SNOW REMOVAL AND ICE CONTROL

This Aviation Regulation has been issued by virtue of the Finnish Aviation Act (281/95), section 51. It is based on standards and recommendations contained in Annex 14 to the Convention on International Civil Aviation, Volume 1, and on the following publications of the International Civil Aviation Organization (ICAO): Airport Services Manual (Part 2, Chapter 2) and Air Navigation Plan - European Region (Attachment B to Part III).

This regulation shall enter into force on 1 March 2003, replacing the regulation AGA M3-10 issued on 23 January 1997.

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1 GENERAL

1.1 Applicability

1.1.1 This Aviation Regulation shall apply to airports.

1.1.2 This Aviation Regulation shall only apply to the functions of the airport and airport operator. It shall in no way restrict or regulate the operations of aircrews or aircraft operators.

1.1.3 What is said of Air Traffic Control in this regulation, shall also apply to AFIS units, unless otherwise indicated.

1.2 Definitions

1.2.1 Cleared runway width. Width of the runway section cleared for aircraft take-offs and landings, if less than the published runway width. The reported width shall not be more than the distance between any snow banks on the runway, and the condition and friction on the cleared runway width must be reported.

Note. - Some terms used in this Aviation Regulation (including the various types of snow) have been defined in regulations AGA M3-1 and OPS M1-1.

1.3 Exemptions and transitional provisions

1.3.1 The Civil Aviation Authority may, on application and for justified reasons, grant exemptions from the provisions of this Aviation Regulation.

1.3.2 Removed

2 RUNWAY INSPECTION, MEASUREMENT AND REPORTING OF SNOW DEPTH AND FRICTION

2.1 Inspection frequency

2.1.1 The runway shall be inspected and, where necessary, friction shall be measured or assessed, whenever there is reason to believe that the friction coefficient or other runway conditions have changed to the extent that a new NOTAM would have to be issued in accordance with Annex 15 to the Convention on International Civil Aviation (Annex 15, Aeronautical Information Services, Chapter 5, Appendix 2). Airport weather observation shall be organized so that even rapid changes in friction or runway condition can be noticed. During winter season, however, runway inspection and, where necessary, friction measurement or assessment shall be made for any
runway with reference code number 3 or 4 not later than 6 hours, and for all other runways not later than 24 hours after the preceding inspection.

Note 1. - Recommendations for reporting runway conditions are given in International Civil Aviation Organization (ICAO) publication Air Navigation Plan - European Region, (Volume II, Attachment A to Part III).

Note 2. - Frequency of runway inspections during other seasons is discussed in Aviation Regulation AGA M3-9.

2.1.2 When friction and runway conditions have changed so that a new measurement and inspection are needed, the person responsible for friction measurements and runway inspections shall report to the air traffic control that the previously reported information is no longer valid. When it is seen that the situation is only about to change so as to necessitate a new inspection, air traffic control shall be informed of the approaching need for inspection and measurement.

2.1.3 Friction coefficients on taxiways and apron shall be measured and their condition inspected frequently enough, so that taxiway selection and aircraft steering can be based on current information. Taxiway and apron friction measurements and inspections shall be made at least once in every 24 hours.

2.1.4 During runway inspections and, where necessary, at shorter intervals, it shall be verified that all signs, movement area lights (including in-pavement lights and visual approach slope indicators) and other visual ground aids are sufficiently visible to be operable. Accumulation of snow at the critical areas of radio navigation aids and in front of visual approach slope indicators shall be monitored so that any exceedance of allowable limits can be detected and reported.

2.1.5 For monitoring the changing runway conditions, every airport shall have a surface temperature meter or ice warning system with sensor(s) permanently installed on runway surface and a display located in the airport maintenance duty room.

2.1.6 The airport operator shall provide instructions on the frequency and timing of friction measurements and runway inspections in accordance with the above.

2.2 Depth of snow deposits

2.2.1 The type and extent of snow deposits shall be determined in accordance with Annex 15 to the Convention on International Civil Aviation (Annex 15, Chapter 5, Appendix 2). In case the total runway width has not been cleared, snow depth outside the cleared area shall also be assessed. If banks or heaps of snow exist on the runway, on the area between runway edge and runway edge lights, or on taxiways, the location and size of these deposits shall be measured or reliably assessed. In addition, it shall be determined (in accordance with SNOWTAM item J) whether the snow bank or depth of snow layer exceeds the critical snowbank height, which is:

<table>
<thead>
<tr>
<th>Snow Type</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slush</td>
<td>10</td>
</tr>
<tr>
<td>Wet Snow</td>
<td>25</td>
</tr>
<tr>
<td>Dry Snow</td>
<td>100</td>
</tr>
</tbody>
</table>

2.2.2 Removed

2.2.3 If the runway has been reported to have a clearway, and the depth of snow on the clearway exceeds the specified level starting from the clearway front edge and rising in a slope of 1.25%, the clearway shall be reported not available.

2.3 Friction measurement

2.3.1 The friction measurement device shall be of continuous measuring type. Spot-check devices may be used temporarily as a back-up. In addition, spot-check devices may be used as primary friction measuring devices at airports with no turbojet aeroplane operations.

2.3.2 Skiddometer BV-11 and Tapleymeter devices have been approved for use in runway friction measurement. A specific approval of the Civil Aviation Authority is required for use of any other device.

