

### **Instrument approach (Non precision approach)**

Use of the GPS to perform an instrument approach is possible, as long as this use is approved by the air navigation local authority for the approach in question.

Instrument approaches performed with the GPS must be executed according to approved approach procedures given in the GPS data base. The data base must be kept up to date and base data accuracy checked with regard to the official documentation, preferably before the flight.

- a) GPS/RNAV instrument approaches must be performed in GPS approach mode and the RAIM must be available at the final approach fix (FAF).
- b) Precision approaches (ILS, LOC, LOC-BC, MLS ...) must not be performed with the GPS.

Instrument approaches can only be performed, as long as used point coordinates are referenced with regard to WGS 84 system or an equivalent system.

### **SEVERE ICING CONDITIONS**

#### **WARNING**

**SEVERE ICING MAY RESULT FROM ENVIRONMENTAL CONDITIONS OUTSIDE OF THOSE FOR WHICH THE AIRCRAFT IS CERTIFICATED. FLIGHT IN FREEZING RAIN, FREEZING DRIZZLE, OR MIXED ICING CONDITIONS (SUPERCOOLED LIQUID WATER AND ICE CRYSTALS) MAY RESULT IN ICE BUILD-UP ON PROTECTED SURFACES EXCEEDING THE CAPABILITY OF THE ICE PROTECTION SYSTEM, OR MAY RESULT IN ICE FORMING AFT OF THE PROTECTED SURFACES. THIS ICE MAY NOT BE SHED USING THE ICE PROTECTION SYSTEMS, AND MAY SERIOUSLY DEGRADE THE PERFORMANCE AND CONTROLLABILITY OF THE AIRCRAFT**

During flight, severe icing conditions that exceed those for which the aircraft is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.

- Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.

- Accumulation of ice on the upper surface of the wing aft of the protected area.

Since the autopilot, when operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the aircraft is in icing conditions.

Refer to the list of "Equipment required depending on type of operation" in this same chapter.

In any case of icing conditions, first refer to particular procedures described in Chapter 4.5 (normal procedures) and in case of unforeseen icing conditions, refer in addition to the emergency procedure described in Chapter 3.13.

### **FLAPS OPERATING ENVELOPE**

The use of flaps is not authorized above 15 000 ft.

### **REVERSE UTILIZATION**

The use of control reverse BETA ( $\beta$ ) range is prohibited during flight.

### **EQUIPMENT REQUIRED DEPENDING ON TYPE OF OPERATION**

The airplane is approved for day & night VFR and day & night IFR operations when appropriate equipment is installed and operating correctly.

The type certification for each use requires the following equipment. The equipment must be installed and operate perfectly according to the indicated type of use.

### **CAUTION**

**IT IS THE PILOT'S RESPONSIBILITY TO CHECK THAT THE FOLLOWING EQUIPMENT LISTS ARE IN ACCORDANCE WITH THE SPECIFIC NATIONAL OPERATION RULES OF THE AIRPLANE REGISTRATION COUNTRY DEPENDING ON THE TYPE OF OPERATION.**

#### **NOTE :**

*Systems and equipment mentioned hereafter do not include specific flight and radio-navigation instruments required by decree concerning operation conditions for civil airplanes in general aviation or other foreign regulations (for example FAR PART 91 and 135).*

## 3.13 - MISCELLANEOUS

**FLIGHT INTO SEVERE ICING CONDITIONS**

Severe icing conditions, particularly freezing rain and freezing drizzle, can be identified by :

- unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice,
- accumulation of ice on the upper surface of the wing aft of the protected area.

Procedures for exiting freezing rain or freezing drizzle conditions :

- 1 - Inform Air Traffic Control to exit severe icing conditions by changing the route or the altitude.
- 2 - Avoid any sudden maneuver on flight controls.
- 3 - Do not engage the autopilot.
- 4 - If the autopilot is engaged, hold the control wheel 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 when holding in icing conditions. Operation 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.

## 4.5 - PARTICULAR PROCEDURES

### REMARK :

*The procedures and procedure elements given in this Chapter "PARTICULAR PROCEDURES" supplement the normal procedures or complete certain elements of the normal procedures described in Chapter(s) 4.3 and/or 4.4.*

### FLIGHT INTO KNOWN ICING CONDITIONS (1/5)

#### General

- 1 - Icing conditions exist when the OAT on the ground or in flight is + 13°C or below, and visible moisture in any form is present (clouds, fog with visibility of one mile (1.6 km) or less, rain, snow, sleet or ice crystals).
- 2 - Icing conditions also exist when the OAT on the ground is + 13°C or below and when operating on ramps, taxiways or runways where surface snow, ice, standing water or slush may be ingested by the engine or freeze on engine or cowlings.

#### NOTE :

*Refer to Figure 5.4.1 to convert OAT to SAT in flight.*

*SAT = OAT - 2°C on the ground.*

- 3 - Flight into known icing conditions is authorized when all airplane equipment provided for ice protection is operating correctly. This includes :
  - Pneumatic deice system for inboard and outboard wing, for stabilizers and for elevator horns.
  - Propeller electrical deice system.
  - Electrical heating system for both pitots and for the stall warning incidence sensor.
  - Windshield electrical deice system.
  - Inertial separator.

Description of deice systems is presented in Chapter 7.13.

Ice accumulation thickness is monitored by the pilot on the L.H. wing leading edge.

At night, a leading edge icing inspection light located on the fuselage L.H. side, activated by the "ICE LIGHT" switch, is provided.

