COMAIR

EMB-120 FLIGHT STANDARDS BULLETIN

DATE: 2 JUL 96 **FILE NO.:** 96-02

SUBJECT: Severe Icing Conditions [per AD 96-09-24]

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.

- Unusually extensive ice accreted on the airframe in areas not normally observed to collect ice.
- Accumulation of ice on the upper surface of the wing aft of the protected area.
- Accumulation of ice on the propeller spinner farther aft than normally observed.

Since the autopilot may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.

In icing conditions, use of flaps is restricted to takeoff, approach, and landing only. When the flaps have been extended for approach or landing, they may not be retracted unless the upper surface of the wing aft of the protected area is clear of ice, or unless flap retraction is essential for go-around.

All icing detection lights must be operative prior to flight into icing conditions at night. [NOTE: The MEL will be revised to reflect this change.]

The Following Weather Conditions May Be Conducive To Severe Inflight Icing -

- Visible rain at temperatures below 0 degrees Celsius ambient air temperature.
- Droplets that splash or splatter on impact at temperatures below 0 degrees Celsius ambient air temperature.

Procedures For Exiting The Severe Icing Environment -

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified above for identifying severe icing conditions are observed, accomplish the following:

- Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
- Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
- Do not engage the autopilot.
- If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- Do not extend flaps during extended operation in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- Report these weather conditions to Air Traffic Control.

Any questions or comments, please call the EMB-120 Program Manager [redacted]

COMAIR

EMB-120 FLIGHT STANDARDS BULLETIN

DATE: 18 OCT 96 **FILE NO.:** 96-04

SUBJECT: Winter Flying Tips

1996-97 Deice Operations

The procedures for aircraft ground deicing for the 1996-97 winter are included in a new revision to the *COMAIR Operations Manual.* Please ensure that you have this revision and become familiar with the changes. The Operations Manual revision also includes new Holdover Timetables. The new tables are to be used immediately, the tables currently shown in the *EMB-120 Flight Standards Manual* should not be used, and will be deleted in Revision 9 when it becomes available.

Autopilot Use

The autopilot may only be used in the IAS mode when climbing in icing conditions. In any other mode the aircraft may be slowed to a stall if the autopilot is trying to maintain a climb or pitch attitude. When in the IAS mode the autopilot will descend if necessary to maintain the desired airspeed (below FL200 minimum desired airspeed is 170 KIAS), thereby not allowing the airspeed to drop to stalling speeds. Please refer to Bulletin No. 96-02 for autopilot restrictions when encountering severe icing conditions.

Aircraft Ground Deicing

Leave the flaps in the 0° position until completion of aircraft ground deicing. This will reduce contamination of the actuators, rollers, and tracks, and thereby reduce flap malfunctions. The taxi checklist should be performed after completion of deicing.

Be sure to close all bleed air sources (engines and APU) prior to the application of deicing fluid. The bleeds may be reopened no less than sixty seconds after deicing. This allows time for all residual fluid in the intakes to be ingested. Also ensure that the propellers are feathered prior to the start of deicing.

Other Precautions

Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.

- If the autopilot is engaged, hold the control wheel firmly when disengaging the autopilot.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.

- Do not extend flaps during extended operation in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.

- If the flaps are extended, do not retract them until the airframe is clear of ice.

- Please refer to Bulletin No. 96-02 for precautions for severe icing conditions.

- All icing detection lights must be operative prior to flight into icing conditions at night. [NOTE: The MEL will be revised to reflect this change.]

- If the APU is to be used after landing in extremely cold conditions (APU is cold soaked), start the APU prior to shutting down either engine, and utilize both fuel pumps for starting.

- Minimum airspeed for holding is now 170 KIAS (will be in FSM Rev. 9).

- When there is any suspected residual airframe icing, use 25° flaps ONLY, and use V_{REF} 25 + 5 KIAS for reference speed.

We will attempt to hangar as many aircraft as possible. If an aircraft is not hangared, please start both engines to warm the engine oil prior to passenger boarding. This will also expose any starting / engine problems encountered prior to passenger boarding. Engines may need to be run for 10-15 minutes to sufficiently warm the oil on extremely cold mornings. Remember that the propellers may no be brought out of feather until the oil is above 0° C. Consider keeping the number two engine running, if ramp agents are available, and the airport does not restrict boarding with an engine running (e.g., STL).

Any questions or comments, please call the EMB-120 Program Manager at [redacted]