

Under pressure



Anonymous

IT WAS GOING TO BE A TOP DAY. I'D gotten myself rostered for the "half-holiday" because I had to get back for an instrument rating renewal mid-afternoon. Forty-five minutes out, forty-five back, spend an hour or so over lunch swatting up on the AIP, a couple more demonstrating to the Department of Civil Aviation (DCA) examiner – it was that long ago – that I knew the rules and could fly a Cessna 402 on the dials without doing anything fatal, then hit the Friday night session at the aero club.

I'd even scored the best and newest ship in the fleet, because DCA blokes were much nicer about everything if they saw all the engine instruments looking symmetrical. Even the autopilot worked on this one.

Fairly new to RPT flying, I was enjoying the change from charter. You flew to a published schedule, the roster ran for a month, the maintenance was excellent, the aeroplanes were cleaned by somebody else, and (at least at home base) you didn't even have to load or unload the baggage and freight. Standard flight plans were provided for five wind conditions, and the pay was better. That day it was almost a two-crew operation, with a new pilot along for route familiarisation. I'd show him how a pro did it.

"Eight out, and five back, and you've got

120 pounds in the lockers", the traffic officer looked pleased with all that revenue. The refueller, who'd obviously been hoping to sell me at least round-trip fuel, looked disgusted and muttered something about fetching his eyedropper. Watching me carefully to enjoy the full measure of my reaction, the traffic officer then said, "You've got the Jones' on the way back".

// The left engine stopped, and the right engine suddenly surged to medium power, yawing us wickedly to the left and levitating the right wing to a highly hazardous angle. //

Meet the Smiths: I rewarded him with a snort of distaste, explaining to my right-seat neophyte why Alderman Smith (whose name wasn't really Smith but let's blame the Smiths anyway) was not our favourite frequent flier. A prosperous grazier, Smith had a low opinion of airlines, of all light aircraft except his own little four-seater, and of any pilot who hadn't been among his air

force buddies during the 1939-45 conflict. His resounding council-chamber baritone would fill the cabin with pointers on navigation, turbulence avoidance, how not to burst eardrums, and landing techniques. Mrs Smith punctuated these diatribes with loud laughter, which we all assumed must have been written into the marriage contract.

I expected to be harangued for arriving five minutes late (which we would be, because the jet carrying most of our passengers had been late) and then about our scheduling, which meant the Smiths would wait 90 minutes for the jet after we returned, while the aircraft did another round-trip flight for the same connection.

"Let's get going. We don't want to give the old [person] any more ammo."

Smith was in full cry when we arrived nine minutes behind schedule, the delay apparently replacing the drought and falling cattle prices in the hierarchy of global disaster. It got worse. The agent explained that the other aircraft had become unserviceable half an hour away, and I'd have to go there, pick up three passengers, then return for my original passengers including the Smiths. By the time I got back, Smith would probably have recruited a lynching party.

Almost 90 minutes later, with Smith sulking

A petulant
back-seat driver
and an impending
exam create a
stressful flight for
an RPT pilot.



ROB FOX

runway, I dropped the IAL booklet and took over. The other guy had done a good job during the high-speed descent, gradually reducing manifold pressure to avoid shock cooling, and steepening the descent to keep the speed up, while Smith ostentatiously held his nose and pressurised his head to clear his ears. We were a bit high and fast for a straight-in but we'd make it because the engines were cool enough to cop the big power reduction needed to get back to 160 for the first stage of flap.

The airport was almost vanishing under our nose by the time we'd decelerated to 140 for gear and full flap, but anyhow, it suited us to land long and shorten our taxi time. With almost half the runway behind us, I pushed the throttles up to check the last couple of feet of the descent.

Bad news: Two things happened as we floated a few inches above the runway. The left engine stopped, and the right engine suddenly surged to medium power, yawing us wickedly to the left and levitating the right wing to a hazardous angle. Snatching the throttles off, I kicked in some rudder and got the airframe almost realigned with the runway, executing the worst arrival I'd ever achieved in this notoriously easy-to-land aeroplane. My colleague was notably pale. Smith seemed to be having a coronary.

