds with temperatures near or below the freezing point. The only unknown is *how much* ice and *how fast* will it build up?

I had already turned on all of Two Zero Yankee's ice protection equipment. This equipment included inflatable boots on the wings and tail surfaces that, when activated, are designed to break off accumulated ice. They work, in theory, but not always in practice. The icing equipment also includes heating elements on the propeller and on the windshield as well as a super-heated pitot tube and stall warning indicator. When icing intensity increases to moderate or even severe conditions, the anti-icing equipment only buys a few additional minutes to find better weather, otherwise the airplane can become so heavily laden with ice that it can no longer sustain itself in flight.

As expected, the black leading edges of the wings began to frost over as were the edges of the windshield. I waited several minutes for the icing layer to build up to about one-half inch thick on the wings before shedding it by activating the de-icing boots. The original trace to light ice began to border on moderate icing as I lowered the landing gear and added ten degrees of flaps in preparation for landing. The radar dome suspended from the right wing collected about three inches of ice as did the unprotected portions of the wings where they were attached to the fuselage. Electrically heated boots on the propeller blades kept them free of energy-sapping ice. I was confident that I could complete the approach to landing if things didn't get any worse in the next five minutes or so.

Now down to the minimum descent altitude, skimming barely 390 feet above the trees and frozen earth still hidden from sight by the fog, I searched intently for signs of the runway lights less than two miles ahead. Nothing. Just blackness outlined by the three inch accumulation of ice that provided a picture-window effect around the windscreen. I focused my eyes alternatively between the course deviation indicator (CDI) on the horizontal situation indicator (HSI), the pink line on the GPS moving maps, the altimeter, and the airspeed indicator. These critical instruments were all that stood between me and a safe landing below. I periodically interrupted my instrument scan with side glances at the wings to assess ice accumulation and forward looks out the windscreen for signs of the runway somewhere ahead.

Counting down the remaining 55 seconds before reaching an imaginary location just short of the

runway called the missed approach point, I got ready to abort the landing in the event I could not locate any part of the runway or its approach lighting system. Two Zero Yankee was already showing signs of displeasure flying low and slow with a load of ice on its wings. Now with the landing gear hanging out and collecting ice, its workload had become even more intense.

Where was the runway? Nothing. No lights, no runway. I can't make it. I verbalized the well-rehearsed missed approach procedure. Prop control in. Mixture full rich. Full power. Gear up. Get positive climb rate, retract flaps. I never saw the ground yet the moving maps on both GPS boxes confirmed that we passed directly over the airport.

Two Zero Yankee: *Dayton Approach, Two Zero Yankee is on the missed.*

Dayton Approach: *Roger Two Zero Yankee. Turn right to zero five zero degrees, maintain 4,000, radar vectors for the ILS runway one eight zero right approach at Dayton.*

"Oh . . . oh! Where's my climb rate?" Two Zero Yankee was barely getting a 200 foot per minute climb on the missed approach. Given our now light fuel load, this beast should have been climbing upward at 1,600 feet per minute. Something was wrong. I checked the throttle, landing gear, prop control, mixture, prop heat and I cycled the boots. Nothing changed. We struggled upward like a tired mule carrying an overweight pack up the side of a mountain. With the flashlight logged firmly in between my teeth, I quickly scanned the approach plate for the location of menacingly high towers in the vicinity of the airport. Ice on the unprotected areas of the airframe had created enough drag and weight to seriously retard the climb performance of the airplane. Had I been too bold? Should I have broken off this approach at the first sign of ice ten miles before reaching the airport? My mind was racing.

This was no time for hindsight now. I had to focus on the task at hand. My major concern was clearing any obstacles along the published missed approach path. Fortunately, the instrument approach planners anticipated such eventualities and created safe lanes of escape from missed approaches like the one I just experienced. With each passing minute and another 200 feet of life giving altitude, I began to relax a bit. Still enshrouded in freezing fog, I eventually reached 4,000 where ATC gave me turn to the south.

I dialed in the automatic terminal information system (ATIS) recording of current airport conditions at Dayton. The good news was Dayton was within instrument landing minimums - barely. They were reporting 200 foot ceiling and a one-half mile visibility. That was all needed. Technically, if the ceiling lowered by just one more foot or if the visibility dropped below one-half mile, I would be a ship without port. Unlike ships, however, I could not go drop anchor someplace and wait.

The flight computer confirmed that I had less than one hour of fuel remaining. The unforecast headwinds from Buffalo had consumed at least one hour more fuel than I had planned. The moisture laden cold front had produced widespread freezing fog nearly to the ground throughout the Indiana, Ohio, Kentucky, and West Virginia. Weather forecasts equal horoscopes with numbers, remember?

I was beginning to think that it would be Dayton International Airport, with minimums or not. I had to think about landing very soon.

Dayton Approach: *Centurian Four Seven Two Zero Yankee, descend and maintain three*

thousand feet, vectors for the ILS Runway One Eight Right.

Two Zero Yankee: *Understand three thousand, cleared for the one eight right approach, minimal fuel.*

Dayton Approach: *Okay, minimal fuel. We'll get you as soon as we can. Right now, you are number three. We have jet traffic over the numbers and another at the outer marker. Will this work for you?*

Two Zero Yankee: *Roger. That'll be fine, Two Zero Yankee." I cleared my throat hoping that the controller would not detect the rising level of anxiety I was feeling within.*

Informing the controller of my low fuel condition is not tantamount to declaring an emergency. Rather, it simply means that if there is any additional delays, I will have to declare an emergency. In that case, all other inbound traffic would be diverted out of my way to expedite my arrival.

