



MY BAPTISM of severe icing occurred on the venerable DC-3 on the leg from George on the Cape Garden Route, then a picturesque grassy field reminiscent of many of the World War II fighter fields.

It was mid-winter and our destination, Cape Town, was being assailed by another series of cold fronts so typical of the Cape at that time of year. The actual and forecast weather for at least the following 12 hours was 8/8 cloud at 300 feet, our limit, with visibility reduced periodically in rain. The freezing level was 8 000 feet, our minimum en route safety altitude and single engine ceiling.

Studying the met folder before departure, Captain Stan with whom I was flying said: “Johnny me boy, I don’t much like the look of this”. The entire southern coast appeared to be under low cloud with precipitation while George itself was no exception having been experiencing light rain for days. This led to concern regarding the water logging of the grassy field. This could have a tremendous retarding effect during take-off for the DC-3.

By the time I had organised refuelling, completed the pre-flight inspection, and joined the rest of the crew in the tower atop its wooden stilts drinking the air traffic controller’s tea, my semi-porous issue raincoat seemed to have doubled its weight, for like the rest of the uniform, it absorbed infinitely more water than it repelled. Since my trousers were also soaked, I was beginning to wonder what sort of ‘jodhpur’ effect I could expect if we ever reached Cape Town, let alone how to cope with the freezing conditions en route.

But these were minor considerations compared to the burning issue with which I could see Stan was grappling – that of whether to go or not to go. I could sym-

ICING-THE FIRST ENCOUNTER

pathise with Stan. He had to weigh up whether to delay until the weather improved, which could take days, or set course for the front beleaguered mother city and brave the inevitable en route icing, in the knowledge that our DC-3 was equipped with neither de- nor anti-icing systems.

This was a decision only the captain could make and he would have to plumb the depths of his experience to make it. After a while he looked speculatively at me and said: “You were at Langebaan (a military field some 90 miles north of Cape Town) not so long ago; how do you rate their GCA?” For the uninitiated, this is the Ground Controlled Approach whereby the aircraft is talked down to the runway by radar controllers on the ground.

“Hell skipper,” I replied, “They’re pretty damn good.”

“Could you still do one?”

“I reckon so. It’s simply a matter of following the controller’s instructions and I do have it on my licence.”

“OK, let’s go. Jimmy (the controller), will you notify Langebaan to be on stand-by, and John, you take the left hand seat.”

CRM BEGINNING?

.Stan was ahead of his time. In those conditions, most captains of the day would have elected to fly themselves, but Stan wanted me to handle the “poling” of the aircraft, leaving him to manage the flight and make decisions, a concept which only came into being years later.

We took off in a Westerly direction, raincoats back to front (I had borrowed the radio operator’s dry one) and were

almost immediately in cloud, not to have sight of the surface of mother earth again until the approach lights of Cape Town’s runway 01 loomed out of the murk.

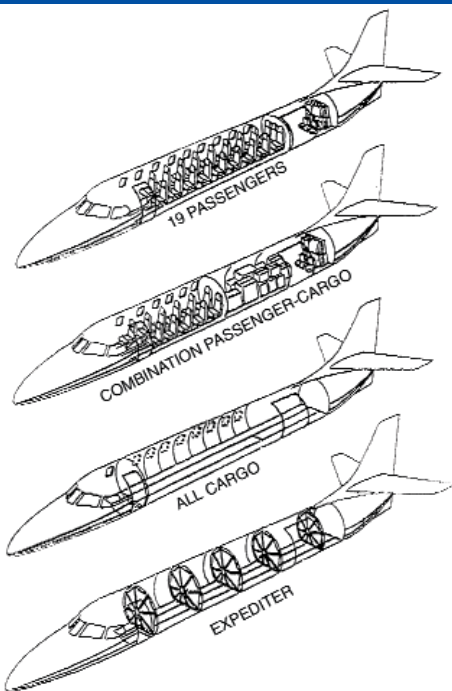
As we climbed to flight level 080, our minimum for terrain clearance, Stan became aware that the outside air temperature gauge was not moving and still indicated the 12 degrees C that it had indicated on the ground. He gave me a heading, several degrees south of our normal track to put us over the sea, and I noted with approval that he had the standard 1:500 Lambert’s Conformal topographical map neatly folded on his lap and was maintaining a rough plot, marking in dead reckoning positions based on estimated ground speed and drift, as we progressed, tracking away from the powerful if somewhat unreliable George beacon.

