

May Meeting

Fifth Annual CAHS Toronto Chapter Dinner Meeting
May 5, 2013

Topic: "Gliding Excellence – The Gimli Glider Story"
Speaker: Captain Robert Pearson (Ret'd) Air Canada
Reporter: Gord McNulty

A fascinating presentation and an ideal setting ensured the success of the Toronto Chapter's fifth annual dinner meeting, at the Armour Heights Officers Mess at the Canadian Forces College. Forty-six people, including members and guests, enjoyed an excellent dinner of roast beef, chicken or vegetarian lasagna. A well-decorated and delicious "CAHS 50th Anniversary" cake provided by Chapter President, George Topple, was enjoyed by all during the serving of dessert.



CAHS 50th Anniversary cake
Photo Credit - Neil McGavock

Master of Ceremonies Howard Malone, a former President of the Toronto Chapter, welcomed everyone. He pointed out

the display of several models and photographs of aircraft that Capt. Pearson had flown, that were graciously provided by Chapter member, Roger Slauenwhite, a former Air Canada employee. The model display certainly helped set the tone for the evening. Howard then introduced Capt. Pearson, a native of Montreal whose first ride in an airplane, a de Havilland Beaver float plane, occurred in 1952. At the time, he was a teenager spending the summer working in the northern bush of Quebec. He worked in Labrador

to earn enough money to get his private pilot's licence and start on his commercial. Capt. Pearson did his initial training on Cessna 120s and 140s with Laurentide Aviation in Cartierville Airport.

By May, 1957, Capt. Pearson had his commercial licence and an additional 50 hours solo time. That was the minimum required by Trans-Canada Air Lines for its entrance requirements at that time. By July, Capt. Pearson was into the Link Trainer, followed by first officer's training on the Douglas DC-3. He progressed steadily to the Vickers Viscount, Douglas DC-8 and DC-9. In 1967, he was promoted to captain on the Viscount. Subsequently, over his 28 years of commercial flying, he flew as captain on the DC-9, the Boeing 727, the Boeing 767, the Boeing 747-100 and -200, and finally, the piece de resistance – the Boeing 747-400. Howard noted Capt. Pearson was fortunate that at 58.5 years of age, he was among a number of successful bidders on a lucrative Air Canada buyout. Capt. Pearson finished his career with Asiana Airlines on the 747-400, mostly on the Seoul-Anchorage run. Bob and Howard both enjoyed rewarding airline careers with Canada's national flag carrier. They joined at the right time during "the golden years of flying," and left at the right time.

In addition to flying commercially, Capt. Pearson did extensive glider and ultra-light flying, along with some float, ski and glider towing. His well-rounded background proved extremely useful in the "Gimli Glider" case 30 years ago. He spent many years with the Canadian Airline Pilots Association and also has experience with several expert witness assignments in aircraft accident lawsuits.

Capt. Pearson said it was a pleasure to speak to an audience of aviation fans, including some pilots. In his informal presentation, he relied on his memory of the famous Air Canada Flight 143 of a Boeing 767 on 23 July, 1983. Capt. Pearson said he doesn't personally dwell on the story and has never had a dream or nightmare about it. He started with an overview of factors in the airline industry that contributed to the incident. One was metrication, which at the time was fairly new in Canada. Crews were accustomed to litres and kilometres in 1983, but kilograms were just coming in. The Boeing 767 was the first metric aircraft in Canada.



Speaker Captain Robert Pearson
Photo Credit - Neil McGavock

Also, it had been designed and built as a three-pilot aircraft, with the normal three-pilot cockpit of a Captain, First Officer, and Second Officer, or Captain, First Officer, and Flight Engineer. Boeing felt, back in 1982, that with computerization, they could build the airliner to operate safely with two pilots. In the United States, a presidential task force authorized Boeing to operate other jetliners like the 767, with a takeoff weight of more than 300,000 pounds, with two pilots if the third pilot's role could either be automated or done by ground staff.



