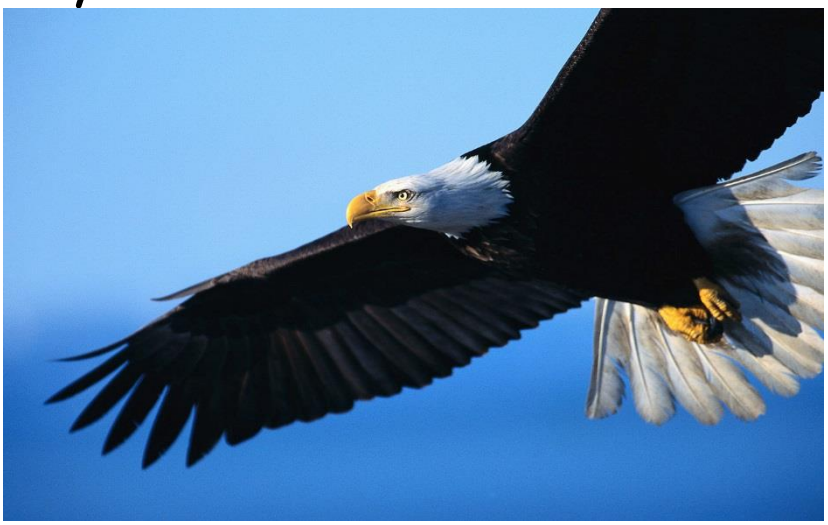
The Personal Limitations Checklist

"Expert Decision Making…Think Like A Pro"
Be the safest pilot you can be by knowing your Flying Limitations.
"A man has to know his limitations"
Dirty Harry



You can't hoot with the owls all night and soar with the eagles the next day.

For the Newly Certificated Pilot
By Louis Mancuso CFI 1613084

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"A little nonsense now and then is relished by the wisest of men." Willie Wonka

I think this is great advice and I try to live my life by Willie's motto, but not when it comes to Flying. Flying is serious business. While soaring above the earth like an Eagle, you and your special passengers will see many wonderful sights. You will explore many new and exciting destinations.

The Eagle symbolizes adventure, strength, wisdom, and respect. When the Eagle has its wings open, the symbolism is the protection of family and friends. Read what I have to say and like the opened winged eagle, let me help protect you and your friends.

This manuscript is directed to the newly certificated Private pilot. Congratulations on earning your pilot certificate. You are now part of a very special fraternity, the one percent of the population that are certificated to pilot an airplane. You worked hard to obtain your certificate and I wish you many years of safe, joyous flying. Please use this PLC to help keep your loved ones safe. This is a collection of stories about aircraft incidents involving general aviation aircraft. Its purpose is to allow you to learn from the mistakes of other pilots and help you to avoid putting yourself into similar situations.

Table of Contents

Safe Flying Tip number one: Runway Incursions

Planes collide on runways and over runways many times each year. When you are within 10 miles of the airport you must demand a sterile cockpit. A sterile cockpit is one in which all conversation is only about other traffic. No chatting, no small talk. The sky is huge and your chances of hitting another plane in the sky are miniscule. Near the airport and at the airport itself, the chances of hitting another plane goes up substantially. Recently, two planes collided over Republic airport on Long Island. A Cessna 152 on a training flight and a twin-engine aircraft entering the pattern. Fortunately, both planes landed safely which is very rare. Recently, at Oshkosh, a P-58 Mustang landed on top of another P-58 during landing. Both pilots died. Flying around the airport requires your constant vigilance. You can deputize your passenger to help you point out other aircraft.

KEEP YOUR HEAD ON A SWIVEL AROUND THE AIRPORT!!!

Listening to the radio transmissions of other pilots in the pattern is a big help to your situational awareness of the location of other aircraft. The FAA has standard pattern entrees and departures, so all pilots know where one another are located. I always enter the pattern 50 feet below the recommended traffic pattern altitude so the planes in the pattern stand out against the blue sky and are much easier to see. Once in the pattern I maintain the recommended traffic pattern altitude.

Proper announcement of your location is helpful to other pilots.

Proper: "Brookhaven Airport, Cessna entering left downwind, runway 33, Brookhaven." Also announce turning base leg, final, and clearing the runway.

This landing Piper Cherokee did not see the Stinson about to take off. Low wing plane landing over high wing taking off = bad visibility. In Cincinnati, Ohio in 2004 a Cessna 152 and Cessna 172 collided on final approach. The 172 made a normal approach. The 152 made a short approach, turning final at 300 feet and very close in. The 152 did not announce turning final and did not listen to the 172 transmissions. The 172 descended onto the 152 and the collision happened. There were serious injuries.

