



# AEROSPACE RECOMMENDED PRACTICE

**SAE** ARP4737H

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Superseding ARP4737G

## Aircraft Deicing/Anti-icing Methods

### RATIONALE

The purpose of this revision is to include additional recommendations and refine existing recommendations from operational experiences gained and advanced deicing technologies implemented since the previous publication.

### FOREWORD

The purpose of this document is to provide guidelines for the methods and procedures used in performing the maintenance operations and services necessary for proper deicing and anti-icing of aircraft on the ground.

Exposure to weather conditions, on the ground, that are conducive to ice formation, can cause accumulation of frost, snow, slush, or ice on aircraft surfaces and components that can adversely affect aircraft performance, stability, and control and operation of mechanical devices such as control surfaces, sensors, flaps, and landing gear. If frozen deposits are present, other than those considered in the certification process, the airworthiness of the aircraft may be invalid and no attempt should be made to fly the aircraft until it has been restored to the clean configuration.

Regulations governing aircraft operations in icing conditions shall be followed. Specific rules for aircraft are set forth in United States Federal Aviation Regulations (FAR), Joint Aviation Regulations (JAR), Canadian Air Regulations, and others. Paraphrased, these rules relate that **NO ONE SHOULD DISPATCH OR TAKE OFF AN AIRCRAFT WITH FROZEN DEPOSITS ON COMPONENTS OF THE AIRCRAFT THAT ARE CRITICAL TO SAFE FLIGHT.** A critical component is one which could adversely affect the mechanical or aerodynamic function of an aircraft. The intent of these rules is to ensure that no one attempts to dispatch or operate an aircraft with frozen deposits adhering to any aircraft component critical to safe flight.

The ultimate responsibility for the determination that the aircraft is clean and meets airworthiness requirements rests with the pilot in command of the aircraft.

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## 9. PRETAKEOFF CHECK

- 9.1 When freezing precipitation exists, aerodynamic surfaces shall be checked just prior to the aircraft taking the active runway or initiating the takeoff roll, in order to confirm that they are free of ice, slush, snow, and objectionable frost. This is particularly important when severe conditions are experienced. When adhering deposits are in evidence, it will be necessary for the deicing operation to be repeated (see AC 20-117).
- 9.2 If aircraft surfaces cannot adequately be checked from inside the aircraft, it is desirable to provide a means of assisting the flight crew in determining the condition of the aircraft. The check should be conducted as near as practical to the beginning of the departure runway.

## 10. COMMUNICATIONS/PROCEDURES

### 10.1 General

The flight crew shall be provided with information about the deicing/anti-icing process prior to dispatch. Agreements/contracts for deicing/anti-icing should be established to include this information. The information includes:

NOTE: No flight crew communication is required and no holdover time applies if the aircraft is deiced for overnight frost in the absence of further precipitation or self-generating frost.

In a remote deicing/anti-icing operation, a ground deicing/anti-icing crew member shall be designated to maintain a positive communication link with the aircraft flight crew throughout the deicing/anti-icing process.

Communication to the flight crew may be verbal or by means of Electronic Message Boards. In the event of conflict, verbal communication shall take precedence.

- 10.1.1 The results of the final check by qualified personnel, indicating that the aircraft critical areas are free of ice, frost, slush, and snow.
- 10.1.2 The type of final fluid coating applied, the mixture of fluid (percent by volume), and the time of application. This information is intended to be used by flight crews and other personnel in conjunction with Section 11 for operational planning purposes.

### 10.2 Anti-icing Codes

The codes to be used for flight crew information after fluid is applied shall be as follows:

ELEMENTS A, B, C, D This information shall be recorded and be communicated to the flight crew by referring to the last step of the procedure.

10.2.1 The code elements shall be used in the sequence provided below:

- a. Element A: Specify "Type I" for SAE Type I fluid, "Type II" (fluid product name optional if fluid meets product on-wing viscosity requirements) for SAE Type II fluid, "Type III" for SAE Type III fluid, and "Type IV" (fluid product name optional if fluid meets product on-wing viscosity requirements) for SAE Type IV fluid.
- b. Element B: Specify the percentage of fluid within the fluid/water mixture (e.g., 100 = 100% fluid, 0% water and 75 = 75% fluid, 25% water).

NOTE: Report the concentration of Type II, III and IV fluid/water mixtures by volume. Reporting the concentration of Type I fluids is not required.

- c. Element C: Specify in local time (hour and minutes) the beginning of the final deicing/anti-icing step (e.g., 1330).