Boeing 767 Model, Photo Credit - Neil McGavock

Computerization at the time was rudimentary by today's standards. Capt. Pearson said his knowledge of computers was limited to such basics as a Royal Bank ATM and the old Air Canada Reservac flight reservation system that used a card and a pencil. Cellphones and laptops had yet to be introduced. Whatever the challenge, Capt. Pearson said Air Canada pilots accepted the plan to fly the 767 with two pilots. As long as it could be done safely, they realized the airline had to be competitive in the world market. Capt. Pearson said the first training course on the 767 given by Air Canada in Montreal, wasn't very good. The simulator involved was a three-pilot simulator, with the technology of earlier jetliners like the Boeing 727. The whole computer concept of the two-pilot 767 was missing.



Boeing 747 Model, Photo Credit - Neil McGavock

When the actual aircraft arrived, it made an impression with beautiful flight instruments and video tubes. But in reality, pilots didn't have the training to match. "So we stumbled along," Capt. Pearson recalled. "I did most of my en route flying between Toronto and San Francisco. It's probably safe to say that the airplane was introduced too early. Manuals were incomplete. Chapters were missing. Procedures were incomplete."

Describing the situation as "a bit of a mess," he said it was somewhat comparable to the problems and delays experienced with the Boeing 787 Dreamliner – grounded worldwide for four months earlier this year because of overheating with its lithium-ion batteries. "The 767 probably should have suffered the same fate," Capt. Pearson said. "It probably should have been held out

of service until procedures were properly established and the kinks ironed out. These complicated airplanes are not quite like cars, especially when you lead the technology from the Boeing 727 to the 767." He compared it to the problems experienced in going from propeller-driven aircraft to jet aircraft.

The 23rd of July, 1983, was a Saturday. Capt. Pearson drove from his home in the West Island of Montreal to Dorval Airport and met the incoming pilots who had brought the 767 from Edmonton. Flight 143 was to return from Montreal to Edmonton with a stop in Ottawa. The crew told Capt. Pearson of a problem with the fuel quantity indicating system. The back-up procedure was for maintenance staff to check, which they did. It is a rather complicated job, involving drip sticks located at various positions under each wing of the 767, inclinometers in the landing gear housing and the cockpit, and other things. Details are outlined in the book *Freefall, the story of Flight 143*, by William Hoffer and Marilyn Mona Hoffer, published in 1989 by St. Martin's Press.

As with standard airline procedure, the fuel tanks were not filled to the brim, but only enough to provide for the flight and for any contingency such as weather necessitating an alternate airport. Capt. Pearson and crew agreed with the calculations made by the Flight Dispatch Office. Normally, they refuel on every station stop. On that flight, they told the dispatch people they would like to carry enough fuel out of Montreal so that we wouldn't have to refuel in Ottawa, and not repeat the difficult, rather complicated drip procedure.

The mechanics at Montreal went through the drip stick routine. Capt. Pearson noted the drip sticks were, and still are by Air Canada, calibrated in centimetres. Six other airlines in the world bought metric 767s at that time, and they calibrated drip sticks in kilograms. "I still don't know why ours were calibrated in centimetres. It must have been an engineering thing, but it wasn't very good procedure," Capt. Pearson said in wry fashion as the audience chuckled.

The mechanics calculated the number of litres for the refueller to upload to the aircraft, then dripped the tanks again, and calculated the depth in centimetres in the complex fashion described. They converted the litres of fuel to kilograms, using a "specific gravity" figure on the fuelling slip provided by the refuelling company. Capt. Pearson recalled that the refuellers wrote a specific gravity of 1.77. Everyone involved assumed that number referred to specific gravity in the metric system. As it turned out, the proper multiplier to convert litres to kilograms was 0.8, but the 1.77 sounded familiar to all involved since it was the number used to convert litres to imperial pounds. (The result of the mistake was that the tanks, unknown to anyone during the refuelling, were filled on the basis of pounds instead of kilograms. The tanks contained only half the necessary fuel to reach Edmonton.) Capt. Pearson noted it was not part of the pilot's job at that time to cross-check, though it is now.

