



## Seven years in the life of a TSB investigator Part 2

As an accident investigator, you often get to play Sherlock Holmes with a smoking hole in the ground. Great job, but the following story tells how a dying aircraft provided me with the answer that I never would have found without her help and how a fatal accident caused me to start to think proactively.

### #4 The DC3 that told us WHY

I love the DC3 and have many hours flying in their noisy interior at low altitude in order to keep breathing. Our favourite trick in my New Guinea days was to slowly have everyone move to the back of the aircraft one at a time. The unsuspecting pilots would trim for this ever increasing aft C of G. Once we had everyone in the back, we would all run forward and sit in our seats. The airplane would take a sudden negative G nose dive as the pilots grabbed for the control column and items now floating about the cockpit. In a multi-G pull they'd bring us back to altitude. The cockpit door would fly open and a pilot would yell above the engine noise: "You (expletive of your choice but usually started with a B) sit down or I'll give you a ride that you'll never forget!" Great fun that, sadly, you can never have today.

The accident DC3 was getting "long in the tooth" having flown in the war as a C-47 and had accumulated nearly 50,000 hours in the air. If it could talk I'm sure it would have had many great stories to tell. This last one illustrates just what a lady she was to the end.

The aircraft was flying 1000 US gallons of diesel fuel in a bladder in the cabin to a 5000 ft, uphill gravel airstrip. She had a useful load of about 7000 lbs and the fuel weighed 7200 lbs plus the weight of the bladder. Thus, she was at gross plus perhaps a little over. No problem with two Pratt and Whitney 1830s working hard. The flight was a short one of just over 30 minutes and there were no mountains or even hills to climb if you followed the river to the strip. It was a routine flight until the right engine suddenly lost power and huge flames could be



seen coming out of the cowls. The engine was shut down but the fire continued to burn and the aircraft was heading down even with max power on the remaining engine. It now became a contest of altitude versus distance to the gravel strip versus the fire burning over the right wing. She made the strip with inches to spare and the two pilots were quick to exit the plane out the small side door up front. With no fire equipment available at the strip, all they could do was watch her burn. After about 10 minutes she began to roll back down the sloped strip and turned to park herself off of the strip on the left side. There she slowly burned to a pile of melted aluminum over the next two hours. The pictures were taken at about 10 minute intervals. Fortunately she had rolled off the strip or it would have been closed to all but helicopters with a burned up DC3 about 1000 feet up the strip.

On landing in a KingAir I talked to the pilots and then to witnesses, one who said that he had taken pictures of the aircraft as it burned. I seized the roll of film with a receipt that he would receive it back developed. Then one witness told me that he had removed some “junk” off the runway so airplanes could land. When we found the junk, I realized that I had the **why** answer. It was a steel 90

degree elbow with a cracked aluminum pipe thread reducer bushing on it. A piece of burnt flexible fuel line was on the other end. The fuel pump was burnt up with the non metal parts of the engine, but the old girl had given me the evidence to prove why the fire started.

They had recently changed the fuel pump and had over-tightened the elbow to get it to line up. Maintenance had doomed the old girl to a fiery end.

**The moral** is to always use steel bushings with steel elbows and Permatex Aviation Form-a-Gasket if the fitting doesn't feel quite tight enough before over-tightening a complete turn of pipe thread. You never ever want to be responsible for “murdering” an aircraft.

#### **#5 The External Motivator**

In any accident, especially a fatal one, I always did my very best to find out why, but on this accident I was given an extra reason to write something beside pilot error as the cause.



The accident pilot was a young pilot with about 3,500 hours of flying mainly float aircraft in often marginal weather. He was considered a Safe pilot who had learned to set weather limits within his capabilities.

He had given his resignation and was moving on, but was asked to stay a further two weeks to help the new pilot settle in. He agreed and on his last day he had to fly a group of surveyors to a coastal location and pick them up in the afternoon. It was a typical late fall day with rain showers and low ceilings for the 20 minute flight. He flew them over in the Beaver and went to pick them up in a Cessna 185. There was an island to be crossed that had a low valley on route. Witnesses heard and saw him flying low and slow through the wide valley and heard the aircraft go to full power just before impacting the tall trees on a small hill in the valley.

The accident was not survivable as the aircraft struck the tops of tall trees and rained down pieces 150 ft to the ground.

Why would an experienced pilot in VFR

conditions (granted marginal) hit a small hill with power available in a lightly loaded aircraft?

Just prior to leaving the office I received a call from a grieving father who had just learned that his only son had been killed in the accident I was about to investigate. He held a high position in the government and bluntly put it this way: *“I know that my son was a good pilot and if you say it was pilot error, if it takes me the rest of my life, I will have your job.”* I did find out from him that his son was planning on being married the following week to an American girl in the US and they were planning to start a small charter/flying/training business in the US. It looked like we could rule out suicide as his dream was coming true.

The wreckage was scattered at the base of the large trees and was a major challenge to remove.

Part of the investigation involved going to the room he rented, accompanied by a police officer, where I found his baggage neatly sitting on his bed.

While searching through this baggage I found the answer to the **why**. In with the love letters was a letter from the US department of Immigration that informed him that he was inadmissible to enter the USA because he had been convicted of a criminal offence (in the US) – namely possession of marijuana. It appears that as a teenager he had been caught smoking the “wacky weed” and been fined for the offence.



Examination of the wreckage could find no fault in the controls or engine. At the time of impact the flaps were determined to be set at 15 degrees and full throttle had been applied only just prior to impact.

Reconstructing the flight, it was determined that the aircraft was flying at a low speed in a nose down attitude. The pilot would have been looking at the trees possibly through a partly fogged up windshield as the aircraft had flown just prior to this flight and it seems that it could take awhile for the condensation inside the windshield to clear.

But what was he thinking at that time? If you go back to the March issue of this year you will read that under high stress, your mind can be more on the stressor than the job at hand. Thus, he was likely thinking of what he was going to tell his fiancée who was making final preparations for the wedding that was not going to be. As he had flown that same route hundreds of times before, he also had likely become complacent (Issue April 2016) and lost the awareness of the dangers. Likely he had not slept well the night before, but that cannot be measured. (Issues Oct/Nov 2015 and Jan/Feb 2017) Back then the “Dirty Dozen” had not been “invented” yet and all this was removed from the official report as: “I didn’t know what he was thinking just prior to his death”, so it was pilot error.

However I had a long unofficial conversation with his father as well as with his girlfriend and they came to understand how this could have happened.

**The Moral.** I tell this story because it is one that should not have happened, but it does illustrate how, what was to become, the Dirty Dozen contributing factors to human error can lead to death. His death and perhaps his father’s phone call were part of the reason why I began to think of leaving the TSB to attempt to advance aviation Safety by becoming proactive instead of reactive. If he had been trained in human factors, would he be alive today? We will never know. I hope that you find these stories of value and if so, please tell Joe and Greg, as it’s their ink and space that makes this possible.