The lessons to be learned are:

1. The traffic pattern is the most likely place you will meet another aircraft.
2. You must keep your head on a swivel in the traffic pattern.
3. You must fly a standard traffic pattern in order to assist other aircraft in knowing your position.
4. You must make proper announcements.
5. You must listen to other transmissions.
6. If you are not 100% sure there is not another aircraft below you while on final approach, a brief slip might help you see other aircraft more easily.
7. Ask your passengers to look for other planes while in proximity of airports.

8. Maintain a sterile cockpit when in the vicinity of all airports. A sterile cockpit means no chatting with your passengers. You need your passengers to know they need to be all business when in the vicinity of airports.
9. Keep your cockpit windows clean to make it easier to spot traffic.

Safe Flying Tip number two: Fuel exhaustion and Fuel starvation

Fuel exhaustion is when you run out of gas. Fuel starvation is when you still have gas, but the engine quits because you did not switch tanks or did not put on the electric fuel pump after the engine driven fuel pump failed. Most small low wing aircraft require that the electrical back up pump be used for takeoff and landings. If you put on the fuel pump for landing in a plane that has a high-pressure pump that is only to be use in the event of engine driven pump failure it can also cause the engine to fail.

The FAA states that for Day-VFR your minimum landing fuel requirement is 30 minutes.

A new pilot should always land with 1:30 minutes fuel remaining for an extra safety cushion. What if you get lost? What if the runway is closed and you must fly to a different airport?

The 30-minute minimum is for a more experienced pilot, who:

- Fly's the same plane all the time.
- Has visually assured the plane is fully topped off.
- Has a diary of x-c flights with precise fuel burns.
- Has an alternate airport within 5 minutes of the destination airport.
- Has a fuel management computer on board and can predict his/her fuel burn within one half gallon on every flight.

A top off is usually not a full top off. A typical top off in a car is one that leaves a few inches left. All the signs in gas stations say do not top off. They do not want fuel spills that contaminate

the ground and the air. Most of us are trained not to completely top off a tank. The aircraft manufactures endurance numbers are based on a tank that is topped off to the brim. There is room for no more than a shot glass full of fuel. It is rare to get this type of top off, especially in the summer when lineman leave room for some heat related fuel expansion. Most tanks have room for a gallon or two more fuel after a top off. Depending on the type of aircraft, a typical top off could result in an endurance number one half hour less than published in the Pilot Operating Handbook for that aircraft.

A NEWLY CERTIFICTED PILOT SHOULD ALWAYS PLAN TO HAVE ONE- AND ONE-HALF HOURS FUEL AT TIME OF PREDICTED LANDING!!!

We had one of our renter pilots land in a farm field after he ran out of gas. He had fuel in one tank but failed to switch to that tank. This is fuel exhaustion verses fuel starvation.

We had an instructor with a student take off with near empty tanks. They requested a top off and thought the tanks were full. They did not visually check the fuel quantity. They safely landed on a highway after flying for only thirty minutes.

When using your take off check list, you should touch the fuel gauges and fuel selector valve with your finger to assure you have enough fuel. The touching helps keep your mind focused and is better than a quick scan.

I was taught C.I.G.A.R. for my take off check list and I still use it when flying small GA planes.

- C-Controls-free and correct
- I-Instruments-Touch each one.

- G-Gas: Touch the fuel gauges-Enough for this flight plus one- and one-half hours reserve. Verify fuel selector valve is on fullest tank.
- A-Attitude Trim Tab
    - Adjust the trim for takeoff setting.
- R-Run Up

VERIFYING ADEQUATE FUEL IS THE MOST IMPORTANT PART OF THIS CHECKLIST.

In 1978 we had one of our Pilots flying a 152's make an off airport landing in North Carolina. There was nothing wrong with the plane. Upon further investigation it was learned that the engine quite after three hours of flying. It still had about 6 gallons of fuel on board. After the flight the FAA found water in the fuel. The engine quit due to fuel starvation, but not fuel exhaustion. It was February and it was an unusually cold winter. The temperature had remained below freezing for weeks. There had been frozen water in the tanks, and it melted upon reaching the warm weather causing the engine to quit.

Lesson to be learned: If it has been below freezing for weeks, you need your plane to be put in a warm hangar prior to safe flight. FUEL STARVATION IS MORE LIKELY THAN FUEL EXHAUSTION.

I recently talked at an FAA safety seminar about Light Sport Aircraft. Part of the presentation was showing the attendees the Rotax engine. After the seminar I pulled the Tecnam Sierra out of the hangar, started the plane and began taxiing to the runway. I got about 100 yards away from the hangar and the engine quit.

The mechanics had shut off the fuel valve while the plane was in the hangar. Some planes will run for much longer after the fuel is shut off. If you make a quick run up, you might even get to 300' AGL before the engine quits.
The following are a couple of NTSB accident reports for pilots who took off with the fuel valve in the OFF position. Before I share the NTSB reports, I will advise you on what you should do so this never happens to you.