At any rate, Capt. Pearson asked the maintenance people to review their calculations and show him they knew what they were doing. Reviewing their mathematics, he noticed that while the figures were mathematically correct, there was an imbalance of fuel between the two wing tanks and they had less than their minimum. A 20-minute delay ensued, as the fuel truck was brought back, the drip procedure was repeated again, and the tanks were balanced.

Flight 143 was finally away to Ottawa, with the calculations indicating lots of fuel. The 767 took off with 61 passengers and eight crew members on a nice, clear day. En route, there was a small problem, unrelated to the fuelling issue, with a bleed valve warning light for the right engine. Capt. Pearson asked First Officer Maurice Quintal to radio maintenance in Ottawa to advise that they would have to reprogram the flight management computer. He also wanted to redrip the tanks to be sure that he knew his exact fuel load before leaving Ottawa.

The crew enjoyed the experience of flying in a virtually brand-new jetliner. With its sophisticated navigational equipment, they could request clearance direct to Edmonton, rather than zigzag down the commercial airway. They also requested higher than normal altitude, saving fuel. As they did normal fuel checks, cross-checking with the flight plan, they flew over the checkpoints of Timmins, Armstrong and Red Lake. They were seemingly gaining on fuel, they were higher and above the jetstream on a direct flight, and "it all made sense" to Capt. Pearson. Approaching Red Lake, Capt. Pearson remembered saying to Quintal that "Mo, for once, everything is working properly." Dinner was pleasant and so was the sunshine. What an irony.

The situation changed rapidly when they passed Red Lake at around 41,000 feet and a low pressure fuel warning light came on. Quintal consulted the Quick Reference Handbook. The crew assumed there was a problem with a failed fuel pump in the left wing tank. They felt it wasn't a problem, as each engine had other pumps, and felt the trouble was a computer hiccup. Capt. Pearson noted the first thing pilots are trained to do before they ever go solo is to believe their instruments. "We had made all of these fuel checks and it all made sense," he recalled.

They shut off the defective pump. Then another warning alerted the crew that the second pump in the left wing tank was failing. One by one, other low pressure lights came on as the fuel pumps failed. The problems seemed more than coincidence and Capt. Pearson quickly decided the flight would be diverted to Winnipeg. He announced to the passengers that they had some kind of computer problem that the crew didn't understand and the flight would be diverted to Air Canada's maintenance base in Winnipeg. Then, within minutes of the initial warning light, the left engine failed. "We requested clearance from Air Traffic Control and we knew we were going to be quite high," Capt. Pearson recalled. We went through the procedures to shut everything off." No sooner had the left engine been shut down than the right engine failed. The crew found themselves literally "winging it" with, as the authors of *Freefall* described it, virtually "less instrumentation and fewer controls than a Piper Cub."

Capt. Pearson said it was difficult to tell that the right engine had failed because all of the instruments had disappeared from the computerized cockpit display. When the engines in the 767 quit, the generators stopped, production of electricity ended and the cockpit display became useless. They were left with four standby

instruments: a magnetic compass, an artificial horizon indicator, an airspeed indicator, and an altimeter. Capt. Pearson recalled “everything went black in the cockpit.” There wasn’t much change in noise for the crew. On the flight deck, most of the noise came from the front of the jetliner’s windshield. However, Capt. Pearson surmised that it was probably much more quiet in the passenger cabin. Passengers later described it as eerily quiet as they took positions for the emergency landing position and sensed that the aircraft was descending more rapidly than normal for its dead-stick landing.

“I was flying by hand, using the radio, and Maurice was into the manuals, such as they were,” Capt. Pearson recalled. There was no procedure for loss of all engines at that time (there is now). He remembered telling Quintal not to worry at all, as they would come in high over Winnipeg airport, head for the longest runway, and do a high circuit to ensure they had sufficient altitude. The danger to avoid was the risk of coming in too steeply and landing short of the runway.

