

## FINAL CHECK

*This story was originally written in the early 1990s when airliner technology was not as sophisticated as today's equipment and there were far fewer female airline pilots. Social attitudes have also improved since those times.*

*'Button B' refers to old-fashioned coin-operated public phone boxes. The 'Do Not Operate This Handle' derives from the placards found in railway carriage toilets requesting passengers to refrain from operating the flush system when the train was standing at a station.*

THE SHIP was not in good shape.

It had been until a few moments previously, even though it was flying on only one of its two engines. The crew had shut down the other one after a fire warning. But just as they turned onto final approach at Birmingham airport and the runway lights swam into view ahead the APU suddenly failed, taking with it half of the electrics.

In turn half the cockpit lights went out and several of the flight instruments failed. Deprived of electrical power, the autopilot gave up the ghost and the aircraft started to roll onto its back.

Lynette Woods in the captain's seat now had her hands full, literally. She grabbed the control wheel and levelled the wings. She would have to fly the Boeing 737 and land it manually.

'Check the electrics, Dave,' she called across to the young curly-haired man in the copilot's seat. 'See if you can restore something.'

As directed, First Officer Seckell ran his glance over the systems panel above the pilots' heads.

'We lost the APU,' he said, 'and it looks the right transfer bus failed too.' A native of Boston, Massachusetts, his East Coast accent was not strong, although he did tend to talk in the American preterite tense rather than the English perfect.

On Lyn's instrument panel the glideslope pointer drifted into view, showing that the ship was nearing the approach path. Things were happening very fast and Lyn was more

than a little nervous. She could feel the palms of her hands sweating as she struggled with the control wheel and one remaining throttle. Her overloaded brain was trying to cope with several problems at once. Priorities, said a voice in her mind, get your priorities right. The first thing was to get the ship headed towards the runway at the correct approach angle and speed.

'Gear down,' she ordered. 'Flaps 15.'

Seckell made the selections and automatically reached for the checklist.

'No, no, leave the checks. Try and sort the electrics out. Reset the transfer switch to auto.'

The glideslope needle was centred. Lyn reduced power a little and dropped the nose three degrees. The asymmetric engine thrust had pulled them off the localiser. Lyn made a bank correction to ease back onto the centreline. She tried to trim out the stick load with her thumb switch but in their degraded electrical condition the powered stabiliser trim was dead. She could either trim manually or hold the wheel out of trim. Either way it made her task more onerous.

Miraculously the electrics came back on line and power trim was restored.

'Okay, I'll take the landing checks, please,' she sighed, relief in her voice. A flashing blue light on her panel showed they were passing the final approach fix.

'Outer marker,' intoned Seckell.

'Check,' responded Lyn. The aircraft was nicely settled on the ILS now, seven knots above bug speed. The pilot permitted herself to relax a little.

'Trans Europe Three Five at the marker,' radioed the First Officer to the tower.

'35 cleared to land,' came the reply. 'Wind two eight zero, twelve.'

A crosswind, not too bad.

'Cleared to land,' acknowledged Seckell. He picked up the checklist.

'Master caution . . .'

'Checked,' responded the girl.

'Speedbrake . . .'

'Armed, green light.'

'Landing gear . . .'

'Down, three greens.'

'Flaps . . .'

'Fifteen, green light.'

'Ground proximity . . .'

'Override.'

The First Officer replaced the card in its holder. 'Checks complete, cleared to land.'

'Thanks,' said Lyn.

They were now less than two miles from touchdown, the radio altimeters sinking through five hundred feet.

'Five hundred,' called out Seckell. This challenge was a standard procedure to verify that the handling pilot had not expired at the controls, the theory being that the correct response proved the handler to be still *compos mentis*.

'Five hundred,' replied Lyn dutifully. Some wags favoured the trendier, if unofficial, 'alive at five!'

She had everything nicely sorted now. Despite the crosswind she was exactly on the centreline. The First Officer was calling out speed and rate of descent.

'Bug plus six, seven hundred,'

Lyn remembered that she'd only have the left reverser available after touchdown, which would accentuate the drifting effect of the crosswind. Best to use the wheel brakes hard and go easy on the reverse, otherwise she might wander off the runway.

'Plus seven, seven fifty, oh . . .'

