Operational Safety and the Last Minute

Thanks for welcoming me at this gathering. Let's get started

First up. Today, not just in this talk but in various forums, we discuss accidents clinically

- Yet the accidents and consequences were all very real events in our community of aviators and managers
- As are the events that “nearly” happen
- I imply no judgement or condemnation.
- Only the desire to learn

About me

- I’m very privileged to have had an interesting and varied career in and out of the cockpit
- Along the way command on the DC9, the MD-80, Boeing 727 and the incomparable Boeing 777
- Researching and managing standards, safety and training
- Most recently working with Australia’s Civil Aviation Safety Authority

The context of my talk today

- Prior to many accidents and other safety-related events, there was unexpressed or ignored disquiet as the “last minute” approached
- The “last minute” being that time when there is no longer time for discussion or analysis, only “safety first” action
- Situations where the flight crew find themselves placed as the last line of safety defence as far as operational safety is concerned

That ‘Last Minute’ is critically important

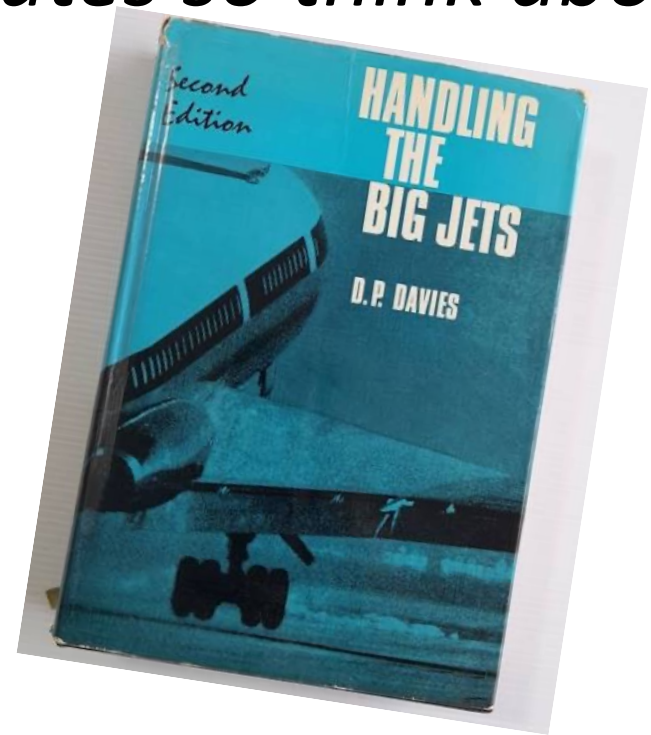
- For this is where all the training, the standards, the operating culture, the safety notices, the ingrained habits, the professionalism and airmanship play out
- And this all happens in rarely more than a minute or two
- Yet it’s in or approaching that “Last Minute” where things go wrong often enough for this area to be a genuine “last frontier” of safety

Let me set the scene with a quote from ***"Handling the Big Jets"***, first read in 1970

'If you have assessed the approach as "critical" but nevertheless have elected to make it – a perfectly proper decision – this is your last chance to salvage what could be a mess"

"Proceed with the landing only if you are absolutely satisfied with your flight conditions at the threshold"

“If you are not absolutely satisfied, don’t hesitate, open up and go around at once. if you proceed . . . . and smash the aeroplane-and survive, your first reaction will be “what wouldn’t I give to have that last five minutes over again” . Well now, at the threshold, you have that five minutes so think about it”



The genesis of my endeavors goes back to the 1997 Korean 747 crash at Guam

- Months before, Korean Air Captain Park Yong-Chul expertly managed an engine failure on take-off from Seoul's Gimpo Airport on a Sydney-bound 747
- At that time, I was flying the MD-80 with Korean Air and my wife was travelling home on the 747

Mere months later, on a rainy night approach over terrain to Guam's RW 6L

- Captain Park's tired crew were confused over the Jepp distance/height limits , questioned the G/S signal, uncertain why the runway was not in sight
- The option of a missed approach was available up to seconds before impact but when the decision was finally made to 'go-around' it was too late
- The 747 very nearly missed the critical terrain but alas, 228 people on board died

The Guam tragedy offers a segue into the issue of preparation for the “Last Minute”

- Myriad accident reports show example after example where in or approaching the *“Last Minute”* on approach, crews were ill-prepared
- This lack of preparedness may have its genesis in their training (to “speak up” and/or to listen and act), their developed pre-dispositions and beliefs
- And maybe, their perception of what flight department management actually wanted of them