I counted the altitude remaining while gliding down the Dayton ILS. Three hundred feet, two hundred and fifty feet. Nothing. . . down to two hundred feet. Bingo! I caught a glimpse of the runway approach lights. This sighting authorized me to descend another 100 feet, which is precariously close to the trees and buildings below. Suddenly, there it was. The most beautiful sight in the world. It was the sparkling lights of a 9,000 foot long runway situated just below an overhanging layer of fog.

As my wheels kissed the wet pavement below, I offered up a silent thanks both for my safe arrival and for the privilege of looking squarely in the face of another one of life's unexpected challenges and beating it. There are few rushes more invigorating than speeding out the blindness of clouds and fog to a waiting runway a few hundred feet below your nose.

Exhausted but happy to be on the ground, I made way over the Hertz Rental Car counter, picked up a car, and drove 75 miles back to the north. Finding my way to the hotel room was the easiest task of the night. Within minutes, I was fast asleep.

But my trip wasn't over . . . the next night I departed for Rockford, Ill. The enroute and destination weather was worse than I encountered the day before! Rockford ATIS was reporting a 400' ceiling with one mile visibility and ice on the descent through the clouds. That was the good news.

The bad news was the approach in use was a localizer back course to Runway 01. There are only a few remaining localizer back courses remaining in the world. They operate like normal instrument approaches except the flight instruments required for this type of approach provide reverse sensing. This means that the pilot has to mentally reverse the instrument indications in order to remain aligned on the final approach course to landing. Gosh, when was the last time I did one of those, I thought to myself. Surface winds were out of west at 17 knots.

Talk about a direct crosswind landing with almost no forward visibility! This was where I began to fear that my weakened arms, still in casts, might not be able to hold full left aileron deflection required for landing. I planted my foot hard on the right rudder to keep the crosswind from weather vaning the airplane away from its runway heading just as I touched down on the concrete surface below. Wow, that was a real drill in airmanship, I thought to myself. I eagerly taxied up to the general aviation terminal, parked the airplane, and requested ground transportation to the nearest hotel. As in the night

before, I slept very soundly that night.

After a day long series of meetings with our Rockford client, I made my way back to the airport for a late night departure for back east to Johnstown, PA. The weather was still poor as I completed the pre-flight of Two Zero Yankee in anticipation of another long climb through the dark, icy cloud layers above to my planned cruising altitude of 17,000 feet.

My arms were hurting more than usual. I wanted to take a couple of over-the-counter pain killers but, given the impending instrument weather conditions, I decided to forego them knowing that I would need all of my mental faculties to negotiate the next leg of this three day trip.

Two Zero Yankee started right up, as usual, despite the minus nine degree temperature. This is one good airplane, I thought to myself. Had it been a horse, it surely would have balked at making another late night flight into the icy weather ahead. I taxied to the active runway, secured the necessary takeoff clearance and climbed on an ATC assigned heading southeastward. Ground contact was lost almost instantly after liftoff. I set the power, pitch, trim, and autopilot to produce a steady 1,000 feet per minute climb. Seventeen minutes later, I leveled off above the undercast solid cloud layer below. I could see the glow of the lights of the City of Chicago coming up through the clouds below. While free of ice in the climb, the wings and airframe were totally frosted over, casting a mysterious white cast to my cream and blue colored airplane. The outside air temperature at 17,000 feet was reading minus 28 degrees Celsius.

Two hours later, with the help of jetstream winds blowing from the northwest, I entered the airspace surrounding my Johnstown, PA destination. The entire region was still being affected by the slow moving cold front that hindered my arrival into Celina two days earlier. The reported cloud ceiling over the Johnstown Airport was two hundred feet and visibility as one-half mile. It was right at the legal minimums for an instrument controlled approach to landing. Unlike Dayton and Rockford, however, ice covered the active runway.

Sure, why not, I thought. I have experienced everything else over the last couple of days. Why not add in poor to nil braking conditions on the runway? The only thing left would be, say, freezing rain on final approach, a touch of windshear, and perhaps a rough running engine.

Fortunately, none of these later conditions emerged so, all things considered, it was just another typical night of instrument flying. Landing on an icy runway does nothing more than extend the flying aspects of operating an airplane. One simply flies the airplane along the runway rather than taxing on in the usual manner. As in the two nights before, I made my way to the hotel, climbed between the sheets and slept soundly.

The next and final night of this ordeal brought nothing different. I launched into a two hundred foot high ceiling and broke out at 9,000 for my final flight back to Buffalo. Gosh, after all this intense instrument flying, wouldn't a visual flight into Buffalo be nice. No such luck.

I made it down through ice laden clouds and intercepted the localizer for the instrument approach into the Buffalo Niagara International Airport. I broke out at about four hundred feet with

less than one mile visibility. I landed, climbed into my car, arrived home, kissed Jo and Erica, then fell fast asleep.

God, I love this stuff, I thought to myself as I prepared to leave again the following Sunday for a four day itinerary to Richmond, VA, Charleston, SC, then up to DuBois, PA, then down to Rutherford, NC, then home on Thursday night. My only hope was that this more southerly climate would make the flying a bit easier.

So there you have it. These were typical examples of winter time business flying. The elements are harsh. The margin for error is very slight. The game is played for keeps. These were no dress rehearsals. Each served a very important purpose.