Capt. Pearson noted they had lost all of their electrics, except for what was running off the batteries, all of their main hydraulic systems, and the pneumatic system, so the cabin was depressurizing. Fortunately, or “mercifully” as Capt. Pearson put it, Boeing had built a ram air turbine into the 767. It’s a hydraulic pump with a one-metre propeller on it. The turbine dropped down from a hinged door and supplied enough hydraulic pressure to operate just the three primary flight controls. The crew didn’t have all of the supporting equipment such as leading and trailing edge flaps, speed brakes and anti-skid, and undercarriage extension hydraulics.

They descended over Lake Winnipeg, but couldn’t see the lake. A solid layer of stratus cloud was below, as they had just passed a line of thunderstorms near Red Lake before the trouble started. “It was kind of merciful that we had got by them before all of this happened,” Capt. Pearson recalled. As they flew over the south end of Lake Winnipeg, they could see the ground. The sun had burned off the low stratus and they flew over Netley Airport, an abandoned Second World War airfield. Capt. Pearson had discussed other area airports, such as Gimli and St. Andrews, with Winnipeg ATC.

“I pictured apartment buildings around St. Andrews and I figured that wasn’t a good idea, although I subsequently found out that there were no apartments or even houses around St. Andrews. At any rate, Quintal had done air force flying out of Gimli. They were descending precipitously, probably in excess of 2,000 feet a minute. Quintal suggested they might not make Winnipeg Airport. He profiled the descent, using altitude and distance figures given by Winnipeg ATC. They were about 28 nautical miles from Winnipeg, and 14 from Gimli, a former RCAF base closed in 1971. Capt. Pearson was sure that he could make Gimli. He didn’t want to “take any chances” and decided to land there rather than Winnipeg. They made a big turn and spotted the runway at Gimli.

At that stage, they were going to be a little too high. Capt. Pearson called for the landing gear to be lowered. Quintal pulled the hydraulic undercarriage selector to the down position. But nothing happened. Quintal consulted the manual, but couldn’t find anything about loss of hydraulic for the landing gear. Apparently, it was buried somewhere in the handbook and they didn’t have time to hunt for it.

They improvised by reaching for the alternate gear extension switch, something which they had never used in the simulator training. The electric switch pulled out the metal pins that held the gear door closed. With the pins out, the doors opened and the force of gravity dropped the wheels into place. The heavy main gear fell sideways and locked into place with a bang. The lighter nose gear, however, didn’t lock.

They were still going to be high, and in danger of overshooting the runway. Capt. Pearson saw three options: doing a 360-degree turn, in which case he would lose sight of the runway; doing S-turns, uncertain because they might not lose enough altitude given the distance left; or putting the aircraft into a side-slip to lose height and speed. To accomplish it, he would have to set the ailerons to produce a turn and push the rudder into the opposite direction. The aircraft pointed sharply sideways but it was headed on a forward course toward the runway. Capt. Pearson concentrated on slowing the airplane down for the landing and regulating the rate of descent when he didn’t have either speed brakes or power. The 300,000-pound, powerless 767 was anything but a normal glider!

“It must have been pretty scary in the back, because it was a pretty steep side-slip,” Capt. Pearson recalled. “I know I had a chance to look out the side window, and all I could see were golfers looking up with their mouths open.” Everyone braced as the 767 made the sudden change of angle. Capt. Pearson surmised that it was even more frightening for the flight attendants, who were quite aware that both engines were shut down. Nonetheless, Capt. Pearson was able to straighten the aircraft out over the approach lights of the 6,800-foot long parallel runways. The only runway that the crew saw was 32 Left. The main gear touched down, 800 feet down the runway, and Capt. Pearson applied the brakes. He wasn’t aware that the nose gear was not locked. It collapsed. The 767 landed on its nose and slid along in a shower of sparks for about 3,000 feet. “It sounded like a shotgun going off at our feet,” Capt. Pearson recalled. “I just remember the noise, the bang.”