Seckell's exclamation of surprise was prompted by the sudden disappearance of all the approach and runway lights. The aircraft was now sinking into a black abyss. No way could they land without visual reference. They had to get out of there.

'Going around,' called Lyn, tension cracking her voice. 'Flaps 1 . . .' She hauled the nose up and pushed the good throttle forward.

The 737 flies very well on two engines. On one it staggers rather than flies, particularly with extended flaps and landing gear dragging it back. The vertical speed indicator crept up and began to climb.

'Gear up!' ordered Lyn. 'Check power set.'

Seckell adjusted the thrust lever and pressed his transmit button. 'Trans Europe 35 going around. The runway lights went out.'

There was a pause. 'Roger, Trans Europe, follow standard missed approach. We've had a partial power failure here. Don't know when it'll be fixed. What are your intentions?'

'Stand by, please,' answered the copilot. 'We'll advise you as soon as possible.'

They retracted their flaps and levelled off. Lyn turned the aircraft towards the outer marker and re-engaged the autopilot. She glanced at the fuel gauges.

'We're not exactly fat, are we.'

'No,' agreed the First Officer. 'You've got East Midlands plus about forty minutes holding.'

'Yeah, and we don't know when they'll get their bloody lights back. We'll have to divert to East Midlands. Get a clearance, please, Dave.'

But before Seckell could carry out this request Approach Control spoke to them.

'Trans Europe 35, be advised the lighting is now fully serviceable again. Do you wish to make another approach?'

The two pilots looked at each other and Lyn nodded.

'Affirm,' transmitted Seckell. 'Request radar vectors to the ILS.'

'Ah, the radar's still out I'm afraid. 'You'll have to self-position.'

Again the First Officer glanced at Lyn and again she nodded. 'We'll take it.'

Seckell pressed his button. 'Are we cleared for an approach?'

'Affirm, Trans Europe 35, you are cleared for a procedural ILS runway 33, call beacon outbound. For information, the emergency services are still standing by.'

'Roger,' answered the copilot.

'Okay, Dave,' said Lyn, 'we'll do a standard one-engine-inop ILS as before. I'll have the approach checks please.'

The next attempt went without a hitch and this time they actually landed. Despite the crosswind and the non-symmetrical reverse Lyn held the centreline reasonably well during the landing roll. As they taxied off the runway she could not stop a great sigh escaping.

Seckell looked across and winked. 'Well done, ace.'

The girl smiled back. 'After landing checks, please.'

A third face now appeared between them, an older man, about fifty. He leaned forward from his seat behind the other two and spoke to the pilot.

'Stop it here, Lynette, and shut down.'

The third man picked up a phone and punched its buttons.

'Engineers? Captain Black here. We've finished with the simulator. You can have it for maintenance now.'

The huge box-like structure on its three hydraulic legs sank to its rest position and the three persons inside climbed down the retractable stairway to ground level, blinking their dark-accustomed eyes in the simulator building's harsh fluorescent lighting.

IN THE BRIEFING room Lyn and Seckell sat down at the desk while Captain Black crossed to the programme board on the wall. He took out a pen and drew a line through the entry 'Capt Black/ First Officer Woods/ Command Training' to signify that the simulator session had been completed.

Lyn watched the Training Captain reading the programme through his half-moon specs. She felt totally drained, as she always did when emerging from the 'box', as the pilots referred to the simulator. Sometimes it was more of a torture chamber than a training aid, depending on the whim of the Training Captain and the problems he fed into the exercise.

Every six months all pilots, both Captains and First Officers, had to demonstrate their handling skills to the satisfaction of a Training Captain. Quite apart from the safety aspects, cost alone ruled out the use of an actual aircraft for practising the various emergencies and so the exercises were done in the 'box', which was sufficiently like the real thing to frighten the pilots if they screwed up.

Lyn had been with the airline for nearly nine years, flying as a First Officer in the right hand seat, gradually moving up the seniority list as longer serving copilots were promoted or left to join other companies. This year eight new Captains were needed to replace six retirements and two who had failed medical examinations and had had their licences revoked. Lyn was fourth from the top of the list and so now it was her turn for command training.

If she passed the course she would be Trans Europe's first female Captain.

