

The Honourable Company of Air Pilots is the largest City of London Livery Company and the only one with a global membership. London Livery Companies are charitable specialist professional and trade bodies which, where relevant, seek to contribute their entirely independent and impartial expertise to their areas of interest. The Air Pilots Commercial Air Transport Team is directly supported by a large network of Company Members who review and validate our draft publications before issue.

If you would like to receive copies of new Safety Briefing Notes direct by email - or stop receiving them - please advise this to catcsg1@airpilots.org All published Notes which continue to be relevant can be consulted at or downloaded from <https://www.airpilots.org/CATSafetyBriefingNotes/>

AIR PILOTS - COMMERCIAL AIR TRANSPORT

SAFETY BRIEFING NOTE 12

[Issued 09 JUNE 2023]

UNEXPECTED GO-AROUNDS

The Context

The most likely scenario for a go-around is probably either a still-occupied runway or visibility which prevents continuation of an approach at or near the applicable minima. If this happens, the possibility will often - but not always - have been foreseen. These are also the sort of go-arounds which feature in every simulator session, although usually with an engine out and heightened expectation. The need to begin an unexpected go around may occur much earlier in the approach and not have been foreseen. It is these go arounds which the evidence suggests are relatively more likely to lead to problems.

Less commonly encountered go around situations will not have been mentally prepared for in the same way, even if envisaged as a possibility. They may follow pilot actions or be of external origin but either way they can be a potential surprise for one or both pilots. This can lead even experienced pilots to begin the go-around without managing the aircraft trajectory properly whether still airborne or after touchdown. Of course, any go-around can lead to unexpected secondary challenges once it has commenced, so some of what follows has wider relevance than only an 'unexpected' go-around.

Some examples of risk arising from unexpected go-arounds

- In 2021, a Boeing 737-800 on approach to Aberdeen was alerted by ATC to a possible go-around, and was so instructed at 2,250 feet. It was commenced manually with the A/T engaged but both pilots quickly became overloaded by the combination of thrust setting, flap configuration changes, their lack of manual pitch trimming and ATC instructions to fly a heading. As the 3,000 feet stop altitude rapidly neared, the aircraft began a high rate and high speed descent lasting almost a minute without crew awareness. An alert from ATC radar prompted a recovery. The whole event occurred in IMC.¹
- In 2016, a Boeing 777-300 crew rejected the landing at Dubai following an unexpectedly late touchdown, the PF Captain did not advance the thrust levers manually as required and neither pilot noticed that idle thrust was still set as the aircraft was placed into and continued a climb until it stalled and dropped back onto the runway. The crew were unfamiliar initiating a go-around after touchdown and had failed to follow the required procedure.²
- In 2016, an Airbus A320 on an ILS approach to London Stansted flown by a PF First Officer undergoing line training began a go-around at 2,000 feet on the Captain's instruction because the approach was unstabilised. The Captain subsequently had to take control from the still overloaded First Officer which delayed acting on ATC heading and climb instructions. This caused an aircraft climbing below after departure from the same runway to lose separation against it. The other aircraft followed the resulting TCAS RA and the A320 received a TCAS TA. Separation as their tracks crossed was 87 metres laterally and 600 feet vertically.³
- In 2020, a few seconds after routine autopilot disconnection at 1,100 feet agl, an Airbus A350-900 on a normal approach to Paris CDG in benign VMC, received a predictive wind shear alert unsupported by prevailing environmental conditions. This led the Captain to order the PF First

¹ see: https://assets.publishing.service.gov.uk/media/62e9040a8fa8f503312d7d06/Boeing_737-8K5_G-FDZF_09-22.pdf

² see: <https://www.gcaa.gov.ae/en/departments/airaccidentinvestigation/Lists/Incidents%20Investigation%20Report/s/Attachments/110/2016-Published%20Final%20Report%20AIFN-0008-2016-UAE521%20on%206-Feb-2020.pdf>

³ see: https://assets.publishing.service.gov.uk/media/5d9f2d0ee5274a5959410736/Airbus_A320_OE-IHD_and_Saab-Scania_SS340B_G-LGNK_11-19.pdf

Officer to commence a go-around. With TOGA thrust set, the aircraft was pitched up manually but the autopilot was not re-engaged and neither the Captain nor the Relief Captain present noticed. Climb continued through the 2,000 feet stop altitude reaching almost 3,000 feet before the Captain took over. Separation from another flight departing Orly was reduced to 1.7nm and 75 feet and recovery to normal flight control with the Captain as PF was erratic and took several more minutes⁴.

