

Munich Airport Aircraft De-icing Plan

Winter Season 2011/2012



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1 Introduction

This document describes the operational procedures for the de-icing of aircraft during the annual de-icing period. These procedures are intended to provide safe, orderly and efficient de-icing of aircraft and access of aircraft and airline vehicles to the designated de-icing areas (DA). These procedures have been agreed on between operations department of the "Flughafen München GmbH" (FMG), "EFM - Gesellschaft für Enteisen und Flugzeugschleppen am Flughafen München mbH" (EFM) (the company responsible for aircraft de-icing) and "Deutsche Flugsicherung GmbH" (DFS) (responsible for air traffic control, ATC).

The regulations and procedures established in this De-icing Plan do not replace the de-icing procedures published in the German Aeronautical Information Publication (AIP) and Jeppesen Aerodrome Manual for Munich. This plan is intended to be primarily used by all airline operations staff for further information and has been published in order to ensure that all regulations and procedures for de-icing aircraft at Munich Airport are applied.

This plan will be reviewed annually and published every October before the beginning of the new de-icing season.

Any variations must be authorised in writing by FMG Operations and EFM before implementation.

2 De-icing areas for jet-aircraft

At Munich Airport special areas are assigned for de-icing of aircraft. The locations of the de-icing areas are depicted on the München AIP and Jeppesen Aerodrome Charts. At each runway head de-icing areas are assigned for de-icing of jet aircraft and ATR 42/72 with operative propeller braking. All de-icing services with the exception of taxi de-icing, engine, underwing, belly and gear de-icing will be carried out on these areas only.

The de-icing areas are within competence of Air Traffic Control (ATC).

Pilots do not need to notify ATC about requested de-icing. ATC coordinates and assigns de-icing areas with regard to individual start-up of departing flights upon notification of the de-icing coordinator.

EFM "München De-icing" does not assign departing aircraft to de-icing areas and does not have any influence on start-up sequence.

If there is no assignment made before entering the runway-end area, the pilot should ask DFS about a de-icing area.

3 De-icing areas for propeller driven aircraft

With exception of ATR 42/72 with operative propeller braking (see "2 De-icing areas for jet-aircraft") propeller driven aircraft are de-iced on aprons ramp 1, 2, 3, 6, 7, 8, 9, 10 and 11 on their respective parking positions.

4 Aeronautical stations for de-icing

The following frequencies (usage of aircraft's upper VHF antenna is required) are used for the de-icing coordinator and the de-icing areas:

Installation	Call Sign	Frequency
De-icing Coordinator	"München De-Icing Coordinator"	130,600 MHz
RWY 26R / DA 1	"München De-Icing North DA 1"	121,650 MHz
RWY 26R / DA 2	"München De-Icing North DA 2"	121,900 MHz
RWY 26R / DA 3	"München De-Icing North DA 3"	131,450 MHz
RWY 26L / DA 1	"München De-Icing South DA 1"	121,875 MHz
RWY 26L / DA 2	"München De-Icing South DA 2"	121,600 MHz
RWY 26L / DA 3	"München De-Icing South DA 3"	135,225 MHz
RWY 08L / DA 1	"München De-Icing North DA 1"	121,650 MHz
RWY 08L / DA 2	"München De-Icing North DA 2"	121,900 MHz
RWY 08L / DA 3	"München De-Icing North DA 3"	131,450 MHz
RWY 08R / DA 1	"München De-Icing South DA 1"	121,875 MHz
RWY 08R / DA 2	"München De-Icing South DA 2"	121,600 MHz
RWY 08R / DA 3	"München De-Icing South DA 3"	135,225 MHz
Apron	"München De-Icing Apron"	121,750 MHz

5 De-icing notification

If a de-icing treatment is required the de-icing coordinator shall be notified by the cockpit or the responsible operator or handling-agent 15 minutes prior off-block at the latest; engine fan blade and propeller de-icing treatment shall be requested 25 minutes prior to off-block. The notification shall include flight-number, aircraft-type and parts of aircraft (e.g. wing, underwing, gear etc.) to be de-iced. Clear-ice conditions on wing and special checks (e.g. hands on or tactile check) shall be reported to the de-icing coordinator with de-icing notification also. This notification is automatically transferred to ATC to build up the de-icing sequence.

For the de-icing notification telephone (airport phone: 181-6566; external phone: 089/977-6566) or aeronautical station with call sign "München De-icing Coordinator" on frequency 130,600 MHz shall be used. This notification is mandatory and cannot be transmitted via "ATC".

If the de-icing coordinator is not notified of the required de-icing treatment in advance, a delay of this individual departing aircraft may be expected because ATC will put this flight at the end of the de-icing sequence or de-icing areas may not be in operation and equipment not readily available.

For propeller driven aircraft (with exception of ATR 42/72 with operative propeller braking) the time desired for de-icing shall additionally be communicated on notification.

General Aviation aircraft, which cannot be de-iced on de-icing areas, shall transmit their de-icing request to their appropriate handling agent if the handling agent performs de-icing. Otherwise the de-icing coordinator shall be notified.