Phase 1 of the command course was to familiarise the trainee with the left hand seat. To start with, the Captain-to-be-it-was-hoped flew the simulator with all systems operating and both engines going. Normal take-offs, with and without noise abatement, standard instrument departures, steep turns, stall recovery, procedural let-downs and normal landings, with a few go-arounds thrown in for practice. Most copilots found that swapping from left hand on throttles, right hand on stick, to the other way round was quite easy.

Once the trainee was settled in, the Training Captain began to add to the workload with minor problems. As the course progressed bigger calamities were sprung. Amongst other delicacies, the fledgling commander had to cope with engine failure on take-off, engine fire, electrical failure, hydraulic failure, flap and landing gear malfunctions, loss of pressurisation, emergency descents, smoke clearance drill, faulty flight controls, jammed stabiliser, rejected take-off and emergency evacuation of passengers and sometimes they

had to contend with more than one of these niceties simultaneously. Altogether six days were spent on Phase 1, making a total of eighteen hours in the simulator.

In Phase 2 of the course the trainee flew on the line in the captain's seat on normal revenue flights, with a Training Captain occupying the right-hand seat, acting as copilot. During this Phase the role of the Training Captain gradually transitioned from instructor to assessor. To add to the challenge the destinations for this part of the course involved operating into some of Trans Europe's trickier airfields. After twenty flights, if the trainee's performance was deemed acceptable, he (thus far in the airline's history no 'she') would move on to Phase 3 - the Final Check - in the simulator.

During this session no instruction was given. Instead, the candidate flew a simulated complete flight with a regular line First Officer in the right hand seat and a Training Captain now wearing his checker's hat observing the efforts of the crew.

Lyn and Dave Seckell had taken off from Düsseldorf and flown to Birmingham, overcoming with varying levels of efficiency the various nasties that Captain Black fed in from time to time, including the engine fire about ten minutes before arrival.

NOW LYN slumped in her seat. She was aware of a bad taste in her mouth. You always felt grubby after two or three hours wrestling with the sim. In fact to an outsider she looked better than she felt. In the world of professional aviation women were still a small minority, and although the situation was gradually changing for the better it still took considerable determination to beat the hurdle of male prejudice, not to mention more widespread disapproval from the world at large. She didn't fit the standard mould for a middle-class woman in her thirties. Divorced, son aged five, living with a partner and his 6-year-old daughter. Lyn's partner was a journalist who frequently worked at home, which helped to solve the problem of child care, with outside assistance from a professional child minder filling the gaps when required.

Some neighbours disapproved. 'She should be at home looking after the kids, not swanning around working full time with an airline.' A more friendly acquaintance told Lyn, 'I can imagine you running a florist's or working in an office rather than flying jet airliners.' Lyn took this dubious remark as a compliment of sorts.

She was aware that she was in the vanguard of female airline captains. Trans Europe's first - if she had passed Phase 3. She looked somewhat younger than her thirty-four years. Tall, willowy, ('ingrowing boobs' she confessed to her friends), graceful in movement. Her chin was a shade too pointy and her nose a fraction too snubby to allow

her to be classified as a beauty. Her large brown eyes twinkled at you from under waves of hazel hair. When she smiled you would notice slight unevenness in her teeth. But she had that certain indefinable sparkle that endeared her to most people she met.

Captain Black turned towards the others. 'You can push off if you want to, Dave,' he said. 'No need for you to stay.'

'If you don't mind, I'd like to listen in on the debrief. Pick up a few pointers for when it's my turn.'

The Training Captain peered at Lyn over his schoolmaster specs. 'Fine by me. How do you feel about it, Lyn?'

She smiled weakly. It would be nice to know if she'd passed the sim check. Thus far Bill Black had given no indication of his decision. Some Training Captains would have told her yea or nay straightaway to put her out of her misery. Bill was not one of those who considered the trainee's point of view. It was many, many years since he'd been a First Officer. Lyn was tempted to ask but managed to hold herself in check. Bill may be putting off the evil moment because he'd decided to fail her. On the other hand the fact that he hadn't told her she'd failed might be a good sign. She would have to wait and see.

'No, I don't mind,' she replied to his question.

Captain Black picked up the wall phone and ordered three coffees from the catering department. He sat himself at the desk facing the other two. He looked at them over his specs for a few seconds, probably unaware of the discomfort this caused them, then turned to his notes.