1. Touch the fuel valve before starting the engine and verify you have enough fuel for the flight.
2. Touch the fuel valve again during run up to verify you are on the correct tank.
3. Select the fullest tank or both, if both tanks are an option in the plane you fly.
4. Do a thorough run up. At most airports you will taxi far enough and run up long enough that the engine would quit before takeoff if the fuel was turned off.

Here are two NTSB reports where a Cessna 172 had enough fuel in the lines to allow a pilot to takeoff even though the fuel selector was in the off position.

3/21/2004 Creswell, OR. Beautiful VFR weather
Pilot Experience 535TT 135TT in C172s
4 hours in the last 90 days.

After a previous flight the pilot turned his fuel selector to the off position. He had never done this in over twenty years but decided to shut off his fuel for some reason this day. Eight days later he was going flying by himself. The fuel valve happens to be 180 degrees in the opposite direction from both, when in the off

position for a C-172. When the pilot glanced at his fuel selector, it appeared normal. He took off, the engine quit at a few hundred feet above the ground. He did not try to switch tanks. He landed straight ahead in a field. He hit a tree and a fence but was not injured.

6/15/2003 Gridley, IL Good VFR weather
Pilot Experience 302TT all in C172's
Hours not known in last 90 days.
Last BFR in logbook…1997
Pilot took off and the engine quit on climb out.
Pilot did not attempt to switch tanks.

Plane was substantially damaged when it pitched over after an emergency landing. Pilot sustained minor injuries.

If you go the NTSB web site, www.ntsb.gov and type in Fuel Starvation you will find dozens of similar accident reports.

10/27/2005 JOLIET, IL. Good VFR.
Middle age pilot flying a VANS RV-6A

After a long cross-country flight and successful arrival at his designated fuel stop the pilot learned that the pumps were closed for the day. Another pilot offered to drain 5 gallons from his plane for the stranger. The pilot declined saying there was another airport 10 mile up the road. The RV 6A pilot departed, ran out of gas, and was killed in the forced landing.

Some lessons to be learned about fuel management are:

1. Call ahead and verify the FBO will be open during your planned fuel stop.

2. If your engine quits, switch tanks!!!
3. Plan on landing with 1.5 hours fuel onboard.
4. Do not rush your run up.
5. Learn how long your engine will run with the fuel selector in the off position.

Safe Flying Tip number Three: Fog

Living on Long Island, summer Fog is a local weather condition that pilots must deal with on a regular basis. Flying on a Foggy night may have been the reason for JFK Jr.'s fatal accident. A contributing factor was trying to accommodate the schedule of one of his passengers. Let's talk about Fog.

Fog can be accurately predicted and avoided. When the temperature and dew point meet you get Fog every time. When the sun goes down the temperature drops about five degrees. If you check the weather before you fly and compare the temperature and dew point you can avoid fog. You want to have a minimum of five degrees spread between the temperature and dew point. This spread must be ten degrees at sunset, because you know the temperature will drop five degrees when the sun sets. Is there any way you can tell if you are safe from any fog encounter without checking weather?

YES: If you look up to the sky and you see a deep blue color, you will not have fog. If you look up and see a gray misty looking sky, there is a chance you may get fog. It is that simple. As you gain experience as a pilot you will learn that you may take a chance and fly on certain misty looking days if you have an 8-degree temperature dew point spread and a solid gold out.

"A SOLID GOLD OUT"

"A SOLID GOLD OUT" 11

"A SOLID GOLD OUT"

These are powerful words that will keep you and your loves ones safe. Regarding Fog, what would be a solid gold out?

Having enough fuel to fly to an area where the temperature dew point spread was well in excess of ten degrees would be your solid gold out. Fog is usually associated with summertime flying and very common on Long Island. Plan your departures for late morning at which time the sun has caused the spread to widen. Plan your arrivals to be early afternoon before there is any cooling from the setting sun.

If temperature dew point spreads are less than 5 degrees during the day and 8 degrees at sunset, then you should not get very far from an airport. It will be safe to fly in the traffic pattern, but not wise to venture off on a cross country.

Some lessons to be learned about Fog are:

1. Do not leave the pattern if the temperature dew point spread is less than 5 degrees.
2. At sunset you need an 8-degree spread.
3. If there is deep blue sky you will not get fog.
4. When the temperature dew points are very close, you must have a "Solid Gold Out".

Safe Flying Tip number four: Night Flight

It was 1980. John was thirty years of age. He was a private pilot with 300 hours, fifty at night. He rented our Piper Tomahawk twice a month after work. He was very comfortable flying at night as he did most often. It was VFR, ceiling 4000 feet, visibility 5 miles. It was a dark night. The weather was well above VFR minimums and John had flown on many nights in similar weather conditions. He made his flight to a small airport in southern New Hampshire without incident. Upon his return flight home, he crashed shortly after takeoff. He died. Everyone at our FBO knew John and we were all heartbroken. What went wrong? How did this happen?

