Cold Weather Operations - AIRBUS

AAVA – FLIGHT OPERATIONS MANUAL

COLD WEATHER OPERATIONS

FOR FLIGHT SIMULATION USE ONLY

1.0 GENERAL

This section describes the operational standards for AAVA aircraft during cold weather operations. It includes ground deicing/anti-icing, in-flight icing protection, and contaminated-runway considerations.
Procedures are aligned with Airbus operational philosophy and tailored for simulation realism, safety, and standardization across the AAVA fleet.

Cold weather considerations include:
– OAT or TAT at or below 10°C
– Visible moisture (rain, snow, ice pellets, freezing fog)
– Frost, ice, or snow accumulation
– Operations on contaminated taxiways or runways

All cold-weather operations adhere to the **Clean Aircraft Concept**.

2.0 CLEAN AIRCRAFT CONCEPT

The aircraft **shall not depart** unless all critical surfaces are verified free of frost, ice, snow, or slush.
The **Captain** is responsible for confirming the aircraft is clean and safe for departure.

2.1 CRITICAL SURFACES

The following surfaces must be contamination-free:
– Wing leading edges and upper wing surfaces

– Horizontal stabilizer
– Vertical stabilizer
– Slats, flaps, and fairings
– Ailerons, elevators, and rudder
– Engine inlets, spinner, and fan blades
– Probes, ports, and sensors

2.2 CLEAN AIRCRAFT VERIFICATION

A Clean Aircraft Check is required when:
– Frozen precipitation continues after deicing/anti-icing
– Holdover time (HOT) is nearing expiration
– A delay occurs prior to takeoff
– Fluid effectiveness is uncertain

Verification methods:
– **Flight Deck Check** (within valid HOT)
– **Cabin Check** (HOT expired or heavy snowfall) via overwing windows, referencing the left wing root — the oldest application point

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3.0 GROUND DEICING / ANTI-ICING

3.1 OVERVIEW

Deicing removes contamination.
Anti-icing prevents new accumulation.
Both require clear coordination with Ground Deicing Personnel.

3.2 APPROVED FLUID TYPES

Type I Fluid
– Hot glycol mixture
– Used primarily for **deicing**
– Provides limited holdover time
– Smooth glossy film = effective
– Slush/roughness = fluid failure

Type IV Fluid
– Thickened, long-lasting anti-ice fluid
– Used after Type I for extended HOT
– Shears off naturally during takeoff roll
– No performance penalty for Airbus aircraft

3.3 HOLDOVER TIME (HOT)

HOT begins when the **final** anti-icing application starts.
HOT expires when the fluid can no longer prevent the accumulation of frost, ice, snow, or slush.

Precipitation **anticipated** at the time of application must be considered when determining HOT applicability.

3.4 ENGINE & FLAP CONFIGURATION

– Deicing with engines running requires a safe spray zone and coordination with Ground Personnel.
– Flaps should normally be set to the **planned takeoff configuration** prior to deicing.
– If flaps must remain in a contamination-removal configuration, ensure all contaminants are cleared before returning to a normal takeoff configuration.

CAUTION:
Do not retract flaps/slats if contamination remains in flap tracks or fairings.

4.0 IN-FLIGHT ICING OPERATIONS

4.1 WING ANTI-ICE (WAI)

Airbus WAI may be used in two ways:

Primary Method — Deicer Mode

Activate WAI when ice is visible on:
– Window frames
– Center windshield post
– Wiper arm areas
– Wing surfaces

Advantages:
– Produces cleanest airfoil
– Minimizes runback ice
– Reduces thrust and fuel penalties

Secondary Method — Anti-Icer Mode

Activate WAI **before** ice accumulation only during extended operations in **moderate to severe** icing.

General Notes

– WAI is normally not required below **–40°C SAT**
– At high altitudes, turn WAI **OFF** when no longer needed
– Prolonged icing operations with flaps extended is not recommended

5.0 ENGINE ANTI-ICE (EAI)

Engine anti-ice shall be used when:
– OAT/TAT ≤ 10°C **and** visible moisture is present
– Ice is detected visually or by performance change
– Conditions conducive to icing exist (clouds, precipitation, fog, slush spray)

Indicators of possible engine icing:
– Fan vibration
– N1/N2 fluctuation
– Reduced thrust for given lever position
– Increased EGT

6.0 DESCENT IN ICING CONDITIONS

During descent or holding in **moderate to severe icing**, with thrust below stable parameters:

Every ~15 minutes:
– Increase one engine at a time to **at least the minimum required N1** to shed accumulated ice
– Maintain increased thrust for several seconds

This clears the spinner, fan blades, and inlet areas.

7.0 APPROACH, LANDING & CONTAMINATED RUNWAY OPERATIONS

7.1 FLAP RETRACTION AFTER LANDING (AIRBUS)

If ice accumulation is observed or suspected after landing:
– Do **not** retract directly from **CONF FULL** or **CONF 3** to **UP**
– Maintain at **CONF 1** until surfaces and tracks are confirmed clear of ice

When contamination is removed, the flaps may be retracted from **CONF 1 → UP**.

7.2 REVERSE THRUST USE

On contaminated or slippery runways:
– Apply reverse thrust as needed for a **safe stop**
– Below 60 kt, reduce reversers smoothly when conditions permit

7.3 TAKEOFF FROM CONTAMINATED RUNWAYS

– Use **maximum takeoff thrust**
– Within 5 minutes of takeoff (or combined with takeoff roll), conduct:
– Engine run-up to **at least the minimum N1 stabilization range** for several seconds
– Ensure engine stabilization prior to applying takeoff thrust
– During a rejected takeoff, rudder provides primary directional control to approximately 60 kt

7.4 SAFETY PRIORITY

During landing or a rejected takeoff on contaminated surfaces:
Stopping the aircraft is always the highest priority.

END OF SECTION

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