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15. Supplementary Notes (Funding programs, titles of related publications, etc.) <p>Several research reports for testing of de/anti-icing technologies were produced for previous winters on behalf of Transport Canada. These are available from the Transportation Development Centre (TDC). Several reports were produced as part of this winter's research program. Their subject matter is outlined in the preface. This project was co-sponsored by the Federal Aviation Administration.</p>					
16. Abstract <p>The objective of this study was to conduct flat plate and aerodynamic testing to provided a basis for guidance material for operations in mixed conditions with ice pellets. The research activities consisted of small scale testing conducted on flat plates, followed by full-scale testing conducted in the NRC open circuit wind tunnel and with the NRC Falcon 20 aircraft.</p> <p>The lift coefficient data collected in the wind tunnel indicated that the application of anti-icing fluid caused a lift loss when compared to the baseline dry wing aerodynamic properties. In general the application of contamination to the anti-icing fluid did not generate significant additional lift losses; the lift data collected during fluid and contamination tests and fluid only tests was comparable. Testing conducted with the Falcon 20 aircraft confirmed the results obtained in the wind tunnel and demonstrated that the wind tunnel test methodology provided a representative substitute for full-scale aircraft tests.</p> <p>Allowance time guidelines for operations during mixed conditions with ice pellets were generated based on the results obtained in the wind tunnel and with the Falcon 20 aircraft. Restrictions for the guidelines were issued based on residual contamination observed on the airfoil, lift characteristics, and limitations of the data collected regarding rotation speeds, test temperatures and other pertinent parameters. The ice pellet allowance times were issued in the Transport Canada HOT Guidelines for the winter of 2007-08.</p> <p>Further testing is recommended as a result of the observations made during the 2006-07 tests. It is recommended that additional testing be conducted at the NRC wind tunnel and with the NRC Falcon 20 aircraft to refine and possibly expand the current ice pellet allowance times. Testing should investigate conditions such as the effects of lower rotation speeds, improper or degraded fluid application, and flaps and leading edge devices on the fluid flow-off properties.</p>					
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