The NTSB, National Transportation and Safety Board, did a thorough investigation, as they do on all accidents, especially ones with fatalities. They found the engine to be in good running condition. They ruled out carburetor ice. The airframe showed no sign of problem. The autopsy showed no sign of problem with John's physical condition. The accident remained a mystery. I discussed the accident with many experienced pilots. We came to the following conclusion, which I believe to be accurate.

The airport was a small rural airport that was a good distance from any town. The airport was in the hills. Even though the visibility was five miles, there was nothing to see within five miles. It was overcast, so there were no stars visible. There was no moon, so the overcast remained total black.

When John took off, he had no ground reference. He was not instrument rated and probably did not know enough to refer to his artificial horizon on climb out. He attempted VFR flight on a very dark night and probably just loss control of the aircraft

The United States is one of the few counties that permit night flight without an instrument rating. Night flying is serious business. Night flying can be fun and the sights you see can be beautiful. How can a newly certificated pilot fly safely at night? John, like JFK Jr., found himself in a night flight situation where he had no ground reference. He did not have the training to use the instrumentation he had on board to fly the plane safely. They both met an unfortunate death.

Newly certificated pilots can enjoy night flight when the following conditions exist:

- Flight overpopulated, well lighted areas, where there is always a ground reference.
- Flights on clear, moon light nights.
- Flights on clear nights when the sky is full of stars.

The bottom line is night flying in the USA is a privilege. The newly certificated Pilot must have very good meteorological conditions to fly at night. The new pilot must also be more conservative regarding wind speed when landing at night.

I recommend that a newly certificated Pilot set wind limitations about one half his/her daytime limitations. I also recommend you do not fly into an airport at night that you have not flown into during the daytime. You should know where the towers are. You should know where the hills are.

I recommend you only fly into a large multi runway airports with full FBO services available for all of your flights, but especially night flights.

I recommend you fly into airports that have VASI, Visual Attitude Slope Indication. Following the VASI will always assure obstacle clearance. Red on the bottom and white on the top and you are on the correct glide path.

Now let's look at some of the similarities between John's accident and JFK Jr's accident.

Both pilots flew regularly and were confident in their flying abilities. Both were night current. Both were flying on hazy nights, there was no moon, there were no visible stars. At the time of the accidents there were no ground lights in sight. These are conditions that require reference solely to the aircraft's instruments.

VFR RATED PILOTS CANNOT FLY ON HAZY NIGHTS AND DO IT SAFELY!!!

Some lessons to be learned about Night Flight are:

1. Do not leave the pattern if the temperature dew point spread is less than 5 degrees.
2. When the temperature dew points are very close, you must have a "Soled Gold Out".
3. Never lose sight of the ground lights.
4. Do not venture away from land if you cannot see ground lights or stars.
5. On bright moonlight nights you can fly just about anywhere safely.
6. Do not land at airports at night that you have not visited during the day first.
7. Follow the VASI lights for guaranteed obstacle clearance during landing.
8. Daytime flying is safer.
9. You are safer flying on a beautiful night than flying in marginal weather during the daytime.

Safe Flying Tip number five: Thunderstorms

FLYING AROUND THUNDERSTORMS MAY BE THE SCARIEST PART OF ALL FLYING.

Summertime means not only fog, but also thunderstorms. How do you protect yourself and your passengers from the dangers of flying when thunderstorms are predicted?

First, Thunderstorms are predicted on most summer days. If you never try to fly when thunderstorms are predicted, you will miss many great summertime destinations. It is a wonderful time to be a pilot as we now have better thunderstorm predicting and observing information than ever before. To aid you in the prediction of thunderstorms, we have numerous weather sites you can visit for free. We have the weather channel. We have NOAA weather. We have TIVO so you can tape the weather channel and fast forward through the commercials and get right to the radar summary charts showing all the storms, where they are and what direction they are moving.

Garmin makes a handheld, battery operated, GPS that combines with XM radio to give you real time weather. The GPS is only $1800, and the XM basic weather subscription is about $30 per month. You can look at the Garmin 396 screen at home and see if there are any storms in the vicinity. Is it safe to go boating, flying, golf, or have a picnic? What an amazing, life saving device. You can see where the storms are, which way they are moving, and predict when they will be gone.

On many days that Flight Service predicts thunderstorms, there will be no storms at all. Not even one. If you have a solid gold out it is safe to begin a flight when thunderstorms are forecast. Sure, on occasion, you will have to turn back home and scrub the

mission, but numerous days you will make the entire flight without even one drop of rain.

