
ICE AND RAIN PROTECTION SYSTEMS

GENERAL

If ice has formed on the airframe prior to approach, or icing conditions exist, the flight speeds for use on approach are provided in LANDING IN ICING CONDITIONS in this section.

Where planned operation exceeds 5 hours, it is recommended an additional 12 liters of TKS fluid (26 U.S. Pints) container be carried.

BEFORE TAKE-OFF

Prime the airframe ice protection system by setting the WING/TAIL ANTICE time switch to run the pump for two minutes. Check that priming is complete before start of take-off.

If the outside air temperature is 5°C or below and is associated with conditions of high humidity, i.e. mist or fog reducing visibility to approximately 1,000 yards (915 meters), or with a wet runway surface, set ENG ANTICE 1 and 2 and ENG IGNITION 1 and 2 to ON.

NOTE: ENG ANTICE 1 and 2 should be selected ON before setting take-off thrust.

When take-off is made with ENG ANTICE 1 and 2 selected ON, ITT must be monitored during take-off and initial climb. Allowance must be made for the use of ENG ANTICE on performance by reference to the appropriate figures in Sub-sections 4.10 and Section 5.

If necessary, the airframe WING/TAIL ANTICE switch may also be selected ON for take-off.

Switch ENG ANTICE 1 and 2 to OFF and the ENG IGNITION 1 and 2 to OFF when conditions permit.

NOTE: There is a fuel penalty when the engine antice systems are in use.

In icing conditions, the ICE DET switch should normally be set to AUTO but should be set to OVRD before taxi in icing conditions. Whether icing conditions are present or not, both PITOT HEAT switches must be set to ON and it is recommended that SCREEN HEAT for all panels should also be set to ON.

NORMAL PROCEDURES**IN FLIGHT**

Maintain the airframe system in the fully primed condition (see *NOTE: 1* below).

If icing conditions are present or expected, proceed as follows:

ENG IGNITION 1	ON
ENG ANTICE 1	ON
WING/TAIL ANTICE	Select before entering icing and set for 10 minutes. (see <i>NOTES: 1</i> and <i>2</i> below)
Airspeed	Adjust airspeed to 230 KIAS (see <i>NOTE: 3</i> below)
ENG IGNITION 2	ON
ENG ANTICE 2	ON
ENG 1 & 2 A-ICE annunciators	Not on ~ Monitor during flight in icing conditions.

NOTES:

1. The airframe system should be maintained fully primed by selecting it on for 30 seconds at the start of climb, for 2 minutes at the top of descent, and, if icing conditions are expected, preferably for 2 minutes prior to entering icing conditions.
2. If icing conditions still prevail or are expected, a further period of operation should be selected prior to the time switch reaching zero. Termination of the WING/ TAIL ANTICE selection will be given by an audio chime.
3. This is a recommended speed. However, if it is necessary to take advantage of the full range of airspeeds permitted for flight in icing conditions and if other conditions permit, the airspeed may be adjusted to within the limits given in Figure 4.10 - 3.
4. Allowance should be made for the adverse effect of the engine anticing system upon cruise, hold and baulked landing performance (see Section 5).
5. With either of the ENG ANTICE switches selected ON in flight, the windscreen temperature is increased to provide windscreen ice protection. This increase is not provided when the airplane is on the ground.

(*NOTE: 5* does not apply to airplanes that do not have two-level windscreen heating)

DESCENT

When descending into icing conditions, select the airframe ice protection system on 2 minutes before entering icing (approximately 5,000 ft above cloud). With ENG ANTICE selected in flight and thrust lever at idle, a raised N₂ is automatically applied at which adequate intake and engine anti-ice is available.

NOTES:

1. The procedural use of flap 15 ° for descent and holding is not permitted in icing conditions.
2. In icing conditions, ice may accumulate on the unprotected areas between the TKS panels on the leading edge of the wings.

NORMAL PROCEDURES

LEAVING ICING CONDITIONS

ENG ANTICE 1 and 2.....OFF
ENG IGNITION 1 and 2.....OFF
WING/TAIL ANTICE time switch.....Zero

SEVERE ICING CONDITIONS

NOTE: The following weather conditions may be conducive to severe in-flight icing:

1. *Visible rain at temperatures below 0 °C ambient air temperature.*
2. *Droplets that splash or splatter on impact at temperatures below 0 °C ambient air temperature.*

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18°C, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in Section 2 LIMITATIONS of this Flight Manual for identifying severe icing conditions are observed, accomplish the following:

1. Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certified.
2. Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
3. Do not engage the autopilot.
4. If the autopilot is engaged, hold the ram's-horn control column firmly and disengage the autopilot.
5. If an unusual roll response or uncommanded roll control movement is observed, reduce the Angle-Of-Attack.
6. Do not extend flaps during extended operations in icing conditions. Operations with flaps extended can result in a reduced wing Angle-Of-Attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
7. If the flaps are extended, do not retract them until the airframe is clear of ice.
8. Report these weather conditions to Air Traffic Control.

WHEEL BRAKES

GENERAL

The normal wheel brake system incorporates Maxaret anti-skid units which automatically reduce the brake pressure should a wheel tend to skid. Since the Maxaret unit does not operate until the wheel is revolving, the brakes must not be applied before touchdown. It should be noted that the emergency braking system by-passes the anti-skid units and therefore care should be exercised when using this system.

NOTE: *If any of the wheel fusible plugs blow, the brakes must be inspected and certified serviceable before the next take-off.*

The brakes are of adequate capacity to bring the airplane to a stop under all circumstances (including a rejected take-off from V_1) provided that the procedures stated below have been carried out.

COOLING TIMES

After the airplane has made a normal landing or a stop from a rejected take-off, a waiting period should be established to make sure the brakes are both sufficiently cool and in serviceable condition for a further rejected take-off (critical case).