Discussion

Any go-around is typically a relatively rare event for many pilots. Whilst the now widely recognised need for stabilised approaches has undoubtedly increased the number of go-arounds flown, a proper briefing should at least envisage this possibility and thereby reduce the extent to which these are really 'unexpected'. A 2013 study by a leading national Accident Investigation Agency found average exposure for a medium-haul pilot was 1 go-around/year and for a long-haul pilot one every 5/10 years. Since completely unexpected go-arounds are a rather small proportion of the total, the chances of them being properly flown will be increased if attention is paid to the potential consequences of surprise and mitigating them. The procedurally correct initiation of any go-around is crucial and demands close monitoring and if necessary intervention by the other pilot especially if it occurs when the aircraft is partially configured for landing. Regardless of operator policy and automation capability, proficiency in both automated and manually flown go-arounds is essential. A full understanding of the aircraft A/T or A/THR system and the retention and recall of all memory actions is vital as is a generic understanding of power-attitude-trim. Actions for the airborne go-around case may differ from those for a rejected landing before selection of reverse. Pilot experience, especially on an aircraft type, can improve resilience in effectively responding to relatively rare events but is absolutely not a guarantee of this.

The underlying requirement for flying an unexpected or indeed any go-around is for both pilots to have an adequate understanding of exactly how all the relevant aircraft systems work and therefore being able to either action or monitor all the procedures. With that knowledge, regular simulator practice of unexpected all-engine go-arounds 'suddenly' required will support successful responses to infrequent real-life encounters. Many operators already recognise that such training is in their wider interests and that simulator time beyond regulatory minimums is needed to deliver it, but some have yet to do so.

Safety Recommendations

To Aircraft Operators

- Give all pilots enough simulator time on unexpected all-engines go-around scenarios including rejected landings.
- Stress the key role of a PM during any go-around and ensure authority gradients don't hinder this.
- Emphasise in training the potential challenge of low go-around stop altitudes and/or early turns.
- Facilitate demonstrated competence in both automated and manually flown all engines go-arounds as an investment in proficiency during line flying.
- Where carried, ensure that augmenting crew are required to occupy the crew supernumerary seat(s) and that their duty to closely monitor any go-around is explicitly stated.
- Ensure your operational flight data monitoring programme is configured to capture 100% of sectors flown and detect any deviations from normal go-around procedures. Provide resources and time to understand what happened and why so that individual or general training can be effectively used to address any issues, ideally in the context of 'Evidence Based Training'.

To Pilots

- Whatever the destination weather, discussing go-around procedures and potential circumstances which might need them during crew briefing can help keep them current for the reality of infrequent use. Don't confine this to days when you know that a weather go-around is more likely than usual.
- Verbalising relevant charted go-around procedures in conjunction with corresponding actions during an approach briefing can help prepare for the unexpected. This should include the differences in actions depending on where in an approach a go-around is commenced, including the rejected landing case. Differences in AP mode selection and FMA annunciations should also be covered.
- If you feel you don't get enough training time on go-arounds and/or relevant aircraft systems, it's in your interests to sometimes think through them in your own time.
- Initiating a go-around in strict compliance with the applicable procedure is essential. Evidence strongly suggests that if this does not occur, operational risk will increase and recovery may be challenging.
- If you are observing an approach as augmenting crew, any go-around should be closely monitored in case the operating crew miss something important to flight path control.

⁴ see: https://www.bea.aero/fileadmin/user_upload/BEA2020-0065.en.pdf