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15. Supplementary Notes (Funding programs, titles of related publications, etc.) 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. The work described in this report was, in part, co-sponsored by the Federal Aviation Administration (FAA).						
16. Abstract This report documents the general activities completed by APS related to aircraft ground deicing research in the winter of 2008-09. The activities documented in this report were carried out in addition to the main research projects completed in the winter of 2008-09, which are documented in separate reports. The eleven activities included in this report are described below.  <ol style="list-style-type: none"> <li>Survey of Deicing Operations in Freezing Rain and Freezing Drizzle: Additional work was completed in 2008-09 on a survey related to takeoffs in freezing rain and freezing drizzle that APS conducted for TC in the winter of 2007-08. In 2008-09, the survey was administered to flight crews. The results are provided in this report.</li> <li>Effect of Heat on Fluid Endurance Times: APS has conducted various tests over the years comparing fluid endurance times of Type II, III and IV fluids applied heated the same fluids applied at ambient temperature. A review of this research indicated that the current guidance for Type II and IV fluids is appropriate, but changes need to be made for Type III fluids. The recommended changes are provided in this report.</li> <li>Holdover Times of Anti-Icing Fluids Below -25°C: APS conducted additional tests to determine if there is a significant difference in the endurance times of a Type II/IV fluid at -25°C versus at the fluid's lowest operational use temperature (LOUT). It was concluded there is no significant difference in endurance times.</li> <li>Holdover Times in Conditions of Rain Mixed with Snow: APS conducted additional tests to identify whether the current guidelines could be modified to include mixed rain and snow conditions. The research showed light freezing rain holdover times can be used in conditions of light snow mixed with light rain.</li> <li>Effect of Poor Application on Endurance Times: APS conducted several tests to determine if there is a significant difference in the endurance times if fluid film thickness of a Type II/III/IV fluid were to be reduced. It was concluded that if Type II/III/IV fluid is adequately applied, endurance times may be reduced.</li> <li>Effect of Shearing of Anti-Icing Fluids on Endurance Times: APS was required to identify whether thickened anti-icing fluids are being sheared during fluid application in the field to the detriment of published holdover time guidelines. Reduced viscosity fluids can cause a substantial reduction on endurance times.</li> <li>Holdover Times Related to Aircraft Hangar Operations: APS conducted a limited test program that showed it is not safe to start the clock at first exposure to precipitation. It is recommended the clock be started when anti-icing fluid application begins.</li> <li>Support for the Development of Use of Ice Detection Cameras at End-of-Runway: APS assisted on the development of a research/action plan for enabling use of ice detection technology in an end-of-runway application. The 2008-09 work is documented in this report.</li> <li>Support for Use of FAA Visibility Table with Type II/III/IV Fluids: APS completed further analysis of the relationship between snowfall intensity and visibility in the winter of 2008-09 at the request of the FAA. The analysis showed that the FAA visibility table is more accurate than other reference material.</li> <li>Holdover Time Guidelines Website: APS developed and implemented a website for the official Transport Canada 2009-10 holdover time table guidelines.</li> <li>Test Procedures, Presentations and Fluid Manufacturer Reports: An account of the test procedures, presentations and fluid manufacturer reports that were produced for the 2008-09 test program is included in this report.</li> </ol>						
17. Key Words <b>Deicing, Endurance Time, Standards, SAE, Holdover Time, Poor Application, Rain and Snow, Below -25°C, Hangar Operations, Endurance Times, ROGIDS, End-of-Runway, Visibility, Shearing</b>				18. Distribution Statement <b>Limited number of copies available from the Transportation Development Centre</b>		
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