



The

Safety

Wire

September 2019

DON'T LET THE STUDENT KILL YOU is a common piece of advice given to new flight instructors. It is not particularly helpful, but it is usually the only guidance given to instructors on how to set the limits for training maneuvers. Training accidents remain a top category in public safety aviation accidents.



Several years ago, we addressed training accidents with a special edition of Air Beat magazine and a safety poster. Several tips were offered based on input from a number of experienced instructors. First, we cannot set the limits for a training maneuver unless we establish the educational goal of the maneuver itself. Scenario based training is important not only in helping the

student understand how to apply the skills being practiced, but also in understanding how they are intended to be used in the real world once the training flight is over.

After we have set the parameters for the maneuver, we can set the limits for when we will stop it and start over. This is the 'exit' point we covered in the newsletter last month. Traditionally, the exit point occurs immediately after the CFI determines the aircraft is going to be unrecoverable if they do not intervene. Often, this decision comes too late because it is such an arbitrary marker, or

because we pass the exit so fast there is no time to take it. Even a recent online CFI newsletter I read suggested knowing how to stop a maneuver and take the controls back comes from making mistakes and having close calls with students! There has to be a better way.

Using the parameters set by the educational goals of the maneuver, we can terminate and restart the maneuver when the student exceeds those standards instead of waiting until we are on the brink of disaster. When teaching a normal landing, are we teaching them to establish a stabilized approach with proper wind correction angle and airspeed long before landing, or are we teaching them to correct an erratic approach angle while correcting for improper alignment on short-final while trying to bleed off the extra 10 knots they forgot about? Can we correct a crummy approach and manage to land without damage? Sure we can. But we have to ask ourselves what we are teaching by doing that. We are reinforcing the acceptance of an improperly performed maneuver, and reluctance to go-around and do it right. While we are teaching these poor techniques, we have let the maneuver go beyond the safe and clearly marked exit point towards the foggy cliff of chaos where accident reports are born.



For any maneuver we teach, the first question should address what the application to real world flying is. Then we can determine how that maneuver should be performed. With those parameters set, the instructor and student will know when to stop and start over, and how to exit the maneuver. That exit point will be when we fail to stay within the maneuver standards, instead of waiting for the adrenaline-fueled yelp of, "I HAVE THE CONTROLS!!" from the instructor.

What is the difference between God and a CFI?
God doesn't think he's a CFI

~Unknown

ONLINE MEETINGS

APSA conducts regularly scheduled online meetings for safety officers, maintenance technicians, SAR personnel, and UAS operators via a conference call you can join using your computer, mobile device or phone. Online meetings are open to any APSA member. Contract maintenance providers to APSA members are welcome to participate in the maintenance meeting as well.

The schedule for upcoming APSA online meetings is as follows.

If you would like to join, send an email to: bsmith@publicsafetyaviation.org



Maintenance:

Wednesday, October 9, 2019
12:00 - 1:00 PM EDT (1600 UTC)

UAS:

Wednesday, October 16, 2019
1:00 - 2:00 PM EDT (1700 UTC)

SAR:

Wednesday, October 23, 2019
1:00 – 2:00 PM EDT (1700 UTC)

Safety Officers:

Friday, November 8, 2019
12:00 - 1:00 PM EST (1700 UTC)

“Errors made by skilled experts are not root causes of accidents but symptoms of the flaws and inherent limitations of the overall sociotechnical system in which these experts work”

~James Reason

RESOURCES

FAA Safety Briefing

https://www.faa.gov/news/safety_briefing/2019/media/SepOct2019.pdf

NTSB – Remembering Captain Al Haynes

<https://safetycompass.wordpress.com/2019/08/30/remembering-captain-al-haynes/>

NASA Safety Newsletter – HAZMAT transportation

https://asrs.arc.nasa.gov/docs/cb/cb_476.pdf

EMERGENCY PROCEDURE OF THE MONTH

In each monthly emergency situation, discuss what you would do, as a crew, to respond to the following emergency. If the EP does not apply to your specific aircraft, think of something similar.

Bird strike – bird breaks canopy and enters cockpit, hitting crewmembers

Reality Check...

Note: The following reports are taken directly from the reporting source and edited for length. The grammatical format and writing style of the reporting source has been retained. My comments are added in *red* where appropriate. The goal of publishing these reports is to learn from these tragic events and not to pass judgment on the persons involved.