6 De-icing of jet-aircraft

Short of de-icing area, radio contact shall be established with the de-icing team when advised by ATC via the respective frequency of "München De-icing" (see "4 Aeronautical stations for de-icing"). Taxiing onto de-icing area is not permitted without clearance of the responsible de-icing teamchief. Aircrafts shall taxi abeam the marking "DE-ICING HOLD" on the left side.

When taxiing onto the de-icing area assigned, pilot shall make sure, that the auxiliary power unit (APU) is switched off*), flaps and slats are retracted**) and bleed air system is closed. The de-icing operation will begin after the pilot has confirmed, that parking brake is set and aircraft is ready for de-icing. If a take-off delay is expected, pilot shall notify the de-icing teamchief to halt operation until further notice.

De-icing is performed with aircraft engines running. For ATR 42/72 propeller brake must be operative.

During de-icing the pilot shall maintain constant listening watch on the respective frequency for ATC. After completed de-icing and transmission of the anti-icing code by the de-icing teamchief, pilot shall report ready for taxi to ATC. When informing ATC about completion of de-icing treatment, ATC will try to ensure take-off of the de-iced aircraft within respective hold-over time.

Note:

- *) Pilots may be requested by their responsible ground engineer to switch off engines temporarily for a further physical hands on check. A switch off of the auxiliary power unit (APU) is not required for said way of after-anti-icing check. Permission to restart engines does not need to be obtained from ATC again.
- **) For Airbus A 300/310: slats in take-off position possible.

For communication with the de-icing teamchief on de-icing areas the following phraseology shall be used:

Cockpit:	Teamchief
<p>MUC De-icing, this is <i>Lufthansa 410</i>, request de-icing on <i>DAI</i>.</p> <p><i>Lufthansa 410</i>, taxi onto <i>DAI</i></p> <p><i>Lufthansa 410: negative</i></p> <p><i>Lufthansa 410: negative</i></p> <p><i>Lufthansa 410</i>, confirmed</p>	<p>Good morning (good evening) <i>Lufthansa 410</i>, this is <i>DAI</i>. Taxi onto <i>DAI</i> and stop on my command abeam "de-icing hold" marking on left side.</p> <p><i>Lufthansa 410</i></p> <p>We will use type I. Do you have any additional request for the de-icing?</p> <p>or</p> <p><u>If type IV fluid is used:</u></p> <p><i>Lufthansa 410</i></p> <p>We will use type I for de-icing and type IV 100% for anti-icing. Do you have any additional request for the de-icing?</p> <p><i>Lufthansa 410</i>, confirm parking brake is set and aircraft is prepared for de-icing process.</p> <p><i>Lufthansa 410</i>, de-icing commences. I will call you back when ready.</p>
If second de-/anti-icing with extended flaps is necessary	
<p><i>Lufthansa 410</i>, clear for flaps</p>	<p><i>Lufthansa 410</i>, first treatment is completed</p> <p><i>Lufthansa 410</i>, flaps clear, second treatment commences. I will call you back when ready.</p>
After completion of de-/anti-icing	
<p><i>Lufthansa 410</i>, confirm aircraft de-/anti-iced; anti-icing with type I, 15.10 LT</p> <p><i>Lufthansa 410</i>, confirm aircraft de-/anti-iced; anti-icing with type IV 100%, 15.10 LT</p> <p><i>Lufthansa 410</i>, roger, good bye</p>	<p><i>Lufthansa 410</i>, post de-icing/anti-icing check is completed. If tactile check performed by EFM: Tactile check completed. Aircraft de-iced/anti-iced; Aircraft anti-iced with type I, 15.10 LT</p> <p><u>If type IV fluid was used:</u></p> <p><i>Lufthansa 410</i>, post de-icing/anti-icing check is completed. If tactile check performed by EFM: Tactile check completed. Aircraft de-iced/anti-iced; Aircraft anti-iced with type IV 100%, 15.10 LT</p> <p>Engine run up on de-icing area is not allowed; de-icing area is clear of de-icing vehicles; good bye.</p>
After "local area contamination removal" or treatment of the lower side of the wing and/or horizontal stabilizer	
	<p><i>Lufthansa 410</i>, de-icing only. Aircraft is clean. Holdover times do not apply</p>

7 De-icing of propeller driven aircraft

De-icing of propeller driven aircraft is performed with engines switched off. Such aircraft are de-iced on their respective parking positions on the aprons. Prior to de-icing, the pilot shall verify on ATC-frequency of "München Delivery" 121,725 MHz that there is no departure delay. After completing de-icing, the pilot shall immediately request start-up clearance. When informing ATC about completion of de-icing treatment, the remaining hold-over time shall also be reported.

Note: For aircraft type ATR 42/72 following regulation applies:
These aircraft shall be de-iced with running engines and propeller braking according to the procedure for jet aircraft on de-icing areas at runway heads (see "6 De-icing of jet-aircraft").

