

# TO SERVE AND TO PLEASE

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**A**ir Ontario Flight 1363 started the take-off roll on a snow-covered runway at Dryden Regional Airport, Ontario, for the flight to Winnipeg, Manitoba in March 1989. The Fokker F-28-1000 Fellowship had four crew and 65 passengers on board. The aircraft had not been de-iced prior to departure. During take-off the captain initiated rotation. But the aircraft would not fly, and settled back on the runway. After a second rotation the aircraft barely became airborne at the end of the runway and could not gain sufficient altitude to avoid trees beyond the runway threshold. One crew member and 44 passengers survived the impact and subsequent fire but 24 people perished.

## Running Out of Options

The captain of Flight 1363 was running an hour and ten minutes behind schedule when he initiated the fatal take-off roll in Dryden. He was aware that many of his passengers had connecting flights. On the ground prior to departure the situation had been difficult. The aircraft had an inoperative APU. During the turn-around it started to snow heavily. Dryden was not equipped with a ground cart to start the engines. Therefore one engine had to be left running during the turn-around. To minimize ground time the crew left the passengers on board during the hot re-fuelling.

Due to the inoperative APU the crew had planned to carry additional fuel to avoid uplifting fuel in Dryden. But operations control added some passengers on the flight into Dryden and the crew could not through-tankage. To avoid excessive uplifts in Dryden, where the fuel was more expensive, the crew took as much fuel as possible. The flight in cold air temperature cooled the high amount of fuel carried into Dryden and when the aircraft landed in Dryden the wings of the F-28 were cold-soaked.

When the aircraft took off, the wings were covered with approximately 6 - 13 mm of wet snow. Several passengers including two off-duty pilots observed how the wet snow on the cold-soaked wings turned into a thin, rough coat of ice. A passenger alerted a cabin crew member before the take-off roll about his observation but the flight attendant did not bring the passenger's concerns to the attention of the commander.

The swept wings of the F-28 do not tolerate any contamination. Previous F-28 accidents and incidents had been attributed to contamination of the wings. Both Air Ontario pilots were made aware of this point during their F-28 type training. At the time of the accident the pilot-in-command had 82 hours on type (total time: 24,100 hours), and the first officer had 66 hours on type (total time: 10,000 hours). Despite their con-

siderable flying experience both pilots were new to swept-wing, high performance turbojet aircraft.

## Fast Growth at Air Ontario

Air Ontario had been established through a merger only two years before the Dryden accident. Air Ontario experienced rapid growth after the merger and aimed to be the leading regional carrier in Canada. To achieve this goal the airline was re-equipping and modernizing its fleet and investing in state-of-the-art technology such as the F-28, a modern, swept-wing, and turbojet aircraft.

Unfortunately, the project plan to introduce this aircraft in the Air Ontario operation failed to adequately take into account the complexities of introducing a modern, swept wing jet into a regional airline with a mainly turbo-prop, straight wing fleet. The airline failed to recruit pilots and managers with jet aircraft experience, although they had intended to do so. This in turn led to several shortcomings in the preparation phase; flight procedures were not established, the pilot training syllabus was not developed, the Aircraft Operating Manual was not established, a sufficient spare parts inventory was not procured, flight planning and performance calculations were not adequately prepared, flight dispatchers were not adequately trained, and ground handling was not sufficiently prepared.

All these unresolved issues increased the workload of the flight crew and made decision-making more complex. The crew of Flight 1363 lacked company regulations in numerous areas such as hot-refueling with passengers on-board, the need for a walk-around before every flight and clear procedures for performance calculation on contaminated runways).

## A Test of Character

On that fatal day in Dryden, operations control basically left the crew alone so that they were confronted with a situation they could not resolve. Had operations control and the crew taken a different decision earlier on in the day, they could have avoided running out of options during the turn-around in Dryden. Planning ahead and understanding the implications of





decisions further on in time is a key skill for any pilot. The crew of flight 1363 ended up in a situation where the only alternative to their chosen course of action was to cancel the flight. This was not a viable option for them.

Their sense of duty and service towards their passengers was stronger than the perceived danger of taking off with snow-covered wings from a contaminated runway. They wanted to accommodate their passengers' wish to make their connecting flights ahead of a long public holiday weekend. Customer satisfaction as measured in punctuality and reliability was in fact put above operational and safety considerations.

### A Water-Shed Case in Accident Investigation

The Dryden accident became the first case in which accident investigators, under the leadership of a Commission of Inquiry chaired by

Justice Virgil P. Moshansky, adopted a new way of taking into account the wider managerial and systemic issues causing aircraft accidents. To simply attribute the accident to pilot error would not have correctly reflected the complex web of contributory and causal factors. Justice Moshansky skillfully included "management information" into the accident report, as discussed in ICAO in the early 90s and as introduced in edition 8 of Annex 13 (ch. 1.17) in 1994.

The findings of the Commission report triggered many significant improvements in flight safety, one of which was the development of winter operations procedures, including de-icing on the ground. As a direct result the use of hold-over-tables became standard practice during the 1990s. Today's winter operations are much safer thanks to the lessons learned from the Dryden accident.

### Making the Right Choices – A Return to Individual Responsibility

Over the past few years James Reason, one of the leading researchers in the field of aviation psychology and inventor of the "Swiss Cheese Model", has started questioning the organizational safety approach. He asks: "But has the process gone too far towards collective responsibility and away from individual responsibility?"[1]

James Reason's question does not imply that organizational factors are any less important or influential when it comes to accidents. He simply

reminds us of the importance of the individual's decision making in avoiding accidents and incidents. This is particularly true in a Business Aviation environment, where flight crews are often entrusted with a wide range of decision powers by small and very 'lean' organizations.

The Dryden crew was certainly quality minded, quality perceived in the sense of customer satisfaction. When faced with the implicit dilemma of either cancelling the flight due to weather and inadequate ground support or trying to make the flight, the commander decided for the go-option. He wanted to satisfy his passengers' expectations and try to ensure that they made the connecting flights. By pushing service delivery to the limit, he sadly made the wrong decision.



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