

Overloaded

An inexperienced pilot risks everything to keep his job.

Name withheld

IN DECEMBER 1977, my flying experience totalled just over 1,600 hours. I'd logged nearly 900 hours as an instructor and I'd just gained my first all-weather multi-engine charter job.

I was on top of the world. I had a great job and, like many young pilots, I thought I knew everything. I was proved wrong early on New Year's Day 1978.

The company liked to "keep its costs down" when endorsing new pilots and I received minimal training on the company's two main aircraft types, the Piper Chieftain and Aerostar.

The Chieftain was the largest aircraft at our base and new pilots didn't get to fly it very often. I flew one sector in the Chieftain in my first month with the company: a daylight single-pilot ferry flight with no passengers.

My second chance to fly the Chieftain came several weeks later. Due to a predictable shortage of senior pilots on New Year's Eve, I was asked to fill in on that night's paper run. That involved flying to Paraburadoo, picking up several piles of newspapers from a MacRobertson Miller Airlines (MMA) Fokker F28, delivering the papers to Newman, and then flying home.

The flight to Paraburadoo was uneventful. My problems started when I discovered the papers I was supposed to pick up weighed 1,050kg, 150kg more than I was expecting.

My fuel load and weight calculations were based on 900kg of payload. Anything

more than that was going to put me over maximum take-off weight. The way I saw it I had three choices:

1. Do two sectors between Paraburadoo and Newman. (This would mean calling out a refueller early on New Year's morning.)
2. Leave 150kg of papers behind.
3. Overload the aircraft. (Calling the boss or any other company pilot at this time on New Year's morning was not really an option.)

I considered the first option for a time but doubted whether the company would be paid for the extra hour-and-a-half of flying and the refueller-callout charges. I also wondered if I would be able to raise the refueller in the early hours of New Year's morning.

For some reason, the economics seemed very important to me and I didn't want to lose my job over a few newspapers. The Chieftain had great performance and could surely handle a bit extra. I decided to throw on the extra papers.

When I did my endorsement, I was told that flap can be used for take-off, though it is not normally done. One such take-off was demonstrated and I remember being impressed by the aircraft's performance. It should have occurred to me that the endorsement was done with zero payload and just two people on board, so impressive performance could be expected in those take-off configurations.

I have not flown a Chieftain for many years but if I were asked, I would say you should never use flap for take-off. The



marginal increase in lift is countered by a massive increase in drag. The only possible exception might be short-field operations when the aircraft is lightly loaded.

Taxying out I realised I was in a different aircraft to the lightweight Chieftain I had become used to.

Now a brief appraisal of what confronted me. Paraburadoo airport is more than 1,000ft above sea level, surrounded by hills



PHOTO: ROB FOX

and about six nautical miles out of town. The temperature at this time of the year would have been above 30°C, even at this early hour of the morning. I don't recall any wind more than a gentle breeze and the weather was clear and fine. The Minimum Sector Altitude (MSA) for the Paraburadoo-Newman track from memory was 5,100ft.

I had flown out of Paraburadoo many times in the previous month, but only a

couple of times at night and only once to the east on the Paraburadoo-Newman track and that was in clear daylight conditions.

I decided to depart on Runway 24 and stay within the airport circling area until I'd climbed to the MSA. Runway 24 requires right-hand circuits and is oriented toward the township of Paraburadoo, but the lights of the town cannot be seen until after take-off as there is a small range of

hills between the airport and the township.

I set the flaps at the maximum allowed take-off setting and completed a comprehensive pre-take-off checklist. There was no rush as it was 0230 in the morning and all I had was freight on board. All seemed fine so I set maximum thrust for take-off and released the brakes.

The acceleration was considerably less than expected and I briefly considered



PHOTO: ROB FOX

aborting the take-off. Surely, I rationalised, if F28s can take-off on the same runway it must be long enough for me.

I rotated near the end of the runway at about 100kt, which was a slower IAS than normal, and quickly realised something was very wrong. The vertical speed indicator (VSI) showed a sluggish 100ft per minute rate of climb and there was not much improvement after gear retraction.

It was a pitch-black night and I still couldn't see the lights of the township. The airspeed was not yet to blue line and I was starting to worry. I knew there was some rising terrain ahead so I commenced a gentle right turn: the rate of climb decreased (obviously) but I felt it was necessary, as I should have been able to see the lights of the township by now.

For a moment I thought I'd suffered an engine failure. I forced myself to take both feet off the rudder pedals: everything seemed okay.

I had no idea what was wrong. There were no visual cues so I was totally reliant on instruments. I kept the turn going and eventually sighted the runway lights: I was very low.

I raised the flaps by a couple of degrees

and the rate of climb increased immediately. As I slowly raised them the rest of the way the aircraft accelerated and began to settle into an acceptable rate of climb.

I was soon climbing past the MSA on track for Newman. With surely the worst part of the flight over I engaged the

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autopilot and reached behind me to get a paper and relax for the next 30 minutes or so until descent. As I turned I noticed, to my horror, that the exhaust pipe on the right-hand engine was glowing bright red. I instantly shifted my gaze to the engine instruments. Incredibly there were no abnormal indications.

I did not want to shut the engine down.