Sometimes contributing factors for lack of preparedness might include:

- Mixed management signals, even if inadvertent, regarding safety versus schedule
- A lack of crew trust, a lack of belief in the “just culture” regarding decisions that create disruption
- A poor understanding of history and precedent, of performance parameters, effects of excess speed, long touchdowns, reversers, spoilers and anti-skid and the impact of runway contamination

For the best safety outcomes, preparation matters

- Though there are usually only two operating seats in the cockpit, the truth is that those pilots are not alone. Sitting with them is the world created by managers and peers, be they in technical, safety, training, operations, or corporate disciplines
- There is value in prescribing how management, from the boardroom to the flight department, might best prepare crews to support good decisions made approaching or during the *“Last Minute”*

There's nothing more corrosive than "just do it" peer or management pressure

- That is, pilots who disrupt the schedule by a missed approach, delayed departure, or diversion to an alternate are remembered and, in some way punished or scorned
- Trust between pilots and managers needs to be carefully nurtured for crews to make the best decisions without fear, real or imagined, of negative management reaction

  As an aside, may I suggest that stabilized approach criteria should include a verbalized affirmation by all crewmembers that there's no doubt about the safety of a continued approach

Next segue is to Teneriffe in the Canary Islands,1977

- A Pan Am 747 was taxying on a fog-shrouded runway while a KLM 747 was lining up on that same runway.
- The KLM 747 began its takeoff. Unaware, the tower instructed Pan Am to report when clear. The KLM Flight Engineer heard the Pan Am transmission and expressed his concern: *"Is he not clear that Pan American?'*
- The very senior KLM Captain replied emphatically '*Oh, yes'*. Moments later the two 747s collided.
- The accident was the worst in aviation history. 583 died.

The Guam and Tenerife examples are well known in the Part 121 world.

- But it's not difficult to find parallel Part 91 and 135 case studies for all types and all phases of flight
- Very useful for the development of training scenarios and pilot, cabin crew and dispatcher awareness and training.
- The Flight Safety Foundation's Aviation Safety Network database offers a vast array of Part 91 and 135 case studies.

Let’s segue now to Key West, October 2011

- A Gulfstream G150 was on a second approach to the 4,801 ft RW 27 at EYW, after losing sight of the runway due scattered low cloud on the first attempt
- During maneuvering for the second approach, they again lost sight of the runway, however, were able to visually reacquire the runway on final approach
- PIC expressed concern they might “land long”. MLG touchdown took place 1650 feet down the runway with NLG touchdown 2.4 seconds later at 2,120 feet

- Uncertain over brake functioning, the PIC suggested a rejected landing. 8 seconds after weight-on-wheels, power levers were advanced
- The co-pilot called “too late”. 6 seconds later power levers returned to idle. Reverse selected 8 seconds after
- The PIC's delayed stop/go decision resulted in a 22-second delay in reverser activation and a runway overrun. The G150 came to rest 816 feet beyond the R/W

Let me offer you a couple of foundational premises for your consideration

Premise One

- There are no new accidents, just short memories (or failure to look hard enough?)
- Many, maybe most, accidents are simply events that have happened before and which a mixture of historical studies, forethought, “speaking up” and appropriate action might have helped save the day

Premise 2

- Before many accidents someone, inside or outside the flightdeck, had reservations about continuing
- Approaching time critical situations, doubt expressed by pilot(s) and other operational personnel, should best be treated as fact, **whether or not** later analysis fails to substantiate the doubt
- Because a crew where one member is not sure of the safety of continuation is divided and dysfunctional

Thanks for your attention

- This brings me to the end of my presentation
- Let me go briefly over what we've covered

Key Takeaways

1. The importance of study of the history of relevant accidents
2. The need to embed the treatment of “doubt as fact” approaching the “last minute”
3. The need for safety managers to pro-actively use available data to find out how often unacceptable things do or “nearly” happen
4. The need for relentless management commitment to removing ambiguity, even inadvertent, on the primacy of *‘safety first’*
5. Training managers are recommended to emphasize training for the ‘Last Minute’ (including scenarios and role playing)

These recommendations could, at little cost, add significant safety value to operations

Any questions?

Thank you.

- My current work is the completion and use of a *"How well prepared are you and your crews for those last minutes?"* audit tool and checklist
- Very happy to talk with anyone interested
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