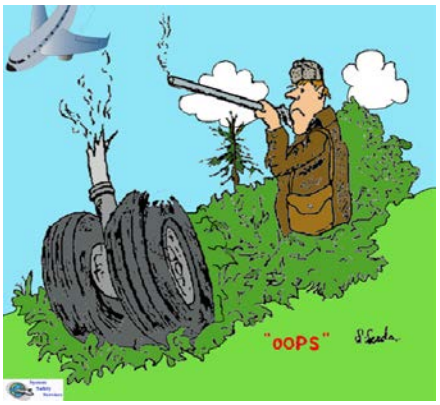

Seven Years in the Life of a TSB Investigator Part 4

One question that was sometimes asked of me was: "*What do you do between accidents?*" Perhaps it was an off-day or I was tired of being politically correct, as I responded with: *"I just sit in my cubicle with my feet on my desk and wait for some pore, misguided pilot to kill himself. I produce a report detailing the how and why and two years later, when no one gives a damn, they publish it.*" It really wasn't that bad, but close at times.

#8 Political correctness can kill

The fatal aircraft was a Cessna L19 Bird Dog owned by the Canadian Air Cadet League. This tandem seated tail dragger was ideal for glider towing because it was inexpensive (free surplus from the Royal Canadian Air Force where it had served as an observation aircraft). The design was derived from the 4 seat Cessna 170, but with a bigger engine (Continental O-470 developing 213 hp), a rear (omni) window, slanted outward side windows and a joystick for control. It was used to tow tandem two-seat Schweitzer 2-33A gliders in a training program for select air cadets to obtain their glider pilot license. This very popular and sought after summer program was available to a select few in each region from the 25,000 air cadets. The air cadets comprised about 30% female at the time.

The accident occurred just after takeoff when a new trainee with her instructor pulled rapidly back on the joystick, causing the glider to rapidly climb above the tow plane.

Before anyone could react, the L-19 was diving for the ground as the instructor released the glider from the doomed tow plane. With insufficient altitude to recover, the L-19 impacted the ground in a near vertical attitude and burned. The glider landed without incident. The young glider student was devastated by what she had done and could not explain how this could have happened. On interviewing the other cadets, several mentioned that she had been chosen because there was an unofficial unwritten rule that 30% of the candidates

must be female. Thus, she had been selected even though many felt she was not qualified. That could not be proven in spite of the outcome that had occurred. It took 2 years, 4 months and 14 days for the report to be accepted by the board and I think you know what was not in it.

The Moral. Political correctness can keep you out of trouble or get you into trouble. Be assertive (Issue April 2015) and stand your ground if you believe that it compromises Safety.

#9 But it works at home

The Piper Navajo was flown by a VFR single pilot who flew loggers into camps on shift rotation. One location had a long runway paralleling a river in a narrow valley between two mountains. It was a definite one way in and one way out. The regulatory body approved the flights into this airstrip under the condition that a person at the airstrip communicated weather conditions to the pilot before he entered the valley. There was no turning back or going around once you entered the valley.

The pilot brought in the loggers who were beginning their rotation, loaded the lucky crew going out, turned around and headed down the airstrip in order to exit the valley. All was normal until, as the landing gear was coming up, the number one engine lost power as the turbo boost went from 42" of manifold pressure (MAP) down to 28". The aircraft swung toward the left valley wall, but a quick application of right rudder straightened the aircraft. He quickly applied rudder trim and tried to determine what was happening. Suddenly, the number one engine jumped up from 28" MAP not to 42", but to more like 52", swinging them towards the right valley wall. His left foot pushed the rudder petal to its limit, but they were still facing the wall. As he told me, he had no idea what was going on, but all he knew was they were about to die if this kept up. He pulled the power off of both engines and landed in the river. One logger failed to exit the sinking aircraft.

The culprit was found in the turbocharger waste gate and its controller. The waste gate actuator has a fail Safe spring in it so that in the event of loss of oil pressure, the spring will push the waste gate open causing the engine to become normally aspirated. Controlling oil enters the waste gate actuator through an orifice that Teflon tape had blocked momentarily. A piece of Teflon tape was in the actuator and pieces of Teflon tape were found on the controller. A plumbing fitting had been replaced that had originally been installed with Teflon tape on the pipe threads. The replacement fitting did not have Teflon tape applied, but pieces from the previous fitting remained in the actuator threads and entered the actuator when the replacement fitting pushed them in.

The Moral is to never use Teflon tape on an aircraft component, and if you remove a fitting that has the tape on it, use a pick to clean out the threads. For the pilots among us, simply pulling the power off on the overpowering engine would have enabled directional control. The MAP would have quickly come back to normal, at least until another piece of the tape blocked the orifice to the waste gate.

#10 Now this is pilot error

The fatal accident aircraft was a Canadian designed ultralite called a Lazair. It was a twin engine aircraft that had an empty weight of only 210 lbs, yet, could lift 450 lbs using two 6.5 hp. 2 stroke chain saw motors.

The pilot was described by his girlfriend as a “free spirit” who would try anything. He had bought one of the 2,000 kits sold and self taught himself to fly. He was going to experiment with bigger engines and possibly even a 3rd engine. There were some indications that he was a bit of a rogue that somehow exempted him from having to follow all the rules.

The Lazair had a very extended glide on one engine and a glide ratio of 12 to 1 with no engines.So, why was he observed in a near vertical descent to crash and burn just behind a

barn in the country with fields suitable for landing everywhere? The wreckage was brought back to our workshop and examined for control continuity and missing parts. What wasn't destroyed by fire was complete. The left engine was not developing power at impact as evidenced by the propeller. Also, the seat belt was undone at impact. The lead to the left engine spark plug was detached and had burn marks from the cylinder head fins on it. These could only occur with the lead detached from the sparkplug. It is believed that the lead, vibrating in the slipstream, became detached in flight. Looking at the actual picture of the pilot starting the second engine with a pull start, you can see that he would have had to undue his seat belt and stand up in order to reattach the spark plug lead. In doing so he advanced the Center of Gravity forward and the aircraft nosed down. This likely caused him to fall forward more and the aircraft descended near vertical until impact with the ground. What made him decide to attempt reattaching the wire in flight when he could easily have made the airstrip on one engine or chose from many fields to make an emergency landing?

The Moral is to always take that minute for Safety and think of all the possible outcomes for what you are about to do. If you are a rogue who just follows the rules that suit you, remember that most rules are developed to act as Safety nets and help protect you from harm. All too often they are written in blood. Sooner or later, you will very likely provide more blood to the rule not followed.

The final two accidents will involve helicopters with a maintenance cause and a maintenance contribution.