I had no idea what an overweight Chieftain would do on one engine in ISA+15 conditions and there was certainly nowhere to land at before Newman. The thought of shutting down the right engine was immediately dismissed when I saw that the exhaust on the left engine was also glowing red.

I richened the mixture of both engines and opened the cowl flaps, despite the fact that the cylinder head temperatures were normal.

For the remainder of the flight my eyes hardly left the engine instruments. To my great relief the engines operated normally for the rest of the flight.

Later that day when the other pilots surfaced with their New Year's hangovers, I relayed my night's adventure to them. I soon discovered that the contract with MMA was for 900kg of payload and if two trips were needed, they would have paid the extra. It would have been nice to know that before I was sent on my first paper run.

I was also informed that the exhaust pipes always glow red on Chieftains. It's perfectly normal, though not apparent in daylight. Neither this, nor the fact that flaps should not be used on heavy take-offs, were covered in my training.

Notwithstanding that, it was my decision to push myself, and the aircraft, beyond safe limits. I had very little experience in the aircraft and it was fortunate that I survived to learn from the mistake.

I actually believe that if I had been 150kg lighter (that is, at maximum take-off weight), I would have had a similar story to tell. A fully loaded aircraft is different to a lightly loaded one and most definitely should be included in conversion training.

New Year's Day, 1978, is the only day in my 28-year aviation career that I have actually feared for my life. I have averaged over 500 flying hours a year since I learnt to fly in 1974 and have flown aircraft ranging from single-seat Pawnees to 400-plus seat Boeing 747s. I still learn something new about my trade each time I go flying.

ANALYSIS > Training, supervision and communication

Bruce Byron

THIS ARTICLE PRESENTS a number of lessons, but not only for the pilot. There are clearly some issues of performance, planning and handling that this pilot, with the benefit of experience has been able to analyse, and provide us with appropriate solutions.

However, the article also raises issues that relate to the operation, including the training pilot, chief pilot and the owner of the business.

A quarter of century later, we would hope that the organisational or systems issues that acted against this young pilot have been sorted out with most operations, however there is enough anecdotal information to indicate that this may not be the case.

In the years since 1977, there have been a number of entries on the Australian fatal accident database that involved inadequate training as a factor, particularly involving upgrades to larger or more complicated aircraft. This was certainly a problem in this case.

The pilot informs us that he received "minimal training" and that the training didn't provide him with all the information needed to operate safely.

The provision of adequate training was clearly the responsibility of the operator (including the chief pilot and training pilot).

Operators today should detail how they intend to conduct training.

This information should be contained in the operations manual and CASA should satisfy itself that such systems are in place. But what if the operator only provides lip service to the operations manual?

With 1,600 hours of experience, a pilot should have a good idea of what to expect in a new type endorsement.

CASA has produced a CAAP that explains in detail what should be covered as part of an initial multi-engine endorsement which can be used to identify differences that should be covered when

converting to a new type.

However, there are no minimum flight hours required by regulation when converting to a new type below 5,700kg, so the potential for 'quickie' endorsements is real. To protect yourself in such a scenario, the manufacturer's manual is a good starting point.

The manufacturer's manual will provide sound advice regarding take-off configuration in various weight and altitude/temperature conditions. In this case it would most certainly have pointed our pilot in the direction of a no-flap take-off.

**¶ Pick up the phone and ring the chief pilot.
His or her lack of sleep isn't as important as your safety. ¶**

As years of experience have shown this pilot, flap used during take-off assists in getting airborne, but once in the air the benefits of lift are not as great as the costs in drag.

In simple terms, for most conventional aircraft, the lift/drag ratio of a wing suffers with flap selected and as such is not as efficient as a clean wing.

In practical terms, provided the aircraft is flown at the recommended climb speed, rate of climb will be better with no flap than with flap selected.

That information would have been of great comfort to this pilot prior to take-off and would have avoided the uncertainty of that initial climb.

The manufacturer's manual should also provide some information regarding climb performance after take-off in the weight/altitude/temperature circumstances, but will not tell you about overload performance.

The information should be available and it removes those tense moments in flight with the pilot thinking "I wonder if it will make it?" Combined with manufacturer's data, the thinking pilot can then get an idea of how best to achieve minimum safe altitude. Anything to remove the uncertainty!

The article also raises other issues that fall cleanly in the operator's court, notably supervision and communication. Chief pilots are there to provide supervision to other people in the operation. That's okay in theory but what if the chief pilot makes it clear to young pilots that he or she does not want to be called at two in the morning?

Given that no young pilot wants to incur the wrath of a chief pilot and risk losing their job, it's an unfair but realistic question. The "clinical" answer is that the operator should provide the pilot with all the information: including, in this case, the fact that 900kg was the contract load. But what if the operator is not that talkative and believes the young ones should "sort it out for themselves"?

The best advice is to acknowledge that lack of communication and provision of standard procedures is a problem and try and build some safeguards. Think of the possible variables to the operation and ask a lot of "what ifs" when the chief pilot is around. Such a tactic isn't guaranteed to capture all possibilities, but it can certainly help.

But what if you have done all that and you are still stuck out on the ramp at two in the morning with an operational issue that you can't resolve because you haven't been given the information. Easy!

Pick up the phone and ring the chief pilot. His or her lack of sleep isn't as important as your safety, the safety of the aircraft or your long-term career. It might even change the way they run the operation.

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