A PILOT'S INSIGHT INTO NAVIGATING WORLD'S MOST DAUNTING AIRPORTS

News / Airlines, Business aviation



Pilots operating at the world’s most difficult airports must be at their best, as the unique conditions of specific airports can present various challenges during landing or take-off. Demanding environments require high skills to navigate aircraft and handle operations in dangerous airports. Zbigniew Mlotkowski, Director of Crew Training at KlasJet, talks about specific challenges that pilots may face in difficult airports and explains, how special trainings are conducted.

There are several famous airports worldwide, which are described as the most dangerous. One of those is Madeira Funchal Airport (FNC), which is known for its challenging runway. One end of the runway is built on concrete pillars with nearby steeply climbing terrain, and the other is very close to cliffs, forcing aircraft to stay offset from the centreline during long part-off approaches. This, combined with winds from mountains, creates locally moderate turbulence.

Another airport known for difficult runway conditions is Innsbruck Airport (IIN), located in the Alps, within a valley surrounded on almost all sides by high, rocky mountains. This airport requires special procedures to be followed during approach and landing. Any small deviation from the

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designed tracks may bring the aircraft close to mountains, potentially affecting safety.



Airports are commonly evaluated as dangerous based on several factors. One of the main considerations is terrain. The surrounding mountains often make the landing difficult, requiring the application of special procedures both for landing and take-off. Weather conditions are also important, because strong winds, especially crosswinds, in combination with hills and mountains can cause local turbulence, wind-shears, and microbursts. All these weather phenomena require excellent pilot flying skills. Dimensions of the runway also play a crucial role, a short and narrow combination of a runway requires perfect skills for a pilot to precisely maintain the arrival path, keeping additional attention to changes in weather, even locally. Each complex airport requires high aircraft performance and very accurate calculations to ensure that the safety of the flight will not be compromised in actual conditions.

Zbigniew Mlotkowski, Director of Crew Training KlasJet, explains: “Special procedures are required for each phase of flight, such as approach, landing, and missed approach, which must be executed by pilots if for any reason aircraft cannot land. The higher weight of the aircraft requires higher engine thrust settings. The same applies to higher air temperatures. There are usually special procedures designed for such an airport, which allow continuing safe flight even in case of flight with only one engine operating. Simulator provides detailed visualization of all-natural and man-build objects in the vicinity of the airport, preparing pilots for flight to the real airport. In addition, in simulators, there is the possibility to activate all possible weather phenomena, which are applicable for particular airports, so pilots can improve their skills and be ready to conduct safe flight in worst weather conditions. European regulations require recurrent training both theoretical and practical for pilots every twelve months. However, for very complex airports, the validity of such training is reduced to six months, to assure that knowledge and skills are on the highest level. For challenging airport operations, usually there is extra fuel planned to take into consideration possible holdings when aircraft is waiting for weather improvements or in sequence behind other aircraft commencing approach already. As for every flight, there must be enough fuel to safely proceed to an alternate airport, if for any reason landing on the planned one will not be possible. The key to safe operations at challenging airports lies in our pilot’s ability to adapt and respond to complex variables. It’s not just about training. It’s about continuous learning and

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precision in execution."



To get familiar with complicated airports, pilots must undergo simulator training, which allows for combining the pilot’s previous experience, flying skills, and theoretical knowledge providing the ability to perform safe operations to/from complicated airports. The simulator database both geographical and navigational accurately reproduces the local environment.

During training sessions pilots perform normal procedures, applicable to particular airports, and abnormal or emergency procedures, during the simulation of systems or engine failures, and adverse weather.

To ensure high-quality simulator training for specific airports, instructors must be familiar with the particular airport, its environmental conditions, local regulations, and other aspects. Very complex airports require special approval for instructors, which must be obtained before they will provide training for other pilots.

All complicated airports require only captain landing and take-off because captains are more experienced. Captains undergo training for such airports before the first flight, as well as recurrent training required by regulations. Although first officers and cabin crew members have a significant role in assuring the safety of the flight, it is always the captain’s final responsibility for the safety of the passengers, other crew members, and aircraft.

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20 MARCH 2025

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