2.3.3 Each airport maintenance shift shall have a nominated person responsible for ensuring that runway inspections and friction measurements are carried out and
their results reported appropriately. The airport manager or a person designated by him shall select and list those members of airport staff who are qualified to perform friction measurements and runway inspections, and friction assessments where necessary. For this purpose, the airport operator shall provide written instructions on familiarization training and required qualifications.

2.3.4 When no friction test devices are available, or the results obtained by the measuring device are unreliable because of an apparent malfunction, or when it can be considered certain that the friction coefficient is 0.50 or better, the friction value may be assessed. The assessor shall give his/her personal assessment based on careful inspection and the assessor's own experience and consideration.

2.3.5 The verbal assessment corresponds to the measured friction coefficients as shown in the table below:

<table>
<thead>
<tr>
<th>Measured or calculated coefficient</th>
<th>Estimated braking action</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.40 and above</td>
<td>Good</td>
<td>5</td>
</tr>
<tr>
<td>0.39 to 0.36</td>
<td>Medium to good</td>
<td>4</td>
</tr>
<tr>
<td>0.35 to 0.30</td>
<td>Medium</td>
<td>3</td>
</tr>
<tr>
<td>0.29 to 0.26</td>
<td>Medium to poor</td>
<td>2</td>
</tr>
<tr>
<td>0.25 and below</td>
<td>Poor</td>
<td>1</td>
</tr>
<tr>
<td>Unreliable</td>
<td>Unreliable</td>
<td>9</td>
</tr>
</tbody>
</table>

2.4 Reporting of test results

2.4.1 Airport maintenance personnel shall be provided with an inspection report form, on which they can record the information required by the SNOWTAM format given in Annex 15 to the Convention on International Civil Aviation (Annex 15, Aeronautical Information Services, Chapter 5, Appendix 2) as well as any necessary information on visual ground aids covered by snow or ice. After having completed the required inspections and measurements, airport maintenance personnel shall transmit the results to relevant Air Traffic Control or Aeronautical Information Services without delay, using radio communications where necessary. All measuring device print-outs, inspection reports and communication documents shall be retained for at least three months.

3 SNOW REMOVAL AND ICE CONTROL

3.1 Objectives

3.1.1 The general objective of snow removal and ice control shall be to get the surfaces clear of snow and ice on that runway width reported to be kept free of snow and slush during the winter season.

However, manoeuvring areas may be partly or wholly covered by ice or compacted snow even for long periods of time, if satisfactory operating conditions can still be ensured.

3.1.2 Airport signs and lighting shall be kept free of snow and ice, as far as practicable, so that they are operable and sufficiently visible.

3.1.3 The maximum height of snow banks adjacent to runways and taxiways, on the outside of edge lights, is shown in Figures 1a and 1b. The snow profile shown in Figure 1a is applicable when the runway is expected to be used by very large aircraft during the winter season. The snow profile in Figure 1b shall be used on all other runways and taxiways. In case these snow profile heights cannot be complied with, the areas where maximum heights are exceeded shall be marked with flags and air traffic shall be informed accordingly.

Note. - If a runway less than 60 m wide is used by a Boeing 747 aircraft, loose snow should be removed from the runway and adjacent areas so that a minimum width of 60 m is achieved.

Where the depth of snow layer in the area between runway end, extended runway edge lines and end of runway strip (including stopway if available) exceeds 20 cm, action shall be taken to lower the snow bank to less than 20 cm when permitted by
other snow removal and ice control measures and by the traffic situation. Within the runway end safety area, where this has been defined, the snow layer must not prevent rescue vehicle movement.

3.1.4 If, due to heavy snowfall or other exceptional circumstances, runway clearing capacity is not sufficient for keeping the whole runway width free of contamination, a narrower area may be cleared for temporary use.

In this case, height of snow banks or depth of snow layer between the cleared area and runway edge lights shall not be more than approximately 0.3 m unless the pilot otherwise accepts or requires.

The airport operator shall give airport maintenance staff instructions on the minimum cleared width of runways in use, and on maximum depths of snow and slush. These instructions shall be based on Flight Manuals of duly selected aircraft and Flight Operations Manuals of operators using the airport.

Note. - If there are large amounts of snow on the runway, turbojet aircraft engines may be severely damaged when using reverse thrust. The risk is particularly high when a four-engined wide-body aeroplane uses reverse thrust in outboard engines or when even a narrow-body aeroplane with low-installed engines drifts away from runway centreline. It should always be remembered that some foreign crews and operators may have limited experience on winter operations.

3.1.5 The airport manager shall nominate a responsible person who has the authority to impose traffic restrictions or require the runway to be closed for maintenance.

3.1.6 The airport operator shall give instructions to airports on snow clearance from critical areas around ground navigational aids and in front of visual approach slope indicators.

3.2 Friction improvement

3.2.1 The airport operator shall provide airport maintenance staff with instructions specifying when improvement of friction characteristics is necessary and how air traffic needs should be considered during these operations.

3.2.2 Friction may be improved by using de-icing chemicals or sand.

3.2.3 Apart from urea, only such chemicals shall be used for friction improvement that have been determined to meet the current applicable SAE Aerospace Material Specification or any equivalent European standard.

3.2.4 If sand is used, grain size must be such that all particles pass a 4 mm sieve. If any oversized particles, stones, solid pieces or foreign objects are found in the material, that load of sand shall not be spread over areas used by turbojet aircraft unless it is sieved again.

3.2.5 When sand is no longer needed, it shall be removed from the pavement.

Figure 1 a. Runways used by very large aircraft (such as B-747, DC-10, MD-11, L-1011)
Figure 1 b. Runways used by other than very large aircraft