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**Federal Aviation
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SAFO

Safety Alert for Operators

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http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: Parts 121 and 135 Operators: Constant Angle of Descents Techniques for Nonprecision Approaches

Purpose: Incorporate constant-angle-of-descent techniques for all nonprecision approach procedures. This SAFO addresses National Transportation Safety Board (NTSB) Safety Recommendation A-06-8.

Background: A part 121 operator conducting a nonprecision approach at night in instrument meteorological conditions (IMC) conditions failed to control their descent rate while conducting the approach procedure resulting in the airplane crashing short of the runway.

Discussion: During a nonprecision approach procedure, the descent from the final approach altitude to the minimum descent altitude (MDA) requires disciplined piloting technique and increased situational awareness to accommodate the pilot workload during this segment of the approach. As the complexity of the approach procedure increases, such as multiple step-down fixes or a circling approach, the pilot's workload increases. Environmental concerns such as night operations and weather conditions at minimums provide a cumulative affect on pilot workload. The workload under the aforementioned conditions increases significantly for part 135 single pilot operations. Therefore, operators should evaluate and, if necessary, implement appropriate procedures to reduce workload issues applicable to nonprecision approaches.

Such procedures should include the use of vertical navigation (VNAV) (if equipped) during nonprecision approaches, as a means to achieve a constant angle of descent approach profile from the final approach fix (FAF) to MDA. If the airplane is not VNAV equipped, the operator should develop procedures that address approach profile techniques using a stabilized constant angle of descent from the FAF to arrive at the published MDA prior to the published visual descent point (VDP). If the approach does not have a published VDP, the flightcrew may determine a point along the course between the FAF and Missed Approach Point (MAP) that would be appropriate for a VDP. With the runway environment in sight, and at the VDP or established on glidepath by means of a visual landing aid, the flightcrew may begin a normal descent from MDA to the landing runway.

Operators should place a strong emphasis in their procedures relative to altitude management throughout the approach procedure. Particular attention should focus on methods and procedures established for use by the flight crew to manage their descent and maintain published altitudes along with appropriate descents from altitudes to either the next altitude or the landing runway, as appropriate.

Operators should focus on the use of thorough approach briefing content techniques to communicate to the crew how the approach will be flown. The operator's procedures should require the use of an operable autopilot, if installed, to reduce workload issues. Proper altitude management and awareness techniques are crucial in reducing landing accidents and should be incorporated into the operator's procedures. Equally important, the operator's procedures should require good crew communication and coordination techniques.

As stated earlier, single pilot operations have a much higher demand on the pilot. Therefore, careful consideration must be used in the development of single pilot constant angle of descent procedures. It is imperative that the operator's procedures focus on techniques for mitigating risk factors associated with single pilot nonprecision approach operations. The use of an autopilot during all instrument approaches should be required to reduce workloads. Due to the high pilot workload issues associated with single pilot operations, the operator should require the pilot to utilize a precision approach procedure, if available at the arrival airport. However, if a precision approach is not available at the arrival airport, the operator should place special emphasis on developing procedure to reduce potential hazards and risks associated with single pilot nonprecision approach operations.

Recommended Action: Part 121 Directors of Safety and Directors of Operations, part 135 Directors of Operations, and Training Managers should perform a thorough review of their General Operations Manual (GOM) and training program to evaluate and, if necessary, develop and implement procedures for the use of constant angle descent techniques during nonprecision approach procedures. The use of constant angle of descents techniques should be a focal point during all flightcrew training, testing and checking.

Contact: For more information about the content of this SAFO, please contact Dale Roberts at the Part 135 Air Carrier Operations Branch, AFS-250 at 202-267-5749.