There were no control tower operators at the time. The crew didn’t know that the Winnipeg Sports Car Club had just been using the runway as a drag strip. A small steel guardrail on cement posts ran down the centre of the runway. Capt. Pearson leaned heavier on the right brake as he saw the jetliner approaching the guardrail. There wasn’t anti-skid braking available. They blew a couple of tires as the guardrail just creased the nose of the 767. As they were coming to a stop, Capt. Pearson recalled three kids on bicycles “scared the hell” out of him. He had to avoid them, and was going to steer the aircraft onto the grass. The boys raced away to the left in time. Capt. Pearson was able to stop the aircraft a lot faster than he thought, as a result of the nose-down attitude of the airplane and the friction of the nose. A couple of vehicles were farther down the runway, but the aircraft stopped with 3,000 feet of runway left. Right away, the flight attendants started the emergency evacuation.

By the end, smoke was billowing up through the cockpit. “There are six inches of insulation between the inner and outer skin of the 767, and it was cooking,” Capt. Pearson recalled. The ordeal occurred less than two months after 23 passengers died in a fire aboard an Air Canada DC-9 that made an emergency landing at Cincinnati. That tragedy was still in everyone’s mind as smoke billowed through the rear of the 767. A lot of the passengers left on the aft chutes, which were high with the tail of the aircraft up in the air. A few people sustained bumps, bruises and scrapes. On the flight deck, Capt. Pearson made sure that everything was shut off. It was becoming impossible to breathe in the cockpit as thick, black, oily smoke – the stuff that can burn eyes and lungs – poured in.

As Capt. Pearson left the flight deck, purser Bob Desjardins came along. He told Capt. Pearson that everyone was off. They took a flashlight from the flight attendant’s position and went through the aircraft to make sure. Desjardins exited down one of the rear chutes, spraining his ankle. Capt. Pearson ran back down and left from a forward chute, where he was so low to the ground that he was almost horizontal. The captain asked the flight attendants to move the passengers well away from the 767. As he stood there, watching the scene, a man who was relieved like the other passengers, told Capt. Pearson: “That was a piece of work! This is the first time that I’ve been back to Gimli since before going overseas. Well, it worked.” Capt. Pearson then focused on trying to find fire extinguishers to save the \$60 million jetliner. The sports car people brought a fresh supply of big extinguishers and they soon had the fire out.

The landing occurred at about 8.40 p.m. Capt. Pearson remained on the scene until about 2 a.m. He never saw anyone from maintenance. “They piled into a van and ran out of fuel half-way to Winnipeg airport,” he said as the audience howled. The first people he met were Transport Canada accident investigators. Capt. Pearson was happy about that, as the investigators were able to get the full story, accurately, from the start. The federal cabinet called a public inquiry. Capt. Pearson spent five days as a witness. “I shouldn’t say that I enjoyed it, but it was an experience,” he said. “The first officer and I would fly for two weeks, and go back and listen to the lawyers for two weeks. We did that for a year. We got a lot of the background from Boeing and all of the accident investigators.” Capt. Pearson and First Officer Quintal received numerous honours, both nationally and worldwide, for outstanding airmanship.

Capt. Pearson candidly answered several questions. As for Air Canada’s response to the accident, Capt. Pearson recalled being told the company would issue a release blaming the pilots and the mechanics in Montreal and Ottawa. He added they were told not to worry because the release was “just for public consumption.” Capt. Pearson, arriving home after hearing the news broadcast, was greeted by a sea of media. At first he wasn’t going

to answer questions, but reconsidered. He turned around and told the media he “would answer any of your questions honestly and forthrightly if I know the answers, as I have been doing for 30 years.” He said Air Canada never put any pressure put him on to stop talking.

