



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
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5.0 ENGINE ANTI-ICE (EAI)

Engine anti-ice shall be used when:

- OAT/TAT $\leq 10^{\circ}\text{C}$ **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
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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