Video Scenarios Commentary

FOR TRAINERS

These notes are for use by Trainers to accompany the two Level Bust video clips. The aim is to provide notes that can guide classroom discussions following the playing of each of the clips.

The notes for each scenario start with a short summary of the key events, before a series of questions, followed by answers and then learning points. You may also wish to download the full transcripts.

The Q&A examples are included to use as an optional discussion guide: the answers given are not necessarily the only ones and that other local rules or SOPs may also apply.

We hope you find these resources useful and welcome your comments. Please send any feedback to: levelbust@eurocontrol.int

EUROCONTROL

Scenario 1 – Business Jet

Part 1: before take-off

Summary

- A business jet is in a hurry to depart
- Captain is requesting the clearance as the first officer (FO) conducts pre-start checks
- Runway is changed which increases crew workload during taxi
- Landing traffic at 4 miles lead to an immediate departure being accepted.

Questions

Q1: The captain said they were running late and he had expedited their departure, but what should he have done during the pre-start procedures?

Q2: Why had the first officer not listened to the departure clearance and was thus unaware of the runway change?

Q3: When should the take-off briefing have been completed?

Q4: What was the most important item of the take off briefing, and its review, which was omitted?

Q5: When should the correct entries into the FMS have been verified?

Q6: When should the Captain have changed the FMS to reflect the correct runway and therefore the correct SID

Q7: When might there have been an opportunity to have broken the chain of events during the pre flight?

Answers

A1: The captain diverted from SOPs at a critical time, both pilots should have completed the procedure normally, and then confirmed with the checklist irrespective of time constraints.

A2: He was busy starting the engines as he'd been instructed to do so by the captain, and was talking to the ground crew to do this. The captain should have ensured both pilots listened to the clearance when it was received from ATC – or asked ATC to wait until they could.

A3: At the normal point in the pre-flight procedures, or at the very latest before requesting taxi

A4: Transition altitude, confirmation that the clearance limit was a FL not altitude, and the low QNH.

A5: Before completing the pre start procedures, or at the latest before taxi

A6: Prior to taking off, and once the error was noticed they should have cancelled their take off clearance and vacated the runway

A7: If the First Officer had been more assertive and challenged the Captain when asked to call for Taxi – he could have said we are not ready

Learning Points

- Expediting departure creates an environment where errors can easily occur and important procedures to be missed
- The Captain and First Officer allowed an expeditious departure to become a rushed one
- The First Officer should not allow his monitoring role to be compromised, and should ensure correct completion of the pre-start procedures and checklist by being more assertive if necessary.
- The ATC departure clearance must be listened to, and understood by both crew members.
- Make sure the FMS is correctly loaded before departure
- Do not accept a take- off clearance when you are not fully ready

Part 2: after take-off

Summary

- The captain still had to update the FMS as the SID was wrong
- The departure frequency was very busy
- The FO had a complicated departure to fly manually
- The high performance aircraft climbed rapidly

Questions

Q8: What additional elements led to the high workload after take off?

Q9: Were both departure charts available to each crew member, and how might this have contributed?

Q10: Is hand flying a complicated departure recommended?

Q11: If the FMS is not loaded correctly how can you use the autoflight systems?

Q12: How could the Captain (Pilot not flying), have monitored better?

Answers

A8: High performance climb, RT congestion, and not being able to use the Aircraft automation normally due to incorrect FMS entries.

A9: No - The First Officer who was pilot flying, was reliant on the Captain to tell him how to fly the departure because he had not been given enough time to access the correct charts.

A10: Full use of the aircraft automation is the best way to ensure correct compliance and to help reduce workload.

A11: By adopting more basic modes than LNAV/VNAV for example heading select and FLCH

A12: By balancing the need to report to ATC with vigilant monitoring of the aircraft flight path, and by adhering to SOP's during the initial climb out – calling Transition and/or changing altimeter settings early when cleared to a FL

Learning Points

- Hand flying a complicated departure especially in a high performance aircraft increases the possibility of errors
- BOTH pilots should have the correct charts open and available
- RT congestion should not distract from the basic requirement to fly the procedure accurately
- The first stop height/altitude on any SID is ALWAYS critical – know what it is an ensure you fly it correctly
- Set your altimeter early when cleared to a FL and be conscious of transition altitude which may vary from airfield to airfield

Scenario 2 – Similair Callsign

Part 1: Controller perspective

Summary

- Confident controller returns to work after holiday to take over a busy sector
- Two of the inbound aircraft had similar call signs (BJet)
- Due to a developing conflict he asks the departure to stop climbing and the first of the BJets to stop descending
- An infringing PA28 distracts him from the read back given by the wrong BJet