Some lessons about thunderstorms are:

1. Fly early in the day. Be on the ground by noon before the heat of the day has caused the storms to build.
2. Avoid all storms by at least twenty miles.
3. The nastier the storm, the quicker it will move through the area.
4. You can often fly up to the storm. Land; tie down the plane very carefully. Wait for the storm to pass and continue your flight within a few hours.
5. Learn how to use the Garmin 396 GPS and the XM radio weather information to predict and analyze thunderstorms.

Safe Flying Tip number six: Wind

Flying when the wind is strong is dangerous. Like fog and thunderstorms, wind can also be predicted accurately. The isobars on the weather charts show the wind. When the isobars are very close together it will be windy. When strong storms pass though and area, the next day may be bright and clear, but too windy for safe flight.

You must discuss the amount of wind you can fly in safely with your CFI. Write it down on your personal limitation's checklist. If you have been flying a lot recently, you probably can handle a little more wind. For the newly certificated pilot I would suggest flying in no more than 20 knot steady winds. If it is gusty, I would suggest the newly certificated pilot not fly when the peak wind gusts exceed 5 knots. For example: If the forecast winds are 10 knots gusting to 16 knots, I suggest you wait for another day or wait until late in the day when wind will often diminish.

Airports with only one runway should generally be avoided. If you have the perfect weather with a gentle 10 knot breeze right down the runway, then you can certainly enjoy flying into an airport with a single runway. The single strip runways are often only 60 feet wide vs 200 feet wide at larger multiple runway airports. You must also know your limits regarding crosswinds.

I would suggest the newly certificated pilot's limit to be no more than a 10-knot cross wind when attempting to land on a 200-foot-wide runway and only 5 knots if the runway is short and narrow; for example, only 3000' long and only 75' wide.

Here is a simple formula for crosswinds that you may find useful. When the crosswind is 30 degrees off the runway centerline, the crosswind component is exactly one half the wind velocity. For example: The wind is reported 270 degrees at 18

knots. You are planning to land on runway 24. The wind is 30 degrees off the nose. You have a crosswind component of one half 18 knots or 9 knots. If you and your instructor agree that you can safely handle a 10-knot crosswind, then you should be safe to attempt the landing.

Remember, you always need a solid gold out.

If you are having trouble controlling the airplane because of the wind, you must go around and find an airport with a runway in line with the wind. For example; If you were trying to land at Brookhaven Airport (HWV) on runway 24 and you were struggling with an 18-knot wind out of 270 degrees, you could divert to Islip (ISP) where there is a runway 28. A good pilot knows the runway headings at other airports close to her/his destination. If you have numerous options, you can attempt flights in slightly higher winds. If there are few runway options in the area of your destinations, then you must be more conservative in your go-no-go decision-making process.

One last tip for flying in crosswinds: I suggest you limit your flaps to 10 degrees and try to touch down main wheels first at a slightly higher speed than normal. I like 10 degrees of flaps vs no flaps because you have better visibility over the nose. My father, a long-time designated examiner and former World War II instructor recommends adding an extra 5 knots to your approach speed when the winds are gusty. I agree with him.

Some lessons about winds are:

1. Fly early in the day. It is often calm from sunrise until 11 am.
2. Know your limitations and stick to your limits.

Safe Flying Tip number seven: Departure Stalls

I know of two people who have stopped flying because they practiced departure stalls without an instructor on board. In both cases they inadvertently entered a spin. They scared themselves and stopped flying.

My daughter Kari had soloed and was heading to the practice area to do some stalls. She did a departure stall. A lightly loaded Cessna 152 can get very nose high during a departure stall. The Cessna can easily enter a spin as it did on this day. Fortunately, Kari began her stall at 3500' AGL. The 152 entered a spin, she did not know how to recover. She finally let go of the controls and the plane flew itself out of the spin. She was only 500' AGL when the plane recovered. She has not flown by herself since.

My friend Chuck was also practicing departure stalls when he inadvertently entered a spin. He also gave up flying after that incident.

My thoughts regarding departure stalls are:

1. Only practice departure stalls with a CFI on board.
2. Practice flight at minimum controllable airspeed until you are extremely competent in flying the plane at just above the stall speed.
3. Always lower your nose when making turns below 1000' AGL. Lower your nose when turning crosswind, base and final.
4. Get lessons on spin training in a plane that is certified for spins.

Safe Flying Tip number eight: Get Home Itis

We had a salesman bring home a brand-new Cessna from Kansas to Long Island. He had an appointment with a prospective buyer and was excited to get home. The weather was deteriorating, and he decided to continue the flight across the Appalachian Mountains. He struck a tower and the result was a fatality. This was thirty years ago before we had developed the PLC. Maybe if he had a PLC, he would have realized he did not have a SOLID GOLD OUT. I would like to think he would have landed and waited for the weather to improve.

