

## P-180 ICING FLIGHT TESTS RESULTS

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### - Abstract -

The paper describes the icing tests carried out on the Piaggio P.180 aircraft throughout development and certification activity. Preliminary evaluation of the effects of ice on aircraft aerodynamic characteristics has been obtained by wind-tunnel checks where theoretical ice shapes have been tested on models. Tunnel data of stability and performance degradation due to ice have been compared by flight tests with simulated ice shapes. Artificial in-flight icing tests behind Edwards AFB air tanker NKC-135 have been conducted to accomplish aircraft powerplant certifications and develop all anti-ice/deicing systems before natural ice test activity. Natural ice test flights are now in progress and will complete the review of the Piaggio P.180 icing tests.

### - The aircraft -

The Piaggio P.180 AVANTI is a single pilot general aviation business aircraft [fig.1] with a 10810 lbs (4900 kg) MTOW. It is powered by two PT6A-66 Pratt & Whitney of Canada engines, flat rated at 850 shp at standard sea level . Two counter-rotating Hartzell five blades aluminum propellers push the P.180 up to 400 kts top true airspeed. The aircraft maximum operating speed (Vmo) is 260 KIAS up to 28000 ft . From here up to the 41000 ft maximum operating altitude, the mach limitation is 0.67 Mmo. The landing configuration minimum stalling airspeed is 85 kts (at 8500 lbs of weight).