PARTICULAR PROCEDURES

FLIGHT INTO KNOWN ICING CONDITIONS (2/5)

Boots are automatically cycling at the optimum time to assure proper ice removal. Correct operation of the system can be checked observing the corresponding green advisory light illumination at each boot inflation impulse. If correct operation cannot be confirmed, do not enter or leave as soon as possible icing conditions.

Apply "LEADING EDGES DEICING FAILURE" emergency procedure.

Ice protection procedures

1 - Prior to entering IMC, as a preventive :

If 0 °C < OAT <+ 13 °C :

- "PROP DE ICE" switch ..... ON
- "INERT SEP" switch ..... ON

If - 15 °C < OAT < 0 °C :

- All "DE ICE SYSTEM" switches ..... ON
- "IGNITION" switch ..... ON
- "INERT SEP" switch ..... ON

If - 25 °C < OAT < - 15 °C :

- All "DE ICE SYSTEM" switches ..... ON
- "INERT SEP" switch ..... ON

If OAT < - 25 °C :

- "PROP DE ICE" switch ..... ON
- "INERT SEP" switch ..... ON

When OAT is below - 25 °C, avoid operations of the "AIRFRAME DEICE SYSTEM" for a too long period because the boots could be damaged. The "INERT SEP" switch must be left ON while the airplane remains in icing conditions.

PARTICULAR PROCEDURES

**FLIGHT INTO KNOWN ICING CONDITIONS (3/5)**

- 2 – When operating under IMC :
- All "DE ICE SYSTEM" switches ..... **ON**
  - "IGNITION" switch ..... **ON**
  - "INERT SEP" switch ..... **ON**

**CAUTION**

**SHOULD CONDITIONS REQUIRE IT, APPLY THESE DIRECTIVES  
 FROM BEGINNING OF TAXI ONWARDS**

**CAUTION**

**DO NOT OPERATE THE INERTIAL SEPARATOR IF THE AIRSPEED  
 EXCEEDS 200 KIAS. THERE IS NO SPEED LIMITATION WHEN  
 THE INERTIAL SEPARATOR IS IN FIXED POSITION**

If a high speed descent (> 200 KIAS) is anticipated into known icing conditions, position "INERT SEP" switch to ON before accelerating. This will avoid reducing speed below 200 KIAS during descent to set the inertial separator.

**IF AIRPLANE LEAVES ICING CONDITIONS, MAINTAIN "INERT SEP" ON  
 AS LONG AS ICE THICKNESS ON NON-DEICED VISIBLE PARTS  
 EXCEEDS 15 mm (OR ½ INCH)**

This will avoid ice fragments coming from propeller spinner and being ingested by engine.

**INERTIAL SEPARATOR POSITION AFFECTS ENGINE PARAMETERS  
 (PARTICULARLY TRQ AND ITT). CARE MUST BE EXERCISED WHEN  
 OPERATING THE INERTIAL SEPARATOR OR WHEN INCREASING  
 POWER WITH THE INERTIAL SEPARATOR ON, TO AVOID EXCEEDING  
 ENGINE LIMITATIONS**

## PARTICULAR PROCEDURES

### FLIGHT INTO KNOWN ICING CONDITIONS (4/5)

**NOTE :**

*"IGNITION" switch may be left ON for a long period.*

*Standby compass indications are altered when windshield deicing system(s) operate(s).*

3 - Procedures for holding, approach and landing in icing conditions :

- Minimum recommended speeds are :

- . Flaps UP            130 KIAS
- . Flaps TO            110 KIAS
- . Flaps LDG           90 KIAS

- If there is ice on the unprotected surfaces of the airplane, during flight end phase, conduct holding with the flaps up. Use flaps as required for final approach and landing at minimum speeds noted above.

**PARTICULAR PROCEDURES****FLIGHT INTO KNOWN ICING CONDITIONS (5/5)****Ice accumulation effects**

When ice has accumulated on the unprotected surfaces of the airplane, aerodynamic characteristics may be changed.

Particularly stall speeds may increase by up to :

- Flaps UP            20 KIAS
- Flaps TO            15 KIAS
- Flaps LDG        10 KIAS

Correct operation of the aural stall warning may be altered by severe or prolonged icing.

Indeed, in case of severe or prolonged icing, an ice concretion due to refreezing around the heated stall warning may appear. Above-recommended speeds take into account, on one side, the stall speed increase due to profile shape deterioration and, on the other side, the weight increase of the iced-up airplane (taking as a basis the airplane maximum weight when not iced-up).

Rate of climb values with ice accumulation on the unprotected surfaces are to be decreased by 10 %.

Cruise speeds may be decreased by 10 %, if cruise power is not changed, or more, if cruise power setting should be decreased due to the additional inertial separator limitations (ITT limitation).

Because of the higher landing speed, landing distances will be increased. In the landing configuration, using 90 KIAS approach speed increases landing distance by 20 % - refer to Chapter 5.13 "LANDING DISTANCES".

## PARTICULAR PROCEDURES

### FLIGHT INTO SEVERE ICING CONDITIONS (1/2)

**THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCTIVE  
TO SEVERE IN-FLIGHT ICING :**

- Visible rain at temperatures below 0°C ambient air temperature,
- Droplets that splash or splatter on impact at temperatures below 0°C ambient air temperature.

#### **Procedures for exiting the severe icing environment**

**REMARK :**

*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" 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 aircraft has been certificated.
- 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 control wheel firmly and disengage the autopilot.
- 5 - If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.

**PARTICULAR PROCEDURES****FLIGHT INTO SEVERE ICING CONDITIONS (2/2)**

- 6 - Do not extend flaps when holding in icing conditions. Operation 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.