<https://whdh.com/news/faa-investigating-after-boston-medflight-pilot-falls-asleep-while-transporting-patient-2/>

Aircraft: Bell 206B
Injuries: 2 Minor
NTSB#: LAX04TA248

https://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20040712X00950&key=1

On June 23, 2004, about 1115 Pacific daylight time, a Bell 206B, N305FD, collided with terrain and rolled on its side near Lancaster, California. The Los Angeles City Fire Department was operating the helicopter. Both of the certified flight instructor rated pilots sustained minor injuries; the helicopter sustained substantial damage. The instructional cross-country flight departed Van Nuys Airport, Van Nuys, California, about 1045, destined for the General William J Fox Airfield, Lancaster. Visual meteorological conditions prevailed, and a company

visual flight rules (VFR) flight plan had been filed. In a written statement, the pilot-undergoing-instruction (PUI) stated that prior to the flight, both he and the acting certified flight instructor (CFI) checked the weather, calculated performance limitations, and reviewed preflight information and training goals. Upon reaching Lancaster, they checked the wind direction and speed, and verified it with each other. While practicing a turning (180-degree) autorotation, the PUI established the helicopter on final from 400 feet above ground level (agl). The PUI stated, in a telephone interview, while on final he experienced a momentary decay in rotor rpm, which he attributed to a wind shift. He then made a slight altitude adjustment, as he was a little high. About 70 feet agl, he leveled the helicopter, rolled in throttle, and started his flare. About 50 feet agl, he leveled in the flare because the helicopter "did not feel like it was building energy" and was not as effective in the flare. The rotor rpm was at 100 percent. He noted that there seemed to be not enough engine power to recover. He leveled the aircraft to get out of the flare and raised the collective. The low rotor horn sounded shortly after. The helicopter landed hard, bounced, spun around, hit the ground again, and rolled over on its right side. Damage was incurred to the helicopter's main rotor and drive shaft, tail rotor and drive shaft, skids, transmission mount, and fuselage. Both pilots had their hands on the controls at the time of the accident. An engine teardown was conducted and no mechanical anomalies were discovered. The fuel control and governor bench tested to specifications. The Los Angeles City Fire Department "flare autorotations" procedure states "At approximately 75 feet from the ground, you begin your flare by applying a smooth pressure on the cyclic. Flaring the ship at the right altitude and leveling the ship from a flare require quick but smooth movement of the cyclic. You will lost some altitude coming out of the flare but the ship should be level by the time you reach 10 feet."

The National Transportation Safety Board determines the probable cause(s) of this accident as follows: The pilot's misjudged autorotative flare and the flight instructor's delayed remedial action and inadequate supervision of the flight.

Aircraft: Piper PA-32
Injuries: 3 Serious
NTSB#: IAD99LA029

https://www.ntsb.gov/about/employment/ layouts/ntsb.aviation/brief2.aspx?ev_id=20001205X00171&ntsbno=IAD99LA029&akey=1

A Piper PA-32RT-300 was destroyed after colliding with trees then terrain on takeoff from the Medina Municipal Airport (1G5), Medina, Ohio. The certificated commercial pilot and two passengers were seriously injured. The three occupants were agents with the Bureau of Alcohol, Tobacco, and Firearms (ATF). Instrument meteorological conditions prevailed and a instrument flight rules (IFR) flight plan was filed for the public use cross country flight conducted under 14 CFR Part 91. The flight was destined for Scott Airport (0M1), Parsons, Tennessee.

The purpose of the flight was to fly from Port Columbus International Airport (CMH) to Alexandria, Louisiana (AEX), with intermediate stops in Grosse Isle, Michigan (ONZ), Medina, Ohio (IG5), and Parsons, Tennessee. The agents were

to attend a training course in AEX.

The pilot flew to Medina to pick up a second passenger and refuel. According to the pilot's written statement, he reported:

"Conditions were snow flurries, visibility about 2 miles. I taxied the aircraft to the fuel pump area. I pumped approximately 40 gallons of fuel, which gave me just under full tanks. The conditions at Medina continued to be IFR, with snow flurries. [My other passenger arrived] and [my first passenger] assisted him in arranging the equipment in the aircraft. I had calculated an estimated weight and balance with the fuel, passengers, and gear using thumbnail estimates of the weights of the items, prior experience of the useful load, max gross weight and CG limits of the aircraft. I went inside to pay for fuel, and again contacted the Cleveland Flight Service Station via the telephone and obtained an updated weather information. I filed an IFR flight to Parsons, TN, where we planned to stop for food and fuel. I obtained an IFR clearance with a void time. At approximately 1120, I conducted a pre-flight of the aircraft and we prepared for departure. Light snow had accumulated on the wings of the aircraft. [A passenger] used a broom and swept the snow from the wings. I started the aircraft and taxied to runway 27 where I conducted a run-up. I announced my departure on the UNICOM frequency. The runway was clear with some small patches of snow. I have no recollections of the take-off roll, departure, subsequent crash, or any post crash events. The only recollection I have is that of [a passenger] advising me help was coming. I recall rescue workers carrying me from the crash site to the helicopter."

A flight instructor employed by Flight Services of Medina assisted the pilot on the ground after he landed at IG5 and observed his departure. In a written statement, he said:

"At approximately 1100 hours, Piper Lance N31975 landed at IG5. The pilot requested me to open the airport gate so that luggage and gear could be loaded onto the aircraft. The pilot then fueled his own aircraft with 39.5 gallons of 100 LL and came inside to pay for the fuel. Shortly after he fueled, a heavy snow squall began. The pilot requested a broom to brush off the snow that had begun to accumulate on the aircraft. While the pilot filed an IFR flight plan, one of the passengers brushed off the wings of the aircraft. I did not witness him remove any snow from the horizontal stabilizer of the aircraft. After obtaining a void time, the occupants brushed off the wings a second time and three of them taxied to runway 27. They requested a wind check and were told that the winds were out of the east at 8-10 knots, favoring runway 9. The aircraft then departed runway 27 into heavy snow. I would estimate visibility as 1/4 mile. I watched the aircraft until it disappeared and there was no indication of trouble. Another pilot said that he heard a 'bang' a short time later, so I tuned my hand held receiver to 121.5, but heard no ELT signal."

