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InFO

Information for Operators

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

An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Identifying Small Amounts of Frost, Snow, Ice or Slush on Aircraft and the Effects on Aircraft Control and Performance

Purpose: To emphasize the significance of unsafe conditions regarding performance and controllability caused by small amounts of contamination on aircraft aerodynamic and control surfaces.

Background: Despite Federal Aviation Administration (FAA) and industry publications cautioning pilots on the adverse affects that small amounts of contamination can have on the aerodynamic performance and control of aircraft, aircraft accidents and fatalities continue to be attributed to this cause. Some pilots and operators still mistakenly believe that aircraft are safe to fly with small amounts of frost or other contaminants adhering to the aerodynamic and/or control surfaces. Additionally some operators and pilots mistakenly believe that contamination that is not on or near the leading edge of the aerodynamic surface (e.g., the upper surface of the wing) is not a factor.

Discussion: Accident investigations, follow-up research, and experience show that miniscule amounts of frost, snow, ice, or slush on the aerodynamic and/or control surfaces of the aircraft can cause significant loss in lift and flight control capability. These very small amounts of contamination disrupt the smooth airflow over the airfoil surface and cause loss of lift or effectiveness of control surfaces. In several fatal accidents this loss of lift and controllability was not apparent until the aircraft climbed out of ground effect; at that time the aircraft began un-commanded roll and/or pitch movements from which the pilot could not recover. Any amount of contamination, no matter how spotty or thin in feel and site, nor its location, must be removed from all aerodynamic and control surfaces prior to flight.

Currently the best way to detect small amounts of contamination is by both visual and tactile (feel) check of the surfaces. One way to detect frost, snow, or ice is to test by scraping a fingernail or a similar implement across the aircraft airfoil surfaces. Consider the airfoil contaminated and remove the contamination prior to flight if any portion of the surface looks or feels any different than it does when it is dry, or when wet on an above freezing day.

When testing, consider that what might appear to be very small spots of contamination well aft of the leading edge of the airfoil surface can magnify separation of the smooth airflow over the airfoil surface. It must be removed prior to flight. Even the feel or appearance similar to ultra fine sandpaper on the airfoil is not acceptable.

Recommended Action: Directors of safety, directors of operations, and aviation instructors should ensure that their pilots and students understand that even small amounts of contamination can adversely affect the aerodynamic and control capability of the aircraft. They should emphasize the best practices for detecting small or thin amounts of contamination on the aircraft they operate. Pilots should become familiar with the appearance and feel of their aircraft's aerodynamic and control surfaces when dry and just wet so they have a reference to use as a baseline when checking for contamination. When conditions favor frost development and/or ground icing, pilots should be alert for small and/or thin amounts of contamination on the aerodynamic and flight control surfaces. Aircraft operating procedures should clearly convey that any and all frost, snow, ice, and slush contamination, no matter how spotty or thin, must be completely removed prior to flight.

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