In the silence, Lyn found her gaze straying round the room. Mounted on the walls were various technical diagrams and a set of full size board-mounted photos depicting the controls and switches in the 737 flight deck, adorned in places with irreverent graffiti: 'Press button B for your money back'; 'Rotate to wind up elastic band'; 'Do not operate this handle while plane is standing in the station'; and so on. Many pilots were amazingly childish.

'Well,' said Captain Black, nodding his head slowly. Again a tantalising pause. 'Quite a good effort, I thought.' What does that mean? thought Lyn. Have I passed or not? Tell me, you miserable old bugger!

'I'll go through the exercise from the start,' said the Training Captain. The two younger pilots produced note-pads to jot down the pearls of wisdom about to be shared with them.

'Flight planning was good. You forgot to check the height of the snow banks although you did remember to check the braking action.' The gimlet eyes stared at the girl. 'What are the restrictions, Lyn?'

Playing God, Captain Black had deemed that for this exercise it would be snowing at Düsseldorf. The runway had been swept clear but the snow was piled into banks at the sides. The girl searched her memory.

'The maximum acceptable height depends on the cleared width of runway. I can't remember the figures,' she confessed, realising she'd lose a few points.

'Don't expect you to,' came the reply. 'As long as you know where they are.'

'Performance Manual, before the take-off data section.'

'Very good, my girl.' He referred to his notes again, muttering half to himself, half to the others. 'Start up good. Remembered fuel heaters and anti-ice . . . good. Delayed flap extension for contaminated surfaces, good stuff . . .' He looked up.

'A personal whim of mine, Lyn. I always do a control check just before take-off in these sort of weather conditions.'

'You mean, in addition to the check while taxiing?'

Captain Black nodded. 'I remember a pal of mine, taking off from Stockholm in a DC6, many years ago. Got to rotation speed, pulled back on the stick - it was jammed. Frozen solid. Couldn't lift the nose.'

'What happened?' asked Seckell.

'Luckily the aircraft was light - a ferry flight I think. They reversed the props and stood on the brakes. Managed to stop before the end of the runway. With a heavily laden aircraft it might have been a different story. But the point is, if they'd done a control check at the start of the take-off run they would have found out the elevator was frozen'.

The younger pilots dutifully noted the tip. 'Not mandatory, of course,' added Black as they were writing. 'Just something that may save you from embarrassment - or worse - one day.' He resumed his debriefing.

'Take off good, nice noise abatement . . .'

It took about half an hour to go through the whole flight with coffee arriving halfway to provide welcome sustenance. Captain Black occasionally fired questions at Lyn or asked her to explain her decisions or passed on snippets from his own store of piloting knowledge. Finally they got to Birmingham.

'You got the electrics sorted out - you were correct in your diagnosis of bus transfer switch failure. Nice single-engine ILS . . .' He suddenly looked up and grinned mischievously. 'Then I knocked out the runway lights.'

'A rotten trick,' ventured Lyn, risking a little rebellious banter.

'Wasn't it, though,' agreed the Training Captain. 'However, the go-around was good - heading wandered a bit but you eventually tidied it up.' The gimlet eyes studied her again. 'And who forgot to ask for the after-go-around checks?'

'Sorry,' acknowledged the girl. More points lost.

The eyes swivelled to the other pilot. 'And who forgot to remind her?'

Seckell admitted his negligence.

Captain Black was serious for a moment. 'Okay, you both forgot, probably because you were both working hard and also you subconsciously know that omission of the go-around checks is not critical. Really important things will come into your mind even when the workload's high. Or they should do, anyway. But the point is this. I know I'm teaching granny to suck eggs but you must appreciate the reason for there being two of you on the flight deck.' He prodded the desk top with his finger to emphasise his words. 'One of you does the business and the other one watches the first one doing it. Monitoring, monitoring, monitoring, that's what it's all about. And if one of you forgets something the other must remind him . . . or her, in this case.'

Captain Black removed his glasses and sat back, clasping his hands behind his head of steel-grey hair. He fell to silence and stared at the ceiling as if trying to make a decision.

Lyn could bear it no longer. 'Have I passed?' she blurted out.

The Training Captain brought his gaze back to her. The faintest hint of a smile crossed his lips and he looked at Seckell. 'Young man, I expect you'll soon find yourself sharing a flight deck with this lady.'

Lyn desperately needed firmer confirmation. 'Are you saying I've passed my command course?'

'Yup, congratulations, Captain Woods. You've passed.'