The airplane, AC 604, registered C-GAUN, was jacked up and flown out of Gimli two days later. It spent about a month out of service. The skin had to be replaced because of the friction on the nose, as well as the main electrical cable, which, ironically, was accidentally damaged in repair. Capt. Pearson was told the repairs cost about \$1 million.

C-GAUN went on to fly for another 25 years, in domestic service. In fact, Capt. Pearson flew it many times, with the same First Officer Quintal.

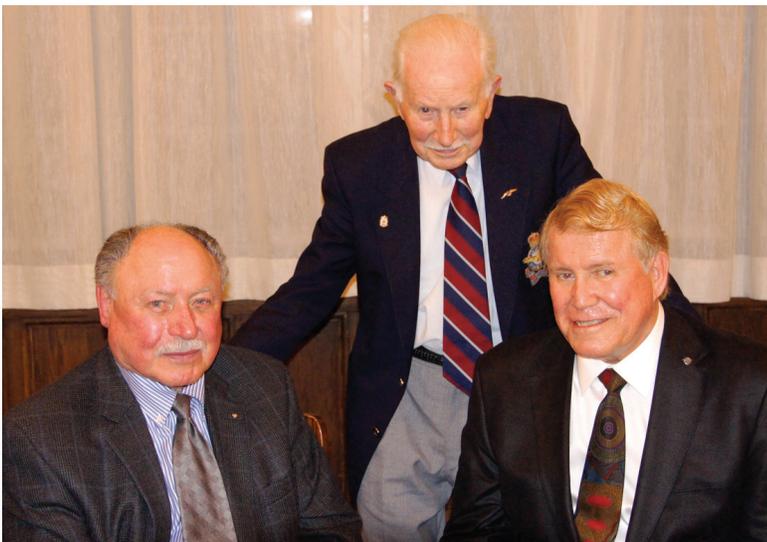


*Air Canada B767 C-GAUN Gimli Glider in retirement
Photo Credit - Wikipedia*

C-GAUN flew for the last time on 24 January, 2008, when it went from Montreal to retirement in the Mojave Desert. Pearson and Quintal were on board as observers to oversee the flight. Maurice had just retired as a Captain on the 767 and did the first leg to Tucson and Bob the last leg to Mojave. “After 13 years of not flying, it was kind of interesting,” Capt. Pearson recalled. “But it all came back, which surprised me.”

In April 2013, the Gimli Glider was offered for sale at auction, with an estimated price of \$2.5 to \$3 million Cdn. The highest bid, however, was only \$425,000. Capt. Pearson said he understands that it’s still up for sale.

Capt. Pearson said he’s often asked about what he thought about the experience. “I don’t know,” he said. Capt. Pearson described the whole event as “a cold, unemotional experience” until the adrenalin began when he saw those three boys on the runway coming in. “It was like being a robot. There is the survival instinct. We all must have it. We just kick in and away we go.” In this case, Capt. Pearson recalled, there wasn’t a lot of time to think of everything. “It was just hands and feet, and eyeballing.”



*Capt. Pearson, Master of Ceremonies Howard Malone & Lou Wise
Photo - Neil McGavock*

Howard expressed his appreciation to Capt. Pearson for an outstanding, first-hand account of one of the most famous and truly remarkable stories in Canadian aviation. Bob Winson, Programs Volunteer, presented a model of NASA’s modified 747 with the space shuttle on behalf of the Toronto Chapter as a most pleasant evening concluded.

Postscript: Capt. Pearson returned to Gimli in July to mark the 30th anniversary of the emergency landing. A number of cadets at the Gimli gliding school met him and one of them enjoyed the honour being his co-pilot on a gliding flight. A couple of passengers who were on Flight 143 also met Capt. Pearson. The town of Gimli announced that it would name a street after Pearson, making him a permanent part of their history. CBC National News featured a story on the Gimli Glider on July 23 and it can be Googled easily.