

**Date:** February 10, 2015**Expires:** August 10, 2015**Bulletin #:** 15-029**To:** All B787 Pilots**From:** Captain William Cooper, B787 Fleet Technical Mgr.

Ice Crystal Icing Updated Policy

New Electronic Engine Control (EEC) software logic has been installed on the 787 fleet. This software logic detects and accommodates operation in Ice Crystal Icing (ICI) conditions from FL300 to FL375 (inclusive).

When EEC ICI Variable Bleed Valve (VBV) logic is activated, the VBV doors open and then pulse to avoid ICI accretion.

Flight Planning

Dispatch will continue to plan to avoid large areas of ICI risk (convective systems greater than 60 NM wide) by 50 NM laterally and/or include discretionary EXTRA fuel for possible tactical deviations based on High Ice Water Content (HIWC) forecasts depicted on the iPad WSI weather application. Generally, a 50 NM deviation around hazardous weather requires an additional 5 minutes of fuel burn.

Ice Crystal Icing Avoidance Procedures

The ICI avoidance procedures outlined in the 787 Flight Manual, Chap 1 are still in effect.

However, with this updated software logic, a table is provided that will allow operations in IMC between FL300 and FL 375, dependent on aircraft gross weight and speed. Note on the following table, when operating at lighter weights, a higher Mach/thrust must be maintained to ensure sufficient airflow and energy is maintained within the engine for VBV logic activation.

The table will be provided in the aircraft Class 3 EFB Document Library.

For operations between 30,000 and 37,500 feet inclusive, when approaching, or in, instrument meteorological conditions or visible moisture, maintain Mach at or above the values in the following table:

Altitude	Gross Weight - 1000 lbs.											
	Less than 320.0	320.0	340.0	350.0	360.0	370.0	380.0	390.0	400.0	410.0	420.0	More than 420.0
	Minimum Mach											
FL37.5	0.87	0.86	0.85	0.85	0.84	0.83	0.81	0.78	0.73	No Limit	No Limit	No Limit
FL370	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.78	0.74	No Limit	No Limit	No Limit
FL360	0.85	0.85	0.84	0.83	0.83	0.82	0.80	0.78	0.76	0.73	No Limit	No Limit
FL350	0.84	0.84	0.83	0.82	0.82	0.81	0.80	0.79	0.77	0.75	No Limit	No Limit
FL340	0.83	0.82	0.81	0.81	0.81	0.80	0.79	0.78	0.76	0.74	0.72	0.72
FL330	0.81	0.81	0.80	0.80	0.79	0.79	0.78	0.77	0.76	0.74	0.72	0.72
FL320	0.80	0.79	0.79	0.78	0.78	0.77	0.77	0.76	0.75	0.73	0.71	0.71
FL310	0.79	0.78	0.77	0.77	0.77	0.76	0.76	0.75	0.73	0.72	0.70	0.70
FL300	0.79	0.78	0.77	0.77	0.77	0.76	0.76	0.75	0.73	0.72	0.70	0.70

Notes:

- For climb or descent operations between 30,000 and 37,500 feet, there are no minimum Mach values.
- If the current pressure altitude is between pressure altitudes in the table, use the higher Mach.
- If the current gross weight is between gross weights in the table, use the higher Mach.
- Normal variation of airplane speed is allowed.

The current Flight Manual Bulletin and Limitation will be updated on the next Flight Manual revision.

If you have questions contact Captain William Cooper, 787 Fleet Technical Manager, by email at bill.cooper@united.com or by phone at (281) 553-6619.