My wife and I flew with another couple to Atlantic City thirty years ago. When it was time to return on Sunday afternoon, the weather was below my personal limitations. I told my friend I did not feel I could make the flight safely. He rented a car to get home because he had to get to work the next day. I felt bad that I could not get him home on time, but I am still flying thirty years later. I made a good choice.

Get Home ITIS can also be Get Their Itis. During JFK Jr.'s decision making process on whether to make the flight to MVY, he had pressure from his passengers to get to MVY. I am sure this influenced his poor decision to fly in weather beyond his capabilities.

My thoughts regarding GET HOME ITIS

1. DO NOT LET YOUR PASSENGERS INFLUENCE YOUR GOOD FLYING DECISIONS OR CAUSE YOU TO VIOLATE YOUR PERSONAL LIMITATIONS.

2. BE PREPARED TO LEAVE THE PLANE AND GET HOME BY ANOTHER MEANS OF TRANSPORTATION BEFORE YOU VIOLATE YOUR PLC.

Safe Flying Tip number nine: Formation Flying-A Flight of Two

An accident that resulted in a stall/spin due to following too close in a flight of two and encountering wake turbulence from the lead aircraft. Our light sport mechanic Richard Maisano was flying to Oshkosh to display a new Bristell at the show. Our sales manager, Captain John Rathmell was in another Bristell and they were flying as a flight of two. The weather was good and the flight of two was cleared to land on runway 36. The wind was from 290 degrees at 17 knots. It was a typical Air Venture with lots of traffic. John and Rich flew from the Ripon check point to Fiske, then followed the road which lead to the turn onto final approach for runway 36. The controller directed them to land on the purple dot. Rich got too close to John and was reducing power as he encountered wake turbulence at about 200 feet AGL. The wind was from the left and blew the wake turbulence into Rich's left wing. The wing stalled and the plane entered a spin. There was not enough altitude to recover and the plane stuck the ground in a near vertical profile.

Rich was fortunate to survive this accident. He did recover. Rich could have avoided this stall/spin in the following ways:

1. Not have agreed to a flight of two when going into such a busy airport as Whitman Field during the Air Venture show.

2. Maintained more space between the two aircraft in the flight of two.
3. Stayed more to the right so when he started to overtake the lead aircraft, he could have simply overtaken the lead plane.
4. Followed a better protocol which would have had the lead aircraft call "about to slow down" and having the following aircraft respond "roger", at which time the lead aircraft would have initiated the power reduction.
5. Following on the upwind side as the crosswind from the left may have blown the wake turbulence into Rich who was following on the right.

Safe Flying Tip number ten: Take off with abrupt pull up-stall/spin

An accident that resulted in a stall/spin at the end of an abrupt pull up. Jake, the pilot held the aircraft close to the ground after lift-off to accumulate a high speed that would allow for an abrupt pull up. The pilot did not round off the pull up while he still maintained enough air speed and inertia. The pilot also made a left turn at the top of the pull up which increase the stall speed due to the bank. He lost control of the plane and entered a spin. He stuck the ground while in a spin. He suffered two broken legs and 11 broken ribs. He was lucky to survive. His rear seat passenger had less severe injuries.

24-year-old Jake could have avoided this stall/spin in the following ways:

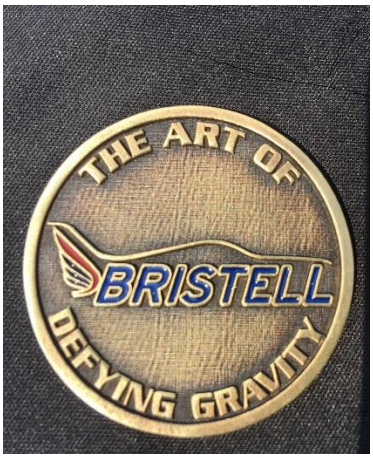
1. Not have done an abrupt pull up after takeoff.
2. Had performed the round out sooner while the plane still had enough flying speed and inertia.
3. Had he kept the ball centered while doing the round out.
4. Had not made a left turn which increased the stall speed.
5. Had not looked back to see the runway which can lead to cross controls which can make the plane more likely to enter a spin.

Safe Flying Tip number 11: "Touch and Go's make poor pilots"

Harold took delivery of his new Bristell in August 2016. He and his CFI received a brief check out in Lancaster, PA and then flew to Carson City, NV. The LSA Transition Course was cut short as weather was approaching and Harold and his CFI wanted to take off and make the long flight while the forecast was good. They had a great adventure flying across the country and arrived safely. Harold flew often and accumulated over 100 hours during the next two months. Sport Flying USA, Inc., the seller of the Bristell offers a complimentary 5-hour LSA Transition Course with the sale of every Bristell. The Bristell LSA Transition Course calls for earning a Bristell Challenge Coin. To earn the coin, the pilot is required to make a landing with a minimum of 6 knot direct crosswind equivalent to the following standard:

He must land within 400 feet of the desired touch down spot, on the main wheels, on the centerline. He must keep the nose wheel off the runway for 300 feet and then initiate a go-around without letting the nose wheel touch the ground. He must not let the nose get too high while accelerating to best rate of climb speed (Vy) of 67 KIAS while remaining in ground affect.