I'd re-started the left engine and taxied clear, still wondering what the hell had happened to my powerplants, when the company frequency said "Sorry mate," into my headset. I quickly figured why he was apologising. The jet was out at the holding point, obviously without my passengers. The silence of the Smiths was unnatural.

"Sounded like a fuel problem", ventured the other pilot after we'd disembarked our shaken payload, just as I noticed the landing lights were two-thirds extended. I'd dropped the IAL booklet on the electrical console during the descent, activating the landing light switch at about Mach .33. The lights extended some of the way before their little motors sent a protest message to their circuit breaker, which also protects the transfer pumps in the wingtip-mounted main tanks.

The pumps are installed to ensure fuel reaches the pickup in steep descents, as with full flap and gear at 140KIAS. The pickups were re-immersed during the flare, but too late to get fuel to the left engine. If the surging right engine had developed just slightly more power, we'd have arrived left-wingtip first. Would the accident investigators have been able to figure out all that from the wreckage?

"Bad news mate, the DCA examiner couldn't make it," said the traffic officer. If the ATC guys hadn't been watching, I'd have embraced him right there on the ramp.

ANALYSIS

Active failure

Paul Phelan

Subtle pressure came from four different directions to divert the pilot's attention from his primary task of flying the aircraft.

First, there would have been the natural urge of any professional pilot to get back on schedule. Second, the captain may have been subconsciously attempting to impress the new pilot, and may not have thought through all the possible implications of an unduly steep power-off high drag approach.

Third, pressure was coming from the passenger – the pilot didn't welcome the thought of the alderman's probable reaction to a missed connection. Fourth, the need to study his IALs had also taken some of the pilot's attention from the primary task, probably to the extent that the possible outcome of dropping a fairly heavy booklet on the electrical console was overlooked.

These factors set the stage for a "latent failure", which only needs a trigger (such as dropping the book on the panel) to become an "active failure".

Defences: What are the defences against a latent failure becoming an active failure? One would be the checklist, and it's notable that the pilot operating handbook for the type calls up a circuit breaker check only in the pre-take-off checks. Having flown the type, I'm aware that some operators have included another circuit breaker check in their pre-landing checklist giving an additional defence which would have saved this situation.

Another latent failure was the unguarded switch; the defence would have been to install a protective shield to prevent inadvertent activation of the landing light switch.

Good training is also a defence. Some training systems provide a mechanism for a pilot to automatically consider the possible implications of any last-minute action, such as a change of runway for take-off or landing, or a changed instrument approach or departure. The considerations in this case would include engine cooling (which was considered), and the remaining available runway distance at the flare point (which could only be guessed at).

Another defence is systems knowledge. From quick recognition of the implications of the landing light position, it's clear the pilot had that basic knowledge, but whether it had been applied, for example by including an additional check, is unclear. The defining feature of a latent failure is that it was present within the system well before the onset of a recognisable accident sequence.

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because a uniformed "co-pilot" was occupying his favourite seat, we were once again airborne and heading for base, where hopefully everybody would still make their connections.

My instrument rating renewal, however, wasn't looking so good because I now had less than half an hour to brush up for the inevitable quiz session. Handing over the helm to my new colleague, I grabbed the IAL booklet which I knew to be the source of some of the meanest questions. Smith muttered something about reading the instructions before take-off.

The airline came up on company frequency, asking how long we'd be because they were boarding the jet, and warning it may have to depart, delaying our passengers until the evening flight. I told them I'd go into afterburner to prevent Smith trashing their terminal, but it remained uncertain whether they'd be able to hold the flight.

Scanning through the IAL to find the take-off minima for aerodromes without an approved instrument approach procedure under IFR, I signalled the other pilot to begin a yellow-line (200KIAS) descent. We were just about neck-and-neck with an inbound jet, and I called the tower to ask what runway I could expect, adding that we had passengers for the jet that was now boarding.

Offered a straight-in on the secondary