U.S. Department
of Transportation
**Federal Aviation
Administration**

# SAFO

Safety Alert for Operators

SAFO 16008
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Flight Standards Service
Washington, DC

**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:** Reducing the Risk of Runway Excursions During Takeoff

**Purpose:** This SAFO promotes the importance of standard operating procedures (SOP) for ensuring accurate takeoff performance data is utilized to reduce the risk of runway excursions during takeoff.

**Background:** While landing excursions outnumber takeoff excursions by nearly 4:1, takeoff excursions still occur at an unacceptable rate. Almost 2/3 of takeoff excursions are overruns. Among aircraft fleet types, turboprops are involved in the largest percentage of takeoff excursions, followed closely by jet transports.

**Discussion:** Errors in takeoff performance calculation increase the risk of a takeoff runway excursion. Operators should have procedures in place that provide proper weight-and-balance data, accurate takeoff performance data and methods for error detection.

Takeoff planning must, per Title 14 of the Code of Federal Regulations (14 CFR) part 121 and part 91, occur well prior to departure in order to provide a flightcrew with accurate and timely weight and balance information. This process involves communication and coordination between all parties involved such as: load planners, ground operations, dispatch, flightcrew and customer service personnel. The complexity of this human interface, occurring within a time-critical environment, increases the opportunity for errors to be introduced into the system. Therefore it is important that operators establish procedures that will provide a verification of the final weight and balance and performance calculations that are provided to the flightcrew. In order to assist in capturing errors, additional controls such as “software flags” within computerized portions of this process should be considered. These “software flags” could alert all air carrier personnel involved in the dispatch of aircraft to a possible gross error in data entry. Regardless of computerized error detection capabilities, it is of primary importance that weight-and-balance and takeoff performance numbers be verified by both flightcrew members whether or not the information comes into the cockpit via a piece of paper or electronic transmission (i.e. Aircraft Communications Addressing and Reporting System).

Training should be directed toward risk recognition and mitigation regarding the hazards of incorrect data entry into the Flight Management System, electronic flight bags, or other electronic devices providing takeoff performance calculations. Last-minute changes due to passengers and/or cargo adjustments, changes in weather, assigned runway or runway conditions, or clearances are fertile ground for errors to occur. Operators should develop and train on procedures and systems that address last-minute changes. Incorrect data used to calculate takeoff performance or the lack of the required data could result in an

incident or accident. Using the guidance contained in the *FAA Takeoff Safety Training* website (located in International Civil Aviation Organization's Skybrary Aviation library) with clearly defined SOPs and training for Rejected Take Off (RTO) decisions guards against potential errors.

**Recommended Action:** Personnel responsible for flight operations and safety, ground programs, customer service, pilot training centers and those training or supervising pilots and flightcrews should be familiar with the information contained in this SAFO. These individuals should work together to provide emphasized training within their respective areas that encompass solid procedures and adequate training of those procedures. Operators should also analyze their own safety data for RTO events. Operators are also reminded to conduct a safety risk analysis on any change as part of their Safety Management System process.

**Additional Reference:** For additional information, please see the following:

- AC120-62, Takeoff Safety Training Aid
- AC120-71A, Standard Operating Procedures for Flight Deck Crewmembers
- AC120-74B, Parts 91, 121, 125 and 135 Flightcrew Procedures During Taxi Operations
- SAFO 11004, Runway Incursion Prevention Actions, dated 6/10/11
- AC120-51E, Crew Resource Management Training

**Contact:** Questions or comments regarding this SAFO should be directed to the Part 121 Air Carrier Operations Branch, AFS-220 at (202) 267-8166.