Here is what the coin looks like.



Harold did not take the time to earn a Challenge Coin.

On the day of his accident, he landed just fine, but was a few feet left of the centerline. He touched down with a little too much energy (too fast). He decided to add some right rudder to get the plane back towards the centerline, but over controlled. He quickly found the plane right of the centerline and then added too much left rudder making the plane swerve to the left rapidly. The right gear collapsed, and the right wing contacted the ground.

Harold's poorly executed touch and go, was the cause of this accident. He did not get rid of enough energy before landing and started the go around while much too fast.

My son, Michael Mancuso, a CFI with about 14,000 hours, was formerly #4 wing man for the Northern Lights Aerobatic team and he is the best pilot that I know. To the best of my knowledge, none of his students have ever damaged a plane. He created a learning atmosphere which included no touch n go's if the nose wheel contacted the ground. The pilot was required to get rid of all excess energy before landing or soon after landing with the nose wheel off the ground. If the nose touched, the landing needed to be a full stop landing. This discipline worked well for Mike and I suggest you adopt Mike's landing standard. If the nose wheel meets the runway, then you must make a full stop landing. If Harold had adopted Mike's philosophy, he would not have damaged his beautiful Bristell, which we call "The Rock Star" due to its stunning paint scheme.

Safe Flying Tip Number 12: Static Electricity and how it forms

A pilot decided to make a fuel calibration stick for his plane. He would defuel one tank and then add fuel back one gallon at a time to calibrate his new stick.

He parked his car in front of his hangar. He gathered his five-gallon container, funnel, hose and new fuel stick. He placed the five gallon can under the wing. He put his funnel with a hose connected to it into the can. The funnel was about six inches under the wing drain. He opened the drain and began to de-fuel his tank. He was tidying up his hangar when he noticed a fire had started in the funnel. His fire extinguisher was behind the plane and now behind the fire. His car keys were on his work bench also behind the plane. He got out of the way and watched his plane; his hangar and five adjoining hangars and planes burn to the ground.

Descending rain from clouds creates static electricity that often becomes lightening. Descending fuel dropping into a can also creates static electricity. Descending fuel from the re-fueling hose going into the fuel tank also creates static electricity. You can minimize the amount of static electricity by holding the fuel nozzle against the side of the fuel tank opening vs letting the fuel free flow into the tank without letting the nozzle touch the side of the tank. You can also now appreciate why all FBO's required the grounding static clip be attached to the aircraft during fuel. The static clip helps to dissipate static electricity. Always place a five gallon can on the ground when filling it. If it is in your car it is not grounded, and static electricity can build up and lead to a fire.

Safe Flying Tip Number 13: Frost on the Airplane

A pilot flew a family of 8 in a Pilatus on a ski trip. For one reason or another, the plane was not hangared overnight. As it usually occurs during winter, a cold night will result in frost on the wings and fuselage the nest morning. When the sun comes out, if the temperature gets above freezing, the frost will melt. Well, the forecast was not accurate, it was colder than forecast the next morning and the Pilatus was covered with a light coat of frost. The Pilot had previously taken off with frost on the wing a few times over the years without any adverse effect. This day would be different. The plane was fully loaded and needed all the lift it could produce for a safe departure. The poor decision to take off with frost on the aircraft would prove to be fatal for all 8 occupants. This is another sad story that was totally avoidable. Pilots need to set personal limits and one most definitely is that you should not attempt a takeoff with frost on the airplane.

CONCLUSION

The incidents in this booklet are to help you develop more situational awareness and allow you to have a long, safe flying career. The incidents are usually because pilots exceed their limits or the limits of the airplane they are flying. Flying is very safe if you "fly smart" and follow the rules!

"There are Old Pilots and Bold Pilots, but there are no Old Bold pilots."

Keep your friends and family safe by pledging to adhere to your own set of personal flying limitations.

Take the time to complete a Personal Limitations Checklist (PLC) with your CFI. A sample is attached.

If you would like to talk about flying with limitations or the new Light Sport Aircraft please feel free to call me at 516-658-1847 or visit our web site www.nyjet.com/lsa or www.midislandair.com

Happy and Safe Flying!

Louis Mancuso Jr.