For communication with the de-icing teamchief on the aprons the following phraseology shall be used:

Cockpit:	Teamchief
<p><i>Lufthansa 410: negative</i></p> <p><i>Lufthansa 410: negative</i></p> <p><i>Lufthansa 410, confirmed</i></p>	<p>Good morning (good evening) <i>Lufthansa 410</i>, this is De-icing truck <i>E20</i>,</p> <p>I will use type I.</p> <p>Do you have any additional request for treatment?</p> <p>or</p> <p><u>If type IV fluid is used:</u></p> <p>I will use type I for de-icing and type IV 100% for anti-icing.</p> <p>Do you have any additional request for treatment?</p> <p><i>Lufthansa 410</i>, confirm aircraft is prepared for de-icing.</p> <p><i>Lufthansa 410</i>, de-icing commences. I will call you back when ready.</p>

If second de-/anti-icing with extended flaps is necessary

<p><i>Lufthansa 410</i>, clear for flaps</p>	<p><i>Lufthansa 410</i>, first treatment is completed</p> <p><i>Lufthansa 410</i>, flaps clear, second treatment commences. I will call you back when ready.</p>
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After completion of de-/anti-icing

<p><i>Lufthansa 410</i>, confirm aircraft de-/anti-iced; anti-icing with type I, 15.10 LT</p> <p><i>Lufthansa 410</i>, confirm aircraft de-/anti-iced; anti-icing with type IV 100%, 15.10 LT</p> <p><i>Lufthansa 410</i>, roger, good bye</p>	<p><i>Lufthansa 410</i>, post de-icing/anti-icing check is completed. If tactile check performed by EFM: Tactile check completed. Aircraft de-iced/anti-iced; anti-icing with type I, 15.10 LT</p> <p><u>If type IV fluid was used:</u></p> <p><i>Lufthansa 410</i>, post de-icing/anti-icing check is completed. If tactile check performed by EFM: Tactile check completed. Aircraft de-iced/anti-iced; anti-icing with type IV 100%, 15.10 LT</p> <p>Aircraft is clear of de-icing vehicle; good bye .</p>
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After "local area contamination removal" or treatment of the lower side of the wing and/or horizontal stabilizer

	<p><i>Lufthansa 410</i>, de-icing only. Aircraft is clean. Holdover times do not apply</p>
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8 De-icing of general aviation aircraft

De-icing of General Aviation aircraft and helicopters on ramps 10 and 11 is performed with engines switched off. Prior to de-icing, the pilot shall verify on ATC-frequency of "München Delivery" 121,725 MHz that there is no departure delay. After completing de-icing, pilot shall immediately request start-up clearance. When informing ATC about completion of de-icing treatment, the remaining hold-over time shall also be reported.

Note: For General Aviation jet-aircrafts following regulation applies:

These aircraft shall be de-iced with running engines according to the procedure for jet aircraft on de-icing areas at runway heads (see "6 De-icing of jet-aircraft").

9 Special de-icing requirements and icing conditions

- Taxi, underwing, belly and gear de-icing can only be performed on apron parking stand upon request with engines off.
- Engine Nbr. 2 check for three-engine aircraft before engine-start can only be performed on apron parking stand upon request. EFM will only provide cherry picker, the actual check must be performed by carrier's staff or agent.
- De-icing of engine fan blades and propellers can only be performed on apron parking stand. EFM performs de-icing of fan blades with hot air only; contaminations of propellers are removed by the use of heated de-icing fluid or hot air.
- Clear-ice conditions on wings shall be reported to the de-icing coordinator with de-icing notification.
- After anti-icing checks by the carrier itself shall be performed on de-icing area (see "12 Access to de-icing areas").
- With freezing precipitation at OAT below 0 °C only two-step procedure is performed as follows:
 - 1st step ISO type I fluid
 - 2nd step type IV fluid

10 Fluids

De- and anti-icing is performed with heated and pre-mixed ISO/SAE type I fluid (Clariant Safewing MP I 1938 ECO). To prolong the hold-over time as a second step unheated and undiluted SAE type IV fluid (Clariant Safewing MP IV LAUNCH) is used.

11 Environment

De-icing/anti-icing fluid is a chemical product with environmental impact. Any unnecessary spillage must be avoided. An engine run up on the de-icing area after the completion of the de-icing/anti-icing treatment is strictly prohibited.

12 Access to de-icing areas

The de-icing areas DA 1, DA 2, DA 3 for RWY 08L/26R and RWY 26L/08R are within competency of ATC.

In order to perform the after anti-icing-check or flight control check required by the airline, a limited authorized group of airline technical staff is allowed to operate within area of competency of ATC. All personnel having to operate on and in vicinity of de-icing areas DA 1, DA 2, DA 3 during aircraft de-icing operation must hold a permission issued by operations department of FMG (airport phone: 111; external phone: 089/975-111).

Essential precondition for this permission is that all involved personnel have undergone specific training at FMG Staff Training Centre (phone: 089/975-43332). Communication between pilot and airline ground engineer shall be established with official airline VHF frequency or aircraft ground communication.

Vehicles operating on and in vicinity of de-icing areas DA 1, DA 2, DA 3 during aircraft de-icing operation must carry a yellow beacon on top of the vehicle.

FMG

Flughafen München GmbH

Munich Airport

EFM

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