



THIRTEENTH AIR NAVIGATION CONFERENCE

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COMMITTEE B

- Agenda Item 7: Operational safety risks**
7.2: Operational safety risks at the global, regional and national levels, and the role of RSOOs and RASGs in achieving the GASP goals

METHODICAL RECOMMENDATIONS FOR AIRPLANE PROTECTION FROM ICING UP ON THE GROUND

(Presented by the Interstate Aviation Committee (IAC))

EXECUTIVE SUMMARY

This paper contains information on the regional approach to the prevention of operational risks related to the ground icing of aircraft in the region of the Member States of the Agreement on Civil Aviation and Use of Airspace and methodical recommendations for rendering assistance to the specialists of CAAs, airlines and airports on the effective organization of aircraft de-/anti-icing.

1. INTRODUCTION

1.1 On 26 December 2012 at the Council on Aviation of the Member States of the Agreement on Civil Aviation and Use of Airspace (hereinafter – the Agreement) a plan for the development of the unified recommendations on the aircraft protection from icing up on the ground within the framework of the ICAO/IAC Regional Project (COSCAP-CIS) RER/01/901 was approved.

1.2 This decision was aimed at the development of recommendations taking into account the specific conditions of the region, in particular:

- a) Vast territory (23 mln km²), including the regions of the Extreme North, Siberia, Far East of the Russian Federation, as well as the mountainous territory of the Republic of Tajikistan, Kyrgyz Republic, Republic of Armenia, Georgia, Republic of Azerbaijan, Republic of Kazakhstan, where the aircraft icing is observed for the considerable period of the year;

¹ English and Russian versions provided by the IAC.

- b) Widespread introduction of the Western-manufactured aircraft, including the aircraft with the thin wing, which are especially critical to the requirements of the “clean wing” concept;
- c) Lack of the possibility to ensure the hangar parking of the aircraft in the majority of the regional airports;
- d) Extremely low temperatures in winter time of the year in a number of the Northern airports, reaching the values -50°-55°C.

1.3 The initiative on the development of such recommendations was supported by the Airbus and ATR aircraft manufacturers, as well as by the leading airlines and airports of the states.

1.4 During the last 5 years several workshops have been held jointly with the aviation industry, including those held in Siberia (Surgut airport, the Russian Federation), where practical approaches and recommendations for the improvement of the aircraft anti-/de-icing process have been worked off on the A-321 and ATR-72 aircraft. The similar workshops, which have been attended by more than 300 specialists, were held in the other airports of the region.

2. INFORMATION ON THE DEVELOPMENT OF THE METHODICAL RECOMMENDATIONS FOR AIRPLANE PROTECTION FROM ICING UP ON THE GROUND

2.1 During the development of the harmonized Methodical Recommendations for airplane protection from icing up on the ground the following documents have been considered and used:

- a) Basic international standards, in the first place SARPs ICAO, DOC 9640-AN/940, SAE
- b) ARP 4737, SAE AMS 1424, SAE AMS 1428, SAE ARP 5149;
- c) “Recommendations for De-Icing / Anti-Icing of Airplanes on the Ground” AEA. “Training Recommendations and Background Information for De-Icing / Anti-Icing of Airplane on the Ground” AEA;
- d) Regulatory documents and recommendations of the national CAAs of the region;
- e) Aircraft De-/Anti-Icing Manuals of the aircraft manufacturers;
- f) Manuals of the de-/anti-icing fluids’ manufacturers;
- g) Specifications for the operation of special equipment used for the de-/anti-icing of aircraft;
- h) Manuals on the interaction of the airline services involved in the aircraft de-/anti-icing procedures.

2.2 The basis of the developed Methodical Recommendations is the “Clean Aircraft Concept”, in compliance with Chapter 2, Doc. 9640 – AN/940 ICAO they also take into account the

experience of aircraft de-/anti-icing works' organization in accordance with the "clean aircraft" concept requirements and the developed materials reflecting local conditions and specific operator requirements.

2.3 The Recommendations clearly differentiate the roles of the:

- a) CAAs;
- b) aircraft operator;
- c) airport;
- d) enterprise, performing the works on aircraft de-/anti-icing,
- e) and determine the responsibility of the personnel of the airport and of the operator.

2.4 Special role is assigned to the personnel training requirements, ground and flight personnel primary training and annual recurrent training programmes, taking into account the estimation of the practical skill in the actual operating conditions.

2.5 Training programmes specially single out the section containing requirements to the training centers' lecturers and instructors qualification level.

2.6 The Methodical Recommendations consider in detail the types of the applied de-/anti-icing fluids and requirements to their transportation, storage, acceptance and delivery procedures, quality control, as well as to the use of the equipment, including different types of deicers.

2.7 Special attention is also given to the deicing and anti-icing procedures with the use of different types of de-/anti-icing fluids.

2.8 Appendices to the developed recommendations include:

- a) Emergency procedures;
- b) US FAA holdover time tables for de-/anti-icing fluids;
- c) Recommended minimal amount of fluid for anti-icing.

2.9 The abovementioned Appendices are being annually revised taking into account the changes in the operating conditions.

2.10 It should be noted that in the process of the development of the requirements a number of problem issues that will require further research, has been revealed. These include:

2.11 The lack at present of the de-/anti-icing fluid capable to effectively ensure reliable aircraft protection at the outside air temperature below -40-45°C.

2.12 The necessity to remove dry snow from the aircraft surfaces with the use of de-/anti-icing fluids in the low temperatures conditions.

3. CONCLUSION

3.1 The Methodical Recommendations on the airplane protection from icing up on the ground, developed within the framework of the ICAO/IAC Regional Project (COSCAP-CIS), have been considered at the CAST-CIS meetings and have been approved by the Interstate Aviation Council.

3.2 In addition to that, the Methodical Recommendations were presented at the RASG-EUR meeting (November 2017, France, Paris), received a high appraisal of the experts of this group, and were also taken for practical implementation by the CAAs of our region.

3.3 The Recommendations were presented to the Aircraft Ground Deicing Committee of SAE International in May 2018, which has taken into consideration the fact of this document development and posted it on its working site (24 May 2018, Texas, USA).

3.4 In connection with the abovementioned we believe that the Methodical Recommendations on the airplane protection from icing up on the ground (in English and in Russian) may be recommended for practical implementation in the states with the climatic conditions analogous to that of the states of our region.

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