CFI 1613084

The Personal Limitations checklist (PLC) was developed in order to help new pilots increase their situational awareness by reading about other pilot incidents and thereafter fly more safely. The PLC will help you to become a very safe pilot if you and your CFI commit to developing your own customized set of limitations. Once created, you must then make a pledge to continually update your PLC and adhere to the limitations you and your CFI have set. The numbers in parenthesis are suggested for the new pilot. Created by Louis Mancuso 1992

Your limitations will increase & decrease depending on currency, total time and experience.

I PLEDGE TO:

1. **Avoid collisions with other aircraft by:**
   - **Keeping my head on a swivel in the traffic pattern, especially on final approach.**
   - **Maintaining a sterile cockpit when in the vicinity of an airport.**
2. **Have at least _____ (1 ½) hrs of fuel on board at the end of every flight.**
3. **Switch tanks immediately if the engine quits even if there is fuel remaining – there could be tank contamination or a blockage preventing proper fuel flow.**
4. **Apply carburetor heat immediately when the engine does not sound or feel right.**
5. **Never change my flap setting or initiate a slip or mush within 300 feet AGL, unless it is an emergency landing and maintain 60 KIAS +5 -0 until round out.**
6. **Go around if not established in a stabilized approach within 200 feet AGL. (DFGAP)**
7. **Always land within 400 feet of the desired touch down spot (at least 50' past the numbers).**
8. **Always land on the main wheels and on the centerline with no side drift.**
9. **If performing a Touch and GO, the nose wheel should not touch the runway. If the nose wheel touches you need to do a full stop or stop and go.**

Use go-around technique (Throttle, flaps, carburetor heat) and initiate the GO portion early enough to obtain 500' AGL by the end of the runway.

10. **Land at airports with runways that are _____ (3500') paved useable.**

HAVE RESPECT FOR THE SURFACE WINDS and USE LOWER LIMITS IN AN LSA:

- **Fly only when steady surface winds are forecast to remain below _____ (23 kts)**
- **Make a powered approach on gusty days, adding 5 knots to my approach speed.**
- **Use an approach speed of 1.3 x Vso but never less than 55 knots.**
- **On gusty days, fly only when the peak gusts are less than _____ (6kts)**
- **When there is a crosswind, limit me to _____ (12 kts with 30-degree x-wind, 7 kts with 60 degree x-wind and 6 kts with 90 degree x-wind. Use lower limits for narrow 75' runways.**
- **Do GPA (Ground Proximity Awareness) training with a direct crosswind during my BFR. Always slip into the crosswind.**
- **When flying LSAs on calm days, slow to 55 KIAS on short final.**

11. **Use extra caution when the aircraft has just come out of the maintenance shop.**
12. **To fly into large airports with full services, even if it requires a slightly longer drive.**

13. **Always shut the engine when loading and unloading passengers.**

14. **Plan my flights so as not to be landing into the sun.**

15. **Fly only when the temperature-dew point spread is greater than_____ (5) degrees F, _____ (10) degrees F at dusk.**

16. **Use extra caution at night.**

    I will only fly on bright moonlight nights when the visibility exceeds_____ (10) miles and the temperature dew point spread exceeds _____ (12) degrees.

    I will always keep ground lights in sight.

    I will never takeoff on an overcast night towards the open sea or rural farmland.

    I will fly into airports I have recently flown into during the daytime.

    I will always use the VASI to assist my night landings.

    I will only fly into airports with____ (4000') runways that are___ (100') wide.

    I will reduce my wind limits by _____ (5) knots at night.

    I will carry _____ (2) two accessible flashlights.

17. **Avoid thunderstorms by 10 to 30 miles, depending on intensity of storms.**

18. **Practice slow flight regularly and only practice Departure Stalls with a CFI on board.**

19. **Before each flight:**

    - **Be mentally and physically alert.**
    - **Verify that the visibility will exceed _____ (5) miles _____ (4) miles with GPS.**
    - **Assure my flight can be made with a _____ft minimum obstacle clearance entire route.**
    - **Look at satellite weather photos and observe isobar spacing in order to properly determine current and forecast winds.**
    - **Have a good night's sleep whenever I am flying the next day. To limit myself to one social drink the night before a flight and honor the 8 hours from bottle to throttle rule.**

20. **Continually to ask myself: "Should I be here?" "Do I have a solid Gold Out?"**

21. **Limit myself to _____ (2) different makes and model aircraft that I have read the POH from cover to cover.**

22. **I will not attempt over-night flights until I have made _____ (25) one day x-c trips.**

23. **I will never become airborne at a speed of less than 45 knots.**

24. **I will always wear a shirt with at least one pocket.**

25. **I will never to allow my passengers to cause me to violate my PLC.**

26. **I will always ground my plane prior to re-fueling and never de-fuel my plane myself.**

27. **I will never attempt to takeoff with frost on the airplane.**

Signed _____

Date _____ CFI _____ Revised Jan 2021