Slower aircraft are generally more prone to icing than are the faster jets, for travelling at speeds generally well in excess of 300 knots the “ram rise” or increase in skin temperature due to friction is often in the region of 30 degrees C, and since the normal ice accretion range is 0 to -8 degrees C, below which any visible moisture in the atmosphere is frozen anyway, the jet normally encounters ice only during take-off and landing or in holding patterns when at low speed.

The venerable DC-3, however, is right in that range throughout its flight regime. Being carburettor aspirated, the engine icing range is increased due to temperature reduction in the venturis necessitating the use of carburettor heat at OATs quite a bit above freezing.

Needless to say, Stan had taken care of this in addition to pitot heat not long after takeoff, that being the sum total of our anti-icing equipment. Since the OAT gauge had chosen this time to become recalcitrant, we could only reason that if’

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the temperature on the ground had been 12°C, at a lapse rate (decrease in temperature with altitude) of just under 2 degrees per 1 000 ft, at 8 000 feet we had to be flying in minus 3 or 4 deg. C air.

The first portend of icing was frosting over the windshields. This was followed by a layer of glutinous looking clear ice, and glancing out of the side window I noted that the engine cowls and wing leading edges were similarly bedecked.

Then we were beset by an alarming clatter against the fuselage just aft of the cockpit – chunks of ice breaking away from the propellers and being hurled against the fuselage. To add to this, a demoniacal shrieking in the ear phones signifying ice on the aerials caused us to hastily drop these.

Then the air speed began to drop off. At about 100 knots, the airframe began to judder alarmingly signifying an impending stall. During this cacophony, speech was impossible, and Stan motioned to me to descend, and pointing to the VSI held up two fingers, signifying 200 feet per minute. Thankfully I eased the nose down slightly, but the air speed increased not one iota, and the vibration continued.

I braced myself for a stall recovery as Stan slowly cycled each pitch lever in turn, increasing the clatter against the fuselage as more ice was flung from the propellers, while I countered the asymmetric power with rudder.

The engines, at maximum continuous power, began to run rough and labour. I guessed that the carburettor intakes were icing up starving them of air. We were still descending, past 6 000 feet and then down to 4 000 where Stan motioned me to level off, while I hoped to hell that we were over the sea for we were well below our safety height.

Suddenly the ice on the windshields sloughed off, the vibration ceased and the earphones quietened, although we were still in cloud. Gingerly, we eased back up to FL 060 for Table Mountain, reaching up to 4000 feet, was somewhere ahead.

When we came within VHF range of Cape Town we were able to verify our bearing by means of QGH, a system whereby the ground station is able to take a reasonably accurate bearing on the aircraft's radio transmission, but we had no means of knowing how far out we were other than Stan's rough dead reckoning position.

As we proceeded to intercept a predetermined bearing of 010 on to CT, the main beacon, Approach Control wanted to know whether to cancel the "Mayday" or state of emergency.

"What Mayday?" asked Stan.

"We received several SOS transmissions from you on CW (carrier wave for Morse)."

Stan was livid, and turned to glare at the R/O seated behind him, growling, "I'll talk to you later," and then to approach control, "Disregard all Mayday transmissions from this aircraft."

I had to feel a bit of compassion for the by now almost cringing R/O.

We eventually completed a successful and lengthy let-down, having first to fly over CT to verify our position, then complete a 180 degree procedure turn to head outbound on 190 degrees followed by a second procedure turn to head inbound and intercept the ILS, thankfully picking up the approach lights at just under 300 feet.

This may have been just another day in the lives of a couple of airmen, but to me it was a unique, eye opening experience which I was never to forget.

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