Another flight instructor, in a written statement said:

"I was up with a student pilot in the traffic pattern when weather conditions deteriorated with snow showers. When we landed and taxied to the hanger, an aircraft landed and taxied to the fuel pumps. I put two aircraft away, one in

hanger, second under 'leanto.' The snow was coming down heavy enough that the second aircraft we put away had a coating of snow. The ramp/ground was snow covered. It was snowing heavy enough that the end of runway 18 wasn't visible from office building. Due to snow, could not see aircraft on climb-out."

An airport employee was working the UNICOM frequency at IG5 at the time of the accident. In a written statement, he said:

"Weather conditions at take-off were wind from ENE 8-10 MPH in snow squall. Runway conditions at most were 1/4 inch wet snow based on observations at fuel pumps. One of the passengers broomed the snow from the wings, but not the horizontal stabilator. Prior to take-off roll, I advised (the pilot) by UNICOM that winds were ENE 8-10 and he acknowledged. The plane then departed runway 27 on an IFR flight plan."

According to Air Traffic Control (ATC) transcripts, at 1101, the pilot called the Cleveland Automated Flight Service Station (AFSS) by telephone and requested an update on current weather. He filed an IFR flight plan, and requested an IFR clearance from Medina, Ohio, to Parsons, Tennessee. At 1112, Cleveland AFSS called Cleveland Approach requesting the IFR flight plan for N31975, departing IG5, runway 27, in about 10 minutes. The flight plan was given with a clearance effective time of 1125, void time of 1130.

Reported weather at Cleveland, Ohio, 21 nautical miles north-northeast of IG5, at 1131, was wind 070 degrees at 11 knots, visibility 1/2 statute mile, snow, fog, ceiling 400 feet broken, 1200 feet overcast, temperature 32 degree Fahrenheit, dewpoint 32 degrees Fahrenheit, altimeter 29.76 inHG, with remarks of rain ending at 1059 and snow beginning at 1059. Also, it was remarked that the pressure was falling rapidly.

The aircraft collided with trees located 1/2 mile off the end of runway 27. An FAA Inspector interviewed a passenger by telephone. According to the Inspector's record of conversation:

"They took off from the Medina airport with heavy snow coming down at the time. He said there was no explosion prior to hitting the trees. He said they were having trouble gaining altitude during lift-off. The passenger said to his knowledge, there was no engine problem. He said they just clipped the top of the trees and crashed."

A witness who lives in the vicinity of the accident site, heard a noise coming from the airport area and recognized it was a plane in trouble. In a written statement, he said:

"I think I first heard an explosion and then trees breaking and then loud noise. I called 911 and then ran to the location about 1/4 to 1/2 miles from my house. The three men were on the opposite side of the plane from me and I made my way around the fire and dragged the men out of the line of fire and behind a couple of large trees."

FAA Inspectors, and a representative from the airframe and engine manufacturer

examined the aircraft on site. According to the airframe representative, the initial impact point (IIP) was the top of a 60 foot tall tree. The airplane continued on a 260 degrees magnetic heading for approximately 218 feet, striking numerous branches and main trunks prior to ground impact. Several pieces of diagonally cut wood were found along the wreckage path.

The left wing, inboard left main fuel tank, horizontal stabilator, and rudder separated from the airplane. The main cabin came to rest in an upright position with the right wing root lodged against the base of a tree. The instrument panel along with the entire cabin area was consumed in the post crash fire.

The flap selector handle was damaged by impact and post impact fire. It was found in the flaps retracted position. The flap torque tube was found in the flaps fully extended position. The right landing gear was found down and locked and the left main landing gear was found in a down and partially locked position. The flight control cables were found fractured and appeared consistent with tensile overloading.

According to the engine representative, the propeller was broken from the crank shaft. One blade was bent aft, twisted, and missing 6 inches of the tip, which was found near the main wreckage. The other blade was bent aft at midpoint and then twisted forward. The rocker boxes were removed. The crank shaft was rotated, and there was valve action, compression on all six cylinders, and continuity through the accessory section. The ignition harness and dual magneto was destroyed by fire. The top spark plugs were removed with deposits consistent with normal engine operation.

A fuel sample from the fuel pumps at IG5 was tested and found to be within manufacturer's specifications.

The vacuum pump was disassembled and the vanes and rotor were intact. No pre-impact deficiencies were noted with the engine or airframe.

There are no new ways to crash an aircraft...

...but there are new ways to keep them from crashing.

Safe hunting,

Bryan 'MaGu' Smith

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