Questions

Q1: During the controller handover, were there any traffic issues which could have been more clearly and effectively explained

Q2: Did the incoming controller recognise any potential conflicts

Q3: If this approach was reasonable, what changed and led to the incident

Q4: By the time he recognised the seriousness of what was happening, what could he do

Answers

A1: Yes – there were 2 inbound aircraft from the same company, with similar callsigns – Bjet 3158 and Bjet 3518

A2: Yes, but his relaxed approach led him to discount the very real possibility of these inbound aircraft conflicting with each other – he decided to wait and see how it developed

A3: The controller became distracted by an airspace infringement, and the need to communicate via a telephone link – he failed to monitor the read-back error from the Bjet pilots

A4: Little or nothing in the time remaining – fortunately the onboard TCAS system alerted the crews to the conflict and gave avoiding guidance

Part 2: BJet 3158's perspective

Summary

- A younger captain, used to getting things done fast, is on board with an older FO who is not used to the time pressures of the new airline he has just been merged with
- They maintain a fast approach, higher than the published speed
- The disagreement about speed distracts them from the ATCO instruction to stop their descent
- Their high speed and failure to stop their descent means they break separation limits with the departing aircraft and have to react to a resolution advisory
- They react incorrectly with the 'adjust vertical speed' advisory

Questions

Q5: Were there any CRM issues evident between the crew of Bjet 3158

Q6: What particular things did the Captain do which contributed significantly to the incident

Q7: During the callsign confusion, what was the Captain doing which directly contributed to the error

Q8: What might a more skilful Captain have done in respect of the 2 inbound company aircraft

Q9: When the TCAS alerted the crew did the Captain act appropriately

Answers

A5: Definitely – the dominant Captain demonstrated very poor CRM skills and there was a resentful and dismissive attitude by him to his First Officer

A6: Insisted on making FMS entries without involving his FO, and even refused to explain when questioned reasonably. He also ignored his company's SOP's on speed control, and the published speed requirements for the procedure being flown – and without asking or telling ATC

A7: He was engaged in unnecessary talking across the cockpit and did not allow either crewmember to monitor the ATC RT during this distraction

A8: Advised ATC and his colleagues (on his own Flight Deck and that of the other aircraft) of the potential call sign confusion to raise awareness and avoid errors, particularly as they were closely spaced inbound to the same airfield.

A9: No – an "Adjust Vertical Speed" RA always requires a reduction of the vertical speed and the aircraft was therefore required to reduce it's descent rate. The FO correctly then reacted to the subsequent climb advisory.

Part 3: PA28 pilot's perspective

Summary

- An inexperienced pilot is trying to impress a girl by taking her for a flight
- Though she does not seemed very impressed by the size of the aircraft
- He casually disregards his chart, confident he knows where to go
- They stray into classified airspace

Questions

Q10: Was the pilot well prepared and had he made a suitable plan for the flight

Q11: Was he aware of the airspace issues within the particular locality he was operating from.

Q12: Did he take the correct action even after making these mistakes

Q13: How did his actions impact on the other aircraft which were seemingly unconnected

Answers

A10: Absolutely not – he was casual and dismissive of the need to plan his flight (even threw away the charts which might have helped him later). He also did not talk to the correct ATC agency and was distracted by his passenger – who ironically appreciated something was wrong before he did.

A11: Again absolutely not, it was only after he had infringed controlled airspace that he realised his failings and errors

A12: He failed to contact ATC and compounded the error

A13: His infringement of controlled airspace led to an unnecessary phone call from a Tower frequency, which directly distracted a busy terminal controller

Learning Points

- When all the holes line up in the cheese, unconnected errors can lead to a serious and threatening incident, even between seemingly unconnected traffic
- Airspace infringement is hazardous, and not only to the aircraft guilty of it
- Industrial issues must not be allowed a place on the flight deck
- Adoption of the quiet cockpit philosophy during critical phases of flight is a key operational tool – for both pilots AND controllers
- Distractions of any sort must be avoided especially during operations in busy terminal airspace
- Best practice is to continuously monitor a potential conflict once it is recognised, and to be certain that all instructions are read back correctly
- Correct speed profiles should be flown unless specifically requested and agreed with ATC
- Similar call signs should be avoided, but if they slip through the net, then it is very important to raise awareness between the relevant aircraft and the controller
- Controllers must not allow a conflict situation to develop where TCAS is the final arbiter
- TCAS RA's must be responded to immediately and accurately – irrespective of what another crew member or ATC may advise to the contrary.