

Runway Misalignment During Approach

BACKGROUND

The International Federation of Air Line Pilots' Associations (IFALPA) is committed to promoting the highest standards of aviation safety worldwide. As a global organization representing professional pilots, IFALPA continuously monitors emerging safety concerns to proactively address potential risks that may impact the aviation industry. Recently there have been a number of safety occurrences involving flight crews attempting approaches and landings on surfaces different from those for which they received landing clearance. These include wrong runways, taxiways, and even wrong airports.

- In July 2017, an aircraft was approaching San Francisco in night VMC. The flight crew was not aware of the closure of runway 28L. As they were approaching in darkness, instead of runway 28R they misaligned with taxiway C which was parallel to the runway. Eventually, multiple salient cues of the surface misalignment were present as the airplane approached the taxiway, and flight crew initiated a go-around at low altitude.
- In two separate cases, in September 2018 and July 2023, an aircraft performing an approach to Frankfurt runway 25L was cleared to perform a visual sidestep to runway 25C. In both cases, the aircraft eventually lined up for the taxiway M, which is between the runways. Both aircraft performed a missed approach from about 200 ft AGL.
- In June 2022, an aircraft landed on the wrong runway in daylight VMC. Before beginning the descent, the crew prepared an RNAV approach to runway 28C. During the descent, the crew was instructed twice by ATC to change the landing runway. Finally, the flight was cleared for a visual approach to runway 28C, but the flight crew aligned the airplane with and landed on parallel runway 28L.
- In April 2024, an aircraft was cleared to land on Tokyo Haneda's runway 22. However, the approach was performed to runway 23. ATC instructed the aircraft to go around, which the crew complied with. The aircraft was subsequently cleared for a new approach to runway 23 and landed on runway 23 without further incident.

SAFETY IMPLICATIONS

- **Risk of surface overrun.** When an aircraft lands on a surface that hasn't been checked for landing performance, there's a risk that the surface may not be suitable for safely stopping the aircraft.
- **Risk of ground collision.** The (unintended) surface may be obstructed by ground equipment, blockages or other aircraft. Other aircraft may have clearance to use the surface for operations creating a risk for incursion even if the surface is clear at the time of landing.
- **Risk of air collision.** The (unintended) section of airspace might not be free of other traffic, including helicopters, gliders, drones and military aircraft. Other traffic might not be equipped with a transponder.
- **Risk of aircraft and surface damage.** The strength of the surface may not be adequate to carry the weight of the aircraft, possibly causing damage to both the aircraft and the surface.

THREAT AND ERROR MANAGEMENT

A visual approach or the visual part of an instrument approach subjects the flight crew to a risk to land on a wrong surface. Lack of guidance from instrument approach aids complicates the identification of the landing surface and may lead the crew to confirmation bias, which further hinders their ability to identify the error about to happen.

During the approach, situational awareness is paramount. A visual approach or the visual part of an instrument approach should not be an improvised procedure. Instead, it should be briefed like any other approach and include a missed approach, whether published or not. This might require coordination with ATS.

When conducting the approach briefing, special consideration should be given to how to positively identify the runway of intended landing. This may include visual cues, radio navigation aids, and use of onboard navigation features. Surfaces which may cause confusion such as parallel runways, taxiways or nearby airports should also be highlighted. During hours of darkness, expected approach and runway lighting should be briefed, as well as potential nuisance lighting (motorways, harbor or city illuminations, etc.).

While visual approaches are flown primarily using external references, the position of the aircraft can be confirmed by using other navigational aids. If the runway is equipped with an instrument landing system, it should be used for monitoring purposes. Onboard navigation should also be used, as far as practicable. Many flight management systems (FMS) have visualization tools available which can significantly improve situational awareness during the approach.

Finally, should any doubt or confusion arise during the approach about aircraft position, the approach should be discontinued. This may include confusing visual or navigational information, intervention by ATC or other traffic. Crews should be aware that ATC may not notify them in the event of a misalignment.

RECOMMENDATIONS

- Do not accept a visual approach if it has not been briefed.
- During the approach briefing, pay particular attention to how to positively identify the runway of intended landing.
- Be aware that fatigue, stress, and workload can contribute to runway misalignment.
- Do not commence a visual approach before the runway environment is positively identified.
- Use all available navigation means, including the relevant underlying approach or Navaid, and the appropriate level of automation.
- If there's any doubt about the aircraft's position, discontinue the approach.